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Phase II Investigation Report for Middle Los Alamos Canyon Aggregate Area

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Responsible project manager:

Printed Name	Signature	Title	Organization	Date
Becky Coel-Roback		Project Manager	Environmental Programs	3/28/11

Responsible LANS representative:

Printed Name	Signature	Title	Organization	Date
Michael J. Graham	B Schappell for MJG	Associate Director	Environmental Programs	3/29/11

Responsible DOE representative:

Printed Name	Signature	Title	Organization	Date
George J. Rael		Manager	DOE-LASO	3-31-2011

EXECUTIVE SUMMARY

This investigation report presents the investigation activities at 40 solid waste management units (SWMUs) and areas of concern (AOCs) in the Middle Los Alamos Canyon Aggregate Area at Los Alamos National Laboratory (LANL or the Laboratory). The SWMUs and AOCs are located in Technical Area 02 (TA-02), TA-21, and TA-26 [one site, SWMU 02-006(a), is physically located in TA-61, adjacent to TA-02, but is designated as part of TA-02].

The objectives of this investigation are to define the nature and extent of contamination and, if defined, to determine whether the sites pose a potential unacceptable risk to human health or the environment. This report presents the results of site characterization activities conducted during the 2010 investigation, as directed by the approved Phase II investigation work plan for the Middle Los Alamos Canyon Aggregate Area.

The 2010 investigation activities included collecting soil, sediment, and rock samples from the surface to a maximum depth of 50 ft below ground surface. Data from samples collected during the 2010 investigation were evaluated along with data collected during previous investigations that meet current Laboratory data-quality requirements.

The sampling data presented in this report indicate the extent of contamination has been defined at 32 sites, all at TA-02. Human health risk-screening assessments were performed for these 32 sites, and an ecological risk-screening assessment was also performed for SWMU 02-006(a). The human health risk-screening assessment results indicate no potential unacceptable risks or doses exist from chemicals of potential concern for the industrial worker, recreational, or residential scenarios at 20 sites (including 1 duplicate). The total excess cancer risks are below or equivalent to the New Mexico Environment Department (NMED) target risk level of 1×10^{-5}, the hazard indexes (HIs) are below or equivalent to the NMED target HI of 1, and the total doses are below the U.S. Department of Energy target dose limit of 15 mrem/yr. In addition, 12 sites (including 2 duplicates) do not pose a potential unacceptable risk or dose under the industrial and recreational scenarios, but pose a potential unacceptable risk or dose under the residential scenario.

The ecological risk-screening assessment for the TA-02 core area was not conducted because extent of contamination is not defined at one site. The ecological risk-screening assessment will be conducted for the sites within the TA-02 core area as one exposure unit because the sites overlap and have a high density within a small area. The ecological risk-screening assessment was conducted for SWMU 02-006(a) because it is located on the mesa top outside of the TA-02 core area. The ecological risk-screening assessment results for SWMU 02-006(a) indicate no potential unacceptable risks exist to any receptor at the site.

The extent of contamination has not been defined at AOC 02-011(a), Consolidated Unit 21-006(e)-99, AOC 21-028(c), and TA-26. Additional soil removal and confirmation sampling is needed at AOC 02-011(a) to define the lateral and vertical extent of polychlorinated biphenyls. Additional sampling is needed to define the extent of contamination for one or more inorganic chemicals, organic chemicals, or radionuclides at Consolidated Unit 21-006(e)-99, AOC 21-028(c), and TA-26. The Laboratory will provide a Phase III investigation work plan to address the additional sampling required to complete characterization at these sites. Once additional data are available and extent is defined, human health and ecological risk-screening assessments will be conducted to determine if the sites pose a potential unacceptable risk to human health and the environment.

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1.0 INTRODUCTION

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

The Laboratory 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 Laboratory's effort is to ensure past operations do not threaten human or environmental health and safety in and around Los Alamos County, New Mexico. To achieve this goal, the Laboratory is currently investigating sites potentially contaminated by past Laboratory operations. These sites are designated as either solid waste management units (SWMUs) or areas of concern (AOCs).

This investigation report addresses SWMUs and AOCs within the Middle Los Alamos Canyon Aggregate Area at the Laboratory (Figure 1.0-1). These sites are potentially contaminated with both hazardous and radioactive components. The New Mexico Environment Department (NMED), pursuant to the New Mexico Hazardous Waste Act, regulates cleanup of hazardous wastes and hazardous constituents. DOE regulates cleanup of radioactive contamination, pursuant to DOE Order 5400.5, Radiation Protection of the Public and the Environment; DOE Order 435.1, Radioactive Waste Management; and DOE Order 458.1, Administrative Change 1, Radiation Protection of the Public and the Environment. Information on radioactive materials and radionuclides, including the results of sampling and analysis of radioactive constituents, is voluntarily provided to NMED in accordance with DOE policy.

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

1.1 General Site Information

The Middle Los Alamos Canyon Aggregate Area, shown on Plate 1, consists of 80 SWMUs and AOCs, 40 of which did not warrant investigation (LANL 2008, 101669.12). The remaining 40 SWMUs and AOCs underwent sampling activities in 2007 and Phase II investigation sampling activities in 2010. These 40 sites are located at Technical Area 02 (TA-02), TA-21, and TA-26 and include 8 SWMUs, 26 AOCs, and 2 consolidated units consisting of 5 SWMUs and 1 AOC. Details of previous investigations, including the results of the 2007 sampling activities, are provided in the Investigation Report for the Middle Los Alamos Canyon Aggregate Area, Revision 1 (LANL 2008, 101669.12). This Phase II investigation report describes the investigation results from sampling activities conducted in 2010 for the 40 sites. Sampling was conducted according to the approved Phase II investigation work plan (the approved work plan) (LANL 2009, 106660.14; NMED 2009, 106703). Table 1.1-1 lists the 40 sites and provides a brief description, associated structure or facility, summary of previous investigations, and investigation activities conducted in 2010 for each site.

1.2 Purpose of Investigation

Forty SWMUs and AOCs within the Middle Los Alamos Canyon Aggregate Area were addressed during the 2010 investigation because these sites are potentially contaminated with hazardous chemicals and/or radionuclides, and final assessments of site contamination and associated risks are incomplete. For each site, the objectives of the 2010 investigation were to (1) establish the nature and extent of contamination, (2) determine whether current site conditions pose a potential unacceptable risk to human health or the environment, and (3) assess whether any additional sampling and/or corrective actions are required.

Sampling was conducted during the 2010 investigation at 39 of the 40 SWMUs and AOCs not previously approved for no further action in accordance with the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703). SWMU 02-008(a) was not sampled in 2010 because data obtained from samples collected from nearby site [AOCs 02-004(b,c,d,e)] will be used to evaluate this site. At TA-02, sampling locations are proposed at key points in the core area (sites of former Laboratory structures and operations) to determine the vertical extent of contamination for inorganic chemicals, organic chemicals, and radionuclides. Analytical suites were determined by the data needs specific to each location as presented in Table 3.1-1 of the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), and were followed closely during the 2010 sampling activities. Additional sampling locations were proposed at points surrounding the core area to define the lateral extent of contamination for TA-02 as a whole.

All analytical data collected during the 2010 investigation activities are presented and evaluated in this Phase II report in conjunction with decision-level data from previous investigations.

1.3 Document Organization

This investigation report is organized as 11 sections, including this introduction, with multiple supporting appendixes. Section 2 provides details of the site conditions (surface and subsurface) of the aggregate area. Section 3 provides an overview of the scope of the activities performed during the implementation of the work plan. Section 4 describes the regulatory criteria used to evaluate potential risk to ecological and human receptors. Section 5 describes the data review methods. Sections 6, 7, and 8 present an overview of the operational history of each site, historical releases, summaries of previous investigations, results of the field activities performed during the 2010 investigation, site contamination, evaluation of the nature and extent of contamination, and summaries of human health and ecological risk-screening assessments for TA-02, TA-21, and TA-26, respectively. Section 9 presents the conclusions of the nature and extent of contamination and risk assessments for each TA. Section 10 discusses recommendations based on applicable data and the risk-screening assessments. Section 11 includes a list of cited references and the map data sources for all figures and plates.

Appendixes include acronyms, a metric conversion table, and definitions of data qualifiers (Appendix A); field methods (Appendix B); borehole logs (Appendix C); investigation-derived waste (IDW) management (Appendix D); analytical program descriptions and summaries of data quality (Appendix E); analytical suites and results and analytical reports (Appendix F); box plots and statistical comparisons (Appendix G); and risk-screening assessments (Appendix H).

2.0 AGGREGATE AREA SITE CONDITIONS

2.1 Surface Conditions

2.1.1 Soil

Soil in the canyon bottoms of the Pajarito Plateau is generally derived from the Otowi or Tshirege Member of the Bandelier Tuff (Nyhan et al. 1978, 005702). The surface layers are generally a pale brown, stony or gravelly sandy loam a few inches thick. The substratum is commonly about 60 in. thick and generally consists of a very pale brown or light gray, gravelly loamy sand or sand. The soil has moderate to very high permeability and low available water capacities. The soil is generally underlain by Quaternary alluvium but may also be underlain by tuff.

The canyon slopes between the mesa tops and canyon floors are mostly steep rock outcrops consisting of approximately 90% bedrock outcrop and patches of shallow, weakly developed colluvial (formed of parent material emplaced by the action of gravity) 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 typically more heavily vegetated (Nyhan et al. 1978, 005702).

Soil on the mesa tops at TA-21 and TA-26 is mainly shallow, well-drained, sandy loam of the Hackroy series (Nyhan et al. 1978, 005702). The depth to bedrock and the effective rooting depth is 8–20 in. (Nyhan et al. 1978, 005702). Intermixed with the Hackroy soil on the mesa tops are small areas of deeper loam of the Nyjack series and patches of bedrock. The Nyjack soil is texturally similar to Hackroy soil and is distinguished by thicknesses of 8–40 in. and by the common presence of pumice fragments in the lower soil. The soil typically is formed on top of bedrock tuff and has relatively high permeability and low available water capacity. The slope below TA-26 is identified as a steep rock outcrop, which may include widely scattered small areas of weakly developed shallow soil. The soil has relatively high permeability and low available water capacity.

2.1.2 Surface Water

Los Alamos Creek, an intermittent stream, flows from west to east through TA-02 in proximity to the sites under investigation. There are no other substantial drainage channels at TA-02, and surface runoff from precipitation or snowmelt most likely occurs as sheet flow that terminates after a short distance at Los Alamos Creek (the maximum distance from the canyon wall to the creek is approximately 200–300 ft). There is no standing surface water at TA-02.

There is no permanent surface water at TA-21 and TA-26. Surface runoff occurs intermittently as a result of precipitation events, primarily summer thunderstorms or snowmelt. The mesa top in the vicinity of TA-26 is relatively narrow and provides limited surface area to collect precipitation in the form of surface runoff. Runoff occurs in the form of sheet flow across the surface, with little or no flow in channels within the area of TA-26.

2.1.3 Land Use

At TA-02, two concrete surface-water flumes (approximately 50 ft and 80 ft long), their associated catch basins (structures 02-0027 and 02-0036), the main paved road, two bridges, and Los Alamos Creek's northern retaining wall adjacent to the former facility are the only remaining surface structures at the site. TA-02 is accessible by a paved road from the west but is protected by a locked gate. An unpaved road extends from the perimeter fence eastward through Los Alamos Canyon and is also protected by a locked gate. The current use of TA-02 is industrial and will remain industrial in the foreseeable future.

Structures at TA-21 have undergone decontamination and decommissioning (D&D). The current use of TA-21 is industrial and will remain industrial in the foreseeable future.

The only existing surface structure at the TA-26 site is a concrete retaining wall near the south edge of the mesa top. The wall is 10 in. thick, set into the ground to an unknown depth, and runs east-west for approximately 50 ft. The mesa-top portion of TA-26 is accessible to the public. The current use of TA-26 is primarily recreational and will remain recreational in the foreseeable future.

2.2 Subsurface Conditions

2.2.1 Stratigraphic Units of the Bandelier Tuff

The Laboratory drilled, cored, and sampled several intermediate and deep boreholes to interpret the subsurface stratigraphy across Los Alamos Canyon. The stratigraphy of the Middle Los Alamos Canyon Aggregate Area is summarized in this section. Additional information on the geologic setting of the area and information on the Pajarito Plateau can be found in the Laboratory's hydrogeologic synthesis report (Collins et al. 2005, 092028). Figure 2.2-1 presents the generalized stratigraphy described below.

The Bandelier Tuff under the Middle Los Alamos Canyon Aggregate Area consists of the Otowi and Tshirege Members, which are stratigraphically separated in many places by the tephras and volcaniclastic sediment of the Cerro Toledo interval (unit Qct). The following sections describe the stratigraphic units beginning with the youngest (topmost) and proceeding to the oldest (deepest).

Unit Qbt 3 is a nonwelded to partially welded tuff that forms 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 unit 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 unit Qbt 3.

Unit 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. It has the greatest degree of welding found within the Tshirege Member. It is typically nonporous and has low permeability relative to the other units of the Tshirege Member.

Unit Qbt 1v forms alternating steep cliffs and slopes composed of porous, nonwelded, crystallized tuff. The base of this unit is a thin, horizontal zone of preferential weathering that marks the abrupt transition from glassy tuff below (in unit Qbt 1g) to the crystallized tuff above. This feature forms a widespread marker horizon locally identified as the vapor-phase notch. The tuffs of unit Qbt 1v are commonly nonwelded and have an open, porous structure.

Unit Qbt 1g consists of porous, nonwelded, and poorly sorted ash-flow tuff. This unit is poorly indurated but 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.

The Otowi Member (Qbo) 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 et al. 1995, 050121; Broxton et al. 1995, 050119; Goff 1995, 049682). The ash matrix consists of glass shards, broken pumice and crystal fragments, and fragments of perlite.

The Qal deposit consists of stratified, lenticular deposits of unconsolidated fluvial sands, gravels, and cobbles. Smaller canyons that have headwaters located on the Pajarito Plateau contain detritus exclusively of Bandelier Tuff. Larger canyon systems that head in the Sierra de los Valles contain Bandelier detritus mixed with dacite detritus derived from the Tschicoma Formation. Active and inactive channels and floodplains form complex, cross-cutting deposits. The fluvial sediment interfingers laterally with colluvium derived from canyon walls.

At TA-02, the rock unit generally exposed at or near the surface is the Otowi Member of the Bandelier Tuff. The Otowi Member is typically overlain by Quaternary alluvium and surface soil. The alluvium consists of boulders and cobbles of reworked tuff and igneous rocks. In some areas, recent alluvial sediment is present in drainage channels. All rock units mentioned above were encountered during sampling in 2010. Surface soil and Qbt 3 were encountered at TA-21 and TA-26.

2.2.2 Hydrogeology

The hydrogeology of the Pajarito Plateau is generally separable in terms of mesas and canyons forming the plateau. Mesas are generally devoid of water, both on the surface and within the rock forming the mesa. Canyons range from wet to relatively dry; the wettest canyons contain continuous streams and contain perennial groundwater in the canyon-bottom alluvium. Dry canyons have only occasional streamflow and may lack alluvial groundwater. Intermediate-perched groundwater has been found at certain locations on the plateau at depths ranging between 100–700 ft. The regional aquifer is found at depths of about 600–1200 ft (Collins et al. 2005, 092028).

The hydrogeologic conceptual site model for the Laboratory (LANL 2010, 109830) shows that, under natural conditions, relatively small volumes of water move beneath mesa tops because of low rainfall, high evaporation, and efficient water use by vegetation. Atmospheric evaporation may extend into mesas, further inhibiting downward flow.

2.2.2.1 Groundwater

In the Los Alamos area, groundwater occurs as (1) water in shallow alluvium in some of the larger canyons, (2) intermediate-perched groundwater (a perched groundwater body lies above a less permeable layer and is separated from the underlying aquifer by an unsaturated zone), and (3) the regional aquifer (Collins et al. 2005, 092028). Numerous wells have been installed at the Laboratory and in the surrounding area to investigate the presence of groundwater in these zones and to monitor groundwater quality.

The Laboratory formulated a comprehensive groundwater protection plan for an enhanced set of characterization and monitoring activities. The Laboratory's annual Interim Facility-Wide Groundwater Monitoring Plan (LANL 2010, 109830) details the implementation of extensive groundwater characterization across the Pajarito Plateau within an area potentially affected by past and present Laboratory operations.

Regional monitoring wells include R-6, R-7, and Test Well 3. Intermediate-depth wells include LAO-0.7, LAOI(a)-1.1, R-6i, LAOI-3.2, and LAOI-3.2a. Alluvial monitoring wells include LAO-0.7, LAO-1, LAUZ-1, LAO-1.8, LAO-1.6g, LAO-3a, and LAO-2. The locations of the existing wells within the vicinity of the Middle Los Alamos Canyon Aggregate Area are shown in Figure 2.2-2.

Alluvial Groundwater

Intermittent and ephemeral streamflow in the canyons of the Pajarito Plateau have deposited alluvium that can be as thick as 100 ft. The alluvium in canyons of the Jemez Mountains is generally composed of sand, gravel, pebbles, cobbles, and boulders derived from the Tschicoma Formation and Bandelier Tuff. The alluvium in canyons of the Pajarito Plateau is finer grained, consisting of clay, silt, sand, and gravel derived from the Bandelier Tuff (Purtymun 1995, 045344).

In contrast to the underlying volcanic tuff and sediment, alluvium is relatively permeable. Ephemeral runoff in some canyons infiltrates the alluvium until downward movement is impeded by the less permeable tuff and sediment, which results in the buildup of a shallow alluvial groundwater body. Depletion by evapotranspiration and movement into the underlying rock limit the horizontal and vertical extent of the alluvial water (Purtymun et al. 1977, 011846). The limited saturated thickness and extent of the alluvial groundwater preclude its use as a viable source of water for municipal and industrial needs. Lateral flow of the alluvial perched groundwater is in an easterly, downcanyon direction (Purtymun et al. 1977, 011846).

Alluvial aquifer wells are located between the Los Alamos Canyon reservoir and the confluence with DP Canyon and have been used to monitor water levels in alluvium in Los Alamos and Pueblo canyons (LANL 2004, 087390) (Figure 2.2-2). The observations reported indicate that groundwater levels generally rise rapidly in response to summer and fall precipitation events. Alluvial groundwater rises immediately and generally correlates well with stream flow at gauging stations, indicating that recharge from the streambed to the alluvial aquifer occurs during precipitation events. In Middle Los Alamos Canyon, the saturated thickness in the alluvium varies seasonally from the winter months to the spring and summer months when recharge is the greatest (LANL 1994, 052951.71).

Intermediate-Perched Groundwater

Observations of perched-intermediate water are rare on the Pajarito Plateau. Perched-intermediate waters are thought to form mainly at horizons where medium properties change dramatically, such as at paleosol horizons containing clay or caliche. It is not known whether perched-intermediate water bodies are isolated or connected and to what degree they may influence travel times and pathways for contaminants in the vadose zone.

Intermediate-perched zones have been identified in the Middle Los Alamos Canyon Aggregate Area between TA-02 and the confluence with DP Canyon. The upper intermediate-perched zone occurs within the Guaje Pumice Bed. The saturated thickness of this zone decreases from west to east, from about 22–5 ft (Broxton et al. 1995, 050119; Longmire et al. 1996, 054168).

A deeper intermediate-perched zone has been identified in the Puye Formation from approximately 253–317 ft below ground surface (bgs) on DP Mesa. This corresponds to a depth of approximately 20–70 ft bgs at TA-02, but it is not clear whether the perched zone extends under the SWMUs and AOCs in this investigation. The infiltration pathways, continuity, and chemical quality of groundwater in these known intermediate-perched zones are not well characterized (Purtymun and Stoker 1988, 006879).

Regional Groundwater

The regional aquifer is the only aquifer capable of large-scale municipal water supply in the Los Alamos area (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 the regional aquifer below the mesa tops range between about

1200 ft along the western margin of the plateau and about 600 ft at the eastern margin. The locations of wells and generalized water-level contours on top of the regional aquifer are described in the annual general facility information report (LANL 2010, 109084). The regional aquifer is typically separated from the alluvial groundwater and intermediate-perched zone groundwater by 350–620 ft of tuff, basalt, and sediment (LANL 1993, 023249).

Groundwater in the regional aquifer flows east-southeast toward the Rio Grande. The velocity of groundwater flow ranges from about 20–250 ft/yr (LANL 1998, 058841, pp. 2-7). Details of depths to the regional aquifer, flow directions and rates, and well locations are presented in various Laboratory documents (Purtymun 1995, 045344; LANL 1997, 055622; LANL 2000, 066802). Figure 2.2-3 shows depths to the top of the regional aquifer across the Laboratory.

2.2.2.2 Vadose Zone

The unsaturated zone from the mesa surface to the top of the regional aquifer is referred to as the vadose zone. The source of moisture for the vadose zone is precipitation, but much of it runs off, evaporates, or is absorbed by plants. The subsurface vertical movement of water is influenced by properties and conditions of the materials that make up the vadose zone.

Although water moves slowly through the unsaturated tuff matrix, it can move rapidly through fractures if saturated conditions exist (Hollis et al. 1997, 063131). Fractures may provide conduits for fluid flow but probably only in discrete, disconnected intervals of the subsurface. Because they are open to the passage of both air and water, fractures can have both wetting and drying effects, depending on the relative abundance of water in the fractures and the tuff matrix.

The Bandelier Tuff is very dry and does not readily transmit moisture. Most of the pore spaces in the tuff are of capillary size and have a strong tendency to hold water against gravity by surface-tension forces. Vegetation is very effective at removing moisture near the surface. During the summer rainy season when rainfall is highest, near-surface moisture content is variable because of higher rates of evaporation and of transpiration by vegetation, which flourishes during this time.

The various units of the Bandelier Tuff tend to have relatively high porosities. Porosity ranges between 30% and 60% by volume, generally decreasing for more highly welded tuff. Permeability varies for each cooling unit of the Bandelier Tuff. The moisture content of native tuff is low, generally less than 5% by volume throughout the profile (Kearl et al. 1986, 015368; Purtymun and Stoker 1990, 007508).

3.0 SCOPE OF ACTIVITIES

This section presents an overview of preliminary activities and the field activities performed during the implementation of the Phase II Middle Los Alamos Canyon Aggregate Area investigation. The field investigation results are presented in detail in sections 6 through 8 and in the appendixes. The scope of activities for the 2010 Phase II investigation included site access and premobilization activities, geodetic surveys, surface and shallow-subsurface sampling, borehole drilling and sampling, soil excavation, health and safety monitoring, and waste management activities.

3.1 Site Access and Premobilization Activities

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

3.2 Field Activities

This section describes the field activities conducted during the 2010 investigation. Additional details regarding the field methods and procedures used to perform these field activities are presented in Appendix B.

3.2.1 Geodetic Survey

Geodetic surveys were conducted during the Middle Los Alamos Canyon Aggregate Area investigation to identify surface and subsurface sampling locations. The proposed sampling locations for the 2010 investigation are described in the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703). An initial geodetic survey was performed to establish and mark the planned locations in the field.

Geodetic surveys were conducted in accordance with Standard Operating Procedure (SOP) 5028, Coordinating and Evaluating Geodetic Surveys, using a Trimble 5700 differential global positioning system (DGPS) unit. Horizontal accuracy of the Trimble 5700 DGPS is within 0.1 ft. During sampling, if the planned location could not be sampled because of surface or subsurface obstruction or other unanticipated field conditions, the relocated sampling location was resurveyed.

The surveyed coordinates for all sampling locations are presented in Table 3.2-1. All coordinates are expressed as State Plane Coordinate System 83, New Mexico Central, U.S feet. All surveyed coordinates for sampling locations were submitted for upload to the Environmental Restoration Database.

3.2.2 Field Screening

Environmental samples were field screened for headspace organic vapors with a MiniRAE 2000 photoionization detector (PID) equipped with an 11.7-electron volt lamp. Calibration was performed in accordance with the manufacturer’s specifications and SOP-06.33, Headspace Vapor Screening with a Photo Ionization Detector, and recorded in the field logbook. After collection, the sample was placed in a sealed plastic bag for approximately 5 min. Screening measurements were recorded on the field sample collection logs (SCLs) and in the field logbook. The SCLs are provided on DVD in Appendix F. The organic vapor-screening results are presented in Table 3.2-2.

All samples collected were field screened for radioactivity before they were submitted to the Sample Management Office (SMO). A Laboratory radiation control technician (RCT) conducted radiological screening using an Eberline E-600 radiation meter with an SHP-380AB alpha/beta scintillation detector held within 1 in. of the sample. All field results for alpha and beta/gamma radioactivity were recorded in disintegrations per minute (dpm) on the field SCL/chain-of-custody (COC) forms. The SCLs and COC forms are provided on DVD in Appendix F. The radiological screening results are presented in Table 3.2-2.

3.2.3 Surface and Shallow-Subsurface Soil Investigation

Samples were collected according to the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703). Table 3.2-1 shows the proposed sampling locations as listed in the work plan, with the corresponding location IDs as assigned.

Surface samples were collected using the spade-and-scoop method in accordance with SOP-06.09, Spade and Scoop Method for Collection of Soil Samples or with a hand auger in accordance with SOP-06.10, Hand Auger and Thin-Wall Tube Sampler. Shallow-subsurface samples were collected using the hand auger method in accordance with SOP-06.10, Hand Auger and Thin-Wall Tube Sampler. Before collecting any other samples and before breaking core material into smaller pieces for containerization, samples were collected for volatile organic compound (VOC) analysis. Samples were collected using stainless-steel shovels or spoons and placed in stainless-steel bowls. Samples were transferred to sterile sample collection jars or bags for transport to the SMO.

Quality assurance (QA)/quality control (QC) samples (field duplicates, field trip blanks, and rinsate blanks) were collected in accordance with SOP-5059, Field Quality Control Samples. Field duplicate samples were collected at a minimum rate of 1 per 10 investigation samples. Rinsate blanks were also collected at a minimum rate of 1 per 10 investigation samples to confirm decontamination of the sampling equipment. When VOC samples were collected, field trip blank samples were collected in conjunction with investigation samples at a minimum rate of 1 per day.

All sample collection activities were coordinated with the SMO. Upon collection, samples remained at all times in the controlled custody of the field team until delivered to the SMO. Sample custody was then relinquished to the SMO for delivery to a preapproved off-site contract analytical laboratory for the analyses specified by the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703).

3.2.4 Subsurface Investigation

3.2.4.1 Borehole Drilling and Subsurface Sampling

At locations where the required sampling depths could not be reached by hand augers, a drill rig with a hollow-stem auger was used to collect subsurface samples. Samples were collected using stainless-steel core barrel samplers in accordance with SOP-06.26, Core Barrel Sampling for Subsurface Earth Materials. Samples were collected at depth intervals based on criteria established in the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703).

For the 2010 investigation, nine boreholes were drilled to depths ranging from 10–50 ft bgs, and samples were collected to characterize the sites. The samples were extracted from the core barrels, placed in stainless-steel bowls, and handled the same way as the surface and shallow-subsurface samples were handled, as described in section 3.2.3. Samples were then submitted to the SMO under COC for laboratory analyses as specified by the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703).

3.2.4.2 Borehole Abandonment

All boreholes were abandoned in accordance with an approved subcontractor procedure technically equivalent to SOP-5034, Monitoring Well and RFI Borehole Abandonment, by filling the boreholes with bentonite chips up to 2–3 ft from the ground surface. The chips were hydrated, and clean soil was placed on top. Pavement was patched as necessary depending on existing site conditions. All cuttings were managed as IDW, as described in Appendix D.

3.2.4.3 Excavation

Excavation was performed at four sites during the 2010 investigation. Excavation was performed as proposed in the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703) to remove contaminated soil and reduce risk to human health. Details about target cleanup levels, preexcavation sampling, excavation, and waste management are provided in Appendix B.

3.2.4.4 Equipment Decontamination

Between collection of each sample and between sampling locations, all field equipment with the potential to contact sample material (e.g., hand augers, sampling scoops, bowls, and core barrel sections) was decontaminated to prevent cross-contamination of samples and locations. Dry decontamination was performed in accordance with SOP-5061, Field Decontamination of Equipment. The dry decontamination methods used are described in Appendix B. Rinsate blanks were used to check the effectiveness of decontamination.

At sites where a drill rig was used, an RCT field screened the drilling equipment for gross-alpha and -beta radioactivity after each borehole was drilled. An RCT also surveyed the drill rig before it was brought on-site and before it was released back to the drilling contractor.

3.2.5 Health and Safety Measures

All 2010 investigation activities were conducted in accordance with a site-specific health and safety plan, an integrated work document, and two radiological work permits that detailed work steps, potential hazards, hazard controls, and required training to conduct work. These health and safety measures included the use of modified level-D personal protective equipment and field monitoring for organic vapors and for gross-alpha and -beta radioactivity using portable air-monitoring systems.

3.2.6 Waste Management

All IDW generated during the Middle Los Alamos Canyon Aggregate Area investigation was managed in accordance with the IDW management plan in the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703) and the approved project waste characterization strategy form (WCSF), which is included in Appendix D (Attachment D-1 on CD). These documents incorporate the requirements of all applicable U.S. Environmental Protection Agency (EPA) and NMED regulations and DOE orders. Characterization and management of IDW was performed in accordance with SOP-5238, Characterization and Management of Environmental Program Waste.

The waste streams associated with the investigation included drill cuttings, contact IDW, excavated media, municipal solid waste, and returned samples.

Each waste stream was containerized and managed in storage areas appropriate to the type of waste. The management of IDW is described in greater detail in Appendix D. All available waste documentation, including WCSFs, WCSF amendments, and waste profile forms are provided in Appendix D (Attachment D-1 on CD).

3.3 Sample Analyses

The SMO shipped all Phase II investigation samples to off-site contract analytical laboratories for the requested analyses. The analyses requested were as specified by the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703). The samples were analyzed for all or a subset of the following analytes: target analyte list (TAL) metals, total cyanide, hexavalent chromium, polychlorinated biphenyls (PCBs), semivolatile organic compounds (SVOCs), total petroleum hydrocarbons–diesel range organics (TPH-DRO), americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium. Because the original investigation report concluded that the collection of additional samples for dioxins/furans was not warranted (LANL 2008, 101669.12, p. 115), Phase II samples were not analyzed for dioxins and furans in accordance with the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703). Samples were analyzed in accordance with the analytical services statement of work for contract laboratories in effect at the time of analysis (LANL 1995, 049738; LANL 2000, 071233; LANL 2008, 109962).

Field duplicates of investigation samples were analyzed for the same analytical suites as the corresponding investigation samples. Equipment rinsate blanks were analyzed for the same inorganic suites as the related investigation samples. Field trip blanks were analyzed only for VOCs.

Analytical methods and summaries of data quality are presented in Appendix E. Analytical results, analytical reports, and SCLs/COCs are included on DVD in Appendix F.

3.4 Deviations

Deviations from the scope of activities defined in the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703) occurred during the implementation of the Middle Los Alamos Canyon Aggregate Area investigation. Specific deviations are described in greater detail in Appendix B, section B-9.0. A brief summary is provided as follows.

- TPH-DRO was added to the analytical suite for all subsequent samples collected at location 02-612435.
- Location 02-612983 was moved 20 ft northwest and supplemented by additional samples collected from location 02-612982 (20 ft northeast).
- Remediation activities for location 02-600449 were not completed because of the unanticipated magnitude of the excavation.
- Remediation could not be performed at location 02-600561, which is on a steep rocky slope inaccessible by mechanized equipment, because of safety concerns and practicability.
- Table B-9.0-1 shows the sampling locations that were moved a significant distance from the proposed location and the reason for the move.

4.0 REGULATORY CRITERIA

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

Human health risk-screening evaluations were conducted for the Middle Los Alamos Canyon Aggregate Area sites using NMED guidance (NMED 2009, 108070). Ecological risk-screening assessments were performed using Laboratory guidance (LANL 2004, 087630).

4.1 Current and Future Land Use

The specific screening levels used in the risk evaluation and corrective action decision process at a site depend on the current and reasonably foreseeable future land use. The current and reasonably foreseeable future land use for a site determines the receptors and exposure scenarios used to select screening and cleanup levels. The land use within and surrounding the Middle Los Alamos Canyon

Aggregate Area is currently industrial and/or recreational and is not expected to change for the reasonably foreseeable future. Middle Los Alamos Canyon is used as a recreational area by the general public. The residential scenario is evaluated according to the Consent Order.

4.2 Screening Levels

Human health risk-screening evaluations were conducted for the solid media at sites within the Middle Los Alamos Canyon Aggregate Area. The human health screening assessments (Appendix H) were performed for inorganic and organic chemicals of potential concern (COPCs) using NMED soil screening levels (SSLs) for the industrial, recreational, and residential scenarios (NMED 2009, 108070). Radionuclides were assessed using Laboratory screening action levels (SALs) (LANL 2009, 107655). When an NMED SSL was not available for a COPC, SSLs were obtained from EPA regional tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm) (adjusted to a risk level of 10^{-5} for carcinogens). Surrogate SSLs were used for some COPCs for which no SSLs were available, based on structural similarity or breakdown products.

4.3 Ecological Screening Levels

The ecological risk-screening assessment (Appendix H) was conducted using ecological screening levels (ESLs) obtained from the ECORISK Database, Release 2.5 (LANL 2010, 110846). The ESLs are based on similar species and are derived from experimentally determined no observed adverse effect levels, lowest observed adverse effect levels (LOAELs), or doses determined lethal to 50% of the test population. Information relevant to the calculation of ESLs, including concentration equations, dose equations, bioconcentration factors, transfer factors, and toxicity reference values, are presented in the ECORISK Database, Release 2.5 (LANL 2010, 110846).

4.4 Cleanup Standards

Screening levels are used as soil cleanup levels unless they are determined to be impracticable in accordance with the Consent Order, section VIII.E, paragraph 2, or if values do not exist for current and reasonably foreseeable future land use. Screening assessments compare COPC concentrations for each site with industrial, recreational, and residential SSLs and SALs.

The cleanup goals specified in section VIII of the Consent Order are a target risk of 10^{-5} for carcinogens or a hazard index (HI) of 1 for noncarcinogens. For radionuclides, the target dose is 15 mrem/yr based on DOE guidance (DOE 2000, 067489). The SSLs and SALs used in the risk-screening assessments in Appendix H are based on these cleanup goals.

5.0 DATA REVIEW METHODOLOGY

The purpose of the data review is to identify COPCs for each SWMU and AOC in the Middle Los Alamos Canyon Aggregate Area where the nature and extent of contamination have been defined.

Extent is determined for inorganic chemicals and radionuclides by spatial analysis of detections above background values (BVs) or fallout values (FVs) and by detection for organic chemicals. For inorganic chemicals and radionuclides, statistical comparisons are performed to determine if concentrations are comparable with background and to aid in defining extent. Across a site, extent is defined for inorganic chemicals and radionuclides whose concentrations decrease with depth and decrease laterally, or are not different from background. In addition, concentrations of certain naturally occurring inorganic chemicals (e.g., nitrate) that do not have an established BV likely reflect naturally occurring concentrations and not a contaminant release.

Extent is defined for organic chemicals whose concentrations decrease with depth and decrease laterally, or are detected at or below the estimated quantitation limit (EQL) for the analytical method and are considered present at “trace” concentrations.

If the nature and extent of inorganic chemicals, organic chemicals, and/or radionuclides have been defined for a site, COPC identification is performed for that site. If nature and extent are not defined for all analytes, COPCs are not identified for that site and further investigation, including Phase III sampling, is recommended.

5.1 Inorganic Chemical and Radionuclide Background Comparisons

Inorganic COPCs are identified by comparing site data with BVs (LANL 1998, 059730) or are based on detection status if no BVs are available. Organic chemicals are identified as COPCs based on detection status. Radionuclides are identified as COPCs based on comparisons to BVs or FVs or are based on detection status if no BVs or FVs are available.

For inorganic chemicals, data are evaluated by sample media to facilitate the comparison with media-specific background data. Background data are generally available for soil, sediment, and tuff (LANL 1998, 059730). However, some analytes (e.g., nitrate, perchlorate, and hexavalent chromium) have no BVs. A BV may be either a calculated value from the background data set (upper tolerance limit or the 95% upper confidence bound on the 95th quantile) or a detection limit (DL). When a BV is based on a DL, there is no corresponding background data set for that analyte/media combination.

To identify inorganic COPCs, the first step is to compare the sample result with the BV, if available. If sample results are above BVs and sufficient data are available (10 or more sample results), statistical tests are used to compare the site sample data with the background data set for the appropriate medium. If statistical tests cannot be performed because of insufficient data (less than 10 samples) or a high percentage of nondetects, the sample results are compared with the BV and the maximum background concentration of the chemical in the appropriate medium. If sample results are above the BV and maximum background concentration, the chemical is identified as a COPC. The same evaluation is performed using sample DLs when a constituent is not detected but has DLs above the BV. If no BV is available, detected inorganic chemicals are identified as COPCs.

Radionuclides are identified as COPCs based on comparisons to BVs for naturally occurring radionuclides or to FVs for fallout radionuclides. Isotopic thorium and isotopic uranium are naturally occurring radionuclides. Americium-241, cesium-137, plutonium-238, plutonium-239/240, strontium-90, and tritium are fallout radionuclides. FVs apply only to surface soil samples (0–1 ft bgs), so fallout radionuclides detected below 1 ft bgs are identified as COPCs. Fallout radionuclides in tuff are also identified as COPCs based on detection status.

Sample media encountered during investigations at Middle Los Alamos Canyon Aggregate Area include soil (all soil horizons, designated by the media code ALLH or SOIL), fill material (media code FILL), quaternary alluvial (media code QAL), alluvial sediment (media code SED), and Bandelier Tuff (media codes QBO, QBT1g, QBT2, QBT3, and QCT). Because no separate BVs are available for fill and Qal material, fill and Qal samples are evaluated by comparison with soil BVs (LANL 1998, 059730). The background data are the same for upper Bandelier Tuff (Qbt 2 and Qbt 3), and background data are the same for lower Bandelier Tuff (Qbt 1g, Qct, and Qbo). Sample results for media with the same background data are discussed together.

5.2 Statistical Methods Overview

A variety of statistical methods may be applied to each of the data sets but generally include distributional comparisons and box plots comparing site data with background data. In cases where no background data are available, fewer than 10 samples were analyzed for a specific constituent, or more than 80% of the site samples and background samples are nondetects, statistical tests are not valid. In such cases, COPC identification is based on detection status, direct comparison with the BV or FV (if one is available), and subsequent comparison with the maximum background concentration if it is greater than the BV or FV. If no BV or FV is available, the constituent is identified as a COPC if it was detected in any sample at the site.

Comparisons between site (SWMU, AOC, or consolidated unit) data sets and the Laboratory background data sets are performed using statistical methods. All comparisons begin with a simple comparison of site-specific data to media-specific BVs or FVs (LANL 1998, 059730). BV/FV comparisons are followed, when appropriate, by statistical tests that evaluate potential differences between the distributions. These tests are used for testing hypotheses about data from two potentially different distributions (e.g., a test of the hypothesis that site concentrations are different from background levels).

Nonparametric tests that are most commonly performed include the two-sample Wilcoxon Rank Sum test (the Wilcoxon test), the Gehan test (modification of the Wilcoxon test), and the quantile test (Gehan 1965, 055611; Gilbert and Simpson 1990, 055612). The Gehan test is best suited for assessing complete shifts in distributions, and accounts for nondetected concentrations at multiple DLs in a statistically robust manner. If the data have no nondetected concentrations, the Gehan test is equivalent to the Wilcoxon test. The quantile test is better suited for assessing shifts of a subset of the data. Most types of differences between distributions can be identified. Occasionally, if the differences between two distributions appear to occur far into the tails, the slippage test might be performed. This test evaluates the potential for some of the site data to be greater than the maximum concentration in the background data set if, in fact, the site data and background data came from the same distribution.

Observed significance levels (p-values) are obtained from the Gehan, quantile, or slippage tests. If a p-value is less than a specified probability (e.g., 0.05, a nominal significance level), then there is some reason to suspect that a difference exists between the distributions. If the p-value is greater than 0.05, no difference is indicated. The standard set of tests is run whenever the detection rate for both the site data set and the Laboratory background data set are greater than 50%. If there are fewer than 50% detections in either set, then the Gehan test is not applicable. If all sample data are nondetects, statistical tests are not performed.

Paired tests are used to test whether site data are different from background. Specifically, the Gehan test (or the Wilcoxon Rank Sum test, if all sample results are detects) is the preferred initial test. If the result of the Gehan test indicates that the site data are not different from background (i.e., $p > 0.05$), the quantile test is performed. Site data must pass (i.e., $p > 0.05$) both tests to eliminate an inorganic chemical as a COPC. If the p-value from either the Gehan (or Wilcoxon) or the quantile test is less than 0.05, the constituent is identified as a COPC for the specific medium tested.

If the Gehan test is not applicable because either the site or background data set includes more than 50% nondetects, the quantile test is performed first. If the p-value from the quantile test is >0.05, the slippage test is performed next. Again, the p-value from both tests must be >0.05 to eliminate an inorganic chemical as a COPC. If the p-value from the first test is <0.05, indicating the site data are different from background, the second test does not need to be performed, and the inorganic chemical is identified as a COPC. Results of statistical tests are presented in Appendix G.

Box plots provide a visual representation of the data and may identify the presence of outliers or other anomalous data that might affect statistical results and interpretations. The plots allow a visual comparison between site and background concentration distributions. The plots are generally used in conjunction with the statistical tests (distributional comparisons) described above. A box plot consists of a box, a line across the box, whiskers (lines extended beyond the box and terminated with a short perpendicular line), and points outside the whiskers. The box area of the plot is the region between the 25th percentile and the 75th percentile of the data, which is the interquartile range or middle half of the data. The horizontal line within the box represents the median (50th percentile) of the data. The whiskers give an interval of 1.5 times the interquartile range, outside of which data may be evaluated for their potential to be outliers. The concentrations of individual samples are plotted as points overlaying the box plot.

When a data set contains both detected and nondetected concentrations reported as DLs, the detected concentrations are plotted as Xs, and the nondetected concentrations are plotted as Os. The medium-specific BV is also illustrated by a dashed line in each box plot. All box plots are presented in Appendix G.

6.0 TA-02 BACKGROUND AND FIELD INVESTIGATION RESULTS

The Middle Los Alamos Canyon Aggregate Area contains 30 sites associated with TA-02 that are addressed in this investigation report (Table 1.1-1). Each site is described separately in sections 6.2 through 6.31, including site description and operational history, relationship to other SWMUs and AOCs, historical and 2010 investigation activities, site contamination results based on qualified data (decision-level data from the current and previous investigations), and summaries of human health and ecological risk-screening assessments. Section 6.32 presents the sampling strategy for the lateral extent at the TA-02 core area, the sampling results, and summaries of human health and ecological risk-screening assessments.

6.1 Background of TA-02

6.1.1 Operational History

TA-02 was used to house a series of research reactors from 1943 to 2003 when D&D of the site occurred. The main reactor building (02-1) was constructed in 1943. It housed five separate nuclear reactors: three iterations of water boiler reactors (WBRs) located on the east side of the building, one plutonium-fueled reactor (the Clementine Reactor) followed by an enriched uranium reactor, and the Omega West Reactor (OWR). A number of facilities were constructed over the years to support the TA-02 research activities. TA-02 was active from 1943 to 1993 (WD-3 2003, 082646, pp. 1–2).

Various remedial actions, such as soil removal and D&D, were conducted in the bottom of Los Alamos Canyon, including at TA-02, after the Cerro Grande fire. These actions were taken to reduce the risk of contaminants dispersing from post-fire floods. Approximately 54 yd^3 of soil contaminated with cesium-137 was removed in 2000, following an extensive field survey for gross-gamma radiation (LANL 2001, 070352). The OWR and associated structures underwent D&D in 2002 and 2003 (WD-3 2003, 082646).

After all structures at TA-02 were removed, field radiological surveys were conducted to confirm that surface contamination release limits were not exceeded (WD-3 2003, 082646, pp. 18–19). The land was returned to its original contour and reseeded (WD-3 2003, 082646, pp. 1–2). The road accessing the reactor site is controlled by the Laboratory via a locked gate.

6.1.2 Summary of Releases

Releases at TA-02 may have occurred from site operations, holding or storage tanks, gaseous effluent lines, waste lines, drainlines, storm drains, outfalls, sumps, a septic system, building footprints, a waste shack, and air emission from a cooling tower. Detailed information on historical releases is provided for each site in the previous investigation report (LANL 2008, 101669.12).

6.1.3 Current Site Usage and Status

TA-02 is accessible by a paved road from the west and is protected by a locked gate. An unpaved road extends from the perimeter fence eastward through Los Alamos Canyon and is also protected by a locked gate where the road ends at NM 4. Although vehicle access is restricted by the locked gates, pedestrians (e.g., joggers, hikers, and bikers) can access the site using the road and trails from the mesa top.

6.2 AOC 02-003(a), Soil Contamination from Stack-Gas Valve House and Gaseous Effluent Line

6.2.1 Site Description and Operational History

AOC 02-003(a) was the site of the stack-gas valve house (structure 02-019) and associated stainless-steel gaseous effluent vent lines (lines 117 and 118) (Figure 6.2-1), as shown on engineering drawing C-1718 (LASL 1947, 089677). This system was associated with the WBR, a homogeneous liquid-fueled reactor fueled by an enriched uranyl-salt compound.

The stack-gas valve house and effluent vent lines system were installed in 1944 and received off-gas from the WBR. The off-gas contained gaseous fission products, including cesium-137, strontium-90, technetium-99, and iodine-131 (LANL 1993, 015314, p. 7.4-1).

The stack-gas valve house was primarily aboveground and was constructed of reinforced concrete, 11 ft × 9 ft × 10 ft high, with 18-in.-thick walls (Elder and Knoell 1986, 006670, p. 4). From 1944 to 1948, gaseous effluent entered the stack-gas valve house from line 117 and was directed via line 118 to the southeast. Line 118 was used as a temporary gas vent until July 1948 when the condensate trap and line 119 [AOC 02-003(b)] became operational. Line 118 was left in place from 1948 to its removal in 1985 (Elder and Knoell 1986, 006670, pp. 8, 29, 43). Line 117 and the stack-gas valve house remained in use until 1974 when they became inactive and were removed and disposed of during D&D efforts in 1985 (Elder and Knoell 1986, 006670, pp. 22-29, p. 43).

6.2.2 Relationship to Other SWMUs and AOCs

The stack-gas valve house and effluent vent lines were connected to the WBR in the reactor building (02-001), AOC 02-004(a). Line 118 extended southeast from the stack-gas valve house to the OWR gaseous effluent vent line, also part of AOC 02-004(a). Line 117 passed from the reactor building to the stack-gas valve house, crossing an area of soil contamination [AOC 02-009(d)].

6.2.3 Summary of Previous Investigations

1985 WBR Decommissioning Project, Phase I

Approximately 230 ft of line 117 was removed between the reactor building (02-001) and the stack-gas valve house (structure 02-019) at a depth of 6–7 ft bgs. Screening-level data from soil samples collected in the line 117 pipe trench indicated no radioactivity existed above predetermined cleanup levels (Elder and Knoell 1986, 006670, p. 26). The stack-gas valve house was removed. Screening-level data from soil samples collected under the floor of the stack-gas valve house indicated no radioactivity existed above predetermined cleanup levels (Elder and Knoell 1986, 006670, p. 22).

Line 118 was removed without excavation. It was pulled from its shallow depth without difficulty (Elder and Knoell 1986, 006670, p. 29). All removed piping material was transported to TA-54 (Elder and Knoell 1986, 006670, p. 16).

1995 Investigation Activities

Samples were collected from locations around the stack-gas valve house. Only one location (02-01042) produced decision-level data.

2000 Post–Cerro Grande Fire Recovery Work

Two boreholes (locations 02-01241 and 02-01242) were drilled and sampled. One borehole was located in the center of the footprint of the stack-gas valve house, and the other borehole was west of the stack-gas valve house location. Field-instrument screening of recovered cores indicated no elevated activity levels (LANL 2001, 070352, p. 8).

2007 Investigation Activities

Twenty-two samples were collected from seven locations at AOC 02-003(a) in 2007. Results from the sampling activities in 2007 were presented in the previous investigation report (LANL 2008, 101669.12). Additional sampling was required to define the extent of contamination at the site.

6.2.4 Site Contamination

6.2.4.1 Soil and Rock Sampling

As part of the 2010 investigation, the following characterization activities were conducted at AOC 02-003(a):

- All samples were field screened for organic vapors and gross-alpha, -beta, and -gamma radioactivity. Field-screening results were recorded on the SCLs (Appendix F) and are presented in Table 3.2-2.
- Five samples were collected from location 02-612348 in the northern portion of AOC 02-003(a) from 5–7 ft, 15–16 ft, 25–26 ft, 35–36 ft, and 49–50 ft bgs. These samples were analyzed for TAL metals, hexavalent chromium, PCBs, SVOCs, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium.
- Five samples were collected from location 02-612389 at the former stack house (structure 02-19) from 5–6 ft, 18–19 ft, 25–27 ft, 35–36 ft, and 49–50 ft bgs. These samples were analyzed for TAL metals, PCBs, SVOCs, americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium.

The 2010 and historical sampling locations at AOC 02-003(a) are shown in Figure 6.2-1. Table 6.2-1 presents the samples collected and analyses requested for AOC 02-003(a). The geodetic coordinates of the 2010 sampling locations are presented in Table 3.2-1.

6.2.4.2 Soil and Rock Sample Field-Screening Results

No organic vapors were detected at more than 10 ppm above ambient air levels during headspace screening of the samples. Radiological-screening results exceeded the daily site background levels at location 02-612389. As a result, respirators were used while collecting samples at this location. Field-screening results are presented in Table 3.2-2. No changes were made to sampling depths because of the field-screening results.

6.2.4.3 Soil and Rock Sample Analytical Results

Decision-level data at AOC 02-003(a) consist of results from 46 samples collected from 12 locations in 1995, 2000, 2007, and 2010. The 46 samples include 16 soil/fill, 14 Qal, 5 Qbt 2, and 11 Qbo samples.

Inorganic Chemicals

A total of 41 samples (16 soil, 14 Qal, and 11 Qbo) were analyzed for TAL metals, 5 samples (2 Qal and 3 Qbo) were analyzed for hexavalent chromium, and 22 samples (7 soil, 10 Qal, and 5 Qbo) were analyzed for nitrate, perchlorate, and total cyanide.

Table 6.2-2 presents the inorganic chemicals detected or detected above BVs. Figure 6.2-2 shows the spatial distribution of inorganic chemicals detected or detected above BVs. The vertical extent is defined at AOC 02-003(a), and the lateral extent is defined at the TA-02 core area; inorganic COPCs are identified below.

Aluminum was detected above the Qbo BV (3560 mg/kg) in five samples with a maximum concentration of 9980 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-1.0.1, Table G-1). Aluminum is identified as a COPC in tuff.

Antimony was not detected but had DLs (0.902 mg/kg to 1.16 mg/kg) above the soil BV (0.83 mg/kg) in four samples, and three of them exceeded the maximum soil background concentration (1 mg/kg). Antimony was not detected but had DLs (0.52 mg/kg to 1.32 mg/kg) above the Qbo BV (0.5 mg/kg) and the maximum Qbo background concentration (0.2 mg/kg) in seven samples. Antimony is identified as a COPC in both soil and tuff.

Arsenic was detected above the Qbo BV (0.56 mg/kg) in four samples with a maximum concentration of 2.74 mg/kg, and it was not detected but had DLs (1.18 mg/kg to 1.9 mg/kg) above the Qbo BV in seven samples. Because the background data set had more than 50% nondetects, the Gehan test could not be performed. The quantile test indicated site concentrations are different from background (Figure G-1.0-2, Table G-1). Arsenic is identified as a COPC in tuff.

Barium was detected above the Qbo BV (25.7 mg/kg) in three samples with a maximum concentration of 55.8 mg/kg. The Gehan and quantile tests indicated site concentrations are not different from background (Figure G-1.0-3, Table G-1). Barium is not identified as a COPC in tuff.

Cadmium was detected above the soil BV (0.4 mg/kg) in four samples with a maximum concentration of 2.23 mg/kg, and it was not detected but had DLs (0.531 mg/kg to 0.584 mg/kg) above the soil BV in six samples. Because the background data set had more than 50% nondetects, the Gehan test could not be performed. The quantile test indicated site concentrations are different from background (Figure G-1.0-4, Table G-1). Cadmium is identified as a COPC in soil. Cadmium was not detected but had DLs (0.594 mg/kg to 0.662 mg/kg) above the Qbo BV (0.4 mg/kg) in 10 samples. Cadmium is identified as a COPC in tuff.

Chromium was detected above the soil BV (19.3 mg/kg) in three samples with a maximum concentration of 123 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-1.0-5, Table G-1). Chromium is identified as a COPC in soil. Chromium was detected above the Qbo BV (2.6 mg/kg) in four samples with a maximum concentration of 94.2 mg/kg, and it was not detected but had DLs (17.8 mg/kg and 30.7 mg/kg) above the Qbo BV in two samples. The Gehan test indicated site concentrations are different from background (Figure G-1.0-6, Table G-1). Chromium is identified as a COPC in tuff.

Copper was detected above the soil BV (14.7 mg/kg) in one sample at a concentration of 77 mg/kg and was detected above the Qbo BV (3.96 mg/kg) in one sample at a concentration of 4.06 mg/kg. The Gehan tests indicated site concentrations are different from both soil background and Qbo background (Figures G-1.0-7 and G-1.0-8, Table G-1). Copper is identified as a COPC in soil and tuff.

Iron was detected above the Qbo BV and the maximum Qbo background concentration (both 3700 mg/kg) in all 11 Qbo samples with a maximum concentration of 6340 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-1.0-9, Table G-1). Iron is identified as a COPC in tuff.

Lead was detected above the soil BV (22.3 mg/kg) in one sample at a concentration of 29 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-1.0-10, Table G-1). Lead is identified as a COPC in soil.

Manganese was detected above the soil BV (671 mg/kg) in one sample at a concentration of 1000 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-1.0-11, Table G-1). Manganese is identified as a COPC in soil. Manganese was detected above the Qbo BV (189 mg/kg) in nine samples with a maximum concentration of 276 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-1.0-12, Table G-1). Manganese is identified as a COPC in tuff.

Mercury was detected above the soil BV and the maximum soil background concentration (both 0.1 mg/kg) in seven samples with a maximum concentration of 1.18 mg/kg. Because the background data set had more than 50% nondetects, the Gehan test could not be performed. The quantile test indicated site concentrations are not different from background, but the slippage test indicated site concentrations are different from background (Figure G-1.0-13, Table G-1). Mercury is identified as a COPC in soil.

Nickel was not detected but had a DL (22.4 mg/kg) above the soil BV (15.4 mg/kg). The Gehan test and the box plot indicated site concentrations are less than background (Figure G-1.0-14, Table G-1). Nickel is not identified as a COPC in soil. Nickel was detected above the Qbo BV (2 mg/kg) in two samples with a maximum concentration of 43.1 mg/kg, and it was not detected but had DLs (4.04 mg/kg and 8.34 mg/kg) above the Qbo BV in two samples. Because the background data set had more than 50% nondetects, the Gehan test could not be performed. The quantile and slippage tests indicated site concentrations are not different from background (Figure G-1.0-15, Table G-1). Nickel is not identified as a COPC in tuff.

Nitrate was detected in eight soil/Qal samples with a maximum concentration of 2.72 mg/kg. No background data are available for nitrate. Nitrate is naturally occurring, and the concentrations detected likely reflect naturally occurring levels. Nitrate is not identified as a COPC in soil.

Perchlorate was detected in six soil/Qal/Qbo samples with a maximum concentration of 0.00565 mg/kg. Because perchlorate has no BV in either soil or tuff, perchlorate is identified as a COPC in soil and tuff.

Selenium was detected above the Qbo BV (0.3 mg/kg) in two samples with a maximum concentration of 7.79 mg/kg, and it was not detected but had DLs (0.68 mg/kg to 1.84 mg/kg) above the Qbo BV in nine samples. The site concentrations are substantially above background. Selenium is identified as a COPC in tuff.

Vanadium was detected above the Qbo BV (4.59 mg/kg) in three samples with a maximum concentration of 6.46 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-1.0-16, Table G-1). Vanadium is identified as a COPC in tuff.

Zinc was detected above the soil BV (48.8 mg/kg) in seven samples with a maximum concentration of 170 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-1.0-17, Table G-1). Zinc is identified as a COPC in soil.

In summary, the inorganic COPCs identified at AOC 02-003(a) are aluminum, antimony, arsenic, cadmium, chromium, copper, iron, lead, manganese, mercury, perchlorate, selenium, vanadium, and zinc.

Organic Chemicals

A total of 31 samples (6 soil, 14 Qal, and 11 Qbo) were analyzed for PCBs and SVOCs, and 15 samples (10 Qal and 5 Qbo) were analyzed for VOCs.

Table 6.2-3 presents the detected organic chemicals. Figure 6.2-3 shows the spatial distribution of detected organic chemicals. The vertical extent is defined at AOC 02-003(a), and the lateral extent is defined at the TA-02 core area; organic COPCs are identified below.

Organic chemicals detected at AOC 02-003(a) include acenaphthene; anthracene; Aroclor-1254; Aroclor-1260; benzo(a)anthracene; benzo(a)pyrene; benzo(b)fluoranthene; benzo(g,h,i)perylene; benzo(k)fluoranthene; bis(2-ethylhexyl)phthalate; chrysene; 1,4-dichlorobenzene; fluoranthene; indeno(1,2,3-cd)pyrene; methylene chloride; naphthalene; phenanthrene; pyrene; and toluene.

These organic chemicals are retained as COPCs at AOC 02-003(a).

Radionuclides

A total of 27 samples (7 soil, 12 Qal, and 8 Qbo) were analyzed for americium-241; 45 samples (16 soil, 14 Qal, 4 Qbt 2, and 11 Qbo) were analyzed for gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium; and 1 Qbt 2 sample was analyzed for technetium-99.

Table 6.2-4 presents the radionuclides detected or detected above BVs/FVs. Figure 6.2-4 shows the spatial distribution of radionuclides detected or detected above BVs/FVs. The vertical extent is defined at AOC 02-003(a), and the lateral extent is defined at the TA-02 core area; radionuclide COPCs are identified below.

Americium-241 was not detected or not detected above the FV and is therefore not a COPC at AOC 02-003(a).

Cesium-137 was detected above the soil FV (1.65 pCi/g) and detected in subsurface soil (below 0–1 ft) in 16 samples with a maximum activity of 274 pCi/g. Cesium-137 is identified as a COPC in soil.

Plutonium-239/240 was detected above the soil FV (0.054 pCi/g) and detected in subsurface soil (below 0–1 ft) in 11 samples with a maximum activity of 3.34 pCi/g. Plutonium-239/240 is identified as a COPC in soil.

Strontium-90 was detected above the soil FV (1.31 pCi/g) and detected in subsurface soil (below 0–1 ft) in nine samples with a maximum activity of 3.34 pCi/g. Strontium-90 is identified as a COPC in soil.

Tritium was detected in 13 soil/tuff samples with a maximum activity of 0.107 pCi/g. Tritium is identified by detection status and is a COPC in both soil and tuff.

Uranium-235/236 was detected above the Qbo BV (0.18 pCi/g) in one sample at an activity of 0.194 pCi/g. Uranium-235/236 is identified as a COPC in tuff.

In summary, the radionuclide COPCs identified at AOC 02-003(a) are cesium-137, plutonium-239/240, strontium-90, tritium, and uranium-235/236.

6.2.4.4 Nature and Extent of Contamination at AOC 02-003(a)

In accordance with the approved work plan, two locations were sampled at AOC 02-003(a) to determine the vertical extent of contamination for inorganic chemicals, organic chemicals, and radionuclides (Table 3.2-1). Analytical suites were determined by the data needs specific to each location as presented in Table 3.1-1 of the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703). The vertical extent of contamination at AOC 02-003(a) is evaluated using only the Phase II data from samples collected as deep as 50 ft bgs.

Inorganic Chemicals

Five samples were collected from location 02-612348 (depths ranging from 5–50 ft bgs) to evaluate vertical extent of hexavalent chromium and TAL metals (Table 3.2-1). Five samples were collected from location 02-612389 (depths ranging from 5–50 ft bgs) to evaluate vertical extent of TAL metals (Table 3.2-1). As stated in the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), the extent of perchlorate was defined following the 2007 investigation, and no Phase II samples were analyzed for perchlorate.

Aluminum, copper, lead, mercury, selenium, and zinc were not detected above BVs at locations 02-612348 and 02-612389. The vertical extent of these metals is defined.

Antimony was not detected but had DLs (0.902 mg/kg to 1.17 mg/kg) above the soil BV (0.83 mg/kg) in four samples and had DLs (1.19 mg/kg to 1.32 mg/kg) above the Qbo BV (0.5 mg/kg) in six samples. Because antimony was not detected above BVs, the vertical extent of antimony is defined.

Arsenic was not detected above the Qbo BV (0.56 mg/kg) but had DLs (1.18 mg/kg to 1.28 mg/kg) above the Qbo BV in six samples. Because arsenic was not detected above BVs, the vertical extent of arsenic is defined.

Cadmium was not detected but had DLs (0.579 mg/kg and 0.584 mg/kg) above the soil BV (0.4 mg/kg) in two samples and had DLs (0.594 mg/kg to 0.662 mg/kg) above the Qbo BV (0.4 mg/kg) in five samples. Because cadmium was not detected above BVs, the vertical extent of cadmium is defined.

Chromium was detected above the Qbo BV (2.6 mg/kg) in one sample at a concentration of 3.66 mg/kg at location 02-612348 from 35–36 ft bgs. Chromium concentrations decreased with depth at this location. The vertical extent of chromium is defined.

Iron was detected above the Qbo BV (3700 mg/kg) in six samples at locations 02-612348 and 02-612389. The highest concentration of 5750 mg/kg was detected at location 02-612389 from 49–50 ft bgs. Iron was detected at a concentration of 7520 mg/kg (below the soil BV of 21,500 mg/kg) at location 02-612348 from 5–7 ft bgs and was detected at a concentration of 9830 mg/kg (below the soil BV of 21,500 mg/kg) at location 02-612389 from 18–19 ft bgs. Iron concentrations decreased with depth at both locations. The vertical extent of iron is defined.

Manganese was detected above the Qbo BV (189 mg/kg) in five samples at locations 02-612348 and 02-612389. The highest concentration of 243 mg/kg was detected at location 02-612389 from 49–50 ft bgs. Manganese concentrations at both locations are below or similar to the maximum Qbo background concentration (210 mg/kg). The vertical extent of manganese is defined.

Vanadium was detected above the Qbo BV (4.59 mg/kg) in one sample at a concentration of 4.6 mg/kg at location 02-612389 from 49–50 ft bgs. This concentration is equivalent to the BV. The vertical extent of vanadium is defined.

Organic Chemicals

Ten samples were collected from locations 02-612348 and 02-612389 (depths ranging from 5–50 ft bgs) to evaluate vertical extent of PCBs and SVOCs (Table 3.2-1). As stated in the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), the extent of VOCs was defined following the 2007 investigation, and no Phase II samples were analyzed for VOCs.

Aroclor-1254 was detected in two samples at locations 02-612348 and 02-612389. The highest concentration of 0.298 mg/kg was detected at location 02-612389 from 5–6 ft bgs. Aroclor-1254 concentrations decreased with depth at both locations. The vertical extent of Aroclor-1254 is defined.

Aroclor-1260 was detected in three samples at locations 02-612348 and 02-612389. The highest concentration of 0.0326 mg/kg was detected at location 02-612389 from 5–6 ft bgs. Aroclor-1260 concentrations decreased with depth at both locations. The vertical extent of Aroclor-1260 is defined.

SVOCs were not detected at locations 02-612348 and 02-612389. The vertical extent of SVOCs is defined.

Radionuclides

Five samples were collected from location 02-612348 (depths ranging from 5–50 ft bgs) to evaluate vertical extent of gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium (Table 3.2-1). Five samples were collected from location 02-612389 (depths ranging from 5–50 ft bgs) to evaluate vertical extent of americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium (Table 3.2-1).

Americium-241 was not detected at location 02-612389 and is not a COPC for AOC 02-003(a).

Cesium-137 was detected in one sample at an activity of 274 pCi/g at location 02-612389 from 5–6 ft bgs. Cesium-137 activities decreased with depth at this location. The vertical extent of cesium-137 is defined.

Plutonium-239/240 was detected in one sample at an activity of 0.644 pCi/g at location 02-612389 from 5–6 ft bgs. Plutonium-239/240 activities decreased with depth at this location. The vertical extent of plutonium-239/240 is defined.

Strontium-90 was detected in one sample at an activity of 32.8 pCi/g at location 02-612389 from 5–6 ft bgs. Strontium-90 activities decreased with depth at this location. The vertical extent of strontium-90 is defined.

Tritium was detected in two samples at locations 02-612348 and 02-612389. Tritium activities decreased with depth at location 02-612389. The highest activity of 0.0526 pCi/g was detected from 49–50 ft bgs at location 02-612348. This activity is significantly lower than those detected from 5–25 ft bgs throughout TA-02 and is three orders of magnitude below the residential SAL (750 pCi/g). For TA-02 as a whole, maximum tritium activities in soil (up to 167 pCi/g) generally occur between 5 ft and 25 ft bgs. Therefore, tritium activities generally decrease with depth at TA-02.

The depth interval of 49–50 ft bgs is below the alluvial aquifer but above the perched-intermediate groundwater zone. Alluvial and perched-intermediate groundwater in Los Alamos Canyon is monitored by wells LAO-1 and LAOI-1, respectively, which are located approximately 1000 ft downgradient of location 02-612393, near the eastern boundary of TA-02. Over the past 10 yr, tritium has been detected at activities as high as 399 pCi/L in the alluvial groundwater downgradient of TA-02, but activities have been declining over the past several years. In the most recent sample from well LAO-1 (2009), tritium was detected at 47.3 pCi/L. In 2011, tritium was detected at 11.3 pCi/L in well LAOI(a)-1.1. Because subsurface conditions are being monitored by the alluvial and intermediate wells downgradient of TA-02, deeper sampling at location 02-612389 to establish the vertical extent of tritium contamination is not necessary.

Uranium-235/236 was detected above the Qbo BV (0.18 pCi/g) in one sample at an activity of 0.194 pCi/g at location 02-612389 from 49–50 ft bgs. This activity is only slightly above the BV and likely reflects natural variability. The vertical extent of uranium-235/236 is defined.

Summary of Nature and Extent at AOC 02-003(a)

The vertical extent of TAL metals, PCBs, SVOCs, cesium-137, isotopic plutonium, isotopic uranium, strontium-90, and tritium is defined.

6.2.5 Summary of Human Health Risk Screening

Details of the human health risk-screening assessment for AOC 02-003(a) are discussed in Appendix H, section H-4.

The total excess cancer risk for the industrial scenario is 3×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.004, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 2 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 2×10^{-7}, based on a comparison with EPA's outdoor worker preliminary remediation goals (PRGs) for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

The total excess cancer risk for the recreational scenario is 2×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.04, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 0.3 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose for the recreational scenario is equivalent to a total risk of 1×10^{-6}, based on conversion from dose using the residual radioactive (RESRAD) model, Version 6.5.

The total excess cancer risk for the residential scenario is 8×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.5, which is below the NMED target HI of 1 (NMED

2009, 108070). The total dose is 184 mrem/yr, which is above the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 4×10^{-5}, based on a comparison with EPA's residential PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Based on the screening-assessment results, no potential unacceptable risks or doses exist for the industrial and recreational scenarios. Based on the screening-assessment results, no potential unacceptable risks exist for the residential scenario, but a potential unacceptable dose exists for the residential scenario.

6.2.6 Summary of Ecological Risk Screening

In accordance with the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), locations surrounding the core area of TA-02 were sampled to define the lateral extent of contamination for TA-02 as a whole (section 6.32). Although the lateral extent for the TA-02 core area is defined, one site within the core area requires additional remediation and confirmation sampling. The ecological risk-screening assessment will be conducted for the sites within the TA-02 core area as one exposure unit after the investigation at this site has been completed.

6.3 AOC 02-003(b), Soil Contamination at Condensate Trap and Line 119

6.3.1 Site Description and Operational History

AOC 02-003(b) consisted of the condensate trap (structure 02-048) and associated stainless-steel line (line 119) (Figure 6.3-1). The WBR off-gas system consisted of the stack-gas valve house, condensate trap, mesa-top vent stack located above TA-02 at TA-61, and associated stainless-steel lines.

The condensate trap was a concrete manhole superstructure and a small-diameter standpipe. It was located at the lowest point of line 119 between the stack-gas valve house [structure 02-019, AOC 02-003(a)] and the delay tanks [structure 02-131, AOC 02-003(c)], as shown on engineering drawing C-1718 (LASL 1947, 089677; Elder and Knoell 1986, 006670, p. 29).

Line 119 consisted of an approximately 78-ft-long east-west trending pipe section that ran from the stack-gas valve house (structure 02-019) to the condensate trap and a 205-ft-long north-south trending section that ran from the condensate trap to the delay tanks.

Line 119 continued from the delay tanks to the junction with the main OWR gaseous effluent vent line and up to the mesa-top stack (structure 02-009) and French drain [SWMU 02-006(a)] located at TA-61 (Elder and Knoell 1986, 006670, pp. 6, 8). The upper portion of the gaseous effluent vent line (line 119) from the delay tanks to the mesa-top stack is addressed as AOC 02-003(d).

The WBR off-gas system was installed in 1948. The off-gas contained gaseous fission products, including cesium-137, strontium-90, technetium-99, and iodine-131 (LANL 1993, 015314, p. 7.4-1).

The condensate trap and line 119 from the stack-gas valve house (structure 02-019) to the delay tanks remained in use through 1974. The units were inactive from 1974 to 1985 and were removed and disposed of during D&D efforts in 1985 (Elder and Knoell 1986, 006670, pp. 22-29, p. 43).

6.3.2 Relationship to Other SWMUs and AOCs

The gaseous effluent line (line 119) was connected to the stack-gas valve house, AOC 02-003(a); to the delay tanks, AOC 02-003(c); and to the mesa-top stack and French drain, SWMU 02-006(a). The condensate trap was located within the area associated with the leach field of SWMU 02-009(c), part of Consolidated Unit 02-007-00.

6.3.3 Summary of Previous Investigations

1985 WBR Decommissioning Project, Phase I

Approximately 205 ft of the 3-in.-diameter stainless-steel gaseous effluent vent line was removed from depths ranging from 2–9 ft bgs (Elder and Knoell 1986, 006670, p. 29). Near the condensate trap (structure 02-048), the depth of the line was approximately 9 ft bgs (Elder and Knoell 1986, 006670, p. 29). Groundwater seepage was pumped out of the excavation site to allow the line to be cut and pulled (Elder and Knoell 1986, 006670, p. 29). Field-screening data from a soil sample collected under the pipe indicated no radioactivity existed above predetermined cleanup goals (Elder and Knoell 1986, 006670, p. 29). The manhole that served as the superstructure for the condensate trap was removed. Field screening did not detect radioactivity inside the manhole (Elder and Knoell 1986, 006670, pp. 29-30).

During removal of the condensate trap, remnants of a leach field were discovered. The leach field consisted of two parallel 6-in.-diameter vitrified clay pipe (VCP) lengths running east from the condensate trap area, parallel to Los Alamos Creek. The pipes were laid in a sand and crushed-rock bed, approximately 2 ft below the overflow drainpipe from the nearby septic tank (structure 02-043) (Elder and Knoell 1986, 006670, p. 31). The leach field was identified as SWMU 02-009(c), and details of its 1985 D&D are provided under SWMU 02-009(c).

The base of the condensate trap and 10 ft of piping formerly connected to the gaseous effluent vent line were removed (Elder and Knoell 1986, 006670, p. 33). Field screening detected elevated radionuclide activity in the condensate trap (Elder and Knoell 1986, 006670, p. 32). Soil with radioactivity greater than predetermined cleanup levels was left in place at 5 ft bgs (Elder and Knoell 1986, 006670, p. 35). Soil was removed laterally until no radioactivity greater than predetermined cleanup levels was found and vertically until saturated conditions were reached. Soil in the area around the condensate trap was removed down to groundwater level and was backfilled with clean crushed tuff. Soil from the adjacent areas with elevated radioactivity was excavated 5–7 ft bgs and backfilled with at least 5 ft of clean crushed tuff (Elder and Knoell 1986, 006670, pp. 30-36). All excavated contaminated material was transported to TA-54 (Elder and Knoell 1986, 006670, p. 16).

1995 Investigation Activities

Soil samples were collected from one location (02-01104) near the condensate trap (structure 02-048).

2007 Investigation Activities

Thirteen samples were collected from five locations at AOC 02-003(b) in 2007. Results from the sampling activities in 2007 were presented in the previous investigation report (LANL 2008, 101669.12). Additional sampling was required to define the extent of contamination at the site.

6.3.4 Site Contamination

6.3.4.1 Soil, Rock, and Sediment Sampling

As part of the 2010 investigation, the following characterization activities were conducted at AOC 02-003(b):

- All samples were field screened for organic vapors and gross-alpha, -beta, and -gamma radioactivity. Field-screening results were recorded on the SCLs (Appendix F) and are presented in Table 3.2-2.
- Five samples were collected from location 02-612390 near AOC 02-003(b) from 5–6 ft, 15–17 ft, 26–27 ft, 35–36 ft, and 49–50 ft bgs. These samples were analyzed for TAL metals, PCBs, SVOCs, americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium.

The 2010 and historical sampling locations at AOC 02-003(b) are shown in Figure 6.3-1. Table 6.3-1 presents the samples collected and analyses requested for AOC 02-003(b). The geodetic coordinates of the 2010 sampling locations are presented in Table 3.2-1.

6.3.4.2 Soil, Rock, and Sediment Sample Field-Screening Results

No organic vapors were detected at more than 10 ppm above ambient air levels during headspace screening of the samples. No radiological-screening results exceeded twice the daily site background levels. Field-screening results are presented in Table 3.2-2. No changes to sampling or other activities occurred because of the field-screening results.

6.3.4.3 Soil, Rock, and Sediment Sample Analytical Results

Decision-level data at AOC 02-003(b) consist of results from 27 samples collected from 8 locations in 1995, 2000, 2007, and 2010. The 27 samples include 9 soil, 6 Qal, 4 Qbt 2, 7 Qbo, and 1 sediment samples.

Inorganic Chemicals

A total of 24 samples (9 soil, 6 Qal, 1 Qbt 2, 7 Qbo, and 1 sediment) were analyzed for TAL metals, and 13 samples (4 soil, 5 Qal, 3 Qbo, and 1 sediment) were analyzed for nitrate, perchlorate, and total cyanide.

Table 6.3-2 presents the inorganic chemicals detected or detected above BVs. Figure 6.3-2 shows the spatial distribution of inorganic chemicals detected or detected above BVs. The vertical extent is defined at AOC 02-003(b), and the lateral extent is defined at the TA-02 core area; inorganic COPCs are identified below.

Aluminum was detected above the Qbt 2 BV (7340 mg/kg) in one sample at a concentration of 14,000 mg/kg and above the Qbo BV (3560 mg/kg) in four samples with a maximum concentration of 9950 mg/kg. These concentrations are above the respective maximum Qbt 2 background concentration (8370 mg/kg) and the maximum Qbo background concentration (3400 mg/kg). Aluminum is identified as a COPC in tuff.

Antimony was not detected but had a DL (0.941 mg/kg) above the soil BV (0.83 mg/kg) in one sample. This DL is below the maximum soil background concentration (1 mg/kg). Antimony is not identified as a

COPC in soil. Antimony was not detected but had DLs (1.15 mg/kg to 1.27 mg/kg) above the Qbo BV (0.5 mg/kg) and the maximum Qbo background concentration (0.2 mg/kg) in four samples. Antimony is identified as a COPC in tuff.

Arsenic was detected above the Qbo BV (0.56 mg/kg) in three samples with a maximum concentration of 1.49 mg/kg, and it was not detected but had DLs (1.14 mg/kg to 1.24 mg/kg) above the Qbo BV in four samples. All concentrations and all four DLs are above the maximum Qbo background concentration (0.7 mg/kg). Arsenic is identified as a COPC in tuff.

Barium was detected above the Qbo BV (25.7 mg/kg) and the maximum Qbo background concentration (23 mg/kg) in two samples with a maximum concentration of 61.7 mg/kg. Because there were fewer than 10 Qbo samples, statistical tests could not be performed. Barium is identified as a COPC in tuff.

Cadmium was not detected above the soil BV (0.4 mg/kg) but had DLs (0.49 mg/kg to 0.552 mg/kg) above the soil BV in eight samples. Because the background data set had more than 50% nondetects, the Gehan test could not be performed. The quantile test and the box plot indicated site concentrations are less than background (Figure G-2.0-1, Table G-2). Cadmium is not identified as a COPC in soil. Cadmium was not detected but had DLs (0.562 mg/kg to 0.635 mg/kg) above the Qbo BV (0.4 mg/kg) in seven samples. Cadmium is identified as a COPC in tuff. Cadmium was not detected but had a DL (0.521 mg/kg) above the sediment BV (0.4 mg/kg) in one sample. Cadmium is identified as a COPC in sediment.

Chromium was detected above the Qbo BV (2.6 mg/kg) in one sample at a concentration of 15 mg/kg, and it was not detected but had DLs (8.77 mg/kg and 58.7 mg/kg) above the Qbo BV in two samples. Chromium is identified as a COPC in tuff.

Copper was detected above the Qbo BV (3.96 mg/kg) and the maximum Qbo background concentration (2.6 mg/kg) in one sample at a concentration of 4.47 mg/kg. Because there were fewer than 10 Qbo samples, statistical tests could not be performed. Copper is identified as a COPC in tuff.

Iron was detected above the Qbo BV and the maximum Qbo background concentration (both 3700 mg/kg) in all seven Qbo samples with a maximum concentration of 8300 mg/kg. Because there were fewer than 10 Qbo samples, statistical tests could not be performed. Iron is identified as a COPC in tuff.

Manganese was detected above the Qbo BV (189 mg/kg) in four samples with a maximum concentration of 235 mg/kg. Because there were fewer than 10 Qbo samples, statistical tests could not be performed. Manganese is identified as a COPC in tuff.

Mercury was detected above the soil BV and the maximum soil background concentration (both 0.1 mg/kg) in one sample at a concentration of 0.443 mg/kg, and it was not detected but had a DL (0.21 mg/kg) above the soil BV in one sample. Because the background data set had more than 50% nondetects, the Gehan test could not be performed. The quantile and slippage tests indicated site concentrations are not different from background (Figure G-2.0-2, Table G-2). Mercury is not identified as a COPC in soil.

Nickel was detected above the Qbo BV (2 mg/kg) in one sample at a concentration of 3.12 mg/kg, and it was not detected but had DLs (3.26 mg/kg and 3.42 mg/kg) above the Qbo BV in two samples. The concentration and both DLs are above the maximum Qbo background concentration (2.8 mg/kg). Because there were fewer than 10 Qbo samples, statistical tests could not be performed. Nickel is identified as a COPC in tuff.

Nitrate was detected in eight soil/Qal/Qbo/sediment samples with a maximum concentration of 7.94 mg/kg. No background data are available for nitrate. Nitrate is naturally occurring, and the concentrations detected likely reflect naturally occurring levels. Nitrate is not identified as a COPC in soil and tuff.

Selenium was not detected above the soil BV (1.52 mg/kg) but had DLs (1.54 mg/kg to 1.65 mg/kg) above the soil BV in four samples. The Gehan and quantile tests indicated site concentrations are not different from background (Figure G-2.0-3, Table G-2). Selenium is not identified as a COPC in soil. Selenium was not detected above the Qbo BV (0.3 mg/kg) but had DLs (1.14 mg/kg to 1.78 mg/kg) above the Qbo BV in six samples. Selenium is identified as a COPC in tuff. Selenium was not detected above the sediment BV (0.3 mg/kg) but had a DL (1.56 mg/kg) above the sediment BV in one sample. Selenium is identified as a COPC in sediment.

Silver was detected above the soil BV (1 mg/kg) in two samples with a maximum concentration of 1.3 mg/kg. Because silver has no background data set for soil, statistical tests could not be performed. Silver is identified as a COPC in soil.

Vanadium was detected above the Qbo BV (4.59 mg/kg) and the maximum Qbo background concentration (3.8 mg/kg) in one sample at a concentration of 10.4 mg/kg. Because there were fewer than 10 Qbo samples, statistical tests could not be performed. Vanadium is identified as a COPC in tuff.

Zinc was detected above the soil BV (48.8 mg/kg) in one sample at a concentration of 49.2 mg/kg. The Gehan and quantile tests indicated site concentrations are not different from background (Figure G-2.0-4, Table G-2). Zinc is not identified as a COPC in soil.

In summary, the inorganic COPCs identified at AOC 02-003(b) are aluminum, antimony, arsenic, barium, cadmium, chromium, copper, iron, manganese, nickel, selenium, silver, and vanadium.

Organic Chemicals

A total of 18 samples (4 soil, 6 Qal, 7 Qbo, and 1 sediment) were analyzed for PCBs, 26 samples (9 soil, 6 Qal, 3 Qbt 2, 7 Qbo, and 1 sediment) were analyzed for SVOCs, and 8 samples (5 Qal and 3 Qbo) were analyzed for VOCs.

Table 6.3-3 presents the detected organic chemicals. Figure 6.3-3 shows the spatial distribution of detected organic chemicals. The vertical extent is defined at AOC 02-003(b), and the lateral extent is defined at the TA-02 core area; organic COPCs are identified below.

Organic chemicals detected at AOC 02-003(b) include anthracene; Aroclor-1248; Aroclor-1254; Aroclor-1260; benzo(a)anthracene; benzo(a)pyrene; benzo(b)fluoranthene; benzo(g,h,i)perylene; benzo(k)fluoranthene; n-butylbenzene; chrysene; di-n-butylphthalate; fluoranthene; fluorene; 4-isopropyltoluene; 2-methylnaphthalene; phenanthrene; pyrene; and 1,2,4-trimethylbenzene.

These organic chemicals are retained as COPCs at AOC 02-003(b).

Radionuclides

A total of 18 samples (4 soil, 6 Qal, 7 Qbo, and 1 sediment) were analyzed for americium-241; 26 samples (9 soil, 6 Qal, 3 Qbt, 7 Qbo, and 1 sediment) were analyzed for gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium; and 1 Qbt 2 sample was analyzed for technetium-99.

Table 6.3-4 presents the radionuclides detected or detected above BVs/FVs. Figure 6.3-4 shows the spatial distribution of radionuclides detected or detected above BVs/FVs. The vertical extent is defined at AOC 02-003(b), and the lateral extent is defined at the TA-02 core area; radionuclide COPCs are identified below.

Americium was not detected or not detected above the FV and is therefore not a COPC at AOC 02-003(b).

Cesium-137 was detected in subsurface soil (below 0–1 ft) in eight samples with a maximum activity of 4.46 pCi/g. Cesium-137 is identified as a COPC in soil.

Plutonium-239/240 was detected above the soil FV (0.054 pCi/g) and detected in subsurface soil (below 0–1 ft) in six samples with a maximum activity of 0.768 pCi/g. Plutonium-239/240 was detected above the sediment FV (0.068 pCi/g) in one sample at an activity of 0.631 pCi/g. Plutonium-239/240 was detected in subsurface tuff (below 0–1 ft) in one Qbo sample at an activity of 0.0171 pCi/g. Plutonium-239/240 is identified as a COPC in soil, tuff, and sediment.

Strontium-90 was detected in subsurface soil (below 0–1 ft) in three samples with a maximum activity of 0.96 pCi/g. Strontium-90 was detected in one Qbt 2 sample at an activity of 0.96 pCi/g. Strontium-90 is identified as a COPC in soil and tuff.

Tritium was detected in 14 soil/tuff samples with a maximum activity of 0.304 pCi/g. Tritium is identified by detection status and is a COPC in soil and tuff.

Uranium-234 was detected above the Qbt 2 BV (1.98 pCi/g) in one sample at an activity of 2.8 pCi/g. Uranium-234 is identified as a COPC in tuff.

Uranium-235/236 was detected above the Qbo BV (0.18 pCi/g) in one sample at an activity of 0.191 pCi/g. Uranium-235/236 is identified as a COPC in tuff.

Uranium-238 was detected above the Qbt 2 BV (1.93) in one sample at an activity of 2.64 pCi/g. Uranium-238 is identified as a COPC in tuff.

In summary, the radionuclide COPCs identified at AOC 02-003(b) are cesium-137, plutonium-239/240, strontium-90, tritium, uranium-234, uranium-235/236, and uranium-238.

6.3.4.4 Nature and Extent of Contamination at AOC 02-003(b)

In accordance with the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), one location was sampled at AOC 02-003(b) to determine the vertical extent of contamination for inorganic chemicals, organic chemicals, and radionuclides (Table 3.2-1). Analytical suites were determined by the data needs specific to each location as presented in Table 3.1-1 of the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703). The vertical extent of contamination at AOC 02-003(b) is evaluated using only the Phase II data from samples collected as deep as 50 ft bgs.

Inorganic Chemicals

Five samples were collected from location 02-612390 (depths ranging from 5–50 ft bgs) to evaluate vertical extent of TAL metals (Table 3.2-1).

Aluminum was detected above Qbo BV (3560 mg/kg) in one sample at a concentration of 5810 mg/kg at location 02-612390 from 15–17 ft bgs. Aluminum concentrations decreased with depth at this location. The vertical extent of aluminum is defined.

Antimony was not detected but had a DL (0.941 mg/kg) above the soil BV (0.83 mg/kg) in one sample and had DLs (1.15 mg/kg to 1.27 mg/kg) above the Qbo BV (0.5 mg/kg) in four samples. Because antimony was not detected above BVs, the vertical extent of antimony is defined.

Arsenic was not detected above the Qbo BV (0.56 mg/kg) but had DLs (1.14 mg/kg to 1.24 mg/kg) above the Qbo BV in four samples. Because arsenic was not detected above BVs, the vertical extent of arsenic is defined.

Barium, chromium, copper, nickel, silver, and vanadium were not detected above BVs at location 02-612390. The vertical extent of these metals is defined.

Cadmium was not detected above the Qbo BV (0.4 mg/kg) but had DLs (0.573 mg/kg to 0.635 mg/kg) above the Qbo BV in four samples. Because cadmium was not detected above BVs, the vertical extent of cadmium is defined.

Iron was detected above the Qbo BV (3700 mg/kg) in four samples at location 02-612390 with concentrations ranging from 4700 mg/kg to 5850 mg/kg. Iron was detected at a concentration of 6980 mg/kg (below the soil BV of 21,500 mg/kg) at location 02-612390 from 5–6 ft bgs. Iron concentrations decreased with depth at this location. The vertical extent of iron is defined.

Manganese was detected above the Qbo BV (189 mg/kg) in one sample at a concentration of 219 mg/kg at location 02-612390 from 26–27 ft bgs. Manganese concentrations decreased with depth at this location. The vertical extent of manganese is defined.

Selenium was not detected above the Qbo BV (0.3 mg/kg) but had DLs (1.14 mg/kg to 1.24 mg/kg) above the Qbo BV in four samples. Because selenium was not detected above BVs, the vertical extent of selenium is defined.

Organic Chemicals

Five samples were collected from location 02-612390 (depths ranging from 5–50 ft bgs) to evaluate vertical extent of PCBs and SVOCs (Table 3.2-1). As stated in the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), the extent of VOCs was defined following the 2007 investigation, and no Phase II samples were analyzed for VOCs.

Aroclor-1254 was detected in one sample at a concentration of 0.0121 mg/kg at location 02-612390 from 5–6 ft bgs. Aroclor-1254 concentrations decreased with depth at this location. The vertical extent of Aroclor-1254 is defined.

Aroclor-1260 was detected in one sample at a concentration of 0.0086 mg/kg at location 02-612390 from 5–6 ft bgs. Aroclor-1260 concentrations decreased with depth at this location. The vertical extent of Aroclor-1260 is defined.

Pyrene was detected in one sample at a concentration of 0.0126 mg/kg at location 02-612390 from 5–6 ft bgs. Pyrene concentrations decreased with depth at this location. The vertical extent of pyrene is defined.

Radionuclides

Five samples were collected from location 02-612390 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium (Table 3.2-1).

Americium-241 was not detected at location 02-612390 and is not a COPC for AOC 02-003(b).

Cesium-137 was detected in one sample at an activity of 4.44 pCi/g at location 02-612390 from 5–6 ft bgs. Cesium-137 activities decreased with depth at this location. The vertical extent of cesium-137 is defined.

Plutonium-239/240 was detected in two samples at location 02-612390. The highest activity of 0.595 pCi/g was detected at location 02-612390 from 5–6 ft bgs. Plutonium-239/240 activities decreased with depth at this location. The vertical extent of plutonium-239/240 is defined.

Strontium-90 was detected in one sample at an activity of 0.347 pCi/g at location 02-612390 from 5–6 ft bgs. Strontium-90 activities decreased with depth at this location. The vertical extent of strontium-90 is defined.

Tritium was detected in four samples at location 02-612390. The highest activity (0.1214 pCi/g) at location 02-612390 was detected from 49–50 ft bgs. This activity is significantly lower than those detected from 5–25 ft bgs throughout TA-02 and is three orders of magnitude below the residential SAL (750 pCi/g). For TA-02 as a whole, maximum tritium activities in soil (up to 167 pCi/g) generally occur between 5 ft and 25 ft bgs. Therefore, tritium activities generally decrease with depth at TA-02.

The depth interval of 49–50 ft bgs is below the alluvial aquifer but above the perched-intermediate groundwater zone. Alluvial and perched intermediate groundwater in Los Alamos Canyon is monitored by wells LAO-1 and LAOI-1, respectively, which are located approximately 1000 ft downgradient of location 02-612393, near the eastern boundary of TA-02. Over the past 10 yr, tritium has been detected at activities as high as 399 pCi/L in the alluvial groundwater downgradient of TA-02, but activities have been declining over the past several years. In the most recent sample from well LAO-1 (2009), tritium was detected at 47.3 pCi/L. In 2011, tritium was detected at 11.3 pCi/L in well LAOI(a)-1.1. Because subsurface conditions are being monitored by the alluvial and intermediate wells downgradient of TA-02, deeper sampling at location 02-612390 to establish the vertical extent of tritium contamination is not necessary.

Uranium-234 and uranium-238 were not detected above BVs at location 02-612390. Therefore, the vertical extent of uranium-234 and uranium-238 is defined.

Uranium-235/236 was detected above the Qbo BV (0.18 pCi/g) in one sample at an activity of 0.191 pCi/g at location 02-612390 from 26–27 ft bgs. Uranium-235/236 activities decreased with depth at this location. The vertical extent of uranium-235/236 is defined at AOC 02-003(b)

Summary of Nature and Extent at AOC 02-003(b)

The vertical extent of TAL metals, PCBs, SVOCs, cesium-137, isotopic plutonium, isotopic uranium, strontium-90, and tritium is defined.

6.3.5 Summary of Human Health Risk Screening

Details of the human health risk-screening assessment for AOC 02-003(b) are discussed in Appendix H, section H-4.

The total excess cancer risk for the industrial scenario is 2×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.0004, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 0.5 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 3×10^{-7}, based on a comparison with EPA's outdoor worker PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

The total excess cancer risk for the recreational scenario is 9×10^{-7}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.1, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 0.1 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 3×10^{-7}, based on conversion from dose using RESRAD, Version 6.5.

The total excess cancer risk for the residential scenario is 9×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.7, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 11 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 5×10^{-6}, based on a comparison with EPA's residential PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Based on the screening-assessment results, no potential unacceptable risks or doses exist for the industrial, recreational, and residential scenarios.

6.3.6 Summary of Ecological Risk Screening

In accordance with the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), locations surrounding the core area of TA-02 were sampled to define the lateral extent of contamination for TA-02 as a whole (section 6.32). Although the lateral extent for the TA-02 core area is defined, one site within the core area requires additional remediation and confirmation sampling. The ecological risk-screening assessment will be conducted for the sites within the TA-02 core area as one exposure unit after the investigation at this site has been completed.

6.4 AOC 02-003(c), Soil Contamination at Gaseous Effluent Delay Tanks

6.4.1 Site Description and Operational History

AOC 02-003(c) consisted of two parallel underground stainless-steel gaseous effluent delay tanks (each 1 ft in diameter by 20 ft long and buried 4 ft deep) (Figure 6.4-1). The tanks were part of the gaseous effluent vent line system associated with the WBR.

The 1990 SWMU report (LANL 1990, 007511) describes the tanks as being "in series"; however, excavation of the tanks during the 1985 D&D indicated that they were parallel and oriented east to west (Elder and Knoell 1986, 006670, p. 8).

The gaseous effluent vent system was in place by 1951 and received off-gas from the WBR. The off-gas contained gaseous fission products, including cesium-137, strontium-90, technetium-99, and iodine-131

(LANL 1993, 015314, p. 7.4-1). It is unclear when the delay tanks were installed. The original as-built drawing of the condensate trap and line 119 (LASL 1947, 089677) dated 1947 does not show the delay tank system. The tanks appear to have been installed in 1951 when other modifications to the gaseous effluent vent line system were made (Montoya 1991, 006997, p. 2); however, no installation record is available. The delay tanks remained in use until 1974 and were inactive from 1974 to 1985. The tanks were removed and disposed of during D&D efforts in 1985 (Elder and Knoell 1986, 006670, pp. 22-29, p. 43).

6.4.2 Relationship to Other SWMUs and AOCs

The delay tanks were connected to the gaseous effluent vent line 119, part of AOC 02-003(b). The gaseous effluent line (line 119) was connected to the stack-gas valve house, AOC 02-003(a), and to the mesa-top stack and French drain, SWMU 02-006(a).

6.4.3 Summary of Previous Investigations

1985 WBR Decommissioning Project, Phase I

The delay tanks were excavated from approximately 4 ft bgs. Their connection to the OWR vent line was plugged with a threaded cap. Field-screening data from beneath the tanks indicated no radioactivity existed above predetermined cleanup goals (Elder and Knoell 1986, 006670, p. 29).

1995 Investigation Activities

Samples were collected at three locations (02-01043, 02-01144, and 02-01145) around the delay tanks.

2000 Post–Cerro Grande Fire Recovery Work

Samples were collected from two boreholes (locations 02-01237 and 02-01238) near the delay tanks. Field-screening data from recovered cores indicated no elevated radionuclide levels existed (LANL 2001, 070352, p. 7).

2007 Investigation Activities

Thirty-three samples were collected from 10 locations at AOC 02-003(c) in 2007. Results from the sampling activities in 2007 were presented in the previous investigation report (LANL 2008, 101669.12). Additional sampling was required to define the extent of contamination at the site.

6.4.4 Site Contamination

6.4.4.1 Soil, Rock, and Sediment Sampling

As part of the 2010 investigation, the following characterization activities were conducted at AOC 02-003(c):

- All samples were field screened for organic vapors and gross-alpha, -beta, and -gamma radioactivity. Field-screening results were recorded on the SCLs (Appendix F) and are presented in Table 3.2-2.
- Five samples were collected from location 02-612420 between AOC 02-003(a) and the southern part of SWMU 02-009(c) from 6–7 ft, 15.5–16.5 ft, 26–27 ft, 35–37 ft, and 49–50 ft bgs. These

samples were analyzed for TAL metals, PCBs, SVOCs, americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium.

The 2010 and historical sampling locations at AOC 02-003(c) are shown in Figure 6.4-1. Table 6.4-1 presents the samples collected and analyses requested for AOC 02-003(c). The geodetic coordinates of the 2010 sampling locations are presented in Table 3.2-1.

6.4.4.2 Soil, Rock, and Sediment Sample Field-Screening Results

No organic vapors were detected at more than 10 ppm above ambient air levels during headspace screening of the samples. No radiological-screening results exceeded twice the daily site background levels. Field-screening results are presented in Table 3.2-2. No changes to sampling or other activities occurred because of the field-screening results.

6.4.4.3 Soil, Rock, and Sediment Sample Analytical Results

Decision-level data at AOC 02-003(c) consist of results from 46 samples collected from 16 locations in 1995, 2000, 2007, and 2010. The 46 samples include 12 soil, 16 Qal, 6 Qbt 2, 11 Qbo, and 1 sediment samples.

Inorganic Chemicals

A total of 40 samples (12 soil, 16 Qal, 11 Qbo, and 1 sediment) were analyzed for TAL metals, and 33 samples (10 soil, 14 Qal, 8 Qbo, and 1 sediment) were analyzed for nitrate, perchlorate, and total cyanide.

Table 6.4-2 presents the inorganic chemicals detected or detected above BVs. Figure 6.4-2 shows the spatial distribution of inorganic chemicals detected or detected above BVs. The vertical extent is defined at AOC 02-003(c), and the lateral extent is defined at the TA-02 core area; inorganic COPCs are identified below.

Aluminum was detected above the Qbo BV (3560 mg/kg) and the maximum Qbo background concentration (3400 mg/kg) in 10 samples with a maximum concentration of 13,600 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-3.0-1, Table G-3). Aluminum is identified as a COPC in tuff.

Antimony was not detected above the soil BV (0.83 mg/kg) but had DLs (0.947 mg/kg and 1.05 mg/kg) above the soil BV in two samples. Because the background data set had more than 50% nondetects, the Gehan test could not be performed. The quantile and slippage tests indicated site concentrations are not different from background (Figure G-3.0-2, Table G-3). Antimony is not identified as a COPC in soil. Antimony was not detected but had DLs (0.513 mg/kg to 1.39 mg/kg) above the Qbo BV (0.5 mg/kg) and the maximum Qbo background concentration (0.2 mg/kg) in six samples. Antimony is identified as a COPC in both soil and tuff.

Arsenic was detected above the Qbo BV (0.56 mg/kg) in eight samples with a maximum concentration of 2.76 mg/kg, and it was not detected but had DLs (1.28 mg/kg to 1.32 mg/kg) above the Qbo BV in three samples. Because the background data set had more than 50% nondetects, the Gehan test could not be performed. The quantile test indicated site concentrations are different from background (Figure G-3.0-3, Table G-3). Arsenic is identified as a COPC in tuff.

Barium was detected above the soil BV (295 mg/kg) in three samples with a maximum concentration of 2230 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-3.0-4, Table G-3). Barium is identified as a COPC in soil. Barium was detected above the Qbo BV (25.7 mg/kg) in four samples with a maximum concentration of 83.6 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-3.0-5, Table G-3). Barium is identified as a COPC in tuff.

Cadmium was not detected but had DLs (0.474 mg/kg to 0.571 mg/kg) above the soil BV (0.4 mg/kg) in 19 samples. Cadmium was not detected but had DLs (0.567 mg/kg to 0.693 mg/kg) above the Qbo BV (0.4 mg/kg) in all 11 Qbo samples. Cadmium was not detected but had a DL (0.59 mg/kg) above the sediment BV (0.4 mg/kg) in one sample. Cadmium is identified as a COPC in soil, tuff, and sediment.

Calcium was detected above the soil BV (6120 mg/kg) in one sample at a concentration of 7440 mg/kg. This concentration is below the maximum soil background concentration (14,000 mg/kg). The Gehan test and the box plot indicated site concentrations are less than background (Figure G-3.0-6, Table G-3). Calcium is not identified as a COPC in soil.

Chromium was detected above the soil BV (19.3 mg/kg) in two samples with a maximum concentration of 23.3 mg/kg. The Gehan and quantile tests indicated site concentrations are not different from background (Figure G-3.0-7, Table G-3). Chromium is not identified as a COPC in soil. Chromium was detected above the Qbo BV (2.6 mg/kg) in nine samples with a maximum concentration of 13.4 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-3.0-8, Table G-3). Chromium is identified as a COPC in tuff.

Copper was detected above the soil BV (14.7 mg/kg) in four samples with a maximum concentration of 80 mg/kg. The Gehan tests indicated site concentrations are different from background (Figure G-3.0-9, Table G-3). Copper is identified as a COPC in soil.

Iron was detected above the Qbo BV and the maximum Qbo background concentration (both 3700 mg/kg) in all 11 Qbo samples with a maximum concentration of 8750 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-3.0-10, Table G-3). Iron is identified as a COPC in tuff.

Lead was detected above the soil BV (22.3 mg/kg) in two samples with a maximum concentration of 62 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-3.0-11, Table G-3). Lead is identified as a COPC in soil.

Manganese was detected above the Qbo BV (189 mg/kg) in eight samples with a maximum concentration of 309 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-3.0-12, Table G-3). Manganese is identified as a COPC in tuff.

Mercury was detected above the soil BV and the maximum soil background concentration (both 0.1 mg/kg) in 13 samples with a maximum concentration of 2.43 mg/kg. The site concentrations are substantially above background. Mercury is identified as a COPC in soil.

Nickel was detected above the Qbo BV (2 mg/kg) in five samples with a maximum concentration of 4.69 mg/kg. Because the background data set had more than 50% nondetects, the Gehan test could not be performed. The quantile test indicated site concentrations are different from background (Figure G-3.0-13, Table G-3). Nickel is identified as a COPC in tuff.

Nitrate was detected in 12 soil/Qal samples with a maximum concentration of 2.95 mg/kg. No background data are available for nitrate. Nitrate is naturally occurring, and the concentrations detected likely reflect naturally occurring levels. Nitrate is not identified as a COPC in soil.

Perchlorate was detected in four soil/Qal samples with a maximum concentration of 0.00113 mg/kg. Because perchlorate has no BV in soil, perchlorate is identified as a COPC in soil.

Selenium was detected above the soil BV (1.52 mg/kg) in 11 samples with a maximum concentration of 14.6 mg/kg, and it was not detected above the soil BV but had DLs (1.54 mg/kg to 1.63 mg/kg) above the soil BV in 4 samples. Selenium was detected above the Qbo BV (0.3 mg/kg) in five samples with a maximum concentration of 9.11 mg/kg, and it was not detected but had DLs (1.28 mg/kg to 1.98 mg/kg) above the Qbo BV in six samples. The site concentrations are substantially above background. Selenium is identified as a COPC in soil and tuff. Selenium was not detected above the sediment BV (0.3 mg/kg) but had a DL (1.18 mg/kg) above the sediment BV in one sample. Selenium is identified as a COPC in sediment.

Thallium was detected above the soil BV (0.73 mg/kg) in one sample at a concentration of 8.21 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-3.0-14, Table G-3). Thallium is identified as a COPC in soil.

Vanadium was detected above the Qbo BV (4.59 mg/kg) in four samples with a maximum concentration of 10.2 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-3.0-15, Table G-3). Vanadium is identified as a COPC in tuff.

Zinc was detected above the soil BV (48.8 mg/kg) in two samples with a maximum concentration of 61.6 mg/kg. The Gehan and quantile tests indicated site concentrations are not different from background (Figure G-3.0-16, Table G-3). Zinc is not identified as a COPC in soil.

In summary, the inorganic COPCs identified at AOC 02-003(c) are aluminum, antimony, arsenic, barium, cadmium, chromium, copper, iron, lead, manganese, mercury, nickel, perchlorate, selenium, thallium, and vanadium.

Organic Chemicals

A total of 9 samples (2 soil, 3 Qal, and 4 Qbo) were analyzed for PCBs, 36 samples (9 soil, 15 Qal, 11 Qbo, and 1 sediment) were analyzed for SVOCs, and 22 samples (14 Qal and 8 Qbo) were analyzed for VOCs.

Table 6.4-3 presents the detected organic chemicals. Figure 6.4-3 shows the spatial distribution of detected organic chemicals. The vertical extent is defined at AOC 02-003(c), and the lateral extent is defined at the TA-02 core area; organic COPCs are identified below.

Organic chemicals detected at AOC 02-003(c) include acenaphthene; acetone; anthracene; Aroclor-1254; Aroclor-1260; benzo(a)anthracene; benzo(a)pyrene; benzo(b)fluoranthene; benzo(g,h,i)perylene; benzo(k)fluoranthene; chloroform; chrysene; fluoranthene; indeno(1,2,3-cd)pyrene; 2-methylnaphthalene; naphthalene; phenanthrene; pyrene; and toluene.

These organic chemicals are retained as COPCs at AOC 02-003(c).

Radionuclides

A total of 38 samples (10 soil, 16 Qal, 11 Qbo, and 1 sediment) were analyzed for americium-241; 45 samples (12 soil, 16 Qal, 5 Qbt 2, 11 Qbo, and 1 sediment) were analyzed for gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium; and 1 Qbt 2 sample was analyzed for technetium-99.

Table 6.4-4 presents the radionuclides detected or detected above BVs/FVs. Figure 6.4-4 shows the spatial distribution of radionuclides detected or detected above BVs/FVs. The vertical extent is defined at AOC 02-003(c), and the lateral extent is defined at the TA-02 core area; radionuclide COPCs are identified below.

Americium was not detected or not detected above the FV and is therefore not a COPC at AOC 02-003(c).

Cesium-137 was detected above the soil FV (1.65 pCi/g) and detected in subsurface soil (below 0–1 ft) in 15 samples with a maximum activity of 3.32 pCi/g. Cesium-137 was also detected in two tuff samples with a maximum activity of 6.27 pCi/g. Cesium-137 is identified as a COPC in soil and tuff.

Cobalt-60 was detected in one soil sample at an activity of 0.24 pCi/g. Cobalt-60 has no BV in soil. Cobalt-60 is identified as a COPC in soil.

Plutonium-239/240 was detected above the soil FV (0.054 pCi/g) and detected in subsurface soil (below 0–1 ft) in 12 samples with a maximum activity of 0.327 pCi/g. Plutonium-239/240 was detected in subsurface tuff (below 0–1 ft) in one Qbt 2 sample at an activity of 0.031 pCi/g. Plutonium-239/240 was detected above the sediment FV (0.068 pCi/g) in one sample at an activity of 0.255 pCi/g. Plutonium-239/240 is identified as a COPC in soil, tuff, and sediment.

Strontium-90 was detected in subsurface tuff (below 0–1 ft) in one sample at an activity of 0.3 pCi/g. Strontium-90 is identified as a COPC in tuff.

Tritium was detected in 13 soil/tuff samples with a maximum activity of 0.206 pCi/g. Tritium is identified by detection status and is a COPC in soil and tuff.

Uranium-235/236 was detected above the Qbt 2 BV (0.09 pCi/g) in one sample at an activity of 0.33 pCi/g, and it was detected above the Qbo BV (0.18 pCi/g) in one sample at an activity of 0.186 pCi/g. Uranium-235/236 is identified as a COPC in tuff.

Uranium-238 was detected above the soil BV (2.29 pCi/g) in one sample at an activity of 2.54 pCi/g. Uranium-238 is identified as a COPC in soil.

In summary, the radionuclide COPCs identified at AOC 02-003(c) are cesium-137, cobalt-60, plutonium-239/240, strontium-90, tritium, uranium-235/236, and uranium-238.

6.4.4.4 Nature and Extent of Contamination at AOC 02-003(c)

In accordance with the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), one location was sampled at AOC 02-003(c) to determine the vertical extent of contamination for inorganic chemicals, organic chemicals, and radionuclides (Table 3.2-1). Analytical suites were determined by the data needs specific to each location as presented in Table 3.1-1 of the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703). The vertical extent of contamination at AOC 02-003(c) is evaluated using only the Phase II data from samples collected as deep as 50 ft bgs.

Inorganic Chemicals

Five samples were collected from location 02-612420 (depths ranging from 6–50 ft bgs) to evaluate the vertical extent of TAL metals (Table 3.2-1). As stated in the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), the extent of perchlorate was defined following the 2007 investigation, and no Phase II samples were analyzed for perchlorate.

Aluminum was detected above the Qbo BV (3560 mg/kg) in three samples at location 02-612420. The highest concentration of 8230 mg/kg was detected from 35–37 ft bgs. Aluminum concentrations decreased with depth at this location. The vertical extent of aluminum is defined.

Antimony was not detected but had DLs (0.947 mg/kg and 1.05 mg/kg) above the soil BV (0.83 mg/kg) in two samples and had DLs (1.28 mg/kg to 1.39 mg/kg) above the Qbo BV (0.5 mg/kg) in three samples. Because antimony was not detected above BVs, the vertical extent of antimony is defined.

Arsenic was not detected above the Qbo BV (0.56 mg/kg) but had DLs (1.28 mg/kg to 1.32 mg/kg) above the Qbo BV in three samples. Because arsenic was not detected above BVs, the vertical extent of arsenic is defined.

Barium, copper, lead, mercury, nickel, thallium, and vanadium were not detected above BVs at location 02-612420. The vertical extent of these metals is defined.

Cadmium was not detected above the Qbo BV (0.4 mg/kg) but had DLs (0.642 mg/kg to 0.693 mg/kg) above the Qbo BV in three samples. Because cadmium was not detected above BVs, the vertical extent of cadmium is defined.

Chromium was detected above the Qbo BV (2.6 mg/kg) in one sample at a concentration of 3.18 mg/kg at location 21-612420 from 35–37 ft bgs. Chromium concentrations decreased with depth at this location. The vertical extent of chromium is defined.

Iron was detected above the Qbo BV (3700 mg/kg) in three samples at location 02-612420. The highest concentration of 5530 mg/kg was from 35–37 ft bgs. Iron was detected at a concentration of 6600 mg/kg (below the soil BV of 21,500 mg/kg) at location 02-612420 from 6–7 ft bgs. Iron concentrations decreased with depth at this location. The vertical extent of iron is defined.

Manganese was detected above the Qbo BV (189 mg/kg) in one sample at a concentration of 223 mg/kg at location 02-612420 from 35–37 ft bgs. Manganese concentrations decreased with depth at this location. The vertical extent of manganese is defined.

Selenium was not detected above the Qbo BV (0.3 mg/kg) but had DLs (1.28 mg/kg to 1.32 mg/kg) above the Qbo BV in three samples. Because selenium was not detected above BVs, the vertical extent of selenium is defined.

Organic Chemicals

Five samples were collected from location 02-612420 (depths ranging from 6–50 ft bgs) to evaluate the vertical extent of PCBs and SVOCs (Table 3.2-1). As stated in the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), the extent of VOCs was defined following the 2007 investigation, and no Phase II samples were analyzed for VOCs.

Aroclor-1254 was detected in one sample at a concentration of 0.003 mg/kg at location 02-612420 from 35–37 ft bgs. Aroclor-1254 concentrations decreased with depth at this location. The vertical extent of Aroclor-1254 is defined.

Aroclor-1260 was detected in one sample at a concentration of 0.0046 mg/kg at location 02-612420 from 15.5–16.5 ft bgs. Aroclor-1260 concentrations decreased with depth at this location. The vertical extent of Aroclor-1260 is defined.

SVOCs were not detected at location 02-612420. The vertical extent of SVOCs is defined.

Radionuclides

Five samples were collected from location 02-612420 (depths ranging from 6–50 ft bgs) to evaluate the vertical extent of americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium (Table 3.2-1). However, americium-241 is not identified as a COPC at the site.

Cobalt-60, isotopic plutonium, isotopic uranium, strontium-90, and tritium were not detected or not detected above BVs/FVs at location 02-612420. The vertical extent of these radionuclides is defined.

Cesium-137 was detected in one sample at an activity of 0.147 pCi/g at location 02-612420 from 15.5–16.5 ft bgs. Cesium-137 activities decreased with depth at this location. The vertical extent of cesium-137 is defined.

Summary of Nature and Extent at AOC 02-003(c)

The vertical extent of TAL metals, PCBs, SVOCs, and radionuclides is defined.

6.4.5 Summary of Human Health Risk Screening

Details of the human health risk-screening assessment for AOC 02-003(c) are discussed in Appendix H, section H-4.

The total excess cancer risk for the industrial scenario is 5×10^{-7}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.005, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 0.7 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 5×10^{-6}, based on a comparison with EPA's outdoor worker PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

The total excess cancer risk for the recreational scenario is 3×10^{-7}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.007, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 0.09 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 3×10^{-7}, based on conversion from dose using RESRAD, Version 6.5.

The total excess cancer risk for the residential scenario is 6×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.7, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 7 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 7×10^{-6}, based on a comparison with EPA's residential PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Based on the screening-assessment results, no potential unacceptable risks or doses exist for the industrial, recreational, and residential scenarios.

6.4.6 Summary of Ecological Risk Screening

In accordance with the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), locations surrounding the core area of TA-02 were sampled to define the lateral extent of contamination for TA-02 as a whole (section 6.32). Although the lateral extent for the TA-02 core area is defined, one site within the core area requires additional remediation and confirmation sampling. The ecological risk-screening assessment will be conducted for the sites within the TA-02 core area as one exposure unit after the investigation at this site has been completed.

6.5 AOC 02-003(d), Soil Contamination at Site of Upper Part of Line 119 and Temporary Vent Line

6.5.1 Site Description and Operational History

AOC 02-003(d) consists of two distinct areas (Plate 2). One is the potential soil contamination area associated with a temporary gaseous effluent vent, the garden hose that reportedly served as a temporary vent line for the WBR during initial operations (LANL 1993, 015314, p. 7.4-3). This area is located approximately 120 ft northeast of the former OWR building.

The second and primary area of AOC 02-003(d) is the 1200-ft gaseous effluent vent line from the delay tanks (structure 02-131) to the mesa-top stack [structure 02-009, SWMU 02-006(a)].

The garden hose discharge was reportedly used from 1943 to when the stack on the mesa top (structure 02-009, located at TA-61) was built in 1948 (LANL 1993, 015314, 7.4-3). The gaseous effluent vent line received gaseous effluent from the WBR from 1948 to 1974 and from the OWR from 1953 to 1993 (Elder and Knoell 1986, 006670, p. 8).

The mesa-top stack remained in use from 1948 to 1993. The stack received waste from only the WBR from 1948 to 1956, when the OWR was brought online. The stack received waste from both the WBR and the OWR from 1956 to 1974. The stack received effluent from only the OWR from 1974 to 1993. The stack became inactive in 1993 when the OWR was deactivated, and the stack was removed and disposed of in November 2002 (LANL 2003, 090089, p. 2). Line 119 was removed in April 2003 (WD-3 2003, 082646, p. 2).

6.5.2 Relationship to Other SWMUs and AOCs

The gaseous effluent line (line 119) was connected to the stack-gas valve house, AOC 02-003(a); to the delay tanks, AOC 02-003(c); and to the mesa-top stack and French drain, SWMU 02-006(a). The condensate trap was located within the area associated with the leach field of SWMU 02-009(c), part of Consolidated Unit 02-007-00. The line passed through a soil contamination area associated with SWMU 02-009(a), part of Consolidated Unit 02-007-00.

6.5.3 Summary of Previous Investigations

1995 Investigation Activities

Soil samples were collected from locations around the garden hose discharge area. Supporting QA/QC information is not available for these samples, so the sample results are not included in this report.

2000 Post–Cerro Grande Fire Recovery Work

Six samples were collected from three locations (02-01254 to 02-01256) in the garden hose discharge area near previous screening locations (LANL 2001, 070352, p. 13).

2007 Investigation Activities

Fifty-seven samples were collected from 16 locations at AOC 02-003(d) in 2007. Results from the sampling activities in 2007 were presented in the previous investigation report (LANL 2008, 101669.12). Additional sampling was required to define the extent of contamination at the site.

6.5.4 Site Contamination

6.5.4.1 Soil and Rock Sampling

As part of the 2010 investigation, the following characterization activities were conducted at AOC 02-003(d):

- All samples were field screened for organic vapors and gross-alpha, -beta, and -gamma radioactivity. Field-screening results were recorded on the SCLs (Appendix F) and are presented in Table 3.2-2.
- Three samples were collected from location 02-612412 near previous location 02-600218 at AOC 02-003(d) from 0–0.5 ft, 4–5 ft, and 9–10 ft bgs. These samples were analyzed for TAL metals, total cyanide, hexavalent chromium, PCBs, SVOCs, americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium.

The 2010 and historical sampling locations at AOC 02-003(d) are shown on Plate 2. Table 6.5-1 presents the samples collected and analyses requested for AOC 02-003(d). The geodetic coordinates of the 2010 sampling locations are presented in Table 3.2-1.

6.5.4.2 Soil and Rock Sample Field-Screening Results

No organic vapors were detected at more than 10 ppm above ambient air levels during headspace screening of the samples. No radiological-screening results exceeded twice the daily site background levels. Field-screening results are presented in Table 3.2-2. No changes to sampling or other activities occurred because of the field-screening results.

6.5.4.3 Soil and Rock Sample Analytical Results

Decision-level data at AOC 02-003(d) consist of results from 66 samples collected from 20 locations in 2000, 2007, and 2010. The 66 samples include 38 soil/fill, 17 Qal, 4 Qbt 3, and 7 Qct samples.

Inorganic Chemicals

A total of 39 samples (23 soil, 10 Qal, 2 Qbt 3, and 4 Qct) were analyzed for TAL metals, 3 samples (1 soil, 1 Qal, and 1 Qct) were analyzed for hexavalent chromium, 30 samples (16 soil, 9 Qal, 2 Qbt 3, and 3 Qct) were analyzed for nitrate and perchlorate, and 33 samples (17 soil, 10 Qal, 2 Qbt 3, and 4 Qct) were analyzed for total cyanide.

Table 6.5-2 presents the inorganic chemicals detected or detected above BVs. Plate 3 shows the spatial distribution of inorganic chemicals detected or detected above BVs. The lateral and vertical extent are defined at AOC 02-003(d); inorganic COPCs are identified below.

Aluminum was detected above the Qct BV (3560 mg/kg) in three samples with a maximum concentration of 11,400 mg/kg. Because there were fewer than 10 Qct samples, statistical tests could not be performed. Aluminum is identified as a COPC in tuff.

Antimony was not detected but had DLs (1.05 mg/kg and 1.08 mg/kg) above the soil BV (0.83 mg/kg) and the maximum soil background concentration (1 mg/kg) in two samples. Antimony is identified as a COPC in soil. Antimony was not detected but had a DL (1.07 mg/kg) above the Qct BV (0.5 mg/kg) and the maximum Qct background concentration (0.2 mg/kg) in one sample. Antimony is identified as a COPC in tuff.

Arsenic was detected above the Qct BV (0.56 mg/kg) and the maximum Qct background concentration (0.7 mg/kg) in four samples with a maximum concentration of 2.11 mg/kg. Because there were fewer than 10 Qct samples, statistical tests could not be performed. Arsenic is identified as a COPC in tuff.

Barium was detected above the Qct BV (25.7 mg/kg) in three samples with a maximum concentration of 63.7 mg/kg. Because there were fewer than 10 Qct samples, statistical tests could not be performed. Barium is identified as a COPC in tuff.

Beryllium was detected above the soil BV (1.83 mg/kg) in two samples with a maximum concentration of 2.5 mg/kg. The Gehan and quantile tests indicated site concentrations are not different from background (Figure G-4.0-1, Table G-4). Beryllium is not identified as a COPC in soil. Beryllium was detected above the Qct BV (1.44 mg/kg) in three samples with a maximum concentration of 5.84 mg/kg. Because there were fewer than 10 Qct samples, statistical tests could not be performed. Beryllium is identified as a COPC in tuff.

Cadmium was not detected above the soil BV (0.5 mg/kg) but had DLs (0.495 mg/kg to 0.572 mg/kg) above the soil BV in 23 samples. Because the background data set had more than 50% nondetects, the Gehan test could not be performed. The quantile test and the box plot indicated site concentrations are less than background (Figure G-4.0-2, Table G-4). Cadmium is not identified as a COPC in soil. Cadmium was not detected but had a DL (0.539 mg/kg) above the Qct BV (0.4 mg/kg) in one sample. Cadmium is identified as a COPC in tuff.

Calcium was detected above the Qct BV (1900 mg/kg) and the maximum Qct background concentration (2300 mg/kg) in two samples with a maximum concentration of 3850 mg/kg. Because there were fewer than 10 Qct samples, statistical tests could not be performed. Calcium is identified as a COPC in tuff.

Chromium was detected above the soil BV (19.3 mg/kg) in one sample at a concentration of 29.5 mg/kg. The Gehan test and the box plot indicated site concentrations are less than background (Figure G-4.0-3, Table G-4). Chromium is not identified as a COPC in soil. Chromium was detected above the Qct BV (2.6 mg/kg) in three samples with a maximum concentration of 17.1 mg/kg. Also, chromium was detected above the Qbt 3 BV (7.14 mg/kg) in one sample at a concentration of 8.14 mg/kg. Because there were fewer than 10 Qct or Qbt 3 samples, statistical tests could not be performed. Chromium is identified as a COPC in tuff.

Copper was detected above the Qct BV (3.96 mg/kg) in three samples with a maximum concentration of 5.81 mg/kg. Because there were fewer than 10 Qct samples, statistical tests could not be performed. Copper is identified as a COPC in tuff.

Iron was detected above the Qct BV and the maximum Qct background concentration (both 3700 mg/kg) in three samples with a maximum concentration of 9040 mg/kg. Because there were fewer than 10 Qct samples, statistical tests could not be performed. Iron is identified as a COPC in tuff.

Lead was detected above the Qct BV (13.5 mg/kg) in two samples with a maximum concentration of 17.8 mg/kg. Both concentrations are below the maximum Qct background concentration (20 mg/kg). Because there were fewer than 10 Qct samples, statistical tests could not be performed. Lead is not identified as a COPC in tuff.

Magnesium was detected above the Qct BV (739 mg/kg) in three samples with a maximum concentration of 2380 mg/kg. Because there were fewer than 10 Qct samples, statistical tests could not be performed. Magnesium is identified as a COPC in tuff.

Manganese was detected above the Qct BV (189 mg/kg) and the maximum Qct background concentration (210 mg/kg) in three samples with a maximum concentration of 324 mg/kg. Because there were fewer than 10 Qct samples, statistical tests could not be performed. Manganese is identified as a COPC in tuff.

Mercury was detected above the soil BV and the maximum soil background concentration (both 0.1 mg/kg) in two samples with a maximum concentration of 0.139 mg/kg. Because the background data set had more than 50% nondetects, the Gehan test could not be performed. The quantile and slippage tests indicated site concentrations are not different from background (Figure G-4.0-4, Table G-4). Mercury is not identified as a COPC in soil.

Nickel was detected above the Qct BV (2 mg/kg) in three samples with a maximum concentration of 7.69 mg/kg. Because there were fewer than 10 Qct samples, statistical tests could not be performed. Nickel is identified as a COPC in tuff.

Nitrate was detected in 24 soil/Qal/Qct samples with a maximum concentration of 22.6 mg/kg. No background data are available for nitrate, and this concentration is higher than would be expected for naturally occurring nitrate. Nitrate is identified as a COPC in soil.

Perchlorate was detected in 18 soil/Qal/Qct samples with a maximum concentration of 0.00271 mg/kg. Because perchlorate has no BV in either soil or tuff, perchlorate is identified as a COPC in soil and tuff.

Potassium was detected above the Qct BV (2390 mg/kg) in one sample at a concentration of 2420 mg/kg. This concentration is below the maximum Qct background concentration (2500 mg/kg). Potassium is not identified as a COPC in tuff.

Selenium was detected above the soil BV (1.52 mg/kg) in five samples with a maximum concentration of 12 mg/kg, and it was not detected but had DLs (1.57 mg/kg to 1.73 mg/kg) above the soil BV in six samples. The Gehan test indicated site concentrations are different from background (Figure G-4.0-5, Table G-4). Selenium is identified as a COPC in soil. Selenium was detected above the Qct BV (0.3 mg/kg) in two samples with a maximum concentration of 4.6 mg/kg, and it was not detected but had DLs (1.08 mg/kg and 1.62 mg/kg) above the Qct BV in two samples. Selenium was detected above the Qbt 3 BV (0.3 mg/kg) in two samples with a maximum concentration of 4.37 mg/kg. Because there were fewer than 10 Qct or Qbt 3 samples, statistical tests could not be performed. Selenium is identified as a COPC in tuff.

Silver was detected above the soil BV (1 mg/kg) in one sample at a concentration of 1.3 mg/kg. Because silver has no background data set for soil, statistical tests could not be performed. Silver is identified as a COPC in soil.

Thallium was not detected above the soil BV (0.73 mg/kg) but had a DL (1.13 mg/kg) above the soil BV and the maximum soil background concentration (1 mg/kg) in one sample. The Gehan test indicated site concentrations are different from background (Figure G-4.0-6, Table G-4). Thallium is identified as a COPC in soil.

Uranium was detected above the soil BV (1.82 mg/kg) in two samples with a maximum concentration of 3.63 mg/kg. This concentration is equivalent to the maximum soil background concentration (3.6 mg/kg), and the other concentration is below the maximum soil background concentration. Because uranium was analyzed in only six samples, statistical tests could not be performed. Uranium is not identified as a COPC in soil.

Vanadium was detected above the Qct BV (4.59 mg/kg) in three samples with a maximum concentration of 13.5 mg/kg. Because there were fewer than 10 Qct samples, statistical tests could not be performed. Vanadium is identified as a COPC in tuff.

Zinc was detected above the soil BV (48.8 mg/kg) in 12 samples with a maximum concentration of 71.2 mg/kg. All 12 concentrations are below the maximum soil background concentration (75.5 mg/kg). The Gehan test indicated site concentrations are different from background (Figure G-4.0-7, Table G-4). Zinc is identified as a COPC in soil. Zinc was detected above the Qct BV (40 mg/kg) and the maximum Qct background concentration (46 mg/kg) in three samples with a maximum concentration of 78.2 mg/kg. Because there were fewer than 10 Qct samples, statistical tests could not be performed. Zinc is identified as a COPC in tuff.

In summary, the inorganic COPCs identified at AOC 02-003(d) are aluminum, antimony, arsenic, barium, beryllium, cadmium, calcium, chromium, copper, iron, magnesium, manganese, nickel, nitrate, perchlorate, selenium, silver, thallium, vanadium, and zinc.

Organic Chemicals

A total of 17 samples (6 soil, 7 Qal, 2 Qbt 3, and 2 Qct) were analyzed for PCBs, 33 samples (17 soil, 10 Qal, 2 Qbt 3, and 4 Qct) were analyzed for SVOCs, and 14 samples (9 Qal, 2 Qbt 3, and 3 Qct) were analyzed for VOCs.

Table 6.5-3 presents the detected organic chemicals. Plate 4 shows the spatial distribution of detected organic chemicals. The lateral and vertical extent are defined at AOC 02-003(d); organic COPCs are identified below.

Organic chemicals detected at AOC 02-003(d) include Aroclor-1254, Aroclor-1260, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, fluoranthene, phenanthrene, pyrene, and toluene.

These organic chemicals are retained as COPCs at AOC 02-003(d).

Radionuclides

A total of 33 samples (17 soil, 10 Qal, 2 Qbt 3, and 4 Qct) were analyzed for americium-241; 39 samples (23 soil, 10 Qal, 2 Qbt 3, and 4 Qct) were analyzed for gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, and strontium-90; and 38 samples (22 soil, 10 Qal, 2 Qbt 3, and 4 Qct) were analyzed for tritium.

Table 6.5-4 presents the radionuclides detected or detected above BVs/FVs. Plate 5 shows the spatial distribution of radionuclides detected or detected above BVs/FVs. The lateral and vertical extent are defined at AOC 02-003(d); radionuclide COPCs are identified below.

Cesium-137 was detected in subsurface soil (below 0–1 ft) in seven samples with a maximum activity of 0.799 pCi/g. Cesium-137 was also detected in subsurface tuff (below 0–1 ft) in one sample at an activity of 0.269 pCi/g. Cesium-137 is identified as a COPC in soil and tuff.

Cobalt-60 was detected in one soil sample at an activity of 0.97 pCi/g. Cobalt-60 has no BV in soil. Cobalt-60 is identified as a COPC in soil.

Plutonium-239/240 was detected above the soil FV (0.054 pCi/g) and detected in subsurface soil (below 0–1 ft) in 15 samples with a maximum activity of 0.198 pCi/g. Plutonium-239/240 is identified as a COPC in soil.

Tritium was detected in 12 soil/tuff samples with a maximum activity of 0.103 pCi/g. Tritium is identified by detection status and is a COPC in soil and tuff.

Uranium-234 was detected above the soil BV (2.59 pCi/g) in one sample at an activity of 2.89 pCi/g. Uranium-234 is identified as a COPC in soil.

Uranium-235/236 was detected above the Qct BV (0.18 pCi/g) in one sample at an activity of 0.185 pCi/g, and it was detected above the Qbt 3 BV (0.09 pCi/g) in one sample at an activity of 0.133 pCi/g. Uranium-235/236 is identified as a COPC in tuff.

Uranium-238 was detected above the soil BV (2.29 pCi/g) in one sample at an activity of 2.86 pCi/g. Uranium-238 is identified as a COPC in soil.

In summary, the radionuclide COPCs identified at AOC 02-003(d) are cesium-137, cobalt-60, plutonium-239/240, tritium, uranium-234, uranium-235/236, and uranium-238.

6.5.4.4 Nature and Extent of Contamination at AOC 02-003(d)

In accordance with the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), one location was sampled near previously sampled location 02-600218 to evaluate the vertical extent of TAL metals (Table 3.2-1). The vertical extent of TAL metals at AOC 02-003(d) is evaluated using only the Phase II data from samples collected from 0–10 ft bgs. As stated in the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), the extent of perchlorate was defined following the 2007 investigation, and no Phase II samples were analyzed for perchlorate.

Inorganic Chemicals

Three samples were collected from location 02-612412 (depths ranging from 0–10 ft bgs) to evaluate the vertical extent of TAL metals for previously sampled location 02-600218 (Table 3.2-1). As stated in the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), the extent of nitrate and perchlorate was defined following the 2007 investigation, and no Phase II samples were analyzed for nitrate or perchlorate.

Aluminum was detected above the Qct BV (3560 mg/kg) in one sample at a concentration of 6510 mg/kg at location 02-612412 from 9–10 ft bgs. This concentration is lower than those at previously sampled location 02-600218 (11,300 mg/kg and 11,400 mg/kg from 2–4 ft and 4–5.25 ft bgs, respectively). The vertical extent of aluminum is defined for previously sampled location 02-600218.

Antimony was not detected but had DLs (1.05 mg/kg and 1.08 mg/kg) above the soil BV (0.83 mg/kg) in two samples and had a DL (1.07 mg/kg) above the Qct BV (0.5 mg/kg) in one sample. Because antimony was not detected above BVs, the vertical extent of antimony is defined.

Arsenic was detected above the Qct BV (0.56 mg/kg) in one sample at a concentration of 0.777 mg/kg at location 02-612412 from 9–10 ft bgs. Arsenic was detected at concentrations of 1.04 mg/kg and 0.988 mg/kg (below the soil BV of 8.17 mg/kg) from 0–0.5 ft and 4–5 ft bgs, respectively. Arsenic concentrations decreased with depth at this location. The vertical extent of arsenic is defined.

Barium was detected above the Qct BV (25.7 mg/kg) in one sample at a concentration of 63.2 mg/kg at location 02-612412 from 9–10 ft bgs. This concentration is slightly lower than the highest concentration of 63.7 mg/kg detected at previously sampled location 02-600218. Also, barium was not detected above BVs in samples as deep as 4.5–5.7 ft bgs at locations 02-01255, 02-600225, 02-600226, and 02-600227 approximately 40 ft downslope of location 02-612412. The vertical extent of barium is defined.

Beryllium was detected above the Qct BV (1.44 mg/kg) in two samples at location 02-612412. The highest concentration of 2.46 mg/kg was detected from 4–5 ft bgs. Beryllium concentrations decreased slightly with depth at this location and were lower than those detected at previously sampled location 02-600218. The vertical extent of beryllium is defined.

Cadmium was not detected above the soil BV (0.4 mg/kg) but had DLs (0.523 mg/kg and 0.541 mg/kg) above the soil BV in two samples. Because cadmium was not detected above BVs, the vertical extent of cadmium is defined.

Calcium, silver, and thallium were not detected above BVs at location 02-612412. The vertical extent of these metals is defined for previously sampled location 02-600218.

Chromium was detected above the Qct BV (2.6 mg/kg) in one sample at a concentration of 17.1 mg/kg at location 02-612412 from 9–10 ft bgs. Chromium concentrations increased with depth at this location and were above those detected at previously sampled location 02-600218. However, chromium was not detected above BVs in samples as deep as 4.5–5.7 ft bgs at locations 02-01255, 02-600225, 02-600226, and 02-600227 approximately 40 ft downslope of location 02-612412. The vertical extent of chromium is defined.

Copper was detected above the Qct BV (3.96 mg/kg) in one sample at a concentration of 4.36 mg/kg at location 02-612412 from 9–10 ft bgs. This concentration is lower than those detected at previously sampled location 02-600218 (5.4 mg/kg and 5.81 mg/kg from 2–4 ft and 4–5.25 ft bgs, respectively). The vertical extent of copper is defined for previously sampled location 02-600218.

Iron was detected above the Qct BV (3700 mg/kg) in one sample at a concentration of 5320 mg/kg at location 02-612412 from 9–10 ft bgs. This concentration is lower than those detected at previously sampled location 02-600218 (8510 mg/kg and 9040 mg/kg from 2–4 ft and 4–5.25 ft bgs, respectively). The vertical extent of iron is defined for previously sampled location 02-600218.

Magnesium was detected above the Qct BV (739 mg/kg) in one sample at a concentration of 1230 mg/kg at location 02-612412 from 9–10 ft bgs. This concentration is lower than those detected at previously sampled location 02-600218 (1660 mg/kg and 2380 mg/kg from 2–4 ft and 4–5.25 ft bgs, respectively). The vertical extent of magnesium is defined for previously sampled location 02-600218.

Manganese was detected above the Qct BV (189 mg/kg) in one sample at a concentration of 297 mg/kg at location 02-612412 from 9–10 ft bgs. This concentration is lower than those detected at previously sampled location 02-600218 (314 mg/kg and 324 mg/kg from 2–4 ft and 4–5.25 ft bgs, respectively). The vertical extent of manganese is defined for previously sampled location 02-600218.

Nickel was detected above the Qct BV (2 mg/kg) in one sample at a concentration of 5.15 mg/kg at location 02-612412 from 9–10 ft bgs. This concentration is lower than that detected at previously sampled location 02-600218 (7.69 mg/kg from 4–5.25 ft bgs). The vertical extent of nickel is defined for previously sampled location 02-600218.

Selenium was not detected above the Qct BV (0.3 mg/kg) but had a DL (1.08 mg/kg) above the Qct BV in one sample. Because selenium was not detected above BVs, the vertical extent of selenium is defined.

Vanadium was detected above the Qct BV (4.59 mg/kg) in one sample at a concentration of 6.63 mg/kg at location 02-612412 from 9–10 ft bgs. This concentration is lower than those detected at previously sampled location 02-600218 (11.7 mg/kg and 13.5 mg/kg from 2–4 ft and 4–5.25 ft bgs, respectively). The vertical extent of vanadium is defined for previously sampled location 02-600218.

Zinc was detected above the soil BV (48.8 mg/kg) in two samples and above the Qct BV (40 mg/kg) in one sample at location 02-612412. The highest concentration of 78.2 mg/kg was detected from 9–10 ft bgs. Zinc concentrations increased with depth at this location, and the highest concentration was similar to those detected at previously sampled location 02-600218. Zinc was detected at lower concentrations at locations 02-01255, 02-600225, and 02-600226 and was not detected above BVs in the deepest sample from 4.5–5.7 ft bgs at location 02-600227; these locations are approximately 40 ft downslope of location 02-612412. The vertical extent of zinc is defined.

Samples at location 02-612412 were also analyzed for hexavalent chromium and total cyanide to evaluate the lateral extent of contamination for the TA-02 core area. These results are discussed in section 6.32.3.

Organic Chemicals

The approved work plan proposed placing location 02-612412 near previously sampled location 02-600218 to evaluate the vertical extent of TAL metals only (LANL 2009, 106660.14, p. 12). Sampling for organic chemicals was not warranted for AOC 02-003(d).

Samples at location 02-612412 were also analyzed for PCBs and SVOCs to evaluate the lateral extent of contamination for the TA-02 core area. These results are discussed in section 6.32.3.

Radionuclides

The approved work plan proposed placing location 02-612412 near previously sampled location 02-600218 to evaluate the vertical extent of TAL metals only (LANL 2009, 106660.14, p. 12). Sampling for radionuclides was not warranted at AOC 02-003(d).

Samples at location 02-612412 were also analyzed for americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium to evaluate the lateral extent of contamination for the TA-02 core area. These results are discussed in section 6.32.3.

Summary of Nature and Extent at AOC 02-003(d)

The vertical extent of TAL metals is defined for previously sampled location 02-600218.

6.5.5 Summary of Human Health Risk Screening

Details of the human health risk-screening assessment for AOC 02-003(d) are discussed in Appendix H, section H-4.

The total excess cancer risk for the industrial scenario is 2×10^{-7}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.005, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 3 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 2×10^{-5}, based on a comparison with EPA's outdoor worker PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

The total excess cancer risk for the recreational scenario is 1×10^{-7}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.008, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 0.4 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 1×10^{-6}, based on conversion from dose using RESRAD, Version 6.5.

The total excess cancer risk for the residential scenario is 6×10^{-7}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.2, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 13 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 3×10^{-3}, based on a comparison with EPA's residential PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Based on the screening-assessment results, no potential unacceptable risks or doses exist for the industrial, recreational, and residential scenarios.

6.5.6 Summary of Ecological Risk Screening

In accordance with the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), locations surrounding the core area of TA-02 were sampled to define the lateral extent of contamination for TA-02 as a whole (section 6.32). Although the lateral extent for the TA-02 core area is defined, one site within the core area requires additional remediation and confirmation sampling. The ecological risk-screening assessment will be conducted for the sites within the TA-02 core area as one exposure unit after the investigation at this site has been completed.

6.6 AOC 02-003(e), Soil Contamination

6.6.1 Site Description and Operational History

AOC 02-003(e) is the former location of an 800-L stainless-steel holding tank (structure 02-062) (Figure 6.6-1), installed in approximately 1944, and was associated with operation of the WBR. The holding tank was adjacent to the stack-gas valve house (structure 02-019) and was designed to collect WBR cooling water in the event of a cooling coil breach.

The WBR holding tank was installed in approximately 1944 and may have been used until 1974, when the WBR was placed in safe-shutdown mode. The holding tank was removed and disposed of during D&D activities in 1985. During D&D, the tank reportedly showed no sign of having been used. However, reports of a "surge tank" running over indicate an original tank may have been used and replaced during its active life (Elder and Knoell 1986, 006670, p. 2; DOE 1987, 008663).

6.6.2 Relationship to Other SWMUs and AOCs

The WBR holding tank was located adjacent to the stack-gas valve house, AOC 02-003(a), and the condensate trap and gaseous effluent vent line, AOC 02-003(b). The tank was connected from 1944 to at least 1974 to the WBR system in building 02-001, AOC 02-004(a).

6.6.3 Summary of Previous Investigations

1985 WBR Decommissioning Project, Phase I

The WBR holding tank (structure 02-062) was drained and removed in 1985. Soil under the tank was excavated until field-screening levels of radioactivity were below predetermined cleanup levels (Elder and Knoell 1986, 006670, p. 22). All excavated contaminated material was transported to TA-54 (Elder and Knoell 1986, 006670, p. 16).

2000 Post–Cerro Grande Fire Recovery Work

Samples were collected from one borehole (location 02-01240) in the approximate center of the tank area.

2007 Investigation Activities

Sixteen samples were collected from four locations at AOC 02-003(e) in 2007. Results from the sampling activities in 2007 were presented in the previous investigation report (LANL 2008, 101669.12). Additional sampling was required to define the extent of contamination at the site.

6.6.4 Site Contamination

6.6.4.1 Soil and Rock Sampling

As part of the 2010 investigation, the following characterization activities were conducted at AOC 02-003(e):

- All samples were field screened for organic vapors and gross-alpha, -beta, and -gamma radioactivity. Field-screening results were recorded on the SCLs (Appendix F) and are presented in Table 3.2-2.
- Five samples were collected from location 02-612389 at the former stack house (structure 02-19) from 5–6 ft, 18–19 ft, 25–27 ft, 35–36 ft, and 49–50 ft bgs. These samples were analyzed for TAL metals, PCBs, SVOCs, americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium.

The 2010 and historical sampling locations at AOC 02-003(e) are shown in Figure 6.6-1. Table 6.6-1 presents the samples collected and analyses requested for AOC 02-003(e). The geodetic coordinates of the 2010 sampling locations are presented in Table 3.2-1.

6.6.4.2 Soil and Rock Sample Field-Screening Results

No organic vapors were detected at more than 10 ppm above ambient air levels during headspace screening of the samples. Radiological-screening results exceeded the daily site background levels at location 02-612389. As a result, respirators were used while collecting samples at this location. Field-screening results are presented in Table 3.2-2. No changes were made to sampling depths because of the field-screening results.

6.6.4.3 Soil and Rock Sample Analytical Results

Decision-level data at AOC 02-003(e) consist of results from 28 samples collected from 6 locations in 2000, 2007, and 2010. The 28 samples include 10 soil, 10 Qal, 1 Qbt 1, and 7 Qbo samples.

Inorganic Chemicals

A total of 28 samples (10 soil, 10 Qal, 1 Qbt 3, and 7 Qbo) were analyzed for TAL metals, and 16 samples (4 soil, 8 Qal, and 4 Qbo) were analyzed for nitrate, perchlorate, and total cyanide.

Table 6.6-2 presents the inorganic chemicals detected or detected above BVs. Figure 6.6-2 shows the spatial distribution of inorganic chemicals detected or detected above BVs. The vertical extent is defined at AOC 02-003(e), and the lateral extent is defined at the TA-02 core area; inorganic COPCs are identified below.

Aluminum was detected above the Qbt 3 BV (7340 mg/kg) in one sample at a concentration of 7800 mg/kg. This concentration is below the maximum Qbt 3 background concentration (8370 mg/kg). Aluminum is not identified as a COPC in Qbt 3. Aluminum was also detected above the Qbo BV (3560 mg/kg) in four samples with a maximum concentration of 13,300 mg/kg. These concentrations are above the maximum Qbo background concentration (3400 mg/kg). Because there were fewer than 10 Qbo samples, statistical tests could not be performed. Aluminum is identified as a COPC in tuff.

Antimony was detected above the soil BV (0.83 mg/kg) in one sample at a concentration of 2.3 mg/kg, and it was not detected but had DLs (0.902 mg/kg and 1.17 mg/kg) above the soil BV (0.83 mg/kg) in two samples. Because the background data set had more than 50% nondetects, the Gehan test could not be performed. The quantile and slippage tests indicated site concentrations are not different from background (Figure G-5.0-1, Table G-5). Antimony is not identified as a COPC in soil. Antimony was not detected but had DLs (0.513 mg/kg to 1.3 mg/kg) above the Qbo BV (0.5 mg/kg) and the maximum Qbo background concentration (0.2 mg/kg) in four samples. Antimony is identified as a COPC in tuff.

Arsenic was detected above the Qbo BV (0.56 mg/kg) in two samples with a maximum concentration of 2.09 mg/kg, and it was not detected but had DLs (1.26 mg/kg to 1.8 mg/kg) above the Qbo BV in five samples. Both concentrations and all five DLs are above the maximum Qbo background concentration (0.7 mg/kg). Arsenic is identified as a COPC in tuff.

Barium was detected above the Qbo BV (25.7 mg/kg) and the maximum Qbo background concentration (23 mg/kg) in two samples with a maximum concentration of 47.7 mg/kg. Because there were fewer than 10 Qbo samples, statistical tests could not be performed. Barium is identified as a COPC in tuff.

Cadmium was detected above the soil BV (0.4 mg/kg) in one sample at a concentration of 1.18 mg/kg, and it was not detected but had DLs (0.507 mg/kg to 0.584 mg/kg) in seven samples. Because the background data set had more than 50% nondetects, the Gehan test could not be performed. The quantile test indicated site concentrations are different from background (Figure G-5.0-2, Table G-5).

Cadmium is identified as a COPC in soil. Cadmium was not detected but had DLs (0.486 mg/kg to 0.65 mg/kg) above the Qbo BV (0.4 mg/kg) in seven samples. Cadmium is identified as a COPC in tuff.

Calcium was detected above the soil BV (6120 mg/kg) in one sample at a concentration of 12,300 mg/kg. This concentration is below the maximum soil background concentration (14,000 mg/kg). The Gehan test and the box plot indicated site concentrations are less than background (Figure G-5.0-3, Table G-5). Calcium is not identified as a COPC in soil.

Chromium was detected above the soil BV (19.3 mg/kg) in one sample at a concentration of 72.9 mg/kg, and it was not detected but had a DL (34.7 mg/kg) above the soil BV in one sample. The Gehan and quantile tests indicated site concentrations are not different from background (Figure G-5.0-4, Table G-5). Chromium is not identified as a COPC in soil. Chromium was detected above the Qbo BV (2.6 mg/kg) in two samples with a maximum concentration of 61.5 mg/kg, and it was not detected but had DLs (7.45 mg/kg to 27.7 mg/kg) above the Qbo BV in three samples. Chromium is identified as a COPC in tuff.

Copper was detected above the soil BV (14.7 mg/kg) in one sample at a concentration of 16 mg/kg. This concentration is equal to the maximum soil background concentration (16 mg/kg). The Gehan test and the box plot indicated site concentrations are less than background (Figure G-5.0-5, Table G-5). Copper is not identified as a COPC in soil.

Iron was detected above the Qbo BV and the maximum Qbo background concentration (both 3700 mg/kg) in all seven Qbo samples with a maximum concentration of 7890 mg/kg. Iron is identified as a COPC in tuff.

Lead was detected above the soil BV (22.3 mg/kg) in four samples with a maximum concentration of 3400 mg/kg. The site concentrations are substantially above background. Lead is identified as a COPC in soil. Lead was detected above the Qbt 3 BV (11.2 mg/kg) in one sample at a concentration of 76 mg/kg, and it was detected above the Qbo BV (13.5 mg/kg) in one sample at a concentration of 22.3 mg/kg. Both concentrations are above their respective maximum background concentration (15.5 mg/kg for Qbt 3 and 20 mg/kg for Qbo). Because there were fewer than 10 Qbt 3 or Qbo samples, statistical tests could not be performed. Lead is identified as a COPC in tuff.

Manganese was detected above the Qbo BV (189 mg/kg) in five samples with a maximum concentration of 348 mg/kg. Because there were fewer than 10 Qbo samples, statistical tests could not be performed. Manganese is identified as a COPC in tuff.

Mercury was detected above the soil BV and the maximum soil background concentration (both 0.1 mg/kg) in five samples with a maximum concentration of 2.58 mg/kg. The site concentrations are substantially above background. Mercury is identified as a COPC in soil.

Nickel was detected above the Qbo BV (2 mg/kg) in one sample at a concentration of 7.23 mg/kg, and it was not detected but had DLs (2.11 mg/kg to 8.66 mg/kg) above the Qbo BV in three samples. The detected concentration and two DLs are above the maximum Qbo background concentration (2.8 mg/kg). Because there were fewer than 10 Qbo samples, statistical tests could not be performed. Nickel is identified as a COPC in tuff.

Nitrate was detected in four soil/Qal samples with a maximum concentration of 2.13 mg/kg. No background data are available for nitrate. Nitrate is naturally occurring, and the concentrations detected likely reflect naturally occurring levels. Nitrate is not identified as a COPC in soil.

Perchlorate was detected in three soil/Qal samples with a maximum concentration of 0.0296 mg/kg. Because perchlorate has no BV in soil, perchlorate is identified as a COPC in soil.

Selenium was detected above the soil BV (1.52 mg/kg) in two samples with a maximum concentration of 2.63 mg/kg, and it was not detected but had DLs (1.53 mg/kg and 1.58 mg/kg) above the soil BV in two samples. The Gehan test indicated site concentrations are different from background (Figure G-5.0-6, Table G-5). Selenium is identified as a COPC in soil. Selenium was detected above the Qbo BV (0.3 mg/kg) in two samples with a maximum concentration of 2.02 mg/kg, and it was not detected but had DLs (0.663 mg/kg to 1.74 mg/kg) above the Qbo BV in five samples. Selenium was not detected but had a DL (0.32 mg/kg) above the Qbt 3 BV (0.3 mg/kg) in one sample. Because there were fewer than 10 Qbo or Qbt 3 samples, statistical tests could not be performed. Selenium is identified as a COPC in tuff.

Silver was detected above the soil BV (1 mg/kg) in one sample at a concentration of 1.06 mg/kg. Because the concentration is equivalent to the BV, silver is not identified as a COPC in soil.

Uranium was detected above the soil BV (1.82 mg/kg) in one sample at a concentration of 1.97 mg/kg. This concentration is below the maximum soil background concentration (3.6 mg/kg). Because uranium was analyzed in only six soil samples, statistical tests could not be performed. Uranium is not identified as a COPC in soil.

Vanadium was detected above the Qbo BV (4.59 mg/kg) and the maximum Qbo background concentration (3.8 mg/kg) in four samples with a maximum concentration of 8.5 mg/kg. Because there were fewer than 10 Qbo samples, statistical tests could not be performed. Vanadium is identified as a COPC in tuff.

Zinc was detected above the soil BV (48.8 mg/kg) in four samples with a maximum concentration of 543 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-5.0-7, Table G-5). Zinc is identified as a COPC in soil. Zinc was detected above the Qbo BV (40 mg/kg) in one sample at a concentration of 45.2 mg/kg. This concentration is below the maximum Qbo background concentration (46 mg/kg). Zinc is not identified as a COPC in tuff.

In summary, the inorganic COPCs identified at AOC 02-003(e) are aluminum, antimony, arsenic, barium, cadmium, chromium, iron, lead, manganese, mercury, nickel, perchlorate, selenium, vanadium, and zinc.

Organic Chemicals

A total of 21 samples (4 soil, 10 Qal, and 7 Qbo) were analyzed for PCBs and SVOCs, and 12 samples (8 Qal and 4 Qbo) were analyzed for VOCs.

Table 6.6-3 presents the detected organic chemicals. Figure 6.6-3 shows the spatial distribution of detected organic chemicals. The vertical extent is defined at AOC 02-003(e), and the lateral extent is defined at the TA-02 core area; organic COPCs are identified below.

Organic chemicals detected at AOC 02-003(e) include Aroclor-1254; Aroclor-1260; benzo(a)anthracene; benzo(a)pyrene; benzo(b)fluoranthene; benzo(g,h,i)perylene; bis(2-ethylhexyl)phthalate; chrysene; fluoranthene; indeno(1,2,3-cd)pyrene; phenanthrene; pyrene; and toluene.

These organic chemicals are retained as COPCs at AOC 02-003(e).

Radionuclides

A total of 21 samples (4 soil, 10 Qal, and 7 Qbo) were analyzed for americium-241, and 28 samples (10 soil, 10 Qal, 1 Qbt 3, and 7 Qbo) were analyzed for gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium.

Table 6.6-4 presents the radionuclides detected or detected above BVs/FVs. Figure 6.6-4 shows the spatial distribution of radionuclides detected or detected above BVs/FVs. The vertical extent is defined at AOC 02-003(e), and the lateral extent is defined at the TA-02 core area; radionuclide COPCs are identified below.

Americium-241 was detected in subsurface soil (below 0–1 ft) in one sample with an activity of 0.0376 pCi/g. Americium-241 is identified as a COPC in soil.

Cesium-137 was detected in subsurface soil (below 0–1 ft) in 12 samples with a maximum activity of 450 pCi/g. Cesium-137 was also detected in subsurface tuff (below 0–1 ft) in one sample at an activity of 0.82 pCi/g. Cesium-137 is identified as a COPC in soil and tuff.

Plutonium-239/240 was detected in subsurface soil (below 0–1 ft) in eight samples with a maximum activity of 2.9 pCi/g. Plutonium-239/240 is identified as a COPC in soil.

Strontium-90 was detected in subsurface soil (below 0–1 ft) in 10 samples with a maximum activity of 32.8 pCi/g. Strontium-90 is identified as a COPC in soil.

Tritium was detected in 11 soil/tuff samples with a maximum activity of 0.00779 pCi/g. Tritium is identified by detection status and is a COPC in soil and tuff.

Uranium-234 was detected above the Qbt 3 BV (1.98 pCi/g) in one sample at an activity of 2.55 pCi/g. Uranium-234 is identified as a COPC in tuff.

Uranium-235/236 was detected above the Qbo BV (0.18 pCi/g) in one sample at an activity of 0.194 pCi/g. Uranium-235/236 is identified as a COPC in tuff.

Uranium-238 was detected above the Qbt 3 BV (1.93 pCi/g) in one sample at an activity of 2.48 pCi/g. Uranium-238 is identified as a COPC in tuff.

In summary, the radionuclide COPCs identified at AOC 02-003(e) are americium-241, cesium-137, plutonium-239/240, strontium-90, tritium, uranium-234, uranium-235/236, and uranium-238.

6.6.4.4 Nature and Extent of Contamination at AOC 02-003(e)

In accordance with the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), one location was sampled at AOC 02-003(e) to determine the vertical extent of contamination for inorganic chemicals, organic chemicals, and radionuclides (Table 3.2-1). Analytical suites were determined by the data needs specific to each location as presented in Table 3.1-1 of the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703). The vertical extent of contamination at AOC 02-003(e) is evaluated using only the Phase II data from samples collected as deep as 50 ft bgs.

Inorganic Chemicals

Five samples were collected from location 02-612389 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of TAL metals (Table 3.2-1). As stated in the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), the extent of perchlorate was defined following the 2007 investigation, and no Phase II samples were analyzed for perchlorate.

Barium and nickel were not detected above BVs at location 02-612389. Therefore, the vertical extent of these metals is defined.

The nature and extent of other TAL metals at location 02-612389 have been discussed under AOC 02-003(a) (section 6.2.4.4). The vertical extent of TAL metals is defined.

Organic Chemicals

Five samples were collected from location 02-612389 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of PCBs and SVOCs (Table 3.2-1). As stated in the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), the extent of VOCs was defined following the 2007 investigation, and no Phase II samples were analyzed for VOCs.

The nature and extent of PCBs and SVOCs at location 02-612389 have been discussed under AOC 02-003(a) (section 6.2.4.4). The vertical extent of PCBs and SVOCs is defined.

Radionuclides

Five samples were collected from location 02-612389 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium (Table 3.2-1).

Americium-241 was not detected at location 02-612389. Therefore, the vertical extent of americium-241 is defined.

Uranium-235/236 was detected above the Qbo BV (0.18 pCi/g) in one sample at an activity of 0.194 pCi/g at location 02-612389 from 49–50 ft bgs. This activity is only slightly above the BV and likely reflects natural variability. No other uranium isotopes were detected above BVs at location 02-612348 or 02-612389. The vertical extent of isotopic uranium is defined.

The nature and extent of cesium-137, isotopic plutonium, strontium-90, and tritium at location 02-612389 have been discussed under AOC 02-003(a) (section 6.2.4.4). The vertical extent of all radionuclide COPCs is defined.

Summary of Nature and Extent at AOC 02-003(e)

The vertical extent of TAL metals, PCBs, SVOCs, americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium is defined.

6.6.5 Summary of Human Health Risk Screening

Details of the human health risk-screening assessment for AOC 02-003(e) are discussed in Appendix H, section H-4.

The total excess cancer risk for the industrial scenario is 1×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.01, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 0.0000003 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 7×10^{-8}, based on a comparison with EPA's outdoor worker PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

The total excess cancer risk for the recreational scenario is 1×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.01, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 0.00000003 mrem/yr, which is below the DOE target dose limit of

15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 2 × 10^{-12}, based on conversion from dose using RESRAD, Version 6.5.

The total excess cancer risk for the residential scenario is 8 × 10^{-6}, which is below the NMED target risk level of 1 × 10^{-5} (NMED 2009, 108070). The HI is 3, which is above the NMED target HI of 1 (NMED 2009, 108070) primarily because of lead. Without lead the HI is 0.4, but lead does exceed the residential SSL. The total dose is 608 mrem/yr, which is above the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 8 × 10^{-5}, based on a comparison with EPA's residential PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Based on the screening-assessment results, no potential unacceptable risks or doses exist for the industrial and recreational scenarios. Based on the screening-assessment results, a potential unacceptable risk and a potential unacceptable dose exist for the residential scenario.

6.6.6 Summary of Ecological Risk Screening

In accordance with the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), locations surrounding the core area of TA-02 were sampled to define the lateral extent of contamination for TA-02 as a whole (section 6.32). Although the lateral extent for the TA-02 core area is defined, one site within the core area requires additional remediation and confirmation sampling. The ecological risk-screening assessment will be conducted for the sites within the TA-02 core area as one exposure unit after the investigation at this site has been completed.

6.7 AOC 02-004(a), Former Reactor Facility

6.7.1 Site Description and Operational History

AOC 02-004(a) is the OWR facility (building 02-001) and is composed of the OWR, the OWR fuel-handling area, the OWR cooling-liquid recirculating piping, the OWR gaseous effluent vent line, the OWR material storage area, and the WBR (Plate 6). To facilitate discussion, AOC 02-004(a) is divided into the following three areas.

OWR, Fuel-Handling Area, Cooling-Liquid Recirculating Piping, and Gaseous Effluent Vent Line

A 25-kilowatt fast-neutron research reactor, Clementine, was located in the western third of building 02-001. The reactor was self-contained and operated from 1946 to 1953 (LANL 1993, 015314, p. E-8). Clementine was the precursor to the OWR and was dismantled in 1954 (WD-3 2003, 082646, p. 2).

The OWR was built above the former Clementine site in the western third of building 02-001. The OWR was an 8-megawatt water-cooled tank-type research reactor fueled by enriched solid uranium. It was put online in 1956 and operated until it was put on standby status in 1993. The reactor remained inactive until it was decommissioned, removed, and disposed of in 2003 (WD-3 2003, 082646, p. 2).

The OWR fuel-handing area consisted of a fuel pit and a closed recirculating system that serviced only the fuel pit. It was located adjacent to the OWR and was used for temporary storage of fuel rods before they were recycled.

The OWR operated with a cooling-liquid recirculating system that consisted of a series of closed-loop pipes in a 100-ft-long corridor that extended from the OWR west to the reactor facility equipment building [building 02-044, AOC 02-004(f)]. The water was routed through pumps, filters, and chillers in the reactor facility equipment building and back to the reactor. The cooling tower (structure 02-049) was added in 1959 to supplement the building 02-044 chillers in this closed system. The recirculating system was active from 1956 to 1993, when it was put on standby status during the OWR shutdown.

Off-gas from the OWR was routed through the gaseous effluent vent line to a connection into line 119 on the east side of TA-02, where the effluent continued up to the mesa-top stack [structure 02-009, SWMU 02-006(a)]. The gaseous effluent vent line teed off from the piping corridor between the OWR and OWR equipment building (02-044), as shown on engineering drawing C-10473 (LASL 1957, 090082).

OWR Material Storage Area

Operation of the OWR included the temporary storage of material (isotope columns, through-put port metal sleeves, etc.) that became activated during contact in the reactor neutron flux field. The material was stored in a structure adjacent to the guard quarters (building 02-004), located south of the reactor, to await final disposition. The material storage structure was present in as-built engineering drawing R-391 in 1958 (LASL 1958, 090085) and was removed in 2000 (LANL 2000, 090087).

WBR

The WBR was the name used for a series of three small research reactors, low power (LOPO), high power (HYPO), and super power (SUPO), located in the eastern third of the OWR building (02-001). The reactors were each progressively stronger in power output, each consisted generally of a 1-ft-diameter sphere filled with liquid fuel, and each was surrounded with neutron-reflecting blocks sitting on a graphite base. The LOPO reactor became functional in May 1944 (Montoya 1991, 006997, p. 5). The LOPO was dismantled, removed, and disposed of in September 1944. The HYPO reactor became operational in December 1944 and was later upgraded to SUPO, which became operational in 1951. The SUPO was decommissioned, removed, and disposed of in 1990 (Montoya 1991, 006997, p. 2).

The reactors were surrounded by a 15-ft × 15-ft × 11-ft concrete biological shield. A shallow sand pit and a utility trench were present beneath the reactor sphere and were used to collect liquids and gases from the reactor and transport them to support structures on the east side of building 02-001. External structures and underground piping associated with the gaseous effluent vent line system were removed and disposed of in 1986 (Elder and Knoell 1986, 006670, p. 43). Six concrete structures were dismantled, and 435 ft of contaminated underground piping was removed and disposed of. Cesium-137 contamination was found in the OWR building (02-001) near the sand pit and the utility trench during D&D activities. The soil was removed and disposed of during D&D activities (Montoya 1991, 006996, p. 5).

At peak operation, the WBR generated approximately 0.25 L/min of excess gas containing some fission products. These gases were managed through the WBR gaseous effluent vent line system (LANL 1993, 015314, p. E-8). Some radionuclides may have been deposited on the ground surface as gaseous effluent drifted from this system, and condensate from the gaseous effluent may have leaked from portions of the vent line system. These releases are addressed as AOCs 02-003(a,b,c,d).

The OWR experienced a cooling system water leak in January 1993. As a result, the reactor was put on standby status in 1993 and remained inactive until it was decommissioned in 2003 (WD-3 2003, 082646, p. 2).

6.7.2 Relationship to Other SWMUs and AOCs

All the SWMUs and AOCs at TA-02 are related to AOC 02-004(a) because the OWR was the primary operational facility, with all additional structures providing support to the OWR. Most of the other SWMUs and AOCs are in peripheral locations or are immediately adjacent to the former OWR building (02-001) footprint. Thus, the OWR and associated activities were the primary source for potential contamination at all of the TA-02 SWMUs and AOCs.

6.7.3 Summary of Previous Investigations

6.7.3.1 OWR, Fuel-Handling Area, Cooling-Liquid Recirculating Piping, and Gaseous Effluent Vent Line

2003 Omega West Decommissioning Project

Structures associated with the former OWR area were removed and disposed of in 2003. Associated activities included soil excavation, radiological walkover surveys, radiological (structure) screening, soil sampling, and surveying of sample coordinates. Radiological walkover surveys and radiological (structure) screening were conducted to segregate waste, primarily equipment and construction materials. Limited soil surveys were conducted, but no formal report of soil survey results was prepared.

Low-level radioactive waste (LLW) (construction debris and/or soil) was packaged and shipped to Envirocare of Utah, Inc. (Envirocare), or TA-54 for disposal. Mixed waste was packaged and transferred to TA-54 for further processing and/or storage at the Laboratory. Radioactively contaminated lead from the OWR bioshield was shipped to Envirocare for disposal. Hazardous waste was packaged and disposed of at a licensed facility or stored at the Laboratory pending final disposition. All asbestos-containing materials were shipped to the Painted Desert licensed facility. Clean concrete was transported to an offsite facility, crushed, and returned to the site for use as backfill. In total, 360 yd^3 of material was shipped to Envirocare for disposal. Material from the OWR and fuel-handling area, OWR cooling-liquid recirculating piping, and the OWR gaseous effluent vent line was included in this total volume (WD-3 2003, 082646, pp. 1–6).

As part of the Omega West decommissioning project, eight samples were collected from four boreholes (locations 02-22359 and 02-22369 to 02-22371) located within the footprint of the OWR. No samples specific to the OWR cooling-liquid recirculating piping or the gaseous effluent vent line were collected in 2003.

6.7.3.2 OWR Material Storage Area

2000 Post–Cerro Grande Fire Recovery Work

All building and structural components, piping, and aboveground earthen barricades were removed and disposed of during the fire recovery activities in 2000. The material storage area D&D included removing the structure and foundation and returning the building footprint to a natural grade. All material removed was screened and disposed of at TA-54. Approximately 154 yd^3 of material was removed during the 2000 D&D activity and disposed of at TA-54. Specific volumes associated with the OWR material storage structure are not available (LANL 2000, 090087). No soil samples were collected from the OWR material storage area during the 2000 activities.

6.7.3.3 WBR

1990 WBR Decommissioning, Phase II

The WBR was decommissioned in April 1990. Phase II D&D of the WBR consisted of removing and disposing of the reactor and associated equipment within the reactor building (02-001), Room 122. The 1990 D&D activities consisted of removing and disposing of the WBR vessel, gas recombination system, and graphite-lined concrete biological shield. Removable contamination on building surfaces (walls, floors, etc.) was surveyed and cleaned up where possible or encased in place. Cesium-137 and strontium-90 were the primary radionuclides. Soil beneath the biological shield portion of Room 122 (the area beneath the WBR) contained cesium-137 and strontium-90 above established site-specific remediation levels, and 2.6 yd^3 of soil was removed from the sand pit and utility trench area beneath the WBR. The soil was stored in a secured area (Laboratory property), pending permanent disposal (Montoya 1991, 006996, pp. 3-6), and later disposed of at TA-54.

Following removal of the flooring below the former WBR, soil-screening samples were collected to measure residual beta/gamma activity. The exposed soil area was approximately 150 ft^2, and screening samples were collected at this location. The highest screened activities were along the utility trench leading to the stack-gas valve house and condensate trap area (Montoya 1991, 006996, pp. 5–6, 29). A limited number of soil samples were collected from the excavated soil and analyzed for Resource Conservation and Recovery Act (RCRA) hazardous constituents. Supporting QA/QC information is not available for these samples, so the sample results are not included in this report. The D&D report indicated that no RCRA hazardous constituents were present in these samples (Montoya 1991, 006996, pp. 10, 29).

2003 Omega West Decommissioning Project

Structures associated with the former OWR area were decommissioned, and the waste was transported to an appropriate disposal facility during the 2003 D&D activities. Limited soil surveys were conducted; however, no formal report of soil survey results is available (WD-3 2003, 082646, pp. 1–6).

No samples were collected within the former WBR footprint in building 02-001. Soil samples potentially associated with the liquid and gaseous effluent lines from the WBR are presented under AOCs 02-003(a,b,c,d,e) and 02-010 and SWMUs 02-006(a) and 02-009(c).

6.7.3.4 2007 Investigation Activities

One hundred fourteen samples were collected from 34 locations at AOC 02-004(a) in 2007. Results from the sampling activities in 2007 were presented in the previous investigation report (LANL 2008, 101669.12). Additional sampling was required to define the extent of contamination at the site.

6.7.4 Site Contamination

6.7.4.1 Soil and Rock Sampling

As part of the 2010 investigation, the following characterization activities were conducted at AOC 02-004(a):

- All samples were field screened for organic vapors and gross-alpha, -beta, and -gamma radioactivity. Field-screening results were recorded on the SCLs (Appendix F) and are presented in Table 3.2-2.

- Location 02-600580 was excavated to remove polycyclic aromatic hydrocarbon (PAH) contamination in accordance with the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703). The surface soil at this location was excavated to approximately 3 ft bgs. The remediated area was approximately 64 ft^2 (Figure 6.7-1). The total volume of excavated material was approximately 7 yd^3.
- Confirmation samples were collected below the excavation (3–3.2 ft and 5–5.2 ft bgs), and from four step-out locations 4 ft to the north (3–3.2 ft and 5–5.2 ft bgs from location 02-612352), 4 ft to the south (3–3.4 ft and 5–5.2 ft bgs from location 02-612353), 4 ft to the east (3–3.2 ft and 5–5.2 ft bgs from location 02-612351), and 4 ft to the west (3–3.2 ft and 5–5.2 ft bgs from location 02-612350). Confirmation samples were analyzed for SVOCs only.
- Five samples were collected from location 02-612346 at the waste line associated with AOC 02-004(a) from 8–9 ft, 15–16 ft, 25–26 ft, 35–36 ft, and 49–50 ft bgs. These samples were analyzed for TAL metals, hexavalent chromium, PCBs, SVOCs, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, and tritium.
- Twenty samples were collected from four locations (02-612325 to 02-612328) within the west, middle, northeast, and southeast portions of the footprint of AOC 02-004(a) (depths ranging from 5–50 ft bgs). These samples were analyzed for TAL metals, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, and tritium.

The 2010 and historical sampling locations at AOC 02-004(a) are shown on Plate 6. Table 6.7-1 presents the samples collected and analyses requested for AOC 02-004(a). The geodetic coordinates of the 2010 sampling locations are presented in Table 3.2-1.

6.7.4.2 Soil and Rock Sample Field-Screening Results

No organic vapors were detected at more than 10 ppm above ambient air levels during headspace screening of the samples. No radiological-screening results exceeded twice the daily site background levels. Field-screening results are presented in Table 3.2-2. No changes to sampling or other activities occurred because of the field-screening results.

6.7.4.3 Soil and Rock Sample Analytical Results

Decision-level data at AOC 02-004(a) consist of results from 157 samples (63 soil and 94 tuff) collected from 47 locations in 2003, 2007, and 2010. The 157 samples include 63 soil, 41 Qal, and 53 Qbo samples.

Inorganic Chemicals

A total of 124 samples (46 soil, 33 Qal, and 45 Qbo) were analyzed for TAL metals, 13 samples (8 soil, 2 Qal, and 3 Qbo) were analyzed for hexavalent chromium, 90 samples (34 soil, 26 Qal, and 30 Qbo) were analyzed for nitrate, and 91 samples (35 soil, 26 Qal, and 30 Qbo) were analyzed for perchlorate and total cyanide.

Table 6.7-2 presents the inorganic chemicals detected or detected above BVs. Plate 7 shows the spatial distribution of inorganic chemicals detected or detected above BVs. The vertical extent is defined at AOC 02-004(a), and the lateral extent is defined at the TA-02 core area; inorganic COPCs are identified below.

Aluminum was detected above the Qbo BV (3560 mg/kg) and the maximum Qbo background concentration (3400 mg/kg) in 27 samples with a maximum concentration of 15,800 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-6.0-1, Table G-6). Aluminum is identified as a COPC in tuff.

Antimony was not detected but had DLs (1.05 mg/kg to 1.27 mg/kg) above the soil BV (0.83 mg/kg) and the maximum soil background concentration (1 mg/kg) in 10 samples. Antimony is identified as a COPC in soil. Antimony was not detected but had DLs (0.512 mg/kg to 1.31 mg/kg) above the Qbo BV (0.5 mg/kg) and the maximum Qbo background concentration (0.2 mg/kg) in 18 samples. Antimony is identified as a COPC in tuff.

Arsenic was detected above the Qbo BV (0.56 mg/kg) in 18 samples with a maximum concentration of 3.18 mg/kg, and it was not detected but had DLs (0.686 mg/kg to 2.79 mg/kg) above the Qbo BV in 24 samples. Seventeen of the 18 concentrations and 23 of the 24 DLs are above the maximum Qbo background concentration (0.7 mg/kg). Because the background data set had more than 50% nondetects, the Gehan test could not be performed. The quantile test indicated site concentrations are different from background (Figure G-6.0-2, Table G-6). Arsenic is identified as a COPC in tuff.

Barium was detected above the Qbo BV (25.7 mg/kg) and the maximum Qbo background concentration (23 mg/kg) in 17 samples with a maximum concentration of 102 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-6.0-3, Table G-6). Barium is identified as a COPC in tuff.

Beryllium was detected above the Qbo BV (1.44 mg/kg) in one sample at a concentration of 1.48 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-6.0-4, Table G-6). Beryllium is identified as a COPC in tuff.

Cadmium was detected above the soil BV (0.4 mg/kg) in 3 samples with a maximum concentration of 14.8 mg/kg, and it was not detected but had DLs (0.498 mg/kg to 0.633 mg/kg) above the soil BV in 64 samples. Because the background data set had more than 50% nondetects, the Gehan test could not be performed. The quantile test indicated site concentrations are different from background (Figure G-6.0-5, Table G-6). Cadmium is identified as a COPC in soil. Cadmium was detected above the Qbo BV (0.4 mg/kg) in 1 sample at a concentration of 5.63 mg/kg, and it was not detected but had DLs (0.55 mg/kg to 0.712 mg/kg) above the Qbo BV in 43 samples. Cadmium has no background data set for Qbo tuff. Cadmium is identified as a COPC in tuff.

Calcium was detected above the soil BV (6120 mg/kg) in six samples with a maximum concentration of 17,600 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-6.0-6, Table G-6). Calcium is identified as a COPC in soil. Calcium was detected above the Qbo BV (1900 mg/kg) and the maximum Qbo background concentration (2300 mg/kg) in one sample at a concentration of 9410 mg/kg. The Gehan and quantile tests indicated site concentrations are not different from background (Figure G-6.0-7, Table G-6). Calcium is not identified as a COPC in tuff.

Chromium was detected above the soil BV (19.3 mg/kg) in six samples with a maximum concentration of 44.9 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-6.0-8, Table G-6). Chromium is identified as a COPC in soil. Chromium was detected above the Qbo BV (2.6 mg/kg) in 28 samples with a maximum concentration of 49.3 mg/kg, and it was not detected but had DLs (4.92 mg/kg and 6.07 mg/kg) above the Qbo BV in 2 samples. The Gehan test indicated site concentrations are different from background (Figure G-6.0-9, Table G-6). Chromium is identified as a COPC in tuff.

Hexavalent chromium was detected in eight soil samples with a maximum concentration of 0.448 mg/kg. Hexavalent chromium has no BV in soil. Hexavalent chromium is identified as a COPC in soil.

Cobalt was detected above the soil BV (8.64 mg/kg) and the maximum soil background concentration (9.5 mg/kg) in one sample at a concentration of 18 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-6.0-10, Table G-6). Cobalt is identified as a COPC in soil.

Copper was detected above the soil BV (14.7 mg/kg) and the maximum soil background concentration (16 mg/kg) in two samples with a maximum concentration of 43.4 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-6.0-11, Table G-6). Copper is identified as a COPC in soil. Copper was detected above the Qbo BV (3.96 mg/kg) and the maximum Qbo background concentration (2.6 mg/kg) in 11 samples with a maximum concentration of 11.1 mg/kg. The Gehan and quantile tests indicated site concentrations are not different from background (Figure G-6.0-12, Table G-6). Copper is not identified as a COPC in tuff.

Cyanide was detected above the soil BV (0.5 mg/kg) in five samples with a maximum concentration of 2.59 mg/kg. Cyanide has no background data set for soil. Cyanide is identified as a COPC in soil.

Iron was detected above the Qbo BV and the maximum Qbo background concentration (both 3700 mg/kg) in 45 samples with a maximum concentration of 11,500 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-6.0-13, Table G-6). Iron is identified as a COPC in tuff.

Lead was detected above the soil BV (22.3 mg/kg) in two samples with a maximum concentration of 43.7 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-6.0-14, Table G-6). Lead is identified as a COPC in soil. Lead was detected above the Qbo BV (13.5 mg/kg) in two samples with a maximum concentration of 22.3 mg/kg. The Gehan and quantile tests indicated site concentrations are not different from background (Figure G-6.0-15, Table G-6). Lead is not identified as a COPC in tuff.

Magnesium was detected above the Qbo BV (739 mg/kg) in two samples with a maximum concentration of 3710 mg/kg. The Gehan and quantile tests indicated site concentrations are not different from background (Figure G-6.0-16, Table G-6). Magnesium is not identified as a COPC in tuff.

Manganese was detected above the soil BV (671 mg/kg) in one sample at a concentration of 1860 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-6.0-17, Table G-6). Manganese is identified as a COPC in soil. Manganese was detected above the Qbo BV (189 mg/kg) in 37 samples with a maximum concentration of 505 mg/kg. Twenty-six of the 37 concentrations are above the maximum Qbo background concentration (210 mg/kg). The Gehan test indicated site concentrations are different from background (Figure G-6.0-18, Table G-6). Manganese is identified as a COPC in tuff.

Mercury was detected above the soil BV (0.1 mg/kg) in 56 samples with a maximum concentration of 40.6 mg/kg. The site concentrations are substantially above background. Mercury is identified as a COPC in soil. Mercury was detected above the Qbo BV (0.1 mg/kg) in 10 samples with a maximum concentration of 0.448 mg/kg. Mercury has no background data set for Qbo tuff. Mercury is identified as a COPC in tuff.

Nickel was detected above the Qbo BV (2 mg/kg) in 20 samples with a maximum concentration of 6.33 mg/kg. Because the background data set had more than 50% nondetects, the Gehan test could not be performed. The quantile test indicated site concentrations are not different from background, but the slippage test indicated site concentrations are different from background (Figure G-6.0-19, Table G-6). Nickel is identified as a COPC in tuff.

Nitrate was detected in 36 soil/Qal/Qbo samples with a maximum concentration of 14.5 mg/kg. No background data are available for nitrate. Nitrate is naturally occurring, and the concentrations detected likely reflect naturally occurring levels. Nitrate is not identified as a COPC in soil and tuff.

Perchlorate was detected in 11 soil/Qal samples with a maximum concentration of 0.00254 mg/kg. Because perchlorate has no BV in soil, perchlorate is identified as a COPC in soil.

Selenium was detected above the soil BV (1.52 mg/kg) in 21 samples with a maximum concentration of 11.3 mg/kg, and it was not detected but had DLs (1.53 mg/kg to 2.08 mg/kg) above the soil BV in 13 samples. Selenium was detected above the Qbo BV (0.3 mg/kg) in 17 samples with a maximum concentration of 12.7 mg/kg, and it was not detected but had DLs (1.09 mg/kg and 2.14 mg/kg) above the Qbo BV in 28 samples. The site concentrations are substantially above background. Selenium is identified as a COPC in soil and tuff.

Vanadium was detected above the Qbo BV (4.59 mg/kg) and the maximum Qbo background concentration (3.8 mg/kg) in 16 samples with a maximum concentration of 14.2 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-6.0-20, Table G-6). Vanadium is identified as a COPC in tuff.

Zinc was detected above the soil BV (48.8 mg/kg) in 15 samples with a maximum concentration of 90.5 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-6.0-21, Table G-6). Zinc is identified as a COPC in soil. Zinc was detected above the Qbo BV (40 mg/kg) in three samples with a maximum concentration of 44 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-6.0-22, Table G-6). Zinc is identified as a COPC in tuff.

In summary, the inorganic COPCs identified at AOC 02-004(a) are aluminum, antimony, arsenic, barium, beryllium, cadmium, calcium, chromium, hexavalent chromium, cobalt, copper, cyanide, iron, lead, manganese, mercury, nickel, perchlorate, selenium, vanadium, and zinc.

Organic Chemicals

A total of 32 samples (10 soil, 15 Qal, and 7 Qbo) were analyzed for dioxins and furans, 85 samples (30 soil, 26 Qal, and 29 Qbo) were analyzed for PCBs, 108 samples (45 soil, 32 Qal, and 31 Qbo) were analyzed for SVOCs, 46 samples (18 soil, 15 Qal, and 13 Qbo) were analyzed for TPH-DRO, and 60 samples (3 soil, 30 Qal, and 27 Qbo) were analyzed for VOCs.

Table 6.7-3 presents the detected organic chemicals. Plates 8 and 9 show the spatial distribution of detected organic chemicals. The vertical extent is defined at AOC 02-004(a), and the lateral extent is defined at the TA-02 core area; organic COPCs are identified below.

Organic chemicals detected at AOC 02-004(a) include acenaphthene; acetone; anthracene; Aroclor-1248; Aroclor-1254; Aroclor-1260; benzo(a)anthracene; benzo(a)pyrene; benzo(b)fluoranthene; benzo(g,h,i)perylene; benzo(k)fluoranthene; chloroform; chrysene; dibenzofuran; fluoranthene; fluorene; 1,2,3,4,6,7,8-heptachlorodibenzodioxin; 1,2,3,4,6,7,8-heptachlorodibenzofuran; 1,2,3,4,7,8,9-heptachlorodibenzofuran; 1,2,3,4,7,8-hexachlorodibenzodioxin; 1,2,3,6,7,8-hexachlorodibenzodioxin; 1,2,3,7,8,9-hexachlorodibenzodioxin; 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-hexachlorodibenzofuran; indeno(1,2,3-cd)pyrene;

4-isopropyltoluene; methylene chloride; 2-methylnaphthalene; naphthalene; 1,2,3,4,6,7,8,9-octachlorodibenzodioxin; 1,2,3,4,6,7,8,9-octachlorodibenzofuran; 1,2,3,7,8-pentachlorodibenzodioxin; 1,2,3,7,8-pentachlorodibenzofuran; 2,3,4,7,8-pentachlorodibenzofuran; phenanthrene; pyrene; 2,3,7,8-tetrachlorodibenzofuran; toluene; TPH-DRO; 1,2-xylene; and 1,3-xylene+1,4-xylene.

These organic chemicals are retained as COPCs at AOC 02-004(a).

Radionuclides

A total of 90 samples (35 soil, 25 Qal, and 30 Qbo) were analyzed for americium-241; 123 samples (46 soil, 32 Qal, and 45 Qbo) were analyzed for gamma-emitting radionuclides, isotopic plutonium, and isotopic uranium; 98 samples (43 soil, 25 Qal, and 30 Qbo) were analyzed for strontium-90; 8 soil samples were analyzed for technetium-99; and 121 samples (44 soil, 32 Qal, and 45 Qbo) were analyzed for tritium.

Table 6.7-4 presents the radionuclides detected or detected above BVs/FVs. Plate 10 shows the spatial distribution of radionuclides detected or detected above BVs/FVs. The vertical extent is defined at AOC 02-004(a), and the lateral extent is defined at the TA-02 core area; radionuclide COPCs are identified below.

Amercium-241 was detected in subsurface soil (below 0–1 ft) in one sample at an activity of 0.0532 pCi/g. Amercium-241 is identified as a COPC in soil.

Cesium-137 was detected above the soil FV (1.65 pCi/g) and detected in subsurface soil (below 0–1 ft) in 10 samples with a maximum activity of 4.76 pCi/g. Cesium-137 was also detected in subsurface tuff (below 0–1 ft) in two samples with a maximum activity of 0.378 pCi/g. Cesium-137 is identified as a COPC in soil and tuff.

Cobalt-60 was detected in eight soil/Qal samples with a maximum activity of 4.29 pCi/g. Cobalt-60 has no BV in soil. Cobalt-60 is identified as a COPC in soil.

Plutonium-239/240 was detected above the soil FV (0.054 pCi/g) and detected in subsurface soil (below 0–1 ft) in 14 samples with a maximum activity of 2.44 pCi/g. Plutonium-239/240 is identified as a COPC in soil.

Strontium-90 was detected above the soil FV (1.31 pCi/g) in one sample at an activity of 1.61 pCi/g. Strontium-90 is identified as a COPC in soil.

Tritium was detected in 45 soil/Qal samples and 19 Qbo samples with a maximum activity of 20 pCi/g. Tritium is identified by detection status and is a COPC in soil and tuff.

Uranium-235/236 was detected above the Qbo BV (0.18 pCi/g) in four samples with a maximum activity of 0.286 pCi/g. Uranium-235/236 is identified as a COPC in tuff.

In summary, the radionuclide COPCs identified at AOC 02-004(a) are americium-241, cesium-137, cobalt-60, plutonium-239/240, strontium-90, tritium, and uranium-235/236.

6.7.4.4 Nature and Extent of Contamination at AOC 02-004(a)

In accordance with the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), five locations were sampled at AOC 02-004(a) to determine the vertical extent of contamination for inorganic chemicals, organic chemicals, and radionuclides (Table 3.2-1). Analytical suites were determined by the data needs specific to each location as presented in Table 3.1-1 of the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703). The vertical extent of contamination at AOC 02-004(a) is evaluated using only the Phase II data from samples collected as deep as 50 ft bgs, except where noted. The lateral and vertical extent of contamination at the excavation are evaluated using the results of the confirmation samples from the excavation.

Inorganic Chemicals

Five samples were collected from location 02-612346 (depths ranging from 8–50 ft bgs) to evaluate the vertical extent of hexavalent chromium and TAL metals (Table 3.2-1). Twenty samples were collected from four locations (02-612325 to 02-612328; depths ranging from 5–50 ft bgs) to evaluate the vertical extent of TAL metals (Table 3.2-1). As stated in the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), the extent of perchlorate was defined following the 2007 investigation, and no Phase II samples were analyzed for perchlorate.

Hexavalent chromium was detected in one sample at location 02-612346 at a concentration of 0.448 mg/kg. Concentrations of hexavalent chromium decreased with depth at this location. The vertical extent of hexavalent chromium is defined.

Aluminum was detected above the Qbo BV (3560 mg/kg) in two samples at two locations. The highest concentration of 3880 mg/kg was detected at location 02-612326 from 25–26 ft bgs. Aluminum concentrations decreased with depth at both locations. The vertical extent of aluminum is defined.

Antimony was not detected but had DLs (1.09 mg/kg to 1.27 mg/kg) above the soil BV (0.83 mg/kg) in 10 samples and had DLs (1.14 mg/kg to 1.31 mg/kg) above the Qbo BV (0.5 mg/kg) in 15 samples. Because antimony was not detected above BVs, the vertical extent of antimony is defined.

Arsenic was not detected above the Qbo BV (0.56 mg/kg) but had DLs (1.09 mg/kg to 1.38 mg/kg) above the Qbo BV in 13 samples. Because arsenic was not detected above BVs, the vertical extent of arsenic is defined.

Barium, beryllium, calcium, copper, lead, and nickel were not detected above BVs at these locations. The vertical extent of these metals is defined.

Cadmium was detected above the soil BV (0.4 mg/kg) in the shallowest sample at location 02-612325 at a concentration of 0.87 mg/kg. Cadmium was not detected but had DLs above Qbo and soil BVs in 23 samples. Because cadmium was detected in only one shallow sample, the vertical extent is defined.

Chromium was detected above the Qbo BV (2.6 mg/kg) in three samples at three locations. The highest concentration of 3.59 mg/kg was detected at location 02-612326 from 25–26 ft bgs. Chromium concentrations decreased with depth at all three locations. The vertical extent of chromium is defined.

Cobalt was detected above the Qbo BV (8.89 mg/kg) in one sample at a concentration of 18 mg/kg at location 02-612326 from 5–6 ft bgs. Cobalt concentrations decreased with depth at this location. The vertical extent of cobalt is defined.

In accordance with the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), cyanide was not analyzed in Phase II samples from AOC 02-004(a). Cyanide was detected in five samples collected during the 2007 investigation at a maximum depth of 0.5 ft bgs. Therefore, the vertical extent of cyanide is defined.

Iron was detected above the Qbo BV (3700 mg/kg) in 15 samples at five locations. The highest concentration of 6340 mg/kg was detected at location 02-612346 from 25–26 ft bgs. Iron was detected at concentrations of 8750 mg/kg and 9300 mg/kg (below the soil BV of 21,500 mg/kg) at location 02-612326 from 5–6 ft and 15–16 ft bgs, respectively, and was detected at concentrations of 9360 mg/kg and 6150 mg/kg (below the soil BV of 21,500 mg/kg) at location 02-612328 from 5–6 ft and 15–16 ft bgs, respectively. Iron concentrations decreased with depth at all five locations. The vertical extent of iron is defined.

Manganese was detected above the soil BV (671 mg/kg) in 1 sample and above the Qbo BV (189 mg/kg) in 13 samples at five locations. The highest concentration of 1860 mg/kg was detected at location 02-612326 from 15–16 ft bgs. Manganese was detected at concentrations of 356 mg/kg and 341 mg/kg (below the soil BV of 671 mg/kg) at location 02-612346 from 8–9 ft and 15–16 ft bgs, respectively. Manganese concentrations decreased with depth at all five locations. The vertical extent of manganese is defined.

Mercury was detected above the soil BV (0.1 mg/kg) in four samples and above the Qbo BV (0.1 mg/kg) in three samples at three locations. The highest concentration of 40.6 mg/kg was detected at location 02-612346 from 8–9 ft bgs. Mercury concentrations decreased with depth at all three locations. The vertical extent of mercury is defined.

Selenium was not detected above the Qbo BV (0.3 mg/kg) but had DLs (1.09 mg/kg to 1.38 mg/kg) above the Qbo BV in 15 samples. Because selenium was not detected above BVs, the vertical extent of selenium is defined.

Vanadium was detected above the Qbo BV (4.59 mg/kg) in one sample at a concentration of 4.74 mg/kg at location 02-612325 from 25–26 ft bgs. Vanadium concentrations decreased with depth at this location. The vertical extent of vanadium is defined.

Zinc was detected above the soil BV (48.8 mg/kg) in one sample at a concentration of 50.7 mg/kg at location 02-612326 from 5–6 ft bgs. Zinc concentrations decreased with depth at this location. The vertical extent of zinc is defined.

Organic Chemicals

Location 02-600580 was excavated to remove PAH contamination (Table 3.2-1). Confirmation samples were collected beneath the excavation at location 02-600580 and from four step-out locations (02-612350 to 02-612353). All confirmation samples were analyzed for SVOCs only.

- Acenaphthene was detected in two samples beneath the excavation and in three samples at two step-out locations. The highest concentration of 0.225 mg/kg was detected at location 02-612350 from 5–5.2 ft bgs. Acenaphthene was not detected from 11–16 ft bgs at location 02-600580, which is only 4 ft away. The preexcavated concentration of acenaphthene was 2.47 mg/kg at location 02-600580 from 0–0.5 ft bgs (Table 2.7-2, LANL 2008, 101669.12). Acenaphthene concentrations decreased laterally in all four directions. The lateral and vertical extent of acenaphthene are defined.
- Anthracene was detected in two samples beneath the excavation and in five samples at three step-out locations. The highest concentration of 0.885 mg/kg was detected at location 02-612350 from 5–5.2 ft bgs. Anthracene was detected at a concentration of 0.0334 mg/kg from 11–16 ft bgs at location 02-600580, which is only 4 ft away. The preexcavated concentration of anthracene was 2.96 mg/kg at location 02-600580 from 0–0.5 ft bgs (Table 2.7-2, LANL 2008,

101669.12). Anthracene concentrations decreased laterally in all four directions. The lateral and vertical extent of anthracene are defined.

- Benzo(a)anthracene was detected in two samples beneath the excavation and in seven samples at four step-out locations. The highest concentration of 2.23 mg/kg was detected at location 02-612350 from 5–5.2 ft bgs. Benzo(a)anthracene was detected at a concentration of 0.122 mg/kg from 11–16 ft bgs at location 02-600580, which is only 4 ft away. The preexcavated concentration of benzo(a)anthracene was 10.7 mg/kg at location 02-600580 from 0–0.5 ft bgs (Table 2.7-2, LANL 2008, 101669.12). Benzo(a)anthracene concentrations decreased laterally in all four directions. The lateral and vertical extent of benzo(a)anthracene are defined.
- Benzo(a)pyrene was detected in two samples beneath the excavation and in five samples at three step-out locations. The highest concentration of 0.545 mg/kg was detected at location 02-600580 from 5–5.2 ft bgs. Benzo(a)pyrene concentrations decreased with depth at location 02-600580. The preexcavated concentration of benzo(a)pyrene was 10.3 mg/kg at location 02-600580 from 0–0.5 ft bgs (Table 2.7-2, LANL 2008, 101669.12). Benzo(a)pyrene concentrations decreased laterally in all four directions. The lateral and vertical extent of benzo(a)pyrene are defined.
- Benzo(b)fluoranthene was detected in two samples beneath the excavation and in seven samples at four step-out locations. The highest concentration of 2.78 mg/kg was detected at location 02-612350 from 5–5.2 ft bgs. Benzo(b)fluoranthene was detected at a concentration of 0.162 mg/kg from 11–16 ft bgs at location 02-600580, which is only 4 ft away. The preexcavated concentration of benzo(b)fluoranthene was 16.7 mg/kg at location 02-600580 from 0–0.5 ft bgs (Table 2.7-2, LANL 2008, 101669.12). Benzo(b)fluoranthene concentrations decreased laterally in all four directions. The lateral and vertical extent of benzo(b)fluoranthene are defined.
- Benzo(g,h,i)perylene was detected in two samples beneath the excavation and in six samples at four step-out locations. The highest concentration of 0.668 mg/kg was detected at location 02-612350 from 5–5.2 ft bgs. Benzo(g,h,i)perylene was detected at a concentration of 0.0618 mg/kg from 11–16 ft bgs at location 02-600580, which is only 4 ft away. The preexcavated concentration of benzo(g,h,i)perylene was 4.77 mg/kg at location 02-600580 from 0–0.5 ft bgs (Table 2.7-2, LANL 2008, 101669.12). Benzo(g,h,i)perylene concentrations decreased laterally in all four directions. The lateral and vertical extent of benzo(g,h,i)perylene are defined.
- Benzo(k)fluoranthene was detected in two samples beneath the excavation and in two samples at one step-out location. The highest concentration of 0.244 mg/kg was detected at location 02-600580 from 5–5.2 ft bgs. Benzo(k)fluoranthene concentrations decreased with depth at both locations. Benzo(k)fluoranthene concentrations decreased laterally in all four directions. The lateral and vertical extent of benzo(k)fluoranthene are defined.
- Chrysene was detected in two samples beneath the excavation and in five samples at four step-out locations. The highest concentration of 2.16 mg/kg was detected at location 02-612350 from 5–5.2 ft bgs. Chrysene was detected at a concentration of 0.131 mg/kg from 11–16 ft bgs at location 02-600580, which is only 4 ft away. The preexcavated concentration of chrysene was 9.68 mg/kg at location 02-600580 from 0–0.5 ft bgs (Table 2.7-2, LANL 2008, 101669.12). Chrysene concentrations decreased laterally in all four directions. The lateral and vertical extent of chrysene are defined.
- Fluoranthene was detected in two samples beneath the excavation and in seven samples at four step-out locations. The highest concentration of 2.46 mg/kg was detected at location 02-612350 from 5–5.2 ft bgs. Fluoranthene was detected at a concentration of 0.213 mg/kg from 11–16 ft bgs at location 02-600580, which is only 4 ft away. The preexcavated concentration of

fluoranthene was 17.5 mg/kg at location 02-600580 from 0–0.5 ft bgs (Table 2.7-2, LANL 2008, 101669.12). Fluoranthene concentrations decreased laterally in all four directions. The lateral and vertical extent of fluoranthene are defined.

- Fluorene was detected in two samples beneath the excavation and in three samples at two step-out locations. The highest concentration of 0.242 mg/kg was detected at location 02-612350 from 5–5.2 ft bgs. Fluorene was not detected from 11–16 ft bgs at location 02-600580, which is only 4 ft away. The preexcavated concentration of fluorene was 1.08 mg/kg at location 02-600580 from 0–0.5 ft bgs (Table 2.7-2, LANL 2008, 101669.12). Fluorene concentrations decreased laterally in all four directions. The lateral and vertical extent of fluorene are defined.
- Indeno(1,2,3-cd)pyrene was detected in two samples beneath the excavation and in six samples at four step-out locations. The highest concentration of 0.635 mg/kg was detected at location 02-612350 from 5–5.2 ft bgs. Indeno(1,2,3-cd)pyrene was detected at a concentration of 0.0429 mg/kg from 11–16 ft bgs at location 02-600580, which is only 4 ft away. The preexcavated concentration of indeno(1,2,3-cd)pyrene was 4.28 mg/kg at location 02-600580 from 0–0.5 ft bgs (Table 2.7-2, LANL 2008, 101669.12). Indeno(1,2,3-cd)pyrene concentrations decreased laterally in all four directions. The lateral and vertical extent of indeno(1,2,3-cd)pyrene are defined.
- Naphthalene was detected in two samples beneath the excavation and in two samples at two step-out locations. The highest concentration of 0.0292 mg/kg was detected at location 02-600580 from 5–5.2 ft bgs. Naphthalene decreased with depth at all three locations. The preexcavated concentration of fluorene was 0.94 mg/kg at location 02-600580 from 0–0.5 ft bgs (Table 2.7-2, LANL 2008, 101669.12). Naphthalene concentrations decreased laterally in all four directions. The lateral and vertical extent of naphthalene are defined.
- Phenanthrene was detected in two samples beneath the excavation and in six samples at four step-out locations. The highest concentration of 2.29 mg/kg was detected at location 02-612350 from 5–5.2 ft bgs. Phenanthrene was detected at a concentration of 0.0964 mg/kg from 11–16 ft bgs at location 02-600580, which is only 4 ft away. The preexcavated concentration of phenanthrene was 9.67 mg/kg at location 02-600580 from 0–0.5 ft bgs (Table 2.7-2, LANL 2008, 101669.12). Phenanthrene concentrations decreased laterally in all four directions. The lateral and vertical extent of phenanthrene are defined.
- Pyrene was detected in two samples beneath the excavation and in seven samples at four step-out locations. The highest concentration of 2.31 mg/kg was detected at location 02-612350 from 5–5.2 ft bgs. Pyrene was detected at a concentration of 0.174 mg/kg from 11–16 ft bgs at location 02-600580, which is only 4 ft away. The preexcavated concentration of pyrene was 15.1 mg/kg at location 02-600580 from 0–0.5 ft bgs (Table 2.7-2, LANL 2008, 101669.12). Pyrene concentrations decreased laterally in all four directions. The lateral and vertical extent of pyrene are defined.

Five samples were collected from location 02-612346 (depths ranging from 8–50 ft bgs) to evaluate the vertical extent of PCBs and SVOCs (Table 3.2-1). As stated in the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), the extent of VOCs was defined following the 2007 investigation, and no Phase II samples were analyzed for VOCs. In addition, Phase II samples were not analyzed for dioxins and furans (LANL 2008, 101669.12, p. 115).

Aroclor-1254 was detected in one sample at a concentration of 0.0068 mg/kg at location 02-612346 from 15–16 ft bgs. Aroclor-1254 concentrations decreased with depth at this location. The vertical extent of Aroclor-1254 is defined.

Aroclor-1260 was detected in two samples at location 02-612346. The highest concentration of 0.014 mg/kg was detected at location 02-612346 from 15–16 ft bgs. Aroclor-1260 concentrations decreased with depth at this location. The vertical extent of Aroclor-1260 is defined.

SVOCs were not detected at location 02-612346. The vertical extent of SVOCs is defined.

Radionuclides

Twenty-five samples were collected from five locations (02-612325 to 02-612328 [depths ranging from 5–50 ft bgs] and 02-612346 [depths ranging from 8–50 ft bgs]) to evaluate vertical extent of gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, and tritium (Table 3.2-1).

In accordance with the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), americium-241 was not analyzed in Phase II samples from AOC 02-004(a). Americium-241 was detected in one sample collected during the 2007 investigation at a depth of 1.5 to 3.3 ft bgs at location 02-600584. Americium-241 was not detected in any deeper samples at this location. Therefore, the vertical extent of americium-241 is defined.

Cobalt-60 was not detected in any samples from locations 02-612325 to 02-612328 and 02-612346. Therefore, the vertical extent of cobalt-60 is defined.

Cesium-137 was detected in three samples at three locations. The highest activity of 0.218 pCi/g was detected at location 02-612326 from 5–6 ft bgs. Cesium-137 activities decreased with depth at all three locations. The vertical extent of cesium-137 is defined.

Plutonium-239/240 was detected in two samples at two locations. The highest activity of 0.0476 pCi/g was detected at location 02-612346 from 8–9 ft bgs. Plutonium-239/240 activities decreased with depth at both locations. The vertical extent of plutonium-239/240 is defined.

In accordance with the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), strontium-90 was not analyzed in Phase II samples from AOC 02-004(a). Strontium-90 was detected in one sample collected during the 2007 investigation at a depth of 0 to 0.5 ft bgs at location 02-600381. Strontium-90 was not detected in any deeper samples at this location. Therefore, the vertical extent of strontium-90 is defined.

Tritium was detected in 12 samples at the five locations drilled in 2010. The highest activity in these samples (0.3210 pCi/g) was detected at location 02-612327 from 5–6 ft bgs. Tritium activities decreased with depth at locations 02-612325, 02-612327, and 02-612328. Tritium was detected at less than 0.1 pCi/g from 49–50 ft bgs at locations 02-612326 and 02-612346. All tritium activities in excess of 1 pCi/g at AOC 02-004(a) occur in previously sampled locations from 8–11 ft bgs. Therefore, the vertical extent of tritium is defined.

Isotopic uranium was not detected above BVs at these locations. The vertical extent of isotopic uranium is defined.

Summary of Nature and Extent at AOC 02-004(a)

Excavation was conducted at location 02-600580 to remove PAH contamination. The lateral and vertical extent for PAHs are defined at the excavation. Results of the confirmation samples indicated that the remaining PAH concentrations are below the industrial SSLs.

The vertical extent of TAL metals, hexavalent chromium, cyanide, PCBs, SVOCs, americium-241, cesium-137, cobalt-60, isotopic plutonium, isotopic uranium, strontium-90, and tritium is defined.

6.7.5 Summary of Human Health Risk Screening

Details of the human health risk-screening assessment for AOC 02-004(a) are discussed in Appendix H, section H-4.

The total excess cancer risk for the industrial scenario is 3×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.04, which is below the NMED target HI of 1 (NMED 2009, 108070). The HQ for TPH-DRO is 0.1, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 8 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 5×10^{-5}, based on a comparison with EPA's outdoor worker PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

The total excess cancer risk for the recreational scenario is 2×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI for noncarcinogens is 0.08, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 1 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 3×10^{-6}, based on conversion from dose using RESRAD, Version 6.5.

The total excess cancer risk for the residential scenario is 2×10^{-5}, which is above the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI for is 0.8 which is below the NMED target HI of 1.0. The HQ for TPH-DRO is 0.2, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 20 mrem/yr, which is above the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 4×10^{-5}, based on a comparison with EPA's residential PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Based on the screening-assessment results, no potential unacceptable risks or doses from COPCs exist for the industrial and recreational scenarios. Based on the screening-assessment results, no potential unacceptable noncarcinogenic risk exists for the residential scenario, but a potential unacceptable cancer risk and a potential unacceptable dose exist for the residential scenario.

6.7.6 Summary of Ecological Risk Screening

In accordance with the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), locations surrounding the core area of TA-02 were sampled to define the lateral extent of contamination for TA-02 as a whole (section 6.32). Although the lateral extent for the TA-02 core area is defined, one site within the core area requires additional remediation and confirmation sampling. The ecological risk-screening assessment will be conducted for the sites within the TA-02 core area as one exposure unit after the investigation at this site has been completed.

6.8 AOC 02-004(b), Former Storage Tanks for Effluent from OWR and Equipment Building

6.8.1 Site Description and Operational History

AOCs 02-004(b,c,d) consisted of a system of three individual liquid waste storage tanks (Figure 6.8-1). Each tank is a separate AOC, but because of their proximity to one another and identical processes associated with all three tanks, the three AOCs are discussed together and the data for all three are evaluated together in this section. The system contained three underground 1200-gal. stainless-steel effluent storage tanks (structures 02-054, 02-055, and 02-056) with rubberized liners, approximately 150 ft west of building 02-001. The tanks received liquid waste that was primarily flushed effluent from the ion-exchange system associated with the OWR [AOC 02-004(a)]. The tanks also received any spills or leaks collected from the floor of the OWR equipment building [02-044, AOC 02-004(f)], as shown on engineering drawing C-29861 (LASL 1962, 090055).

The tanks were approximately 5-ft-high and 6-ft-diameter cylinders with approximately 2 ft of spacing between them within a single reinforced-concrete vault. The vault was rectangular and approximately 8 ft × 23 ft. The top of the vault was approximately 4 ft bgs, as shown on engineering drawing C-29861 (LASL 1962, 090055). The vault was adjacent to the reactor facility acid pit/transfer sump [structure 02-053, AOC 02-004(e)] and aligned perpendicular to Los Alamos Creek. The southernmost tank was structure 02-054 [AOC 02-004(b)], structure 02-055 [AOC 02-004(c)] was the center tank, and structure 02-056 [AOC 02-004(d)] was the northernmost tank. The bottom of the vault was approximately 10 ft bgs. The lines from the tanks to the reactor facility acid pit/transfer sump [(AOC 02-004(e)] were approximately 8 ft long and were used to temporarily store the liquid until it was transferred to the liquid acid waste line [AOC 02-004(f)] leading to TA-50 or to the aboveground portable tank [AOC 02-004(g)].

The tanks, vault, transfer sump, and lines were installed in 1962 according to engineering drawing C-29861, sheet 4 of 13 (LASL 1962, 090055). Leaks in the OWR cooling-liquid system led to the shutdown of the OWR in 1993. All systems were put on standby status in 1993; in 1995, all lines and tanks were drained and the liquids were disposed of (LANL 2000, 090087). In 2000, the tanks, vault, and transfer sump were removed and disposed of (LANL 2000, 090087). In 2003, the lines connecting the tanks to the acid pit/transfer sump [structure 02-053, AOC 02-004(e)], OWR equipment building [02-044, AOC 02-004(f)], the liquid acid waste line leading to TA-50, and the acid pit/transfer sump [structure 02-053, AOC 02-004(e)] outfall [AOC 02-011(d)] were removed and disposed of (WD-3 2003, 082646).

6.8.2 Relationship to Other SWMUs and AOCs

The OWR effluent storage tanks received effluent from the ion-exchange system of the OWR [AOC 02-004(a)] and from the floor of the OWR equipment building [AOC 02-004(f)]. The OWR acid pit, AOC 02-004(e), was located immediately adjacent to the vault on the southeast side. The drainline from the OWR equipment building, AOC 02-004(f), to the acid pit ran from northeast to southwest near the southeast side of the vault near AOC 02-004(d). A storm drain and outfall, AOC 02-011(c), terminated on the surface, approximately 20 ft to the northeast of the vault.

6.8.3 Summary of Previous Investigations

1995 Investigation Activities

A radiological screening survey was conducted at locations across AOCs 02-004(b,c,d). Alpha activity was detected at levels above instrument background, and beta/gamma activity was detected at levels above site background.

Soil samples were collected during the investigation activities from boreholes near the tank vault. Supporting QA/QC information is not available for these samples, so the sample results are not included in this report.

2000 Post–Cerro Grande Fire Recovery Work

During 2000 post–Cerro Grande fire recovery activities, the tanks, vault structure, and piping between the tanks and acid pit/transfer sump [structure 02-053, AOC 02-004(e)] were removed and disposed of. The structure footprint was returned to a natural grade. Approximately 154 yd^3 of material was removed during this 2000 D&D activity and disposed of at TA-54; waste volumes associated with AOCs 02-004(b,c,d) are not available (LANL 2000, 090087).

Soil samples were collected from boreholes across the general AOCs 02-004(b,c,d) area during the 2000 D&D activities. However, the borehole location coordinates were not surveyed, and accurate information is not available for these locations. Therefore, these data are not useable and are not included in this report.

2003 Omega West Decommissioning Project

Any piping that remained on-site after the 2000 D&D effort was decommissioned and removed, and the waste was disposed of at an appropriate disposal facility. Site activities included soil excavation, radiological walkover surveys, radiological (structure) screening, soil sampling, sample analysis, and surveying of sample coordinates. Limited soil surveys were conducted, but no formal report of soil survey results is available.

LLW (construction debris and/or soil) was packaged and shipped to Envirocare and/or TA-54 for disposal. Mixed waste was packaged and transferred to TA-54 for further processing and/or storage at the Laboratory. In total, 360 yd^3 of material was shipped to Envirocare for disposal; material from the OWR effluent storage tanks was included in this total volume (WD-3 2003, 082646, pp. 1–6). No soil samples were collected in 2003 at AOCs 02-004(b,c,d) as part of the Omega West decommissioning project activities.

2007 Investigation Activities

Nineteen samples were collected from nine locations at AOCs 02-004(b,c,d) in 2007. Results from the sampling activities in 2007 were presented in the previous investigation report (LANL 2008, 101669.12). Additional sampling was required to define the extent of contamination at the site.

6.8.4 Site Contamination

6.8.4.1 Soil and Rock Sampling

As part of the 2010 investigation, the following characterization activities were conducted at AOCs 02-004(b,c,d):

- All samples were field screened for organic vapors and gross-alpha, -beta, and -gamma radioactivity. Field-screening results were recorded on the SCLs (Appendix F) and are presented in Table 3.2-2.
- Five samples were collected from location 02-612280 where AOCs 02-004(b,c,d,e) and 02-011(d) are collocated from 5–7 ft, 15–16 ft, 25–27 ft, 35–36 ft, and 49–50 ft bgs. These samples were analyzed for TAL metals, hexavalent chromium, PCBs, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, and tritium.

The 2010 and historical sampling locations at AOCs 02-004(b,c,d) are shown in Figure 6.8-1. Table 6.8-1 presents the samples collected and analyses requested for AOCs 02-004(b,c,d). The geodetic coordinates of the 2010 sampling locations are presented in Table 3.2-1.

6.8.4.2 Soil and Rock Sample Field-Screening Results

No organic vapors were detected at more than 10 ppm above ambient air levels during headspace screening of the samples. No radiological-screening results exceeded twice the daily site background levels. Field-screening results are presented in Table 3.2-2. No changes to sampling or other activities occurred because of the field-screening results.

6.8.4.3 Soil and Rock Sample Analytical Results

Decision-level data at AOCs 02-004(b,c,d) consist of results from 24 samples (9 soil and 15 tuff) collected from 10 locations in 2007 and 2010. The 24 samples include 9 soil, 6 Qal, and 9 Qbo samples.

Inorganic Chemicals

A total of 24 samples (9 soil, 6 Qal, and 9 Qbo) were analyzed for TAL metals, 5 samples (1 Qal and 4 Qbo) were analyzed for hexavalent chromium, and 19 samples (9 soil, 5 Qal, and 5 Qbo) were analyzed for nitrate, perchlorate, and total cyanide.

Table 6.8-2 presents the inorganic chemicals detected or detected above BVs. Figure 6.8-2 shows the spatial distribution of inorganic chemicals detected or detected above BVs. The vertical extent is defined at AOCs 02-004(b,c,d), and the lateral extent is defined at the TA-02 core area; inorganic COPCs are identified below.

Aluminum was detected above the Qbo BV (3560 mg/kg) and the maximum Qbo background concentration (3400 mg/kg) in six samples with a maximum concentration of 13,700 mg/kg. Aluminum is identified as a COPC in tuff.

Antimony was not detected but had a DL (0.941 mg/kg) above the soil BV (0.83 mg/kg) in one sample. This DL is below the maximum soil background concentration (1 mg/kg). Antimony is not identified as a COPC in soil. Antimony was not detected but had DLs (0.525 mg/kg to 1.26 mg/kg) above the Qbo BV (0.5 mg/kg) and the maximum Qbo background concentration (0.2 mg/kg) in five samples. Antimony is identified as a COPC in tuff.

Arsenic was detected above the Qbo BV (0.56 mg/kg) in four samples with a maximum concentration of 1.71 mg/kg, and it was not detected but had DLs (1.25 mg/kg to 1.95 mg/kg) above the Qbo BV in three samples. All four concentrations and all three DLs are above the maximum Qbo background concentration (0.7 mg/kg). Arsenic is identified as a COPC in tuff.

Barium was detected above the Qbo BV (25.7 mg/kg) and the maximum Qbo background concentration (23 mg/kg) in three samples with a maximum concentration of 65.8 mg/kg. Because there were fewer than 10 Qbo samples, statistical tests could not be performed. Barium is identified as a COPC in tuff.

Cadmium was not detected above the soil BV (0.4 mg/kg) but had DLs (0.492 mg/kg to 0.548 mg/kg) above the soil BV in seven samples. Because the background data set had more than 50% nondetects, the Gehan test could not be performed. The quantile test and the box plot indicated site concentrations are less than background (Figure G-7.0-1, Table G-7). Cadmium is not identified as a COPC in soil.

Cadmium was not detected but had DLs (0.589 mg/kg to 0.649 mg/kg) above the Qbo BV (0.4 mg/kg) in eight samples. Cadmium is identified as a COPC in tuff.

Calcium was detected above the soil BV (6120 mg/kg) in one sample at a concentration of 7960 mg/kg. This concentration is below the maximum soil background concentration (14,000 mg/kg). The Gehan test and the box plot indicated site concentrations are less than background (Figure G-7.0-2, Table G-7). Calcium is not identified as a COPC in soil.

Chromium was detected above soil BV (19.3 mg/kg) in five samples with a maximum concentration of 37.3 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-7.0-3, Table G-7). Chromium is identified as a COPC in soil. Chromium was detected above the Qbo BV (2.6 mg/kg) and the maximum Qbo background concentration (2.3 mg/kg) in five samples with a maximum concentration of 13 mg/kg. Because there were fewer than 10 Qbo samples, statistical tests could not be performed. Chromium is identified as a COPC in tuff.

Hexavalent chromium was not detected in any samples from AOCs 02-004(b,c,d) and is therefore not identified as a COPC in any media.

Cyanide was detected above the soil BV (0.5 mg/kg) in one sample at a concentration of 0.54 mg/kg. Cyanide has no background data set for soil. Cyanide is identified as a COPC in soil.

Iron was detected above the Qbo BV and the maximum Qbo background concentration (both 3700 mg/kg) in all nine Qbo samples with a maximum concentration of 8090 mg/kg. Iron is identified as a COPC in tuff.

Manganese was detected above the Qbo BV (189 mg/kg) in seven samples with a maximum concentration of 340 mg/kg. Because there were fewer than 10 Qbo samples, statistical tests could not be performed. Manganese is identified as a COPC in tuff.

Nickel was detected above the Qbo BV (2 mg/kg) in four samples with a maximum concentration of 2.57 mg/kg. All four concentrations are below the maximum Qbo background concentration (2.8 mg/kg). Nickel is not identified as a COPC in tuff.

Nitrate was detected in 12 soil/Qal samples with a maximum concentration of 17.3 mg/kg. No background data are available for nitrate. Nitrate is naturally occurring, and the concentrations detected likely reflect naturally occurring levels. Nitrate is not identified as a COPC in soil.

Perchlorate was detected in seven soil/Qal samples with a maximum concentration of 0.00216 mg/kg. Because perchlorate has no BV in soil, perchlorate is identified as a COPC in soil.

Selenium was not detected but had DLs (1.53 mg/kg to 1.64 mg/kg) above the soil BV (1.52 mg/kg) in five samples. The Gehan test indicated site concentrations are different from background (Figure G-7.0-4, Table G-7). Selenium is identified as a COPC in soil. Selenium was detected above the Qbo BV (0.3 mg/kg) in three samples with a maximum concentration of 0.781 mg/kg, and it was not detected but had DLs (1.19 mg/kg to 1.95 mg/kg) above the Qbo BV in six samples. Because there were fewer than 10 Qbo samples, statistical tests could not be performed. Selenium is identified as a COPC in tuff.

Vanadium was detected above the Qbo BV (4.59 mg/kg) and the maximum Qbo background concentration (3.8 mg/kg) in three samples with a maximum concentration of 4.88 mg/kg. Because there were fewer than 10 Qbo samples, statistical tests could not be performed. Vanadium is identified as a COPC in tuff.

Zinc was detected above the soil BV (48.8 mg/kg) in six samples with a maximum concentration of 158 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-7.0-5, Table G-7). Zinc is identified as a COPC in soil.

In summary, the inorganic COPCs identified at AOCs 02-004(b,c,d) are aluminum, antimony, arsenic, barium, cadmium, chromium, cyanide, iron, manganese, perchlorate, selenium, vanadium, and zinc.

Organic Chemicals

A total of 19 samples (9 soil, 5 Qal, and 5 Qbo) were analyzed for dioxins and furans, 24 samples (9 soil, 6 Qal, and 9 Qbo) were analyzed for PCBs, 19 samples (9 soil, 5 Qal, and 5 Qbo) were analyzed for SVOCs, and 10 samples (5 Qal and 5 Qbo) were analyzed for VOCs.

Table 6.8-3 presents the detected organic chemicals. Plates 11 and 12 show the spatial distribution of detected organic chemicals. The vertical extent is defined at AOCs 02-004(b,c,d), and the lateral extent is defined at the TA-02 core area; organic COPCs are identified below.

Organic chemicals detected at AOCs 02-004(b,c,d) include acenaphthene; anthracene; Aroclor-1248; Aroclor-1254; Aroclor-1260; benzo(a)anthracene; benzo(a)pyrene; benzo(b)fluoranthene; benzo(g,h,i)perylene; benzo(k)fluoranthene; chrysene; dibenzofuran; fluoranthene; fluorene; 1,2,3,4,6,7,8-heptachlorodibenzodioxin; 1,2,3,4,6,7,8-heptachlorodibenzofuran; 1,2,3,4,7,8,9-heptachlorodibenzofuran; 1,2,3,4,7,8-hexachlorodibenzodioxin; 1,2,3,6,7,8-hexachlorodibenzodioxin; 1,2,3,7,8,9-hexachlorodibenzodioxin; 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-hexachlorodibenzofuran; indeno(1,2,3-cd)pyrene; 2-methylnaphthalene; naphthalene; 1,2,3,4,6,7,8,9-octachlorodibenzodioxin; 1,2,3,4,6,7,8,9-octachlorodibenzofuran; 1,2,3,7,8-pentachlorodibenzodioxin; 1,2,3,7,8-pentachlorodibenzofuran; 2,3,4,7,8-pentachlorodibenzofuran; phenanthrene; pyrene; 2,3,7,8-tetrachlorodibenzodioxin; and 2,3,7,8-tetrachlorodibenzofuran.

These organic chemicals are retained as COPCs at AOCs 02-004(b,c,d).

Radionuclides

A total of 16 samples (9 soil, 2 Qal, and 5 Qbo) were analyzed for americium-241 and strontium-90, 21 samples (9 soil, 3 Qal, and 9 Qbo) were analyzed for gamma-emitting radionuclides, isotopic plutonium, and isotopic uranium, and 22 samples (9 soil, 4 Qal, and 9 Qbo) were analyzed for tritium.

Table 6.8-4 presents the radionuclides detected or detected above BVs/FVs. Figure 6.8-3 shows the spatial distribution of radionuclides detected or detected above BVs/FVs. The vertical extent is defined at AOCs 02-004(b,c,d), and the lateral extent is defined at the TA-02 core area; radionuclide COPCs are identified below.

Cesium-137 was detected in subsurface soil (below 0–1 ft) in one sample at an activity of 0.23 pCi/g. Cesium-137 is identified as a COPC in soil.

Cobalt-60 was detected in three soil/Qal samples with a maximum activity of 0.884 pCi/g. Cobalt-60 has no BV in soil. Cobalt-60 is identified as a COPC in soil.

Plutonium-239/240 was detected above the soil FV (0.054 pCi/g) and detected in subsurface soil (below 0–1 ft) in seven samples with a maximum activity of 0.756 pCi/g. Plutonium-239/240 is identified as a COPC in soil.

Tritium was detected in seven soil/Qal samples with a maximum activity of 0.916 pCi/g. Tritium is identified by detection status and is a COPC in soil.

Uranium-235/236 was detected above the Qbo BV (0.18 pCi/g) in two samples with a maximum activity of 0.251 pCi/g. Uranium-235/236 is identified as a COPC in tuff.

In summary, the radionuclide COPCs identified at AOCs 02-004(b,c,d) are cesium-137, cobalt-60, plutonium-239/240, tritium, and uranium-235/236.

6.8.4.4 Nature and Extent of Contamination at AOC 02-004(b)

In accordance with the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), one location was sampled at AOC 02-004(b) to determine the vertical extent of contamination for inorganic chemicals, organic chemicals, and radionuclides (Table 3.2-1). Analytical suites were determined by the data needs specific to each location as presented in Table 3.1-1 of the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703). The vertical extent of contamination at AOC 02-004(b) is evaluated using only the Phase II data from samples collected as deep as 50 ft bgs.

Inorganic Chemicals

Five samples were collected from location 02-612280 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of TAL metals and hexavalent chromium (Table 3.2-1). As stated in the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), the extent of perchlorate was defined following the 2007 investigation, and no Phase II samples were analyzed for perchlorate.

Aluminum was detected above the Qbo BV (3560 mg/kg) in one sample at a concentration of 8240 mg/kg at location 02-612280 from 15–16 ft bgs. Aluminum concentrations decreased with depth at this location. The vertical extent of aluminum is defined.

Antimony was not detected above the Qbo BV (0.5 mg/kg) but had DLs (1.18 mg/kg to 1.26 mg/kg) above the Qbo BV in four samples. Because antimony was not detected above BVs, the vertical extent of antimony is defined.

Arsenic was not detected above the Qbo BV (0.56 mg/kg) but had DLs (1.25 mg/kg to 1.26 mg/kg) above the Qbo BV in three samples. Because arsenic was not detected above BVs, the vertical extent of arsenic is defined.

Barium, vanadium, and zinc were not detected above BVs at location 02-612280. The vertical extent of these metals is defined.

Cadmium was not detected above the Qbo BV (0.4 mg/kg) but had DLs (0.589 mg/kg to 0.631 mg/kg) above the Qbo BV in four samples. Because cadmium was not detected above BVs, the vertical extent of cadmium is defined.

Chromium was detected above the Qbo BV (2.6 mg/kg) in one sample at a concentration of 3.39 mg/kg at location 02-612280 from 49–50 ft bgs. Chromium was detected at a concentration of 15.6 mg/kg (below the soil BV of 19.3 mg/kg) at location 02-612280 from 5–7 ft bgs. Chromium concentrations decreased with depth at this location. The vertical extent of chromium is defined.

Hexavalent chromium was not detected at location 02-612280 and is not identified as a COPC at AOCs 02-004(b,c,d).

In accordance with the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), cyanide was not analyzed in Phase II samples from AOCs 02-004(b,c,d). Cyanide was detected in one sample collected during the 2007 investigation at a depth of 0 to 0.5 ft bgs at location 02-600508. Cyanide was not detected in any deeper samples at this location. Therefore, the vertical extent of cyanide is defined.

Iron was detected above the Qbo BV (3700 mg/kg) in four samples at location 02-612280. The highest concentration of 5400 mg/kg was detected at location 02-612280 from 49–50 ft bgs. Iron was detected at a concentration of 8300 mg/kg (below the soil BV of 21,500 mg/kg) at location 02-612280 from 5–6 ft bgs. Iron concentrations decreased with depth at this location. The vertical extent of iron is defined.

Manganese was detected above the Qbo BV (189 mg/kg) in three samples at location 02-612280. The highest concentration of 253 mg/kg was detected at location 02-612280 from 35–36 ft bgs. Manganese concentrations decreased with depth at this location. The vertical extent of manganese is defined.

Selenium was not detected above the Qbo BV (0.3 mg/kg) but had DLs (1.19 mg/kg to 1.26 mg/kg) above the Qbo BV in four samples. Because selenium was not detected above BVs, the vertical extent of selenium is defined.

Organic Chemicals

Five samples were collected from location 02-612280 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of PCBs (Table 3.2-1). As stated in the approved Phase II investigation work plan (LANL 2009, 106660.14; NMED 2009, 106703), the extent of VOCs was defined following the 2007 investigation, and no Phase II samples were analyzed for VOCs. In addition, Phase II samples were not analyzed for dioxins and furans (LANL 2008, 101669.12, p. 115).

Aroclor-1254 was detected in one sample at a concentration of 0.0438 mg/kg at location 02-612280 from 5–7 ft bgs. Aroclor-1254 concentrations decreased with depth at this location. The vertical extent of Aroclor-1254 is defined.

Aroclor-1260 was detected in one sample at a concentration of 0.0286 mg/kg at location 02-612280 from 5–7 ft bgs. Aroclor-1260 concentrations decreased with depth at this location. The vertical extent of Aroclor-1260 is defined.

Radionuclides

Five samples were collected from location 02-612280 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, and tritium (Table 3.2-1).

Cesium-137 was detected in one sample at an activity of 0.23 pCi/g at location 02-612280 from 5–7 ft bgs. Cesium-137 activities decreased with depth at this location. The vertical extent of cesium-137 is defined.

Cobalt-60 was detected in one sample at an activity of 0.139 pCi/g at location 02-612280 from 5–7 ft bgs. Cobalt-60 activities decreased with depth at this location. The vertical extent of cobalt-60 is defined.

Plutonium-239/240 was detected in one sample at an activity of 0.0581 pCi/g at location 02-612280 from 5–7 ft bgs. Plutonium-239/240 activities decreased with depth at this location. The vertical extent of plutonium-239/240 is defined.

Tritium was detected in one sample at an activity of 0.2174 pCi/g at location 02-612280 from 5–7 ft bgs. Tritium activities decreased with depth at this location. The vertical extent of tritium is defined.

Isotopic uranium was not detected above BVs at location 02-612280. The vertical extent of isotopic uranium is defined.

Summary of Nature and Extent at AOC 02-004(b)

The vertical extent of TAL metals, hexavalent chromium, PCBs, and radionuclides is defined.

6.8.5 Summary of Human Health Risk Screening

Details of the human health risk-screening assessment for AOCs 02-004(b,c,d) are discussed in Appendix H, section H-4.

The total excess cancer risk for the industrial scenario is 2×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.01, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 3 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 1×10^{-5}, based on a comparison with EPA's outdoor worker PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls)

The total excess cancer risk for the recreational scenario is 2×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.03, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 0.3 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 1×10^{-6}, based on conversion from dose using RESRAD, Version 6.5.

The total excess cancer risk for the residential scenario is 2×10^{-5}, which is above the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The cancer risk partly because of arsenic and is overestimated. As discussed in the uncertainty analysis in Appendix H (section H-4.4.2), the arsenic EPC is similar to being exposed to a naturally occurring arsenic level, and the risk does not incrementally increase above that which would result from exposure to naturally occurring levels of arsenic. The risk is reduced to approximately 1×10^{-5} without arsenic and is equivalent to the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.4, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 12 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 3×10^{-5}, based on a comparison with EPA's residential PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Based on the screening-assessment results, no potential unacceptable risks or doses exist for the industrial, recreational, and residential scenarios.

6.8.6 Summary of Ecological Risk Screening

In accordance with the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), locations surrounding the core area of TA-02 were sampled to define the lateral extent of contamination for TA-02 as a whole (section 6.32). Although the lateral extent for the TA-02 core area is defined, one site within the core area requires additional remediation and confirmation sampling. The ecological risk-screening assessment will be conducted for the sites within the TA-02 core area as one exposure unit after the investigation at this site has been completed.

6.9 AOC 02-004(c), Former Storage Tanks for Effluent from OWR and Equipment Building

AOCs 02-004(b,c,d) consisted of a system of three individual liquid waste storage tanks (Figure 6.8-1). Each tank is a separate AOC, but because of their proximity to one another and identical processes associated with all three tanks, the three AOCs are discussed together and the data for all three are evaluated together in section 6.8.

6.10 AOC 02-004(d), Former Storage Tanks for Effluent from OWR and Equipment Building

AOCs 02-004(b,c,d) consisted of a system of three individual liquid waste storage tanks (Figure 6.8-1). Each tank is a separate AOC, but because of their proximity to one another and identical processes associated with all three tanks, the three AOCs are discussed together and the data for all three are evaluated together in section 6.8.

6.11 AOC 02-004(e), Former Acid Pit/Transfer Sump

6.11.1 Site Description and Operational History

AOC 02-004(e) was a liquid transfer system that consisted of a series of valves and pumps that transferred waste from the OWR equipment building (02-044) to the structure 02-054, 02-055, or 02-056 tanks, the portable aboveground tank [no structure number, AOC 02-004(g)], or the liquid acid waste line leading to TA-50 (Figure 6.11-1). The equipment was housed in a partially belowground transfer sump, referred to as the acid pit/transfer sump (structure 02-053). The unit was a reinforced-concrete pit that measured 7 ft wide × 11 ft long × 7 ft deep. Approximately 1 ft of the pit was aboveground, as indicated on engineering drawing C-29861 (LASL 1962, 090055).

The liquid waste line entered the sump from the OWR equipment building [02-044, AOC 02-004(f)] at approximately 5 ft bgs and connected to the tanks at 8 ft bgs.

The acid pit/transfer sump was operational beginning in 1963. The system transferred liquid wastes from the OWR equipment building to three storage tanks [AOCs 02-004(b,c,d)]. The tanks were used to store the liquid temporarily until it was transferred to the liquid acid waste line (no structure number) leading to TA-50 or to the portable aboveground tank [(no structure number) AOC 02-004(g)].

Use of the acid pit/transfer sump was discontinued in 1993 when the OWR was shut down (WD-3 2003, 082646, p. 2). All liquid waste was drained from the system in 1995, and in 2000 the structure and equipment were decommissioned and removed (LANL 2000, 090087). All remaining buried pipes and drains were removed and disposed of in 2003 (WD-3 2003, 082646).

6.11.2 Relationship to Other SWMUs and AOCs

The acid pit/transfer sump received liquid wastes from the OWR equipment building [AOC 02-004(f)] and transferred those wastes to the tanks at AOCs 02-004(b,c,d) to an aboveground tank, AOC 02-004(g), or to the liquid acid waste line leading to TA-50. The acid pit/transfer sump was immediately adjacent to AOCs 02-004(b,c,d).

6.11.3 Summary of Previous Investigations

1995 Investigation Activities

A radiological screening survey was conducted at locations across the acid pit/transfer sump area [structure 02-053, AOC 02-004(e)]. Alpha activity was detected at levels above site background, and beta/gamma activity was detected at levels above site background.

Soil samples were collected from locations near the acid pit/transfer sump. Supporting QA/QC information is not available for these samples, so the sample results are not included in this report.

2000 Post–Cerro Grande Fire Recovery Work

The scope of decommissioning activities following the Cerro Grande fire in 2000 included removing and disposing of all building and structural components, piping, and aboveground earthen barricades. The OWR acid pit/transfer sump was removed, and all underground piping leading to and away from the acid pit/transfer sump was capped and left in place. Specific waste volumes associated with AOC 02-004(e) are not available (LANL 2000, 090087).

Soil samples were collected from boreholes across the AOC 02-004(e) area. However, the borehole location coordinates were not surveyed, and accurate information is not available for these locations. Therefore, these data are not useable and are not included in this report.

2003 Omega West Decommissioning Project

AOC 02-004(e) piping that remained on-site after the 2000 activities was removed, and the waste was disposed of in 2003. Site activities included soil excavation, radiological walkover surveys, radiological (structure) screening, soil sampling, sample analysis, and surveying of sample coordinates. Limited soil surveys were conducted, but no formal report of soil survey results is available.

LLW (construction debris and/or soil) was packaged and shipped to Envirocare or TA-54 for disposal. Mixed waste was packaged and transferred to TA-54 for further processing and/or storage at the Laboratory. In total, 360 yd^3 of material was shipped to Envirocare for disposal; piping and/or soil material from the OWR acid pit/transfer sump was included in this total volume (WD-3 2003, 082646, pp. 1–6).

No soil samples were collected in 2003 at AOC 02-004(e) as part of the Omega West decommissioning project activities.

2007 Investigation Activities

Eight samples were collected from three locations at AOC 02-004(e) in 2007. Results from the sampling activities in 2007 were presented in the previous investigation report (LANL 2008, 101669.12). Additional sampling was required to define the extent of contamination at the site.

6.11.4 Site Contamination

6.11.4.1 Soil and Rock Sampling

As part of the 2010 investigation, the following characterization activities were conducted at AOC 02-004(e):

- All samples were field screened for organic vapors and gross-alpha, -beta, and -gamma radioactivity. Field-screening results were recorded on the SCLs (Appendix F) and are presented in Table 3.2-2.
- Five samples were collected from location 02-612280 where AOCs 02-004(b,c,d,e) and 02-011(d) are collocated from 5–7 ft, 15–16 ft, 25–27 ft, 35–36 ft, and 49–50 ft bgs. These samples were analyzed for TAL metals, hexavalent chromium, PCBs, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, and tritium.

The 2010 and historical sampling locations at AOC 02-004(e) are shown in Figure 6.11-1. Table 6.11-1 presents the samples collected and analyses requested for AOC 02-004(e). The geodetic coordinates of the 2010 sampling locations are presented in Table 3.2-1.

6.11.4.2 Soil and Rock Sample Field-Screening Results

No organic vapors were detected at more than 10 ppm above ambient air levels during headspace screening of the samples. No radiological-screening results exceeded twice the daily site background levels. Field-screening results are presented in Table 3.2-2. No changes to sampling or other activities occurred because of the field-screening results.

6.11.4.3 Soil and Rock Sample Analytical Results

Decision-level data at AOC 02-004(e) consist of results from 13 samples collected from four locations in 2007 and 2010. The 13 samples include 3 soil, 3 Qal, and 7 Qbo samples.

Inorganic Chemicals

A total of 13 samples (3 soil, 3 Qal, and 7 Qbo) were analyzed for TAL metals, 5 samples (1 Qal and 4 Qbo) were analyzed for hexavalent chromium, and 8 samples (3 soil, 2 Qal, and 3 Qbo) were analyzed for nitrate, perchlorate, and total cyanide.

Table 6.11-2 presents the inorganic chemicals detected or detected above BVs. Figure 6.11-2 shows the spatial distribution of inorganic chemicals detected or detected above BVs. The vertical extent is defined at AOC 02-004(e), and the lateral extent is defined at the TA-02 core area; inorganic COPCs are identified below.

Aluminum was detected above the Qbo BV (3560 mg/kg) and the maximum Qbo background concentration (3400 mg/kg) in four samples with a maximum concentration of 9700 mg/kg. Because there were fewer than 10 Qbo samples, statistical tests could not be performed. Aluminum is identified as a COPC in tuff.

Antimony was not detected but had DLs (1.18 mg/kg to 1.26 mg/kg) above the Qbo BV (0.5 mg/kg) and the maximum Qbo background concentration (0.2 mg/kg) in four samples. Antimony is identified as a COPC in tuff.

Arsenic was detected above the Qbo BV (0.56 mg/kg) in three samples with a maximum concentration of 2.28 mg/kg, and it was not detected but had DLs (1.25 mg/kg to 1.26 mg/kg) above the Qbo BV in three samples. All three concentrations and all three DLs are above the maximum Qbo background concentration (0.7 mg/kg). Arsenic is identified as a COPC in tuff.

Barium was detected above the Qbo BV (25.7 mg/kg) and the maximum Qbo background concentration (23 mg/kg) in two samples with a maximum concentration of 30.9 mg/kg. Because there were fewer than 10 Qbo samples, statistical tests could not be performed. Barium is identified as a COPC in tuff.

Cadmium was not detected but had DLs (0.529 mg/kg and 0.573 mg/kg) above the soil BV (0.4 mg/kg) in two samples. Both DLs are below the maximum soil background concentration (2.6 mg/kg). Cadmium is not identified as a COPC in soil. Cadmium was not detected but had DLs (0.587 mg/kg to 0.631 mg/kg) above the Qbo BV (0.4 mg/kg) in seven samples. Cadmium is identified as a COPC in tuff.

Chromium was detected above soil BV (19.3 mg/kg) in two samples with a maximum concentration of 31.6 mg/kg, and it was not detected but had DLs (33.4 mg/kg and 66.2 mg/kg) above the soil BV in two samples. One DL is above the maximum soil background concentration (36.5 mg/kg). Chromium is identified as a COPC in soil. Chromium was detected above the Qbo BV (2.6 mg/kg) in two samples with a maximum concentration of 14.2 mg/kg, and it was not detected but had DLs (11.6 mg/kg and 13.7 mg/kg) above the Qbo BV in two samples. Chromium is identified as a COPC is tuff.

Hexavalent chromium was not detected in any samples from AOC 02-004(e) and is not identified as a COPC in any media.

Copper was detected above the soil BV (14.7 mg/kg) and the maximum soil background concentration (16 mg/kg) in one sample at a concentration of 19 mg/kg. Because there were fewer than 10 soil samples, statistical tests could not be performed. Copper is identified as a COPC in soil. Copper was detected above the Qbo BV (3.96 mg/kg) and the maximum Qbo background concentration (2.6 mg/kg) in one sample at a concentration of 4.36 mg/kg. Because there were fewer than 10 Qbo samples, statistical tests could not be performed. Copper is identified as a COPC in tuff.

Iron was detected above the Qbo BV and the maximum Qbo background concentration (both 3700 mg/kg) in all seven Qbo samples with a maximum concentration of 9850 mg/kg. Iron is identified as a COPC in tuff.

Lead was detected above the soil BV (22.3 mg/kg) in one sample at a concentration of 23.2 mg/kg. This concentration is below the maximum soil background concentration (28 mg/kg). Lead is not identified as a COPC in soil. Lead was detected above the Qbo BV (13.5 mg/kg) and the maximum Qbo background concentration (20 mg/kg) in one sample at a concentration of 26.5 mg/kg. Because there were fewer than 10 Qbo samples, statistical tests could not be performed. Lead is identified as a COPC in tuff.

Magnesium was detected above the Qbo BV (739 mg/kg) and the maximum Qbo background concentration (690 mg/kg) in one sample at a concentration of 988 mg/kg. Magnesium is identified as a COPC in tuff.

Manganese was detected above the Qbo BV (189 mg/kg) in six samples with a maximum concentration of 399 mg/kg. Because there were fewer than 10 Qbo samples, statistical tests could not be performed. Manganese is identified as a COPC in tuff.

Mercury was detected above the soil BV and the maximum soil background concentration (both 0.1 mg/kg) in one sample at a concentration of 1.2 mg/kg. Because there were fewer than 10 soil samples, statistical tests could not be performed. Mercury is identified as a COPC in soil.

Nickel was detected above the Qbo BV (2 mg/kg) in one sample at a concentration of 2.49 mg/kg, and it was not detected but had DLs (2.14 mg/kg and 3.26 mg/kg) above the Qbo BV in two samples. One DL is above the maximum Qbo background concentration (2.8 mg/kg). Because there were fewer than 10 Qbo samples, statistical tests could not be performed. Nickel is identified as a COPC in tuff.

Nitrate was detected in two soil samples with a maximum concentration of 3.44 mg/kg. No background data are available for nitrate. Nitrate is naturally occurring, and the concentrations detected likely reflect naturally occurring levels. Nitrate is not identified as a COPC in soil.

Perchlorate was detected in three soil samples with a maximum concentration of 0.00162 mg/kg. Because perchlorate has no BV in soil, perchlorate is identified as a COPC in soil.

Selenium was not detected but had a DL (1.72 mg/kg) above the soil BV (1.52 mg/kg) and the maximum soil background concentration (1.7 mg/kg) in one sample. Selenium is identified as a COPC in soil. Selenium was detected above the Qbo BV (0.3 mg/kg) in two samples with a maximum concentration of 2.51 mg/kg, and it was not detected but had DLs (1.19 mg/kg to 1.76 mg/kg) above the Qbo BV in five samples. Selenium is identified as a COPC in tuff.

Vanadium was detected above the Qbo BV (4.59 mg/kg) and the maximum Qbo background concentration (3.8 mg/kg) in two samples with a maximum concentration of 8.86 mg/kg. Because there were fewer than 10 Qbo samples, statistical tests could not be performed. Vanadium is identified as a COPC in tuff.

Zinc was detected above the soil BV (48.8 mg/kg) in three samples with a maximum concentration of 120 mg/kg. This concentration is above the maximum soil background concentration (75.5 mg/kg). Because there were fewer than 10 soil samples, statistical tests could not be performed. Zinc is identified as a COPC in soil. Zinc was detected above the Qbo BV (40 mg/kg) in one sample at a concentration of 41.8 mg/kg. This concentration is below the maximum Qbo background concentration (46 mg/kg). Zinc is not identified as a COPC in tuff.

In summary, the inorganic COPCs identified at AOC 02-004(e) are aluminum, antimony, arsenic, barium, cadmium, chromium, copper, iron, lead, magnesium, manganese, mercury, nickel, perchlorate, selenium, vanadium, and zinc.

Organic Chemicals

A total of 8 samples (3 soil, 2 Qal, and 3 Qbo) were analyzed for dioxins and furans and SVOCs, 13 samples (3 soil, 3 Qal, and 7 Qbo) were analyzed for PCBs, and 5 samples (2 Qal and 3 Qbo) were analyzed for VOCs.

Table 6.11-3 presents the detected organic chemicals. Figure 6.11-3 and Plate 13 show the spatial distribution of detected organic chemicals. The vertical extent is defined at AOC 02-004(e), and the lateral extent is defined at the TA-02 core area; organic COPCs are identified below.

Organic chemicals detected at AOC 02-004(e) include acenaphthene; anthracene; Aroclor-1254; Aroclor-1260; benzo(a)anthracene; benzo(a)pyrene; benzo(b)fluoranthene; benzo(g,h,i)perylene; chrysene; fluoranthene; fluorene; 1,2,3,4,6,7,8-heptachlorodibenzodioxin; 1,2,3,4,6,7,8-heptachlorodibenzofuran; 1,2,3,4,7,8,9-heptachlorodibenzofuran; 1,2,3,4,7,8-hexachlorodibenzodioxin; 1,2,3,6,7,8-hexachlorodibenzodioxin; 1,2,3,7,8,9-hexachlorodibenzodioxin; 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-hexachlorodibenzofuran; indeno(1,2,3-cd)pyrene; 1,2,3,4,6,7,8,9-octachlorodibenzodioxin; 1,2,3,4,6,7,8,9-octachlorodibenzofuran; 1,2,3,7,8-pentachlorodibenzodioxin; 1,2,3,7,8-pentachlorodibenzofuran; 2,3,4,7,8-pentachlorodibenzofuran; phenanthrene; pyrene; 2,3,7,8-tetrachlorodibenzodioxin; and 2,3,7,8-tetrachlorodibenzofuran.

These organic chemicals are retained as COPCs at AOC 02-004(e).

Radionuclides

A total of 8 samples (3 soil, 2 Qal, and 3 Qbo) were analyzed for americium-241 and strontium-90, and 13 samples (3 soil, 3 Qal, and 7 Qbo) were analyzed for gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, and tritium.

Table 6.11-4 presents the radionuclides detected or detected above BVs/FVs. Figure 6.11-4 shows the spatial distribution of radionuclides detected or detected above BVs/FVs. The vertical extent is defined at AOC 02-004(e), and the lateral extent is defined at the TA-02 core area; radionuclide COPCs are identified below.

Cesium-137 was detected in subsurface soil (below 0–1 ft) in two samples with a maximum activity of 0.23 pCi/g. Cesium-137 is identified as a COPC in soil.

Cobalt-60 was detected in one Qal sample at an activity of 0.139 pCi/g. Cobalt-60 has no BV in soil. Cobalt-60 is identified as a COPC in soil.

Plutonium-239/240 was detected above the soil FV (0.054 pCi/g) and detected in subsurface soil (below 0–1 ft) in four samples with a maximum activity of 0.392 pCi/g. Plutonium-239/240 is identified as a COPC in soil.

Tritium was detected in three soil/Qal samples with a maximum activity of 0.217 pCi/g. Tritium is identified by detection status and is a COPC in soil.

In summary, the radionuclide COPCs identified at AOC 02-004(e) are cesium-137, cobalt-60, plutonium-239/240, and tritium.

6.11.4.4 Nature and Extent of Contamination at AOC 02-004(e)

In accordance with the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), one location was sampled at AOC 02-004(e) to determine the vertical extent of contamination for inorganic chemicals, organic chemicals, and radionuclides (Table 3.2-1). Analytical suites were determined by the data needs specific to each location as presented in Table 3.1-1 of the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703). The vertical extent of contamination at AOC 02-004(e) is evaluated using only the Phase II data from samples collected as deep as 50 ft bgs.

Inorganic Chemicals

Five samples were collected from location 02-612280 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of TAL metals and hexavalent chromium (Table 3.2-1). As stated in the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), the extent of perchlorate was defined following the 2007 investigation, and no Phase II samples were analyzed for perchlorate.

Hexavalent chromium was not detected at location 02-612280 and is not identified as a COPC at AOC 02-004(e).

Copper, lead, magnesium, and mercury were not detected above BVs at location 02-612280. Therefore, the vertical extent of these metals is defined.

Nickel was detected at 2.49 mg/kg in one sample (15–16 ft bgs) at location 02-612280. It was not detected in any deeper samples at this location. Therefore, the vertical extent of nickel is defined.

The nature and extent of other TAL metals at location 02-612280 have been discussed under AOC 02-004(b) (section 6.8.4.4). The vertical extent of TAL metals is defined.

Organic Chemicals

Five samples were collected from location 02-612280 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of PCBs (Table 3.2-1).

The nature and extent of PCBs at location 02-612280 have been discussed under AOC 02-004(b) (section 6.8.4.4). The vertical extent of PCBs is defined.

Radionuclides

Five samples were collected from location 02-612280 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, and tritium (Table 3.2-1).

The nature and extent of gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, and tritium at location 02-612280 have been discussed under AOC 02-004(b) (section 6.8.4.4). The vertical extent of these radionuclides is defined.

Summary of Nature and Extent at AOC 02-004(e)

The nature and extent of TAL metals, hexavalent chromium, PCBs, and radionuclides is defined.

6.11.5 Summary of Human Health Risk Screening

Details of the human health risk-screening assessment for AOC 02-004(e) are discussed in Appendix H, section H-4.

The total excess cancer risk for the industrial scenario is 3×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.04, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 0.03 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 1×10^{-7}, based on a comparison with EPA's outdoor worker PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

The total excess cancer risk for the recreational scenario is 2×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.08, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 0.02 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 6×10^{-9}, based on conversion from dose using RESRAD, Version 6.5.

The total excess cancer risk for the residential scenario is 1×10^{-5}, which is equivalent to the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.3, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 3 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 5×10^{-6}, based on a comparison with EPA's residential PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Based on the screening-assessment results, no potential unacceptable risks or doses exist for the industrial, recreational, and residential scenarios.

6.11.6 Summary of Ecological Risk Screening

In accordance with the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), locations surrounding the core area of TA-02 were sampled to define the lateral extent of contamination for TA-02 as a whole (section 6.32). Although the lateral extent for the TA-02 core area is defined, one site within the core area requires additional remediation and confirmation sampling. The ecological risk-screening assessment will be conducted for the sites within the TA-02 core area as one exposure unit after the investigation at this site has been completed.

6.12 AOC 02-004(f), Former Equipment Building and Acid Waste Line to TA-50

6.12.1 Site Description and Operational History

AOC 02-004(f) was a 49-ft × 26-ft equipment building (02-044) that contained several pumps, including the main circulating pump for the OWR cooling water, a buffalo chiller (a cooling system), and an ion-exchange filter system to maintain the OWR cooling-liquids system (Plate 14). At a later date, these systems were also connected to TA-50 by a liquid acid waste line. Lines associated with the OWR equipment building were present at approximately 4 ft bgs.

Building 02-044 became operational in 1954 and had floor drains that discharged to Los Alamos Creek through an outfall located at SWMU 02-008(a). Modifications to the cooling water system, with the addition of the cooling tower (structure 02-049) and associated outfall, were made in 1959, as shown on engineering drawing C-21327 (LASL 1959, 090058). The drain from the OWR equipment building was connected to the cooling tower outfall in 1959, as shown on engineering drawing C-48768 (LASL no date, 090056). The outfalls in Los Alamos Creek were physically the same [location of SWMU 02-008(a)]. When the acid pit/transfer sump and effluent storage tank structures (02-053, 02-054, and 02-055) were added in 1962, the wastewater discharge from the OWR equipment building was routed through the acid pit/transfer sump, thus minimizing direct discharge to Los Alamos Creek from building 02-044, as noted on engineering drawing C-29861 (LASL 1962, 090055).

The OWR equipment building operated until 1993, when the OWR was shut down. In 1995, all liquid waste was removed from the system and disposed of at TA-54 (WD-3 2003, 082646, p. 2). In 2003, the building and all remaining buried pipes and drains were removed and disposed of at approved disposal facilities (WD-3 2003, 082646, pp. 26–31).

6.12.2 Relationship to Other SWMUs and AOCs

Discharge associated with the OWR equipment building operations from 1954 to 1962 is addressed under the cooling tower outfall [SWMU 02-008(a)]. Discharge from 1962 to 1993 is addressed under the OWR equipment building outfall [AOC 02-011(d)].

6.12.3 Summary of Previous Investigations

2003 Omega West Decommissioning Project

During D&D activities in 2003, eight soil samples were collected from four locations (02-22376, 02-22377, 02-22378, and 02-22379) within or near the footprint of the former OWR equipment building.

2007 Investigation Activities

Fifty-six samples were collected from 20 locations at AOC 02-004(f) in 2007. Results from the sampling activities in 2007 were presented in the previous investigation report (LANL 2008, 101669.12). Additional sampling was required to define the extent of contamination at the site.

6.12.4 Site Contamination

6.12.4.1 Soil and Rock Sampling

As part of the 2010 investigation, the following characterization activities were conducted at AOC 02-004(f):

- All samples were field screened for organic vapors and gross-alpha, -beta, and -gamma radioactivity. Field-screening results were recorded on the SCLs (Appendix F) and are presented in Table 3.2-2.
- Locations 02-600469, 02-600470, 02-600474, and 02-600567 were excavated to remove PCB contamination in accordance with the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703). The surface soil at locations 02-600469, 02-600470, and 02-600474 was excavated to approximately 4 ft bgs, and the surface soil at location 02-600567 was excavated to 4–8 ft bgs. The remediated area was approximately 64 ft^2 each at locations 02-600469, 02-600470, and 02-600474 (Figure 6.12-1), and the volume of excavated material was approximately 10 yd^3 at each location. The remediated area was approximately 176 ft^2 at location 02-600567, and the volume of excavated material was approximately 36 yd^3.
- Confirmation samples were collected as follows.
  - ❖ At location 02-600469, confirmation samples were collected below the excavation from 4–4.2 ft and 6–6.2 ft bgs at location 02-612365, which is 1 ft away from location 02-600469 where the excavation was conducted, and from four step-out locations 4 ft to the north (4–4.4 ft and 6–6.4 ft bgs from location 02-612364), 4 ft to the south (4–4.2 ft and 6–6.2 ft bgs from location 02-612366), 4 ft to the east (4–4.2 ft and 6–6.2 ft bgs from location 02-612368), and 4 ft to the west (4–4.2 ft and 6–6.2 ft bgs from location 02-612367).
  - ❖ At location 02-600470, confirmation samples were collected below the excavation (4–4.2 ft and 6–6.2 ft bgs) and from four step-out locations 4 ft to the north (4–4.2 ft and 6–6.2 ft bgs from location 02-612354), 4 ft to the south (4–4.2 ft and 6–6.4 ft bgs from location 02-612358), 4 ft to the east (4–4.2 ft and 6–6.2 ft bgs from location 02-612357), and 4 ft to the west (4–4.4 ft and 6–6.2 ft bgs from location 02-612355).
  - ❖ At location 02-600474, confirmation samples were collected below the excavation from 4–4.2 ft and 6–6.2 ft bgs at location 02-612360, which is 1 ft away from location 02-600474 where the excavation was conducted, and from four step-out locations 4 ft to the north (4–4.2 ft and 6–6.2 ft bgs from location 02-612362), 4 ft to the south (4–4.2 ft

and 6–6.2 ft bgs from location 02-612363), 4 ft to the east (4–4.2 ft and 6–6.2 ft bgs from location 02-612359), and 4 ft to the west (4–4.4 ft and 6–6.2 ft bgs from location 02-612361).

- ❖ At location 02-600567, confirmation samples were collected below the excavation (8–8.2 ft bgs) and from four step-out locations 8 ft to the north (2–3 ft, 4–5 ft, and 6–7 ft bgs from location 02-613624), 4 ft to the south (2–2.2 ft and 4–4.2 ft bgs from location 02-613005), 8 ft to the east (2–3 ft and 4–5 ft bgs from location 02-613625), and 8 ft to the west (2–3 ft and 4–5 ft bgs from location 02-613623).

All confirmation samples were analyzed for PCBs only.

- Ten samples were collected from locations 02-612346 and 02-612347 within the footprint of AOC 02-004(f) (depths ranging from 5–50 ft bgs). All 10 samples were analyzed for TAL metals, hexavalent chromium, PCBs, SVOCs, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, and tritium.

The 2010 and historical sampling locations at AOC 02-004(f) are shown on Plate 14. Table 6.12-1 presents the samples collected and analyses requested for AOC 02-004(f). The geodetic coordinates of the 2010 sampling locations are presented in Table 3.2-1.

6.12.4.2 Soil and Rock Sample Field-Screening Results

No organic vapors were detected at more than 10 ppm above ambient air levels during headspace screening of the samples. No radiological-screening results exceeded twice the daily site background levels. Field-screening results are presented in Table 3.2-2. No changes to sampling or other activities occurred because of the field-screening results.

6.12.4.3 Soil and Rock Sample Analytical Results

Decision-level data at AOC 02-004(f) consist of results from 114 samples collected from 45 locations in 2003, 2007, and 2010. The 114 samples include 67 soil, 22 Qal, and 25 Qbo samples.

Inorganic Chemicals

A total of 74 samples (27 soil, 22 Qal, and 25 Qbo) were analyzed for TAL metals, 18 samples (8 soil, 4 Qal, and 6 Qbo) were analyzed for hexavalent chromium, and 56 samples (19 soil, 18 Qal, and 19 Qbo) were analyzed for nitrate, perchlorate, and total cyanide.

Table 6.12-2 presents the inorganic chemicals detected or detected above BVs. Plate 15 shows the spatial distribution of inorganic chemicals detected or detected above BVs. The vertical extent is defined at AOC 02-004(f), and the lateral extent is defined at the TA-02 core area; inorganic COPCs are identified below.

Aluminum was detected above the Qbo BV (3560 mg/kg) and the maximum Qbo background concentration (3400 mg/kg) in 20 samples with a maximum concentration of 13,000 mg/kg. The site concentrations are substantially above background. Aluminum is identified as a COPC in tuff.

Antimony was not detected but had DLs (0.962 mg/kg to 1.11 mg/kg) above the soil BV (0.83 mg/kg) in four samples. Two DLs are above the maximum soil background concentration (1 mg/kg). Antimony is identified as a COPC in soil. Antimony was not detected but had DLs (0.518 mg/kg to 1.28 mg/kg) above the Qbo BV (0.5 mg/kg) and the maximum Qbo background concentration (0.2 mg/kg) in eight samples. Antimony is identified as a COPC in tuff.

Arsenic was detected above the Qbo BV (0.56 mg/kg) in 14 samples with a maximum concentration of 2.35 mg/kg, and it was not detected but had DLs (1.18 mg/kg to 1.93 mg/kg) above the Qbo BV in 11 samples. All 14 concentrations and all 11 DLs are above the maximum Qbo background concentration (0.7 mg/kg). The site concentrations are substantially above background. Arsenic is identified as a COPC in tuff.

Barium was detected above the Qbo BV (25.7 mg/kg) and the maximum Qbo background concentration (23 mg/kg) in 15 samples with a maximum concentration of 109 mg/kg. The site concentrations are substantially above background. Barium is identified as a COPC in tuff.

Cadmium was detected above the soil BV (0.4 mg/kg) in two samples with a maximum concentration of 0.718 mg/kg, and it was not detected but had DLs (0.481 mg/kg to 0.558 mg/kg) above the soil BV in 37 samples. Because the background data set had more than 50% nondetects, the Gehan test could not be performed. The quantile test indicated site concentrations are different from background (Figure G-8.0-1, Table G-8). Cadmium is identified as a COPC in soil. Cadmium was not detected but had DLs (0.55 mg/kg to 0.723 mg/kg) above the Qbo BV (0.4 mg/kg) in 23 samples. Cadmium is identified as a COPC in tuff.

Chromium was detected above the soil BV (19.3 mg/kg) in eight samples with a maximum concentration of 80.3 mg/kg. The Gehan and quantile tests indicated site concentrations are not different from background (Figure G-8.0-2, Table G-8). Chromium is not identified as a COPC in soil. Chromium was detected above the Qbo BV (2.6 mg/kg) in 6 samples with a maximum concentration of 13.7 mg/kg, and it was not detected but had DLs (2.99 mg/kg to 22.7 mg/kg) above the Qbo BV in 11 samples. The site concentrations are substantially above background. Chromium is identified as a COPC in tuff.

Hexavalent chromium was detected in seven soil/Qal samples with a maximum concentration of 0.448 mg/kg. Hexavalent chromium has no BV in soil. Hexavalent chromium is identified as a COPC in soil.

Copper was detected above the soil BV (14.7 mg/kg) and the maximum soil background concentration (16 mg/kg) in three samples with a maximum concentration of 85.9 mg/kg, and it was not detected but had a DL (27.3 mg/kg) above the soil BV in one sample. Copper was detected above the Qbo BV (3.96 mg/kg) and the maximum Qbo background concentration (2.6 mg/kg) in four samples with a maximum concentration of 148 mg/kg, and it was not detected but had DLs (4.36 mg/kg to 16.9 mg/kg) above the Qbo BV in four samples. The site concentrations are substantially above background. Copper is identified as a COPC in soil and tuff.

Cyanide was detected above the soil BV (0.5 mg/kg) in one sample at a concentration of 1.06 mg/kg. Cyanide has no background data set for soil. Cyanide is identified as a COPC in soil.

Iron was detected above the Qbo BV and the maximum Qbo background concentration (both 3700 mg/kg) in all 25 Qbo samples with a maximum concentration of 9690 mg/kg. The site concentrations are substantially above background. Iron is identified as a COPC in tuff.

Lead was also detected above the soil BV (22.3 mg/kg) in one sample at a concentration of 45.6 mg/kg. The Gehan indicated site concentrations are different from background (Figure G-8.0-3, Table G-8). Lead is identified as a COPC in soil. Lead was detected above the Qbo BV (13.5 mg/kg) in one sample at a concentration of 15.8 mg/kg, and it was not detected but had a DL (19.5 mg/kg) above the Qbo BV in one sample. The Gehan and quantile tests indicated site concentrations are not different from background (Figure G-8.0-4, Table G-8). Lead is not identified as a COPC in tuff.

Manganese was detected above the Qbo BV (189 mg/kg) in 17 samples with a maximum concentration of 1370 mg/kg. Twelve of the 17 concentrations are above the maximum Qbo background concentration (210 mg/kg). The site concentrations are substantially above background. Manganese is identified as a COPC in tuff.

Mercury was detected above the soil BV and the maximum soil background concentration (both 0.1 mg/kg) in 16 samples with a maximum concentration of 40.6 mg/kg. The site concentrations are substantially above background. Mercury is identified as a COPC in soil. Mercury was detected above the Qbo BV (0.1 mg/kg) in two samples with a maximum concentration of 0.154 mg/kg. Mercury has no background data set for Qbo tuff. Mercury is identified as a COPC in tuff.

Nickel was detected above the Qbo BV (2 mg/kg) in six samples with a maximum concentration of 6.36 mg/kg, and it was not detected but had DLs (2.04 mg/kg and 5.76 mg/kg) above the Qbo BV in eight samples. Because the background data set had more than 50% nondetects, the Gehan test could not be performed. The quantile test indicated site concentrations are different from background (Figure G-8.0-5, Table G-8). Nickel is identified as a COPC in tuff.

Nitrate was detected in 27 soil/tuff samples with a maximum concentration of 9.16 mg/kg. No background data are available for nitrate. Nitrate is naturally occurring, and the concentrations detected likely reflect naturally occurring levels. Nitrate is not identified as a COPC in soil and tuff.

Perchlorate was detected in nine soil/tuff samples with a maximum concentration of 0.00657 mg/kg. Because perchlorate has no BV in either soil or tuff, perchlorate is identified as a COPC in soil and tuff.

Selenium was detected above the soil BV (1.52 mg/kg) in three samples with a maximum concentration of 2.25 mg/kg, and it was not detected but had DLs (1.53 mg/kg to 1.71 mg/kg) above the soil BV in seven samples. The Gehan test indicated site concentrations are different from background (Figure G-8.0-6, Table G-8). Selenium is identified as a COPC in soil. Selenium was detected above the Qbo BV (0.3 mg/kg) in 11 samples with a maximum concentration of 2.48 mg/kg, and it was not detected but had DLs (1.18 mg/kg and 2.17 mg/kg) above the Qbo BV in 14 samples. The site concentrations are substantially above background. Selenium is identified as a COPC in tuff.

Vanadium was detected above the Qbo BV (4.59 mg/kg) and the maximum Qbo background concentration (3.8 mg/kg) in six samples with a maximum concentration of 13.7 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-8.0-7, Table G-8). Vanadium is identified as a COPC in tuff.

Zinc was detected above the soil BV (48.8 mg/kg) in 14 samples with a maximum concentration of 270 mg/kg. The site concentrations are substantially above background. Zinc is identified as a COPC in soil.

In summary, the inorganic COPCs identified at AOC 02-004(f) are aluminum, antimony, arsenic, barium, cadmium, chromium, hexavalent chromium, copper, cyanide, iron, lead, manganese, mercury, nickel, perchlorate, selenium, vanadium, and zinc.

Organic Chemicals

A total of 56 samples (19 soil, 18 Qal, and 19 Qbo) were analyzed for dioxins and furans, 106 samples (59 soil, 22 Qal, and 25 Qbo) were analyzed for PCBs, 66 samples (19 soil, 22 Qal, and 25 Qbo) were analyzed for SVOCs, and 39 samples (2 soil, 18 Qal, and 19 Qbo) were analyzed for VOCs.

Table 6.12-3 presents the detected organic chemicals. Plates 16, 17, and 18 show the spatial distribution of detected organic chemicals. The vertical extent is defined at AOC 02-004(f), and the lateral extent is defined at the TA-02 core area; organic COPCs are identified below.

Organic chemicals detected at AOC 02-004(f) include acenaphthene; acetone; anthracene; Aroclor-1248; Aroclor-1254; Aroclor-1260; benzo(a)anthracene; benzo(a)pyrene; benzo(b)fluoranthene; benzo(g,h,i)perylene; benzo(k)fluoranthene; bis(2-ethylhexyl)phthalate; chloroform; chrysene; di-n-butylphthalate; fluoranthene; fluorene; 1,2,3,4,6,7,8-heptachlorodibenzodioxin; 1,2,3,4,6,7,8-heptachlorodibenzofuran; 1,2,3,4,7,8,9-heptachlorodibenzofuran; 1,2,3,4,7,8-hexachlorodibenzodioxin; 1,2,3,6,7,8-hexachlorodibenzodioxin; 1,2,3,7,8,9-hexachlorodibenzodioxin; 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-hexachlorodibenzofuran; indeno(1,2,3-cd)pyrene; isopropylbenzene; methylene chloride; 2-methylnaphthalene; naphthalene; 1,2,3,4,6,7,8,9-octachlorodibenzodioxin; 1,2,3,4,6,7,8,9-octachlorodibenzofuran; 1,2,3,7,8-pentachlorodibenzodioxin; 1,2,3,7,8-pentachlorodibenzofuran; 2,3,4,7,8-pentachlorodibenzofuran; pentachlorophenol; phenanthrene; pyrene; 2,3,7,8-tetrachlorodibenzodioxin; 2,3,7,8-tetrachlorodibenzofuran; and toluene.

These organic chemicals are retained as COPCs at AOC 02-004(f).

Radionuclides

A total of 56 samples (19 soil, 18 Qal, and 19 Qbo) were analyzed for americium-241; 74 samples (27 soil, 22 Qal, and 25 Qbo) were analyzed for gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, and tritium; 64 samples (27 soil, 18 Qal, and 19 Qbo) were analyzed for strontium-90; and 8 soil samples were analyzed for technetium-99.

Table 6.12-4 presents the radionuclides detected or detected above BVs/FVs. Figure 6.12-2 shows the spatial distribution of radionuclides detected or detected above BVs/FVs. The vertical extent is defined at AOC 02-004(f), and the lateral extent is defined at the TA-02 core area; radionuclide COPCs are identified below.

Cesium-137 was detected in subsurface soil (below 0–1 ft) in one sample at an activity of 0.0454 pCi/g. Cesium-137 is identified as a COPC in soil.

Cobalt-60 was detected in one soil sample at an activity of 0.11 pCi/g. Cobalt-60 has no BV in soil. Cobalt-60 is identified as a COPC in soil.

Plutonium-239/240 was detected in subsurface tuff (below 0–1 ft) in two samples with a maximum activity of 0.133 pCi/g. Plutonium-239/240 was detected above the soil FV (0.054 pCi/g) and detected in subsurface soil (below 0–1 ft) in six samples with a maximum activity of 0.115 pCi/g. Plutonium-239/240 is identified as a COPC in soil and tuff.

Strontium-90 was detected in subsurface soil (below 0–1 ft) in one sample at an activity of 0.716 pCi/g. Strontium-90 is identified as a COPC in soil.

Tritium was detected in 34 soil/tuff samples with a maximum activity of 3.81 pCi/g. Tritium is identified by detection status and is a COPC in soil and tuff.

Uranium-235/236 was detected above the Qbo BV (0.18 pCi/g) in four samples with a maximum activity of 0.225 pCi/g. Uranium-235/236 is identified as a COPC in tuff.

In summary, the radionuclide COPCs identified at AOC 02-004(f) are cesium-137, cobalt-60, plutonium-239/240, strontium-90, tritium, and uranium-235/236.

6.12.4.4 Nature and Extent of Contamination at AOC 02-004(f)

In accordance with the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), two locations were sampled at AOC 02-004(f) to determine the vertical extent of contamination for inorganic chemicals, organic chemicals, and radionuclides (Table 3.2-1). Analytical suites were determined by the data needs specific to each location as presented in Table 3.1-1 of the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703). The vertical extent of contamination at AOC 02-004(f) is evaluated using only the Phase II data from samples collected as deep as 50 ft bgs. The lateral and vertical extent of contamination at excavations are evaluated using the results of the confirmation samples from the excavation.

Inorganic Chemicals

Ten samples were collected from locations 02-612346 and 02-612347 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of TAL metals and hexavalent chromium (Table 3.2-1). As stated in the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), the extent of perchlorate was defined following the 2007 investigation, and no Phase II samples were analyzed for perchlorate.

Aluminum was detected above the Qbo BV (3560 mg/kg) in one sample at a concentration of 3820 mg/kg at location 02-612346 from 25–26 ft bgs. Aluminum concentrations decreased with depth at this location. The vertical extent of aluminum is defined.

Antimony was not detected but had DLs (0.962 mg/kg to 1.11 mg/kg) above the soil BV (0.83 mg/kg) in four samples and had DLs (1.15 mg/kg to 1.28 mg/kg) above the Qbo BV (0.5 mg/kg) in six samples. Because antimony was not detected above BVs, the vertical extent of antimony is defined.

Arsenic was not detected above the Qbo BV (0.56 mg/kg) but had DLs (1.18 mg/kg to 1.28 mg/kg) above the Qbo BV in six samples. Because arsenic was not detected above BVs, the vertical extent of arsenic is defined.

Barium, chromium, copper, lead, nickel, vanadium, and zinc were not detected or were not detected above BVs at locations 02-612346 and 02-612347. The vertical extent of these metals is defined.

Cadmium was not detected but had DLs (0.481 mg/kg and 0.593 mg/kg) above the soil BV (0.4 mg/kg) in three samples and had DLs (0.573 mg/kg to 0.642 mg/kg) above the Qbo BV (0.4 mg/kg) in six samples. Because cadmium was not detected above BVs, the vertical extent of cadmium is defined.

Hexavalent chromium was detected in one sample at a concentration of 0.448 mg/kg at location 02-612346 from 15–16 ft bgs. Hexavalent chromium concentrations decreased with depth at this location. The vertical extent of hexavalent chromium is defined.

In accordance with the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), Phase II samples were not analyzed for cyanide. Cyanide was detected above the soil BV (0.5 mg/kg) at a previously sampled location from 0–0.5 ft bgs at a concentration of 1.06 mg/kg. It was not detected in any other sample from the site. Therefore, the vertical extent of cyanide is defined.

Iron was detected above the Qbo BV (3700 mg/kg) in six samples at locations 02-612346 and 02-612347. The highest concentration of 6340 mg/kg was detected at location 02-612346 from 25–26 ft bgs. Iron concentrations decreased with depth at both locations. The vertical extent of iron is defined.

Manganese was detected above the Qbo BV (189 mg/kg) in six samples at locations 02-612346 and 02-612347. The highest concentration of 260 mg/kg was detected at location 02-612346 from 49–50 ft bgs. Manganese was detected at concentrations of 356 mg/kg and 329 mg/kg (below the soil BV of 671 mg/kg) at location 02-612346 from 8–9 ft and at location 02-612347 from 5–6 ft bgs, respectively. Manganese concentrations decreased with depth at both locations. The vertical extent of manganese is defined.

Mercury was detected above the soil BV (0.1 mg/kg) in two samples and above the Qbo BV (0.1 mg/kg) in two samples at location 02-612346. The highest concentration of 40.6 mg/kg was detected at location 02-612346 from 8–9 ft bgs. Mercury concentrations decreased with depth at this location. The vertical extent of mercury is defined.

Selenium was not detected above the Qbo BV (0.3 mg/kg) but had DLs (1.18 mg/kg to 1.28 mg/kg) above the Qbo BV in six samples. Because selenium was not detected above BVs, the vertical extent of selenium is defined.

Organic Chemicals

Locations 02-600469, 02-600470, 02-600474, and 02-600567 were excavated to remove PCB contamination (Table 3.2-1).

Confirmation samples were collected beneath the excavation at location 02-612365 (1 ft away from location 02-600469) and from four step-out locations (02-612364, 02-612366, 02-612367, and 02-612368). All confirmation samples were analyzed for PCBs only.

- Aroclor-1248 was detected in one historical sample at a concentration of 0.042 mg/kg at location 02-600469 from 17–19.5 ft bgs. Aroclor-1248 was not detected in samples with depths ranging from 5–50 ft bgs at location 02-612347, approximately 10 ft to the west of location 02-600469. Aroclor-1248 was not detected in the confirmation samples beneath the excavation or at the step-out locations. The lateral and vertical extent of Aroclor-1248 are defined.
- Aroclor-1254 was not detected in the confirmation samples beneath the excavation or at the step-out locations. The lateral and vertical extent of Aroclor-1254 are defined.
- Aroclor-1260 was detected in two samples at location 02-612364. The highest concentration of 0.007 mg/kg was detected from 4–4.4 ft bgs at location 02-612364. The preexcavated concentration of Aroclor-1260 was 1.69 mg/kg at location 02-600469 from 0–0.5 ft bgs (Table 2.10-2, LANL 2008, 101669.12). Aroclor-1260 concentrations decreased with depth at the excavation and decreased laterally in all four directions. The lateral and vertical extent of Aroclor-1260 are defined.

Confirmation samples were collected beneath the excavation at location 02-600470 and from four step-out locations (02-612354, 02-612355, 02-612357, and 02-612358). All confirmation samples were analyzed for PCBs only.

- Aroclor-1248 was not detected in the confirmation samples beneath the excavation or at the step-out locations. The lateral and vertical extent of Aroclor-1248 are defined.
- Aroclor-1254 was detected in two samples beneath the excavation and in two samples at two step-out locations. The highest concentration of 0.591 mg/kg was detected from 4–4.2 ft bgs at location 02-612358. The preexcavated concentration of Aroclor-1254 was 2.11 mg/kg at location 02-600470 from 0–0.5 ft bgs (Table 2.10-2, LANL 2008, 101669.12). Aroclor-1254 concentrations decreased with depth at the excavation and decreased laterally in all four directions. The lateral and vertical extent of Aroclor-1254 are defined.
- Aroclor-1260 was detected in two samples beneath the excavation and in six samples at four step-out locations. The highest concentration of 0.482 mg/kg was detected from 4–4.2 ft bgs at location 02-612358. The preexcavated concentration of Aroclor-1260 was 5.75 mg/kg at location 02-600470 from 0–0.5 ft bgs (Table 2.10-2, LANL 2008, 101669.12). Aroclor-1260 concentrations decreased with depth at the excavation and decreased laterally in all four directions. The lateral and vertical extent of Aroclor-1260 are defined.

Confirmation samples were collected beneath the excavation at location 02-612360 (1 ft away from location 02-600474) and from four step-out locations (02-612359, 02-612361, 02-612362, and 02-612363). All confirmation samples were analyzed for PCBs only.

- Aroclor-1248 was not detected in the confirmation samples beneath the excavation or at the step-out locations. The lateral and vertical extent of Aroclor-1248 are defined.
- Aroclor-1254 was detected in one sample beneath the excavation and in three samples at two step-out locations. The highest concentration of 0.155 mg/kg was detected from 4–4.2 ft bgs at location 02-612360. Although Aroclor-1254 was not detected in the preexcavated surface sample, Aroclor-1254 concentrations decreased with depth at the excavation and the step-out locations. Aroclor-1254 concentrations also decreased laterally in all four directions. The lateral and vertical extent of Aroclor-1254 are defined.
- Aroclor-1260 was detected in two samples beneath the excavation and in five samples at three step-out locations. The highest concentration of 0.0985 mg/kg was detected from 4–4.2 ft bgs at location 02-612360. The preexcavated concentration of Aroclor-1260 was 1.85 mg/kg at location 02-600474 from 0–0.5 ft bgs (Table 2.10-2, LANL 2008, 101669.12). Aroclor-1260 concentrations decreased with depth at the excavation and decreased laterally in all four directions. The lateral and vertical extent of Aroclor-1260 are defined.

Confirmation samples were collected beneath the excavation at location 02-600567 and from four step-out locations (02-613005, 02-613623, 02-613624, and 02-613625). All confirmation samples were analyzed for PCBs only.

- Aroclor-1248 was not detected in the confirmation samples beneath the excavation or at the step-out locations. The lateral and vertical extent of Aroclor-1248 are defined.
- Aroclor-1254 was detected in one sample beneath the excavation and in nine samples at four step-out locations. The highest concentration of 0.822 mg/kg was detected from 2–2.2 ft bgs at location 02-613005. The preexcavated concentration of Aroclor-1254 was 3.92 mg/kg at location 02-600567 from 0–0.5 ft bgs (Table 2.10-2, LANL 2008, 101669.12). Aroclor-1254 concentrations

decreased with depth at the excavation and decreased laterally in all four directions. The lateral and vertical extent of Aroclor-1254 are defined.

- Aroclor-1260 was detected in one sample beneath the excavation and in nine samples at four step-out locations. The highest concentration of 1.11 mg/kg was detected from 2–2.2 ft bgs at location 02-613005. The preexcavated concentration of Aroclor-1260 was 6.97 mg/kg at location 02-600567 from 0–0.5 ft bgs (Table 2.10-2, LANL 2008, 101669.12). Aroclor-1260 concentrations decreased with depth at the excavation and decreased laterally in all four directions. The lateral and vertical extent of Aroclor-1260 are defined.

Ten samples were collected from locations 02-612346 and 02-612347 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of PCBs and SVOCs (Table 3.2-1). As stated in the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), the extent of VOCs was defined following the 2007 investigation, and no Phase II samples were analyzed for VOCs. In addition, Phase II samples were not analyzed for dioxins and furans (LANL 2008, 101669.12, p. 115).

Aroclor-1254 was detected in one sample at a concentration of 0.0068 mg/kg at location 02-612346 from 15–16 ft bgs. Aroclor-1254 concentrations decreased with depth at this location. The vertical extent of Aroclor-1254 is defined.

Aroclor-1260 was detected in three samples at locations 02-612346 and 02-612347. The highest concentration of 0.014 mg/kg was detected at location 02-612346 from 15–16 ft bgs. Aroclor-1260 concentrations decreased with depth at both locations. The vertical extent of Aroclor-1260 is defined.

SVOCs were not detected at locations 02-612346 and 02-612347. The vertical extent of SVOCs is defined.

Radionuclides

Ten samples were collected from locations 02-612346 and 02-612347 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, and tritium (Table 3.2-1).

Cesium-137, cobalt-60, strontium-90, and isotopic uranium were not detected or not detected above BVs at locations 02-612346 and 02-612347. The vertical extent of these radionuclides is defined.

Plutonium-239/240 was detected in one sample at an activity of 0.0476 pCi/g at location 02-612346 from 8–9 ft bgs. Plutonium-239/240 activities decreased with depth at this location. The vertical extent of plutonium-239/240 is defined.

Tritium was detected in four samples at locations 02-612346 and 02-612347. The highest activity (0.1906 pCi/g) was detected at location 02-612347 from 15–16 ft bgs. Tritium activities decreased with depth at this location. Tritium activities are essentially constant with depth at location 02-612346 and all are below 0.1 pCi/g. This activity is significantly lower than those detected from 5–25 ft bgs throughout TA-02 and is three orders of magnitude below the residential SAL (750 pCi/g). The vertical extent of tritium is defined.

Summary of Nature and Extent at AOC 02-004(f)

Excavations were conducted at locations 02-600469, 02-600470, 02-600474, and 02-600567 to remove PCB contamination. The lateral and vertical extent of PCBs are defined at the excavations. Results of the confirmation samples indicated that the remaining PCB concentrations are all below 1 mg/kg, except one sample at a concentration of 1.11 mg/kg at location 02-613005.

The vertical extent of TAL metals, hexavalent chromium, PCBs, SVOCs, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, and tritium is defined.

6.12.5 Summary of Human Health Risk Screening

Details of the human health risk-screening assessment for AOC 02-004(f) are discussed in Appendix H, section H-4.

The total excess cancer risk for the industrial scenario is 2×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.03, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 0.3 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 3×10^{-6}, based on a comparison with EPA's outdoor worker PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

The total excess cancer risk for the recreational scenario is 1×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.05, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 0.04 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 1×10^{-7}, based on conversion from dose using RESRAD, Version 6.5.

The total excess cancer risk for the residential scenario is 4×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.4, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 4 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 8×10^{-6}, based on a comparison with EPA's residential PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Based on the screening-assessment results, no potential unacceptable risks or doses from COPCs exist for the industrial, recreational, and residential scenarios.

6.12.6 Summary of Ecological Risk Screening

In accordance with the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), locations surrounding the core area of TA-02 were sampled to define the lateral extent of contamination for TA-02 as a whole (section 6.32). Although the lateral extent for the TA-02 core area is defined, one site within the core area requires additional remediation and confirmation sampling. The ecological risk-screening assessment will be conducted for the sites within the TA-02 core area as one exposure unit after the investigation at this site has been completed.

6.13 AOC 02-004(g), Soil Contamination

6.13.1 Site Description and Operational History

AOC 02-004(g) was a 300-gal. portable storage tank located on a platform near the guard station (structure 02-012) at the west end of the OWR facility (Figure 6.13-1).

The storage tank was used for temporarily storing liquids to supplement the three OWR effluent storage tanks [AOCs 02-004(b,c,d)]. The portable aboveground storage tank was installed and began operations in 1962 (Bunker 1985, 036231). The platform and portable aboveground storage tank were removed by 1993, but removal and disposal details are not available (LANL 1993, 015314).

6.13.2 Relationship to Other SWMUs and AOCs

The portable aboveground storage tank was used to supplement the capacity of the three OWR effluent storage tanks, AOCs 02-004(b,c,d), which received effluent from the ion exchange system of the OWR [AOC 02-004(a)] and from the floor of the OWR equipment building [AOC 02-004(f)].

6.13.3 Summary of Previous Investigations

2003 Omega West Decommissioning Project

The portable aboveground storage tank platform area was decommissioned and evaluated during the 2003 D&D activities. Site activities included soil excavation, radiological walkover surveys, radiological (structure) screening, soil sampling, sample analysis, and surveying of sample coordinates. Limited soil surveys were conducted; however, no formal report of soil survey results is available.

Samples were collected from five boreholes (locations 02-22383 to 02-22387) near the former location of the storage tank as part of the 2003 D&D activities at AOC 02-004(g) (WD-3 2003, 082646, pp. 1–6).

2007 Investigation Activities

Twenty-one samples were collected from nine locations at AOC 02-004(g) in 2007. Results from the sampling activities in 2007 were presented in the previous investigation report (LANL 2008, 101669.12). Additional sampling was required to define the extent of contamination at the site.

6.13.4 Site Contamination

6.13.4.1 Soil, Rock, and Sediment Sampling

As part of the 2010 investigation, the following characterization activities were conducted at AOC 02-004(g):

- All samples were field screened for organic vapors and gross-alpha, -beta, and -gamma radioactivity. Field-screening results were recorded on the SCLs (Appendix F) and are presented in Table 3.2-2.
- Five samples were collected from location 02-612293 near AOC 02-004(g) from 5–6 ft, 15–16 ft, 25–26 ft, 35–36 ft, and 49–50 ft bgs. These samples were analyzed for TAL metals, PCBs, SVOCs, americium-241, gamma-emitting radionuclides, isotopic plutonium, strontium-90, and tritium.

The 2010 and historical sampling locations at AOC 02-004(g) are shown in Figure 6.13-1. Table 6.13-1 presents the samples collected and analyses requested for AOC 02-004(g). The geodetic coordinates of the 2010 sampling locations are presented in Table 3.2-1.

6.13.4.2 Soil, Rock, and Sediment Sample Field-Screening Results

No organic vapors were detected at more than 10 ppm above ambient air levels during headspace screening of the samples. No radiological-screening results exceeded twice the daily site background levels. Field-screening results are presented in Table 3.2-2. No changes to sampling or other activities occurred because of the field-screening results.

6.13.4.3 Soil, Rock, and Sediment Sample Analytical Results

Decision-level data at AOC 02-004(g) consist of results from 34 samples collected from 15 locations in 2003, 2007, and 2010. The 34 samples include 15 soil/fill, 9 Qal, 9 Qbo, and 1 sediment samples.

Inorganic Chemicals

A total of 34 samples (15 soil, 9 Qal, 9 Qbo, and 1 sediment) were analyzed for TAL metals, 8 soil samples were analyzed for hexavalent chromium, and 21 samples (7 soil, 7 Qal, 6 Qbo, and 1 sediment) were analyzed for nitrate, perchlorate, and total cyanide.

Table 6.13-2 presents the inorganic chemicals detected or detected above BVs. Plate 19 shows the spatial distribution of inorganic chemicals detected or detected above BVs. The vertical extent is defined at AOC 02-004(g), and the lateral extent is defined at the TA-02 core area; inorganic COPCs are identified below.

Aluminum was detected above the Qbo BV (3560 mg/kg) and the maximum Qbo background concentration (3400 mg/kg) in seven samples with a maximum concentration of 12,500 mg/kg. Because there were fewer than 10 Qbo samples, statistical tests could not be performed. Aluminum is identified as a COPC in tuff.

Antimony was not detected but had DLs (0.536 mg/kg to 1.33 mg/kg) above the Qbo BV (0.5 mg/kg) and the maximum Qbo background concentration (0.2 mg/kg) in four samples. Antimony was not detected but had DLs (1.06 mg/kg and 1.07 mg/kg) above the soil BV (0.83 mg/kg) and the maximum soil background concentration (1 mg/kg) in two samples. Antimony is identified as a COPC in soil and tuff.

Arsenic was detected above the Qbo BV (0.56 mg/kg) in four samples with a maximum concentration of 1.57 mg/kg, and it was not detected but had DLs (1.17 mg/kg to 1.8 mg/kg) above the Qbo BV in five samples. All four concentrations and all five DLs are above the maximum Qbo background concentration (0.7 mg/kg). Arsenic is identified as a COPC in tuff.

Barium was detected above the Qbo BV (25.7 mg/kg) and the maximum Qbo background concentration (23 mg/kg) in five samples with a maximum concentration of 72.4 mg/kg. Because there were fewer than 10 Qbo samples, statistical tests could not be performed. Barium is identified as a COPC in tuff.

Cadmium was detected above the soil BV (0.4 mg/kg) in one sample at a concentration of 0.958 mg/kg, and it was not detected but had DLs (0.504 mg/kg to 0.574 mg/kg) above the soil BV in 15 samples. Because the background data set had more than 50% nondetects, the Gehan test could not be performed. The quantile test indicated site concentrations are different from background (Figure G-9.0-1, Table G-9). Cadmium is identified as a COPC in soil. Cadmium was not detected but had DLs (0.546 mg/kg to 0.668 mg/kg) above the Qbo BV (0.4 mg/kg) in nine samples. Cadmium is identified as a COPC in tuff. Cadmium was not detected but had a DL (0.521 mg/kg) above the sediment BV (0.4 mg/kg) in one sample. Cadmium is identified as a COPC in sediment.

Calcium was detected above the soil BV (6120 mg/kg) in one sample at a concentration of 6610 mg/kg. This concentration is below the maximum soil background concentration (14,000 mg/kg). The Gehan test and the box plot indicated site concentrations are less than background (Figure G-9.0-2, Table G-9). Calcium is not identified as a COPC in soil.

Chromium was detected above soil BV (19.3 mg/kg) in three samples with a maximum concentration of 56.4 mg/kg. The Gehan and quantile tests indicated site concentrations are not different from background (Figure G-9.0-3, Table G-9). Chromium is not identified as a COPC in soil. Chromium was detected above the Qbo BV (2.6 mg/kg) in three samples with a maximum concentration of 8.07 mg/kg, and it was not detected but had DLs (9.21 mg/kg and 19.5 mg/kg) above the Qbo BV in two samples. Chromium is identified as a COPC in tuff.

Hexavalent chromium was detected in five soil samples with a maximum concentration of 0.262 mg/kg. Hexavalent chromium has no BV in soil. Hexavalent chromium is identified as a COPC in soil.

Copper was detected above the soil BV (14.7 mg/kg) in two samples with a maximum concentration of 51.3 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-9.0-4, Table G-9). Copper is identified as a COPC in soil. Copper was detected above the Qbo BV (3.96 mg/kg) and the maximum Qbo background concentration (2.6 mg/kg) in one sample at a concentration of 4.79 mg/kg. Because there were fewer than 10 Qbo samples, statistical tests could not be performed. Copper is identified as a COPC in tuff.

Iron was detected above the Qbo BV and the maximum Qbo background concentration (both 3700 mg/kg) in all nine Qbo samples with a maximum concentration of 7880 mg/kg. Iron is identified as a COPC in tuff.

Lead was detected above the soil BV (22.3 mg/kg) in two samples with a maximum concentration of 53.9 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-9.0-5, Table G-9). Lead is identified as a COPC in soil.

Manganese was detected above the soil BV (671 mg/kg) in one sample at a concentration of 698 mg/kg. The Gehan test and the box plot indicated site concentrations are less than background (Figure G-9.0-6, Table G-9). Manganese is not identified as a COPC in soil. Manganese was detected above the Qbo BV (189 mg/kg) and the maximum Qbo background concentration (210 mg/kg) in eight samples with a maximum concentration of 305 mg/kg. Manganese is identified as a COPC in tuff.

Mercury was detected above the soil BV and the maximum soil background concentration (both 0.1 mg/kg) in four samples with a maximum concentration of 1.07 mg/kg. Because the background data set had more than 50% nondetects, the Gehan test could not be performed. The quantile test indicated site concentrations are not different from background, but the slippage test indicated site concentrations are different from background (Figure G-9.0-7, Table G-9). Mercury is identified as a COPC in soil.

Nickel was detected above the Qbo BV (2 mg/kg) in two samples with a maximum concentration of 3.81 mg/kg, and it was not detected but had DLs (2.43 mg/kg and 3.56 mg/kg) above the Qbo BV in two samples. The maximum concentration and one DL are above the maximum Qbo background concentration (2.8 mg/kg). Because there were fewer than 10 Qbo samples, statistical tests could not be performed. Nickel is identified as a COPC in tuff.

Nitrate was detected in 13 soil/Qal/sediment samples with a maximum concentration of 4.49 mg/kg. No background data are available for nitrate. Nitrate is naturally occurring, and the concentrations detected likely reflect naturally occurring levels. Nitrate is not identified as a COPC in soil and sediment.

Perchlorate was detected in two Qal samples with a maximum concentration of 0.000966 mg/kg. Because perchlorate has no BV in soil, perchlorate is identified as a COPC in soil.

Selenium was detected above the soil BV (1.52 mg/kg) in five samples with a maximum concentration of 14.7 mg/kg, and it was not detected but had a DL (1.64 mg/kg) above the soil BV in six samples. The Gehan test indicated site concentrations are different from background (Figure G-9.0-8, Table G-9). Selenium is identified as a COPC in soil. Selenium was detected above the Qbo BV (0.3 mg/kg) in six samples with a maximum concentration of 2.63 mg/kg, and it was not detected but had DLs (1.17 mg/kg and 1.77 mg/kg) above the Qbo BV in five samples. Selenium is identified as a COPC in tuff. Selenium was not detected but had a DL (1.5 mg/kg) above the sediment BV (0.3 mg/kg) in one sample. Selenium is identified as a COPC in sediment.

Zinc was detected above the soil BV (48.8 mg/kg) in five samples with a maximum concentration of 92.8 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-9.0-9, Table G-9). Zinc is identified as a COPC in soil.

In summary, the inorganic COPCs identified at AOC 02-004(g) are aluminum, antimony, arsenic, barium, cadmium, chromium, hexavalent chromium, copper, iron, lead, manganese, mercury, nickel, perchlorate, selenium, and zinc.

Organic Chemicals

A total of 21 samples (7 soil, 7 Qal, 6 Qbo, and 1 sediment) were analyzed for dioxins and furans, 26 samples (7 soil, 9 Qal, 9 Qbo, and 1 sediment) were analyzed for PCBs and SVOCs, and 12 samples (6 Qal and 6 Qbo) were analyzed for VOCs.

Table 6.13-3 presents the detected organic chemicals. Plate 20 shows the spatial distribution of detected organic chemicals. The vertical extent is defined at AOC 02-004(g), and the lateral extent is defined at the TA-02 core area; organic COPCs are identified below.

Organic chemicals detected at AOC 02-004(g) include acenaphthene; anthracene; Aroclor-1254; Aroclor-1260; benzo(a)anthracene; benzo(a)pyrene; benzo(b)fluoranthene; benzo(g,h,i)perylene; chloroform; chrysene; di-n-butylphthalate; fluoranthene; fluorene; 1,2,3,4,6,7,8-heptachlorodibenzodioxin; 1,2,3,4,6,7,8-heptachlorodibenzofuran; 1,2,3,4,7,8,9-heptachlorodibenzofuran; 1,2,3,4,7,8-hexachlorodibenzodioxin; 1,2,3,6,7,8-hexachlorodibenzodioxin; 1,2,3,7,8,9-hexachlorodibenzodioxin; 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-hexachlorodibenzofuran; indeno(1,2,3-cd)pyrene; methylene chloride; 2-methylnaphthalene; naphthalene; 1,2,3,4,6,7,8,9-octachlorodibenzodioxin; 1,2,3,4,6,7,8,9-octachlorodibenzofuran; 1,2,3,7,8-pentachlorodibenzodioxin; 1,2,3,7,8-pentachlorodibenzofuran; 2,3,4,7,8-pentachlorodibenzofuran; phenanthrene; pyrene; 2,3,7,8-tetrachlorodibenzodioxin; 2,3,7,8-tetrachlorodibenzofuran; tetrachloroethene; toluene; and trichloroethene.

These organic chemicals are retained as COPCs at AOC 02-004(g).

Radionuclides

A total of 26 samples (7 soil, 9 Qal, 9 Qbo, and 1 sediment) were analyzed for americium-241; 34 samples (15 soil, 9 Qal, 9 Qbo, and 1 sediment) were analyzed for gamma-emitting radionuclides, isotopic plutonium, and strontium-90; 29 samples (15 soil, 7 Qal, 6 Qbo, and 1 sediment) were analyzed for isotopic uranium; 8 soil samples were analyzed for technetium-99; and 33 samples (15 soil, 9 Qal, 8 Qbo, and 1 sediment) were analyzed for tritium.

Table 6.13-4 presents the radionuclides detected or detected above BVs/FVs. Figure 6.13-2 shows the spatial distribution of radionuclides detected or detected above BVs/FVs. The vertical extent is defined at AOC 02-004(g), and the lateral extent is defined at the TA-02 core area; radionuclide COPCs are identified below.

Americium-241 was detected above the soil BV (0.013 pCi/g) in one sample at an activity of 0.165 pCi/g. Americium-241 is identified as a COPC in soil.

Cesium-137 was detected above the soil FV (1.65 pCi/g) in one sample at an activity of 2.88 pCi/g, and it was detected in subsurface soil (below 0–1 ft) in one sample at an activity of 0.0453 pCi/g. Cesium-137 is identified as a COPC in soil.

Cobalt-60 was detected in one soil sample at an activity of 0.504 pCi/g. Cobalt-60 has no BV in soil. Cobalt-60 is identified as a COPC in soil.

Plutonium-239/240 was detected above the soil FV (0.054 pCi/g) and detected in subsurface soil (below 0–1 ft) in nine samples with a maximum activity of 1.85 pCi/g. Plutonium-239/240 was also detected above the sediment FV (0.068 pCi/g) in one sample at an activity of 0.13 pCi/g. Plutonium-239/240 is identified as a COPC in soil and sediment.

Strontium-90 was detected in subsurface soil (below 0–1 ft) in two samples with a maximum activity of 0.233 pCi/g. Strontium-90 is identified as a COPC in soil.

Tritium was detected in 11 soil/tuff samples with a maximum activity of 0.187 pCi/g. Tritium is identified by detection status and is a COPC in soil and tuff.

In summary, the radionuclide COPCs identified at AOC 02-004(g) are americium-241, cesium-137, cobalt-60, plutonium-239/240, strontium-90, and tritium.

6.13.4.4 Nature and Extent of Contamination at AOC 02-004(g)

In accordance with the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), one location was sampled at AOC 02-004(g) to determine the vertical extent of contamination for inorganic chemicals, organic chemicals, and radionuclides (Table 3.2-1). Analytical suites were determined by the data needs specific to each location as presented in Table 3.1-1 of the approved work plan (LANL 2009, 106660.14). The vertical extent of contamination at AOC 02-004(g) is evaluated using only the Phase II data from samples collected as deep as 50 ft bgs.

Inorganic Chemicals

Five samples were collected from location 02-612293 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of TAL metals (Table 3.2-1). As stated in the approved Phase II investigation work plan (LANL 2009, 106660.14; NMED 2009, 106703), the extent of perchlorate was defined following the 2007 investigation, and no Phase II samples were analyzed for perchlorate.

Aluminum was detected above the Qbo BV (3560 mg/kg) in one sample at a concentration of 5190 mg/kg at location 02-612293 from 25–26 ft bgs. Aluminum concentrations decreased with depth at this location. The vertical extent of aluminum is defined.

Antimony was not detected but had DLs (1.06 mg/kg and 1.07 mg/kg) above the soil BV (0.83 mg/kg) in two samples and had DLs (1.16 mg/kg to 1.33 mg/kg) above the Qbo BV (0.5 mg/kg) in three samples. Because antimony was not detected above BVs, the vertical extent of antimony is defined.

Arsenic was not detected above the Qbo BV (0.56 mg/kg) but had DLs (1.17 mg/kg to 1.32 mg/kg) above the Qbo BV in three samples. Because arsenic was not detected above BVs, the vertical extent of arsenic is defined.

Barium, chromium, hexavalent chromium, copper, lead, mercury, nickel, and zinc were not detected or not detected above BVs at location 02-612293. The vertical extent of these metals is defined.

Cadmium was not detected but had DLs (0.529 mg/kg and 0.534 mg/kg) above the soil BV (0.4 mg/kg) in two samples and had DLs (0.579 mg/kg to 0.666 mg/kg) above the Qbo BV (0.4 mg/kg) in three samples. Because cadmium was not detected above BVs, the vertical extent of cadmium is defined.

Iron was detected above the Qbo BV (3700 mg/kg) in three samples at location 02-612293. The highest concentration of 5150 mg/kg was detected at location 02-612293 from 35–36 ft bgs. This concentration is comparable to the concentration of 4940 mg/kg detected from 49–50 ft bgs. However, iron was detected at concentrations of 8170 mg/kg and 8990 mg/kg (below the soil BV of 21,500 mg/kg) at location 02-612293 from 5–7 ft and 15–16 ft bgs, respectively. Iron concentrations decreased with depth at this location. The vertical extent of iron is defined.

Manganese was detected above the Qbo BV (189 mg/kg) in three samples at location 02-612293. The highest concentration of 698 mg/kg was detected at location 02-612293 from 15–16 ft bgs. Manganese concentrations decreased with depth at this location. The vertical extent of manganese is defined.

Selenium was not detected above the Qbo BV (0.3 mg/kg) but had DLs (1.17 mg/kg to 1.32 mg/kg) above the Qbo BV in three samples. Because selenium was not detected above BVs, the vertical extent of selenium is defined.

Organic Chemicals

Five samples were collected from location 02-612293 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of PCBs and SVOCs (Table 3.2-1). As stated in the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), the extent of VOCs was defined following the 2007 investigation, and no Phase II samples were analyzed for VOCs. In addition, Phase II samples were not analyzed for dioxins and furans (LANL 2008, 101669.12, p. 115).

PCBs and SVOCs were not detected at location 02-612293. The vertical extent of PCBs and SVOCs is defined.

Radionuclides

Five samples were collected from location 02-612293 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of americium-241, gamma-emitting radionuclides, isotopic plutonium, strontium-90, and tritium (Table 3.2-1).

Americium-241, cesium-137, cobalt-60, strontium-90, and tritium were not detected at location 02-612293. The vertical extent of these radionuclides is defined.

Plutonium-239/240 was detected in one sample at an activity of 0.023 pCi/g at location 02-612293 from 15–16 ft bgs. Plutonium-239/240 activities decreased with depth at this location. The vertical extent of plutonium-239/240 is defined.

Summary of Nature and Extent at AOC 02-004(g)

The nature and extent of TAL metals, PCBs, SVOCs, americium-241, gamma-emitting radionuclides, isotopic plutonium, strontium-90, and tritium is defined.

6.13.5 Summary of Human Health Risk Screening

Details of the human health risk-screening assessment for AOC 02-004(g) are discussed in Appendix H, section H-4.

The total excess cancer risk for the industrial scenario is 3×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.05, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 3 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 9×10^{-6}, based on a comparison with EPA's outdoor worker PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

The total excess cancer risk for the recreational scenario is 2×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.08, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 0.5 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 1×10^{-6}, based on conversion from dose using RESRAD, Version 6.5.

The total excess cancer risk for the residential scenario is 1×10^{-5}, which is equivalent to the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.2, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 17 mrem/yr, which is above the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). As discussed in the uncertainty analysis in Appendix H (section H-4.4.2), subtracting the cesium-137 FV from the detected concentration results in a cesium-137 EPC above background of 1.23 pCi/g. This concentration results in a dose of 3.2 mrem/yr and a total dose of approximately 12 mrem/yr, which is below the DOE target dose of 15 mrem/yr. The total dose is equivalent to a total risk of 2×10^{-5}, based on a comparison with EPA's residential PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Based on the screening-assessment results, no potential unacceptable risks or doses exist for the industrial, recreational, and residential scenarios.

6.13.6 Summary of Ecological Risk Screening

In accordance with the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), locations surrounding the core area of TA-02 were sampled to define the lateral extent of contamination for TA-02 as a whole (section 6.32). Although the lateral extent for the TA-02 core area is defined, one site within the core area requires additional remediation and confirmation sampling. The ecological risk-screening assessment will be conducted for the sites within the TA-02 core area as one exposure unit after the investigation at this site has been completed.

6.14 SWMU 02-005, Soil Contamination

6.14.1 Site Description and Operational History

SWMU 02-005 consists of an area potentially affected by airborne drift of potassium dichromate that was used to inhibit corrosion in the OWR cooling tower (structure 02-049) (Figure 6.14-1).

The cooling tower was installed and became operational in 1957. It was constructed with aluminum heat exchangers that were prone to corrosion. Potassium dichromate was added to the make-up water to inhibit corrosion of the heat exchangers. Stainless-steel heat exchangers were installed to eliminate the use of potassium dichromate in 1975 (LANL 1993, 015314).

The cooling tower operated until the OWR was shut down in 1993. In 1995, all liquid was drained from the system (WD-3 2003, 082646, p. 2). In 2000, the cooling tower structure and equipment were removed and disposed of at TA-54 (LANL 2000, 090087). In 2003, the remaining buried pipes and drains were removed and disposed of at TA-54 or Envirocare (WD-3 2003, 082646, pp. 26–31).

6.14.2 Relationship to Other SWMUs and AOCs

SWMU 02-005 is located north of the former structures of the OWR facility. The SWMU originated in the water used in the OWR cooling tower (structure 02-049), which is not a distinct SWMU or AOC.

6.14.3 Summary of Previous Investigations

1995 Investigation Activities

Soil samples were collected in 1994 and 1995. Supporting QA/QC information is not available for these samples, so the sample results are not included in this report.

2007 Investigation Activities

Twenty-eight samples were collected from 16 locations at SWMU 02-005 in 2007. Results from the sampling activities in 2007 were presented in the previous investigation report (LANL 2008, 101669.12). Additional sampling was required to define the extent of contamination at the site.

6.14.4 Site Contamination

6.14.4.1 Soil and Rock Sampling

As part of the 2010 investigation, the following characterization activities were conducted at SWMU 02-005:

- All samples were field screened for organic vapors and gross-alpha, -beta, and -gamma radioactivity. Field-screening results were recorded on the SCLs (Appendix F) and are presented in Table 3.2-2.
- Excavation could not be performed at location 02-600561, which is on a steep rocky slope inaccessible by mechanized equipment, because of safety concerns and practicability. Instead, deeper and step-out samples were collected to evaluate the extent of PCB contamination at location 02-600561. Samples were collected below the surface soil at location 02-600561 (1–1.2 ft and 2–2.2 ft bgs), and from seven step-out locations 4 ft and 8 ft to the north (1–1.2 ft and 2–2.2 ft bgs from location 02-612379, and 1–1.2 ft bgs from location 02-613291, respectively), 4 ft

to the south (1–1.2 ft and 2–2.2 ft bgs from location 02-612377), 4 ft and 8 ft to the east (1–1.2 ft and 2–2.2 ft bgs from location 02-612376, and 2–2.2 ft and 4–4.2 ft bgs from location 02-613622, respectively), and 4 ft and 8 ft to the west (1–1.2 ft and 2–2.2 ft bgs from location 02-612378, and 2–2.2 ft and 4–4.2 ft bgs from location 02-613290, respectively). These samples were analyzed for PCBs only.

- Three samples were collected from location 02-612407 near previous location 02-600559 from 0–0.5 ft, 4–5 ft, and 9–10 ft bgs. These samples were analyzed for TAL metals, hexavalent chromium, total cyanide, PCBs, SVOCs, americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium.
- Sixteen samples were collected from eight locations (02-612379 to 02-612386) farther north than the previous sampling locations on the south-facing slope from 0–0.5 ft and 1.5–2.5 ft bgs. These samples were analyzed for TAL metals, americium-241, gamma-emitting radionuclides, isotopic plutonium, and tritium.

The 2010 and historical sampling locations at SWMU 02-005 are shown in Figure 6.14-1. Table 6.14-1 presents the samples collected and analyses requested for SWMU 02-005. The geodetic coordinates of the 2010 sampling locations are presented in Table 3.2-1.

6.14.4.2 Soil and Rock Sample Field-Screening Results

No organic vapors were detected at more than 10 ppm above ambient air levels during headspace screening of the samples. No radiological-screening results exceeded twice the daily site background levels. Field-screening results are presented in Table 3.2-2. No changes to sampling or other activities occurred because of the field-screening results.

6.14.4.3 Soil and Rock Sample Analytical Results

Decision-level data at SWMU 02-005 consist of results from 62 samples collected from 31 locations in 2007 and 2010. The 62 samples include 49 soil, 12 Qal, and 1 Qct samples.

Inorganic Chemicals

A total of 47 samples (34 soil, 12 Qal, and 1 Qct) were analyzed for TAL metals, 31 samples (19 soil, 11 Qal, and 1 Qct) were analyzed for hexavalent chromium, 28 samples (16 soil, 11 Qal, and 1 Qct) were analyzed for nitrate and perchlorate, and 31 samples (19 soil, 11 Qal, and 1 Qct) were analyzed for total cyanide.

Table 6.14-2 presents the inorganic chemicals detected or detected above BVs. Plate 21 shows the spatial distribution of inorganic chemicals detected or detected above BVs. The lateral extent is defined at SWMU 02-005; inorganic COPCs are identified below.

Antimony was not detected but had DLs (0.926 mg/kg to 1.16 mg/kg) above the soil BV (0.83 mg/kg) in 19 samples. Twelve of the 19 DLs are above the maximum background soil concentration (1 mg/kg). Antimony is identified as a COPC in soil.

Arsenic was detected above the Qct BV (0.56 mg/kg) and the maximum Qct background concentration (0.7 mg/kg) in one sample at a concentration of 1.51 mg/kg. Because there were fewer than 10 Qct samples, statistical tests could not be performed. Arsenic is identified as a COPC in tuff.

Cadmium was not detected but had DLs (0.463 mg/kg to 0.578 mg/kg) above the soil BV (0.4 mg/kg) in 38 samples. Because the background data set had more than 50% nondetects, the Gehan test could not be performed. The quantile test indicated site concentrations are different from background (Figure G-10.0-1, Table G-10). Cadmium is identified as a COPC in soil. Cadmium was not detected but had a DL (0.498 mg/kg) above the Qct BV (0.4 mg/kg) in one sample. Cadmium is identified as a COPC in tuff.

Chromium was detected above the Qct BV (2.6 mg/kg) in one sample at a concentration of 6.8 mg/kg. Because there were fewer than 10 Qct samples, statistical tests could not be performed. Chromium is identified as a COPC in tuff.

Hexavalent chromium was detected in 12 soil/Qal samples with a maximum concentration of 1.06 mg/kg. Hexavalent chromium has no BV in soil. Hexavalent chromium is identified as a COPC in soil.

Copper was detected above the soil BV (14.7 mg/kg) in one sample at a concentration of 34.9 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-10.0-2, Table G-10). Copper is identified as a COPC in soil.

Cyanide was detected above the soil BV (0.5 mg/kg) in one sample at a concentration of 0.547 mg/kg. Because cyanide was detected only slightly above the BV, it is not identified as a COPC in soil.

Iron was detected above the Qct BV and the maximum Qct background concentration (both 3700 mg/kg) in one sample at a concentration of 5150 mg/kg. Because there were fewer than 10 Qct samples, statistical tests could not be performed. Iron is identified as a COPC in tuff.

Lead was detected above the soil BV (22.3 mg/kg) in four samples with a maximum concentration of 66.6 mg/kg. The Gehan and quantile tests indicated site concentrations are not different from soil background (Figure G-10.0-3, Table G-10). Lead is not identified as a COPC in soil.

Manganese was detected above the Qct BV (189 mg/kg) and the maximum Qct background concentration (210 mg/kg) in one sample at a concentration of 304 mg/kg. Because there were fewer than 10 Qct samples, statistical tests could not be performed. Manganese is identified as a COPC in tuff.

Mercury was detected above the soil BV and the maximum soil background concentration (both 0.1 mg/kg) in two samples with a maximum concentration of 2.17 mg/kg. Because the background data set had more than 50% nondetects, the Gehan test could not be performed. The quantile and slippage tests indicated site concentrations are not different from background (Figure G-10.0-4, Table G-10). Mercury is not identified as a COPC in soil.

Nickel was detected above the Qct BV (2 mg/kg) in one sample at a concentration of 2.43 mg/kg. Because there were fewer than 10 Qct samples, statistical tests could not be performed. Nickel is identified as a COPC in tuff.

Nitrate was detected in 18 soil/Qal samples with a maximum concentration of 4.74 mg/kg. No background data are available for nitrate. Nitrate is naturally occurring, and the concentrations detected likely reflect naturally occurring levels. Nitrate is not identified as a COPC in soil.

Perchlorate was detected in eight soil/Qal samples with a maximum concentration of 0.00253 mg/kg. Because perchlorate has no BV in soil, perchlorate is identified as a COPC in soil.

Selenium was detected above the soil BV (1.52 mg/kg) in 19 samples with a maximum concentration of 8.37 mg/kg, and it was not detected but had DLs (1.71 mg/kg to 2.24 mg/kg) above the soil BV in three samples. The Gehan test indicated site concentrations are different from background (Figure G-10.0-5, Table G-10). Selenium is identified as a COPC in soil. Selenium was detected above the Qct BV (0.3 mg/kg) in one sample at a concentration of 5.23 mg/kg. Selenium is identified as a COPC in tuff.

Zinc was detected above the soil BV (48.8 mg/kg) in 16 samples with a maximum concentration of 164 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-10.0-6, Table G-10). Zinc is identified as a COPC in soil. Zinc was detected above the Qct BV (40 mg/kg) in one sample at a concentration of 44.8 mg/kg. This concentration is below the maximum Qct background concentration (46 mg/kg). Zinc is not identified as a COPC in tuff.

In summary, the inorganic COPCs identified at SWMU 02-005 are antimony, arsenic, cadmium, chromium, hexavalent chromium, copper, iron, manganese, nickel, perchlorate, selenium, and zinc.

Organic Chemicals

A total of 44 samples (33 soil, 10 Qal, and 1 Qct) were analyzed for PCBs, 5 samples (4 soil and 1 Qal) were analyzed for SVOCs, and 1 Qal sample was analyzed for VOCs.

Table 6.14-3 presents the detected organic chemicals. Plate 22 shows the spatial distribution of detected organic chemicals. The lateral extent is defined at SWMU 02-005; organic COPCs are identified below.

Organic chemicals detected at SWMU 02-005 include Aroclor-1242, Aroclor-1254, Aroclor-1260, benzo(b)fluoranthene, fluoranthene, phenanthrene, pyrene, and toluene.

These organic chemicals are retained as COPCs at SWMU 02-005.

Radionuclides

A total of 47 samples (34 soil, 12 Qal, and 1 Qct) were analyzed for americium-241, gamma-emitting radionuclides, isotopic plutonium, and tritium, and 31 samples (19 soil, 11 Qal, and 1 Qct) were analyzed for isotopic uranium and strontium-90.

Table 6.14-4 presents the radionuclides detected or detected above BVs/FVs. Plate 23 shows the spatial distribution of radionuclides detected or detected above BVs/FVs. The lateral extent is defined at SWMU 02-005; radionuclide COPCs are identified below.

Americium-241 was detected above the soil BV (0.013 pCi/g) or in subsurface soil (below 0–1 ft) in three samples with a maximum activity of 0.139 pCi/g. Americium-241 is identified as a COPC in soil.

Cesium-137 was detected in subsurface soil (below 0–1 ft) in six samples with a maximum activity of 0.745 pCi/g. Cesium-137 is identified as a COPC in soil.

Plutonium-238 was detected in subsurface soil (below 0–1 ft) in one sample at an activity of 0.0138 pCi/g. Plutonium-238 is identified as a COPC in soil.

Plutonium-239/240 was detected above the soil FV (0.054 pCi/g) or in subsurface soil (below 0–1 ft) in 19 samples with a maximum activity of 6.8 pCi/g. Plutonium-239/240 is identified as a COPC in soil.

Tritium was detected in 11 soil/Qal samples with a maximum activity of 0.251 pCi/g. Tritium is identified by detection status and is a COPC in soil.

In summary, the radionuclide COPCs identified at SWMU 02-005 are americium-241, cesium-137, plutonium-238, plutonium-239/240, and tritium.

6.14.4.4 Nature and Extent of Contamination at SWMU 02-005

The approved work plan proposed excavation at location 02-600561 to remove PCB contamination (LANL 2009, 106660.14; NMED 2009, 106703). However, the excavation could not be performed. Instead, deeper and step-out samples were collected to evaluate the extent of PCB contamination at location 02-600561. In accordance with the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), one location was sampled near previously sampled location 02-600559 to evaluate the vertical extent of Aroclor-1260 and plutonium-239/240 (Table 3.2-1). Eight locations were sampled on the south-facing slope to evaluate the lateral extent of TAL metals and radionuclides. The extent of contamination is evaluated using the Phase II data and compared with the historical data where necessary.

Inorganic Chemicals

Sixteen samples were collected from eight locations (02-612379 to 02-612386; depths ranging from 0–2.5 ft bgs) situated on the south-facing slope farther north than the previously sampled locations to evaluate the lateral extent of TAL metals (Table 3.2-1). As stated in the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), the extent of perchlorate was defined following the 2007 investigation, and no Phase II samples were analyzed for perchlorate. In addition, samples at SWMU 02-005 were not analyzed for cyanide or hexavalent chromium (with the exception of location 02-612407, which was also used to determine lateral extent at TA-02) because concentrations and distributions identified during the 2007 investigation were not indicative of a release and did not warrant further sampling (LANL 2009, 106660.14, p. 13).

Antimony was not detected above the soil BV (0.83 mg/kg) but had DLs (0.945 mg/kg to 1.14 mg/kg) above the soil BV in 16 samples. Because antimony was not detected above BVs, the lateral extent of antimony is defined.

Arsenic, chromium, copper, iron, manganese, nickel, and selenium were not detected above BVs at these eight locations. The lateral extent of these metals is defined.

Cadmium was not detected above the soil BV (0.4 mg/kg) but had DLs (0.463 mg/kg to 0.539 mg/kg) above the soil BV in nine samples. Because cadmium was not detected above BVs, the lateral extent of cadmium is defined.

Zinc was detected above the soil BV (48.8 mg/kg) in seven samples at five locations. The highest concentration of 164 mg/kg was detected at location 02-612380 from 0–0.5 ft bgs. Zinc concentrations decreased to below background in the sample from 1.5–2.5 ft bgs. Because location 02-612380 is located next to a security fence, this zinc concentration, which was only detected at the surface, is likely from the fence rather than a site operation–related source. The lateral extent of zinc is defined.

Organic Chemicals

Excavation was proposed at location 02-600561 (Table 3.2-1) to evaluate the vertical extent of Aroclor-1260; however, remediation could not be performed at location 02-600561, which is on a steep rocky slope inaccessible by mechanized equipment, because of safety concerns and practicability. Instead, deeper samples were collected at location 02-600561 and step-out samples were collected from seven locations (02-612376 to 02-612379, 02-613290, 02-613291, and 02-613622) to define the extent of PCB contamination and ensure recreational SSLs are not exceeded at this location. These samples were analyzed for PCBs only.

- Aroclor-1254 was not detected at location 02-600561 but was detected in three samples at two step-out locations. The highest concentration of 0.206 mg/kg was detected at location 02-613622 from 2–2.2 ft bgs. Aroclor-1254 concentrations decreased with depth at this location. Aroclor-1254 was detected at a concentration of 0.0242 mg/kg at location 02-613290 from 4–4.2 ft bgs. This concentration is below the EQL (0.034 mg/kg). The vertical extent of Aroclor-1254 is defined at location 02-600561. Aroclor-1254 is present at location 02-613622 with concentrations decreasing with depth. Location 02-600561 is located in a drainage channel that originates from the townsite mesa top, which is the likely source of PCBs in the drainage. Aroclor-1254 is not related to site operation because SWMU 02-005 consists of an area potentially affected by airborne drift of potassium dichromate that was used to inhibit corrosion in the OWR cooling tower.
- Aroclor-1260 was detected in 16 samples at location 02-600561 and at the seven step-out locations. The highest concentration of 4.21 mg/kg was detected at location 21-612379 from 1–1.2 ft bgs. Aroclor-1260 concentrations decreased with depth at location 02-600561 and decreased laterally in all four directions. The lateral and vertical extent are defined at location 02-600561, and all concentrations are less than the recreational SSL (10.5 mg/kg).

Three samples were collected from location 02-612407 (depths ranging from 0–10 ft bgs) near previously sampled location 02-600559 to evaluate the vertical extent of PCBs (Table 3.2-1). As stated in the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), the extent of VOCs was defined following the 2007 investigation, and no Phase II samples were analyzed for VOCs. With the exception of location 02-612407, which was also sampled to determine lateral extent at TA-02, samples at SWMU 02-005 were not analyzed for SVOCs because they were detected very infrequently at this site.

Aroclor-1242 was not detected at location 02-600559 and was detected in one sample at a concentration of 0.0062 mg/kg at location 02-612407 from 0–0.5 ft bgs. This concentration is not significantly above the EQL (0.0039 mg/kg). Aroclor-1242 concentrations decreased with depth at this location. The vertical extent of Aroclor-1242 is defined near previously sampled location 02-600559.

Aroclor-1254 was detected in one sample at a concentration of 0.00308 mg/kg at location 02-612407 from 0–0.5 ft bgs. This concentration is lower than the previously detected concentration at location 02-600559, and Aroclor-1254 concentrations also decreased with depth at location 02-612407. The vertical extent of Aroclor-1254 is defined near previously sampled location 02-600559.

Aroclor-1260 was detected in one sample at a concentration of 0.0129 mg/kg at location 02-612407 from 0–0.5 ft bgs. This concentration is lower than the previously detected concentrations at location 02-600559, and Aroclor-1260 concentrations decreased with depth at location 02-612407. The vertical extent of Aroclor-1260 is defined near previously sampled location 02-600559.

Benzo(b)fluoranthene, fluoranthene, phenanthrene, and pyrene were detected in the shallowest sample at location 02-612407. No SVOCs were detected in any other sample at this location. Therefore, the vertical extent of SVOCs is defined near previously sampled location 02-600559.

Radionuclides

Three samples were collected from location 02-612407 (depths ranging from 0–10 ft bgs) near previously sampled location 02-600559 to evaluate the vertical extent of plutonium-239/240 (Table 3.2-1).

Plutonium-239/240 was detected in two samples at location 02-612407. The highest activity of 1.16 pCi/g was detected at location 02-612407 from 0–0.5 ft bgs. This activity is lower than the previously detected activities at location 02-600559, and plutonium-239/240 activities decreased with depth at location 02-612407. The vertical extent of plutonium-239/240 is defined near previously sampled location 02-600559.

Although not specified in the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), the vertical extent of americium-241, cesium-137, and tritium was not defined at location 02-600559. Because these radionuclides were not detected or not detected above FVs at location 02-612407, the vertical extent is defined near previously sampled location 02-600559.

Sixteen samples were collected from eight locations (02-612379 to 02-612386 [depths ranging from 0–2.5 ft bgs]) situated on the south-facing slope farther north than the previously sampled locations to evaluate the lateral extent of americium-241, gamma-emitting radionuclides, isotopic plutonium, and tritium (Table 3.2-1).

Americium-241 was detected above the soil FV (0.013 pCi/g) in one sample at an activity of 0.0304 pCi/g at location 02-612385 from 0–0.5 ft bgs. This activity is not significantly above the method detection limit (MDL) of 0.019 pCi/g. Because americium-241 was detected or detected above FV in only one sample at a low activity on the south-facing slope, the lateral extent of americium-241 is defined.

Cesium-137 was detected in four samples at four of the eight locations on the south-facing slope. The highest activity of 0.745 pCi/g was detected at location 02-612382 from 1.5–2.5 ft bgs. Cesium-137 activities decreased with depth or did not show a clear trend with depth at the four locations. Cesium-137 was not detected or not detected above FVs in the lateral samples at the north boundary of the TA-02 core area (section 6.32.2), which is located to the south and downgradient of these locations. TA-21 is located to the north and upgradient of these locations. The presence of cesium-137 at low activities on the south-facing slope may be related to the operations at TA-21, rather than SWMU 02-005.

Plutonium-238 was detected in one sample at an activity of 0.0138 pCi/g at location 02-612381 from 1.5–2.5 ft bgs. This activity is not significantly above the MDL (0.012 pCi/g). Because plutonium-238 was detected in only one sample at a low activity on the south-facing slope, the lateral of plutonium-238 is defined.

Plutonium-239/240 was detected in eight samples at six locations on the south-facing slope. The highest activity of 0.243 pCi/g was detected at location 02-612379 from 0–0.5 ft bgs. Plutonium-239/240 activities decreased with depth at the five locations. Plutonium-239/240 was detected at an activity of 0.0254 pCi/g at location 02-612384 from 1.5–2.5 ft bgs; however, this activity is only slightly above the MDL (0.018 pCi/g). The presence of plutonium-239/240 at low activities on the south-facing slope is likely related to the operations at TA-21, rather than related to site operation of SWMU 02-005.

Tritium was detected in four samples at three locations. The highest activity of 0.0682 pCi/g was detected at location 02-612379 from 0–0.5 ft bgs. Tritium was detected at an activity of 0.00869 pCi/g at location 02-612381 from 1.5–2.5 ft bgs; however, this activity is equivalent to the MDL (0.00801 pCi/g). Tritium activities at locations 02-612379 and 02-612385 are lower than or comparable to those previously detected at locations 02-600558, 02-600559, and 02-600561. The lateral extent of tritium is defined.

Summary of Nature and Extent at SWMU 02-005

The lateral extent of TAL metals, americium-241, plutonium-238, and tritium is defined. The presence of PCBs at location 02-600561 is likely from a mesa-top source, rather than from past operation of SWMU 02-005. The presence of cesium-137 and plutonium-239/240 is likely related to TA-21, located on the mesa top.

The vertical extent of PCBs, SVOCs, and plutonium-239/240 is defined near previously sampled location 02-600559.

6.14.5 Summary of Human Health Risk Screening

Details of the human health risk-screening assessment for SWMU 02-005 are discussed in Appendix H, section H-4.

The total excess cancer risk for the industrial scenario is 7×10^{-7}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.002, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 0.3 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 2×10^{-6}, based on a comparison with EPA's outdoor worker PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

The total excess cancer risk for the recreational scenario is 5×10^{-7}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.01, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 0.06 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 1×10^{-7}, based on conversion from dose using RESRAD, Version 6.5.

The total excess cancer risk for the residential scenario is 1×10^{-5}, which is equivalent to the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.2, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 1 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 6×10^{-7}, based on a comparison with EPA's residential PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Based on the screening-assessment results, no potential unacceptable risks or doses from COPCs exist for the industrial, recreational, and residential scenarios.

6.14.6 Summary of Ecological Risk Screening

In accordance with the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), locations surrounding the core area of TA-02 were sampled to define the lateral extent of contamination for TA-02 as a whole (section 6.32). Although the lateral extent for the TA-02 core area is defined, one site within the core area requires additional remediation and confirmation sampling. The ecological risk-screening assessment will be conducted for the sites within the TA-02 core area as one exposure unit after the investigation at this site has been completed.

6.15 SWMU 02-006(a), Former French Drain

6.15.1 Site Description and Operational History

SWMU 02-006(a) was an 8-ft-deep French drain system (Figure 6.15-1). The system consisted of the exhaust stack and French drain, all located in TA-61 on the Los Alamos Canyon south rim mesa top, above TA-02. The stack system was the termination point of the gaseous effluent vent line (line 119) from the OWR and WBR at TA-02.

The French drain was installed in 1948, designated as structure 02-009, and was also identified as structure 61-026, according to engineering drawing C-1716 (LASL 1948, 090083). The French drain was designed to catch condensate that collected as reactor exhaust gases cooled during venting through the tower exhaust stack. The vent stack and French drain system were active from their installation in 1948 to the OWR deactivation in 1993. The French drain system and contaminated soil were removed and disposed of during D&D activities in 2003 (LANL 2003, 090089).

6.15.2 Relationship to Other SWMUs and AOCs

The French drain is primarily related to the gaseous effluent vent line, AOC 02-003(d), which vented through the stack associated with the French drain.

6.15.3 Summary of Previous Investigations

2003 Omega West Decommissioning Project

The French drain and associated structures located in TA-61 were removed as part of the Omega West decommissioning project in 2003. Field screening and radiological surveys were performed during site characterization and D&D activities to guide soil removal and sampling activities. RESRAD computer code was used to determine cleanup goals and to guide excavation (LANL 2003, 090089, p. 3).

Excavation of the French drain was conducted in three phases. First, surface soil was removed from an area approximately 30 ft × 30 ft × 1 ft deep. Second, the French drain structure was removed, resulting in an excavation 9 ft × 9 ft × 10 ft deep. Third, the drainline was removed, and an area 2 ft × 20 ft × 6 ft deep was excavated. The trench excavated at the north end of the drainline was extended to a depth of 10 ft bgs to remove contaminated soil/tuff encountered beneath that portion of the line (LANL 2003, 090089, p. 6). The excavated material was containerized in rolloff bins and shipped off-site for disposal. A total of 2160 ft^3 of excavated material was shipped off-site for disposal at Envirocare (LANL 2003, 090089, pp. 1-8). After field screening indicated that the sides and bottom of the excavation met preestablished remediation goals, confirmation samples were collected near the north and south ends of the drainline and below the bottom of the French drain excavation.

Samples were collected from eight boreholes on the north, south, east, and west sides of the French drain structure excavation (locations 02-22055 to 02-22058) and near the north and south ends of the drainline below the bottom of the excavation (locations 02-22052 to 02-22054 and 02-22059) (LANL 2003, 090089, p. 5).

2007 Investigation Activities

Seventy-two samples were collected from 12 locations at SWMU 02-006(a) in 2007. Results from the sampling activities in 2007 were presented in the previous investigation report (LANL 2008, 101669.12). Additional sampling was required to define the extent of contamination at the site.

6.15.4 Site Contamination

6.15.4.1 Soil and Rock Sampling

As part of the 2010 investigation, the following characterization activities were conducted at SWMU 02-006(a):

- All samples were field screened for organic vapors and gross-alpha, -beta, and -gamma radioactivity. Field-screening results were recorded on the SCLs (Appendix F) and are presented in Table 3.2-2.

- Five samples were collected from location 02-612651 in the central area of the site from 5–6 ft, 15–16 ft, 25–26 ft, 35–36 ft, and 49–50 ft bgs. These samples were analyzed for tritium.
- Three samples were collected from location 02-612652 near previous location 02-600258 from 25–26 ft, 35–36 ft, and 49–50 ft bgs. These samples were analyzed for hexavalent chromium, total cyanide, and tritium.
- Fifty-five samples were collected from 11 step-out locations (02-612640 to 02-612650) from 5–6 ft, 15–16 ft, 25–26 ft, 35–36 ft, and 49–50 ft bgs. These samples were analyzed for TAL metals and tritium.

The 2010 and historical sampling locations at SWMU 02-006(a) are shown in Figure 6.15-1. Table 6.15-1 presents the samples collected and analyses requested for SWMU 02-006(a). The geodetic coordinates of the 2010 sampling locations are presented in Table 3.2-1.

6.15.4.2 Soil and Rock Sample Field-Screening Results

No organic vapors were detected at more than 10 ppm above ambient air levels during headspace screening of the samples. No radiological-screening results exceeded twice the daily site background levels. Field-screening results are presented in Table 3.2-2. No changes to sampling or other activities occurred because of the field-screening results.

6.15.4.3 Soil and Rock Sample Analytical Results

Decision-level data at SWMU 02-006(a) consist of results from 178 samples collected from 33 locations in 2003, 2007, and 2010. The 178 samples include 35 soil and 143 Qbt 3 samples.

Inorganic Chemicals

A total of 154 samples (29 soil and 125 Qbt 3) were analyzed for TAL metals, 91 samples (18 soil and 73 Qbt 3) were analyzed for hexavalent chromium, 72 samples (12 soil and 60 Qbt 3) were analyzed for nitrate and perchlorate, and 75 samples (12 soil and 63 Qbt 3) were analyzed for total cyanide.

Table 6.15-2 presents the inorganic chemicals detected or detected above BVs. Plate 24 shows the spatial distribution of inorganic chemicals detected or detected above BVs. The lateral and vertical extent are defined at SWMU 02-006(a); inorganic COPCs are identified below.

Aluminum was detected above the Qbt 3 BV (7340 mg/kg) in 12 samples with a maximum concentration of 15,750 mg/kg. Eleven of the 12 concentrations are above the maximum Qbt 3 background concentration (8370 mg/kg). The Gehan and quantile tests indicated site concentrations are not different from background (Figure G-11.0-1, Table G-11). Aluminum is not identified as a COPC in tuff.

Antimony was detected above the soil BV (0.83 mg/kg) in one sample at a concentration of 1.12 mg/kg, and it was not detected but had DLs (1.04 mg/kg to 1.14 mg/kg) above the soil BV in four samples. The Gehan and quantile tests indicated site concentrations are not different from background (Figure G-11.0-2, Table G-11). Antimony is not identified as a COPC in soil. Antimony was not detected but had DLs (0.506 mg/kg to 1.07 mg/kg) above the Qbt 3 BV (0.5 mg/kg) and the maximum Qbt 3 background concentration (0.4 mg/kg) in 46 samples. The Gehan test indicated site concentrations are different from background (Figure G-11.0-3, Table G-11). Antimony is identified as a COPC in tuff.

Arsenic was detected above the Qbt 3 BV (2.79 mg/kg) in 16 samples with a maximum concentration of 17 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-11.0-4, Table G-11). Arsenic is identified as a COPC in tuff.

Barium was detected above the soil BV (295 mg/kg) in one sample at a concentration of 395 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-11.0-5, Table G-11). Barium is identified as a COPC in soil. Barium was detected above the Qbt 3 BV (46.0 mg/kg) in 24 samples with a maximum concentration of 223 mg/kg. Twenty-one of the 24 concentrations are above the maximum Qbt 3 background concentration (51.6 mg/kg). The site concentrations are substantially above background. Barium is identified as a COPC in tuff.

Beryllium was detected above the Qbt 3 BV (1.21 mg/kg) in seven samples with a maximum concentration of 2.33 mg/kg. The Gehan and quantile tests indicated site concentrations are not different from background (Figure G-11.0-6, Table G-11). Beryllium is not identified as a COPC in tuff.

Cadmium was not detected but had DLs (0.484 mg/kg to 0.569 mg/kg) above the soil BV (0.4 mg/kg) in 24 samples. All DLs are below the maximum soil background concentration (2.6 mg/kg). Cadmium is not identified as a COPC in soil.

Calcium was detected above the Qbt 3 BV (2200 mg/kg) and the maximum Qbt 3 background concentration (2230 mg/kg) in 12 samples with a maximum concentration of 6190 mg/kg. The Gehan and quantile tests indicated site concentrations are not different from background (Figure G-11.0-7, Table G-11). Calcium is not identified as a COPC in tuff.

Chromium was detected above the Qbt 3 BV (7.14 mg/kg) in 24 samples with a maximum concentration of 28 mg/kg, and it was not detected but had DLs (7.75 mg/kg to 13 mg/kg) above the Qbt 3 BV in six samples. The Gehan test indicated site concentrations are different from background (Figure G-11.0-8, Table G-11). Chromium is identified as a COPC in tuff.

Hexavalent chromium was detected in 27 soil/tuff samples with a maximum concentration of 0.41 mg/kg. Hexavalent chromium has no BV in either soil or tuff. Hexavalent chromium is identified as a COPC in soil and tuff.

Copper was detected above the soil BV (14.7 mg/kg) in two samples with a maximum concentration of 51.3 mg/kg. The Gehan and quantile tests indicated site concentrations are not different from background (Figure G-11.0-9, Table G-11). Copper is not identified as a COPC in soil. Copper was detected above the Qbt 3 BV (4.66 mg/kg) in 11 samples with a maximum concentration of 7.15 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-11.0-10, Table G-11). Copper is identified as a COPC in tuff.

Cyanide was detected above the Qbt 3 BV (0.5 mg/kg) in two samples with a maximum concentration of 2.89 mg/kg, and it was detected above the soil BV (0.5 mg/kg) in one sample at a concentration of 1.4 mg/kg. Cyanide has no background data set for either soil or tuff. Cyanide is identified as a COPC in soil and tuff.

Lead was detected above the soil BV (22.3 mg/kg) in three samples with a maximum concentration of 37.2 mg/kg. The Gehan and quantile tests indicated site concentrations are not different from background (Figure G-11.0-11, Table G-11). Lead is not identified as a COPC in soil. Lead was detected above the Qbt 3 BV (11.2 mg/kg) in 26 samples with a maximum concentration of 116 mg/kg. Twenty-one of the 26 concentrations are above the maximum Qbt 3 background concentration (15.5 mg/kg). The site concentrations are substantially above background. Lead is identified as a COPC in tuff.

Magnesium was detected above the Qbt 3 BV (1690 mg/kg) in 10 samples with a maximum concentration of 2880 mg/kg. The Gehan and quantile tests indicated site concentrations are not different from background (Figure G-11.0-12, Table G-11). Magnesium is not identified as a COPC in tuff.

Nickel was detected above the Qbt 3 BV (6.58 mg/kg) and the maximum Qbt 3 background concentration (7 mg/kg) in eight samples with a maximum concentration of 14.4 mg/kg, and it was not detected but had a DL (12.7 mg/kg) above the Qbt 3 BV in one sample. Because the background data set had more than 50% nondetects, the Gehan test could not be performed. The quantile test indicated site concentrations are different from background (Figure G-11.0-13, Table G-11). Nickel is identified as a COPC in tuff.

Nitrate was detected in 14 soil/Qbt 3 samples with a maximum concentration of 8.68 mg/kg. No background data are available for nitrate. Nitrate is naturally occurring, and the concentrations detected likely reflect naturally occurring levels. Nitrate is not identified as a COPC in soil and tuff.

Perchlorate was detected in 54 soil/Qbt 3 samples with a maximum concentration of 0.0147 mg/kg. Because perchlorate has no BV in either soil or tuff, perchlorate is identified as a COPC in soil and tuff.

Selenium was detected above the Qbt 3 BV (0.3 mg/kg) in 52 samples with a maximum concentration of 13 mg/kg, and it was not detected but had DLs (0.484 mg/kg to 1.68 mg/kg) above the Qbt 3 BV in 72 samples. The site concentrations are substantially above background. Selenium is identified as a COPC in tuff.

Zinc was detected above the soil BV (48.8 mg/kg) in four samples with a maximum concentration of 120 mg/kg. The Gehan and quantile tests indicated site concentrations are not different from background (Figure G-11.0-14, Table G-11). Zinc is not identified as a COPC in soil.

In summary, the inorganic COPCs identified at SWMU 02-006(a) are antimony, arsenic, barium, chromium, hexavalent chromium, copper, cyanide, lead, nickel, perchlorate, and selenium.

Organic Chemicals

A total of 72 samples (12 soil and 60 Qbt 3) were analyzed for PCBs and SVOCs, and 60 tuff samples (Qbt 3) were analyzed for VOCs.

Table 6.15-3 presents the detected organic chemicals. Figure 6.15-2 shows the spatial distribution of detected organic chemicals. The lateral and vertical extent are defined at SWMU 02-006(a); organic COPCs are identified below.

Organic chemicals detected at SWMU 02-006(a) include Aroclor-1242; Aroclor-1254; Aroclor-1260; 1,4-dichlorobenzene; toluene; and trichloroethene.

These organic chemicals are retained as COPCs at SWMU 02-006(a).

Radionuclides

A total of 72 samples (12 soil and 60 Qbt 3) were analyzed for americium-241; 88 samples (18 soil and 70 Qbt 3) were analyzed for gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, and strontium-90; 16 samples (6 soil and 10 Qbt 3) were analyzed for technetium-99; and 162 samples (29 soil and 133 Qbt 3) were analyzed for tritium.

Table 6.15-4 presents the radionuclides detected or detected above BVs/FVs. Plate 25 shows the spatial distribution of radionuclides detected or detected above BVs/FVs. The lateral and vertical extent are defined at SWMU 02-006(a); radionuclide COPCs are identified below.

Cesium-137 was detected above the soil FV (1.65 pCi/g) and detected in subsurface soil (below 0–1 ft) in 12 samples with a maximum activity of 29.8 pCi/g. Cesium-137 was also detected in subsurface tuff (below 0–1 ft) in 18 samples with a maximum activity of 45.4 pCi/g. Cesium-137 is identified as a COPC in soil and tuff.

Plutonium-239/240 was detected above the soil FV (0.054 pCi/g) in one sample at an activity of 0.0626 pCi/g. Plutonium-239/240 is identified as a COPC in soil.

Strontium-90 was detected above the soil FV (1.31 pCi/g) and detected in subsurface soil (below 0–1 ft) in six samples with a maximum activity of 2.69 pCi/g. Strontium-90 was detected in subsurface tuff (below 0–1 ft) in 10 samples with a maximum activity of 1.17 pCi/g. Strontium-90 is identified as a COPC in soil and tuff.

Tritium was detected in 104 soil/tuff samples with a maximum activity of 67.6 pCi/g. Tritium is identified by detection status and is a COPC in soil and tuff.

Uranium-235/236 was detected above the Qbt 3 BV (0.09 pCi/g) in seven samples with a maximum activity of 0.132 pCi/g. Uranium-235/236 is identified as a COPC in tuff.

In summary, the radionuclide COPCs identified at SWMU 02-006(a) are cesium-137, plutonium-239/240, strontium-90, tritium, and uranium-235/236.

6.15.4.4 Nature and Extent of Contamination at SWMU 02-006(a)

In accordance with the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), 1 location was sampled to evaluate the vertical extent of tritium; 1 location was sampled near previously sampled location 02-600258 to evaluate the vertical extent of hexavalent chromium, total cyanide, and tritium; and 11 locations were sampled to evaluate the lateral extent of TAL metals and tritium (Table 3.2-1). The extent of contamination is evaluated using the Phase II data and compared with the historical data where necessary.

Inorganic Chemicals

Three samples were collected from location 02-612652 (depths ranging from 25–50 ft bgs), immediately downgradient of previously sampled location 02-600258, to evaluate the vertical extent of hexavalent chromium and total cyanide (Table 3.2-1). Fifty-five samples were collected from 11 step-out locations (02-612640 to 02-612650 [depths ranging from 5–50 ft bgs]) to evaluate the lateral extent of TAL metals (Table 3.2-1). As stated in the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), the extent of perchlorate was defined following the 2007 investigation, and no Phase II samples were analyzed for perchlorate.

Total cyanide and hexavalent chromium were not detected at location 02-612652. Therefore, the vertical extent of total cyanide and hexavalent chromium is defined near previously sampled location 02-600258.

Antimony was detected above the soil BV (0.83 mg/kg) in one sample at a concentration of 1.12 mg/kg at location 02-612646 from 0–0.5 ft bgs. Antimony concentrations decreased with depth at this location. Antimony was not detected above the soil BV (0.83 mg/kg) or the Qbt 3 BV (0.5 mg/kg) but had DLs

(0.506 mg/kg to 1.14 mg/kg) above the Qbt 3 BV in 50 samples at other locations. The lateral extent of antimony is defined.

Arsenic was detected above the Qbt 3 BV (2.79 mg/kg) in two samples at two locations. The highest concentration of 17 mg/kg was detected at location 02-612641 from 49–50 ft bgs. Arsenic was detected at a concentration of 3.08 mg/kg in the deepest sample (49–50 ft bgs) at location 02-612648; however, this concentration is below the maximum tuff background concentration (5 mg/kg). The arsenic concentration of 17 mg/kg from 49–50 ft bgs at location 02-612641 is not consistent with the pattern of detection of arsenic across the site and is not consistent with known operational history of the site. Arsenic was not detected above BVs at the two locations (02-612649 and 02-612642) directly downgradient of location 02-612641. The lateral extent of arsenic is defined.

Barium was detected above the Qbt 3 BV (46 mg/kg) in five samples at five locations. The highest concentration of 111 mg/kg was detected at location 02-612641 from 5–6 ft bgs. Barium concentrations decreased with depth at all five locations. Barium concentrations also decreased downgradient and laterally from previously sampled locations. The lateral extent of barium is defined.

Chromium was detected above the Qbt 3 BV (7.14 mg/kg) in one sample at a concentration of 7.34 mg/kg at location 02-612640 from 5–6 ft bgs. This concentration is below the maximum tuff background concentration (13 mg/kg). Chromium concentrations decreased with depth at this location. The lateral extent of chromium is defined.

Copper was detected above the Qbt 3 BV (4.66 mg/kg) in one sample at a concentration of 5.66 mg/kg at location 02-612641 from 5–6 ft bgs. This concentration is below the maximum tuff background concentration (6.2 mg/kg). The lateral extent of copper is defined.

Lead was detected above the Qbt 3 BV (11.2 mg/kg) in six samples at two locations. The highest concentration of 67.2 mg/kg was detected at location 02-612648 from 25–26 ft bgs. Lead concentrations decreased with depth at location 02-612468. Lead concentrations increased with depth at location 02-612650, and it was detected in the deepest sample (49–50 ft bgs) at a concentration of 21.4 mg/kg at location 02-612650. However, this concentration does not appear to be the result of a release because it is not significantly above the maximum tuff background concentration (15.5 mg/kg). Lead concentrations also decreased downgradient. The lateral extent of lead is defined.

Nickel was detected above the Qbt 3 BV (6.58 mg/kg) in one sample at a concentration of 9.2 mg/kg at location 02-612641 from 5–6 ft bgs. Nickel concentrations decreased with depth at this location. Nickel concentrations also decreased downgradient and laterally from previously sampled locations. The lateral extent of nickel is defined.

Selenium was not detected above Qbt 3 BV (0.3 mg/kg) but had DLs (0.886 mg/kg to 1.05 mg/kg) above the Qbt 3 BV in 55 samples. Because selenium was not detected above BVs, the lateral extent of selenium is defined.

Organic Chemicals

The extent of organic chemicals was discussed in section 3.1.3 of the approved work plan (LANL 2009, 106660.14, pp. 13–14; NMED 2009, 106703). No additional sampling was warranted for organic chemicals at SWMU 02-006(a). Therefore, the samples collected in 2010 were not analyzed for organic chemicals.

Radionuclides

Five samples were collected from location 02-612651 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of tritium in the central area of the site, and three samples were collected from location 02-612652 (depths ranging from 25–50 ft bgs) to evaluate the vertical extent of tritium immediately downgradient of previously sampled location 02-600258 (Table 3.2-1). Fifty-five samples were collected from 11 step-out locations (02-612640 to 02-612650 [depths ranging from 5–50 ft bgs]) to evaluate the lateral extent of tritium (Table 3.2-1). The extent of all other radionuclide COPCs were identified following the 2007 investigation (LANL 2008, 101669.12, p. 51; LANL 2009, 106660, p. 14).

Tritium was detected in 31 samples at 11 locations. The highest activity of 23.99 pCi/g was detected at location 02-612651 from 25–26 ft bgs. Tritium activities decreased with depth at locations 02-612651 and 02-612652. The vertical extent of tritium is defined in the central area of the site and near previously sampled location 02-600258. Tritium activities decreased with depth at all the other locations except location 02-612646. Tritium was detected at the highest activity of 0.01684 pCi/g in the deepest sample (49–50 ft bgs) at location 02-612646. However, tritium was detected at lower activities in samples at location 02-612647, approximately 40 ft downgradient of location 02-612646. Tritium activities also decreased laterally from previously sampled locations. The lateral extent of tritium is defined.

Summary of Nature and Extent at SWMU 02-006(a)

The vertical extent of hexavalent chromium, total cyanide, and tritium is defined near location 02-600258. The vertical extent of tritium is defined in the central area of the site. The lateral extent of TAL metals and tritium is defined at SWMU 02-006(a).

6.15.5 Summary of Human Health Risk Screening

Details of the human health risk-screening assessment for SWMU 02-006(a) are discussed in Appendix H, section H-4.

The total excess cancer risk for the industrial scenario is 2×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.03, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 6 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 4×10^{-6}, based on a comparison with EPA's outdoor worker PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

The total excess cancer risk for the recreational scenario is 1×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.04, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 0.6 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 3×10^{-6}, based on conversion from dose using RESRAD, Version 6.5.

The total excess cancer risk for the residential scenario is 6×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.1, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 15 mrem/yr, which is equal to the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 5×10^{-5}, based on a comparison with EPA's residential PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Based on the screening-assessment results, no potential unacceptable risks or doses from COPCs exist for the industrial, recreational, and residential scenarios.

6.15.6 Summary of Ecological Risk Screening

Details of the ecological risk-screening assessment for SWMU 02-006(a) are presented in Appendix H, section H-5. Based on evaluations of the minimum ESL, HI analysis, comparisons to background, potential effects to populations (individuals for T&E species), and LOAEL analysis, no potential ecological risk exists at SWMU 02-006(a).

6.16 SWMU 02-006(b), Former Acid Waste Line, Laboratory Effluent

6.16.1 Site Description and Operational History

SWMU 02-006(b) was an acid waste line that carried effluent from several laboratory rooms in the center of the OWR building (02-001) south to a discharge point into Los Alamos Creek (Figure 6.16-1).

Construction of the OWR building (02-001) and associated laboratory rooms, sinks, and waste line [SWMU 02-006(b)] was completed in 1946 (engineering drawing C-1703, LASL 1946, 089678). The OWR became operational in 1956. The acid waste line was reportedly taken out of service in the 1960s; however, no record of its removal is available (DOE 1987, 008663). All SWMU 02-006(b) lines and connections were removed and disposed of in 2003 (WD-3 2003, 082646, p. 2).

6.16.2 Relationship to Other SWMUs and AOCs

The OWR acid waste line was related to the OWR facility, AOC 02-004(a). The laboratory rooms and sinks that discharged into the acid waste line were all located within the OWR facility.

6.16.3 Summary of Previous Investigations

1995 Investigation Activities

Samples were collected as part of the investigation activities in 1995. Supporting QA/QC information is not available for these samples, so the sample results are not included in this report.

2000 Post–Cerro Grande Recovery Work

As part of the post–Cerro Grande fire recovery work, samples were collected from two locations (02-01094 and 02-01251) near the southern end of the drainline (LANL 2001, 070352).

2003 Omega West Decommissioning Project

All SWMU 02-006(b) piping was removed, and the waste was disposed of at an appropriate disposal facility. Site activities included soil excavation, radiological walkover surveys, radiological (structure) screening, soil sampling, sample analysis, and surveying of sample coordinates. Limited soil surveys were conducted; however, no formal report of soil survey results is available.

LLW (construction debris and/or soil) was packaged and shipped to Envirocare or TA-54 for disposal. Mixed waste was packaged and transferred to TA-54 for further processing and/or storage at the Laboratory. In total, 9800 ft^3 of material was shipped to Envirocare for disposal; material from the OWR acid waste line was included in this total volume (WD-3 2003, 082646, pp. 1–6). The volume of material specifically associated with SWMU 02-006(b) was not documented.

2007 Investigation Activities

Sixty-one samples were collected from 17 locations at SWMU 02-006(b) in 2007. Results from the sampling activities in 2007 were presented in the previous investigation report (LANL 2008, 101669.12). Additional sampling was required to define the extent of contamination at the site.

6.16.4 Site Contamination

6.16.4.1 Soil, Rock, and Sediment Sampling

As part of the 2010 investigation, the following characterization activities were conducted at SWMU 02-006(b):

- All samples were field screened for organic vapors and gross-alpha, -beta, and -gamma radioactivity. Field-screening results were recorded on the SCLs (Appendix F) and are presented in Table 3.2-2.
- Five samples were collected from location 02-612374 near SWMU 02-006(b) from 5–6 ft, 15–16 ft, 25–26 ft, 35–36 ft, and 49–50 ft bgs. These samples were analyzed for TAL metals, PCBs, TPH-DRO, SVOCs, isotopic plutonium, isotopic uranium, strontium-90, and tritium.

The 2010 and historical sampling locations at SWMU 02-006(b) are shown in Figure 6.16-1. Table 6.16-1 presents the samples collected and analyses requested for SWMU 02-006(b). The geodetic coordinates of the 2010 sampling locations are presented in Table 3.2-1.

6.16.4.2 Soil, Rock, and Sediment Sample Field-Screening Results

No organic vapors were detected at more than 10 ppm above ambient air levels during headspace screening of the samples. No radiological-screening results exceeded twice the daily site background levels. Field-screening results are presented in Table 3.2-2. No changes to sampling or other activities occurred because of the field-screening results.

6.16.4.3 Soil, Rock, and Sediment Sample Analytical Results

Decision-level data at SWMU 02-006(b) consist of results from 70 samples collected from 21 locations in 2000, 2003, 2007, and 2010. The 70 samples include 19 soil, 29 Qal, 19 Qbo, and 3 sediment samples.

Inorganic Chemicals

A total of 70 samples (19 soil, 29 Qal, 19 Qbo, and 3 sediment) were analyzed for TAL metals, 2 soil samples were analyzed for hexavalent chromium, 65 samples (18 soil, 29 Qal, 15 Qbo, and 3 sediment) were analyzed for nitrate, and 61 samples (16 soil, 29 Qal, 15 Qbo, and 1 sediment) were analyzed for perchlorate and total cyanide.

Table 6.16-2 presents the inorganic chemicals detected or detected above BVs. Plate 26 shows the spatial distribution of inorganic chemicals detected or detected above BVs. The vertical extent is defined at SWMU 02-006(b), and the lateral extent is defined at the TA-02 core area; inorganic COPCs are identified below.

Aluminum was detected above the Qbo BV (3560 mg/kg) and the maximum Qbo background concentration (3400 mg/kg) in 16 samples with a maximum concentration of 13,200 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-12.0-1, Table G-12). Aluminum is identified as a COPC in tuff.

Antimony was not detected but had DLs (0.508 mg/kg to 1.37 mg/kg) above the Qbo BV (0.5 mg/kg) and the maximum Qbo background concentration (0.2 mg/kg) in six samples. Antimony is identified as a COPC in tuff.

Arsenic was detected above the Qbo BV (0.56 mg/kg) in eight samples with a maximum concentration of 1.87 mg/kg, and it was not detected but had DLs (0.718 mg/kg to 1.98 mg/kg) above the Qbo BV in 11 samples. Seven of the eight concentrations and all 11 DLs are above the maximum Qbo background concentration (0.7 mg/kg). Because the background data set had more than 50% nondetects, the Gehan test could not be performed. The quantile test indicated site concentrations are different from background (Figure G-12.0-2, Table G-12). Arsenic is identified as a COPC in tuff.

Barium was detected above the Qbo BV (25.7 mg/kg) and the maximum Qbo background concentration (23 mg/kg) in 10 samples with a maximum concentration of 92.1 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-12.0-3, Table G-12). Barium is identified as a COPC in tuff.

Cadmium was detected above the soil BV (0.4 mg/kg) in 5 samples with a maximum concentration of 5 mg/kg, and it was not detected but had DLs (0.406 mg/kg to 0.601 mg/kg) above the soil BV in 32 samples. Because the background data set had more than 50% nondetects, the Gehan test could not be performed. The quantile test indicated site concentrations are different from background (Figure G-12.0-4, Table G-12). Cadmium is identified as a COPC in soil. Cadmium was not detected but had DLs (0.562 mg/kg to 0.683 mg/kg) above the Qbo BV (0.4 mg/kg) in all 19 Qbo samples. Cadmium is identified as a COPC in tuff. Cadmium was not detected but had a DL (0.523 mg/kg) above the sediment BV (0.4 mg/kg) in one sample. Cadmium is identified as a COPC in sediment.

Calcium was detected above the soil BV (6120 mg/kg) in five samples with a maximum concentration of 35,200 mg/kg. The Gehan and quantile tests indicated site concentrations are not different from background (Figure G-12.0-5, Table G-12). Calcium is not identified as a COPC in soil.

Chromium was detected above the soil BV (19.3 mg/kg) in four samples with a maximum concentration of 39.5 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-12.0-6, Table G-12). Chromium is identified as a COPC in soil. Chromium was detected above the Qbo BV (2.6 mg/kg) in 11 samples with a maximum concentration of 28.8 mg/kg, and it was not detected but had DLs (8.9 mg/kg to 12.5 mg/kg) above the Qbo BV in 3 samples. The Gehan test indicated site concentrations are different from background (Figure G-12.0-7, Table G-12). Chromium is identified as a COPC in tuff.

Hexavalent chromium was detected in one soil sample at a concentration of 0.158 mg/kg. Hexavalent chromium has no BV in soil. Hexavalent chromium is identified as a COPC in soil.

Copper was detected above the Qbo BV (3.96 mg/kg) and the maximum Qbo background concentration (2.6 mg/kg) in three samples with a maximum concentration of 5.42 mg/kg. The Gehan and quantile tests indicated site concentrations are not different from background (Figure G-12.0-8, Table G-12). Copper is not identified as a COPC in tuff.

Iron was detected above the Qbo BV and the maximum Qbo background concentration (both 3700 mg/kg) in all 19 Qbo samples with a maximum concentration of 8890 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-12.0-9, Table G-12). Iron is identified as a COPC in tuff.

Lead was detected above the soil BV (22.3 mg/kg) in three samples with a maximum concentration of 3970 mg/kg. The site concentrations are substantially above background. Lead is identified as a COPC in soil. Lead was detected above the sediment BV (19.7 mg/kg) and the maximum sediment background concentration (25.6 mg/kg) in two samples with a maximum concentration of 31 mg/kg. Lead is identified as a COPC in sediment.

Manganese was detected above the Qbo BV (189 mg/kg) in 16 samples with a maximum concentration of 548 mg/kg. Fifteen of the 16 concentrations are above the maximum Qbo background concentration (210 mg/kg). The Gehan test indicated site concentrations are different from background (Figure G-12.0-10, Table G-12). Manganese is identified as a COPC in tuff.

Mercury was detected above the soil BV and the maximum soil background concentration (both 0.1 mg/kg) in 25 samples with a maximum concentration of 6.04 mg/kg. The site concentrations are substantially above background. Mercury is identified as a COPC in soil. Mercury was detected above the sediment BV (0.1 mg/kg) in three samples with a maximum concentration of 0.84 mg/kg. Mercury is identified as a COPC in sediment.

Nickel was detected above the Qbo BV (2 mg/kg) in six samples with a maximum concentration of 4.26 mg/kg, and it was not detected but had DLs (2.06 mg/kg to 4.46 mg/kg) above the Qbo BV in three samples. Because the background data set had more than 50% nondetects, the Gehan test could not be performed. The quantile test indicated site concentrations are different from background (Figure G-12.0-11, Table G-12). Nickel is identified as a COPC in tuff.

Nitrate was detected in 28 soil/Qal/sediment samples with a maximum concentration of 25.8 mg/kg. No background data are available for nitrate, and this concentration is higher than would be expected for naturally occurring nitrate. Nitrate is identified as a COPC in soil.

Perchlorate was detected in 12 soil/Qal/tuff samples with a maximum concentration of 0.0115 mg/kg. Because perchlorate has no BV in either soil or tuff, perchlorate is identified as a COPC in soil and tuff.

Selenium was detected above the soil BV (1.52 mg/kg) in 3 samples with a maximum concentration of 1.99 mg/kg, and it was not detected but had DLs (1.53 mg/kg to 1.8 mg/kg) above the soil BV in 11 samples. The Gehan test indicated site concentrations are different from background (Figure G-12.0-12, Table G-12). Selenium is identified as a COPC in soil. Selenium was detected above the Qbo BV (0.3 mg/kg) in 12 samples with a maximum concentration of 8.55 mg/kg, and it was not detected but had DLs (1.21 mg/kg and 1.79 mg/kg) above the Qbo BV in 7 samples. The site concentrations are substantially above background. Selenium is identified as a COPC in tuff. Selenium was detected above the sediment BV (0.3 mg/kg) in three samples with a maximum concentration of 0.842 mg/kg. Selenium is identified as a COPC in sediment.

Silver was detected above the sediment BV (1 mg/kg) in one sample at a concentration of 1.7 mg/kg. Because there were fewer than 10 sediment samples, statistical tests could not be performed. Silver is identified as a COPC in sediment.

Vanadium was detected above the Qbo BV (4.59 mg/kg) and the maximum Qbo background concentration (3.8 mg/kg) in seven samples with a maximum concentration of 10.3 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-12.0-13, Table G-12). Vanadium is identified as a COPC in tuff.

Zinc was detected above the soil BV (48.8 mg/kg) in nine samples with a maximum concentration of 87.6 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-12.0-14, Table G-12). Zinc is identified as a COPC in soil. Zinc was detected above the sediment BV (60.2 mg/kg) and the maximum sediment background concentration (56.2 mg/kg) in two samples with a maximum concentration of 140 mg/kg. Because there were fewer than 10 sediment samples, statistical tests could not be performed. Zinc is identified as a COPC in sediment.

In summary, the inorganic COPCs identified at SWMU 02-006(b) are aluminum, antimony, arsenic, barium, cadmium, chromium, hexavalent chromium, iron, lead, manganese, mercury, nickel, nitrate, perchlorate, selenium, silver, vanadium, and zinc.

Organic Chemicals

A total of 68 samples (17 soil, 29 Qal, 19 Qbo, and 3 sediment) were analyzed for PCBs, 70 samples (19 soil, 29 Qal, 19 Qbo, and 3 sediment) were analyzed for SVOCs, 21 samples (6 soil, 7 Qal, and 8 Qbo) were analyzed for TPH-DRO, and 46 samples (29 Qal, 15 Qbo, and 2 sediment) were analyzed for VOCs.

Table 6.16-3 presents the detected organic chemicals. Plate 27 shows the spatial distribution of detected organic chemicals. The vertical extent is defined at SWMU 02-006(b), and the lateral extent is defined at the TA-02 core area; organic COPCs are identified below.

Organic chemicals detected at SWMU 02-006(b) include acenaphthene; acetone; anthracene; Aroclor-1242; Aroclor-1248; Aroclor-1254; Aroclor-1260; benzo(a)anthracene; benzo(a)pyrene; benzo(b)fluoranthene; benzo(g,h,i)perylene; benzo(k)fluoranthene; bis(2-ethylhexyl)phthalate; chrysene; dibenz(a,h)anthracene; dibenzofuran; 1,4-dichlorobenzene; diethylphthalate; di-n-butylphthalate; ethylbenzene; fluoranthene; fluorene; indeno(1,2,3-cd)pyrene; 4-isopropyltoluene; 4-methyl-2-pentanone; methylene chloride; 2-methylnaphthalene; naphthalene; phenanthrene; pyrene; styrene; toluene; TPH-DRO; trichloroethene; 1,2,4-trimethylbenzene; 1,3,5-trimethylbenzene; 1,2-xylene; and 1,3-xylene+1,4-xylene.

These organic chemicals are retained as COPCs at SWMU 02-006(b).

Radionuclides

A total of 61 samples (16 soil, 29 Qal, 15 Qbo, and 1 sediment) were analyzed for americium-241; 65 samples (18 soil, 29 Qal, 15 Qbo, and 3 sediment) were analyzed for gamma-emitting radionuclides; 70 samples (19 soil, 29 Qal, 19 Qbo, and 3 sediment) were analyzed for isotopic plutonium, strontium-90, and tritium; 69 samples (19 soil, 29 Qal, 19 Qbo, and 2 sediment) were analyzed for isotopic uranium; and 2 soil samples were analyzed for technetium-99.

Table 6.16-4 presents the radionuclides detected or detected above BVs/FVs. Figure 6.16-2 shows the spatial distribution of radionuclides detected or detected above BVs/FVs. The vertical extent is defined at SWMU 02-006(b), and the lateral extent is defined at the TA-02 core area; radionuclide COPCs are identified below.

Cesium-137 was detected in subsurface soil (below 0–1 ft) in six samples with a maximum activity of 1.83 pCi/g. Cesium-137 is identified as a COPC in soil.

Plutonium-239/240 was detected in subsurface soil (below 0–1 ft) in two samples with a maximum activity of 0.117 pCi/g. Plutonium-239/240 was detected in subsurface tuff (below 0–1 ft) in one sample at an activity of 0.0968 pCi/g. Plutonium-239/240 was detected above the sediment BV (0.068 pCi/g) in three samples with a maximum activity of 2.11 pCi/g. Plutonium-239/240 is identified as a COPC in soil, tuff, and sediment.

Strontium-90 was detected in subsurface soil (below 0–1 ft) in three samples with a maximum activity of 1.29 pCi/g. Strontium-90 is identified as a COPC in soil.

Tritium was detected in 32 soil/tuff/sediment samples with a maximum activity of 2.46 pCi/g. Tritium is identified by detection status and is a COPC in soil, tuff, and sediment.

Uranium-234 was detected above the sediment BV (2.59 pCi/g) in one sample at an activity of 7.87 pCi/g. Uranium-234 is identified as a COPC in sediment.

Uranium-235/236 was detected above the Qbo BV (0.18 pCi/g) in one sample at an activity of 0.218 pCi/g, and it was detected above the sediment BV (0.2 pCi/g) in one sample at an activity of 0.278 pCi/g. Uranium-235/236 is identified as a COPC in tuff and sediment.

In summary, the radionuclide COPCs identified at SWMU 02-006(b) are cesium-137, plutonium-239/240, strontium-90, tritium, uranium-234, and uranium-235/236.

6.16.4.4 Nature and Extent of Contamination at SWMU 02-006(b)

In accordance with the approved work plan, one location was sampled at SWMU 02-006(b) to determine the vertical extent of contamination for inorganic chemicals, organic chemicals, and radionuclides (Table 3.2-1). Analytical suites were determined by the data needs specific to each location as presented in Table 3.1-1 of the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703). The vertical extent of contamination at SWMU 02-006(a) is evaluated using only the Phase II data from samples collected as deep as 50 ft bgs.

Inorganic Chemicals

Five samples were collected from location 02-612374 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of TAL metals (Table 3.2-1). As stated in the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), the extent of nitrate and perchlorate was defined following the 2007 investigation, and no Phase II samples were analyzed for nitrate or perchlorate.

Aluminum was detected above Qbo BV (3560 mg/kg) in one sample at a concentration of 7300 mg/kg at location 02-612374 from 15–16 ft bgs. Aluminum concentrations decreased with depth at this location. The vertical extent of aluminum is defined.

Antimony was detected above the Qbo BV (0.5 mg/kg) in one sample at a concentration of 0.539 mg/kg at location 02-612374 from 49–50 ft bgs. This concentration is just above the BV and does not appear to be the result of a release. The vertical extent of antimony is defined.

Arsenic was detected above the Qbo BV (0.56 mg/kg) in only one sample at a concentration of 0.895 mg/kg at location 02-612374 from 15–16 ft bgs. Arsenic was not detected but had DLs (1.21 mg/kg to 1.29 mg/kg) above the Qbo BV in three samples. Arsenic was not detected above BVs in any other sample at this location. The vertical extent of arsenic is defined.

Barium was detected above the Qbo BV (25.7 mg/kg) in one sample at a concentration of 53.4 mg/kg at location 02-612374 from 15–16 ft bgs. Barium concentrations decreased with depth at this location. The vertical extent of barium is defined.

Cadmium was not detected but had a DL (0.512 mg/kg) above the soil BV (0.4 mg/kg) in one sample and had DLs (0.562 mg/kg to 0.683 mg/kg) above the Qbo BV (0.4 mg/kg) in four samples. Because cadmium was not detected above BVs, the vertical extent of cadmium is defined.

Lead, mercury, silver, and zinc were not detected above BVs at location 02-612374. The vertical extent of these metals is defined.

Chromium was detected above the Qbo BV (2.6 mg/kg) in one sample at a concentration of 6.35 mg/kg at location 21-612374 from 15–16 ft bgs. Chromium concentrations decreased with depth at this location. The vertical extent of chromium is defined.

Hexavalent chromium was not analyzed in samples from location 02-612374. It was detected in only one 2003 soil sample from 3.5–4 ft bgs and was not detected in the deeper sample from the same location. Therefore, the vertical extent of hexavalent chromium is defined.

Iron was detected above the Qbo BV (3700 mg/kg) in four samples at location 02-612374. The highest concentration of 8890 mg/kg was detected at location 02-612374 from 15–16 ft bgs. Iron concentrations decreased with depth at this location. The vertical extent of iron is defined.

Manganese was detected above the Qbo BV (189 mg/kg) in three samples at location 02-612374. The highest concentration of 283 mg/kg was detected at location 02-612374 from 15–16 ft bgs. Manganese concentrations decreased with depth at this location. The vertical extent of manganese is defined.

Nickel was detected above the Qbo BV (2 mg/kg) in one sample at a concentration of 3.08 mg/kg at location 02-612374 from 15–16 ft bgs. Nickel concentrations decreased with depth at this location. The vertical extent of nickel is defined.

Selenium was not detected above the Qbo BV (0.3 mg/kg) but had DLs (1.21 mg/kg to 1.32 mg/kg) above the Qbo BV in four samples. Because selenium was not detected above BVs, the vertical extent of selenium is defined.

Vanadium was detected above the Qbo BV (4.59 mg/kg) in one sample at a concentration of 10.3 mg/kg at location 21-612374 from 15–16 ft bgs. Vanadium concentrations decreased with depth at this location. The vertical extent of vanadium is defined.

Organic Chemicals

Five samples were collected from location 02-612374 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of PCBs, SVOCs, and TPH-DRO (Table 3.2-1). As stated in the approved Phase II investigation work plan (LANL 2009, 106660.14; NMED 2009, 106703), the extent of VOCs was defined following the 2007 investigation, and no Phase II samples were analyzed for VOCs.

Aroclor-1254 was detected in one sample at a concentration of 0.0027 mg/kg at location 02-612374 from 5–6 ft bgs. Aroclor-1254 concentrations decreased with depth at this location. The vertical extent of Aroclor-1254 is defined.

Aroclor-1260 was detected in two samples at location 02-612374. The highest concentration of 0.0027 mg/kg was detected at location 02-612374 from 15–16 ft bgs. Aroclor-1260 concentrations decreased with depth at this location. The vertical extent of Aroclor-1260 is defined.

SVOCs and TPH-DRO were not detected at location 02-612374. The vertical extent of TPH-DRO and SVOCs is defined.

Radionuclides

Five samples were collected from location 02-612374 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of isotopic plutonium, isotopic uranium, strontium-90, and tritium (Table 3.2-1). The extent of cesium-137 is defined as a result of the 2007 investigation (LANL 2008, 101669.12, p. 55).

Isotopic plutonium, isotopic uranium, and strontium-90 were not detected or not detected above BVs at location 02-612374. The vertical extent of these radionuclides is defined.

Tritium was detected in one sample at an activity of 0.3627 pCi/g at location 02-612374 from 5–6 ft bgs. Tritium activities decreased with depth at this location. The vertical extent of tritium is defined.

Summary of Nature and Extent at SWMU 02-006(b)

The nature and extent of TAL metals, PCBs, SVOCs, TPH-DRO, isotopic plutonium, isotopic uranium, strontium-90, and tritium are defined.

6.16.5 Summary of Human Health Risk Screening

Details of the human health risk-screening assessment for SWMU 02-006(b) are discussed in Appendix H, section H-4.

The total excess cancer risk for the industrial scenario is 5×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.03, which is below the NMED target HI of 1 (NMED 2009, 108070).The HQ for TPH-DRO is 0.06, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 0.3 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 1×10^{-6}, based on a comparison with EPA's outdoor worker PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

The total excess cancer risk for the recreational scenario is 4×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.05, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 0.1 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 8×10^{-8}, based on conversion from dose using RESRAD, Version 6.5.

The total excess cancer risk for the residential scenario is 2×10^{-5}, which is above the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The cancer risk is partly because of arsenic and is overestimated. As discussed in the uncertainty analysis in Appendix H (section H-4.4.2), the arsenic EPC is similar to being exposed to a naturally occurring arsenic level, and the risk does not incrementally increase above that which would result from exposure to naturally occurring levels of arsenic. The risk is reduced to approximately 1×10^{-5} without arsenic, and is equivalent to the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI for noncarcinogens is 2, which is above the NMED target HI of 1 (NMED 2009, 108070), is primarily because of lead. The lead HQ is approximately 1.1, and without lead the HI is 0.4.

Therefore, the lead EPC is similar to the residential SSL, and the noncarcinogenic HI is below the NMED target level of 1. The HQ for TPH-DRO is 0.06, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 2 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 3×10^{-6}, based on a comparison with EPA's residential PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Based on the screening-assessment results, no potential unacceptable risks or doses from COPCs exist for the industrial, recreational, and residential scenarios.

6.16.6 Summary of Ecological Risk Screening

In accordance with the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), locations surrounding the core area of TA-02 were sampled to define the lateral extent of contamination for TA-02 as a whole (section 6.32). Although the lateral extent for the TA-02 core area is defined, one site within the core area requires additional remediation and confirmation sampling. The ecological risk-screening assessment will be conducted for the sites within the TA-02 core area as one exposure unit after the investigation at this site has been completed.

6.17 AOC 02-006(c), Former Drainline from Offices, Restrooms, Control Room

6.17.1 Site Description and Operational History

AOC 02-006(c) was a waste line that extended from the office areas in the reactor building to the septic tank (structure 02-043, SWMU 02-007) (Figure 6.17-1). AOC 02-006(c) was identified in the 1990 SWMU report (LANL 1990, 007511) as a drainline that was connected to the chemical room in the OWR building (02-001) and several OWR laboratories. Closer review of the available engineering drawings, C-1703 (LASL 1946, 089678) and C-1750 (LASL 1949, 089680), provided the following information regarding the connection and use of AOC 02-006(c).

AOC 02-006(c) was the drainline that served the office or central portion of the OWR building, 02-001. As indicated on engineering drawing C-1750 (LASL 1949, 089680), the line was separate from the OWR acid waste line [SWMU 02-006(b)] that connected to the chemical laboratories.

The AOC 02-006(c) waste line received wastewater from the evaporative cooler and drinking fountain associated with the control room, restrooms, and office areas. The sanitary service provided by AOC 02-006(c) was transferred to TA-41 in the mid-1970s (DOE 1987, 008663). However, the AOC 02-006(c) drainline continued to convey basement seepage to the AOC 02-008(c) outfalls installed in 1985 and 1988. The AOC 02-006(c) sewer line was removed and disposed of during D&D activities in 2003 (WD-3 2003, 082646).

6.17.2 Relationship to Other SWMUs and AOCs

The AOC 02-006(c) sewer line originated in the OWR facility, AOC 02-004(a). The sewer line crossed the path of, or ran parallel to, lines associated with SWMU 02-006(b) and AOC 02-011(a)(ix) and AOC 02-011(a)(x). The line ran near the former chemical waste shack (AOC 02-010), the stack-gas valve house [AOC 02-003(a)], and the drainlines of AOC 02-003(a) and AOC 02-011(b). The sewer line terminated at the SWMU 02-007 septic tank (Consolidated Unit 02-007-00).

6.17.3 Summary of Previous Investigations

2003 Omega West Decommissioning Project

AOC 02-006(c) piping was removed, and the waste was disposed of, at an approved facility during D&D activities in 2003. Site activities included soil excavation, radiological walkover surveys, radiological (structure) screening, soil sampling, sample analysis, and surveying of sample coordinates. Limited soil surveys were conducted, but no formal report of soil survey results is available.

LLW (construction debris and/or soil) was packaged and shipped to Envirocare or TA-54 for disposal. Mixed waste was packaged and transferred to TA-54 for further processing and/or storage at the Laboratory. In total, 9800 ft^3 of material was shipped to Envirocare for disposal; material from the AOC 02-006(c) sewer line was included in this total volume (WD-3 2003, 082646, pp. 1–6). The specific volume of material associated with AOC 02-006(c) was not documented.

No soil samples were collected from AOC 02-006(c) as part of the Omega West decommissioning project activities in 2003.

2007 Investigation Activities

Twenty-two samples were collected from seven locations at AOC 02-006(c) in 2007. Results from the sampling activities in 2007 were presented in the previous investigation report (LANL 2008, 101669.12). Additional sampling was required to define the extent of contamination at the site.

6.17.4 Site Contamination

6.17.4.1 Soil and Rock Sampling

As part of the 2010 investigation, the following characterization activities were conducted at AOC 02-006(c):

- All samples were field screened for organic vapors and gross-alpha, -beta, and -gamma radioactivity. Field-screening results were recorded on the SCLs (Appendix F) and are presented in Table 3.2-2.
- Five samples were collected from location 02-612345 in the southern portion of AOC 02-006(c) from 5–6 ft, 15–16 ft, 25–26 ft, 35–36 ft, and 49–50 ft bgs. These samples were analyzed for TAL metals, hexavalent chromium, PCBs, SVOCs, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, and tritium.
- Five samples were collected from location 02-612463 near AOC 02-006(c) from 5–6 ft, 15–16 ft, 25–27 ft, 35–36 ft, and 49–50 ft bgs. These samples were analyzed for TAL metals, hexavalent chromium, PCBs, americium-241, gamma-emitting radionuclides, isotopic uranium, strontium-90, and tritium.

The 2010 and historical sampling locations at AOC 02-006(c) are shown in Figure 6.17-1. Table 6.17-1 presents the samples collected and analyses requested for AOC 02-006(c). The geodetic coordinates of the 2010 sampling locations are presented in Table 3.2-1.

6.17.4.2 Soil and Rock Sample Field-Screening Results

Organic vapors were detected at more than 10 ppm above ambient air levels during headspace screening of one sample at location 02-612345. As a result, the samples collected at this location were analyzed for TPH-DRO, in addition to the planned suites. No radiological-screening results exceeded twice the daily site background levels. Field-screening results are presented in Table 3.2-2.

6.17.4.3 Soil and Rock Sample Analytical Results

Decision-level data at AOC 02-006(c) consist of results from 32 samples collected from 9 locations in 2000, 2007, and 2010. The 32 samples include 8 soil, 13 Qal, and 11 Qbo samples.

Inorganic Chemicals

A total of 32 samples (8 soil, 13 Qal, and 11 Qbo) were analyzed for TAL metals and hexavalent chromium, and 22 samples (7 soil, 11 Qal, and 4 Qbo) were analyzed for nitrate, perchlorate, and total cyanide.

Table 6.17-2 presents the inorganic chemicals detected or detected above BVs. Figure 6.17-2 shows the spatial distribution of inorganic chemicals detected or detected above BVs. The vertical extent is defined at AOC 02-006(c), and the lateral extent is defined at the TA-02 core area; inorganic COPCs are identified below.

Aluminum was detected above the Qbo BV (3560 mg/kg) and the maximum Qbo background concentration (3400 mg/kg) in eight samples with a maximum concentration of 12,700 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-13.0-1, Table G-13). Aluminum is identified as a COPC in tuff.

Antimony was not detected but had DLs (1.03 mg/kg to 1.11 mg/kg) above the soil BV (0.83 mg/kg) in three samples. All three DLs are above the maximum soil background concentration (1 mg/kg). Antimony is identified as a COPC in soil. Antimony was not detected but had DLs (1.23 mg/kg to 5.73 mg/kg) above the Qbo BV (0.5 mg/kg) and the maximum Qbo background concentration (0.2 mg/kg) in seven samples. Antimony is identified as a COPC in tuff.

Arsenic was detected above the Qbo BV (0.56 mg/kg) in four samples with a maximum concentration of 2.35 mg/kg, and it was not detected but had DLs (1.26 mg/kg to 1.94 mg/kg) above the Qbo BV in six samples. All four concentrations and all six DLs are above the maximum Qbo background concentration (0.7 mg/kg). The site concentrations are substantially above background. Arsenic is identified as a COPC in tuff.

Barium was detected above the Qbo BV (25.7 mg/kg) and the maximum Qbo background concentration (23 mg/kg) in five samples with a maximum concentration of 56.5 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-13.0-2, Table G-13). Barium is identified as a COPC in tuff.

Cadmium was not detected above the soil BV (0.4 mg/kg) but had DLs (0.449 mg/kg to 0.578 mg/kg) above the soil BV in 14 samples. Because the background data set had more than 50% nondetects, the Gehan test could not be performed. The quantile test and the box plot indicated site concentrations are less than background (Figure G-13.0-3, Table G-13). Cadmium is not identified as a COPC in soil. Cadmium was not detected but had DLs (0.567 mg/kg to 0.699 mg/kg) above the Qbo BV (0.4 mg/kg) in 10 samples. Cadmium is identified as a COPC in tuff.

Calcium was detected above the soil BV (6120 mg/kg) in one sample at a concentration of 9020 mg/kg. The Gehan and quantile tests indicated site concentrations are not different from background (Figure G-13.0-4, Table G-13). Calcium is not identified as a COPC in soil.

Chromium was detected above the soil BV (19.3 mg/kg) in four samples with a maximum concentration of 45.7 mg/kg. The Gehan and quantile tests indicated site concentrations are not different from background (Figure G-13.0-5, Table G-13). Chromium is not identified as a COPC in soil. Chromium was detected above the Qbo BV (2.6 mg/kg) in eight samples with a maximum concentration of 404 mg/kg, and it was not detected but had a DL (6.5 mg/kg) above the Qbo BV in one sample. The site concentrations are substantially above background. Chromium is identified as a COPC in tuff.

Hexavalent chromium was detected in 10 soil/tuff samples with a maximum concentration of 0.365 mg/kg. Hexavalent chromium has no BV in either soil or tuff. Hexavalent chromium is identified as a COPC in soil and tuff.

Copper was detected above the soil BV (14.7 mg/kg) in one sample at a concentration of 15 mg/kg. The Gehan test and the box plot indicated site concentrations are less than background (Figure G-13.0-6, Table G-13). Copper is not identified as a COPC in soil. Copper was detected above the Qbo BV (3.96 mg/kg) and the maximum Qbo background concentration (2.6 mg/kg) in three samples with a maximum concentration of 7.89 mg/kg. The Gehan and quantile tests indicated site concentrations are not different from background (Figure G-13.0-7, Table G-13). Copper is not identified as a COPC in tuff.

Iron was detected above the Qbo BV and the maximum Qbo background concentration (both 3700 mg/kg) in all 11 Qbo samples with a maximum concentration of 10,700 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-13.0-8, Table G-13). Iron is identified as a COPC in tuff.

Lead was detected above the soil BV (22.3 mg/kg) in one sample at a concentration of 44.2 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-13.0-9, Table G-13). Lead is identified as a COPC in soil.

Magnesium was detected above the Qbo BV (739 mg/kg) in one sample at a concentration of 1570 mg/kg. The Gehan and quantile tests indicated site concentrations are not different from background (Figure G-13.0-10, Table G-13). Magnesium is not identified as a COPC in tuff.

Manganese was detected above the Qbo BV (189 mg/kg) and the maximum Qbo background concentration (210 mg/kg) in nine samples with a maximum concentration of 838 mg/kg, and it was not detected but had a DL (199 mg/kg) above the Qbo BV in one sample. The Gehan test indicated site concentrations are different from background (Figure G-13.0-11, Table G-13). Manganese is identified as a COPC in tuff.

Mercury was detected above the soil BV and the maximum soil background concentration (both 0.1 mg/kg) in eight samples with a maximum concentration of 1.36 mg/kg. The site concentrations are substantially above background. Mercury is identified as a COPC in soil.

Nickel was detected above the Qbo BV (2 mg/kg) in four samples with a maximum concentration of 22.4 mg/kg. Because the background data set had more than 50% nondetects, the Gehan test could not be performed. The quantile and slippage tests indicated site concentrations are not different from background (Figure G-13.0-12, Table G-11). Nickel is not identified as a COPC in tuff.

Nitrate was detected in 10 soil/Qal samples with a maximum concentration of 6.67 mg/kg. No background data are available for nitrate. Nitrate is naturally occurring, and the concentrations detected likely reflect naturally occurring levels. Nitrate is not identified as a COPC in soil.

Perchlorate was detected in three soil/Qal samples with a maximum concentration of 0.00242 mg/kg. Because perchlorate has no BV in soil, perchlorate is identified as a COPC in soil.

Selenium was detected above the soil BV (1.52 mg/kg) in one sample at a concentration of 2.3 mg/kg, and it was not detected but had DLs (1.56 mg/kg to 1.6 mg/kg) above the soil BV in three samples. The Gehan test indicated site concentrations are different from background (Figure G-13.0-13, Table G-13). Selenium is identified as a COPC in soil. Selenium was detected above the Qbo BV (0.3 mg/kg) in three samples with a maximum concentration of 1.84 mg/kg, and it was not detected but had DLs (1.18 mg/kg and 1.75 mg/kg) above the Qbo BV in eight samples. Selenium has no background data set for Qbo tuff. Selenium is identified as a COPC in tuff.

Vanadium was detected above the Qbo BV (4.59 mg/kg) and the maximum Qbo background concentration (3.8 mg/kg) in three samples with a concentration of 15.1 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-13.0-14, Table G-13). Vanadium is identified as a COPC in tuff.

Zinc was detected above the soil BV (48.8 mg/kg) in five samples with a maximum concentration of 92.7 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-13.0-15, Table G-13). Zinc is identified as a COPC in soil.

In summary, the inorganic COPCs identified at AOC 02-006(c) are aluminum, antimony, arsenic, barium, cadmium, chromium, hexavalent chromium, iron, lead, manganese, mercury, perchlorate, selenium, vanadium, and zinc.

Organic Chemicals

A total of 32 samples (8 soil, 13 Qal, and 11 Qbo) were analyzed for PCBs, 27 samples (7 soil, 13 Qal, and 7 Qbo) were analyzed for SVOCs, 11 samples (2 soil, 6 Qal, and 3 Qbo) were analyzed for TPH-DRO, and 15 samples (11 Qal and 4 Qbo) were analyzed for VOCs.

Table 6.17-3 presents the detected organic chemicals. Figure 6.17-3 shows the spatial distribution of detected organic chemicals. The vertical extent is defined at AOC 02-006(c), and the lateral extent is defined at the TA-02 core area; organic COPCs are identified below.

Organic chemicals detected at AOC 02-006(c) include acenaphthene; anthracene; Aroclor-1242; Aroclor-1254; Aroclor-1260; benzo(a)anthracene; benzo(a)pyrene; benzo(b)fluoranthene; benzo(g,h,i)perylene; benzo(k)fluoranthene; chrysene; di-n-butylphthalate; fluoranthene; fluorene; indeno(1,2,3-cd)pyrene; methylene chloride; 2-methylnaphthalene; naphthalene; phenanthrene; pyrene; toluene; and TPH-DRO.

These organic chemicals are retained as COPCs at AOC 02-006(c).

Radionuclides

A total of 27 samples (8 soil, 11 Qal, and 8 Qbo) were analyzed for americium-241 and strontium-90; 32 samples (8 soil, 13 Qal, and 11 Qbo) were analyzed for gamma-emitting radionuclides, isotopic uranium, and tritium; and 27 samples (7 soil, 13 Qal, and 7 Qbo) were analyzed for isotopic plutonium.

Table 6.17-4 presents the radionuclides detected or detected above BVs/FVs. Figure 6.17-4 shows the spatial distribution of radionuclides detected or detected above BVs/FVs. The vertical extent is defined at AOC 02-006(c), and the lateral extent is defined at the TA-02 core area; radionuclide COPCs are identified below.

Cesium-137 was detected above the soil FV (1.65 pCi/g) and detected in subsurface soil (below 0–1 ft) in five samples with a maximum activity of 16.9 pCi/g. Cesium-137 is identified as a COPC in soil.

Plutonium-239/240 was detected above the soil FV (0.054 pCi/g) and detected in subsurface soil (below 0–1 ft) in two samples with a maximum activity of 0.112 pCi/g. Plutonium-239/240 is identified as a COPC in soil.

Strontium-90 was detected above the soil FV (1.31 pCi/g) and detected in subsurface soil (below 0–1 ft) four samples with a maximum activity of 3.86 pCi/g. Strontium-90 is identified as a COPC in soil.

Tritium was detected in 14 soil/tuff samples with a maximum activity of 0.506 pCi/g. Tritium is identified by detection status and is a COPC in soil and tuff.

Uranium isotopes were not detected above BVs at AOC 02-006(c) and are not identified as COPCs at this site.

In summary, the radionuclide COPCs identified at AOC 02-006(c) are cesium-137, plutonium-239/240, strontium-90, and tritium.

6.17.4.4 Nature and Extent of Contamination at AOC 02-006(c)

In accordance with the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), two locations were sampled at AOC 02-006(c) to determine the vertical extent of contamination for inorganic chemicals, organic chemicals, and radionuclides (Table 3.2-1). Analytical suites were determined by the data needs specific to each location as presented in Table 3.1-1 of the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703). The vertical extent of contamination at AOC 02-006(c) is evaluated using only the Phase II data from samples collected as deep as 50 ft bgs.

Inorganic Chemicals

Ten samples were collected from locations 02-612345 and 02-612463 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of TAL metals and hexavalent chromium (Table 3.2-1). As stated in the approved Phase II investigation work plan (LANL 2009, 106660.14; NMED 2009, 106703), the extent of perchlorate was defined following the 2007 investigation, and no Phase II samples were analyzed for perchlorate.

Aluminum was detected above the Qbo BV (3560 mg/kg) in four samples at locations 02-612345 and 02-612463. The highest concentration of 8087 mg/kg was detected at location 02-612463 from 25–27 ft bgs. Aluminum concentrations decreased with depth at both locations. The vertical extent of aluminum is defined.

Antimony was not detected but had DLs (1.03 mg/kg to 1.11 mg/kg) above the soil BV (0.83 mg/kg) in three samples and had DLs (1.23 mg/kg to 5.73 mg/kg) above the Qbo BV (0.5 mg/kg) in seven samples. Because antimony was not detected above BVs, the vertical extent of antimony is defined.

Arsenic was detected above the Qbo BV (0.56 mg/kg) in one sample at a concentration of 1.34 mg/kg at location 02-612463 from 15–16 ft bgs. Arsenic was not detected above BVs at location 02-612345. The vertical extent of arsenic is defined.

Barium was detected above the Qbo BV (25.7 mg/kg) in one sample at a concentration of 48.7 mg/kg at location 02-612463 from 15–16 ft bgs. Barium concentrations decreased with depth. The vertical extent of barium is defined.

Cadmium was not detected but had DLs (0.516 mg/kg and 0.557 mg/kg) above the soil BV (0.4 mg/kg) in three samples and had DLs (0.557 mg/kg to 0.699 mg/kg) above the Qbo BV (0.4 mg/kg) in seven samples. Because cadmium was not detected above BVs, the vertical extent of cadmium is defined.

Mercury was not detected above BVs at locations 02-612345 and 02-612463. The vertical extent of mercury is defined.

Chromium was detected above the Qbo BV (2.6 mg/kg) in five samples at locations 02-612345 and 02-612463. The highest concentration of 404 mg/kg was detected at location 02-612463 from 15–16 ft bgs. Chromium concentrations decreased with depth at both locations. The vertical extent of chromium is defined.

Hexavalent chromium was detected in two samples at locations 02-612345 and 02-612463. The highest concentration of 0.337 mg/kg was detected at location 02-612463 from 15–16 ft bgs. Hexavalent chromium concentrations decreased with depth at both locations. The vertical extent of hexavalent chromium is defined.

Iron was detected above the Qbo BV (3700 mg/kg) in seven samples at locations 02-612345 and 02-612463. The highest concentration of 10,700 mg/kg was detected at location 02-612463 from 15–16 ft bgs. Iron concentrations decreased with depth at this location, but increased slightly with depth at location 02-612345. Iron concentrations are comparable to others at similar depths across the TA-02 core area. Further sampling for iron is not warranted.

Lead was detected above the Qbo BV (13.5 mg/kg) in one sample at a concentration of 44.2 mg/kg at location 02-612345 from 14–19 ft bgs. Lead concentrations decreased with depth at this location. Lead was not detected above BVs at location 02-612463. The vertical extent of lead is defined.

Manganese was detected above the Qbo BV (189 mg/kg) in six samples at locations 02-612345 and 02-612463. The highest concentration of 838 mg/kg was detected at location 02-612463 from 15–16 ft bgs. Manganese concentrations decreased with depth at location 02-612463 and did not change with depth at location 02-612345. Manganese concentrations are also comparable to others at similar depths across the TA-02 core area. The vertical extent of manganese is defined.

Selenium was not detected above the Qbo BV (0.3 mg/kg) but had DLs (1.18 mg/kg to 1.35 mg/kg) above the Qbo BV in seven samples. Because selenium was not detected above BVs, the vertical extent of selenium is defined.

Vanadium was detected above the Qbo BV (4.59 mg/kg) in two samples at locations 02-612345 and 02-612463. The highest concentration of 15.1 mg/kg was detected at location 21-612463 from 15–16 ft bgs. Vanadium concentrations decreased with depth at this location. Vanadium was detected at a concentration of 5.75 mg/kg at location 02-612345 from 49–50 ft bgs. This concentration is slightly above the BV. Vanadium was detected at concentrations of 7.75 mg/kg and 10.5 mg/kg (below the soil BV of 39.6 mg/kg) at location 02-612345 from 5–6 ft and 15–16 ft bgs, respectively. Vanadium concentrations also decreased with depth at this location. The vertical extent of vanadium is defined.

Zinc was detected above the soil BV (48.8 mg/kg) in one sample at a concentration of 92.7 mg/kg at location 02-612345 from 5–6 ft bgs. Zinc concentrations decreased with depth at this location. The vertical extent of zinc is defined.

Organic Chemicals

Five samples were collected from location 02-612345 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of PCBs and SVOCs (Table 3.2-1). Five samples were collected from 02-612463 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of PCBs (Table 3.2-1). Because field screening indicated elevated concentrations of organic vapors at location 02-612345, TPH-DRO was added to the analytical suites for the samples collected at this location.

PCBs were not detected at locations 02-612345 and 02-612463. The vertical extent of PCBs is defined.

Anthracene; benzo(a)anthracene; benzo(a)pyrene; benzo(b)fluoranthene; benzo(g,h,i)perylene; benzo(k)fluoranthene; chrysene; fluoranthene; indeno(1,2,3-cd)pyrene; 2-methylnaphthalene; naphthalene; phenanthrene; and pyrene were detected in one sample at concentrations ranging from 0.0334 mg/kg to 0.109 mg/kg at location 02-612345 from 5–6 ft bgs. Concentrations of these SVOCs decreased with depth at this location. The vertical extent of SVOCs is defined.

TPH-DRO was detected in five samples at location 02-612345. The highest concentration of 537 mg/kg was detected at location 02-612345 from 5–6 ft bgs. Concentrations of TPH-DRO decreased with depth at this location. The vertical extent of TPH-DRO is defined.

Radionuclides

Five samples were collected from location 02-612345 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, and tritium (Table 3.2-1). Five samples were collected from location 02-612463 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of gamma-emitting radionuclides, isotopic uranium, strontium-90, and tritium (Table 3.2-1).

Cesium-137 was detected in one sample at an activity of 0.135 pCi/g at location 02-612345 from 5–6 ft bgs, and it was detected in one sample at an activity of 0.158 pCi/g at location 02-612436 from 5–6 ft bgs. Cesium-137 activities decreased with depth at both locations. The vertical extent of cesium-137 is defined.

Plutonium-239/240 was detected in one sample at an activity of 0.0318 pCi/g at location 02-612345 from 5–6 ft bgs. Plutonium-239/240 activities decreased with depth at this location. Isotopic plutonium was not detected at location 02-612345. The vertical extent of isotopic plutonium is defined.

Isotopic uranium was not detected at AOC 02-006(c) and is not a COPC at this site.

Strontium-90 was not detected at location 02-612463. The vertical extent of strontium-90 is defined.

Tritium was detected in six samples at locations 02-612345 and 02-612463. Tritium activities are relatively constant at AOC 02-006(c) and range from 0.016 pCi/g to 0.09 pCi/g with the exception of activities in two 2007 samples that are 0.51 pCi/g and 0.41 pCi/g at locations 02-600586 and 02-600585, respectively. Both of these higher detections are in samples collected from 4.5–9 ft bgs. Therefore, tritium activities generally decrease with depth at AOC 02-006(c), and vertical extent is defined.

Summary of Nature and Extent at AOC 02-006(c)

The vertical extent of TAL metals, hexavalent chromium, PCBs, SVOCs, TPH-DRO, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium is defined.

6.17.5 Summary of Human Health Risk Screening

Details of the human health risk-screening assessment for AOC 02-006(c) are discussed in Appendix H, section H-4.

The total excess cancer risk for the industrial scenario is 2×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.01, which is below the NMED target HI of 1 (NMED 2009, 108070). The HQ for TPH-DRO is 0.01, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 11 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 5×10^{-7}, based on a comparison with EPA's outdoor worker PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

The total excess cancer risk for the recreational scenario is 1×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.02, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 1 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 5×10^{-6}, based on conversion from dose using RESRAD, Version 6.5.

The total excess cancer risk for the residential scenario is 2×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.3, which is below the NMED target HI of 1. The HQ for TPH-DRO is 1, which is equivalent to the NMED target HI of 1 (NMED 2009, 108070). The total dose is 23 mrem/yr, which is above the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 1×10^{-5}, based on a comparison with EPA's residential PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Based on the screening-assessment results, no potential unacceptable risks or doses from COPCs exist for the industrial and recreational scenarios. Based on the screening-assessment results, no potential unacceptable risk exists for the residential scenario, but a potential unacceptable dose exists for the residential scenario.

6.17.6 Summary of Ecological Risk Screening

In accordance with the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), locations surrounding the core area of TA-02 were sampled to define the lateral extent of contamination for TA-02 as a whole (section 6.32). Although the lateral extent for the TA-02 core area is defined, one site within the core area requires additional remediation and confirmation sampling. The ecological risk-screening assessment will be conducted for the sites within the TA-02 core area as one exposure unit after the investigation at this site has been completed.

6.18 AOC 02-006(d), Duplicate of AOC 02-006(c)

AOC 02-006(d) is a duplicate of AOC 02-006(c). All activities for AOC 02-006(d) are addressed as AOC 02-006(c), which is discussed in section 6.17.

6.19 AOC 02-006(e), Former Sump for Reactor Room Floor Drains and Mezzanine

6.19.1 Site Description and Operational History

AOC 02-006(e) was a sump (structure 02-026) and drainline that received effluent from the OWR building (02-001) reactor room floor drains and mezzanine (Figure 6.19-1).

The AOC 02-006(e) drainline was connected to floor drains in the main reactor room and became operational in 1944. A second collection sump (structure 02-082) was added to the AOC 02-006(e) drainline in 1990, as shown on engineering drawing C-45924 (LANL 1990, 089679). A drainline from the structure 02-082 sump was connected directly to the AOC 02-004(e) acid pit/transfer sump (structure 02-053), possibly replacing the AOC 02-006(e) direct discharge to Los Alamos Creek; however, the sump (structure 02-026) and the original drainline remained in place until they were removed and disposed of during D&D activities in 2003 (WD-3 2003, 082646, p. 6). The second sump (structure 02-082) and the drainline to structure 02-053 [AOC 02-004(e)] were also removed and disposed of during D&D activities in 2003 (WD-3 2003, 082646, p. 6).

6.19.2 Relationship to Other SWMUs and AOCs

The floor drains and drainlines of AOC 02-006(e) originated within the OWR facility, AOC 02-004(a). The drainlines and sumps south of the OWR building were located in proximity to the drainlines included in AOC 02-011(a), which ran parallel to the AOC 02-006(e) lines between the OWR building and the outfall at Los Alamos Creek.

6.19.3 Summary of Previous Investigations

1995 Investigation Activities

One location was sampled in 1995. Supporting QA/QC information is not available for these samples, so the sample results are not included in this report.

2000 Post–Cerro Grande Fire Recovery Work

As part of the post–Cerro Grande fire recovery work, three samples were collected from two locations (02-01095 and 02-01250).

2003 Omega West Decommissioning Project

All AOC 02-006(e) piping and sumps were removed during the OWR decommissioning project. Site activities included soil excavation, radiological walkover surveys, radiological (structure) screening, soil sampling, sample analysis, and surveying of sample coordinates. Radiological walkover surveys and radiological (structure) screening were conducted to segregate waste, primarily equipment and construction materials. Limited soil surveys were conducted; however, no formal report of soil survey results is available.

LLW (construction debris and/or soil) was packaged and shipped to Envirocare or TA-54 for disposal. Mixed waste was packaged and transferred to TA-54 for further processing and/or storage at the Laboratory. In total, 360 yd^3 of material was shipped to Envirocare for disposal; material from the OWR floor drains, lines, and waste sumps was included in this total volume (WD-3 2003, 082646, pp. 1–6). Six samples were collected from three boreholes (locations 02-22356, 02-22357, and 02-22358) in 2003.

2007 Investigation Activities

Forty-one samples were collected from 11 locations at AOC 02-006(e) in 2007. Results from the sampling activities in 2007 were presented in the previous investigation report (LANL 2008, 101669.12). Additional sampling was required to define the extent of contamination at the site.

6.19.4 Site Contamination

6.19.4.1 Soil, Rock, and Sediment Sampling

As part of the 2010 investigation, the following characterization activities were conducted at AOC 02-006(e):

- All samples were field screened for organic vapors and gross-alpha, -beta, and -gamma radioactivity. Field-screening results were recorded on the SCLs (Appendix F) and are presented in Table 3.2-2.
- Five samples were collected from location 02-612292 near the drainline of AOC 02-006(e) from 5–6 ft, 15–16.5 ft, 25–26 ft, 35–36 ft, and 49–50 ft bgs. These samples were analyzed for TAL metals, hexavalent chromium, PCBs, SVOCs, gamma-emitting radionuclides, isotopic plutonium, and tritium.

The 2010 and historical sampling locations at AOC 02-006(e) are shown in Figure 6.19-1. Table 6.19-1 presents the samples collected and analyses requested for AOC 02-006(e). The geodetic coordinates of the 2010 sampling locations are presented in Table 3.2-1.

6.19.4.2 Soil, Rock, and Sediment Sample Field-Screening Results

No organic vapors were detected at more than 10 ppm above ambient air levels during headspace screening of the samples. No radiological-screening results exceeded twice the daily site background levels. Field-screening results are presented in Table 3.2-2. No changes to sampling or other activities occurred because of the field-screening results.

6.19.4.3 Soil, Rock, and Sediment Sample Analytical Results

Decision-level data at AOC 02-006(e) consist of results from 55 samples collected from 17 locations in 2003, 2007, and 2010. The 55 samples include 29 soil, 7 Qal, 16 Qbo, and 3 sediment samples.

Inorganic Chemicals

A total of 55 samples (29 soil, 7 Qal, 16 Qbo, and 3 sediment) were analyzed for TAL metals, 52 samples (29 soil, 7 Qal, and 16 Qbo) were analyzed for hexavalent chromium, 44 samples (23 soil, 6 Qal, 12 Qbo, and 3 sediment) were analyzed for nitrate, and 41 samples (23 soil, 6 Qal, and 12 Qbo) were analyzed for perchlorate and total cyanide.

Table 6.19-2 presents the inorganic chemicals detected or detected above BVs. Plate 28 shows the spatial distribution of inorganic chemicals detected or detected above BVs. The vertical extent is defined at AOC 02-006(e), and the lateral extent is defined at the TA-02 core area; inorganic COPCs are identified below.

Aluminum was detected above the Qbo BV (3560 mg/kg) and the maximum Qbo background concentration (3400 mg/kg) in 14 samples with a maximum concentration of 22,800 mg/kg. The site concentrations are substantially above background. Aluminum is identified as a COPC in tuff.

Antimony was not detected but had a DL (1.03 mg/kg) above the soil BV (0.83 mg/kg) in one sample. Antimony is identified as a COPC in soil. Antimony was not detected but had DLs (0.514 mg/kg to 1.3 mg/kg) above the Qbo BV (0.5 mg/kg) and the maximum Qbo background concentration (0.2 mg/kg) in 10 samples. Antimony is identified as a COPC in tuff.

Arsenic was detected above the Qbo BV (0.56 mg/kg) in 10 samples with a maximum concentration of 2.7 mg/kg, and it was not detected but had DLs (1.28 mg/kg to 1.81 mg/kg) above the Qbo BV in five samples. Because the background data set had more than 50% nondetects, the Gehan test could not be performed. The quantile test indicated site concentrations are different from background (Figure G-14.0-1, Table G-14). Arsenic is identified as a COPC in tuff.

Barium was detected above the Qbo BV (25.7 mg/kg) and the maximum Qbo background concentration (23 mg/kg) in eight samples with a maximum concentration of 113 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-14.0-2, Table G-14). Barium is identified as a COPC in tuff.

Cadmium was detected above the soil BV (0.4 mg/kg) in two samples with a maximum concentration of 0.464 mg/kg, and it was not detected but had DLs (0.499 mg/kg to 0.554 mg/kg) above the soil BV in 25 samples. Because the background data set had more than 50% nondetects, the Gehan test could not be performed. The quantile test indicated site concentrations are different from background (Figure G-14.0-3, Table G-14). Cadmium is identified as a COPC in soil. Cadmium was not detected but had DLs (0.528 mg/kg to 0.667 mg/kg) above the Qbo BV (0.4 mg/kg) in 16 samples. Cadmium is identified as a COPC in tuff.

Calcium was detected above the soil BV (6120 mg/kg) in five samples with a maximum concentration of 31,600 mg/kg. The Gehan and quantile tests indicated site concentrations are not different from background (Figure G-14.0-4, Table G-14). Calcium is not identified as a COPC in soil.

Chromium was detected above the soil BV (19.3 mg/kg) in six samples with a maximum concentration of 59.1 mg/kg. The Gehan and quantile tests indicated site concentrations are not different from background (Figure G-14.0-5, Table G-14). Chromium is not identified as a COPC in soil. Chromium was detected above the Qbo BV (2.6 mg/kg) in 13 samples with a maximum concentration of 30.7 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-14.0-6, Table G-14). Chromium is identified as a COPC in tuff. Chromium was detected above the sediment BV (10.5 mg/kg) in one sample at a concentration of 14 mg/kg. Chromium is identified as a COPC in sediment.

Hexavalent chromium was detected in 20 soil/Qal/tuff samples with a maximum concentration of 1.01 mg/kg. Hexavalent chromium has no BV in either soil or tuff. Hexavalent chromium is identified as a COPC in soil and tuff.

Copper was detected above the soil BV (14.7 mg/kg) in one sample at a concentration of 16 mg/kg. The Gehan test and the box plot indicated site concentrations are less than background (Figure G-14.0-7, Table G-14). Copper is not identified as a COPC in soil. Copper was detected above the Qbo BV (3.96 mg/kg) and the maximum Qbo background concentration (2.6 mg/kg) in four samples with a maximum concentration of 5.23 mg/kg. The Gehan and quantile tests indicated site concentrations are not different from background (Figure G-14.0-8, Table G-14). Copper is not identified as a COPC in tuff. Copper was also detected above the sediment BV (11.2 mg/kg) in two samples with a maximum concentration of 12 mg/kg. This concentration is equal to the maximum sediment background concentration (12 mg/kg). Copper is not identified as a COPC in sediment.

Iron was detected above the Qbo BV and the maximum Qbo background concentration (both 3700 mg/kg) in all 16 Qbo samples with a maximum concentration of 8910 mg/kg. The site concentrations are substantially above background. Iron is identified as a COPC in tuff.

Lead was detected above the sediment BV (19.7 mg/kg) and the maximum sediment background concentration (25.6 mg/kg) in two samples with a maximum concentration of 110 mg/kg. The site concentrations are substantially above background. Lead is identified as a COPC in sediment.

Manganese was detected above the Qbo BV (189 mg/kg) in 13 samples with a maximum concentration of 400 mg/kg. Twelve of the 13 concentrations are above the maximum Qbo background concentration (210 mg/kg). The Gehan test indicated site concentrations are different from background (Figure G-14.0-9, Table G-14). Manganese is identified as a COPC in tuff.

Mercury was detected above the soil BV and the maximum soil background concentration (both 0.1 mg/kg) in 24 samples with a maximum concentration of 17.2 mg/kg. The site concentrations are substantially above background. Mercury is identified as a COPC in soil. Also, mercury was detected above the Qbo BV (0.1 mg/kg) in two samples with a maximum concentration of 0.346 mg/kg. Mercury has no background data set for Qbo tuff. Mercury is identified as a COPC in tuff. Mercury was detected above the sediment BV (0.1 mg/kg) in three samples with a maximum concentration of 3.4 mg/kg. Mercury is identified as a COPC in sediment.

Nickel was detected above the soil BV (15.4 mg/kg) in one sample at a concentration of 24.4 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-14.0-10, Table G-14). Nickel is identified as a COPC in soil. Nickel was detected above the Qbo BV (2 mg/kg) in nine samples with a maximum concentration of 5.78 mg/kg. Because the background data set had more than 50% nondetects, the Gehan test could not be performed. The quantile test indicated site concentrations are different from background (Figure G-14.0-11, Table G-14). Nickel is identified as a COPC in tuff.

Nitrate was detected in 24 soil/Qal/Qbo samples with a maximum concentration of 6.94 mg/kg. No background data are available for nitrate. Nitrate is naturally occurring, and the concentrations detected likely reflect naturally occurring levels. Nitrate is not identified as a COPC in soil and tuff.

Perchlorate was detected in six soil/Qal samples with a maximum concentration of 0.000863 mg/kg. Because perchlorate has no BV in soil, perchlorate is identified as a COPC in soil.

Selenium was not detected but had DLs (1.53 mg/kg to 2.04 mg/kg) above the soil BV (1.52 mg/kg) in 13 samples. Selenium is identified as a COPC in soil. Selenium was detected above the Qbo BV (0.3 mg/kg) in 5 samples with a maximum concentration of 1.45 mg/kg, and it was not detected but had DLs (1.28 mg/kg and 1.98 mg/kg) above the Qbo BV in 11 samples. Selenium has no background data set for Qbo tuff. Selenium is identified as a COPC in tuff. Selenium was detected above the sediment BV (0.3 mg/kg) in one sample at a concentration of 0.489 mg/kg. Selenium is identified as a COPC in sediment.

Silver was detected above the sediment BV (1 mg/kg) in one sample at a concentration of 1.4 mg/kg. Because there were fewer than 10 sediment samples, statistical tests could not be performed. Silver is identified as a COPC in sediment.

Vanadium was detected above the Qbo BV (4.59 mg/kg) and the maximum Qbo background concentration (3.8 mg/kg) in four samples with a maximum concentration of 15.4 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-14.0-12, Table G-14). Vanadium is identified as a COPC in tuff.

Zinc was detected above the soil BV (48.8 mg/kg) in six samples with a maximum concentration of 99.6 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-14.0-13, Table G-14). Zinc is identified as a COPC in soil.

In summary, the inorganic COPCs identified at AOC 02-006(e) are aluminum, antimony, arsenic, barium, cadmium, chromium, hexavalent chromium, iron, lead, manganese, mercury, nickel, perchlorate, selenium, silver, vanadium, and zinc.

Organic Chemicals

A total of 48 samples (23 soil, 7 Qal, 16 Qbo, and 2 sediment) were analyzed for PCBs, 49 samples (23 soil, 7 Qal, 16 Qbo, and 3 sediment) were analyzed for SVOCs, and 32 samples (12 soil, 6 Qal, 12 Qbo, and 2 sediment) were analyzed for VOCs.

Table 6.19-3 presents the detected organic chemicals. Plate 29 shows the spatial distribution of detected organic chemicals. The vertical extent is defined at AOC 02-006(e), and the lateral extent is defined at the TA-02 core area; organic COPCs are identified below.

Organic chemicals detected at AOC 02-006(e) include acenaphthene; anthracene; Aroclor-1242; Aroclor-1248; Aroclor-1254; Aroclor-1260; benzo(a)anthracene; benzo(a)pyrene; benzo(b)fluoranthene; benzo(g,h,i)perylene; benzo(k)fluoranthene; bis(2-ethylhexyl)phthalate; chloroform; chrysene; dibenzofuran; 1,4-dichlorobenzene; fluoranthene; fluorene; indeno(1,2,3-cd)pyrene; isopropylbenzene; methylene chloride; 2-methylnaphthalene; naphthalene; phenanthrene; pyrene; toluene; and 1,3-xylene + 1,4-xylene.

These organic chemicals are retained as COPCs at AOC 02-006(e).

Radionuclides

A total of 41 samples (23 soil, 6 Qal, and 12 Qbo) were analyzed for americium-241; 55 samples (29 soil, 7 Qal, 16 Qbo, and 3 sediment) were analyzed for gamma-emitting radionuclides, isotopic plutonium, and tritium; 50 samples (29 soil, 6 Qal, 12 Qbo, and 3 sediment) were analyzed for isotopic uranium and strontium-90; and 6 soil samples were analyzed for technetium-99.

Table 6.19-4 presents the radionuclides detected or detected above BVs/FVs. Figure 6.19-2 shows the spatial distribution of radionuclides detected or detected above BVs/FVs. The vertical extent is defined at AOC 02-006(e), and the lateral extent is defined at the TA-02 core area; radionuclide COPCs are identified below.

Cesium-137 was detected above the soil FV (1.65 pCi/g) and detected in subsurface soil (below 0–1 ft) in four samples with a maximum activity of 1.75 pCi/g. Cesium-137 is identified as a COPC in soil.

Cobalt-60 was detected in six soil/Qal samples with a maximum activity of 1.06 pCi/g, and it was detected in one sediment sample at an activity of 0.116 pCi/g. Cobalt-60 has no BV in either soil or sediment. Cobalt-60 is identified as a COPC in soil and sediment.

Plutonium-239/240 was detected above the soil FV (0.054 pCi/g) and detected in subsurface soil (below 0–1 ft) in nine samples with a maximum activity of 0.622 pCi/g. Plutonium-239/240 was detected in subsurface tuff (below 0–1 ft) in one sample at an activity of 0.0295 pCi/g. Plutonium-239/240 was detected above the sediment FV (0.068 pCi/g) in three samples with a maximum activity of 1.62 pCi/g. Plutonium-239/240 is identified as a COPC in soil, tuff, and sediment.

Tritium was detected in 28 soil/tuff samples with a maximum activity of 0.833 pCi/g. Tritium is identified by detection status and is a COPC in soil and tuff. Tritium was detected above the sediment BV (0.093 pCi/g) in one sample at an activity of 0.294 pCi/g. Tritium is identified as a COPC in sediment.

Uranium-235/236 was detected above the soil BV (0.2 pCi/g) in one sample at an activity of 0.292 pCi/g. Uranium-235/236 is identified as a COPC in soil. Uranium-235/236 was detected above the Qbo BV (0.18 pCi/g) in one sample at an activity of 0.209 pCi/g. Uranium-235/236 is identified as a COPC in tuff.

In summary, the radionuclide COPCs identified at AOC 02-006(e) are cesium-137, cobalt-60, plutonium-239/240, tritium, and uranium-235/236.

6.19.4.4 Nature and Extent of Contamination at AOC 02-006(e)

In accordance with the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), one location was sampled at AOC 02-006(e) to determine the vertical extent of contamination for inorganic chemicals, organic chemicals, and radionuclides (Table 3.2-1). Analytical suites were determined by the data needs specific to each location as presented in Table 3.1-1 of the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703). The vertical extent of contamination at AOC 02-006(e) is evaluated using only the Phase II data from samples collected as deep as 50 ft bgs.

Inorganic Chemicals

Five samples were collected from location 02-612292 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of TAL metals and hexavalent chromium (Table 3.2-1). As stated in the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), the extent of perchlorate was defined following the 2007 investigation, and no Phase II samples were analyzed for perchlorate.

Aluminum was detected above the Qbo BV (3560 mg/kg) in three samples at location 02-612292. The highest concentration of 10,900 mg/kg was detected at location 02-612292 from 15–16.5 ft bgs. Aluminum concentrations decreased with depth at this location. The vertical extent of aluminum is defined.

Antimony was not detected but had a DL (1.03 mg/kg) above the soil BV (0.83 mg/kg) in one sample and had DLs (1.23 mg/kg to 1.3 mg/kg) above the Qbo BV (0.5 mg/kg) in five samples. Because antimony was not detected above BVs, the vertical extent of antimony is defined.

Arsenic was not detected above the Qbo BV (0.56 mg/kg) but had DLs (1.28 mg/kg to 1.29 mg/kg) above the Qbo BV in three samples. Because arsenic was not detected above BVs, the vertical extent of arsenic is defined.

Barium, lead, nickel, silver, vanadium, and zinc were not detected above BVs at location 02-612292. The vertical extent of these metals is defined.

Cadmium was not detected but had a DL (0.513 mg/kg) above the soil BV (0.4 mg/kg) in one sample and had DLs (0.614 mg/kg to 0.651 mg/kg) above the Qbo BV (0.4 mg/kg) in five samples. Because cadmium was not detected above BVs, the vertical extent of cadmium is defined.

Chromium was detected above the Qbo BV (2.6 mg/kg) in one sample at a concentration of 2.92 mg/kg at location 02-612292 from 15–16.5 ft bgs. Chromium concentrations decreased with depth at this location. The vertical extent of chromium is defined.

Hexavalent chromium was detected in one sample at a concentration of 0.202 mg/kg at location 02-612292 from 15–16.5 ft bgs. Hexavalent chromium concentrations decreased with depth at this location. The vertical extent of hexavalent chromium is defined.

Iron was detected above the Qbo BV (3700 mg/kg) in four samples at location 02-612292. The highest concentration of 7550 mg/kg was detected at location 02-612292 from 15–16.5 ft bgs. Iron concentrations decreased with depth at this location. The vertical extent of iron is defined.

Manganese was detected above the Qbo BV (189 mg/kg) in four samples at location 02-612292. The highest concentration of 263 mg/kg was detected at location 02-612292 from 25–26 ft bgs. Manganese concentrations decreased with depth at this location. The vertical extent of manganese is defined.

Mercury was detected above the soil BV (0.1 mg/kg) in one sample at a concentration of 0.576 mg/kg at location 02-612292 from 5–6 ft bgs. Mercury concentrations decreased with depth at this location. The vertical extent of mercury is defined.

Selenium was not detected above the Qbo BV (0.3 mg/kg) but had DLs (1.28 mg/kg to 1.29 mg/kg) above the Qbo BV in four samples. Because selenium was not detected above BVs, the vertical extent of selenium is defined.

Organic Chemicals

Five samples were collected from location 02-612292 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of PCBs and SVOCs (Table 3.2-1). As stated in the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), the extent of VOCs was defined following the 2007 investigation, and no Phase II samples were analyzed for VOCs.

Aroclor-1242 was detected in only the deepest sample (49–50 ft bgs) at a concentration of 0.213 mg/kg at location 02-612292. Aroclor-1254 was also detected in the deepest sample (49–50 ft bgs) at a concentration of 0.334 mg/kg at location 02-612292 and was detected at a concentration of 0.0528 mg/kg from 5–6 ft bgs. Aroclor-1260 was only detected in the deepest sample (49–50 ft bgs) at a concentration of 0.0377 mg/kg at location 02-612292. These PCBs were not detected in samples from 49–50 ft bgs across the TA-02 core area, and most were not detected in shallower samples at this location. These results are not consistent with the patterns of detection of PCBs at other sites, are not consistent with known sources of PCBs at TA-02, and are not consistent with transport properties of PCBs.

Benzo(a)anthracene; benzo(a)pyrene; benzo(b)fluoranthene; chrysene; fluoranthene; indeno(1,2,3-cd)pyrene; phenanthrene; and pyrene were detected in one sample at concentrations ranging from 0.0148 mg/kg to 0.0597 mg/kg at location 02-612292 from 5–6 ft bgs. Concentrations of these SVOCs decreased with depth at this location. The vertical extent of these SVOCs is defined.

Bis(2-ethylhexyl)phthalate was detected in one sample at a concentration of 0.231 mg/kg at location 02-612292 from 35–36 ft bgs. Bis(2-ethylhexyl)phthalate concentrations decreased with depth at this location. The vertical extent of bis(2-ethylhexyl)phthalate is defined.

Radionuclides

Five samples were collected from location 02-612292 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of gamma-emitting radionuclides, isotopic plutonium, and tritium (Table 3.2-1).

Cesium-137, cobalt-60, and isotopic plutonium were not detected at location 02-612292. The vertical extent of gamma-emitting radionuclides and isotopic plutonium is defined.

Tritium was detected in two samples at location 02-612292. The highest activity of 0.5121 pCi/g was detected at location 02-612292 from 5–6 ft bgs. Tritium activities decreased with depth at this location. The vertical extent of tritium is defined.

In accordance with the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), Phase II samples were not analyzed for isotopic uranium. Uranium-235/236 was detected above BVs in only two previously collected samples from the site. At location 02-22357, uranium-235/236 was detected at 0.292 pCi/g from 5–5.5 ft bgs but was not detected above the BV in the deeper sample at this location. At location 02-600285, uranium-235/236 was detected at 0.209 pCi/g, just above the Qbo BV of 0.18 pCi/g. No uranium isotopes were detected above BVs in any other samples from the site. Therefore, the vertical extent of isotopic uranium is defined.

Summary of Nature and Extent at AOC 02-006(e)

The vertical extent of TAL metals, hexavalent chromium, SVOCs, cesium-137, cobalt-60, isotopic plutonium, isotopic uranium, and tritium is defined. The detections of PCBs in the sample from 49–50 ft bgs at location 02-612292 are not consistent with the patterns of detection of PCBs at other sites, are not consistent with known sources of PCBs at TA-02, and are not consistent with transport properties of PCBs.

6.19.5 Summary of Human Health Risk Screening

Details of the human health risk-screening assessment for AOC 02-006(e) are discussed in Appendix H, section H-4.

The total excess cancer risk for the industrial scenario is 3×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.08, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 1 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 3×10^{-6}, based on a comparison with EPA's outdoor worker PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

The total excess cancer risk for the recreational scenario is 2×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.2, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 0.2 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 5×10^{-7}, based on conversion from dose using RESRAD, Version 6.5.

The total excess cancer risk for the residential scenario is 1×10^{-5}, which is equivalent to the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The cancer risk is partly because of arsenic and is overestimated. As discussed in the uncertainty analysis in Appendix H (section H-4.4.2), the arsenic EPC is similar to being exposed to a naturally occurring arsenic level and the risk did not incrementally increase above that which would result from exposure to naturally occurring levels of arsenic. The risk is reduced to approximately 6 × 10^{-6} without arsenic, and is below the NMED target risk level of 1 × 10^{-5} (NMED 2009, 108070). The HI is 0.7, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 4 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 8 × 10^{-6}, based on a comparison with EPA's residential PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Based on the screening-assessment results, no potential unacceptable risks or doses exist for the industrial, recreational, and residential scenarios.

6.19.6 Summary of Ecological Risk Screening

In accordance with the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), locations surrounding the core area of TA-02 were sampled to define the lateral extent of contamination for TA-02 as a whole (section 6.32). Although the lateral extent for the TA-02 core area is defined, one site within the core area requires additional remediation and confirmation sampling. The ecological risk-screening assessment will be conducted for the sites within the TA-02 core area as one exposure unit after the investigation at this site has been completed.

6.20 Consolidated Unit 02-007-00

Consolidated Unit 02-007-00 consists of the following SWMUs:

- 02-007, a septic tank and outfall
- 02-009(a), a radioactively contaminated soil area behind the storage building
- 02-009(b), a radioactively contaminated soil area north of the stack-gas valve house
- 02-009(c), a leach field and a radioactively contaminated soil area associated with the condensate trap removal

6.20.1 SWMU 02-007, Septic System for Floor Drains in OWR Building and Chemical Shack

6.20.1.1 Site Description and Operational History

SWMU 02-007 is a former septic tank (structure 02-043) and outfall (Figure 6.20-1). The septic tank was constructed of reinforced concrete and measured 13 ft long × 8 ft wide × 6 ft deep. The septic system received effluent from drains in the OWR facility (building 02-001).

The SWMU 02-007 septic tank and outfall were installed in 1944 and removed in 1985. Overflow from the tank discharged to the stream channel through a 6-in.-diameter VCP. However, the location of the outfall discharge is not known (Elder and Knoell 1986, 006670, p. 26). Laboratory wastes were discharged into the septic system. In 1947, the chemical waste shack (building 02-003, AOC 02-010) was connected to the septic system, as shown on engineering drawing C-1683 (LASL 1944, 090081), and remained connected until the chemical waste shack was decommissioned in 1971 (LASL no date, 034172). The septic tank and overflow outfall and surrounding soils were removed and disposed of in 1986 (Elder and Knoell 1986, 006670, pp. 26-41).

6.20.1.2 Relationship to Other SWMUs and AOCs

The septic tank (SWMU 02-007) and the leach field [SWMU 02-009(c)] are located near AOCs 02-003(a,b,e) but were not known to be directly connected to those structures. The septic system received effluent from drains in the OWR building [AOC 02-004(a)] and the chemical waste shack (AOC 02-010).

6.20.1.3 Summary of Previous Investigations

1985 WBR Decommissioning Project, Phase I

During Phase I of the TA-02 WBR decommissioning project, the septic tank and overflow drain were removed and disposed of at TA-54 (Elder and Knoell 1986, 006670, p. 43). A sludge sample collected from the tank was screened and showed no detectable radionuclide activity. A 6-in.-diameter VCP drainline from the septic tank overflow to the stream was also discovered during D&D activities. It was removed from depths of 3–8 ft bgs where it angled across the area east of the septic tank. No activity above site background was detected at the time the drainline was removed (Elder and Knoell 1986, 006670, p. 26).

No samples were collected from the septic tank area. Samples collected in the area of the tank overflow drain are addressed under SWMU 02-009(c).

2007 Investigation Activities

Twenty-two samples were collected from six locations at SWMU 02-007 in 2007. Results from the sampling activities in 2007 were presented in the previous investigation report (LANL 2008, 101669.12). Additional sampling was required to define the extent of contamination at the site.

6.20.1.4 Site Contamination

Soil, Rock, and Sediment Sampling

As part of the 2010 investigation, the following characterization activities were conducted at SWMU 02-007:

- All samples were field screened for organic vapors and gross-alpha, -beta, and -gamma radioactivity. Field-screening results were recorded on the SCLs (Appendix F) and are presented in Table 3.2-2.
- Five samples were collected from location 02-612390 near SWMU 02-007 from 5–6 ft, 15–17 ft, 26–27 ft, 35–36 ft, and 49–50 ft bgs. These samples were analyzed for TAL metals, PCBs, SVOCs, americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium.

The 2010 and historical sampling locations at SWMU 02-007 are shown in Figure 6.20-1. The geodetic coordinates of the 2010 sampling locations are presented in Table 3.2-1.

Soil and Rock Sample Field-Screening Results

No organic vapors were detected at more than 10 ppm above ambient air levels during headspace screening of the samples. No radiological-screening results exceeded twice the daily site background levels. Field-screening results are presented in Table 3.2-2. No changes to sampling or other activities occurred because of the field-screening results.

Soil and Rock Sample Analytical Results

Decision-level data at SWMU 02-007 consist of results from 27 samples collected from 7 locations in 2007 and 2010. The 27 samples include 6 soil, 12 Qal, and 9 Qbo samples. Table 6.20-1 presents the samples collected and analyses requested for SWMU 02-007.

Inorganic Chemicals

A total of 26 samples (6 soil, 11 Qal, and 9 Qbo) were analyzed for TAL metals, and 21 samples (6 soil, 10 Qal, and 5 Qbo) were analyzed for nitrate, perchlorate, and total cyanide.

Table 6.20-2 presents the inorganic chemicals detected or detected above BVs. Plate 30 shows the spatial distribution of inorganic chemicals detected or detected above BVs. The vertical extent is defined at SWMU 02-007, and the lateral extent is defined at the TA-02 core area; inorganic COPCs are identified below.

Aluminum was detected above the Qbo BV (3560 mg/kg) and the maximum Qbo background concentration (3400 mg/kg) in six samples with a maximum concentration of 11,500 mg/kg. Aluminum is identified as a COPC in tuff.

Antimony was not detected but had a DL (0.941 mg/kg) above the soil BV (0.83 mg/kg) in one sample. This DL is below the maximum soil background concentration (1 mg/kg). Antimony is not identified as a COPC in soil. Antimony was not detected but had DLs (0.508 mg/kg to 1.27 mg/kg) above the Qbo BV (0.5 mg/kg) and the maximum Qbo background concentration (0.2 mg/kg) in six samples. Antimony is identified as a COPC in tuff.

Arsenic was detected above the Qbo BV (0.56 mg/kg) in four samples with a maximum concentration of 1.11 mg/kg, and it was not detected but had DLs (1.14 mg/kg to 1.61 mg/kg) above the Qbo BV in five samples. All four concentrations and all five DLs are above the maximum Qbo background concentration (0.7 mg/kg). Arsenic is identified as a COPC in tuff.

Barium was detected above the soil BV (295 mg/kg) in one sample at a concentration of 533 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-15.0-1, Table G-15). Barium is identified as a COPC in soil. Barium was detected above the Qbo BV (25.7 mg/kg) and the maximum Qbo background concentration (23 mg/kg) in two samples with a maximum concentration of 68.7 mg/kg. Because there were fewer than 10 Qbo samples, statistical tests could not be performed. Barium is identified as a COPC in tuff.

Cadmium was not detected above the soil BV (0.4 mg/kg) but had DLs (0.492 mg/kg to 0.567 mg/kg) above the soil BV in 10 samples. Because the background data set had more than 50% nondetects, the Gehan test could not be performed. The quantile test and the box plot indicated site concentrations are less than background (Figure G-15.0-2, Table G-15). Cadmium is not identified as a COPC in soil. Cadmium was not detected but had DLs (0.535 mg/kg to 0.678 mg/kg) above the Qbo BV (0.4 mg/kg) in all nine Qbo samples. Cadmium is identified as a COPC in tuff.

Chromium was detected above the Qbo BV (2.6 mg/kg) in four samples with a maximum concentration of 19.8 mg/kg, and it was not detected but had a DL (9.74 mg/kg) above the Qbo BV in one sample. Because there were fewer than 10 Qbo samples, statistical tests could not be performed. Chromium is identified as a COPC in tuff.

Cyanide was detected above the soil BV (0.5 mg/kg) in one sample at a concentration of 0.762 mg/kg. Cyanide has no background data set for soil. Cyanide is identified as a COPC in soil.

Iron was detected above the Qbo BV and the maximum Qbo background concentration (both 3700 mg/kg) in all nine Qbo samples with a maximum concentration of 6380 mg/kg. Iron is identified as a COPC in tuff.

Lead was detected above the soil BV (22.3 mg/kg) in one sample at a concentration of 66 mg/kg. The quantile test indicated site concentrations are different from background (Figure G-15.0-3, Table G-15). Lead is identified as a COPC in soil.

Manganese was detected above the Qbo BV (189 mg/kg) in four samples with a maximum concentration of 258 mg/kg, and two of the four concentrations are above the maximum Qbo background concentration (210 mg/kg). Because there were fewer than 10 Qbo samples, statistical tests could not be performed. Manganese is identified as a COPC in tuff.

Mercury was detected above the soil BV and the maximum soil background concentration (both 0.1 mg/kg) in two samples with a maximum concentration of 2.91 mg/kg. Because the background data set had more than 50% nondetects, the Gehan test could not be performed. The quantile test indicated site concentrations are not different from background, but the slippage test indicated site concentrations are different from background (Figure G-15.0-4, Table G-15). Mercury is identified as a COPC in soil.

Nickel was detected above the Qbo BV (2 mg/kg) in two samples with a maximum concentration of 6.54 mg/kg, and it was not detected but had DLs (2.88 mg/kg and 3.31 mg/kg) above the Qbo BV in two samples. The maximum concentration and both DLs are above the maximum Qbo background concentration (2.8 mg/kg). Because there were fewer than 10 Qbo samples, statistical tests could not be performed. Nickel is identified as a COPC in tuff.

Nitrate was detected in five soil/Qal samples with a maximum concentration of 1.94 mg/kg. No background data are available for nitrate. Nitrate is naturally occurring, and the concentrations detected likely reflect naturally occurring levels. Nitrate is not identified as a COPC in soil.

Perchlorate was detected in six soil/Qal samples with a maximum concentration of 0.0048 mg/kg. Because perchlorate has no BV in soil, perchlorate is identified as a COPC in soil.

Selenium was detected above the soil BV (1.52 mg/kg) in two samples with a maximum concentration of 2.52 mg/kg, and it was not detected but had DLs (1.54 mg/kg to 1.7 mg/kg) above the soil BV in four samples. The Gehan test indicated site concentrations are different from background (Figure G-15.0-5, Table G-15). Selenium is identified as a COPC in soil. Selenium was detected above the Qbo BV (0.3 mg/kg) in two samples with a maximum concentration of 1.77 mg/kg, and it was not detected but had DLs (1.14 mg/kg and 1.88 mg/kg) above the Qbo BV in eight samples. Because there were fewer than 10 Qbo samples, statistical tests could not be performed. Selenium is identified as a COPC in tuff.

Zinc was detected above the soil BV (48.8 mg/kg) in one sample at a concentration of 49.2 mg/kg. This concentration is below the maximum soil background concentration (75.5 mg/kg). Although the Gehan test indicated site concentrations are different from background, the box plot indicated site concentrations are within the range of background (Figure G-15.0-6, Table G-15). Zinc is not identified as a COPC in soil.

In summary, the inorganic COPCs identified at SWMU 02-007 are aluminum, antimony, arsenic, barium, cadmium, chromium, cyanide, iron, lead, manganese, mercury, nickel, perchlorate, and selenium.

Organic Chemicals

A total of 26 samples (6 soil, 11 Qal, and 9 Qbo) were analyzed for PCBs and SVOCs, and 13 samples (9 Qal and 4 Qbo) were analyzed for VOCs.

Table 6.20-3 presents the detected organic chemicals. Plate 31 shows the spatial distribution of detected organic chemicals. The vertical extent is defined at SWMU 02-007, and the lateral extent is defined at the TA-02 core area; organic COPCs are identified below.

Organic chemicals detected at SWMU 02-007 include acenaphthene; acetone; anthracene; Aroclor-1254; Aroclor-1260; benzo(a)anthracene; benzo(a)pyrene; benzo(b)fluoranthene; benzo(g,h,i)perylene; butylbenzylphthalate; chrysene; fluoranthene; fluorene; indeno(1,2,3-cd)pyrene; 2-methylnaphthalene; naphthalene; phenanthrene; pyrene; and toluene.

These organic chemicals are retained as COPCs at SWMU 02-007.

Radionuclides

A total of 26 samples (6 soil, 11 Qal, and 9 Qbo) were analyzed for americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium.

Table 6.20-4 presents the radionuclides detected or detected above BVs/FVs. Plate 32 shows the spatial distribution of radionuclides detected or detected above BVs/FVs. The vertical extent is defined at SWMU 02-007, and the lateral extent is defined at the TA-02 core area; radionuclide COPCs are identified below.

Cesium-137 was detected in subsurface soil (below 0–1 ft) in three samples with a maximum activity of 4.44 pCi/g. Cesium-137 is identified as a COPC in soil.

Plutonium-239/240 was detected above the soil FV (0.054 pCi/g) and detected in subsurface soil (below 0–1 ft) in four samples with a maximum activity of 0.595 pCi/g. Plutonium-239/240 was detected in subsurface tuff (below 0–1 ft) in two samples with a maximum activity of 0.231 pCi/g. Plutonium-239/240 is identified as a COPC in soil and tuff.

Strontium-90 was detected above the soil FV (1.31 pCi/g) and in subsurface soil (below 0–1 ft) in four samples with a maximum activity of 1.41 pCi/g. Strontium-90 is identified as a COPC in soil.

Tritium was detected in nine soil/tuff samples with a maximum activity of 0.159 pCi/g. Tritium is identified by detection status and is a COPC in soil and tuff.

Uranium-235/236 was detected above the Qbo BV (0.18 pCi/g) in one sample at an activity of 0.191 pCi/g. Uranium-235/236 is identified as a COPC in tuff.

In summary, the radionuclide COPCs identified at SWMU 02-007 are cesium-137, plutonium-239/240, strontium-90, tritium, and uranium-235/236.

Nature and Extent of Contamination at SWMU 02-007

In accordance with the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), one location was sampled at SWMU 02-007 to determine the vertical extent of contamination for inorganic chemicals, organic chemicals, and radionuclides (Table 3.2-1). Analytical suites were determined by the data needs specific to each location as presented in Table 3.1-1 of the approved work plan (LANL 2009, 106660.14;

NMED 2009, 106703). The vertical extent of contamination at SWMU 02-007 is evaluated using only the Phase II data from samples collected as deep as 50 ft bgs.

Inorganic Chemicals

Five samples were collected from location 02-612390 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of TAL metals (Table 3.2-1). As stated in the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), the extent of perchlorate was defined following the 2007 investigation, and no Phase II samples were analyzed for perchlorate.

In accordance with the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), Phase II samples were not analyzed for cyanide. Cyanide was detected above the soil BV (0.5 mg/kg) at a previously sampled location from 4.5–8.5 ft bgs at a concentration of 0.762 mg/kg. It was not detected in the deeper sample from this location, or in any other sample from the site. Therefore, the vertical extent of cyanide is defined.

Lead and mercury were not detected above BVs at location 02-612390. The vertical extent of these metals is defined.

The nature and extent of other TAL metals at location 02-612390 have been discussed under AOC 02-003(b) (section 6.3.4.4). The vertical extent of TAL metals is defined.

Organic Chemicals

Five samples were collected from location 02-612390 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of PCBs and SVOCs (Table 3.2-1). As stated in the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), the extent of VOCs was defined following the 2007 investigation, and no Phase II samples were analyzed for VOCs.

The nature and extent of PCBs and SVOCs at location 02-612390 have been discussed under AOC 02-003(b) (section 6.3.4.4). The vertical extent of PCBs and SVOCs is defined.

Radionuclides

Five samples were collected from location 02-612390 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium (Table 3.2-1).

The nature and extent of americium-241, cesium-137, isotopic plutonium, isotopic uranium, strontium-90, and tritium at location 02-612390 have been discussed under AOC 02-003(b) (section 6.3.4.4). The vertical extent of these radionuclides is defined.

Summary of Nature and Extent at SWMU 02-007

The vertical extent of TAL metals, PCBs, SVOCs, americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium is defined.

6.20.1.5 Summary of Human Health Risk Screening

Details of the human health risk-screening assessment for SWMU 02-007 are discussed in Appendix H, section H-4.

The total excess cancer risk for the industrial scenario is 3×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.0004, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 0.02 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 2×10^{-7}, based on a comparison with EPA's outdoor worker PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

The total excess cancer risk for the recreational scenario is 9×10^{-7}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.2, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 0.007 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 2×10^{-8}, based on conversion from dose using RESRAD, Version 6.5.

The total excess cancer risk for the residential scenario is 5×10^{-6}, which is equivalent to the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.7, which is equivalent to the NMED target HI of 1 (NMED 2009, 108070). The total dose is 7 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 5×10^{-6}, based on a comparison with EPA's residential PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Based on the screening-assessment results, no potential unacceptable risks or doses from COPCs exist for the industrial, recreational, and residential scenarios.

6.20.1.6 Summary of Ecological Risk Screening

In accordance with the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), locations surrounding the core area of TA-02 were sampled to define the lateral extent of contamination for TA-02 as a whole (section 6.32). Although the lateral extent for the TA-02 core area is defined, one site within the core area requires additional remediation and confirmation sampling. The ecological risk-screening assessment will be conducted for the sites within the TA-02 core area as one exposure unit after the investigation at this site has been completed.

6.20.2 SWMU 02-009(a), Soil Contamination

6.20.2.1 Site Description and Operational History

SWMU 02-009(a) is an area of beta/gamma radioactive soil contamination located around a boulder, south of the southeast fence corner east of the former Omega-50 storage building (02-050) (Figure 6.20-1).

SWMU 02-009(a) was identified in 1986 during D&D of the WBR (Elder and Knoell 1986, 006670, p. 40). No other information regarding the origin of contamination in this SWMU is available (LANL 1990, 007511). A limited amount of soil was removed at the site, and the soil was disposed of in 1986 (Elder and Knoell 1986, 006670, pp. 26–41).

6.20.2.2 Relationship to Other SWMUs and AOCs

The gaseous effluent vent line (line 119) passed through the area identified as SWMU 02-009(a), but it is not known whether the line was the source of the soil contamination.

6.20.2.3 Summary of Previous Investigations

1985 WBR Decommissioning Project, Phase I

During Phase I of the TA-02 WBR decommissioning project, a radioactively contaminated soil area was discovered and included in soil removal activities. The area was excavated to a depth of 6 ft bgs across the downhill face of a large boulder. The remaining soil had screening results below predetermined cleanup levels. Another nearby contamination area uphill from the boulder was also discovered, but this soil could not be removed at that time. The location was flagged and logged for future decontamination (Elder and Knoell 1986, 006670, p. 40). All removed material was transported to TA-54 (Elder and Knoell 1986, 006670, p. 16).

1995 Investigation Activities

Samples were collected from locations within the soil contamination area. Supporting QA/QC information is not available for these samples, so the sample results are not included in this report.

2000 Post–Cerro Grande Recovery Work

During the post–Cerro Grande fire recovery work project, a portion of the soil area near the large boulder was included in soil removal activities. This area was excavated by hand until no areas with elevated radionuclide screening levels were identified. Surveys of the excavation area were hampered by radiation from contamination on the nearby boulder. The boulder was moved to allow access for soil removal. The total volume of soil removed during the project was approximately 58 yd^3 (LANL 2001, 070352, p. 16). Ten confirmatory samples were collected from four locations after the soil was removed (LANL 2001, 070352, p. 17).

2007 Investigation Activities

Sixty-seven samples were collected from 23 locations at SWMU 02-009(a) in 2007. Results from the sampling activities in 2007 were presented in the previous investigation report (LANL 2008, 101669.12). Additional sampling was required to define the extent of contamination at the site.

6.20.2.4 Site Contamination

Soil and Rock Sampling

As part of the 2010 investigation, the following characterization activities were conducted at SWMU 02-009(a):

- All samples were field screened for organic vapors and gross-alpha, -beta, and -gamma radioactivity. Field-screening results were recorded on the SCLs (Appendix F) and are presented in Table 3.2-2.
- Five samples were collected from location 02-612421 from 5–6 ft, 15–16 ft, 28–29 ft, 35–36 ft, and 48–50 ft bgs, and five samples were collected from location 02-612422 from 5–6 ft, 15–16 ft, 25–26 ft, 35–36 ft, and 49–50 ft bgs at SWMU 02-009(a). These samples were analyzed for TAL metals, PCBs, SVOCs, americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium.

The 2010 and historical sampling locations at SWMU 02-009(a) are shown in Figure 6.20-1. The geodetic coordinates of the 2010 sampling locations are presented in Table 3.2-1.

Soil and Rock Sample Field-Screening Results

No organic vapors were detected at more than 10 ppm above ambient air levels during headspace screening of the samples. No radiological-screening results exceeded twice the daily site background levels. Field-screening results are presented in Table 3.2-2. No changes to sampling or other activities occurred because of the field-screening results.

Soil and Rock Sample Analytical Results

Decision-level data at SWMU 02-009(a) consist of results from 87 samples collected from 29 locations in 2000, 2007, and 2010. The 87 samples include 43 soil, 39 Qal, and 5 Qbo samples. Table 6.20-5 presents the samples collected and analyses requested for SWMU 02-009(a).

Inorganic Chemicals

A total of 87 samples (43 soil, 39 Qal, and 5 Qbo) were analyzed for TAL metals, and 67 samples (33 soil and 34 Qal) were analyzed for nitrate, perchlorate, and total cyanide.

Table 6.20-6 presents the inorganic chemicals detected or detected above BVs. Plate 30 shows the spatial distribution of inorganic chemicals detected or detected above BVs. The vertical extent is defined at SWMU 02-009(a), and the lateral extent is defined at the TA-02 core area; inorganic COPCs are identified below.

Aluminum was detected above the Qbo BV (3560 mg/kg) and the maximum Qbo background concentration (3400 mg/kg) in one sample at a concentration of 4260 mg/kg. Because there were fewer than 10 Qbo samples, statistical tests could not be performed. Aluminum is identified as a COPC in tuff.

Antimony was not detected but had DLs (1.03 mg/kg to 1.16 mg/kg) above the soil BV (0.83 mg/kg) in four samples. All four DLs are above the maximum soil background concentration (1 mg/kg). Antimony is identified as a COPC in soil. Antimony was not detected but had DLs (1.16 mg/kg to 1.26 mg/kg) above the Qbo BV (0.5 mg/kg) and the maximum Qbo background concentration (0.2 mg/kg) in all five Qbo samples. Antimony is identified as a COPC in tuff.

Arsenic was not detected but had DLs (1.06 mg/kg to 1.28 mg/kg) above the Qbo BV (0.56 mg/kg) and the maximum Qbo background concentration (0.7 mg/kg) in four samples. Arsenic is identified as a COPC in tuff.

Cadmium was not detected above the soil BV (0.4 mg/kg) but had DLs (0.495 mg/kg to 2.69 mg/kg) above the soil BV in 70 soil/Qal samples. Because the background data set had more than 50% nondetects, the Gehan test could not be performed. The quantile test indicated site concentrations are different from background (Figure G-15.0-7, Table G-15). Cadmium is identified as a COPC in soil. Cadmium was not detected but had DLs (0.581 mg/kg to 0.631 mg/kg) above the Qbo BV (0.4 mg/kg) in five samples. Cadmium is identified as a COPC in tuff.

Calcium was detected above the soil BV (6120 mg/kg) in six samples with a maximum concentration of 26,700 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-15.0-8, Table G-15). Calcium is identified as a COPC in soil.

Chromium was detected above the soil BV (19.3 mg/kg) in one sample at a concentration of 59.3 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-15.0-9, Table G-15). Chromium is identified as a COPC in soil.

Copper was detected above the soil BV (14.7 mg/kg) in four samples with a maximum concentration of 80.7 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-15.0-10, Table G-15). Copper is identified as a COPC in soil.

Cyanide was detected above the soil BV (0.5 mg/kg) in one sample at a concentration of 0.51 mg/kg, and it was not detected but had a DL (1.21 mg/kg) above soil BV in one sample. Cyanide has no background data set for soil. Cyanide is identified as a COPC in soil.

Iron was detected above the soil BV (21,500 mg/kg) in two samples with a maximum concentration of 63,200 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-15.0-11, Table G-15). Iron is identified as a COPC in soil. Iron was detected above the Qbo BV and the maximum Qbo background concentration (both 3700 mg/kg) in all five Qbo samples with a maximum concentration of 6050 mg/kg. Iron is identified as a COPC in tuff.

Magnesium was detected above the soil BV (4610 mg/kg) in two samples with a maximum concentration of 5170 mg/kg. Both concentrations are below the maximum soil background concentration (10,000 mg/kg). The Gehan test and the box plot indicated site concentrations are less than background (Figure G-15.0-12, Table G-15). Magnesium is not identified as a COPC in soil.

Manganese was detected above the Qbo BV (189 mg/kg) and the maximum Qbo background concentration (210 mg/kg) in three samples with a maximum concentration of 225 mg/kg. Because there were fewer than 10 Qbo samples, statistical tests could not be performed. Manganese is identified as a COPC in tuff.

Mercury was detected above the soil BV and the maximum soil background concentration (both 0.1 mg/kg) in two samples with a maximum concentration of 0.35 mg/kg. Because the background data set had more than 50% nondetects, the Gehan test could not be performed. The quantile and slippage tests indicated site concentrations are not different from background (Figure G-15.0-13, Table G-15). Mercury is not identified as a COPC in soil.

Nitrate was detected in 47 soil/Qal samples with a maximum concentration of 6.34 mg/kg. No background data are available for nitrate. Nitrate is naturally occurring, and the concentrations detected likely reflect naturally occurring levels. Nitrate is not identified as a COPC in soil.

Perchlorate was detected in 38 soil/Qal samples with a maximum concentration of 0.00623 mg/kg. Because perchlorate has no BV in soil, perchlorate is identified as a COPC in soil.

Selenium was detected above the soil BV (1.52 mg/kg) in 51 samples with a maximum concentration of 70.5 mg/kg, and it was not detected but had DLs (1.54 mg/kg to 1.65 mg/kg) above the soil BV in five samples. The site concentrations are substantially above background. Selenium is identified as a COPC in soil. Selenium was not detected but had DLs (1.06 mg/kg and 1.28 mg/kg) above the Qbo BV (0.3 mg/kg) in five samples. Selenium is identified as a COPC in tuff.

Zinc was detected above the soil BV (48.8 mg/kg) in 10 samples with a maximum concentration of 120 mg/kg. The Gehan and quantile tests indicated site concentrations are not different from background (Figure G-15.0-14, Table G-15). Zinc is not identified as a COPC in soil.

In summary, the inorganic COPCs identified at SWMU 02-009(a) are aluminum, antimony, arsenic, cadmium, calcium, chromium, copper, cyanide, iron, manganese, perchlorate, and selenium.

Organic Chemicals

A total of 77 samples (33 soil, 39 Qal, and 5 Qbo) were analyzed for PCBs and SVOCs, and 44 samples (10 soil and 34 Qal) were analyzed for VOCs.

Table 6.20-7 presents the detected organic chemicals. Plate 31 shows the spatial distribution of detected organic chemicals. The vertical extent is defined at SWMU 02-009(a), and the lateral extent is defined at the TA-02 core area; organic COPCs are identified below.

Organic chemicals detected at SWMU 02-009(a) include acetone; anthracene; Aroclor-1248; Aroclor-1254; Aroclor-1260; benzo(a)pyrene; benzo(b)fluoranthene; butylbenzylphthalate; chloroform; chloromethane; chrysene; 1,4-dichlorobenzene; di-n-butylphthalate; fluoranthene; 4-isopropyltoluene; pentachlorophenol; phenanthrene; phenol; pyrene; toluene; 1,2,4-trimethylbenzene; 1,3,5-trimethylbenzene; and 1,2-xylene.

These organic chemicals are retained as COPCs at SWMU 02-009(a).

Radionuclides

A total of 77 samples (33 soil, 39 Qal, and 5 Qbo) were analyzed for americium-241, and 87 samples (43 soil, 39 Qal, and 5 Qbo) were analyzed for gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium.

Table 6.20-8 presents the radionuclides detected or detected above BVs/FVs. Plate 32 shows the spatial distribution of radionuclides detected or detected above BVs/FVs. The vertical extent is defined at SWMU 02-009(a), and the lateral extent is defined at the TA-02 core area; radionuclide COPCs are identified below.

Americium-241 was not detected or not detected above FVs in samples from SWMU 02-009(a) and is not identified as a COPC at the site.

Cesium-137 was detected above the soil FV (1.65 pCi/g) and detected in subsurface soil (below 0–1 ft) in 10 samples with a maximum activity of 12.1 pCi/g. Cesium-137 is identified as a COPC in soil.

Plutonium-238 was detected in subsurface soil (below 0–1 ft) in one sample at an activity of 0.047 pCi/g. Plutonium-238 is identified as a COPC in soil.

Plutonium-239/240 was detected above the soil FV (0.054 pCi/g) and detected in subsurface soil (below 0–1 ft) in 11 samples with a maximum activity of 4.17 pCi/g. Plutonium-239/240 is identified as a COPC in soil.

Strontium-90 was detected above the soil FV (1.31 pCi/g) and detected in subsurface soil (below 0–1 ft) in four samples with a maximum activity of 0.483 pCi/g. Strontium-90 is identified as a COPC in soil.

Tritium was detected in 27 soil/tuff samples with a maximum activity of 0.106 pCi/g. Tritium is identified by detection status and is a COPC in soil and tuff.

In summary, the radionuclide COPCs identified at SWMU 02-009(a) are cesium-137, plutonium-238, plutonium-239/240, strontium-90, and tritium.

Nature and Extent of Contamination at SWMU 02-009(a)

In accordance with the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), two locations were sampled at SWMU 02-009(a) to determine the vertical extent of contamination for inorganic chemicals, organic chemicals, and radionuclides (Table 3.2-1). Analytical suites were determined by the data needs specific to each location as presented in Table 3.1-1 of the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703). The vertical extent of contamination at SWMU 02-009 (a) is evaluated using only the Phase II data from samples collected as deep as 50 ft bgs.

Inorganic Chemicals

Ten samples were collected from locations 02-612421 and 02-612422 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of TAL metals (Table 3.2-1). As stated in the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), the extent of perchlorate was defined following the 2007 investigation, and no Phase II samples were analyzed for perchlorate.

Aluminum was detected above the Qbo BV (3560 mg/kg) in one sample at a concentration of 4260 mg/kg at location 02-612422 from 25–26 ft bgs. Aluminum concentrations decreased with depth at this location. The vertical extent of aluminum is defined.

Antimony was not detected but had DLs (1.03 mg/kg to 1.16 mg/kg) above the soil BV (0.83 mg/kg) in four samples and had DLs (1.16 mg/kg to 1.26 mg/kg) above the Qbo BV (0.5 mg/kg) in five samples. Because antimony was not detected above BVs, the vertical extent of antimony is defined.

Arsenic was not detected above the Qbo BV (0.56 mg/kg) but had DLs (1.06 mg/kg to 1.28 mg/kg) above the Qbo BV in four samples. Because arsenic was not detected above BVs, the vertical extent of arsenic is defined.

Cadmium was not detected but had DLs (0.513 mg/kg to 0.58 mg/kg) above the soil BV (0.4 mg/kg) in three samples and had DLs (0.581 mg/kg to 0.631 mg/kg) above the Qbo BV (0.4 mg/kg) in five samples. Because cadmium was not detected above BVs, the vertical extent of cadmium is defined.

Calcium and chromium were not detected above BVs at locations 02-612421 and 02-612422. The vertical extent of these metals is defined.

Copper was detected above the soil BV (14.7 mg/kg) in one sample at a concentration of 76.1 mg/kg at location 02-612421 from 5–6 ft bgs. Copper concentrations decreased with depth at this location. The vertical extent of copper is defined.

In accordance with the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), Phase II samples were not analyzed for cyanide. Cyanide was detected just above the soil BV (0.5 mg/kg) at a previously sampled location from 0–0.5 ft bgs at a concentration of 0.51 mg/kg. It was not detected in any other sample from the site. Therefore, the vertical extent of cyanide is defined.

Iron was detected above the soil BV (21,500 mg/kg) in one sample and above the Qbo BV (3700 mg/kg) in four samples at locations 02-612421 and 02-612422. The highest concentration of 39,500 mg/kg was detected at location 02-612421 from 5–6 ft bgs. Iron concentrations decreased with depth at both locations. The vertical extent of iron is defined.

Manganese was detected above the Qbo BV (189 mg/kg) in three samples at locations 02-612421 and 02-612422. The highest concentration of 225 mg/kg was detected at location 02-612422 from 25–

26 ft bgs. Manganese concentrations decreased with depth at both locations. The vertical extent of manganese is defined.

Selenium was not detected above the Qbo BV (0.3 mg/kg) but had DLs (1.06 mg/kg to 1.28 mg/kg) above the Qbo BV in five samples. Because selenium was not detected above BVs, the vertical extent of selenium is defined.

Organic Chemicals

Ten samples were collected from locations 02-612421 and 02-612422 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of PCBs and SVOCs (Table 3.2-1). As stated in the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), the extent of VOCs was defined following the 2007 investigation, and no Phase II samples were analyzed for VOCs.

Aroclor-1254 was detected in one sample at a concentration of 0.0014 mg/kg at location 02-612422 from 15–16 ft bgs. Aroclor-1254 concentrations decreased with depth at this location. The vertical extent of Aroclor-1254 is defined.

Aroclor-1260 was detected in two samples at locations 02-612421 and 02-612422. The highest concentration of 0.0023 mg/kg was detected at location 02-612421 from 28–29 ft bgs. Aroclor-1260 concentrations decreased with depth at both locations. The vertical extent of Aroclor-1260 is defined.

SVOCs were not detected at locations 02-612421 and 02-612422. The vertical extent of SVOCs is defined.

Radionuclides

Ten samples were collected from locations 02-612421 and 02-612422 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium (Table 3.2-1). However, americium-241 is not identified as a COPC at the site.

Cesium-137, isotopic uranium, plutonium-238, and strontium-90 were not detected or not detected above BVs at locations 02-612421 and 02-612422. The vertical extent of these radionuclides is defined.

Plutonium-239/240 was detected in one sample at an activity of 0.0331 pCi/g at location 02-612421 from 5–6 ft bgs. Plutonium-239/240 activities decreased with depth at this location. The vertical extent of plutonium-239/240 is defined.

Tritium was detected in three samples at location 02-612422. The highest activity at location 02-612422 (0.1058 pCi/g) was detected from 49–50 ft bgs. This activity is significantly lower than those detected from 5–25 ft bgs throughout TA-02 and is three orders of magnitude below the residential SAL (750 pCi/g). For TA-02 as a whole, maximum tritium activities in soil (up to 167 pCi/g) generally occur between 5 ft and 25 ft bgs. Therefore, tritium activities generally decrease with depth at TA-02.

The depth interval of 49–50 ft bgs is below the alluvial aquifer but above the perched-intermediate groundwater zone. Alluvial and perched-intermediate groundwater in Los Alamos Canyon is monitored by wells LAO-1 and LAOI-1, respectively, which are located approximately 1000 ft downgradient of location 02-612393, near the eastern boundary of TA-02. Over the past 10 yr, tritium has been detected at activities as high as 399 pCi/L in the alluvial groundwater downgradient of TA-02, but activities have been declining over the past several years. In the most recent sample from well LAO-1 (2009), tritium was detected at 47.3 pCi/L. In 2011, tritium was detected at 11.3 pCi/L in well LAOI(a)-1.1. Because subsurface conditions are being monitored by the alluvial and intermediate wells downgradient of TA-02, deeper sampling at location 02-612422 to establish the vertical extent of tritium contamination is not necessary.

Summary of Nature and Extent at SWMU 02-009(a)

The vertical extent of TAL metals, PCBs, SVOCs, americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium is defined.

6.20.2.5 Summary of Human Health Risk Screening

Details of the human health risk-screening assessment for SWMU 02-009(a) are discussed in Appendix H, section H-4.

The total excess cancer risk for the industrial scenario is 1×10^{-7}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.02, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 3 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 6×10^{-7}, based on a comparison with EPA's outdoor worker PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

The total excess cancer risk for the recreational scenario is 9×10^{-8}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.03, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 0.3 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 1×10^{-6}, based on conversion from dose using RESRAD, Version 6.5.

The total excess cancer risk for the residential scenario is 8×10^{-7}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.3, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 6 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 1×10^{-6}, based on a comparison with EPA's residential PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Based on the screening-assessment results, no potential unacceptable risks or doses from COPCs exist for the industrial, recreational, and residential scenarios.

6.20.2.6 Summary of Ecological Risk Screening

In accordance with the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), locations surrounding the core area of TA-02 were sampled to define the lateral extent of contamination for TA-02 as a whole (section 6.32). Although the lateral extent for the TA-02 core area is defined, one site within the core area requires additional remediation and confirmation sampling. The ecological risk-screening assessment will be conducted for the sites within the TA-02 core area as one exposure unit after the investigation at this site has been completed.

6.20.3 SWMU 02-009(b), Soil Contamination

6.20.3.1 Site Description and Operational History

SWMU 02-009(b) is an area of radioactive soil contamination located north of the former stack-gas valve house (structure 02-019) and the east bridge at TA-02 (Figure 6.20-1).

Detectable beta/gamma radioactivity was identified in 1986 when the area of SWMU 02-009(b) was used for truck staging during D&D of the WBR (Elder and Knoell 1986, 006670, p. 40). A limited amount of soil was removed from the site and disposed of (Elder and Knoell 1986, 006670, pp. 26–41).

6.20.3.2 Relationship to Other SWMUs and AOCs

The gaseous effluent vent line (line 119) passed through the area identified as SWMU 02-009(a), but it is not known whether the line was the source of the soil contamination.

6.20.3.3 Summary of Previous Investigations

1985 WBR Decommissioning Project, Phase I

During the 1985 decommissioning project, a radiological walkover survey was conducted across the area. Several contaminated debris items were identified in the shallow subsurface; the most notable was 30 ft of 1-in. stainless-steel piping routed along the north-south fence. The source and destination of the pipe are unknown. Local radionuclide contamination remained in this area but was not addressed at the time. This area was also used as a truck staging area during decontamination operations. Project closeout walkover surveys indicated elevated radionuclide activity, prompting the placement of a 6-in. layer of topsoil cover (Elder and Knoell 1986, 006670, p. 40). All removed material (stainless-steel piping) was transported to TA-54 (Elder and Knoell 1986, 006670, p. 16).

1995 Investigation Activities

Samples were collected from two locations within the contamination area. Supporting QA/QC information is not available for these samples, so the sample results are not included in this report.

2000 Post–Cerro Grande Recovery Work

As part of the post–Cerro Grande fire recovery work, samples were collected from two boreholes (locations 02-01243 and 02-01244) near the previous screening-level data sampling locations. Field screening of recovered cores indicated no elevated radionuclide levels (LANL 2001, 070352, p. 8).

2007 Investigation Activities

Twenty-four samples were collected from nine locations at SWMU 02-009(b) in 2007. Results from the sampling activities in 2007 were presented in the previous investigation report (LANL 2008, 101669.12). Additional sampling was required to define the extent of contamination at the site.

6.20.3.4 Site Contamination

Soil, Rock, and Sediment Sampling

As part of the 2010 investigation, the following characterization activities were conducted at SWMU 02-009(b):

- All samples were field screened for organic vapors and gross-alpha, -beta, and -gamma radioactivity. Field-screening results were recorded on the SCLs (Appendix F) and are presented in Table 3.2-2.
- Five samples were collected from location 02-612388 from 5–6 ft, 15–16 ft, 25–26 ft, 35–36 ft, and 47.5–50 ft bgs at SWMU 02-009(b). These samples were analyzed for TAL metals, PCBs, SVOCs, americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium.

The 2010 and historical sampling locations at SWMU 02-009(b) are shown in Figure 6.20-1. The geodetic coordinates of the 2010 sampling locations are presented in Table 3.2-1.

Soil and Rock Sample Field-Screening Results

No organic vapors were detected at more than 10 ppm above ambient air levels during headspace screening of the samples. No radiological-screening results exceeded twice the daily site background levels. Field-screening results are presented in Table 3.2-2. No changes to sampling or other activities occurred because of the field-screening results.

Soil and Rock Sample Analytical Results

Decision-level data at SWMU 02-009(b) consist of results from 34 samples collected from 12 locations in 2000, 2007, and 2010. The 34 samples include 12 soil, 13 Qal, 2 Qbt 3, and 7 Qbo samples. Table 6.20-9 presents the samples collected and analyses requested for SWMU 02-009(b).

Inorganic Chemicals

A total of 34 samples (12 soil, 13 Qal, 2 Qbt 3, and 7 Qbo) were analyzed for TAL metals, and 24 samples (9 soil, 11 Qal, and 4 Qbo) were analyzed for nitrate, perchlorate, and total cyanide.

Table 6.20-10 presents the inorganic chemicals detected or detected above BVs. Plate 30 shows the spatial distribution of inorganic chemicals detected or detected above BVs. The vertical extent is defined at SWMU 02-009(b), and the lateral extent is defined at the TA-02 core area; inorganic COPCs are identified below.

Aluminum was detected above the Qbo BV (3560 mg/kg) and the maximum Qbo background concentration (3400 mg/kg) in one sample at a concentration of 4870 mg/kg. Because there were fewer than 10 Qbo samples, statistical tests could not be performed. Aluminum is identified as a COPC in tuff.

Antimony was not detected above the soil BV (0.83 mg/kg) but had DLs (0.979 mg/kg and 1.11 mg/kg) above the soil BV in two samples. Because the background data set had more than 50% nondetects, the Gehan test could not be performed. The quantile and slippage tests indicated site concentrations are not different from background (Figure G-15.0-15, Table G-15). Antimony is not identified as a COPC in soil. Antimony was detected above the Qbt 3 BV (0.5 mg/kg) in one sample at a concentration of 0.57 mg/kg. Because there were fewer than 10 Qbt 3 samples, statistical tests could not be performed. Antimony was not detected but had DLs (1.1 mg/kg to 1.19 mg/kg) above the Qbo BV in three samples. Antimony is identified as a COPC in tuff.

Arsenic was detected above the Qbo BV (0.56 mg/kg) in two samples with a maximum concentration of 1.62 mg/kg, and it was not detected but had DLs (1.17 mg/kg to 1.74 mg/kg) above the Qbo BV in five samples. One concentration and all five DLs are above the maximum Qbo background concentration (0.7 mg/kg). The site concentrations are substantially above background. Arsenic is identified as a COPC in tuff.

Cadmium was detected above the soil BV (0.4 mg/kg) in one sample at a concentration of 0.49 mg/kg, and it was not detected but had DLs (0.495 mg/kg to 0.564 mg/kg) above the soil BV in six samples. Because the background data set had more than 50% nondetects, the Gehan test could not be performed. The quantile and slippage tests indicated site concentrations are not different from background (Figure G-15.0-16, Table G-15). Cadmium is not identified as a COPC in soil. Cadmium was not detected but had DLs (0.524 mg/kg to 0.596 mg/kg) above the Qbo BV (0.4 mg/kg) in all seven Qbo samples. Cadmium is identified as a COPC in tuff.

Calcium was detected above the soil BV (6120 mg/kg) in two samples with a maximum concentration of 7020 mg/kg. This concentration is below the maximum soil background concentration (14,000 mg/kg). The Gehan test and the box plot indicated site concentrations are less than background (Figure G-15.0-17, Table G-15). Calcium is not identified as a COPC in soil.

Chromium was detected above the soil BV (19.3 mg/kg) in one sample at a concentration of 32.3 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-15.0-18, Table G-15). Chromium is identified as a COPC in soil. Chromium was detected above the Qbo BV (2.6 mg/kg) in five samples with a maximum concentration of 17.4 mg/kg, and it was not detected but had a DL (5.7 mg/kg) above the Qbo BV in one sample. Because there were fewer than 10 Qbo samples, statistical tests could not be performed. Chromium is identified as a COPC in tuff.

Cyanide was detected above the soil BV (0.5 mg/kg) in one sample at a concentration of 1.08 mg/kg, and it was not detected but had a DL (3.82 mg/kg) above the soil BV in one sample. Cyanide has no background data set for soil. Cyanide is identified as a COPC in soil.

Iron was detected above the Qbo BV and the maximum Qbo background concentration (both 3700 mg/kg) in all seven Qbo samples with a maximum concentration of 7330 mg/kg. Iron is identified as a COPC in tuff.

Lead was detected above the Qbo BV (13.5 mg/kg) in one sample at a concentration of 13.6 mg/kg. This concentration is below the maximum Qbo background concentration (20 mg/kg). Lead is not identified as a COPC in tuff.

Manganese was detected above the Qbo BV (189 mg/kg) and the maximum Qbo background concentration (210 mg/kg) in five samples with a maximum concentration of 312 mg/kg. Because there were fewer than 10 Qbo samples, statistical tests could not be performed. Manganese is identified as a COPC in tuff.

Mercury was detected above the soil BV and the maximum soil background concentration (both 0.1 mg/kg) in six samples with a maximum concentration of 1.27 mg/kg. Because the background data set had more than 50% nondetects, the Gehan test could not be performed. The quantile test indicated site concentrations are not different from background, but the slippage test indicated site concentrations are different from background (Figure G-15.0-19, Table G-15). Mercury is identified as a COPC in soil.

Nickel was detected above the Qbo BV (2 mg/kg) in three samples with a maximum concentration of 4.66 mg/kg, and it was not detected but had a DL (4.73 mg/kg) above the Qbo BV in one sample. All three concentrations and the DL are above the maximum Qbo background concentration (2.8 mg/kg). Because there were fewer than 10 Qbo samples, statistical tests could not be performed. Nickel is identified as a COPC in tuff.

Nitrate was detected in 16 soil/Qal samples with a maximum concentration of 6.18 mg/kg. No background data are available for nitrate. Nitrate is naturally occurring, and the concentrations detected likely reflect naturally occurring levels. Nitrate is not identified as a COPC in soil.

Perchlorate was detected in four soil/Qal samples with a maximum concentration of 0.0017 mg/kg. Because perchlorate has no BV in soil, perchlorate is identified as a COPC in soil.

Selenium was detected above the soil BV (1.52 mg/kg) in one sample at a concentration of 2.11 mg/kg, and it was not detected but had a DL (1.57 mg/kg) above the soil BV in one sample. The Gehan test indicated site concentrations are different from background (Figure G-15.0-20, Table G-15). Selenium is identified as a COPC in soil. Selenium was detected above the Qbo BV (0.3 mg/kg) in three samples with a maximum concentration of 1.62 mg/kg, and it was not detected but had DLs (1.17 mg/kg and 1.69 mg/kg) above the Qbo BV in four samples. Because there were fewer than 10 Qbo samples, statistical tests could not be performed. Selenium is identified as a COPC in tuff.

Uranium was detected above the Qbt 3 BV (2.4 mg/kg) in one sample at a concentration of 2.44 mg/kg. This concentration is below the maximum Qbt 3 background concentration (5 mg/kg). Uranium is not identified as a COPC in tuff.

Vanadium was detected above the Qbo BV (4.59 mg/kg) and the maximum Qbo background concentration (3.8 mg/kg) in one sample at a concentration of 7.92 mg/kg. Because there were fewer than 10 Qbo samples, statistical tests could not be performed. Vanadium is identified as a COPC in tuff.

Zinc was detected above the soil BV (48.8 mg/kg) in six samples with a maximum concentration of 70.5 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-15.0-21, Table G-15). Zinc is identified as a COPC in soil.

In summary, the inorganic COPCs identified at SWMU 02-009(b) are aluminum, antimony, arsenic, cadmium, chromium, cyanide, iron, manganese, mercury, nickel, perchlorate, selenium, vanadium, and zinc.

Organic Chemicals

A total of 29 samples (9 soil, 13 Qal, and 7 Qbo) were analyzed for PCBs and SVOCs, and 15 samples (11 Qal and 4 Qbo) were analyzed for VOCs.

Table 6.20-11 presents the detected organic chemicals. Plate 31 shows the spatial distribution of detected organic chemicals. The vertical extent is defined at SWMU 02-009(b), and the lateral extent is defined at the TA-02 core area; organic COPCs are identified below.

Organic chemicals detected at SWMU 02-009(b) include acenaphthene; acetone; anthracene; Aroclor-1254; Aroclor-1260; benzo(a)anthracene; benzo(a)pyrene; benzo(b)fluoranthene; benzo(g,h,i)perylene; benzo(k)fluoranthene; bis(2-ethylhexyl)phthalate; chrysene; di-n-butylphthalate; fluoranthene; fluorene; indeno(1,2,3-cd)pyrene; isopropylbenzene; 4-isopropyltoluene; 2-methylnaphthalene; phenanthrene; pyrene; and toluene.

These organic chemicals are retained as COPCs at SWMU 02-009(b).

Radionuclides

A total of 29 samples (9 soil, 13 Qal, and 7 Qbo) were analyzed for americium-241, and 34 samples (12 soil, 13 Qal, 2 Qbt 3, and 7 Qbo) were analyzed for gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium.

Table 6.20-12 presents the radionuclides detected or detected above BVs/FVs. Plate 32 shows the spatial distribution of radionuclides detected or detected above BVs/FVs. The vertical extent is defined at SWMU 02-009(b), and the lateral extent is defined at the TA-02 core area; radionuclide COPCs are identified below.

Americium-241 was not detected or not detected above FVs in any samples from SWMU 02-009(b) and therefore is not identified as a COPC at this site.

Cesium-137 was detected above the soil FV (1.65 pCi/g) and detected in subsurface soil (below 0–1 ft) in 17 samples with a maximum activity of 8.62 pCi/g. Cesium-137 is identified as a COPC in soil.

Plutonium-239/240 was detected above the soil FV (0.054 pCi/g) and detected in subsurface soil (below 0–1 ft) in 14 samples with a maximum activity of 0.432 pCi/g. Plutonium-239/240 is identified as a COPC in soil.

Strontium-90 was detected above the soil FV (1.31 pCi/g) and detected in subsurface soil (below 0–1 ft) in eight samples with a maximum activity of 4.02 pCi/g. Strontium-90 is identified as a COPC in soil.

Tritium was detected in 17 soil/tuff samples with a maximum activity of 0.173 pCi/g. Tritium is identified by detection status and is a COPC in soil and tuff.

Uranium-234 was detected above the soil BV (2.59 pCi/g) in one sample at an activity of 2.87 pCi/g. Uranium-234 is identified as a COPC in soil.

Uranium-235/236 was detected above the Qbt 3 BV (0.09 pCi/g) in one sample at an activity of 0.236 pCi/g. Uranium-235/236 is identified as a COPC in tuff.

In summary, the radionuclide COPCs identified at SWMU 02-009(b) are cesium-137, plutonium-239/240, strontium-90, tritium, uranium-234, and uranium-235/236.

Nature and Extent of Contamination at SWMU 02-009(b)

In accordance with the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), one location was sampled at SWMU 02-009(b) to determine the vertical extent of contamination for inorganic chemicals, organic chemicals, and radionuclides (Table 3.2-1). Analytical suites were determined by the data needs specific to each location as presented in Table 3.1-1 of the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703). The vertical extent of contamination at SWMU 02-009(b) is evaluated using only the Phase II data from samples collected as deep as 50 ft bgs.

Inorganic Chemicals

Five samples were collected from location 02-612388 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of TAL metals (Table 3.2-1). As stated in the approved work plan (LANL 2009, 106660.14;

NMED 2009, 106703), the extent of perchlorate was defined following the 2007 investigation, and no Phase II samples were analyzed for perchlorate.

Aluminum, mercury, nickel, and vanadium were not detected above BVs at location 02-612388. The vertical extent of these metals is defined.

Antimony was not detected but had DLs (0.979 mg/kg and 1.11 mg/kg) above the soil BV (0.83 mg/kg) in two samples and had DLs (1.1 mg/kg to 1.19 mg/kg) above the Qbo BV (0.5 mg/kg) in three samples. Because antimony was not detected above BVs, the vertical extent of antimony is defined.

Arsenic was not detected above the Qbo BV (0.56 mg/kg) but had DLs (all 1.17 mg/kg) above the Qbo BV in three samples. Because arsenic was not detected above BVs, the vertical extent of arsenic is defined.

Cadmium was not detected but had a DL (0.553 mg/kg) above the soil BV (0.4 mg/kg) in one sample and had DLs (0.55 mg/kg to 0.596 mg/kg) above the Qbo BV (0.4 mg/kg) in three samples. Because cadmium was not detected above BVs, the vertical extent of cadmium is defined.

Chromium was detected above the Qbo BV (2.6 mg/kg) in two samples at location 02-612388. The highest concentration of 3.66 mg/kg was detected at location 02-612388 from 35–36 ft bgs. Chromium concentrations decreased with depth at this location. The vertical extent of chromium is defined.

In accordance with the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), Phase II samples were not analyzed for cyanide. Cyanide was detected above the soil BV (0.5 mg/kg) in a previously sampled location from 0–1.5 ft bgs at a concentration of 1.08 mg/kg. It was not detected in the deeper sample at this location or in any other sample from the site. Therefore, the vertical extent of cyanide is defined.

Iron was detected above the Qbo BV (3700 mg/kg) in three samples at location 02-612388. The highest concentration of 5390 mg/kg was detected at location 02-612388 from 35–36 ft bgs. Iron was detected at concentrations of 8180 mg/kg and 6660 mg/kg (below the soil BV of 21,500 mg/kg) at location 02-612388 from 5–6 ft and 15–16 ft bgs, respectively. Iron concentrations decreased with depth at this location. The vertical extent of iron is defined.

Manganese was detected above the Qbo BV (189 mg/kg) in one sample at a concentration of 223 mg/kg at location 02-612388 from 35–36 ft bgs. Manganese concentrations decreased with depth at this location. The vertical extent of manganese is defined.

Selenium was not detected above the Qbo BV (0.3 mg/kg) but had DLs (all 1.17 mg/kg) above the Qbo BV in three samples. Because selenium was not detected above BVs, the vertical extent of selenium is defined.

Zinc was detected above the soil BV (48.8 mg/kg) in one sample at a concentration of 53.2 mg/kg at location 02-612388 from 15–16 ft bgs. Zinc concentrations decreased with depth at this location. The vertical extent of zinc is defined.

Organic Chemicals

Five samples were collected from location 02-612388 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of PCBs and SVOCs (Table 3.2-1). As stated in the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), the extent of VOCs was defined following the 2007 investigation, and no Phase II samples were analyzed for VOCs.

Aroclor-1254 was detected in one sample at a concentration of 0.0023 mg/kg at location 02-612388 from 5–6 ft bgs. Aroclor-1254 concentrations decreased with depth at this location. The vertical extent of Aroclor-1254 is defined.

Aroclor-1260 was detected in one sample at a concentration of 0.0033 mg/kg at location 02-612388 from 5–6 ft bgs. Aroclor-1260 concentrations decreased with depth at this location. The vertical extent of Aroclor-1260 is defined.

Fluoranthene was detected in one sample at a concentration of 0.0125 mg/kg at location 02-612388 from 5–6 ft bgs. Fluoranthene concentrations decreased with depth at this location. The vertical extent of fluoranthene is defined.

Aroclor-1254, Aroclor-1260, and fluoranthene were the only organic COPCs detected at location 02-612388. Therefore, the vertical extent of all organic COPCs is defined at SWMU 02-009(b).

Radionuclides

Five samples were collected from location 02-612388 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium (Table 3.2-1). However, Americium-241 is not identified as a COPC at the site.

Cesium-137, isotopic plutonium, isotopic uranium, and strontium-90 were not detected at location 02-612388. The vertical extent of these radionuclides is defined.

Tritium was detected in four samples at location 02-612388. The highest activity at location 02-612388 (0.7669 pCi/g) was detected from 47.5–50 ft bgs. This activity is significantly lower than those detected from 5–25 ft bgs throughout TA-02 and is three orders of magnitude below the residential SAL (750 pCi/g). For TA-02 as a whole, maximum tritium activities in soil (up to 167 pCi/g) generally occur between 5 ft and 25 ft bgs. Therefore, tritium activities generally decrease with depth at TA-02.

The depth interval of 47.5–50 ft bgs is below the alluvial aquifer but above the perched-intermediate groundwater zone. Alluvial and perched-intermediate groundwater in Los Alamos Canyon is monitored by wells LAO-1 and LAOI-1, respectively, which are located approximately 1000 ft downgradient of location 02-612393, near the eastern boundary of TA-02. Over the past 10 yr, tritium has been detected at activities as high as 399 pCi/L in the alluvial groundwater downgradient of TA-02, but activities have been declining over the past several years. In the most recent sample from well LAO-1 (2009), tritium was detected at 47.3 pCi/L. In 2011, tritium was detected at 11.3 pCi/L in well LAOI(a)-1.1. Because subsurface conditions are being monitored by the alluvial and intermediate wells downgradient of TA-02, deeper sampling at location 02-612388 to establish the vertical extent of tritium contamination is not necessary.

Summary of Nature and Extent at SWMU 02-009(b)

The vertical extent of TAL metals, PCBs, cesium-137, isotopic plutonium, isotopic uranium, strontium-90, and tritium is defined.

6.20.3.5 Summary of Human Health Risk Screening

Details of the human health risk-screening assessment for SWMU 02-009(b) are discussed in Appendix H, section H-4.

The total excess cancer risk for the industrial scenario is 8 × 10^{-7}, which is below the NMED target risk level of 1 × 10^{-5} (NMED 2009, 108070). The HI is 0.004, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 6 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 3 × 10^{-7}, based on a comparison with EPA's outdoor worker PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

The total excess cancer risk for the recreational scenario is 6 × 10^{-7}, which is below the NMED target risk level of 1 × 10^{-5} (NMED 2009, 108070). The HI is 0.01, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 0.6 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 3 × 10^{-6}, based on conversion from dose using RESRAD, Version 6.5.

The total excess cancer risk for the residential scenario is 2 × 10^{-6}, which is below the NMED target risk level of 1 × 10^{-5} (NMED 2009, 108070). The HI is 0.06, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 19 mrem/yr, which is above the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 5 × 10^{-6}, based on a comparison with EPA's residential PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Based on the screening-assessment results, no potential unacceptable risks or doses from COPCs exist for the industrial and recreational scenarios. Based on the screening-assessment results, no potential unacceptable risk exists for the residential scenario, but a potential unacceptable dose exists for the residential scenario.

6.20.3.6 Summary of Ecological Risk Screening

In accordance with the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), locations surrounding the core area of TA-02 were sampled to define the lateral extent of contamination for TA-02 as a whole (section 6.32). Although the lateral extent for the TA-02 core area is defined, one site within the core area requires additional remediation and confirmation sampling. The ecological risk-screening assessment will be conducted for the sites within the TA-02 core area as one exposure unit after the investigation at this site has been completed.

6.20.4 SWMU 02-009(c), Soil Contamination

6.20.4.1 Site Description and Operational History

SWMU 02-009(c) is a leach field and an area of alpha-, beta-, and gamma-emitting radioactively contaminated soil south of the condensate trap [structure 02-048, AOC 02-003(b)] (Figure 6.20-1).

Radioactive soil contamination was identified at SWMU 02-009(c) during 1985–1986 D&D activities associated with the condensate trap (Elder and Knoell 1986, 006670, pp. 36–40). Two sections of contaminated 6-in.-diameter VCP, one 34 ft long and one 20 ft long and lying parallel to the septic tank overflow pipe, were uncovered during D&D activities at the condensate trap. The pipes were approximately 5 ft below and to either side of the septic tank overflow pipe (Elder and Knoell 1986, 006670, pp. 29–40). The purpose of the pipes is unknown. The pipes were present at depths of 3–8 ft bgs (Elder and Knoell 1986, 006670, pp. 26–41). All structures (pipes) and adjacent soils down to the saturated zone were removed and disposed of during the 1985–1986 D&D activities (Elder and Knoell 1986, 006670, pp. 36–40).

6.20.4.2 Relationship to Other SWMUs and AOCs

The former condensate trap, AOC 02-003(b), was located within the area identified as SWMU 02-009(c). The SWMU 02-009(c) leach field received effluent from the former septic tank, SWMU 02-007.

6.20.4.3 Summary of Previous Investigations

1985 WBR Decommissioning Project, Phase I

During D&D activities in 1985, excavation and removal of the condensate trap (structure 02-048), the septic tank (structure 02-043), and the septic tank VCP overflow drainpipe led to the discovery of the SWMU 02-009(c) leach field (Elder and Knoell 1986, 006670). The leach field was found east of the condensate trap, approximately 2 ft below the route of the septic tank VCP overflow drainpipe that discharged to Los Alamos Creek. The leach field consisted of two sections of 6-in.-diameter VCP laid in a bed of rock and sand. The VCP and contaminated soil, sand, and crushed rock were removed. The VCP within the leach field and at Los Alamos Creek was broken by the backhoe bucket and removed directly with the soil (Elder and Knoell 1986, 006670, pp. 14–15, 29–40). The material was removed, screened, and segregated using field-screening instruments. Material that passed screening was used as backfill (Elder and Knoell 1986, 006670, p. 21). Excavation of the leach field area (an area approximately 22 ft wide × 83 ft long, located approximately 50 ft east of the condensate trap) extended along the former drainline down to Los Alamos Creek. Soil was removed from the surface to the groundwater interface in some areas (Elder and Knoell 1986, 006670, pp. 36–39).

1995 Investigation Activities

Sixteen samples were collected from seven boreholes (locations 02-01140 to 02-01143 and 02-01146 to 02-01148) across the leach field in 1995. Samples were collected from various depths to evaluate soil left in place following the 1986 D&D activities.

2000 Post–Cerro Grande Recovery Work

During the post–Cerro Grande fire recovery work, 51 samples were collected from 11 boreholes (locations 02-01225 to 02-01234 and 02-01236) from various depths throughout the leach field.

2007 Investigation Activities

Eighty samples were collected from 26 locations at SWMU 02-009(c) in 2007. Results from the sampling activities in 2007 were presented in the previous investigation report (LANL 2008, 101669.12). Additional sampling was required to define the extent of contamination at the site.

6.20.4.4 Site Contamination

Soil, Rock, and Sediment Sampling

As part of the 2010 investigation, the following characterization activities were conducted at SWMU 02-009(c):

- All samples were field screened for organic vapors and gross-alpha, -beta, and -gamma radioactivity. Field-screening results were recorded on the SCLs (Appendix F) and are presented in Table 3.2-2.

- Twenty samples were collected from four locations (02-612391, 02-612392, 02-612393, and 02-612420) at the western, central, eastern, and southern portions of SWMU 02-009(c) (depths ranging from 5–50 ft bgs). These samples were analyzed for TAL metals, PCBs, SVOCs, americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium.

The 2010 and historical sampling locations at SWMU 02-009(c) are shown in Figure 6.20-1. The geodetic coordinates of the 2010 sampling locations are presented in Table 3.2-1.

Soil, Rock, and Sediment Sample Field-Screening Results

No organic vapors were detected at more than 10 ppm above ambient air levels during headspace screening of the samples. No radiological-screening results exceeded twice the daily site background levels. Field-screening results are presented in Table 3.2-2. No changes to sampling or other activities occurred because of the field-screening results.

Soil, Rock, and Sediment Sample Analytical Results

Decision-level data at SWMU 02-009(c) consist of results from 167 samples collected from 48 locations in 1995, 2000, 2007, and 2010. The 167 samples include 65 soil, 39 Qal, 21 Qbt 2, 34 Qbo, and 8 sediment samples. Table 6.20-13 presents the samples collected and analyses requested for SWMU 02-009(c).

Inorganic Chemicals

A total of 151 samples (61 soil, 39 Qal, 10 Qbt 2, 34 Qbo, and 7 sediment) were analyzed for TAL metals, and 80 samples (20 soil, 33 Qal, 21 Qbo, and 6 sediment) were analyzed for hexavalent chromium, nitrate, perchlorate, and total cyanide.

Table 6.20-14 presents the inorganic chemicals detected or detected above BVs. Plate 30 shows the spatial distribution of inorganic chemicals detected or detected above BVs. The vertical extent is defined at SWMU 02-009(c), and the lateral extent is defined at the TA-02 core area; inorganic COPCs are identified below.

Aluminum was detected above the Qbo BV (3560 mg/kg) and the maximum Qbo background concentration (3400 mg/kg) in 25 samples with a maximum concentration of 21,800 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-15.0-22, Table G-15). Aluminum was detected above the Qbt 2 BV (7340 mg/kg) in eight samples at a concentration of 13,000 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-15.0-23, Table G-15). Aluminum is identified as a COPC in tuff.

Antimony was not detected but had DLs (0.947 mg/kg to 1.2 mg/kg) above the soil BV (0.83 mg/kg) in seven samples. Antimony is identified as a COPC in soil. Antimony was not detected but had DLs (1.519 mg/kg to 1.39 mg/kg) above the Qbo BV (0.5 mg/kg) and the maximum Qbo background concentration (0.2 mg/kg) in 20 samples. Antimony is identified as a COPC in tuff.

Arsenic was detected above the Qbo BV (0.56 mg/kg) in 13 samples with a maximum concentration of 1.87 mg/kg, and it was not detected but had DLs (1.1 mg/kg to 2.22 mg/kg) above the Qbo BV in 19 samples. Because the background data set had more than 50% nondetects, the Gehan test could not be performed. The quantile test indicated site concentrations are different from background (Figure G-15.0-24, Table G-15). Arsenic is identified as a COPC in tuff.

Barium was detected above the soil BV (295 mg/kg) in four samples with a maximum concentration of 636 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-15.0-25, Table G-15). Barium is identified as a COPC in soil. Barium was detected above the Qbo BV (25.7 mg/kg) and the maximum Qbo background concentration (23 mg/kg) in 10 samples with a maximum concentration of 117 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-15.0-26, Table G-15). Also, barium was detected above the Qbt 2 BV (46.0 mg/kg) in four samples with a maximum concentration of 73 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-15.0-27, Table G-15). Barium is identified as a COPC in tuff.

Beryllium was detected above the Qbo BV (1.44 mg/kg) in one sample at a concentration of 1.49 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-15.0-28, Table G-15). Beryllium is identified as a COPC in tuff.

Cadmium was not detected above the soil BV (0.4 mg/kg) but had DLs (0.474 mg/kg to 0.599 mg/kg) above the soil BV in 46 samples. Because the background data set had more than 50% nondetects, the Gehan test could not be performed. The quantile and slippage tests indicated site concentrations are not different from background (Figure G-15.0-29, Table G-15). Cadmium is not identified as a COPC in soil. Cadmium was not detected but had DLs (0.539 mg/kg to 0.739 mg/kg) above the Qbo BV (0.4 mg/kg) in 34 samples. Cadmium is identified as a COPC in tuff. Cadmium was not detected but had DLs (0.418 mg/kg to 0.522 mg/kg) above the sediment BV (0.4 mg/kg) in four samples. Cadmium is identified as a COPC in sediment.

Chromium was detected above the soil BV (19.3 mg/kg) in 12 samples with a maximum concentration of 52.3 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-15.0-30, Table G-15). Chromium is identified as a COPC in soil. Chromium was detected above the Qbt 2 BV (7.14 mg/kg) in one sample at a concentration of 11 mg/kg. The Gehan and quantile tests indicated site concentrations are not different from background (Figure G-15.0-31, Table G-15). Chromium is not identified as a COPC in Qbt 2 tuff. Chromium was detected above the Qbo BV (2.6 mg/kg) in seven samples with a maximum concentration of 43.5 mg/kg, and it was not detected but had DLs (3.06 mg/kg to 11.8 mg/kg) above the Qbo BV in nine samples. The site concentrations are substantially above background. Chromium is identified as a COPC in tuff.

Hexavalent chromium was detected in 31 soil/Qal/tuff/sediment samples with a maximum concentration of 1.33 mg/kg. Hexavalent chromium has no BV in either soil or tuff. Hexavalent chromium is identified as a COPC in soil and tuff.

Copper was detected above the Qbo BV (3.96 mg/kg) and the maximum Qbo background concentration (2.6 mg/kg) in one sample at a concentration of 4.15 mg/kg, and it was not detected but had DLs (4.44 mg/kg and 8.11 mg/kg) above the Qbo BV in two samples. The Gehan and quantile tests indicated site concentrations are not different from background (Figure G-15.0-32, Table G-15). Copper is not identified as a COPC in tuff.

Iron was detected above the Qbo BV and the maximum Qbo background concentration (both 3700 mg/kg) in all 34 Qbo samples with a maximum concentration of 10,600 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-15.0-33, Table G-15). Iron is identified as a COPC in tuff. Also, iron was detected above the sediment BV (13,800 mg/kg) and the maximum sediment background concentration (13,000 mg/kg) in one sample at a concentration of 15,200 mg/kg. Iron is identified as a COPC in sediment.

Lead was detected above the soil BV (22.3 mg/kg) in two samples with a maximum concentration of 31.2 mg/kg. The Gehan test indicated site concentrations are different from background

(Figure G-15.0-34, Table G-15). Lead is identified as a COPC in soil. Also, lead was detected above the sediment BV (19.7 mg/kg) in three samples with a maximum concentration of 21.3 mg/kg. These concentrations are below the maximum sediment background concentration (25.6 mg/kg). Lead is not identified as a COPC in sediment.

Manganese was detected above the soil BV (671 mg/kg) in one sample at a concentration of 905 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-15.0-35, Table G-15). Manganese is identified as a COPC in soil. Manganese was detected above the Qbo BV (189 mg/kg) in 24 samples with a maximum concentration of 639 mg/kg. Twenty-one of the 24 concentrations are above the maximum Qbo background concentration (210 mg/kg). The site concentrations are substantially above background. Manganese is identified as a COPC in tuff.

Mercury was detected above the soil BV and the maximum soil background concentration (both 0.1 mg/kg) in 10 samples with a maximum concentration of 1.13 mg/kg, and it was not detected but had DLs (0.14 mg/kg to 0.32 mg/kg) above the soil BV in four samples. Because the background data set had more than 50% nondetects, the Gehan test could not be performed. The quantile test indicated site concentrations are not different from background, but the slippage test indicated site concentrations are different from background (Figure G-15.0-36, Table G-15). Mercury is identified as a COPC in soil. Mercury was detected above the sediment BV (0.1 mg/kg) and the maximum soil background concentration (0.03 mg/kg) in two samples with a maximum concentration of 0.179 mg/kg. Because there were fewer than 10 sediment samples, statistical tests could not be performed. Mercury is identified as a COPC in sediment.

Nickel was detected above the Qbo BV (2 mg/kg) in five samples with a maximum concentration of 7.15 mg/kg, and it was not detected but had DLs (2.06 mg/kg to 4.5 mg/kg) above the Qbo BV in eight samples. Because the background data set had more than 50% nondetects, the Gehan test could not be performed. The quantile and slippage tests indicated site concentrations are not different from background (Figure G-15.0-37, Table G-15). Nickel is not identified as a COPC in tuff.

Nitrate was detected in 30 soil/Qal/Qbo/sediment samples with a maximum concentration of 11.4 mg/kg. No background data are available for nitrate. Nitrate is naturally occurring, and the concentrations detected likely reflect naturally occurring levels. Nitrate is not identified as a COPC in soil and tuff.

Perchlorate was detected in 16 soil/Qal samples with a maximum concentration of 0.00901 mg/kg. Because perchlorate has no BV in soil, perchlorate is identified as a COPC in soil.

Selenium was detected above the soil BV (1.52 mg/kg) in 10 samples with a maximum concentration of 11.4 mg/kg, and it was not detected but had DLs (1.53 mg/kg to 1.68 mg/kg) above the soil BV in 12 samples. The site concentrations are substantially above background. Selenium is identified as a COPC in soil. Selenium was detected above the Qbo BV (0.3 mg/kg) in 16 samples with a maximum concentration of 8.59 mg/kg, and it was not detected but had DLs (1.1 mg/kg to 2.04 mg/kg) above the Qbo BV in 18 samples. The site concentrations are substantially above background. Selenium was detected above the Qbt 2 BV (0.3 mg/kg) in one sample at a concentration of 0.509 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-15.0-38, Table G-15). Selenium is identified as a COPC in tuff. Selenium was detected above the sediment BV (0.3 mg/kg) in three samples with a maximum concentration of 1.06 mg/kg, and it was not detected but had DLs (1.49 mg/kg to 1.56 mg/kg) above the sediment BV in four samples. Selenium is identified as a COPC in sediment.

Silver was detected above the soil BV (1 mg/kg) in 24 samples with a maximum concentration of 2.8 mg/kg. Because silver has no background data set for soil, statistical tests could not be performed. Silver is identified as a COPC in soil. Silver was detected above the Qbt 2 BV (1 mg/kg) in three samples with a maximum concentration of 1.6 mg/kg. Because the background data set had more than 50% nondetects, the Gehan test could not be performed. The quantile and slippage tests indicated site concentrations are not different from background (Figure G-15.0-39, Table G-15). Silver is not identified as a COPC in tuff. Silver was detected above the sediment BV (1 mg/kg) in one sample at a concentration of 1.2 mg/kg. Silver is identified as a COPC in sediment.

Uranium was detected above the soil BV (1.82 mg/kg) in three samples with a maximum concentration of 7.1 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-15.0-40, Table G-15). Uranium is identified as a COPC in soil.

Vanadium was detected above the Qbo BV (4.59 mg/kg) and the maximum Qbo background concentration (3.8 mg/kg) in nine samples with a maximum concentration of 8.42 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-15.0-41, Table G-15). Vanadium is identified as a COPC in tuff.

Zinc was detected above the soil BV (48.8 mg/kg) in one sample at a concentration of 60.8 mg/kg. The Gehan and quantile tests indicated site concentrations are not different from background (Figure G-15.0-42, Table G-15). Zinc is not identified as a COPC in soil. Zinc was detected above the sediment BV (60.2 mg/kg) in two samples with a maximum concentration of 77.2 mg/kg. Because there were fewer than 10 sediment samples, statistical tests could not be performed. Zinc is identified as a COPC in sediment.

In summary, the inorganic COPCs identified at SWMU 02-009(c) are aluminum, antimony, arsenic, barium, beryllium, cadmium, chromium, hexavalent chromium, iron, lead, manganese, mercury, perchlorate, selenium, silver, uranium, vanadium, and zinc.

Organic Chemicals

A total of 80 samples (16 soil, 31 Qal, 29 Qbo, and 4 sediment) were analyzed for PCBs, 156 samples (65 soil, 39 Qal, 12 Qbt 2, 34 Qbo, and 6 sediment) were analyzed for SVOCs, and 54 samples (33 Qal and 21 Qbo) were analyzed for VOCs.

Table 6.20-15 presents the detected organic chemicals. Plate 31 shows the spatial distribution of detected organic chemicals. The vertical extent is defined at SWMU 02-009(c), and the lateral extent is defined at the TA-02 core area; organic COPCs are identified below.

Organic chemicals detected at SWMU 02-009(c) include acenaphthene; acetone; anthracene; Aroclor-1248; Aroclor-1254; Aroclor-1260; benzo(a)anthracene; benzo(a)pyrene; benzo(b)fluoranthene; benzo(g,h,i)perylene; benzo(k)fluoranthene; bis(2-ethylhexyl)phthalate; chloroform; chrysene; dibenzofuran; di-n-butylphthalate; fluoranthene; fluorene; indeno(1,2,3-cd)pyrene; 4-isopropyltoluene; methylene chloride; 2-methylnaphthalene; naphthalene; phenanthrene; phenol; pyrene; styrene; and toluene.

These organic chemicals are retained as COPCs at SWMU 02-009(c).

Radionuclides

A total of 100 samples (21 soil, 39 Qal, 34 Qbo, and 6 sediment) were analyzed for americium-241; 164 samples (65 soil, 39 Qal, 19 Qbt 2, 34 Qbo, and 7 sediment) were analyzed for gamma-emitting radionuclides; 166 samples (65 soil, 39 Qal, 21 Qbt 2, 34 Qbo, and 7 sediment) were analyzed for isotopic plutonium, isotopic uranium, strontium-90, and tritium; and 1 sediment sample was analyzed for technetium-99.

Table 6.20-16 presents the radionuclides detected or detected above BVs/FVs. Plate 32 shows the spatial distribution of radionuclides detected or detected above BVs/FVs. The vertical extent is defined at SWMU 02-009(c), and the lateral extent is defined at the TA-02 core area; radionuclide COPCs are identified below.

Americium-241 was not detected or not detected above FVs in any samples from SWMU 02-009(c) and therefore is not identified as a COPC at this site.

Cesium-137 was detected above the soil FV (1.65 pCi/g) and detected in subsurface soil (below 0–1 ft) in 69 samples with a maximum activity of 232 pCi/g. Cesium-137 was detected in subsurface tuff (below 0–1 ft) in 20 samples with a maximum activity of 30.82 pCi/g. Cesium-137 was detected above the sediment FV (0.9 pCi/g) in one sample at an activity of 7.61 pCi/g. Cesium-137 is identified as a COPC in soil, tuff, and sediment.

Plutonium-239/240 was detected above the soil FV (0.054 pCi/g) and detected in subsurface soil (below 0–1 ft) in 52 samples with a maximum activity of 0.992 pCi/g. Plutonium-239/240 was detected in subsurface tuff (below 0–1 ft) in 15 samples with a maximum activity of 0.17 pCi/g. Plutonium-239/240 was detected above the sediment FV (0.068 pCi/g) in seven samples at a maximum activity of 0.676 pCi/g. Plutonium-239/240 is identified as a COPC in soil, tuff, and sediment.

Strontium-90 was detected above the soil FV (1.31 pCi/g) and detected in subsurface soil (below 0–1 ft) in 43 samples with a maximum activity of 11.8 pCi/g. Strontium-90 was detected in subsurface tuff (below 0–1 ft) in 15 samples with a maximum activity of 2.57 pCi/g. Strontium-90 is identified as a COPC in soil and tuff.

Tritium was detected in 59 soil/tuff samples with a maximum activity of 1.18 pCi/g. Tritium is identified by detection status and is a COPC in soil and tuff.

Uranium-234 was detected above the soil BV (2.59 pCi/g) in two samples with a maximum activity of 4.37 pCi/g. Uranium-234 was also detected above the Qbt 3 BV (1.98 pCi/g) in eight samples with a maximum activity of 2.62 pCi/g. Uranium-234 is identified as a COPC in soil and tuff.

Uranium-235/236 was detected above the soil BV (0.2 pCi/g) in one sample at an activity of 0.211 pCi/g. Uranium-235/236 is identified as a COPC in soil. Uranium-235/236 was detected above the Qbt 3 BV (0.09 pCi/g) in five samples with a maximum activity of 0.111 pCi/g. Uranium-235/236 was also detected above the Qbo BV (0.18 pCi/g) in two samples with a maximum activity of 0.233 pCi/g. Uranium-235/236 is identified as a COPC in tuff.

Uranium-238 was detected above the soil BV (2.29 pCi/g) in three samples with a maximum activity of 3.92 pCi/g. Uranium-238 was also detected above the Qbt 3 BV (1.93 pCi/g) in seven samples with a maximum activity of 2.71 pCi/g. Uranium-238 is identified as a COPC in soil and tuff.

In summary, the radionuclide COPCs identified at AOC 02-009(c) are cesium-137, plutonium-239/240, strontium-90, tritium, uranium-234, uranium-235/236, and uranium-238.

Nature and Extent of Contamination at SWMU 02-009(c)

In accordance with the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), four locations were sampled at SWMU 02-009(c) to determine the vertical extent of contamination for inorganic chemicals, organic chemicals, and radionuclides (Table 3.2-1). Analytical suites were determined by the data needs specific to each location as presented in Table 3.1-1 of the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703). The vertical extent of contamination at SWMU 02-009(c) is evaluated using only the Phase II data from samples collected as deep as 50 ft bgs.

Inorganic Chemicals

Twenty samples were collected from locations 02-612391, 02-612392, 02-612393, and 02-612420 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of TAL metals (Table 3.2-1). As stated in the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), the extent of perchlorate was defined following the 2007 investigation, and no Phase II samples were analyzed for perchlorate.

Aluminum was detected above the Qbo BV (3560 mg/kg) in seven samples at locations 02-612392, 02-612393, and 02-612420. The highest concentration of 8230 mg/kg was detected at location 02-612420 from 35–37 ft bgs. Aluminum concentrations decreased with depth at locations 02-612392 and 02-612420. Aluminum was detected at concentration 6770 mg/kg (below the soil BV of 29,200 mg/kg) at location 02-612393 from 15.5–16.5 ft bgs. Aluminum concentrations stayed constant with depth, and the concentrations are comparable to others at similar depths at the site and across the TA-02 core area. The vertical extent of aluminum is defined.

Antimony was not detected but had DLs (1.05 mg/kg to 1.2 mg/kg) above the soil BV (0.83 mg/kg) in 7 samples and had DLs (1.13 mg/kg to 1.39 mg/kg) above the Qbo BV (0.5 mg/kg) in 13 samples. Because antimony was not detected above BVs, the vertical extent of antimony is defined.

Arsenic was not detected above the Qbo BV (0.56 mg/kg) but had DLs (1.16 mg/kg to 1.32 mg/kg) above the Qbo BV in 11 samples. Because arsenic was not detected above BVs, the vertical extent of arsenic is defined.

Barium, beryllium, lead, mercury, silver, vanadium, and zinc were not detected above BVs at locations 02-612391, 02-612392, 02-612393, and 02-612420. The vertical extent of these metals is defined.

Cadmium was not detected but had DLs (0.474 mg/kg to 0.599 mg/kg) above the soil BV (0.4 mg/kg) in 5 samples and had DLs (0.567 mg/kg to 0.693 mg/kg) above the Qbo BV (0.4 mg/kg) in 13 samples. Because cadmium was not detected above BVs, the vertical extent of cadmium is defined.

Chromium was detected above the Qbo BV (2.6 mg/kg) in two samples at two locations. The highest concentration of 4.21 mg/kg was detected at location 02-612391 from 35–37 ft bgs. Chromium concentrations decreased with depth at both locations. The vertical extent of chromium is defined.

In accordance with the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), Phase II samples were not analyzed for hexavalent chromium. Hexavalent chromium was detected in several 2007 samples but is below 1 mg/kg in all but one. Hexavalent chromium was detected at a concentration of 1.33 mg/kg in a sediment sample collected from location 02-600603 from 0–0.5 ft bgs. Concentrations of hexavalent chromium are less than half that in all other samples. Therefore, the vertical extent of hexavalent chromium is defined.

Iron was detected above the Qbo BV (3700 mg/kg) in 13 samples at locations 02-612391, 02-612392, 02-612393, and 02-612420. The highest concentration of 6240 mg/kg was detected at location 02-612393 from 49–50 ft bgs. Iron was detected at concentrations of 7400, 8520, and 6600 mg/kg (below the soil BV of 21,500 mg/kg) at location 02-612391 from 5–6 ft bgs; at location 02-612392 from 5–6 ft bgs; and at location 02-612420 from 6–7 ft bgs, respectively. Iron concentrations decreased with depth at these three locations, and stayed constant with depth at location 02-612393. The concentrations are comparable to others at similar depths at the site and across the TA-02 core area. The vertical extent of iron is defined.

Manganese was detected above the Qbo BV (189 mg/kg) in five samples at locations 02-612392, 02-612393, and 02-612420. The highest concentration of 253 mg/kg was detected at location 02-612392 from 49–50 ft bgs. Manganese concentrations decreased with depth at locations 02-612393 and 02-612420. Manganese was detected at a concentration of 356 mg/kg (below the soil BV of 671 mg/kg) at location 02-612392 from 5–6 ft bgs. Manganese concentrations decreased with depth at this location. The vertical extent of manganese is defined.

Selenium was not detected above the Qbo BV (0.3 mg/kg) but had DLs (1.1 mg/kg to 1.32 mg/kg) above the Qbo BV in 13 samples. Because selenium was not detected above BVs, the vertical extent of selenium is defined.

In accordance with the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), Phase II samples were not analyzed for uranium. Uranium was detected above the soil BV (1.82 mg/kg) at two locations (02-01229 and 02-01230) with a maximum concentration of 7.1 mg/kg. Uranium concentrations decreased with depth at both locations. Therefore, the vertical extent of uranium is defined.

Organic Chemicals

Twenty-five samples were collected from locations 02-612391, 02-612392, 02-612393, and 02-612420 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of PCBs and SVOCs (Table 3.2-1). As stated in the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), the extent of VOCs was defined following the 2007 investigation, and no Phase II samples were analyzed for VOCs.

Aroclor-1254 was detected in two samples at two locations. The highest concentration of 0.0128 mg/kg was detected at location 02-612391 from 5–6 ft bgs. Aroclor-1254 concentrations decreased with depth at both locations. The vertical extent of Aroclor-1254 is defined.

Aroclor-1260 was detected in two samples at two locations. The highest concentration of 0.0072 mg/kg was detected at location 02-612391 from 5–6 ft bgs. Aroclor-1260 concentrations decreased with depth at both locations. The vertical extent of Aroclor-1260 is defined.

SVOCs were not detected at locations 02-612391, 02-612392, 02-612393, and 02-612420. The vertical extent of SVOCs is defined.

Radionuclides

Twenty-five samples were collected from locations 02-612391, 02-612392, 02-612393, and 02-612420 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium (Table 3.2-1). However, Americium-241 is not identified as a COPC at the site.

Isotopic uranium was not detected or not detected above BVs at these locations and therefore the vertical extent of isotopic uranium is defined.

Cesium-137 was detected in six samples at four locations. The highest activity of 89.5 pCi/g was detected at location 02-612391 from 5–6 ft bgs. Cesium-137 activities decreased with depth at all four locations. The vertical extent of cesium-137 is defined.

Plutonium-239/240 was detected in three samples at two locations. The highest activity of 0.0613 pCi/g was detected at location 02-612393 from 5–6 ft bgs. Plutonium-239/240 activities decreased with depth at both locations. The vertical extent of plutonium-239/240 is defined.

Strontium-90 was detected in one sample at an activity of 2.55 pCi/g at location 02-612393 from 15.5–16.5 ft bgs. Strontium-90 activities decreased with depth at this location. The vertical extent of strontium-90 is defined.

Tritium was detected in two samples at location 02-612393. The highest activity at location 02-612393 (1.1789 pCi/g) was detected from 49–50 ft bgs. This activity is significantly lower than those detected from 5–25 ft bgs throughout TA-02 and is three orders of magnitude below the residential SAL (750 pCi/g). For TA-02 as a whole, maximum tritium activities in soil (up to 167 pCi/g) generally occur between 5 ft and 25 ft bgs. Therefore, tritium activities generally decrease with depth at TA-02.

The depth interval of 49–50 ft bgs is below the alluvial aquifer but above the perched-intermediate groundwater zone. Alluvial and perched-intermediate groundwater in Los Alamos Canyon is monitored by wells LAO-1 and LAOI-1, respectively, which are located approximately 1000 ft downgradient of location 02-612393, near the eastern boundary of TA-02. Over the past 10 yr, tritium has been detected at activities as high as 399 pCi/L in the alluvial groundwater downgradient of TA-02, but activities have been declining over the past several years. In the most recent sample from well LAO-1 (2009), tritium was detected at 47.3 pCi/L. In 2011, tritium was detected at 11.3 pCi/L in well LAOI(a)-1.1. Because subsurface conditions are being monitored by the alluvial and intermediate wells downgradient of TA-02, deeper sampling at location 02-612393 to establish the vertical extent of tritium contamination is not necessary.

Summary of Nature and Extent at SWMU 02-009(c)

The vertical extent of TAL metals, PCBs, SVOCs, cesium-137, isotopic plutonium, isotopic uranium, strontium-90, and tritium is defined.

6.20.4.5 Summary of Human Health Risk Screening

Details of the human health risk-screening assessment for SWMU 02-009(c) are discussed in Appendix H, section H-4.

The total excess cancer risk for the industrial scenario is 6×10^{-76}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.03, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 3 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 2×10^{-7}, based on a comparison with EPA's outdoor worker PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

The total excess cancer risk for the recreational scenario is 4×10^{-7}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.06, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 0.4 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 5×10^{-7}, based on conversion from dose using RESRAD, Version 6.5.

The total excess cancer risk for the residential scenario is 6×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.4, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 68 mrem/yr, which is above the DOE target dose limit of 15 mrem/yr

(DOE 2000, 067489). The total dose is equivalent to a total risk of 1 × 10^{-5}, based on a comparison with EPA's residential PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Based on the screening-assessment results, no potential unacceptable risks or doses from COPCs exist for the industrial and recreational scenarios. Based on the screening-assessment results, no potential unacceptable risk exists for the residential scenario, but a potential unacceptable dose exists for the residential scenario.

6.20.4.6 Summary of Ecological Risk Screening

In accordance with the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), locations surrounding the core area of TA-02 were sampled to define the lateral extent of contamination for TA-02 as a whole (section 6.32). Although the lateral extent for the TA-02 core area is defined, one site within the core area requires additional remediation and confirmation sampling. The ecological risk-screening assessment will be conducted for the sites within the TA-02 core area as one exposure unit after the investigation at this site has been completed.

6.21 SWMU 02-008(a), Outfall

6.21.1 Site Description and Operational History

SWMU 02-008(a) is a former National Pollutant Discharge Elimination System (NPDES) permitted outfall (EPA 03A020) that discharged cooling water from the OWR cooling tower (structure 02-049) (Figure 6.21-1).

The SWMU 02-008(a) outfall was also identified as AOC 02-011(e), NPDES-permitted outfall EPA 03A020. All discussions regarding outfall EPA 03A020 are addressed under SWMU 02-008(a) (LANL 1990, 007511). Therefore, all activities associated with AOC 02-011(e) are addressed under SWMU 02-008(a).

The cooling tower became an operational component of the OWR system in 1957. The cooling tower facility began use of potassium dichromate to control aluminum heat exchanger corrosion in 1959. The aluminum heat exchangers were replaced by stainless-steel ones in 1975, thus eliminating the use of potassium dichromate. A shutdown of the OWR in 1993 placed the cooling tower on standby status; in 1995, all liquid waste was drained from the system (WD-3 2003, 082646, p. 2). In 2000, the cooling tower structure and equipment were decommissioned and removed (LANL 2000, 090087). In 2003, the remaining buried pipes and drains were removed and disposed of (WD-3 2003, 082646, pp. 26–31). The outfall (EPA 03A020) was removed from the Laboratory's NPDES permit in July 1990 (LANL 1990, 007511).

6.21.2 Relationship to Other SWMUs and AOCs

The cooling tower was used to cool water used in the OWR facility, AOC 02-004(a). The water was directed through the OWR equipment building, AOC 02-004(f), before reaching the cooling tower. No other SWMUs or AOCs are directly related to SWMU 02-008(a).

6.21.3 Summary of Previous Investigations

2000 Post–Cerro Grande Recovery Work

During the post–Cerro Grande fire recovery work in July 2000, the cooling tower (structure 02-049) was decommissioned, removed, and disposed of. The underground piping associated with the cooling tower was capped and left in place until the remainder of the site was decommissioned and the material was disposed of. Surface soil samples were collected from across the area. However, survey coordinates were not collected for the sampling locations, and accurate information is not available for these locations. Data from these locations are not useable, and they are not presented in this report.

A sample was collected from one location (02-01249) in September 2000.

2003 Omega West Decommissioning Project

SWMU 02-008(a) piping was removed in 2003, and the waste was disposed of at an approved facility. Site activities included soil excavation, radiological walkover surveys, radiological (structure) screening, soil sampling, sample analysis, and surveying of sample coordinates. Limited soil surveys were conducted, but no formal report of soil survey results is available.

LLW (construction debris and/or soil) was packaged and shipped to Envirocare or TA-54 for disposal. Mixed waste was packaged and transferred to TA-54 for further processing and/or storage at the Laboratory. In total, 9800 ft^3 of material was shipped to Envirocare for disposal; material from the OWR cooling tower (structure 02-049) outfall was included in this total volume (WD-3 2003, 082646, pp. 1–6). The volume of waste material specifically associated with SWMU 02-008(a) was not documented.

No soil samples were collected from SWMU 02-008(a) during the D&D activities in 2003.

2007 Investigation Activities

Fifteen samples were collected from four locations at SWMU 02-008(a) in 2007. Results from the sampling activities in 2007 were presented in the previous investigation report (LANL 2008, 101669.12). Additional sampling was required to define the extent of contamination at the site.

6.21.4 Site Contamination

6.21.4.1 Soil, Rock, and Sediment Sampling

Sampling was not conducted for SWMU 02-008(a) in 2010. Location 02-612280 sampled for AOCs 02-004(b,c,d,e) in 2010 was only approximately 25 ft northwest of the site (Figures 6.8-1 and 6.11-1).

6.21.4.2 Soil, Rock, and Sediment Sample Field-Screening Results

Sampling was not conducted, so this section is not applicable.

6.21.4.3 Soil, Rock, and Sediment Sample Analytical Results

Decision-level data at SWMU 02-008(a) consist of results from 16 samples collected from 5 locations in 2000 and 2007. The 16 samples include 5 soil, 7 Qal, 3 Qbo, and 1 sediment samples. Table 6.21-1 presents the samples collected and analyses requested for SWMU 02-008(a).

Inorganic Chemicals

A total of 16 samples (5 soil, 7 Qal, 3 Qbo, and 1 sediment) were analyzed for TAL metals, and 15 samples (5 soil, 7 Qal, and 3 Qbo) were analyzed for hexavalent chromium, nitrate, perchlorate, and total cyanide.

Table 6.21-2 presents the inorganic chemicals detected or detected above BVs. Figure 6.21-2 shows the spatial distribution of inorganic chemicals detected or detected above BVs. The vertical extent is defined at SWMU 02-008(a), and the lateral extent is defined at the TA-02 core area; inorganic COPCs are identified below.

Aluminum was detected above the Qbo BV (3560 mg/kg) in three samples with a maximum concentration of 11,600 mg/kg. Because there were fewer than 10 Qbo samples, statistical tests could not be performed. Aluminum is identified as a COPC in tuff.

Antimony was not detected but had DLs (0.53 mg/kg and 0.534 mg/kg) above the Qbo BV (0.5 mg/kg) and the maximum Qbo background concentration (0.2 mg/kg) in three samples. Antimony is identified as a COPC in tuff.

Arsenic was not detected but had DLs (1.25 mg/kg to 1.95 mg/kg) above the Qbo BV (0.56 mg/kg) and the maximum Qbo background concentration (0.7 mg/kg) in three samples. Arsenic is identified as a COPC in tuff.

Barium was detected above the Qbo BV (25.7 mg/kg) and the maximum Qbo background concentration (23 mg/kg) in one sample at a concentration of 29.3 mg/kg. Because there were fewer than 10 Qbo samples, statistical tests could not be performed. Barium is identified as a COPC in tuff.

Cadmium was not detected but had DLs (0.501 mg/kg to 0.569 mg/kg) above the soil BV (0.4 mg/kg) in 10 samples. All 10 DLs are below the maximum soil background concentration (2.6 mg/kg). Cadmium is not identified as a COPC in soil. Cadmium was not detected but had DLs (0.596 mg/kg to 0.66 mg/kg) above the Qbo BV (0.4 mg/kg) in three samples. Cadmium is identified as a COPC in tuff.

Chromium was detected above the soil BV (19.3 mg/kg) in seven samples with a maximum concentration of 104 mg/kg, and it was not detected but had a DL (30.9 mg/kg) above the soil BV in one sample. The Gehan test indicated site concentrations are different from background (Figure G-16.0-1, Table G-16). Chromium is identified as a COPC in soil. Chromium was detected above the Qbo BV (2.6 mg/kg) in two samples with a maximum concentration of 36.6 mg/kg. Chromium is identified as a COPC in tuff. Chromium was also detected above the sediment BV (10.5 mg/kg) in one sample at a concentration of 37 mg/kg. Chromium is identified as a COPC in sediment.

Hexavalent chromium was detected in four soil/Qal/tuff samples with a maximum concentration of 1.12 mg/kg. Hexavalent chromium has no BV in either soil or tuff. Hexavalent chromium is identified as a COPC in soil and tuff.

Copper was detected above the soil BV (14.7 mg/kg) in three samples with a maximum concentration of 230 mg/kg. The site concentrations are substantially above background. Copper is identified as a COPC in soil. Copper was detected above the Qbo BV (3.96 mg/kg) and the maximum Qbo background concentration (2.6 mg/kg) in one sample at a concentration of 9 mg/kg. Because there were fewer than 10 Qbo samples, statistical tests could not be performed. Copper is identified as a COPC in tuff. Copper was detected above the sediment BV (11.2 mg/kg) and the maximum sediment background concentration (12 mg/kg) in one sample at a concentration of 13 mg/kg. Copper is identified as a COPC in sediment

Cyanide was detected above the soil BV (0.5 mg/kg) in one sample at a concentration of 0.723 mg/kg. Cyanide has no background data set for soil. Cyanide is identified as a COPC in soil.

Iron was detected above the Qbo BV and the maximum Qbo background concentration (both 3700 mg/kg) in all three Qbo samples with a maximum concentration of 7520 mg/kg. Because there were fewer than 10 Qbo samples, statistical tests could not be performed. Iron is identified as a COPC in tuff.

Lead was detected above the soil BV (22.3 mg/kg) in two samples with a maximum concentration of 57.7 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-16.0-2, Table G-16). Lead is identified as a COPC in soil. Lead was detected above the sediment BV (19.7 mg/kg) in one sample at a concentration of 22 mg/kg. This concentration is below the maximum sediment background concentration (25.6 mg/kg). Lead is not identified as a COPC in sediment.

Manganese was detected above the soil BV (671 mg/kg) in one sample at a concentration of 698 mg/kg. The Gehan and quantile tests indicated site concentrations are not different from background (Figure G-16.0-3, Table G-16). Manganese is not identified as a COPC in soil. Manganese was detected above the Qbo BV (189 mg/kg) in three samples with a maximum concentration of 233 mg/kg. Two of the three concentrations are above the maximum Qbo background concentration (210 mg/kg). Because there were fewer than 10 Qbo samples, statistical tests could not be performed. Manganese is identified as a COPC in tuff.

Nitrate was detected in six soil/Qal samples with a maximum concentration of 2.39 mg/kg. No background data are available for nitrate. Nitrate is naturally occurring, and the concentrations detected likely reflect naturally occurring levels. Nitrate is not identified as a COPC in soil.

Selenium was detected above the soil BV (1.52 mg/kg) in five samples with a maximum concentration of 10.2 mg/kg, and it was not detected but had DLs (1.53 mg/kg to 2.56 mg/kg) above the soil BV in five samples. The Gehan test indicated site concentrations are different from background (Figure G-16.0-4, Table G-16). Selenium is identified as a COPC in soil. Selenium was detected above the Qbo BV (0.3 mg/kg) in two samples with a maximum concentration of 10.7 mg/kg, and it was not detected but had a DL (1.79 mg/kg) above the Qbo BV in one sample. Selenium is identified as a COPC in tuff.

Silver was detected above the sediment BV (1 mg/kg) in one sample at a concentration of 1.1 mg/kg. Because there were fewer than 10 sediment samples, statistical tests could not be performed. Silver is identified as a COPC in sediment.

Thallium was not detected above the soil BV (0.73 mg/kg) but had a DL (1.06 mg/kg) above the soil BV in one sample. The DL is equivalent to the maximum soil background concentration (1 mg/kg). Although the Gehan test indicated site concentrations are different from background, the box plot indicated site concentrations are within the range of background (Figure G-16.0-5, Table G-16). Thallium is not identified as a COPC in soil.

Vanadium was detected above the Qbo BV (4.59 mg/kg) and the maximum Qbo background concentration (3.8 mg/kg) in one sample at a concentration of 6.77 mg/kg. Because there were fewer than 10 Qbo samples, statistical tests could not be performed. Vanadium is identified as a COPC in tuff.

Zinc was detected above the soil BV (48.8 mg/kg) in five samples with a maximum concentration of 78.9 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-16.0-6, Table G-16). Zinc is identified as a COPC in soil. Zinc was detected above the sediment BV (60.2 mg/kg) and the maximum sediment background concentration (56.2 mg/kg) in one sample at a concentration of

68 mg/kg. Because there were fewer than 10 sediment samples, statistical tests could not be performed. Zinc is identified as a COPC in sediment.

In summary, the inorganic COPCs identified at SWMU 02-008(a) are aluminum, antimony, arsenic, barium, cadmium, chromium, hexavalent chromium, copper, cyanide, iron, lead, manganese, selenium, silver, vanadium, and zinc.

Organic Chemicals

A total of 15 samples (5 soil, 7 Qal, and 3 Qbo) were analyzed for PCBs and SVOCs, and 10 samples (7 Qal and 3 Qbo) were analyzed for VOCs.

Table 6.21-3 presents the detected organic chemicals. Figure 6.21-3 shows the spatial distribution of detected organic chemicals. The vertical extent is defined at SWMU 02-008(a), and the lateral extent is defined at the TA-02 core area; organic COPCs are identified below.

Organic chemicals detected at SWMU 02-008(a) include acenaphthene; anthracene; Aroclor-1254; Aroclor-1260; benzo(a)anthracene; benzo(a)pyrene; benzo(b)fluoranthene; benzo(g,h,i)perylene; benzo(k)fluoranthene; bis(2-ethylhexyl)phthalate; chrysene; fluoranthene; fluorene; indeno(1,2,3-cd)pyrene; methylene chloride; phenanthrene; pyrene; styrene; and toluene.

These organic chemicals are retained as COPCs at SWMU 02-008(a).

Radionuclides

A total of 15 samples (5 soil, 7 Qal, and 3 Qbo) were analyzed for americium-241, and 16 samples (5 soil, 7 Qal, 3 Qbo, and 1 sediment,) were analyzed for gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium.

Table 6.21-4 presents the radionuclides detected or detected above BVs/FVs. Figure 6.21-4 shows the spatial distribution of radionuclides detected or detected above BVs/FVs. The vertical extent is defined at SWMU 02-008(a), and the lateral extent is defined at the TA-02 core area; radionuclide COPCs are identified below.

Cesium-137 was detected in subsurface soil (below 0–1 ft) in three samples with a maximum activity of 0.353 pCi/g. Cesium-137 is identified as a COPC in soil.

Plutonium-239/240 was detected above the soil FV (0.054 pCi/g) and detected in subsurface soil (below 0–1 ft) in 10 samples with a maximum activity of 0.819 pCi/g. Plutonium-239/240 was also detected above the sediment FV (0.068 pCi/g) in one sample at an activity of 1.87 pCi/g. Plutonium-239/240 is identified as a COPC in soil and sediment.

Tritium was detected in four soil/Qal samples with a maximum activity of 0.0733 pCi/g. Tritium is identified by detection status and is a COPC in soil. Tritium was also detected above the sediment FV (0.093 pCi/g) in one sample at an activity of 0.257 pCi/g. Tritium is identified as a COPC in sediment.

Uranium-235/236 was detected above the Qbo BV (0.18 pCi/g) in one sample at an activity of 0.213 pCi/g. Uranium-235/236 is identified as a COPC in tuff.

In summary, the radionuclide COPCs identified at SWMU 02-008(a) are cesium-137, plutonium-239/240, tritium, and uranium-235/236.

6.21.4.4 Nature and Extent of Contamination at SWMU 02-008(a)

The previous investigation report indicated that the vertical extent of TAL metals, nitrate, SVOCs, VOCs, cesium-137, plutonium-239/240, uranium-235, and tritium is not defined at SWMU 02-008(a) (LANL 2008, 101669.12, p. 70). Because nitrate and VOCs were detected at low concentrations across TA-02, they are not included in the Phase II sampling suites (LANL 2009, 106660.14, p. 10).

Location 02-612280, sampled for AOCs 02-004(b,c,d,e) in 2010, was only approximately 25 ft northwest of the site (Figures 6.8-1 and 6.11-1). Results from location 02-612280 are used to evaluate the vertical extent of contamination at SWMU 02-008(a).

Inorganic Chemicals

Hexavalent chromium was not detected at location 02-612280. Therefore, the vertical extent of hexavalent chromium is defined.

Copper, lead, and silver were not detected above BVs at location 02-612280. Therefore, the vertical extent of these metals is defined.

The nature and extent of other TAL metals at location 02-612280 have been discussed under AOC 02-004(b) (section 6.8.4.4). The vertical extent of TAL metals is defined.

Organic Chemicals

Samples at location 02-612280 were not analyzed for SVOCs. However, further evaluation of the historical site data indicated that although SVOC concentrations increased with depth at location 02-600484, the deepest sample at location 02-600484 was only 2–2.7 ft bgs. SVOCs were not detected in the deepest samples at the other three locations from 13.5–16 ft bgs, 9.5–14.5 ft bgs, and 13.5–16 ft bgs (02-600484, 02-600482, and 02-600483, respectively). Therefore, the vertical extent of SVOCs is defined.

Radionuclides

The nature and extent of cesium-137, isotopic plutonium, isotopic uranium, and tritium at location 02-612280 have been discussed under AOC 02-004(b) (section 6.8.4.4). The vertical extent of these radionuclides is defined.

Summary of Nature and Extent at SWMU 02-008(a)

The vertical extent of TAL metals, SVOCs, cesium-137, plutonium-239/240, uranium-235, and tritium is defined.

6.21.5 Summary of Human Health Risk Screening

Details of the human health risk-screening assessment for SWMU 02-008(a) are discussed in Appendix H, section H-4.

The total excess cancer risk for the industrial scenario is 1×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.04, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 0.1 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr

(DOE 2000, 067489). The total dose is equivalent to a total risk of 2×10^{-6}, based on a comparison with EPA's outdoor worker PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

The total excess cancer risk for the recreational scenario is 7×10^{-7}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.09, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 0.09 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 3×10^{-8}, based on conversion from dose using RESRAD, Version 6.5.

The total excess cancer risk for the residential scenario is 1×10^{-5}, which is equivalent to the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI for the residential scenario is 0.6, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 1 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 8×10^{-7}, based on a comparison with EPA's residential PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Based on the screening-assessment results, no potential unacceptable risks or doses exist for the industrial, recreational, and residential scenarios.

6.21.6 Summary of Ecological Risk Screening

In accordance with the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), locations surrounding the core area of TA-02 were sampled to define the lateral extent of contamination for TA-02 as a whole (section 6.32). Although the lateral extent for the TA-02 core area is defined, one site within the core area requires additional remediation and confirmation sampling. The ecological risk-screening assessment will be conducted for the sites within the TA-02 core area as one exposure unit after the investigation at this site has been completed.

6.22 AOC 02-008(c), Outfall for Seepage into Basement of OWR Building

6.22.1 Site Description and Operational History

AOC 02-008(c) consists of two specific areas: outfall drains AOC 02-008(c)(i) and AOC 02-008(c)(ii). The outfall drains were two unpermitted outfalls that received OWR building (02-001) basement groundwater seepage (Figure 6.22-1).

In 1985, the AOC 02-008(c)(i) outfall drain was created to discharge groundwater seepage from the basement sump of the OWR building (02-001) to Los Alamos Creek, as shown on engineering drawing C-39551 (LASL 1971, 089682). In 1988, the AOC 02-008(c)(i) outfall drain became plugged and was abandoned in place. A second drainline was installed, and the outfall of AOC 02-008(c)(ii) was created approximately 100 ft west of the original outfall (LANL 1993, 015314, p. 7.9-1). Both drainpipes and outfalls were removed and disposed of during D&D activities in 2003 (WD-3 2003, 082646, pp. 26–31).

6.22.2 Relationship to Other SWMUs and AOCs

The AOC 02-006(c) sewer line connected the AOC 02-008(c)(ii) drainline to building 02-001.

6.22.3 Summary of Previous Investigations

1995 Investigation Activities

One sample was collected from location 02-01154 at AOC 02-008(c) in 1995.

2000 Post–Cerro Grande Recovery Work

Soil samples were collected from two locations (02-01252 and 02-01253) at SWMU 02-008(c) during post–Cerro Grande recovery activities in 2000.

2003 Omega West Decommissioning Project

AOC 02-008(c) piping was removed and disposed of at an approved off-site facility during the 2003 decommissioning activities. Activities included soil excavation, radiological walkover surveys, and radiological screening. Limited soil surveys were conducted, but no formal report of soil survey results is available.

LLW (construction debris and/or soil) was packaged and shipped to Envirocare or TA-54 for disposal. Mixed waste was packaged and transferred to TA-54 for further processing and/or storage at the Laboratory. In total, 9800 ft^3 of material was shipped to Envirocare for disposal; material from the AOC 02-008(c)(i) outfall was included in this total volume (WD-3 2003, 082646, pp. 1–6, 24).

No soil samples were collected from AOC 02-008(c)(i) during Omega West decommissioning project activities in 2003.

2007 Investigation Activities

Nine samples were collected from four locations at AOC 02-008(c) in 2007. Results from the sampling activities in 2007 were presented in the previous investigation report (LANL 2008, 101669.12). Additional sampling was required to define the extent of contamination at the site.

6.22.4 Site Contamination

6.22.4.1 Soil, Rock, and Sediment Sampling

AOC 02-008(c)(i)

As part of the 2010 investigation, the following characterization activities were conducted at AOC 02-008(c)(i):

- All samples were field screened for organic vapors and gross-alpha, -beta, and -gamma radioactivity. Field-screening results were recorded on the SCLs (Appendix F) and are presented in Table 3.2-2.
- Five samples were collected from location 02-612390 near AOC 02-008(c)(i) from 5–6 ft, 15–17 ft, 26–27 ft, 35–36 ft, and 49–50 ft bgs. These samples were analyzed for TAL metals, PCBs, SVOCs, americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium.

The 2010 and historical sampling locations at AOC 02-008(c)(i) are shown in Figure 6.22-1. The geodetic coordinates of the 2010 sampling locations are presented in Table 3.2-1.

AOC 02-008(c)(ii)

As part of the 2010 investigation, the following characterization activities were conducted at AOC 02-008(c)(ii):

- All samples were field screened for organic vapors and gross-alpha, -beta, and -gamma radioactivity. Field-screening results were recorded on the SCLs (Appendix F) and are presented in Table 3.2-2.
- Five samples were collected from location 02-612982 near AOC 02-008(c)(ii) from 6–7 ft, 15–16 ft, 25–26 ft, 35–37 ft, and 49–50 ft bgs. These samples were analyzed for TAL metals, hexavalent chromium, PCBs, SVOCs, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, and tritium.

The 2010 and historical sampling locations at AOC 02-008(c)(ii) are shown in Figure 6.22-1. The geodetic coordinates of the 2010 sampling locations are presented in Table 3.2-1.

6.22.4.2 Soil, Rock, and Sediment Sample Field-Screening Results

No organic vapors were detected at more than 10 ppm above ambient air levels during headspace screening of the samples. No radiological-screening results exceeded twice the daily site background levels. Field-screening results are presented in Table 3.2-2. No changes to sampling or other activities occurred because of the field-screening results.

6.22.4.3 Soil, Rock, and Sediment Sample Analytical Results

AOC 02-008(c)(i)

Decision-level data at 02-008(c)(i) consist of results from six samples collected from two locations in 2007 and 2010. The six samples include one soil, one Qal, and four Qbo samples. Table 6.22-1 presents the samples collected and analyses requested for AOC 02-008(c)(i).

Inorganic Chemicals

A total of six samples (one soil, one Qal, and four Qbo) were analyzed for TAL metals, and one soil sample was analyzed for nitrate, perchlorate, and total cyanide.

Table 6.22-2 presents the inorganic chemicals detected or detected above BVs. Figure 6.22-2 shows the spatial distribution of inorganic chemicals detected or detected above BVs.

Organic Chemicals

A total of six samples (one soil, one Qal, and four Qbo) were analyzed for PCBs and SVOCs.

Table 6.22-3 presents the detected organic chemicals. Figure 6.22-3 shows the spatial distribution of detected organic chemicals.

Radionuclides

A total of six samples (one soil, one Qal, and four Qbo) were analyzed for americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium.

Table 6.22-4 presents the radionuclides detected or detected above BVs/FVs. Figure 6.22-4 shows the spatial distribution of radionuclides detected or detected above BVs/FVs.

AOC 02-008(c)(ii)

Decision-level data at AOC 02-008(c)(ii) consist of results from 16 samples collected from 7 locations in 1995, 2000, 2007, and 2010. The 16 samples include 4 soil, 5 Qal, 3 Qbt 3, 2 Qbo, and 2 sediment samples. Table 6.22-5 presents the samples collected and analyses requested for AOC 02-008(c)(ii).

Inorganic Chemicals

A total of 15 samples (3 soil, 5 Qal, 3 Qbt 3, 2 Qbo, and 2 sediment) were analyzed for TAL metals, 5 samples (2 Qal and 3 Qbt 3) were analyzed for hexavalent chromium, 10 samples (3 soil, 3 Qal, 2 Qbo, and 2 sediment) were analyzed for nitrate, and 8 samples (3 soil, 3 Qal, and 2 Qbo) were analyzed for perchlorate and total cyanide.

Table 6.22-6 presents the inorganic chemicals detected or detected above BVs. Figure 6.22-2 shows the spatial distribution of inorganic chemicals detected or detected above BVs.

Organic Chemicals

A total of 13 samples (3 soil, 5 Qal, 3 Qbt 3, and 2 Qbo) were analyzed for PCBs, 15 samples (3 soil, 5 Qal, 3 Qbt 3, 2 Qbo, and 2 sediment) were analyzed for SVOCs, and 5 samples (3 Qal and 2 Qbo) were analyzed for VOCs.

Table 6.22-7 presents the detected organic chemicals. Figure 6.22-3 shows the spatial distribution of detected organic chemicals.

Radionuclides

A total of 8 samples (3 soil, 3 Qal, and 2 Qbo) were analyzed for americium-241; 16 samples (4 soil, 5 Qal, 3 Qbt 3, 2 Qbo, and 2 sediment) were analyzed for gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, and tritium; and 11 samples (4 soil, 3 Qal, 2 Qbo, and 2 sediment) were analyzed for strontium-90.

Table 6.22-8 presents the radionuclides detected or detected above BVs/FVs. Figure 6.22-4 shows the spatial distribution of radionuclides detected or detected above BVs/FVs.

COPCs at AOC 02-008(c)

The vertical extent is defined at AOC 02-008(c)(i,ii), and the lateral extent is defined at the TA-02 core area; inorganic, organic, and radionuclide COPCs are identified below.

Inorganic Chemicals

Inorganic COPCs are evaluated based on the combined results of AOC 02-008(c)(i,ii). Decision-level data at AOC 02-008(c)(i,ii) consist of results from 22 samples including 5 soil, 6 Qal, 3 Qbt 3, 6 Qbo, and 2 sediment samples.

Aluminum was detected above the Qbo BV (3560 mg/kg) and the maximum Qbo background concentration (3400 mg/kg) in two samples with a maximum concentration of 5950 mg/kg. Because there were fewer than 10 Qbo samples, statistical tests could not be performed. Aluminum is identified as a COPC in tuff.

Antimony was not detected but had DLs (0.941 mg/kg and 1.08 mg/kg) above the soil BV (0.83 mg/kg) in two samples. One DL is above the maximum soil background concentration (1 mg/kg). Antimony is identified as a COPC in soil. Antimony was not detected but had DLs (1.15 mg/kg to 1.27 mg/kg) above the Qbo BV (0.5 mg/kg) and the maximum Qbo background concentration (0.2 mg/kg) in four samples. Antimony was not detected but had DLs (1.15 mg/kg and 1.2 mg/kg) above the Qbt 3 BV (0.5 mg/kg) and the maximum Qbt 3 background concentration (0.4 mg/kg) in two samples. Antimony is identified as a COPC in tuff.

Arsenic was detected above the Qbo BV (0.56 mg/kg) in one sample at a concentration of 1.65 mg/kg, and it was not detected but had DLs (1.14 mg/kg to 1.79 mg/kg) above the Qbo BV in five samples. The concentration and all five DLs are above the maximum Qbo background concentration (0.7 mg/kg). Arsenic is identified as a COPC in tuff.

Barium was detected above the Qbo BV (25.7 mg/kg) and the maximum Qbo background concentration (23 mg/kg) in one sample at a concentration of 34.1 mg/kg. Because there were fewer than 10 Qbo samples, statistical tests could not be performed. Barium is identified as a COPC in tuff.

Cadmium was not detected above the soil BV (0.4 mg/kg) but had DLs (0.508 mg/kg to 0.625 mg/kg) above the soil BV in seven samples. Because the background data set had more than 50% nondetects, the Gehan test could not be performed. The quantile test and the box plot indicated site concentrations are less than background (Figure G-17.0-1, Table G-17). Cadmium is not identified as a COPC in soil. Cadmium was not detected but had DLs (0.572 mg/kg to 0.635 mg/kg) above the Qbo BV (0.4 mg/kg) in six samples. Cadmium is identified as a COPC in tuff.

Chromium was detected above the soil BV (19.3 mg/kg) in one sample at a concentration of 30.7 mg/kg. The Gehan and quantile tests indicated site concentrations are not different from background (Figure G-17.0-2, Table G-17). Chromium is not identified as a COPC in soil. Chromium was detected above the Qbo BV (2.6 mg/kg) in two samples with a maximum concentration of 66.7 mg/kg. Chromium is identified as a COPC in tuff.

Hexavalent chromium was detected in two Qal samples with a maximum concentration of 0.413 mg/kg. Hexavalent chromium has no BV in soil. Hexavalent chromium is identified as a COPC in soil.

Copper was detected above the soil BV (14.7 mg/kg) in two samples with a maximum concentration of 22.5 mg/kg. The Gehan and quantile tests indicated site concentrations are not different from background (Figure G-17.0-3, Table G-17). Copper is not identified as a COPC in soil. Copper was detected above the Qbo BV (3.96 mg/kg) and the maximum Qbo background concentration (2.6 mg/kg) in one sample at a concentration of 7.84 mg/kg. Because there were fewer than 10 Qbo samples, statistical tests could not be performed. Copper is identified as a COPC in tuff. Copper was detected above the sediment BV (11.2 mg/kg) and the maximum sediment background concentration (12 mg/kg) in one sample at a concentration of 17 mg/kg. Copper is identified as a COPC in sediment.

Iron was detected above the Qbo BV and the maximum Qbo background concentration (both 3700 mg/kg) in all six Qbo samples with a maximum concentration of 9230 mg/kg. Iron is identified as a COPC in tuff.

Manganese was detected above the Qbo BV (189 mg/kg) and the maximum Qbo background concentration (210 mg/kg) in three samples with a maximum concentration of 419 mg/kg. Manganese is identified as a COPC in tuff.

Mercury was detected above the soil BV and the maximum soil background concentration (both 0.1 mg/kg) in four samples with a maximum concentration of 3.46 mg/kg. Because the background data set had more than 50% nondetects, the Gehan test could not be performed. The quantile test indicated site concentrations are not different from background, but the slippage test indicated site concentrations are different from background (Figure G-17.0-4, Table G-17). Mercury is identified as a COPC in soil. Also, mercury was detected above the sediment BV (0.1 mg/kg) in one sample at a concentration of 0.25 mg/kg. Mercury is identified as a COPC in sediment.

Nickel was detected above the Qbo BV (2 mg/kg) and the maximum Qbo background concentration (2.8 mg/kg) in two samples with a maximum concentration of 4.91 mg/kg. Because there were fewer than 10 Qbo samples, statistical tests could not be performed. Nickel is identified as a COPC in tuff.

Nitrate was detected in three soil/Qal samples with a maximum concentration of 1.87 mg/kg. No background data are available for nitrate. Nitrate is naturally occurring, and the concentrations detected likely reflect naturally occurring levels. Nitrate is not identified as a COPC in soil.

Perchlorate was detected in two soil samples with a maximum concentration of 0.00168 mg/kg. Because perchlorate has no BV in soil, perchlorate is identified as a COPC in soil.

Selenium was detected above the soil BV (1.52 mg/kg) in four samples with a maximum concentration of 2.77 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-17.0-5, Table G-17). Selenium is identified as a COPC in soil. Selenium was detected above the Qbo BV (0.3 mg/kg) in one sample at a concentration of 1.1 mg/kg, and it was not detected but had DLs (1.14 mg/kg to 1.72 mg/kg) above the Qbo BV in five samples. Because there were fewer than 10 Qbo samples, statistical tests could not be performed. Selenium was not detected above the Qbt 3 BV (0.3 mg/kg) but had DLs (1.23 mg/kg to 1.24 mg/kg) above the Qbt 3 BV in three samples. Selenium is identified as a COPC in tuff.

Silver was detected above the sediment BV (1 mg/kg) in one sample at a concentration of 1.8 mg/kg. Because there were fewer than 10 sediment samples, statistical tests could not be performed. Silver is identified as a COPC in sediment.

Vanadium was detected above the Qbo BV (4.59 mg/kg) and the maximum Qbo background concentration (3.8 mg/kg) in two samples with a maximum concentration of 8.23 mg/kg. Because there were fewer than 10 Qbo samples, statistical tests could not be performed. Vanadium is identified as a COPC in tuff. Also, vanadium was detected above the sediment BV (19.7 mg/kg) and the maximum sediment background concentration (20 mg/kg) in one sample at a concentration of 21 mg/kg. Vanadium is identified as a COPC in sediment.

Zinc was detected above the soil BV (48.8 mg/kg) in four samples with a maximum concentration of 80.7 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-17.0-6, Table G-17). Zinc is identified as a COPC in soil.

In summary, the inorganic COPCs identified at AOC 02-008(c)(i,ii) are aluminum, antimony, arsenic, barium, cadmium, chromium, hexavalent chromium, copper, iron, manganese, mercury, nickel, perchlorate, selenium, silver, vanadium, and zinc.

Organic Chemicals

Organic chemicals detected at AOC 02-008(c)(i,ii) include acenaphthene; anthracene; Aroclor-1242; Aroclor-1254; Aroclor-1260; benzo(a)anthracene; benzo(a)pyrene; benzo(b)fluoranthene; benzo(g,h,i)perylene; chrysene; fluoranthene; fluorene; indeno(1,2,3-cd)pyrene; 4-isopropyltoluene; 2-methylnaphthalene; naphthalene; phenanthrene; pyrene; and toluene.

These organic chemicals are retained as COPCs at AOC 02-008(c)(i,ii).

Radionuclides

Radionuclides COPCs are evaluated based on the combined results of AOC 02-008(c)(i,ii).

Cesium-137 was detected above the soil FV (1.65 pCi/g) and detected in subsurface soil (below 0–1 ft) in four samples with a maximum activity of 4.44 pCi/g. Cesium-137 is identified as a COPC in soil.

Plutonium-239/240 was detected above the soil FV (0.054 pCi/g) and detected in subsurface soil (below 0–1 ft) in seven samples with a maximum activity of 0.596 pCi/g. Plutonium-239/240 was detected in subsurface tuff (below 0–1 ft) in one sample at an activity of 0.0171 pCi/g. Plutonium-239/240 was detected above the sediment FV (0.068 pCi/g) in two samples with a maximum activity of 0.808 pCi/g. Plutonium-239/240 is identified as a COPC in soil, tuff, and sediment.

Strontium-90 was detected in subsurface soil (below 0–1 ft) in two samples with a maximum activity of 0.388 pCi/g. Strontium-90 is identified as a COPC in soil.

Tritium was detected in six soil/tuff samples with a maximum activity of 0.121 pCi/g. Tritium is identified by detection status and is a COPC in soil and tuff.

Uranium-234 was detected above the Qbt 3 BV (1.98 pCi/g) in three samples with a maximum activity of 2.08 pCi/g. Uranium-234 is identified as a COPC in tuff.

Uranium-235/236 was detected above the Qbt 3 BV (0.09 pCi/g) in three samples with a maximum activity of 0.143 pCi/g, and it was detected above the Qbo BV (0.18 pCi/g) in two samples with a maximum activity of 0.236 pCi/g. Uranium-235/236 is identified as a COPC in tuff.

Uranium-238 was detected above the Qbt 3 BV (1.93 pCi/g) in three samples with a maximum activity of 2.12 pCi/g. Uranium-238 is identified as a COPC in tuff.

In summary, the radionuclide COPCs identified at AOC 02-008(c)(i,ii) are cesium-137, plutonium-239/240, strontium-90, tritium, uranium-234, uranium-235/236, and uranium-238.

6.22.4.4 Nature and Extent of Contamination at AOC 02-008(c)

AOC 02-008(c)(i)

In accordance with the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), one location was sampled at AOC 02-008(c)(i) to determine the vertical extent of contamination for inorganic chemicals, organic chemicals, and radionuclides (Table 3.2-1). Analytical suites were determined by the data needs specific to each location as presented in Table 3.1-1 of the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703). The vertical extent of contamination at AOC 02-008(c)(i) is evaluated using only the Phase II data from samples collected as deep as 50 ft bgs.

Inorganic Chemicals

Five samples were collected from location 02-612390 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of TAL metals at AOC 02-008(c)(i) (Table 3.2-1). As stated in the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), the extent of perchlorate was defined following the 2007 investigation, and no Phase II samples were analyzed for perchlorate.

Hexavalent chromium was not detected at location 02-612390. Mercury was not detected above BVs at location 02-612390. The vertical extent of these metals is defined.

Zinc was detected at 49.2 mg/kg in the shallowest sample (5–6 ft bgs) from location 02-612390. It was not detected in any other samples from this location. Therefore, the vertical extent of zinc is defined.

The nature and extent of other TAL metals at location 02-612390 have been discussed under AOC 02-003(b) (section 6.3.4.4). The vertical extent of TAL metals is defined.

Organic Chemicals

Five samples were collected from location 02-612390 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of PCBs and SVOCs at AOC 02-008(c)(i) (Table 3.2-1). As stated in the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), the extent of VOCs was defined following the 2007 investigation, and no Phase II samples were analyzed for VOCs.

The nature and extent of PCBs and SVOCs at location 02-612390 have been discussed under AOC 02-003(b) (section 6.3.4.4). The vertical extent of PCBs and SVOCs is defined.

Radionuclides

Five samples were collected from location 02-612390 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium at AOC 02-008(c)(i) (Table 3.2-1).

The nature and extent of americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium at location 02-612390 have been discussed under AOC 02-003(b) (section 6.3.4.4). The vertical extent of these radionuclides is defined.

AOC 02-008(c)(ii)

In accordance with the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), one location was sampled at AOC 02-008(c)(ii) to determine the vertical extent of contamination for inorganic chemicals, organic chemicals, and radionuclides (Table 3.2-1). Analytical suites were determined by the data needs specific to each location as presented in Table 3.1-1 of the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703). The vertical extent of contamination at AOC 02-008(c)(ii) is evaluated using only the Phase II data from samples collected as deep as 50 ft bgs.

Inorganic Chemicals

One location was proposed to evaluate the vertical extent for both AOC 02-008(c)(ii) and AOC 02-011(a)(x) (Table 3.2-1). However, because the originally proposed sampling location was inaccessible and had to be moved north, location 02-612982 was sampled for AOC 02-008(c)(ii), and an additional location was sampled for AOC 02-011(a)(x).

Five samples were collected from location 02-612982 (depths ranging from 6–50 ft bgs) to evaluate the vertical extent of TAL metals and hexavalent chromium.

Aluminum, arsenic, barium, chromium, copper, iron, manganese, mercury, nickel, silver, vanadium, and zinc were not detected above BVs at location 02-612982. The vertical extent of these metals is defined.

Antimony was not detected but had a DL (1.08 mg/kg) above the soil BV (0.83 mg/kg) in one sample and had DLs (1.15 mg/kg and 1.2 mg/kg) above the Qbt 3 (0.5 mg/kg) in two samples. Because antimony was not detected above BVs, the vertical extent of antimony is defined.

Cadmium was not detected above the soil BV (0.4 mg/kg) but had DLs (0.542 mg/kg and 0.528 mg/kg) above the soil BV in two samples. Because cadmium was not detected above BVs, the vertical extent of cadmium is defined.

Hexavalent chromium was detected in two samples at location 02-612982. The highest concentration of 0.413 mg/kg was detected at location 21-612982 from 15–16 ft bgs. Hexavalent chromium concentrations decreased with depth at this location. The vertical extent of hexavalent chromium is defined.

Selenium was not detected above the Qbt 3 BV (0.3 mg/kg) but had DLs (1.23 mg/kg to 1.24 mg/kg) above the Qbt 3 BV in three samples. Because selenium was not detected above BVs, the vertical extent of selenium is defined.

Organic Chemicals

Five samples were collected from location 02-612982 (depths ranging from 6–50 ft bgs) to evaluate the vertical extent of PCBs and SVOCs.

Aroclor-1242 was detected in one sample at a concentration of 0.191 mg/kg at location 02-612982 from 15–16 ft bgs. Aroclor-1242 concentrations decreased with depth at this location. The vertical extent of Aroclor-1242 is defined.

Aroclor-1254 was detected in two samples at location 02-612982. The highest concentration of 0.308 mg/kg was detected at location 02-612982 from 15–16 ft bgs. Aroclor-1254 concentrations decreased with depth at this location. The vertical extent of Aroclor-1254 is defined.

Aroclor-1260 was detected in one sample at a concentration of 0.0293 mg/kg at location 02-612982 from 15–16 ft bgs. Aroclor-1260 concentrations decreased with depth at this location. The vertical extent of Aroclor-1260 is defined.

SVOCs were not detected at location 02-612982. The vertical extent of SVOCs is defined.

Radionuclides

Five samples were collected from location 02-612982 (depths ranging from 6–50 ft bgs) to evaluate the vertical extent of gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, and tritium.

Cesium-137 was detected in one sample at an activity of 0.416 pCi/g at location 02-612982 from 6–7 ft bgs. Cesium-137 activities decreased with depth at this location. The vertical extent of cesium-137 is defined.

Isotopic plutonium was not detected at location 02-612982. The vertical extent of isotopic plutonium is defined.

Tritium was detected in one sample at an activity of 0.1167 pCi/g at location 02-612982 from 35–37 ft bgs. Tritium activities decreased with depth at this location. The vertical extent of tritium is defined.

Uranium-234 was detected above the Qbt 3 BV (1.98 pCi/g) in three samples at location 02-612982. The highest activity of 2.08 pCi/g was detected at location 02-612982 from 35–37 ft bgs. Uranium-234 activities were only slightly above the BV and decreased slightly with depth at this location. The vertical extent of uranium-234 is defined.

Uranium-235/236 was detected above the Qbt 3 BV (0.09 pCi/g) in three samples at location 02-612982. The highest activity of 0.143 pCi/g was detected at location 02-612982 from 49–50 ft bgs. This activity is not significantly above the BV and is lower than the activity of 0.236 pCi/g detected at location 02-600625 from 16.5–21 ft bgs, approximately 25 ft north of location 02-612982. The vertical extent of uranium-235/236 is defined.

Uranium-238 was detected above the Qbt 3 BV (1.93 pCi/g) in three samples at location 02-612982. The highest activity of 2.12 pCi/g was detected at location 02-612982 from 25–26 ft bgs. Uranium-238 activities were only slightly above the BV and decreased slightly with depth at this location. The vertical extent of uranium-238 is defined.

Summary of Nature and Extent at AOC 02-008(c)

The vertical extent of TAL metals, PCBs, SVOCs, americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium is defined at AOC 02-008(c)(i).

The vertical extent of TAL metals, hexavalent chromium, PCBs, SVOCs, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, and tritium is defined at AOC 02-008(c)(ii).

6.22.5 Summary of Human Health Risk Screening

Details of the human health risk-screening assessment for AOC 02-008(c) are discussed in Appendix H, section H-4.

The total excess cancer risk for the industrial scenario is 3×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.02, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 0.06 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 8×10^{-7}, based on a comparison with EPA's outdoor worker PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

The total excess cancer risk for the recreational scenario is 3×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.03, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 0.04 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 1×10^{-8}, based on conversion from dose using RESRAD, Version 6.5.

The total excess cancer risk for the residential scenario is 1×10^{-5}, which is equivalent to the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.3, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 6 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 3×10^{-6}, based on a comparison with EPA's residential PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Based on the screening-assessment results, no potential unacceptable risks or doses exist for the industrial, recreational, and residential scenarios.

6.22.6 Summary of Ecological Risk Screening

In accordance with the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), locations surrounding the core area of TA-02 were sampled to define the lateral extent of contamination for TA-02 as a whole (section 6.32). Although the lateral extent for the TA-02 core area is defined, one site within the core area requires additional remediation and confirmation sampling. The ecological risk-screening assessment will be conducted for the sites within the TA-02 core area as one exposure unit after the investigation at this site has been completed.

6.23 AOC 02-009(d), Soil Contamination

6.23.1 Site Description and Operational History

AOC 02-009(d) is an area of radioactive soil contamination located near the east end of the OWR building (02-001) (Figure 6.23-1). Beta and gamma radioactivity were identified during decommissioning and removal of inactive WBR structures at TA-02 during 1985 and 1986. The source of contamination at AOC 02-009(d) is unknown (LANL 1990, 007511).

There is no known historical use of the area included in AOC 02-009(d).

6.23.2 Relationship to Other SWMUs and AOCs

AOC 02-009(d) is located immediately east of the former OWR facility, AOC 02-004(a), and immediately north of the former boiler house and the former chemical waste shack, AOC 02-010. The former drainline of AOC 02-011(a)(x) passed through the area, as did former line 117, AOC 02-003(a). There is no known connection between these AOCs and the soil contamination area.

6.23.3 Summary of Previous Investigations

1995 Investigation Activities

Analytical data were obtained from samples collected at locations within the soil contamination area. Supporting QA/QC information is not available for these samples, so the sample results are not included in this report.

2000 Post–Cerro Grande Recovery Work

During the post–Cerro Grande fire recovery work, one borehole (location 02-01245) was drilled just north of the former boiler house (building 02-063). Four samples were collected to a depth of 15.5 ft bgs. Field screening of recovered cores indicated no elevated radionuclide levels (LANL 2001, 070352, p. 8).

2007 Investigation Activities

Thirty-four samples were collected from 11 locations at AOC 02-009(d) in 2007. Results from the sampling activities in 2007 were presented in the previous investigation report (LANL 2008, 101669.12). Additional sampling was required to define the extent of contamination at the site.

6.23.4 Site Contamination

6.23.4.1 Soil and Rock Sampling

As part of the 2010 investigation, the following characterization activities were conducted at AOC 02-009(d):

- All samples were field screened for organic vapors and gross-alpha, -beta, and -gamma radioactivity. Field-screening results were recorded on the SCLs (Appendix F) and are presented in Table 3.2-2.
- Five samples were collected from location 02-612348 at AOC 02-009(d) from 5–7 ft, 15–16 ft, 25–26 ft, 35–36 ft, and 49–50 ft bgs. These samples were analyzed for TAL metals, hexavalent chromium, PCBs, SVOCs, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium.

The 2010 and historical sampling locations at AOC 02-009(d) are shown in Figure 6.23-1. Table 6.23-1 presents the samples collected and analyses requested for AOC 02-009(d). The geodetic coordinates of the 2010 sampling locations are presented in Table 3.2-1.

6.23.4.2 Soil and Rock Sample Field-Screening Results

No organic vapors were detected at more than 10 ppm above ambient air levels during headspace screening of the samples. No radiological-screening results exceeded twice the daily site background levels. Field-screening results are presented in Table 3.2-2. No changes to sampling or other activities occurred because of the field-screening results.

6.23.4.3 Soil and Rock Sample Analytical Results

Decision-level data at AOC 02-009(d) consist of results from 43 samples collected from 13 locations in 2000, 2007, and 2010. The 43 samples include 14 soil, 23 Qal, 1 Qbt 3, and 5 Qbo samples.

Inorganic Chemicals

A total of 43 samples (14 soil, 23 Qal, 1 Qbt 3, and 5 Qbo) were analyzed for TAL metals, 19 samples (4 soil, 10 Qal, and 5 Qbo) were analyzed for hexavalent chromium, and 34 samples (11 soil, 21 Qal, and 2 Qbo) were analyzed for nitrate, perchlorate, and total cyanide.

Table 6.23-2 presents the inorganic chemicals detected or detected above BVs. Figure 6.23-2 shows the spatial distribution of inorganic chemicals detected or detected above BVs. The vertical extent is defined at AOC 02-009(d), and the lateral extent is defined at the TA-02 core area; inorganic COPCs are identified below.

Aluminum was detected above the Qbo BV (3560 mg/kg) and the maximum Qbo background concentration (3400 mg/kg) in two samples with a maximum concentration of 8540 mg/kg. Because there were fewer than 10 Qbo samples, statistical tests could not be performed. Aluminum is identified as a COPC in tuff.

Antimony was not detected but had DLs (1.12 mg/kg and 1.15 mg/kg) above the soil BV (0.83 mg/kg) in two samples. Both DLs are above the maximum soil background concentration (1 mg/kg). Antimony is identified as a COPC in soil. Antimony was not detected but had DLs (1.19 mg/kg to 1.32 mg/kg) above the Qbo BV (0.5 mg/kg) and the maximum Qbo background concentration (0.2 mg/kg) in three samples. Antimony is identified as a COPC in tuff.

Arsenic was detected above the Qbo BV (0.56 mg/kg) in two samples with a maximum concentration of 1.3 mg/kg, and it was not detected but had DLs (1.18 mg/kg to 1.27 mg/kg) above the Qbo BV in three samples. Both concentrations and all three DLs are above the maximum Qbo background concentration (0.7 mg/kg). Arsenic is identified as a COPC in tuff.

Barium was detected above the Qbo BV (25.7 mg/kg) and the maximum Qbo background concentration (23 mg/kg) in two samples with a maximum concentration of 47.4 mg/kg. Because there were fewer than 10 Qbo samples, statistical tests could not be performed. Barium is identified as a COPC in tuff.

Cadmium was detected above the soil BV (0.4 mg/kg) in four samples with a maximum concentration of 0.773 mg/kg, and it was not detected but had DLs (0.49 mg/kg to 0.579 mg/kg) above the soil BV in 23 samples. Because the background data set had more than 50% nondetects, the Gehan test could not be performed. The quantile test indicated site concentrations are different from background (Figure G-18.0-1, Table G-18). Cadmium is identified as a COPC in soil. Cadmium was not detected but had DLs (0.557 mg/kg to 0.662 mg/kg) above the Qbo BV (0.4 mg/kg) in four samples. Cadmium is identified as a COPC in tuff.

Calcium was detected above the soil BV (6120 mg/kg) in one sample at a concentration of 17,400 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-18.0-2, Table G-18). Calcium is identified as a COPC in soil.

Chromium was detected above the soil BV (19.3 mg/kg) in two samples with a maximum concentration of 75.5 mg/kg. The Gehan test and the box plot indicated site concentrations are less than background (Figure G-18.0-3, Table G-18). Chromium is not identified as a COPC in soil. Chromium was detected above the Qbt 3 BV (7.14 mg/kg) and the maximum Qbt 3 background concentration (13 mg/kg) in one sample at a concentration of 15 mg/kg. Chromium was detected above the Qbo BV (2.6 mg/kg) in two samples with a maximum concentration of 10.6 mg/kg, and it was not detected but had a DL (29.1 mg/kg) above the Qbo BV in one sample. Because there were fewer than 10 Qbt 3 or Qbo samples, statistical tests could not be performed. Chromium is identified as a COPC in tuff.

Hexavalent chromium was detected in five soil/tuff samples with a maximum concentration of 0.179 mg/kg. Hexavalent chromium has no BV in either soil or tuff. Hexavalent chromium is identified as a COPC in soil and tuff.

Cyanide was not detected but had a DL (0.502 mg/kg) above the soil BV (0.5 mg/kg) in one sample. The DL is equivalent to the BV. Cyanide is not identified as a COPC in soil.

Iron was detected above the Qbo BV and the maximum Qbo background concentration (both 3700 mg/kg) in all five Qbo samples with a maximum concentration of 6490 mg/kg. Iron is identified as a COPC in tuff.

Lead was detected above the soil BV (22.3 mg/kg) in one sample at a concentration of 53.2 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-18.0-4, Table G-18). Lead is identified as a COPC in soil.

Manganese was detected above the Qbo BV (189 mg/kg) and the maximum Qbo background concentration (210 mg/kg) in all five samples with a maximum concentration of 567 mg/kg. Manganese is identified as a COPC in tuff.

Mercury was detected above the soil BV and the maximum soil background concentration (both 0.1 mg/kg) in 14 samples with a maximum concentration of 1.75 mg/kg. Because the background data set had more than 50% nondetects, the Gehan test could not be performed. The quantile test indicated site concentrations are not different from background, but the slippage test indicated site concentrations are different from background (Figure G-18.0-5, Table G-18). Mercury is identified as a COPC in soil.

Nickel was detected above the Qbo BV (2 mg/kg) in one sample at a concentration of 5.06 mg/kg, and it was not detected but had a DL (6.33 mg/kg) above the Qbo BV in one sample. Both concentrations are above the maximum Qbo background concentration (2.8 mg/kg). Because there were fewer than 10 Qbo samples, statistical tests could not be performed. Nickel is identified as a COPC in tuff.

Nitrate was detected in 20 soil/Qal/Qbo samples with a maximum concentration of 3.55 mg/kg. No background data are available for nitrate. Nitrate is naturally occurring, and the concentrations detected likely reflect naturally occurring levels. Nitrate is not identified as a COPC in soil and tuff.

Perchlorate was detected in 17 soil/Qal samples with a maximum concentration of 0.0033 mg/kg. Because perchlorate has no BV in soil, perchlorate is identified as a COPC in soil.

Selenium was detected above the soil BV (1.52 mg/kg) in nine samples with a maximum concentration of 2.86 mg/kg, and it was not detected but had DLs (1.54 mg/kg to 1.67 mg/kg) above the soil BV in eight samples. The Gehan test indicated site concentrations are different from background (Figure G-18.0-6, Table G-18). Selenium is identified as a COPC in soil. Selenium was detected above the Qbt 3 BV (0.3 mg/kg) in one sample at a concentration of 0.36 mg/kg. Selenium was detected above the Qbo BV (0.3 mg/kg) in one sample at a concentration of 1.39 mg/kg, and it was not detected but had DLs (1.18 mg/kg and 1.67 mg/kg) above the Qbo BV in four samples. Because there were fewer than 10 Qbt 3 or Qbo samples, statistical tests could not be performed. Selenium is identified as a COPC in tuff.

Vanadium was detected above the Qbo BV (4.59 mg/kg) and the maximum Qbo background concentration (3.8 mg/kg) in one sample at a concentration of 6.17 mg/kg. Because there were fewer than 10 Qbo samples, statistical tests could not be performed. Vanadium is identified as a COPC in tuff.

Zinc was detected above the soil BV (48.8 mg/kg) in one sample at a concentration of 56.1 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-18.0-7, Table G-18). Zinc is identified as a COPC in soil.

In summary, the inorganic COPCs identified at AOC 02-009(d) are aluminum, antimony, arsenic, barium, cadmium, calcium, chromium, hexavalent chromium, iron, lead, manganese, mercury, nickel, perchlorate, selenium, vanadium, and zinc.

Organic Chemicals

A total of 39 samples (11 soil, 23 Qal, and 5 Qbo) were analyzed for PCBs, 43 samples (14 soil, 23 Qal, 1 Qbt 3, and 5 Qbo) were analyzed for SVOCs, and 23 samples (21 Qal and 2 Qbo) were analyzed for VOCs.

Table 6.23-3 presents the detected organic chemicals. Figure 6.23-3 shows the spatial distribution of detected organic chemicals. The vertical extent is defined at AOC 02-009(d), and the lateral extent is defined at the TA-02 core area; organic COPCs are identified below.

Organic chemicals detected at AOC 02-009(d) include acenaphthene; anthracene; Aroclor-1248; Aroclor-1254; Aroclor-1260; benzo(a)anthracene; benzo(a)pyrene; benzo(b)fluoranthene; benzo(g,h,i)perylene; benzo(k)fluoranthene; chrysene; 1,4-dichlorobenzene; di-n-butylphthalate; fluoranthene; fluorene; indeno(1,2,3-cd)pyrene; 4-isopropyltoluene; 2-methylnaphthalene; naphthalene; phenanthrene; pyrene; styrene; toluene; and 1,3-xylene + 1,4-xylene.

These organic chemicals are retained as COPCs at AOC 02-009(d).

Radionuclides

A total of 34 samples (11 soil, 21 Qal, and 2 Qbo) were analyzed for americium-241, and 43 samples (14 soil, 23 Qal, 1 Qbt 3, and 5 Qbo) were analyzed for gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium.

Table 6.23-4 presents the radionuclides detected or detected above BVs/FVs. Figure 6.23-4 shows the spatial distribution of radionuclides detected or detected above BVs/FVs. The vertical extent is defined at AOC 02-009(d), and the lateral extent is defined at the TA-02 core area; radionuclide COPCs are identified below.

Cesium-137 was detected above the soil FV (1.65 pCi/g) and detected in subsurface soil (below 0–1 ft) in 22 samples with a maximum activity of 14 pCi/g. Cesium-137 was detected in subsurface tuff (below 0–1 ft) in two samples with a maximum activity of 1.68 pCi/g. Cesium-137 is identified as a COPC in soil and tuff.

Cobalt-60 was detected in one soil sample at an activity of 0.162 pCi/g. Cobalt-60 has no BV in soil. Cobalt-60 is identified as a COPC in soil.

Plutonium-239/240 was detected above the soil FV (0.054 pCi/g) and detected in subsurface soil (below 0–1 ft) in nine samples with a maximum activity of 1.19 pCi/g. Plutonium-239/240 was detected in subsurface tuff (below 0–1 ft) in one sample at an activity of 0.0432 pCi/g. Plutonium-239/240 is identified as a COPC in soil and tuff.

Strontium-90 was detected above the soil FV (1.31 pCi/g) and detected in subsurface soil (below 0–1 ft) in 17 samples with a maximum activity of 29.3 pCi/g. Strontium-90 was detected in subsurface tuff (below 0–1 ft) in one sample at an activity of 0.486 pCi/g. Strontium-90 is identified as a COPC in soil and tuff.

Tritium was detected in 18 soil/tuff samples with a maximum activity of 0.136 pCi/g. Tritium is identified by detection status and is a COPC in soil and tuff.

Uranium-234 was detected above the soil BV (2.59 pCi/g) in three samples with a maximum activity of 12.8 pCi/g. Uranium-234 was detected above the Qbt 3 BV (1.98 pCi/g) in one sample at an activity of 3.53 pCi/g. Uranium-234 is identified as a COPC in soil and tuff.

Uranium-235/236 was detected above the soil BV (0.2 pCi/g) in three samples with a maximum activity of 0.901 pCi/g. Uranium-235/236 was detected above the Qbt 3 BV (0.09 pCi/g) in one sample at an activity of 0.125 pCi/g. Uranium-235/236 is identified as a COPC in soil and tuff.

In summary, the radionuclide COPCs identified at AOC 02-009(d) are cesium-137, cobalt-60, plutonium-239/240, strontium-90, tritium, uranium-234, and uranium-235/236.

6.23.4.4 Nature and Extent of Contamination at AOC 02-009(d)

In accordance with the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), one location was sampled at AOC 02-009(d) to determine the vertical extent of contamination for inorganic chemicals, organic chemicals, and radionuclides (Table 3.2-1). Analytical suites were determined by the data needs specific to each location as presented in Table 3.1-1 of the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703). The vertical extent of contamination at AOC 02-009(d) is evaluated using only the Phase II data from samples collected as deep as 50 ft bgs.

Inorganic Chemicals

Five samples were collected from location 02-612348 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of TAL metals and hexavalent chromium (Table 3.2-1). As stated in the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), the extent of perchlorate was defined following the 2007 investigation, and no Phase II samples were analyzed for perchlorate.

Barium, calcium, and nickel were not detected above BVs at location 02-612348. The vertical extent of these metals is defined.

Hexavalent chromium was not detected at location 02-612348. Because hexavalent chromium was not detected, the vertical extent is defined.

The nature and extent of other TAL metals at location 02-612348 have been discussed under AOC 02-003(a) (section 6.2.4.4). The vertical extent of TAL metals and hexavalent chromium is defined.

Organic Chemicals

Five samples were collected from location 02-612348 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of PCBs and SVOCs (Table 3.2-1). As stated in the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), the extent of VOCs was defined following the 2007 investigation, and no Phase II samples were analyzed for VOCs.

Aroclor-1248 was not detected in samples from location 02-612348. Therefore, the vertical extent of Aroclor-1248 is defined.

The nature and extent of other PCBs and SVOCs at location 02-612348 have been discussed under AOC 02-003(a) (section 6.2.4.4). The vertical extent of PCBs and SVOCs is defined.

Radionuclides

Five samples were collected from location 02-612348 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium (Table 3.2-1).

Cobalt-60 and uranium-234 were not detected in any samples from 02-612348. Therefore, the vertical extent of these radionuclides is defined.

The nature and extent of cesium-137, isotopic plutonium, uranium-235/236, strontium-90, and tritium at location 02-612348 have been discussed under AOC 02-003(a) (section 6.2.4.4). The vertical extent of these radionuclides is defined.

Summary of Nature and Extent at AOC 02-009(d)

The vertical extent of TAL metals, hexavalent chromium, PCBs, SVOCs, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium is defined.

6.23.5 Summary of Human Health Risk Screening

Details of the human health risk-screening assessment for AOC 02-009(d) are discussed in Appendix H, section H-4.

The total excess cancer risk for the industrial scenario is 1×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.005, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 3 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 5×10^{-6}, based on a comparison with EPA's outdoor worker PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

The total excess cancer risk for the recreational scenario is 2×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.01, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 0.4 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 2×10^{-6}, based on conversion from dose using RESRAD, Version 6.5.

The total excess cancer risk for the residential scenario is 3×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.08, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 27 mrem/yr, which is above the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 2×10^{-5}, based on a comparison with EPA's residential PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Based on the screening-assessment results, no potential unacceptable risks or doses from COPCs exist for the industrial and recreational scenarios. Based on the screening-assessment results, no potential unacceptable risk exists for the residential scenario, but a potential unacceptable dose exists for the residential scenario.

6.23.6 Summary of Ecological Risk Screening

In accordance with the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), locations surrounding the core area of TA-02 were sampled to define the lateral extent of contamination for TA-02 as a whole (section 6.32). Although the lateral extent for the TA-02 core area is defined, one site within the core area requires additional remediation and confirmation sampling. The ecological risk-screening assessment will be conducted for the sites within the TA-02 core area as one exposure unit after the investigation at this site has been completed.

6.24 AOC 02-009(e), Duplicate of SWMU 02-009(c)

AOC 02-009(e) is a duplicate of SWMU 02-009(c). All activities for AOC 02-009(e) are addressed as SWMU 02-009(c), which is discussed under Consolidated Unit 02-007-00 in section 6.20.4.

6.25 AOC 02-010, Soil Contamination

6.25.1 Site Description and Operational History

AOC 02-010 is residual soil contamination associated with a small chemical handling building (the chemical waste shack, 02-003) that contained a small underground chamber for working with various radioactive and chemical materials (Figure 6.25-1).

The chemical waste shack was built in 1944, according to engineering drawing C-1686 (LASL 1944, 090084), and was decommissioned, removed, and disposed of in 1971 (LASL no date, 034172). It is not known if soil was removed when the AOC 02-010 structures were removed (LASL no date, 034172). A boiler house (building 02-063) was built in the area after the chemical waste shack was removed in 1971.

6.25.2 Relationship to Other SWMUs and AOCs

The former sewer line, AOC 02-006(c), ran from west to east immediately south of the chemical waste shack. A drainline, AOC 02-011(a)(x), ran from north to south immediately west of the chemical waste shack and the boiler house. An area of soil contamination, AOC 02-009(d), is located immediately north of AOC 02-010.

6.25.3 Summary of Previous Investigations

1985 WBR Decommissioning Project, Phase I

During the TA-02 WBR decommissioning project, the removal of the underground chamber (structure 02-032) associated with the chemical waste shack (building 02-003) required extensive excavation and backfilling. No radioactivity was detected in the soil beneath the underground structure (Elder and Knoell 1986, 006670, p. 22). No soil samples were collected at the chemical waste shack site during the D&D activities.

2000 Post–Cerro Grande Recovery Work

During the post–Cerro Grande fire recovery work, samples were collected from one borehole (location 02-01246) east of the boiler house (building 02-063) and centered on the east wall. The boiler house was situated on the former location of the chemical waste shack (building 02-003). The borehole was drilled at a 45-degree angle and targeted the sediment/tuff contact beneath the building. Field screening of recovered cores indicated no elevated radionuclide levels (LANL 2001, 070352, p. 10).

2003 Omega West Decommissioning Project

The piping and remaining structures associated with the boiler house (building 02-063) located at AOC 02-010 were decommissioned and removed in 2003, and the waste was disposed of at an appropriate disposal facility. Site activities included soil excavation, radiological walkover surveys, radiological (structure) screening, soil sampling, sample analysis, and surveying of sample coordinates. Limited soil surveys were conducted, but no formal report of soil survey results is available.

LLW (construction debris and/or soil) was packaged and shipped to Envirocare or TA-54 for disposal. Mixed waste was packaged and transferred to TA-54 for further processing and/or storage at the Laboratory. In total, 9800 ft^3 of material was shipped to Envirocare for disposal; material from AOC 02-010 was included in this total volume (WD-3 2003, 082646, pp. 1–6. 24). The volume of waste material specifically associated with AOC 02-010 was not documented.

Eight samples were collected from four boreholes (locations 02-22350 and 02-22389 to 02-22391) in 2003.

2007 Investigation Activities

Fifty samples were collected from 13 locations at AOC 02-010 in 2007. Results from the sampling activities in 2007 were presented in the previous investigation report (LANL 2008, 101669.12). Additional sampling was required to define the extent of contamination at the site.

6.25.4 Site Contamination

6.25.4.1 Soil and Rock Sampling

As part of the 2010 investigation, the following characterization activities were conducted at AOC 02-010:

- All samples were field screened for organic vapors and gross-alpha, -beta, and -gamma radioactivity. Field-screening results were recorded on the SCLs (Appendix F) and are presented in Table 3.2-2.
- Locations 02-600636 and 02-600640 were excavated to remove cesium-137 contamination in accordance with the approved work plan (LANL 2009, 106660.14, p. 9; NMED 2009, 106703). The surface soil at location 02-600636 was excavated to 2–4 ft bgs, and at location 02-600640 was excavated to approximately 2 ft bgs. The remediated area was approximately 96 ft^2 and the volume of excavated material was approximately 10 yd^3 at location 02-600636 (Figure 6.25-2). The remediated area was approximately 64 ft^2 and the volume of excavated material was approximately 5 yd^3 at location 02-600640 (Figure 6.25-2).
- Confirmation samples were collected as follows.
    - At location 02-600636, confirmation samples were collected below the excavation from 2–2.2 ft and 4–4.2 ft bgs at location 02-612423, which is 1 ft away from location 02-600636 where excavation was conducted, and from five step-out locations 4 ft to the north (2–2.2 ft and 4–4.2 ft bgs from location 02-612426), 4 ft to the south (2–2.4 ft and 4–4.2 ft bgs from location 02-612424), 4 ft to the east (2–2.2 ft and 4–4.2 ft bgs from location 02-612425), and 4 ft and 8 ft to the west (4–4.2 ft bgs from location 02-612427, and 2–2.2 ft bgs from location 02-613240, respectively).
    - At location 02-600640, confirmation samples were collected below the excavation from 2–2.2 ft and 4–4.2 ft bgs and from four step-out locations 4 ft to the north (2–2.2 ft and 4–4.2 ft bgs from location 02-612429), 4 ft to the south (2–2.2 ft and 4–4.2 ft bgs from location 02-612432), 4 ft to the east (2–2.2 ft and 4–4.2 ft bgs from location 02-612430), and 4 ft to the west (2–2.2 ft and 4–4.2 ft bgs from location 02-612431).

  All confirmation samples were analyzed for gamma-emitting radionuclides only.

- Five samples were collected from location 02-612463 (depths ranging from 5–50 ft bgs). All five samples were analyzed for TAL metals, hexavalent chromium, PCBs, americium-241, gamma-emitting radionuclides, isotopic uranium, strontium-90, and tritium.

The 2010 and historical sampling locations at AOC 02-010 are shown in Figure 6.25-1. Table 6.25-1 presents the samples collected and analyses requested for AOC 02-010. The geodetic coordinates of the 2010 sampling locations are presented in Table 3.2-1.

6.25.4.2 Soil and Rock Sample Field-Screening Results

No organic vapors were detected at more than 10 ppm above ambient air levels during headspace screening of the samples. Radiological-screening results exceeded the daily site background levels at location 02-600636. As a result, respirators were used while collecting samples at this location. Field-screening results are presented in Table 3.2-2. No changes were made to sampling depths because of the field-screening results.

6.25.4.3 Soil and Rock Sample Analytical Results

Decision-level data at AOC 02-010 consist of results from 88 samples collected from 30 locations in 2000, 2003, 2007, and 2010. The 88 samples include 45 soil, 18 Qal, 1 Qbt 3, and 24 Qbo samples.

Inorganic Chemicals

A total of 68 samples (25 soil, 18 Qal, 1 Qbt 3, and 24 Qbo) were analyzed for TAL metals, 13 samples (9 soil and 4 Qbo) were analyzed for hexavalent chromium, 63 samples (24 soil, 18 Qal, 1 Qbt 3, and 20 Qbo) were analyzed for nitrate, and 50 samples (12 soil, 18 Qal, and 20 Qbo) were analyzed for perchlorate and total cyanide.

Table 6.25-2 presents the inorganic chemicals detected or detected above BVs. Plate 33 shows the spatial distribution of inorganic chemicals detected or detected above BVs. The vertical extent is defined at AOC 02-010, and the lateral extent is defined at the TA-02 core area; inorganic COPCs are identified below.

Aluminum was detected above the Qbt 3 BV (7340 mg/kg) in 1 sample at a concentration of 18,000 mg/kg, and above the Qbo BV (3560 mg/kg) in 23 samples with a maximum concentration of 25,800 mg/kg. These concentrations are above their respective maximum background concentrations (8370 mg/kg for Qbt 3 and 3400 mg/kg for Qbo). The Gehan test indicated site concentrations are different from background (Figure G-19.0-1, Table G-19). Aluminum is identified as a COPC in tuff.

Antimony was not detected above the soil BV (0.83 mg/kg) but had a DL (1.03 mg/kg) in one sample. The Gehan and quantile tests indicated site concentrations are not different from background (Figure G-19.0-2, Table G-19). Antimony is not identified as a COPC in soil. Antimony was not detected but had DLs (0.507 mg/kg to 5.73 mg/kg) above the Qbo BV (0.5 mg/kg) and the maximum Qbo background concentration (0.2 mg/kg) in 10 samples. Antimony is identified as a COPC in tuff.

Arsenic was detected above the Qbo BV (0.56 mg/kg) in 11 samples with a maximum concentration of 2.18 mg/kg, and it was not detected but had DLs (1.21 mg/kg to 2.04 mg/kg) above the Qbo BV in 13 samples. Ten of the 11 concentrations and all 13 DLs are above the maximum Qbo background concentration (0.7 mg/kg). Because the background data set had more than 50% nondetects, the Gehan test could not be performed. The quantile test indicated site concentrations are different from background (Figure G-19.0-3, Table G-19). Arsenic is identified as a COPC in tuff.

Barium was detected above the soil BV (295 mg/kg) in three samples with a maximum concentration of 447 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-19.0-4, Table G-19). Barium is identified as a COPC in soil. Barium was detected above the Qbt 3 BV (46.0 mg/kg) and the maximum Qbt 3 background concentration (51.6 mg/kg) in one sample at a concentration of 180 mg/kg. Barium was detected above the Qbo BV (25.7 mg/kg) and the maximum Qbo background concentration (23 mg/kg) in 11 samples with a maximum concentration of 254 mg/kg. The site concentrations are substantially above background. Barium is identified as a COPC in tuff.

Cadmium was detected above the soil BV (0.4 mg/kg) in eight samples with a maximum concentration of 5.6 mg/kg, and it was not detected but had DLs (0.51 mg/kg to 0.572 mg/kg) above the soil BV (0.4 mg/kg) in 18 samples. Because the background data set had more than 50% nondetects, the Gehan test could not be performed. The quantile test indicated site concentrations are different from background (Figure G-19.0-5, Table G-19). Cadmium is identified as a COPC in soil. Cadmium was not detected but had DLs (0.563 mg/kg to 0.764 mg/kg) above the Qbo BV (0.4 mg/kg) in 20 samples. Cadmium is identified as a COPC in tuff.

Calcium was detected above the soil BV (6120 mg/kg) in two samples with a maximum concentration of 21,680 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-19.0-6, Table G-19). Calcium is identified as a COPC in soil.

Chromium was detected above the soil BV (19.3 mg/kg) in two samples with a maximum concentration of 29.5 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-19.0-7, Table G-19). Chromium is identified as a COPC in soil. Chromium was detected above the Qbo BV (2.6 mg/kg) in 22 samples with a maximum concentration of 404 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-19.0-8, Table G-19). Chromium is identified as a COPC in tuff.

Hexavalent chromium was detected in six soil/Qal/tuff samples with a maximum concentration of 0.337 mg/kg. Hexavalent chromium has no BV in either soil or tuff. Hexavalent chromium is identified as a COPC in soil and tuff.

Copper was detected above the soil BV (14.7 mg/kg) in three samples with a maximum concentration of 32.6 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-19.0-9, Table G-19). Copper is identified as a COPC in soil. Copper was detected above the Qbo BV (3.96 mg/kg) and the maximum Qbo background concentration (2.6 mg/kg) in four samples with a maximum concentration of 10.5 mg/kg, and it was not detected but had a DL (4.3 mg/kg) above the Qbo BV in one sample. The Gehan test indicated site concentrations are not different from background, but the quantile test indicated site concentrations are different from background (Figure G-19.0-10, Table G-19). Copper is identified as a COPC in tuff.

Cyanide was detected above the Qbo BV (0.5 mg/kg) in one sample at a concentration of 0.847 mg/kg, and it was detected above the soil BV (0.5 mg/kg) in two samples with a maximum concentration of 14.4 mg/kg. Cyanide has no background data set for either soil or tuff. Cyanide is identified as a COPC in soil and tuff.

Iron was detected above the Qbo BV and the maximum Qbo background concentration (both 3700 mg/kg) in all 24 Qbo samples with a maximum concentration of 10,700 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-19.0-11, Table G-19). Iron is identified as a COPC in tuff.

Lead was detected above the soil BV (22.3 mg/kg) in five samples with a maximum concentration of 134 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-19.0-12, Table G-19). Lead is identified as a COPC in soil.

Manganese was detected above the Qbo BV (189 mg/kg) in 21 samples with a maximum concentration of 838 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-19.0-13, Table G-19). Manganese is identified as a COPC in tuff.

Mercury was detected above the soil BV and the maximum soil background concentration (both 0.1 mg/kg) in 11 samples with a maximum concentration of 0.556 mg/kg. Because the background data set had more than 50% nondetects, the Gehan test could not be performed. The quantile test indicated site concentrations are not different from background, but the slippage test indicated site concentrations are different from background (Figure G-19.0-14, Table G-19). Mercury is identified as a COPC in soil.

Nickel was detected above the Qbo BV (2 mg/kg) in 15 samples with a maximum concentration of 15.1 mg/kg. Because the background data set had more than 50% nondetects, the Gehan test could not be performed. The quantile test indicated site concentrations are different from background (Figure G-19.0-15, Table G-19). Nickel is identified as a COPC in tuff.

Nitrate was detected in 23 soil/Qal/Qbo samples with a maximum concentration of 9.77 mg/kg. No background data are available for nitrate. Nitrate is naturally occurring, and the concentrations detected likely reflect naturally occurring levels. Nitrate is not identified as a COPC in soil and tuff.

Perchlorate was detected in six soil/Qal/Qbo samples with a maximum concentration of 0.117 mg/kg. Because perchlorate has no BV in either soil or tuff, perchlorate is identified as a COPC in soil and tuff.

Selenium was detected above the soil BV (1.52 mg/kg) in 6 samples with a maximum concentration of 8.72 mg/kg, and it was not detected but had DLs (1.53 mg/kg to 1.67 mg/kg) above the soil BV in 10 samples. The Gehan test indicated site concentrations are different from background (Figure G-19.0-16, Table G-19). Selenium is identified as a COPC in soil. Selenium was detected above the Qbo BV (0.3 mg/kg) in 11 samples with a maximum concentration of 9.31 mg/kg, and it was not detected but had DLs (0.614 mg/kg and 1.93 mg/kg) above the Qbo BV in 12 samples. The site concentrations are substantially above background. Also, selenium was not detected but had a DL (0.34 mg/kg) above the Qbt 3 BV (0.3 mg/kg) in one sample. Selenium is identified as a COPC in tuff.

Vanadium was detected above the Qbo BV (4.59 mg/kg) and the maximum Qbo background concentration (3.8 mg/kg) in nine samples with a maximum concentration of 15.1 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-19.0-17, Table G-19). Vanadium is identified as a COPC in tuff.

Zinc was detected above the soil BV (48.8 mg/kg) in nine samples with a maximum concentration of 152 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-19.0-18, Table G-19). Zinc is identified as a COPC in soil.

In summary, the inorganic COPCs identified at AOC 02-010 are aluminum, antimony, arsenic, barium, cadmium, calcium, chromium, hexavalent chromium, copper, cyanide, iron, lead, manganese, mercury, nickel, perchlorate, selenium, vanadium, and zinc.

Organic Chemicals

A total of 55 samples (13 soil, 18 Qal, and 24 Qbo) were analyzed for PCBs, 63 samples (24 soil, 18 Qal, 1 Qbt 3, and 20 Qbo) were analyzed for SVOCs, and 38 samples (18 Qal and 20 Qbo) were analyzed for VOCs.

Table 6.25-3 presents the detected organic chemicals. Plate 34 shows the spatial distribution of detected organic chemicals. The vertical extent is defined at AOC 02-010, and the lateral extent is defined at the TA-02 core area; organic COPCs are identified below.

Organic chemicals detected at AOC 02-010 include acenaphthene; acetone; anthracene; Aroclor-1248; Aroclor-1254; Aroclor-1260; benzo(a)anthracene; benzo(a)pyrene; benzo(b)fluoranthene; benzo(g,h,i)perylene; benzo(k)fluoranthene; bis(2-ethylhexyl)phthalate; chloroform; chrysene; di-n-butylphthalate; fluoranthene; fluorene; indeno(1,2,3-cd)pyrene; isopropylbenzene; 4-isopropyltoluene; methylene chloride; 2-methylnaphthalene; naphthalene; phenanthrene; pyrene; and toluene.

These organic chemicals are retained as COPCs at AOC 02-010.

Radionuclides

A total of 55 samples (13 soil, 18 Qal, and 24 Qbo) were analyzed for americium-241; 88 samples (45 soil, 18 Qal, 1 Qbt 3, and 24 Qbo) were analyzed for gamma-emitting radionuclides; 63 samples (24 soil, 18 Qal, 1 Qbt 3, and 20 Qbo) were analyzed for isotopic plutonium; 68 samples (25 soil, 18 Qal, 1 Qbt 3, and 24 Qbo) were analyzed for isotopic uranium, strontium-90, and tritium; and 8 soil samples were analyzed for technetium-99.

Table 6.25-4 presents the radionuclides detected or detected above BVs/FVs. Figure 6.25-3 shows the spatial distribution of radionuclides detected or detected above BVs/FVs. The vertical extent is defined at AOC 02-010, and the lateral extent is defined at the TA-02 core area; radionuclide COPCs are identified below.

Cesium-137 was detected above the soil FV (1.65 pCi/g) and detected in subsurface soil (below 0–1 ft) in 30 samples with a maximum activity of 18.2 pCi/g. Cesium-137 was also detected in subsurface tuff (below 0–1 ft) in one sample at an activity of 0.125 pCi/g. Cesium-137 is identified as a COPC in soil and tuff.

Plutonium-239/240 was detected above the soil FV (0.054 pCi/g) and detected in subsurface soil (below 0–1 ft) in 15 samples with a maximum activity of 2.93 pCi/g. Plutonium-239/240 is identified as a COPC in soil.

Strontium-90 was detected above the soil FV (1.31 pCi/g) and detected in subsurface soil (below 0–1 ft) in 11 samples with a maximum activity of 7.22 pCi/g. Strontium-90 is identified as a COPC in soil.

Tritium was detected in 23 soil/tuff samples with a maximum activity of 0.261 pCi/g. Tritium is identified by detection status and is a COPC in soil and tuff.

Uranium-234 was detected above the soil BV (2.59 pCi/g) in one sample at an activity of 3.26 pCi/g. Uranium-234 was also detected above the Qbt 3 BV (1.98 pCi/g) in one sample at an activity of 2.62 pCi/g. Uranium-234 is identified as a COPC in soil and tuff.

Uranium-235/236 was detected above the soil BV (0.2 pCi/g) in one sample at an activity of 0.208 pCi/g. Uranium-235/236 was detected above the Qbt 3 BV (0.09 pCi/g) in one sample at an activity of 0.0953 pCi/g. Uranium-235/236 was also detected above the Qbo BV (0.18 pCi/g) in one sample at an activity of 0.355 pCi/g. Uranium-235/236 is identified as a COPC in soil and tuff.

Uranium-238 was detected above the soil BV (2.29 pCi/g) in one sample at an activity of 2.48 pCi/g. Uranium-238 was also detected above the Qbt 3 BV (1.93 pCi/g) in one sample at an activity of 2.62 pCi/g. Uranium-238 is identified as a COPC in soil and tuff.

In summary, the radionuclide COPCs identified at AOC 02-004(a) are cesium-137, plutonium-239/240, strontium-90, tritium, uranium-234, uranium-235/236, and uranium-238.

6.25.4.4 Nature and Extent of Contamination at AOC 02-010

In accordance with the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), one location was sampled at AOC 02-010 to determine the vertical extent of contamination for inorganic chemicals, organic chemicals, and radionuclides (Table 3.2-1). Analytical suites were determined by the data needs specific to each location as presented in Table 3.1-1 of the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703). The vertical extent of contamination at AOC 02-010 is evaluated using only the Phase II data from samples collected as deep as 50 ft bgs, unless otherwise noted. The lateral and vertical extent of contamination at excavations are evaluated using the results of the confirmation samples from the excavation.

Inorganic Chemicals

Five samples were collected from location 02-612463 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of TAL metals and hexavalent chromium (Table 3.2-1). As stated in the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), the extent of perchlorate was defined following the 2007 investigation, and no Phase II samples were analyzed for perchlorate.

Calcium and nickel were not detected above the BVs at location 02-612463. Therefore, the vertical extent of calcium and nickel are defined.

Copper was detected above the Qbo BV (3.96 mg/kg) at a concentration of 7.89 mg/kg at location 02-612463 from 15–16 ft bgs. It was not detected above the BV in deeper samples at this location. Therefore, the vertical extent of copper is defined.

In accordance with the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), samples from location 02-612463 were not analyzed for cyanide. Cyanide was detected in two soil samples that were collected in 2007. The soil samples were both collected from 0–0.5 ft bgs, and cyanide was not detected in deeper samples at these locations (02-600635 and 02-600632). Cyanide was detected in one 2007 tuff sample at a concentration of 0.847 mg/kg, which is above the BV of 0.5 mg/kg. Although this detection is in the deepest interval at location 02-600629 (19.5–22 ft bgs), cyanide was not detected from 24–26.5 bgs at location 02-600631, which is approximately 10 ft to the south of location 02-600629. Therefore, the vertical extent of cyanide is defined.

The nature and extent of other TAL metals and hexavalent chromium at location 02-612463 have been discussed under AOC 02-006(c) (section 6.17.4.4). The vertical extent of TAL metals and hexavalent chromium is defined.

Organic Chemicals

Five samples were collected from location 02-612463 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of PCBs (Table 3.2-1). As stated in the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), the extent of VOCs was defined following the 2007 investigation, and no Phase II samples were analyzed for VOCs. The extent of SVOCs was also identified at AOC 02-010 following the 2007 investigation (LANL 2008, 101669.12).

The nature and extent of PCBs at location 02-612463 have been discussed under AOC 02-006(c) (section 6.17.4.4). The vertical extent of PCBs is defined.

Radionuclides

Locations 02-600636 and 02-600640 were excavated to remove cesium-137 contamination (Table 3.2-1). All confirmation samples were analyzed for gamma-emitting radionuclides only.

Confirmation samples were collected beneath the excavation at location 02-612423 (1 ft away from location 02-600636) and from five step-out locations (02-612424 to 02-612427, and 02-613240).

- Cesium-137 was detected in two samples beneath the excavation and four samples at three step-out locations. The highest activity of 18.2 pCi/g was detected from 2–2.2 ft bgs at location 02-612423. The preexcavated activity of cesium-137 was 25.5 pCi/g at location 02-600636 from 0–0.5 ft bgs (Table 2.23-3, LANL 2008, 101669.12). Cesium-137 activities decreased with depth at the excavation and decreased laterally in all four directions. The lateral and vertical extent of cesium-137 are defined.

Confirmation samples were collected beneath the excavation at location 02-600640 and from four step-out locations (02-612429 to 02-6124320).

- Cesium-137 was detected in two samples beneath the excavation and eight samples at four step-out locations. The highest activity of 2.08 pCi/g was detected from 4–4.2 ft bgs at location 02-612429. The preexcavated activity of cesium-137 was 58.3 pCi/g at location 02-600640 from 0–0.5 ft bgs (Table 2.23-3, LANL 2008, 101669.12). Cesium-137 activities decreased with depth at the excavation and decreased laterally in all four directions. The lateral and vertical extent of cesium-137 are defined.

Five samples were collected from location 02-612463 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, and tritium (Table 3.2-1).

Isotopic uranium was not detected above BVs at locations 02-612463. The vertical extent of isotopic uranium is defined.

The nature and extent of cesium 137, isotopic plutonium, strontium-90, and tritium at location 02-612463 have been discussed under AOC 02-006(c) (section 6.17.4.4). The vertical extent of these radionuclides is defined.

Summary of Nature and Extent at AOC 02-010

Excavations were conducted at locations 02-600636 and 02-600640 to remove cesium-137 contamination. Results of the confirmation samples indicated that the remaining cesium-137 concentrations are below the industrial SAL (23 pCi/g). The lateral and vertical extent for cesium-137 are defined at the excavations.

The vertical extent of TAL metal, hexavalent chromium, PCBs, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, and tritium is defined.

6.25.5 Summary of Human Health Risk Screening

Details of the human health risk-screening assessment for AOC 02-010 are discussed in Appendix H, section H-4.

The total excess cancer risk for the industrial scenario is 1×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.07, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 5 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 1×10^{-6}, based on a comparison with EPA's outdoor worker PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

The total excess cancer risk for the recreational scenario is 7×10^{-7}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.1, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 0.6 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 2×10^{-6}, based on conversion from dose using RESRAD, Version 6.5.

The total excess cancer risk for the residential scenario is 2×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.2, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 17 mrem/yr, which is above the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 7×10^{-6}, based on a comparison with EPA's residential PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Based on the screening-assessment results, no potential unacceptable risks or doses from COPCs exist for the industrial and recreational scenarios. Based on the screening-assessment results, no potential unacceptable risk exists for the residential scenario, but a potential unacceptable dose exists for the residential scenario.

6.25.6 Summary of Ecological Risk Screening

In accordance with the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), locations surrounding the core area of TA-02 were sampled to define the lateral extent of contamination for TA-02 as a whole (section 6.32). Although the lateral extent for the TA-02 core area is defined, one site within the core area requires additional remediation and confirmation sampling. The ecological risk-screening assessment will be conducted for the sites within the TA-02 core area as one exposure unit after the investigation at this site has been completed.

6.26 AOC 02-011(a), Storm Drains and Outfalls

6.26.1 Site Description and Operational History

AOC 02-011(a) consists of 11 drain segments and associated outfalls across TA-02. These individual segments drain either directly or indirectly to Los Alamos Creek (Figure 6.26-1).

The following drains are associated with this AOC and are divided into the following subunits:

(i) An approximately 50-ft-long concrete storm drain (also described as a concrete flume), located northwest of the OWR building that drains into a drop inlet/catch basin (structure 02-36), as shown on engineering drawing R-5102, sheet 2 of 2 (LANL 1983, 090086). There is no information indicating that the drain handled anything but stormwater.

(ii) A 24-in.-diameter, 8-ft-long underground corrugated metal pipe (CMP) between catch basin 02-036 and catch basin 02-027, as shown on engineering drawing R-5102, sheet 2 of 2 (LANL 1983, 090086). There is no information that the drain handled anything but stormwater.

(iii) An 85 ft-long concrete storm drain (e.g., concrete flume) located northwest of the OWR building (02-001) that drains into catch basin 02-027, as shown on engineering drawing R-5102, sheet 2 of 2 (LANL 1983, 090086). The drain was reportedly used periodically for discharge of water from the fuel transfer pit (DOE 1987, 008663).

(iv) A 15-in.-diameter, 15-ft-long concrete storm drain west of the OWR building that drains into catch basin 02-028, as shown on engineering drawing R-5102, sheet 2 of 2 (LANL 1983, 090086). There is no information that the drain handled anything but stormwater.

(v) A 24-in.-diameter, 30-ft-long concrete storm drain between catch basins 02-027 and 02-028, as shown on engineering drawing R-5102, sheet 2 of 2 (LANL 1983, 090086). This drain may have handled the fuel transfer pit water coming from the concrete flume, with associated contaminated aluminum shards.

(vi) A 30-in.-diameter, 75-ft-long CMP between a catch basin (structure 02-028) and Los Alamos Creek, as shown on engineering drawing R-5102, sheet 2 of 2 (LANL 1983, 090086). This drain may have handled the fuel transfer pit water coming from the concrete flume, with associated contaminated aluminum shards.

(vii) A 6-in.-diameter, 18-ft-long pipe between the OWR building and the salvage basin (structure 02-026) and Los Alamos Creek. AOC 02-011(a)(vii) is a duplicate of AOC 02-006(e), as noted in the 1990 SWMU report (LANL 1990, 007511). This drain is addressed as AOC 02-006(e) throughout this report.

(viii) An 18-in.-diameter, 75-ft-long CMP between the OWR building catch basin (unnumbered structure within building 02-001) and Los Alamos Creek, as shown on engineering drawing C-1699 (LASL 1946, 090070). There is no information that this drain handled anything but stormwater runoff.

(ix) A 3-in.-diameter, 75-ft-long pipe between the OWR building and the outfall to Los Alamos Creek. Wastewater system design memoranda (e.g., Heineman 1990, 089739) indicate that floor drains from the eastern side of the WBR area drained to this outfall before 1990.

(x) A 12-in.-diameter, 30-ft-long storm drain northeast of the OWR building that discharged to Los Alamos Creek through a series of concrete ditches and a CMP along the east side of the OWR building, as shown on engineering drawing C-1718 (LASL 1947, 089677). The total length of the drain and ditches to Los Alamos Creek is approximately 130 ft. The drains and concrete ditches remained in place until they were removed during D&D activities in 2003 (WD-3 2003, 082646, pp. 26–31).There is no information that this drain handled anything but stormwater.

(xi) A 4-in.-diameter, 95-ft-long pipe between the OWR building and Los Alamos Creek. AOC 02-011(a)(xi) is a duplicate of the OWR acid waste line [SWMU 02-006(b)]. AOC 02-011(a)(xi) is addressed as SWMU 02-006(b) throughout this report.

The drains in AOC 02-011(a) date from approximately the time of construction of the reactor building in 1944. Drains from operational areas of the facility may have received effluent until the 2003 D&D of the OWR facility, although the reactor was inactive from 1993 to 2003. Several of the drains were removed in either the 2000 or 2003 D&D activities, but five of the drains, or some portion of them, remained in place (WD-3 2003, 082646, pp. 26–31).

6.26.2 Relationship to Other SWMUs and AOCs

The drains in AOC 02-011(a) were at multiple locations across TA-02 and were connected to, or in proximity to, the reactor building [02-001, AOC 02-004(a)], the OWR equipment building [02-044, AOC 02-004(f)], the boiler house (building 02-063, AOC 02-010), and the chemical waste shack (building 02-003, AOC 02-010).

6.26.3 Summary of Previous Investigations

Because no previous investigations were conducted at AOC 02-011(a)(ii,v), and because AOC 02-011(a)(vii) is a duplicate of AOC 02-006(e), and AOC 02-011(a)(xi) is a duplicate of AOC 02-006(b), these subunits are not included in this section.

6.26.3.1 AOC 02-011(a)(i)

1995 Investigation Activities

One soil sample was collected from the catch basin (structure 02-036) (location 02-01157) in 1995.

6.26.3.2 AOC 02-011(a)(iii)

1995 Investigation Activities

One soil sample was collected from the catch basin (structure 02-027) (location 02-01158) in 1995.

6.26.3.3 AOC 02-011(a)(iv)

1995 Investigation Activities

One soil sample was collected from the catch basin (structure 02-028) (location 02-01159) in 1995.

6.26.3.4 AOC 02-011(a)(vi)

1995 Investigation Activities

One soil sample was collected from Los Alamos Creek at the AOC 02-011(a)(vi) outfall (location 02-01149) in 1995.

6.26.3.5 AOC 02-011(a)(viii)

1995 Investigation Activities

One sediment sample was collected from Los Alamos Creek at the AOC 02-011(a)(viii) outfall (location 02-01152) in 1995.

2000 Post–Cerro Grande Recovery Work

One sediment sample was collected from Los Alamos Creek at the AOC 02-011(a)(viii) outfall (location 02-01152) in 2000. The sampling location was the same as that sampled in 1995; however, the sampling interval differed.

2003 Omega West Decommissioning Project

AOC 02-011(a)(viii) piping was decommissioned and removed, and the waste was disposed of at an approved disposal facility. Limited soil surveys were conducted, but no formal report of soil survey results is available.

LLW (construction debris and/or soil) was packaged and shipped to Envirocare or TA-54 for disposal. Mixed waste was packaged and transferred to TA-54 for further processing and/or storage at the Laboratory. In total, 360 yd^3 of material was shipped to Envirocare for disposal; material from the AOC 02-011(a)(viii) storm drain was included in this total volume (WD-3 2003, 082646, pp. 1–6), but the specific volume of material associated with this drain was not documented.

Ten samples were collected from five boreholes at AOC 02-011(a)(viii) (locations 02-22351, 02-22352, 02-22372, 02-22373, and 02-22374) in 2003.

6.26.3.6 AOC 02-011(a)(ix)

1995 Investigation Activities

One sediment sample was collected from Los Alamos Creek at the AOC 02-011(a)(ix) outfall (location 02-01150) in 1995.

2003 Omega West Decommissioning Project

AOC 02-011(a)(ix) piping was removed, and the waste was disposed of at an approved facility. Limited soil surveys were conducted, but no formal report of soil survey results is available.

LLW (construction debris and/or soil) was packaged and shipped to Envirocare or TA-54 for disposal. Mixed waste was packaged and transferred to TA-54 for further processing and/or storage at the Laboratory. In total, 360 yd^3 of material was shipped to Envirocare for disposal; material from the AOC 02-011(a)(ix) storm drain was included in this total volume (WD-3 2003, 082646, pp. 1–6), but the specific volume of material associated with this drain was not documented.

Four samples were collected from two boreholes at AOC 02-011(a)(ix) (locations 02-22349 and 02-22367) in 2003.

6.26.3.7 AOC 02-011(a)(x)

1995 Investigation Activities

One sediment sample was collected from Los Alamos Creek at the AOC 02-011(a)(x) outfall (location 02-01153) in 1995. Four samples were collected from one borehole (location 02-01162) in 1995.

2000 Post–Cerro Grande Recovery Work

During the post–Cerro Grande fire recovery work, two samples were collected from location 02-01153. The sampling location was the same as that sampled in 1995; however, the sampling intervals differed.

2003 Omega West Decommissioning Project

AOC 02-011(a)(x) piping and concrete was decommissioned and removed, and the waste was disposed of at an approved facility. Limited soil radiological surveys were conducted; however, no formal report of soil survey results is available.

LLW (construction debris and/or soil) was packaged and shipped to Envirocare or TA-54 for disposal. Mixed waste was packaged and transferred to TA-54 for further processing and/or storage at the Laboratory. In total, 360 yd^3 of material was shipped to Envirocare for disposal; material from the AOC 02-011(a)(x) storm drain was included in this total volume (WD-3 2003, 082646, pp. 1–6), but the specific volume of material associated with this drain was not documented.

Ten samples were collected from five boreholes at AOC 02-011(a)(x) (locations 02-22346, 02-22347, 02-22348, 02-22368, and 02-22380) in 2003.

6.26.3.8 2007 Investigation Activities at AOC 02-011(a)

One hundred thirteen samples were collected from 38 locations at AOC 02-011(a) in 2007. Results from the sampling activities in 2007 were presented in the previous investigation report (LANL 2008, 101669.12). Additional sampling was required to define the extent of contamination at the site.

6.26.4 Site Contamination

AOC 02-011(a)(vii) is a duplicate of AOC 02-006(e) and has been addressed in section 6.19. AOC 02-011(a)(xi) is a duplicate of AOC 02-006(b) and has been addressed in section 6.16. The remaining nine subunits of AOC 02-011(a) are presented as follows.

6.26.4.1 Soil, Rock, and Sediment Sampling

AOC 02-011(a)(i)

As part of the 2010 investigation, the following characterization activities were conducted at AOC 02-011(a)(i):

- All samples were field screened for organic vapors and gross-alpha, -beta, and -gamma radioactivity. Field-screening results were recorded on the SCLs (Appendix F) and are presented in Table 3.2-2.
- Locations 02-600385 and 02-600386 were excavated to remove PCB contamination in accordance with the approved work plan (LANL 2009, 106660.14, p. 9; NMED 2009, 106703). The surface soil at location 02-600385 was excavated to approximately 4 ft bgs, and the surface soil at location 02-600386 was excavated to approximately 7 ft bgs. The remediated area was approximately 64 ft^2 and the volume of excavated material was approximately 10 yd^3 at location 02-600385 (Figure 6.26-2). The remediated area was approximately 64 ft^2 and the volume of excavated material was approximately 17 yd^3 at location 02-600386 (Figure 6.26-2).

- Confirmation samples were collected as follows.
  - ❖ At location 02-600385, confirmation samples were collected below the excavation from 4–4.2 ft and 6–6.2 ft bgs at location 02-600385 and from four step-out locations 12 ft to the north (4–4.2 ft and 6–6.2 ft bgs from location 02-613289), 4 ft to the south (4–4.2 ft and 5–5.5 ft bgs from location 02-612446), 4 ft to the east (4–4.2 ft and 6–6.2 ft bgs from location 02-612445), and 4 ft to the west (4–4.2 ft and 6–6.2 ft bgs from location 02-612448).
  - ❖ At location 02-600386, confirmation samples were collected below the excavation from 7–7.2 ft, 9–9.2 ft, and 11–11.2 ft bgs at location 02-600386, and from four step-out locations 12 ft to the north (4–4.2 ft bgs from location 02-613292), 4 ft to the south (3.5–4 ft bgs from location 02-612444), and 4 ft to the east (3–3.2 ft bgs from location 02-612447). No step-out sample was collected to the west because a concrete slab prevented sampling.

All confirmation samples were analyzed for PCBs only.

- Five samples were collected from location 02-613571 (depths ranging from 5–50 ft bgs). All five samples were analyzed for TAL metals, hexavalent chromium, PCBs, SVOCs, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, and tritium.

AOC 02-011(a)(ii)

As part of the 2010 investigation, the following characterization activities were conducted at AOC 02-011(a)(ii):

- All samples were field screened for organic vapors and gross-alpha, -beta, and -gamma radioactivity. Field-screening results were recorded on the SCLs (Appendix F) and are presented in Table 3.2-2.
- The approved work plan proposed excavation at 02-600449 to remove PCB contamination (LANL 2009, 106660.14, p. 9; NMED 2009, 106703). However, elevated concentrations of PCBs were detected in an extensive area that exceeded the scope of the work plan during preexcavation step-out sampling from location 02-600449. No excavation was conducted at AOC 02-011(a)(ii); however, decision-level PCB results obtained during preexcavation sampling are included in this report and presented in section 6.26.4.4.
- Five samples were collected from location 02-613571 (depths ranging from 5–50 ft bgs). All five samples were analyzed for TAL metals, hexavalent chromium, PCBs, SVOCs, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, and tritium.

AOC 02-011(a)(iii)

As part of the 2010 investigation, the following characterization activities were conducted at AOC 02-011(a)(iii):

- All samples were field screened for organic vapors and gross-alpha, -beta, and -gamma radioactivity. Field-screening results were recorded on the SCLs (Appendix F) and are presented in Table 3.2-2.
- Location 02-600406 was excavated to remove PCB contamination in accordance with the approved work plan (LANL 2009, 106660.14, p. 9; NMED 2009, 106703). Excavations at locations 02-600406 and 02-600450 (about 15 ft apart) ranged from 2–4 ft bgs and resulted in a

combined remediated area of approximately 756 ft^2. The total volume of excavated material was approximately 87 yd^3.

- Confirmation samples were collected from four step-out locations 8 ft to the north (2–2.5 ft and 4–4.5 ft bgs from location 02-613003), 4 ft to the south (2–2.2 ft and 4–4.4 ft bgs from location 02-612439), 4 ft to the east (2–2.2 ft and 4–4.2 ft bgs from location 02-612438), and 4 ft to the west (4–4.4 ft bgs from location 02-612440). Confirmatory sampling below the excavation was not necessary because two 2007 samples were collected from below the depth of the excavation (4.5–13 ft and 15–19.5 ft bgs) at location 02-600406. All confirmation samples were analyzed for PCBs only.
- Five samples were collected from location 02-613571 (depths ranging from 5–50 ft bgs). All five samples were analyzed for TAL metals, hexavalent chromium, PCBs, SVOCs, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, and tritium.

AOC 02-011(a)(iv)

As part of the 2010 investigation, the following characterization activities were conducted at AOC 02-011(a)(iv):

- All samples were field screened for organic vapors and gross-alpha, -beta, and -gamma radioactivity. Field-screening results were recorded on the SCLs (Appendix F) and are presented in Table 3.2-2.
- Five samples were collected from location 02-612346 (depths ranging from 5–50 ft bgs). All five samples were analyzed for TAL metals, hexavalent chromium, PCBs, SVOCs, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, and tritium.

AOC 02-011(a)(v)

As part of the 2010 investigation, the following characterization activities were conducted at AOC 02-011(a)(v):

- All samples were field screened for organic vapors and gross-alpha, -beta, and -gamma radioactivity. Field-screening results were recorded on the SCLs (Appendix F) and are presented in Table 3.2-2.
- Location 02-600450 was excavated to remove PCB contamination in accordance with the approved work plan (LANL 2009, 106660.14, p. 9; NMED 2009, 106703). Excavations at locations 02-600406 and 02-600450 (about 15 ft apart) ranged from 2–4 ft bgs and resulted in a combined remediated area of approximately 756 ft^2. The total volume of excavated material was approximately 87 yd^3 (Figure 6.26-2).
- Confirmation samples were collected below the excavation from 4–4.2 ft bgs at location 02-600450, and from seven step-out locations 4 ft to the north (4–4.2 ft bgs from location 02-612435), 4 ft and 8 ft to the south (4–4.4 ft bgs from location 02-612434, and 2–2.2 ft bgs from location 02-613121, respectively), 4 ft to the east (4–4.4 ft bgs from location 02-612437), 4 ft and 8 ft to the west (4–4.2 ft bgs from location 02-612436, and 2–2.2 ft bgs from location 02-613118, respectively), and 4 ft to the southwest (2–2.2 ft bgs from location 02-613120). All confirmation samples were analyzed for PCBs only.
- Five samples were collected from location 02-613571 (depths ranging from 5–50 ft bgs). All five samples were analyzed for TAL metals, hexavalent chromium, PCBs, SVOCs, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, and tritium.

AOC 02-011(a)(vi)

As part of the 2010 investigation, the following characterization activities were conducted at AOC 02-011(a)(vi):

- All samples were field screened for organic vapors and gross-alpha, -beta, and -gamma radioactivity. Field-screening results were recorded on the SCLs (Appendix F) and are presented in Table 3.2-2.
- Location 02-600532 was excavated to remove benzo(a)pyrene contamination in accordance with the approved work plan (LANL 2009, 106660.14, p. 9; NMED 2009, 106703). The surface soil at location 02-600532 was excavated to approximately 2 ft bgs. The remediated area was approximately 64 ft^2. The total volume of excavated material was approximately 5 yd^3.
- Confirmation samples were collected below the excavation from 2–2.2 ft and 4–4.2 ft bgs at location 02-600532 and from four step-out locations 4 ft to the north (2–2.2 ft and 4–4.2 ft bgs from location 02-612468), 4 ft to the south (2–2.2 ft and 4–4.4 ft bgs from location 02-612467), 4 ft to the east (2–2.2 ft and 4–4.4 ft bgs from location 02-612466), and 4 ft to the west (2–2.2 ft and 4–4.2 ft bgs from location 02-612465). All confirmation samples were analyzed for PCBs and SVOCs.

AOC 02-011(a)(viii)

As part of the 2010 investigation, the following characterization activities were conducted at AOC 02-011(a)(viii):

- All samples were field screened for organic vapors and gross-alpha, -beta, and -gamma radioactivity. Field-screening results were recorded on the SCLs (Appendix F) and are presented in Table 3.2-2.
- Five samples were collected from location 02-612292 (depths ranging from 5–50 ft bgs). All five samples were analyzed for TAL metals, hexavalent chromium, PCBs, SVOCs, gamma-emitting radionuclides, isotopic plutonium, and tritium.

AOC 02-011(a)(ix)

As part of the 2010 investigation, the following characterization activities were conducted at AOC 02-011(a)(ix):

- All samples were field screened for organic vapors and gross-alpha, -beta, and -gamma radioactivity. Field-screening results were recorded on the SCLs (Appendix F) and are presented in Table 3.2-2.
- Five samples were collected from location 02-612345 (depths ranging from 5–50 ft bgs). All five samples were analyzed for TAL metals, hexavalent chromium, PCBs, SVOCs, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, and tritium.

AOC 02-011(a)(x)

As part of the 2010 investigation, the following characterization activities were conducted at AOC 02-011(a)(x):

- All samples were field screened for organic vapors and gross-alpha, -beta, and -gamma radioactivity. Field-screening results were recorded on the SCLs (Appendix F) and are presented in Table 3.2-2.
- Location 02-600664 was excavated to remove PCB contamination in accordance with the approved work plan (LANL 2008, 106660.14, p. 9; NMED 2009, 106703). The surface soil at location 02-600664 was excavated to 2–4 ft bgs. The remediated area was approximately 192 ft^2. The total volume of excavated material was approximately 24 yd^3 (Figure 6.26-2).
- Confirmation samples were collected below the excavation from 2–2.2 ft and 4–4.2 ft bgs at location 02-600664 and from six step-out locations 4 ft and 8 ft to the north (4–4.2 ft bgs from location 02-612460 and 0–0.5 ft and 2–2.2 ft bgs from location 02-612999, respectively), 4 ft and 8 ft to the south (4–4.4 ft bgs from location 02-612462 and 0–0.5 ft and 2–2.2 ft bgs from location 02-613000, respectively), 4 ft to the east (4–4.2 ft bgs from location 02-612459), and 4 ft to the west (4–4.4 ft bgs from location 02-612461). All confirmation samples were analyzed for PCBs only.
- Ten samples were collected from locations 02-612348 and 02-612983 (depths ranging from 5–50 ft bgs), located at the north portion of AOC 02-011(a)(x) and at the outfall of AOC 02-011(a)(x), respectively. Samples from location 02-612348 were analyzed for TAL metals, hexavalent chromium, PCBs, SVOCs, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium. Samples from location 02-612983 were analyzed for TAL metals, hexavalent chromium, PCBs, SVOCs, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, and tritium.

The 2010 and historical sampling locations at AOC 02-011(a) are shown in Figure 6.26-1. The geodetic coordinates of the 2010 sampling locations are presented in Table 3.2-1.

6.26.4.2 Soil, Rock, and Sediment Sample Field-Screening Results

Organic vapors were detected at more than 10 ppm above ambient air levels during headspace screening of one sample at location 02-612345. As a result, the samples collected at this location were analyzed for TPH-DRO, in addition to the planned suites. No radiological-screening results exceeded twice the daily site background levels. Field-screening results are presented in Table 3.2-2. No changes to sampling or other activities occurred because of the field-screening results.

6.26.4.3 Soil, Rock, and Sediment Sample Analytical Results

COPCs at AOC 02-011(a)

Because the extent of contamination is not defined for AOC 02-011(a), COPCs are not identified for the site.

AOC 02-011(a)(i)

Decision-level data at AOC 02-011(a)(i) consist of results from 24 samples collected from 12 locations in 1995, 2007, and 2010. The 24 samples include 15 soil, 5 Qal, and 4 Qbo samples. Table 6.26-1 presents the samples collected and analyses requested for AOC 02-011(a)(i).

Inorganic Chemicals

A total of seven samples (one soil, two Qal, and four Qbo) were analyzed for TAL metals, five samples (one Qal and four Qbo) were analyzed for hexavalent chromium, and two samples (one soil and one Qal) were analyzed for nitrate, perchlorate, and total cyanide.

Table 6.26-2 presents the inorganic chemicals detected or detected above BVs. Plate 35 shows the spatial distribution of inorganic chemicals detected or detected above BVs.

Organic Chemicals

A total of 2 samples (1 soil and 1 Qal) were analyzed for dioxins and furans, 23 samples (14 soil, 5 Qal, and 4 Qbo) were analyzed for PCBs, 7 samples (1 soil, 2 Qal, and 4 Qbo) were analyzed for SVOCs, and 1 tuff (Qal) sample was analyzed for VOCs.

Table 6.26-3 presents the detected organic chemicals. Plates 36 and 37 show the spatial distribution of detected organic chemicals.

Radionuclides

A total of two samples (one soil and one Qal) were analyzed for americium-241, eight samples (two soil, two Qal, and four Qbo) were analyzed for gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, and tritium, and three samples (two soil and one Qal) were analyzed for strontium-90.

Table 6.26-4 presents the radionuclides detected or detected above BVs/FVs. Plate 38 shows the spatial distribution of radionuclides detected or detected above BVs/FVs.

AOC 02-011(a)(ii)

Decision-level data at AOC 02-011(a)(ii) consist of results from 50 samples collected from 19 locations in 2007 and 2010. The 50 samples include 37 soil, 3 Qal, 6 Qbt 3, and 4 Qbo samples. Table 6.26-5 presents the samples collected and analyses requested for AOC 02-011(a)(ii).

Inorganic Chemicals

A total of eight samples (one soil, three Qal, and four Qbo) were analyzed for TAL metals, five samples (one Qal and four Qbo) were analyzed for hexavalent chromium, and three samples (one soil and two Qal) were analyzed for nitrate, perchlorate, and total cyanide.

Table 6.26-6 presents the inorganic chemicals detected or detected above BVs. Plate 35 shows the spatial distribution of inorganic chemicals detected or detected above BVs.

Organic Chemicals

A total of 3 samples (1 soil and 2 Qal) were analyzed for dioxins and furans, 50 samples (37 soil, 3 Qal, 6 Qbt 3, and 4 Qbo) were analyzed for PCBs, 8 samples (1 soil, 3 Qal, and 4 Qbo) were analyzed for SVOCs, and 2 samples (Qal) were analyzed for VOCs.

Table 6.26-7 presents the detected organic chemicals. Plates 36 and 37 show the spatial distribution of detected organic chemicals.

Radionuclides

A total of three samples (one soil and two Qal) were analyzed for americium-241; eight samples (one soil, three Qal, and four Qbo) were analyzed for gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, and tritium; and three samples (one soil and two Qal) were analyzed for strontium-90.

Table 6.26-8 presents the radionuclides detected or detected above BVs/FVs. Plate 38 shows the spatial distribution of radionuclides detected or detected above BVs/FVs.

AOC 02-011(a)(iii)

Decision-level data at AOC 02-011(a)(iii) consist of results from 19 samples collected from 9 locations in 1995, 2007, and 2010. The 19 samples include 10 soil, 3 Qal, and 6 Qbo samples. Table 6.26-9 presents the samples collected and analyses requested for AOC 02-011(a)(iii).

Inorganic Chemicals

A total of 11 samples (2 soil, 3 Qal, and 6 Qbo) were analyzed for TAL metals, 5 samples (1 Qal and 4 Qbo) were analyzed for hexavalent chromium, and 6 samples (2 soil, 2 Qal, and 2 Qbo) were analyzed for nitrate, perchlorate, and total cyanide.

Table 6.26-10 presents the inorganic chemicals detected or detected above BVs. Plate 35 shows the spatial distribution of inorganic chemicals detected or detected above BVs.

Organic Chemicals

A total of 6 samples (2 soil, 2 Qal, and 2 Qbo) were analyzed for dioxins and furans, 18 samples (9 soil, 3 Qal, and 6 Qbo) were analyzed for PCBs, 11 samples (2 soil, 3 Qal, and 6 Qbo) were analyzed for SVOCs, 6 samples (2 soil, 2 Qal, and 2 Qbo) were analyzed for TPH-DRO, and 4 tuff samples (2 Qal and 2 Qbo) were analyzed for VOCs.

Table 6.26-11 presents the detected organic chemicals. Plates 36 and 37 show the spatial distribution of detected organic chemicals.

Radionuclides

A total of 6 samples (2 soil, 2 Qal, and 2 Qbo) were analyzed for americium-241; 12 samples (3 soil, 3 Qal, and 6 Qbo) were analyzed for gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, and tritium; and 7 samples (3 soil, 2 Qal, and 2 Qbo) were analyzed for strontium-90.

Table 6.26-12 presents the radionuclides detected or detected above BVs/FVs. Plate 38 shows the spatial distribution of radionuclides detected or detected above BVs/FVs.

AOC 02-011(a)(iv)

Decision-level data at AOC 02-011(a)(iv) consist of results from 10 samples collected from 3 locations in 1995, 2007, and 2010. The 10 samples include 2 soil, 4 Qal, and 4 Qbo samples. Table 6.26-13 presents the samples collected and analyses requested for AOC 02-011(a)(iv).

Inorganic Chemicals

A total of nine samples (one soil, four Qal, and four Qbo) were analyzed for TAL metals, five tuff samples (two Qal and three Qbo) were analyzed for hexavalent chromium, and four samples (one soil, two Qal, and one Qbo) were analyzed for nitrate, perchlorate, and total cyanide.

Table 6.26-14 presents the inorganic chemicals detected or detected above BVs. Plate 35 shows the spatial distribution of inorganic chemicals detected or detected above BVs.

Organic Chemicals

A total of four samples (one soil, two Qal, and one Qbo) were analyzed for dioxins and furans, nine samples (one soil, four Qal, and four Qbo) were analyzed for PCBs and SVOCs, and three tuff samples (two Qal and one Qbo) were analyzed for VOCs.

Table 6.26-15 presents the detected organic chemicals. Plates 36 and 37 show the spatial distribution of detected organic chemicals.

Radionuclides

A total of 4 samples (1 soil, 2 Qal, and 1 Qbo) were analyzed for americium-241; 10 samples (2 soil, 4 Qal, and 4 Qbo) were analyzed for gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, and tritium; and 5 samples (2 soil, 2 Qal, and 1 Qbo) were analyzed for strontium-90.

Table 6.26-16 presents the radionuclides detected or detected above BVs/FVs. Plate 38 shows the spatial distribution of radionuclides detected or detected above BVs/FVs.

AOC 02-011(a)(v)

Decision-level data at AOC 02-011(a)(v) consist of results from 18 samples collected from 10 locations in 2007 and 2010. The 18 samples include 9 soil, 3 Qal, and 6 Qbo samples. Table 6.26-17 presents the samples collected and analyses requested for AOC 02-011(a)(v).

Inorganic Chemicals

A total of 10 samples (1 soil, 3 Qal, and 6 Qbo) were analyzed for TAL metals, 5 tuff samples (1 Qal and 4 Qbo) were analyzed for hexavalent chromium, and 5 samples (1 soil, 2 Qal, and 2 Qbo) were analyzed for nitrate, perchlorate, and total cyanide.

Table 6.26-18 presents the inorganic chemicals detected or detected above BVs. Plate 35 shows the spatial distribution of inorganic chemicals detected or detected above BVs.

Organic Chemicals

A total of 4 tuff samples (2 Qal and 2 Qbo) were analyzed for dioxins and furans, 18 samples (9 soil, 3 Qal, and 6 Qbo) were analyzed for PCBs, 10 samples (1 soil, 3 Qal, and 6 Qbo) were analyzed for SVOCs, and 4 tuff samples (2 Qal and 2 Qbo) were analyzed for VOCs.

Table 6.26-19 presents the detected organic chemicals. Plates 36 and 37 show the spatial distribution of detected organic chemicals.

Radionuclides

A total of 5 samples (1 soil, 2 Qal, and 2 Qbo) were analyzed for americium-241; 10 samples (1 soil, 3 Qal, and 6 Qbo) were analyzed for gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, and tritium; and 5 samples (1 soil, 2 Qal, and 2 Qbo) were analyzed for strontium-90.

Table 6.26-20 presents the radionuclides detected or detected above BVs/FVs. Plate 38 shows the spatial distribution of radionuclides detected or detected above BVs/FVs.

AOC 02-011(a)(vi)

Decision-level data at AOC 02-011(a)(vi) consist of results from 20 samples collected from 8 locations in 1995, 2007, and 2010. The 20 samples include 13 soil, 5 Qal, and 2 Qbo samples. Table 6.26-21 presents the samples collected and analyses requested for AOC 02-011(a)(vi).

Inorganic Chemicals

A total of nine samples (two soil, five Qal, and two Qbo) were analyzed for TAL metals, nitrate, perchlorate, and total cyanide.

Table 6.26-22 presents the inorganic chemicals detected or detected above BVs. Plate 39 shows the spatial distribution of inorganic chemicals detected or detected above BVs.

Organic Chemicals

A total of 9 samples (2 soil, 5 Qal, and 2 Qbo) were analyzed for dioxins and furans, 19 samples (12 soil, 5 Qal, and 2 Qbo) were analyzed for PCBs and SVOCs, and 7 tuff samples (5 Qal and 2 Qbo) were analyzed for VOCs.

Table 6.26-23 presents the detected organic chemicals. Plates 40 and 41 show the spatial distribution of detected organic chemicals.

Radionuclides

A total of 9 samples (2 soil, 5 Qal, and 2 Qbo) were analyzed for americium-241, and 10 samples (3 soil, 5 Qal, and 2 Qbo) were analyzed for gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium.

Table 6.26-24 presents the radionuclides detected or detected above BVs/FVs. Plate 38 shows the spatial distribution of radionuclides detected or detected above BVs/FVs.

AOC 02-011(a)(viii)

Decision-level data at AOC 02-011(a)(viii) consist of results from 24 samples collected from 9 locations in 1995, 2000, 2003, 2007, and 2010. The 24 samples include 12 soil, 4 Qal, 6 Qbo, and 2 sediment samples. Table 6.26-25 presents the samples collected and analyses requested for AOC 02-011(a)(viii).

Inorganic Chemicals

A total of 23 samples (12 soil, 4 Qal, 6 Qbo, and 1 sediment) were analyzed for TAL metals, 22 samples (12 soil, 4 Qal, and 6 Qbo) were analyzed for hexavalent chromium, and 7 samples (2 soil, 3 Qal, 2 Qbo) were analyzed for nitrate, perchlorate, and total cyanide.

Table 6.26-26 presents the inorganic chemicals detected or detected above BVs. Plate 39 shows the spatial distribution of inorganic chemicals detected or detected above BVs.

Organic Chemicals

A total of 7 samples (2 soil, 3 Qal, 2 Qbo) were analyzed for dioxins and furans, 12 samples (2 soil, 4 Qal, and 6 Qbo) were analyzed for PCBs and SVOCs, and 5 tuff samples (3 Qal and 2 Qbo) were analyzed for VOCs.

Table 6.26-27 presents the detected organic chemicals. Plates 40 and 41 show the spatial distribution of detected organic chemicals.

Radionuclides

A total of 7 samples (2 soil, 3 Qal, and 2 Qbo) were analyzed for americium-241; 24 samples (12 soil, 4 Qal, 6 Qbo, and 2 sediment) were analyzed for gamma-emitting radionuclides, isotopic plutonium, and tritium; 19 samples (12 soil, 3 Qal, 2 Qbo, and 2 sediment) were analyzed for isotopic uranium and strontium-90; and 10 soil samples were analyzed for technetium-99.

Table 6.26-28 presents the radionuclides detected or detected above BVs/FVs. Plate 38 shows the spatial distribution of radionuclides detected or detected above BVs/FVs.

AOC 02-011(a)(ix)

Decision-level data at AOC 02-011(a)(ix) consist of results from 68 samples collected from 22 locations in 1995, 2000, 2003, 2007, and 2010. The 68 samples include 22 soil, 21 Qal, 22 Qbo, and 3 sediment samples. Table 6.26-29 presents the samples collected and analyses requested for AOC 02-011(a)(ix).

Inorganic Chemicals

A total of 67 samples (22 soil, 21 Qal, 22 Qbo, and 2 sediment) were analyzed for TAL metals, 65 samples (22 soil, 21 Qal, and 22 Qbo) were analyzed for hexavalent chromium, and 56 samples (18 soil, 19 Qal, and 19 Qbo) were analyzed for nitrate, perchlorate, and total cyanide.

Table 6.26-30 presents the inorganic chemicals detected or detected above BVs. Plate 39 shows the spatial distribution of inorganic chemicals detected or detected above BVs.

Organic Chemicals

A total of 61 samples (18 soil, 21 Qal, and 22 Qbo) were analyzed for PCBs and SVOCs, 18 samples (3 soil, 7 Qal, and 8 Qbo) were analyzed for TPH-DRO, and 38 tuff samples (19 Qal and 19 Qbo) were analyzed for VOCs.

Table 6.26-31 presents the detected organic chemicals. Plates 40 and 41 show the spatial distribution of detected organic chemicals.

Radionuclides

A total of 56 samples (18 soil, 19 Qal, and 19 Qbo) were analyzed for americium-241; 68 samples (22 soil, 21 Qal, 22 Qbo, and 3 sediment) were analyzed for gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, and tritium; 63 samples (22 soil, 19 Qal, 19 Qbo, and 3 sediment) were analyzed for strontium-90; and 4 soil samples were analyzed for technetium-99.

Table 6.26-32 presents the radionuclides detected or detected above BVs/FVs. Plate 38 shows the spatial distribution of radionuclides detected or detected above BVs/FVs.

AOC 02-011(a)(x)

Decision-level data at AOC 02-011(a)(x) consist of results from 58 samples collected from 22 locations in 1995, 2000, 2003, 2007, and 2010. The 58 samples include 26 soil, 11 Qal, 4 Qbt 2, 3 Qct 3, 11 Qbo, and 3 sediment samples. Table 6.26-33 presents the samples collected and analyses requested for AOC 02-011(a)(x).

Inorganic Chemicals

A total of 43 samples (16 soil, 11 Qal, 3 Qbt 3, 11 Qbo, and 2 sediment) were analyzed for TAL metals, 39 samples (16 soil, 11 Qal, 3 Qbt 3, and 9 Qbo) were analyzed for hexavalent chromium, and 21 samples (6 soil, 7 Qal, and 8 Qbo) were analyzed for nitrate, perchlorate, and total cyanide.

Table 6.26-34 presents the inorganic chemicals detected or detected above BVs. Plate 39 shows the spatial distribution of inorganic chemicals detected or detected above BVs.

Organic Chemicals

A total of 42 samples (16 soil, 11 Qal, 1 Qbt 2, 3 Qbt 3, and 11 Qbo) were analyzed for PCBs, 1 tuff sample was analyzed for pesticides, 3 tuff samples were analyzed for pesticides/PCBs (combination suite), 35 samples (6 soil, 11 Qal, 4 Qbt 2, 3 Qbt 3, and 11 Qbo) were analyzed for SVOCs, 8 samples (1 soil, 1 Qal, 4 Qbt 2, and 2 Qbo) were analyzed for TPH-DRO, and 19 tuff samples (7 Qal, 4 Qbt 2, and 8 Qbo) were analyzed for VOCs.

Table 6.26-35 presents the detected organic chemicals. Plates 40 and 41 shows the spatial distribution of detected organic chemicals.

Radionuclides

A total of 21 samples (6 soil, 7 Qal, and 8 Qbo) were analyzed for americium-241; 44 samples (16 soil, 11 Qal, 3 Qbt 3, 11 Qbo, and 3 sediment) were analyzed for gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, and tritium; 39 samples (16 soil, 9 Qal, 11 Qbo, and 3 sediment) were analyzed for strontium-90; and 10 soil samples were analyzed for technetium-99.

Table 6.26-36 presents the radionuclides detected or detected above BVs/FVs. Plate 38 shows the spatial distribution of radionuclides detected or detected above BVs/FVs.

6.26.4.4 Nature and Extent of Contamination at AOC 02-011(a)

In accordance with the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), six locations were sampled at AOC 02-011(a) to determine the vertical extent of contamination for inorganic chemicals, organic chemicals, and radionuclides (Table 3.2-1). Analytical suites were determined by the data needs specific to each location as presented in Table 3.1-1 of the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703). The vertical extent of contamination at AOC 02-011(a) is evaluated using only the Phase II data from samples collected as deep as 50 ft bgs. The lateral and vertical extent of contamination at excavations are evaluated using the results of the confirmation samples from the excavation.

AOC 02-011(a)(i)

Inorganic Chemicals

Five samples were collected from location 02-613571 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of TAL metals and hexavalent chromium (Table 3.2-1).

Aluminum was detected above the Qbo BV (3560 mg/kg) in one sample at a concentration of 7070 mg/kg at location 02-613571 from 15–16 ft bgs. Aluminum concentrations decreased with depth at this location. The vertical extent of aluminum is defined.

Antimony was not detected but had a DL (5.14 mg/kg) above the soil BV (0.83 mg/kg) in one sample and had DLs (1.16 mg/kg to 1.22 mg/kg) above the Qbo BV (0.5 mg/kg) in four samples. Because antimony was not detected above BVs, the vertical extent of antimony is defined.

Arsenic was not detected above the Qbo BV (0.56 mg/kg) but had DLs (1.04 mg/kg to 1.2 mg/kg) above the Qbo BV in four samples. Because arsenic was not detected above BVs, the vertical extent of arsenic is defined.

Cadmium was not detected but had a DL (0.514 mg/kg) above the soil BV (0.4 mg/kg) in one sample and had DLs (0.58 mg/kg to 0.608 mg/kg) above the Qbo BV (0.4 mg/kg) in four samples. Because cadmium was not detected above BVs, the vertical extent of cadmium is defined.

Hexavalent chromium was not detected at location 02-613571. The vertical extent of hexavalent chromium is defined.

Iron was detected above the Qbo BV (3700 mg/kg) in four samples at location 02-613571. The highest concentration of 5980 mg/kg was detected at location 02-613571 from 35–37 ft bgs. Iron was detected at a concentration of 7360 mg/kg (below the soil BV of 21,500 mg/kg) at location 02-613571 from 5–6 ft bgs. Iron concentrations decreased with depth at this location. The vertical extent of iron is defined.

Manganese was detected above the Qbo BV (189 mg/kg) in two samples at location 02-613571. The highest concentration of 215 mg/kg was detected at location 02-613571 from 35–37 ft bgs. Manganese was detected at a concentration of 339 mg/kg (below the soil BV of 671 mg/kg) at location 02-613571 from 5–6 ft bgs. Manganese concentrations decreased with depth at this location. The vertical extent of manganese is defined.

Selenium was not detected above the Qbo BV (0.3 mg/kg) but had DLs (1.04 mg/kg to 1.2 mg/kg) above the Qbo BV in four samples. Because selenium was not detected above BVs, the vertical extent of selenium is defined.

Zinc was detected above the soil BV (48.8 mg/kg) in one sample at a concentration of 50.1 mg/kg at location 02-613571 from 5–6 ft bgs. Zinc concentrations decreased with depth at this location. The vertical extent of zinc is defined.

Organic Chemicals

Locations 02-600385 and 02-600386 were excavated to remove PCB contamination (Table 3.2-1). All confirmation samples were analyzed for PCBs only.

Confirmation samples were collected beneath the excavation at location 02-600385 and from four step-out locations (02-612445, 02-612446, 02-612448, and 02-613289).

- Aroclor-1254 was not detected beneath the excavation and was detected in two samples at step-out location 02-612446. The highest concentration of 0.356 mg/kg was detected at location 02-612446 from 5–5.5 ft bgs. The preexcavated concentrations of Aroclor-1254 were 1.25 mg/kg and 0.381 mg/kg at location 02-600385 from 0–0.5 ft and 2–3 ft bgs, respectively (Table 2.24-2, LANL 2008, 101669.12). Aroclor-1254 concentrations decreased with depth at the excavation and decreased laterally in all four directions. The lateral and vertical extent of Aroclor-1254 are defined.
- Aroclor-1260 was detected in two samples beneath the excavation and in eight samples at four step-out locations. The highest concentration of 3.39 mg/kg was detected from 6–6.2 ft bgs at location 02-613289. The preexcavated concentrations of Aroclor-1260 were 3.45 mg/kg and 1.05 mg/kg at location 02-600385 from 0–0.5 ft and 2–3 ft bgs, respectively (Table 2.24-2, LANL 2008, 101669.12). Aroclor-1260 concentrations did not decrease with depth to the north. Therefore, the lateral and vertical extent of Aroclor-1260 are not defined to the north of location 02-600385.

Confirmation samples were collected beneath the excavation at location 02-600386 and from three step-out locations (02-612444, 02-612447, and 02-613292).

- Aroclor-1254 was not detected beneath the excavation and was detected in one sample at a concentration of 0.337 mg/kg at step-out location 02-612447 from 3–3.2 ft bgs. The preexcavated concentrations of Aroclor-1254 were 9.19, 9.17, and 2.02 mg/kg at location 02-600386 from 0–0.5 ft, 2–2.5 ft, and 4.5–5.3 ft bgs, respectively (Table 2.24-2, LANL 2008, 101669.12). Aroclor-1254 concentrations decreased with depth at the excavation and decreased laterally in all four directions. The lateral and vertical extent of Aroclor-1254 are defined.
- Aroclor-1260 was detected in one sample beneath the excavation and three samples at three step-out locations. The highest concentration of 0.825 mg/kg was detected from 4–4.2 ft bgs at location 02-613292. The preexcavated concentrations of Aroclor-1260 were 22, 19.2, and 5.05 mg/kg at location 02-600386 from 0–0.5 ft, 2–2.5 ft, and 4.5–5.3 ft bgs, respectively (Table 2.24-2, LANL 2008, 101669.12). Aroclor-1260 concentrations decreased with depth at the excavation and decreased laterally in three directions (a concrete slab prevented extent sampling to the west). The lateral and vertical extent of Aroclor-1260 are defined.

Five samples were collected from location 02-613571 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of PCBs and SVOCs (Table 3.2-1).

Aroclor-1260 was detected in one sample at a concentration of 0.0154 mg/kg at location 02-613571 from 5–6 ft bgs. Aroclor-1260 concentrations decreased with depth at this location. The vertical extent of Aroclor-1260 is defined.

SVOCs were not detected at location 02-613571. The vertical extent of SVOCs is defined.

Radionuclides

Five samples were collected from location 02-613571 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, and tritium (Table 3.2-1).

Gamma-emitting radionuclides and isotopic plutonium were not detected at location 02-613571. The vertical extent of these radionuclides is defined.

Tritium was detected in one sample at an activity of 0.05603 pCi/g at location 02-613571 from 5–6 ft bgs, but was not detected in deeper samples at this location. Tritium activities decreased with depth at location 02-613571. The vertical extent of tritium is defined.

Uranium-235/236 was detected above the Qbo BV (0.18 pCi/g) in one sample at an activity of 0.208 pCi/g at location 02-613571 from 25–26 ft bgs. Uranium-235/236 activities decreased with depth at this location. The vertical extent of uranium-235/236 is defined.

AOC 02-011(a)(ii)

Inorganic Chemicals

Five samples were collected from location 02-613571 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of TAL metals and hexavalent chromium (Table 3.2-1).

The nature and extent of TAL metals and hexavalent chromium at location 02-613571 have been discussed under AOC 02-011(a)(i). The vertical extent of TAL metals and hexavalent chromium is defined.

Organic Chemicals

Location 02-600449 was proposed for excavation to remove PCB contamination (Table 3.2-1). However, only preexcavation sampling was conducted (see section 6.26.4.1). A total of 42 samples were collected from 17 locations and were analyzed for PCBs only.

Aroclor-1254 was detected in 15 samples at seven locations. The highest concentration of 14.3 mg/kg was detected at location 02-613699 from 8–8.2 ft bgs. The lateral and vertical extent of Aroclor-1254 are not defined in the area surrounding location 02-600449.

Aroclor-1260 was detected in all 42 samples at 17 locations. The highest concentration of 65 mg/kg was detected at location 02-613699 from 8–8.2 ft bgs. The lateral and vertical extent of Aroclor-1260 are not defined in the area surrounding location 02-600449.

Five samples were collected from location 02-613571 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of PCBs and SVOCs (Table 3.2-1).

The nature and extent of PCBs and SVOCs at location 02-613571 have been discussed under AOC 02-011(a)(i). The vertical extent of PCBs and SVOCs is defined.

Radionuclides

Five samples were collected from location 02-613571 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, and tritium (Table 3.2-1).

The nature and extent of gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, and tritium at location 02-613571 have been discussed under AOC 02-011(a)(i). The vertical extent of these radionuclides is defined.

AOC 02-011(a)(iii)

Inorganic Chemicals

Five samples were collected from location 02-613571 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of TAL metals and hexavalent chromium (Table 3.2-1).

The nature and extent of TAL metals and hexavalent chromium at location 02-613571 have been discussed under AOC 02-011(a)(i). The vertical extent of TAL metals and hexavalent chromium is defined.

Organic Chemicals

Location 02-600406 was excavated to remove PCB contamination (Table 3.2-1). All confirmation samples were analyzed for PCBs only.

Confirmation samples were collected from four step-out locations (02-612438, 02-612439, 02-612440, and 02-613003).

- Aroclor-1242 was not detected beneath the excavation but was detected in one sample at a concentration of 0.0162 mg/kg at step-out location 02-612440 from 4–4.4 ft bgs. Aroclor-1242 was not detected at location 02-612435 from 4–4.2 ft bgs (approximately 5 ft to the west of location 02-600406) or at location 02-612437 from 4–4.4 ft bgs (approximately 5 ft to the southwest of location 02-600406) at AOC 02-011(a)(v). The lateral and vertical extent of Aroclor-1242 are defined.
- Aroclor-1254 was not detected beneath the excavation but was detected in one sample at a concentration of 0.0431 mg/kg at step-out location 02-612440 from 4–4.4 ft bgs. Aroclor-1254 was not detected at location 02-612435 from 4–4.2 ft bgs (approximately 5 ft to the west of location 02-600406) but was detected at a concentration of 0.017 mg/kg at location 02-612437 from 4–4.4 ft bgs (approximately 5 ft to the southwest of location 02-600406) at AOC 02-011(a)(v). Aroclor-1254 concentrations decreased laterally in all four directions. The lateral and vertical extent of Aroclor-1254 are defined.
- Aroclor-1260 was not detected beneath the excavation but was detected in six samples at the four step-out locations. The highest concentration of 0.867 mg/kg was detected from 2–2.2 ft bgs

at location 02-612439. The preexcavated concentration of Aroclor-1260 was 6.84 mg/kg at location 02-600406 from 0–0.5 ft (Table 2.24-2, LANL 2008, 101669.12). Aroclor-1260 concentrations decreased with depth at the excavation and decreased laterally in all four directions. The lateral and vertical extent of Aroclor-1260 are defined.

Five samples were collected from location 02-613571 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of PCBs and SVOCs (Table 3.2-1).

The nature and extent of PCBs and SVOCs at location 02-613571 have been discussed under AOC 02-011(a)(i). The vertical extent of PCBs and SVOCs is defined.

Radionuclides

Five samples were collected from location 02-613571 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, and tritium (Table 3.2-1).

The nature and extent of gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, and tritium at location 02-613571 have been discussed under AOC 02-011(a)(i). The vertical extent of these radionuclides is defined.

AOC 02-011(a)(iv)

Inorganic Chemicals

Five samples were collected from location 02-612346 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of TAL metals and hexavalent chromium (Table 3.2-1).

The nature and extent of TAL metals and hexavalent chromium at location 02-612346 have been discussed under AOC 02-004(a) (section 6.7.4.4). The vertical extent of TAL metals and hexavalent chromium is defined.

Organic Chemicals

Five samples were collected from location 02-612346 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of PCBs and SVOCs (Table 3.2-1).

The nature and extent of PCBs and SVOCs at location 02-612346 have been discussed under AOC 02-004(a) (section 6.7.4.4). The vertical extent of PCBs and SVOCs is defined.

Radionuclides

Five samples were collected from location 02-612346 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, and tritium (Table 3.2-1).

The nature and extent of gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, and tritium at location 02-612346 have been discussed under AOC 02-004(a) (section 6.7.4.4). The vertical extent of these radionuclides is defined.

AOC 02-011(a)(v)

Inorganic Chemicals

Five samples were collected from location 02-613571 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of TAL metals and hexavalent chromium (Table 3.2-1).

The nature and extent of TAL metals and hexavalent chromium at location 02-613571 have been discussed under AOC 02-011(a)(i). The vertical extent of TAL metals and hexavalent chromium is defined.

Organic Chemicals

Location 02-600450 was excavated to remove PCB contamination (Table 3.2-1). All confirmation samples were analyzed for PCBs only.

Confirmation samples were collected below the excavation and from seven step-out locations (02-612434 to 02-612437, 02-613118, 02-613120, and 02-613121).

- Aroclor-1254 was not detected beneath the excavation but was detected in one sample at a concentration of 0.017 mg/kg at step-out location 02-612435 from 4–4.2 ft bgs. Aroclor-1254 was not detected at location 02-613001 at depths ranging from 6–7.5 ft bgs at AOC 02-011(a)(ii), approximately 5 ft to the north of location 02-600450. Aroclor-1254 concentrations decreased laterally in all four directions. The lateral and vertical extent of Aroclor-1254 are defined.
- Aroclor-1260 was not detected beneath the excavation but was detected in seven samples at the seven step-out locations. The highest concentration of 0.46 mg/kg was detected from 2–2.2 ft bgs at location 02-613118. The preexcavated concentration of Aroclor-1260 was 73.1 mg/kg at location 02-600450 from 0–0.5 ft (Table 2.24-2, LANL 2008, 101669.12). Aroclor-1260 concentrations decreased with depth at the excavation and decreased laterally in all four directions. The lateral and vertical extent of Aroclor-1260 are defined.

Five samples were collected from location 02-613571 (depths ranging from 5–50 ft bgs)to evaluate the vertical extent of PCBs and SVOCs (Table 3.2-1).

The nature and extent of PCBs and SVOCs at location 02-613571 have been discussed under AOC 02-011(a)(i). The vertical extent of PCBs and SVOCs is defined.

Radionuclides

Five samples were collected from location 02-613571 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, and tritium (Table 3.2-1).

The nature and extent of gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, and tritium at location 02-613571 have been discussed under AOC 02-011(a)(i). The vertical extent of these radionuclides is defined.

AOC 02-011(a)(vi)

Inorganic Chemicals

Five samples were collected from location 02-612346 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of TAL metals and hexavalent chromium (Table 3.2-1). Although the approved work plan did not include proposed sampling location 19 for investigation of AOC 02-011(a)(vi) (LANL 2009, 106660.14, p. 11), this proposed location is located at the footprint of AOC 02-011(a)(vi). Therefore, it is included for this subunit in this report.

The nature and extent of TAL metals and hexavalent chromium at location 02-612346 have been discussed under AOC 02-004(a). The vertical extent of TAL metals and hexavalent chromium is defined.

Organic Chemicals

Location 02-600532 was excavated to remove PAH contamination (Table 3.2-1). All confirmation samples were analyzed for SVOCs.

Confirmation samples were collected below the excavation and from four step-out locations (02-612465 to 02-612468).

Acenaphthene; anthracene; benzo(a)anthracene; benzo(a)pyrene; benzo(b)fluoranthene; benzo(g,h,i)perylene; chrysene; dibenz(a,h)anthracene; fluoranthene; fluorene; indeno(1,2,3-cd)pyrene; naphthalene; phenanthrene; and pyrene were detected beneath the excavation and at one or more step-out locations. PAH concentrations were all lower than the preexcavated concentrations detected at location 02-600532 from 0–0.5 ft (Table 2.24-2, LANL 2008, 101669.12). PAH concentrations decreased with depth beneath the excavation and decreased laterally in all four directions. The lateral and vertical extent of PAHs are defined.

PCBs were also analyzed, although they were not proposed in the work plan. Aroclor-1254 and Aroclor-1260 were detected beneath the excavation and at four step-out locations. Their concentrations decreased with depth beneath the excavation and decreased laterally in all four directions. The lateral and vertical extent of PCBs are defined.

Five samples were collected from location 02-612346 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of PCBs and SVOCs.

The nature and extent of PCBs and SVOCs at location 02-612346 have been discussed under AOC 02-004(a). The vertical extent of PCBs and SVOCs is defined.

Radionuclides

Five samples were collected from location 02-612346 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, and tritium (Table 3.2-1).

The nature and extent of gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, and tritium at location 02-612346 have been discussed under AOC 02-004(a). The vertical extent of these radionuclides is defined.

AOC 02-011(a)(viii)

Inorganic Chemicals

Five samples were collected from location 02-612292 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of TAL metals and hexavalent chromium (Table 3.2-1).

The nature and extent of TAL metals and hexavalent chromium at location 02-612292 have been discussed under AOC 02-006(e) (section 6.19.4.4). The vertical extent of TAL metals and hexavalent chromium is defined.

Organic Chemicals

Five samples were collected from location 02-612292 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of PCBs and SVOCs (Table 3.2-1).

The nature and extent of PCBs and SVOCs at location 02-612292 have been discussed under AOC 02-006(e) (section 6.19.4.4). The vertical extent of SVOCs is defined. The detections of PCBs in the sample from 49–50 ft bgs at location 02-612292 are not consistent with the patterns of detection of PCBs at other sites, are not consistent with known sources of PCBs at TA-02, and are not consistent with transport properties of PCBs.

Radionuclides

Five samples were collected from location 02-612292 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of gamma-emitting radionuclides, isotopic plutonium, and tritium (Table 3.2-1).

The nature and extent of gamma-emitting radionuclides, isotopic plutonium, and tritium at location 02-612292 have been discussed under AOC 02-006(e) (section 6.19.4.4). The vertical extent of these radionuclides is defined.

AOC 02-011(a)(ix)

Inorganic Chemicals

Five samples were collected from location 02-612345 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of TAL metals and hexavalent chromium (Table 3.2-1).

The nature and extent of TAL metals and hexavalent chromium at location 02-612348 have been discussed under AOC 02-006(c) (section 6.17.4.4). The vertical extent of TAL metals and hexavalent chromium is defined.

Organic Chemicals

Five samples were collected from location 02-612345 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of PCBs and SVOCs (Table 3.2-1). Because the field screening indicated elevated concentrations of organic vapors, TPH-DRO was added to the analytical suites for the samples collected at location 02-612345.

The nature and extent of PCBs, SVOCs, and TPH-DRO at location 02-612345 have been discussed under AOC 02-006(c) (section 6.17.4.4). The vertical extent of PCBs, SVOCs, and TPH-DRO is defined

Radionuclides

Five samples were collected from location 02-612345 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, and tritium (Table 3.2-1).

The nature and extent of gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, and tritium at location 02-612345 have been discussed under AOC 02-006(c) (section 6.17.4.4). The vertical extent of these radionuclides is defined.

AOC 02-011(a)(x)

Inorganic Chemicals

Ten samples were collected from locations 02-612348 and 02-612983 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of TAL metals and hexavalent chromium (Table 3.2-1).

The nature and extent of TAL metals and hexavalent chromium at location 02-612348 have been discussed under AOC 02-003(a). The vertical extent of TAL metals and hexavalent chromium is defined.

Aluminum was detected above the Qbt 3 BV (7340 mg/kg) in two samples at location 02-612983. The highest concentration of 23,800 mg/kg was detected at location 02-612983 from 26–27 ft bgs. Aluminum concentrations decreased with depth at this location. The vertical extent of aluminum is defined.

Antimony was not detected but had DLs (1.21 mg/kg and 5.05 mg/kg) above the soil BV (0.83 mg/kg) in two samples and had DLs (1.12 mg/kg to 1.35 mg/kg) above the Qbt 3 BV (0.5 mg/kg) in three samples. Because antimony was not detected above BVs, the vertical extent of antimony is defined.

Arsenic, cadmium, calcium, cobalt, copper, iron, lead, magnesium, manganese, mercury, nickel, silver, vanadium, and zinc were not detected above BVs at location 02-612983. The vertical extent of these metals is defined.

Barium was detected above the Qbt 3 BV (46 mg/kg) in one sample at a concentration of 188 mg/kg at location 02-612983 from 26–27 ft bgs. Barium concentrations decreased with depth at this location. The vertical extent of barium is defined.

Chromium was detected above the Qbt 3 BV (7.14 mg/kg) in one sample at a concentration of 7.22 mg/kg at location 02-612983 from 26–27 ft bgs. Chromium concentrations decreased with depth at this location. The vertical extent of chromium is defined.

Hexavalent chromium was detected in two samples at location 02-612983. The highest concentration of 0.395 mg/kg was detected at location 02-612983 from 7–8 ft bgs. Concentrations of hexavalent chromium decreased with depth at this location. The vertical extent of hexavalent chromium is defined.

Selenium was not detected but had DLs (1.21 mg/kg to 1.29 mg/kg) above the Qbt 3 BV (0.3 mg/kg) in three samples. Because selenium was not detected above BVs, the vertical extent of selenium is defined.

Organic Chemicals

Location 02-600664 was excavated to remove PCB contamination (Table 3.2-1). All confirmation samples were analyzed for PCBs only.

Confirmation samples were collected below the excavation and from six step-out locations (02-612459 to 02-612462, 02-612999, and 02-613000).

- Aroclor-1254 was not detected beneath the excavation but was detected in one sample at a concentration of 0.0309 mg/kg at step-out location 02-612999 from 0–0.5 ft bgs. Aroclor-1254 was not detected in the deeper sample at this location. Aroclor-1254 was not detected in the preexcavated surface sample. The only detected concentration is not significantly higher than the EQL (0.018 mg/kg). The lateral and vertical extent of Aroclor-1254 are defined.
- Aroclor-1260 was detected beneath the excavation in one confirmation sample and was detected in six samples at the four step-out locations. The highest concentration of 0.635 mg/kg was detected from 0–0.5 ft bgs at location 02-613000. The preexcavated concentration of Aroclor-1260 was 1.16 mg/kg at location 02-600664 from 0–0.5 ft (Table 2.24-2, LANL 2008, 101669.12). Aroclor-1260 concentrations decreased with depth at the excavation and decreased laterally in all four directions. The lateral and vertical extent of Aroclor-1260 are defined.

Ten samples were collected from locations 02-612348 and 02-612983 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of PCBs and SVOCs (Table 3.2-1).

The nature and extent of PCBs and SVOCs at location 02-612348 have been discussed under AOC 02-003(a). The vertical extent of PCBs and SVOCs is defined.

Aroclor-1254 was detected in two samples at location 02-612983. The highest concentration of 0.0061 mg/kg was detected at location 02-612983 from 26–27 ft bgs. Aroclor-1254 concentrations decreased with depth. The vertical extent of Aroclor-1254 is defined.

Aroclor-1260 was detected in one sample at a concentration of 0.0024 mg/kg at location 02-612983 from 7–8 ft bgs. Aroclor-1260 concentrations decreased with depth. The vertical extent of Aroclor-1260 is defined.

SVOCs were not detected at location 02-612983. The vertical extent of SVOCs is defined.

Radionuclides

Five samples were collected from location 02-612348 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium (Table 3.2-1).

The nature and extent of gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium at location 02-612348 have been discussed under AOC 02-003(a). The vertical extent of these radionuclides is defined.

Five samples were collected from location 02-612983 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, and tritium (Table 3.2-1).

Gamma-emitting radionuclides and isotopic plutonium were not detected at location 02-612983. The vertical extent of gamma-emitting radionuclides and isotopic plutonium is defined.

Tritium was detected at an activity of 0.0499 pCi/g in the deepest sample (49–50 ft bgs) at location 02-612983. This activity is significantly lower than those detected from 5–25 ft bgs throughout TA-02 and is three orders of magnitude below the residential SAL (750 pCi/g). For TA-02 as a whole, maximum tritium activities in soil (up to 167 pCi/g) generally occur between 5 ft and 25 ft bgs. Therefore, tritium activities generally decrease with depth at TA-02.

The depth interval of 47.5–50 ft bgs is below the alluvial aquifer but above the perched-intermediate groundwater zone. Alluvial and perched-intermediate groundwater in Los Alamos Canyon is monitored by wells LAO-1 and LAOI-1, respectively, which are located approximately 1000 ft downgradient of location 02-612393, near the eastern boundary of TA-02. Over the past 10 yr, tritium has been detected at activities as high as 399 pCi/L in the alluvial groundwater downgradient of TA-02, but activities have been declining over the past several years. In the most recent sample from well LAO-1 (2009), tritium was detected at 47.3 pCi/L. In 2011, tritium was detected at 11.3 pCi/L in well LAOI(a)-1.1. Because subsurface conditions are being monitored by the alluvial and intermediate wells downgradient of TA-02, deeper sampling at location 02-612983 to establish the vertical extent of tritium contamination is not necessary.

Summary of Nature and Extent at AOC 02-011(a)

Excavations were conducted at locations 02-600386 [AOC 02-011(a)(i)], 02-600406 [AOC 02-011(a)(iii)], and 02-600450 [AOC 02-011(a)(v)] to remove PCB contamination. The lateral and vertical extent of PCBs are defined at these locations. Results of the confirmation samples indicated that the remaining PCB concentrations are below 1 mg/kg.

Excavation was conducted at location 02-600385 [AOC 02-011(a)(i)] to remove PCB contamination. The lateral and vertical extent of PCBs are not defined to the north of location 02-600385.

Excavation was not conducted at location 02-600449 [AOC 02-011(a)(ii)]. The lateral and vertical extent of PCBs are not defined at this location.

Excavation was conducted at location 02-600532 to remove PAH contamination. The lateral and vertical extent of PAHs are defined at location 02-600532. Results of the confirmation samples indicated that the remaining PAH concentrations are below industrial SSLs.

Excavation was conducted at location 02-600664 [AOC 02-011(a)(x)] to remove PCB contamination. The lateral and vertical extent of PCBs are defined at this location. Results of the confirmation samples indicated that the remaining PCB concentrations are below 1 mg/kg.

The vertical extent of TAL metals, hexavalent chromium, PCBs [with exceptions at AOC 02-011(a)(i,ii)], SVOCs, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium is defined at AOC 02-011(a)(i,ii,iii,iv,v,viii,ix,x).

6.26.5 Summary of Human Health Risk Screening

A human health risk assessment has not been performed for AOC 02-011(a) because extent is not defined for the site.

6.26.6 Summary of Ecological Risk Screening

An ecological risk assessment has not been performed for AOC 02-011(a) because extent is not defined for the site.

6.27 AOC 02-011(b), Former Drainlines from Stack-Gas Valve House

6.27.1 Site Description and Operational History

AOC 02-011(b) consists of two drains and outfalls associated with the stack-gas valve house (structure 02-019) (Figure 6.27-1). One drain was a 9-ft-long × 15-in.-diameter CMP between the stack-gas valve house and the catch basin (structure 02-035). The second drain was a 9-ft-long × 24-in.-diameter CMP that drained from the catch basin (structure 02-035) to Los Alamos Creek outside the east fence. The drains and structures are shown on engineering drawing C-1718 (LASL 1947, 089677).

The drains and outfalls were presumably installed at the same time the stack-gas valve house [AOC 02-003(a)] was constructed in 1944. The stack-gas valve house was in use through 1974 when it became inactive and was removed during 1985 D&D activities. The actual purpose of the drainlines and catch basin is not documented. The drains and outfalls remained in place until they were removed and disposed of during 2003 D&D activities (WD-3 2003, 082646).

6.27.2 Relationship to Other SWMUs and AOCs

The drains and outfalls were connected to the stack-gas valve house, AOC 02-003(a), and ran parallel to line 118 [also part of AOC 02-003(a)]. The holding tank, AOC 02-003(e), was located near the upper ends of the drainlines.

6.27.3 Summary of Previous Investigations

1995 Investigation Activities

Six soil and tuff samples were collected from locations 02-01107 and 02-01110 within the drain and outfall areas. The samples were analyzed for radionuclides only.

2000 Post–Cerro Grande Recovery Work

Five samples were collected from one borehole (location 02-01239) drilled in the approximate area of the bend in the outfall pipe. The samples were analyzed for radionuclides and TAL metals. Field screening of recovered core indicated no radioactivity existed above site background (LANL 2001, 070352, p. 7).

Inorganic chemicals and radionuclides were detected above background in samples from 1995 to 2000. Because the nature and extent of contamination were not defined and because no organic chemical analyses were performed, the approved 2006 investigation work plan proposed the collection of additional samples at AOC 02-011(b) (LANL 2006, 092571.12; NMED 2006, 095416).

2007 Investigation Activities

Nine samples were collected from five locations at AOC 02-011(b) in 2007. Results from the sampling activities in 2007 were presented in the previous investigation report (LANL 2008, 101669.12). Additional sampling was required to define the extent of contamination at the site.

6.27.4 Site Contamination

6.27.4.1 Soil, Rock, and Sediment Sampling

As part of the 2010 investigation, the following characterization activities were conducted at AOC 02-011(b):

- All samples were field screened for organic vapors and gross-alpha, -beta, and -gamma radioactivity. Field-screening results were recorded on the SCLs (Appendix F) and are presented in Table 3.2-2.
- Five samples were collected from location 02-612389 at the former stack house (structure 02-19) from 5–6 ft, 18–19 ft, 25–27 ft, 35–36 ft, and 49–50 ft bgs. Five samples were collected from location 02-612390 near AOC 02-011(b) from 5–6 ft, 15–17 ft, 26–27 ft, 35–36 ft, and 49–50 ft bgs. These samples were analyzed for TAL metals, PCBs, SVOCs, americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium.

The 2010 and historical sampling locations at AOC 02-011(b) are shown in Figure 6.27-1. Table 6.27-1 presents the samples collected and analyses requested for AOC 02-011(b). The geodetic coordinates of the 2010 sampling locations are presented in Table 3.2-1.

6.27.4.2 Soil, Rock, and Sediment Sample Field-Screening Results

No organic vapors were detected at more than 10 ppm above ambient air levels during headspace screening of the samples. Radiological-screening results exceeded the daily site background levels at location 02-612389. As a result, respirators were used while collecting samples at this location. Field-screening results are presented in Table 3.2-2. No changes were made to sampling depths because of the field-screening results.

6.27.4.3 Soil, Rock, and Sediment Sample Analytical Results

Decision-level data at AOC 02-011(b) consist of results from 30 samples collected from 10 locations in 1995, 2000, 2007, and 2010. The 30 samples include 5 soil, 6 Qal, 5 Qbt 2, 1 Qbt 3, 8 Qbo, and 5 sediment samples.

Inorganic Chemicals

A total of 24 samples (4 soil, 6 Qal, 1 Qbt 3, 8 Qbo, and 5 sediment) were analyzed for TAL metals, and 9 samples (1 soil, 3 Qal, 1 Qbo, and 4 sediment) were analyzed for hexavalent chromium, nitrate, perchlorate, and total cyanide.

Table 6.27-2 presents the inorganic chemicals detected or detected above BVs. Figure 6.27-2 shows the spatial distribution of inorganic chemicals detected or detected above BVs. The vertical extent is defined at AOC 02-011(b), and the lateral extent is defined at the TA-02 core area; inorganic COPCs are identified below.

Aluminum was detected above the Qbt 3 BV (7340 mg/kg) in one sample at a concentration of 8100 mg/kg. This concentration is below the maximum Qbt 3 background concentration (8370 mg/kg). Aluminum was detected above the Qbo BV (3560 mg/kg) in two samples with a maximum concentration of 6720 mg/kg. Because there were fewer than 10 Qbo samples, statistical tests could not be performed. Aluminum is identified as a COPC in tuff.

Antimony was not detected but had DLs (0.902 mg/kg to 1.17 mg/kg) above the soil BV (0.83 mg/kg) in three samples. Antimony is identified as a COPC in soil. Antimony was not detected but had DLs (1.15 mg/kg to 1.3 mg/kg) above the Qbo BV (0.5 mg/kg) and the maximum Qbo background concentration (0.2 mg/kg) in seven samples. Antimony is identified as a COPC in tuff.

Arsenic was detected above the Qbo BV (0.56 mg/kg) in one sample at a concentration of 0.64 mg/kg, and it was not detected but had DLs (1.14 mg/kg to 1.28 mg/kg) above the Qbo BV in seven samples. All seven DLs are above the maximum Qbo background concentration (0.7 mg/kg). Arsenic is identified as a COPC in tuff.

Cadmium was not detected above the soil BV (0.4 mg/kg) but had DLs (0.542 mg/kg to 0.584 mg/kg) above the soil BV in four samples. Because the background data set had more than 50% nondetects, the Gehan test could not be performed. The quantile and slippage tests indicated site concentrations are not different from background (Figure G-20.0-1, Table G-20). Cadmium is not identified as a COPC in soil. Cadmium was not detected but had DLs (0.573 mg/kg to 0.65 mg/kg) above the Qbo BV (0.4 mg/kg) in all eight Qbo samples. Cadmium is identified as a COPC in tuff. Cadmium was not detected but had a DL (0.503 mg/kg) above the sediment BV (0.4 mg/kg) in one sample. Cadmium is identified as a COPC in sediment.

Chromium was detected above the soil BV (19.3 mg/kg) in one sample at a concentration of 37 mg/kg. The Gehan and quantile tests indicated site concentrations are not different from background (Figure G-20.0-2, Table G-20). Chromium is not identified as a COPC in soil.

Hexavalent chromium was detected in seven soil/Qal/sediment samples with a maximum concentration of 0.693 mg/kg. Hexavalent chromium has no BV in either soil or sediment. Hexavalent chromium is identified as a COPC in soil and sediment.

Iron was detected above the Qbo BV and the maximum Qbo background concentration (both 3700 mg/kg) in all eight Qbo samples with a maximum concentration of 5850 mg/kg. Iron is identified as a COPC in tuff.

Lead was detected above the sediment BV (19.7 mg/kg) in three samples with a maximum concentration of 23.2 mg/kg. All three concentrations are below the maximum sediment background concentration (25.6 mg/kg). Lead is not identified as a COPC in sediment.

Manganese was detected above the soil BV (671 mg/kg) in one sample at a concentration of 980 mg/kg. The Gehan and quantile tests indicated site concentrations are not different from background (Figure G-20.0-3, Table G-20). Manganese is not identified as a COPC in soil. Manganese was detected above the Qbo BV (189 mg/kg) and the maximum Qbo background concentration (210 mg/kg) in three samples with a maximum concentration of 243 mg/kg. Because there were fewer than 10 Qbo samples, statistical tests could not be performed. Manganese is identified as a COPC in tuff.

Mercury was detected above the soil BV and the maximum soil background concentration (both 0.1 mg/kg) in one sample at a concentration of 0.174 mg/kg. Because the background data set had more than 50% nondetects, the Gehan test could not be performed. The quantile and slippage tests indicated site concentrations are not different from background (Figure G-20.0-4, Table G-20). Mercury is not identified as a COPC in soil. Mercury was detected above the sediment BV (0.1 mg/kg) and the maximum sediment background concentration (0.03 mg/kg) in three samples with a maximum concentration of 0.461 mg/kg. Because there were fewer than 10 sediment samples, statistical tests could not be performed. Mercury is identified as a COPC in sediment.

Nickel was detected above the soil BV (15.4 mg/kg) in one sample at a concentration of 20 mg/kg. The Gehan test and the box plot indicated site concentrations are less than background (Figure G-20.0-5, Table G-20). Nickel is not identified as a COPC in soil. Nickel was detected above the Qbo BV (2 mg/kg) in one sample at a concentration of 2.46 mg/kg. This concentration is below the maximum Qbo background concentration (2.8 mg/kg). Nickel is not identified as a COPC in tuff.

Nitrate was detected in six Qal/sediment samples with a maximum concentration of 5.02 mg/kg. No background data are available for nitrate. Nitrate is naturally occurring, and the concentrations detected likely reflect naturally occurring levels. Nitrate is not identified as a COPC in soil and sediment.

Selenium was detected above the soil BV (1.52 mg/kg) in two samples with a maximum concentration of 3.71 mg/kg, and it was not detected but had a DL (1.54 mg/kg) above the soil BV in one sample. The Gehan and quantile tests indicated site concentrations are not different from background (Figure G-20.0-6, Table G-20). Selenium is not identified as a COPC in soil. Selenium was detected above the Qbo BV (0.3 mg/kg) in one sample at a concentration of 1.43 mg/kg, and it was not detected but had DLs (1.14 mg/kg to 1.28 mg/kg) above the Qbo BV in seven samples. Because there were fewer than 10 Qbo samples, statistical tests could not be performed. Selenium was not detected but had a DL (0.32 mg/kg) above the Qbt 3 BV (0.3 mg/kg) in one sample. Selenium is identified as a COPC in tuff. Selenium was detected above the sediment BV (0.3 mg/kg) in one sample at a concentration of 0.845 mg/kg, and it was not detected but had DLs (1.51 mg/kg to 1.55 mg/kg) above the sediment BV in three samples. Selenium is identified as a COPC in sediment.

Uranium was detected above the soil BV (1.82 mg/kg) and the maximum soil background concentration (3.6 mg/kg) in one sample at a concentration of 6.83 mg/kg. Because uranium was analyzed in only three soil samples, statistical tests could not be performed. Uranium is identified as a COPC in soil.

Vanadium was detected at the Qbo BV (4.59 mg/kg) in one sample at a concentration of 4.6 mg/kg. Because vanadium was detected at a concentration equivalent to the BV, it is not identified as a COPC in tuff.

Zinc was detected above the soil BV (48.8 mg/kg) in three samples with a maximum concentration of 55 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-20.0-7, Table G-20). Zinc is identified as a COPC in soil. Zinc was detected above the sediment BV (60.2 mg/kg) and the maximum sediment background concentration (56.2 mg/kg) in four samples with a maximum concentration of 70.1 mg/kg. Because there were fewer than 10 sediment samples, statistical tests could not be performed. Zinc is identified as a COPC in sediment.

In summary, the inorganic COPCs identified at AOC 02-011(b) are aluminum, antimony, arsenic, cadmium, hexavalent chromium, iron, manganese, mercury, selenium, uranium, and zinc.

Organic Chemicals

A total of 19 samples (1 soil, 6 Qal, 8 Qbo, and 4 sediment) were analyzed for PCBs and SVOCs, and 4 samples (3 Qal and 1 Qbo) were analyzed for VOCs.

Table 6.27-3 presents the detected organic chemicals. Figure 6.27-3 shows the spatial distribution of detected organic chemicals. The vertical extent is defined at AOC 02-011(b), and the lateral extent is defined at the TA-02 core area; organic COPCs are identified below.

Organic chemicals detected at AOC 02-011(b) include acenaphthene; anthracene; Aroclor-1254; Aroclor-1260; benzo(a)anthracene; benzo(a)pyrene; benzo(b)fluoranthene; benzo(g,h,i)perylene;

benzo(k)fluoranthene; bis(2-ethylhexyl)phthalate; chrysene; fluoranthene; fluorene; indeno(1,2,3-cd)pyrene; 2-methylnaphthalene; naphthalene; phenanthrene; and pyrene.

These organic chemicals are retained as COPCs at AOC 02-011(b).

Radionuclides

A total of 19 samples (1 soil, 6 Qal, 8 Qbo, and 4 sediment) were analyzed for americium-241; 29 samples (5 soil, 6 Qal, 4 Qbt 2, 1 Qbt 3, 8 Qbo, and 5 sediment) were analyzed for gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium; and 1 Qbt 2 sample was analyzed for technetium-99.

Table 6.27-4 presents the radionuclides detected or detected above BVs/FVs. Figure 6.27-4 shows the spatial distribution of radionuclides detected or detected above BVs/FVs. The vertical extent is defined at AOC 02-011(b), and the lateral extent is defined at the TA-02 core area; radionuclide COPCs are identified below.

Americium-241 was not detected or not detected above the FV in any samples from SWMU 02-011(b) and therefore is not identified as a COPC at this site.

Cesium-137 was detected in subsurface soil (below 0–1 ft) in seven samples with a maximum activity of 274 pCi/g. Cesium-137 was detected in subsurface tuff (below 0–1 ft) in two samples with a maximum activity of 21.69 pCi/g. Cesium-137 was detected above the sediment FV (0.90 pCi/g) and the maximum sediment background activity (1.28 pCi/g) in one sample at an activity of 23.3 pCi/g. Cesium-137 is identified as a COPC in soil, tuff, and sediment.

Plutonium-238 was detected in subsurface soil (below 0–1 ft) in one sample at an activity of 0.0255 pCi/g. Plutonium-238 is identified as a COPC in soil.

Plutonium-239/240 was detected above the soil FV (0.054 pCi/g) and detected in subsurface soil (below 0–1 ft) in nine samples with a maximum activity of 4.41 pCi/g. Plutonium-239/240 was detected in surface or subsurface tuff (below 0–1 ft) in four samples with a maximum activity of 1.32 pCi/g. Plutonium-239/240 was detected above the sediment BV (0.068 pCi/g) in five samples with a maximum activity of 0.845 pCi/g. Plutonium-239/240 is identified as a COPC in soil, tuff, and sediment.

Strontium-90 was detected in subsurface soil (below 0–1 ft) in six samples with a maximum activity of 32.8 pCi/g, and it was detected in subsurface tuff (below 0–1 ft) in two samples with a maximum activity of 2.4 pCi/g. Strontium-90 is identified as a COPC in soil and tuff.

Tritium was detected in 34 soil/tuff samples with a maximum activity of 3.81 pCi/g. Tritium is identified by detection status and is a COPC in soil and tuff.

Uranium-234 was detected above the soil BV (2.59 pCi/g) in two samples with a maximum activity of 6.33 pCi/g, and it was detected above the Qbt 3 BV (1.98 pCi/g) in two samples with a maximum activity of 2.51 pCi/g. Uranium-234 is identified as a COPC in soil and tuff.

Uranium-235/236 was detected above the soil BV (0.2 pCi/g) in two samples with a maximum activity of 0.274 pCi/g. Uranium-235/236 was detected above the Qbt 3 BV (0.09 pCi/g) in two samples with a maximum activity of 0.24 pCi/g and was detected above the Qbo BV (0.18 pCi/g) in three samples with a maximum activity of 0.224 pCi/g. Uranium-235/236 is identified as a COPC in soil and tuff.

Uranium-238 was detected above the soil BV (2.29 pCi/g) in two samples with a maximum activity of 6.09 pCi/g, and it was detected above the Qbt 3 BV (1.98 pCi/g) in two samples with a maximum activity of 2.44 pCi/g. Uranium-238 is identified as a COPC in soil and tuff.

In summary, the radionuclide COPCs identified at AOC 02-011(b) are cesium-137, plutonium-238, plutonium-239/240, strontium-90, tritium, uranium-234, uranium-235/236, and uranium-238.

6.27.4.4 Nature and Extent of Contamination at AOC 02-011(b)

In accordance with the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), two locations were sampled at AOC 02-011(b) to determine the vertical extent of contamination for inorganic chemicals, organic chemicals, and radionuclides (Table 3.2-1). Analytical suites were determined by the data needs specific to each location as presented in Table 3.1-1 of the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703). The vertical extent of contamination at AOC 02-011(b) is evaluated using only the Phase II data from samples collected as deep as 50 ft bgs.

Inorganic Chemicals

Ten samples were collected from locations 02-612389 and 02-612390 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of TAL metals (Table 3.2-1).

In accordance with the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), Phase II samples were not analyzed for hexavalent chromium. Hexavalent chromium was detected in seven 2007 samples at concentrations less than 1 mg/kg. It was not detected in the deepest 2007 sample (location 02-600215, 14.5–16.7 ft bgs). Therefore, the vertical extent of hexavalent chromium is defined.

Mercury was not detected above BVs at locations 02-612389 and 02-612390. Therefore, the vertical extent of these metals is defined.

Uranium was detected in only one historical sample at AOC 02-011(b), in the shallowest depth interval (3–4 ft bgs at location 02-01239). Therefore, the vertical extent of uranium is defined.

Zinc was detected at 49.2 mg/kg in the shallowest sample (5–6 ft bgs) from location 02-612390. It was not detected in any other samples from locations 02-612389 and 02-612390. Therefore, the vertical extent of zinc is defined.

The nature and extent of other TAL metals at locations 02-612389 and 02-612390 have been discussed under AOC 02-003(a) (section 6.2.4.4) and AOC 02-003(b) (section 6.3.4.4), respectively. The vertical extent of TAL metals is defined.

Organic Chemicals

Ten samples were collected from locations 02-612389 and 02-612390 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of PCBs and SVOCs (Table 3.2-1).

The nature and extent of PCBs and SVOCs at location 02-612389 have been discussed under AOC 02-003(a) (section 6.2.4.4). The vertical extent of PCBs and SVOCs is defined.

The nature and extent of PCBs and SVOCs at location 02-612390 have been discussed under AOC 02-003(b) (section 6.3.4.4). The vertical extent of PCBs and SVOCs is defined.

Radionuclides

Ten samples were collected from locations 02-612389 and 02-612390 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium (Table 3.2-1).

Americium-241 was not detected in samples from AOC 02-011(b) and is not identified as a COPC. Plutonium-238 was not detected or not detected above FVs at locations 02-612389 and 02-612390, and therefore the vertical extent of plutonium-238 is defined. Uranium-234 and uranium-238 were not detected above BVs at locations 02-612389 and 02-612390, and therefore the vertical extent of uranium-234 and uranium-238 is defined.

The nature and extent of cesium-137, plutonium-239/240, uranium-235/236, strontium-90, and tritium at location 02-612389 have been discussed under AOC 02-003(a) (section 6.2.4.4). The vertical extent of these radionuclides is defined.

The nature and extent of cesium-137, plutonium-239/240, isotopic uranium, strontium-90, and tritium at location 02-612390 have been discussed under AOC 02-003(b) (section 6.3.4.4). The vertical extent of these radionuclides is defined

Summary of Nature and Extent at AOC 02-011(b)

The vertical extent of TAL metals, PCBs, SVOCs, americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium is defined.

6.27.5 Summary of Human Health Risk Screening

Details of the human health risk-screening assessment for AOC 02-011(b) are discussed in Appendix H, section H-4.

The total excess cancer risk for the industrial scenario is 1×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.002, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 11 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 1×10^{-6}, based on a comparison with EPA's outdoor worker PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

The total excess cancer risk for the recreational scenario is 7×10^{-7}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.03, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 1 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 5×10^{-6}, based on conversion from dose using RESRAD, Version 6.5.

The total excess cancer risk for the residential scenario is 3×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.3, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 274 mrem/yr, which is above the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 6×10^{-5}, based on a comparison with EPA's residential PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Based on the screening-assessment results, no potential unacceptable risks or doses from COPCs exist for the industrial and recreational scenarios. Based on the screening-assessment results, no potential unacceptable risk exists for the residential scenario, but a potential unacceptable dose exists for the residential scenario.

6.27.6 Summary of Ecological Risk Screening

In accordance with the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), locations surrounding the core area of TA-02 were sampled to define the lateral extent of contamination for TA-02 as a whole (section 6.32). Although the lateral extent for the TA-02 core area is defined, one site within the core area requires additional remediation and confirmation sampling. The ecological risk-screening assessment will be conducted for the sites within the TA-02 core area as one exposure unit after the investigation at this site has been completed.

6.28 AOC 02-011(c), Storm Drain

6.28.1 Site Description and Operational History

AOC 02-011(c) was a storm drain associated with the OWR equipment building [02-044, AOC 02-004(f)] (Figure 6.28-1). The drainline was a 4-in. diameter VCP that was approximately 12 ft long, and drained to the surface west of the western fence. The drainline was installed in 1954, as shown on engineering drawing C-14930 (LASL 1954, 090076). The drainline was removed and disposed of in 2003 (WD-3 2003, 082646, pp. 26–31).

The OWR equipment building was in operation from 1954 to 1993. The AOC 02-011(c) storm drain and outfall collected and discharged stormwater from the vicinity of the building from 1954 to 2003. The AOC 02-011(c) outfall piping was decommissioned and removed, and the waste was disposed of at an approved facility in 2003 (WD-3 2003, 082646, pp. 1–6).

6.28.2 Relationship to Other SWMUs and AOCs

AOC 02-011(c) was associated with the OWR equipment building [02-044, AOC 02-004(f)], although drainlines associated with that building were not directly connected to the storm drainline or outfall. The outfall discharged to the surface approximately 20 ft northeast of AOC 02-004(d), which was a subsurface structure. The path of the storm drainline intersected the path of the drainline from the OWR equipment building [02-044, AOC 02-004(f)] to the OWR acid pit [AOC 02-004(e)].

6.28.3 Summary of Previous Investigations

2003 Omega West Decommissioning Project

AOC 02-011(c) outfall piping was decommissioned and removed, and the waste was disposed of at an approved facility in 2003. Site activities included soil excavation, radiological walkover surveys, radiological (structure) screening, soil sampling, sample analysis, and surveying of sample coordinates. Radiological walkover surveys and radiological (structure) screening were conducted to segregate waste, primarily equipment and construction materials. Limited soil surveys were conducted, but no formal report of soil survey results is available.

LLW (construction debris and/or soil) was packaged and shipped to Envirocare or TA-54 for disposal. Mixed waste was packaged and transferred to TA-54 for further processing and/or storage at the

Laboratory. In total, 360 yd^3 of material was shipped to Envirocare for disposal; material from the AOC 02-011(c) storm drain was included in this total volume (WD-3 2003, 082646, pp. 1–6).

No soil samples were collected in 2003 at AOC 02-011(c) as part of the Omega West decommissioning project activities.

2007 Investigation Activities

Four samples were collected from one location at AOC 02-011(c) in 2007. Results from the sampling activities in 2007 were presented in the previous investigation report (LANL 2008, 101669.12). Additional sampling was required to define the extent of contamination at the site.

6.28.4 Site Contamination

6.28.4.1 Soil and Rock Sampling

As part of the 2010 investigation, the following characterization activities were conducted at AOC 02-011(c):

- All samples were field screened for organic vapors and gross-alpha, -beta, and -gamma radioactivity. Field-screening results were recorded on the SCLs (Appendix F) and are presented in Table 3.2-2.
- Five samples were collected from location 02-612347 from 5–6 ft, 15–16 ft, 25–27 ft, 35–36 ft, and 49–50 ft bgs. These samples were analyzed for TAL metals, hexavalent chromium, PCBs, SVOCs, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, and tritium.

The 2010 and historical sampling locations at AOC 02-011(c) are shown in Figure 6.28-1. Table 6.28-1 presents the samples collected and analyses requested for AOC 02-011(c). The geodetic coordinates of the 2010 sampling locations are presented in Table 3.2-1.

6.28.4.2 Soil and Rock Sample Field-Screening Results

No organic vapors were detected at more than 10 ppm above ambient air levels during headspace screening of the samples. No radiological-screening results exceeded twice the daily site background levels. Field-screening results are presented in Table 3.2-2. No changes to sampling or other activities occurred because of the field-screening results.

6.28.4.3 Soil and Rock Sample Analytical Results

Decision-level data at AOC 02-011(c) consist of results from nine samples collected from two locations in 2007 and 2010. The nine samples include one soil, four Qal, and four Qbo samples.

Inorganic Chemicals

A total of nine samples (one soil, four Qal, and four Qbo) were analyzed for TAL metals, five samples (two Qal and three Qbo) were analyzed for hexavalent chromium, and four samples (one soil, two Qal, and one Qbo) were analyzed for nitrate, perchlorate, and total cyanide.

Table 6.28-2 presents the inorganic chemicals detected or detected above BVs. Figure 6.28-2 shows the spatial distribution of inorganic chemicals detected or detected above BVs. The vertical extent is defined at AOC 02-011(c), and the lateral extent is defined at the TA-02 core area; inorganic COPCs are identified below.

Aluminum was detected above the Qbo BV (3560 mg/kg) and the maximum Qbo background concentration (3400 mg/kg) in one sample at a concentration of 9810 mg/kg. Because there were fewer than 10 Qbo samples, statistical tests could not be performed. Aluminum is identified as a COPC in tuff.

Antimony was not detected but had DLs (0.962 mg/kg and 0.996 mg/kg) above the soil BV (0.83 mg/kg) in two samples. Both DLs are below the maximum soil background concentration (1 mg/kg). Antimony is not identified as a COPC in soil. Antimony was not detected but had DLs (1.18 mg/kg to 1.24 mg/kg) above the Qbo BV (0.5 mg/kg) and the maximum Qbo background concentration (0.2 mg/kg) in three samples. Antimony is identified as a COPC in tuff.

Arsenic was detected above the Qbo BV (0.56 mg/kg) in one sample at a concentration of 0.892 mg/kg, and it was not detected but had DLs (1.18 mg/kg to 1.22 mg/kg) above the Qbo BV in three samples. The concentration and all three DLs are above the maximum Qbo background concentration (0.7 mg/kg). Arsenic is identified as a COPC in tuff.

Barium was detected above the Qbo BV (25.7 mg/kg) and the maximum Qbo background concentration (23 mg/kg) in one sample at a concentration of 27.7 mg/kg. Because there were fewer than 10 Qbo samples, statistical tests could not be performed. Barium is identified as a COPC in tuff.

Cadmium was not detected but had DLs (0.481 mg/kg to 0.535 mg/kg) above the soil BV (0.4 mg/kg) in three samples. All three DLs are below the maximum soil background concentration (2.6 mg/kg). Cadmium is not identified as a COPC in soil. Cadmium was not detected but had DLs (0.59 mg/kg to 0.622 mg/kg) above the Qbo BV (0.4 mg/kg) in four samples. Cadmium is identified as a COPC in tuff.

Iron was detected above the Qbo BV and the maximum Qbo background concentration (both 3700 mg/kg) in all four Qbo samples with a maximum concentration of 5850 mg/kg. Iron is identified as a COPC in tuff.

Manganese was detected above the Qbo BV (189 mg/kg) in three samples with a maximum concentration of 232 mg/kg. Two of the three concentrations are above the maximum Qbo background concentration (210 mg/kg). Because there were fewer than 10 Qbo samples, statistical tests could not be performed. Manganese is identified as a COPC in tuff.

Nitrate was detected in two Qal samples with a maximum concentration of 31.9 mg/kg. No background data are available for nitrate, and this concentration is higher than would be expected for naturally occurring nitrate. Nitrate is identified as a COPC in soil.

Perchlorate was detected in one Qal sample at a concentration of 0.000559 mg/kg. This concentration is equivalent to the EDL (0.00056 mg/kg). Perchlorate is not identified as a COPC in soil.

Selenium was detected above the soil BV (1.52 mg/kg) in one sample at a concentration of 1.7 mg/kg, and it was not detected but had a DL (1.61 mg/kg) above the soil BV in one sample. The detected concentration is equivalent to the maximum soil background concentration (1.7 mg/kg), and the DL is below the maximum soil background concentration. Selenium is not identified as a COPC in soil. Selenium was detected above the Qbo BV (0.3 mg/kg) in one sample at a concentration of 1.52 mg/kg, and it was not detected but had DLs (1.18 mg/kg to 1.22 mg/kg) above the Qbo BV in three samples. Because there were fewer than 10 Qbo samples, statistical tests could not be performed. Selenium is identified as a COPC in tuff.

Zinc was detected above the soil BV (48.8 mg/kg) in one sample at a concentration of 65.2 mg/kg. This concentration is below the maximum soil background concentration (75.5 mg/kg). Zinc is not identified as a COPC in soil.

In summary, the inorganic COPCs identified at AOC 02-011(c) are aluminum, antimony, arsenic, barium, cadmium, iron, manganese, nitrate, and selenium.

Organic Chemicals

A total of four samples (one soil, two Qal, and one Qbo) were analyzed for dioxins and furans and explosive compounds, nine samples (one soil, four Qal, and four Qbo) were analyzed for PCBs and SVOCs, and three samples (two Qal and one Qbo) were analyzed for VOCs.

Table 6.28-3 presents the detected organic chemicals. Figure 6.28-3 shows the spatial distribution of detected organic chemicals. The vertical extent is defined at AOC 02-011(c), and the lateral extent is defined at the TA-02 core area; organic COPCs are identified below.

Organic chemicals detected at AOC 02-011(c) include Aroclor-1254; Aroclor-1260; benzo(a)anthracene; di-n-butylphthalate; fluoranthene; 1,2,3,4,6,7,8-heptachlorodibenzodioxin; 1,2,3,4,6,7,8-heptachlorodibenzofuran; 1,2,3,4,7,8,9-heptachlorodibenzofuran; 1,2,3,4,7,8-hexachlorodibenzodioxin; 1,2,3,6,7,8-hexachlorodibenzodioxin; 1,2,3,7,8,9-hexachlorodibenzodioxin; 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-hexachlorodibenzofuran; 1,2,3,4,6,7,8,9-octachlorodibenzodioxin; 1,2,3,4,6,7,8,9-octachlorodibenzofuran; 1,2,3,7,8-pentachlorodibenzodioxin; 1,2,3,7,8-pentachlorodibenzofuran; 2,3,4,7,8-pentachlorodibenzofuran; pyrene; 2,3,7,8-tetrachlorodibenzodioxin; 2,3,7,8-tetrachlorodibenzofuran; and toluene.

These organic chemicals are retained as COPCs at AOC 02-011(c).

Radionuclides

A total of four samples (one soil and three tuff) were analyzed for americium-241; nine samples (one soil and eight tuff) were analyzed for gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, and tritium; and four samples (one soil and three tuff) were analyzed for strontium-90.

Table 6.28-4 presents the radionuclides detected or detected above BVs/FVs. Figure 6.28-4 shows the spatial distribution of radionuclides detected or detected above BVs/FVs. The vertical extent is defined at AOC 02-011(c), and the lateral extent is defined at the TA-02 core area; radionuclide COPCs are identified below.

Strontium-90 was detected in subsurface soil (below 0–1 ft) in one sample at an activity of 0.263 pCi/g. Strontium-90 is identified as a COPC in soil.

Tritium was detected in three soil/tuff samples with a maximum activity of 0.191 pCi/g. Tritium is identified by detection status and is a COPC in soil and tuff.

In summary, the radionuclide COPCs identified at AOC 02-011(c) are strontium-90 and tritium.

6.28.4.4 Nature and Extent of Contamination at AOC 02-011(c)

In accordance with the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), one location was sampled at AOC 02-011(c) to determine the vertical extent of contamination for inorganic chemicals, organic chemicals, and radionuclides (Table 3.2-1). Analytical suites were determined by the data needs specific to each location as presented in Table 3.1-1 of the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703). The vertical extent of contamination at AOC 02-011(c) is evaluated using only the Phase II data from samples collected as deep as 50 ft bgs.

Inorganic Chemicals

Five samples were collected from location 02-612347 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of TAL metals and hexavalent chromium (Table 3.2-1). As stated in the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), the extent of nitrate was defined following the 2007 investigation, and no Phase II samples were analyzed for nitrate

The nature and extent of TAL metals and hexavalent chromium at location 02-612347 have been discussed under AOC 02-004(f) (section 6.12.4.4). The vertical extent of TAL metals and hexavalent chromium is defined.

Organic Chemicals

Five samples were collected from location 02-612347 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of PCBs and SVOCs (Table 3.2-1). As stated in the approved Phase II investigation work plan (LANL 2009, 106660.14; NMED 2009, 106703), the extent of VOCs was defined following the 2007 investigation, and no Phase II samples were analyzed for VOCs. In addition, Phase II samples were not analyzed for dioxins and furans (LANL 2008, 101669.12, p. 115).

The nature and extent of PCBs and SVOCs at location 02-612347 have been discussed under AOC 02-004(f) (section 6.12.4.4). The vertical extent of PCBs and SVOCs is defined.

Radionuclides

Five samples were collected from location 02-612347 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, and tritium (Table 3.2-1).

The nature and extent of the radionuclide COPCs (strontium-90 and tritium) at location 02-612347 have been discussed under AOC 02-004(f) (section 6.12.4.4). The vertical extent of all radionuclides is defined.

Summary of Nature and Extent at AOC 02-011(c)

The vertical extent of TAL metals, hexavalent chromium, PCBs, SVOCs, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, and tritium is defined.

6.28.5 Summary of Human Health Risk Screening

Details of the human health risk-screening assessment for AOC 02-011(c) are discussed in Appendix H, section H-4.

The total excess cancer risk for the industrial scenario is 7×10^{-7}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.000002, which is below the NMED target HI of 1 (NMED 2009, 108070). No radionuclide COPCs were detected from the 0–1 ft depth at this site.

The total excess cancer risk for the recreational scenario is 5×10^{-7}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.008, which is below the NMED target HI of 1 (NMED 2009, 108070). No radionuclide COPCs were detected from the 0–1 ft depth at this site.

The total excess cancer risk for the residential scenario is 3×10^{-6}, which is below to the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.08, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 0.0006 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 1×10^{-7}, based on a comparison with EPA's residential PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Based on the screening-assessment results, no potential unacceptable risks or doses from COPCs exist for the industrial, recreational, and residential scenarios.

6.28.6 Summary of Ecological Risk Screening

In accordance with the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), locations surrounding the core area of TA-02 were sampled to define the lateral extent of contamination for TA-02 as a whole (section 6.32). Although the lateral extent for the TA-02 core area is defined, one site within the core area requires additional remediation and confirmation sampling. The ecological risk-screening assessment will be conducted for the sites within the TA-02 core area as one exposure unit after the investigation at this site has been completed.

6.29 AOC 02-011(d), Outfall from Equipment Building

6.29.1 Site Description and Operational History

AOC 02-011(d) was an NPDES-permitted outfall that discharged effluent from the OWR equipment building [02-044, AOC 02-004(f)] (Figure 6.29-1). The line ran from the equipment building south-southwest, past the western side of the cooling tower (structure 02-049), to Los Alamos Creek.

The outfall at AOC 02-011(d) became operational in 1949, discharging effluent to Los Alamos Creek. The discharge consisted primarily of regenerate water from the ion-exchange system. Discharge was rerouted through the OWR effluent storage tanks and disposed of through the liquid acid waste line to TA-50 beginning in 1963. The outfall was removed from the NPDES permit in 1995 (NMED 2001, 071256).

6.29.2 Relationship to Other SWMUs and AOCs

The AOC 02-011(d) outfall was associated with the OWR equipment building, AOC 02-004(f), which was the source of effluent discharged from the outfall. The drainline from the equipment building was rerouted in 1963 to the OWR effluent storage tanks, AOCs 02-004(b,c,d).

6.29.3 Summary of Previous Investigations

1995 Investigation Activities

Three samples were collected from locations 02-01151 and 02-01155 in 1995.

2000 Post–Cerro Grande Recovery Work

During the post–Cerro Grande fire recovery work in July 2000, samples were collected from locations 02-01247 and 02-01248.

2003 Omega West Decommissioning Project

AOC 02-011(d) piping was removed, and the waste was disposed of at an approved facility. Site activities included soil excavation, radiological walkover surveys, radiological (structure) screening, soil sampling, sample analysis, and surveying of sample coordinates. Limited soil surveys were conducted, but no formal report of soil survey results is available.

LLW (construction debris and/or soil) was packaged and shipped to Envirocare or TA-54 for disposal. Mixed waste was packaged and transferred to TA-54 for further processing and/or storage at the Laboratory. In total, 9800 ft^3 of material was shipped to Envirocare for disposal; material from the OWR equipment building (building 02-044) outfall was included in this total volume (WD-3 2003, 082646, pp. 1–6). The specific volume of material associated with AOC 02-011(d) was not documented.

No soil samples were collected from AOC 02-011(d) during D&D activities in 2003.

2007 Investigation Activities

Two samples were collected from one location at AOC 02-011(d) in 2007. Results from the sampling activities in 2007 were presented in the previous investigation report (LANL 2008, 101669.12). Additional sampling was required to define the extent of contamination at the site.

6.29.4 Site Contamination

6.29.4.1 Soil, Rock, and Sediment Sampling

As part of the 2010 investigation, the following characterization activities were conducted at AOC 02-011(d):

- All samples were field screened for organic vapors and gross-alpha, -beta, and -gamma radioactivity. Field-screening results were recorded on the SCLs (Appendix F) and are presented in Table 3.2-2.
- Five samples were collected from location 02-612280 where AOCs 02-004(b,c,d,e) and AOC 02-011(d) are collocated from 5–7 ft, 15–16 ft, 25–27 ft, 35–36 ft, and 49–50 ft bgs. These samples were analyzed for TAL metals, hexavalent chromium, PCBs, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, and tritium.

The 2010 and historical sampling locations at AOC 02-011(d) are shown in Figure 6.29-1. Table 6.29-1 presents the samples collected and analyses requested for AOC 02-011(d). The geodetic coordinates of the 2010 sampling locations are presented in Table 3.2-1.

6.29.4.2 Soil, Rock, and Sediment Sample Field-Screening Results

No organic vapors were detected at more than 10 ppm above ambient air levels during headspace screening of the samples. No radiological-screening results exceeded twice the daily site background levels. Field-screening results are presented in Table 3.2-2. No changes to sampling or other activities occurred because of the field-screening results.

6.29.4.3 Soil, Rock, and Sediment Sample Analytical Results

Decision-level data at AOC 02-011(d) consist of results from 12 samples collected from 6 locations in 1995, 2000, 2007, and 2010. The 12 samples include 4 soil, 2 Qal, 4 Qbo, and 2 sediment samples.

Inorganic Chemicals

A total of nine samples (one soil, two Qal, four Qbo, and two sediment) were analyzed for TAL metals, seven samples (one soil, two Qal, and four Qbo) were analyzed for hexavalent chromium, and two samples (one soil and one Qal) were analyzed for nitrate, perchlorate, and total cyanide.

Table 6.29-2 presents the inorganic chemicals detected or detected above BVs. Figure 6.29-2 shows the spatial distribution of inorganic chemicals detected or detected above BVs. The vertical extent is defined at AOC 02-011(d), and the lateral extent is defined at the TA-02 core area; inorganic COPCs are identified below.

Aluminum was detected above the Qbo BV (3560 mg/kg) and the maximum Qbo background concentration (3400 mg/kg) in one sample at a concentration of 8240 mg/kg. Because there were fewer than 10 Qbo samples, statistical tests could not be performed. Aluminum is identified as a COPC in tuff.

Antimony was not detected but had DLs (1.18 mg/kg to 1.26 mg/kg) above the Qbo BV (0.5 mg/kg) and the maximum Qbo background concentration (0.2 mg/kg) in four samples. Antimony is identified as a COPC in tuff.

Arsenic was not detected but had DLs (1.25 mg/kg to 1.26 mg/kg) above the Qbo BV (0.56 mg/kg) and the maximum Qbo background concentration (0.7 mg/kg) in three samples. Arsenic is identified as a COPC in tuff. Also, arsenic was detected above the sediment BV (3.98 mg/kg) and the maximum sediment background concentration (3.6 mg/kg) in one sample at a concentration of 8.7 mg/kg. Arsenic is identified as a COPC in sediment.

Cadmium was not detected but had DLs (0.589 mg/kg to 0.631 mg/kg) above the Qbo BV (0.4 mg/kg) in four samples. Cadmium is identified as a COPC in tuff. Cadmium was detected above the sediment BV (0.4 mg/kg) in one sample at a concentration of 0.69 mg/kg. Cadmium is identified as a COPC in sediment.

Calcium was detected above the sediment BV (4420 mg/kg) and the maximum sediment background concentration (4240 mg/kg) in one sample at a concentration of 11,000 mg/kg. Because there were fewer than 10 sediment samples, statistical tests could not be performed. Calcium is identified as a COPC in sediment.

Chromium was detected above the soil BV (19.3 mg/kg) in two samples with a maximum concentration of 38.2 mg/kg. Chromium was detected above the Qbo BV (2.6 mg/kg) in one sample at a concentration of 3.39 mg/kg. Because there were fewer than 10 soil or Qbo samples, statistical tests could not be performed. Chromium is identified as a COPC in soil and tuff. Chromium was detected above the sediment BV (10.5 mg/kg) in two samples with a maximum concentration of 240 mg/kg. The site concentrations are substantially above background. Chromium is identified as a COPC in sediment.

Hexavalent chromium was detected in one Qal sample at a concentration of 0.775 mg/kg. Hexavalent chromium has no BV in soil. Hexavalent chromium is identified as a COPC in soil.

Copper was detected above the soil BV (14.7 mg/kg) and the maximum soil background concentration (16 mg/kg) in two samples with a maximum concentration of 27.7 mg/kg. Copper was detected above the sediment BV (11.2 mg/kg) and the maximum sediment background concentration (12 mg/kg) in one sample at a concentration of 41 mg/kg. Because there were fewer than 10 soil or sediment samples, statistical tests could not be performed. Copper is identified as a COPC in soil and sediment.

Iron was detected above the Qbo BV and the maximum Qbo background concentration (both 3700 mg/kg) in all four Qbo samples with a maximum concentration of 5400 mg/kg. Iron is identified as a COPC in tuff.

Lead was detected above the soil BV (22.3 mg/kg) in two samples with a maximum concentration of 44.4 mg/kg. This concentration is above the maximum soil background concentration (28 mg/kg). Lead was also detected above the sediment BV (19.7 mg/kg) in two samples with a maximum concentration of 35 mg/kg. This concentration is above the maximum sediment background concentration (25.6 mg/kg). Because there were fewer than 10 soil or sediment samples, statistical tests could not be performed. Lead is identified as a COPC in soil and sediment.

Manganese was detected above the Qbo BV (189 mg/kg) in three samples with a maximum concentration of 253 mg/kg. This concentration is above the maximum Qbo background concentration (210 mg/kg). Because there were fewer than 10 Qbo samples, statistical tests could not be performed. Manganese is identified as a COPC in tuff.

Nickel was detected above the Qbo BV (2 mg/kg) in one sample at a concentration of 2.49 mg/kg. This concentration is below the maximum Qbo background concentration (2.8 mg/kg). Nickel is not identified as a COPC in tuff.

Nitrate was detected in one Qal sample at a concentration of 3.32 mg/kg. No background data are available for nitrate. Nitrate is naturally occurring, and the concentrations detected likely reflect naturally occurring levels. Nitrate is not identified as a COPC in soil.

Perchlorate was detected in one soil sample and one Qal sample with a maximum concentration of 0.00111 mg/kg. Because perchlorate has no BV in soil, perchlorate is identified as a COPC in soil.

Selenium was not detected but had DLs (1.19 mg/kg to 1.26 mg/kg) above the Qbo BV (0.3 mg/kg) in four samples. Selenium is identified as a COPC in tuff.

Silver was detected above the sediment BV (1 mg/kg) and the maximum sediment background concentration (0.28 mg/kg) in one sample at a concentration of 1.1 mg/kg. Because there were fewer than 10 sediment samples, statistical tests could not be performed. Silver is identified as a COPC in sediment.

Zinc was detected above the soil BV (48.8 mg/kg) and the maximum sediment background concentration (75.5 mg/kg) in two samples with a maximum concentration of 134 mg/kg. Zinc was detected above the sediment BV (60.2 mg/kg) and the maximum sediment background concentration (56.2 mg/kg) in two samples with a maximum concentration of 190 mg/kg. Because there were fewer than 10 soil or sediment samples, statistical tests could not be performed. Zinc is identified as a COPC in soil and sediment.

In summary, the inorganic COPCs identified at AOC 02-011(d) are aluminum, antimony, arsenic, cadmium, calcium, chromium, hexavalent chromium, copper, iron, lead, manganese, perchlorate, selenium, silver, and zinc.

Organic Chemicals

A total of seven samples (one soil, two Qal, and four Qbo) were analyzed for PCBs, two samples (one soil and one Qal) were analyzed for SVOCs, and one Qal sample was analyzed for VOCs.

Table 6.29-3 presents the detected organic chemicals. Figure 6.29-3 shows the spatial distribution of detected organic chemicals. The vertical extent is defined at AOC 02-011(d), and the lateral extent is defined at the TA-02 core area; organic COPCs are identified below.

Organic chemicals detected at AOC 02-011(d) include acenaphthene; anthracene; Aroclor-1254; Aroclor-1260; benzo(a)anthracene; benzo(a)pyrene; benzo(b)fluoranthene; benzo(g,h,i)perylene; chrysene; fluoranthene; fluorene; indeno(1,2,3-cd)pyrene; 2-methylnaphthalene; naphthalene; phenanthrene; and pyrene.

These organic chemicals are retained as COPCs at AOC 02-011(d).

Radionuclides

A total of 2 samples (1 soil and 1 Qal) were analyzed for americium-241; 12 samples (4 soil, 2 Qal, 4 Qbo, and 2 sediment) were analyzed for gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, and tritium; and 7 samples (4 soil, 1 Qal, and 2 sediment) were analyzed for strontium-90.

Table 6.29-4 presents the radionuclides detected or detected above BVs/FVs. Figure 6.29-4 shows the spatial distribution of radionuclides detected or detected above BVs/FVs. The vertical extent is defined at AOC 02-011(d), and the lateral extent is defined at the TA-02 core area; radionuclide COPCs are identified below.

Cesium-137 was detected above the soil FV (1.65 pCi/g) and detected in subsurface soil (below 0–1 ft) in four samples with a maximum activity of 1.66 pCi/g. Cesium-137 is identified as a COPC in soil.

Cobalt-60 was detected in four soil/Qal samples with a maximum activity of 2.19 pCi/g, and it was detected in two sediment samples with a maximum activity of 1.28 pCi/g. Cobalt-60 has no BV in soil or sediment. Cobalt-60 is identified as a COPC in soil and sediment.

Plutonium-239/240 was detected above the soil FV (0.054 pCi/g) and detected in subsurface soil (below 0–1 ft) in six samples with a maximum activity of 0.574 pCi/g. Plutonium-239/240 was detected above the sediment BV (0.068 pCi/g) in two samples with a maximum activity of 1.28 pCi/g. Plutonium-239/240 is identified as a COPC in soil and sediment.

Tritium was detected in five soil/Qal samples with a maximum activity of 0.217 pCi/g. Tritium is identified by detection status and is a COPC in soil.

Uranium-234 was detected above the soil BV (2.59 pCi/g) in one sample at an activity of 2.87 pCi/g, and it was detected above the sediment BV (2.59 pCi/g) in one sample at an activity of 2.66 pCi/g. Uranium-234 is identified as a COPC in soil and sediment.

In summary, the radionuclide COPCs identified at AOC 02-011(d) are cesium-137, cobalt-60, plutonium-239/240, tritium, and uranium-234.

6.29.4.4 Nature and Extent of Contamination at AOC 02-011(d)

In accordance with the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), one location was sampled at AOC 02-011(d) to determine the vertical extent of contamination for inorganic chemicals, organic chemicals, and radionuclides (Table 3.2-1). Analytical suites were determined by the data needs specific to each location as presented in Table 3.1-1 of the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703). The vertical extent of contamination at AOC 02-011(d) is evaluated using only the Phase II data from samples collected as deep as 50 ft bgs.

Inorganic Chemicals

Five samples were collected from location 02-612280 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of TAL metals and hexavalent chromium (Table 3.2-1). As stated in the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), the extent of perchlorate was defined following the 2007 investigation, and no Phase II samples were analyzed for perchlorate.

Calcium, copper, hexavalent chromium, lead, and silver were not detected or not detected above BVs at location 02-612280. Therefore, the vertical extent of these metals is defined.

The nature and extent of other TAL metals and hexavalent chromium at location 02-612280 have been discussed under AOC 02-004(b) (section 6.8.4.4). The vertical extent of TAL metals and hexavalent chromium is defined.

Organic Chemicals

Five samples were collected from location 02-612280 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of PCBs (Table 3.2-1).

The nature and extent of PCBs at location 02-612280 have been discussed under AOC 02-004(b) (section 6.8.4.4). The vertical extent of PCBs is defined.

Radionuclides

Five samples were collected from location 02-612280 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, and tritium (Table 3.2-1).

The nature and extent of gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, and tritium at location 02-612280 have been discussed under AOC 02-004(b) (section 6.8.4.4). The vertical extent of these radionuclides is defined.

Summary of Nature and Extent at AOC 02-011(d)

The nature and extent of TAL metals, hexavalent chromium, PCBs, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, and tritium are defined.

6.29.5 Summary of Human Health Risk Screening

Details of the human health risk-screening assessment for AOC 02-011(d) are discussed in Appendix H, section H-4.

The total excess cancer risk for the industrial scenario is 6×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.1, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 8 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 4×10^{-5}, based on a comparison with EPA's outdoor worker PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

The total excess cancer risk for the recreational scenario is 4×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.2, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 0.9 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 3×10^{-6}, based on conversion from dose using RESRAD, Version 6.5.

The total excess cancer risk for the residential scenario is 2×10^{-5}, which is above the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The cancer risk is partly because of arsenic and is overestimated. As discussed in the uncertainty analysis in Appendix H (section H-4.4.2), the arsenic EPC is similar to being exposed to a naturally occurring arsenic level, and the risk does not incrementally increase above that which would result from exposure to naturally occurring levels of arsenic. The risk is reduced to approximately 3×10^{-6} without arsenic, and is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI for the residential scenario is 1, which is equivalent to the NMED target HI of 1 (NMED 2009, 108070). The HI is overestimated because total chromium is primarily composed of trivalent chromium and not hexavalent chromium. Comparing the total chromium EPC to the trivalent chromium SSL results in an HI of 0.2, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 19 mrem/yr, which is above the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 4×10^{-5}, based on a comparison with EPA's residential PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Based on the screening-assessment results, no potential unacceptable risks or doses from COPCs exist for the industrial and recreational scenarios. Based on the screening-assessment results, no potential unacceptable risks from COPCs exist for the residential scenario, but a potential unacceptable dose exists for the residential scenario.

6.29.6 Summary of Ecological Risk Screening

In accordance with the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), locations surrounding the core area of TA-02 were sampled to define the lateral extent of contamination for TA-02 as a whole (section 6.32). Although the lateral extent for the TA-02 core area is defined, one site within the core area requires additional remediation and confirmation sampling. The ecological risk-screening assessment will be conducted for the sites within the TA-02 core area as one exposure unit after the investigation at this site has been completed.

6.30 AOC 02-011(e), Duplicate of SWMU 02-008(a)

AOC 02-011(e) is a duplicate of SWMU 02-008(a). All activities for AOC 02-011(e) are addressed as SWMU 02-008(a), which is discussed in section 6.21.

6.31 AOC 02-012, Soil contamination

6.31.1 Site Description and Operational History

AOC 02-012 consists of the potential soil contamination associated with two removed fuel underground storage tanks (USTs), structures 02-029 and 02-067 (NMED-registered tank 02-1) (Figure 6.31-1).

AOC 02-003(e) is the former location of an 800-L stainless-steel holding tank (structure 02-062), installed in approximately 1944, and was associated with operation of the WBR. The tank was removed in 1950 (LANL 1996, 055226, p. 5-15). In 1982, a 517-gal. diesel tank [structure 02-067 (NMED-registered tank 02-1)] was installed on the north side of the OWR building (02-001). The diesel tank (structure 02-067, NMED registered tank 02-1) and associated lines were removed and disposed of in 1998 in accordance with NMED requirements (LANL 2000, 090023).

6.31.2 Relationship to Other SWMUs and AOCs

AOC 02-012 is located immediately adjacent to the south side of a former reactor building [AOC 02-004(a)]. It is also approximately 10 ft west of a former drainline [AOC 02-011(a)(ix)] and is collocated with a portion of the former sewer line [AOC 02-006(c)]. There was no physical connection between the drainline or the sewer line and the two tanks in AOC 02-012.

6.31.3 Summary of Previous Investigations

In 1994, UST tightness tests were performed on the diesel tank and its associated lines. The results indicated that the tank system was competent (LANL 2000, 090023).

1998 UST Removal Activities

As part of the 1998 UST removal activities, six samples were collected from five boreholes around the tank excavation. Borehole location survey coordinates were not collected for these locations, and the data cannot be accurately represented. Therefore, the data are not useable and are not presented in this report.

2000 Post–Cerro Grande Recovery Work

During the post–Cerro Grande fire recovery work in 2000, six soil samples were collected from three boreholes (locations 02-01257, 02-01258, and 02-01265) along the former fuel line associated with the UST (NMED-registered tank 02-1).

2007 Investigation Activities

Thirty-five samples were collected from 11 locations at AOC 02-012 in 2007. Results from the sampling activities in 2007 were presented in the previous investigation report (LANL 2008, 101669.12). Additional sampling was required to define the extent of contamination at the site.

6.31.4 Site Contamination

6.31.4.1 Soil and Rock Sampling

As part of the 2010 investigation, the following characterization activities were conducted at AOC 02-012:

- All samples were field screened for organic vapors and gross-alpha, -beta, and -gamma radioactivity. Field-screening results were recorded on the SCLs (Appendix F) and are presented in Table 3.2-2.
- Five samples were collected from location 02-612374 near AOC 02-012 from 5–6 ft, 15–16 ft, 25–26 ft, 35–36 ft, and 49–50 ft bgs. These samples were analyzed for TAL metals, PCBs, TPH-DRO, SVOCs, isotopic plutonium, isotopic uranium, strontium-90, and tritium.

The 2010 and historical sampling locations at AOC 02-012 are shown in Figure 6.31-1. Table 6.31-1 presents the samples collected and analyses requested for AOC 02-012. The geodetic coordinates of the 2010 sampling locations are presented in Table 3.2-1.

6.31.4.2 Soil and Rock Sample Field-Screening Results

No organic vapors were detected at more than 10 ppm above ambient air levels during headspace screening of the samples. No radiological-screening results exceeded twice the daily site background levels. Field-screening results are presented in Table 3.2-2. No changes to sampling or other activities occurred because of the field-screening results.

6.31.4.3 Soil and Rock Sample Analytical Results

Decision-level data at AOC 02-012 consist of results from 46 samples collected from 15 locations in 2000, 2007, and 2010. The 46 samples include 18 soil/fill, 12 Qal, and 16 Qbo samples.

Inorganic Chemicals

A total of 46 samples (18 soil, 12 Qal, and 16 Qbo) were analyzed for TAL metals, 35 samples (11 soil, 12 Qal, and 12 tuff) were analyzed for nitrate and perchlorate, and 41 samples (17 soil, 12 Qal, and 12 tuff) were analyzed for total cyanide.

Table 6.31-2 presents the inorganic chemicals detected or detected above BVs. Plate 42 shows the spatial distribution of inorganic chemicals detected or detected above BVs. The vertical extent is defined at AOC 02-012, and the lateral extent is defined at the TA-02 core area; inorganic COPCs are identified below.

Aluminum was detected above the Qbo BV (3560 mg/kg) and the maximum Qbo background concentration (3400 mg/kg) in 13 samples with a maximum concentration of 9800 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-21.0-1, Table G-21). Aluminum is identified as a COPC in tuff.

Antimony was detected above the Qbo BV (0.5 mg/kg) and the maximum Qbo background concentration (0.2 mg/kg) in one sample at a concentration of 0.539 mg/kg, and it was not detected but had DLs (0.506 mg/kg to 1.37 mg/kg) above the Qbo BV in five samples. Because the background data set had more than 50% nondetects, the Gehan test could not be performed. The quantile test indicated site concentrations are different from background (Figure G-21.0-2, Table G-21). Antimony is identified as a COPC in tuff.

Arsenic was detected above the Qbo BV (0.56 mg/kg) in 12 samples with a maximum concentration of 2.63 mg/kg, and it was not detected but had DLs (1.21 mg/kg to 1.94 mg/kg) above the Qbo BV in 4 samples. Eleven of the 12 concentrations and all four DLs are above the maximum Qbo background concentration (0.7 mg/kg). Because the background data set had more than 50% nondetects, the Gehan test could not be performed. The quantile test indicated site concentrations are different from background (Figure G-21.0-3, Table G-21). Arsenic is identified as a COPC in tuff.

Barium was detected above the Qbo BV (25.7 mg/kg) and the maximum Qbo background concentration (23 mg/kg) in seven samples with a maximum concentration of 92.7 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-21.0-4, Table G-21). Barium is identified as a COPC in tuff.

Cadmium was detected above the soil BV (0.4 mg/kg) in 1 sample at a concentration of 0.883 mg/kg, and it was not detected but had DLs (0.493 mg/kg to 0.563 mg/kg) above the soil BV (0.4 mg/kg) in 19 samples. Because the background data set had more than 50% nondetects, the Gehan test could not be performed. The quantile test indicated site concentrations are different from background (Figure G-21.0-5, Table G-21). Cadmium is identified as a COPC in soil. Cadmium was not detected but had DLs (0.562 mg/kg to 0.683 mg/kg) above the Qbo BV (0.4 mg/kg) in 16 samples. Cadmium is identified as a COPC in tuff.

Chromium was detected above the soil BV (19.3 mg/kg) in one sample at a concentration of 35.5 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-21.0-6, Table G-21). Chromium is identified as a COPC in soil. Chromium was detected above the Qbo BV (2.6 mg/kg) in nine samples with a maximum concentration of 27.1 mg/kg, and it was not detected but had DLs (3.55 mg/kg to 7.58 mg/kg) above the Qbo BV in four samples. The site concentrations are substantially above background. Chromium is identified as a COPC in tuff.

Copper was detected above the soil BV (14.7 mg/kg) in one sample at a concentration of 43 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-21.0-7, Table G-21). Copper is identified as a COPC in soil. Copper was detected above the Qbo BV (3.96 mg/kg) and the maximum Qbo background concentration (2.6 mg/kg) in two samples with a maximum concentration of 104 mg/kg, and it was not detected but had DLs (3.98 mg/kg and 4.28 mg/kg) above the Qbo BV in two samples. The site concentrations are substantially above background. Copper is identified as a COPC in tuff.

Cyanide was detected above the Qbo BV (0.5 mg/kg) in one sample at a concentration of 0.69 mg/kg. Cyanide has no background data set for tuff. Cyanide is identified as a COPC in tuff.

Iron was detected above the Qbo BV and the maximum Qbo background concentration (both 3700 mg/kg) in all 16 Qbo samples with a maximum concentration of 8890 mg/kg. The site concentrations are substantially above background. Iron is identified as a COPC in tuff.

Lead was detected above the soil BV (22.3 mg/kg) in one sample at a concentration of 23.4 mg/kg. The Gehan test and the box plot indicated site concentrations are less than background (Figure G-21.0-8, Table G-21). Lead is not identified as a COPC in soil.

Manganese was detected above the Qbo BV (189 mg/kg) in 13 samples with a maximum concentration of 688 mg/kg. Ten of the 13 concentrations are above the maximum Qbo background concentration (210 mg/kg). The Gehan test indicated site concentrations are different from background (Figure G-21.0-9, Table G-21). Manganese is identified as a COPC in tuff.

Mercury was detected above the soil BV and the maximum soil background concentration (both 0.1 mg/kg) in nine samples with a maximum concentration of 4.65 mg/kg. The site concentrations are substantially above background. Mercury is identified as a COPC in soil.

Nickel was detected above the Qbo BV (2 mg/kg) in eight samples with a maximum concentration of 3.38 mg/kg. Because the background data set had more than 50% nondetects, the Gehan test could not be performed. The quantile test indicated site concentrations are different from background (Figure G-21.0-10, Table G-21). Nickel is identified as a COPC in tuff.

Nitrate was detected in 16 soil/Qal/Qbo samples with a maximum concentration of 7.39 mg/kg. No background data are available for nitrate. Nitrate is naturally occurring, and the concentrations detected likely reflect naturally occurring levels. Nitrate is not identified as a COPC in soil and tuff.

Perchlorate was detected in five soil/Qal samples with a maximum concentration of 0.00174 mg/kg. Because perchlorate has no BV in soil, perchlorate is identified as a COPC in soil.

Selenium was detected above the soil BV (1.52 mg/kg) in four samples with a maximum concentration of 2.67 mg/kg, and it was not detected but had DLs (1.57 mg/kg to 1.61 mg/kg) above the soil BV in three samples. The Gehan test indicated site concentrations are different from background (Figure G-21.0-11, Table G-21). Selenium is identified as a COPC in soil. Selenium was detected above the Qbo BV (0.3 mg/kg) in 10 samples with a maximum concentration of 6.41 mg/kg, and it was not detected but had DLs (1.21 mg/kg and 1.86 mg/kg) above the Qbo BV in 6 samples. The site concentrations are substantially above background. Selenium is identified as a COPC in tuff.

Vanadium was detected above the Qbo BV (4.59 mg/kg) and the maximum Qbo background concentration (3.8 mg/kg) in six samples with a maximum concentration of 10.3 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-21.0-12, Table G-21). Vanadium is identified as a COPC in tuff.

Zinc was detected above the soil BV (48.8 mg/kg) in six samples with a maximum concentration of 560 mg/kg. The site concentrations are substantially above background. Zinc is identified as a COPC in soil. Zinc was detected above the Qbo BV (40 mg/kg) in one sample at a concentration of 56.8 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-21.0-13, Table G-21). Zinc is identified as a COPC in tuff.

In summary, the inorganic COPCs identified at AOC 02-012 are aluminum, antimony, arsenic, barium, cadmium, chromium, copper, cyanide, iron, manganese, mercury, nickel, perchlorate, selenium, vanadium, and zinc.

Organic Chemicals

A total of 5 samples (1 soil and 4 Qbo) were analyzed for PCBs, 40 samples (12 soil, 12 Qal, and 16 Qbo) were analyzed for SVOCs and TPH-DRO, and 24 samples (12 Qal and 12 Qbo) were analyzed for VOCs.

Table 6.31-3 presents the detected organic chemicals. Plate 43 shows the spatial distribution of detected organic chemicals. The vertical extent is defined at AOC 02-012, and the lateral extent is defined at the TA-02 core area; organic COPCs are identified below.

Organic chemicals detected at AOC 02-012 include acenaphthene; anthracene; Aroclor-1254; Aroclor-1260; benzo(a)anthracene; benzo(a)pyrene; benzo(b)fluoranthene; benzo(g,h,i)perylene;

chloroform; chrysene; dibenzofuran; 1,4-dichlorobenzene; di-n-butylphthalate; fluoranthene; fluorene; indeno(1,2,3-cd)pyrene; methylene chloride; 2-methylnaphthalene; naphthalene; phenanthrene; pyrene; TPH-DRO; and trichloroethene.

These organic chemicals are retained as COPCs at AOC 02-012.

Radionuclides

A total of 35 samples (11 soil, 12 Qal, and 12 Qbo) were analyzed for americium-241 and gamma-emitting radionuclides, 40 samples (12 soil, 12 Qal, and 16 Qbo) were analyzed for isotopic plutonium, strontium-90, and tritium, and 27 samples (8 soil, 7 Qal, and 12 Qbo) were analyzed for isotopic uranium.

Table 6.31-4 presents the radionuclides detected or detected above BVs/FVs. Figure 6.31-2 shows the spatial distribution of radionuclides detected or detected above BVs/FVs. The vertical extent is defined at AOC 02-012, and the lateral extent is defined at the TA-02 core area; radionuclide COPCs are identified below.

Americium-241 was detected in subsurface soil (below 0–1 ft) in one sample at an activity of 0.0987 pCi/g. Americium-241 is identified as a COPC in soil.

Plutonium-239/240 was detected in subsurface soil (below 0–1 ft) in one sample at an activity of 0.228 pCi/g. Plutonium-239/240 is identified as a COPC in soil.

Tritium was detected in 14 soil/Qal samples with a maximum activity of 0.446 pCi/g. Tritium is identified by detection status and is a COPC in soil.

Uranium-235/236 was detected above the Qbo BV (0.18 pCi/g) in one sample at an activity of 0.193 pCi/g. Uranium-235/236 is identified as a COPC in tuff.

In summary, the radionuclide COPCs identified at AOC 02-012 are americium-241, plutonium-239/240, tritium, and uranium-235/236.

6.31.4.4 Nature and Extent of Contamination at AOC 02-012

In accordance with the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), one location was sampled at AOC 02-012 to determine the vertical extent of contamination for inorganic chemicals, organic chemicals, and radionuclides (Table 3.2-1). Analytical suites were determined by the data needs specific to each location as presented in Table 3.1-1 of the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703). The vertical extent of contamination at AOC 02-012 is evaluated using only the Phase II data from samples collected as deep as 50 ft bgs.

Inorganic Chemicals

Five samples were collected from location 02-612374 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of TAL metals (Table 3.2-1). As stated in the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), the extent of perchlorate was defined following the 2007 investigation, and no Phase II samples were analyzed for perchlorate.

Copper was not detected above BVs at location 02-612374. The vertical extent of copper is defined.

In accordance with the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), samples from location 02-612374 were not analyzed for cyanide. Cyanide was detected in only one 2007 tuff sample at a concentration of 0.69 mg/kg, which is just above the BV of 0.5 mg/kg. The vertical extent of cyanide is defined.

The nature and extent of other TAL metals at location 02-612374 have been discussed under SWMU 02-006(b) (section 6.16.4.4). The vertical extent of TAL metals is defined.

Organic Chemicals

Five samples were collected from location 02-612374 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of PCBs, SVOCs, and TPH-DRO (Table 3.2-1). As stated in the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), the extent of VOCs was defined following the 2007 investigation, and no Phase II samples were analyzed for VOCs.

The nature and extent of PCBs, SVOCs, and TPH-DRO at location 02-612374 have been discussed under SWMU 02-006(b) (section 6.16.4.4). The vertical extent of PCBs, SVOCs, and TPH-DRO is defined.

Radionuclides

Following the 2007 investigation, uranium-235 was the only radionuclide for which vertical extent was not defined at AOC 02-012 (LANL 2008, 101669.12, p. 98). Five samples were collected from location 02-612374 (depths ranging from 5–50 ft bgs) to evaluate the vertical extent of uranium-235 (Table 3.2-1).

Uranium-235 was not detected above BVs at location 02-612374. Therefore, the vertical extent of uranium-235 and all other radionuclides is defined at AOC 02-012.

Summary of Nature and Extent at AOC 02-012

The nature and extent of TAL metals, PCBs, SVOCs, TPH-DRO, isotopic plutonium, isotopic uranium, strontium-90, and tritium is defined.

6.31.5 Summary of Human Health Risk Screening

Details of the human health risk-screening assessment for AOC 02-012 are discussed in Appendix H, section H-4.

The total excess cancer risk for the industrial scenario is 1×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.02, which is below the NMED target HI of 1 (NMED 2009, 108070). The HQ for TPH-DRO is 0.07, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 0.0000003 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 7×10^{-8}, based on a comparison with EPA's outdoor worker PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

The total excess cancer risk for the recreational scenario is 1×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.03, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 0.00000003 mrem/yr, which is below the DOE target dose limit of

15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 2×10^{-12}, based on conversion from dose using RESRAD, Version 6.5.

The total excess cancer risk for the residential scenario is 9×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.4, which is below the NMED target HI of 1 (NMED 2009, 108070). The HQ for TPH-DRO is 0.05, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 0.2 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 6×10^{-7}, based on a comparison with EPA's residential PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Based on the screening-assessment results, no potential unacceptable risks or doses from COPCs exist for the industrial, recreational, and residential scenarios.

6.31.6 Summary of Ecological Risk Screening

In accordance with the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), locations surrounding the core area of TA-02 were sampled to define the lateral extent of contamination for TA-02 as a whole (section 6.32). Although the lateral extent at the TA-02 core area is defined, one site within the core area requires additional remediation and confirmation sampling. The ecological risk-screening assessment will be conducted for the sites within the TA-02 core area as one exposure unit after the investigation at this site has been completed.

6.32 Lateral Extent of Contamination at the TA-02 Core Area

In accordance with the approved work plan, sampling was proposed at locations surrounding the core area to define the lateral extent of contamination for TA-02 as a whole because the sites in the TA-02 core area overlap and have a high density within a small area (LANL 2009, 106660.14; NMED 2009, 106703).

6.32.1 Lateral Extent Sampling

As part of the 2010 investigation, the following characterization activities were conducted to evaluate the lateral extent of contamination at the TA-02 core area:

- All samples were field screened for organic vapors and gross-alpha, -beta, and -gamma radioactivity. Field-screening results were recorded on the SCLs (Appendix F) and are presented in Table 3.2-2.
- A total of 72 samples were collected from 24 locations surrounding the TA-02 core area, including to the west toward the boundary of TA-41 and to the east toward the boundary of TA-53/TA-21. Samples were collected from 0–0.5 ft, 4–5 ft, and 9–10 ft bgs and were analyzed for TAL metals, total cyanide, hexavalent chromium, PCBs, SVOCs, americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium.

The 2010 sampling locations for the lateral extent of contamination at the TA-02 core area are shown on Plate 44. Table 6.32-1 presents the samples collected and analyses requested for the lateral extent of contamination at the TA-02 core area. The geodetic coordinates of the 2010 sampling locations are presented in Table 3.2-1.

6.32.2 Lateral Extent Sampling Results

Decision-level data for the lateral extent at the TA-02 core area consist of results from 72 samples collected from 24 locations in 2010. The 72 samples include 49 soil, 11 Qal, 7 Qbt 1g, and 5 Qct samples.

Inorganic Chemicals

A total of 72 samples (49 soil, 11 Qal, 7 Qbt 1g, and 5 Qct) were analyzed for TAL metals, hexavalent chromium, and total cyanide.

Table 6.32-2 presents the inorganic chemicals detected or detected above BVs. Plate 45 shows the spatial distribution of inorganic chemicals detected or detected above BVs. The lateral extent at the TA-02 core area is defined; inorganic COPCs at the lateral boundary of the TA-02 core area are identified below.

Aluminum was detected above the Qbt 1g/Qct BV (3560 mg/kg) and the maximum Qbt 1g/Qct background concentration (3400 mg/kg) in nine samples with a maximum concentration of 13,300 mg/kg. The site concentrations are substantially above background. Aluminum is identified as a COPC in tuff.

Antimony was detected above the soil BV (0.83 mg/kg) in 1 sample at a concentration of 1.04 mg/kg, and it was not detected but had DLs (0.874 mg/kg to 5.57 mg/kg) above the soil BV in 55 samples. The Gehan test indicated site concentrations are different from background (Figure G-22.0-1, Table G-22). Antimony is identified as a COPC in soil. Antimony was not detected but had DLs (0.888 mg/kg to 5.34 mg/kg) above the Qbt 1g/Qct BV (0.5 mg/kg) and the maximum Qbt 1g/Qct background concentration (0.2 mg/kg) in 11 samples. Antimony is identified as a COPC in tuff.

Arsenic was detected above the Qbt 1g/Qct (0.56 mg/kg) in five samples with a maximum concentration of 1.26 mg/kg. Four of the five concentrations are above the maximum Qbt 1g/Qct background concentration (0.7 mg/kg). The site concentrations are substantially above background. Arsenic is identified as a COPC in tuff.

Barium was detected above the Qbt 1g/Qct BV (25.7 mg/kg) and the maximum Qbt 1g/Qct background concentration (23 mg/kg) in 10 samples with a maximum concentration of 106 mg/kg. The site concentrations are substantially above background. Barium is identified as a COPC in tuff.

Beryllium was detected above the soil BV (1.83 mg/kg) in one sample at a concentration of 2.46 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-22.0-2, Table G-22). Beryllium is identified as a COPC in soil. Beryllium was detected above the Qbt 1g/Qct BV (1.44 mg/kg) and the maximum Qbt 1g/Qct background concentration (1.4 mg/kg) in five samples with a maximum concentration of 2.04 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-22.0-3, Table G-22). Beryllium is identified as a COPC in tuff.

Cadmium was not detected above the soil BV (0.4 mg/kg) but had DLs (0.437 mg/kg to 0.586 mg/kg) above the soil BV in 32 samples. Because the background data set had more than 50% nondetects, the Gehan test could not be performed. The quantile and slippage tests indicated site concentrations are not different from background (Figure G-22.0-4, Table G-22). Cadmium is not identified as a COPC in soil. Cadmium was not detected but had DLs (0.444 mg/kg to 0.57 mg/kg) above the Qbt 1g/Qct BV (0.4 mg/kg) in eight samples. Cadmium is identified as a COPC in tuff.

Calcium was detected above the Qbt 1g/Qct BV (1900 mg/kg) in three samples with a maximum concentration of 4120 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-22.0-5, Table G-22). Calcium is identified as a COPC in tuff.

Chromium was detected above the soil BV (19.3 mg/kg) in four samples with a maximum concentration of 31.5 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-22.0-6, Table G-22). Chromium is identified as a COPC in soil. Chromium was detected above the Qbt 1g/Qct BV (2.6 mg/kg) and the maximum Qbt 1g/Qct background concentration (2.3 mg/kg) in 10 samples with a maximum concentration of 29 mg/kg. The site concentrations are substantially above background. Chromium is identified as a COPC in tuff.

Hexavalent chromium was detected in two Qal samples with a maximum concentration of 0.192 mg/kg. Hexavalent chromium has no BV in soil. Hexavalent chromium is identified as a COPC in soil.

Copper was detected above the Qbt 1g/Qct BV (3.96 mg/kg) and the maximum Qbo background concentration (2.6 mg/kg) in four samples with a maximum concentration of 4.64 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-22.0-7, Table G-22). Copper is identified as a COPC in tuff.

Cyanide was detected above the soil BV (0.5 mg/kg) in two samples with a maximum concentration of 0.828 mg/kg. Cyanide has no background data set for soil. Cyanide is identified as a COPC in soil.

Iron was detected above the Qbt 1g/Qct BV and the maximum Qbt 1g/Qct background concentration (both 3700 mg/kg) in all 12 Qbt 1g/Qct samples with a maximum concentration of 16,600 mg/kg. The site concentrations are substantially above background. Iron is identified as a COPC in tuff.

Lead was detected above the soil BV (22.3 mg/kg) in five samples with a maximum concentration of 48.5 mg/kg. The Gehan and quantile tests indicated site concentrations are not different from background (Figure G-22.0-8, Table G-22). Lead is not identified as a COPC in soil.

Magnesium was detected above the Qbt 1g/Qct BV (739 mg/kg) and the maximum Qbt 1g/Qct background concentration (690 mg/kg) in seven samples with a maximum concentration of 1240 mg/kg. The site concentrations are substantially above background. Magnesium is identified as a COPC in tuff.

Manganese was detected above the soil BV (671 mg/kg) in one sample at a concentration of 1130 mg/kg. The Gehan test indicated site concentrations are not different from background, but the quantile test indicated site concentrations are different from background (Figure G-22.0-9, Table G-22). Manganese is identified as a COPC in soil. Manganese was detected above the Qbt 1g/Qct BV (189 mg/kg) in 10 samples with a maximum concentration of 355 mg/kg. Eight of the 10 concentrations are above the maximum Qbt 1g/Qct background concentration (210 mg/kg). The site concentrations are substantially above background. Manganese is identified as a COPC in tuff.

Mercury was detected above the soil BV and the maximum soil background concentration (both 0.1 mg/kg) in six samples with a maximum concentration of 1.5 mg/kg, and it was not detected but had a DL (0.21 mg/kg) above the soil BV in one sample. Because the background data set had more than 50% nondetects, the Gehan test could not be performed. The quantile test indicated site concentrations are different from background (Figure G-22.0-10, Table G-22). Mercury is identified as a COPC in soil.

Nickel was detected above the Qbt 1g/Qct BV (2 mg/kg) in seven samples with a maximum concentration of 5.15 mg/kg. Six of the seven concentrations are above the maximum Qbt 1g/Qct background concentration (2.8 mg/kg). The site concentrations are substantially above background. Nickel is identified as a COPC in tuff.

Selenium was not detected but had DLs (0.905 mg/kg to 1.14 mg/kg) above the Qbt 1g/Qct BV (0.3 mg/kg) in all 11 Qbt 1g/Qct samples. Selenium is identified as a COPC in tuff.

Silver was detected above the soil BV (1 mg/kg) in one sample at a concentration of 1.53 mg/kg. Because silver has no background data set for soil, statistical tests could not be performed. Silver is identified as a COPC in soil.

Thallium was not detected above the soil BV (0.73 mg/kg) but had a DL (0.982 mg/kg) above the soil BV in one sample. The DL is below the maximum soil background concentration (1 mg/kg). The Gehan test and the box plot indicated site concentrations are less than background (Figure G-22.0-11, Table G-22). Thallium is not identified as a COPC in soil.

Vanadium was detected above the Qbt 1g/Qct BV (4.59 mg/kg) and the maximum Qbt 1g/Qct background concentration (3.8 mg/kg) in nine samples with a maximum concentration of 16.5 mg/kg. The site concentrations are substantially above background. Vanadium is identified as a COPC in tuff.

Zinc was detected above the soil BV (48.8 mg/kg) in 12 samples with a maximum concentration of 148 mg/kg. The Gehan test indicated site concentrations are different from background (Figure G-22.0-12, Table G-22). Zinc is identified as a COPC in soil. Zinc was detected above the Qbt 1g/Qct BV (40 mg/kg) in five samples with a maximum concentration of 78.2 mg/kg. Four of the five concentrations are above the maximum Qbo background concentration (46 mg/kg). Zinc is identified as a COPC in tuff.

In summary, the inorganic COPCs identified at the lateral boundary of the TA-02 core area are aluminum, antimony, arsenic, barium, beryllium, cadmium, calcium, chromium, hexavalent chromium, copper, cyanide, iron, magnesium, manganese, mercury, nickel, selenium, silver, vanadium, and zinc.

Organic Chemicals

A total of 72 samples (49 soil, 11 Qal, 7 Qbt 1g, and 5 Qct) were analyzed for PCBs and SVOCs.

Table 6.32-3 presents the detected organic chemicals. Plate 46 shows the spatial distribution of detected organic chemicals. The lateral extent at the TA-02 core area is defined; organic COPCs at the lateral boundary of the TA-02 core area are identified below.

Organic chemicals detected at the lateral boundary of the TA-02 core area include acenaphthene; anthracene; Aroclor-1242; Aroclor-1254; Aroclor-1260; benzo(a)anthracene; benzo(a)pyrene; benzo(b)fluoranthene; benzo(g,h,i)perylene; benzo(k)fluoranthene; benzoic acid; chrysene; fluoranthene; fluorene; indeno(1,2,3-cd)pyrene; 2-methylnaphthalene; naphthalene; phenanthrene; and pyrene.

These organic chemicals are retained as COPCs at the lateral boundary of the TA-02 core area.

Radionuclides

A total of 72 samples (49 soil, 11 Qal, 7 Qbt 1g, and 5 Qct) were analyzed for americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium.

Table 6.32-4 presents the radionuclides detected or detected above BVs/FVs. Plate 47 shows the spatial distribution of radionuclides detected or detected above BVs/FVs. The lateral extent at the TA-02 core area is defined; radionuclide COPCs at the lateral boundary of the TA-02 core area are identified below.

Americium-241 was detected above the soil BV (0.013 pCi/g) or in subsurface soil (below 0–1 ft) in ten samples with a maximum activity of 0.159 pCi/g. Americium-241 is identified as a COPC in soil.

Cesium-137 was detected above the soil FV (1.65 pCi/g) and detected in subsurface soil (below 0–1 ft) in 11 samples with a maximum activity of 2.21 pCi/g. Cesium-137 was detected in subsurface tuff (below 0–1 ft) in one sample at an activity of 0.0788 pCi/g. Cesium-137 is identified as a COPC in soil and tuff.

Plutonium-238 was detected above the soil FV (0.023 pCi/g) and detected in subsurface soil (below 0–1 ft) in two samples with a maximum activity of 0.707 pCi/g. Plutonium-238 is identified as a COPC in soil.

Plutonium-239/240 was detected above the soil FV (0.054 pCi/g) and detected in subsurface soil (below 0–1 ft) in 33 samples with a maximum activity of 2.05 pCi/g. Plutonium-239/240 is identified as a COPC in soil.

Strontium-90 was detected in subsurface soil (below 0–1 ft) in two samples with a maximum activity of 0.644 pCi/g. Strontium-90 is identified as a COPC in soil.

Tritium was detected in 23 soil/tuff samples with a maximum activity of 0.0611 pCi/g. Tritium is identified by detection status and is a COPC in soil and tuff.

Uranium-235/236 was detected above the soil BV (0.2 pCi/g) in three samples with a maximum activity of 0.221 pCi/g. Uranium-235/236 is identified as a COPC in soil.

Uranium-238 was detected above the soil BV (2.29 pCi/g) in eight samples with a maximum activity of 3.24 pCi/g. Uranium-238 is identified as a COPC in soil.

In summary, the radionuclide COPCs identified at the lateral boundary of the TA-02 core area are americium-241, cesium-137, plutonium-238, plutonium-239/240, strontium-90, tritium, uranium-235/236, and uranium-238.

6.32.3 Nature and Lateral Extent of Contamination at the TA-02 Core Area

In accordance with the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), 24 locations surrounding the TA-02 core area were sampled to determine the lateral extent of contamination for inorganic chemicals, organic chemicals, and radionuclides (Table 3.2-1). Analytical suites were determined by the data needs as presented in Table 3.1-1 of the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703). The extent of contamination is evaluated by comparing the sampling results within the core area with those at the lateral boundary of the core area.

Inorganic Chemicals

Seventy-two samples were collected from 24 locations (02-612394 to 02-612417) to evaluate the lateral extent of TAL metals, hexavalent chromium, and total cyanide (Table 3.2-1).

Concentrations of each inorganic chemical detected at the lateral boundary of the TA-02 core area are compared with those detected within the TA-02 core area. Site data of SWMU 02-005 and SWMU 02-006(a) are excluded because these two sites are located outside the TA-02 core area. The results are presented in box plots (Figures G-22.0-13 to G-22.0-33). As indicated by the box plots, the detected concentrations of all inorganic chemicals are lower at the lateral boundary than within the core area. No box plot was provided for selenium because selenium was not detected at the lateral boundary. Therefore, the lateral extent of inorganic chemical contamination is defined at the TA-02 core area.

Six samples were collected from three locations during 2007 to address lateral (downgradient) extent of contaminant migration from Consolidated Unit 02-007-00. Locations 02-600704, 02-600705, and

02-600706 were sampled specifically for SWMU 02-009(c), and the sample results were used in COPC identification for SWMU 02-009(c) (section 6.20.4.4). Based on their location, shown on Figure 6.20-1, they were also used to determine downgradient extent at the TA-02 core area.

The inorganic chemical results for samples from locations 02-600704, 02-600705, and 02-600706 are presented in Table 6.20-14 and shown on Plate 30. The shallowest intervals (0–0.5 ft bgs) at each location were in sediment along Los Alamos creek, downgradient of the core area of TA-02. Location 02-600704 is the closest to the SWMUs/AOCs in the core area, 02-600705 is approximately 50 ft to the east, and 02-600706 is another 20 ft downgradient. All of the inorganic results at these locations are equivalent to background (i.e., at or below the BV and/or the maximum background concentration) and are less than the corresponding maximum values detected within the core area, generally by more than an order of magnitude. Therefore lateral extent is defined for inorganic chemicals downgradient of the TA-02 core area.

Organic Chemicals

Seventy-two samples were collected from 24 locations (02-612394 to 02-612417) to evaluate the lateral extent of PCBs and SVOCs (Table 3.2-1).

Concentrations of each organic chemical detected at the lateral boundary of the TA-02 core area are compared with those detected within the TA-02 core area. Site data from SWMU 02-005 and SWMU 02-006(a) are excluded because these two sites are located outside the TA-02 core area. The results are presented in box plots (Figures G-22.0-34 to G-22.0-51). As indicated by the box plots, the detected concentrations of all organic chemicals are lower at the lateral boundary than within the core area. No box plot was provided for benzoic acid because benzoic acid was not detected within the TA-02 core area. However, benzoic acid was detected in only four samples at the lateral boundary at low concentrations ranging from 0.514 mg/kg to 0.705 mg/kg. Therefore, the lateral extent of organic chemical contamination is defined at the TA-02 core area.

Six samples were collected from three locations during 2007 to address lateral (downgradient) extent of contaminant migration from Consolidated Unit 02-007-00. Locations 02-600704, 02-600705, and 02-600706 were sampled specifically for SWMU 02-009(c), and the sample results were used in COPC identification for SWMU 02-009(c) (section 6.20.4.4). Based on their location, shown on Figure 6.20-1, they were also used to determine downgradient extent at the TA-02 core area.

The organic chemical results for samples from locations 02-600704, 02-600705, and 02-600706 are presented in Table 6.20-15 and shown on Plate 31. The shallowest intervals (0–0.5 ft bgs) at each location were in sediment along Los Alamos creek, downgradient of the core area of TA-02. Location 02-600704 is the closest to the SWMUs/AOCs in the core area, 02-600705 is approximately 50 ft to the east, and 02-600706 is another 20 ft downgradient. All of the organic results at these locations are less than the corresponding maximum values detected within the core area, generally by more than an order of magnitude. Concentrations of organic chemicals detected in the sediment samples from location 02-600706 are consistently lower than those detected in the sediment samples from locations 02-600704 and 00-600705. Therefore, lateral extent is defined for organic chemicals downgradient of the TA-02 core area.

Radionuclides

Seventy-two samples were collected from 24 locations (02-612394 to 02-612417) to evaluate the lateral extent of americium-241, gamma-emitting radionuclides, isotopic plutonium, isotopic uranium, strontium-90, and tritium (Table 3.2-1).

Concentrations of each radionuclide detected at the lateral boundary of the TA-02 core area are compared with those detected within the TA-02 core area. Site data from SWMU 02-005 and SWMU 02-006(a) are excluded because these two sites are located outside the TA-02 core area. The results are presented in box plots (Figures G-22.0-52 to G-22.0-59). As indicated by the box plots, the detected concentrations of all radionuclides are lower at the lateral boundary than within the core area, except for americium-241 and plutonium-238. Americium-241 was detected in 10 samples at the lateral boundary at activities ranging from 0.0182 pCi/g to 0.159 pCi/g, and it was detected in 5 samples within the TA-02 core area at activities ranging from 0.0376 pCi/g to 0.165 pCi/g. Plutonium-238 was detected in two samples at the lateral boundary at activities of 0.0196 pCi/g and 0.707 pCi/g, and it was detected in two samples within the TA-02 core area at activities of 0.0255 pCi/g and 0.047 pCi/g. Because americium-241 and plutonium-238 were detected infrequently (15 detects for americium-241 and 4 detects for plutonium-238, both at the lateral boundary and within the core area) and at low activities, their lateral extent is defined. The lateral extent of all radionuclides is defined at the TA-02 core area.

Six samples were collected from three locations during 2007 to address lateral (downgradient) extent of contaminant migration from Consolidated Unit 02-007-00. Locations 02-600704, 02-600705, and 02-600706 were sampled specifically for SWMU 02-009(c), and the sample results were used in COPC identification for SWMU 02-009(c) (section 6.20.4.4). Based on their location, shown on Figure 6.20-1, they were also used to determine downgradient extent at the TA-02 core area.

The radionuclide results for samples from locations 02-600704, 02-600705, and 02-600706 are presented in Table 6.20-16 and shown on Plate 32. The shallowest intervals (0–0.5 ft bgs) at each location were in sediment along Los Alamos creek, downgradient of the core area of TA-02. Location 02-600704 is the closest to the SWMUs/AOCs in the core area, 02-600705 is approximately 50 ft to the east, and 02-600706 is another 20 ft downgradient. The only radionuclide detected in sediment at these locations is plutonium-239/240, which is at the lowest activity (0.214 pCi/g) at location 02-600706. In addition, all of the radionuclide results at these locations are less than the corresponding maximum values detected within the core area, generally by more than an order of magnitude. Therefore lateral extent is defined for radionuclides downgradient of the TA-02 core area.

Summary of Nature and Lateral Extent at the TA-02 Core Area

The nature and lateral extent of inorganic chemicals, organic chemicals, and radionuclides are defined at the TA-02 core area.

6.32.4 Summary of Human Health Risk Screening

Details of the human health risk-screening assessment for the lateral boundary of the TA-02 core area are discussed in Appendix H, section H-4.

The total excess cancer risk for the industrial scenario is 8×10^{-7}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.01, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 0.9 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 6×10^{-7}, based on a comparison with

EPA's outdoor worker PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

The total excess cancer risk for the recreational scenario is 5×10^{-7}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.02, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 0.2 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 4×10^{-7}, based on conversion from dose using RESRAD, Version 6.5.

The total excess cancer risk for the residential scenario is 4×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.4, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 2 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 1×10^{-6}, based on a comparison with EPA's residential PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Based on the screening-assessment results, no potential unacceptable risks or doses from COPCs exist for the industrial, recreational, and residential scenarios.

6.32.5 Summary of Ecological Risk Screening

In accordance with the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), locations surrounding the core area of TA-02 were sampled to define the lateral extent of contamination for TA-02 as a whole (section 6.32). Although the lateral extent for the TA-02 core area is defined, one site within the core area requires additional remediation and confirmation sampling. The ecological risk-screening assessment will be conducted for the sites within the TA-02 core area as one exposure unit after the investigation at this site has been completed. These lateral locations for the TA-02 core area will be included in the ecological risk-screening assessment.

7.0 TA-21 BACKGROUND AND FIELD INVESTIGATION RESULTS

The Middle Los Alamos Canyon Aggregate Area contains three sites associated with TA-21 that are addressed in this investigation report (Table 1.1-1). Consolidated Unit 21-006(e)-99 is described in section 7.2, and AOC 21-028(c) is described in section 7.3; sections include site description and operational history, relationship to other SWMUs and AOCs, historical and 2010 investigation activities, site contamination results based on qualified data (decision-level data from the current and previous investigations), and summaries of human health and ecological risk-screening assessments.

7.1 Background of TA-21

7.1.1 Operational History

Operations at TA-21 started in 1945 for establishing the chemical and metallurgical properties of the nuclear material necessary to achieve and sustain the required nuclear fission reaction. The primary operation at DP West (western portion of TA-21) was to produce metal and alloys of plutonium from the nitrate solution feedstock provided by other production facilities. A major research objective at DP West was the development of new purification techniques that would increase the efficiency of the separation processes (Christensen and Maraman 1969, 004779). Details of the purification techniques are discussed in the operable unit (OU) work plan for TA-21 (LANL 1991, 007529). Other operations at DP West included nuclear fuel reprocessing. In 1977, a transfer of work to the new plutonium facility at TA-55 began, and much of the DP West complex was vacated. Operations at DP East (eastern portion of TA-21) were to process polonium and actinium and to produce initiators (a nuclear weapons component).

In 1964, building 21-209 was built to house research into high-temperature and actinide chemistry.

Building 21-155 formerly housed the Tritium Systems Test Assembly for developing and demonstrating effective technology for handling and processing deuterium and tritium fuels for use in fusion reactors. Building 21-155 recently underwent D&D.

TA-21 also includes Material Disposal Areas (MDAs) A, B, T, U, and V. Process wastes, transuranic wastes, and liquid wastes were disposed of in the MDAs from the early 1940s to the late 1970s; details of the disposal methods are presented in the TA-21 OU work plan (LANL 1991, 007529).

Three TA-21 sites are addressed in Middle Los Alamos Canyon Aggregate Area:

- Consolidated Unit 21-006(e)-99, which includes SWMU 21-006(e) and AOC 21-006(f), seepage pits; and
- AOC 21-028(c), satellite storage areas.

7.1.2 Summary of Releases

There were no documented releases from Consolidated Unit 21-006(e)-99, but there were indications that acid waste had been released to the ground beneath room 413 of building 21-004.

There were no specific documented releases from any of the satellite container storage areas in AOC 21-028(c).

7.1.3 Current Site Usage and Status

Buildings 21-003 and 21-004 were present in the vicinity of the TA-21 sites under investigation. These buildings have undergone D&D, as have other TA-21 structures.

7.2 Consolidated Unit 21-006(e)-99

7.2.1 Site Description and Operational History

Consolidated Unit 21-006(e)-99 consists of SWMU 21-006(e), a seepage pit, and AOC 21-006(f), a gravel seepage pit (Figure 7.2-1). SWMU 21-006(e) is a seepage pit that may be located south of building 21-004. The location of this seepage pit is unclear (LANL 1990, 007512), but it may be the same seepage pit as AOC 21-006(f) (LANL 1991, 007680, p. 18-13). AOC 21-006(f) is described as a gravel seepage pit located on the south side of the DP West complex (Tribby 1947, 001404, p. 1).

The seepage pit(s) may have received up to 4000 L per day of hydrogen fluoride wastewater effluent from a hydrofluorination process located in room 413, the southernmost room of building 21-004 (Tribby 1947, 001404, p. 1). The period of operation is not known. During repair work on the drain system under Room 413, a hole in the ground was identified under the drainlines. It was evident that acid waste had escaped from the drain system into the ground (Meyer 1978, 000526). This hole may have been one of the seepage pits of Consolidated Unit 21-006(e)-99.

7.2.2 Relationship to Other SWMUs and AOCs

There is no documented relationship between the seepage pits, Consolidated Unit 21-006(e)-99, and any other SWMUs or AOCs.

7.2.3 Summary of Previous Investigations

1995 TA-21 Buildings 3 and 4 RCRA Facility Investigation Phase I Project

One sample was collected from each of six locations at Consolidated Unit 21-006(e)-99 in 1995. As part of the RCRA facility investigation (RFI) Phase I investigation activities, locations were sampled at unknown depths at the bottom of the excavated area in the approximate area of the seepage pits for confirmation of building 21-004 D&D activities. Because depths are not available for the samples, the data are not useable and are not included in this report.

2007 Investigation Activities

Forty-six samples were collected from 15 locations at Consolidated Unit 21-006(e)-99 in 2007. Results from the sampling activities in 2007 were presented in the previous investigation report (LANL 2008, 101669.12). Additional sampling was required to define the extent of contamination at the site.

7.2.4 Site Contamination

7.2.4.1 Soil, Rock, and Sediment Sampling

As part of the 2010 investigation, the following characterization activities were conducted at Consolidated Unit 21-006(e)-99:

- All samples were field screened for organic vapors and gross-alpha, -beta, and -gamma radioactivity. Field-screening results were recorded on the SCLs (Appendix F) and are presented in Table 3.2-2.
- Six samples were collected from locations in the northwest (21-612318) and southeast (21-612319) portions of the area from 5–6 ft, 15–16 ft, and 24–25 ft bgs. These samples were analyzed for TAL metals, PCBs, isotopic plutonium, isotopic uranium, and tritium.
- Fifteen samples were collected from five step-out locations (21-612320 to 21-612324) from 5–6 ft, 15–16 ft, and 24–25 ft bgs. These samples were analyzed for TAL metals, PCBs, americium-241, isotopic plutonium, and isotopic uranium.

The 2010 and historical sampling locations at Consolidated Unit 21-006(e)-99 are shown in Figure 7.2-1. Table 7.2-1 presents the samples collected and analyses requested for Consolidated Unit 21-006(e)-99. The geodetic coordinates of the 2010 sampling locations are presented in Table 3.2-1.

7.2.4.2 Soil and Rock Sample Field-Screening Results

No organic vapors were detected at more than 10 ppm above ambient air levels during headspace screening of the samples. No radiological-screening results exceeded twice the daily site background levels. Field-screening results are presented in Table 3.2-2. No changes to sampling or other activities occurred because of the field-screening results.

7.2.4.3 Soil and Rock Sample Analytical Results

Decision-level data at Consolidated Unit 21-006(e)-99 consist of results from 67 samples collected from 22 locations in 2007 and 2010. The 67 samples include 4 soil/fill and 63 Qbt 3 samples.

Inorganic Chemicals

A total of 66 samples (4 soil and 62 Qbt 3) were analyzed for TAL metals, and 45 samples (3 soil and 42 Qbt 3) were analyzed for nitrate, perchlorate, and total cyanide.

Table 7.2-2 presents the inorganic chemicals detected or detected above BVs. Figure 7.2-2 shows the spatial distribution of inorganic chemicals detected or detected above BVs. Because the extent of contamination is not defined for the site, COPCs are not identified for the site.

Organic Chemicals

One sample was analyzed for dioxins and furans and explosive compounds, 22 samples (1 soil and 21 Qbt 3) were analyzed for PCBs, 45 samples (3 soil and 42 Qbt 3) were analyzed for SVOCs and VOCs.

Table 7.2-3 presents the detected organic chemicals. Plate 48 and Figure 7.2-3 show the spatial distribution of detected organic chemicals. Because the extent of contamination is not defined for the site, COPCs are not identified for the site.

Radionuclides

A total of 60 samples (4 soil and 56 Qbt 3) were analyzed for americium-241, 45 samples (3 soil and 42 Qbt 3) were analyzed for gamma-emitting radionuclides and strontium-90, 66 samples (4 soil and 62 Qbt 3) were analyzed for isotopic plutonium and isotopic uranium, and 51 samples (3 soil and 48 Qbt 3) were analyzed for tritium.

Table 7.2-4 presents the radionuclides detected or detected above BVs/FVs. Plate 49 shows the spatial distribution of radionuclides detected or detected above BVs/FVs. Because the extent of contamination is not defined for the site, COPCs are not identified for the site.

Nature and Extent of Contamination at Consolidated Unit 21-006(e)-99

Inorganic Chemicals

Six samples were collected from locations 21-612318 and 21-612319 to evaluate the vertical extent of TAL metals (Table 3.2-1). Fifteen samples were collected from five locations (21-612320 to 21-612324) to evaluate the lateral extent of TAL metals (barium, chromium, magnesium, manganese, and mercury to the south and east; lead and zinc to the northwest) (Table 3.2-1).

Aluminum, cobalt, copper, magnesium, mercury, and nickel were not detected above BVs at these seven locations. The lateral and vertical extent of these metals are defined.

Antimony was detected above the soil BV (0.83 mg/kg) in one sample at a concentration of 1.32 mg/kg at location 21-612324 from 5–6 ft bgs. Antimony concentrations decreased with depth at this location and decreased from location 21-602925 to the northwest. The lateral and vertical extent of antimony are defined.

Arsenic was detected above the Qbt 3 BV (2.79 mg/kg) in one sample at a concentration of 3.12 mg/kg at location 21-612318 from 5–6 ft bgs. Arsenic concentrations decreased with depth at this location. Arsenic was not detected above BVs at the five step-out locations. The lateral and vertical extent of arsenic are defined.

Barium was detected above the Qbt 3 BV (46 mg/kg) in one sample at a concentration of 51.7 mg/kg at location 21-612318 from 5–6 ft bgs. Barium concentrations decreased with depth at this location. Barium was not detected above BVs at the five step-out locations. The lateral and vertical extent of barium are defined.

Calcium was detected above the Qbt 3 BV (2200 mg/kg) in two samples and above the soil BV (6120 mg/kg) in one sample at three locations. The maximum concentration of 9050 mg/kg was detected at location 21-612324 from 5–6 ft bgs. Calcium concentrations decreased with depth at all three locations. Calcium concentrations also decreased laterally. The lateral and vertical extent of calcium are defined.

Chromium was detected above the Qbt 3 BV (7.14 mg/kg) in one sample at a concentration of 7.17 mg/kg at location 21-612319 from 24–25 ft bgs. This concentration is equivalent to the BV and is below the maximum tuff background concentration (13 mg/kg). Chromium was not detected above BVs at the five step-out locations. The lateral and vertical extent of chromium are defined.

Lead was detected above the Qbt 3 BV (11.2 mg/kg) in four samples at two locations. The maximum concentration of 74.2 mg/kg was detected at location 21-612322 from 5–6 ft bgs. Lead concentrations decreased with depth at both locations. The vertical extent of lead is defined, but the lateral extent of lead is not defined to the south at location 21-612322.

Manganese was detected above the Qbt 3 BV (482 mg/kg) in one sample at a concentration of 664 mg/kg at location 21-612322 from 5–6 ft bgs. This concentration is below the maximum tuff background concentration (752 mg/kg). Manganese concentrations decreased with depth at this location. The lateral and vertical extent of manganese are defined.

Selenium was not detected above the Qbt 3 BV (0.3 mg/kg) but had DLs (0.979 mg/kg to 1.13 mg/kg) above the Qbt 3 BV in 20 samples. Because selenium was not detected above BVs, the lateral and vertical extent of selenium are defined.

Zinc was detected above the Qbt 3 BV (63.5 mg/kg) in one sample and above the soil BV (48.8 mg/kg) in one sample at two locations. The maximum concentration of 67.9 mg/kg was detected at location 21-612322 from 5–6 ft bgs. This concentration does not appear to be the result of a release because it is not significantly above the maximum tuff background concentration (65.6 mg/kg). Zinc was detected at a concentration of 63.5 mg/kg at location 21-612324 from 5–6 ft bgs. This concentration is below the maximum soil background concentration (75.5 mg/kg). Zinc concentrations decreased with depth at both locations. The lateral and vertical extent of zinc are defined.

Organic Chemicals

Six samples were collected from locations 21-612318 and 21-612319 to evaluate the vertical extent of Aroclor-1254 and Aroclor-1260 (Table 3.2-1). Fifteen samples were collected from five locations (21-612320 to 21-612324) to evaluate the lateral extent of Aroclor-1254 and Aroclor-1260 (Table 3.2-1).

Aroclor-1254 was detected in six samples at five locations. The maximum concentration of 0.14 mg/kg was detected at location 21-612324 from 5–6 ft bgs. Aroclor-1254 concentrations decreased with depth at three of the five locations. It was detected only in the deepest samples (24–25 ft bgs) at locations

21-612319 and 21-612320 at concentrations of 0.003 mg/kg and 0.0022 mg/kg, respectively. However, both concentrations are below EQLs. Aroclor-1254 concentrations decreased laterally from location 21-602919. The lateral and vertical extent of Aroclor-1254 are defined.

Aroclor-1260 was detected in four samples at three locations. The maximum concentration of 0.159 mg/kg was detected at location 21-612324 from 5–6 ft bgs. Aroclor-1260 concentrations decreased with depth at all three locations and decreased laterally from location 21-602919. The lateral and vertical extent of Aroclor-1260 are defined.

Aroclor-1242 was not detected previously but was detected in one 2010 sample at a concentration of 0.0679 mg/kg at location 21-612321 from 15–16 ft bgs. Aroclor-1242 concentrations decreased with depth at this location. The vertical extent of Aroclor-1242 is defined. Because Aroclor-1242 was detected in only 1 of 22 samples at the site at a low concentration that is not significantly above the EQL (0.018 mg/kg), the lateral extent of Aroclor-1242 is also defined.

Radionuclides

Six samples were collected from locations 21-612318 and 21-612319 to evaluate the vertical extent of isotopic plutonium and isotopic uranium, as well as the lateral and vertical extent of tritium near previously sampled locations 21-602919 and 21-602921 (Table 3.2-1). Fifteen samples were collected from five locations (21-612320 to 21-612324) to evaluate the lateral extent of americium-241 and the lateral and vertical extent of isotopic plutonium and isotopic uranium (Table 3.2-1).

Americium-241 was detected in two samples at location 21-612324 with the maximum activity of 0.916 pCi/g from 5–6 ft bgs. Americium-241 activities decreased with depth at this location. Americium-241 activities decreased laterally from the previous sampling locations. The lateral extent of americium-241 is defined.

Plutonium-238 was detected in five samples at three locations. The maximum activity of 2.32 pCi/g was detected at location 21-612324 from 15–16 ft bgs. Plutonium-238 activities decreased with depth at locations 21-612319 and 21-612324. Plutonium-238 was detected in only the deepest sample (24–25 ft bgs) at an activity of 0.35 pCi/g at location 21-612322. Plutonium-238 activities decreased laterally from the previous sampling locations, except to the northwest at location 21-612324. The lateral extent of plutonium-238 is not defined to the northwest at location 21-612324, and the vertical extent of plutonium-238 is not defined at location 21-612322.

Plutonium-239/240 was detected in nine samples at four locations. The maximum activity of 21.5 pCi/g was detected at location 21-612324 from 5–6 ft bgs. Plutonium-239/240 activities decreased with depth at all four locations. Plutonium-239/240 activities decreased laterally from the previous sampling locations. The lateral and vertical extent of plutonium-239/240 are defined.

Tritium was detected in four samples at two locations. The maximum activity of 0.589 pCi/g was detected at location 21-612318 from 24–25 ft bgs. Tritium was detected at higher activities from shallower samples at previously sampled locations 21-602919 and 21-602921. Therefore, the lateral and vertical extent of tritium are defined for previously sampled locations 21-602919 and 21-602921. However, the vertical extent of tritium is not defined at location 21-612318.

Uranium-234 was detected above the Qbt 3 BV (1.98 pCi/g) in four samples and above the soil BV (2.59 pCi/g) in one sample at two locations. The maximum activity of 91.3 pCi/g was detected at location 21-612318 from 5–6 ft bgs. Uranium-234 activities decreased with depth at these two locations.

Uranium-234 activities also decreased laterally. The lateral and vertical extent of uranium-234 are defined.

Uranium-235/236 was detected above the Qbt 3 BV (0.09 pCi/g) in five samples and above the soil BV (0.2 pCi/g) in one sample at three locations. The maximum activity of 4.28 pCi/g was detected at location 21-612318 from 5–6 ft bgs. Uranium-235/236 activities decreased with depth at all three locations. Uranium-235/236 activities also decreased laterally. The lateral and vertical extent of uranium-235/236 are defined.

Summary of Nature and Extent at Consolidated Unit 21-006(e)-99

The vertical extent of TAL metals is defined. The lateral extent of lead is not defined to the south at location 21-612322.

The lateral and vertical extent of PCBs are defined.

The lateral extent of americium-241 is defined, and the lateral and vertical extent of isotopic uranium and plutonium-239/240 are defined. The lateral extent of plutonium-238 is not defined to the northwest at location 21-612324, and the vertical extent of plutonium-238 is not defined at location 21-612322. The lateral and vertical extent of tritium are defined for previously sampled locations 21-602919 and 21-602921, but the vertical extent of tritium is not defined at location 21-612318.

7.2.5 Summary of Human Health Risk Screening

A human health risk assessment has not been performed for Consolidated Unit 21-006(e)-99 because extent is not defined for the site.

7.2.6 Summary of Ecological Risk Screening

An ecological risk assessment has not been performed for Consolidated Unit 21-006(e)-99 because extent is not defined for the site.

7.3 AOC 21-028(c), Storage Areas

7.3.1 Site Description and Operational History

AOC 21-028(c) consists of four satellite container storage areas that were located around building 21-003 (Figure 7.3-1). The four container storage areas were located at the door to Room 301 on the north dock, at the outer door to Room 360, at the northeast side of the fan Room 3N, and inside a chemical safety cabinet in Room 362.

The period of operation for the storage areas is not available but probably began in 1945, when the building was constructed (LANL 1991, 007680, p. 18-21). The areas were in use as late as 1990 (LANL 1991, 007680, pp. 18-23–18-24). These areas have stored a wide variety of chemicals including depleted uranium salts, metal salts, organic chemicals, synthetic inorganic chemicals, and other reagents (LANL 1991, 007680, pp. 18-23–18-24).

7.3.2 Relationship to Other SWMUs and AOCs

Room 362, the location of one of the storage areas (chemical safety cabinet), was also the location of a septic tank [structure 21-142, SWMU 21-023(b)] that was removed. The septic tank was addressed in the

DP Site Aggregate Area investigation work plan (LANL 2005, 090225) and in the DP Site Aggregate Area investigation report (LANL 2007, 099175).

7.3.3 Summary of Previous Investigations

1996 TA-21 Buildings 3 and 4 RFI Phase I Project

As part of Phase I investigation activities, samples were collected from five locations at the bottom of the excavation in the approximate area of the satellite storage areas for confirmation (LANL 1996, 065025). The sampling depths were not recorded. These data are therefore not useable and are not included in this report.

2007 Investigation Activities

A total of 52 samples were collected from 17 locations at AOC 21-028(c) in 2007. Results from the sampling activities in 2007 were presented in the previous investigation report (LANL 2008, 101669.12). Additional sampling was required to define the extent of contamination at the site.

7.3.4 Site Contamination

7.3.4.1 Soil and Rock Sampling

As part of the 2010 investigation, the following characterization activities were conducted at three subareas of AOC 21-028(c): the north side, east side, and southeast side.

- All samples were field screened for organic vapors and gross-alpha, -beta, and -gamma radioactivity. Field-screening results were recorded on the SCLs (Appendix F) and are presented in Table 3.2-2.
- *North Side:* Three samples were collected from location 21-612329 near previous location 21-601066 from 5–6 ft, 15–16 ft, and 24–25 ft bgs. These samples were analyzed for TAL metals, PCBs, and isotopic plutonium. Twelve samples were collected from four step-out locations (21-612330, 21-612336, 21-612337, and 21-612342) from 5–6 ft, 15–16 ft, and 24–25 ft bgs. These samples were analyzed for TAL metals, PCBs, americium-241, and isotopic plutonium.
- *East Side:* Fifteen samples were collected from five locations (21-612331, 21-612332, 21-612334, 21-612335, and 21-612339) from 5–6 ft, 15–16 ft, and 24–25 ft bgs. These samples were analyzed for TAL metals, PCBs, americium-241, and isotopic plutonium.
- *Southeast Side:* Three samples were collected from location 21-612333 in the center of this subarea from 5–6 ft, 15–16 ft, and 24–25 ft bgs. Nine samples were collected from three step-out locations (21-612338, 21-612340, and 21-612341) from 5–6 ft, 15–16 ft, and 24–25 ft bgs. These samples were analyzed for TAL metals, PCBs, americium-241, and isotopic plutonium.

The 2010 and historical sampling locations at AOC 21-028(c) are shown in Figure 7.3-1. Table 7.3-1 presents the samples collected and analyses requested for AOC 21-028(c). The geodetic coordinates of the 2010 sampling locations are presented in Table 3.2-1.

7.3.4.2 Soil and Rock Sample Field-Screening Results

No organic vapors were detected at more than 10 ppm above ambient air levels during headspace screening of the samples. No radiological-screening results exceeded twice the daily site background levels. Field-screening results are presented in Table 3.2-2. No changes to sampling or other activities occurred because of the field-screening results.

7.3.4.3 Soil and Rock Sample Analytical Results

Decision-level data at AOC 21-028(c) consist of results from 94 samples collected from 31 locations in 2007 and 2010. The 94 samples include 14 soil and 80 Qbt 3 samples.

Inorganic Chemicals

A total of 93 samples (13 soil and 80 Qbt 3) were analyzed for TAL metals, and 51 samples (12 soil and 39 Qbt 3) were analyzed for nitrate, perchlorate, and total cyanide.

Table 7.3-2 presents the inorganic chemicals detected or detected above BVs. Plate 50 shows the spatial distribution of inorganic chemicals detected or detected above BVs. Because the extent of contamination is not defined for the site, COPCs are not identified for the site.

Organic Chemicals

One soil sample was analyzed for dioxins and furans and explosive compounds, 43 samples (2 soil and 41 Qbt 3) were analyzed for PCBs, and 51 samples (12 soil and 39 Qbt 3) were analyzed for SVOCs and VOCs.

Table 7.3-3 presents the detected organic chemicals. Plate 51 shows the spatial distribution of detected organic chemicals. Because the extent of contamination is not defined for the site, COPCs are not identified for the site.

Radionuclides

A total of 90 samples (13 soil and 77 Qbt 3) were analyzed for americium-241; 51 samples (12 soil and 39 Qbt 3) were analyzed for gamma-emitting radionuclides, isotopic uranium, strontium-90, and tritium; and 93 samples (13 soil and 80 Qbt 3) were analyzed for isotopic plutonium.

Table 7.3-4 presents the radionuclides detected or detected above BVs/FVs. Plate 52 shows the spatial distribution of radionuclides detected or detected above BVs/FVs. Because the extent of contamination is not defined for the site, COPCs are not identified for the site.

7.3.4.4 Nature and Extent of Contamination at AOC 21-028(c)

Inorganic Chemicals on the North Side

Three samples were collected from location 21-612329 near previous location 21-601066 to evaluate the vertical extent of TAL metals (antimony, barium, and chromium) (Table 3.2-1). Twelve samples were collected from four step-out locations (21-612330, 21-612336, 21-612337, and 21-612342) to evaluate the lateral extent of TAL metals (Table 3.2-1).

Aluminum, cobalt, iron, magnesium, manganese, mercury, silver, vanadium, and zinc were not detected above BVs at these five locations. The lateral and vertical extent of these metals are defined on the north side.

Antimony was not detected above the Qbt 3 BV (0.5 mg/kg) but had DLs (0.954 mg/kg to 1.09 mg/kg) above the Qbt 3 BV in 14 samples. Because antimony was not detected above BVs, the lateral and vertical extent of antimony are defined on the north side.

Arsenic was detected above the Qbt 3 BV (2.79 mg/kg) in one sample at a concentration of 5.04 mg/kg at location 21-612329 from 15–16 ft bgs. Arsenic concentrations decreased with depth at this location. Arsenic was not detected above BVs at the four step-out locations. The lateral and vertical extent of arsenic are defined on the north side.

Barium was detected above the Qbt 3 BV (46 mg/kg) in two samples at two locations. The highest concentration of 88.8 mg/kg was detected at location 21-612329 from 5–6 ft bgs. Barium concentrations decreased with depth at both locations. Barium concentrations also decreased laterally. The lateral and vertical extent of barium are defined on the north side.

Cadmium was not detected above the soil BV (0.4 mg/kg) but had a DL (0.599 mg/kg) above the soil BV in one sample. Because cadmium was not detected above BVs, the lateral and vertical extent of cadmium are defined on the north side.

Calcium was detected above the Qbt 3 BV (2200 mg/kg) in three samples and above the soil BV (6120 mg/kg) in one sample at four locations. The highest concentration of 26,800 mg/kg was detected at location 21-612329 from 5–6 ft bgs. Calcium concentrations decreased with depth at all four locations. Calcium concentrations also decreased laterally. The lateral and vertical extent of calcium are defined on the north side.

Chromium was detected above the Qbt 3 BV (7.14 mg/kg) in one sample at a concentration of 7.62 mg/kg at location 21-612337 from 15–16 ft bgs. This concentration is below the maximum tuff background concentration (13 mg/kg). Chromium concentrations decreased with depth at this location. The lateral and vertical extent of chromium are defined on the north side.

Copper was detected above the Qbt 3 BV (4.66 mg/kg) in two samples at location 21-612337. The highest concentration of 6.82 mg/kg was detected from 15–16 ft bgs. This concentration is slightly higher than the maximum tuff background concentration (6.2 mg/kg). Copper concentrations decreased with depth at this location. The lateral and vertical extent of copper are defined on the north side.

Lead was detected above the Qbt 3 BV (11.2 mg/kg) in four samples at two locations. The highest concentration of 165 mg/kg was detected at location 21-612337 from 5–6 ft bgs. Lead concentrations decreased with depth at location 21-612337, but increased at location 21-612329. Lead was not detected above BVs at location 21-612331, approximately 15 ft southeast of location 21-612337. Therefore, the lateral extent of lead is defined, but the vertical extent of lead is not defined at location 21-612329.

Nickel was detected above the Qbt 3 BV (6.58 mg/kg) in one sample at a concentration of 8.22 mg/kg at location 21-612337 from 5–6 ft bgs. Nickel concentrations decreased with depth at this location. Nickel was not detected above BVs at location 21-612331, approximately 15 ft southeast of location 21-612337. The lateral and vertical extent of nickel are defined on the north side.

Selenium was not detected above the Qbt 3 BV (0.3 mg/kg) but had DLs above the Qbt 3 BV (0.914 mg/kg to 1.09 mg/kg) in 14 samples. Because selenium was not detected above BVs, the lateral and vertical extent of selenium are defined on the north side.

Organic Chemicals on the North Side

Three samples were collected from location 21-612329 near previous location 21-601066 to evaluate the vertical extent of Aroclor-1254 and Aroclor-1260 (Table 3.2-1). Twelve samples were collected from four step-out locations (21-612330, 21-612336, 21-612337, and 21-612342) to evaluate the lateral extent of Aroclor-1254 and Aroclor-1260 (Table 3.2-1).

Aroclor-1254 was detected in eight samples at all five locations. The highest concentration of 0.273 mg/kg was detected at location 21-612336 from 5–6 ft bgs. Aroclor-1254 concentrations decreased with depth at all five locations. The vertical extent of Aroclor-1254 is defined, but the lateral extent of Aroclor-1254 is not defined to the northwest at location 21-612336.

Aroclor-1260 was detected in five samples at four locations. The highest concentration of 0.0264 mg/kg was detected at locations 21-612330 and 21-612336, both from 5–6 ft bgs. Aroclor-1260 concentrations decreased with depth at all four locations, and decreased or did not change laterally. The lateral and vertical extent of Aroclor-1260 are defined on the north side.

Aroclor-1248 was not detected previously but was detected in one 2010 sample at a concentration of 0.0028 mg/kg at location 21-612342 from 5–6 ft bgs. This concentration is below the EQL (0.0036 mg/kg). Aroclor-1248 concentrations decreased with depth at this location. The lateral and vertical extent of Aroclor-1248 are defined on the north side.

Radionuclides on the North Side

Three samples were collected from location 21-612329 near previous location 21-601066 to evaluate the vertical extent of isotopic plutonium (Table 3.2-1). Twelve samples were collected from four step-out locations (21-612330, 21-612336, 21-612337, and 21-612342) to evaluate the lateral extent of americium-241 and isotopic plutonium (Table 3.2-1).

Americium-241 was detected in seven samples at four step-out locations. The highest activity of 1.31 pCi/g was detected at location 21-612337 from 15–16 ft bgs. Americium-241 activities decreased with depth at locations 21-612330, 21-612336, and 21-612337, but increased with depth at location 21-612342. Americium-241 activities decreased laterally from the previous sampling locations. The lateral extent of americium-241 is defined, but the vertical extent of americium-241 is not defined at location 21-612342.

Plutonium-238 was detected in five samples at all five locations. The highest activity of 6 pCi/g was detected at location 21-612337 from 5–6 ft bgs. Plutonium-238 activities decreased with depth at four locations, but increased with depth at location 21-612342. Plutonium-238 was detected only in the deepest sample (24–25 ft bgs) at an activity of 0.0157 pCi/g at location 21-612342; however, this activity is only slightly higher than the MDL (0.013 pCi/g). The vertical extent of plutonium-238 is defined on the north side. Plutonium-238 activities decreased laterally from the previous sampling locations, except to the southeast at location 21-612337. However, plutonium-238 activities were lower at locations 21-612331 and 21-612334, approximately 15 ft southeast and 20 ft south of location 21-612337, respectively. The lateral extent of plutonium-238 is also defined on the north side.

Plutonium-239/240 was detected in 10 samples at all five locations. The highest activity of 5.16 pCi/g was detected at location 21-612342 from 24–25 ft bgs. Plutonium-239/240 activities decreased with depth at four locations, but increased with depth at location 21-612342. Plutonium-239/240 activities decreased laterally from the previous sampling locations. The lateral extent of plutonium-239/240 is defined, but the vertical extent of plutonium-239/240 is not defined at location 21-612342.

Inorganic Chemicals on the East Side

Fifteen samples were collected from five locations (21-612331, 21-612332, 21-612334, 21-612335, and 21-612339) to evaluate the lateral and vertical extent of TAL metals (Table 3.2-1).

Aluminum, cadmium, cobalt, iron, nickel, silver, and vanadium were not detected above BVs at these five locations. The lateral and vertical extent of these metals are defined on the east side.

Antimony was detected above the Qbt 3 BV (0.5 mg/kg) in two samples at location 21-612339. The highest concentration of 0.989 mg/kg was detected in the deepest sample (24–25 ft bgs) at this location. However, antimony was not detected but had a DL of 1.06 mg/kg from 15–16 ft bgs at this location. Therefore, the vertical extent of antimony is defined on the east side. Antimony was not detected above the Qbt 3 BV but had DLs (1 mg/kg to 1.08 mg/kg) above the Qbt 3 BV in 12 samples at the five locations. All the DLs are higher than the detected concentration of 0.989 mg/kg at location 21-612339. The lateral extent of antimony is also defined on the east side.

Arsenic was detected above the Qbt 3 BV (2.79 mg/kg) in the deepest sample (24–25 ft bgs) at a concentration of 6.06 mg/kg at location 21-612334. This concentration does not appear to be the result of a release because it is not significantly above the maximum tuff background concentration (5 mg/kg), and arsenic is not detected above BVs in the deepest samples (24–25 ft bgs) at locations 21-612331, 21-612333, 21-612337, and 21-612338 surrounding location 21-612334. Arsenic was not detected above BVs at the other four locations. The lateral and vertical extent of arsenic are defined on the east side.

Barium was detected above the Qbt 3 BV (46 mg/kg) in one sample at a concentration of 89.1 mg/kg at location 21-612332 from 15–16 ft bgs. Barium concentrations decreased with depth at this location. Barium concentrations also decreased laterally. The lateral and vertical extent of barium are defined on the east side.

Calcium was detected above the Qbt 3 BV (2200 mg/kg) in four samples at four locations. The highest concentration of 5190 mg/kg was detected at location 21-612334 from 5–6 ft bgs. Calcium concentrations decreased with depth at all four locations. Calcium concentrations also decreased laterally. The lateral and vertical extent of calcium are defined on the east side.

Chromium was detected above the Qbt 3 BV (7.14 mg/kg) in two samples at two locations. The highest concentration of 15.8 mg/kg was detected at location 21-612334 from 5–6 ft bgs. Chromium concentrations decreased with depth at both locations. Chromium concentrations also decreased laterally from location 21-612334 because chromium concentrations were lower in the samples at locations 21-612331, 21-612333, 21-612337, and 21-612338 surrounding location 21-612334. Chromium was detected above the Qbt 3 BV in one sample at a concentration of 7.42 mg/kg at location 21-612332 from 15–16 ft bgs. This concentration is below the maximum tuff background concentration (13 mg/kg). The lateral and vertical extent of chromium are defined on the east side.

Copper was detected above the Qbt 3 BV (4.66 mg/kg) in one sample at a concentration of 7.19 mg/kg at location 21-612332 from 15–16 ft bgs. This concentration does not appear to be the result of a release because it is not significantly above the maximum tuff background concentration (6.2 mg/kg). Copper concentrations decreased with depth at this location. The lateral and vertical extent of copper are defined on the east side.

Lead was detected above the Qbt 3 BV (11.2 mg/kg) in two samples at two locations. The highest concentration of 20.6 mg/kg was detected at location 21-612334 from 24–25 ft bgs. Lead concentrations decreased with depth at location 21-612332, but increased with depth at location 21-612334. However, lead was not detected above BVs in the samples at locations 21-612331, 21-612333, and 21-612338 surrounding location 21-612334. Lead was detected above the Qbt 3 BV in one sample at a concentration of 12.9 mg/kg at location 21-612332 from 15–16 ft bgs. This concentration is below the maximum tuff background concentration (15.5 mg/kg). The lateral extent of lead is defined, but the vertical extent of lead is not defined at location 21-612334.

Magnesium was detected above the Qbt 3 BV (1690 mg/kg) in one sample at a concentration of 2340 mg/kg at location 21-612332 from 15–16 ft bgs. This concentration is below the maximum tuff background concentration (2820 mg/kg). Magnesium concentrations decreased with depth at this location. The lateral and vertical extent of magnesium are defined on the east side.

Manganese was detected above the Qbt 3 BV (482 mg/kg) in one sample at a concentration of 625 mg/kg at location 21-612332 from 15–16 ft bgs. This concentration is below the maximum tuff background concentration (752 mg/kg). Manganese concentrations decreased with depth at this location. The lateral and vertical extent of manganese are defined on the east side.

Mercury was detected above the Qbt 3 BV (0.1 mg/kg) in three samples at three locations. The highest concentration of 0.235 mg/kg was detected at location 21-612334 from 5–6 ft bgs. Mercury concentrations decreased with depth at all three locations. Mercury concentrations also decreased laterally. The lateral and vertical extent of mercury are defined on the east side.

Selenium was not detected above the Qbt 3 BV (0.3 mg/kg) but had DLs above the Qbt 3 BV (0.973 mg/kg to 1.09 mg/kg) in 15 samples. Because selenium was not detected above BVs, the lateral and vertical extent of selenium are defined on the east side.

Zinc was detected above the Qbt 3 BV (63.5 mg/kg) in one sample at a concentration of 95 mg/kg at location 21-612332 from 15–16 ft bgs. Zinc concentrations decreased with depth at this location. The vertical extent of zinc is defined, but the lateral extent of zinc is not defined to the north of location 21-612332.

Organic Chemicals on the East Side

Fifteen samples were collected from five locations (21-612331, 21-612332, 21-612334, 21-612335, and 21-612339) to evaluate the lateral and vertical extent of PCBs (Table 3.2-1).

Aroclor-1242 was detected in one sample at a concentration of 0.0659 mg/kg at location 21-612335 from 5–6 ft bgs. Aroclor-1242 concentrations decreased with depth at this location. The vertical extent of Aroclor-1242 is defined. Because Aroclor-1242 was detected in only 1 of 43 samples at the site (it was not detected on the north or southeast side) and was detected at a low concentration that is not significantly above the EQL (0.018 mg/kg), the lateral extent of Aroclor-1242 is defined.

Aroclor-1254 was detected in nine samples at all five locations. The highest concentration of 0.183 mg/kg was detected at location 21-612332 from 5–6 ft bgs. Aroclor-1254 concentrations decreased with depth at all five locations. The vertical extent of Aroclor-1254 is defined, but the lateral extent of Aroclor-1254 is not defined to the north at location 21-612332, to the east at location 21-612335, and to the southeast at location 21-612339.

Aroclor-1260 was detected in four samples at three locations. The highest concentration of 0.0166 mg/kg was detected at location 21-612335 from 5–6 ft bgs. This concentration is below the EQL (0.018 mg/kg). Aroclor-1260 concentrations decreased with depth at all three locations. The lateral and vertical extent of Aroclor-1260 are defined on the east side.

Radionuclides on the East Side

Fifteen samples were collected from five locations (21-612331, 21-612332, 21-612334, 21-612335, and 21-612339) to evaluate the lateral and vertical extent of americium-241 and plutonium-239/240 (Table 3.2-1).

Americium-241 was detected in nine samples at all five locations. The highest activity of 0.317 pCi/g was detected in the deepest sample (24–25 ft bgs) at location 21-612331. Americium-241 activities decreased with depth at the other four locations. Americium-241 was not detected or detected at lower activities in the deepest sample (24–25 ft bgs) at locations 21-612332, 21-612334, and 21-612337 surrounding location 21-612331. Therefore, the lateral extent of americium-241 is defined for location 21-612331. Americium-241 activities also decreased laterally from the previous sampling locations. The lateral extent of americium-241 is defined, but the vertical extent of americium-241 is not defined at location 21-612331.

Plutonium-238 was detected in seven samples at all five locations. The highest activity of 0.217 pCi/g was detected at location 21-612339 from 5–6 ft bgs. Plutonium-238 activities decreased with depth at all five locations. Plutonium-238 activities decreased laterally from the previous sampling locations. The lateral and vertical extent of plutonium-238 are defined on the east side.

Plutonium-239/240 was detected in 14 samples at all five locations. The highest activity of 22.8 pCi/g was detected at location 21-612331 from 24–25 ft bgs. Plutonium-239/240 activities decreased with depth at three locations, but increased with depth at locations 21-612331 and 21-612332. Plutonium-239/240 activities decreased laterally from location 21-612334 to locations 21-612331, 21-612333, 21-612337, and 21-612338 surrounding location 21-612334. Plutonium-239/240 activities also decreased laterally from the previous sampling locations. The lateral extent of plutonium-239/240 is defined, but the vertical extent of plutonium-239/240 is not defined at locations 21-612331 and 21-612332.

Inorganic Chemicals on the Southeast Side

Three samples were collected from location 21-612333 in the center of the subarea to evaluate vertical extent of TAL metals (Table 3.2-1). Nine samples were collected from three step-out locations (21-612338, 21-612340, and 21-612341) to evaluate the lateral extent of TAL metals (Table 3.2-1).

Aluminum, arsenic, cadmium, cobalt, iron, magnesium, manganese, nickel, and silver were not detected above BVs at these four locations. The lateral and vertical extent of these metals are defined on the southeast side.

Antimony was detected above the Qbt 3 BV (0.5 mg/kg) in two samples at two locations. The highest concentration of 5.28 mg/kg was detected at location 21-612341 from 5–6 ft bgs. Antimony concentrations decreased with depth at both locations. Antimony was not detected above the Qbt 3 BV but had DLs (0.999 mg/kg to 1.09 mg/kg) above the Qbt 3 BV in 10 samples at four locations. The vertical extent of antimony is defined, but the lateral extent of antimony is not defined to the southwest at location 21-612341.

Barium was detected above the Qbt 3 BV (46 mg/kg) in two samples at two locations. The highest concentration of 77.8 mg/kg was detected at location 21-612341 from 5–6 ft bgs. Barium concentrations decreased with depth at both locations. Barium concentrations also decreased laterally from the previous sampling locations. The lateral and vertical extent of barium are defined on the southeast side.

Calcium was detected above the Qbt 3 BV (2200 mg/kg) in two samples at two locations. The highest concentration of 21,900 mg/kg was detected at location 21-612341 from 5–6 ft bgs. Calcium concentrations decreased with depth at both locations. Calcium concentrations also decreased laterally from the previous sampling locations. The lateral and vertical extent of calcium are defined on the southeast side.

Chromium was detected above the Qbt 3 BV (7.14 mg/kg) in one sample at a concentration of 9.87 mg/kg at location 21-612341 from 5–6 ft bgs. This concentration is below the maximum tuff background concentration (13 mg/kg). Chromium concentrations decreased with depth at this location. The lateral and vertical extent of chromium are defined on the southeast side.

Copper was detected above the Qbt 3 BV (4.66 mg/kg) in one sample at a concentration of 13.3 mg/kg at location 21-612341 from 5–6 ft bgs. Copper concentrations decreased with depth at this location. Copper was not detected at the previously sampled locations on the southeast side, but had DLs as high as 29.5 mg/kg. The lateral and vertical extent of copper are defined on the southeast side.

Lead was detected above the Qbt 3 BV (11.2 mg/kg) in one sample at a concentration of 13.1 mg/kg at location 21-612341 from 5–6 ft bgs. This concentration is below the maximum tuff background concentration (15.5 mg/kg). Lead concentrations decreased with depth at this location. The lateral and vertical extent of lead are defined on the southeast side.

Mercury was detected above the Qbt 3 BV (0.1 mg/kg) in one sample at a concentration of 0.103 mg/kg at location 21-612341 from 5–6 ft bgs. This concentration is equivalent to the BV. Mercury concentrations decreased with depth at this location. The lateral and vertical extent of mercury are defined on the southeast side.

Selenium was not detected above the Qbt 3 BV (0.3 mg/kg) but had DLs above the Qbt 3 BV (1.01 mg/kg to 1.09 mg/kg) in 12 samples at all four locations. Because selenium was not detected above BVs, the lateral and vertical extent of selenium are defined on the southeast side.

Vanadium was detected above the Qbt 3 BV (17 mg/kg) in one sample at a concentration of 26.5 mg/kg at location 21-612341 from 5–6 ft bgs. Vanadium concentrations decreased with depth at this location. Vanadium concentrations also decreased laterally from the previous sampling locations. The lateral and vertical extent of vanadium are defined on the southeast side.

Zinc was detected above the Qbt 3 BV (63.5 mg/kg) in one sample at a concentration of 163 mg/kg at location 21-612341 from 5–6 ft bgs. Zinc concentrations decreased with depth at this location. The vertical extent of zinc is defined, but the lateral extent is not defined to the southwest at location 21-612341.

Organic Chemicals on the Southeast Side

Three samples were collected from location 21-612333 in the center of the subarea to evaluate the vertical extent of PCBs (Table 3.2-1). Nine samples were collected from three step-out locations (21-612338, 21-612340, and 21-612341) to evaluate the lateral extent of PCBs (Table 3.2-1).

Aroclor-1248 was detected in one sample at a concentration of 0.01 mg/kg at location 21-612340 from 5–6 ft bgs. Aroclor-1248 concentrations decreased with depth at this location. The vertical extent of Aroclor-1248 is defined. Because Aroclor-1248 was detected in only 1 of 43 samples at the site (it was not detected on the north or east side) and was detected at a low concentration that is not significantly above the EQL (0.0036 mg/kg), the lateral extent of Aroclor-1248 is defined.

Aroclor-1254 was detected in six samples at three locations. The highest concentration of 0.0324 mg/kg was detected at location 21-612340 from 15–16 ft bgs. Aroclor-1254 concentrations decreased with depth at locations 21-612338 and 21-612341. Aroclor-1254 concentrations detected at location 02-612340 are close to EQLs. The vertical extent of Aroclor-1254 is defined. Aroclor-1254 concentrations are generally lower on the southwest boundary of AOC 21-028(c) than on the northeast boundary of the site. The lateral extent of Aroclor-1254 is defined on the southeast side.

Aroclor-1260 was detected in four samples at three locations. The highest concentration of 0.0039 mg/kg was detected at location 21-612338 from 5–6 ft bgs. This concentration is equivalent to the EQL (0.0037 mg/kg). Aroclor-1260 concentrations decreased with depth at all three locations. The lateral and vertical extent of Aroclor-1260 are defined on the southeast side.

Radionuclides on the Southeast Side

Three samples were collected from location 21-612333 in the center of the subarea to evaluate the vertical extent of americium-241 and isotopic plutonium (Table 3.2-1). Nine samples were collected from three step-out locations (21-612338, 21-612340, and 21-612341) to evaluate the vertical extent of americium-241 and isotopic plutonium (Table 3.2-1).

Americium-241 was detected in four samples at three locations. The highest activity of 0.273 pCi/g was detected at location 21-612341 from 5–6 ft bgs. Americium-241 activities decreased with depth at all three locations. Americium-241 activities also decreased laterally from the previous sampling locations. The lateral and vertical extent of americium-241 are defined on the southeast side.

Plutonium-238 was detected in three samples at three locations. The highest activity of 1.48 pCi/g was detected at location 21-612341 from 5–6 ft bgs. Plutonium-238 activities decreased with depth at all three locations. Plutonium-238 activities decreased laterally from the previous sampling locations. The lateral and vertical extent of plutonium-238 are defined on the southeast side.

Plutonium-239/240 was detected in eight samples at all four locations. The highest activity of 3.02 pCi/g was detected at location 21-612341 from 5–6 ft bgs. Plutonium-239/240 activities decreased with depth at all four locations. Plutonium-239/240 activities decreased laterally from the previous sampling locations. The lateral and vertical extent of plutonium-239/240 are defined on the southeast side.

Summary of Nature and Extent at AOC 21-028(c)

The lateral extent of antimony and zinc is not defined to the southwest at location 21-612341. The lateral extent of zinc is not defined to the north at location 21-612332. The vertical extent of lead is not defined at locations 21-612329 and 21-612334.

The lateral extent of Aroclor-1254 is not defined to the northwest at location 21-612336, to the north at location 21-612332, to the east at location 21-612335, and to the southeast at location 21-612339.

The vertical extent of americum-241 is not defined at locations 21-612342 and 21-612331. The vertical extent of plutonium-239/240 is not defined at 21-612342, 21-612331, and 21-612332.

7.3.5 Summary of Human Health Risk Screening

A human health risk assessment has not been performed for AOC 21-028(c) because extent is not defined for the site.

7.3.6 Summary of Ecological Risk Screening

An ecological risk assessment has not been performed for AOC 21-028(c) because extent is not defined for the site.

8.0 TA-26 BACKGROUND AND FIELD INVESTIGATION RESULTS

The Middle Los Alamos Canyon Aggregate Area contains four sites associated with TA-26 that are addressed in this investigation report (Table 1.1-1). Each site is described separately in sections 8.2 through 8.5; sections include site description and operational history, relationship to other SWMUs and AOCs, historical and 2010 investigation activities, site contamination results based on qualified data (decision-level data from the current and previous investigations), and summaries of human health and ecological risk-screening assessments.

8.1 Background of TA-26

8.1.1 Operational History

TA-26 is a former technical area located south of NM 502, east and south of the Los Alamos County airport and west of the East Gate Industrial Park (Figure 8.2-1). The area is restricted to D-Site, which contained the East Gate vault. D-Site was established for Los Alamos Scientific Laboratory's Chemistry and Metallurgical Research division for the purpose of storing radioactive materials (LASL 1947, 000664).

The area consisted of several structures, including the East Gate vault (building 26-001), Guard Tower A (structure 26-002), Guard Tower B (structure 26-003), a guard building (26-004), east room septic system (structure 26-005), and a sump system (structure 26-006). Construction at D-Site began on April 1, 1946. The concrete storage vault, Guard Tower A, the guard building, and the sump system were completed in October 1946.

Guard Tower B was moved from TA-21 to TA-26 in March 1948. The septic system was installed in August 1948. The guard building was removed in December 1948, and the two guard towers were removed in May 1955 (LASL no date, 000675). The storage vault was later used by the Zia Company for storing high explosives (HE) (Lojek 1991, 001904). The vault operated from approximately 1946 to 1965. D-Site was demolished in 1965 and 1966.

8.1.2 Summary of Releases

Releases at TA-26 may have occurred from routine operations through the sump outfall [SWMU 26-002(a)], the drainline [SWMU 26-002(b)], and the septic tank (SWMU 26-003).

8.1.3 Current Site Usage and Status

The only existing surface structure at the TA-26 site is a concrete retaining wall near the south edge of the mesa top. The wall is 10 in. thick, set into the ground to an unknown depth, and runs east-west for approximately 50 ft. TA-26 could be used occasionally for recreational purposes (e.g., hiking) because the mesa top portion is accessible to the public.

8.2 SWMU 26-001, Surface Disposal Site

8.2.1 Site Description and Operational History

SWMU 26-001 is a surface disposal area on the south-facing slope of Los Alamos Canyon that contains debris from a five-room concrete storage vault (Figure 8.2-1).

The vault was constructed in 1946 (LASL 1949, 000696) and was decommissioned and dismantled in 1966 (Blackwell 1973, 000619). Although the vault was constructed for storing radioactive materials, documentation describing the specific type and quantity of radioactive materials is not available. One document states that the vault “stored friable containers which now contain, or have contained radioactive material” (Maddy 1957, 006349). The vault was later used for storing HE (Lojek 1991, 001904). Before the vault was dismantled, the contaminated contents that could be removed, including shelving, drainlines, the sump, and duct work, were disposed of at MDA C (Blackwell 1973, 000619). The remains of the vault were bulldozed onto the south-facing slope of Los Alamos Canyon. In the 1970s, most of the vault debris rested on the bench below the mesa top; however, some debris may have fallen as far as the canyon floor (Buckland 1978, 000496). The debris on the ledge was covered with approximately 3 ft of soil (Blackwell 1973, 000619).

8.2.2 Relationship to Other SWMUs and AOCs

The debris in the disposal area of SWMU 26-001 originated as the building 26-001 storage vault. Components of the storage vault included a sump system, SWMU 26-002(a), a drainage system, SWMU 26-002(b), and a septic system, SWMU 26-003. There are no other SWMUs or AOCs related to SWMU 26-001.

8.2.3 Summary of Previous Investigations

1965 Radiological Survey

A survey of radioactive contaminants at the D-Site vault area was conducted in 1965 before the vault was decommissioned. The radiation survey covered the grounds area, five vault doors, five vault rooms, and the north side concrete ramp to the vault area (Buckland 1965, 000628).

The grounds and five vault doors were found to be free of contamination. Alpha radiation was elevated in all five of the vault rooms. Contamination was detected on floors, light fixtures, ventilation ducts, and the concrete ramp. The contaminants were suspected to be enriched uranium-234 and uranium-235 (Buckland 1965, 000628).

Documentation of the decommissioning of the D-Site vault area is incomplete. A Laboratory memorandum from the General Monitoring Section (H-1) staff in 1973 indicates that paint applied to cover the contamination on the floors was removed to enable a survey of the exposed concrete. The floor was damp-mopped to remove loose contamination (Blackwell 1973, 000619). Before the vault was dismantled, the contaminated contents that were removable, including shelving, drainlines, the sump, and duct work, were disposed of at MDA C (Blackwell 1973, 000619). The remains of the vault were broken up, and the rubble was pushed over the cliff side to a bench on the south-facing slope of Los Alamos Canyon. When all rubble had been pushed over the side, additional soil was pushed over the side to cover the rubble to a minimum depth of 3 ft (Blackwell 1973, 000619).

1985 Phoswich Radioactivity Survey

A Phoswich radioactivity survey was conducted on the mesa at the location of the former D-Site storage vault area in 1985. The survey revealed beta-gamma radiation levels 20% to 25% higher than background levels on the west side of the vault area site (LANL 1992, 007667, p. 5-160). The source of the contamination was unclear, and the extent of contamination beyond the vault site on the ledge and in the canyon was not known.

1986 Comprehensive Environmental Assessment and Response Program Field Survey

The Comprehensive Environmental Assessment and Response Program field survey team observed pipe and other materials projecting from the debris on the bench below where the D-Site storage vault material had been bulldozed in 1965 (DOE 1987, 008663).

2007 Investigation Activities

At the time of the 2007 investigation, a small amount of reinforced-concrete debris was visible on the bench below the mesa top.

Ninety-five samples were collected from 39 locations at TA-26 in 2007. Results from the sampling activities in 2007 were presented in the previous investigation report (LANL 2008, 101669.12). Additional sampling was required to define the extent of contamination at TA-26.

8.2.4 Site Contamination

Site contamination for TA-26 is addressed in section 8.6.

8.2.5 Summary of Human Health Risk Screening

The summary of human health risk screening for TA-26 is addressed in section 8.6.5.

8.2.6 Summary of Ecological Risk Screening

The summary of ecological risk screening for TA-26 is addressed in section 8.6.6.

8.3 SWMU 26-002(a), Soil Contamination

8.3.1 Site Description and Operational History

SWMU 26-002(a) is the acid sump system that served the concrete storage vault at TA-26 from 1946 to 1965 (Figure 8.2-1). Engineering records note the sump as having an internal diameter of 4 ft and a depth of 10 ft (LANL 1990, 007513). The collection sump was located outside the vault.

The vault and its associated structures were constructed in 1946 (LASL 1949, 000696) and decommissioned and dismantled in 1966 (Blackwell 1973, 000619). The sump system consisted of a 6-in.-diameter VCP floor drain in the south center room of the vault. The drain connected to a collection sump and outfall that discharged to Los Alamos Canyon. The vault was decommissioned and dismantled in 1966 (LASL 1949, 000696). The sump and its drainlines were removed before demolition of the vault and disposed of at MDA C (Blackwell 1973, 000619).

8.3.2 Relationship to Other SWMUs and AOCs

The sump system was connected to the building 26-001 storage vault and the drainage system within the vault [SWMU 26-002(b)]. The sump outfall may have discharged liquids to the vicinity of the disposal area identified as SWMU 26-001.

8.3.3 Summary of Previous Investigations

The sump system was not investigated separately from the surveys discussed in association with SWMU 26-001 (section 8.2.3).

8.3.4 Site Contamination

Site contamination for TA-26 is addressed in section 8.6.

8.3.5 Summary of Human Health Risk Screening

Summary of human risk screening for TA-26 is addressed in section 8.6.5.

8.3.6 Summary of Ecological Risk Screening

The summary of ecological risk screening for TA-26 is addressed in section 8.6.6.

8.4 SWMU 26-002(b), Drainline

8.4.1 Site Description and Operational History

SWMU 26-002(b) was the equipment room drainage system constructed in 1946 for the concrete storage vault at TA-26 (Figure 8.2-1).

The drainage system was installed during construction of the storage vault in 1946. It carried effluent through a 4-in.-diameter VCP floor drain that discharged directly to the south-facing slope. Specific uses of the drain system are not documented. The drainlines were removed before demolition of the vault structure in 1966 (Blackwell 1973, 000619). All removable material, including the drainlines, was disposed of at MDA C (Blackwell 1973, 000619).

8.4.2 Relationship to Other SWMUs and AOCs

The equipment room drainage system was apparently not connected to either the sump system, SWMU 26-002(a), or the septic system, SWMU 26-003. The drainline ran south from the storage vault, parallel to the septic system lines, and discharged at a point near the septic system outfall. The discharge point was directly above the area that became SWMU 26-001.

8.4.3 Summary of Previous Investigations

The equipment room drainage system was not investigated separately from the surveys discussed in association with SWMU 26-001 (section 8.2.3).

8.4.4 Site Contamination

Site contamination for TA-26 is addressed in section 8.6.

8.4.5 Summary of Human Health Risk Screening

The summary of human risk screening for TA-26 is addressed in section 8.6.5.

8.4.6 Summary of Ecological Risk Screening

The summary of ecological risk screening for TA-26 is addressed in section 8.6.6.

8.5 SWMU 26-003, Septic Tank

8.5.1 Site Description and Operational History

SWMU 26-003 is the septic system that served sanitary facilities in the east room of the concrete storage vault at TA-26 (Figure 8.2-1). The septic system consisted of a 4-in.-diameter VCP drainline connected to a 250-gal. steel septic tank.

The septic system was installed in August 1948 (LASL no date, 000675). Overflow from the system was discharged to the slope below the mesa top. It was assumed that the septic tank was free from radioactive contamination because the tank served the toilet and sink in the least contaminated room of the storage vault (Buckland 1965, 000628). The septic tank was thought to have handled only sanitary waste; however, because radioactive contamination was found in the vault, it is possible that contaminants were introduced into the system. The septic tank system may have been removed at the same time as the sump system [SWMU 26-002(a)] and other removable material in 1966, but no clear documentation is available (Blackwell 1973, 000619).

8.5.2 Relationship to Other SWMUs and AOCs

The septic system was not known to be directly connected to anything except sanitary facilities in the storage vault. The equipment room drainage system, SWMU 26-002(b), was located in the east end of the vault, and its lines ran approximately parallel to the septic system lines south of the vault. The septic system discharge point may have been in the vicinity of the area that became SWMU 26-001.

8.5.3 Summary of Previous Investigations

The septic system was not investigated separately from the surveys discussed in association with SWMU 26-001 (section 8.2.3).

8.5.4 Site Contamination

Site contamination for TA-26 is addressed in section 8.6.

8.5.5 Summary of Human Health Risk Screening

The summary of human risk screening for TA-26 is addressed in section 8.6.5.

8.5.6 Summary of Ecological Risk Screening

The summary of ecological risk screening for TA-26 is addressed in section 8.6.6.

8.6 TA-26 Site Contamination

8.6.1 Soil and Rock Sampling

As part of the 2010 investigation, the following characterization activities were conducted at the mesa top and the canyon slope of TA-26:

- All samples were field screened for organic vapors and gross-alpha, -beta, and -gamma radioactivity. Field-screening results were recorded on the SCLs (Appendix F) and are presented in Table 3.2-2.
- *Mesa Top:* Three samples were collected from location 26-612303 in the central area of previous sampling locations, and nine samples were collected from three step-out locations (26-612304 to 26-612306). All mesa-top samples were collected from 0–0.5 ft, 5–6 ft, 15–16 ft, and 24–25 ft bgs and were analyzed for TAL metals only.
- *Canyon Slope:* Twenty-four samples were collected from eight step-out locations (26-612294 to 26-612297 and 26-612299 to 26-612302) downgradient of previous sampling locations (depths ranging from 0–10 ft bgs). Three samples were collected from location 26-612298, downgradient of previous locations 26-600777 and 26-600778, from 0–0.5 ft, 5–6 ft, and 9–10 ft bgs. All canyon-slope samples were analyzed for TAL metals, nitrate, and gamma-emitting radionuclides.

The 2010 and historical sampling locations at TA-26 are shown in Figure 8.2-1. Table 8.6-1 presents the samples collected and analyses requested for TA-26. The geodetic coordinates of the 2010 sampling locations are presented in Table 3.2-1.

8.6.2 Soil and Rock Sample Field-Screening Results

No organic vapors were detected at more than 10 ppm above ambient air levels during headspace screening of the samples. No radiological-screening results exceeded twice the daily site background levels. Field-screening results are presented in Table 3.2-2. No changes to sampling or other activities occurred because of the field-screening results.

8.6.3 Soil and Rock Sample Analytical Results

Decision-level data at TA-26 consist of results from 138 samples collected from 52 locations in 2007 and 2010. The 138 samples include 14 soil and 124 Qbt 3 samples.

Inorganic Chemicals

A total of 138 samples (14 soil and 124 Qbt 3) were analyzed for TAL metals, 122 samples (10 soil and 112 Qbt 3) were analyzed for nitrate, and 95 Qbt 3 samples were analyzed for perchlorate and total cyanide.

Table 8.6-2 presents the inorganic chemicals detected or detected above BVs. Plate 53 shows the spatial distribution of inorganic chemicals detected or detected above BVs. Because the extent of contamination is not defined for the site, COPCs are not identified for the site.

Organic Chemicals

A total of 95 tuff samples were analyzed for explosive compounds, PCBs, and SVOCs, and 93 tuff samples were analyzed for VOCs.

Table 8.6-3 presents the detected organic chemicals. Plate 54 shows the spatial distribution of detected organic chemicals. Because the extent of contamination is not defined for the site, COPCs are not identified for the site.

Radionuclides

A total of 95 Qbt 3 samples were analyzed for americium-241, isotopic plutonium, isotopic uranium, strontium-90, and tritium, and 112 Qbt 3 samples were analyzed for gamma-emitting radionuclides.

Table 8.6-4 presents the radionuclides detected or detected above BVs/FVs. Plate 55 shows the spatial distribution of radionuclides detected or detected above BVs/FVs. Because the extent of contamination is not defined for the site, COPCs are not identified for the site.

8.6.4 Nature and Extent of Contamination at TA-26

Inorganic Chemicals on the Mesa Top

Three samples were collected from location 26-612303 in the central area of previous sampling locations to evaluate the vertical extent of arsenic, copper, and lead on the mesa top (Table 3.2-1). Nine samples were collected from three step-out locations (26-612304, 26-612305, and 26-612306) on the mesa top to evaluate the lateral extent of TAL metals (Table 3.2-1).

Aluminum, arsenic, barium, beryllium, cobalt, copper, lead, manganese, thallium, vanadium, and zinc were not detected above BVs at location 26-612303. Therefore, the vertical extent of these metals is defined on the mesa top.

Aluminum, arsenic, barium, beryllium, cobalt, copper, manganese, thallium, vanadium, and zinc were not detected above BVs at all locations (26-612304 to 26-612306). Therefore, the lateral extent of these metals is defined on the mesa top.

Antimony was not detected above the Qbt 3 BV (0.5 mg/kg) but had DLs (0.993 mg/kg to 1.04 mg/kg) above the Qbt 3 BV in nine samples. Because antimony was not detected above BVs, the lateral and vertical extent of antimony are defined on the mesa top.

Cadmium was not detected above the Qbt 3 BV (0.5 mg/kg) but had DLs (0.506 mg/kg and 0.513 mg/kg) above the Qbt 3 BV in two samples. Because cadmium was not detected above BVs, the lateral and vertical extent of cadmium are defined on the mesa top.

Calcium was detected above the soil BV (6120 mg/kg) in two samples and above the Qbt 3 BV (2200 mg/kg) in two samples at three locations. The highest concentration of 29,600 mg/kg was detected at location 26-612305 from 0–0.5 ft bgs. Calcium concentrations decreased with depth at all three locations. Calcium concentrations also decreased laterally. The lateral and vertical extent of calcium are defined on the mesa top.

Chromium was detected above the Qbt 3 BV (7.14 mg/kg) in three samples at two locations. The highest concentration of 19.7 mg/kg was detected at location 26-612305 from 5–6 ft bgs. Chromium concentrations decreased with depth at both locations. Chromium concentrations decreased laterally, except to the west at location 26-612305. The vertical extent of chromium is defined, but the lateral extent of chromium is not defined to the west at location 26-612305.

Lead was detected above the Qbt 3 BV (11.2 mg/kg) in one sample at a concentration of 39.2 mg/kg at location 26-612306 from 0–0.5 ft bgs. Lead concentrations decreased with depth at this location. Lead concentrations also decreased laterally. The lateral and vertical extent of lead are defined on the mesa top.

Magnesium was detected above the soil BV (4610 mg/kg) in one sample at a concentration of 5420 mg/kg at location 26-612303 from 0–0.5 ft bgs. Magnesium concentrations decreased with depth at this location. Magnesium was not detected above BVs at the three step-out locations. The lateral and vertical extent of magnesium are defined on the mesa top.

Nickel was detected above the Qbt 3 BV (6.58 mg/kg) in three samples at two locations. The highest concentration of 10.3 mg/kg was detected at location 26-612305 from 5–6 ft bgs. Nickel concentrations decreased with depth at both locations. Nickel concentrations decreased laterally, except to the west at location 26-612305. The vertical extent of nickel is defined, but the lateral extent of nickel is not defined to the west at location 26-612305.

Potassium was detected above the soil BV (3460 mg/kg) in one sample at a concentration of 3490 mg/kg at location 26-612303 from 0–0.5 ft bgs. Potassium concentrations decreased with depth at this location. Potassium was not detected above BVs at the three step-out locations. The lateral and vertical extent of potassium are defined on the mesa top.

Selenium was detected above the Qbt 3 BV (0.3 mg/kg) in six samples at two locations. Selenium was not detected but had DLs (1.01 mg/kg to 1.04 mg/kg) above the Qbt 3 BV in six samples at the other two locations. The highest concentration of 1.9 mg/kg was detected at location 26-612306 from 5–6 ft bgs. Selenium concentrations decreased with depth at both locations. Selenium concentrations also decreased laterally from previously sampled locations. The lateral and vertical extent of selenium are defined on the mesa top.

Inorganic Chemicals on the Canyon Slope

Three samples were collected from location 26-612298, which is near previously sampled locations 26-600777 and 26-600778, to evaluate the vertical extent of nitrate (Table 3.2-1). Twenty-four samples were collected from eight step-out locations (26-612294 to 26-612297 and 26-612299 to 26-612302) downgradient of previous sampling locations to evaluate the lateral and vertical extent of TAL metals (Table 3.2-1).

Arsenic, cadmium, manganese, potassium, vanadium, and zinc were not detected above BVs. Therefore, the lateral and vertical extent of these metals are defined on the canyon slope.

Aluminum was detected above the Qbt 3 BV (7340 mg/kg) in one sample at a concentration of 7570 mg/kg at location 26-612297 from 9–10 ft bgs. This concentration is below the maximum Qbt 3 background concentration (8370 mg/kg). Aluminum concentrations decreased with depth at this location. The lateral and vertical extent of aluminum are defined on the canyon slope.

Antimony was detected above the soil BV (0.83 mg/kg) in two samples and above the Qbt 3 BV (0.5 mg/kg) in one sample at two locations. The highest concentration of 15.5 mg/kg was detected at location 26-612302 from 0–0.5 ft bgs. Antimony concentrations decreased with depth at location 26-612302, but increased with depth at location 26-612297. The lateral extent of antimony is not defined to the west at location 26-612297 and downgradient of location 26-612302, and the vertical extent of antimony is not defined at location 26-612297.

Barium was detected above the Qbt 3 BV (46 mg/kg) in one sample at a concentration of 137 mg/kg at location 26-612297 from 9–10 ft bgs. Barium concentrations decreased with depth at this location. The Gehan and quantile tests indicated site concentrations are not different from background (Figure G-23.0-1, Table G-23). The lateral and vertical extent of barium are defined on the canyon slope.

Beryllium was detected above the Qbt 3 BV (1.21 mg/kg) in two samples at 1.3 mg/kg at location 26-612300 from 5–6 ft and 6–6.6 ft bgs. The concentrations are below the maximum tuff background concentration (1.8 mg/kg). Therefore, the lateral and vertical extent of beryllium are defined on the canyon slope.

Calcium was detected above the soil BV (6120 mg/kg) in 6 samples and above the Qbt 3 BV (2200 mg/kg) in 10 samples at all eight locations. The highest concentration of 20,900 mg/kg was detected at location 26-612300 from 5–6 ft bgs. Calcium concentrations decreased with depth at all locations, except at location 26-612302. Calcium was detected at a concentration of 4320 mg/kg in the deepest sample (9–10 ft bgs) at this location. Calcium concentrations on the canyon slope decreased from the mesa top, where the maximum detection was 30,400 mg/kg from 1–3.5 ft bgs. Therefore, the lateral and vertical extent of calcium are defined on the canyon slope.

Chromium was detected above the Qbt 3 BV (7.14 mg/kg) in eight samples at four locations. The highest concentration of 48.9 mg/kg was detected at location 26-612294 from 9–10 ft bgs. Chromium concentrations decreased with depth at location 26-612301, but increased with depth at locations 26-612294, 26-612296, and 26-612300. Chromium concentrations in the deepest samples at locations 26-612296 and 26-612300 are 11.2 mg/kg and 10.4 mg/kg, respectively, which are below the maximum tuff background concentration (13 mg/kg). Therefore, the vertical extent of chromium is defined at locations 26-612296, 26-612300, and 26-612301. However, the vertical extent of chromium is not defined at location 26-612294, and the lateral extent of chromium is not defined to the west at this location.

Cobalt was detected above the Qbt 3 BV (3.14 mg/kg) in only one sample at a concentration of 3.5 mg/kg at location 26-612297 from 9–10 ft bgs. Cobalt concentrations decreased with depth at this location. The Gehan and quantile tests indicated site concentrations are not different from background (Figure G-23.0-2, Table G-23). The lateral and vertical extent of cobalt are defined on the canyon slope.

Copper was detected above the Qbt 3 BV (4.66 mg/kg) in seven samples at four locations. The highest concentration of 12 mg/kg was detected in the deepest sample (9–10 ft bgs) at location 26-612301. Copper concentrations decreased with depth at location 26-612297, but increased with depth at locations 26-612300, 26-612301, and 26-612302. The highest copper concentrations detected at locations 26-612300 and 26-612302 are 8.1 mg/kg and 6.9 mg/kg, respectively, which do not appear to be the result of a release because they are not significantly above the maximum tuff background concentration (6.2 mg/kg). Therefore, the vertical extent is defined at locations 26-612300 and 26-612302. However, the vertical extent of copper is not defined at location 26-612301, and the lateral extent of copper is not defined to the southeast at this location.

Lead was detected above the soil BV (22.3 mg/kg) in two samples at two locations. The highest concentration of 27.8 mg/kg was detected at location 26-612295 from 0–0.5 ft bgs. Both concentrations are below the maximum soil background concentration (28 mg/kg). Lead concentrations decreased with depth at both locations. The lateral and vertical extent of lead are defined on the canyon slope.

Magnesium was detected above the Qbt 3 BV (1690 mg/kg) in three samples at two locations. The highest concentration of 2980 mg/kg was detected at location 26-612300 from 5–6 ft bgs. This concentration is only slightly above the maximum tuff background concentration (2820 mg/kg). Magnesium concentrations decreased with depth at both locations. The lateral and vertical extent of magnesium are defined on the canyon slope.

Nickel was detected above the Qbt 3 BV (6.58 mg/kg) in seven samples at four locations. The highest concentration of 22.6 mg/kg was detected at location 26-612294 from 9–10 ft bgs. Nickel concentrations increased with depth at locations 26-612294 and 26-612300 and decreased with depth at locations 26-612297 and 26-612301. The highest nickel concentration detected at location 26-612300 is 8.9 mg/kg, which does not appear to be the result of a release because it is not significantly above the maximum tuff background concentration (7 mg/kg). Therefore, the vertical extent of nickel is defined at location 26-612300. However, the vertical extent of nickel is not defined at location 26-612294, and the lateral extent of nickel is not defined to the west at this location.

Nitrate concentrations decreased with depth at location 26-612298 and were much lower than the concentration of 50.6 mg/kg at previously sampled location 26-600778. The vertical extent of nitrate is defined near previously sampled locations 26-600777 and 26-600778.

Selenium was detected above the Qbt 3 BV (0.3 mg/kg) in 15 samples and above the soil BV (1.52 mg/kg) in 4 samples at all eight locations. The highest concentration of 5.4 mg/kg was detected at location 26-612300 from 5–6 ft bgs. Selenium concentrations decreased with depth at six of the eight locations, did not change with depth at location 26-612294 at a concentration of 1.6 mg/kg, and increased slightly with depth at location 26-612302 from 1.4 mg/kg to 1.7 mg/kg. These concentrations are lower than previously detected concentrations. Selenium concentrations also decreased laterally from previously sampled locations. The lateral and vertical extent of selenium are defined on the canyon slope.

Thallium was not detected above the soil BV (0.73 mg/kg) but had a DL (1.066 mg/kg) above the soil BV in one sample. Because thallium was not detected above BVs, the lateral and vertical extent of thallium are defined on the canyon slope.

Organic Chemicals

The extent of organic chemicals was discussed in section 3.3.1 of the approved work plan (LANL 2009, 106660.14, pp. 21–22; NMED 2009, 106703). No additional sampling was warranted for organic chemicals on the mesa top or on the canyon slope. Therefore, the samples collected in 2010 were not analyzed for organic chemicals.

Radionuclides

The extent of radionuclides was discussed in section 3.3.1 of the approved work plan (LANL 2009, 106660.14, pp. 21–22; NMED 2009, 106703). No additional sampling was warranted for radionuclides on the mesa top. All samples collected on the canyon slope were analyzed for cesium-137 to define its lateral extent (Table 3.2-1). Cesium-137 was not detected or not detected above soil FVs in any sample collected in 2010 on the canyon slope. Therefore, the lateral extent of cesium-137 is defined on the canyon slope.

Summary of Nature and Extent at TA-26

The lateral and vertical extent of antimony are not defined at location 26-612297, and the lateral extent of antimony is not defined downgradient of location 26-612302. The lateral and vertical extent of chromium and nickel are not defined at location 26-612294, and the lateral extent of chromium and nickel is not defined to the west at location 26-612305. The lateral and vertical extent of copper are not defined at location 26-612301.

The lateral extent of cesium-137 is defined.

8.6.5 Summary of Human Health Risk Screening

A human health risk assessment has not been performed for TA-26 because extent is not defined for the site.

8.6.6 Summary of Ecological Risk Screening

An ecological risk assessment has not been performed for TA-26 because extent is not defined for the site.

9.0 CONCLUSIONS

9.1 Remediation

Excavations were conducted at AOC 02-004(a) to remove PAH contamination, at AOC 02-004(f) to remove PCB contamination, at AOC 02-011(a)(vi) to remove PAH contamination, at AOC 02-011(a)(i,ii,iii,v,x) to remove PCB contamination, and at AOC 02-010 to remove cesium-137 contamination. The lateral and vertical extent of contamination are defined at all excavated areas except for PCBs at AOC 02-011(a)(i,ii). Results of the confirmation samples indicated that the remaining PAH concentrations are below industrial SSLs at AOC 02-004(a) and AOC 02-011(a)(vi), the remaining cesium-137 concentrations are below the industrial SAL at AOC 02-010, and the remaining PCB concentrations are at or below 1 mg/kg at AOC 02-004(f) and AOC 02-011(a)(iii,v,x).

9.2 Nature and Extent of Contamination

The nature and extent of contamination have been defined for 32 sites (including 3 duplicates) investigated during the 2010 Phase II Middle Los Alamos Canyon Aggregate Area investigation. The extent of contamination has not been defined for 02-011(a)(i,ii), Consolidated Unit 21-006(e)-99, AOC 21-028(c), and TA-26. Summaries of the nature and extent of contamination and remaining characterization requirements for the sites at TA-02, TA-21, and TA-26 are presented below.

9.2.1 TA-02

The vertical extent of contamination has been defined for the following 32 sites:

- AOC 02-003(a)
- AOC 02-003(b)
- AOC 02-003(c)

- AOC 02-003(d)
- AOC 02-003(e)
- AOC 02-004(a)
- AOC 02-004(b)
- AOC 02-004(c)
- AOC 02-004(d)
- AOC 02-004(e)
- AOC 02-004(f)
- AOC 02-004(g)
- SWMU 02-005
- SWMU 02-006(a)
- SWMU 02-006(b)
- AOC 02-006(c)
- AOC 02-006(d), duplicate of AOC 02-006(c)
- AOC 02-006(e)
- SWMU 02-007 of Consolidated Unit 02-007-00
- SWMU 02-009(a) of Consolidated Unit 02-007-00
- SWMU 02-009(b) of Consolidated Unit 02-007-00
- SWMU 02-009(c) of Consolidated Unit 02-007-00
- SWMU 02-008(a)
- AOC 02-008(c)
- AOC 02-009(d)
- AOC 02-009(e), duplicate of SWMU 02-009(c)
- AOC 02-010
- AOC 02-011(b)
- AOC 02-011(c)
- AOC 02-011(d)
- AOC 02-011(e), duplicate of SWMU 02-008(a)
- AOC 02-012

The lateral extent of contamination for SWMU 02-005, SWMU 02-006(a), and for the TA-02 core area has been defined.

The vertical extent of contamination for AOC 02-011(a)(iii,iv,v,vi,vii,viii,ix,x,xi) is defined. The lateral and vertical extent of PCB contamination have not been defined for AOC 02-011(a)(i,ii) at TA-02. Additional soil removal with confirmation sampling is needed to define the extent of contamination.

9.2.2 TA-21

The extent of contamination has not been defined for the two sites in TA-21. Additional sampling is needed to define the extent of contamination.

- *Consolidated Unit 21-006(e)-99:* lateral extent of lead to the south at location 21-612322, lateral extent of plutonium-238 to the northwest at location 21-612324, vertical extent of plutonium-238 at location 21-612322, and vertical extent of tritium at location 21-612318
- *AOC 21-028(c):* lateral extent of antimony to the southwest at location 21-612341; lateral extent of zinc to the north at location 21-612332; vertical extent of lead at locations 21-612329 and 21-612334; lateral extent of Aroclor-1254 to the northwest at location 21-612336, to the north at location 21-612332, to the east at location 21-612335, and to the southeast at location 21-612339; vertical extent of Americum-241 at locations 21-612342 and 21-612331; and vertical extent of plutonium-239/240 at locations 21-612342, 21-612331, and 21-612332

9.2.3 TA-26

The extent of contamination has not been defined for the following TAL metals at TA-26. Additional sampling is needed to define the extent of contamination.

- The lateral and vertical extent of antimony are not defined at location 26-612297, and the lateral extent of antimony is not defined downgradient of location 26-612302.
- The lateral and vertical extent of chromium and nickel are not defined at location 26-612294, and the lateral extent of chromium and nickel is not defined to the west at location 26-612305.
- The lateral and vertical extent of copper are not defined at location 26-612301.

9.3 Summary of Risk-Screening Assessments

The 32 sites for which the nature and extent of contamination are defined were evaluated for potential human health risks. In addition, SWMU 02-006(a) was evaluated for ecological risk.

9.3.1 Human Health Risk-Screening Assessments

The human health risk-screening assessments are presented in Appendix H, section H-4.

The human health risk-screening assessments indicated no potential unacceptable risks and doses from COPCs for the industrial, recreational, and residential scenarios for 20 sites (including a duplicate) evaluated in the Middle Los Alamos Canyon Aggregate Area. The total excess cancer risks are below or equivalent to the NMED target risk level of 1×10^{-5}, the HIs are below or equivalent to the NMED target HI of 1, and the doses are below the DOE target dose limit of 15 mrem/yr. The total equivalent risks ranged from 7×10^{-8} to 5×10^{-5} for the industrial scenario, 2×10^{-12} to 5×10^{-6} for the recreational scenario, and 1×10^{-7} to 3×10^{-3} for the residential scenario. The 20 sites include the following:

- AOC 02-003(b)
- AOC 02-003(c)
- AOC 02-003(d)
- AOC 02-004(b)
- AOC 02-004(c)

- AOC 02-004(d)
- AOC 02-004(e)
- AOC 02-004(f)
- AOC 02-004(g)
- SWMU 02-005
- SWMU 02-006(a)
- SWMU 02-006(b)
- AOC 02-006(e)
- SWMU 02-007 of Consolidated Unit 02-007-00
- SWMU 02-008(a)
- AOC 02-008(c)
- SWMU 02-009(a) of Consolidated Unit 02-007-00
- AOC 02-011(c)
- AOC 02-011(e), duplicate of SWMU 02-008(a)
- AOC 02-012

In addition, 12 sites (including 2 duplicates) for which the nature and extent of contamination are defined do not pose a potential unacceptable risk or dose under the industrial and recreational scenarios, but pose a potential unacceptable risk or dose under the residential scenario. The total excess cancer risks are above the NMED target risk level of 1×10^{-5}, the HIs are above the NMED target HI of 1, and/or the doses are above the DOE target dose limit of 15 mrem/yr for the residential scenario. The 12 sites include the following:

- AOC 02-003(a)
- AOC 02-003(e)
- AOC 02-004(a)
- AOC 02-006(c)
- AOC 02-006(d), duplicate of AOC 02-006(c)
- SWMU 02-009(b) of Consolidated Unit 02-007-00
- SWMU 02-009(c) of Consolidated Unit 02-007-00
- AOC 02-009(d)
- AOC 02-009(e), duplicate of SWMU 02-009(c)
- AOC 02-010
- AOC 02-011(b)
- AOC 02-011(d)

Finally, the lateral extent samples surrounding the TA-02 core area indicated no potential unacceptable risks or doses from COPCs for the industrial, recreational, and residential scenarios.

The Laboratory's as low as reasonably achievable (ALARA) program description states that quantitative ALARA evaluations are not necessary for a potential annual public exposure less than a 3-mrem total effective dose equivalent individual dose ("Los Alamos National Laboratory Environmental ALARA Program," PD410, p. 7, effective November 8, 2008). For TA-02, where public access is possible, the recreational scenario is the likely scenario, while the industrial and residential scenarios are highly unlikely because the site is in the canyon and in the floodplain, and the Laboratory has no plans to use the area. The calculated radiation dose(s) for the recreational scenario at all of the TA-02 sites evaluated ranged from no dose to 1 mrem/yr. The calculated radiation dose(s) for the industrial scenario at all of the TA-02 sites evaluated ranged from no dose to 11 mrem/yr. The calculated radiation dose(s) for the residential scenario at 19 TA-02 sites ranged from 0.0006 mrem/yr to 15 mrem/yr. The total doses at the other 10 TA-02 sites were above 15 mrem/yr for the residential scenario.

Doses for several sites were background- and/or decay-corrected (cobalt-60 only) for the industrial and/or residential scenarios, which resulted in the total doses for some sites being less than or equal to 3 mrem/yr. As a result, the total doses for these sites are ALARA. ALARA analyses were conducted for nine sites with residential doses between 3 mrem/yr and 15 mrem/yr, and six sites with industrial doses between 3 mrem/yr and 15 mrem/yr. Based on the ALARA analyses, the doses for the industrial scenario at six sites and the residential scenario at nine sites between 3 mrem/yr and 15 mrem/yr are ALARA.

In summary, the potential annual public exposure to radiation for the recreational scenario at the 29 sites assessed, the industrial scenario for 29 sites, and the residential scenario for 19 sites are less than or equivalent to 15 mrem/yr. However, because TA-02 is currently not being used, and will not be used, for industrial or residential purposes, the doses for the industrial and residential scenarios are not representative of the area and no further remediation is necessary. Per PD410, the doses at the TA-02 sites for the recreational scenario, which is the current and foreseeable future land use, do not exceed 3 mrem/yr and are ALARA.

9.3.2 Ecological Risk-Screening Assessments

In accordance with the approved work plan (LANL 2009, 106660.14; NMED 2009, 106703), locations surrounding the core area of TA-02 were sampled to define the lateral extent of contamination for TA-02 as a whole (section 6.32). Although the lateral extent for the TA-02 core area is defined, one site within the core area requires additional remediation and confirmation sampling. The ecological risk-screening assessment will be conducted for the sites within the TA-02 core area as one exposure unit after the investigation at this site has been completed. However, an ecological risk-screening assessment was conducted at SWMU 02-006(a) because it is located on the mesa top outside of the TA-02 core area. The ecological risk-screening assessment for SWMU 02-006(a) is presented in Appendix H, section H-5. No potential ecological risk was found for any receptor following evaluations based on minimum ESL, HI analyses, potential effects to populations (individuals for T&E species), and LOAEL analyses for SWMU 02-006(a).

10.0 RECOMMENDATIONS

The determination of site status is based on the results of the risk-screening assessments and the nature and extent evaluation. Depending upon the decision scenario used, the sites are recommended as corrective actions complete either with or without controls or for additional action. The residential scenario is the only scenario under which corrective action complete without controls is applicable; that is, no additional corrective actions or conditions are necessary. The other decision scenarios (industrial and recreational) result in corrective action complete with controls; that is, some type of institutional controls must be in place to ensure that the land use remains consistent with site cleanup levels.

10.1 Additional Field Characterization Activities

The extent of contamination has not been defined for AOC 02-011(a)(i,ii), Consolidated Unit 21-006(e)-99, AOC 21-028(c), and TA-26 in the Middle Los Alamos Canyon Aggregate Area (Table 10.1-1). Additional soil removal with confirmation sampling is needed at AOC 02-011(a)(i,ii) to define the lateral and vertical extent of PCBs. Additional sampling is needed to define the extent of contamination for one or more inorganic chemicals, organic chemicals, or radionuclides at Consolidated Unit 21-006(e)-99, AOC 21-028(c), and TA-26.

A Phase III investigation work plan will be developed specifying sampling locations, numbers of samples, and analytical suites required to define the extent of contamination and remediation at those sites. Upon completion of the proposed Phase III sampling, the data will be used to confirm that the extent of contamination has been defined and to complete human health and ecological risk-screening assessments for Consolidated Unit 21-006(e)-99, AOC 21-028(c), and TA-26; human health risk assessments for AOC 02-011(a); and the ecological risk assessment for the TA-02 core area. The results will be presented in a Phase III investigation report for the Middle Los Alamos Canyon Aggregate Area.

10.2 Recommendations for Corrective Actions Complete

SWMU 02-006(a), for which the nature and extent of contamination are defined, does not pose a potential unacceptable risk or dose under the industrial and recreational scenarios. No potential ecological risk was found for any receptor at this site. The Laboratory recommends that no further investigation or remediation activities are warranted. Because the site has been found to pose potential unacceptable doses to human health under the residential scenario, the Laboratory recommends corrective actions complete with controls for SWMU 02-006(a).

10.3 Schedule for Recommended Activities

A Phase III investigation work plan will be developed and submitted to NMED 6 mo after this investigation report is approved. The Phase III work plan will provide details and a schedule for implementing sampling activities and submitting a Phase III investigation report.

11.0 REFERENCES AND MAP DATA SOURCES

11.1 References

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

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

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Drainage: WQH Drainage_arc; Los Alamos National Laboratory, ENV Water Quality and Hydrology Group; 1:24,000 Scale Data; 03 June 2003.

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Security and Industrial Fences and Gates, ksl_fences_arc; Los Alamos National Laboratory, KSL Site Support Services, Planning, Locating and Mapping Section; 06 January 2004; as published 28 May 2009.

Sewer Line System, ksl_sewer_arc; Los Alamos National Laboratory, KSL Site Support Services, Planning, Locating and Mapping Section; 06 January 2004; as published 28 May 2009.

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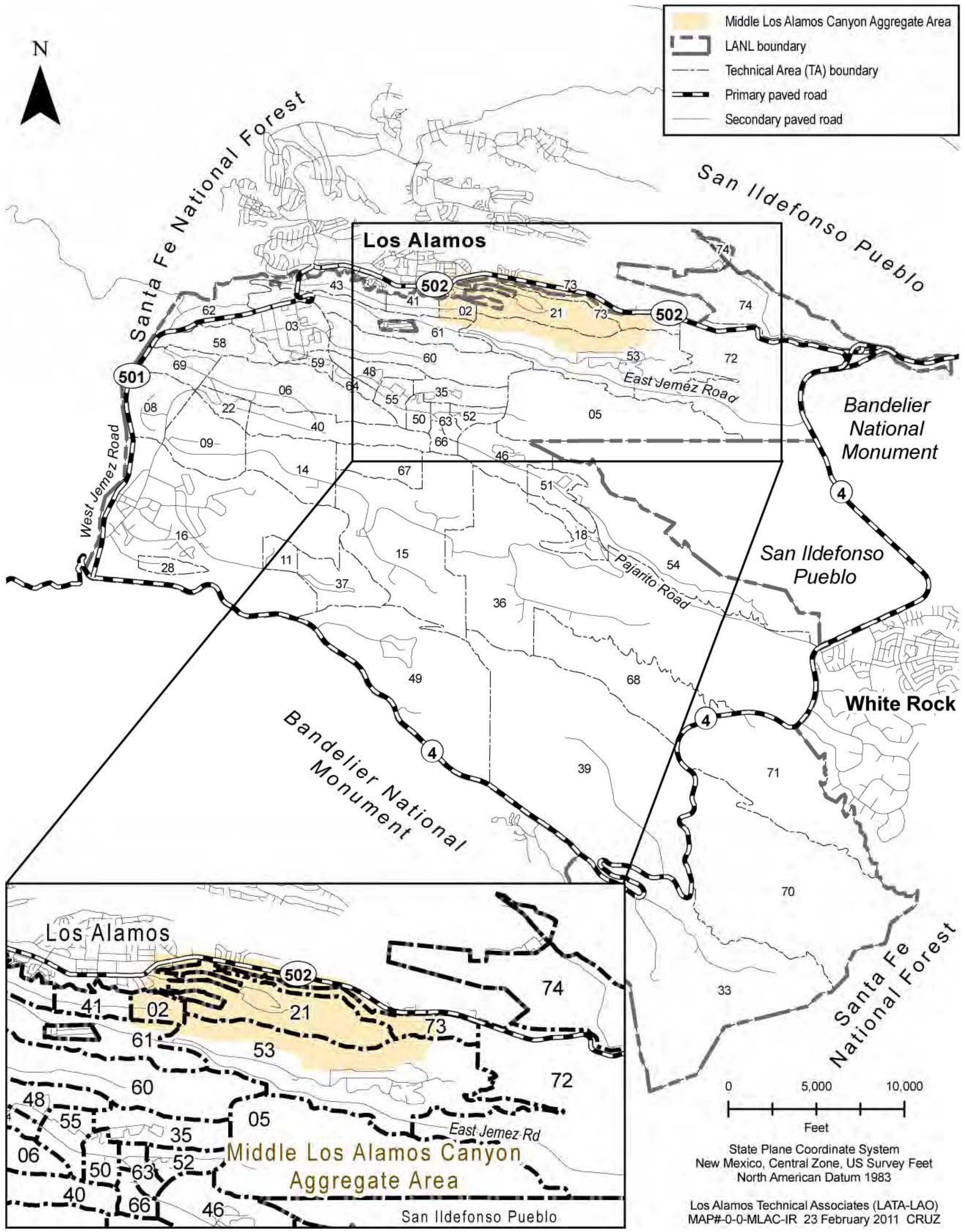

Figure 1.0-1 Location of Middle Los Alamos Canyon Aggregate Area with respect to Laboratory technical areas

Bandelier Tuff	Tshirege Member	Qbt 4	Ash-flow units
		Qbt 3	
		Qbt 2	
		Qbt 1v	
		Qbt 1g	
		Tsankawi Pumice Bed	
Cerro Toledo interval		Volcaniclastic sediments and ash-falls	
Bandelier Tuff	Otowi Member	Ash-flow units	
		Guaje Pumice Bed	
Puye Formation and intercalated volcanic rocks	Fanglomerate	Fanglomerate facies includes sand, gravel, conglomerate, and tuffaceous sediments	
	Volcanic rocks	Cerros del Rio basalts intercalated within the Puye Formation, includes up to four interlayered basaltic flows. Andesites of the Tschicoma Formation present in western part of plateau	
	Fanglomerate	Fanglomerate facies includes sand, gravel, conglomerate, and tuffaceous sediments; includes "old alluvium"	
	Axial facies deposits of the ancestral Rio Grande	Totavi Lentil	
Santa Fe Group	Coarse sediments	Coarse-grained upper facies (called the "Chaquehui Formation" by Purtymun 1995, 45344)	
	Basalt		
	Coarse sediments		
	Basalt		
	Coarse sediments		
	Basalt		
	Coarse sediments		
	Basalt		
	Coarse sediments		
	Arkosic clastic sedimentary deposits	Undivided Santa Fe Group (includes Chamita[?] and Tesuque Formations)	

Figure 2.2-1 Generalized stratigraphy of bedrock geologic units of the Pajarito Plateau

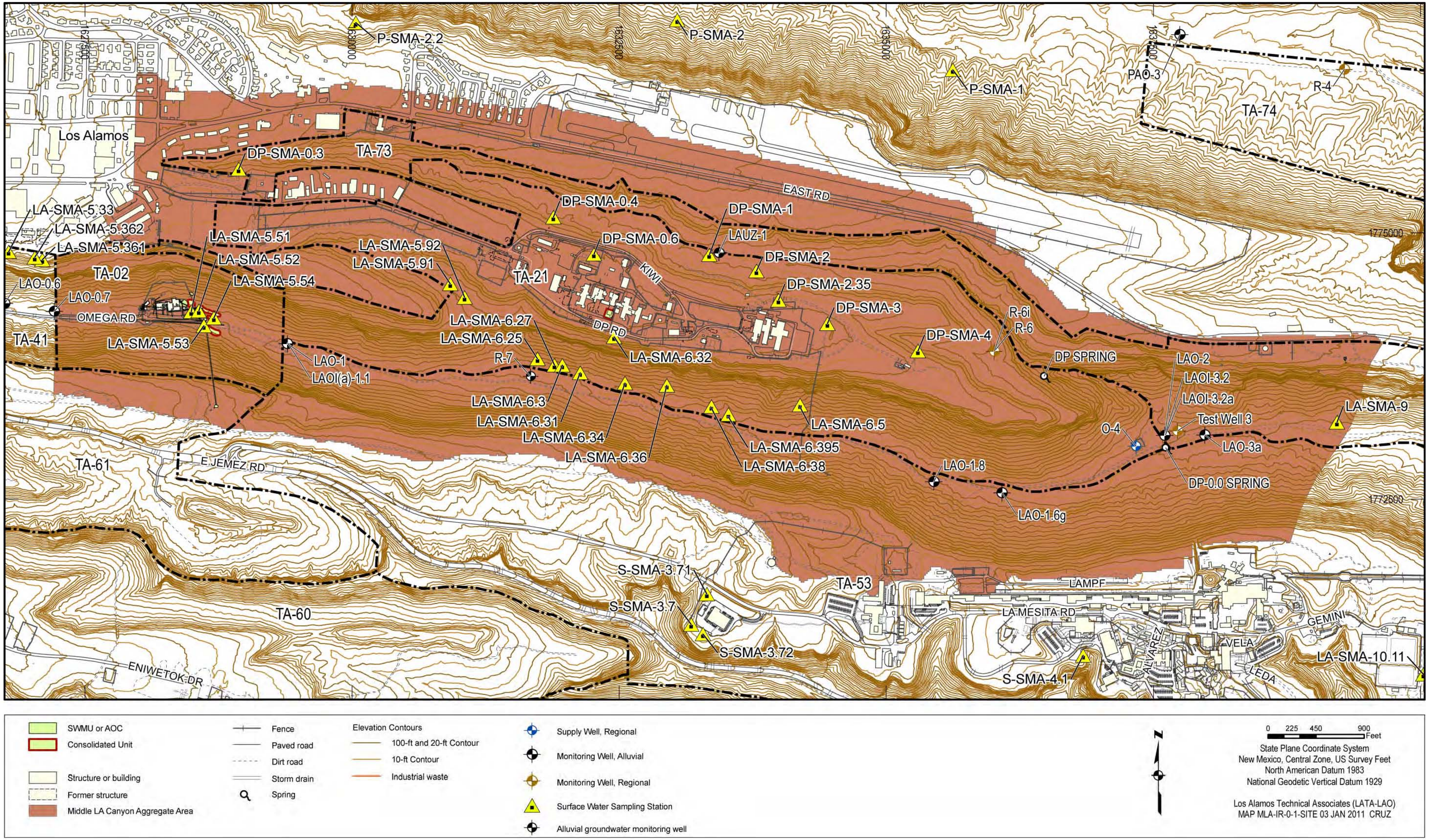

Figure 2.2-2 Middle Los Alamos Canyon Aggregate Area monitoring wells, supply wells, and surface water sampling stations

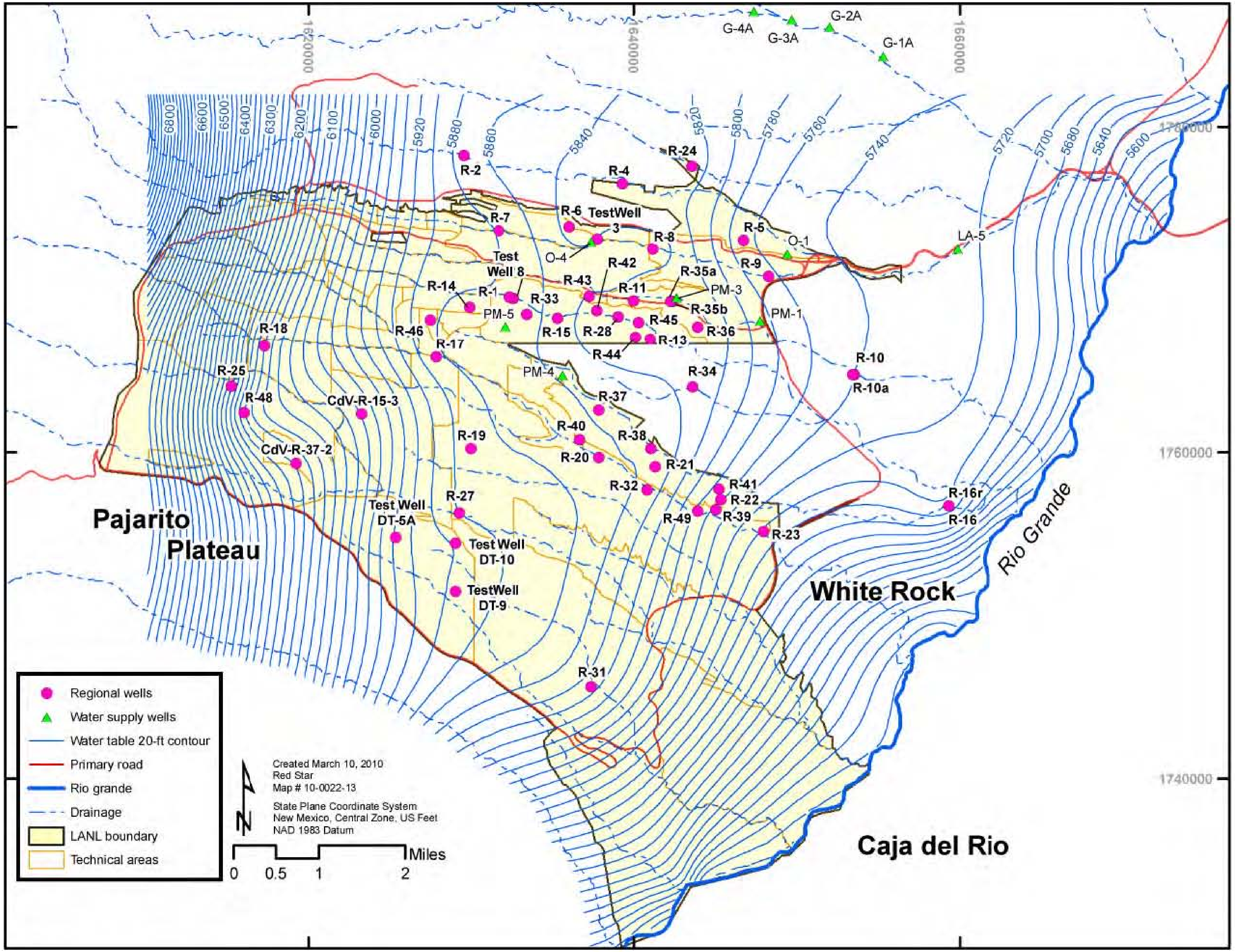

Figure 2.2-3 **Depths to top of regional aquifer across the Laboratory**

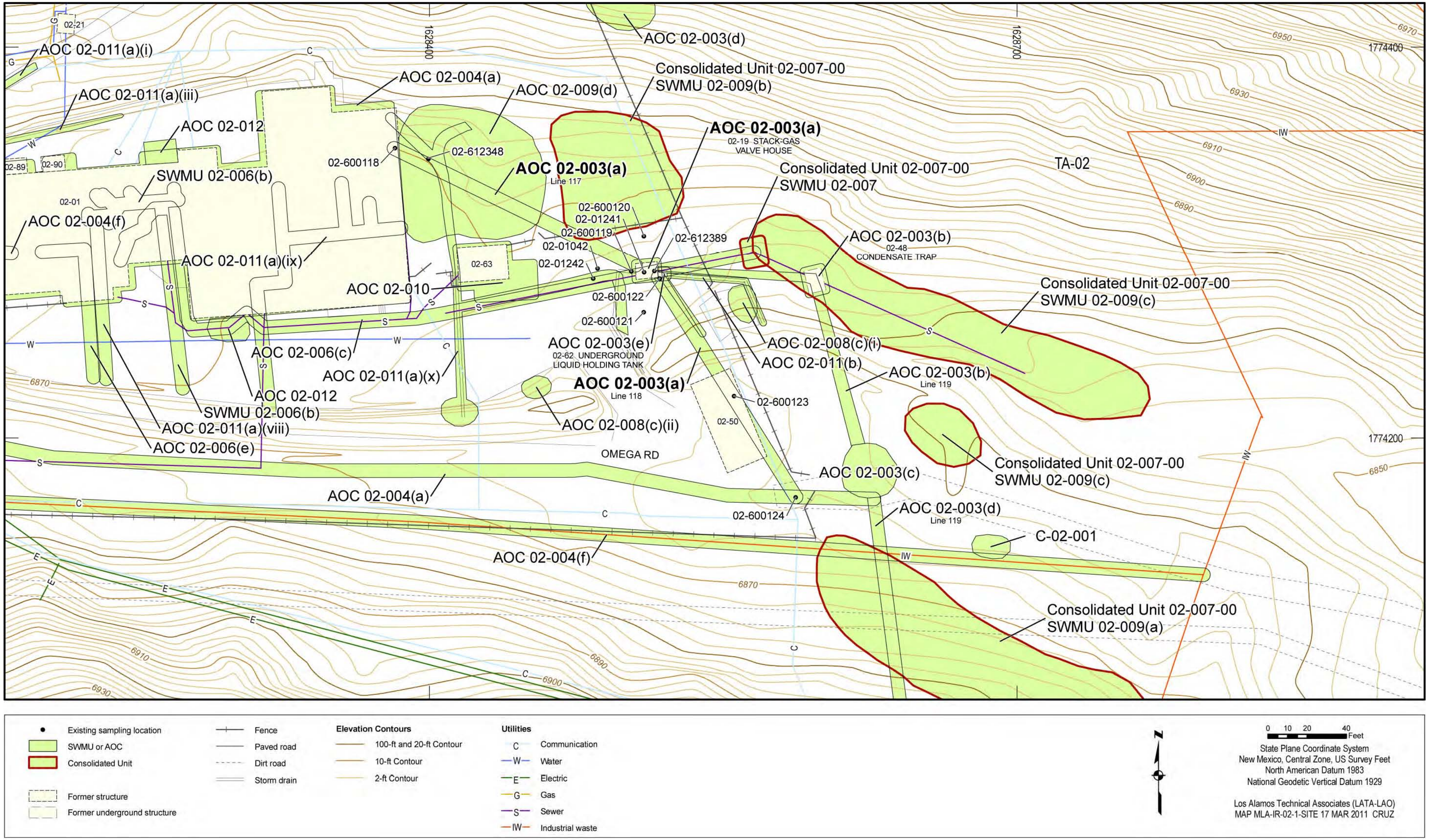

Figure 6.2-1 Site map of AOC 02-003(a)

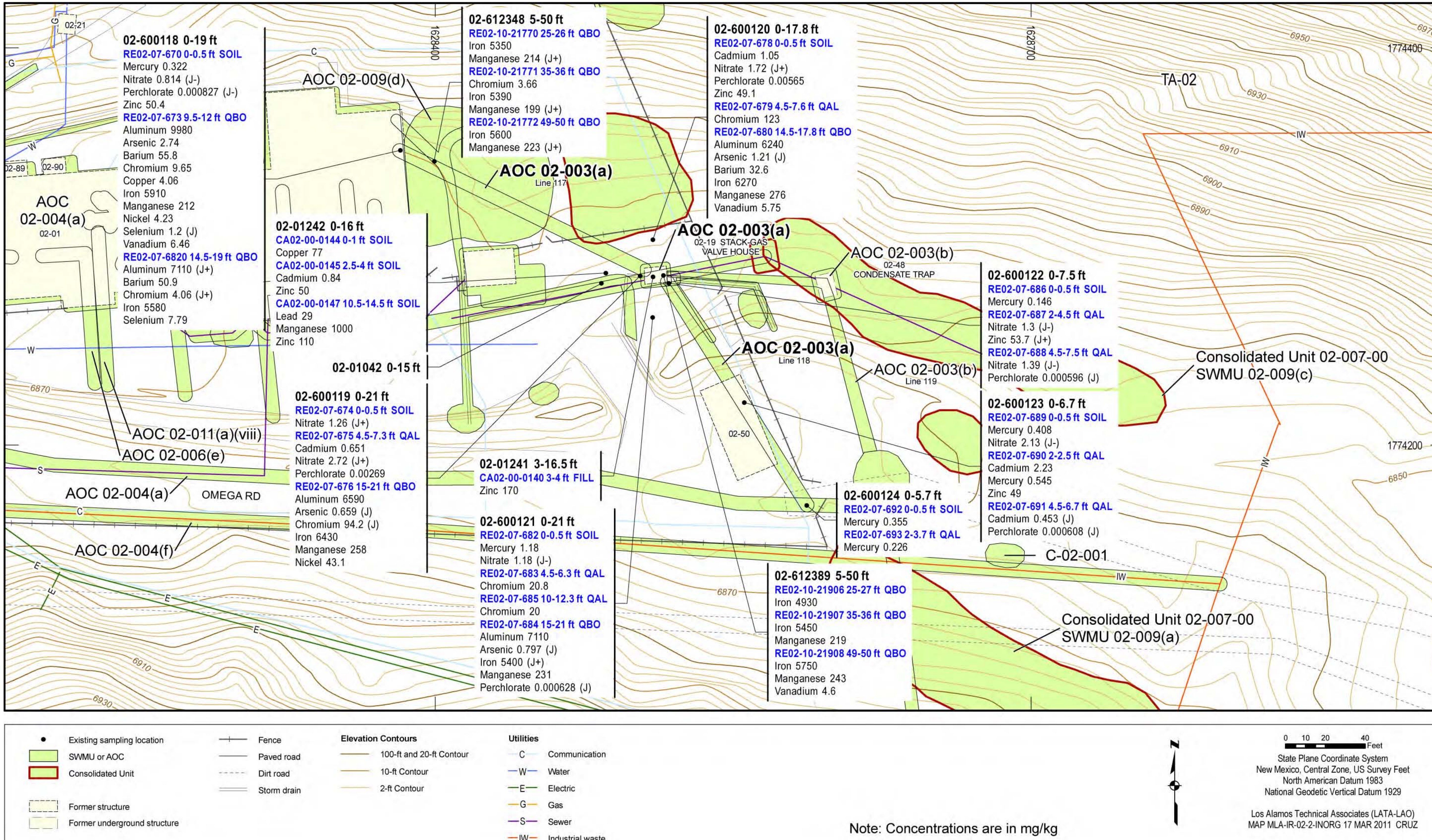

Figure 6.2-2 Inorganic chemicals detected or detected above BVs at AOC 02-003(a)

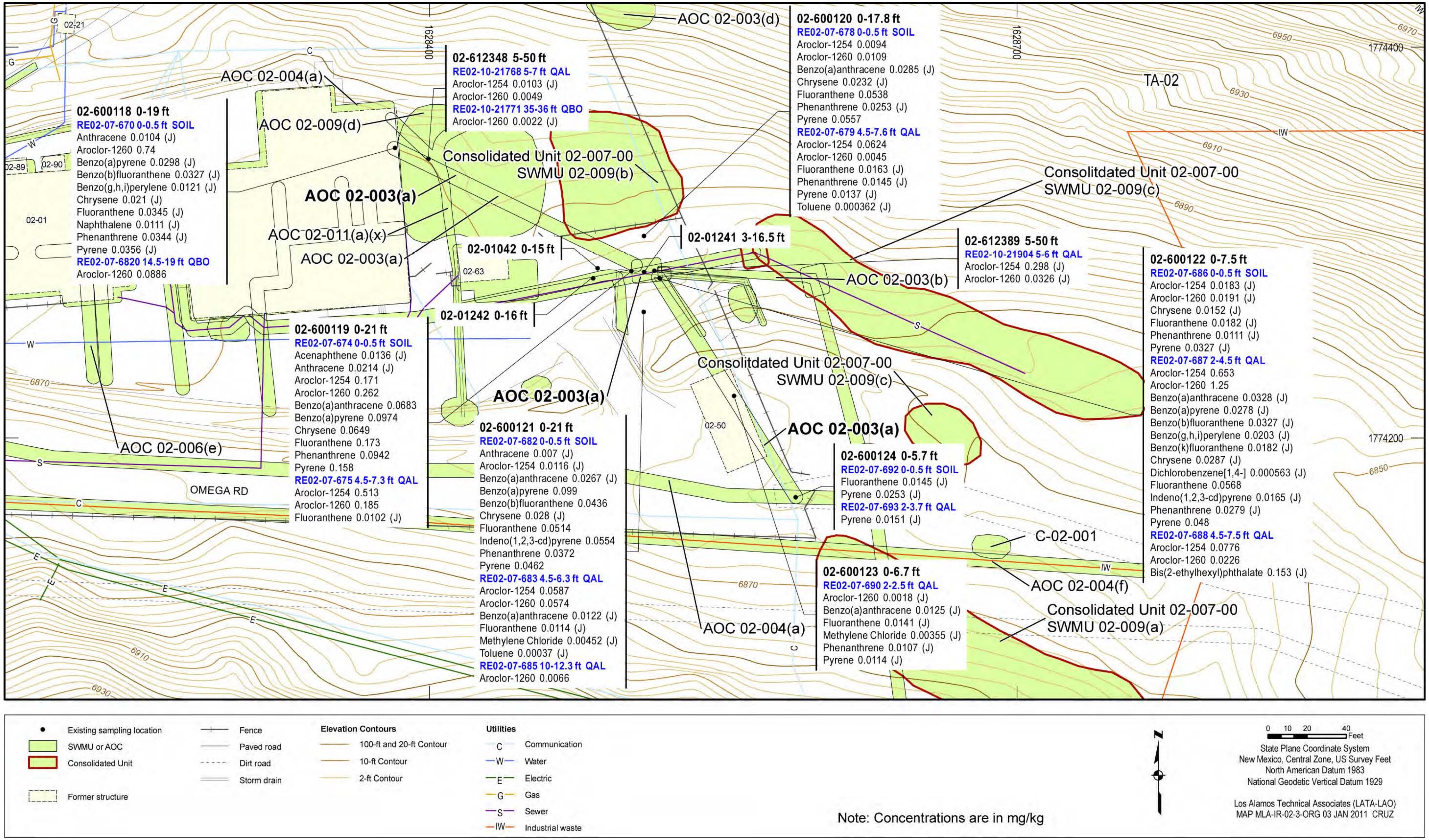

Figure 6.2-3 Organic chemicals detected at AOC 02-003(a)

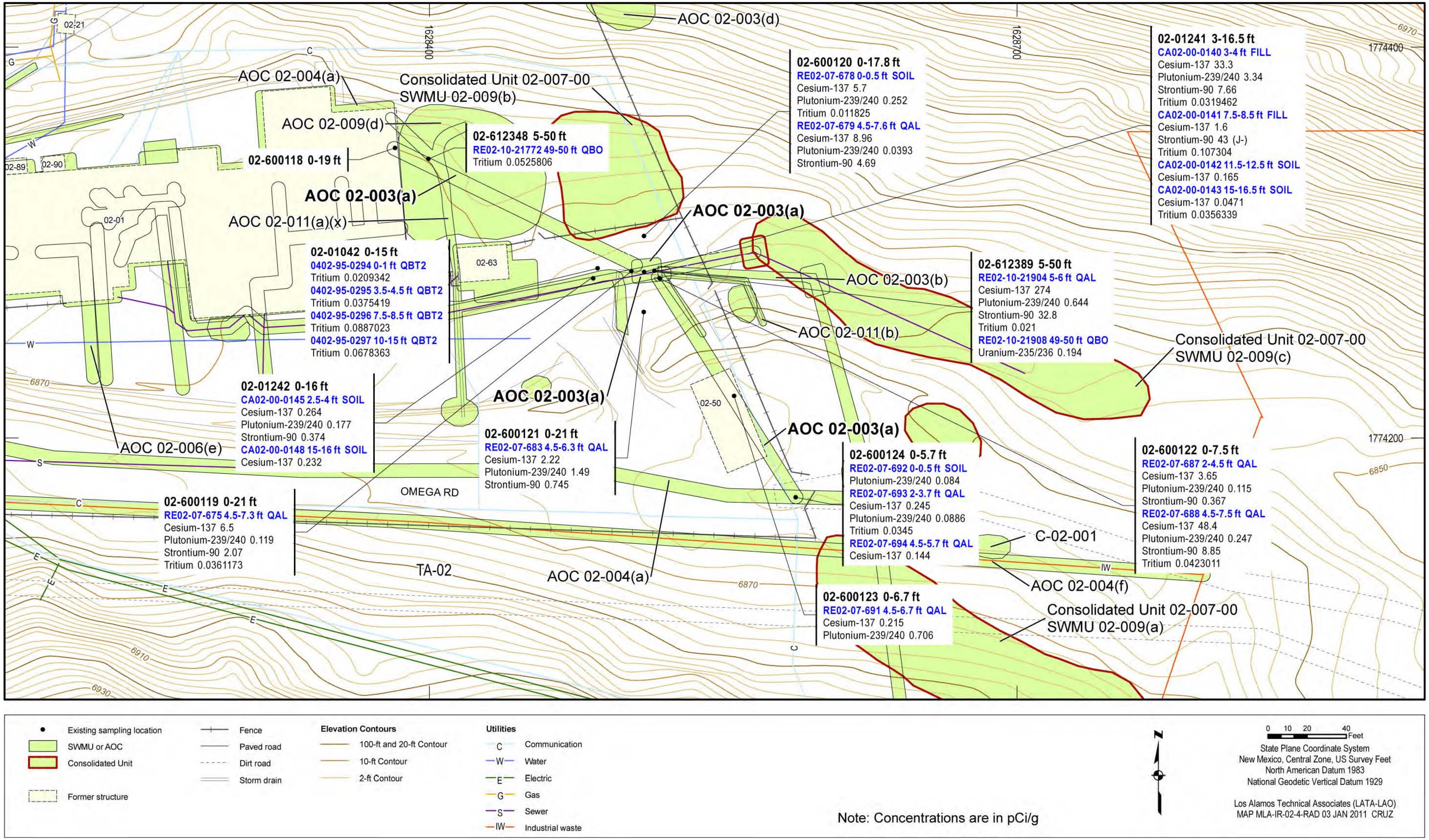

Figure 6.2-4 Radionuclides detected or detected above BVs/FVs at AOC 02-003(a)

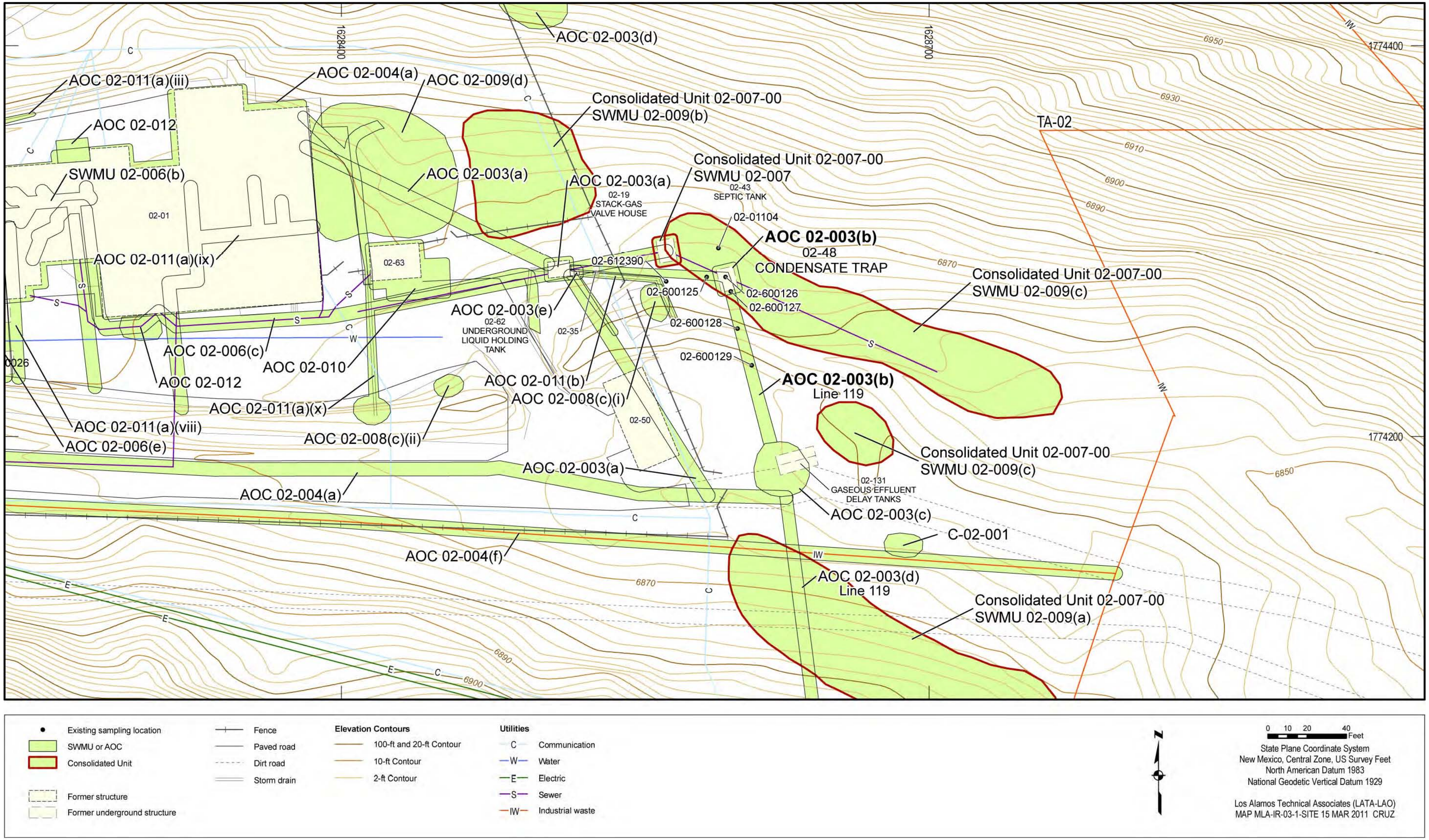

Figure 6.3-1 Site map of AOC 02-003(b)

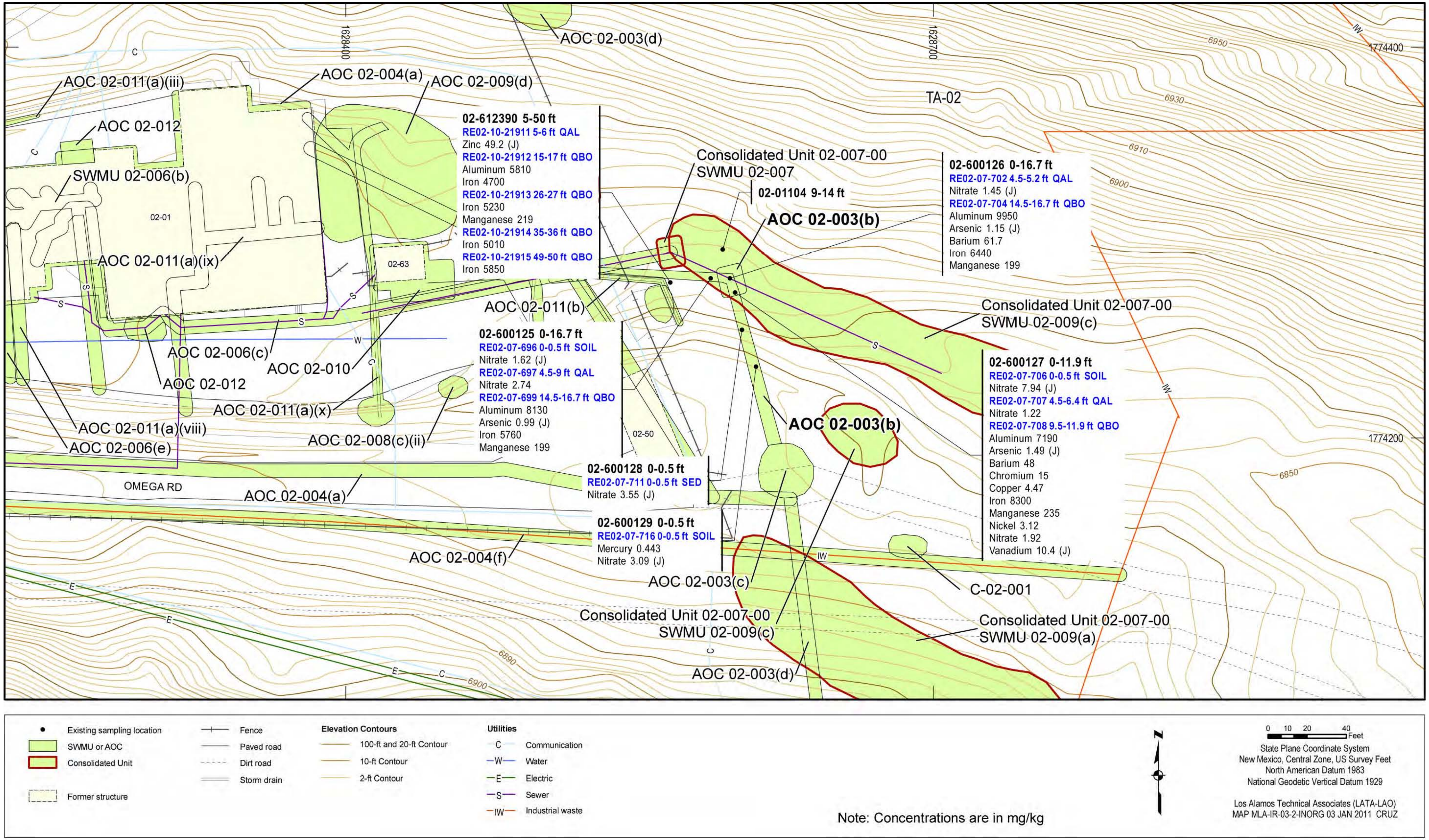

Figure 6.3-2 Inorganic chemicals detected or detected above BVs at AOC 02-003(b)

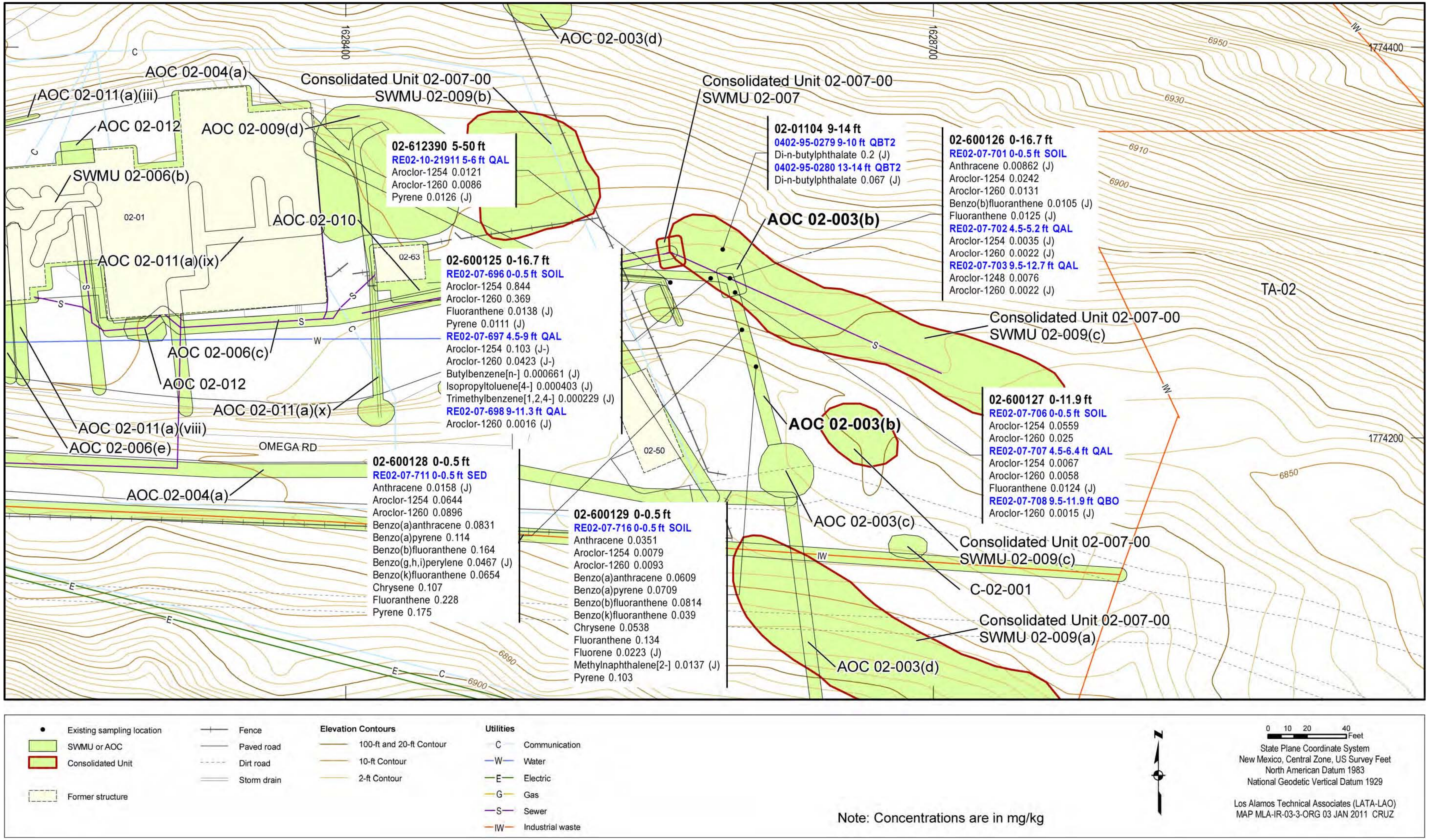

Figure 6.3-3 Organic chemicals detected at AOC 02-003(b)

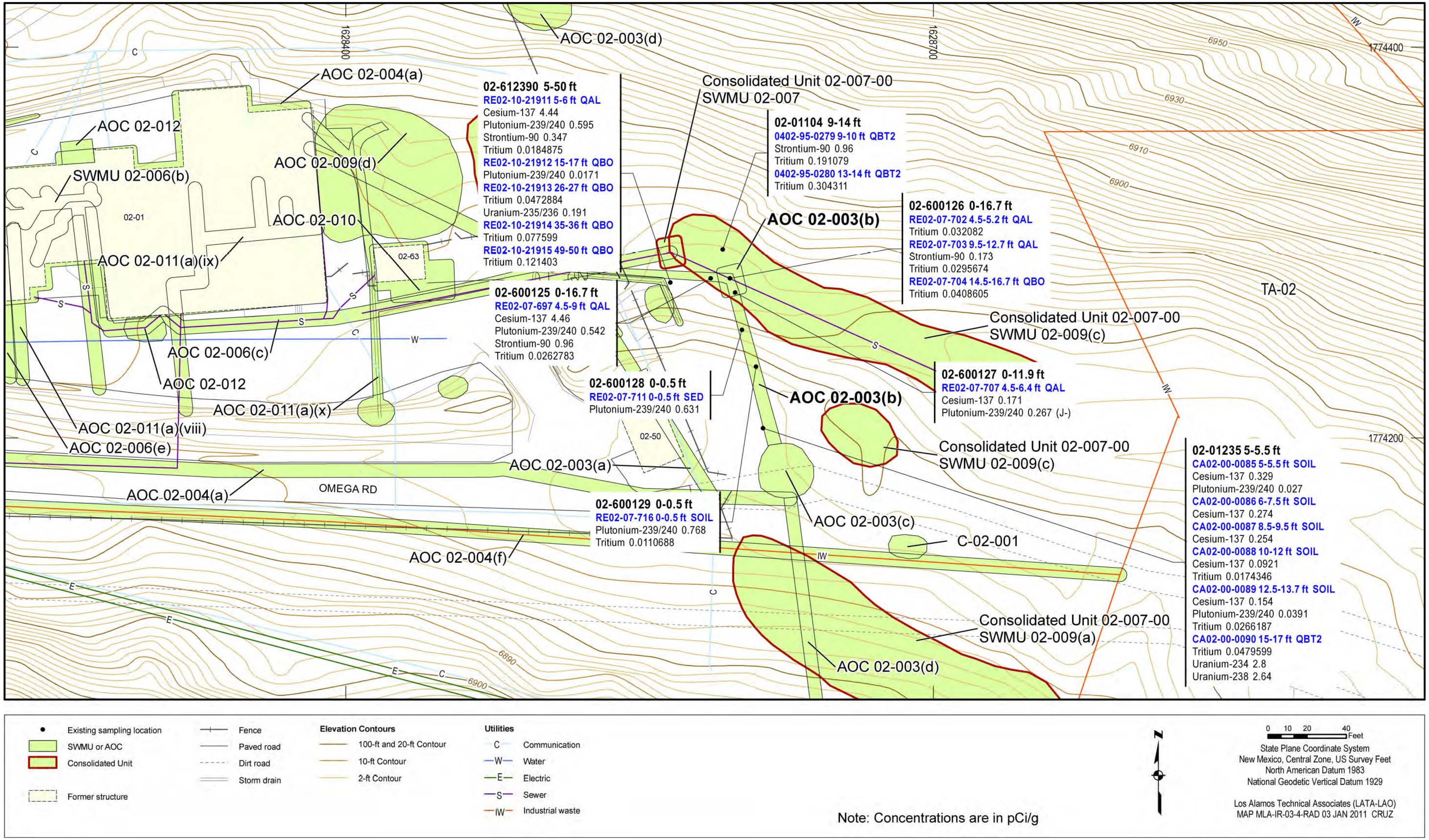

Figure 6.3-4 Radionuclides detected or detected above BVs/FVs at AOC 02-003(b)

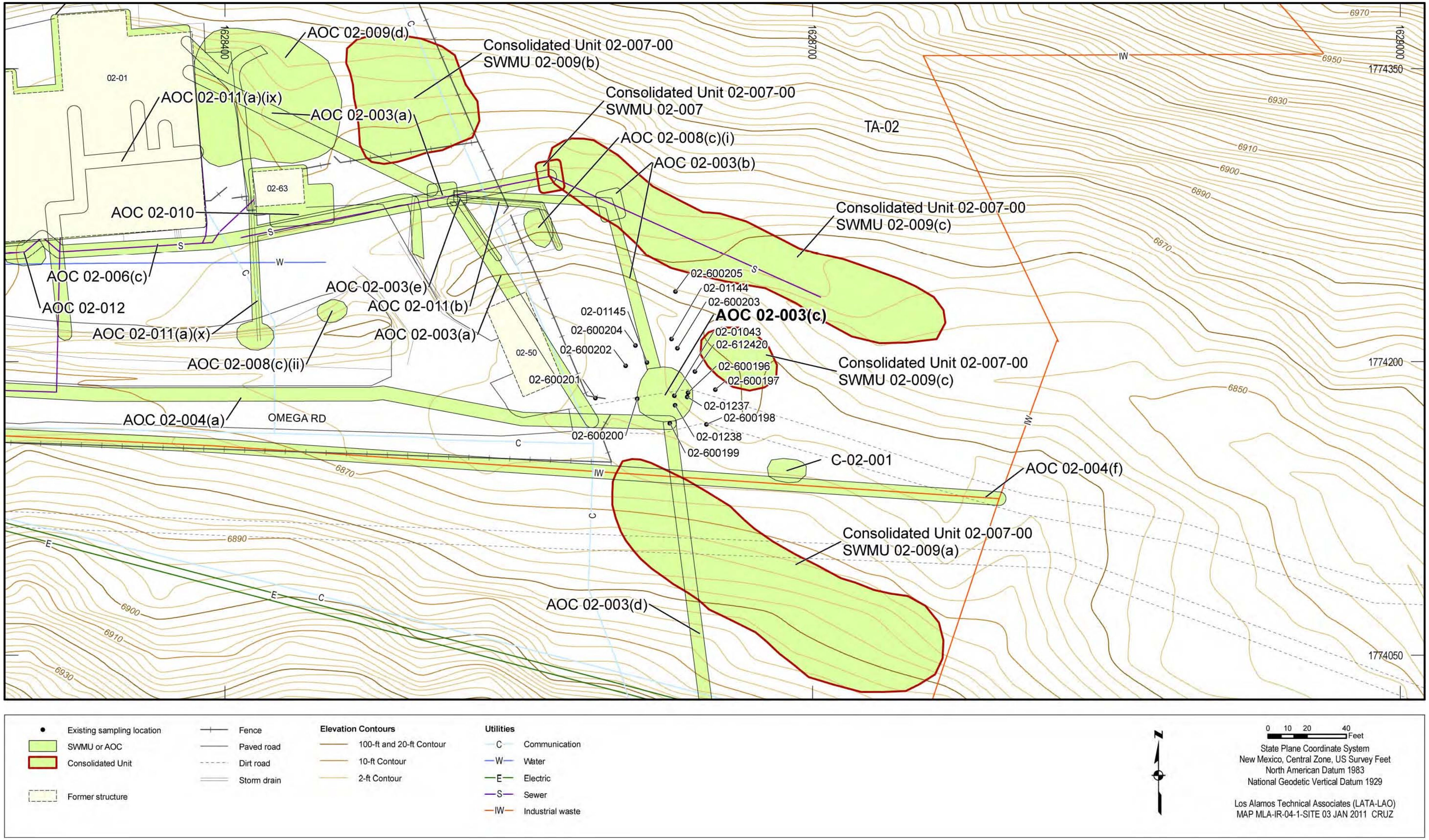

Figure 6.4-1 Site map of AOC 02-003(c)

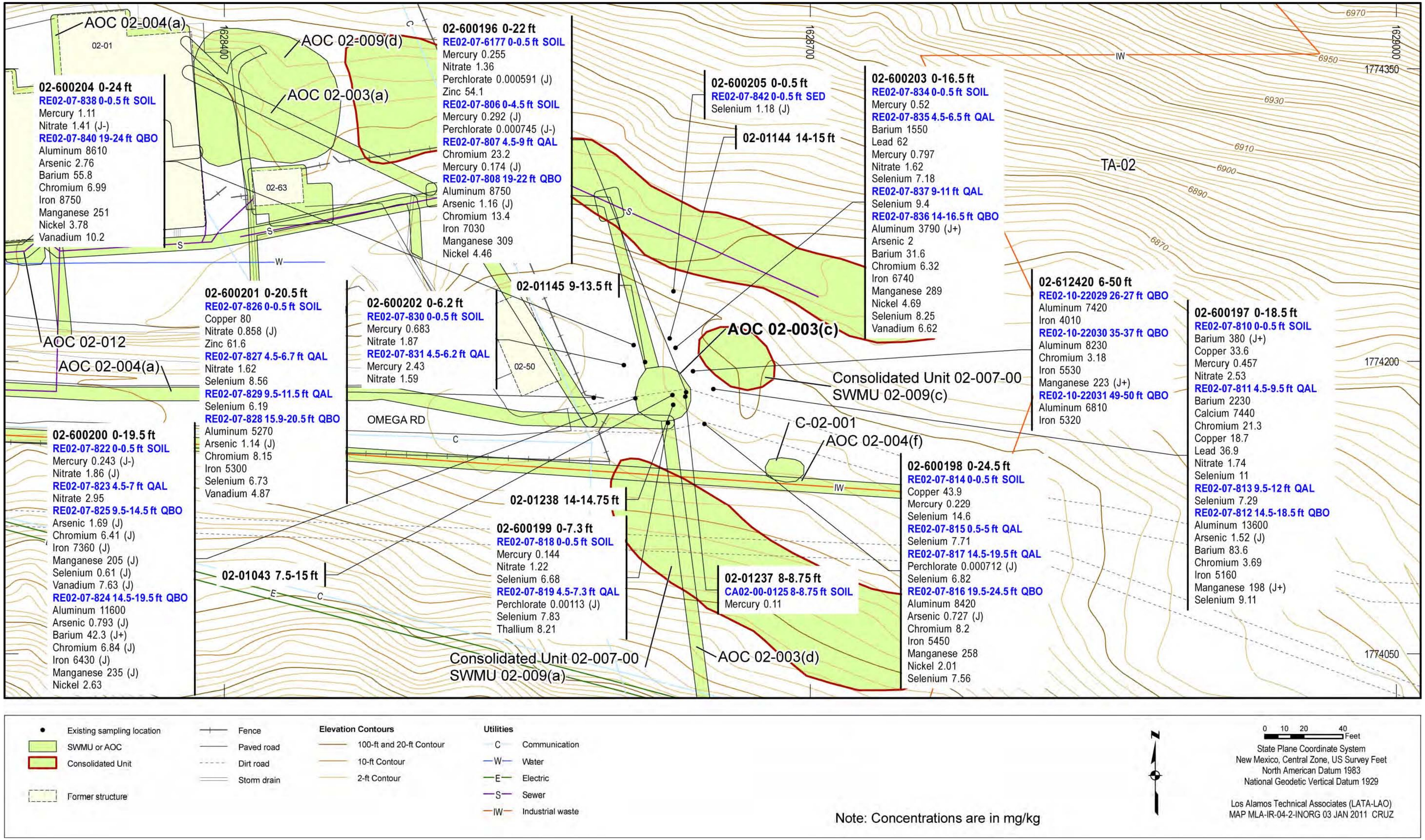

Figure 6.4-2 Inorganic chemicals detected or detected above BVs at AOC 02-003(c)

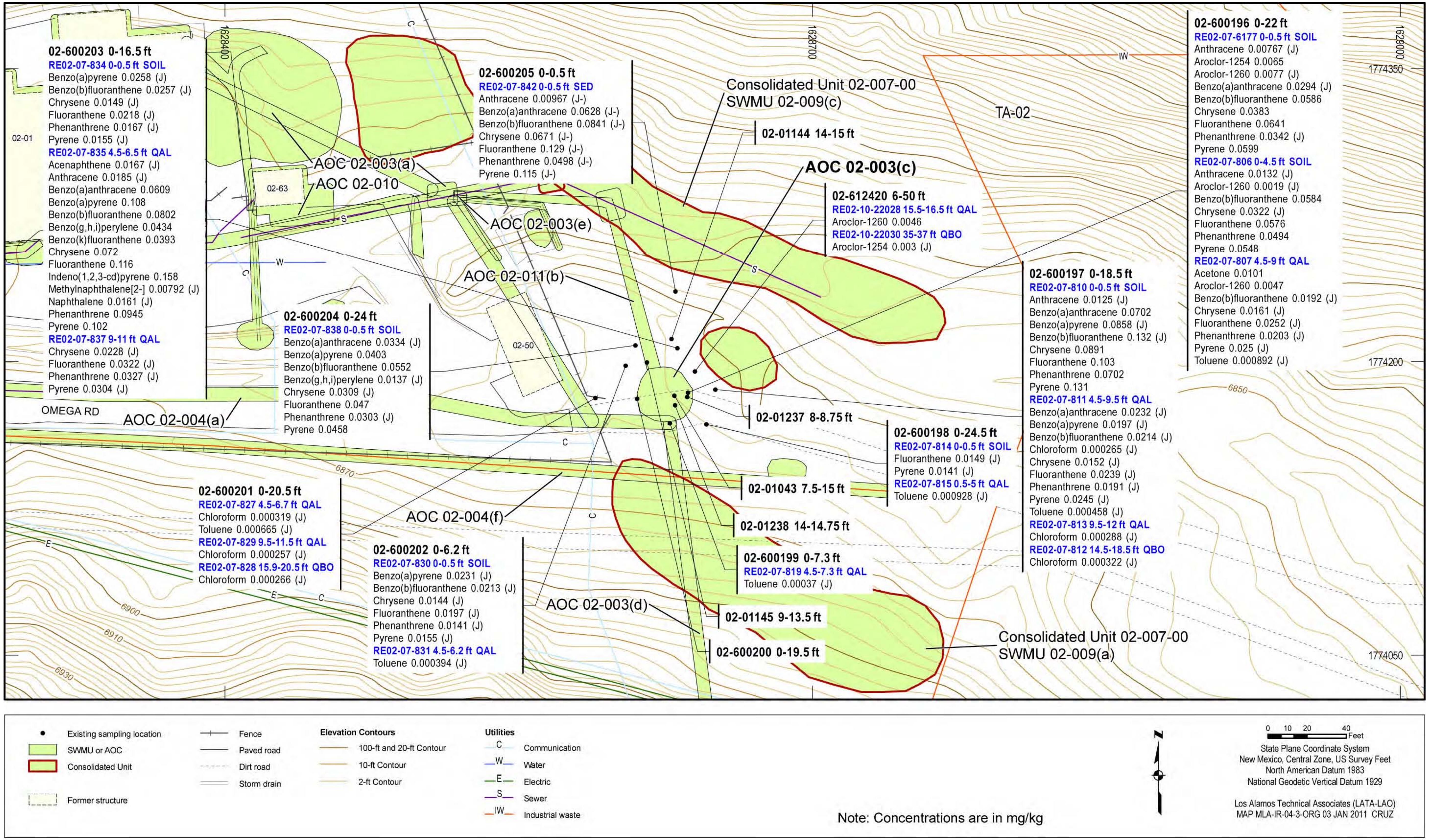

Figure 6.4-3 Organic chemicals detected at AOC 02-003(c)

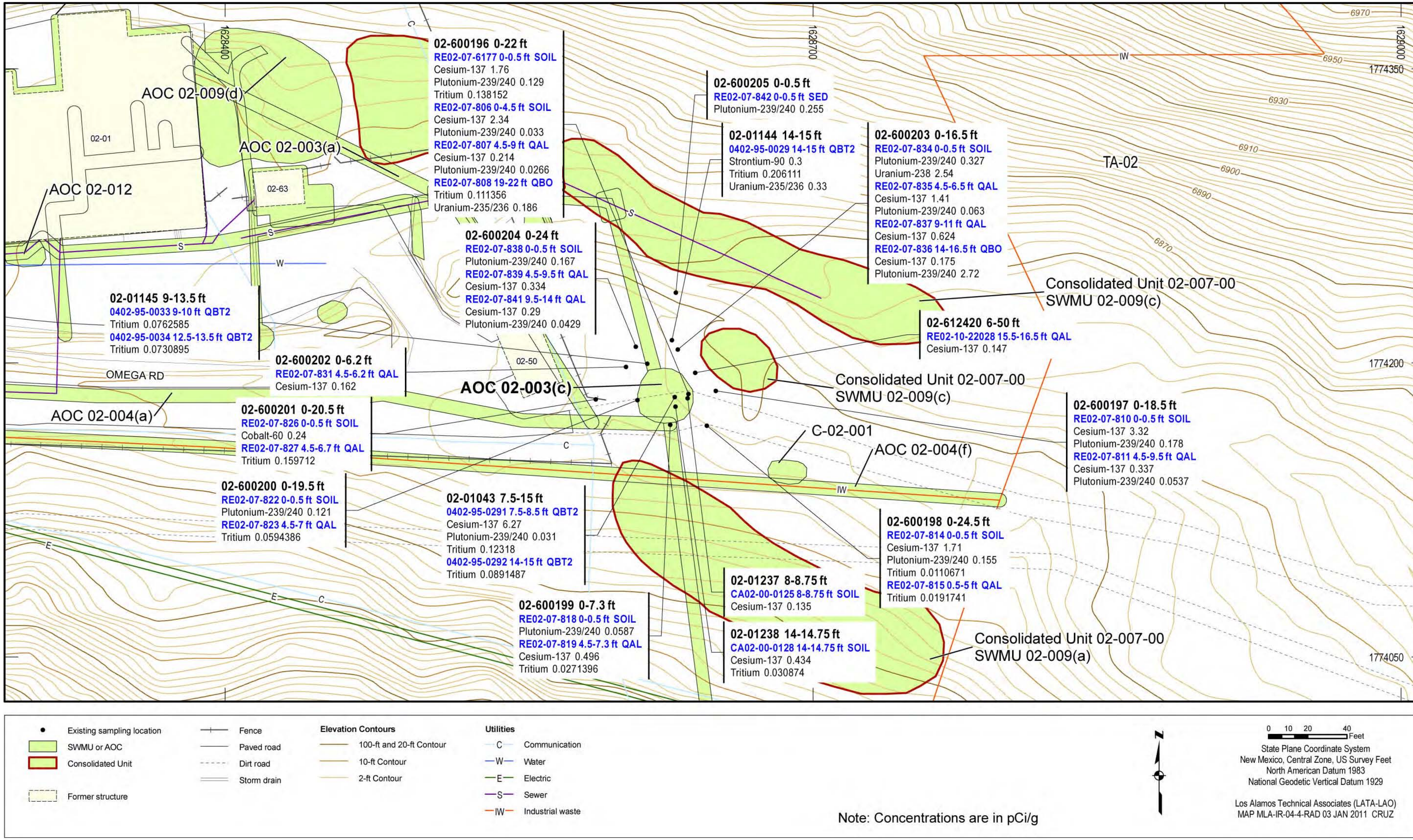

Figure 6.4-4 Radionuclides detected or detected above BVs/FVs at AOC 02-003(c)

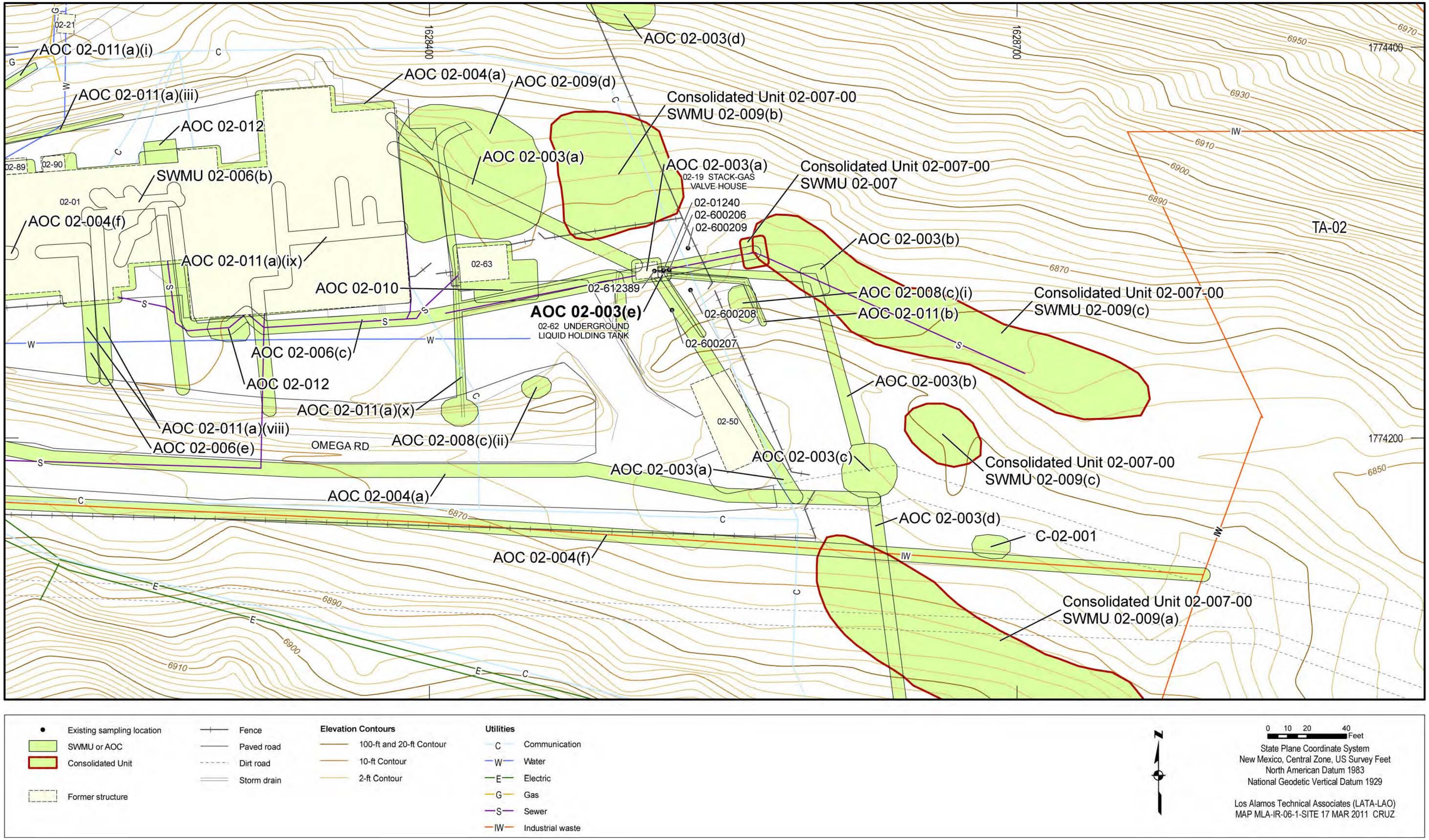

Figure 6.6-1 Site map of AOC 02-003(e)

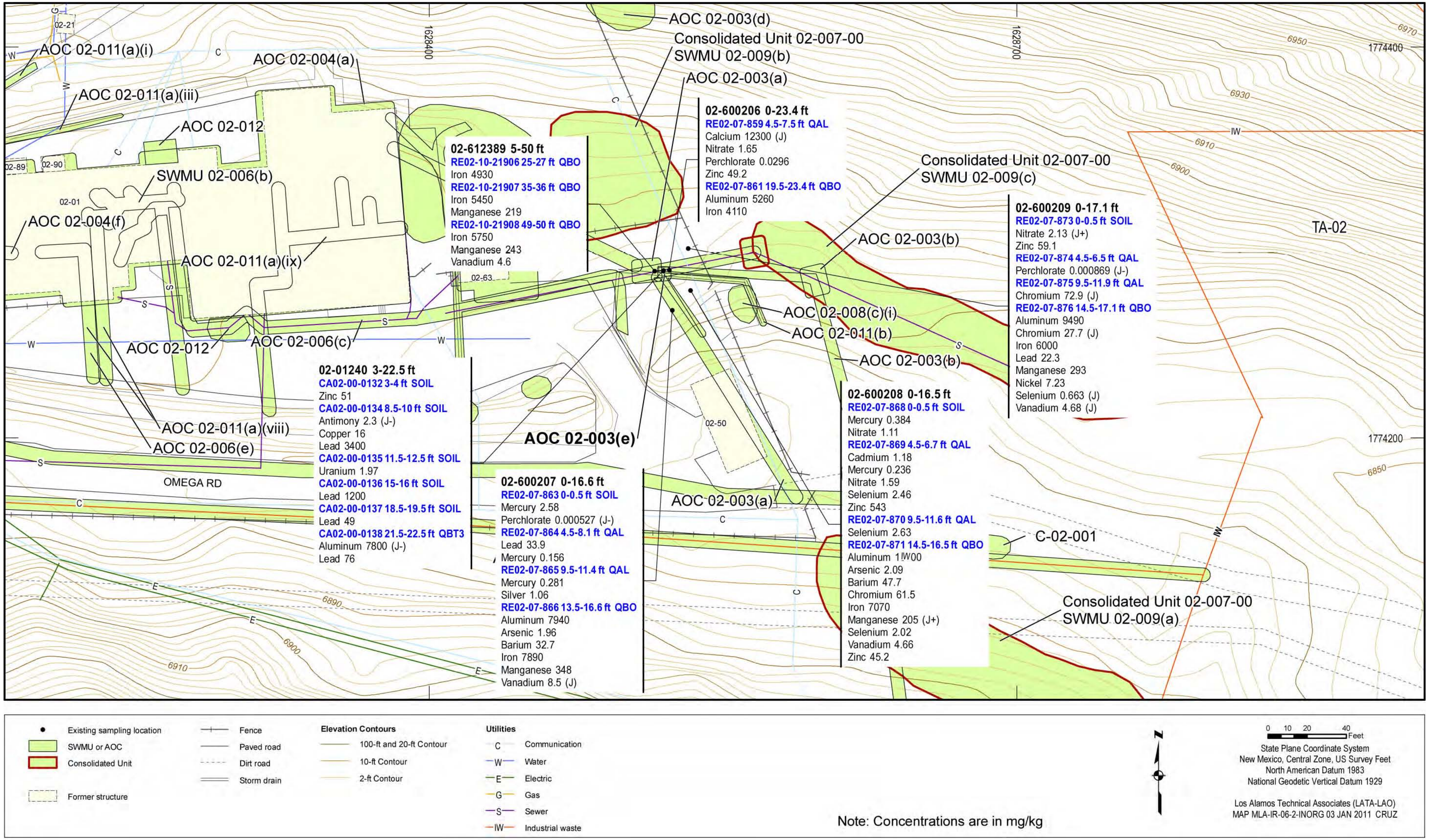

Figure 6.6-2 Inorganic chemicals detected or detected above BVs at AOC 02-003(e)

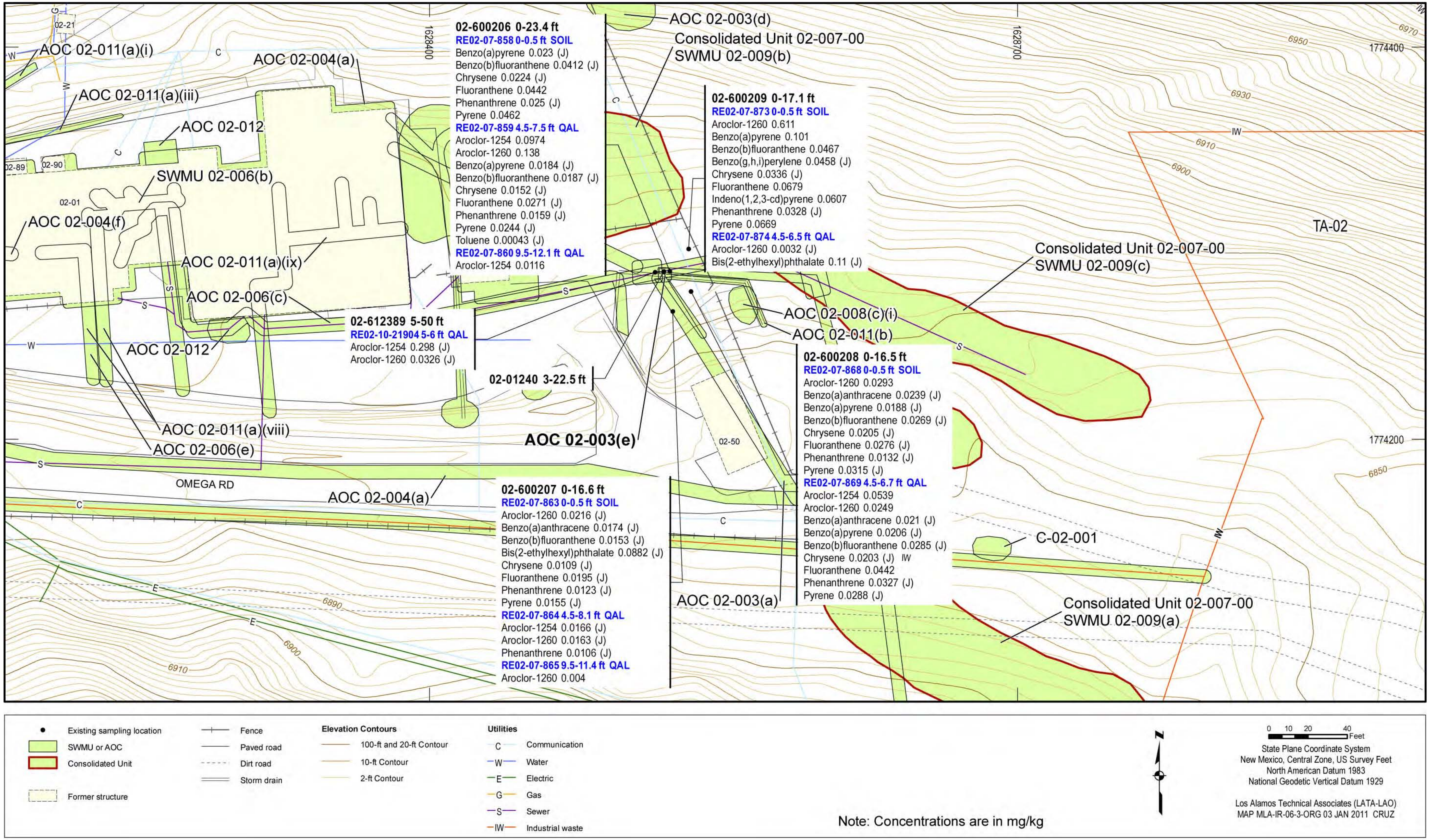

Figure 6.6-3 Organic chemicals detected at AOC 02-003(e)

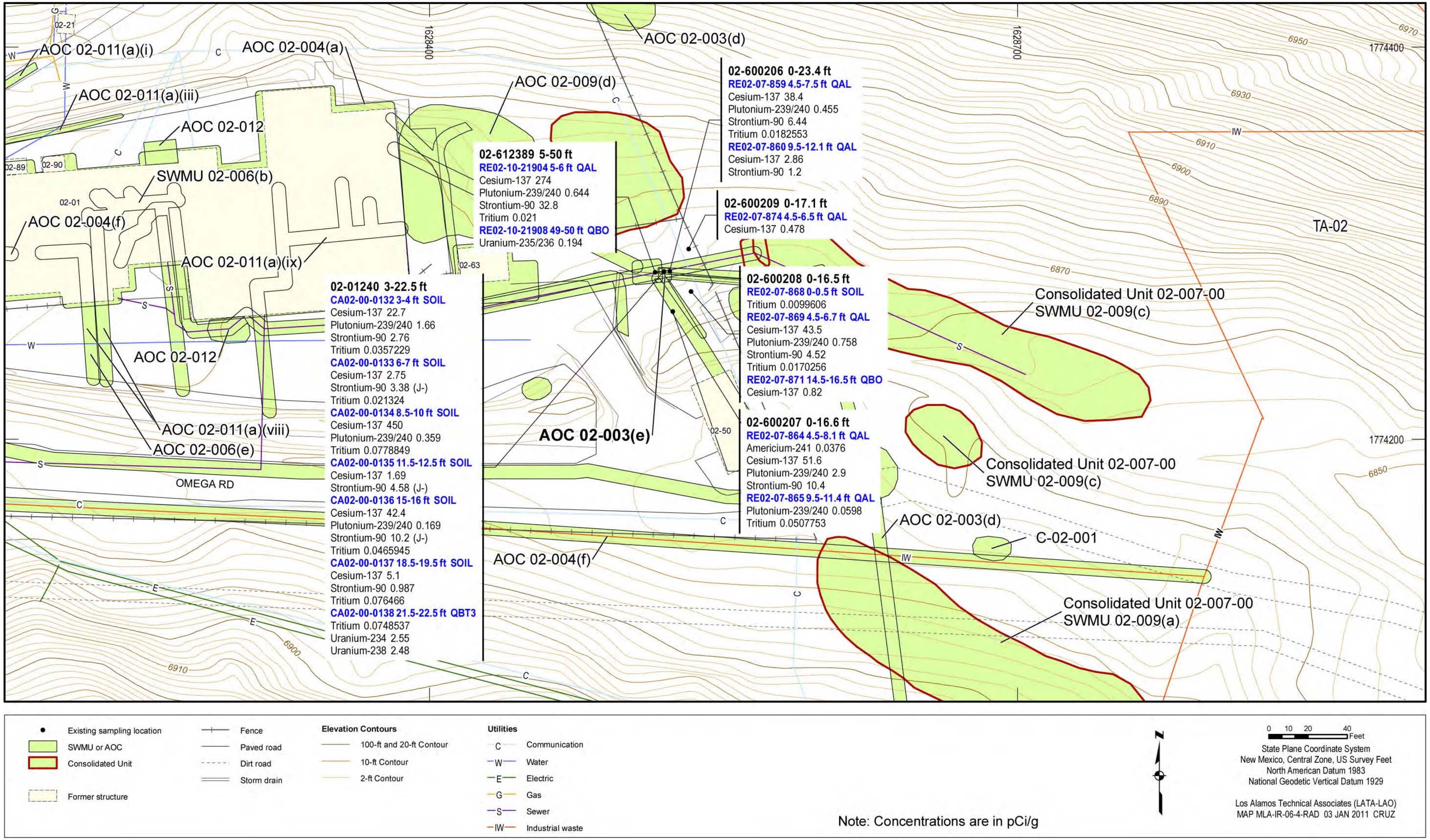

Figure 6.6-4 Radionuclides detected or detected above BVs/FVs at AOC 02-003(e)

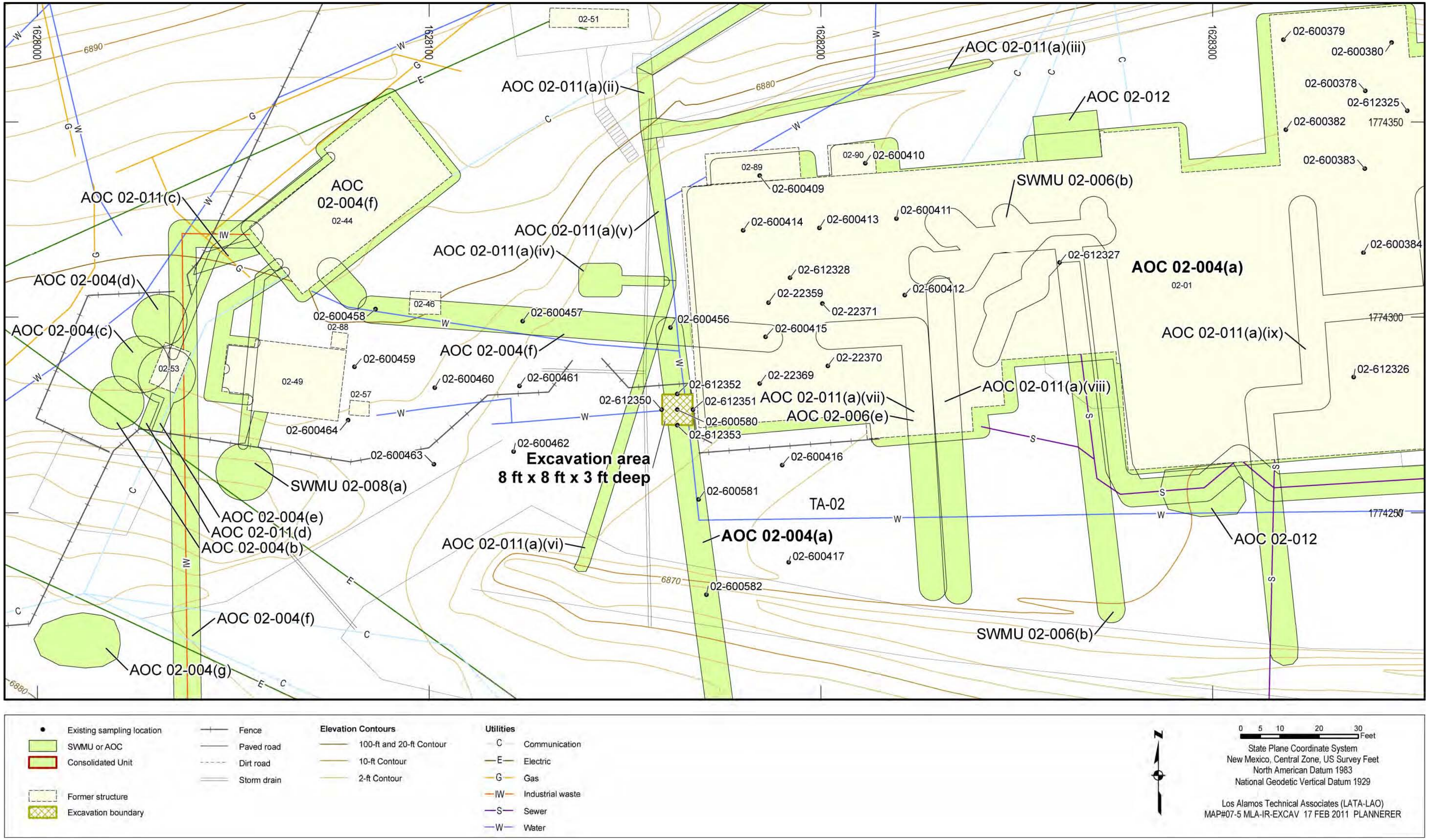

Figure 6.7-1 Excavation at AOC 02-004(a)

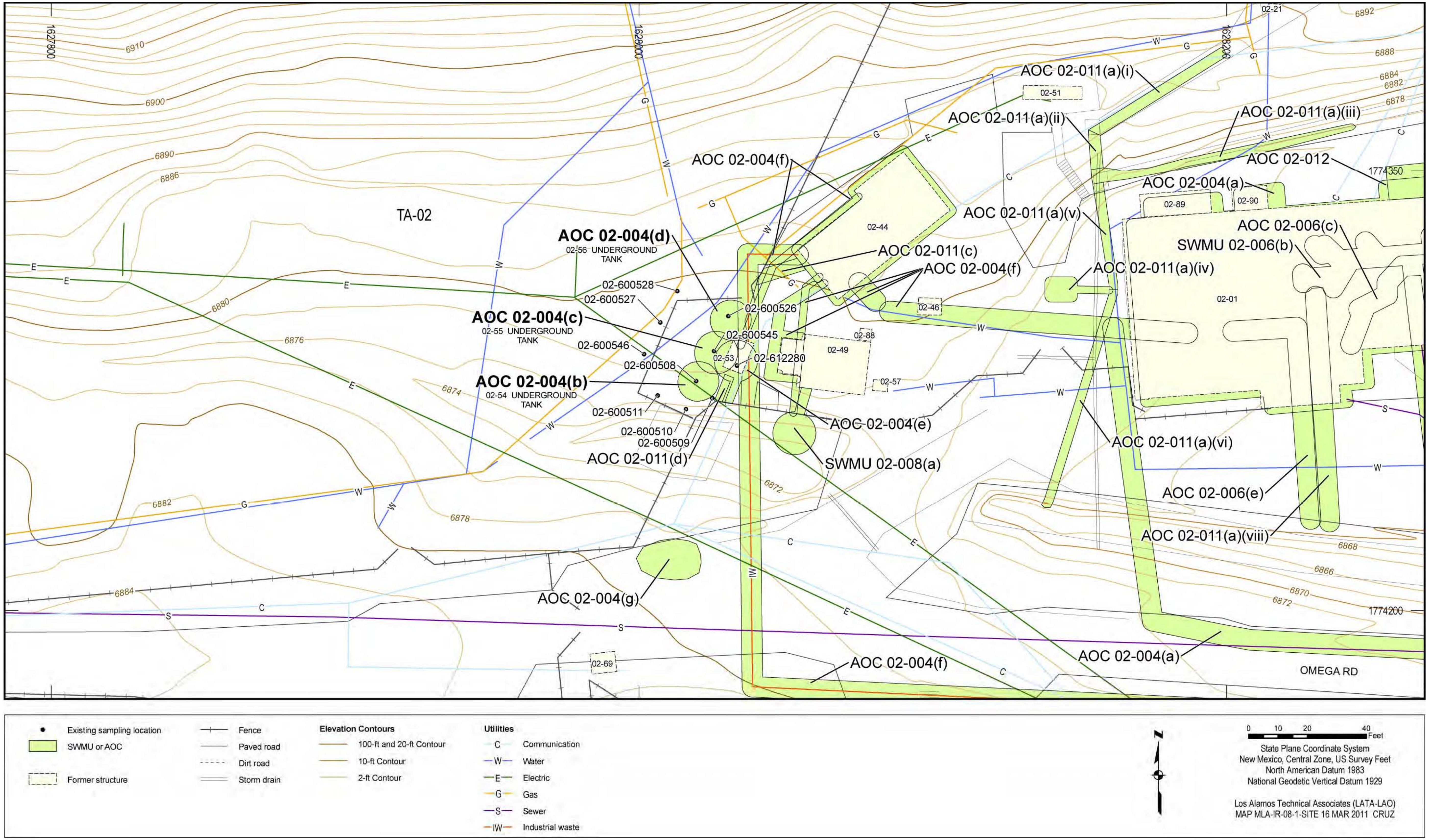

Figure 6.8-1 Site map of AOCs 02-004(b,c,d)

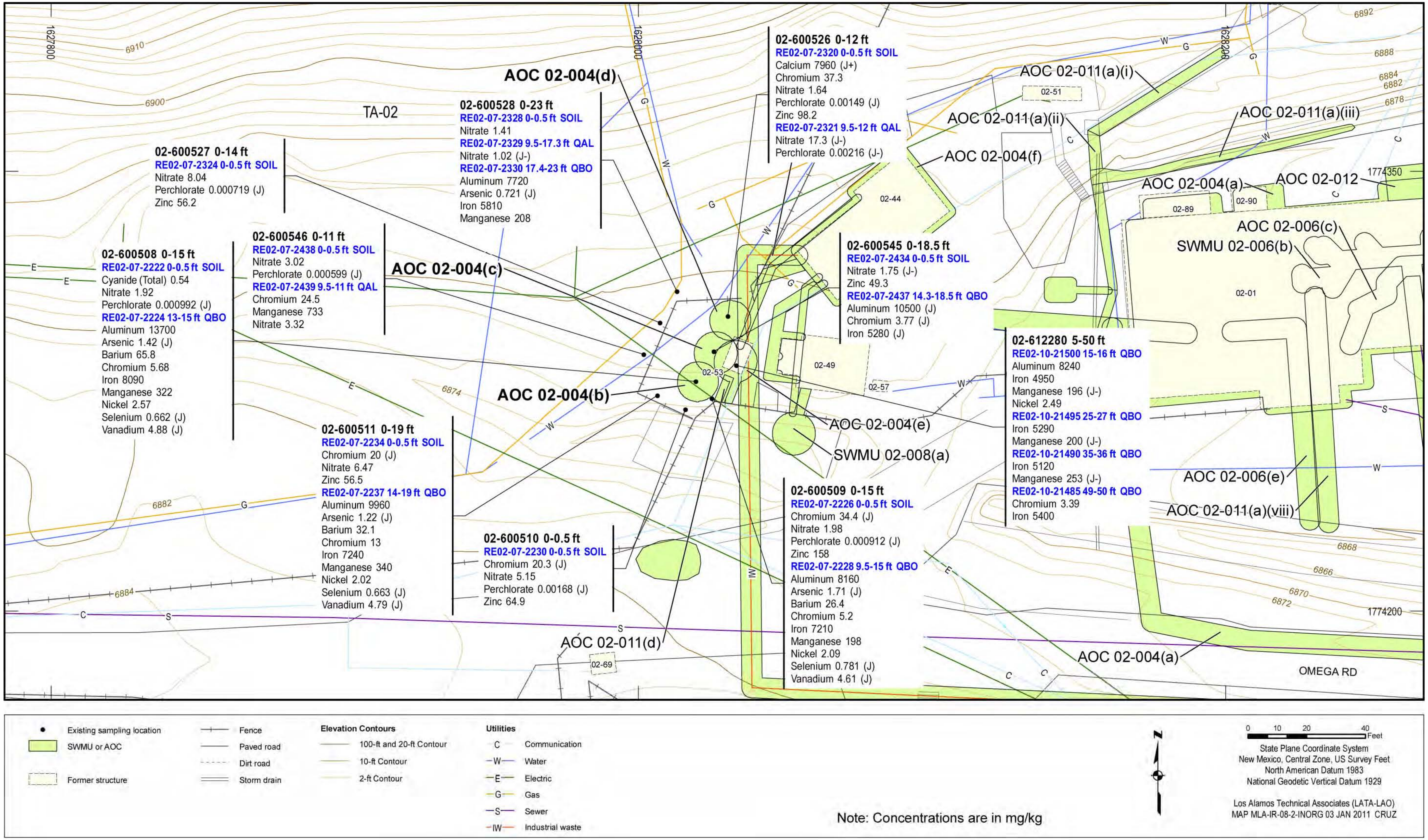

Figure 6.8-2 Inorganic chemicals detected or detected above BVs at AOCs 02-004(b,c,d)

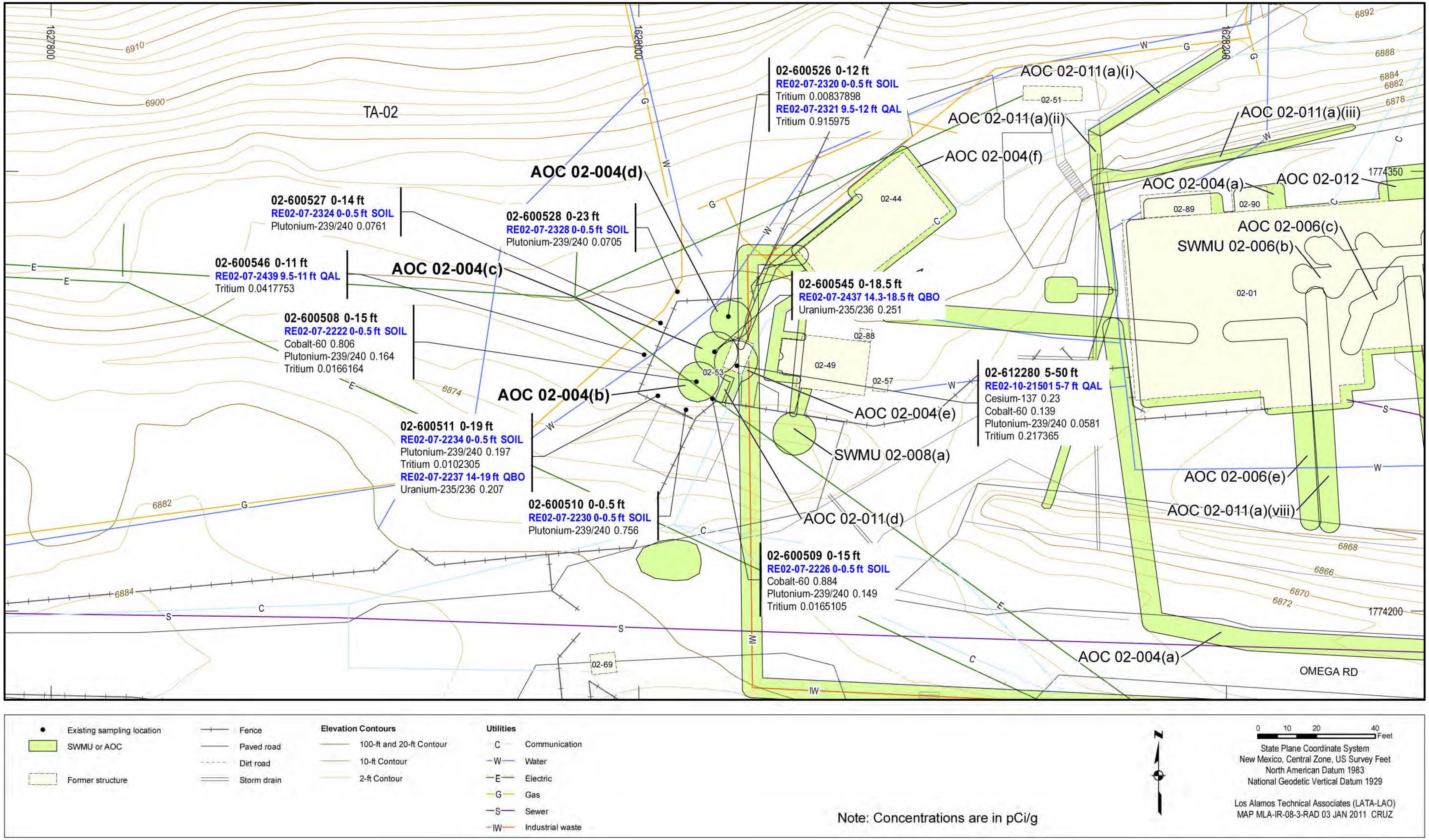

Figure 6.8-3 Radionuclides detected or detected above BVs/FVs at AOCs 02-004(b,c,d)

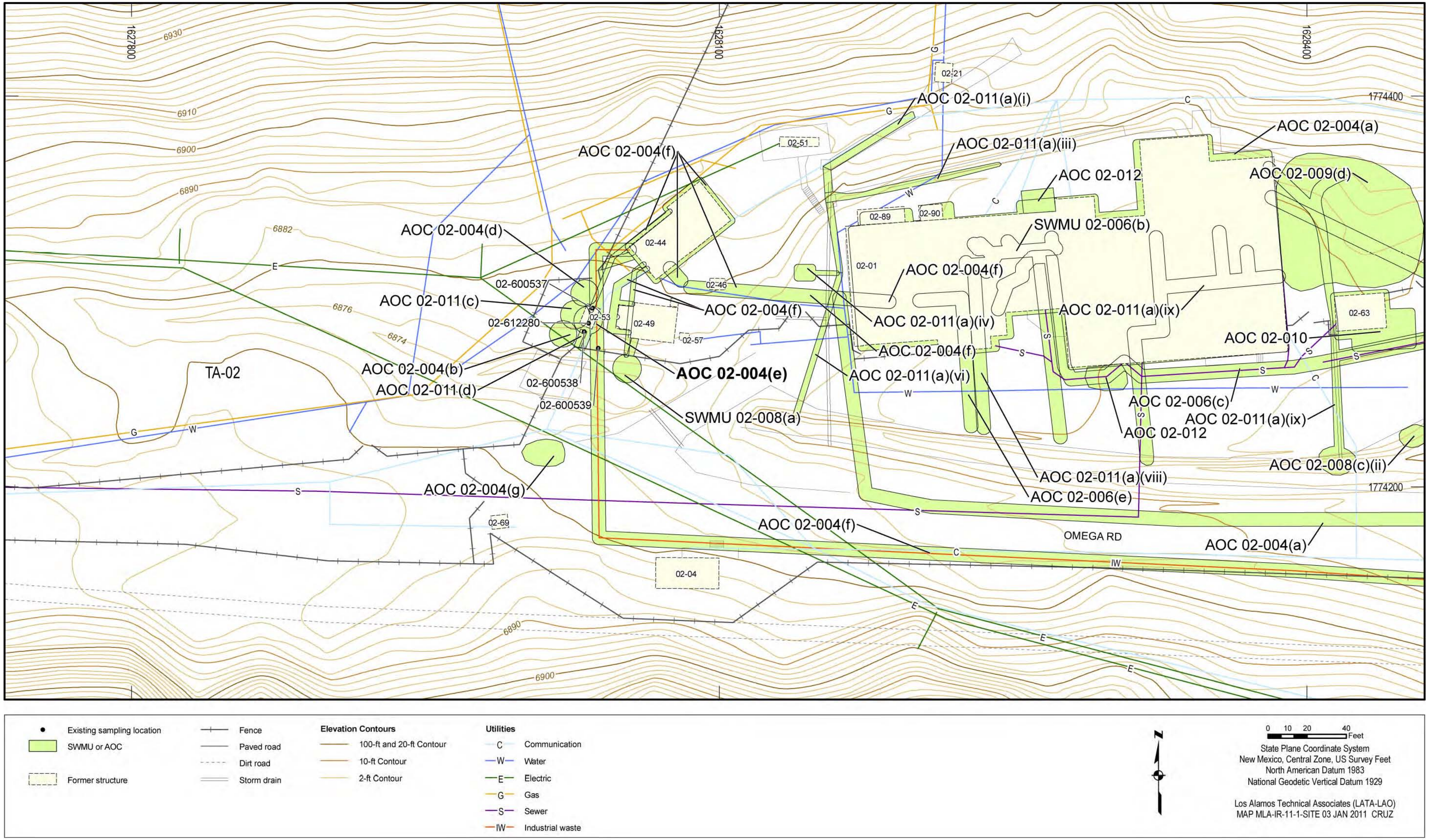

Figure 6.11-1 Site map of AOC 02-004(e)

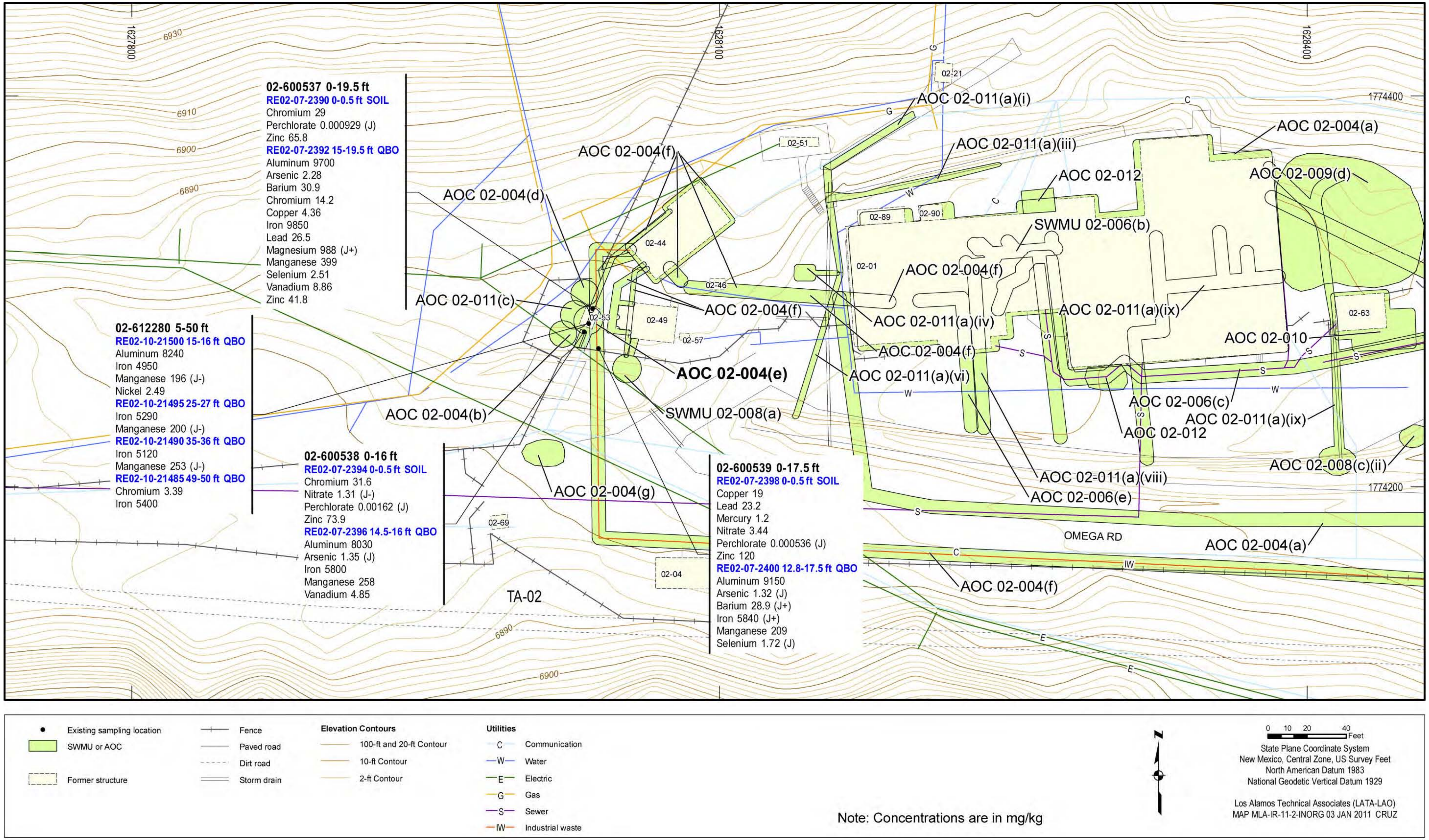

Figure 6.11-2 Inorganic chemicals detected or detected above BVs at AOC 02-004(e)

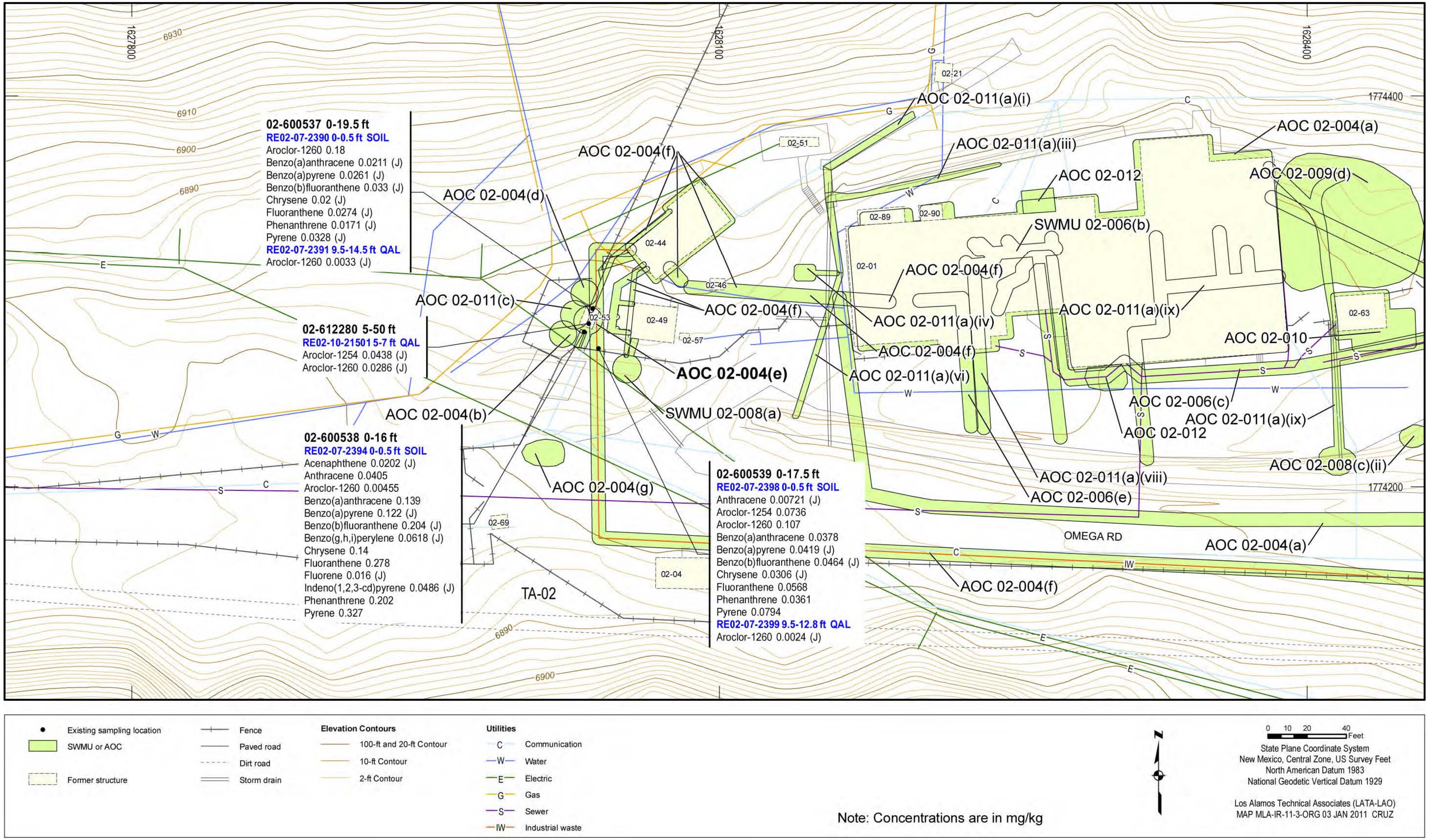

Figure 6.11-3 Organic chemicals detected at AOC 02-004(e)

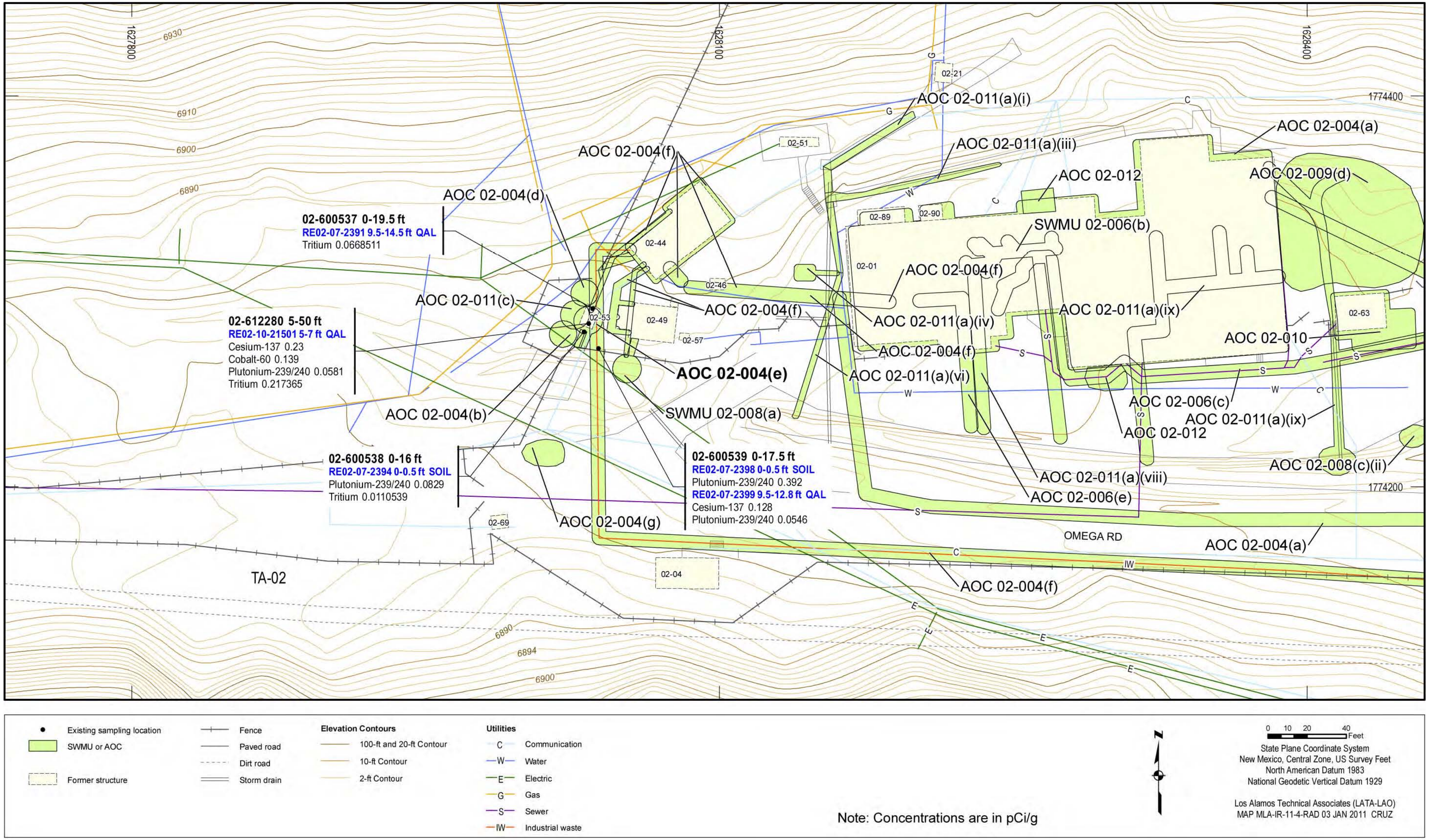

Figure 6.11-4 Radionuclides detected or detected above BVs/FVs at AOC 02-004(e)

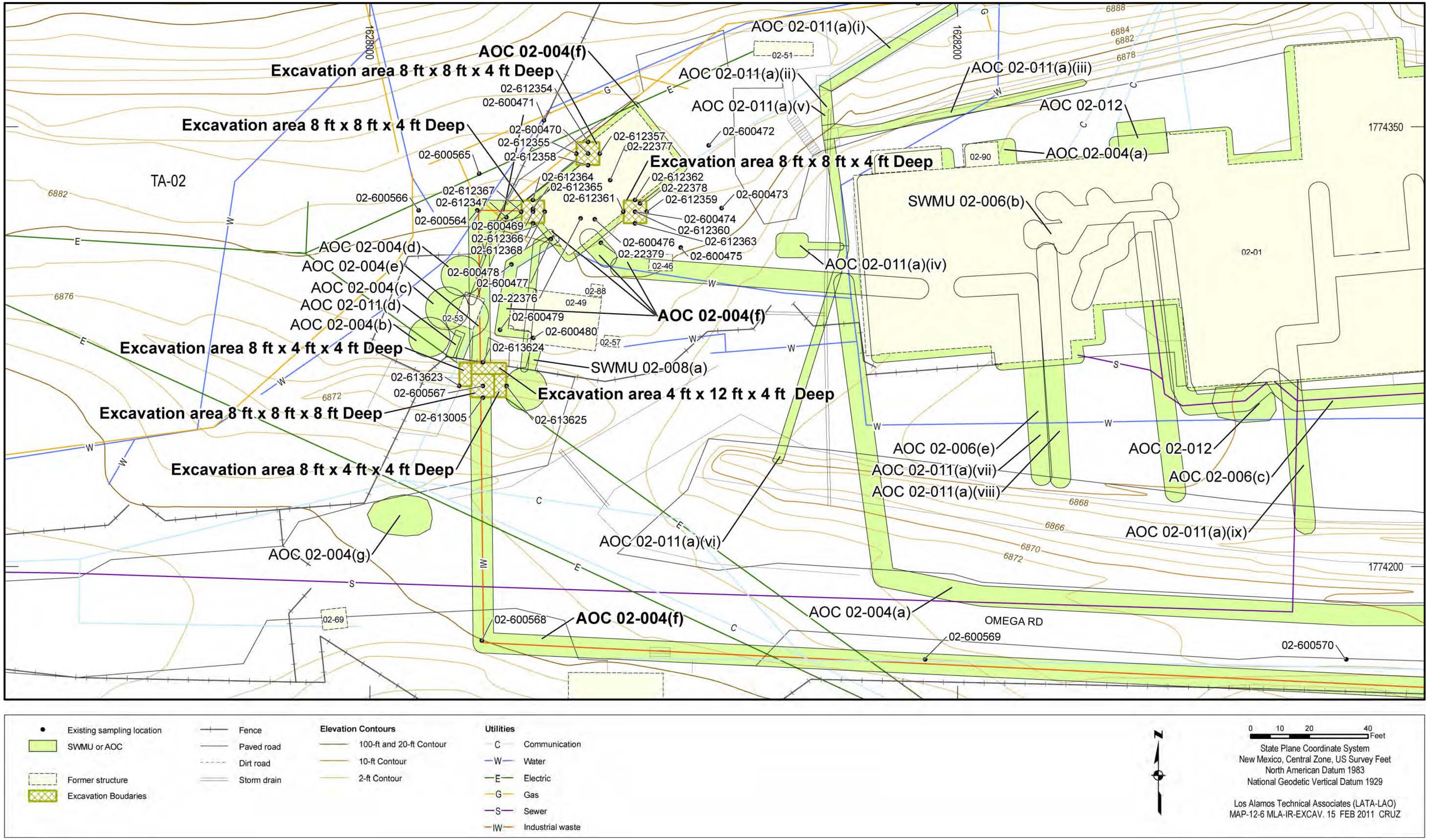

Figure 6.12-1 Excavations at AOC 02-004(f)

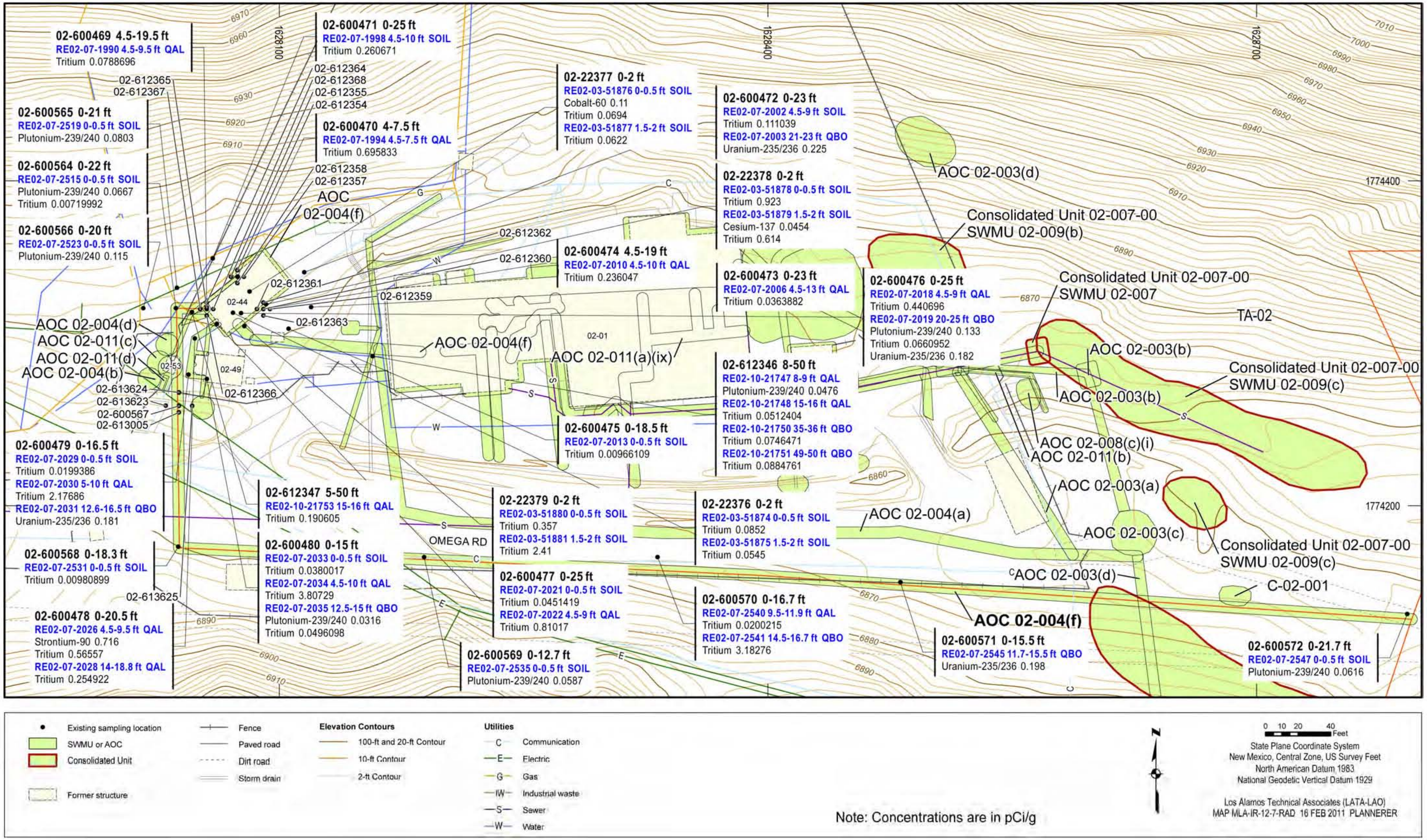

Figure 6.12-2 Radionuclides detected or detected above BVs/FVs at AOC 02-004(f)

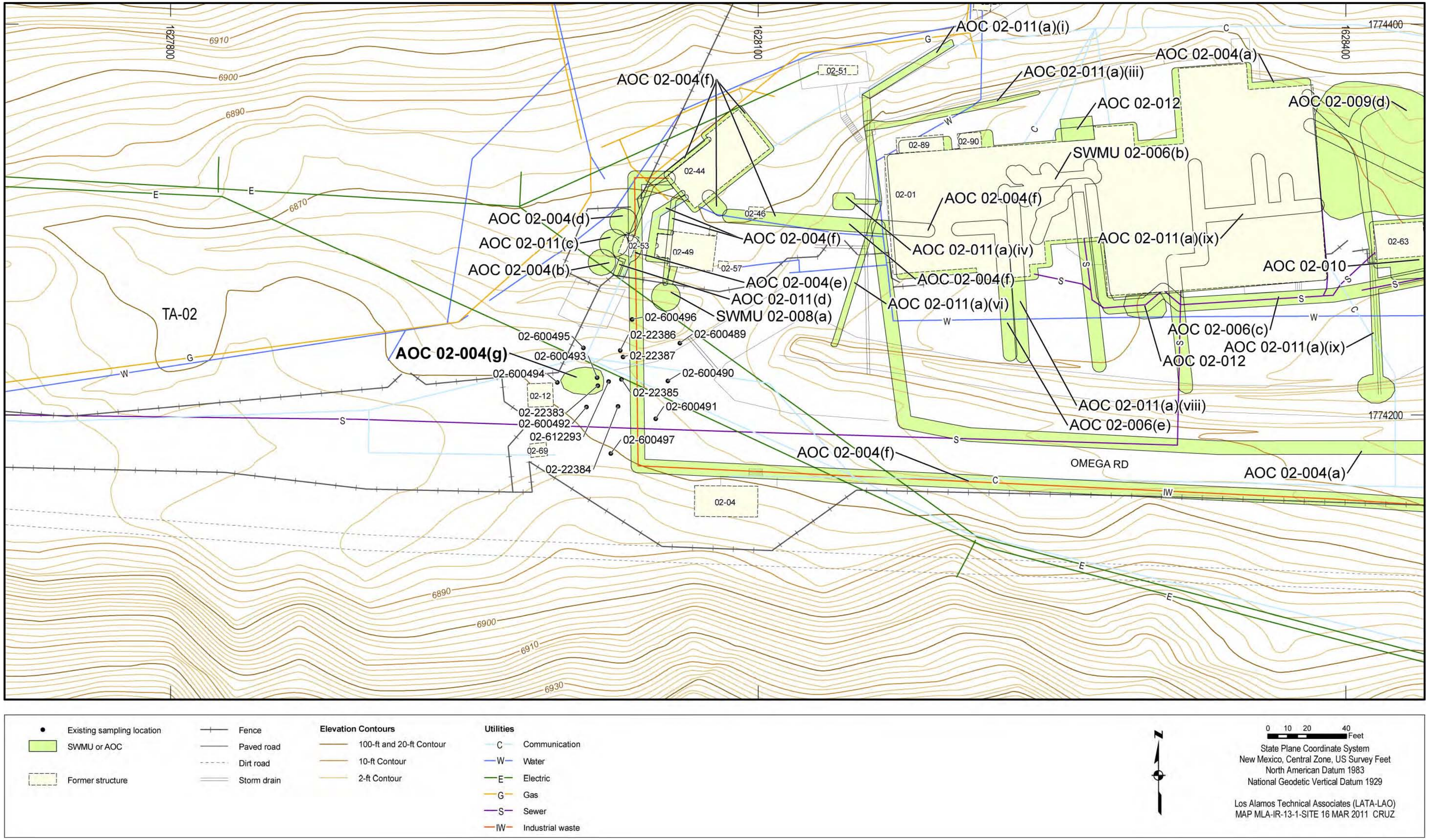

Figure 6.13-1 Site map of AOC 02-004(g)

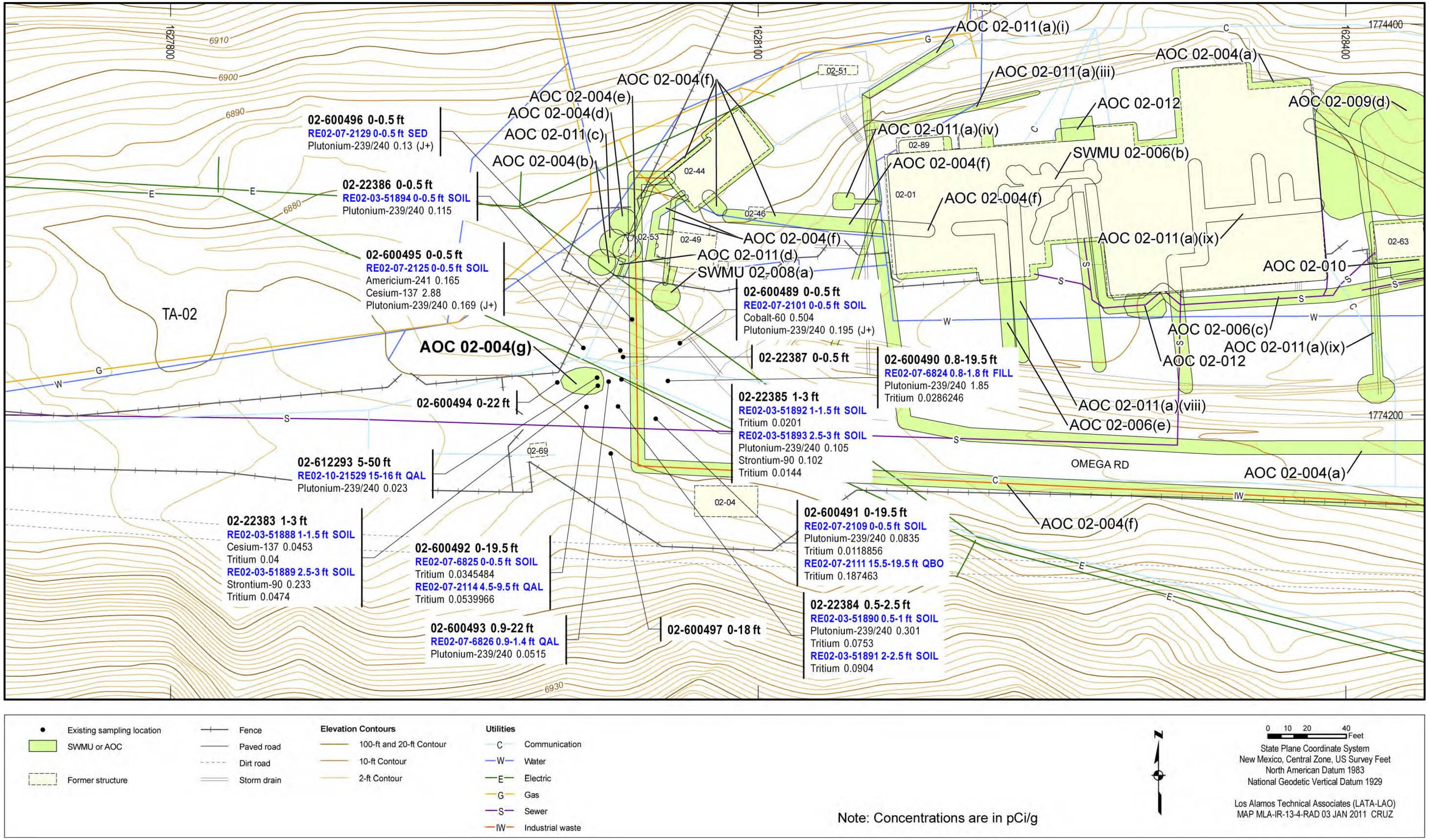

Figure 6.13-2 Radionuclides detected or detected above BVs/FVs at AOC 02-004(g)

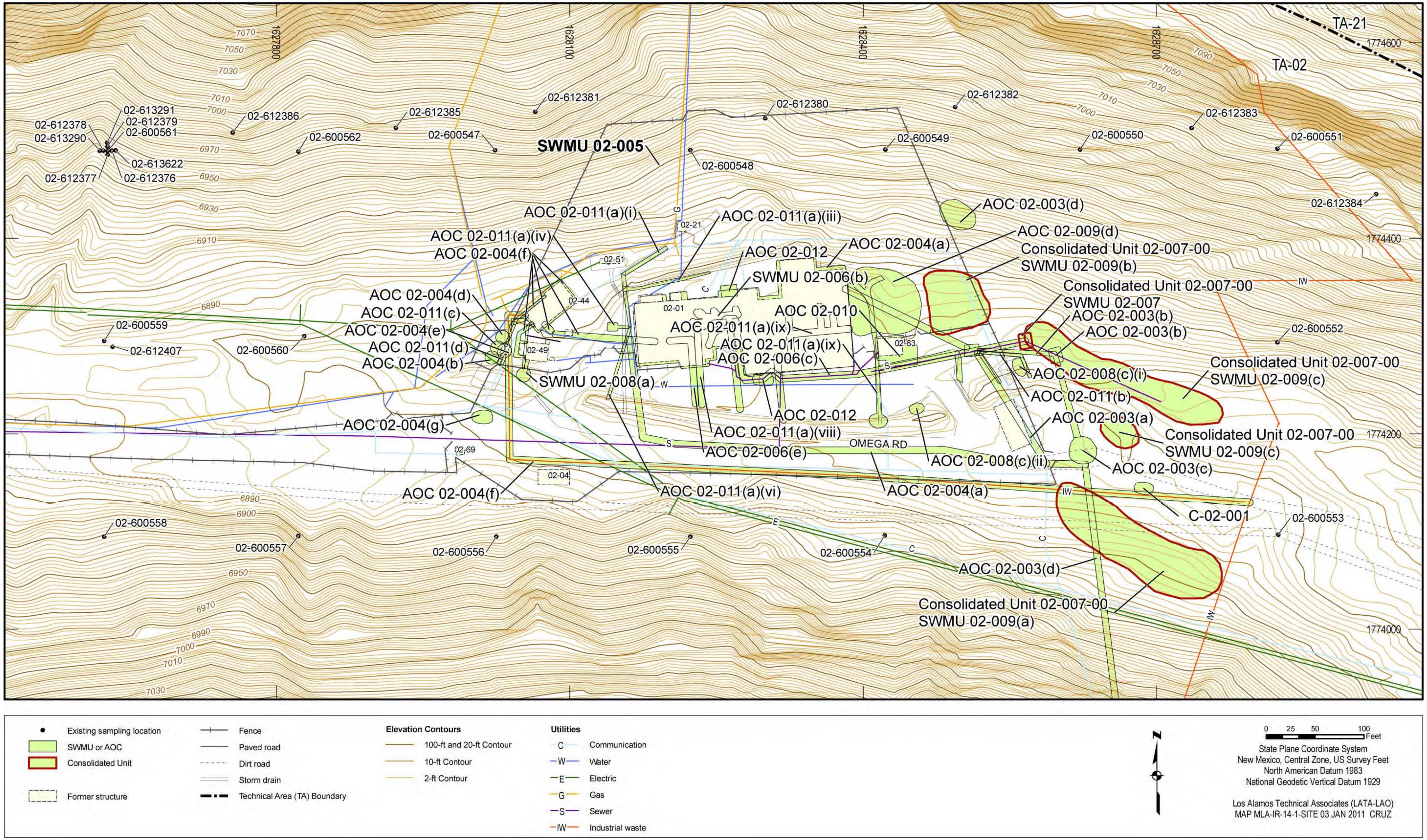

Figure 6.14-1 Site map of SWMU 02-005

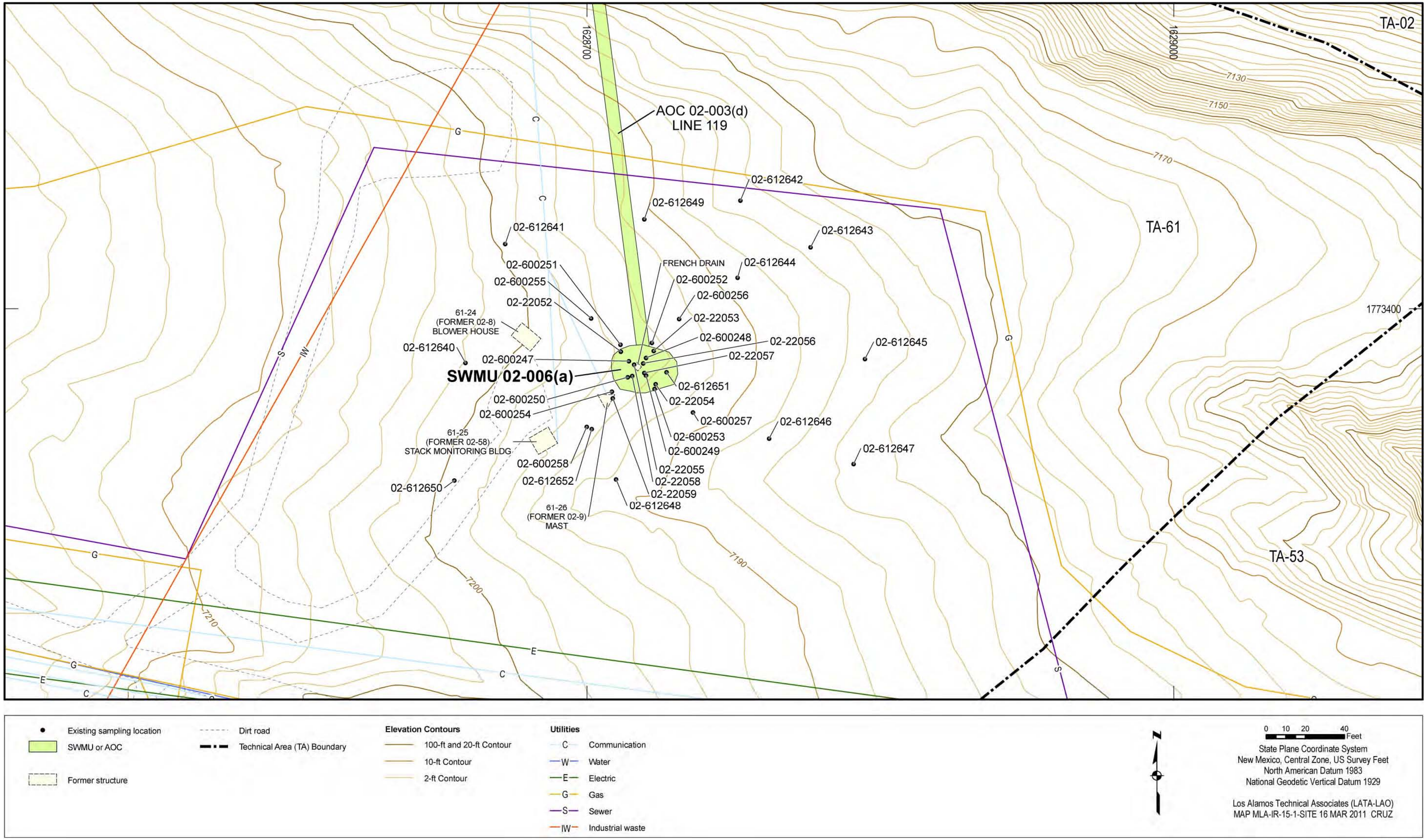

Figure 6.15-1 Site map of SWMU 02-006(a)

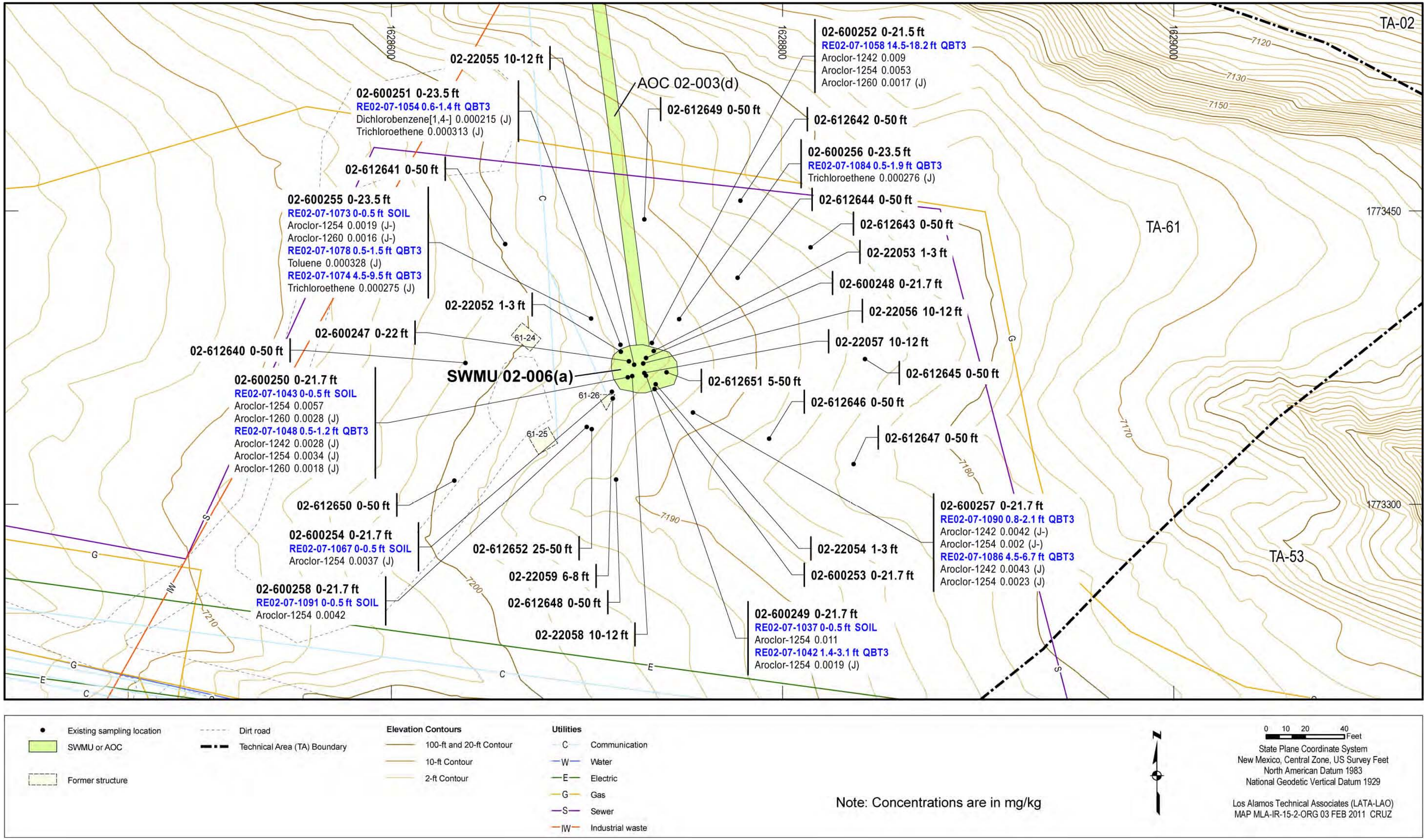

Figure 6.15-2 Organic chemicals detected at SWMU 02-006(a)

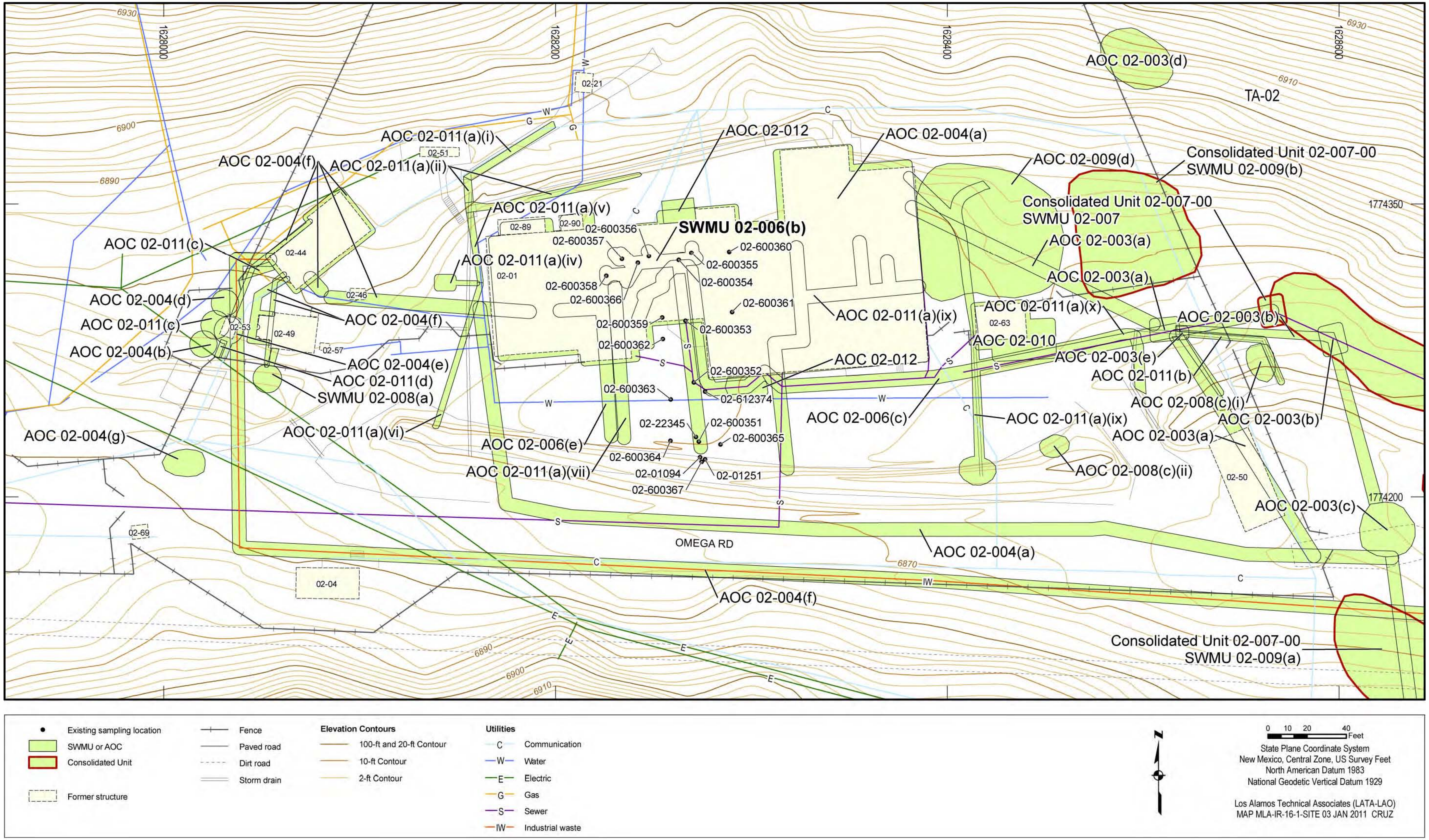

Figure 6.16-1 Site map of SWMU 02-006(b)

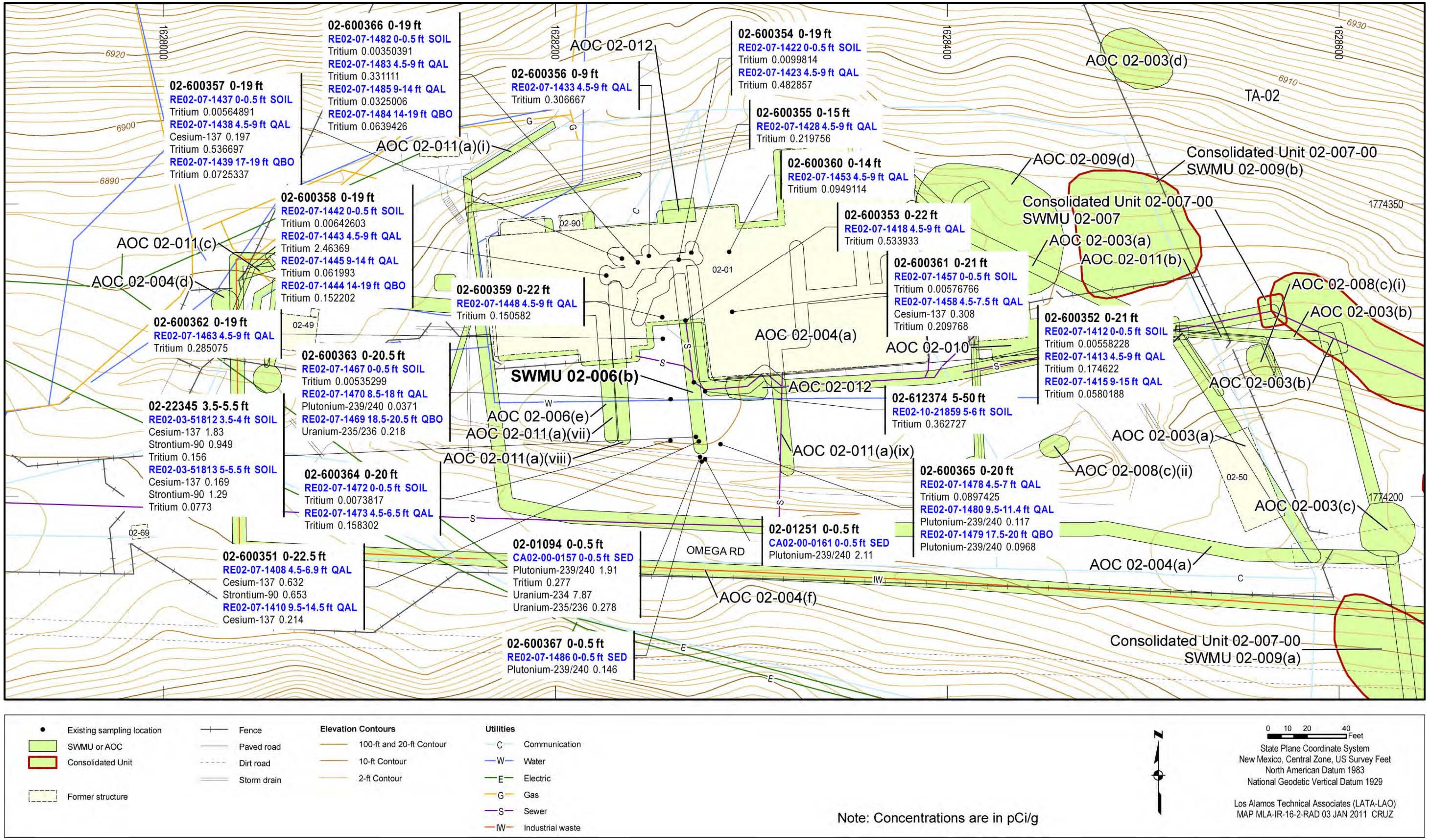

Figure 6.16-2 Radionuclides detected or detected above BVs/FVs at SWMU 02-006(b)

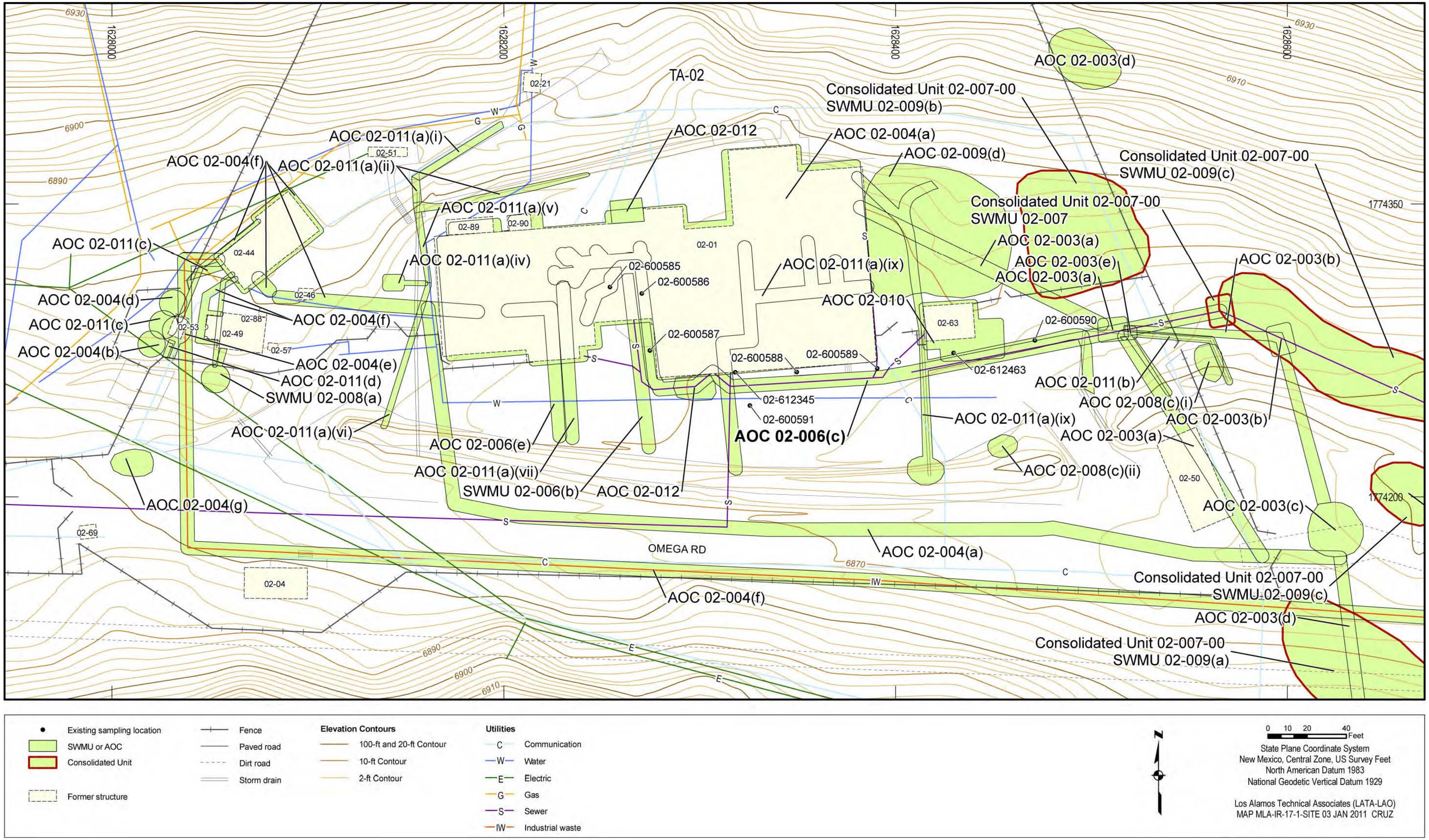

Figure 6.17-1 Site map of AOC 02-006(c)

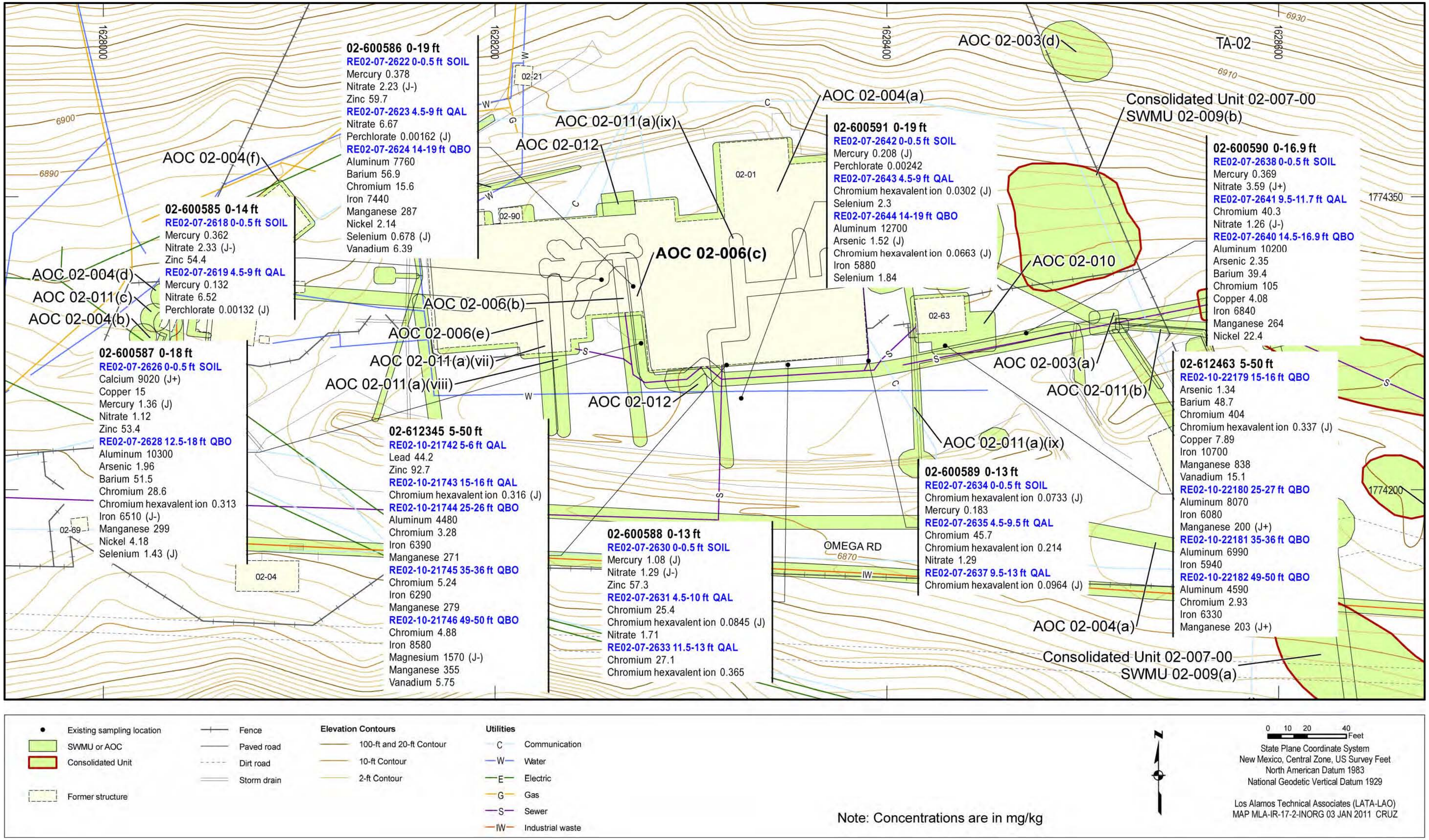

Figure 6.17-2 Inorganic chemicals detected or detected above BVs at AOC 02-006(c)

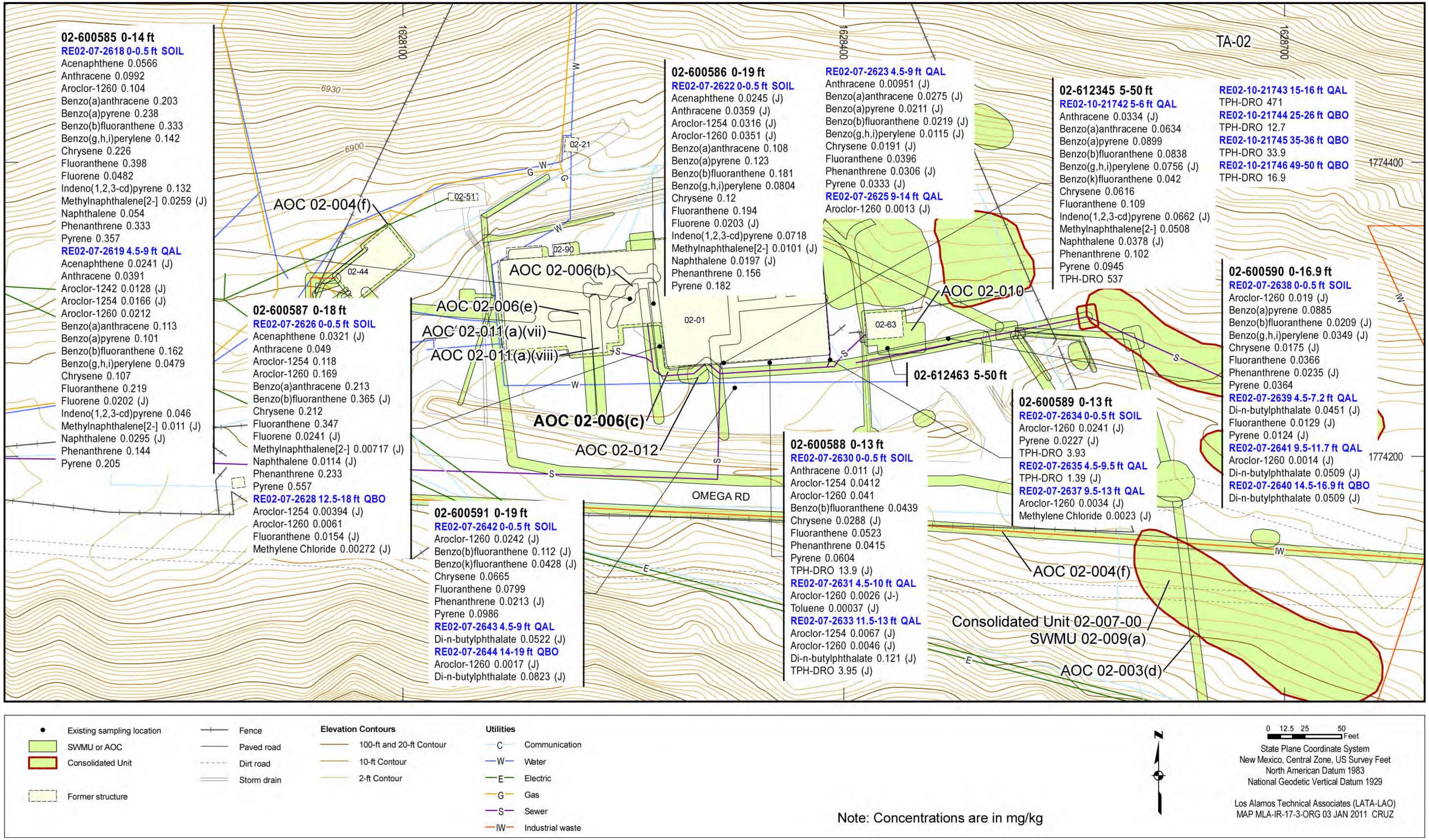

Figure 6.17-3 Organic chemicals detected at AOC 02-006(c)

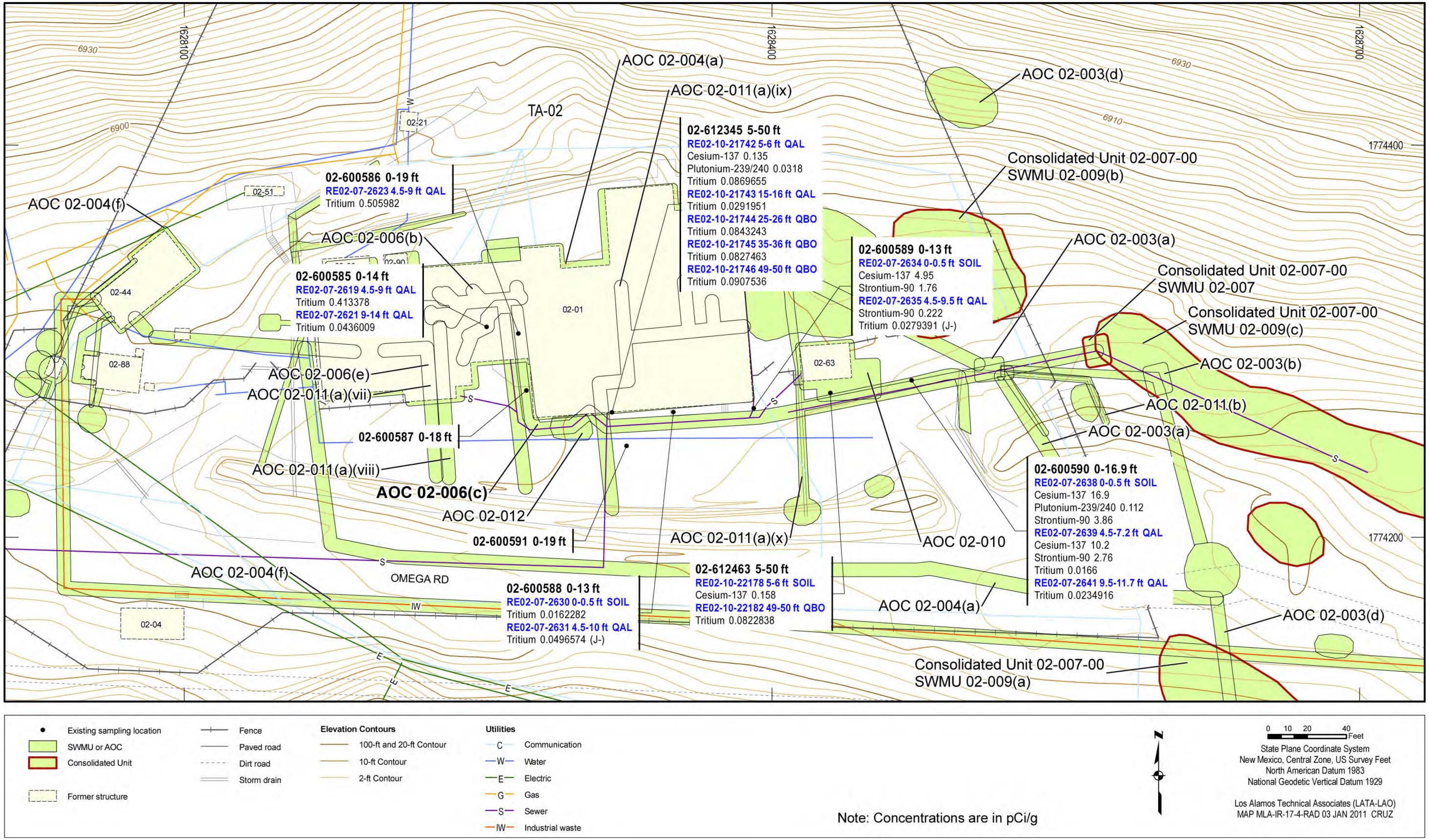

Figure 6.17-4 Radionuclides detected or detected above BVs/FVs at AOC 02-006(c)

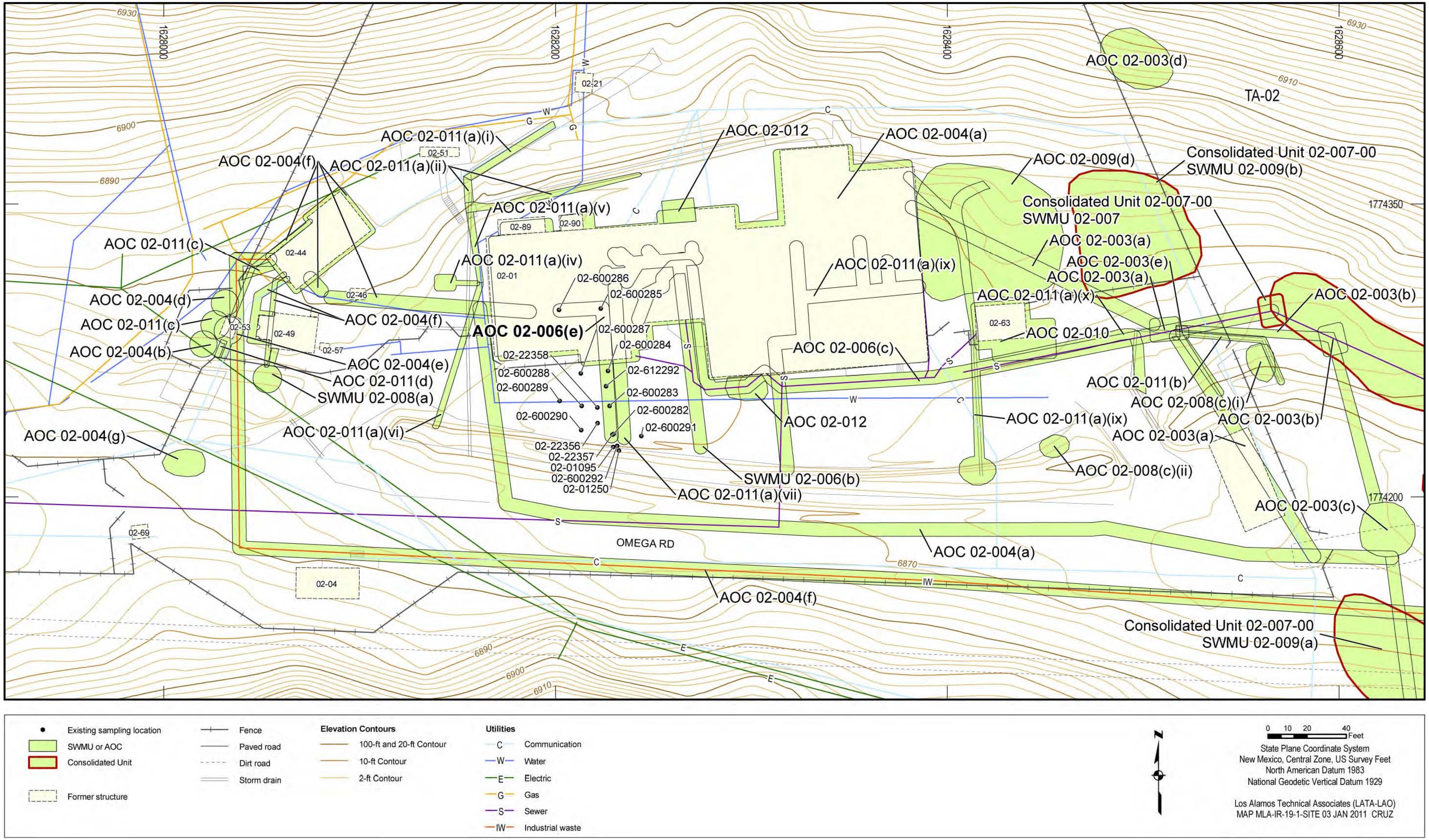

Figure 6.19-1 Site map of AOC 02-006(e)

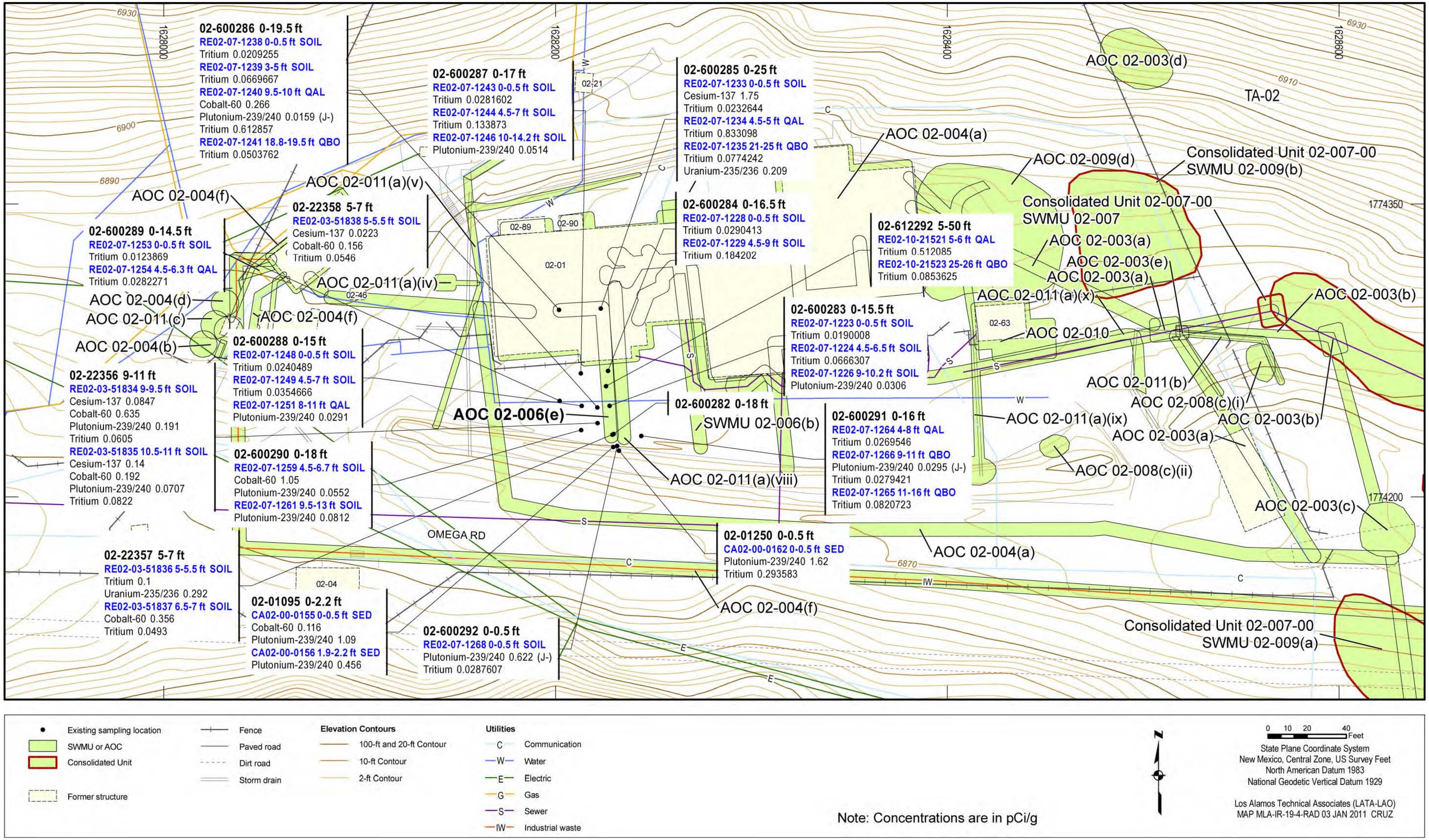

Figure 6.19-2 Radionuclides detected or detected above BVs/FVs at AOC 02-006(e)

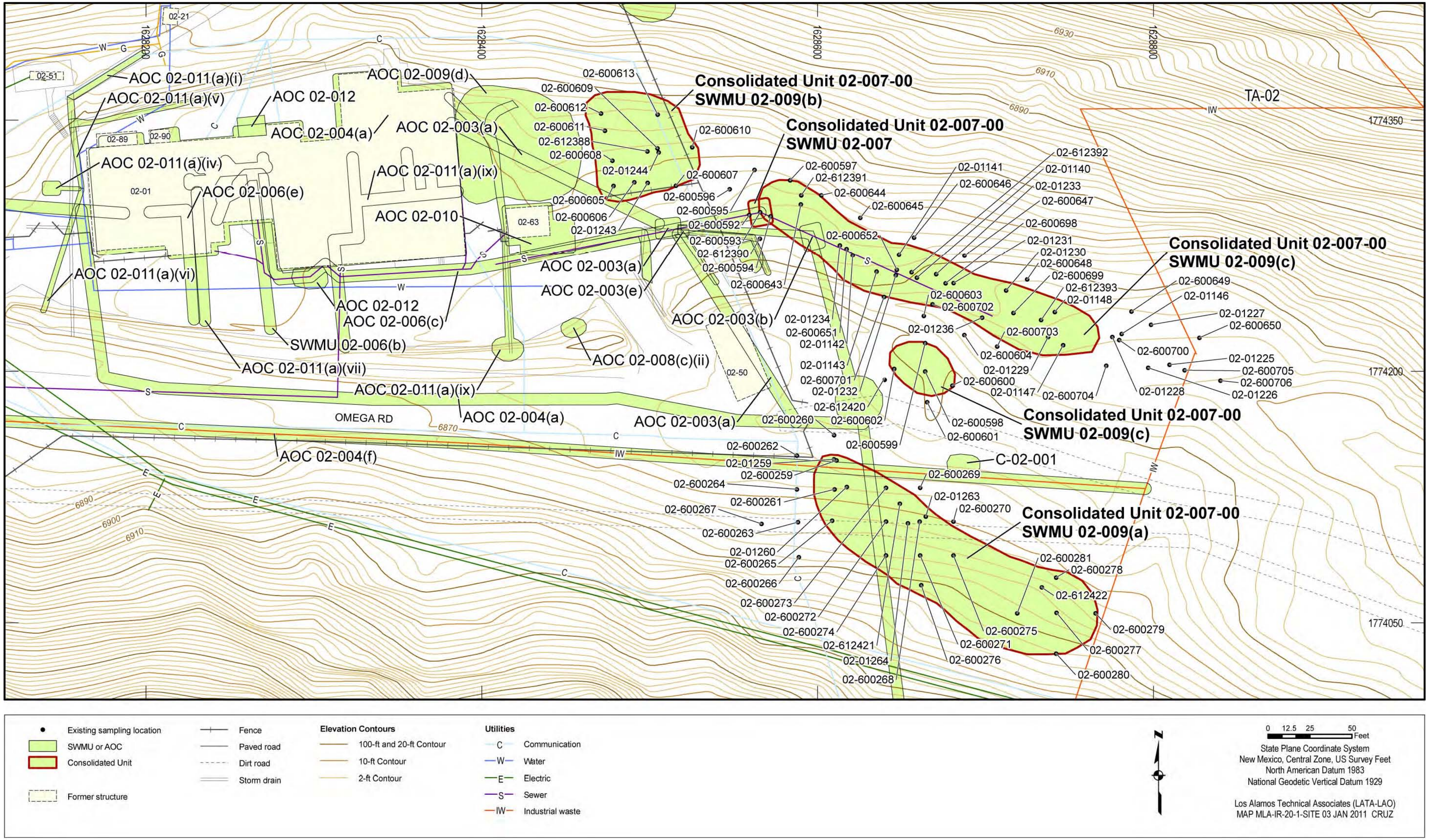

Figure 6.20-1 Site map of Consolidated Unit 02-007-00 [SWMUs 02-007 and 02-009(a,b,c)]

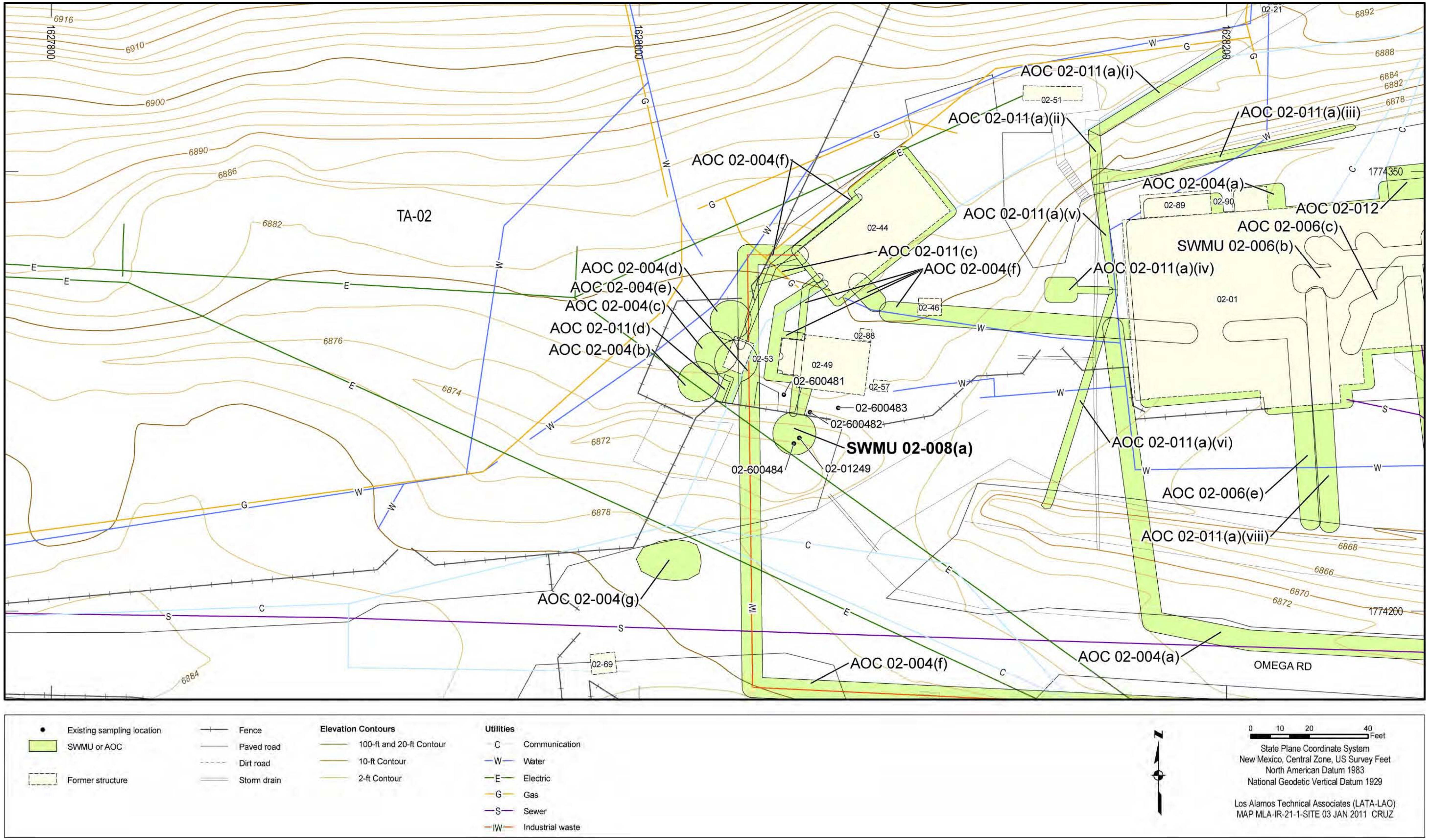

Figure 6.21-1 Site map of SWMU 02-008(a)

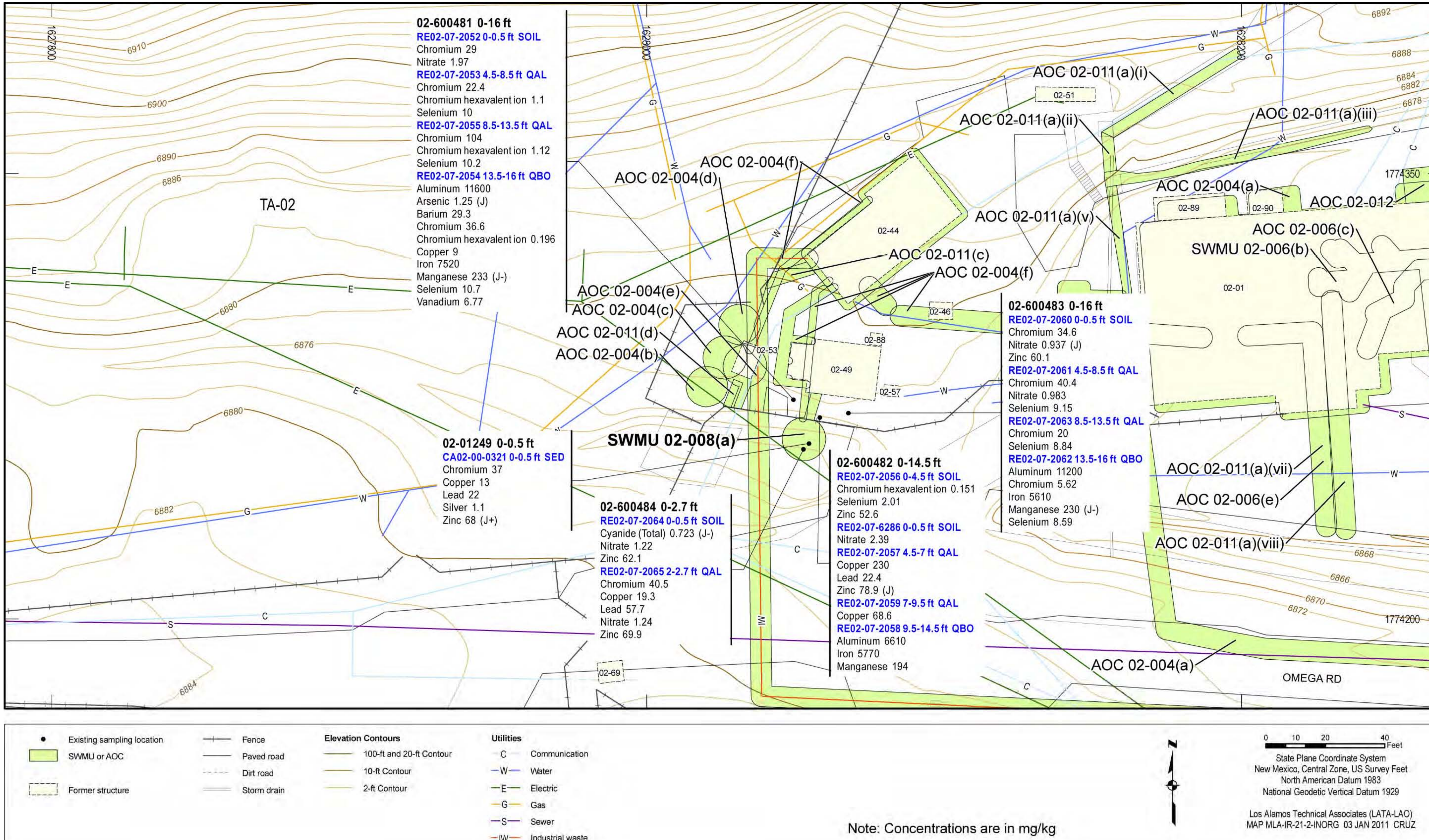

Figure 6.21-2 Inorganic chemicals detected or detected above BVs at SWMU 02-008(a)

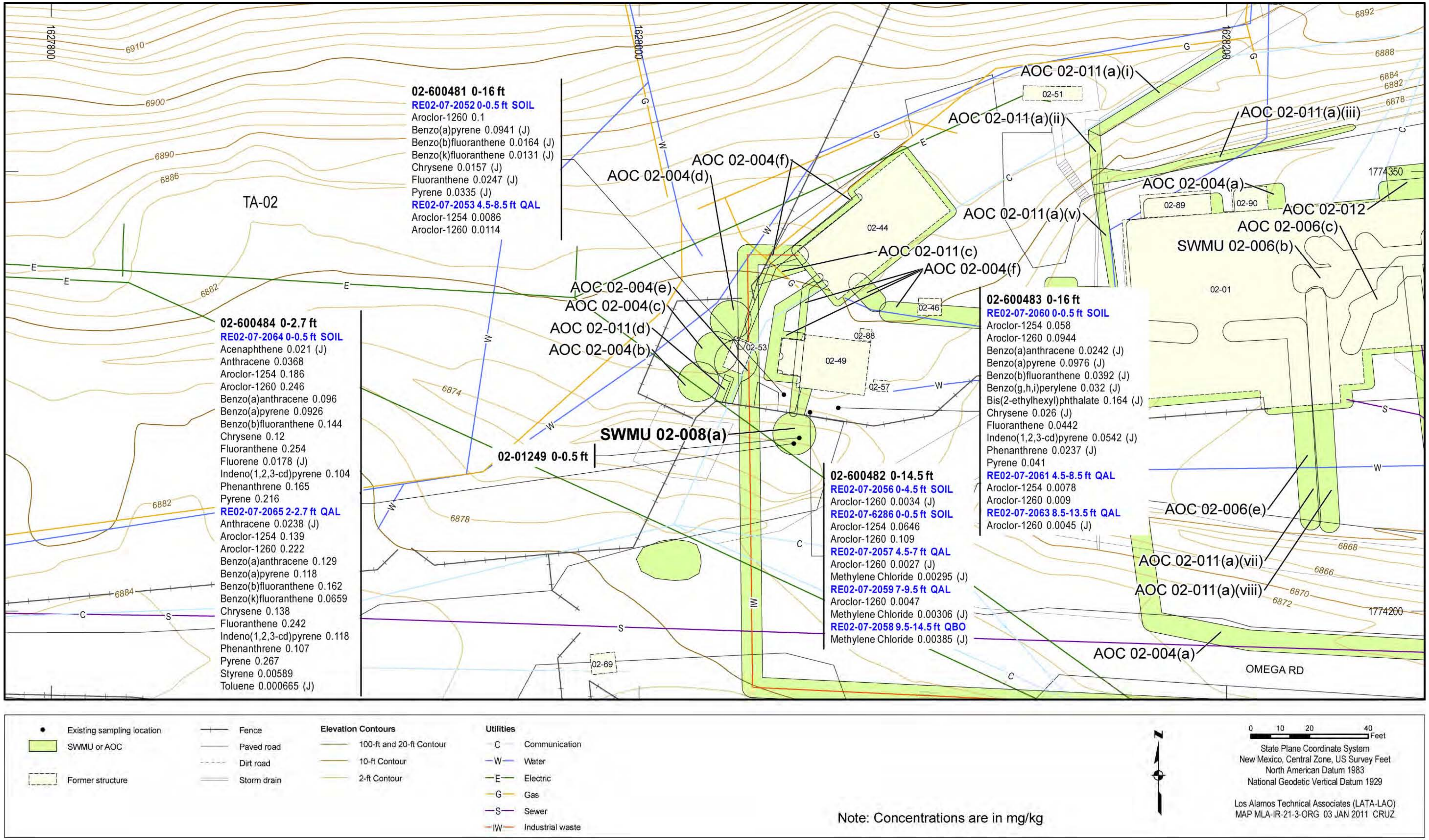

Figure 6.21-3 Organic chemicals detected at SWMU 02-008(a)

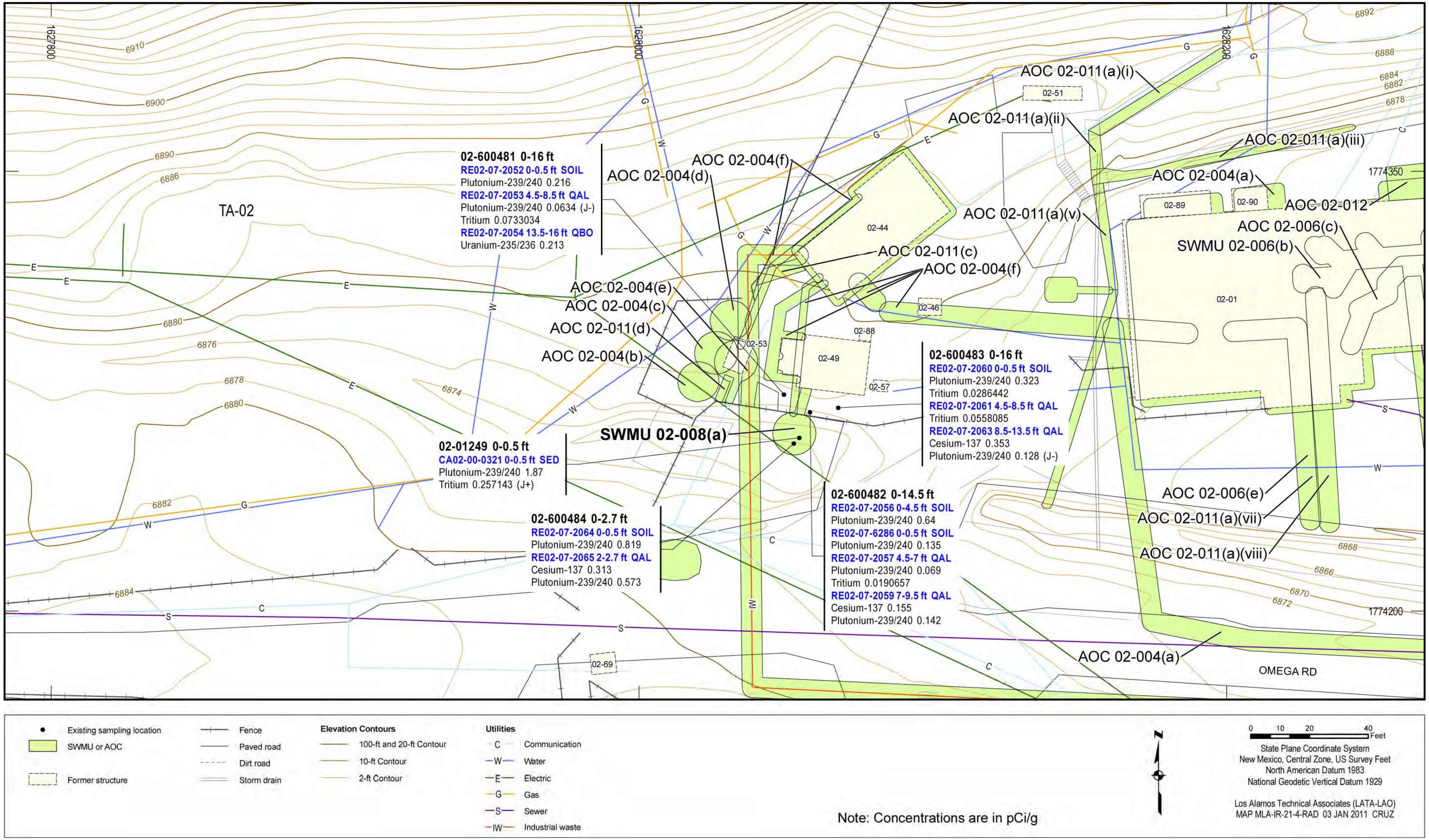

Figure 6.21-4 Radionuclides detected or detected above BVs/FVs at SWMU 02-008(a)

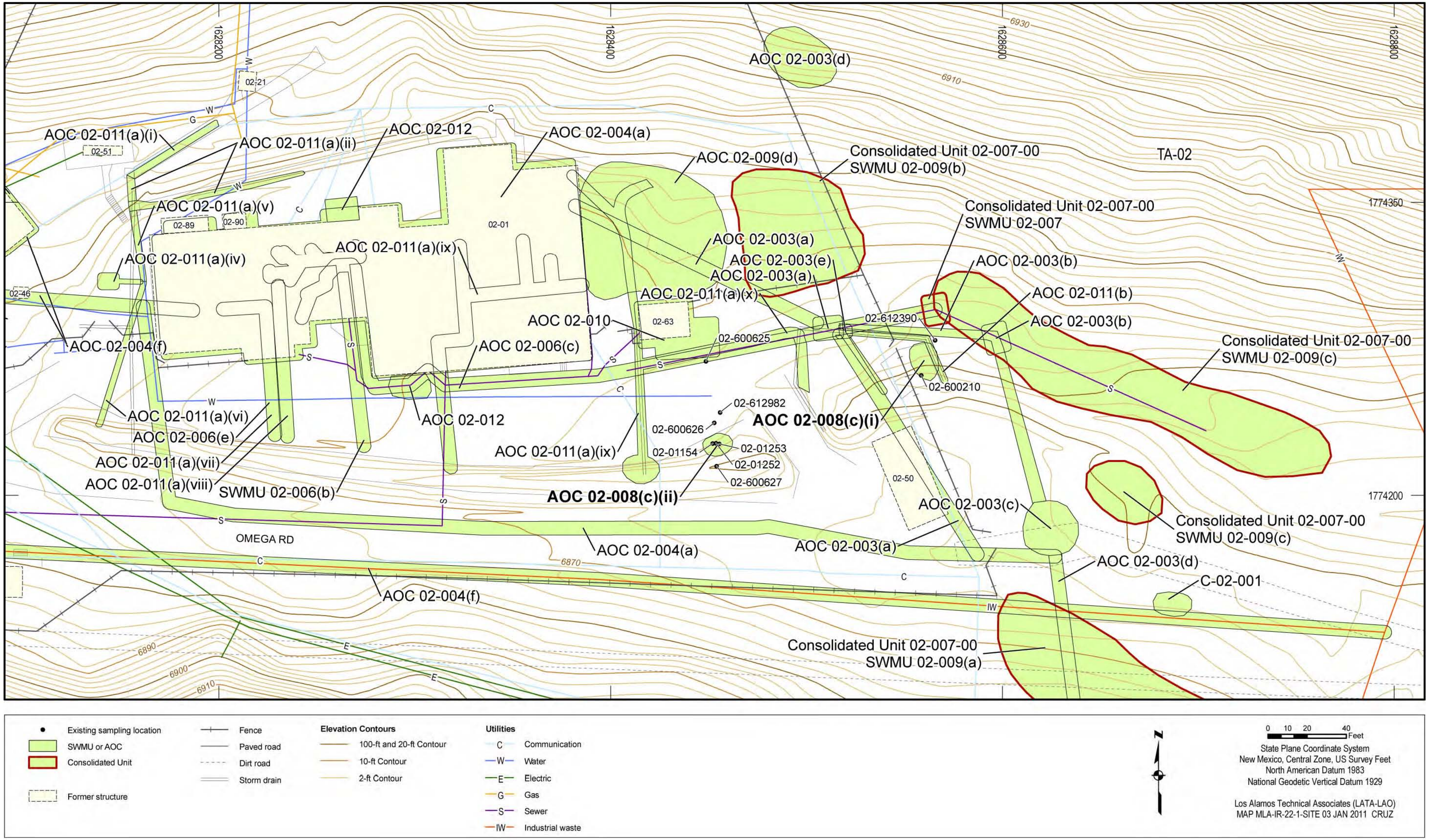

Figure 6.22-1 Site map of AOC 02-008(c)

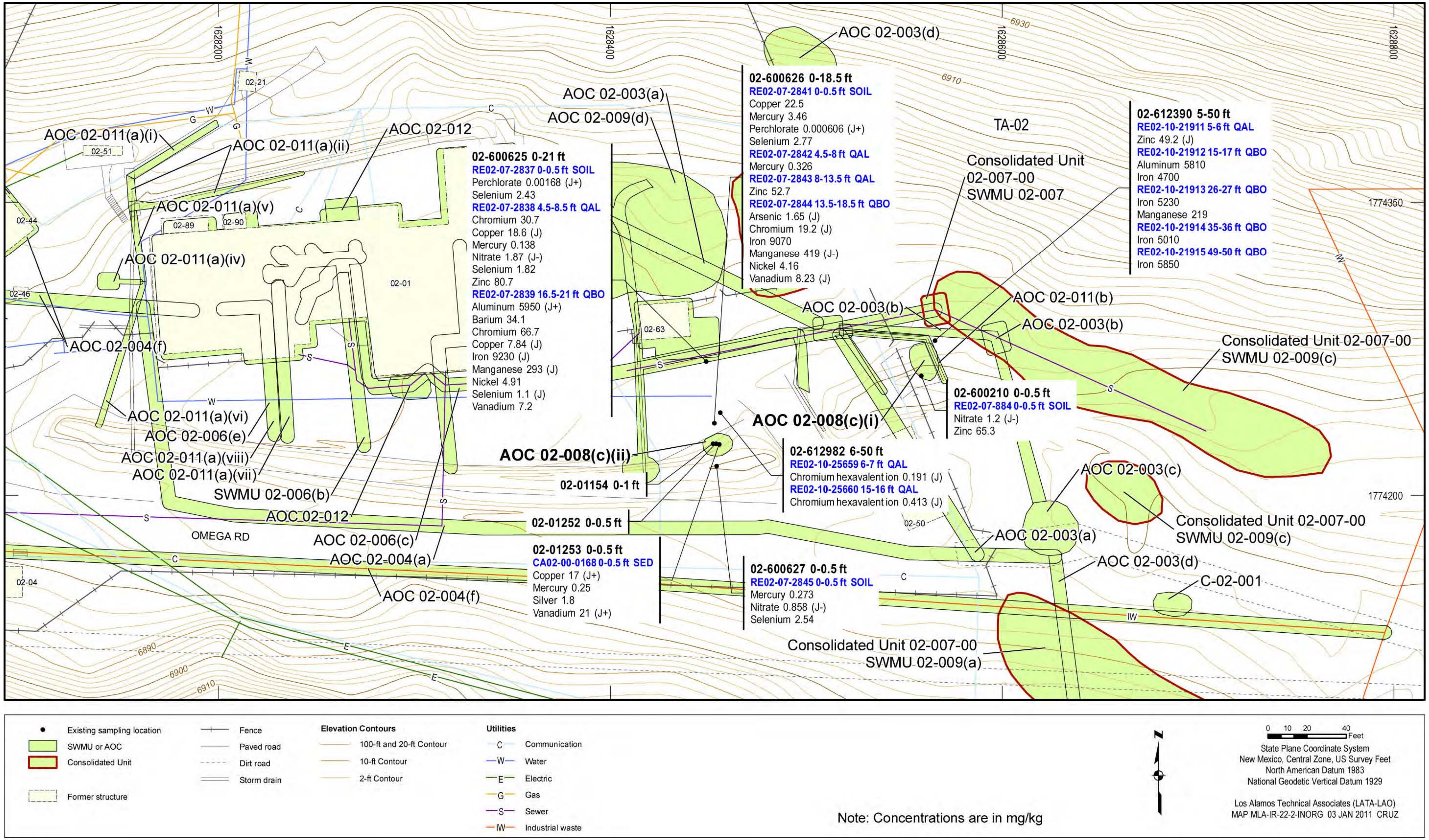

Figure 6.22-2 Inorganic chemicals detected or detected above BVs at AOC 02-008(c)

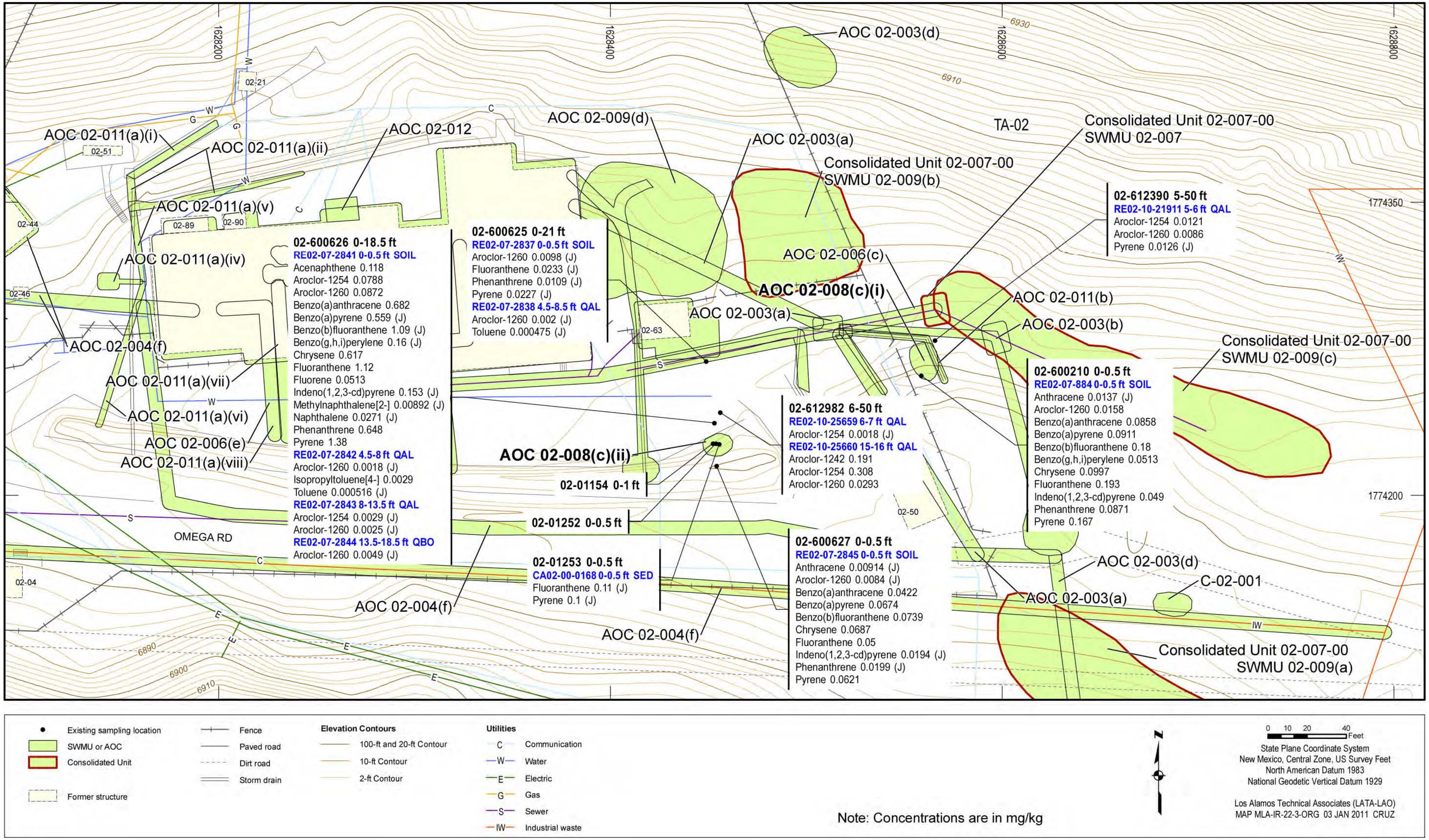

Figure 6.22-3 Organic chemicals detected at AOC 02-008(c)

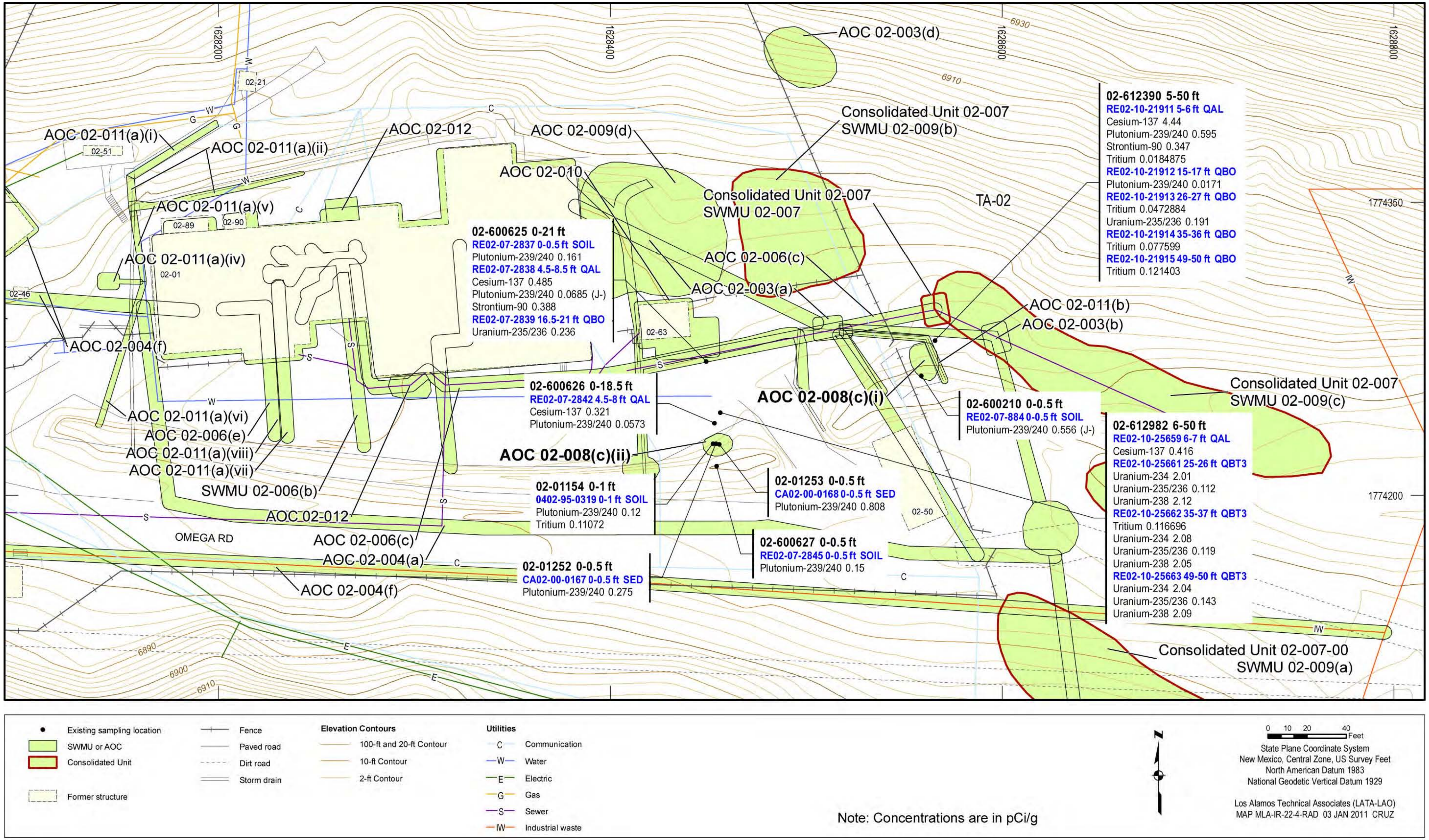

Figure 6.22-4 Radionuclides detected or detected above BVs/FVs at AOC 02-008(c)

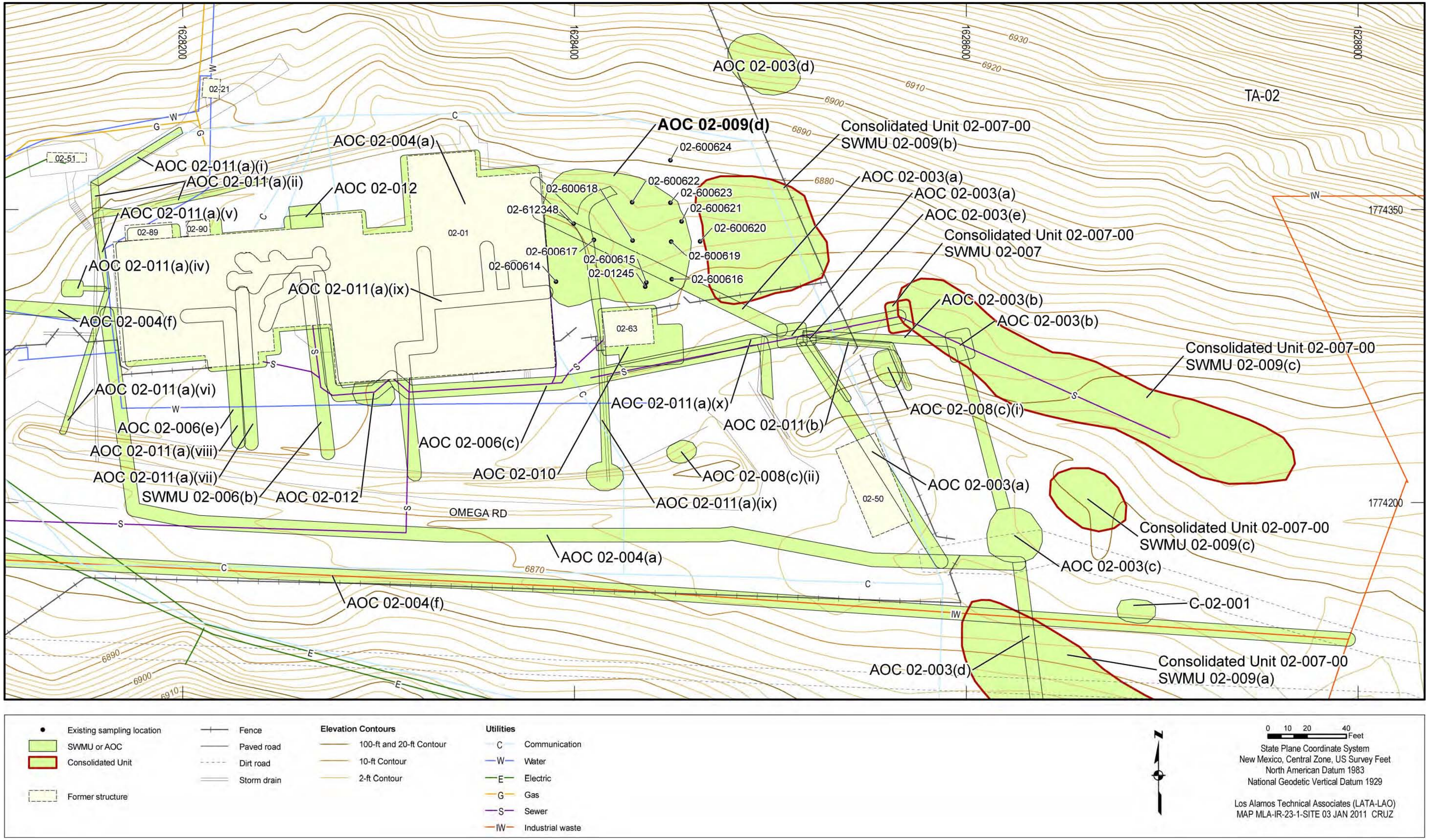

Figure 6.23-1 Site map of AOC 02-009(d)

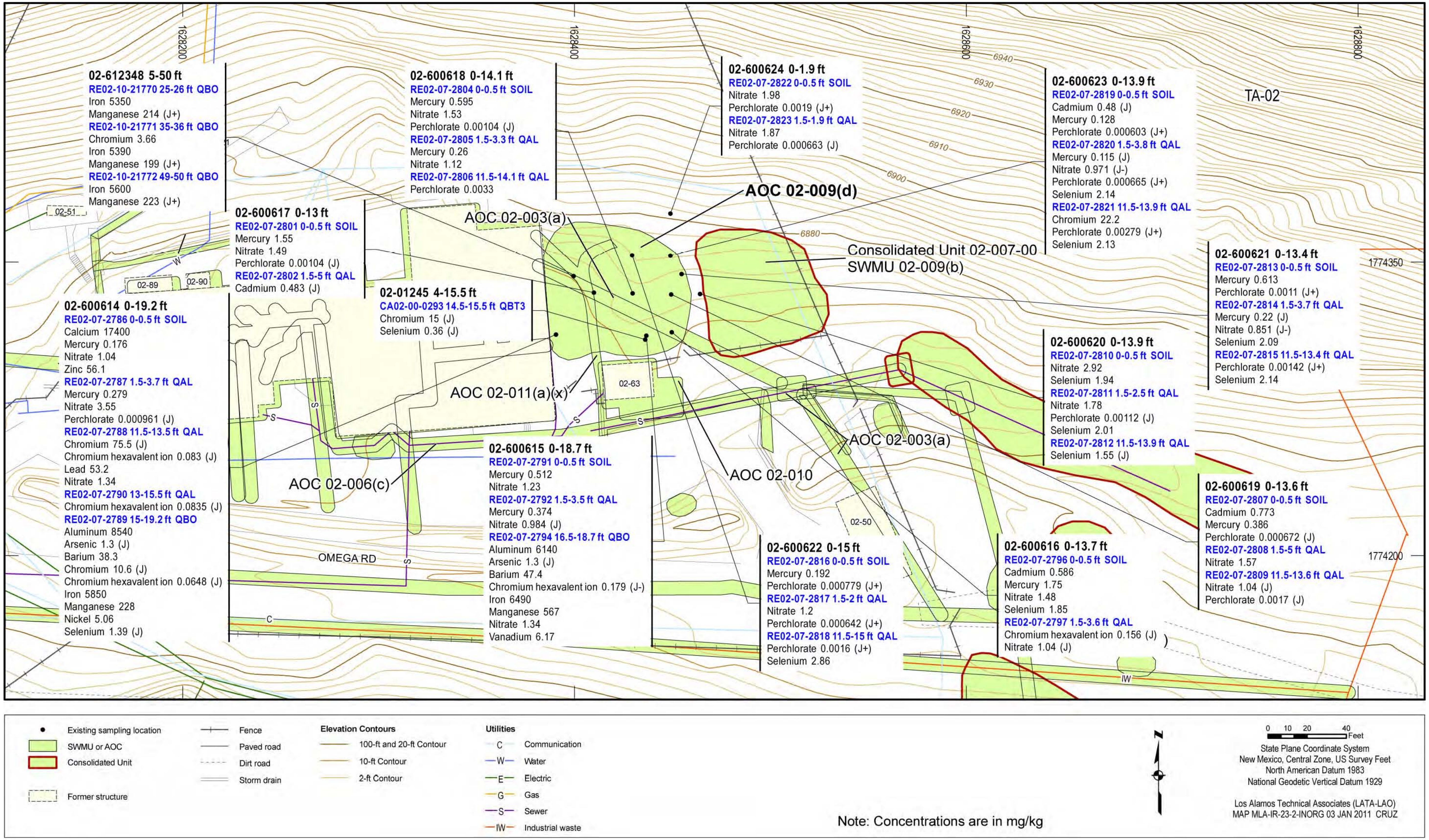

Figure 6.23-2 Inorganic chemicals detected or detected above BVs at AOC 02-009(d)

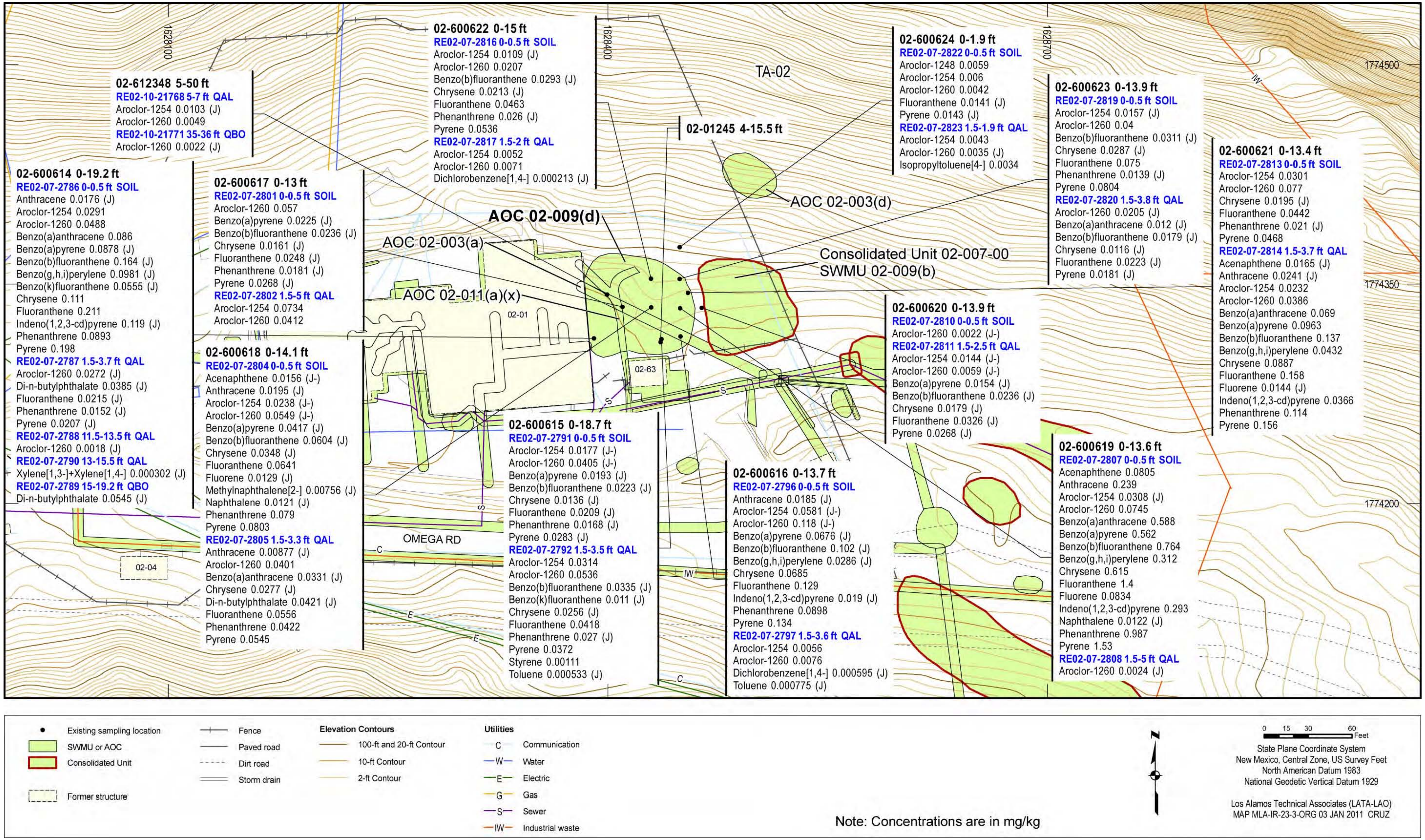

Figure 6.23-3 Organic chemicals detected at AOC 02-009(d)

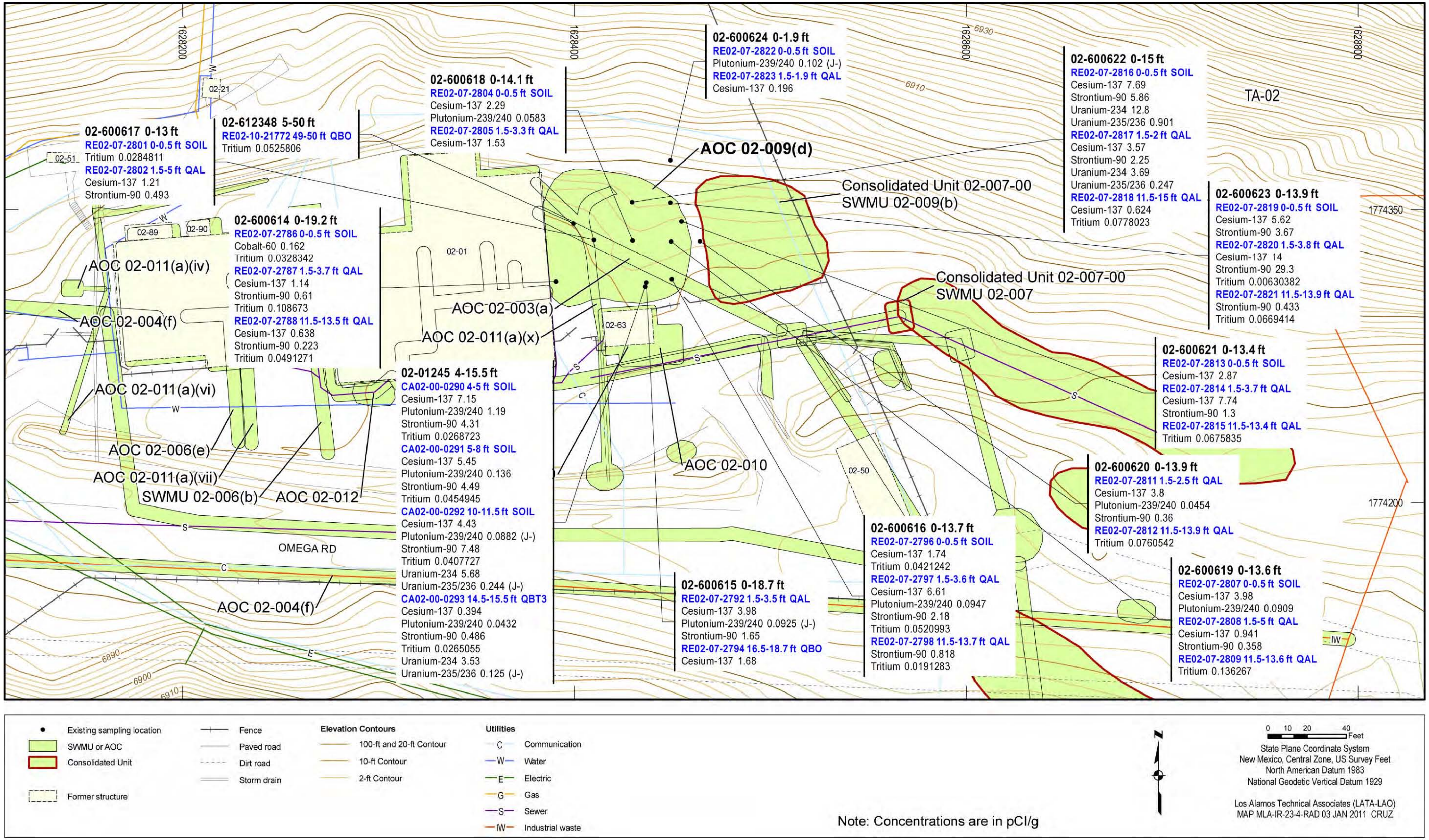

Figure 6.23-4 Radionuclides detected or detected above BVs/FVs at AOC 02-009(d)

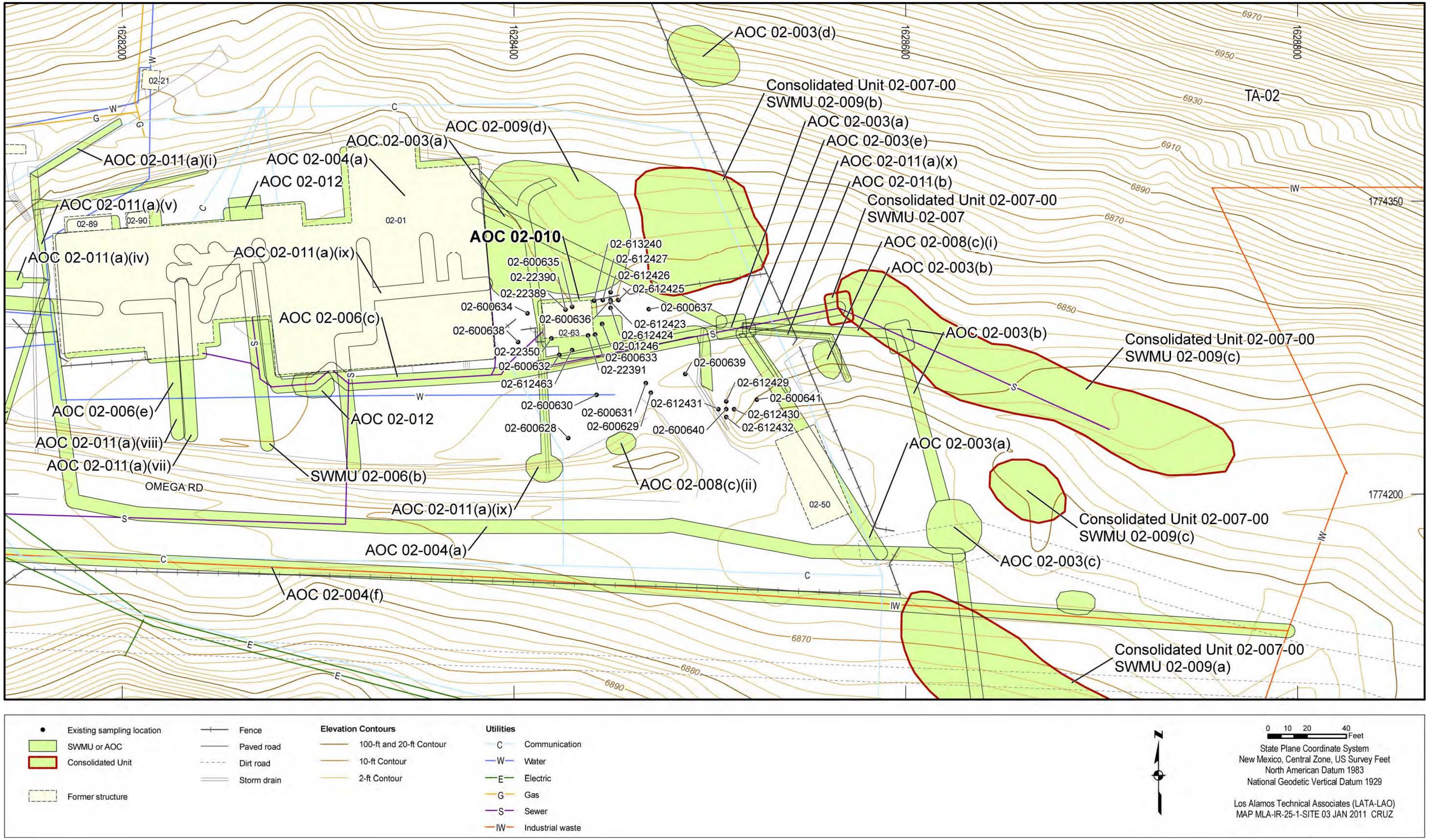

Figure 6.25-1 Site map of AOC 02-010

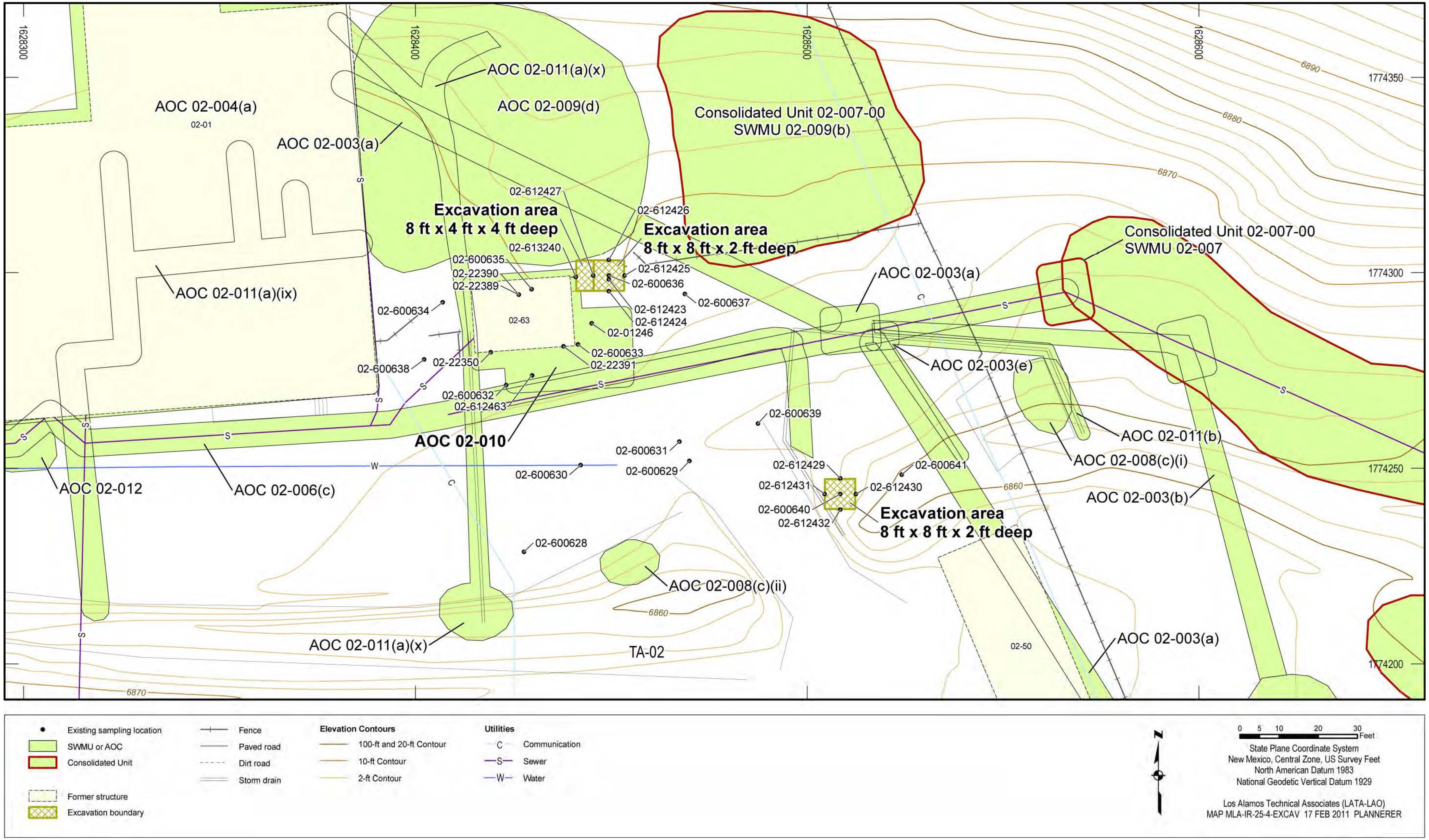

Figure 6.25-2 Excavations at AOC 02-010

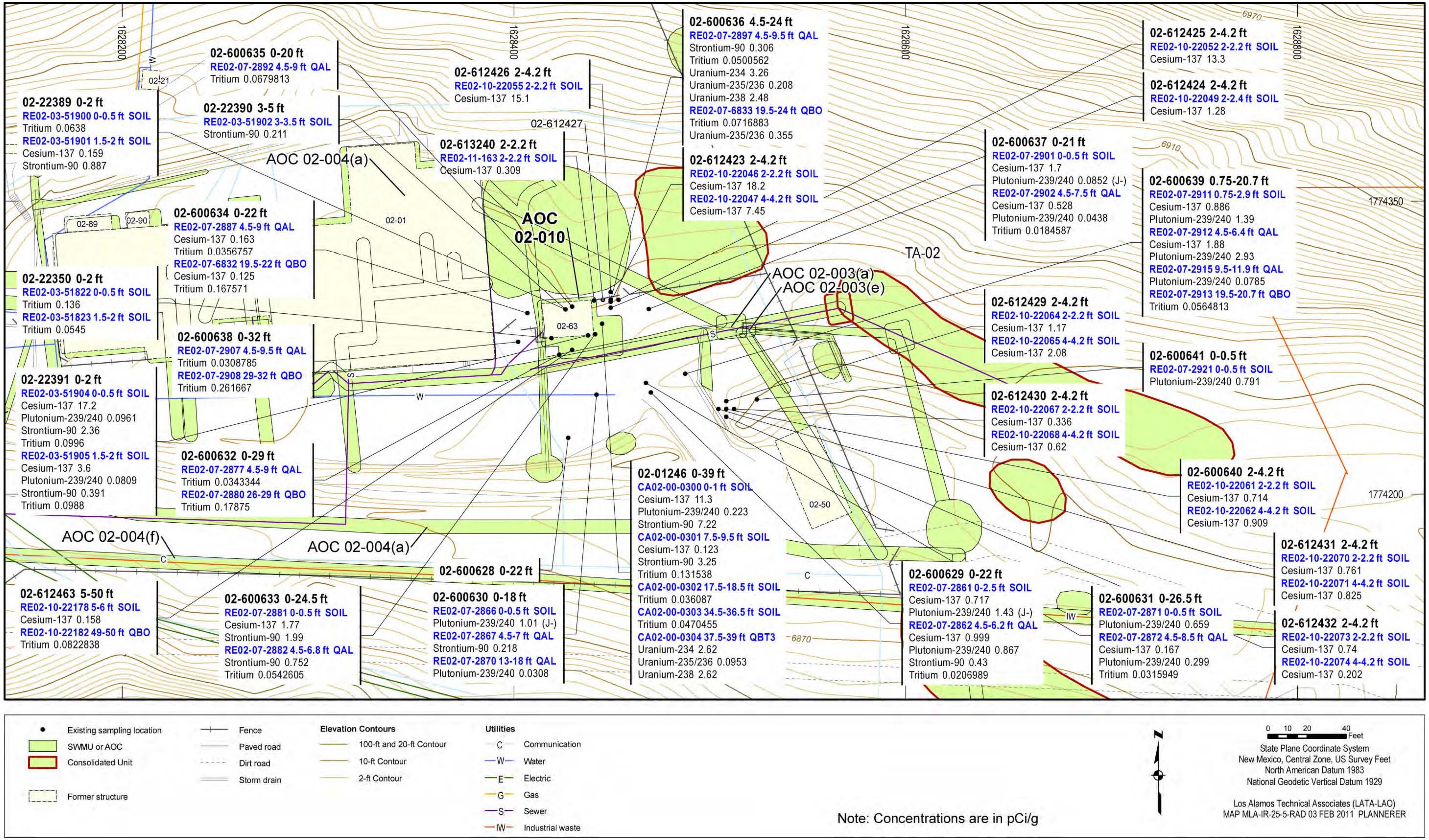

Figure 6.25-3 Radionuclides detected or detected above BVs/FVs at AOC 02-010

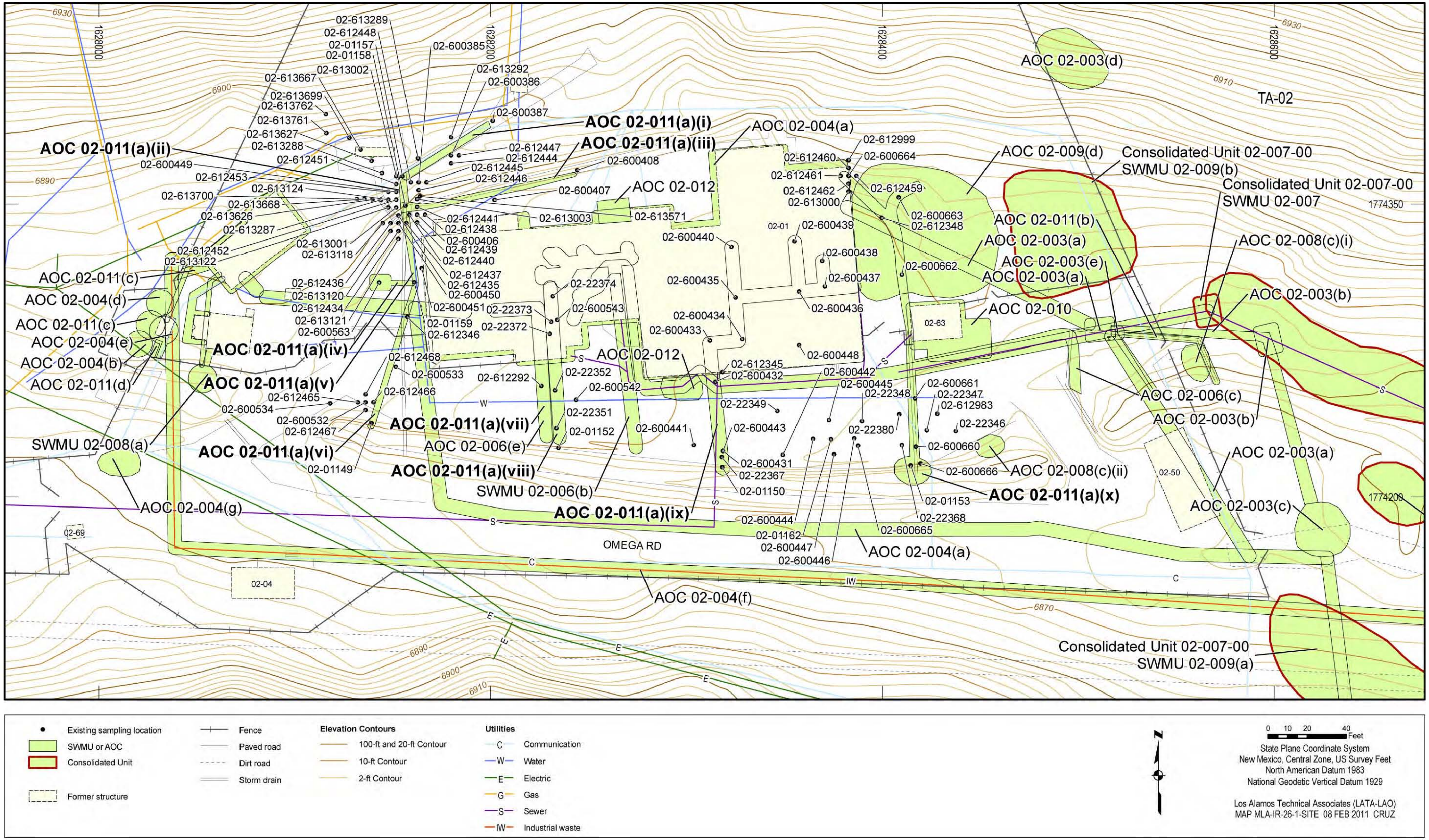

Figure 6.26-1 Site map of AOC 02-011(a)

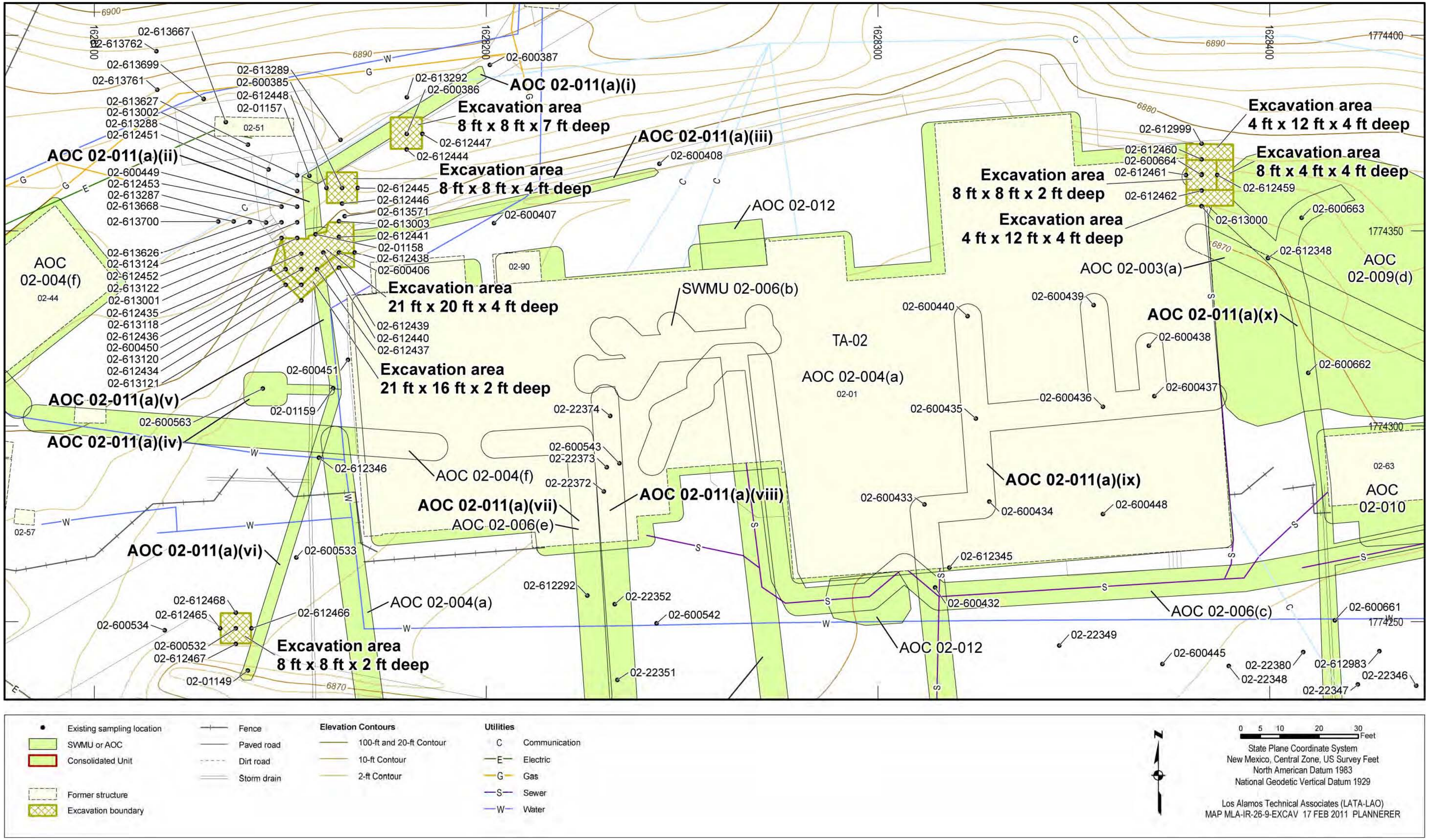

Figure 6.26-2 Excavations at AOC 02-011(a)

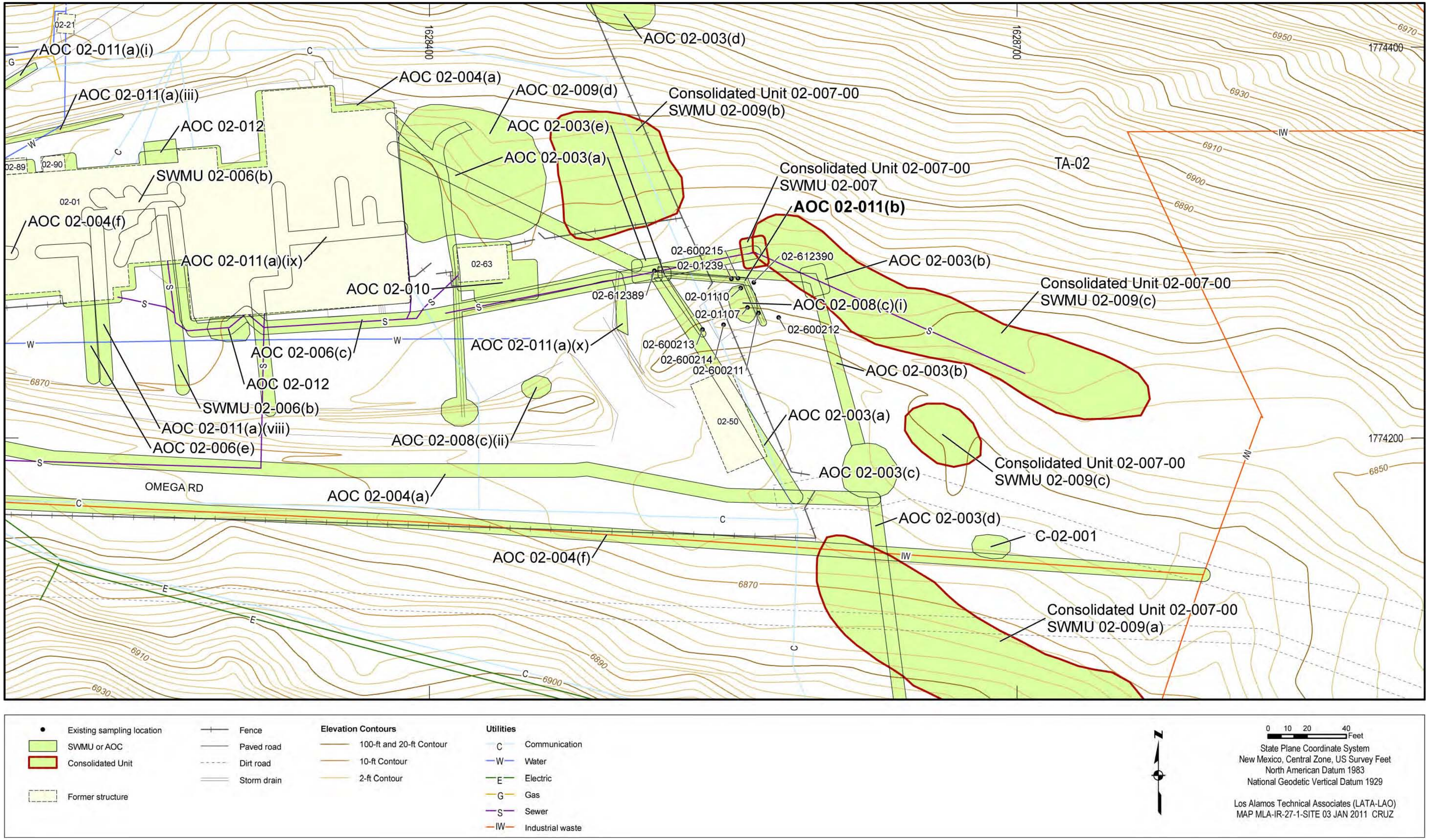

Figure 6.27-1 Site map of AOC 02-011(b)

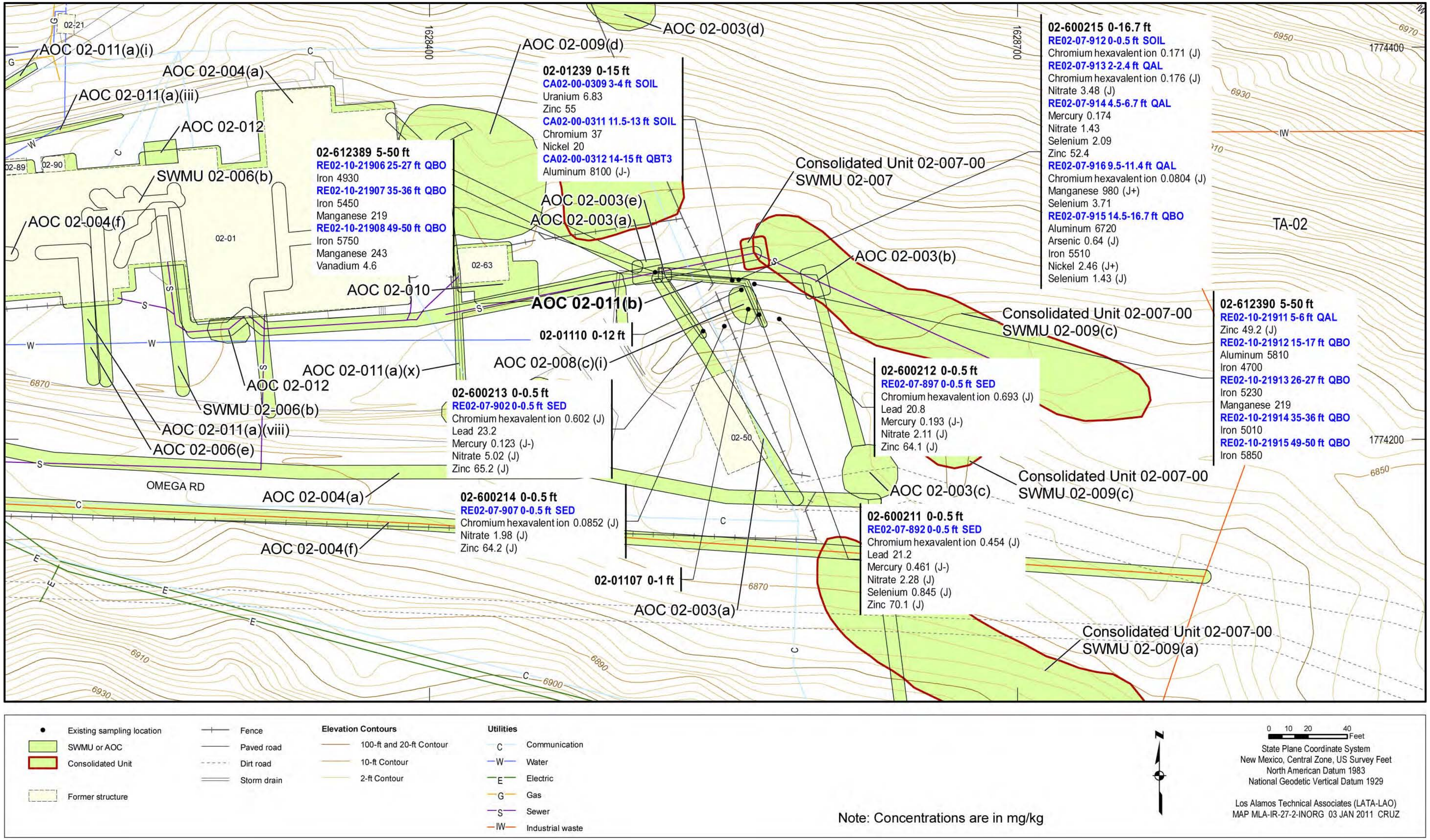

Figure 6.27-2 Inorganic chemicals detected or detected above BVs at AOC 02-011(b)

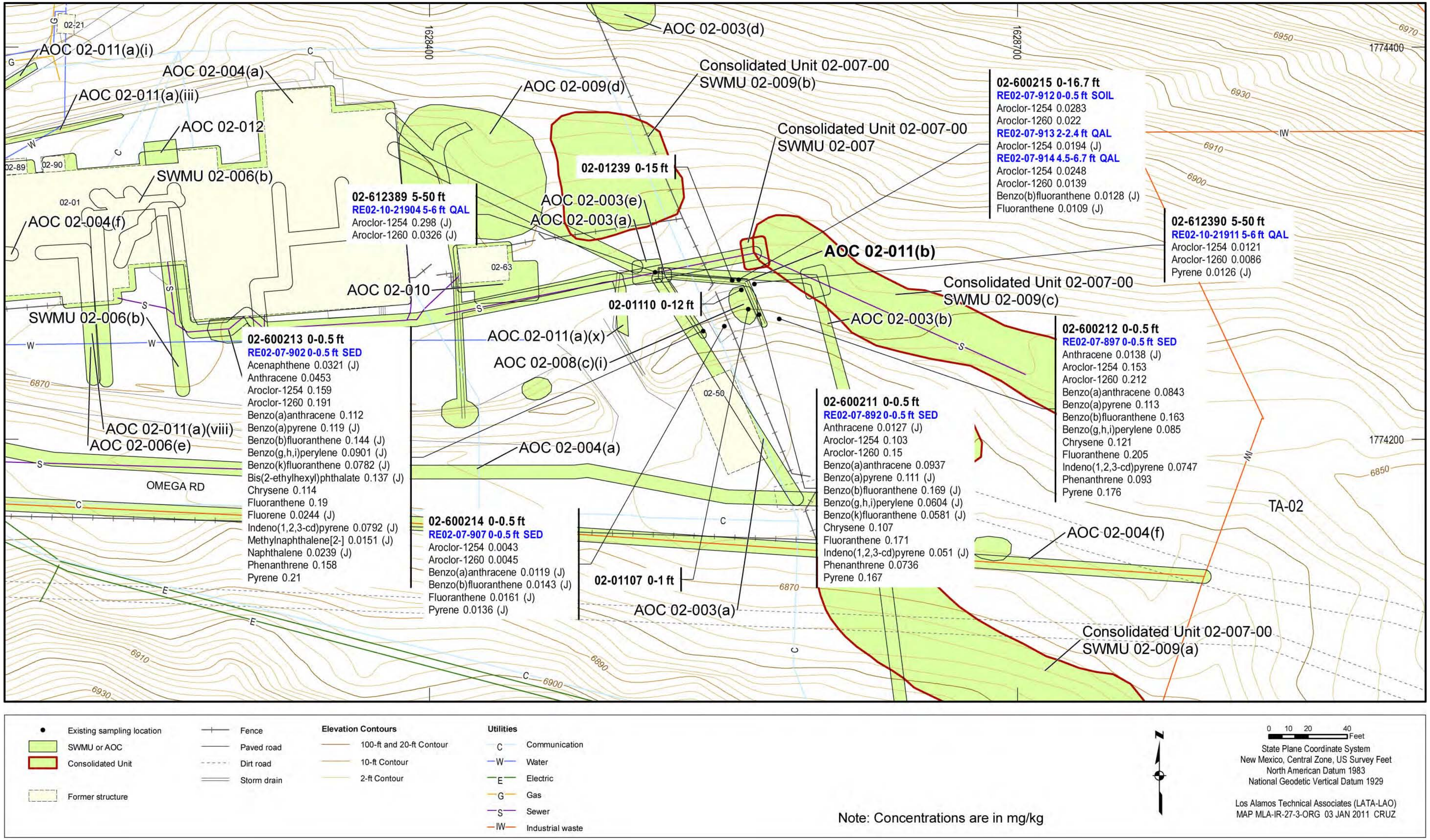

Figure 6.27-3 Organic chemicals detected at AOC 02-011(b)

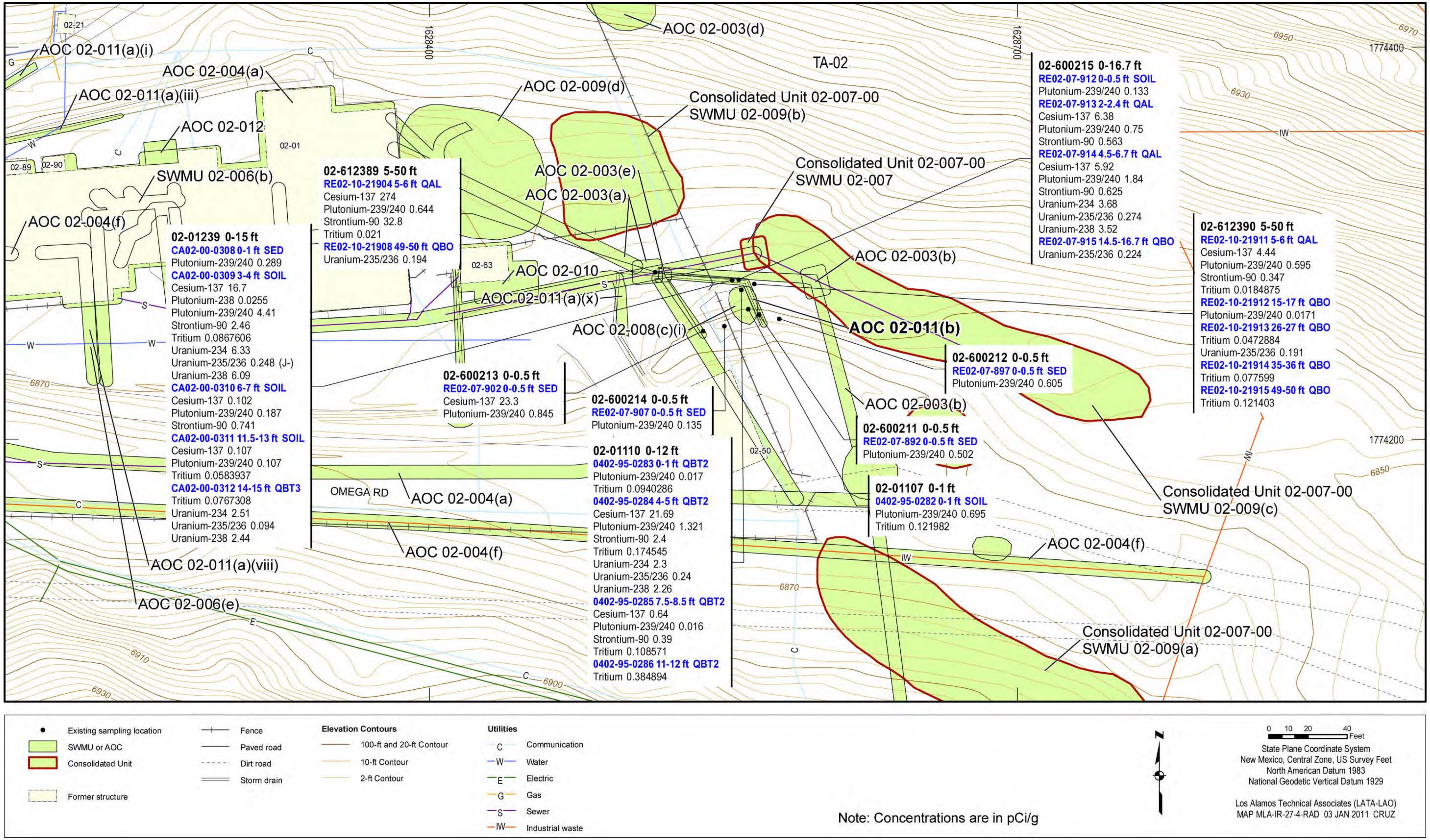

Figure 6.27-4 Radionuclides detected or detected above BVs/FVs at AOC 02-011(b)

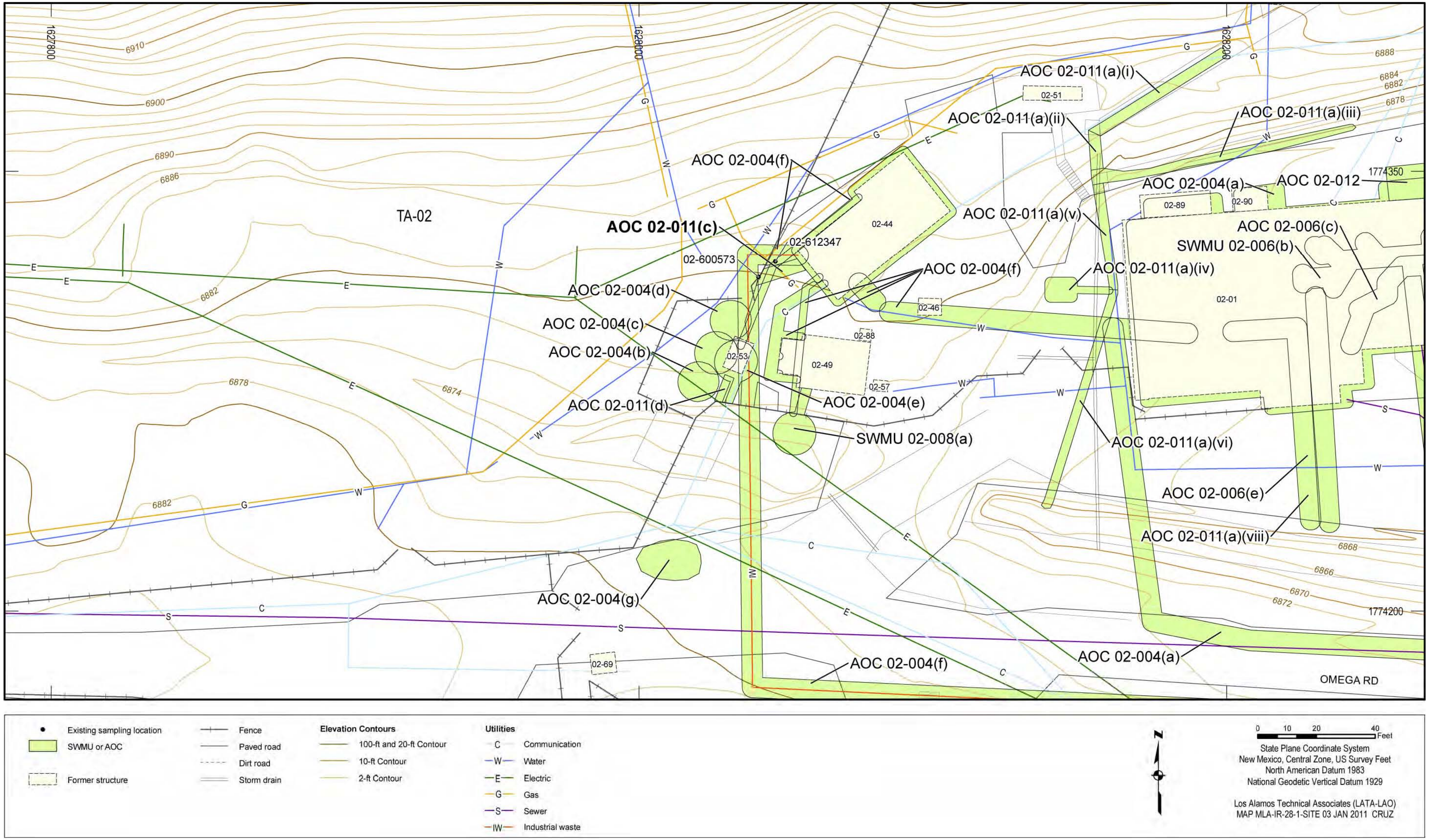

Figure 6.28-1 Site map of AOC 02-011(c)

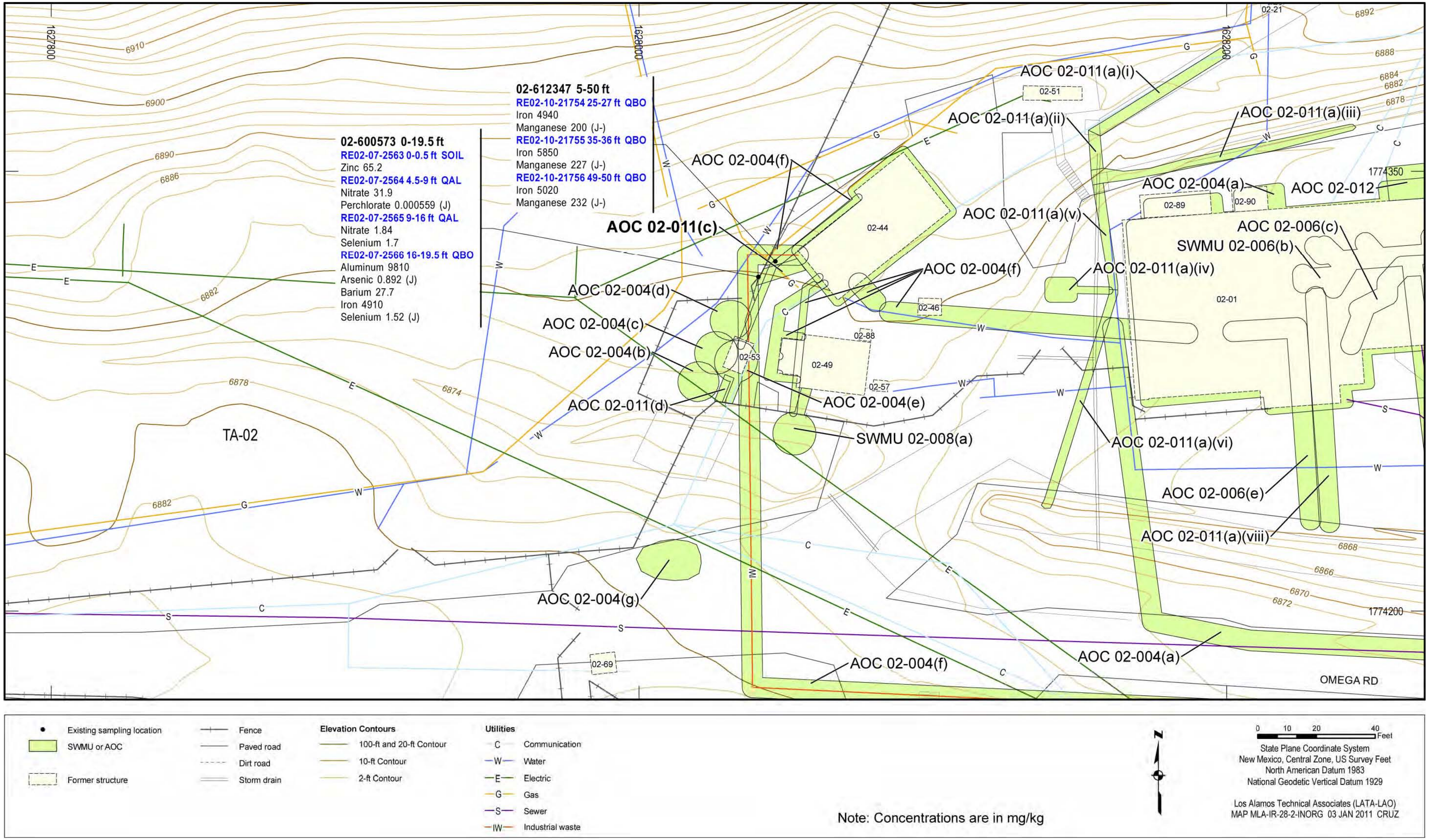

Figure 6.28-2 Inorganic chemicals detected or detected above BVs at AOC 02-011(c)

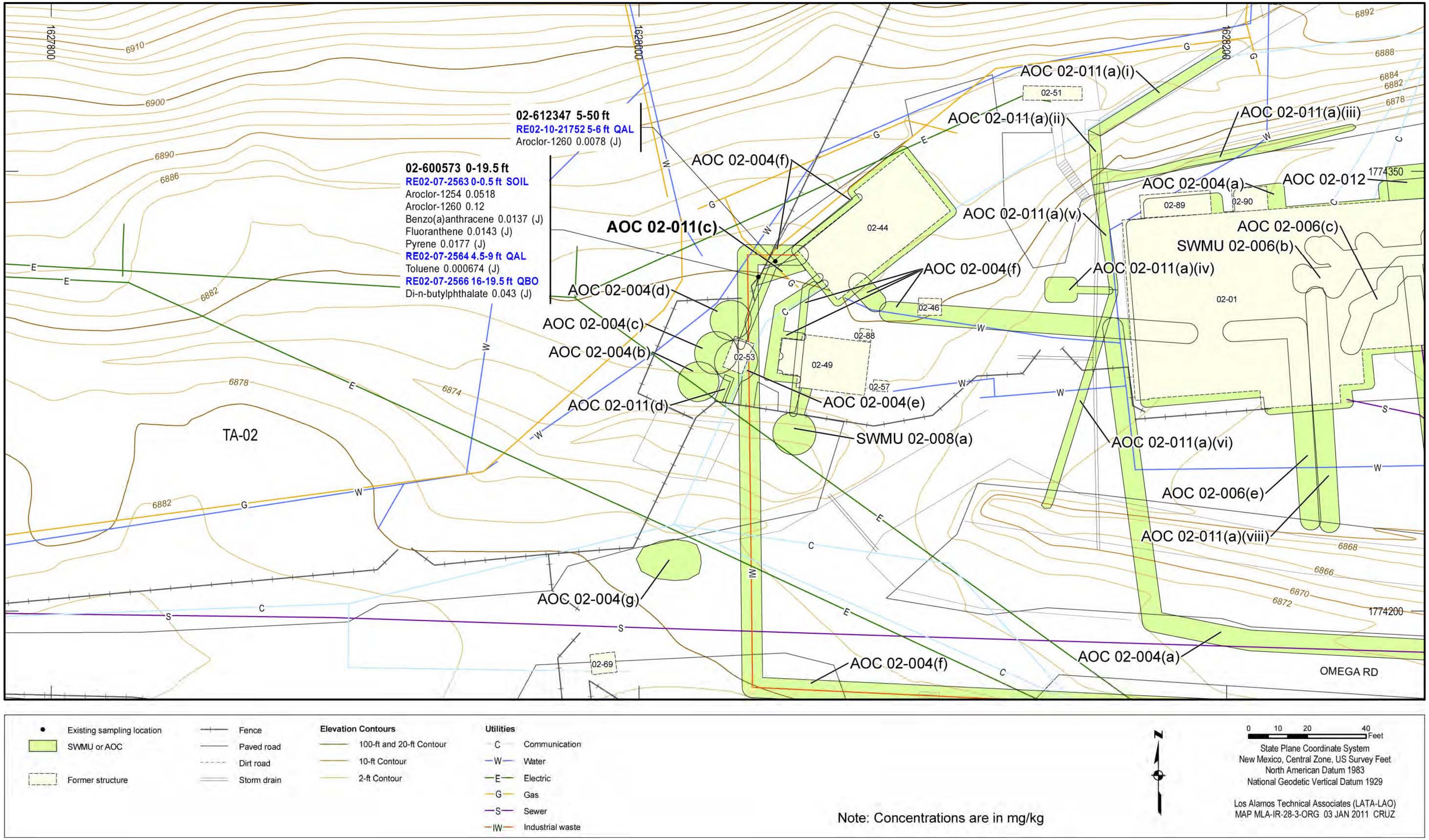

Figure 6.28-3 Organic chemicals detected at AOC 02-011(c)

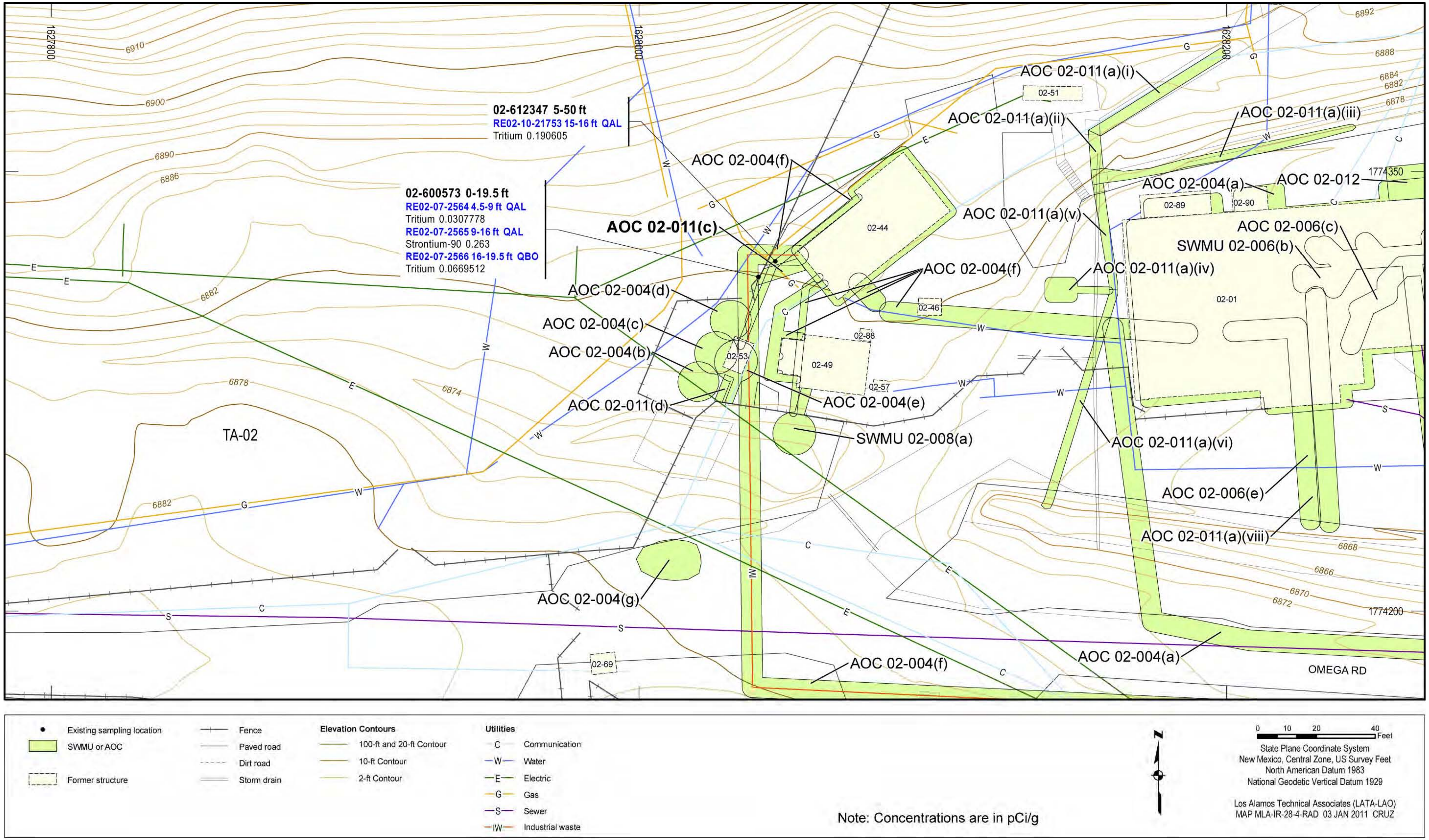

Figure 6.28-4 Radionuclides detected or detected above BVs/FVs at AOC 02-011(c)

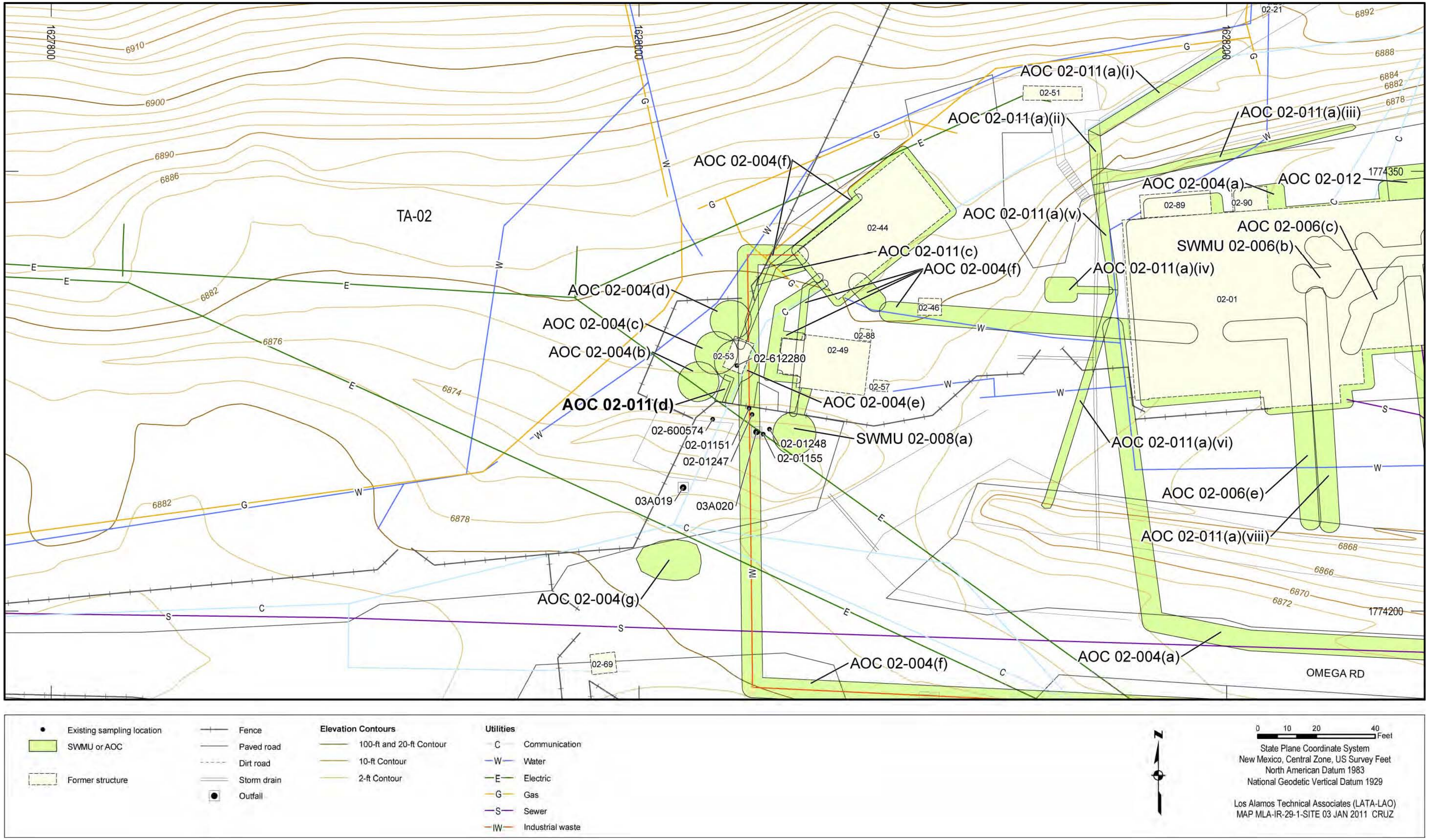

Figure 6.29-1 Site map of AOC 02-011(d)

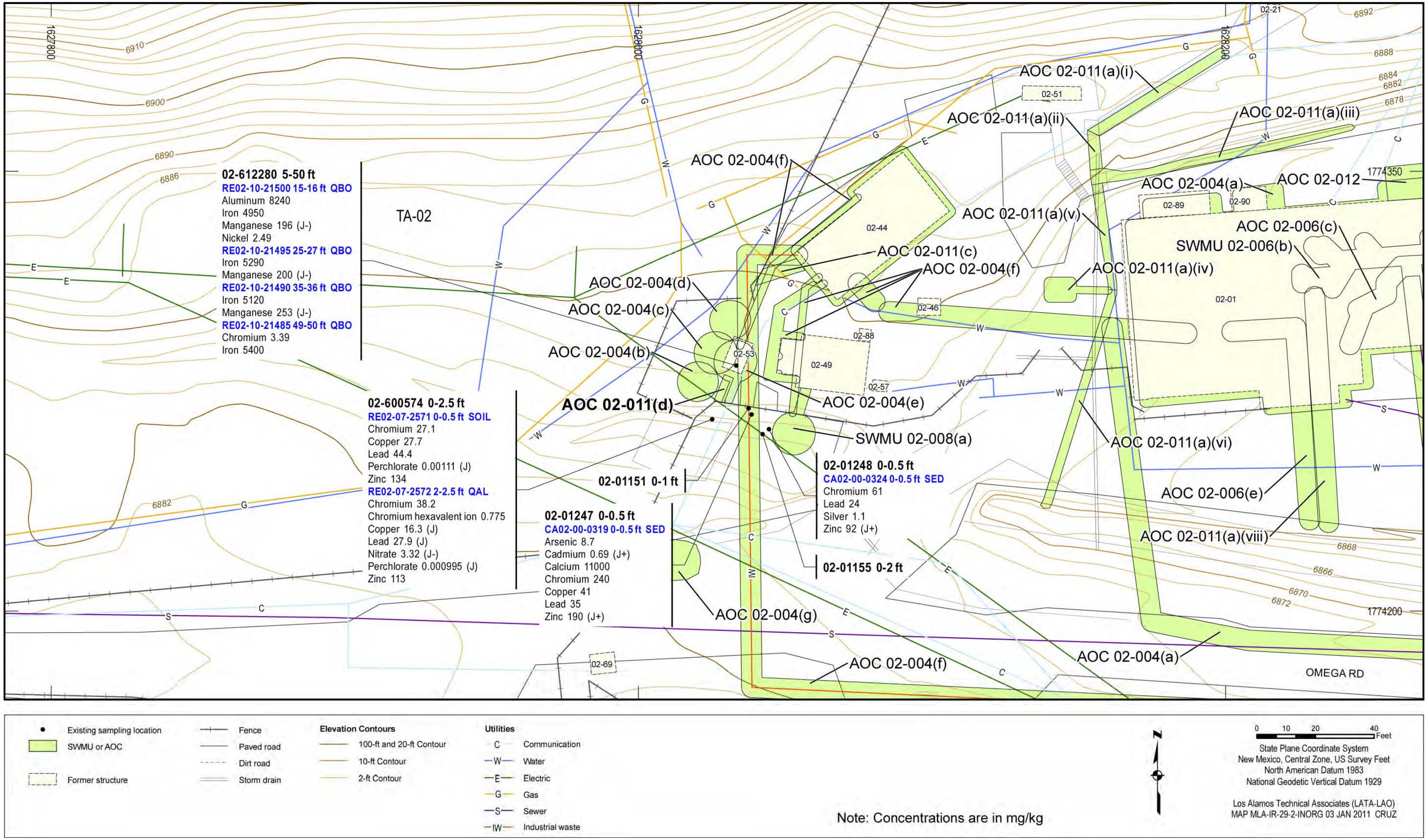

Figure 6.29-2 Inorganic chemicals detected or detected above BVs at AOC 02-011(d)

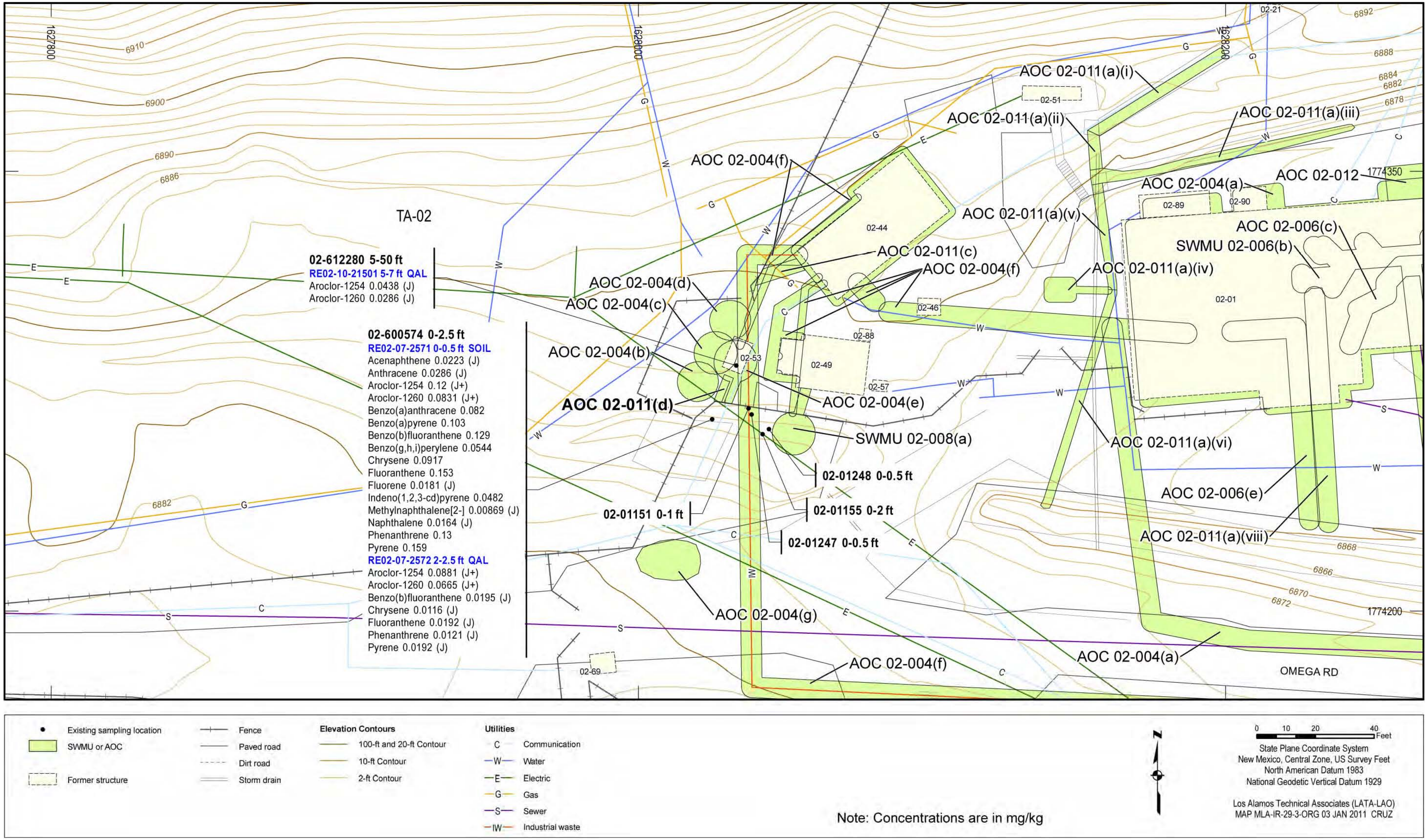

Figure 6.29-3 Organic chemicals detected at AOC 02-011(d)

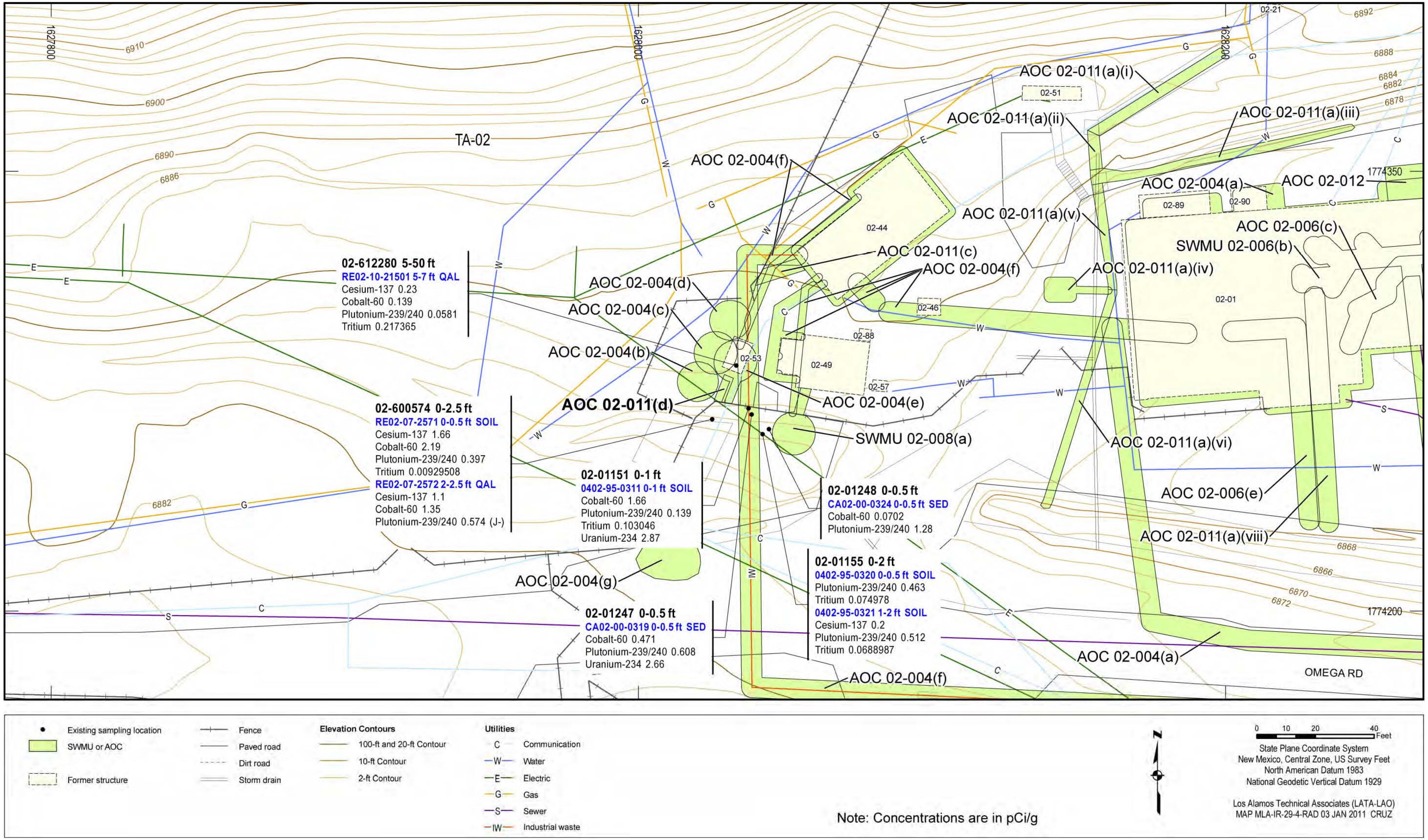

Figure 6.29-4 Radionuclides detected or detected above BVs/FVs at AOC 02-011(d)

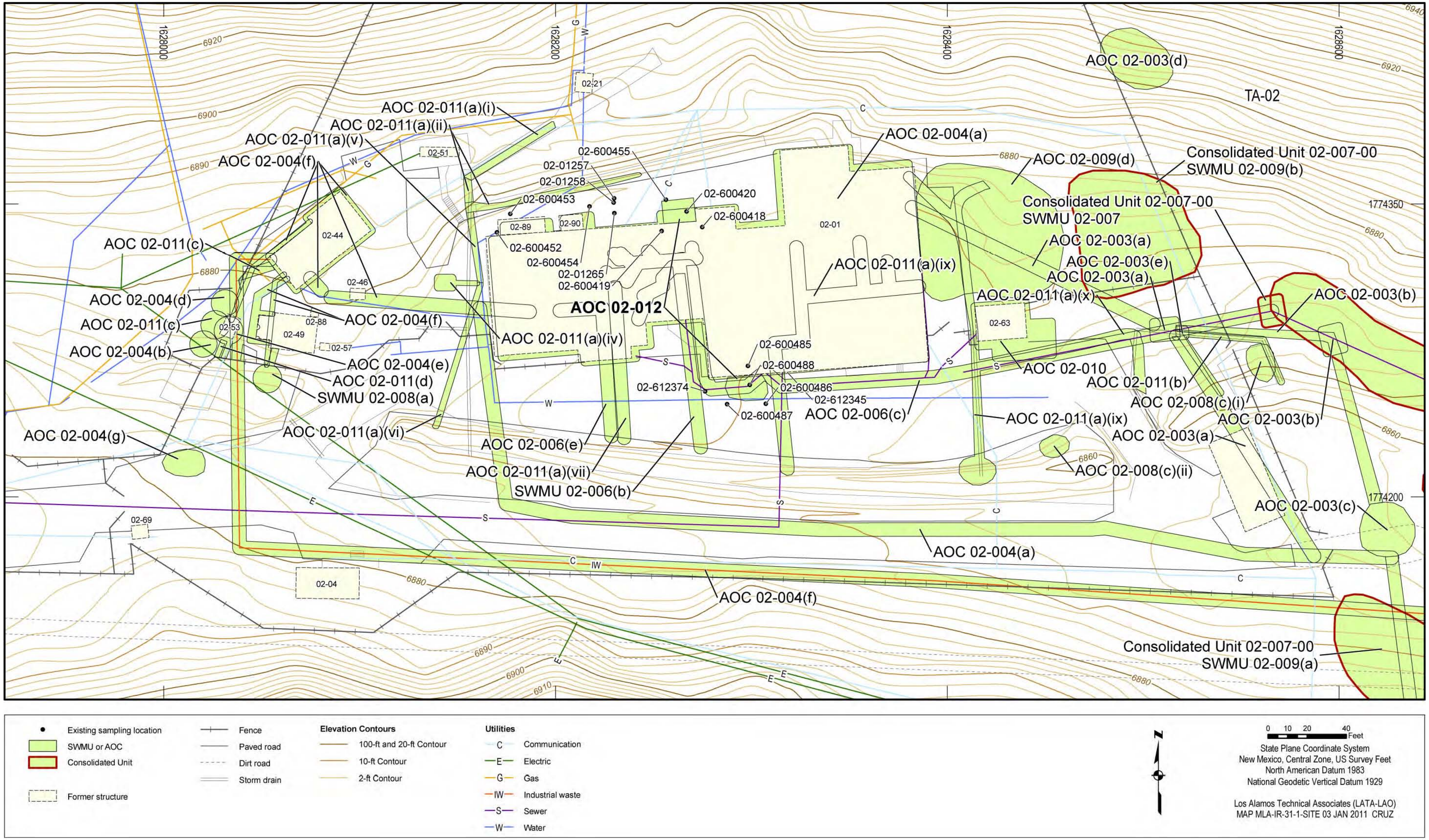

Figure 6.31-1 Site map of AOC 02-012

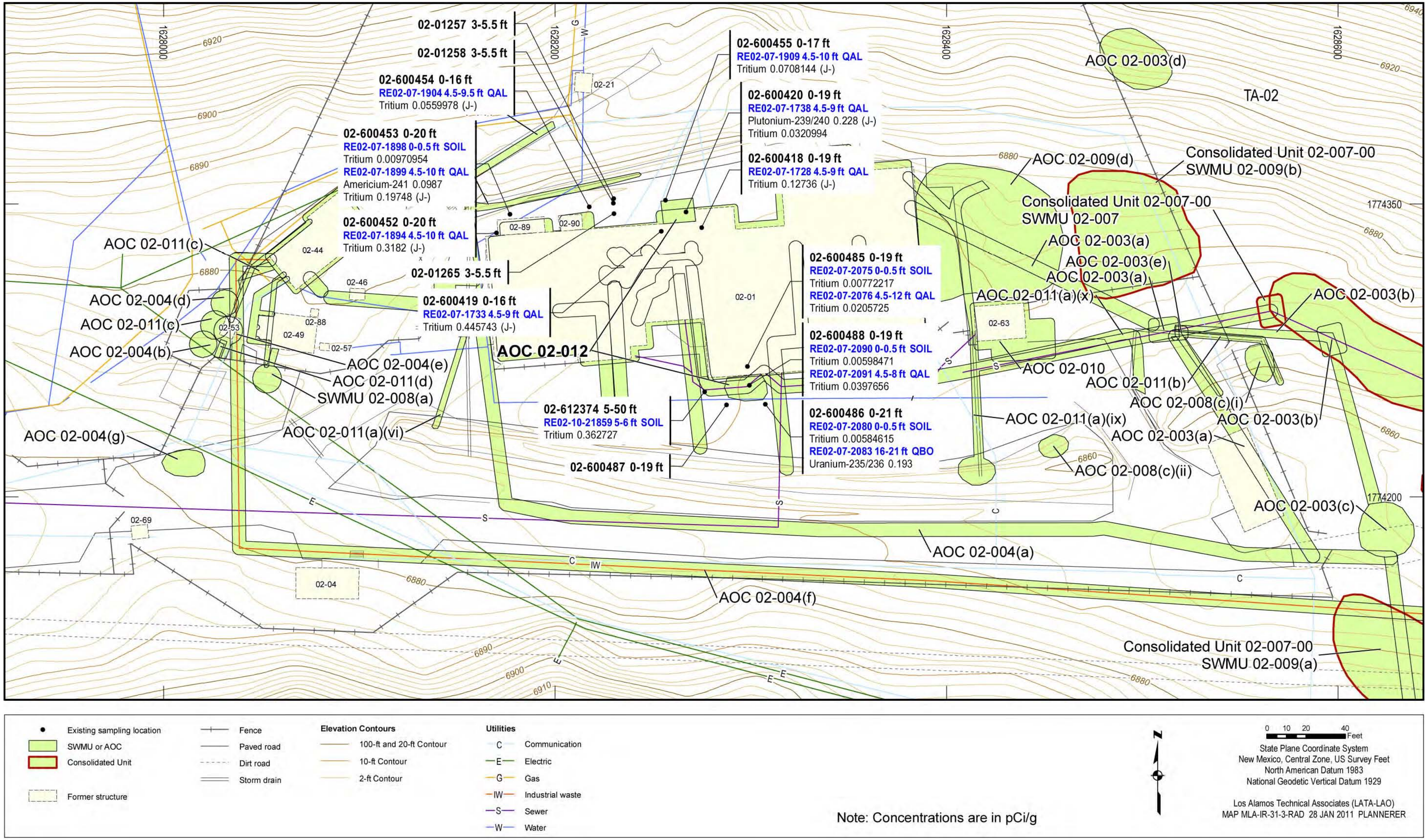

Figure 6.31-2 Radionuclides detected or detected above BVs/FVs at AOC 02-012

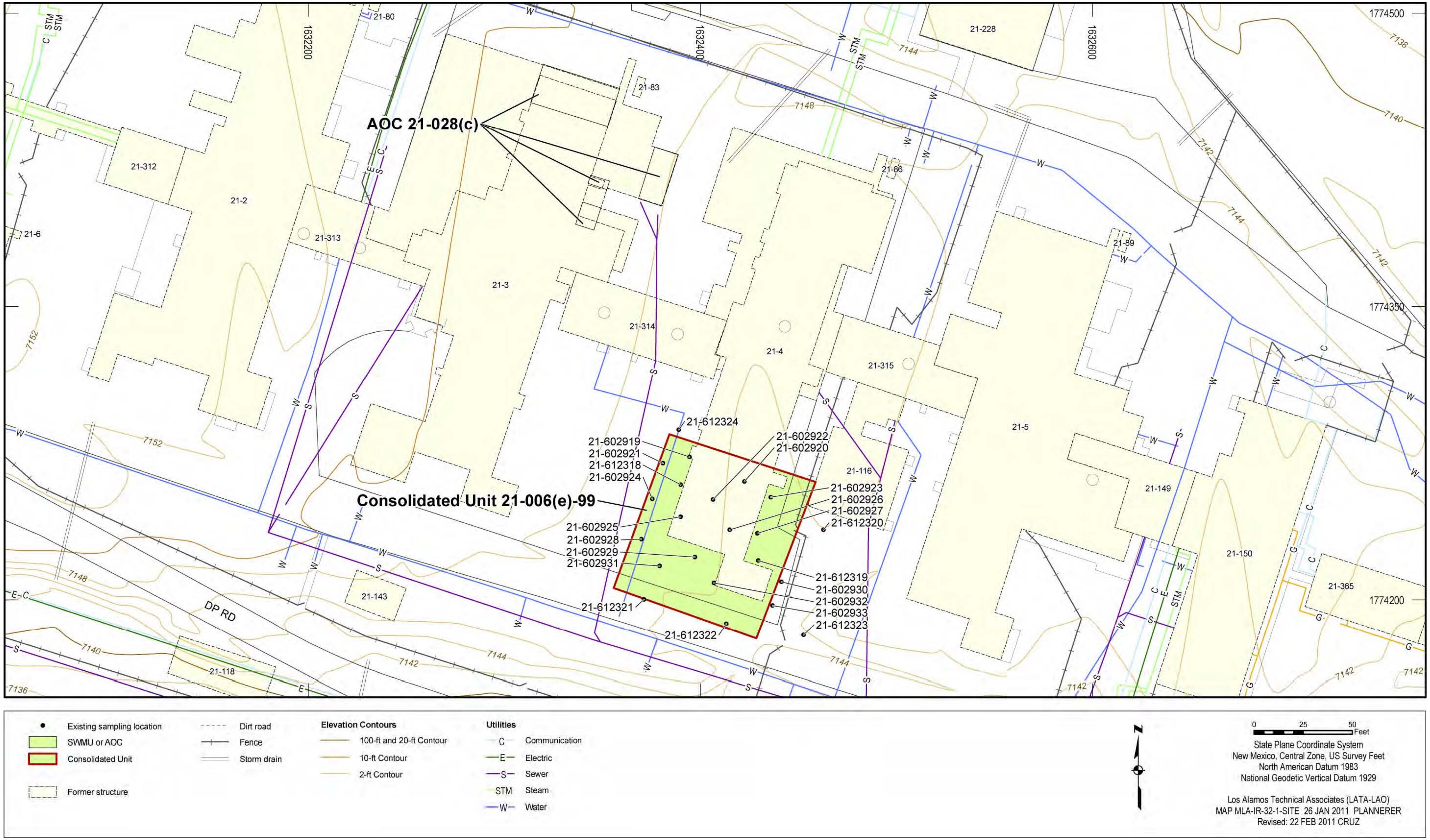

Figure 7.2-1 Site map of Consolidated Unit 21-006(e)-99 [SWMU 21-006(e) and AOC 21-006(f)]

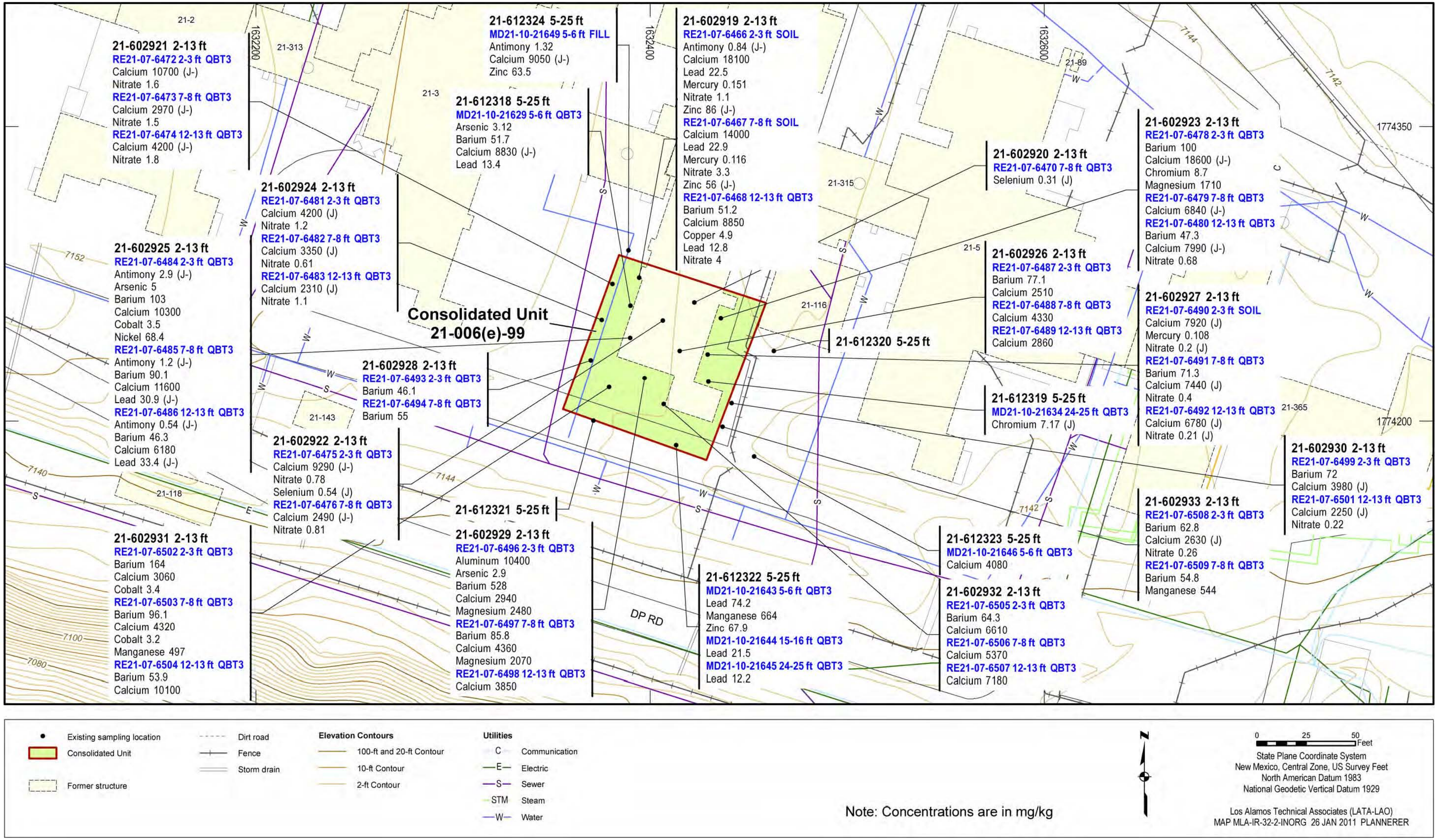

Figure 7.2-2 Inorganic chemicals detected or detected above BVs at Consolidated Unit 21-006(e)-99 [SWMU 21-006(e) and AOC 21-006(f)]

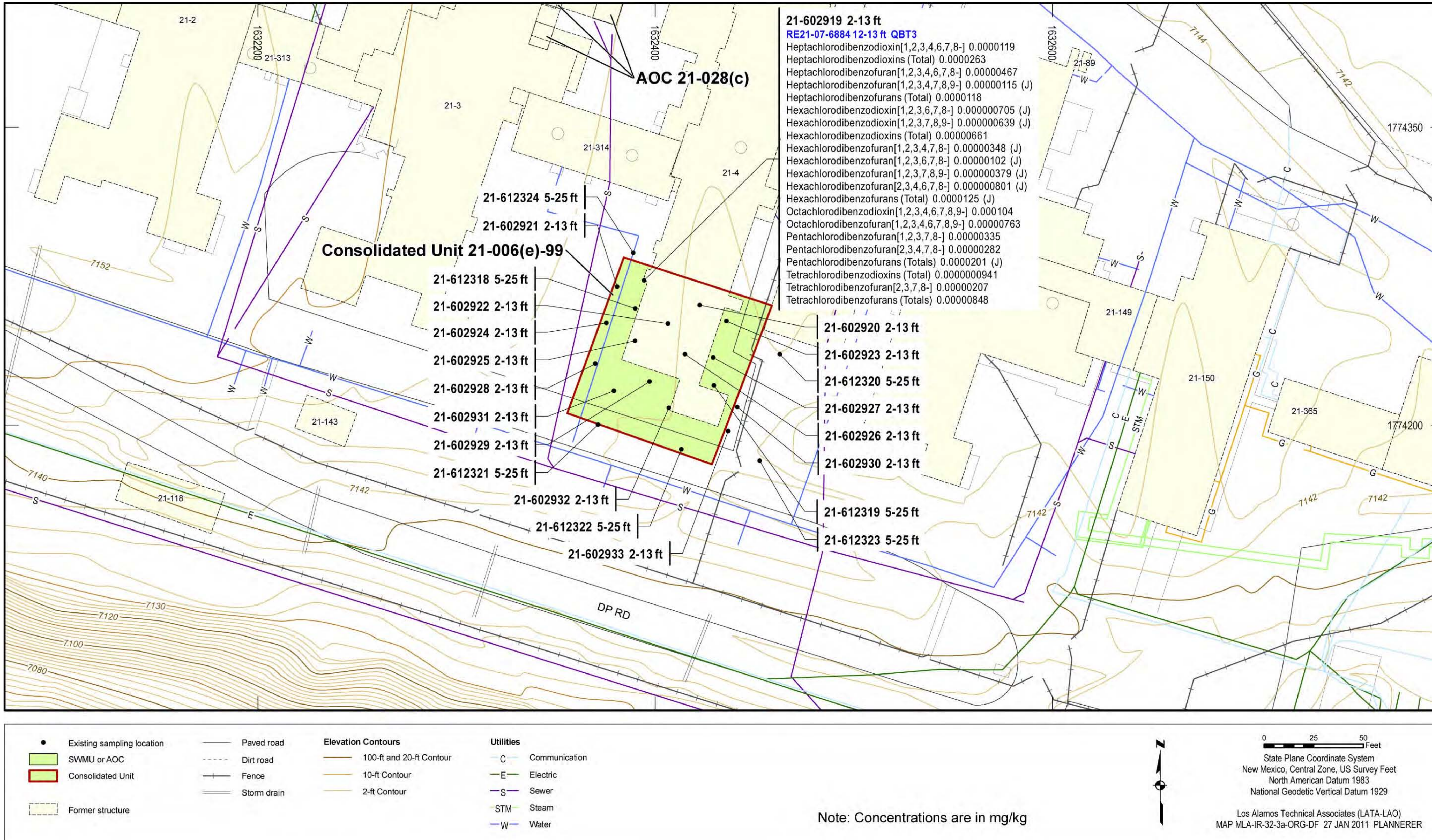

Figure 7.2-3 Dioxins and furans detected at Consolidated Unit 21-006(e)-99 [SWMU 21-006(e) and AOC 21-006(f)]

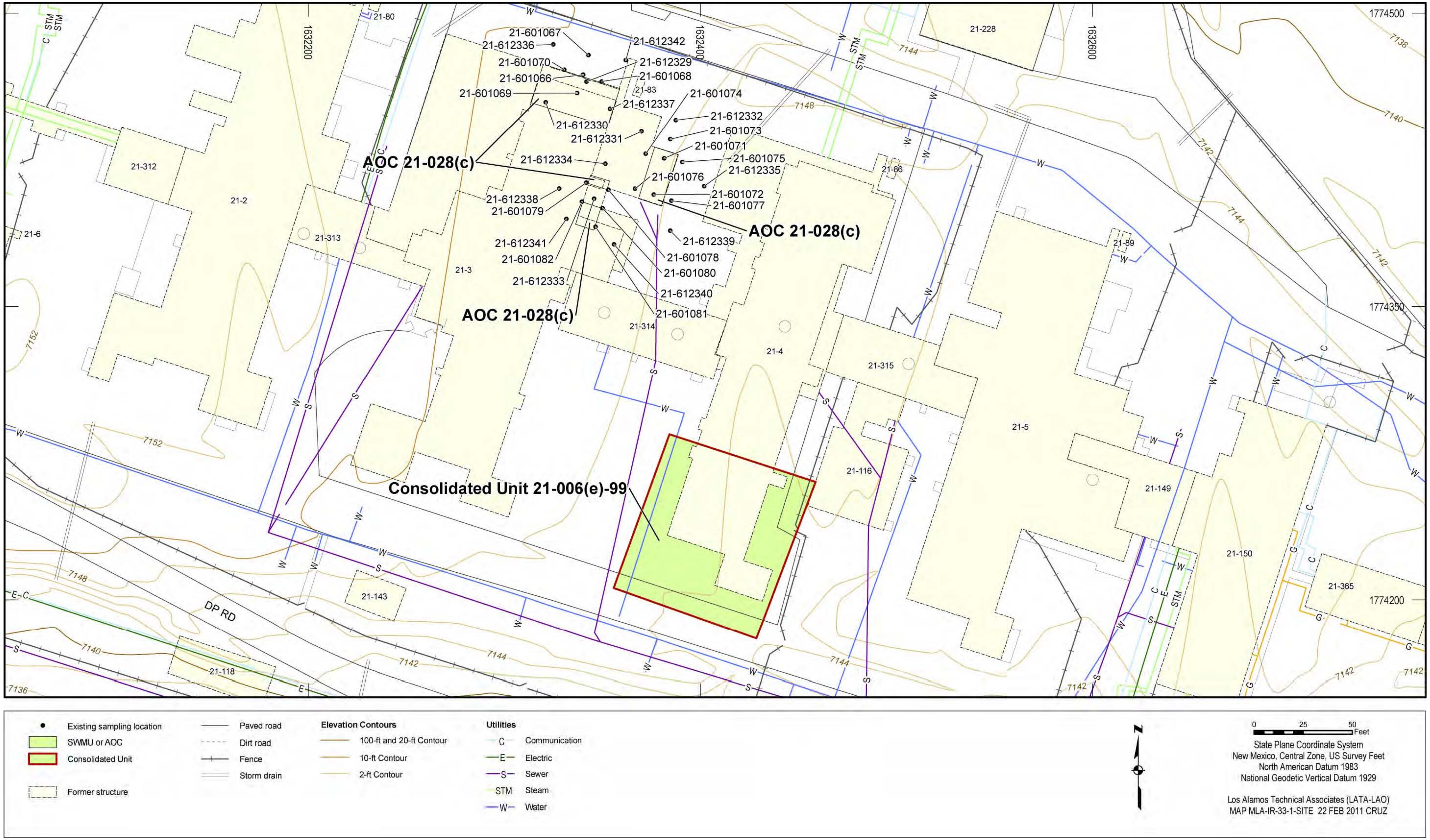

Figure 7.3-1 Site map of AOC 21-028(c)

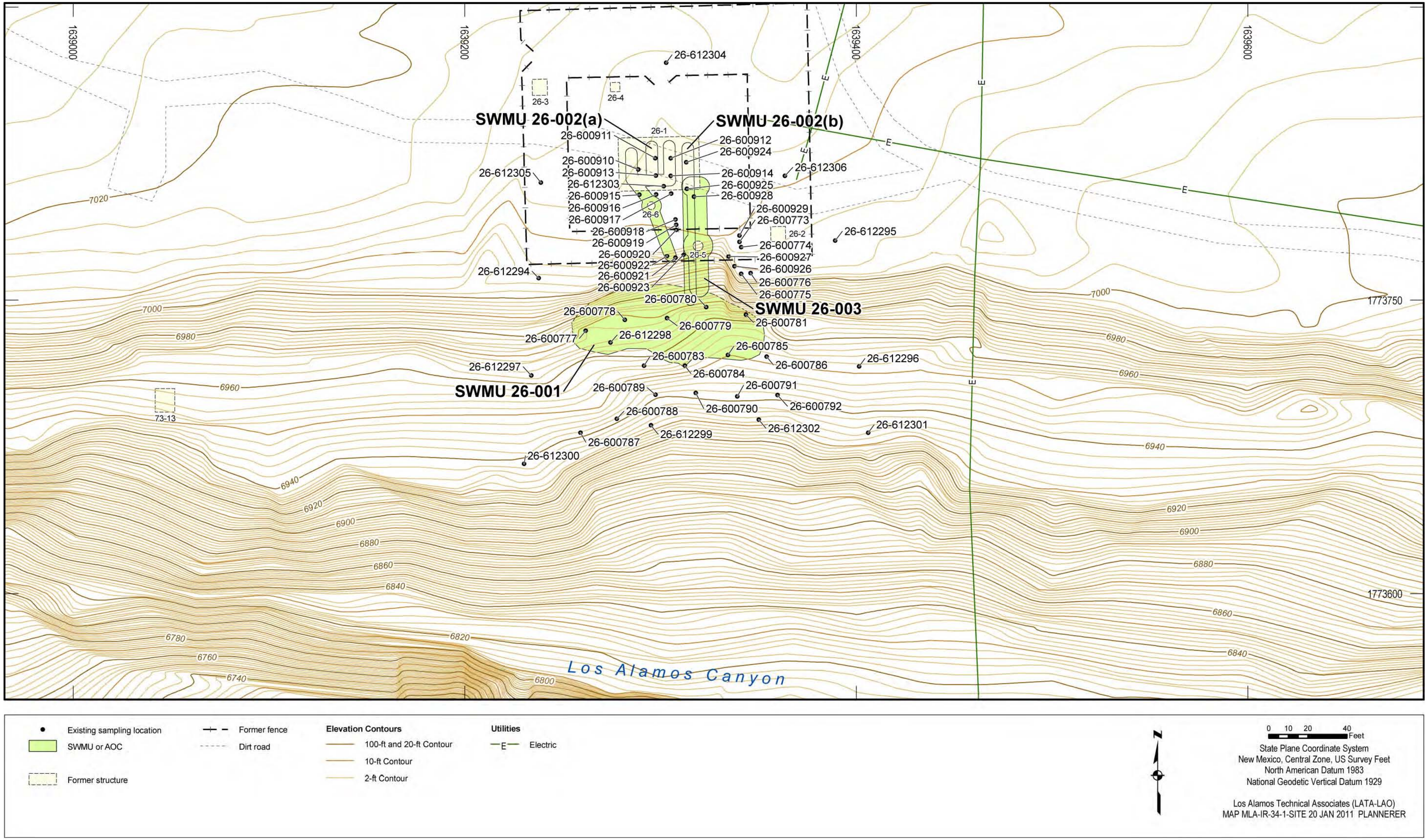

Figure 8.2-1 Site map of TA-26

Table 1.1-1
Sites under Phase II Investigation in Middle Los Alamos Canyon Aggregate Area

Consolidated Unit	SWMU/AOC	Site Description	Associated Structure or Facility	Previous Investigation	Phase II Investigation Activities
TA-02					
	AOC 02-003(a)	Soil contamination from stack-gas valve house and gaseous effluent line	WBR, stack-gas valve house 02-19	1985 WBR Decommissioning Project 1995 RFI 2000 Post-Cerro Grande Fire Recovery Work 2007 Sampling	Sampled
	AOC 02-003(b)	Soil contamination at condensate trap and line 119	WBR, condensate trap 02-48, line 119	1985 WBR Decommissioning Project 1995 RFI 2007 Sampling	Sampled
	AOC 02-003(c)	Soil contamination at gaseous effluent delay tanks	WBR	1985 WBR Decommissioning Project 1995 RFI 2000 Post-Cerro Grande Fire Recovery Work 2007 Sampling	Sampled
	AOC 02-003(d)	Soil contamination at site of upper part of line 119 and temporary vent line	WBR	1995 RFI 2000 Post-Cerro Grande Fire Recovery Work 2007 Sampling	Sampled
	AOC 02-003(e)	Soil contamination	WBR, holding tank 02-62	1985 WBR Decommissioning Project 2000 Post-Cerro Grande Fire Recovery Work 2007 Sampling	Sampled
	AOC 02-004(a)	Former reactor facility	OWR building 02-1	2000 Post-Cerro Grande Fire Recovery Work 2003 Omega West Decommissioning Project 2007 Sampling	Sampled; excavated PAH contamination
	AOC 02-004(b) AOC 02-004(c) AOC 02-004(d)	Former storage tanks for effluent from OWR and equipment building	OWR 02-1, equipment building 02-44	1995 RFI 2000 Post-Cerro Grande Fire Recovery Work 2003 Omega West Decommissioning Project 2007 Sampling	Sampled

Table 1.1-1 (continued)

Consolidated Unit	SWMU/AOC	Site Description	Associated Structure or Facility	Previous Investigation	Phase II Investigation Activities
	AOC 02-004(e)	Former acid pit/ transfer sump	OWR building 02-1	1995 RFI 2000 Post-Cerro Grande Fire Recovery Work 2003 Omega West Decommissioning Project 2007 Sampling	Sampled
	AOC 02-004(f)	Former equipment building and acid waste line to TA-50	Equipment building 02-44	2003 Omega West Decommissioning Project 2007 Sampling	Sampled; excavated PCB contamination
	AOC 02-004(g)	Soil contamination	Portable aboveground tank	2003 Omega West Decommissioning Project 2007 Sampling	Sampled
	SWMU 02-005	Soil contamination	Cooling tower 02-49	1995 RFI 2007 Sampling	Sampled
	SWMU 02-006(a)	Former French drain	WBR	2003 Omega West Decommissioning Project 2007 Sampling	Sampled
	SWMU 02-006(b)	Former acid waste line, laboratory effluent	OWR building 02-1	1995 RFI 2000 Post-Cerro Grande Fire Recovery Work 2003 Omega West Decommissioning Project 2007 Sampling	Sampled
	AOC 02-006(c)	Former drainline from offices, restrooms, control room	OWR building 02-1	2003 Omega West Decommissioning Project 2007 Sampling	Sampled
	AOC 02-006(d)	Duplicate of AOC 02-006(c)	OWR building 02-1	Same as AOC 02-006(c) (LANL 2006, 092571.12, p. 11)	Same as AOC 02-006(c)
	AOC 02-006(e)	Former sump for reactor room floor drains and mezzanine	OWR building 02-1	1995 RFI 2000 Post-Cerro Grande Fire Recovery Work 2003 Omega West Decommissioning Project 2007 Sampling	Sampled
02-007-00	SWMU 02-007	Septic system for floor drains in OWR building and chemical shack	OWR building 02-1	1985 WBR Decommissioning Project 2007 Sampling	Sampled

Table 1.1-1 (continued)

Consolidated Unit	SWMU/AOC	Site Description	Associated Structure or Facility	Previous Investigation	Phase II Investigation Activities
	SWMU 02-009(a)	Soil contamination	Storage building 02-50	1985 WBR Decommissioning Project 1995 RFI 2000 Post-Cerro Grande Fire Recovery Work 2007 Sampling	Sampled
	SWMU 02-009(b)	Soil contamination	Stack-gas valve house 02-19		Sampled
	SWMU 02-009(c)	Soil contamination	Leach field, Condensate trap 02-48		Sampled
	SWMU 02-008(a)	Outfall	Cooling tower 02-49	2000 Post-Cerro Grande Fire Recovery Work 2003 Omega West Decommissioning Project 2007 Sampling	Sampled under AOCs 02-004(b,c,d)
	AOC 02-008(c)	Outfall for seepage into basement of OWR building	OWR building 02-1	1995 RFI 2000 Post-Cerro Grande Fire Recovery Work 2003 Omega West Decommissioning Project 2007 Sampling	Sampled
	AOC 02-009(d)	Soil contamination	OWR building 02-1	1995 RFI 2000 Post-Cerro Grande Fire Recovery Work 2007 Sampling	Sampled
	AOC 02-009(e)	Duplicate of SWMU 02-009(c)	Leach field, condensate trap 02-48	Same as SWMU 02-009(c), part of Consolidated Unit 02-007-00 (LANL 2006, 092571.12, p. 14)	Same as SWMU 02-009(c), part of Consolidated Unit 02-007-00
	AOC 02-010	Soil contamination	Chemical shack 02-3, underground chamber 02-32	2000 Post-Cerro Grande Fire Recovery Work 2003 Omega West Decommissioning Project 2007 Sampling	Sampled; excavated cesium-137 contamination
	AOC 02-011(a)	Storm drains, outfalls	OWR building 02-1, equipment building 02-44, chemical shack 02-3	1995 RFI 2000 Post-Cerro Grande Fire Recovery Work 2003 Omega West Decommissioning Project 2007 Sampling	Sampled; excavated PAH and PCB contaminations
	AOC 02-011(b)	Former drainlines from stack-gas valve house	WBR, stack-gas valve house 02-19	1995 RFI 2000 Post-Cerro Grande Fire Recovery Work 2007 Sampling	Sampled
	AOC 02-011(c)	Storm drain	Equipment building 02-44	2003 Omega West Decommissioning Project 2007 Sampling	Sampled

Table 1.1-1 (continued)

Consolidated Unit	SWMU/AOC	Site Description	Associated Structure or Facility	Previous Investigation	Phase II Investigation Activities
	AOC 02-011(d)	Outfall from equipment building	Equipment building 02-44	1995 RFI 2000 Post-Cerro Grande Fire Recovery Work 2003 Omega West Decommissioning Project 2007 Sampling	Sampled
	AOC 02-011(e)	Duplicate of SWMU 02-008(a)	Cooling tower 02-49	Same as SWMU 02-008(a) (LANL 2006, 092571.12, p. 16)	Same as SWMU 02-008(a)
	AOC 02-012	Soil contamination	UST 02-29 and 02-67, OWR building 02-1	1998 UST Removal 2000 Post-Cerro Grande Fire Recovery Work 2007 Sampling	Sampled
TA-21					
21-006(e)-99	SWMU 21-006(e)	Seepage pit	Building 21-4	1995 Buildings 21-3 & -4 RFI Phase I Project 2007 Sampling	Sampled
	AOC 21-006(f)	Seepage pit	Building 21-4		
	AOC 21-028(c)	Storage areas	Building 21-3	1996 Buildings 21-3 & -4 RFI Phase I Project 2007 Sampling	Sampled
TA-26					
	SWMU 26-001	Surface disposal site	East Gate vault 26-1	1965 Radiological Survey 1985 Phoswich Radioactivity Survey 1986 Comprehensive Environmental Assessment and Response Program Field survey 2007 Sampling	Sampled
	SWMU 26-002(a)	Soil contamination	Sump 26-6		
	SWMU 26-002(b)	Drainline	East Gate vault 26-1		
	SWMU 26-003	Septic tank	Septic tank 26-5		

Note: Shading denotes consolidated unit.

Table 3.2-1
Crosswalk of Proposed and Sampled Locations (Phase II) with Surveyed Coordinates

Consolidated Unit/SWMU/AOC	Objective Addressed	Proposed #	Location ID	Easting (ft)	Northing (ft)
TA-02					
AOC 02-003(a)	Vertical extent for AOCs 02-003(a), 02-009(d), and 02-011(a)(x)	27	02-612348	1628399.576	1774342.889
AOC 02-003(a)	Vertical extent for AOCs 02-003(a,e) and 02-011(b)	31	02-612389	1628514.925	1774285.392
AOC 02-003(b)	Vertical extent for AOCs 02-003(b), 02-008(c)(i) and 02-011(b) and SWMU 02-007	32	02-612390	1628565.678	1774279.358
AOC 02-003(c)	Vertical extent for AOCs 02-003(b,c) and south part of SWMU 02-009(c)	36	02-612420	1628639.951	1774195.027
AOC 02-003(d)	Lateral extent near previous location 02-600218	46	02-612412	1628533.864	1774420.456
AOC 02-003(e)	Vertical extent for AOCs 02-003(a,e) and 02-011(b)	31	02-612389	1628514.925	1774285.392
AOC 02-004(a)	Vertical extent of PAHs	1	02-600580	1628163.36	1774276.324
AOC 02-004(a)	Vertical extent for AOC 02-004(a)	25	02-612325	1628349.71	1774352.826
AOC 02-004(a)	Vertical extent for AOC 02-004(a)	26	02-612326	1628336.046	1774284.682
AOC 02-004(a)	Vertical extent for AOC 02-004(a)	24	02-612327	1628260.981	1774313.963
AOC 02-004(a)	Vertical extent for AOC 02-004(a)	23	02-612328	1628192.127	1774310.059
AOC 02-004(a)	Vertical extent for AOCs 02-011(a)(iv) and 02-004(a,f)	19	02-612346	1628157.374	1774291.844
AOC 02-004(a)	Lateral extent from location 1	1 Step-out	02-612350	1628159.36	1774276.324
AOC 02-004(a)	Lateral extent from location 1	1 Step-out	02-612351	1628167.36	1774276.324
AOC 02-004(a)	Lateral extent from location 1	1 Step-out	02-612352	1628163.36	1774280.324
AOC 02-004(a)	Lateral extent from location 1	1 Step-out	02-612353	1628163.36	1774272.324
AOCs 02-004(b,c,d)	Vertical extent for AOCs 02-004(b–e) and 02-011(d)	16	02-612280	1628033.301	1774283.617
AOC 02-004(f)	Vertical extent of PCBs	3	02-600470	1628074.235	1774340.811
AOC 02-004(f)	Vertical extent of PCBs	5	02-600567	1628038.445	1774261.469
AOC 02-004(f)	Vertical extent for AOCs 02-011(a)(iv) and 02-004(a,f)	19	02-612346	1628157.374	1774291.844
AOC 02-004(f)	Vertical extent for AOCs 02-004(f) and 02-011(c)	15	02-612347	1628046.433	1774319.109
AOC 02-004(f)	Lateral extent from location 3	3 Step-out	02-612354	1628074.235	1774344.811
AOC 02-004(f)	Lateral extent from location 3	3 Step-out	02-612355	1628070.235	1774340.811
AOC 02-004(f)	Lateral extent from location 3	3 Step-out	02-612357	1628078.235	1774340.811

Table 3.2-1 (continued)

Consolidated Unit/SWMU/AOC	Objective Addressed	Proposed #	Location ID	Easting (ft)	Northing (ft)
AOC 02-004(f)	Lateral extent from location 3	3 Step-out	02-612358	1628074.235	1774336.881
AOC 02-004(f)	Lateral extent from location 4	4 Step-out	02-612359	1628094.25	1774320.982
AOC 02-004(f)	Vertical extent of PCBs	4	02-612360	1628090.25	1774319.982
AOC 02-004(f)	Lateral extent from location 4	4 Step-out	02-612361	1628086.25	1774320.982
AOC 02-004(f)	Lateral extent from location 4	4 Step-out	02-612362	1628090.25	1774324.982
AOC 02-004(f)	Lateral extent from location 4	4 Step-out	02-612363	1628090.25	1774316.982
AOC 02-004(f)	Lateral extent from location 2	2 Step-out	02-612364	1628055.473	1774324.982
AOC 02-004(f)	Vertical extent of PCBs	2	02-612365	1628055.473	1774321.982
AOC 02-004(f)	Lateral extent from location 2	2 Step-out	02-612366	1628055.473	1774316.982
AOC 02-004(f)	Lateral extent from location 2	2 Step-out	02-612367	1628051.473	1774320.982
AOC 02-004(f)	Lateral extent from location 2	2 Step-out	02-612368	1628059.473	1774320.982
AOC 02-004(f)	Lateral extent from location 5	5 Step-out	02-613005	1628038.445	1774257.47
AOC 02-004(f)	Lateral extent from location 5	5 Step-out	02-613623	1628030.346	1774261.541
AOC 02-004(f)	Lateral extent from location 5	5 Step-out	02-613624	1628038.461	1774269.547
AOC 02-004(f)	Lateral extent from location 5	5 Step-out	02-613625	1628046.495	1774261.46
AOC 02-004(g)	Vertical extent of contamination for AOC 02-004(g)	17	02-612293	1628023.718	1774217.07
SWMU 02-005	Vertical extent of PCBs	60	02-600561	1627623.186	1774489.018
SWMU 02-005	Lateral extent from location 60	60 Step-out	02-612376	1627631.727	1774489.885
SWMU 02-005	Lateral extent from location 60	60 Step-out	02-612377	1627627.378	1774494.103
SWMU 02-005	Lateral extent from location 60	60 Step-out	02-612378	1627623.16	1774489.885
SWMU 02-005	Lateral extent from location 60	60 Step-out	02-612379	1627627.508	1774485.601
SWMU 02-005	Lateral extent of radionuclides on slope NE of previous location 02-600548	64	02-612380	1628299.847	1774522.936
SWMU 02-005	Lateral extent of radionuclides on slope NE of previous location 02-600547	63	02-612381	1628064.659	1774529.592
SWMU 02-005	Lateral extent of radionuclides on slope NE of previous location 02-600549	65	02-612382	1628493.988	1774534.584
SWMU 02-005	Lateral extent of radionuclides on slope NE of previous location 02-600550	66	02-612383	1628735.832	1774512.951
SWMU 02-005	Lateral extent of radionuclides on slope SE of previous location 02-600551	67	02-612384	1628924.427	1774445.279

Table 3.2-1 (continued)

Consolidated Unit/SWMU/AOC	Objective Addressed	Proposed #	Location ID	Easting (ft)	Northing (ft)
SWMU 02-005	Lateral extent of radionuclides on slope NW of previous location 02-600562	62	02-612385	1627922.13	1774513.116
SWMU 02-005	Lateral extent of radionuclides on slope NW of previous location 02-600562	61	02-612386	1627755.273	1774508.328
SWMU 02-005	Lateral extent of contamination, vertical extent of PCBs and plutonium-239/240	40	02-612407	1627632.567	1774289.47
SWMU 02-005	Lateral extent from location 60	60 Step-out	02-613290	1627619.446	1774489.824
SWMU 02-005	Lateral extent from location 60	60 Step-out	02-613291	1627627.118	1774498.099
SWMU 02-005	Lateral extent from location 60	60 Step-out	02-613622	1627635.842	1774489.99
SWMU 02-006(a)	Lateral extent of metals and tritium, 80 ft W of location 1	6(6a)	02-612640	1628637.882	1773372.307
SWMU 02-006(a)	Lateral extent of metals and tritium, 60 ft NW of previous location 02-600255	7(6a)	02-612641	1628658.15	1773433.114
SWMU 02-006(a)	Lateral extent of metals and tritium, 40 ft N of location 4	9(6a)	02-612642	1628778.436	1773455.277
SWMU 02-006(a)	Lateral extent of metals and tritium, 40 ft NE of location 4	10(6a)	02-612643	1628814.349	1773431.44
SWMU 02-006(a)	Lateral extent of metals and tritium, 40 ft NE of previous location 02-600256	3(6a)	02-612644	1628776.973	1773415.82
SWMU 02-006(a)	Lateral extent of metals and tritium, 120 ft W of location 1	11(6a)	02-612645	1628842.056	1773374.353
SWMU 02-006(a)	Lateral extent of metals and tritium, 40 ft SE of previous location 02-600257	4(6a)	02-612646	1628793.151	1773333.63
SWMU 02-006(a)	Lateral extent of metals and tritium, 50 ft S of location 11	12(6a)	02-612647	1628836.292	1773320.613
SWMU 02-006(a)	Lateral extent of metals and tritium, 40 ft SE of location 2	13(6a)	02-612648	1628714.853	1773312.698
SWMU 02-006(a)	Lateral extent of metals and tritium, 70 ft N of location 1	8(6a)	02-612649	1628729.347	1773445.74
SWMU 02-006(a)	Lateral extent of metals and tritium, 60 ft SW of previous location 02-600258	5(6a)	02-612650	1628632.169	1773312.209
SWMU 02-006(a)	Vertical extent of tritium	1(6a)	02-612651	1628740.64	1773367.484
SWMU 02-006(a)	Vertical extent of Cyanide (Total), hexavalent chromium, and tritium	2(6a)	02-612652	1628702.407	1773338.464

Table 3.2-1 (continued)

Consolidated Unit/SWMU/AOC	Objective Addressed	Proposed #	Location ID	Easting (ft)	Northing (ft)
SWMU 02-006(b)	Vertical extent for AOCs 02-006(b) and 02-012	21	02-612374	1628276.42	1774253.804
AOC 02-006(c)	Vertical extent for AOCs 02-006(c) and 02-011(a)(ix)	22	02-612345	1628318.272	1774263.737
AOC 02-006(c)	Vertical extent for AOCs-02-006(c) and 02-010	28	02-612463	1628429.744	1774273.68
AOC 02-006(e)	Vertical extent for AOCs 02-006(e) and 02-011(a)(vii,viii)	20	02-612292	1628225.844	1774256.643
SWMU 02-007 of Consolidated Unit 02-007-00	Vertical extent for AOCs 02-003(b), 02-008(c)(i) and 02-011(b) and SWMU 02-007	32	02-612390	1628565.678	1774279.358
SWMU 02-009(a) of Consolidated Unit 02-007-00	Vertical extent for SWMU 02-009(a)	37	02-612421	1628649.001	1774121.092
SWMU 02-009(a) of Consolidated Unit 02-007-00	Vertical extent for SWMU 02-009(a)	38	02-612422	1628734.442	1774061.793
SWMU 02-009(b) of Consolidated Unit 02-007-00	Vertical extent for SWMU 02-009(b)	30	02-612388	1628498.68	1774331.531
SWMU 02-009(c) of Consolidated Unit 02-007-00	Vertical extent for SWMU 02-009(c)	33	02-612391	1628590.345	1774305.267
SWMU 02-009(c) of Consolidated Unit 02-007-00	Vertical extent for SWMU 02-009(c)	34	02-612392	1628656.005	1774259.128
SWMU 02-009(c) of Consolidated Unit 02-007-00	Vertical extent for SWMU 02-009(c)	35	02-612393	1628733.199	1774230.557
SWMU 02-009(c) of Consolidated Unit 02-007-00	Vertical extent for AOCs 02-003(b,c) and south part of SWMU 02-009(c)	36	02-612420	1628639.951	1774195.027
AOC 02-008(c)(i)	Vertical extent for AOCs 02-003(b), 02-008(c)(i) and 02-011(b) and SWMU 02-007	32	02-612390	1628565.678	1774279.358
AOC 02-008(c)(ii)	Vertical extent for AOCs 02-008(c)(ii) and 02-011(a)(x)	Was 29	02-612982	1628455.936	1774242.473
AOC 02-009(d)	Vertical extent for AOCs 02-003(a), 02-009(d), and 02-011(a)(x)	27	02-612348	1628399.576	1774342.889
AOC 02-010	Vertical extent of cesium-137	7	02-600640	1628508.411	1774243.406
AOC 02-010	Vertical extent of cesium-137	6	02-612423	1628449.396	1774298.251

Table 3.2-1 (continued)

Consolidated Unit/SWMU/AOC	Objective Addressed	Proposed #	Location ID	Easting (ft)	Northing (ft)
AOC 02-010	Lateral extent from location 6	6 Step-out	02-612424	1628449.396	1774295.251
AOC 02-010	Lateral extent from location 6	6 Step-out	02-612425	1628453.369	1774299.251
AOC 02-010	Lateral extent from location 6	6 Step-out	02-612426	1628449.396	1774303.251
AOC 02-010	Lateral extent from location 6	6 Step-out	02-612427	1628445.396	1774299.251
AOC 02-010	Lateral extent from location 7	7 Step-out	02-612429	1628508.412	1774247.406
AOC 02-010	Lateral extent from location 7	7 Step-out	02-612430	1628512.412	1774243.406
AOC 02-010	Lateral extent from location 7	7 Step-out	02-612431	1628504.412	1774243.406
AOC 02-010	Lateral extent from location 7	7 Step-out	02-612432	1628508.412	1774239.406
AOC 02-010	Vertical extent for AOCs 02-006(c) and 02-010	28	02-612463	1628429.744	1774273.68
AOC 02-010	Lateral extent from location 6	6 Step-out	02-613240	1628440.943	1774298.833
AOC 02-011(a)(i)	Vertical extent of PCBs	8	02-600385	1628163.211	1774360.936
AOC 02-011(a)(i)	Vertical extent of PCBs	9	02-600386	1628179.751	1774374.776
AOC 02-011(a)(i)	Lateral extent from location 9	9 Step-out	02-612444	1628179.751	1774370.776
AOC 02-011(a)(i)	Lateral extent from location 8	8 Step-out	02-612445	1628167.211	1774360.936
AOC 02-011(a)(i)	Lateral extent from location 8	8 Step-out	02-612446	1628163.211	1774356.936
AOC 02-011(a)(i)	Lateral extent from location 9	9 Step-out	02-612447	1628183.751	1774374.776
AOC 02-011(a)(i)	Lateral extent from location 8	8 Step-out	02-612448	1628159.211	1774360.936
AOC 02-011(a)(i)	Lateral extent from location 8	8 Step-out	02-613289	1628162.844	1774373.205
AOC 02-011(a)(i)	Lateral extent from location 9	9 Step-out	02-613292	1628179.766	1774384.078
AOC 02-011(a)(i)	Vertical extent for AOCs 02-011(a)(i,ii,iii,v)	18	02-613571	1628163.911	1774353.714
AOC 02-011(a)(ii)	Vertical extent of PCBs	11	02-600449	1628151.784	1774356.131
AOC 02-011(a)(ii)	Lateral extent from location 11	11 Step-out	02-612451	1628151.784	1774360.131
AOC 02-011(a)(ii)	Lateral extent from location 11	11 Step-out	02-612452	1628151.784	1774352.131
AOC 02-011(a)(ii)	Lateral extent from location 11	11 Step-out	02-612453	1628147.784	1774356.131
AOC 02-011(a)(ii)	Lateral extent from location 11	11 Step-out	02-613001	1628151.784	1774348.131
AOC 02-011(a)(ii)	Lateral extent from location 11	11 Step-out	02-613002	1628151.784	1774364.131
AOC 02-011(a)(ii)	Lateral extent from location 11	11 Step-out	02-613122	1628147.784	1774348.131
AOC 02-011(a)(ii)	Lateral extent from location 11	11 Step-out	02-613124	1628147.784	1774352.131
AOC 02-011(a)(ii)	Lateral extent from location 11	11 Step-out	02-613287	1628143.823	1774352.113
AOC 02-011(a)(ii)	Lateral extent from location 11	11 Step-out	02-613288	1628144.477	1774365.629

Table 3.2-1 (continued)

Consolidated Unit/SWMU/AOC	Objective Addressed	Proposed #	Location ID	Easting (ft)	Northing (ft)
AOC 02-011(a)(ii)	Vertical extent for AOCs 02-011(a)(i,ii,iii,v)	18	02-613571	1628163.911	1774353.714
AOC 02-011(a)(ii)	Lateral extent from location 11	11 Step-out	02-613626	1628139.681	1774352.222
AOC 02-011(a)(ii)	Lateral extent from location 11	11 Step-out	02-613627	1628139.245	1774371.952
AOC 02-011(a)(ii)	Lateral extent from location 11	11 Step-out	02-613667	1628133.555	1774377.775
AOC 02-011(a)(ii)	Lateral extent from location 11	11 Step-out	02-613668	1628135.577	1774352.376
AOC 02-011(a)(ii)	Lateral extent from location 11	11 Step-out	02-613699	1628127.915	1774383.699
AOC 02-011(a)(ii)	Lateral extent from location 11	11 Step-out	02-613700	1628131.604	1774352.376
AOC 02-011(a)(ii)	Lateral extent from location 11	11 Step-out	02-613761	1628116.067	1774386.04
AOC 02-011(a)(ii)	Lateral extent from location 11	11 Step-out	02-613762	1628115.854	1774395.866
AOC 02-011(a)(iii)	Lateral extent from location 10	10 Step-out	02-612438	1628166.46	1774344.403
AOC 02-011(a)(iii)	Lateral extent from location 10	10 Step-out	02-612439	1628162.46	1774340.403
AOC 02-011(a)(iii)	Lateral extent from location 10	10 Step-out	02-612440	1628158.46	1774344.403
AOC 02-011(a)(iii)	Lateral extent from location 10	10 Step-out	02-613003	1628162.46	1774352.403
AOC 02-011(a)(iii)	Vertical extent for AOCs 02-011(a)(i,ii,iii,v)	18	02-613571	1628163.911	1774353.714
AOC 02-011(a)(iv)	Vertical extent for AOCs 02-011(a)(iv) and 02-004(a,f)	19	02-612346	1628157.374	1774291.844
AOC 02-011(a)(v)	Vertical extent of PCBs	12	02-600450	1628152.836	1774340.042
AOC 02-011(a)(v)	Lateral extent from location 12	12 Step-out	02-612434	1628152.836	1774336.042
AOC 02-011(a)(v)	Lateral extent from location 12	12 Step-out	02-612435	1628152.836	1774344.042
AOC 02-011(a)(v)	Lateral extent from location 12	12 Step-out	02-612436	1628148.836	1774340.042
AOC 02-011(a)(v)	Lateral extent from location 12	12 Step-out	02-612437	1628156.836	1774340.042
AOC 02-011(a)(v)	Lateral extent from location 12	12 Step-out	02-613118	1628144.836	1774340.042
AOC 02-011(a)(v)	Lateral extent from location 12	12 Step-out	02-613120	1628148.836	1774336.042

Table 3.2-1 (continued)

Consolidated Unit/SWMU/AOC	Objective Addressed	Proposed #	Location ID	Easting (ft)	Northing (ft)
AOC 02-011(a)(v)	Lateral extent from location 12	12 Step-out	02-613121	1628152.836	1774332.042
AOC 02-011(a)(v)	Vertical extent for AOCs 02-011(a)(i,ii,iii,v)	18	02-613571	1628163.911	1774353.714
AOC 02-011(a)(vi)	Vertical extent of PAHs	14	02-600532	1628136.121	1774248.262
AOC 02-011(a)(vi)	Lateral extent from location 14	14 Step-out	02-612465	1628132.121	1774248.262
AOC 02-011(a)(vi)	Lateral extent from location 14	14 Step-out	02-612466	1628140.121	1774248.262
AOC 02-011(a)(vi)	Lateral extent from location 14	14 Step-out	02-612467	1628136.121	1774244.262
AOC 02-011(a)(vi)	Lateral extent from location 14	14 Step-out	02-612468	1628136.121	1774252.262
AOC 02-011(a)(viii)	Vertical extent for AOCs 02-006(e) and 02-011(a)(vii,viii)	20	02-612292	1628225.844	1774256.643
AOC 02-011(a)(ix)	Vertical extent for AOCs 02-006(c) and 02-011(a)(ix)	22	02-612345	1628318.272	1774263.737
AOC 02-011(a)(x)	Vertical extent of PCBs	13	02-600664	1628382.63	1774364.255
AOC 02-011(a)(x)	Vertical extent for AOCs 02-003(a), 02-009(d), and 02-011(a)(x)	27	02-612348	1628399.576	1774342.889
AOC 02-011(a)(x)	Lateral extent from location 13	13 Step-out	02-612459	1628386.63	1774364.255
AOC 02-011(a)(x)	Lateral extent from location 13	13 Step-out	02-612460	1628382.63	1774368.255
AOC 02-011(a)(x)	Lateral extent from location 13	13 Step-out	02-612461	1628378.63	1774364.255
AOC 02-011(a)(x)	Lateral extent from location 13	13 Step-out	02-612462	1628382.63	1774360.255
AOC 02-011(a)(x)	Vertical extent for AOCs 02-008(c)(ii) and 02-011(a)(x)	29	02-612983	1628428.023	1774242.395
AOC 02-011(a)(x)	Lateral extent from location 13	13 Step-out	02-612999	1628382.63	1774372.255
AOC 02-011(a)(x)	Lateral extent from location 13	13 Step-out	02-613000	1628382.63	1774356.255
AOC 02-011(b)	Vertical extent for AOCs 02-003(a,e) and 02-011(b)	31	02-612389	1628514.925	1774285.392
AOC 02-011(b)	Vertical extent for AOCs 02-003(b), 02-008(c)(i) and 02-011(b) and SWMU 02-007	32	02-612390	1628565.678	1774279.358
AOC 02-011(c)	Vertical extent for AOCs 02-004(f) and 02-011(c)	15	02-612347	1628046.433	1774319.109
AOC 02-011(d)	Vertical extent for AOCs 02-004(b–e) and 02-011(d)	16	02-612280	1628033.301	1774283.617

Table 3.2-1 (continued)

Consolidated Unit/SWMU/AOC	Objective Addressed	Proposed #	Location ID	Easting (ft)	Northing (ft)
AOC 02-012	Vertical extent for AOCs 02-006(b) and 02-012	21	02-612374	1628276.42	1774253.804
Lateral extent for TA-02 core area	Lateral extent 150 ft west of location 57	58	02-612394	1628133.321	1774105.489
Lateral extent for TA-02 core area	Lateral extent 150 ft west of location 56	57	02-612395	1628273.196	1774105.318
Lateral extent for TA-02 core area	Lateral extent 150 ft west of location 55	56	02-612396	1628384.699	1774081.861
Lateral extent for TA-02 core area	Lateral extent south of AOC 02-004(g)	59	02-612397	1628005.652	1774143.106
Lateral extent for TA-02 core area	Lateral extent 100 ft northwest of location 54	55	02-612398	1628539.618	1774075.142
Lateral extent for TA-02 core area	Lateral extent south of SWMU 02-009(a)	54	02-612399	1628631.135	1774033.959
Lateral extent for TA-02 core area	Lateral extent south of SWMU 02-009(a)	53	02-612400	1628747.991	1774024.211
Lateral extent for TA-02 core area	Lateral extent east of SWMU 02-009(a)	52	02-612401	1628866.558	1774049.148
Lateral extent for TA-02 core area	Lateral extent east of TA-02 main structures	51	02-612402	1629097.729	1774095.496
Lateral extent for TA-02 core area	Lateral extent southeast of location 49	50	02-612403	1628971.418	1774127.82
Lateral extent for TA-02 core area	Lateral extent east of SWMU 02-009(c)	49	02-612404	1628876.587	1774212.094
Lateral extent for TA-02 core area	Lateral extent north of SWMU 02-009(c)	48	02-612405	1628742.709	1774293.699
Lateral extent for TA-02 core area	Lateral extent west from TA-02 main structures, near TA-41	39	02-612406	1627442.507	1774296.607
Lateral extent for TA-02 core area	Lateral extent near previous location 02-600559 at SWMU 02-005	40	02-612407	1627632.567	1774289.47
Lateral extent for TA-02 core area	Lateral extent north of former OWR equipment building	42	02-612408	1628071.816	1774402.142
Lateral extent for TA-02 core area	Lateral extent north of NW corner of OWR building 02-1	43	02-612409	1628178.172	1774415.253
Lateral extent for TA-02 core area	Lateral extent north of central part of OWR building 02-1	44	02-612410	1628299.559	1774424.502
Lateral extent for TA-02 core area	Lateral extent north of AOC 02-009(d)	45	02-612411	1628406.148	1774428.755
Lateral extent for TA-02 core area	Lateral extent near previous location 02-600218	46	02-612412	1628533.864	1774420.456
Lateral extent for TA-02 core area	Lateral extent north of SWMU 02-009(c)	47	02-612413	1628632.616	1774371.25

Table 3.2-1 (continued)

Consolidated Unit/SWMU/AOC	Objective Addressed	Proposed #	Location ID	Easting (ft)	Northing (ft)
Lateral extent for TA-02 core area	Lateral extent between previous location 02-600560 and west end of TA-02 main structures	41	02-612414	1627914.338	1774288.857
Lateral extent for TA-02 core area	Lateral extent 140 ft west of AOC 02-004(g)	68	02-612415	1627865.82	1774209.934
Lateral extent for TA-02 core area	Lateral extent between locations 40 and 68	69	02-612416	1627751.339	1774238.029
Lateral extent for TA-02 core area	Lateral extent between locations 41 and 42	70	02-612417	1627978.2	1774362.75
TA-21					
Consolidated Unit 21-006(e)-99	Vertical extent in NW area of previous sample locations	1	21-612318	1632390.006	1774258.732
Consolidated Unit 21-006(e)-99	Vertical extent in SW area of previous sample locations	2	21-612319	1632429.486	1774220.065
Consolidated Unit 21-006(e)-99	Vertical and lateral extent 40 ft E of previous locations 21-602923 and 21-602927	3	21-612320	1632462.726	1774235.733
Consolidated Unit 21-006(e)-99	Vertical and lateral extent 25 ft SW of previous location 21-602931	4	21-612321	1632371.169	1774200.25
Consolidated Unit 21-006(e)-99	Vertical and lateral extent 25 ft S of previous location 21-602932	5	21-612322	1632413.224	1774187.765
Consolidated Unit 21-006(e)-99	Vertical and lateral extent 25 ft SE of previous location 21-602933	6	21-612323	1632452.687	1774182.033
Consolidated Unit 21-006(e)-99	Vertical and lateral extent 15 ft N of previous location 21-602919	7	21-612324	1632388.956	1774286.86
AOC 21-028(c)	Vertical extent of contamination	1	21-612329	1632341.88	1774464.983
AOC 21-028(c)	Vertical and lateral extent 25 ft SW of location 1	4	21-612330	1632321.028	1774454.454
AOC 21-028(c)	Vertical and lateral extent 5 ft S of previous location 21-601120	14	21-612331	1632369.958	1774439.459
AOC 21-028(c)	Vertical and lateral extent 10 ft N of previous location 21-601073	6	21-612332	1632387.401	1774445.35
AOC 21-028(c)	Vertical extent in center of previous sampling locations	10	21-612333	1632345.698	1774404.969
AOC 21-028(c)	Vertical and lateral extent 15 ft W of previous locations 21-601074 and 21-601076	7	21-612334	1632351.574	1774422.863

Table 3.2-1 (continued)

Consolidated Unit/SWMU/AOC	Objective Addressed	Proposed #	Location ID	Easting (ft)	Northing (ft)
AOC 21-028(c)	Vertical and lateral extent 15 ft E of previous locations 21-601075 and 21-601077	9	21-612335	1632401.938	1774411.43
AOC 21-028(c)	Vertical and lateral extent 25 ft NW of location 1	2	21-612336	1632322.282	1774478.255
AOC 21-028(c)	Vertical and lateral extent 25 ft SE of location 1	5	21-612337	1632350.136	1774453.063
AOC 21-028(c)	Vertical and lateral extent 15 ft W of previous locations 21-601079 and 21-601082	11	21-612338	1632327.93	1774410.255
AOC 21-028(c)	Vertical and lateral extent 20 ft SE of previous location 21-601072	8	21-612339	1632384.611	1774388.669
AOC 21-028(c)	Vertical and lateral extent 15 ft SE of previous location 21-601081	13	21-612340	1632355.977	1774381.621
AOC 21-028(c)	Vertical and lateral extent 20 ft SW of location 10	12	21-612341	1632331.601	1774394.69
AOC 21-028(c)	Vertical and lateral extent 25 ft NE of location 1	3	21-612342	1632363.85	1774464.882
TA-26					
TA-26	Vertical and lateral extent on slope, 70 ft W of previous location 26-600922	5	26-612294	1639237.844	1773761.16
TA-26	Vertical and lateral extent on slope, 40 ft E of previous location 26-600776	6	26-612295	1639389.192	1773780.609
TA-26	Vertical and lateral extent on slope, 50 ft E of previous location 26-600786	8	26-612296	1639401.45	1773716.057
TA-26	Vertical and lateral extent on slope, 60 ft W of previous location 26-600783	7	26-612297	1639234.014	1773711.376
TA-26	Vertical and lateral extent on slope, 15 SE of location 26-600777 and 15 ft SW of location 26-600778	11	26-612298	1639274.451	1773728.293
TA-26	Vertical and lateral extent on slope, 15 ft S of previous location 26-600789	12	26-612299	1639295.108	1773685.926
TA-26	Vertical and lateral extent on slope, 40 ft downgradient of location 7 and 35 ft SW of previous location 26-600787	9	26-612300	1639230.397	1773666.273

Table 3.2-1 (continued)

Consolidated Unit/SWMU/AOC	Objective Addressed	Proposed #	Location ID	Easting (ft)	Northing (ft)
TA-26	Vertical and lateral extent on slope, 30 ft downgradient of location 8 and 50 ft SW of previous location 26-600792	10	26-612301	1639406.13	1773682.229
TA-26	Vertical and lateral extent on slope, 15 ft SE of previous location 26-600791	13	26-612302	1639350.199	1773688.868
TA-26	Vertical extent in center of previous sampling locations	1	26-612303	1639301.669	1773808.391
TA-26	Vertical and lateral extent of metals on mesa top, 60 ft N of location 1	2	26-612304	1639302.946	1773871.578
TA-26	Vertical and lateral extent of metals on mesa top, 60 ft W of location 1	3	26-612305	1639238.907	1773810.306
TA-26	Vertical and lateral extent of metals on mesa top, 60 ft E of location 1	4	26-612306	1639363.58	1773813.71

Table 3.2-2
Field-Screening Results for Phase II Samples Collected at Middle Los Alamos Canyon Aggregate

Consolidated Unit/SWMU/AOC	Location ID	Depth (ft)	Sample ID	PID, ambient (ppm)	PID, head space (ppm)	Alpha (dpm)	Beta/ Gamma (dpm)
TA-02							
AOC 02-003(a)	02-612348	5–7	RE02-10-21768	0.0	0.0	25	605
AOC 02-003(a)	02-612348	15–16	RE02-10-21769	0.0	0.0	0	598
AOC 02-003(a)	02-612348	25–26	RE02-10-21770	0.0	0.0	15	701
AOC 02-003(a)	02-612348	35–36	RE02-10-21771	0.0	0.0	0	886
AOC 02-003(a)	02-612348	49–50	RE02-10-21772	0.0	0.0	9	1000
AOC 02-003(a)	02-612389	5–6	RE02-10-21904	0.0	0.0	20	4800
AOC 02-003(a)	02-612389	18–19	RE02-10-21905	0.0	0.0	11	1214
AOC 02-003(a)	02-612389	25–27	RE02-10-21906	0.0	0.0	8	1628
AOC 02-003(a)	02-612389	35–36	RE02-10-21907	0.0	0.0	30	1835
AOC 02-003(a)	02-612389	49–50	RE02-10-21908	0.0	0.0	25	1391
AOC 02-003(b)	02-612390	5–6	RE02-10-21911	0.0	0.0	26	1765
AOC 02-003(b)	02-612390	15–17	RE02-10-21912	0.0	0.0	26	1543
AOC 02-003(b)	02-612390	26–27	RE02-10-21913	0.0	0.0	53	1225
AOC 02-003(b)	02-612390	35–36	RE02-10-21914	0.0	0.0	48	1373
AOC 02-003(b)	02-612390	49–50	RE02-10-21915	0.0	0.0	26	1269
AOC 02-003(c)	02-612420	6–7	RE02-10-22027	0.0	0.0	16	1011
AOC 02-003(c)	02-612420	15.5–16.5	RE02-10-22028	0.0	0.0	25	986
AOC 02-003(c)	02-612420	26–27	RE02-10-22029	0.0	0.0	31	860
AOC 02-003(c)	02-612420	35–37	RE02-10-22030	0.0	0.0	20	797
AOC 02-003(c)	02-612420	49–50	RE02-10-22031	0.0	0.0	9	879
AOC 02-003(d)	02-612412	0–0.5	RE02-10-21991	0.2	0.2	63	1370
AOC 02-003(d)	02-612412	4–5	RE02-10-21992	0.2	0.2	31	1784
AOC 02-003(d)	02-612412	9–10	RE02-10-21993	0.3	0.3	58	1858
AOC 02-003(e)	02-612389	5–6	RE02-10-21904	0.0	0.0	20	4800
AOC 02-003(e)	02-612389	18–19	RE02-10-21905	0.0	0.0	11	1214
AOC 02-003(e)	02-612389	25–27	RE02-10-21906	0.0	0.0	8	1628
AOC 02-003(e)	02-612389	35–36	RE02-10-21907	0.0	0.0	30	1835
AOC 02-003(e)	02-612389	49–50	RE02-10-21908	0.0	0.0	25	1391
AOC 02-004(a)	02-600580	3–3.2	RE02-10-21775	0.0	0.0	13	2260
AOC 02-004(a)	02-600580	5–5.2	RE02-10-21777	0.0	0.0	14	1260
AOC 02-004(a)	02-600580	7–7.2	RE02-10-21776	0.0	0.0	0	2010
AOC 02-004(a)	02-612325	5–6	RE02-10-21656	0.0	0.0	33	2050
AOC 02-004(a)	02-612325	15–16	RE02-10-21657	0.0	0.0	22	1937
AOC 02-004(a)	02-612325	25–26	RE02-10-21658	0.0	0.0	14	665
AOC 02-004(a)	02-612325	35–37	RE02-10-21659	0.0	0.0	14	1183

Table 3.2-2 (continued)

Consolidated Unit/SWMU/AOC	Location ID	Depth (ft)	Sample ID	PID, ambient (ppm)	PID, head space (ppm)	Alpha (dpm)	Beta/ Gamma (dpm)
AOC 02-004(a)	02-612325	49–50	RE02-10-21660	0.0	0.0	8	1390
AOC 02-004(a)	02-612326	5–6	RE02-10-21661	0.0	0.0	38	1265
AOC 02-004(a)	02-612326	15–16	RE02-10-21662	0.0	0.0	0	991
AOC 02-004(a)	02-612326	25–26	RE02-10-21663	0.0	0.0	20	1420
AOC 02-004(a)	02-612326	35–37	RE02-10-21664	0.0	0.0	25	1805
AOC 02-004(a)	02-612326	49–50	RE02-10-21665	0.0	0.0	0	1331
AOC 02-004(a)	02-612327	5–6	RE02-10-21666	0.0	0.0	15	1316
AOC 02-004(a)	02-612327	15–16	RE02-10-21667	0.0	0.0	10	1198
AOC 02-004(a)	02-612327	25–26	RE02-10-21668	0.0	0.0	23	1413
AOC 02-004(a)	02-612327	35–36	RE02-10-21669	0.0	0.0	23	1265
AOC 02-004(a)	02-612327	49–50	RE02-10-21670	0.0	0.0	29	1384
AOC 02-004(a)	02-612328	5–6	RE02-10-21671	0.0	0.0	0	1084
AOC 02-004(a)	02-612328	15–16	RE02-10-21672	0.0	0.0	0	1240
AOC 02-004(a)	02-612328	25–26	RE02-10-21673	0.0	0.0	15	1373
AOC 02-004(a)	02-612328	35–36	RE02-10-21674	0.0	0.0	0	1107
AOC 02-004(a)	02-612328	49–50	RE02-10-21675	0.0	0.0	11	1043
AOC 02-004(a)	02-612346	8–9	RE02-10-21747	0.0	0.0	11	1176
AOC 02-004(a)	02-612346	15–16	RE02-10-21748	0.0	0.0	31	996
AOC 02-004(a)	02-612346	25–26	RE02-10-21749	0.0	0.0	15	1306
AOC 02-004(a)	02-612346	35–36	RE02-10-21750	0.0	0.0	4	1055
AOC 02-004(a)	02-612346	49–50	RE02-10-21751	0.0	0.0	25	1159
AOC 02-004(a)	02-612350	3–3.2	RE02-10-21778	0.0	0.0	48	3090
AOC 02-004(a)	02-612350	5–5.2	RE02-10-21779	0.0	0.1	27	1535
AOC 02-004(a)	02-612350	7–7.2	RE02-10-21780	0.0	0.0	22	1742
AOC 02-004(a)	02-612351	3–3.2	RE02-10-21781	0.0	0.0	22	1098
AOC 02-004(a)	02-612351	5–5.2	RE02-10-21782	0.0	0.0	16	832
AOC 02-004(a)	02-612351	7–7.2	RE02-10-21783	0.0	0.0	19	1019
AOC 02-004(a)	02-612352	3–3.2	RE02-10-21784	0.0	0.0	11	1121
AOC 02-004(a)	02-612352	5–5.2	RE02-10-21785	0.0	0.0	16	1343
AOC 02-004(a)	02-612353	3–3.4	RE02-10-21787	0.0	0.0	5	1291
AOC 02-004(a)	02-612353	5–5.2	RE02-10-21788	0.0	0.0	5	995
AOCs 02-004(b,c,d)	02-612280	5–7	RE02-10-21501	0.0	0.0	0	1810
AOCs 02-004(b,c,d)	02-612280	15–16	RE02-10-21500	0.0	0.0	19	1574
AOCs 02-004(b,c,d)	02-612280	25–27	RE02-10-21495	0.0	0.0	3	1670
AOCs 02-004(b,c,d)	02-612280	35–36	RE02-10-21490	0.0	0.0	3	1729
AOCs 02-004(b,c,d)	02-612280	49–50	RE02-10-21485	0.0	0.0	0	1581

Table 3.2-2 (continued)

Consolidated Unit/SWMU/AOC	Location ID	Depth (ft)	Sample ID	PID, ambient (ppm)	PID, head space (ppm)	Alpha (dpm)	Beta/ Gamma (dpm)
AOC 02-004(e)	02-612280	5–7	RE02-10-21501	0.0	0.0	0	1810
AOC 02-004(e)	02-612280	15–16	RE02-10-21500	0.0	0.0	19	1574
AOC 02-004(e)	02-612280	25–27	RE02-10-21495	0.0	0.0	3	1670
AOC 02-004(e)	02-612280	35–36	RE02-10-21490	0.0	0.0	3	1729
AOC 02-004(e)	02-612280	49–50	RE02-10-21485	0.0	0.0	0	1581
AOC 02-004(f)	02-600470	4–4.2	RE02-10-21798	0.0	0.0	2	820
AOC 02-004(f)	02-600470	6–6.2	RE02-10-21799	0.0	0.0	13	812
AOC 02-004(f)	02-600567	3–3.2	RE02-10-21846	0.0	0.0	27	2500
AOC 02-004(f)	02-600567	4–4.2	RE02-10-21847	0.0	0.0	27	2410
AOC 02-004(f)	02-600567	6–6.2	RE02-10-26121	0.0	0.0	48	1269
AOC 02-004(f)	02-600567	8–8.2	RE02-10-26122	0.0	0.0	6	1294
AOC 02-004(f)	02-612346	8–9	RE02-10-21747	0.0	0.0	11	1176
AOC 02-004(f)	02-612346	15–16	RE02-10-21748	0.0	0.0	31	996
AOC 02-004(f)	02-612346	25–26	RE02-10-21749	0.0	0.0	15	1306
AOC 02-004(f)	02-612346	35–36	RE02-10-21750	0.0	0.0	4	1055
AOC 02-004(f)	02-612346	49–50	RE02-10-21751	0.0	0.0	25	1159
AOC 02-004(f)	02-612347	5–6	RE02-10-21752	0.0	0.0	4	886
AOC 02-004(f)	02-612347	15–16	RE02-10-21753	0.0	0.0	8	1240
AOC 02-004(f)	02-612347	25–27	RE02-10-21754	0.0	0.0	19	1573
AOC 02-004(f)	02-612347	35–36	RE02-10-21755	0.0	0.0	19	1758
AOC 02-004(f)	02-612347	49–50	RE02-10-21756	0.0	0.0	8	1536
AOC 02-004(f)	02-612354	4–4.2	RE02-10-21792	0.0	0.1	7	805
AOC 02-004(f)	02-612354	6–6.2	RE02-10-21793	0.0	0.0	45	864
AOC 02-004(f)	02-612355	4–4.4	RE02-10-21795	0.0	0.0	13	945
AOC 02-004(f)	02-612355	6–6.2	RE02-10-21796	0.1	0.3	13	568
AOC 02-004(f)	02-612357	4–4.2	RE02-10-21801	0.0	0.0	7	908
AOC 02-004(f)	02-612357	6–6.2	RE02-10-21802	0.0	0.0	29	746
AOC 02-004(f)	02-612358	4–4.2	RE02-10-21804	0.0	0.0	45	916
AOC 02-004(f)	02-612358	6–6.4	RE02-10-21805	0.0	0.0	29	753
AOC 02-004(f)	02-612359	4–4.2	RE02-10-21807	0.0	0.0	0	838
AOC 02-004(f)	02-612359	6–6.2	RE02-10-21808	0.0	0.0	8	1230
AOC 02-004(f)	02-612360	4–4.2	RE02-10-21810	0.0	0.0	19	1163
AOC 02-004(f)	02-612360	6–6.2	RE02-10-21811	0.2	0.1	3	986
AOC 02-004(f)	02-612361	4–4.4	RE02-10-21813	0.3	0.3	3	1008
AOC 02-004(f)	02-612361	6–6.2	RE02-10-21814	0.3	0.3	8	890
AOC 02-004(f)	02-612362	4–4.2	RE02-10-21816	0.4	0.4	0	1326

Table 3.2-2 (continued)

Consolidated Unit/SWMU/AOC	Location ID	Depth (ft)	Sample ID	PID, ambient (ppm)	PID, head space (ppm)	Alpha (dpm)	Beta/ Gamma (dpm)
AOC 02-004(f)	02-612362	6–6.2	RE02-10-21817	0.5	0.5	0	1111
AOC 02-004(f)	02-612363	4–4.2	RE02-10-21819	0.6	0.6	8	1319
AOC 02-004(f)	02-612363	6–6.2	RE02-10-21820	0.6	0.6	24	2010
AOC 02-004(f)	02-612364	4–4.4	RE02-10-21822	0.0	0.0	38	866
AOC 02-004(f)	02-612364	6–6.4	RE02-10-21823	0.0	0.0	22	1332
AOC 02-004(f)	02-612365	4–4.2	RE02-10-21825	0.0	0.0	16	1124
AOC 02-004(f)	02-612365	6–6.2	RE02-10-21826	0.0	0.0	33	1154
AOC 02-004(f)	02-612366	4–4.2	RE02-10-21828	0.0	0.0	27	1265
AOC 02-004(f)	02-612366	6–6.2	RE02-10-21829	0.0	0.0	64.5	2490
AOC 02-004(f)	02-612367	4–4.2	RE02-10-21831	0.0	0.0	26	2440
AOC 02-004(f)	02-612367	6–6.2	RE02-10-21832	0.0	0.0	26	2490
AOC 02-004(f)	02-612368	4–4.2	RE02-10-21834	0.0	0.0	26	2320
AOC 02-004(f)	02-612368	6–6.2	RE02-10-21835	0.0	0.1	21	2340
AOC 02-004(f)	02-612368	3–3.2	RE02-10-21839	0.0	0.0	43	2810
AOC 02-004(f)	02-612368	4–4.2	RE02-10-21840	0.0	0.0	59	2520
AOC 02-004(f)	02-613005	2–2.2	RE02-10-26115	0.0	0.0	64	1062
AOC 02-004(f)	02-613005	4–4.2	RE02-10-26116	0.0	0.0	5	1218
AOC 02-004(f)	02-613005	6–6.2	RE02-10-26126	0.0	0.0	20	895
AOC 02-004(f)	02-613623	2–3	RE02-11-2210	0.0	0.0	83	649
AOC 02-004(f)	02-613623	4–5	RE02-11-2211	0.0	0.0	83	649
AOC 02-004(f)	02-613624	2–3	RE02-11-2213	0.0	0.0	11	82
AOC 02-004(f)	02-613624	4–5	RE02-11-2214	0.0	0.0	11	82
AOC 02-004(f)	02-613624	6–7	RE02-11-2215	0.0	0.0	11	82
AOC 02-004(f)	02-613625	2–3	RE02-11-2216	0.0	0.0	11	82
AOC 02-004(f)	02-613625	4–5	RE02-11-2217	0.0	0.0	83	649
AOC 02-004(g)	02-612293	5–6	RE02-10-21528	0.0	0.0	21	1353
AOC 02-004(g)	02-612293	15–16	RE02-10-21529	0.0	0.0	5	1191
AOC 02-004(g)	02-612293	25–26	RE02-10-21530	0.0	0.1	1	1251
AOC 02-004(g)	02-612293	35–36	RE02-10-21531	0.0	0.0	8	1359
AOC 02-004(g)	02-612293	49–50	RE02-10-21532	0.0	0.0	25	1258
SWMU 02-005	02-600561	1–1.2	RE02-10-21866	0.2	0.2	19	790
SWMU 02-005	02-600561	2–2.2	RE02-10-21867	0.4	0.6	51	1145
SWMU 02-005	02-612376	1–1.2	RE02-10-21868	0.3	0.3	51	1182
SWMU 02-005	02-612376	2–2.2	RE02-10-21869	0.3	0.3	56	901
SWMU 02-005	02-612377	1–1.2	RE02-10-21870	0.2	0.2	45	1108
SWMU 02-005	02-612377	2–2.2	RE02-10-21871	0.2	0.2	51	1026

Table 3.2-2 (continued)

Consolidated Unit/SWMU/AOC	Location ID	Depth (ft)	Sample ID	PID, ambient (ppm)	PID, head space (ppm)	Alpha (dpm)	Beta/ Gamma (dpm)
SWMU 02-005	02-612378	1–1.2	RE02-10-21872	0.3	0.3	40	1086
SWMU 02-005	02-612378	2–2.2	RE02-10-21873	0.3	0.3	35	886
SWMU 02-005	02-612379	0–0.5	RE02-10-21891	0.3	0.3	13	745
SWMU 02-005	02-612379	1.5–2.5	RE02-10-21892	0.3	0.3	19	1115
SWMU 02-005	02-612379	1–1.2	RE02-10-21874	0.3	0.3	45	790
SWMU 02-005	02-612379	2–2.2	RE02-10-21875	0.3	0.3	24	1071
SWMU 02-005	02-612380	0–0.5	RE02-10-21877	0.0	0.0	70	2500
SWMU 02-005	02-612380	1.5–2.5	RE02-10-21878	0.0	0.0	75	2370
SWMU 02-005	02-612381	0–0.5	RE02-10-21879	0.0	0.0	21	2890
SWMU 02-005	02-612381	1.5–2.5	RE02-10-21880	0.0	0.0	53	2820
SWMU 02-005	02-612382	0–0.5	RE02-10-21881	0.0	0.0	64	949
SWMU 02-005	02-612382	1.5–2.5	RE02-10-21882	0.0	0.0	80	1053
SWMU 02-005	02-612383	0–0.5	RE02-10-21883	0.0	0.0	48	831
SWMU 02-005	02-612383	1.5–2.5	RE02-10-21884	0.0	0.0	86	1075
SWMU 02-005	02-612384	0–0.5	RE02-10-21885	0.0	0.0	43	1253
SWMU 02-005	02-612384	1.5–2.5	RE02-10-21886	0.0	0.0	53	861
SWMU 02-005	02-612385	0–0.5	RE02-10-21887	0.2	0.2	81	1039
SWMU 02-005	02-612385	1.5–2.5	RE02-10-21888	0.3	0.3	48	1128
SWMU 02-005	02-612386	0–0.5	RE02-10-21889	0.2	0.2	51	1529
SWMU 02-005	02-612386	1.5–2.5	RE02-10-21890	0.2	0.2	19	1197
SWMU 02-005	02-612407	0–0.5	RE02-10-21976	0.0	0.0	59	2330
SWMU 02-005	02-612407	4–5	RE02-10-21977	0.0	0.0	37	2470
SWMU 02-005	02-612407	9–10	RE02-10-21978	0.0	0.0	26	2580
SWMU 02-005	02-613290	2–2.2	RE02-11-322	0.0	0.0	15	920
SWMU 02-005	02-613290	4–4.2	RE02-11-2209	0.0	0.0	36	588
SWMU 02-005	02-613291	1–1.2	RE02-11-323	0.0	0.0	22	1350
SWMU 02-005	02-613622	2–2.2	RE02-11-2207	0.0	0.0	32	591
SWMU 02-005	02-613622	4–4.2	RE02-11-2208	0.0	0.0	36	588
SWMU 02-006(a)	02-612640	0–0.5	RE02-10-23289	0.0	0.0	12	1255
SWMU 02-006(a)	02-612640	5–6	RE02-10-23290	0.0	0.0	12	1255
SWMU 02-006(a)	02-612640	15–16	RE02-10-23291	0.0	0.0	12	1255
SWMU 02-006(a)	02-612640	25–26	RE02-10-23292	0.0	0.0	12	1255
SWMU 02-006(a)	02-612640	35–36	RE02-10-23293	0.0	0.0	12	1255
SWMU 02-006(a)	02-612640	49–50	RE02-10-23294	0.0	0.0	12	1255
SWMU 02-006(a)	02-612641	0–0.5	RE02-10-23295	0.0	0.0	12	1255
SWMU 02-006(a)	02-612641	5–6	RE02-10-23296	0.0	0.0	22	2080

Table 3.2-2 (continued)

Consolidated Unit/SWMU/AOC	Location ID	Depth (ft)	Sample ID	PID, ambient (ppm)	PID, head space (ppm)	Alpha (dpm)	Beta/ Gamma (dpm)
SWMU 02-006(a)	02-612641	15–16	RE02-10-23297	0.0	0.0	22	2080
SWMU 02-006(a)	02-612641	25–26	RE02-10-23298	0.0	0.0	22	2080
SWMU 02-006(a)	02-612641	35–36	RE02-10-23299	0.0	0.0	22	2080
SWMU 02-006(a)	02-612641	49–50	RE02-10-23300	0.0	0.0	22	2080
SWMU 02-006(a)	02-612642	0–0.5	RE02-10-23301	0.0	0.0	22	2080
SWMU 02-006(a)	02-612642	5–6	RE02-10-23302	0.0	0.0	22	2080
SWMU 02-006(a)	02-612642	15–16	RE02-10-23303	0.0	0.0	22	2080
SWMU 02-006(a)	02-612642	25–26	RE02-10-23304	0.0	0.0	22	2080
SWMU 02-006(a)	02-612642	35–36	RE02-10-23305	0.0	0.0	22	2080
SWMU 02-006(a)	02-612642	49–50	RE02-10-23306	0.0	0.0	22	2080
SWMU 02-006(a)	02-612643	0–0.5	RE02-10-23307	0.0	0.0	0	198
SWMU 02-006(a)	02-612643	5–6	RE02-10-23308	0.0	0.0	0	198
SWMU 02-006(a)	02-612643	15–16	RE02-10-23309	0.0	0.0	0	198
SWMU 02-006(a)	02-612643	25–26	RE02-10-23310	0.0	0.0	0	198
SWMU 02-006(a)	02-612643	35–36	RE02-10-23311	0.0	0.0	0	198
SWMU 02-006(a)	02-612643	49–50	RE02-10-23312	0.0	0.0	0	198
SWMU 02-006(a)	02-612644	0–0.5	RE02-10-23313	0.0	0.0	0	198
SWMU 02-006(a)	02-612644	5–6	RE02-10-23314	0.0	0.0	0	198
SWMU 02-006(a)	02-612644	15–16	RE02-10-23315	0.0	0.0	0	198
SWMU 02-006(a)	02-612644	25–26	RE02-10-23316	0.0	0.0	0	198
SWMU 02-006(a)	02-612644	35–36	RE02-10-23317	0.0	0.0	0	198
SWMU 02-006(a)	02-612644	49–50	RE02-10-23318	0.0	0.0	0	198
SWMU 02-006(a)	02-612645	0–0.5	RE02-10-23319	0.0	0.0	2	631
SWMU 02-006(a)	02-612645	5–6	RE02-10-23320	0.0	0.0	2	631
SWMU 02-006(a)	02-612645	15–16	RE02-10-23321	0.0	0.0	2	631
SWMU 02-006(a)	02-612645	25–26	RE02-10-23322	0.0	0.0	2	631
SWMU 02-006(a)	02-612645	35–36	RE02-10-23323	0.0	0.0	2	631
SWMU 02-006(a)	02-612645	49–50	RE02-10-23324	0.0	0.0	2	631
SWMU 02-006(a)	02-612646	0–0.5	RE02-10-23325	0.0	0.0	20	294
SWMU 02-006(a)	02-612646	5–6	RE02-10-23326	0.0	0.0	20	294
SWMU 02-006(a)	02-612646	15–16	RE02-10-23327	0.0	0.0	20	294
SWMU 02-006(a)	02-612646	25–26	RE02-10-23328	0.0	0.0	20	294
SWMU 02-006(a)	02-612646	35–36	RE02-10-23329	0.0	0.0	20	294
SWMU 02-006(a)	02-612646	49–50	RE02-10-23330	0.0	0.0	20	294
SWMU 02-006(a)	02-612647	0–0.5	RE02-10-23331	0.0	0.0	20	294
SWMU 02-006(a)	02-612647	5–6	RE02-10-23332	0.0	0.0	20	294

Table 3.2-2 (continued)

Consolidated Unit/SWMU/AOC	Location ID	Depth (ft)	Sample ID	PID, ambient (ppm)	PID, head space (ppm)	Alpha (dpm)	Beta/ Gamma (dpm)
SWMU 02-006(a)	02-612647	15–16	RE02-10-23333	0.0	0.0	20	294
SWMU 02-006(a)	02-612647	25–26	RE02-10-23334	0.0	0.0	20	294
SWMU 02-006(a)	02-612647	35–36	RE02-10-23335	0.0	0.0	20	294
SWMU 02-006(a)	02-612647	49–50	RE02-10-23336	0.0	0.0	20	294
SWMU 02-006(a)	02-612648	0–0.5	RE02-10-23337	0.0	0.0	1	430
SWMU 02-006(a)	02-612648	5–6	RE02-10-23338	0.0	0.0	1	430
SWMU 02-006(a)	02-612648	15–16	RE02-10-23339	0.0	0.0	1	430
SWMU 02-006(a)	02-612648	25–26	RE02-10-23340	0.0	0.0	1	430
SWMU 02-006(a)	02-612648	35–36	RE02-10-23341	0.0	0.0	1	430
SWMU 02-006(a)	02-612648	49–50	RE02-10-23342	0.0	0.0	1	430
SWMU 02-006(a)	02-612649	0–0.5	RE02-10-23343	0.0	0.0	26	367
SWMU 02-006(a)	02-612649	5–6	RE02-10-23344	0.0	0.0	26	367
SWMU 02-006(a)	02-612649	15–16	RE02-10-23345	0.0	0.0	26	367
SWMU 02-006(a)	02-612649	25–26	RE02-10-23346	0.0	0.0	26	367
SWMU 02-006(a)	02-612649	35–36	RE02-10-23347	0.0	0.0	26	367
SWMU 02-006(a)	02-612649	49–50	RE02-10-23348	0.0	0.0	26	367
SWMU 02-006(a)	02-612650	0–0.5	RE02-10-23349	0.0	0.0	39	1583
SWMU 02-006(a)	02-612650	5–6	RE02-10-23350	0.0	0.0	39	1583
SWMU 02-006(a)	02-612650	15–16	RE02-10-23351	0.0	0.0	39	1583
SWMU 02-006(a)	02-612650	25–26	RE02-10-23352	0.0	0.0	39	1583
SWMU 02-006(a)	02-612650	35–36	RE02-10-23353	0.0	0.0	39	1583
SWMU 02-006(a)	02-612650	49–50	RE02-10-23354	0.0	0.0	39	1583
SWMU 02-006(a)	02-612651	5–6	RE02-10-23370	0.0	0.0	26	367
SWMU 02-006(a)	02-612651	15–16	RE02-10-23371	0.0	0.0	26	367
SWMU 02-006(a)	02-612651	25–26	RE02-10-23372	0.0	0.0	26	367
SWMU 02-006(a)	02-612651	35–36	RE02-10-23373	0.0	0.0	26	367
SWMU 02-006(a)	02-612651	49–50	RE02-10-23374	0.0	0.0	26	367
SWMU 02-006(a)	02-612652	25–26	RE02-10-23377	0.0	0.0	2	631
SWMU 02-006(a)	02-612652	35–36	RE02-10-23378	0.0	0.0	2	631
SWMU 02-006(a)	02-612652	49–50	RE02-10-23379	0.0	0.0	2	631
SWMU 02-006(b)	02-612374	5–6	RE02-10-21859	0.0	0.1	0	1225
SWMU 02-006(b)	02-612374	15–16	RE02-10-21860	0.0	0.0	8	833
SWMU 02-006(b)	02-612374	25–26	RE02-10-21861	0.0	0.1	8	1344
SWMU 02-006(b)	02-612374	35–36	RE02-10-21862	0.0	0.1	8	1559
SWMU 02-006(b)	02-612374	49–50	RE02-10-21863	0.0	0.1	14	1721
AOC 02-006(c)	02-612345	5–6	RE02-10-21742	0.0	0.0	8	643

Table 3.2-2 (continued)

Consolidated Unit/SWMU/AOC	Location ID	Depth (ft)	Sample ID	PID, ambient (ppm)	PID, head space (ppm)	Alpha (dpm)	Beta/ Gamma (dpm)
AOC 02-006(c)	02-612345	15–16	RE02-10-21743	0.2	2.2	19	857
AOC 02-006(c)	02-612345	25–26	RE02-10-21744	0.2	3.8	25	1136
AOC 02-006(c)	02-612345	35–36	RE02-10-21745	0.5	32.7	8	1035
AOC 02-006(c)	02-612345	49–50	RE02-10-21746	0.2	0.8	3	872
AOC 02-006(e)	02-612292	5–6	RE02-10-21521	0.0	0.0	0	1086
AOC 02-006(e)	02-612292	15–16.5	RE02-10-21522	0.0	0.0	0	1175
AOC 02-006(e)	02-612292	25–26	RE02-10-21523	0.0	0.0	25	1450
AOC 02-006(e)	02-612292	35–36	RE02-10-21524	0.0	0.0	57	1302
AOC 02-006(e)	02-612292	49–50	RE02-10-21525	0.0	0.0	0	1273
SWMU 02-007 of Consolidated Unit 02-007-00	02-612390	5–6	RE02-10-21911	0.0	0.0	26	1765
SWMU 02-007 of Consolidated Unit 02-007-00	02-612390	15–17	RE02-10-21912	0.0	0.0	26	1543
SWMU 02-007 of Consolidated Unit 02-007-00	02-612390	26–27	RE02-10-21913	0.0	0.0	53	1225
SWMU 02-007 of Consolidated Unit 02-007-00	02-612390	35–36	RE02-10-21914	0.0	0.0	48	1373
SWMU 02-007 of Consolidated Unit 02-007-00	02-612390	49–50	RE02-10-21915	0.0	0.0	26	1269
SWMU 02-009(a) of Consolidated Unit 02-007-00	02-612421	5–6	RE02-10-22034	0.0	0.0	17	1494
SWMU 02-009(a) of Consolidated Unit 02-007-00	02-612421	15–16	RE02-10-22035	0.0	0.0	11	1279
SWMU 02-009(a) of Consolidated Unit 02-007-00	02-612421	28–29	RE02-10-22036	0.0	0.0	15	1188
SWMU 02-009(a) of Consolidated Unit 02-007-00	02-612421	35–36	RE02-10-22037	0.0	0.0	4	966
SWMU 02-009(a) of Consolidated Unit 02-007-00	02-612421	48–50	RE02-10-22038	0.0	0.0	0	1011
SWMU 02-009(a) of Consolidated Unit 02-007-00	02-612422	5–6	RE02-10-22039	0.0	0.0	14	1110
SWMU 02-009(a) of Consolidated Unit 02-007-00	02-612422	15–16	RE02-10-22040	0.0	0.0	4	1065
SWMU 02-009(a) of Consolidated Unit 02-007-00	02-612422	25–26	RE02-10-22041	0.0	0.0	14	1250
SWMU 02-009(a) of Consolidated Unit 02-007-00	02-612422	35–36	RE02-10-22042	0.0	0.0	9	1376
SWMU 02-009(a) of Consolidated Unit 02-007-00	02-612422	49–50	RE02-10-22043	0.0	0.0	4	1642
SWMU 02-009(b) of Consolidated Unit 02-007-00	02-612388	5–6	RE02-10-21895	0.0	0.0	15	1423

Table 3.2-2 (continued)

Consolidated Unit/SWMU/AOC	Location ID	Depth (ft)	Sample ID	PID, ambient (ppm)	PID, head space (ppm)	Alpha (dpm)	Beta/ Gamma (dpm)
SWMU 02-009(b) of Consolidated Unit 02-007-00	02-612388	15–16	RE02-10-21896	0.0	0.0	37	1217
SWMU 02-009(b) of Consolidated Unit 02-007-00	02-612388	25–26	RE02-10-21897	0.0	0.0	21	1305
SWMU 02-009(b) of Consolidated Unit 02-007-00	02-612388	35–36	RE02-10-21898	0.0	0.0	4	1291
SWMU 02-009(b) of Consolidated Unit 02-007-00	02-612388	47.5–50	RE02-10-21899	0.0	0.0	26	1416
SWMU 02-009(c) of Consolidated Unit 02-007-00	02-612391	5–6	RE02-10-21918	0.0	0.0	10	4010
SWMU 02-009(c) of Consolidated Unit 02-007-00	02-612391	15–16	RE02-10-21919	0.0	0.0	26	973
SWMU 02-009(c) of Consolidated Unit 02-007-00	02-612391	25–26	RE02-10-21920	0.0	0.0	0	1409
SWMU 02-009(c) of Consolidated Unit 02-007-00	02-612391	35–37	RE02-10-21921	0.0	0.0	15	1409
SWMU 02-009(c) of Consolidated Unit 02-007-00	02-612391	49–50	RE02-10-21922	0.0	0.0	21	1313
SWMU 02-009(c) of Consolidated Unit 02-007-00	02-612392	5–6	RE02-10-21923	0.0	0.0	11	1014
SWMU 02-009(c) of Consolidated Unit 02-007-00	02-612392	19–20	RE02-10-21924	0.0	0.0	4	1250
SWMU 02-009(c) of Consolidated Unit 02-007-00	02-612392	25–26	RE02-10-21925	0.0	0.0	9	1346
SWMU 02-009(c) of Consolidated Unit 02-007-00	02-612392	35–37	RE02-10-21926	0.0	0.0	25	1701
SWMU 02-009(c) of Consolidated Unit 02-007-00	02-612392	49–50	RE02-10-21927	0.0	0.0	0	1242
SWMU 02-009(c) of Consolidated Unit 02-007-00	02-612393	5–6	RE02-10-21928	0.0	0.0	31	1339
SWMU 02-009(c) of Consolidated Unit 02-007-00	02-612393	15.5–16.5	RE02-10-21929	0.0	0.0	15	1368
SWMU 02-009(c) of Consolidated Unit 02-007-00	02-612393	25–26	RE02-10-21930	0.0	0.0	0	1080
SWMU 02-009(c) of Consolidated Unit 02-007-00	02-612393	35–36	RE02-10-21931	0.0	0.0	9	1106
SWMU 02-009(c) of Consolidated Unit 02-007-00	02-612393	49–50	RE02-10-21932	0.0	0.0	9	1219
SWMU 02-009(c) of Consolidated Unit 02-007-00	02-612420	6–7	RE02-10-22027	0.0	0.0	16	1011
SWMU 02-009(c) of Consolidated Unit 02-007-00	02-612420	15.5–16.5	RE02-10-22028	0.0	0.0	25	986

Table 3.2-2 (continued)

Consolidated Unit/SWMU/AOC	Location ID	Depth (ft)	Sample ID	PID, ambient (ppm)	PID, head space (ppm)	Alpha (dpm)	Beta/ Gamma (dpm)
SWMU 02-009(c) of Consolidated Unit 02-007-00	02-612420	26–27	RE02-10-22029	0.0	0.0	31	860
SWMU 02-009(c) of Consolidated Unit 02-007-00	02-612420	35–37	RE02-10-22030	0.0	0.0	20	797
SWMU 02-009(c) of Consolidated Unit 02-007-00	02-612420	49–50	RE02-10-22031	0.0	0.0	9	879
AOC 02-008(c)(i)	02-612390	5–6	RE02-10-21911	0.0	0.0	26	1765
AOC 02-008(c)(i)	02-612390	15–17	RE02-10-21912	0.0	0.0	26	1543
AOC 02-008(c)(i)	02-612390	26–27	RE02-10-21913	0.0	0.0	53	1225
AOC 02-008(c)(i)	02-612390	35–36	RE02-10-21914	0.0	0.0	48	1373
AOC 02-008(c)(i)	02-612390	49–50	RE02-10-21915	0.0	0.0	26	1269
AOC 02-008(c)(ii)	02-612982	6–7	RE02-10-25659	0.1	0.1	28	1695
AOC 02-008(c)(ii)	02-612982	15–16	RE02-10-25660	0.1	0.1	0	874
AOC 02-008(c)(ii)	02-612982	25–26	RE02-10-25661	0.0	0.0	50	1414
AOC 02-008(c)(ii)	02-612982	35–37	RE02-10-25662	0.1	0.1	7	1451
AOC 02-008(c)(ii)	02-612982	49–50	RE02-10-25663	0.1	0.1	7	1481
AOC 02-009(d)	02-612348	5–7	RE02-10-21768	0.0	0.0	25	605
AOC 02-009(d)	02-612348	15–16	RE02-10-21769	0.0	0.0	0	598
AOC 02-009(d)	02-612348	25–26	RE02-10-21770	0.0	0.0	15	701
AOC 02-009(d)	02-612348	35–36	RE02-10-21771	0.0	0.0	0	886
AOC 02-009(d)	02-612348	49–50	RE02-10-21772	0.0	0.0	9	1000
AOC 02-010	02-600640	2–2.2	RE02-10-22061	0.0	0.0	75	2480
AOC 02-010	02-600640	4–4.2	RE02-10-22062	0.0	0.0	53	2260
AOC 02-010	02-612423	2–2.2	RE02-10-22046	0.0	0.0	37	5190
AOC 02-010	02-612423	4–4.2	RE02-10-22047	0.0	0.0	37	3310
AOC 02-010	02-612424	2–2.4	RE02-10-22049	0.0	0.0	53	5200
AOC 02-010	02-612424	4–4.2	RE02-10-22050	0.0	0.0	26	2680
AOC 02-010	02-612425	2–2.2	RE02-10-22052	0.0	0.0	21	3550
AOC 02-010	02-612425	4–4.2	RE02-10-22053	0.0	0.0	10	2550
AOC 02-010	02-612426	2–2.2	RE02-10-22055	0.0	0.0	37	2400
AOC 02-010	02-612426	4–4.2	RE02-10-22056	0.0	0.0	43	2440
AOC 02-010	02-612427	2–2.2	RE02-10-22058	0.0	0.0	53	2790
AOC 02-010	02-612427	4–4.2	RE02-10-22059	0.0	0.0	32	2590
AOC 02-010	02-612429	2–2.2	RE02-10-22064	0.0	0.0	21	2040
AOC 02-010	02-612429	4–4.2	RE02-10-22065	0.0	0.0	43	2480
AOC 02-010	02-612430	2–2.2	RE02-10-22067	0.0	0.0	21	2590
AOC 02-010	02-612430	4–4.2	RE02-10-22068	0.0	0.0	48	2580

Table 3.2-2 (continued)

Consolidated Unit/SWMU/AOC	Location ID	Depth (ft)	Sample ID	PID, ambient (ppm)	PID, head space (ppm)	Alpha (dpm)	Beta/ Gamma (dpm)
AOC 02-010	02-612431	2–2.2	RE02-10-22070	0.0	0.0	37	2650
AOC 02-010	02-612431	4–4.2	RE02-10-22071	0.0	0.0	59	2360
AOC 02-010	02-612432	2–2.2	RE02-10-22073	0.0	0.0	32	2560
AOC 02-010	02-612432	4–4.2	RE02-10-22074	0.0	0.0	10	2680
AOC 02-010	02-612463	5–6	RE02-10-22178	0.0	0.0	27	905
AOC 02-010	02-612463	15–16	RE02-10-22179	0.0	0.0	0	794
AOC 02-010	02-612463	25–27	RE02-10-22180	0.0	0.0	0	880
AOC 02-010	02-612463	35–36	RE02-10-22181	0.0	0.0	27	1110
AOC 02-010	02-612463	49–50	RE02-10-22182	0.0	0.0	0	969
AOC 02-010	02-613240	2–2.2	RE02-11-163	0.0	0.0	17	1276
AOC 02-011(a)(i)	02-600385	4–4.2	RE02-10-22127	0.0	0.0	44	2160
AOC 02-011(a)(i)	02-600385	6–6.2	RE02-10-22128	0.0	0.0	27	2020
AOC 02-011(a)(i)	02-600386	7–7.2	RE02-10-22109	0.0	0.0	43	2220
AOC 02-011(a)(i)	02-600386	9–9.2	RE02-10-22110	0.0	0.0	0	957
AOC 02-011(a)(i)	02-600386	11–11.2	RE02-10-22111	0.0	0.0	21	720
AOC 02-011(a)(i)	02-612444	3.5–4	RE02-10-22112	0.0	0.0	27	2450
AOC 02-011(a)(i)	02-612445	4–4.2	RE02-10-22115	0.0	0.0	33	2300
AOC 02-011(a)(i)	02-612445	6–6.2	RE02-10-22116	0.0	0.0	16	2640
AOC 02-011(a)(i)	02-612446	4–4.2	RE02-10-22118	0.0	0.0	15	2390
AOC 02-011(a)(i)	02-612446	5–5.5	RE02-10-22119	0.0	0.0	22	2400
AOC 02-011(a)(i)	02-612447	3–3.2	RE02-10-22121	0.0	0.0	44	2470
AOC 02-011(a)(i)	02-612448	4–4.2	RE02-10-22124	0.0	0.0	49	1956
AOC 02-011(a)(i)	02-612448	6–6.2	RE02-10-22125	0.0	0.0	33	2030
AOC 02-011(a)(i)	02-613289	4–4.2	RE02-11-319	0.0	0.1	0	1019
AOC 02-011(a)(i)	02-613289	6–6.2	RE02-11-320	0.0	0.0	28	1258
AOC 02-011(a)(i)	02-613292	4–4.2	RE02-11-325	0.0	0.0	10	1581
AOC 02-011(a)(i)	02-613571	5–6	RE02-11-1525	0.0	0.0	28	1485
AOC 02-011(a)(i)	02-613571	15–16	RE02-11-1526	0.0	0.0	0	1618
AOC 02-011(a)(i)	02-613571	25–26	RE02-11-1527	0.0	0.0	12	1492
AOC 02-011(a)(i)	02-613571	35–37	RE02-11-1528	0.0	0.0	1	1300
AOC 02-011(a)(i)	02-613571	49–50	RE02-11-1529	0.0	0.0	0	1655
AOC 02-011(a)(ii)	02-600449	6–6.2	RE02-10-22130	0.0	0.0	22	1912
AOC 02-011(a)(ii)	02-612451	6–6.2	RE02-10-22133	0.0	0.0	22	1962
AOC 02-011(a)(ii)	02-612452	6–6.2	RE02-10-22136	0.0	0.0	49	2180
AOC 02-011(a)(ii)	02-612452	8–8.2	RE02-10-22137	0.0	0.0	27	2080
AOC 02-011(a)(ii)	02-612453	6–6.2	RE02-10-22139	0.0	0.0	22	1691

Table 3.2-2 (continued)

Consolidated Unit/SWMU/AOC	Location ID	Depth (ft)	Sample ID	PID, ambient (ppm)	PID, head space (ppm)	Alpha (dpm)	Beta/ Gamma (dpm)
AOC 02-011(a)(ii)	02-612453	8–8.2	RE02-10-22140	0.0	0.0	33	2240
AOC 02-011(a)(ii)	02-613001	6–6.5	RE02-10-26105	0.0	0.0	65	1276
AOC 02-011(a)(ii)	02-613001	7–7.5	RE02-10-26106	0.0	0.0	49	1216
AOC 02-011(a)(ii)	02-613002	6–6.5	RE02-10-26107	0.0	0.0	55	1608
AOC 02-011(a)(ii)	02-613002	8–8.5	RE02-10-26108	0.0	0.0	49	1335
AOC 02-011(a)(ii)	02-613122	2–2.2	RE02-10-26638	0.0	0.0	68	1537
AOC 02-011(a)(ii)	02-613122	4–4.2	RE02-10-26639	0.0	0.0	52	1123
AOC 02-011(a)(ii)	02-613124	6–6.2	RE02-10-26640	0.0	0.0	31	1567
AOC 02-011(a)(ii)	02-613124	8–8.2	RE02-10-26641	0.0	0.0	36	1426
AOC 02-011(a)(ii)	02-613287	6–6.2	RE02-11-315	0.0	0.0	≥15	≥1157
AOC 02-011(a)(ii)	02-613287	8–8.2	RE02-11-316	0.0	0.0	≥32	≥1126
AOC 02-011(a)(ii)	02-613288	6–6.2	RE02-11-317	0.0	0.0	≥26	≥918
AOC 02-011(a)(ii)	02-613288	8–8.2	RE02-11-318	0.0	0.0	≥32	≥843
AOC 02-011(a)(ii)	02-613571	5–6	RE02-11-1525	0.0	0.0	28	1485
AOC 02-011(a)(ii)	02-613571	15–16	RE02-11-1526	0.0	0.0	0	1618
AOC 02-011(a)(ii)	02-613571	25–26	RE02-11-1527	0.0	0.0	12	1492
AOC 02-011(a)(ii)	02-613571	35–37	RE02-11-1528	0.0	0.0	1	1300
AOC 02-011(a)(ii)	02-613571	49–50	RE02-11-1529	0.0	0.0	0	1655
AOC 02-011(a)(ii)	02-613626	8–9	RE02-11-2218	0.0	0.0	11	82
AOC 02-011(a)(ii)	02-613626	10–11	RE02-11-2219	0.0	0.0	11	82
AOC 02-011(a)(ii)	02-613627	6–7	RE02-11-2220	0.0	0.0	11	82
AOC 02-011(a)(ii)	02-613627	8–9	RE02-11-2221	0.0	0.0	11	82
AOC 02-011(a)(ii)	02-613627	10–11	RE02-11-2222	0.0	0.0	11	82
AOC 02-011(a)(ii)	02-613667	6–6.2	RE02-11-2523	0.0	0.0	67	580
AOC 02-011(a)(ii)	02-613667	8–8.2	RE02-11-2524	0.0	0.0	67	580
AOC 02-011(a)(ii)	02-613667	10–10.2	RE02-11-2525	0.0	0.0	67	580
AOC 02-011(a)(ii)	02-613668	8–8.2	RE02-11-2526	0.0	0.0	0	1900
AOC 02-011(a)(ii)	02-613668	10–10.2	RE02-11-2527	0.0	0.0	0	1900
AOC 02-011(a)(ii)	02-613699	6–6.2	RE02-11-2795	0.0	0.0	48	787
AOC 02-011(a)(ii)	02-613699	8–8.2	RE02-11-2796	0.0	0.0	36	592
AOC 02-011(a)(ii)	02-613699	10–10.2	RE02-11-2797	0.0	0.0	4	657
AOC 02-011(a)(ii)	02-613699	12–12.2	RE02-11-2798	0.0	0.0	29	929
AOC 02-011(a)(ii)	02-613700	8–8.2	RE02-11-2799	0.0	0.0	55	941
AOC 02-011(a)(ii)	02-613700	10–10.5	RE02-11-2800	0.0	0.0	55	787
AOC 02-011(a)(ii)	02-613700	12–12.2	RE02-11-2801	0.0	0.0	42	1196
AOC 02-011(a)(ii)	02-613700	14–14.2	RE02-11-3145	0.0	0.0	44	313

Table 3.2-2 (continued)

Consolidated Unit/SWMU/AOC	Location ID	Depth (ft)	Sample ID	PID, ambient (ppm)	PID, head space (ppm)	Alpha (dpm)	Beta/ Gamma (dpm)
AOC 02-011(a)(ii)	02-613761	6–6.2	RE02-11-3146	0.0	0.0	19	1475
AOC 02-011(a)(ii)	02-613761	8–8.2	RE02-11-3147	0.0	0.0	44	1157
AOC 02-011(a)(ii)	02-613761	10–10.2	RE02-11-3148	0.0	0.0	34	960
AOC 02-011(a)(ii)	02-613761	12–12.2	RE02-11-3149	0.0	0.0	10	1238
AOC 02-011(a)(ii)	02-613761	14–14.2	RE02-11-3150	0.0	0.0	0	1089
AOC 02-011(a)(ii)	02-613762	0–0.5	RE02-11-3177	0.0	0.0	26	295
AOC 02-011(a)(iii)	02-612438	2–2.2	RE02-10-22094	0.1	0.1	21	2070
AOC 02-011(a)(iii)	02-612438	4–4.2	RE02-10-22095	0.1	0.1	21	2070
AOC 02-011(a)(iii)	02-612439	2–2.2	RE02-10-22097	0.0	0.0	48	2210
AOC 02-011(a)(iii)	02-612439	4–4.4	RE02-10-22098	0.0	0.0	48	2210
AOC 02-011(a)(iii)	02-612440	2–2.4	RE02-10-22102	0.2	0.2	21	2410
AOC 02-011(a)(iii)	02-612440	4–4.4	RE02-10-22101	0.2	0.2	21	2270
AOC 02-011(a)(iii)	02-613003	2–2.5	RE02-10-26109	0.0	0.0	33	935
AOC 02-011(a)(iii)	02-613003	4–4.5	RE02-10-26110	0.0	0.0	60	1239
AOC 02-011(a)(iii)	02-613571	5–6	RE02-11-1525	0.0	0.0	28	1485
AOC 02-011(a)(iii)	02-613571	15–16	RE02-11-1526	0.0	0.0	0	1618
AOC 02-011(a)(iii)	02-613571	25–26	RE02-11-1527	0.0	0.0	12	1492
AOC 02-011(a)(iii)	02-613571	35–37	RE02-11-1528	0.0	0.0	1	1300
AOC 02-011(a)(iii)	02-613571	49–50	RE02-11-1529	0.0	0.0	0	1655
AOC 02-011(a)(iv)	02-612346	8–9	RE02-10-21747	0.0	0.0	11	1176
AOC 02-011(a)(iv)	02-612346	15–16	RE02-10-21748	0.0	0.0	31	996
AOC 02-011(a)(iv)	02-612346	25–26	RE02-10-21749	0.0	0.0	15	1306
AOC 02-011(a)(iv)	02-612346	35–36	RE02-10-21750	0.0	0.0	4	1055
AOC 02-011(a)(iv)	02-612346	49–50	RE02-10-21751	0.0	0.0	25	1159
AOC 02-011(a)(v)	02-600450	2–2.2	RE02-10-22079	0.0	0.0	21	2470
AOC 02-011(a)(v)	02-600450	4–4.2	RE02-10-22080	0.0	0.0	10	2260
AOC 02-011(a)(v)	02-612434	2–2.2	RE02-10-22082	0.0	0.0	16	2530
AOC 02-011(a)(v)	02-612434	4–4.4	RE02-10-22083	0.0	0.0	18	2490
AOC 02-011(a)(v)	02-612435	2–2.2	RE02-10-22085	0.1	0.1	43	2390
AOC 02-011(a)(v)	02-612435	4–4.2	RE02-10-22086	0.1	0.1	40	2210
AOC 02-011(a)(v)	02-612436	2–2.2	RE02-10-22088	0.0	0.0	21	2320
AOC 02-011(a)(v)	02-612436	4–4.2	RE02-10-22089	0.0	0.0	20	2370
AOC 02-011(a)(v)	02-612437	2–2.2	RE02-10-22091	0.1	0.1	37	2630
AOC 02-011(a)(v)	02-612437	4–4.4	RE02-10-22092	0.1	0.1	37	2630
AOC 02-011(a)(v)	02-613118	2–2.2	RE02-10-26634	0.0	0.0	36	1685
AOC 02-011(a)(v)	02-613120	2–2.2	RE02-10-26636	0.0	0.0	47	1693

Table 3.2-2 (continued)

Consolidated Unit/SWMU/AOC	Location ID	Depth (ft)	Sample ID	PID, ambient (ppm)	PID, head space (ppm)	Alpha (dpm)	Beta/ Gamma (dpm)
AOC 02-011(a)(v)	02-613121	2–2.2	RE02-10-26637	0.0	0.0	41	1108
AOC 02-011(a)(v)	02-613571	5–6	RE02-11-1525	0.0	0.0	28	1485
AOC 02-011(a)(v)	02-613571	15–16	RE02-11-1526	0.0	0.0	0	1618
AOC 02-011(a)(v)	02-613571	25–26	RE02-11-1527	0.0	0.0	12	1492
AOC 02-011(a)(v)	02-613571	35–37	RE02-11-1528	0.0	0.0	1	1300
AOC 02-011(a)(v)	02-613571	49–50	RE02-11-1529	0.0	0.0	0	1655
AOC 02-011(a)(vi)	02-600532	2–2.2	RE02-10-22185	0.0	0.0	39	932
AOC 02-011(a)(vi)	02-600532	4–4.2	RE02-10-22186	0.0	0.0	25	796
AOC 02-011(a)(vi)	02-612465	2–2.2	RE02-10-22188	0.0	0.0	23	1310
AOC 02-011(a)(vi)	02-612465	4–4.2	RE02-10-22198	0.0	0.0	36	1010
AOC 02-011(a)(vi)	02-612466	2–2.2	RE02-10-22191	0.0	0.0	34	940
AOC 02-011(a)(vi)	02-612466	4–4.2	RE02-10-22195	0.0	0.0	25	648
AOC 02-011(a)(vi)	02-612467	2–2.2	RE02-10-22194	0.0	0.0	45	1117
AOC 02-011(a)(vi)	02-612467	4–4.2	RE02-10-22192	0.0	0.0	31	937
AOC 02-011(a)(vi)	02-612468	2–2.2	RE02-10-22197	0.0	0.0	50	1088
AOC 02-011(a)(vi)	02-612468	4–4.2	RE02-10-22189	0.0	0.0	9	1129
AOC 02-011(a)(viii)	02-612292	5–6	RE02-10-21521	0.0	0.0	0	1086
AOC 02-011(a)(viii)	02-612292	15–16.5	RE02-10-21522	0.0	0.0	0	1175
AOC 02-011(a)(viii)	02-612292	25–26	RE02-10-21523	0.0	0.0	25	1450
AOC 02-011(a)(viii)	02-612292	35–36	RE02-10-21524	0.0	0.0	57	1302
AOC 02-011(a)(viii)	02-612292	49–50	RE02-10-21525	0.0	0.0	0	1273
AOC 02-011(a)(ix)	02-612345	5–6	RE02-10-21742	0.0	0.0	8	643
AOC 02-011(a)(ix)	02-612345	15–16	RE02-10-21743	0.2	2.2	19	857
AOC 02-011(a)(ix)	02-612345	25–26	RE02-10-21744	0.2	3.8	25	1136
AOC 02-011(a)(ix)	02-612345	35–36	RE02-10-21745	0.5	32.7	8	1035
AOC 02-011(a)(ix)	02-612345	49–50	RE02-10-21746	0.2	0.8	3	872
AOC 02-011(a)(x)	02-600664	2–2.2	RE02-10-22154	0.0	0.0	64	2300
AOC 02-011(a)(x)	02-600664	4–4.2	RE02-10-22155	0.0	0.0	21	2500
AOC 02-011(a)(x)	02-612348	5–7	RE02-10-21768	0.0	0.0	25	605
AOC 02-011(a)(x)	02-612348	15–16	RE02-10-21769	0.0	0.0	0	598
AOC 02-011(a)(x)	02-612348	25–26	RE02-10-21770	0.0	0.0	15	701
AOC 02-011(a)(x)	02-612348	35–36	RE02-10-21771	0.0	0.0	0	886
AOC 02-011(a)(x)	02-612348	49–50	RE02-10-21772	0.0	0.0	9	1000
AOC 02-011(a)(x)	02-612459	2–2.2	RE02-10-22157	0.0	0.0	26	2370
AOC 02-011(a)(x)	02-612459	4–4.2	RE02-10-22158	0.0	0.0	48	2550
AOC 02-011(a)(x)	02-612460	2–2.2	RE02-10-22160	0.0	0.0	53	2490

Table 3.2-2 (continued)

Consolidated Unit/SWMU/AOC	Location ID	Depth (ft)	Sample ID	PID, ambient (ppm)	PID, head space (ppm)	Alpha (dpm)	Beta/ Gamma (dpm)
AOC 02-011(a)(x)	02-612460	4–4.2	RE02-10-22161	0.0	0.0	59	2520
AOC 02-011(a)(x)	02-612461	2–2.2	RE02-10-22163	0.0	0.0	53	2600
AOC 02-011(a)(x)	02-612461	4–4.4	RE02-10-22164	0.0	0.0	16	2590
AOC 02-011(a)(x)	02-612462	2–2.4	RE02-10-22166	0.0	0.0	10	2230
AOC 02-011(a)(x)	02-612462	4–4.2	RE02-10-22167	0.0	0.0	16	2470
AOC 02-011(a)(x)	02-612983	7–8	RE02-10-25664	0.0	0.0	28	769
AOC 02-011(a)(x)	02-612983	15–16	RE02-10-25665	0.0	0.0	36	1379
AOC 02-011(a)(x)	02-612983	26–27	RE02-10-25666	0.0	0.0	9	972
AOC 02-011(a)(x)	02-612983	35–36	RE02-10-25667	0.0	0.0	13	1216
AOC 02-011(a)(x)	02-612983	49–50	RE02-10-25668	0.0	0.0	34	1793
AOC 02-011(a)(x)	02-612999	0–0.5	RE02-10-26101	0.0	0.0	76	1416
AOC 02-011(a)(x)	02-612999	2–2.2	RE02-10-26102	0.0	0.0	28	1379
AOC 02-011(a)(x)	02-613000	0–0.5	RE02-10-26103	0.0	0.0	22	1179
AOC 02-011(a)(x)	02-613000	2–2.2	RE02-10-26104	0.0	0.0	60	1357
AOC 02-011(b)	02-612389	5–6	RE02-10-21904	0.0	0.0	20	4800
AOC 02-011(b)	02-612389	18–19	RE02-10-21905	0.0	0.0	11	1214
AOC 02-011(b)	02-612389	25–27	RE02-10-21906	0.0	0.0	8	1628
AOC 02-011(b)	02-612389	35–36	RE02-10-21907	0.0	0.0	30	1835
AOC 02-011(b)	02-612389	49–50	RE02-10-21908	0.0	0.0	25	1391
AOC 02-011(b)	02-612390	5–6	RE02-10-21911	0.0	0.0	26	1765
AOC 02-011(b)	02-612390	15–17	RE02-10-21912	0.0	0.0	26	1543
AOC 02-011(b)	02-612390	26–27	RE02-10-21913	0.0	0.0	53	1225
AOC 02-011(b)	02-612390	35–36	RE02-10-21914	0.0	0.0	48	1373
AOC 02-011(b)	02-612390	49–50	RE02-10-21915	0.0	0.0	26	1269
AOC 02-011(c)	02-612347	5–6	RE02-10-21752	0.0	0.0	4	886
AOC 02-011(c)	02-612347	15–16	RE02-10-21753	0.0	0.0	8	1240
AOC 02-011(c)	02-612347	25–27	RE02-10-21754	0.0	0.0	19	1573
AOC 02-011(c)	02-612347	35–36	RE02-10-21755	0.0	0.0	19	1758
AOC 02-011(c)	02-612347	49–50	RE02-10-21756	0.0	0.0	8	1536
AOC 02-011(d)	02-612280	5–7	RE02-10-21501	0.0	0.0	0	1810
AOC 02-011(d)	02-612280	15–16	RE02-10-21500	0.0	0.0	19	1574
AOC 02-011(d)	02-612280	25–27	RE02-10-21495	0.0	0.0	3	1670
AOC 02-011(d)	02-612280	35–36	RE02-10-21490	0.0	0.0	3	1729
AOC 02-011(d)	02-612280	49–50	RE02-10-21485	0.0	0.0	0	1581
AOC 02-012	02-612374	5–6	RE02-10-21859	0.0	0.1	0	1225
AOC 02-012	02-612374	15–16	RE02-10-21860	0.0	0.0	8	833

Table 3.2-2 (continued)

Consolidated Unit/SWMU/AOC	Location ID	Depth (ft)	Sample ID	PID, ambient (ppm)	PID, head space (ppm)	Alpha (dpm)	Beta/ Gamma (dpm)
AOC 02-012	02-612374	25–26	RE02-10-21861	0.0	0.1	8	1344
AOC 02-012	02-612374	35–36	RE02-10-21862	0.0	0.1	8	1559
AOC 02-012	02-612374	49–50	RE02-10-21863	0.0	0.1	14	1721
Lateral extent for TA-02 core area	02-612394	0–0.5	RE02-10-21937	0.0	0.0	19	613
Lateral extent for TA-02 core area	02-612394	4–5	RE02-10-21938	0.0	0.0	24	931
Lateral extent for TA-02 core area	02-612394	9–10	RE02-10-21939	0.0	0.0	8	701
Lateral extent for TA-02 core area	02-612395	0–0.5	RE02-10-21940	0.0	0.0	0	849
Lateral extent for TA-02 core area	02-612395	4–5	RE02-10-21941	0.0	0.0	3	1064
Lateral extent for TA-02 core area	02-612395	9–10	RE02-10-21942	0.0	0.0	67	1123
Lateral extent for TA-02 core area	02-612396	0–0.5	RE02-10-21943	0.0	0.0	24	990
Lateral extent for TA-02 core area	02-612396	4–5	RE02-10-21944	0.0	0.0	65	1535
Lateral extent for TA-02 core area	02-612396	9–10	RE02-10-21945	0.0	0.0	49	1572
Lateral extent for TA-02 core area	02-612397	0–0.5	RE02-10-21946	0.0	0.0	18	812
Lateral extent for TA-02 core area	02-612397	4–5	RE02-10-21947	0.0	0.0	24	1434
Lateral extent for TA-02 core area	02-612397	9–10	RE02-10-21948	0.0	0.0	29	1486
Lateral extent for TA-02 core area	02-612398	0–0.5	RE02-10-21949	0.0	0.0	18	1153
Lateral extent for TA-02 core area	02-612398	4–5	RE02-10-21950	0.0	0.0	72	1338
Lateral extent for TA-02 core area	02-612398	9–10	RE02-10-21951	0.0	0.0	17	1678
Lateral extent for TA-02 core area	02-612399	0–0.5	RE02-10-21952	0.0	0.0	61	938
Lateral extent for TA-02 core area	02-612399	4–5	RE02-10-21953	0.0	0.0	19	1319
Lateral extent for TA-02 core area	02-612399	9–10	RE02-10-21954	0.0	0.0	56	1689
Lateral extent for TA-02 core area	02-612400	0–0.5	RE02-10-21955	0.0	0.0	56	1274
Lateral extent for TA-02 core area	02-612400	4–5	RE02-10-21956	0.0	0.0	56	1703
Lateral extent for TA-02 core area	02-612400	9–10	RE02-10-21957	0.0	0.0	51	1274
Lateral extent for TA-02 core area	02-612401	0–0.5	RE02-10-21958	0.0	0.0	51	793
Lateral extent for TA-02 core area	02-612401	4–5	RE02-10-21959	0.0	0.0	94	1289
Lateral extent for TA-02 core area	02-612401	9–10	RE02-10-21960	0.0	0.0	65	1583
Lateral extent for TA-02 core area	02-612402	0–0.5	RE02-10-21961	0.0	0.0	70	1590
Lateral extent for TA-02 core area	02-612402	4–5	RE02-10-21962	0.0	0.0	43	1620
Lateral extent for TA-02 core area	02-612402	9–10	RE02-10-21963	0.0	0.0	60	1790
Lateral extent for TA-02 core area	02-612403	0–0.5	RE02-10-21964	0.0	0.0	16	2240
Lateral extent for TA-02 core area	02-612403	4–5	RE02-10-21965	0.0	0.0	0	1239
Lateral extent for TA-02 core area	02-612403	9–10	RE02-10-21966	0.0	0.0	0	877
Lateral extent for TA-02 core area	02-612404	0–0.5	RE02-10-21967	0.0	0.0	37	2370
Lateral extent for TA-02 core area	02-612404	4–5	RE02-10-21968	0.0	0.0	3	1025
Lateral extent for TA-02 core area	02-612404	9–10	RE02-10-21969	0.0	0.0	8	988

Table 3.2-2 (continued)

Consolidated Unit/SWMU/AOC	Location ID	Depth (ft)	Sample ID	PID, ambient (ppm)	PID, head space (ppm)	Alpha (dpm)	Beta/ Gamma (dpm)
Lateral extent for TA-02 core area	02-612405	0–0.5	RE02-10-21970	0.0	0.0	80	2770
Lateral extent for TA-02 core area	02-612405	4–5	RE02-10-21971	0.0	0.0	37	2590
Lateral extent for TA-02 core area	02-612405	9–10	RE02-10-21972	0.0	0.0	86	2780
Lateral extent for TA-02 core area	02-612406	0–0.5	RE02-10-21973	0.0	0.0	43	2530
Lateral extent for TA-02 core area	02-612406	4–5	RE02-10-21974	0.0	0.0	70	2540
Lateral extent for TA-02 core area	02-612406	9–10	RE02-10-21975	0.0	0.0	26	2550
Lateral extent for TA-02 core area	02-612407	0–0.5	RE02-10-21976	0.0	0.0	59	2330
Lateral extent for TA-02 core area	02-612407	4–5	RE02-10-21977	0.0	0.0	37	2470
Lateral extent for TA-02 core area	02-612407	9–10	RE02-10-21978	0.0	0.0	26	2580
Lateral extent for TA-02 core area	02-612408	0–0.5	RE02-10-21979	0.0	0.0	15	2620
Lateral extent for TA-02 core area	02-612408	4–5	RE02-10-21980	0.0	0.0	33	2490
Lateral extent for TA-02 core area	02-612408	9–10	RE02-10-21981	0.0	0.0	16	2780
Lateral extent for TA-02 core area	02-612409	0–0.5	RE02-10-21982	0.0	0.0	55	838
Lateral extent for TA-02 core area	02-612409	4–5	RE02-10-21983	0.1	0.1	75	1354
Lateral extent for TA-02 core area	02-612409	9–10	RE02-10-21984	0.8	0.8	59	1265
Lateral extent for TA-02 core area	02-612410	0–0.5	RE02-10-21985	0.5	0.5	54	939
Lateral extent for TA-02 core area	02-612410	4–5	RE02-10-21986	0.2	0.2	63	1459
Lateral extent for TA-02 core area	02-612410	9–10	RE02-10-21987	0.3	0.3	63	1437
Lateral extent for TA-02 core area	02-612411	0–0.5	RE02-10-21988	0.4	0.4	63	1311
Lateral extent for TA-02 core area	02-612411	4–5	RE02-10-21989	0.2	0.2	36	1629
Lateral extent for TA-02 core area	02-612411	9–10	RE02-10-21990	0.3	0.3	36	1489
Lateral extent for TA-02 core area	02-612413	0–0.5	RE02-10-21994	0.3	0.3	74	1222
Lateral extent for TA-02 core area	02-612413	4–5	RE02-10-21995	0.2	0.2	54	1350
Lateral extent for TA-02 core area	02-612413	9–10	RE02-10-21996	0.2	0.2	64	1372
Lateral extent for TA-02 core area	02-612414	0–0.5	RE02-10-21997	0.0	0.0	15	847
Lateral extent for TA-02 core area	02-612414	4–5	RE02-10-21998	0.0	0.0	15	973
Lateral extent for TA-02 core area	02-612414	9–10	RE02-10-21999	0.0	0.0	5	1140
Lateral extent for TA-02 core area	02-612415	0–0.5	RE02-10-22000	0.0	0.0	68	1337
Lateral extent for TA-02 core area	02-612415	4–5	RE02-10-22001	0.0	0.0	13	1590
Lateral extent for TA-02 core area	02-612415	9–10	RE02-10-22002	0.0	0.1	46	1179
Lateral extent for TA-02 core area	02-612416	0–0.5	RE02-10-22003	0.0	0.0	67	1492
Lateral extent for TA-02 core area	02-612416	4–5	RE02-10-22004	0.1	0.1	55	1213
Lateral extent for TA-02 core area	02-612416	9–10	RE02-10-22005	0.0	0.1	20	1468
Lateral extent for TA-02 core area	02-612417	0–0.5	RE02-10-22006	0.0	0.1	33	1030
Lateral extent for TA-02 core area	02-612417	4–5	RE02-10-22007	0.0	0.1	47	1302
Lateral extent for TA-02 core area	02-612417	9–10	RE02-10-22008	0.0	0.0	38	1887

Table 3.2-2 (continued)

Consolidated Unit/SWMU/AOC	Location ID	Depth (ft)	Sample ID	PID, ambient (ppm)	PID, head space (ppm)	Alpha (dpm)	Beta/ Gamma (dpm)
TA-21							
Consolidated Unit 21-006(e)-99	21-612318	5–6	MD21-10-21629	0.0	0.0	0	414
Consolidated Unit 21-006(e)-99	21-612318	15–16	MD21-10-21630	0.0	0.0	0	401
Consolidated Unit 21-006(e)-99	21-612318	24–25	MD21-10-21631	0.0	0.0	28	217
Consolidated Unit 21-006(e)-99	21-612319	5–6	MD21-10-21632	0.0	0.0	13	257
Consolidated Unit 21-006(e)-99	21-612319	15–16	MD21-10-21633	0.0	0.0	28	488
Consolidated Unit 21-006(e)-99	21-612319	24–25	MD21-10-21634	0.0	0.0	18	457
Consolidated Unit 21-006(e)-99	21-612320	5–6	MD21-10-21637	0.0	0.0	14	528
Consolidated Unit 21-006(e)-99	21-612320	15–16	MD21-10-21638	0.0	0.0	2	543
Consolidated Unit 21-006(e)-99	21-612320	24–25	MD21-10-21639	0.0	0.0	0	295
Consolidated Unit 21-006(e)-99	21-612321	5–6	MD21-10-21640	0.0	0.0	38	241
Consolidated Unit 21-006(e)-99	21-612321	15–16	MD21-10-21641	0.0	0.0	15	205
Consolidated Unit 21-006(e)-99	21-612321	24–25	MD21-10-21642	0.0	0.0	12	626
Consolidated Unit 21-006(e)-99	21-612322	5–6	MD21-10-21643	0.0	0.0	18	702
Consolidated Unit 21-006(e)-99	21-612322	15–16	MD21-10-21644	0.0	0.0	45	629
Consolidated Unit 21-006(e)-99	21-612322	24–25	MD21-10-21645	0.0	0.0	15	475
Consolidated Unit 21-006(e)-99	21-612323	5–6	MD21-10-21646	0.0	0.0	2	460
Consolidated Unit 21-006(e)-99	21-612323	15–16	MD21-10-21647	0.0	0.0	25	543
Consolidated Unit 21-006(e)-99	21-612323	24–25	MD21-10-21648	0.0	0.0	18	410
Consolidated Unit 21-006(e)-99	21-612324	5–6	MD21-10-21649	0.0	0.0	10	256
Consolidated Unit 21-006(e)-99	21-612324	15–16	MD21-10-21650	0.0	0.0	0	223
Consolidated Unit 21-006(e)-99	21-612324	24–25	MD21-10-21651	0.0	0.0	2	288
AOC 21-028(c)	21-612329	5–6	MD21-10-21680	0.0	0.0	7	968
AOC 21-028(c)	21-612329	15–16	MD21-10-21681	0.0	0.0	18	658
AOC 21-028(c)	21-612329	24–25	MD21-10-21682	0.0	0.0	23	924
AOC 21-028(c)	21-612330	5–6	MD21-10-21685	0.0	0.0	13	820
AOC 21-028(c)	21-612330	15–16	MD21-10-21686	0.0	0.0	18	1138
AOC 21-028(c)	21-612330	24–25	MD21-10-21687	0.0	0.0	13	1101
AOC 21-028(c)	21-612331	5–6	MD21-10-21688	0.0	0.0	23	806
AOC 21-028(c)	21-612331	15–16	MD21-10-21689	0.0	0.0	18	946
AOC 21-028(c)	21-612331	24–25	MD21-10-21690	0.0	0.0	18	798
AOC 21-028(c)	21-612332	5–6	MD21-10-21691	0.0	0.0	5	573
AOC 21-028(c)	21-612332	15–16	MD21-10-21692	0.0	0.0	16	573
AOC 21-028(c)	21-612332	24–25	MD21-10-21693	0.0	0.0	27	618
AOC 21-028(c)	21-612333	5–6	MD21-10-21694	0.0	0.0	22	344
AOC 21-028(c)	21-612333	15–16	MD21-10-21695	0.0	0.0	5	625

Table 3.2-2 (continued)

Consolidated Unit/SWMU/AOC	Location ID	Depth (ft)	Sample ID	PID, ambient (ppm)	PID, head space (ppm)	Alpha (dpm)	Beta/ Gamma (dpm)
AOC 21-028(c)	21-612333	24–25	MD21-10-21696	0.0	0.0	0	507
AOC 21-028(c)	21-612334	5–6	MD21-10-21697	0.0	0.0	0	662
AOC 21-028(c)	21-612334	15–16	MD21-10-21698	0.0	0.0	0	558
AOC 21-028(c)	21-612334	24–25	MD21-10-21699	0.0	0.0	10	1078
AOC 21-028(c)	21-612335	5–6	MD21-10-21700	0.0	0.0	32	878
AOC 21-028(c)	21-612335	15–16	MD21-10-21701	0.0	0.0	10	1078
AOC 21-028(c)	21-612335	24–25	MD21-10-21702	0.0	0.0	26	893
AOC 21-028(c)	21-612336	5–6	MD21-10-21703	0.0	0.0	12	794
AOC 21-028(c)	21-612336	15–16	MD21-10-21704	0.0	0.0	28	1082
AOC 21-028(c)	21-612336	24–25	MD21-10-21705	0.0	0.0	28	1274
AOC 21-028(c)	21-612337	5–6	MD21-10-21706	0.0	0.0	12	988
AOC 21-028(c)	21-612337	15–16	MD21-10-21707	0.0	0.0	6	2430
AOC 21-028(c)	21-612337	24–25	MD21-10-21708	0.0	0.0	17	1151
AOC 21-028(c)	21-612338	5–6	MD21-10-21709	0.0	0.0	2	1060
AOC 21-028(c)	21-612338	15–16	MD21-10-21710	0.0	0.0	7	1201
AOC 21-028(c)	21-612338	24–25	MD21-10-21711	0.0	0.0	2	1379
AOC 21-028(c)	21-612339	5–6	MD21-10-21712	0.0	0.0	0	704
AOC 21-028(c)	21-612339	15–16	MD21-10-21713	0.0	0.0	21	1192
AOC 21-028(c)	21-612339	24–25	MD21-10-21714	0.0	0.0	16	837
AOC 21-028(c)	21-612340	5–6	MD21-10-21715	0.0	0.0	5	1251
AOC 21-028(c)	21-612340	15–16	MD21-10-21716	0.0	0.0	21	1081
AOC 21-028(c)	21-612340	24–25	MD21-10-21717	0.0	0.0	16	955
AOC 21-028(c)	21-612341	5–6	MD21-10-21718	0.0	0.0	21	756
AOC 21-028(c)	21-612341	15–16	MD21-10-21719	0.0	0.0	21	978
AOC 21-028(c)	21-612341	24–25	MD21-10-21720	0.0	0.0	16	807
AOC 21-028(c)	21-612342	5–6	MD21-10-21721	0.0	0.0	6	870
AOC 21-028(c)	21-612342	15–16	MD21-10-21722	0.0	0.0	1	1218
AOC 21-028(c)	21-612342	24–25	MD21-10-21723	0.0	0.0	0	1003
TA-26							
TA-26	26-612294	0–0.5	RE26-10-21535	0.0	0.0	13	1677
TA-26	26-612294	5–6	RE26-10-21536	0.0	0.0	13	1677
TA-26	26-612294	9–10	RE26-10-21537	0.0	0.0	13	1677
TA-26	26-612295	0–0.5	RE26-10-21538	0.0	0.0	11	1127
TA-26	26-612295	5–6	RE26-10-21539	0.0	0.0	11	1127
TA-26	26-612295	9–10	RE26-10-21540	0.0	0.0	11	1127
TA-26	26-612296	0–0.5	RE26-10-21541	0.0	0.0	27	1127

Table 3.2-2 (continued)

Consolidated Unit/SWMU/AOC	Location ID	Depth (ft)	Sample ID	PID, ambient (ppm)	PID, head space (ppm)	Alpha (dpm)	Beta/ Gamma (dpm)
TA-26	26-612296	5–6	RE26-10-21542	0.0	0.0	27	1127
TA-26	26-612296	9–10	RE26-10-21543	0.0	0.0	27	1127
TA-26	26-612297	0–0.5	RE26-10-21544	0.0	0.0	11	752
TA-26	26-612297	5–6	RE26-10-21545	0.0	0.0	11	752
TA-26	26-612297	9–10	RE26-10-21546	0.0	0.0	3	454
TA-26	26-612298	0–0.5	RE26-10-21547	0.0	0.0	11	752
TA-26	26-612298	5–6	RE26-10-21548	0.0	0.0	11	752
TA-26	26-612298	9–10	RE26-10-21549	0.0	0.0	11	752
TA-26	26-612299	0–0.5	RE26-10-21550	0.0	0.0	3	454
TA-26	26-612299	5–6	RE26-10-21551	0.0	0.0	0	1149
TA-26	26-612299	9–10	RE26-10-21552	0.0	0.0	0	1149
TA-26	26-612300	0–0.5	RE26-10-21553	0.0	0.0	3	454
TA-26	26-612300	5–6	RE26-10-21554	0.0	0.0	3	454
TA-26	26-612300	6–6.6	RE26-10-21555	0.0	0.0	3	454
TA-26	26-612301	0–0.5	RE26-10-21556	0.0	0.0	3	454
TA-26	26-612301	5–6	RE26-10-21557	0.0	0.0	0	1149
TA-26	26-612301	9–10	RE26-10-21558	0.0	0.0	0	1149
TA-26	26-612302	0–0.5	RE26-10-21559	0.0	0.0	3	454
TA-26	26-612302	5–6	RE26-10-21560	0.0	0.0	0	1149
TA-26	26-612302	9–10	RE26-10-21561	0.0	0.0	0	1149
TA-26	26-612303	0–0.5	RE26-10-21566	0.0	0.0	11	1443
TA-26	26-612303	5–6	RE26-10-21567	0.0	0.0	11	1443
TA-26	26-612303	15–16	RE26-10-21568	0.0	0.0	11	1443
TA-26	26-612303	24–25	RE26-10-21569	0.0	0.0	11	1443
TA-26	26-612304	0–0.5	RE26-10-21570	0.0	0.0	11	1443
TA-26	26-612304	5–6	RE26-10-21571	0.0	0.0	11	1443
TA-26	26-612304	15–16	RE26-10-21572	0.0	0.0	11	1443
TA-26	26-612304	24–25	RE26-10-21573	0.0	0.0	11	1443
TA-26	26-612305	0–0.5	RE26-10-21574	0.0	0.0	11	1443
TA-26	26-612305	5–6	RE26-10-21575	0.0	0.0	13	1677
TA-26	26-612305	15–16	RE26-10-21576	0.0	0.0	13	1677
TA-26	26-612305	24–25	RE26-10-21577	0.0	0.0	13	1677
TA-26	26-612306	0–0.5	RE26-10-21578	0.0	0.0	13	1677
TA-26	26-612306	5–6	RE26-10-21579	0.0	0.0	13	1677
TA-26	26-612306	15–16	RE26-10-21580	0.0	0.0	13	1677
TA-26	26-612306	24–25	RE26-10-21581	0.0	0.0	13	1677

Table 6.2-1
Samples Collected and Analyses Requested at AOC 02-003(a)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Gamma-emitting Radionuclides	Tritium	Hexavalent Chromium	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	Technetium-99	VOCs	Cyanide (Total)
0402-95-0294	02-01042	0–1	QBT 2	—*	—	58	58	—	58	58	—	—	—	58	—	—	—	—
0402-95-0295	02-01042	3.5–4.5	QBT 2	—	—	58	58	—	58	58	—	—	—	58	—	—	—	—
0402-95-0296	02-01042	7.5–8.5	QBT 2	—	—	58	58	—	58	58	—	—	—	58	—	—	—	—
0402-95-0393	02-01042	7.5–8.5	QBT 2	—	—	—	—	—	—	—	—	—	—	—	—	662	—	—
0402-95-0297	02-01042	10–15	QBT 2	—	—	58	58	—	58	58	—	—	—	58	—	—	—	—
CA02-00-0140	02-01241	3–4	FILL	—	—	7483R	7483R	—	7483R	7483R	7481R, 7482R	—	—	7483R	—	—	—	—
CA02-00-0141	02-01241	7.5–8.5	FILL	—	—	7483R	7483R	—	7483R	7483R	7481R, 7482R	—	—	7483R	—	—	—	—
CA02-00-0142	02-01241	11.5–12.5	SOIL	—	—	7483R	7483R	—	7483R	7483R	7481R, 7482R	—	—	7483R	—	—	—	—
CA02-00-0143	02-01241	15–16.5	SOIL	—	—	7483R	7483R	—	7483R	7483R	7481R, 7482R	—	—	7483R	—	—	—	—
CA02-00-0144	02-01242	0–1	SOIL	—	—	7483R	7483R	—	7483R	7483R	7481R, 7482R	—	—	7483R	—	—	—	—
CA02-00-0145	02-01242	2.5–4	SOIL	—	—	7483R	7483R	—	7483R	7483R	7481R, 7482R	—	—	7483R	—	—	—	—
CA02-00-0146	02-01242	6–7	SOIL	—	—	7483R	7483R	—	7483R	7483R	7481R, 7482R	—	—	7483R	—	—	—	—
CA02-00-0147	02-01242	10.5–14.5	SOIL	—	—	7483R	7483R	—	7483R	7483R	7481R, 7482R	—	—	7483R	—	—	—	—
CA02-00-0148	02-01242	15–16	SOIL	—	—	7483R	7483R	—	7483R	7483R	7481R, 7482R	—	—	7483R	—	—	—	—
RE02-07-670	02-600118	0–0.5	SOIL	07-792	07-792	07-792	07-792	—	07-792	07-792	07-792	07-792	07-792	07-792	07-792	—	—	07-792
RE02-07-673	02-600118	9.5–12	QBO	07-792	07-792	07-792	07-792	—	07-792	07-792	07-792	07-792	07-792	07-792	07-792	—	07-792	07-792
RE02-07-6820	02-600118	14.5–19	QBO	07-1139	07-1139	07-1139	07-1139	—	07-1139	07-1139	07-1137	07-1137	07-1139	07-1139	07-1137	—	07-1137	07-1139
RE02-07-674	02-600119	0–0.5	SOIL	07-593	07-592	07-593	07-593	—	07-593	07-593	07-592	07-591	07-592	07-593	07-591	—	—	07-592
RE02-07-675	02-600119	4.5–7.3	QAL	07-593	07-592	07-593	07-593	—	07-593	07-593	07-592	07-591	07-592	07-593	07-591	—	07-591	07-592
RE02-07-676	02-600119	15–21	QBO	07-607	07-606	07-607	07-607	—	07-607	07-607	07-606	07-605	07-606	07-607	07-605	—	07-605	07-606
RE02-07-678	02-600120	0–0.5	SOIL	07-593	07-592	07-593	07-593	—	07-593	07-593	07-592	07-591	07-592	07-593	07-591	—	—	07-592
RE02-07-679	02-600120	4.5–7.6	QAL	07-593	07-592	07-593	07-593	—	07-593	07-593	07-592	07-591	07-592	07-593	07-591	—	07-591	07-592
RE02-07-680	02-600120	14.5–17.8	QBO	07-593	07-592	07-593	07-593	—	07-593	07-593	07-592	07-591	07-592	07-593	07-591	—	07-591	07-592
RE02-07-682	02-600121	0–0.5	SOIL	07-607	07-606	07-607	07-607	—	07-607	07-607	07-606	07-605	07-606	07-607	07-605	—	—	07-606
RE02-07-683	02-600121	4.5–6.3	QAL	07-662	07-661	07-662	07-662	—	07-662	07-662	07-661	07-660	07-661	07-662	07-660	—	07-660	07-661
RE02-07-685	02-600121	10–12.3	QAL	07-662	07-661	07-662	07-662	—	07-662	07-662	07-661	07-660	07-661	07-662	07-660	—	07-660	07-661
RE02-07-684	02-600121	15–21	QBO	07-662	07-661	07-662	07-662	—	07-662	07-662	07-661	07-660	07-661	07-662	07-660	—	07-660	07-661
RE02-07-686	02-600122	0–0.5	SOIL	07-414	07-414	07-414	07-414	—	07-414	07-414	07-414	07-414	07-414	07-414	07-414	—	—	07-414
RE02-07-687	02-600122	2–4.5	QAL	07-570	07-570	07-570	07-570	—	07-570	07-570	07-570	07-570	07-570	07-570	07-570	—	07-570	07-570
RE02-07-688	02-600122	4.5–7.5	QAL	07-570	07-570	07-570	07-570	—	07-570	07-570	07-570	07-570	07-570	07-570	07-570	—	07-570	07-570
RE02-07-689	02-600123	0–0.5	SOIL	07-607	07-606	07-607	07-607	—	07-607	07-607	07-606	—	07-606	07-607	—	—	—	07-606
RE02-07-690	02-600123	2–2.5	QAL	07-662	07-661	07-662	07-662	—	07-662	07-662	07-661	07-660	07-661	07-662	07-660	—	07-660	07-661
RE02-07-691	02-600123	4.5–6.7	QAL	07-918	07-918	07-918	07-918	—	07-918	07-918	07-918	07-918	07-918	07-918	07-918	—	07-918	07-918

Table 6.2-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Gamma-emitting Radionuclides	Tritium	Hexavalent Chromium	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	Technetium-99	VOCs	Cyanide (Total)
RE02-07-692	02-600124	0–0.5	SOIL	07-607	07-606	07-607	07-607	—	07-607	07-607	07-606	07-605	07-606	07-607	07-605	—	—	07-606
RE02-07-693	02-600124	2–3.7	QAL	07-918	07-918	07-918	07-918	—	07-918	07-918	07-918	07-918	07-918	07-918	07-918	—	07-918	07-918
RE02-07-694	02-600124	4.5–5.7	QAL	07-918	07-918	07-918	07-918	—	07-918	07-918	07-918	07-918	07-918	07-918	07-918	—	07-918	07-918
RE02-10-21768	02-612348	5–7	QAL	—	—	10-4264	10-4264	10-4263	10-4264	10-4264	10-4263	10-4263	—	10-4264	10-4263	—	—	—
RE02-10-21769	02-612348	15–16	QAL	—	—	10-4264	10-4264	10-4263	10-4264	10-4264	10-4263	10-4263	—	10-4264	10-4263	—	—	—
RE02-10-21770	02-612348	25–26	QBO	—	—	10-4264	10-4264	10-4263	10-4264	10-4264	10-4263	10-4263	—	10-4264	10-4263	—	—	—
RE02-10-21771	02-612348	35–36	QBO	—	—	10-4264	10-4264	10-4263	10-4264	10-4264	10-4263	10-4263	—	10-4264	10-4263	—	—	—
RE02-10-21772	02-612348	49–50	QBO	—	—	10-4264	10-4264	10-4263	10-4264	10-4264	10-4263	10-4263	—	10-4264	10-4263	—	—	—
RE02-10-21904	02-612389	5–6	QAL	11-122	—	11-122	11-122	—	11-122	11-122	11-122	11-122	—	11-122	11-122	—	—	—
RE02-10-21905	02-612389	18–19	QAL	11-122	—	11-122	11-122	—	11-122	11-122	11-122	11-122	—	11-122	11-122	—	—	—
RE02-10-21906	02-612389	25–27	QBO	11-152	—	11-152	11-152	—	11-152	11-152	11-151	11-151	—	11-152	11-151	—	—	—
RE02-10-21907	02-612389	35–36	QBO	11-152	—	11-152	11-152	—	11-152	11-152	11-151	11-151	—	11-152	11-151	—	—	—
RE02-10-21908	02-612389	49–50	QBO	11-152	—	11-152	11-152	—	11-152	11-152	11-151	11-151	—	11-152	11-151	—	—	—

* — = Analysis not requested.

Table 6.2-2
Inorganic Chemicals above BVs at AOC 02-003(a)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Cadmium	Chromium	Copper	Iron	Lead	Manganese	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Vanadium	Zinc
Qbt 1g, Qct, Qbo BV[a]				**3560**	**0.5**	**0.56**	**25.7**	**0.4**	**2.6**	**3.96**	**3700**	**13.5**	**189**	**0.1**	**2**	**na[b]**	**na**	**0.3**	**4.59**	**40**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**0.4**	**19.3**	**14.7**	**21500**	**22.3**	**671**	**0.1**	**15.4**	**na**	**na**	**1.52**	**39.6**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**1120**	**2920[d]**	**45400**	**795000**	**800**	**145000**	**310[e]**	**22700**	**1820000**	**795**	**5680**	**5680**	**341000**
Recreational SSL[f]				**791000**	**317**	**27.7**	**158000**	**784**	**1910[d]**	**31700**	**554000**	**560**	**110000**	**238**	**15800**	**1260000**	**555**	**3960**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**77.9**	**219[d]**	**3130**	**54800**	**400**	**10700**	**23[e]**	**1560**	**125000**	**54.8**	**391**	**391**	**23500**
CA02-00-0140	02-01241	3–4	FILL	—[g]	—	—	—	—	—	—	—	—	—	—	—	NA[h]	NA	—	—	170
CA02-00-0144	02-01242	0–1	SOIL	—	—	—	—	—	—	77	—	—	—	—	—	NA	NA	—	—	—
CA02-00-0145	02-01242	2.5–4	SOIL	—	—	—	—	0.84	—	—	—	—	—	—	—	NA	NA	—	—	50
CA02-00-0147	02-01242	10.5–14.5	SOIL	—	—	—	—	—	—	—	—	29	1000	—	—	NA	NA	—	—	110
RE02-07-670	02-600118	0–0.5	SOIL	—	—	—	—	—	—	—	—	—	—	0.322	—	0.814 (J-)	0.000827 (J-)	—	—	50.4
RE02-07-673	02-600118	9.5–12	QBO	9980	—	2.74	55.8	0.59 (U)	9.65	4.06	5910	—	212	—	4.23	—	—	1.2 (J)	6.46	—
RE02-07-6820	02-600118	14.5–19	QBO	7110 (J+)	0.52 (U)	1.9 (U)	50.9	0.634 (U)	4.06 (J+)	—	5580	—	—	—	—	—	—	7.79	—	—
RE02-07-674	02-600119	0–0.5	SOIL	—	—	—	—	—	—	—	—	—	—	—	—	1.26 (J+)	—	—	—	—
RE02-07-675	02-600119	4.5–7.3	QAL	—	—	—	—	0.651	—	—	—	—	—	—	—	2.72 (J+)	0.00269	1.61 (U)	—	—
RE02-07-676	02-600119	15–21	QBO	6590	—	0.659 (J)	—	0.612 (U)	94.2 (J)	—	6430	—	258	—	43.1	—	—	1.84 (U)	—	—
RE02-07-678	02-600120	0–0.5	SOIL	—	—	—	—	1.05	—	—	—	—	—	—	—	1.72 (J+)	0.00565	—	—	49.1
RE02-07-679	02-600120	4.5–7.6	QAL	—	—	—	—	0.535 (U)	123	—	—	—	—	—	22.4 (U)	—	—	—	—	—
RE02-07-680	02-600120	14.5–17.8	QBO	6240	—	1.21 (J)	32.6	0.541 (U)	30.7 (U)	—	6270	—	276	—	8.34 (U)	—	—	0.68 (U)	5.75	—
RE02-07-682	02-600121	0–0.5	SOIL	—	—	—	—	—	—	—	—	—	—	1.18	—	1.18 (J-)	—	—	—	—
RE02-07-683	02-600121	4.5–6.3	QAL	—	—	—	—	—	20.8	—	—	—	—	—	—	—	—	—	—	—
RE02-07-685	02-600121	10–12.3	QAL	—	—	—	—	—	20	—	—	—	—	—	—	—	—	—	—	—
RE02-07-684	02-600121	15–21	QBO	7110	—	0.797 (J)	—	0.56 (U)	17.8 (U)	—	5400 (J+)	—	231	—	4.04 (U)	—	0.000628 (J)	1.68 (U)	—	—
RE02-07-686	02-600122	0–0.5	SOIL	—	—	—	—	—	—	—	—	—	—	0.146	—	—	—	—	—	—
RE02-07-687	02-600122	2–4.5	QAL	—	—	—	—	—	—	—	—	—	—	—	—	1.3 (J-)	—	—	—	53.7 (J+)
RE02-07-688	02-600122	4.5–7.5	QAL	—	—	—	—	—	—	—	—	—	—	—	—	1.39 (J-)	0.000596 (J)	—	—	—
RE02-07-689	02-600123	0–0.5	SOIL	—	—	—	—	—	—	—	—	—	—	0.408	—	2.13 (J-)	—	1.54 (U)	—	—
RE02-07-690	02-600123	2–2.5	QAL	—	—	—	—	2.23	—	—	—	—	—	0.545	—	—	—	—	—	49
RE02-07-691	02-600123	4.5–6.7	QAL	—	—	—	—	0.453 (J)	—	—	—	—	—	—	—	—	0.000608 (J)	—	—	—
RE02-07-692	02-600124	0–0.5	SOIL	—	—	—	—	—	—	—	—	—	—	0.355	—	—	—	—	—	—
RE02-07-693	02-600124	2–3.7	QAL	—	—	—	—	0.548 (U)	—	—	—	—	—	0.226	—	—	—	—	—	—
RE02-07-694	02-600124	4.5–5.7	QAL	—	—	—	—	0.531 (U)	—	—	—	—	—	—	—	—	—	1.59 (U)	—	—
RE02-10-21768	02-612348	5–7	QAL	—	1.12 (U)	—	—	0.559 (U)	—	—	—	—	—	—	—	NA	NA	—	—	—
RE02-10-21769	02-612348	15–16	QAL	—	1.16 (U)	—	—	0.579 (U)	—	—	—	—	—	—	—	NA	NA	—	—	—
RE02-10-21770	02-612348	25–26	QBO	—	1.32 (U)	1.27 (U)	—	0.662 (U)	—	—	5350	—	214 (J+)	—	—	NA	NA	1.27 (U)	—	—

Table 6.2-2 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Cadmium	Chromium	Copper	Iron	Lead	Manganese	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Vanadium	Zinc
Qbt 1g, Qct, Qbo BV[a]				**3560**	**0.5**	**0.56**	**25.7**	**0.4**	**2.6**	**3.96**	**3700**	**13.5**	**189**	**0.1**	**2**	**na[b]**	**na**	**0.3**	**4.59**	**40**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**0.4**	**19.3**	**14.7**	**21500**	**22.3**	**671**	**0.1**	**15.4**	**na**	**na**	**1.52**	**39.6**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**1120**	**2920[d]**	**45400**	**795000**	**800**	**145000**	**310[e]**	**22700**	**1820000**	**795**	**5680**	**5680**	**341000**
Recreational SSL[f]				**791000**	**317**	**27.7**	**158000**	**784**	**1910[d]**	**31700**	**554000**	**560**	**110000**	**238**	**15800**	**1260000**	**555**	**3960**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**77.9**	**219[d]**	**3130**	**54800**	**400**	**10700**	**23[e]**	**1560**	**125000**	**54.8**	**391**	**391**	**23500**
RE02-10-21771	02-612348	35–36	QBO	—	1.19 (U)	1.26 (U)	—	—	3.66	—	5390	—	199 (J+)	—	—	NA	NA	1.26 (U)	—	—
RE02-10-21772	02-612348	49–50	QBO	—	1.19 (U)	1.18 (U)	—	0.594 (U)	—	—	5600	—	223 (J+)	—	—	NA	NA	1.18 (U)	—	—
RE02-10-21904	02-612389	5–6	QAL	—	0.902 (U)	—	—	—	—	—	—	—	—	—	—	NA	NA	—	—	—
RE02-10-21905	02-612389	18–19	QAL	—	1.17 (U)	—	—	0.584 (U)	—	—	—	—	—	—	—	NA	NA	—	—	—
RE02-10-21906	02-612389	25–27	QBO	—	1.21 (U)	1.26 (U)	—	0.607 (U)	—	—	4930	—	—	—	—	NA	NA	1.26 (U)	—	—
RE02-10-21907	02-612389	35–36	QBO	—	1.3 (U)	1.28 (U)	—	0.65 (U)	—	—	5450	—	219	—	—	NA	NA	1.28 (U)	—	—
RE02-10-21908	02-612389	49–50	QBO	—	1.29 (U)	1.27 (U)	—	0.645 (U)	—	—	5750	—	243	—	—	NA	NA	1.27 (U)	4.6	—

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

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

[b] na = Not available.

[c] SSLs are from NMED (2009, 108070), unless otherwise noted.

[d] SSLs are for hexavalent chromium.

[e] SSLs are from EPA regional screening tables (http://www.epa.gov.earth1r6/6pd/rcra_c/pd-n/screen.htm).

[f] SSLs are from LANL (2010, 108613).

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

[h] NA = Not analyzed.

Table 6.2-3
Organic Chemicals Detected at AOC 02-003(a)

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	Bis(2-ethylhexyl)phthalate	Chrysene	Dichlorobenzene[1,4-]	Fluoranthene	Indeno(1,2,3-cd)pyrene	Methylene Chloride	Naphthalene	Phenanthrene	Pyrene	Toluene
Industrial SSL[a]				**36700**	**183000**	**8.26**	**8.26**	**23.4**	**2.34**	**23.4**	**18300[b]**	**234**	**1370**	**2340**	**180**	**24400**	**23.4**	**1090**	**252**	**20500**	**18300**	**57900**
Recreational SSL[c]				**20800**	**104000**	**6.65**	**10.5**	**30.1**	**3.01**	**30.1**	**10400[b]**	**301**	**1830**	**3010**	**1260**	**13900**	**30.1**	**4520**	**1950**	**12000**	**10400**	**60800**
Residential SSL[a]				**3440**	**17200**	**1.12**	**2.22**	**6.21**	**0.621**	**6.21**	**1720[b]**	**62.1**	**347**	**621**	**32.2**	**2290**	**6.21**	**199**	**45**	**1830**	**1720**	**5570**
RE02-07-670	02-600118	0–0.5	SOIL	—[d]	0.0104 (J)	—	0.74	—	0.0298 (J)	0.0327 (J)	0.0121 (J)	—	—	0.021 (J)	—	0.0345 (J)	—	NA[e]	0.0111 (J)	0.0344 (J)	0.0356 (J)	NA
RE02-07-6820	02-600118	14.5–19	QBO	—	—	—	0.0886	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-674	02-600119	0–0.5	SOIL	0.0136 (J)	0.0214 (J)	0.171	0.262	0.0683	0.0974	—	—	—	—	0.0649	—	0.173	—	NA	—	0.0942	0.158	NA
RE02-07-675	02-600119	4.5–7.3	QAL	—	—	0.513	0.185	—	—	—	—	—	—	—	—	0.0102 (J)	—	—	—	—	—	—
RE02-07-678	02-600120	0–0.5	SOIL	—	—	0.0094	0.0109	0.0285 (J)	—	—	—	—	—	0.0232 (J)	—	0.0538	—	NA	—	0.0253 (J)	0.0557	NA
RE02-07-679	02-600120	4.5–7.6	QAL	—	—	0.0624	0.0045	—	—	—	—	—	—	—	—	0.0163 (J)	—	—	—	0.0145 (J)	0.0137 (J)	0.000362 (J)
RE02-07-682	02-600121	0–0.5	SOIL	—	0.007 (J)	0.0116 (J)	—	0.0267 (J)	0.099	0.0436	—	—	—	0.028 (J)	—	0.0514	0.0554	NA	—	0.0372	0.0462	NA
RE02-07-683	02-600121	4.5–6.3	QAL	—	—	0.0587	0.0574	0.0122 (J)	—	—	—	—	—	—	—	0.0114 (J)	—	0.00452 (J)	—	—	—	0.00037 (J)
RE02-07-685	02-600121	10–12.3	QAL	—	—	—	0.0066	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-686	02-600122	0–0.5	SOIL	—	—	0.0183 (J)	0.0191 (J)	—	—	—	—	—	—	0.0152 (J)	—	0.0182 (J)	—	NA	—	0.0111 (J)	0.0327 (J)	NA
RE02-07-687	02-600122	2–4.5	QAL	—	—	0.653	1.25	0.0328 (J)	0.0278 (J)	0.0327 (J)	0.0203 (J)	0.0182 (J)	—	0.0287 (J)	0.000563 (J)	0.0568	0.0165 (J)	—	—	0.0279 (J)	0.048	—
RE02-07-688	02-600122	4.5–7.5	QAL	—	—	0.0776	0.0226	—	—	—	—	—	0.153 (J)	—	—	—	—	—	—	—	—	—
RE02-07-690	02-600123	2–2.5	QAL	—	—	—	0.0018 (J)	0.0125 (J)	—	—	—	—	—	—	—	0.0141 (J)	—	0.00355 (J)	—	0.0107 (J)	0.0114 (J)	—
RE02-07-692	02-600124	0–0.5	SOIL	—	—	—	—	—	—	—	—	—	—	—	—	0.0145 (J)	—	NA	—	—	0.0253 (J)	NA
RE02-07-693	02-600124	2–3.7	QAL	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.0151 (J)	—
RE02-10-21768	02-612348	5–7	QAL	—	—	0.0103 (J)	0.0049	—	—	—	—	—	—	—	—	—	—	NA	—	—	—	NA
RE02-10-21771	02-612348	35–36	QBO	—	—	—	0.0022 (J)	—	—	—	—	—	—	—	—	—	—	NA	—	—	—	NA
RE02-10-21904	02-612389	5–6	QAL	—	—	0.298 (J)	0.0326 (J)	—	—	—	—	—	—	—	—	—	—	NA	—	—	—	NA

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

[a] SSLs are from NMED (2009, 108070), unless otherwise noted.

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

[c] SSLs are from LANL (2010, 108613).

[d] — = Not detected.

[e] NA = Not analyzed.

Table 6.2-4
Radionuclides Detected or Detected above BVs/FVs at AOC 02-003(a)

Sample ID	Location ID	Depth (ft)	Media	Cesium-137	Plutonium-239/240	Strontium-90	Tritium	Uranium-235/236
Qbt 1g, Qct, Qbo BV[a]				**na[b]**	**na**	**na**	**na**	**0.18**
Qbt 2, 3, 4 BV[a]				**na**	**na**	**na**	**na**	**0.09**
Soil BV[a]				**1.65**	**0.054**	**1.31**	**na**	**0.2**
Industrial SAL[c]				**23**	**210**	**1900**	**440000**	**87**
Recreational SAL[c]				**210**	**300**	**5600**	**5300000**	**520**
Residential SAL[c]				**5.6**	**33**	**5.7**	**750**	**17**
0402-95-0294	02-01042	0–1	QBT 2	—[d]	—	—	0.0209342	—
0402-95-0295	02-01042	3.5–4.5	QBT 2	—	—	—	0.0375419	—
0402-95-0296	02-01042	7.5–8.5	QBT 2	—	—	—	0.0887023	—
0402-95-0297	02-01042	10–15	QBT 2	—	—	—	0.0678363	—
CA02-00-0140	02-01241	3–4	FILL	33.3	3.34	7.66	0.0319462	—
CA02-00-0141	02-01241	7.5–8.5	FILL	1.6	—	43 (J-)	0.107304	—
CA02-00-0142	02-01241	11.5–12.5	SOIL	0.165	—	—	—	—
CA02-00-0143	02-01241	15–16.5	SOIL	0.0471	—	—	0.0356339	—
CA02-00-0145	02-01242	2.5–4	SOIL	0.264	0.177	0.374	—	—
CA02-00-0148	02-01242	15–16	SOIL	0.232	—	—	—	—
RE02-07-675	02-600119	4.5–7.3	QAL	6.5	0.119	2.07	0.0361173	—
RE02-07-678	02-600120	0–0.5	SOIL	5.7	0.252	—	0.011825	—
RE02-07-679	02-600120	4.5–7.6	QAL	8.96	0.0393	4.69	—	—
RE02-07-683	02-600121	4.5–6.3	QAL	2.22	1.49	0.745	—	—
RE02-07-687	02-600122	2–4.5	QAL	3.65	0.115	0.367	—	—
RE02-07-688	02-600122	4.5–7.5	QAL	48.4	0.247	8.85	0.0423011	—
RE02-07-691	02-600123	4.5–6.7	QAL	0.215	0.706	—	—	—
RE02-07-692	02-600124	0–0.5	SOIL	—	0.084	—	—	—
RE02-07-693	02-600124	2–3.7	QAL	0.245	0.0886	—	0.0345	—
RE02-07-694	02-600124	4.5–5.7	QAL	0.144	—	—	—	—
RE02-10-21772	02-612348	49–50	QBO	—	—	—	0.0525806	—
RE02-10-21904	02-612389	5–6	QAL	274	0.644	32.8	0.021	—
RE02-10-21908	02-612389	49–50	QBO	—	—	—	—	0.194

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

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

[b] na = Not available.

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

[d] — = Not detected.

Table 6.3-1
Samples Collected and Analyses Requested at AOC 02-003(b)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Gamma-emitting Radionuclides	Tritium	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	Technetium-99	VOCs	Cyanide (Total)
0402-95-0279	02-01104	9–10	QBT 2	—*	—	46	46	46	46	—	—	—	46	32	—	—	—
0402-95-0280	02-01104	13–14	QBT 2	—	—	46	46	46	46	—	—	—	46	32	—	—	—
0402-95-0394	02-01104	13–14	QBT 2	—	—	—	—	—	—	—	—	—	—	—	662	—	—
CA02-00-0085	02-01235	5–5.5	SOIL	—	—	7473R	7473R	7473R	7473R	7471R, 7472R	—	—	7473R	7470R	—	—	—
CA02-00-0086	02-01235	6–7.5	SOIL	—	—	7473R	7473R	7473R	7473R	7471R, 7472R	—	—	7473R	7470R	—	—	—
CA02-00-0087	02-01235	8.5–9.5	SOIL	—	—	7473R	7473R	7473R	7473R	7471R, 7472R	—	—	7473R	7470R	—	—	—
CA02-00-0088	02-01235	10–12	SOIL	—	—	7473R	7473R	7473R	7473R	7471R, 7472R	—	—	7473R	7470R	—	—	—
CA02-00-0089	02-01235	12.5–13.7	SOIL	—	—	7473R	7473R	7473R	7473R	7471R, 7472R	—	—	7473R	7470R	—	—	—
CA02-00-0090	02-01235	15–17	QBT 2	—	—	7473R	7473R	7473R	7473R	7471R, 7472R	—	—	7473R	7470R	—	—	—
RE02-07-696	02-600125	0–0.5	SOIL	07-680	07-679	07-680	07-680	07-680	07-680	07-679	07-678	07-679	07-680	07-678	—	—	07-679
RE02-07-697	02-600125	4.5–9	QAL	07-813	07-812	07-813	07-813	07-813	07-813	07-812	07-811	07-812	07-813	07-811	—	07-811	07-812
RE02-07-698	02-600125	9–11.3	QAL	07-813	07-812	07-813	07-813	07-813	07-813	07-812	07-811	07-812	07-813	07-811	—	07-811	07-812
RE02-07-699	02-600125	14.5–16.7	QBO	07-813	07-812	07-813	07-813	07-813	07-813	07-812	07-811	07-812	07-813	07-811	—	07-811	07-812
RE02-07-701	02-600126	0–0.5	SOIL	07-680	07-679	07-680	07-680	07-680	07-680	07-679	07-678	07-679	07-680	07-678	—	—	07-679
RE02-07-702	02-600126	4.5–5.2	QAL	07-680	07-679	07-680	07-680	07-680	07-680	07-679	07-678	07-679	07-680	07-678	—	07-678	07-679
RE02-07-703	02-600126	9.5–12.7	QAL	07-813	07-812	07-813	07-813	07-813	07-813	07-812	07-811	07-812	07-813	07-811	—	07-811	07-812
RE02-07-704	02-600126	14.5–16.7	QBO	07-813	07-812	07-813	07-813	07-813	07-813	07-812	07-811	07-812	07-813	07-811	—	07-811	07-812
RE02-07-706	02-600127	0–0.5	SOIL	07-680	07-679	07-680	07-680	07-680	07-680	07-679	07-678	07-679	07-680	07-678	—	—	07-679
RE02-07-707	02-600127	4.5–6.4	QAL	07-954	07-954	07-954	07-954	07-954	07-954	07-954	07-954	07-954	07-954	07-954	—	07-954	07-954
RE02-07-708	02-600127	9.5–11.9	QBO	07-925	07-925	07-925	07-925	07-925	07-925	07-925	07-925	07-925	07-925	07-925	—	07-925	07-925
RE02-07-711	02-600128	0–0.5	SED	07-680	07-679	07-680	07-680	07-680	07-680	07-679	07-678	07-679	07-680	07-678	—	—	07-679
RE02-07-716	02-600129	0–0.5	SOIL	07-680	07-679	07-680	07-680	07-680	07-680	07-679	07-678	07-679	07-680	07-678	—	—	07-679
RE02-10-21911	02-612390	5–6	QAL	10-4513	—	10-4513	10-4513	10-4513	10-4513	10-4512	10-4512	—	10-4513	10-4512	—	—	—
RE02-10-21912	02-612390	15–17	QBO	10-4513	—	10-4513	10-4513	10-4513	10-4513	10-4512	10-4512	—	10-4513	10-4512	—	—	—
RE02-10-21913	02-612390	26–27	QBO	10-4513	—	10-4513	10-4513	10-4513	10-4513	10-4512	10-4512	—	10-4513	10-4512	—	—	—
RE02-10-21914	02-612390	35–36	QBO	10-4513	—	10-4513	10-4513	10-4513	10-4513	10-4512	10-4512	—	10-4513	10-4512	—	—	—
RE02-10-21915	02-612390	49–50	QBO	10-4513	—	10-4513	10-4513	10-4513	10-4513	10-4512	10-4512	—	10-4513	10-4512	—	—	—

* — = Analysis not requested.

Table 6.3-2
Inorganic Chemicals above BVs at AOC 02-003(b)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Cadmium	Chromium	Copper	Iron	Manganese	Mercury	Nickel	Nitrate	Selenium	Silver	Vanadium	Zinc
Qbt 1g, Qct, Qbo BV[a]				**3560**	**0.5**	**0.56**	**25.7**	**0.4**	**2.6**	**3.96**	**3700**	**189**	**0.1**	**2**	**na[b]**	**0.3**	**1**	**4.59**	**40**
Qbt 2, 3, 4 BV[a]				**7340**	**0.5**	**2.79**	**46**	**1.63**	**7.14**	**4.66**	**14500**	**482**	**0.1**	**6.58**	**na**	**0.3**	**1**	**17**	**63.5**
Sediment BV[a]				**15400**	**0.83**	**3.98**	**127**	**0.4**	**10.5**	**11.2**	**13800**	**543**	**0.1**	**9.38**	**na**	**0.3**	**1**	**19.7**	**60.2**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**0.4**	**19.3**	**14.7**	**21500**	**671**	**0.1**	**15.4**	**na**	**1.52**	**1**	**39.6**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**1120**	**2920[d]**	**45400**	**795000**	**145000**	**310[e]**	**22700**	**1820000**	**5680**	**5680**	**5680**	**341000**
Recreational SSL[f]				**791000**	**317**	**27.7**	**158000**	**784**	**1910[d]**	**31700**	**554000**	**110000**	**238**	**15800**	**1260000**	**3960**	**3960**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**77.9**	**219[d]**	**3130**	**54800**	**10700**	**23[e]**	**1560**	**125000**	**391**	**391**	**391**	**23500**
CA02-00-0085	02-01235	5–5.5	SOIL	—[g]	—	—	—	—	—	—	—	—	0.21 (U)	—	NA[h]	—	—	—	—
CA02-00-0087	02-01235	8.5–9.5	SOIL	—	—	—	—	—	—	—	—	—	—	—	NA	—	1.1	—	—
CA02-00-0089	02-01235	12.5–13.7	SOIL	—	—	—	—	—	—	—	—	—	—	—	NA	—	1.3	—	—
CA02-00-0090	02-01235	15–17	QBT 2	14000	—	—	—	—	—	—	—	—	—	—	NA	—	—	—	—
RE02-07-696	02-600125	0–0.5	SOIL	—	—	—	—	0.512 (U)	—	—	—	—	—	—	1.62 (J)	—	—	—	—
RE02-07-697	02-600125	4.5–9	QAL	—	—	—	—	0.547 (U)	—	—	—	—	—	—	2.74	1.64 (U)	—	—	—
RE02-07-698	02-600125	9–11.3	QAL	—	—	—	—	0.515 (U)	—	—	—	—	—	—	—	1.54 (U)	—	—	—
RE02-07-699	02-600125	14.5–16.7	QBO	8130	—	0.99 (J)	—	0.592 (U)	58.7 (U)	—	5760	199	—	3.42 (U)	—	1.78 (U)	—	—	—
RE02-07-701	02-600126	0–0.5	SOIL	—	—	—	—	0.49 (U)	—	—	—	—	—	—	—	—	—	—	—
RE02-07-702	02-600126	4.5–5.2	QAL	—	—	—	—	0.544 (U)	—	—	—	—	—	—	1.45 (J)	1.63 (U)	—	—	—
RE02-07-703	02-600126	9.5–12.7	QAL	—	—	—	—	0.552 (U)	—	—	—	—	—	—	—	1.65 (U)	—	—	—
RE02-07-704	02-600126	14.5–16.7	QBO	9950	—	1.15 (J)	61.7	0.575 (U)	8.77 (U)	—	6440	199	—	3.26 (U)	—	1.73 (U)	—	—	—
RE02-07-706	02-600127	0–0.5	SOIL	—	—	—	—	0.505 (U)	—	—	—	—	—	—	7.94 (J)	—	—	—	—
RE02-07-707	02-600127	4.5–6.4	QAL	—	—	—	—	0.534 (U)	—	—	—	—	—	—	1.22	—	—	—	—
RE02-07-708	02-600127	9.5–11.9	QBO	7190	—	1.49 (J)	48	0.562 (U)	15	4.47	8300	235	—	3.12	1.92	1.69 (U)	—	10.4 (J)	—
RE02-07-711	02-600128	0–0.5	SED	—	—	—	—	0.521 (U)	—	—	—	—	—	—	3.55 (J)	1.56 (U)	—	—	—
RE02-07-716	02-600129	0–0.5	SOIL	—	—	—	—	—	—	—	—	—	0.443	—	3.09 (J)	—	—	—	—
RE02-10-21911	02-612390	5–6	QAL	—	0.941 (U)	—	—	—	—	—	—	—	—	—	NA	—	—	—	49.2 (J)
RE02-10-21912	02-612390	15–17	QBO	5810	1.2 (U)	1.14 (U)	—	0.599 (U)	—	—	4700	—	—	—	NA	1.14 (U)	—	—	—
RE02-10-21913	02-612390	26–27	QBO	—	1.15 (U)	1.21 (U)	—	0.573 (U)	—	—	5230	219	—	—	NA	1.21 (U)	—	—	—
RE02-10-21914	02-612390	35–36	QBO	—	1.27 (U)	1.16 (U)	—	0.635 (U)	—	—	5010	—	—	—	NA	1.16 (U)	—	—	—
RE02-10-21915	02-612390	49–50	QBO	—	1.23 (U)	1.24 (U)	—	0.615 (U)	—	—	5850	—	—	—	NA	1.24 (U)	—	—	—

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

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

[b] na = Not available.

[c] SSLs are from NMED (2009, 108070), unless otherwise noted.

[d] SSLs are for hexavalent chromium.

[e] SSLs are from EPA regional screening tables (http://www.epa.gov.earth1r6/6pd/rcra_c/pd-n/screen.htm).

[f] SSLs are from LANL (2010, 108613).

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

[h] NA = Not analyzed.

Table 6.3-3
Organic Chemicals Detected at AOC 02-003(b)

Sample ID	Location ID	Depth (ft)	Media	Anthracene	Aroclor-1248	Aroclor-1254	Aroclor-1260	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Butylbenzene[n-]	Chrysene	Di-n-butylphthalate	Fluoranthene	Fluorene	Isopropyltoluene[4-]	Methylnaphthalene[2-]	Phenanthrene	Pyrene	Trimethylbenzene[1,2,4-]
Industrial SSL[a]				**183000**	**8.26**	**8.26**	**8.26**	**23.4**	**2.34**	**23.4**	**18300[b]**	**234**	**560[c]**	**2340**	**68400**	**24400**	**24400**	**14900[d]**	**4100[e]**	**20500**	**18300**	**260[e]**
Recreational SSL[f]				**104000**	**10.5**	**6.65**	**10.5**	**30.1**	**3.01**	**30.1**	**10400[b]**	**301**	**69600**	**3010**	**39900**	**13900**	**13900**	**52700[d]**	**3170**	**12000**	**10400**	**6880**
Residential SSL[a]				**17200**	**2.22**	**1.12**	**2.22**	**6.21**	**0.621**	**6.21**	**1720[b]**	**62.1**	**140[c]**	**621**	**6110**	**2290**	**2290**	**3210[d]**	**310[e]**	**1830**	**1720**	**62[e]**
0402-95-0279	02-01104	9–10	QBT 2	—[g]	NA[h]	NA	NA	—	—	—	—	—	NA	—	0.2 (J)	—	—	NA	—	—	—	NA
0402-95-0280	02-01104	13–14	QBT 2	—	NA	NA	NA	—	—	—	—	—	NA	—	0.067 (J)	—	—	NA	—	—	—	NA
CA02-00-0085	02-01235	5–5.5	SOIL	—	NA	NA	NA	—	—	—	—	—	NA	—	—	0.099 (J)	—	NA	—	0.091 (J)	0.11 (J)	NA
RE02-07-696	02-600125	0–0.5	SOIL	—	—	0.844	0.369	—	—	—	—	—	NA	—	—	0.0138 (J)	—	NA	—	—	0.0111 (J)	NA
RE02-07-697	02-600125	4.5–9	QAL	—	—	0.103 (J-)	0.0423 (J-)	—	—	—	—	—	0.000661 (J)	—	—	—	—	0.000403 (J)	—	—	—	0.000229 (J)
RE02-07-698	02-600125	9–11.3	QAL	—	—	—	0.0016 (J)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-701	02-600126	0–0.5	SOIL	0.00862 (J)	—	0.0242	0.0131	—	—	0.0105 (J)	—	—	NA	—	—	0.0125 (J)	—	NA	—	—	—	NA
RE02-07-702	02-600126	4.5–5.2	QAL	—	—	0.0035 (J)	0.0022 (J)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-703	02-600126	9.5–12.7	QAL	—	0.0076	—	0.0022 (J)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-706	02-600127	0–0.5	SOIL	—	—	0.0559	0.025	—	—	—	—	—	NA	—	—	—	—	NA	—	—	—	NA
RE02-07-707	02-600127	4.5–6.4	QAL	—	—	0.0067	0.0058	—	—	—	—	—	—	—	—	0.0124 (J)	—	—	—	—	—	—
RE02-07-708	02-600127	9.5–11.9	QBO	—	—	—	0.0015 (J)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-711	02-600128	0–0.5	SED	0.0158 (J)	—	0.0644	0.0896	0.0831	0.114	0.164	0.0467 (J)	0.0654	NA	0.107	—	0.228	—	NA	—	—	0.175	NA
RE02-07-716	02-600129	0–0.5	SOIL	0.0351	—	0.0079	0.0093	0.0609	0.0709	0.0814	—	0.039	NA	0.0538	—	0.134	0.0223 (J)	NA	0.0137 (J)	—	0.103	NA
RE02-10-21911	02-612390	5–6	QAL	—	—	0.0121	0.0086	—	—	—	—	—	NA	—	—	—	—	NA	—	—	0.0126 (J)	NA

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

[a] SSLs are from NMED (2009, 108070), unless otherwise noted.

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

[c] SSLs are from EPA (2007, 099314).

[d] Isopropylbenzene used as surrogate based on structural similarity.

[e] SSLs are from EPA regional screening tables (http://www.epa.gov.earth1r6/6pd/rcra_c/pd-n/screen.htm).

[f] SSLs are from LANL (2010, 108613).

[g] — = Not detected.

[h] NA = Not analyzed.

Table 6.3-4
Radionuclides Detected or Detected above BVs/FVs at AOC 02-003(b)

Sample ID	Location ID	Depth (ft)	Media	Cesium-137	Plutonium-239/240	Strontium-90	Tritium	Uranium-234	Uranium-235/236	Uranium-238
Qbt 1g, Qct, Qbo BV[a]				**na[b]**	**na**	**na**	**na**	**4**	**0.18**	**3.9**
Qbt 2, 3, 4 BV[a]				**na**	**na**	**na**	**na**	**1.98**	**0.09**	**1.93**
Sediment BV[a]				**0.9**	**0.068**	**1.04**	**0.093**	**2.59**	**0.2**	**2.29**
Soil BV[a]				**1.65**	**0.054**	**1.31**	**na**	**2.59**	**0.2**	**2.29**
Industrial SAL[c]				**23**	**210**	**1900**	**440000**	**1500**	**87**	**430**
Recreational SAL[c]				**210**	**300**	**5600**	**5300000**	**3200**	**520**	**2100**
Residential SAL[c]				**5.6**	**33**	**5.7**	**750**	**170**	**17**	**87**
0402-95-0279	02-01104	9–10	QBT 2	—[d]	—	0.96	0.191079	—	—	—
0402-95-0280	02-01104	13–14	QBT 2	—	—	—	0.304311	—	—	—
CA02-00-0085	02-01235	5–5.5	SOIL	0.329	0.027	—	—	—	—	—
CA02-00-0086	02-01235	6–7.5	SOIL	0.274	—	—	—	—	—	—
CA02-00-0087	02-01235	8.5–9.5	SOIL	0.254	—	—	—	—	—	—
CA02-00-0088	02-01235	10–12	SOIL	0.0921	—	—	0.0174346	—	—	—
CA02-00-0089	02-01235	12.5–13.7	SOIL	0.154	0.0391	—	0.0266187	—	—	—
CA02-00-0090	02-01235	15–17	QBT 2	—	—	—	0.0479599	2.8	—	2.64
RE02-07-697	02-600125	4.5–9	QAL	4.46	0.542	0.96	0.0262783	—	—	—
RE02-07-702	02-600126	4.5–5.2	QAL	—	—	—	0.032082	—	—	—
RE02-07-703	02-600126	9.5–12.7	QAL	—	—	0.173	0.0295674	—	—	—
RE02-07-704	02-600126	14.5–16.7	QBO	—	—	—	0.0408605	—	—	—
RE02-07-707	02-600127	4.5–6.4	QAL	0.171	0.267 (J-)	—	—	—	—	—
RE02-07-711	02-600128	0–0.5	SED	—	0.631	—	—	—	—	—
RE02-07-716	02-600129	0–0.5	SOIL	—	0.768	—	0.0110688	—	—	—
RE02-10-21911	02-612390	5–6	QAL	4.44	0.595	0.347	0.0184875	—	—	—
RE02-10-21912	02-612390	15–17	QBO	—	0.0171	—	—	—	—	—
RE02-10-21913	02-612390	26–27	QBO	—	—	—	0.0472884	—	0.191	—
RE02-10-21914	02-612390	35–36	QBO	—	—	—	0.077599	—	—	—
RE02-10-21915	02-612390	49–50	QBO	—	—	—	0.121403	—	—	—

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

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

[b] na = Not available.

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

[d] — = Not detected.

Table 6.4-1
Samples Collected and Analyses Requested at AOC 02-003(c)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Gamma-emitting Radionuclides	Tritium	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	Technetium-99	VOCs	Cyanide (Total)
0402-95-0291	02-01043	7.5–8.5	QBT 2	—*	—	53	53	53	53	—	—	—	53	—	—	—	—
0402-95-0292	02-01043	14–15	QBT 2	—	—	53	53	53	53	—	—	—	53	—	—	—	—
0402-95-0029	02-01144	14–15	QBT 2	—	—	48	48	48	48	—	—	—	48	—	—	—	—
0402-95-0033	02-01145	9–10	QBT 2	—	—	53	53	53	53	—	—	—	53	—	—	—	—
0402-95-0397	02-01145	9–10	QBT 2	—	—	—	—	—	—	—	—	—	—	—	662	—	—
0402-95-0034	02-01145	12.5–13.5	QBT 2	—	—	53	53	53	53	—	—	—	53	—	—	—	—
CA02-00-0125	02-01237	8–8.75	SOIL	—	—	7460R	7460R	7460R	7460R	7458R, 7459R	—	—	7460R	—	—	—	—
CA02-00-0128	02-01238	14–14.75	SOIL	—	—	7460R	7460R	7460R	7460R	7458R, 7459R	—	—	7460R	—	—	—	—
RE02-07-6177	02-600196	0–0.5	SOIL	07-838	07-838	07-838	07-838	07-838	07-838	07-838	07-837	07-838	07-838	07-837	—	—	07-838
RE02-07-806	02-600196	0–4.5	SOIL	07-349	07-348	07-349	07-349	07-349	07-349	07-348	07-347	07-348	07-349	07-347	—	—	07-348
RE02-07-807	02-600196	4.5–9	QAL	07-349	07-348	07-349	07-349	07-349	07-349	07-348	07-347	07-348	07-349	07-347	—	07-347	07-348
RE02-07-808	02-600196	19–22	QBO	07-386	07-385	07-386	07-386	07-386	07-386	07-385	07-384	07-385	07-386	07-384	—	07-384	07-385
RE02-07-810	02-600197	0–0.5	SOIL	07-1077	07-1077	07-1077	07-1077	07-1077	07-1077	07-1077	—	07-1077	07-1077	07-1077	—	—	07-1077
RE02-07-811	02-600197	4.5–9.5	QAL	07-1101	07-1101	07-1101	07-1101	07-1101	07-1101	07-1101	—	07-1101	07-1101	07-1101	—	07-1101	07-1101
RE02-07-813	02-600197	9.5–12	QAL	07-1101	07-1101	07-1101	07-1101	07-1101	07-1101	07-1101	—	07-1101	07-1101	07-1101	—	07-1101	07-1101
RE02-07-812	02-600197	14.5–18.5	QBO	07-1101	07-1101	07-1101	07-1101	07-1101	07-1101	07-1101	—	07-1101	07-1101	07-1101	—	07-1101	07-1101
RE02-07-814	02-600198	0–0.5	SOIL	07-1061	07-1060	07-1061	07-1061	07-1061	07-1061	07-1060	—	07-1060	07-1061	07-1059	—	—	07-1060
RE02-07-815	02-600198	0.5–5	QAL	07-1061	07-1060	07-1061	07-1061	07-1061	07-1061	07-1060	—	07-1060	07-1061	07-1059	—	07-1059	07-1060
RE02-07-817	02-600198	14.5–19.5	QAL	07-1061	07-1060	07-1061	07-1061	07-1061	07-1061	07-1060	—	07-1060	07-1061	07-1059	—	07-1059	07-1060
RE02-07-816	02-600198	19.5–24.5	QBO	07-1061	07-1060	07-1061	07-1061	07-1061	07-1061	07-1060	—	07-1060	07-1061	07-1059	—	07-1059	07-1060
RE02-07-818	02-600199	0–0.5	SOIL	07-1061	07-1060	07-1061	07-1061	07-1061	07-1061	07-1060	—	07-1060	07-1061	07-1059	—	—	07-1060
RE02-07-819	02-600199	4.5–7.3	QAL	07-1061	07-1060	07-1061	07-1061	07-1061	07-1061	07-1060	—	07-1060	07-1061	07-1059	—	07-1059	07-1060
RE02-07-822	02-600200	0–0.5	SOIL	07-674	07-674	07-674	07-674	07-674	07-674	07-674	—	07-674	07-674	—	—	—	07-674
RE02-07-823	02-600200	4.5–7	QAL	07-1078	07-1078	07-1078	07-1078	07-1078	07-1078	07-1078	—	07-1078	07-1078	07-1078	—	07-1078	07-1078
RE02-07-825	02-600200	9.5–14.5	QBO	07-1078	07-1078	07-1078	07-1078	07-1078	07-1078	07-1078	—	07-1078	07-1078	07-1078	—	07-1078	07-1078
RE02-07-824	02-600200	14.5–19.5	QBO	07-1078	07-1078	07-1078	07-1078	07-1078	07-1078	07-1078	—	07-1078	07-1078	07-1078	—	07-1078	07-1078
RE02-07-826	02-600201	0–0.5	SOIL	07-1080	07-1080	07-1080	07-1080	07-1080	07-1080	07-1080	—	07-1080	07-1080	07-1080	—	—	07-1080
RE02-07-827	02-600201	4.5–6.7	QAL	07-1101	07-1101	07-1101	07-1101	07-1101	07-1101	07-1101	—	07-1101	07-1101	07-1101	—	07-1101	07-1101
RE02-07-829	02-600201	9.5–11.5	QAL	07-1101	07-1101	07-1101	07-1101	07-1101	07-1101	07-1101	—	07-1101	07-1101	07-1101	—	07-1101	07-1101
RE02-07-828	02-600201	15.9–20.5	QBO	07-1101	07-1101	07-1101	07-1101	07-1101	07-1101	07-1101	—	07-1101	07-1101	07-1101	—	07-1101	07-1101
RE02-07-830	02-600202	0–0.5	SOIL	07-1077	07-1077	07-1077	07-1077	07-1077	07-1077	07-1077	—	07-1077	07-1077	07-1077	—	—	07-1077
RE02-07-831	02-600202	4.5–6.2	QAL	07-1080	07-1080	07-1080	07-1080	07-1080	07-1080	07-1080	—	07-1080	07-1080	—	—	07-1080	07-1080
RE02-07-834	02-600203	0–0.5	SOIL	07-1077	07-1077	07-1077	07-1077	07-1077	07-1077	07-1077	—	07-1077	07-1077	07-1077	—	—	07-1077
RE02-07-835	02-600203	4.5–6.5	QAL	07-1106	07-1106	07-1106	07-1106	07-1106	07-1106	07-1106	—	07-1106	07-1106	07-1106	—	07-1106	07-1106

Table 6.4-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Gamma-emitting Radionuclides	Tritium	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	Technetium-99	VOCs	Cyanide (Total)
RE02-07-837	02-600203	9–11	QAL	07-1106	07-1106	07-1106	07-1106	07-1106	07-1106	07-1106	—	07-1106	07-1106	07-1106	—	07-1106	07-1106
RE02-07-836	02-600203	14–16.5	QBO	07-1106	07-1106	07-1106	07-1106	07-1106	07-1106	07-1106	—	07-1106	07-1106	07-1106	—	07-1106	07-1106
RE02-07-838	02-600204	0–0.5	SOIL	07-1077	07-1077	07-1077	07-1077	07-1077	07-1077	07-1077	—	07-1077	07-1077	07-1077	—	—	07-1077
RE02-07-839	02-600204	4.5–9.5	QAL	07-1080	07-1080	07-1080	07-1080	07-1080	07-1080	07-1080	—	07-1080	07-1080	07-1080	—	07-1080	07-1080
RE02-07-841	02-600204	9.5–14	QAL	07-1080	07-1080	07-1080	07-1080	07-1080	07-1080	07-1080	—	07-1080	07-1080	07-1080	—	07-1080	07-1080
RE02-07-840	02-600204	19–24	QBO	07-1085	07-1085	07-1085	07-1085	07-1085	07-1085	07-1085	—	07-1085	07-1085	07-1085	—	07-1085	07-1085
RE02-07-842	02-600205	0–0.5	SED	07-1113	07-1113	07-1113	07-1113	07-1113	07-1113	07-1113	—	07-1113	07-1113	07-1113	—	—	07-1113
RE02-10-22027	02-612420	6–7	QAL	10-4641	—	10-4641	10-4641	10-4641	10-4641	10-4640	10-4640	—	10-4641	10-4640	—	—	—
RE02-10-22028	02-612420	15.5–16.5	QAL	10-4641	—	10-4641	10-4641	10-4641	10-4641	10-4640	10-4640	—	10-4641	10-4640	—	—	—
RE02-10-22029	02-612420	26–27	QBO	10-4641	—	10-4641	10-4641	10-4641	10-4641	10-4640	10-4640	—	10-4641	10-4640	—	—	—
RE02-10-22030	02-612420	35–37	QBO	10-4641	—	10-4641	10-4641	10-4641	10-4641	10-4640	10-4640	—	10-4641	10-4640	—	—	—
RE02-10-22031	02-612420	49–50	QBO	10-4641	—	10-4641	10-4641	10-4641	10-4641	10-4640	10-4640	—	10-4641	10-4640	—	—	—

* — = Analysis not requested.

Table 6.4-2
Inorganic Chemicals above BVs at AOC 02-003(c)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Cadmium	Calcium	Chromium	Copper	Iron	Lead	Manganese	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Thallium	Vanadium	Zinc
Qbt 1g, Qct, Qbo BV[a]				**3560**	**0.5**	**0.56**	**25.7**	**0.4**	**1900**	**2.6**	**3.96**	**3700**	**13.5**	**189**	**0.1**	**2**	**na[b]**	**na**	**0.3**	**1.22**	**4.59**	**40**
Sediment BV[a]				**15400**	**0.83**	**3.98**	**127**	**0.4**	**4420**	**10.5**	**11.2**	**13800**	**19.7**	**543**	**0.1**	**9.38**	**na**	**na**	**0.3**	**0.73**	**19.7**	**60.2**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**0.4**	**6120**	**19.3**	**14.7**	**21500**	**22.3**	**671**	**0.1**	**15.4**	**na**	**na**	**1.52**	**0.73**	**39.6**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**1120**	**na**	**2920[d]**	**45400**	**795000**	**800**	**145000**	**310[e]**	**22700**	**1820000**	**795**	**5680**	**74.9**	**5680**	**341000**
Recreational SSL[f]				**791000**	**317**	**27.7**	**158000**	**784**	**na**	**1910[d]**	**31700**	**554000**	**560**	**110000**	**238**	**15800**	**1260000**	**555**	**3960**	**52.3**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**77.9**	**na**	**219[d]**	**3130**	**54800**	**400**	**10700**	**23[e]**	**1560**	**125000**	**54.8**	**391**	**5.16**	**391**	**23500**
CA02-00-0125	02-01237	8–8.75	SOIL	—[g]	—	—	—	—	—	—	—	—	—	—	0.11	—	NA[h]	NA	—	—	—	—
RE02-07-6177	02-600196	0–0.5	SOIL	—	—	—	—	—	—	—	—	—	—	—	0.255	—	1.36	0.000591 (J)	1.61 (U)	—	—	54.1
RE02-07-806	02-600196	0–4.5	SOIL	—	—	—	—	0.505 (U)	—	—	—	—	—	—	0.292 (J)	—	—	0.000745 (J-)	—	—	—	—
RE02-07-807	02-600196	4.5–9	QAL	—	—	—	—	0.525 (U)	—	23.2	—	—	—	—	0.174 (J)	—	—	—	—	—	—	—
RE02-07-808	02-600196	19–22	QBO	8750	0.513 (UJ)	1.16 (J)	—	0.66 (U)	—	13.4	—	7030	—	309	—	4.46	—	—	1.98 (U)	—	—	—
RE02-07-810	02-600197	0–0.5	SOIL	—	—	—	380 (J+)	—	—	—	33.6	—	—	—	0.457	—	2.53	—	—	—	—	—
RE02-07-811	02-600197	4.5–9.5	QAL	—	—	—	2230	0.524 (U)	7440	21.3	18.7	—	36.9	—	—	—	1.74	—	11	—	—	—
RE02-07-813	02-600197	9.5–12	QAL	—	—	—	—	0.562 (U)	—	—	—	—	—	—	—	—	—	—	7.29	—	—	—
RE02-07-812	02-600197	14.5–18.5	QBO	13600	0.55 (UJ)	1.52 (J)	83.6	0.683 (U)	—	3.69	—	5160	—	198 (J+)	—	—	—	—	9.11	—	—	—
RE02-07-814	02-600198	0–0.5	SOIL	—	—	—	—	0.519 (U)	—	—	43.9	—	—	—	0.229	—	—	—	14.6	—	—	—
RE02-07-815	02-600198	0.5–5	QAL	—	—	—	—	0.521 (U)	—	—	—	—	—	—	—	—	—	—	7.71	—	—	—
RE02-07-817	02-600198	14.5–19.5	QAL	—	—	—	—	0.567 (U)	—	—	—	—	—	—	—	—	—	0.000712 (J)	6.82	—	—	—
RE02-07-816	02-600198	19.5–24.5	QBO	8420	0.551 (UJ)	0.727 (J)	—	0.678 (U)	—	8.2	—	5450	—	258	—	2.01	—	—	7.56	—	—	—
RE02-07-818	02-600199	0–0.5	SOIL	—	—	—	—	0.547 (U)	—	—	—	—	—	—	0.144	—	1.22	—	6.68	—	—	—
RE02-07-819	02-600199	4.5–7.3	QAL	—	—	—	—	0.514 (U)	—	—	—	—	—	—	—	—	—	0.00113 (J)	7.83	8.21	—	—
RE02-07-822	02-600200	0–0.5	SOIL	—	—	—	—	—	—	—	—	—	—	—	0.243 (J-)	—	1.86 (J)	—	—	—	—	—
RE02-07-823	02-600200	4.5–7	QAL	—	—	—	—	0.524 (U)	—	—	—	—	—	—	—	—	2.95	—	1.57 (U)	—	—	—
RE02-07-825	02-600200	9.5–14.5	QBO	—	—	1.69 (J)	—	0.567 (U)	—	6.41 (J)	—	7360 (J)	—	205 (J)	—	—	—	—	0.61 (J)	—	7.63 (J)	—
RE02-07-824	02-600200	14.5–19.5	QBO	11600	—	0.793 (J)	42.3 (J+)	0.597 (U)	—	6.84 (J)	—	6430 (J)	—	235 (J)	—	2.63	—	—	1.79 (U)	—	—	—
RE02-07-826	02-600201	0–0.5	SOIL	—	—	—	—	—	—	—	80	—	—	—	—	—	0.858 (J)	—	1.54 (U)	—	—	61.6
RE02-07-827	02-600201	4.5–6.7	QAL	—	—	—	—	0.553 (U)	—	—	—	—	—	—	—	—	1.62	—	8.56	—	—	—
RE02-07-829	02-600201	9.5–11.5	QAL	—	—	—	—	0.571 (U)	—	—	—	—	—	—	—	—	—	—	6.19	—	—	—
RE02-07-828	02-600201	15.9–20.5	QBO	5270	—	1.14 (J)	—	0.58 (U)	—	8.15	—	5300	—	—	—	—	—	—	6.73	—	4.87	—
RE02-07-830	02-600202	0–0.5	SOIL	—	—	—	—	0.506 (U)	—	—	—	—	—	—	0.683	—	1.87	—	—	—	—	—
RE02-07-831	02-600202	4.5–6.2	QAL	—	—	—	—	0.507 (U)	—	—	—	—	—	—	2.43	—	1.59	—	—	—	—	—
RE02-07-834	02-600203	0–0.5	SOIL	—	—	—	—	—	—	—	—	—	—	—	0.52	—	—	—	—	—	—	—
RE02-07-835	02-600203	4.5–6.5	QAL	—	—	—	1550	0.522 (U)	—	—	—	—	62	—	0.797	—	1.62	—	7.18	—	—	—
RE02-07-837	02-600203	9–11	QAL	—	—	—	—	0.544 (U)	—	—	—	—	—	—	—	—	—	—	9.4	—	—	—

Table 6.4-2 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Cadmium	Calcium	Chromium	Copper	Iron	Lead	Manganese	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Thallium	Vanadium	Zinc
Qbt 1g, Qct, Qbo BV[a]				**3560**	**0.5**	**0.56**	**25.7**	**0.4**	**1900**	**2.6**	**3.96**	**3700**	**13.5**	**189**	**0.1**	**2**	**na**	**na**	**0.3**	**1.22**	**4.59**	**40**
Sediment BV[a]				**15400**	**0.83**	**3.98**	**127**	**0.4**	**4420**	**10.5**	**11.2**	**13800**	**19.7**	**543**	**0.1**	**9.38**	**na**	**na**	**0.3**	**0.73**	**19.7**	**60.2**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**0.4**	**6120**	**19.3**	**14.7**	**21500**	**22.3**	**671**	**0.1**	**15.4**	**na**	**na**	**1.52**	**0.73**	**39.6**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**1120**	**na**	**2920[d]**	**45400**	**795000**	**800**	**145000**	**310[e]**	**22700**	**1820000**	**795**	**5680**	**74.9**	**5680**	**341000**
Recreational SSL[f]				**791000**	**317**	**27.7**	**158000**	**784**	**na**	**1910[d]**	**31700**	**554000**	**560**	**110000**	**238**	**15800**	**1260000**	**555**	**3960**	**52.3**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**77.9**	**na**	**219[d]**	**3130**	**54800**	**400**	**10700**	**23[e]**	**1560**	**125000**	**54.8**	**391**	**5.16**	**391**	**23500**
RE02-07-836	02-600203	14–16.5	QBO	3790 (J+)	—	2	31.6	0.586 (U)	—	6.32	—	6740	—	289	—	4.69	—	—	8.25	—	6.62	—
RE02-07-838	02-600204	0–0.5	SOIL	—	—	—	—	—	—	—	—	—	—	—	1.11	—	1.41 (J-)	—	1.56 (U)	—	—	—
RE02-07-839	02-600204	4.5–9.5	QAL	—	—	—	—	0.524 (U)	—	—	—	—	—	—	—	—	—	—	1.57 (U)	—	—	—
RE02-07-841	02-600204	9.5–14	QAL	—	—	—	—	0.543 (U)	—	—	—	—	—	—	—	—	—	—	1.63 (U)	—	—	—
RE02-07-840	02-600204	19–24	QBO	8610	—	2.76	55.8	0.58 (U)	—	6.99	—	8750	—	251	—	3.78	—	—	1.74 (U)	—	10.2	—
RE02-07-842	02-600205	0–0.5	SED	—	—	—	—	0.59 (U)	—	—	—	—	—	—	—	—	—	—	1.18 (J)	—	—	—
RE02-10-22027	02-612420	6–7	QAL	—	0.947 (U)	—	—	0.474 (U)	—	—	—	—	—	—	—	—	NA	NA	—	—	—	—
RE02-10-22028	02-612420	15.5–16.5	QAL	—	1.05 (U)	—	—	—	—	—	—	—	—	—	—	—	NA	NA	—	—	—	—
RE02-10-22029	02-612420	26–27	QBO	7420	1.39 (U)	1.32 (U)	—	0.693 (U)	—	—	—	4010	—	—	—	—	NA	NA	1.32 (U)	—	—	—
RE02-10-22030	02-612420	35–37	QBO	8230	1.28 (U)	1.29 (U)	—	0.642 (U)	—	3.18	—	5530	—	223 (J+)	—	—	NA	NA	1.29 (U)	—	—	—
RE02-10-22031	02-612420	49–50	QBO	6810	1.29 (U)	1.28 (U)	—	0.647 (U)	—	—	—	5320	—	—	—	—	NA	NA	1.28 (U)	—	—	—

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

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

[b] na = Not available.

[c] SSLs are from NMED (2009, 108070), unless otherwise noted.

[d] SSLs are for hexavalent chromium.

[e] SSLs are from EPA regional screening tables (http://www.epa.gov.earth1r6/6pd/rcra_c/pd-n/screen.htm).

[f] SSLs are from LANL (2010, 108613).

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

[h] NA = Not analyzed.

Table 6.4-3
Organic Chemicals Detected at AOC 02-003(c)

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Acetone	Anthracene	Aroclor-1254	Aroclor-1260	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chloroform	Chrysene	Fluoranthene	Indeno(1,2,3-cd)pyrene	Methylnaphthalene[2-]	Naphthalene	Phenanthrene	Pyrene	Toluene
Industrial SSL[a]				**36700**	**851000**	**183000**	**8.26**	**8.26**	**23.4**	**2.34**	**23.4**	**18300**[b]	**234**	**31.9**	**2340**	**24400**	**23.4**	**4100**[c]	**252**	**20500**	**18300**	**57900**
Recreational SSL[d]				**20800**	**702000**	**104000**	**6.65**	**10.5**	**30.1**	**3.01**	**30.1**	**10400**[b]	**301**	**224**	**3010**	**13900**	**30.1**	**3170**	**1950**	**12000**	**10400**	**60800**
Residential SSL[a]				**3440**	**67500**	**17200**	**1.12**	**2.22**	**6.21**	**0.621**	**6.21**	**1720**[b]	**62.1**	**5.72**	**621**	**2290**	**6.21**	**310**[c]	**45**	**1830**	**1720**	**5570**
RE02-07-6177	02-600196	0–0.5	SOIL	—[e]	NA[f]	0.00767 (J)	0.0065	0.0077 (J)	0.0294 (J)	—	0.0586	—	—	NA	0.0383	0.0641	—	—	—	0.0342 (J)	0.0599	NA
RE02-07-806	02-600196	0–4.5	SOIL	—	NA	0.0132 (J)	—	0.0019 (J)	—	—	0.0584	—	—	NA	0.0322 (J)	0.0576	—	—	—	0.0494	0.0548	NA
RE02-07-807	02-600196	4.5–9	QAL	—	0.0101	—	—	0.0047	—	—	0.0192 (J)	—	—	—	0.0161 (J)	0.0252 (J)	—	—	—	0.0203 (J)	0.025 (J)	0.000892 (J)
RE02-07-810	02-600197	0–0.5	SOIL	—	NA	0.0125 (J)	NA	NA	0.0702	0.0858 (J)	0.132 (J)	—	—	NA	0.0891	0.103	—	—	—	0.0702	0.131	NA
RE02-07-811	02-600197	4.5–9.5	QAL	—	—	—	NA	NA	0.0232 (J)	0.0197 (J)	0.0214 (J)	—	—	0.000265 (J)	0.0152 (J)	0.0239 (J)	—	—	—	0.0191 (J)	0.0245 (J)	0.000458 (J)
RE02-07-813	02-600197	9.5–12	QAL	—	—	—	NA	NA	—	—	—	—	—	0.000288 (J)	—	—	—	—	—	—	—	—
RE02-07-812	02-600197	14.5–18.5	QBO	—	—	—	NA	NA	—	—	—	—	—	0.000322 (J)	—	—	—	—	—	—	—	—
RE02-07-814	02-600198	0–0.5	SOIL	—	NA	—	NA	NA	—	—	—	—	—	NA	—	0.0149 (J)	—	—	—	—	0.0141 (J)	NA
RE02-07-815	02-600198	0.5–5	QAL	—	—	—	NA	NA	—	—	—	—	—	—	—	—	—	—	—	—	—	0.000928 (J)
RE02-07-819	02-600199	4.5–7.3	QAL	—	—	—	NA	NA	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00037 (J)
RE02-07-827	02-600201	4.5–6.7	QAL	—	—	—	NA	NA	—	—	—	—	—	0.000319 (J)	—	—	—	—	—	—	—	0.000665 (J)
RE02-07-829	02-600201	9.5–11.5	QAL	—	—	—	NA	NA	—	—	—	—	—	0.000257 (J)	—	—	—	—	—	—	—	—
RE02-07-828	02-600201	15.9–20.5	QBO	—	—	—	NA	NA	—	—	—	—	—	0.000266 (J)	—	—	—	—	—	—	—	—
RE02-07-830	02-600202	0–0.5	SOIL	—	NA	—	NA	NA	—	0.0231 (J)	0.0213 (J)	—	—	NA	0.0144 (J)	0.0197 (J)	—	—	—	0.0141 (J)	0.0155 (J)	NA
RE02-07-831	02-600202	4.5–6.2	QAL	NA	—	NA	NA	NA	NA	NA	NA	NA	NA	—	NA	NA	NA	NA	NA	NA	NA	0.000394 (J)
RE02-07-834	02-600203	0–0.5	SOIL	—	NA	—	NA	NA	—	0.0258 (J)	0.0257 (J)	—	—	NA	0.0149 (J)	0.0218 (J)	—	—	—	0.0167 (J)	0.0155 (J)	NA
RE02-07-835	02-600203	4.5–6.5	QAL	0.0167 (J)	—	0.0185 (J)	NA	NA	0.0609	0.108	0.0802	0.0434	0.0393	—	0.072	0.116	0.158	0.00792 (J)	0.0161 (J)	0.0945	0.102	—
RE02-07-837	02-600203	9–11	QAL	—	—	—	NA	NA	—	—	—	—	—	—	0.0228 (J)	0.0322 (J)	—	—	—	0.0327 (J)	0.0304 (J)	—
RE02-07-838	02-600204	0–0.5	SOIL	—	NA	—	NA	NA	0.0334 (J)	0.0403	0.0552	0.0137 (J)	—	NA	0.0309 (J)	0.047	—	—	—	0.0303 (J)	0.0458	NA
RE02-07-842	02-600205	0–0.5	SED	—	NA	0.00967 (J-)	NA	NA	0.0628 (J-)	—	0.0841 (J-)	—	—	NA	0.0671 (J-)	0.129 (J-)	—	—	—	0.0498 (J-)	0.115 (J-)	NA
RE02-10-22028	02-612420	15.5–16.5	QAL	—	NA	—	—	0.0046	—	—	—	—	—	NA	—	—	—	—	—	—	—	NA
RE02-10-22030	02-612420	35–37	QBO	—	NA	—	0.003 (J)	—	—	—	—	—	—	NA	—	—	—	—	—	—	—	NA

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

[a] SSLs are from NMED (2009, 108070), unless otherwise noted.

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

[c] SSLs are from EPA regional screening tables (http://www.epa.gov.earth1r6/6pd/rcra_c/pd-n/screen.htm).

[d] SSLs are from LANL (2010, 108613).

[e] — = Not detected.

[f] NA = Not analyzed.

Table 6.4-4
Radionuclides Detected or Detected above BVs/FVs at AOC 02-003(c)

Sample ID	Location ID	Depth (ft)	Media	Cesium-137	Cobalt-60	Plutonium-239/240	Strontium-90	Tritium	Uranium-235/236	Uranium-238
Qbt 1g, Qct, Qbo BV[a]				**na[b]**	**na**	**na**	**na**	**na**	**0.18**	**3.9**
Qbt 2, 3, 4 BV[a]				**na**	**na**	**na**	**na**	**na**	**0.09**	**1.93**
Sediment BV[a]				**0.9**	**na**	**0.068**	**1.04**	**0.093**	**0.2**	**2.29**
Soil BV[a]				**1.65**	**na**	**0.054**	**1.31**	**na**	**0.2**	**2.29**
Industrial SAL[c]				**23**	**5.1**	**210**	**1900**	**440000**	**87**	**430**
Recreational SAL[c]				**210**	**46**	**300**	**5600**	**5300000**	**520**	**2100**
Residential SAL[c]				**5.6**	**1.3**	**33**	**5.7**	**750**	**17**	**87**
0402-95-0291	02-01043	7.5–8.5	QBT 2	6.27	—[d]	0.031	—	0.12318	—	—
0402-95-0292	02-01043	14–15	QBT 2	—	—	—	—	0.0891487	—	—
0402-95-0029	02-01144	14–15	QBT 2	NA[e]	NA	—	0.3	0.206111	0.33	—
0402-95-0033	02-01145	9–10	QBT 2	—	—	—	—	0.0762585	—	—
0402-95-0034	02-01145	12.5–13.5	QBT 2	—	—	—	—	0.0730895	—	—
CA02-00-0125	02-01237	8–8.75	SOIL	0.135	—	—	—	—	—	—
CA02-00-0128	02-01238	14–14.75	SOIL	0.434	—	—	—	0.030874	—	—
RE02-07-6177	02-600196	0–0.5	SOIL	1.76	—	0.129	—	0.138152	—	—
RE02-07-806	02-600196	0–4.5	SOIL	2.34	—	0.033	—	—	—	—
RE02-07-807	02-600196	4.5–9	QAL	0.214	—	0.0266	—	—	—	—
RE02-07-808	02-600196	19–22	QBO	—	—	—	—	0.111356	0.186	—
RE02-07-810	02-600197	0–0.5	SOIL	3.32	—	0.178	—	—	—	—
RE02-07-811	02-600197	4.5–9.5	QAL	0.337	—	0.0537	—	—	—	—
RE02-07-814	02-600198	0–0.5	SOIL	1.71	—	0.155	—	0.0110671	—	—
RE02-07-815	02-600198	0.5–5	QAL	—	—	—	—	0.0191741	—	—
RE02-07-818	02-600199	0–0.5	SOIL	—	—	0.0587	—	—	—	—
RE02-07-819	02-600199	4.5–7.3	QAL	0.496	—	—	—	0.0271396	—	—
RE02-07-822	02-600200	0–0.5	SOIL	—	—	0.121	—	—	—	—
RE02-07-823	02-600200	4.5–7	QAL	—	—	—	—	0.0594386	—	—
RE02-07-826	02-600201	0–0.5	SOIL	—	0.24	—	—	—	—	—
RE02-07-827	02-600201	4.5–6.7	QAL	—	—	—	—	0.159712	—	—
RE02-07-831	02-600202	4.5–6.2	QAL	0.162	—	—	—	—	—	—
RE02-07-834	02-600203	0–0.5	SOIL	—	—	0.327	—	—	—	2.54
RE02-07-835	02-600203	4.5–6.5	QAL	1.41	—	0.063	—	—	—	—

Table 6.4-4 (continued)

Sample ID	Location ID	Depth (ft)	Media	Cesium-137	Cobalt-60	Plutonium-239/240	Strontium-90	Tritium	Uranium-235/236	Uranium-238
Qbt 1g, Qct, Qbo BV[a]				**na**	**na**	**na**	**na**	**na**	**0.18**	**3.9**
Qbt 2, 3, 4 BV[a]				**na**	**na**	**na**	**na**	**na**	**0.09**	**1.93**
Sediment BV[a]				**0.9**	**na**	**0.068**	**1.04**	**0.093**	**0.2**	**2.29**
Soil BV[a]				**1.65**	**na**	**0.054**	**1.31**	**na**	**0.2**	**2.29**
Industrial SAL[c]				**23**	**5.1**	**210**	**1900**	**440000**	**87**	**430**
Recreational SAL[c]				**210**	**46**	**300**	**5600**	**5300000**	**520**	**2100**
Residential SAL[c]				**5.6**	**1.3**	**33**	**5.7**	**750**	**17**	**87**
RE02-07-837	02-600203	9–11	QAL	0.624	—	—	—	—	—	—
RE02-07-836	02-600203	14–16.5	QBO	0.175	—	2.72	—	—	—	—
RE02-07-838	02-600204	0–0.5	SOIL	—	—	0.167	—	—	—	—
RE02-07-839	02-600204	4.5–9.5	QAL	0.334	—	—	—	—	—	—
RE02-07-841	02-600204	9.5–14	QAL	0.29	—	0.0429	—	—	—	—
RE02-07-842	02-600205	0–0.5	SED	—	—	0.255	—	—	—	—
RE02-10-22028	02-612420	15.5–16.5	QAL	0.147	—	—	—	—	—	—

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

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

[b] na = Not available.

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

[d] — = Not detected.

[e] NA = Not analyzed.

Table 6.5-1
Samples Collected and Analyses Requested at AOC 02-003(d)

Sample ID	Location ID	Depth (ft)	Media	Americium 241	Nitrate	Gamma-emitting Radionuclides	Tritium	Hexavalent Chromium	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	VOCs	Cyanide (Total)
CA02-00-0281	02-01254	0–0.5	SOIL	—*	—	7571R	—	—	7571R	7571R	7568R, 7570R	—	—	7571R	—	—	—
CA02-00-0282	02-01254	2–2.5	SOIL	—	—	7571R	7571R	—	7571R	7571R	7568R, 7570R	—	—	7571R	—	—	—
CA02-00-0283	02-01255	0–0.5	SOIL	—	—	7571R	7571R	—	7571R	7571R	7568R, 7570R	—	—	7571R	—	—	—
CA02-00-0284	02-01255	2.2–2.5	SOIL	—	—	7571R	7571R	—	7571R	7571R	7568R, 7570R	—	—	7571R	—	—	—
CA02-00-0285	02-01256	0–0.5	FILL	—	—	7558R	7558R	—	7558R	7558R	7556R, 7557R	—	—	7558R	—	—	—
CA02-00-0286	02-01256	2–2.75	FILL	—	—	7558R	7558R	—	7558R	7558R	7556R, 7557R	—	—	7558R	—	—	—
RE02-07-6885	02-600216	0–0.5	SOIL	—	—	—	—	—	—	—	—	—	—	—	07-1174	—	—
RE02-07-926	02-600216	0–0.5	SOIL	07-895	07-895	07-895	07-895	—	07-895	07-895	07-895	—	07-895	07-895	—	—	07-895
RE02-07-6888	02-600217	0–0.5	SOIL	—	—	—	—	—	—	—	—	—	—	—	07-1174	—	—
RE02-07-929	02-600217	0–0.8	SOIL	07-994	07-994	07-994	07-994	—	07-994	07-994	07-994	—	07-994	07-994	—	—	07-994
RE02-07-6891	02-600218	0–0.5	SOIL	—	—	—	—	—	—	—	—	—	—	—	07-1174	—	—
RE02-07-932	02-600218	0–1.3	SOIL	07-903	07-903	07-903	07-903	—	07-903	07-903	07-903	—	07-903	07-903	—	—	07-903
RE02-07-6892	02-600218	2–2.5	QCT	—	—	—	—	—	—	—	—	—	—	—	07-1178	07-1178	—
RE02-07-933	02-600218	2–4	QCT	07-903	07-903	07-903	07-903	—	07-903	07-903	07-903	—	07-903	07-903	—	—	07-903
RE02-07-934	02-600218	4–5.25	QCT	07-903	07-903	07-903	07-903	—	07-903	07-903	07-903	—	07-903	07-903	—	—	07-903
RE02-07-6893	02-600218	4.5–5	QCT	—	—	—	—	—	—	—	—	—	—	—	07-1178	07-1178	—
RE02-07-935	02-600219	0–0.5	SOIL	07-355	07-354	07-355	07-355	—	07-355	07-355	07-354	07-353	07-354	07-355	07-353	—	07-354
RE02-07-936	02-600219	2–2.5	QAL	07-355	07-354	07-355	07-355	—	07-355	07-355	07-354	07-353	07-354	07-355	07-353	07-353	07-354
RE02-07-937	02-600219	2.7–3.4	QAL	07-355	07-354	07-355	07-355	—	07-355	07-355	07-354	07-353	07-354	07-355	07-353	07-353	07-354
RE02-07-6894	02-600220	0–0.5	SOIL	—	—	—	—	—	—	—	—	—	—	—	07-1174	—	—
RE02-07-938	02-600220	0–0.5	SOIL	07-895	07-895	07-895	07-895	—	07-895	07-895	07-895	—	07-895	07-895	—	—	07-895
RE02-07-6897	02-600221	0–0.5	SOIL	—	—	—	—	—	—	—	—	—	—	—	07-1174	—	—
RE02-07-941	02-600221	0–1.2	SOIL	07-895	07-895	07-895	07-895	—	07-895	07-895	07-895	—	07-895	07-895	—	—	07-895
RE02-07-6900	02-600222	0–0.5	SOIL	—	—	—	—	—	—	—	—	—	—	—	07-1174	—	—
RE02-07-944	02-600222	0–0.5	SOIL	07-878	07-878	07-878	07-878	—	07-878	07-878	07-878	—	07-878	07-878	—	—	07-878
RE02-07-6903	02-600223	0–0.5	SOIL	—	—	—	—	—	—	—	—	—	—	—	07-1174	—	—
RE02-07-947	02-600223	0–0.5	SOIL	07-878	07-878	07-878	07-878	—	07-878	07-878	07-878	—	07-878	07-878	—	—	07-878
RE02-07-6906	02-600224	0–0.5	SOIL	—	—	—	—	—	—	—	—	—	—	—	07-1174	—	—
RE02-07-950	02-600224	0–1.3	SOIL	07-1008	07-1008	07-1008	07-1008	—	07-1008	07-1008	07-1008	—	07-1008	07-1008	—	—	07-1008
RE02-07-6909	02-600225	0–0.5	SOIL	—	—	—	—	—	—	—	—	—	—	—	07-1174	—	—
RE02-07-953	02-600225	0–0.5	SOIL	07-878	07-878	07-878	07-878	—	07-878	07-878	07-878	—	07-878	07-878	—	—	07-878
RE02-07-6912	02-600226	0–0.5	SOIL	—	—	—	—	—	—	—	—	—	—	—	07-1174	—	—
RE02-07-956	02-600226	0–0.5	SOIL	07-878	07-878	07-878	07-878	—	07-878	07-878	07-878	—	07-878	07-878	—	—	07-878
RE02-07-6913	02-600226	2–2.5	QAL	—	—	—	—	—	—	—	—	—	—	—	07-1174	07-1174	—

Table 6.5-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium 241	Nitrate	Gamma-emitting Radionuclides	Tritium	Hexavalent Chromium	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	VOCs	Cyanide (Total)
RE02-07-957	02-600226	2–3	QAL	07-878	07-878	07-878	07-878	—	07-878	07-878	07-878	—	07-878	07-878	—	—	07-878
RE02-07-6915	02-600227	0–0.5	SOIL	—	—	—	—	—	—	—	—	—	—	—	07-1174	—	—
RE02-07-959	02-600227	0–0.5	SOIL	07-878	07-878	07-878	07-878	—	07-878	07-878	07-878	—	07-878	07-878	—	—	07-878
RE02-07-6916	02-600227	2–2.5	QAL	—	—	—	—	—	—	—	—	—	—	—	07-1174	07-1174	—
RE02-07-960	02-600227	2–2.8	QAL	07-878	07-878	07-878	07-878	—	07-878	07-878	07-878	—	07-878	07-878	—	—	07-878
RE02-07-6917	02-600227	4.5–5	QAL	—	—	—	—	—	—	—	—	—	—	—	07-1174	07-1174	—
RE02-07-961	02-600227	4.5–5.7	QAL	07-878	07-878	07-878	07-878	—	07-878	07-878	07-878	—	07-878	07-878	—	—	07-878
RE02-07-6918	02-600228	0–0.5	SOIL	—	—	—	—	—	—	—	—	07-1174	—	—	07-1174	—	—
RE02-07-962	02-600228	0–0.5	SOIL	07-1079	07-1079	07-1079	07-1079	—	07-1079	07-1079	07-1079	—	07-1079	07-1079	—	—	07-1079
RE02-07-6919	02-600228	2–2.5	QAL	—	—	—	—	—	—	—	—	07-1178	—	—	07-1178	07-1178	—
RE02-07-963	02-600228	2–2.5	QAL	07-1079	07-1079	07-1079	07-1079	—	07-1079	07-1079	07-1079	—	07-1079	07-1079	—	—	07-1079
RE02-07-6920	02-600228	4.5–5	QAL	—	—	—	—	—	—	—	—	07-1178	—	—	07-1178	07-1178	—
RE02-07-964	02-600228	4.5–5	QAL	07-1079	07-1079	07-1079	07-1079	—	07-1079	07-1079	07-1079	—	07-1079	07-1079	—	—	07-1079
RE02-07-6921	02-600229	0–0.5	SOIL	—	—	—	—	—	—	—	—	07-1178	—	—	07-1178	—	—
RE02-07-965	02-600229	0–0.5	SOIL	07-1112	07-1112	07-1112	07-1112	—	07-1112	07-1112	07-1112	—	07-1112	07-1112	—	—	07-1112
RE02-07-6922	02-600229	2–2.5	QAL	—	—	—	—	—	—	—	—	07-1178	—	—	07-1178	07-1178	—
RE02-07-966	02-600229	2–3.1	QAL	07-1112	07-1112	07-1112	07-1112	—	07-1112	07-1112	07-1112	—	07-1112	07-1112	—	—	07-1112
RE02-07-6923	02-600229	4.5–5	QCT	—	—	—	—	—	—	—	—	07-1178	—	—	07-1178	07-1178	—
RE02-07-967	02-600229	4.5–5.7	QCT	07-1112	07-1112	07-1112	07-1112	—	07-1112	07-1112	07-1112	—	07-1112	07-1112	—	—	07-1112
RE02-07-6924	02-600230	0–0.5	SOIL	—	—	—	—	—	—	—	—	07-1178	—	—	07-1178	—	—
RE02-07-968	02-600230	0–0.5	SOIL	07-1112	07-1112	07-1112	07-1112	—	07-1112	07-1112	07-1112	—	07-1112	07-1112	—	—	07-1112
RE02-07-6925	02-600230	2–2.5	QAL	—	—	—	—	—	—	—	—	07-1178	—	—	07-1178	07-1178	—
RE02-07-969	02-600230	2–2.5	QAL	07-1112	07-1112	07-1112	07-1112	—	07-1112	07-1112	07-1112	—	07-1112	07-1112	—	—	07-1112
RE02-07-6927	02-600231	0–0.5	SOIL	—	—	—	—	—	—	—	—	07-1178	—	—	07-1178	—	—
RE02-07-971	02-600231	0–1	SOIL	07-1132	07-1132	07-1132	07-1132	—	07-1132	07-1132	07-1132	—	07-1132	07-1132	—	—	07-1132
RE02-07-6928	02-600231	2–2.5	QBT3	—	—	—	—	—	—	—	—	07-1178	—	—	07-1178	07-1178	—
RE02-07-972	02-600231	2–2.5	QBT3	07-1132	07-1132	07-1132	07-1132	—	07-1132	07-1132	07-1132	—	07-1132	07-1132	—	—	07-1132
RE02-07-6929	02-600231	4.5–5	QBT3	—	—	—	—	—	—	—	—	07-1178	—	—	07-1178	07-1178	—
RE02-07-973	02-600231	4.5–5.5	QBT3	07-1132	07-1132	07-1132	07-1132	—	07-1132	07-1132	07-1132	—	07-1132	07-1132	—	—	07-1132
RE02-10-21991	02-612412	0–0.5	SOIL	10-4398	—	10-4398	10-4398	10-4397	10-4398	10-4398	10-4397	10-4396	—	10-4398	10-4396	—	10-4397
RE02-10-21992	02-612412	4–5	QAL	10-4398	—	10-4398	10-4398	10-4397	10-4398	10-4398	10-4397	10-4396	—	10-4398	10-4396	—	10-4397
RE02-10-21993	02-612412	9–10	QCT	10-4398	—	10-4398	10-4398	10-4397	10-4398	10-4398	10-4397	10-4396	—	10-4398	10-4396	—	10-4397

* — = Analysis not requested.

Table 6.5-2
Inorganic Chemicals above BVs at AOC 02-003(d)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Nitrate	Perchlorate	Potassium	Selenium	Silver	Thallium	Uranium	Vanadium	Zinc
Qbt 1g, Qct, Qbo BV[a]				**3560**	**0.5**	**0.56**	**25.7**	**1.44**	**0.4**	**1900**	**2.6**	**3.96**	**3700**	**13.5**	**739**	**189**	**0.1**	**2**	**na[b]**	**na**	**2390**	**0.3**	**1**	**1.22**	**na**	**4.59**	**40**
Qbt 2, 3, 4 BV[a]				**7340**	**0.5**	**2.79**	**46**	**1.21**	**1.63**	**2200**	**7.14**	**4.66**	**14500**	**11.2**	**1690**	**482**	**0.1**	**6.58**	**na**	**na**	**3500**	**0.3**	**1**	**1.1**	**na**	**17**	**63.5**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**1.83**	**0.4**	**6120**	**19.3**	**14.7**	**21500**	**22.3**	**4610**	**671**	**0.1**	**15.4**	**na**	**na**	**3460**	**1.52**	**1**	**0.73**	**1.82**	**39.6**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**2260**	**1120**	**na**	**2920[d]**	**45400**	**795000**	**800**	**na**	**145000**	**310[e]**	**22700**	**1820000**	**795**	**na**	**5680**	**5680**	**74.9**	**3410**	**5680**	**341000**
Recreational SSL[f]				**791000**	**317**	**27.7**	**158000**	**1580**	**784**	**na**	**1910[d]**	**31700**	**554000**	**560**	**na**	**110000**	**238**	**15800**	**1260000**	**555**	**na**	**3960**	**3960**	**52.3**	**2380**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**156**	**77.9**	**na**	**219[d]**	**3130**	**54800**	**400**	**na**	**10700**	**23[e]**	**1560**	**125000**	**54.8**	**na**	**391**	**391**	**5.16**	**235**	**391**	**23500**
CA02-00-0281	02-01254	0–0.5	SOIL	—[g]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	NA[h]	NA	—	—	1.3	—	3.63	—	62 (J+)
CA02-00-0282	02-01254	2–2.5	SOIL	—	—	—	—	2.5 (J+)	—	—	—	—	—	—	—	—	—	—	NA	NA	—	—	—	—	—	—	59 (J+)
CA02-00-0283	02-01255	0–0.5	SOIL	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	NA	NA	—	—	—	—	—	—	53 (J+)
CA02-00-0285	02-01256	0–0.5	FILL	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	NA	NA	—	—	—	—	2.33	—	—
RE02-07-926	02-600216	0–0.5	SOIL	—	—	—	—	—	—	—	—	—	—	—	—	—	0.139	—	22.6 (J-)	0.00183 (J)	—	1.67 (U)	—	—	NA	—	—
RE02-07-929	02-600217	0–0.8	SOIL	—	—	—	—	—	0.536 (U)	—	—	—	—	—	—	—	—	—	9.94	0.00167 (J)	—	—	—	—	NA	—	—
RE02-07-932	02-600218	0–1.3	SOIL	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.67 (J-)	0.00065 (J)	—	—	—	—	NA	—	54.4
RE02-07-933	02-600218	2–4	QCT	11300	—	1.55 (J)	58.5	4.15	—	3850 (J+)	6.96	5.4	8510	17.8	1660 (J+)	314 (J+)	—	4.49	1.04 (J-)	0.000864 (J)	—	1.62 (U)	—	—	NA	11.7	71.3
RE02-07-934	02-600218	4–5.25	QCT	11400	—	2.11	63.7	5.84	—	3030 (J+)	13.7	5.81	9040	16.6	2380 (J+)	324 (J+)	—	7.69	1 (J-)	—	2420	0.874 (J)	—	—	NA	13.5	76.4
RE02-07-935	02-600219	0–0.5	SOIL	—	—	—	—	—	0.52 (U)	—	—	—	—	—	—	—	—	—	4.58 (J-)	0.000783 (J)	—	—	—	—	NA	—	—
RE02-07-936	02-600219	2–2.5	QAL	—	—	—	—	—	0.511 (U)	—	—	—	—	—	—	—	—	—	1.01 (J-)	—	—	—	—	—	NA	—	—
RE02-07-937	02-600219	2.7–3.4	QAL	—	—	—	—	—	0.509 (U)	—	—	—	—	—	—	—	—	—	1.44 (J-)	—	—	—	—	—	NA	—	51.6
RE02-07-938	02-600220	0–0.5	SOIL	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.19 (J-)	0.00125 (J)	—	1.73 (U)	—	—	NA	—	50.2
RE02-07-941	02-600221	0–1.2	SOIL	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	11.2 (J-)	0.000692 (J)	—	—	—	—	NA	—	49.8
RE02-07-944	02-600222	0–0.5	SOIL	—	—	—	—	—	0.557 (U)	—	—	—	—	—	—	—	0.11	—	7.36	0.00237	—	—	—	—	NA	—	57
RE02-07-947	02-600223	0–0.5	SOIL	—	—	—	—	—	0.547 (U)	—	—	—	—	—	—	—	—	—	7.34	0.00226 (J)	—	—	—	—	NA	—	—
RE02-07-950	02-600224	0–1.3	SOIL	—	—	—	—	—	0.53 (U)	—	—	—	—	—	—	—	—	—	6.45	0.00243	—	—	—	—	NA	—	—
RE02-07-953	02-600225	0–0.5	SOIL	—	—	—	—	—	0.546 (U)	—	—	—	—	—	—	—	—	—	2	0.000629 (J)	—	1.64 (U)	—	—	NA	—	71.2
RE02-07-956	02-600226	0–0.5	SOIL	—	—	—	—	—	0.553 (U)	—	—	—	—	—	—	—	—	—	13.9	0.00152 (J)	—	—	—	—	NA	—	54
RE02-07-957	02-600226	2–3	QAL	—	—	—	—	—	0.506 (U)	—	—	—	—	—	—	—	—	—	6.67	0.000565 (J)	—	—	—	—	NA	—	—
RE02-07-959	02-600227	0–0.5	SOIL	—	—	—	—	—	0.572 (U)	—	—	—	—	—	—	—	—	—	1.2	—	—	—	—	—	NA	—	—
RE02-07-960	02-600227	2–2.8	QAL	—	—	—	—	—	0.53 (U)	—	—	—	—	—	—	—	—	—	0.888 (J)	—	—	1.59 (U)	—	—	NA	—	—
RE02-07-961	02-600227	4.5–5.7	QAL	—	—	—	—	—	0.536 (U)	—	—	—	—	—	—	—	—	—	—	0.00109 (J)	—	1.61 (U)	—	—	NA	—	—
RE02-07-962	02-600228	0–0.5	SOIL	—	—	—	—	—	0.524 (U)	—	—	—	—	—	—	—	—	—	2.39	—	—	1.57 (U)	—	—	NA	—	—
RE02-07-963	02-600228	2–2.5	QAL	—	—	—	—	—	0.495 (U)	—	—	—	—	—	—	—	—	—	0.907 (J)	0.00164 (J)	—	—	—	—	NA	—	—
RE02-07-964	02-600228	4.5–5	QAL	—	—	—	—	—	0.512 (U)	—	—	—	—	—	—	—	—	—	—	0.00271	—	—	—	—	NA	—	—
RE02-07-965	02-600229	0–0.5	SOIL	—	—	—	—	—	0.542 (U)	—	—	—	—	—	—	—	—	—	3.71	—	—	6.97	—	1.13 (U)	NA	—	—
RE02-07-966	02-600229	2–3.1	QAL	—	—	—	—	—	0.514 (U)	—	—	—	—	—	—	—	—	—	—	—	—	5.18	—	—	NA	—	—

Table 6.5-2 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Nitrate	Perchlorate	Potassium	Selenium	Silver	Thallium	Uranium	Vanadium	Zinc
Qbt 1g, Qct, Qbo BV[a]				**3560**	**0.5**	**0.56**	**25.7**	**1.44**	**0.4**	**1900**	**2.6**	**3.96**	**3700**	**13.5**	**739**	**189**	**0.1**	**2**	**na**	**na**	**2390**	**0.3**	**1**	**1.22**	**na**	**4.59**	**40**
Qbt 2, 3, 4 BV[a]				**7340**	**0.5**	**2.79**	**46**	**1.21**	**1.63**	**2200**	**7.14**	**4.66**	**14500**	**11.2**	**1690**	**482**	**0.1**	**6.58**	**na**	**na**	**3500**	**0.3**	**1**	**1.1**	**na**	**17**	**63.5**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**1.83**	**0.4**	**6120**	**19.3**	**14.7**	**21500**	**22.3**	**4610**	**671**	**0.1**	**15.4**	**na**	**na**	**3460**	**1.52**	**1**	**0.73**	**1.82**	**39.6**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**2260**	**1120**	**na**	**2920[d]**	**45400**	**795000**	**800**	**na**	**145000**	**310[e]**	**22700**	**1820000**	**795**	**na**	**5680**	**5680**	**74.9**	**3410**	**5680**	**341000**
Recreational SSL[f]				**791000**	**317**	**27.7**	**158000**	**1580**	**784**	**na**	**1910[d]**	**31700**	**554000**	**560**	**na**	**110000**	**238**	**15800**	**1260000**	**555**	**na**	**3960**	**3960**	**52.3**	**2380**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**156**	**77.9**	**na**	**219[d]**	**3130**	**54800**	**400**	**na**	**10700**	**23[e]**	**1560**	**125000**	**54.8**	**na**	**391**	**391**	**5.16**	**235**	**391**	**23500**
RE02-07-967	02-600229	4.5–5.7	QCT	—	—	0.926 (J)	—	—	0.539 (U)	—	—	—	—	—	—	—	—	—	—	—	—	4.6	—	—	NA	—	—
RE02-07-968	02-600230	0–0.5	SOIL	—	—	—	—	—	0.537 (U)	—	—	—	—	—	—	—	—	—	—	—	—	9.04	—	—	NA	—	—
RE02-07-969	02-600230	2–2.5	QAL	—	—	—	—	—	0.538 (U)	—	29.5	—	—	—	—	—	—	—	—	0.000791 (J)	—	12	—	—	NA	—	—
RE02-07-971	02-600231	0–1	SOIL	—	—	—	—	—	0.532 (U)	—	—	—	—	—	—	—	—	—	3.79	0.000627 (J)	—	5.14	—	—	NA	—	—
RE02-07-972	02-600231	2–2.5	QBT3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.37	—	—	4.12	—	—	NA	—	—
RE02-07-973	02-600231	4.5–5.5	QBT3	—	—	—	—	—	—	—	8.14	—	—	—	—	—	—	—	1.26	—	—	4.37	—	—	NA	—	—
RE02-10-21991	02-612412	0–0.5	SOIL	—	1.08 (U)	—	—	—	0.541 (U)	—	—	—	—	—	—	—	—	—	NA	NA	—	—	—	—	NA	—	53.5
RE02-10-21992	02-612412	4–5	QAL	—	1.05 (U)	—	—	2.46	0.523 (U)	—	—	—	—	—	—	—	—	—	NA	NA	—	—	—	—	NA	—	62.2
RE02-10-21993	02-612412	9–10	QCT	6510	1.07 (U)	0.777 (J)	63.2	2.04	—	—	17.1	4.36	5320	—	1230 (J+)	297	—	5.15	NA	NA	—	1.08 (U)	—	—	NA	6.63	78.2

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

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

[b] na = Not available.

[c] SSLs are from NMED (2009, 108070), unless otherwise noted.

[d] SSLs are for hexavalent chromium.

[e] SSLs are from EPA regional screening tables (http://www.epa.gov.earth1r6/6pd/rcra_c/pd-n/screen.htm).

[f] SSLs are from LANL (2010, 108613).

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

[h] NA = Not analyzed.

Table 6.5-3
Organic Chemicals Detected at AOC 02-003(d)

Sample ID	Location ID	Depth (ft)	Media	Aroclor-1254	Aroclor-1260	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Chrysene	Fluoranthene	Phenanthrene	Pyrene	Toluene
Industrial SSL[a]				**8.26**	**8.26**	**23.4**	**2.34**	**23.4**	**234**	**2340**	**24400**	**20500**	**18300**	**57900**
Recreational SSL[b]				**6.65**	**10.5**	**30.1**	**3.01**	**30.1**	**301**	**3010**	**13900**	**12000**	**10400**	**60800**
Residential SSL[a]				**1.12**	**2.22**	**6.21**	**0.621**	**6.21**	**62.1**	**621**	**2290**	**1830**	**1720**	**5570**
RE02-07-6885	02-600216	0–0.5	SOIL	NA[c]	NA	—[d]	—	—	—	—	0.0119 (J)	—	—	NA
RE02-07-935	02-600219	0–0.5	SOIL	0.0066	0.0043	—	—	—	—	—	0.0154 (J)	—	0.0165 (J)	NA
RE02-07-936	02-600219	2–2.5	QAL	0.0015 (J)	—	—	—	—	—	—	—	—	—	0.000458 (J)
RE02-07-937	02-600219	2.7–3.4	QAL	—	—	—	—	—	—	—	—	—	—	0.000646 (J)
RE02-07-6894	02-600220	0–0.5	SOIL	NA	NA	0.0135 (J)	—	0.0251 (J)	0.013 (J)	0.0178 (J)	0.0204 (J)	—	0.0168 (J)	NA
RE02-07-6897	02-600221	0–0.5	SOIL	NA	NA	0.026 (J)	0.0299 (J)	0.0763	—	0.0498	0.0779	0.0342 (J)	0.0919	NA
RE02-07-6900	02-600222	0–0.5	SOIL	NA	NA	0.0151 (J)	—	0.0285 (J)	—	0.025 (J)	0.0249 (J)	0.0107 (J)	0.026 (J)	NA
RE02-07-6903	02-600223	0–0.5	SOIL	NA	NA	0.0137 (J)	—	0.0374 (J)	—	0.0236 (J)	0.039	0.0163 (J)	0.0474	NA
RE02-07-6906	02-600224	0–0.5	SOIL	NA	NA	0.0219 (J)	—	0.0439	—	0.0288 (J)	0.0585	0.0272 (J)	0.0579	NA
RE02-07-6909	02-600225	0–0.5	SOIL	NA	NA	0.019 (J)	—	0.0199 (J)	—	0.0139 (J)	0.022 (J)	—	0.0242 (J)	NA
RE02-07-6912	02-600226	0–0.5	SOIL	NA	NA	0.014 (J)	—	0.0174 (J)	—	0.0159 (J)	0.0252 (J)	0.0109 (J)	0.0243 (J)	NA
RE02-07-6913	02-600226	2–2.5	QAL	NA	NA	0.0233 (J)	0.0143 (J)	0.0279 (J)	0.0144 (J)	0.032 (J)	0.109	0.0631	0.0838	—
RE02-07-6921	02-600229	0–0.5	SOIL	0.0035 (J)	0.0027 (J)	—	—	—	—	—	—	—	—	NA
RE02-07-6925	02-600230	2–2.5	QAL	—	—	—	—	—	—	—	—	—	—	0.000375 (J+)
RE02-10-21991	02-612412	0–0.5	SOIL	0.0082	0.0053	—	—	0.0132 (J)	—	—	0.018 (J)	—	0.0143 (J)	NA
RE02-10-21993	02-612412	9–10	QCT	0.0302	—	—	—	—	—	—	—	—	—	NA

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

[a] SSLs are from NMED (2009, 108070).

[b] SSLs are from LANL (2010, 108613).

[c] NA = Not analyzed.

[d] — = Not detected.

Table 6.5-4
Radionuclides Detected or Detected above BVs/FVs at AOC 02-003(d)

Sample ID	Location ID	Depth (ft)	Media	Cesium-137	Cobalt-60	Plutonium-239/240	Tritium	Uranium-234	Uranium-235/236	Uranium-238
Qbt 1g, Qct, Qbo BV[a]				**na**[b]	**na**	**na**	**na**	**4**	**0.18**	**3.9**
Qbt 2, 3, 4 BV[a]				**na**	**na**	**na**	**na**	**1.98**	**0.09**	**1.93**
Soil BV[a]				**1.65**	**na**	**0.054**	**na**	**2.59**	**0.2**	**2.29**
Industrial SAL[c]				**23**	**5.1**	**210**	**440000**	**1500**	**87**	**430**
Recreational SAL[c]				**210**	**46**	**300**	**5300000**	**3200**	**520**	**2100**
Residential SAL[c]				**5.6**	**1.3**	**33**	**750**	**170**	**17**	**87**
CA02-00-0281	02-01254	0–0.5	SOIL	—[d]	—	0.198	NA[e]	—	—	2.57
CA02-00-0282	02-01254	2–2.5	SOIL	—	—	—	0.0785106	—	—	—
CA02-00-0283	02-01255	0–0.5	SOIL	—	—	0.071	0.0581633	—	—	—
CA02-00-0284	02-01255	2.2–2.5	SOIL	0.122 (J+)	—	0.066	0.0426804	—	—	—
CA02-00-0285	02-01256	0–0.5	FILL	—	—	0.179	0.103226	—	—	—
CA02-00-0286	02-01256	2–2.75	FILL	0.0507 (J+)	—	0.101	—	—	—	—
RE02-07-926	02-600216	0–0.5	SOIL	—	—	0.076	—	—	—	—
RE02-07-929	02-600217	0–0.8	SOIL	—	—	0.0775	—	—	—	—
RE02-07-932	02-600218	0–1.3	SOIL	0.128	—	—	—	—	—	—
RE02-07-933	02-600218	2–4	QCT	—	—	—	0.0222609	—	—	—
RE02-07-934	02-600218	4–5.25	QCT	—	—	—	0.0285727	—	—	—
RE02-07-936	02-600219	2–2.5	QAL	—	—	0.0209	—	—	—	—
RE02-07-941	02-600221	0–1.2	SOIL	0.799	—	0.0493	—	—	—	—
RE02-07-944	02-600222	0–0.5	SOIL	—	—	0.0611	—	—	—	—
RE02-07-947	02-600223	0–0.5	SOIL	—	0.97	0.145	—	—	—	—
RE02-07-950	02-600224	0–1.3	SOIL	0.288	—	0.0495	—	—	—	—
RE02-07-953	02-600225	0–0.5	SOIL	—	—	0.0923	—	—	—	—
RE02-07-956	02-600226	0–0.5	SOIL	—	—	0.0614	—	—	—	—
RE02-07-957	02-600226	2–3	QAL	—	—	—	0.0119969	—	—	—
RE02-07-963	02-600228	2–2.5	QAL	0.721	—	—	—	—	—	—
RE02-07-964	02-600228	4.5–5	QAL	0.164	—	—	0.0123808	—	—	—
RE02-07-966	02-600229	2–3.1	QAL	—	—	—	—	2.89	—	2.86
RE02-07-967	02-600229	4.5–5.7	QCT	—	—	—	0.041431	—	0.185	—
RE02-07-969	02-600230	2–2.5	QAL	—	—	—	0.0247065	—	—	—
RE02-07-972	02-600231	2–2.5	QBT3	0.269	—	—	—	—	—	—
RE02-07-973	02-600231	4.5–5.5	QBT3	—	—	—	—	—	0.133	—

Table 6.5-4 (continued)

Sample ID	Location ID	Depth (ft)	Media	Cesium-137	Cobalt-60	Plutonium-239/240	Tritium	Uranium-234	Uranium-235/236	Uranium-238
Qbt 1g, Qct, Qbo BV[a]				**na**	**na**	**na**	**na**	**4**	**0.18**	**3.9**
Qbt 2, 3, 4 BV[a]				**na**	**na**	**na**	**na**	**1.98**	**0.09**	**1.93**
Soil BV[a]				**1.65**	**na**	**0.054**	**na**	**2.59**	**0.2**	**2.29**
Industrial SAL[c]				**23**	**5.1**	**210**	**440000**	**1500**	**87**	**430**
Recreational SAL[c]				**210**	**46**	**300**	**5300000**	**3200**	**520**	**2100**
Residential SAL[c]				**5.6**	**1.3**	**33**	**750**	**170**	**17**	**87**
RE02-10-21991	02-612412	0–0.5	SOIL	—	—	0.0723	—	—	—	—
RE02-10-21992	02-612412	4–5	QAL	—	—	—	0.0154917	—	—	—
RE02-10-21993	02-612412	9–10	QCT	—	—	—	0.0359022	—	—	—

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

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

[b] na = Not available.

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

[d] — = Not detected.

[e] NA = Not analyzed.

Table 6.6-1
Samples Collected and Analyses Requested at AOC 02-003(e)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Gamma-emitting Radionuclides	Tritium	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	VOCs	Cyanide (Total)
CA02-00-0132	02-01240	3–4	SOIL	—*	—	7460R	7460R	7460R	7460R	7458R, 7459R	—	—	7460R	—	—	—
CA02-00-0133	02-01240	6–7	SOIL	—	—	7460R	7460R	7460R	7460R	7458R, 7459R	—	—	7460R	—	—	—
CA02-00-0134	02-01240	8.5–10	SOIL	—	—	7460R	7460R	7460R	7460R	7458R, 7459R	—	—	7460R	—	—	—
CA02-00-0135	02-01240	11.5–12.5	SOIL	—	—	7460R	7460R	7460R	7460R	7458R, 7459R	—	—	7460R	—	—	—
CA02-00-0136	02-01240	15–16	SOIL	—	—	7460R	7460R	7460R	7460R	7458R, 7459R	—	—	7460R	—	—	—
CA02-00-0137	02-01240	18.5–19.5	SOIL	—	—	7460R	7460R	7460R	7460R	7458R, 7459R	—	—	7460R	—	—	—
CA02-00-0138	02-01240	21.5–22.5	QBT3	—	—	7460R	7460R	7460R	7460R	7458R, 7459R	—	—	7460R	—	—	—
RE02-07-858	02-600206	0–0.5	SOIL	07-437	07-437	07-437	07-437	07-437	07-437	07-437	07-437	07-437	07-437	07-437	—	07-437
RE02-07-859	02-600206	4.5–7.5	QAL	07-424	07-424	07-424	07-424	07-424	07-424	07-424	07-424	07-424	07-424	07-424	07-424	07-424
RE02-07-860	02-600206	9.5–12.1	QAL	07-580	07-579	07-580	07-580	07-580	07-580	07-579	07-578	07-579	07-580	07-578	07-578	07-579
RE02-07-861	02-600206	19.5–23.4	QBO	07-580	07-579	07-580	07-580	07-580	07-580	07-579	07-578	07-579	07-580	07-578	07-578	07-579
RE02-07-863	02-600207	0–0.5	SOIL	07-655	07-654	07-655	07-655	07-655	07-655	07-654	07-653	07-654	07-655	07-653	—	07-654
RE02-07-864	02-600207	4.5–8.1	QAL	07-655	07-654	07-655	07-655	07-655	07-655	07-654	07-653	07-654	07-655	07-653	07-653	07-654
RE02-07-865	02-600207	9.5–11.4	QAL	07-655	07-654	07-655	07-655	07-655	07-655	07-654	07-653	07-654	07-655	07-653	07-653	07-654
RE02-07-866	02-600207	13.5–16.6	QBO	07-655	07-654	07-655	07-655	07-655	07-655	07-654	07-653	07-654	07-655	07-653	07-653	07-654
RE02-07-868	02-600208	0–0.5	SOIL	07-655	07-654	07-655	07-655	07-655	07-655	07-654	07-653	07-654	07-655	07-653	—	07-654
RE02-07-869	02-600208	4.5–6.7	QAL	07-863	07-863	07-863	07-863	07-863	07-863	07-863	07-863	07-863	07-863	07-863	07-863	07-863
RE02-07-870	02-600208	9.5–11.6	QAL	07-863	07-863	07-863	07-863	07-863	07-863	07-863	07-863	07-863	07-863	07-863	07-863	07-863
RE02-07-871	02-600208	14.5–16.5	QBO	07-863	07-863	07-863	07-863	07-863	07-863	07-863	07-863	07-863	07-863	07-863	07-863	07-863
RE02-07-873	02-600209	0–0.5	SOIL	07-608	07-608	07-608	07-608	07-608	07-608	07-608	07-608	07-608	07-608	07-608	—	07-608
RE02-07-874	02-600209	4.5–6.5	QAL	07-655	07-654	07-655	07-655	07-655	07-655	07-654	07-653	07-654	07-655	07-653	07-653	07-654
RE02-07-875	02-600209	9.5–11.9	QAL	07-655	07-654	07-655	07-655	07-655	07-655	07-654	07-653	07-654	07-655	07-653	07-653	07-654
RE02-07-876	02-600209	14.5–17.1	QBO	07-655	07-654	07-655	07-655	07-655	07-655	07-654	07-653	07-654	07-655	07-653	07-653	07-654
RE02-10-21904	02-612389	5–6	QAL	11-122	—	11-122	11-122	11-122	11-122	11-122	11-122	—	11-122	11-122	—	—
RE02-10-21905	02-612389	18–19	QAL	11-122	—	11-122	11-122	11-122	11-122	11-122	11-122	—	11-122	11-122	—	—
RE02-10-21906	02-612389	25–27	QBO	11-152	—	11-152	11-152	11-152	11-152	11-151	11-151	—	11-152	11-151	—	—
RE02-10-21907	02-612389	35–36	QBO	11-152	—	11-152	11-152	11-152	11-152	11-151	11-151	—	11-152	11-151	—	—
RE02-10-21908	02-612389	49–50	QBO	11-152	—	11-152	11-152	11-152	11-152	11-151	11-151	—	11-152	11-151	—	—

* — = Analysis not requested.

Table 6.6-2
Inorganic Chemicals above BVs at AOC 02-003(e)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Cadmium	Calcium	Chromium	Copper	Iron	Lead	Manganese	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Silver	Uranium	Vanadium	Zinc
Qbt 1g, Qct, Qbo BV[a]				**3560**	**0.5**	**0.56**	**25.7**	**0.4**	**1900**	**2.6**	**3.96**	**3700**	**13.5**	**189**	**0.1**	**2**	**na[b]**	**na**	**0.3**	**1**	**na**	**4.59**	**40**
Qbt 2, 3, 4 BV[a]				**7340**	**0.5**	**2.79**	**46**	**1.63**	**2200**	**7.14**	**4.66**	**14500**	**11.2**	**482**	**0.1**	**6.58**	**na**	**na**	**0.3**	**1**	**2.4**	**17**	**63.5**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**0.4**	**6120**	**19.3**	**14.7**	**21500**	**22.3**	**671**	**0.1**	**15.4**	**na**	**na**	**1.52**	**1**	**1.82**	**39.6**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**1120**	**na**	**2920[d]**	**45400**	**795000**	**800**	**145000**	**310[e]**	**22700**	**1820000**	**795**	**5680**	**5680**	**3410**	**5680**	**341000**
Recreational SSL[f]				**791000**	**317**	**27.7**	**158000**	**784**	**na**	**1910[d]**	**31700**	**554000**	**560**	**110000**	**238**	**15800**	**1260000**	**555**	**3960**	**3960**	**2380**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**77.9**	**na**	**219[d]**	**3130**	**54800**	**400**	**10700**	**23[e]**	**1560**	**125000**	**54.8**	**391**	**391**	**235**	**391**	**23500**
CA02-00-0132	02-01240	3–4	SOIL	—[g]	—	—	—	—	—	—	—	—	—	—	—	—	NA[h]	NA	—	—	—	—	51
CA02-00-0134	02-01240	8.5–10	SOIL	—	2.3 (J-)	—	—	—	—	—	16	—	3400	—	—	—	NA	NA	—	—	—	—	—
CA02-00-0135	02-01240	11.5–12.5	SOIL	—	—	—	—	—	—	—	—	—	—	—	—	—	NA	NA	—	—	1.97	—	—
CA02-00-0136	02-01240	15–16	SOIL	—	—	—	—	—	—	—	—	—	1200	—	—	—	NA	NA	—	—	—	—	—
CA02-00-0137	02-01240	18.5–19.5	SOIL	—	—	—	—	—	—	—	—	—	49	—	—	—	NA	NA	—	—	—	—	—
CA02-00-0138	02-01240	21.5–22.5	QBT3	7800 (J-)	—	—	—	—	—	—	—	—	76	—	—	—	NA	NA	0.32 (U)	—	—	—	—
RE02-07-858	02-600206	0–0.5	SOIL	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.53 (U)	—	NA	—	—
RE02-07-859	02-600206	4.5–7.5	QAL	—	—	—	—	—	12300 (J)	—	—	—	—	—	—	—	1.65	0.0296	1.58 (U)	—	NA	—	49.2
RE02-07-860	02-600206	9.5–12.1	QAL	—	—	—	—	0.53 (U)	—	—	—	—	—	—	—	—	—	—	—	—	NA	—	—
RE02-07-861	02-600206	19.5–23.4	QBO	5260	—	1.46 (U)	—	0.486 (U)	—	7.45 (U)	—	4110	—	—	—	2.11 (U)	—	—	1.46 (U)	—	NA	—	—
RE02-07-863	02-600207	0–0.5	SOIL	—	—	—	—	—	—	—	—	—	—	—	2.58	—	—	0.000527 (J-)	—	—	NA	—	—
RE02-07-864	02-600207	4.5–8.1	QAL	—	—	—	—	—	—	—	—	—	33.9	—	0.156	—	—	—	—	—	NA	—	—
RE02-07-865	02-600207	9.5–11.4	QAL	—	—	—	—	0.538 (U)	—	34.7 (U)	—	—	—	—	0.281	—	—	—	—	1.06	NA	—	—
RE02-07-866	02-600207	13.5–16.6	QBO	7940	—	1.96	32.7	0.579 (U)	—	19.7 (U)	—	7890	—	348	—	7.28 (U)	—	—	1.74 (U)	—	NA	8.5 (J)	—
RE02-07-868	02-600208	0–0.5	SOIL	—	—	—	—	0.507 (U)	—	—	—	—	—	—	0.384	—	1.11	—	—	—	NA	—	—
RE02-07-869	02-600208	4.5–6.7	QAL	—	—	—	—	1.18	—	—	—	—	—	—	0.236	—	1.59	—	2.46	—	NA	—	543
RE02-07-870	02-600208	9.5–11.6	QAL	—	—	—	—	0.547 (U)	—	—	—	—	—	—	—	—	—	—	2.63	—	NA	—	—
RE02-07-871	02-600208	14.5–16.5	QBO	13300	0.513 (UJ)	2.09	47.7	0.639 (U)	—	61.5	—	7070	—	205 (J+)	—	8.66 (U)	—	—	2.02	—	NA	4.66	45.2
RE02-07-873	02-600209	0–0.5	SOIL	—	—	—	—	—	—	—	—	—	—	—	—	—	2.13 (J+)	—	—	—	NA	—	59.1
RE02-07-874	02-600209	4.5–6.5	QAL	—	—	—	—	0.531 (U)	—	—	—	—	—	—	—	—	—	0.000869 (J-)	—	—	NA	—	—
RE02-07-875	02-600209	9.5–11.9	QAL	—	—	—	—	0.522 (U)	—	72.9 (J)	—	—	—	—	—	—	—	—	—	—	NA	—	—
RE02-07-876	02-600209	14.5–17.1	QBO	9490	—	1.8 (U)	—	0.598 (U)	—	27.7 (J)	—	6000	22.3	293	—	7.23	—	—	0.663 (J)	—	NA	4.68 (J)	—
RE02-10-21904	02-612389	5–6	QAL	—	0.902 (U)	—	—	—	—	—	—	—	—	—	—	—	NA	NA	—	—	NA	—	—
RE02-10-21905	02-612389	18–19	QAL	—	1.17 (U)	—	—	0.584 (U)	—	—	—	—	—	—	—	—	NA	NA	—	—	NA	—	—
RE02-10-21906	02-612389	25–27	QBO	—	1.21 (U)	1.26 (U)	—	0.607 (U)	—	—	—	4930	—	—	—	—	NA	NA	1.26 (U)	—	NA	—	—

Table 6.6-2 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Cadmium	Calcium	Chromium	Copper	Iron	Lead	Manganese	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Silver	Uranium	Vanadium	Zinc
Qbt 1g, Qct, Qbo BV[a]				**3560**	**0.5**	**0.56**	**25.7**	**0.4**	**1900**	**2.6**	**3.96**	**3700**	**13.5**	**189**	**0.1**	**2**	**na[b]**	**na**	**0.3**	**1**	**na**	**4.59**	**40**
Qbt 2, 3, 4 BV[a]				**7340**	**0.5**	**2.79**	**46**	**1.63**	**2200**	**7.14**	**4.66**	**14500**	**11.2**	**482**	**0.1**	**6.58**	**na**	**na**	**0.3**	**1**	**2.4**	**17**	**63.5**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**0.4**	**6120**	**19.3**	**14.7**	**21500**	**22.3**	**671**	**0.1**	**15.4**	**na**	**na**	**1.52**	**1**	**1.82**	**39.6**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**1120**	**na**	**2920[d]**	**45400**	**795000**	**800**	**145000**	**310[e]**	**22700**	**1820000**	**795**	**5680**	**5680**	**3410**	**5680**	**341000**
Recreational SSL[f]				**791000**	**317**	**27.7**	**158000**	**784**	**na**	**1910[d]**	**31700**	**554000**	**560**	**110000**	**238**	**15800**	**1260000**	**555**	**3960**	**3960**	**2380**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**77.9**	**na**	**219[d]**	**3130**	**54800**	**400**	**10700**	**23[e]**	**1560**	**125000**	**54.8**	**391**	**391**	**235**	**391**	**23500**
RE02-10-21907	02-612389	35–36	QBO	—	1.3 (U)	1.28 (U)	—	0.65 (U)	—	—	—	5450	—	219	—	—	NA	NA	1.28 (U)	—	NA	—	—
RE02-10-21908	02-612389	49–50	QBO	—	1.29 (U)	1.27 (U)	—	0.645 (U)	—	—	—	5750	—	243	—	—	NA	NA	1.27 (U)	—	NA	4.6	—

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

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

[b] na = Not available.

[c] SSLs are from NMED (2009, 108070), unless otherwise noted.

[d] SSLs are for hexavalent chromium.

[e] SSLs are from EPA regional screening tables (http://www.epa.gov.earth1r6/6pd/rcra_c/pd-n/screen.htm).

[f] SSLs are from LANL (2010, 108613).

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

[h] NA = Not analyzed.

Table 6.6-3
Organic Chemicals Detected at AOC 02-003(e)

Sample ID	Location ID	Depth (ft)	Media	Aroclor-1254	Aroclor-1260	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Bis(2-ethylhexyl)phthalate	Chrysene	Fluoranthene	Indeno(1,2,3-cd)pyrene	Phenanthrene	Pyrene	Toluene
Industrial SSL[a]				**8.26**	**8.26**	**23.4**	**2.34**	**23.4**	**18300[b]**	**1370**	**2340**	**24400**	**23.4**	**20500**	**18300**	**57900**
Recreational SSL[c]				**6.65**	**10.5**	**30.1**	**3.01**	**30.1**	**10400[b]**	**1830**	**3010**	**13900**	**30.1**	**12000**	**10400**	**60800**
Residential SSL[a]				**1.12**	**2.22**	**6.21**	**0.621**	**6.21**	**1720[b]**	**347**	**621**	**2290**	**6.21**	**1830**	**1720**	**5570**
RE02-07-858	02-600206	0–0.5	SOIL	—[d]	—	—	0.023 (J)	0.0412 (J)	—	—	0.0224 (J)	0.0442	—	0.025 (J)	0.0462	NA[e]
RE02-07-859	02-600206	4.5–7.5	QAL	0.0974	0.138	—	0.0184 (J)	0.0187 (J)	—	—	0.0152 (J)	0.0271 (J)	—	0.0159 (J)	0.0244 (J)	0.00043 (J)
RE02-07-860	02-600206	9.5–12.1	QAL	0.0116	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-863	02-600207	0–0.5	SOIL	—	0.0216 (J)	0.0174 (J)	—	0.0153 (J)	—	0.0882 (J)	0.0109 (J)	0.0195 (J)	—	0.0123 (J)	0.0155 (J)	NA
RE02-07-864	02-600207	4.5–8.1	QAL	0.0166 (J)	0.0163 (J)	—	—	—	—	—	—	—	—	0.0106 (J)	—	—
RE02-07-865	02-600207	9.5–11.4	QAL	—	0.004	—	—	—	—	—	—	—	—	—	—	—
RE02-07-868	02-600208	0–0.5	SOIL	—	0.0293	0.0239 (J)	0.0188 (J)	0.0269 (J)	—	—	0.0205 (J)	0.0276 (J)	—	0.0132 (J)	0.0315 (J)	NA
RE02-07-869	02-600208	4.5–6.7	QAL	0.0539	0.0249	0.021 (J)	0.0206 (J)	0.0285 (J)	—	—	0.0203 (J)	0.0442	—	0.0327 (J)	0.0288 (J)	—
RE02-07-873	02-600209	0–0.5	SOIL	—	0.611	—	0.101	0.0467	0.0458 (J)	—	0.0336 (J)	0.0679	0.0607	0.0328 (J)	0.0669	NA
RE02-07-874	02-600209	4.5–6.5	QAL	—	0.0032 (J)	—	—	—	—	0.11 (J)	—	—	—	—	—	—
RE02-10-21904	02-612389	5–6	QAL	0.298 (J)	0.0326 (J)	—	—	—	—	—	—	—	—	—	—	NA

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

[a] SSLs are from NMED (2009, 108070).

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

[c] SSLs are from LANL (2010, 108613).

[d] — = Not detected.

[e] NA = Not analyzed.

Table 6.6-4
Radionuclides Detected or Detected above BVs/FVs at AOC 02-003(e)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-137	Plutonium-239/240	Strontium-90	Tritium	Uranium-234	Uranium-235/236	Uranium-238
Qbt 1g, Qct, Qbo BV[a]				**na[b]**	**na**	**na**	**na**	**na**	**4**	**0.18**	**3.9**
Qbt 2, 3, 4 BV[a]				**na**	**na**	**na**	**na**	**na**	**1.98**	**0.09**	**1.93**
Soil BV[a]				**0.013**	**1.65**	**0.054**	**1.31**	**na**	**2.59**	**0.2**	**2.29**
Industrial SAL[c]				**180**	**23**	**210**	**1900**	**440000**	**1500**	**87**	**430**
Recreational SAL[c]				**280**	**210**	**300**	**5600**	**5300000**	**3200**	**520**	**2100**
Residential SAL[c]				**30**	**5.6**	**33**	**5.7**	**750**	**170**	**17**	**87**
CA02-00-0132	02-01240	3–4	SOIL	NA[d]	22.7	1.66	2.76	0.0357229	—[e]	—	—
CA02-00-0133	02-01240	6–7	SOIL	NA	2.75	—	3.38 (J-)	0.021324	—	—	—
CA02-00-0134	02-01240	8.5–10	SOIL	NA	450	0.359	—	0.0778849	—	—	—
CA02-00-0135	02-01240	11.5–12.5	SOIL	NA	1.69	—	4.58 (J-)	—	—	—	—
CA02-00-0136	02-01240	15–16	SOIL	NA	42.4	0.169	10.2 (J-)	0.0465945	—	—	—
CA02-00-0137	02-01240	18.5–19.5	SOIL	NA	5.1	—	0.987	0.076466	—	—	—
CA02-00-0138	02-01240	21.5–22.5	QBT3	NA	—	—	—	0.0748537	2.55	—	2.48
RE02-07-859	02-600206	4.5–7.5	QAL	—	38.4	0.455	6.44	0.0182553	—	—	—
RE02-07-860	02-600206	9.5–12.1	QAL	—	2.86	—	1.2	—	—	—	—
RE02-07-864	02-600207	4.5–8.1	QAL	0.0376	51.6	2.9	10.4	—	—	—	—
RE02-07-865	02-600207	9.5–11.4	QAL	—	—	0.0598	—	0.0507753	—	—	—
RE02-07-868	02-600208	0–0.5	SOIL	—	—	—	—	0.0099606	—	—	—
RE02-07-869	02-600208	4.5–6.7	QAL	—	43.5	0.758	4.52	0.0170256	—	—	—
RE02-07-871	02-600208	14.5–16.5	QBO	—	0.82	—	—	—	—	—	—
RE02-07-874	02-600209	4.5–6.5	QAL	—	0.478	—	—	—	—	—	—
RE02-10-21904	02-612389	5–6	QAL	—	274	0.644	32.8	0.021	—	—	—
RE02-10-21908	02-612389	49–50	QBO	—	—	—	—	—	—	0.194	—

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

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

[b] na = Not available.

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

[d] NA = Not analyzed.

[e] — = Not detected.

Table 6.7-1
Samples Collected and Analyses Requested at AOC 02-004(a)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Dioxins/Furans	Gamma-emitting Radionuclides	Tritium	Hexavalent Chromium	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	Technetium-99	TPH-DRO	VOCs	Cyanide (Total)
RE02-03-51840	02-22359	9–9.5	SOIL	—*	—	—	1822S	1822S	1821S	1822S	1822S	1821S	—	—	1822S	—	1822S	—	—	—
RE02-03-51841	02-22359	10.5–11	SOIL	—	—	—	1822S	1822S	1821S	1822S	1822S	1821S	—	—	1822S	—	1822S	—	—	—
RE02-03-51860	02-22369	9–9.5	SOIL	—	—	—	1822S	1822S	1821S	1822S	1822S	1821S	—	—	1822S	—	1822S	—	—	—
RE02-03-51861	02-22369	10.5–11.03	SOIL	—	—	—	1822S	1822S	1821S	1822S	1822S	1821S	—	—	1822S	—	1822S	—	—	—
RE02-03-51862	02-22370	8–8.5	SOIL	—	—	—	1822S	1822S	1821S	1822S	1822S	1821S	—	—	1822S	—	1822S	—	—	—
RE02-03-51863	02-22370	9.5–10	SOIL	—	—	—	1822S	1822S	1821S	1822S	1822S	1821S	—	—	1822S	—	1822S	—	—	—
RE02-03-51864	02-22371	9–9.5	SOIL	—	—	—	1822S	1822S	1821S	1822S	1822S	1821S	—	—	1822S	—	1822S	—	—	—
RE02-03-51865	02-22371	10.5–11	SOIL	—	—	—	1822S	1822S	1821S	1822S	1822S	1821S	—	—	1822S	—	1822S	—	—	—
RE02-07-1528	02-600378	0–0.5	SOIL	07-748	07-747	—	07-748	07-748	—	07-748	07-748	07-747	07-746	07-747	07-748	—	—	—	—	07-747
RE02-07-6840	02-600378	0–0.5	SOIL	—	—	—	—	—	—	—	—	—	—	—	—	07-1152	—	—	—	—
RE02-07-6841	02-600378	9.5–10	QAL	—	—	—	—	—	—	—	—	—	—	—	—	07-1152	—	—	07-1152	—
RE02-07-1529	02-600378	9.5–12	QBO	07-920	07-920	—	07-920	07-920	—	07-920	07-920	07-920	07-920	07-920	07-920	—	—	—	—	07-920
RE02-07-1530	02-600378	12–15	QBO	07-920	07-920	—	07-920	07-920	—	07-920	07-920	07-920	07-920	07-920	07-920	—	—	—	—	07-920
RE02-07-6843	02-600378	13–14.5	QBO	—	—	—	—	—	—	—	—	—	—	—	—	07-1152	—	—	07-1152	—
RE02-07-1532	02-600379	0–0.5	SOIL	07-748	07-747	—	07-748	07-748	—	07-748	07-748	07-747	07-746	07-747	07-748	—	—	—	—	07-747
RE02-07-6844	02-600379	0–0.5	SOIL	—	—	—	—	—	—	—	—	—	—	—	—	07-1152	—	—	—	—
RE02-07-6845	02-600379	9.5–10.5	QAL	—	—	—	—	—	—	—	—	—	—	—	—	07-1152	—	—	07-1152	—
RE02-07-1533	02-600379	9.5–14	QBO	07-939	07-938	—	07-939	07-939	—	07-939	07-939	07-938	07-937	07-938	07-939	—	—	—	—	07-938
RE02-07-6847	02-600379	10.5–11.5	QBO	—	—	—	—	—	—	—	—	—	—	—	—	07-1152	—	—	07-1152	—
RE02-07-1536	02-600380	0–0.5	SOIL	07-748	07-747	—	07-748	07-748	—	07-748	07-748	07-747	07-746	07-747	07-748	—	—	—	—	07-747
RE02-07-6848	02-600380	0–0.5	SOIL	—	—	—	—	—	—	—	—	—	—	—	—	07-1152	—	—	—	—
RE02-07-6849	02-600380	9.5–10.5	QAL	—	—	—	—	—	—	—	—	—	—	—	—	07-1152	—	—	07-1152	—
RE02-07-1537	02-600380	9.5–12	QBO	07-939	07-938	—	07-939	07-939	—	07-939	07-939	07-938	07-937	07-938	07-939	—	—	—	—	07-938
RE02-07-6851	02-600380	11–12	QBO	—	—	—	—	—	—	—	—	—	—	—	—	07-1152	—	—	07-1152	—
RE02-07-1540	02-600381	0–0.5	SOIL	07-340	07-339	—	07-340	07-340	—	07-340	07-340	07-339	07-338	07-339	07-340	07-338	—	—	—	07-339
RE02-07-1541	02-600381	7–10	QAL	07-340	07-339	—	07-340	07-340	—	07-340	07-340	07-339	07-338	07-339	07-340	07-338	—	—	07-338	07-339
RE02-07-1542	02-600381	16.5–20	QBO	07-340	07-339	—	07-340	07-340	—	07-340	07-340	07-339	07-338	07-339	07-340	07-338	—	—	07-338	07-339
RE02-07-1544	02-600382	0–0.5	SOIL	07-748	07-747	—	07-748	07-748	—	07-748	07-748	07-747	07-746	07-747	07-748	—	—	—	—	07-747
RE02-07-6856	02-600382	0–0.5	SOIL	—	—	—	—	—	—	—	—	—	—	—	—	07-1152	—	—	—	—
RE02-07-6857	02-600382	9.5–10.5	QAL	—	—	—	—	—	—	—	—	—	—	—	—	07-1152	—	—	07-1152	—
RE02-07-1545	02-600382	9.5–12	QBO	07-939	07-938	—	07-939	07-939	—	07-939	07-939	07-938	07-937	07-938	07-939	—	—	—	—	07-938
RE02-07-6859	02-600382	12–13	QBO	—	—	—	—	—	—	—	—	—	—	—	—	07-1152	—	—	07-1152	—
RE02-07-1546	02-600382	12.5–16	QBO	07-939	07-938	—	07-939	07-939	—	07-939	07-939	07-938	07-937	07-938	07-939	—	—	—	—	07-938

Table 6.7-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Dioxins/Furans	Gamma-emitting Radionuclides	Tritium	Hexavalent Chromium	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	Technetium-99	TPH-DRO	VOCs	Cyanide (Total)
RE02-07-1548	02-600383	0–0.5	SOIL	07-748	07-747	—	07-748	—	—	07-748	07-748	07-747	07-748	07-747	07-748	—	—	—	—	07-747
RE02-07-6860	02-600383	0–0.5	SOIL	—	—	—	—	—	—	—	—	—	—	—	—	07-1152	—	—	—	—
RE02-07-6861	02-600383	9.5–10.5	QAL	—	—	—	—	—	—	—	—	—	—	—	—	07-1152	—	—	07-1152	—
RE02-07-1549	02-600383	9.5–12	QAL	07-939	07-938	—	07-939	07-939	—	07-939	07-939	07-938	07-937	07-938	07-939	—	—	—	—	07-938
RE02-07-1550	02-600383	13–18.5	QBO	07-939	07-938	—	07-939	07-939	—	07-939	07-939	07-938	07-937	07-938	07-939	—	—	—	—	07-938
RE02-07-6863	02-600383	15–18.5	QBO	—	—	—	—	—	—	—	—	—	—	—	—	07-1152	—	—	07-1152	—
RE02-07-1552	02-600384	0–0.5	SOIL	07-748	07-747	—	07-748	—	—	07-748	07-748	07-747	07-748	07-747	07-748	—	—	—	—	07-747
RE02-07-6864	02-600384	0–0.5	SOIL	—	—	—	—	—	—	—	—	—	—	—	—	07-1152	—	—	—	—
RE02-07-6865	02-600384	9.5–10.5	QAL	—	—	—	—	—	—	—	—	—	—	—	—	07-1152	—	—	07-1152	—
RE02-07-1553	02-600384	9.5–13	QAL	07-939	07-938	—	07-939	07-939	—	07-939	07-939	07-938	07-937	07-938	07-939	—	—	—	—	07-938
RE02-07-1554	02-600384	13.5–17	QBO	07-939	07-938	—	07-939	07-939	—	07-939	07-939	07-938	07-937	07-938	07-939	—	—	—	—	07-938
RE02-07-6867	02-600384	15–17	QBO	—	—	—	—	—	—	—	—	—	—	—	—	07-1152	—	—	07-1152	—
RE02-07-1655	02-600409	0–0.5	SOIL	07-445	07-444	07-442	07-445	07-445	—	07-445	07-445	07-444	07-443	07-444	07-445	07-443	—	07-443	—	07-444
RE02-07-1656	02-600409	4.5–9.5	QAL	—	07-754	07-773	—	—	—	—	—	07-754	07-753	07-754	—	07-753	—	07-753	07-753	07-754
RE02-07-1657	02-600409	9.5–14.5	QAL	07-755	07-754	07-773	07-755	07-755	—	07-755	07-755	07-754	07-753	07-754	07-755	07-753	—	07-753	07-753	07-754
RE02-07-1659	02-600409	14.5–24.5	QBO	07-755	07-754	07-773	07-755	07-755	—	07-755	07-755	07-754	07-753	07-754	07-755	07-753	—	07-753	07-753	07-754
RE02-07-1661	02-600410	0–0.5	SOIL	07-466	07-465	07-463	07-466	07-466	—	07-466	07-466	07-465	07-464	07-465	07-466	07-464	—	07-464	—	07-465
RE02-07-1662	02-600410	4.5–9.5	QAL	07-732	07-731	07-729	07-732	07-732	—	07-732	07-732	07-731	07-730	07-731	07-732	07-730	—	07-730	07-730	07-731
RE02-07-1667	02-600411	0–0.5	SOIL	07-466	07-465	07-463	07-466	07-466	—	07-466	07-466	07-465	07-464	07-465	07-466	07-464	—	07-464	—	07-465
RE02-07-1668	02-600411	4.5–7	QAL	07-732	07-731	07-729	07-732	07-732	—	07-732	07-732	07-731	07-730	07-731	07-732	07-730	—	07-730	07-730	07-731
RE02-07-1669	02-600411	9.5–14.5	QAL	07-732	07-731	07-729	07-732	07-732	—	07-732	07-732	07-731	07-730	07-731	07-732	07-730	—	07-730	07-730	07-731
RE02-07-1671	02-600411	14.5–21	QBO	07-732	07-731	07-729	07-732	07-732	—	07-732	07-732	07-731	07-730	07-731	07-732	07-730	—	07-730	07-730	07-731
RE02-07-1673	02-600412	0–0.5	SOIL	07-466	07-465	07-463	07-466	07-466	—	07-466	07-466	07-465	07-464	07-465	07-466	07-464	—	07-464	—	07-465
RE02-07-1674	02-600412	4.5–9.5	QAL	07-721	07-721	07-720	07-721	07-721	—	07-721	07-721	07-721	07-721	07-721	07-721	07-721	—	07-721	07-721	07-721
RE02-07-1675	02-600412	9.5–12	QAL	07-721	07-721	07-720	07-721	07-721	—	07-721	07-721	07-721	07-721	07-721	07-721	07-721	—	07-721	07-721	07-721
RE02-07-1679	02-600413	0–0.5	SOIL	07-466	07-465	07-463	07-466	07-466	—	07-466	07-466	07-465	07-464	07-465	07-466	07-464	—	07-464	—	07-465
RE02-07-1680	02-600413	4.5–9.5	QAL	07-744	07-743	07-774	07-744	07-744	—	07-744	07-744	07-743	07-742	07-743	07-744	07-742	—	07-742	07-742	07-743
RE02-07-1681	02-600413	9.5–14.5	QAL	07-744	07-743	07-774	07-744	07-744	—	07-744	07-744	07-743	07-742	07-743	07-744	07-742	—	07-742	07-742	07-743
RE02-07-1683	02-600413	14.5–22.5	QBO	07-744	07-743	07-774	07-744	07-744	—	07-744	07-744	07-743	07-742	07-743	07-744	07-742	—	07-742	07-742	07-743
RE02-07-1685	02-600414	0–0.5	SOIL	07-493	07-492	07-491	07-493	07-493	—	07-493	07-493	07-492	07-492	07-492	07-493	07-492	—	—	—	07-492
RE02-07-1686	02-600414	4.5–9.5	QAL	07-744	07-743	07-774	07-744	07-744	—	07-744	07-744	07-743	07-742	07-743	07-744	07-742	—	—	07-742	07-743
RE02-07-1687	02-600414	9.5–14.5	QAL	07-744	07-743	07-774	07-744	07-744	—	07-744	07-744	07-743	07-742	07-743	07-744	07-742	—	—	07-742	07-743
RE02-07-1689	02-600414	14.5–20	QBO	07-744	07-743	07-774	07-744	07-744	—	07-744	07-744	07-743	07-742	07-743	07-744	07-742	—	—	07-742	07-743
RE02-07-1691	02-600415	0–0.5	SOIL	07-379	07-378	07-376	07-379	07-379	—	07-379	07-379	07-378	07-377	07-378	07-379	07-377	—	—	—	07-378

Table 6.7-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Dioxins/Furans	Gamma-emitting Radionuclides	Tritium	Hexavalent Chromium	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	Technetium-99	TPH-DRO	VOCs	Cyanide (Total)
RE02-07-1692	02-600415	4.5–5.1	SOIL	07-379	07-378	07-376	07-379	07-379	—	07-379	07-379	07-378	07-377	07-378	07-379	07-377	—	—	07-377	07-378
RE02-07-1693	02-600415	9.5–14	QAL	07-417	07-416	07-431	07-417	07-417	—	07-417	07-417	07-416	07-415	07-416	07-417	07-415	—	—	07-415	07-416
RE02-07-1696	02-600415	14.5–16.6	QAL	07-417	07-416	07-431	07-417	07-417	—	07-417	07-417	07-416	07-415	07-416	07-417	07-415	—	—	07-415	07-416
RE02-07-1695	02-600415	19.5–21.7	QBO	07-417	07-416	07-431	07-417	07-417	—	07-417	07-417	07-416	07-415	07-416	07-417	07-415	—	—	07-415	07-416
RE02-07-1697	02-600416	0–0.5	SOIL	07-493	07-492	07-491	07-493	07-493	—	07-493	07-493	07-492	07-492	07-492	07-493	07-492	—	—	—	07-492
RE02-07-1699	02-600416	9.5–14.5	QAL	07-771	07-770	07-772	07-771	07-771	—	07-771	07-771	07-770	07-769	07-770	07-771	07-769	—	—	07-769	07-770
RE02-07-1701	02-600416	14.5–19.5	QBO	07-771	07-770	07-772	07-771	07-771	—	07-771	07-771	07-770	07-769	07-770	07-771	07-769	—	—	07-769	07-770
RE02-07-1703	02-600417	0–0.5	SOIL	07-493	—	07-491	07-493	07-493	—	07-493	07-493	07-492	07-492	07-492	07-493	07-492	—	—	—	07-492
RE02-07-1704	02-600417	4.5–9.5	QAL	07-771	07-770	07-772	07-771	07-771	—	07-771	07-771	07-770	07-769	07-770	07-771	07-769	—	—	07-769	07-770
RE02-07-1707	02-600417	13–15.5	QBO	07-771	07-770	07-772	07-771	07-771	—	07-771	07-771	07-770	07-769	07-770	07-771	07-769	—	—	07-769	07-770
RE02-07-1919	02-600456	0–0.5	SOIL	07-1073	07-1072	—	07-1073	07-1073	—	07-1073	07-1073	07-1072	07-1071	07-1072	07-1073	07-1071	—	07-1071	—	07-1072
RE02-07-1922	02-600456	10–14	QAL	07-1073	07-1072	—	07-1073	07-1073	—	07-1073	07-1073	07-1072	07-1071	07-1072	07-1073	07-1071	—	07-1071	07-1071	07-1072
RE02-07-1921	02-600456	14–19	QBO	07-1073	07-1072	—	07-1073	07-1073	—	07-1073	07-1073	07-1072	07-1071	07-1072	07-1073	07-1071	—	07-1071	07-1071	07-1072
RE02-07-1923	02-600457	0–0.5	SOIL	07-1062	07-1062	—	07-1062	07-1062	—	07-1062	07-1062	07-1062	07-1062	07-1062	07-1062	07-1062	—	07-1062	—	07-1062
RE02-07-1926	02-600457	9.5–14	QAL	07-1073	07-1072	—	07-1073	07-1073	—	07-1073	07-1073	07-1072	07-1071	07-1072	07-1073	07-1071	—	07-1071	07-1071	07-1072
RE02-07-1925	02-600457	14–19	QBO	07-1073	07-1072	—	07-1073	07-1073	—	07-1073	07-1073	07-1072	07-1071	07-1072	07-1073	07-1071	—	07-1071	07-1071	07-1072
RE02-07-1927	02-600458	0–0.5	SOIL	07-1047	07-1046	—	07-1047	07-1047	—	07-1047	07-1047	07-1046	07-1045	07-1046	07-1047	07-1045	—	07-1045	—	07-1046
RE02-07-1930	02-600458	9.5–14.5	QAL	07-1047	07-1046	—	07-1047	07-1047	—	07-1047	07-1047	07-1046	07-1045	07-1046	07-1047	07-1045	—	07-1045	07-1045	07-1046
RE02-07-1929	02-600458	15.5–19.5	QBO	07-1052	07-1051	—	07-1052	07-1052	—	07-1052	07-1052	07-1051	07-1050	07-1051	07-1052	07-1050	—	07-1050	07-1050	07-1051
RE02-07-1931	02-600459	0–0.5	SOIL	07-1047	07-1046	—	07-1047	07-1047	—	07-1047	07-1047	07-1046	07-1045	07-1046	07-1047	07-1045	—	07-1045	—	07-1046
RE02-07-1934	02-600459	9.5–14	QAL	07-1047	07-1046	—	07-1047	07-1047	—	07-1047	07-1047	07-1046	07-1045	07-1046	07-1047	07-1045	—	07-1045	07-1045	07-1046
RE02-07-1933	02-600459	15–19	QBO	07-1047	07-1046	—	07-1047	07-1047	—	07-1047	07-1047	07-1046	07-1045	07-1046	07-1047	07-1045	—	07-1045	07-1045	07-1046
RE02-07-1935	02-600460	0–2.3	SOIL	07-334	07-333	—	07-334	07-334	—	07-334	07-334	07-333	07-332	07-333	07-334	07-332	—	07-333	—	07-333
RE02-07-1937	02-600460	15.5–20	QBO	07-334	07-333	—	07-334	07-334	—	07-334	07-334	07-333	07-332	07-333	07-334	07-332	—	07-333	07-332	07-333
RE02-07-1939	02-600461	0–0.5	SOIL	07-1052	07-1051	—	07-1052	07-1052	—	07-1052	07-1052	07-1051	07-1050	07-1051	07-1052	07-1050	—	07-1050	—	07-1051
RE02-07-1941	02-600461	9.5–14	QBO	07-1052	07-1051	—	07-1052	07-1052	—	07-1052	07-1052	07-1051	07-1050	07-1051	07-1052	07-1050	—	07-1050	07-1050	07-1051
RE02-07-1943	02-600462	0–0.5	SOIL	07-1052	07-1051	—	07-1052	07-1052	—	07-1052	07-1052	07-1051	07-1050	07-1051	07-1052	07-1050	—	07-1050	—	07-1051
RE02-07-1946	02-600462	9.5–14	QAL	07-1052	07-1051	—	07-1052	07-1052	—	07-1052	07-1052	07-1051	07-1050	07-1051	07-1052	07-1050	—	07-1050	07-1050	07-1051
RE02-07-1945	02-600462	15–20	QBO	07-1052	07-1051	—	07-1052	07-1052	—	07-1052	07-1052	07-1051	07-1050	07-1051	07-1052	07-1050	—	07-1050	07-1050	07-1051
RE02-07-1947	02-600463	0–0.5	SOIL	07-1062	07-1062	—	07-1062	07-1062	—	07-1062	07-1062	07-1062	07-1062	07-1062	07-1062	07-1062	—	07-1062	—	07-1062
RE02-07-1951	02-600464	0–0.5	SOIL	07-1047	07-1046	—	07-1047	07-1047	—	07-1047	07-1047	07-1046	07-1045	07-1046	07-1047	07-1045	—	07-1045	—	07-1046
RE02-07-1955	02-600465	0–0.5	SOIL	07-1052	07-1051	—	07-1052	07-1052	—	07-1052	07-1052	07-1051	07-1050	07-1051	07-1052	07-1050	—	07-1050	—	07-1051
RE02-07-1957	02-600465	9.5–17	QBO	07-1052	07-1051	—	07-1052	07-1052	—	07-1052	07-1052	07-1051	07-1050	07-1051	07-1052	07-1050	—	07-1050	07-1050	07-1051
RE02-07-1959	02-600466	0–0.5	SOIL	07-1052	07-1051	—	07-1052	07-1052	—	07-1052	07-1052	07-1051	07-1050	07-1051	07-1052	07-1050	—	07-1050	—	07-1051

Table 6.7-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Dioxins/Furans	Gamma-emitting Radionuclides	Tritium	Hexavalent Chromium	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	Technetium-99	TPH-DRO	VOCs	Cyanide (Total)
RE02-07-1961	02-600466	10–15	QBO	07-1052	07-1051	—	07-1052	07-1052	—	07-1052	07-1052	07-1051	07-1050	07-1051	07-1052	07-1050	—	07-1050	07-1050	07-1051
RE02-07-1963	02-600467	0–0.8	SOIL	07-334	07-333	—	07-334	07-334	—	07-334	07-334	07-333	07-332	07-333	07-334	07-332	—	07-333	—	07-333
RE02-07-1964	02-600467	9.5–10	QAL	07-334	07-333	—	07-334	07-334	—	07-334	07-334	07-333	07-332	07-333	07-334	07-332	—	07-333	07-332	07-333
RE02-07-1965	02-600467	10–12.5	QBO	07-358	07-357	—	07-358	07-358	—	07-358	07-358	07-357	07-356	07-357	07-358	07-356	—	07-357	07-356	07-357
RE02-07-1967	02-600468	0–1.9	SOIL	07-1105	07-1105	—	07-1105	07-1105	—	07-1105	07-1105	07-1105	07-1105	07-1105	07-1105	07-1105	—	07-1105	—	07-1105
RE02-10-21775	02-600580	3–3.2	SOIL	—	—	—	—	—	—	—	—	—	—	—	—	10-4023	—	—	—	—
RE02-10-21777	02-600580	5–5.2	SOIL	—	—	—	—	—	—	—	—	—	—	—	—	10-4023	—	—	—	—
RE02-07-2586	02-600580	11–16	QBO	07-1081	07-1081	—	07-1081	07-1081	—	07-1081	07-1081	07-1081	—	07-1081	07-1081	07-1081	—	—	—	07-1081
RE02-07-2589	02-600581	0–0.5	SOIL	07-1081	07-1081	—	07-1081	07-1081	—	07-1081	07-1081	07-1081	—	07-1081	07-1081	07-1081	—	—	—	07-1081
RE02-07-6930	02-600581	9.5–10	QAL	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	07-1174	—
RE02-07-2592	02-600581	9.5–13	QAL	07-1089	07-1089	—	07-1089	07-1089	—	07-1089	07-1089	07-1089	—	07-1089	07-1089	07-1089	—	—	—	07-1089
RE02-07-6931	02-600581	13.5–14.5	QBO	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	07-1174	—
RE02-07-2591	02-600581	14–16	QBO	07-1089	07-1089	—	07-1089	07-1089	—	07-1089	07-1089	07-1089	—	07-1089	07-1089	07-1089	—	—	—	07-1089
RE02-07-2594	02-600582	0–0.5	SOIL	07-1136	07-1136	—	07-1136	07-1136	—	07-1136	07-1136	07-1136	—	07-1136	07-1136	07-1136	—	—	—	07-1136
RE02-07-2599	02-600583	0–1.5	SOIL	07-372	07-371	—	07-372	07-372	—	07-372	07-372	07-371	—	07-371	07-372	07-370	—	—	—	07-371
RE02-07-2601	02-600583	8.5–10	SOIL	07-372	07-371	—	07-372	07-372	—	07-372	07-372	07-371	—	07-371	07-372	07-370	—	—	07-370	07-371
RE02-07-2602	02-600583	15.5–20	QBO	07-375	07-374	—	07-375	07-375	—	07-375	07-375	07-374	—	07-374	07-375	07-373	—	—	07-373	07-374
RE02-07-6932	02-600584	1.5–2	SOIL	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	07-1174	—
RE02-07-2604	02-600584	1.5–3.3	SOIL	07-1049	07-1049	—	07-1049	07-1049	—	07-1049	07-1049	07-1049	—	07-1049	07-1049	07-1049	—	—	—	07-1049
RE02-07-6933	02-600584	9.5–10	QAL	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	07-1174	—
RE02-07-2605	02-600584	9.5–11.7	QAL	07-1049	07-1049	—	07-1049	07-1049	—	07-1049	07-1049	07-1049	—	07-1049	07-1049	07-1049	—	—	—	07-1049
RE02-07-6934	02-600584	16.5–18.5	QBO	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	07-1174	—
RE02-07-2606	02-600584	16.5–21	QBO	07-1049	07-1049	—	07-1049	07-1049	—	07-1049	07-1049	07-1049	—	07-1049	07-1049	07-1049	—	—	—	07-1049
RE02-10-21656	02-612325	5–6	SOIL	—	—	—	10-4286	10-4286	—	10-4286	10-4286	10-4286	—	—	—	—	—	—	—	—
RE02-10-21657	02-612325	15–16	QAL	—	—	—	10-4286	10-4286	—	10-4286	10-4286	10-4286	—	—	—	—	—	—	—	—
RE02-10-21658	02-612325	25–26	QBO	—	—	—	10-4322	10-4322	—	10-4322	10-4322	10-4322	—	—	—	—	—	—	—	—
RE02-10-21659	02-612325	35–37	QBO	—	—	—	10-4322	10-4322	—	10-4322	10-4322	10-4322	—	—	—	—	—	—	—	—
RE02-10-21660	02-612325	49–50	QBO	—	—	—	10-4322	10-4322	—	10-4322	10-4322	10-4322	—	—	—	—	—	—	—	—
RE02-10-21661	02-612326	5–6	SOIL	—	—	—	10-4568	10-4568	—	10-4568	10-4568	10-4568	—	—	—	—	—	—	—	—
RE02-10-21662	02-612326	15–16	QAL	—	—	—	10-4562	10-4562	—	10-4562	10-4562	10-4561	—	—	—	—	—	—	—	—
RE02-10-21663	02-612326	25–26	QBO	—	—	—	10-4562	10-4562	—	10-4562	10-4562	10-4561	—	—	—	—	—	—	—	—
RE02-10-21664	02-612326	35–37	QBO	—	—	—	10-4562	10-4562	—	10-4562	10-4562	10-4561	—	—	—	—	—	—	—	—
RE02-10-21665	02-612326	49–50	QBO	—	—	—	10-4562	10-4562	—	10-4562	10-4562	10-4561	—	—	—	—	—	—	—	—
RE02-10-21666	02-612327	5–6	QAL	—	—	—	10-4632	10-4632	—	10-4632	10-4632	10-4631	—	—	—	—	—	—	—	—

Table 6.7-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Dioxins/Furans	Gamma-emitting Radionuclides	Tritium	Hexavalent Chromium	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	Technetium-99	TPH-DRO	VOCs	Cyanide (Total)
RE02-10-21667	02-612327	15–16	QAL	—	—	—	10-4632	10-4632	—	10-4632	10-4632	10-4631	—	—	—	—	—	—	—	—
RE02-10-21668	02-612327	25–26	QBO	—	—	—	10-4632	10-4632	—	10-4632	10-4632	10-4631	—	—	—	—	—	—	—	—
RE02-10-21669	02-612327	35–36	QBO	—	—	—	10-4632	10-4632	—	10-4632	10-4632	10-4631	—	—	—	—	—	—	—	—
RE02-10-21670	02-612327	49–50	QBO	—	—	—	10-4632	10-4632	—	10-4632	10-4632	10-4631	—	—	—	—	—	—	—	—
RE02-10-21671	02-612328	5–6	SOIL	—	—	—	10-4638	10-4638	—	10-4638	10-4638	10-4638	—	—	—	—	—	—	—	—
RE02-10-21672	02-612328	15–16	QAL	—	—	—	10-4638	10-4638	—	10-4638	10-4638	10-4638	—	—	—	—	—	—	—	—
RE02-10-21673	02-612328	25–26	QBO	—	—	—	10-4638	10-4638	—	10-4638	10-4638	10-4638	—	—	—	—	—	—	—	—
RE02-10-21674	02-612328	35–36	QBO	—	—	—	10-4638	10-4638	—	10-4638	10-4638	10-4638	—	—	—	—	—	—	—	—
RE02-10-21675	02-612328	49–50	QBO	—	—	—	10-4700	10-4700	—	10-4700	10-4700	10-4700	—	—	—	—	—	—	—	—
RE02-10-21747	02-612346	8–9	QAL	—	—	—	10-4701	10-4701	10-4701	10-4701	10-4701	10-4701	10-4701	—	—	10-4701	—	—	—	—
RE02-10-21748	02-612346	15–16	QAL	—	—	—	10-4694	10-4694	10-4693	10-4694	10-4694	10-4693	10-4693	—	—	10-4693	—	—	—	—
RE02-10-21749	02-612346	25–26	QBO	—	—	—	10-4694	10-4694	10-4693	10-4694	10-4694	10-4693	10-4693	—	—	10-4693	—	—	—	—
RE02-10-21750	02-612346	35–36	QBO	—	—	—	10-4694	10-4694	10-4693	10-4694	10-4694	10-4693	10-4693	—	—	10-4693	—	—	—	—
RE02-10-21751	02-612346	49–50	QBO	—	—	—	10-4694	10-4694	10-4693	10-4694	10-4694	10-4693	10-4693	—	—	10-4693	—	—	—	—
RE02-10-21778	02-612350	3–3.2	SOIL	—	—	—	—	—	—	—	—	—	—	—	—	10-4023	—	—	—	—
RE02-10-21779	02-612350	5–5.2	SOIL	—	—	—	—	—	—	—	—	—	—	—	—	10-4023	—	—	—	—
RE02-10-21781	02-612351	3–3.2	SOIL	—	—	—	—	—	—	—	—	—	—	—	—	10-4023	—	—	—	—
RE02-10-21782	02-612351	5–5.2	SOIL	—	—	—	—	—	—	—	—	—	—	—	—	10-4023	—	—	—	—
RE02-10-21784	02-612352	3–3.2	SOIL	—	—	—	—	—	—	—	—	—	—	—	—	10-4023	—	—	—	—
RE02-10-21785	02-612352	5–5.2	SOIL	—	—	—	—	—	—	—	—	—	—	—	—	10-4023	—	—	—	—
RE02-10-21787	02-612353	3–3.4	SOIL	—	—	—	—	—	—	—	—	—	—	—	—	10-4023	—	—	—	—
RE02-10-21788	02-612353	5–5.2	SOIL	—	—	—	—	—	—	—	—	—	—	—	—	10-4023	—	—	—	—

* — = Analysis not requested.

Table 6.7-2
Inorganic Chemicals above BVs at AOC 02-004(a)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Hexavalent Chromium	Cobalt	Copper	Cyanide (Total)
Qbt 1g, Qct, Qbo BV[a]				**3560**	**0.5**	**0.56**	**25.7**	**1.44**	**0.4**	**1900**	**2.6**	**na[b]**	**8.89**	**3.96**	**0.5**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**1.83**	**0.4**	**6120**	**19.3**	**na**	**8.64**	**14.7**	**0.5**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**2260**	**1120**	**na**	**2920[d]**	**2920**	**300[e]**	**45400**	**22700**
Recreational SSL[f]				**791000**	**317**	**27.7**	**158000**	**1580**	**784**	**na**	**1910[d]**	**1910**	**238**	**31700**	**15800**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**156**	**77.9**	**na**	**219[d]**	**219**	**23[e]**	**3130**	**1560**
RE02-03-51840	02-22359	9–9.5	SOIL	—[g]	—	—	—	—	0.541 (U)	—	—	0.13	—	—	NA[h]
RE02-03-51841	02-22359	10.5–11	SOIL	—	—	—	—	—	0.527 (U)	—	—	0.101 (J)	—	—	NA
RE02-03-51860	02-22369	9–9.5	SOIL	—	—	—	—	—	0.545 (U)	—	—	0.0641 (J)	—	—	NA
RE02-03-51861	02-22369	10.5–11.03	SOIL	—	—	—	—	—	0.569 (U)	—	—	0.129	—	—	NA
RE02-03-51862	02-22370	8–8.5	SOIL	—	—	—	—	—	0.517 (U)	—	—	0.107	—	—	NA
RE02-03-51863	02-22370	9.5–10	SOIL	—	—	—	—	—	0.539 (U)	—	—	—	—	—	NA
RE02-03-51864	02-22371	9–9.5	SOIL	—	—	—	—	—	—	—	—	0.118	—	—	NA
RE02-03-51865	02-22371	10.5–11	SOIL	—	—	—	—	—	0.515 (U)	—	—	0.084 (J)	—	—	NA
RE02-07-1528	02-600378	0–0.5	SOIL	—	—	—	—	—	1.07	—	—	NA	—	—	0.576
RE02-07-1529	02-600378	9.5–12	QBO	4490	—	3.11	59.7	—	—	9410 (J+)	6.07	NA	—	—	—
RE02-07-1530	02-600378	12–15	QBO	3860	—	1.68 (J)	—	—	0.585 (U)	—	12.9	NA	—	4.19	—
RE02-07-1532	02-600379	0–0.5	SOIL	—	—	—	—	—	—	—	—	NA	—	—	—
RE02-07-1533	02-600379	9.5–14	QBO	—	—	0.894 (U)	—	—	0.555 (U)	—	4.71	NA	—	—	—
RE02-07-1536	02-600380	0–0.5	SOIL	—	—	—	—	—	—	—	—	NA	—	—	—
RE02-07-1537	02-600380	9.5–12	QBO	3660	—	1.14 (U)	34.4	—	5.63	—	9.4	NA	—	—	—
RE02-07-1540	02-600381	0–0.5	SOIL	—	—	—	—	—	14.8	—	—	NA	—	—	—
RE02-07-1541	02-600381	7–10	QAL	—	—	—	—	—	0.574 (U)	—	—	NA	—	—	—
RE02-07-1542	02-600381	16.5–20	QBO	—	—	1.76 (U)	—	—	0.587 (U)	—	—	NA	—	—	—
RE02-07-1544	02-600382	0–0.5	SOIL	—	—	—	—	—	—	—	—	NA	—	—	—
RE02-07-1545	02-600382	9.5–12	QBO	—	—	2.79 (U)	—	—	0.582 (U)	—	6.66	NA	—	—	—
RE02-07-1546	02-600382	12.5–16	QBO	10000	—	1.72 (U)	69.3	—	0.581 (U)	—	17.1	NA	—	4	—
RE02-07-1548	02-600383	0–0.5	SOIL	—	—	—	—	—	0.501 (U)	—	—	NA	—	—	—
RE02-07-1549	02-600383	9.5–12	QAL	—	—	—	—	—	—	7790	—	NA	—	—	—
RE02-07-1550	02-600383	13–18.5	QBO	11600	—	1.41 (U)	86	—	0.603 (U)	—	34.3	NA	—	5.88	—
RE02-07-1552	02-600384	0–0.5	SOIL	—	—	—	—	—	0.5 (U)	—	—	NA	—	—	—
RE02-07-1553	02-600384	9.5–13	QAL	—	—	—	—	—	0.561 (U)	—	—	NA	—	—	—
RE02-07-1554	02-600384	13.5–17	QBO	5110	—	0.686 (U)	—	—	0.62 (U)	—	—	NA	—	—	—
RE02-07-1655	02-600409	0–0.5	SOIL	—	—	—	—	—	0.498 (U)	—	—	NA	—	—	—

Table 6.7-2 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Hexavalent Chromium	Cobalt	Copper	Cyanide (Total)
Qbt 1g, Qct, Qbo BV[a]				**3560**	**0.5**	**0.56**	**25.7**	**1.44**	**0.4**	**1900**	**2.6**	**na**[b]	**8.89**	**3.96**	**0.5**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**1.83**	**0.4**	**6120**	**19.3**	**na**	**8.64**	**14.7**	**0.5**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**2260**	**1120**	**na**	**2920**[d]	**2920**	**300**[e]	**45400**	**22700**
Recreational SSL[f]				**791000**	**317**	**27.7**	**158000**	**1580**	**784**	**na**	**1910**[d]	**1910**	**238**	**31700**	**15800**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**156**	**77.9**	**na**	**219**[d]	**219**	**23**[e]	**3130**	**1560**
RE02-07-1656	02-600409	4.5–9.5	QAL	—	—	—	—	—	0.541 (U)	—	—	NA	—	—	—
RE02-07-1657	02-600409	9.5–14.5	QAL	—	—	—	—	—	0.583 (U)	—	—	NA	—	—	—
RE02-07-1659	02-600409	14.5–24.5	QBO	7860	—	1.72 (U)	29	—	0.573 (U)	—	4.49	NA	—	—	—
RE02-07-1661	02-600410	0–0.5	SOIL	—	—	—	—	—	—	—	—	NA	—	—	—
RE02-07-1662	02-600410	4.5–9.5	QAL	—	—	—	—	—	0.561 (U)	—	—	NA	—	—	—
RE02-07-1667	02-600411	0–0.5	SOIL	—	—	—	—	—	0.516 (U)	9010 (J)	—	NA	—	—	—
RE02-07-1668	02-600411	4.5–7	QAL	—	—	—	—	—	0.55 (U)	9170	—	NA	—	—	—
RE02-07-1669	02-600411	9.5–14.5	QAL	—	—	—	—	—	0.547 (U)	—	—	NA	—	—	—
RE02-07-1671	02-600411	14.5–21	QBO	9820	—	1.01 (J)	36.9	—	0.561 (U)	—	3.16	NA	—	—	—
RE02-07-1673	02-600412	0–0.5	SOIL	—	—	—	—	—	—	—	—	NA	—	—	—
RE02-07-1674	02-600412	4.5–9.5	QAL	—	—	—	—	—	0.547 (U)	13200	—	NA	—	—	—
RE02-07-1675	02-600412	9.5–12	QAL	—	—	—	—	—	0.542 (U)	—	—	NA	—	—	—
RE02-07-1679	02-600413	0–0.5	SOIL	—	—	—	—	—	—	17600 (J)	—	NA	—	—	—
RE02-07-1680	02-600413	4.5–9.5	QAL	—	—	—	—	—	0.577 (U)	12300	—	NA	—	—	—
RE02-07-1681	02-600413	9.5–14.5	QAL	—	—	—	—	—	0.576 (U)	—	—	NA	—	—	—
RE02-07-1683	02-600413	14.5–22.5	QBO	7760	—	2.31	80.1	—	0.629 (U)	—	26.2	NA	—	5.31	—
RE02-07-1685	02-600414	0–0.5	SOIL	—	—	—	—	—	0.504 (U)	—	—	NA	—	—	—
RE02-07-1686	02-600414	4.5–9.5	QAL	—	—	—	—	—	0.552 (U)	—	—	NA	—	—	—
RE02-07-1687	02-600414	9.5–14.5	QAL	—	—	—	—	—	0.56 (U)	—	—	NA	—	—	—
RE02-07-1689	02-600414	14.5–20	QBO	7040	0.543 (UJ)	1.49 (J)	33.3	—	0.712 (U)	—	6.63	NA	—	—	—
RE02-07-1691	02-600415	0–0.5	SOIL	—	—	—	—	—	—	—	—	NA	—	—	—
RE02-07-1692	02-600415	4.5–5.1	SOIL	—	—	—	—	—	0.562 (U)	—	—	NA	—	—	—
RE02-07-1693	02-600415	9.5–14	QAL	—	—	—	—	—	0.559 (U)	—	19.9	NA	—	—	—
RE02-07-1696	02-600415	14.5–16.6	QAL	—	—	—	—	—	0.553 (U)	—	—	NA	—	—	—
RE02-07-1695	02-600415	19.5–21.7	QBO	8020	—	1.01 (J)	—	—	0.605 (U)	—	3.4	NA	—	—	—
RE02-07-1697	02-600416	0–0.5	SOIL	—	—	—	—	—	0.51 (U)	—	20.8	NA	—	—	—
RE02-07-1699	02-600416	9.5–14.5	QAL	—	—	—	—	—	0.54 (U)	—	—	NA	—	—	—
RE02-07-1701	02-600416	14.5–19.5	QBO	11900	—	0.908 (J)	38	—	0.611 (U)	—	8.18 (J)	NA	—	—	—
RE02-07-1703	02-600417	0–0.5	SOIL	—	—	—	—	—	0.509 (U)	—	—	NA	—	—	0.543
RE02-07-1704	02-600417	4.5–9.5	QAL	—	—	—	—	—	0.526 (U)	—	—	NA	—	—	—
RE02-07-1707	02-600417	13–15.5	QBO	5930	—	3.18	32.8	—	0.55 (U)	—	10.2 (J)	NA	—	6.68	—

Table 6.7-2 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Hexavalent Chromium	Cobalt	Copper	Cyanide (Total)
Qbt 1g, Qct, Qbo BV[a]				**3560**	**0.5**	**0.56**	**25.7**	**1.44**	**0.4**	**1900**	**2.6**	**na[b]**	**8.89**	**3.96**	**0.5**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**1.83**	**0.4**	**6120**	**19.3**	**na**	**8.64**	**14.7**	**0.5**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**2260**	**1120**	**na**	**2920[d]**	**2920**	**300[e]**	**45400**	**22700**
Recreational SSL[f]				**791000**	**317**	**27.7**	**158000**	**1580**	**784**	**na**	**1910[d]**	**1910**	**238**	**31700**	**15800**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**156**	**77.9**	**na**	**219[d]**	**219**	**23[e]**	**3130**	**1560**
RE02-07-1919	02-600456	0–0.5	SOIL	—	—	—	—	—	0.536 (U)	—	—	NA	—	—	2.59
RE02-07-1922	02-600456	10–14	QAL	—	—	—	—	—	0.598 (U)	—	—	NA	—	—	—
RE02-07-1921	02-600456	14–19	QBO	6040	—	1.48 (J)	57.3 (J+)	—	0.593 (U)	—	14.4 (J)	NA	—	5.52	—
RE02-07-1923	02-600457	0–0.5	SOIL	—	—	—	—	—	0.544 (U)	—	—	NA	—	—	—
RE02-07-1926	02-600457	9.5–14	QAL	—	—	—	—	—	0.551 (U)	—	—	NA	—	—	—
RE02-07-1925	02-600457	14–19	QBO	15800	—	1.47 (J)	102 (J+)	1.48	0.62 (U)	—	13.1 (J)	NA	—	4.94	—
RE02-07-1927	02-600458	0–0.5	SOIL	—	—	—	—	—	0.515 (U)	—	21.6	NA	—	—	—
RE02-07-1930	02-600458	9.5–14.5	QAL	—	—	—	—	—	0.568 (U)	—	—	NA	—	—	—
RE02-07-1929	02-600458	15.5–19.5	QBO	14500	—	1.87	30.2	—	0.603 (U)	—	4.92 (U)	NA	—	—	—
RE02-07-1931	02-600459	0–0.5	SOIL	—	—	—	—	—	0.523 (U)	—	—	NA	—	—	1.11
RE02-07-1934	02-600459	9.5–14	QAL	—	—	—	—	—	0.551 (U)	—	—	NA	—	—	—
RE02-07-1933	02-600459	15–19	QBO	14600	—	0.672 (J)	—	—	0.608 (U)	—	6.07 (U)	NA	—	—	—
RE02-07-1935	02-600460	0–2.3	SOIL	—	—	—	—	—	0.513 (U)	—	—	NA	—	—	—
RE02-07-1937	02-600460	15.5–20	QBO	6110	—	1.8 (U)	—	—	0.6 (U)	—	4.83	NA	—	—	—
RE02-07-1939	02-600461	0–0.5	SOIL	—	—	—	—	—	0.502 (U)	—	—	NA	—	—	—
RE02-07-1941	02-600461	9.5–14	QBO	4150	—	2.1	35.4	—	0.57 (U)	—	7.66 (J)	NA	—	4.05 (J)	—
RE02-07-1943	02-600462	0–0.5	SOIL	—	—	—	—	—	0.517 (U)	—	24.3	NA	—	—	—
RE02-07-1946	02-600462	9.5–14	QAL	—	—	—	—	—	0.562 (U)	—	—	NA	—	—	—
RE02-07-1945	02-600462	15–20	QBO	12300	—	2.23	92.8	—	0.619 (U)	—	10.4 (J)	NA	—	4.51 (J)	—
RE02-07-1947	02-600463	0–0.5	SOIL	—	—	—	—	—	0.514 (U)	—	23.5	NA	—	—	—
RE02-07-1951	02-600464	0–0.5	SOIL	—	—	—	—	—	0.524 (U)	—	44.9	NA	—	—	—
RE02-07-1955	02-600465	0–0.5	SOIL	—	—	—	—	—	0.555 (U)	—	—	NA	—	—	—
RE02-07-1957	02-600465	9.5–17	QBO	—	0.527 (UJ)	1.24 (J)	—	—	0.662 (U)	—	14.2 (J)	NA	—	—	—
RE02-07-1959	02-600466	0–0.5	SOIL	—	—	—	—	—	—	—	—	NA	—	43.4 (J)	—
RE02-07-1961	02-600466	10–15	QBO	—	—	0.782 (J)	—	—	0.566 (U)	—	18.2 (J)	NA	—	4.93 (J)	—
RE02-07-1963	02-600467	0–0.8	SOIL	—	—	—	—	—	0.512 (U)	—	—	NA	—	—	—
RE02-07-1964	02-600467	9.5–10	QAL	—	—	—	—	—	0.507 (U)	—	—	NA	—	—	—
RE02-07-1965	02-600467	10–12.5	QBO	7430	—	0.966 (J)	39.5	—	0.587 (U)	—	5.34	NA	—	—	—
RE02-07-1967	02-600468	0–1.9	SOIL	—	—	—	—	—	0.562 (U)	—	—	NA	—	—	—
RE02-07-2586	02-600580	11–16	QBO	12800	0.512 (UJ)	2	88.3	—	0.635 (U)	—	10.1	NA	—	—	—
RE02-07-2589	02-600581	0–0.5	SOIL	—	—	—	—	—	0.531 (U)	—	—	NA	—	—	—

Table 6.7-2 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Hexavalent Chromium	Cobalt	Copper	Cyanide (Total)
Qbt 1g, Qct, Qbo BV[a]				**3560**	**0.5**	**0.56**	**25.7**	**1.44**	**0.4**	**1900**	**2.6**	**na**[b]	**8.89**	**3.96**	**0.5**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**1.83**	**0.4**	**6120**	**19.3**	**na**	**8.64**	**14.7**	**0.5**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**2260**	**1120**	**na**	**2920**[d]	**2920**	**300**[e]	**45400**	**22700**
Recreational SSL[f]				**791000**	**317**	**27.7**	**158000**	**1580**	**784**	**na**	**1910**[d]	**1910**	**238**	**31700**	**15800**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**156**	**77.9**	**na**	**219**[d]	**219**	**23**[e]	**3130**	**1560**
RE02-07-2592	02-600581	9.5–13	QAL	—	—	—	—	—	0.568 (U)	—	—	NA	—	—	—
RE02-07-2591	02-600581	14–16	QBO	8790	—	1.81 (U)	—	—	0.603 (U)	—	49.3	NA	—	11.1	—
RE02-07-2594	02-600582	0–0.5	SOIL	—	—	—	—	—	0.601 (U)	—	—	NA	—	—	0.567
RE02-07-2599	02-600583	0–1.5	SOIL	—	—	—	—	—	0.504 (U)	—	—	NA	—	—	—
RE02-07-2601	02-600583	8.5–10	SOIL	—	—	—	—	—	0.523 (U)	—	—	NA	—	—	—
RE02-07-2602	02-600583	15.5–20	QBO	5870	—	1.77 (U)	—	—	0.589 (U)	—	—	NA	—	—	—
RE02-07-2604	02-600584	1.5–3.3	SOIL	—	—	—	—	—	—	—	—	NA	—	—	—
RE02-07-2605	02-600584	9.5–11.7	QAL	—	—	—	—	—	0.566 (U)	—	—	NA	—	19.5	—
RE02-07-2606	02-600584	16.5–21	QBO	4410	—	2.02	—	—	0.572 (U)	—	8.62	NA	—	—	—
RE02-10-21656	02-612325	5–6	SOIL	—	1.21 (U)	—	—	—	0.87	—	—	NA	—	—	NA
RE02-10-21657	02-612325	15–16	QAL	—	1.27 (U)	—	—	—	0.633 (U)	—	—	NA	—	—	NA
RE02-10-21658	02-612325	25–26	QBO	—	1.31 (U)	—	—	—	0.656 (U)	—	2.64	NA	—	—	NA
RE02-10-21659	02-612325	35–37	QBO	—	1.19 (U)	1.19 (U)	—	—	0.597 (U)	—	—	NA	—	—	NA
RE02-10-21660	02-612325	49–50	QBO	—	1.31 (U)	—	—	—	0.656 (U)	—	—	NA	—	—	NA
RE02-10-21661	02-612326	5–6	SOIL	—	1.11 (U)	—	—	—	—	—	—	NA	18	—	NA
RE02-10-21662	02-612326	15–16	QAL	—	1.21 (U)	—	—	—	0.603 (U)	—	—	NA	—	—	NA
RE02-10-21663	02-612326	25–26	QBO	3880	1.2 (U)	1.24 (U)	—	—	0.599 (U)	—	3.59	NA	—	—	NA
RE02-10-21664	02-612326	35–37	QBO	—	1.17 (U)	1.09 (U)	—	—	0.584 (U)	—	—	NA	—	—	NA
RE02-10-21665	02-612326	49–50	QBO	—	1.14 (U)	1.15 (U)	—	—	0.568 (U)	—	—	NA	—	—	NA
RE02-10-21666	02-612327	5–6	QAL	—	1.1 (U)	—	—	—	0.55 (U)	—	—	NA	—	—	NA
RE02-10-21667	02-612327	15–16	QAL	—	1.1 (U)	—	—	—	0.548 (U)	—	—	NA	—	—	NA
RE02-10-21668	02-612327	25–26	QBO	—	1.24 (U)	1.24 (U)	—	—	0.621 (U)	—	—	NA	—	—	NA
RE02-10-21669	02-612327	35–36	QBO	—	1.2 (U)	1.26 (U)	—	—	0.602 (U)	—	—	NA	—	—	NA
RE02-10-21670	02-612327	49–50	QBO	—	1.29 (U)	1.23 (U)	—	—	0.643 (U)	—	—	NA	—	—	NA
RE02-10-21671	02-612328	5–6	SOIL	—	1.09 (U)	—	—	—	0.545 (U)	—	—	NA	—	—	NA
RE02-10-21672	02-612328	15–16	QAL	—	1.06 (U)	—	—	—	0.529 (U)	—	—	NA	—	—	NA
RE02-10-21673	02-612328	25–26	QBO	—	1.29 (U)	1.28 (U)	—	—	0.644 (U)	—	3.24	NA	—	—	NA
RE02-10-21674	02-612328	35–36	QBO	—	1.26 (U)	1.21 (U)	—	—	0.628 (U)	—	—	NA	—	—	NA
RE02-10-21675	02-612328	49–50	QBO	—	1.28 (U)	1.38 (U)	—	—	0.641 (U)	—	—	NA	—	—	NA
RE02-10-21747	02-612346	8–9	QAL	—	1.05 (U)	—	—	—	0.525 (U)	—	—	—	—	—	NA
RE02-10-21748	02-612346	15–16	QAL	—	1.11 (U)	—	—	—	0.555 (U)	—	—	0.448 (J)	—	—	NA

Table 6.7-2 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Hexavalent Chromium	Cobalt	Copper	Cyanide (Total)
Qbt 1g, Qct, Qbo BV[a]				**3560**	**0.5**	**0.56**	**25.7**	**1.44**	**0.4**	**1900**	**2.6**	**na[b]**	**8.89**	**3.96**	**0.5**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**1.83**	**0.4**	**6120**	**19.3**	**na**	**8.64**	**14.7**	**0.5**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**2260**	**1120**	**na**	**2920[d]**	**2920**	**300[e]**	**45400**	**22700**
Recreational SSL[f]				**791000**	**317**	**27.7**	**158000**	**1580**	**784**	**na**	**1910[d]**	**1910**	**238**	**31700**	**15800**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**156**	**77.9**	**na**	**219[d]**	**219**	**23[e]**	**3130**	**1560**
RE02-10-21749	02-612346	25–26	QBO	3820	1.25 (U)	1.22 (U)	—	—	0.625 (U)	—	—	—	—	—	NA
RE02-10-21750	02-612346	35–36	QBO	—	1.28 (U)	1.28 (U)	—	—	0.642 (U)	—	—	—	—	—	NA
RE02-10-21751	02-612346	49–50	QBO	—	1.15 (U)	1.19 (U)	—	—	0.573 (U)	—	—	—	—	—	NA

Table 6.7-2 (continued)

Sample ID	Location ID	Depth (ft)	Media	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Vanadium	Zinc
Qbt 1g, Qct, Qbo BV[a]				**3700**	**13.5**	**739**	**189**	**0.1**	**2**	**na**	**na**	**0.3**	**4.59**	**40**
Soil BV[a]				**21500**	**22.3**	**4610**	**671**	**0.1**	**15.4**	**na**	**na**	**1.52**	**39.6**	**48.8**
Industrial SSL[c]				**795000**	**800**	**na**	**145000**	**310[e]**	**22700**	**1820000**	**795**	**5680**	**5680**	**341000**
Recreational SSL[f]				**554000**	**560**	**na**	**110000**	**238**	**15800**	**1260000**	**555**	**3960**	**3960**	**238000**
Residential SSL[c]				**54800**	**400**	**na**	**10700**	**23[e]**	**1560**	**125000**	**54.8**	**391**	**391**	**23500**
RE02-03-51840	02-22359	9–9.5	SOIL	—	—	—	—	8.4	—	NA	NA	—	—	—
RE02-03-51841	02-22359	10.5–11	SOIL	—	—	—	—	13	—	NA	NA	—	—	—
RE02-03-51860	02-22369	9–9.5	SOIL	—	—	—	—	0.267	—	NA	NA	—	—	—
RE02-03-51861	02-22369	10.5–11.03	SOIL	—	—	—	—	0.318	—	NA	NA	—	—	—
RE02-03-51862	02-22370	8–8.5	SOIL	—	—	—	—	3.58	—	NA	NA	—	—	—
RE02-03-51863	02-22370	9.5–10	SOIL	—	—	—	—	3.32	—	NA	NA	—	—	—
RE02-03-51864	02-22371	9–9.5	SOIL	—	—	—	—	3.74	—	NA	NA	—	—	—
RE02-03-51865	02-22371	10.5–11	SOIL	—	—	—	—	2.41	—	NA	NA	—	—	—
RE02-07-1528	02-600378	0–0.5	SOIL	—	—	—	—	1.66	—	—	—	—	—	—
RE02-07-1529	02-600378	9.5–12	QBO	8580	15	—	505	0.28	3.76	0.996 (J)	—	0.852 (J)	10.2 (J)	—
RE02-07-1530	02-600378	12–15	QBO	7220	—	—	255	—	2.11	2.92	—	1.76 (U)	6.27 (J)	—
RE02-07-1532	02-600379	0–0.5	SOIL	—	—	—	—	8.2	—	—	0.000521 (J)	—	—	51.8
RE02-07-1533	02-600379	9.5–14	QBO	4710	—	—	244	0.448	2.04	—	—	1.67 (U)	—	—
RE02-07-1536	02-600380	0–0.5	SOIL	—	23.8	—	—	0.135	—	2.57	—	—	—	73.1
RE02-07-1537	02-600380	9.5–12	QBO	4920	—	—	211	0.207	2.36	—	—	1.59 (U)	—	—

Table 6.7-2 (continued)

Sample ID	Location ID	Depth (ft)	Media	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Vanadium	Zinc
Qbt 1g, Qct, Qbo BV[a]				**3700**	**13.5**	**739**	**189**	**0.1**	**2**	**na**	**na**	**0.3**	**4.59**	**40**
Soil BV[a]				**21500**	**22.3**	**4610**	**671**	**0.1**	**15.4**	**na**	**na**	**1.52**	**39.6**	**48.8**
Industrial SSL[c]				**795000**	**800**	**na**	**145000**	**310[e]**	**22700**	**1820000**	**795**	**5680**	**5680**	**341000**
Recreational SSL[f]				**554000**	**560**	**na**	**110000**	**238**	**15800**	**1260000**	**555**	**3960**	**3960**	**238000**
Residential SSL[c]				**54800**	**400**	**na**	**10700**	**23[e]**	**1560**	**125000**	**54.8**	**391**	**391**	**23500**
RE02-07-1540	02-600381	0–0.5	SOIL	—	—	—	—	0.843	—	—	0.000674 (J)	—	—	—
RE02-07-1541	02-600381	7–10	QAL	—	—	—	—	—	—	1.02 (J)	0.000973 (J)	2.08 (U)	—	—
RE02-07-1542	02-600381	16.5–20	QBO	5170	—	—	207	—	—	—	—	1.42 (U)	—	—
RE02-07-1544	02-600382	0–0.5	SOIL	—	—	—	—	1.45	—	—	—	—	—	50.4
RE02-07-1545	02-600382	9.5–12	QBO	8730	—	—	247	0.144	2.5	—	—	1.1 (J)	7.84	44
RE02-07-1546	02-600382	12.5–16	QBO	7080	—	—	276	—	—	—	—	0.64 (J)	5.53	—
RE02-07-1548	02-600383	0–0.5	SOIL	—	—	—	—	0.719	—	—	—	—	—	—
RE02-07-1549	02-600383	9.5–12	QAL	—	—	—	—	0.264	—	1.32	—	—	—	69.4
RE02-07-1550	02-600383	13–18.5	QBO	7080	—	—	231	—	3.09	—	—	0.888 (J)	6.71	—
RE02-07-1552	02-600384	0–0.5	SOIL	—	—	—	—	0.567	—	—	—	—	—	—
RE02-07-1553	02-600384	9.5–13	QAL	—	—	—	—	—	—	4.41	0.00254	1.68 (U)	—	—
RE02-07-1554	02-600384	13.5–17	QBO	4810	—	—	193	—	6.33	—	—	0.723 (J)	—	—
RE02-07-1655	02-600409	0–0.5	SOIL	—	—	—	—	0.131	—	2.79	—	—	—	62.4 (J)
RE02-07-1656	02-600409	4.5–9.5	QAL	—	—	—	—	—	—	0.957 (J)	—	1.62 (U)	—	—
RE02-07-1657	02-600409	9.5–14.5	QAL	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1659	02-600409	14.5–24.5	QBO	5030	—	—	199	—	—	—	—	1.72 (U)	—	—
RE02-07-1661	02-600410	0–0.5	SOIL	—	—	—	—	0.384	—	1.52	—	1.54 (U)	—	60.6
RE02-07-1662	02-600410	4.5–9.5	QAL	—	—	—	—	—	—	1.38	—	2.17	—	—
RE02-07-1667	02-600411	0–0.5	SOIL	—	—	—	—	0.653	—	1.78	0.000557 (J)	—	—	—
RE02-07-1668	02-600411	4.5–7	QAL	—	—	—	—	0.432	—	14.5	0.00227 (J+)	1.58 (J)	—	—
RE02-07-1669	02-600411	9.5–14.5	QAL	—	—	—	—	—	—	3.02	—	1.88	—	—
RE02-07-1671	02-600411	14.5–21	QBO	5400	—	—	—	—	2.53	—	—	1.3 (J)	—	—
RE02-07-1673	02-600412	0–0.5	SOIL	—	—	—	—	0.106	—	2.96	—	—	—	62
RE02-07-1674	02-600412	4.5–9.5	QAL	—	—	—	—	0.337 (J+)	—	3.42	—	—	—	—
RE02-07-1675	02-600412	9.5–12	QAL	—	—	—	—	0.131 (J+)	—	—	—	1.62 (U)	—	—
RE02-07-1679	02-600413	0–0.5	SOIL	—	—	—	—	0.68	—	1.55	—	—	—	—
RE02-07-1680	02-600413	4.5–9.5	QAL	—	—	—	—	0.509	—	4.2	0.0016 (J)	1.73 (U)	—	—
RE02-07-1681	02-600413	9.5–14.5	QAL	—	—	—	—	—	—	—	—	1.73 (U)	—	—
RE02-07-1683	02-600413	14.5–22.5	QBO	8480	22.2	3710 (J+)	380	—	3.04	—	—	1.89 (U)	9.54	43.7
RE02-07-1685	02-600414	0–0.5	SOIL	—	—	—	—	0.551	—	6.1	—	—	—	51.1
RE02-07-1686	02-600414	4.5–9.5	QAL	—	—	—	—	—	—	3	—	1.66 (U)	—	—

Table 6.7-2 (continued)

Sample ID	Location ID	Depth (ft)	Media	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Vanadium	Zinc
Qbt 1g, Qct, Qbo BV[a]				**3700**	**13.5**	**739**	**189**	**0.1**	**2**	**na**	**na**	**0.3**	**4.59**	**40**
Soil BV[a]				**21500**	**22.3**	**4610**	**671**	**0.1**	**15.4**	**na**	**na**	**1.52**	**39.6**	**48.8**
Industrial SSL[c]				**795000**	**800**	**na**	**145000**	**310[e]**	**22700**	**1820000**	**795**	**5680**	**5680**	**341000**
Recreational SSL[f]				**554000**	**560**	**na**	**110000**	**238**	**15800**	**1260000**	**555**	**3960**	**3960**	**238000**
Residential SSL[c]				**54800**	**400**	**na**	**10700**	**23[e]**	**1560**	**125000**	**54.8**	**391**	**391**	**23500**
RE02-07-1687	02-600414	9.5–14.5	QAL	—	—	—	—	—	—	0.927 (J)	—	1.68 (U)	—	—
RE02-07-1689	02-600414	14.5–20	QBO	7910	—	—	349	—	2.36	—	—	2.14 (U)	5.09	—
RE02-07-1691	02-600415	0–0.5	SOIL	—	—	—	—	0.125	—	—	—	—	—	—
RE02-07-1692	02-600415	4.5–5.1	SOIL	—	—	—	—	0.283	—	10.3	0.00119 (J)	1.73	—	—
RE02-07-1693	02-600415	9.5–14	QAL	—	—	—	—	1.92	—	—	—	—	—	—
RE02-07-1696	02-600415	14.5–16.6	QAL	—	—	—	—	0.164	—	—	—	—	—	—
RE02-07-1695	02-600415	19.5–21.7	QBO	5610	—	—	—	—	—	3.64	—	1.02 (J)	—	—
RE02-07-1697	02-600416	0–0.5	SOIL	—	—	—	—	4	—	—	—	—	—	51.3
RE02-07-1699	02-600416	9.5–14.5	QAL	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1701	02-600416	14.5–19.5	QBO	7330	—	—	207 (J+)	—	2.2 (J)	—	—	1.83 (U)	—	—
RE02-07-1703	02-600417	0–0.5	SOIL	—	—	—	—	1.24	—	NA	0.000899 (J)	1.53 (U)	—	—
RE02-07-1704	02-600417	4.5–9.5	QAL	—	—	—	—	—	—	1.46 (J-)	—	—	—	—
RE02-07-1707	02-600417	13–15.5	QBO	11500	—	844 (J+)	281 (J+)	—	2.19 (J)	—	—	1.39 (J)	14.2	42.4
RE02-07-1919	02-600456	0–0.5	SOIL	—	—	—	—	0.252	—	1.73 (J-)	0.00151 (J-)	—	—	—
RE02-07-1922	02-600456	10–14	QAL	—	—	—	—	7.22	—	1.12 (J-)	—	—	—	—
RE02-07-1921	02-600456	14–19	QBO	8070 (J)	—	—	389 (J)	0.276	3.2	—	—	1.78 (U)	8.74 (J)	—
RE02-07-1923	02-600457	0–0.5	SOIL	—	—	—	—	7.78	—	1.15	0.000802 (J)	10	—	—
RE02-07-1926	02-600457	9.5–14	QAL	—	—	—	—	2.96	—	—	—	—	—	49.5 (J)
RE02-07-1925	02-600457	14–19	QBO	8720 (J)	—	—	198 (J)	—	6.21	—	—	1.86 (U)	6.42 (J)	—
RE02-07-1927	02-600458	0–0.5	SOIL	—	—	—	—	0.839	—	2.6	—	9.52	—	—
RE02-07-1930	02-600458	9.5–14.5	QAL	—	—	—	—	—	—	—	—	5.72	—	—
RE02-07-1929	02-600458	15.5–19.5	QBO	6000	—	—	367	—	—	—	—	10.2	—	—
RE02-07-1931	02-600459	0–0.5	SOIL	—	—	—	—	2.68	—	1.4	—	11.3	—	50.7
RE02-07-1934	02-600459	9.5–14	QAL	—	—	—	—	0.16	—	—	—	9.15	—	—
RE02-07-1933	02-600459	15–19	QBO	6530	—	—	243	—	3.27 (U)	—	—	11.4	—	—
RE02-07-1935	02-600460	0–2.3	SOIL	—	—	—	—	1.48	—	—	—	—	—	—
RE02-07-1937	02-600460	15.5–20	QBO	5990 (J+)	—	—	233 (J-)	—	—	—	—	1.27 (J)	—	—
RE02-07-1939	02-600461	0–0.5	SOIL	—	—	—	—	3.56	—	1.34	—	9.72	—	—
RE02-07-1941	02-600461	9.5–14	QBO	5620	—	—	208	0.256	2.03 (J)	—	—	7.18	5.83	—
RE02-07-1943	02-600462	0–0.5	SOIL	—	—	—	—	0.407	—	—	—	10.7	—	—
RE02-07-1946	02-600462	9.5–14	QAL	—	—	—	—	0.311	—	—	—	9.01	—	—

Table 6.7-2 (continued)

Sample ID	Location ID	Depth (ft)	Media	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Vanadium	Zinc
Qbt 1g, Qct, Qbo BV[a]				**3700**	**13.5**	**739**	**189**	**0.1**	**2**	**na**	**na**	**0.3**	**4.59**	**40**
Soil BV[a]				**21500**	**22.3**	**4610**	**671**	**0.1**	**15.4**	**na**	**na**	**1.52**	**39.6**	**48.8**
Industrial SSL[c]				**795000**	**800**	**na**	**145000**	**310[e]**	**22700**	**1820000**	**795**	**5680**	**5680**	**341000**
Recreational SSL[f]				**554000**	**560**	**na**	**110000**	**238**	**15800**	**1260000**	**555**	**3960**	**3960**	**238000**
Residential SSL[c]				**54800**	**400**	**na**	**10700**	**23[e]**	**1560**	**125000**	**54.8**	**391**	**391**	**23500**
RE02-07-1945	02-600462	15–20	QBO	8170	—	—	417	—	3.83 (J)	—	—	12.7	6.07	—
RE02-07-1947	02-600463	0–0.5	SOIL	—	—	—	—	0.298	—	—	—	7.9	—	—
RE02-07-1951	02-600464	0–0.5	SOIL	—	—	—	—	0.124	—	1.86	—	10.9	—	—
RE02-07-1955	02-600465	0–0.5	SOIL	—	—	—	—	—	—	—	—	9.99	—	—
RE02-07-1957	02-600465	9.5–17	QBO	6670	—	—	211	—	3.86 (J)	1.23 (J)	—	8.33	4.84	—
RE02-07-1959	02-600466	0–0.5	SOIL	—	—	—	—	0.348	—	1.16	—	9.1	—	55.3
RE02-07-1961	02-600466	10–15	QBO	5190	—	—	—	—	—	—	—	6.55	—	—
RE02-07-1963	02-600467	0–0.8	SOIL	—	—	—	—	0.4	—	1.24	—	1.54 (U)	—	90.5
RE02-07-1964	02-600467	9.5–10	QAL	—	—	—	—	—	—	1.01 (J)	—	—	—	—
RE02-07-1965	02-600467	10–12.5	QBO	4540	—	—	—	—	—	—	—	1.24 (U)	—	—
RE02-07-1967	02-600468	0–1.9	SOIL	—	—	—	—	—	—	1.5	—	7.95	—	—
RE02-07-2586	02-600580	11–16	QBO	6700	—	—	321	0.11	—	—	—	1.9 (U)	5.02	—
RE02-07-2589	02-600581	0–0.5	SOIL	—	—	—	—	7.47	—	1.16	—	1.59 (U)	—	—
RE02-07-2592	02-600581	9.5–13	QAL	—	—	—	—	0.481	—	—	—	8.44	—	—
RE02-07-2591	02-600581	14–16	QBO	5850	—	—	—	—	3.78	—	—	9.19	—	—
RE02-07-2594	02-600582	0–0.5	SOIL	—	—	—	—	0.506	—	1.29 (J-)	—	11.1	—	64.3
RE02-07-2599	02-600583	0–1.5	SOIL	—	—	—	—	0.419	—	3.02	—	—	—	—
RE02-07-2601	02-600583	8.5–10	SOIL	—	—	—	—	—	—	1.82	—	1.89 (U)	—	—
RE02-07-2602	02-600583	15.5–20	QBO	5190	—	—	—	—	—	—	—	1.3 (U)	—	—
RE02-07-2604	02-600584	1.5–3.3	SOIL	—	43.7	—	—	0.158	—	1.43	—	10.4	—	—
RE02-07-2605	02-600584	9.5–11.7	QAL	—	—	—	—	—	—	—	—	9.26	—	—
RE02-07-2606	02-600584	16.5–21	QBO	6960	—	—	248	—	4.95 (J+)	—	—	9.12	7.39	—
RE02-10-21656	02-612325	5–6	SOIL	—	—	—	—	0.117 (J+)	—	NA	NA	—	—	—
RE02-10-21657	02-612325	15–16	QAL	—	—	—	—	—	—	NA	NA	—	—	—
RE02-10-21658	02-612325	25–26	QBO	5680	—	—	281	0.334	—	NA	NA	1.27 (U)	4.74	—
RE02-10-21659	02-612325	35–37	QBO	5620	—	—	247	—	—	NA	NA	1.19 (U)	—	—
RE02-10-21660	02-612325	49–50	QBO	5140	—	—	202	—	—	NA	NA	1.28 (U)	—	—
RE02-10-21661	02-612326	5–6	SOIL	—	—	—	—	0.311	—	NA	NA	—	—	50.7
RE02-10-21662	02-612326	15–16	QAL	—	—	—	1860 (J-)	—	—	NA	NA	—	—	—
RE02-10-21663	02-612326	25–26	QBO	5620	—	—	194 (J-)	—	—	NA	NA	1.24 (U)	—	—
RE02-10-21664	02-612326	35–37	QBO	6020	—	—	190 (J-)	—	—	NA	NA	1.09 (U)	—	—

Table 6.7-2 (continued)

Sample ID	Location ID	Depth (ft)	Media	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Vanadium	Zinc
Qbt 1g, Qct, Qbo BV[a]				**3700**	**13.5**	**739**	**189**	**0.1**	**2**	**na**	**na**	**0.3**	**4.59**	**40**
Soil BV[a]				**21500**	**22.3**	**4610**	**671**	**0.1**	**15.4**	**na**	**na**	**1.52**	**39.6**	**48.8**
Industrial SSL[c]				**795000**	**800**	**na**	**145000**	**310[e]**	**22700**	**1820000**	**795**	**5680**	**5680**	**341000**
Recreational SSL[f]				**554000**	**560**	**na**	**110000**	**238**	**15800**	**1260000**	**555**	**3960**	**3960**	**238000**
Residential SSL[c]				**54800**	**400**	**na**	**10700**	**23[e]**	**1560**	**125000**	**54.8**	**391**	**391**	**23500**
RE02-10-21665	02-612326	49–50	QBO	5800	—	—	213 (J-)	—	—	NA	NA	1.15 (U)	—	—
RE02-10-21666	02-612327	5–6	QAL	—	—	—	—	—	—	NA	NA	—	—	—
RE02-10-21667	02-612327	15–16	QAL	—	—	—	—	—	—	NA	NA	—	—	—
RE02-10-21668	02-612327	25–26	QBO	5930	—	—	198	—	—	NA	NA	1.24 (U)	—	—
RE02-10-21669	02-612327	35–36	QBO	5750	—	—	215	—	—	NA	NA	1.26 (U)	—	—
RE02-10-21670	02-612327	49–50	QBO	5210	—	—	—	—	—	NA	NA	1.23 (U)	—	—
RE02-10-21671	02-612328	5–6	SOIL	—	—	—	—	—	—	NA	NA	—	—	—
RE02-10-21672	02-612328	15–16	QAL	—	—	—	—	—	—	NA	NA	—	—	—
RE02-10-21673	02-612328	25–26	QBO	4860	—	—	—	—	—	NA	NA	1.28 (U)	—	—
RE02-10-21674	02-612328	35–36	QBO	5090	—	—	294 (J+)	—	—	NA	NA	1.21 (U)	—	—
RE02-10-21675	02-612328	49–50	QBO	5670	—	—	235	—	—	NA	NA	1.38 (U)	—	—
RE02-10-21747	02-612346	8–9	QAL	—	—	—	—	40.6	—	NA	NA	—	—	—
RE02-10-21748	02-612346	15–16	QAL	—	—	—	—	5.87	—	NA	NA	—	—	—
RE02-10-21749	02-612346	25–26	QBO	6340	—	—	226	0.148	—	NA	NA	1.22 (U)	—	—
RE02-10-21750	02-612346	35–36	QBO	5340	—	—	195	0.154	—	NA	NA	1.28 (U)	—	—
RE02-10-21751	02-612346	49–50	QBO	5990	—	—	260	—	—	NA	NA	1.19 (U)	—	—

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

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

[b] na = Not available.

[c] SSLs are from NMED (2009, 108070), unless otherwise noted.

[d] SSLs are for hexavalent chromium.

[e] SSLs are from EPA regional screening tables (http://www.epa.gov.earth1r6/6pd/rcra_c/pd-n/screen.htm).

[f] SSLs are from LANL (2010, 108613).

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

[h] NA = Not analyzed.

Table 6.7-3
Organic Chemicals Detected at AOC 02-004(a)

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Acetone	Anthracene	Aroclor-1248	Aroclor-1254	Aroclor-1260	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chloroform	Chrysene
Industrial SSL[a]				**36700**	**851000**	**183000**	**8.26**	**8.26**	**8.26**	**23.4**	**2.34**	**23.4**	**18300[b]**	**234**	**31.9**	**2340**
Recreational SSL[c]				**20800**	**702000**	**104000**	**10.5**	**6.65**	**10.5**	**30.1**	**3.01**	**30.1**	**10400[b]**	**301**	**224**	**3010**
Residential SSL[a]				**3440**	**67500**	**17200**	**2.22**	**1.12**	**2.22**	**6.21**	**0.621**	**6.21**	**1720[b]**	**62.1**	**5.72**	**621**
RE02-07-1528	02-600378	0–0.5	SOIL	NA[d]	NA	NA	—[e]	0.346	0.395	NA	NA	NA	NA	NA	NA	NA
RE02-07-6840	02-600378	0–0.5	SOIL	—	NA	—	NA	NA	NA	0.0291 (J)	0.0463	0.0322 (J)	0.0143 (J)	0.0217 (J)	NA	0.0293 (J)
RE02-07-1532	02-600379	0–0.5	SOIL	NA	NA	NA	—	—	1.74	NA	NA	NA	NA	NA	NA	NA
RE02-07-6844	02-600379	0–0.5	SOIL	—	NA	0.0134 (J)	NA	NA	NA	0.0295 (J)	0.0513	0.0412	—	—	NA	0.0286 (J)
RE02-07-6845	02-600379	9.5–10.5	QAL	0.0187 (J)	—	0.0269 (J)	NA	NA	NA	0.0583	0.0801	0.106	0.0333 (J)	—	—	0.0584
RE02-07-1533	02-600379	9.5–14	QBO	NA	NA	NA	—	—	0.0052	NA	NA	NA	NA	NA	NA	NA
RE02-07-6847	02-600379	10.5–11.5	QBO	—	—	0.00737 (J)	NA	NA	NA	0.0131 (J)	—	—	—	—	—	—
RE02-07-1536	02-600380	0–0.5	SOIL	NA	NA	NA	—	0.105	0.0769	NA	NA	NA	NA	NA	NA	NA
RE02-07-6848	02-600380	0–0.5	SOIL	0.0138 (J)	NA	0.0332 (J)	NA	NA	NA	0.141	0.14	0.269	0.0799 (J)	—	NA	0.163
RE02-07-1537	02-600380	9.5–12	QBO	NA	NA	NA	—	0.0143 (J)	0.0163 (J)	NA	NA	NA	NA	NA	NA	NA
RE02-07-1540	02-600381	0–0.5	SOIL	—	NA	—	—	0.659	0.439	—	—	—	—	—	NA	—
RE02-07-1544	02-600382	0–0.5	SOIL	NA	NA	NA	—	—	2.42	NA	NA	NA	NA	NA	NA	NA
RE02-07-6856	02-600382	0–0.5	SOIL	—	NA	—	NA	NA	NA	—	—	0.0121 (J)	—	—	NA	—
RE02-07-1545	02-600382	9.5–12	QBO	NA	NA	NA	—	—	0.003 (J)	NA	NA	NA	NA	NA	NA	NA
RE02-07-1548	02-600383	0–0.5	SOIL	NA	NA	NA	—	0.0405	0.0876	NA	NA	NA	NA	NA	NA	NA
RE02-07-6860	02-600383	0–0.5	SOIL	—	NA	—	NA	NA	NA	—	0.0388	0.0809	0.0302 (J)	—	NA	0.0393
RE02-07-6861	02-600383	9.5–10.5	QAL	—	0.004 (J)	0.0106 (J)	NA	NA	NA	0.0483	0.0573	0.0775	0.027 (J)	—	—	0.0488
RE02-07-1549	02-600383	9.5–12	QAL	NA	NA	NA	—	—	0.0164 (J)	NA	NA	NA	NA	NA	NA	NA
RE02-07-6864	02-600384	0–0.5	SOIL	—	NA	—	NA	NA	NA	0.0288 (J)	0.0482	0.0673	—	—	NA	0.033 (J)
RE02-07-6865	02-600384	9.5–10.5	QAL	—	—	—	NA	NA	NA	0.033 (J)	0.0443	0.035 (J)	0.0198 (J)	—	—	0.0299 (J)
RE02-07-1553	02-600384	9.5–13	QAL	NA	NA	NA	—	0.0094 (J)	0.0077 (J)	NA	NA	NA	NA	NA	NA	NA
RE02-07-1655	02-600409	0–0.5	SOIL	0.0177 (J)	NA	0.028 (J)	—	—	2.11	0.0607	0.0693	0.102	0.0422	—	NA	0.0747
RE02-07-1656	02-600409	4.5–9.5	QAL	—	—	—	—	0.0327	0.0577	—	—	—	—	—	—	—
RE02-07-1657	02-600409	9.5–14.5	QAL	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1659	02-600409	14.5–24.5	QBO	—	—	—	—	—	0.0014 (J)	—	—	—	—	—	—	—
RE02-07-1661	02-600410	0–0.5	SOIL	0.0427	NA	0.0901	—	0.0231 (J)	0.0384	0.195	0.228	0.369	0.16	—	NA	0.189
RE02-07-1662	02-600410	4.5–9.5	QAL	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1667	02-600411	0–0.5	SOIL	0.0381	NA	0.0764	—	0.093	0.213	0.181	0.206	0.351	0.156	—	NA	0.197
RE02-07-1668	02-600411	4.5–7	QAL	—	—	0.0125 (J)	—	0.0243 (J-)	0.0246 (J-)	0.0426	0.0413 (J)	0.0493 (J)	—	—	—	0.0423

Table 6.7-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Acetone	Anthracene	Aroclor-1248	Aroclor-1254	Aroclor-1260	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chloroform	Chrysene
Industrial SSL[a]				**36700**	**851000**	**183000**	**8.26**	**8.26**	**8.26**	**23.4**	**2.34**	**23.4**	**18300[b]**	**234**	**31.9**	**2340**
Recreational SSL[c]				**20800**	**702000**	**104000**	**10.5**	**6.65**	**10.5**	**30.1**	**3.01**	**30.1**	**10400[b]**	**301**	**224**	**3010**
Residential SSL[a]				**3440**	**67500**	**17200**	**2.22**	**1.12**	**2.22**	**6.21**	**0.621**	**6.21**	**1720[b]**	**62.1**	**5.72**	**621**
RE02-07-1669	02-600411	9.5–14.5	QAL	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1671	02-600411	14.5–21	QBO	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1673	02-600412	0–0.5	SOIL	0.0511	NA	0.0793	—	0.412	1.05	0.139	0.157	0.246	0.147	—	NA	0.134
RE02-07-1674	02-600412	4.5–9.5	QAL	—	—	0.0238 (J)	0.0296 (J-)	0.0335 (J-)	0.0314 (J-)	0.0512	0.0614 (J)	0.0644 (J)	0.0359 (J)	—	—	0.0624
RE02-07-1675	02-600412	9.5–12	QAL	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1679	02-600413	0–0.5	SOIL	0.303	NA	0.483	—	0.358	0.839	0.807	0.899	1.37	0.43	—	NA	0.785
RE02-07-1680	02-600413	4.5–9.5	QAL	—	—	0.013 (J)	—	0.0247 (J-)	0.0281 (J-)	—	0.0164 (J)	0.0627 (J)	—	—	—	0.0404
RE02-07-1681	02-600413	9.5–14.5	QAL	—	—	0.0186 (J)	—	—	—	—	—	—	—	—	—	0.0257 (J)
RE02-07-1683	02-600413	14.5–22.5	QBO	—	—	—	—	—	—	—	—	—	—	—	0.000268 (J)	—
RE02-07-1685	02-600414	0–0.5	SOIL	0.0497	NA	0.119	—	0.255	0.514	0.327	0.379 (J)	0.648 (J)	0.224 (J)	—	NA	0.336
RE02-07-1686	02-600414	4.5–9.5	QAL	—	—	—	—	—	0.003 (J)	—	—	—	—	—	—	—
RE02-07-1687	02-600414	9.5–14.5	QAL	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1689	02-600414	14.5–20	QBO	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1691	02-600415	0–0.5	SOIL	0.0269 (J)	NA	0.0599	—	—	0.0166 (J)	0.161	0.254	0.324	—	—	NA	0.177
RE02-07-1692	02-600415	4.5–5.1	SOIL	—	—	—	—	0.0258 (J)	0.0475	—	—	0.037 (J)	—	—	0.000242 (J)	—
RE02-07-1693	02-600415	9.5–14	QAL	—	0.00865	—	—	—	0.0057	0.0143 (J)	0.0126 (J)	0.0127 (J)	—	—	—	0.0118 (J)
RE02-07-1696	02-600415	14.5–16.6	QAL	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1695	02-600415	19.5–21.7	QBO	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1697	02-600416	0–0.5	SOIL	0.0178 (J)	NA	0.027 (J)	—	0.35	0.142	0.167	0.151 (J)	0.303 (J)	—	—	NA	0.148
RE02-07-1699	02-600416	9.5–14.5	QAL	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1701	02-600416	14.5–19.5	QBO	—	—	—	—	—	0.0021 (J)	—	—	—	—	—	—	—
RE02-07-1703	02-600417	0–0.5	SOIL	—	NA	—	—	—	0.0224 (J)	0.0683 (J)	—	—	—	—	NA	—
RE02-07-1704	02-600417	4.5–9.5	QAL	—	—	—	0.0867	—	0.0047	—	—	—	—	—	—	—
RE02-07-1707	02-600417	13–15.5	QBO	—	—	—	—	—	0.0398	—	—	—	—	—	—	—
RE02-07-1919	02-600456	0–0.5	SOIL	—	NA	—	—	—	0.0106 (J-)	0.0278 (J)	—	0.0313 (J)	—	—	NA	0.0221 (J)
RE02-07-1922	02-600456	10–14	QAL	—	0.00366 (J)	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1923	02-600457	0–0.5	SOIL	—	NA	—	—	—	0.0731 (J)	—	0.000251 (J)	0.000318 (J)	0.00012 (J)	—	NA	0.000201 (J)
RE02-07-1926	02-600457	9.5–14	QAL	—	—	—	—	0.0219	0.0071	—	—	—	—	—	—	—
RE02-07-1927	02-600458	0–0.5	SOIL	—	NA	—	—	0.248	0.229 (J)	—	—	—	—	0.0314 (J)	NA	0.05
RE02-07-1930	02-600458	9.5–14.5	QAL	—	—	—	—	0.0251	0.0182 (J)	—	—	—	—	—	—	—
RE02-07-1929	02-600458	15.5–19.5	QBO	—	—	—	—	—	—	—	—	—	—	—	—	—

Table 6.7-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Acetone	Anthracene	Aroclor-1248	Aroclor-1254	Aroclor-1260	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chloroform	Chrysene
Industrial SSL[a]				**36700**	**851000**	**183000**	**8.26**	**8.26**	**8.26**	**23.4**	**2.34**	**23.4**	**18300[b]**	**234**	**31.9**	**2340**
Recreational SSL[c]				**20800**	**702000**	**104000**	**10.5**	**6.65**	**10.5**	**30.1**	**3.01**	**30.1**	**10400[b]**	**301**	**224**	**3010**
Residential SSL[a]				**3440**	**67500**	**17200**	**2.22**	**1.12**	**2.22**	**6.21**	**0.621**	**6.21**	**1720[b]**	**62.1**	**5.72**	**621**
RE02-07-1931	02-600459	0–0.5	SOIL	0.0152 (J)	NA	0.0187 (J)	—	0.0534	0.0743 (J)	0.119 (J)	0.178 (J)	0.191 (J)	0.0602 (J)	—	NA	0.145 (J)
RE02-07-1934	02-600459	9.5–14	QAL	—	—	—	—	—	0.0255 (J)	—	—	—	—	—	—	—
RE02-07-1933	02-600459	15–19	QBO	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1935	02-600460	0–2.3	SOIL	—	NA	—	—	—	0.0088 (J-)	—	—	—	—	—	NA	—
RE02-07-1937	02-600460	15.5–20	QBO	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1939	02-600461	0–0.5	SOIL	—	NA	0.00824 (J)	—	—	0.0078 (J)	0.064 (J)	—	—	—	—	NA	0.0687 (J)
RE02-07-1941	02-600461	9.5–14	QBO	—	—	—	—	—	0.0026 (J)	—	—	—	—	—	—	—
RE02-07-1943	02-600462	0–0.5	SOIL	—	NA	0.00986 (J-)	—	0.0177	0.0193	0.0964 (J)	0.139 (J)	0.161 (J)	—	—	NA	0.11 (J)
RE02-07-1946	02-600462	9.5–14	QAL	—	—	0.112	—	—	0.0073 (J)	0.803 (J)	0.523 (J)	0.859 (J)	0.156 (J)	—	—	0.961 (J)
RE02-07-1945	02-600462	15–20	QBO	—	—	0.00993 (J)	—	—	—	0.0584 (J)	—	—	—	—	—	0.0564 (J)
RE02-07-1947	02-600463	0–0.5	SOIL	—	NA	0.0115 (J)	—	0.0551 (J-)	0.0393 (J)	0.114	0.141 (J)	0.315 (J)	0.0752 (J)	—	NA	0.162
RE02-07-1951	02-600464	0–0.5	SOIL	—	NA	—	—	—	0.103 (J)	—	—	—	—	—	NA	—
RE02-07-1955	02-600465	0–0.5	SOIL	—	NA	—	—	—	0.0064	—	—	—	—	—	NA	—
RE02-07-1959	02-600466	0–0.5	SOIL	—	NA	—	—	—	0.0067 (J)	0.0439 (J)	—	0.0778 (J)	—	—	NA	0.046 (J)
RE02-07-1963	02-600467	0–0.8	SOIL	—	NA	—	—	0.002 (J)	0.003 (J)	—	—	0.0105 (J)	—	—	NA	—
RE02-07-1964	02-600467	9.5–10	QAL	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1965	02-600467	10–12.5	QBO	—	0.0053 (J)	—	—	—	—	—	—	—	—	—	—	—
RE02-10-21775	02-600580	3–3.2	SOIL	0.0219	NA	0.0426	NA	NA	NA	0.222	0.203	0.276	0.104	0.0875	NA	0.213
RE02-10-21777	02-600580	5–5.2	SOIL	0.0853	NA	0.127	NA	NA	NA	0.59	0.545	0.683	0.31	0.244	NA	0.493
RE02-07-2586	02-600580	11–16	QBO	—	NA	0.0334 (J)	NA	NA	NA	0.122	0.108	0.162	0.0618	—	NA	0.131
RE02-07-2589	02-600581	0–0.5	SOIL	0.0312 (J)	NA	0.0613	NA	NA	NA	0.422	0.361	0.609	0.182	—	NA	0.435
RE02-07-2592	02-600581	9.5–13	QAL	—	NA	—	NA	NA	NA	0.0756	0.103	0.0771	—	0.0369 (J)	NA	0.0829
RE02-07-2591	02-600581	14–16	QBO	—	NA	0.023 (J)	NA	NA	NA	0.101	0.104	0.0772	—	0.038 (J)	NA	0.0948
RE02-07-2594	02-600582	0–0.5	SOIL	—	NA	0.0104 (J)	NA	NA	NA	0.062	0.088	0.138	0.0266 (J)	—	NA	0.0669
RE02-07-2599	02-600583	0–1.5	SOIL	—	NA	0.00735 (J)	NA	NA	NA	0.034 (J)	0.0806	0.0709	—	—	NA	0.0392
RE02-07-2601	02-600583	8.5–10	SOIL	—	—	—	NA	NA	NA	—	—	—	—	—	0.000232 (J)	—
RE02-07-2602	02-600583	15.5–20	QBO	—	—	—	NA	NA	NA	—	—	—	—	—	—	—
RE02-10-21747	02-612346	8–9	QAL	—	NA	—	—	—	0.0046	—	—	—	—	—	NA	—
RE02-10-21748	02-612346	15–16	QAL	—	NA	—	—	0.0068	0.014	—	—	—	—	—	NA	—
RE02-10-21778	02-612350	3–3.2	SOIL	0.0102	NA	0.0214	NA	NA	NA	0.157	—	0.294	0.105	—	NA	—
RE02-10-21779	02-612350	5–5.2	SOIL	0.225	NA	0.885	NA	NA	NA	2.23	—	2.78	0.668	—	NA	2.16

Table 6.7-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Acetone	Anthracene	Aroclor-1248	Aroclor-1254	Aroclor-1260	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chloroform	Chrysene
Industrial SSL[a]				**36700**	**851000**	**183000**	**8.26**	**8.26**	**8.26**	**23.4**	**2.34**	**23.4**	**18300[b]**	**234**	**31.9**	**2340**
Recreational SSL[c]				**20800**	**702000**	**104000**	**10.5**	**6.65**	**10.5**	**30.1**	**3.01**	**30.1**	**10400[b]**	**301**	**224**	**3010**
Residential SSL[a]				**3440**	**67500**	**17200**	**2.22**	**1.12**	**2.22**	**6.21**	**0.621**	**6.21**	**1720[b]**	**62.1**	**5.72**	**621**
RE02-10-21782	02-612351	5–5.2	SOIL	—	NA	0.00519 (J)	NA	NA	NA	0.0176	0.0117	0.0203	0.00405 (J)	—	NA	0.0147
RE02-10-21784	02-612352	3–3.2	SOIL	0.0777	NA	0.0938	NA	NA	NA	0.377	0.362	0.482	0.21	0.145	NA	0.313
RE02-10-21785	02-612352	5–5.2	SOIL	—	NA	0.00473 (J)	NA	NA	NA	0.0193	0.0169	0.023	0.00837	0.00747	NA	0.0161
RE02-10-21787	02-612353	3–3.4	SOIL	—	NA	—	NA	NA	NA	0.0192	0.0141	0.0209	0.00663 (J)	—	NA	0.0163
RE02-10-21788	02-612353	5–5.2	SOIL	—	NA	—	NA	NA	NA	0.00428 (J)	0.00368 (J)	0.00477 (J)	—	—	NA	—

Table 6.7-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Dibenzofuran	Fluoranthene	Fluorene	Heptachlorodibenzodioxin[1,2,3,4,6,7,8-]	Heptachlorodibenzodioxins (Total)	Heptachlorodibenzofuran[1,2,3,4,6,7,8-]	Heptachlorodibenzofuran[1,2,3,4,7,8,9-]	Heptachlorodibenzofurans (Total)	Hexachlorodibenzodioxin[1,2,3,4,7,8-]	Hexachlorodibenzodioxin[1,2,3,6,7,8-]	Hexachlorodibenzodioxin[1,2,3,7,8,9-]	Hexachlorodibenzodioxins (Total)	Hexachlorodibenzofuran[1,2,3,4,7,8-]
Industrial SSL[a]				**1000[f]**	**24400**	**24400**	**na[g]**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**
Recreational SSL[c]				**399**	**13900**	**13900**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**
Residential SSL[a]				**78[f]**	**2290**	**2290**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**
RE02-07-1528	02-600378	0–0.5	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-6840	02-600378	0–0.5	SOIL	—	0.0451	—	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-1532	02-600379	0–0.5	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-6844	02-600379	0–0.5	SOIL	—	0.043	—	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-6845	02-600379	9.5–10.5	QAL	—	0.105	0.0145 (J)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-1533	02-600379	9.5–14	QBO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-6847	02-600379	10.5–11.5	QBO	—	0.0154 (J)	—	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-1536	02-600380	0–0.5	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-6848	02-600380	0–0.5	SOIL	—	0.334	—	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 6.7-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Dibenzofuran	Fluoranthene	Fluorene	Heptachlorodibenzodioxin[1,2,3,4,6,7,8-]	Heptachlorodibenzodioxins (Total)	Heptachlorodibenzofuran[1,2,3,4,6,7,8-]	Heptachlorodibenzofuran[1,2,3,4,7,8,9-]	Heptachlorodibenzofurans (Total)	Hexachlorodibenzodioxin[1,2,3,4,7,8-]	Hexachlorodibenzodioxin[1,2,3,6,7,8-]	Hexachlorodibenzodioxin[1,2,3,7,8,9-]	Hexachlorodibenzodioxins (Total)	Hexachlorodibenzofuran[1,2,3,4,7,8-]
Industrial SSL[a]				**1000[f]**	**24400**	**24400**	**na[g]**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**
Recreational SSL[c]				**399**	**13900**	**13900**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**
Residential SSL[a]				**78[f]**	**2290**	**2290**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**
RE02-07-1537	02-600380	9.5–12	QBO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-1540	02-600381	0–0.5	SOIL	—	0.0161 (J)	—	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-1544	02-600382	0–0.5	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-6856	02-600382	0–0.5	SOIL	—	—	—	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-1545	02-600382	9.5–12	QBO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-1548	02-600383	0–0.5	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-6860	02-600383	0–0.5	SOIL	—	0.0571	—	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-6861	02-600383	9.5–10.5	QAL	—	0.106	—	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-1549	02-600383	9.5–12	QAL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-6864	02-600384	0–0.5	SOIL	—	0.0499	—	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-6865	02-600384	9.5–10.5	QAL	—	0.063	—	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-1553	02-600384	9.5–13	QAL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-1655	02-600409	0–0.5	SOIL	—	0.101	0.0142 (J)	0.0000275	0.0000741	0.000018	0.00000205 (J)	0.000039	—	—	—	0.00000531	0.0000144
RE02-07-1656	02-600409	4.5–9.5	QAL	—	—	—	0.000000805 (J)	0.00000237	0.00000056 (J)	—	0.00000143	—	—	—	—	0.000000156 (J)
RE02-07-1657	02-600409	9.5–14.5	QAL	—	—	—	—	—	—	—	—	—	—	—	—	0.000000096 (J)
RE02-07-1659	02-600409	14.5–24.5	QBO	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1661	02-600410	0–0.5	SOIL	—	0.373	0.0398	0.0000328	0.0000761	0.00000552	—	0.0000176	—	0.000000917 (J)	0.000000506 (J)	0.00000626	0.000000533 (J)
RE02-07-1662	02-600410	4.5–9.5	QAL	—	—	—	—	—	0.000000117 (J)	—	0.000000117	—	—	—	—	—
RE02-07-1667	02-600411	0–0.5	SOIL	—	0.368	0.031 (J)	0.0000322	0.0000766	0.00000673	0.000000489 (J)	0.0000204	—	0.000000871 (J)	0.000000485 (J)	0.00000648	0.0000018 (J)
RE02-07-1668	02-600411	4.5–7	QAL	—	0.0982	—	0.0000162	0.0000366	0.00000331	—	0.00000898	0.000000557 (J)	0.000000565 (J)	—	0.00000305	0.000000349 (J)
RE02-07-1669	02-600411	9.5–14.5	QAL	—	—	—	0.00000107 (J)	0.00000107	—	—	0.00000058	—	—	—	—	—
RE02-07-1671	02-600411	14.5–21	QBO	—	—	—	—	0.000000313	—	—	—	—	—	—	—	—
RE02-07-1673	02-600412	0–0.5	SOIL	—	0.271	0.0462	0.000046	0.000114	0.0000156	0.00000105 (J)	0.0000409	—	0.00000151 (J)	—	0.00000947	0.0000071
RE02-07-1674	02-600412	4.5–9.5	QAL	—	0.121	0.0117 (J)	0.0000184	0.0000359	0.00000433	0.000000993 (J)	0.0000119	—	0.000000527 (J)	—	0.00000159	0.00000234 (J)
RE02-07-1675	02-600412	9.5–12	QAL	—	—	—	0.00000196 (J)	0.00000402	—	—	0.00000119	—	—	—	—	—
RE02-07-1679	02-600413	0–0.5	SOIL	0.174 (J)	1.52	0.273	0.000116	0.000385	0.0000424	0.00000181 (J)	0.000155	—	0.00000224 (J)	—	0.000013	0.00000821

Table 6.7-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Dibenzofuran	Fluoranthene	Fluorene	Heptachlorodibenzodioxin[1,2,3,4,6,7,8-]	Heptachlorodibenzodioxins (Total)	Heptachlorodibenzofuran[1,2,3,4,6,7,8-]	Heptachlorodibenzofuran[1,2,3,4,7,8,9-]	Heptachlorodibenzofurans (Total)	Hexachlorodibenzodioxin[1,2,3,4,7,8-]	Hexachlorodibenzodioxin[1,2,3,6,7,8-]	Hexachlorodibenzodioxin[1,2,3,7,8,9-]	Hexachlorodibenzodioxins (Total)	Hexachlorodibenzofuran[1,2,3,4,7,8-]
Industrial SSL[a]				**1000**[f]	**24400**	**24400**	**na**[g]	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**
Recreational SSL[c]				**399**	**13900**	**13900**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**
Residential SSL[a]				**78**[f]	**2290**	**2290**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**
RE02-07-1680	02-600413	4.5–9.5	QAL	—	0.0711	—	0.0000164	0.000034	0.00000358	0.000000288 (J)	0.00000952	0.000000226 (J)	0.000000602 (J)	0.000000465 (J)	0.00000461	0.000000552 (J)
RE02-07-1681	02-600413	9.5–14.5	QAL	—	0.0544	—	0.000000476 (J)	0.000000934	0.000000178 (J)	—	0.000000178	—	—	—	—	—
RE02-07-1683	02-600413	14.5–22.5	QBO	—	—	—	0.000000754 (J)	0.00000148	0.000000189 (J)	—	0.000000567	—	—	—	—	—
RE02-07-1685	02-600414	0–0.5	SOIL	—	0.583	0.046	0.000042	0.0000908	0.0000114	0.00000145 (J)	0.0000294	—	0.00000135 (J)	0.000000849 (J)	0.0000104	0.00000759
RE02-07-1686	02-600414	4.5–9.5	QAL	—	—	—	0.000000369 (J)	0.000000881	0.00000011 (J)	—	0.00000011	—	—	—	—	—
RE02-07-1687	02-600414	9.5–14.5	QAL	—	—	—	0.00000072 (J)	0.0000014	0.000000235 (J)	—	0.000000626	—	—	—	—	—
RE02-07-1689	02-600414	14.5–20	QBO	—	—	—	—	0.000000212	—	—	—	—	—	—	—	—
RE02-07-1691	02-600415	0–0.5	SOIL	—	0.221	0.0264 (J)	0.0000203	0.0000571	0.00000591 (J)	0.00000018 (J)	0.0000213 (J)	—	0.000000518 (J)	—	0.00000304	0.000000183 (J)
RE02-07-1692	02-600415	4.5–5.1	SOIL	—	0.0312 (J)	—	0.0000193	0.0000403	0.0000027 (J)	0.000000262 (J)	0.0000075 (J)	0.000000276 (J)	—	0.000000543 (J)	0.00000498	0.00000033 (J)
RE02-07-1693	02-600415	9.5–14	QAL	—	0.023 (J)	—	0.0000124	0.0000241	0.00000194 (J)	—	0.0000065	—	—	—	0.00000137	—
RE02-07-1696	02-600415	14.5–16.6	QAL	—	—	—	0.00000878	0.0000162	0.00000142 (J)	—	0.00000724	—	—	—	0.000000695	—
RE02-07-1695	02-600415	19.5–21.7	QBO	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1697	02-600416	0–0.5	SOIL	—	0.261	0.0122 (J)	0.0000718	0.000132	0.0000105	0.000000706 (J)	0.0000382	0.000000532 (J)	0.00000244 (J)	—	0.0000144	0.00000108 (J)
RE02-07-1699	02-600416	9.5–14.5	QAL	—	—	—	0.0000235	0.0000484	0.00000447	—	0.0000234	—	—	—	0.0000019	0.000000166 (J-)
RE02-07-1701	02-600416	14.5–19.5	QBO	—	—	—	0.00000862	0.0000159	0.00000166 (J)	—	0.0000075	—	—	—	—	0.00000014 (J)
RE02-07-1703	02-600417	0–0.5	SOIL	—	0.101	—	0.0000461	0.0000973	0.00000792	0.000000625 (J)	0.0000217	0.000000755 (J)	0.00000163 (J)	0.00000148 (J)	0.0000173	0.00000153 (J)
RE02-07-1704	02-600417	4.5–9.5	QAL	—	—	—	0.00000163 (J)	0.0000033	—	—	—	—	—	—	—	—
RE02-07-1707	02-600417	13–15.5	QBO	—	—	—	0.000118	0.000233	0.0000256	0.0000027	0.000132	0.00000376	0.00000362	—	0.0000122	0.000000648 (J)
RE02-07-1919	02-600456	0–0.5	SOIL	—	0.0399	—	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-1922	02-600456	10–14	QAL	—	—	—	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-1923	02-600457	0–0.5	SOIL	—	0.000348 (J)	—	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-1926	02-600457	9.5–14	QAL	—	—	—	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-1927	02-600458	0–0.5	SOIL	—	0.0917	—	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-1930	02-600458	9.5–14.5	QAL	—	—	—	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-1929	02-600458	15.5–19.5	QBO	—	—	—	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-1931	02-600459	0–0.5	SOIL	—	0.174	—	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 6.7-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Dibenzofuran	Fluoranthene	Fluorene	Heptachlorodibenzodioxin[1,2,3,4,6,7,8-]	Heptachlorodibenzodioxins (Total)	Heptachlorodibenzofuran[1,2,3,4,6,7,8-]	Heptachlorodibenzofuran[1,2,3,4,7,8,9-]	Heptachlorodibenzofurans (Total)	Hexachlorodibenzodioxin[1,2,3,4,7,8-]	Hexachlorodibenzodioxin[1,2,3,6,7,8-]	Hexachlorodibenzodioxin[1,2,3,7,8,9-]	Hexachlorodibenzodioxins (Total)	Hexachlorodibenzofuran[1,2,3,4,7,8-]
Industrial SSL[a]				**1000[f]**	**24400**	**24400**	**na[g]**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**
Recreational SSL[c]				**399**	**13900**	**13900**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**
Residential SSL[a]				**78[f]**	**2290**	**2290**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**
RE02-07-1934	02-600459	9.5–14	QAL	—	—	—	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-1933	02-600459	15–19	QBO	—	—	—	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-1935	02-600460	0–2.3	SOIL	—	—	—	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-1937	02-600460	15.5–20	QBO	—	—	—	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-1939	02-600461	0–0.5	SOIL	—	0.0723	—	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-1941	02-600461	9.5–14	QBO	—	—	—	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-1943	02-600462	0–0.5	SOIL	—	0.0979 (J-)	—	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-1946	02-600462	9.5–14	QAL	—	1.21	—	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-1945	02-600462	15–20	QBO	—	0.1	—	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-1947	02-600463	0–0.5	SOIL	—	0.115	—	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-1951	02-600464	0–0.5	SOIL	—	—	—	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-1955	02-600465	0–0.5	SOIL	—	—	—	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-1959	02-600466	0–0.5	SOIL	—	0.0383	—	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-1963	02-600467	0–0.8	SOIL	—	0.0183 (J)	—	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-1964	02-600467	9.5–10	QAL	—	—	—	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-1965	02-600467	10–12.5	QBO	—	—	—	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-21775	02-600580	3–3.2	SOIL	NA	0.246	0.0121	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-21777	02-600580	5–5.2	SOIL	NA	0.595	0.04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-2586	02-600580	11–16	QBO	—	0.213	—	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-2589	02-600581	0–0.5	SOIL	—	0.626	0.0143 (J)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-2592	02-600581	9.5–13	QAL	—	0.103	—	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-2591	02-600581	14–16	QBO	—	0.202	—	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-2594	02-600582	0–0.5	SOIL	—	0.124	—	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-2599	02-600583	0–1.5	SOIL	—	0.0538	—	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-2601	02-600583	8.5–10	SOIL	—	—	—	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-2602	02-600583	15.5–20	QBO	—	—	—	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 6.7-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Dibenzofuran	Fluoranthene	Fluorene	Heptachlorodibenzodioxin[1,2,3,4,6,7,8-]	Heptachlorodibenzodioxins (Total)	Heptachlorodibenzofuran[1,2,3,4,6,7,8-]	Heptachlorodibenzofuran[1,2,3,4,7,8,9-]	Heptachlorodibenzofurans (Total)	Hexachlorodibenzodioxin[1,2,3,4,7,8-]	Hexachlorodibenzodioxin[1,2,3,6,7,8-]	Hexachlorodibenzodioxin[1,2,3,7,8,9-]	Hexachlorodibenzodioxins (Total)	Hexachlorodibenzofuran[1,2,3,4,7,8-]
Industrial SSL[a]				**1000[f]**	**24400**	**24400**	**na[g]**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**
Recreational SSL[c]				**399**	**13900**	**13900**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**
Residential SSL[a]				**78[f]**	**2290**	**2290**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**
RE02-10-21747	02-612346	8–9	QAL	—	—	—	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-21748	02-612346	15–16	QAL	—	—	—	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-21778	02-612350	3–3.2	SOIL	NA	0.131	0.00675 (J)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-21779	02-612350	5–5.2	SOIL	NA	2.46	0.242	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-21782	02-612351	5–5.2	SOIL	NA	0.0206	—	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-21784	02-612352	3–3.2	SOIL	NA	0.394	0.0336	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-21785	02-612352	5–5.2	SOIL	NA	0.0241	—	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-21787	02-612353	3–3.4	SOIL	NA	0.0153	—	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-21788	02-612353	5–5.2	SOIL	NA	0.00387 (J)	—	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 6.7-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Hexachlorodibenzofuran[1,2,3,6,7,8-]	Hexachlorodibenzofuran[1,2,3,7,8,9-]	Hexachlorodibenzofuran[2,3,4,6,7,8-]	Hexachlorodibenzofurans (Total)	Indeno(1,2,3-cd)pyrene	Isopropyltoluene[4-]	Methylene Chloride	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-]	Pentachlorodibenzodioxins (Total)
Industrial SSL[a]				**na**	**na**	**na**	**na**	**23.4**	**14900[h]**	**1090**	**4100[f]**	**252**	**na**	**na**	**na**	**na**
Recreational SSL[c]				**na**	**na**	**na**	**na**	**30.1**	**52700[h]**	**4520**	**3170**	**1950**	**na**	**na**	**na**	**na**
Residential SSL[a]				**na**	**na**	**na**	**na**	**6.21**	**3210[h]**	**199**	**310[f]**	**45**	**na**	**na**	**na**	**na**
RE02-07-1528	02-600378	0–0.5	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 6.7-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Hexachlorodibenzofuran[1,2,3,6,7,8-]	Hexachlorodibenzofuran[1,2,3,7,8,9-]	Hexachlorodibenzofuran[2,3,4,6,7,8-]	Hexachlorodibenzofurans (Total)	Indeno(1,2,3-cd)pyrene	Isopropyltoluene[4-]	Methylene Chloride	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-]	Pentachlorodibenzodioxins (Total)
Industrial SSL[a]				**na**	**na**	**na**	**na**	**23.4**	**14900[h]**	**1090**	**4100[f]**	**252**	**na**	**na**	**na**	**na**
Recreational SSL[c]				**na**	**na**	**na**	**na**	**30.1**	**52700[h]**	**4520**	**3170**	**1950**	**na**	**na**	**na**	**na**
Residential SSL[a]				**na**	**na**	**na**	**na**	**6.21**	**3210[h]**	**199**	**310[f]**	**45**	**na**	**na**	**na**	**na**
RE02-07-6840	02-600378	0–0.5	SOIL	NA	NA	NA	NA	—	NA	NA	—	—	NA	NA	NA	NA
RE02-07-1532	02-600379	0–0.5	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-6844	02-600379	0–0.5	SOIL	NA	NA	NA	NA	—	NA	NA	—	0.0146 (J)	NA	NA	NA	NA
RE02-07-6845	02-600379	9.5–10.5	QAL	NA	NA	NA	NA	0.0269 (J)	—	—	0.0145 (J)	0.0383	NA	NA	NA	NA
RE02-07-1533	02-600379	9.5–14	QBO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-6847	02-600379	10.5–11.5	QBO	NA	NA	NA	NA	—	—	—	0.00764 (J)	0.0237 (J)	NA	NA	NA	NA
RE02-07-1536	02-600380	0–0.5	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-6848	02-600380	0–0.5	SOIL	NA	NA	NA	NA	0.0715	NA	NA	—	—	NA	NA	NA	NA
RE02-07-1537	02-600380	9.5–12	QBO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-1540	02-600381	0–0.5	SOIL	NA	NA	NA	NA	—	NA	NA	—	—	NA	NA	NA	NA
RE02-07-1544	02-600382	0–0.5	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-6856	02-600382	0–0.5	SOIL	NA	NA	NA	NA	—	NA	NA	—	—	NA	NA	NA	NA
RE02-07-1545	02-600382	9.5–12	QBO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-1548	02-600383	0–0.5	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-6860	02-600383	0–0.5	SOIL	NA	NA	NA	NA	0.0252 (J)	NA	NA	—	—	NA	NA	NA	NA
RE02-07-6861	02-600383	9.5–10.5	QAL	NA	NA	NA	NA	0.0183 (J)	—	—	—	—	NA	NA	NA	NA
RE02-07-1549	02-600383	9.5–12	QAL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-6864	02-600384	0–0.5	SOIL	NA	NA	NA	NA	—	NA	NA	—	—	NA	NA	NA	NA
RE02-07-6865	02-600384	9.5–10.5	QAL	NA	NA	NA	NA	0.0116 (J)	—	—	—	—	NA	NA	NA	NA
RE02-07-1553	02-600384	9.5–13	QAL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-1655	02-600409	0–0.5	SOIL	0.00000556	0.00000101 (J)	0.00000823	0.000101	0.0403	NA	NA	—	—	0.000292	0.0000254	—	0.000000327
RE02-07-1656	02-600409	4.5–9.5	QAL	—	—	0.000000124 (J)	0.00000101	—	—	—	—	—	0.00000649	0.00000119 (J)	—	—
RE02-07-1657	02-600409	9.5–14.5	QAL	—	—	—	0.000000096	—	—	—	—	—	—	—	—	—
RE02-07-1659	02-600409	14.5–24.5	QBO	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1661	02-600410	0–0.5	SOIL	—	—	0.000000365 (J)	0.00000579	0.153	NA	NA	0.0172 (J)	0.0328 (J)	0.000384	0.000016	—	—
RE02-07-1662	02-600410	4.5–9.5	QAL	—	—	—	—	—	—	—	—	—	—	—	—	—

Table 6.7-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Hexachlorodibenzofuran[1,2,3,6,7,8-]	Hexachlorodibenzofuran[1,2,3,7,8,9-]	Hexachlorodibenzofuran[2,3,4,6,7,8-]	Hexachlorodibenzofurans (Total)	Indeno(1,2,3-cd)pyrene	Isopropyltoluene[4-]	Methylene Chloride	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-]	Pentachlorodibenzodioxins (Total)
Industrial SSL[a]				**na**	**na**	**na**	**na**	**23.4**	**14900[h]**	**1090**	**4100[f]**	**252**	**na**	**na**	**na**	**na**
Recreational SSL[c]				**na**	**na**	**na**	**na**	**30.1**	**52700[h]**	**4520**	**3170**	**1950**	**na**	**na**	**na**	**na**
Residential SSL[a]				**na**	**na**	**na**	**na**	**6.21**	**3210[h]**	**199**	**310[f]**	**45**	**na**	**na**	**na**	**na**
RE02-07-1667	02-600411	0–0.5	SOIL	0.000000787 (J)	—	0.00000121 (J)	0.000016	0.153	NA	NA	0.00986 (J)	0.017 (J)	0.000404	0.0000184	0.000000192 (J)	0.000000192
RE02-07-1668	02-600411	4.5–7	QAL	—	—	0.00000016 (J)	0.00000334	—	—	—	—	—	0.000217	0.00000896	—	—
RE02-07-1669	02-600411	9.5–14.5	QAL	—	—	—	—	—	—	—	—	—	0.0000122	—	—	—
RE02-07-1671	02-600411	14.5–21	QBO	—	—	—	—	—	—	—	—	—	0.00000209 (J)	—	—	—
RE02-07-1673	02-600412	0–0.5	SOIL	0.0000031	0.000000608 (J)	0.00000527	0.0000641	0.14	NA	NA	0.033 (J)	0.0897	0.000522	0.0000287	—	0.000000262
RE02-07-1674	02-600412	4.5–9.5	QAL	0.00000111 (J)	—	0.000000656 (J)	0.00000923	0.0317 (J)	—	—	—	0.014 (J)	0.000203	0.0000104	—	—
RE02-07-1675	02-600412	9.5–12	QAL	—	—	—	—	—	—	—	—	—	0.0000254	0.000000994 (J)	—	—
RE02-07-1679	02-600413	0–0.5	SOIL	0.0000032	0.000000636 (J)	0.00000559	0.0000746	0.411	NA	NA	0.16	0.352	0.0022	0.000183	—	—
RE02-07-1680	02-600413	4.5–9.5	QAL	—	—	0.000000368 (J)	0.00000474	—	—	—	—	—	0.000164	0.00000901	0.000000128 (J)	0.000000408
RE02-07-1681	02-600413	9.5–14.5	QAL	—	—	—	—	—	—	—	—	—	0.00000585	0.000000369 (J)	—	—
RE02-07-1683	02-600413	14.5–22.5	QBO	—	—	—	0.0000000332	—	—	—	—	—	0.00000854	0.000000668 (J)	—	—
RE02-07-1685	02-600414	0–0.5	SOIL	0.00000261	0.000000589 (J)	0.00000383	0.0000481 (J)	0.221 (J)	NA	NA	0.0251 (J)	0.0439	0.000387	0.0000233	—	—
RE02-07-1686	02-600414	4.5–9.5	QAL	—	—	—	0.000000105	—	—	—	—	—	0.00000368 (J)	0.000000341 (J)	—	—
RE02-07-1687	02-600414	9.5–14.5	QAL	—	—	—	—	—	—	—	—	—	0.00000837	0.000000593 (J)	—	—
RE02-07-1689	02-600414	14.5–20	QBO	—	—	—	—	—	—	—	—	—	0.00000159 (J)	0.000000262 (J)	—	—
RE02-07-1691	02-600415	0–0.5	SOIL	—	—	0.000000165 (J)	0.00000463	0.213	NA	NA	0.0167 (J)	0.0446	0.000292 (J)	0.0000195	—	—
RE02-07-1692	02-600415	4.5–5.1	SOIL	—	—	0.000000234 (J)	0.00000346	—	—	—	—	—	0.000152 (J)	0.0000062	0.000000154 (J)	0.000000154
RE02-07-1693	02-600415	9.5–14	QAL	—	—	—	0.0000015	—	0.0006 (J)	—	—	—	0.00018	0.00000481	—	—
RE02-07-1696	02-600415	14.5–16.6	QAL	—	—	—	0.0000011	—	—	—	—	—	0.000102	0.00000502 (J)	—	—
RE02-07-1695	02-600415	19.5–21.7	QBO	—	—	—	—	—	—	—	—	—	0.000000553 (J)	—	—	—
RE02-07-1697	02-600416	0–0.5	SOIL	0.000000543 (J)	—	0.000000675 (J)	0.0000144 (J)	—	NA	NA	—	—	0.000659	0.0000392	0.000000243 (J)	0.00000105
RE02-07-1699	02-600416	9.5–14.5	QAL	—	—	—	0.00000347	—	—	—	—	—	0.00033	0.0000145	—	—
RE02-07-1701	02-600416	14.5–19.5	QBO	—	—	—	0.000000869	—	—	—	—	—	0.00011	0.00000618	—	—
RE02-07-1703	02-600417	0–0.5	SOIL	0.000000997 (J)	—	0.00000125 (J)	0.0000178 (J)	—	NA	NA	—	—	0.000441	0.0000171	0.000000421 (J)	0.00000259
RE02-07-1704	02-600417	4.5–9.5	QAL	—	—	—	0.000000125	—	—	—	—	—	0.0000272	0.00000101 (J)	—	—
RE02-07-1707	02-600417	13–15.5	QBO	0.000000228 (J)	—	—	0.0000153	—	—	—	—	—	0.00149	0.0000889	—	—

Table 6.7-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Hexachlorodibenzofuran[1,2,3,6,7,8-]	Hexachlorodibenzofuran[1,2,3,7,8,9-]	Hexachlorodibenzofuran[2,3,4,6,7,8-]	Hexachlorodibenzofurans (Total)	Indeno(1,2,3-cd)pyrene	Isopropyltoluene[4-]	Methylene Chloride	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-]	Pentachlorodibenzodioxins (Total)
Industrial SSL[a]				**na**	**na**	**na**	**na**	**23.4**	**14900[h]**	**1090**	**4100[f]**	**252**	**na**	**na**	**na**	**na**
Recreational SSL[c]				**na**	**na**	**na**	**na**	**30.1**	**52700[h]**	**4520**	**3170**	**1950**	**na**	**na**	**na**	**na**
Residential SSL[a]				**na**	**na**	**na**	**na**	**6.21**	**3210[h]**	**199**	**310[f]**	**45**	**na**	**na**	**na**	**na**
RE02-07-1919	02-600456	0–0.5	SOIL	NA	NA	NA	NA	—	NA	NA	—	—	NA	NA	NA	NA
RE02-07-1922	02-600456	10–14	QAL	NA	NA	NA	NA	—	—	—	—	—	NA	NA	NA	NA
RE02-07-1923	02-600457	0–0.5	SOIL	NA	NA	NA	NA	—	NA	NA	—	—	NA	NA	NA	NA
RE02-07-1926	02-600457	9.5–14	QAL	NA	NA	NA	NA	—	—	—	—	—	NA	NA	NA	NA
RE02-07-1927	02-600458	0–0.5	SOIL	NA	NA	NA	NA	—	NA	NA	—	—	NA	NA	NA	NA
RE02-07-1930	02-600458	9.5–14.5	QAL	NA	NA	NA	NA	—	—	—	—	—	NA	NA	NA	NA
RE02-07-1929	02-600458	15.5–19.5	QBO	NA	NA	NA	NA	—	—	—	—	—	NA	NA	NA	NA
RE02-07-1931	02-600459	0–0.5	SOIL	NA	NA	NA	NA	—	NA	NA	—	—	NA	NA	NA	NA
RE02-07-1934	02-600459	9.5–14	QAL	NA	NA	NA	NA	—	—	—	—	—	NA	NA	NA	NA
RE02-07-1933	02-600459	15–19	QBO	NA	NA	NA	NA	—	—	—	—	—	NA	NA	NA	NA
RE02-07-1935	02-600460	0–2.3	SOIL	NA	NA	NA	NA	—	NA	NA	—	—	NA	NA	NA	NA
RE02-07-1937	02-600460	15.5–20	QBO	NA	NA	NA	NA	—	—	—	—	—	NA	NA	NA	NA
RE02-07-1939	02-600461	0–0.5	SOIL	NA	NA	NA	NA	—	NA	NA	—	—	NA	NA	NA	NA
RE02-07-1941	02-600461	9.5–14	QBO	NA	NA	NA	NA	—	—	—	—	—	NA	NA	NA	NA
RE02-07-1943	02-600462	0–0.5	SOIL	NA	NA	NA	NA	—	NA	NA	—	—	NA	NA	NA	NA
RE02-07-1946	02-600462	9.5–14	QAL	NA	NA	NA	NA	0.269 (J)	—	—	—	—	NA	NA	NA	NA
RE02-07-1945	02-600462	15–20	QBO	NA	NA	NA	NA	—	—	—	—	—	NA	NA	NA	NA
RE02-07-1947	02-600463	0–0.5	SOIL	NA	NA	NA	NA	0.0627 (J)	NA	NA	—	—	NA	NA	NA	NA
RE02-07-1951	02-600464	0–0.5	SOIL	NA	NA	NA	NA	—	NA	NA	—	—	NA	NA	NA	NA
RE02-07-1955	02-600465	0–0.5	SOIL	NA	NA	NA	NA	—	NA	NA	—	—	NA	NA	NA	NA
RE02-07-1959	02-600466	0–0.5	SOIL	NA	NA	NA	NA	—	NA	NA	—	—	NA	NA	NA	NA
RE02-07-1963	02-600467	0–0.8	SOIL	NA	NA	NA	NA	—	NA	NA	—	—	NA	NA	NA	NA
RE02-07-1964	02-600467	9.5–10	QAL	NA	NA	NA	NA	—	—	—	—	—	NA	NA	NA	NA
RE02-07-1965	02-600467	10–12.5	QBO	NA	NA	NA	NA	—	—	—	—	—	NA	NA	NA	NA
RE02-10-21775	02-600580	3–3.2	SOIL	NA	NA	NA	NA	0.0984	NA	NA	NA	0.00598 (J)	NA	NA	NA	NA
RE02-10-21777	02-600580	5–5.2	SOIL	NA	NA	NA	NA	0.305	NA	NA	NA	0.0292	NA	NA	NA	NA

Table 6.7-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Hexachlorodibenzofuran[1,2,3,6,7,8-]	Hexachlorodibenzofuran[1,2,3,7,8,9-]	Hexachlorodibenzofuran[2,3,4,6,7,8-]	Hexachlorodibenzofurans (Total)	Indeno(1,2,3-cd)pyrene	Isopropyltoluene[4-]	Methylene Chloride	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-]	Pentachlorodibenzodioxins (Total)
Industrial SSL[a]				**na**	**na**	**na**	**na**	**23.4**	**14900[h]**	**1090**	**4100[f]**	**252**	**na**	**na**	**na**	**na**
Recreational SSL[c]				**na**	**na**	**na**	**na**	**30.1**	**52700[h]**	**4520**	**3170**	**1950**	**na**	**na**	**na**	**na**
Residential SSL[a]				**na**	**na**	**na**	**na**	**6.21**	**3210[h]**	**199**	**310[f]**	**45**	**na**	**na**	**na**	**na**
RE02-07-2586	02-600580	11–16	QBO	NA	NA	NA	NA	0.0429 (J)	NA	NA	—	—	NA	NA	NA	NA
RE02-07-2589	02-600581	0–0.5	SOIL	NA	NA	NA	NA	0.145	NA	NA	—	—	NA	NA	NA	NA
RE02-07-2592	02-600581	9.5–13	QAL	NA	NA	NA	NA	—	NA	NA	—	—	NA	NA	NA	NA
RE02-07-2591	02-600581	14–16	QBO	NA	NA	NA	NA	0.162	NA	NA	—	—	NA	NA	NA	NA
RE02-07-2594	02-600582	0–0.5	SOIL	NA	NA	NA	NA	0.0207 (J)	NA	NA	—	—	NA	NA	NA	NA
RE02-07-2599	02-600583	0–1.5	SOIL	NA	NA	NA	NA	—	NA	NA	—	—	NA	NA	NA	NA
RE02-07-2601	02-600583	8.5–10	SOIL	NA	NA	NA	NA	—	—	—	—	—	NA	NA	NA	NA
RE02-07-2602	02-600583	15.5–20	QBO	NA	NA	NA	NA	—	—	0.00242 (J)	—	—	NA	NA	NA	NA
RE02-10-21747	02-612346	8–9	QAL	NA	NA	NA	NA	—	NA	NA	—	—	NA	NA	NA	NA
RE02-10-21748	02-612346	15–16	QAL	NA	NA	NA	NA	—	NA	NA	—	—	NA	NA	NA	NA
RE02-10-21778	02-612350	3–3.2	SOIL	NA	NA	NA	NA	—	NA	NA	NA	0.00258 (J)	NA	NA	NA	NA
RE02-10-21779	02-612350	5–5.2	SOIL	NA	NA	NA	NA	0.635	NA	NA	NA	—	NA	NA	NA	NA
RE02-10-21782	02-612351	5–5.2	SOIL	NA	NA	NA	NA	0.00348 (J)	NA	NA	NA	—	NA	NA	NA	NA
RE02-10-21784	02-612352	3–3.2	SOIL	NA	NA	NA	NA	0.209	NA	NA	NA	0.0283	NA	NA	NA	NA
RE02-10-21785	02-612352	5–5.2	SOIL	NA	NA	NA	NA	0.00755	NA	NA	NA	—	NA	NA	NA	NA
RE02-10-21787	02-612353	3–3.4	SOIL	NA	NA	NA	NA	0.00524 (J)	NA	NA	NA	—	NA	NA	NA	NA
RE02-10-21788	02-612353	5–5.2	SOIL	NA	NA	NA	NA	0.0024 (J)	NA	NA	NA	—	NA	NA	NA	NA

Table 6.7-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Pentachlorodibenzofuran[1,2,3,7,8-]	Pentachlorodibenzofuran[2,3,4,7,8-]	Pentachlorodibenzofurans (Totals)	Phenanthrene	Pyrene	Tetrachlorodibenzofuran[2,3,7,8-]	Tetrachlorodibenzofurans (Totals)	Toluene	TPH-DRO	Xylene[1,2-]	Xylene[1,3-]+Xylene[1,4-]
Industrial SSL[a]				**na**	**na**	**na**	**20500**	**18300**	**0.00147**	**na**	**57900**	**1120[i]**	**31500**	**3610[j]**
Recreational SSL[c]				**na**	**na**	**na**	**12000**	**10400**	**0.00197**	**na**	**60800**	**na**	**248000**	**27800[j]**
Residential SSL[a]				**na**	**na**	**na**	**1830**	**1720**	**0.000374**	**na**	**5570**	**520[i]**	**9550**	**1090[j]**
RE02-07-1528	02-600378	0–0.5	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-6840	02-600378	0–0.5	SOIL	NA	NA	NA	0.0266 (J)	0.0497	NA	NA	NA	NA	NA	NA
RE02-07-1532	02-600379	0–0.5	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-6844	02-600379	0–0.5	SOIL	NA	NA	NA	0.0454	0.0573	NA	NA	NA	NA	NA	NA
RE02-07-6845	02-600379	9.5–10.5	QAL	NA	NA	NA	0.0923	0.108	NA	NA	—	NA	—	—
RE02-07-1533	02-600379	9.5–14	QBO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-6847	02-600379	10.5–11.5	QBO	NA	NA	NA	0.0247 (J)	0.0172 (J)	NA	NA	—	NA	—	—
RE02-07-1536	02-600380	0–0.5	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-6848	02-600380	0–0.5	SOIL	NA	NA	NA	0.144	0.31	NA	NA	NA	NA	NA	NA
RE02-07-1537	02-600380	9.5–12	QBO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-1540	02-600381	0–0.5	SOIL	NA	NA	NA	—	0.0147 (J)	NA	NA	NA	NA	NA	NA
RE02-07-1544	02-600382	0–0.5	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-6856	02-600382	0–0.5	SOIL	NA	NA	NA	—	—	NA	NA	NA	NA	NA	NA
RE02-07-1545	02-600382	9.5–12	QBO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-1548	02-600383	0–0.5	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-6860	02-600383	0–0.5	SOIL	NA	NA	NA	0.0272 (J)	0.0525	NA	NA	NA	NA	NA	NA
RE02-07-6861	02-600383	9.5–10.5	QAL	NA	NA	NA	0.047	0.104	NA	NA	—	NA	—	—
RE02-07-1549	02-600383	9.5–12	QAL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-6864	02-600384	0–0.5	SOIL	NA	NA	NA	0.0238 (J)	0.0579	NA	NA	NA	NA	NA	NA
RE02-07-6865	02-600384	9.5–10.5	QAL	NA	NA	NA	0.0304 (J)	0.0577	NA	NA	—	NA	—	—
RE02-07-1553	02-600384	9.5–13	QAL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-1655	02-600409	0–0.5	SOIL	0.00000481	0.0000272	0.000172	0.0958	0.138	0.0000153	0.0000854	NA	9.88	NA	NA
RE02-07-1656	02-600409	4.5–9.5	QAL	0.0000000647 (J)	0.000000213 (J)	0.00000117	—	—	0.000000162 (J)	0.000000416	—	3.37 (J)	—	—
RE02-07-1657	02-600409	9.5–14.5	QAL	—	—	—	—	—	—	—	—	15.9	—	—
RE02-07-1659	02-600409	14.5–24.5	QBO	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1661	02-600410	0–0.5	SOIL	—	0.000000697 (J)	0.0000043	0.287	0.299	—	0.000000487	NA	24.6	NA	NA
RE02-07-1662	02-600410	4.5–9.5	QAL	—	—	—	—	—	—	—	0.000569 (J)	—	—	—

Table 6.7-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Pentachlorodibenzofuran[1,2,3,7,8-]	Pentachlorodibenzofuran[2,3,4,7,8-]	Pentachlorodibenzofurans (Totals)	Phenanthrene	Pyrene	Tetrachlorodibenzofuran[2,3,7,8-]	Tetrachlorodibenzofurans (Totals)	Toluene	TPH-DRO	Xylene[1,2-]	Xylene[1,3-]+Xylene[1,4-]
Industrial SSL[a]				**na**	**na**	**na**	**20500**	**18300**	**0.00147**	**na**	**57900**	**1120[i]**	**31500**	**3610[j]**
Recreational SSL[c]				**na**	**na**	**na**	**12000**	**10400**	**0.00197**	**na**	**60800**	**na**	**248000**	**27800[j]**
Residential SSL[a]				**na**	**na**	**na**	**1830**	**1720**	**0.000374**	**na**	**5570**	**520[i]**	**9550**	**1090[j]**
RE02-07-1667	02-600411	0–0.5	SOIL	0.000000552 (J)	0.00000291	0.0000192	0.267	0.332	0.00000185	0.00000818	NA	38	NA	NA
RE02-07-1668	02-600411	4.5–7	QAL	—	0.000000286 (J)	0.00000199	0.0442	0.11	0.000000196 (J)	0.000000196	—	23	—	—
RE02-07-1669	02-600411	9.5–14.5	QAL	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1671	02-600411	14.5–21	QBO	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1673	02-600412	0–0.5	SOIL	0.00000237 (J)	0.0000154	0.0000975	0.265	0.237	0.00000839	0.000047	NA	16.5	NA	NA
RE02-07-1674	02-600412	4.5–9.5	QAL	0.000000183 (J)	0.000000869 (J)	0.00000499	0.0765	0.114	0.00000042 (J)	0.00000068	—	32.1	—	—
RE02-07-1675	02-600412	9.5–12	QAL	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1679	02-600413	0–0.5	SOIL	0.00000218 (J)	0.0000149	0.0000947	1.5	1.36	0.00000773	0.0000413	NA	56.2	NA	NA
RE02-07-1680	02-600413	4.5–9.5	QAL	0.0000002 (J)	0.000000663 (J)	0.0000049	0.0519	0.0773	0.000000552 (J)	0.00000212	—	16.9 (J)	—	—
RE02-07-1681	02-600413	9.5–14.5	QAL	—	—	—	0.0661	0.0609	—	—	—	—	—	—
RE02-07-1683	02-600413	14.5–22.5	QBO	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1685	02-600414	0–0.5	SOIL	0.00000184 (J)	0.0000115	0.0000683	0.389	0.498	0.00000604	0.0000284	NA	NA	NA	NA
RE02-07-1686	02-600414	4.5–9.5	QAL	—	0.0000000642 (J)	0.0000000642	—	—	—	—	—	NA	—	—
RE02-07-1687	02-600414	9.5–14.5	QAL	—	—	—	—	—	—	—	—	NA	—	—
RE02-07-1689	02-600414	14.5–20	QBO	—	—	—	—	—	0.000000111 (J)	0.000000208	—	NA	—	—
RE02-07-1691	02-600415	0–0.5	SOIL	—	0.00000018 (J)	0.000000293	0.188	0.257	0.000000102 (J)	0.000000231	NA	NA	NA	NA
RE02-07-1692	02-600415	4.5–5.1	SOIL	0.0000000847 (J)	0.000000281 (J)	0.00000198	0.0208 (J)	0.042	—	0.00000026	—	NA	—	—
RE02-07-1693	02-600415	9.5–14	QAL	—	—	0.000000266	0.0211 (J)	0.0209 (J)	0.000000135 (J)	0.000000238	—	NA	—	—
RE02-07-1696	02-600415	14.5–16.6	QAL	—	—	—	—	—	—	—	—	NA	—	—
RE02-07-1695	02-600415	19.5–21.7	QBO	—	—	—	—	—	0.000000079 (J)	0.000000079	—	NA	—	—
RE02-07-1697	02-600416	0–0.5	SOIL	0.000000227 (J)	0.00000103 (J)	0.0000063	0.134	0.258	0.000000631 (J)	0.00000292	NA	NA	NA	NA
RE02-07-1699	02-600416	9.5–14.5	QAL	—	—	0.000000231	—	—	—	—	—	NA	—	—
RE02-07-1701	02-600416	14.5–19.5	QBO	—	—	—	—	—	—	—	—	NA	—	—
RE02-07-1703	02-600417	0–0.5	SOIL	0.000000611 (J)	0.00000294	0.0000198	0.0357 (J)	0.153	0.00000193	0.0000246	NA	NA	NA	NA
RE02-07-1704	02-600417	4.5–9.5	QAL	—	—	—	—	—	—	—	—	NA	—	—
RE02-07-1707	02-600417	13–15.5	QBO	0.00000104 (J)	0.000000445 (J)	0.00000148	—	—	0.000000176 (J)	0.000000324	—	NA	—	—
RE02-07-1919	02-600456	0–0.5	SOIL	NA	NA	NA	0.0254 (J)	0.0385	NA	NA	NA	8.21 (J)	NA	NA

Table 6.7-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Pentachlorodibenzofuran[1,2,3,7,8-]	Pentachlorodibenzofuran[2,3,4,7,8-]	Pentachlorodibenzofurans (Totals)	Phenanthrene	Pyrene	Tetrachlorodibenzofuran[2,3,7,8-]	Tetrachlorodibenzofurans (Totals)	Toluene	TPH-DRO	Xylene[1,2-]	Xylene[1,3-]+Xylene[1,4-]
Industrial SSL[a]				**na**	**na**	**na**	**20500**	**18300**	**0.00147**	**na**	**57900**	**1120**[i]	**31500**	**3610**[j]
Recreational SSL[c]				**na**	**na**	**na**	**12000**	**10400**	**0.00197**	**na**	**60800**	**na**	**248000**	**27800**[j]
Residential SSL[a]				**na**	**na**	**na**	**1830**	**1720**	**0.000374**	**na**	**5570**	**520**[i]	**9550**	**1090**[j]
RE02-07-1922	02-600456	10–14	QAL	NA	NA	NA	—	—	NA	NA	—	4.65 (J)	—	—
RE02-07-1923	02-600457	0–0.5	SOIL	NA	NA	NA	0.000179 (J)	0.000265 (J)	NA	NA	NA	13.1 (J)	NA	NA
RE02-07-1926	02-600457	9.5–14	QAL	NA	NA	NA	—	—	NA	NA	—	2.21 (J)	—	—
RE02-07-1927	02-600458	0–0.5	SOIL	NA	NA	NA	0.0438	0.101	NA	NA	NA	25.3 (J)	NA	NA
RE02-07-1930	02-600458	9.5–14.5	QAL	NA	NA	NA	—	—	NA	NA	—	7.31 (J)	—	—
RE02-07-1929	02-600458	15.5–19.5	QBO	NA	NA	NA	—	—	NA	NA	—	1.74 (J)	—	—
RE02-07-1931	02-600459	0–0.5	SOIL	NA	NA	NA	0.0668	0.249 (J)	NA	NA	NA	18.4 (J)	NA	NA
RE02-07-1934	02-600459	9.5–14	QAL	NA	NA	NA	—	—	NA	NA	—	9.63 (J)	—	—
RE02-07-1933	02-600459	15–19	QBO	NA	NA	NA	—	—	NA	NA	—	2.42 (J)	—	—
RE02-07-1935	02-600460	0–2.3	SOIL	NA	NA	NA	0.017 (J)	—	NA	NA	NA	454	NA	NA
RE02-07-1937	02-600460	15.5–20	QBO	NA	NA	NA	—	—	NA	NA	—	4.35	—	—
RE02-07-1939	02-600461	0–0.5	SOIL	NA	NA	NA	0.0372	0.122 (J)	NA	NA	NA	29 (J)	NA	NA
RE02-07-1941	02-600461	9.5–14	QBO	NA	NA	NA	—	0.0157 (J)	NA	NA	—	3.02 (J)	—	—
RE02-07-1943	02-600462	0–0.5	SOIL	NA	NA	NA	0.0326 (J-)	0.242 (J)	NA	NA	NA	40.8 (J)	NA	NA
RE02-07-1946	02-600462	9.5–14	QAL	NA	NA	NA	0.38	2.42 (J)	NA	NA	0.00107 (J)	—	—	—
RE02-07-1945	02-600462	15–20	QBO	NA	NA	NA	0.0591	0.155 (J)	NA	NA	—	1.57 (J)	—	—
RE02-07-1947	02-600463	0–0.5	SOIL	NA	NA	NA	0.0433	0.144	NA	NA	NA	—	NA	NA
RE02-07-1951	02-600464	0–0.5	SOIL	NA	NA	NA	—	—	NA	NA	NA	13.1 (J)	NA	NA
RE02-07-1955	02-600465	0–0.5	SOIL	NA	NA	NA	—	—	NA	NA	NA	1.68 (J)	NA	NA
RE02-07-1959	02-600466	0–0.5	SOIL	NA	NA	NA	—	0.0891 (J)	NA	NA	NA	12 (J)	NA	NA
RE02-07-1963	02-600467	0–0.8	SOIL	NA	NA	NA	—	0.0143 (J)	NA	NA	NA	16.7 (J)	NA	NA
RE02-07-1964	02-600467	9.5–10	QAL	NA	NA	NA	—	—	NA	NA	0.000478 (J)	2.65 (J)	—	—
RE02-07-1965	02-600467	10–12.5	QBO	NA	NA	NA	—	—	NA	NA	—	3.38 (J)	—	—
RE02-10-21775	02-600580	3–3.2	SOIL	NA	NA	NA	0.122	0.267	NA	NA	NA	NA	NA	NA
RE02-10-21777	02-600580	5–5.2	SOIL	NA	NA	NA	0.342	0.57	NA	NA	NA	NA	NA	NA
RE02-07-2586	02-600580	11–16	QBO	NA	NA	NA	0.0964	0.174	NA	NA	NA	NA	NA	NA
RE02-07-2589	02-600581	0–0.5	SOIL	NA	NA	NA	0.194	0.764	NA	NA	NA	NA	NA	NA

Table 6.7-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Pentachlorodibenzofuran[1,2,3,7,8-]	Pentachlorodibenzofuran[2,3,4,7,8-]	Pentachlorodibenzofurans (Totals)	Phenanthrene	Pyrene	Tetrachlorodibenzofuran[2,3,7,8-]	Tetrachlorodibenzofurans (Totals)	Toluene	TPH-DRO	Xylene[1,2-]	Xylene[1,3-]+Xylene[1,4-]
Industrial SSL[a]				**na**	**na**	**na**	**20500**	**18300**	**0.00147**	**na**	**57900**	**1120[i]**	**31500**	**3610[j]**
Recreational SSL[c]				**na**	**na**	**na**	**12000**	**10400**	**0.00197**	**na**	**60800**	**na**	**248000**	**27800[j]**
Residential SSL[a]				**na**	**na**	**na**	**1830**	**1720**	**0.000374**	**na**	**5570**	**520[i]**	**9550**	**1090[j]**
RE02-07-2592	02-600581	9.5–13	QAL	NA	NA	NA	0.0391	0.105	NA	NA	NA	NA	NA	NA
RE02-07-2591	02-600581	14–16	QBO	NA	NA	NA	0.0896	0.201	NA	NA	NA	NA	NA	NA
RE02-07-2594	02-600582	0–0.5	SOIL	NA	NA	NA	0.0557	0.119	NA	NA	NA	NA	NA	NA
RE02-07-2599	02-600583	0–1.5	SOIL	NA	NA	NA	0.0336 (J)	0.0584	NA	NA	NA	NA	NA	NA
RE02-07-2601	02-600583	8.5–10	SOIL	NA	NA	NA	—	—	NA	NA	—	NA	0.000353 (J)	0.000839 (J)
RE02-07-2602	02-600583	15.5–20	QBO	NA	NA	NA	—	—	NA	NA	—	NA	—	—
RE02-10-21747	02-612346	8–9	QAL	NA	NA	NA	—	—	NA	NA	NA	NA	NA	NA
RE02-10-21748	02-612346	15–16	QAL	NA	NA	NA	—	—	NA	NA	NA	NA	NA	NA
RE02-10-21778	02-612350	3–3.2	SOIL	NA	NA	NA	0.0758	0.129	NA	NA	NA	NA	NA	NA
RE02-10-21779	02-612350	5–5.2	SOIL	NA	NA	NA	2.29	2.31	NA	NA	NA	NA	NA	NA
RE02-10-21782	02-612351	5–5.2	SOIL	NA	NA	NA	0.0149	0.0211	NA	NA	NA	NA	NA	NA
RE02-10-21784	02-612352	3–3.2	SOIL	NA	NA	NA	0.264	0.341	NA	NA	NA	NA	NA	NA
RE02-10-21785	02-612352	5–5.2	SOIL	NA	NA	NA	0.017	0.022	NA	NA	NA	NA	NA	NA
RE02-10-21787	02-612353	3–3.4	SOIL	NA	NA	NA	0.00325 (J)	0.0192	NA	NA	NA	NA	NA	NA
RE02-10-21788	02-612353	5–5.2	SOIL	NA	NA	NA	—	0.00347 (J)	NA	NA	NA	NA	NA	NA

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

[a] SSLs are from NMED (2009, 108070), unless otherwise noted.

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

[c] SSLs are from LANL (2010, 108613).

[d] NA = Not analyzed.

[e] — = Not detected.

[f] SSLs are from EPA regional screening tables (http://www.epa.gov.earth1r6/6pd/rcra_c/pd-n/screen.htm).

[g] na = Not available.

[h] Isopropylbenzene used as surrogate based on structural similarity.

[i] Screening guidelines for diesel range organics from NMED (2006, 094614).

[j] Xylene used as a surrogate based on structural similarity.

Table 6.7-4
Radionuclides Detected or Detected above BVs/FVs at AOC 02-004(a)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-137	Cobalt-60	Plutonium-239/240	Strontium-90	Tritium	Uranium-235/236
Qbt 1g, Qct, Qbo BV[a]				**na[b]**	**na**	**na**	**na**	**na**	**na**	**0.18**
Soil BV[a]				**0.013**	**1.65**	**na**	**0.054**	**1.31**	**na**	**0.2**
Industrial SAL[c]				**180**	**23**	**5.1**	**210**	**1900**	**440000**	**87**
Recreational SAL[c]				**280**	**210**	**46**	**300**	**5600**	**5300000**	**520**
Residential SAL[c]				**30**	**5.6**	**1.3**	**33**	**5.7**	**750**	**17**
RE02-03-51840	02-22359	9–9.5	SOIL	NA[d]	0.0461	4.29	—[e]	—	19.2	—
RE02-03-51841	02-22359	10.5–11	SOIL	NA	0.0241	1.52	0.034	—	20	—
RE02-03-51860	02-22369	9–9.5	SOIL	NA	—	—	—	—	0.897	—
RE02-03-51861	02-22369	10.5–11.03	SOIL	NA	—	0.0822	0.0426	—	5.4	—
RE02-03-51862	02-22370	8–8.5	SOIL	NA	—	—	0.0447	—	4.28	—
RE02-03-51863	02-22370	9.5–10	SOIL	NA	—	—	—	—	4.58	—
RE02-03-51864	02-22371	9–9.5	SOIL	NA	—	1.75	—	—	1.87	—
RE02-03-51865	02-22371	10.5–11	SOIL	NA	—	—	—	—	1.69	—
RE02-07-1528	02-600378	0–0.5	SOIL	—	2.97	—	0.0855 (J-)	—	0.00649711	—
RE02-07-1529	02-600378	9.5–12	QBO	—	0.263	—	—	—	0.311517	—
RE02-07-1533	02-600379	9.5–14	QBO	—	—	—	—	—	0.358994	—
RE02-07-1536	02-600380	0–0.5	SOIL	—	—	—	0.0609 (J-)	—	0.0144918	—
RE02-07-1537	02-600380	9.5–12	QBO	—	0.378	—	—	—	0.0771247	—
RE02-07-1540	02-600381	0–0.5	SOIL	—	4.76	—	—	1.61	0.0261236	—
RE02-07-1541	02-600381	7–10	QAL	—	—	—	—	—	0.394286	—
RE02-07-1542	02-600381	16.5–20	QBO	—	—	—	—	—	0.0517562	0.286
RE02-07-1544	02-600382	0–0.5	SOIL	—	—	—	—	—	0.0102681	—
RE02-07-1545	02-600382	9.5–12	QBO	—	—	—	—	—	0.11326	—
RE02-07-1549	02-600383	9.5–12	QAL	—	0.552	—	—	—	0.110905	—
RE02-07-1553	02-600384	9.5–13	QAL	—	0.253	—	—	—	0.0954164	—
RE02-07-1554	02-600384	13.5–17	QBO	—	—	—	—	—	0.0666584	—
RE02-07-1655	02-600409	0–0.5	SOIL	—	—	0.872	—	—	—	—
RE02-07-1657	02-600409	9.5–14.5	QAL	—	—	—	—	—	0.20381	—
RE02-07-1661	02-600410	0–0.5	SOIL	—	—	—	—	—	0.017688	—
RE02-07-1662	02-600410	4.5–9.5	QAL	—	—	—	—	—	0.101121	—
RE02-07-1667	02-600411	0–0.5	SOIL	—	—	—	—	—	0.0298578	—
RE02-07-1668	02-600411	4.5–7	QAL	—	—	2.01	—	—	0.867054	—

Table 6.7-4 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-137	Cobalt-60	Plutonium-239/240	Strontium-90	Tritium	Uranium-235/236
Qbt 1g, Qct, Qbo BV[a]				**na[b]**	**na**	**na**	**na**	**na**	**na**	**0.18**
Soil BV[a]				**0.013**	**1.65**	**na**	**0.054**	**1.31**	**na**	**0.2**
Industrial SAL[c]				**180**	**23**	**5.1**	**210**	**1900**	**440000**	**87**
Recreational SAL[c]				**280**	**210**	**46**	**300**	**5600**	**5300000**	**520**
Residential SAL[c]				**30**	**5.6**	**1.3**	**33**	**5.7**	**750**	**17**
RE02-07-1669	02-600411	9.5–14.5	QAL	—	—	—	—	—	0.376188	—
RE02-07-1674	02-600412	4.5–9.5	QAL	—	—	—	—	—	0.439091	—
RE02-07-1675	02-600412	9.5–12	QAL	—	—	—	—	—	0.0344831	—
RE02-07-1680	02-600413	4.5–9.5	QAL	—	—	2.7	—	—	0.518501	—
RE02-07-1683	02-600413	14.5–22.5	QBO	—	—	—	—	—	0.0708587	—
RE02-07-1686	02-600414	4.5–9.5	QAL	—	—	—	—	—	0.283677	—
RE02-07-1687	02-600414	9.5–14.5	QAL	—	—	—	—	—	0.1762	—
RE02-07-1689	02-600414	14.5–20	QBO	—	—	—	—	—	0.109635	—
RE02-07-1691	02-600415	0–0.5	SOIL	—	—	—	—	—	0.0375676	—
RE02-07-1692	02-600415	4.5–5.1	SOIL	—	—	—	—	—	0.321476	—
RE02-07-1693	02-600415	9.5–14	QAL	—	—	—	—	—	0.166274	—
RE02-07-1695	02-600415	19.5–21.7	QBO	—	—	—	—	—	0.0842927	—
RE02-07-1697	02-600416	0–0.5	SOIL	—	—	—	—	—	0.00968911	—
RE02-07-1699	02-600416	9.5–14.5	QAL	—	—	—	—	—	0.0256196	—
RE02-07-1701	02-600416	14.5–19.5	QBO	—	—	—	—	—	0.0623223	—
RE02-07-1704	02-600417	4.5–9.5	QAL	—	—	—	0.0577	—	0.0323971	—
RE02-07-1707	02-600417	13–15.5	QBO	—	—	—	—	—	—	0.211
RE02-07-1919	02-600456	0–0.5	SOIL	—	—	—	—	—	0.0330946	—
RE02-07-1922	02-600456	10–14	QAL	—	—	—	—	—	0.406077	—
RE02-07-1926	02-600457	9.5–14	QAL	—	—	—	—	—	0.0894932	—
RE02-07-1925	02-600457	14–19	QBO	—	—	—	—	—	0.0711927	—
RE02-07-1931	02-600459	0–0.5	SOIL	—	—	—	—	—	0.022959	—
RE02-07-1934	02-600459	9.5–14	QAL	—	—	—	—	—	0.0421229	—
RE02-07-1935	02-600460	0–2.3	SOIL	—	—	—	0.0299	—	—	—
RE02-07-1937	02-600460	15.5–20	QBO	—	—	—	—	—	—	0.197
RE02-07-1939	02-600461	0–0.5	SOIL	—	—	—	0.0636	—	—	—
RE02-07-1943	02-600462	0–0.5	SOIL	—	—	2.86	—	—	—	—
RE02-07-1964	02-600467	9.5–10	QAL	—	—	—	—	—	0.0605579	—
RE02-07-1965	02-600467	10–12.5	QBO	—	—	—	—	—	—	0.2
RE02-07-2592	02-600581	9.5–13	QAL	—	—	—	0.0512	—	—	—

Table 6.7-4 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-137	Cobalt-60	Plutonium-239/240	Strontium-90	Tritium	Uranium-235/236
Qbt 1g, Qct, Qbo BV[a]				**na[b]**	**na**	**na**	**na**	**na**	**na**	**0.18**
Soil BV[a]				**0.013**	**1.65**	**na**	**0.054**	**1.31**	**na**	**0.2**
Industrial SAL[c]				**180**	**23**	**5.1**	**210**	**1900**	**440000**	**87**
Recreational SAL[c]				**280**	**210**	**46**	**300**	**5600**	**5300000**	**520**
Residential SAL[c]				**30**	**5.6**	**1.3**	**33**	**5.7**	**750**	**17**
RE02-07-2594	02-600582	0–0.5	SOIL	—	—	—	0.806	—	—	—
RE02-07-2599	02-600583	0–1.5	SOIL	—	—	—	—	—	0.0188167	—
RE02-07-2601	02-600583	8.5–10	SOIL	—	—	—	—	—	0.0520148	—
RE02-07-2602	02-600583	15.5–20	QBO	—	—	—	—	—	0.0411766	—
RE02-07-2604	02-600584	1.5–3.3	SOIL	0.0532	0.956	—	2.44	—	—	—
RE02-07-2605	02-600584	9.5–11.7	QAL	—	—	—	0.0688	—	—	—
RE02-10-21656	02-612325	5–6	SOIL	NA	0.0993	—	—	NA	0.0987805	—
RE02-10-21659	02-612325	35–37	QBO	NA	—	—	—	NA	0.166541	—
RE02-10-21660	02-612325	49–50	QBO	NA	—	—	—	NA	0.119684	—
RE02-10-21661	02-612326	5–6	SOIL	NA	0.218	—	—	NA	0.0263707	—
RE02-10-21665	02-612326	49–50	QBO	NA	—	—	—	NA	0.0654051	—
RE02-10-21666	02-612327	5–6	QAL	NA	—	—	—	NA	0.321046	—
RE02-10-21671	02-612328	5–6	SOIL	NA	0.186	—	—	NA	0.264706	—
RE02-10-21672	02-612328	15–16	QAL	NA	—	—	0.0175	NA	—	—
RE02-10-21673	02-612328	25–26	QBO	NA	—	—	—	NA	0.0480909	—
RE02-10-21674	02-612328	35–36	QBO	NA	—	—	—	NA	0.04925	—
RE02-10-21747	02-612346	8–9	QAL	NA	—	—	0.0476	NA	—	—
RE02-10-21748	02-612346	15–16	QAL	NA	—	—	—	NA	0.0512404	—
RE02-10-21750	02-612346	35–36	QBO	NA	—	—	—	NA	0.0746471	—
RE02-10-21751	02-612346	49–50	QBO	NA	—	—	—	NA	0.0884761	—

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

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

[b] na = Not available.

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

[d] NA = Not analyzed.

[e] — = Not detected.

Table 6.8-1
Samples Collected and Analyses Requested at AOCs 02-004(b,c,d)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Dioxins/Furans	Gamma-emitting Radionuclides	Tritium	Hexavalent Chromium	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	VOCs	Cyanide (Total)
RE02-07-2222	02-600508	0–0.5	SOIL	07-483	07-482	07-481	07-483	07-483	—*	07-483	07-483	07-482	07-482	07-482	07-483	07-482	—	07-482
RE02-07-2224	02-600508	13–15	QBO	07-713	07-713	07-712	07-713	07-713	—	07-713	07-713	07-713	07-713	07-713	07-713	07-713	07-713	07-713
RE02-07-2226	02-600509	0–0.5	SOIL	07-483	07-482	07-481	07-483	07-483	—	07-483	07-483	07-482	07-482	07-482	07-483	07-482	—	07-482
RE02-07-2228	02-600509	9.5–15	QBO	07-718	07-718	07-717	07-718	07-718	—	07-718	07-718	07-718	07-718	07-718	07-718	07-718	07-718	07-718
RE02-07-2230	02-600510	0–0.5	SOIL	07-483	07-482	07-481	07-483	07-483	—	07-483	07-483	07-482	07-482	07-482	07-483	07-482	—	07-482
RE02-07-2234	02-600511	0–0.5	SOIL	07-483	07-482	07-481	07-483	07-483	—	07-483	07-483	07-482	07-482	07-482	07-483	07-482	—	07-482
RE02-07-2237	02-600511	14–19	QBO	07-703	07-703	07-702	07-703	07-703	—	07-703	07-703	07-703	07-703	07-703	07-703	07-703	07-703	07-703
RE02-07-2320	02-600526	0–0.5	SOIL	07-490	07-489	07-488	07-490	07-490	—	07-490	07-490	07-489	07-489	07-489	07-490	07-489	—	07-489
RE02-07-2321	02-600526	9.5–12	QAL	07-659	07-658	07-656	07-659	07-659	—	07-659	07-659	07-658	07-657	07-658	07-659	07-657	07-657	07-658
RE02-07-2324	02-600527	0–0.5	SOIL	07-490	07-489	07-488	07-490	07-490	—	07-490	07-490	07-489	07-489	07-489	07-490	07-489	—	07-489
RE02-07-2325	02-600527	9.5–14	QAL	—	07-658	07-656	—	—	—	—	—	07-658	07-657	07-658	—	07-657	07-657	07-658
RE02-07-2328	02-600528	0–0.5	SOIL	07-490	07-489	07-488	07-490	07-490	—	07-490	07-490	07-489	07-489	07-489	07-490	07-489	—	07-489
RE02-07-2329	02-600528	9.5–17.3	QAL	07-659	07-658	07-656	07-659	07-659	—	07-659	07-659	07-658	07-657	07-658	07-659	07-657	07-657	07-658
RE02-07-2330	02-600528	17.4–23	QBO	07-659	07-658	07-656	07-659	07-659	—	07-659	07-659	07-658	07-657	07-658	07-659	07-657	07-657	07-658
RE02-07-2434	02-600545	0–0.5	SOIL	07-504	07-504	07-503	07-504	07-504	—	07-504	07-504	07-504	07-504	07-504	07-504	07-504	—	07-504
RE02-07-2435	02-600545	9.5–14.3	QAL	—	07-672	07-670	—	—	—	—	—	07-672	07-671	07-672	—	07-671	07-671	07-672
RE02-07-2437	02-600545	14.3–18.5	QBO	07-673	07-672	07-670	07-673	07-673	—	07-673	07-673	07-672	07-671	07-672	07-673	07-671	07-671	07-672
RE02-07-2438	02-600546	0–0.5	SOIL	07-504	07-504	07-503	07-504	07-504	—	07-504	07-504	07-504	07-504	07-504	07-504	07-504	—	07-504
RE02-07-2439	02-600546	9.5–11	QAL	—	07-706	07-705	—	07-706	—	—	—	07-706	07-706	07-706	—	07-706	07-706	07-706
RE02-10-21501	02-612280	5–7	QAL	—	—	—	10-4812	10-4812	10-4811	10-4812	10-4812	10-4811	10-4810	—	—	—	—	—
RE02-10-21500	02-612280	15–16	QBO	—	—	—	10-4812	10-4812	10-4811	10-4812	10-4812	10-4811	10-4810	—	—	—	—	—
RE02-10-21495	02-612280	25–27	QBO	—	—	—	10-4812	10-4812	10-4811	10-4812	10-4812	10-4811	10-4810	—	—	—	—	—
RE02-10-21490	02-612280	35–36	QBO	—	—	—	10-4812	10-4812	10-4811	10-4812	10-4812	10-4811	10-4810	—	—	—	—	—
RE02-10-21485	02-612280	49–50	QBO	—	—	—	10-4812	10-4812	10-4811	10-4812	10-4812	10-4811	10-4810	—	—	—	—	—

* — = Analysis not requested.

Table 6.8-2
Inorganic Chemicals above BVs at AOCs 02-004(b,c,d)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Cadmium	Calcium	Chromium	Cyanide (Total)	Iron	Manganese	Nickel	Nitrate	Perchlorate	Selenium	Vanadium	Zinc
Qbt 1g, Qct, Qbo BV[a]				**3560**	**0.5**	**0.56**	**25.7**	**0.4**	**1900**	**2.6**	**0.5**	**3700**	**189**	**2**	**na[b]**	**na**	**0.3**	**4.59**	**40**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**0.4**	**6120**	**19.3**	**0.5**	**21500**	**671**	**15.4**	**na**	**na**	**1.52**	**39.6**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**1120**	**na**	**2920[d]**	**22700**	**795000**	**145000**	**22700**	**1820000**	**795**	**5680**	**5680**	**341000**
Recreational SSL[e]				**791000**	**317**	**27.7**	**158000**	**784**	**na**	**1910[d]**	**15800**	**554000**	**110000**	**15800**	**1260000**	**555**	**3960**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**77.9**	**na**	**219[d]**	**1560**	**54800**	**10700**	**1560**	**125000**	**54.8**	**391**	**391**	**23500**
RE02-07-2222	02-600508	0–0.5	SOIL	—[f]	—	—	—	0.525 (U)	—	—	0.54	—	—	—	1.92	0.000992 (J)	1.57 (U)	—	—
RE02-07-2224	02-600508	13–15	QBO	13700	—	1.42 (J)	65.8	0.637 (U)	—	5.68	—	8090	322	2.57	—	—	0.662 (J)	4.88 (J)	—
RE02-07-2226	02-600509	0–0.5	SOIL	—	—	—	—	—	—	34.4 (J)	—	—	—	—	1.98	0.000912 (J)	1.55 (U)	—	158
RE02-07-2228	02-600509	9.5–15	QBO	8160	—	1.71 (J)	26.4	0.604 (U)	—	5.2	—	7210	198	2.09	—	—	0.781 (J)	4.61 (J)	—
RE02-07-2230	02-600510	0–0.5	SOIL	—	—	—	—	0.492 (U)	—	20.3 (J)	—	—	—	—	5.15	0.00168 (J)	—	—	64.9
RE02-07-2234	02-600511	0–0.5	SOIL	—	—	—	—	—	—	20 (J)	—	—	—	—	6.47	—	—	—	56.5
RE02-07-2237	02-600511	14–19	QBO	9960	—	1.22 (J)	32.1	0.604 (U)	—	13	—	7240	340	2.02	—	—	0.663 (J)	4.79 (J)	—
RE02-07-2320	02-600526	0–0.5	SOIL	—	—	—	—	0.502 (U)	7960 (J+)	37.3	—	—	—	—	1.64	0.00149 (J)	—	—	98.2
RE02-07-2321	02-600526	9.5–12	QAL	—	—	—	—	—	—	—	—	—	—	—	17.3 (J-)	0.00216 (J-)	—	—	—
RE02-07-2324	02-600527	0–0.5	SOIL	—	—	—	—	—	—	—	—	—	—	—	8.04	0.000719 (J)	—	—	56.2
RE02-07-2328	02-600528	0–0.5	SOIL	—	—	—	—	0.5 (U)	—	—	—	—	—	—	1.41	—	—	—	—
RE02-07-2329	02-600528	9.5–17.3	QAL	—	—	—	—	—	—	—	—	—	—	—	1.02 (J-)	—	1.61 (U)	—	—
RE02-07-2330	02-600528	17.4–23	QBO	7720	—	0.721 (J)	—	—	—	—	—	5810	208	—	—	—	1.78 (U)	—	—
RE02-07-2434	02-600545	0–0.5	SOIL	—	—	—	—	0.509 (U)	—	—	—	—	—	—	1.75 (J-)	—	1.53 (U)	—	49.3
RE02-07-2435	02-600545	9.5–14.3	QAL	—	—	—	—	0.548 (U)	—	—	—	—	—	—	—	—	1.64 (U)	—	—
RE02-07-2437	02-600545	14.3–18.5	QBO	10500 (J)	0.525 (UJ)	1.95 (U)	—	0.649 (U)	—	3.77 (J)	—	5280 (J)	—	—	—	—	1.95 (U)	—	—
RE02-07-2438	02-600546	0–0.5	SOIL	—	—	—	—	—	—	—	—	—	—	—	3.02	0.000599 (J)	—	—	—
RE02-07-2439	02-600546	9.5–11	QAL	—	—	—	—	0.548 (U)	—	24.5	—	—	733	—	3.32	—	—	—	—
RE02-10-21500	02-612280	15–16	QBO	8240	1.18 (U)	—	—	0.589 (U)	—	—	NA[g]	4950	196 (J-)	2.49	NA	NA	1.19 (U)	—	—
RE02-10-21495	02-612280	25–27	QBO	—	1.26 (U)	1.25 (U)	—	0.631 (U)	—	—	NA	5290	200 (J-)	—	NA	NA	1.25 (U)	—	—
RE02-10-21490	02-612280	35–36	QBO	—	1.19 (U)	1.26 (U)	—	0.593 (U)	—	—	NA	5120	253 (J-)	—	NA	NA	1.26 (U)	—	—
RE02-10-21485	02-612280	49–50	QBO	—	1.23 (U)	1.25 (U)	—	0.617 (U)	—	3.39	NA	5400	—	—	NA	NA	1.25 (U)	—	—

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

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

[b] na = Not available.

[c] SSLs are from NMED (2009, 108070), unless otherwise noted.

[d] SSLs are for hexavalent chromium.

[e] SSLs are from LANL (2010, 108613).

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

[g] NA = Not analyzed.

Table 6.8-3
Organic Chemicals Detected at AOCs 02-004(b,c,d)

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Anthracene	Aroclor-1248	Aroclor-1254	Aroclor-1260	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenzofuran	Fluoranthene	Fluorene	Heptachlorodibenzodioxin[1,2,3,4,6,7,8-]	Heptachlorodibenzodioxins (Total)	Heptachlorodibenzofuran[1,2,3,4,6,7,8-]
Industrial SSL[a]				**36700**	**183000**	**8.26**	**8.26**	**8.26**	**23.4**	**2.34**	**23.4**	**18300**[b]	**234**	**2340**	**1000**[c]	**24400**	**24400**	**na**[d]	**na**	**na**
Recreational SSL[e]				**20800**	**104000**	**10.5**	**6.65**	**10.5**	**30.1**	**3.01**	**30.1**	**10400**[b]	**301**	**3010**	**399**	**13900**	**13900**	**na**	**na**	**na**
Residential SSL[a]				**3440**	**17200**	**2.22**	**1.12**	**2.22**	**6.21**	**0.621**	**6.21**	**1720**[b]	**62.1**	**621**	**78**[c]	**2290**	**2290**	**na**	**na**	**na**
RE02-07-2222	02-600508	0–0.5	SOIL	0.0265 (J)	0.0415	—[e]	0.197	0.431	0.108	0.108 (J)	0.213 (J)	—	—	0.107	—	0.22	0.0233 (J)	0.00228	0.0042	0.000112 (J)
RE02-07-2224	02-600508	13–15	QBO	—	—	—	—	0.0023 (J)	—	—	—	—	—	—	—	—	—	0.0000217	0.0000376	0.00000109 (J)
RE02-07-2226	02-600509	0–0.5	SOIL	0.0291 (J)	0.0396	—	0.0802 (J-)	0.152 (J-)	0.102	0.0927	0.184	—	—	0.0941	—	0.207	0.0247 (J)	0.00651	0.0113	0.00027 (J)
RE02-07-2228	02-600509	9.5–15	QBO	—	—	—	—	0.0025 (J-)	—	—	—	—	—	—	—	—	—	0.00000522	0.00000943	0.00000104 (J)
RE02-07-2230	02-600510	0–0.5	SOIL	—	0.037	—	0.0733	0.0423	0.241	0.253	0.421	0.195	—	0.251	—	0.384	—	0.000815	0.00153	0.0000541 (J)
RE02-07-2234	02-600511	0–0.5	SOIL	—	—	—	0.0482	0.023 (J+)	0.0172 (J)	—	0.0282 (J)	—	—	0.0167 (J)	—	0.0319 (J)	—	0.00356	0.00727	0.000165 (J)
RE02-07-2237	02-600511	14–19	QBO	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.000000638 (J)	0.0000013	—
RE02-07-2320	02-600526	0–0.5	SOIL	—	—	—	0.172	0.378	0.0234 (J)	—	—	—	—	0.0149 (J)	—	0.0294 (J)	—	0.0012	0.00239	0.000162
RE02-07-2321	02-600526	9.5–12	QAL	—	—	—	—	0.0275	—	—	—	—	—	—	—	—	—	0.000244	0.000476	0.0000284
RE02-07-2324	02-600527	0–0.5	SOIL	—	0.0143 (J)	—	0.0192	0.0219	0.06	0.0514	0.0971	0.0875	—	0.0538	—	0.12	—	0.000959	0.00198	0.0000704
RE02-07-2325	02-600527	9.5–14	QAL	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.000000654	0.000000196 (J)
RE02-07-2328	02-600528	0–0.5	SOIL	—	—	—	0.0075	0.0092	0.0194 (J)	—	—	—	—	0.0211 (J)	—	0.0423	—	0.000355	0.000641	0.0000228
RE02-07-2329	02-600528	9.5–17.3	QAL	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00000114 (J)	0.00000221	0.000000324 (J)
RE02-07-2330	02-600528	17.4–23	QBO	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.000000244 (J)	0.000000514	—
RE02-07-2434	02-600545	0–0.5	SOIL	0.231	0.301	—	—	0.242	0.351	0.411	0.537	0.285 (J)	—	0.369	0.163 (J)	0.818	0.254	0.00122	0.00221	0.00011
RE02-07-2435	02-600545	9.5–14.3	QAL	—	0.0166 (J)	—	—	0.0019 (J)	0.0595	0.049	0.085	—	—	0.0624	—	0.116	—	0.00000197 (J)	0.00000369	0.000000759 (J)
RE02-07-2437	02-600545	14.3–18.5	QBO	—	—	0.306	—	—	—	—	—	—	—	—	—	—	—	0.00000172 (J)	0.00000335	0.000000384 (J)
RE02-07-2438	02-600546	0–0.5	SOIL	—	0.0105 (J)	—	—	0.0241 (J)	0.0562	0.112	0.0741	0.0505 (J)	—	0.0499	—	0.105	—	0.000197	0.000396	0.0000215
RE02-07-2439	02-600546	9.5–11	QAL	—	0.0152 (J)	—	0.0149	0.0142	0.0354 (J)	0.0221 (J)	0.0233 (J)	0.0142 (J)	0.0186 (J)	0.0238 (J)	—	0.0645	—	0.00000133 (J)	0.00000299	0.000000793 (J)
RE02-10-21501	02-612280	5–7	QAL	NA[f]	NA	—	0.0438 (J)	0.0286 (J)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 6.8-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Heptachlorodibenzofuran[1,2,3,4,7,8,9-]	Heptachlorodibenzofurans (Total)	Hexachlorodibenzodioxin[1,2,3,4,7,8-]	Hexachlorodibenzodioxin[1,2,3,6,7,8-]	Hexachlorodibenzodioxin[1,2,3,7,8,9-]	Hexachlorodibenzodioxins (Total)	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-]	Hexachlorodibenzofurans (Total)	Indeno(1,2,3-cd)pyrene	Methylnaphthalene[2-]	Naphthalene
Industrial SSL[a]				**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**23.4**	**4100[g]**	**252**
Recreational SSL[e]				**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**30.1**	**3170**	**1950**
Residential SSL[a]				**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**6.21**	**310[g]**	**45**
RE02-07-2222	02-600508	0–0.5	SOIL	0.00000868	0.000418 (J)	0.0000056	0.0000236	0.0000131	0.000233	0.00000864	0.00000542	0.000000959 (J)	0.00000763	0.000143	—	0.00703 (J)	0.017 (J)
RE02-07-2224	02-600508	13–15	QBO	—	0.00000417	—	0.00000022 (J)	—	0.00000287	—	—	—	—	0.00000101	—	—	—
RE02-07-2226	02-600509	0–0.5	SOIL	0.0000215	0.0011 (J)	0.0000139	0.000078	0.000033	0.00075	0.00000988	0.00000805	0.00000142 (J)	0.0000115	0.000304	0.107	0.00916 (J)	0.018 (J)
RE02-07-2228	02-600509	9.5–15	QBO	—	0.00000403	—	0.000000212 (J)	—	0.000000714	0.000000105 (J)	0.0000000382 (J)	—	0.0000000508 (J)	0.00000109	—	—	—
RE02-07-2230	02-600510	0–0.5	SOIL	0.00000425	0.000201 (J)	0.00000361	0.0000133	0.00000746	0.000138	0.00000229 (J)	0.00000183 (J)	0.000000466 (J)	0.00000223 (J)	0.0000553	0.175	—	—
RE02-07-2234	02-600511	0–0.5	SOIL	0.0000121	0.000828 (J)	0.00000623	0.0000363	0.0000155	0.000356	0.00000393	0.00000222 (J)	0.000000566 (J)	0.00000359	0.000147	—	—	—
RE02-07-2237	02-600511	14–19	QBO	—	0.000000546	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2320	02-600526	0–0.5	SOIL	0.0000205 (J)	0.000664	0.00000575	0.00003	0.0000133	0.000211	0.0000058	0.00000527	0.00000112 (J)	0.00000744	0.000161 (J)	—	—	—
RE02-07-2321	02-600526	9.5–12	QAL	0.00000296	0.000101	0.00000137 (J)	0.00000548	0.00000304	0.0000451	0.00000104 (J)	0.00000109 (J)	—	0.00000123 (J)	0.0000267	—	—	—
RE02-07-2324	02-600527	0–0.5	SOIL	0.00000659	0.000299	0.00000334	0.0000143	0.00000729	0.000123	0.0000023 (J)	0.00000159 (J)	0.000000388 (J)	0.00000232 (J)	0.0000617 (J)	0.0842	—	—
RE02-07-2325	02-600527	9.5–14	QAL	—	0.000000358	—	—	—	—	—	—	—	—	0.000000169	—	—	—
RE02-07-2328	02-600528	0–0.5	SOIL	0.00000198 (J)	0.0000798	0.00000128 (J)	0.00000508	0.00000339	0.0000482	0.000000841 (J)	0.00000074 (J)	0.000000176 (J)	0.000000927 (J)	0.0000212 (J)	—	—	—
RE02-07-2329	02-600528	9.5–17.3	QAL	—	0.00000067	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2330	02-600528	17.4–23	QBO	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2434	02-600545	0–0.5	SOIL	0.0000132	0.000388	0.00000502	0.0000222	0.0000114	0.000185	0.00000603	0.00000468	0.000000856 (J)	0.00000641	0.000128 (J)	0.263	0.156	0.551
RE02-07-2435	02-600545	9.5–14.3	QAL	—	0.00000157	—	—	—	—	—	—	—	—	0.00000032	0.0258 (J)	—	—
RE02-07-2437	02-600545	14.3–18.5	QBO	—	0.00000146	—	—	—	—	—	—	—	—	0.000000135	—	—	—
RE02-07-2438	02-600546	0–0.5	SOIL	—	0.0000711	0.00000157 (J)	0.00000437	0.00000308	0.0000396	—	0.000000737 (J)	—	0.00000101 (J)	0.000017 (J)	0.0665	—	—
RE02-07-2439	02-600546	9.5–11	QAL	—	0.000000793	—	—	—	—	—	—	—	—	0.000000403	0.0127 (J)	—	—
RE02-10-21501	02-612280	5–7	QAL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 6.8-3 (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-]	Pentachlorodibenzodioxins (Total)	Pentachlorodibenzofuran[1,2,3,7,8-]	Pentachlorodibenzofuran[2,3,4,7,8-]	Pentachlorodibenzofurans (Totals)	Phenanthrene	Pyrene	Tetrachlorodibenzodioxin[2,3,7,8-]	Tetrachlorodibenzodioxins (Total)	Tetrachlorodibenzofuran[2,3,7,8-]	Tetrachlorodibenzofurans (Totals)
Industrial SSL[a]				**na**	**na**	**na**	**na**	**na**	**na**	**na**	**20500**	**18300**	**0.000204**	**na**	**0.00147**	**na**
Recreational SSL[e]				**na**	**na**	**na**	**na**	**na**	**na**	**na**	**12000**	**10400**	**0.000319**	**na**	**0.00197**	**na**
Residential SSL[a]				**na**	**na**	**na**	**na**	**na**	**na**	**na**	**1830**	**1720**	**0.000045**	**na**	**0.000374**	**na**
RE02-07-2222	02-600508	0–0.5	SOIL	0.0234	0.000378	0.00000222 (J)	0.0000156	0.00000217 (J)	0.0000136	0.0000834	0.164	0.273	0.000000348 (J)	0.00000154	0.00000761	0.0000411
RE02-07-2224	02-600508	13–15	QBO	0.000153	0.00000344 (J)	—	—	—	—	0.000000253	—	—	—	—	—	—
RE02-07-2226	02-600509	0–0.5	SOIL	0.0494	0.000859	0.00000483	0.0000325	0.00000146 (J)	0.00000701	0.0000669	0.175	0.185	0.000000633	0.00000507	0.00000337	0.0000237
RE02-07-2228	02-600509	9.5–15	QBO	0.0000578	0.00000323 (J)	—	—	—	0.000000072 (J)	0.000000331	—	—	—	—	0.0000000472 (J)	0.0000000472
RE02-07-2230	02-600510	0–0.5	SOIL	0.00766	0.000167	0.00000117 (J)	0.0000104	0.000000359 (J)	0.00000105 (J)	0.000013	0.107	0.416	—	0.000000775	0.000000774 (J)	0.0000054
RE02-07-2234	02-600511	0–0.5	SOIL	0.0444	0.000745	0.0000021 (J)	0.0000139	0.00000024 (J)	0.000000672 (J)	0.0000121	0.0145 (J)	0.0266 (J)	0.000000286 (J)	0.00000112	0.000000447 (J)	0.0000026
RE02-07-2237	02-600511	14–19	QBO	0.00000681	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2320	02-600526	0–0.5	SOIL	0.0123	0.000539	0.00000226 (J)	0.0000182	0.00000099 (J)	0.00000445	0.0000406	0.0141 (J)	0.0275 (J)	—	0.0000011	0.00000217	0.0000126
RE02-07-2321	02-600526	9.5–12	QAL	0.00238	0.0000769 (J)	—	0.00000291	—	—	0.00000453	—	—	—	—	0.000000156 (J)	0.000000824
RE02-07-2324	02-600527	0–0.5	SOIL	0.0114	0.000325	0.00000112 (J)	0.0000061	—	—	0.00000706	0.061	0.0904	0.00000018 (J)	0.00000018	0.000000305 (J)	0.00000144
RE02-07-2325	02-600527	9.5–14	QAL	0.00000283 (J)	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2328	02-600528	0–0.5	SOIL	0.00274	0.0000834	0.000000602 (J)	0.00000254	—	—	0.00000369	0.0321 (J)	0.0371	—	—	—	0.000000511
RE02-07-2329	02-600528	9.5–17.3	QAL	0.000011	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2330	02-600528	17.4–23	QBO	0.00000171 (J)	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2434	02-600545	0–0.5	SOIL	0.00984	0.000324	0.00000172 (J)	0.000015	0.00000103 (J)	0.00000622	0.0000468	1.21	0.904	—	0.000000221	0.00000328	0.0000172
RE02-07-2435	02-600545	9.5–14.3	QAL	0.0000181	0.00000156 (J)	—	—	—	—	0.000000302	0.0699	0.111	—	—	—	—
RE02-07-2437	02-600545	14.3–18.5	QBO	0.00002	0.00000143 (J)	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2438	02-600546	0–0.5	SOIL	0.00182	0.0000838	—	0.00000272	—	—	0.00000339	0.0435	0.0991	—	—	0.000000304 (J)	0.000000979
RE02-07-2439	02-600546	9.5–11	QAL	0.0000119	0.00000153 (J)	—	—	—	—	0.000000558	0.0527	0.0509	—	—	—	—
RE02-10-21501	02-612280	5–7	QAL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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

[a] SSLs are from NMED (2009, 108070), unless otherwise noted.

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

[c] SSLs are from EPA regional screening tables (http://www.epa.gov.earth1r6/6pd/rcra_c/pd-n/screen.htm).

[d] na = Not available.

[e] — = Not detected.

[f] NA = Not analyzed.

[g] SSLs are from LANL (2010, 108613).

Table 6.8-4
Radionuclides Detected or Detected above BVs/FVs at AOCs 02-004(b)

Sample ID	Location ID	Depth (ft)	Media	Cesium-137	Cobalt-60	Plutonium-239/240	Tritium	Uranium-235/236
Qbt 1g, Qct, Qbo BV[a]				**na**[b]	**na**	**na**	**na**	**0.18**
Soil BV[a]				**1.65**	**na**	**0.054**	**na**	**0.2**
Industrial SAL[c]				**23**	**5.1**	**210**	**440000**	**87**
Recreational SAL[c]				**210**	**46**	**300**	**5300000**	**520**
Residential SAL[c]				**5.6**	**1.3**	**33**	**750**	**17**
RE02-07-2222	02-600508	0–0.5	SOIL	—[d]	0.806	0.164	0.0166164	—
RE02-07-2226	02-600509	0–0.5	SOIL	—	0.884	0.149	0.0165105	—
RE02-07-2230	02-600510	0–0.5	SOIL	—	—	0.756	—	—
RE02-07-2234	02-600511	0–0.5	SOIL	—	—	0.197	0.0102305	—
RE02-07-2237	02-600511	14–19	QBO	—	—	—	—	0.207
RE02-07-2320	02-600526	0–0.5	SOIL	—	—	—	0.00837898	—
RE02-07-2321	02-600526	9.5–12	QAL	—	—	—	0.915975	—
RE02-07-2324	02-600527	0–0.5	SOIL	—	—	0.0761	—	—
RE02-07-2328	02-600528	0–0.5	SOIL	—	—	0.0705	—	—
RE02-07-2437	02-600545	14.3–18.5	QBO	—	—	—	—	0.251
RE02-07-2439	02-600546	9.5–11	QAL	NA[e]	NA	NA	0.0417753	NA
RE02-10-21501	02-612280	5–7	QAL	0.23	0.139	0.0581	0.217365	—

Notes: Results are in pCi/g. Data qualifiers are defined in Appendix A.
[a] BVs/FVs are from LANL (1998, 059730).
[b] na = Not available.
[c] SALs from LANL (2009, 107655).
[d] — = Not detected.
[e] NA = Not analyzed.

Table 6.11-1
Samples Collected and Analyses Requested at AOC 02-004(e)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Dioxins/Furans	Gamma-emitting Radionuclides	Tritium	Hexavalent Chromium	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	VOCs	Cyanide (Total)
RE02-07-2390	02-600537	0–0.5	SOIL	07-560	07-560	07-595	07-560	07-560	—*	07-560	07-560	07-560	07-560	07-560	07-560	07-560	—	07-560
RE02-07-2391	02-600537	9.5–14.5	QAL	07-803	07-802	07-800	07-803	07-803	—	07-803	07-803	07-802	07-801	07-802	07-803	07-801	07-801	07-802
RE02-07-2392	02-600537	15–19.5	QBO	07-803	07-802	07-800	07-803	07-803	—	07-803	07-803	07-802	07-801	07-802	07-803	07-801	07-801	07-802
RE02-07-2394	02-600538	0–0.5	SOIL	07-560	07-560	07-595	07-560	07-560	—	07-560	07-560	07-560	07-560	07-560	07-560	07-560	—	07-560
RE02-07-2396	02-600538	14.5–16	QBO	07-816	07-816	07-815	07-816	07-816	—	07-816	07-816	07-816	07-816	07-816	07-816	07-816	07-816	07-816
RE02-07-2398	02-600539	0–0.5	SOIL	07-816	07-816	07-815	07-816	07-816	—	07-816	07-816	07-816	07-816	07-816	07-816	07-816	—	07-816
RE02-07-2399	02-600539	9.5–12.8	QAL	07-816	07-816	07-815	07-816	07-816	—	07-816	07-816	07-816	07-816	07-816	07-816	07-816	07-816	07-816
RE02-07-2400	02-600539	12.8–17.5	QBO	07-825	07-825	07-824	07-825	07-825	—	07-825	07-825	07-825	07-825	07-825	07-825	07-825	07-825	07-825
RE02-10-21501	02-612280	5–7	QAL	—	—	—	10-4812	10-4812	10-4811	10-4812	10-4812	10-4811	10-4810	—	—	—	—	—
RE02-10-21500	02-612280	15–16	QBO	—	—	—	10-4812	10-4812	10-4811	10-4812	10-4812	10-4811	10-4810	—	—	—	—	—
RE02-10-21495	02-612280	25–27	QBO	—	—	—	10-4812	10-4812	10-4811	10-4812	10-4812	10-4811	10-4810	—	—	—	—	—
RE02-10-21490	02-612280	35–36	QBO	—	—	—	10-4812	10-4812	10-4811	10-4812	10-4812	10-4811	10-4810	—	—	—	—	—
RE02-10-21485	02-612280	49–50	QBO	—	—	—	10-4812	10-4812	10-4811	10-4812	10-4812	10-4811	10-4810	—	—	—	—	—

* — = Analysis not requested.

Table 6.11-2
Inorganic Chemicals above BVs at AOC 02-004(e)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Cadmium	Chromium	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Vanadium	Zinc
Qbt 1g, Qct, Qbo BV[a]				**3560**	**0.5**	**0.56**	**25.7**	**0.4**	**2.6**	**3.96**	**3700**	**13.5**	**739**	**189**	**0.1**	**2**	**na[b]**	**na**	**0.3**	**4.59**	**40**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**0.4**	**19.3**	**14.7**	**21500**	**22.3**	**4610**	**671**	**0.1**	**15.4**	**na**	**na**	**1.52**	**39.6**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**1120**	**2920[d]**	**45400**	**795000**	**800**	**na**	**145000**	**310[e]**	**22700**	**1820000**	**795**	**5680**	**5680**	**341000**
Recreational SSL[f]				**791000**	**317**	**27.7**	**158000**	**784**	**1910[d]**	**31700**	**554000**	**560**	**na**	**110000**	**238**	**15800**	**1260000**	**555**	**3960**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**77.9**	**219[d]**	**3130**	**54800**	**400**	**na**	**10700**	**23[e]**	**1560**	**125000**	**54.8**	**391**	**391**	**23500**
RE02-07-2390	02-600537	0–0.5	SOIL	—[g]	—	—	—	—	29	—	—	—	—	—	—	—	—	0.000929 (J)	—	—	65.8
RE02-07-2391	02-600537	9.5–14.5	QAL	—	—	—	—	0.529 (U)	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2392	02-600537	15–19.5	QBO	9700	—	2.28	30.9	0.591 (U)	14.2	4.36	9850	26.5	988 (J+)	399	—	—	—	—	2.51	8.86	41.8
RE02-07-2394	02-600538	0–0.5	SOIL	—	—	—	—	—	31.6	—	—	—	—	—	—	—	1.31 (J-)	0.00162 (J)	—	—	73.9
RE02-07-2396	02-600538	14.5–16	QBO	8030	—	1.35 (J)	—	0.587 (U)	11.6 (U)	—	5800	—	—	258	—	2.14 (U)	—	—	1.76 (U)	4.85	—
RE02-07-2398	02-600539	0–0.5	SOIL	—	—	—	—	—	66.2 (U)	19	—	23.2	—	—	1.2	—	3.44	0.000536 (J)	—	—	120
RE02-07-2399	02-600539	9.5–12.8	QAL	—	—	—	—	0.573 (U)	33.4 (U)	—	—	—	—	—	—	—	—	—	1.72 (U)	—	—
RE02-07-2400	02-600539	12.8–17.5	QBO	9150	—	1.32 (J)	28.9 (J+)	0.602 (U)	13.7 (U)	—	5840 (J+)	—	—	209	—	3.26 (U)	—	—	1.72 (J)	—	—
RE02-10-21500	02-612280	15–16	QBO	8240	1.18 (U)	—	—	0.589 (U)	—	—	4950	—	—	196 (J-)	—	2.49	NA[h]	NA	1.19 (U)	—	—
RE02-10-21495	02-612280	25–27	QBO	—	1.26 (U)	1.25 (U)	—	0.631 (U)	—	—	5290	—	—	200 (J-)	—	—	NA	NA	1.25 (U)	—	—
RE02-10-21490	02-612280	35–36	QBO	—	1.19 (U)	1.26 (U)	—	0.593 (U)	—	—	5120	—	—	253 (J-)	—	—	NA	NA	1.26 (U)	—	—
RE02-10-21485	02-612280	49–50	QBO	—	1.23 (U)	1.25 (U)	—	0.617 (U)	3.39	—	5400	—	—	—	—	—	NA	NA	1.25 (U)	—	—

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

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

[b] na = Not available.

[c] SSLs are from NMED (2009, 108070), unless otherwise noted.

[d] SSLs are for hexavalent chromium.

[e] SSLs are from EPA regional screening tables (http://www.epa.gov.earth1r6/6pd/rcra_c/pd-n/screen.htm).

[f] SSLs are from LANL (2010, 108613).

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

[h] NA = Not analyzed.

Table 6.11-3
Organic Chemicals Detected at AOC 02-004(e)

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	Chrysene	Fluoranthene	Fluorene	Heptachlorodibenzodioxin[1,2,3,4,6,7,8-]	Heptachlorodibenzodioxins (Total)	Heptachlorodibenzofuran[1,2,3,4,6,7,8-]	Heptachlorodibenzofuran[1,2,3,4,7,8,9-]
Industrial SSL[a]				**36700**	**183000**	**8.26**	**8.26**	**23.4**	**2.34**	**23.4**	**18300[b]**	**2340**	**24400**	**24400**	**na[c]**	**na**	**na**	**na**
Recreational SSL[d]				**20800**	**104000**	**6.65**	**10.5**	**30.1**	**3.01**	**30.1**	**10400[b]**	**3010**	**13900**	**13900**	**na**	**na**	**na**	**na**
Residential SSL[a]				**3440**	**17200**	**1.12**	**2.22**	**6.21**	**0.621**	**6.21**	**1720[b]**	**621**	**2290**	**2290**	**na**	**na**	**na**	**na**
RE02-07-2390	02-600537	0–0.5	SOIL	—[e]	—	—	0.18	0.0211 (J)	0.0261 (J)	0.033 (J)	—	0.02 (J)	0.0274 (J)	—	0.00202	0.00383	0.000328	0.0000292
RE02-07-2391	02-600537	9.5–14.5	QAL	—	—	—	0.0033 (J)	—	—	—	—	—	—	—	0.00000234 (J)	0.00000444	0.000000842 (J)	—
RE02-07-2392	02-600537	15–19.5	QBO	—	—	—	—	—	—	—	—	—	—	—	0.000000283 (J)	0.000000596	0.0000000965 (J)	—
RE02-07-2394	02-600538	0–0.5	SOIL	0.0202 (J)	0.0405	—	0.00455	0.139	0.122 (J)	0.204 (J)	0.0618 (J)	0.14	0.278	0.016 (J)	0.00175	0.00324	0.000187	0.0000169
RE02-07-2396	02-600538	14.5–16	QBO	—	—	—	—	—	—	—	—	—	—	—	0.00000827	0.0000158	0.000000823 (J)	—
RE02-07-2398	02-600539	0–0.5	SOIL	—	0.00721 (J)	0.0736	0.107	0.0378	0.0419 (J)	0.0464 (J)	—	0.0306 (J)	0.0568	—	0.00314	0.00569	0.000471	0.0000499
RE02-07-2399	02-600539	9.5–12.8	QAL	—	—	—	0.0024 (J)	—	—	—	—	—	—	—	0.000115	0.0002	0.0000192	0.00000151 (J)
RE02-07-2400	02-600539	12.8–17.5	QBO	—	—	—	—	—	—	—	—	—	—	—	0.00000964	0.0000167	0.00000158 (J)	0.000000116 (J)
RE02-10-21501	02-612280	5–7	QAL	NA[f]	NA	0.0438 (J)	0.0286 (J)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 6.11-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Heptachlorodibenzofurans (Total)	Hexachlorodibenzodioxin[1,2,3,4,7,8-]	Hexachlorodibenzodioxin[1,2,3,6,7,8-]	Hexachlorodibenzodioxin[1,2,3,7,8,9-]	Hexachlorodibenzodioxins (Total)	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-]	Hexachlorodibenzofurans (Total)	Indeno(1,2,3-cd)pyrene
Industrial SSL[a]				**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**23.4**
Recreational SSL[d]				**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**30.1**
Residential SSL[a]				**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**6.21**
RE02-07-2390	02-600537	0–0.5	SOIL	0.00151	0.00000764	0.000047	0.0000173	0.000308	0.0000103	0.00000726	0.00000215 (J)	0.00000995	0.000294	—
RE02-07-2391	02-600537	9.5–14.5	QAL	0.00000181	—	—	—	0.00000026	0.000000084 (J)	—	—	0.0000000642 (J)	0.000000729	—
RE02-07-2392	02-600537	15–19.5	QBO	0.0000000965	—	—	—	—	0.0000000293 (J)	—	—	—	0.0000000293	—
RE02-07-2394	02-600538	0–0.5	SOIL	0.000647	0.00000878	0.0000336	0.0000186	0.000283	0.00000833	0.00000681	0.00000152 (J)	0.00000855	0.00019	0.0486 (J)
RE02-07-2396	02-600538	14.5–16	QBO	0.00000244	—	0.000000154 (J)	—	0.0000011	0.0000000627 (J)	—	—	—	0.000000585	—
RE02-07-2398	02-600539	0–0.5	SOIL	0.0017	0.0000183	0.0000869	0.0000417	0.000594	0.0000155	0.0000161	0.00000341	0.0000213	0.000421	—
RE02-07-2399	02-600539	9.5–12.8	QAL	0.000106	0.000000375 (J)	0.00000356	0.000000621 (J)	0.0000126	0.000000335 (J)	0.000000168 (J)	—	0.000000427 (J)	0.0000141	—
RE02-07-2400	02-600539	12.8–17.5	QBO	0.00000707	0.0000000639 (J)	0.000000296 (J)	—	0.000000936	—	—	—	—	0.00000111	—
RE02-10-21501	02-612280	5–7	QAL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 6.11-3 (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-]	Pentachlorodibenzodioxins (Total)	Pentachlorodibenzofuran[1,2,3,7,8-]	Pentachlorodibenzofuran[2,3,4,7,8-]	Pentachlorodibenzofurans (Totals)	Phenanthrene	Pyrene	Tetrachlorodibenzodioxin[2,3,7,8-]	Tetrachlorodibenzodioxins (Total)	Tetrachlorodibenzofuran[2,3,7,8-]	Tetrachlorodibenzofurans (Totals)
Industrial SSL[a]				**na**	**na**	**na**	**na**	**na**	**na**	**na**	**20500**	**18300**	**0.000204**	**na**	**0.00147**	**na**
Recreational SSL[d]				**na**	**na**	**na**	**na**	**na**	**na**	**na**	**12000**	**10400**	**0.000319**	**na**	**0.00197**	**na**
Residential SSL[a]				**na**	**na**	**na**	**na**	**na**	**na**	**na**	**1830**	**1720**	**0.000045**	**na**	**0.000374**	**na**
RE02-07-2390	02-600537	0–0.5	SOIL	0.0193	0.00126	0.00000278	0.0000236	0.00000144 (J)	0.00000641	0.0000619 (J)	0.0171 (J)	0.0328 (J)	—	0.00000162	0.00000339	0.000017
RE02-07-2391	02-600537	9.5–14.5	QAL	0.0000257	0.00000116 (J)	—	—	—	0.0000000774 (J)	0.000000285	—	—	—	—	0.0000000594 (J)	0.0000000594
RE02-07-2392	02-600537	15–19.5	QBO	0.00000176 (J)	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2394	02-600538	0–0.5	SOIL	0.0151 (J-)	0.000567	0.00000336	0.0000218	0.00000146 (J)	0.00000582	0.0000583 (J)	0.202	0.327	0.000000491 (J)	0.00000249	0.00000282	0.0000203
RE02-07-2396	02-600538	14.5–16	QBO	0.000074	0.00000202 (J)	—	—	—	—	0.0000000767	—	—	—	—	—	—
RE02-07-2398	02-600539	0–0.5	SOIL	0.0285	0.00133	0.00000806	0.0000555	0.00000254	0.00000864	0.0000989	0.0361	0.0794	0.00000105	0.00000813	0.0000047	0.0000384
RE02-07-2399	02-600539	9.5–12.8	QAL	0.00109	0.0000811	—	—	—	—	0.000000917	—	—	—	—	—	—
RE02-07-2400	02-600539	12.8–17.5	QBO	0.000106	0.00000544	—	—	—	—	—	—	—	—	—	—	—
RE02-10-21501	02-612280	5–7	QAL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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

[a] SSLs are from NMED (2009, 108070).

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

[c] na = Not available.

[d] SSLs are from LANL (2010, 108613).

[e] — = Not detected.

[f] NA = Not analyzed.

Table 6.11-4
Radionuclides Detected or Detected above BVs/FVs at AOC 02-004(e)

Sample ID	Location ID	Depth (ft)	Media	Cesium-137	Cobalt-60	Plutonium-239/240	Tritium
Soil BV[a]				**1.65**	**na[b]**	**0.054**	**na**
Industrial SAL[c]				**23**	**5.1**	**210**	**440000**
Recreational SAL[c]				**210**	**46**	**300**	**5300000**
Residential SAL[c]				**5.6**	**1.3**	**33**	**750**
RE02-07-2391	02-600537	9.5–14.5	QAL	—[d]	—	—	0.0668511
RE02-07-2394	02-600538	0–0.5	SOIL	—	—	0.0829	0.0110539
RE02-07-2398	02-600539	0–0.5	SOIL	—	—	0.392	—
RE02-07-2399	02-600539	9.5–12.8	QAL	0.128	—	0.0546	—
RE02-10-21501	02-612280	5–7	QAL	0.23	0.139	0.0581	0.217365

Notes: Results are in pCi/g. Data qualifiers are defined in Appendix A.
[a] BVs/FVs are from LANL (1998, 059730).
[b] na = Not available.
[c] SALs for radionuclides from LANL (2009, 107655).
[d] — = Not detected.

Table 6.12-1
Samples Collected and Analyses Requested at AOC 02-004(f)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Dioxins/Furans	Gamma-emitting Radionuclides	Tritium	Hexavalent Chromium	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	Technetium-99	VOCs	Cyanide (Total)
RE02-03-51874	02-22376	0–0.5	SOIL	—*	—	—	1796S	1796S	1795S	1796S	1796S	1795S	—	—	1796S	—	1796S	—	—
RE02-03-51875	02-22376	1.5–2	SOIL	—	—	—	1796S	1796S	1795S	1796S	1796S	1795S	—	—	1796S	—	1796S	—	—
RE02-03-51876	02-22377	0–0.5	SOIL	—	—	—	1796S	1796S	1795S	1796S	1796S	1795S	—	—	1796S	—	1796S	—	—
RE02-03-51877	02-22377	1.5–2	SOIL	—	—	—	1796S	1796S	1795S	1796S	1796S	1795S	—	—	1796S	—	1796S	—	—
RE02-03-51878	02-22378	0–0.5	SOIL	—	—	—	1796S	1796S	1795S	1796S	1796S	1795S	—	—	1796S	—	1796S	—	—
RE02-03-51879	02-22378	1.5–2	SOIL	—	—	—	1796S	1796S	1795S	1796S	1796S	1795S	—	—	1796S	—	1796S	—	—
RE02-03-51880	02-22379	0–0.5	SOIL	—	—	—	1796S	1796S	1795S	1796S	1796S	1795S	—	—	1796S	—	1796S	—	—
RE02-03-51881	02-22379	1.5–2	SOIL	—	—	—	1796S	1796S	1795S	1796S	1796S	1795S	—	—	1796S	—	1796S	—	—
RE02-07-1990	02-600469	4.5–9.5	QAL	07-780	07-780	07-779	07-780	07-780	—	07-780	07-780	07-780	07-780	07-780	07-780	07-780	—	07-780	07-780
RE02-07-1992	02-600469	17–19.5	QBO	07-785	07-785	07-784	07-785	07-785	—	07-785	07-785	07-785	07-785	07-785	07-785	07-785	—	07-785	07-785
RE02-10-21798	02-600470	4–4.2	SOIL	—	—	—	—	—	—	—	—	—	10-4033	—	—	—	—	—	—
RE02-07-1994	02-600470	4.5–7.5	QAL	07-571	07-571	07-600	07-571	07-571	—	07-571	07-571	07-571	07-571	07-571	07-571	07-571	—	07-571	07-571
RE02-10-21799	02-600470	6–6.2	SOIL	—	—	—	—	—	—	—	—	—	10-4033	—	—	—	—	—	—
RE02-07-1997	02-600471	0–0.5	SOIL	07-427	07-426	07-432	07-427	07-427	—	07-427	07-427	07-426	07-425	07-426	07-427	07-425	—	—	07-426
RE02-07-1998	02-600471	4.5–10	SOIL	07-613	07-612	07-610	07-613	07-613	—	07-613	07-613	07-612	07-611	07-612	07-613	07-611	—	07-611	07-612
RE02-07-1999	02-600471	18–25	QBO	07-613	07-612	07-610	07-613	07-613	—	07-613	07-613	07-612	07-611	07-612	07-613	07-611	—	07-611	07-612
RE02-07-2001	02-600472	0–0.5	SOIL	07-427	07-426	07-432	07-427	07-427	—	07-427	07-427	07-426	07-425	07-426	07-427	07-425	—	—	07-426
RE02-07-2002	02-600472	4.5–9	SOIL	07-590	07-590	07-602	07-590	07-590	—	07-590	07-590	07-590	07-590	07-590	07-590	07-590	—	07-590	07-590
RE02-07-2003	02-600472	21–23	QBO	07-613	07-612	07-610	07-613	07-613	—	07-613	07-613	07-612	07-611	07-612	07-613	07-611	—	07-611	07-612
RE02-07-2005	02-600473	0–0.5	SOIL	07-427	07-426	07-432	07-427	07-427	—	07-427	07-427	07-426	07-425	07-426	07-427	07-425	—	—	07-426
RE02-07-2006	02-600473	4.5–13	QAL	07-643	07-643	07-642	07-643	07-643	—	07-643	07-643	07-643	07-643	07-643	07-643	07-643	—	07-643	07-643
RE02-07-2007	02-600473	13–18	QBO	07-652	07-651	07-649	07-652	07-652	—	07-652	07-652	07-651	07-650	07-651	07-652	07-650	—	07-650	07-651
RE02-07-2008	02-600473	18–23	QBO	07-652	07-651	07-649	07-652	07-652	—	07-652	07-652	07-651	07-650	07-651	07-652	07-650	—	07-650	07-651
RE02-07-2010	02-600474	4.5–10	QAL	07-549	07-548	07-531	07-549	07-549	—	07-549	07-549	07-548	07-547	07-548	07-549	07-547	—	07-547	07-548
RE02-07-2011	02-600474	16.5–19	QBO	07-549	07-548	07-531	07-549	07-549	—	07-549	07-549	07-548	07-547	07-548	07-549	07-547	—	07-547	07-548
RE02-07-2013	02-600475	0–0.5	SOIL	07-441	07-440	07-438	07-441	07-441	—	07-441	07-441	07-440	07-439	07-440	07-441	07-439	—	—	07-440
RE02-07-2014	02-600475	4–5	QAL	07-549	07-548	07-531	07-549	07-549	—	07-549	07-549	07-548	07-547	07-548	07-549	07-547	—	07-547	07-548
RE02-07-2015	02-600475	16–18.5	QBO	07-562	07-562	07-597	07-562	07-562	—	07-562	07-562	07-562	07-562	07-562	07-562	07-562	—	07-562	07-562
RE02-07-2017	02-600476	0–0.5	SOIL	07-441	07-440	07-438	07-441	07-441	—	07-441	07-441	07-440	07-439	07-440	07-441	07-439	—	—	07-440
RE02-07-2018	02-600476	4.5–9	QAL	07-550	07-550	07-594	07-550	07-550	—	07-550	07-550	07-550	07-550	07-550	07-550	07-550	—	07-550	07-550
RE02-07-2019	02-600476	20–25	QBO	07-533	07-533	07-527	07-533	07-533	—	07-533	07-533	07-533	07-533	07-533	07-533	07-533	—	07-533	07-533

Table 6.12-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Dioxins/Furans	Gamma-emitting Radionuclides	Tritium	Hexavalent Chromium	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	Technetium-99	VOCs	Cyanide (Total)
RE02-07-2021	02-600477	0–0.5	SOIL	07-441	07-440	07-438	07-441	07-441	—	07-441	07-441	07-440	07-439	07-440	07-441	07-439	—	—	07-440
RE02-07-2022	02-600477	4.5–9	QAL	07-502	07-502	07-501	07-502	07-502	—	07-502	07-502	07-502	07-502	07-502	07-502	07-502	—	07-502	07-502
RE02-07-2023	02-600477	23–25	QBO	07-550	07-550	07-594	07-550	07-550	—	07-550	07-550	07-550	07-550	07-550	07-550	07-550	—	07-550	07-550
RE02-07-2025	02-600478	0–0.5	SOIL	07-441	07-440	07-438	07-441	07-441	—	07-441	07-441	07-440	07-439	07-440	07-441	07-439	—	—	07-440
RE02-07-2026	02-600478	4.5–9.5	QAL	07-487	07-486	07-484	07-487	07-487	—	07-487	07-487	07-486	07-485	07-486	07-487	07-485	—	07-485	07-486
RE02-07-2028	02-600478	14–18.8	QAL	07-487	07-486	07-484	07-487	07-487	—	07-487	07-487	07-486	07-485	07-486	07-487	07-485	—	07-485	07-486
RE02-07-2027	02-600478	18.8–20.5	QBO	07-487	07-486	07-484	07-487	07-487	—	07-487	07-487	07-486	07-485	07-486	07-487	07-485	—	07-485	07-486
RE02-07-2029	02-600479	0–0.5	SOIL	07-441	07-440	07-438	07-441	07-441	—	07-441	07-441	07-440	07-439	07-440	07-441	07-439	—	—	07-440
RE02-07-2030	02-600479	5–10	QAL	07-441	07-440	07-438	07-441	07-441	—	07-441	07-441	07-440	07-439	07-440	07-441	07-439	—	07-439	07-440
RE02-07-2031	02-600479	12.6–16.5	QBO	07-459	07-458	07-456	07-459	07-459	—	07-459	07-459	07-458	07-457	07-458	07-459	07-457	—	07-457	07-458
RE02-07-2033	02-600480	0–0.5	SOIL	07-441	07-440	07-438	07-441	07-441	—	07-441	07-441	07-440	07-439	07-440	07-441	07-439	—	—	07-440
RE02-07-2034	02-600480	4.5–10	QAL	07-459	07-458	07-456	07-459	07-459	—	07-459	07-459	07-458	07-457	07-458	07-459	07-457	—	07-457	07-458
RE02-07-2035	02-600480	12.5–15	QBO	07-487	07-486	07-484	07-487	07-487	—	07-487	07-487	07-486	07-485	07-486	07-487	07-485	—	07-485	07-486
RE02-07-2515	02-600564	0–0.5	SOIL	07-789	07-788	07-790	07-789	07-789	—	07-789	07-789	07-788	07-791	07-788	07-789	07-791	—	—	07-788
RE02-07-2516	02-600564	9.5–14.5	QAL	07-789	07-788	07-790	07-789	07-789	—	07-789	07-789	07-788	07-791	07-788	07-789	07-791	—	07-791	07-788
RE02-07-2517	02-600564	14.5–22	QBO	07-789	07-788	07-790	07-789	07-789	—	07-789	07-789	07-788	07-791	07-788	07-789	07-791	—	07-791	07-788
RE02-07-2519	02-600565	0–0.5	SOIL	07-789	07-788	07-790	07-789	07-789	—	07-789	07-789	07-788	07-791	07-788	07-789	07-791	—	—	07-788
RE02-07-2520	02-600565	9.5–15	QAL	07-789	07-788	07-790	07-789	07-789	—	07-789	07-789	07-788	07-791	07-788	07-789	07-791	—	07-791	07-788
RE02-07-2521	02-600565	16–21	QBO	07-796	07-795	07-793	07-796	07-796	—	07-796	07-796	07-795	07-794	07-795	07-796	07-794	—	07-794	07-795
RE02-07-2523	02-600566	0–0.5	SOIL	07-796	07-795	07-793	07-796	07-796	—	07-796	07-796	07-795	07-794	07-795	07-796	07-794	—	—	07-795
RE02-07-2525	02-600566	14.5–20	QBO	07-796	07-795	07-793	07-796	07-796	—	07-796	07-796	07-795	07-794	07-795	07-796	07-794	—	07-794	07-795
RE02-10-26122	02-600567	8–8.2	SOIL	—	—	—	—	—	—	—	—	—	10-4699	—	—	—	—	—	—
RE02-07-2531	02-600568	0–0.5	SOIL	07-789	07-788	07-790	07-789	07-789	—	07-789	07-789	07-788	07-791	07-788	07-789	07-791	—	—	07-788
RE02-07-2532	02-600568	9.5–10.9	QAL	07-789	07-788	07-790	07-789	07-789	—	07-789	07-789	07-788	07-791	07-788	07-789	07-791	—	07-791	07-788
RE02-07-2533	02-600568	15–18.3	QBO	07-789	07-788	07-790	07-789	07-789	—	07-789	07-789	07-788	07-791	07-788	07-789	07-791	—	07-791	07-788
RE02-07-2535	02-600569	0–0.5	SOIL	07-789	07-788	07-790	07-789	07-789	—	07-789	07-789	07-788	07-791	07-788	07-789	07-791	—	—	07-788
RE02-07-2536	02-600569	9.5–12.7	QAL	07-789	07-788	07-790	07-789	07-789	—	07-789	07-789	07-788	07-791	07-788	07-789	07-791	—	07-791	07-788
RE02-07-2539	02-600570	0–0.5	SOIL	07-789	07-788	07-790	07-789	07-789	—	07-789	07-789	07-788	07-791	07-788	07-789	07-791	—	—	07-788
RE02-07-2540	02-600570	9.5–11.9	QAL	07-888	07-888	07-887	07-888	07-888	—	07-888	07-888	07-888	07-888	07-888	07-888	07-888	—	07-888	07-888
RE02-07-2541	02-600570	14.5–16.7	QBO	07-888	07-888	07-887	07-888	07-888	—	07-888	07-888	07-888	07-888	07-888	07-888	07-888	—	07-888	07-888
RE02-07-2543	02-600571	0–0.5	SOIL	07-789	07-788	07-790	07-789	07-789	—	07-789	07-789	07-788	07-791	07-788	07-789	07-791	—	—	07-788
RE02-07-2544	02-600571	9.5–11.7	QAL	07-894	07-894	07-911	07-894	07-894	—	07-894	07-894	07-894	07-894	07-894	07-894	07-894	—	07-894	07-894
RE02-07-2545	02-600571	11.7–15.5	QBO	07-894	07-894	07-911	07-894	07-894	—	07-894	07-894	07-894	07-894	07-894	07-894	07-894	—	07-894	07-894
RE02-07-2547	02-600572	0–0.5	SOIL	07-789	07-788	07-790	07-789	07-789	—	07-789	07-789	07-788	07-791	07-788	07-789	07-791	—	—	07-788

Table 6.12-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Dioxins/Furans	Gamma-emitting Radionuclides	Tritium	Hexavalent Chromium	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	Technetium-99	VOCs	Cyanide (Total)
RE02-07-2548	02-600572	9.5–11.7	QAL	07-894	07-894	07-911	07-894	07-894	—	07-894	07-894	07-894	07-894	07-894	07-894	07-894	—	07-894	07-894
RE02-07-2549	02-600572	19.5–21.7	QBO	07-902	07-902	07-914	07-902	07-902	—	07-902	07-902	07-902	07-902	07-902	07-902	07-902	—	07-902	07-902
RE02-10-21747	02-612346	8–9	QAL	—	—	—	10-4701	10-4701	10-4701	10-4701	10-4701	10-4701	10-4701	—	—	10-4701	—	—	—
RE02-10-21748	02-612346	15–16	QAL	—	—	—	10-4694	10-4694	10-4693	10-4694	10-4694	10-4693	10-4693	—	—	10-4693	—	—	—
RE02-10-21749	02-612346	25–26	QBO	—	—	—	10-4694	10-4694	10-4693	10-4694	10-4694	10-4693	10-4693	—	—	10-4693	—	—	—
RE02-10-21750	02-612346	35–36	QBO	—	—	—	10-4694	10-4694	10-4693	10-4694	10-4694	10-4693	10-4693	—	—	10-4693	—	—	—
RE02-10-21751	02-612346	49–50	QBO	—	—	—	10-4694	10-4694	10-4693	10-4694	10-4694	10-4693	10-4693	—	—	10-4693	—	—	—
RE02-10-21752	02-612347	5–6	QAL	—	—	—	10-4733	10-4733	10-4732	10-4733	10-4733	10-4732	10-4732	—	—	10-4732	—	—	—
RE02-10-21753	02-612347	15–16	QAL	—	—	—	10-4733	10-4733	10-4732	10-4733	10-4733	10-4732	10-4732	—	—	10-4732	—	—	—
RE02-10-21754	02-612347	25–27	QBO	—	—	—	10-4733	10-4733	10-4732	10-4733	10-4733	10-4732	10-4732	—	—	10-4732	—	—	—
RE02-10-21755	02-612347	35–36	QBO	—	—	—	10-4733	10-4733	10-4732	10-4733	10-4733	10-4732	10-4732	—	—	10-4732	—	—	—
RE02-10-21756	02-612347	49–50	QBO	—	—	—	10-4733	10-4733	10-4732	10-4733	10-4733	10-4732	10-4732	—	—	10-4732	—	—	—
RE02-10-21792	02-612354	4–4.2	SOIL	—	—	—	—	—	—	—	—	—	10-4033	—	—	—	—	—	—
RE02-10-21793	02-612354	6–6.2	SOIL	—	—	—	—	—	—	—	—	—	10-4033	—	—	—	—	—	—
RE02-10-21795	02-612355	4–4.4	SOIL	—	—	—	—	—	—	—	—	—	10-4033	—	—	—	—	—	—
RE02-10-21796	02-612355	6–6.2	SOIL	—	—	—	—	—	—	—	—	—	10-4033	—	—	—	—	—	—
RE02-10-21801	02-612357	4–4.2	SOIL	—	—	—	—	—	—	—	—	—	10-4033	—	—	—	—	—	—
RE02-10-21802	02-612357	6–6.2	SOIL	—	—	—	—	—	—	—	—	—	10-4033	—	—	—	—	—	—
RE02-10-21804	02-612358	4–4.2	SOIL	—	—	—	—	—	—	—	—	—	10-4098	—	—	—	—	—	—
RE02-10-21805	02-612358	6–6.4	SOIL	—	—	—	—	—	—	—	—	—	10-4098	—	—	—	—	—	—
RE02-10-21807	02-612359	4–4.2	SOIL	—	—	—	—	—	—	—	—	—	10-4098	—	—	—	—	—	—
RE02-10-21808	02-612359	6–6.2	SOIL	—	—	—	—	—	—	—	—	—	10-4098	—	—	—	—	—	—
RE02-10-21810	02-612360	4–4.2	SOIL	—	—	—	—	—	—	—	—	—	10-4098	—	—	—	—	—	—
RE02-10-21811	02-612360	6–6.2	SOIL	—	—	—	—	—	—	—	—	—	10-4098	—	—	—	—	—	—
RE02-10-21813	02-612361	4–4.4	SOIL	—	—	—	—	—	—	—	—	—	10-4098	—	—	—	—	—	—
RE02-10-21814	02-612361	6–6.2	SOIL	—	—	—	—	—	—	—	—	—	10-4098	—	—	—	—	—	—
RE02-10-21816	02-612362	4–4.2	SOIL	—	—	—	—	—	—	—	—	—	10-4098	—	—	—	—	—	—
RE02-10-21817	02-612362	6–6.2	SOIL	—	—	—	—	—	—	—	—	—	10-4098	—	—	—	—	—	—
RE02-10-21819	02-612363	4–4.2	SOIL	—	—	—	—	—	—	—	—	—	10-4098	—	—	—	—	—	—
RE02-10-21820	02-612363	6–6.2	SOIL	—	—	—	—	—	—	—	—	—	10-4098	—	—	—	—	—	—
RE02-10-21822	02-612364	4–4.4	SOIL	—	—	—	—	—	—	—	—	—	10-4089	—	—	—	—	—	—
RE02-10-21823	02-612364	6–6.4	SOIL	—	—	—	—	—	—	—	—	—	10-4089	—	—	—	—	—	—
RE02-10-21825	02-612365	4–4.2	SOIL	—	—	—	—	—	—	—	—	—	10-4089	—	—	—	—	—	—
RE02-10-21826	02-612365	6–6.2	SOIL	—	—	—	—	—	—	—	—	—	10-4089	—	—	—	—	—	—

Table 6.12-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Dioxins/Furans	Gamma-emitting Radionuclides	Tritium	Hexavalent Chromium	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	Technetium-99	VOCs	Cyanide (Total)
RE02-10-21828	02-612366	4–4.2	SOIL	—	—	—	—	—	—	—	—	—	10-4089	—	—	—	—	—	—
RE02-10-21829	02-612366	6–6.2	SOIL	—	—	—	—	—	—	—	—	—	10-4089	—	—	—	—	—	—
RE02-10-21831	02-612367	4–4.2	SOIL	—	—	—	—	—	—	—	—	—	10-4089	—	—	—	—	—	—
RE02-10-21832	02-612367	6–6.2	SOIL	—	—	—	—	—	—	—	—	—	10-4089	—	—	—	—	—	—
RE02-10-21834	02-612368	4–4.2	SOIL	—	—	—	—	—	—	—	—	—	10-4089	—	—	—	—	—	—
RE02-10-21835	02-612368	6–6.2	SOIL	—	—	—	—	—	—	—	—	—	10-4089	—	—	—	—	—	—
RE02-10-26115	02-613005	2–2.2	SOIL	—	—	—	—	—	—	—	—	—	10-4519	—	—	—	—	—	—
RE02-10-26116	02-613005	4–4.2	SOIL	—	—	—	—	—	—	—	—	—	10-4519	—	—	—	—	—	—
RE02-11-2210	02-613623	2–3	SOIL	—	—	—	—	—	—	—	—	—	11-540	—	—	—	—	—	—
RE02-11-2211	02-613623	4–5	SOIL	—	—	—	—	—	—	—	—	—	11-540	—	—	—	—	—	—
RE02-11-2213	02-613624	2–3	SOIL	—	—	—	—	—	—	—	—	—	11-540	—	—	—	—	—	—
RE02-11-2214	02-613624	4–5	SOIL	—	—	—	—	—	—	—	—	—	11-540	—	—	—	—	—	—
RE02-11-2215	02-613624	6–7	SOIL	—	—	—	—	—	—	—	—	—	11-540	—	—	—	—	—	—
RE02-11-2216	02-613625	2–3	SOIL	—	—	—	—	—	—	—	—	—	11-540	—	—	—	—	—	—
RE02-11-2217	02-613625	4–5	SOIL	—	—	—	—	—	—	—	—	—	11-540	—	—	—	—	—	—

* — = Analysis not requested.

Table 6.12-2
Inorganic Chemicals above BVs at AOC 02-004(f)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Cadmium	Chromium	Hexavalent Chromium	Copper	Cyanide (Total)	Iron	Lead	Manganese	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Vanadium	Zinc
Qbt 1g, Qct, Qbo BV[a]				**3560**	**0.5**	**0.56**	**25.7**	**0.4**	**2.6**	**na[b]**	**3.96**	**0.5**	**3700**	**13.5**	**189**	**0.1**	**2**	**na**	**na**	**0.3**	**4.59**	**40**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**0.4**	**19.3**	**na**	**14.7**	**0.5**	**21500**	**22.3**	**671**	**0.1**	**15.4**	**na**	**na**	**1.52**	**39.6**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**1120**	**2920[d]**	**2920**	**45400**	**22700**	**795000**	**800**	**145000**	**310[e]**	**22700**	**1820000**	**795**	**5680**	**5680**	**341000**
Recreational SSL[f]				**791000**	**317**	**27.7**	**158000**	**784**	**1910[d]**	**1910**	**31700**	**15800**	**554000**	**560**	**110000**	**238**	**15800**	**1260000**	**555**	**3960**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**77.9**	**219[d]**	**219**	**3130**	**1560**	**54800**	**400**	**10700**	**23[e]**	**1560**	**125000**	**54.8**	**391**	**391**	**23500**
RE02-03-51874	02-22376	0–0.5	SOIL	—[g]	—	—	—	—	—	0.122	—	NA[h]	—	—	—	—	—	NA	NA	—	—	—
RE02-03-51875	02-22376	1.5–2	SOIL	—	—	—	—	0.528 (U)	—	—	—	NA	—	—	—	1.19	—	NA	NA	—	—	—
RE02-03-51876	02-22377	0–0.5	SOIL	—	—	—	—	0.718	—	0.217	61.4	NA	—	45.6	—	—	—	NA	NA	—	—	270
RE02-03-51877	02-22377	1.5–2	SOIL	—	—	—	—	—	—	0.176	—	NA	—	—	—	—	—	NA	NA	—	—	—
RE02-03-51878	02-22378	0–0.5	SOIL	—	—	—	—	0.539 (U)	—	0.327	—	NA	—	—	—	—	—	NA	NA	—	—	—
RE02-03-51879	02-22378	1.5–2	SOIL	—	—	—	—	0.536 (U)	—	—	—	NA	—	—	—	—	—	NA	NA	—	—	—
RE02-03-51880	02-22379	0–0.5	SOIL	—	—	—	—	0.518 (U)	—	0.0666 (J)	—	NA	—	—	—	—	—	NA	NA	—	—	—
RE02-03-51881	02-22379	1.5–2	SOIL	—	—	—	—	0.545 (U)	—	0.0806 (J)	—	NA	—	—	—	—	—	NA	NA	—	—	—
RE02-07-1990	02-600469	4.5–9.5	QAL	—	—	—	—	0.518 (U)	—	NA	—	—	—	—	—	—	—	1.43	—	—	—	—
RE02-07-1992	02-600469	17–19.5	QBO	11500	—	1.15 (J)	40.5	0.594 (U)	—	NA	—	—	4880	—	—	—	—	—	—	0.954 (J)	—	—
RE02-07-1994	02-600470	4.5–7.5	QAL	—	—	—	—	0.517 (U)	—	NA	—	—	—	—	—	—	—	1.65	—	—	—	—
RE02-07-1997	02-600471	0–0.5	SOIL	—	—	—	—	0.505 (U)	—	NA	—	—	—	—	—	—	—	2.84	0.000724 (J)	—	—	99.3
RE02-07-1998	02-600471	4.5–10	SOIL	—	—	—	—	—	—	NA	—	—	—	—	—	—	—	1.41	0.00237	1.53 (U)	—	65
RE02-07-1999	02-600471	18–25	QBO	8860	—	1.75 (U)	41.5 (J+)	0.585 (U)	20.2 (U)	NA	4	—	5100	—	—	—	2.04 (U)	—	—	1.75 (U)	—	—
RE02-07-2001	02-600472	0–0.5	SOIL	—	—	—	—	0.496 (U)	—	NA	—	—	—	—	—	—	—	1.18	—	—	—	—
RE02-07-2002	02-600472	4.5–9	SOIL	—	—	—	—	0.537 (U)	—	NA	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2003	02-600472	21–23	QBO	10500	—	1.66 (U)	38 (J+)	0.552 (U)	2.99 (J)	NA	—	—	4790	—	—	—	—	—	—	1.66 (U)	—	—
RE02-07-2005	02-600473	0–0.5	SOIL	—	—	—	—	0.509 (U)	—	NA	—	—	—	—	—	—	—	9.16	0.00327	—	—	—
RE02-07-2006	02-600473	4.5–13	QAL	—	—	—	—	—	80.3	NA	19.5	—	—	—	—	—	—	2.18 (J-)	—	—	—	—
RE02-07-2007	02-600473	13–18	QBO	9220	—	1.65 (J)	71	—	13.7 (U)	NA	4.69	—	5650	—	364	—	3.55 (U)	—	—	1.7 (U)	—	—
RE02-07-2008	02-600473	18–23	QBO	6170	0.575 (UJ)	0.776 (J)	—	0.723 (U)	3.8 (U)	NA	—	—	4250	—	—	—	—	—	—	2.17 (U)	—	—
RE02-07-2010	02-600474	4.5–10	QAL	—	—	—	—	0.524 (U)	—	NA	—	—	—	—	—	0.101	—	—	—	—	—	—
RE02-07-2011	02-600474	16.5–19	QBO	10100	—	1.43 (J)	77.3	0.586 (U)	13.3	NA	148	—	6000	15.8	303	—	6.36	—	—	0.912 (J)	—	—
RE02-07-2013	02-600475	0–0.5	SOIL	—	—	—	—	0.507 (U)	—	NA	—	—	—	—	—	1.64	—	1.34	—	—	—	57.3 (J)
RE02-07-2014	02-600475	4–5	QAL	—	—	—	—	—	—	NA	—	—	—	—	—	1.82	—	—	—	—	—	76.3
RE02-07-2015	02-600475	16–18.5	QBO	13000 (J+)	—	1.71 (U)	48.7 (J+)	0.572 (U)	4.32	NA	—	—	5080	—	216 (J+)	—	2.2	1.41 (J-)	0.00363	0.852 (J)	—	—
RE02-07-2017	02-600476	0–0.5	SOIL	—	—	—	—	0.517 (U)	—	NA	—	—	—	—	—	—	—	—	—	1.55 (U)	—	—
RE02-07-2018	02-600476	4.5–9	QAL	—	—	—	—	0.544 (U)	—	NA	—	—	—	—	—	—	—	0.979 (J)	—	—	—	—

Table 6.12-2 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Cadmium	Chromium	Hexavalent Chromium	Copper	Cyanide (Total)	Iron	Lead	Manganese	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Vanadium	Zinc
Qbt 1g, Qct, Qbo BV[a]				**3560**	**0.5**	**0.56**	**25.7**	**0.4**	**2.6**	**na[b]**	**3.96**	**0.5**	**3700**	**13.5**	**189**	**0.1**	**2**	**na**	**na**	**0.3**	**4.59**	**40**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**0.4**	**19.3**	**na**	**14.7**	**0.5**	**21500**	**22.3**	**671**	**0.1**	**15.4**	**na**	**na**	**1.52**	**39.6**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**1120**	**2920[d]**	**2920**	**45400**	**22700**	**795000**	**800**	**145000**	**310[e]**	**22700**	**1820000**	**795**	**5680**	**5680**	**341000**
Recreational SSL[f]				**791000**	**317**	**27.7**	**158000**	**784**	**1910[d]**	**1910**	**31700**	**15800**	**554000**	**560**	**110000**	**238**	**15800**	**1260000**	**555**	**3960**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**77.9**	**219[d]**	**219**	**3130**	**1560**	**54800**	**400**	**10700**	**23[e]**	**1560**	**125000**	**54.8**	**391**	**391**	**23500**
RE02-07-2019	02-600476	20–25	QBO	5210	—	1.75 (U)	—	0.583 (U)	9.87 (U)	NA	8.87 (U)	—	4610	—	—	—	2.97 (U)	—	—	0.908 (J)	—	—
RE02-07-2021	02-600477	0–0.5	SOIL	—	—	—	—	—	24.7	NA	—	—	—	—	—	2.9	—	1.23	—	—	—	69.7 (J)
RE02-07-2022	02-600477	4.5–9	QAL	—	—	—	—	0.527 (U)	—	NA	27.3 (U)	—	—	—	—	0.941	—	1 (J)	—	1.58 (U)	—	53.7
RE02-07-2023	02-600477	23–25	QBO	7030	0.518 (UJ)	1.93 (U)	—	0.643 (U)	8.89 (U)	NA	16.9 (U)	—	5540	—	204	—	5.76 (U)	—	—	0.834 (J)	—	—
RE02-07-2025	02-600478	0–0.5	SOIL	—	—	—	—	—	—	NA	—	—	—	—	—	0.465	—	1.67	—	—	—	62.5 (J)
RE02-07-2026	02-600478	4.5–9.5	QAL	—	—	—	—	0.548 (U)	—	NA	—	—	—	—	—	—	—	5.72	—	—	—	—
RE02-07-2028	02-600478	14–18.8	QAL	—	—	—	—	0.535 (U)	—	NA	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2027	02-600478	18.8–20.5	QBO	12800 (J+)	—	0.835 (J)	109	0.6 (U)	5.02 (U)	NA	4.36 (U)	—	7270	—	1370	—	2.52 (U)	2.68	—	1.33 (J)	—	—
RE02-07-2029	02-600479	0–0.5	SOIL	—	—	—	—	0.499 (U)	37	NA	—	—	—	—	—	0.292	—	1.49	—	—	—	77.1 (J)
RE02-07-2030	02-600479	5–10	QAL	—	—	—	—	0.664	29.2	NA	85.9	—	—	—	—	—	—	1.24	—	—	—	49.1 (J)
RE02-07-2031	02-600479	12.6–16.5	QBO	5950	—	1.31 (J)	38 (J+)	—	10.2	NA	10.6 (J)	—	7140	—	378	—	2.98	—	—	1.67 (U)	7.84	—
RE02-07-2033	02-600480	0–0.5	SOIL	—	—	—	—	0.509 (U)	23.5	NA	—	—	—	—	—	0.223	—	1.86	—	1.53 (U)	—	97.9 (J)
RE02-07-2034	02-600480	4.5–10	QAL	—	—	—	—	—	32.1	NA	—	—	—	—	—	—	—	3.07	—	1.71 (U)	—	—
RE02-07-2035	02-600480	12.5–15	QBO	8460 (J+)	—	1.36 (J)	36.7	0.598 (U)	22.7 (U)	NA	116	—	9690	19.5 (U)	253	—	4.98 (U)	2.72	—	0.897 (J)	13.7	—
RE02-07-2515	02-600564	0–0.5	SOIL	—	—	—	—	0.516 (U)	—	NA	—	—	—	—	—	—	—	0.843 (J)	0.000732 (J-)	1.84	—	58.4
RE02-07-2516	02-600564	9.5–14.5	QAL	—	—	—	—	0.512 (U)	—	NA	—	—	—	—	—	—	—	1.43	—	—	—	—
RE02-07-2517	02-600564	14.5–22	QBO	10100	—	1.04 (J)	40.8	0.583 (U)	4.21 (U)	NA	—	—	5180	—	—	—	—	—	—	1.28 (J)	—	—
RE02-07-2519	02-600565	0–0.5	SOIL	—	—	—	—	0.494 (U)	—	NA	—	—	—	—	—	—	—	3.06	0.000556 (J-)	—	—	—
RE02-07-2520	02-600565	9.5–15	QAL	—	—	—	—	0.558 (U)	—	NA	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2521	02-600565	16–21	QBO	9640	—	1.81	33.3	0.57 (U)	7 (U)	NA	—	—	7030	—	191	—	2.08 (U)	—	—	1.34 (J)	5.82	—
RE02-07-2523	02-600566	0–0.5	SOIL	—	—	—	—	—	—	NA	—	—	—	—	—	—	—	1.92 (J-)	0.00162 (J-)	—	—	56.2
RE02-07-2525	02-600566	14.5–20	QBO	7740	—	2.35	51.1	0.562 (U)	7.07 (U)	NA	—	—	11900	—	576	—	—	—	—	2.48	6.01	—
RE02-07-2531	02-600568	0–0.5	SOIL	—	—	—	—	0.51 (U)	—	NA	—	—	—	—	—	—	—	1.18	0.00657 (J-)	—	—	—
RE02-07-2532	02-600568	9.5–10.9	QAL	—	—	—	—	0.525 (U)	—	NA	—	—	—	—	—	—	—	—	—	2.25	—	—
RE02-07-2533	02-600568	15–18.3	QBO	5270	—	0.716 (J)	—	0.57 (U)	12.9	NA	—	—	5220	—	—	—	3.41 (J)	—	—	1.49 (J)	—	—
RE02-07-2535	02-600569	0–0.5	SOIL	—	—	—	—	0.524 (U)	—	NA	—	1.06	—	—	—	0.302	—	1.22	—	—	—	—
RE02-07-2536	02-600569	9.5–12.7	QAL	—	—	—	—	0.507 (U)	—	NA	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2539	02-600570	0–0.5	SOIL	—	—	—	—	0.505 (U)	—	NA	—	—	—	—	—	0.282	—	—	—	—	—	—
RE02-07-2540	02-600570	9.5–11.9	QAL	—	—	—	—	0.532 (U)	—	NA	—	—	—	—	—	0.364	—	—	—	—	—	—
RE02-07-2541	02-600570	14.5–16.7	QBO	4650	—	1.41 (J)	30.9	0.55 (U)	13.2 (U)	NA	—	—	7470	—	—	—	3.66 (U)	—	—	1.65 (U)	7.48 (J)	—

Table 6.12-2 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Cadmium	Chromium	Hexavalent Chromium	Copper	Cyanide (Total)	Iron	Lead	Manganese	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Vanadium	Zinc
Qbt 1g, Qct, Qbo BV[a]				**3560**	**0.5**	**0.56**	**25.7**	**0.4**	**2.6**	**na[b]**	**3.96**	**0.5**	**3700**	**13.5**	**189**	**0.1**	**2**	**na**	**na**	**0.3**	**4.59**	**40**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**0.4**	**19.3**	**na**	**14.7**	**0.5**	**21500**	**22.3**	**671**	**0.1**	**15.4**	**na**	**na**	**1.52**	**39.6**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**1120**	**2920[d]**	**2920**	**45400**	**22700**	**795000**	**800**	**145000**	**310[e]**	**22700**	**1820000**	**795**	**5680**	**5680**	**341000**
Recreational SSL[f]				**791000**	**317**	**27.7**	**158000**	**784**	**1910[d]**	**1910**	**31700**	**15800**	**554000**	**560**	**110000**	**238**	**15800**	**1260000**	**555**	**3960**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**77.9**	**219[d]**	**219**	**3130**	**1560**	**54800**	**400**	**10700**	**23[e]**	**1560**	**125000**	**54.8**	**391**	**391**	**23500**
RE02-07-2543	02-600571	0–0.5	SOIL	—	—	—	—	0.528 (U)	—	NA	—	—	—	—	—	0.194	—	—	0.00123 (J-)	1.57 (J)	—	50.4
RE02-07-2544	02-600571	9.5–11.7	QAL	—	—	—	—	0.547 (U)	19.5 (J)	NA	—	—	—	—	—	—	—	—	—	1.64 (U)	—	—
RE02-07-2545	02-600571	11.7–15.5	QBO	7140	—	1.04 (J)	40.7	0.605 (U)	11.4 (J)	NA	—	—	6680	—	210 (J-)	—	5.59	—	—	1.81 (U)	—	—
RE02-07-2547	02-600572	0–0.5	SOIL	—	—	—	—	0.494 (U)	—	NA	—	—	—	—	—	0.759	—	1.1	—	—	—	—
RE02-07-2548	02-600572	9.5–11.7	QAL	—	—	—	—	0.516 (U)	50.9 (J)	NA	—	—	—	—	—	—	—	—	—	1.55 (U)	—	—
RE02-07-2549	02-600572	19.5–21.7	QBO	8870	—	1.32 (J)	44.8	0.588 (U)	13.7	NA	—	—	6680	—	325 (J+)	—	3.96	—	—	1.76 (U)	6.56	—
RE02-10-21747	02-612346	8–9	QAL	—	1.05 (U)	—	—	0.525 (U)	—	—	—	NA	—	—	—	40.6	—	NA	NA	—	—	—
RE02-10-21748	02-612346	15–16	QAL	—	1.11 (U)	—	—	0.555 (U)	—	0.448 (J)	—	NA	—	—	—	5.87	—	NA	NA	—	—	—
RE02-10-21749	02-612346	25–26	QBO	3820	1.25 (U)	1.22 (U)	—	0.625 (U)	—	—	—	NA	6340	—	226	0.148	—	NA	NA	1.22 (U)	—	—
RE02-10-21750	02-612346	35–36	QBO	—	1.28 (U)	1.28 (U)	—	0.642 (U)	—	—	—	NA	5340	—	195	0.154	—	NA	NA	1.28 (U)	—	—
RE02-10-21751	02-612346	49–50	QBO	—	1.15 (U)	1.19 (U)	—	0.573 (U)	—	—	—	NA	5990	—	260	—	—	NA	NA	1.19 (U)	—	—
RE02-10-21752	02-612347	5–6	QAL	—	0.996 (U)	—	—	—	—	—	—	NA	—	—	—	—	—	NA	NA	—	—	—
RE02-10-21753	02-612347	15–16	QAL	—	0.962 (U)	—	—	0.481 (U)	—	—	—	NA	—	—	—	—	—	NA	NA	—	—	—
RE02-10-21754	02-612347	25–27	QBO	—	1.19 (U)	1.21 (U)	—	0.593 (U)	—	—	—	NA	4940	—	200 (J-)	—	—	NA	NA	1.21 (U)	—	—
RE02-10-21755	02-612347	35–36	QBO	—	1.18 (U)	1.18 (U)	—	0.59 (U)	—	—	—	NA	5850	—	227 (J-)	—	—	NA	NA	1.18 (U)	—	—
RE02-10-21756	02-612347	49–50	QBO	—	1.24 (U)	1.22 (U)	—	0.622 (U)	—	—	—	NA	5020	—	232 (J-)	—	—	NA	NA	1.22 (U)	—	—

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

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

[b] na = Not available.

[c] SSLs are from NMED (2009, 108070), unless otherwise noted.

[d] SSLs are for hexavalent chromium.

[e] SSLs are from EPA regional screening tables (http://www.epa.gov.earth1r6/6pd/rcra_c/pd-n/screen.htm).

[f] SSLs are from LANL (2010, 108613).

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

[h] NA = Not analyzed.

Table 6.12-3
Organic Chemicals Detected at AOC 02-004(f)

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Acetone	Anthracene	Aroclor-1248	Aroclor-1254	Aroclor-1260	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Bis(2-ethylhexyl)phthalate	Chloroform	Chrysene	Di-n-butylphthalate	Fluoranthene	Fluorene
Industrial SSL[a]				**36700**	**851000**	**183000**	**8.26**	**8.26**	**8.26**	**23.4**	**2.34**	**23.4**	**18300**[b]	**234**	**1370**	**31.9**	**2340**	**68400**	**24400**	**24400**
Recreational SSL[c]				**20800**	**702000**	**104000**	**10.5**	**6.65**	**10.5**	**30.1**	**3.01**	**30.1**	**10400**[b]	**301**	**1830**	**224**	**3010**	**39900**	**13900**	**13900**
Residential SSL[a]				**3440**	**67500**	**17200**	**2.22**	**1.12**	**2.22**	**6.21**	**0.621**	**6.21**	**1720**[b]	**62.1**	**347**	**5.72**	**621**	**6110**	**2290**	**2290**
RE02-07-1990	02-600469	4.5–9.5	QAL	—[d]	—	—	—	—	—	—	—	—	—	—	—	—	—	0.0404 (J)	—	—
RE02-07-1992	02-600469	17–19.5	QBO	—	—	—	0.042	—	—	—	—	—	—	—	—	—	—	0.0566 (J)	—	—
RE02-10-21798	02-600470	4–4.2	SOIL	NA[e]	NA	NA	—	0.0031 (J)	0.0082	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-1994	02-600470	4.5–7.5	QAL	0.0466	—	0.0532	—	0.0544 (J)	0.068	0.201	—	0.247 (J)	0.0597 (J)	—	—	—	0.162	—	0.323	0.0185 (J)
RE02-07-1997	02-600471	0–0.5	SOIL	—	NA	—	—	0.219	0.533	—	—	—	—	—	—	NA	0.0135 (J)	—	0.0231 (J)	—
RE02-07-1998	02-600471	4.5–10	SOIL	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1999	02-600471	18–25	QBO	—	—	—	—	0.0969 (J+)	0.0728 (J+)	—	0.155 (J)	0.131 (J)	—	—	—	—	0.0799	—	0.0792	—
RE02-07-2001	02-600472	0–0.5	SOIL	—	NA	—	—	0.24	0.561	—	—	—	—	—	—	NA	—	—	0.0236 (J)	—
RE02-07-2002	02-600472	4.5–9	SOIL	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2003	02-600472	21–23	QBO	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2005	02-600473	0–0.5	SOIL	—	NA	—	—	0.0802	0.202	—	—	—	—	—	—	NA	—	—	0.0151 (J)	—
RE02-07-2006	02-600473	4.5–13	QAL	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2007	02-600473	13–18	QBO	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2008	02-600473	18–23	QBO	—	—	—	—	—	—	—	—	—	—	—	—	0.000317 (J)	—	—	—	—
RE02-07-2010	02-600474	4.5–10	QAL	—	—	—	—	—	0.0435	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2011	02-600474	16.5–19	QBO	—	0.00356 (J)	—	—	—	0.0027 (J)	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2013	02-600475	0–0.5	SOIL	—	NA	—	—	0.0546	0.0994	0.018 (J)	0.0152 (J)	0.021 (J)	—	—	—	NA	0.0143 (J)	—	0.0245 (J)	—
RE02-07-2014	02-600475	4–5	QAL	—	—	—	—	—	0.0686	—	0.093	0.0202 (J)	—	—	—	—	0.0115 (J)	—	0.0237 (J)	—
RE02-07-2015	02-600475	16–18.5	QBO	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2017	02-600476	0–0.5	SOIL	—	NA	—	—	0.0528	0.0999	—	—	—	—	—	0.591	NA	—	—	—	—
RE02-07-2018	02-600476	4.5–9	QAL	—	—	—	—	0.0034 (J)	0.0049	—	—	—	—	—	—	—	—	0.0502 (J)	—	—
RE02-07-2019	02-600476	20–25	QBO	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.0439 (J)	—	—
RE02-07-2021	02-600477	0–0.5	SOIL	—	NA	—	—	0.0408	0.0284 (J)	0.0978	0.0853	0.143	—	—	—	NA	0.113	—	0.137	—
RE02-07-2022	02-600477	4.5–9	QAL	—	—	—	—	0.149	—	—	0.088	0.0135 (J)	—	—	—	—	—	—	0.0148 (J)	—
RE02-07-2023	02-600477	23–25	QBO	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.0954 (J)	—	—
RE02-07-2025	02-600478	0–0.5	SOIL	—	NA	—	—	—	0.313	0.0304 (J)	0.0234 (J)	0.055	—	—	—	NA	0.0266 (J)	—	0.0439	—
RE02-07-2026	02-600478	4.5–9.5	QAL	—	—	—	—	0.0027 (J)	0.0073	—	—	—	—	—	—	—	—	—	—	—

Table 6.12-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Acetone	Anthracene	Aroclor-1248	Aroclor-1254	Aroclor-1260	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Bis(2-ethylhexyl)phthalate	Chloroform	Chrysene	Di-n-butylphthalate	Fluoranthene	Fluorene
Industrial SSL[a]				**36700**	**851000**	**183000**	**8.26**	**8.26**	**8.26**	**23.4**	**2.34**	**23.4**	**18300[b]**	**234**	**1370**	**31.9**	**2340**	**68400**	**24400**	**24400**
Recreational SSL[c]				**20800**	**702000**	**104000**	**10.5**	**6.65**	**10.5**	**30.1**	**3.01**	**30.1**	**10400[b]**	**301**	**1830**	**224**	**3010**	**39900**	**13900**	**13900**
Residential SSL[a]				**3440**	**67500**	**17200**	**2.22**	**1.12**	**2.22**	**6.21**	**0.621**	**6.21**	**1720[b]**	**62.1**	**347**	**5.72**	**621**	**6110**	**2290**	**2290**
RE02-07-2028	02-600478	14–18.8	QAL	—	—	—	—	—	0.0021 (J)	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2027	02-600478	18.8–20.5	QBO	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2029	02-600479	0–0.5	SOIL	0.0194 (J)	NA	0.0282 (J)	—	—	0.687	0.0604	0.0539	0.104	0.0337 (J)	—	—	NA	0.0654	—	0.153	0.0196 (J)
RE02-07-2030	02-600479	5–10	QAL	—	—	—	—	—	0.0066	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2031	02-600479	12.6–16.5	QBO	—	—	—	—	—	0.0015 (J)	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2033	02-600480	0–0.5	SOIL	—	NA	—	—	0.052	0.087	0.0127 (J)	0.0126 (J)	0.0136 (J)	—	—	—	NA	0.0127 (J)	—	0.0208 (J)	—
RE02-07-2034	02-600480	4.5–10	QAL	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2035	02-600480	12.5–15	QBO	—	—	—	—	—	0.0022 (J)	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2515	02-600564	0–0.5	SOIL	—	NA	—	—	0.0542	0.136	0.015 (J)	0.0152 (J)	0.0172 (J)	—	0.0107 (J)	—	NA	0.0161 (J)	0.04 (J)	0.0222 (J)	—
RE02-07-2516	02-600564	9.5–14.5	QAL	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.0375 (J)	—	—
RE02-07-2517	02-600564	14.5–22	QBO	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.043 (J)	—	—
RE02-07-2519	02-600565	0–0.5	SOIL	—	NA	—	—	0.0329	0.0625	0.0178 (J)	0.0157 (J)	0.0239 (J)	—	0.0235 (J)	—	NA	0.0143 (J)	0.0486 (J)	0.0222 (J)	—
RE02-07-2520	02-600565	9.5–15	QAL	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2523	02-600566	0–0.5	SOIL	—	NA	—	—	0.0135	0.0162	—	0.0302 (J)	0.0412	0.0141 (J)	—	—	NA	0.0345	—	0.0582	—
RE02-07-2525	02-600566	14.5–20	QBO	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-10-26122	02-600567	8–8.2	SOIL	NA	NA	NA	—	0.0997	0.174	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-2531	02-600568	0–0.5	SOIL	—	NA	—	—	—	—	—	—	—	—	—	—	NA	—	—	—	—
RE02-07-2532	02-600568	9.5–10.9	QAL	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.0385 (J)	—	—
RE02-07-2533	02-600568	15–18.3	QBO	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.0472 (J)	—	—
RE02-07-2535	02-600569	0–0.5	SOIL	—	NA	—	—	—	—	0.0109 (J)	—	0.0124 (J)	—	—	—	NA	—	0.0491 (J)	0.0123 (J)	—
RE02-07-2536	02-600569	9.5–12.7	QAL	—	—	—	—	—	0.0014 (J)	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2539	02-600570	0–0.5	SOIL	—	NA	—	—	—	—	0.0132 (J)	0.0129 (J)	0.0202 (J)	—	—	—	NA	0.0118 (J)	0.0413 (J)	0.0157 (J)	—
RE02-07-2540	02-600570	9.5–11.9	QAL	—	—	—	—	—	—	—	—	0.0141 (J)	—	—	—	—	—	—	0.0133 (J)	—
RE02-07-2541	02-600570	14.5–16.7	QBO	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2543	02-600571	0–0.5	SOIL	—	NA	—	—	—	0.0148 (J)	—	—	—	—	—	—	NA	—	0.0591 (J)	—	—
RE02-07-2544	02-600571	9.5–11.7	QAL	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2545	02-600571	11.7–15.5	QBO	—	—	—	—	—	—	—	—	—	—	—	—	0.000258 (J)	—	—	—	—
RE02-07-2547	02-600572	0–0.5	SOIL	—	NA	—	—	—	0.0056	—	—	—	—	—	—	NA	—	—	0.0127 (J)	—
RE02-07-2549	02-600572	19.5–21.7	QBO	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-10-21747	02-612346	8–9	QAL	—	NA	—	—	—	0.0046	—	—	—	—	—	—	NA	—	—	—	—

Table 6.12-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Acetone	Anthracene	Aroclor-1248	Aroclor-1254	Aroclor-1260	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Bis(2-ethylhexyl)phthalate	Chloroform	Chrysene	Di-n-butylphthalate	Fluoranthene	Fluorene
Industrial SSL[a]				**36700**	**851000**	**183000**	**8.26**	**8.26**	**8.26**	**23.4**	**2.34**	**23.4**	**18300[b]**	**234**	**1370**	**31.9**	**2340**	**68400**	**24400**	**24400**
Recreational SSL[c]				**20800**	**702000**	**104000**	**10.5**	**6.65**	**10.5**	**30.1**	**3.01**	**30.1**	**10400[b]**	**301**	**1830**	**224**	**3010**	**39900**	**13900**	**13900**
Residential SSL[a]				**3440**	**67500**	**17200**	**2.22**	**1.12**	**2.22**	**6.21**	**0.621**	**6.21**	**1720[b]**	**62.1**	**347**	**5.72**	**621**	**6110**	**2290**	**2290**
RE02-10-21748	02-612346	15–16	QAL	—	NA	—	—	0.0068	0.014	—	—	—	—	—	—	NA	—	—	—	—
RE02-10-21752	02-612347	5–6	QAL	—	NA	—	—	—	0.0078 (J)	—	—	—	—	—	—	NA	—	—	—	—
RE02-10-21792	02-612354	4–4.2	SOIL	NA	NA	NA	—	—	0.135	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-21795	02-612355	4–4.4	SOIL	NA	NA	NA	—	0.0025 (J)	0.0052	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-21796	02-612355	6–6.2	SOIL	NA	NA	NA	—	—	0.0043	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-21801	02-612357	4–4.2	SOIL	NA	NA	NA	—	—	0.0077	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-21804	02-612358	4–4.2	SOIL	NA	NA	NA	—	0.591	0.482	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-21805	02-612358	6–6.4	SOIL	NA	NA	NA	—	—	0.0047	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-21807	02-612359	4–4.2	SOIL	NA	NA	NA	—	0.0483	0.0448	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-21808	02-612359	6–6.2	SOIL	NA	NA	NA	—	0.0472	0.0777	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-21810	02-612360	4–4.2	SOIL	NA	NA	NA	—	0.155	0.0985	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-21811	02-612360	6–6.2	SOIL	NA	NA	NA	—	—	0.0054	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-21817	02-612362	6–6.2	SOIL	NA	NA	NA	—	—	0.0022 (J)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-21819	02-612363	4–4.2	SOIL	NA	NA	NA	—	0.0284	0.0215	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-21820	02-612363	6–6.2	SOIL	NA	NA	NA	—	—	0.0025 (J)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-21822	02-612364	4–4.4	SOIL	NA	NA	NA	—	—	0.007	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-21823	02-612364	6–6.4	SOIL	NA	NA	NA	—	—	0.0034 (J)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-26115	02-613005	2–2.2	SOIL	NA	NA	NA	—	0.822	1.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-26116	02-613005	4–4.2	SOIL	NA	NA	NA	—	0.768	0.888	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-2210	02-613623	2–3	SOIL	NA	NA	NA	—	0.0792	0.163	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-2211	02-613623	4–5	SOIL	NA	NA	NA	—	0.179	0.237	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-2213	02-613624	2–3	SOIL	NA	NA	NA	—	0.112	0.167	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-2214	02-613624	4–5	SOIL	NA	NA	NA	—	0.0924	0.179	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-2215	02-613624	6–7	SOIL	NA	NA	NA	—	0.215	0.386	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-2216	02-613625	2–3	SOIL	NA	NA	NA	—	0.218	0.637	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-2217	02-613625	4–5	SOIL	NA	NA	NA	—	0.24	0.66	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 6.12-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Heptachlorodibenzodioxin [1,2,3,4,6,7,8-]	Heptachlorodibenzodioxins (Total)	Heptachlorodibenzofuran [1,2,3,4,6,7,8-]	Heptachlorodibenzofuran [1,2,3,4,7,8,9-]	Heptachlorodibenzofurans (Total)	Hexachlorodibenzodioxin [1,2,3,4,7,8-]	Hexachlorodibenzodioxin [1,2,3,6,7,8-]	Hexachlorodibenzodioxin [1,2,3,7,8,9-]	Hexachlorodibenzodioxins (Total)	Hexachlorodibenzofuran [1,2,3,4,7,8-]	Hexachlorodibenzofuran [1,2,3,6,7,8-]
Industrial SSL[a]				**na[f]**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**
Recreational SSL[c]				**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**
Residential SSL[a]				**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**
RE02-07-1990	02-600469	4.5–9.5	QAL	0.00000134 (J)	0.00000261	—	—	0.000000524	—	—	—	—	—	—
RE02-07-1992	02-600469	17–19.5	QBO	—	—	—	—	—	—	—	—	—	—	—
RE02-10-21798	02-600470	4–4.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-1994	02-600470	4.5–7.5	QAL	0.00146	0.00306	0.000162	0.00000539	0.000646	0.000000562 (J)	0.0000271	0.00000262	0.000089	0.00000141 (J)	0.000000575 (J)
RE02-07-1997	02-600471	0–0.5	SOIL	0.000065	0.000124	0.0000147	0.000000975 (J)	0.0000406	—	0.00000185 (J)	—	0.0000136	0.00000208 (J)	0.000000904 (J)
RE02-07-1998	02-600471	4.5–10	SOIL	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1999	02-600471	18–25	QBO	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2001	02-600472	0–0.5	SOIL	0.0000332	0.0000911	0.0000107	0.000000885 (J)	0.0000239	0.000000593 (J)	0.00000113 (J)	—	0.00000588	0.00000964	0.00000421
RE02-07-2002	02-600472	4.5–9	SOIL	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2003	02-600472	21–23	QBO	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2005	02-600473	0–0.5	SOIL	0.0000998	0.000188	0.00000773	0.000000521 (J)	0.0000218	0.00000101 (J)	0.00000419	0.00000174 (J)	0.000027	0.00000182 (J)	0.000000933 (J)
RE02-07-2006	02-600473	4.5–13	QAL	0.0000014 (J)	0.00000248	0.000000339 (J)	—	0.00000122	—	—	—	—	—	—
RE02-07-2007	02-600473	13–18	QBO	—	0.0000018	—	—	0.00000122	—	—	—	—	—	—
RE02-07-2008	02-600473	18–23	QBO	0.00000103 (J)	0.00000206	—	—	—	—	—	—	—	—	—
RE02-07-2010	02-600474	4.5–10	QAL	0.0000199	0.0000453	0.00000176 (J)	—	0.00000598	—	0.000000507 (J)	—	0.0000023	0.000000792 (J)	0.000000321 (J)
RE02-07-2011	02-600474	16.5–19	QBO	0.000000749 (J)	0.0000015	0.000000184 (J)	—	0.000000488	—	—	—	—	—	—
RE02-07-2013	02-600475	0–0.5	SOIL	0.0000552	0.000107	0.00000607 (J)	0.000000487 (J)	0.0000188 (J)	—	0.00000102 (J)	0.000000623 (J)	0.0000088	0.00000119 (J)	0.000000562 (J)
RE02-07-2014	02-600475	4–5	QAL	0.000283	0.000688	0.0000192	0.00000103 (J)	0.0000824	0.00000132 (J)	0.00000514	0.00000375	0.0000333	0.00000142 (J)	0.000000785 (J)
RE02-07-2015	02-600475	16–18.5	QBO	0.00000525	0.0000096	0.00000101 (J)	—	0.00000432	—	—	—	—	—	—
RE02-07-2017	02-600476	0–0.5	SOIL	0.000205	0.000386	0.0000166 (J)	0.00000186 (J)	0.0000612 (J)	0.00000122 (J)	0.00000445	0.00000269	0.0000401	0.00000141 (J)	0.000000967 (J)
RE02-07-2018	02-600476	4.5–9	QAL	0.0000431	0.0000784	0.00000238 (J)	0.000000232 (J)	0.00000844	—	—	0.000000443 (J)	0.00000487	0.000000257 (J)	0.000000127 (J)
RE02-07-2019	02-600476	20–25	QBO	0.000000941 (J)	0.00000316	0.00000244 (J)	0.000000319 (J)	0.00000503	—	—	—	—	0.00000305	0.00000116 (J)
RE02-07-2021	02-600477	0–0.5	SOIL	0.000297	0.000522	0.0000319 (J)	0.00000186 (J)	0.000116 (J)	0.00000169 (J)	0.00000618	0.00000343	0.0000513	0.00000207 (J)	0.00000127 (J)
RE02-07-2022	02-600477	4.5–9	QAL	0.0000715	0.000126	0.0000101	0.000000588 (J)	0.0000332	—	0.00000178 (J)	0.000000971 (J)	0.0000128	0.000000383 (J)	0.000000352 (J)
RE02-07-2023	02-600477	23–25	QBO	0.000000454 (J)	0.000000939	—	—	0.000000212	—	—	—	—	—	—
RE02-07-2025	02-600478	0–0.5	SOIL	0.0017	0.00287	0.000269 (J)	0.0000157	0.00116 (J)	0.00000498	0.0000384	0.0000128	0.000231	0.00000634	0.00000524
RE02-07-2026	02-600478	4.5–9.5	QAL	0.0000748	0.000123	0.00000883 (J)	0.000000616 (J)	0.0000323 (J)	—	0.00000164 (J)	—	0.0000106	0.000000277 (J)	0.000000232 (J)
RE02-07-2028	02-600478	14–18.8	QAL	0.00000527	0.00000973	0.00000105 (J)	—	0.00000366 (J)	—	—	—	0.000000554	—	—
RE02-07-2027	02-600478	18.8–20.5	QBO	0.000000718 (J)	0.00000123	—	—	—	—	—	—	—	—	—

Table 6.12-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Heptachlorodibenzodioxin [1,2,3,4,6,7,8-]	Heptachlorodibenzodioxins (Total)	Heptachlorodibenzofuran [1,2,3,4,6,7,8-]	Heptachlorodibenzofuran [1,2,3,4,7,8,9-]	Heptachlorodibenzofurans (Total)	Hexachlorodibenzodioxin [1,2,3,4,7,8-]	Hexachlorodibenzodioxin [1,2,3,6,7,8-]	Hexachlorodibenzodioxin [1,2,3,7,8,9-]	Hexachlorodibenzodioxins (Total)	Hexachlorodibenzofuran [1,2,3,4,7,8-]	Hexachlorodibenzofuran [1,2,3,6,7,8-]
Industrial SSL[a]				**na[f]**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**
Recreational SSL[c]				**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**
Residential SSL[a]				**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**
RE02-07-2029	02-600479	0–0.5	SOIL	0.000645	0.00113	0.0000634 (J)	0.00000593	0.000227 (J)	0.00000293	0.0000123	0.00000649	0.000106	0.00000357	0.00000271
RE02-07-2030	02-600479	5–10	QAL	0.0000138	0.0000264	0.00000241 (J)	0.000000184 (J)	0.0000075 (J)	—	0.000000362 (J)	—	0.00000451	—	—
RE02-07-2031	02-600479	12.6–16.5	QBO	0.0000246	0.0000419	0.00000397 (J)	—	0.00002 (J)	—	0.000000699 (J)	—	0.00000266	0.000000626 (J)	0.000000149 (J)
RE02-07-2033	02-600480	0–0.5	SOIL	0.00129	0.00223	0.0000794 (J)	0.00000568	0.000268 (J)	0.00000585	0.0000234	0.0000131	0.000222	0.00000282	0.00000303
RE02-07-2034	02-600480	4.5–10	QAL	0.000203	0.00033	0.00000473 (J)	0.000000514 (J)	0.0000201 (J)	—	0.00000336	0.00000145 (J)	0.0000344	0.00000036 (J)	—
RE02-07-2035	02-600480	12.5–15	QBO	0.0000419	0.0000736	0.00000516 (J)	0.000000409 (J)	0.0000259 (J)	—	0.00000119 (J)	—	0.00000476	—	—
RE02-07-2515	02-600564	0–0.5	SOIL	0.000638	0.00115	0.000127	0.0000107	0.000396	0.00000431	0.0000184	0.00000901	0.000124	0.00000493	0.00000465
RE02-07-2516	02-600564	9.5–14.5	QAL	0.000000591 (J)	0.00000112	0.000000286 (J)	—	0.000000533	—	—	—	—	0.000000138 (J)	0.0000000561 (J)
RE02-07-2517	02-600564	14.5–22	QBO	—	—	0.0000000319 (J)	—	0.0000000319	—	—	—	—	—	—
RE02-07-2519	02-600565	0–0.5	SOIL	0.000442	0.000783	0.0000856	0.00000763	0.000275	0.00000357	0.0000111	0.00000704	0.0000843	0.00000296	0.00000269
RE02-07-2520	02-600565	9.5–15	QAL	0.000000318 (J)	0.000000622	0.000000366 (J)	—	0.000000366	—	—	—	—	0.000000176 (J)	—
RE02-07-2523	02-600566	0–0.5	SOIL	0.0011	0.00194	0.000169	0.0000168	0.000711	0.00000839	0.0000231	0.0000166	0.000159	0.00000534	0.00000369
RE02-07-2525	02-600566	14.5–20	QBO	0.000000493 (J)	0.000000493	—	—	—	—	—	—	—	—	—
RE02-10-26122	02-600567	8–8.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-2531	02-600568	0–0.5	SOIL	0.00000999	0.0000194	0.00000336	0.000000227 (J)	0.00000775	0.000000187 (J)	0.000000463 (J)	0.000000377 (J)	0.00000389	0.000000359 (J)	0.0000002 (J)
RE02-07-2532	02-600568	9.5–10.9	QAL	0.000000354 (J)	0.000000354	0.000000154 (J)	—	0.000000253	—	—	—	—	0.0000000418 (J)	—
RE02-07-2533	02-600568	15–18.3	QBO	—	—	0.000000084 (J)	—	0.000000084	—	—	—	—	—	—
RE02-07-2535	02-600569	0–0.5	SOIL	0.0000224	0.000046	0.00000325	—	0.0000122	0.000000155 (J)	0.000000702 (J)	0.000000284 (J)	0.00000367	0.000000172 (J)	—
RE02-07-2536	02-600569	9.5–12.7	QAL	0.00000383	0.00000749	0.00000077 (J)	0.0000000554 (J)	0.00000244	—	0.000000129 (J)	—	0.000000129	0.0000000725 (J)	—
RE02-07-2539	02-600570	0–0.5	SOIL	0.00000672	0.000012	0.00000172 (J)	—	0.00000441	0.000000124 (J)	0.000000327 (J)	0.000000256 (J)	0.00000183	0.000000106 (J)	0.000000108 (J)
RE02-07-2540	02-600570	9.5–11.9	QAL	0.0000103	0.0000179	0.00000252 (J)	—	0.00000748	—	—	—	0.00000146	—	—
RE02-07-2541	02-600570	14.5–16.7	QBO	0.00000351	0.00000569	0.000000717 (J)	—	0.00000321	—	—	—	0.00000112	—	—
RE02-07-2543	02-600571	0–0.5	SOIL	0.0000107	0.0000228	0.0000029	0.000000177 (J)	0.00000923	0.0000000967 (J)	0.000000405 (J)	0.000000257 (J)	0.00000285	0.000000233 (J)	0.000000154 (J)
RE02-07-2544	02-600571	9.5–11.7	QAL	0.00000119 (J)	0.00000262	—	—	0.000000399	—	—	—	—	—	—
RE02-07-2545	02-600571	11.7–15.5	QBO	—	0.000000824	—	—	—	—	—	—	—	—	—
RE02-07-2547	02-600572	0–0.5	SOIL	0.0000177	0.0000369	0.0000442	0.000000297 (J)	0.0000759	—	0.000000919 (J)	0.000000317 (J)	0.00000617	0.000000313 (J)	—
RE02-07-2549	02-600572	19.5–21.7	QBO	0.000000915 (J)	0.00000185	—	—	0.000000586	—	—	—	—	—	—
RE02-10-21747	02-612346	8–9	QAL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-21748	02-612346	15–16	QAL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 6.12-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Heptachlorodibenzodioxin [1,2,3,4,6,7,8-]	Heptachlorodibenzodioxins (Total)	Heptachlorodibenzofuran [1,2,3,4,6,7,8-]	Heptachlorodibenzofuran [1,2,3,4,7,8,9-]	Heptachlorodibenzofurans (Total)	Hexachlorodibenzodioxin [1,2,3,4,7,8-]	Hexachlorodibenzodioxin [1,2,3,6,7,8-]	Hexachlorodibenzodioxin [1,2,3,7,8,9-]	Hexachlorodibenzodioxins (Total)	Hexachlorodibenzofuran [1,2,3,4,7,8-]	Hexachlorodibenzofuran [1,2,3,6,7,8-]
Industrial SSL[a]				**na**[f]	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**
Recreational SSL[c]				**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**
Residential SSL[a]				**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**
RE02-10-21752	02-612347	5–6	QAL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-21792	02-612354	4–4.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-21795	02-612355	4–4.4	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-21796	02-612355	6–6.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-21801	02-612357	4–4.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-21804	02-612358	4–4.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-21805	02-612358	6–6.4	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-21807	02-612359	4–4.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-21808	02-612359	6–6.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-21810	02-612360	4–4.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-21811	02-612360	6–6.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-21817	02-612362	6–6.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-21819	02-612363	4–4.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-21820	02-612363	6–6.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-21822	02-612364	4–4.4	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-21823	02-612364	6–6.4	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-26115	02-613005	2–2.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-26116	02-613005	4–4.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-2210	02-613623	2–3	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-2211	02-613623	4–5	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-2213	02-613624	2–3	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-2214	02-613624	4–5	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-2215	02-613624	6–7	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-2216	02-613625	2–3	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-2217	02-613625	4–5	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 6.12-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Hexachlorodibenzofuran [1,2,3,7,8,9-]	Hexachlorodibenzofuran [2,3,4,6,7,8-]	Hexachlorodibenzofurans (Total)	Indeno(1,2,3-cd)pyrene	Isopropylbenzene	Methylene Chloride	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-]
Industrial SSL[a]				**na**	**na**	**na**	**23.4**	**14900**	**1090**	**4100[g]**	**252**	**na**	**na**	**na**
Recreational SSL[c]				**na**	**na**	**na**	**30.1**	**52700**	**4520**	**3170**	**1950**	**na**	**na**	**na**
Residential SSL[a]				**na**	**na**	**na**	**6.21**	**3210**	**199**	**310[g]**	**45**	**na**	**na**	**na**
RE02-07-1990	02-600469	4.5–9.5	QAL	—	—	0.0000000567	—	—	—	—	—	0.0000135	—	—
RE02-07-1992	02-600469	17–19.5	QBO	—	—	—	—	—	—	—	—	—	—	—
RE02-10-21798	02-600470	4–4.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-1994	02-600470	4.5–7.5	QAL	—	0.0000014 (J)	0.000122	0.0631 (J)	—	—	—	0.0143 (J)	0.0338	0.000297 (J)	—
RE02-07-1997	02-600471	0–0.5	SOIL	—	0.00000128 (J)	0.0000214	—	NA	NA	—	—	0.000645	0.0000379	—
RE02-07-1998	02-600471	4.5–10	SOIL	—	—	—	—	—	—	—	—	0.00000133 (J)	—	—
RE02-07-1999	02-600471	18–25	QBO	—	—	—	—	—	—	—	—	0.00000105 (J)	—	—
RE02-07-2001	02-600472	0–0.5	SOIL	—	0.00000614	0.000071	—	NA	NA	—	—	0.000324	0.0000142	—
RE02-07-2002	02-600472	4.5–9	SOIL	—	—	—	—	—	—	—	—	0.00000395 (J)	—	—
RE02-07-2003	02-600472	21–23	QBO	—	—	—	—	—	—	—	—	0.000000743 (J)	—	—
RE02-07-2005	02-600473	0–0.5	SOIL	0.00000025 (J)	0.00000147 (J)	0.00002	—	NA	NA	—	—	0.000991	0.000017	0.000000734 (J)
RE02-07-2006	02-600473	4.5–13	QAL	—	—	0.000000233	—	—	—	—	—	0.000014	—	—
RE02-07-2007	02-600473	13–18	QBO	—	—	—	—	—	—	—	—	0.0000192	—	—
RE02-07-2008	02-600473	18–23	QBO	—	—	—	—	—	—	—	—	0.00000941	—	—
RE02-07-2010	02-600474	4.5–10	QAL	—	0.000000357 (J)	0.00000378	—	—	0.0046 (J)	—	—	0.000456	0.00000616	—
RE02-07-2011	02-600474	16.5–19	QBO	—	—	—	—	—	—	—	—	0.00000981	0.000000538 (J)	—
RE02-07-2013	02-600475	0–0.5	SOIL	—	0.00000075 (J)	0.0000101	—	NA	NA	—	—	0.000718	0.0000176	0.000000134 (J)
RE02-07-2014	02-600475	4–5	QAL	—	0.00000112 (J)	0.0000191	—	—	—	—	—	0.00602	0.0000854	0.000000954 (J)
RE02-07-2015	02-600475	16–18.5	QBO	—	—	0.000000713	—	—	0.00588 (J)	—	—	0.000072	0.00000383 (J)	—
RE02-07-2017	02-600476	0–0.5	SOIL	—	0.00000134 (J)	0.0000234	—	NA	NA	—	—	0.00198	0.0000449	0.000000645 (J)
RE02-07-2018	02-600476	4.5–9	QAL	—	0.000000191 (J)	0.00000292 (J)	—	—	0.00478 (J)	—	—	0.000379	0.00000665	—
RE02-07-2019	02-600476	20–25	QBO	—	0.00000188 (J)	0.0000191 (J)	—	—	—	—	—	0.00000748	0.00000315 (J)	—
RE02-07-2021	02-600477	0–0.5	SOIL	0.000000311 (J)	0.00000141 (J)	0.0000315	—	NA	NA	—	—	0.00245	0.000111	0.000000548 (J)
RE02-07-2022	02-600477	4.5–9	QAL	—	0.000000399 (J)	0.00000889 (J)	—	—	0.00563	—	—	0.000599	0.0000371	—
RE02-07-2023	02-600477	23–25	QBO	—	—	—	—	—	0.00968	—	—	0.00000483 (J)	0.000000331 (J)	—
RE02-07-2025	02-600478	0–0.5	SOIL	0.000000949 (J)	0.00000704	0.000235	—	NA	NA	—	—	0.0157	0.00124	0.00000186 (J)
RE02-07-2026	02-600478	4.5–9.5	QAL	—	0.000000283 (J)	0.00000745	—	—	—	—	—	0.000654	0.0000308	—
RE02-07-2028	02-600478	14–18.8	QAL	—	—	0.0000008	—	0.000251 (J)	—	—	—	0.0000843	0.00000363 (J)	—
RE02-07-2027	02-600478	18.8–20.5	QBO	—	—	—	—	—	—	—	—	0.000008	0.000000522 (J)	—
RE02-07-2029	02-600479	0–0.5	SOIL	0.000000664 (J)	0.00000329	0.0000707	—	NA	NA	0.00811 (J)	0.0147 (J)	0.00588	0.000192	0.0000012 (J)

Table 6.12-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Hexachlorodibenzofuran [1,2,3,7,8,9-]	Hexachlorodibenzofuran [2,3,4,6,7,8-]	Hexachlorodibenzofurans (Total)	Indeno(1,2,3-cd)pyrene	Isopropylbenzene	Methylene Chloride	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-]
Industrial SSL[a]				**na**	**na**	**na**	**23.4**	**14900**	**1090**	**4100[g]**	**252**	**na**	**na**	**na**
Recreational SSL[c]				**na**	**na**	**na**	**30.1**	**52700**	**4520**	**3170**	**1950**	**na**	**na**	**na**
Residential SSL[a]				**na**	**na**	**na**	**6.21**	**3210**	**199**	**310[g]**	**45**	**na**	**na**	**na**
RE02-07-2030	02-600479	5–10	QAL	—	—	0.00000197	—	—	—	—	—	0.000132	0.00000727	—
RE02-07-2031	02-600479	12.6–16.5	QBO	—	—	0.00000375	—	—	—	—	—	0.000285	0.000014	—
RE02-07-2033	02-600480	0–0.5	SOIL	0.000000458 (J)	0.00000383	0.0000902	—	NA	NA	—	—	0.0084	0.000225	0.00000249 (J-)
RE02-07-2034	02-600480	4.5–10	QAL	—	0.000000299 (J)	0.0000057	—	—	0.00215 (J)	—	—	0.00116	0.0000123	0.000000216 (J)
RE02-07-2035	02-600480	12.5–15	QBO	—	0.000000134 (J)	0.00000422	—	—	—	—	—	0.000522	0.0000189	—
RE02-07-2515	02-600564	0–0.5	SOIL	0.000000783 (J)	0.00000637	0.000133	—	NA	NA	—	—	0.00617	0.000309	0.00000163 (J)
RE02-07-2516	02-600564	9.5–14.5	QAL	—	—	0.000000316	—	—	—	—	—	0.00000487 (J)	0.000000394 (J)	—
RE02-07-2517	02-600564	14.5–22	QBO	—	—	—	—	—	—	—	—	—	0.000000119 (J)	—
RE02-07-2519	02-600565	0–0.5	SOIL	0.000000473 (J)	0.00000373	0.0000767	—	NA	NA	—	—	0.00509	0.000273	0.00000146 (J)
RE02-07-2520	02-600565	9.5–15	QAL	—	—	0.00000034	—	—	—	—	—	0.00000241 (J)	0.000000284 (J)	—
RE02-07-2523	02-600566	0–0.5	SOIL	0.000000918 (J)	0.00000556	0.000117	—	NA	NA	—	—	0.0137	0.00113	0.00000303
RE02-07-2525	02-600566	14.5–20	QBO	—	—	—	—	—	—	—	—	0.00000548	0.000000543 (J)	—
RE02-10-26122	02-600567	8–8.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-2531	02-600568	0–0.5	SOIL	—	0.000000213 (J)	0.0000046	—	NA	NA	—	—	0.0000811	0.00000398 (J)	—
RE02-07-2532	02-600568	9.5–10.9	QAL	—	—	0.0000000946	—	—	—	—	—	0.00000277 (J)	0.000000194 (J)	—
RE02-07-2533	02-600568	15–18.3	QBO	—	—	—	—	—	—	—	—	0.000000331 (J)	—	—
RE02-07-2535	02-600569	0–0.5	SOIL	—	0.000000169 (J)	0.00000322	—	NA	NA	—	—	0.000325	0.00000876	0.0000000687 (J)
RE02-07-2536	02-600569	9.5–12.7	QAL	—	—	0.000000712	—	—	—	—	—	0.000059	0.00000164 (J)	—
RE02-07-2539	02-600570	0–0.5	SOIL	—	0.000000118 (J)	0.00000184	—	NA	NA	—	—	0.0000804	0.00000442 (J)	0.0000000817 (J)
RE02-07-2540	02-600570	9.5–11.9	QAL	—	—	0.00000206	—	—	—	—	—	0.000149	0.00000514	—
RE02-07-2541	02-600570	14.5–16.7	QBO	—	—	0.000000306	—	—	—	—	—	0.00004	0.00000249 (J)	—
RE02-07-2543	02-600571	0–0.5	SOIL	—	0.0000002 (J)	0.00000322	—	NA	NA	—	—	0.000108	0.00000926	—
RE02-07-2544	02-600571	9.5–11.7	QAL	—	—	—	—	—	—	—	—	0.0000171	—	—
RE02-07-2545	02-600571	11.7–15.5	QBO	—	—	—	—	—	—	—	—	0.00000678	—	—
RE02-07-2547	02-600572	0–0.5	SOIL	—	0.000000357 (J)	0.0000201	—	NA	NA	—	—	0.000207	0.0000206	—
RE02-07-2549	02-600572	19.5–21.7	QBO	—	—	—	—	—	—	—	—	0.0000107	0.000000919 (J)	—
RE02-10-21747	02-612346	8–9	QAL	NA	NA	NA	—	NA	NA	—	—	NA	NA	NA
RE02-10-21748	02-612346	15–16	QAL	NA	NA	NA	—	NA	NA	—	—	NA	NA	NA
RE02-10-21752	02-612347	5–6	QAL	NA	NA	NA	—	NA	NA	—	—	NA	NA	NA
RE02-10-21792	02-612354	4–4.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 6.12-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Hexachlorodibenzofuran [1,2,3,7,8,9-]	Hexachlorodibenzofuran [2,3,4,6,7,8-]	Hexachlorodibenzofurans (Total)	Indeno(1,2,3-cd)pyrene	Isopropylbenzene	Methylene Chloride	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-]
Industrial SSL[a]				**na**	**na**	**na**	**23.4**	**14900**	**1090**	**4100**[g]	**252**	**na**	**na**	**na**
Recreational SSL[c]				**na**	**na**	**na**	**30.1**	**52700**	**4520**	**3170**	**1950**	**na**	**na**	**na**
Residential SSL[a]				**na**	**na**	**na**	**6.21**	**3210**	**199**	**310**[g]	**45**	**na**	**na**	**na**
RE02-10-21795	02-612355	4–4.4	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-21796	02-612355	6–6.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-21801	02-612357	4–4.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-21804	02-612358	4–4.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-21805	02-612358	6–6.4	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-21807	02-612359	4–4.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-21808	02-612359	6–6.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-21810	02-612360	4–4.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-21811	02-612360	6–6.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-21817	02-612362	6–6.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-21819	02-612363	4–4.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-21820	02-612363	6–6.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-21822	02-612364	4–4.4	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-21823	02-612364	6–6.4	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-26115	02-613005	2–2.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-26116	02-613005	4–4.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-2210	02-613623	2–3	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-2211	02-613623	4–5	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-2213	02-613624	2–3	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-2214	02-613624	4–5	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-2215	02-613624	6–7	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-2216	02-613625	2–3	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-2217	02-613625	4–5	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 6.12-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Pentachlorodibenzodioxins (Total)	Pentachlorodibenzofuran [1,2,3,7,8-]	Pentachlorodibenzofuran [2,3,4,7,8-]	Pentachlorodibenzofurans (Totals)	Pentachlorophenol	Phenanthrene	Pyrene	Tetrachlorodibenzodioxin [2,3,7,8-]	Tetrachlorodibenzodioxins (Total)	Tetrachlorodibenzofuran [2,3,7,8-]	Tetrachlorodibenzofurans (Totals)	Toluene
Industrial SSL[a]				**na**	**na**	**na**	**na**	**100**	**20500**	**18300**	**0.000204**	**na**	**0.00147**	**na**	**57900**
Recreational SSL[c]				**na**	**na**	**na**	**na**	**117**	**12000**	**10400**	**0.000319**	**na**	**0.00197**	**na**	**60800**
Residential SSL[a]				**na**	**na**	**na**	**na**	**29.8**	**1830**	**1720**	**0.000045**	**na**	**0.000374**	**na**	**5570**
RE02-07-1990	02-600469	4.5–9.5	QAL	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1992	02-600469	17–19.5	QBO	—	—	—	—	—	—	—	—	—	—	—	—
RE02-10-21798	02-600470	4–4.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-1994	02-600470	4.5–7.5	QAL	0.000000699	—	0.000000623 (J)	0.00000497	—	0.185	0.279	—	—	—	0.000000258	0.000556 (J)
RE02-07-1997	02-600471	0–0.5	SOIL	—	—	0.00000286	0.0000165	—	—	0.0291 (J)	—	—	0.00000177	0.00000433	NA
RE02-07-1998	02-600471	4.5–10	SOIL	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1999	02-600471	18–25	QBO	—	—	—	—	—	0.03 (J)	0.135	—	—	—	—	—
RE02-07-2001	02-600472	0–0.5	SOIL	—	0.00000332	0.0000205	0.000115	—	0.0145 (J)	0.0443 (J)	—	—	0.0000112 (J)	0.0000442	NA
RE02-07-2002	02-600472	4.5–9	SOIL	—	—	—	—	—	—	—	—	—	—	—	0.000411 (J)
RE02-07-2003	02-600472	21–23	QBO	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2005	02-600473	0–0.5	SOIL	0.00000322	0.000000484 (J)	0.00000243 (J)	0.0000142	—	—	0.0444 (J)	—	—	0.00000157	0.00000478	NA
RE02-07-2006	02-600473	4.5–13	QAL	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2007	02-600473	13–18	QBO	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2008	02-600473	18–23	QBO	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2010	02-600474	4.5–10	QAL	—	—	0.00000105 (J)	0.00000541 (J)	—	—	—	—	—	—	—	—
RE02-07-2011	02-600474	16.5–19	QBO	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2013	02-600475	0–0.5	SOIL	0.000000382	0.000000391 (J)	0.00000199 (J)	0.0000126	—	0.0129 (J)	0.0251 (J)	—	—	0.00000114	0.00000449	NA
RE02-07-2014	02-600475	4–5	QAL	0.00000249	—	0.00000191 (J)	0.0000112 (J)	—	0.0128 (J)	0.0171 (J)	0.00000023 (J)	0.00000023	0.000000988 (J)	0.00000427	—
RE02-07-2015	02-600475	16–18.5	QBO	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2017	02-600476	0–0.5	SOIL	0.00000457	0.000000372 (J)	0.00000193 (J)	0.0000137	—	—	—	—	—	0.00000126	0.00000716	NA
RE02-07-2018	02-600476	4.5–9	QAL	—	—	—	0.00000094	—	—	—	—	—	—	0.000000131	0.000426 (J)
RE02-07-2019	02-600476	20–25	QBO	—	0.000000924	0.00000581 (J)	0.0000307	—	—	—	—	—	0.00000273	0.00000993	—
RE02-07-2021	02-600477	0–0.5	SOIL	0.00000394	0.000000324 (J)	0.00000154 (J)	0.0000108	—	0.0229 (J)	0.177	—	0.000000234	0.000000862 (J)	0.00000631	NA
RE02-07-2022	02-600477	4.5–9	QAL	—	—	—	0.00000141	—	—	0.0143 (J)	—	—	—	0.000000178	—
RE02-07-2023	02-600477	23–25	QBO	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2025	02-600478	0–0.5	SOIL	0.0000119	0.000000901 (J)	0.00000409	0.0000418	—	0.0133 (J)	0.0432	0.000000328 (J)	0.00000141	0.00000197	0.0000128	NA

Table 6.12-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Pentachlorodibenzodioxins (Total)	Pentachlorodibenzofuran [1,2,3,7,8-]	Pentachlorodibenzofuran [2,3,4,7,8-]	Pentachlorodibenzofurans (Totals)	Pentachlorophenol	Phenanthrene	Pyrene	Tetrachlorodibenzodioxin [2,3,7,8-]	Tetrachlorodibenzodioxins (Total)	Tetrachlorodibenzofuran [2,3,7,8-]	Tetrachlorodibenzofurans (Totals)	Toluene
Industrial SSL[a]				**na**	**na**	**na**	**na**	**100**	**20500**	**18300**	**0.000204**	**na**	**0.00147**	**na**	**57900**
Recreational SSL[c]				**na**	**na**	**na**	**na**	**117**	**12000**	**10400**	**0.000319**	**na**	**0.00197**	**na**	**60800**
Residential SSL[a]				**na**	**na**	**na**	**na**	**29.8**	**1830**	**1720**	**0.000045**	**na**	**0.000374**	**na**	**5570**
RE02-07-2026	02-600478	4.5–9.5	QAL	—	—	—	0.000000502	—	—	—	—	—	—	—	0.000504 (J)
RE02-07-2028	02-600478	14–18.8	QAL	0.000000151	—	—	0.000000403	—	—	—	—	—	—	—	—
RE02-07-2027	02-600478	18.8–20.5	QBO	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2029	02-600479	0–0.5	SOIL	0.00000895	0.00000081 (J)	0.00000357	0.0000303	—	0.118	0.128	0.000000211 (J)	0.00000143	0.00000192	0.0000119	NA
RE02-07-2030	02-600479	5–10	QAL	0.000000472	—	—	0.000000628	—	—	—	—	—	—	—	—
RE02-07-2031	02-600479	12.6–16.5	QBO	—	—	0.000000829 (J)	0.00000202	—	—	—	—	—	0.00000143	0.00000357	—
RE02-07-2033	02-600480	0–0.5	SOIL	0.0000177	—	0.00000185 (J)	0.0000222	—	0.0114 (J)	0.0211 (J)	0.000000389 (J)	0.00000227	0.000000967 (J)	0.00000895	NA
RE02-07-2034	02-600480	4.5–10	QAL	0.00000162	0.000000381 (J)	0.000000432 (J)	0.00000346	—	—	—	—	—	0.000000877 (J)	0.00000273	0.00112
RE02-07-2035	02-600480	12.5–15	QBO	—	—	—	0.000000266	—	—	—	—	—	—	—	—
RE02-07-2515	02-600564	0–0.5	SOIL	0.00000963	0.000000718 (J)	0.00000253	0.0000273	—	—	0.0213 (J)	0.000000328 (J)	0.00000128	0.00000137	0.0000104	NA
RE02-07-2516	02-600564	9.5–14.5	QAL	—	0.0000000955 (J)	0.0000000908 (J)	0.000000255	—	—	—	—	—	0.000000198 (J)	0.000000362	—
RE02-07-2517	02-600564	14.5–22	QBO	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2519	02-600565	0–0.5	SOIL	0.00000836	0.000000399 (J)	0.00000167 (J)	0.0000169	—	—	0.0216 (J)	0.000000199 (J)	0.000000789	0.00000118	0.00000652	NA
RE02-07-2520	02-600565	9.5–15	QAL	—	0.0000000544 (J)	—	0.000000105	—	—	—	—	—	—	0.0000000704	—
RE02-07-2523	02-600566	0–0.5	SOIL	0.0000155	—	0.000000877 (J)	0.0000166	0.301 (J)	0.0315 (J)	0.0471	0.000000307 (J)	0.000000307	0.000000592 (J)	0.0000046	NA
RE02-07-2525	02-600566	14.5–20	QBO	—	—	—	—	—	—	—	—	—	—	—	—
RE02-10-26122	02-600567	8–8.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-2531	02-600568	0–0.5	SOIL	0.000000314	—	0.000000187 (J)	0.00000171	—	—	—	—	—	0.000000133 (J)	0.000000578	NA
RE02-07-2532	02-600568	9.5–10.9	QAL	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2533	02-600568	15–18.3	QBO	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2535	02-600569	0–0.5	SOIL	0.0000000687	—	0.000000119 (J)	0.000000498	—	—	0.0112 (J)	—	—	0.0000000976 (J)	0.000000272	NA
RE02-07-2536	02-600569	9.5–12.7	QAL	—	—	—	0.0000000567	—	—	—	—	—	—	—	0.000425 (J)
RE02-07-2539	02-600570	0–0.5	SOIL	0.000000132	—	—	0.000000193	—	—	0.0159 (J)	—	—	—	0.000000255	NA
RE02-07-2540	02-600570	9.5–11.9	QAL	—	—	—	0.00000022	—	—	0.0149 (J)	—	—	—	—	—
RE02-07-2541	02-600570	14.5–16.7	QBO	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2543	02-600571	0–0.5	SOIL	—	—	0.000000292 (J)	0.00000174	—	—	—	—	—	0.000000247 (J)	0.00000106	NA

Table 6.12-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Pentachlorodibenzodioxins (Total)	Pentachlorodibenzofuran [1,2,3,7,8-]	Pentachlorodibenzofuran [2,3,4,7,8-]	Pentachlorodibenzofurans (Totals)	Pentachlorophenol	Phenanthrene	Pyrene	Tetrachlorodibenzodioxin [2,3,7,8-]	Tetrachlorodibenzodioxins (Total)	Tetrachlorodibenzofuran [2,3,7,8-]	Tetrachlorodibenzofurans (Totals)	Toluene
Industrial SSL[a]				**na**	**na**	**na**	**na**	**100**	**20500**	**18300**	**0.000204**	**na**	**0.00147**	**na**	**57900**
Recreational SSL[c]				**na**	**na**	**na**	**na**	**117**	**12000**	**10400**	**0.000319**	**na**	**0.00197**	**na**	**60800**
Residential SSL[a]				**na**	**na**	**na**	**na**	**29.8**	**1830**	**1720**	**0.000045**	**na**	**0.000374**	**na**	**5570**
RE02-07-2544	02-600571	9.5–11.7	QAL	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2545	02-600571	11.7–15.5	QBO	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2547	02-600572	0–0.5	SOIL	0.000000761	—	0.000000167 (J)	0.00000207	—	—	—	—	—	0.00000018 (J)	0.000000511	NA
RE02-07-2549	02-600572	19.5–21.7	QBO	—	—	—	—	—	—	—	—	—	—	—	—
RE02-10-21747	02-612346	8–9	QAL	NA	NA	NA	NA	—	—	—	NA	NA	NA	NA	NA
RE02-10-21748	02-612346	15–16	QAL	NA	NA	NA	NA	—	—	—	NA	NA	NA	NA	NA
RE02-10-21752	02-612347	5–6	QAL	NA	NA	NA	NA	—	—	—	NA	NA	NA	NA	NA
RE02-10-21792	02-612354	4–4.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-21795	02-612355	4–4.4	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-21796	02-612355	6–6.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-21801	02-612357	4–4.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-21804	02-612358	4–4.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-21805	02-612358	6–6.4	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-21807	02-612359	4–4.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-21808	02-612359	6–6.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-21810	02-612360	4–4.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-21811	02-612360	6–6.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-21817	02-612362	6–6.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-21819	02-612363	4–4.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-21820	02-612363	6–6.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-21822	02-612364	4–4.4	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-21823	02-612364	6–6.4	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-26115	02-613005	2–2.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-26116	02-613005	4–4.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-2210	02-613623	2–3	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-2211	02-613623	4–5	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-2213	02-613624	2–3	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 6.12-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Pentachlorodibenzodioxins (Total)	Pentachlorodibenzofuran [1,2,3,7,8-]	Pentachlorodibenzofuran [2,3,4,7,8-]	Pentachlorodibenzofurans (Totals)	Pentachlorophenol	Phenanthrene	Pyrene	Tetrachlorodibenzodioxin [2,3,7,8-]	Tetrachlorodibenzodioxins (Total)	Tetrachlorodibenzofuran [2,3,7,8-]	Tetrachlorodibenzofurans (Totals)	Toluene
Industrial SSL[a]				**na**	**na**	**na**	**na**	**100**	**20500**	**18300**	**0.000204**	**na**	**0.00147**	**na**	**57900**
Recreational SSL[c]				**na**	**na**	**na**	**na**	**117**	**12000**	**10400**	**0.000319**	**na**	**0.00197**	**na**	**60800**
Residential SSL[a]				**na**	**na**	**na**	**na**	**29.8**	**1830**	**1720**	**0.000045**	**na**	**0.000374**	**na**	**5570**
RE02-11-2214	02-613624	4–5	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-2215	02-613624	6–7	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-2216	02-613625	2–3	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-2217	02-613625	4–5	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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

[a] SSLs are from NMED (2009, 108070), unless otherwise noted.

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

[c] SSLs are from LANL (2010, 108613).

[d] — = Not detected.

[e] NA = Not analyzed.

[f] na = Not available.

[g] SSLs are from EPA regional screening tables (http://www.epa.gov.earth1r6/6pd/rcra_c/pd-n/screen.htm).

Table 6.12-4
Radionuclides Detected or Detected above BVs/FVs at AOC 02-004(f)

Sample ID	Location ID	Depth (ft)	Media	Cesium-137	Cobalt-60	Plutonium-239/240	Strontium-90	Tritium	Uranium-235/236
Qbt 1g, Qct, Qbo BV[a]				**na[b]**	**na**	**na**	**na**	**na**	**0.18**
Soil BV[a]				**1.65**	**na**	**0.054**	**1.31**	**na**	**0.2**
Industrial SAL[c]				**23**	**5.1**	**210**	**1900**	**440000**	**87**
Recreational SAL[c]				**210**	**46**	**300**	**5600**	**5300000**	**520**
Residential SAL[c]				**5.6**	**1.3**	**33**	**5.7**	**750**	**17**
RE02-03-51874	02-22376	0–0.5	SOIL	—[d]	—	—	—	0.0852	—
RE02-03-51875	02-22376	1.5–2	SOIL	—	—	—	—	0.0545	—
RE02-03-51876	02-22377	0–0.5	SOIL	—	0.11	—	—	0.0694	—
RE02-03-51877	02-22377	1.5–2	SOIL	—	—	—	—	0.0622	—
RE02-03-51878	02-22378	0–0.5	SOIL	—	—	—	—	0.923	—
RE02-03-51879	02-22378	1.5–2	SOIL	0.0454	—	—	—	0.614	—
RE02-03-51880	02-22379	0–0.5	SOIL	—	—	—	—	0.357	—
RE02-03-51881	02-22379	1.5–2	SOIL	—	—	—	—	2.41	—
RE02-07-1990	02-600469	4.5–9.5	QAL	—	—	—	—	0.0788696	—
RE02-07-1994	02-600470	4.5–7.5	QAL	—	—	—	—	0.695833	—
RE02-07-1998	02-600471	4.5–10	SOIL	—	—	—	—	0.260671	—
RE02-07-2002	02-600472	4.5–9	SOIL	—	—	—	—	0.111039	—
RE02-07-2003	02-600472	21–23	QBO	—	—	—	—	—	0.225
RE02-07-2006	02-600473	4.5–13	QAL	—	—	—	—	0.0363882	—
RE02-07-2010	02-600474	4.5–10	QAL	—	—	—	—	0.236047	—
RE02-07-2013	02-600475	0–0.5	SOIL	—	—	—	—	0.00966109	—
RE02-07-2018	02-600476	4.5–9	QAL	—	—	—	—	0.440696	—
RE02-07-2019	02-600476	20–25	QBO	—	—	0.133	—	0.0660952	0.182
RE02-07-2021	02-600477	0–0.5	SOIL	—	—	—	—	0.0451419	—
RE02-07-2022	02-600477	4.5–9	QAL	—	—	—	—	0.81017	—
RE02-07-2026	02-600478	4.5–9.5	QAL	—	—	—	0.716	0.56557	—
RE02-07-2028	02-600478	14–18.8	QAL	—	—	—	—	0.254922	—
RE02-07-2029	02-600479	0–0.5	SOIL	—	—	—	—	0.0199386	—
RE02-07-2030	02-600479	5–10	QAL	—	—	—	—	2.17686	—
RE02-07-2031	02-600479	12.6–16.5	QBO	—	—	—	—	—	0.181
RE02-07-2033	02-600480	0–0.5	SOIL	—	—	—	—	0.0380017	—
RE02-07-2034	02-600480	4.5–10	QAL	—	—	—	—	3.80729	—

Table 6.12-4 (continued)

Sample ID	Location ID	Depth (ft)	Media	Cesium-137	Cobalt-60	Plutonium-239/240	Strontium-90	Tritium	Uranium-235/236
Qbt 1g, Qct, Qbo BV[a]				**na[b]**	**na**	**na**	**na**	**na**	**0.18**
Soil BV[a]				**1.65**	**na**	**0.054**	**1.31**	**na**	**0.2**
Industrial SAL[c]				**23**	**5.1**	**210**	**1900**	**440000**	**87**
Recreational SAL[c]				**210**	**46**	**300**	**5600**	**5300000**	**520**
Residential SAL[c]				**5.6**	**1.3**	**33**	**5.7**	**750**	**17**
RE02-07-2035	02-600480	12.5–15	QBO	—	—	0.0316	—	0.0496098	—
RE02-07-2515	02-600564	0–0.5	SOIL	—	—	0.0667	—	0.00719992	—
RE02-07-2519	02-600565	0–0.5	SOIL	—	—	0.0803	—	—	—
RE02-07-2523	02-600566	0–0.5	SOIL	—	—	0.115	—	—	—
RE02-07-2531	02-600568	0–0.5	SOIL	—	—	—	—	0.00980899	—
RE02-07-2535	02-600569	0–0.5	SOIL	—	—	0.0587	—	—	—
RE02-07-2540	02-600570	9.5–11.9	QAL	—	—	—	—	0.0200215	—
RE02-07-2541	02-600570	14.5–16.7	QBO	—	—	—	—	3.18276	—
RE02-07-2545	02-600571	11.7–15.5	QBO	—	—	—	—	—	0.198
RE02-07-2547	02-600572	0–0.5	SOIL	—	—	0.0616	—	—	—
RE02-10-21747	02-612346	8–9	QAL	—	—	0.0476	NA[e]	—	—
RE02-10-21748	02-612346	15–16	QAL	—	—	—	NA	0.0512404	—
RE02-10-21750	02-612346	35–36	QBO	—	—	—	NA	0.0746471	—
RE02-10-21751	02-612346	49–50	QBO	—	—	—	NA	0.0884761	—
RE02-10-21753	02-612347	15–16	QAL	—	—	—	NA	0.190605	—

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

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

[b] na = Not available.

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

[d] — = Not detected.

[e] NA = Not analyzed.

Table 6.13-1
Samples Collected and Analyses Requested at AOC 02-004(g)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Dioxins/Furans	Gamma-emitting Radionuclides	Tritium	Hexavalent Chromium	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	Technetium-99	VOCs	Cyanide (Total)
RE02-03-51888	02-22383	1–1.5	SOIL	—*	—	—	1818S	1818S	1816S	1818S	1818S	1816S	—	—	1818S	—	1818S	—	—
RE02-03-51889	02-22383	2.5–3	SOIL	—	—	—	1818S	1818S	1816S	1818S	1818S	1816S	—	—	1818S	—	1818S	—	—
RE02-03-51890	02-22384	0.5–1	SOIL	—	—	—	1820S	1820S	1819S	1820S	1820S	1819S	—	—	1820S	—	1820S	—	—
RE02-03-51891	02-22384	2–2.5	SOIL	—	—	—	1820S	1820S	1819S	1820S	1820S	1819S	—	—	1820S	—	1820S	—	—
RE02-03-51892	02-22385	1–1.5	SOIL	—	—	—	1820S	1820S	1819S	1820S	1820S	1819S	—	—	1820S	—	1820S	—	—
RE02-03-51893	02-22385	2.5–3	SOIL	—	—	—	1820S	1820S	1819S	1820S	1820S	1819S	—	—	1820S	—	1820S	—	—
RE02-03-51894	02-22386	0–0.5	SOIL	—	—	—	1820S	1820S	1819S	1820S	1820S	1819S	—	—	1820S	—	1820S	—	—
RE02-03-51896	02-22387	0–0.5	SOIL	—	—	—	1820S	1820S	1819S	1820S	1820S	1819S	—	—	1820S	—	1820S	—	—
RE02-07-2101	02-600489	0–0.5	SOIL	07-561	07-561	07-596	07-561	07-561	—	07-561	07-561	07-561	07-561	07-561	07-561	07-561	—	—	07-561
RE02-07-6824	02-600490	0.8–1.8	FILL	07-1139	07-1139	07-1138	07-1139	07-1139	—	07-1139	07-1139	07-1137	07-1137	07-1139	07-1139	07-1137	—	—	07-1139
RE02-07-2106	02-600490	4.5–9	QAL	07-865	07-865	07-864	07-865	07-865	—	07-865	07-865	07-865	07-865	07-865	07-865	07-865	—	07-865	07-865
RE02-07-2107	02-600490	14.5–19.5	QBO	07-865	07-865	07-864	07-865	—	—	07-865	07-865	07-865	07-865	07-865	07-865	07-865	—	07-865	07-865
RE02-07-2109	02-600491	0–0.5	SOIL	07-539	07-539	07-529	07-539	07-539	—	07-539	07-539	07-539	07-539	07-539	07-539	07-539	—	—	07-539
RE02-07-2110	02-600491	4.5–9	QAL	07-854	07-854	07-853	07-854	07-854	—	07-854	07-854	07-854	07-854	07-854	07-854	07-854	—	07-854	07-854
RE02-07-2111	02-600491	15.5–19.5	QBO	07-854	07-854	07-853	07-854	07-854	—	07-854	07-854	07-854	07-854	07-854	07-854	07-854	—	07-854	07-854
RE02-07-6825	02-600492	0–0.5	SOIL	07-1151	07-1151	07-1150	07-1151	07-1151	—	07-1151	07-1151	07-1151	07-1151	07-1151	07-1151	07-1151	—	—	07-1151
RE02-07-2114	02-600492	4.5–9.5	QAL	07-835	07-834	07-832	07-835	07-835	—	07-835	07-835	07-834	07-833	07-834	07-835	07-833	—	07-833	07-834
RE02-07-2115	02-600492	14.5–19.5	QBO	07-840	07-840	07-839	07-840	07-840	—	07-840	07-840	07-840	07-840	07-840	07-840	07-840	—	07-840	07-840
RE02-07-6826	02-600493	0.9–1.4	QAL	07-1160	07-1160	07-1161	07-1160	07-1160	—	07-1160	07-1160	07-1160	07-1160	07-1160	07-1160	07-1160	—	—	07-1160
RE02-07-2118	02-600493	4.5–9.5	QAL	07-840	07-840	07-839	07-840	07-840	—	07-840	07-840	07-840	07-840	07-840	07-840	07-840	—	07-840	07-840
RE02-07-2119	02-600493	19–22	QBO	07-854	07-854	07-853	07-854	07-854	—	07-854	07-854	07-854	07-854	07-854	07-854	07-854	—	07-854	07-854
RE02-07-6827	02-600494	0–0.5	SOIL	07-1151	07-1151	07-1150	07-1151	07-1151	—	07-1151	07-1151	07-1151	07-1151	07-1151	07-1151	07-1151	—	—	07-1151
RE02-07-2122	02-600494	4.5–14.5	QAL	07-835	07-834	07-832	07-835	07-835	—	07-835	07-835	07-834	07-833	07-834	07-835	07-833	—	07-833	07-834
RE02-07-2123	02-600494	14.5–22	QBO	07-835	07-834	07-832	07-835	07-835	—	07-835	07-835	07-834	07-833	07-834	07-835	07-833	—	07-833	07-834
RE02-07-2125	02-600495	0–0.5	SOIL	07-561	07-561	07-596	07-561	07-561	—	07-561	07-561	07-561	07-561	07-561	07-561	07-561	—	—	07-561
RE02-07-2129	02-600496	0–0.5	SED	07-561	07-561	07-596	07-561	07-561	—	07-561	07-561	07-561	07-561	07-561	07-561	07-561	—	—	07-561
RE02-07-2133	02-600497	0–0.5	SOIL	07-539	07-539	07-529	07-539	07-539	—	07-539	07-539	07-539	07-539	07-539	07-539	07-539	—	—	07-539
RE02-07-2134	02-600497	4.5–7.5	QAL	07-859	07-859	07-860	07-859	07-859	—	07-859	07-859	07-859	07-859	07-859	07-859	07-859	—	07-859	07-859
RE02-07-2135	02-600497	15–18.5	QBO	07-859	07-859	07-860	07-859	07-859	—	07-859	07-859	07-859	07-859	07-859	07-859	07-859	—	07-859	07-859

Table 6.13-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Dioxins/Furans	Gamma-emitting Radionuclides	Tritium	Hexavalent Chromium	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	Technetium-99	VOCs	Cyanide (Total)
RE02-10-21528	02-612293	5–6	QAL	11-21	—	—	11-21	11-21	—	11-21	—	11-20	11-20	—	11-21	11-20	—	—	—
RE02-10-21529	02-612293	15–16	QAL	11-21	—	—	11-21	11-21	—	11-21	—	11-20	11-20	—	11-21	11-20	—	—	—
RE02-10-21530	02-612293	25–26	QBO	11-21	—	—	11-21	11-21	—	11-21	—	11-20	11-20	—	11-21	11-20	—	—	—
RE02-10-21531	02-612293	35–36	QBO	11-43	—	—	11-43	11-43	—	11-43	—	11-42	11-41	—	11-43	11-41	—	—	—
RE02-10-21532	02-612293	49–50	QBO	11-43	—	—	11-43	11-43	—	11-43	—	11-42	11-41	—	11-43	11-41	—	—	—

* — = Analysis not requested.

Table 6.13-2
Inorganic Chemicals above BVs at AOC 02-004(g)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Cadmium	Calcium	Chromium	Hexavalent Chromium	Copper	Iron	Lead	Manganese	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Zinc
Qbt 1g, Qct, Qbo BV[a]				**3560**	**0.5**	**0.56**	**25.7**	**0.4**	**1900**	**2.6**	**na**[b]	**3.96**	**3700**	**13.5**	**189**	**0.1**	**2**	**na**	**na**	**0.3**	**40**
Sediment BV[a]				**15400**	**0.83**	**3.98**	**127**	**0.4**	**4420**	**10.5**	**na**	**11.2**	**13800**	**19.7**	**543**	**0.1**	**9.38**	**na**	**na**	**0.3**	**60.2**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**0.4**	**6120**	**19.3**	**na**	**14.7**	**21500**	**22.3**	**671**	**0.1**	**15.4**	**na**	**na**	**1.52**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**1120**	**na**	**2920**[d]	**2920**	**45400**	**795000**	**800**	**145000**	**310**[e]	**22700**	**1820000**	**795**	**5680**	**341000**
Recreational SSL[f]				**791000**	**317**	**27.7**	**158000**	**784**	**na**	**1910**[d]	**1910**	**31700**	**554000**	**560**	**110000**	**238**	**15800**	**1260000**	**555**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**77.9**	**na**	**219**[d]	**219**	**3130**	**54800**	**400**	**10700**	**23**[e]	**1560**	**125000**	**54.8**	**391**	**23500**
RE02-03-51888	02-22383	1–1.5	SOIL	—[g]	—	—	—	—	—	—	0.262 (J-)	—	—	—	—	1.07 (J)	—	NA[h]	NA	—	—
RE02-03-51889	02-22383	2.5–3	SOIL	—	—	—	—	0.538 (U)	—	—	0.0747 (J-)	—	—	—	—	—	—	NA	NA	—	—
RE02-03-51890	02-22384	0.5–1	SOIL	—	—	—	—	—	—	—	0.0661 (J)	—	—	—	—	—	—	NA	NA	—	—
RE02-03-51891	02-22384	2–2.5	SOIL	—	—	—	—	0.553 (U)	—	—	—	—	—	—	—	—	—	NA	NA	—	—
RE02-03-51893	02-22385	2.5–3	SOIL	—	—	—	—	0.533 (U)	—	—	0.075 (J)	—	—	—	—	—	—	NA	NA	—	—
RE02-03-51894	02-22386	0–0.5	SOIL	—	—	—	—	—	—	—	0.108	—	—	—	—	—	—	NA	NA	—	68.4
RE02-07-2101	02-600489	0–0.5	SOIL	—	—	—	—	—	6610 (J-)	—	NA	—	—	—	—	0.294 (J-)	—	1.22 (J-)	—	—	56.1 (J+)
RE02-07-6824	02-600490	0.8–1.8	FILL	—	—	—	—	0.525 (U)	—	—	NA	—	—	—	—	—	—	4.49 (J-)	—	9.24	—
RE02-07-2106	02-600490	4.5–9	QAL	—	—	—	—	0.554 (U)	—	—	NA	—	—	—	—	—	—	2.8	—	2.4	—
RE02-07-2107	02-600490	14.5–19.5	QBO	12500	0.536 (UJ)	1.35 (J)	57.3	0.668 (U)	—	19.5 (U)	NA	4.79	7880	—	275 (J+)	—	3.56 (U)	—	—	2.49	—
RE02-07-2109	02-600491	0–0.5	SOIL	—	—	—	—	—	—	—	NA	—	—	—	—	0.415	—	3.71 (J-)	—	—	—
RE02-07-2110	02-600491	4.5–9	QAL	—	—	—	—	0.548 (U)	—	—	NA	—	—	—	—	—	—	2.55 (J-)	0.000966 (J)	1.64 (U)	—
RE02-07-2111	02-600491	15.5–19.5	QBO	7450	—	1.77 (U)	28.6	0.591 (U)	—	3.35	NA	—	4640	—	207 (J+)	—	—	—	—	1.77 (U)	—
RE02-07-6825	02-600492	0–0.5	SOIL	—	—	—	—	0.527 (U)	—	—	NA	—	—	—	—	—	—	2.7	—	—	—
RE02-07-2114	02-600492	4.5–9.5	QAL	—	—	—	—	0.544 (U)	—	—	NA	—	—	—	—	—	—	1.03 (J)	—	1.79	—
RE02-07-2115	02-600492	14.5–19.5	QBO	10600	—	0.728 (J)	72.4 (J-)	0.546 (U)	—	8.07 (J)	NA	—	5050	—	210 (J)	—	2.5	—	—	1.64 (U)	—
RE02-07-6826	02-600493	0.9–1.4	QAL	—	—	—	—	0.553 (U)	—	—	NA	28.9	—	53.9	—	—	—	1.97	—	14.7	50
RE02-07-2118	02-600493	4.5–9.5	QAL	—	—	—	—	0.574 (U)	—	50.7 (J)	NA	—	—	—	—	—	—	1.5	0.00062 (J)	—	—
RE02-07-2119	02-600493	19–22	QBO	7310	—	1.8 (U)	—	0.599 (U)	—	2.64	NA	—	4790	—	224 (J+)	—	—	—	—	0.615 (J)	—
RE02-07-6827	02-600494	0–0.5	SOIL	—	—	—	—	0.563 (U)	—	56.4	NA	—	—	35.6	—	0.297 (J)	—	1.32	—	—	92.8
RE02-07-2122	02-600494	4.5–14.5	QAL	—	—	—	—	0.549 (U)	—	19.4	NA	51.3	—	—	—	—	—	1.09 (J)	—	2.28	—
RE02-07-2123	02-600494	14.5–22	QBO	6100	—	1.57 (J)	33.7	0.58 (U)	—	4.76	NA	—	5850 (J)	—	305	—	3.81 (J-)	—	—	2.63	—
RE02-07-2125	02-600495	0–0.5	SOIL	—	—	—	—	0.958	—	—	NA	—	—	—	—	—	—	1.33 (J-)	—	—	53.8 (J+)

Table 6.13-2 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Cadmium	Calcium	Chromium	Hexavalent Chromium	Copper	Iron	Lead	Manganese	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Zinc
Qbt 1g, Qct, Qbo BV[a]				**3560**	**0.5**	**0.56**	**25.7**	**0.4**	**1900**	**2.6**	**na[b]**	**3.96**	**3700**	**13.5**	**189**	**0.1**	**2**	**na**	**na**	**0.3**	**40**
Sediment BV[a]				**15400**	**0.83**	**3.98**	**127**	**0.4**	**4420**	**10.5**	**na**	**11.2**	**13800**	**19.7**	**543**	**0.1**	**9.38**	**na**	**na**	**0.3**	**60.2**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**0.4**	**6120**	**19.3**	**na**	**14.7**	**21500**	**22.3**	**671**	**0.1**	**15.4**	**na**	**na**	**1.52**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**1120**	**na**	**2920[d]**	**2920**	**45400**	**795000**	**800**	**145000**	**310[e]**	**22700**	**1820000**	**795**	**5680**	**341000**
Recreational SSL[f]				**791000**	**317**	**27.7**	**158000**	**784**	**na**	**1910[d]**	**1910**	**31700**	**554000**	**560**	**110000**	**238**	**15800**	**1260000**	**555**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**77.9**	**na**	**219[d]**	**219**	**3130**	**54800**	**400**	**10700**	**23[e]**	**1560**	**125000**	**54.8**	**391**	**23500**
RE02-07-2129	02-600496	0–0.5	SED	—	—	—	—	0.501 (U)	—	—	NA	—	—	—	—	—	—	4.55 (J-)	—	1.5 (U)	—
RE02-07-2134	02-600497	4.5–7.5	QAL	—	—	—	—	0.504 (U)	—	—	NA	—	—	—	—	—	—	—	—	1.87	—
RE02-07-2135	02-600497	15–18.5	QBO	5010	—	1.07 (J)	28.4	0.616 (U)	—	9.21 (U)	NA	—	6300	—	210 (J+)	—	2.43 (U)	—	—	2.15	—
RE02-10-21528	02-612293	5–6	QAL	—	1.06 (U)	—	—	0.529 (U)	—	—	NA	—	—	—	—	—	—	NA	NA	—	—
RE02-10-21529	02-612293	15–16	QAL	—	1.07 (U)	—	—	0.534 (U)	—	—	NA	—	—	—	698	—	—	NA	NA	—	—
RE02-10-21530	02-612293	25–26	QBO	5190	1.33 (U)	1.32 (U)	—	0.666 (U)	—	—	NA	—	4640	—	210	—	—	NA	NA	1.32 (UJ)	—
RE02-10-21531	02-612293	35–36	QBO	—	1.19 (U)	1.17 (U)	—	0.594 (U)	—	—	NA	—	5150	—	252	—	—	NA	NA	1.17 (U)	—
RE02-10-21532	02-612293	49–50	QBO	—	1.16 (U)	1.18 (U)	—	0.579 (U)	—	—	NA	—	4940	—	—	—	—	NA	NA	1.18 (U)	—

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

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

[b] na = Not available.

[c] SSLs are from NMED (2009, 108070), unless otherwise noted.

[d] SSLs are for hexavalent chromium.

[e] SSLs are from EPA regional screening tables (http://www.epa.gov.earth1r6/6pd/rcra_c/pd-n/screen.htm).

[f] SSLs are from LANL (2010, 108613).

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

[h] NA = Not analyzed.

Table 6.13-3
Organic Chemicals Detected at AOC 02-004(g)

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	Chloroform	Chrysene	Di-n-butylphthalate	Fluoranthene	Fluorene	Heptachlorodibenzodioxin[1,2,3,4,6,7,8-]	Heptachlorodibenzodioxins (Total)	Heptachlorodibenzofuran[1,2,3,4,6,7,8-]
Industrial SSL[a]				**36700**	**183000**	**8.26**	**8.26**	**23.4**	**2.34**	**23.4**	**18300[b]**	**31.9**	**2340**	**68400**	**24400**	**24400**	**na[c]**	**na**	**na**
Recreational SSL[d]				**20800**	**104000**	**6.65**	**10.5**	**30.1**	**3.01**	**30.1**	**10400[b]**	**224**	**3010**	**39900**	**13900**	**13900**	**na**	**na**	**na**
Residential SSL[a]				**3440**	**17200**	**1.12**	**2.22**	**6.21**	**0.621**	**6.21**	**1720[b]**	**5.72**	**621**	**6110**	**2290**	**2290**	**na**	**na**	**na**
RE02-07-2101	02-600489	0–0.5	SOIL	—[e]	—	0.0528	0.0382	—	0.123 (J)	0.179 (J)	0.0407 (J)	NA[f]	—	—	0.187	—	0.000657	0.00137	0.000084
RE02-07-6824	02-600490	0.8–1.8	FILL	—	—	—	—	—	—	—	—	NA	—	—	—	—	0.00000132 (J)	0.00000328	0.00000166 (J)
RE02-07-2106	02-600490	4.5–9	QAL	—	—	—	—	—	—	—	—	—	—	—	—	—	0.000000105 (J)	0.0000003	0.00000007 (J)
RE02-07-2107	02-600490	14.5–19.5	QBO	—	—	—	—	—	—	—	—	—	—	—	—	—	0.000000972 (J)	0.0000022	0.00000032 (J)
RE02-07-2109	02-600491	0–0.5	SOIL	0.0261 (J)	0.0356	0.0403	0.0197 (J)	0.119	0.115 (J)	0.18 (J)	0.0552 (J)	NA	0.111	—	0.168	0.0141 (J)	0.0000109	0.0000214	0.00000533
RE02-07-2110	02-600491	4.5–9	QAL	—	—	—	—	—	—	—	—	—	—	0.0641 (J)	—	—	0.000000245 (J)	0.000000245	—
RE02-07-2111	02-600491	15.5–19.5	QBO	—	—	—	—	—	—	—	—	—	—	0.0498 (J)	—	—	0.000000208 (J)	0.000000473	—
RE02-07-6825	02-600492	0–0.5	SOIL	—	—	0.0042 (J-)	—	—	—	—	—	NA	—	—	—	—	0.00000102 (J)	0.00000211	0.00000134 (J)
RE02-07-2114	02-600492	4.5–9.5	QAL	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2115	02-600492	14.5–19.5	QBO	—	—	—	—	—	—	—	—	—	—	—	—	—	0.000000445 (J)	0.000000445	—
RE02-07-6826	02-600493	0.9–1.4	QAL	—	—	—	0.0034 (J-)	—	—	—	—	NA	—	—	—	—	0.0000329	0.000117	0.0000105
RE02-07-2118	02-600493	4.5–9.5	QAL	—	—	—	—	—	—	—	—	0.000313 (J)	—	—	—	—	0.000000814 (J)	0.00000147	0.000000243 (J)
RE02-07-2119	02-600493	19–22	QBO	—	—	—	—	—	—	—	—	—	—	0.0703 (J)	—	—	0.000000387 (J)	0.000000762	—
RE02-07-6827	02-600494	0–0.5	SOIL	—	—	0.0052 (J-)	0.0036 (J)	—	—	0.0248 (J)	—	NA	—	—	0.0263 (J)	—	0.0000324	0.0000625	0.0000112
RE02-07-2122	02-600494	4.5–14.5	QAL	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00000156 (J)	0.00000286	0.000000386 (J)
RE02-07-2123	02-600494	14.5–22	QBO	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.000000257	0.000000551 (J)
RE02-07-2125	02-600495	0–0.5	SOIL	—	—	0.0245 (J)	0.016 (J)	—	0.0269 (J)	0.045 (J)	—	NA	0.0287 (J)	—	0.0437	—	0.00125	0.00198	0.000553
RE02-07-2129	02-600496	0–0.5	SED	—	—	—	—	—	0.022 (J)	0.0273 (J)	—	NA	0.0176 (J)	—	0.0259 (J)	—	0.00000908	0.0000169	0.00000326
RE02-07-2133	02-600497	0–0.5	SOIL	—	0.00712 (J)	—	—	—	0.0141 (J)	0.0164 (J)	—	NA	0.0167 (J)	—	0.0169 (J)	—	0.0000157	0.0000302	0.00000588
RE02-07-2134	02-600497	4.5–7.5	QAL	—	—	—	—	—	—	—	—	—	—	—	—	—	0.000000585 (J)	0.00000125	0.000000207 (J)
RE02-07-2135	02-600497	15–18.5	QBO	—	—	—	—	—	—	—	—	—	—	—	—	—	0.000000127 (J)	0.000000127	0.000000107 (J)

Table 6.13-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Heptachlorodibenzofuran[1,2,3,4,7,8,9-]	Heptachlorodibenzofurans (Total)	Hexachlorodibenzodioxin[1,2,3,4,7,8-]	Hexachlorodibenzodioxin[1,2,3,6,7,8-]	Hexachlorodibenzodioxin[1,2,3,7,8,9-]	Hexachlorodibenzodioxins (Total)	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-]	Hexachlorodibenzofurans (Total)
Industrial SSL[a]				**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**
Recreational SSL[d]				**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**
Residential SSL[a]				**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**
RE02-07-2101	02-600489	0–0.5	SOIL	0.0000078	0.000343	0.00000383	0.0000145	0.00000846	0.000114	0.00000387	0.00000318	0.0000009 (J)	0.00000445	0.0000922
RE02-07-6824	02-600490	0.8–1.8	FILL	—	0.0000029	—	—	—	0.000000192	—	—	—	—	0.00000131
RE02-07-2106	02-600490	4.5–9	QAL	—	0.00000007	—	—	—	—	—	—	—	—	—
RE02-07-2107	02-600490	14.5–19.5	QBO	—	0.00000112	—	—	—	—	0.0000000442 (J)	—	—	—	0.00000013
RE02-07-2109	02-600491	0–0.5	SOIL	0.000000786 (J)	0.0000123	—	—	—	0.00000162	0.00000429	0.00000144 (J)	0.000000305 (J)	0.00000218 (J)	0.0000235 (J)
RE02-07-2110	02-600491	4.5–9	QAL	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2111	02-600491	15.5–19.5	QBO	—	—	—	—	—	—	—	—	—	—	—
RE02-07-6825	02-600492	0–0.5	SOIL	—	0.0000025	—	—	—	—	—	—	—	—	0.000000416
RE02-07-2114	02-600492	4.5–9.5	QAL	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2115	02-600492	14.5–19.5	QBO	—	0.000000222	—	—	—	—	—	—	—	—	—
RE02-07-6826	02-600493	0.9–1.4	QAL	0.000000801 (J)	0.0000382	0.000000447 (J)	0.00000127 (J)	0.000000835 (J)	0.0000129	0.000000549 (J)	0.000000604 (J)	—	0.000000897 (J)	0.0000146
RE02-07-2118	02-600493	4.5–9.5	QAL	—	0.000000625	—	—	—	—	—	—	—	—	—
RE02-07-2119	02-600493	19–22	QBO	—	—	—	—	—	—	—	—	—	—	—
RE02-07-6827	02-600494	0–0.5	SOIL	0.000000574 (J)	0.0000325	—	0.00000089 (J)	0.000000462 (J)	0.00000607	0.000000539 (J)	0.000000448 (J)	—	0.00000071 (J)	0.0000113
RE02-07-2122	02-600494	4.5–14.5	QAL	—	0.000000936	—	—	—	0.000000226	0.000000109 (J)	0.0000000397 (J)	—	0.0000000323 (J)	0.000000454
RE02-07-2123	02-600494	14.5–22	QBO	—	0.00000063	—	—	—	—	—	—	—	—	—
RE02-07-2125	02-600495	0–0.5	SOIL	0.0000469	0.00133	0.0000346	0.0000734	0.0000818	0.000461	0.0000489	0.0000424	0.00000819	0.0000492	0.00101
RE02-07-2129	02-600496	0–0.5	SED	—	0.00000691	—	0.000000434 (J)	0.00000041 (J)	0.00000298	0.000000436 (J)	0.000000256 (J)	—	0.000000302 (J)	0.00000504
RE02-07-2133	02-600497	0–0.5	SOIL	0.000000456 (J)	0.0000125	0.000000295 (J)	0.000000722 (J)	—	0.00000477	0.000000915 (J)	0.000000533 (J)	—	0.00000078 (J)	0.00000966 (J)
RE02-07-2134	02-600497	4.5–7.5	QAL	—	0.000000422	—	—	—	—	—	—	—	—	0.000000157
RE02-07-2135	02-600497	15–18.5	QBO	—	0.000000107	—	—	—	—	0.0000000289 (J)	—	—	—	0.0000000289

Table 6.13-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Indeno(1,2,3-cd)pyrene	Methylene Chloride	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-]	Pentachlorodibenzodioxins (Total)	Pentachlorodibenzofuran[1,2,3,7,8-]	Pentachlorodibenzofuran[2,3,4,7,8-]	Pentachlorodibenzofurans (Totals)	Phenanthrene
Industrial SSL[a]				**23.4**	**1090**	**4100[g]**	**252**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**20500**
Recreational SSL[d]				**30.1**	**4520**	**3170**	**1950**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**12000**
Residential SSL[a]				**6.21**	**199**	**310[g]**	**45**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**1830**
RE02-07-2101	02-600489	0–0.5	SOIL	—	NA	—	—	0.015	0.000217	0.00000213 (J)	0.0000172	0.000000608 (J)	0.00000237 (J)	0.0000285 (J)	0.0828 (J)
RE02-07-6824	02-600490	0.8–1.8	FILL	—	NA	—	—	0.0000116	0.00000133 (J)	—	—	—	—	0.000000336	—
RE02-07-2106	02-600490	4.5–9	QAL	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2107	02-600490	14.5–19.5	QBO	—	—	—	—	0.0000122	0.000000747 (J)	—	—	—	—	—	—
RE02-07-2109	02-600491	0–0.5	SOIL	0.0401 (J)	NA	—	0.0178 (J)	0.000113	0.00000839	—	0.0000000815	0.00000106 (J)	0.00000681	0.0000372	0.118
RE02-07-2110	02-600491	4.5–9	QAL	—	—	—	—	0.00000134 (J)	0.000000168 (J)	—	—	—	—	—	—
RE02-07-2111	02-600491	15.5–19.5	QBO	—	—	—	—	0.00000168 (J)	—	—	—	—	—	—	—
RE02-07-6825	02-600492	0–0.5	SOIL	—	NA	0.00783 (J)	—	0.00000821	0.000000909 (J)	—	—	—	—	—	—
RE02-07-2114	02-600492	4.5–9.5	QAL	—	—	—	—	0.0000015 (J)	—	—	—	—	—	—	—
RE02-07-2115	02-600492	14.5–19.5	QBO	—	—	—	—	0.00000559	0.000000364 (J)	—	—	—	—	—	—
RE02-07-6826	02-600493	0.9–1.4	QAL	—	NA	—	—	0.000259	0.0000325	0.000000312 (J)	0.00000152	—	0.000000859 (J)	0.000011	—
RE02-07-2118	02-600493	4.5–9.5	QAL	—	0.00254 (J)	—	—	0.00000712	0.00000049 (J)	—	—	—	—	—	—
RE02-07-2119	02-600493	19–22	QBO	—	—	—	—	0.0000028 (J)	—	—	—	—	—	—	—
RE02-07-6827	02-600494	0–0.5	SOIL	—	NA	0.0152 (J)	—	0.000275	0.0000335	0.000000152 (J)	0.00000047	—	0.000000604 (J)	0.00000722	0.0267 (J)
RE02-07-2122	02-600494	4.5–14.5	QAL	—	—	—	—	0.0000126	0.000000802 (J)	—	—	—	—	0.000000178	—
RE02-07-2123	02-600494	14.5–22	QBO	—	—	—	—	0.0000017 (J)	0.000000221 (J)	—	—	—	—	—	—
RE02-07-2125	02-600495	0–0.5	SOIL	—	NA	—	—	0.00581	0.000652	0.0000206	0.0000728	0.00000403	0.0000124	0.000295 (J)	0.022 (J)
RE02-07-2129	02-600496	0–0.5	SED	—	NA	—	—	0.0000645	0.00000533	—	—	—	—	0.00000236 (J)	0.0114 (J)
RE02-07-2133	02-600497	0–0.5	SOIL	—	NA	—	—	0.000111	0.00000825	—	—	—	0.00000115 (J)	0.00000721	—
RE02-07-2134	02-600497	4.5–7.5	QAL	—	—	—	—	0.00000462 (J)	0.000000373 (J)	—	—	—	—	—	—
RE02-07-2135	02-600497	15–18.5	QBO	—	—	—	—	0.00000179 (J)	—	—	—	—	—	—	—

Table 6.13-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Pyrene	Tetrachlorodibenzodioxin[2,3,7,8-]	Tetrachlorodibenzodioxins (Total)	Tetrachlorodibenzofuran[2,3,7,8-]	Tetrachlorodibenzofurans (Totals)	Tetrachloroethene	Toluene	Trichloroethene
Industrial SSL[a]				**18300**	**0.000204**	**na**	**0.00147**	**na**	**36.4**	**57900**	**253**
Recreational SSL[d]				**10400**	**0.000319**	**na**	**0.00197**	**na**	**91.7**	**60800**	**1450**
Residential SSL[a]				**1720**	**0.000045**	**na**	**0.000374**	**na**	**6.99**	**5570**	**45.7**
RE02-07-2101	02-600489	0–0.5	SOIL	0.221	0.00000026 (J)	0.000000947	—	0.00000842	NA	NA	NA
RE02-07-6824	02-600490	0.8–1.8	FILL	0.0144 (J)	—	—	—	0.000000328	NA	NA	NA
RE02-07-2106	02-600490	4.5–9	QAL	—	—	—	—	0.0000000988	—	0.000583 (J)	0.000884 (J)
RE02-07-2107	02-600490	14.5–19.5	QBO	—	—	—	—	—	—	—	—
RE02-07-2109	02-600491	0–0.5	SOIL	0.185	—	—	0.00000343	0.0000147	NA	NA	NA
RE02-07-2110	02-600491	4.5–9	QAL	—	—	—	—	0.000000136	—	—	—
RE02-07-2111	02-600491	15.5–19.5	QBO	—	—	—	—	—	—	—	—
RE02-07-6825	02-600492	0–0.5	SOIL	—	—	—	—	—	NA	NA	NA
RE02-07-2114	02-600492	4.5–9.5	QAL	—	—	0.0000000937	—	0.000000134	—	—	—
RE02-07-2115	02-600492	14.5–19.5	QBO	—	—	—	—	—	—	—	—
RE02-07-6826	02-600493	0.9–1.4	QAL	—	—	0.000000228	0.000000239 (J)	0.00000364	NA	NA	NA
RE02-07-2118	02-600493	4.5–9.5	QAL	—	—	0.000000167	—	0.000000337	0.000302 (J)	0.00336	—
RE02-07-2119	02-600493	19–22	QBO	—	—	—	—	—	—	—	—
RE02-07-6827	02-600494	0–0.5	SOIL	0.0205 (J)	—	—	0.00000028 (J)	0.0000025	NA	NA	NA
RE02-07-2122	02-600494	4.5–14.5	QAL	—	—	0.0000000695	—	0.000000175	—	0.000343 (J)	—
RE02-07-2123	02-600494	14.5–22	QBO	—	—	—	—	—	—	—	—
RE02-07-2125	02-600495	0–0.5	SOIL	0.0618	0.000000756	0.00000349	0.00000123	0.0000376	NA	NA	NA
RE02-07-2129	02-600496	0–0.5	SED	0.0217 (J)	—	—	0.000000189 (J)	0.000000911	NA	NA	NA
RE02-07-2133	02-600497	0–0.5	SOIL	0.0158 (J)	—	—	0.00000055 (J)	0.00000151	NA	NA	NA
RE02-07-2134	02-600497	4.5–7.5	QAL	—	—	—	—	—	—	—	—
RE02-07-2135	02-600497	15–18.5	QBO	—	—	—	—	—	—	—	—

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

[a] SSLs are from NMED (2009, 108070), unless otherwise noted.

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

[c] na = Not available.

[d] SSLs are from LANL (2010, 108613).

[e] — = Not detected.

[f] NA = Not analyzed.

[g] SSLs are from EPA regional screening tables (http://www.epa.gov.earth1r6/6pd/rcra_c/pd-n/screen.htm).

Table 6.13-4
Radionuclides Detected or Detected above BVs/FVs at AOC 02-004(g)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-137	Cobalt-60	Plutonium-239/240	Strontium-90	Tritium
Qbt 1g, Qct, Qbo BV[a]				**na[b]**	**na**	**na**	**na**	**na**	**na**
Sediment BV[a]				**0.04**	**0.9**	**na**	**0.068**	**1.04**	**0.093**
Soil BV[a]				**0.013**	**1.65**	**na**	**0.054**	**1.31**	**na**
Industrial SAL[c]				**180**	**23**	**5.1**	**210**	**1900**	**440000**
Recreational SAL[c]				**280**	**210**	**46**	**300**	**5600**	**5300000**
Residential SAL[c]				**30**	**5.6**	**1.3**	**33**	**5.7**	**750**
RE02-03-51888	02-22383	1–1.5	SOIL	NA[d]	0.0453	—[e]	—	—	0.04
RE02-03-51889	02-22383	2.5–3	SOIL	NA	—	—	—	0.233	0.0474
RE02-03-51890	02-22384	0.5–1	SOIL	NA	—	—	0.301	—	0.0753
RE02-03-51891	02-22384	2–2.5	SOIL	NA	—	—	—	—	0.0904
RE02-03-51892	02-22385	1–1.5	SOIL	NA	—	—	—	—	0.0201
RE02-03-51893	02-22385	2.5–3	SOIL	NA	—	—	0.105	0.102	0.0144
RE02-03-51894	02-22386	0–0.5	SOIL	NA	—	—	0.115	—	—
RE02-07-2101	02-600489	0–0.5	SOIL	—	—	0.504	0.195 (J+)	—	—
RE02-07-6824	02-600490	0.8–1.8	FILL	—	—	—	1.85	—	0.0286246
RE02-07-2109	02-600491	0–0.5	SOIL	—	—	—	0.0835	—	0.0118856
RE02-07-2111	02-600491	15.5–19.5	QBO	—	—	—	—	—	0.187463
RE02-07-6825	02-600492	0–0.5	SOIL	—	—	—	—	—	0.0345484
RE02-07-2114	02-600492	4.5–9.5	QAL	—	—	—	—	—	0.0539966
RE02-07-6826	02-600493	0.9–1.4	QAL	—	—	—	0.0515	—	—
RE02-07-2125	02-600495	0–0.5	SOIL	0.165	2.88	—	0.169 (J+)	—	—
RE02-07-2129	02-600496	0–0.5	SED	—	—	—	0.13 (J+)	—	—
RE02-10-215279	02-612293	15–16	QAL	—	—	—	0.023	—	—

Notes: Results are in pCi/g. Data qualifiers are defined in Appendix A.
[a] BVs/FVs are from LANL (1998, 059730).
[b] na = Not available.
[c] SALs from LANL (2009, 107655).
[d] NA = Not analyzed.
[e] — = Not detected.

Table 6.14-1
Samples Collected and Analyses Requested at SWMU 02-005

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Gamma-emitting Radionuclides	Tritium	Hexavalent Chromium	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	VOCs	Cyanide (Total)
RE02-07-2445	02-600547	0–0.5	SOIL	07-328	07-328	07-328	07-328	07-328	07-328	07-328	07-328	—*	07-328	07-328	07-327	—	07-328
RE02-07-2446	02-600547	2–2.5	QAL	07-369	07-368	07-369	07-369	07-368	07-369	07-369	07-368	—	07-368	07-369	07-367	07-367	07-368
RE02-07-2448	02-600548	0–0.5	SOIL	07-1126	07-1125	07-1126	07-1126	07-1125	07-1126	07-1126	07-1125	07-1125	07-1125	07-1126	—	—	07-1125
RE02-07-2451	02-600549	0–0.5	SOIL	07-1126	07-1125	07-1126	07-1126	07-1125	07-1126	07-1126	07-1125	07-1125	07-1125	07-1126	—	—	07-1125
RE02-07-2454	02-600550	0–0.5	SOIL	07-1126	07-1125	07-1126	07-1126	07-1125	07-1126	07-1126	07-1125	07-1125	07-1125	07-1126	—	—	07-1125
RE02-07-2457	02-600551	0–0.5	SOIL	07-1126	07-1125	07-1126	07-1126	07-1125	07-1126	07-1126	07-1125	07-1125	07-1125	07-1126	—	—	07-1125
RE02-07-2460	02-600552	0–0.5	SOIL	07-1030	07-1030	07-1030	07-1030	07-1030	07-1030	07-1030	07-1030	07-1030	07-1030	07-1030	—	—	07-1030
RE02-07-2463	02-600553	0–0.5	SOIL	07-1030	07-1030	07-1030	07-1030	07-1030	07-1030	07-1030	07-1030	07-1030	07-1030	07-1030	—	—	07-1030
RE02-07-2464	02-600553	2–4.5	QAL	07-1104	07-1104	07-1104	07-1104	07-1104	07-1104	07-1104	07-1104	07-1104	07-1104	07-1104	—	—	07-1104
RE02-07-2465	02-600553	4.5–7	QAL	07-1104	07-1104	07-1104	07-1104	07-1104	07-1104	07-1104	07-1104	07-1104	07-1104	07-1104	—	—	07-1104
RE02-07-2466	02-600554	0–1.1	SOIL	07-1036	07-1036	07-1036	07-1036	07-1036	07-1036	07-1036	07-1036	07-1036	07-1036	07-1036	—	—	07-1036
RE02-07-2467	02-600554	2–3	QAL	07-1036	07-1036	07-1036	07-1036	07-1036	07-1036	07-1036	07-1036	07-1036	07-1036	07-1036	—	—	07-1036
RE02-07-2468	02-600554	4.5–5	QCT	07-1036	07-1036	07-1036	07-1036	07-1036	07-1036	07-1036	07-1036	07-1036	07-1036	07-1036	—	—	07-1036
RE02-07-2469	02-600555	0–1.1	SOIL	07-1114	07-1114	07-1114	07-1114	07-1114	07-1114	07-1114	07-1114	07-1114	07-1114	07-1114	—	—	07-1114
RE02-07-2470	02-600555	2–2.5	QAL	07-1114	07-1114	07-1114	07-1114	07-1114	07-1114	07-1114	07-1114	07-1114	07-1114	07-1114	—	—	07-1114
RE02-07-2472	02-600556	0–0.5	SOIL	07-1114	07-1114	07-1114	07-1114	07-1114	07-1114	07-1114	07-1114	07-1114	07-1114	07-1114	—	—	07-1114
RE02-07-2473	02-600556	2–3	QAL	07-1114	07-1114	07-1114	07-1114	07-1114	07-1114	07-1114	07-1114	07-1114	07-1114	07-1114	—	—	07-1114
RE02-07-2475	02-600557	0–0.5	SOIL	07-1126	07-1125	07-1126	07-1126	07-1125	07-1126	07-1126	07-1125	07-1125	07-1125	07-1126	—	—	07-1125
RE02-07-2478	02-600558	0–0.5	SOIL	07-1126	07-1125	07-1126	07-1126	07-1125	07-1126	07-1126	07-1125	07-1125	07-1125	07-1126	—	—	07-1125
RE02-07-2479	02-600558	2–2.5	QAL	07-1126	07-1125	07-1126	07-1126	07-1125	07-1126	07-1126	07-1125	07-1125	07-1125	07-1126	—	—	07-1125
RE02-07-2480	02-600558	4.5–5	QAL	07-1126	07-1125	07-1126	07-1126	07-1125	07-1126	07-1126	07-1125	07-1125	07-1125	07-1126	—	—	07-1125
RE02-07-2481	02-600559	0–0.5	SOIL	07-369	07-368	07-369	07-369	07-368	07-369	07-369	07-368	07-368	07-368	07-369	—	—	07-368
RE02-07-2482	02-600559	2–2.5	QAL	07-369	07-368	07-369	07-369	07-368	07-369	07-369	07-368	07-368	07-368	07-369	—	—	07-368
RE02-07-2484	02-600560	0–0.5	SOIL	07-1126	07-1125	07-1126	07-1126	07-1125	07-1126	07-1126	07-1125	07-1125	07-1125	07-1126	—	—	07-1125
RE02-07-2485	02-600560	2–3	QAL	07-1126	07-1125	07-1126	07-1126	07-1125	07-1126	07-1126	07-1125	07-1125	07-1125	07-1126	—	—	07-1125
RE02-07-2486	02-600560	4.5–5	QAL	07-1126	07-1125	07-1126	07-1126	07-1125	07-1126	07-1126	07-1125	07-1125	07-1125	07-1126	—	—	07-1125
RE02-07-2487	02-600561	0–0.5	SOIL	07-1126	07-1125	07-1126	07-1126	07-1125	07-1126	07-1126	07-1125	07-1125	07-1125	07-1126	—	—	07-1125
RE02-10-21866	02-600561	1–1.2	SOIL	—	—	—	—	—	—	—	—	10-4447	—	—	—	—	—
RE02-10-21867	02-600561	2–2.2	SOIL	—	—	—	—	—	—	—	—	10-4447	—	—	—	—	—
RE02-07-2490	02-600562	0–0.5	SOIL	07-1126	07-1125	07-1126	07-1126	07-1125	07-1126	07-1126	07-1125	07-1125	07-1125	07-1126	—	—	07-1125
RE02-10-21868	02-612376	1–1.2	SOIL	—	—	—	—	—	—	—	—	10-4447	—	—	—	—	—

Table 6.14-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Gamma-emitting Radionuclides	Tritium	Hexavalent Chromium	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	VOCs	Cyanide (Total)
RE02-10-21869	02-612376	2–2.2	SOIL	—	—	—	—	—	—	—	—	10-4447	—	—	—	—	—
RE02-10-21870	02-612377	1–1.2	SOIL	—	—	—	—	—	—	—	—	10-4447	—	—	—	—	—
RE02-10-21871	02-612377	2–2.2	SOIL	—	—	—	—	—	—	—	—	10-4447	—	—	—	—	—
RE02-10-21872	02-612378	1–1.2	SOIL	—	—	—	—	—	—	—	—	10-4447	—	—	—	—	—
RE02-10-21873	02-612378	2–2.2	SOIL	—	—	—	—	—	—	—	—	10-4447	—	—	—	—	—
RE02-10-21891	02-612379	0–0.5	SOIL	10-4445	—	10-4445	10-4445	—	10-4445	—	10-4445	—	—	—	—	—	—
RE02-10-21874	02-612379	1–1.2	SOIL	—	—	—	—	—	—	—	—	10-4447	—	—	—	—	—
RE02-10-21892	02-612379	1.5–2.5	SOIL	10-4445	—	10-4445	10-4445	—	10-4445	—	10-4445	—	—	—	—	—	—
RE02-10-21875	02-612379	2–2.2	SOIL	—	—	—	—	—	—	—	—	10-4447	—	—	—	—	—
RE02-10-21877	02-612380	0–0.5	SOIL	10-4215	—	10-4215	10-4215	—	10-4215	—	10-4214	—	—	—	—	—	—
RE02-10-21878	02-612380	1.5–2.5	SOIL	10-4215	—	10-4215	10-4215	—	10-4215	—	10-4214	—	—	—	—	—	—
RE02-10-21879	02-612381	0–0.5	SOIL	10-4215	—	10-4215	10-4215	—	10-4215	—	10-4214	—	—	—	—	—	—
RE02-10-21880	02-612381	1.5–2.5	SOIL	10-4215	—	10-4215	10-4215	—	10-4215	—	10-4214	—	—	—	—	—	—
RE02-10-21881	02-612382	0–0.5	SOIL	10-4215	—	10-4215	10-4215	—	10-4215	—	10-4214	—	—	—	—	—	—
RE02-10-21882	02-612382	1.5–2.5	SOIL	10-4215	—	10-4215	10-4215	—	10-4215	—	10-4214	—	—	—	—	—	—
RE02-10-21883	02-612383	0–0.5	SOIL	10-4215	—	10-4215	10-4215	—	10-4215	—	10-4214	—	—	—	—	—	—
RE02-10-21884	02-612383	1.5–2.5	SOIL	10-4215	—	10-4215	10-4215	—	10-4215	—	10-4214	—	—	—	—	—	—
RE02-10-21885	02-612384	0–0.5	SOIL	10-4215	—	10-4215	10-4215	—	10-4215	—	10-4214	—	—	—	—	—	—
RE02-10-21886	02-612384	1.5–2.5	SOIL	10-4215	—	10-4215	10-4215	—	10-4215	—	10-4214	—	—	—	—	—	—
RE02-10-21887	02-612385	0–0.5	SOIL	10-4419	—	10-4419	10-4419	—	10-4419	—	10-4419	—	—	—	—	—	—
RE02-10-21888	02-612385	1.5–2.5	SOIL	10-4419	—	10-4419	10-4419	—	10-4419	—	10-4419	—	—	—	—	—	—
RE02-10-21889	02-612386	0–0.5	SOIL	10-4445	—	10-4445	10-4445	—	10-4445	—	10-4445	—	—	—	—	—	—
RE02-10-21890	02-612386	1.5–2.5	QAL	10-4445	—	10-4445	10-4445	—	10-4445	—	10-4445	—	—	—	—	—	—
RE02-10-21976	02-612407	0–0.5	SOIL	10-4163	—	10-4163	10-4163	10-4162	10-4163	10-4163	10-4162	10-4162	—	10-4163	10-4162	—	10-4162
RE02-10-21977	02-612407	4–5	SOIL	10-4163	—	10-4163	10-4163	10-4162	10-4163	10-4163	10-4162	10-4162	—	10-4163	10-4162	—	10-4162
RE02-10-21978	02-612407	9–10	SOIL	10-4163	—	10-4163	10-4163	10-4162	10-4163	10-4163	10-4162	10-4162	—	10-4163	10-4162	—	10-4162
RE02-11-322	02-613290	2–2.2	SOIL	—	—	—	—	—	—	—	—	11-235	—	—	—	—	—
RE02-11-2209	02-613290	4–4.2	SOIL	—	—	—	—	—	—	—	—	11-547	—	—	—	—	—
RE02-11-323	02-613291	1–1.2	SOIL	—	—	—	—	—	—	—	—	11-235	—	—	—	—	—
RE02-11-2207	02-613622	2–2.2	SOIL	—	—	—	—	—	—	—	—	11-547	—	—	—	—	—
RE02-11-2208	02-613622	4–4.2	SOIL	—	—	—	—	—	—	—	—	11-547	—	—	—	—	—

* — = Analysis not requested.

Table 6.14-2
Inorganic Chemicals above BVs at SWMU 02-005

Sample ID	Location ID	Depth (ft)	Media	Antimony	Arsenic	Cadmium	Chromium	Hexavalent Chromium	Copper	Cyanide (Total)	Iron	Lead	Manganese	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Zinc
Qbt 1g, Qct, Qbo BV[a]				**0.5**	**0.56**	**0.4**	**2.6**	**na[b]**	**3.96**	**0.5**	**3700**	**13.5**	**189**	**0.1**	**2**	**na**	**na**	**0.3**	**40**
Soil BV[a]				**0.83**	**8.17**	**0.4**	**19.3**	**na**	**14.7**	**0.5**	**21500**	**22.3**	**671**	**0.1**	**15.4**	**na**	**na**	**1.52**	**48.8**
Industrial SSL[c]				**454**	**17.7**	**1120**	**2920[d]**	**2920**	**45400**	**22700**	**795000**	**800**	**145000**	**310[e]**	**22700**	**1820000**	**795**	**5680**	**341000**
Recreational SSL[f]				**317**	**27.7**	**784**	**1910[d]**	**1910**	**31700**	**15800**	**554000**	**560**	**110000**	**238**	**15800**	**1260000**	**555**	**3960**	**238000**
Residential SSL[c]				**31.3**	**3.9**	**77.9**	**219[d]**	**219**	**3130**	**1560**	**54800**	**400**	**10700**	**23[e]**	**1560**	**125000**	**54.8**	**391**	**23500**
RE02-07-2445	02-600547	0–0.5	SOIL	—[g]	—	0.496 (U)	—	0.24 (J)	—	—	—	—	—	—	—	1.74	0.000873 (J)	1.91 (U)	54.2
RE02-07-2446	02-600547	2–2.5	QAL	—	—	0.505 (U)	—	—	—	—	—	—	—	—	—	1.36 (J-)	0.000775 (J-)	—	—
RE02-07-2448	02-600548	0–0.5	SOIL	—	—	0.538 (U)	—	—	—	—	—	—	—	—	—	2.43	—	6.48	—
RE02-07-2451	02-600549	0–0.5	SOIL	—	—	0.522 (U)	—	—	—	—	—	—	—	—	—	2.03	—	7.67	51.9
RE02-07-2454	02-600550	0–0.5	SOIL	—	—	0.514 (U)	—	—	—	—	—	—	—	—	—	2.26	—	8.37	49.8
RE02-07-2457	02-600551	0–0.5	SOIL	—	—	0.518 (U)	—	—	—	—	—	—	—	—	—	3.08	—	6.01	63.1
RE02-07-2460	02-600552	0–0.5	SOIL	—	—	0.545 (U)	—	—	—	—	—	—	—	—	—	1.95 (J-)	0.00108 (J)	1.67	—
RE02-07-2463	02-600553	0–0.5	SOIL	—	—	0.512 (U)	—	—	34.9 (J)	—	—	—	—	2.17	—	1.75 (J-)	—	1.66	—
RE02-07-2464	02-600553	2–4.5	QAL	—	—	0.495 (U)	—	0.34	—	—	—	—	—	0.22	—	—	—	5.89	—
RE02-07-2465	02-600553	4.5–7	QAL	—	—	0.514 (U)	—	0.433 (J)	—	—	—	—	—	—	—	1.27	0.00253	5.74	—
RE02-07-2466	02-600554	0–1.1	SOIL	—	—	0.53 (U)	—	0.527 (J)	—	—	—	—	—	—	—	1.8	—	8.01	—
RE02-07-2467	02-600554	2–3	QAL	—	—	0.504 (U)	—	—	—	—	—	—	—	—	—	1.07	—	8.16	—
RE02-07-2468	02-600554	4.5–5	QCT	—	1.51	0.498 (U)	6.8	—	—	—	5150	—	304	—	2.43	—	—	5.23	44.8
RE02-07-2469	02-600555	0–1.1	SOIL	—	—	0.498 (U)	—	0.106 (J)	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2470	02-600555	2–2.5	QAL	—	—	0.505 (U)	—	0.0522 (J)	—	—	—	—	—	—	—	—	—	—	53.9
RE02-07-2472	02-600556	0–0.5	SOIL	—	—	0.501 (U)	—	0.0497 (J)	—	—	—	—	—	—	—	—	—	—	50.9
RE02-07-2473	02-600556	2–3	QAL	—	—	0.504 (U)	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2475	02-600557	0–0.5	SOIL	—	—	0.563 (U)	—	—	—	0.547	—	—	—	—	—	2.49	—	6.68	—
RE02-07-2478	02-600558	0–0.5	SOIL	—	—	0.554 (U)	—	—	—	—	—	—	—	—	—	4.74	0.0007 (J)	6.36	—
RE02-07-2479	02-600558	2–2.5	QAL	—	—	0.5 (U)	—	1.06	—	—	—	—	—	—	—	—	—	5.75	—
RE02-07-2480	02-600558	4.5–5	QAL	—	—	0.508 (U)	—	0.0951 (J)	—	—	—	—	—	—	—	—	0.00108 (J)	6.1	—
RE02-07-2481	02-600559	0–0.5	SOIL	—	—	0.524 (U)	—	0.768 (J)	—	—	—	24.4	—	—	—	2.2 (J-)	0.000622 (J-)	1.71 (U)	68.5
RE02-07-2482	02-600559	2–2.5	QAL	—	—	0.527 (U)	—	0.692 (J)	—	—	—	60.6	—	—	—	1.16 (J-)	—	2.24 (U)	74.4
RE02-07-2484	02-600560	0–0.5	SOIL	—	—	0.523 (U)	—	0.0703 (J)	—	—	—	—	—	—	—	3.55	—	6.71	—
RE02-07-2485	02-600560	2–3	QAL	—	—	0.505 (U)	—	—	—	—	—	—	—	—	—	2.02	—	6.94	—
RE02-07-2486	02-600560	4.5–5	QAL	—	—	0.511 (U)	—	—	—	—	—	—	—	—	—	1.33	—	6.51	—
RE02-07-2487	02-600561	0–0.5	SOIL	—	—	—	—	—	—	—	—	66.6	—	—	—	—	0.000758 (J)	7.35	71.7
RE02-07-2490	02-600562	0–0.5	SOIL	—	—	0.505 (U)	—	—	—	—	—	—	—	—	—	—	—	8.37	—

Table 6.14-2 (continued)

Sample ID	Location ID	Depth (ft)	Media	Antimony	Arsenic	Cadmium	Chromium	Hexavalent Chromium	Copper	Cyanide (Total)	Iron	Lead	Manganese	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Zinc
Qbt 1g, Qct, Qbo BV[a]				**0.5**	**0.56**	**0.4**	**2.6**	**na[b]**	**3.96**	**0.5**	**3700**	**13.5**	**189**	**0.1**	**2**	**na**	**na**	**0.3**	**40**
Soil BV[a]				**0.83**	**8.17**	**0.4**	**19.3**	**na**	**14.7**	**0.5**	**21500**	**22.3**	**671**	**0.1**	**15.4**	**na**	**na**	**1.52**	**48.8**
Industrial SSL[c]				**454**	**17.7**	**1120**	**2920[d]**	**2920**	**45400**	**22700**	**795000**	**800**	**145000**	**310[e]**	**22700**	**1820000**	**795**	**5680**	**341000**
Recreational SSL[f]				**317**	**27.7**	**784**	**1910[d]**	**1910**	**31700**	**15800**	**554000**	**560**	**110000**	**238**	**15800**	**1260000**	**555**	**3960**	**238000**
Residential SSL[c]				**31.3**	**3.9**	**77.9**	**219[d]**	**219**	**3130**	**1560**	**54800**	**400**	**10700**	**23[e]**	**1560**	**125000**	**54.8**	**391**	**23500**
RE02-10-21891	02-612379	0–0.5	SOIL	1.14 (U)	—	—	—	NA[h]	—	NA	—	51	—	—	—	NA	NA	—	62.1 (J)
RE02-10-21892	02-612379	1.5–2.5	SOIL	1.01 (U)	—	—	—	NA	—	NA	—	—	—	—	—	NA	NA	—	—
RE02-10-21877	02-612380	0–0.5	SOIL	0.974 (U)	—	—	—	NA	—	NA	—	—	—	—	—	NA	NA	—	164
RE02-10-21878	02-612380	1.5–2.5	SOIL	0.995 (U)	—	0.498 (U)	—	NA	—	NA	—	—	—	—	—	NA	NA	—	—
RE02-10-21879	02-612381	0–0.5	SOIL	1.07 (U)	—	0.537 (U)	—	NA	—	NA	—	—	—	—	—	NA	NA	—	—
RE02-10-21880	02-612381	1.5–2.5	SOIL	0.926 (U)	—	0.463 (U)	—	NA	—	NA	—	—	—	—	—	NA	NA	—	—
RE02-10-21881	02-612382	0–0.5	SOIL	1.06 (U)	—	—	—	NA	—	NA	—	—	—	—	—	NA	NA	—	58.3
RE02-10-21882	02-612382	1.5–2.5	SOIL	1.09 (U)	—	—	—	NA	—	NA	—	—	—	—	—	NA	NA	—	66
RE02-10-21883	02-612383	0–0.5	SOIL	1.04 (U)	—	0.519 (U)	—	NA	—	NA	—	—	—	—	—	NA	NA	—	—
RE02-10-21884	02-612383	1.5–2.5	SOIL	1.01 (U)	—	0.507 (U)	—	NA	—	NA	—	—	—	—	—	NA	NA	—	—
RE02-10-21885	02-612384	0–0.5	SOIL	0.996 (U)	—	0.498 (U)	—	NA	—	NA	—	—	—	—	—	NA	NA	—	58.3
RE02-10-21886	02-612384	1.5–2.5	SOIL	1.03 (U)	—	0.516 (U)	—	NA	—	NA	—	—	—	—	—	NA	NA	—	—
RE02-10-21887	02-612385	0–0.5	SOIL	1.06 (U)	—	—	—	NA	—	NA	—	—	—	—	—	NA	NA	—	—
RE02-10-21888	02-612385	1.5–2.5	SOIL	1.04 (U)	—	0.519 (U)	—	NA	—	NA	—	—	—	—	—	NA	NA	—	—
RE02-10-21889	02-612386	0–0.5	SOIL	0.968 (U)	—	—	—	NA	—	NA	—	—	—	—	—	NA	NA	—	53.4 (J)
RE02-10-21890	02-612386	1.5–2.5	QAL	1.08 (U)	—	0.539 (U)	—	NA	—	NA	—	—	—	—	—	NA	NA	—	58.4 (J)
RE02-10-21976	02-612407	0–0.5	SOIL	1.16 (U)	—	0.578 (U)	—	—	—	—	—	—	—	—	—	NA	NA	—	—
RE02-10-21977	02-612407	4–5	SOIL	0.945 (U)	—	0.473 (U)	—	—	—	—	—	—	—	—	—	NA	NA	—	—
RE02-10-21978	02-612407	9–10	SOIL	0.997 (U)	—	0.498 (U)	—	—	—	—	—	—	—	—	—	NA	NA	—	—

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

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

[b] na = Not available.

[c] SSLs are from NMED (2009, 108070), unless otherwise noted.

[d] SSLs are for hexavalent chromium.

[e] SSLs are from EPA regional screening tables (http://www.epa.gov.earth1r6/6pd/rcra_c/pd-n/screen.htm).

[f] SSLs are from LANL (2010, 108613).

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

[h] NA = Not analyzed.

Table 6.14-3
Organic Chemicals Detected at SWMU 02-005

Sample ID	Location ID	Depth (ft)	Media	Aroclor-1242	Aroclor-1254	Aroclor-1260	Benzo(b)fluoranthene	Fluoranthene	Phenanthrene	Pyrene	Toluene
Industrial SSL[a]				**8.26**	**8.26**	**8.26**	**23.4**	**24400**	**20500**	**18300**	**57900**
Recreational SSL[b]				**10.5**	**6.65**	**10.5**	**30.1**	**13900**	**12000**	**10400**	**60800**
Residential SSL[a]				**2.22**	**1.12**	**2.22**	**6.21**	**2290**	**1830**	**1720**	**5570**
RE02-07-2445	02-600547	0–0.5	SOIL	NA[c]	NA	NA	0.0182 (J)	0.0173 (J)	—[d]	0.0154 (J)	NA
RE02-07-2446	02-600547	2–2.5	QAL	NA	NA	NA	—	—	—	—	0.00142
RE02-07-2448	02-600548	0–0.5	SOIL	—	—	0.0055	NA	NA	NA	NA	NA
RE02-07-2451	02-600549	0–0.5	SOIL	—	0.0025 (J)	0.002 (J)	NA	NA	NA	NA	NA
RE02-07-2454	02-600550	0–0.5	SOIL	—	—	0.0094	NA	NA	NA	NA	NA
RE02-07-2460	02-600552	0–0.5	SOIL	—	0.0019 (J)	0.0021 (J)	NA	NA	NA	NA	NA
RE02-07-2463	02-600553	0–0.5	SOIL	—	0.0059	0.0062	NA	NA	NA	NA	NA
RE02-07-2469	02-600555	0–1.1	SOIL	—	0.0022 (J)	0.0027 (J)	NA	NA	NA	NA	NA
RE02-07-2472	02-600556	0–0.5	SOIL	—	0.0027 (J)	0.0022 (J)	NA	NA	NA	NA	NA
RE02-07-2475	02-600557	0–0.5	SOIL	—	0.0064	0.0059	NA	NA	NA	NA	NA
RE02-07-2478	02-600558	0–0.5	SOIL	—	0.0017 (J)	0.0021 (J)	NA	NA	NA	NA	NA
RE02-07-2481	02-600559	0–0.5	SOIL	—	0.0987	0.0958	NA	NA	NA	NA	NA
RE02-07-2482	02-600559	2–2.5	QAL	—	—	0.513	NA	NA	NA	NA	NA
RE02-07-2485	02-600560	2–3	QAL	—	0.0029 (J)	0.0025 (J)	NA	NA	NA	NA	NA
RE02-07-2487	02-600561	0–0.5	SOIL	—	—	1.42	NA	NA	NA	NA	NA
RE02-10-21866	02-600561	1–1.2	SOIL	—	—	2.18	NA	NA	NA	NA	NA
RE02-10-21867	02-600561	2–2.2	SOIL	—	—	0.665	NA	NA	NA	NA	NA
RE02-07-2490	02-600562	0–0.5	SOIL	—	—	0.0025 (J)	NA	NA	NA	NA	NA
RE02-10-21868	02-612376	1–1.2	SOIL	—	—	2.11	NA	NA	NA	NA	NA
RE02-10-21869	02-612376	2–2.2	SOIL	—	—	1.63	NA	NA	NA	NA	NA
RE02-10-21870	02-612377	1–1.2	SOIL	—	—	0.942	NA	NA	NA	NA	NA
RE02-10-21871	02-612377	2–2.2	SOIL	—	—	0.153	NA	NA	NA	NA	NA
RE02-10-21872	02-612378	1–1.2	SOIL	—	—	0.354	NA	NA	NA	NA	NA
RE02-10-21873	02-612378	2–2.2	SOIL	—	—	3.12	NA	NA	NA	NA	NA
RE02-10-21874	02-612379	1–1.2	SOIL	—	—	4.21	NA	NA	NA	NA	NA
RE02-10-21875	02-612379	2–2.2	SOIL	—	—	0.173	NA	NA	NA	NA	NA
RE02-10-21976	02-612407	0–0.5	SOIL	0.0062	0.0308	0.0129	0.0156 (J)	0.0232 (J)	0.0149 (J)	0.0283 (J)	NA
RE02-11-322	02-613290	2–2.2	SOIL	—	—	1.14	NA	NA	NA	NA	NA

Table 6.14-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aroclor-1242	Aroclor-1254	Aroclor-1260	Benzo(b)fluoranthene	Fluoranthene	Phenanthrene	Pyrene	Toluene
Industrial SSL[a]				**8.26**	**8.26**	**8.26**	**23.4**	**24400**	**20500**	**18300**	**57900**
Recreational SSL[b]				**10.5**	**6.65**	**10.5**	**30.1**	**13900**	**12000**	**10400**	**60800**
Residential SSL[a]				**2.22**	**1.12**	**2.22**	**6.21**	**2290**	**1830**	**1720**	**5570**
RE02-11-2209	02-613290	4–4.2	SOIL	—	0.0242 (J)	0.144	NA	NA	NA	NA	NA
RE02-11-323	02-613291	1–1.2	SOIL	—	—	0.624	NA	NA	NA	NA	NA
RE02-11-2207	02-613622	2–2.2	SOIL	—	0.206	1.33	NA	NA	NA	NA	NA
RE02-11-2208	02-613622	4–4.2	SOIL	—	0.0622	0.225	NA	NA	NA	NA	NA

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

[a] SSLs are from NMED (2009, 108070).

[b] SSLs are from LANL (2010, 108613).

[c] NA = Not analyzed.

[d] — = Not detected.

Table 6.14-4
Radionuclides Detected or Detected above BVs/FVs at SWMU 02-005

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-137	Plutonium-238	Plutonium-239/240	Tritium
Soil BV[a]				**0.013**	**1.65**	**0.023**	**0.054**	**na[b]**
Industrial SAL[c]				**180**	**23**	**240**	**210**	**440000**
Recreational SAL[c]				**280**	**210**	**330**	**300**	**5300000**
Residential SAL[c]				**30**	**5.6**	**37**	**33**	**750**
RE02-07-2445	02-600547	0–0.5	SOIL	—[d]	—	—	0.0647	—
RE02-07-2446	02-600547	2–2.5	QAL	—	—	—	—	0.00557382
RE02-07-2451	02-600549	0–0.5	SOIL	—	—	—	0.0962	—
RE02-07-2454	02-600550	0–0.5	SOIL	—	—	—	0.0963	—
RE02-07-2460	02-600552	0–0.5	SOIL	—	—	—	0.114 (J-)	—
RE02-07-2463	02-600553	0–0.5	SOIL	—	—	—	0.224 (J-)	—
RE02-07-2464	02-600553	2–4.5	QAL	—	—	—	0.0368	—
RE02-07-2466	02-600554	0–1.1	SOIL	—	0.216	—	—	—
RE02-07-2470	02-600555	2–2.5	QAL	—	—	—	—	0.00617213
RE02-07-2478	02-600558	0–0.5	SOIL	—	—	—	—	0.251049
RE02-07-2480	02-600558	4.5–5	QAL	—	—	—	—	0.00695318
RE02-07-2481	02-600559	0–0.5	SOIL	0.0275	—	—	1.6	0.0170288
RE02-07-2482	02-600559	2–2.5	QAL	0.139	0.331	—	6.8	0.025821
RE02-07-2486	02-600560	4.5–5	QAL	—	—	—	—	0.0577164
RE02-07-2487	02-600561	0–0.5	SOIL	—	—	—	0.0546	—
RE02-10-21891	02-612379	0–0.5	SOIL	—	—	—	0.243	0.0682093
RE02-10-21892	02-612379	1.5–2.5	SOIL	—	0.163	—	—	0.0353057
RE02-10-21879	02-612381	0–0.5	SOIL	—	—	—	0.0774	—
RE02-10-21880	02-612381	1.5–2.5	SOIL	—	—	0.0138	—	0.00869297
RE02-10-21881	02-612382	0–0.5	SOIL	—	—	—	0.0734	—
RE02-10-21882	02-612382	1.5–2.5	SOIL	—	0.745	—	0.0674	—
RE02-10-21886	02-612384	1.5–2.5	SOIL	—	0.17	—	0.0254	—
RE02-10-21887	02-612385	0–0.5	SOIL	0.0304	—	—	0.202	0.011167
RE02-10-21888	02-612385	1.5–2.5	SOIL	—	0.362	—	0.0932	—
RE02-10-21889	02-612386	0–0.5	SOIL	—	—	—	0.151	—
RE02-10-21976	02-612407	0–0.5	SOIL	—	—	—	1.16	—
RE02-10-21977	02-612407	4–5	SOIL	—	—	—	0.0579	—

Notes: Results are in pCi/g. Data qualifiers are defined in Appendix A.
[a] BVs/FVs are from LANL (1998, 059730).
[b] na = Not available.
[c] SALs from LANL (2009, 107655).
[d] — = Not detected.

Table 6.15-1
Samples Collected and Analyses Requested at SWMU 02-006(a)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Gamma-emitting Radionuclides	Tritium	Hexavalent Chromium	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	Technetium-99	VOCs	Cyanide (Total)
RE02-03-51142	02-22052	1–1.5	SOIL	—*	—	1710S	1710S	—	1710S	1710S	1709S	—	—	1710S	—	1710S	—	—
RE02-03-51143	02-22052	1–1.5	SOIL	—	—	—	—	1709S	—	—	—	—	—	—	—	—	—	—
RE02-03-51168	02-22052	2.5–3	SOIL	—	—	1710S	1710S	—	1710S	1710S	1709S	—	—	1710S	—	1710S	—	—
RE02-03-51169	02-22052	2.5–3	SOIL	—	—	—	—	1709S	—	—	—	—	—	—	—	—	—	—
RE02-03-51144	02-22053	1–1.5	SOIL	—	—	1710S	1710S	—	1710S	1710S	1709S	—	—	1710S	—	1710S	—	—
RE02-03-51145	02-22053	1–1.5	SOIL	—	—	—	—	1709S	—	—	—	—	—	—	—	—	—	—
RE02-03-51170	02-22053	2.5–3	SOIL	—	—	1710S	1710S	—	1710S	1710S	1709S	—	—	1710S	—	1710S	—	—
RE02-03-51171	02-22053	2.5–3	SOIL	—	—	—	—	1709S	—	—	—	—	—	—	—	—	—	—
RE02-03-51146	02-22054	1–1.5	SOIL	—	—	1710S	1710S	—	1710S	1710S	1709S	—	—	1710S	—	1710S	—	—
RE02-03-51147	02-22054	1–1.5	SOIL	—	—	—	—	1709S	—	—	—	—	—	—	—	—	—	—
RE02-03-51172	02-22054	2.5–3	SOIL	—	—	1710S	1710S	—	1710S	1710S	1709S	—	—	1710S	—	1710S	—	—
RE02-03-51173	02-22054	2.5–3	SOIL	—	—	—	—	1709S	—	—	—	—	—	—	—	—	—	—
RE02-03-51148	02-22055	10–10.5	QBT3	—	—	1710S	1710S	—	1710S	1710S	1709S	—	—	1710S	—	1710S	—	—
RE02-03-51149	02-22055	10–10.5	QBT3	—	—	—	—	1709S	—	—	—	—	—	—	—	—	—	—
RE02-03-51174	02-22055	11.5–12	QBT3	—	—	1710S	1710S	—	1710S	1710S	1709S	—	—	1710S	—	1710S	—	—
RE02-03-51175	02-22055	11.5–12	QBT3	—	—	—	—	1709S	—	—	—	—	—	—	—	—	—	—
RE02-03-51150	02-22056	10–10.5	QBT3	—	—	1710S	1710S	—	1710S	1710S	1709S	—	—	1710S	—	1710S	—	—
RE02-03-51151	02-22056	10–10.5	QBT3	—	—	—	—	1709S	—	—	—	—	—	—	—	—	—	—
RE02-03-51176	02-22056	11.5–12	QBT3	—	—	1710S	1710S	—	1710S	1710S	1709S	—	—	1710S	—	1710S	—	—
RE02-03-51177	02-22056	11.5–12	QBT3	—	—	—	—	1709S	—	—	—	—	—	—	—	—	—	—
RE02-03-51152	02-22057	10–10.5	QBT3	—	—	1710S	1710S	—	1710S	1710S	1709S	—	—	1710S	—	1710S	—	—
RE02-03-51153	02-22057	10–10.5	QBT3	—	—	—	—	1709S	—	—	—	—	—	—	—	—	—	—
RE02-03-51178	02-22057	11.5–12	QBT3	—	—	1710S	1710S	—	1710S	1710S	1709S	—	—	1710S	—	1710S	—	—
RE02-03-51179	02-22057	11.5–12	QBT3	—	—	—	—	1709S	—	—	—	—	—	—	—	—	—	—
RE02-03-51154	02-22058	10–10.5	QBT3	—	—	1710S	1710S	—	1710S	1710S	1709S	—	—	1710S	—	1710S	—	—
RE02-03-51155	02-22058	10–10.5	QBT3	—	—	—	—	1709S	—	—	—	—	—	—	—	—	—	—
RE02-03-51180	02-22058	11.5–12	QBT3	—	—	1710S	1710S	—	1710S	1710S	1709S	—	—	1710S	—	1710S	—	—
RE02-03-51181	02-22058	11.5–12	QBT3	—	—	—	—	1709S	—	—	—	—	—	—	—	—	—	—
RE02-03-51156	02-22059	6–6.5	QBT3	—	—	1710S	1710S	—	1710S	1710S	1709S	—	—	1710S	—	1710S	—	—
RE02-03-51157	02-22059	6–6.5	QBT3	—	—	—	—	1709S	—	—	—	—	—	—	—	—	—	—
RE02-03-51182	02-22059	7.5–8	QBT3	—	—	1710S	1710S	—	1710S	1710S	1709S	—	—	1710S	—	1710S	—	—
RE02-03-51183	02-22059	7.5–8	QBT3	—	—	—	—	1709S	—	—	—	—	—	—	—	—	—	—
RE02-07-1025	02-600247	0–0.5	SOIL	07-1133	07-1134	07-1133	07-1133	07-1134	07-1133	07-1133	07-1134	07-1135	07-1134	07-1133	07-1135	—	—	07-1134

Table 6.15-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Gamma-emitting Radionuclides	Tritium	Hexavalent Chromium	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	Technetium-99	VOCs	Cyanide (Total)
RE02-07-1030	02-600247	0.8–1.6	QBT3	07-1133	07-1134	07-1133	07-1133	07-1134	07-1133	07-1133	07-1134	07-1135	07-1134	07-1133	07-1135	—	07-1135	07-1134
RE02-07-1026	02-600247	4.5–6.6	QBT3	07-1164	07-1163	07-1164	07-1164	07-1163	07-1164	07-1164	07-1163	07-1162	07-1163	07-1164	07-1162	—	07-1162	07-1163
RE02-07-1027	02-600247	9.5–11.6	QBT3	07-1164	07-1163	07-1164	07-1164	07-1163	07-1164	07-1164	07-1163	07-1162	07-1163	07-1164	07-1162	—	07-1162	07-1163
RE02-07-1028	02-600247	14.5–17	QBT3	07-1164	07-1163	07-1164	07-1164	07-1163	07-1164	07-1164	07-1163	07-1162	07-1163	07-1164	07-1162	—	07-1162	07-1163
RE02-07-1029	02-600247	19.5–22	QBT3	07-1164	07-1163	07-1164	07-1164	07-1163	07-1164	07-1164	07-1163	07-1162	07-1163	07-1164	07-1162	—	07-1162	07-1163
RE02-07-1031	02-600248	0–0.5	SOIL	07-1149	07-1148	07-1149	07-1149	07-1148	07-1149	07-1149	07-1148	07-1147	07-1148	07-1149	07-1147	—	—	07-1148
RE02-07-1036	02-600248	1–1.9	QBT3	07-1149	07-1148	07-1149	07-1149	07-1148	07-1149	07-1149	07-1148	07-1147	07-1148	07-1149	07-1147	—	07-1147	07-1148
RE02-07-1032	02-600248	4.5–6.5	QBT3	07-1158	07-1157	07-1158	07-1158	07-1157	07-1158	07-1158	07-1157	07-1156	07-1157	07-1158	07-1156	—	07-1156	07-1157
RE02-07-1033	02-600248	9.5–11.7	QBT3	07-1164	07-1163	07-1164	07-1164	07-1163	07-1164	07-1164	07-1163	07-1162	07-1163	07-1164	07-1162	—	07-1162	07-1163
RE02-07-1034	02-600248	14.5–16.5	QBT3	07-1164	07-1163	07-1164	07-1164	07-1163	07-1164	07-1164	07-1163	07-1162	07-1163	07-1164	07-1162	—	07-1162	07-1163
RE02-07-1035	02-600248	19.5–21.7	QBT3	07-1164	07-1163	07-1164	07-1164	07-1163	07-1164	07-1164	07-1163	07-1162	07-1163	07-1164	07-1162	—	07-1162	07-1163
RE02-07-1037	02-600249	0–0.5	SOIL	07-330	07-330	07-330	07-330	07-330	07-330	07-330	07-330	07-329	07-330	07-330	07-329	—	—	07-330
RE02-07-1042	02-600249	1.4–3.1	QBT3	07-330	07-330	07-330	07-330	07-330	07-330	07-330	07-330	07-329	07-330	07-330	07-329	—	07-329	07-330
RE02-07-6673	02-600249	4.5–6.7	QBT3	08-10	08-9	08-10	08-10	08-9	08-10	08-10	08-9	08-8	08-9	08-10	08-8	—	08-8	08-9
RE02-07-6672	02-600249	9.5–11.7	QBT3	08-10	08-9	08-10	08-10	08-9	08-10	08-10	08-9	08-8	08-9	08-10	08-8	—	08-8	08-9
RE02-07-6671	02-600249	14.5–16.7	QBT3	08-10	08-9	08-10	08-10	08-9	08-10	08-10	08-9	08-8	08-9	08-10	08-8	—	08-8	08-9
RE02-07-6674	02-600249	19.5–21.7	QBT3	08-10	08-9	08-10	08-10	08-9	08-10	08-10	08-9	08-8	08-9	08-10	08-8	—	08-8	08-9
RE02-07-1043	02-600250	0–0.5	SOIL	07-1149	07-1148	07-1149	07-1149	07-1148	07-1149	07-1149	07-1148	07-1147	07-1148	07-1149	07-1147	—	—	07-1148
RE02-07-1048	02-600250	0.5–1.2	QBT3	07-1149	07-1148	07-1149	07-1149	07-1148	07-1149	07-1149	07-1148	07-1147	07-1148	07-1149	07-1147	—	07-1147	07-1148
RE02-07-1044	02-600250	4.5–6.7	QBT3	07-1177	07-1176	07-1177	07-1177	07-1176	07-1177	07-1177	07-1176	07-1175	07-1176	07-1177	07-1175	—	07-1175	07-1176
RE02-07-1045	02-600250	9.5–13.4	QBT3	07-1177	07-1176	07-1177	07-1177	07-1176	07-1177	07-1177	07-1176	07-1175	07-1176	07-1177	07-1175	—	07-1175	07-1176
RE02-07-1046	02-600250	14.5–17	QBT3	07-1177	07-1176	07-1177	07-1177	07-1176	07-1177	07-1177	07-1176	07-1175	07-1176	07-1177	07-1175	—	07-1175	07-1176
RE02-07-1047	02-600250	19.5–21.7	QBT3	07-1177	07-1176	07-1177	07-1177	07-1176	07-1177	07-1177	07-1176	07-1175	07-1176	07-1177	07-1175	—	07-1175	07-1176
RE02-07-1049	02-600251	0–0.6	SOIL	07-1133	07-1134	07-1133	07-1133	07-1134	07-1133	07-1133	07-1134	07-1135	07-1134	07-1133	07-1135	—	—	07-1134
RE02-07-1054	02-600251	0.6–1.4	QBT3	07-1133	07-1134	07-1133	07-1133	07-1134	07-1133	07-1133	07-1134	07-1135	07-1134	07-1133	07-1135	—	07-1135	07-1134
RE02-07-1050	02-600251	4.5–8.5	QBT3	07-1149	07-1148	07-1149	07-1149	07-1148	07-1149	07-1149	07-1148	07-1147	07-1148	07-1149	07-1147	—	07-1147	07-1148
RE02-07-1051	02-600251	9.5–14.5	QBT3	07-1149	07-1148	07-1149	07-1149	07-1148	07-1149	07-1149	07-1148	07-1147	07-1148	07-1149	07-1147	—	07-1147	07-1148
RE02-07-1052	02-600251	14.5–18.5	QBT3	07-1149	07-1148	07-1149	07-1149	07-1148	07-1149	07-1149	07-1148	07-1147	07-1148	07-1149	07-1147	—	07-1147	07-1148
RE02-07-1053	02-600251	19.5–23.5	QBT3	07-1149	07-1148	07-1149	07-1149	07-1148	07-1149	07-1149	07-1148	07-1147	07-1148	07-1149	07-1147	—	07-1147	07-1148
RE02-07-1055	02-600252	0–0.8	SOIL	07-1149	07-1148	07-1149	07-1149	07-1148	07-1149	07-1149	07-1148	07-1147	07-1148	07-1149	07-1147	—	—	07-1148
RE02-07-1060	02-600252	0.8–1.5	QBT3	07-1149	07-1148	07-1149	07-1149	07-1148	07-1149	07-1149	07-1148	07-1147	07-1148	07-1149	07-1147	—	07-1147	07-1148
RE02-07-1056	02-600252	4.5–6.5	QBT3	07-1149	07-1148	07-1149	07-1149	07-1148	07-1149	07-1149	07-1148	07-1147	07-1148	07-1149	07-1147	—	07-1147	07-1148
RE02-07-1057	02-600252	9.5–11.7	QBT3	07-1158	07-1157	07-1158	07-1158	07-1157	07-1158	07-1158	07-1157	07-1156	07-1157	07-1158	07-1156	—	07-1156	07-1157
RE02-07-1058	02-600252	14.5–18.2	QBT3	07-1158	07-1157	07-1158	07-1158	07-1157	07-1158	07-1158	07-1157	07-1156	07-1157	07-1158	07-1156	—	07-1156	07-1157

Table 6.15-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Gamma-emitting Radionuclides	Tritium	Hexavalent Chromium	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	Technetium-99	VOCs	Cyanide (Total)
RE02-07-1059	02-600252	19.5–21.5	QBT3	07-1158	07-1157	07-1158	07-1158	07-1157	07-1158	07-1158	07-1157	07-1156	07-1157	07-1158	07-1156	—	07-1156	07-1157
RE02-07-1061	02-600253	0–0.5	SOIL	07-1164	07-1163	07-1164	07-1164	07-1163	07-1164	07-1164	07-1163	07-1162	07-1163	07-1164	07-1162	—	—	07-1163
RE02-07-1066	02-600253	2–3	QBT3	07-1164	07-1163	07-1164	07-1164	07-1163	07-1164	07-1164	07-1163	07-1162	07-1163	07-1164	07-1162	—	07-1162	07-1163
RE02-07-1062	02-600253	4.5–6.7	QBT3	08-13	08-12	08-13	08-13	08-12	08-13	08-13	08-12	08-11	08-12	08-13	08-11	—	08-11	08-12
RE02-07-1063	02-600253	9.5–11.7	QBT3	08-13	08-12	08-13	08-13	08-12	08-13	08-13	08-12	08-11	08-12	08-13	08-11	—	08-11	08-12
RE02-07-1064	02-600253	14.5–16.7	QBT3	08-13	08-12	08-13	08-13	08-12	08-13	08-13	08-12	08-11	08-12	08-13	08-11	—	08-11	08-12
RE02-07-1065	02-600253	19.5–21.7	QBT3	08-13	08-12	08-13	08-13	08-12	08-13	08-13	08-12	08-11	08-12	08-13	08-11	—	08-11	08-12
RE02-07-1067	02-600254	0–0.5	SOIL	07-1158	07-1157	07-1158	07-1158	07-1157	07-1158	07-1158	07-1157	07-1156	07-1157	07-1158	07-1156	—	—	07-1157
RE02-07-1072	02-600254	1.6–2.5	QBT3	07-1158	07-1157	07-1158	07-1158	07-1157	07-1158	07-1158	07-1157	07-1156	07-1157	07-1158	07-1156	—	07-1156	07-1157
RE02-07-1068	02-600254	4.5–7.5	QBT3	07-1177	07-1176	07-1177	07-1177	07-1176	07-1177	07-1177	07-1176	07-1175	07-1176	07-1177	07-1175	—	07-1175	07-1176
RE02-07-1069	02-600254	9.5–11.7	QBT3	07-1177	07-1176	07-1177	07-1177	07-1176	07-1177	07-1177	07-1176	07-1175	07-1176	07-1177	07-1175	—	07-1175	07-1176
RE02-07-1070	02-600254	14.5–16.7	QBT3	07-1177	07-1176	07-1177	07-1177	07-1176	07-1177	07-1177	07-1176	07-1175	07-1176	07-1177	07-1175	—	07-1175	07-1176
RE02-07-1071	02-600254	19.5–21.7	QBT3	07-1177	07-1176	07-1177	07-1177	07-1176	07-1177	07-1177	07-1176	07-1175	07-1176	07-1177	07-1175	—	07-1175	07-1176
RE02-07-1073	02-600255	0–0.5	SOIL	07-1133	07-1134	07-1133	07-1133	07-1134	07-1133	07-1133	07-1134	07-1135	07-1134	07-1133	07-1135	—	—	07-1134
RE02-07-1078	02-600255	0.5–1.5	QBT3	07-1133	07-1134	07-1133	07-1133	07-1134	07-1133	07-1133	07-1134	07-1135	07-1134	07-1133	07-1135	—	07-1135	07-1134
RE02-07-1074	02-600255	4.5–9.5	QBT3	07-1133	07-1134	07-1133	07-1133	07-1135	07-1133	07-1133	07-1135	07-1135	07-1134	07-1133	07-1135	—	07-1135	07-1134
RE02-07-1075	02-600255	9.5–14	QBT3	07-1133	07-1134	07-1133	07-1133	07-1134	07-1133	07-1133	07-1134	07-1135	07-1134	07-1133	07-1135	—	07-1135	07-1134
RE02-07-1076	02-600255	14.5–19	QBT3	07-1133	07-1134	07-1133	07-1133	07-1134	07-1133	07-1133	07-1134	07-1135	07-1134	07-1133	07-1135	—	07-1135	07-1134
RE02-07-1077	02-600255	19.5–23.5	QBT3	07-1133	07-1134	07-1133	07-1133	07-1134	07-1133	07-1133	07-1134	07-1135	07-1134	07-1133	07-1135	—	07-1135	07-1134
RE02-07-1079	02-600256	0–0.5	SOIL	07-1133	07-1134	07-1133	07-1133	07-1134	07-1133	07-1133	07-1134	07-1135	07-1134	07-1133	07-1135	—	—	07-1134
RE02-07-1084	02-600256	0.5–1.9	QBT3	07-1133	07-1134	07-1133	07-1133	07-1134	07-1133	07-1133	07-1134	07-1135	07-1134	07-1133	07-1135	—	07-1135	07-1134
RE02-07-1080	02-600256	4.5–8.5	QBT3	07-1149	07-1148	07-1149	07-1149	07-1148	07-1149	07-1149	07-1148	07-1147	07-1148	07-1149	07-1147	—	07-1147	07-1148
RE02-07-1081	02-600256	9.5–13.5	QBT3	07-1149	07-1148	07-1149	07-1149	07-1148	07-1149	07-1149	07-1148	07-1147	07-1148	07-1149	07-1147	—	07-1147	07-1148
RE02-07-1082	02-600256	14.5–18.5	QBT3	07-1149	07-1148	07-1149	07-1149	07-1148	07-1149	07-1149	07-1148	07-1147	07-1148	07-1149	07-1147	—	07-1147	07-1148
RE02-07-1083	02-600256	19.5–23.5	QBT3	07-1149	07-1148	07-1149	07-1149	07-1148	07-1149	07-1149	07-1148	07-1147	07-1148	07-1149	07-1147	—	07-1147	07-1148
RE02-07-1085	02-600257	0–0.8	SOIL	07-1164	07-1163	07-1164	07-1164	07-1163	07-1164	07-1164	07-1163	07-1162	07-1163	07-1164	07-1162	—	—	07-1163
RE02-07-1090	02-600257	0.8–2.1	QBT3	07-1164	07-1163	07-1164	07-1164	07-1163	07-1164	07-1164	07-1163	07-1162	07-1163	07-1164	07-1162	—	07-1162	07-1163
RE02-07-1086	02-600257	4.5–6.7	QBT3	08-13	08-12	08-13	08-13	08-12	08-13	08-13	08-12	08-11	08-12	08-13	08-11	—	08-11	08-12
RE02-07-1087	02-600257	9.5–11.7	QBT3	08-13	08-12	08-13	08-13	08-12	08-13	08-13	08-12	08-11	08-12	08-13	08-11	—	08-11	08-12
RE02-07-1088	02-600257	14.5–16.7	QBT3	08-13	08-12	08-13	08-13	08-12	08-13	08-13	08-12	08-11	08-12	08-13	08-11	—	08-11	08-12
RE02-07-1089	02-600257	19.5–21.7	QBT3	08-13	08-12	08-13	08-13	08-12	08-13	08-13	08-12	08-11	08-12	08-13	08-11	—	08-11	08-12
RE02-07-1091	02-600258	0–0.5	SOIL	07-1164	07-1163	07-1164	07-1164	07-1163	07-1164	07-1164	07-1163	07-1162	07-1163	07-1164	07-1162	—	—	07-1163
RE02-07-1096	02-600258	0.8–2	QBT3	07-1164	07-1163	07-1164	07-1164	07-1163	07-1164	07-1164	07-1163	07-1162	07-1163	07-1164	07-1162	—	07-1162	07-1163
RE02-07-1092	02-600258	4.5–7.5	QBT3	07-1177	07-1176	07-1177	07-1177	07-1176	07-1177	07-1177	07-1176	07-1175	07-1176	07-1177	07-1175	—	07-1175	07-1176

Table 6.15-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Gamma-emitting Radionuclides	Tritium	Hexavalent Chromium	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	Technetium-99	VOCs	Cyanide (Total)
RE02-07-1093	02-600258	9.5–11.7	QBT3	07-1177	07-1176	07-1177	07-1177	07-1176	07-1177	07-1177	07-1176	07-1175	07-1176	07-1177	07-1175	—	07-1175	07-1176
RE02-07-1094	02-600258	14.5–16.7	QBT3	07-1177	07-1176	07-1177	07-1177	07-1176	07-1177	07-1177	07-1176	07-1175	07-1176	07-1177	07-1175	—	07-1175	07-1176
RE02-07-1095	02-600258	19.5–21.7	QBT3	07-1177	07-1176	07-1177	07-1177	07-1176	07-1177	07-1177	07-1176	07-1175	07-1176	07-1177	07-1175	—	07-1175	07-1176
RE02-10-23289	02-612640	0–0.5	SOIL	—	—	—	11-337	—	—	—	11-336	—	—	—	—	—	—	—
RE02-10-23290	02-612640	5–6	QBT3	—	—	—	11-337	—	—	—	11-336	—	—	—	—	—	—	—
RE02-10-23291	02-612640	15–16	QBT3	—	—	—	11-337	—	—	—	11-336	—	—	—	—	—	—	—
RE02-10-23292	02-612640	25–26	QBT3	—	—	—	11-337	—	—	—	11-336	—	—	—	—	—	—	—
RE02-10-23293	02-612640	35–36	QBT3	—	—	—	11-337	—	—	—	11-336	—	—	—	—	—	—	—
RE02-10-23294	02-612640	49–50	QBT3	—	—	—	11-337	—	—	—	11-336	—	—	—	—	—	—	—
RE02-10-23295	02-612641	0–0.5	SOIL	—	—	—	11-337	—	—	—	11-336	—	—	—	—	—	—	—
RE02-10-23296	02-612641	5–6	QBT3	—	—	—	11-357	—	—	—	11-356	—	—	—	—	—	—	—
RE02-10-23297	02-612641	15–16	QBT3	—	—	—	11-357	—	—	—	11-356	—	—	—	—	—	—	—
RE02-10-23298	02-612641	25–26	QBT3	—	—	—	11-357	—	—	—	11-356	—	—	—	—	—	—	—
RE02-10-23299	02-612641	35–36	QBT3	—	—	—	11-357	—	—	—	11-356	—	—	—	—	—	—	—
RE02-10-23300	02-612641	49–50	QBT3	—	—	—	11-357	—	—	—	11-356	—	—	—	—	—	—	—
RE02-10-23301	02-612642	0–0.5	SOIL	—	—	—	11-357	—	—	—	11-356	—	—	—	—	—	—	—
RE02-10-23302	02-612642	5–6	QBT3	—	—	—	11-357	—	—	—	11-356	—	—	—	—	—	—	—
RE02-10-23303	02-612642	15–16	QBT3	—	—	—	11-357	—	—	—	11-356	—	—	—	—	—	—	—
RE02-10-23304	02-612642	25–26	QBT3	—	—	—	11-357	—	—	—	11-356	—	—	—	—	—	—	—
RE02-10-23305	02-612642	35–36	QBT3	—	—	—	11-357	—	—	—	11-356	—	—	—	—	—	—	—
RE02-10-23306	02-612642	49–50	QBT3	—	—	—	11-357	—	—	—	11-356	—	—	—	—	—	—	—
RE02-10-23307	02-612643	0–0.5	SOIL	—	—	—	11-375	—	—	—	11-374	—	—	—	—	—	—	—
RE02-10-23308	02-612643	5–6	QBT3	—	—	—	11-375	—	—	—	11-374	—	—	—	—	—	—	—
RE02-10-23309	02-612643	15–16	QBT3	—	—	—	11-375	—	—	—	11-374	—	—	—	—	—	—	—
RE02-10-23310	02-612643	25–26	QBT3	—	—	—	11-375	—	—	—	11-374	—	—	—	—	—	—	—
RE02-10-23311	02-612643	35–36	QBT3	—	—	—	11-375	—	—	—	11-374	—	—	—	—	—	—	—
RE02-10-23312	02-612643	49–50	QBT3	—	—	—	11-375	—	—	—	11-374	—	—	—	—	—	—	—
RE02-10-23313	02-612644	0–0.5	SOIL	—	—	—	11-375	—	—	—	11-374	—	—	—	—	—	—	—
RE02-10-23314	02-612644	5–6	QBT3	—	—	—	11-375	—	—	—	11-374	—	—	—	—	—	—	—
RE02-10-23315	02-612644	15–16	QBT3	—	—	—	11-375	—	—	—	11-374	—	—	—	—	—	—	—
RE02-10-23316	02-612644	25–26	QBT3	—	—	—	11-375	—	—	—	11-374	—	—	—	—	—	—	—
RE02-10-23317	02-612644	35–36	QBT3	—	—	—	11-375	—	—	—	11-374	—	—	—	—	—	—	—
RE02-10-23318	02-612644	49–50	QBT3	—	—	—	11-375	—	—	—	11-374	—	—	—	—	—	—	—
RE02-10-23319	02-612645	0–0.5	SOIL	—	—	—	11-390	—	—	—	11-390	—	—	—	—	—	—	—

Table 6.15-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Gamma-emitting Radionuclides	Tritium	Hexavalent Chromium	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	Technetium-99	VOCs	Cyanide (Total)
RE02-10-23320	02-612645	5–6	QBT3	—	—	—	11-390	—	—	—	11-390	—	—	—	—	—	—	—
RE02-10-23321	02-612645	15–16	QBT3	—	—	—	11-390	—	—	—	11-390	—	—	—	—	—	—	—
RE02-10-23322	02-612645	25–26	QBT3	—	—	—	11-390	—	—	—	11-390	—	—	—	—	—	—	—
RE02-10-23323	02-612645	35–36	QBT3	—	—	—	11-390	—	—	—	11-390	—	—	—	—	—	—	—
RE02-10-23324	02-612645	49–50	QBT3	—	—	—	11-390	—	—	—	11-390	—	—	—	—	—	—	—
RE02-10-23325	02-612646	0–0.5	SOIL	—	—	—	11-417	—	—	—	11-416	—	—	—	—	—	—	—
RE02-10-23326	02-612646	5–6	QBT3	—	—	—	11-417	—	—	—	11-416	—	—	—	—	—	—	—
RE02-10-23327	02-612646	15–16	QBT3	—	—	—	11-417	—	—	—	11-416	—	—	—	—	—	—	—
RE02-10-23328	02-612646	25–26	QBT3	—	—	—	11-417	—	—	—	11-416	—	—	—	—	—	—	—
RE02-10-23329	02-612646	35–36	QBT3	—	—	—	11-417	—	—	—	11-416	—	—	—	—	—	—	—
RE02-10-23330	02-612646	49–50	QBT3	—	—	—	11-417	—	—	—	11-416	—	—	—	—	—	—	—
RE02-10-23331	02-612647	0–0.5	SOIL	—	—	—	11-417	—	—	—	11-416	—	—	—	—	—	—	—
RE02-10-23332	02-612647	5–6	QBT3	—	—	—	11-417	—	—	—	11-416	—	—	—	—	—	—	—
RE02-10-23333	02-612647	15–16	QBT3	—	—	—	11-417	—	—	—	11-416	—	—	—	—	—	—	—
RE02-10-23334	02-612647	25–26	QBT3	—	—	—	11-417	—	—	—	11-416	—	—	—	—	—	—	—
RE02-10-23335	02-612647	35–36	QBT3	—	—	—	11-417	—	—	—	11-416	—	—	—	—	—	—	—
RE02-10-23336	02-612647	49–50	QBT3	—	—	—	11-417	—	—	—	11-416	—	—	—	—	—	—	—
RE02-10-23337	02-612648	0–0.5	SOIL	—	—	—	11-436	—	—	—	11-435	—	—	—	—	—	—	—
RE02-10-23338	02-612648	5–6	QBT3	—	—	—	11-436	—	—	—	11-435	—	—	—	—	—	—	—
RE02-10-23339	02-612648	15–16	QBT3	—	—	—	11-436	—	—	—	11-435	—	—	—	—	—	—	—
RE02-10-23340	02-612648	25–26	QBT3	—	—	—	11-436	—	—	—	11-435	—	—	—	—	—	—	—
RE02-10-23341	02-612648	35–36	QBT3	—	—	—	11-436	—	—	—	11-435	—	—	—	—	—	—	—
RE02-10-23342	02-612648	49–50	QBT3	—	—	—	11-436	—	—	—	11-435	—	—	—	—	—	—	—
RE02-10-23343	02-612649	0–0.5	SOIL	—	—	—	11-453	—	—	—	11-453	—	—	—	—	—	—	—
RE02-10-23344	02-612649	5–6	QBT3	—	—	—	11-453	—	—	—	11-453	—	—	—	—	—	—	—
RE02-10-23345	02-612649	15–16	QBT3	—	—	—	11-453	—	—	—	11-453	—	—	—	—	—	—	—
RE02-10-23346	02-612649	25–26	QBT3	—	—	—	11-453	—	—	—	11-453	—	—	—	—	—	—	—
RE02-10-23347	02-612649	35–36	QBT3	—	—	—	11-453	—	—	—	11-453	—	—	—	—	—	—	—
RE02-10-23348	02-612649	49–50	QBT3	—	—	—	11-453	—	—	—	11-453	—	—	—	—	—	—	—
RE02-10-23349	02-612650	0–0.5	SOIL	—	—	—	11-494	—	—	—	11-494	—	—	—	—	—	—	—
RE02-10-23350	02-612650	5–6	QBT3	—	—	—	11-494	—	—	—	11-494	—	—	—	—	—	—	—
RE02-10-23351	02-612650	15–16	QBT3	—	—	—	11-494	—	—	—	11-494	—	—	—	—	—	—	—
RE02-10-23352	02-612650	25–26	QBT3	—	—	—	11-494	—	—	—	11-494	—	—	—	—	—	—	—
RE02-10-23353	02-612650	35–36	QBT3	—	—	—	11-494	—	—	—	11-494	—	—	—	—	—	—	—

Table 6.15-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Gamma-emitting Radionuclides	Tritium	Hexavalent Chromium	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	Technetium-99	VOCs	Cyanide (Total)
RE02-10-23354	02-612650	49–50	QBT3	—	—	—	11-494	—	—	—	11-494	—	—	—	—	—	—	—
RE02-10-23370	02-612651	5–6	QBT3	—	—	—	11-452	—	—	—	—	—	—	—	—	—	—	—
RE02-10-23371	02-612651	15–16	QBT3	—	—	—	11-452	—	—	—	—	—	—	—	—	—	—	—
RE02-10-23372	02-612651	25–26	QBT3	—	—	—	11-452	—	—	—	—	—	—	—	—	—	—	—
RE02-10-23373	02-612651	35–36	QBT3	—	—	—	11-452	—	—	—	—	—	—	—	—	—	—	—
RE02-10-23374	02-612651	49–50	QBT3	—	—	—	11-452	—	—	—	—	—	—	—	—	—	—	—
RE02-10-23377	02-612652	25–26	QBT3	—	—	—	11-399	11-399	—	—	—	—	—	—	—	—	—	11-399
RE02-10-23378	02-612652	35–36	QBT3	—	—	—	11-399	11-399	—	—	—	—	—	—	—	—	—	11-399
RE02-10-23379	02-612652	49–50	QBT3	—	—	—	11-399	11-399	—	—	—	—	—	—	—	—	—	11-399

* — = Analysis not requested.

Table 6.15-2
Inorganic Chemicals above BVs at SWMU 02-006(a)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Hexavalent Chromium	Copper	Cyanide (Total)	Lead	Magnesium	Nickel	Nitrate	Perchlorate	Selenium	Zinc
Qbt 2, 3, 4 BV[a]				**7340**	**0.5**	**2.79**	**46**	**1.21**	**1.63**	**2200**	**7.14**	**na**[b]	**4.66**	**0.5**	**11.2**	**1690**	**6.58**	**na**	**na**	**0.3**	**63.5**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**1.83**	**0.4**	**6120**	**19.3**	**na**	**14.7**	**0.5**	**22.3**	**4610**	**15.4**	**na**	**na**	**1.52**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**2260**	**1120**	**na**	**2920**[d]	**2920**	**45400**	**22700**	**800**	**na**	**22700**	**1820000**	**795**	**5680**	**341000**
Recreational SSL[e]				**791000**	**317**	**27.7**	**158000**	**1580**	**784**	**na**	**1910**[d]	**1910**	**31700**	**15800**	**560**	**na**	**15800**	**1260000**	**555**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**156**	**77.9**	**na**	**219**[d]	**219**	**3130**	**1560**	**400**	**na**	**1560**	**125000**	**54.8**	**391**	**23500**
RE02-03-51168	02-22052	2.5–3	SOIL	—[f]	—	—	—	—	0.526 (U)	—	—	NA[g]	—	NA	—	—	—	NA	NA	—	—
RE02-03-51170	02-22053	2.5–3	SOIL	—	—	—	—	—	0.539 (U)	—	—	NA	—	NA	—	—	—	NA	NA	—	—
RE02-03-51146	02-22054	1–1.5	SOIL	—	—	—	—	—	0.545 (U)	—	—	NA	—	NA	—	—	—	NA	NA	—	—
RE02-03-51172	02-22054	2.5–3	SOIL	—	—	—	—	—	0.51 (U)	—	—	NA	—	NA	22.7	—	—	NA	NA	—	—
RE02-03-51148	02-22055	10–10.5	QBT3	—	—	—	47.4 (J+)	—	—	—	—	NA	—	NA	—	—	—	NA	NA	0.513 (U)	—
RE02-03-51174	02-22055	11.5–12	QBT3	8660 (J)	—	2.91	63.3 (J+)	—	—	—	—	NA	—	NA	—	—	14.4	NA	NA	0.526 (U)	—
RE02-03-51150	02-22056	10–10.5	QBT3	13960 (J)	—	3.44	107 (J+)	—	—	2500 (J+)	8.37	NA	6.22	NA	11.9	2220 (J)	7.99	NA	NA	0.533 (U)	—
RE02-03-51176	02-22056	11.5–12	QBT3	13580 (J)	—	3.16	98.6 (J+)	—	—	3480 (J+)	7.55	NA	5.73	NA	19.1	2290 (J)	—	NA	NA	0.484 (U)	—
RE02-03-51152	02-22057	10–10.5	QBT3	11320 (J)	—	3.05	80.5 (J+)	—	—	—	—	NA	4.92	NA	—	—	—	NA	NA	0.524 (U)	—
RE02-03-51178	02-22057	11.5–12	QBT3	13220 (J)	—	3	76 (J+)	—	—	2300 (J+)	—	NA	4.87	NA	—	1880 (J)	—	NA	NA	0.525 (U)	—
RE02-03-51154	02-22058	10–10.5	QBT3	10370 (J)	—	2.89	73.3 (J+)	—	—	—	—	NA	4.68	NA	—	1740 (J)	—	NA	NA	0.515 (U)	—

Table 6.15-2 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Hexavalent Chromium	Copper	Cyanide (Total)	Lead	Magnesium	Nickel	Nitrate	Perchlorate	Selenium	Zinc
Qbt 2, 3, 4 BV[a]				**7340**	**0.5**	**2.79**	**46**	**1.21**	**1.63**	**2200**	**7.14**	**na**[b]	**4.66**	**0.5**	**11.2**	**1690**	**6.58**	**na**	**na**	**0.3**	**63.5**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**1.83**	**0.4**	**6120**	**19.3**	**na**	**14.7**	**0.5**	**22.3**	**4610**	**15.4**	**na**	**na**	**1.52**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**2260**	**1120**	**na**	**2920**[d]	**2920**	**45400**	**22700**	**800**	**na**	**22700**	**1820000**	**795**	**5680**	**341000**
Recreational SSL[e]				**791000**	**317**	**27.7**	**158000**	**1580**	**784**	**na**	**1910**[d]	**1910**	**31700**	**15800**	**560**	**na**	**15800**	**1260000**	**555**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**156**	**77.9**	**na**	**219**[d]	**219**	**3130**	**1560**	**400**	**na**	**1560**	**125000**	**54.8**	**391**	**23500**
RE02-03-51155	02-22058	10–10.5	QBT3	NA	NA	NA	NA	NA	NA	NA	NA	0.0649 (J)	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-03-51156	02-22059	6–6.5	QBT3	12800 (J)	—	3.04	66.3 (J+)	—	—	2640 (J+)	7.37	NA	5.13	NA	16.3	2120 (J)	—	NA	NA	0.509 (U)	—
RE02-03-51182	02-22059	7.5–8	QBT3	15750 (J)	—	3.3	87.3 (J+)	1.3	—	3330 (J+)	9.03	NA	6.61	NA	21.8	2880 (J)	7.86	NA	NA	0.536 (U)	—
RE02-03-51183	02-22059	7.5–8	QBT3	NA	NA	NA	NA	NA	NA	NA	NA	0.064 (J)	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-1025	02-600247	0–0.5	SOIL	—	—	—	—	—	0.587 (U)	—	—	—	—	—	—	—	—	—	0.0011 (J)	13	—
RE02-07-1030	02-600247	0.8–1.6	QBT3	—	—	—	—	—	—	—	7.26	—	—	—	—	—	—	—	—	6.8	—
RE02-07-1026	02-600247	4.5–6.6	QBT3	—	—	—	—	—	—	—	28	0.0247 (J)	—	—	—	—	12.7 (U)	—	0.0023	9.42	—
RE02-07-1027	02-600247	9.5–11.6	QBT3	—	—	—	—	—	—	—	—	—	—	—	16.2	—	—	—	0.000915 (J)	7.1	—
RE02-07-1028	02-600247	14.5–17	QBT3	—	—	—	—	—	—	—	—	0.0328 (J)	—	—	—	—	—	—	0.000584 (J)	5.4	—
RE02-07-1029	02-600247	19.5–22	QBT3	—	—	—	—	—	—	—	—	—	—	—	13	—	—	—	0.00132 (J)	7.99	—
RE02-07-1031	02-600248	0–0.5	SOIL	—	—	—	—	—	0.535 (U)	—	—	—	—	—	—	—	—	1.07 (J)	0.00109 (J)	14.1	—
RE02-07-1036	02-600248	1–1.9	QBT3	—	—	2.96	99.5	—	—	4630 (J+)	10.7	—	—	—	—	—	—	—	0.00176 (J)	12.2	—
RE02-07-1032	02-600248	4.5–6.5	QBT3	—	—	—	55.3	—	—	2620 (J+)	—	0.0349 (J)	—	—	—	—	—	—	0.00307	0.923 (J)	—
RE02-07-1033	02-600248	9.5–11.7	QBT3	—	—	—	—	1.61	—	—	—	—	—	—	13.9	—	—	—	0.00435	8.48	—
RE02-07-1034	02-600248	14.5–16.5	QBT3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00194 (J)	6.74	—
RE02-07-1035	02-600248	19.5–21.7	QBT3	—	—	—	—	—	—	—	7.75 (U)	0.0523 (J)	—	—	—	—	—	—	0.00122 (J)	5.85	—
RE02-07-1037	02-600249	0–0.5	SOIL	—	—	—	—	—	0.51 (U)	—	—	—	—	—	—	—	—	2.59	0.00124 (J)	2.42 (U)	—
RE02-07-1042	02-600249	1.4–3.1	QBT3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.26	—	1.68 (U)	—
RE02-07-6673	02-600249	4.5–6.7	QBT3	—	—	—	—	—	—	—	—	0.0514 (J-)	—	—	16.8	—	—	—	0.00123 (J)	7.68	—
RE02-07-6672	02-600249	9.5–11.7	QBT3	—	—	—	—	—	—	—	—	—	—	—	18.6	—	—	0.986 (J)	0.00692	6.15	—
RE02-07-6671	02-600249	14.5–16.7	QBT3	—	—	—	—	—	—	—	7.93 (J)	0.0476 (J-)	—	—	—	—	—	—	0.00122 (J)	5.49	—
RE02-07-6674	02-600249	19.5–21.7	QBT3	—	—	—	—	—	—	—	—	0.0288 (J-)	—	—	—	—	—	—	0.000619 (J)	4.16	—
RE02-07-1043	02-600250	0–0.5	SOIL	—	—	—	—	—	0.575 (U)	—	—	—	—	—	—	—	—	8.68	0.00143 (J)	13.2	79.9
RE02-07-1048	02-600250	0.5–1.2	QBT3	—	—	2.81	83.8	—	—	—	—	0.0617 (J)	—	—	—	—	—	3.3	0.00203 (J)	10.1	—
RE02-07-1044	02-600250	4.5–6.7	QBT3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.05	0.000825 (J)	0.571 (J)	—
RE02-07-1045	02-600250	9.5–13.4	QBT3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.963 (J)	0.000895 (J)	0.582 (J)	—
RE02-07-1046	02-600250	14.5–17	QBT3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.26	0.00101 (J)	0.589 (J)	—
RE02-07-1047	02-600250	19.5–21.7	QBT3	—	—	—	—	—	—	—	—	0.0514 (J)	—	—	—	—	—	—	0.000704 (J)	0.942 (J)	—
RE02-07-1049	02-600251	0–0.6	SOIL	—	—	—	—	—	0.523 (U)	—	—	—	—	1.4	—	—	—	2.5	0.000772 (J)	11.3	—
RE02-07-1054	02-600251	0.6–1.4	QBT3	—	—	—	52.6 (J+)	—	—	—	9.51	—	—	—	14.3	—	—	—	0.00109 (J)	10.9	—

Table 6.15-2 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Hexavalent Chromium	Copper	Cyanide (Total)	Lead	Magnesium	Nickel	Nitrate	Perchlorate	Selenium	Zinc
Qbt 2, 3, 4 BV[a]				**7340**	**0.5**	**2.79**	**46**	**1.21**	**1.63**	**2200**	**7.14**	**na[b]**	**4.66**	**0.5**	**11.2**	**1690**	**6.58**	**na**	**na**	**0.3**	**63.5**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**1.83**	**0.4**	**6120**	**19.3**	**na**	**14.7**	**0.5**	**22.3**	**4610**	**15.4**	**na**	**na**	**1.52**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**2260**	**1120**	**na**	**2920[d]**	**2920**	**45400**	**22700**	**800**	**na**	**22700**	**1820000**	**795**	**5680**	**341000**
Recreational SSL[e]				**791000**	**317**	**27.7**	**158000**	**1580**	**784**	**na**	**1910[d]**	**1910**	**31700**	**15800**	**560**	**na**	**15800**	**1260000**	**555**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**156**	**77.9**	**na**	**219[d]**	**219**	**3130**	**1560**	**400**	**na**	**1560**	**125000**	**54.8**	**391**	**23500**
RE02-07-1050	02-600251	4.5–8.5	QBT3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.002 (J)	6.52	—
RE02-07-1051	02-600251	9.5–14.5	QBT3	—	—	—	—	—	—	—	7.83	—	4.77	—	—	—	—	—	0.00296	11.2	—
RE02-07-1052	02-600251	14.5–18.5	QBT3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5.86	—
RE02-07-1053	02-600251	19.5–23.5	QBT3	—	—	—	—	—	—	—	—	0.057 (J)	—	—	—	—	—	—	0.000636 (J)	5	—
RE02-07-1055	02-600252	0–0.8	SOIL	—	—	—	—	—	0.586 (U)	—	—	—	—	—	—	—	—	—	—	12.6	—
RE02-07-1060	02-600252	0.8–1.5	QBT3	8610	—	2.9	63.9	—	—	—	—	0.0437 (J)	—	—	—	1980 (J+)	9.86 (J-)	—	0.001 (J)	12.9	—
RE02-07-1056	02-600252	4.5–6.5	QBT3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00348	7.37	—
RE02-07-1057	02-600252	9.5–11.7	QBT3	—	—	—	—	—	—	—	—	0.0424 (J)	—	—	—	—	—	—	—	1.48 (U)	—
RE02-07-1058	02-600252	14.5–18.2	QBT3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.854 (J)	—
RE02-07-1059	02-600252	19.5–21.5	QBT3	—	—	—	—	—	—	—	—	0.0329 (J)	—	—	—	—	—	—	0.001 (J)	1.48 (U)	—
RE02-07-1061	02-600253	0–0.5	SOIL	—	—	—	—	—	0.539 (U)	—	—	0.0561 (J)	—	—	24.1	—	—	1.17	0.00223	10.6	—
RE02-07-1066	02-600253	2–3	QBT3	—	—	—	80.1	—	—	—	—	—	—	—	28.5	—	—	—	0.00189 (J)	9.18	—
RE02-07-1062	02-600253	4.5–6.7	QBT3	—	—	—	—	—	—	—	12.6 (U)	0.0398 (J)	4.67	—	35.3	—	—	—	0.00814	6.19	—
RE02-07-1063	02-600253	9.5–11.7	QBT3	9460 (J+)	—	4.34	132	2.33	—	2790	7.97 (U)	—	7.15	—	116	2090	10.1	0.802 (J)	0.0147	10.1	—
RE02-07-1064	02-600253	14.5–16.7	QBT3	—	—	—	—	—	—	—	12.2 (U)	0.038 (J)	—	—	21.9	—	—	—	0.000778 (J)	5.43	—
RE02-07-1065	02-600253	19.5–21.7	QBT3	—	—	—	—	—	—	—	9.02 (U)	—	—	—	13	—	—	—	—	4.02	—
RE02-07-1067	02-600254	0–0.5	SOIL	—	—	—	—	—	0.57 (U)	—	—	—	—	—	—	—	—	—	0.000917 (J)	—	—
RE02-07-1072	02-600254	1.6–2.5	QBT3	—	—	—	—	—	—	—	13 (U)	0.034 (J)	—	—	—	—	—	—	0.00131 (J)	1.57 (U)	—
RE02-07-1068	02-600254	4.5–7.5	QBT3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.000881 (J)	0.598 (J)	—
RE02-07-1069	02-600254	9.5–11.7	QBT3	—	—	—	—	—	—	—	—	—	—	2.89	—	—	—	—	—	1.5 (U)	—
RE02-07-1070	02-600254	14.5–16.7	QBT3	—	—	—	—	—	—	—	—	0.0605 (J)	—	—	—	—	—	—	0.00149 (J)	1.48 (U)	—
RE02-07-1071	02-600254	19.5–21.7	QBT3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.5 (U)	—
RE02-07-1073	02-600255	0–0.5	SOIL	—	—	—	—	—	0.539 (U)	—	—	—	—	—	—	—	—	7.04	—	9.8	48.9
RE02-07-1078	02-600255	0.5–1.5	QBT3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.38	—	7.3	—
RE02-07-1074	02-600255	4.5–9.5	QBT3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.000549 (J)	8.44	—
RE02-07-1075	02-600255	9.5–14	QBT3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.000991 (J)	5.33	—
RE02-07-1076	02-600255	14.5–19	QBT3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8.47	—
RE02-07-1077	02-600255	19.5–23.5	QBT3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.000571 (J)	6.52	—
RE02-07-1079	02-600256	0–0.5	SOIL	—	—	—	—	—	0.582 (U)	—	—	—	—	—	—	—	—	—	—	13	—
RE02-07-1084	02-600256	0.5–1.9	QBT3	—	—	3.32	223 (J+)	—	—	5110 (J)	9.68	—	—	—	—	1760 (J+)	7.95	—	0.00212 (J)	11.3	—

Table 6.15-2 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Hexavalent Chromium	Copper	Cyanide (Total)	Lead	Magnesium	Nickel	Nitrate	Perchlorate	Selenium	Zinc
Qbt 2, 3, 4 BV[a]				**7340**	**0.5**	**2.79**	**46**	**1.21**	**1.63**	**2200**	**7.14**	**na[b]**	**4.66**	**0.5**	**11.2**	**1690**	**6.58**	**na**	**na**	**0.3**	**63.5**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**1.83**	**0.4**	**6120**	**19.3**	**na**	**14.7**	**0.5**	**22.3**	**4610**	**15.4**	**na**	**na**	**1.52**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**2260**	**1120**	**na**	**2920[d]**	**2920**	**45400**	**22700**	**800**	**na**	**22700**	**1820000**	**795**	**5680**	**341000**
Recreational SSL[e]				**791000**	**317**	**27.7**	**158000**	**1580**	**784**	**na**	**1910[d]**	**1910**	**31700**	**15800**	**560**	**na**	**15800**	**1260000**	**555**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**156**	**77.9**	**na**	**219[d]**	**219**	**3130**	**1560**	**400**	**na**	**1560**	**125000**	**54.8**	**391**	**23500**
RE02-07-1080	02-600256	4.5–8.5	QBT3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00208	6.62	—
RE02-07-1081	02-600256	9.5–13.5	QBT3	—	—	—	—	—	—	—	9.94	—	—	—	—	—	—	—	0.00111 (J)	7.33	—
RE02-07-1082	02-600256	14.5–18.5	QBT3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.0012 (J)	6.73	—
RE02-07-1083	02-600256	19.5–23.5	QBT3	—	—	—	—	—	—	—	—	0.03 (J)	—	—	—	—	—	—	0.00134 (J)	5.52	—
RE02-07-1085	02-600257	0–0.8	SOIL	—	—	—	395	—	0.573 (U)	—	—	0.0604 (J)	—	—	37.2	—	—	—	—	12.3	—
RE02-07-1090	02-600257	0.8–2.1	QBT3	—	—	—	—	—	—	—	—	—	—	—	42.1	—	—	—	—	5.96	—
RE02-07-1086	02-600257	4.5–6.7	QBT3	—	—	—	—	—	—	—	—	—	—	—	59.8	—	—	—	0.00234	5.27	—
RE02-07-1087	02-600257	9.5–11.7	QBT3	—	—	—	—	—	—	—	—	—	—	—	55.7	—	—	—	0.000926 (J)	5.61	—
RE02-07-1088	02-600257	14.5–16.7	QBT3	—	—	—	—	—	—	—	—	—	—	—	27.8	—	—	—	0.000876 (J)	4.88	—
RE02-07-1089	02-600257	19.5–21.7	QBT3	—	—	—	—	—	—	—	—	—	—	—	32.4	—	—	—	0.00138 (J)	5.48	—
RE02-07-1091	02-600258	0–0.5	SOIL	—	—	—	—	—	0.596 (U)	—	—	0.0279 (J)	—	—	—	—	—	—	—	8.89	—
RE02-07-1096	02-600258	0.8–2	QBT3	—	—	3.16	75.1	—	—	2330 (J+)	—	0.0381 (J)	—	—	—	—	7.74	—	—	13	—
RE02-07-1092	02-600258	4.5–7.5	QBT3	—	—	—	—	—	—	—	—	0.072 (J)	—	—	—	—	—	—	0.00136 (J)	0.883 (J)	—
RE02-07-1093	02-600258	9.5–11.7	QBT3	—	—	—	—	—	—	—	—	0.0427 (J)	—	—	—	—	—	—	0.000622 (J)	1.52 (U)	—
RE02-07-1094	02-600258	14.5–16.7	QBT3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00156 (J)	0.577 (J)	—
RE02-07-1095	02-600258	19.5–21.7	QBT3	—	—	—	49.9 (J-)	—	—	—	—	0.41	—	1.62	—	—	—	—	—	1.03 (J)	—
RE02-10-23289	02-612640	0–0.5	SOIL	—	—	—	—	—	0.523 (U)	—	—	NA	—	NA	—	—	—	NA	NA	—	—
RE02-10-23290	02-612640	5–6	QBT3	—	1.01 (U)	—	—	—	—	—	7.34	NA	—	NA	—	—	—	NA	NA	0.993 (UJ)	—
RE02-10-23291	02-612640	15–16	QBT3	—	1.02 (U)	—	—	—	—	—	—	NA	—	NA	—	—	—	NA	NA	1.03 (UJ)	—
RE02-10-23292	02-612640	25–26	QBT3	—	0.931 (U)	—	—	—	—	—	—	NA	—	NA	—	—	—	NA	NA	1.01 (UJ)	—
RE02-10-23293	02-612640	35–36	QBT3	—	—	—	—	—	—	—	—	NA	—	NA	—	—	—	NA	NA	0.886 (UJ)	—
RE02-10-23294	02-612640	49–50	QBT3	—	0.954 (U)	—	—	—	—	—	—	NA	—	NA	—	—	—	NA	NA	0.956 (UJ)	—
RE02-10-23296	02-612641	5–6	QBT3	10100	1.07 (U)	—	111	1.85	—	6190 (J+)	—	NA	5.66	NA	—	2780 (J+)	9.2 (J-)	NA	NA	1.05 (U)	—
RE02-10-23297	02-612641	15–16	QBT3	—	0.958 (U)	—	—	—	—	—	—	NA	—	NA	—	—	—	NA	NA	1 (U)	—
RE02-10-23298	02-612641	25–26	QBT3	—	0.947 (U)	—	—	—	—	—	—	NA	—	NA	—	—	—	NA	NA	0.967 (U)	—
RE02-10-23299	02-612641	35–36	QBT3	—	0.987 (U)	—	—	—	—	—	—	NA	—	NA	—	—	—	NA	NA	1.01 (U)	—
RE02-10-23300	02-612641	49–50	QBT3	—	0.971 (U)	17	—	—	—	—	—	NA	—	NA	—	—	—	NA	NA	0.991 (U)	—
RE02-10-23301	02-612642	0–0.5	SOIL	—	1.06 (U)	—	—	—	—	—	—	NA	—	NA	—	—	—	NA	NA	—	68.1 (J+)
RE02-10-23302	02-612642	5–6	QBT3	—	1.03 (U)	—	—	—	—	—	—	NA	—	NA	—	—	—	NA	NA	1.01 (U)	—
RE02-10-23303	02-612642	15–16	QBT3	—	1.02 (U)	—	—	—	—	—	—	NA	—	NA	—	—	—	NA	NA	0.968 (U)	—

Table 6.15-2 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Hexavalent Chromium	Copper	Cyanide (Total)	Lead	Magnesium	Nickel	Nitrate	Perchlorate	Selenium	Zinc
Qbt 2, 3, 4 BV[a]				**7340**	**0.5**	**2.79**	**46**	**1.21**	**1.63**	**2200**	**7.14**	**na[b]**	**4.66**	**0.5**	**11.2**	**1690**	**6.58**	**na**	**na**	**0.3**	**63.5**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**1.83**	**0.4**	**6120**	**19.3**	**na**	**14.7**	**0.5**	**22.3**	**4610**	**15.4**	**na**	**na**	**1.52**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**2260**	**1120**	**na**	**2920[d]**	**2920**	**45400**	**22700**	**800**	**na**	**22700**	**1820000**	**795**	**5680**	**341000**
Recreational SSL[e]				**791000**	**317**	**27.7**	**158000**	**1580**	**784**	**na**	**1910[d]**	**1910**	**31700**	**15800**	**560**	**na**	**15800**	**1260000**	**555**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**156**	**77.9**	**na**	**219[d]**	**219**	**3130**	**1560**	**400**	**na**	**1560**	**125000**	**54.8**	**391**	**23500**
RE02-10-23304	02-612642	25–26	QBT3	—	0.969 (U)	—	—	—	—	—	—	NA	—	NA	—	—	—	NA	NA	1 (U)	—
RE02-10-23305	02-612642	35–36	QBT3	—	1.02 (U)	—	—	—	—	—	—	NA	—	NA	—	—	—	NA	NA	1 (U)	—
RE02-10-23306	02-612642	49–50	QBT3	—	0.989 (U)	—	—	—	—	—	—	NA	—	NA	—	—	—	NA	NA	0.987 (U)	—
RE02-10-23307	02-612643	0–0.5	SOIL	—	1.09 (UJ)	—	—	—	0.546 (U)	—	—	NA	—	NA	—	—	—	NA	NA	—	—
RE02-10-23308	02-612643	5–6	QBT3	—	1.02 (UJ)	—	66.6	—	—	2600 (J+)	—	NA	—	NA	—	—	—	NA	NA	1.01 (U)	—
RE02-10-23309	02-612643	15–16	QBT3	—	0.995 (UJ)	—	—	—	—	—	—	NA	—	NA	—	—	—	NA	NA	0.977 (U)	—
RE02-10-23310	02-612643	25–26	QBT3	—	1.01 (UJ)	—	—	—	—	—	—	NA	—	NA	—	—	—	NA	NA	1 (U)	—
RE02-10-23311	02-612643	35–36	QBT3	—	1 (UJ)	—	—	—	—	—	—	NA	—	NA	—	—	—	NA	NA	0.931 (U)	—
RE02-10-23312	02-612643	49–50	QBT3	—	1 (UJ)	—	—	—	—	—	—	NA	—	NA	—	—	—	NA	NA	0.999 (U)	—
RE02-10-23313	02-612644	0–0.5	SOIL	—	1.04 (UJ)	—	—	—	0.518 (U)	—	—	NA	—	NA	—	—	—	NA	NA	—	—
RE02-10-23314	02-612644	5–6	QBT3	—	1.01 (UJ)	—	47	—	—	—	—	NA	—	NA	—	—	—	NA	NA	1.03 (U)	—
RE02-10-23315	02-612644	15–16	QBT3	7370	1.05 (UJ)	—	—	1.44	—	—	—	NA	—	NA	—	—	—	NA	NA	1.05 (U)	—
RE02-10-23316	02-612644	25–26	QBT3	—	0.953 (UJ)	—	—	—	—	—	—	NA	—	NA	—	—	—	NA	NA	0.973 (U)	—
RE02-10-23317	02-612644	35–36	QBT3	—	0.985 (UJ)	—	—	—	—	—	—	NA	—	NA	—	—	—	NA	NA	1 (U)	—
RE02-10-23318	02-612644	49–50	QBT3	—	0.959 (UJ)	—	—	—	—	—	—	NA	—	NA	—	—	—	NA	NA	0.988 (U)	—
RE02-10-23319	02-612645	0–0.5	SOIL	—	1.14 (U)	—	—	—	0.531 (U)	—	—	NA	—	NA	—	—	—	NA	NA	—	—
RE02-10-23320	02-612645	5–6	QBT3	—	0.506 (U)	—	—	—	—	—	—	NA	—	NA	—	—	—	NA	NA	0.971 (UJ)	—
RE02-10-23321	02-612645	15–16	QBT3	—	0.973 (UJ)	—	—	—	—	—	—	NA	—	NA	—	—	—	NA	NA	0.953 (UJ)	—
RE02-10-23322	02-612645	25–26	QBT3	—	0.568 (U)	—	64.1 (J-)	1.26	—	—	—	NA	—	NA	—	—	—	NA	NA	0.998 (UJ)	—
RE02-10-23323	02-612645	35–36	QBT3	—	0.519 (U)	—	—	—	—	—	—	NA	—	NA	—	—	—	NA	NA	1.01 (UJ)	—
RE02-10-23324	02-612645	49–50	QBT3	—	—	—	—	—	—	—	—	NA	—	NA	—	—	—	NA	NA	1.03 (UJ)	—
RE02-10-23325	02-612646	0–0.5	SOIL	—	1.12 (J-)	—	—	—	0.484 (U)	—	—	NA	—	NA	—	—	—	NA	NA	—	—
RE02-10-23326	02-612646	5–6	QBT3	—	—	—	—	—	—	—	—	NA	—	NA	—	—	—	NA	NA	1 (UJ)	—
RE02-10-23327	02-612646	15–16	QBT3	—	0.979 (UJ)	—	—	—	—	—	—	NA	—	NA	—	—	—	NA	NA	0.972 (UJ)	—
RE02-10-23328	02-612646	25–26	QBT3	—	1.01 (UJ)	—	—	—	—	—	—	NA	—	NA	—	—	—	NA	NA	1.02 (UJ)	—
RE02-10-23329	02-612646	35–36	QBT3	—	1.02 (UJ)	—	—	—	—	—	—	NA	—	NA	—	—	—	NA	NA	1.03 (UJ)	—
RE02-10-23330	02-612646	49–50	QBT3	—	1.02 (UJ)	—	—	—	—	—	—	NA	—	NA	—	—	—	NA	NA	1.04 (UJ)	—
RE02-10-23331	02-612647	0–0.5	SOIL	—	—	—	—	—	—	—	—	NA	—	NA	—	—	—	NA	NA	—	120
RE02-10-23332	02-612647	5–6	QBT3	—	1 (UJ)	—	—	—	—	—	—	NA	—	NA	—	—	—	NA	NA	0.999 (UJ)	—
RE02-10-23333	02-612647	15–16	QBT3	—	0.994 (UJ)	—	—	—	—	—	—	NA	—	NA	—	—	—	NA	NA	0.96 (UJ)	—

Table 6.15-2 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Hexavalent Chromium	Copper	Cyanide (Total)	Lead	Magnesium	Nickel	Nitrate	Perchlorate	Selenium	Zinc
Qbt 2, 3, 4 BV[a]				**7340**	**0.5**	**2.79**	**46**	**1.21**	**1.63**	**2200**	**7.14**	**na[b]**	**4.66**	**0.5**	**11.2**	**1690**	**6.58**	**na**	**na**	**0.3**	**63.5**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**1.83**	**0.4**	**6120**	**19.3**	**na**	**14.7**	**0.5**	**22.3**	**4610**	**15.4**	**na**	**na**	**1.52**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**2260**	**1120**	**na**	**2920[d]**	**2920**	**45400**	**22700**	**800**	**na**	**22700**	**1820000**	**795**	**5680**	**341000**
Recreational SSL[e]				**791000**	**317**	**27.7**	**158000**	**1580**	**784**	**na**	**1910[d]**	**1910**	**31700**	**15800**	**560**	**na**	**15800**	**1260000**	**555**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**156**	**77.9**	**na**	**219[d]**	**219**	**3130**	**1560**	**400**	**na**	**1560**	**125000**	**54.8**	**391**	**23500**
RE02-10-23334	02-612647	25–26	QBT3	—	1.01 (UJ)	—	—	—	—	—	—	NA	—	NA	—	—	—	NA	NA	1.02 (UJ)	—
RE02-10-23335	02-612647	35–36	QBT3	—	1 (UJ)	—	—	—	—	—	—	NA	—	NA	—	—	—	NA	NA	0.925 (UJ)	—
RE02-10-23336	02-612647	49–50	QBT3	—	—	—	—	—	—	—	—	NA	—	NA	—	—	—	NA	NA	0.997 (UJ)	—
RE02-10-23337	02-612648	0–0.5	SOIL	—	—	—	—	—	0.512 (U)	—	—	NA	—	NA	—	—	—	NA	NA	—	—
RE02-10-23338	02-612648	5–6	QBT3	—	0.96 (U)	—	—	—	—	—	—	NA	—	NA	16	—	—	NA	NA	0.984 (U)	—
RE02-10-23339	02-612648	15–16	QBT3	—	0.966 (U)	—	—	—	—	—	—	NA	—	NA	19.3	—	—	NA	NA	0.995 (U)	—
RE02-10-23340	02-612648	25–26	QBT3	—	1 (U)	—	79.7 (J+)	—	—	—	—	NA	—	NA	67.2	—	—	NA	NA	0.939 (U)	—
RE02-10-23341	02-612648	35–36	QBT3	—	0.982 (U)	—	—	—	—	—	—	NA	—	NA	27	—	—	NA	NA	0.959 (U)	—
RE02-10-23342	02-612648	49–50	QBT3	—	0.991 (U)	3.08	—	—	—	—	—	NA	—	NA	50.4	—	—	NA	NA	0.972 (U)	—
RE02-10-23343	02-612649	0–0.5	SOIL	—	—	—	—	—	0.494 (U)	—	—	NA	—	NA	—	—	—	NA	NA	—	—
RE02-10-23344	02-612649	5–6	QBT3	—	0.988 (U)	—	—	—	—	—	—	NA	—	NA	—	—	—	NA	NA	0.998 (UJ)	—
RE02-10-23345	02-612649	15–16	QBT3	—	1.01 (U)	—	—	—	—	—	—	NA	—	NA	—	—	—	NA	NA	1.03 (UJ)	—
RE02-10-23346	02-612649	25–26	QBT3	—	0.994 (U)	—	—	—	—	—	—	NA	—	NA	—	—	—	NA	NA	0.947 (UJ)	—
RE02-10-23347	02-612649	35–36	QBT3	—	0.992 (U)	—	—	—	—	—	—	NA	—	NA	—	—	—	NA	NA	0.913 (UJ)	—
RE02-10-23348	02-612649	49–50	QBT3	—	—	—	—	—	—	—	—	NA	—	NA	—	—	—	NA	NA	0.973 (UJ)	—
RE02-10-23349	02-612650	0–0.5	SOIL	—	—	—	—	—	0.484 (U)	—	—	NA	—	NA	—	—	—	NA	NA	—	—
RE02-10-23350	02-612650	5–6	QBT3	—	—	—	—	—	—	—	—	NA	—	NA	—	—	—	NA	NA	0.94 (UJ)	—
RE02-10-23351	02-612650	15–16	QBT3	—	—	—	—	—	—	—	—	NA	—	NA	—	—	—	NA	NA	1.03 (UJ)	—
RE02-10-23352	02-612650	25–26	QBT3	—	0.95 (UJ)	—	—	—	—	—	—	NA	—	NA	—	—	—	NA	NA	0.932 (UJ)	—
RE02-10-23353	02-612650	35–36	QBT3	—	—	—	—	—	—	—	—	NA	—	NA	—	—	—	NA	NA	0.933 (UJ)	—
RE02-10-23354	02-612650	49–50	QBT3	—	—	—	—	1.33	—	—	—	NA	—	NA	21.4	—	—	NA	NA	1.04 (UJ)	—

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

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

[b] na = Not available.

[c] SSLs are from NMED (2009, 108070).

[d] SSLs are for hexavalent chromium.

[e] SSLs are from LANL (2010, 108613).

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

[g] NA = Not analyzed.

Table 6.15-3
Organic Chemicals Detected at SWMU 02-006(a)

Sample ID	Location ID	Depth (ft)	Media	Aroclor-1242	Aroclor-1254	Aroclor-1260	Dichlorobenzene[1,4-]	Toluene	Trichloroethene
Industrial SSL[a]				**8.26**	**8.26**	**8.26**	**180**	**57900**	**253**
Recreational SSL[b]				**10.5**	**6.65**	**10.5**	**1260**	**60800**	**1450**
Residential SSL[a]				**2.22**	**1.12**	**2.22**	**32.2**	**5570**	**45.7**
RE02-07-1037	02-600249	0–0.5	SOIL	—[c]	0.011	—	—	NA[d]	NA
RE02-07-1042	02-600249	1.4–3.1	QBT3	—	0.0019 (J)	—	—	—	—
RE02-07-1043	02-600250	0–0.5	SOIL	—	0.0057	0.0028 (J)	—	NA	NA
RE02-07-1048	02-600250	0.5–1.2	QBT3	0.0028 (J)	0.0034 (J)	0.0018 (J)	—	—	—
RE02-07-1054	02-600251	0.6–1.4	QBT3	—	—	—	0.000215 (J)	—	0.000313 (J)
RE02-07-1058	02-600252	14.5–18.2	QBT3	0.009	0.0053	0.0017 (J)	—	—	—
RE02-07-1067	02-600254	0–0.5	SOIL	—	0.0037 (J)	—	—	NA	NA
RE02-07-1073	02-600255	0–0.5	SOIL	—	0.0019 (J-)	0.0016 (J-)	—	NA	NA
RE02-07-1078	02-600255	0.5–1.5	QBT3	—	—	—	—	0.000328 (J)	—
RE02-07-1074	02-600255	4.5–9.5	QBT3	—	—	—	—	—	0.000275 (J)
RE02-07-1084	02-600256	0.5–1.9	QBT3	—	—	—	—	—	0.000276 (J)
RE02-07-1090	02-600257	0.8–2.1	QBT3	0.0042 (J-)	0.002 (J-)	—	—	—	—
RE02-07-1086	02-600257	4.5–6.7	QBT3	0.0043 (J)	0.0023 (J)	—	—	—	—
RE02-07-1091	02-600258	0–0.5	SOIL	—	0.0042	—	—	NA	NA

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

[a] SSLs are from NMED (2009, 108070).

[b] SSLs are from LANL (2010, 108613).

[c] — = Not detected.

[d] NA = Not analyzed.

Table 6.15-4
Radionuclides Detected or Detected above BVs/FVs at SWMU 02-006(a)

Sample ID	Location ID	Depth (ft)	Media	Cesium-137	Plutonium-239/240	Strontium-90	Tritium	Uranium-235/236
Qbt 2, 3, 4 BV[a]				**na[b]**	**na**	**na**	**na**	**0.09**
Soil BV[a]				**1.65**	**0.054**	**1.31**	**na**	**0.2**
Industrial SAL[c]				**23**	**210**	**1900**	**440000**	**87**
Recreational SAL[c]				**210**	**300**	**5600**	**5300000**	**520**
Residential SAL[c]				**5.6**	**33**	**5.7**	**750**	**17**
RE02-03-51142	02-22052	1–1.5	SOIL	0.776	—[d]	0.0861	1.39858	—
RE02-03-51168	02-22052	2.5–3	SOIL	0.354	—	0.183	—	—
RE02-03-51144	02-22053	1–1.5	SOIL	3.58	—	0.111	6.35942	—
RE02-03-51170	02-22053	2.5–3	SOIL	2.24	—	0.12	15.6263	—
RE02-03-51146	02-22054	1–1.5	SOIL	5.01	—	0.0534	6.18184	—
RE02-03-51172	02-22054	2.5–3	SOIL	0.418	—	–	14.5839	—
RE02-03-51148	02-22055	10–10.5	QBT3	9.63	—	0.515	4.71	—
RE02-03-51174	02-22055	11.5–12	QBT3	45.4	—	0.713	6.3	—
RE02-03-51150	02-22056	10–10.5	QBT3	11.4	—	0.311	20.4029	—
RE02-03-51176	02-22056	11.5–12	QBT3	8.39	—	0.394	26.6	—
RE02-03-51152	02-22057	10–10.5	QBT3	22.5	—	1.17	18.5	—
RE02-03-51178	02-22057	11.5–12	QBT3	1.06	—	—	33.8	—
RE02-03-51154	02-22058	10–10.5	QBT3	1.49	—	—	22.235	—
RE02-03-51180	02-22058	11.5–12	QBT3	4.35	—	0.221	13.7	—
RE02-03-51156	02-22059	6–6.5	QBT3	1.58	—	—	12.1337	—
RE02-03-51182	02-22059	7.5–8	QBT3	0.149	—	—	10.9811	—
RE02-07-1025	02-600247	0–0.5	SOIL	14.4	—	—	0.512048	—
RE02-07-1030	02-600247	0.8–1.6	QBT3	0.363	—	—	0.850043	—
RE02-07-1026	02-600247	4.5–6.6	QBT3	0.872	—	0.271	5.02181	—
RE02-07-1028	02-600247	14.5–17	QBT3	–	—	—	—	0.104
RE02-07-1029	02-600247	19.5–22	QBT3	–	—	—	39.7566	—
RE02-07-1031	02-600248	0–0.5	SOIL	29.8	—	2.69	0.778652	—
RE02-07-1036	02-600248	1–1.9	QBT3	1.82	—	0.219	4.05451	—
RE02-07-1032	02-600248	4.5–6.5	QBT3	–	—	—	23.8275	—
RE02-07-1033	02-600248	9.5–11.7	QBT3	–	—	—	1.56931	—

Table 6.15-4 (continued)

Sample ID	Location ID	Depth (ft)	Media	Cesium-137	Plutonium-239/240	Strontium-90	Tritium	Uranium-235/236
Qbt 2, 3, 4 BV[a]				**na[b]**	**na**	**na**	**na**	**0.09**
Soil BV[a]				**1.65**	**0.054**	**1.31**	**na**	**0.2**
Industrial SAL[c]				**23**	**210**	**1900**	**440000**	**87**
Recreational SAL[c]				**210**	**300**	**5600**	**5300000**	**520**
Residential SAL[c]				**5.6**	**33**	**5.7**	**750**	**17**
RE02-07-1034	02-600248	14.5–16.5	QBT3	0.736	—	0.212	18.8	—
RE02-07-1035	02-600248	19.5–21.7	QBT3	—	—	—	20.4	0.113
RE02-07-1037	02-600249	0–0.5	SOIL	—	—	—	1.61266	—
RE02-07-1042	02-600249	1.4–3.1	QBT3	—	—	—	1.14866	—
RE02-07-6673	02-600249	4.5–6.7	QBT3	—	—	—	67.6118	—
RE02-07-6672	02-600249	9.5–11.7	QBT3	—	—	—	29.5387	—
RE02-07-6671	02-600249	14.5–16.7	QBT3	—	—	—	8.17	—
RE02-07-6674	02-600249	19.5–21.7	QBT3	—	—	—	6.11	—
RE02-07-1043	02-600250	0–0.5	SOIL	2.62	—	—	0.0938623	—
RE02-07-1048	02-600250	0.5–1.2	QBT3	1.84	—	—	0.190247	—
RE02-07-1044	02-600250	4.5–6.7	QBT3	—	—	—	0.76201	—
RE02-07-1046	02-600250	14.5–17	QBT3	—	—	0.243	12	—
RE02-07-1047	02-600250	19.5–21.7	QBT3	—	—	—	18.8	—
RE02-07-1049	02-600251	0–0.6	SOIL	2.43	—	—	0.13848	—
RE02-07-1054	02-600251	0.6–1.4	QBT3	0.337	—	—	0.449984	—
RE02-07-1050	02-600251	4.5–8.5	QBT3	—	—	—	3.12516	0.0986
RE02-07-1051	02-600251	9.5–14.5	QBT3	—	—	—	53.6455	–
RE02-07-1052	02-600251	14.5–18.5	QBT3	—	—	—	5.15323	0.132
RE02-07-1053	02-600251	19.5–23.5	QBT3	—	—	—	5.43503	—
RE02-07-1055	02-600252	0–0.8	SOIL	19.8	—	2.28	—	—
RE02-07-1060	02-600252	0.8–1.5	QBT3	0.491	—	—	0.575857	—
RE02-07-1056	02-600252	4.5–6.5	QBT3	—	—	—	12.977	—
RE02-07-1057	02-600252	9.5–11.7	QBT3	—	—	—	5.67	—
RE02-07-1059	02-600252	19.5–21.5	QBT3	—	—	—	12.7	—
RE02-07-1061	02-600253	0–0.5	SOIL	7.14	—	—	1.73374	—
RE02-07-1066	02-600253	2–3	QBT3	0.658	—	—	2.79491	—
RE02-07-1062	02-600253	4.5–6.7	QBT3	—	—	—	32.6635	—
RE02-07-1063	02-600253	9.5–11.7	QBT3	—	—	—	167.677	—
RE02-07-1064	02-600253	14.5–16.7	QBT3	—	—	—	8.41	—
RE02-07-1065	02-600253	19.5–21.7	QBT3	—	—	—	4.15	—
RE02-07-1067	02-600254	0–0.5	SOIL	6.2	—	—	0.689108	—

Table 6.15-4 (continued)

Sample ID	Location ID	Depth (ft)	Media	Cesium-137	Plutonium-239/240	Strontium-90	Tritium	Uranium-235/236
Qbt 2, 3, 4 BV[a]				**na[b]**	**na**	**na**	**na**	**0.09**
Soil BV[a]				**1.65**	**0.054**	**1.31**	**na**	**0.2**
Industrial SAL[c]				**23**	**210**	**1900**	**440000**	**87**
Recreational SAL[c]				**210**	**300**	**5600**	**5300000**	**520**
Residential SAL[c]				**5.6**	**33**	**5.7**	**750**	**17**
RE02-07-1072	02-600254	1.6–2.5	QBT3	—	—	—	1.83927	—
RE02-07-1068	02-600254	4.5–7.5	QBT3	—	—	—	13.5914	0.0942
RE02-07-1070	02-600254	14.5–16.7	QBT3	—	—	—	12.2	—
RE02-07-1071	02-600254	19.5–21.7	QBT3	—	—	—	—	0.104
RE02-07-1073	02-600255	0–0.5	SOIL	—	0.0626	–	0.394502	—
RE02-07-1078	02-600255	0.5–1.5	QBT3	—	—	—	0.207156	—
RE02-07-1074	02-600255	4.5–9.5	QBT3	—	—	—	2.91291	—
RE02-07-1075	02-600255	9.5–14	QBT3	—	—	—	10.362	—
RE02-07-1076	02-600255	14.5–19	QBT3	—	—	—	30.3524	—
RE02-07-1077	02-600255	19.5–23.5	QBT3	—	—	—	30.0152	—
RE02-07-1084	02-600256	0.5–1.9	QBT3	—	—	—	1.30913	—
RE02-07-1080	02-600256	4.5–8.5	QBT3	—	—	—	5.067	—
RE02-07-1081	02-600256	9.5–13.5	QBT3	—	—	—	21.6809	0.115
RE02-07-1082	02-600256	14.5–18.5	QBT3	—	—	—	11.3624	—
RE02-07-1083	02-600256	19.5–23.5	QBT3	—	—	—	31.8669	—
RE02-07-1086	02-600257	4.5–6.7	QBT3	—	—	—	1.16667	—
RE02-07-1087	02-600257	9.5–11.7	QBT3	—	—	—	4.56519	—
RE02-07-1088	02-600257	14.5–16.7	QBT3	—	—	—	4.17858	—
RE02-07-1089	02-600257	19.5–21.7	QBT3	—	—	—	5.03305	—
RE02-07-1092	02-600258	4.5–7.5	QBT3	—	—	—	0.0248608	—
RE02-07-1094	02-600258	14.5–16.7	QBT3	—	—	—	0.147696	—
RE02-07-1095	02-600258	19.5–21.7	QBT3	—	—	—	0.0403444	—
RE02-10-23291	02-612640	15–16	QBT3	NA[e]	NA	NA	0.00970432	NA
RE02-10-23292	02-612640	25–26	QBT3	NA	NA	NA	0.0167054	NA
RE02-10-23296	02-612641	5–6	QBT3	NA	NA	NA	0.0359078	NA
RE02-10-23297	02-612641	15–16	QBT3	NA	NA	NA	0.0107842	NA
RE02-10-23299	02-612641	35–36	QBT3	NA	NA	NA	0.00656037	NA
RE02-10-23302	02-612642	5–6	QBT3	NA	NA	NA	0.0058119	NA
RE02-10-23303	02-612642	15–16	QBT3	NA	NA	NA	0.0230473	NA
RE02-10-23304	02-612642	25–26	QBT3	NA	NA	NA	0.00912874	NA
RE02-10-23314	02-612644	5–6	QBT3	NA	NA	NA	0.0331024	NA

Table 6.15-4 (continued)

Sample ID	Location ID	Depth (ft)	Media	Cesium-137	Plutonium-239/240	Strontium-90	Tritium	Uranium-235/236
Qbt 2, 3, 4 BV[a]				**na[b]**	**na**	**na**	**na**	**0.09**
Soil BV[a]				**1.65**	**0.054**	**1.31**	**na**	**0.2**
Industrial SAL[c]				**23**	**210**	**1900**	**440000**	**87**
Recreational SAL[c]				**210**	**300**	**5600**	**5300000**	**520**
Residential SAL[c]				**5.6**	**33**	**5.7**	**750**	**17**
RE02-10-23315	02-612644	15–16	QBT3	NA	NA	NA	0.240765	NA
RE02-10-23316	02-612644	25–26	QBT3	NA	NA	NA	0.0222267	NA
RE02-10-23326	02-612646	5–6	QBT3	NA	NA	NA	0.00235628	NA
RE02-10-23328	02-612646	25–26	QBT3	NA	NA	NA	0.0059823	NA
RE02-10-23329	02-612646	35–36	QBT3	NA	NA	NA	0.00889396	NA
RE02-10-23330	02-612646	49–50	QBT3	NA	NA	NA	0.0168433	NA
RE02-10-23333	02-612647	15–16	QBT3	NA	NA	NA	0.00324959	NA
RE02-10-23334	02-612647	25–26	QBT3	NA	NA	NA	0.0114562	NA
RE02-10-23335	02-612647	35–36	QBT3	NA	NA	NA	0.00244476	NA
RE02-10-23336	02-612647	49–50	QBT3	NA	NA	NA	0.00207458	NA
RE02-10-23338	02-612648	5–6	QBT3	NA	NA	NA	0.0088373	NA
RE02-10-23345	02-612649	15–16	QBT3	NA	NA	NA	0.0240041	NA
RE02-10-23347	02-612649	35–36	QBT3	NA	NA	NA	0.00661196	NA
RE02-10-23350	02-612650	5–6	QBT3	NA	NA	NA	0.00908566	NA
RE02-10-23351	02-612650	15–16	QBT3	NA	NA	NA	0.00788078	NA
RE02-10-23370	02-612651	5–6	QBT3	NA	NA	NA	23.278	NA
RE02-10-23371	02-612651	15–16	QBT3	NA	NA	NA	19.6	NA
RE02-10-23372	02-612651	25–26	QBT3	NA	NA	NA	23.9903	NA
RE02-10-23373	02-612651	35–36	QBT3	NA	NA	NA	6.91	NA
RE02-10-23377	02-612652	25–26	QBT3	NA	NA	NA	0.0861181	NA
RE02-10-23378	02-612652	35–36	QBT3	NA	NA	NA	0.0345511	NA
RE02-10-23379	02-612652	49–50	QBT3	NA	NA	NA	0.0215535	NA

Notes: Results are in pCi/g. Data qualifiers are defined in Appendix A.
[a] BVs/FVs are from LANL (1998, 059730).
[b] na = Not available.
[c] SALs from LANL (2009, 107655).
[d] — = Not detected.
[e] NA = Not analyzed.

Table 6.16-1
Samples Collected and Analyses Requested at SWMU 02-006(b)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Gamma-emitting Radionuclides	Tritium	Hexavalent Chromium	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	Technetium-99	TPH-DRO	VOCs	Cyanide (Total)
CA02-00-0157	02-01094	0–0.5	SED	—*	7548R	7550R	7550R	—	7550R	7550R	7547R, 7549R	7546R	—	7550R	7546R	—	—	7546R	—
CA02-00-0161	02-01251	0–0.5	SED	—	7569R	7571R	7571R	—	7571R	—	7568R, 7570R	7567R	—	7571R	7567R	—	—	7567R, 7567R-1	—
RE02-03-51812	02-22345	3.5–4	SOIL	—	1816S	1818S	1818S	1816S	1818S	1818S	1816S	—	—	1818S	1817S	1818S	—	—	—
RE02-03-51813	02-22345	5–5.5	SOIL	—	1816S	1818S	1818S	1816S	1818S	1818S	1816S	—	—	1818S	1817S	1818S	—	—	—
RE02-07-1407	02-600351	0–0.5	SOIL	07-401	07-400	07-401	07-401	—	07-401	07-401	07-400	07-399	07-400	07-401	07-399	—	—	—	07-400
RE02-07-1408	02-600351	4.5–6.9	QAL	07-559	07-558	07-559	07-559	—	07-559	07-559	07-558	07-557	07-558	07-559	07-557	—	—	07-557	07-558
RE02-07-1410	02-600351	9.5–14.5	QAL	07-559	07-558	07-559	07-559	—	07-559	07-559	07-558	07-557	07-558	07-559	07-557	—	—	07-557	07-558
RE02-07-1409	02-600351	17–22.5	QBO	07-559	07-558	07-559	07-559	—	07-559	07-559	07-558	07-557	07-558	07-559	07-557	—	—	07-557	07-558
RE02-07-1412	02-600352	0–0.5	SOIL	07-616	07-615	07-616	07-616	—	07-616	07-616	07-615	07-614	07-615	07-616	07-614	—	07-614	—	07-615
RE02-07-1413	02-600352	4.5–9	QAL	07-1007	07-1006	07-1007	07-1007	—	07-1007	07-1007	07-1006	07-1005	07-1006	07-1007	07-1005	—	07-1005	07-1005	07-1006
RE02-07-1415	02-600352	9–15	QAL	07-1007	07-1006	07-1007	07-1007	—	07-1007	07-1007	07-1006	07-1005	07-1006	07-1007	07-1005	—	07-1005	07-1005	07-1006
RE02-07-1414	02-600352	18.5–21	QBO	07-1007	07-1006	07-1007	07-1007	—	07-1007	07-1007	07-1006	07-1005	07-1006	07-1007	07-1005	—	07-1005	07-1005	07-1006
RE02-07-1417	02-600353	0–0.5	SOIL	07-616	07-615	07-616	07-616	—	07-616	07-616	07-615	07-614	07-615	07-616	07-614	—	—	—	07-615
RE02-07-1418	02-600353	4.5–9	QAL	07-991	07-991	07-991	07-991	—	07-991	07-991	07-991	07-991	07-991	07-991	07-991	—	—	07-991	07-991
RE02-07-1420	02-600353	9–14	QAL	07-991	07-991	07-991	07-991	—	07-991	07-991	07-991	07-991	07-991	07-991	07-991	—	—	07-991	07-991
RE02-07-1419	02-600353	19–22	QBO	07-1109	07-1109	07-1109	07-1109	—	07-1109	07-1109	07-1109	07-1109	07-1109	07-1109	07-1109	—	—	07-1109	07-1109
RE02-07-1422	02-600354	0–0.5	SOIL	07-616	07-615	07-616	07-616	—	07-616	07-616	07-615	07-614	07-615	07-616	07-614	—	—	—	07-615
RE02-07-1423	02-600354	4.5–9	QAL	07-967	07-966	07-967	07-967	—	07-967	07-967	07-966	07-965	07-966	07-967	07-965	—	—	07-965	07-966
RE02-07-1425	02-600354	9–14	QAL	07-967	07-966	07-967	07-967	—	07-967	07-967	07-966	07-965	07-966	07-967	07-965	—	—	07-965	07-966
RE02-07-1424	02-600354	14–19	QBO	07-967	07-966	07-967	07-967	—	07-967	07-967	07-966	07-965	07-966	07-967	07-965	—	—	07-965	07-966
RE02-07-1427	02-600355	0–0.5	SOIL	07-616	07-615	07-616	07-616	—	07-616	07-616	07-615	07-614	07-615	07-616	07-614	—	07-614	—	07-615
RE02-07-1428	02-600355	4.5–9	QAL	07-967	07-966	07-967	07-967	—	07-967	07-967	07-966	07-965	07-966	07-967	07-965	—	07-965	07-965	07-966
RE02-07-1429	02-600355	9–15	QBO	07-967	07-966	07-967	07-967	—	07-967	07-967	07-966	07-965	07-966	07-967	07-965	—	07-965	07-965	07-966
RE02-07-1432	02-600356	0–0.5	SOIL	07-616	07-615	07-616	07-616	—	07-616	07-616	07-615	07-614	07-615	07-616	07-614	—	07-614	—	07-615
RE02-07-1433	02-600356	4.5–9	QAL	07-967	07-966	07-967	07-967	—	07-967	07-967	07-966	07-965	07-966	07-967	07-965	—	07-965	07-965	07-966
RE02-07-1437	02-600357	0–0.5	SOIL	07-616	07-615	07-616	07-616	—	07-616	07-616	07-615	07-614	07-615	07-616	07-614	—	07-614	—	07-615
RE02-07-1438	02-600357	4.5–9	QAL	07-975	07-974	07-975	07-975	—	07-975	07-975	07-974	07-973	07-974	07-975	07-973	—	07-973	07-973	07-974
RE02-07-1440	02-600357	14–17	QAL	07-975	07-974	07-975	07-975	—	07-975	07-975	07-974	07-973	07-974	07-975	07-973	—	07-973	07-973	07-974
RE02-07-1439	02-600357	17–19	QBO	07-975	07-974	07-975	07-975	—	07-975	07-975	07-974	07-973	07-974	07-975	07-973	—	07-973	07-973	07-974
RE02-07-1442	02-600358	0–0.5	SOIL	07-616	07-615	07-616	07-616	—	07-616	07-616	07-615	07-614	07-615	07-616	07-614	—	—	—	07-615
RE02-07-1443	02-600358	4.5–9	QAL	07-975	07-974	07-975	07-975	—	07-975	07-975	07-974	07-973	07-974	07-975	07-973	—	—	07-973	07-974
RE02-07-1445	02-600358	9–14	QAL	07-975	07-974	07-975	07-975	—	07-975	07-975	07-974	07-973	07-974	07-975	07-973	—	—	07-973	07-974

Table 6.16-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Gamma-emitting Radionuclides	Tritium	Hexavalent Chromium	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	Technetium-99	TPH-DRO	VOCs	Cyanide (Total)
RE02-07-1444	02-600358	14–19	QBO	07-975	07-974	07-975	07-975	—	07-975	07-975	07-974	07-973	07-974	07-975	07-973	—	—	07-973	07-974
RE02-07-1447	02-600359	0–0.5	SOIL	07-616	07-615	07-616	07-616	—	07-616	07-616	07-615	07-614	07-615	07-616	07-614	—	—	—	07-615
RE02-07-1448	02-600359	4.5–9	QAL	07-1024	07-1023	07-1024	07-1024	—	07-1024	07-1024	07-1023	07-1022	07-1023	07-1024	07-1022	—	—	07-1022	07-1023
RE02-07-1450	02-600359	9–14	QAL	07-1024	07-1023	07-1024	07-1024	—	07-1024	07-1024	07-1023	07-1022	07-1023	07-1024	07-1022	—	—	07-1022	07-1023
RE02-07-1449	02-600359	20–22	QBO	07-1024	07-1023	07-1024	07-1024	—	07-1024	07-1024	07-1023	07-1022	07-1023	07-1024	07-1022	—	—	07-1022	07-1023
RE02-07-1452	02-600360	0–0.5	SOIL	07-616	07-615	07-616	07-616	—	07-616	07-616	07-615	07-614	07-615	07-616	07-614	—	07-614	—	07-615
RE02-07-1453	02-600360	4.5–9	QAL	07-943	07-942	07-943	07-943	—	07-943	07-943	07-942	07-941	07-942	07-943	07-941	—	07-941	07-941	07-942
RE02-07-1454	02-600360	9–14	QBO	07-943	07-942	07-943	07-943	—	07-943	07-943	07-942	07-941	07-942	07-943	07-941	—	07-941	07-941	07-942
RE02-07-1457	02-600361	0–0.5	SOIL	07-641	07-641	07-641	07-641	—	07-641	07-641	07-641	07-641	07-641	07-641	07-641	—	—	—	07-641
RE02-07-1458	02-600361	4.5–7.5	QAL	07-943	07-942	07-943	07-943	—	07-943	07-943	07-942	07-941	07-942	07-943	07-941	—	—	07-941	07-942
RE02-07-1460	02-600361	8.5–13.5	QAL	07-943	07-942	07-943	07-943	—	07-943	07-943	07-942	07-941	07-942	07-943	07-941	—	—	07-941	07-942
RE02-07-1459	02-600361	18.5–21	QBO	07-943	07-942	07-943	07-943	—	07-943	07-943	07-942	07-941	07-942	07-943	07-941	—	—	07-941	07-942
RE02-07-1462	02-600362	0–0.5	SOIL	07-641	07-641	07-641	07-641	—	07-641	07-641	07-641	07-641	07-641	07-641	07-641	—	—	—	07-641
RE02-07-1463	02-600362	4.5–9	QAL	07-1024	07-1023	07-1024	07-1024	—	07-1024	07-1024	07-1023	07-1022	07-1023	07-1024	07-1022	—	—	07-1022	07-1023
RE02-07-1465	02-600362	9–14	QAL	07-1024	07-1023	07-1024	07-1024	—	07-1024	07-1024	07-1023	07-1022	07-1023	07-1024	07-1022	—	—	07-1022	07-1023
RE02-07-1464	02-600362	14–19	QBO	07-1024	07-1023	07-1024	07-1024	—	07-1024	07-1024	07-1023	07-1022	07-1023	07-1024	07-1022	—	—	07-1022	07-1023
RE02-07-1467	02-600363	0–0.5	SOIL	07-641	07-641	07-641	07-641	—	07-641	07-641	07-641	07-641	07-641	07-641	07-641	—	—	—	07-641
RE02-07-1468	02-600363	4.5–8.5	QAL	07-1007	07-1006	07-1007	07-1007	—	07-1007	07-1007	07-1006	07-1005	07-1006	07-1007	07-1005	—	—	07-1005	07-1006
RE02-07-1470	02-600363	8.5–18	QAL	07-1007	07-1006	07-1007	07-1007	—	07-1007	07-1007	07-1006	07-1005	07-1006	07-1007	07-1005	—	—	07-1005	07-1006
RE02-07-1469	02-600363	18.5–20.5	QBO	07-1007	07-1006	07-1007	07-1007	—	07-1007	07-1007	07-1006	07-1005	07-1006	07-1007	07-1005	—	—	07-1005	07-1006
RE02-07-1472	02-600364	0–0.5	SOIL	07-401	07-400	07-401	07-401	—	07-401	07-401	07-400	07-399	07-400	07-401	07-399	—	—	—	07-400
RE02-07-1473	02-600364	4.5–6.5	QAL	07-559	07-558	07-559	07-559	—	07-559	07-559	07-558	07-557	07-558	07-559	07-557	—	—	07-557	07-558
RE02-07-1475	02-600364	9.5–15	QAL	07-559	07-558	07-559	07-559	—	07-559	07-559	07-558	07-557	07-558	07-559	07-557	—	—	07-557	07-558
RE02-07-1474	02-600364	15–20	QBO	07-559	07-558	07-559	07-559	—	07-559	07-559	07-558	07-557	07-558	07-559	07-557	—	—	07-557	07-558
RE02-07-1477	02-600365	0–0.5	SOIL	07-401	07-400	07-401	07-401	—	07-401	07-401	07-400	07-399	07-400	07-401	07-399	—	—	—	07-400
RE02-07-1478	02-600365	4.5–7	QAL	07-540	07-540	07-540	07-540	—	07-540	07-540	07-540	07-540	07-540	07-540	07-540	—	—	07-540	07-540
RE02-07-1480	02-600365	9.5–11.4	QAL	07-534	07-534	07-534	07-534	—	07-534	07-534	07-534	07-534	07-534	07-534	07-534	—	—	07-534	07-534
RE02-07-1479	02-600365	17.5–20	QBO	07-534	07-534	07-534	07-534	—	07-534	07-534	07-534	07-534	07-534	07-534	07-534	—	—	07-534	07-534
RE02-07-1482	02-600366	0–0.5	SOIL	07-616	07-615	07-616	07-616	—	07-616	07-616	07-615	07-614	07-615	07-616	07-614	—	—	—	07-615
RE02-07-1483	02-600366	4.5–9	QAL	07-963	07-963	07-963	07-963	—	07-963	07-963	07-963	07-963	07-963	07-963	07-963	—	—	07-963	07-963
RE02-07-1485	02-600366	9–14	QAL	07-975	07-974	07-975	07-975	—	07-975	07-975	07-974	07-973	07-974	07-975	07-973	—	—	07-973	07-974
RE02-07-1484	02-600366	14–19	QBO	07-975	07-974	07-975	07-975	—	07-975	07-975	07-974	07-973	07-974	07-975	07-973	—	—	07-973	07-974
RE02-07-1486	02-600367	0–0.5	SED	07-401	07-400	07-401	07-401	—	07-401	07-401	07-400	07-399	07-400	07-401	07-399	—	—	—	07-400
RE02-10-21859	02-612374	5–6	SOIL	—	—	—	10-4797	—	10-4797	10-4797	10-4797	10-4797	—	10-4797	10-4797	—	10-4797	—	—
RE02-10-21860	02-612374	15–16	QBO	—	—	—	10-4797	—	10-4797	10-4797	10-4797	10-4797	—	10-4797	10-4797	—	10-4797	—	—

Table 6.16-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Gamma-emitting Radionuclides	Tritium	Hexavalent Chromium	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	Technetium-99	TPH-DRO	VOCs	Cyanide (Total)
RE02-10-21861	02-612374	25–26	QBO	—	—	—	10-4809	—	10-4809	10-4809	10-4809	10-4808	—	10-4809	10-4808	—	10-4808	—	—
RE02-10-21862	02-612374	35–36	QBO	—	—	—	10-4809	—	10-4809	10-4809	10-4809	10-4808	—	10-4809	10-4808	—	10-4808	—	—
RE02-10-21863	02-612374	49–50	QBO	—	—	—	10-4809	—	10-4809	10-4809	10-4809	10-4808	—	10-4809	10-4808	—	10-4808	—	—

* — = Analysis not requested.

Table 6.16-2
Inorganic Chemicals above BVs at SWMU 02-006(b)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Cadmium	Calcium	Chromium	Hexavalent Chromium	Copper	Iron	Lead	Manganese	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Silver	Vanadium	Zinc
Qbt 1g, Qct, Qbo BV[a]				**3560**	**0.5**	**0.56**	**25.7**	**0.4**	**1900**	**2.6**	**Na[b]**	**3.96**	**3700**	**13.5**	**189**	**0.1**	**2**	**na**	**na**	**0.3**	**1**	**4.59**	**40**
Sediment BV[a]				**15400**	**0.83**	**3.98**	**127**	**0.4**	**4420**	**10.5**	**na**	**11.2**	**13800**	**19.7**	**543**	**0.1**	**9.38**	**na**	**na**	**0.3**	**1**	**19.7**	**60.2**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**0.4**	**6120**	**19.3**	**na**	**14.7**	**21500**	**22.3**	**671**	**0.1**	**15.4**	**na**	**na**	**1.52**	**1**	**39.6**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**1120**	**na**	**2920[d]**	**2920**	**45400**	**795000**	**800**	**145000**	**310[e]**	**22700**	**1820000**	**795**	**5680**	**5680**	**5680**	**341000**
Recreational SSL[f]				**791000**	**317**	**27.7**	**158000**	**784**	**na**	**1910[d]**	**1910**	**31700**	**554000**	**560**	**110000**	**238**	**15800**	**1260000**	**555**	**3960**	**3960**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**77.9**	**na**	**219[d]**	**219**	**3130**	**54800**	**400**	**10700**	**23[e]**	**1560**	**125000**	**54.8**	**391**	**391**	**391**	**23500**
CA02-00-0157	02-01094	0–0.5	SED	—[g]	—	—	—	—	—	—	NA[h]	—	—	31	—	0.84 (J-)	—	NA	—	0.4	—	—	140
CA02-00-0161	02-01251	0–0.5	SED	—	—	—	—	—	—	—	NA	—	—	28 (J+)	—	0.54	—	NA	—	0.533	1.7	—	110 (J+)
RE02-03-51812	02-22345	3.5–4	SOIL	—	—	—	—	—	—	—	0.158 (J-)	—	—	3970 (J)	—	—	—	NA	—	—	—	—	—
RE02-07-1407	02-600351	0–0.5	SOIL	—	—	—	—	0.531 (U)	—	—	NA	—	—	—	—	2.63	—	2.29	—	—	—	—	—
RE02-07-1408	02-600351	4.5–6.9	QAL	—	—	—	—	0.528 (U)	—	25.8	NA	—	—	103	—	—	—	—	—	1.58 (U)	—	—	—
RE02-07-1410	02-600351	9.5–14.5	QAL	—	—	—	—	0.566 (U)	—	29	NA	—	—	—	—	—	—	—	—	1.7 (U)	—	—	—
RE02-07-1409	02-600351	17–22.5	QBO	8190	—	1.79 (U)	—	0.595 (U)	—	12.5 (U)	NA	—	6040	—	221	—	2.06 (U)	—	—	1.79 (U)	—	—	—
RE02-07-1412	02-600352	0–0.5	SOIL	—	—	—	—	0.488 (U)	—	—	NA	—	—	—	—	0.553	—	1.17	—	—	—	—	—
RE02-07-1413	02-600352	4.5–9	QAL	—	—	—	—	0.542 (U)	—	—	NA	—	—	43	—	—	—	—	—	1.62 (U)	—	—	—
RE02-07-1415	02-600352	9–15	QAL	—	—	—	—	0.56 (U)	—	35.4	NA	—	—	—	—	—	—	—	—	1.68 (U)	—	—	—
RE02-07-1414	02-600352	18.5–21	QBO	11000 (J+)	—	0.849 (U)	31.5	0.583 (U)	—	4.73	NA	—	6110	—	295 (J+)	—	—	—	—	1.75 (U)	—	—	—
RE02-07-1417	02-600353	0–0.5	SOIL	—	—	—	—	—	—	—	NA	—	—	—	—	0.503	—	1.26	0.00135 (J)	—	—	—	—
RE02-07-1418	02-600353	4.5–9	QAL	—	—	—	—	0.562 (U)	—	—	NA	—	—	—	—	—	—	25.8	0.000871 (J)	1.69 (U)	—	—	—
RE02-07-1420	02-600353	9–14	QAL	—	—	—	—	0.568 (U)	—	—	NA	—	—	—	—	0.115	—	1.14	—	—	—	—	—

Table 6.16-2 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Cadmium	Calcium	Chromium	Hexavalent Chromium	Copper	Iron	Lead	Manganese	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Silver	Vanadium	Zinc
Qbt 1g, Qct, Qbo BV[a]				**3560**	**0.5**	**0.56**	**25.7**	**0.4**	**1900**	**2.6**	**Na[b]**	**3.96**	**3700**	**13.5**	**189**	**0.1**	**2**	**na**	**na**	**0.3**	**1**	**4.59**	**40**
Sediment BV[a]				**15400**	**0.83**	**3.98**	**127**	**0.4**	**4420**	**10.5**	**na**	**11.2**	**13800**	**19.7**	**543**	**0.1**	**9.38**	**na**	**na**	**0.3**	**1**	**19.7**	**60.2**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**0.4**	**6120**	**19.3**	**na**	**14.7**	**21500**	**22.3**	**671**	**0.1**	**15.4**	**na**	**na**	**1.52**	**1**	**39.6**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**1120**	**na**	**2920[d]**	**2920**	**45400**	**795000**	**800**	**145000**	**310[e]**	**22700**	**1820000**	**795**	**5680**	**5680**	**5680**	**341000**
Recreational SSL[f]				**791000**	**317**	**27.7**	**158000**	**784**	**na**	**1910[d]**	**1910**	**31700**	**554000**	**560**	**110000**	**238**	**15800**	**1260000**	**555**	**3960**	**3960**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**77.9**	**na**	**219[d]**	**219**	**3130**	**54800**	**400**	**10700**	**23[e]**	**1560**	**125000**	**54.8**	**391**	**391**	**391**	**23500**
RE02-07-1419	02-600353	19–22	QBO	6270 (J+)	—	1.23 (J)	—	0.624 (U)	—	4.4	NA	—	6140	—	251	—	—	—	—	8.55	—	—	—
RE02-07-1422	02-600354	0–0.5	SOIL	—	—	—	—	2	—	—	NA	—	—	—	—	0.742	—	—	0.000516 (J)	1.53 (U)	—	—	52.2
RE02-07-1423	02-600354	4.5–9	QAL	—	—	—	—	0.545 (U)	—	—	NA	—	—	—	—	—	—	8.11	0.000601 (J)	—	—	—	—
RE02-07-1425	02-600354	9–14	QAL	—	—	—	—	0.556 (U)	—	—	NA	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1424	02-600354	14–19	QBO	9650 (J+)	—	1.74 (U)	55.3	0.578 (U)	—	16.3 (J)	NA	—	6600	—	221	—	2.09	—	—	0.826 (J)	—	—	—
RE02-07-1427	02-600355	0–0.5	SOIL	—	—	—	—	1.44	—	—	NA	—	—	—	—	0.246	—	0.8 (J)	—	—	—	—	59.6
RE02-07-1428	02-600355	4.5–9	QAL	—	—	—	—	0.553 (U)	—	—	NA	—	—	—	—	—	—	5.9	—	—	—	—	—
RE02-07-1429	02-600355	9–15	QBO	5480 (J+)	—	0.902 (J)	31.1	0.574 (U)	—	7.19 (J)	NA	—	6540	—	268	—	—	—	—	0.883 (J)	—	4.99	—
RE02-07-1432	02-600356	0–0.5	SOIL	—	—	—	—	0.764	—	—	NA	—	—	—	—	0.467	—	—	—	—	—	—	—
RE02-07-1433	02-600356	4.5–9	QAL	—	—	—	—	0.549 (U)	11000 (J)	—	NA	—	—	—	—	0.401	—	6.85	0.000747 (J)	—	—	—	54.6
RE02-07-1437	02-600357	0–0.5	SOIL	—	—	—	—	—	—	—	NA	—	—	—	—	0.464	—	0.826 (J)	—	1.53 (U)	—	—	—
RE02-07-1438	02-600357	4.5–9	QAL	—	—	—	—	0.56 (U)	35200 (J+)	—	NA	—	—	—	—	0.194	—	8.25 (J-)	0.00169 (J)	—	—	—	—
RE02-07-1440	02-600357	14–17	QAL	—	—	—	—	0.572 (U)	—	—	NA	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1439	02-600357	17–19	QBO	9840 (J+)	0.508 (UJ)	1.88 (U)	26.2 (J+)	0.626 (U)	—	4.73	NA	—	6010	—	201 (J+)	—	—	—	—	1.24 (J)	—	—	—
RE02-07-1442	02-600358	0–0.5	SOIL	—	—	—	—	—	—	—	NA	—	—	—	—	0.302	—	1.6	0.00073 (J)	—	—	—	62.7
RE02-07-1443	02-600358	4.5–9	QAL	—	—	—	—	0.557 (U)	—	—	NA	—	—	—	—	0.471	—	8.37 (J-)	0.0104	1.67 (U)	—	—	—
RE02-07-1445	02-600358	9–14	QAL	—	—	—	—	0.57 (U)	—	—	NA	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1444	02-600358	14–19	QBO	13200 (J+)	—	1.15 (J)	92.1 (J+)	0.624 (U)	—	7.12	NA	4.62	8630	—	548 (J+)	—	4.26	—	—	0.772 (J)	—	6	—
RE02-07-1447	02-600359	0–0.5	SOIL	—	—	—	—	—	—	—	NA	—	—	—	—	0.194	—	—	—	—	—	—	—
RE02-07-1448	02-600359	4.5–9	QAL	—	—	—	—	0.555 (U)	—	—	NA	—	—	—	—	0.209	—	8.42 (J-)	—	—	—	—	84.8
RE02-07-1450	02-600359	9–14	QAL	—	—	—	—	0.566 (U)	—	39.5	NA	—	—	—	—	—	—	1.13 (J-)	—	—	—	—	—
RE02-07-1449	02-600359	20–22	QBO	6820 (J+)	0.526 (UJ)	1.98 (U)	—	0.662 (U)	—	9.12	NA	—	8360 (J)	—	215 (J)	—	—	—	—	0.778 (J)	—	—	—
RE02-07-1452	02-600360	0–0.5	SOIL	—	—	—	—	—	—	—	NA	—	—	—	—	0.722	—	1.05	—	—	—	—	—
RE02-07-1453	02-600360	4.5–9	QAL	—	—	—	—	0.532 (U)	26100 (J+)	—	NA	—	—	—	—	—	—	4.12	0.0015 (J)	—	—	—	—
RE02-07-1454	02-600360	9–14	QBO	8960	—	1.71 (U)	47.1 (J+)	0.568 (U)	—	—	NA	4.58	7330	—	249 (J+)	—	2.03	—	—	0.999 (J)	—	7.24	—
RE02-07-1457	02-600361	0–0.5	SOIL	—	—	—	—	0.516	—	—	NA	—	—	—	—	0.454	—	1.58	—	—	—	—	52.3 (J+)
RE02-07-1458	02-600361	4.5–7.5	QAL	—	—	—	—	0.542 (U)	26000 (J+)	—	NA	—	—	—	—	0.175	—	—	0.00232	1.58 (J)	—	—	52.4
RE02-07-1460	02-600361	8.5–13.5	QAL	—	—	—	—	0.525 (U)	—	—	NA	—	—	—	—	—	—	1.72	—	—	—	—	—
RE02-07-1459	02-600361	18.5–21	QBO	5900	—	1.82 (U)	—	0.606 (U)	—	—	NA	—	5870	—	—	—	—	—	—	0.996 (J)	—	—	—
RE02-07-1462	02-600362	0–0.5	SOIL	—	—	—	—	0.406 (J)	—	—	NA	—	—	—	—	0.53	—	1.39	—	—	—	—	55.8 (J+)
RE02-07-1463	02-600362	4.5–9	QAL	—	—	—	—	0.553 (U)	—	—	NA	—	—	—	—	0.168	—	4.26 (J-)	—	1.58 (J)	—	—	—

Table 6.16-2 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Cadmium	Calcium	Chromium	Hexavalent Chromium	Copper	Iron	Lead	Manganese	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Silver	Vanadium	Zinc
Qbt 1g, Qct, Qbo BV[a]				**3560**	**0.5**	**0.56**	**25.7**	**0.4**	**1900**	**2.6**	**Na[b]**	**3.96**	**3700**	**13.5**	**189**	**0.1**	**2**	**na**	**na**	**0.3**	**1**	**4.59**	**40**
Sediment BV[a]				**15400**	**0.83**	**3.98**	**127**	**0.4**	**4420**	**10.5**	**na**	**11.2**	**13800**	**19.7**	**543**	**0.1**	**9.38**	**na**	**na**	**0.3**	**1**	**19.7**	**60.2**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**0.4**	**6120**	**19.3**	**na**	**14.7**	**21500**	**22.3**	**671**	**0.1**	**15.4**	**na**	**na**	**1.52**	**1**	**39.6**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**1120**	**na**	**2920[d]**	**2920**	**45400**	**795000**	**800**	**145000**	**310[e]**	**22700**	**1820000**	**795**	**5680**	**5680**	**5680**	**341000**
Recreational SSL[f]				**791000**	**317**	**27.7**	**158000**	**784**	**na**	**1910[d]**	**1910**	**31700**	**554000**	**560**	**110000**	**238**	**15800**	**1260000**	**555**	**3960**	**3960**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**77.9**	**na**	**219[d]**	**219**	**3130**	**54800**	**400**	**10700**	**23[e]**	**1560**	**125000**	**54.8**	**391**	**391**	**391**	**23500**
RE02-07-1465	02-600362	9–14	QAL	—	—	—	—	0.566 (U)	—	—	NA	—	—	—	—	0.108	—	—	—	—	—	—	—
RE02-07-1464	02-600362	14–19	QBO	8760 (J+)	—	1.74 (J)	50.3	0.605 (U)	—	28.8	NA	5.42 (J)	8260 (J)	—	380 (J)	—	—	—	—	1.5 (J)	—	7.66	—
RE02-07-1467	02-600363	0–0.5	SOIL	—	—	—	—	—	—	—	NA	—	—	—	—	1.52	—	1.38	—	—	—	—	—
RE02-07-1468	02-600363	4.5–8.5	QAL	—	—	—	—	0.562 (U)	—	—	NA	—	—	—	—	—	—	1.26	—	1.69 (U)	—	—	—
RE02-07-1470	02-600363	8.5–18	QAL	—	—	—	—	0.56 (U)	—	—	NA	—	—	—	—	—	—	—	—	1.68 (U)	—	—	—
RE02-07-1469	02-600363	18.5–20.5	QBO	6160 (J+)	0.531 (U)	0.718 (U)	—	0.663 (U)	—	11.9	NA	—	4960	—	217 (J+)	—	2.11	—	—	0.814 (J)	—	—	—
RE02-07-1472	02-600364	0–0.5	SOIL	—	—	—	—	0.52 (U)	—	—	NA	—	—	—	—	6.04	—	—	—	—	—	—	—
RE02-07-1473	02-600364	4.5–6.5	QAL	—	—	—	—	0.523 (U)	—	—	NA	—	—	—	—	—	—	3.2	—	—	—	—	—
RE02-07-1475	02-600364	9.5–15	QAL	—	—	—	—	0.601 (U)	—	—	NA	—	—	—	—	—	—	—	—	1.8 (U)	—	—	—
RE02-07-1474	02-600364	15–20	QBO	10500	—	0.882 (J)	—	0.591 (U)	—	8.9 (U)	NA	—	6140	—	221	—	2.99 (U)	—	—	1.77 (U)	—	—	—
RE02-07-1477	02-600365	0–0.5	SOIL	—	—	—	—	0.542 (U)	—	—	NA	—	—	—	—	1.33	—	1.81	—	—	—	—	—
RE02-07-1478	02-600365	4.5–7	QAL	—	—	—	—	0.528 (U)	—	—	NA	—	—	—	—	—	—	2.65 (J-)	—	—	—	—	—
RE02-07-1480	02-600365	9.5–11.4	QAL	—	—	—	—	—	—	—	NA	—	—	—	—	—	—	—	—	1.99	—	—	87.6
RE02-07-1479	02-600365	17.5–20	QBO	9420	—	1.87	59.5	0.583 (U)	—	10.5 (U)	NA	—	7030	—	312	—	4.46 (U)	—	—	1.21 (J)	—	7.59	—
RE02-07-1482	02-600366	0–0.5	SOIL	—	—	—	—	—	—	—	NA	—	—	—	—	0.619	—	—	—	—	—	—	—
RE02-07-1483	02-600366	4.5–9	QAL	—	—	—	—	0.531 (U)	13900 (J)	—	NA	—	—	—	—	0.193	—	8.47	0.000893 (J)	—	—	—	—
RE02-07-1485	02-600366	9–14	QAL	—	—	—	—	0.556 (U)	—	—	NA	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1484	02-600366	14–19	QBO	4000 (J+)	—	0.611 (J)	26.4 (J+)	0.609 (U)	—	10.3	NA	—	7250	—	—	—	2.57	—	0.0115	1.25 (J)	—	7.79	—
RE02-07-1486	02-600367	0–0.5	SED	—	—	—	—	0.523 (U)	—	—	NA	—	—	—	—	0.179	—	1.55	—	0.842 (J)	—	—	—
RE02-10-21859	02-612374	5–6	SOIL	—	—	—	—	0.512 (U)	—	—	NA	—	—	—	—	—	—	NA	NA	—	—	—	—
RE02-10-21860	02-612374	15–16	QBO	7300	1.37 (U)	0.896 (J)	53.4	0.683 (U)	—	6.35	NA	—	8890	—	283	—	3.08	NA	NA	1.32 (U)	—	10.3	—
RE02-10-21861	02-612374	25–26	QBO	—	1.12 (U)	1.29 (U)	—	0.562 (U)	—	—	NA	—	5560	—	216 (J-)	—	—	NA	NA	1.29 (U)	—	—	—
RE02-10-21862	02-612374	35–36	QBO	—	—	1.21 (U)	—	0.617 (U)	—	—	NA	—	5100	—	—	—	—	NA	NA	1.21 (U)	—	—	—
RE02-10-21863	02-612374	49–50	QBO	—	0.539 (J)	1.25 (U)	—	0.648 (U)	—	—	NA	—	5890	—	213 (J-)	—	—	NA	NA	1.25 (U)	—	—	—

Table 6.16-2 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Cadmium	Calcium	Chromium	Hexavalent Chromium	Copper	Iron	Lead	Manganese	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Silver	Vanadium	Zinc
Qbt 1g, Qct, Qbo BV[a]				**3560**	**0.5**	**0.56**	**25.7**	**0.4**	**1900**	**2.6**	**Na[b]**	**3.96**	**3700**	**13.5**	**189**	**0.1**	**2**	**na**	**na**	**0.3**	**1**	**4.59**	**40**
Sediment BV[a]				**15400**	**0.83**	**3.98**	**127**	**0.4**	**4420**	**10.5**	**na**	**11.2**	**13800**	**19.7**	**543**	**0.1**	**9.38**	**na**	**na**	**0.3**	**1**	**19.7**	**60.2**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**0.4**	**6120**	**19.3**	**na**	**14.7**	**21500**	**22.3**	**671**	**0.1**	**15.4**	**na**	**na**	**1.52**	**1**	**39.6**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**1120**	**na**	**2920[d]**	**2920**	**45400**	**795000**	**800**	**145000**	**310[e]**	**22700**	**1820000**	**795**	**5680**	**5680**	**5680**	**341000**
Recreational SSL[f]				**791000**	**317**	**27.7**	**158000**	**784**	**na**	**1910[d]**	**1910**	**31700**	**554000**	**560**	**110000**	**238**	**15800**	**1260000**	**555**	**3960**	**3960**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**77.9**	**na**	**219[d]**	**219**	**3130**	**54800**	**400**	**10700**	**23[e]**	**1560**	**125000**	**54.8**	**391**	**391**	**391**	**23500**

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

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

[b] na = Not available.

[c] SSLs are from NMED (2009, 108070), unless otherwise noted.

[d] SSLs are for hexavalent chromium.

[e] SSLs are from EPA regional screening tables (http://www.epa.gov.earth1r6/6pd/rcra_c/pd-n/screen.htm).

[f] SSLs are from LANL (2010, 108613).

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

[h] NA = Not analyzed.

Table 6.16-3
Organic Chemicals Detected at SWMU 02-006(b)

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Acetone	Anthracene	Aroclor-1242	Aroclor-1248	Aroclor-1254	Aroclor-1260	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Bis(2-ethylhexyl)phthalate
Industrial SSL[a]				**36700**	**851000**	**183000**	**8.26**	**8.26**	**8.26**	**8.26**	**23.4**	**2.34**	**23.4**	**18300[b]**	**234**	**1370**
Recreational SSL[c]				**20800**	**702000**	**104000**	**10.5**	**10.5**	**6.65**	**10.5**	**30.1**	**3.01**	**30.1**	**10400[b]**	**301**	**1830**
Residential SSL[a]				**3440**	**67500**	**17200**	**2.22**	**2.22**	**1.12**	**2.22**	**6.21**	**0.621**	**6.21**	**1720[b]**	**62.1**	**347**
CA02-00-0157	02-01094	0–0.5	SED	—[d]	—	—	—	—	—	1	—	—	0.12 (J)	—	0.12 (J)	—
CA02-00-0161	02-01251	0–0.5	SED	—	—	—	—	—	—	0.56	0.21 (J)	0.23 (J)	0.2 (J)	0.19 (J)	0.21 (J)	—
RE02-03-51812	02-22345	3.5–4	SOIL	0.0172 (J)	NA[e]	0.139	NA	NA	NA	NA	—	0.301 (J)	0.615 (J)	—	—	0.109 (J)
RE02-03-51813	02-22345	5–5.5	SOIL	—	NA	—	NA	NA	NA	NA	—	—	—	—	—	0.0982 (J)
RE02-07-1407	02-600351	0–0.5	SOIL	0.0218 (J)	NA	0.0335 (J)	—	—	—	0.0626	—	0.0978 (J)	0.141 (J)	0.0612 (J)	—	—
RE02-07-1408	02-600351	4.5–6.9	QAL	0.0433	—	0.0775	—	—	0.0047	0.0034 (J)	0.113	0.178	0.148	—	—	—
RE02-07-1410	02-600351	9.5–14.5	QAL	—	—	—	—	—	0.0088 (J)	0.0124 (J)	—	0.292	0.0465 (J)	—	—	—
RE02-07-1409	02-600351	17–22.5	QBO	—	—	—	—	—	—	—	—	0.0963	—	—	—	—

Table 6.16-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Acetone	Anthracene	Aroclor-1242	Aroclor-1248	Aroclor-1254	Aroclor-1260	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Bis(2-ethylhexyl)phthalate
Industrial SSL[a]				**36700**	**851000**	**183000**	**8.26**	**8.26**	**8.26**	**8.26**	**23.4**	**2.34**	**23.4**	**18300**	**234**	**1370**
Recreational SSL[c]				**20800**	**702000**	**104000**	**10.5**	**10.5**	**6.65**	**10.5**	**30.1**	**3.01**	**30.1**	**10400**	**301**	**1830**
Residential SSL[a]				**3440**	**67500**	**17200**	**2.22**	**2.22**	**1.12**	**2.22**	**6.21**	**0.621**	**6.21**	**1720**	**62.1**	**347**
RE02-07-1412	02-600352	0–0.5	SOIL	—	NA	0.0282 (J)	—	—	—	0.037	0.178	0.163	0.291	—	—	—
RE02-07-1413	02-600352	4.5–9	QAL	0.302	—	0.363	—	—	0.0033 (J)	—	0.454	0.558	0.703	0.259	—	—
RE02-07-1415	02-600352	9–15	QAL	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1414	02-600352	18.5–21	QBO	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1417	02-600353	0–0.5	SOIL	0.0539	NA	0.0784	—	—	—	0.0856	0.14	0.169	0.259	0.0714	—	—
RE02-07-1418	02-600353	4.5–9	QAL	0.0738	—	0.117	—	—	0.012	—	0.192	0.184	0.219	0.193	0.11	—
RE02-07-1419	02-600353	19–22	QBO	—	—	—	—	—	—	0.0023 (J)	—	—	—	—	—	—
RE02-07-1422	02-600354	0–0.5	SOIL	0.4	NA	0.613	—	—	—	0.117	0.977	1.13	1.55	0.526	—	—
RE02-07-1423	02-600354	4.5–9	QAL	0.0718	—	0.109	—	—	0.0109	0.0078	0.224	0.264 (J)	0.304 (J)	0.149 (J)	0.183 (J)	—
RE02-07-1425	02-600354	9–14	QAL	—	—	—	—	0.0287	—	—	—	—	—	—	—	—
RE02-07-1427	02-600355	0–0.5	SOIL	0.285	NA	0.821	—	—	—	0.0347	1.4	1.51	1.75	0.446	—	—
RE02-07-1428	02-600355	4.5–9	QAL	0.0596	—	0.098	—	—	—	—	0.18	0.218	0.252	0.122	0.104	—
RE02-07-1432	02-600356	0–0.5	SOIL	0.134	NA	0.235	—	—	—	0.0992	0.415	0.53	0.822	0.204	—	—
RE02-07-1433	02-600356	4.5–9	QAL	0.0164 (J)	—	0.0222 (J)	—	—	0.0353 (J)	0.0195 (J)	0.0628 (J)	0.0723 (J)	0.0792 (J)	0.0445 (J)	—	—
RE02-07-1437	02-600357	0–0.5	SOIL	0.175	NA	0.261	—	—	—	0.0636	0.416	0.485	0.547	0.211	—	—
RE02-07-1438	02-600357	4.5–9	QAL	0.0325 (J)	—	0.0428	—	—	0.0245 (J)	—	0.0966	0.076 (J)	0.127 (J)	0.0996 (J)	0.0546 (J)	—
RE02-07-1440	02-600357	14–17	QAL	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1439	02-600357	17–19	QBO	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1442	02-600358	0–0.5	SOIL	0.142	NA	0.231	—	—	—	0.225	0.407	0.47	0.692	0.194	—	—
RE02-07-1443	02-600358	4.5–9	QAL	—	—	—	—	—	0.234	0.0914	—	0.061	0.0256 (J)	—	—	—
RE02-07-1445	02-600358	9–14	QAL	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1447	02-600359	0–0.5	SOIL	0.06	NA	0.0998	—	—	—	0.0983	0.196	0.264	0.426	0.101	—	—
RE02-07-1448	02-600359	4.5–9	QAL	—	—	0.0153 (J)	—	—	0.0498	0.0407	0.0399	—	0.0588	—	—	—
RE02-07-1450	02-600359	9–14	QAL	—	—	—	—	—	0.003 (J)	0.0027 (J)	—	—	—	—	—	—
RE02-07-1452	02-600360	0–0.5	SOIL	0.0172 (J)	NA	0.0277 (J)	—	—	—	0.11	0.0715	0.0817	0.136	—	—	—
RE02-07-1453	02-600360	4.5–9	QAL	0.234	0.00434 (J)	0.422	—	—	0.0245	0.0441	0.687	0.791 (J)	0.969 (J)	0.393 (J)	0.432 (J)	—
RE02-07-1457	02-600361	0–0.5	SOIL	0.0258 (J)	NA	0.038	—	—	0.0526	0.11	0.0925	0.104	0.118	0.0873	0.0583	—
RE02-07-1458	02-600361	4.5–7.5	QAL	0.252 (J-)	—	0.449 (J-)	—	—	0.0336 (J)	0.0354 (J)	0.671 (J-)	0.768 (J)	0.924 (J)	0.37 (J)	0.462 (J)	—
RE02-07-1460	02-600361	8.5–13.5	QAL	—	—	—	—	—	—	0.0014 (J)	—	—	—	—	—	—
RE02-07-1462	02-600362	0–0.5	SOIL	0.213	NA	0.0382	—	—	0.0782 (J)	0.106 (J-)	0.0985	0.118	0.144	0.0793	0.0733	—
RE02-07-1463	02-600362	4.5–9	QAL	0.0277 (J)	—	0.0661	—	—	0.0121	0.0059	0.151	0.157	0.188	0.0764	—	—

Table 6.16-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Acetone	Anthracene	Aroclor-1242	Aroclor-1248	Aroclor-1254	Aroclor-1260	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Bis(2-ethylhexyl)phthalate
Industrial SSL[a]				**36700**	**851000**	**183000**	**8.26**	**8.26**	**8.26**	**8.26**	**23.4**	**2.34**	**23.4**	**18300**	**234**	**1370**
Recreational SSL[c]				**20800**	**702000**	**104000**	**10.5**	**10.5**	**6.65**	**10.5**	**30.1**	**3.01**	**30.1**	**10400**	**301**	**1830**
Residential SSL[a]				**3440**	**67500**	**17200**	**2.22**	**2.22**	**1.12**	**2.22**	**6.21**	**0.621**	**6.21**	**1720**	**62.1**	**347**
RE02-07-1464	02-600362	14–19	QBO	—	—	—	0.0151	—	0.00691	0.0031 (J)	—	—	—	—	—	—
RE02-07-1467	02-600363	0–0.5	SOIL	0.0222 (J)	NA	0.0693	—	—	0.04	0.0631	0.295	0.241	0.284	0.138	0.154	—
RE02-07-1468	02-600363	4.5–8.5	QAL	—	—	—	—	—	—	0.0037 (J)	—	—	—	—	—	—
RE02-07-1470	02-600363	8.5–18	QAL	—	—	—	—	—	—	0.0024 (J)	—	—	—	—	—	—
RE02-07-1472	02-600364	0–0.5	SOIL	—	NA	0.0117 (J)	—	—	—	0.0229 (J)	—	0.066 (J)	0.101 (J)	0.0573 (J)	—	—
RE02-07-1473	02-600364	4.5–6.5	QAL	0.023 (J)	—	—	—	—	0.0014 (J)	—	—	0.085	0.0106 (J)	—	—	—
RE02-07-1477	02-600365	0–0.5	SOIL	—	NA	0.0185 (J)	—	—	—	0.115	—	0.0473	0.0623	0.0252 (J)	—	—
RE02-07-1478	02-600365	4.5–7	QAL	—	—	—	—	—	—	0.0051	—	0.0357 (J)	0.044	0.0155 (J)	—	—
RE02-07-1480	02-600365	9.5–11.4	QAL	—	—	—	—	—	—	0.0021 (J)	—	—	—	—	—	—
RE02-07-1479	02-600365	17.5–20	QBO	—	—	—	—	—	—	0.0023 (J)	—	—	—	—	—	—
RE02-07-1482	02-600366	0–0.5	SOIL	0.517	NA	0.74	—	—	—	0.0655	1.15	1.36 (J)	2.1 (J)	0.462 (J)	—	—
RE02-07-1483	02-600366	4.5–9	QAL	0.364	—	0.518	—	—	0.0072 (J)	0.0065 (J)	0.817	0.891 (J)	1.02 (J)	0.449 (J)	—	—
RE02-07-1486	02-600367	0–0.5	SED	—	NA	—	—	—	—	0.0138 (J)	—	0.0696 (J)	0.107 (J)	0.0489 (J)	—	—
RE02-10-21859	02-612374	5–6	SOIL	—	NA	—	—	—	0.0027 (J)	0.0019 (J)	—	—	—	—	—	—
RE02-10-21860	02-612374	15–16	QBO	—	NA	—	—	—	—	0.0027 (J)	—	—	—	—	—	—

Table 6.16-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Chrysene	Dibenz(a,h)anthracene	Dibenzofuran	Dichlorobenzene[1,4-]	Diethylphthalate	Di-n-butylphthalate	Ethylbenzene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Isopropyltoluene[4-]	Methyl-2-pentanone[4-]	Methylene Chloride
Industrial SSL[a]				**2340**	**2.34**	**1000[f]**	**180**	**547000**	**68400**	**385**	**24400**	**24400**	**23.4**	**14900[g]**	**73300**	**1090**
Recreational SSL[c]				**3010**	**3.01**	**399**	**1260**	**319000**	**39900**	**2060**	**13900**	**13900**	**30.1**	**52700[g]**	**62300**	**4520**
Residential SSL[a]				**621**	**0.621**	**78[f]**	**32.2**	**48900**	**6110**	**69.7**	**2290**	**2290**	**6.21**	**3210[g]**	**5950**	**199**
CA02-00-0157	02-01094	0–0.5	SED	0.15 (J)	—	—	—	0.37 (J)	—	—	0.21 (J)	—	—	—	—	—
CA02-00-0161	02-01251	0–0.5	SED	0.29 (J)	—	—	—	—	—	—	0.49 (J)	—	0.16 (J)	—	—	—

Table 6.16-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Chrysene	Dibenz(a,h)anthracene	Dibenzofuran	Dichlorobenzene[1,4-]	Diethylphthalate	Di-n-butylphthalate	Ethylbenzene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Isopropyltoluene[4-]	Methyl-2-pentanone[4-]	Methylene Chloride
Industrial SSL[a]				**2340**	**2.34**	**1000[f]**	**180**	**547000**	**68400**	**385**	**24400**	**24400**	**23.4**	**14900[g]**	**73300**	**1090**
Recreational SSL[c]				**3010**	**3.01**	**399**	**1260**	**319000**	**39900**	**2060**	**13900**	**13900**	**30.1**	**52700[g]**	**62300**	**4520**
Residential SSL[a]				**621**	**0.621**	**78[f]**	**32.2**	**48900**	**6110**	**69.7**	**2290**	**2290**	**6.21**	**3210[g]**	**5950**	**199**
RE02-03-51812	02-22345	3.5–4	SOIL	0.363	—	0.0269 (J)	—	—	—	NA	0.809	0.0657	—	NA	NA	NA
RE02-03-51813	02-22345	5–5.5	SOIL	—	—	—	—	—	—	NA	0.0518	0.005 (J)	—	NA	NA	NA
RE02-07-1407	02-600351	0–0.5	SOIL	0.0875	—	—	—	—	—	NA	0.128	0.0175 (J)	0.0441 (J)	NA	NA	NA
RE02-07-1408	02-600351	4.5–6.9	QAL	0.0899	—	—	—	—	—	—	0.189	0.0499	0.107	—	—	—
RE02-07-1410	02-600351	9.5–14.5	QAL	—	—	—	—	—	—	—	0.0626 (J)	—	—	—	—	—
RE02-07-1409	02-600351	17–22.5	QBO	—	—	—	—	—	—	—	0.0143 (J)	—	—	—	—	—
RE02-07-1412	02-600352	0–0.5	SOIL	0.192	—	—	—	—	—	NA	0.252	—	0.0576 (J)	NA	NA	NA
RE02-07-1413	02-600352	4.5–9	QAL	0.492	—	0.184 (J)	—	—	—	—	1.04	0.272	0.241	—	—	—
RE02-07-1415	02-600352	9–15	QAL	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1414	02-600352	18.5–21	QBO	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1417	02-600353	0–0.5	SOIL	0.152	—	—	—	—	—	NA	0.296	0.0444	0.0681	NA	NA	NA
RE02-07-1418	02-600353	4.5–9	QAL	0.205	—	—	—	—	—	—	0.398	0.0627	0.208	—	—	—
RE02-07-1419	02-600353	19–22	QBO	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1422	02-600354	0–0.5	SOIL	0.937	—	0.234 (J)	—	—	—	NA	1.94	0.362	0.501	NA	NA	NA
RE02-07-1423	02-600354	4.5–9	QAL	0.233	—	—	—	—	0.0407 (J)	—	0.512	0.0594	0.129 (J)	—	—	—
RE02-07-1425	02-600354	9–14	QAL	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1427	02-600355	0–0.5	SOIL	1.3	—	0.132 (J)	—	—	—	NA	2.52	0.306	0.464	NA	NA	NA
RE02-07-1428	02-600355	4.5–9	QAL	0.191	—	—	—	—	—	—	0.328	0.0544	0.115	—	—	—
RE02-07-1432	02-600356	0–0.5	SOIL	0.474	—	0.0704 (J)	—	—	—	NA	0.894	0.111	0.208	NA	NA	NA
RE02-07-1433	02-600356	4.5–9	QAL	0.073 (J)	—	—	—	—	—	—	0.136	0.0129 (J)	0.0454 (J)	—	—	—
RE02-07-1437	02-600357	0–0.5	SOIL	0.421	—	0.102 (J)	—	—	—	NA	0.848	0.153	0.227	NA	NA	NA
RE02-07-1438	02-600357	4.5–9	QAL	0.112	—	—	—	—	—	—	0.263	0.0272 (J)	0.122 (J)	—	—	—
RE02-07-1440	02-600357	14–17	QAL	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1439	02-600357	17–19	QBO	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1442	02-600358	0–0.5	SOIL	0.399	—	0.0858 (J)	—	—	—	NA	0.828	0.13	0.201	NA	NA	NA
RE02-07-1443	02-600358	4.5–9	QAL	0.0199 (J)	—	—	—	—	—	0.000276 (J)	0.0406	—	—	—	0.01	—
RE02-07-1445	02-600358	9–14	QAL	—	—	—	—	—	0.155 (J)	—	—	—	—	—	—	—
RE02-07-1447	02-600359	0–0.5	SOIL	0.215	—	—	—	—	—	NA	0.394	0.0561	0.107	NA	NA	NA
RE02-07-1448	02-600359	4.5–9	QAL	0.0345 (J)	—	—	—	—	—	—	0.064	—	—	—	—	—
RE02-07-1450	02-600359	9–14	QAL	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1452	02-600360	0–0.5	SOIL	0.0807	—	—	—	—	—	NA	0.141	0.0158 (J)	0.0367	NA	NA	NA

Table 6.16-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Chrysene	Dibenz(a,h)anthracene	Dibenzofuran	Dichlorobenzene[1,4-]	Diethylphthalate	Di-n-butylphthalate	Ethylbenzene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Isopropyltoluene[4-]	Methyl-2-pentanone[4-]	Methylene Chloride
Industrial SSL[a]				**2340**	**2.34**	**1000[f]**	**180**	**547000**	**68400**	**385**	**24400**	**24400**	**23.4**	**14900[g]**	**73300**	**1090**
Recreational SSL[c]				**3010**	**3.01**	**399**	**1260**	**319000**	**39900**	**2060**	**13900**	**13900**	**30.1**	**52700[g]**	**62300**	**4520**
Residential SSL[a]				**621**	**0.621**	**78[f]**	**32.2**	**48900**	**6110**	**69.7**	**2290**	**2290**	**6.21**	**3210[g]**	**5950**	**199**
RE02-07-1453	02-600360	4.5–9	QAL	0.718	0.194 (J)	0.165 (J)	0.000282 (J)	—	—	—	1.66	0.237	0.389 (J)	0.000507 (J)	—	—
RE02-07-1457	02-600361	0–0.5	SOIL	0.0957	—	—	—	—	0.0343 (J)	NA	0.163	0.0175 (J)	0.0732	NA	NA	NA
RE02-07-1458	02-600361	4.5–7.5	QAL	0.747 (J-)	0.188 (J)	0.178 (J-)	—	—	—	—	1.68 (J-)	0.243 (J-)	0.407 (J)	—	—	—
RE02-07-1460	02-600361	8.5–13.5	QAL	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1462	02-600362	0–0.5	SOIL	0.106	—	—	—	—	—	NA	0.193	0.0205 (J)	0.0764	NA	NA	NA
RE02-07-1463	02-600362	4.5–9	QAL	0.151	—	—	—	—	—	—	0.263	0.0281 (J)	0.0712	—	—	—
RE02-07-1464	02-600362	14–19	QBO	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1467	02-600363	0–0.5	SOIL	0.321	—	—	—	—	0.0356 (J)	NA	0.481	0.016 (J)	0.109	NA	NA	NA
RE02-07-1468	02-600363	4.5–8.5	QAL	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1470	02-600363	8.5–18	QAL	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1472	02-600364	0–0.5	SOIL	0.0795 (J)	—	—	—	—	—	NA	0.077	—	0.0361 (J)	NA	NA	NA
RE02-07-1473	02-600364	4.5–6.5	QAL	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1477	02-600365	0–0.5	SOIL	0.0415	—	—	—	—	—	NA	0.0643	—	0.0131 (J)	NA	NA	NA
RE02-07-1478	02-600365	4.5–7	QAL	0.0283 (J)	—	—	—	—	0.0379 (J)	—	0.0459	—	—	—	—	0.003 (J)
RE02-07-1480	02-600365	9.5–11.4	QAL	—	—	—	—	—	—	—	—	—	—	—	—	0.00265 (J)
RE02-07-1479	02-600365	17.5–20	QBO	—	—	—	—	—	—	—	—	—	—	—	—	0.00294 (J)
RE02-07-1482	02-600366	0–0.5	SOIL	1.11	—	0.329 (J)	—	—	—	NA	2.21	0.465	0.468 (J)	NA	NA	NA
RE02-07-1483	02-600366	4.5–9	QAL	0.774	—	0.244 (J)	—	—	—	—	1.82	0.342	0.444 (J)	—	—	—
RE02-07-1486	02-600367	0–0.5	SED	0.0497 (J)	—	—	—	—	—	NA	0.0629	—	0.0346 (J)	NA	NA	NA
RE02-10-21859	02-612374	5–6	SOIL	—	—	—	—	—	—	NA	—	—	—	NA	NA	NA
RE02-10-21860	02-612374	15–16	QBO	—	—	—	—	—	—	NA	—	—	—	NA	NA	NA

Table 6.16-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Methylnaphthalene[2-]	Naphthalene	Phenanthrene	Pyrene	Styrene	Toluene	TPH-DRO	Trichloroethene	Trimethylbenzene[1,2,4-]	Trimethylbenzene[1,3,5-]	Xylene[1,2-]	Xylene[1,3-]+Xylene[1,4-]
Industrial SSL[a]				**4100[f]**	**252**	**20500**	**18300**	**51200**	**57900**	**1120[h]**	**253**	**260[g]**	**10000[f]**	**31500**	**3610[i]**
Recreational SSL[c]				**3170**	**1950**	**12000**	**10400**	**126000**	**60800**	**na[j]**	**1450**	**6880**	**7930**	**248000**	**27800[i]**
Residential SSL[a]				**310[f]**	**45**	**1830**	**1720**	**8970**	**5570**	**520[h]**	**45.7**	**62[g]**	**780[f]**	**9550**	**1090[i]**
CA02-00-0157	02-01094	0–0.5	SED	—	—	—	0.2 (J)	—	—	NA	—	—	—	NA	NA
CA02-00-0161	02-01251	0–0.5	SED	—	—	0.26 (J)	0.45 (J)	—	—	NA	—	—	—	NA	NA
RE02-03-51812	02-22345	3.5–4	SOIL	—	—	0.693	0.812	NA	NA	NA	NA	NA	NA	NA	NA
RE02-03-51813	02-22345	5–5.5	SOIL	—	—	0.0391	0.0422	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-1407	02-600351	0–0.5	SOIL	0.0106 (J)	0.0237 (J)	0.131	0.179	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-1408	02-600351	4.5–6.9	QAL	0.0277 (J)	0.0788	0.243	0.206	—	—	NA	—	—	—	—	—
RE02-07-1410	02-600351	9.5–14.5	QAL	—	—	0.0565 (J)	0.0525 (J)	—	—	NA	—	—	—	—	—
RE02-07-1409	02-600351	17–22.5	QBO	—	—	0.0141 (J)	—	—	—	NA	—	—	—	—	—
RE02-07-1412	02-600352	0–0.5	SOIL	—	—	0.109	0.362	NA	NA	66.7	NA	NA	NA	NA	NA
RE02-07-1413	02-600352	4.5–9	QAL	0.22	0.585	1.25	1.19	—	—	9.01	—	—	—	—	—
RE02-07-1415	02-600352	9–15	QAL	—	—	—	—	—	—	5.1 (J)	—	—	—	—	—
RE02-07-1414	02-600352	18.5–21	QBO	—	—	—	—	—	—	1.99 (J)	—	—	—	—	—
RE02-07-1417	02-600353	0–0.5	SOIL	0.027 (J)	0.0711	0.269	0.3	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-1418	02-600353	4.5–9	QAL	0.041	0.104	0.417	0.363	—	—	NA	—	—	—	—	—
RE02-07-1419	02-600353	19–22	QBO	—	—	—	—	—	—	NA	—	—	—	—	—
RE02-07-1422	02-600354	0–0.5	SOIL	0.218	0.566	1.89	1.88	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-1423	02-600354	4.5–9	QAL	0.0345 (J)	0.0804	0.354	0.467	—	—	NA	—	—	—	—	—
RE02-07-1425	02-600354	9–14	QAL	—	—	—	—	—	—	NA	—	—	—	—	—
RE02-07-1427	02-600355	0–0.5	SOIL	0.05	0.0919	1.96	2.9	NA	NA	29.5	NA	NA	NA	NA	NA
RE02-07-1428	02-600355	4.5–9	QAL	0.0348 (J)	0.0795	0.339	0.351	—	—	12.5 (J)	—	—	—	—	—
RE02-07-1432	02-600356	0–0.5	SOIL	0.0582	0.116	0.784	1.02	NA	NA	18.9	NA	NA	NA	NA	NA
RE02-07-1433	02-600356	4.5–9	QAL	0.0074 (J)	0.0133 (J)	0.0843	0.149 (J)	—	—	20.7 (J)	—	—	—	—	—
RE02-07-1437	02-600357	0–0.5	SOIL	0.104	0.294	0.857	0.938	NA	NA	29.7	NA	NA	NA	NA	NA
RE02-07-1438	02-600357	4.5–9	QAL	0.0199 (J)	0.0687	0.171	0.244	—	—	29.9 (J)	—	—	—	—	—
RE02-07-1440	02-600357	14–17	QAL	—	—	—	—	—	—	9.35 (J)	—	—	—	—	—
RE02-07-1439	02-600357	17–19	QBO	—	—	—	—	—	—	1.65 (J)	—	—	—	—	—
RE02-07-1442	02-600358	0–0.5	SOIL	0.0747	0.155	0.79	0.86	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-1443	02-600358	4.5–9	QAL	—	—	0.0296 (J)	0.0387	—	—	NA	—	—	—	0.000493 (J)	0.000469 (J)
RE02-07-1445	02-600358	9–14	QAL	—	—	—	—	—	—	NA	—	—	—	—	—
RE02-07-1447	02-600359	0–0.5	SOIL	0.0354	0.0742	0.349	0.361	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-1448	02-600359	4.5–9	QAL	—	0.013 (J)	0.056	0.0603	—	—	NA	—	—	—	—	—
RE02-07-1450	02-600359	9–14	QAL	—	—	—	—	—	—	NA	—	—	—	—	—
RE02-07-1452	02-600360	0–0.5	SOIL	0.0078 (J)	0.0177 (J)	0.108	0.158	NA	NA	12.2 (J)	NA	NA	NA	NA	NA
RE02-07-1453	02-600360	4.5–9	QAL	0.139	0.286	1.36	1.41	0.00023 (J)	—	46.8	—	0.000293 (J)	0.000234 (J)	—	0.000305 (J)
RE02-07-1457	02-600361	0–0.5	SOIL	0.00892 (J)	0.0175 (J)	0.137	0.188	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-1458	02-600361	4.5–7.5	QAL	0.151 (J-)	0.416 (J-)	1.36 (J-)	1.53 (J-)	—	—	NA	—	0.000494 (J)	0.000232 (J)	—	0.000451 (J)

Table 6.16-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Methylnaphthalene[2-]	Naphthalene	Phenanthrene	Pyrene	Styrene	Toluene	TPH-DRO	Trichloroethene	Trimethylbenzene[1,2,4-]	Trimethylbenzene[1,3,5-]	Xylene[1,2-]	Xylene[1,3-]+Xylene[1,4-]
Industrial SSL[a]				**4100[f]**	**252**	**20500**	**18300**	**51200**	**57900**	**1120[h]**	**253**	**260[g]**	**10000[f]**	**31500**	**3610[i]**
Recreational SSL[c]				**3170**	**1950**	**12000**	**10400**	**126000**	**60800**	**na[j]**	**1450**	**6880**	**7930**	**248000**	**27800[i]**
Residential SSL[a]				**310[f]**	**45**	**1830**	**1720**	**8970**	**5570**	**520[h]**	**45.7**	**62[g]**	**780[f]**	**9550**	**1090[i]**
RE02-07-1460	02-600361	8.5–13.5	QAL	—	—	—	—	—	—	NA	—	—	—	—	—
RE02-07-1462	02-600362	0–0.5	SOIL	0.00992 (J)	0.0188 (J)	0.152	0.218	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-1463	02-600362	4.5–9	QAL	0.0166 (J)	0.0367 (J)	0.216	0.243	—	—	NA	—	—	—	—	—
RE02-07-1464	02-600362	14–19	QBO	—	—	—	—	—	—	NA	—	—	—	—	—
RE02-07-1467	02-600363	0–0.5	SOIL	—	—	0.233	0.78	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-1468	02-600363	4.5–8.5	QAL	—	—	—	—	—	—	NA	—	—	—	—	—
RE02-07-1470	02-600363	8.5–18	QAL	—	—	—	—	—	—	NA	—	—	—	—	—
RE02-07-1472	02-600364	0–0.5	SOIL	—	—	0.0477	0.122 (J)	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-1473	02-600364	4.5–6.5	QAL	—	—	—	—	—	0.000433 (J)	NA	0.000265 (J)	—	—	—	—
RE02-07-1477	02-600365	0–0.5	SOIL	—	0.0128 (J)	0.06	0.0759	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-1478	02-600365	4.5–7	QAL	—	—	0.0258 (J)	0.0432	—	—	NA	—	—	—	—	—
RE02-07-1480	02-600365	9.5–11.4	QAL	—	—	—	—	—	—	NA	—	—	—	—	—
RE02-07-1479	02-600365	17.5–20	QBO	—	—	—	—	—	—	NA	—	—	—	—	—
RE02-07-1482	02-600366	0–0.5	SOIL	0.33	0.799	2.39	2.67	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-1483	02-600366	4.5–9	QAL	0.267	0.72	1.81	1.55	—	—	NA	—	—	—	—	—
RE02-07-1486	02-600367	0–0.5	SED	—	—	0.0382	0.0845 (J)	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-21859	02-612374	5–6	SOIL	—	—	—	—	NA	NA	—	NA	NA	NA	NA	NA
RE02-10-21860	02-612374	15–16	QBO	—	—	—	—	NA	NA	—	NA	NA	NA	NA	NA

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

[a] SSLs are from NMED (2009, 108070), unless otherwise noted.

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

[c] SSLs are from LANL (2010, 108613).

[d] — = Not detected.

[e] NA = Not analyzed.

[f] SSLs are from EPA regional screening tables (http://www.epa.gov.earth1r6/6pd/rcra_c/pd-n/screen.htm).

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

[h] Screening guidelines for diesel range organics from NMED (2006, 094614).

[i] Xylene used as a surrogate based on structural similarity.

[j] na = Not available.

Table 6.16-4
Radionuclides Detected or Detected above BVs/FVs at SWMU 02-006(b)

Sample ID	Location ID	Depth (ft)	Media	Cesium-137	Plutonium-239/240	Strontium-90	Tritium	Uranium-234	Uranium-235/236
Qbt 1g, Qct, Qbo BV[a]				**na**[b]	**na**	**na**	**na**	**4**	**0.18**
Sediment BV[a]				**0.9**	**0.068**	**1.04**	**0.093**	**2.59**	**0.2**
Soil BV[a]				**1.65**	**0.054**	**1.31**	**na**	**2.59**	**0.2**
Industrial SAL[c]				**23**	**210**	**1900**	**440000**	**1500**	**87**
Recreational SAL[c]				**210**	**300**	**5600**	**5300000**	**3200**	**520**
Residential SAL[c]				**5.6**	**33**	**5.7**	**750**	**170**	**17**
CA02-00-0157	02-01094	0–0.5	SED	—[d]	1.91	—	0.277	7.87	0.278
CA02-00-0161	02-01251	0–0.5	SED	—	2.11	—	—	NA[e]	NA
RE02-03-51812	02-22345	3.5–4	SOIL	1.83	—	0.949	0.156	—	—
RE02-03-51813	02-22345	5–5.5	SOIL	0.169	—	1.29	0.0773	—	—
RE02-07-1408	02-600351	4.5–6.9	QAL	0.632	—	0.653	—	—	—
RE02-07-1410	02-600351	9.5–14.5	QAL	0.214	—	—	—	—	—
RE02-07-1412	02-600352	0–0.5	SOIL	—	—	—	0.00558228	—	—
RE02-07-1413	02-600352	4.5–9	QAL	—	—	—	0.174622	—	—
RE02-07-1415	02-600352	9–15	QAL	—	—	—	0.0580188	—	—
RE02-07-1418	02-600353	4.5–9	QAL	—	—	—	0.533933	—	—
RE02-07-1422	02-600354	0–0.5	SOIL	—	—	—	0.0099814	—	—
RE02-07-1423	02-600354	4.5–9	QAL	—	—	—	0.482857	—	—
RE02-07-1428	02-600355	4.5–9	QAL	—	—	—	0.219756	—	—
RE02-07-1433	02-600356	4.5–9	QAL	—	—	—	0.306667	—	—
RE02-07-1437	02-600357	0–0.5	SOIL	—	—	—	0.00564891	—	—
RE02-07-1438	02-600357	4.5–9	QAL	0.197	—	—	0.536697	—	—
RE02-07-1439	02-600357	17–19	QBO	—	—	—	0.0725337	—	—
RE02-07-1442	02-600358	0–0.5	SOIL	—	—	—	0.00642603	—	—
RE02-07-1443	02-600358	4.5–9	QAL	—	—	—	2.46369	—	—
RE02-07-1445	02-600358	9–14	QAL	—	—	—	0.061993	—	—
RE02-07-1444	02-600358	14–19	QBO	—	—	—	0.152202	—	—
RE02-07-1448	02-600359	4.5–9	QAL	—	—	—	0.150582	—	—
RE02-07-1453	02-600360	4.5–9	QAL	—	—	—	0.0949114	—	—
RE02-07-1457	02-600361	0–0.5	SOIL	—	—	—	0.00576766	—	—
RE02-07-1458	02-600361	4.5–7.5	QAL	0.308	—	—	0.209768	—	—
RE02-07-1463	02-600362	4.5–9	QAL	—	—	—	0.285075	—	—

Table 6.16-4 (continued)

Sample ID	Location ID	Depth (ft)	Media	Cesium-137	Plutonium-239/240	Strontium-90	Tritium	Uranium-234	Uranium-235/236
Qbt 1g, Qct, Qbo BV[a]				**na**[b]	**na**	**na**	**na**	**4**	**0.18**
Sediment BV[a]				**0.9**	**0.068**	**1.04**	**0.093**	**2.59**	**0.2**
Soil BV[a]				**1.65**	**0.054**	**1.31**	**na**	**2.59**	**0.2**
Industrial SAL[c]				**23**	**210**	**1900**	**440000**	**1500**	**87**
Recreational SAL[c]				**210**	**300**	**5600**	**5300000**	**3200**	**520**
Residential SAL[c]				**5.6**	**33**	**5.7**	**750**	**170**	**17**
RE02-07-1467	02-600363	0–0.5	SOIL	—	—	—	0.00535299	—	—
RE02-07-1470	02-600363	8.5–18	QAL	—	0.0371	—	—	—	—
RE02-07-1469	02-600363	18.5–20.5	QBO	—	—	—	—	—	0.218
RE02-07-1472	02-600364	0–0.5	SOIL	—	—	—	0.0073817	—	—
RE02-07-1473	02-600364	4.5–6.5	QAL	—	—	—	0.158302	—	—
RE02-07-1478	02-600365	4.5–7	QAL	—	—	—	0.0897425	—	—
RE02-07-1480	02-600365	9.5–11.4	QAL	—	0.117	—	—	—	—
RE02-07-1479	02-600365	17.5–20	QBO	—	0.0968	—	—	—	—
RE02-07-1482	02-600366	0–0.5	SOIL	—	—	—	0.00350391	—	—
RE02-07-1483	02-600366	4.5–9	QAL	—	—	—	0.331111	—	—
RE02-07-1485	02-600366	9–14	QAL	—	—	—	0.0325006	—	—
RE02-07-1484	02-600366	14–19	QBO	—	—	—	0.0639426	—	—
RE02-07-1486	02-600367	0–0.5	SED	—	0.146	—	—	—	—
RE02-10-21859	02-612374	5–6	SOIL	NA	—	—	0.362727	—	—

Notes: Results are in pCi/g. Data qualifiers are defined in Appendix A.
[a] BVs/FVs are from LANL (1998, 059730).
[b] na = Not available.
[c] SALs from LANL (2009, 107655).
[d] — = Not detected.
[e] NA = Not analyzed.

Table 6.17-1
Samples Collected and Analyses Requested at AOC 02-006(c)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Gamma-emitting Radionuclides	Tritium	Hexavalent Chromium	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	TPH-DRO	VOCs	Cyanide (Total)
RE02-07-2618	02-600585	0–0.5	SOIL	07-976	07-976	07-976	07-976	07-976	07-976	07-976	07-976	07-976	07-976	07-976	07-976	—*	—	07-976
RE02-07-2619	02-600585	4.5–9	QAL	07-985	07-984	07-985	07-985	07-984	07-985	07-985	07-984	07-983	07-984	07-985	07-983	—	07-983	07-984
RE02-07-2621	02-600585	9–14	QAL	07-985	07-984	07-985	07-985	07-984	07-985	07-985	07-984	07-983	07-984	07-985	07-983	—	07-983	07-984
RE02-07-2622	02-600586	0–0.5	SOIL	07-976	07-976	07-976	07-976	07-976	07-976	07-976	07-976	07-976	07-976	07-976	07-976	—	—	07-976
RE02-07-2623	02-600586	4.5–9	QAL	07-985	07-984	07-985	07-985	07-984	07-985	07-985	07-984	07-983	07-984	07-985	07-983	—	07-983	07-984
RE02-07-2625	02-600586	9–14	QAL	07-985	07-984	07-985	07-985	07-984	07-985	07-985	07-984	07-983	07-984	07-985	07-983	—	07-983	07-984
RE02-07-2624	02-600586	14–19	QBO	07-996	07-996	07-996	07-996	07-996	07-996	07-996	07-996	07-996	07-996	07-996	07-996	—	07-996	07-996
RE02-07-2626	02-600587	0–0.5	SOIL	07-776	07-776	07-776	07-776	07-776	07-776	07-776	07-776	07-776	07-776	07-776	07-776	—	—	07-776
RE02-07-2628	02-600587	12.5–18	QBO	07-950	07-949	07-950	07-950	07-949	07-950	07-950	07-949	07-948	07-949	07-950	07-948	—	07-948	07-949
RE02-07-2630	02-600588	0–0.5	SOIL	07-360	07-360	07-360	07-360	07-360	07-360	07-360	07-360	07-360	07-360	07-360	07-360	07-360	—	07-360
RE02-07-2631	02-600588	4.5–10	QAL	07-950	07-949	07-950	07-950	07-949	07-950	07-950	07-949	07-948	07-949	07-950	07-948	07-948	07-948	07-949
RE02-07-2633	02-600588	11.5–13	QAL	07-950	07-949	07-950	07-950	07-949	07-950	07-950	07-949	07-948	07-949	07-950	07-948	07-948	07-948	07-949
RE02-07-2634	02-600589	0–0.5	SOIL	07-383	07-383	07-383	07-383	07-383	07-383	07-383	07-383	07-383	07-383	07-383	07-383	07-383	—	07-383
RE02-07-2635	02-600589	4.5–9.5	QAL	07-950	07-949	07-950	07-950	07-949	07-950	07-950	07-949	07-948	07-949	07-950	07-948	07-948	07-948	07-949
RE02-07-2637	02-600589	9.5–13	QAL	07-950	07-949	07-950	07-950	07-949	07-950	07-950	07-949	07-948	07-949	07-950	07-948	07-948	07-948	07-949
RE02-07-2638	02-600590	0–0.5	SOIL	07-604	07-604	07-604	07-604	07-604	07-604	07-604	07-604	07-604	07-604	07-604	07-604	—	—	07-604
RE02-07-2639	02-600590	4.5–7.2	QAL	07-645	07-645	07-645	07-645	07-645	07-645	07-645	07-645	07-644	07-645	07-645	07-644	—	07-644	07-645
RE02-07-2641	02-600590	9.5–11.7	QAL	07-645	07-645	07-645	07-645	07-645	07-645	07-645	07-645	07-644	07-645	07-645	07-644	—	07-644	07-645
RE02-07-2640	02-600590	14.5–16.9	QBO	07-645	07-645	07-645	07-645	07-645	07-645	07-645	07-645	07-644	07-645	07-645	07-644	—	07-644	07-645
RE02-07-2642	02-600591	0–0.5	SOIL	07-776	07-776	07-776	07-776	07-776	07-776	07-776	07-776	07-776	07-776	07-776	07-776	—	—	07-776
RE02-07-2643	02-600591	4.5–9	QAL	07-856	07-856	07-856	07-856	07-856	07-856	07-856	07-856	07-856	07-856	07-856	07-856	—	07-856	07-856
RE02-07-2644	02-600591	14–19	QBO	07-856	07-856	07-856	07-856	07-856	07-856	07-856	07-856	07-856	07-856	07-856	07-856	—	07-856	07-856
RE02-10-21742	02-612345	5–6	QAL	—	—	10-4320	10-4320	10-4321	10-4320	10-4320	10-4321	10-4320	—	—	10-4320	10-4320	—	—
RE02-10-21743	02-612345	15–16	QAL	—	—	10-4320	10-4320	10-4321	10-4320	10-4320	10-4321	10-4320	—	—	10-4320	10-4320	—	—
RE02-10-21744	02-612345	25–26	QBO	—	—	10-4320	10-4320	10-4321	10-4320	10-4320	10-4321	10-4320	—	—	10-4320	10-4320	—	—
RE02-10-21745	02-612345	35–36	QBO	—	—	10-4320	10-4320	10-4321	10-4320	10-4320	10-4321	10-4320	—	—	10-4320	10-4320	—	—
RE02-10-21746	02-612345	49–50	QBO	—	—	10-4320	10-4320	10-4321	10-4320	10-4320	10-4321	10-4320	—	—	10-4320	10-4320	—	—
RE02-10-22178	02-612463	5–6	SOIL	10-4216	—	10-4216	10-4216	10-4216	—	10-4216	10-4216	10-4216	—	10-4216	—	—	—	—
RE02-10-22179	02-612463	15–16	QBO	10-4216	—	10-4216	10-4216	10-4216	—	10-4216	10-4216	10-4216	—	10-4216	—	—	—	—
RE02-10-22180	02-612463	25–27	QBO	10-4250	—	10-4250	10-4250	10-4249	—	10-4250	10-4249	10-4249	—	10-4250	—	—	—	—
RE02-10-22181	02-612463	35–36	QBO	10-4250	—	10-4250	10-4250	10-4249	—	10-4250	10-4249	10-4249	—	10-4250	—	—	—	—
RE02-10-22182	02-612463	49–50	QBO	10-4250	—	10-4250	10-4250	10-4249	—	10-4250	10-4249	10-4249	—	10-4250	—	—	—	—

* — = Analysis not requested.

Table 6.17-2
Inorganic Chemicals above BVs at AOC 02-006(c)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Cadmium	Calcium	Chromium	Hexavalent Chromium	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Vanadium	Zinc
Qbt 1g, Qct, Qbo BV[a]				**3560**	**0.5**	**0.56**	**25.7**	**0.4**	**1900**	**2.6**	**na[b]**	**3.96**	**3700**	**13.5**	**739**	**189**	**0.1**	**2**	**na**	**na**	**0.3**	**4.59**	**40**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**0.4**	**6120**	**19.3**	**na**	**14.7**	**21500**	**22.3**	**4610**	**671**	**0.1**	**15.4**	**na**	**na**	**1.52**	**39.6**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**1120**	**na**	**2920[d]**	**2920**	**45400**	**795000**	**800**	**na**	**145000**	**310[e]**	**22700**	**1820000**	**795**	**5680**	**5680**	**341000**
Recreational SSL[f]				**791000**	**317**	**27.7**	**158000**	**784**	**na**	**1910[d]**	**1910**	**31700**	**554000**	**560**	**na**	**110000**	**238**	**15800**	**1260000**	**555**	**3960**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**77.9**	**na**	**219[d]**	**219**	**3130**	**54800**	**400**	**na**	**10700**	**23[e]**	**1560**	**125000**	**54.8**	**391**	**391**	**23500**
RE02-07-2618	02-600585	0–0.5	SOIL	—[g]	—	—	—	—	—	—	—	—	—	—	—	—	0.362	—	2.33 (J-)	—	—	—	54.4
RE02-07-2619	02-600585	4.5–9	QAL	—	—	—	—	0.539 (U)	—	—	—	—	—	—	—	—	0.132	—	6.52	0.00132 (J)	—	—	—
RE02-07-2621	02-600585	9–14	QAL	—	—	—	—	0.569 (U)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2622	02-600586	0–0.5	SOIL	—	—	—	—	—	—	—	—	—	—	—	—	—	0.378	—	2.23 (J-)	—	—	—	59.7
RE02-07-2623	02-600586	4.5–9	QAL	—	—	—	—	0.572 (U)	—	—	—	—	—	—	—	—	—	—	6.67	0.00162 (J)	—	—	—
RE02-07-2625	02-600586	9–14	QAL	—	—	—	—	0.554 (U)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2624	02-600586	14–19	QBO	7760	—	1.94 (U)	56.9	0.567 (U)	—	15.6	—	—	7440	—	—	287	—	2.14	—	—	0.678 (J)	6.39	—
RE02-07-2626	02-600587	0–0.5	SOIL	—	—	—	—	0.515 (U)	9020 (J+)	—	—	15	—	—	—	—	1.36 (J)	—	1.12	—	—	—	53.4
RE02-07-2628	02-600587	12.5–18	QBO	10300	—	1.96	51.5	0.61 (U)	—	28.6	0.313	6.27 (U)	6510 (J-)	—	—	299	—	4.18	—	—	1.43 (J)	—	—
RE02-07-2630	02-600588	0–0.5	SOIL	—	—	—	—	—	—	—	—	—	—	—	—	—	1.08 (J)	—	1.29 (J-)	—	1.56 (U)	—	57.3
RE02-07-2631	02-600588	4.5–10	QAL	—	—	—	—	0.53 (U)	—	25.4	0.0845 (J)	—	—	—	—	—	—	—	1.71	—	1.59 (U)	—	—
RE02-07-2633	02-600588	11.5–13	QAL	—	—	—	—	0.578 (U)	—	27.1	0.365	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2634	02-600589	0–0.5	SOIL	—	—	—	—	—	—	—	0.0733 (J)	—	—	—	—	—	0.183	—	—	—	—	—	—
RE02-07-2635	02-600589	4.5–9.5	QAL	—	—	—	—	0.53 (U)	—	45.7	0.214	—	—	—	—	—	—	—	1.29	—	—	—	—
RE02-07-2637	02-600589	9.5–13	QAL	—	—	—	—	0.554 (U)	—	—	0.0964 (J)	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2638	02-600590	0–0.5	SOIL	—	—	—	—	—	—	—	—	—	—	—	—	—	0.369	—	3.59 (J+)	—	—	—	—
RE02-07-2639	02-600590	4.5–7.2	QAL	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.6 (U)	—	—
RE02-07-2641	02-600590	9.5–11.7	QAL	—	—	—	—	—	—	40.3	—	—	—	—	—	—	—	—	1.26 (J-)	—	—	—	—
RE02-07-2640	02-600590	14.5–16.9	QBO	10200	—	2.35	39.4	—	—	105	—	4.08	6840	—	—	264	—	22.4	—	—	1.75 (U)	—	—
RE02-07-2642	02-600591	0–0.5	SOIL	—	—	—	—	0.499 (U)	—	—	—	—	—	—	—	—	0.208 (J)	—	—	0.00242	—	—	—
RE02-07-2643	02-600591	4.5–9	QAL	—	—	—	—	0.527 (U)	—	—	0.0302 (J)	—	—	—	—	—	—	—	—	—	2.3	—	—
RE02-07-2644	02-600591	14–19	QBO	12700	—	1.52 (J)	38.1 (U)	0.596 (U)	—	6.5 (U)	0.0663 (J)	—	5880	—	—	199 (U)	—	2.04 (U)	—	—	1.84	—	—
RE02-10-21742	02-612345	5–6	QAL	—	1.09 (U)	—	—	0.543 (U)	—	—	—	—	—	44.2	—	—	—	—	NA[h]	NA	—	—	92.7
RE02-10-21743	02-612345	15–16	QAL	—	1.11 (U)	—	—	0.557 (U)	—	—	0.316 (J)	—	—	—	—	—	—	—	NA	NA	—	—	—
RE02-10-21744	02-612345	25–26	QBO	4480	1.29 (U)	1.27 (U)	—	0.646 (U)	—	3.28	—	—	6390	—	—	271	—	—	NA	NA	1.27 (U)	—	—
RE02-10-21745	02-612345	35–36	QBO	—	1.4 (U)	1.34 (U)	—	0.699 (U)	—	5.24	—	—	6290	—	—	279	—	—	NA	NA	1.34 (U)	—	—
RE02-10-21746	02-612345	49–50	QBO	—	1.32 (U)	—	—	0.662 (U)	—	4.88	—	—	8580	—	1570 (J-)	355	—	—	NA	NA	1.35 (U)	5.75	—

Table 6.17-2 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Cadmium	Calcium	Chromium	Hexavalent Chromium	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Vanadium	Zinc
Qbt 1g, Qct, Qbo BV[a]				**3560**	**0.5**	**0.56**	**25.7**	**0.4**	**1900**	**2.6**	**na[b]**	**3.96**	**3700**	**13.5**	**739**	**189**	**0.1**	**2**	**na**	**na**	**0.3**	**4.59**	**40**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**0.4**	**6120**	**19.3**	**na**	**14.7**	**21500**	**22.3**	**4610**	**671**	**0.1**	**15.4**	**na**	**na**	**1.52**	**39.6**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**1120**	**na**	**2920[d]**	**2920**	**45400**	**795000**	**800**	**na**	**145000**	**310[e]**	**22700**	**1820000**	**795**	**5680**	**5680**	**341000**
Recreational SSL[f]				**791000**	**317**	**27.7**	**158000**	**784**	**na**	**1910[d]**	**1910**	**31700**	**554000**	**560**	**na**	**110000**	**238**	**15800**	**1260000**	**555**	**3960**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**77.9**	**na**	**219[d]**	**219**	**3130**	**54800**	**400**	**na**	**10700**	**23[e]**	**1560**	**125000**	**54.8**	**391**	**391**	**23500**
RE02-10-22178	02-612463	5–6	SOIL	—	1.03 (U)	—	—	0.516 (U)	—	—	—	—	—	—	—	—	—	—	NA	NA	—	—	—
RE02-10-22179	02-612463	15–16	QBO	—	5.73 (U)	1.34	48.7	0.573 (U)	—	404	0.337 (J)	7.89	10700	—	—	838	—	—	NA	NA	1.18 (U)	15.1	—
RE02-10-22180	02-612463	25–27	QBO	8070	1.26 (U)	1.28 (U)	—	0.632 (U)	—	—	—	—	6080	—	—	200 (J+)	—	—	NA	NA	1.28 (U)	—	—
RE02-10-22181	02-612463	35–36	QBO	6990	1.23 (U)	1.29 (U)	—	0.614 (U)	—	—	—	—	5940	—	—	—	—	—	NA	NA	1.29 (U)	—	—
RE02-10-22182	02-612463	49–50	QBO	4590	1.3 (U)	1.26 (U)	—	0.648 (U)	—	2.93	—	—	6330	—	—	203 (J+)	—	—	NA	NA	1.26 (U)	—	—

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

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

[b] na = Not available.

[c] SSLs are from NMED (2009, 108070), unless otherwise noted.

[d] SSLs are for hexavalent chromium.

[e] SSLs are from EPA regional screening tables (http://www.epa.gov.earth1r6/6pd/rcra_c/pd-n/screen.htm).

[f] SSLs are from LANL (2010, 108613).

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

[h] NA = Not analyzed.

Table 6.17-3
Organic Chemicals Detected at SWMU 02-006(c)

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Anthracene	Aroclor-1242	Aroclor-1254	Aroclor-1260	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene
Industrial SSL[a]				**36700**	**183000**	**8.26**	**8.26**	**8.26**	**23.4**	**2.34**	**23.4**	**18300[b]**	**234**	**2340**
Recreational SSL[c]				**20800**	**104000**	**10.5**	**6.65**	**10.5**	**30.1**	**3.01**	**30.1**	**10400[b]**	**301**	**3010**
Residential SSL[a]				**3440**	**17200**	**2.22**	**1.12**	**2.22**	**6.21**	**0.621**	**6.21**	**1720[b]**	**62.1**	**621**
RE02-07-2618	02-600585	0–0.5	SOIL	0.0566	0.0992	—[d]	—	0.104	0.203	0.238	0.333	0.142	—	0.226
RE02-07-2619	02-600585	4.5–9	QAL	0.0241 (J)	0.0391	0.0128 (J)	0.0166 (J)	0.0212	0.113	0.101	0.162	0.0479	—	0.107
RE02-07-2622	02-600586	0–0.5	SOIL	0.0245 (J)	0.0359 (J)	—	0.0316 (J)	0.0351 (J)	0.108	0.123	0.181	0.0804	—	0.12
RE02-07-2623	02-600586	4.5–9	QAL	—	0.00951 (J)	—	—	—	0.0275 (J)	0.0211 (J)	0.0219 (J)	0.0115 (J)	—	0.0191 (J)
RE02-07-2625	02-600586	9–14	QAL	—	—	—	—	0.0013 (J)	—	—	—	—	—	—
RE02-07-2626	02-600587	0–0.5	SOIL	0.0321 (J)	0.049	—	0.118	0.169	0.213	—	0.365 (J)	—	—	0.212
RE02-07-2628	02-600587	12.5–18	QBO	—	—	—	0.00394 (J)	0.0061	—	—	—	—	—	—
RE02-07-2630	02-600588	0–0.5	SOIL	—	0.011 (J)	—	0.0412	0.041	—	—	0.0439	—	—	0.0288 (J)
RE02-07-2631	02-600588	4.5–10	QAL	—	—	—	—	0.0026 (J-)	—	—	—	—	—	—
RE02-07-2633	02-600588	11.5–13	QAL	—	—	—	0.0067 (J)	0.0046 (J)	—	—	—	—	—	—
RE02-07-2634	02-600589	0–0.5	SOIL	—	—	—	—	0.0241 (J)	—	—	—	—	—	—
RE02-07-2635	02-600589	4.5–9.5	QAL	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2637	02-600589	9.5–13	QAL	—	—	—	—	0.0034 (J)	—	—	—	—	—	—
RE02-07-2638	02-600590	0–0.5	SOIL	—	—	—	—	0.019 (J)	—	0.0885	0.0209 (J)	0.0349 (J)	—	0.0175 (J)
RE02-07-2639	02-600590	4.5–7.2	QAL	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2641	02-600590	9.5–11.7	QAL	—	—	—	—	0.0014 (J)	—	—	—	—	—	—
RE02-07-2640	02-600590	14.5–16.9	QBO	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2642	02-600591	0–0.5	SOIL	—	—	—	—	0.0242 (J)	—	—	0.112 (J)	—	0.0428 (J)	0.0665
RE02-07-2643	02-600591	4.5–9	QAL	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2644	02-600591	14–19	QBO	—	—	—	—	0.0017 (J)	—	—	—	—	—	—
RE02-10-21742	02-612345	5–6	QAL	—	0.0334 (J)	—	—	—	0.0634	0.0899	0.0838	0.0756 (J)	0.042	0.0616
RE02-10-21743	02-612345	15–16	QAL	—	—	—	—	—	—	—	—	—	—	—
RE02-10-21744	02-612345	25–26	QBO	—	—	—	—	—	—	—	—	—	—	—
RE02-10-21745	02-612345	35–36	QBO	—	—	—	—	—	—	—	—	—	—	—
RE02-10-21746	02-612345	49–50	QBO	—	—	—	—	—	—	—	—	—	—	—

Table 6.17-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Di-n-butylphthalate	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Methylene Chloride	Methylnaphthalene[2-]	Naphthalene	Phenanthrene	Pyrene	Toluene	TPH-DRO
Industrial SSL[a]				**68400**	**24400**	**24400**	**23.4**	**1090**	**4100[e]**	**252**	**20500**	**18300**	**57900**	**1120[f]**
Recreational SSL[c]				**39900**	**13900**	**13900**	**30.1**	**4520**	**3170**	**1950**	**12000**	**10400**	**60800**	**Na[g]**
Residential SSL[a]				**6110**	**2290**	**2290**	**6.21**	**199**	**310[e]**	**45**	**1830**	**1720**	**5570**	**520[f]**
RE02-07-2618	02-600585	0–0.5	SOIL	—	0.398	0.0482	0.132	NA[h]	0.0259 (J)	0.054	0.333	0.357	NA	NA
RE02-07-2619	02-600585	4.5–9	QAL	—	0.219	0.0202 (J)	0.046	—	0.011 (J)	0.0295 (J)	0.144	0.205	—	NA
RE02-07-2622	02-600586	0–0.5	SOIL	—	0.194	0.0203 (J)	0.0718	NA	0.0101 (J)	0.0197 (J)	0.156	0.182	NA	NA
RE02-07-2623	02-600586	4.5–9	QAL	—	0.0396	—	—	—	—	—	0.0306 (J)	0.0333 (J)	—	NA
RE02-07-2625	02-600586	9–14	QAL	—	—	—	—	—	—	—	—	—	—	NA
RE02-07-2626	02-600587	0–0.5	SOIL	—	0.347	0.0241 (J)	—	NA	0.00717 (J)	0.0114 (J)	0.233	0.557	NA	NA
RE02-07-2628	02-600587	12.5–18	QBO	—	0.0154 (J)	—	—	0.00272 (J)	—	—	—	—	—	NA
RE02-07-2630	02-600588	0–0.5	SOIL	—	0.0523	—	—	NA	—	—	0.0415	0.0604	NA	13.9 (J)
RE02-07-2631	02-600588	4.5–10	QAL	—	—	—	—	—	—	—	—	—	0.00037 (J)	—
RE02-07-2633	02-600588	11.5–13	QAL	0.121 (J)	—	—	—	—	—	—	—	—	—	3.95 (J)
RE02-07-2634	02-600589	0–0.5	SOIL	—	—	—	—	NA	—	—	—	0.0227 (J)	NA	3.93
RE02-07-2635	02-600589	4.5–9.5	QAL	—	—	—	—	—	—	—	—	—	—	1.39 (J)
RE02-07-2637	02-600589	9.5–13	QAL	—	—	—	—	0.0023 (J)	—	—	—	—	—	—
RE02-07-2638	02-600590	0–0.5	SOIL	—	0.0366	—	—	NA	—	—	0.0235 (J)	0.0364	NA	NA
RE02-07-2639	02-600590	4.5–7.2	QAL	0.0451 (J)	0.0129 (J)	—	—	—	—	—	—	0.0124 (J)	—	NA
RE02-07-2641	02-600590	9.5–11.7	QAL	0.0509 (J)	—	—	—	—	—	—	—	—	—	NA
RE02-07-2640	02-600590	14.5–16.9	QBO	0.0509 (J)	—	—	—	—	—	—	—	—	—	NA
RE02-07-2642	02-600591	0–0.5	SOIL	—	0.0799	—	—	NA	—	—	0.0213 (J)	0.0986	NA	NA
RE02-07-2643	02-600591	4.5–9	QAL	0.0522 (J)	—	—	—	—	—	—	—	—	—	NA
RE02-07-2644	02-600591	14–19	QBO	0.0823 (J)	—	—	—	—	—	—	—	—	—	NA
RE02-10-21742	02-612345	5–6	QAL	—	0.109	—	0.0662 (J)	NA	0.0508	0.0378 (J)	0.102	0.0945	NA	537
RE02-10-21743	02-612345	15–16	QAL	—	—	—	—	NA	—	—	—	—	NA	471
RE02-10-21744	02-612345	25–26	QBO	—	—	—	—	NA	—	—	—	—	NA	12.7
RE02-10-21745	02-612345	35–36	QBO	—	—	—	—	NA	—	—	—	—	NA	33.9
RE02-10-21746	02-612345	49–50	QBO	—	—	—	—	NA	—	—	—	—	NA	16.9

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

[a] SSLs are from NMED (2009, 108070), unless otherwise noted.

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

[c] SSLs are from LANL (2010, 108613).

[d] — = Not detected.

[e] SSLs are from EPA regional screening tables (http://www.epa.gov.earth1r6/6pd/rcra_c/pd-n/screen.htm).

[f] Screening guidelines for diesel range organics from NMED (2006, 094614).

[g] na = Not available.

[h] NA = Not analyzed.

Table 6.17-4
Radionuclides Detected or Detected above BVs/FVs at AOC 02-006(c)

Sample ID	Location ID	Depth (ft)	Media	Cesium-137	Plutonium-239/240	Strontium-90	Tritium
Qbt 1g, Qct, Qbo BV[a]				**na[b]**	**na**	**na**	**na**
Soil BV[a]				**1.65**	**0.054**	**1.31**	**na**
Industrial SAL[c]				**23**	**210**	**1900**	**440000**
Recreational SAL[c]				**210**	**300**	**5600**	**5300000**
Residential SAL[c]				**5.6**	**33**	**5.7**	**750**
RE02-07-2619	02-600585	4.5–9	QAL	—[d]	—	—	0.413378
RE02-07-2621	02-600585	9–14	QAL	—	—	—	0.0436009
RE02-07-2623	02-600586	4.5–9	QAL	—	—	—	0.505982
RE02-07-2630	02-600588	0–0.5	SOIL	—	—	—	0.0162282
RE02-07-2631	02-600588	4.5–10	QAL	—	—	—	0.0496574 (J-)
RE02-07-2634	02-600589	0–0.5	SOIL	4.95	—	1.76	—
RE02-07-2635	02-600589	4.5–9.5	QAL	—	—	0.222	0.0279391 (J-)
RE02-07-2638	02-600590	0–0.5	SOIL	16.9	0.112	3.86	—
RE02-07-2639	02-600590	4.5–7.2	QAL	10.2	—	2.76	0.0166
RE02-07-2641	02-600590	9.5–11.7	QAL	—	—	—	0.0234916
RE02-10-21742	02-612345	5–6	QAL	0.135	0.0318	NA[e]	0.0869655
RE02-10-21743	02-612345	15–16	QAL	—	—	NA	0.0291951
RE02-10-21744	02-612345	25–26	QBO	—	—	NA	0.0843243
RE02-10-21745	02-612345	35–36	QBO	—	—	NA	0.0827463
RE02-10-21746	02-612345	49–50	QBO	—	—	NA	0.0907536
RE02-10-22178	02-612463	5–6	SOIL	0.158	NA	—	—
RE02-10-22182	02-612463	49–50	QBO	—	NA	—	0.0822838

Notes: Results are in pCi/g. Data qualifiers are defined in Appendix A.
[a] BVs/FVs are from LANL (1998, 059730).
[b] na = Not available.
[c] SALs from LANL (2009, 107655).
[d] — = Not detected.
[e] NA = Not analyzed.

Table 6.19-1
Samples Collected and Analyses Requested at AOC 02-006(e)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Gamma-emitting Radionuclides	Tritium	Hexavalent Chromium	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	Technetium-99	VOCs	Cyanide (Total)
CA02-00-0155	02-01095	0–0.5	SED	—*	7548R	7550R	7550R	—	7550R	7550R	7547R, 7549R	7546R	—	7550R	7546R	—	7546R	—
CA02-00-0156	02-01095	1.9–2.2	SED	—	7548R	7550R	7550R	—	7550R	7550R	7547R, 7549R	7546R	—	7550R	7546R	—	7546R	—
CA02-00-0162	02-01250	0–0.5	SED	—	7569R	7571R	7571R	—	7571R	7571R	7568R, 7570R	—	—	7571R	7567R	—	—	—
RE02-03-51834	02-22356	9–9.5	SOIL	—	—	1818S	1818S	1816S	1818S	1818S	1816S	—	—	1818S	—	1818S	—	—
RE02-03-51835	02-22356	10.5–11	SOIL	—	—	1818S	1818S	1816S	1818S	1818S	1816S	—	—	1818S	—	1818S	—	—
RE02-03-51836	02-22357	5–5.5	SOIL	—	—	1818S	1818S	1816S	1818S	1818S	1816S	—	—	1818S	—	1818S	—	—
RE02-03-51837	02-22357	6.5–7	SOIL	—	—	1818S	1818S	1816S	1818S	1818S	1816S	—	—	1818S	—	1818S	—	—
RE02-03-51838	02-22358	5–5.5	SOIL	—	—	1818S	1818S	1816S	1818S	1818S	1816S	—	—	1818S	—	1818S	—	—
RE02-03-51839	02-22358	6.5–7	SOIL	—	—	1818S	1818S	1816S	1818S	1818S	1816S	—	—	1818S	—	1818S	—	—
RE02-07-1218	02-600282	0–0.5	SOIL	07-398	07-397	07-398	07-398	07-397	07-398	07-398	07-397	07-396	07-397	07-398	07-396	—	—	07-397
RE02-07-1219	02-600282	4.5–7	SOIL	07-500	07-499	07-500	07-500	07-499	07-500	07-500	07-499	07-498	07-499	07-500	07-498	—	07-498	07-499
RE02-07-1222	02-600282	9.5–11.7	SOIL	07-500	07-499	07-500	07-500	07-499	07-500	07-500	07-499	07-498	07-499	07-500	07-498	—	07-498	07-499
RE02-07-1221	02-600282	13–18	QBO	07-500	07-499	07-500	07-500	07-499	07-500	07-500	07-499	07-498	07-499	07-500	07-498	—	07-498	07-499
RE02-07-1223	02-600283	0–0.5	SOIL	07-398	07-397	07-398	07-398	07-397	07-398	07-398	07-397	07-396	07-397	07-398	07-396	—	—	07-397
RE02-07-1224	02-600283	4.5–6.5	SOIL	07-430	07-429	07-430	07-430	07-429	07-430	07-430	07-429	07-428	07-429	07-430	07-428	—	07-428	07-429
RE02-07-1226	02-600283	9–10.2	SOIL	07-455	07-454	07-455	07-455	07-454	07-455	07-455	07-454	07-453	07-454	07-455	07-453	—	07-453	07-454
RE02-07-1225	02-600283	11.8–15.5	QBO	07-455	07-454	07-455	07-455	07-454	07-455	07-455	07-454	07-453	07-454	07-455	07-453	—	07-453	07-454
RE02-07-1228	02-600284	0–0.5	SOIL	07-398	07-397	07-398	07-398	07-397	07-398	07-398	07-397	07-396	07-397	07-398	07-396	—	—	07-397
RE02-07-1229	02-600284	4.5–9	SOIL	07-462	07-461	07-462	07-462	07-461	07-462	07-462	07-461	07-460	07-461	07-462	07-460	—	07-460	07-461
RE02-07-1232	02-600284	9.5–12	SOIL	07-462	07-461	07-462	07-462	07-461	07-462	07-462	07-461	07-460	07-461	07-462	07-460	—	07-460	07-461
RE02-07-1231	02-600284	14.3–16.5	QBO	07-462	07-461	07-462	07-462	07-461	07-462	07-462	07-461	07-460	07-461	07-462	07-460	—	07-460	07-461
RE02-07-1233	02-600285	0–0.5	SOIL	07-382	07-381	07-382	07-382	07-381	07-382	07-382	07-381	07-380	07-381	07-382	07-380	—	—	07-381
RE02-07-1234	02-600285	4.5–5	QAL	07-406	07-405	07-406	07-406	07-405	07-406	07-406	07-405	07-404	07-405	07-406	07-404	—	07-404	07-405
RE02-07-1236	02-600285	14–17	QBO	07-398	07-397	07-398	07-398	07-397	07-398	07-398	07-397	07-396	07-397	07-398	07-396	—	07-396	07-397
RE02-07-1235	02-600285	21–25	QBO	07-406	07-405	07-406	07-406	07-405	07-406	07-406	07-405	07-404	07-405	07-406	07-404	—	07-404	07-405
RE02-07-1238	02-600286	0–0.5	SOIL	07-382	07-381	07-382	07-382	07-381	07-382	07-382	07-381	07-380	07-381	07-382	07-380	—	—	07-381
RE02-07-1239	02-600286	3–5	SOIL	07-406	07-405	07-406	07-406	07-405	07-406	07-406	07-405	07-404	07-405	07-406	07-404	—	07-404	07-405
RE02-07-1240	02-600286	9.5–10	QAL	07-398	07-397	07-398	07-398	07-397	07-398	07-398	07-397	07-396	07-397	07-398	07-396	—	07-396	07-397
RE02-07-1242	02-600286	12.5–16.5	QAL	07-398	07-397	07-398	07-398	07-397	07-398	07-398	07-397	07-396	07-397	07-398	07-396	—	07-396	07-397
RE02-07-1241	02-600286	18.8–19.5	QBO	07-398	07-397	07-398	07-398	07-397	07-398	07-398	07-397	07-396	07-397	07-398	07-396	—	07-396	07-397
RE02-07-1243	02-600287	0–0.5	SOIL	07-398	07-397	07-398	07-398	07-397	07-398	07-398	07-397	07-396	07-397	07-398	07-396	—	—	07-397
RE02-07-1244	02-600287	4.5–7	SOIL	07-496	07-495	07-496	07-496	07-495	07-496	07-496	07-495	07-494	07-495	07-496	07-494	—	07-494	07-495
RE02-07-1246	02-600287	10–14.2	SOIL	07-496	07-495	07-496	07-496	07-495	07-496	07-496	07-495	07-494	07-495	07-496	07-494	—	07-494	07-495

Table 6.19-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Gamma-emitting Radionuclides	Tritium	Hexavalent Chromium	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	Technetium-99	VOCs	Cyanide (Total)
RE02-07-1245	02-600287	14.2–17	QBO	07-496	07-495	07-496	07-496	07-495	07-496	07-496	07-495	07-494	07-495	07-496	07-494	—	07-494	07-495
RE02-07-1248	02-600288	0–0.5	SOIL	07-389	07-388	07-389	07-389	07-388	07-389	07-389	07-388	07-387	07-388	07-389	07-387	—	—	07-388
RE02-07-1249	02-600288	4.5–7	SOIL	07-430	07-429	07-430	07-430	07-429	07-430	07-430	07-429	07-428	07-429	07-430	07-428	—	07-428	07-429
RE02-07-1251	02-600288	8–11	QAL	07-430	07-429	07-430	07-430	07-429	07-430	07-430	07-429	07-428	07-429	07-430	07-428	—	07-428	07-429
RE02-07-1250	02-600288	13–15	QBO	07-430	07-429	07-430	07-430	07-429	07-430	07-430	07-429	07-428	07-429	07-430	07-428	—	07-428	07-429
RE02-07-1253	02-600289	0–0.5	SOIL	07-389	07-388	07-389	07-389	07-388	07-389	07-389	07-388	07-387	07-388	07-389	07-387	—	—	07-388
RE02-07-1254	02-600289	4.5–6.3	QAL	07-413	07-412	07-413	07-413	07-412	07-413	07-413	07-412	07-411	07-412	07-413	07-411	—	07-411	07-412
RE02-07-1255	02-600289	10–14.5	QBO	07-413	07-412	07-413	07-413	07-412	07-413	07-413	07-412	07-411	07-412	07-413	07-411	—	07-411	07-412
RE02-07-1258	02-600290	0–0.5	SOIL	07-398	07-397	07-398	07-398	07-397	07-398	07-398	07-397	07-396	07-397	07-398	07-396	—	—	07-397
RE02-07-1259	02-600290	4.5–6.7	SOIL	07-496	07-495	07-496	07-496	07-495	07-496	07-496	07-495	07-494	07-495	07-496	07-494	—	07-494	07-495
RE02-07-1261	02-600290	9.5–13	SOIL	07-496	07-495	07-496	07-496	07-495	07-496	07-496	07-495	07-494	07-495	07-496	07-494	—	07-494	07-495
RE02-07-1260	02-600290	13.2–18	QBO	07-500	07-499	07-500	07-500	07-499	07-500	07-500	07-499	07-498	07-499	07-500	07-498	—	07-498	07-499
RE02-07-1263	02-600291	0–0.5	SOIL	07-382	07-381	07-382	07-382	07-381	07-382	07-382	07-381	07-380	07-381	07-382	07-380	—	—	07-381
RE02-07-1264	02-600291	4–8	QAL	07-389	07-388	07-389	07-389	07-388	07-389	07-389	07-388	07-387	07-388	07-389	07-387	—	07-387	07-388
RE02-07-1266	02-600291	9–11	QBO	07-389	07-388	07-389	07-389	07-388	07-389	07-389	07-388	07-387	07-388	07-389	07-387	—	07-387	07-388
RE02-07-1265	02-600291	11–16	QBO	07-389	07-388	07-389	07-389	07-388	07-389	07-389	07-388	07-387	07-388	07-389	07-387	—	07-387	07-388
RE02-07-1268	02-600292	0–0.5	SOIL	07-398	07-397	07-398	07-398	07-397	07-398	07-398	07-397	07-396	07-397	07-398	07-396	—	—	07-397
RE02-10-21521	02-612292	5–6	QAL	—	—	10-4706	10-4706	10-4706	10-4706	—	10-4706	10-4706	—	—	10-4706	—	—	—
RE02-10-21522	02-612292	15–16.5	QBO	—	—	10-4706	10-4706	10-4706	10-4706	—	10-4706	10-4706	—	—	10-4706	—	—	—
RE02-10-21523	02-612292	25–26	QBO	—	—	10-4783	10-4783	10-4782	10-4783	—	10-4782	10-4781	—	—	10-4781	—	—	—
RE02-10-21524	02-612292	35–36	QBO	—	—	10-4783	10-4783	10-4782	10-4783	—	10-4782	10-4781	—	—	10-4781	—	—	—
RE02-10-21525	02-612292	49–50	QBO	—	—	10-4788	10-4788	10-4788	10-4788	—	10-4788	10-4788	—	—	10-4788	—	—	—

* — = Analysis not requested.

Table 6.19-2
Inorganic Chemicals above BVs at AOC 02-006(e)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Cadmium	Calcium	Chromium	Hexavalent Chromium	Copper	Iron	Lead	Manganese	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Silver	Vanadium	Zinc
Qbt 1g, Qct, Qbo BV[a]				**3560**	**0.5**	**0.56**	**25.7**	**0.4**	**1900**	**2.6**	**na[b]**	**3.96**	**3700**	**13.5**	**189**	**0.1**	**2**	**na**	**na**	**0.3**	**1**	**4.59**	**40**
Sediment BV[a]				**15400**	**0.83**	**3.98**	**127**	**0.4**	**4420**	**10.5**	**na**	**11.2**	**13800**	**19.7**	**543**	**0.1**	**9.38**	**na**	**na**	**0.3**	**1**	**19.7**	**60.2**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**0.4**	**6120**	**19.3**	**na**	**14.7**	**21500**	**22.3**	**671**	**0.1**	**15.4**	**na**	**na**	**1.52**	**1**	**39.6**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**1120**	**na**	**2920[d]**	**2920**	**45400**	**795000**	**800**	**145000**	**310[e]**	**22700**	**1820000**	**795**	**5680**	**5680**	**5680**	**341000**
Recreational SSL[f]				**791000**	**317**	**27.7**	**158000**	**784**	**na**	**1910[d]**	**1910**	**31700**	**554000**	**560**	**110000**	**238**	**15800**	**1260000**	**555**	**3960**	**3960**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**77.9**	**na**	**219[d]**	**219**	**3130**	**54800**	**400**	**10700**	**23[e]**	**1560**	**125000**	**54.8**	**391**	**391**	**391**	**23500**
CA02-00-0155	02-01095	0–0.5	SED	—[g]	—	—	—	—	—	14	NA[h]	12 (J-)	—	110	—	0.43 (J-)	—	NA	—	—	—	—	320
CA02-00-0156	02-01095	1.9–2.2	SED	—	—	—	—	—	—	—	NA	12 (J-)	—	—	—	3.4 (J-)	—	NA	—	—	—	—	110
CA02-00-0162	02-01250	0–0.5	SED	—	—	—	—	—	—	—	NA	—	—	27 (J+)	—	0.45	—	NA	—	0.489	1.4	—	82 (J+)
RE02-03-51834	02-22356	9–9.5	SOIL	—	—	—	—	—	—	—	0.558 (J-)	—	—	—	—	5.03 (J)	—	NA	NA	—	—	—	60.8
RE02-03-51835	02-22356	10.5–11	SOIL	—	—	—	—	—	—	—	0.0712 (J-)	—	—	—	—	17.2 (J)	—	NA	NA	—	—	—	68
RE02-03-51836	02-22357	5–5.5	SOIL	—	—	—	—	—	—	—	—	—	—	—	—	0.179 (J)	—	NA	NA	—	—	—	—
RE02-03-51837	02-22357	6.5–7	SOIL	—	—	—	—	0.542 (U)	—	—	0.0907 (J-)	—	—	—	—	0.191 (J)	—	NA	NA	—	—	—	—
RE02-03-51838	02-22358	5–5.5	SOIL	—	—	—	—	—	—	—	0.113 (J-)	—	—	—	—	0.684 (J)	—	NA	NA	—	—	—	—
RE02-03-51839	02-22358	6.5–7	SOIL	—	—	—	—	0.515 (U)	—	—	0.0787 (J-)	—	—	—	—	—	—	NA	NA	—	—	—	—
RE02-07-1218	02-600282	0–0.5	SOIL	—	—	—	—	—	—	—	—	—	—	—	—	2.97 (J-)	—	—	—	—	—	—	—
RE02-07-1219	02-600282	4.5–7	SOIL	—	—	—	—	0.539 (U)	—	—	—	—	—	—	—	0.221	—	1.07	—	—	—	—	—
RE02-07-1222	02-600282	9.5–11.7	SOIL	—	—	—	—	0.54 (U)	—	—	—	—	—	—	—	1.87	—	—	—	—	—	—	—
RE02-07-1221	02-600282	13–18	QBO	11400	0.522 (UJ)	1.84 (J)	26.4	0.649 (U)	—	25 (J)	—	—	5980 (J)	—	275 (J)	—	5.67	—	—	1.95 (U)	—	—	—
RE02-07-1223	02-600283	0–0.5	SOIL	—	—	—	—	0.499 (U)	—	48.2	—	—	—	—	—	4.34 (J-)	—	—	—	—	—	—	—
RE02-07-1224	02-600283	4.5–6.5	SOIL	—	—	—	—	0.521 (U)	—	52.6	—	—	—	—	—	—	—	1.19	—	1.56 (U)	—	—	—
RE02-07-1226	02-600283	9–10.2	SOIL	—	—	—	—	0.464 (J)	—	43.8	1.01	—	—	—	—	—	—	1.34	—	1.87 (U)	—	—	—
RE02-07-1225	02-600283	11.8–15.5	QBO	5150	—	1.2 (J)	—	0.533 (U)	—	10.5	0.212	—	5520	—	—	—	4.28 (J)	1.36	—	1.6 (U)	—	—	—
RE02-07-1228	02-600284	0–0.5	SOIL	—	—	—	—	—	—	—	—	—	—	—	—	1.43 (J-)	—	6.94	0.000559 (J)	1.58 (U)	—	—	—
RE02-07-1229	02-600284	4.5–9	SOIL	—	—	—	—	0.539 (U)	21000 (J)	—	0.305	—	—	—	—	—	—	3.53	—	1.62 (U)	—	—	—
RE02-07-1232	02-600284	9.5–12	SOIL	—	—	—	—	0.533 (U)	—	—	0.0361 (J)	—	—	—	—	—	—	4.18	—	1.6 (U)	—	—	—
RE02-07-1231	02-600284	14.3–16.5	QBO	13800	0.53 (UJ)	0.772 (J)	35.8	0.66 (U)	—	7.8	0.0344 (J)	—	7020	—	340	—	—	—	—	1.98 (U)	—	—	—
RE02-07-1233	02-600285	0–0.5	SOIL	—	—	—	—	0.51 (U)	—	—	0.0984 (J)	—	—	—	—	0.417	—	1.52	—	2.04 (U)	—	—	—
RE02-07-1234	02-600285	4.5–5	QAL	—	—	—	—	0.438 (J)	31600	59.1	0.174	16	—	—	—	—	24.4 (J)	4.23	—	1.66 (U)	—	—	50.5
RE02-07-1236	02-600285	14–17	QBO	7600	0.514 (U)	1.87 (J)	55.6	0.629 (U)	—	30.7	—	3.97	6400	—	400	0.137 (J-)	5.78 (J+)	—	—	0.9 (J)	—	4.62	—
RE02-07-1235	02-600285	21–25	QBO	4790	—	1.81 (U)	—	0.602 (U)	—	3.48	—	—	5070	—	—	—	—	—	—	1.01 (J)	—	—	—
RE02-07-1238	02-600286	0–0.5	SOIL	—	—	—	—	0.518 (U)	—	—	—	—	—	—	—	0.257	—	—	—	—	—	—	54.1
RE02-07-1239	02-600286	3–5	SOIL	—	—	—	—	—	—	—	0.133	—	—	—	—	1.08	—	6.81	—	1.6 (U)	—	—	—
RE02-07-1240	02-600286	9.5–10	QAL	—	—	—	—	—	8570	—	—	—	—	—	—	4.36 (J-)	—	1.11	—	1.58 (U)	—	—	—
RE02-07-1242	02-600286	12.5–16.5	QAL	—	—	—	—	0.554 (U)	—	—	—	—	—	—	—	0.139 (J-)	—	—	—	—	—	—	—
RE02-07-1241	02-600286	18.8–19.5	QBO	6180	—	0.937 (J)	—	0.605 (U)	—	8.99	—	—	6310	—	213	—	—	1.36	—	1.81 (U)	—	—	—

Table 6.19-2 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Cadmium	Calcium	Chromium	Hexavalent Chromium	Copper	Iron	Lead	Manganese	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Silver	Vanadium	Zinc
Qbt 1g, Qct, Qbo BV[a]				**3560**	**0.5**	**0.56**	**25.7**	**0.4**	**1900**	**2.6**	**na[b]**	**3.96**	**3700**	**13.5**	**189**	**0.1**	**2**	**na**	**na**	**0.3**	**1**	**4.59**	**40**
Sediment BV[a]				**15400**	**0.83**	**3.98**	**127**	**0.4**	**4420**	**10.5**	**na**	**11.2**	**13800**	**19.7**	**543**	**0.1**	**9.38**	**na**	**na**	**0.3**	**1**	**19.7**	**60.2**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**0.4**	**6120**	**19.3**	**na**	**14.7**	**21500**	**22.3**	**671**	**0.1**	**15.4**	**na**	**na**	**1.52**	**1**	**39.6**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**1120**	**na**	**2920[d]**	**2920**	**45400**	**795000**	**800**	**145000**	**310[e]**	**22700**	**1820000**	**795**	**5680**	**5680**	**5680**	**341000**
Recreational SSL[f]				**791000**	**317**	**27.7**	**158000**	**784**	**na**	**1910[d]**	**1910**	**31700**	**554000**	**560**	**110000**	**238**	**15800**	**1260000**	**555**	**3960**	**3960**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**77.9**	**na**	**219[d]**	**219**	**3130**	**54800**	**400**	**10700**	**23[e]**	**1560**	**125000**	**54.8**	**391**	**391**	**391**	**23500**
RE02-07-1243	02-600287	0–0.5	SOIL	—	—	—	—	0.502 (U)	—	—	—	—	—	—	—	0.514 (J-)	—	1.22	—	—	—	—	—
RE02-07-1244	02-600287	4.5–7	SOIL	—	—	—	—	0.548 (U)	26500 (J+)	20.1	0.57	—	—	—	—	0.36	—	1.58	—	1.64 (U)	—	—	—
RE02-07-1246	02-600287	10–14.2	SOIL	—	—	—	—	0.542 (U)	14400 (J+)	—	0.102 (J)	—	—	—	—	—	—	1.78	—	—	—	—	—
RE02-07-1245	02-600287	14.2–17	QBO	18200	0.517 (UJ)	0.984 (J)	102 (J+)	0.646 (U)	—	3.1	—	—	7080	—	228	—	2.2	1.53	—	1.94 (U)	—	—	—
RE02-07-1248	02-600288	0–0.5	SOIL	—	—	—	—	0.542 (U)	—	—	0.0855 (J)	—	—	—	—	1.74	—	1.83	0.000701 (J)	—	—	—	—
RE02-07-1249	02-600288	4.5–7	SOIL	—	—	—	—	0.538 (U)	—	—	—	—	—	—	—	—	—	1.77	—	—	—	—	—
RE02-07-1251	02-600288	8–11	QAL	—	—	—	—	0.539 (U)	—	25	—	—	—	—	—	—	—	—	—	1.62 (U)	—	—	—
RE02-07-1250	02-600288	13–15	QBO	12600	—	1.78 (U)	26.4	0.595 (U)	—	10.3	—	—	6430	—	241	—	2.89	—	—	1.78 (U)	—	—	—
RE02-07-1253	02-600289	0–0.5	SOIL	—	—	—	—	0.508 (U)	—	—	0.117	—	—	—	—	1.87	—	1.48	—	—	—	—	—
RE02-07-1254	02-600289	4.5–6.3	QAL	—	—	—	—	0.525 (U)	—	—	—	—	—	—	—	—	—	2.08	0.000658 (J-)	—	—	—	—
RE02-07-1255	02-600289	10–14.5	QBO	8520	—	1.74	30.8 (J-)	0.581 (U)	—	14.1	0.114 (J)	4.78	7820	—	288	—	4.07 (J)	—	—	1.31 (J)	—	6.41	—
RE02-07-1258	02-600290	0–0.5	SOIL	—	—	—	—	0.551 (U)	—	—	—	—	—	—	—	3.51 (J-)	—	5.63	0.000575 (J)	—	—	—	49.5
RE02-07-1259	02-600290	4.5–6.7	SOIL	—	—	—	—	0.52 (U)	—	—	—	—	—	—	—	0.763	—	—	—	—	—	—	—
RE02-07-1261	02-600290	9.5–13	SOIL	—	—	—	—	0.542 (U)	—	—	0.0558 (J)	—	—	—	—	—	—	2.16	—	1.63 (U)	—	—	—
RE02-07-1260	02-600290	13.2–18	QBO	13500	0.526 (UJ)	1.55 (J)	43	0.648 (U)	—	14.1 (J)	—	—	8910 (J)	—	333 (J)	—	4.03	—	—	1.94 (U)	—	—	—
RE02-07-1263	02-600291	0–0.5	SOIL	—	—	—	—	0.526 (U)	—	—	—	—	—	—	—	1.09	—	—	0.000677 (J)	1.53 (U)	—	—	—
RE02-07-1264	02-600291	4–8	QAL	—	—	—	—	0.532 (U)	—	—	—	—	—	—	—	—	—	1.36	—	—	—	—	—
RE02-07-1266	02-600291	9–11	QBO	—	—	2.7	—	0.528 (U)	—	13.5	0.252	5.23	8810	—	—	0.346	4.3	—	—	1.45 (J)	—	15.4	—
RE02-07-1265	02-600291	11–16	QBO	22800	0.52 (UJ)	1.75 (J)	113	0.667 (U)	—	10.1	—	4.09	8550	—	396	—	4.3	—	—	1.29 (J)	—	4.61	—
RE02-07-1268	02-600292	0–0.5	SOIL	—	—	—	—	—	—	—	—	—	—	—	—	0.168 (J-)	—	4.95	0.000863 (J)	—	—	—	99.6
RE02-10-21521	02-612292	5–6	QAL	—	1.03 (U)	—	—	0.513 (U)	—	—	—	—	—	—	—	0.576	—	NA	NA	—	—	—	—
RE02-10-21522	02-612292	15–16.5	QBO	10900	1.26 (U)	—	—	0.63 (U)	—	2.92	0.202 (J)	—	7550	—	215 (J-)	—	—	NA	NA	1.29 (U)	—	—	—
RE02-10-21523	02-612292	25–26	QBO	4450	1.23 (U)	1.28 (U)	—	0.614 (U)	—	—	—	—	5520	—	263	—	—	NA	NA	1.28 (UJ)	—	—	—
RE02-10-21524	02-612292	35–36	QBO	3750	1.3 (U)	1.29 (U)	—	0.651 (U)	—	—	—	—	5870	—	195	—	—	NA	NA	1.29 (UJ)	—	—	—
RE02-10-21525	02-612292	49–50	QBO	—	1.28 (U)	1.29 (U)	—	0.641 (U)	—	—	—	—	5670	—	219	—	—	NA	NA	1.29 (UJ)	—	—	—

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

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

[b] na = Not available.

[c] SSLs are from NMED (2009, 108070), unless otherwise noted.

[d] SSLs are for hexavalent chromium.

[e] SSLs are from EPA regional screening tables (http://www.epa.gov.earth1r6/6pd/rcra_c/pd-n/screen.htm).

[f] SSLs are from LANL (2010, 108613).

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

[h] NA = Not analyzed.

Table 6.19-3
Organic Chemicals Detected at AOC 02-006(e)

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Anthracene	Aroclor-1242	Aroclor-1248	Aroclor-1254	Aroclor-1260	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Bis(2-ethylhexyl)phthalate	Chloroform	Chrysene	Dibenzofuran
Industrial SSL[a]				**36700**	**183000**	**8.26**	**8.26**	**8.26**	**8.26**	**23.4**	**2.34**	**23.4**	**18300[b]**	**234**	**1370**	**31.9**	**2340**	**1000[c]**
Recreational SSL[d]				**20800**	**104000**	**10.5**	**10.5**	**6.65**	**10.5**	**30.1**	**3.01**	**30.1**	**10400[b]**	**301**	**1830**	**224**	**3010**	**399**
Residential SSL[a]				**3440**	**17200**	**2.22**	**2.22**	**1.12**	**2.22**	**6.21**	**0.621**	**6.21**	**1720[b]**	**62.1**	**347**	**5.72**	**621**	**78[c]**
CA02-00-0155	02-01095	0–0.5	SED	—[e]	—	—	—	1.3	—	0.11 (J)	0.11 (J)	0.095 (J)	—	0.12 (J)	—	—	0.13 (J)	—
CA02-00-0156	02-01095	1.9–2.2	SED	—	—	—	—	—	0.14	—	—	—	—	—	—	—	—	—
CA02-00-0162	02-01250	0–0.5	SED	—	—	NA[f]	NA	NA	NA	0.59 (J)	0.62 (J)	0.52 (J)	0.42 (J)	0.56 (J)	—	NA	0.83 (J)	—
RE02-07-1218	02-600282	0–0.5	SOIL	—	0.015 (J)	—	—	0.0339 (J)	0.0426	—	0.0935 (J)	0.141 (J)	0.0594 (J)	—	—	NA	0.112	—
RE02-07-1219	02-600282	4.5–7	SOIL	—	—	—	—	—	0.0023 (J)	—	—	—	—	—	—	—	—	—
RE02-07-1222	02-600282	9.5–11.7	SOIL	—	—	—	—	0.0117	0.0115	—	—	—	—	—	—	—	—	—
RE02-07-1223	02-600283	0–0.5	SOIL	—	0.0108 (J)	—	—	—	0.0198 (J)	—	0.0554	0.0717	0.0351	—	—	NA	0.0496	—
RE02-07-1226	02-600283	9–10.2	SOIL	—	—	—	—	—	0.0057	—	—	—	—	—	—	—	—	—
RE02-07-1228	02-600284	0–0.5	SOIL	0.0492	0.0391	—	—	0.0228 (J)	0.0257 (J)	0.153	0.157 (J)	0.257 (J)	0.101 (J)	—	0.0822 (J)	NA	0.172	—
RE02-07-1229	02-600284	4.5–9	SOIL	—	—	—	—	0.0327	0.0122	—	—	—	—	—	—	—	—	—
RE02-07-1232	02-600284	9.5–12	SOIL	—	—	—	—	0.0043	0.0025 (J)	—	—	—	—	—	—	—	—	—
RE02-07-1231	02-600284	14.3–16.5	QBO	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1233	02-600285	0–0.5	SOIL	—	0.0163 (J)	—	—	0.0467	0.115	0.0453	—	0.0594 (J)	—	—	—	NA	0.0369	—
RE02-07-1234	02-600285	4.5–5	QAL	0.172	0.278	—	—	—	0.016 (J)	0.312	0.337 (J)	0.509 (J)	0.195 (J)	—	—	—	0.313	0.13 (J)
RE02-07-1235	02-600285	21–25	QBO	—	—	—	—	0.149	0.155	—	—	—	—	—	—	—	—	—
RE02-07-1238	02-600286	0–0.5	SOIL	0.24	0.439	—	—	—	0.0178 (J)	0.637	—	1.34 (J)	0.411 (J)	—	—	NA	0.645	0.165 (J)
RE02-07-1239	02-600286	3–5	SOIL	0.0603	0.0873	—	—	—	0.0188 (J)	—	0.143 (J)	0.205 (J)	0.0781 (J)	—	—	0.000279 (J)	0.118	—
RE02-07-1240	02-600286	9.5–10	QAL	0.0142 (J)	0.0207 (J)	—	—	—	—	—	0.0549	0.0743	0.0229 (J)	—	—	—	0.0591	—
RE02-07-1242	02-600286	12.5–16.5	QAL	—	—	—	—	—	—	—	—	—	—	—	0.134 (J)	—	—	—
RE02-07-1241	02-600286	18.8–19.5	QBO	—	—	—	—	—	—	—	—	—	—	—	0.087 (J)	—	—	—
RE02-07-1243	02-600287	0–0.5	SOIL	—	0.00794 (J)	—	—	—	—	—	0.0292 (J)	0.0387 (J)	—	—	—	NA	0.0307 (J)	—
RE02-07-1244	02-600287	4.5–7	SOIL	—	0.0101 (J)	—	—	0.0146	0.0054 (J)	0.0464	—	0.0851 (J)	—	—	—	—	0.0402	—
RE02-07-1246	02-600287	10–14.2	SOIL	—	—	—	—	—	0.0015 (J)	—	—	—	—	—	—	—	—	—
RE02-07-1248	02-600288	0–0.5	SOIL	0.0337 (J)	0.128	0.0627 (J)	—	0.0409 (J)	0.0313 (J)	0.56	0.39 (J)	0.702 (J)	—	—	—	NA	0.54	—
RE02-07-1249	02-600288	4.5–7	SOIL	—	—	—	—	0.0022 (J)	0.0072	—	—	—	—	—	—	—	—	—
RE02-07-1251	02-600288	8–11	QAL	—	—	—	0.0036 (J)	0.0035 (J)	0.0054	—	—	—	—	—	—	—	—	—
RE02-07-1250	02-600288	13–15	QBO	—	—	—	—	0.002 (J)	0.0054	—	—	—	—	—	—	—	—	—

Table 6.19-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Anthracene	Aroclor-1242	Aroclor-1248	Aroclor-1254	Aroclor-1260	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Bis(2-ethylhexyl)phthalate	Chloroform	Chrysene	Dibenzofuran
Industrial SSL[a]				**36700**	**183000**	**8.26**	**8.26**	**8.26**	**8.26**	**23.4**	**2.34**	**23.4**	**18300[b]**	**234**	**1370**	**31.9**	**2340**	**1000[c]**
Recreational SSL[d]				**20800**	**104000**	**10.5**	**10.5**	**6.65**	**10.5**	**30.1**	**3.01**	**30.1**	**10400[b]**	**301**	**1830**	**224**	**3010**	**399**
Residential SSL[a]				**3440**	**17200**	**2.22**	**2.22**	**1.12**	**2.22**	**6.21**	**0.621**	**6.21**	**1720[b]**	**62.1**	**347**	**5.72**	**621**	**78[c]**
RE02-07-1253	02-600289	0–0.5	SOIL	—	0.0294 (J)	—	—	—	—	0.13	0.249	0.315	—	—	—	NA	0.152	—
RE02-07-1255	02-600289	10–14.5	QBO	—	—	—	—	—	0.0045	—	—	—	—	—	—	—	—	—
RE02-07-1258	02-600290	0–0.5	SOIL	—	0.00934 (J)	—	0.408 (J)	—	0.0522	0.0567 (J)	0.076 (J)	0.108 (J)	0.0519 (J)	—	—	NA	0.073 (J)	—
RE02-07-1259	02-600290	4.5–6.7	SOIL	—	—	—	—	0.004	0.0069	0.0331 (J)	—	0.0636 (J)	—	—	—	—	0.0371	—
RE02-07-1261	02-600290	9.5–13	SOIL	—	—	—	—	0.0057	0.0123	—	—	—	—	—	—	—	—	—
RE02-07-1260	02-600290	13.2–18	QBO	—	—	—	—	—	0.0022 (J)	—	—	—	—	—	—	—	—	—
RE02-07-1263	02-600291	0–0.5	SOIL	—	—	—	—	—	0.0211 (J)	—	—	—	—	—	—	NA	—	—
RE02-07-1266	02-600291	9–11	QBO	—	—	—	—	0.0068	0.0152	—	—	—	—	—	—	—	—	—
RE02-07-1265	02-600291	11–16	QBO	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1268	02-600292	0–0.5	SOIL	0.0232 (J)	0.042	—	—	0.0688	0.105	—	0.256 (J)	0.42 (J)	0.232 (J)	—	—	NA	0.211	—
RE02-10-21521	02-612292	5–6	QAL	—	—	—	—	0.0582	—	0.0293 (J)	0.0282 (J)	0.0369	—	—	—	NA	0.0253 (J)	—
RE02-10-21524	02-612292	35–36	QBO	—	—	—	—	—	—	—	—	—	—	—	0.231 (J)	NA	—	—
RE02-10-21525	02-612292	49–50	QBO	—	—	0.213	—	0.334	0.0377	—	—	—	—	—	—	NA	—	—

Table 6.19-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Dichlorobenzene[1,4-]	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Isopropylbenzene	Methylene Chloride	Methylnaphthalene[2-]	Naphthalene	Phenanthrene	Pyrene	Toluene	Xylene[1,3-]+Xylene[1,4-]
Industrial SSL[a]				**180**	**24400**	**24400**	**23.4**	**14900**	**1090**	**4100[c]**	**252**	**20500**	**18300**	**57900**	**3610[g]**
Recreational SSL[d]				**1260**	**13900**	**13900**	**30.1**	**52700**	**4520**	**3170**	**1950**	**12000**	**10400**	**60800**	**27800[g]**
Residential SSL[a]				**32.2**	**2290**	**2290**	**6.21**	**3210**	**199**	**310[c]**	**45**	**1830**	**1720**	**5570**	**1090[g]**
CA02-00-0155	02-01095	0–0.5	SED	—	0.25 (J)	—	—	—	—	—	—	0.12 (J)	0.23 (J)	—	NA
CA02-00-0156	02-01095	1.9–2.2	SED	—	—	—	—	—	—	—	—	—	—	—	NA
CA02-00-0162	02-01250	0–0.5	SED	—	1.2 (J)	—	0.37 (J)	NA	NA	—	—	0.58 (J)	1.3 (J)	NA	NA
RE02-07-1218	02-600282	0–0.5	SOIL	—	0.126	—	0.0462 (J)	NA	NA	—	—	0.0729	0.178	NA	NA
RE02-07-1219	02-600282	4.5–7	SOIL	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1222	02-600282	9.5–11.7	SOIL	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1223	02-600283	0–0.5	SOIL	—	0.0654	—	0.0202 (J)	NA	NA	—	—	0.0437	0.0887	NA	NA
RE02-07-1226	02-600283	9–10.2	SOIL	—	—	—	—	—	—	—	—	—	—	—	0.000282 (J)
RE02-07-1228	02-600284	0–0.5	SOIL	—	0.326	0.0359 (J)	0.0781 (J)	NA	NA	0.0165 (J)	0.0435	0.317	0.466	NA	NA
RE02-07-1229	02-600284	4.5–9	SOIL	0.000322 (J)	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1232	02-600284	9.5–12	SOIL	0.000266 (J)	—	—	—	0.000433 (J)	—	—	—	—	—	—	—
RE02-07-1231	02-600284	14.3–16.5	QBO	0.000384 (J)	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1233	02-600285	0–0.5	SOIL	—	0.0721	—	—	NA	NA	—	—	0.0538	0.0754	NA	NA
RE02-07-1234	02-600285	4.5–5	QAL	—	0.643	0.161	0.149 (J)	—	—	0.145	0.415	0.897	0.762	—	—
RE02-07-1235	02-600285	21–25	QBO	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1238	02-600286	0–0.5	SOIL	—	1.34	0.233	0.451 (J)	NA	NA	0.153	0.39	1.38	1.53	NA	NA
RE02-07-1239	02-600286	3–5	SOIL	—	0.212	0.0498	0.0609 (J)	—	—	0.0592	0.165	0.31	0.272	—	—
RE02-07-1240	02-600286	9.5–10	QAL	—	0.114	—	0.0121 (J)	—	—	—	—	0.0689	0.116	—	—
RE02-07-1242	02-600286	12.5–16.5	QAL	—	—	—	—	—	—	—	—	—	0.0133 (J)	—	—
RE02-07-1241	02-600286	18.8–19.5	QBO	—	—	—	—	—	0.00315 (J)	—	—	—	—	—	—
RE02-07-1243	02-600287	0–0.5	SOIL	—	0.0405	—	—	NA	NA	0.0198 (J)	—	0.0415	0.0579 (J)	NA	NA
RE02-07-1244	02-600287	4.5–7	SOIL	—	0.0591	—	—	0.000392 (J)	—	—	—	0.0496	0.0484	0.000522 (J)	—
RE02-07-1246	02-600287	10–14.2	SOIL	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1248	02-600288	0–0.5	SOIL	—	1.01	0.0234 (J)	—	NA	NA	—	—	0.462	1.58	NA	NA
RE02-07-1249	02-600288	4.5–7	SOIL	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1251	02-600288	8–11	QAL	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1250	02-600288	13–15	QBO	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1253	02-600289	0–0.5	SOIL	—	0.201	—	—	NA	NA	—	—	0.133	0.281	NA	NA
RE02-07-1255	02-600289	10–14.5	QBO	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1258	02-600290	0–0.5	SOIL	—	0.0777	—	0.03 (J)	NA	NA	—	—	0.0436	0.106 (J)	NA	NA
RE02-07-1259	02-600290	4.5–6.7	SOIL	—	0.0464	—	—	—	—	—	—	0.0311 (J)	0.0325 (J)	—	—

Table 6.19-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Dichlorobenzene[1,4-]	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Isopropylbenzene	Methylene Chloride	Methylnaphthalene[2-]	Naphthalene	Phenanthrene	Pyrene	Toluene	Xylene[1,3-]+Xylene[1,4-]
Industrial SSL[a]				**180**	**24400**	**24400**	**23.4**	**14900**	**1090**	**4100[c]**	**252**	**20500**	**18300**	**57900**	**3610[g]**
Recreational SSL[d]				**1260**	**13900**	**13900**	**30.1**	**52700**	**4520**	**3170**	**1950**	**12000**	**10400**	**60800**	**27800[g]**
Residential SSL[a]				**32.2**	**2290**	**2290**	**6.21**	**3210**	**199**	**310[c]**	**45**	**1830**	**1720**	**5570**	**1090[g]**
RE02-07-1261	02-600290	9.5–13	SOIL	—	—	—	—	0.000328 (J)	—	—	—	—	—	—	—
RE02-07-1260	02-600290	13.2–18	QBO	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1263	02-600291	0–0.5	SOIL	—	0.0134 (J)	—	—	NA	NA	—	—	—	0.0193 (J)	NA	NA
RE02-07-1266	02-600291	9–11	QBO	—	—	—	—	—	0.00224 (J)	—	—	—	—	—	—
RE02-07-1265	02-600291	11–16	QBO	—	—	—	—	—	0.00456 (J)	—	—	—	—	—	—
RE02-07-1268	02-600292	0–0.5	SOIL	—	0.353	0.0174 (J)	0.151 (J)	NA	NA	—	—	0.213	0.518	NA	NA
RE02-10-21521	02-612292	5–6	QAL	—	0.0347 (J)	—	0.0148 (J)	NA	NA	—	—	0.0235 (J)	0.0597	NA	NA
RE02-10-21524	02-612292	35–36	QBO	—	—	—	—	NA	NA	—	—	—	—	NA	NA
RE02-10-21525	02-612292	49–50	QBO	—	—	—	—	NA	NA	—	—	—	—	NA	NA

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

[a] SSLs are from NMED (2009, 108070), unless otherwise noted.

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

[c] SSLs are from EPA regional screening tables (http://www.epa.gov.earth1r6/6pd/rcra_c/pd-n/screen.htm).

[d] SSLs are from LANL (2010, 108613).

[e] — = Not detected.

[f] NA = Not analyzed.

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

Table 6.19-4
Radionuclides Detected or Detected above BVs/FVs at AOC 02-006(e)

Sample ID	Location ID	Depth (ft)	Media	Cesium-137	Cobalt-60	Plutonium-239/240	Tritium	Uranium-235/236
Qbt 1g, Qct, Qbo BV[a]				**na[b]**	**na**	**na**	**na**	**0.18**
Sediment BV[a]				**0.9**	**na**	**0.068**	**0.093**	**0.2**
Soil BV[a]				**1.65**	**na**	**0.054**	**na**	**0.2**
Industrial SAL[c]				**23**	**5.1**	**210**	**440000**	**87**
Recreational SAL[c]				**210**	**46**	**300**	**5300000**	**520**
Residential SAL[c]				**5.6**	**1.3**	**33**	**750**	**17**
CA02-00-0155	02-01095	0–0.5	SED	—[d]	0.116	1.09	—	—
CA02-00-0156	02-01095	1.9–2.2	SED	—	—	0.456	—	—
CA02-00-0162	02-01250	0–0.5	SED	—	—	1.62	0.293583	—
RE02-03-51834	02-22356	9–9.5	SOIL	0.0847	0.635	0.191	0.0605	—
RE02-03-51835	02-22356	10.5–11	SOIL	0.14	0.192	0.0707	0.0822	—
RE02-03-51836	02-22357	5–5.5	SOIL	—	—	—	0.1	0.292
RE02-03-51837	02-22357	6.5–7	SOIL	—	0.356	—	0.0493	—
RE02-03-51838	02-22358	5–5.5	SOIL	0.0223	0.156	—	0.0546	—
RE02-07-1223	02-600283	0–0.5	SOIL	—	—	—	0.0190008	—
RE02-07-1224	02-600283	4.5–6.5	SOIL	—	—	—	0.0666307	—
RE02-07-1226	02-600283	9–10.2	SOIL	—	—	0.0306	—	—
RE02-07-1228	02-600284	0–0.5	SOIL	—	—	—	0.0290413	—
RE02-07-1229	02-600284	4.5–9	SOIL	—	—	—	0.184202	—
RE02-07-1233	02-600285	0–0.5	SOIL	1.75	—	—	0.0232644	—
RE02-07-1234	02-600285	4.5–5	QAL	—	—	—	0.833098	—
RE02-07-1235	02-600285	21–25	QBO	—	—	—	0.0774242	0.209
RE02-07-1238	02-600286	0–0.5	SOIL	—	—	—	0.0209255	—
RE02-07-1239	02-600286	3–5	SOIL	—	—	—	0.0669667	—
RE02-07-1240	02-600286	9.5–10	QAL	—	0.266	0.0159 (J-)	0.612857	—
RE02-07-1241	02-600286	18.8–19.5	QBO	—	—	—	0.0503762	—
RE02-07-1243	02-600287	0–0.5	SOIL	—	—	—	0.0281602	—
RE02-07-1244	02-600287	4.5–7	SOIL	—	—	—	0.133873	—
RE02-07-1246	02-600287	10–14.2	SOIL	—	—	0.0514	—	—
RE02-07-1248	02-600288	0–0.5	SOIL	—	—	—	0.0240489	—
RE02-07-1249	02-600288	4.5–7	SOIL	—	—	—	0.0354666	—
RE02-07-1251	02-600288	8–11	QAL	—	—	0.0291	—	—

Table 6.19-4 (continued)

Sample ID	Location ID	Depth (ft)	Media	Cesium-137	Cobalt-60	Plutonium-239/240	Tritium	Uranium-235/236
Qbt 1g, Qct, Qbo BV[a]				**na[b]**	**na**	**na**	**na**	**0.18**
Sediment BV[a]				**0.9**	**na**	**0.068**	**0.093**	**0.2**
Soil BV[a]				**1.65**	**na**	**0.054**	**na**	**0.2**
Industrial SAL[c]				**23**	**5.1**	**210**	**440000**	**87**
Recreational SAL[c]				**210**	**46**	**300**	**5300000**	**520**
Residential SAL[c]				**5.6**	**1.3**	**33**	**750**	**17**
RE02-07-1253	02-600289	0–0.5	SOIL	—	—	—	0.0123869	—
RE02-07-1254	02-600289	4.5–6.3	QAL	—	—	—	0.0282271	—
RE02-07-1259	02-600290	4.5–6.7	SOIL	—	1.05	0.0552	—	—
RE02-07-1261	02-600290	9.5–13	SOIL	—	—	0.0812	—	—
RE02-07-1264	02-600291	4–8	QAL	—	—	—	0.0269546	—
RE02-07-1266	02-600291	9–11	QBO	—	—	0.0295 (J-)	0.0279421	—
RE02-07-1265	02-600291	11–16	QBO	—	—	—	0.0820723	—
RE02-07-1268	02-600292	0–0.5	SOIL	—	—	0.622 (J-)	0.0287607	—
RE02-10-21521	02-612292	5–6	QAL	—	—	—	0.512085	NA[e]
RE02-10-21523	02-612292	25–26	QBO	—	—	—	0.0853625	NA

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

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

[b] na = Not available.

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

[d] — = Not detected.

[e] NA = Not analyzed.

Table 6.20-1
Samples Collected and Analyses Requested at SWMU 02-007

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Gamma-emitting Radionuclides	Tritium	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	VOCs	Cyanide (Total)
RE02-07-2661	02-600592	0–0.5	SOIL	07-698	07-697	07-698	07-698	07-698	07-698	07-697	07-696	07-697	07-698	07-696	—*	07-697
RE02-07-2662	02-600592	4.5–8.5	QAL	07-799	07-798	07-799	07-799	07-799	07-799	07-798	07-797	07-798	07-799	07-797	07-797	07-798
RE02-07-2664	02-600592	16–21	QBO	07-799	07-798	07-799	07-799	07-799	07-799	07-798	07-797	07-798	07-799	07-797	07-797	07-798
RE02-07-2666	02-600593	0–0.5	SOIL	07-698	07-697	07-698	07-698	07-698	07-698	07-697	07-696	07-697	07-698	07-696	—	07-697
RE02-07-2667	02-600593	4.5–7	QAL	07-799	07-798	07-799	07-799	07-799	07-799	07-798	07-797	07-798	07-799	07-797	07-797	07-798
RE02-07-2668	02-600593	9.5–14.5	QAL	07-799	07-798	07-799	07-799	07-799	07-799	07-798	07-797	07-798	07-799	07-797	07-797	07-798
RE02-07-2669	02-600593	14.5–16.7	QBO	07-799	07-798	07-799	07-799	07-799	07-799	07-798	07-797	07-798	07-799	07-797	07-797	07-798
RE02-07-2671	02-600594	0–0.5	SOIL	07-698	07-697	07-698	07-698	07-698	07-698	07-697	07-696	07-697	07-698	07-696	—	07-697
RE02-08-7077	02-600594	4.5–5	QAL	—	—	—	—	—	—	—	—	—	—	—	08-93	—
RE02-07-2672	02-600594	4.5–6.9	QAL	07-809	07-809	07-809	07-809	07-809	07-809	07-809	07-809	07-809	07-809	07-809	—	07-809
RE02-07-2673	02-600594	9.5–11.6	QAL	07-809	07-809	07-809	07-809	07-809	07-809	07-809	07-809	07-809	07-809	07-809	—	07-809
RE02-07-2674	02-600594	14.5–16.7	QBO	07-809	07-809	07-809	07-809	07-809	07-809	07-809	07-809	07-809	07-809	07-809	—	07-809
RE02-07-2676	02-600595	0–0.5	SOIL	07-698	07-697	07-698	07-698	07-698	07-698	07-697	07-696	07-697	07-698	07-696	—	07-697
RE02-07-2677	02-600595	4.5–6	QAL	07-822	07-822	07-822	07-822	07-822	07-822	07-822	07-822	07-822	07-822	07-822	07-822	07-822
RE02-07-2678	02-600595	9.5–11.9	QAL	07-822	07-822	07-822	07-822	07-822	07-822	07-822	07-822	07-822	07-822	07-822	07-822	07-822
RE02-07-2679	02-600595	14.5–20.5	QBO	07-822	07-822	07-822	07-822	07-822	07-822	07-822	07-822	07-822	07-822	07-822	07-822	07-822
RE02-07-2681	02-600596	0–0.5	SOIL	07-669	07-668	07-669	07-669	07-669	07-669	07-668	07-667	07-668	07-669	07-667	—	07-668
RE02-07-2682	02-600596	4.5–6.7	QAL	07-869	07-869	07-869	07-869	07-869	07-869	07-869	07-869	07-869	07-869	07-869	07-869	07-869
RE02-07-2683	02-600596	9.5–11.7	QAL	07-869	07-869	07-869	07-869	07-869	07-869	07-869	07-869	07-869	07-869	07-869	07-869	07-869
RE02-07-2684	02-600596	14.5–16.7	QBO	07-869	07-869	07-869	07-869	07-869	07-869	07-869	07-869	07-869	07-869	07-869	07-869	07-869
RE02-07-2686	02-600597	0–0.5	SOIL	07-669	07-668	07-669	07-669	07-669	07-669	07-668	07-667	07-668	07-669	07-667	—	07-668
RE02-07-2687	02-600597	4.5–5.3	QAL	07-669	07-668	07-669	07-669	07-669	07-669	07-668	07-667	07-668	07-669	07-667	07-667	07-668
RE02-10-21911	02-612390	5–6	QAL	10-4513	—	10-4513	10-4513	10-4513	10-4513	10-4512	10-4512	—	10-4513	10-4512	—	—
RE02-10-21912	02-612390	15–17	QBO	10-4513	—	10-4513	10-4513	10-4513	10-4513	10-4512	10-4512	—	10-4513	10-4512	—	—
RE02-10-21913	02-612390	26–27	QBO	10-4513	—	10-4513	10-4513	10-4513	10-4513	10-4512	10-4512	—	10-4513	10-4512	—	—
RE02-10-21914	02-612390	35–36	QBO	10-4513	—	10-4513	10-4513	10-4513	10-4513	10-4512	10-4512	—	10-4513	10-4512	—	—
RE02-10-21915	02-612390	49–50	QBO	10-4513	—	10-4513	10-4513	10-4513	10-4513	10-4512	10-4512	—	10-4513	10-4512	—	—

* — = Analysis not requested.

Table 6.20-2
Inorganic Chemicals above BVs at SWMU 02-007

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Cadmium	Chromium	Cyanide (Total)	Iron	Lead	Manganese	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Zinc
Qbt 1g, Qct, Qbo BV[a]				**3560**	**0.5**	**0.56**	**25.7**	**0.4**	**2.6**	**0.5**	**3700**	**13.5**	**189**	**0.1**	**2**	**na[b]**	**na**	**0.3**	**40**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**0.4**	**19.3**	**0.5**	**21500**	**22.3**	**671**	**0.1**	**15.4**	**na**	**na**	**1.52**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**1120**	**2920[d]**	**22700**	**795000**	**800**	**145000**	**310[e]**	**22700**	**1820000**	**795**	**5680**	**341000**
Recreational SSL[f]				**791000**	**317**	**27.7**	**158000**	**784**	**1910[d]**	**15800**	**554000**	**560**	**110000**	**238**	**15800**	**1260000**	**555**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**77.9**	**219[d]**	**1560**	**54800**	**400**	**10700**	**23[e]**	**1560**	**125000**	**54.8**	**391**	**23500**
RE02-07-2661	02-600592	0–0.5	SOIL	—[g]	—	—	—	0.494 (U)	—	—	—	—	—	—	—	0.965 (J)	0.000706 (J)	—	—
RE02-07-2662	02-600592	4.5–8.5	QAL	—	—	—	—	0.516 (U)	—	0.762	—	—	—	—	—	—	0.000673 (J+)	—	—
RE02-07-2664	02-600592	16–21	QBO	4350	—	0.719 (J)	—	0.601 (U)	6.87 (J)	—	5250	—	191	—	2.06	—	—	1.8 (U)	—
RE02-07-2666	02-600593	0–0.5	SOIL	—	—	—	—	0.507 (U)	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2667	02-600593	4.5–7	QAL	—	—	—	—	0.522 (U)	—	—	—	—	—	0.297	—	—	—	—	—
RE02-07-2668	02-600593	9.5–14.5	QAL	—	—	—	—	0.567 (U)	—	—	—	—	—	—	—	—	—	1.7 (U)	—
RE02-07-2669	02-600593	14.5–16.7	QBO	8480	0.508 (UJ)	1.02 (J)	—	0.626 (U)	13.7 (J)	—	4630	—	—	—	—	—	—	1.88 (U)	—
RE02-07-2671	02-600594	0–0.5	SOIL	—	—	—	—	0.492 (U)	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2672	02-600594	4.5–6.9	QAL	—	—	—	533	—	—	—	—	66	—	2.91	—	1.74	0.001 (J)	1.61 (U)	—
RE02-07-2673	02-600594	9.5–11.6	QAL	—	—	—	—	0.538 (U)	—	—	—	—	—	—	—	—	—	1.61 (U)	—
RE02-07-2674	02-600594	14.5–16.7	QBO	11400	0.542 (UJ)	0.852 (J)	44.2	0.678 (U)	3.3 (J)	—	5670	—	208	—	2.88 (U)	—	—	1.16 (J)	—
RE02-07-2676	02-600595	0–0.5	SOIL	—	—	—	—	0.492 (U)	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2677	02-600595	4.5–6	QAL	—	—	—	—	0.515 (U)	—	—	—	—	—	—	—	0.959 (J)	0.0048	1.77	—
RE02-07-2678	02-600595	9.5–11.9	QAL	—	—	—	—	0.52 (U)	—	—	—	—	—	—	—	—	—	2.52	—
RE02-07-2679	02-600595	14.5–20.5	QBO	5540	—	1.11 (J)	—	0.581 (U)	9.74 (U)	—	6380 (J+)	—	—	—	3.31 (U)	—	—	1.77	—
RE02-07-2681	02-600596	0–0.5	SOIL	—	—	—	—	—	—	—	—	—	—	—	—	1.94 (J-)	0.000997 (J)	—	—
RE02-07-2682	02-600596	4.5–6.7	QAL	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.54 (U)	—
RE02-07-2684	02-600596	14.5–16.7	QBO	11500	—	1.61 (U)	68.7	0.535 (U)	19.8	—	5640	—	258	—	6.54 (J+)	—	—	1.61 (U)	—
RE02-07-2686	02-600597	0–0.5	SOIL	—	—	—	—	—	—	—	—	—	—	—	—	1.56	—	—	—
RE02-07-2687	02-600597	4.5–5.3	QAL	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00122 (J)	—	—
RE02-10-21911	02-612390	5–6	QAL	—	0.941 (U)	—	—	—	—	NA[h]	—	—	—	—	—	NA	NA	—	49.2 (J)
RE02-10-21912	02-612390	15–17	QBO	5810	1.2 (U)	1.14 (U)	—	0.599 (U)	—	NA	4700	—	—	—	—	NA	NA	1.14 (U)	—
RE02-10-21913	02-612390	26–27	QBO	—	1.15 (U)	1.21 (U)	—	0.573 (U)	—	NA	5230	—	219	—	—	NA	NA	1.21 (U)	—
RE02-10-21914	02-612390	35–36	QBO	—	1.27 (U)	1.16 (U)	—	0.635 (U)	—	NA	5010	—	—	—	—	NA	NA	1.16 (U)	—
RE02-10-21915	02-612390	49–50	QBO	—	1.23 (U)	1.24 (U)	—	0.615 (U)	—	NA	5850	—	—	—	—	NA	NA	1.24 (U)	—

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

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

[b] na = Not available.

[c] SSLs are from NMED (2009, 108070), unless otherwise noted.

[d] SSLs are for hexavalent chromium.

[e] SSLs are from EPA regional screening tables (http://www.epa.gov.earth1r6/6pd/rcra_c/pd-n/screen.htm).

[f] SSLs are from LANL (2010, 108613).

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

[h] NA = Not analyzed.

Table 6.20-3
Organic Chemicals Detected at SWMU 02-007

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Acetone	Anthracene	Aroclor-1254	Aroclor-1260	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Butylbenzylphthalate	Chrysene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Methylnaphthalene[2-]	Naphthalene	Phenanthrene	Pyrene	Toluene
Industrial SSL[a]				**36700**	**851000**	**183000**	**8.26**	**8.26**	**23.4**	**2.34**	**23.4**	**18300[b]**	**9100[c]**	**2340**	**24400**	**24400**	**23.4**	**4100[c]**	**252**	**20500**	**18300**	**57900**
Recreational SSL[d]				**20800**	**702000**	**104000**	**6.65**	**10.5**	**30.1**	**3.01**	**30.1**	**10400[b]**	**13500**	**3010**	**13900**	**13900**	**30.1**	**3170**	**1950**	**12000**	**10400**	**60800**
Residential SSL[a]				**3440**	**67500**	**17200**	**1.12**	**2.22**	**6.21**	**0.621**	**6.21**	**1720[b]**	**2600[c]**	**621**	**2290**	**2290**	**6.21**	**310[c]**	**45**	**1830**	**1720**	**5570**
RE02-07-2661	02-600592	0–0.5	SOIL	—[e]	NA[f]	—	0.0185 (J)	0.0209	0.0155 (J)	0.0119 (J)	0.0136 (J)	—	—	—	0.0238 (J)	—	—	—	—	0.0131 (J)	0.0191 (J)	NA
RE02-07-2662	02-600592	4.5–8.5	QAL	—	—	—	0.004	0.0025 (J)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2666	02-600593	0–0.5	SOIL	—	NA	—	0.0899	0.0477	—	—	—	—	—	—	—	—	—	—	—	—	—	NA
RE02-07-2667	02-600593	4.5–7	QAL	—	—	—	0.015	0.0072	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2669	02-600593	14.5–16.7	QBO	—	0.00478 (J)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2672	02-600594	4.5–6.9	QAL	0.0443	NA	0.079	0.0822	0.0325	0.102	0.183	0.163	0.101 (J)	—	0.109	0.225	0.0471	0.108	0.0281 (J)	0.0755	0.233	0.18	NA
RE02-07-2673	02-600594	9.5–11.6	QAL	—	NA	—	0.0179	0.008	—	—	—	—	—	—	—	—	—	—	—	—	—	NA
RE02-07-2676	02-600595	0–0.5	SOIL	—	NA	—	0.254	0.0903	—	—	—	—	—	—	0.0115 (J)	—	—	—	—	—	—	NA
RE02-07-2677	02-600595	4.5–6	QAL	—	—	—	0.0977	0.0544	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2681	02-600596	0–0.5	SOIL	—	NA	—	0.0317	0.0192	—	—	—	—	—	—	0.0169 (J)	—	—	—	—	0.0109 (J)	0.02 (J)	NA
RE02-07-2682	02-600596	4.5–6.7	QAL	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.000311 (J)
RE02-07-2686	02-600597	0–0.5	SOIL	—	NA	—	1.63	0.859	—	—	—	—	—	—	0.0147 (J)	—	—	—	—	—	0.015 (J)	NA
RE02-07-2687	02-600597	4.5–5.3	QAL	—	—	—	0.543	0.286	—	—	—	—	0.254 (J)	—	—	—	—	—	—	—	—	—
RE02-10-21911	02-612390	5–6	QAL	—	NA	—	0.0121	0.0086	—	—	—	—	—	—	—	—	—	—	—	—	0.0126 (J)	NA

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

[a] SSLs are from NMED (2009, 108070), unless otherwise noted.

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

[c] SSLs are from EPA regional screening tables (http://www.epa.gov.earth1r6/6pd/rcra_c/pd-n/screen.htm).

[d] SSLs are from LANL (2010, 108613).

[e] — = Not detected.

[f] NA = Not analyzed.

Table 6.20-4
Radionuclides Detected or Detected above BVs/FVs at SWMU 02-007

Sample ID	Location ID	Depth (ft)	Media	Cesium-137	Plutonium-239/240	Strontium-90	Tritium	Uranium-235/236
Qbt 1g, Qct, Qbo BV[a]				**na[b]**	**na**	**na**	**na**	**0.18**
Soil BV[a]				**1.65**	**0.054**	**1.31**	**na**	**0.2**
Industrial SAL[c]				**23**	**210**	**1900**	**440000**	**87**
Recreational SAL[c]				**210**	**300**	**5600**	**5300000**	**520**
Residential SAL[c]				**5.6**	**33**	**5.7**	**750**	**17**
RE02-07-2661	02-600592	0–0.5	SOIL	—[d]	0.0626	—	0.0168574	—
RE02-07-2664	02-600592	16–21	QBO	—	—	—	0.159145	—
RE02-07-2667	02-600593	4.5–7	QAL	0.855	0.0561	0.276	—	—
RE02-07-2672	02-600594	4.5–6.9	QAL	1.16	0.0394	0.27	0.073	—
RE02-07-2677	02-600595	4.5–6	QAL	—	—	—	0.0274948	—
RE02-07-2681	02-600596	0–0.5	SOIL	—	—	1.41	—	—
RE02-07-2682	02-600596	4.5–6.7	QAL	—	—	—	0.0166681	—
RE02-07-2684	02-600596	14.5–16.7	QBO	—	0.231 (J-)	—	—	—
RE02-10-21911	02-612390	5–6	QAL	4.44	0.595	0.347	0.0184875	—
RE02-10-21912	02-612390	15–17	QBO	—	0.0171	—	—	—
RE02-10-21913	02-612390	26–27	QBO	—	—	—	0.0472884	0.191
RE02-10-21914	02-612390	35–36	QBO	—	—	—	0.077599	—
RE02-10-21915	02-612390	49–50	QBO	—	—	—	0.121403	—

Notes: Results are in pCi/g. Data qualifiers are defined in Appendix A.
[a] BVs/FVs are from LANL (1998, 059730).
[b] na = Not available.
[c] SALs from LANL (2009, 107655).
[d] — = Not detected.

Table 6.20-5
Samples Collected and Analyses Requested at SWMU 02-009(a)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Gamma-emitting Radionuclides	Tritium	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	VOCs	Cyanide (Total)
CA02-00-0186	02-01259	0–0.5	SOIL	—*	—	7873R	7873R	7873R	7873R	7871R, 7872R	—	—	7873R	—	—	—
CA02-00-0187	02-01259	2–2.5	SOIL	—	—	7873R	7873R	7873R	7873R	7871R, 7872R	—	—	7873R	—	—	—
CA02-00-0188	02-01260	0–0.5	SOIL	—	—	7873R	7873R	7873R	7873R	7871R, 7872R	—	—	7873R	—	—	—
CA02-00-0189	02-01260	2–2.5	SOIL	—	—	7873R	7873R	7873R	7873R	7871R, 7872R	—	—	7873R	—	—	—
CA02-00-0208	02-01263	0–0.5	SOIL	—	—	7869R	7869R	7869R	7869R	7867R, 7868R	—	—	7869R	—	—	—
CA02-00-0209	02-01263	2–2.5	SOIL	—	—	7869R	7869R	7869R	7869R	7867R, 7868R	—	—	7869R	—	—	—
CA02-00-0211	02-01263	5–5.5	SOIL	—	—	7869R	7869R	7869R	7869R	7867R, 7868R	—	—	7869R	—	—	—
CA02-00-0213	02-01264	0–0.5	SOIL	—	—	7869R	7869R	7869R	7869R	7867R, 7868R	—	—	7869R	—	—	—
CA02-00-0214	02-01264	2–2.5	SOIL	—	—	7869R	7869R	7869R	7869R	7867R, 7868R	—	—	7869R	—	—	—
CA02-00-0215	02-01264	5–5.5	SOIL	—	—	7869R	7869R	7869R	7869R	7867R, 7868R	—	—	7869R	—	—	—
RE02-07-1128	02-600259	0–0.5	SOIL	07-1058	07-1057	07-1058	07-1058	07-1058	07-1058	07-1057	07-1056	07-1057	07-1058	07-1056	—	07-1057
RE02-07-1129	02-600259	2–3	QAL	07-1076	07-1075	07-1076	07-1076	07-1076	07-1076	07-1075	07-1074	07-1075	07-1076	07-1074	07-1074	07-1075
RE02-07-1130	02-600259	4.5–5.1	QAL	07-1076	07-1075	07-1076	07-1076	07-1076	07-1076	07-1075	07-1074	07-1075	07-1076	07-1074	07-1074	07-1075
RE02-07-1131	02-600260	0–0.5	SOIL	07-1058	07-1057	07-1058	07-1058	07-1058	07-1058	07-1057	07-1056	07-1057	07-1058	07-1056	—	07-1057
RE02-07-1132	02-600260	2–4.4	QAL	07-1088	07-1087	07-1088	07-1088	07-1088	07-1088	07-1087	07-1086	07-1087	07-1088	07-1086	07-1086	07-1087
RE02-07-1133	02-600260	4.5–7.2	QAL	07-1088	07-1087	07-1088	07-1088	07-1088	07-1088	07-1087	07-1086	07-1087	07-1088	07-1086	07-1086	07-1087
RE02-07-1134	02-600261	0–0.5	SOIL	07-1058	07-1057	07-1058	07-1058	07-1058	07-1058	07-1057	07-1056	07-1057	07-1058	07-1056	—	07-1057
RE02-07-1135	02-600261	2–2.5	SOIL	07-1092	07-1091	07-1092	07-1092	07-1092	07-1092	07-1091	07-1090	07-1091	07-1092	07-1090	07-1090	07-1091
RE02-07-1136	02-600261	4.5–5	SOIL	07-1092	07-1091	07-1092	07-1092	07-1092	07-1092	07-1091	07-1090	07-1091	07-1092	07-1090	07-1090	07-1091
RE02-07-1137	02-600262	0–0.5	SOIL	07-1058	07-1057	07-1058	07-1058	07-1058	07-1058	07-1057	07-1056	07-1057	07-1058	07-1056	—	07-1057
RE02-07-1138	02-600262	2–2.5	QAL	07-1076	07-1075	07-1076	07-1076	07-1076	07-1076	07-1075	07-1074	07-1075	07-1076	07-1074	07-1074	07-1075
RE02-07-1139	02-600262	4.5–5	QAL	07-1076	07-1075	07-1076	07-1076	07-1076	07-1076	07-1075	07-1074	07-1075	07-1076	07-1074	07-1074	07-1075
RE02-07-1146	02-600263	0–0.5	SOIL	07-1084	07-1083	07-1084	07-1084	07-1084	07-1084	07-1083	07-1082	07-1083	07-1084	07-1082	—	07-1083
RE02-07-1141	02-600263	2–2.5	SOIL	07-1084	07-1083	07-1084	07-1084	07-1084	07-1084	07-1083	07-1082	07-1083	07-1084	07-1082	07-1082	07-1083
RE02-07-1142	02-600263	4.5–5	QAL	07-1084	07-1083	07-1084	07-1084	07-1084	07-1084	07-1083	07-1082	07-1083	07-1084	07-1082	07-1082	07-1083
RE02-07-1143	02-600264	0–0.5	SOIL	07-1058	07-1057	07-1058	07-1058	07-1058	07-1058	07-1057	07-1056	07-1057	07-1058	07-1056	—	07-1057
RE02-07-1144	02-600264	2–2.5	SOIL	07-1076	07-1075	07-1076	07-1076	07-1076	07-1076	07-1075	07-1074	07-1075	07-1076	07-1074	07-1074	07-1075
RE02-07-1145	02-600264	4.5–5	SOIL	07-1076	07-1075	07-1076	07-1076	07-1076	07-1076	07-1075	07-1074	07-1075	07-1076	07-1074	07-1074	07-1075
RE02-07-1140	02-600265	0–0.5	SOIL	07-1058	07-1057	07-1058	07-1058	07-1058	07-1058	07-1057	07-1056	07-1057	07-1058	07-1056	—	07-1057
RE02-07-1147	02-600265	2–2.5	SOIL	07-1092	07-1091	07-1092	07-1092	07-1092	07-1092	07-1091	07-1090	07-1091	07-1092	07-1090	07-1090	07-1091
RE02-07-1148	02-600265	4.5–5	SOIL	07-1092	07-1091	07-1092	07-1092	07-1092	07-1092	07-1091	07-1090	07-1091	07-1092	07-1090	07-1090	07-1091
RE02-07-1149	02-600266	0–0.5	SOIL	07-1092	07-1091	07-1092	07-1092	07-1092	07-1092	07-1091	07-1090	07-1091	07-1092	07-1090	—	07-1091
RE02-07-1150	02-600266	2–2.5	SOIL	07-1092	07-1091	07-1092	07-1092	07-1092	07-1092	07-1091	07-1090	07-1091	07-1092	07-1090	07-1090	07-1091

Table 6.20-5 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Gamma-emitting Radionuclides	Tritium	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	VOCs	Cyanide (Total)
RE02-07-1151	02-600266	4.5–5	SOIL	07-1103	07-1103	07-1103	07-1103	07-1103	07-1103	07-1103	07-1102	07-1103	07-1103	07-1102	07-1102	07-1103
RE02-07-1152	02-600267	0–0.5	SOIL	07-346	07-345	07-346	07-346	07-346	07-346	07-345	07-344	07-345	07-346	07-344	—	07-345
RE02-07-1153	02-600267	2–3.5	SOIL	07-346	07-345	07-346	07-346	07-346	07-346	07-345	07-344	07-345	07-346	07-344	07-344	07-345
RE02-07-1154	02-600267	4.5–5.5	QAL	07-346	07-345	07-346	07-346	07-346	07-346	07-345	07-344	07-345	07-346	07-344	07-344	07-345
RE02-07-1155	02-600268	0–0.5	SOIL	07-1103	07-1103	07-1103	07-1103	07-1103	07-1103	07-1103	07-1102	07-1103	07-1103	07-1102	—	07-1103
RE02-07-1156	02-600268	2–2.5	QAL	07-1103	07-1103	07-1103	07-1103	07-1103	07-1103	07-1103	07-1102	07-1103	07-1103	07-1102	07-1102	07-1103
RE02-07-1157	02-600268	4.5–5	QAL	07-1103	07-1103	07-1103	07-1103	07-1103	07-1103	07-1103	07-1102	07-1103	07-1103	07-1102	07-1102	07-1103
RE02-07-1158	02-600269	0–0.5	SOIL	07-1088	07-1087	07-1088	07-1088	07-1088	07-1088	07-1087	07-1086	07-1087	07-1088	07-1086	—	07-1087
RE02-07-1159	02-600269	2–2.5	QAL	07-1088	07-1087	07-1088	07-1088	07-1088	07-1088	07-1087	07-1086	07-1087	07-1088	07-1086	07-1086	07-1087
RE02-07-1160	02-600269	4.5–5	QAL	07-1088	07-1087	07-1088	07-1088	07-1088	07-1088	07-1087	07-1086	07-1087	07-1088	07-1086	07-1086	07-1087
RE02-07-1161	02-600270	0–1.1	SOIL	07-1084	07-1083	07-1084	07-1084	07-1084	07-1084	07-1083	07-1082	07-1083	07-1084	07-1082	—	07-1083
RE02-07-1162	02-600270	2–2.8	QAL	07-1084	07-1083	07-1084	07-1084	07-1084	07-1084	07-1083	07-1082	07-1083	07-1084	07-1082	07-1082	07-1083
RE02-07-1163	02-600270	4.5–5	QAL	07-1092	07-1091	07-1092	07-1092	07-1092	07-1092	07-1091	07-1090	07-1091	07-1092	07-1090	07-1090	07-1091
RE02-07-1164	02-600271	0–0.5	SOIL	07-1103	07-1103	07-1103	07-1103	07-1103	07-1103	07-1103	07-1102	07-1103	07-1103	07-1102	—	07-1103
RE02-07-1165	02-600271	2–2.5	QAL	07-1103	07-1103	07-1103	07-1103	07-1103	07-1103	07-1103	07-1102	07-1103	07-1103	07-1102	07-1102	07-1103
RE02-07-1166	02-600271	4.5–5	QAL	07-1103	07-1103	07-1103	07-1103	07-1103	07-1103	07-1103	07-1102	07-1103	07-1103	07-1102	07-1102	07-1103
RE02-07-1167	02-600272	0–0.5	SOIL	07-1058	07-1057	07-1058	07-1058	07-1058	07-1058	07-1057	07-1056	07-1057	07-1058	07-1056	—	07-1057
RE02-07-1168	02-600272	2–4	QAL	07-1058	07-1057	07-1058	07-1058	07-1058	07-1058	07-1057	07-1056	07-1057	07-1058	07-1056	07-1056	07-1057
RE02-07-1169	02-600272	4.5–14	QAL	07-1058	07-1057	07-1058	07-1058	07-1058	07-1058	07-1057	07-1056	07-1057	07-1058	07-1056	07-1056	07-1057
RE02-07-1170	02-600273	0–0.5	SOIL	07-1088	07-1087	07-1088	07-1088	07-1088	07-1088	07-1087	07-1086	07-1087	07-1088	07-1086	—	07-1087
RE02-07-1171	02-600273	2–2.5	QAL	07-1058	07-1057	07-1058	07-1058	07-1058	07-1058	07-1057	07-1056	07-1057	07-1058	07-1056	07-1056	07-1057
RE02-07-1172	02-600273	4.5–5	QAL	07-1058	07-1057	07-1058	07-1058	07-1058	07-1058	07-1057	07-1056	07-1057	07-1058	07-1056	07-1056	07-1057
RE02-07-1173	02-600274	0–0.5	SOIL	07-1058	07-1057	07-1058	07-1058	07-1058	07-1058	07-1057	07-1056	07-1057	07-1058	07-1056	—	07-1057
RE02-07-1174	02-600274	2–4.5	QAL	07-1058	07-1057	07-1058	07-1058	07-1058	07-1058	07-1057	07-1056	07-1057	07-1058	07-1056	07-1056	07-1057
RE02-07-1175	02-600274	4.5–10	QAL	07-1058	07-1057	07-1058	07-1058	07-1058	07-1058	07-1057	07-1056	07-1057	07-1058	07-1056	07-1056	07-1057
RE02-07-1176	02-600275	0–0.5	SOIL	07-1088	07-1087	07-1088	07-1088	07-1088	07-1088	07-1087	07-1086	07-1087	07-1088	07-1086	—	07-1087
RE02-07-1177	02-600275	2–3	QAL	07-1088	07-1087	07-1088	07-1088	07-1088	07-1088	07-1087	07-1086	07-1087	07-1088	07-1086	07-1086	07-1087
RE02-07-1178	02-600275	4.5–5.5	QAL	07-1088	07-1087	07-1088	07-1088	07-1088	07-1088	07-1087	07-1086	07-1087	07-1088	07-1086	07-1086	07-1087
RE02-07-1179	02-600276	0–0.5	SOIL	07-1103	07-1103	07-1103	07-1103	07-1103	07-1103	07-1103	07-1102	07-1103	07-1103	07-1102	—	07-1103
RE02-07-1180	02-600276	2–2.5	QAL	07-1108	07-1108	07-1108	07-1108	07-1108	07-1108	07-1107	07-1107	07-1108	07-1108	07-1107	07-1107	07-1108
RE02-07-1181	02-600276	4.5–5	QAL	07-1108	07-1108	07-1108	07-1108	07-1108	07-1108	07-1107	07-1107	07-1108	07-1108	07-1107	07-1107	07-1108
RE02-07-1182	02-600277	0–0.5	SOIL	07-352	07-351	07-352	07-352	07-352	07-352	07-351	07-350	07-351	07-352	07-350	—	07-351
RE02-07-1183	02-600277	2–3	QAL	07-352	07-351	07-352	07-352	07-352	07-352	07-351	07-350	07-351	07-352	07-350	07-350	07-351
RE02-07-1184	02-600277	4.5–5	QAL	07-352	07-351	07-352	07-352	07-352	07-352	07-351	07-350	07-351	07-352	07-350	07-350	07-351
RE02-07-1185	02-600278	0–0.5	SOIL	07-1092	07-1091	07-1092	07-1092	07-1092	07-1092	07-1091	07-1090	07-1091	07-1092	07-1090	—	07-1091
RE02-07-1188	02-600279	0–0.8	SOIL	07-1092	07-1091	07-1092	07-1092	07-1092	07-1092	07-1091	07-1090	07-1091	07-1092	07-1090	—	07-1091

Table 6.20-5 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Gamma-emitting Radionuclides	Tritium	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	VOCs	Cyanide (Total)
RE02-07-1189	02-600279	2–2.5	QAL	07-1111	07-1110	07-1111	07-1111	07-1111	07-1111	07-1111	07-1110	07-1110	07-1111	07-1110	07-1110	07-1110
RE02-07-1190	02-600279	4.5–5	QAL	07-1111	07-1110	07-1111	07-1111	07-1111	07-1111	07-1111	07-1110	07-1110	07-1111	07-1110	07-1110	07-1110
RE02-07-1191	02-600280	0–0.5	SOIL	07-1111	07-1110	07-1111	07-1111	07-1111	07-1111	07-1111	07-1110	07-1110	07-1111	07-1110	—	07-1110
RE02-07-1192	02-600280	2–2.5	QAL	07-1111	07-1110	07-1111	07-1111	07-1111	07-1111	07-1111	07-1110	07-1110	07-1111	07-1110	07-1110	07-1110
RE02-07-1193	02-600280	4.5–5	QAL	07-1111	07-1110	07-1111	07-1111	07-1111	07-1111	07-1111	07-1110	07-1110	07-1111	07-1110	07-1110	07-1110
RE02-07-1194	02-600281	0–0.5	SOIL	07-1108	07-1108	07-1108	07-1108	07-1108	07-1108	07-1107	07-1107	07-1108	07-1108	07-1107	—	07-1108
RE02-07-1195	02-600281	2–2.5	QAL	07-1108	07-1108	07-1108	07-1108	07-1108	07-1108	07-1107	07-1107	07-1108	07-1108	07-1107	07-1107	07-1108
RE02-07-1196	02-600281	4.5–5	QAL	07-1108	07-1108	07-1108	07-1108	07-1108	07-1108	07-1107	07-1107	07-1108	07-1108	07-1107	07-1107	07-1108
RE02-10-22034	02-612421	5–6	QAL	10-4697	—	10-4697	10-4697	10-4697	10-4697	10-4697	10-4697	—	10-4697	10-4697	—	—
RE02-10-22035	02-612421	15–16	QAL	10-4697	—	10-4697	10-4697	10-4697	10-4697	10-4697	10-4697	—	10-4697	10-4697	—	—
RE02-10-22036	02-612421	28–29	QAL	10-4696	—	10-4696	10-4696	10-4696	10-4696	10-4695	10-4695	—	10-4696	10-4695	—	—
RE02-10-22037	02-612421	35–36	QBO	10-4696	—	10-4696	10-4696	10-4696	10-4696	10-4695	10-4695	—	10-4696	10-4695	—	—
RE02-10-22038	02-612421	48–50	QBO	10-4696	—	10-4696	10-4696	10-4696	10-4696	10-4695	10-4695	—	10-4696	10-4695	—	—
RE02-10-22039	02-612422	5–6	QAL	10-4780	—	10-4780	10-4780	10-4780	10-4780	10-4779	10-4778	—	10-4780	10-4778	—	—
RE02-10-22040	02-612422	15–16	QAL	10-4780	—	10-4780	10-4780	10-4780	10-4780	10-4779	10-4778	—	10-4780	10-4778	—	—
RE02-10-22041	02-612422	25–26	QBO	10-4780	—	10-4780	10-4780	10-4780	10-4780	10-4779	10-4778	—	10-4780	10-4778	—	—
RE02-10-22042	02-612422	35–36	QBO	10-4789	—	10-4789	10-4789	10-4789	10-4789	10-4789	10-4789	—	10-4789	10-4789	—	—
RE02-10-22043	02-612422	49–50	QBO	10-4789	—	10-4789	10-4789	10-4789	10-4789	10-4789	10-4789	—	10-4789	10-4789	—	—

* — = Analysis not requested.

Table 6.20-6
Inorganic Chemicals above BVs at SWMU 02-009(a)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Cadmium	Calcium	Chromium	Copper	Cyanide (Total)	Iron	Magnesium	Manganese	Mercury	Nitrate	Perchlorate	Selenium	Zinc
Qbt 1g, Qct, Qbo BV[a]				**3560**	**0.5**	**0.56**	**0.4**	**1900**	**2.6**	**3.96**	**na**[b]	**3700**	**739**	**189**	**0.1**	**na**	**na**	**0.3**	**40**
Soil BV[a]				**29200**	**0.83**	**8.17**	**0.4**	**6120**	**19.3**	**14.7**	**0.5**	**21500**	**4610**	**671**	**0.1**	**na**	**na**	**1.52**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**1120**	**na**	**2920**[d]	**45400**	**22700**	**795000**	**na**	**145000**	**310**[e]	**1820000**	**795**	**5680**	**341000**
Recreational SSL[f]				**791000**	**317**	**27.7**	**784**	**na**	**1910**[d]	**31700**	**15800**	**554000**	**na**	**110000**	**238**	**1260000**	**555**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**77.9**	**na**	**219**[d]	**3130**	**1560**	**54800**	**na**	**10700**	**23**[e]	**125000**	**54.8**	**391**	**23500**
CA02-00-0186	02-01259	0–0.5	SOIL	—[g]	—	—	—	—	—	—	NA[h]	—	—	—	—	NA	NA	—	120
CA02-00-0187	02-01259	2–2.5	SOIL	—	—	—	—	—	—	—	NA	—	—	—	—	NA	NA	—	120
CA02-00-0188	02-01260	0–0.5	SOIL	—	—	—	—	—	—	—	NA	—	—	—	—	NA	NA	—	80
CA02-00-0189	02-01260	2–2.5	SOIL	—	—	—	—	—	—	—	NA	—	—	—	—	NA	NA	—	65
CA02-00-0208	02-01263	0–0.5	SOIL	—	—	—	—	—	—	—	NA	—	—	—	—	NA	NA	—	65
CA02-00-0209	02-01263	2–2.5	SOIL	—	—	—	—	—	—	—	NA	—	—	—	—	NA	NA	—	110
CA02-00-0211	02-01263	5–5.5	SOIL	—	—	—	—	—	—	—	NA	—	—	—	—	NA	NA	—	97
CA02-00-0213	02-01264	0–0.5	SOIL	—	—	—	—	—	—	—	NA	—	—	—	—	NA	NA	—	72
CA02-00-0214	02-01264	2–2.5	SOIL	—	—	—	—	—	—	—	NA	—	—	—	—	NA	NA	—	76
RE02-07-1128	02-600259	0–0.5	SOIL	—	—	—	0.538 (U)	8290	—	—	—	—	—	—	—	1.33 (J-)	—	12.6	—
RE02-07-1129	02-600259	2–3	QAL	—	—	—	0.515 (U)	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1130	02-600259	4.5–5.1	QAL	—	—	—	0.522 (U)	—	—	—	—	—	—	—	—	—	0.00623 (J-)	1.57 (U)	—
RE02-07-1131	02-600260	0–0.5	SOIL	—	—	—	0.525 (U)	—	—	—	—	—	—	—	0.35	1.78 (J-)	—	8.6	—
RE02-07-1132	02-600260	2–4.4	QAL	—	—	—	0.509 (U)	—	—	—	—	—	—	—	—	1.14 (J-)	0.000939 (J)	8.02	—
RE02-07-1133	02-600260	4.5–7.2	QAL	—	—	—	0.568 (U)	—	—	—	—	—	—	—	—	—	0.000979 (J)	8.91	—
RE02-07-1134	02-600261	0–0.5	SOIL	—	—	—	0.569 (U)	23300	—	—	—	—	5060	—	—	—	—	21.1	—
RE02-07-1135	02-600261	2–2.5	SOIL	—	—	—	0.546 (U)	6380 (J+)	—	—	—	—	—	—	—	1.57	—	9.93	—
RE02-07-1136	02-600261	4.5–5	SOIL	—	—	—	0.542 (U)	—	—	—	—	—	—	—	—	—	0.000558 (J+)	8.2	—
RE02-07-1137	02-600262	0–0.5	SOIL	—	—	—	0.546 (U)	—	—	—	—	—	—	—	0.349	4.3 (J-)	—	10	—
RE02-07-1138	02-600262	2–2.5	QAL	—	—	—	0.506 (U)	—	—	—	—	—	—	—	—	1.33 (J-)	—	—	—
RE02-07-1139	02-600262	4.5–5	QAL	—	—	—	0.523 (U)	—	—	—	—	—	—	—	—	1.15 (J-)	—	—	—
RE02-07-1146	02-600263	0–0.5	SOIL	—	—	—	0.548 (U)	—	—	—	—	—	—	—	—	6.19 (J-)	0.00204 (J-)	1.65 (U)	—
RE02-07-1141	02-600263	2–2.5	SOIL	—	—	—	0.518 (U)	—	—	—	—	—	—	—	—	1.23	0.00224 (J-)	1.55 (U)	—
RE02-07-1142	02-600263	4.5–5	QAL	—	—	—	0.496 (U)	—	—	—	—	—	—	—	—	2.47	0.00145 (J-)	—	—
RE02-07-1143	02-600264	0–0.5	SOIL	—	—	—	0.567 (U)	—	—	—	—	—	—	—	—	4.26 (J-)	—	9.88	—
RE02-07-1144	02-600264	2–2.5	SOIL	—	—	—	0.512 (U)	—	—	—	—	—	—	—	—	1.06 (J-)	0.000758 (J-)	1.54 (U)	—
RE02-07-1145	02-600264	4.5–5	SOIL	—	—	—	0.526 (U)	—	—	—	—	—	—	—	—	—	0.00159 (J-)	1.58 (U)	—
RE02-07-1140	02-600265	0–0.5	SOIL	—	—	—	0.547 (U)	—	—	—	—	—	—	—	—	3.24 (J-)	0.00151 (J)	9.55	—
RE02-07-1147	02-600265	2–2.5	SOIL	—	—	—	0.532 (U)	—	—	—	—	—	—	—	—	1.48 (J-)	0.000879 (J+)	8.77	—
RE02-07-1148	02-600265	4.5–5	SOIL	—	—	—	0.513 (U)	—	—	—	—	—	—	—	—	0.93 (J-)	0.00262 (J+)	8.3	—

Table 6.20-6 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Cadmium	Calcium	Chromium	Copper	Cyanide (Total)	Iron	Magnesium	Manganese	Mercury	Nitrate	Perchlorate	Selenium	Zinc
Qbt 1g, Qct, Qbo BV[a]				**3560**	**0.5**	**0.56**	**0.4**	**1900**	**2.6**	**3.96**	**na[b]**	**3700**	**739**	**189**	**0.1**	**na**	**na**	**0.3**	**40**
Soil BV[a]				**29200**	**0.83**	**8.17**	**0.4**	**6120**	**19.3**	**14.7**	**0.5**	**21500**	**4610**	**671**	**0.1**	**na**	**na**	**1.52**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**1120**	**na**	**2920[d]**	**45400**	**22700**	**795000**	**na**	**145000**	**310[e]**	**1820000**	**795**	**5680**	**341000**
Recreational SSL[f]				**791000**	**317**	**27.7**	**784**	**na**	**1910[d]**	**31700**	**15800**	**554000**	**na**	**110000**	**238**	**1260000**	**555**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**77.9**	**na**	**219[d]**	**3130**	**1560**	**54800**	**na**	**10700**	**23[e]**	**125000**	**54.8**	**391**	**23500**
RE02-07-1149	02-600266	0–0.5	SOIL	—	—	—	0.532 (U)	—	—	—	—	—	—	—	—	4.79	0.000612 (J+)	7.95	—
RE02-07-1150	02-600266	2–2.5	SOIL	—	—	—	0.515 (U)	—	—	—	—	—	—	—	—	2.3 (J-)	0.000879 (J+)	7.72	—
RE02-07-1151	02-600266	4.5–5	SOIL	—	—	—	0.502 (U)	—	—	—	—	—	—	—	—	1.27	0.00107 (J)	7.82	—
RE02-07-1152	02-600267	0–0.5	SOIL	—	—	—	0.508 (U)	—	—	—	—	—	—	—	—	2.92 (J-)	—	—	—
RE02-07-1153	02-600267	2–3.5	SOIL	—	—	—	0.515 (U)	—	—	—	—	—	—	—	—	—	0.000551 (J-)	—	—
RE02-07-1154	02-600267	4.5–5.5	QAL	—	—	—	0.519 (U)	—	—	—	—	—	—	—	—	1.34 (J-)	0.00347 (J-)	1.55 (J)	—
RE02-07-1155	02-600268	0–0.5	SOIL	—	—	—	0.534 (U)	19100	—	—	—	—	—	—	—	2.28	—	16.7	—
RE02-07-1156	02-600268	2–2.5	QAL	—	—	—	0.539 (U)	26700	—	—	—	—	5170 (J+)	—	—	—	0.000758 (J)	19	—
RE02-07-1157	02-600268	4.5–5	QAL	—	—	—	0.506 (U)	—	—	—	1.21 (U)	—	—	—	—	—	—	6.69	—
RE02-07-1158	02-600269	0–0.5	SOIL	—	—	—	2.65 (U)	—	—	80.7	—	63200	—	—	—	—	—	70.5	—
RE02-07-1159	02-600269	2–2.5	QAL	—	—	—	0.539 (U)	—	—	69.5	—	—	—	—	—	—	—	21.6	—
RE02-07-1160	02-600269	4.5–5	QAL	—	—	—	0.551 (U)	—	—	66	—	—	—	—	—	—	—	20.7	—
RE02-07-1161	02-600270	0–1.1	SOIL	—	—	—	0.532 (U)	—	—	—	—	—	—	—	—	2.65 (J-)	0.000951 (J-)	—	—
RE02-07-1162	02-600270	2–2.8	QAL	—	—	—	0.507 (U)	—	—	—	—	—	—	—	—	1.23	0.00117 (J-)	—	—
RE02-07-1163	02-600270	4.5–5	QAL	—	—	—	0.524 (U)	—	59.3	—	—	—	—	—	—	1.37 (J-)	0.0016 (J+)	9.39	—
RE02-07-1164	02-600271	0–0.5	SOIL	—	—	—	0.544 (U)	—	—	—	—	—	—	—	—	1.86	—	5.74	—
RE02-07-1165	02-600271	2–2.5	QAL	—	—	—	0.501 (U)	—	—	—	—	—	—	—	—	—	—	6.91	—
RE02-07-1166	02-600271	4.5–5	QAL	—	—	—	0.518 (U)	—	—	—	—	—	—	—	—	1.59	—	6.87	—
RE02-07-1167	02-600272	0–0.5	SOIL	—	—	—	0.553 (U)	13400	—	—	—	—	—	—	—	—	—	16.9	—
RE02-07-1168	02-600272	2–4	QAL	—	—	—	0.52 (U)	—	—	—	—	—	—	—	—	1.51 (J-)	0.00104 (J)	9.2	—
RE02-07-1169	02-600272	4.5–14	QAL	—	—	—	0.518 (U)	—	—	—	—	—	—	—	—	—	0.00303	8.17	—
RE02-07-1170	02-600273	0–0.5	SOIL	—	—	—	0.509 (U)	—	—	—	—	—	—	—	—	1.39 (J-)	—	7.99	—
RE02-07-1171	02-600273	2–2.5	QAL	—	—	—	0.518 (U)	—	—	—	—	—	—	—	—	—	0.00112 (J)	9.36	—
RE02-07-1172	02-600273	4.5–5	QAL	—	—	—	0.498 (U)	—	—	—	—	—	—	—	—	—	0.00114 (J)	10.2	—
RE02-07-1173	02-600274	0–0.5	SOIL	—	—	—	0.546 (U)	—	—	—	—	—	—	—	—	2.58 (J-)	—	8.05	—
RE02-07-1174	02-600274	2–4.5	QAL	—	—	—	0.512 (U)	—	—	—	—	—	—	—	—	1.13 (J-)	—	9.49	—
RE02-07-1175	02-600274	4.5–10	QAL	—	—	—	0.513 (U)	—	—	—	—	—	—	—	—	—	—	9.33	—
RE02-07-1176	02-600275	0–0.5	SOIL	—	—	—	0.533 (U)	—	—	—	—	—	—	—	—	2.44 (J-)	0.0018 (J)	8.44	—
RE02-07-1177	02-600275	2–3	QAL	—	—	—	0.519 (U)	—	—	—	—	—	—	—	—	1.47 (J-)	0.00205 (J)	8.81	—
RE02-07-1178	02-600275	4.5–5.5	QAL	—	—	—	0.504 (U)	—	—	—	—	—	—	—	—	1.1 (J-)	0.000616 (J)	7.82	—
RE02-07-1179	02-600276	0–0.5	SOIL	—	—	—	0.552 (U)	—	—	—	0.51	—	—	—	—	—	—	6.57	—
RE02-07-1180	02-600276	2–2.5	QAL	—	—	—	0.503 (U)	—	—	—	—	—	—	—	—	1.19	—	6.63	—
RE02-07-1181	02-600276	4.5–5	QAL	—	—	—	0.512 (U)	—	—	—	—	—	—	—	—	1.09	—	7.92	—

Table 6.20-6 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Cadmium	Calcium	Chromium	Copper	Cyanide (Total)	Iron	Magnesium	Manganese	Mercury	Nitrate	Perchlorate	Selenium	Zinc
Qbt 1g, Qct, Qbo BV[a]				**3560**	**0.5**	**0.56**	**0.4**	**1900**	**2.6**	**3.96**	**na[b]**	**3700**	**739**	**189**	**0.1**	**na**	**na**	**0.3**	**40**
Soil BV[a]				**29200**	**0.83**	**8.17**	**0.4**	**6120**	**19.3**	**14.7**	**0.5**	**21500**	**4610**	**671**	**0.1**	**na**	**na**	**1.52**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**1120**	**na**	**2920[d]**	**45400**	**22700**	**795000**	**na**	**145000**	**310[e]**	**1820000**	**795**	**5680**	**341000**
Recreational SSL[f]				**791000**	**317**	**27.7**	**784**	**na**	**1910[d]**	**31700**	**15800**	**554000**	**na**	**110000**	**238**	**1260000**	**555**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**77.9**	**na**	**219[d]**	**3130**	**1560**	**54800**	**na**	**10700**	**23[e]**	**125000**	**54.8**	**391**	**23500**
RE02-07-1182	02-600277	0–0.5	SOIL	—	—	—	0.525 (U)	—	—	—	—	—	—	—	—	1.94 (J-)	—	—	—
RE02-07-1183	02-600277	2–3	QAL	—	—	—	0.495 (U)	—	—	—	—	—	—	—	—	2.2 (J-)	—	—	—
RE02-07-1184	02-600277	4.5–5	QAL	—	—	—	0.502 (U)	—	—	—	—	—	—	—	—	1.45 (J-)	0.000574 (J)	—	—
RE02-07-1185	02-600278	0–0.5	SOIL	—	—	—	0.529 (U)	—	—	—	—	—	—	—	—	—	—	7.91	—
RE02-07-1188	02-600279	0–0.8	SOIL	—	—	—	0.535 (U)	—	—	—	—	—	—	—	—	6.34	0.000944 (J+)	8.19	—
RE02-07-1189	02-600279	2–2.5	QAL	—	—	—	0.518 (U)	—	—	—	—	—	—	—	—	1.04	0.00176 (J)	7.69	—
RE02-07-1190	02-600279	4.5–5	QAL	—	—	—	0.498 (U)	—	—	—	—	—	—	—	—	1.57	0.000945 (J)	6.65	—
RE02-07-1191	02-600280	0–0.5	SOIL	—	—	—	0.541 (U)	—	—	—	—	—	—	—	—	4.63	0.00061 (J)	7.75	—
RE02-07-1192	02-600280	2–2.5	QAL	—	—	—	0.515 (U)	—	—	—	—	—	—	—	—	1.32	0.00195 (J)	6.73	—
RE02-07-1193	02-600280	4.5–5	QAL	—	—	—	0.507 (U)	—	—	—	—	—	—	—	—	1.76	0.00114 (J)	7.27	—
RE02-07-1194	02-600281	0–0.5	SOIL	—	—	—	0.534 (U)	—	—	—	—	—	—	—	—	2.19	0.00122 (J)	7.74	—
RE02-07-1195	02-600281	2–2.5	QAL	—	—	—	0.511 (U)	—	—	—	—	—	—	—	—	1.51	0.000535 (J)	7.2	—
RE02-07-1196	02-600281	4.5–5	QAL	—	—	—	0.518 (U)	—	—	—	—	—	—	—	—	1.54	0.00129 (J)	7.56	—
RE02-10-22034	02-612421	5–6	QAL	—	—	—	—	—	—	76.1	NA	39500	—	—	—	NA	NA	—	—
RE02-10-22035	02-612421	15–16	QAL	—	1.06 (U)	—	—	—	—	—	NA	—	—	—	—	NA	NA	—	74
RE02-10-22036	02-612421	28–29	QAL	—	1.16 (U)	—	0.58 (U)	—	—	—	NA	—	—	—	—	NA	NA	—	—
RE02-10-22037	02-612421	35–36	QBO	—	1.26 (U)	1.28 (U)	0.631 (U)	—	—	—	NA	5170	—	217	—	NA	NA	1.28 (U)	—
RE02-10-22038	02-612421	48–50	QBO	—	1.16 (U)	1.06 (U)	0.581 (U)	—	—	—	NA	4950	—	—	—	NA	NA	1.06 (U)	—
RE02-10-22039	02-612422	5–6	QAL	—	1.03 (U)	—	0.516 (U)	—	—	—	NA	—	—	—	—	NA	NA	—	—
RE02-10-22040	02-612422	15–16	QAL	—	1.03 (U)	—	0.513 (U)	—	—	—	NA	—	—	—	—	NA	NA	—	—
RE02-10-22041	02-612422	25–26	QBO	4260	1.22 (U)	1.15 (U)	0.612 (U)	—	—	—	NA	6050	—	225	—	NA	NA	1.15 (UJ)	—
RE02-10-22042	02-612422	35–36	QBO	—	1.17 (U)	1.22 (U)	0.587 (U)	—	—	—	NA	5390	—	216	—	NA	NA	1.22 (UJ)	—
RE02-10-22043	02-612422	49–50	QBO	—	1.23 (U)	—	0.616 (U)	—	—	—	NA	5340	—	—	—	NA	NA	1.21 (UJ)	—

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

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

[b] na = Not available.

[c] SSLs are from NMED (2009, 108070), unless otherwise noted.

[d] SSLs are for hexavalent chromium.

[e] SSLs are from EPA regional screening tables (http://www.epa.gov.earth1r6/6pd/rcra_c/pd-n/screen.htm).

[f] SSLs are from LANL (2010, 108613).

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

[h] NA = Not analyzed.

Table 6.20-7
Organic Chemicals Detected at SWMU 02-009(a)

Sample ID	Location ID	Depth (ft)	Media	Acetone	Anthracene	Aroclor-1248	Aroclor-1254	Aroclor-1260	Benzo(a)pyrene	Benzo(b)fluoranthene	Butylbenzylphthalate	Chloroform	Chloromethane	Chrysene	Dichlorobenzene[1,4-]
Industrial SSL[a]				**851000**	**183000**	**8.26**	**8.26**	**8.26**	**2.34**	**23.4**	**9100**[b]	**31.9**	**198**	**2340**	**180**
Recreational SSL[c]				**702000**	**104000**	**10.5**	**6.65**	**10.5**	**3.01**	**30.1**	**13500**	**224**	**1200**	**3010**	**1260**
Residential SSL[a]				**67500**	**17200**	**2.22**	**1.12**	**2.22**	**0.621**	**6.21**	**2600**[b]	**5.72**	**35.6**	**621**	**32.2**
RE02-07-1129	02-600259	2–3	QAL	—[d]	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1131	02-600260	0–0.5	SOIL	NA[e]	0.00912 (J)	—	0.0043	0.0034 (J)	0.02 (J)	0.0297 (J)	—	NA	NA	0.0179 (J)	—
RE02-07-1132	02-600260	2–4.4	QAL	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1133	02-600260	4.5–7.2	QAL	0.041	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1135	02-600261	2–2.5	SOIL	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1136	02-600261	4.5–5	SOIL	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1137	02-600262	0–0.5	SOIL	NA	—	—	0.0028 (J)	0.0024 (J)	0.0189 (J)	0.0708	—	NA	NA	0.0695	—
RE02-07-1138	02-600262	2–2.5	QAL	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1139	02-600262	4.5–5	QAL	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1146	02-600263	0–0.5	SOIL	NA	—	—	—	0.0046	—	—	—	NA	NA	—	—
RE02-07-1141	02-600263	2–2.5	SOIL	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1143	02-600264	0–0.5	SOIL	NA	—	—	0.0024 (J)	0.0019 (J)	—	—	—	NA	NA	—	—
RE02-07-1144	02-600264	2–2.5	SOIL	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1145	02-600264	4.5–5	SOIL	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1140	02-600265	0–0.5	SOIL	NA	—	—	—	0.0013 (J)	—	—	—	NA	NA	—	—
RE02-07-1147	02-600265	2–2.5	SOIL	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1148	02-600265	4.5–5	SOIL	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1150	02-600266	2–2.5	SOIL	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1151	02-600266	4.5–5	SOIL	—	—	—	—	—	—	—	—	0.000239 (J)	—	—	—
RE02-07-1152	02-600267	0–0.5	SOIL	NA	—	—	0.0027 (J)	0.0026 (J)	—	—	0.281 (J)	NA	NA	—	—
RE02-07-1153	02-600267	2–3.5	SOIL	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1154	02-600267	4.5–5.5	QAL	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1156	02-600268	2–2.5	QAL	—	—	—	—	—	—	—	—	0.000231 (J)	—	—	—
RE02-07-1157	02-600268	4.5–5	QAL	—	—	—	—	—	—	—	—	0.000266 (J)	—	—	—
RE02-07-1159	02-600269	2–2.5	QAL	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1160	02-600269	4.5–5	QAL	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1162	02-600270	2–2.8	QAL	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1165	02-600271	2–2.5	QAL	0.00731 (J)	—	—	—	—	—	—	—	0.000264 (J)	—	—	—

Table 6.20-7 (continued)

Sample ID	Location ID	Depth (ft)	Media	Acetone	Anthracene	Aroclor-1248	Aroclor-1254	Aroclor-1260	Benzo(a)pyrene	Benzo(b)fluoranthene	Butylbenzylphthalate	Chloroform	Chloromethane	Chrysene	Dichlorobenzene[1,4-]
Industrial SSL[a]				**851000**	**183000**	**8.26**	**8.26**	**8.26**	**2.34**	**23.4**	**9100[b]**	**31.9**	**198**	**2340**	**180**
Recreational SSL[c]				**702000**	**104000**	**10.5**	**6.65**	**10.5**	**3.01**	**30.1**	**13500**	**224**	**1200**	**3010**	**1260**
Residential SSL[a]				**67500**	**17200**	**2.22**	**1.12**	**2.22**	**0.621**	**6.21**	**2600[b]**	**5.72**	**35.6**	**621**	**32.2**
RE02-07-1166	02-600271	4.5–5	QAL	—	—	—	—	—	—	—	—	0.000273 (J)	—	—	—
RE02-07-1170	02-600273	0–0.5	SOIL	NA	—	—	0.0019 (J)	0.0019 (J)	—	—	—	NA	NA	—	—
RE02-07-1171	02-600273	2–2.5	QAL	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1173	02-600274	0–0.5	SOIL	NA	—	—	0.0022 (J)	0.0017 (J)	—	—	—	NA	NA	—	—
RE02-07-1174	02-600274	2–4.5	QAL	—	—	0.0478 (J-)	—	—	—	—	—	—	—	—	—
RE02-07-1175	02-600274	4.5–10	QAL	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1176	02-600275	0–0.5	SOIL	NA	—	—	0.0022 (J)	0.0027 (J)	—	—	—	NA	NA	—	—
RE02-07-1177	02-600275	2–3	QAL	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1178	02-600275	4.5–5.5	QAL	—	—	—	—	—	—	—	—	—	0.00288	—	—
RE02-07-1181	02-600276	4.5–5	QAL	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1183	02-600277	2–3	QAL	—	—	—	—	0.0016 (J)	—	—	—	—	—	—	—
RE02-07-1185	02-600278	0–0.5	SOIL	NA	—	—	—	0.0144	—	—	—	NA	NA	—	—
RE02-07-1188	02-600279	0–0.8	SOIL	NA	—	—	—	0.0033 (J)	—	—	—	NA	NA	—	—
RE02-07-1189	02-600279	2–2.5	QAL	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1190	02-600279	4.5–5	QAL	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1192	02-600280	2–2.5	QAL	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1196	02-600281	4.5–5	QAL	—	—	—	—	—	—	—	—	—	—	—	0.000364 (J)
RE02-10-22036	02-612421	28–29	QAL	NA	—	—	—	0.0023 (J)	—	—	—	NA	NA	—	—
RE02-10-22040	02-612422	15–16	QAL	NA	—	—	0.0014 (J)	0.0017 (J)	—	—	—	NA	NA	—	—

Table 6.20-7 (continued)

Sample ID	Location ID	Depth (ft)	Media	Di-n-butylphthalate	Fluoranthene	Isopropyltoluene[4-]	Pentachlorophenol	Phenanthrene	Phenol	Pyrene	Toluene	Trimethylbenzene[1,2,4-]	Trimethylbenzene[1,3,5-]	Xylene[1,2-]
Industrial SSL[a]				**68400**	**24400**	**14900**[f]	**100**	**20500**	**205000**	**18300**	**57900**	**260**[c]	**10000**[c]	**31500**
Recreational SSL[e]				**39900**	**13900**	**52700**[f]	**117**	**12000**	**120000**	**10400**	**60800**	**6880**	**7930**	**248000**
Residential SSL[a]				**6110**	**2290**	**3210**[f]	**29.8**	**1830**	**18300**	**1720**	**5570**	**62**[c]	**780**[c]	**9550**
RE02-07-1129	02-600259	2–3	QAL	—	—	—	—	—	—	—	0.000526 (J)	—	—	—
RE02-07-1131	02-600260	0–0.5	SOIL	—	0.0373	NA	—	0.0351 (J)	—	0.0346 (J)	NA	NA	NA	NA
RE02-07-1132	02-600260	2–4.4	QAL	0.0358 (J)	—	—	—	—	—	—	0.000775 (J)	—	—	—
RE02-07-1133	02-600260	4.5–7.2	QAL	—	—	0.000324 (J)	—	—	—	—	0.000428 (J)	—	—	—
RE02-07-1135	02-600261	2–2.5	SOIL	—	—	—	—	—	—	—	0.000392 (J+)	—	—	—
RE02-07-1136	02-600261	4.5–5	SOIL	—	—	—	—	—	—	—	0.00036 (J)	—	—	—
RE02-07-1137	02-600262	0–0.5	SOIL	—	0.171	NA	—	0.0828	—	0.136	NA	NA	NA	NA
RE02-07-1138	02-600262	2–2.5	QAL	—	—	—	—	—	—	—	0.00112 (J+)	—	—	—
RE02-07-1139	02-600262	4.5–5	QAL	—	—	—	—	—	—	—	0.000372 (J)	—	—	—
RE02-07-1146	02-600263	0–0.5	SOIL	—	—	NA	—	—	—	—	NA	NA	NA	NA
RE02-07-1141	02-600263	2–2.5	SOIL	—	—	—	—	—	—	—	0.000498 (J+)	—	—	—
RE02-07-1143	02-600264	0–0.5	SOIL	—	0.0139 (J)	NA	0.257 (J)	—	—	0.0134 (J)	NA	NA	NA	NA
RE02-07-1144	02-600264	2–2.5	SOIL	—	—	—	—	—	—	—	0.000395 (J)	—	—	0.000619 (J)
RE02-07-1145	02-600264	4.5–5	SOIL	—	—	—	—	—	—	—	0.000389 (J)	0.000843 (J)	0.000535 (J)	0.000648 (J)
RE02-07-1140	02-600265	0–0.5	SOIL	—	—	NA	—	—	—	—	NA	NA	NA	NA
RE02-07-1147	02-600265	2–2.5	SOIL	—	—	—	—	—	—	—	0.000949 (J+)	—	—	—
RE02-07-1148	02-600265	4.5–5	SOIL	—	—	—	—	—	—	—	0.000986 (J)	—	—	—
RE02-07-1150	02-600266	2–2.5	SOIL	—	—	—	—	—	—	—	0.000877 (J+)	—	—	—
RE02-07-1151	02-600266	4.5–5	SOIL	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1152	02-600267	0–0.5	SOIL	—	0.014 (J)	NA	—	—	—	0.0133 (J)	NA	NA	NA	NA
RE02-07-1153	02-600267	2–3.5	SOIL	—	—	—	—	—	—	—	0.000786 (J)	—	—	—
RE02-07-1154	02-600267	4.5–5.5	QAL	—	—	—	—	—	—	—	0.000743 (J)	—	—	—
RE02-07-1156	02-600268	2–2.5	QAL	—	—	—	—	—	—	—	0.00037 (J)	—	—	—
RE02-07-1157	02-600268	4.5–5	QAL	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1159	02-600269	2–2.5	QAL	—	—	—	—	—	—	—	0.000761 (J)	—	—	—
RE02-07-1160	02-600269	4.5–5	QAL	—	—	—	—	—	—	—	0.000377 (J)	—	—	—
RE02-07-1162	02-600270	2–2.8	QAL	—	—	—	—	—	—	—	0.000488 (J+)	—	—	—
RE02-07-1165	02-600271	2–2.5	QAL	—	—	0.000519 (J)	—	—	—	—	0.000346 (J)	—	—	—
RE02-07-1166	02-600271	4.5–5	QAL	—	—	0.000345 (J)	—	—	—	—	0.000645 (J)	—	—	—
RE02-07-1170	02-600273	0–0.5	SOIL	—	—	NA	—	—	—	—	NA	NA	NA	NA
RE02-07-1171	02-600273	2–2.5	QAL	—	—	—	—	—	—	—	0.000405 (J)	—	—	—

Table 6.20-7 (continued)

Sample ID	Location ID	Depth (ft)	Media	Di-n-butylphthalate	Fluoranthene	Isopropyltoluene[4-]	Pentachlorophenol	Phenanthrene	Phenol	Pyrene	Toluene	Trimethylbenzene[1,2,4-]	Trimethylbenzene[1,3,5-]	Xylene[1,2-]
Industrial SSL[a]				**68400**	**24400**	**14900**[f]	**100**	**20500**	**205000**	**18300**	**57900**	**260**[c]	**10000**[c]	**31500**
Recreational SSL[e]				**39900**	**13900**	**52700**[f]	**117**	**12000**	**120000**	**10400**	**60800**	**6880**	**7930**	**248000**
Residential SSL[a]				**6110**	**2290**	**3210**[f]	**29.8**	**1830**	**18300**	**1720**	**5570**	**62**[c]	**780**[c]	**9550**
RE02-07-1173	02-600274	0–0.5	SOIL	—	—	NA	—	—	—	—	NA	NA	NA	NA
RE02-07-1174	02-600274	2–4.5	QAL	—	—	—	—	—	—	—	0.000331 (J)	—	—	—
RE02-07-1175	02-600274	4.5–10	QAL	—	—	—	—	—	—	—	0.000352 (J)	—	—	—
RE02-07-1176	02-600275	0–0.5	SOIL	—	0.012 (J)	NA	—	—	—	—	NA	NA	NA	NA
RE02-07-1177	02-600275	2–3	QAL	0.0367 (J)	—	—	—	—	0.102 (J)	—	0.00119	—	—	—
RE02-07-1178	02-600275	4.5–5.5	QAL	0.0388 (J)	—	—	—	—	—	—	0.000504 (J)	—	—	—
RE02-07-1181	02-600276	4.5–5	QAL	—	—	—	—	—	—	—	0.000495 (J)	—	—	—
RE02-07-1183	02-600277	2–3	QAL	—	—	—	—	—	—	—	0.00143	—	—	—
RE02-07-1185	02-600278	0–0.5	SOIL	—	0.0164 (J)	NA	—	—	—	0.0142 (J)	NA	NA	NA	NA
RE02-07-1188	02-600279	0–0.8	SOIL	—	—	NA	—	—	—	—	NA	NA	NA	NA
RE02-07-1189	02-600279	2–2.5	QAL	—	—	—	—	—	—	—	0.000308 (J)	—	—	—
RE02-07-1190	02-600279	4.5–5	QAL	—	—	—	—	—	—	—	0.000518 (J)	—	—	—
RE02-07-1192	02-600280	2–2.5	QAL	—	—	—	—	—	—	—	0.000502 (J+)	—	—	—
RE02-07-1196	02-600281	4.5–5	QAL	—	—	—	—	—	—	—	—	—	—	—
RE02-10-22036	02-612421	28–29	QAL	—	—	NA	—	—	—	—	NA	NA	NA	NA
RE02-10-22040	02-612422	15–16	QAL	—	—	NA	—	—	—	—	NA	NA	NA	NA

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

[a] SSLs are from NMED (2009, 108070), unless otherwise noted.

[b] SSLs are from EPA regional screening tables (http://www.epa.gov.earth1r6/6pd/rcra_c/pd-n/screen.htm).

[c] SSLs are from LANL (2010, 108613).

[d] — = Not detected.

[e] NA = Not analyzed.

[f] Isopropylbenzene used as surrogate based on structural similarity.

Table 6.20-8
Radionuclides Detected or Detected above BVs/FVs at SWMU 02-009(a)

Sample ID	Location ID	Depth (ft)	Media	Cesium-137	Plutonium-238	Plutonium-239/240	Strontium-90	Tritium
Qbt 1g, Qct, Qbo BV[a]				**na[b]**	**na**	**na**	**na**	**na**
Soil BV[a]				**1.65**	**0.023**	**0.054**	**1.31**	**na**
Industrial SAL[c]				**23**	**240**	**210**	**1900**	**440000**
Recreational SAL[c]				**210**	**330**	**300**	**5600**	**5300000**
Residential SAL[c]				**5.6**	**37**	**33**	**5.7**	**750**
CA02-00-0186	02-01259	0–0.5	SOIL	8.72	—[d]	—	—	0.0745361
CA02-00-0187	02-01259	2–2.5	SOIL	4.84	—	—	—	0.041134
CA02-00-0188	02-01260	0–0.5	SOIL	2.79	—	—	—	—
CA02-00-0189	02-01260	2–2.5	SOIL	0.604	—	—	0.395	0.0629167
CA02-00-0208	02-01263	0–0.5	SOIL	—	—	—	—	0.0774023
CA02-00-0209	02-01263	2–2.5	SOIL	—	—	—	—	0.0626316
CA02-00-0211	02-01263	5–5.5	SOIL	0.132	—	—	—	0.0775269
CA02-00-0213	02-01264	0–0.5	SOIL	2.12	—	—	—	—
CA02-00-0214	02-01264	2–2.5	SOIL	0.159	—	—	—	0.05
CA02-00-0215	02-01264	5–5.5	SOIL	1.15	—	—	0.451	0.0445833
RE02-07-1128	02-600259	0–0.5	SOIL	2.23	—	—	—	—
RE02-07-1129	02-600259	2–3	QAL	0.165	—	—	—	—
RE02-07-1130	02-600259	4.5–5.1	QAL	—	—	—	—	0.0150508
RE02-07-1131	02-600260	0–0.5	SOIL	—	—	0.0563	—	—
RE02-07-1132	02-600260	2–4.4	QAL	—	—	—	—	0.0146047
RE02-07-1133	02-600260	4.5–7.2	QAL	—	—	—	—	0.0419636
RE02-07-1135	02-600261	2–2.5	SOIL	0.522	—	—	—	—
RE02-07-1137	02-600262	0–0.5	SOIL	—	—	0.112	—	—
RE02-07-1138	02-600262	2–2.5	QAL	0.234	—	—	—	0.021882
RE02-07-1143	02-600264	0–0.5	SOIL	—	—	0.0648	—	—
RE02-07-1145	02-600264	4.5–5	SOIL	—	—	—	—	0.0211134
RE02-07-1151	02-600266	4.5–5	SOIL	—	—	—	—	0.0224636
RE02-07-1154	02-600267	4.5–5.5	QAL	—	—	—	—	0.010856
RE02-07-1156	02-600268	2–2.5	QAL	0.485	—	—	—	—
RE02-07-1157	02-600268	4.5–5	QAL	1.88	—	—	—	0.0126976
RE02-07-1159	02-600269	2–2.5	QAL	—	—	—	—	0.0253049
RE02-07-1160	02-600269	4.5–5	QAL	—	—	—	—	0.0406606

Table 6.20-8 (continued)

Sample ID	Location ID	Depth (ft)	Media	Cesium-137	Plutonium-238	Plutonium-239/240	Strontium-90	Tritium
Qbt 1g, Qct, Qbo BV[a]				**na[b]**	**na**	**na**	**na**	**na**
Soil BV[a]				**1.65**	**0.023**	**0.054**	**1.31**	**na**
Industrial SAL[c]				**23**	**240**	**210**	**1900**	**440000**
Recreational SAL[c]				**210**	**330**	**300**	**5600**	**5300000**
Residential SAL[c]				**5.6**	**37**	**33**	**5.7**	**750**
RE02-07-1161	02-600270	0–1.1	SOIL	1.59	—	—	—	—
RE02-07-1162	02-600270	2–2.8	QAL	0.205	—	—	—	—
RE02-07-1163	02-600270	4.5–5	QAL	0.193	—	—	—	0.0110716
RE02-07-1166	02-600271	4.5–5	QAL	0.144	—	—	—	—
RE02-07-1167	02-600272	0–0.5	SOIL	2.76	—	—	—	—
RE02-07-1168	02-600272	2–4	QAL	2.79	—	—	0.483	—
RE02-07-1172	02-600273	4.5–5	QAL	—	—	—	—	0.0160548
RE02-07-1175	02-600274	4.5–10	QAL	—	—	—	—	0.0238351
RE02-07-1176	02-600275	0–0.5	SOIL	12.1	—	0.0774	—	—
RE02-07-1177	02-600275	2–3	QAL	3.91	—	—	0.391	—
RE02-07-1178	02-600275	4.5–5.5	QAL	0.692	—	—	—	—
RE02-07-1179	02-600276	0–0.5	SOIL	—	—	0.142	—	—
RE02-07-1183	02-600277	2–3	QAL	—	—	0.0204	—	—
RE02-07-1185	02-600278	0–0.5	SOIL	—	—	0.114	—	—
RE02-07-1188	02-600279	0–0.8	SOIL	—	—	0.109	—	—
RE02-07-1189	02-600279	2–2.5	QAL	—	—	—	—	0.0105311
RE02-07-1190	02-600279	4.5–5	QAL	—	0.047	4.17	—	0.0124268
RE02-07-1192	02-600280	2–2.5	QAL	—	—	0.0788	—	—
RE02-07-1196	02-600281	4.5–5	QAL	—	—	—	—	0.0146073
RE02-10-22034	02-612421	5–6	QAL	—	—	0.0331	—	—
RE02-10-22039	02-612422	5–6	QAL	—	—	—	—	0.0191112
RE02-10-22042	02-612422	35–36	QBO	—	—	—	—	0.0642716
RE02-10-22043	02-612422	49–50	QBO	—	—	—	—	0.10575

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

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

[b] na = Not available.

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

[d] — = Not detected.

Table 6.20-9
Samples Collected and Analyses Requested at SWMU 02-009(b)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Gamma-emitting Radionuclides	Tritium	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	VOCs	Cyanide (Total)
CA02-00-0176	02-01243	5–7	SOIL	—*	—	7483R	7483R	7483R	7483R	7481R, 7482R	—	—	7483R	—	—	—
CA02-00-0177	02-01243	11.5–12.5	SOIL	—	—	7483R	7483R	7483R	7483R	7481R, 7482R	—	—	7483R	—	—	—
CA02-00-0178	02-01243	13–14	QBT3	—	—	7483R	7483R	7483R	7483R	7481R, 7482R	—	—	7483R	—	—	—
CA02-00-0181	02-01244	6–7	SOIL	—	—	7483R	7483R	7483R	7483R	7481R, 7482R	—	—	7483R	—	—	—
CA02-00-0182	02-01244	12.5–13.5	QBT3	—	—	7490R	7490R	7490R	7490R	7488R, 7489R	—	—	7490R	—	—	—
RE02-07-2747	02-600605	0–0.5	SOIL	07-648	07-647	07-648	07-648	07-648	07-648	07-647	07-646	07-647	07-648	07-646	—	07-647
RE02-07-2748	02-600605	1.5–3	QAL	07-648	07-647	07-648	07-648	07-648	07-648	07-647	07-646	07-647	07-648	07-646	07-646	07-647
RE02-07-2751	02-600606	0–0.5	SOIL	07-648	07-647	07-648	07-648	07-648	07-648	07-647	07-646	07-647	07-648	07-646	—	07-647
RE02-07-2752	02-600606	1.5–1.9	QAL	07-683	07-682	07-683	07-683	07-683	07-683	07-682	07-681	07-682	07-683	07-681	07-681	07-682
RE02-07-2753	02-600606	17.1–20	QBO	07-683	07-682	07-683	07-683	07-683	07-683	07-682	07-681	07-682	07-683	07-681	07-681	07-682
RE02-07-2755	02-600607	0–0.5	SOIL	07-683	07-682	07-683	07-683	07-683	07-683	07-682	07-681	07-682	07-683	07-681	—	07-682
RE02-07-2756	02-600607	1.5–3.5	QAL	07-683	07-682	07-683	07-683	07-683	07-683	07-682	07-681	07-682	07-683	07-681	07-681	07-682
RE02-07-2757	02-600607	15–21	QBO	07-683	07-682	07-683	07-683	07-683	07-683	07-682	07-681	07-682	07-683	07-681	07-681	07-682
RE02-07-2759	02-600608	0–0.5	SOIL	07-648	07-647	07-648	07-648	07-648	07-648	07-647	07-646	07-647	07-648	07-646	—	07-647
RE02-07-2760	02-600608	1.5–2.3	QAL	07-648	07-647	07-648	07-648	07-648	07-648	07-647	07-646	07-647	07-648	07-646	07-646	07-647
RE02-07-2761	02-600608	11.5–13.7	QAL	07-728	07-728	07-728	07-728	07-728	07-728	07-728	07-728	07-728	07-728	07-728	07-728	07-728
RE02-07-2762	02-600609	0–0.5	SOIL	07-648	07-647	07-648	07-648	07-648	07-648	07-647	07-646	07-647	07-648	07-646	—	07-647
RE02-07-2763	02-600609	1.5–2.3	QAL	07-683	07-682	07-683	07-683	07-683	07-683	07-682	07-681	07-682	07-683	07-681	07-681	07-682
RE02-07-2764	02-600609	11.5–14.5	QAL	07-719	07-719	07-719	07-719	07-719	07-719	07-719	07-719	07-719	07-719	07-719	07-719	07-719
RE02-07-3982	02-600609	21.5–23.5	QBO	07-728	07-728	07-728	07-728	07-728	07-728	07-728	07-728	07-728	07-728	07-728	07-728	07-728
RE02-07-2765	02-600610	0–0.5	SOIL	07-648	07-647	07-648	07-648	07-648	07-648	07-647	07-646	07-647	07-648	07-646	—	07-647
RE02-07-2766	02-600610	1.5–2.5	QAL	07-648	07-647	07-648	07-648	07-648	07-648	07-647	07-646	07-647	07-648	07-646	07-646	07-647
RE02-07-2767	02-600610	11.5–13.5	QAL	07-701	07-700	07-701	07-701	07-701	07-701	07-700	07-699	07-700	07-701	07-699	07-699	07-700
RE02-07-3983	02-600610	21.5–24.5	QBO	07-701	07-700	07-701	07-701	07-701	07-701	07-700	07-699	07-700	07-701	07-699	07-699	07-700
RE02-07-2768	02-600611	0–0.5	SOIL	07-683	07-682	07-683	07-683	07-683	07-683	07-682	07-681	07-682	07-683	07-681	—	07-682
RE02-07-2769	02-600611	1.5–2.4	QAL	07-683	07-682	07-683	07-683	07-683	07-683	07-682	07-681	07-682	07-683	07-681	07-681	07-682
RE02-07-2771	02-600612	0–1.2	SOIL	07-1009	07-1009	07-1009	07-1009	07-1009	07-1009	07-1009	07-1009	07-1009	07-1009	07-1009	—	07-1009
RE02-07-2774	02-600613	0–1.5	SOIL	07-1009	07-1009	07-1009	07-1009	07-1009	07-1009	07-1009	07-1009	07-1009	07-1009	07-1009	—	07-1009
RE02-07-2775	02-600613	1.5–2.5	QAL	07-1009	07-1009	07-1009	07-1009	07-1009	07-1009	07-1009	07-1009	07-1009	07-1009	07-1009	07-1009	07-1009
RE02-10-21895	02-612388	5–6	QAL	10-4484	—	10-4484	10-4484	10-4484	10-4484	10-4484	10-4484	—	10-4484	10-4484	—	—
RE02-10-21896	02-612388	15–16	QAL	10-4515	—	10-4515	10-4515	10-4515	10-4515	10-4514	10-4514	—	10-4515	10-4514	—	—
RE02-10-21897	02-612388	25–26	QBO	10-4515	—	10-4515	10-4515	10-4515	10-4515	10-4514	10-4514	—	10-4515	10-4514	—	—
RE02-10-21898	02-612388	35–36	QBO	10-4515	—	10-4515	10-4515	10-4515	10-4515	10-4514	10-4514	—	10-4515	10-4514	—	—
RE02-10-21899	02-612388	47.5–50	QBO	10-4515	—	10-4515	10-4515	10-4515	10-4515	10-4514	10-4514	—	10-4515	10-4514	—	—

* — = Analysis not requested

Table 6.20-10
Inorganic Chemicals above BVs at SWMU 02-009(b)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Cadmium	Calcium	Chromium	Cyanide (Total)	Iron	Lead	Manganese	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Uranium	Vanadium	Zinc
Qbt 1g, Qct, Qbo BV[a]				**3560**	**0.5**	**0.56**	**0.4**	**1900**	**2.6**	**0.5**	**3700**	**13.5**	**189**	**0.1**	**2**	**na[b]**	**na**	**0.3**	**na**	**4.59**	**40**
Qbt 2, 3, 4 BV[a]				**7340**	**0.5**	**2.79**	**1.63**	**2200**	**7.14**	**na**	**14500**	**11.2**	**482**	**0.1**	**6.58**	**na**	**na**	**0.3**	**2.4**	**17**	**63.5**
Soil BV[a]				**29200**	**0.83**	**8.17**	**0.4**	**6120**	**19.3**	**0.5**	**21500**	**22.3**	**671**	**0.1**	**15.4**	**na**	**na**	**1.52**	**1.82**	**39.6**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**1120**	**na**	**2920[d]**	**22700**	**795000**	**800**	**145000**	**310[e]**	**22700**	**1820000**	**795**	**5680**	**3410**	**5680**	**341000**
Recreational SSL[f]				**791000**	**317**	**27.7**	**784**	**na**	**1910[d]**	**15800**	**554000**	**560**	**110000**	**238**	**15800**	**1260000**	**555**	**3960**	**2380**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**77.9**	**na**	**219[d]**	**1560**	**54800**	**400**	**10700**	**23[e]**	**1560**	**125000**	**54.8**	**391**	**235**	**391**	**23500**
CA02-00-0178	02-01243	13–14	QBT3	—[g]	0.57 (J-)	—	—	—	—	NA[h]	—	—	—	—	—	NA	NA	—	2.44	—	—
RE02-07-2747	02-600605	0–0.5	SOIL	—	—	—	—	6510	—	—	—	—	—	1.06	—	2.02 (J-)	—	—	NA	—	70.5 (J+)
RE02-07-2748	02-600605	1.5–3	QAL	—	—	—	—	7020	—	—	—	—	—	0.146	—	2.43	—	—	NA	—	52 (J+)
RE02-07-2751	02-600606	0–0.5	SOIL	—	—	—	—	—	—	—	—	—	—	0.445	—	2.96 (J-)	—	—	NA	—	—
RE02-07-2752	02-600606	1.5–1.9	QAL	—	—	—	—	—	—	—	—	—	—	0.26	—	5.57 (J-)	—	—	NA	—	—
RE02-07-2753	02-600606	17.1–20	QBO	—	—	1.62	0.524 (U)	—	13	—	7330	—	268	—	4.08 (J)	—	—	0.762 (J)	NA	7.92 (J)	—
RE02-07-2755	02-600607	0–0.5	SOIL	—	—	—	0.49 (J)	—	—	3.82 (U)	—	—	—	—	—	1.82 (J-)	—	—	NA	—	57.7
RE02-07-2756	02-600607	1.5–3.5	QAL	—	—	—	—	—	—	—	—	—	—	—	—	1.15 (J-)	—	—	NA	—	—
RE02-07-2757	02-600607	15–21	QBO	4870	—	1.69 (U)	0.564 (U)	—	11.5	—	5800 (J)	—	312	—	3.79 (J)	—	—	1.69 (U)	NA	—	—
RE02-07-2759	02-600608	0–0.5	SOIL	—	—	—	—	—	—	—	—	—	—	1.27	—	2.2 (J-)	—	—	NA	—	—
RE02-07-2760	02-600608	1.5–2.3	QAL	—	—	—	—	—	—	—	—	—	—	0.14	—	2.93 (J-)	—	1.57 (U)	NA	—	—
RE02-07-2761	02-600608	11.5–13.7	QAL	—	—	—	0.522 (U)	—	—	—	—	—	—	—	—	—	—	2.11	NA	—	—
RE02-07-2763	02-600609	1.5–2.3	QAL	—	—	—	—	—	—	—	—	—	—	—	—	1.98 (J-)	—	—	NA	—	—
RE02-07-2764	02-600609	11.5–14.5	QAL	—	—	—	0.532 (U)	—	—	—	—	—	—	—	—	—	—	—	NA	—	—
RE02-07-3982	02-600609	21.5–23.5	QBO	—	—	1.74 (U)	0.58 (U)	—	5.7 (U)	—	5650	—	218	—	4.73 (U)	—	—	1.62 (J)	NA	—	—
RE02-07-2765	02-600610	0–0.5	SOIL	—	—	—	—	—	—	—	—	—	—	—	—	1.22 (J-)	—	—	NA	—	56.9 (J+)
RE02-07-2766	02-600610	1.5–2.5	QAL	—	—	—	—	—	—	—	—	—	—	—	—	1.15 (J-)	0.000913 (J)	—	NA	—	—
RE02-07-2767	02-600610	11.5–13.5	QAL	—	—	—	0.516 (U)	—	32.3	—	—	—	—	—	—	—	—	—	NA	—	—
RE02-07-3983	02-600610	21.5–24.5	QBO	—	—	0.572 (J)	0.564 (U)	—	17.4	—	6210	13.6	243	—	4.66	—	—	0.702 (J)	NA	—	—
RE02-07-2768	02-600611	0–0.5	SOIL	—	—	—	0.495 (U)	—	—	—	—	—	—	—	—	6.18 (J-)	—	—	NA	—	—
RE02-07-2769	02-600611	1.5–2.4	QAL	—	—	—	—	—	—	—	—	—	—	—	—	3.47 (J-)	0.000564 (J-)	—	NA	—	—
RE02-07-2771	02-600612	0–1.2	SOIL	—	—	—	0.564 (U)	—	—	—	—	—	—	—	—	4.17	0.0017 (J)	—	NA	—	—
RE02-07-2774	02-600613	0–1.5	SOIL	—	—	—	—	—	—	1.08	—	—	—	—	—	1.97	0.000669 (J)	—	NA	—	67 (J+)
RE02-07-2775	02-600613	1.5–2.5	QAL	—	—	—	—	—	—	—	—	—	—	—	—	1.81	—	—	NA	—	—
RE02-10-21895	02-612388	5–6	QAL	—	0.979 (U)	—	—	—	—	NA	—	—	—	—	—	NA	NA	—	NA	—	—
RE02-10-21896	02-612388	15–16	QAL	—	1.11 (U)	—	0.553 (U)	—	—	NA	—	—	—	—	—	NA	NA	—	NA	—	53.2 (J)

Table 6.20-10 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Cadmium	Calcium	Chromium	Cyanide (Total)	Iron	Lead	Manganese	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Uranium	Vanadium	Zinc
Qbt 1g, Qct, Qbo BV[a]				**3560**	**0.5**	**0.56**	**0.4**	**1900**	**2.6**	**0.5**	**3700**	**13.5**	**189**	**0.1**	**2**	**na**	**na**	**0.3**	**na**	**4.59**	**40**
Qbt 2, 3, 4 BV[a]				**7340**	**0.5**	**2.79**	**1.63**	**2200**	**7.14**	**na**	**14500**	**11.2**	**482**	**0.1**	**6.58**	**na**	**na**	**0.3**	**2.4**	**17**	**63.5**
Soil BV[a]				**29200**	**0.83**	**8.17**	**0.4**	**6120**	**19.3**	**0.5**	**21500**	**22.3**	**671**	**0.1**	**15.4**	**na**	**na**	**1.52**	**1.82**	**39.6**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**1120**	**na**	**2920[d]**	**22700**	**795000**	**800**	**145000**	**310[e]**	**22700**	**1820000**	**795**	**5680**	**3410**	**5680**	**341000**
Recreational SSL[f]				**791000**	**317**	**27.7**	**784**	**na**	**1910[d]**	**15800**	**554000**	**560**	**110000**	**238**	**15800**	**1260000**	**555**	**3960**	**2380**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**77.9**	**na**	**219[d]**	**1560**	**54800**	**400**	**10700**	**23[e]**	**1560**	**125000**	**54.8**	**391**	**235**	**391**	**23500**
RE02-10-21897	02-612388	25–26	QBO	—	1.19 (U)	1.17 (U)	0.596 (U)	—	3.59	NA	4640	—	—	—	—	NA	NA	1.17 (U)	NA	—	—
RE02-10-21898	02-612388	35–36	QBO	—	1.13 (U)	1.17 (U)	0.565 (U)	—	3.66	NA	5390	—	223 (J)	—	—	NA	NA	1.17 (U)	NA	—	—
RE02-10-21899	02-612388	47.5–50	QBO	—	1.1 (U)	1.17 (U)	0.55 (U)	—	—	NA	5310	—	—	—	—	NA	NA	1.17 (U)	NA	—	—

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

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

[b] na = Not available.

[c] SSLs are from NMED (2009, 108070), unless otherwise noted.

[d] SSLs are for hexavalent chromium.

[e] SSLs are from EPA regional screening tables (http://www.epa.gov.earth1r6/6pd/rcra_c/pd-n/screen.htm).

[f] SSLs are from LANL (2010, 108613).

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

[h] NA = Not analyzed.

Table 6.20-11
Organic Chemicals Detected at SWMU 02-009(b)

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Acetone	Anthracene	Aroclor-1254	Aroclor-1260	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Bis(2-ethylhexyl)phthalate
Industrial SSL[a]				**36700**	**851000**	**183000**	**8.26**	**8.26**	**23.4**	**2.34**	**23.4**	**18300**[b]	**234**	**1370**
Recreational SSL[c]				**20800**	**702000**	**104000**	**6.65**	**10.5**	**30.1**	**3.01**	**30.1**	**10400**[b]	**301**	**1830**
Residential SSL[a]				**3440**	**67500**	**17200**	**1.12**	**2.22**	**6.21**	**0.621**	**6.21**	**1720**[b]	**62.1**	**347**
RE02-07-2747	02-600605	0–0.5	SOIL	—[d]	NA[e]	—	—	0.102	0.0209 (J)	0.0188 (J)	0.0261 (J)	—	0.0126 (J)	—
RE02-07-2748	02-600605	1.5–3	QAL	—	—	—	—	0.0155	—	—	0.012 (J)	—	—	—
RE02-07-2751	02-600606	0–0.5	SOIL	—	NA	0.00697 (J)	—	0.0285	0.0371	0.0349	0.0534	0.0272 (J)	0.0232 (J)	—
RE02-07-2752	02-600606	1.5–1.9	QAL	—	—	—	—	0.0136 (J)	0.0161 (J)	—	0.0185 (J)	—	—	—
RE02-07-2755	02-600607	0–0.5	SOIL	—	NA	—	0.0186	0.0181	0.0191 (J)	—	0.0424 (J)	—	0.0226 (J)	—
RE02-07-2756	02-600607	1.5–3.5	QAL	—	—	—	—	0.0016 (J-)	—	—	—	—	—	—
RE02-07-2759	02-600608	0–0.5	SOIL	0.0131 (J)	NA	0.0421	0.0711	0.14	0.161	0.129	0.208	0.0751	0.095	—
RE02-07-2760	02-600608	1.5–2.3	QAL	—	—	—	0.0069	0.0097	—	—	0.0127 (J)	—	—	—
RE02-07-2761	02-600608	11.5–13.7	QAL	—	—	—	—	0.0016 (J)	—	—	—	—	—	—
RE02-07-2762	02-600609	0–0.5	SOIL	—	NA	0.0343	—	—	0.233	0.198	0.379	0.109	—	0.0684 (J)
RE02-07-2763	02-600609	1.5–2.3	QAL	—	—	—	—	—	0.0275 (J)	0.0186 (J)	0.0374	—	—	—
RE02-07-2764	02-600609	11.5–14.5	QAL	—	—	—	—	—	0.0488	0.0306 (J)	0.0482	—	0.0194 (J)	—
RE02-07-2765	02-600610	0–0.5	SOIL	—	NA	—	0.0139	0.0088	—	—	—	—	—	—
RE02-07-2766	02-600610	1.5–2.5	QAL	—	—	—	0.0226	0.0141	—	—	—	—	—	—
RE02-07-2767	02-600610	11.5–13.5	QAL	—	0.0108	—	0.0034 (J)	0.002 (J)	—	—	—	—	—	—
RE02-07-2768	02-600611	0–0.5	SOIL	—	NA	0.0139 (J)	—	—	0.144	0.129	0.215	0.0407	—	—
RE02-07-2769	02-600611	1.5–2.4	QAL	—	—	—	—	—	0.0481	0.0454	0.0764	0.0201 (J)	—	—
RE02-07-2771	02-600612	0–1.2	SOIL	—	NA	—	0.0125	0.0066	—	—	—	—	—	—
RE02-07-2774	02-600613	0–1.5	SOIL	—	NA	—	0.0153	0.0141	—	—	—	—	—	—
RE02-07-2775	02-600613	1.5–2.5	QAL	—	—	—	0.0137	0.0116	—	—	—	—	—	—
RE02-10-21895	02-612388	5–6	QAL	—	NA	—	0.0023 (J)	0.0033 (J)	—	—	—	—	—	—

Table 6.20-11 (continued)

Sample ID	Location ID	Depth (ft)	Media	Chrysene	Di-n-butylphthalate	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Isopropylbenzene	Isopropyltoluene[4-]	Methylnaphthalene[2-]	Phenanthrene	Pyrene	Toluene
Industrial SSL[a]				**2340**	**68400**	**24400**	**24400**	**23.4**	**14900**	**14900**[f]	**4100**[g]	**20500**	**18300**	**57900**
Recreational SSL[c]				**3010**	**39900**	**13900**	**13900**	**30.1**	**52700**	**52700**[f]	**3170**	**12000**	**10400**	**60800**
Residential SSL[a]				**621**	**6110**	**2290**	**2290**	**6.21**	**3210**	**3210**[f]	**310**[g]	**1830**	**1720**	**5570**
RE02-07-2747	02-600605	0–0.5	SOIL	0.0164 (J)	—	0.0299 (J)	—	0.013 (J)	NA	NA	—	0.0114 (J)	0.0339 (J)	NA
RE02-07-2748	02-600605	1.5–3	QAL	—	—	0.0131 (J)	—	—	—	—	—	—	0.0118 (J)	—
RE02-07-2751	02-600606	0–0.5	SOIL	0.0427	—	0.0628	—	0.0248 (J)	NA	NA	—	0.0334 (J)	0.0577	NA
RE02-07-2752	02-600606	1.5–1.9	QAL	0.0111 (J)	—	0.0236 (J)	—	—	—	—	—	—	0.02 (J)	0.00136
RE02-07-2755	02-600607	0–0.5	SOIL	0.0298 (J)	—	0.0424	—	—	NA	NA	—	0.0123 (J)	0.0514	NA
RE02-07-2756	02-600607	1.5–3.5	QAL	—	—	—	—	—	—	—	—	—	—	0.000653 (J)
RE02-07-2759	02-600608	0–0.5	SOIL	0.19	—	0.415	0.0106 (J)	0.0668	NA	NA	—	0.206	0.35	NA
RE02-07-2760	02-600608	1.5–2.3	QAL	—	—	0.0146 (J)	—	—	—	—	—	—	0.0151 (J)	—
RE02-07-2761	02-600608	11.5–13.7	QAL	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2762	02-600609	0–0.5	SOIL	0.253	—	0.559	—	0.106	NA	NA	—	0.156	0.426	NA
RE02-07-2763	02-600609	1.5–2.3	QAL	0.0243 (J)	—	0.0496	—	—	—	—	—	0.0128 (J)	0.0319 (J)	—
RE02-07-2764	02-600609	11.5–14.5	QAL	0.0494	—	0.0974	—	0.0142 (J)	—	—	—	0.0349 (J)	0.0848	—
RE02-07-2765	02-600610	0–0.5	SOIL	—	0.0478 (J)	0.0104 (J)	—	—	NA	NA	—	—	0.0117 (J)	NA
RE02-07-2766	02-600610	1.5–2.5	QAL	—	0.0461 (J)	—	—	—	0.000342 (J)	—	—	—	—	—
RE02-07-2767	02-600610	11.5–13.5	QAL	—	—	—	—	—	—	0.000986 (J)	—	—	—	—
RE02-07-2768	02-600611	0–0.5	SOIL	0.161	—	0.325	—	0.0445	NA	NA	—	0.067	0.241	NA
RE02-07-2769	02-600611	1.5–2.4	QAL	0.0489	—	0.0929	—	0.0195 (J)	—	—	—	0.0214 (J)	0.0678	—
RE02-07-2771	02-600612	0–1.2	SOIL	—	—	—	—	—	NA	NA	—	—	0.0131 (J)	NA
RE02-07-2774	02-600613	0–1.5	SOIL	0.0195 (J)	0.0789 (J)	0.0264 (J)	—	—	NA	NA	0.00949 (J)	—	0.0206 (J)	NA
RE02-07-2775	02-600613	1.5–2.5	QAL	0.0184 (J)	—	0.0232 (J)	—	—	—	—	—	—	0.0207 (J)	—
RE02-10-21895	02-612388	5–6	QAL	—	—	0.0125 (J)	—	—	NA	NA	—	—	—	NA

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

[a] SSLs are from NMED (2009, 108070), unless otherwise noted.

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

[c] SSLs are from LANL (2010, 108613).

[d] — = Not detected.

[e] NA = Not analyzed.

[f] Isopropylbenzene used as surrogate based on structural similarity.

[g] SSLs are from EPA regional screening tables (http://www.epa.gov.earth1r6/6pd/rcra_c/pd-n/screen.htm).

Table 6.20-12
Radionuclides Detected or Detected above BVs/FVs at SWMU 02-009(b)

Sample ID	Location ID	Depth (ft)	Media	Cesium-137	Plutonium-239/240	Strontium-90	Tritium	Uranium-234	Uranium-235/236
Qbt 1g, Qct, Qbo BV[a]				**na[b]**	**na**	**na**	**na**	**4**	**0.18**
Qbt 2, 3, 4 BV[a]				**na**	**na**	**na**	**na**	**1.98**	**0.09**
Soil BV[a]				**1.65**	**0.054**	**1.31**	**na**	**2.59**	**0.2**
Industrial SAL[c]				**23**	**210**	**1900**	**440000**	**1500**	**87**
Recreational SAL[c]				**210**	**300**	**5600**	**5300000**	**3200**	**520**
Residential SAL[c]				**5.6**	**33**	**5.7**	**750**	**170**	**17**
CA02-00-0176	02-01243	5–7	SOIL	0.872	0.0502	—[d]	0.0489727	—	—
CA02-00-0181	02-01244	6–7	SOIL	—	—	—	0.05639	—	—
CA02-00-0182	02-01244	12.5–13.5	QBT3	—	—	—	0.115916	—	0.236
RE02-07-2747	02-600605	0–0.5	SOIL	—	0.142	—	—	—	—
RE02-07-2748	02-600605	1.5–3	QAL	0.848	0.0495	—	0.0120486	—	—
RE02-07-2751	02-600606	0–0.5	SOIL	—	0.0647	—	—	—	—
RE02-07-2752	02-600606	1.5–1.9	QAL	6.01	0.426	1.93	0.0130299	—	—
RE02-07-2755	02-600607	0–0.5	SOIL	8.62	0.432	—	—	—	—
RE02-07-2756	02-600607	1.5–3.5	QAL	8.01	0.238	—	—	—	—
RE02-07-2757	02-600607	15–21	QBO	—	—	—	0.0650809	—	—
RE02-07-2760	02-600608	1.5–2.3	QAL	0.391	0.034	—	—	—	—
RE02-07-2761	02-600608	11.5–13.7	QAL	—	—	—	0.0856982	—	—
RE02-07-2762	02-600609	0–0.5	SOIL	2.13	0.11	—	—	—	—
RE02-07-2763	02-600609	1.5–2.3	QAL	5.59	0.344	4.02	0.0131881	—	—
RE02-07-2764	02-600609	11.5–14.5	QAL	0.509	—	—	0.0180749	—	—
RE02-07-3982	02-600609	21.5–23.5	QBO	—	—	—	0.0849524	—	—
RE02-07-2765	02-600610	0–0.5	SOIL	8.32	0.0915	2.49	—	2.87	—
RE02-07-2766	02-600610	1.5–2.5	QAL	2.13	0.0432	0.388	—	—	—
RE02-07-2767	02-600610	11.5–13.5	QAL	2.24	—	0.706	0.0651043	—	—
RE02-07-3983	02-600610	21.5–24.5	QBO	—	—	—	0.051752	—	—
RE02-07-2768	02-600611	0–0.5	SOIL	—	—	—	0.00727748	—	—
RE02-07-2769	02-600611	1.5–2.4	QAL	1.06	—	0.471	—	—	—
RE02-07-2771	02-600612	0–1.2	SOIL	0.829	—	0.261	—	—	—
RE02-07-2774	02-600613	0–1.5	SOIL	0.94	—	—	—	—	—
RE02-07-2775	02-600613	1.5–2.5	QAL	0.609	0.0425	0.247	—	—	—

Table 6.20-12 (continued)

Sample ID	Location ID	Depth (ft)	Media	Cesium-137	Plutonium-239/240	Strontium-90	Tritium	Uranium-234	Uranium-235/236
Qbt 1g, Qct, Qbo BV[a]				**na[b]**	**na**	**na**	**na**	**4**	**0.18**
Qbt 2, 3, 4 BV[a]				**na**	**na**	**na**	**na**	**1.98**	**0.09**
Soil BV[a]				**1.65**	**0.054**	**1.31**	**na**	**2.59**	**0.2**
Industrial SAL[c]				**23**	**210**	**1900**	**440000**	**1500**	**87**
Recreational SAL[c]				**210**	**300**	**5600**	**5300000**	**3200**	**520**
Residential SAL[c]				**5.6**	**33**	**5.7**	**750**	**170**	**17**
RE02-10-21895	02-612388	5–6	QAL	1.89	0.118	—	0.174311	—	—
RE02-10-21897	02-612388	25–26	QBO	—	—	—	0.0396043	—	—
RE02-10-21898	02-612388	35–36	QBO	—	—	—	0.11165	—	—
RE02-10-21899	02-612388	47.5–50	QBO	—	—	—	0.766886	—	—

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

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

[b] na = Not available.

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

[d] — = Not detected.

Table 6.20-13
Samples Collected and Analyses Requested at SWMU 02-009(c)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Gamma-emitting Radionuclides	Tritium	Hexavalent Chromium	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	Technetium-99	VOCs	Cyanide (Total)
0402-95-0005	02-01140	8.5–9.5	QBT2	—*	—	24	24	—	24	24	—	—	—	24	—	—	—	—
0402-95-0006	02-01140	12.5–13.5	QBT2	—	—	24	24	—	24	24	—	—	—	24	—	—	—	—
0402-95-0011	02-01141	7.5–8.5	QBT2	—	—	—	28	—	28	28	—	—	—	28	—	—	—	—
0402-95-0015	02-01142	4–5	QBT2	—	—	28	28	—	28	28	—	—	—	28	—	—	—	—
0402-95-0016	02-01142	9–10	QBT2	—	—	—	28	—	28	28	—	—	—	28	—	—	—	—
0402-95-0017	02-01142	16.5–17.5	QBT2	—	—	28	28	—	28	28	—	—	—	28	—	—	—	—
0402-95-0021	02-01143	3–5	QBT2	—	—	37	37	—	37	37	—	—	—	37	—	—	—	—
0402-95-0022	02-01143	9–10	QBT2	—	—	37	37	—	37	37	—	—	—	37	—	—	—	—
0402-95-0023	02-01143	14–15	QBT2	—	—	37	37	—	37	37	—	—	—	37	—	—	—	—
0402-95-0038	02-01146	7.5–8.5	SOIL	—	—	19	19	—	19	19	—	—	—	19	10	—	—	—
0402-95-0396	02-01146	7.5–8.5	SED	—	—	—	—	—	—	—	—	—	—	—	—	662	—	—
0402-95-0039	02-01146	11.5–12.5	SOIL	—	—	19	19	—	19	19	—	—	—	19	10	—	—	—
0402-95-0044	02-01147	7.5–8.5	FILL	—	—	19	19	—	19	19	—	—	—	19	10	—	—	—
0402-95-0045	02-01147	12.5–14	SOIL	—	—	19	19	—	19	19	—	—	—	19	10	—	—	—
0402-95-0049	02-01148	8–9	QBT2	—	—	24	24	—	24	24	—	—	—	24	8	—	—	—

Table 6.20-13 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Gamma-emitting Radionuclides	Tritium	Hexavalent Chromium	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	Technetium-99	VOCs	Cyanide (Total)
0402-95-0050	02-01148	12.5–13.5	QBT2	—	—	24	24-1	—	24	24	—	—	—	24	8	—	—	—
CA02-00-0021	02-01225	5–7	FILL	—	—	7446R	7446R	—	7446R	7446R	7444R, 7445R	—	—	7446R	7432R	—	—	—
CA02-00-0022	02-01225	8–9	SOIL	—	—	7446R	7446R	—	7446R	7446R	7444R, 7445R	—	—	7446R	7432R	—	—	—
CA02-00-0023	02-01225	10–11.5	SOIL	—	—	7446R	7446R	—	7446R	7446R	7444R, 7445R	—	—	7446R	7432R	—	—	—
CA02-00-0024	02-01225	12.5–15	QBT2	—	—	7446R	7446R	—	7446R	7446R	7444R, 7445R	—	—	7446R	7432R	—	—	—
CA02-00-0026	02-01226	5–6.5	QBT2	—	—	7446R	7446R	—	7446R	7446R	7444R, 7445R	—	—	7446R	7432R	—	—	—
CA02-00-0027	02-01226	10–12	QBT2	—	—	7443R	7443R	—	7443R	7443R	7441R, 7442R	—	—	7443R	7431R	—	—	—
CA02-00-0022	02-01225	8–9	SOIL	—	—	7446R	7446R	—	7446R	7446R	7444R, 7445R	—	—	7446R	7432R	—	—	—
CA02-00-0028	02-01226	12.5–14	QBT2	—	—	7443R	7443R	—	7443R	7443R	7441R, 7442R	—	—	7443R	7431R	—	—	—
CA02-00-0031	02-01227	5–7.5	FILL	—	—	7443R	7443R	—	7443R	7443R	7441R, 7442R	—	—	7443R	7431R	—	—	—
CA02-00-0032	02-01227	7.5–9	SOIL	—	—	7443R	7443R	—	7443R	7443R	7441R, 7442R	—	—	7443R	7431R	—	—	—
CA02-00-0033	02-01227	10–12	SOIL	—	—	7443R	7443R	—	7443R	7443R	7441R, 7442R	—	—	7443R	7431R	—	—	—
CA02-00-0034	02-01227	12.5–14	SOIL	—	—	7443R	7443R	—	7443R	7443R	7441R, 7442R	—	—	7443R	7431R	—	—	—
CA02-00-0216	02-01228	0–0.5	SED	—	—	7869R	7869R	—	7869R	7869R	7867R, 7868R	—	—	7869R	—	—	—	—
CA02-00-0035	02-01228	0–2.5	SOIL	—	—	7443R	7443R	—	7443R	7443R	7441R, 7442R	—	—	7443R	7431R	—	—	—
CA02-00-0036	02-01228	2.5–4.5	SOIL	—	—	7443R	7443R	—	7443R	7443R	7441R, 7442R	—	—	7443R	7431R	—	—	—
CA02-00-0037	02-01228	5.5–7.5	FILL	—	—	7443R	7443R	—	7443R	7443R	7441R, 7442R	—	—	7443R	7431R	—	—	—
CA02-00-0038	02-01228	7.5–10	SOIL	—	—	7443R	7443R	—	7443R	7443R	7441R, 7442R	—	—	7443R	7431R	—	—	—
CA02-00-0039	02-01228	10–12.3	SOIL	—	—	7443R	7443R	—	7443R	7443R	7441R, 7442R	—	—	7443R	7431R	—	—	—
CA02-00-0040	02-01228	12.5–14.5	QBT2	—	—	7443R	7443R	—	7443R	7443R	7441R, 7442R	—	—	7443R	7431R	—	—	—
CA02-00-0043	02-01229	5–7.5	FILL	—	—	7450R	7450R	—	7450R	7450R	7448R, 7449R	—	—	7450R	7447R	—	—	—
CA02-00-0044	02-01229	7.5–8.3	SOIL	—	—	7450R	7450R	—	7450R	7450R	7448R, 7449R	—	—	7450R	7447R	—	—	—
CA02-00-0045	02-01229	10.5–12	SOIL	—	—	7450R	7450R	—	7450R	7450R	7448R, 7449R	—	—	7450R	7447R	—	—	—
CA02-00-0046	02-01229	12.5–15	QBT2	—	—	7450R	7450R	—	7450R	7450R	7448R, 7449R	—	—	7450R	7447R	—	—	—
CA02-00-0049	02-01230	5–7	FILL	—	—	7450R	7450R	—	7450R	7450R	7448R, 7449R	—	—	7450R	7447R	—	—	—
CA02-00-0050	02-01230	8–10	SOIL	—	—	7450R	7450R	—	7450R	7450R	7448R, 7449R	—	—	7450R	7447R	—	—	—
CA02-00-0051	02-01230	10–11.5	SOIL	—	—	7450R	7450R	—	7450R	7450R	7448R, 7449R	—	—	7450R	7447R	—	—	—
CA02-00-0052	02-01230	12.5–14	SOIL	—	—	7450R	7450R	—	7450R	7450R	7448R, 7449R	—	—	7450R	7447R	—	—	—
CA02-00-0053	02-01230	15–17.5	QBT2	—	—	7450R	7450R	—	7450R	7450R	7448R, 7449R	—	—	7450R	7447R	—	—	—
CA02-00-0056	02-01231	5–6.5	FILL	—	—	7450R	7450R	—	7450R	7450R	7448R, 7449R	—	—	7450R	7447R	—	—	—
CA02-00-0057	02-01231	7.5–10	SOIL	—	—	7450R	7450R	—	7450R	7450R	7448R, 7449R	—	—	7450R	7447R	—	—	—
CA02-00-0058	02-01231	10–12	SOIL	—	—	7450R	7450R	—	7450R	7450R	7448R, 7449R	—	—	7450R	7447R	—	—	—
CA02-00-0059	02-01231	12.5–13	SOIL	—	—	7450R	7450R	—	7450R	7450R	7448R, 7449R	—	—	7450R	7447R	—	—	—
CA02-00-0060	02-01231	13–15	QBT2	—	—	7450R	7450R	—	7450R	7450R	7448R, 7449R	—	—	7450R	7447R	—	—	—
CA02-00-0063	02-01232	5–7	FILL	—	—	7450R	7450R	—	7450R	7450R	7448R, 7449R	—	—	7450R	7447R	—	—	—
CA02-00-0064	02-01232	7.5–10	SOIL	—	—	7450R	7450R	—	7450R	7450R	7448R, 7449R	—	—	7450R	7447R	—	—	—
CA02-00-0065	02-01232	10–11	SOIL	—	—	7450R	7450R	—	7450R	7450R	7448R, 7449R	—	—	7450R	7447R	—	—	—
CA02-00-0066	02-01232	12.5–15	QBT2	—	—	7450R	7450R	—	7450R	7450R	7448R, 7449R	—	—	7450R	7447R	—	—	—
CA02-00-0077	02-01233	5–7.5	FILL	—	—	7457R	7457R	—	7457R	7457R	7455R, 7456R	—	—	7457R	7454R	—	—	—
CA02-00-0070	02-01233	7.5–10	SOIL	—	—	7457R	7457R	—	7457R	7457R	7455R, 7456R	—	—	7457R	7454R	—	—	—
CA02-00-0071	02-01233	11–12.5	SOIL	—	—	7457R	7457R	—	7457R	7457R	7455R, 7456R	—	—	7457R	7454R	—	—	—
CA02-00-0072	02-01233	12.5–13.5	SOIL	—	—	7457R	7457R	—	7457R	7457R	7455R, 7456R	—	—	7457R	7454R	—	—	—

Table 6.20-13 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Gamma-emitting Radionuclides	Tritium	Hexavalent Chromium	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	Technetium-99	VOCs	Cyanide (Total)
CA02-00-0073	02-01233	14–15	SOIL	—	—	7457R	7457R	—	7457R	7457R	7455R, 7456R	—	—	7457R	7454R	—	—	—
CA02-00-0074	02-01233	15–17.5	QBT2	—	—	7457R	7457R	—	7457R	7457R	7455R, 7456R	—	—	7457R	7454R	—	—	—
CA02-00-0080	02-01234	5–7	FILL	—	—	7457R	7457R	—	7457R	7457R	7455R, 7456R	—	—	7457R	7454R	—	—	—
CA02-00-0081	02-01234	7.5–9.25	SOIL	—	—	7457R	7457R	—	7457R	7457R	7455R, 7456R	—	—	7457R	7454R	—	—	—
CA02-00-0082	02-01234	10–11.5	SOIL	—	—	7457R	7457R	—	7457R	7457R	7455R, 7456R	—	—	7457R	7454R	—	—	—
CA02-00-0093	02-01236	5–7.5	SOIL	—	—	7473R	7473R	—	7473R	7473R	7471R, 7472R	—	—	7473R	7470R	—	—	—
CA02-00-0094	02-01236	7.5–8	SOIL	—	—	7473R	7473R	—	7473R	7473R	7471R, 7472R	—	—	7473R	7470R	—	—	—
CA02-00-0095	02-01236	8.5–10	SOIL	—	—	7473R	7473R	—	7473R	7473R	7471R, 7472R	—	—	7473R	7470R	—	—	—
CA02-00-0096	02-01236	10–10.5	SOIL	—	—	7473R	7473R	—	7473R	7473R	7471R, 7472R	—	—	7473R	7470R	—	—	—
CA02-00-0097	02-01236	11.5–12	SOIL	—	—	7473R	7473R	—	7473R	7473R	7471R, 7472R	—	—	7473R	7470R	—	—	—
CA02-00-0098	02-01236	12.5–15	SOIL	—	—	7473R	7473R	—	7473R	7473R	7471R, 7472R	—	—	7473R	7470R	—	—	—
RE02-07-2700	02-600598	0–0.5	SOIL	07-692	07-691	07-692	07-692	07-691	07-692	07-692	07-691	—	07-691	07-692	07-690	—	—	07-691
RE02-07-2702	02-600598	9.5–11.5	QAL	07-1034	07-1034	07-1034	07-1034	07-1034	07-1034	07-1034	07-1034	—	07-1034	07-1034	07-1034	—	07-1034	07-1034
RE02-07-2703	02-600598	14.5–16.7	QBO	07-1034	07-1034	07-1034	07-1034	07-1034	07-1034	07-1034	07-1034	—	07-1034	07-1034	07-1034	—	07-1034	07-1034
RE02-07-2705	02-600599	0–0.5	SOIL	07-692	07-691	07-692	07-692	07-691	07-692	07-692	07-691	—	07-691	07-692	07-690	—	—	07-691
RE02-07-2706	02-600599	4.5–7.3	QAL	07-995	07-995	07-995	07-995	07-995	07-995	07-995	07-995	—	07-995	07-995	07-995	—	07-995	07-995
RE02-07-2707	02-600599	9.5–12.5	QAL	07-1034	07-1034	07-1034	07-1034	07-1034	07-1034	07-1034	07-1034	—	07-1034	07-1034	07-1034	—	07-1034	07-1034
RE02-07-2708	02-600599	13.5–20.5	QBO	07-1034	07-1034	07-1034	07-1034	07-1034	07-1034	07-1034	07-1034	—	07-1034	07-1034	07-1034	—	07-1034	07-1034
RE02-07-2710	02-600600	0–0.5	SOIL	07-692	07-691	07-692	07-692	07-691	07-692	07-692	07-691	—	07-691	07-692	07-690	—	—	07-691
RE02-07-2711	02-600600	4.5–6.5	QAL	07-1048	07-1048	07-1048	07-1048	07-1048	07-1048	07-1048	07-1048	—	07-1048	07-1048	07-1048	—	07-1048	07-1048
RE02-07-2712	02-600600	9.5–11.8	QAL	07-1048	07-1048	07-1048	07-1048	07-1048	07-1048	07-1048	07-1048	—	07-1048	07-1048	07-1048	—	07-1048	07-1048
RE02-07-2713	02-600600	14.5–17	QBO	07-1048	07-1048	07-1048	07-1048	07-1048	07-1048	07-1048	07-1048	—	07-1048	07-1048	07-1048	—	07-1048	07-1048
RE02-07-2715	02-600601	0–0.5	SOIL	07-692	07-691	07-692	07-692	07-691	07-692	07-692	07-691	—	07-691	07-692	07-690	—	—	07-691
RE02-07-2716	02-600601	4.5–6.7	QAL	07-1055	07-1054	07-1055	07-1055	07-1054	07-1055	07-1055	07-1054	—	07-1054	07-1055	07-1053	—	07-1053	07-1054
RE02-07-2717	02-600601	9.5–11.3	QAL	07-1055	07-1054	07-1055	07-1055	07-1054	07-1055	07-1055	07-1054	—	07-1054	07-1055	07-1053	—	07-1053	07-1054
RE02-07-2718	02-600601	14.5–16.8	QBO	07-1055	07-1054	07-1055	07-1055	07-1054	07-1055	07-1055	07-1054	—	07-1054	07-1055	07-1053	—	07-1053	07-1054
RE02-07-2720	02-600602	0–0.5	SOIL	07-692	07-691	07-692	07-692	07-691	07-692	07-692	07-691	—	07-691	07-692	07-690	—	—	07-691
RE02-07-2721	02-600602	4.5–9.5	QAL	07-1055	07-1054	07-1055	07-1055	07-1054	07-1055	07-1055	07-1054	—	07-1054	07-1055	07-1053	—	07-1053	07-1054
RE02-07-2723	02-600602	14.5–19.5	QBO	07-1055	07-1054	07-1055	07-1055	07-1054	07-1055	07-1055	07-1054	—	07-1054	07-1055	07-1053	—	07-1053	07-1054
RE02-07-2725	02-600603	0–0.5	SED	07-692	07-691	07-692	07-692	07-691	07-692	07-692	07-691	—	07-691	07-692	07-690	—	—	07-691
RE02-07-2730	02-600604	0–0.5	SED	07-692	07-691	07-692	07-692	07-691	07-692	07-692	07-691	—	07-691	07-692	07-690	—	—	07-691
RE02-07-2948	02-600643	0–0.5	SOIL	07-704	07-704	07-704	07-704	07-704	07-704	07-704	07-704	07-704	07-704	07-704	07-704	—	—	07-704
RE02-07-2949	02-600643	4.5–5.5	QAL	07-704	07-704	07-704	07-704	07-704	07-704	07-704	07-704	07-704	07-704	07-704	07-704	—	07-704	07-704
RE02-07-2950	02-600643	9.5–12.4	QAL	07-814	07-814	07-814	07-814	07-814	07-814	07-814	07-814	07-814	07-814	07-814	07-814	—	07-814	07-814
RE02-07-2951	02-600643	14.5–16.9	QBO	07-814	07-814	07-814	07-814	07-814	07-814	07-814	07-814	07-814	07-814	07-814	07-814	—	07-814	07-814
RE02-07-2953	02-600644	0–0.5	SOIL	07-711	07-710	07-711	07-711	07-710	07-711	07-711	07-710	07-709	07-710	07-711	07-709	—	—	07-710
RE02-07-2954	02-600644	4.5–5.2	QAL	07-711	07-710	07-711	07-711	07-710	07-711	07-711	07-710	07-709	07-710	07-711	07-709	—	07-709	07-710
RE02-07-2955	02-600644	9.5–11.7	QAL	07-821	07-821	07-821	07-821	07-821	07-821	07-821	07-821	07-821	07-821	07-821	07-821	—	07-821	07-821
RE02-07-2956	02-600644	14.5–19.5	QBO	07-821	07-821	07-821	07-821	07-821	07-821	07-821	07-821	07-821	07-821	07-821	07-821	—	07-821	07-821
RE02-07-2958	02-600645	0–0.5	SOIL	07-711	07-710	07-711	07-711	07-710	07-711	07-711	07-710	07-709	07-710	07-711	07-709	—	—	07-710
RE02-07-2959	02-600645	4.5–5.25	QAL	07-711	07-710	07-711	07-711	07-710	07-711	07-711	07-710	07-709	07-710	07-711	07-709	—	07-709	07-710
RE02-07-2960	02-600645	9.5–12.2	QAL	07-846	07-845	07-846	07-846	07-845	07-846	07-846	07-845	07-844	07-845	07-846	07-844	—	07-844	07-845

Table 6.20-13 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Gamma-emitting Radionuclides	Tritium	Hexavalent Chromium	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	Technetium-99	VOCs	Cyanide (Total)
RE02-07-2961	02-600645	14.5–20.5	QBO	07-846	07-845	07-846	07-846	07-845	07-846	07-846	07-845	07-844	07-845	07-846	07-844	—	07-844	07-845
RE02-07-2963	02-600646	0–0.5	SOIL	07-711	07-710	07-711	07-711	07-710	07-711	07-711	07-710	07-709	07-710	07-711	07-709	—	—	07-710
RE02-07-2964	02-600646	4.5–8.3	QAL	07-846	07-845	07-846	07-846	07-845	07-846	07-846	07-845	07-844	07-845	07-846	07-844	—	07-844	07-845
RE02-07-2965	02-600646	9.5–11.7	QAL	07-846	07-845	07-846	07-846	07-845	07-846	07-846	07-845	07-844	07-845	07-846	07-844	—	07-844	07-845
RE02-07-2966	02-600646	14.5–16.8	QBO	07-846	07-845	07-846	07-846	07-845	07-846	07-846	07-845	07-844	07-845	07-846	07-844	—	07-844	07-845
RE02-07-2968	02-600647	0–0.5	SOIL	07-724	07-723	07-724	07-724	07-723	07-724	07-724	07-723	07-722	07-723	07-724	07-722	—	—	07-723
RE02-07-2969	02-600647	4.5–4.9	QAL	07-1027	07-1027	07-1027	07-1027	07-1027	07-1027	07-1027	07-1027	07-1027	07-1027	07-1027	07-1027	—	07-1027	07-1027
RE02-07-2973	02-600648	0–0.5	SOIL	07-724	07-723	07-724	07-724	07-723	07-724	07-724	07-723	07-722	07-723	07-724	07-722	—	—	07-723
RE02-07-2974	02-600648	4.5–7	QAL	07-944	07-944	07-944	07-944	07-944	07-944	07-944	07-944	07-944	07-944	07-944	07-944	—	07-944	07-944
RE02-07-2976	02-600648	13.5–14.5	QBO	07-944	07-944	07-944	07-944	07-944	07-944	07-944	07-944	07-944	07-944	07-944	07-944	—	07-944	07-944
RE02-07-2977	02-600648	14.5–19.5	QBO	07-944	07-944	07-944	07-944	07-944	07-944	07-944	07-944	07-944	07-944	07-944	07-944	—	07-944	07-944
RE02-07-2978	02-600649	0–0.5	SOIL	07-724	07-723	07-724	07-724	07-723	07-724	07-724	07-723	07-722	07-723	07-724	07-722	—	—	07-723
RE02-07-2983	02-600650	0–0.5	SOIL	07-724	07-723	07-724	07-724	07-723	07-724	07-724	07-723	07-722	07-723	07-724	07-722	—	—	07-723
RE02-07-2984	02-600650	4.5–6.3	QAL	07-977	07-977	07-977	07-977	07-977	07-977	07-977	07-977	07-977	07-977	07-977	07-977	—	07-977	07-977
RE02-07-2985	02-600650	9.5–11.3	QAL	07-977	07-977	07-977	07-977	07-977	07-977	07-977	07-977	07-977	07-977	07-977	07-977	—	07-977	07-977
RE02-07-2988	02-600651	0–0.5	SOIL	07-711	07-710	07-711	07-711	07-710	07-711	07-711	07-710	07-709	07-710	07-711	07-709	—	—	07-710
RE02-07-2989	02-600651	4.5–5	QAL	07-711	07-710	07-711	07-711	07-710	07-711	07-711	07-710	07-709	07-710	07-711	07-709	—	07-709	07-710
RE02-07-2990	02-600651	9.5–12.7	QAL	07-836	07-836	07-836	07-836	07-836	07-836	07-836	07-836	07-836	07-836	07-836	07-836	—	07-836	07-836
RE02-07-2992	02-600651	14.5–16.9	QBO	07-836	07-836	07-836	07-836	07-836	07-836	07-836	07-836	07-836	07-836	07-836	07-836	—	07-836	07-836
RE02-07-2991	02-600651	19.5–21.6	QBO	07-836	07-836	07-836	07-836	07-836	07-836	07-836	07-836	07-836	07-836	07-836	07-836	—	07-836	07-836
RE02-07-2993	02-600652	0–0.5	SOIL	07-711	07-710	07-711	07-711	07-710	07-711	07-711	07-710	07-709	07-710	07-711	07-709	—	—	07-710
RE02-07-2994	02-600652	4.5–5.3	QAL	07-711	07-710	07-711	07-711	07-710	07-711	07-711	07-710	07-709	07-710	07-711	07-709	—	07-709	07-710
RE02-07-2995	02-600652	9.5–11.7	QAL	07-858	07-858	07-858	07-858	07-858	07-858	07-858	07-858	07-858	07-858	07-858	07-858	—	07-858	07-858
RE02-07-2997	02-600652	14.5–16.6	QAL	07-858	07-858	07-858	07-858	07-858	07-858	07-858	07-858	07-858	07-858	07-858	07-858	—	07-858	07-858
RE02-07-2996	02-600652	16.6–18.4	QBO	07-858	07-858	07-858	07-858	07-858	07-858	07-858	07-858	07-858	07-858	07-858	07-858	—	07-858	07-858
RE02-07-3200	02-600698	0–0.5	SOIL	07-695	07-694	07-695	07-695	07-694	07-695	07-695	07-694	07-693	07-694	07-695	07-693	—	—	07-694
RE02-07-3201	02-600698	4.5–7.3	QAL	07-852	07-851	07-852	07-852	07-851	07-852	07-852	07-851	07-850	07-851	07-852	07-850	—	07-850	07-851
RE02-07-3202	02-600698	9.5–12.2	QAL	07-852	07-851	07-852	07-852	07-851	07-852	07-852	07-851	07-850	07-851	07-852	07-850	—	07-850	07-851
RE02-07-3205	02-600699	0–0.5	SOIL	07-695	07-694	07-695	07-695	07-694	07-695	07-695	07-694	07-693	07-694	07-695	07-693	—	—	07-694
RE02-07-3206	02-600699	4.5–7	QAL	07-936	07-935	07-936	07-936	07-935	07-936	07-936	07-935	07-934	07-935	07-936	07-934	—	07-934	07-935
RE02-07-3208	02-600699	14.5–19.5	QBO	07-936	07-935	07-936	07-936	07-935	07-936	07-936	07-935	07-934	07-935	07-936	07-934	—	07-934	07-935
RE02-07-3209	02-600699	19.5–21.7	QBO	07-936	07-935	07-936	07-936	07-935	07-936	07-936	07-935	07-934	07-935	07-936	07-934	—	07-934	07-935
RE02-07-3210	02-600700	0–0.5	SOIL	07-666	07-665	07-666	07-666	07-665	07-666	07-666	07-665	07-664	07-665	07-666	07-664	—	—	07-665
RE02-07-3211	02-600700	4.5–6.7	QAL	07-936	07-935	07-936	07-936	07-935	07-936	07-936	07-935	07-934	07-935	07-936	07-934	—	07-934	07-935
RE02-07-3212	02-600700	9.5–11.1	QAL	07-936	07-935	07-936	07-936	07-935	07-936	07-936	07-935	07-934	07-935	07-936	07-934	—	07-934	07-935
RE02-07-3213	02-600700	14.5–16.7	QBO	07-936	07-935	07-936	07-936	07-935	07-936	07-936	07-935	07-934	07-935	07-936	07-934	—	07-934	07-935
RE02-07-3215	02-600701	0–0.5	SOIL	07-695	07-694	07-695	07-695	07-694	07-695	07-695	07-694	07-693	07-694	07-695	07-693	—	—	07-694
RE02-07-3216	02-600701	4.5–6.2	QAL	07-936	07-935	07-936	07-936	07-935	07-936	07-936	07-935	07-934	07-935	07-936	07-934	—	07-934	07-935
RE02-07-3217	02-600701	9.5–11.7	QBO	07-936	07-935	07-936	07-936	07-935	07-936	07-936	07-935	07-934	07-935	07-936	07-934	—	07-934	07-935
RE02-07-3220	02-600702	0–0.5	SOIL	07-695	07-694	07-695	07-695	07-694	07-695	07-695	07-694	07-693	07-694	07-695	07-693	—	—	07-694
RE02-07-3221	02-600702	4.5–6.7	QAL	07-852	07-851	07-852	07-852	07-851	07-852	07-852	07-851	07-850	07-851	07-852	07-850	—	07-850	07-851
RE02-07-3222	02-600702	9.5–12.7	QBO	07-852	07-851	07-852	07-852	07-851	07-852	07-852	07-851	07-850	07-851	07-852	07-850	—	07-850	07-851

Table 6.20-13 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Gamma-emitting Radionuclides	Tritium	Hexavalent Chromium	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	Technetium-99	VOCs	Cyanide (Total)
RE02-07-3225	02-600703	0–0.5	SED	07-666	07-665	07-666	07-666	07-665	07-666	07-666	07-665	07-664	07-665	07-666	07-664	—	—	07-665
RE02-07-3230	02-600704	0–0.5	SED	07-666	07-665	07-666	07-666	07-665	07-666	07-666	07-665	07-664	07-665	07-666	07-664	—	—	07-665
RE02-07-3233	02-600704	14.5–16.7	QBO	07-964	07-964	07-964	07-964	07-964	07-964	07-964	07-964	07-964	07-964	07-964	07-964	—	07-964	07-964
RE02-07-3235	02-600705	0–0.5	SED	07-666	07-665	07-666	07-666	07-665	07-666	07-666	07-665	07-664	07-665	07-666	07-664	—	—	07-665
RE02-07-3236	02-600705	4.5–6.3	QAL	07-986	07-986	07-986	07-986	07-986	07-986	07-986	07-986	07-986	07-986	07-986	07-986	—	07-986	07-986
RE02-07-3237	02-600705	9.5–11.7	QBO	07-986	07-986	07-986	07-986	07-986	07-986	07-986	07-986	07-986	07-986	07-986	07-986	—	07-986	07-986
RE02-07-3240	02-600706	0–0.5	SED	07-666	07-665	07-666	07-666	07-665	07-666	07-666	07-665	07-664	07-665	07-666	07-664	—	—	07-665
RE02-10-21918	02-612391	5–6	SOIL	10-4517	—	10-4517	10-4517	—	10-4517	10-4517	10-4516	10-4516	—	10-4517	10-4516	—	—	—
RE02-10-21919	02-612391	15–16	QAL	10-4517	—	10-4517	10-4517	—	10-4517	10-4517	10-4516	10-4516	—	10-4517	10-4516	—	—	—
RE02-10-21920	02-612391	25–26	QBO	10-4517	—	10-4517	10-4517	—	10-4517	10-4517	10-4516	10-4516	—	10-4517	10-4516	—	—	—
RE02-10-21921	02-612391	35–37	QBO	10-4517	—	10-4517	10-4517	—	10-4517	10-4517	10-4516	10-4516	—	10-4517	10-4516	—	—	—
RE02-10-21922	02-612391	49–50	QBO	10-4517	—	10-4517	10-4517	—	10-4517	10-4517	10-4516	10-4516	—	10-4517	10-4516	—	—	—
RE02-10-21923	02-612392	5–6	QAL	10-4569	—	10-4569	10-4569	—	10-4569	10-4569	10-4569	10-4569	—	10-4569	10-4569	—	—	—
RE02-10-21924	02-612392	19–20	QBO	10-4560	—	10-4560	10-4560	—	10-4560	10-4560	10-4559	10-4558	—	10-4560	10-4558	—	—	—
RE02-10-21925	02-612392	25–26	QBO	10-4560	—	10-4560	10-4560	—	10-4560	10-4560	10-4559	10-4558	—	10-4560	10-4558	—	—	—
RE02-10-21926	02-612392	35–37	QBO	10-4560	—	10-4560	10-4560	—	10-4560	10-4560	10-4559	10-4558	—	10-4560	10-4558	—	—	—
RE02-10-21927	02-612392	49–50	QBO	10-4560	—	10-4560	10-4560	—	10-4560	10-4560	10-4559	10-4558	—	10-4560	10-4558	—	—	—
RE02-10-21928	02-612393	5–6	QAL	10-4634	—	10-4634	10-4634	—	10-4634	10-4634	10-4633	10-4633	—	10-4634	10-4633	—	—	—
RE02-10-21929	02-612393	15.5–16.5	QAL	10-4634	—	10-4634	10-4634	—	10-4634	10-4634	10-4633	10-4633	—	10-4634	10-4633	—	—	—
RE02-10-21930	02-612393	25–26	QBO	10-4634	—	10-4634	10-4634	—	10-4634	10-4634	10-4633	10-4633	—	10-4634	10-4633	—	—	—
RE02-10-21931	02-612393	35–36	QBO	10-4634	—	10-4634	10-4634	—	10-4634	10-4634	10-4633	10-4633	—	10-4634	10-4633	—	—	—
RE02-10-21932	02-612393	49–50	QBO	10-4634	—	10-4634	10-4634	—	10-4634	10-4634	10-4633	10-4633	—	10-4634	10-4633	—	—	—
RE02-10-22027	02-612420	6–7	QAL	10-4641	—	10-4641	10-4641	—	10-4641	10-4641	10-4640	10-4640	—	10-4641	10-4640	—	—	—
RE02-10-22028	02-612420	15.5–16.5	QAL	10-4641	—	10-4641	10-4641	—	10-4641	10-4641	10-4640	10-4640	—	10-4641	10-4640	—	—	—
RE02-10-22029	02-612420	26–27	QBO	10-4641	—	10-4641	10-4641	—	10-4641	10-4641	10-4640	10-4640	—	10-4641	10-4640	—	—	—
RE02-10-22030	02-612420	35–37	QBO	10-4641	—	10-4641	10-4641	—	10-4641	10-4641	10-4640	10-4640	—	10-4641	10-4640	—	—	—
RE02-10-22031	02-612420	49–50	QBO	10-4641	—	10-4641	10-4641	—	10-4641	10-4641	10-4640	10-4640	—	10-4641	10-4640	—	—	—

* — = Analysis not requested.

Table 6.20-14
Inorganic Chemicals above BVs at SWMU 02-009(c)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Hexavalent Chromium	Copper	Iron	Lead	Manganese	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Silver	Uranium	Vanadium	Zinc
Qbt 1g, Qct, Qbo BV[a]				**3560**	**0.5**	**0.56**	**25.7**	**1.44**	**0.4**	**2.6**	**na[b]**	**3.96**	**3700**	**13.5**	**189**	**0.1**	**2**	**na**	**na**	**0.3**	**1**	**na**	**4.59**	**40**
Qbt 2, 3, 4 BV[a]				**7340**	**0.5**	**2.79**	**46**	**1.21**	**1.63**	**7.14**	**na**	**4.66**	**14500**	**11.2**	**482**	**0.1**	**6.58**	**na**	**na**	**0.3**	**1**	**2.4**	**17**	**63.5**
Sediment BV[a]				**15400**	**0.83**	**3.98**	**127**	**1.31**	**0.4**	**10.5**	**na**	**11.2**	**13800**	**19.7**	**543**	**0.1**	**9.38**	**na**	**na**	**0.3**	**1**	**2.22**	**19.7**	**60.2**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**1.83**	**0.4**	**19.3**	**na**	**14.7**	**21500**	**22.3**	**671**	**0.1**	**15.4**	**na**	**na**	**1.52**	**1**	**1.82**	**39.6**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**2260**	**1120**	**2920[d]**	**2920**	**45400**	**795000**	**800**	**145000**	**310[e]**	**22700**	**1820000**	**795**	**5680**	**5680**	**3410**	**5680**	**341000**
Recreational SSL[f]				**791000**	**317**	**27.7**	**158000**	**1580**	**784**	**1910[d]**	**1910**	**31700**	**554000**	**560**	**110000**	**238**	**15800**	**1260000**	**555**	**3960**	**3960**	**2380**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**156**	**77.9**	**219[d]**	**219**	**3130**	**54800**	**400**	**10700**	**23[e]**	**1560**	**125000**	**54.8**	**391**	**391**	**235**	**391**	**23500**
CA02-00-0021	02-01225	5–7	FILL	—[g]	—	—	—	—	—	—	NA[h]	—	—	—	—	—	—	NA	NA	—	1.1	—	—	—
CA02-00-0022	02-01225	8–9	SOIL	—	—	—	—	—	—	34	NA	—	—	—	—	—	—	NA	NA	—	1.5	—	—	—
CA02-00-0023	02-01225	10–11.5	SOIL	—	—	—	—	—	—	28	NA	—	—	—	—	—	—	NA	NA	—	1.5	—	—	—
CA02-00-0024	02-01225	12.5–15	QBT2	8200	—	—	—	—	—	—	NA	—	—	—	—	—	—	NA	NA	—	—	—	—	—
CA02-00-0026	02-01226	5–6.5	QBT2	—	—	—	—	—	—	—	NA	—	—	—	—	—	—	NA	NA	0.509 (J)	—	—	—	—
CA02-00-0027	02-01226	10–12	QBT2	11000	—	—	54	—	—	—	NA	—	—	—	—	—	—	NA	NA	—	1.1	—	—	—
CA02-00-0028	02-01226	12.5–14	QBT2	10000	—	—	—	—	—	—	NA	—	—	—	—	—	—	NA	NA	—	—	—	—	—
CA02-00-0216	02-01228	0–0.5	SED	—	—	—	—	—	—	—	NA	—	—	—	—	—	—	NA	NA	0.316	1.2	—	—	—
CA02-00-0035	02-01228	0–2.5	SOIL	—	—	—	—	—	—	—	NA	—	—	—	—	—	—	NA	NA	—	1.5	—	—	—
CA02-00-0040	02-01228	12.5–14.5	QBT2	9600	—	—	65	—	—	—	NA	—	—	—	—	—	—	NA	NA	—	—	—	—	—
CA02-00-0044	02-01229	7.5–8.3	SOIL	—	—	—	—	—	—	—	NA	—	—	—	—	—	—	NA	NA	—	1.1	7.1	—	—
CA02-00-0045	02-01229	10.5–12	SOIL	—	—	—	—	—	—	20 (J+)	NA	—	—	—	—	—	—	NA	NA	—	—	4.77	—	—
CA02-00-0046	02-01229	12.5–15	QBT2	13000	—	—	—	—	—	—	NA	—	—	—	—	—	—	NA	NA	—	—	—	—	—
CA02-00-0050	02-01230	8–10	SOIL	—	—	—	—	—	—	33 (J+)	NA	—	—	—	—	—	—	NA	NA	—	—	3.01	—	—
CA02-00-0051	02-01230	10–11.5	SOIL	—	—	—	—	—	—	52 (J+)	NA	—	—	—	—	—	—	NA	NA	—	1.4	—	—	—
CA02-00-0053	02-01230	15–17.5	QBT2	12000	—	—	73	—	—	—	NA	—	—	—	—	—	—	NA	NA	—	—	—	—	—
CA02-00-0057	02-01231	7.5–10	SOIL	—	—	—	—	—	—	26 (J+)	NA	—	—	—	—	—	—	NA	NA	—	—	—	—	—
CA02-00-0058	02-01231	10–12	SOIL	—	—	—	—	—	—	—	NA	—	—	—	—	—	—	NA	NA	—	1.2	—	—	—
CA02-00-0060	02-01231	13–15	QBT2	—	—	—	—	—	—	11 (J+)	NA	—	—	—	—	—	—	NA	NA	—	—	—	—	—
CA02-00-0063	02-01232	5–7	FILL	—	—	—	—	—	—	—	NA	—	—	—	—	—	—	NA	NA	—	2.2	—	—	—
CA02-00-0064	02-01232	7.5–10	SOIL	—	—	—	—	—	—	—	NA	—	—	—	—	—	—	NA	NA	—	1.6	—	—	—
CA02-00-0065	02-01232	10–11	SOIL	—	—	—	—	—	—	22	NA	—	—	—	—	—	—	NA	NA	—	1.5	—	—	—
CA02-00-0066	02-01232	12.5–15	QBT2	11000	—	—	56	—	—	—	NA	—	—	—	—	—	—	NA	NA	—	1.6	—	—	—
CA02-00-0077	02-01233	5–7.5	FILL	—	—	—	—	—	—	—	NA	—	—	—	—	—	—	NA	NA	—	2.8	—	—	—
CA02-00-0070	02-01233	7.5–10	SOIL	—	—	—	—	—	—	38	NA	—	—	—	—	—	—	NA	NA	—	1.6	—	—	—
CA02-00-0071	02-01233	11–12.5	SOIL	—	—	—	—	—	—	—	NA	—	—	—	—	—	—	NA	NA	—	2.1	—	—	—
CA02-00-0072	02-01233	12.5–13.5	SOIL	—	—	—	—	—	—	—	NA	—	—	—	—	—	—	NA	NA	—	2.3	—	—	—
CA02-00-0073	02-01233	14–15	SOIL	—	—	—	—	—	—	—	NA	—	—	—	—	—	—	NA	NA	—	1.7	—	—	—

Table 6.20-14 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Hexavalent Chromium	Copper	Iron	Lead	Manganese	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Silver	Uranium	Vanadium	Zinc
Qbt 1g, Qct, Qbo BV[a]				**3560**	**0.5**	**0.56**	**25.7**	**1.44**	**0.4**	**2.6**	**na[b]**	**3.96**	**3700**	**13.5**	**189**	**0.1**	**2**	**na**	**na**	**0.3**	**1**	**na**	**4.59**	**40**
Qbt 2, 3, 4 BV[a]				**7340**	**0.5**	**2.79**	**46**	**1.21**	**1.63**	**7.14**	**na**	**4.66**	**14500**	**11.2**	**482**	**0.1**	**6.58**	**na**	**na**	**0.3**	**1**	**2.4**	**17**	**63.5**
Sediment BV[a]				**15400**	**0.83**	**3.98**	**127**	**1.31**	**0.4**	**10.5**	**na**	**11.2**	**13800**	**19.7**	**543**	**0.1**	**9.38**	**na**	**na**	**0.3**	**1**	**2.22**	**19.7**	**60.2**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**1.83**	**0.4**	**19.3**	**na**	**14.7**	**21500**	**22.3**	**671**	**0.1**	**15.4**	**na**	**na**	**1.52**	**1**	**1.82**	**39.6**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**2260**	**1120**	**2920[d]**	**2920**	**45400**	**795000**	**800**	**145000**	**310[e]**	**22700**	**1820000**	**795**	**5680**	**5680**	**3410**	**5680**	**341000**
Recreational SSL[f]				**791000**	**317**	**27.7**	**158000**	**1580**	**784**	**1910[d]**	**1910**	**31700**	**554000**	**560**	**110000**	**238**	**15800**	**1260000**	**555**	**3960**	**3960**	**2380**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**156**	**77.9**	**219[d]**	**219**	**3130**	**54800**	**400**	**10700**	**23[e]**	**1560**	**125000**	**54.8**	**391**	**391**	**235**	**391**	**23500**
CA02-00-0074	02-01233	15–17.5	QBT2	7800	—	—	—	—	—	—	NA	—	—	—	—	—	—	NA	NA	—	1.4	—	—	—
CA02-00-0080	02-01234	5–7	FILL	—	—	—	—	—	—	—	NA	—	—	—	—	0.23	—	NA	NA	—	2.3	—	—	—
CA02-00-0081	02-01234	7.5–9.25	SOIL	—	—	—	—	—	—	—	NA	—	—	—	—	0.25	—	NA	NA	—	1.9	—	—	—
CA02-00-0082	02-01234	10–11.5	SOIL	—	—	—	—	—	—	—	NA	—	—	—	—	0.25	—	NA	NA	—	1.8	—	—	—
CA02-00-0093	02-01236	5–7.5	SOIL	—	—	—	—	—	—	—	NA	—	—	—	—	0.22 (U)	—	NA	NA	—	1.1	—	—	—
CA02-00-0094	02-01236	7.5–8	SOIL	—	—	—	—	—	—	—	NA	—	—	—	—	0.14 (U)	—	NA	NA	—	1.2	—	—	—
CA02-00-0095	02-01236	8.5–10	SOIL	—	—	—	—	—	—	—	NA	—	—	—	—	0.32 (U)	—	NA	NA	—	1.2	—	—	—
CA02-00-0097	02-01236	11.5–12	SOIL	—	—	—	—	—	—	—	NA	—	—	—	—	0.19 (U)	—	NA	NA	—	—	—	—	—
RE02-07-2700	02-600598	0–0.5	SOIL	—	—	—	355	—	—	—	—	—	—	—	—	0.679	—	2.59 (J-)	—	—	—	NA	—	—
RE02-07-2702	02-600598	9.5–11.5	QAL	—	—	—	—	—	0.565 (U)	24.7	—	—	—	—	—	—	—	—	—	11.4	—	NA	—	—
RE02-07-2703	02-600598	14.5–16.7	QBO	—	—	1.87	—	—	0.613 (U)	3.06 (U)	—	—	5820	—	253 (J-)	—	—	—	—	6.66	—	NA	8.4	—
RE02-07-2705	02-600599	0–0.5	SOIL	—	—	—	320	—	—	—	—	—	—	—	—	0.856	—	2.93	—	—	—	NA	—	—
RE02-07-2706	02-600599	4.5–7.3	QAL	—	—	—	—	—	0.522 (U)	—	—	—	—	—	—	0.31	—	—	—	—	—	NA	—	—
RE02-07-2707	02-600599	9.5–12.5	QAL	—	—	—	—	—	0.553 (U)	—	0.761	—	—	—	—	—	—	—	—	9.97	—	NA	—	—
RE02-07-2708	02-600599	13.5–20.5	QBO	—	—	1.57 (J)	—	—	0.609 (U)	7.79 (U)	—	—	6930	—	195 (J-)	—	—	—	—	8.05	—	NA	7.79	—
RE02-07-2710	02-600600	0–0.5	SOIL	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.14	—	1.57 (U)	—	NA	—	—
RE02-07-2711	02-600600	4.5–6.5	QAL	—	—	—	—	—	0.52 (U)	—	0.299 (J)	—	—	—	—	—	—	—	—	8.76	—	NA	—	—
RE02-07-2712	02-600600	9.5–11.8	QAL	—	—	—	—	—	0.556 (U)	—	0.251	—	—	—	—	—	—	—	—	7.7	—	NA	—	—
RE02-07-2713	02-600600	14.5–17	QBO	7000	0.527 (UJ)	2.01 (U)	—	—	0.67 (U)	5.81 (U)	—	—	5580	—	223 (J-)	—	—	—	—	7.79	—	NA	—	—
RE02-07-2715	02-600601	0–0.5	SOIL	—	—	—	636	—	0.52 (U)	—	—	—	—	31.2	—	1.13	—	5.57 (J-)	—	—	—	NA	—	—
RE02-07-2716	02-600601	4.5–6.7	QAL	—	—	—	—	—	0.518 (U)	—	—	—	—	—	—	0.308	—	1.01	0.00058 (J)	9.06	—	NA	—	—
RE02-07-2717	02-600601	9.5–11.3	QAL	—	—	—	—	—	0.561 (U)	—	—	—	—	—	—	—	—	—	—	6.39	—	NA	—	—
RE02-07-2718	02-600601	14.5–16.8	QBO	6180 (J)	—	1.37 (J)	—	—	0.581 (U)	7.91 (U)	—	—	5740 (J)	—	320	—	3.2 (U)	—	—	8.59	—	NA	5.33	—
RE02-07-2720	02-600602	0–0.5	SOIL	—	—	—	—	—	0.536 (U)	—	0.267 (J)	—	—	—	—	0.377	—	3.33 (J-)	—	—	—	NA	—	—
RE02-07-2721	02-600602	4.5–9.5	QAL	—	—	—	520	—	0.525 (U)	—	—	—	—	—	—	—	—	—	—	8.99	—	NA	—	—
RE02-07-2723	02-600602	14.5–19.5	QBO	21800	0.557 (U)	1.18 (J)	29.4	—	0.678 (U)	4.91	—	4.15	10600	—	458	—	2.28 (J+)	—	—	17.7	—	NA	—	—
RE02-07-2725	02-600603	0–0.5	SED	—	—	—	—	—	0.512 (U)	—	1.33	—	—	—	—	—	—	1.03	—	1.54 (U)	—	NA	—	—
RE02-07-2730	02-600604	0–0.5	SED	—	—	—	—	—	0.522 (U)	—	—	—	15200	—	—	0.179	—	—	—	1.05 (J)	—	NA	—	77.2
RE02-07-2948	02-600643	0–0.5	SOIL	—	—	—	—	—	0.496 (U)	—	—	—	—	—	—	—	—	—	—	—	—	NA	—	—
RE02-07-2949	02-600643	4.5–5.5	QAL	—	—	—	—	—	0.544 (U)	—	0.0919 (J)	—	—	—	—	—	—	—	—	—	—	NA	—	—

Table 6.20-14 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Hexavalent Chromium	Copper	Iron	Lead	Manganese	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Silver	Uranium	Vanadium	Zinc
Qbt 1g, Qct, Qbo BV[a]				**3560**	**0.5**	**0.56**	**25.7**	**1.44**	**0.4**	**2.6**	**na[b]**	**3.96**	**3700**	**13.5**	**189**	**0.1**	**2**	**na**	**na**	**0.3**	**1**	**na**	**4.59**	**40**
Qbt 2, 3, 4 BV[a]				**7340**	**0.5**	**2.79**	**46**	**1.21**	**1.63**	**7.14**	**na**	**4.66**	**14500**	**11.2**	**482**	**0.1**	**6.58**	**na**	**na**	**0.3**	**1**	**2.4**	**17**	**63.5**
Sediment BV[a]				**15400**	**0.83**	**3.98**	**127**	**1.31**	**0.4**	**10.5**	**na**	**11.2**	**13800**	**19.7**	**543**	**0.1**	**9.38**	**na**	**na**	**0.3**	**1**	**2.22**	**19.7**	**60.2**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**1.83**	**0.4**	**19.3**	**na**	**14.7**	**21500**	**22.3**	**671**	**0.1**	**15.4**	**na**	**na**	**1.52**	**1**	**1.82**	**39.6**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**2260**	**1120**	**2920[d]**	**2920**	**45400**	**795000**	**800**	**145000**	**310[e]**	**22700**	**1820000**	**795**	**5680**	**5680**	**3410**	**5680**	**341000**
Recreational SSL[f]				**791000**	**317**	**27.7**	**158000**	**1580**	**784**	**1910[d]**	**1910**	**31700**	**554000**	**560**	**110000**	**238**	**15800**	**1260000**	**555**	**3960**	**3960**	**2380**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**156**	**77.9**	**219[d]**	**219**	**3130**	**54800**	**400**	**10700**	**23[e]**	**1560**	**125000**	**54.8**	**391**	**391**	**235**	**391**	**23500**
RE02-07-2950	02-600643	9.5–12.4	QAL	—	—	—	—	—	0.55 (U)	—	—	—	—	—	—	—	—	0.81 (J)	—	1.65 (U)	—	NA	—	—
RE02-07-2951	02-600643	14.5–16.9	QBO	9780	—	0.892 (J)	62.4	—	0.604 (U)	9.12 (U)	0.0647 (J)	—	6720	—	240	—	2.18 (U)	—	—	1.81 (U)	—	NA	—	—
RE02-07-2953	02-600644	0–0.5	SOIL	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.36	—	—	—	NA	—	—
RE02-07-2954	02-600644	4.5–5.2	QAL	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.000825 (J)	1.53 (U)	—	NA	—	—
RE02-07-2955	02-600644	9.5–11.7	QAL	—	—	—	—	—	0.555 (U)	—	0.199 (J)	—	—	—	905	—	—	—	—	2.56	—	NA	—	—
RE02-07-2956	02-600644	14.5–19.5	QBO	10000	—	1.5 (J)	66.1 (J+)	—	0.574 (U)	6.17 (U)	0.0592 (J)	—	6340 (J+)	—	260	—	2.77 (U)	—	—	2.04	—	NA	—	—
RE02-07-2958	02-600645	0–0.5	SOIL	—	—	—	—	—	0.507 (U)	—	0.297 (J)	—	—	—	—	—	—	4.06	0.00109 (J)	—	—	NA	—	—
RE02-07-2959	02-600645	4.5–5.25	QAL	—	—	—	—	—	—	—	—	—	—	—	—	—	—	11.4	0.00536	1.57 (U)	—	NA	—	—
RE02-07-2960	02-600645	9.5–12.2	QAL	—	—	—	—	—	0.554 (U)	—	0.162 (J-)	—	—	—	—	—	—	1.34 (J-)	—	—	—	NA	—	—
RE02-07-2961	02-600645	14.5–20.5	QBO	6810	—	1.73 (U)	37.5 (J-)	—	0.576 (U)	5.39 (U)	—	—	6530	—	240 (J)	—	2.65 (U)	—	—	1.73 (U)	—	NA	—	—
RE02-07-2963	02-600646	0–0.5	SOIL	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.26	0.00144 (J)	—	—	NA	—	—
RE02-07-2964	02-600646	4.5–8.3	QAL	—	—	—	—	—	0.545 (U)	—	—	—	—	—	—	—	—	—	0.00461	—	—	NA	—	—
RE02-07-2965	02-600646	9.5–11.7	QAL	—	—	—	—	—	0.561 (U)	—	—	—	—	—	—	—	—	—	—	—	—	NA	—	—
RE02-07-2966	02-600646	14.5–16.8	QBO	4450	—	1.26 (J)	—	—	0.539 (U)	23.3 (J)	0.147 (J-)	—	6560	—	—	—	4.31 (U)	1.03 (J-)	—	1.62 (U)	—	NA	8.42	—
RE02-07-2968	02-600647	0–0.5	SOIL	—	—	—	—	—	0.517 (U)	—	—	—	—	—	—	—	—	1.42	0.0015 (J+)	—	—	NA	—	—
RE02-07-2969	02-600647	4.5–4.9	QAL	—	—	—	—	—	0.502 (U)	—	0.488 (J)	—	—	—	—	—	—	—	0.00901	—	—	NA	—	—
RE02-07-2973	02-600648	0–0.5	SOIL	—	—	—	—	—	0.523 (U)	—	0.396 (J)	—	—	—	—	—	—	1.32	0.000776 (J+)	—	—	NA	—	—
RE02-07-2974	02-600648	4.5–7	QAL	—	—	—	—	—	0.565 (U)	—	—	—	—	—	—	—	—	—	—	—	—	NA	—	—
RE02-07-2976	02-600648	13.5–14.5	QBO	4730	—	1.53 (J)	32.1 (J+)	—	0.604 (U)	—	0.0737 (J)	8.11 (U)	8250	—	211 (J+)	—	4.5 (U)	—	—	1.2 (J)	—	NA	8.32	—
RE02-07-2977	02-600648	14.5–19.5	QBO	11000	—	1.78 (U)	—	—	0.593 (U)	—	0.207	—	8040	—	239 (J+)	—	—	—	—	0.626 (J)	—	NA	—	—
RE02-07-2978	02-600649	0–0.5	SOIL	—	—	—	—	—	0.535 (U)	—	0.8 (J)	—	—	—	—	—	—	1.31	0.00194 (J+)	—	—	NA	—	—
RE02-07-2983	02-600650	0–0.5	SOIL	—	—	—	—	—	0.526 (U)	—	0.26 (J)	—	—	—	—	—	—	1.28	0.000878 (J+)	—	—	NA	—	—
RE02-07-2984	02-600650	4.5–6.3	QAL	—	—	—	—	—	0.546 (U)	—	—	—	—	—	—	—	—	—	—	—	—	NA	—	—
RE02-07-2985	02-600650	9.5–11.3	QAL	—	—	—	—	—	0.568 (U)	—	—	—	—	—	—	—	—	—	—	—	—	NA	—	—
RE02-07-2988	02-600651	0–0.5	SOIL	—	—	—	—	—	0.515 (U)	—	—	—	—	—	—	—	—	1.01 (J)	0.000557 (J)	1.54 (U)	—	NA	—	—
RE02-07-2989	02-600651	4.5–5	QAL	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.93	—	1.6 (U)	—	NA	—	—
RE02-07-2990	02-600651	9.5–12.7	QAL	—	—	—	—	—	—	—	—	—	—	—	—	0.129	—	1.06 (J)	—	1.68 (U)	—	NA	—	—
RE02-07-2992	02-600651	14.5–16.9	QBO	4800	—	1.51 (J)	117 (J-)	—	0.59 (U)	11.8 (U)	0.144 (J-)	—	7560	—	639 (J)	—	2.06 (U)	—	—	0.973 (J)	—	NA	6.45	—
RE02-07-2991	02-600651	19.5–21.6	QBO	4700	0.54 (UJ)	1.99 (U)	—	—	0.662 (U)	—	—	—	4920	—	204 (J)	—	—	—	—	1.99 (U)	—	NA	—	—
RE02-07-2993	02-600652	0–0.5	SOIL	—	—	—	—	—	0.529 (U)	—	0.287	—	—	—	—	—	—	—	—	—	—	NA	—	—

Table 6.20-14 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Hexavalent Chromium	Copper	Iron	Lead	Manganese	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Silver	Uranium	Vanadium	Zinc
Qbt 1g, Qct, Qbo BV[a]				**3560**	**0.5**	**0.56**	**25.7**	**1.44**	**0.4**	**2.6**	**na[b]**	**3.96**	**3700**	**13.5**	**189**	**0.1**	**2**	**na**	**na**	**0.3**	**1**	**na**	**4.59**	**40**
Qbt 2, 3, 4 BV[a]				**7340**	**0.5**	**2.79**	**46**	**1.21**	**1.63**	**7.14**	**na**	**4.66**	**14500**	**11.2**	**482**	**0.1**	**6.58**	**na**	**na**	**0.3**	**1**	**2.4**	**17**	**63.5**
Sediment BV[a]				**15400**	**0.83**	**3.98**	**127**	**1.31**	**0.4**	**10.5**	**na**	**11.2**	**13800**	**19.7**	**543**	**0.1**	**9.38**	**na**	**na**	**0.3**	**1**	**2.22**	**19.7**	**60.2**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**1.83**	**0.4**	**19.3**	**na**	**14.7**	**21500**	**22.3**	**671**	**0.1**	**15.4**	**na**	**na**	**1.52**	**1**	**1.82**	**39.6**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**2260**	**1120**	**2920[d]**	**2920**	**45400**	**795000**	**800**	**145000**	**310[e]**	**22700**	**1820000**	**795**	**5680**	**5680**	**3410**	**5680**	**341000**
Recreational SSL[f]				**791000**	**317**	**27.7**	**158000**	**1580**	**784**	**1910[d]**	**1910**	**31700**	**554000**	**560**	**110000**	**238**	**15800**	**1260000**	**555**	**3960**	**3960**	**2380**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**156**	**77.9**	**219[d]**	**219**	**3130**	**54800**	**400**	**10700**	**23[e]**	**1560**	**125000**	**54.8**	**391**	**391**	**235**	**391**	**23500**
RE02-07-2994	02-600652	4.5–5.3	QAL	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.61 (U)	—	NA	—	—
RE02-07-2995	02-600652	9.5–11.7	QAL	—	—	—	—	—	0.537 (U)	—	0.124	—	—	—	—	—	—	—	—	2.43	—	NA	—	—
RE02-07-2997	02-600652	14.5–16.6	QAL	—	—	—	—	—	0.578 (U)	52.3	—	—	—	—	—	—	—	—	—	2.04	—	NA	—	—
RE02-07-2996	02-600652	16.6–18.4	QBO	14000	0.519 (UJ)	1.09 (J)	97.5	1.49	0.64 (U)	6.67 (U)	—	—	6650	—	234 (J+)	—	3.48 (U)	—	—	1.8 (J)	—	NA	—	—
RE02-07-3200	02-600698	0–0.5	SOIL	—	—	—	—	—	0.537 (U)	—	—	—	—	—	—	—	—	2.75	—	—	—	NA	—	—
RE02-07-3201	02-600698	4.5–7.3	QAL	—	—	—	—	—	0.536 (U)	—	—	—	—	—	—	—	—	1.01 (J-)	—	1.61 (U)	—	NA	—	—
RE02-07-3202	02-600698	9.5–12.2	QAL	—	—	—	—	—	0.524 (U)	22.2	0.168 (J-)	—	—	—	—	—	—	—	—	1.57 (U)	—	NA	—	—
RE02-07-3205	02-600699	0–0.5	SOIL	—	—	—	—	—	0.507 (U)	—	—	—	—	—	—	—	—	—	0.000836 (J)	—	—	NA	—	—
RE02-07-3206	02-600699	4.5–7	QAL	—	—	—	—	—	0.553 (U)	—	0.0387 (J)	—	—	—	—	—	—	—	—	—	—	NA	—	—
RE02-07-3208	02-600699	14.5–19.5	QBO	—	—	1.7 (J)	—	—	0.573 (U)	—	0.0692 (J)	—	7250	—	210 (J+)	—	2.15	2.1	—	0.639 (J)	—	NA	8.07	—
RE02-07-3209	02-600699	19.5–21.7	QBO	3690	0.552 (UJ)	2.04 (U)	—	—	0.679 (U)	—	0.0964 (J)	—	4460	—	—	—	—	—	—	2.04 (U)	—	NA	—	—
RE02-07-3210	02-600700	0–0.5	SOIL	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.0012 (J-)	—	—	NA	—	—
RE02-07-3211	02-600700	4.5–6.7	QAL	—	—	—	—	—	0.56 (U)	—	0.136	—	—	—	—	—	—	—	—	—	—	NA	—	—
RE02-07-3212	02-600700	9.5–11.1	QAL	—	—	—	—	—	0.557 (U)	—	—	—	—	—	—	—	—	—	—	—	—	NA	—	—
RE02-07-3213	02-600700	14.5–16.7	QBO	12900	0.578 (UJ)	2.22 (U)	—	—	0.739 (U)	—	0.0493 (J)	—	5940	—	194 (J+)	—	—	—	—	0.806 (J)	—	NA	—	—
RE02-07-3215	02-600701	0–0.5	SOIL	—	—	—	—	—	—	—	—	—	—	23.1	—	—	—	1.98	0.00151 (J)	—	—	NA	—	60.8
RE02-07-3216	02-600701	4.5–6.2	QAL	—	—	—	—	—	0.536 (U)	—	0.0471 (J)	—	—	—	—	—	—	1.15 (J-)	—	—	—	NA	—	—
RE02-07-3217	02-600701	9.5–11.7	QBO	15700	0.586 (UJ)	2.19 (U)	69.2 (J+)	—	0.73 (U)	—	0.0745 (J)	4.44 (U)	6710	—	259 (J+)	—	—	—	—	1.16 (J)	—	NA	—	—
RE02-07-3220	02-600702	0–0.5	SOIL	—	—	—	—	—	0.538 (U)	—	—	—	—	—	—	—	—	1.57	0.000709 (J)	1.62 (U)	—	NA	—	—
RE02-07-3221	02-600702	4.5–6.7	QAL	—	—	—	—	—	0.529 (U)	—	0.166 (J-)	—	—	—	—	—	—	—	—	1.59 (U)	—	NA	—	—
RE02-07-3222	02-600702	9.5–12.7	QBO	15300	—	0.831 (J)	91.1	—	0.601 (U)	43.5	—	—	6420	—	287 (J+)	—	7.15	—	—	1.8 (U)	—	NA	—	—
RE02-07-3225	02-600703	0–0.5	SED	—	—	—	—	—	0.431 (J)	—	—	—	—	21.3	—	—	—	1.47 (J-)	—	1.03 (J)	—	NA	—	67.4
RE02-07-3230	02-600704	0–0.5	SED	—	—	—	—	—	0.418 (J)	—	—	—	—	19.9	—	—	—	0.95 (J-)	—	1.56 (U)	—	NA	—	—
RE02-07-3233	02-600704	14.5–16.7	QBO	5430 (J+)	—	0.942 (J)	—	—	0.621 (U)	10.9 (J)	—	—	7630	—	227	—	2.19	—	—	1 (J)	—	NA	6.24	—
RE02-07-3235	02-600705	0–0.5	SED	—	—	—	—	—	—	—	0.349 (J)	—	—	20.8	—	—	—	—	—	1.53 (U)	—	NA	—	—
RE02-07-3236	02-600705	4.5–6.3	QAL	—	—	—	—	—	0.539 (U)	37.6	—	—	—	—	—	—	—	—	—	—	—	NA	—	—
RE02-07-3237	02-600705	9.5–11.7	QBO	9420	—	1.8 (U)	50.1	—	0.584 (U)	13.5	—	—	7630	—	243	—	2.12	—	—	1.23 (J)	—	NA	6.54	—
RE02-07-3240	02-600706	0–0.5	SED	—	—	—	—	—	—	—	—	—	—	—	—	0.108	—	2.55 (J-)	—	1.49 (U)	—	NA	—	—
RE02-10-21918	02-612391	5–6	SOIL	—	1.05 (U)	—	—	—	—	—	NA	—	—	—	—	—	—	NA	NA	—	—	NA	—	—
RE02-10-21919	02-612391	15–16	QAL	—	1.19 (U)	—	—	—	0.595 (U)	—	NA	—	—	—	—	—	—	NA	NA	—	—	NA	—	—

Table 6.20-14 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Hexavalent Chromium	Copper	Iron	Lead	Manganese	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Silver	Uranium	Vanadium	Zinc
Qbt 1g, Qct, Qbo BV[a]				**3560**	**0.5**	**0.56**	**25.7**	**1.44**	**0.4**	**2.6**	**na**[b]	**3.96**	**3700**	**13.5**	**189**	**0.1**	**2**	**na**	**na**	**0.3**	**1**	**na**	**4.59**	**40**
Qbt 2, 3, 4 BV[a]				**7340**	**0.5**	**2.79**	**46**	**1.21**	**1.63**	**7.14**	**na**	**4.66**	**14500**	**11.2**	**482**	**0.1**	**6.58**	**na**	**na**	**0.3**	**1**	**2.4**	**17**	**63.5**
Sediment BV[a]				**15400**	**0.83**	**3.98**	**127**	**1.31**	**0.4**	**10.5**	**na**	**11.2**	**13800**	**19.7**	**543**	**0.1**	**9.38**	**na**	**na**	**0.3**	**1**	**2.22**	**19.7**	**60.2**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**1.83**	**0.4**	**19.3**	**na**	**14.7**	**21500**	**22.3**	**671**	**0.1**	**15.4**	**na**	**na**	**1.52**	**1**	**1.82**	**39.6**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**2260**	**1120**	**2920**[d]	**2920**	**45400**	**795000**	**800**	**145000**	**310**[e]	**22700**	**1820000**	**795**	**5680**	**5680**	**3410**	**5680**	**341000**
Recreational SSL[f]				**791000**	**317**	**27.7**	**158000**	**1580**	**784**	**1910**[d]	**1910**	**31700**	**554000**	**560**	**110000**	**238**	**15800**	**1260000**	**555**	**3960**	**3960**	**2380**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**156**	**77.9**	**219**[d]	**219**	**3130**	**54800**	**400**	**10700**	**23**[e]	**1560**	**125000**	**54.8**	**391**	**391**	**235**	**391**	**23500**
RE02-10-21920	02-612391	25–26	QBO	—	1.21 (U)	1.17 (U)	—	—	0.606 (U)	—	NA	—	4820	—	—	—	—	NA	NA	1.17 (U)	—	NA	—	—
RE02-10-21921	02-612391	35–37	QBO	—	1.13 (U)	1.16 (U)	—	—	0.567 (U)	4.21	NA	—	5140	—	—	—	—	NA	NA	1.16 (U)	—	NA	—	—
RE02-10-21922	02-612391	49–50	QBO	—	1.2 (U)	1.17 (U)	—	—	0.598 (U)	—	NA	—	5030	—	—	—	—	NA	NA	1.17 (U)	—	NA	—	—
RE02-10-21923	02-612392	5–6	QAL	—	1.06 (U)	—	—	—	0.53 (U)	—	NA	—	—	—	—	—	—	NA	NA	—	—	NA	—	—
RE02-10-21924	02-612392	19–20	QBO	7420	1.22 (U)	—	—	—	0.608 (U)	—	NA	—	6050	—	215 (J-)	—	—	NA	NA	1.24 (U)	—	NA	—	—
RE02-10-21925	02-612392	25–26	QBO	—	1.33 (U)	1.21 (U)	—	—	0.664 (U)	—	NA	—	5400	—	—	—	—	NA	NA	1.21 (U)	—	NA	—	—
RE02-10-21926	02-612392	35–37	QBO	—	1.2 (U)	1.17 (U)	—	—	0.602 (U)	—	NA	—	5540	—	—	—	—	NA	NA	1.17 (U)	—	NA	—	—
RE02-10-21927	02-612392	49–50	QBO	—	1.23 (U)	1.24 (U)	—	—	0.616 (U)	—	NA	—	6030	—	253 (J-)	—	—	NA	NA	1.24 (U)	—	NA	—	—
RE02-10-21928	02-612393	5–6	QAL	—	1.05 (U)	—	—	—	0.527 (U)	—	NA	—	—	—	—	—	—	NA	NA	—	—	NA	—	—
RE02-10-21929	02-612393	15.5–16.5	QAL	—	1.2 (U)	—	—	—	0.599 (U)	—	NA	—	—	—	—	—	—	NA	NA	—	—	NA	—	—
RE02-10-21930	02-612393	25–26	QBO	4090	1.33 (U)	—	—	—	0.666 (U)	—	NA	—	5750	—	237	—	—	NA	NA	1.32 (U)	—	NA	—	—
RE02-10-21931	02-612393	35–36	QBO	3830	1.26 (U)	1.1 (U)	—	—	0.632 (U)	—	NA	—	5640	—	—	—	—	NA	NA	1.1 (U)	—	NA	—	—
RE02-10-21932	02-612393	49–50	QBO	6770	1.27 (U)	1.23 (U)	—	—	0.636 (U)	—	NA	—	6240	—	226	—	—	NA	NA	1.23 (U)	—	NA	—	—
RE02-10-22027	02-612420	6–7	QAL	—	0.947 (U)	—	—	—	0.474 (U)	—	NA	—	—	—	—	—	—	NA	NA	—	—	NA	—	—
RE02-10-22028	02-612420	15.5–16.5	QAL	—	1.05 (U)	—	—	—	—	—	NA	—	—	—	—	—	—	NA	NA	—	—	NA	—	—
RE02-10-22029	02-612420	26–27	QBO	7420	1.39 (U)	1.32 (U)	—	—	0.693 (U)	—	NA	—	4010	—	—	—	—	NA	NA	1.32 (U)	—	NA	—	—
RE02-10-22030	02-612420	35–37	QBO	8230	1.28 (U)	1.29 (U)	—	—	0.642 (U)	3.18	NA	—	5530	—	223 (J+)	—	—	NA	NA	1.29 (U)	—	NA	—	—
RE02-10-22031	02-612420	49–50	QBO	6810	1.29 (U)	1.28 (U)	—	—	0.647 (U)	—	NA	—	5320	—	—	—	—	NA	NA	1.28 (U)	—	NA	—	—

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

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

[b] na = Not available.

[c] SSLs are from NMED (2009, 108070), unless otherwise noted.

[d] SSLs are for hexavalent chromium.

[e] SSLs are from EPA regional screening tables (http://www.epa.gov.earth1r6/6pd/rcra_c/pd-n/screen.htm).

[f] SSLs are from LANL (2010, 108613).

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

[h] NA = Not analyzed.

Table 6.20-15
Organic Chemicals Detected at SWMU 02-009(c)

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Acetone	Anthracene	Aroclor-1248	Aroclor-1254	Aroclor-1260	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]				**36700**	**851000**	**183000**	**8.26**	**8.26**	**8.26**	**23.4**	**2.34**	**23.4**	**18300**[b]	**234**	**1370**	**31.9**	**2340**
Recreational SSL[c]				**20800**	**702000**	**104000**	**10.5**	**6.65**	**10.5**	**30.1**	**3.01**	**30.1**	**10400**[b]	**301**	**1830**	**224**	**3010**
Residential SSL[a]				**3440**	**67500**	**17200**	**2.22**	**1.12**	**2.22**	**6.21**	**0.621**	**6.21**	**1720**[b]	**62.1**	**347**	**5.72**	**621**
0402-95-0038	02-01146	7.5–8.5	SOIL	—[d]	NA[e]	—	NA	NA	NA	—	—	—	—	—	0.037 (J)	NA	—
0402-95-0044	02-01147	7.5–8.5	FILL	—	NA	—	NA	NA	NA	—	—	—	—	—	0.05 (J)	NA	—
0402-95-0045	02-01147	12.5–14	SOIL	—	NA	—	NA	NA	NA	—	—	—	—	—	0.095 (J)	NA	—
CA02-00-0021	02-01225	5–7	FILL	—	NA	—	NA	NA	NA	—	—	—	—	—	0.2 (J)	NA	—
CA02-00-0035	02-01228	0–2.5	SOIL	—	NA	—	NA	NA	NA	—	—	0.061 (J)	—	—	—	NA	0.085 (J)
CA02-00-0037	02-01228	5.5–7.5	FILL	—	NA	—	NA	NA	NA	—	—	—	—	—	0.18 (J)	NA	—
CA02-00-0043	02-01229	5–7.5	FILL	—	NA	—	NA	NA	NA	—	—	—	—	—	0.02 (J-)	NA	—
CA02-00-0044	02-01229	7.5–8.3	SOIL	—	NA	—	NA	NA	NA	—	—	—	—	—	0.026 (J)	NA	—
CA02-00-0050	02-01230	8–10	SOIL	—	NA	—	NA	NA	NA	—	—	—	—	—	—	NA	—
CA02-00-0051	02-01230	10–11.5	SOIL	—	NA	—	NA	NA	NA	—	—	—	—	—	0.026 (J-)	NA	—
CA02-00-0052	02-01230	12.5–14	SOIL	—	NA	—	NA	NA	NA	—	—	—	—	—	0.051 (J)	NA	—
CA02-00-0056	02-01231	5–6.5	FILL	—	NA	—	NA	NA	NA	—	—	—	—	—	0.02 (J)	NA	—
CA02-00-0057	02-01231	7.5–10	SOIL	—	NA	—	NA	NA	NA	—	—	—	—	—	0.02 (J)	NA	—
CA02-00-0059	02-01231	12.5–13	SOIL	—	NA	—	NA	NA	NA	—	—	—	—	—	0.021 (J)	NA	—
CA02-00-0060	02-01231	13–15	QBT2	—	NA	—	NA	NA	NA	—	—	—	—	—	0.019 (J)	NA	—
CA02-00-0064	02-01232	7.5–10	SOIL	—	NA	—	NA	NA	NA	—	—	—	—	—	—	NA	—
CA02-00-0074	02-01233	15–17.5	QBT2	—	NA	—	NA	NA	NA	—	—	—	—	—	—	NA	—
CA02-00-0080	02-01234	5–7	FILL	—	NA	—	NA	NA	NA	—	—	—	—	—	—	NA	—
RE02-07-2700	02-600598	0–0.5	SOIL	0.0236 (J)	NA	0.0285 (J)	NA	NA	NA	0.108	0.147	0.173	0.0838	—	—	NA	0.15
RE02-07-2705	02-600599	0–0.5	SOIL	0.0489	NA	0.0526	NA	NA	NA	0.178	0.226	0.379	0.109	—	—	NA	0.217
RE02-07-2706	02-600599	4.5–7.3	QAL	—	—	—	NA	NA	NA	0.0136 (J)	0.0118 (J)	0.0195 (J)	—	—	—	—	0.0132 (J)
RE02-07-2710	02-600600	0–0.5	SOIL	0.106	NA	0.177	NA	NA	NA	0.277	0.222	0.257	0.089	0.15	—	NA	0.262
RE02-07-2711	02-600600	4.5–6.5	QAL	—	—	—	NA	NA	NA	—	—	—	—	—	—	0.000223 (J)	—
RE02-07-2713	02-600600	14.5–17	QBO	—	—	—	NA	NA	NA	—	—	—	—	—	—	0.000305 (J)	—
RE02-07-2715	02-600601	0–0.5	SOIL	0.0229 (J)	NA	0.0286 (J)	NA	NA	NA	0.0923	0.12	0.136	0.0713	0.0664	—	NA	0.109
RE02-07-2716	02-600601	4.5–6.7	QAL	—	—	—	NA	NA	NA	—	—	—	—	—	—	—	0.0175 (J)
RE02-07-2720	02-600602	0–0.5	SOIL	—	NA	—	NA	NA	NA	0.0239 (J)	0.0205 (J)	0.0459 (J)	—	—	—	NA	0.0232 (J)

Table 6.20-15 (continued)

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Acetone	Anthracene	Aroclor-1248	Aroclor-1254	Aroclor-1260	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]				**36700**	**851000**	**183000**	**8.26**	**8.26**	**8.26**	**23.4**	**2.34**	**23.4**	**18300[b]**	**234**	**1370**	**31.9**	**2340**
Recreational SSL[c]				**20800**	**702000**	**104000**	**10.5**	**6.65**	**10.5**	**30.1**	**3.01**	**30.1**	**10400[b]**	**301**	**1830**	**224**	**3010**
Residential SSL[a]				**3440**	**67500**	**17200**	**2.22**	**1.12**	**2.22**	**6.21**	**0.621**	**6.21**	**1720[b]**	**62.1**	**347**	**5.72**	**621**
RE02-07-2725	02-600603	0–0.5	SED	0.0161 (J)	NA	0.0334 (J)	NA	NA	NA	0.119	0.143 (J)	0.197 (J)	0.0777 (J)	0.0855 (J)	—	NA	0.132
RE02-07-2948	02-600643	0–0.5	SOIL	—	NA	—	—	0.0048	0.0025 (J)	—	—	—	—	—	—	NA	—
RE02-07-2949	02-600643	4.5–5.5	QAL	—	—	—	—	0.0115	0.0072	—	—	—	—	—	—	—	—
RE02-07-2950	02-600643	9.5–12.4	QAL	—	—	—	—	0.003 (J)	0.0016 (J)	—	—	—	—	—	—	—	—
RE02-07-2953	02-600644	0–0.5	SOIL	—	NA	—	—	0.0127 (J)	0.0064 (J)	—	0.0195 (J-)	0.0168 (J-)	—	—	—	NA	—
RE02-07-2954	02-600644	4.5–5.2	QAL	—	—	—	—	0.0039	0.0019 (J)	—	—	—	—	—	—	—	—
RE02-07-2955	02-600644	9.5–11.7	QAL	—	—	—	—	—	—	—	—	—	—	—	—	0.000231 (J)	—
RE02-07-2958	02-600645	0–0.5	SOIL	—	NA	—	—	0.0026 (J)	0.0017 (J)	—	—	—	—	—	—	NA	—
RE02-07-2963	02-600646	0–0.5	SOIL	—	NA	—	—	—	—	—	—	—	—	—	—	NA	—
RE02-07-2964	02-600646	4.5–8.3	QAL	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2965	02-600646	9.5–11.7	QAL	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2968	02-600647	0–0.5	SOIL	—	NA	—	0.0045 (J-)	0.0055 (J-)	0.0057 (J-)	—	—	—	—	—	—	NA	—
RE02-07-2976	02-600648	13.5–14.5	QBO	—	—	—	—	—	0.0017 (J)	—	—	—	—	—	—	—	—
RE02-07-2978	02-600649	0–0.5	SOIL	—	NA	—	—	—	0.0075 (J-)	—	0.0145 (J)	0.0111 (J)	—	—	—	NA	—
RE02-07-2983	02-600650	0–0.5	SOIL	—	NA	—	—	—	0.0052 (J-)	—	—	—	—	—	—	NA	—
RE02-07-2984	02-600650	4.5–6.3	QAL	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2988	02-600651	0–0.5	SOIL	—	NA	—	—	0.0094	0.0045	—	—	—	—	—	—	NA	—
RE02-07-2989	02-600651	4.5–5	QAL	—	—	—	—	0.0032 (J)	0.0019 (J)	—	—	—	—	—	—	—	—
RE02-07-2990	02-600651	9.5–12.7	QAL	0.0297 (J)	—	0.0425	—	0.0263	0.0206	0.106	0.171	0.151	0.0799 (J)	—	—	—	0.0837
RE02-07-2992	02-600651	14.5–16.9	QBO	—	—	—	—	0.0163	0.0096	—	—	—	—	—	—	—	—
RE02-07-2991	02-600651	19.5–21.6	QBO	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2993	02-600652	0–0.5	SOIL	—	NA	—	—	0.0022 (J)	0.0016 (J)	—	—	—	—	—	—	NA	—
RE02-07-2995	02-600652	9.5–11.7	QAL	—	—	—	—	—	0.0049	—	—	—	—	—	—	—	—
RE02-07-2997	02-600652	14.5–16.6	QAL	—	—	—	0.352	0.149	0.0196	—	—	—	—	—	—	—	—
RE02-07-3200	02-600698	0–0.5	SOIL	—	NA	—	—	—	0.0025 (J)	—	—	—	—	—	—	NA	—
RE02-07-3201	02-600698	4.5–7.3	QAL	—	—	—	—	0.0137	0.02	—	—	—	—	—	—	—	—
RE02-07-3202	02-600698	9.5–12.2	QAL	—	—	—	—	—	0.003 (J)	—	—	—	—	—	—	—	—
RE02-07-3205	02-600699	0–0.5	SOIL	—	NA	—	—	0.0144	0.0121 (J)	—	—	—	—	—	—	NA	—
RE02-07-3208	02-600699	14.5–19.5	QBO	—	—	—	—	0.0023 (J)	0.0036 (J)	—	—	—	—	—	—	—	—
RE02-07-3210	02-600700	0–0.5	SOIL	—	NA	—	—	0.0078	0.0085	0.0283 (J)	—	0.0533 (J)	—	—	—	NA	0.0325 (J)
RE02-07-3211	02-600700	4.5–6.7	QAL	—	—	—	—	0.0477	0.0457	0.0145 (J)	—	0.0135 (J)	—	—	—	—	—

Table 6.20-15 (continued)

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Acetone	Anthracene	Aroclor-1248	Aroclor-1254	Aroclor-1260	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]				**36700**	**851000**	**183000**	**8.26**	**8.26**	**8.26**	**23.4**	**2.34**	**23.4**	**18300[b]**	**234**	**1370**	**31.9**	**2340**
Recreational SSL[c]				**20800**	**702000**	**104000**	**10.5**	**6.65**	**10.5**	**30.1**	**3.01**	**30.1**	**10400[b]**	**301**	**1830**	**224**	**3010**
Residential SSL[a]				**3440**	**67500**	**17200**	**2.22**	**1.12**	**2.22**	**6.21**	**0.621**	**6.21**	**1720[b]**	**62.1**	**347**	**5.72**	**621**
RE02-07-3212	02-600700	9.5–11.1	QAL	—	—	—	—	0.0025 (J)	0.0014 (J)	—	—	—	—	—	—	—	—
RE02-07-3215	02-600701	0–0.5	SOIL	0.023 (J)	NA	0.0415	—	0.08	0.0991 (J)	0.162	—	0.262 (J)	0.0551 (J)	0.132 (J)	—	NA	0.172
RE02-07-3216	02-600701	4.5–6.2	QAL	—	—	—	—	0.0261	0.0396	0.0186 (J)	0.0122 (J)	0.0134 (J)	—	—	—	—	0.0137 (J)
RE02-07-3217	02-600701	9.5–11.7	QBO	—	—	—	—	—	0.002 (J)	—	—	—	—	—	—	—	—
RE02-07-3220	02-600702	0–0.5	SOIL	—	NA	0.00744 (J)	—	—	—	—	—	—	—	—	—	NA	0.0392
RE02-07-3221	02-600702	4.5–6.7	QAL	—	—	—	—	0.0063	0.0137	—	—	—	—	—	—	—	—
RE02-07-3225	02-600703	0–0.5	SED	0.0182 (J)	NA	0.0473	—	0.0578	0.1	0.163	0.168 (J)	0.318 (J)	—	—	—	NA	0.156
RE02-07-3230	02-600704	0–0.5	SED	—	NA	0.00832 (J)	—	0.126	0.146	0.0458	—	0.0851 (J)	—	—	—	NA	0.0452
RE02-07-3233	02-600704	14.5–16.7	QBO	—	—	—	—	0.0448	0.0371	0.0159 (J)	0.0136 (J)	0.0189 (J)	—	—	—	—	—
RE02-07-3235	02-600705	0–0.5	SED	—	NA	0.0173 (J)	—	0.0948	0.0959	0.0647	—	—	—	—	—	NA	0.0691
RE02-07-3236	02-600705	4.5–6.3	QAL	—	0.133 (J)	—	—	0.0089	0.0059	—	—	—	—	—	—	—	—
RE02-07-3237	02-600705	9.5–11.7	QBO	—	—	—	—	0.0125	0.0067	—	—	—	—	—	—	—	—
RE02-07-3240	02-600706	0–0.5	SED	—	NA	—	—	0.0136	0.0154	—	—	—	—	—	—	NA	0.0116 (J)
RE02-10-21918	02-612391	5–6	SOIL	—	NA	—	—	0.0128	0.0072	—	—	—	—	—	—	NA	—
RE02-10-22028	02-612420	15.5–16.5	QAL	—	NA	—	—	—	0.0046	—	—	—	—	—	—	NA	—
RE02-10-22030	02-612420	35–37	QBO	—	NA	—	—	0.003 (J)	—	—	—	—	—	—	—	NA	—

Table 6.20-15 (continued)

Sample ID	Location ID	Depth (ft)	Media	Dibenzofuran	Di-n-butylphthalate	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Isopropyltoluene[4-]	Methylene Chloride	Methylnaphthalene[2-]	Naphthalene	Phenanthrene	Phenol	Pyrene	Styrene	Toluene
Industrial SSL[a]				**1000[f]**	**68400**	**24400**	**24400**	**23.4**	**14900[g]**	**1090**	**4100[f]**	**252**	**20500**	**205000**	**18300**	**51200**	**57900**
Recreational SSL[c]				**399**	**39900**	**13900**	**13900**	**30.1**	**52700[g]**	**4520**	**3170**	**1950**	**12000**	**120000**	**10400**	**126000**	**60800**
Residential SSL[a]				**78[f]**	**6110**	**2290**	**2290**	**6.21**	**3210[g]**	**199**	**310[f]**	**45**	**1830**	**18300**	**1720**	**8970**	**5570**
0402-95-0038	02-01146	7.5–8.5	SOIL	—	—	—	—	—	NA	NA	—	—	—	—	—	NA	NA
0402-95-0044	02-01147	7.5–8.5	FILL	—	—	—	—	—	NA	NA	—	—	—	—	—	NA	NA
0402-95-0045	02-01147	12.5–14	SOIL	—	—	—	—	—	NA	NA	—	—	—	—	—	NA	NA
CA02-00-0021	02-01225	5–7	FILL	—	—	—	—	—	NA	NA	—	—	—	—	—	NA	NA
CA02-00-0035	02-01228	0–2.5	SOIL	0.061 (J)	—	0.058 (J)	—	—	NA	NA	0.29 (J)	0.2 (J)	0.16 (J)	—	0.097 (J)	NA	NA
CA02-00-0037	02-01228	5.5–7.5	FILL	—	—	—	—	—	NA	NA	—	—	—	—	—	NA	NA
CA02-00-0043	02-01229	5–7.5	FILL	—	—	—	—	—	NA	NA	—	—	—	—	—	NA	NA
CA02-00-0044	02-01229	7.5–8.3	SOIL	—	—	—	—	—	NA	NA	—	—	—	—	—	NA	NA
CA02-00-0050	02-01230	8–10	SOIL	—	—	—	—	—	NA	NA	—	—	—	0.04 (J)	—	NA	NA
CA02-00-0051	02-01230	10–11.5	SOIL	—	—	—	—	—	NA	NA	—	—	—	—	—	NA	NA
CA02-00-0052	02-01230	12.5–14	SOIL	—	—	—	—	—	NA	NA	—	—	—	0.14 (J)	—	NA	NA
CA02-00-0056	02-01231	5–6.5	FILL	—	—	0.023 (J)	—	—	NA	NA	—	0.022 (J)	0.036 (J)	—	0.032 (J)	NA	NA
CA02-00-0057	02-01231	7.5–10	SOIL	—	—	—	—	—	NA	NA	—	—	—	—	—	NA	NA
CA02-00-0059	02-01231	12.5–13	SOIL	—	—	—	—	—	NA	NA	—	—	—	—	—	NA	NA
CA02-00-0060	02-01231	13–15	QBT2	—	—	—	—	—	NA	NA	—	—	—	—	—	NA	NA
CA02-00-0064	02-01232	7.5–10	SOIL	—	0.038 (J)	—	—	—	NA	NA	—	—	—	—	—	NA	NA
CA02-00-0074	02-01233	15–17.5	QBT2	—	0.03 (J)	—	—	—	NA	NA	—	—	—	—	—	NA	NA
CA02-00-0080	02-01234	5–7	FILL	—	0.068 (J)	—	—	—	NA	NA	—	—	—	—	—	NA	NA
RE02-07-2700	02-600598	0–0.5	SOIL	—	—	0.211	0.0213 (J)	0.0819	NA	NA	—	—	0.185	—	0.222	NA	NA
RE02-07-2705	02-600599	0–0.5	SOIL	—	—	0.31	0.041	0.109	NA	NA	0.0162 (J)	0.0254 (J)	0.313	—	0.386	NA	NA
RE02-07-2706	02-600599	4.5–7.3	QAL	—	—	0.0185 (J)	—	—	—	—	—	—	0.0159 (J)	—	0.0177 (J)	—	—
RE02-07-2710	02-600600	0–0.5	SOIL	—	—	0.668	0.0924	0.0942	NA	NA	0.0359	0.0701	0.589	—	0.592	NA	NA
RE02-07-2711	02-600600	4.5–6.5	QAL	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2713	02-600600	14.5–17	QBO	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2715	02-600601	0–0.5	SOIL	—	—	0.171	0.0175 (J)	0.0686	NA	NA	—	—	0.13	—	0.169	NA	NA
RE02-07-2716	02-600601	4.5–6.7	QAL	—	—	0.0337 (J)	—	—	—	—	—	—	0.0271 (J)	—	0.0387	—	0.000511 (J+)
RE02-07-2720	02-600602	0–0.5	SOIL	—	—	0.0376	—	—	NA	NA	—	—	0.0191 (J)	—	0.0386	NA	NA
RE02-07-2725	02-600603	0–0.5	SED	—	—	0.257	0.0152 (J)	0.0728 (J)	NA	NA	—	—	0.157	—	0.28	NA	NA
RE02-07-2948	02-600643	0–0.5	SOIL	—	—	—	—	—	NA	NA	—	—	—	—	—	NA	NA
RE02-07-2949	02-600643	4.5–5.5	QAL	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2950	02-600643	9.5–12.4	QAL	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Table 6.20-15 (continued)

Sample ID	Location ID	Depth (ft)	Media	Dibenzofuran	Di-n-butylphthalate	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Isopropyltoluene[4-]	Methylene Chloride	Methylnaphthalene[2-]	Naphthalene	Phenanthrene	Phenol	Pyrene	Styrene	Toluene
Industrial SSL[a]				**1000[f]**	**68400**	**24400**	**24400**	**23.4**	**14900[g]**	**1090**	**4100[f]**	**252**	**20500**	**205000**	**18300**	**51200**	**57900**
Recreational SSL[c]				**399**	**39900**	**13900**	**13900**	**30.1**	**52700[g]**	**4520**	**3170**	**1950**	**12000**	**120000**	**10400**	**126000**	**60800**
Residential SSL[a]				**78[f]**	**6110**	**2290**	**2290**	**6.21**	**3210[g]**	**199**	**310[f]**	**45**	**1830**	**18300**	**1720**	**8970**	**5570**
RE02-07-2953	02-600644	0–0.5	SOIL	—	—	0.0153 (J-)	—	—	NA	NA	—	—	—	—	0.0114 (J-)	NA	NA
RE02-07-2954	02-600644	4.5–5.2	QAL	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2955	02-600644	9.5–11.7	QAL	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2958	02-600645	0–0.5	SOIL	—	—	—	—	—	NA	NA	—	—	—	—	—	NA	NA
RE02-07-2963	02-600646	0–0.5	SOIL	—	—	0.0112 (J)	—	—	NA	NA	—	—	—	—	0.0129 (J)	NA	NA
RE02-07-2964	02-600646	4.5–8.3	QAL	—	0.0364 (J)	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2965	02-600646	9.5–11.7	QAL	—	—	—	—	—	—	—	—	—	—	—	—	0.000239 (J)	—
RE02-07-2968	02-600647	0–0.5	SOIL	—	—	—	—	—	NA	NA	0.0323 (J)	0.0143 (J)	0.0169 (J)	—	—	NA	NA
RE02-07-2976	02-600648	13.5–14.5	QBO	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2978	02-600649	0–0.5	SOIL	—	—	—	—	—	NA	NA	0.0224 (J)	0.011 (J)	0.0141 (J)	—	—	NA	NA
RE02-07-2983	02-600650	0–0.5	SOIL	—	—	0.0109 (J)	—	—	NA	NA	0.0108 (J)	—	—	—	—	NA	NA
RE02-07-2984	02-600650	4.5–6.3	QAL	—	—	—	—	—	—	—	—	—	—	—	—	—	0.000552 (J)
RE02-07-2988	02-600651	0–0.5	SOIL	—	—	—	—	—	NA	NA	—	—	—	—	—	NA	NA
RE02-07-2989	02-600651	4.5–5	QAL	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2990	02-600651	9.5–12.7	QAL	—	—	0.183	0.0248 (J)	0.0934	—	—	0.0217 (J)	0.0763	0.15	—	0.142	—	—
RE02-07-2992	02-600651	14.5–16.9	QBO	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2991	02-600651	19.5–21.6	QBO	—	—	—	—	—	—	0.0031 (J)	—	—	—	—	—	—	—
RE02-07-2993	02-600652	0–0.5	SOIL	—	—	—	—	—	NA	NA	—	—	—	—	—	NA	NA
RE02-07-2995	02-600652	9.5–11.7	QAL	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2997	02-600652	14.5–16.6	QAL	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-3200	02-600698	0–0.5	SOIL	—	—	—	—	—	NA	NA	0.00922 (J)	—	—	—	—	NA	NA
RE02-07-3201	02-600698	4.5–7.3	QAL	—	—	0.0111 (J)	—	—	—	—	—	—	—	—	—	—	—
RE02-07-3202	02-600698	9.5–12.2	QAL	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-3205	02-600699	0–0.5	SOIL	—	—	—	—	—	NA	NA	—	—	—	—	—	NA	NA
RE02-07-3208	02-600699	14.5–19.5	QBO	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-3210	02-600700	0–0.5	SOIL	—	—	0.0531	—	—	NA	NA	0.0308 (J)	0.0209 (J)	0.0395	—	0.0522	NA	NA
RE02-07-3211	02-600700	4.5–6.7	QAL	—	—	0.0152 (J)	—	—	—	—	0.0116 (J)	—	0.0137 (J)	—	0.0138 (J)	—	0.000418 (J)
RE02-07-3212	02-600700	9.5–11.1	QAL	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-3215	02-600701	0–0.5	SOIL	—	—	0.377	0.0231 (J)	—	NA	NA	0.0121 (J)	0.0174 (J)	0.22	—	0.324	NA	NA
RE02-07-3216	02-600701	4.5–6.2	QAL	—	—	0.0262 (J)	—	—	—	—	—	—	0.0143 (J)	—	0.0197 (J)	—	—
RE02-07-3217	02-600701	9.5–11.7	QBO	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-3220	02-600702	0–0.5	SOIL	—	—	0.0822	—	—	NA	NA	0.0256 (J)	0.0173 (J)	0.0402	—	0.0799	NA	NA

Table 6.20-15 (continued)

Sample ID	Location ID	Depth (ft)	Media	Dibenzofuran	Di-n-butylphthalate	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Isopropyltoluene[4-]	Methylene Chloride	Methylnaphthalene[2-]	Naphthalene	Phenanthrene	Phenol	Pyrene	Styrene	Toluene
Industrial SSL[a]				**1000[f]**	**68400**	**24400**	**24400**	**23.4**	**14900[g]**	**1090**	**4100[f]**	**252**	**20500**	**205000**	**18300**	**51200**	**57900**
Recreational SSL[c]				**399**	**39900**	**13900**	**13900**	**30.1**	**52700[g]**	**4520**	**3170**	**1950**	**12000**	**120000**	**10400**	**126000**	**60800**
Residential SSL[a]				**78[f]**	**6110**	**2290**	**2290**	**6.21**	**3210[g]**	**199**	**310[f]**	**45**	**1830**	**18300**	**1720**	**8970**	**5570**
RE02-07-3221	02-600702	4.5–6.7	QAL	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-3225	02-600703	0–0.5	SED	—	—	0.348	0.0175 (J)	—	NA	NA	—	—	0.219	—	0.355	NA	NA
RE02-07-3230	02-600704	0–0.5	SED	—	—	0.0852	—	—	NA	NA	—	—	0.0451	—	0.0816	NA	NA
RE02-07-3233	02-600704	14.5–16.7	QBO	—	—	0.0233 (J)	—	—	—	—	—	—	0.0208 (J)	—	0.0196 (J)	—	—
RE02-07-3235	02-600705	0–0.5	SED	—	—	0.133	—	—	NA	NA	—	—	0.0778	—	0.148	NA	NA
RE02-07-3236	02-600705	4.5–6.3	QAL	—	—	—	—	—	0.0505	—	—	—	—	—	—	—	0.00456
RE02-07-3237	02-600705	9.5–11.7	QBO	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-3240	02-600706	0–0.5	SED	—	—	0.0226 (J)	—	—	NA	NA	—	—	0.0105 (J)	—	0.0246 (J)	NA	NA
RE02-10-21918	02-612391	5–6	SOIL	—	—	—	—	—	NA	NA	—	—	—	—	—	NA	NA
RE02-10-22028	02-612420	15.5–16.5	QAL	—	—	—	—	—	NA	NA	—	—	—	—	—	NA	NA
RE02-10-22030	02-612420	35–37	QBO	—	—	—	—	—	NA	NA	—	—	—	—	—	NA	NA

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

[a] SSLs are from NMED (2009, 108070), unless otherwise noted.

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

[c] SSLs are from LANL (2010, 108613).

[d] — = Not detected.

[e] NA = Not analyzed.

[f] SSLs are from EPA regional screening tables (http://www.epa.gov.earth1r6/6pd/rcra_c/pd-n/screen.htm).

[g] Isopropylbenzene used as surrogate based on structural similarity.

Table 6.20-16
Radionuclides Detected or Detected above BVs/FVs at SWMU 02-009(c)

Sample ID	Location ID	Depth (ft)	Media	Cesium-137	Plutonium-239/240	Strontium-90	Tritium	Uranium-234	Uranium-235/236	Uranium-238
Qbt 1g, Qct, Qbo BV[a]				**na[b]**	**na**	**na**	**na**	**4**	**0.18**	**3.9**
Qbt 2, 3, 4 BV[a]				**na**	**na**	**na**	**na**	**1.98**	**0.09**	**1.93**
Sediment BV[a]				**0.9**	**0.068**	**1.04**	**0.093**	**2.59**	**0.2**	**2.29**
Soil BV[a]				**1.65**	**0.054**	**1.31**	**na**	**2.59**	**0.2**	**2.29**
Industrial SAL[c]				**23**	**210**	**1900**	**440000**	**1500**	**87**	**430**
Recreational SAL[c]				**210**	**300**	**5600**	**5300000**	**3200**	**520**	**2100**
Residential SAL[c]				**5.6**	**33**	**5.7**	**750**	**170**	**17**	**87**
0402-95-0005	02-01140	8.5–9.5	QBT2	0.95	0.024	—[d]	0.237819	—	—	—
0402-95-0006	02-01140	12.5–13.5	QBT2	0.24	0.011	—	0.122899	—	—	—
0402-95-0011	02-01141	7.5–8.5	QBT2	NA[e]	—	—	0.425847	—	—	—
0402-95-0015	02-01142	4–5	QBT2	30.82	0.117	1.56	0.229631	—	—	—
0402-95-0016	02-01142	9–10	QBT2	NA	—	—	0.314579	—	—	—
0402-95-0017	02-01142	16.5–17.5	QBT2	0.53	—	0.47	0.872936	2.15	—	—
0402-95-0021	02-01143	3–5	QBT2	2.49	0.06	0.42	0.0711778	—	—	—
0402-95-0022	02-01143	9–10	QBT2	5.13	0.012	0.34	0.0617607	—	—	—
0402-95-0023	02-01143	14–15	QBT2	3.22	—	—	0.113008	—	—	—
0402-95-0038	02-01146	7.5–8.5	SOIL	3.44	0.022	1.36	0.406635	—	—	—
0402-95-0039	02-01146	11.5–12.5	SOIL	1.37	—	1.35	0.107786	—	—	—
0402-95-0044	02-01147	7.5–8.5	FILL	0.51	0.073	2.35	0.383667	—	—	—
0402-95-0045	02-01147	12.5–14	SOIL	0.92	0.098	7.39	0.24503	—	—	—
0402-95-0049	02-01148	8–9	QBT2	5.39	0.012	1	0.140325	—	—	—
0402-95-0050	02-01148	12.5–13.5	QBT2	2.79	0.17	2.57	—	—	—	—
CA02-00-0021	02-01225	5–7	FILL	0.143	0.0571	—	0.0475939	—	—	—
CA02-00-0022	02-01225	8–9	SOIL	0.162	—	—	0.0546123	—	—	—
CA02-00-0023	02-01225	10–11.5	SOIL	0.0687	—	3.78	0.050789	—	—	—
CA02-00-0024	02-01225	12.5–15	QBT2	—	—	—	0.0416412	2.57	0.111	2.69
CA02-00-0027	02-01226	10–12	QBT2	—	—	1.67	—	2.2	—	2.21
CA02-00-0028	02-01226	12.5–14	QBT2	—	—	—	—	2.62	0.111 (J-)	2.71
CA02-00-0031	02-01227	5–7.5	FILL	0.266	0.0582	0.525	—	—	—	—
CA02-00-0032	02-01227	7.5–9	SOIL	0.36	—	0.716	—	—	—	—
CA02-00-0033	02-01227	10–12	SOIL	0.399	0.0283	1.12	—	—	—	—
CA02-00-0034	02-01227	12.5–14	SOIL	—	—	0.574	0.0403466	—	—	2.3

Table 6.20-16 (continued)

Sample ID	Location ID	Depth (ft)	Media	Cesium-137	Plutonium-239/240	Strontium-90	Tritium	Uranium-234	Uranium-235/236	Uranium-238
Qbt 1g, Qct, Qbo BV[a]				**na[b]**	**na**	**na**	**na**	**4**	**0.18**	**3.9**
Qbt 2, 3, 4 BV[a]				**na**	**na**	**na**	**na**	**1.98**	**0.09**	**1.93**
Sediment BV[a]				**0.9**	**0.068**	**1.04**	**0.093**	**2.59**	**0.2**	**2.29**
Soil BV[a]				**1.65**	**0.054**	**1.31**	**na**	**2.59**	**0.2**	**2.29**
Industrial SAL[c]				**23**	**210**	**1900**	**440000**	**1500**	**87**	**430**
Recreational SAL[c]				**210**	**300**	**5600**	**5300000**	**3200**	**520**	**2100**
Residential SAL[c]				**5.6**	**33**	**5.7**	**750**	**170**	**17**	**87**
CA02-00-0216	02-01228	0–0.5	SED	7.61	0.391	—	—	—	—	—
CA02-00-0035	02-01228	0–2.5	SOIL	15.2	0.934	1.5	0.0465446	—	—	—
CA02-00-0036	02-01228	2.5–4.5	SOIL	0.815	0.992	1.22	—	—	—	—
CA02-00-0037	02-01228	5.5–7.5	FILL	1.45	0.382	2.15	—	—	—	—
CA02-00-0038	02-01228	7.5–10	SOIL	1.31	—	1.07	—	—	—	—
CA02-00-0039	02-01228	10–12.3	SOIL	1.01	0.0482	1.53	—	—	—	—
CA02-00-0040	02-01228	12.5–14.5	QBT2	—	—	1.83	0.0551244	2.33	0.098	2.32
CA02-00-0043	02-01229	5–7.5	FILL	20.7	0.189	0.471 (J-)	—	—	—	—
CA02-00-0044	02-01229	7.5–8.3	SOIL	15.6	0.347	1.38 (J-)	—	4.37	—	3.92
CA02-00-0045	02-01229	10.5–12	SOIL	7.66	0.243	4.03 (J-)	0.0325556	4.33	—	3.87
CA02-00-0046	02-01229	12.5–15	QBT2	—	—	—	0.043619	2.58	0.106 (J-)	2.56
CA02-00-0049	02-01230	5–7	FILL	0.314	—	—	0.0781364	—	—	—
CA02-00-0050	02-01230	8–10	SOIL	64.9	0.0265	2.82 (J-)	0.0183191	—	—	—
CA02-00-0051	02-01230	10–11.5	SOIL	7.64	0.06	1.05 (J-)	0.0488182	—	—	—
CA02-00-0052	02-01230	12.5–14	SOIL	10.5	0.0503	1.39 (J-)	0.0472184	—	—	—
CA02-00-0053	02-01230	15–17.5	QBT2	0.149	—	1.86 (J-)	0.0643291	2.43	—	2.68
CA02-00-0056	02-01231	5–6.5	FILL	77.7	0.078	11.8 (J-)	0.177778	—	—	—
CA02-00-0057	02-01231	7.5–10	SOIL	2.18	0.0465	0.353 (J-)	0.0809551	—	—	—
CA02-00-0058	02-01231	10–12	SOIL	0.853	0.0515	0.434 (J-)	—	—	—	—
CA02-00-0059	02-01231	12.5–13	SOIL	0.291	0.0421	—	—	—	—	—
CA02-00-0060	02-01231	13–15	QBT2	2.22	0.0222	0.546 (J-)	0.0557356	—	—	—
CA02-00-0063	02-01232	5–7	FILL	0.208	0.0323	—	0.0812174	—	—	—
CA02-00-0064	02-01232	7.5–10	SOIL	0.501	0.025	—	0.0411702	—	—	—
CA02-00-0065	02-01232	10–11	SOIL	1.66	0.0845	—	0.0481648	—	—	—
CA02-00-0066	02-01232	12.5–15	QBT2	0.433	0.0323	—	0.0570805	—	—	—
CA02-00-0077	02-01233	5–7.5	FILL	1.03	0.0838	—	0.0544194	—	—	—
CA02-00-0070	02-01233	7.5–10	SOIL	1.36	0.0952	—	—	—	—	—
CA02-00-0071	02-01233	11–12.5	SOIL	0.609	0.0423	—	0.0901364	—	—	—
CA02-00-0072	02-01233	12.5–13.5	SOIL	0.408	—	—	0.0312366	—	—	—

Table 6.20-16 (continued)

Sample ID	Location ID	Depth (ft)	Media	Cesium-137	Plutonium-239/240	Strontium-90	Tritium	Uranium-234	Uranium-235/236	Uranium-238
Qbt 1g, Qct, Qbo BV[a]				**na[b]**	**na**	**na**	**na**	**4**	**0.18**	**3.9**
Qbt 2, 3, 4 BV[a]				**na**	**na**	**na**	**na**	**1.98**	**0.09**	**1.93**
Sediment BV[a]				**0.9**	**0.068**	**1.04**	**0.093**	**2.59**	**0.2**	**2.29**
Soil BV[a]				**1.65**	**0.054**	**1.31**	**na**	**2.59**	**0.2**	**2.29**
Industrial SAL[c]				**23**	**210**	**1900**	**440000**	**1500**	**87**	**430**
Recreational SAL[c]				**210**	**300**	**5600**	**5300000**	**3200**	**520**	**2100**
Residential SAL[c]				**5.6**	**33**	**5.7**	**750**	**170**	**17**	**87**
CA02-00-0073	02-01233	14–15	SOIL	0.427	—	—	0.0806849	—	—	—
CA02-00-0074	02-01233	15–17.5	QBT2	0.165	—	—	0.241605	2.19	0.0914 (J-)	2.11
CA02-00-0080	02-01234	5–7	FILL	17	0.333	2.78	0.210659	—	—	—
CA02-00-0081	02-01234	7.5–9.25	SOIL	30.5	0.629	3.27	0.572727	—	—	—
CA02-00-0082	02-01234	10–11.5	SOIL	31.7	0.697	3.15	0.024433	—	—	—
CA02-00-0093	02-01236	5–7.5	SOIL	0.913	0.0554	1.36	0.026961	—	—	—
CA02-00-0094	02-01236	7.5–8	SOIL	0.237	—	0.432	—	—	—	—
CA02-00-0095	02-01236	8.5–10	SOIL	0.76	—	0.952	—	—	—	—
CA02-00-0097	02-01236	11.5–12	SOIL	0.297	—	0.509	—	—	—	—
CA02-00-0098	02-01236	12.5–15	SOIL	0.23	0.0245	—	—	—	—	—
RE02-07-2700	02-600598	0–0.5	SOIL	2.32	0.0849	—	—	—	—	—
RE02-07-2703	02-600598	14.5–16.7	QBO	—	—	—	—	—	0.233	—
RE02-07-2706	02-600599	4.5–7.3	QAL	0.158	0.0346	—	—	—	—	—
RE02-07-2711	02-600600	4.5–6.5	QAL	0.168	—	—	—	—	—	—
RE02-07-2713	02-600600	14.5–17	QBO	—	—	—	—	—	0.184	—
RE02-07-2715	02-600601	0–0.5	SOIL	1.9	0.0566	—	—	—	—	—
RE02-07-2716	02-600601	4.5–6.7	QAL	1.64	0.0621	—	—	—	—	—
RE02-07-2718	02-600601	14.5–16.8	QBO	—	0.0543	—	—	—	—	—
RE02-07-2720	02-600602	0–0.5	SOIL	—	0.0582	—	—	—	—	—
RE02-07-2721	02-600602	4.5–9.5	QAL	0.272	—	—	—	—	—	—
RE02-07-2723	02-600602	14.5–19.5	QBO	—	0.0397	—	—	—	—	—
RE02-07-2725	02-600603	0–0.5	SED	—	0.188	—	—	—	—	—
RE02-07-2730	02-600604	0–0.5	SED	—	0.487	—	—	—	—	—
RE02-07-2948	02-600643	0–0.5	SOIL	—	—	—	0.0110722	—	—	—
RE02-07-2949	02-600643	4.5–5.5	QAL	0.96	—	—	0.0317137	—	—	—
RE02-07-2950	02-600643	9.5–12.4	QAL	—	—	1.21	0.0238539	—	—	—
RE02-07-2954	02-600644	4.5–5.2	QAL	—	—	—	0.0240805	—	—	—
RE02-07-2955	02-600644	9.5–11.7	QAL	0.188	—	0.244	—	—	0.211	—
RE02-07-2956	02-600644	14.5–19.5	QBO	—	—	0.449	—	—	—	—

Table 6.20-16 (continued)

Sample ID	Location ID	Depth (ft)	Media	Cesium-137	Plutonium-239/240	Strontium-90	Tritium	Uranium-234	Uranium-235/236	Uranium-238
Qbt 1g, Qct, Qbo BV[a]				**na[b]**	**na**	**na**	**na**	**4**	**0.18**	**3.9**
Qbt 2, 3, 4 BV[a]				**na**	**na**	**na**	**na**	**1.98**	**0.09**	**1.93**
Sediment BV[a]				**0.9**	**0.068**	**1.04**	**0.093**	**2.59**	**0.2**	**2.29**
Soil BV[a]				**1.65**	**0.054**	**1.31**	**na**	**2.59**	**0.2**	**2.29**
Industrial SAL[c]				**23**	**210**	**1900**	**440000**	**1500**	**87**	**430**
Recreational SAL[c]				**210**	**300**	**5600**	**5300000**	**3200**	**520**	**2100**
Residential SAL[c]				**5.6**	**33**	**5.7**	**750**	**170**	**17**	**87**
RE02-07-2959	02-600645	4.5–5.25	QAL	10.3	—	1.87	0.0373926	—	—	—
RE02-07-2960	02-600645	9.5–12.2	QAL	0.431	—	0.559	0.0375111	—	—	—
RE02-07-2964	02-600646	4.5–8.3	QAL	—	—	—	0.0912322	—	—	—
RE02-07-2965	02-600646	9.5–11.7	QAL	—	—	2.01	—	—	—	—
RE02-07-2968	02-600647	0–0.5	SOIL	—	0.0588	1.94	—	—	—	—
RE02-07-2969	02-600647	4.5–4.9	QAL	—	—	—	0.0222857	—	—	—
RE02-07-2976	02-600648	13.5–14.5	QBO	2.26	—	2.56	—	—	—	—
RE02-07-2977	02-600648	14.5–19.5	QBO	0.16	—	0.333	—	—	—	—
RE02-07-2978	02-600649	0–0.5	SOIL	—	0.0636	—	0.0168726	—	—	—
RE02-07-2983	02-600650	0–0.5	SOIL	—	0.0608	—	—	—	—	—
RE02-07-2984	02-600650	4.5–6.3	QAL	—	0.115 (J-)	0.359	—	—	—	—
RE02-07-2985	02-600650	9.5–11.3	QAL	0.495	—	0.505	—	—	—	—
RE02-07-2989	02-600651	4.5–5	QAL	3.36	—	—	0.0404346	—	—	—
RE02-07-2990	02-600651	9.5–12.7	QAL	232	0.288	1.34	0.0497727	—	—	—
RE02-07-2992	02-600651	14.5–16.9	QBO	8.12	0.0542	—	—	—	—	—
RE02-07-2991	02-600651	19.5–21.6	QBO	0.316	—	—	—	—	—	—
RE02-07-2995	02-600652	9.5–11.7	QAL	1.58	—	—	—	—	—	—
RE02-07-3201	02-600698	4.5–7.3	QAL	121	0.283	0.899	—	—	—	—
RE02-07-3202	02-600698	9.5–12.2	QAL	4.56	—	—	—	—	—	—
RE02-07-3206	02-600699	4.5–7	QAL	2.95	—	1.16	—	—	—	—
RE02-07-3208	02-600699	14.5–19.5	QBO	13.9	0.051	1.1	—	—	—	—
RE02-07-3209	02-600699	19.5–21.7	QBO	2.82	—	—	—	—	—	—
RE02-07-3210	02-600700	0–0.5	SOIL	—	0.223	—	—	—	—	—
RE02-07-3211	02-600700	4.5–6.7	QAL	0.527	0.616	0.326	0.0748952	—	—	—
RE02-07-3212	02-600700	9.5–11.1	QAL	0.215	—	—	0.0930691	—	—	—
RE02-07-3215	02-600701	0–0.5	SOIL	—	0.804	—	—	—	—	—
RE02-07-3216	02-600701	4.5–6.2	QAL	0.565	0.254	—	—	—	—	—
RE02-07-3220	02-600702	0–0.5	SOIL	—	0.142	—	—	—	—	—
RE02-07-3221	02-600702	4.5–6.7	QAL	—	0.0456	—	—	—	—	—

Table 6.20-16 (continued)

Sample ID	Location ID	Depth (ft)	Media	Cesium-137	Plutonium-239/240	Strontium-90	Tritium	Uranium-234	Uranium-235/236	Uranium-238
Qbt 1g, Qct, Qbo BV[a]				**na[b]**	**na**	**na**	**na**	**4**	**0.18**	**3.9**
Qbt 2, 3, 4 BV[a]				**na**	**na**	**na**	**na**	**1.98**	**0.09**	**1.93**
Sediment BV[a]				**0.9**	**0.068**	**1.04**	**0.093**	**2.59**	**0.2**	**2.29**
Soil BV[a]				**1.65**	**0.054**	**1.31**	**na**	**2.59**	**0.2**	**2.29**
Industrial SAL[c]				**23**	**210**	**1900**	**440000**	**1500**	**87**	**430**
Recreational SAL[c]				**210**	**300**	**5600**	**5300000**	**3200**	**520**	**2100**
Residential SAL[c]				**5.6**	**33**	**5.7**	**750**	**170**	**17**	**87**
RE02-07-3225	02-600703	0–0.5	SED	—	0.547	—	—	—	—	—
RE02-07-3230	02-600704	0–0.5	SED	—	0.409	—	—	—	—	—
RE02-07-3233	02-600704	14.5–16.7	QBO	0.183	0.149 (J-)	—	—	—	—	—
RE02-07-3235	02-600705	0–0.5	SED	—	0.676	—	—	—	—	—
RE02-07-3236	02-600705	4.5–6.3	QAL	0.119	0.138	—	—	—	—	—
RE02-07-3237	02-600705	9.5–11.7	QBO	—	0.0256	1.12	—	—	—	—
RE02-07-3240	02-600706	0–0.5	SED	—	0.214	—	—	—	—	—
RE02-10-21918	02-612391	5–6	SOIL	89.5	0.0361	—	—	—	—	—
RE02-10-21919	02-612391	15–16	QAL	1.03	—	—	—	—	—	—
RE02-10-21923	02-612392	5–6	QAL	0.0675	—	—	—	—	—	—
RE02-10-21928	02-612393	5–6	QAL	10	0.0613	—	—	—	—	—
RE02-10-21929	02-612393	15.5–16.5	QAL	1.79	0.0243	2.55	—	—	—	—
RE02-10-21931	02-612393	35–36	QBO	—	—	—	0.147436	—	—	—
RE02-10-21932	02-612393	49–50	QBO	—	—	—	1.17891	—	—	—
RE02-10-22028	02-612420	15.5–16.5	QAL	0.147	—	—	—	—	—	—

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

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

[b] na = Not available.

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

[e] — = Not detected.

[f] NA = Not analyzed.

Table 6.21-1
Samples Collected and Analyses Requested at SWMU 02-008(a)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Gamma-emitting Radionuclides	Tritium	Hexavalent Chromium	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	VOCs	Cyanide (Total)
CA02-00-0321	02-01249	0–0.5	SED	—*	—	7531R	7531R	—	7531R	7531R	7529R, 7530R	—	—	7531R	—	—	—
RE02-07-2052	02-600481	0–0.5	SOIL	07-820	07-820	07-820	07-820	07-820	07-820	07-820	07-820	07-820	07-820	07-820	07-820	—	07-820
RE02-07-2053	02-600481	4.5–8.5	QAL	07-1033	07-1032	07-1033	07-1033	07-1032	07-1033	07-1033	07-1032	07-1031	07-1032	07-1033	07-1031	07-1031	07-1032
RE02-07-2055	02-600481	8.5–13.5	QAL	07-1033	07-1032	07-1033	07-1033	07-1032	07-1033	07-1033	07-1032	07-1031	07-1032	07-1033	07-1031	07-1031	07-1032
RE02-07-2054	02-600481	13.5–16	QBO	07-1033	07-1032	07-1033	07-1033	07-1032	07-1033	07-1033	07-1032	07-1031	07-1032	07-1033	07-1031	07-1031	07-1032
RE02-07-6286	02-600482	0–0.5	SOIL	07-886	07-886	07-886	07-886	07-886	07-886	07-886	07-886	07-886	07-886	07-886	07-886	—	07-886
RE02-07-2056	02-600482	0–4.5	SOIL	07-403	07-403	07-403	07-403	07-403	07-403	07-403	07-403	07-402	07-403	07-403	07-402	—	07-403
RE02-07-2057	02-600482	4.5–7	QAL	07-448	07-447	07-448	07-448	07-447	07-448	07-448	07-447	07-446	07-447	07-448	07-446	07-446	07-447
RE02-07-2059	02-600482	7–9.5	QAL	07-448	07-447	07-448	07-448	07-447	07-448	07-448	07-447	07-446	07-447	07-448	07-446	07-446	07-447
RE02-07-2058	02-600482	9.5–14.5	QBO	07-448	07-447	07-448	07-448	07-447	07-448	07-448	07-447	07-446	07-447	07-448	07-446	07-446	07-447
RE02-07-2060	02-600483	0–0.5	SOIL	07-820	07-820	07-820	07-820	07-820	07-820	07-820	07-820	07-820	07-820	07-820	07-820	—	07-820
RE02-07-2061	02-600483	4.5–8.5	QAL	07-1033	07-1032	07-1033	07-1033	07-1032	07-1033	07-1033	07-1032	07-1031	07-1032	07-1033	07-1031	07-1031	07-1032
RE02-07-2063	02-600483	8.5–13.5	QAL	07-1033	07-1032	07-1033	07-1033	07-1032	07-1033	07-1033	07-1032	07-1031	07-1032	07-1033	07-1031	07-1031	07-1032
RE02-07-2062	02-600483	13.5–16	QBO	07-1033	07-1032	07-1033	07-1033	07-1032	07-1033	07-1033	07-1032	07-1031	07-1032	07-1033	07-1031	07-1031	07-1032
RE02-07-2064	02-600484	0–0.5	SOIL	07-337	07-336	07-337	07-337	07-336	07-337	07-337	07-336	07-335	07-336	07-337	07-335	—	07-336
RE02-07-2065	02-600484	2–2.7	QAL	07-337	07-336	07-337	07-337	07-336	07-337	07-337	07-336	07-335	07-336	07-337	07-335	07-335	07-336

* — = Analysis not requested.

Table 6.21-2
Inorganic Chemicals above BVs at SWMU 02-008(a)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Cadmium	Chromium	Hexavalent Chromium	Copper	Cyanide (Total)	Iron	Lead	Manganese	Nitrate	Selenium	Silver	Thallium	Vanadium	Zinc
Qbt 1g, Qct, Qbo BV[a]				**3560**	**0.5**	**0.56**	**25.7**	**0.4**	**2.6**	**na[b]**	**3.96**	**0.5**	**3700**	**13.5**	**189**	**na**	**0.3**	**1**	**1.22**	**4.59**	**40**
Sediment BV[a]				**15400**	**0.83**	**3.98**	**127**	**0.4**	**10.5**	**na**	**11.2**	**0.82**	**13800**	**19.7**	**543**	**na**	**0.3**	**1**	**0.73**	**19.7**	**60.2**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**0.4**	**19.3**	**na**	**14.7**	**0.5**	**21500**	**22.3**	**671**	**na**	**1.52**	**1**	**0.73**	**39.6**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**1120**	**2920[d]**	**2920**	**45400**	**22700**	**795000**	**800**	**145000**	**1820000**	**5680**	**5680**	**74.9**	**5680**	**341000**
Recreational SSL[e]				**791000**	**317**	**27.7**	**158000**	**784**	**1910[d]**	**1910**	**31700**	**15800**	**554000**	**560**	**110000**	**1260000**	**3960**	**3960**	**52.3**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**77.9**	**219[d]**	**219**	**3130**	**1560**	**54800**	**400**	**10700**	**125000**	**391**	**391**	**5.16**	**391**	**23500**
CA02-00-0321	02-01249	0–0.5	SED	—[f]	—	—	—	—	37	NA[g]	13	NA	—	22	—	NA	—	1.1	—	—	68 (J+)
RE02-07-2052	02-600481	0–0.5	SOIL	—	—	—	—	0.53 (U)	29	—	—	—	—	—	—	1.97	1.59 (U)	—	1.06 (U)	—	—
RE02-07-2053	02-600481	4.5–8.5	QAL	—	—	—	—	0.516 (U)	22.4	1.1	—	—	—	—	—	—	10	—	—	—	—
RE02-07-2055	02-600481	8.5–13.5	QAL	—	—	—	—	0.553 (U)	104	1.12	—	—	—	—	—	—	10.2	—	—	—	—
RE02-07-2054	02-600481	13.5–16	QBO	11600	0.53 (UJ)	1.25 (J)	29.3	0.66 (U)	36.6	0.196	9	—	7520	—	233 (J-)	—	10.7	—	—	6.77	—
RE02-07-6286	02-600482	0–0.5	SOIL	—	—	—	—	0.562 (U)	—	—	—	—	—	—	—	2.39	1.69 (U)	—	—	—	—
RE02-07-2056	02-600482	0–4.5	SOIL	—	—	—	—	0.501 (U)	—	0.151	—	—	—	—	—	—	2.01	—	—	—	52.6
RE02-07-2057	02-600482	4.5–7	QAL	—	—	—	—	0.526 (U)	30.9 (U)	—	230	—	—	22.4	—	—	—	—	—	—	78.9 (J)
RE02-07-2059	02-600482	7–9.5	QAL	—	—	—	—	0.559 (U)	—	—	68.6	—	—	—	—	—	—	—	—	—	—
RE02-07-2058	02-600482	9.5–14.5	QBO	6610	—	1.79 (U)	—	0.596 (U)	—	—	—	—	5770	—	194	—	1.79 (U)	—	—	—	—
RE02-07-2060	02-600483	0–0.5	SOIL	—	—	—	—	—	34.6	—	—	—	—	—	—	0.937 (J)	1.53 (U)	—	—	—	60.1
RE02-07-2061	02-600483	4.5–8.5	QAL	—	—	—	—	0.531 (U)	40.4	—	—	—	—	—	—	0.983	9.15	—	—	—	—
RE02-07-2063	02-600483	8.5–13.5	QAL	—	—	—	—	0.569 (U)	20	—	—	—	—	—	—	—	8.84	—	—	—	—
RE02-07-2062	02-600483	13.5–16	QBO	11200	0.534 (UJ)	1.95 (U)	—	0.651 (U)	5.62	—	—	—	5610	—	230 (J-)	—	8.59	—	—	—	—
RE02-07-2064	02-600484	0–0.5	SOIL	—	—	—	—	—	—	—	—	0.723 (J-)	—	—	—	1.22	1.56 (U)	—	—	—	62.1
RE02-07-2065	02-600484	2–2.7	QAL	—	—	—	—	0.516 (U)	40.5	—	19.3	—	—	57.7	—	1.24	2.56 (U)	—	—	—	69.9

Notes: Results are in mg/kg. Data qualifiers are defined in Appendix A.
[a] BVs are from LANL (1998, 059730).
[b] na = Not available.
[c] SSLs are from NMED (2009, 108070), unless otherwise noted.
[d] SSLs are for hexavalent chromium.
[e] SSLs are from LANL (2010, 108613).
[f] — = Not detected or not detected above BV.
[g] NA = Not analyzed.

Table 6.21-3
Organic Chemicals Detected at SWMU 02-008(a)

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	Bis(2-ethylhexyl)phthalate	Chrysene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Methylene Chloride	Phenanthrene	Pyrene	Styrene	Toluene
Industrial SSL[a]				**36700**	**183000**	**8.26**	**8.26**	**23.4**	**2.34**	**23.4**	**18300[b]**	**234**	**1370**	**2340**	**24400**	**24400**	**23.4**	**1090**	**20500**	**18300**	**51200**	**57900**
Recreational SSL[c]				**20800**	**104000**	**6.65**	**10.5**	**30.1**	**3.01**	**30.1**	**10400[b]**	**301**	**1830**	**3010**	**13900**	**13900**	**30.1**	**4520**	**12000**	**10400**	**126000**	**60800**
Residential SSL[a]				**3440**	**17200**	**1.12**	**2.22**	**6.21**	**0.621**	**6.21**	**1720[b]**	**62.1**	**347**	**621**	**2290**	**2290**	**6.21**	**199**	**1830**	**1720**	**8970**	**5570**
RE02-07-2052	02-600481	0–0.5	SOIL	—[d]	—	—	0.1	—	0.0941 (J)	0.0164 (J)	—	0.0131 (J)	—	0.0157 (J)	0.0247 (J)	—	—	NA[e]	—	0.0335 (J)	NA	NA
RE02-07-2053	02-600481	4.5–8.5	QAL	—	—	0.0086	0.0114	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-6286	02-600482	0–0.5	SOIL	—	—	0.0646	0.109	—	—	—	—	—	—	—	—	—	—	NA	—	—	NA	NA
RE02-07-2056	02-600482	0–4.5	SOIL	—	—	—	0.0034 (J)	—	—	—	—	—	—	—	—	—	—	NA	—	—	NA	NA
RE02-07-2057	02-600482	4.5–7	QAL	—	—	—	0.0027 (J)	—	—	—	—	—	—	—	—	—	—	0.00295 (J)	—	—	—	—
RE02-07-2059	02-600482	7–9.5	QAL	—	—	—	0.0047	—	—	—	—	—	—	—	—	—	—	0.00306 (J)	—	—	—	—
RE02-07-2058	02-600482	9.5–14.5	QBO	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00385 (J)	—	—	—	—
RE02-07-2060	02-600483	0–0.5	SOIL	—	—	0.058	0.0944	0.0242 (J)	0.0976 (J)	0.0392 (J)	0.032 (J)	—	0.164 (J)	0.026 (J)	0.0442	—	0.0542 (J)	NA	0.0237 (J)	0.041	NA	NA
RE02-07-2061	02-600483	4.5–8.5	QAL	—	—	0.0078	0.009	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2063	02-600483	8.5–13.5	QAL	—	—	—	0.0045 (J)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2064	02-600484	0–0.5	SOIL	0.021 (J)	0.0368	0.186	0.246	0.096	0.0926	0.144	—	—	—	0.12	0.254	0.0178 (J)	0.104	NA	0.165	0.216	NA	NA
RE02-07-2065	02-600484	2–2.7	QAL	—	0.0238 (J)	0.139	0.222	0.129	0.118	0.162	—	0.0659	—	0.138	0.242	—	0.118	—	0.107	0.267	0.00589	0.000665 (J)

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

[a] SSLs are from NMED (2009, 108070).

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

[c] SSLs are from LANL (2010, 108613).

[d] — = Not detected.

[e] NA = Not analyzed.

Table 6.21-4
Radionuclides Detected or Detected above BVs/FVs at SWMU 02-008(a)

Sample ID	Location ID	Depth (ft)	Media	Cesium-137	Plutonium-239/240	Tritium	Uranium-235/236
Qbt 1g, Qct, Qbo BV[a]				**na**[b]	**na**	**na**	**0.18**
Sediment BV[a]				**0.9**	**0.068**	**0.093**	**0.2**
Soil BV[a]				**1.65**	**0.054**	**na**	**0.2**
Industrial SAL[c]				**23**	**210**	**440000**	**87**
Recreational SAL[c]				**210**	**300**	**5300000**	**520**
Residential SAL[c]				**5.6**	**33**	**750**	**17**
CA02-00-0321	02-01249	0–0.5	SED	—[d]	1.87	0.257143 (J+)	—
RE02-07-2052	02-600481	0–0.5	SOIL	—	0.216	—	—
RE02-07-2053	02-600481	4.5–8.5	QAL	—	0.0634 (J-)	0.0733034	—
RE02-07-2054	02-600481	13.5–16	QBO	—	—	—	0.213
RE02-07-6286	02-600482	0–0.5	SOIL	—	0.135	—	—
RE02-07-2056	02-600482	0–4.5	SOIL	—	0.64	—	—
RE02-07-2057	02-600482	4.5–7	QAL	—	0.069	0.0190657	—
RE02-07-2059	02-600482	7–9.5	QAL	0.155	0.142	—	—
RE02-07-2060	02-600483	0–0.5	SOIL	—	0.323	0.0286442	—
RE02-07-2061	02-600483	4.5–8.5	QAL	—	—	0.0558085	—
RE02-07-2063	02-600483	8.5–13.5	QAL	0.353	0.128 (J-)	—	—
RE02-07-2064	02-600484	0–0.5	SOIL	—	0.819	—	—
RE02-07-2065	02-600484	2–2.7	QAL	0.313	0.573	—	—

Notes: Results are in pCi/g. Data qualifiers are defined in Appendix A.
[a] BVs/FVs are from LANL (1998, 059730).
[b] na = Not available.
[c] SALs from LANL (2009, 107655).
[d] — = Not detected.

Table 6.22-1
Samples Collected and Analyses Requested at AOC 02-008(c)(i)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Gamma-emitting Radionuclides	Tritium	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	Cyanide (Total)
RE02-07-884	02-600210	0–0.5	SOIL	07-1028	07-1028	07-1028	07-1028	07-1028	07-1028	07-1028	07-1028	07-1028	07-1028	07-1028	07-1028
RE02-10-21911	02-612390	5–6	QAL	10-4513	—*	10-4513	10-4513	10-4513	10-4513	10-4512	10-4512	—	10-4513	10-4512	—
RE02-10-21912	02-612390	15–17	QBO	10-4513	—	10-4513	10-4513	10-4513	10-4513	10-4512	10-4512	—	10-4513	10-4512	—
RE02-10-21913	02-612390	26–27	QBO	10-4513	—	10-4513	10-4513	10-4513	10-4513	10-4512	10-4512	—	10-4513	10-4512	—
RE02-10-21914	02-612390	35–36	QBO	10-4513	—	10-4513	10-4513	10-4513	10-4513	10-4512	10-4512	—	10-4513	10-4512	—
RE02-10-21915	02-612390	49–50	QBO	10-4513	—	10-4513	10-4513	10-4513	10-4513	10-4512	10-4512	—	10-4513	10-4512	—

* — = Analysis not requested.

Table 6.22-2
Inorganic Chemicals above BVs at AOC 02-008(c)(i)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Cadmium	Iron	Manganese	Nitrate	Selenium	Zinc
Qbt 1g, Qct, Qbo BV[a]				**3560**	**0.5**	**0.56**	**0.4**	**3700**	**189**	**na**[b]	**0.3**	**40**
Soil BV[a]				**29200**	**0.83**	**8.17**	**0.4**	**21500**	**671**	**na**	**1.52**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**1120**	**795000**	**145000**	**1820000**	**5680**	**341000**
Recreational SSL[d]				**791000**	**317**	**27.7**	**784**	**554000**	**110000**	**1260000**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**77.9**	**54800**	**10700**	**125000**	**391**	**23500**
RE02-07-884	02-600210	0–0.5	SOIL	—[e]	—	—	0.625 (U)	—	—	1.2 (J-)	—	65.3
RE02-10-21911	02-612390	5–6	QAL	—	0.941 (U)	—	—	—	—	NA[f]	—	49.2 (J)
RE02-10-21912	02-612390	15–17	QBO	5810	1.2 (U)	1.14 (U)	0.599 (U)	4700	—	NA	1.14 (U)	—
RE02-10-21913	02-612390	26–27	QBO	—	1.15 (U)	1.21 (U)	0.573 (U)	5230	219	NA	1.21 (U)	—
RE02-10-21914	02-612390	35–36	QBO	—	1.27 (U)	1.16 (U)	0.635 (U)	5010	—	NA	1.16 (U)	—
RE02-10-21915	02-612390	49–50	QBO	—	1.23 (U)	1.24 (U)	0.615 (U)	5850	—	NA	1.24 (U)	—

Notes: Results are in mg/kg. Data qualifiers are defined in Appendix A.
[a] BVs are from LANL (1998, 059730).
[b] na = Not available.
[c] SSLs are from NMED (2009, 108070), unless otherwise noted.
[d] SSLs are from LANL (2010, 108613).
[e] — = Not detected or not detected above BV.
[f] NA = Not analyzed.

Table 6.22-3
Organic Chemicals Detected at AOC 02-008(c)(i)

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	Chrysene	Fluoranthene	Indeno(1,2,3-cd)pyrene	Phenanthrene	Pyrene
Industrial SSL[a]				**183000**	**8.26**	**8.26**	**23.4**	**2.34**	**23.4**	**18300**[b]	**2340**	**24400**	**23.4**	**20500**	**18300**
Recreational SSL[c]				**104000**	**6.65**	**10.5**	**30.1**	**3.01**	**30.1**	**10400**[b]	**3010**	**13900**	**30.1**	**12000**	**10400**
Residential SSL[a]				**17200**	**1.12**	**2.22**	**6.21**	**0.621**	**6.21**	**1720**[b]	**621**	**2290**	**6.21**	**1830**	**1720**
RE02-07-884	02-600210	0–0.5	SOIL	0.0137 (J)	—[d]	0.0158	0.0858	0.0911	0.18	0.0513	0.0997	0.193	0.049	0.0871	0.167
RE02-10-21911	02-612390	5–6	QAL	—	0.0121	0.0086	—	—	—	—	—	—	—	—	0.0126 (J)

Notes: Results are in mg/kg. Data qualifiers are defined in Appendix A.
[a] SSLs are from NMED (2009, 108070), unless otherwise noted.
[b] Pyrene used as a surrogate based on structural similarity.
[c] SSLs are from LANL (2010, 108613).
[d] — = Not detected.

Table 6.22-4
Radionuclides Detected or Detected above BVs/FVs at AOC 02-008(c)(i)

Sample ID	Location ID	Depth (ft)	Media	Cesium-137	Plutonium-239/240	Strontium-90	Tritium	Uranium-235/236
Qbt 1g, Qct, Qbo BV[a]				**na[b]**	**na**	**na**	**na**	**0.18**
Soil BV[a]				**1.65**	**0.054**	**1.31**	**na**	**0.2**
Industrial SAL[c]				**23**	**210**	**1900**	**440000**	**87**
Recreational SAL[c]				**210**	**300**	**5600**	**5300000**	**520**
Residential SAL[c]				**5.6**	**33**	**5.7**	**750**	**17**
RE02-07-884	02-600210	0–0.5	SOIL	—[d]	0.556 (J-)	—	—	—
RE02-10-21911	02-612390	5–6	QAL	4.44	0.595	0.347	0.0184875	—
RE02-10-21912	02-612390	15–17	QBO	—	0.0171	—	—	—
RE02-10-21913	02-612390	26–27	QBO	—	—	—	0.0472884	0.191
RE02-10-21914	02-612390	35–36	QBO	—	—	—	0.077599	—
RE02-10-21915	02-612390	49–50	QBO	—	—	—	0.121403	—

Notes: Results are in pCi/g. Data qualifiers are defined in Appendix A.
[a] BVs/FVs are from LANL (1998, 059730).
[b] na = Not available.
[c] SALs from LANL (2009, 107655).
[d] — = Not detected.

Table 6.22-5
Samples Collected and Analyses Requested at AOC 02-008(c)(ii)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Gamma-emitting Radionuclides	Tritium	Hexavalent Chromium	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	VOCs	Cyanide (Total)
0402-95-0319	02-01154	0–1	SOIL	—*	—	115	115	—	115	115	—	—	—	115	—	—	—
CA02-00-0167	02-01252	0–0.5	SED	—	7569R	7571R	7571R	—	7571R	7571R	7568R, 7570R	—	—	7571R	7567R	—	—
CA02-00-0168	02-01253	0–0.5	SED	—	7569R	7571R	7571R	—	7571R	7571R	7568R, 7570R	—	—	7571R	7567R	—	—
RE02-07-2837	02-600625	0–0.5	SOIL	07-765	07-764	07-765	07-765	—	07-765	07-765	07-764	07-763	07-764	07-765	07-763	—	07-764
RE02-07-2838	02-600625	4.5–8.5	QAL	07-1029	07-1029	07-1029	07-1029	—	07-1029	07-1029	07-1029	07-1029	07-1029	07-1029	07-1029	07-1029	07-1029
RE02-07-2839	02-600625	16.5–21	QBO	07-1029	07-1029	07-1029	07-1029	—	07-1029	07-1029	07-1029	07-1029	07-1029	07-1029	07-1029	07-1029	07-1029
RE02-07-2841	02-600626	0–0.5	SOIL	07-765	07-764	07-765	07-765	—	07-765	07-765	07-764	07-763	07-764	07-765	07-763	—	07-764
RE02-07-2842	02-600626	4.5–8	QAL	07-893	07-893	07-893	07-893	—	07-893	07-893	07-893	07-893	07-893	07-893	07-893	07-893	07-893
RE02-07-2843	02-600626	8–13.5	QAL	07-893	07-893	07-893	07-893	—	07-893	07-893	07-893	07-893	07-893	07-893	07-893	07-893	07-893
RE02-07-2844	02-600626	13.5–18.5	QBO	07-893	07-893	07-893	07-893	—	07-893	07-893	07-893	07-893	07-893	07-893	07-893	07-893	07-893
RE02-07-2845	02-600627	0–0.5	SOIL	07-765	07-764	07-765	07-765	—	07-765	07-765	07-764	07-763	07-764	07-765	07-763	—	07-764
RE02-10-25659	02-612982	6–7	QAL	—	—	11-19	11-19	11-18	11-19	11-19	11-18	11-17	—	—	11-17	—	—
RE02-10-25660	02-612982	15–16	QAL	—	—	11-19	11-19	11-18	11-19	11-19	11-18	11-17	—	—	11-17	—	—
RE02-10-25661	02-612982	25–26	QBT3	—	—	11-19	11-19	11-18	11-19	11-19	11-18	11-17	—	—	11-17	—	—
RE02-10-25662	02-612982	35–37	QBT3	—	—	11-19	11-19	11-18	11-19	11-19	11-18	11-17	—	—	11-17	—	—
RE02-10-25663	02-612982	49–50	QBT3	—	—	11-19	11-19	11-18	11-19	11-19	11-18	11-17	—	—	11-17	—	—

* — = Analysis not requested.

Table 6.22-6
Inorganic Chemicals above BVs at AOC 02-008(c)(ii)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Cadmium	Chromium	Hexavalent Chromium	Copper	Iron	Manganese	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Silver	Vanadium	Zinc
Qbt 1g, Qct, Qbo BV[a]				**3560**	**0.5**	**0.56**	**25.7**	**0.4**	**2.6**	**Na[b]**	**3.96**	**3700**	**189**	**0.1**	**2**	**na**	**na**	**0.3**	**1**	**4.59**	**40**
Qbt 2, 3, 4 BV[a]				**7340**	**0.5**	**2.79**	**46**	**1.63**	**7.14**	**na**	**4.66**	**14500**	**482**	**0.1**	**6.58**	**na**	**na**	**0.3**	**1**	**17**	**63.5**
Sediment BV[a]				**15400**	**0.83**	**3.98**	**127**	**0.4**	**10.5**	**na**	**11.2**	**13800**	**543**	**0.1**	**9.38**	**na**	**na**	**0.3**	**1**	**19.7**	**60.2**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**0.4**	**19.3**	**na**	**14.7**	**21500**	**671**	**0.1**	**15.4**	**na**	**na**	**1.52**	**1**	**39.6**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**1120**	**2920[d]**	**2920**	**45400**	**795000**	**145000**	**310[e]**	**22700**	**1820000**	**795**	**5680**	**5680**	**5680**	**341000**
Recreational SSL[f]				**791000**	**317**	**27.7**	**158000**	**784**	**1910[d]**	**1910**	**31700**	**554000**	**110000**	**238**	**15800**	**1260000**	**555**	**3960**	**3960**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**77.9**	**219[d]**	**219**	**3130**	**54800**	**10700**	**23[e]**	**1560**	**125000**	**54.8**	**391**	**391**	**391**	**23500**
CA02-00-0168	02-01253	0–0.5	SED	—[g]	—	—	—	—	—	NA[h]	17 (J+)	—	—	0.25	—	NA	—	—	1.8	21 (J+)	—
RE02-07-2837	02-600625	0–0.5	SOIL	—	—	—	—	—	—	NA	—	—	—	—	—	—	0.00168 (J+)	2.43	—	—	—
RE02-07-2838	02-600625	4.5–8.5	QAL	—	—	—	—	—	30.7	NA	18.6 (J)	—	—	0.138	—	1.87 (J-)	—	1.82	—	—	80.7
RE02-07-2839	02-600625	16.5–21	QBO	5950 (J+)	—	1.79 (U)	34.1	0.598 (U)	66.7	NA	7.84 (J)	9230 (J)	293 (J)	—	4.91	—	—	1.1 (J)	—	7.2	—
RE02-07-2841	02-600626	0–0.5	SOIL	—	—	—	—	0.508 (U)	—	NA	22.5	—	—	3.46	—	—	0.000606 (J+)	2.77	—	—	—
RE02-07-2842	02-600626	4.5–8	QAL	—	—	—	—	0.54 (U)	—	NA	—	—	—	0.326	—	—	—	—	—	—	—
RE02-07-2843	02-600626	8–13.5	QAL	—	—	—	—	0.566 (U)	—	NA	—	—	—	—	—	—	—	—	—	—	52.7
RE02-07-2844	02-600626	13.5–18.5	QBO	—	—	1.65 (J)	—	0.572 (U)	19.2 (J)	NA	—	9070	419 (J-)	—	4.16	—	—	1.72 (U)	—	8.23 (J)	—
RE02-07-2845	02-600627	0–0.5	SOIL	—	—	—	—	0.517 (U)	—	NA	—	—	—	0.273	—	0.858 (J-)	—	2.54	—	—	—
RE02-10-25659	02-612982	6–7	QAL	—	1.08 (U)	—	—	0.542 (U)	—	0.191 (J)	—	—	—	—	—	NA	NA	—	—	—	—
RE02-10-25660	02-612982	15–16	QAL	—	—	—	—	0.528 (U)	—	0.413 (J)	—	—	—	—	—	NA	NA	—	—	—	—
RE02-10-25661	02-612982	25–26	QBT3	—	1.2 (U)	—	—	—	—	—	—	—	—	—	—	NA	NA	1.24 (UJ)	—	—	—
RE02-10-25662	02-612982	35–37	QBT3	—	1.15 (U)	—	—	—	—	—	—	—	—	—	—	NA	NA	1.23 (UJ)	—	—	—
RE02-10-25663	02-612982	49–50	QBT3	—	—	—	—	—	—	—	—	—	—	—	—	NA	NA	1.24 (UJ)	—	—	—

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

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

[b] na = Not available.

[c] SSLs are from NMED (2009, 108070), unless otherwise noted.

[d] SSLs are for hexavalent chromium.

[e] SSLs are from EPA regional screening tables (http://www.epa.gov.earth1r6/6pd/rcra_c/pd-n/screen.htm).

[f] SSLs are from LANL (2010, 108613).

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

[h] NA = Not analyzed.

Table 6.22-7
Organic Chemicals Detected at AOC 02-008(c)(ii)

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Anthracene	Aroclor-1242	Aroclor-1254	Aroclor-1260	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Chrysene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Isopropyltoluene[4-]	Methylnaphthalene[2-]	Naphthalene	Phenanthrene	Pyrene	Toluene
Industrial SSL[a]				**36700**	**183000**	**8.26**	**8.26**	**8.26**	**23.4**	**2.34**	**23.4**	**18300**[b]	**2340**	**24400**	**24400**	**23.4**	**14900**	**4100**[c]	**252**	**20500**	**18300**	**57900**
Recreational SSL[d]				**20800**	**104000**	**10.5**	**6.65**	**10.5**	**30.1**	**3.01**	**30.1**	**10400**[b]	**3010**	**13900**	**13900**	**30.1**	**52700**	**3170**	**1950**	**12000**	**10400**	**60800**
Residential SSL[a]				**3440**	**17200**	**2.22**	**1.12**	**2.22**	**6.21**	**0.621**	**6.21**	**1720**[b]	**621**	**2290**	**2290**	**6.21**	**3210**	**310**[c]	**45**	**1830**	**1720**	**5570**
CA02-00-0168	02-01253	0–0.5	SED	—[e]	—	NA[f]	NA	NA	—	—	—	—	—	0.11 (J)	—	—	NA	—	—	—	0.1 (J)	NA
RE02-07-2837	02-600625	0–0.5	SOIL	—	—	—	—	0.0098 (J)	—	—	—	—	—	0.0233 (J)	—	—	NA	—	—	0.0109 (J)	0.0227 (J)	NA
RE02-07-2838	02-600625	4.5–8.5	QAL	—	—	—	—	0.002 (J)	—	—	—	—	—	—	—	—	—	—	—	—	—	0.000475 (J)
RE02-07-2841	02-600626	0–0.5	SOIL	0.118	—	—	0.0788	0.0872	0.682	0.559 (J)	1.09 (J)	0.16 (J)	0.617	1.12	0.0513	0.153 (J)	NA	0.00892 (J)	0.0271 (J)	0.648	1.38	NA
RE02-07-2842	02-600626	4.5–8	QAL	—	—	—	—	0.0018 (J)	—	—	—	—	—	—	—	—	0.0029	—	—	—	—	0.000516 (J)
RE02-07-2843	02-600626	8–13.5	QAL	—	—	—	0.0029 (J)	0.0025 (J)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2844	02-600626	13.5–18.5	QBO	—	—	—	—	0.0049 (J)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2845	02-600627	0–0.5	SOIL	—	0.00914 (J)	—	—	0.0084 (J)	0.0422	0.0674	0.0739	—	0.0687	0.05	—	0.0194 (J)	NA	—	—	0.0199 (J)	0.0621	NA
RE02-10-25659	02-612982	6–7	QAL	—	—	—	0.0018 (J)	—	—	—	—	—	—	—	—	—	NA	—	—	—	—	NA
RE02-10-25660	02-612982	15–16	QAL	—	—	0.191	0.308	0.0293	—	—	—	—	—	—	—	—	NA	—	—	—	—	NA

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

[a] SSLs are from NMED (2009, 108070), unless otherwise noted.

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

[c] SSLs are from EPA regional screening tables (http://www.epa.gov.earth1r6/6pd/rcra_c/pd-n/screen.htm).

[d] SSLs are from LANL (2010, 108613).

[e] — = Not detected.

[f] NA = Not analyzed.

Table 6.22-8
Radionuclides Detected or Detected above BVs/FVs at AOC 02-008(c)(ii)

Sample ID	Location ID	Depth (ft)	Media	Cesium-137	Plutonium-239/240	Strontium-90	Tritium	Uranium-234	Uranium-235/236	Uranium-238
Qbt 1g, Qct, Qbo BV[a]				**na**[b]	**na**	**na**	**na**	**4**	**0.18**	**3.9**
Qbt 2, 3, 4 BV[a]				**na**	**na**	**na**	**na**	**1.98**	**0.09**	**1.93**
Sediment BV[a]				**0.9**	**0.068**	**1.04**	**0.093**	**2.59**	**0.2**	**2.29**
Soil BV[a]				**1.65**	**0.054**	**1.31**	**na**	**2.59**	**0.2**	**2.29**
Industrial SAL[c]				**23**	**210**	**1900**	**440000**	**1500**	**87**	**430**
Recreational SAL[c]				**210**	**300**	**5600**	**5300000**	**3200**	**520**	**2100**
Residential SAL[c]				**5.6**	**33**	**5.7**	**750**	**170**	**17**	**87**
0402-95-0319	02-01154	0–1	SOIL	—[d]	0.12	—	0.11072	—	—	—
CA02-00-0167	02-01252	0–0.5	SED	—	0.275	—	—	—	—	—
CA02-00-0168	02-01253	0–0.5	SED	—	0.808	—	—	—	—	—
RE02-07-2837	02-600625	0–0.5	SOIL	—	0.161	—	—	—	—	—
RE02-07-2838	02-600625	4.5–8.5	QAL	0.485	0.0685 (J-)	0.388	—	—	—	—
RE02-07-2839	02-600625	16.5–21	QBO	—	—	—	—	—	0.236	—
RE02-07-2842	02-600626	4.5–8	QAL	0.321	0.0573	—	—	—	—	—
RE02-07-2845	02-600627	0–0.5	SOIL	—	0.15	—	—	—	—	—
RE02-10-25659	02-612982	6–7	QAL	0.416	—	NA[e]	—	—	—	—
RE02-10-25661	02-612982	25–26	QBT3	—	—	NA	—	2.01	0.112	2.12
RE02-10-25662	02-612982	35–37	QBT3	—	—	NA	0.116696	2.08	0.119	2.05
RE02-10-25663	02-612982	49–50	QBT3	—	—	NA	—	2.04	0.143	2.09

Notes: Results are in pCi/g. Data qualifiers are defined in Appendix A.
[a] BVs/FVs are from LANL (1998, 059730).
[b] na = Not available.
[c] SALs from LANL (2009, 107655).
[d] — = Not detected.
[e] NA = Not analyzed.

Table 6.23-1
Samples Collected and Analyses Requested at AOC 02-009(d)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Gamma-emitting Radionuclides	Tritium	Hexavalent Chromium	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	VOCs	Cyanide (Total)
CA02-00-0290	02-01245	4–5	SOIL	—*	—	7483R	7483R	—	7483R	7483R	7481R, 7482R	—	—	7483R	7480R	—	—
CA02-00-0291	02-01245	5–8	SOIL	—	—	7483R	7483R	—	7483R	7483R	7481R, 7482R	—	—	7483R	7480R	—	—
CA02-00-0292	02-01245	10–11.5	SOIL	—	—	7483R	7483R	—	7483R	7483R	7481R, 7482R	—	—	7483R	7480R	—	—
CA02-00-0293	02-01245	14.5–15.5	QBT3	—	—	7483R	7483R	—	7483R	7483R	7481R, 7482R	—	—	7483R	7480R	—	—
RE02-07-2786	02-600614	0–0.5	SOIL	07-741	07-740	07-741	07-741	07-740	07-741	07-741	07-740	07-739	07-740	07-741	07-739	—	07-740
RE02-07-2787	02-600614	1.5–3.7	QAL	07-778	07-778	07-778	07-778	07-778	07-778	07-778	07-778	07-778	07-778	07-778	07-778	07-778	07-778
RE02-07-2788	02-600614	11.5–13.5	QAL	07-778	07-778	07-778	07-778	07-778	07-778	07-778	07-778	07-778	07-778	07-778	07-778	07-778	07-778
RE02-07-2790	02-600614	13–15.5	QAL	07-810	07-810	07-810	07-810	07-810	07-810	07-810	07-810	07-810	07-810	07-810	07-810	07-810	07-810
RE02-07-2789	02-600614	15–19.2	QBO	07-810	07-810	07-810	07-810	07-810	07-810	07-810	07-810	07-810	07-810	07-810	07-810	07-810	07-810
RE02-07-2791	02-600615	0–0.5	SOIL	07-727	07-726	07-727	07-727	07-726	07-727	07-727	07-726	07-725	07-726	07-727	07-725	—	07-726
RE02-07-2792	02-600615	1.5–3.5	QAL	07-741	07-740	07-741	07-741	07-740	07-741	07-741	07-740	07-739	07-740	07-741	07-739	07-739	07-740
RE02-07-2794	02-600615	16.5–18.7	QBO	07-741	07-740	07-741	07-741	07-740	07-741	07-741	07-740	07-739	07-740	07-741	07-739	07-739	07-740
RE02-07-2796	02-600616	0–0.5	SOIL	07-727	07-726	07-727	07-727	07-726	07-727	07-727	07-726	07-725	07-726	07-727	07-725	—	07-726
RE02-07-2797	02-600616	1.5–3.6	QAL	07-751	07-750	07-751	07-751	07-750	07-751	07-751	07-750	07-749	07-750	07-751	07-749	07-749	07-750
RE02-07-2798	02-600616	11.5–13.7	QAL	07-751	07-750	07-751	07-751	07-750	07-751	07-751	07-750	07-749	07-750	07-751	07-749	07-749	07-750
RE02-07-2801	02-600617	0–0.5	SOIL	07-727	07-726	07-727	07-727	—	07-727	07-727	07-726	07-725	07-726	07-727	07-725	—	07-726
RE02-07-2802	02-600617	1.5–5	QAL	07-1011	07-1011	07-1011	07-1011	—	07-1011	07-1011	07-1011	07-1011	07-1011	07-1011	07-1011	07-1011	07-1011
RE02-07-2803	02-600617	11.5–13	QAL	07-1011	07-1011	07-1011	07-1011	—	07-1011	07-1011	07-1011	07-1011	07-1011	07-1011	07-1011	07-1011	07-1011
RE02-07-2804	02-600618	0–0.5	SOIL	07-727	07-726	07-727	07-727	—	07-727	07-727	07-726	07-725	07-726	07-727	07-725	—	07-726
RE02-07-2805	02-600618	1.5–3.3	QAL	07-778	07-778	07-778	07-778	—	07-778	07-778	07-778	07-778	07-778	07-778	07-778	07-778	07-778
RE02-07-2806	02-600618	11.5–14.1	QAL	07-778	07-778	07-778	07-778	—	07-778	07-778	07-778	07-778	07-778	07-778	07-778	07-778	07-778
RE02-07-2807	02-600619	0–0.5	SOIL	07-751	07-750	07-751	07-751	07-750	07-751	07-751	07-750	07-749	07-750	07-751	07-749	—	07-750
RE02-07-2808	02-600619	1.5–5	QAL	07-751	07-750	07-751	07-751	07-750	07-751	07-751	07-750	07-749	07-750	07-751	07-749	07-749	07-750
RE02-07-2809	02-600619	11.5–13.6	QAL	07-751	07-750	07-751	07-751	07-750	07-751	07-751	07-750	07-749	07-750	07-751	07-749	07-749	07-750
RE02-07-2810	02-600620	0–0.5	SOIL	07-727	07-726	07-727	07-727	—	07-727	07-727	07-726	07-725	07-726	07-727	07-725	—	07-726
RE02-07-2811	02-600620	1.5–2.5	QAL	07-727	07-726	07-727	07-727	—	07-727	07-727	07-726	07-725	07-726	07-727	07-725	07-725	07-726
RE02-07-2812	02-600620	11.5–13.9	QAL	07-727	07-726	07-727	07-727	—	07-727	07-727	07-726	07-725	07-726	07-727	07-725	07-725	07-726
RE02-07-2813	02-600621	0–0.5	SOIL	07-741	07-740	07-741	07-741	—	07-741	07-741	07-740	07-739	07-740	07-741	07-739	—	07-740
RE02-07-2814	02-600621	1.5–3.7	QAL	07-768	07-767	07-768	07-768	—	07-768	07-768	07-767	07-766	07-767	07-768	07-766	07-766	07-767
RE02-07-2815	02-600621	11.5–13.4	QAL	07-768	07-767	07-768	07-768	—	07-768	07-768	07-767	07-766	07-767	07-768	07-766	07-766	07-767
RE02-07-2816	02-600622	0–0.5	SOIL	07-741	07-740	07-741	07-741	—	07-741	07-741	07-740	07-739	07-740	07-741	07-739	—	07-740
RE02-07-2817	02-600622	1.5–2	QAL	07-741	07-740	07-741	07-741	—	07-741	07-741	07-740	07-739	07-740	07-741	07-739	07-739	07-740
RE02-07-2818	02-600622	11.5–15	QAL	07-768	07-767	07-768	07-768	—	07-768	07-768	07-767	07-766	07-767	07-768	07-766	07-766	07-767

Table 6.23-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Gamma-emitting Radionuclides	Tritium	Hexavalent Chromium	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	VOCs	Cyanide (Total)
RE02-07-2819	02-600623	0–0.5	SOIL	07-741	07-740	07-741	07-741	—	07-741	07-741	07-740	07-739	07-740	07-741	07-739	—	07-740
RE02-07-2820	02-600623	1.5–3.8	QAL	07-768	07-767	07-768	07-768	—	07-768	07-768	07-767	07-766	07-767	07-768	07-766	07-766	07-767
RE02-07-2821	02-600623	11.5–13.9	QAL	07-768	07-767	07-768	07-768	—	07-768	07-768	07-767	07-766	07-767	07-768	07-766	07-766	07-767
RE02-07-2822	02-600624	0–0.5	SOIL	07-741	07-740	07-741	07-741	—	07-741	07-741	07-740	07-739	07-740	07-741	07-739	—	07-740
RE02-07-2823	02-600624	1.5–1.9	QAL	07-1011	07-1011	07-1011	07-1011	—	07-1011	07-1011	07-1011	07-1011	07-1011	07-1011	07-1011	07-1011	07-1011
RE02-10-21768	02-612348	5–7	QAL	—	—	10-4264	10-4264	10-4263	10-4264	10-4264	10-4263	10-4263	—	10-4264	10-4263	—	—
RE02-10-21769	02-612348	15–16	QAL	—	—	10-4264	10-4264	10-4263	10-4264	10-4264	10-4263	10-4263	—	10-4264	10-4263	—	—
RE02-10-21770	02-612348	25–26	QBO	—	—	10-4264	10-4264	10-4263	10-4264	10-4264	10-4263	10-4263	—	10-4264	10-4263	—	—
RE02-10-21771	02-612348	35–36	QBO	—	—	10-4264	10-4264	10-4263	10-4264	10-4264	10-4263	10-4263	—	10-4264	10-4263	—	—
RE02-10-21772	02-612348	49–50	QBO	—	—	10-4264	10-4264	10-4263	10-4264	10-4264	10-4263	10-4263	—	10-4264	10-4263	—	—

* — = Analysis not requested.

Table 6.23-2
Inorganic Chemicals above BVs at AOC 02-009(d)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Cadmium	Calcium	Chromium	Hexavalent Chromium	Cyanide (Total)	Iron	Lead	Manganese	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Vanadium	Zinc
Qbt 1g, Qct, Qbo BV[a]				**3560**	**0.5**	**0.56**	**25.7**	**0.4**	**1900**	**2.6**	**na[b]**	**0.5**	**3700**	**13.5**	**189**	**0.1**	**2**	**na**	**na**	**0.3**	**4.59**	**40**
Qbt 2, 3, 4 BV[a]				**7340**	**0.5**	**2.79**	**46**	**1.63**	**2200**	**7.14**	**na**	**na**	**14500**	**11.2**	**482**	**0.1**	**6.58**	**na**	**na**	**0.3**	**17**	**63.5**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**0.4**	**6120**	**19.3**	**na**	**0.5**	**21500**	**22.3**	**671**	**0.1**	**15.4**	**na**	**na**	**1.52**	**39.6**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**1120**	**na**	**2920[d]**	**2920**	**22700**	**795000**	**800**	**145000**	**310[e]**	**22700**	**1820000**	**795**	**5680**	**5680**	**341000**
Recreational SSL[f]				**791000**	**317**	**27.7**	**158000**	**784**	**na**	**1910[d]**	**1910**	**15800**	**554000**	**560**	**110000**	**238**	**15800**	**1260000**	**555**	**3960**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**77.9**	**na**	**219[d]**	**219**	**1560**	**54800**	**400**	**10700**	**23[e]**	**1560**	**125000**	**54.8**	**391**	**391**	**23500**
CA02-00-0293	02-01245	14.5–15.5	QBT3	—[g]	—	—	—	—	—	15 (J)	NA[h]	NA	—	—	—	—	—	NA	NA	0.36 (J)	—	—
RE02-07-2786	02-600614	0–0.5	SOIL	—	—	—	—	—	17400	—	—	—	—	—	—	0.176	—	1.04	—	—	—	56.1
RE02-07-2787	02-600614	1.5–3.7	QAL	—	—	—	—	0.517 (U)	—	—	—	—	—	—	—	0.279	—	3.55	0.000961 (J)	—	—	—
RE02-07-2788	02-600614	11.5–13.5	QAL	—	—	—	—	0.528 (U)	—	75.5 (J)	0.083 (J)	—	—	53.2	—	—	—	1.34	—	—	—	—
RE02-07-2790	02-600614	13–15.5	QAL	—	—	—	—	0.559 (U)	—	—	0.0835 (J)	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2789	02-600614	15–19.2	QBO	8540	—	1.3 (J)	38.3	0.582 (U)	—	10.6 (J)	0.0648 (J)	—	5850	—	228	—	5.06	—	—	1.39 (J)	—	—
RE02-07-2791	02-600615	0–0.5	SOIL	—	—	—	—	—	—	—	—	—	—	—	—	0.512	—	1.23	—	—	—	—
RE02-07-2792	02-600615	1.5–3.5	QAL	—	—	—	—	—	—	—	—	—	—	—	—	0.374	—	0.984 (J)	—	—	—	—
RE02-07-2794	02-600615	16.5–18.7	QBO	6140	—	1.3 (J)	47.4	0.557 (U)	—	29.1 (U)	0.179 (J-)	—	6490	—	567	—	6.33 (U)	1.34	—	1.67 (U)	6.17	—
RE02-07-2796	02-600616	0–0.5	SOIL	—	—	—	—	0.586	—	—	—	—	—	—	—	1.75	—	1.48	—	1.85	—	—
RE02-07-2797	02-600616	1.5–3.6	QAL	—	—	—	—	0.533 (U)	—	—	0.156 (J)	—	—	—	—	—	—	1.04 (J)	—	1.6 (U)	—	—
RE02-07-2798	02-600616	11.5–13.7	QAL	—	—	—	—	0.53 (U)	—	—	—	—	—	—	—	—	—	—	—	1.59 (U)	—	—
RE02-07-2801	02-600617	0–0.5	SOIL	—	—	—	—	0.495 (U)	—	—	NA	—	—	—	—	1.55	—	1.49	0.00104 (J)	—	—	—
RE02-07-2802	02-600617	1.5–5	QAL	—	—	—	—	0.483 (J)	—	—	NA	—	—	—	—	—	—	—	—	1.67 (U)	—	—
RE02-07-2803	02-600617	11.5–13	QAL	—	—	—	—	0.572 (U)	—	—	NA	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2804	02-600618	0–0.5	SOIL	—	—	—	—	—	—	—	NA	—	—	—	—	0.595	—	1.53	0.00104 (J)	—	—	—
RE02-07-2805	02-600618	1.5–3.3	QAL	—	—	—	—	0.517 (U)	—	—	NA	—	—	—	—	0.26	—	1.12	—	—	—	—
RE02-07-2806	02-600618	11.5–14.1	QAL	—	—	—	—	0.55 (U)	—	—	NA	—	—	—	—	—	—	—	0.0033	—	—	—
RE02-07-2807	02-600619	0–0.5	SOIL	—	—	—	—	0.773	—	—	—	—	—	—	—	0.386	—	—	0.000672 (J)	1.54 (U)	—	—
RE02-07-2808	02-600619	1.5–5	QAL	—	—	—	—	0.532 (U)	—	—	—	—	—	—	—	—	—	1.57	—	1.6 (U)	—	—
RE02-07-2809	02-600619	11.5–13.6	QAL	—	—	—	—	0.528 (U)	—	—	—	—	—	—	—	—	—	1.04 (J)	0.0017 (J)	1.58 (U)	—	—
RE02-07-2810	02-600620	0–0.5	SOIL	—	—	—	—	0.49 (U)	—	—	NA	—	—	—	—	—	—	2.92	—	1.94	—	—
RE02-07-2811	02-600620	1.5–2.5	QAL	—	—	—	—	0.511 (U)	—	—	NA	—	—	—	—	—	—	1.78	0.00112 (J)	2.01	—	—
RE02-07-2812	02-600620	11.5–13.9	QAL	—	—	—	—	0.521 (U)	—	—	NA	—	—	—	—	—	—	—	—	1.55 (J)	—	—
RE02-07-2813	02-600621	0–0.5	SOIL	—	—	—	—	—	—	—	NA	—	—	—	—	0.613	—	—	0.0011 (J+)	—	—	—
RE02-07-2814	02-600621	1.5–3.7	QAL	—	—	—	—	0.512 (U)	—	—	NA	—	—	—	—	0.22 (J)	—	0.851 (J-)	—	2.09	—	—
RE02-07-2815	02-600621	11.5–13.4	QAL	—	—	—	—	0.544 (U)	—	—	NA	—	—	—	—	—	—	—	0.00142 (J+)	2.14	—	—

Table 6.23-2 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Cadmium	Calcium	Chromium	Hexavalent Chromium	Cyanide (Total)	Iron	Lead	Manganese	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Vanadium	Zinc
Qbt 1g, Qct, Qbo BV[a]				**3560**	**0.5**	**0.56**	**25.7**	**0.4**	**1900**	**2.6**	**na[b]**	**0.5**	**3700**	**13.5**	**189**	**0.1**	**2**	**na**	**na**	**0.3**	**4.59**	**40**
Qbt 2, 3, 4 BV[a]				**7340**	**0.5**	**2.79**	**46**	**1.63**	**2200**	**7.14**	**na**	**na**	**14500**	**11.2**	**482**	**0.1**	**6.58**	**na**	**na**	**0.3**	**17**	**63.5**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**0.4**	**6120**	**19.3**	**na**	**0.5**	**21500**	**22.3**	**671**	**0.1**	**15.4**	**na**	**na**	**1.52**	**39.6**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**1120**	**na**	**2920[d]**	**2920**	**22700**	**795000**	**800**	**145000**	**310[e]**	**22700**	**1820000**	**795**	**5680**	**5680**	**341000**
Recreational SSL[f]				**791000**	**317**	**27.7**	**158000**	**784**	**na**	**1910[d]**	**1910**	**15800**	**554000**	**560**	**110000**	**238**	**15800**	**1260000**	**555**	**3960**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**77.9**	**na**	**219[d]**	**219**	**1560**	**54800**	**400**	**10700**	**23[e]**	**1560**	**125000**	**54.8**	**391**	**391**	**23500**
RE02-07-2816	02-600622	0–0.5	SOIL	—	—	—	—	—	—	—	NA	—	—	—	—	0.192	—	—	0.000779 (J+)	1.56 (U)	—	—
RE02-07-2817	02-600622	1.5–2	QAL	—	—	—	—	0.495 (U)	—	—	NA	—	—	—	—	—	—	1.2	0.000642 (J+)	—	—	—
RE02-07-2818	02-600622	11.5–15	QAL	—	—	—	—	0.521 (U)	—	—	NA	—	—	—	—	—	—	—	0.0016 (J+)	2.86	—	—
RE02-07-2819	02-600623	0–0.5	SOIL	—	—	—	—	0.48 (J)	—	—	NA	0.502 (U)	—	—	—	0.128	—	—	0.000603 (J+)	1.54 (U)	—	—
RE02-07-2820	02-600623	1.5–3.8	QAL	—	—	—	—	—	—	—	NA	—	—	—	—	0.115 (J)	—	0.971 (J-)	0.000665 (J+)	2.14	—	—
RE02-07-2821	02-600623	11.5–13.9	QAL	—	—	—	—	0.518 (U)	—	22.2	NA	—	—	—	—	—	—	—	0.00279 (J+)	2.13	—	—
RE02-07-2822	02-600624	0–0.5	SOIL	—	—	—	—	0.511 (U)	—	—	NA	—	—	—	—	—	—	1.98	0.0019 (J+)	—	—	—
RE02-07-2823	02-600624	1.5–1.9	QAL	—	—	—	—	0.547 (U)	—	—	NA	—	—	—	—	—	—	1.87	0.000663 (J)	—	—	—
RE02-10-21768	02-612348	5–7	QAL	—	1.12 (U)	—	—	0.559 (U)	—	—	—	NA	—	—	—	—	—	NA	NA	—	—	—
RE02-10-21769	02-612348	15–16	QAL	—	1.16 (U)	—	—	0.579 (U)	—	—	—	NA	—	—	—	—	—	NA	NA	—	—	—
RE02-10-21770	02-612348	25–26	QBO	—	1.32 (U)	1.27 (U)	—	0.662 (U)	—	—	—	NA	5350	—	214 (J+)	—	—	NA	NA	1.27 (U)	—	—
RE02-10-21771	02-612348	35–36	QBO	—	1.19 (U)	1.26 (U)	—	—	—	3.66	—	NA	5390	—	199 (J+)	—	—	NA	NA	1.26 (U)	—	—
RE02-10-21772	02-612348	49–50	QBO	—	1.19 (U)	1.18 (U)	—	0.594 (U)	—	—	—	NA	5600	—	223 (J+)	—	—	NA	NA	1.18 (U)	—	—

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

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

[b] na = Not available.

[c] SSLs are from NMED (2009, 108070), unless otherwise noted.

[d] SSLs are for hexavalent chromium.

[e] SSLs are from EPA regional screening tables (http://www.epa.gov.earth1r6/6pd/rcra_c/pd-n/screen.htm).

[f] SSLs are from LANL (2010, 108613).

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

[h] NA = Not analyzed.

Table 6.23-3
Organic Chemicals Detected at AOC 02-009(d)

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Anthracene	Aroclor-1248	Aroclor-1254	Aroclor-1260	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dichlorobenzene[1,4-]
Industrial SSL[a]				**36700**	**183000**	**8.26**	**8.26**	**8.26**	**23.4**	**2.34**	**23.4**	**18300**[b]	**234**	**2340**	**180**
Recreational SSL[c]				**20800**	**104000**	**10.5**	**6.65**	**10.5**	**30.1**	**3.01**	**30.1**	**10400**[b]	**301**	**3010**	**1260**
Residential SSL[a]				**3440**	**17200**	**2.22**	**1.12**	**2.22**	**6.21**	**0.621**	**6.21**	**1720**[b]	**62.1**	**621**	**32.2**
RE02-07-2786	02-600614	0–0.5	SOIL	—[d]	0.0176 (J)	—	0.0291	0.0488	0.086	0.0878 (J)	0.164 (J)	0.0981 (J)	0.0555 (J)	0.111	—
RE02-07-2787	02-600614	1.5–3.7	QAL	—	—	—	—	0.0272 (J)	—	—	—	—	—	—	—
RE02-07-2788	02-600614	11.5–13.5	QAL	—	—	—	—	0.0018 (J)	—	—	—	—	—	—	—
RE02-07-2790	02-600614	13–15.5	QAL	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2789	02-600614	15–19.2	QBO	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2791	02-600615	0–0.5	SOIL	—	—	—	0.0177 (J-)	0.0405 (J-)	—	0.0193 (J)	0.0223 (J)	—	—	0.0136 (J)	—
RE02-07-2792	02-600615	1.5–3.5	QAL	—	—	—	0.0314	0.0536	—	—	0.0335 (J)	—	0.011 (J)	0.0256 (J)	—
RE02-07-2796	02-600616	0–0.5	SOIL	—	0.0185 (J)	—	0.0581 (J-)	0.118 (J-)	—	0.0676 (J)	0.102 (J)	0.0286 (J)	—	0.0685	—
RE02-07-2797	02-600616	1.5–3.6	QAL	—	—	—	0.0056	0.0076	—	—	—	—	—	—	0.000595 (J)
RE02-07-2801	02-600617	0–0.5	SOIL	—	—	—	—	0.057	—	0.0225 (J)	0.0236 (J)	—	—	0.0161 (J)	—
RE02-07-2802	02-600617	1.5–5	QAL	—	—	—	0.0734	0.0412	—	—	—	—	—	—	—
RE02-07-2804	02-600618	0–0.5	SOIL	0.0156 (J-)	0.0195 (J)	—	0.0238 (J-)	0.0549 (J-)	—	0.0417 (J)	0.0604 (J)	—	—	0.0348 (J)	—
RE02-07-2805	02-600618	1.5–3.3	QAL	—	0.00877 (J)	—	—	0.0401	0.0331 (J)	—	—	—	—	0.0277 (J)	—
RE02-07-2807	02-600619	0–0.5	SOIL	0.0805	0.239	—	0.0308 (J)	0.0745	0.588	0.562	0.764	0.312	—	0.615	—
RE02-07-2808	02-600619	1.5–5	QAL	—	—	—	—	0.0024 (J)	—	—	—	—	—	—	—
RE02-07-2810	02-600620	0–0.5	SOIL	—	—	—	—	0.0022 (J-)	—	—	—	—	—	—	—
RE02-07-2811	02-600620	1.5–2.5	QAL	—	—	—	0.0144 (J-)	0.0059 (J-)	—	0.0154 (J)	0.0236 (J)	—	—	0.0179 (J)	—
RE02-07-2813	02-600621	0–0.5	SOIL	—	—	—	0.0301	0.077	—	—	—	—	—	0.0195 (J)	—
RE02-07-2814	02-600621	1.5–3.7	QAL	0.0165 (J)	0.0241 (J)	—	0.0232	0.0386	0.069	0.0963	0.137	0.0432	—	0.0887	—
RE02-07-2816	02-600622	0–0.5	SOIL	—	—	—	0.0109 (J)	0.0207	—	—	0.0293 (J)	—	—	0.0213 (J)	—
RE02-07-2817	02-600622	1.5–2	QAL	—	—	—	0.0052	0.0071	—	—	—	—	—	—	0.000213 (J)
RE02-07-2819	02-600623	0–0.5	SOIL	—	—	—	0.0157 (J)	0.04	—	—	0.0311 (J)	—	—	0.0287 (J)	—
RE02-07-2820	02-600623	1.5–3.8	QAL	—	—	—	—	0.0205 (J)	0.012 (J)	—	0.0179 (J)	—	—	0.0116 (J)	—
RE02-07-2822	02-600624	0–0.5	SOIL	—	—	0.0059	0.006	0.0042	—	—	—	—	—	—	—
RE02-07-2823	02-600624	1.5–1.9	QAL	—	—	—	0.0043	0.0035 (J)	—	—	—	—	—	—	—
RE02-10-21768	02-612348	5–7	QAL	—	—	—	0.0103 (J)	0.0049	—	—	—	—	—	—	—
RE02-10-21771	02-612348	35–36	QBO	—	—	—	—	0.0022 (J)	—	—	—	—	—	—	—

Table 6.23-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Di-n-butylphthalate	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Isopropyltoluene[4-]	Methylnaphthalene[2-]	Naphthalene	Phenanthrene	Pyrene	Styrene	Toluene	Xylene[1,3-]+Xylene[1,4-]
Industrial SSL[a]				**68400**	**24400**	**24400**	**23.4**	**14900**[e]	**4100**[f]	**252**	**20500**	**18300**	**51200**	**57900**	**3610**[g]
Recreational SSL[c]				**39900**	**13900**	**13900**	**30.1**	**52700**[e]	**3170**	**1950**	**12000**	**10400**	**126000**	**60800**	**27800**[g]
Residential SSL[a]				**6110**	**2290**	**2290**	**6.21**	**3210**[e]	**310**[f]	**45**	**1830**	**1720**	**8970**	**5570**	**1090**[g]
RE02-07-2786	02-600614	0–0.5	SOIL	—	0.211	—	0.119 (J)	NA[h]	—	—	0.0893	0.198	NA	NA	NA
RE02-07-2787	02-600614	1.5–3.7	QAL	0.0385 (J)	0.0215 (J)	—	—	—	—	—	0.0152 (J)	0.0207 (J)	—	—	—
RE02-07-2788	02-600614	11.5–13.5	QAL	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2790	02-600614	13–15.5	QAL	—	—	—	—	—	—	—	—	—	—	—	0.000302 (J)
RE02-07-2789	02-600614	15–19.2	QBO	0.0545 (J)	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2791	02-600615	0–0.5	SOIL	—	0.0209 (J)	—	—	NA	—	—	0.0168 (J)	0.0283 (J)	NA	NA	NA
RE02-07-2792	02-600615	1.5–3.5	QAL	—	0.0418	—	—	—	—	—	0.027 (J)	0.0372	0.00111	0.000533 (J)	—
RE02-07-2796	02-600616	0–0.5	SOIL	—	0.129	—	0.019 (J)	NA	—	—	0.0898	0.134	NA	NA	NA
RE02-07-2797	02-600616	1.5–3.6	QAL	—	—	—	—	—	—	—	—	—	—	0.000775 (J)	—
RE02-07-2801	02-600617	0–0.5	SOIL	—	0.0248 (J)	—	—	NA	—	—	0.0181 (J)	0.0268 (J)	NA	NA	NA
RE02-07-2802	02-600617	1.5–5	QAL	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2804	02-600618	0–0.5	SOIL	—	0.0641	0.0129 (J)	—	NA	0.00756 (J)	0.0121 (J)	0.079	0.0803	NA	NA	NA
RE02-07-2805	02-600618	1.5–3.3	QAL	0.0421 (J)	0.0556	—	—	—	—	—	0.0422	0.0545	—	—	—
RE02-07-2807	02-600619	0–0.5	SOIL	—	1.4	0.0834	0.293	NA	—	0.0122 (J)	0.987	1.53	NA	NA	NA
RE02-07-2808	02-600619	1.5–5	QAL	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2810	02-600620	0–0.5	SOIL	—	—	—	—	NA	—	—	—	—	NA	NA	NA
RE02-07-2811	02-600620	1.5–2.5	QAL	—	0.0326 (J)	—	—	—	—	—	—	0.0268 (J)	—	—	—
RE02-07-2813	02-600621	0–0.5	SOIL	—	0.0442	—	—	NA	—	—	0.021 (J)	0.0468	NA	NA	NA
RE02-07-2814	02-600621	1.5–3.7	QAL	—	0.158	0.0144 (J)	0.0366	—	—	—	0.114	0.156	—	—	—
RE02-07-2816	02-600622	0–0.5	SOIL	—	0.0463	—	—	NA	—	—	0.026 (J)	0.0536	NA	NA	NA
RE02-07-2817	02-600622	1.5–2	QAL	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2819	02-600623	0–0.5	SOIL	—	0.075	—	—	NA	—	—	0.0139 (J)	0.0804	NA	NA	NA
RE02-07-2820	02-600623	1.5–3.8	QAL	—	0.0223 (J)	—	—	—	—	—	—	0.0181 (J)	—	—	—
RE02-07-2822	02-600624	0–0.5	SOIL	—	0.0141 (J)	—	—	NA	—	—	—	0.0143 (J)	NA	NA	NA
RE02-07-2823	02-600624	1.5–1.9	QAL	—	—	—	—	0.0034	—	—	—	—	—	—	—
RE02-10-21768	02-612348	5–7	QAL	—	—	—	—	NA	—	—	—	—	NA	NA	NA
RE02-10-21771	02-612348	35–36	QBO	—	—	—	—	NA	—	—	—	—	NA	NA	NA

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

[a] SSLs are from NMED (2009, 108070), unless otherwise noted.

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

[c] SSLs are from LANL (2010, 108613).

[d] — = Not detected.

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

[f] SSLs are from EPA regional screening tables (http://www.epa.gov.earth1r6/6pd/rcra_c/pd-n/screen.htm).

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

[h] NA = Not analyzed.

Table 6.23-4
Radionuclides Detected or Detected above BVs/FVs at AOC 02-009(d)

Sample ID	Location ID	Depth (ft)	Media	Cesium-137	Cobalt-60	Plutonium-239/240	Strontium-90	Tritium	Uranium-234	Uranium-235/236
Qbt 1g, Qct, Qbo BV[a]				**na[b]**	**na**	**na**	**na**	**na**	**4**	**0.18**
Qbt 2, 3, 4 BV[a]				**na**	**na**	**na**	**na**	**na**	**1.98**	**0.09**
Soil BV[a]				**1.65**	**na**	**0.054**	**1.31**	**na**	**2.59**	**0.2**
Industrial SAL[c]				**23**	**5.1**	**210**	**1900**	**440000**	**1500**	**87**
Recreational SAL[c]				**210**	**46**	**300**	**5600**	**5300000**	**3200**	**520**
Residential SAL[c]				**5.6**	**1.3**	**33**	**5.7**	**750**	**170**	**17**
CA02-00-0290	02-01245	4–5	SOIL	7.15	—[d]	1.19	4.31	0.0268723	—	—
CA02-00-0291	02-01245	5–8	SOIL	5.45	—	0.136	4.49	0.0454945	—	—
CA02-00-0292	02-01245	10–11.5	SOIL	4.43	—	0.0882 (J-)	7.48	0.0407727	5.68	0.244 (J-)
CA02-00-0293	02-01245	14.5–15.5	QBT3	0.394	—	0.0432	0.486	0.0265055	3.53	0.125 (J-)
RE02-07-2786	02-600614	0–0.5	SOIL	—	0.162	—	—	0.0328342	—	—
RE02-07-2787	02-600614	1.5–3.7	QAL	1.14	—	—	0.61	0.108673	—	—
RE02-07-2788	02-600614	11.5–13.5	QAL	0.638	—	—	0.223	0.0491271	—	—
RE02-07-2792	02-600615	1.5–3.5	QAL	3.98	—	0.0925 (J-)	1.65	—	—	—
RE02-07-2794	02-600615	16.5–18.7	QBO	1.68	—	—	—	—	—	—
RE02-07-2796	02-600616	0–0.5	SOIL	1.74	—	—	—	0.0421242	—	—
RE02-07-2797	02-600616	1.5–3.6	QAL	6.61	—	0.0947	2.18	0.0520993	—	—
RE02-07-2798	02-600616	11.5–13.7	QAL	—	—	—	0.818	0.0191283	—	—
RE02-07-2801	02-600617	0–0.5	SOIL	—	—	—	—	0.0284811	—	—
RE02-07-2802	02-600617	1.5–5	QAL	1.21	—	—	0.493	—	—	—
RE02-07-2804	02-600618	0–0.5	SOIL	2.29	—	0.0583	—	—	—	—
RE02-07-2805	02-600618	1.5–3.3	QAL	1.53	—	—	—	—	—	—
RE02-07-2807	02-600619	0–0.5	SOIL	3.98	—	0.0909	—	—	—	—
RE02-07-2808	02-600619	1.5–5	QAL	0.941	—	—	0.358	—	—	—
RE02-07-2809	02-600619	11.5–13.6	QAL	—	—	—	—	0.136267	—	—
RE02-07-2811	02-600620	1.5–2.5	QAL	3.8	—	0.0454	0.36	—	—	—
RE02-07-2812	02-600620	11.5–13.9	QAL	—	—	—	—	0.0760542	—	—
RE02-07-2813	02-600621	0–0.5	SOIL	2.87	—	—	—	—	—	—
RE02-07-2814	02-600621	1.5–3.7	QAL	7.74	—	—	1.3	—	—	—
RE02-07-2815	02-600621	11.5–13.4	QAL	—	—	—	—	0.0675835	—	—
RE02-07-2816	02-600622	0–0.5	SOIL	7.69	—	—	5.86	—	12.8	0.901
RE02-07-2817	02-600622	1.5–2	QAL	3.57	—	—	2.25	—	3.69	0.247

Table 6.23-4 (continued)

Sample ID	Location ID	Depth (ft)	Media	Cesium-137	Cobalt-60	Plutonium-239/240	Strontium-90	Tritium	Uranium-234	Uranium-235/236
Qbt 1g, Qct, Qbo BV[a]				**na**	**na**	**na**	**na**	**na**	**4**	**0.18**
Qbt 2, 3, 4 BV[a]				**na**	**na**	**na**	**na**	**na**	**1.98**	**0.09**
Soil BV[a]				**1.65**	**na**	**0.054**	**1.31**	**na**	**2.59**	**0.2**
Industrial SAL[c]				**23**	**5.1**	**210**	**1900**	**440000**	**1500**	**87**
Recreational SAL[c]				**210**	**46**	**300**	**5600**	**5300000**	**3200**	**520**
Residential SAL[c]				**5.6**	**1.3**	**33**	**5.7**	**750**	**170**	**17**
RE02-07-2818	02-600622	11.5–15	QAL	0.624	—	—	—	0.0778023	—	—
RE02-07-2819	02-600623	0–0.5	SOIL	5.62	—	—	3.67	—	—	—
RE02-07-2820	02-600623	1.5–3.8	QAL	14	—	—	29.3	0.00630382	—	—
RE02-07-2821	02-600623	11.5–13.9	QAL	—	—	—	0.433	0.0669414	—	—
RE02-07-2822	02-600624	0–0.5	SOIL	—	—	0.102 (J-)	—	—	—	—
RE02-07-2823	02-600624	1.5–1.9	QAL	0.196	—	—	—	—	—	—
RE02-10-21772	02-612348	49–50	QBO	—	—	—	—	0.0525806	—	—

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

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

[b] na = Not available.

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

[d] — = Not detected.

Table 6.25-1
Samples Collected and Analyses Requested at AOC 02-010

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Gamma-emitting Radionuclides	Tritium	Hexavalent Chromium	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	Technetium-99	VOCs	Cyanide (Total)
CA02-00-0300	02-01246	0–1	SOIL	—*	7493R	7495R	7495R	—	7495R	7495R	7492R, 7494R	—	—	7495R	7491R	—	—	—
CA02-00-0301	02-01246	7.5–9.5	SOIL	—	7493R	7495R	7495R	—	7495R	7495R	7492R, 7494R	—	—	7495R	7491R	—	—	—
CA02-00-0302	02-01246	17.5–18.5	SOIL	—	7493R	7495R	7495R	—	7495R	7495R	7492R, 7494R	—	—	7495R	7491R	—	—	—
CA02-00-0303	02-01246	34.5–36.5	SOIL	—	7493R	7495R	7495R	—	7495R	7495R	7492R, 7494R	—	—	7495R	7491R	—	—	—
CA02-00-0304	02-01246	37.5–39	QBT3	—	7493R	7495R	7495R	—	7495R	7495R	7492R, 7494R	—	—	7495R	7491R	—	—	—
RE02-03-51822	02-22350	0–0.5	SOIL	—	1827S	1827S	1827S	1827S	1827S	1827S	1827S	—	—	1827S	1827S	1827S	—	—
RE02-03-51823	02-22350	1.5–2	SOIL	—	1827S	1827S	1827S	1827S	1827S	1827S	1827S	—	—	1827S	1827S	1827S	—	—
RE02-03-51900	02-22389	0–0.5	SOIL	—	1827S	1827S	1827S	1827S	1827S	1827S	1827S	—	—	1827S	1827S	1827S	—	—
RE02-03-51901	02-22389	1.5–2	SOIL	—	1827S	1827S	1827S	1827S	1827S	1827S	1827S	—	—	1827S	1827S	1827S	—	—
RE02-03-51902	02-22390	3–3.5	SOIL	—	1830S	1831S	1831S	1830S	1831S	1831S	1830S	—	—	1831S	1829S	1831S	—	—
RE02-03-51903	02-22390	4.5–5	SOIL	—	1830S	1831S	1831S	1830S	1831S	1831S	1830S	—	—	1831S	1829S	1831S	—	—
RE02-03-51904	02-22391	0–0.5	SOIL	—	1830S	1831S	1831S	1830S	1831S	1831S	1830S	—	—	1831S	1829S	1831S	—	—
RE02-03-51905	02-22391	1.5–2	SOIL	—	1830S	1831S	1831S	1830S	1831S	1831S	1830S	—	—	1831S	1829S	1831S	—	—
RE02-07-2856	02-600628	0–0.5	SOIL	07-556	07-555	07-556	07-556	—	07-556	07-556	07-555	07-554	07-555	07-556	07-554	—	—	07-555
RE02-07-2857	02-600628	4.5–7.5	QAL	07-877	07-876	07-877	07-877	—	07-877	07-877	07-876	07-875	07-876	07-877	07-875	—	07-875	07-876
RE02-07-2859	02-600628	13–18	QBO	07-877	07-876	07-877	07-877	—	07-877	07-877	07-876	07-875	07-876	07-877	07-875	—	07-875	07-876
RE02-07-6829	02-600628	19.5–22	QBO	07-1151	07-1151	07-1151	07-1151	—	07-1151	07-1151	07-1151	07-1151	07-1151	07-1151	07-1151	—	07-1151	07-1151
RE02-07-2861	02-600629	0–2.5	SOIL	07-1035	07-1035	07-1035	07-1035	—	07-1035	07-1035	07-1035	07-1035	07-1035	07-1035	07-1035	—	—	07-1035
RE02-07-2862	02-600629	4.5–6.2	QAL	07-1035	07-1035	07-1035	07-1035	—	07-1035	07-1035	07-1035	07-1035	07-1035	07-1035	07-1035	—	07-1035	07-1035
RE02-07-2865	02-600629	9.5–12	QAL	07-1035	07-1035	07-1035	07-1035	—	07-1035	07-1035	07-1035	07-1035	07-1035	07-1035	07-1035	—	07-1035	07-1035
RE02-07-2864	02-600629	14.5–19.5	QBO	07-1035	07-1035	07-1035	07-1035	—	07-1035	07-1035	07-1035	07-1035	07-1035	07-1035	07-1035	—	07-1035	07-1035
RE02-07-6830	02-600629	19.5–22	QBO	07-1131	07-1131	07-1131	07-1131	—	07-1131	07-1131	07-1131	07-1131	07-1131	07-1131	07-1131	—	07-1131	07-1131
RE02-07-2866	02-600630	0–0.5	SOIL	07-537	07-536	07-537	07-537	—	07-537	07-537	07-536	07-535	07-536	07-537	07-535	—	—	07-536
RE02-07-2867	02-600630	4.5–7	QAL	07-877	07-876	07-877	07-877	—	07-877	07-877	07-876	07-875	07-876	07-877	07-875	—	07-875	07-876
RE02-07-2870	02-600630	13–18	QAL	07-877	07-876	07-877	07-877	—	07-877	07-877	07-876	07-875	07-876	07-877	07-875	—	07-875	07-876
RE02-07-2871	02-600631	0–0.5	SOIL	07-900	07-900	07-900	07-900	—	07-900	07-900	07-900	07-900	07-900	07-900	07-900	—	—	07-900
RE02-07-2872	02-600631	4.5–8.5	QAL	07-900	07-900	07-900	07-900	—	07-900	07-900	07-900	07-900	07-900	07-900	07-900	—	07-900	07-900
RE02-07-2875	02-600631	13.5–18.5	QBO	07-900	07-900	07-900	07-900	—	07-900	07-900	07-900	07-900	07-900	07-900	07-900	—	07-900	07-900
RE02-07-6831	02-600631	24–26.5	QBO	07-1131	07-1131	07-1131	07-1131	—	07-1131	07-1131	07-1131	07-1131	07-1131	07-1131	07-1131	—	07-1131	07-1131
RE02-07-2876	02-600632	0–0.5	SOIL	07-537	07-536	07-537	07-537	—	07-537	07-537	07-536	07-535	07-536	07-537	07-535	—	—	07-536
RE02-07-2877	02-600632	4.5–9	QAL	07-904	07-904	07-904	07-904	—	07-904	07-904	07-904	07-904	07-904	07-904	07-904	—	07-904	07-904
RE02-07-2879	02-600632	16–20	QBO	07-904	07-904	07-904	07-904	—	07-904	07-904	07-904	07-904	07-904	07-904	07-904	—	07-904	07-904
RE02-07-2880	02-600632	26–29	QBO	07-904	07-904	07-904	07-904	—	07-904	07-904	07-904	07-904	07-904	07-904	07-904	—	07-904	07-904

Table 6.25-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Gamma-emitting Radionuclides	Tritium	Hexavalent Chromium	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	Technetium-99	VOCs	Cyanide (Total)
RE02-07-2881	02-600633	0–0.5	SOIL	07-420	07-419	07-420	07-420	—	07-420	07-420	07-419	07-418	07-419	07-420	07-418	—	—	07-419
RE02-07-2882	02-600633	4.5–6.8	QAL	07-577	07-576	07-577	07-577	—	07-577	07-577	07-576	07-575	07-576	07-577	07-575	—	07-575	07-576
RE02-07-2885	02-600633	10.5–13.2	QAL	07-577	07-576	07-577	07-577	—	07-577	07-577	07-576	07-575	07-576	07-577	07-575	—	07-575	07-576
RE02-07-2884	02-600633	15–17.9	QBO	07-577	07-576	07-577	07-577	—	07-577	07-577	07-576	07-575	07-576	07-577	07-575	—	07-575	07-576
RE02-07-2883	02-600633	19.5–24.5	QBO	07-577	07-576	07-577	07-577	—	07-577	07-577	07-576	07-575	07-576	07-577	07-575	—	07-575	07-576
RE02-07-2886	02-600634	0–0.5	SOIL	07-905	07-905	07-905	07-905	—	07-905	07-905	07-905	07-905	07-905	07-905	07-905	—	—	07-905
RE02-07-2887	02-600634	4.5–9	QAL	07-905	07-905	07-905	07-905	—	07-905	07-905	07-905	07-905	07-905	07-905	07-905	—	07-905	07-905
RE02-07-2889	02-600634	14–19	QBO	07-905	07-905	07-905	07-905	—	07-905	07-905	07-905	07-905	07-905	07-905	07-905	—	07-905	07-905
RE02-07-6832	02-600634	19.5–22	QBO	07-1139	07-1139	07-1139	07-1139	—	07-1139	07-1139	07-1137	07-1137	07-1139	07-1139	07-1137	—	07-1137	07-1139
RE02-07-2891	02-600635	0–0.5	SOIL	07-537	07-536	07-537	07-537	—	07-537	07-537	07-536	07-535	07-536	07-537	07-535	—	—	07-536
RE02-07-2892	02-600635	4.5–9	QAL	07-917	07-917	07-917	07-917	—	07-917	07-917	07-917	07-917	07-917	07-917	07-917	—	07-917	07-917
RE02-07-2894	02-600635	14–20	QBO	07-917	07-917	07-917	07-917	—	07-917	07-917	07-917	07-917	07-917	07-917	07-917	—	07-917	07-917
RE02-07-2897	02-600636	4.5–9.5	QAL	07-1025	07-1025	07-1025	07-1025	—	07-1025	07-1025	07-1025	07-1025	07-1025	07-1025	07-1025	—	07-1025	07-1025
RE02-07-2899	02-600636	15–19.5	QBO	07-1025	07-1025	07-1025	07-1025	—	07-1025	07-1025	07-1025	07-1025	07-1025	07-1025	07-1025	—	07-1025	07-1025
RE02-07-6833	02-600636	19.5–24	QBO	07-1139	07-1139	07-1139	07-1139	—	07-1139	07-1139	07-1137	07-1137	07-1139	07-1139	07-1137	—	07-1137	07-1139
RE02-07-2901	02-600637	0–0.5	SOIL	07-537	07-536	07-537	07-537	—	07-537	07-537	07-536	07-535	07-536	07-537	07-535	—	—	07-536
RE02-07-2902	02-600637	4.5–7.5	QAL	07-619	07-618	07-619	07-619	—	07-619	07-619	07-618	07-617	07-618	07-619	07-617	—	07-617	07-618
RE02-07-2905	02-600637	13–18	QAL	07-619	07-618	07-619	07-619	—	07-619	07-619	07-618	07-617	07-618	07-619	07-617	—	07-617	07-618
RE02-07-2904	02-600637	18.3–21	QBO	07-619	07-618	07-619	07-619	—	07-619	07-619	07-618	07-617	07-618	07-619	07-617	—	07-617	07-618
RE02-07-2906	02-600638	0–0.5	SOIL	07-537	07-536	07-537	07-537	—	07-537	07-537	07-536	07-535	07-536	07-537	07-535	—	—	07-536
RE02-07-2907	02-600638	4.5–9.5	QAL	07-987	07-987	07-987	07-987	—	07-987	07-987	07-987	07-987	07-987	07-987	07-987	—	07-987	07-987
RE02-07-2910	02-600638	9.5–15	QAL	07-987	07-987	07-987	07-987	—	07-987	07-987	07-987	07-987	07-987	07-987	07-987	—	07-987	07-987
RE02-07-2909	02-600638	18–20	QBO	07-993	07-993	07-993	07-993	—	07-993	07-993	07-993	07-993	07-993	07-993	07-993	—	07-993	07-993
RE02-07-2908	02-600638	29–32	QBO	07-1123	07-1123	07-1123	07-1123	—	07-1123	07-1123	07-1123	07-1123	07-1123	07-1123	07-1123	—	07-1123	07-1123
RE02-07-2911	02-600639	0.75–2.9	SOIL	07-866	07-866	07-866	07-866	—	07-866	07-866	07-866	07-866	07-866	07-866	07-866	—	—	07-866
RE02-07-2912	02-600639	4.5–6.4	QAL	07-877	07-876	07-877	07-877	—	07-877	07-877	07-876	07-875	07-876	07-877	07-875	—	07-875	07-876
RE02-07-2915	02-600639	9.5–11.9	QAL	07-877	07-876	07-877	07-877	—	07-877	07-877	07-876	07-875	07-876	07-877	07-875	—	07-875	07-876
RE02-07-2914	02-600639	14.1–17.5	QBO	07-877	07-876	07-877	07-877	—	07-877	07-877	07-876	07-875	07-876	07-877	07-875	—	07-875	07-876
RE02-07-2913	02-600639	19.5–20.7	QBO	07-877	07-876	07-877	07-877	—	07-877	07-877	07-876	07-875	07-876	07-877	07-875	—	07-875	07-876
RE02-10-22061	02-600640	2–2.2	SOIL	—	—	10-4175	—	—	—	—	—	—	—	—	—	—	—	—
RE02-10-22062	02-600640	4–4.2	SOIL	—	—	10-4175	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2921	02-600641	0–0.5	SOIL	07-556	07-555	07-556	07-556	—	07-556	07-556	07-555	07-554	07-555	07-556	07-554	—	—	07-555
RE02-10-22046	02-612423	2–2.2	SOIL	—	—	10-4175	—	—	—	—	—	—	—	—	—	—	—	—
RE02-10-22047	02-612423	4–4.2	SOIL	—	—	10-4175	—	—	—	—	—	—	—	—	—	—	—	—
RE02-10-22049	02-612424	2–2.4	SOIL	—	—	10-4188	—	—	—	—	—	—	—	—	—	—	—	—
RE02-10-22050	02-612424	4–4.2	SOIL	—	—	10-4188	—	—	—	—	—	—	—	—	—	—	—	—

Table 6.25-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Gamma-emitting Radionuclides	Tritium	Hexavalent Chromium	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	Technetium-99	VOCs	Cyanide (Total)
RE02-10-22052	02-612425	2–2.2	SOIL	—	—	10-4188	—	—	—	—	—	—	—	—	—	—	—	—
RE02-10-22053	02-612425	4–4.2	SOIL	—	—	10-4188	—	—	—	—	—	—	—	—	—	—	—	—
RE02-10-22055	02-612426	2–2.2	SOIL	—	—	10-4188	—	—	—	—	—	—	—	—	—	—	—	—
RE02-10-22056	02-612426	4–4.2	SOIL	—	—	10-4188	—	—	—	—	—	—	—	—	—	—	—	—
RE02-10-22059	02-612427	4–4.2	SOIL	—	—	10-4188	—	—	—	—	—	—	—	—	—	—	—	—
RE02-10-22064	02-612429	2–2.2	SOIL	—	—	10-4175	—	—	—	—	—	—	—	—	—	—	—	—
RE02-10-22065	02-612429	4–4.2	SOIL	—	—	10-4188	—	—	—	—	—	—	—	—	—	—	—	—
RE02-10-22067	02-612430	2–2.2	SOIL	—	—	10-4188	—	—	—	—	—	—	—	—	—	—	—	—
RE02-10-22068	02-612430	4–4.2	SOIL	—	—	10-4188	—	—	—	—	—	—	—	—	—	—	—	—
RE02-10-22070	02-612431	2–2.2	SOIL	—	—	10-4188	—	—	—	—	—	—	—	—	—	—	—	—
RE02-10-22071	02-612431	4–4.2	SOIL	—	—	10-4188	—	—	—	—	—	—	—	—	—	—	—	—
RE02-10-22073	02-612432	2–2.2	SOIL	—	—	10-4188	—	—	—	—	—	—	—	—	—	—	—	—
RE02-10-22074	02-612432	4–4.2	SOIL	—	—	10-4188	—	—	—	—	—	—	—	—	—	—	—	—
RE02-10-22178	02-612463	5–6	SOIL	10-4216	—	10-4216	10-4216	10-4216	—	10-4216	10-4216	10-4216	—	10-4216	—	—	—	—
RE02-10-22179	02-612463	15–16	QBO	10-4216	—	10-4216	10-4216	10-4216	—	10-4216	10-4216	10-4216	—	10-4216	—	—	—	—
RE02-10-22180	02-612463	25–27	QBO	10-4250	—	10-4250	10-4250	10-4249	—	10-4250	10-4249	10-4249	—	10-4250	—	—	—	—
RE02-10-22181	02-612463	35–36	QBO	10-4250	—	10-4250	10-4250	10-4249	—	10-4250	10-4249	10-4249	—	10-4250	—	—	—	—
RE02-10-22182	02-612463	49–50	QBO	10-4250	—	10-4250	10-4250	10-4249	—	10-4250	10-4249	10-4249	—	10-4250	—	—	—	—
RE02-11-163	02-613240	2–2.2	SOIL	—	—	11-161	—	—	—	—	—	—	—	—	—	—	—	—

* — = Analysis not requested.

Table 6.25-2
Inorganic Chemicals above BVs at AOC 02-010

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Cadmium	Calcium	Chromium	Hexavalent Chromium	Copper	Cyanide (Total)	Iron	Lead	Manganese	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Vanadium	Zinc
Qbt 1g, Qct, Qbo BV[a]				**3560**	**0.5**	**0.56**	**25.7**	**0.4**	**1900**	**2.6**	**na[b]**	**3.96**	**0.5**	**3700**	**13.5**	**189**	**0.1**	**2**	**na**	**na**	**0.3**	**4.59**	**40**
Qbt 2, 3, 4 BV[a]				**7340**	**0.5**	**2.79**	**46**	**1.63**	**2200**	**7.14**	**na**	**4.66**	**na**	**14500**	**11.2**	**482**	**0.1**	**6.58**	**na**	**na**	**0.3**	**17**	**63.5**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**0.4**	**6120**	**19.3**	**na**	**14.7**	**0.5**	**21500**	**22.3**	**671**	**0.1**	**15.4**	**na**	**na**	**1.52**	**39.6**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**1120**	**na**	**2920[d]**	**2920**	**45400**	**22700**	**795000**	**800**	**145000**	**310[e]**	**22700**	**1820000**	**795**	**5680**	**5680**	**341000**
Recreational SSL[f]				**791000**	**317**	**27.7**	**158000**	**784**	**na**	**1910[d]**	**1910**	**31700**	**15800**	**554000**	**560**	**110000**	**238**	**15800**	**1260000**	**555**	**3960**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**77.9**	**na**	**219[d]**	**219**	**3130**	**1560**	**54800**	**400**	**10700**	**23[e]**	**1560**	**125000**	**54.8**	**391**	**391**	**23500**
CA02-00-0304	02-01246	37.5–39	QBT3	18000 (J-)	—[g]	—	180	—	—	—	NA[h]	—	NA	—	—	—	—	—	NA	—	0.34 (UJ)	—	—
RE02-03-51822	02-22350	0–0.5	SOIL	—	—	—	—	0.543 (U)	—	—	0.0652 (J)	—	NA	—	—	—	—	—	NA	—	—	—	—
RE02-03-51823	02-22350	1.5–2	SOIL	—	—	—	—	0.547 (U)	—	—	0.111	—	NA	—	—	—	—	—	NA	—	—	—	—
RE02-03-51900	02-22389	0–0.5	SOIL	—	—	—	—	—	—	—	0.15	—	NA	—	—	—	0.157	—	NA	0.117	—	—	—
RE02-03-51902	02-22390	3–3.5	SOIL	—	—	—	—	—	—	—	0.0895 (J)	—	NA	—	—	—	—	—	NA	—	—	—	—
RE02-03-51903	02-22390	4.5–5	SOIL	—	—	—	—	0.541 (U)	—	—	—	—	NA	—	—	—	—	—	NA	—	—	—	—
RE02-03-51904	02-22391	0–0.5	SOIL	—	—	—	—	0.588	21680	—	0.26	—	NA	—	134	—	0.218	—	NA	0.0244 (J)	—	—	152
RE02-03-51905	02-22391	1.5–2	SOIL	—	—	—	—	—	—	—	—	—	NA	—	60.1	—	0.116	—	NA	0.0547	—	—	55.5
RE02-07-2856	02-600628	0–0.5	SOIL	—	—	—	—	0.51 (U)	8040	—	NA	—	—	—	—	—	—	—	1.06	—	1.53 (U)	—	—
RE02-07-2857	02-600628	4.5–7.5	QAL	—	—	—	—	0.532 (U)	—	—	NA	—	—	—	—	—	—	—	—	—	1.6 (U)	—	—
RE02-07-2859	02-600628	13–18	QBO	11600	—	2.18	93.3	0.629 (U)	—	8	NA	4.3 (U)	—	10300	—	493	—	3.64	—	—	1.89 (U)	9.19	—
RE02-07-6829	02-600628	19.5–22	QBO	25800 (J)	0.593 (U)	1.38 (J)	254 (J+)	0.764 (U)	—	8.05	NA	—	—	9120	—	327	—	3.9	—	—	1.77 (J)	4.97	—
RE02-07-2861	02-600629	0–2.5	SOIL	—	—	—	370	0.551	—	—	NA	22.2	—	—	—	—	—	—	1	—	8.72	—	53.9
RE02-07-2862	02-600629	4.5–6.2	QAL	—	—	—	—	0.526 (U)	—	—	NA	—	—	—	—	—	—	—	1.4	—	7.46	—	—
RE02-07-2865	02-600629	9.5–12	QAL	—	—	—	—	0.564 (U)	—	—	NA	—	—	—	—	—	—	—	—	—	6.83	—	—
RE02-07-2864	02-600629	14.5–19.5	QBO	10100	—	1.08 (J)	71	0.591 (U)	—	14	NA	4.18	—	6680	—	200 (J-)	—	3.37	—	—	9.31	7.57	—
RE02-07-6830	02-600629	19.5–22	QBO	6610	0.556 (UJ)	2.04 (U)	34.3	0.682 (U)	—	21.8	NA	—	0.847	6540	—	234	—	2.1	—	—	6.65	—	—
RE02-07-2866	02-600630	0–0.5	SOIL	—	—	—	447	5.6	—	—	NA	—	—	—	30.2	—	0.246	—	1.33	—	—	—	51.9
RE02-07-2867	02-600630	4.5–7	QAL	—	—	—	—	0.517 (U)	—	—	NA	—	—	—	—	—	—	—	—	—	1.55 (U)	—	—
RE02-07-2870	02-600630	13–18	QAL	—	—	—	—	0.556 (U)	—	—	NA	—	—	—	—	—	—	—	—	—	1.67 (U)	—	—
RE02-07-2871	02-600631	0–0.5	SOIL	—	—	—	—	—	—	—	NA	—	—	—	—	—	0.512	—	—	—	—	—	—
RE02-07-2872	02-600631	4.5–8.5	QAL	—	—	—	—	—	—	—	NA	—	—	—	—	—	—	—	1.92 (J-)	—	—	—	—
RE02-07-2875	02-600631	13.5–18.5	QBO	11600	—	1.7 (U)	52	0.566 (U)	—	17.5	NA	4.21	—	6500	—	280 (J+)	—	3.11	—	—	0.618 (J)	5.03	—
RE02-07-6831	02-600631	24–26.5	QBO	5320	0.524 (UJ)	2.03 (U)	—	0.677 (U)	—	17.7	NA	—	—	5330	—	213	—	2.53	—	—	5.56	—	—
RE02-07-2876	02-600632	0–0.5	SOIL	—	—	—	—	—	—	—	NA	—	6.17	—	—	—	0.132	—	—	—	—	—	—
RE02-07-2877	02-600632	4.5–9	QAL	—	—	—	—	0.526 (U)	—	—	NA	—	—	—	—	—	—	—	1.23	—	—	—	—
RE02-07-2879	02-600632	16–20	QBO	8680	—	0.627 (J)	—	—	—	58.7	NA	—	—	6190	—	249 (J+)	—	3.02	—	—	0.689 (J)	4.87	—

Table 6.25-2 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Cadmium	Calcium	Chromium	Hexavalent Chromium	Copper	Cyanide (Total)	Iron	Lead	Manganese	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Vanadium	Zinc
Qbt 1g, Qct, Qbo BV[a]				**3560**	**0.5**	**0.56**	**25.7**	**0.4**	**1900**	**2.6**	**na[b]**	**3.96**	**0.5**	**3700**	**13.5**	**189**	**0.1**	**2**	**na**	**na**	**0.3**	**4.59**	**40**
Qbt 2, 3, 4 BV[a]				**7340**	**0.5**	**2.79**	**46**	**1.63**	**2200**	**7.14**	**na**	**4.66**	**na**	**14500**	**11.2**	**482**	**0.1**	**6.58**	**na**	**na**	**0.3**	**17**	**63.5**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**0.4**	**6120**	**19.3**	**na**	**14.7**	**0.5**	**21500**	**22.3**	**671**	**0.1**	**15.4**	**na**	**na**	**1.52**	**39.6**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**1120**	**na**	**2920[d]**	**2920**	**45400**	**22700**	**795000**	**800**	**145000**	**310[e]**	**22700**	**1820000**	**795**	**5680**	**5680**	**341000**
Recreational SSL[f]				**791000**	**317**	**27.7**	**158000**	**784**	**na**	**1910[d]**	**1910**	**31700**	**15800**	**554000**	**560**	**110000**	**238**	**15800**	**1260000**	**555**	**3960**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**77.9**	**na**	**219[d]**	**219**	**3130**	**1560**	**54800**	**400**	**10700**	**23[e]**	**1560**	**125000**	**54.8**	**391**	**391**	**23500**
RE02-07-2880	02-600632	26–29	QBO	6050	—	1.83 (U)	—	—	—	3.86	NA	—	—	6230	—	264 (J+)	—	—	—	—	0.915 (J)	—	—
RE02-07-2881	02-600633	0–0.5	SOIL	—	—	—	—	—	—	—	NA	—	—	—	22.8	—	0.176	—	9.77	—	—	—	—
RE02-07-2882	02-600633	4.5–6.8	QAL	—	—	—	—	—	—	—	NA	—	—	—	—	—	—	—	3.23 (J-)	0.0046	—	—	—
RE02-07-2885	02-600633	10.5–13.2	QAL	—	—	—	—	0.537 (U)	—	22.4	NA	—	—	—	—	—	—	—	4.1 (J-)	—	—	—	—
RE02-07-2884	02-600633	15–17.9	QBO	10700	—	2.03	62.5	0.563 (U)	—	15.5	NA	—	—	6860	—	361	—	7.96	—	—	0.614 (J)	5.38	—
RE02-07-2883	02-600633	19.5–24.5	QBO	9830	—	0.837 (J)	—	0.63 (U)	—	6.41	NA	—	—	5920	—	220	—	3.7	—	—	1.89 (U)	—	—
RE02-07-2886	02-600634	0–0.5	SOIL	—	—	—	—	0.473 (J)	—	—	NA	—	—	—	—	—	0.556	—	—	—	1.66 (U)	—	63
RE02-07-2887	02-600634	4.5–9	QAL	—	—	—	—	—	—	—	NA	—	—	—	—	—	—	—	1.13	—	1.57 (U)	—	—
RE02-07-2889	02-600634	14–19	QBO	12800	—	1.14 (J)	60	—	—	54.4	NA	10.5	—	7700	—	336	—	6.65	—	—	1.79 (U)	5.97	—
RE02-07-6832	02-600634	19.5–22	QBO	6200 (J+)	0.515 (U)	1.89 (U)	—	0.629 (U)	—	4.79 (J+)	NA	—	—	5360	—	218	—	2.27	1.36 (J-)	—	7.32	—	—
RE02-07-2891	02-600635	0–0.5	SOIL	—	—	—	—	0.578	—	—	NA	—	14.4	—	—	—	0.429	—	1.65 (J-)	—	—	—	—
RE02-07-2892	02-600635	4.5–9	QAL	—	—	—	—	0.548 (U)	—	—	NA	—	—	—	—	—	—	—	—	0.00169 (J)	—	—	—
RE02-07-2894	02-600635	14–20	QBO	3660	—	2.08	—	0.632 (U)	—	7.41	NA	—	—	8740	—	367	—	3.16	9.7	—	1.9 (U)	8.52 (J)	—
RE02-07-2897	02-600636	4.5–9.5	QAL	—	—	—	—	0.547 (U)	—	—	NA	—	—	—	—	—	—	—	2.19 (J-)	—	1.64 (U)	—	—
RE02-07-2899	02-600636	15–19.5	QBO	11200 (J+)	—	1.76 (U)	35.9	0.586 (U)	—	7.49	NA	—	—	7190 (J)	—	226 (J)	—	—	1.12 (J-)	0.000839 (J)	1.76 (U)	—	—
RE02-07-6833	02-600636	19.5–24	QBO	7470 (J+)	—	1.91 (U)	—	0.637 (U)	—	6.39 (J+)	NA	—	—	5700	—	206	—	2.08	—	—	7.93	—	—
RE02-07-2901	02-600637	0–0.5	SOIL	—	—	—	—	—	—	—	NA	—	—	—	—	—	—	—	2.36 (J-)	—	1.65	—	—
RE02-07-2902	02-600637	4.5–7.5	QAL	—	—	—	—	—	—	—	NA	—	—	—	—	—	—	—	1.38 (J+)	—	1.57 (U)	—	—
RE02-07-2905	02-600637	13–18	QAL	—	—	—	—	—	—	29.5	NA	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2904	02-600637	18.3–21	QBO	16300	—	1.53 (J)	134	—	—	7.73	NA	—	—	6000	—	240	—	2.35	—	—	1.61 (U)	—	—
RE02-07-2906	02-600638	0–0.5	SOIL	—	—	—	—	0.435 (J)	—	—	NA	—	—	—	—	—	0.341	—	1.28	—	—	—	62.3
RE02-07-2907	02-600638	4.5–9.5	QAL	—	—	—	—	0.537 (U)	—	—	NA	—	—	—	—	—	—	—	1.38	—	1.61 (U)	—	—
RE02-07-2910	02-600638	9.5–15	QAL	—	—	—	—	0.572 (U)	—	—	NA	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2909	02-600638	18–20	QBO	7880	0.507 (UJ)	1.21 (U)	—	0.639 (U)	—	13.1	NA	—	—	6490	—	—	—	—	—	—	0.745 (J)	—	—
RE02-07-2908	02-600638	29–32	QBO	4150	0.526 (UJ)	1.99 (U)	—	0.662 (U)	—	3.13	NA	—	—	5310 (J+)	—	229	—	—	—	—	6.24	—	—
RE02-07-2911	02-600639	0.75–2.9	SOIL	—	—	—	413	1.01	—	—	NA	32.6	—	—	—	—	—	—	0.849 (J)	—	2.18	—	52.4
RE02-07-2912	02-600639	4.5–6.4	QAL	—	—	—	—	0.462 (J)	—	—	NA	20.5 (U)	—	—	—	—	—	—	—	—	1.71	—	50.3
RE02-07-2915	02-600639	9.5–11.9	QAL	—	—	—	—	0.547 (U)	—	—	NA	—	—	—	—	—	—	—	—	—	1.64 (U)	—	—
RE02-07-2914	02-600639	14.1–17.5	QBO	12800	—	0.727 (J)	39.1	0.645 (U)	—	5.59	NA	—	—	6150	—	190	—	—	1.03 (J-)	—	1.93 (U)	—	—
RE02-07-2913	02-600639	19.5–20.7	QBO	5930	—	1.81 (U)	—	0.605 (U)	—	26.4	NA	—	—	6470	—	—	—	15.1	0.886 (J-)	—	1.81 (U)	—	—

Table 6.25-2 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Cadmium	Calcium	Chromium	Hexavalent Chromium	Copper	Cyanide (Total)	Iron	Lead	Manganese	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Vanadium	Zinc
Qbt 1g, Qct, Qbo BV[a]				**3560**	**0.5**	**0.56**	**25.7**	**0.4**	**1900**	**2.6**	**na[b]**	**3.96**	**0.5**	**3700**	**13.5**	**189**	**0.1**	**2**	**na**	**na**	**0.3**	**4.59**	**40**
Qbt 2, 3, 4 BV[a]				**7340**	**0.5**	**2.79**	**46**	**1.63**	**2200**	**7.14**	**na**	**4.66**	**na**	**14500**	**11.2**	**482**	**0.1**	**6.58**	**na**	**na**	**0.3**	**17**	**63.5**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**0.4**	**6120**	**19.3**	**na**	**14.7**	**0.5**	**21500**	**22.3**	**671**	**0.1**	**15.4**	**na**	**na**	**1.52**	**39.6**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**1120**	**na**	**2920[d]**	**2920**	**45400**	**22700**	**795000**	**800**	**145000**	**310[e]**	**22700**	**1820000**	**795**	**5680**	**5680**	**341000**
Recreational SSL[f]				**791000**	**317**	**27.7**	**158000**	**784**	**na**	**1910[d]**	**1910**	**31700**	**15800**	**554000**	**560**	**110000**	**238**	**15800**	**1260000**	**555**	**3960**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**77.9**	**na**	**219[d]**	**219**	**3130**	**1560**	**54800**	**400**	**10700**	**23[e]**	**1560**	**125000**	**54.8**	**391**	**391**	**23500**
RE02-07-2921	02-600641	0–0.5	SOIL	—	—	—	—	0.516 (U)	—	—	NA	—	—	—	22.9	—	0.201	—	1.66	—	—	—	61.4
RE02-10-22178	02-612463	5–6	SOIL	—	1.03 (U)	—	—	0.516 (U)	—	—	—	—	NA	—	—	—	—	—	NA	NA	—	—	—
RE02-10-22179	02-612463	15–16	QBO	—	5.73 (U)	1.34	48.7	0.573 (U)	—	404	0.337 (J)	7.89	NA	10700	—	838	—	—	NA	NA	1.18 (U)	15.1	—
RE02-10-22180	02-612463	25–27	QBO	8070	1.26 (U)	1.28 (U)	—	0.632 (U)	—	—	—	—	NA	6080	—	200 (J+)	—	—	NA	NA	1.28 (U)	—	—
RE02-10-22181	02-612463	35–36	QBO	6990	1.23 (U)	1.29 (U)	—	0.614 (U)	—	—	—	—	NA	5940	—	—	—	—	NA	NA	1.29 (U)	—	—
RE02-10-22182	02-612463	49–50	QBO	4590	1.3 (U)	1.26 (U)	—	0.648 (U)	—	2.93	—	—	NA	6330	—	203 (J+)	—	—	NA	NA	1.26 (U)	—	—

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

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

[b] na = Not available.

[c] SSLs are from NMED (2009, 108070), unless otherwise noted.

[d] SSLs are for hexavalent chromium.

[e] SSLs are from EPA regional screening tables (http://www.epa.gov.earth1r6/6pd/rcra_c/pd-n/screen.htm).

[f] SSLs are from LANL (2010, 108613).

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

[h] NA = Not analyzed.

Table 6.25-3
Organic Chemicals Detected at AOC 02-010

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Acetone	Anthracene	Aroclor-1248	Aroclor-1254	Aroclor-1260	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Bis(2-ethylhexyl)phthalate	Chloroform
Industrial SSL[a]				**36700**	**851000**	**183000**	**8.26**	**8.26**	**8.26**	**23.4**	**2.34**	**23.4**	**18300[b]**	**234**	**1370**	**31.9**
Recreational SSL[c]				**20800**	**702000**	**104000**	**10.5**	**6.65**	**10.5**	**30.1**	**3.01**	**30.1**	**10400[b]**	**301**	**1830**	**224**
Residential SSL[a]				**3440**	**67500**	**17200**	**2.22**	**1.12**	**2.22**	**6.21**	**0.621**	**6.21**	**1720[b]**	**62.1**	**347**	**5.72**
CA02-00-0301	02-01246	7.5–9.5	SOIL	—[d]	NA[e]	—	NA	NA	NA	—	—	—	—	—	0.33 (J)	NA
CA02-00-0304	02-01246	37.5–39	QBT3	—	NA	—	NA	NA	NA	—	—	—	—	—	0.12 (J)	NA
RE02-03-51822	02-22350	0–0.5	SOIL	—	NA	—	NA	NA	NA	—	—	—	—	—	0.0534 (J)	NA
RE02-03-51823	02-22350	1.5–2	SOIL	—	NA	—	NA	NA	NA	—	—	—	—	—	0.0558 (J)	NA
RE02-03-51900	02-22389	0–0.5	SOIL	0.0161 (J)	NA	0.0248 (J)	NA	NA	NA	—	—	—	0.118	—	0.0429 (J)	NA
RE02-03-51901	02-22389	1.5–2	SOIL	—	NA	—	NA	NA	NA	—	—	—	—	—	0.0353 (J)	NA
RE02-03-51904	02-22391	0–0.5	SOIL	—	NA	—	NA	NA	NA	—	—	—	—	—	—	NA
RE02-07-2856	02-600628	0–0.5	SOIL	—	NA	—	—	0.1	0.291	—	—	—	—	—	—	NA
RE02-07-2857	02-600628	4.5–7.5	QAL	—	—	—	—	0.0049	0.0107	—	—	—	—	—	—	—
RE02-07-2859	02-600628	13–18	QBO	—	—	—	—	—	0.0017 (J)	—	—	—	—	—	—	—
RE02-07-6829	02-600628	19.5–22	QBO	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2861	02-600629	0–2.5	SOIL	0.0242 (J)	NA	0.0304 (J)	—	—	—	0.064	0.109	0.0851	0.0411	0.0311 (J)	—	NA
RE02-07-6830	02-600629	19.5–22	QBO	—	0.0039 (J)	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2866	02-600630	0–0.5	SOIL	—	NA	0.0387	—	—	0.0503	0.13	0.146	0.182	0.0601	0.0774	—	NA
RE02-07-2867	02-600630	4.5–7	QAL	—	—	—	—	—	0.0013 (J)	—	—	—	—	—	—	—
RE02-07-2871	02-600631	0–0.5	SOIL	—	NA	—	—	—	0.0137 (J)	—	—	0.0698	—	—	—	NA
RE02-07-2872	02-600631	4.5–8.5	QAL	—	—	0.0158 (J)	—	—	—	0.0318 (J)	0.0234 (J)	0.0419	—	—	—	0.000219 (J)
RE02-07-6831	02-600631	24–26.5	QBO	—	0.00815 (J)	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2876	02-600632	0–0.5	SOIL	—	NA	0.00735 (J)	—	—	0.0206 (J)	—	—	0.0328 (J)	—	—	—	NA
RE02-07-2877	02-600632	4.5–9	QAL	—	—	—	—	—	0.0051	—	—	—	—	—	—	—
RE02-07-2881	02-600633	0–0.5	SOIL	0.0374	NA	0.0565	—	—	0.0284 (J)	0.141	0.2 (J)	0.3 (J)	0.105 (J)	—	—	NA
RE02-07-2882	02-600633	4.5–6.8	QAL	—	—	—	—	—	0.0037	—	0.0201 (J)	0.0205 (J)	—	—	—	—
RE02-07-2886	02-600634	0–0.5	SOIL	—	NA	0.0158 (J)	—	—	0.0924	0.057	0.0673	0.0729	0.0364 (J)	0.0514	—	NA
RE02-07-2887	02-600634	4.5–9	QAL	—	—	—	—	—	0.0045	—	—	—	—	—	—	—
RE02-07-2891	02-600635	0–0.5	SOIL	—	NA	—	—	—	0.0415	0.025 (J)	0.105	0.0507	0.0504 (J)	—	—	NA
RE02-07-2897	02-600636	4.5–9.5	QAL	—	—	—	—	—	—	—	—	—	—	—	—	—

Table 6.25-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Acetone	Anthracene	Aroclor-1248	Aroclor-1254	Aroclor-1260	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Bis(2-ethylhexyl)phthalate	Chloroform
Industrial SSL[a]				**36700**	**851000**	**183000**	**8.26**	**8.26**	**8.26**	**23.4**	**2.34**	**23.4**	**18300[b]**	**234**	**1370**	**31.9**
Recreational SSL[c]				**20800**	**702000**	**104000**	**10.5**	**6.65**	**10.5**	**30.1**	**3.01**	**30.1**	**10400[b]**	**301**	**1830**	**224**
Residential SSL[a]				**3440**	**67500**	**17200**	**2.22**	**1.12**	**2.22**	**6.21**	**0.621**	**6.21**	**1720[b]**	**62.1**	**347**	**5.72**
RE02-07-2901	02-600637	0–0.5	SOIL	—	NA	—	—	0.0191 (J-)	0.0133 (J-)	—	—	—	—	—	—	NA
RE02-07-2902	02-600637	4.5–7.5	QAL	—	—	—	0.0066	0.0051	—	—	—	—	—	—	—	—
RE02-07-2904	02-600637	18.3–21	QBO	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2906	02-600638	0–0.5	SOIL	0.0188 (J)	NA	0.0284 (J)	—	—	0.0567	0.0877	0.158	0.14	0.0562 (J)	—	—	NA
RE02-07-2907	02-600638	4.5–9.5	QAL	—	—	—	—	—	0.0027 (J)	—	—	—	—	—	—	—
RE02-07-2910	02-600638	9.5–15	QAL	—	—	—	—	—	0.0018 (J)	—	—	—	—	—	—	—
RE02-07-2912	02-600639	4.5–6.4	QAL	—	—	0.0221 (J)	—	—	—	0.14	0.0961	—	0.0482	0.0621	—	—
RE02-07-2915	02-600639	9.5–11.9	QAL	—	—	—	—	—	0.0015 (J)	—	—	—	—	—	—	—
RE02-07-2921	02-600641	0–0.5	SOIL	—	NA	0.02 (J)	—	0.199	0.329	0.105	0.116	0.206	0.0591	—	—	NA

Table 6.25-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Chrysene	Di-n-butylphthalate	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Isopropylbenzene	Isopropyltoluene[4-]	Methylene Chloride	Methylnaphthalene[2-]	Naphthalene	Phenanthrene	Pyrene	Toluene
Industrial SSL[a]				**2340**	**68400**	**24400**	**24400**	**23.4**	**14900**	**14900**[f]	**1090**	**4100**[g]	**252**	**20500**	**18300**	**57900**
Recreational SSL[c]				**3010**	**39900**	**13900**	**13900**	**30.1**	**52700**	**52700**[f]	**4520**	**3170**	**1950**	**12000**	**10400**	**60800**
Residential SSL[a]				**621**	**6110**	**2290**	**2290**	**6.21**	**3210**	**3210**[f]	**199**	**310**[g]	**45**	**1830**	**1720**	**5570**
CA02-00-0301	02-01246	7.5–9.5	SOIL	—	—	—	—	—	NA	NA	NA	—	—	—	—	NA
CA02-00-0304	02-01246	37.5–39	QBT3	—	—	—	—	—	NA	NA	NA	—	—	—	—	NA
RE02-03-51822	02-22350	0–0.5	SOIL	—	—	—	—	—	NA	NA	NA	—	—	—	—	NA
RE02-03-51823	02-22350	1.5–2	SOIL	—	—	—	—	—	NA	NA	NA	—	—	—	—	NA
RE02-03-51900	02-22389	0–0.5	SOIL	0.0723	—	0.115	0.0139 (J)	—	NA	NA	NA	—	—	0.0976	0.0944	NA
RE02-03-51901	02-22389	1.5–2	SOIL	—	—	—	—	—	NA	NA	NA	—	—	—	—	NA
RE02-03-51904	02-22391	0–0.5	SOIL	—	—	0.0472	0.0045 (J)	—	NA	NA	NA	—	—	0.0289 (J)	—	NA
RE02-07-2856	02-600628	0–0.5	SOIL	—	—	—	—	—	NA	NA	NA	—	—	—	0.0153 (J)	NA
RE02-07-2857	02-600628	4.5–7.5	QAL	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2859	02-600628	13–18	QBO	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-6829	02-600628	19.5–22	QBO	—	—	—	—	—	—	—	0.00406 (J)	—	—	—	—	—
RE02-07-2861	02-600629	0–2.5	SOIL	0.0657	—	0.124	0.0188 (J)	0.16	NA	NA	NA	0.0121 (J)	0.0183 (J)	0.125	0.116	NA
RE02-07-6830	02-600629	19.5–22	QBO	—	—	—	—	—	—	0.000499 (J)	0.00341 (J)	—	—	—	—	—
RE02-07-2866	02-600630	0–0.5	SOIL	0.14	—	0.257	0.0221 (J)	—	NA	NA	NA	0.00715 (J)	—	0.0116 (J)	0.231	NA
RE02-07-2867	02-600630	4.5–7	QAL	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2871	02-600631	0–0.5	SOIL	0.0434	—	0.0602	—	—	NA	NA	NA	—	—	0.0252 (J)	0.066	NA
RE02-07-2872	02-600631	4.5–8.5	QAL	0.0233 (J)	—	0.0721	—	—	—	—	—	—	—	0.0662	0.0573	—
RE02-07-6831	02-600631	24–26.5	QBO	—	—	—	—	—	—	—	0.00329 (J)	—	—	—	—	—
RE02-07-2876	02-600632	0–0.5	SOIL	0.0213 (J)	0.983	0.0443	—	—	NA	NA	NA	—	—	—	0.0375	NA
RE02-07-2877	02-600632	4.5–9	QAL	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2881	02-600633	0–0.5	SOIL	0.166	—	0.24	0.0293 (J)	0.165 (J)	NA	NA	NA	0.00992 (J)	0.022 (J)	0.222	0.315	NA
RE02-07-2882	02-600633	4.5–6.8	QAL	0.0136 (J)	—	0.0174 (J)	—	—	—	—	—	—	—	0.0154 (J)	0.0236 (J)	—
RE02-07-2886	02-600634	0–0.5	SOIL	0.0691	—	0.11	—	0.0306 (J)	NA	NA	NA	—	—	0.0662	0.113	NA
RE02-07-2887	02-600634	4.5–9	QAL	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2891	02-600635	0–0.5	SOIL	0.0248 (J)	—	0.0303 (J)	—	0.064	NA	NA	NA	—	—	0.0179 (J)	0.0352	NA
RE02-07-2897	02-600636	4.5–9.5	QAL	—	—	—	—	—	—	—	—	—	—	—	—	0.000417 (J)
RE02-07-2901	02-600637	0–0.5	SOIL	0.0192 (J)	—	0.0284 (J)	—	—	NA	NA	NA	—	—	—	0.023 (J)	NA
RE02-07-2902	02-600637	4.5–7.5	QAL	—	—	—	—	—	—	—	0.00213 (J)	—	—	—	—	0.000372 (J)
RE02-07-2904	02-600637	18.3–21	QBO	—	—	—	—	—	0.000763 (J)	—	0.00415 (J)	—	—	—	—	—
RE02-07-2906	02-600638	0–0.5	SOIL	0.0797	—	0.126	0.0145 (J)	0.0951	NA	NA	NA	0.00701 (J)	0.0169 (J)	0.105	0.167	NA
RE02-07-2907	02-600638	4.5–9.5	QAL	—	—	—	—	—	—	—	—	—	—	—	—	0.00042 (J)
RE02-07-2910	02-600638	9.5–15	QAL	—	—	—	—	—	—	—	—	—	—	—	—	—

Table 6.25-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Chrysene	Di-n-butylphthalate	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Isopropylbenzene	Isopropyltoluene[4-]	Methylene Chloride	Methylnaphthalene[2-]	Naphthalene	Phenanthrene	Pyrene	Toluene
Industrial SSL[a]				**2340**	**68400**	**24400**	**24400**	**23.4**	**14900**	**14900[f]**	**1090**	**4100[g]**	**252**	**20500**	**18300**	**57900**
Recreational SSL[c]				**3010**	**39900**	**13900**	**13900**	**30.1**	**52700**	**52700[f]**	**4520**	**3170**	**1950**	**12000**	**10400**	**60800**
Residential SSL[a]				**621**	**6110**	**2290**	**2290**	**6.21**	**3210**	**3210[f]**	**199**	**310[g]**	**45**	**1830**	**1720**	**5570**
RE02-07-2912	02-600639	4.5–6.4	QAL	0.154	—	0.397	—	0.0498	—	—	—	—	—	0.0945	0.238	0.000593 (J)
RE02-07-2915	02-600639	9.5–11.9	QAL	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2921	02-600641	0–0.5	SOIL	0.121	0.0381 (J)	0.198	—	0.0452	NA	NA	NA	—	—	0.105	0.222	NA

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

[a] SSLs are from NMED (2009, 108070), unless otherwise noted.

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

[c] SSLs are from LANL (2010, 108613).

[d] — = Not detected.

[e] NA = Not analyzed.

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

[g] SSLs are from EPA regional screening tables (http://www.epa.gov.earth1r6/6pd/rcra_c/pd-n/screen.htm).

Table 6.25-4
Radionuclides Detected or Detected above BVs/FVs at AOC 02-010

Sample ID	Location ID	Depth (ft)	Media	Cesium-137	Plutonium-239/240	Strontium-90	Tritium	Uranium-234	Uranium-235/236	Uranium-238
Qbt 1g, Qct, Qbo BV[a]				**na[b]**	**na**	**na**	**na**	**4**	**0.18**	**3.9**
Qbt 2, 3, 4 BV[a]				**na**	**na**	**na**	**na**	**1.98**	**0.09**	**1.93**
Soil BV[a]				**1.65**	**0.054**	**1.31**	**na**	**2.59**	**0.2**	**2.29**
Industrial SAL[c]				**23**	**210**	**1900**	**440000**	**1500**	**87**	**430**
Recreational SAL[c]				**210**	**300**	**5600**	**5300000**	**3200**	**520**	**2100**
Residential SAL[c]				**5.6**	**33**	**5.7**	**750**	**170**	**17**	**87**
CA02-00-0300	02-01246	0–1	SOIL	11.3	0.223	7.22	—[d]	—	—	—
CA02-00-0301	02-01246	7.5–9.5	SOIL	0.123	—	3.25	0.131538	—	—	—
CA02-00-0302	02-01246	17.5–18.5	SOIL	—	—	—	0.036087	—	—	—
CA02-00-0303	02-01246	34.5–36.5	SOIL	—	—	—	0.0470455	—	—	—
CA02-00-0304	02-01246	37.5–39	QBT3	—	—	—	—	2.62	0.0953	2.62
RE02-03-51822	02-22350	0–0.5	SOIL	—	—	—	0.136	—	—	—
RE02-03-51823	02-22350	1.5–2	SOIL	—	—	—	0.0545	—	—	—

Table 6.25-4 (continued)

Sample ID	Location ID	Depth (ft)	Media	Cesium-137	Plutonium-239/240	Strontium-90	Tritium	Uranium-234	Uranium-235/236	Uranium-238
Qbt 1g, Qct, Qbo BV[a]				**na**	**na**	**na**	**na**	**4**	**0.18**	**3.9**
Qbt 2, 3, 4 BV[a]				**na**	**na**	**na**	**na**	**1.98**	**0.09**	**1.93**
Soil BV[a]				**1.65**	**0.054**	**1.31**	**na**	**2.59**	**0.2**	**2.29**
Industrial SAL[c]				**23**	**210**	**1900**	**440000**	**1500**	**87**	**430**
Recreational SAL[c]				**210**	**300**	**5600**	**5300000**	**3200**	**520**	**2100**
Residential SAL[c]				**5.6**	**33**	**5.7**	**750**	**170**	**17**	**87**
RE02-03-51900	02-22389	0–0.5	SOIL	—	—	—	0.0638	—	—	—
RE02-03-51901	02-22389	1.5–2	SOIL	0.159	—	0.887	—	—	—	—
RE02-03-51902	02-22390	3–3.5	SOIL	—	—	0.211	—	—	—	—
RE02-03-51904	02-22391	0–0.5	SOIL	17.2	0.0961	2.36	0.0996	—	—	—
RE02-03-51905	02-22391	1.5–2	SOIL	3.6	0.0809	0.391	0.0988	—	—	—
RE02-07-2861	02-600629	0–2.5	SOIL	0.717	1.43 (J-)	—	—	—	—	—
RE02-07-2862	02-600629	4.5–6.2	QAL	0.999	0.867	0.43	0.0206989	—	—	—
RE02-07-2866	02-600630	0–0.5	SOIL	—	1.01 (J-)	—	—	—	—	—
RE02-07-2867	02-600630	4.5–7	QAL	—	—	0.218	—	—	—	—
RE02-07-2870	02-600630	13–18	QAL	—	0.0308	—	—	—	—	—
RE02-07-2871	02-600631	0–0.5	SOIL	—	0.659	—	—	—	—	—
RE02-07-2872	02-600631	4.5–8.5	QAL	0.167	0.299	—	0.0315949	—	—	—
RE02-07-2877	02-600632	4.5–9	QAL	—	—	—	0.0343344	—	—	—
RE02-07-2880	02-600632	26–29	QBO	—	—	—	0.17875	—	—	—
RE02-07-2881	02-600633	0–0.5	SOIL	1.77	—	1.99	—	—	—	—
RE02-07-2882	02-600633	4.5–6.8	QAL	—	—	0.752	0.0542605	—	—	—
RE02-07-2887	02-600634	4.5–9	QAL	0.163	—	—	0.0356757	—	—	—
RE02-07-6832	02-600634	19.5–22	QBO	0.125	—	—	0.167571	—	—	—
RE02-07-2892	02-600635	4.5–9	QAL	—	—	—	0.0679813	—	—	—
RE02-07-2897	02-600636	4.5–9.5	QAL	—	—	0.306	0.0500562	3.26	0.208	2.48
RE02-07-6833	02-600636	19.5–24	QBO	—	—	—	0.0716883	—	0.355	—
RE02-07-2901	02-600637	0–0.5	SOIL	1.7	0.0852 (J-)	—	—	—	—	—
RE02-07-2902	02-600637	4.5–7.5	QAL	0.528	0.0438	—	0.0184587	—	—	—
RE02-07-2907	02-600638	4.5–9.5	QAL	—	—	—	0.0308785	—	—	—
RE02-07-2908	02-600638	29–32	QBO	—	—	—	0.261667	—	—	—
RE02-07-2911	02-600639	0.75–2.9	SOIL	0.886	1.39	—	—	—	—	—
RE02-07-2912	02-600639	4.5–6.4	QAL	1.88	2.93	—	—	—	—	—
RE02-07-2915	02-600639	9.5–11.9	QAL	—	0.0785	—	—	—	—	—
RE02-07-2913	02-600639	19.5–20.7	QBO	—	—	—	0.0564813	—	—	—

Table 6.25-4 (continued)

Sample ID	Location ID	Depth (ft)	Media	Cesium-137	Plutonium-239/240	Strontium-90	Tritium	Uranium-234	Uranium-235/236	Uranium-238
Qbt 1g, Qct, Qbo BV[a]				**na**	**na**	**na**	**na**	**4**	**0.18**	**3.9**
Qbt 2, 3, 4 BV[a]				**na**	**na**	**na**	**na**	**1.98**	**0.09**	**1.93**
Soil BV[a]				**1.65**	**0.054**	**1.31**	**na**	**2.59**	**0.2**	**2.29**
Industrial SAL[c]				**23**	**210**	**1900**	**440000**	**1500**	**87**	**430**
Recreational SAL[c]				**210**	**300**	**5600**	**5300000**	**3200**	**520**	**2100**
Residential SAL[c]				**5.6**	**33**	**5.7**	**750**	**170**	**17**	**87**
RE02-10-22061	02-600640	2–2.2	SOIL	0.714	NA[e]	NA	NA	NA	NA	NA
RE02-10-22062	02-600640	4–4.2	SOIL	0.909	NA	NA	NA	NA	NA	NA
RE02-07-2921	02-600641	0–0.5	SOIL	—	0.791	—	—	—	—	—
RE02-10-22046	02-612423	2–2.2	SOIL	18.2	NA	NA	NA	NA	NA	NA
RE02-10-22047	02-612423	4–4.2	SOIL	7.45	NA	NA	NA	NA	NA	NA
RE02-10-22049	02-612424	2–2.4	SOIL	1.28	NA	NA	NA	NA	NA	NA
RE02-10-22052	02-612425	2–2.2	SOIL	13.3	NA	NA	NA	NA	NA	NA
RE02-10-22055	02-612426	2–2.2	SOIL	15.1	NA	NA	NA	NA	NA	NA
RE02-10-22064	02-612429	2–2.2	SOIL	1.17	NA	NA	NA	NA	NA	NA
RE02-10-22065	02-612429	4–4.2	SOIL	2.08	NA	NA	NA	NA	NA	NA
RE02-10-22067	02-612430	2–2.2	SOIL	0.336	NA	NA	NA	NA	NA	NA
RE02-10-22068	02-612430	4–4.2	SOIL	0.62	NA	NA	NA	NA	NA	NA
RE02-10-22070	02-612431	2–2.2	SOIL	0.761	NA	NA	NA	NA	NA	NA
RE02-10-22071	02-612431	4–4.2	SOIL	0.825	NA	NA	NA	NA	NA	NA
RE02-10-22073	02-612432	2–2.2	SOIL	0.74	NA	NA	NA	NA	NA	NA
RE02-10-22074	02-612432	4–4.2	SOIL	0.202	NA	NA	NA	NA	NA	NA
RE02-10-22178	02-612463	5–6	SOIL	0.158	NA	—	—	—	—	—
RE02-10-22182	02-612463	49–50	QBO	—	NA	—	0.0822838	—	—	—
RE02-11-163	02-613240	2–2.2	SOIL	0.309	NA	NA	NA	NA	NA	NA

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

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

[b] na = Not available.

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

[d] — = Not detected.

[e] NA = Not analyzed.

Table 6.26-1
Samples Collected and Analyses Requested at AOC 02-011(a)(i)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Dioxins/Furans	Gamma-emitting Radionuclides	Tritium	Hexavalent Chromium	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	VOCs	Cyanide (Total)
0402-95-0314	02-01157	0–0.5	SOIL	—*	—	—	115	115	—	115	115	—	—	—	115	—	—	—
RE02-10-22127	02-600385	4–4.2	SOIL	—	—	—	—	—	—	—	—	—	10-4285	—	—	—	—	—
RE02-10-22128	02-600385	6–6.2	SOIL	—	—	—	—	—	—	—	—	—	10-4285	—	—	—	—	—
RE02-10-22109	02-600386	7–7.2	QAL	—	—	—	—	—	—	—	—	—	10-4217	—	—	—	—	—
RE02-10-22110	02-600386	9–9.2	QAL	—	—	—	—	—	—	—	—	—	10-4217	—	—	—	—	—
RE02-10-22111	02-600386	11–11.2	QAL	—	—	—	—	—	—	—	—	—	10-4217	—	—	—	—	—
RE02-07-1572	02-600387	0–0.5	SOIL	07-543	07-542	07-530	07-543	07-543	—	07-543	07-543	07-542	07-541	07-542	07-543	07-541	—	07-542
RE02-07-1573	02-600387	2–2.6	QAL	07-543	07-542	07-530	07-543	07-543	—	07-543	07-543	07-542	07-541	07-542	07-543	07-541	07-541	07-542
RE02-10-22112	02-612444	3.5–4	SOIL	—	—	—	—	—	—	—	—	—	10-4265	—	—	—	—	—
RE02-10-22115	02-612445	4–4.2	SOIL	—	—	—	—	—	—	—	—	—	10-4265	—	—	—	—	—
RE02-10-22116	02-612445	6–6.2	SOIL	—	—	—	—	—	—	—	—	—	10-4265	—	—	—	—	—
RE02-10-22118	02-612446	4–4.2	SOIL	—	—	—	—	—	—	—	—	—	10-4265	—	—	—	—	—
RE02-10-22119	02-612446	5–5.5	SOIL	—	—	—	—	—	—	—	—	—	10-4265	—	—	—	—	—
RE02-10-22121	02-612447	3–3.2	SOIL	—	—	—	—	—	—	—	—	—	10-4265	—	—	—	—	—
RE02-10-22124	02-612448	4–4.2	SOIL	—	—	—	—	—	—	—	—	—	10-4285	—	—	—	—	—
RE02-10-22125	02-612448	6–6.2	SOIL	—	—	—	—	—	—	—	—	—	10-4285	—	—	—	—	—
RE02-11-319	02-613289	4–4.2	SOIL	—	—	—	—	—	—	—	—	—	11-209	—	—	—	—	—
RE02-11-320	02-613289	6–6.2	SOIL	—	—	—	—	—	—	—	—	—	11-209	—	—	—	—	—
RE02-11-325	02-613292	4–4.2	SOIL	—	—	—	—	—	—	—	—	—	11-235	—	—	—	—	—
RE02-11-1525	02-613571	5–6	QAL	—	—	—	11-311	11-311	11-312	11-311	11-311	11-312	11-311	—	—	11-311	—	—
RE02-11-1526	02-613571	15–16	QBO	—	—	—	11-311	11-311	11-312	11-311	11-311	11-312	11-311	—	—	11-311	—	—
RE02-11-1527	02-613571	25–26	QBO	—	—	—	11-311	11-311	11-312	11-311	11-311	11-312	11-311	—	—	11-311	—	—
RE02-11-1528	02-613571	35–37	QBO	—	—	—	11-311	11-311	11-312	11-311	11-311	11-312	11-311	—	—	11-311	—	—
RE02-11-1529	02-613571	49–50	QBO	—	—	—	11-311	11-311	11-312	11-311	11-311	11-312	11-311	—	—	11-311	—	—

* — = Analysis not requested.

Table 6.26-2
Inorganic Chemicals above BVs at AOC 02-011(a)(i)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Cadmium	Iron	Manganese	Nitrate	Perchlorate	Selenium	Zinc
Qbt 1g, Qct, Qbo BV[a]				**3560**	**0.5**	**0.56**	**0.4**	**3700**	**189**	**na**[b]	**na**	**0.3**	**40**
Soil BV[a]				**29200**	**0.83**	**8.17**	**0.4**	**21500**	**671**	**na**	**na**	**1.52**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**1120**	**795000**	**145000**	**1820000**	**795**	**5680**	**341000**
Recreational SSL[d]				**791000**	**317**	**27.7**	**784**	**554000**	**110000**	**1260000**	**555**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**77.9**	**54800**	**10700**	**125000**	**54.8**	**391**	**23500**
RE02-07-1572	02-600387	0–0.5	SOIL	—[e]	—	—	—	—	—	1.71 (J-)	—	—	78.2
RE02-07-1573	02-600387	2–2.6	QAL	—	—	—	0.497 (U)	—	—	1.77 (J-)	0.000813 (J)	—	—
RE02-11-1525	02-613571	5–6	QAL	—	5.14 (U)	—	0.514 (U)	—	—	NA[f]	NA	—	50.1
RE02-11-1526	02-613571	15–16	QBO	7070 (J+)	1.16 (U)	1.04 (U)	0.58 (U)	4550	—	NA	NA	1.04 (U)	—
RE02-11-1527	02-613571	25–26	QBO	—	1.22 (U)	1.1 (U)	0.608 (U)	4960	—	NA	NA	1.1 (U)	—
RE02-11-1528	02-613571	35–37	QBO	—	1.19 (U)	1.2 (U)	0.593 (U)	5980	215	NA	NA	1.2 (U)	—
RE02-11-1529	02-613571	49–50	QBO	—	1.19 (U)	1.12 (U)	0.597 (U)	5230	198	NA	NA	1.12 (U)	—

Notes: Results are in mg/kg. Data qualifiers are defined in Appendix A.
[a] BVs are from LANL (1998, 059730).
[b] na = Not available.
[c] SSLs are from NMED (2009, 108070).
[d] SSLs are from LANL (2010, 108613).
[e] — = Not detected or not detected above BV.
[f] NA = Not analyzed.

Table 6.26-3
Organic Chemicals Detected at AOC 02-011(a)(i)

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	Chrysene	Fluoranthene	Heptachlorodibenzodioxin[1,2,3,4,6,7,8-]	Heptachlorodibenzodioxins (Total)	Heptachlorodibenzofuran[1,2,3,4,6,7,8-]
Industrial SSL[a]				**183000**	**8.26**	**8.26**	**23.4**	**2.34**	**23.4**	**18300**[b]	**234**	**2340**	**24400**	**na**[c]	**na**	**na**
Recreational SSL[d]				**104000**	**6.65**	**10.5**	**30.1**	**3.01**	**30.1**	**10400**[b]	**301**	**3010**	**13900**	**na**	**na**	**na**
Residential SSL[a]				**17200**	**1.12**	**2.22**	**6.21**	**0.621**	**6.21**	**1720**[b]	**62.1**	**621**	**2290**	**na**	**na**	**na**
RE02-10-22127	02-600385	4–4.2	SOIL	NA[e]	—[f]	0.0346	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-22128	02-600385	6–6.2	SOIL	NA	—	0.378	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-22111	02-600386	11–11.2	QAL	NA	—	0.0116	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-1572	02-600387	0–0.5	SOIL	0.00903 (J)	0.234	0.553	0.0516	0.0551	0.0702	0.0271 (J)	0.041	0.0598	0.0984	0.00016	0.001	0.0000475
RE02-07-1573	02-600387	2–2.6	QAL	0.00727 (J)	0.0532	0.105	0.032 (J)	0.0332 (J)	0.0424	0.0222 (J)	0.0219 (J)	0.0386	0.0529	0.000166	0.00108	0.0000472
RE02-10-22112	02-612444	3.5–4	SOIL	NA	—	0.208	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-22115	02-612445	4–4.2	SOIL	NA	—	0.0781	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-22116	02-612445	6–6.2	SOIL	NA	—	0.0222	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-22118	02-612446	4–4.2	SOIL	NA	0.236	0.49	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-22119	02-612446	5–5.5	SOIL	NA	0.356	0.668	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-22121	02-612447	3–3.2	SOIL	NA	0.337	0.732	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-22124	02-612448	4–4.2	SOIL	NA	—	0.0361	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-22125	02-612448	6–6.2	SOIL	NA	—	0.357	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-319	02-613289	4–4.2	SOIL	NA	—	0.68	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-320	02-613289	6–6.2	SOIL	NA	—	3.39	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-325	02-613292	4–4.2	SOIL	NA	—	0.825	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-1525	02-613571	5–6	QAL	—	—	0.0154	—	—	—	—	—	—	—	NA	NA	NA

Table 6.26-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Heptachlorodibenzofuran[1,2,3,4,7,8,9-]	Heptachlorodibenzofurans (Total)	Hexachlorodibenzodioxin[1,2,3,4,7,8-]	Hexachlorodibenzodioxin[1,2,3,6,7,8-]	Hexachlorodibenzodioxin[1,2,3,7,8,9-]	Hexachlorodibenzodioxins (Total)	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-]	Hexachlorodibenzofurans (Total)	Indeno(1,2,3-cd)pyrene
Industrial SSL[a]				**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**23.4**
Recreational SSL[d]				**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**30.1**
Residential SSL[a]				**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**6.21**
RE02-10-22127	02-600385	4–4.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-22128	02-600385	6–6.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-22111	02-600386	11–11.2	QAL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-1572	02-600387	0–0.5	SOIL	0.00000235 (J)	0.000205	0.00000071 (J)	0.00000332	0.0000013 (J)	0.0000622	0.00000486	0.00000166 (J)	0.0000005 (J)	0.00000273	0.0000561	0.0252 (J)
RE02-07-1573	02-600387	2–2.6	QAL	0.00000182 (J)	0.000235	0.000000738 (J)	0.0000037	0.00000091 (J)	0.0000743	0.00000182 (J)	0.000000621 (J)	—	0.000000981 (J)	0.0000446	0.0184 (J)
RE02-10-22112	02-612444	3.5–4	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-22115	02-612445	4–4.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-22116	02-612445	6–6.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-22118	02-612446	4–4.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-22119	02-612446	5–5.5	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-22121	02-612447	3–3.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-22124	02-612448	4–4.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-22125	02-612448	6–6.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-319	02-613289	4–4.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-320	02-613289	6–6.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-325	02-613292	4–4.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-1525	02-613571	5–6	QAL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	—

Table 6.26-3 (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-]	Pentachlorodibenzodioxins (Total)	Pentachlorodibenzofuran[1,2,3,7,8-]	Pentachlorodibenzofuran[2,3,4,7,8-]	Pentachlorodibenzofurans (Totals)	Phenanthrene	Pyrene	Tetrachlorodibenzofuran[2,3,7,8-]	Tetrachlorodibenzofurans (Totals)	Toluene
Industrial SSL[a]				**na**	**na**	**na**	**na**	**na**	**na**	**na**	**20500**	**18300**	**0.00147**	**na**	**57900**
Recreational SSL[d]				**na**	**na**	**na**	**na**	**na**	**na**	**na**	**12000**	**10400**	**0.00197**	**na**	**60800**
Residential SSL[a]				**na**	**na**	**na**	**na**	**na**	**na**	**na**	**1830**	**1720**	**0.000374**	**na**	**5570**
RE02-10-22127	02-600385	4–4.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-22128	02-600385	6–6.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-22111	02-600386	11–11.2	QAL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-1572	02-600387	0–0.5	SOIL	0.0012	0.00022	0.000000204 (J)	0.00000234	0.00000101 (J)	0.00000652	0.0000449 (J)	0.0317 (J)	0.0771	0.00000377	0.000017	NA
RE02-07-1573	02-600387	2–2.6	QAL	0.00123	0.000248	0.000000156 (J)	0.0000007	—	0.00000155 (J)	0.0000102 (J)	0.0212 (J)	0.0423	0.000000867 (J)	0.00000232	0.000465 (J)
RE02-10-22112	02-612444	3.5–4	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-22115	02-612445	4–4.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-22116	02-612445	6–6.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-22118	02-612446	4–4.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-22119	02-612446	5–5.5	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-22121	02-612447	3–3.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-22124	02-612448	4–4.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-22125	02-612448	6–6.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-319	02-613289	4–4.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-320	02-613289	6–6.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-325	02-613292	4–4.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-1525	02-613571	5–6	QAL	NA	NA	NA	NA	NA	NA	NA	—	—	NA	NA	NA

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

[a] SSLs are from NMED (2009, 108070).

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

[c] na = Not available.

[d] SSLs are from LANL (2010, 108613).

[e] — = Not detected.

[f] NA = Not analyzed.

Table 6.26-4
Radionuclides Detected or Detected above BVs/FVs at AOC 02-011(a)(i)

Sample ID	Location ID	Depth (ft)	Media	Tritium	Uranium-235/236
Qbt 1g, Qct, Qbo BV[a]				**na[b]**	**0.18**
Soil BV[a]				**na**	**0.2**
Industrial SAL[c]				**440000**	**87**
Recreational SAL[c]				**5300000**	**520**
Residential SAL[c]				**750**	**17**
0402-95-0314	02-01157	0–0.5	SOIL	0.164012	—[d]
RE02-11-1525	02-613571	5–6	QAL	0.0560306	—
RE02-11-1527	02-613571	25–26	QBO	—	0.208

Notes: Results are in pCi/g. Data qualifiers are defined in Appendix A.
[a] BVs/FVs are from LANL (1998, 059730).
[b] na = Not available.
[c] SALs from LANL (2009, 107655).
[d] — = Not detected.

Table 6.26-5
Samples Collected and Analyses Requested at AOC 02-011(a)(ii)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Dioxins/Furans	Gamma-emitting Radionuclides	Tritium	Hexavalent Chromium	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	VOCs	Cyanide (Total)
RE02-07-1876	02-600449	0–0.5	SOIL	07-532	07-532	07-526	07-532	07-532	—*	07-532	07-532	07-532	07-532	07-532	07-532	07-532	—	07-532
RE02-07-1877	02-600449	2–4.5	QAL	07-956	07-956	07-955	07-956	07-956	—	07-956	07-956	07-956	07-956	07-956	07-956	07-956	07-956	07-956
RE02-07-1878	02-600449	4.5–9.5	QAL	07-956	07-956	07-955	07-956	07-956	—	07-956	07-956	07-956	07-956	07-956	07-956	07-956	07-956	07-956
RE02-10-22130	02-600449	6–6.2	SOIL	—	—	—	—	—	—	—	—	—	10-4285	—	—	—	—	—
RE02-10-22133	02-612451	6–6.2	SOIL	—	—	—	—	—	—	—	—	—	10-4285	—	—	—	—	—
RE02-10-22136	02-612452	6–6.2	SOIL	—	—	—	—	—	—	—	—	—	10-4285	—	—	—	—	—
RE02-10-22137	02-612452	8–8.2	SOIL	—	—	—	—	—	—	—	—	—	10-4285	—	—	—	—	—
RE02-10-22139	02-612453	6–6.2	SOIL	—	—	—	—	—	—	—	—	—	10-4285	—	—	—	—	—
RE02-10-22140	02-612453	8–8.2	SOIL	—	—	—	—	—	—	—	—	—	10-4285	—	—	—	—	—
RE02-10-26105	02-613001	6–6.5	SOIL	—	—	—	—	—	—	—	—	—	10-4454	—	—	—	—	—
RE02-10-26106	02-613001	7–7.5	SOIL	—	—	—	—	—	—	—	—	—	10-4454	—	—	—	—	—
RE02-10-26107	02-613002	6–6.5	SOIL	—	—	—	—	—	—	—	—	—	10-4454	—	—	—	—	—
RE02-10-26108	02-613002	8–8.5	SOIL	—	—	—	—	—	—	—	—	—	10-4454	—	—	—	—	—
RE02-10-26638	02-613122	2–2.2	SOIL	—	—	—	—	—	—	—	—	—	10-4707	—	—	—	—	—

Table 6.26-5 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Dioxins/Furans	Gamma-emitting Radionuclides	Tritium	Hexavalent Chromium	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	VOCs	Cyanide (Total)
RE02-10-26639	02-613122	4–4.2	SOIL	—	—	—	—	—	—	—	—	—	10-4707	—	—	—	—	—
RE02-10-26640	02-613124	6–6.2	SOIL	—	—	—	—	—	—	—	—	—	10-4707	—	—	—	—	—
RE02-10-26641	02-613124	8–8.2	SOIL	—	—	—	—	—	—	—	—	—	10-4707	—	—	—	—	—
RE02-11-315	02-613287	6–6.2	SOIL	—	—	—	—	—	—	—	—	—	11-186	—	—	—	—	—
RE02-11-316	02-613287	8–8.2	SOIL	—	—	—	—	—	—	—	—	—	11-186	—	—	—	—	—
RE02-11-317	02-613288	6–6.2	SOIL	—	—	—	—	—	—	—	—	—	11-186	—	—	—	—	—
RE02-11-318	02-613288	8–8.2	SOIL	—	—	—	—	—	—	—	—	—	11-186	—	—	—	—	—
RE02-11-1525	02-613571	5–6	QAL	—	—	—	11-311	11-311	11-312	11-311	11-311	11-312	11-311	—	—	11-311	—	—
RE02-11-1526	02-613571	15–16	QBO	—	—	—	11-311	11-311	11-312	11-311	11-311	11-312	11-311	—	—	11-311	—	—
RE02-11-1527	02-613571	25–26	QBO	—	—	—	11-311	11-311	11-312	11-311	11-311	11-312	11-311	—	—	11-311	—	—
RE02-11-1528	02-613571	35–37	QBO	—	—	—	11-311	11-311	11-312	11-311	11-311	11-312	11-311	—	—	11-311	—	—
RE02-11-1529	02-613571	49–50	QBO	—	—	—	11-311	11-311	11-312	11-311	11-311	11-312	11-311	—	—	11-311	—	—
RE02-11-2218	02-613626	8–9	SOIL	—	—	—	—	—	—	—	—	—	11-541	—	—	—	—	—
RE02-11-2219	02-613626	10–11	SOIL	—	—	—	—	—	—	—	—	—	11-541	—	—	—	—	—
RE02-11-2220	02-613627	6–7	SOIL	—	—	—	—	—	—	—	—	—	11-541	—	—	—	—	—
RE02-11-2221	02-613627	8–9	SOIL	—	—	—	—	—	—	—	—	—	11-541	—	—	—	—	—
RE02-11-2222	02-613627	10–11	SOIL	—	—	—	—	—	—	—	—	—	11-686	—	—	—	—	—
RE02-11-2523	02-613667	6–6.2	SOIL	—	—	—	—	—	—	—	—	—	11-687	—	—	—	—	—
RE02-11-2524	02-613667	8–8.2	SOIL	—	—	—	—	—	—	—	—	—	11-687	—	—	—	—	—
RE02-11-2525	02-613667	10–10.2	SOIL	—	—	—	—	—	—	—	—	—	11-687	—	—	—	—	—
RE02-11-2526	02-613668	8–8.2	SOIL	—	—	—	—	—	—	—	—	—	11-729	—	—	—	—	—
RE02-11-2527	02-613668	10–10.2	SOIL	—	—	—	—	—	—	—	—	—	11-729	—	—	—	—	—
RE02-11-2795	02-613699	6–6.2	QBT3	—	—	—	—	—	—	—	—	—	11-904	—	—	—	—	—
RE02-11-2796	02-613699	8–8.2	QBT3	—	—	—	—	—	—	—	—	—	11-904	—	—	—	—	—
RE02-11-2797	02-613699	10–10.2	QBT3	—	—	—	—	—	—	—	—	—	11-904	—	—	—	—	—
RE02-11-2798	02-613699	12–12.2	QBT3	—	—	—	—	—	—	—	—	—	11-904	—	—	—	—	—
RE02-11-2799	02-613700	8–8.2	SOIL	—	—	—	—	—	—	—	—	—	11-904	—	—	—	—	—
RE02-11-2800	02-613700	10–10.2	SOIL	—	—	—	—	—	—	—	—	—	11-904	—	—	—	—	—
RE02-11-2801	02-613700	12–12.2	SOIL	—	—	—	—	—	—	—	—	—	11-904	—	—	—	—	—
RE02-11-3145	02-613700	14–14.2	SOIL	—	—	—	—	—	—	—	—	—	11-1006	—	—	—	—	—
RE02-11-3146	02-613761	6–6.2	SOIL	—	—	—	—	—	—	—	—	—	11-1009	—	—	—	—	—
RE02-11-3147	02-613761	8–8.2	SOIL	—	—	—	—	—	—	—	—	—	11-1009	—	—	—	—	—
RE02-11-3148	02-613761	10–10.2	SOIL	—	—	—	—	—	—	—	—	—	11-1009	—	—	—	—	—
RE02-11-3149	02-613761	12–12.2	QBT3	—	—	—	—	—	—	—	—	—	11-1009	—	—	—	—	—
RE02-11-3150	02-613761	14–14.2	QBT3	—	—	—	—	—	—	—	—	—	11-1009	—	—	—	—	—
RE02-11-3177	02-613762	0–0.5	SOIL	—	—	—	—	—	—	—	—	—	11-1006	—	—	—	—	—

* — = Analysis not requested.

Table 6.26-6
Inorganic Chemicals above BVs at AOC 02-011(a)(ii)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Cadmium	Iron	Manganese	Mercury	Nitrate	Selenium	Zinc
Qbt 1g, Qct, Qbo BV[a]				**3560**	**0.5**	**0.56**	**0.4**	**3700**	**189**	**0.1**	**na[b]**	**0.3**	**40**
Soil BV[a]				**29200**	**0.83**	**8.17**	**0.4**	**21500**	**671**	**0.1**	**na**	**1.52**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**1120**	**795000**	**145000**	**310[d]**	**1820000**	**5680**	**341000**
Recreational SSL[e]				**791000**	**317**	**27.7**	**784**	**554000**	**110000**	**238**	**1260000**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**77.9**	**54800**	**10700**	**23[d]**	**125000**	**391**	**23500**
RE02-07-1876	02-600449	0–0.5	SOIL	—[f]	—	—	—	—	—	0.472	1.01 (J)	—	—
RE02-07-1877	02-600449	2–4.5	QAL	—	—	—	0.552 (U)	—	—	0.173	1.87	—	—
RE02-07-1878	02-600449	4.5–9.5	QAL	—	—	—	0.517 (U)	—	—	—	—	—	—
RE02-11-1525	02-613571	5–6	QAL	—	5.14 (U)	—	0.514 (U)	—	—	—	NA[g]	—	50.1
RE02-11-1526	02-613571	15–16	QBO	7070 (J+)	1.16 (U)	1.04 (U)	0.58 (U)	4550	—	—	NA	1.04 (U)	—
RE02-11-1527	02-613571	25–26	QBO	—	1.22 (U)	1.1 (U)	0.608 (U)	4960	—	—	NA	1.1 (U)	—
RE02-11-1528	02-613571	35–37	QBO	—	1.19 (U)	1.2 (U)	0.593 (U)	5980	215	—	NA	1.2 (U)	—
RE02-11-1529	02-613571	49–50	QBO	—	1.19 (U)	1.12 (U)	0.597 (U)	5230	198	—	NA	1.12 (U)	—

Notes: Results are in mg/kg. Data qualifiers are defined in Appendix A.
[a] BVs are from LANL (1998, 059730).
[b] na = Not available.
[c] SSLs are from NMED (2009, 108070), unless otherwise noted.
[d] SSLs are from EPA regional screening tables (http://www.epa.gov.earth1r6/6pd/rcra_c/pd-n/screen.htm).
[e] SSLs are from LANL (2010, 108613).
[f] — = Not detected or not detected above BV.
[g] NA = Not analyzed.

Table 6.26-7
Organic Chemicals Detected at AOC 02-011(a)(ii)

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	Chrysene	Di-n-butylphthalate	Fluoranthene	Fluorene	Heptachlorodibenzodioxin[1,2,3,4,6,7,8-]
Industrial SSL[a]				**36700**	**183000**	**8.26**	**8.26**	**23.4**	**2.34**	**23.4**	**18300**[b]	**2340**	**68400**	**24400**	**24400**	**na**[c]
Recreational SSL[d]				**20800**	**104000**	**6.65**	**10.5**	**30.1**	**3.01**	**30.1**	**10400**[b]	**3010**	**39900**	**13900**	**13900**	**na**
Residential SSL[a]				**3440**	**17200**	**1.12**	**2.22**	**6.21**	**0.621**	**6.21**	**1720**[b]	**621**	**6110**	**2290**	**2290**	**na**
RE02-07-1876	02-600449	0–0.5	SOIL	0.157	0.367	—[e]	28	1.54	1.5 (J)	2.09 (J)	0.557 (J)	1.5	0.151 (J)	3.84	0.123	0.0000496
RE02-07-1877	02-600449	2–4.5	QAL	—	—	—	44.8	—	0.0207 (J)	0.0294 (J)	—	0.0252 (J)	—	0.0481	—	0.0000208
RE02-07-1878	02-600449	4.5–9.5	QAL	—	—	—	0.171	—	—	—	—	—	—	—	—	0.00000134 (J)
RE02-10-22130	02-600449	6–6.2	SOIL	NA[f]	NA	—	0.69	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-22133	02-612451	6–6.2	SOIL	NA	NA	—	4	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-22136	02-612452	6–6.2	SOIL	NA	NA	—	1.1	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-22137	02-612452	8–8.2	SOIL	NA	NA	—	2.14	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-22139	02-612453	6–6.2	SOIL	NA	NA	—	0.377	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-22140	02-612453	8–8.2	SOIL	NA	NA	—	0.191	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-26105	02-613001	6–6.5	SOIL	NA	NA	—	0.536	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-26106	02-613001	7–7.5	SOIL	NA	NA	—	5.48	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-26107	02-613002	6–6.5	SOIL	NA	NA	—	7.98	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-26108	02-613002	8–8.5	SOIL	NA	NA	—	1.67	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-26638	02-613122	2–2.2	SOIL	NA	NA	—	0.328	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-26639	02-613122	4–4.2	SOIL	NA	NA	0.0407 (J)	0.178	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-26640	02-613124	6–6.2	SOIL	NA	NA	—	2.03	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-26641	02-613124	8–8.2	SOIL	NA	NA	0.17	1.24	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-315	02-613287	6–6.2	SOIL	NA	NA	—	13.9	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-316	02-613287	8–8.2	SOIL	NA	NA	—	12.6	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-317	02-613288	6–6.2	SOIL	NA	NA	—	2.48	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-318	02-613288	8–8.2	SOIL	NA	NA	—	1.07	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-1525	02-613571	5–6	QAL	—	—	—	0.0154	—	—	—	—	—	—	—	—	NA
RE02-11-2218	02-613626	8–9	SOIL	NA	NA	0.197	1.03	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-2219	02-613626	10–11	SOIL	NA	NA	—	3.3	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 6.26-7 (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	Chrysene	Di-n-butylphthalate	Fluoranthene	Fluorene	Heptachlorodibenzodioxin[1,2,3,4,6,7,8-]
Industrial SSL[a]				**36700**	**183000**	**8.26**	**8.26**	**23.4**	**2.34**	**23.4**	**18300**[b]	**2340**	**68400**	**24400**	**24400**	**na**
Recreational SSL[d]				**20800**	**104000**	**6.65**	**10.5**	**30.1**	**3.01**	**30.1**	**10400**[b]	**3010**	**39900**	**13900**	**13900**	**na**
Residential SSL[a]				**3440**	**17200**	**1.12**	**2.22**	**6.21**	**0.621**	**6.21**	**1720**[b]	**621**	**6110**	**2290**	**2290**	**na**
RE02-11-2220	02-613627	6–7	SOIL	NA	NA	1.39	7.29	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-2221	02-613627	8–9	SOIL	NA	NA	—	4.16	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-2222	02-613627	10–11	SOIL	NA	NA	—	1.89	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-2523	02-613667	6–6.2	SOIL	NA	NA	7.11	13.3	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-2524	02-613667	8–8.2	SOIL	NA	NA	3.74	6.3	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-2525	02-613667	10–10.2	SOIL	NA	NA	4.93	7.73	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-2526	02-613668	8–8.2	SOIL	NA	NA	—	1.52	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-2527	02-613668	10–10.2	SOIL	NA	NA	—	3.21	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-2795	02-613699	6–6.2	QBT3	NA	NA	6.93	35.8	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-2796	02-613699	8–8.2	QBT3	NA	NA	14.3	65	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-2797	02-613699	10–10.2	QBT3	NA	NA	4.9	24.6	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-2798	02-613699	12–12.2	QBT3	NA	NA	0.636 (J)	3.34	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-2799	02-613700	8–8.2	SOIL	NA	NA	0.0505	0.258	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-2800	02-613700	10–10.2	SOIL	NA	NA	0.0617	0.327	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-2801	02-613700	12–12.2	SOIL	NA	NA	0.256 (J)	1.19	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-3145	02-613700	14–14.2	SOIL	NA	NA	0.779	2.27	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-3146	02-613761	6–6.2	SOIL	NA	NA	—	10.7	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-3147	02-613761	8–8.2	SOIL	NA	NA	—	3.85	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-3148	02-613761	10–10.2	SOIL	NA	NA	—	1.53	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-3149	02-613761	12–12.2	QBT3	NA	NA	—	1.75	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-3150	02-613761	14–14.2	QBT3	NA	NA	—	0.0445	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-3177	02-613762	0–0.5	SOIL	NA	NA	—	11.8	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 6.26-7 (continued)

Sample ID	Location ID	Depth (ft)	Media	Heptachlorodibenzodioxins (Total)	Heptachlorodibenzofuran[1,2,3,4,6,7,8-]	Heptachlorodibenzofuran[1,2,3,4,7,8,9-]	Heptachlorodibenzofurans (Total)	Hexachlorodibenzodioxin[1,2,3,6,7,8-]	Hexachlorodibenzodioxin[1,2,3,7,8,9-]	Hexachlorodibenzodioxins (Total)	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-]	Hexachlorodibenzofurans (Total)
Industrial SSL[a]				**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**
Recreational SSL[d]				**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**
Residential SSL[a]				**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**
RE02-07-1876	02-600449	0–0.5	SOIL	0.000197	0.000159	0.000023	0.000325	0.00000161 (J)	0.000000854 (J)	0.0000197	0.000193	0.0000737	0.0000106	0.00012	0.00126 (J)
RE02-07-1877	02-600449	2–4.5	QAL	0.0000843	0.0000844	0.0000159	0.000184	0.000000758 (J)	0.000000382 (J)	0.00000861	0.000101	0.00004	0.00000569	0.0000637	0.000641
RE02-07-1878	02-600449	4.5–9.5	QAL	0.00000429	0.00000545	0.000000799 (J)	0.0000109	—	—	—	0.00000641	0.00000263	0.00000051 (J)	0.0000043	0.0000454
RE02-10-22130	02-600449	6–6.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-22133	02-612451	6–6.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-22136	02-612452	6–6.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-22137	02-612452	8–8.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-22139	02-612453	6–6.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-22140	02-612453	8–8.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-26105	02-613001	6–6.5	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-26106	02-613001	7–7.5	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-26107	02-613002	6–6.5	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-26108	02-613002	8–8.5	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-26638	02-613122	2–2.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-26639	02-613122	4–4.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-26640	02-613124	6–6.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-26641	02-613124	8–8.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-315	02-613287	6–6.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-316	02-613287	8–8.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-317	02-613288	6–6.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-318	02-613288	8–8.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-1525	02-613571	5–6	QAL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-2218	02-613626	8–9	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-2219	02-613626	10–11	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-2220	02-613627	6–7	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-2221	02-613627	8–9	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-2222	02-613627	10–11	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 6.26-7 (continued)

Sample ID	Location ID	Depth (ft)	Media	Heptachlorodibenzodioxins (Total)	Heptachlorodibenzofuran[1,2,3,4,6,7,8-]	Heptachlorodibenzofuran[1,2,3,4,7,8,9-]	Heptachlorodibenzofurans (Total)	Hexachlorodibenzodioxin[1,2,3,6,7,8-]	Hexachlorodibenzodioxin[1,2,3,7,8,9-]	Hexachlorodibenzodioxins (Total)	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-]	Hexachlorodibenzofurans (Total)
Industrial SSL[a]				**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**
Recreational SSL[d]				**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**
Residential SSL[a]				**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**
RE02-11-2523	02-613667	6–6.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-2524	02-613667	8–8.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-2525	02-613667	10–10.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-2526	02-613668	8–8.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-2527	02-613668	10–10.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-2795	02-613699	6–6.2	QBT3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-2796	02-613699	8–8.2	QBT3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-2797	02-613699	10–10.2	QBT3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-2798	02-613699	12–12.2	QBT3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-2799	02-613700	8–8.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-2800	02-613700	10–10.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-2801	02-613700	12–12.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-3145	02-613700	14–14.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-3146	02-613761	6–6.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-3147	02-613761	8–8.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-3148	02-613761	10–10.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-3149	02-613761	12–12.2	QBT3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-3150	02-613761	14–14.2	QBT3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-3177	02-613762	0–0.5	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 6.26-7 (continued)

Sample ID	Location ID	Depth (ft)	Media	Indeno(1,2,3-cd)pyrene	Octachlorodibenzodioxin[1,2,3,4,6,7,8,9-]	Octachlorodibenzofuran[1,2,3,4,6,7,8,9-]	Pentachlorodibenzodioxin[1,2,3,7,8-]	Pentachlorodibenzodioxins (Total)	Pentachlorodibenzofuran[1,2,3,7,8-]	Pentachlorodibenzofuran[2,3,4,7,8-]	Pentachlorodibenzofurans (Totals)	Phenanthrene	Pyrene	Tetrachlorodibenzodioxins (Total)	Tetrachlorodibenzofuran[2,3,7,8-]	Tetrachlorodibenzofurans (Totals)
Industrial SSL[a]				**23.4**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**20500**	**18300**	**na**	**0.00147**	**na**
Recreational SSL[d]				**30.1**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**12000**	**10400**	**na**	**0.00197**	**na**
Residential SSL[a]				**6.21**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**1830**	**1720**	**na**	**0.000374**	**na**
RE02-07-1876	02-600449	0–0.5	SOIL	0.742 (J)	0.000436	0.000191	—	0.00000173	0.0000574	0.000364	0.00199	1.68	3.82	—	0.000175	0.00081
RE02-07-1877	02-600449	2–4.5	QAL	0.0127 (J)	0.000145	0.00012	0.00000022 (J)	0.00000263	0.0000331	0.000214	0.00118	0.0134 (J)	0.0353 (J)	0.0000012	0.000104	0.000538
RE02-07-1878	02-600449	4.5–9.5	QAL	—	0.0000134	0.0000057	—	—	0.0000019 (J)	0.0000128	0.000073	—	—	—	0.00000639	0.0000324
RE02-10-22130	02-600449	6–6.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-22133	02-612451	6–6.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-22136	02-612452	6–6.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-22137	02-612452	8–8.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-22139	02-612453	6–6.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-22140	02-612453	8–8.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-26105	02-613001	6–6.5	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-26106	02-613001	7–7.5	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-26107	02-613002	6–6.5	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-26108	02-613002	8–8.5	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-26638	02-613122	2–2.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-26639	02-613122	4–4.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-26640	02-613124	6–6.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-26641	02-613124	8–8.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-315	02-613287	6–6.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-316	02-613287	8–8.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-317	02-613288	6–6.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-318	02-613288	8–8.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-1525	02-613571	5–6	QAL	—	NA	NA	NA	NA	NA	NA	NA	—	—	NA	NA	NA
RE02-11-2218	02-613626	8–9	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-2219	02-613626	10–11	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-2220	02-613627	6–7	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-2221	02-613627	8–9	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-2222	02-613627	10–11	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 6.26-7 (continued)

Sample ID	Location ID	Depth (ft)	Media	Indeno(1,2,3-cd)pyrene	Octachlorodibenzodioxin[1,2,3,4,6,7,8,9-]	Octachlorodibenzofuran[1,2,3,4,6,7,8,9-]	Pentachlorodibenzodioxin[1,2,3,7,8-]	Pentachlorodibenzodioxins (Total)	Pentachlorodibenzofuran[1,2,3,7,8-]	Pentachlorodibenzofuran[2,3,4,7,8-]	Pentachlorodibenzofurans (Totals)	Phenanthrene	Pyrene	Tetrachlorodibenzodioxins (Total)	Tetrachlorodibenzofuran[2,3,7,8-]	Tetrachlorodibenzofurans (Totals)
Industrial SSL[a]				**23.4**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**20500**	**18300**	**na**	**0.00147**	**na**
Recreational SSL[d]				**30.1**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**12000**	**10400**	**na**	**0.00197**	**na**
Residential SSL[a]				**6.21**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**1830**	**1720**	**na**	**0.000374**	**na**
RE02-11-2523	02-613667	6–6.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-2524	02-613667	8–8.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-2525	02-613667	10–10.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-2526	02-613668	8–8.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-2527	02-613668	10–10.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-2795	02-613699	6–6.2	QBT3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-2796	02-613699	8–8.2	QBT3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-2797	02-613699	10–10.2	QBT3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-2798	02-613699	12–12.2	QBT3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-2799	02-613700	8–8.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-2800	02-613700	10–10.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-2801	02-613700	12–12.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-3145	02-613700	14–14.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-3146	02-613761	6–6.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-3147	02-613761	8–8.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-3148	02-613761	10–10.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-3149	02-613761	12–12.2	QBT3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-3150	02-613761	14–14.2	QBT3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-3177	02-613762	0–0.5	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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

[a] SSLs are from NMED (2009, 108070).

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

[c] na = Not available.

[d] SSLs are from LANL (2010, 108613).

[e] — = Not detected.

[f] NA = Not analyzed.

Table 6.26-8
Radionuclides Detected or
Detected above BVs/FVs at AOC 02-011(a)(ii)

Sample ID	Location ID	Depth (ft)	Media	Plutonium-239/240	Tritium	Uranium-235/236
Qbt 1g, Qct, Qbo BV[a]				**na[b]**	**na**	**0.18**
Soil BV[a]				**0.054**	**na**	**0.2**
Industrial SAL[c]				**210**	**440000**	**87**
Recreational SAL[c]				**300**	**5300000**	**520**
Residential SAL[c]				**33**	**750**	**17**
RE02-07-1876	02-600449	0–0.5	SOIL	0.159	—[d]	—
RE02-11-1525	02-613571	5–6	QAL	—	0.0560306	—
RE02-11-1527	02-613571	25–26	QBO	—	—	0.208

Table 6.26-9
Samples Collected and Analyses Requested at AOC 02-011(a)(iii)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Dioxins/Furans	Gamma-emitting Radionuclides	Tritium	Hexavalent Chromium	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	TPH-DRO	VOCs	Cyanide (Total)
0402-95-0315	02-01158	0–0.5	SOIL	—*	—	—	115	115	—	115	115	—	—	—	115	—	—	—	—
RE02-07-1629	02-600406	4.5–13	QAL	07-924	07-923	07-922	07-924	07-924	—	07-924	07-924	07-923	07-921	07-923	07-924	07-921	07-921	07-921	07-923
RE02-07-1630	02-600406	15–19.5	QBO	07-924	07-923	07-922	07-924	07-924	—	07-924	07-924	07-923	07-921	07-923	07-924	07-921	07-921	07-921	07-923
RE02-07-1632	02-600407	0–0.5	SOIL	07-553	07-552	07-603	07-553	07-553	—	07-553	07-553	07-552	07-551	07-552	07-553	07-551	07-551	—	07-552
RE02-07-1633	02-600407	4.5–10	QAL	07-924	07-923	07-922	07-924	07-924	—	07-924	07-924	07-923	07-921	07-923	07-924	07-921	07-921	07-921	07-923
RE02-07-1634	02-600407	10–15	QBO	07-924	07-923	07-922	07-924	07-924	—	07-924	07-924	07-923	07-921	07-923	07-924	07-921	07-921	07-921	07-923
RE02-07-1636	02-600408	0–0.5	SOIL	07-553	07-552	07-603	07-553	07-553	—	07-553	07-553	07-552	07-551	07-552	07-553	07-551	07-551	—	07-552
RE02-10-22094	02-612438	2–2.2	SOIL	—	—	—	—	—	—	—	—	—	10-4151	—	—	—	—	—	—
RE02-10-22095	02-612438	4–4.2	SOIL	—	—	—	—	—	—	—	—	—	10-4151	—	—	—	—	—	—
RE02-10-22097	02-612439	2–2.2	SOIL	—	—	—	—	—	—	—	—	—	10-4151	—	—	—	—	—	—
RE02-10-22098	02-612439	4–4.4	SOIL	—	—	—	—	—	—	—	—	—	10-4151	—	—	—	—	—	—
RE02-10-22101	02-612440	4–4.4	SOIL	—	—	—	—	—	—	—	—	—	10-4151	—	—	—	—	—	—
RE02-10-26109	02-613003	2–2.5	SOIL	—	—	—	—	—	—	—	—	—	10-4454	—	—	—	—	—	—
RE02-10-26110	02-613003	4–4.5	SOIL	—	—	—	—	—	—	—	—	—	10-4454	—	—	—	—	—	—
RE02-11-1525	02-613571	5–6	QAL	—	—	—	11-311	11-311	11-312	11-311	11-311	11-312	11-311	—	—	11-311	—	—	—
RE02-11-1526	02-613571	15–16	QBO	—	—	—	11-311	11-311	11-312	11-311	11-311	11-312	11-311	—	—	11-311	—	—	—
RE02-11-1527	02-613571	25–26	QBO	—	—	—	11-311	11-311	11-312	11-311	11-311	11-312	11-311	—	—	11-311	—	—	—
RE02-11-1528	02-613571	35–37	QBO	—	—	—	11-311	11-311	11-312	11-311	11-311	11-312	11-311	—	—	11-311	—	—	—
RE02-11-1529	02-613571	49–50	QBO	—	—	—	11-311	11-311	11-312	11-311	11-311	11-312	11-311	—	—	11-311	—	—	—

* — = Analysis not requested.

Table 6.26-10
Inorganic Chemicals above BVs at AOC 02-011(a)(iii)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Cadmium	Chromium	Iron	Manganese	Nickel	Nitrate	Perchlorate	Selenium	Vanadium	Zinc
Qbt 1g, Qct, Qbo BV[a]				**3560**	**0.5**	**0.56**	**25.7**	**0.4**	**2.6**	**3700**	**189**	**2**	**na[b]**	**na**	**0.3**	**4.59**	**40**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**0.4**	**19.3**	**21500**	**671**	**15.4**	**na**	**na**	**1.52**	**39.6**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**1120**	**2920[d]**	**795000**	**145000**	**22700**	**1820000**	**795**	**5680**	**5680**	**341000**
Recreational SSL[e]				**791000**	**317**	**27.7**	**158000**	**784**	**1910[d]**	**554000**	**110000**	**15800**	**1260000**	**555**	**3960**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**77.9**	**219[d]**	**54800**	**10700**	**1560**	**125000**	**54.8**	**391**	**391**	**23500**
RE02-07-1629	02-600406	4.5–13	QAL	—[f]	—	—	—	0.544 (U)	19.9	—	—	—	—	—	1.63 (U)	—	—
RE02-07-1630	02-600406	15–19.5	QBO	11000	—	1.82 (U)	30.5	0.605 (U)	4.01	6260	193	—	2.03	—	1.82 (U)	—	—
RE02-07-1632	02-600407	0–0.5	SOIL	—	—	—	—	—	—	—	—	—	1.42	—	—	—	59.8
RE02-07-1633	02-600407	4.5–10	QAL	—	—	—	—	0.543 (U)	—	—	—	—	—	—	1.63 (U)	—	—
RE02-07-1634	02-600407	10–15	QBO	6430	—	1.1 (J)	52.5	0.56 (U)	12.7	7450	298	3.06	1.15 (J)	—	1.68 (U)	7.39 (J)	—
RE02-07-1636	02-600408	0–0.5	SOIL	—	—	—	—	0.508 (U)	—	—	—	—	11	0.00131 (J)	—	—	—
RE02-11-1525	02-613571	5–6	QAL	—	5.14 (U)	—	—	0.514 (U)	—	—	—	—	NA[g]	NA	—	—	50.1
RE02-11-1526	02-613571	15–16	QBO	7070 (J+)	1.16 (U)	1.04 (U)	—	0.58 (U)	—	4550	—	—	NA	NA	1.04 (U)	—	—
RE02-11-1527	02-613571	25–26	QBO	—	1.22 (U)	1.1 (U)	—	0.608 (U)	—	4960	—	—	NA	NA	1.1 (U)	—	—
RE02-11-1528	02-613571	35–37	QBO	—	1.19 (U)	1.2 (U)	—	0.593 (U)	—	5980	215	—	NA	NA	1.2 (U)	—	—
RE02-11-1529	02-613571	49–50	QBO	—	1.19 (U)	1.12 (U)	—	0.597 (U)	—	5230	198	—	NA	NA	1.12 (U)	—	—

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

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

[b] na = Not available.

[c] SSLs are from NMED (2009, 108070).

[d] SSLs are for hexavalent chromium.

[e] SSLs are from LANL (2010, 108613).

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

[g] NA = Not analyzed.

Table 6.26-11
Organic Chemicals Detected at AOC 02-011(a)(iii)

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Anthracene	Aroclor-1242	Aroclor-1254	Aroclor-1260	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Chrysene	Di-n-butylphthalate	Fluoranthene	Fluorene	Heptachlorodibenzodioxin[1,2,3,4,6,7,8-]	Heptachlorodibenzodioxins (Total)	Heptachlorodibenzofuran[1,2,3,4,6,7,8-]	Heptachlorodibenzofuran[1,2,3,4,7,8,9-]
Industrial SSL[a]				**36700**	**183000**	**8.26**	**8.26**	**8.26**	**23.4**	**2.34**	**23.4**	**18300[b]**	**2340**	**68400**	**24400**	**24400**	**na[c]**	**na**	**na**	**na**
Recreational SSL[d]				**20800**	**104000**	**10.5**	**6.65**	**10.5**	**30.1**	**3.01**	**30.1**	**10400[b]**	**3010**	**39900**	**13900**	**13900**	**na**	**na**	**na**	**na**
Residential SSL[a]				**3440**	**17200**	**2.22**	**1.12**	**2.22**	**6.21**	**0.621**	**6.21**	**1720[b]**	**621**	**6110**	**2290**	**2290**	**na**	**na**	**na**	**na**
RE02-07-1629	02-600406	4.5–13	QAL	—[e]	—	—	—	0.0321	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1630	02-600406	15–19.5	QBO	—	—	—	—	0.0106	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1632	02-600407	0–0.5	SOIL	0.144	0.195	—	—	0.172	0.325 (J)	0.352 (J)	0.564 (J)	0.218 (J)	0.332 (J)	—	0.613	0.106	0.0000214	0.0000725	0.0000136	0.000000975 (J)
RE02-07-1633	02-600407	4.5–10	QAL	0.0222 (J)	0.0299 (J)	—	—	0.0884	0.0721	0.0658	0.101	0.0446	0.0565	—	0.126	0.0188 (J)	0.00000964	0.0000387	0.00000815	0.00000072 (J)
RE02-07-1634	02-600407	10–15	QBO	—	—	—	—	0.0025 (J)	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1636	02-600408	0–0.5	SOIL	0.0134 (J)	0.0234 (J)	—	0.0647	0.102	0.147	0.152	0.281	0.0917	0.191	0.101 (J)	0.385	—	0.0000303	0.000179	0.00000859	0.000000406 (J)
RE02-10-22094	02-612438	2–2.2	SOIL	NA[f]	NA	—	—	0.263	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-22097	02-612439	2–2.2	SOIL	NA	NA	—	—	0.867	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-22098	02-612439	4–4.4	SOIL	NA	NA	—	—	0.0076	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-22101	02-612440	4–4.4	SOIL	NA	NA	0.0162	0.0431	0.0789	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-26109	02-613003	2–2.5	SOIL	NA	NA	—	—	0.485	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-26110	02-613003	4–4.5	SOIL	NA	NA	—	—	0.854	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-1525	02-613571	5–6	QAL	—	—	—	—	0.0154	—	—	—	—	—	—	—	—	NA	NA	NA	NA

Table 6.26-11 (continued)

Sample ID	Location ID	Depth (ft)	Media	Heptachlorodibenzofurans (Total)	Hexachlorodibenzodioxin[1,2,3,4,7,8-]	Hexachlorodibenzodioxin[1,2,3,6,7,8-]	Hexachlorodibenzodioxin[1,2,3,7,8,9-]	Hexachlorodibenzodioxins (Total)	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-]	Hexachlorodibenzofurans (Total)	Indeno(1,2,3-cd)pyrene	Methylnaphthalene[2-]	Naphthalene
Industrial SSL[a]				**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**23.4**	**4100[g]**	**252**
Recreational SSL[d]				**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**30.1**	**3170**	**1950**
Residential SSL[a]				**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**6.21**	**310[g]**	**45**
RE02-07-1629	02-600406	4.5–13	QAL	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1630	02-600406	15–19.5	QBO	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1632	02-600407	0–0.5	SOIL	0.0000338	0.000000273 (J)	0.00000103 (J)	0.000000623 (J)	0.00000902	0.00000593	0.00000337	0.000000771 (J)	0.00000534	0.0000649	0.188 (J)	0.0611	0.0971
RE02-07-1633	02-600407	4.5–10	QAL	0.0000198	—	—	—	0.00000327	0.00000586	0.00000254	0.000000406 (J)	0.00000368	0.0000407	0.0395	0.0121 (J)	0.0272 (J)
RE02-07-1634	02-600407	10–15	QBO	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1636	02-600408	0–0.5	SOIL	0.0000351	0.000000273 (J)	0.00000088 (J)	0.00000057 (J)	0.0000151	0.000000952 (J)	0.000000344 (J)	—	0.000000695 (J)	0.0000111	0.0703	—	—
RE02-10-22094	02-612438	2–2.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-22097	02-612439	2–2.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-22098	02-612439	4–4.4	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-22101	02-612440	4–4.4	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-26109	02-613003	2–2.5	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-26110	02-613003	4–4.5	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-1525	02-613571	5–6	QAL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	—	—	—

Table 6.26-11 (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-]	Pentachlorodibenzodioxins (Total)	Pentachlorodibenzofuran[1,2,3,7,8-]	Pentachlorodibenzofuran[2,3,4,7,8-]	Pentachlorodibenzofurans (Totals)	Phenanthrene	Pyrene	Tetrachlorodibenzodioxins (Total)	Tetrachlorodibenzofuran[2,3,7,8-]	Tetrachlorodibenzofurans (Totals)	TPH-DRO
Industrial SSL[a]				**na**	**na**	**na**	**na**	**na**	**na**	**na**	**20500**	**18300**	**na**	**0.00147**	**na**	**1120[h]**
Recreational SSL[d]				**na**	**na**	**na**	**na**	**na**	**na**	**na**	**12000**	**10400**	**na**	**0.00197**	**na**	**na**
Residential SSL[a]				**na**	**na**	**na**	**na**	**na**	**na**	**na**	**1830**	**1720**	**na**	**0.000374**	**na**	**520[h]**
RE02-07-1629	02-600406	4.5–13	QAL	0.000000357 (J)	—	—	—	—	—	—	—	—	—	—	—	1.59 (J)
RE02-07-1630	02-600406	15–19.5	QBO	—	—	—	—	—	—	—	—	—	—	—	—	1.59 (J)
RE02-07-1632	02-600407	0–0.5	SOIL	0.000208	0.0000238 (J)	0.000000316 (J)	0.0000018	0.00000204 (J)	0.0000148	0.00013	0.68	0.8 (J)	0.00000013	0.00000684	0.0000585	20.9 (J)
RE02-07-1633	02-600407	4.5–10	QAL	0.0000843	0.0000136	—	—	0.00000187 (J)	0.000011	0.0000663	0.105	0.158	—	0.00000541	0.0000248	—
RE02-07-1634	02-600407	10–15	QBO	0.000000689 (J)	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1636	02-600408	0–0.5	SOIL	0.000222	0.000035 (J)	—	0.000000504	—	0.0000014 (J)	0.00000882	0.158	0.369	—	0.00000099 (J)	0.00000344	10
RE02-10-22094	02-612438	2–2.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-22097	02-612439	2–2.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-22098	02-612439	4–4.4	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-22101	02-612440	4–4.4	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-26109	02-613003	2–2.5	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-26110	02-613003	4–4.5	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-1525	02-613571	5–6	QAL	NA	NA	NA	NA	NA	NA	NA	—	—	NA	NA	NA	NA

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

[a] SSLs are from NMED (2009, 108070), unless otherwise noted.

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

[c] na = Not available.

[d] SSLs are from LANL (2010, 108613).

[e] — = Not detected.

[f] NA = Not analyzed.

[g] SSLs are from EPA regional screening tables (http://www.epa.gov.earth1r6/6pd/rcra_c/pd-n/screen.htm).

[h] Screening guidelines for diesel range organics from NMED (2006, 094614).

Table 6.26-12
Radionuclides Detected or
Detected above BVs/FVs at AOC 02-011(a)(iii)

Sample ID	Location ID	Depth (ft)	Media	Tritium	Uranium-235/236
Qbt 1g, Qct, Qbo BV[a]				**na[b]**	**0.18**
Soil BV[a]				**na**	**0.2**
Industrial SAL[c]				**440000**	**87**
Recreational SAL[c]				**5300000**	**520**
Residential SAL[c]				**750**	**17**
0402-95-0315	02-01158	0–0.5	SOIL	0.249883	—[d]
RE02-07-1629	02-600406	4.5–13	QAL	0.0502123	—
RE02-07-1633	02-600407	4.5–10	QAL	0.0335758	—
RE02-11-1525	02-613571	5–6	QAL	0.0560306	—
RE02-11-1527	02-613571	25–26	QBO	—	0.208

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

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

[b] na = Not available.

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

[d] — = Not detected.

Table 6.26-13
Samples Collected and Analyses Requested at AOC 02-011(a)(iv)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Dioxins/Furans	Gamma-emitting Radionuclides	Tritium	Hexavalent Chromium	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	VOCs	Cyanide (Total)
0402-95-0316	02-01159	0–0.5	SOIL	—*	—	—	115	115	—	115	115	—	—	—	115	—	—	—
RE02-07-2508	02-600563	0–0.5	SOIL	07-566	07-566	07-598	07-566	07-566	—	07-566	07-566	07-566	07-566	07-566	07-566	07-566	—	07-566
RE02-07-2509	02-600563	4.5–10	QAL	07-884	07-884	07-883	07-884	07-884	—	07-884	07-884	07-884	07-884	07-884	07-884	07-884	07-884	07-884
RE02-07-2511	02-600563	10–15	QAL	07-884	07-884	07-883	07-884	07-884	—	07-884	07-884	07-884	07-884	07-884	07-884	07-884	07-884	07-884
RE02-07-2510	02-600563	15–22.5	QBO	07-884	07-884	07-883	07-884	07-884	—	07-884	07-884	07-884	07-884	07-884	07-884	07-884	07-884	07-884
RE02-10-21747	02-612346	8–9	QAL	—	—	—	10-4701	10-4701	10-4701	10-4701	10-4701	10-4701	10-4701	—	—	10-4701	—	—
RE02-10-21748	02-612346	15–16	QAL	—	—	—	10-4694	10-4694	10-4693	10-4694	10-4694	10-4693	10-4693	—	—	10-4693	—	—
RE02-10-21749	02-612346	25–26	QBO	—	—	—	10-4694	10-4694	10-4693	10-4694	10-4694	10-4693	10-4693	—	—	10-4693	—	—
RE02-10-21750	02-612346	35–36	QBO	—	—	—	10-4694	10-4694	10-4693	10-4694	10-4694	10-4693	10-4693	—	—	10-4693	—	—
RE02-10-21751	02-612346	49–50	QBO	—	—	—	10-4694	10-4694	10-4693	10-4694	10-4694	10-4693	10-4693	—	—	10-4693	—	—

* — = Analysis not requested.

Table 6.26-14
Inorganic Chemicals above BVs at AOC 02-011(a)(iv)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Cadmium	Chromium	Hexavalent Chromium	Iron	Manganese	Mercury	Nickel	Nitrate	Selenium
Qbt 1g, Qct, Qbo BV[a]				**3560**	**0.5**	**0.56**	**25.7**	**0.4**	**2.6**	**na[b]**	**3700**	**189**	**0.1**	**2**	**na**	**0.3**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**0.4**	**19.3**	**na**	**21500**	**671**	**0.1**	**15.4**	**na**	**1.52**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**1120**	**2920[d]**	**2920**	**795000**	**145000**	**310[e]**	**22700**	**1820000**	**5680**
Recreational SSL[f]				**791000**	**317**	**27.7**	**158000**	**784**	**1910[d]**	**1910**	**554000**	**110000**	**238**	**15800**	**1260000**	**3960**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**77.9**	**219[d]**	**219**	**54800**	**10700**	**23[e]**	**1560**	**125000**	**391**
RE02-07-2508	02-600563	0–0.5	SOIL	—[g]	—	—	—	—	—	NA[h]	—	—	1.27	—	1.78 (J-)	—
RE02-07-2509	02-600563	4.5–10	QAL	—	—	—	—	0.533 (U)	—	NA	—	—	0.198	—	1.07	—
RE02-07-2511	02-600563	10–15	QAL	—	—	—	—	0.61 (U)	21.3 (J)	NA	—	—	—	—	—	1.83 (U)
RE02-07-2510	02-600563	15–22.5	QBO	11300	0.513 (UJ)	1.88 (U)	74.3	0.627 (U)	8.08 (J)	NA	6830	253 (J-)	—	2.27	—	1.88 (U)
RE02-10-21747	02-612346	8–9	QAL	—	1.05 (U)	—	—	0.525 (U)	—	—	—	—	40.6	—	NA	—
RE02-10-21748	02-612346	15–16	QAL	—	1.11 (U)	—	—	0.555 (U)	—	0.448 (J)	—	—	5.87	—	NA	—
RE02-10-21749	02-612346	25–26	QBO	3820	1.25 (U)	1.22 (U)	—	0.625 (U)	—	—	6340	226	0.148	—	NA	1.22 (U)
RE02-10-21750	02-612346	35–36	QBO	—	1.28 (U)	1.28 (U)	—	0.642 (U)	—	—	5340	195	0.154	—	NA	1.28 (U)
RE02-10-21751	02-612346	49–50	QBO	—	1.15 (U)	1.19 (U)	—	0.573 (U)	—	—	5990	260	—	—	NA	1.19 (U)

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

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

[b] na = Not available.

[c] SSLs are from NMED (2009, 108070), unless otherwise noted.

[d] SSLs are for hexavalent chromium.

[e] SSLs are from EPA regional screening tables (http://www.epa.gov.earth1r6/6pd/rcra_c/pd-n/screen.htm).

[f] SSLs are from LANL (2010, 108613).

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

[h] NA = Not analyzed.

Table 6.26-15
Organic Chemicals Detected at AOC 02-011(a)(iv)

Sample ID	Location ID	Depth (ft)	Media	Aroclor-1254	Aroclor-1260	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Chrysene	Fluoranthene	Heptachlorodibenzodioxin[1,2,3,4,6,7,8-]	Heptachlorodibenzodioxins (Total)	Heptachlorodibenzofuran[1,2,3,4,6,7,8-]	Heptachlorodibenzofuran[1,2,3,4,7,8,9-]	Heptachlorodibenzofurans (Total)	Hexachlorodibenzodioxin[1,2,3,6,7,8-]	Hexachlorodibenzodioxin[1,2,3,7,8,9-]	Hexachlorodibenzodioxins (Total)	Hexachlorodibenzofuran[1,2,3,4,7,8-]
Industrial SSL[a]				**8.26**	**8.26**	**23.4**	**2.34**	**23.4**	**2340**	**24400**	**na[b]**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**
Recreational SSL[c]				**6.65**	**10.5**	**30.1**	**3.01**	**30.1**	**3010**	**13900**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**
Residential SSL[a]				**1.12**	**2.22**	**6.21**	**0.621**	**6.21**	**621**	**2290**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**
RE02-07-2508	02-600563	0–0.5	SOIL	0.0556	0.0681	0.0312 (J)	0.0331 (J)	0.0469 (J)	0.0383 (J)	0.0504	0.0000498	0.000101	0.00000529	0.00000035 (J)	0.0000152	0.0000018 (J)	0.00000112 (J)	0.0000144	0.000000962 (J)
RE02-07-2509	02-600563	4.5–10	QAL	0.0045	0.0067	—[d]	—	—	—	—	0.000002 (J)	0.00000515	0.000000432 (J)	—	0.00000122	—	—	0.000000538	0.0000000972 (J)
RE02-07-2511	02-600563	10–15	QAL	—	—	—	—	—	—	—	0.00000397	0.00000638	0.000000779 (J)	—	0.00000363	—	—	—	—
RE02-07-2510	02-600563	15–22.5	QBO	—	—	—	—	—	—	—	0.0000015 (J)	0.00000282	0.000000414 (J)	—	0.00000137	—	—	—	—
RE02-10-21747	02-612346	8–9	QAL	—	0.0046	—	—	—	—	—	NA[e]	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-21748	02-612346	15–16	QAL	0.0068	0.014	—	—	—	—	—	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 6.26-15 (continued)

Sample ID	Location ID	Depth (ft)	Media	Hexachlorodibenzofuran[1,2,3,6,7,8-]	Hexachlorodibenzofuran[2,3,4,6,7,8-]	Hexachlorodibenzofurans (Total)	Octachlorodibenzodioxin[1,2,3,4,6,7,8,9-]	Octachlorodibenzofuran[1,2,3,4,6,7,8,9-]	Pentachlorodibenzodioxins (Total)	Pentachlorodibenzofuran[1,2,3,7,8-]	Pentachlorodibenzofuran[2,3,4,7,8-]	Pentachlorodibenzofurans (Totals)	Phenanthrene	Pyrene	Tetrachlorodibenzofuran[2,3,7,8-]	Tetrachlorodibenzofurans (Totals)
Industrial SSL[a]				**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**20500**	**18300**	**0.00147**	**na**
Recreational SSL[c]				**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**12000**	**10400**	**0.00197**	**na**
Residential SSL[a]				**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**1830**	**1720**	**0.000374**	**na**
RE02-07-2508	02-600563	0–0.5	SOIL	0.000000562 (J)	0.000000718 (J)	0.0000103	0.000428	0.0000113	0.000000974	0.000000263 (J)	0.00000135 (J)	0.00000929 (J)	0.0286 (J)	0.0812 (J)	0.000000855 (J)	0.00000441
RE02-07-2509	02-600563	4.5–10	QAL	—	—	0.00000054	0.0000265	0.0000009 (J)	—	—	—	0.000000115	—	—	0.000000101 (J)	0.000000273
RE02-07-2511	02-600563	10–15	QAL	—	—	0.000000719	0.0000413	0.0000024 (J)	—	—	—	—	—	—	—	—
RE02-07-2510	02-600563	15–22.5	QBO	—	0.0000000642 (J)	0.000000441	0.0000162	0.000000862 (J)	—	—	—	—	—	—	—	—
RE02-10-21747	02-612346	8–9	QAL	NA	NA	NA	NA	NA	NA	NA	NA	NA	—	—	NA	NA
RE02-10-21748	02-612346	15–16	QAL	NA	NA	NA	NA	NA	NA	NA	NA	NA	—	—	NA	NA

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

[a] SSLs are from NMED (2009, 108070).

[b] na = Not available.

[c] SSLs are from LANL (2010, 108613).

[d] — = Not detected.

[e] NA = Not analyzed.

Table 6.26-16
Radionuclides Detected or
Detected above BVs/FVs at AOC 02-011(a)(iv)

Sample ID	Location ID	Depth (ft)	Media	Cobalt-60	Plutonium-239/240	Tritium
Qbt 1g, Qct, Qbo BV[a]				**na[b]**	**na**	**na**
Soil BV[a]				**na**	**0.054**	**na**
Industrial SAL[c]				**5.1**	**210**	**440000**
Recreational SAL[c]				**46**	**300**	**5300000**
Residential SAL[c]				**1.3**	**33**	**750**
0402-95-0316	02-01159	0–0.5	SOIL	1.19	—[d]	0.300498
RE02-07-2508	02-600563	0–0.5	SOIL	0.762	—	0.00626353
RE02-07-2509	02-600563	4.5–10	QAL	—	—	0.0970386
RE02-07-2511	02-600563	10–15	QAL	—	0.0353	—
RE02-10-21747	02-612346	8–9	QAL	—	0.0476	—
RE02-10-21748	02-612346	15–16	QAL	—	—	0.0512404
RE02-10-21750	02-612346	35–36	QBO	—	—	0.0746471
RE02-10-21751	02-612346	49–50	QBO	—	—	0.0884761

Notes: Results are in pCi/g. Data qualifiers are defined in Appendix A.
[a] BVs/FVs are from LANL (1998, 059730).
[b] na = Not available.
[c] SALs from LANL (2009, 107655).
[d] — = Not detected.

Table 6.26-17
Samples Collected and Analyses Requested at AOC 02-011(a)(v)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Dioxins/Furans	Gamma-emitting Radionuclides	Tritium	Hexavalent Chromium	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	VOCs	Cyanide (Total)
RE02-10-22080	02-600450	4–4.2	SOIL	—*	—	—	—	—	—	—	—	—	10-4127	—	—	—	—	—
RE02-07-1883	02-600450	4.5–10	QAL	07-901	07-901	07-913	07-901	07-901	—	07-901	07-901	07-901	07-901	07-901	07-901	07-901	07-901	07-901
RE02-07-1886	02-600451	0–0.5	SOIL	07-538	07-538	-	07-538	07-538	—	07-538	07-538	07-538	07-538	07-538	07-538	07-538	-	07-538
RE02-07-1887	02-600451	4.5–10	QAL	07-896	07-896	07-912	07-896	07-896	—	07-896	07-896	07-896	07-896	07-896	07-896	07-896	07-896	07-896
RE02-07-1889	02-600451	12.5–15	QBO	07-896	07-896	07-912	07-896	07-896	—	07-896	07-896	07-896	07-896	07-896	07-896	07-896	07-896	07-896
RE02-07-1888	02-600451	17–22	QBO	07-896	07-896	07-912	07-896	07-896	—	07-896	07-896	07-896	07-896	07-896	07-896	07-896	07-896	07-896
RE02-10-22083	02-612434	4–4.4	SOIL	—	—	—	—	—	—	—	—	—	10-4151	—	—	—	—	—
RE02-10-22086	02-612435	4–4.2	SOIL	—	—	—	—	—	—	—	—	—	10-4151	—	—	—	—	—
RE02-10-22089	02-612436	4–4.2	SOIL	—	—	—	—	—	—	—	—	—	10-4151	—	—	—	—	—
RE02-10-22092	02-612437	4–4.4	SOIL	—	—	—	—	—	—	—	—	—	10-4151	—	—	—	—	—
RE02-10-26634	02-613118	2–2.2	SOIL	—	—	—	—	—	—	—	—	—	10-4707	—	—	—	—	—
RE02-10-26636	02-613120	2–2.2	SOIL	—	—	—	—	—	—	—	—	—	10-4707	—	—	—	—	—
RE02-10-26637	02-613121	2–2.2	SOIL	—	—	—	—	—	—	—	—	—	10-4707	—	—	—	—	—
RE02-11-1525	02-613571	5–6	QAL	—	—	—	11-311	11-311	11-312	11-311	11-311	11-312	11-311	—	—	11-311	—	—
RE02-11-1526	02-613571	15–16	QBO	—	—	—	11-311	11-311	11-312	11-311	11-311	11-312	11-311	—	—	11-311	—	—
RE02-11-1527	02-613571	25–26	QBO	—	—	—	11-311	11-311	11-312	11-311	11-311	11-312	11-311	—	—	11-311	—	—
RE02-11-1528	02-613571	35–37	QBO	—	—	—	11-311	11-311	11-312	11-311	11-311	11-312	11-311	—	—	11-311	—	—
RE02-11-1529	02-613571	49–50	QBO	—	—	—	11-311	11-311	11-312	11-311	11-311	11-312	11-311	—	—	11-311	—	—

* — = Analysis not requested.

Table 6.26-18
Inorganic Chemicals above BVs at AOC 02-011(a)(v)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Cadmium	Chromium	Copper	Iron	Manganese	Mercury	Nickel	Nitrate	Selenium	Vanadium	Zinc
Qbt 1g, Qct, Qbo BV[a]				**3560**	**0.5**	**0.56**	**0.4**	**2.6**	**3.96**	**3700**	**189**	**0.1**	**2**	**na[b]**	**0.3**	**4.59**	**40**
Soil BV[a]				**29200**	**0.83**	**8.17**	**0.4**	**19.3**	**14.7**	**21500**	**671**	**0.1**	**15.4**	**na**	**1.52**	**39.6**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**1120**	**2920[d]**	**45400**	**795000**	**145000**	**310[e]**	**22700**	**1820000**	**5680**	**5680**	**341000**
Recreational SSL[f]				**791000**	**317**	**27.7**	**784**	**1910[d]**	**31700**	**554000**	**110000**	**238**	**15800**	**1260000**	**3960**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**77.9**	**219[d]**	**3130**	**54800**	**10700**	**23[e]**	**1560**	**125000**	**391**	**391**	**23500**
RE02-07-1883	02-600450	4.5–10	QAL	—[g]	—	—	0.535 (U)	—	—	—	—	—	—	—	1.61 (U)	—	—
RE02-07-1886	02-600451	0–0.5	SOIL	—	—	—	—	—	—	—	—	0.703	—	1.51 (J-)	—	—	—
RE02-07-1887	02-600451	4.5–10	QAL	—	—	—	—	—	—	—	—	0.397	—	1.63 (J-)	1.67 (U)	—	—
RE02-07-1889	02-600451	12.5–15	QBO	—	—	0.83 (J)	0.556 (U)	19.9	4.13	6050	191 (J+)	—	3.44	—	0.758 (J)	7.56	—
RE02-07-1888	02-600451	17–22	QBO	5840	—	1.85 (U)	—	13.4	—	5550 (J)	—	—	—	—	0.899 (J)	—	—
RE02-11-1525	02-613571	5–6	QAL	—	5.14 (U)	—	0.514 (U)	—	—	—	—	—	—	NA[h]	—	—	50.1
RE02-11-1526	02-613571	15–16	QBO	7070 (J+)	1.16 (U)	1.04 (U)	0.58 (U)	—	—	4550	—	—	—	NA	1.04 (U)	—	—
RE02-11-1527	02-613571	25–26	QBO	—	1.22 (U)	1.1 (U)	0.608 (U)	—	—	4960	—	—	—	NA	1.1 (U)	—	—
RE02-11-1528	02-613571	35–37	QBO	—	1.19 (U)	1.2 (U)	0.593 (U)	—	—	5980	215	—	—	NA	1.2 (U)	—	—
RE02-11-1529	02-613571	49–50	QBO	—	1.19 (U)	1.12 (U)	0.597 (U)	—	—	5230	198	—	—	NA	1.12 (U)	—	—

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

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

[b] na = Not available.

[c] SSLs are from NMED (2009, 108070), unless otherwise noted.

[d] SSLs are for hexavalent chromium.

[e] SSLs are from EPA regional screening tables (http://www.epa.gov.earth1r6/6pd/rcra_c/pd-n/screen.htm).

[f] SSLs are from LANL (2010, 108613).

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

[h] NA = Not analyzed.

Table 6.26-19
Organic Chemicals Detected at AOC 02-011(a)(v)

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	Chrysene	Fluoranthene	Fluorene	Heptachlorodibenzodioxin[1,2,3,4,6,7,8-]	Heptachlorodibenzodioxins (Total)	Heptachlorodibenzofurans (Total)
Industrial SSL[a]				**36700**	**183000**	**8.26**	**8.26**	**23.4**	**2.34**	**23.4**	**18300[b]**	**2340**	**24400**	**24400**	**na[c]**	**na**	**na**
Recreational SSL[d]				**20800**	**104000**	**6.65**	**10.5**	**30.1**	**3.01**	**30.1**	**10400[b]**	**3010**	**13900**	**13900**	**na**	**na**	**na**
Residential SSL[a]				**3440**	**17200**	**1.12**	**2.22**	**6.21**	**0.621**	**6.21**	**1720[b]**	**621**	**2290**	**2290**	**na**	**na**	**na**
RE02-07-1883	02-600450	4.5–10	QAL	—[e]	—	—	0.496	—	—	—	—	—	—	—	—	—	0.000000405
RE02-07-1886	02-600451	0–0.5	SOIL	0.0211 (J)	0.0395	—	0.344	0.0881	0.166	0.148	0.0921 (J)	0.0886	0.137	0.0167 (J)	NA[f]	NA	NA
RE02-07-1887	02-600451	4.5–10	QAL	—	—	0.0475	0.0295	—	—	—	—	—	0.0118 (J)	—	0.00000281	0.00000281	0.000000906
RE02-07-1889	02-600451	12.5–15	QBO	—	—	—	—	—	—	—	—	—	—	—	0.00000139 (J)	0.00000282	0.00000101
RE02-07-1888	02-600451	17–22	QBO	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-10-22083	02-612434	4–4.4	SOIL	NA	NA	—	0.0126	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-22086	02-612435	4–4.2	SOIL	NA	NA	0.017	0.0342	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-22089	02-612436	4–4.2	SOIL	NA	NA	—	0.308	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-22092	02-612437	4–4.4	SOIL	NA	NA	—	0.026	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-26634	02-613118	2–2.2	SOIL	NA	NA	—	0.46	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-26636	02-613120	2–2.2	SOIL	NA	NA	—	0.413	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-26637	02-613121	2–2.2	SOIL	NA	NA	—	0.441	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-1525	02-613571	5–6	QAL	—	—	—	0.0154	—	—	—	—	—	—	—	NA	NA	NA

Table 6.26-19 (continued)

Sample ID	Location ID	Depth (ft)	Media	Hexachlorodibenzofuran[1,2,3,4,7,8-]	Hexachlorodibenzofurans (Total)	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-]	Pentachlorodibenzofuran[1,2,3,7,8-]	Pentachlorodibenzofuran[2,3,4,7,8-]	Pentachlorodibenzofurans (Totals)	Phenanthrene	Pyrene	Tetrachlorodibenzofuran[2,3,7,8-]	Tetrachlorodibenzofurans (Totals)
Industrial SSL[a]				**na**	**na**	**23.4**	**4100[g]**	**252**	**na**	**na**	**na**	**na**	**na**	**20500**	**18300**	**0.00147**	**na**
Recreational SSL[d]				**na**	**na**	**30.1**	**3170**	**1950**	**na**	**na**	**na**	**na**	**na**	**12000**	**10400**	**0.00197**	**na**
Residential SSL[a]				**na**	**na**	**6.21**	**310[g]**	**45**	**na**	**na**	**na**	**na**	**na**	**1830**	**1720**	**0.000374**	**na**
RE02-07-1883	02-600450	4.5–10	QAL	0.000000608 (J)	0.00000231	—	—	—	0.00000111 (J)	—	0.000000229 (J)	0.0000011 (J)	0.00000616	—	—	0.000000712 (J)	0.00000152
RE02-07-1886	02-600451	0–0.5	SOIL	NA	NA	0.103	0.00793 (J)	0.015 (J)	NA	NA	NA	NA	NA	0.134	0.176	NA	NA
RE02-07-1887	02-600451	4.5–10	QAL	—	0.000000791	—	—	—	0.0000235	0.00000119 (J)	—	0.00000047 (J)	0.00000133	—	—	0.000000539 (J)	0.0000014
RE02-07-1889	02-600451	12.5–15	QBO	—	0.000000176	—	—	—	0.0000142	0.000000752 (J)	—	—	—	—	—	—	—
RE02-07-1888	02-600451	17–22	QBO	—	—	—	—	—	0.00000168 (J)	—	—	—	—	—	—	—	—
RE02-10-22083	02-612434	4–4.4	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-22086	02-612435	4–4.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-22089	02-612436	4–4.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-22092	02-612437	4–4.4	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-26634	02-613118	2–2.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-26636	02-613120	2–2.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-26637	02-613121	2–2.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-11-1525	02-613571	5–6	QAL	NA	NA	—	—	—	NA	NA	NA	NA	NA	—	—	NA	NA

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

[a] SSLs are from NMED (2009, 108070), unless otherwise noted.

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

[c] na = Not available.

[d] SSLs are from LANL (2010, 108613).

[e] — = Not detected.

[f] NA = Not analyzed.

[g] SSLs are from EPA regional screening tables (http://www.epa.gov.earth1r6/6pd/rcra_c/pd-n/screen.htm).

Table 6.26-20
Radionuclides Detected or Detected above BVs/FVs at AOC 02-011(a)(v)

Sample ID	Location ID	Depth (ft)	Media	Cesium-137	Tritium	Uranium-235/236
Qbt 1g, Qct, Qbo BV[a]				**na[b]**	**na**	**0.18**
Soil BV[a]				**1.65**	**na**	**0.2**
Industrial SAL[c]				**23**	**440000**	**87**
Recreational SAL[c]				**210**	**5300000**	**520**
Residential SAL[c]				**5.6**	**750**	**17**
RE02-07-1883	02-600450	4.5–10	QAL	—d	0.0792198	—
RE02-07-1887	02-600451	4.5–10	QAL	—	0.0564444	—
RE02-07-1888	02-600451	17–22	QBO	0.303	—	—
RE02-11-1525	02-613571	5–6	QAL	—	0.0560306	—
RE02-11-1527	02-613571	25–26	QBO	—	—	0.208

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

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

[b] na = Not available.

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

[e] — = Not detected.

Table 6.26-21
Samples Collected and Analyses Requested at AOC 02-011(a)(vi)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Dioxins/Furans	Gamma-emitting Radionuclides	Tritium	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	VOCs	Cyanide (Total)
0402-95-0309	02-01149	0–1	SOIL	—*	—	—	115	115	115	115	—	—	—	115	—	—	—
RE02-10-22185	02-600532	2–2.2	SOIL	—	—	—	—	—	—	—	—	10-4635	—	—	10-4635	—	—
RE02-10-22186	02-600532	4–4.2	SOIL	—	—	—	—	—	—	—	—	10-4639	—	—	10-4639	—	—
RE02-07-2359	02-600532	4.5–9.5	QAL	07-882	07-881	07-879	07-882	07-882	07-882	07-882	07-881	07-880	07-881	07-882	07-880	07-880	07-881
RE02-07-2361	02-600532	9.5–12.5	QAL	07-882	07-881	07-879	07-882	07-882	07-882	07-882	07-881	07-880	07-881	07-882	07-880	07-880	07-881
RE02-07-2362	02-600533	0–0.5	SOIL	07-567	07-567	07-599	07-567	07-567	07-567	07-567	07-567	07-567	07-567	07-567	07-567	—	07-567
RE02-07-2363	02-600533	4.5–10	QAL	07-882	07-881	07-879	07-882	07-882	07-882	07-882	07-881	07-880	07-881	07-882	07-880	07-880	07-881
RE02-07-2365	02-600533	10–15	QAL	07-882	07-881	07-879	07-882	07-882	07-882	07-882	07-881	07-880	07-881	07-882	07-880	07-880	07-881
RE02-07-2364	02-600533	15–20	QBO	07-882	07-881	07-879	07-882	07-882	07-882	07-882	07-881	07-880	07-881	07-882	07-880	07-880	07-881
RE02-07-6828	02-600534	0–0.5	SOIL	07-1151	07-1151	07-1150	07-1151	07-1151	07-1151	07-1151	07-1151	07-1151	07-1151	07-1151	07-1151	—	07-1151
RE02-07-2368	02-600534	4.5–14.5	QAL	07-868	07-868	07-867	07-868	07-868	07-868	07-868	07-868	07-868	07-868	07-868	07-868	07-868	07-868
RE02-07-2369	02-600534	14.5–20	QBO	07-868	07-868	07-867	07-868	07-868	07-868	07-868	07-868	07-868	07-868	07-868	07-868	07-868	07-868
RE02-10-22188	02-612465	2–2.2	SOIL	—	—	—	—	—	—	—	—	10-4635	—	—	10-4635	—	—
RE02-10-22198	02-612465	4–4.2	SOIL	—	—	—	—	—	—	—	—	10-4639	—	—	10-4639	—	—
RE02-10-22191	02-612466	2–2.2	SOIL	—	—	—	—	—	—	—	—	10-4635	—	—	10-4635	—	—
RE02-10-22195	02-612466	4–4.2	SOIL	—	—	—	—	—	—	—	—	10-4639	—	—	10-4639	—	—
RE02-10-22194	02-612467	2–2.2	SOIL	—	—	—	—	—	—	—	—	10-4635	—	—	10-4635	—	—
RE02-10-22192	02-612467	4–4.2	SOIL	—	—	—	—	—	—	—	—	10-4639	—	—	10-4639	—	—
RE02-10-22197	02-612468	2–2.2	SOIL	—	—	—	—	—	—	—	—	10-4635	—	—	10-4635	—	—
RE02-10-22189	02-612468	4–4.2	SOIL	—	—	—	—	—	—	—	—	10-4639	—	—	10-4639	—	—

* — = Analysis not requested.

Table 6.26-22
Inorganic Chemicals above BVs at AOC 02-011(a)(vi)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Cadmium	Chromium	Copper	Iron	Manganese	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Vanadium
Qbt 1g, Qct, Qbo BV[a]				**3560**	**0.5**	**0.56**	**25.7**	**0.4**	**2.6**	**3.96**	**3700**	**189**	**0.1**	**2**	**na[b]**	**na**	**0.3**	**4.59**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**0.4**	**19.3**	**14.7**	**21500**	**671**	**0.1**	**15.4**	**na**	**na**	**1.52**	**39.6**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**1120**	**2920[d]**	**45400**	**795000**	**145000**	**310[e]**	**22700**	**1820000**	**795**	**5680**	**5680**
Recreational SSL[f]				**791000**	**317**	**27.7**	**158000**	**784**	**1910[d]**	**31700**	**554000**	**110000**	**238**	**15800**	**1260000**	**555**	**3960**	**3960**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**77.9**	**219[d]**	**3130**	**54800**	**10700**	**23[e]**	**1560**	**125000**	**54.8**	**391**	**391**
RE02-07-2359	02-600532	4.5–9.5	QAL	—[g]	—	—	—	0.524 (U)	—	—	—	—	0.751	—	1.9	—	1.57 (U)	—
RE02-07-2361	02-600532	9.5–12.5	QAL	—	—	—	—	0.546 (U)	—	—	—	—	—	—	—	—	1.64 (U)	—
RE02-07-2362	02-600533	0–0.5	SOIL	—	—	—	—	0.511 (U)	—	—	—	—	6.57	—	—	0.000599 (J)	—	—
RE02-07-2363	02-600533	4.5–10	QAL	—	—	—	—	0.536 (U)	—	—	—	—	—	—	1.29	—	1.61 (U)	—
RE02-07-2365	02-600533	10–15	QAL	—	—	—	—	0.555 (U)	27 (J)	—	—	—	—	—	—	—	—	—
RE02-07-2364	02-600533	15–20	QBO	7260	0.515 (UJ)	0.765 (J)	—	0.654 (U)	18.9 (J)	4.53 (J)	7190	196 (J-)	—	3	—	—	1.96 (U)	—
RE02-07-6828	02-600534	0–0.5	SOIL	—	—	—	—	0.526 (U)	—	—	—	—	0.835 (J)	—	—	—	—	—
RE02-07-2368	02-600534	4.5–14.5	QAL	—	—	—	—	0.527 (U)	—	—	—	—	—	—	—	—	2.41	—
RE02-07-2369	02-600534	14.5–20	QBO	11500	—	2.36	97.1	0.582 (U)	15.3	4.17	6400	224 (J+)	—	4.64 (J+)	—	0.000773 (J)	1.76	4.83

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

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

[b] na = Not available.

[c] SSLs are from NMED (2009, 108070), unless otherwise noted.

[d] SSLs are for hexavalent chromium.

[e] SSLs are from EPA regional screening tables (http://www.epa.gov.earth1r6/6pd/rcra_c/pd-n/screen.htm).

[f] SSLs are from LANL (2010, 108613).

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

Table 6.26-23
Organic Chemicals Detected at AOC 02-011(a)(vi)

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	Chloroform	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Heptachlorodibenzodioxin[1,2,3,4,6,7,8-]
Industrial SSL[a]				**36700**	**183000**	**8.26**	**8.26**	**23.4**	**2.34**	**23.4**	**18300**[b]	**31.9**	**2340**	**2.34**	**24400**	**24400**	**na**[c]
Recreational SSL[d]				**20800**	**104000**	**6.65**	**10.5**	**30.1**	**3.01**	**30.1**	**10400**[b]	**224**	**3010**	**3.01**	**13900**	**13900**	**na**
Residential SSL[a]				**3440**	**17200**	**1.12**	**2.22**	**6.21**	**0.621**	**6.21**	**1720**[b]	**5.72**	**621**	**0.621**	**2290**	**2290**	**na**
RE02-10-22185	02-600532	2–2.2	SOIL	0.0524 (J)	0.0594 (J)	0.174	0.19	0.213 (J)	0.238 (J)	0.419 (J)	0.133 (J)	NA[e]	0.248 (J)	0.0734 (J)	0.381 (J)	0.0349 (J)	NA
RE02-10-22186	02-600532	4–4.2	SOIL	0.00629 (J)	0.00814 (J)	0.0175	0.0294	0.0444 (J)	0.0529 (J)	0.064 (J)	0.0366 (J)	NA	0.0481 (J)	0.0266 (J)	0.0688 (J)	0.00407 (J)	NA
RE02-07-2359	02-600532	4.5–9.5	QAL	—[f]	—	0.0381	0.0652	—	—	0.011 (J)	—	—	—	—	0.0147 (J)	—	0.0000067
RE02-07-2361	02-600532	9.5–12.5	QAL	—	—	0.0023 (J)	0.0055	—	—	—	—	—	—	—	—	—	0.0000795
RE02-07-2362	02-600533	0–0.5	SOIL	—	0.00906 (J)	—	—	—	0.071	0.101	0.0358	NA	0.0612	—	0.0815	—	0.0000133
RE02-07-2363	02-600533	4.5–10	QAL	—	—	—	—	—	—	—	—	0.000237 (J)	—	—	—	—	0.00000326
RE02-07-2365	02-600533	10–15	QAL	—	—	—	0.0018 (J)	—	—	—	—	—	—	—	—	—	0.0000168
RE02-07-2364	02-600533	15–20	QBO	—	—	—	—	—	—	—	—	—	—	—	—	—	0.000000948 (J)
RE02-07-6828	02-600534	0–0.5	SOIL	—	0.0376 (J)	—	—	—	0.259	0.369	—	NA	0.197	—	0.261	—	0.00000645
RE02-07-2368	02-600534	4.5–14.5	QAL	—	—	—	0.0021 (J)	—	—	—	—	—	—	—	—	—	0.000023
RE02-07-2369	02-600534	14.5–20	QBO	—	—	—	0.0017 (J)	—	—	—	—	—	—	—	—	—	0.0000248
RE02-10-22188	02-612465	2–2.2	SOIL	—	0.0629 (J)	0.112	0.131	0.206 (J)	0.231 (J)	0.384 (J)	0.15 (J)	NA	0.238 (J)	—	0.322 (J)	0.028 (J)	NA
RE02-10-22198	02-612465	4–4.2	SOIL	—	0.0223 (J)	0.0097	0.0144	0.0632 (J)	—	0.141 (J)	0.0483 (J)	NA	0.0669 (J)	—	0.115 (J)	—	NA
RE02-10-22191	02-612466	2–2.2	SOIL	—	0.0099 (J)	—	0.0231	0.148 (J)	0.133 (J)	0.248 (J)	0.0523 (J)	NA	0.16 (J)	0.0148 (J)	0.119 (J)	0.00318 (J)	NA
RE02-10-22195	02-612466	4–4.2	SOIL	—	—	0.0614	0.109	0.0959 (J)	0.11 (J)	0.206 (J)	0.0497 (J)	NA	0.0995 (J)	—	0.156 (J)	—	NA
RE02-10-22194	02-612467	2–2.2	SOIL	—	—	0.13	0.112	0.0793 (J)	0.112 (J)	0.187 (J)	0.0793 (J)	NA	0.0829 (J)	0.0397 (J)	0.123 (J)	—	NA
RE02-10-22192	02-612467	4–4.2	SOIL	—	0.0218 (J)	0.0401	0.0556	0.0472 (J)	—	0.116 (J)	0.0435 (J)	NA	0.0544 (J)	—	0.0944 (J)	—	NA
RE02-10-22197	02-612468	2–2.2	SOIL	0.0318 (J)	0.0361 (J)	—	0.0091 (J)	0.149 (J)	0.196 (J)	0.36 (J)	0.0852 (J)	NA	0.191 (J)	0.052 (J)	0.277 (J)	0.0217 (J)	NA
RE02-10-22189	02-612468	4–4.2	SOIL	—	—	0.0095	0.0136	0.0215 (J)	0.0226 (J)	0.0289 (J)	0.0145 (J)	NA	0.0197 (J)	0.00593 (J)	0.023 (J)	—	NA

Table 6.26-23 (continued)

Sample ID	Location ID	Depth (ft)	Media	Heptachlorodibenzodioxins (Total)	Heptachlorodibenzofuran[1,2,3,4,6,7,8-]	Heptachlorodibenzofuran[1,2,3,4,7,8,9-]	Heptachlorodibenzofurans (Total)	Hexachlorodibenzodioxin[1,2,3,4,7,8-]	Hexachlorodibenzodioxin[1,2,3,6,7,8-]	Hexachlorodibenzodioxin[1,2,3,7,8,9-]	Hexachlorodibenzodioxins (Total)	Hexachlorodibenzofuran[1,2,3,4,7,8-]	Hexachlorodibenzofuran[1,2,3,6,7,8-]	Hexachlorodibenzofuran[2,3,4,6,7,8-]	Hexachlorodibenzofurans (Total)
Industrial SSL[a]				**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**
Recreational SSL[d]				**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**
Residential SSL[a]				**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**
RE02-10-22185	02-600532	2–2.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-22186	02-600532	4–4.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-2359	02-600532	4.5–9.5	QAL	0.0000125	0.0000021 (J)	—	0.00000523	—	—	—	0.000000656	0.000000642 (J)	0.000000318 (J)	—	0.00000284
RE02-07-2361	02-600532	9.5–12.5	QAL	0.000133	0.0000166	0.00000184 (J)	0.0000833	0.000000241 (J)	0.00000219 (J)	0.000000359 (J)	0.00000837	0.000000459 (J)	—	0.000000282 (J)	0.0000107
RE02-07-2362	02-600533	0–0.5	SOIL	0.0000251	0.00000301	0.000000149 (J)	0.00000776	0.000000423 (J)	0.000000418 (J)	—	0.00000296	0.000000201 (J)	0.000000138 (J)	—	0.00000312
RE02-07-2363	02-600533	4.5–10	QAL	0.00000522	—	—	0.00000181	—	—	—	—	—	—	—	0.000000381
RE02-07-2365	02-600533	10–15	QAL	0.0000275	0.00000274	—	0.0000156	—	0.000000606 (J)	—	0.00000219	—	—	—	0.00000366
RE02-07-2364	02-600533	15–20	QBO	0.00000149	—	—	—	—	—	—	—	—	—	—	—
RE02-07-6828	02-600534	0–0.5	SOIL	0.0000153	0.00000192 (J)	—	0.00000545	—	0.000000224 (J)	—	0.00000135	0.000000119 (J)	—	—	0.0000019
RE02-07-2368	02-600534	4.5–14.5	QAL	0.0000483	0.0000043	0.000000542 (J)	0.0000217	—	0.000000827 (J)	—	0.00000292	—	—	0.000000164 (J)	0.00000395
RE02-07-2369	02-600534	14.5–20	QBO	0.0000535	0.00000761	0.000000617 (J)	0.0000276	—	0.00000078 (J)	—	0.00000201	0.000000237 (J)	—	0.000000125 (J)	0.00000369
RE02-10-22188	02-612465	2–2.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-22198	02-612465	4–4.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-22191	02-612466	2–2.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-22195	02-612466	4–4.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-22194	02-612467	2–2.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-22192	02-612467	4–4.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-22197	02-612468	2–2.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-22189	02-612468	4–4.2	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 6.26-23 (continued)

Sample ID	Location ID	Depth (ft)	Media	Indeno(1,2,3-cd)pyrene	Methylene Chloride	Naphthalene	Octachlorodibenzodioxin[1,2,3,4,6,7,8,9-]	Octachlorodibenzofuran[1,2,3,4,6,7,8,9-]	Pentachlorodibenzodioxins (Total)	Pentachlorodibenzofuran[2,3,4,7,8-]	Pentachlorodibenzofurans (Totals)	Phenanthrene	Pyrene	Tetrachlorodibenzofuran[2,3,7,8-]	Tetrachlorodibenzofurans (Totals)
Industrial SSL[a]				**23.4**	**1090**	**252**	**na**	**na**	**na**	**na**	**na**	**20500**	**18300**	**0.00147**	**na**
Recreational SSL[d]				**30.1**	**4520**	**1950**	**na**	**na**	**na**	**na**	**na**	**12000**	**10400**	**0.00197**	**na**
Residential SSL[a]				**6.21**	**199**	**45**	**na**	**na**	**na**	**na**	**na**	**1830**	**1720**	**0.000374**	**na**
RE02-10-22185	02-600532	2–2.2	SOIL	0.115 (J)	NA	0.0175 (J)	NA	NA	NA	NA	NA	0.332 (J)	0.545 (J)	NA	NA
RE02-10-22186	02-600532	4–4.2	SOIL	0.0289 (J)	NA	0.00185 (J)	NA	NA	NA	NA	NA	0.047 (J)	0.105 (J)	NA	NA
RE02-07-2359	02-600532	4.5–9.5	QAL	—	—	—	0.0000772	0.0000039 (J)	—	0.000000385 (J)	0.00000212	—	0.013 (J)	—	—
RE02-07-2361	02-600532	9.5–12.5	QAL	—	—	—	0.00113	0.0000639	—	—	0.000000668	—	—	—	—
RE02-07-2362	02-600533	0–0.5	SOIL	0.022 (J)	NA	—	0.000129	0.00000561	0.000000164	0.000000263 (J)	0.00000172 (J)	0.035	0.0982	—	0.000000403
RE02-07-2363	02-600533	4.5–10	QAL	—	—	—	0.0000434	0.00000142 (J)	—	—	—	—	—	—	—
RE02-07-2365	02-600533	10–15	QAL	—	—	—	0.000241	0.00000837	—	—	0.000000175	—	—	—	—
RE02-07-2364	02-600533	15–20	QBO	—	0.00273 (J)	—	0.0000118	—	—	—	—	—	—	—	—
RE02-07-6828	02-600534	0–0.5	SOIL	—	NA	—	0.0000768	0.00000438 (J)	—	—	0.00000092	0.156	0.279	0.000000124 (J)	0.000000258
RE02-07-2368	02-600534	4.5–14.5	QAL	—	—	—	0.000382	0.0000123	—	0.000000133 (J)	0.000000844	—	—	0.0000000866 (J)	0.0000000866
RE02-07-2369	02-600534	14.5–20	QBO	—	—	—	0.00038	0.0000163	—	—	0.000000121	—	—	—	—
RE02-10-22188	02-612465	2–2.2	SOIL	0.126 (J)	NA	—	NA	NA	NA	NA	NA	0.252 (J)	0.451 (J)	NA	NA
RE02-10-22198	02-612465	4–4.2	SOIL	0.0446 (J)	NA	—	NA	NA	NA	NA	NA	0.115 (J)	0.16 (J)	NA	NA
RE02-10-22191	02-612466	2–2.2	SOIL	0.0449 (J)	NA	0.00212 (J)	NA	NA	NA	NA	NA	0.0361 (J)	0.174 (J)	NA	NA
RE02-10-22195	02-612466	4–4.2	SOIL	0.0497 (J)	NA	—	NA	NA	NA	NA	NA	0.0782 (J)	0.181 (J)	NA	NA
RE02-10-22194	02-612467	2–2.2	SOIL	0.0541 (J)	NA	—	NA	NA	NA	NA	NA	0.0937 (J)	0.206 (J)	NA	NA
RE02-10-22192	02-612467	4–4.2	SOIL	0.0399 (J)	NA	—	NA	NA	NA	NA	NA	0.0907 (J)	0.131 (J)	NA	NA
RE02-10-22197	02-612468	2–2.2	SOIL	0.0737 (J)	NA	—	NA	NA	NA	NA	NA	0.238 (J)	0.394 (J)	NA	NA
RE02-10-22189	02-612468	4–4.2	SOIL	0.0111 (J)	NA	—	NA	NA	NA	NA	NA	0.01 (J)	0.0363 (J)	NA	NA

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

[a] SSLs are from NMED (2009, 108070).

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

[c] na = Not available.

[d] SSLs are from LANL (2010, 108613).

[e] NA = Not analyzed.

[f] — = Not detected.

Table 6.26-24
Radionuclides Detected or
Detected above BVs/FVs at AOC 02-011(a)(vi)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Plutonium-239/240	Tritium
Soil BV[a]				**0.013**	**0.054**	**na**[b]
Industrial SAL[c]				**180**	**210**	**440000**
Recreational SAL[c]				**280**	**300**	**5300000**
Residential SAL[c]				**30**	**33**	**750**
0402-95-0309	02-01149	0–1	SOIL	NA[d]	0.124	0.0661905
RE02-07-2359	02-600532	4.5–9.5	QAL	—[e]	0.164	0.0336043
RE02-07-2361	02-600532	9.5–12.5	QAL	—	0.149	—
RE02-07-2362	02-600533	0–0.5	SOIL	0.0924	0.182 (J-)	—
RE02-07-2363	02-600533	4.5–10	QAL	—	—	0.0369992
RE02-07-2365	02-600533	10–15	QAL	—	—	0.0367991
RE02-07-6828	02-600534	0–0.5	SOIL	—	0.073	—
RE02-07-2368	02-600534	4.5–14.5	QAL	—	0.165 (J-)	—

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

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

[b] na = Not available.

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

[d] NA = Not analyzed.

[e] — = Not detected.

Table 6.26-25
Samples Collected and Analyses Requested at AOC 02-011(a)(viii)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Dioxins/Furans	Gamma-emitting Radionuclides	Tritium	Hexavalent Chromium	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	Technetium-99	VOCs	Cyanide (Total)
CA02-00-0192	02-01152	0–0.5	SED	—*	—	—	7531R	7531R	—	7531R	7531R	7529R, 7530R	—	—	7531R	—	—	—	—
0402-95-0313	02-01152	0–1	SED	—	—	—	115	115	—	115	115	—	—	—	115	—	—	—	—
RE02-03-51824	02-22351	4–4.5	SOIL	—	—	—	1814S	1814S	1813S	1814S	1814S	1813S	—	—	1814S	—	1814S	—	—
RE02-03-51825	02-22351	5.5–6	SOIL	—	—	—	1814S	1814S	1813S	1814S	1814S	1813S	—	—	1814S	—	1814S	—	—
RE02-03-51826	02-22352	3–3.5	SOIL	—	—	—	1814S	1814S	1813S	1814S	1814S	1813S	—	—	1814S	—	1814S	—	—
RE02-03-51827	02-22352	4.5–5	SOIL	—	—	—	1814S	1814S	1813S	1814S	1814S	1813S	—	—	1814S	—	1814S	—	—
RE02-03-51866	02-22372	4–4.5	SOIL	—	—	—	1822S	1822S	1821S	1822S	1822S	1821S	—	—	1822S	—	1822S	—	—
RE02-03-51867	02-22372	5.5–6	SOIL	—	—	—	1822S	1822S	1821S	1822S	1822S	1821S	—	—	1822S	—	1822S	—	—
RE02-03-51868	02-22373	4–4.5	SOIL	—	—	—	1822S	1822S	1821S	1822S	1822S	1821S	—	—	1822S	—	1822S	—	—
RE02-03-51869	02-22373	5.5–6	SOIL	—	—	—	1822S	1822S	1821S	1822S	1822S	1821S	—	—	1822S	—	1822S	—	—
RE02-03-51870	02-22374	3–3.5	SOIL	—	—	—	1822S	1822S	1821S	1822S	1822S	1821S	—	—	1822S	—	1822S	—	—
RE02-03-51871	02-22374	4.5–5	SOIL	—	—	—	1822S	1822S	1821S	1822S	1822S	1821S	—	—	1822S	—	1822S	—	—
RE02-07-2419	02-600542	0–0.5	SOIL	07-394	07-393	07-392	07-394	07-394	07-393	07-394	07-394	07-393	07-391	07-393	07-394	07-391	—	—	07-393
RE02-07-2420	02-600542	4.5–6.7	QAL	07-452	07-451	07-449	07-452	07-452	07-451	07-452	07-452	07-451	07-450	07-451	07-452	07-450	—	07-450	07-451
RE02-07-2422	02-600542	10–12.2	QAL	07-452	07-451	07-449	07-452	07-452	07-451	07-452	07-452	07-451	07-450	07-451	07-452	07-450	—	07-450	07-451
RE02-07-2421	02-600542	15–17.4	QBO	07-452	07-451	07-449	07-452	07-452	07-451	07-452	07-452	07-451	07-450	07-451	07-452	07-450	—	07-450	07-451
RE02-07-2423	02-600543	0–5	SOIL	07-916	07-916	07-915	07-916	07-916	07-916	07-916	07-916	07-916	07-916	07-916	07-916	07-916	—	—	07-916
RE02-07-2425	02-600543	9.5–11	QAL	07-958	07-958	07-957	07-958	07-958	07-958	07-958	07-958	07-958	07-958	07-958	07-958	07-958	—	07-958	07-958
RE02-07-2426	02-600543	19.5–22	QBO	07-958	07-958	07-957	07-958	07-958	07-958	07-958	07-958	07-958	07-958	07-958	07-958	07-958	—	07-958	07-958
RE02-10-21521	02-612292	5–6	QAL	—	—	—	10-4706	10-4706	10-4706	10-4706	—	10-4706	10-4706	—	—	10-4706	—	—	—
RE02-10-21522	02-612292	15–16.5	QBO	—	—	—	10-4706	10-4706	10-4706	10-4706	—	10-4706	10-4706	—	—	10-4706	—	—	—
RE02-10-21523	02-612292	25–26	QBO	—	—	—	10-4783	10-4783	10-4782	10-4783	—	10-4782	10-4781	—	—	10-4781	—	—	—
RE02-10-21524	02-612292	35–36	QBO	—	—	—	10-4783	10-4783	10-4782	10-4783	—	10-4782	10-4781	—	—	10-4781	—	—	—
RE02-10-21525	02-612292	49–50	QBO	—	—	—	10-4788	10-4788	10-4788	10-4788	—	10-4788	10-4788	—	—	10-4788	—	—	—

* — = Analysis not requested.

Table 6.26-26
Inorganic Chemicals above BVs at AOC 02-011(a)(viii)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Cadmium	Calcium	Chromium	Hexavalent Chromium	Copper	Iron	Lead	Manganese	Mercury	Nitrate	Selenium	Zinc
Qbt 1g, Qct, Qbo BV[a]				**3560**	**0.5**	**0.56**	**25.7**	**0.4**	**1900**	**2.6**	**na[b]**	**3.96**	**3700**	**13.5**	**189**	**0.1**	**na**	**0.3**	**40**
Sediment BV[a]				**15400**	**0.83**	**3.98**	**127**	**0.4**	**4420**	**10.5**	**na**	**11.2**	**13800**	**19.7**	**543**	**0.1**	**na**	**0.3**	**60.2**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**0.4**	**6120**	**19.3**	**na**	**14.7**	**21500**	**22.3**	**671**	**0.1**	**na**	**1.52**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**1120**	**na**	**2920[d]**	**2920**	**45400**	**795000**	**800**	**145000**	**310[e]**	**1820000**	**5680**	**341000**
Recreational SSL[f]				**791000**	**317**	**27.7**	**158000**	**784**	**na**	**1910[d]**	**1910**	**31700**	**554000**	**560**	**110000**	**238**	**1260000**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**77.9**	**na**	**219[d]**	**219**	**3130**	**54800**	**400**	**10700**	**23[e]**	**125000**	**391**	**23500**
CA02-00-0192	02-01152	0–0.5	SED	—[g]	—	—	—	0.63 (J+)	—	13	NA[h]	17	—	40	—	2.2 (J-)	NA	—	390 (J+)
RE02-03-51824	02-22351	4–4.5	SOIL	—	—	—	—	0.463 (J)	—	—	—	—	—	—	—	0.305	NA	—	68.8 (J-)
RE02-03-51825	02-22351	5.5–6	SOIL	—	—	—	—	—	—	—	0.209 (J-)	—	—	—	—	0.197	NA	—	67.3 (J-)
RE02-03-51826	02-22352	3–3.5	SOIL	—	—	—	—	—	—	—	0.676 (J-)	15.1 (J)	—	25.8 (J)	—	5.26	NA	—	66.3 (J-)
RE02-03-51827	02-22352	4.5–5	SOIL	—	—	—	—	—	—	—	0.206 (J-)	—	—	—	—	0.201	NA	—	—
RE02-03-51866	02-22372	4–4.5	SOIL	—	—	—	—	—	—	—	0.061 (J)	—	—	—	—	0.681	NA	—	—
RE02-03-51867	02-22372	5.5–6	SOIL	—	—	—	—	0.513 (U)	—	—	—	—	—	—	—	0.178	NA	—	—
RE02-03-51868	02-22373	4–4.5	SOIL	—	—	—	—	—	22930	—	0.132	—	—	—	—	0.382	NA	—	—
RE02-03-51869	02-22373	5.5–6	SOIL	—	—	—	—	0.531 (U)	—	—	—	—	—	—	—	—	NA	—	—
RE02-03-51870	02-22374	3–3.5	SOIL	—	—	—	—	0.555 (U)	8700	—	—	—	—	—	—	0.122	NA	—	—
RE02-03-51871	02-22374	4.5–5	SOIL	—	—	—	—	0.529 (U)	—	—	0.122	—	—	—	—	0.315	NA	—	—
RE02-07-2419	02-600542	0–0.5	SOIL	—	—	—	—	0.54 (U)	—	—	—	—	—	—	—	2.93 (J-)	1.37	—	—
RE02-07-2420	02-600542	4.5–6.7	QAL	—	—	—	—	0.547 (U)	—	19.6	—	—	—	—	—	—	1.82	1.64 (U)	—
RE02-07-2422	02-600542	10–12.2	QAL	—	—	—	—	0.523 (U)	—	33.4	0.25	—	—	—	—	0.136	—	—	—
RE02-07-2421	02-600542	15–17.4	QBO	22000	0.501 (U)	1.41 (J)	221 (J-)	0.632 (U)	—	2.93	2.12	—	7460	—	267	—	—	1.9 (U)	—
RE02-07-2423	02-600543	0–5	SOIL	—	—	—	—	0.54 (U)	—	—	—	—	—	—	—	0.473	4.09	—	57.4
RE02-07-2425	02-600543	9.5–11	QAL	—	—	—	—	0.568 (U)	—	—	0.206 (J-)	—	—	—	—	1.71	1.31	—	—
RE02-07-2426	02-600543	19.5–22	QBO	7990 (J+)	0.512 (UJ)	1.27 (J)	47 (J)	0.664 (U)	—	21.3	0.0331 (J)	—	5180	—	233	—	—	0.801 (J)	—
RE02-10-21521	02-612292	5–6	QAL	—	1.03 (U)	—	—	0.513 (U)	—	—	—	—	—	—	—	0.576	NA	—	—
RE02-10-21522	02-612292	15–16.5	QBO	10900	1.26 (U)	—	—	0.63 (U)	—	2.92	0.202 (J)	—	7550	—	215 (J-)	—	NA	1.29 (U)	—
RE02-10-21523	02-612292	25–26	QBO	4450	1.23 (U)	1.28 (U)	—	0.614 (U)	—	—	—	—	5520	—	263	—	NA	1.28 (UJ)	—

Table 6.26-26 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Cadmium	Calcium	Chromium	Hexavalent Chromium	Copper	Iron	Lead	Manganese	Mercury	Nitrate	Selenium	Zinc
Qbt 1g, Qct, Qbo BV[a]				**3560**	**0.5**	**0.56**	**25.7**	**0.4**	**1900**	**2.6**	**na[b]**	**3.96**	**3700**	**13.5**	**189**	**0.1**	**na**	**0.3**	**40**
Sediment BV[a]				**15400**	**0.83**	**3.98**	**127**	**0.4**	**4420**	**10.5**	**na**	**11.2**	**13800**	**19.7**	**543**	**0.1**	**na**	**0.3**	**60.2**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**0.4**	**6120**	**19.3**	**na**	**14.7**	**21500**	**22.3**	**671**	**0.1**	**na**	**1.52**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**1120**	**na**	**2920[d]**	**2920**	**45400**	**795000**	**800**	**145000**	**310[e]**	**1820000**	**5680**	**341000**
Recreational SSL[f]				**791000**	**317**	**27.7**	**158000**	**784**	**na**	**1910[d]**	**1910**	**31700**	**554000**	**560**	**110000**	**238**	**1260000**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**77.9**	**na**	**219[d]**	**219**	**3130**	**54800**	**400**	**10700**	**23[e]**	**125000**	**391**	**23500**
RE02-10-21524	02-612292	35–36	QBO	3750	1.3 (U)	1.29 (U)	—	0.651 (U)	—	—	—	—	5870	—	195	—	NA	1.29 (UJ)	—
RE02-10-21525	02-612292	49–50	QBO	—	1.28 (U)	1.29 (U)	—	0.641 (U)	—	—	—	—	5670	—	219	—	NA	1.29 (UJ)	—

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

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

[b] na = Not available.

[c] SSLs are from NMED (2009, 108070), unless otherwise noted.

[d] SSLs are for hexavalent chromium.

[e] SSLs are from EPA regional screening tables (http://www.epa.gov.earth1r6/6pd/rcra_c/pd-n/screen.htm).

[f] SSLs are from LANL (2010, 108613).

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

[h] NA = Not analyzed.

Table 6.26-27
Organic Chemicals Detected at AOC 02-011(a)(viii)

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Anthracene	Aroclor-1242	Aroclor-1254	Aroclor-1260	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Bis(2-ethylhexyl)phthalate	Chloroform	Chrysene	Fluoranthene	Fluorene
Industrial SSL[a]				**36700**	**183000**	**8.26**	**8.26**	**8.26**	**23.4**	**2.34**	**23.4**	**18300[b]**	**1370**	**31.9**	**2340**	**24400**	**24400**
Recreational SSL[c]				**20800**	**104000**	**10.5**	**6.65**	**10.5**	**30.1**	**3.01**	**30.1**	**10400[b]**	**1830**	**224**	**3010**	**13900**	**13900**
Residential SSL[a]				**3440**	**17200**	**2.22**	**1.12**	**2.22**	**6.21**	**0.621**	**6.21**	**1720[b]**	**347**	**5.72**	**621**	**2290**	**2290**
RE02-07-2419	02-600542	0–0.5	SOIL	—[d]	0.00808 (J)	—	0.0276 (J)	0.0546	—	0.0673 (J)	0.102 (J)	—	—	NA[e]	0.059	0.0678	—
RE02-07-2420	02-600542	4.5–6.7	QAL	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2422	02-600542	10–12.2	QAL	—	—	—	—	0.0032 (J)	—	—	—	—	—	—	—	—	—
RE02-07-2421	02-600542	15–17.4	QBO	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2423	02-600543	0–5	SOIL	0.033 (J)	0.0559	—	—	0.0429	0.104	0.116	0.166	0.0774	—	NA	0.0939	0.208	0.0286 (J)
RE02-07-2425	02-600543	9.5–11	QAL	—	0.0118 (J)	—	—	0.0238	—	0.0229 (J)	0.038 (J)	—	—	—	0.0244 (J)	0.0484	—
RE02-07-2426	02-600543	19.5–22	QBO	—	—	—	—	0.0514	—	—	—	—	—	0.000304 (J)	—	—	—
RE02-10-21521	02-612292	5–6	QAL	—	—	—	0.0582	—	0.0293 (J)	0.0282 (J)	0.0369	—	—	NA	0.0253 (J)	0.0347 (J)	—
RE02-10-21524	02-612292	35–36	QBO	—	—	—	—	—	—	—	—	—	0.231 (J)	NA	—	—	—
RE02-10-21525	02-612292	49–50	QBO	—	—	0.213	0.334	0.0377	—	—	—	—	—	NA	—	—	—

Table 6.26-27 (continued)

Sample ID	Location ID	Depth (ft)	Media	Heptachlorodibenzodioxin[1,2,3,4,6,7,8-]	Heptachlorodibenzodioxins (Total)	Heptachlorodibenzofuran[1,2,3,4,6,7,8-]	Heptachlorodibenzofurans (Total)	Hexachlorodibenzodioxin[1,2,3,6,7,8-]	Hexachlorodibenzodioxin[1,2,3,7,8,9-]	Hexachlorodibenzodioxins (Total)	Hexachlorodibenzofuran[1,2,3,4,7,8-]	Hexachlorodibenzofuran[1,2,3,6,7,8-]	Hexachlorodibenzofuran[2,3,4,6,7,8-]	Hexachlorodibenzofurans (Total)	Indeno(1,2,3-cd)pyrene
Industrial SSL[a]				**na[f]**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**23.4**
Recreational SSL[c]				**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**30.1**
Residential SSL[a]				**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**6.21**
RE02-07-2419	02-600542	0–0.5	SOIL	0.0000262	0.0000536	0.00000372	0.0000103	0.000000991 (J)	0.000000668 (J)	0.00000722	—	0.0000003 (J)	0.000000363 (J)	0.00000504	—
RE02-07-2420	02-600542	4.5–6.7	QAL	0.00000498	0.00000971	0.000000918 (J)	0.0000045	—	—	—	—	—	—	0.000000815	—
RE02-07-2422	02-600542	10–12.2	QAL	0.0000235	0.0000456	0.00000496	0.0000244	0.000000766 (J)	—	0.00000242	0.000000251 (J)	—	—	0.00000398	—
RE02-07-2421	02-600542	15–17.4	QBO	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-2423	02-600543	0–5	SOIL	0.000021	0.0000563	0.00000502	0.0000174	0.000000664 (J)	—	0.00000304	0.000000581 (J)	0.000000347 (J)	—	0.00000558	0.0703
RE02-07-2425	02-600543	9.5–11	QAL	0.0000073	0.0000157	0.00000142 (J)	0.00000446	—	—	0.000000974	0.000000282 (J)	—	0.000000156 (J)	0.00000114	0.0126 (J)
RE02-07-2426	02-600543	19.5–22	QBO	0.00000105 (J)	0.00000218	0.000000446 (J)	0.0000011	—	—	—	0.00000033 (J)	—	—	0.00000146	—
RE02-10-21521	02-612292	5–6	QAL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0148 (J)
RE02-10-21524	02-612292	35–36	QBO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	—
RE02-10-21525	02-612292	49–50	QBO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	—

Table 6.26-27 (continued)

Sample ID	Location ID	Depth (ft)	Media	Methylene Chloride	Methylnaphthalene[2-]	Naphthalene	Octachlorodibenzodioxin[1,2,3,4,6,7,8,9-]	Octachlorodibenzofuran[1,2,3,4,6,7,8,9-]	Pentachlorodibenzodioxins (Total)	Pentachlorodibenzofuran[2,3,4,7,8-]	Pentachlorodibenzofurans (Totals)	Phenanthrene	Pyrene	Tetrachlorodibenzofuran[2,3,7,8-]	Tetrachlorodibenzofurans (Totals)
Industrial SSL[a]				**1090**	**4100[g]**	**252**	**na**	**na**	**na**	**na**	**na**	**20500**	**18300**	**0.00147**	**na**
Recreational SSL[c]				**4520**	**3170**	**1950**	**na**	**na**	**na**	**na**	**na**	**12000**	**10400**	**0.00197**	**na**
Residential SSL[a]				**199**	**310[g]**	**45**	**na**	**na**	**na**	**na**	**na**	**1830**	**1720**	**0.000374**	**na**
RE02-07-2419	02-600542	0–0.5	SOIL	NA	—	—	0.000248	0.00000935	0.000000163	0.000000761 (J)	0.00000415	0.0402	0.0952	0.00000045 (J)	0.000000927
RE02-07-2420	02-600542	4.5–6.7	QAL	—	—	—	0.0000741	0.00000308 (J)	—	—	—	—	—	—	—
RE02-07-2422	02-600542	10–12.2	QAL	—	—	—	0.000388	0.0000194	—	—	0.000000196	—	—	—	—
RE02-07-2421	02-600542	15–17.4	QBO	—	—	—	0.000003 (J)	—	—	—	—	—	—	—	—
RE02-07-2423	02-600543	0–5	SOIL	NA	0.0176 (J)	0.0336 (J)	0.000233	0.0000161	—	0.000000732 (J)	0.00000453	0.195	0.228	—	0.0000013
RE02-07-2425	02-600543	9.5–11	QAL	—	—	—	0.000084	0.00000382 (J)	—	0.000000293 (J)	0.00000151	0.0416	0.0726	—	0.00000021
RE02-07-2426	02-600543	19.5–22	QBO	0.00361 (J)	—	—	0.0000114	0.000000818 (J)	—	0.000000534 (J)	0.00000187	—	—	0.000000278 (J)	0.000000278
RE02-10-21521	02-612292	5–6	QAL	NA	—	—	NA	NA	NA	NA	NA	0.0235 (J)	0.0597	NA	NA
RE02-10-21524	02-612292	35–36	QBO	NA	—	—	NA	NA	NA	NA	NA	—	—	NA	NA
RE02-10-21525	02-612292	49–50	QBO	NA	—	—	NA	NA	NA	NA	NA	—	—	NA	NA

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

[a] SSLs are from NMED (2009, 108070), unless otherwise noted.

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

[c] SSLs are from LANL (2010, 108613).

[d] — = Not detected.

[e] NA = Not analyzed.

[f] na = Not available.

[h] SSLs are from EPA regional screening tables (http://www.epa.gov.earth1r6/6pd/rcra_c/pd-n/screen.htm).

Table 6.26-28
Radionuclides Detected or Detected above BVs/FVs at AOC 02-011(a)(viii)

Sample ID	Location ID	Depth (ft)	Media	Cesium-137	Cobalt-60	Plutonium-239/240	Tritium	Uranium-235/236
Qbt 1g, Qct, Qbo BV[a]				**na[b]**	**na**	**na**	**na**	**0.18**
Sediment BV[a]				**0.9**	**na**	**0.068**	**0.093**	**0.2**
Soil BV[a]				**1.65**	**na**	**0.054**	**na**	**0.2**
Industrial SAL[c]				**23**	**5.1**	**210**	**440000**	**87**
Recreational SAL[c]				**210**	**46**	**300**	**5300000**	**520**
Residential SAL[c]				**5.6**	**1.3**	**33**	**750**	**17**
CA02-00-0192	02-01152	0–0.5	SED	—[d]	0.598	1.87	0.278969	—
0402-95-0313	02-01152	0–1	SED	—	0.38	0.184	0.209955	—
RE02-03-51824	02-22351	4–4.5	SOIL	0.169	—	0.0508	0.0372	—
RE02-03-51826	02-22352	3–3.5	SOIL	0.432	0.0519	—	0.14	—
RE02-03-51827	02-22352	4.5–5	SOIL	—	—	—	0.659	—
RE02-03-51866	02-22372	4–4.5	SOIL	—	—	—	0.773	—
RE02-03-51867	02-22372	5.5–6	SOIL	—	—	—	0.548	—
RE02-03-51868	02-22373	4–4.5	SOIL	—	—	—	0.487	—
RE02-03-51869	02-22373	5.5–6	SOIL	—	—	—	0.0893	—
RE02-03-51870	02-22374	3–3.5	SOIL	—	—	—	0.679	—
RE02-03-51871	02-22374	4.5–5	SOIL	—	—	—	0.43	—
RE02-07-2419	02-600542	0–0.5	SOIL	—	—	—	0.0207542	—
RE02-07-2420	02-600542	4.5–6.7	QAL	—	—	—	0.114549	—
RE02-07-2421	02-600542	15–17.4	QBO	—	—	—	—	0.195
RE02-07-2425	02-600543	9.5–11	QAL	—	—	—	0.0437816	—
RE02-07-2426	02-600543	19.5–22	QBO	—	—	—	0.0996667	—
RE02-10-21521	02-612292	5–6	QAL	—	—	—	0.512085	NA[e]
RE02-10-21523	02-612292	25–26	QBO	—	—	—	0.0853625	NA

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

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

[b] na = Not available.

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

[d] — = Not detected.

[e] NA = Not analyzed.

Table 6.26-29
Samples Collected and Analyses Requested at AOC 02-011(a)(ix)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Gamma-emitting Radionuclides	Tritium	Hexavalent Chromium	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	Technetium-99	TPH-DRO	VOCs	Cyanide (Total)
CA02-00-0320	02-01150	0–0.5	SED	—*	—	7531R	7531R	—	7531R	7531R	7529R, 7530R	—	—	7531R	—	—	—	—	—
0402-95-0310	02-01150	0–1	SED	—	—	115	115	—	115	115	—	—	—	115	—	—	—	—	—
CA02-00-0323	02-01150	2.3–2.7	SED	—	—	7531R	7531R	—	7531R	7531R	7529R, 7530R	—	—	7531R	—	—	—	—	—
RE02-03-51820	02-22349	4–4.5	SOIL	—	—	1820S	1820S	1819S	1820S	1820S	1819S	—	—	1820S	—	1820S	—	—	—
RE02-03-51821	02-22349	5.5–6	SOIL	—	—	1820S	1820S	1819S	1820S	1820S	1819S	—	—	1820S	—	1820S	—	—	—
RE02-03-51856	02-22367	3.5–4	SOIL	—	—	1814S	1814S	1813S	1814S	1814S	1813S	—	—	1814S	—	1814S	—	—	—
RE02-03-51857	02-22367	5–5.5	SOIL	—	—	1814S	1814S	1813S	1814S	1814S	1813S	—	—	1814S	—	1814S	—	—	—
RE02-07-1763	02-600431	0–0.5	SOIL	07-423	07-422	07-423	07-423	07-422	07-423	07-423	07-422	07-421	07-422	07-423	07-421	—	—	—	07-422
RE02-07-1764	02-600431	7.5–12	QAL	07-565	07-564	07-565	07-565	07-564	07-565	07-565	07-564	07-563	07-564	07-565	07-563	—	—	07-563	07-564
RE02-07-1765	02-600431	15–21	QBO	07-565	07-564	07-565	07-565	07-564	07-565	07-565	07-564	07-563	07-564	07-565	07-563	—	—	07-563	07-564
RE02-07-1768	02-600432	0–0.5	SOIL	07-588	07-587	07-588	07-588	07-587	07-588	07-588	07-587	07-586	07-587	07-588	07-586	—	07-586	—	07-587
RE02-07-1769	02-600432	7.5–14	QAL	07-831	07-830	07-831	07-831	07-830	07-831	07-831	07-830	07-829	07-830	07-831	07-829	—	07-829	07-829	07-830
RE02-07-1770	02-600432	14–19	QBO	07-831	07-830	07-831	07-831	07-830	07-831	07-831	07-830	07-829	07-830	07-831	07-829	—	07-829	07-829	07-830
RE02-07-6823	02-600432	24.5–29	QBO	07-1131	07-1131	07-1131	07-1131	07-1131	07-1131	07-1131	07-1131	07-1131	07-1131	07-1131	07-1131	—	07-1131	07-1131	07-1131
RE02-07-1773	02-600433	0–0.5	SOIL	07-588	07-587	07-588	07-588	07-587	07-588	07-588	07-587	07-586	07-587	07-588	07-586	—	—	—	07-587
RE02-07-1775	02-600433	14–19	QBO	07-831	07-830	07-831	07-831	07-830	07-831	07-831	07-830	07-829	07-830	07-831	07-829	—	—	07-829	07-830
RE02-07-1778	02-600434	0–0.5	SOIL	07-588	07-587	07-588	07-588	07-587	07-588	07-588	07-587	07-586	07-587	07-588	07-586	—	—	—	07-587
RE02-07-1781	02-600434	7.5–16	QAL	07-828	07-827	07-828	07-828	07-827	07-828	07-828	07-827	07-826	07-827	07-828	07-826	—	—	07-826	07-827
RE02-07-1780	02-600434	16–19	QBO	07-828	07-827	07-828	07-828	07-827	07-828	07-828	07-827	07-826	07-827	07-828	07-826	—	—	07-826	07-827
RE02-07-1783	02-600435	0–0.5	SOIL	07-574	07-573	07-574	07-574	07-573	07-574	07-574	07-573	07-572	07-573	07-574	07-572	—	—	—	07-573
RE02-07-1784	02-600435	7.5–14.5	QAL	07-828	07-827	07-828	07-828	07-827	07-828	07-828	07-827	07-826	07-827	07-828	07-826	—	—	07-826	07-827
RE02-07-1785	02-600435	14.5–19	QBO	07-828	07-827	07-828	07-828	07-827	07-828	07-828	07-827	07-826	07-827	07-828	07-826	—	—	07-826	07-827
RE02-07-1788	02-600436	0–0.5	SOIL	07-574	07-573	07-574	07-574	07-573	07-574	07-574	07-573	07-572	07-573	07-574	07-572	—	—	—	07-573
RE02-07-1789	02-600436	7.5–13.5	QAL	07-819	07-818	07-819	07-819	07-818	07-819	07-819	07-818	07-817	07-818	07-819	07-817	—	—	07-817	07-818
RE02-07-1790	02-600436	13.5–18.5	QBO	07-819	07-818	07-819	07-819	07-818	07-819	07-819	07-818	07-817	07-818	07-819	07-817	—	—	07-817	07-818
RE02-07-1793	02-600437	0–0.5	SOIL	07-574	07-573	07-574	07-574	07-573	07-574	07-574	07-573	07-572	07-573	07-574	07-572	—	—	—	07-573
RE02-07-1794	02-600437	7.5–8.8	QAL	07-806	07-805	07-806	07-806	07-805	07-806	07-806	07-805	07-804	07-805	07-806	07-804	—	—	07-804	07-805
RE02-07-1798	02-600438	0–0.5	SOIL	07-574	07-573	07-574	07-574	07-573	07-574	07-574	07-573	07-572	07-573	07-574	07-572	—	—	—	07-573
RE02-07-1799	02-600438	7.5–11	QAL	07-806	07-805	07-806	07-806	07-805	07-806	07-806	07-805	07-804	07-805	07-806	07-804	—	—	07-804	07-805
RE02-07-1800	02-600438	14–16.2	QBO	07-806	07-805	07-806	07-806	07-805	07-806	07-806	07-805	07-804	07-805	07-806	07-804	—	—	07-804	07-805

Table 6.26-29 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Gamma-emitting Radionuclides	Tritium	Hexavalent Chromium	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	Technetium-99	TPH-DRO	VOCs	Cyanide (Total)
RE02-07-1803	02-600439	0–0.5	SOIL	07-574	07-573	07-574	07-574	07-573	07-574	07-574	07-573	07-572	07-573	07-574	07-572	—	—	—	07-573
RE02-07-1804	02-600439	7.5–14	QAL	07-819	07-818	07-819	07-819	07-818	07-819	07-819	07-818	07-817	07-818	07-819	07-817	—	—	07-817	07-818
RE02-07-1805	02-600439	14–18.5	QBO	07-819	07-818	07-819	07-819	07-818	07-819	07-819	07-818	07-817	07-818	07-819	07-817	—	—	07-817	07-818
RE02-07-1808	02-600440	0–0.5	SOIL	07-574	07-573	07-574	07-574	07-573	07-574	07-574	07-573	07-572	07-573	07-574	07-572	—	—	—	07-573
RE02-07-1809	02-600440	7.5–14	QAL	07-831	07-830	07-831	07-831	07-830	07-831	07-831	07-830	07-829	07-830	07-831	07-829	—	—	07-829	07-830
RE02-07-1810	02-600440	14–19	QBO	07-831	07-830	07-831	07-831	07-830	07-831	07-831	07-830	07-829	07-830	07-831	07-829	—	—	07-829	07-830
RE02-07-1813	02-600441	0–0.5	SOIL	07-423	07-422	07-423	07-423	07-422	07-423	07-423	07-422	07-421	07-422	07-423	07-421	—	07-421	—	07-422
RE02-07-1814	02-600441	7.5–8	QAL	07-546	07-545	07-546	07-546	07-545	07-546	07-546	07-545	07-544	07-545	07-546	07-544	—	07-544	07-544	07-545
RE02-07-1816	02-600441	10–15	QAL	07-546	07-545	07-546	07-546	07-545	07-546	07-546	07-545	07-544	07-545	07-546	07-544	—	07-544	07-544	07-545
RE02-07-1815	02-600441	15–22	QBO	07-546	07-545	07-546	07-546	07-545	07-546	07-546	07-545	07-544	07-545	07-546	07-544	—	07-544	07-544	07-545
RE02-07-1818	02-600442	0–0.5	SOIL	07-968	07-968	07-968	07-968	07-968	07-968	07-968	07-968	07-968	07-968	07-968	07-968	—	—	—	07-968
RE02-07-1821	02-600442	8–12	QAL	07-968	07-968	07-968	07-968	07-968	07-968	07-968	07-968	07-968	07-968	07-968	07-968	—	—	07-968	07-968
RE02-07-1820	02-600442	15–20	QBO	07-968	07-968	07-968	07-968	07-968	07-968	07-968	07-968	07-968	07-968	07-968	07-968	—	—	07-968	07-968
RE02-07-1822	02-600443	0–0.5	SOIL	07-423	07-422	07-423	07-423	07-422	07-423	07-423	07-422	07-421	07-422	07-423	07-421	—	07-421	—	07-422
RE02-07-1823	02-600443	2–4	QAL	07-565	07-564	07-565	07-565	07-564	07-565	07-565	07-564	07-563	07-564	07-565	07-563	—	07-563	07-563	07-564
RE02-07-1824	02-600443	4–8	QAL	07-565	07-564	07-565	07-565	07-564	07-565	07-565	07-564	07-563	07-564	07-565	07-563	—	07-563	07-563	07-564
RE02-07-1826	02-600443	10–12.5	QBO	07-565	07-564	07-565	07-565	07-564	07-565	07-565	07-564	07-563	07-564	07-565	07-563	—	07-563	07-563	07-564
RE02-07-1825	02-600443	15–17.5	QBO	07-565	07-564	07-565	07-565	07-564	07-565	07-565	07-564	07-563	07-564	07-565	07-563	—	07-563	07-563	07-564
RE02-07-1828	02-600444	0–0.5	SOIL	07-588	07-587	07-588	07-588	07-587	07-588	07-588	07-587	07-586	07-587	07-588	07-586	—	—	—	07-587
RE02-07-1829	02-600444	7.5–8.5	QAL	07-857	07-857	07-857	07-857	07-857	07-857	07-857	07-857	07-857	07-857	07-857	07-857	—	—	07-857	07-857
RE02-07-1830	02-600444	13.5–20.5	QBO	07-857	07-857	07-857	07-857	07-857	07-857	07-857	07-857	07-857	07-857	07-857	07-857	—	—	07-857	07-857
RE02-07-1833	02-600445	0–0.5	SOIL	07-588	07-587	07-588	07-588	07-587	07-588	07-588	07-587	07-586	07-587	07-588	07-586	—	—	—	07-587
RE02-07-1834	02-600445	7.5–10.5	QAL	07-857	07-857	07-857	07-857	07-857	07-857	07-857	07-857	07-857	07-857	07-857	07-857	—	—	07-857	07-857
RE02-07-1835	02-600445	13–18.5	QBO	07-857	07-857	07-857	07-857	07-857	07-857	07-857	07-857	07-857	07-857	07-857	07-857	—	—	07-857	07-857
RE02-07-1836	02-600445	26–28.5	QBO	07-862	07-862	07-862	07-862	07-862	07-862	07-862	07-862	07-862	07-862	07-862	07-862	—	—	07-862	07-862
RE02-07-1838	02-600446	0–0.5	SOIL	07-588	07-587	07-588	07-588	07-587	07-588	07-588	07-587	07-586	07-587	07-588	07-586	—	—	—	07-587
RE02-07-1839	02-600446	7.5–12	QAL	07-862	07-862	07-862	07-862	07-862	07-862	07-862	07-862	07-862	07-862	07-862	07-862	—	—	07-862	07-862
RE02-07-1840	02-600446	13–18	QBO	07-871	07-871	07-871	07-871	07-871	07-871	07-871	07-871	07-871	07-871	07-871	07-871	—	—	07-871	07-871
RE02-07-1843	02-600447	0–0.5	SOIL	07-588	07-587	07-588	07-588	07-587	07-588	07-588	07-587	07-586	07-587	07-588	07-586	—	—	—	07-587
RE02-07-1844	02-600447	8.5–13.5	QAL	07-871	07-871	07-871	07-871	07-871	07-871	07-871	07-871	07-871	07-871	07-871	07-871	—	—	07-871	07-871
RE02-07-1845	02-600447	14.5–18.5	QBO	07-871	07-871	07-871	07-871	07-871	07-871	07-871	07-871	07-871	07-871	07-871	07-871	—	—	07-871	07-871
RE02-07-1848	02-600448	0–0.5	SOIL	07-574	07-573	07-574	07-574	07-573	07-574	07-574	07-573	07-572	07-573	07-574	07-572	—	—	—	07-573

Table 6.26-29 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Gamma-emitting Radionuclides	Tritium	Hexavalent Chromium	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	Technetium-99	TPH-DRO	VOCs	Cyanide (Total)
RE02-07-1849	02-600448	7.5–14	QAL	07-819	07-818	07-819	07-819	07-818	07-819	07-819	07-818	07-817	07-818	07-819	07-817	—	—	07-817	07-818
RE02-10-21742	02-612345	5–6	QAL	—	—	10-4320	10-4320	10-4321	10-4320	10-4320	10-4321	10-4320	—	—	10-4320	—	10-4320	—	—
RE02-10-21743	02-612345	15–16	QAL	—	—	10-4320	10-4320	10-4321	10-4320	10-4320	10-4321	10-4320	—	—	10-4320	—	10-4320	—	—
RE02-10-21744	02-612345	25–26	QBO	—	—	10-4320	10-4320	10-4321	10-4320	10-4320	10-4321	10-4320	—	—	10-4320	—	10-4320	—	—
RE02-10-21745	02-612345	35–36	QBO	—	—	10-4320	10-4320	10-4321	10-4320	10-4320	10-4321	10-4320	—	—	10-4320	—	10-4320	—	—
RE02-10-21746	02-612345	49–50	QBO	—	—	10-4320	10-4320	10-4321	10-4320	10-4320	10-4321	10-4320	—	—	10-4320	—	10-4320	—	—

* — = Analysis not requested.

Table 6.26-30
Inorganic Chemicals above BVs at AOC 02-011(a)(ix)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Cadmium	Calcium	Chromium	Hexavalent Chromium	Copper	Cyanide (Total)	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Silver	Vanadium	Zinc
Qbt 1g, Qct, Qbo BV[a]				**3560**	**0.5**	**0.56**	**25.7**	**0.4**	**1900**	**2.6**	**na[b]**	**3.96**	**0.5**	**3700**	**13.5**	**739**	**189**	**0.1**	**2**	**na**	**na**	**0.3**	**1**	**4.59**	**40**
Sediment BV[a]				**15400**	**0.83**	**3.98**	**127**	**0.4**	**4420**	**10.5**	**na**	**11.2**	**na**	**13800**	**19.7**	**2370**	**543**	**0.1**	**9.38**	**na**	**na**	**0.3**	**1**	**19.7**	**60.2**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**0.4**	**6120**	**19.3**	**na**	**14.7**	**0.5**	**21500**	**22.3**	**4610**	**671**	**0.1**	**15.4**	**na**	**na**	**1.52**	**1**	**39.6**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**1120**	**na**	**2920[d]**	**2920**	**45400**	**22700**	**795000**	**800**	**na**	**145000**	**310[e]**	**22700**	**1820000**	**795**	**5680**	**5680**	**5680**	**341000**
Recreational SSL[f]				**791000**	**317**	**27.7**	**158000**	**784**	**na**	**1910[d]**	**1910**	**31700**	**15800**	**554000**	**560**	**na**	**110000**	**238**	**15800**	**1260000**	**555**	**3960**	**3960**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**77.9**	**na**	**219[d]**	**219**	**3130**	**1560**	**54800**	**400**	**na**	**10700**	**23[e]**	**1560**	**125000**	**54.8**	**391**	**391**	**391**	**23500**
CA02-00-0320	02-01150	0–0.5	SED	—[g]	—	—	—	—	—	—	NA[h]	—	NA	—	20	—	—	0.23 (J-)	—	NA	NA	—	1.1	—	—
CA02-00-0323	02-01150	2.3–2.7	SED	—	—	—	—	—	—	15.9	NA	—	NA	—	—	—	—	0.49 (J-)	—	NA	NA	—	—	—	150 (J+)
RE02-03-51820	02-22349	4–4.5	SOIL	—	—	—	—	0.509 (U)	—	—	—	—	NA	—	—	—	—	—	—	NA	NA	—	—	—	—
RE02-03-51821	02-22349	5.5–6	SOIL	—	—	—	—	—	7290	—	—	—	NA	—	—	—	—	—	—	NA	NA	—	—	—	—
RE02-03-51856	02-22367	3.5–4	SOIL	—	—	—	—	—	—	—	1.14 (J-)	—	NA	—	2370 (J)	—	—	—	—	NA	NA	—	—	69.5	256 (J-)
RE02-03-51857	02-22367	5–5.5	SOIL	—	—	—	—	—	—	—	0.726 (J-)	—	NA	—	768 (J)	—	—	—	—	NA	NA	—	—	—	296 (J-)
RE02-07-1763	02-600431	0–0.5	SOIL	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.24	—	1.91	—	—	—	—	113
RE02-07-1764	02-600431	7.5–12	QAL	—	—	—	—	0.547 (U)	—	30.9	—	—	—	—	—	—	—	—	—	1.11 (J-)	—	—	—	—	—
RE02-07-1765	02-600431	15–21	QBO	4910 (J+)	—	1 (J)	—	0.612 (U)	—	30	—	—	—	7020	—	—	292 (J+)	—	6.52 (U)	—	—	0.91 (J)	—	5.96	—
RE02-07-1768	02-600432	0–0.5	SOIL	—	—	—	—	—	—	—	0.131 (J)	—	—	—	—	—	—	0.74	—	1.04 (J-)	—	—	—	—	—
RE02-07-1769	02-600432	7.5–14	QAL	—	—	—	—	0.537 (U)	—	—	—	—	—	—	—	—	—	—	—	—	—	1.62	—	—	—
RE02-07-1770	02-600432	14–19	QBO	10600	—	1.17 (J)	43.6 (J+)	0.601 (U)	—	27.4	0.253	—	—	5580 (J+)	—	—	201	—	2.44	—	—	1.56 (J)	—	—	—
RE02-07-6823	02-600432	24.5–29	QBO	3770	0.509 (UJ)	1.9 (U)	—	0.634 (U)	—	12.3	—	—	—	5630	—	—	263	—	—	—	—	5.63	—	—	—
RE02-07-1773	02-600433	0–0.5	SOIL	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.25	—	1.33 (J+)	0.000752 (J)	—	—	—	49.6
RE02-07-1775	02-600433	14–19	QBO	8390	—	1.86	50.6 (J+)	0.597 (U)	—	23	0.147 (J)	—	—	7400 (J+)	—	—	310	—	2.17	—	—	2.27	—	4.75	—
RE02-07-1778	02-600434	0–0.5	SOIL	—	—	—	—	—	—	—	0.349 (J)	—	—	—	—	—	—	0.421	—	1.66 (J+)	0.000556 (J)	—	—	—	—
RE02-07-1781	02-600434	7.5–16	QAL	—	—	—	—	0.55 (U)	—	—	—	—	—	—	—	—	—	0.102 (J)	—	—	—	2.07	—	—	—
RE02-07-1780	02-600434	16–19	QBO	11400	—	3.43	212 (J+)	0.587 (U)	2430	34.5	0.227 (J-)	11.8	—	12400 (J+)	48.8	4800 (J)	816	—	2.85 (U)	—	—	5.15	—	15.3	54.1
RE02-07-1783	02-600435	0–0.5	SOIL	—	—	—	—	—	—	—	0.241 (J)	—	0.579	—	—	—	—	0.358	—	1.18 (J-)	—	—	—	—	52
RE02-07-1784	02-600435	7.5–14.5	QAL	—	—	—	—	0.547 (U)	—	—	0.495 (J-)	—	—	—	—	—	—	—	—	1.51	0.0008 (J)	4.6	—	—	—
RE02-07-1785	02-600435	14.5–19	QBO	13000	—	1.56 (J)	34.6 (J+)	0.635 (U)	—	10.4 (U)	—	—	—	6070 (J+)	—	—	228	—	—	—	—	1.9	—	—	—
RE02-07-1788	02-600436	0–0.5	SOIL	—	—	—	—	—	—	—	0.176 (J)	—	—	—	—	—	—	0.311	—	1.05 (J-)	—	—	—	—	—
RE02-07-1789	02-600436	7.5–13.5	QAL	—	—	—	—	0.521 (U)	—	—	—	—	—	—	—	—	—	—	—	—	—	1.56 (U)	—	—	—
RE02-07-1790	02-600436	13.5–18.5	QBO	8460	—	1.93	36.1	0.588 (U)	—	27.2	—	—	—	6170	—	—	360	—	2.97 (U)	—	—	1.76 (U)	—	4.74	—
RE02-07-1793	02-600437	0–0.5	SOIL	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.53 (U)	—	—	—
RE02-07-1794	02-600437	7.5–8.8	QAL	—	—	—	—	0.529 (U)	—	—	—	—	—	—	—	—	—	—	—	1.37	—	1.59 (U)	—	—	—
RE02-07-1798	02-600438	0–0.5	SOIL	—	—	—	—	0.441 (J)	31200	—	—	—	—	—	—	—	—	0.125	—	1.74 (J-)	—	—	—	—	57.9

Table 6.26-30 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Cadmium	Calcium	Chromium	Hexavalent Chromium	Copper	Cyanide (Total)	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Silver	Vanadium	Zinc
Qbt 1g, Qct, Qbo BV[a]				**3560**	**0.5**	**0.56**	**25.7**	**0.4**	**1900**	**2.6**	**na[b]**	**3.96**	**0.5**	**3700**	**13.5**	**739**	**189**	**0.1**	**2**	**na**	**na**	**0.3**	**1**	**4.59**	**40**
Sediment BV[a]				**15400**	**0.83**	**3.98**	**127**	**0.4**	**4420**	**10.5**	**na**	**11.2**	**na**	**13800**	**19.7**	**2370**	**543**	**0.1**	**9.38**	**na**	**na**	**0.3**	**1**	**19.7**	**60.2**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**0.4**	**6120**	**19.3**	**na**	**14.7**	**0.5**	**21500**	**22.3**	**4610**	**671**	**0.1**	**15.4**	**na**	**na**	**1.52**	**1**	**39.6**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**1120**	**na**	**2920[d]**	**2920**	**45400**	**22700**	**795000**	**800**	**na**	**145000**	**310[e]**	**22700**	**1820000**	**795**	**5680**	**5680**	**5680**	**341000**
Recreational SSL[f]				**791000**	**317**	**27.7**	**158000**	**784**	**na**	**1910[d]**	**1910**	**31700**	**15800**	**554000**	**560**	**na**	**110000**	**238**	**15800**	**1260000**	**555**	**3960**	**3960**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**77.9**	**na**	**219[d]**	**219**	**3130**	**1560**	**54800**	**400**	**na**	**10700**	**23[e]**	**1560**	**125000**	**54.8**	**391**	**391**	**391**	**23500**
RE02-07-1799	02-600438	7.5–11	QAL	—	—	—	—	0.544 (U)	—	—	—	—	—	—	—	—	—	—	—	1.42	—	—	—	—	—
RE02-07-1800	02-600438	14–16.2	QBO	10000	—	1.07 (J)	74.2	0.577 (U)	—	10.1 (J)	—	—	—	5750	—	—	374	—	—	—	—	1.73 (U)	—	—	—
RE02-07-1803	02-600439	0–0.5	SOIL	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.411	—	1.13 (J-)	—	—	—	—	—
RE02-07-1804	02-600439	7.5–14	QAL	—	—	—	—	0.532 (U)	—	—	0.112	—	—	—	—	—	—	—	—	2.35	—	1.59 (U)	—	—	—
RE02-07-1805	02-600439	14–18.5	QBO	10500	—	1.65 (J)	97.3	0.59 (U)	—	8.59 (U)	0.0657 (J)	—	—	8500	—	—	392	—	2.86 (U)	—	—	1.77 (U)	—	5.44	—
RE02-07-1808	02-600440	0–0.5	SOIL	—	—	—	—	0.536 (J)	—	—	—	—	—	—	—	—	—	0.33	—	1.73 (J-)	—	—	—	—	52.9
RE02-07-1809	02-600440	7.5–14	QAL	—	—	—	—	0.563 (U)	—	—	—	—	—	—	—	—	—	—	—	1.52	0.000733 (J)	1.74	—	—	—
RE02-07-1810	02-600440	14–19	QBO	11200	—	1.12 (J)	—	0.642 (U)	—	15.5	—	4.42	—	6200 (J+)	—	—	209	—	3.09	—	—	1.82 (J)	—	—	—
RE02-07-1813	02-600441	0–0.5	SOIL	—	—	—	—	0.543 (U)	—	—	—	—	—	—	—	—	—	4.39	—	—	—	1.63 (U)	—	—	—
RE02-07-1814	02-600441	7.5–8	QAL	—	—	—	—	0.521 (U)	—	20.2	—	—	—	—	—	—	—	0.257	—	1.28 (J-)	—	—	—	—	—
RE02-07-1816	02-600441	10–15	QAL	—	—	—	—	0.554 (U)	—	27.2 (U)	0.0646 (J)	16.7 (U)	—	—	—	—	—	—	—	5.72 (J-)	—	—	—	—	—
RE02-07-1815	02-600441	15–22	QBO	9510	0.511 (UJ)	0.983 (J)	—	0.648 (U)	—	20.2 (U)	0.0538 (J)	5.83 (U)	—	5650	—	—	267	—	4.84 (U)	—	—	0.691 (J)	—	—	—
RE02-07-1818	02-600442	0–0.5	SOIL	—	—	—	—	0.549 (U)	—	—	—	—	—	—	—	—	—	0.179	—	1.17 (J-)	—	—	—	—	—
RE02-07-1821	02-600442	8–12	QAL	—	—	—	—	0.567 (U)	—	36.2 (J)	—	—	—	—	—	—	—	—	—	—	—	1.53 (J)	—	—	—
RE02-07-1820	02-600442	15–20	QBO	8040 (J+)	—	0.922 (U)	27.1	0.593 (U)	—	40.9 (J)	—	4.47 (U)	—	7950	—	—	222	—	2.52	—	—	1.46 (J)	—	6.12	—
RE02-07-1822	02-600443	0–0.5	SOIL	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.45	—	9.68	—	—	—	—	—
RE02-07-1823	02-600443	2–4	QAL	—	—	—	—	—	—	27.7 (U)	—	—	—	—	92.2 (J)	—	—	0.978 (J-)	—	—	—	—	—	—	158 (J+)
RE02-07-1824	02-600443	4–8	QAL	—	—	—	—	0.508 (U)	—	45.1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	77.4 (J+)
RE02-07-1826	02-600443	10–12.5	QBO	—	—	1.66 (J)	—	0.586 (U)	—	25.1 (U)	—	5.1 (U)	—	7180	—	—	310 (J+)	—	2.39 (U)	2.87 (J-)	—	1.1 (J)	—	14.3	—
RE02-07-1825	02-600443	15–17.5	QBO	8680 (J+)	—	1.2 (J)	53.5 (J+)	0.595 (U)	—	12.7 (U)	—	—	—	7510	—	—	288 (J+)	—	3.3 (U)	1.67 (J-)	—	0.746 (J)	—	8.4	—
RE02-07-1828	02-600444	0–0.5	SOIL	—	—	—	—	0.5 (U)	—	—	—	—	—	—	—	—	—	—	—	1.41 (J+)	—	—	—	—	—
RE02-07-1829	02-600444	7.5–8.5	QAL	—	—	—	—	0.517 (U)	—	—	0.0575 (J)	—	—	—	—	—	—	—	—	—	—	1.87	—	—	—
RE02-07-1830	02-600444	13.5–20.5	QBO	6380	—	1.63 (J)	—	0.603 (U)	—	29.5	0.117 (J)	—	—	6970	—	—	248 (J+)	—	—	—	—	1.89	—	6.17 (J)	—
RE02-07-1833	02-600445	0–0.5	SOIL	—	—	—	—	—	8740	—	—	—	—	—	—	—	—	—	—	0.954 (J-)	—	—	—	—	214
RE02-07-1834	02-600445	7.5–10.5	QAL	—	—	—	—	0.537 (U)	—	—	0.0784 (J)	—	—	—	—	—	—	—	—	—	—	1.78	—	—	—
RE02-07-1835	02-600445	13–18.5	QBO	9550	—	1.32 (J)	—	0.61 (U)	—	10.3	—	—	—	6240	—	—	198 (J+)	—	—	—	—	2.13	—	—	—
RE02-07-1836	02-600445	26–28.5	QBO	4930	0.516 (UJ)	0.801 (J)	—	0.643 (U)	—	15.2	0.111 (J)	—	—	6960	—	—	243 (J+)	—	—	—	—	2.07	—	—	—
RE02-07-1838	02-600446	0–0.5	SOIL	—	—	—	—	0.512 (U)	—	—	—	—	—	—	—	—	—	—	—	1.19 (J+)	—	—	—	—	—
RE02-07-1839	02-600446	7.5–12	QAL	—	—	—	—	0.551 (U)	—	—	—	—	—	—	—	—	—	—	—	—	—	2.68	—	—	—
RE02-07-1840	02-600446	13–18	QBO	7930	—	1.24 (J)	49.5	0.516 (U)	—	10.9	0.148	—	—	6640	—	—	210	—	2.18 (J)	—	—	1.55 (U)	—	9.39 (J)	—
RE02-07-1843	02-600447	0–0.5	SOIL	—	—	—	—	0.501 (U)	—	—	—	—	—	—	—	—	—	0.117	—	1.19 (J-)	—	—	—	—	—

Table 6.26-30 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Cadmium	Calcium	Chromium	Hexavalent Chromium	Copper	Cyanide (Total)	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Silver	Vanadium	Zinc
Qbt 1g, Qct, Qbo BV[a]				**3560**	**0.5**	**0.56**	**25.7**	**0.4**	**1900**	**2.6**	**na[b]**	**3.96**	**0.5**	**3700**	**13.5**	**739**	**189**	**0.1**	**2**	**na**	**na**	**0.3**	**1**	**4.59**	**40**
Sediment BV[a]				**15400**	**0.83**	**3.98**	**127**	**0.4**	**4420**	**10.5**	**na**	**11.2**	**na**	**13800**	**19.7**	**2370**	**543**	**0.1**	**9.38**	**na**	**na**	**0.3**	**1**	**19.7**	**60.2**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**0.4**	**6120**	**19.3**	**na**	**14.7**	**0.5**	**21500**	**22.3**	**4610**	**671**	**0.1**	**15.4**	**na**	**na**	**1.52**	**1**	**39.6**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**1120**	**na**	**2920[d]**	**2920**	**45400**	**22700**	**795000**	**800**	**na**	**145000**	**310[e]**	**22700**	**1820000**	**795**	**5680**	**5680**	**5680**	**341000**
Recreational SSL[f]				**791000**	**317**	**27.7**	**158000**	**784**	**na**	**1910[d]**	**1910**	**31700**	**15800**	**554000**	**560**	**na**	**110000**	**238**	**15800**	**1260000**	**555**	**3960**	**3960**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**77.9**	**na**	**219[d]**	**219**	**3130**	**1560**	**54800**	**400**	**na**	**10700**	**23[e]**	**1560**	**125000**	**54.8**	**391**	**391**	**391**	**23500**
RE02-07-1844	02-600447	8.5–13.5	QAL	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.58 (U)	—	—	—
RE02-07-1845	02-600447	14.5–18.5	QBO	13800	—	1.84 (U)	53.1	0.612 (U)	—	8.54	0.0495 (J)	—	—	6480	—	—	247	—	2.43 (J)	—	—	1.84 (U)	—	—	—
RE02-07-1848	02-600448	0–0.5	SOIL	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.283	—	1.28 (J-)	—	—	—	—	—
RE02-07-1849	02-600448	7.5–14	QAL	—	—	—	—	0.524 (U)	—	—	—	—	—	—	—	—	—	—	—	1.22	—	1.57 (U)	—	—	—
RE02-10-21742	02-612345	5–6	QAL	—	1.09 (U)	—	—	0.543 (U)	—	—	—	—	NA	—	44.2	—	—	—	—	NA	NA	—	—	—	92.7
RE02-10-21743	02-612345	15–16	QAL	—	1.11 (U)	—	—	0.557 (U)	—	—	0.316 (J)	—	NA	—	—	—	—	—	—	NA	NA	—	—	—	—
RE02-10-21744	02-612345	25–26	QBO	4480	1.29 (U)	1.27 (U)	—	0.646 (U)	—	3.28	—	—	NA	6390	—	—	271	—	—	NA	NA	1.27 (U)	—	—	—
RE02-10-21745	02-612345	35–36	QBO	—	1.4 (U)	1.34 (U)	—	0.699 (U)	—	5.24	—	—	NA	6290	—	—	279	—	—	NA	NA	1.34 (U)	—	—	—
RE02-10-21746	02-612345	49–50	QBO	—	1.32 (U)	—	—	0.662 (U)	—	4.88	—	—	NA	8580	—	1570 (J-)	355	—	—	NA	NA	1.35 (U)	—	5.75	—

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

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

[b] na = Not available.

[c] SSLs are from NMED (2009, 108070), unless otherwise noted.

[d] SSLs are for hexavalent chromium.

[e] SSLs are from EPA regional screening tables (http://www.epa.gov.earth1r6/6pd/rcra_c/pd-n/screen.htm).

[f] SSLs are from LANL (2010, 108613).

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

[h] NA = Not analyzed.

Table 6.26-31
Organic Chemicals Detected at AOC 02-011(a)(ix)

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Anthracene	Aroclor-1242	Aroclor-1248	Aroclor-1254	Aroclor-1260	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Bis(2-ethylhexyl)phthalate	Chloroform	Chrysene	Di-n-butylphthalate	Fluoranthene
Industrial SSL[a]				**36700**	**183000**	**8.26**	**8.26**	**8.26**	**8.26**	**23.4**	**2.34**	**23.4**	**18300[b]**	**234**	**1370**	**31.9**	**2340**	**68400**	**24400**
Recreational SSL[c]				**20800**	**104000**	**10.5**	**10.5**	**6.65**	**10.5**	**30.1**	**3.01**	**30.1**	**10400[b]**	**301**	**1830**	**224**	**3010**	**39900**	**13900**
Residential SSL[a]				**3440**	**17200**	**2.22**	**2.22**	**1.12**	**2.22**	**6.21**	**0.621**	**6.21**	**1720[b]**	**62.1**	**347**	**5.72**	**621**	**6110**	**2290**
RE02-07-1763	02-600431	0–0.5	SOIL	—[d]	0.0164 (J)	—	—	0.232	0.174	0.0779	0.121 (J)	0.109 (J)	—	—	—	NA[e]	0.0806	—	0.107
RE02-07-1764	02-600431	7.5–12	QAL	—	—	—	—	0.01	0.0133	—	—	—	—	—	0.153 (J)	—	—	—	—
RE02-07-1765	02-600431	15–21	QBO	—	—	—	—	0.0244 (J-)	0.0392 (J-)	—	—	—	—	—	0.0894 (J)	—	—	—	—
RE02-07-1768	02-600432	0–0.5	SOIL	0.0134 (J)	0.0877	—	—	0.0142 (J)	0.0241 (J)	0.593	0.433	0.792	0.158	—	—	NA	0.517	—	0.965
RE02-07-1769	02-600432	7.5–14	QAL	—	—	—	—	0.0045	0.0051	0.0172 (J)	0.0937 (J)	0.0151 (J)	—	—	0.0789 (J)	—	0.0145 (J)	—	0.0204 (J)
RE02-07-1770	02-600432	14–19	QBO	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-6823	02-600432	24.5–29	QBO	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1773	02-600433	0–0.5	SOIL	0.0481	0.0843	—	—	0.222	0.118	0.184	0.237	0.323	0.0995	—	—	NA	0.194	0.0613 (J)	0.292
RE02-07-1778	02-600434	0–0.5	SOIL	0.0163 (J)	0.0267 (J)	—	—	0.0251 (J)	0.0426	0.0588	0.0684	0.0656	0.0522	0.0533	—	NA	0.0699	—	0.0943
RE02-07-1781	02-600434	7.5–16	QAL	—	0.0101 (J)	—	—	0.00563	0.0054	0.0288 (J)	0.0334 (J)	0.0344 (J)	0.0243 (J)	—	—	—	0.035 (J)	—	0.0571
RE02-07-1783	02-600435	0–0.5	SOIL	—	—	—	—	—	0.0235 (J)	0.017 (J)	—	—	—	—	—	NA	0.0133 (J)	—	0.0217 (J)
RE02-07-1784	02-600435	7.5–14.5	QAL	—	—	0.0103 (J-)	—	0.00826	0.0062	0.0142 (J)	—	—	—	—	—	—	—	—	0.0209 (J)
RE02-07-1788	02-600436	0–0.5	SOIL	0.019 (J)	0.0274 (J)	—	—	0.0196 (J)	0.0263 (J)	0.0606	0.0775	0.0908	0.0467	—	—	NA	0.0702	—	0.11
RE02-07-1793	02-600437	0–0.5	SOIL	—	0.011 (J)	—	—	0.0381	0.0466	0.0371	0.0501	0.0493	0.0312 (J)	0.0317 (J)	—	NA	0.0418	—	0.0552
RE02-07-1798	02-600438	0–0.5	SOIL	—	0.0151 (J)	—	—	0.118	0.268	0.07	0.0799	0.106	0.0625	0.0481	—	NA	0.0812	—	0.156
RE02-07-1799	02-600438	7.5–11	QAL	—	—	—	—	0.0035 (J)	0.0067	—	—	—	—	—	—	—	—	—	—
RE02-07-1803	02-600439	0–0.5	SOIL	—	0.0142 (J)	—	—	0.0984	0.194	0.0535	0.0427	0.0624	0.0332 (J)	0.0326 (J)	—	NA	0.0531	—	0.109
RE02-07-1804	02-600439	7.5–14	QAL	—	—	—	—	0.0286	0.0519	0.041	0.0331 (J)	0.0397	—	—	—	—	0.0326 (J)	—	0.0865
RE02-07-1808	02-600440	0–0.5	SOIL	—	—	—	—	—	0.0209 (J)	0.0245 (J)	0.0246 (J)	0.034 (J)	—	0.0129 (J)	—	NA	0.0239 (J)	—	0.033 (J)
RE02-07-1809	02-600440	7.5–14	QAL	—	—	—	—	0.008	0.0071	—	—	—	—	—	—	—	—	—	—
RE02-07-1813	02-600441	0–0.5	SOIL	—	0.0286 (J)	—	0.197	0.138	0.172	0.17	0.168 (J)	0.236 (J)	—	—	—	NA	0.157	—	0.222
RE02-07-1814	02-600441	7.5–8	QAL	—	—	—	—	0.0104	0.0225	—	—	—	—	—	—	—	—	—	—
RE02-07-1816	02-600441	10–15	QAL	—	—	—	—	0.0122 (J)	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1818	02-600442	0–0.5	SOIL	—	—	—	—	0.0177 (J+)	0.0286 (J+)	0.0439	0.05 (J)	0.0868 (J)	0.0155 (J)	—	—	NA	0.0481	—	0.071
RE02-07-1821	02-600442	8–12	QAL	—	—	—	—	0.0089 (J)	0.0062 (J)	—	—	—	—	—	—	—	—	—	—
RE02-07-1820	02-600442	15–20	QBO	—	—	—	—	0.0028 (J)	0.0021 (J)	—	—	—	—	—	—	—	—	—	—
RE02-07-1822	02-600443	0–0.5	SOIL	—	0.0111 (J)	—	—	0.0553	0.145	0.0538	0.0998 (J)	0.0797 (J)	—	—	—	NA	0.0574	—	0.0887
RE02-07-1823	02-600443	2–4	QAL	—	0.0159 (J)	—	—	0.174	0.0721	0.0402 (J)	0.0368 (J)	0.0607 (J)	—	—	—	—	0.0337 (J)	—	0.0427

Table 6.26-31 (continued)

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Anthracene	Aroclor-1242	Aroclor-1248	Aroclor-1254	Aroclor-1260	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Bis(2-ethylhexyl)phthalate	Chloroform	Chrysene	Di-n-butylphthalate	Fluoranthene
Industrial SSL[a]				**36700**	**183000**	**8.26**	**8.26**	**8.26**	**8.26**	**23.4**	**2.34**	**23.4**	**18300[b]**	**234**	**1370**	**31.9**	**2340**	**68400**	**24400**
Recreational SSL[c]				**20800**	**104000**	**10.5**	**10.5**	**6.65**	**10.5**	**30.1**	**3.01**	**30.1**	**10400[b]**	**301**	**1830**	**224**	**3010**	**39900**	**13900**
Residential SSL[a]				**3440**	**17200**	**2.22**	**2.22**	**1.12**	**2.22**	**6.21**	**0.621**	**6.21**	**1720[b]**	**62.1**	**347**	**5.72**	**621**	**6110**	**2290**
RE02-07-1824	02-600443	4–8	QAL	—	—	—	—	0.0216 (J-)	0.0161 (J-)	—	—	—	—	—	—	—	—	—	0.0119 (J)
RE02-07-1826	02-600443	10–12.5	QBO	—	—	—	—	0.0061	0.0069	—	—	—	—	—	—	—	—	—	—
RE02-07-1825	02-600443	15–17.5	QBO	—	—	—	—	0.003 (J-)	0.0027 (J-)	—	—	—	—	—	—	—	—	—	—
RE02-07-1828	02-600444	0–0.5	SOIL	—	—	—	—	0.0142 (J)	0.0336 (J)	0.0605	0.0452	0.0626	—	—	—	NA	0.0689	—	0.0687
RE02-07-1829	02-600444	7.5–8.5	QAL	—	—	—	—	0.0165	0.0122	—	—	—	—	—	—	0.000218 (J)	—	0.0736 (J)	—
RE02-07-1830	02-600444	13.5–20.5	QBO	—	—	—	—	0.0026 (J)	0.0028 (J)	—	—	—	—	—	—	—	—	0.0856 (J)	—
RE02-07-1833	02-600445	0–0.5	SOIL	—	—	—	—	0.0504	0.106	0.0173 (J)	0.0155 (J)	0.0142 (J)	—	—	—	NA	0.0115 (J)	0.0446 (J)	0.016 (J)
RE02-07-1835	02-600445	13–18.5	QBO	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.102 (J)	—
RE02-07-1838	02-600446	0–0.5	SOIL	—	—	—	—	0.0171 (J)	0.0372	—	—	—	—	—	—	NA	—	—	—
RE02-07-1839	02-600446	7.5–12	QAL	—	—	—	—	0.0084	0.0065	—	—	—	—	—	—	—	—	—	—
RE02-07-1840	02-600446	13–18	QBO	—	—	—	—	0.0066	0.0046	—	—	—	—	—	—	—	—	—	—
RE02-07-1843	02-600447	0–0.5	SOIL	—	0.0144 (J)	—	—	0.0257 (J)	0.0422	0.0599	0.0492	0.0653	—	—	—	NA	0.0535	—	0.0861
RE02-07-1844	02-600447	8.5–13.5	QAL	—	—	—	—	0.0106	0.0131	—	—	—	—	—	—	—	—	—	—
RE02-07-1848	02-600448	0–0.5	SOIL	0.0158 (J)	0.0263 (J)	—	—	0.0175 (J)	0.0215 (J)	0.0648	0.0799	0.0953	0.0488 (J)	0.0335 (J)	—	NA	0.0649	—	0.103
RE02-10-21742	02-612345	5–6	QAL	—	0.0334 (J)	—	—	—	—	0.0634	0.0899	0.0838	0.0756 (J)	0.042	—	NA	0.0616	—	0.109
RE02-10-21743	02-612345	15–16	QAL	—	—	—	—	—	—	—	—	—	—	—	—	NA	—	—	—
RE02-10-21744	02-612345	25–26	QBO	—	—	—	—	—	—	—	—	—	—	—	—	NA	—	—	—
RE02-10-21745	02-612345	35–36	QBO	—	—	—	—	—	—	—	—	—	—	—	—	NA	—	—	—
RE02-10-21746	02-612345	49–50	QBO	—	—	—	—	—	—	—	—	—	—	—	—	NA	—	—	—

Table 6.26-31 (continued)

Sample ID	Location ID	Depth (ft)	Media	Fluorene	Indeno(1,2,3-cd)pyrene	Isopropylbenzene	Isopropyltoluene[4-]	Methylene Chloride	Methylnaphthalene[2-]	Naphthalene	Phenanthrene	Pyrene	Toluene	TPH-DRO	Trimethylbenzene[1,2,4-]	Trimethylbenzene[1,3,5-]	Xylene[1,2-]
Industrial SSL[a]				**24400**	**23.4**	**14900**	**14900[f]**	**1090**	**4100[g]**	**252**	**20500**	**18300**	**57900**	**1120[h]**	**260[g]**	**10000[g]**	**31500**
Recreational SSL[c]				**13900**	**30.1**	**52700**	**52700[f]**	**4520**	**3170**	**1950**	**12000**	**10400**	**60800**	**na**	**6880**	**7930**	**248000**
Residential SSL[a]				**2290**	**6.21**	**3210**	**3210[f]**	**199**	**310[g]**	**45**	**1830**	**1720**	**5570**	**520[h]**	**62[g]**	**780[g]**	**9550**
RE02-07-1763	02-600431	0–0.5	SOIL	—	—	NA	NA	NA	—	—	0.0611	0.178	NA	NA	NA	NA	NA
RE02-07-1764	02-600431	7.5–12	QAL	—	—	—	—	—	—	—	—	—	—	NA	—	—	—
RE02-07-1765	02-600431	15–21	QBO	—	—	—	—	—	—	—	—	—	—	NA	—	—	—
RE02-07-1768	02-600432	0–0.5	SOIL	0.0145 (J)	0.145	NA	NA	NA	—	—	0.317	1.3	NA	16.8 (J)	NA	NA	NA
RE02-07-1769	02-600432	7.5–14	QAL	—	—	—	—	—	—	—	0.0216 (J)	0.0252 (J)	—	6.08	—	—	—
RE02-07-1770	02-600432	14–19	QBO	—	—	—	—	—	—	—	—	—	—	567	—	—	—
RE02-07-6823	02-600432	24.5–29	QBO	—	—	—	—	0.00322 (J)	—	—	—	—	—	—	—	—	—
RE02-07-1773	02-600433	0–0.5	SOIL	0.0405	0.107	NA	NA	NA	0.0194 (J)	0.0278 (J)	0.285	0.391	NA	NA	NA	NA	NA
RE02-07-1778	02-600434	0–0.5	SOIL	0.0145 (J)	0.0412	NA	NA	NA	—	0.0125 (J)	0.089	0.122	NA	NA	NA	NA	NA
RE02-07-1781	02-600434	7.5–16	QAL	—	0.0206 (J)	—	—	—	—	—	0.0488	0.0523	—	NA	—	—	—
RE02-07-1783	02-600435	0–0.5	SOIL	—	—	NA	NA	NA	—	—	0.016 (J)	0.0273 (J)	NA	NA	NA	NA	NA
RE02-07-1784	02-600435	7.5–14.5	QAL	—	—	—	0.000534 (J)	—	—	0.0176 (J)	0.0194 (J)	0.0202 (J)	—	NA	0.00329	0.00101 (J)	0.000249 (J)
RE02-07-1788	02-600436	0–0.5	SOIL	0.0141 (J)	0.0376	NA	NA	NA	0.00962 (J)	0.0231 (J)	0.104	0.118	NA	NA	NA	NA	NA
RE02-07-1793	02-600437	0–0.5	SOIL	—	0.0282 (J)	NA	NA	NA	—	—	0.0413	0.0665	NA	NA	NA	NA	NA
RE02-07-1798	02-600438	0–0.5	SOIL	—	0.0494	NA	NA	NA	—	—	0.0577	0.146	NA	NA	NA	NA	NA
RE02-07-1799	02-600438	7.5–11	QAL	—	—	—	—	—	—	—	—	—	—	NA	—	—	—
RE02-07-1803	02-600439	0–0.5	SOIL	—	0.0272 (J)	NA	NA	NA	—	—	0.073	0.11	NA	NA	NA	NA	NA
RE02-07-1804	02-600439	7.5–14	QAL	—	0.0147 (J)	—	—	—	—	—	0.0289 (J)	0.0666	—	NA	—	—	—
RE02-07-1808	02-600440	0–0.5	SOIL	—	—	NA	NA	NA	—	—	0.0267 (J)	0.0366 (J)	NA	NA	NA	NA	NA
RE02-07-1809	02-600440	7.5–14	QAL	—	—	—	—	—	—	—	—	—	—	NA	—	—	—
RE02-07-1813	02-600441	0–0.5	SOIL	—	—	NA	NA	NA	—	—	0.0939	0.368	NA	—	NA	NA	NA
RE02-07-1814	02-600441	7.5–8	QAL	—	—	—	—	—	—	—	—	—	—	2.1 (J)	—	—	—
RE02-07-1816	02-600441	10–15	QAL	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1818	02-600442	0–0.5	SOIL	—	—	NA	NA	NA	—	—	0.0438	0.0773	NA	NA	NA	NA	NA
RE02-07-1821	02-600442	8–12	QAL	—	—	—	—	—	—	—	—	—	—	NA	—	—	—
RE02-07-1820	02-600442	15–20	QBO	—	—	—	—	—	—	—	—	—	—	NA	—	—	—
RE02-07-1822	02-600443	0–0.5	SOIL	—	—	NA	NA	NA	—	—	0.0449	0.12	NA	13.8 (J)	NA	NA	NA
RE02-07-1823	02-600443	2–4	QAL	—	—	—	—	—	—	—	0.0379	0.0774 (J)	—	77.3	—	—	—
RE02-07-1824	02-600443	4–8	QAL	—	—	0.000401 (J)	—	—	—	—	—	—	0.000362 (J)	4.33 (J)	—	—	—

Table 6.26-31 (continued)

Sample ID	Location ID	Depth (ft)	Media	Fluorene	Indeno(1,2,3-cd)pyrene	Isopropylbenzene	Isopropyltoluene[4-]	Methylene Chloride	Methylnaphthalene[2-]	Naphthalene	Phenanthrene	Pyrene	Toluene	TPH-DRO	Trimethylbenzene[1,2,4-]	Trimethylbenzene[1,3,5-]	Xylene[1,2-]
Industrial SSL[a]				**24400**	**23.4**	**14900**	**14900[f]**	**1090**	**4100[g]**	**252**	**20500**	**18300**	**57900**	**1120[h]**	**260[g]**	**10000[g]**	**31500**
Recreational SSL[c]				**13900**	**30.1**	**52700**	**52700[f]**	**4520**	**3170**	**1950**	**12000**	**10400**	**60800**	**na**	**6880**	**7930**	**248000**
Residential SSL[a]				**2290**	**6.21**	**3210**	**3210[f]**	**199**	**310[g]**	**45**	**1830**	**1720**	**5570**	**520[h]**	**62[g]**	**780[g]**	**9550**
RE02-07-1826	02-600443	10–12.5	QBO	—	—	0.00072 (J)	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1825	02-600443	15–17.5	QBO	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1828	02-600444	0–0.5	SOIL	—	—	NA	NA	NA	—	—	—	0.0954	NA	NA	NA	NA	NA
RE02-07-1829	02-600444	7.5–8.5	QAL	—	—	—	—	—	—	—	—	—	—	NA	—	—	—
RE02-07-1830	02-600444	13.5–20.5	QBO	—	—	—	—	—	—	—	—	—	—	NA	—	—	—
RE02-07-1833	02-600445	0–0.5	SOIL	—	—	NA	NA	NA	—	—	—	0.0203 (J)	NA	NA	NA	NA	NA
RE02-07-1835	02-600445	13–18.5	QBO	—	—	—	—	—	—	—	—	—	—	NA	—	—	—
RE02-07-1838	02-600446	0–0.5	SOIL	—	—	NA	NA	NA	—	—	—	—	NA	NA	NA	NA	NA
RE02-07-1839	02-600446	7.5–12	QAL	—	—	—	—	—	—	—	—	—	—	NA	—	—	—
RE02-07-1840	02-600446	13–18	QBO	—	—	—	—	—	—	—	—	—	—	NA	—	—	—
RE02-07-1843	02-600447	0–0.5	SOIL	—	—	NA	NA	NA	—	—	0.0587	0.13	NA	NA	NA	NA	NA
RE02-07-1844	02-600447	8.5–13.5	QAL	—	—	—	—	—	—	—	—	—	—	NA	—	—	—
RE02-07-1848	02-600448	0–0.5	SOIL	0.0138 (J)	0.0436 (J)	NA	NA	NA	—	—	0.0977	0.109	NA	NA	NA	NA	NA
RE02-10-21742	02-612345	5–6	QAL	—	0.0662 (J)	NA	NA	NA	0.0508	0.0378 (J)	0.102	0.0945	NA	537	NA	NA	NA
RE02-10-21743	02-612345	15–16	QAL	—	—	NA	NA	NA	—	—	—	—	NA	471	NA	NA	NA
RE02-10-21744	02-612345	25–26	QBO	—	—	NA	NA	NA	—	—	—	—	NA	12.7	NA	NA	NA
RE02-10-21745	02-612345	35–36	QBO	—	—	NA	NA	NA	—	—	—	—	NA	33.9	NA	NA	NA
RE02-10-21746	02-612345	49–50	QBO	—	—	NA	NA	NA	—	—	—	—	NA	16.9	NA	NA	NA

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

[a] SSLs are from NMED (2009, 108070), unless otherwise noted.

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

[c] SSLs are from LANL (2010, 108613).

[d] — = Not detected.

[e] NA = Not analyzed.

[f] Isopropylbenzene used as surrogate based on structural similarity.

[g] SSLs are from EPA regional screening tables (http://www.epa.gov.earth1r6/6pd/rcra_c/pd-n/screen.htm).

[h] Screening guidelines for diesel range organics from NMED (2006, 094614).

Table 6.26-32
Radionuclides Detected or Detected above BVs/FVs at AOC 02-011(a)(ix)

Sample ID	Location ID	Depth (ft)	Media	Cesium-134	Cesium-137	Plutonium-239/240	Tritium	Uranium-234	Uranium-235/236
Qbt 1g, Qct, Qbo BV[a]				**na**[b]	**na**	**na**	**na**	**4**	**0.18**
Sediment BV[a]				**na**	**0.9**	**0.068**	**0.093**	**2.59**	**0.2**
Soil BV[a]				**na**	**1.65**	**0.054**	**na**	**2.59**	**0.2**
Industrial SAL[c]				**9.7**	**23**	**210**	**440000**	**1500**	**87**
Recreational SAL[c]				**87**	**210**	**300**	**5300000**	**3200**	**520**
Residential SAL[c]				**2.4**	**5.6**	**33**	**750**	**170**	**17**
CA02-00-0320	02-01150	0–0.5	SED	—[d]	—	1.66	—	—	—
0402-95-0310	02-01150	0–1	SED	—	—	0.301	0.215615	—	—
CA02-00-0323	02-01150	2.3–2.7	SED	—	—	0.82	—	2.66	—
RE02-03-51820	02-22349	4–4.5	SOIL	—	—	—	0.0137	—	—
RE02-03-51821	02-22349	5.5–6	SOIL	—	—	0.0358	0.0087	—	—
RE02-03-51856	02-22367	3.5–4	SOIL	—	0.0971	—	0.004	—	—
RE02-03-51857	02-22367	5–5.5	SOIL	—	—	—	0.0353	—	—
RE02-07-1763	02-600431	0–0.5	SOIL	—	—	—	0.0458426	—	—
RE02-07-1769	02-600432	7.5–14	QAL	—	—	—	0.0247832	—	—
RE02-07-1770	02-600432	14–19	QBO	—	—	—	—	—	0.232
RE02-07-6823	02-600432	24.5–29	QBO	—	—	—	0.071641	—	—
RE02-07-1784	02-600435	7.5–14.5	QAL	—	—	—	0.168751	—	—
RE02-07-1785	02-600435	14.5–19	QBO	—	—	—	—	—	0.189
RE02-07-1794	02-600437	7.5–8.8	QAL	—	—	—	0.0674906	—	—
RE02-07-1799	02-600438	7.5–11	QAL	—	—	—	0.133842	—	—
RE02-07-1808	02-600440	0–0.5	SOIL	—	—	—	0.0195434	—	—
RE02-07-1809	02-600440	7.5–14	QAL	—	0.137	—	0.101618	—	—
RE02-07-1816	02-600441	10–15	QAL	—	—	—	—	—	0.261
RE02-07-1820	02-600442	15–20	QBO	—	—	—	0.0513659	—	—
RE02-07-1823	02-600443	2–4	QAL	—	0.202	0.0794	—	—	—
RE02-07-1824	02-600443	4–8	QAL	—	0.0889	—	0.0317071	—	—
RE02-07-1830	02-600444	13.5–20.5	QBO	0.235	—	—	—	—	—
RE02-07-1836	02-600445	26–28.5	QBO	—	—	—	—	—	0.197
RE02-07-1849	02-600448	7.5–14	QAL	—	—	—	0.0402612	—	—
RE02-10-21742	02-612345	5–6	QAL	—	0.135	0.0318	0.0869655	—	—

Table 6.26-32 (continued)

Sample ID	Location ID	Depth (ft)	Media	Cesium-134	Cesium-137	Plutonium-239/240	Tritium	Uranium-234	Uranium-235/236
Qbt 1g, Qct, Qbo BV[a]				**na**	**na**	**na**	**na**	**4**	**0.18**
Sediment BV[a]				**na**	**0.9**	**0.068**	**0.093**	**2.59**	**0.2**
Soil BV[a]				**na**	**1.65**	**0.054**	**na**	**2.59**	**0.2**
Industrial SAL[c]				**9.7**	**23**	**210**	**440000**	**1500**	**87**
Recreational SAL[c]				**87**	**210**	**300**	**5300000**	**3200**	**520**
Residential SAL[c]				**2.4**	**5.6**	**33**	**750**	**170**	**17**
RE02-10-21743	02-612345	15–16	QAL	—	—	—	0.0291951	—	—
RE02-10-21744	02-612345	25–26	QBO	—	—	—	0.0843243	—	—
RE02-10-21745	02-612345	35–36	QBO	—	—	—	0.0827463	—	—
RE02-10-21746	02-612345	49–50	QBO	—	—	—	0.0907536	—	—

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

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

[b] na = Not available.

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

[d] — = Not detected.

Table 6.26-33
Samples Collected and Analyses Requested at AOC 02-011(a)(x)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Gamma-emitting Radionuclides	Tritium	Hexavalent Chromium	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Pesticides	Pesticides/PCBs	Strontium-90	SVOCs	Technetium-99	TPH-DRO	VOCs	Cyanide (Total)
CA02-00-0193	02-01153	0–0.5	SED	—*	—	7531R	7531R	—	7531R	7531R	7529R, 7530R	—	—	—	—	7531R	—	—	—	—	—
0402-95-0318	02-01153	0–1	SED	—	—	115	115	—	115	115	—	—	—	—	—	115	—	—	—	—	—
CA02-00-0198	02-01153	2.2–2.5	SED	—	—	7531R	7531R	—	7531R	7531R	7529R, 7530R	—	—	—	—	7531R	—	—	—	—	—
0402-95-0303	02-01162	0.5–0.8333	QBT 2	—	—	—	—	—	—	—	—	1851-1	—	1851-1	—	—	1851	—	1851	1851	—
0402-95-0305	02-01162	2.5–3.5	QBT 2	—	—	—	—	—	—	—	—	—	—	—	1851	—	1851	—	1851	1851	—
0402-95-0304	02-01162	8–9	QBT 2	—	—	—	—	—	—	—	—	—	—	—	1851	—	1851	—	1851	1851	—
0402-95-0306	02-01162	12.5–13.5	QBT 2	—	—	—	—	—	—	—	—	—	—	—	1851	—	1851	—	1851	1851	—
RE02-03-51814	02-22346	4–4.5	SOIL	—	—	1820S	1820S	1819S	1820S	1820S	1819S	—	—	—	—	1820S	—	1820S	—	—	—
RE02-03-51815	02-22346	5.5–6	SOIL	—	—	1820S	1820S	1819S	1820S	1820S	1819S	—	—	—	—	1820S	—	1820S	—	—	—
RE02-03-51816	02-22347	4–4.5	SOIL	—	—	1820S	1820S	1819S	1820S	1820S	1819S	—	—	—	—	1820S	—	1820S	—	—	—
RE02-03-51817	02-22347	5.5–6	SOIL	—	—	1820S	1820S	1819S	1820S	1820S	1819S	—	—	—	—	1820S	—	1820S	—	—	—
RE02-03-51818	02-22348	5.5–6	SOIL	—	—	1820S	1820S	1819S	1820S	1820S	1819S	—	—	—	—	1820S	—	1820S	—	—	—
RE02-03-51819	02-22348	7–7.5	SOIL	—	—	1820S	1820S	1819S	1820S	1820S	1819S	—	—	—	—	1820S	—	1820S	—	—	—
RE02-03-51858	02-22368	2.5–3	SOIL	—	—	1814S	1814S	1813S	1814S	1814S	1813S	—	—	—	—	1814S	—	1814S	—	—	—
RE02-03-51859	02-22368	4–4.5	SOIL	—	—	1814S	1814S	1813S	1814S	1814S	1813S	—	—	—	—	1814S	—	1814S	—	—	—
RE02-03-51882	02-22380	2.5–3	SOIL	—	—	1814S	1814S	1813S	1814S	1814S	1813S	—	—	—	—	1814S	—	1814S	—	—	—
RE02-03-51883	02-22380	4–4.5	SOIL	—	—	1814S	1814S	1813S	1814S	1814S	1813S	—	—	—	—	1814S	—	1814S	—	—	—
RE02-07-3062	02-600660	0–0.5	SOIL	07-762	07-761	07-762	07-762	07-761	07-762	07-762	07-761	07-760	07-761	—	—	07-762	07-760	—	—	—	07-761
RE02-07-3063	02-600660	4.5–8.5	QAL	07-885	07-885	07-885	07-885	07-885	07-885	07-885	07-885	07-885	07-885	—	—	07-885	07-885	—	—	07-885	07-885
RE02-07-3067	02-600661	0–0.5	SOIL	07-762	07-761	07-762	07-762	07-761	07-762	07-762	07-761	07-760	07-761	—	—	07-762	07-760	—	—	—	07-761
RE02-07-3068	02-600661	4.5–9.5	QAL	07-969	07-969	07-969	07-969	07-969	07-969	07-969	07-969	07-969	07-969	—	—	07-969	07-969	—	—	07-969	07-969
RE02-07-3071	02-600661	11–14.5	QAL	07-969	07-969	07-969	07-969	07-969	07-969	07-969	07-969	07-969	07-969	—	—	07-969	07-969	—	—	07-969	07-969
RE02-07-3070	02-600661	14.5–19.5	QBO	07-969	07-969	07-969	07-969	07-969	07-969	07-969	07-969	07-969	07-969	—	—	07-969	07-969	—	—	07-969	07-969
RE02-07-3069	02-600661	25–30	QBO	07-978	07-978	07-978	07-978	07-978	07-978	07-978	07-978	07-978	07-978	—	—	07-978	07-978	—	—	07-978	07-978
RE02-07-3072	02-600662	0–0.5	SOIL	07-781	07-781	07-781	07-781	07-781	07-781	07-781	07-781	07-781	07-781	—	—	07-781	07-781	—	—	—	07-781
RE02-07-3073	02-600662	4.5–10	QAL	07-919	07-919	07-919	07-919	07-919	07-919	07-919	07-919	07-919	07-919	—	—	07-919	07-919	—	—	07-919	07-919
RE02-07-3075	02-600662	15–20	QBO	07-919	07-919	07-919	07-919	07-919	07-919	07-919	07-919	07-919	07-919	—	—	07-919	07-919	—	—	07-919	07-919
RE02-07-3077	02-600663	0–0.5	SOIL	07-781	07-781	07-781	07-781	07-781	07-781	07-781	07-781	07-781	07-781	—	—	07-781	07-781	—	—	—	07-781
RE02-07-3078	02-600663	4.5–10	QAL	07-1010	07-1010	07-1010	07-1010	07-1010	07-1010	07-1010	07-1010	07-1010	07-1010	—	—	07-1010	07-1010	—	—	07-1010	07-1010
RE02-07-3080	02-600663	14–16	QBO	07-1010	07-1010	07-1010	07-1010	07-1010	07-1010	07-1010	07-1010	07-1010	07-1010	—	—	07-1010	07-1010	—	—	07-1010	07-1010

Table 6.26-33 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Gamma-emitting Radionuclides	Tritium	Hexavalent Chromium	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Pesticides	Pesticides/PCBs	Strontium-90	SVOCs	Technetium-99	TPH-DRO	VOCs	Cyanide (Total)
RE02-10-22154	02-600664	2–2.2	SOIL	—	—	—	—	—	—	—	—	10-4176	—	—	—	—	—	—	—	—	—
RE02-10-22155	02-600664	4–4.2	SOIL	—	—	—	—	—	—	—	—	10-4176	—	—	—	—	—	—	—	—	—
RE02-07-3083	02-600664	4.5–7	QAL	07-940	07-940	07-940	07-940	07-940	07-940	07-940	07-940	07-940	07-940	—	—	07-940	07-940	—	—	07-940	07-940
RE02-07-3085	02-600664	9.5–14.5	QBO	07-940	07-940	07-940	07-940	07-940	07-940	07-940	07-940	07-940	07-940	—	—	07-940	07-940	—	—	07-940	07-940
RE02-07-6834	02-600664	19.5–24.5	QBO	07-1139	07-1139	07-1139	07-1139	—	07-1139	07-1139	07-1137	07-1137	07-1139	—	—	07-1139	07-1137	—	—	07-1137	07-1139
RE02-07-3087	02-600665	0–0.5	SOIL	07-762	07-761	07-762	07-762	07-761	07-762	07-762	07-761	07-760	07-761	—	—	07-762	07-760	—	07-760	—	07-761
RE02-07-3088	02-600665	4.5–7.5	QAL	07-870	07-870	07-870	07-870	07-870	07-870	07-870	07-870	07-870	07-870	—	—	07-870	07-870	—	07-870	07-870	07-870
RE02-07-3090	02-600665	13.5–18.5	QBO	07-870	07-870	07-870	07-870	07-870	07-870	07-870	07-870	07-870	07-870	—	—	07-870	07-870	—	07-870	07-870	07-870
RE02-07-6835	02-600665	19.5–23.5	QBO	07-1131	07-1131	07-1131	07-1131	—	07-1131	07-1131	07-1131	07-1131	07-1131	—	—	07-1131	07-1131	—	07-1131	07-1131	07-1131
RE02-07-3092	02-600666	0–0.5	SOIL	07-762	07-761	07-762	07-762	07-761	07-762	07-762	07-761	07-760	07-761	—	—	07-762	07-760	—	—	—	07-761
RE02-10-21768	02-612348	5–7	QAL	—	—	10-4264	10-4264	10-4263	10-4264	10-4264	10-4263	10-4263	—	—	—	10-4264	10-4263	—	—	—	—
RE02-10-21769	02-612348	15–16	QAL	—	—	10-4264	10-4264	10-4263	10-4264	10-4264	10-4263	10-4263	—	—	—	10-4264	10-4263	—	—	—	—
RE02-10-21770	02-612348	25–26	QBO	—	—	10-4264	10-4264	10-4263	10-4264	10-4264	10-4263	10-4263	—	—	—	10-4264	10-4263	—	—	—	—
RE02-10-21771	02-612348	35–36	QBO	—	—	10-4264	10-4264	10-4263	10-4264	10-4264	10-4263	10-4263	—	—	—	10-4264	10-4263	—	—	—	—
RE02-10-21772	02-612348	49–50	QBO	—	—	10-4264	10-4264	10-4263	10-4264	10-4264	10-4263	10-4263	—	—	—	10-4264	10-4263	—	—	—	—
RE02-10-22158	02-612459	4–4.2	SOIL	—	—	—	—	—	—	—	—	10-4176	—	—	—	—	—	—	—	—	—
RE02-10-22161	02-612460	4–4.2	SOIL	—	—	—	—	—	—	—	—	10-4190	—	—	—	—	—	—	—	—	—
RE02-10-22164	02-612461	4–4.4	SOIL	—	—	—	—	—	—	—	—	10-4190	—	—	—	—	—	—	—	—	—
RE02-10-22167	02-612462	4–4.2	SOIL	—	—	—	—	—	—	—	—	10-4190	—	—	—	—	—	—	—	—	—
RE02-10-25664	02-612983	7–8	QAL	—	—	11-59	11-59	11-58	11-59	11-59	11-58	11-58	—	—	—	—	11-58	—	—	—	—
RE02-10-25665	02-612983	15–16	QAL	—	—	11-59	11-59	11-58	11-59	11-59	11-58	11-58	—	—	—	—	11-58	—	—	—	—
RE02-10-25666	02-612983	26–27	QBT3	—	—	11-59	11-59	11-58	11-59	11-59	11-58	11-58	—	—	—	—	11-58	—	—	—	—
RE02-10-25667	02-612983	35–36	QBT3	—	—	11-160	11-160	11-160	11-160	11-160	11-160	11-160	—	—	—	—	11-160	—	—	—	—
RE02-10-25668	02-612983	49–50	QBT3	—	—	11-160	11-160	11-160	11-160	11-160	11-160	11-160	—	—	—	—	11-160	—	—	—	—
RE02-10-26101	02-612999	0–0.5	SOIL	—	—	—	—	—	—	—	—	10-4454	—	—	—	—	—	—	—	—	—
RE02-10-26102	02-612999	2–2.2	SOIL	—	—	—	—	—	—	—	—	10-4454	—	—	—	—	—	—	—	—	—
RE02-10-26103	02-613000	0–0.5	SOIL	—	—	—	—	—	—	—	—	10-4454	—	—	—	—	—	—	—	—	—
RE02-10-26104	02-613000	2–2.2	SOIL	—	—	—	—	—	—	—	—	10-4454	—	—	—	—	—	—	—	—	—

* — = Analysis not requested.

Table 6.26-34
Inorganic Chemicals above BVs at AOC 02-011(a)(x)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Cadmium	Calcium	Chromium	Hexavalent Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Silver	Vanadium	Zinc
Qbt 1g, Qct, Qbo BV[a]				**3560**	**0.5**	**0.56**	**25.7**	**0.4**	**1900**	**2.6**	**na[b]**	**8.89**	**3.96**	**3700**	**13.5**	**739**	**189**	**0.1**	**2**	**na**	**na**	**0.3**	**1**	**4.59**	**40**
Qbt 2, 3, 4 BV[a]				**7340**	**0.5**	**2.79**	**46**	**1.63**	**2200**	**7.14**	**na**	**3.14**	**4.66**	**14500**	**11.2**	**1690**	**482**	**0.1**	**6.58**	**na**	**na**	**0.3**	**1**	**17**	**63.5**
Sediment BV[a]				**15400**	**0.83**	**3.98**	**127**	**0.4**	**4420**	**10.5**	**na**	**4.73**	**11.2**	**13800**	**19.7**	**2370**	**543**	**0.1**	**9.38**	**na**	**na**	**0.3**	**1**	**19.7**	**60.2**
Soil BV[c]				**29200**	**0.83**	**8.17**	**295**	**0.4**	**6120**	**19.3**	**na**	**8.64**	**14.7**	**21500**	**22.3**	**4610**	**671**	**0.1**	**15.4**	**na**	**na**	**1.52**	**1**	**39.6**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**1120**	**na**	**2920[d]**	**2920**	**300[f]**	**45400**	**795000**	**800**	**na**	**145000**	**310[e]**	**22700**	**1820000**	**795**	**5680**	**5680**	**5680**	**341000**
Recreational SSL[f]				**791000**	**317**	**27.7**	**158000**	**784**	**na**	**1910[d]**	**1910**	**238**	**31700**	**554000**	**560**	**na**	**110000**	**238**	**15800**	**1260000**	**555**	**3960**	**3960**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**77.9**	**na**	**219[d]**	**219**	**23[f]**	**3130**	**54800**	**400**	**na**	**10700**	**23[e]**	**1560**	**125000**	**54.8**	**391**	**391**	**391**	**23500**
CA02-00-0193	02-01153	0–0.5	SED	—[g]	—	—	—	—	—	10.9	NA[h]	—	—	—	45	—	—	0.12 (J-)	—	NA	NA	0.572 (J)	1.1	—	75.6 (J+)
CA02-00-0198	02-01153	2.2–2.5	SED	—	—	—	—	—	—	24	NA	—	13	—	—	—	—	0.12 (J-)	—	NA	NA	0.374 (J)	1.1	—	120 (J+)
RE02-03-51814	02-22346	4–4.5	SOIL	—	—	—	—	0.518 (U)	6190	—	0.162	—	—	—	—	—	—	—	—	NA	NA	—	—	—	—
RE02-03-51815	02-22346	5.5–6	SOIL	—	—	—	—	—	—	—	0.295	—	—	—	—	—	—	—	—	NA	NA	—	—	—	—
RE02-03-51816	02-22347	4–4.5	SOIL	—	—	—	—	—	16660	—	0.476	—	—	—	—	—	—	—	—	NA	NA	—	—	—	—
RE02-03-51817	02-22347	5.5–6	SOIL	—	—	—	—	0.519 (U)	—	—	0.498	—	—	—	—	—	—	—	—	NA	NA	—	—	—	—
RE02-03-51818	02-22348	5.5–6	SOIL	—	—	—	—	—	7380	—	0.39	—	—	—	—	—	—	—	—	NA	NA	—	—	—	—
RE02-03-51819	02-22348	7–7.5	SOIL	—	—	—	—	0.494 (U)	12830	—	—	—	—	—	—	—	—	—	—	NA	NA	—	—	—	—
RE02-03-51858	02-22368	2.5–3	SOIL	—	—	—	614 (J+)	—	—	—	—	—	—	—	—	—	—	0.656	—	NA	NA	—	—	—	914 (J-)
RE02-03-51859	02-22368	4–4.5	SOIL	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	NA	NA	—	—	—	125 (J-)
RE02-03-51882	02-22380	2.5–3	SOIL	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	NA	NA	—	—	—	297 (J-)
RE02-07-3062	02-600660	0–0.5	SOIL	—	—	—	—	0.515 (U)	—	—	—	—	—	—	—	—	—	—	—	—	—	4.1 (U)	—	—	—
RE02-07-3063	02-600660	4.5–8.5	QAL	—	—	—	968	0.521 (U)	—	21.2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-3067	02-600661	0–0.5	SOIL	—	—	—	—	0.514 (U)	—	—	—	—	—	—	—	—	—	—	—	—	—	3.77 (U)	—	—	71.5
RE02-07-3068	02-600661	4.5–9.5	QAL	—	—	—	—	0.523 (U)	—	19.9 (J)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-3071	02-600661	11–14.5	QAL	—	—	—	—	0.562 (U)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-3070	02-600661	14.5–19.5	QBO	9080 (J+)	—	0.902 (J)	51.7	0.572 (U)	—	64.8 (J)	—	—	—	7230	—	—	202	—	—	—	—	0.873 (J)	—	6.14	—
RE02-07-3069	02-600661	25–30	QBO	4760 (J+)	0.547 (UJ)	2.04 (U)	—	0.679 (U)	—	4.8	—	—	—	5500	—	—	—	—	—	—	—	2.04 (U)	—	—	—
RE02-07-3072	02-600662	0–0.5	SOIL	—	—	—	—	—	—	—	0.247 (J)	—	—	—	—	—	—	0.19	—	1.13	0.000609 (J)	—	—	—	—
RE02-07-3073	02-600662	4.5–10	QAL	—	—	—	—	0.509 (U)	—	—	0.0384 (J)	—	—	—	—	—	—	—	—	2.35	0.000627 (J)	1.53 (U)	—	—	—
RE02-07-3075	02-600662	15–20	QBO	6300	—	1.48 (J)	—	0.586 (U)	—	8.9	—	—	—	8580	—	—	256	—	—	1.02 (J)	—	1.76 (U)	—	6.6 (J)	—
RE02-07-3077	02-600663	0–0.5	SOIL	—	—	16.9	—	2.54 (U)	—	23.2 (J)	0.693	9.67	52	66400	—	—	—	0.267	—	—	0.00114 (J)	5.71 (U)	—	—	—
RE02-07-3078	02-600663	4.5–10	QAL	—	—	—	—	0.552 (U)	—	—	0.068 (J)	—	—	—	—	—	—	—	—	1.03	0.000634 (J)	—	—	—	—
RE02-07-3080	02-600663	14–16	QBO	8880 (J+)	—	1.07 (U)	55.6	0.607 (U)	—	2.98	0.287	—	—	5620	—	—	334 (J+)	—	2.33	—	—	1.82 (U)	—	—	—
RE02-07-3083	02-600664	4.5–7	QAL	—	—	—	—	0.538 (U)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	56.3
RE02-07-3085	02-600664	9.5–14.5	QBO	7510	—	1.42 (J)	42.7 (J+)	0.546 (U)	—	—	0.0275 (J)	—	—	11600	—	832 (J+)	566 (J+)	—	3.76 (U)	—	—	1.58 (J)	—	8.09	50.2
RE02-07-6834	02-600664	19.5–24.5	QBO	—	—	1.79 (U)	—	0.596 (U)	—	—	NA	—	—	4710	—	—	—	—	—	—	—	5.54	—	—	—

Table 6.26-34 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Cadmium	Calcium	Chromium	Hexavalent Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Silver	Vanadium	Zinc
Qbt 1g, Qct, Qbo BV[a]				**3560**	**0.5**	**0.56**	**25.7**	**0.4**	**1900**	**2.6**	**na[b]**	**8.89**	**3.96**	**3700**	**13.5**	**739**	**189**	**0.1**	**2**	**na**	**na**	**0.3**	**1**	**4.59**	**40**
Qbt 2, 3, 4 BV[a]				**7340**	**0.5**	**2.79**	**46**	**1.63**	**2200**	**7.14**	**na**	**3.14**	**4.66**	**14500**	**11.2**	**1690**	**482**	**0.1**	**6.58**	**na**	**na**	**0.3**	**1**	**17**	**63.5**
Sediment BV[a]				**15400**	**0.83**	**3.98**	**127**	**0.4**	**4420**	**10.5**	**na**	**4.73**	**11.2**	**13800**	**19.7**	**2370**	**543**	**0.1**	**9.38**	**na**	**na**	**0.3**	**1**	**19.7**	**60.2**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**0.4**	**6120**	**19.3**	**na**	**8.64**	**14.7**	**21500**	**22.3**	**4610**	**671**	**0.1**	**15.4**	**na**	**na**	**1.52**	**1**	**39.6**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**1120**	**na**	**2920[d]**	**2920**	**300[f]**	**45400**	**795000**	**800**	**na**	**145000**	**310[e]**	**22700**	**1820000**	**795**	**5680**	**5680**	**5680**	**341000**
Recreational SSL[f]				**791000**	**317**	**27.7**	**158000**	**784**	**na**	**1910[d]**	**1910**	**238**	**31700**	**554000**	**560**	**na**	**110000**	**238**	**15800**	**1260000**	**555**	**3960**	**3960**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**77.9**	**na**	**219[d]**	**219**	**23[f]**	**3130**	**54800**	**400**	**na**	**10700**	**23[e]**	**1560**	**125000**	**54.8**	**391**	**391**	**391**	**23500**
RE02-07-3087	02-600665	0–0.5	SOIL	—	—	—	—	0.493 (U)	—	—	—	—	—	—	—	—	—	0.13	—	1.44 (J-)	—	1.71 (U)	—	—	—
RE02-07-3088	02-600665	4.5–7.5	QAL	—	—	—	—	0.528 (U)	—	—	0.353	—	—	—	—	—	—	—	—	—	—	1.58 (U)	—	—	—
RE02-07-3090	02-600665	13.5–18.5	QBO	9380	—	1.66 (J)	30.3	—	—	16.2	0.0717 (J)	—	—	6280	—	—	218	—	—	—	—	1.72 (U)	—	5.25 (J)	—
RE02-07-6835	02-600665	19.5–23.5	QBO	7930	0.531 (UJ)	1.93 (U)	—	0.644 (U)	—	3.61	NA	—	—	5510	—	—	190	—	—	—	—	6.17	—	—	—
RE02-07-3092	02-600666	0–0.5	SOIL	—	—	—	—	—	—	—	—	—	—	—	25.9 (J)	—	—	—	—	1.91 (J-)	0.000703 (J)	3.66 (U)	—	—	98.7
RE02-10-21768	02-612348	5–7	QAL	—	1.12 (U)	—	—	0.559 (U)	—	—	—	—	—	—	—	—	—	—	—	NA	NA	—	—	—	—
RE02-10-21769	02-612348	15–16	QAL	—	1.16 (U)	—	—	0.579 (U)	—	—	—	—	—	—	—	—	—	—	—	NA	NA	—	—	—	—
RE02-10-21770	02-612348	25–26	QBO	—	1.32 (U)	1.27 (U)	—	0.662 (U)	—	—	—	—	—	5350	—	—	214 (J+)	—	—	NA	NA	1.27 (U)	—	—	—
RE02-10-21771	02-612348	35–36	QBO	—	1.19 (U)	1.26 (U)	—	—	—	3.66	—	—	—	5390	—	—	199 (J+)	—	—	NA	NA	1.26 (U)	—	—	—
RE02-10-21772	02-612348	49–50	QBO	—	1.19 (U)	1.18 (U)	—	0.594 (U)	—	—	—	—	—	5600	—	—	223 (J+)	—	—	NA	NA	1.18 (U)	—	—	—
RE02-10-25664	02-612983	7–8	QAL	—	5.05 (UJ)	—	—	—	—	—	0.395 (J)	—	—	—	—	—	—	—	—	NA	NA	—	—	—	—
RE02-10-25665	02-612983	15–16	QAL	—	1.21 (UJ)	—	—	—	—	—	0.356 (J)	—	—	—	—	—	—	—	—	NA	NA	—	—	—	—
RE02-10-25666	02-612983	26–27	QBT3	23800	1.35 (UJ)	—	188 (J+)	—	—	7.22	—	—	—	—	—	—	—	—	—	NA	NA	1.29 (UJ)	—	—	—
RE02-10-25667	02-612983	35–36	QBT3	9810	1.27 (UJ)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	NA	NA	1.21 (U)	—	—	—
RE02-10-25668	02-612983	49–50	QBT3	—	1.12 (UJ)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	NA	NA	1.21 (U)	—	—	—

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

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

[b] na = Not available.

[c] SSLs are from NMED (2009, 108070), unless otherwise noted.

[d] SSLs are for hexavalent chromium.

[e] SSLs are from EPA regional screening tables (http://www.epa.gov.earth1r6/6pd/rcra_c/pd-n/screen.htm).

[f] SSLs are from LANL (2010, 108613).

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

[h] NA = Not analyzed.

Table 6.26-35
Organic Chemicals Detected at AOC 02-011(a)(x)

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	Chrysene	Di-n-butylphthalate	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Methylene Chloride	Methylnaphthalene[2-]	Naphthalene	Phenanthrene	Pyrene	Toluene	TPH-DRO
Industrial SSL[a]				**36700**	**183000**	**8.26**	**8.26**	**23.4**	**2.34**	**23.4**	**18300[b]**	**2340**	**68400**	**24400**	**24400**	**23.4**	**1090**	**4100[c]**	**252**	**20500**	**18300**	**57900**	**1120[d]**
Recreational SSL[e]				**20800**	**104000**	**6.65**	**10.5**	**30.1**	**3.01**	**30.1**	**10400[b]**	**3010**	**39900**	**13900**	**13900**	**30.1**	**4520**	**3170**	**1950**	**12000**	**10400**	**60800**	**na[f]**
Residential SSL[a]				**3440**	**17200**	**1.12**	**2.22**	**6.21**	**0.621**	**6.21**	**1720[b]**	**621**	**6110**	**2290**	**2290**	**6.21**	**199**	**310[c]**	**45**	**1830**	**1720**	**5570**	**520[d]**
0402-95-0303	02-01162	0.5–0.8333	QBT 2	—[g]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.001 (J)	—
0402-95-0305	02-01162	2.5–3.5	QBT 2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	125
RE02-07-3062	02-600660	0–0.5	SOIL	—	—	0.0145 (J)	0.0247 (J+)	—	—	—	—	—	—	—	—	—	NA[h]	—	—	—	—	NA	NA
RE02-07-3067	02-600661	0–0.5	SOIL	0.0824	0.131	0.036	0.0583	0.232	0.262	0.43	0.0952	0.248	—	0.403	0.0662	0.0838	NA	0.0408	0.0861	0.437	0.485	NA	NA
RE02-07-3068	02-600661	4.5–9.5	QAL	—	—	—	—	—	—	—	—	—	0.0381 (J)	—	—	—	—	—	—	—	—	—	NA
RE02-07-3071	02-600661	11–14.5	QAL	—	—	—	—	—	—	—	—	—	0.0417 (J)	—	—	—	—	—	—	—	—	—	NA
RE02-07-3070	02-600661	14.5–19.5	QBO	—	—	—	—	—	—	—	—	—	0.0467 (J)	—	—	—	—	—	—	—	—	—	NA
RE02-07-3072	02-600662	0–0.5	SOIL	—	—	—	0.0254 (J)	—	—	—	—	0.0112 (J)	—	0.0217 (J)	—	—	NA	—	—	0.0122 (J)	0.0184 (J)	NA	NA
RE02-07-3073	02-600662	4.5–10	QAL	—	—	—	0.0025 (J)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00097 (J)	NA
RE02-07-3077	02-600663	0–0.5	SOIL	—	0.00847 (J)	0.0549	0.0414	—	—	—	—	0.0145 (J)	—	0.0296 (J)	—	—	NA	—	0.0123 (J)	0.0277 (J)	0.0286 (J)	NA	NA
RE02-10-22155	02-600664	4–4.2	SOIL	NA	NA	—	0.0016 (J)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-07-3083	02-600664	4.5–7	QAL	—	—	—	0.319	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	NA
RE02-07-3087	02-600665	0–0.5	SOIL	—	—	0.0406	0.0488	—	0.0425	0.0642	—	0.0383	—	0.041	—	—	NA	—	—	0.0282 (J)	0.0428	NA	52.3 (J)
RE02-07-3088	02-600665	4.5–7.5	QAL	—	—	—	0.0024 (J)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-3090	02-600665	13.5–18.5	QBO	—	—	0.005	0.0041	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-6835	02-600665	19.5–23.5	QBO	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00295 (J)	—	—	—	—	—	—
RE02-07-3092	02-600666	0–0.5	SOIL	0.0156 (J)	0.0401	0.0701	0.0944	—	0.221	0.674	0.111	0.34	—	0.362	0.0161 (J)	0.102	NA	—	0.0112 (J)	0.189	0.33	NA	NA
RE02-10-21768	02-612348	5–7	QAL	—	—	0.0103 (J)	0.0049	—	—	—	—	—	—	—	—	—	NA	—	—	—	—	NA	NA
RE02-10-21771	02-612348	35–36	QBO	—	—	—	0.0022 (J)	—	—	—	—	—	—	—	—	—	NA	—	—	—	—	NA	NA
RE02-10-22158	02-612459	4–4.2	SOIL	NA	NA	—	0.0819	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-22161	02-612460	4–4.2	SOIL	NA	NA	—	0.0084	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-25664	02-612983	7–8	QAL	—	—	0.0029 (J)	0.0024 (J)	—	—	—	—	—	—	—	—	—	NA	—	—	—	—	NA	NA
RE02-10-25666	02-612983	26–27	QBT3	—	—	0.0061	—	—	—	—	—	—	—	—	—	—	NA	—	—	—	—	NA	NA
RE02-10-26101	02-612999	0–0.5	SOIL	NA	NA	0.0309	0.0623	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 6.26-35 (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	Chrysene	Di-n-butylphthalate	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Methylene Chloride	Methylnaphthalene[2-]	Naphthalene	Phenanthrene	Pyrene	Toluene	TPH-DRO
Industrial SSL[a]				**36700**	**183000**	**8.26**	**8.26**	**23.4**	**2.34**	**23.4**	**18300[b]**	**2340**	**68400**	**24400**	**24400**	**23.4**	**1090**	**4100[c]**	**252**	**20500**	**18300**	**57900**	**1120[d]**
Recreational SSL[e]				**20800**	**104000**	**6.65**	**10.5**	**30.1**	**3.01**	**30.1**	**10400[b]**	**3010**	**39900**	**13900**	**13900**	**30.1**	**4520**	**3170**	**1950**	**12000**	**10400**	**60800**	**na**
Residential SSL[a]				**3440**	**17200**	**1.12**	**2.22**	**6.21**	**0.621**	**6.21**	**1720[b]**	**621**	**6110**	**2290**	**2290**	**6.21**	**199**	**310[c]**	**45**	**1830**	**1720**	**5570**	**520[d]**
RE02-10-26102	02-612999	2–2.2	SOIL	NA	NA	—	0.221	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-26103	02-613000	0–0.5	SOIL	NA	NA	—	0.635	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE02-10-26104	02-613000	2–2.2	SOIL	NA	NA	—	0.015	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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

[a] SSLs are from NMED (2009, 108070), unless otherwise noted.

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

[c] SSLs are from EPA regional screening tables (http://www.epa.gov.earth1r6/6pd/rcra_c/pd-n/screen.htm).

[d] Screening guidelines for diesel range organics from NMED (2006, 094614).

[e] SSLs are from LANL (2010, 108613).

[f] na = Not available.

[g] — = Not detected.

[h] NA = Not analyzed.

Table 6.26-36
Radionuclides Detected or Detected above BVs/FVs at AOC 02-011(a)(x)

Sample ID	Location ID	Depth (ft)	Media	Cesium-137	Plutonium-239/240	Tritium	Uranium-234	Uranium-235/236	Uranium-238
Qbt 1g, Qct, Qbo BV[a]				**na[b]**	**na**	**na**	**4**	**0.18**	**3.9**
Qbt 2, 3, 4 BV[a]				**na**	**na**	**na**	**1.98**	**0.09**	**1.93**
Sediment BV[a]				**0.9**	**0.068**	**0.093**	**2.59**	**0.2**	**2.29**
Soil BV[a]				**1.65**	**0.054**	**na**	**2.59**	**0.2**	**2.29**
Industrial SAL[c]				**23**	**210**	**440000**	**1500**	**87**	**430**
Recreational SAL[c]				**210**	**300**	**5300000**	**3200**	**520**	**2100**
Residential SAL[c]				**5.6**	**33**	**750**	**170**	**17**	**87**
CA02-00-0193	02-01153	0–0.5	SED	—[d]	1.67 (J-)	0.104333	—	—	—
0402-95-0318	02-01153	0–1	SED	—	0.289	0.115	—	—	—
CA02-00-0198	02-01153	2.2–2.5	SED	—	1.15	—	—	—	—
RE02-03-51814	02-22346	4–4.5	SOIL	—	—	0.031	—	—	—
RE02-03-51815	02-22346	5.5–6	SOIL	—	—	0.0344	—	—	—
RE02-03-51816	02-22347	4–4.5	SOIL	—	—	0.0207	—	—	—
RE02-03-51817	02-22347	5.5–6	SOIL	0.0415	—	—	—	—	—
RE02-03-51818	02-22348	5.5–6	SOIL	—	—	0.0158	—	—	—
RE02-03-51819	02-22348	7–7.5	SOIL	—	—	0.0282	—	—	—
RE02-03-51858	02-22368	2.5–3	SOIL	0.121	—	—	—	—	—
RE02-03-51859	02-22368	4–4.5	SOIL	—	—	0.0542	—	—	—
RE02-03-51882	02-22380	2.5–3	SOIL	—	—	0.148	—	—	—
RE02-03-51883	02-22380	4–4.5	SOIL	—	—	0.0131	—	—	—
RE02-07-3062	02-600660	0–0.5	SOIL	—	0.057	0.00498927	—	—	—
RE02-07-3068	02-600661	4.5–9.5	QAL	—	—	0.0194178	—	—	—
RE02-07-3073	02-600662	4.5–10	QAL	—	—	0.0166154	—	—	—
RE02-07-3077	02-600663	0–0.5	SOIL	—	0.1	0.017719	—	—	—
RE02-07-3078	02-600663	4.5–10	QAL	—	—	0.0792273	—	—	—
RE02-07-3080	02-600663	14–16	QBO	—	—	0.0570732	—	—	—
RE02-07-3083	02-600664	4.5–7	QAL	—	—	0.0422697	—	—	—
RE02-07-6834	02-600664	19.5–24.5	QBO	—	—	0.125759	—	—	—
RE02-07-3087	02-600665	0–0.5	SOIL	—	0.0783	0.00416427	—	—	—
RE02-07-6835	02-600665	19.5–23.5	QBO	—	—	—	—	0.194	—
RE02-07-3092	02-600666	0–0.5	SOIL	—	0.785	—	—	—	—

Table 6.26-36 (continued)

Sample ID	Location ID	Depth (ft)	Media	Cesium-137	Plutonium-239/240	Tritium	Uranium-234	Uranium-235/236	Uranium-238
Qbt 1g, Qct, Qbo BV[a]				**na**	**na**	**na**	**4**	**0.18**	**3.9**
Qbt 2, 3, 4 BV[a]				**na**	**na**	**na**	**1.98**	**0.09**	**1.93**
Sediment BV[a]				**0.9**	**0.068**	**0.093**	**2.59**	**0.2**	**2.29**
Soil BV[a]				**1.65**	**0.054**	**na**	**2.59**	**0.2**	**2.29**
Industrial SAL[c]				**23**	**210**	**440000**	**1500**	**87**	**430**
Recreational SAL[c]				**210**	**300**	**5300000**	**3200**	**520**	**2100**
Residential SAL[c]				**5.6**	**33**	**750**	**170**	**17**	**87**
RE02-10-21772	02-612348	49–50	QBO	—	—	0.0525806	—	—	—
RE02-10-25666	02-612983	26–27	QBT3	—	—	—	2.04	0.153	2.21
RE02-10-25667	02-612983	35–36	QBT3	—	—	—	2.04	0.169	2.15
RE02-10-25668	02-612983	49–50	QBT3	—	—	0.0499231	2.22	0.172	2.34

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

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

[b] na = Not available.

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

[d] — = Not detected.

Table 6.27-1
Samples Collected and Analyses Requested at AOC 02-011(b)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Gamma-emitting Radionuclides	Tritium	Hexavalent Chromium	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	Technetium-99	VOCs	Cyanide (Total)
0402-95-0282	02-01107	0–1	SOIL	—*	—	46	46	—	46	46	—	—	—	46	—	—	—	—
0402-95-0283	02-01110	0–1	QBT 2	—	—	46	46	—	46	46	—	—	—	46	—	—	—	—
0402-95-0284	02-01110	4–5	QBT 2	—	—	46	46	—	46	46	—	—	—	46	—	—	—	—
0402-95-0395	02-01110	4–5	QBT 2	—	—	—	—	—	—	—	—	—	—	—	—	662	—	—
0402-95-0285	02-01110	7.5–8.5	QBT 2	—	—	46	46	—	46	46	—	—	—	46	—	—	—	—
0402-95-0286	02-01110	11–12	QBT 2	—	—	46	46	—	46	46	—	—	—	46	—	—	—	—
CA02-00-0308	02-01239	0–1	SED	—	—	7460R	7460R	—	7460R	7460R	7458R, 7459R	—	—	7460R	—	—	—	—
CA02-00-0309	02-01239	3–4	SOIL	—	—	7460R	7460R	—	7460R	7460R	7458R, 7459R	—	—	7460R	—	—	—	—
CA02-00-0310	02-01239	6–7	SOIL	—	—	7460R	7460R	—	7460R	7460R	7458R, 7459R	—	—	7460R	—	—	—	—
CA02-00-0311	02-01239	11.5–13	SOIL	—	—	7460R	7460R	—	7460R	7460R	7458R, 7459R	—	—	7460R	—	—	—	—
CA02-00-0312	02-01239	14–15	QBT 3	—	—	7460R	7460R	—	7460R	7460R	7458R, 7459R	—	—	7460R	—	—	—	—
RE02-07-892	02-600211	0–0.5	SED	07-677	07-676	07-677	07-677	07-676	07-677	07-677	07-676	07-675	07-676	07-677	07-675	—	—	07-676
RE02-07-897	02-600212	0–0.5	SED	07-677	07-676	07-677	07-677	07-676	07-677	07-677	07-676	07-675	07-676	07-677	07-675	—	—	07-676
RE02-07-902	02-600213	0–0.5	SED	07-677	07-676	07-677	07-677	07-676	07-677	07-677	07-676	07-675	07-676	07-677	07-675	—	—	07-676
RE02-07-907	02-600214	0–0.5	SED	07-677	07-676	07-677	07-677	07-676	07-677	07-677	07-676	07-675	07-676	07-677	07-675	—	—	07-676
RE02-07-912	02-600215	0–0.5	SOIL	07-677	07-676	07-677	07-677	07-676	07-677	07-677	07-676	07-675	07-676	07-677	07-675	—	—	07-676
RE02-07-913	02-600215	2–2.4	QAL	07-677	07-676	07-677	07-677	07-676	07-677	07-677	07-676	07-675	07-676	07-677	07-675	—	07-675	07-676
RE02-07-914	02-600215	4.5–6.7	QAL	07-861	07-861	07-861	07-861	07-861	07-861	07-861	07-861	07-861	07-861	07-861	07-861	—	07-861	07-861
RE02-07-916	02-600215	9.5–11.4	QAL	07-861	07-861	07-861	07-861	07-861	07-861	07-861	07-861	07-861	07-861	07-861	07-861	—	07-861	07-861
RE02-07-915	02-600215	14.5–16.7	QBO	07-861	07-861	07-861	07-861	07-861	07-861	07-861	07-861	07-861	07-861	07-861	07-861	—	07-861	07-861
RE02-10-21904	02-612389	5–6	QAL	11-122	—	11-122	11-122	—	11-122	11-122	11-122	11-122	—	11-122	11-122	—	—	—
RE02-10-21905	02-612389	18–19	QAL	11-122	—	11-122	11-122	—	11-122	11-122	11-122	11-122	—	11-122	11-122	—	—	—
RE02-10-21906	02-612389	25–27	QBO	11-152	—	11-152	11-152	—	11-152	11-152	11-151	11-151	—	11-152	11-151	—	—	—
RE02-10-21907	02-612389	35–36	QBO	11-152	—	11-152	11-152	—	11-152	11-152	11-151	11-151	—	11-152	11-151	—	—	—
RE02-10-21908	02-612389	49–50	QBO	11-152	—	11-152	11-152	—	11-152	11-152	11-151	11-151	—	11-152	11-151	—	—	—
RE02-10-21911	02-612390	5–6	QAL	10-4513	—	10-4513	10-4513	—	10-4513	10-4513	10-4512	10-4512	—	10-4513	10-4512	—	—	—
RE02-10-21912	02-612390	15–17	QBO	10-4513	—	10-4513	10-4513	—	10-4513	10-4513	10-4512	10-4512	—	10-4513	10-4512	—	—	—
RE02-10-21913	02-612390	26–27	QBO	10-4513	—	10-4513	10-4513	—	10-4513	10-4513	10-4512	10-4512	—	10-4513	10-4512	—	—	—
RE02-10-21914	02-612390	35–36	QBO	10-4513	—	10-4513	10-4513	—	10-4513	10-4513	10-4512	10-4512	—	10-4513	10-4512	—	—	—
RE02-10-21915	02-612390	49–50	QBO	10-4513	—	10-4513	10-4513	—	10-4513	10-4513	10-4512	10-4512	—	10-4513	10-4512	—	—	—

* — = Analysis not requested.

Table 6.27-2
Inorganic Chemicals above BVs at AOC 02-011(b)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Cadmium	Chromium	Hexavalent Chromium	Iron	Lead	Manganese	Mercury	Nickel	Nitrate	Selenium	Uranium	Vanadium	Zinc
Qbt 1g, Qct, Qbo BV[a]				**3560**	**0.5**	**0.56**	**0.4**	**2.6**	**na[b]**	**3700**	**13.5**	**189**	**0.1**	**2**	**na**	**0.3**	**na**	**4.59**	**40**
Qbt 2, 3, 4 BV[a]				**7340**	**0.5**	**2.79**	**1.63**	**7.14**	**na**	**14500**	**11.2**	**482**	**0.1**	**6.58**	**na**	**0.3**	**2.4**	**17**	**63.5**
Sediment BV[a]				**15400**	**0.83**	**3.98**	**0.4**	**10.5**	**na**	**13800**	**19.7**	**543**	**0.1**	**9.38**	**na**	**0.3**	**2.22**	**19.7**	**60.2**
Soil BV[a]				**29200**	**0.83**	**8.17**	**0.4**	**19.3**	**na**	**21500**	**22.3**	**671**	**0.1**	**15.4**	**na**	**1.52**	**1.82**	**39.6**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**1120**	**2920[d]**	**2920**	**795000**	**800**	**145000**	**310[e]**	**22700**	**1820000**	**5680**	**3410**	**5680**	**341000**
Recreational SSL[f]				**791000**	**317**	**27.7**	**784**	**1910[d]**	**1910**	**554000**	**560**	**110000**	**238**	**15800**	**1260000**	**3960**	**2380**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**77.9**	**219[d]**	**219**	**54800**	**400**	**10700**	**23[e]**	**1560**	**125000**	**391**	**235**	**391**	**23500**
CA02-00-0309	02-01239	3–4	SOIL	—[g]	—	—	—	—	NA[h]	—	—	—	—	—	NA	—	6.83	—	55
CA02-00-0311	02-01239	11.5–13	SOIL	—	—	—	—	37	NA	—	—	—	—	20	NA	—	—	—	—
CA02-00-0312	02-01239	14–15	QBT 3	8100 (J-)	—	—	—	—	NA	—	—	—	—	—	NA	0.32 (U)	—	—	—
RE02-07-892	02-600211	0–0.5	SED	—	—	—	—	—	0.454 (J)	—	21.2	—	0.461 (J-)	—	2.28 (J)	0.845 (J)	NA	—	70.1 (J)
RE02-07-897	02-600212	0–0.5	SED	—	—	—	—	—	0.693 (J)	—	20.8	—	0.193 (J-)	—	2.11 (J)	1.55 (U)	NA	—	64.1 (J)
RE02-07-902	02-600213	0–0.5	SED	—	—	—	—	—	0.602 (J)	—	23.2	—	0.123 (J-)	—	5.02 (J)	1.55 (U)	NA	—	65.2 (J)
RE02-07-907	02-600214	0–0.5	SED	—	—	—	0.503 (U)	—	0.0852 (J)	—	—	—	—	—	1.98 (J)	1.51 (U)	NA	—	64.2 (J)
RE02-07-912	02-600215	0–0.5	SOIL	—	—	—	0.502 (U)	—	0.171 (J)	—	—	—	—	—	—	—	NA	—	—
RE02-07-913	02-600215	2–2.4	QAL	—	—	—	0.512 (U)	—	0.176 (J)	—	—	—	—	—	3.48 (J)	1.54 (U)	NA	—	—
RE02-07-914	02-600215	4.5–6.7	QAL	—	—	—	—	—	—	—	—	—	0.174	—	1.43	2.09	NA	—	52.4
RE02-07-916	02-600215	9.5–11.4	QAL	—	—	—	0.553 (U)	—	0.0804 (J)	—	—	980 (J+)	—	—	—	3.71	NA	—	—
RE02-07-915	02-600215	14.5–16.7	QBO	6720	—	0.64 (J)	0.616 (U)	—	—	5510	—	—	—	2.46 (J+)	—	1.43 (J)	NA	—	—
RE02-10-21904	02-612389	5–6	QAL	—	0.902 (U)	—	—	—	NA	—	—	—	—	—	NA	—	NA	—	—
RE02-10-21905	02-612389	18–19	QAL	—	1.17 (U)	—	0.584 (U)	—	NA	—	—	—	—	—	NA	—	NA	—	—
RE02-10-21906	02-612389	25–27	QBO	—	1.21 (U)	1.26 (U)	0.607 (U)	—	NA	4930	—	—	—	—	NA	1.26 (U)	NA	—	—
RE02-10-21907	02-612389	35–36	QBO	—	1.3 (U)	1.28 (U)	0.65 (U)	—	NA	5450	—	219	—	—	NA	1.28 (U)	NA	—	—
RE02-10-21908	02-612389	49–50	QBO	—	1.29 (U)	1.27 (U)	0.645 (U)	—	NA	5750	—	243	—	—	NA	1.27 (U)	NA	4.6	—
RE02-10-21911	02-612390	5–6	QAL	—	0.941 (U)	—	—	—	NA	—	—	—	—	—	NA	—	NA	—	49.2 (J)
RE02-10-21912	02-612390	15–17	QBO	5810	1.2 (U)	1.14 (U)	0.599 (U)	—	NA	4700	—	—	—	—	NA	1.14 (U)	NA	—	—
RE02-10-21913	02-612390	26–27	QBO	—	1.15 (U)	1.21 (U)	0.573 (U)	—	NA	5230	—	219	—	—	NA	1.21 (U)	NA	—	—

Table 6.27-2 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Cadmium	Chromium	Hexavalent Chromium	Iron	Lead	Manganese	Mercury	Nickel	Nitrate	Selenium	Uranium	Vanadium	Zinc
Qbt 1g, Qct, Qbo BV[a]				**3560**	**0.5**	**0.56**	**0.4**	**2.6**	**na[b]**	**3700**	**13.5**	**189**	**0.1**	**2**	**na**	**0.3**	**na**	**4.59**	**40**
Qbt 2, 3, 4 BV[a]				**7340**	**0.5**	**2.79**	**1.63**	**7.14**	**na**	**14500**	**11.2**	**482**	**0.1**	**6.58**	**na**	**0.3**	**2.4**	**17**	**63.5**
Sediment BV[a]				**15400**	**0.83**	**3.98**	**0.4**	**10.5**	**na**	**13800**	**19.7**	**543**	**0.1**	**9.38**	**na**	**0.3**	**2.22**	**19.7**	**60.2**
Soil BV[a]				**29200**	**0.83**	**8.17**	**0.4**	**19.3**	**na**	**21500**	**22.3**	**671**	**0.1**	**15.4**	**na**	**1.52**	**1.82**	**39.6**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**1120**	**2920[d]**	**2920**	**795000**	**800**	**145000**	**310[e]**	**22700**	**1820000**	**5680**	**3410**	**5680**	**341000**
Recreational SSL[f]				**791000**	**317**	**27.7**	**784**	**1910[d]**	**1910**	**554000**	**560**	**110000**	**238**	**15800**	**1260000**	**3960**	**2380**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**77.9**	**219[d]**	**219**	**54800**	**400**	**10700**	**23[e]**	**1560**	**125000**	**391**	**235**	**391**	**23500**
RE02-10-21914	02-612390	35–36	QBO	—	1.27 (U)	1.16 (U)	0.635 (U)	—	NA	5010	—	—	—	—	NA	1.16 (U)	NA	—	—
RE02-10-21915	02-612390	49–50	QBO	—	1.23 (U)	1.24 (U)	0.615 (U)	—	NA	5850	—	—	—	—	NA	1.24 (U)	NA	—	—

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

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

[b] na = Not available.

[c] SSLs are from NMED (2009, 108070), unless otherwise noted.

[d] SSLs are for hexavalent chromium.

[e] SSLs are from EPA regional screening tables (http://www.epa.gov.earth1r6/6pd/rcra_c/pd-n/screen.htm).

[f] SSLs are from LANL (2010, 108613).

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

[h] NA = Not analyzed.

Table 6.27-3
Organic Chemicals Detected at AOC 02-011(b)

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	Bis(2-ethylhexyl)phthalate	Chrysene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Methylnaphthalene[2-]	Naphthalene	Phenanthrene	Pyrene
Industrial SSL[a]				**36700**	**183000**	**8.26**	**8.26**	**23.4**	**2.34**	**23.4**	**18300[b]**	**234**	**1370**	**2340**	**24400**	**24400**	**23.4**	**4100[c]**	**252**	**20500**	**18300**
Recreational SSL[d]				**20800**	**104000**	**6.65**	**10.5**	**30.1**	**3.01**	**30.1**	**10400[b]**	**301**	**1830**	**3010**	**13900**	**13900**	**30.1**	**3170**	**1950**	**12000**	**10400**
Residential SSL[a]				**3440**	**17200**	**1.12**	**2.22**	**6.21**	**0.621**	**6.21**	**1720[b]**	**62.1**	**347**	**621**	**2290**	**2290**	**6.21**	**310[c]**	**45**	**1830**	**1720**
RE02-07-892	02-600211	0–0.5	SED	—[e]	0.0127 (J)	0.103	0.15	0.0937	0.111 (J)	0.169 (J)	0.0604 (J)	0.0581 (J)	—	0.107	0.171	—	0.051 (J)	—	—	0.0736	0.167
RE02-07-897	02-600212	0–0.5	SED	—	0.0138 (J)	0.153	0.212	0.0843	0.113	0.163	0.085	—	—	0.121	0.205	—	0.0747	—	—	0.093	0.176
RE02-07-902	02-600213	0–0.5	SED	0.0321 (J)	0.0453	0.159	0.191	0.112	0.119 (J)	0.144 (J)	0.0901 (J)	0.0782 (J)	0.137 (J)	0.114	0.19	0.0244 (J)	0.0792 (J)	0.0151 (J)	0.0239 (J)	0.158	0.21
RE02-07-907	02-600214	0–0.5	SED	—	—	0.0043	0.0045	0.0119 (J)	—	0.0143 (J)	—	—	—	—	0.0161 (J)	—	—	—	—	—	0.0136 (J)
RE02-07-912	02-600215	0–0.5	SOIL	—	—	0.0283	0.022	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-913	02-600215	2–2.4	QAL	—	—	0.0194 (J)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-914	02-600215	4.5–6.7	QAL	—	—	0.0248	0.0139	—	—	0.0128 (J)	—	—	—	—	0.0109 (J)	—	—	—	—	—	—
RE02-10-21904	02-612389	5–6	QAL	—	—	0.298 (J)	0.0326 (J)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-10-21911	02-612390	5–6	QAL	—	—	0.0121	0.0086	—	—	—	—	—	—	—	—	—	—	—	—	—	0.0126 (J)

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

[a] SSLs are from NMED (2009, 108070), unless otherwise noted.

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

[c] SSLs are from EPA regional screening tables (http://www.epa.gov.earth1r6/6pd/rcra_c/pd-n/screen.htm).

[d] SSLs are from LANL (2010, 108613).

[e] — = Not detected.

Table 6.27-4
Radionuclides Detected or Detected above BVs/FVs at AOC 02-011(b)

Sample ID	Location ID	Depth (ft)	Media	Cesium-137	Plutonium-238	Plutonium-239/240	Strontium-90	Tritium	Uranium-234	Uranium-235/236	Uranium-238
Qbt 1g, Qct, Qbo BV[a]				**na[b]**	**na**	**na**	**na**	**na**	**4**	**0.18**	**3.9**
Qbt 2, 3, 4 BV[a]				**na**	**na**	**na**	**na**	**na**	**1.98**	**0.09**	**1.93**
Sediment BV[a]				**0.9**	**0.006**	**0.068**	**1.04**	**0.093**	**2.59**	**0.2**	**2.29**
Soil BV[a]				**1.65**	**0.023**	**0.054**	**1.31**	**na**	**2.59**	**0.2**	**2.29**
Industrial SAL[c]				**23**	**240**	**210**	**1900**	**440000**	**1500**	**87**	**430**
Recreational SAL[c]				**210**	**330**	**300**	**5600**	**5300000**	**3200**	**520**	**2100**
Residential SAL[c]				**5.6**	**37**	**33**	**5.7**	**750**	**170**	**17**	**87**
0402-95-0282	02-01107	0–1	SOIL	—[d]	—	0.695	—	0.121982	—	—	—
0402-95-0283	02-01110	0–1	QBT 2	—	—	0.017	—	0.0940286	—	—	—
0402-95-0284	02-01110	4–5	QBT 2	21.69	—	1.321	2.4	0.174545	2.3	0.24	2.26
0402-95-0285	02-01110	7.5–8.5	QBT 2	0.64	—	0.016	0.39	0.108571	—	—	—
0402-95-0286	02-01110	11–12	QBT 2	—	—	—	—	0.384894	—	—	—
CA02-00-0308	02-01239	0–1	SED	—	—	0.289	—	—	—	—	—
CA02-00-0309	02-01239	3–4	SOIL	16.7	0.0255	4.41	2.46	0.0867606	6.33	0.248 (J-)	6.09
CA02-00-0310	02-01239	6–7	SOIL	0.102	—	0.187	0.741	—	—	—	—
CA02-00-0311	02-01239	11.5–13	SOIL	0.107	—	0.107	—	0.0583937	—	—	—
CA02-00-0312	02-01239	14–15	QBT 3	—	—	—	—	0.0767308	2.51	0.094	2.44
RE02-07-892	02-600211	0–0.5	SED	—	—	0.502	—	—	—	—	—
RE02-07-897	02-600212	0–0.5	SED	—	—	0.605	—	—	—	—	—
RE02-07-902	02-600213	0–0.5	SED	23.3	—	0.845	—	—	—	—	—
RE02-07-907	02-600214	0–0.5	SED	—	—	0.135	—	—	—	—	—
RE02-07-912	02-600215	0–0.5	SOIL	—	—	0.133	—	—	—	—	—
RE02-07-913	02-600215	2–2.4	QAL	6.38	—	0.75	0.563	—	—	—	—
RE02-07-914	02-600215	4.5–6.7	QAL	5.92	—	1.84	0.625	—	3.68	0.274	3.52
RE02-07-915	02-600215	14.5–16.7	QBO	—	—	—	—	—	—	0.224	—
RE02-10-21904	02-612389	5–6	QAL	274	—	0.644	32.8	0.021	—	—	—
RE02-10-21908	02-612389	49–50	QBO	—	—	—	—	—	—	0.194	—
RE02-10-21911	02-612390	5–6	QAL	4.44	—	0.595	0.347	0.0184875	—	—	—
RE02-10-21912	02-612390	15–17	QBO	—	—	0.0171	—	—	—	—	—

Table 6.27-4 (continued)

Sample ID	Location ID	Depth (ft)	Media	Cesium-137	Plutonium-238	Plutonium-239/240	Strontium-90	Tritium	Uranium-234	Uranium-235/236	Uranium-238
Qbt 1g, Qct, Qbo BV[a]				**na[b]**	**na**	**na**	**na**	**na**	**4**	**0.18**	**3.9**
Qbt 2, 3, 4 BV[a]				**na**	**na**	**na**	**na**	**na**	**1.98**	**0.09**	**1.93**
Sediment BV[a]				**0.9**	**0.006**	**0.068**	**1.04**	**0.093**	**2.59**	**0.2**	**2.29**
Soil BV[a]				**1.65**	**0.023**	**0.054**	**1.31**	**na**	**2.59**	**0.2**	**2.29**
Industrial SAL[c]				**23**	**240**	**210**	**1900**	**440000**	**1500**	**87**	**430**
Recreational SAL[c]				**210**	**330**	**300**	**5600**	**5300000**	**3200**	**520**	**2100**
Residential SAL[c]				**5.6**	**37**	**33**	**5.7**	**750**	**170**	**17**	**87**
RE02-10-21913	02-612390	26–27	QBO	—	—	—	—	0.0472884	—	0.191	—
RE02-10-21914	02-612390	35–36	QBO	—	—	—	—	0.077599	—	—	—
RE02-10-21915	02-612390	49–50	QBO	—	—	—	—	0.121403	—	—	—

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

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

[b] na = Not available.

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

[d] — = Not detected.

Table 6.28-1
Samples Collected and Analyses Requested at AOC 02-011(c)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Dioxins/Furans	Gamma-emitting Radionuclides	Tritium	Hexavalent Chromium	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	VOCs	Cyanide (Total)
RE02-07-2563	02-600573	0–0.5	SOIL	07-581	07-581	07-601	07-581	07-581	—*	07-581	07-581	07-581	07-581	07-581	07-581	07-581	—	07-581
RE02-07-2564	02-600573	4.5–9	QAL	07-787	07-787	07-786	07-787	07-787	—	07-787	07-787	07-787	07-787	07-787	07-787	07-787	07-787	07-787
RE02-07-2565	02-600573	9–16	QAL	07-787	07-787	07-786	07-787	07-787	—	07-787	07-787	07-787	07-787	07-787	07-787	07-787	07-787	07-787
RE02-07-2566	02-600573	16–19.5	QBO	07-787	07-787	07-786	07-787	07-787	—	07-787	07-787	07-787	07-787	07-787	07-787	07-787	07-787	07-787
RE02-10-21752	02-612347	5–6	QAL	—	—	—	10-4733	10-4733	10-4732	10-4733	10-4733	10-4732	10-4732	—	—	10-4732	—	—
RE02-10-21753	02-612347	15–16	QAL	—	—	—	10-4733	10-4733	10-4732	10-4733	10-4733	10-4732	10-4732	—	—	10-4732	—	—
RE02-10-21754	02-612347	25–27	QBO	—	—	—	10-4733	10-4733	10-4732	10-4733	10-4733	10-4732	10-4732	—	—	10-4732	—	—
RE02-10-21755	02-612347	35–36	QBO	—	—	—	10-4733	10-4733	10-4732	10-4733	10-4733	10-4732	10-4732	—	—	10-4732	—	—
RE02-10-21756	02-612347	49–50	QBO	—	—	—	10-4733	10-4733	10-4732	10-4733	10-4733	10-4732	10-4732	—	—	10-4732	—	—

* — = Analysis not requested.

Table 6.28-2
Inorganic Chemicals above BVs at AOC 02-011(c)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Cadmium	Iron	Manganese	Nitrate	Perchlorate	Selenium	Zinc
Qbt 1g, Qct, Qbo BV[a]				**3560**	**0.5**	**0.56**	**25.7**	**0.4**	**3700**	**189**	**na[b]**	**na**	**0.3**	**40**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**0.4**	**21500**	**671**	**na**	**na**	**1.52**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**1120**	**795000**	**145000**	**1820000**	**795**	**5680**	**341000**
Recreational SSL[d]				**791000**	**317**	**27.7**	**158000**	**784**	**554000**	**110000**	**1260000**	**555**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**77.9**	**54800**	**10700**	**125000**	**54.8**	**391**	**23500**
RE02-07-2563	02-600573	0–0.5	SOIL	—[e]	—	—	—	—	—	—	—	—	—	65.2
RE02-07-2564	02-600573	4.5–9	QAL	—	—	—	—	0.535 (U)	—	—	31.9	0.000559 (J)	1.61 (U)	—
RE02-07-2565	02-600573	9–16	QAL	—	—	—	—	0.529 (U)	—	—	1.84	—	1.7	—
RE02-07-2566	02-600573	16–19.5	QBO	9810	—	0.892 (J)	27.7	0.597 (U)	4910	—	—	—	1.52 (J)	—
RE02-10-21752	02-612347	5–6	QAL	—	0.996 (U)	—	—	—	—	—	NA[f]	NA	—	—
RE02-10-21753	02-612347	15–16	QAL	—	0.962 (U)	—	—	0.481 (U)	—	—	NA	NA	—	—
RE02-10-21754	02-612347	25–27	QBO	—	1.19 (U)	1.21 (U)	—	0.593 (U)	4940	200 (J-)	NA	NA	1.21 (U)	—
RE02-10-21755	02-612347	35–36	QBO	—	1.18 (U)	1.18 (U)	—	0.59 (U)	5850	227 (J-)	NA	NA	1.18 (U)	—
RE02-10-21756	02-612347	49–50	QBO	—	1.24 (U)	1.22 (U)	—	0.622 (U)	5020	232 (J-)	NA	NA	1.22 (U)	—

Notes: Results are in mg/kg. Data qualifiers are defined in Appendix A.
[a] BVs are from LANL (1998, 059730).
[b] na = Not available.
[c] SSLs are from NMED (2009, 108070), unless otherwise noted.
[d] SSLs are from LANL (2010, 108613).
[e] — = Not detected or not detected above BV.
[f] NA = Not analyzed.

Table 6.28-3
Organic Chemicals Detected at AOC 02-011(c)

Sample ID	Location ID	Depth (ft)	Media	Aroclor-1254	Aroclor-1260	Benzo(a)anthracene	Di-n-butylphthalate	Fluoranthene	Heptachlorodibenzodioxin[1,2,3,4,6,7,8-]	Heptachlorodibenzodioxins (Total)	Heptachlorodibenzofuran[1,2,3,4,6,7,8-]	Heptachlorodibenzofuran[1,2,3,4,7,8,9-]	Heptachlorodibenzofurans (Total)	Hexachlorodibenzodioxin[1,2,3,4,7,8-]	Hexachlorodibenzodioxin[1,2,3,6,7,8-]	Hexachlorodibenzodioxin[1,2,3,7,8,9-]	Hexachlorodibenzodioxins (Total)	Hexachlorodibenzofuran[1,2,3,4,7,8-]	Hexachlorodibenzofuran[1,2,3,6,7,8-]
Industrial SSL[a]				**8.26**	**8.26**	**23.4**	**68400**	**24400**	**na[b]**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**
Recreational SSL[c]				**6.65**	**10.5**	**30.1**	**39900**	**13900**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**
Residential SSL[a]				**1.12**	**2.22**	**6.21**	**6110**	**2290**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**
RE02-07-2563	02-600573	0–0.5	SOIL	0.0518	0.12	0.0137 (J)	—[d]	0.0143 (J)	0.000532	0.00101	0.000132	0.0000156	0.000422	0.00000376	0.0000163	0.00000815	0.000109	0.00000544	0.00000519
RE02-07-2564	02-600573	4.5–9	QAL	—	—	—	—	—	0.00000225 (J)	0.00000409	0.000000865 (J)	0.000000147 (J)	0.00000203	—	—	—	0.000000436	0.000000102 (J)	0.000000135 (J)
RE02-07-2565	02-600573	9–16	QAL	—	—	—	—	—	0.000000504 (J)	0.00000102	0.000000405 (J)	—	0.000000625	—	—	—	—	0.000000112 (J)	—
RE02-07-2566	02-600573	16–19.5	QBO	—	—	—	0.043 (J)	—	0.000000119 (J)	0.000000119	—	—	—	—	—	—	—	—	—
RE02-10-21752	02-612347	5–6	QAL	—	0.0078 (J)	—	—	—	NA[e]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 6.28-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Hexachlorodibenzofuran[1,2,3,7,8,9-]	Hexachlorodibenzofuran[2,3,4,6,7,8-]	Hexachlorodibenzofurans (Total)	Octachlorodibenzodioxin[1,2,3,4,6,7,8,9-]	Octachlorodibenzofuran[1,2,3,4,6,7,8,9-]	Pentachlorodibenzodioxin[1,2,3,7,8-]	Pentachlorodibenzodioxins (Total)	Pentachlorodibenzofuran[1,2,3,7,8-]	Pentachlorodibenzofuran[2,3,4,7,8-]	Pentachlorodibenzofurans (Totals)	Pyrene	Tetrachlorodibenzodioxin[2,3,7,8-]	Tetrachlorodibenzodioxins (Total)	Tetrachlorodibenzofuran[2,3,7,8-]	Tetrachlorodibenzofurans (Totals)	Toluene
Industrial SSL[a]				**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**18300**	**0.000204**	**na**	**0.00147**	**na**	**57900**
Recreational SSL[c]				**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**10400**	**0.000319**	**na**	**0.00197**	**na**	**60800**
Residential SSL[a]				**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**1720**	**0.000045**	**na**	**0.000374**	**na**	**5570**
RE02-07-2563	02-600573	0–0.5	SOIL	0.0000012 (J)	0.00000674	0.000128	0.00536	0.000272 (J)	0.00000119 (J)	0.0000103	0.000000881 (J)	0.00000262	0.0000332	0.0177 (J)	0.000000661	0.00000156	0.00000126	0.00000914	NA
RE02-07-2564	02-600573	4.5–9	QAL	—	0.0000000823 (J)	0.00000103	0.0000162	0.00000154 (J)	—	—	0.0000000726 (J)	0.0000000472 (J)	0.000000288	—	—	—	—	0.000000131	0.000674 (J)
RE02-07-2565	02-600573	9–16	QAL	—	—	0.00000028	0.00000319 (J)	0.000000502 (J)	—	—	—	—	—	—	—	—	0.0000000981 (J)	0.000000167	—
RE02-07-2566	02-600573	16–19.5	QBO	—	—	—	—	0.000000143 (J)	—	—	—	—	—	—	—	—	—	—	—
RE02-10-21752	02-612347	5–6	QAL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	—	NA	NA	NA	NA	NA

Notes: Results are in mg/kg. Data qualifiers are defined in Appendix A.
[a] SSLs are from NMED (2009, 108070).
[b] na = Not available.
[c] SSLs are from LANL (2010, 108613).
[d] — = Not detected or not detected above BV.
[e] NA = Not analyzed.

Table 6.28-4
Radionuclides Detected or Detected above BVs/FVs at AOC 02-011(c)

Sample ID	Location ID	Depth (ft)	Media	Strontium-90	Tritium
Qbt 1g, Qct, Qbo BV[a]				**na[b]**	**na**
Soil BV[a]				**1.31**	**na**
Industrial SAL[c]				**1900**	**440000**
Recreational SAL[c]				**5600**	**5300000**
Residential SAL[c]				**5.7**	**750**
RE02-07-2564	02-600573	4.5–9	QAL	—[d]	0.0307778
RE02-07-2565	02-600573	9–16	QAL	0.263	—
RE02-07-2566	02-600573	16–19.5	QBO	—	0.0669512
RE02-10-21753	02-612347	15–16	QAL	NA[e]	0.190605

Notes: Results are in mg/kg. Data qualifiers are defined in Appendix A.
[a] BVs/FVs are from LANL (1998, 059730).
[b] na = Not available.
[c] SALs from LANL (2009, 107655).
[d] — = Not detected.
[e] NA = Not analyzed.

Table 6.29-1
Samples Collected and Analyses Requested at AOC 02-011(d)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Gamma-emitting Radionuclides	Tritium	Hexavalent Chromium	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	VOCs	Cyanide (Total)
0402-95-0311	02-01151	0–1	SOIL	—*	—	115	115	—	115	115	—	—	—	115	—	—	—
0402-95-0320	02-01155	0–0.5	SOIL	—	—	115	115	—	115	115	—	—	—	115	—	—	—
0402-95-0321	02-01155	1–2	SOIL	—	—	115	115	—	115	115	—	—	—	115	—	—	—
CA02-00-0319	02-01247	0–0.5	SED	—	—	7531R	7531R	—	7531R	7531R	7529R, 7530R	—	—	7531R	—	—	—
CA02-00-0324	02-01248	0–0.5	SED	—	—	7531R	7531R	—	7531R	7531R	7529R, 7530R	—	—	7531R	—	—	—
RE02-07-2571	02-600574	0–0.5	SOIL	07-582	07-582	07-582	07-582	07-582	07-582	07-582	07-582	07-582	07-582	07-582	07-582	—	07-582
RE02-07-2572	02-600574	2–2.5	QAL	07-1026	07-1026	07-1026	07-1026	07-1026	07-1026	07-1026	07-1026	07-1026	07-1026	07-1026	07-1026	07-1026	07-1026
RE02-10-21501	02-612280	5–7	QAL	—	—	10-4812	10-4812	10-4811	10-4812	10-4812	10-4811	10-4810	—	—	—	—	—
RE02-10-21500	02-612280	15–16	QBO	—	—	10-4812	10-4812	10-4811	10-4812	10-4812	10-4811	10-4810	—	—	—	—	—
RE02-10-21495	02-612280	25–27	QBO	—	—	10-4812	10-4812	10-4811	10-4812	10-4812	10-4811	10-4810	—	—	—	—	—
RE02-10-21490	02-612280	35–36	QBO	—	—	10-4812	10-4812	10-4811	10-4812	10-4812	10-4811	10-4810	—	—	—	—	—
RE02-10-21485	02-612280	49–50	QBO	—	—	10-4812	10-4812	10-4811	10-4812	10-4812	10-4811	10-4810	—	—	—	—	—

* — = Analysis not requested.

Table 6.29-2
Inorganic Chemicals above BVs at AOC 02-011(d)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Cadmium	Calcium	Chromium	Hexavalent Chromium	Copper	Iron	Lead	Manganese	Nickel	Nitrate	Perchlorate	Selenium	Silver	Zinc
Qbt 1g, Qct, Qbo BV[a]				**3560**	**0.5**	**0.56**	**0.4**	**1900**	**2.6**	**na[b]**	**3.96**	**3700**	**13.5**	**189**	**2**	**na**	**na**	**0.3**	**1**	**40**
Sediment BV[a]				**15400**	**0.83**	**3.98**	**0.4**	**4420**	**10.5**	**na**	**11.2**	**13800**	**19.7**	**543**	**9.38**	**na**	**na**	**0.3**	**1**	**60.2**
Soil BV[a]				**29200**	**0.83**	**8.17**	**0.4**	**6120**	**19.3**	**na**	**14.7**	**21500**	**22.3**	**671**	**15.4**	**na**	**na**	**1.52**	**1**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**1120**	**na**	**2920[d]**	**2920**	**45400**	**795000**	**800**	**145000**	**22700**	**1820000**	**795**	**5680**	**5680**	**341000**
Recreational SSL[e]				**791000**	**317**	**27.7**	**784**	**na**	**1910[d]**	**1910**	**31700**	**554000**	**560**	**110000**	**15800**	**1260000**	**555**	**3960**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**77.9**	**na**	**219[d]**	**219**	**3130**	**54800**	**400**	**10700**	**1560**	**125000**	**54.8**	**391**	**391**	**23500**
CA02-00-0319	02-01247	0–0.5	SED	—[f]	—	8.7	0.69 (J+)	11000	240	NA[g]	41	—	35	—	—	NA	NA	—	—	190 (J+)
CA02-00-0324	02-01248	0–0.5	SED	—	—	—	—	—	61	NA	—	—	24	—	—	NA	NA	—	1.1	92 (J+)
RE02-07-2571	02-600574	0–0.5	SOIL	—	—	—	—	—	27.1	—	27.7	—	44.4	—	—	—	0.00111 (J)	—	—	134
RE02-07-2572	02-600574	2–2.5	QAL	—	—	—	—	—	38.2	0.775	16.3 (J)	—	27.9 (J)	—	—	3.32 (J-)	0.000995 (J)	—	—	113
RE02-10-21500	02-612280	15–16	QBO	8240	1.18 (U)	—	0.589 (U)	—	—	—	—	4950	—	196 (J-)	2.49	NA	NA	1.19 (U)	—	—
RE02-10-21495	02-612280	25–27	QBO	—	1.26 (U)	1.25 (U)	0.631 (U)	—	—	—	—	5290	—	200 (J-)	—	NA	NA	1.25 (U)	—	—
RE02-10-21490	02-612280	35–36	QBO	—	1.19 (U)	1.26 (U)	0.593 (U)	—	—	—	—	5120	—	253 (J-)	—	NA	NA	1.26 (U)	—	—
RE02-10-21485	02-612280	49–50	QBO	—	1.23 (U)	1.25 (U)	0.617 (U)	—	3.39	—	—	5400	—	—	—	NA	NA	1.25 (U)	—	—

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

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

[b] na = Not available.

[c] SSLs are from NMED (2009, 108070), unless otherwise noted.

[d] SSLs are for hexavalent chromium.

[e] SSLs are from LANL (2010, 108613).

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

[g] NA = Not analyzed.

Table 6.29-3
Organic Chemicals Detected at AOC 02-011(d)

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	Chrysene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Methylnaphthalene[2-]	Naphthalene	Phenanthrene	Pyrene
Industrial SSL[a]				**36700**	**183000**	**8.26**	**8.26**	**23.4**	**2.34**	**23.4**	**18300[b]**	**2340**	**24400**	**24400**	**23.4**	**4100[c]**	**252**	**20500**	**18300**
Recreational SSL[d]				**20800**	**104000**	**6.65**	**10.5**	**30.1**	**3.01**	**30.1**	**10400[b]**	**3010**	**13900**	**13900**	**30.1**	**3170**	**1950**	**12000**	**10400**
Residential SSL[a]				**3440**	**17200**	**1.12**	**2.22**	**6.21**	**0.621**	**6.21**	**1720[b]**	**621**	**2290**	**2290**	**6.21**	**310[c]**	**45**	**1830**	**1720**
RE02-07-2571	02-600574	0–0.5	SOIL	0.0223 (J)	0.0286 (J)	0.12 (J+)	0.0831 (J+)	0.082	0.103	0.129	0.0544	0.0917	0.153	0.0181 (J)	0.0482	0.00869 (J)	0.0164 (J)	0.13	0.159
RE02-07-2572	02-600574	2–2.5	QAL	—[e]	—	0.0881 (J+)	0.0665 (J+)	—	—	0.0195 (J)	—	0.0116 (J)	0.0192 (J)	—	—	—	—	0.0121 (J)	0.0192 (J)
RE02-10-21501	02-612280	5–7	QAL	NA[f]	NA	0.0438 (J)	0.0286 (J)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes: Results are in mg/kg. Data qualifiers are defined in Appendix A.
[a] SSLs are from NMED (2009, 108070), unless otherwise noted.
[b] Pyrene used as a surrogate based on structural similarity.
[c] SSLs are from EPA regional screening tables (http://www.epa.gov.earth1r6/6pd/rcra_c/pd-n/screen.htm).
[d] SSLs are from LANL (2010, 108613).
[e] — = Not detected.
[f] NA = Not analyzed.

Table 6.29-4
Radionuclides Detected or Detected above BVs/FVs at AOC 02-011(d)

Sample ID	Location ID	Depth (ft)	Media	Cesium-137	Cobalt-60	Plutonium-239/240	Tritium	Uranium-234
Sediment BV[a]				**0.9**	**na[b]**	**0.068**	**0.093**	**2.59**
Soil BV[a]				**1.65**	**na**	**0.054**	**na**	**2.59**
Industrial SAL[c]				**23**	**5.1**	**210**	**440000**	**1500**
Recreational SAL[c]				**210**	**46**	**300**	**5300000**	**3200**
Residential SAL[c]				**5.6**	**1.3**	**33**	**750**	**170**
0402-95-0311	02-01151	0–1	SOIL	—[d]	1.66	0.139	0.103046	2.87
0402-95-0320	02-01155	0–0.5	SOIL	—	—	0.463	0.074978	—
0402-95-0321	02-01155	1–2	SOIL	0.2	—	0.512	0.0688987	—
CA02-00-0319	02-01247	0–0.5	SED	—	0.471	0.608	—	2.66
CA02-00-0324	02-01248	0–0.5	SED	—	0.0702	1.28	—	—
RE02-07-2571	02-600574	0–0.5	SOIL	1.66	2.19	0.397	0.00929508	—
RE02-07-2572	02-600574	2–2.5	QAL	1.1	1.35	0.574 (J-)	—	—
RE02-10-21501	02-612280	5–7	QAL	0.23	0.139	0.0581	0.217365	—

Notes: Results are in mg/kg. Data qualifiers are defined in Appendix A.
[a] BVs/FVs are from LANL (1998, 059730).
[b] na = Not available.
[c] SALs from LANL (2009, 107655).
[d] — = Not detected.

Table 6.31-1
Samples Collected and Analyses Requested at AOC 02-012

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Gamma-emitting Radionuclides	Tritium	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	TPH-DRO	VOCs	Cyanide (Total)
CA02-00-0339	02-01257	3–3.5	FILL	—*	—	—	—	—	—	7603R	—	—	—	—	—	—	7604R
CA02-00-0340	02-01257	5–5.5	FILL	—	—	—	—	—	—	7603R	—	—	—	—	—	—	7604R
CA02-00-0341	02-01258	3–3.5	FILL	—	—	—	—	—	—	7603R	—	—	—	—	—	—	7604R
CA02-00-0342	02-01258	5–5.5	FILL	—	—	—	—	—	—	7603R	—	—	—	—	—	—	7604R
CA02-00-0337	02-01265	3–3.5	FILL	—	—	—	—	—	—	7603R	—	—	—	—	—	—	7604R
CA02-00-0338	02-01265	5–5.5	FILL	—	—	—	—	—	—	7603R	—	—	—	—	—	—	7604R
RE02-07-1727	02-600418	0–0.5	SOIL	07-953	07-952	07-953	07-953	07-953	07-953	07-952	—	07-952	07-953	07-951	07-951	—	07-952
RE02-07-1728	02-600418	4.5–9	QAL	07-953	07-952	07-953	07-953	07-953	07-953	07-952	—	07-952	07-953	07-951	07-951	07-951	07-952
RE02-07-1729	02-600418	14–19	QBO	07-953	07-952	07-953	07-953	07-953	07-953	07-952	—	07-952	07-953	07-951	07-951	07-951	07-952
RE02-07-1732	02-600419	0–0.5	SOIL	07-953	07-952	07-953	07-953	07-953	07-953	07-952	—	07-952	07-953	07-951	07-951	—	07-952
RE02-07-1733	02-600419	4.5–9	QAL	07-953	07-952	07-953	07-953	07-953	07-953	07-952	—	07-952	07-953	07-951	07-951	07-951	07-952
RE02-07-1735	02-600419	9–16	QBO	07-953	07-952	07-953	07-953	07-953	07-953	07-952	—	07-952	07-953	07-951	07-951	07-951	07-952
RE02-07-1737	02-600420	0–0.5	SOIL	07-953	07-952	07-953	07-953	07-953	07-953	07-952	—	07-952	07-953	07-951	07-951	—	07-952
RE02-07-1738	02-600420	4.5–9	QAL	07-953	07-952	07-953	07-953	07-953	07-953	07-952	—	07-952	07-953	07-951	07-951	07-951	07-952
RE02-07-1740	02-600420	9–14	QBO	07-953	07-952	07-953	07-953	07-953	07-953	07-952	—	07-952	07-953	07-951	07-951	07-951	07-952
RE02-07-6821	02-600420	14.5–19	QBO	07-1139	07-1139	07-1139	07-1139	07-1139	07-1139	07-1137	—	07-1139	07-1139	07-1137	07-1137	07-1137	07-1139
RE02-07-1893	02-600452	0–0.5	SOIL	07-783	07-783	07-783	07-783	07-783	—	07-783	—	07-783	07-783	07-783	07-783	—	07-783
RE02-07-1894	02-600452	4.5–10	QAL	07-947	07-946	07-947	07-947	07-947	—	07-946	—	07-946	07-947	07-945	07-945	07-945	07-946
RE02-07-1897	02-600452	10–15	QAL	07-947	07-946	07-947	07-947	07-947	—	07-946	—	07-946	07-947	07-945	07-945	07-945	07-946
RE02-07-1896	02-600452	15–20	QBO	07-947	07-946	07-947	07-947	07-947	—	07-946	—	07-946	07-947	07-945	07-945	07-945	07-946
RE02-07-1898	02-600453	0–0.5	SOIL	07-783	07-783	07-783	07-783	07-783	—	07-783	—	07-783	07-783	07-783	07-783	—	07-783
RE02-07-1899	02-600453	4.5–10	QAL	07-947	07-946	07-947	07-947	07-947	—	07-946	—	07-946	07-947	07-945	07-945	07-945	07-946
RE02-07-1901	02-600453	10–20	QBO	07-947	07-946	07-947	07-947	07-947	—	07-946	—	07-946	07-947	07-945	07-945	07-945	07-946
RE02-07-1903	02-600454	0–0.5	SOIL	07-947	07-946	07-947	07-947	07-947	—	07-946	—	07-946	07-947	07-945	07-945	—	07-946
RE02-07-1904	02-600454	4.5–9.5	QAL	07-947	07-946	07-947	07-947	07-947	—	07-946	—	07-946	07-947	07-945	07-945	07-945	07-946
RE02-07-1906	02-600454	9.5–16	QBO	07-947	07-946	07-947	07-947	07-947	—	07-946	—	07-946	07-947	07-945	07-945	07-945	07-946
RE02-07-1908	02-600455	0–0.5	SOIL	07-783	07-783	07-783	07-783	07-783	—	07-783	—	07-783	07-783	07-783	07-783	—	07-783
RE02-07-1909	02-600455	4.5–10	QAL	07-947	07-946	07-947	07-947	07-947	—	07-946	—	07-946	07-947	07-945	07-945	07-945	07-946
RE02-07-1911	02-600455	10–17	QBO	07-947	07-946	07-947	07-947	07-947	—	07-946	—	07-946	07-947	07-945	07-945	07-945	07-946
RE02-07-2075	02-600485	0–0.5	SOIL	07-777	07-777	07-777	07-777	07-777	07-777	07-777	—	07-777	07-777	07-777	07-777	—	07-777
RE02-07-2076	02-600485	4.5–12	QAL	07-843	07-842	07-843	07-843	07-843	07-843	07-842	—	07-842	07-843	07-841	07-841	07-841	07-842
RE02-07-2078	02-600485	14–19	QBO	07-843	07-842	07-843	07-843	07-843	07-843	07-842	—	07-842	07-843	07-841	07-841	07-841	07-842
RE02-07-2080	02-600486	0–0.5	SOIL	07-777	07-777	07-777	07-777	07-777	07-777	07-777	—	07-777	07-777	07-777	07-777	—	07-777
RE02-07-2081	02-600486	4.5–9	QAL	07-849	07-848	07-849	07-849	07-849	07-849	07-848	—	07-848	07-849	07-847	07-847	07-847	07-848
RE02-07-2083	02-600486	16–21	QBO	07-849	07-848	07-849	07-849	07-849	07-849	07-848	—	07-848	07-849	07-847	07-847	07-847	07-848
RE02-07-2085	02-600487	0–0.5	SOIL	07-777	07-777	07-777	07-777	07-777	07-777	07-777	—	07-777	07-777	07-777	07-777	—	07-777
RE02-07-2086	02-600487	4.5–7.5	QAL	07-849	07-848	07-849	07-849	07-849	07-849	07-848	—	07-848	07-849	07-847	07-847	07-847	07-848

Table 6.31-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Gamma-emitting Radionuclides	Tritium	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	TPH-DRO	VOCs	Cyanide (Total)
RE02-07-2088	02-600487	15–19	QBO	07-849	07-848	07-849	07-849	07-849	07-849	07-848	—	07-848	07-849	07-847	07-847	07-847	07-848
RE02-07-2090	02-600488	0–0.5	SOIL	07-777	07-777	07-777	07-777	07-777	07-777	07-777	—	07-777	07-777	07-777	07-777	—	07-777
RE02-07-2091	02-600488	4.5–8	QAL	07-843	07-842	07-843	07-843	07-843	07-843	07-842	—	07-842	07-843	07-841	07-841	07-841	07-842
RE02-07-2093	02-600488	14.5–19	QBO	07-843	07-842	07-843	07-843	07-843	07-843	07-842	—	07-842	07-843	07-841	07-841	07-841	07-842
RE02-10-21859	02-612374	5–6	SOIL	—	—	—	10-4797	10-4797	10-4797	10-4797	10-4797	—	10-4797	10-4797	10-4797	—	—
RE02-10-21860	02-612374	15–16	QBO	—	—	—	10-4797	10-4797	10-4797	10-4797	10-4797	—	10-4797	10-4797	10-4797	—	—
RE02-10-21861	02-612374	25–26	QBO	—	—	—	10-4809	10-4809	10-4809	10-4809	10-4808	—	10-4809	10-4808	10-4808	—	—
RE02-10-21862	02-612374	35–36	QBO	—	—	—	10-4809	10-4809	10-4809	10-4809	10-4808	—	10-4809	10-4808	10-4808	—	—
RE02-10-21863	02-612374	49–50	QBO	—	—	—	10-4809	10-4809	10-4809	10-4809	10-4808	—	10-4809	10-4808	10-4808	—	—

* — = Analysis not requested.

Table 6.31-2
Inorganic Chemicals above BVs at AOC 02-012

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Cadmium	Chromium	Copper	Cyanide (Total)	Iron	Lead	Manganese	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Vanadium	Zinc
Qbt 1g, Qct, Qbo BV[a]				**3560**	**0.5**	**0.56**	**25.7**	**0.4**	**2.6**	**3.96**	**0.5**	**3700**	**13.5**	**189**	**0.1**	**2**	**Na[b]**	**na**	**0.3**	**4.59**	**40**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**0.4**	**19.3**	**14.7**	**0.5**	**21500**	**22.3**	**671**	**0.1**	**15.4**	**na**	**na**	**1.52**	**39.6**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**1120**	**2920[d]**	**45400**	**22700**	**795000**	**800**	**145000**	**310[e]**	**22700**	**1820000**	**795**	**5680**	**5680**	**341000**
Recreational SSL[f]				**791000**	**317**	**27.7**	**158000**	**784**	**1910[d]**	**31700**	**15800**	**554000**	**560**	**110000**	**238**	**15800**	**1260000**	**555**	**3960**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**77.9**	**219[d]**	**3130**	**1560**	**54800**	**400**	**10700**	**23[e]**	**1560**	**125000**	**54.8**	**391**	**391**	**23500**
RE02-07-1727	02-600418	0–0.5	SOIL	—[g]	—	—	—	0.883	—	—	—	—	—	—	1.21	—	—	—	—	—	—
RE02-07-1728	02-600418	4.5–9	QAL	—	—	—	—	0.538 (U)	—	—	—	—	—	—	—	—	2.6 (J-)	0.00174 (J)	2.67	—	—
RE02-07-1729	02-600418	14–19	QBO	4000 (J+)	—	1.27 (J)	—	0.568 (U)	6.64 (U)	—	—	4810	—	—	—	—	—	—	0.945 (J)	—	—
RE02-07-1732	02-600419	0–0.5	SOIL	—	—	—	—	0.539 (U)	—	—	—	—	23.4	—	0.201	—	1.22 (J-)	—	—	—	—
RE02-07-1733	02-600419	4.5–9	QAL	—	—	—	—	0.549 (U)	—	—	—	—	—	—	—	—	7.39 (J-)	0.000582 (J)	—	—	—
RE02-07-1735	02-600419	9–16	QBO	5260 (J+)	0.506 (UJ)	1.7 (J)	—	0.63 (U)	7.58 (U)	—	—	6380	—	250	—	—	—	—	1.95	5.76	—
RE02-07-1737	02-600420	0–0.5	SOIL	—	—	—	—	0.528 (U)	—	—	—	—	—	—	0.229	—	—	—	—	—	69.9
RE02-07-1738	02-600420	4.5–9	QAL	—	—	—	—	—	—	—	—	—	—	—	—	—	5.8 (J-)	—	1.73	—	—
RE02-07-1740	02-600420	9–14	QBO	7200 (J+)	—	1.73	47.1 (J)	0.574 (U)	14.8	—	—	5500	—	203	—	2.71 (J)	1.1 (J-)	—	1.93	—	—
RE02-07-6821	02-600420	14.5–19	QBO	5230 (J+)	0.51 (U)	1.94 (U)	—	0.648 (U)	9.68 (J+)	—	—	4840	—	—	—	—	—	—	6.41	—	—
RE02-07-1893	02-600452	0–0.5	SOIL	—	—	—	—	0.518 (U)	—	—	—	—	—	—	0.194	—	1.27	0.00172 (J)	—	—	52.7
RE02-07-1894	02-600452	4.5–10	QAL	—	—	—	—	0.563 (U)	—	—	—	—	—	—	—	—	1.15 (J+)	—	—	—	—
RE02-07-1897	02-600452	10–15	QAL	—	—	—	—	0.557 (U)	—	—	—	—	—	—	—	—	—	—	—	—	—

Table 6.31-2 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Cadmium	Chromium	Copper	Cyanide (Total)	Iron	Lead	Manganese	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Vanadium	Zinc
Qbt 1g, Qct, Qbo BV[a]				**3560**	**0.5**	**0.56**	**25.7**	**0.4**	**2.6**	**3.96**	**0.5**	**3700**	**13.5**	**189**	**0.1**	**2**	**na**	**na**	**0.3**	**4.59**	**40**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**0.4**	**19.3**	**14.7**	**0.5**	**21500**	**22.3**	**671**	**0.1**	**15.4**	**na**	**na**	**1.52**	**39.6**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**1120**	**2920[d]**	**45400**	**22700**	**795000**	**800**	**145000**	**310[e]**	**22700**	**1820000**	**795**	**5680**	**5680**	**341000**
Recreational SSL[f]				**791000**	**317**	**27.7**	**158000**	**784**	**1910[d]**	**31700**	**15800**	**554000**	**560**	**110000**	**238**	**15800**	**1260000**	**555**	**3960**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**77.9**	**219[d]**	**3130**	**1560**	**54800**	**400**	**10700**	**23[e]**	**1560**	**125000**	**54.8**	**391**	**391**	**23500**
RE02-07-1896	02-600452	15–20	QBO	9570	—	1.56 (J)	39.9	0.573 (U)	3.55 (U)	—	—	7290 (J-)	—	425	—	2.08	—	—	1.57 (J)	—	—
RE02-07-1898	02-600453	0–0.5	SOIL	—	—	—	—	0.499 (U)	—	—	—	—	—	—	—	—	2.39	—	2.1	—	56.9
RE02-07-1899	02-600453	4.5–10	QAL	—	—	—	—	—	—	43	—	—	—	—	—	—	1.8 (J+)	—	—	—	183
RE02-07-1901	02-600453	10–20	QBO	5550	—	1.97	27.6	0.57 (U)	27.1	104	0.69	7830 (J-)	—	300	—	2.78	—	—	1.22 (J)	6.84	56.8
RE02-07-1903	02-600454	0–0.5	SOIL	—	—	—	—	—	—	—	—	—	—	—	—	—	1.21 (J+)	—	—	—	560
RE02-07-1904	02-600454	4.5–9.5	QAL	—	—	—	—	0.548 (U)	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-07-1906	02-600454	9.5–16	QBO	9280	—	2.63	92.7	0.574 (U)	4.48 (U)	3.98 (U)	—	8160 (J-)	—	688	—	3.38	—	—	1.64 (J)	6.95	—
RE02-07-1908	02-600455	0–0.5	SOIL	—	—	—	—	0.514 (U)	—	—	—	—	—	—	—	—	—	0.000624 (J)	2.33	—	63.3
RE02-07-1909	02-600455	4.5–10	QAL	—	—	—	—	0.53 (U)	—	—	—	—	—	—	—	—	6.92 (J+)	—	—	—	—
RE02-07-1911	02-600455	10–17	QBO	3870	—	1.21 (J)	—	0.569 (U)	26	4.28 (U)	—	5810 (J-)	—	203	—	2.81	1.64	—	1.44 (J)	—	—
RE02-07-2075	02-600485	0–0.5	SOIL	—	—	—	—	0.496 (U)	—	—	—	—	—	—	4.65 (J)	—	1.33	—	—	—	—
RE02-07-2076	02-600485	4.5–12	QAL	—	—	—	—	—	—	—	—	—	—	—	0.212	—	1.05 (J)	—	—	—	—
RE02-07-2078	02-600485	14–19	QBO	9770	—	1.04 (J)	45.7 (J-)	0.592 (U)	16.7 (J)	4.05	—	6980	—	293 (J)	—	2.55	—	—	1.78 (U)	6.49	—
RE02-07-2080	02-600486	0–0.5	SOIL	—	—	—	—	0.504 (U)	—	—	—	—	—	—	2.49 (J)	—	—	0.000514 (J)	—	—	—
RE02-07-2081	02-600486	4.5–9	QAL	—	—	—	—	0.538 (U)	—	—	—	—	—	—	—	—	—	—	1.61 (U)	—	—
RE02-07-2083	02-600486	16–21	QBO	6820	0.508 (UJ)	0.712 (J)	—	0.619 (U)	3.96	—	—	5720	—	244 (J+)	—	—	—	—	1.86 (U)	—	—
RE02-07-2085	02-600487	0–0.5	SOIL	—	—	—	—	0.493 (U)	—	—	—	—	—	—	0.67 (J)	—	—	—	—	—	—
RE02-07-2086	02-600487	4.5–7.5	QAL	—	—	—	—	0.525 (U)	—	—	—	—	—	—	—	—	0.847 (J-)	—	1.58 (U)	—	—
RE02-07-2088	02-600487	15–19	QBO	8930	—	0.69 (J)	—	0.566 (U)	7.86	—	—	5210 (J)	—	192 (J+)	—	—	—	—	0.689 (J)	—	—
RE02-07-2090	02-600488	0–0.5	SOIL	—	—	—	—	0.503 (U)	35.5 (J)	—	—	—	—	—	0.408 (J)	—	—	—	—	—	—
RE02-07-2091	02-600488	4.5–8	QAL	—	—	—	—	0.525 (U)	—	—	—	—	—	—	—	—	1.04 (J)	—	1.57 (U)	—	—
RE02-07-2093	02-600488	14.5–19	QBO	9800	—	1.78 (J)	39.1 (J-)	0.598 (U)	8.69 (J)	—	—	6840	—	473 (J)	—	2.85	—	—	0.873 (J)	6.72	—
RE02-10-21859	02-612374	5–6	SOIL	—	—	—	—	0.512 (U)	—	—	NA[h]	—	—	—	—	—	NA	NA	—	—	—
RE02-10-21860	02-612374	15–16	QBO	7300	1.37 (U)	0.896 (J)	53.4	0.683 (U)	6.35	—	NA	8890	—	283	—	3.08	NA	NA	1.32 (U)	10.3	—
RE02-10-21861	02-612374	25–26	QBO	—	1.12 (U)	1.29 (U)	—	0.562 (U)	—	—	NA	5560	—	216 (J-)	—	—	NA	NA	1.29 (U)	—	—
RE02-10-21862	02-612374	35–36	QBO	—	—	1.21 (U)	—	0.617 (U)	—	—	NA	5100	—	—	—	—	NA	NA	1.21 (U)	—	—
RE02-10-21863	02-612374	49–50	QBO	—	0.539 (J)	1.25 (U)	—	0.648 (U)	—	—	NA	5890	—	213 (J-)	—	—	NA	NA	1.25 (U)	—	—

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

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

[b] na = Not available.

[c] SSLs are from NMED (2009, 108070), unless otherwise noted.

[d] SSLs are for hexavalent chromium.

[e] SSLs are from EPA regional screening tables (http://www.epa.gov.earth1r6/6pd/rcra_c/pd-n/screen.htm).

[f] SSLs are from LANL (2010, 108613).

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

[h] NA = Not analyzed.

Table 6.31-3
Organic Chemicals Detected at AOC 02-012

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	Chloroform	Chrysene	Dibenzofuran	Dichlorobenzene[1,4-]
Industrial SSL[a]				**36700**	**183000**	**8.26**	**8.26**	**23.4**	**2.34**	**23.4**	**18300**[b]	**31.9**	**2340**	**1000**[c]	**180**
Recreational SSL[d]				**20800**	**104000**	**6.65**	**10.5**	**30.1**	**3.01**	**30.1**	**10400**[b]	**224**	**3010**	**399**	**1260**
Residential SSL[a]				**3440**	**17200**	**1.12**	**2.22**	**6.21**	**0.621**	**6.21**	**1720**[b]	**5.72**	**621**	**78**[c]	**32.2**
RE02-07-1727	02-600418	0–0.5	SOIL	0.0379	0.0533	NA[e]	NA	0.0932	0.0973	0.151	—[f]	NA	0.0938	—	—
RE02-07-1728	02-600418	4.5–9	QAL	—	0.0273 (J)	NA	NA	0.107	0.0963	0.165	0.0508	—	0.115	—	0.000252 (J)
RE02-07-1732	02-600419	0–0.5	SOIL	0.181	0.282	NA	NA	0.477	0.537	0.787	0.186	NA	0.466	0.109 (J)	—
RE02-07-1733	02-600419	4.5–9	QAL	0.152	0.207	NA	NA	0.313	0.345	0.562	0.134	—	0.359	0.108 (J)	—
RE02-07-1735	02-600419	9–16	QBO	—	—	NA	NA	—	—	—	—	—	—	—	—
RE02-07-1737	02-600420	0–0.5	SOIL	0.0287 (J)	0.0481	NA	NA	0.147	0.166	0.271	0.0818	NA	0.141	—	—
RE02-07-1738	02-600420	4.5–9	QAL	0.0443 (J)	0.0846	NA	NA	0.226	0.273	0.502	0.115	—	0.298	—	—
RE02-07-1740	02-600420	9–14	QBO	—	—	NA	NA	—	—	—	—	—	—	—	—
RE02-07-1893	02-600452	0–0.5	SOIL	—	0.00779 (J)	NA	NA	0.044	0.043 (J)	0.0681 (J)	—	NA	0.0491	—	—
RE02-07-1894	02-600452	4.5–10	QAL	—	—	NA	NA	—	—	—	—	—	—	—	—
RE02-07-1897	02-600452	10–15	QAL	—	—	NA	NA	—	—	—	—	—	—	—	—
RE02-07-1896	02-600452	15–20	QBO	—	—	NA	NA	—	—	—	—	—	—	—	—
RE02-07-1898	02-600453	0–0.5	SOIL	—	—	NA	NA	—	0.0216 (J)	0.0406	—	NA	0.024 (J)	—	—
RE02-07-1899	02-600453	4.5–10	QAL	—	0.0157 (J)	NA	NA	0.13	0.123	0.151	0.0642	—	0.129	—	—
RE02-07-1901	02-600453	10–20	QBO	—	—	NA	NA	0.0177 (J)	0.0143 (J)	0.0161 (J)	—	—	0.018 (J)	—	—
RE02-07-1903	02-600454	0–0.5	SOIL	—	0.0105 (J)	NA	NA	0.09	0.103	0.165	0.0647 (J)	NA	0.114	—	—
RE02-07-1908	02-600455	0–0.5	SOIL	0.026 (J)	0.0373	NA	NA	—	0.127	0.229	0.0552	NA	0.112	—	—
RE02-07-1909	02-600455	4.5–10	QAL	—	—	NA	NA	—	—	—	—	—	—	—	—
RE02-07-1911	02-600455	10–17	QBO	—	—	NA	NA	—	—	—	—	—	—	—	—
RE02-07-2075	02-600485	0–0.5	SOIL	0.0371	0.0631	NA	NA	0.161	—	0.253 (J)	—	NA	0.151	—	—
RE02-07-2076	02-600485	4.5–12	QAL	—	0.0334 (J)	NA	NA	0.092	0.164 (J)	0.141 (J)	0.0791 (J)	—	0.0935	—	—
RE02-07-2078	02-600485	14–19	QBO	—	—	NA	NA	—	—	—	—	0.000245 (J)	—	—	—
RE02-07-2080	02-600486	0–0.5	SOIL	0.0238 (J)	0.0644	NA	NA	0.331	0.298 (J)	0.593 (J)	—	NA	0.349	—	—
RE02-07-2081	02-600486	4.5–9	QAL	—	—	NA	NA	0.0142 (J)	—	0.0112 (J)	—	—	—	—	—
RE02-07-2085	02-600487	0–0.5	SOIL	0.0116 (J)	0.0254 (J)	NA	NA	0.162 (J)	—	0.325 (J)	—	NA	0.168 (J)	—	—
RE02-07-2086	02-600487	4.5–7.5	QAL	—	—	NA	NA	0.0289 (J-)	0.0164 (J-)	0.0255 (J-)	—	—	0.025 (J-)	—	—
RE02-07-2088	02-600487	15–19	QBO	—	—	NA	NA	—	—	—	—	—	—	—	—
RE02-07-2090	02-600488	0–0.5	SOIL	0.0761	0.118	NA	NA	0.2	0.244 (J)	0.397 (J)	—	NA	0.193	—	—
RE02-07-2091	02-600488	4.5–8	QAL	—	—	NA	NA	—	—	—	—	—	—	—	—
RE02-07-2093	02-600488	14.5–19	QBO	—	—	NA	NA	—	—	—	—	—	—	—	—
RE02-10-21859	02-612374	5–6	SOIL	—	—	0.0027 (J)	0.0019 (J)	—	—	—	—	NA	—	—	—
RE02-10-21860	02-612374	15–16	QBO	—	—	—	0.0027 (J)	—	—	—	—	NA	—	—	—

Table 6.31-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Di-n-butylphthalate	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Methylene Chloride	Methylnaphthalene[2-]	Naphthalene	Phenanthrene	Pyrene	TPH-DRO	Trichloroethene
Industrial SSL[a]				**68400**	**24400**	**24400**	**23.4**	**1090**	**4100[c]**	**252**	**20500**	**18300**	**1120[g]**	**253**
Recreational SSL[d]				**39900**	**13900**	**13900**	**30.1**	**4520**	**3170**	**1950**	**12000**	**10400**	**na**	**1450**
Residential SSL[a]				**6110**	**2290**	**2290**	**6.21**	**199**	**310[c]**	**45**	**1830**	**1720**	**520[g]**	**45.7**
RE02-07-1727	02-600418	0–0.5	SOIL	—	0.201	0.0347 (J)	—	NA	0.0262 (J)	0.0445	0.19	0.225	12.4 (J)	NA
RE02-07-1728	02-600418	4.5–9	QAL	—	0.304	—	—	—	—	—	0.112	0.22	42.4	—
RE02-07-1732	02-600419	0–0.5	SOIL	—	1.03	0.164	0.189	NA	0.0975	0.213	0.977	0.968	18.4	NA
RE02-07-1733	02-600419	4.5–9	QAL	—	0.783	0.144	—	—	0.14	0.381	0.753	0.757	15.5 (J)	—
RE02-07-1735	02-600419	9–16	QBO	—	—	—	—	0.00416 (J)	—	—	—	—	1.82 (J)	—
RE02-07-1737	02-600420	0–0.5	SOIL	—	0.268	0.0214 (J)	—	NA	0.0106 (J)	0.0188 (J)	0.177	0.292	26.7	NA
RE02-07-1738	02-600420	4.5–9	QAL	—	0.59	—	0.101	0.00217 (J)	—	0.0328 (J)	0.296	0.603	30.6 (J)	—
RE02-07-1740	02-600420	9–14	QBO	—	0.0184 (J)	—	—	0.00251 (J)	—	—	—	0.0169 (J)	—	—
RE02-07-1893	02-600452	0–0.5	SOIL	0.0385 (J)	0.103	—	—	NA	—	—	0.0392	0.105	17.3	NA
RE02-07-1894	02-600452	4.5–10	QAL	—	—	—	—	—	—	—	—	—	2.07 (J)	—
RE02-07-1897	02-600452	10–15	QAL	—	—	—	—	0.00249 (J)	—	—	—	—	4.47 (J)	—
RE02-07-1896	02-600452	15–20	QBO	—	—	—	—	—	—	—	—	—	3.36 (J)	—
RE02-07-1898	02-600453	0–0.5	SOIL	0.037 (J)	0.0419	—	—	NA	—	—	0.015 (J)	0.0387	4.91	NA
RE02-07-1899	02-600453	4.5–10	QAL	—	0.157	—	0.0638	—	—	—	0.0284 (J)	0.116	3.91	—
RE02-07-1901	02-600453	10–20	QBO	—	0.0207 (J)	—	—	—	—	—	—	0.0147 (J)	2.13 (J)	—
RE02-07-1903	02-600454	0–0.5	SOIL	—	0.248	—	0.0686 (J)	NA	—	—	0.0678	0.173	—	NA
RE02-07-1908	02-600455	0–0.5	SOIL	—	0.248	0.0194 (J)	0.0562	NA	0.0135 (J)	0.0111 (J)	0.16	0.244	16.7 (J)	NA
RE02-07-1909	02-600455	4.5–10	QAL	—	—	—	—	0.00233 (J)	—	—	—	—	—	—
RE02-07-1911	02-600455	10–17	QBO	—	—	—	—	0.00235 (J)	—	—	—	—	—	—
RE02-07-2075	02-600485	0–0.5	SOIL	—	0.26	0.0314 (J)	—	NA	0.0171 (J)	0.036	0.212	0.41	20.3 (J)	NA
RE02-07-2076	02-600485	4.5–12	QAL	—	0.142	—	0.087 (J)	—	—	0.0147 (J)	0.0803	0.176	9.21	—
RE02-07-2078	02-600485	14–19	QBO	—	—	—	—	—	—	—	—	—	1.72 (J)	—
RE02-07-2080	02-600486	0–0.5	SOIL	0.049 (J)	0.445	0.0171 (J)	—	NA	—	—	0.204	0.7	74.7	NA
RE02-07-2081	02-600486	4.5–9	QAL	0.0678 (J)	0.0156 (J)	—	—	—	—	—	—	0.0147 (J)	1.89 (J)	—
RE02-07-2085	02-600487	0–0.5	SOIL	—	0.203	—	—	NA	—	—	0.0887	0.403 (J)	128	NA
RE02-07-2086	02-600487	4.5–7.5	QAL	—	0.0398 (J-)	—	—	—	—	—	0.0155 (J-)	0.046 (J-)	10.5	0.000635 (J)
RE02-07-2088	02-600487	15–19	QBO	0.0536 (J)	—	—	—	—	—	—	—	—	2.23 (J)	—
RE02-07-2090	02-600488	0–0.5	SOIL	—	0.353	0.0659	0.103 (J)	NA	0.0505	0.173	0.388	0.571	16.8 (J)	NA
RE02-07-2091	02-600488	4.5–8	QAL	—	—	—	—	—	—	—	—	—	3.55 (J)	—
RE02-07-2093	02-600488	14.5–19	QBO	—	—	—	—	—	—	—	—	—	1.39 (J)	—

Table 6.31-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Di-n-butylphthalate	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Methylene Chloride	Methylnaphthalene[2-]	Naphthalene	Phenanthrene	Pyrene	TPH-DRO	Trichloroethene
Industrial SSL[a]				**68400**	**24400**	**24400**	**23.4**	**1090**	**4100[c]**	**252**	**20500**	**18300**	**1120[g]**	**253**
Recreational SSL[d]				**39900**	**13900**	**13900**	**30.1**	**4520**	**3170**	**1950**	**12000**	**10400**	**na**	**1450**
Residential SSL[a]				**6110**	**2290**	**2290**	**6.21**	**199**	**310[c]**	**45**	**1830**	**1720**	**520[g]**	**45.7**
RE02-10-21859	02-612374	5–6	SOIL	—	—	—	—	NA	—	—	—	—	—	NA
RE02-10-21860	02-612374	15–16	QBO	—	—	—	—	NA	—	—	—	—	—	NA

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

[a] SSLs are from NMED (2009, 108070), unless otherwise noted.

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

[c] SSLs are from EPA regional screening tables (http://www.epa.gov.earth1r6/6pd/rcra_c/pd-n/screen.htm).

[d] SSLs are from LANL (2010, 108613).

[e] NA = Not analyzed.

[f] — = Not detected.

[g] Screening guidelines for diesel range organics from NMED (2006, 094614).

Table 6.31-4
Radionuclides Detected or Detected above BVs/FVs at AOC 02-012

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Plutonium-239/240	Tritium	Uranium-235/236
Qbt 1g, Qct, Qbo BV[a]				**na**[b]	**na**	**na**	**0.18**
Soil BV[a]				**0.013**	**0.054**	**na**	**0.2**
Industrial SAL[c]				**180**	**210**	**440000**	**87**
Recreational SAL[c]				**280**	**300**	**5300000**	**520**
Residential SAL[c]				**30**	**33**	**750**	**17**
RE02-07-1728	02-600418	4.5–9	QAL	—[d]	—	0.12736 (J-)	—
RE02-07-1733	02-600419	4.5–9	QAL	—	—	0.445743 (J-)	—
RE02-07-1738	02-600420	4.5–9	QAL	—	0.228 (J-)	0.0320994	—
RE02-07-1894	02-600452	4.5–10	QAL	—	—	0.3182 (J-)	NA[e]
RE02-07-1898	02-600453	0–0.5	SOIL	—	—	0.00970954	NA
RE02-07-1899	02-600453	4.5–10	QAL	0.0987	—	0.19748 (J-)	NA
RE02-07-1904	02-600454	4.5–9.5	QAL	—	—	0.0559978 (J-)	NA
RE02-07-1909	02-600455	4.5–10	QAL	—	—	0.0708144 (J-)	NA
RE02-07-2075	02-600485	0–0.5	SOIL	—	—	0.00772217	—
RE02-07-2076	02-600485	4.5–12	QAL	—	—	0.0205725	—
RE02-07-2080	02-600486	0–0.5	SOIL	—	—	0.00584615	—
RE02-07-2083	02-600486	16–21	QBO	—	—	—	0.193
RE02-07-2090	02-600488	0–0.5	SOIL	—	—	0.00598471	—
RE02-07-2091	02-600488	4.5–8	QAL	—	—	0.0397656	—
RE02-10-21859	02-612374	5–6	SOIL	NA	—	0.362727	—

Notes: Results are in pCi/g. Data qualifiers are defined in Appendix A.
[a] BVs/FVs are from LANL (1998, 059730).
[b] na = Not available.
[c] SALs from LANL (2009, 107655).
[e] — = Not detected.
[f] NA = Not analyzed.

Table 6.32-1
Samples Collected and Analyses Requested for Lateral Extent of Contamination of TA-02 Core Area

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Gamma-emitting Radionuclides	Tritium	Hexavalent Chromium	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Strontium-90	SVOCs	Cyanide (Total)
RE02-10-21937	02-612394	0–0.5	SOIL	10-3980	10-3980	10-3980	10-3979	10-3980	10-3980	10-3979	10-3978	10-3980	10-3978	10-3979
RE02-10-21938	02-612394	4–5	SOIL	10-4026	10-4026	10-4026	10-4025	10-4026	10-4026	10-4025	10-4024	10-4026	10-4024	10-4025
RE02-10-21939	02-612394	9–10	QBT 1G	10-4026	10-4026	10-4026	10-4025	10-4026	10-4026	10-4025	10-4024	10-4026	10-4024	10-4025
RE02-10-21940	02-612395	0–0.5	SOIL	10-3980	10-3980	10-3980	10-3979	10-3980	10-3980	10-3979	10-3978	10-3980	10-3978	10-3979
RE02-10-21941	02-612395	4–5	SOIL	10-4026	10-4026	10-4026	10-4025	10-4026	10-4026	10-4025	10-4024	10-4026	10-4024	10-4025
RE02-10-21942	02-612395	9–10	QBT 1G	10-4026	10-4026	10-4026	10-4025	10-4026	10-4026	10-4025	10-4024	10-4026	10-4024	10-4025
RE02-10-21943	02-612396	0–0.5	SOIL	10-3980	10-3980	10-3980	10-3979	10-3980	10-3980	10-3979	10-3978	10-3980	10-3978	10-3979
RE02-10-21944	02-612396	4–5	QBT 1G	10-4026	10-4026	10-4026	10-4025	10-4026	10-4026	10-4025	10-4024	10-4026	10-4024	10-4025
RE02-10-21945	02-612396	9–10	QBT 1G	10-4026	10-4026	10-4026	10-4025	10-4026	10-4026	10-4025	10-4024	10-4026	10-4024	10-4025
RE02-10-21946	02-612397	0–0.5	SOIL	10-4036	10-4036	10-4036	10-4035	10-4036	10-4036	10-4035	10-4034	10-4036	10-4034	10-4035
RE02-10-21947	02-612397	4–5	SOIL	10-4036	10-4036	10-4036	10-4035	10-4036	10-4036	10-4035	10-4034	10-4036	10-4034	10-4035
RE02-10-21948	02-612397	9–10	SOIL	10-4036	10-4036	10-4036	10-4035	10-4036	10-4036	10-4035	10-4034	10-4036	10-4034	10-4035
RE02-10-21949	02-612398	0–0.5	SOIL	10-4036	10-4036	10-4036	10-4035	10-4036	10-4036	10-4035	10-4034	10-4036	10-4034	10-4035
RE02-10-21950	02-612398	4–5	SOIL	10-4036	10-4036	10-4036	10-4035	10-4036	10-4036	10-4035	10-4034	10-4036	10-4034	10-4035
RE02-10-21951	02-612398	9–10	SOIL	10-4036	10-4036	10-4036	10-4035	10-4036	10-4036	10-4035	10-4034	10-4036	10-4034	10-4035
RE02-10-21952	02-612399	0–0.5	SOIL	10-4088	10-4088	10-4088	10-4087	10-4088	10-4088	10-4087	10-4087	10-4088	10-4087	10-4087
RE02-10-21953	02-612399	4–5	SOIL	10-4088	10-4088	10-4088	10-4087	10-4088	10-4088	10-4087	10-4087	10-4088	10-4087	10-4087
RE02-10-21954	02-612399	9–10	SOIL	10-4088	10-4088	10-4088	10-4087	10-4088	10-4088	10-4087	10-4087	10-4088	10-4087	10-4087
RE02-10-21955	02-612400	0–0.5	SOIL	10-4088	10-4088	10-4088	10-4087	10-4088	10-4088	10-4087	10-4087	10-4088	10-4087	10-4087
RE02-10-21956	02-612400	4–5	SOIL	10-4088	10-4088	10-4088	10-4087	10-4088	10-4088	10-4087	10-4087	10-4088	10-4087	10-4087
RE02-10-21957	02-612400	9–10	SOIL	10-4088	10-4088	10-4088	10-4087	10-4088	10-4088	10-4087	10-4087	10-4088	10-4087	10-4087
RE02-10-21958	02-612401	0–0.5	SOIL	10-4088	10-4088	10-4088	10-4087	10-4088	10-4088	10-4087	10-4087	10-4088	10-4087	10-4087
RE02-10-21959	02-612401	4–5	SOIL	10-4088	10-4088	10-4088	10-4087	10-4088	10-4088	10-4087	10-4087	10-4088	10-4087	10-4087
RE02-10-21960	02-612401	9–10	SOIL	10-4086	10-4086	10-4086	10-4085	10-4086	10-4086	10-4085	10-4085	10-4086	10-4085	10-4085
RE02-10-21961	02-612402	0–0.5	SOIL	10-4086	10-4086	10-4086	10-4085	10-4086	10-4086	10-4085	10-4085	10-4086	10-4085	10-4085
RE02-10-21962	02-612402	4–5	QBT 1G	10-4086	10-4086	10-4086	10-4085	10-4086	10-4086	10-4085	10-4085	10-4086	10-4085	10-4085
RE02-10-21963	02-612402	9–10	QBT 1G	10-4086	10-4086	10-4086	10-4085	10-4086	10-4086	10-4085	10-4085	10-4086	10-4085	10-4085
RE02-10-21964	02-612403	0–0.5	SOIL	10-4086	10-4086	10-4086	10-4085	10-4086	10-4086	10-4085	10-4085	10-4086	10-4085	10-4085
RE02-10-21965	02-612403	4–5	QAL	10-4798	10-4798	10-4798	10-4798	10-4798	10-4798	10-4798	10-4798	10-4798	10-4798	10-4798
RE02-10-21966	02-612403	9–10	QAL	10-4798	10-4798	10-4798	10-4798	10-4798	10-4798	10-4798	10-4798	10-4798	10-4798	10-4798
RE02-10-21967	02-612404	0–0.5	SOIL	10-4086	10-4086	10-4086	10-4085	10-4086	10-4086	10-4085	10-4085	10-4086	10-4085	10-4085
RE02-10-21968	02-612404	4–5	QAL	10-4817	10-4817	10-4817	10-4816	10-4817	10-4817	10-4816	10-4814	10-4817	10-4814	10-4816
RE02-10-21969	02-612404	9–10	QAL	10-4817	10-4817	10-4817	10-4816	10-4817	10-4817	10-4816	10-4814	10-4817	10-4814	10-4816
RE02-10-21970	02-612405	0–0.5	SOIL	10-4126	10-4126	10-4126	10-4126	10-4126	10-4126	10-4126	10-4126	10-4126	10-4126	10-4126
RE02-10-21971	02-612405	4–5	SOIL	10-4126	10-4126	10-4126	10-4126	10-4126	10-4126	10-4126	10-4126	10-4126	10-4126	10-4126
RE02-10-21972	02-612405	9–10	QBT 1G	10-4126	10-4126	10-4126	10-4126	10-4126	10-4126	10-4126	10-4126	10-4126	10-4126	10-4126

Table 6.32-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Gamma-emitting Radionuclides	Tritium	Hexavalent Chromium	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Strontium-90	SVOCs	Cyanide (Total)
RE02-10-21973	02-612406	0–0.5	SOIL	10-4150	10-4150	10-4150	10-4150	10-4150	10-4150	10-4150	10-4150	10-4150	10-4150	10-4150
RE02-10-21974	02-612406	4–5	SOIL	10-4150	10-4150	10-4150	10-4150	10-4150	10-4150	10-4150	10-4150	10-4150	10-4150	10-4150
RE02-10-21975	02-612406	9–10	SOIL	10-4150	10-4150	10-4150	10-4150	10-4150	10-4150	10-4150	10-4150	10-4150	10-4150	10-4150
RE02-10-21976	02-612407	0–0.5	SOIL	10-4163	10-4163	10-4163	10-4162	10-4163	10-4163	10-4162	10-4162	10-4163	10-4162	10-4162
RE02-10-21977	02-612407	4–5	SOIL	10-4163	10-4163	10-4163	10-4162	10-4163	10-4163	10-4162	10-4162	10-4163	10-4162	10-4162
RE02-10-21978	02-612407	9–10	SOIL	10-4163	10-4163	10-4163	10-4162	10-4163	10-4163	10-4162	10-4162	10-4163	10-4162	10-4162
RE02-10-21979	02-612408	0–0.5	SOIL	10-4248	10-4248	10-4248	10-4248	10-4248	10-4248	10-4248	10-4248	10-4248	10-4248	10-4248
RE02-10-21980	02-612408	4–5	QCT	10-4248	10-4248	10-4248	10-4248	10-4248	10-4248	10-4248	10-4248	10-4248	10-4248	10-4248
RE02-10-21981	02-612408	9–10	QCT	10-4266	10-4266	10-4266	10-4266	10-4266	10-4266	10-4266	10-4266	10-4266	10-4266	10-4266
RE02-10-21982	02-612409	0–0.5	SOIL	10-4387	10-4387	10-4387	10-4386	10-4387	10-4387	10-4386	10-4386	10-4387	10-4386	10-4386
RE02-10-21983	02-612409	4–5	SOIL	10-4387	10-4387	10-4387	10-4386	10-4387	10-4387	10-4386	10-4386	10-4387	10-4386	10-4386
RE02-10-21984	02-612409	9–10	SOIL	10-4387	10-4387	10-4387	10-4386	10-4387	10-4387	10-4386	10-4386	10-4387	10-4386	10-4386
RE02-10-21985	02-612410	0–0.5	SOIL	10-4387	10-4387	10-4387	10-4386	10-4387	10-4387	10-4386	10-4386	10-4387	10-4386	10-4386
RE02-10-21986	02-612410	4–5	QCT	10-4398	10-4398	10-4398	10-4397	10-4398	10-4398	10-4397	10-4396	10-4398	10-4396	10-4397
RE02-10-21987	02-612410	9–10	QCT	10-4398	10-4398	10-4398	10-4397	10-4398	10-4398	10-4397	10-4396	10-4398	10-4396	10-4397
RE02-10-21988	02-612411	0–0.5	SOIL	10-4398	10-4398	10-4398	10-4397	10-4398	10-4398	10-4397	10-4396	10-4398	10-4396	10-4397
RE02-10-21989	02-612411	4–5	QAL	10-4398	10-4398	10-4398	10-4397	10-4398	10-4398	10-4397	10-4396	10-4398	10-4396	10-4397
RE02-10-21990	02-612411	9–10	QAL	10-4398	10-4398	10-4398	10-4397	10-4398	10-4398	10-4397	10-4396	10-4398	10-4396	10-4397
RE02-10-21991	02-612412	0–0.5	SOIL	10-4398	10-4398	10-4398	10-4397	10-4398	10-4398	10-4397	10-4396	10-4398	10-4396	10-4397
RE02-10-21992	02-612412	4–5	QAL	10-4398	10-4398	10-4398	10-4397	10-4398	10-4398	10-4397	10-4396	10-4398	10-4396	10-4397
RE02-10-21993	02-612412	9–10	QCT	10-4398	10-4398	10-4398	10-4397	10-4398	10-4398	10-4397	10-4396	10-4398	10-4396	10-4397
RE02-10-21994	02-612413	0–0.5	SOIL	10-4398	10-4398	10-4398	10-4397	10-4398	10-4398	10-4397	10-4396	10-4398	10-4396	10-4397
RE02-10-21995	02-612413	4–5	QAL	10-4420	10-4420	10-4420	10-4420	10-4420	10-4420	10-4420	10-4420	10-4420	10-4420	10-4420
RE02-10-21996	02-612413	9–10	QAL	10-4420	10-4420	10-4420	10-4420	10-4420	10-4420	10-4420	10-4420	10-4420	10-4420	10-4420
RE02-10-21997	02-612414	0–0.5	SOIL	10-4518	10-4518	10-4518	10-4518	10-4518	10-4518	10-4518	10-4518	10-4518	10-4518	10-4518
RE02-10-21998	02-612414	4–5	SOIL	10-4518	10-4518	10-4518	10-4518	10-4518	10-4518	10-4518	10-4518	10-4518	10-4518	10-4518
RE02-10-21999	02-612414	9–10	SOIL	10-4570	10-4570	10-4570	10-4570	10-4570	10-4570	10-4570	10-4570	10-4570	10-4570	10-4570
RE02-10-22000	02-612415	0–0.5	SOIL	10-4817	10-4817	10-4817	10-4816	10-4817	10-4817	10-4816	10-4814	10-4817	10-4814	10-4816
RE02-10-22001	02-612415	4–5	QAL	11-40	11-40	11-40	11-39	11-40	11-40	11-39	11-38	11-40	11-38	11-39
RE02-10-22002	02-612415	9–10	SOIL	11-60	11-60	11-60	11-60	11-60	11-60	11-60	11-60	11-60	11-60	11-60
RE02-10-22003	02-612416	0–0.5	SOIL	10-4817	10-4817	10-4817	10-4816	10-4817	10-4817	10-4816	10-4814	10-4817	10-4814	10-4816
RE02-10-22004	02-612416	4–5	QAL	11-40	11-40	11-40	11-39	11-40	11-40	11-39	11-38	11-40	11-38	11-39
RE02-10-22005	02-612416	9–10	SOIL	11-60	11-60	11-60	11-60	11-60	11-60	11-60	11-60	11-60	11-60	11-60
RE02-10-22006	02-612417	0–0.5	SOIL	11-40	11-40	11-40	11-39	11-40	11-40	11-39	11-38	11-40	11-38	11-39
RE02-10-22007	02-612417	4–5	SOIL	11-40	11-40	11-40	11-39	11-40	11-40	11-39	11-38	11-40	11-38	11-39
RE02-10-22008	02-612417	9–10	SOIL	11-123	11-123	11-123	11-123	11-123	11-123	11-123	11-123	11-123	11-123	11-123

Table 6.32-2
Inorganic Chemicals above BVs for Lateral Extent of Contamination of TA-02 Core Area

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Hexavalent Chromium	Copper	Cyanide (Total)	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
Qbt 1g, Qct, Qbo BV[a]				**3560**	**0.5**	**0.56**	**25.7**	**1.44**	**0.4**	**1900**	**2.6**	**na[b]**	**3.96**	**0.5**	**3700**	**13.5**	**739**	**189**	**0.1**	**2**	**0.3**	**1**	**1.22**	**4.59**	**40**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**1.83**	**0.4**	**6120**	**19.3**	**na**	**14.7**	**0.5**	**21500**	**22.3**	**4610**	**671**	**0.1**	**15.4**	**1.52**	**1**	**0.73**	**39.6**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**2260**	**1120**	**na**	**2920[d]**	**2920**	**45400**	**22700**	**795000**	**800**	**na**	**145000**	**310[e]**	**22700**	**5680**	**5680**	**74.9**	**5680**	**341000**
Recreational SSL[f]				**791000**	**317**	**27.7**	**158000**	**1580**	**784**	**na**	**1910[d]**	**1910**	**31700**	**15800**	**554000**	**560**	**na**	**110000**	**238**	**15800**	**3960**	**3960**	**52.3**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**156**	**77.9**	**na**	**219[d]**	**219**	**3130**	**1560**	**54800**	**400**	**na**	**10700**	**23[e]**	**1560**	**391**	**391**	**5.16**	**391**	**23500**
RE02-10-21937	02-612394	0–0.5	SOIL	—[g]	1.22 (U)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-10-21938	02-612394	4–5	SOIL	—	0.979 (U)	—	—	—	0.489 (U)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-10-21939	02-612394	9–10	QBT 1G	4580	0.888 (U)	0.713 (J)	37.2	—	0.444 (U)	—	8.89	—	—	—	8060	—	861	235	—	4.18	1.04 (U)	—	—	7.91	—
RE02-10-21940	02-612395	0–0.5	SOIL	—	1.23 (U)	—	—	—	—	—	—	—	—	—	—	22.4	—	—	—	—	—	—	—	—	—
RE02-10-21941	02-612395	4–5	SOIL	—	1.02 (U)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-10-21942	02-612395	9–10	QBT 1G	3660	1.02 (U)	—	—	—	—	—	5.2	—	—	—	7090	—	785	295	—	2.42	0.992 (U)	—	—	5.86	54.7 (J-)
RE02-10-21943	02-612396	0–0.5	SOIL	—	1.17 (U)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-10-21944	02-612396	4–5	QBT 1G	9880	0.965 (U)	—	33.6	1.5	0.483 (U)	—	5.81	—	4.2	—	7950	—	1240	190	—	2.81	1.05 (U)	—	—	9.37	—
RE02-10-21945	02-612396	9–10	QBT 1G	8600	—	—	25.8	1.62	—	—	25.3	—	—	—	6620	—	1190	—	—	3.63	1.09 (U)	—	—	7.6	—
RE02-10-21946	02-612397	0–0.5	SOIL	—	—	—	—	—	—	—	31 (J)	—	—	—	—	29.3	—	—	—	—	—	—	—	—	57.1
RE02-10-21947	02-612397	4–5	SOIL	—	1.02 (U)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-10-21948	02-612397	9–10	SOIL	—	0.977 (U)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-10-21949	02-612398	0–0.5	SOIL	—	1.03 (U)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-10-21950	02-612398	4–5	SOIL	—	1.02 (U)	—	—	—	0.508 (U)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-10-21951	02-612398	9–10	SOIL	—	—	—	—	—	0.504 (U)	—	30.2 (J)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-10-21952	02-612399	0–0.5	SOIL	—	1.12 (U)	—	—	—	0.562 (U)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-10-21953	02-612399	4–5	SOIL	—	0.874 (U)	—	—	—	0.437 (U)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-10-21954	02-612399	9–10	SOIL	—	0.973 (U)	—	—	—	0.486 (U)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-10-21955	02-612400	0–0.5	SOIL	—	1.13 (U)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-10-21956	02-612400	4–5	SOIL	—	—	—	—	—	0.502 (U)	—	31.5	—	—	0.828	—	—	—	—	—	—	—	—	—	—	—
RE02-10-21957	02-612400	9–10	SOIL	—	1.03 (U)	—	—	—	0.513 (U)	—	20.8	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-10-21958	02-612401	0–0.5	SOIL	—	1.11 (U)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-10-21959	02-612401	4–5	SOIL	—	1 (U)	—	—	—	0.502 (U)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-10-21960	02-612401	9–10	SOIL	—	0.939 (U)	—	—	—	0.469 (U)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-10-21961	02-612402	0–0.5	SOIL	—	1.13 (U)	—	—	—	—	—	—	—	—	—	—	27.7	—	—	—	—	—	—	—	—	52.5
RE02-10-21962	02-612402	4–5	QBT 1G	—	0.977 (U)	—	—	—	0.488 (U)	—	3.18	—	—	—	5740	—	—	234	—	—	1.01 (U)	—	—	—	—
RE02-10-21963	02-612402	9–10	QBT 1G	—	0.92 (U)	—	26.4	—	0.46 (U)	—	—	—	—	—	6480	—	—	294	—	—	0.905 (U)	—	—	5.21	45
RE02-10-21964	02-612403	0–0.5	SOIL	—	1.1 (U)	—	—	—	—	—	—	—	—	—	—	—	—	—	0.138	—	—	—	—	—	—

Table 6.32-2 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Hexavalent Chromium	Copper	Cyanide (Total)	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
Qbt 1g, Qct, Qbo BV[a]				**3560**	**0.5**	**0.56**	**25.7**	**1.44**	**0.4**	**1900**	**2.6**	**na[b]**	**3.96**	**0.5**	**3700**	**13.5**	**739**	**189**	**0.1**	**2**	**0.3**	**1**	**1.22**	**4.59**	**40**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**1.83**	**0.4**	**6120**	**19.3**	**na**	**14.7**	**0.5**	**21500**	**22.3**	**4610**	**671**	**0.1**	**15.4**	**1.52**	**1**	**0.73**	**39.6**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**2260**	**1120**	**na**	**2920[d]**	**2920**	**45400**	**22700**	**795000**	**800**	**na**	**145000**	**310[e]**	**22700**	**5680**	**5680**	**74.9**	**5680**	**341000**
Recreational SSL[f]				**791000**	**317**	**27.7**	**158000**	**1580**	**784**	**na**	**1910[d]**	**1910**	**31700**	**15800**	**554000**	**560**	**na**	**110000**	**238**	**15800**	**3960**	**3960**	**52.3**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**156**	**77.9**	**na**	**219[d]**	**219**	**3130**	**1560**	**54800**	**400**	**na**	**10700**	**23[e]**	**1560**	**391**	**391**	**5.16**	**391**	**23500**
RE02-10-21965	02-612403	4–5	QAL	—	1.05 (U)	—	—	—	0.526 (U)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-10-21967	02-612404	0–0.5	SOIL	—	1.35 (U)	—	—	—	—	—	—	—	—	—	—	33.7	—	—	0.113	—	—	—	—	—	70
RE02-10-21968	02-612404	4–5	QAL	—	1.02 (U)	—	—	—	0.512 (U)	—	—	0.186 (J)	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-10-21969	02-612404	9–10	QAL	—	1.07 (U)	—	—	—	0.536 (U)	—	—	0.192 (J)	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-10-21970	02-612405	0–0.5	SOIL	—	1.1 (U)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	49.6
RE02-10-21971	02-612405	4–5	SOIL	—	0.913 (U)	—	—	—	0.456 (U)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-10-21972	02-612405	9–10	QBT 1G	—	1 (U)	—	34.7	—	—	2600 (J+)	4.07	—	—	—	7510	—	—	355	—	—	0.986 (U)	—	—	5.28	48.9
RE02-10-21973	02-612406	0–0.5	SOIL	—	1.03 (U)	—	—	—	—	—	—	—	—	—	—	—	—	—	1.5	—	—	—	—	—	—
RE02-10-21974	02-612406	4–5	SOIL	—	1.03 (U)	—	—	—	0.515 (U)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-10-21975	02-612406	9–10	SOIL	—	1.01 (U)	—	—	—	0.505 (U)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-10-21976	02-612407	0–0.5	SOIL	—	1.16 (U)	—	—	—	0.578 (U)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-10-21977	02-612407	4–5	SOIL	—	0.945 (U)	—	—	—	0.473 (U)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-10-21978	02-612407	9–10	SOIL	—	0.997 (U)	—	—	—	0.498 (U)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-10-21979	02-612408	0–0.5	SOIL	—	1.16 (U)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	68.7
RE02-10-21980	02-612408	4–5	QCT	4280	1.04 (U)	0.614 (J)	39.6	—	0.521 (U)	4120 (J+)	—	—	—	—	6020	—	—	195 (J+)	—	—	1.02 (U)	—	—	—	—
RE02-10-21981	02-612408	9–10	QCT	7910	1.07 (U)	—	106	—	0.533 (U)	—	4.62	—	—	—	4290	—	—	—	—	—	1.07 (U)	—	—	—	—
RE02-10-21982	02-612409	0–0.5	SOIL	—	1.17 (U)	—	—	—	0.586 (U)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-10-21983	02-612409	4–5	SOIL	—	0.997 (U)	—	—	—	0.499 (U)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-10-21984	02-612409	9–10	SOIL	—	1.01 (U)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.982 (U)	—	—
RE02-10-21985	02-612410	0–0.5	SOIL	—	1.18 (U)	—	—	—	—	—	—	—	—	0.518	—	—	—	—	—	—	—	—	—	—	—
RE02-10-21986	02-612410	4–5	QCT	8460	5.34 (U)	0.986 (J)	35.1	1.74	0.534 (U)	1970 (J-)	16.4	—	4.02	—	16600	—	1200 (J+)	355	—	5.1	1.05 (U)	—	—	16.5	68
RE02-10-21987	02-612410	9–10	QCT	13300	1.14 (U)	1.26	75.1	1.67	0.57 (U)	—	29	—	4.64	—	6240	—	900 (J+)	240	—	4.66	1.14 (U)	—	—	6.97	—
RE02-10-21988	02-612411	0–0.5	SOIL	—	1.17 (U)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-10-21989	02-612411	4–5	QAL	—	0.968 (U)	—	—	—	0.484 (U)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-10-21990	02-612411	9–10	QAL	—	1 (U)	—	—	—	0.502 (U)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	53.2
RE02-10-21991	02-612412	0–0.5	SOIL	—	1.08 (U)	—	—	—	0.541 (U)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	53.5
RE02-10-21992	02-612412	4–5	QAL	—	1.05 (U)	—	—	2.46	0.523 (U)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	62.2
RE02-10-21993	02-612412	9–10	QCT	6510	1.07 (U)	0.777 (J)	63.2	2.04	—	—	17.1	—	4.36	—	5320	—	1230 (J+)	297	—	5.15	1.08 (U)	—	—	6.63	78.2
RE02-10-21994	02-612413	0–0.5	SOIL	—	1.06 (U)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.53	—	—	49
RE02-10-21995	02-612413	4–5	QAL	—	1.02 (U)	—	—	—	0.512 (U)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-10-21996	02-612413	9–10	QAL	—	4.82 (U)	—	—	—	0.482 (U)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Table 6.32-2 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Hexavalent Chromium	Copper	Cyanide (Total)	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
Qbt 1g, Qct, Qbo BV[a]				**3560**	**0.5**	**0.56**	**25.7**	**1.44**	**0.4**	**1900**	**2.6**	**na[b]**	**3.96**	**0.5**	**3700**	**13.5**	**739**	**189**	**0.1**	**2**	**0.3**	**1**	**1.22**	**4.59**	**40**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**1.83**	**0.4**	**6120**	**19.3**	**na**	**14.7**	**0.5**	**21500**	**22.3**	**4610**	**671**	**0.1**	**15.4**	**1.52**	**1**	**0.73**	**39.6**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**2260**	**1120**	**na**	**2920[d]**	**2920**	**45400**	**22700**	**795000**	**800**	**na**	**145000**	**310[e]**	**22700**	**5680**	**5680**	**74.9**	**5680**	**341000**
Recreational SSL[f]				**791000**	**317**	**27.7**	**158000**	**1580**	**784**	**na**	**1910[d]**	**1910**	**31700**	**15800**	**554000**	**560**	**na**	**110000**	**238**	**15800**	**3960**	**3960**	**52.3**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**156**	**77.9**	**na**	**219[d]**	**219**	**3130**	**1560**	**54800**	**400**	**na**	**10700**	**23[e]**	**1560**	**391**	**391**	**5.16**	**391**	**23500**
RE02-10-21997	02-612414	0–0.5	SOIL	—	0.99 (U)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-10-21998	02-612414	4–5	SOIL	—	1.04	—	—	—	—	—	—	—	—	—	—	48.5	—	—	—	—	—	—	—	—	66.1 (J)
RE02-10-21999	02-612414	9–10	SOIL	—	1.02 (U)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	52.5
RE02-10-22000	02-612415	0–0.5	SOIL	—	1.08 (U)	—	—	—	0.538 (U)	—	—	—	—	—	—	—	—	—	0.92	—	—	—	—	—	—
RE02-10-22001	02-612415	4–5	QAL	—	1.04 (U)	—	—	—	—	—	—	—	—	—	—	—	—	—	0.184	—	—	—	—	—	—
RE02-10-22002	02-612415	9–10	SOIL	—	4.99 (UJ)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-10-22003	02-612416	0–0.5	SOIL	—	1.06 (U)	—	—	—	—	—	—	—	—	—	—	—	—	—	0.127	—	—	—	—	—	148
RE02-10-22004	02-612416	4–5	QAL	—	1.05 (U)	—	—	—	0.524 (U)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-10-22005	02-612416	9–10	SOIL	—	5.57 (UJ)	—	—	—	—	—	—	—	—	—	—	—	—	1130	—	—	—	—	—	—	—
RE02-10-22006	02-612417	0–0.5	SOIL	—	1.01 (U)	—	—	—	0.506 (U)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-10-22007	02-612417	4–5	SOIL	—	0.99 (U)	—	—	—	0.495 (U)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-10-22008	02-612417	9–10	SOIL	—	1.01 (U)	—	—	—	0.504 (U)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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

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

[b] na = Not available.

[c] SSLs are from NMED (2009, 108070), unless otherwise noted.

[d] SSLs are for hexavalent chromium.

[e] SSLs are from EPA regional screening tables (http://www.epa.gov.earth1r6/6pd/rcra_c/pd-n/screen.htm).

[f] SSLs are from LANL (2010, 108613).

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

Table 6.32-3
Organic Chemicals Detected for Lateral Extent of Contamination of TA-02 Core Area

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Anthracene	Aroclor-1242	Aroclor-1254	Aroclor-1260	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Benzoic Acid	Chrysene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Methylnaphthalene[2-]	Naphthalene	Phenanthrene	Pyrene
Industrial SSL[a]				**36700**	**183000**	**8.26**	**8.26**	**8.26**	**23.4**	**2.34**	**23.4**	**18300[b]**	**234**	**2500000[c]**	**2340**	**24400**	**24400**	**23.4**	**4100[c]**	**252**	**20500**	**18300**
Recreational SSL[d]				**20800**	**104000**	**10.5**	**6.65**	**10.5**	**30.1**	**3.01**	**30.1**	**10400[b]**	**301**	**1590000**	**3010**	**13900**	**13900**	**30.1**	**3170**	**1950**	**12000**	**10400**
Residential SSL[a]				**3440**	**17200**	**2.22**	**1.12**	**2.22**	**6.21**	**0.621**	**6.21**	**1720[b]**	**62.1**	**240000[c]**	**621**	**2290**	**2290**	**6.21**	**310[c]**	**45**	**1830**	**1720**
RE02-10-21937	02-612394	0–0.5	SOIL	—[e]	0.0124 (J)	—	0.0117	0.0152	0.0463	0.0429	0.0684	0.0221 (J)	0.0228 (J)	—	0.0534	0.122	—	0.0227 (J)	—	—	0.0659	0.115
RE02-10-21940	02-612395	0–0.5	SOIL	—	0.00881 (J)	—	0.011	0.0139	0.0381 (J)	0.0378 (J)	0.0544	0.0216 (J)	0.0232 (J)	—	0.0465	0.0954	—	0.0218 (J)	—	—	0.0531	0.0902
RE02-10-21941	02-612395	4–5	SOIL	—	—	—	—	—	—	—	—	—	—	0.514 (J)	—	—	—	—	—	—	—	—
RE02-10-21943	02-612396	0–0.5	SOIL	—	—	—	0.0041	0.0053	0.0122 (J)	—	0.0122 (J)	—	—	—	—	0.0216 (J)	—	—	—	—	0.0127 (J)	0.0181 (J)
RE02-10-21946	02-612397	0–0.5	SOIL	—	0.015 (J)	—	0.05	0.0466	—	0.0621	0.111	—	—	0.705 (J)	0.0732	0.173	—	—	—	—	0.0883	0.138
RE02-10-21949	02-612398	0–0.5	SOIL	—	—	—	0.0044	0.0048	—	—	0.0147 (J)	—	—	0.56 (J)	—	0.023 (J)	—	—	—	—	—	0.0162 (J)
RE02-10-21952	02-612399	0–0.5	SOIL	—	—	—	—	—	—	—	0.0245 (J)	—	—	—	0.0171 (J)	0.0257 (J)	—	—	—	—	0.0135 (J)	0.0273 (J)
RE02-10-21955	02-612400	0–0.5	SOIL	—	—	—	—	—	—	0.0158 (J)	0.0312 (J)	—	—	—	0.0175 (J)	0.0292 (J)	—	—	—	—	0.0168 (J)	0.0309 (J)
RE02-10-21958	02-612401	0–0.5	SOIL	—	—	—	—	—	—	0.0128 (J)	0.0188 (J)	—	—	—	0.0135 (J)	0.0185 (J)	—	—	—	—	0.0145 (J)	0.0218 (J)
RE02-10-21961	02-612402	0–0.5	SOIL	—	—	—	—	—	—	0.0284 (J)	0.0352 (J)	—	—	—	—	0.0361 (J)	—	—	—	—	—	0.0443 (J)
RE02-10-21964	02-612403	0–0.5	SOIL	0.0311 (J)	0.0528 (J)	—	0.13	0.0962	0.142	0.132	0.262	0.0728 (J)	—	—	0.142	0.25	—	0.0672 (J)	—	—	0.207	0.312
RE02-10-21965	02-612403	4–5	QAL	—	—	—	0.0107	0.007	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-10-21966	02-612403	9–10	QAL	—	—	—	0.0048	0.0033 (J)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-10-21967	02-612404	0–0.5	SOIL	—	—	—	0.142	0.11	—	0.226 (J)	0.375 (J)	—	—	—	0.201 (J)	0.355 (J)	—	—	—	—	0.261 (J)	0.425 (J)
RE02-10-21969	02-612404	9–10	QAL	—	—	—	—	0.0013 (J)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-10-21970	02-612405	0–0.5	SOIL	—	—	—	0.0041	0.0055	0.0116 (J)	—	0.0158 (J)	—	—	—	—	0.0135 (J)	—	—	0.0313 (J)	0.0199 (J)	0.0196 (J)	0.0143 (J)
RE02-10-21973	02-612406	0–0.5	SOIL	—	0.0127 (J)	—	0.0079	0.008	0.0538	0.0588	0.117	0.0364 (J)	—	0.532 (J)	0.0727	0.109	—	0.0312 (J)	—	—	0.0694	0.117
RE02-10-21976	02-612407	0–0.5	SOIL	—	—	0.0062	0.0308	0.0129	—	—	0.0156 (J)	—	—	—	—	0.0232 (J)	—	—	—	—	0.0149 (J)	0.0283 (J)
RE02-10-21979	02-612408	0–0.5	SOIL	—	—	—	0.00868	0.081	0.0178 (J)	—	0.0241 (J)	—	—	—	0.017 (J)	0.0363 (J+)	—	—	—	—	0.0154 (J)	0.0312 (J)
RE02-10-21980	02-612408	4–5	QCT	—	—	—	—	0.002 (J)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-10-21981	02-612408	9–10	QCT	—	—	—	—	0.002 (J)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-10-21982	02-612409	0–0.5	SOIL	—	0.00817 (J)	—	0.0723	0.141	0.0533	0.0568	0.0848	0.0358 (J)	—	—	0.0665	0.133	—	0.0323 (J)	—	—	0.0584	0.154
RE02-10-21983	02-612409	4–5	SOIL	—	—	—	—	0.0016 (J)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-10-21984	02-612409	9–10	SOIL	—	—	—	—	0.0032 (J)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-10-21985	02-612410	0–0.5	SOIL	—	—	—	0.0099	0.0174	—	—	—	—	—	—	0.015 (J)	0.0323 (J)	—	—	—	—	0.0161 (J)	0.0433
RE02-10-21988	02-612411	0–0.5	SOIL	—	—	—	0.0247	0.0318	—	—	0.127 (J)	0.0285 (J)	—	—	0.136 (J)	0.199 (J)	—	—	—	—	0.0495 (J)	0.202 (J)
RE02-10-21991	02-612412	0–0.5	SOIL	—	—	—	0.0082	0.0053	—	—	0.0132 (J)	—	—	—	—	0.018 (J)	—	—	—	—	—	0.0143 (J)
RE02-10-21993	02-612412	9–10	QCT	—	—	—	0.0302	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Table 6.32-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Anthracene	Aroclor-1242	Aroclor-1254	Aroclor-1260	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Benzoic Acid	Chrysene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Methylnaphthalene[2-]	Naphthalene	Phenanthrene	Pyrene
Industrial SSL[a]				**36700**	**183000**	**8.26**	**8.26**	**8.26**	**23.4**	**2.34**	**23.4**	**18300[b]**	**234**	**2500000[c]**	**2340**	**24400**	**24400**	**23.4**	**4100[c]**	**252**	**20500**	**18300**
Recreational SSL[d]				**20800**	**104000**	**10.5**	**6.65**	**10.5**	**30.1**	**3.01**	**30.1**	**10400[b]**	**301**	**1590000**	**3010**	**13900**	**13900**	**30.1**	**3170**	**1950**	**12000**	**10400**
Residential SSL[a]				**3440**	**17200**	**2.22**	**1.12**	**2.22**	**6.21**	**0.621**	**6.21**	**1720[b]**	**62.1**	**240000[c]**	**621**	**2290**	**2290**	**6.21**	**310[c]**	**45**	**1830**	**1720**
RE02-10-21994	02-612413	0–0.5	SOIL	—	—	—	0.0088	0.0133	0.0251 (J)	0.0194 (J)	0.0277 (J)	0.0133 (J)	—	—	0.0223 (J)	0.0291 (J)	—	—	0.128	0.0823	0.0496	0.0248 (J)
RE02-10-21997	02-612414	0–0.5	SOIL	0.0194 (J)	0.0304 (J)	—	—	1.05	—	0.151	0.196	0.121	—	—	0.174	0.288	0.0172 (J)	0.0965	—	—	0.187	0.317
RE02-10-21998	02-612414	4–5	SOIL	—	—	—	—	0.423	—	—	—	—	—	—	—	0.0155 (J)	—	—	—	—	—	0.0155 (J)
RE02-10-21999	02-612414	9–10	SOIL	—	—	—	—	0.263	—	0.0143 (J)	0.0219 (J)	—	—	—	0.0133 (J)	0.029 (J)	—	—	—	—	0.0143 (J)	0.0265 (J)
RE02-10-22000	02-612415	0–0.5	SOIL	—	—	—	0.0081	0.004	0.0221 (J)	0.0152 (J)	0.0229 (J)	—	—	—	0.0178 (J)	0.0345 (J)	—	—	—	—	0.0156 (J)	0.0334 (J)
RE02-10-22001	02-612415	4–5	QAL	—	—	—	0.0069	0.0031 (J)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-10-22003	02-612416	0–0.5	SOIL	—	—	—	0.0152	0.006	0.02 (J)	0.017 (J)	0.0227 (J)	—	—	—	0.0174 (J)	0.0325 (J)	—	—	—	—	0.0132 (J)	0.0318 (J)
RE02-10-22004	02-612416	4–5	QAL	—	—	—	0.0014 (J)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE02-10-22006	02-612417	0–0.5	SOIL	—	—	—	0.0107	0.0103	—	—	0.0111 (J)	0.0118 (J)	—	—	—	0.0177 (J)	—	—	—	—	—	0.0212 (J)
RE02-10-22007	02-612417	4–5	SOIL	—	—	—	0.0019 (J)	0.0015 (J)	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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

[a] SSLs are from NMED (2009, 108070), unless otherwise noted.

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

[c] SSLs are from EPA regional screening tables (http://www.epa.gov.earth1r6/6pd/rcra_c/pd-n/screen.htm).

[d] SSLs are from LANL (2010, 108613).

[e] — = Not detected.

Table 6.32-4
Radionuclides Detected or Detected above BVs/FVs for Lateral Extent of Contamination of TA-02 Core Area

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-137	Plutonium-238	Plutonium-239/240	Strontium-90	Tritium	Uranium-235/236	Uranium-238
Qbt 1g, Qct, Qbo BV[a]				**na**[b]	**na**	**na**	**na**	**na**	**na**	**0.18**	**3.9**
Soil BV[a]				**0.013**	**1.65**	**0.023**	**0.054**	**1.31**	**na**	**0.2**	**2.29**
Industrial SAL[c]				**180**	**23**	**240**	**210**	**1900**	**440000**	**87**	**430**
Recreational SAL[c]				**280**	**210**	**330**	**300**	**5600**	**5300000**	**520**	**2100**
Residential SAL[c]				**30**	**5.6**	**37**	**33**	**5.7**	**750**	**17**	**87**
RE02-10-21937	02-612394	0–0.5	SOIL	0.0224	—[d]	—	0.284	—	—	—	—
RE02-10-21938	02-612394	4–5	SOIL	—	—	—	—	—	0.0141019	—	—
RE02-10-21939	02-612394	9–10	QBT 1G	—	—	—	—	—	0.018904	—	—
RE02-10-21940	02-612395	0–0.5	SOIL	0.0227	1.83	—	0.251	—	—	—	2.42
RE02-10-21941	02-612395	4–5	SOIL	—	—	—	—	—	0.00562449	—	—
RE02-10-21942	02-612395	9–10	QBT 1G	—	—	—	—	—	0.00767148	—	—
RE02-10-21943	02-612396	0–0.5	SOIL	—	—	—	0.091	—	—	—	—
RE02-10-21944	02-612396	4–5	QBT 1G	—	—	—	—	—	0.00846774	—	—
RE02-10-21945	02-612396	9–10	QBT 1G	—	—	—	—	—	0.0249627	—	—
RE02-10-21946	02-612397	0–0.5	SOIL	0.0314	2.21	—	0.273	—	0.0611493	0.202	2.97
RE02-10-21948	02-612397	9–10	SOIL	—	—	—	—	—	0.0102515	—	—
RE02-10-21949	02-612398	0–0.5	SOIL	0.0237	—	—	0.17	—	—	0.202	2.61
RE02-10-21950	02-612398	4–5	SOIL	—	—	—	—	—	0.00732468	—	—
RE02-10-21951	02-612398	9–10	SOIL	—	—	—	—	—	0.0150429	—	—
RE02-10-21952	02-612399	0–0.5	SOIL	—	—	—	0.0648	—	—	—	—
RE02-10-21953	02-612399	4–5	SOIL	—	—	—	—	—	0.00871181	—	—
RE02-10-21954	02-612399	9–10	SOIL	—	—	—	—	—	0.0111153	—	—
RE02-10-21955	02-612400	0–0.5	SOIL	0.0182	—	—	0.169	—	0.0300987	—	2.33
RE02-10-21957	02-612400	9–10	SOIL	—	0.0696	—	—	—	—	—	—
RE02-10-21958	02-612401	0–0.5	SOIL	—	—	—	0.145	—	—	—	2.4 (J+)
RE02-10-21959	02-612401	4–5	SOIL	—	—	—	—	—	0.0120064	—	—
RE02-10-21960	02-612401	9–10	SOIL	—	—	—	—	—	0.027095	—	—
RE02-10-21961	02-612402	0–0.5	SOIL	0.0368	—	—	0.35	—	—	0.221	3.24
RE02-10-21962	02-612402	4–5	QBT 1G	—	—	—	—	—	0.0100759	—	—
RE02-10-21963	02-612402	9–10	QBT 1G	—	—	—	—	—	0.00600619	—	—
RE02-10-21964	02-612403	0–0.5	SOIL	—	—	—	1.14	—	—	—	—
RE02-10-21965	02-612403	4–5	QAL	—	0.324	—	0.111	—	—	—	—
RE02-10-21966	02-612403	9–10	QAL	—	0.131	—	0.117	—	—	—	—

Table 6.32-4 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-137	Plutonium-238	Plutonium-239/240	Strontium-90	Tritium	Uranium-235/236	Uranium-238
Qbt 1g, Qct, Qbo BV[a]				**na[b]**	**na**	**na**	**na**	**na**	**na**	**0.18**	**3.9**
Soil BV[a]				**0.013**	**1.65**	**0.023**	**0.054**	**1.31**	**na**	**0.2**	**2.29**
Industrial SAL[c]				**180**	**23**	**240**	**210**	**1900**	**440000**	**87**	**430**
Recreational SAL[c]				**280**	**210**	**330**	**300**	**5600**	**5300000**	**520**	**2100**
Residential SAL[c]				**30**	**5.6**	**37**	**33**	**5.7**	**750**	**17**	**87**
RE02-10-21967	02-612404	0–0.5	SOIL	0.0426	—	—	1.82	—	—	—	—
RE02-10-21968	02-612404	4–5	QAL	—	0.36	—	0.637	0.447	—	—	—
RE02-10-21969	02-612404	9–10	QAL	—	0.361	—	0.0265	0.644	—	—	—
RE02-10-21971	02-612405	4–5	SOIL	—	0.149	—	—	—	—	—	—
RE02-10-21972	02-612405	9–10	QBT 1G	—	0.0788	—	—	—	0.0215633	—	—
RE02-10-21976	02-612407	0–0.5	SOIL	—	—	—	1.16	—	—	—	—
RE02-10-21977	02-612407	4–5	SOIL	—	—	—	0.0579	—	—	—	—
RE02-10-21979	02-612408	0–0.5	SOIL	—	—	0.707	0.0721	—	—	—	—
RE02-10-21982	02-612409	0–0.5	SOIL	—	—	—	0.0619 (J+)	—	—	—	2.6
RE02-10-21985	02-612410	0–0.5	SOIL	—	—	—	0.129	—	—	—	—
RE02-10-21986	02-612410	4–5	QCT	—	—	—	—	—	0.0128396	—	—
RE02-10-21988	02-612411	0–0.5	SOIL	0.0239	—	—	0.236	—	—	—	2.31
RE02-10-21989	02-612411	4–5	QAL	—	—	—	—	—	0.00321819	—	—
RE02-10-21991	02-612412	0–0.5	SOIL	—	—	—	0.0723	—	—	—	—
RE02-10-21992	02-612412	4–5	QAL	—	—	—	—	—	0.0154917	—	—
RE02-10-21993	02-612412	9–10	QCT	—	—	—	—	—	0.0359022	—	—
RE02-10-21994	02-612413	0–0.5	SOIL	—	—	—	0.572	—	—	—	—
RE02-10-21996	02-612413	9–10	QAL	—	—	—	0.0204	—	0.00384615	—	—
RE02-10-21997	02-612414	0–0.5	SOIL	—	—	—	0.433	—	—	—	—
RE02-10-21998	02-612414	4–5	SOIL	0.0227	0.174	—	1.29	—	—	—	—
RE02-10-21999	02-612414	9–10	SOIL	—	0.142	—	1.2	—	—	—	—
RE02-10-22000	02-612415	0–0.5	SOIL	—	—	—	0.137	—	—	—	—
RE02-10-22001	02-612415	4–5	QAL	0.159	—	0.0196	2.05	—	—	—	—
RE02-10-22002	02-612415	9–10	SOIL	—	0.109	—	0.0344	—	—	—	—
RE02-10-22003	02-612416	0–0.5	SOIL	—	—	—	0.289	—	—	—	—
RE02-10-22005	02-612416	9–10	SOIL	—	—	—	0.0283	—	—	—	—
RE02-10-22007	02-612417	4–5	SOIL	—	—	—	0.0219	—	—	—	—

Notes: Results are in pCi/g. Data qualifiers are defined in Appendix A.
[a] BVs/FVs are from LANL (1998, 059730).
[b] na = Not available.
[c] SALs from LANL (2009, 107655).
[d] — = Not detected.

Table 7.2-1
Samples Collected and Analyses Requested at Consolidated Unit 21-006(e)-99

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Dioxins/Furans	Gamma-emitting Radionuclides	Tritium	Explosive Compounds	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	VOCs	Cyanide (Total)
RE21-07-6466	21-602919	2–3	SOIL	07-1002	07-1002	—*	07-1002	07-1002	—	07-1002	07-1002	07-1002	—	07-1002	07-1002	07-1002	07-1002	07-1002
RE21-07-6467	21-602919	7–8	SOIL	07-1002	07-1002	—	07-1002	07-1002	—	07-1002	07-1002	07-1002	—	07-1002	07-1002	07-1002	07-1002	07-1002
RE21-07-6468	21-602919	12–13	QBT 3	07-1002	07-1002	—	07-1002	07-1002	—	07-1002	07-1002	07-1002	—	07-1002	07-1002	07-1002	07-1002	07-1002
RE21-07-6884	21-602919	12–13	QBT 3	—	—	08-4	—	—	07-1172	—	—	—	07-1172	—	—	—	—	—
RE21-07-6469	21-602920	2–3	QBT 3	07-1119	07-1118	—	07-1119	07-1119	—	07-1119	07-1119	07-1118	—	07-1118	07-1119	07-1117	07-1117	07-1118
RE21-07-6470	21-602920	7–8	QBT 3	07-1119	07-1118	—	07-1119	07-1119	—	07-1119	07-1119	07-1118	—	07-1118	07-1119	07-1117	07-1117	07-1118
RE21-07-6471	21-602920	12–13	QBT 3	07-1119	07-1118	—	07-1119	07-1119	—	07-1119	07-1119	07-1118	—	07-1118	07-1119	07-1117	07-1117	07-1118
RE21-07-6472	21-602921	2–3	QBT 3	07-1119	07-1118	—	07-1119	07-1119	—	07-1119	07-1119	07-1118	—	07-1118	07-1119	07-1117	07-1117	07-1118
RE21-07-6473	21-602921	7–8	QBT 3	07-1119	07-1118	—	07-1119	07-1119	—	07-1119	07-1119	07-1118	—	07-1118	07-1119	07-1117	07-1117	07-1118
RE21-07-6474	21-602921	12–13	QBT 3	07-1119	07-1118	—	07-1119	07-1119	—	07-1119	07-1119	07-1118	—	07-1118	07-1119	07-1117	07-1117	07-1118
RE21-07-6475	21-602922	2–3	QBT 3	07-1119	07-1118	—	07-1119	07-1119	—	07-1119	07-1119	07-1118	—	07-1118	07-1119	07-1117	07-1117	07-1118
RE21-07-6476	21-602922	7–8	QBT 3	07-1119	07-1118	—	07-1119	07-1119	—	07-1119	07-1119	07-1118	—	07-1118	07-1119	07-1117	07-1117	07-1118
RE21-07-6477	21-602922	12–13	QBT 3	07-1119	07-1118	—	07-1119	07-1119	—	07-1119	07-1119	07-1118	—	07-1118	07-1119	07-1117	07-1117	07-1118
RE21-07-6478	21-602923	2–3	QBT 3	07-1119	07-1118	—	07-1119	07-1119	—	07-1119	07-1119	07-1118	—	07-1118	07-1119	07-1117	07-1117	07-1118
RE21-07-6479	21-602923	7–8	QBT 3	07-1119	07-1118	—	07-1119	07-1119	—	07-1119	07-1119	07-1118	—	07-1118	07-1119	07-1117	07-1117	07-1118
RE21-07-6480	21-602923	12–13	QBT 3	07-1119	07-1118	—	07-1119	07-1119	—	07-1119	07-1119	07-1118	—	07-1118	07-1119	07-1117	07-1117	07-1118
RE21-07-6481	21-602924	2–3	QBT 3	07-1122	07-1121	—	07-1122	07-1122	—	07-1122	07-1122	07-1121	—	07-1121	07-1122	07-1120	07-1120	07-1121
RE21-07-6482	21-602924	7–8	QBT 3	07-1122	07-1121	—	07-1122	07-1122	—	07-1122	07-1122	07-1121	—	07-1121	07-1122	07-1120	07-1120	07-1121
RE21-07-6483	21-602924	12–13	QBT 3	07-1122	07-1121	—	07-1122	07-1122	—	07-1122	07-1122	07-1121	—	07-1121	07-1122	07-1120	07-1120	07-1121
RE21-07-6484	21-602925	2–3	QBT 3	07-1129	07-1127	—	07-1129	07-1129	—	07-1129	07-1129	07-1127	—	07-1127	07-1129	07-1128	07-1128	07-1127
RE21-07-6485	21-602925	7–8	QBT 3	07-1129	07-1127	—	07-1129	07-1129	—	07-1129	07-1129	07-1127	—	07-1127	07-1129	07-1128	07-1128	07-1127
RE21-07-6486	21-602925	12–13	QBT 3	07-1129	07-1127	—	07-1129	07-1129	—	07-1129	07-1129	07-1127	—	07-1127	07-1129	07-1128	07-1128	07-1127
RE21-07-6487	21-602926	2–3	QBT 3	07-1129	07-1127	—	07-1129	07-1129	—	07-1129	07-1129	07-1127	—	07-1127	07-1129	07-1128	07-1128	07-1127
RE21-07-6488	21-602926	7–8	QBT 3	07-1129	07-1127	—	07-1129	07-1129	—	07-1129	07-1129	07-1127	—	07-1127	07-1129	07-1128	07-1128	07-1127
RE21-07-6489	21-602926	12–13	QBT 3	07-1129	07-1127	—	07-1129	07-1129	—	07-1129	07-1129	07-1127	—	07-1127	07-1129	07-1128	07-1128	07-1127
RE21-07-6490	21-602927	2–3	SOIL	07-1122	07-1121	—	07-1122	07-1122	—	07-1122	07-1122	07-1121	—	07-1121	07-1122	07-1120	07-1120	07-1121
RE21-07-6491	21-602927	7–8	QBT 3	07-1122	07-1121	—	07-1122	07-1122	—	07-1122	07-1122	07-1121	—	07-1121	07-1122	07-1120	07-1120	07-1121
RE21-07-6492	21-602927	12–13	QBT 3	07-1122	07-1121	—	07-1122	07-1122	—	07-1122	07-1122	07-1121	—	07-1121	07-1122	07-1120	07-1120	07-1121
RE21-07-6493	21-602928	2–3	QBT 3	07-1129	07-1127	—	07-1129	07-1129	—	07-1129	07-1129	07-1127	—	07-1127	07-1129	07-1128	07-1128	07-1127
RE21-07-6494	21-602928	7–8	QBT 3	07-1129	07-1127	—	07-1129	07-1129	—	07-1129	07-1129	07-1127	—	07-1127	07-1129	07-1128	07-1128	07-1127
RE21-07-6495	21-602928	12–13	QBT 3	07-1129	07-1127	—	07-1129	07-1129	—	07-1129	07-1129	07-1127	—	07-1127	07-1129	07-1128	07-1128	07-1127
RE21-07-6496	21-602929	2–3	QBT 3	07-1129	07-1127	—	07-1129	07-1129	—	07-1129	07-1129	07-1127	—	07-1127	07-1129	07-1128	07-1128	07-1127
RE21-07-6497	21-602929	7–8	QBT 3	07-1129	07-1127	—	07-1129	07-1129	—	07-1129	07-1129	07-1127	—	07-1127	07-1129	07-1128	07-1128	07-1127
RE21-07-6498	21-602929	12–13	QBT 3	07-1129	07-1127	—	07-1129	07-1129	—	07-1129	07-1129	07-1127	—	07-1127	07-1129	07-1128	07-1128	07-1127

Table 7.2-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Dioxins/Furans	Gamma-emitting Radionuclides	Tritium	Explosive Compounds	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	VOCs	Cyanide (Total)
RE21-07-6499	21-602930	2–3	QBT 3	07-1122	07-1121	—	07-1122	07-1122	—	07-1122	07-1122	07-1121	—	07-1121	07-1122	07-1120	07-1120	07-1121
RE21-07-6500	21-602930	7–8	QBT 3	07-1122	07-1121	—	07-1122	07-1122	—	07-1122	07-1122	07-1121	—	07-1121	07-1122	07-1120	07-1120	07-1121
RE21-07-6501	21-602930	12–13	QBT 3	07-1122	07-1121	—	07-1122	07-1122	—	07-1122	07-1122	07-1121	—	07-1121	07-1122	07-1120	07-1120	07-1121
RE21-07-6502	21-602931	2–3	QBT 3	07-1129	07-1127	—	07-1129	07-1129	—	07-1129	07-1129	07-1127	—	07-1127	07-1129	07-1128	07-1128	07-1127
RE21-07-6503	21-602931	7–8	QBT 3	07-1129	07-1127	—	07-1129	07-1129	—	07-1129	07-1129	07-1127	—	07-1127	07-1129	07-1128	07-1128	07-1127
RE21-07-6504	21-602931	12–13	QBT 3	07-1129	07-1127	—	07-1129	07-1129	—	07-1129	07-1129	07-1127	—	07-1127	07-1129	07-1128	07-1128	07-1127
RE21-07-6505	21-602932	2–3	QBT 3	07-1129	07-1127	—	07-1129	07-1129	—	07-1129	07-1129	07-1127	—	07-1127	07-1129	07-1128	07-1128	07-1127
RE21-07-6506	21-602932	7–8	QBT 3	07-1129	07-1127	—	07-1129	07-1129	—	07-1129	07-1129	07-1127	—	07-1127	07-1129	07-1128	07-1128	07-1127
RE21-07-6507	21-602932	12–13	QBT 3	07-1129	07-1127	—	07-1129	07-1129	—	07-1129	07-1129	07-1127	—	07-1127	07-1129	07-1128	07-1128	07-1127
RE21-07-6508	21-602933	2–3	QBT 3	07-1122	07-1121	—	07-1122	07-1122	—	07-1122	07-1122	07-1121	—	07-1121	07-1122	07-1120	07-1120	07-1121
RE21-07-6509	21-602933	7–8	QBT 3	07-1122	07-1121	—	07-1122	07-1122	—	07-1122	07-1122	07-1121	—	07-1121	07-1122	07-1120	07-1120	07-1121
RE21-07-6510	21-602933	12–13	QBT 3	07-1122	07-1121	—	07-1122	07-1122	—	07-1122	07-1122	07-1121	—	07-1121	07-1122	07-1120	07-1120	07-1121
MD21-10-21629	21-612318	5–6	QBT 3	—	—	—	—	10-3913	—	10-3913	10-3913	10-3940	10-3940	—	—	—	—	—
MD21-10-21630	21-612318	15–16	QBT 3	—	—	—	—	10-3913	—	10-3913	10-3913	10-3940	10-3940	—	—	—	—	—
MD21-10-21631	21-612318	24–25	QBT 3	—	—	—	—	10-3913	—	10-3913	10-3913	10-3940	10-3940	—	—	—	—	—
MD21-10-21632	21-612319	5–6	QBT 3	—	—	—	—	10-3912	—	10-3912	10-3912	10-3939	10-3939	—	—	—	—	—
MD21-10-21633	21-612319	15–16	QBT 3	—	—	—	—	10-3912	—	10-3912	10-3912	10-3939	10-3939	—	—	—	—	—
MD21-10-21634	21-612319	24–25	QBT 3	—	—	—	—	10-3912	—	10-3912	10-3912	10-3939	10-3939	—	—	—	—	—
MD21-10-21637	21-612320	5–6	QBT 3	10-3885	—	—	—	—	—	10-3885	10-3885	10-3884	10-3883	—	—	—	—	—
MD21-10-21638	21-612320	15–16	QBT 3	10-3885	—	—	—	—	—	10-3885	10-3885	10-3884	10-3883	—	—	—	—	—
MD21-10-21639	21-612320	24–25	QBT 3	10-3885	—	—	—	—	—	10-3885	10-3885	10-3884	10-3883	—	—	—	—	—
MD21-10-21640	21-612321	5–6	QBT 3	10-3912	—	—	—	—	—	10-3912	10-3912	10-3939	10-3939	—	—	—	—	—
MD21-10-21641	21-612321	15–16	QBT 3	10-3912	—	—	—	—	—	10-3912	10-3912	10-3939	10-3939	—	—	—	—	—
MD21-10-21642	21-612321	24–25	QBT 3	10-3912	—	—	—	—	—	10-3912	10-3912	10-3939	10-3939	—	—	—	—	—
MD21-10-21643	21-612322	5–6	QBT 3	10-3912	—	—	—	—	—	10-3912	10-3912	10-3939	10-3939	—	—	—	—	—
MD21-10-21644	21-612322	15–16	QBT 3	10-3912	—	—	—	—	—	10-3912	10-3912	10-3939	10-3939	—	—	—	—	—
MD21-10-21645	21-612322	24–25	QBT 3	10-3912	—	—	—	—	—	10-3912	10-3912	10-3939	10-3939	—	—	—	—	—
MD21-10-21646	21-612323	5–6	QBT 3	10-3885	—	—	—	—	—	10-3885	10-3885	10-3884	10-3883	—	—	—	—	—
MD21-10-21647	21-612323	15–16	QBT 3	10-3885	—	—	—	—	—	10-3885	10-3885	10-3884	10-3883	—	—	—	—	—
MD21-10-21648	21-612323	24–25	QBT 3	10-3885	—	—	—	—	—	10-3885	10-3885	10-3884	10-3883	—	—	—	—	—
MD21-10-21649	21-612324	5–6	FILL	10-3913	—	—	—	—	—	10-3913	10-3913	10-3940	10-3940	—	—	—	—	—
MD21-10-21650	21-612324	15–16	QBT 3	10-3913	—	—	—	—	—	10-3913	10-3913	10-3940	10-3940	—	—	—	—	—
MD21-10-21651	21-612324	24–25	QBT 3	10-3913	—	—	—	—	—	10-3913	10-3913	10-3940	10-3940	—	—	—	—	—

* — = Analysis not requested.

Table 7.2-2
Inorganic Chemicals above BVs at Consolidated Unit 21-006(e)-99

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Calcium	Chromium	Cobalt	Copper	Cyanide (Total)	Lead	Magnesium	Manganese	Mercury	Nickel	Nitrate	Selenium	Zinc
Qbt 2, 3, 4 BV[a]				**7340**	**0.5**	**2.79**	**46**	**2200**	**7.14**	**3.14**	**4.66**	**0.5**	**11.2**	**1690**	**482**	**0.1**	**6.58**	**na[b]**	**0.3**	**63.5**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**6120**	**19.3**	**8.64**	**14.7**	**0.5**	**22.3**	**4610**	**671**	**0.1**	**15.4**	**na**	**1.52**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**na**	**2920[d]**	**300[e]**	**45400**	**22700**	**800**	**na**	**145000**	**310[e]**	**22700**	**1820000**	**5680**	**341000**
Recreational SSL[f]				**791000**	**317**	**27.7**	**158000**	**na**	**1910[d]**	**238**	**31700**	**15800**	**560**	**na**	**110000**	**238**	**15800**	**1260000**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**na**	**219[d]**	**23[e]**	**3130**	**1560**	**400**	**na**	**10700**	**23[e]**	**1560**	**125000**	**391**	**23500**
RE21-07-6466	21-602919	2–3	SOIL	—[g]	0.84 (J-)	—	—	18100	—	—	—	0.55 (U)	22.5	—	—	0.151	—	1.1	—	86 (J-)
RE21-07-6467	21-602919	7–8	SOIL	—	—	—	—	14000	—	—	—	0.56 (U)	22.9	—	—	0.116	—	3.3	—	56 (J-)
RE21-07-6468	21-602919	12–13	QBT 3	—	—	—	51.2	8850	—	—	4.9	0.55 (U)	12.8	—	—	—	—	4	0.55 (U)	—
RE21-07-6469	21-602920	2–3	QBT 3	—	—	—	—	—	—	—	—	0.56 (U)	—	—	—	—	—	—	—	—
RE21-07-6470	21-602920	7–8	QBT 3	—	—	—	—	—	—	—	19.8 (U)	0.55 (U)	—	—	—	—	—	—	0.31 (J)	—
RE21-07-6471	21-602920	12–13	QBT 3	—	—	—	—	—	—	—	5 (U)	0.54 (U)	—	—	—	—	—	—	—	—
RE21-07-6472	21-602921	2–3	QBT 3	—	—	—	—	10700 (J-)	—	—	—	0.56 (U)	—	—	—	—	—	1.6	0.56 (U)	—
RE21-07-6473	21-602921	7–8	QBT 3	—	—	—	—	2970 (J-)	—	—	—	0.55 (U)	—	—	—	—	—	1.5	0.56 (U)	—
RE21-07-6474	21-602921	12–13	QBT 3	—	—	—	—	4200 (J-)	—	—	—	0.54 (U)	—	—	—	—	—	1.8	0.54 (U)	—
RE21-07-6475	21-602922	2–3	QBT 3	—	—	—	—	9290 (J-)	—	—	—	0.55 (U)	—	—	—	—	—	0.78	0.54 (J)	—
RE21-07-6476	21-602922	7–8	QBT 3	—	—	—	—	2490 (J-)	—	—	—	0.55 (U)	11.8 (U)	—	—	—	—	0.81	—	—
RE21-07-6477	21-602922	12–13	QBT 3	—	—	—	—	—	—	—	—	0.55 (U)	21.2 (U)	—	—	—	—	—	0.55 (U)	—
RE21-07-6478	21-602923	2–3	QBT 3	—	—	—	100	18600 (J-)	8.7	—	9 (U)	0.57 (U)	—	1710	—	—	8 (U)	—	0.57 (U)	—
RE21-07-6479	21-602923	7–8	QBT 3	—	—	—	—	6840 (J-)	—	—	7.2 (U)	0.56 (U)	—	—	—	—	—	—	0.56 (U)	—
RE21-07-6480	21-602923	12–13	QBT 3	—	—	—	47.3	7990 (J-)	—	—	5.9 (U)	0.56 (U)	—	—	—	—	—	0.68	0.56 (U)	—
RE21-07-6481	21-602924	2–3	QBT 3	—	—	—	—	4200 (J)	—	—	—	0.56 (UJ)	27.1 (U)	—	—	—	—	1.2	—	—
RE21-07-6482	21-602924	7–8	QBT 3	—	—	—	—	3350 (J)	—	—	—	0.55 (UJ)	21.4 (U)	—	—	—	—	0.61	0.55 (U)	—
RE21-07-6483	21-602924	12–13	QBT 3	—	—	—	—	2310 (J)	—	—	—	0.55 (UJ)	24 (U)	—	—	—	—	1.1	0.55 (U)	—
RE21-07-6484	21-602925	2–3	QBT 3	—	2.9 (J-)	5	103	10300	—	3.5	22.7 (U)	—	23.9 (U)	—	—	—	68.4	—	0.56 (U)	87.6 (U)
RE21-07-6485	21-602925	7–8	QBT 3	—	1.2 (J-)	—	90.1	11600	—	—	6.8 (U)	0.55 (U)	30.9 (J-)	—	—	—	—	—	0.55 (U)	80.7 (U)
RE21-07-6486	21-602925	12–13	QBT 3	—	0.54 (J-)	—	46.3	6180	—	—	—	0.55 (U)	33.4 (J-)	—	—	—	—	—	0.55 (U)	85.8 (U)
RE21-07-6487	21-602926	2–3	QBT 3	—	—	—	77.1	2510	—	—	30.2 (U)	—	—	—	—	—	—	—	0.56 (U)	—
RE21-07-6488	21-602926	7–8	QBT 3	—	—	—	—	4330	—	—	19.9 (U)	—	—	—	—	—	—	—	0.53 (U)	65.5 (U)
RE21-07-6489	21-602926	12–13	QBT 3	—	—	—	—	2860	—	—	15.6 (U)	0.56 (U)	—	—	—	—	—	—	0.56 (U)	—
RE21-07-6490	21-602927	2–3	SOIL	—	—	—	—	7920 (J)	—	—	—	0.57 (UJ)	—	—	—	0.108	—	0.2 (J)	—	63.3 (U)
RE21-07-6491	21-602927	7–8	QBT 3	—	—	—	71.3	7440 (J)	—	—	5 (U)	0.54 (UJ)	17.9 (U)	—	—	—	—	0.4	0.54 (U)	—
RE21-07-6492	21-602927	12–13	QBT 3	—	—	—	—	6780 (J)	—	—	4.9 (U)	0.56 (UJ)	11.3 (U)	—	—	—	—	0.21 (J)	0.56 (U)	—
RE21-07-6493	21-602928	2–3	QBT 3	—	—	—	46.1	—	—	—	—	0.52 (U)	—	—	—	—	—	—	0.52 (U)	—
RE21-07-6494	21-602928	7–8	QBT 3	—	—	—	55	—	—	—	—	—	—	—	—	—	—	—	0.54 (U)	—

Table 7.2-2 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Calcium	Chromium	Cobalt	Copper	Cyanide (Total)	Lead	Magnesium	Manganese	Mercury	Nickel	Nitrate	Selenium	Zinc
Qbt 2, 3, 4 BV[a]				**7340**	**0.5**	**2.79**	**46**	**2200**	**7.14**	**3.14**	**4.66**	**0.5**	**11.2**	**1690**	**482**	**0.1**	**6.58**	**na[b]**	**0.3**	**63.5**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**6120**	**19.3**	**8.64**	**14.7**	**0.5**	**22.3**	**4610**	**671**	**0.1**	**15.4**	**na**	**1.52**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**na**	**2920[d]**	**300[e]**	**45400**	**22700**	**800**	**na**	**145000**	**310[e]**	**22700**	**1820000**	**5680**	**341000**
Recreational SSL[f]				**791000**	**317**	**27.7**	**158000**	**na**	**1910[d]**	**238**	**31700**	**15800**	**560**	**na**	**110000**	**238**	**15800**	**1260000**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**na**	**219[d]**	**23[e]**	**3130**	**1560**	**400**	**na**	**10700**	**23[e]**	**1560**	**125000**	**391**	**23500**
RE21-07-6495	21-602928	12–13	QBT 3	—	—	—	—	—	—	—	—	0.53 (U)	—	—	—	—	—	—	0.53 (U)	—
RE21-07-6496	21-602929	2–3	QBT 3	10400	—	2.9	528	2940	—	—	6.1 (U)	0.57 (U)	11.6 (U)	2480	—	—	11.1 (U)	—	0.57 (U)	—
RE21-07-6497	21-602929	7–8	QBT 3	—	—	—	85.8	4360	—	—	5.9 (U)	0.55 (U)	11.7 (U)	2070	—	—	—	—	0.55 (U)	—
RE21-07-6498	21-602929	12–13	QBT 3	—	—	—	—	3850	—	—	—	—	—	—	—	—	—	—	0.55 (U)	—
RE21-07-6499	21-602930	2–3	QBT 3	—	—	—	72	3980 (J)	—	—	—	0.56 (UJ)	—	—	—	—	—	—	0.56 (U)	—
RE21-07-6500	21-602930	7–8	QBT 3	—	—	—	—	—	—	—	—	0.55 (UJ)	15.7 (U)	—	—	—	—	—	0.55 (U)	—
RE21-07-6501	21-602930	12–13	QBT 3	—	—	—	—	2250 (J)	—	—	—	0.55 (UJ)	13.9 (U)	—	—	—	—	0.22	0.55 (U)	—
RE21-07-6502	21-602931	2–3	QBT 3	—	—	—	164	3060	—	3.4	—	—	—	—	—	—	—	—	0.55 (U)	—
RE21-07-6503	21-602931	7–8	QBT 3	—	—	—	96.1	4320	—	3.2	5 (U)	0.55 (U)	14.6 (U)	—	497	—	7.9 (U)	—	0.55 (U)	—
RE21-07-6504	21-602931	12–13	QBT 3	—	—	—	53.9	10100	—	—	—	0.53 (U)	—	—	—	—	—	—	0.53 (U)	—
RE21-07-6505	21-602932	2–3	QBT 3	—	—	—	64.3	6610	—	—	—	—	—	—	—	—	—	—	0.56 (U)	—
RE21-07-6506	21-602932	7–8	QBT 3	—	—	—	—	5370	—	—	—	0.55 (U)	15.4 (U)	—	—	—	—	—	0.55 (U)	—
RE21-07-6507	21-602932	12–13	QBT 3	—	—	—	—	7180	—	—	—	—	20.5 (U)	—	—	—	—	—	0.55 (U)	—
RE21-07-6508	21-602933	2–3	QBT 3	—	—	—	62.8	2630 (J)	—	—	—	0.57 (UJ)	11.6 (U)	—	—	—	—	0.26	0.57 (U)	—
RE21-07-6509	21-602933	7–8	QBT 3	—	—	—	54.8	—	—	—	—	0.55 (UJ)	15.2 (U)	—	544	—	8.3 (U)	—	0.56 (U)	—
RE21-07-6510	21-602933	12–13	QBT 3	—	—	—	—	—	—	—	—	0.55 (UJ)	—	—	—	—	—	—	0.55 (U)	—
MD21-10-21629	21-612318	5–6	QBT 3	—	1.02 (U)	3.12	51.7	8830 (J-)	—	—	—	NA[h]	13.4	—	—	—	—	NA	1.07 (U)	—
MD21-10-21630	21-612318	15–16	QBT 3	—	1.04 (U)	—	—	—	—	—	—	NA	—	—	—	—	—	NA	1.03 (U)	—
MD21-10-21631	21-612318	24–25	QBT 3	—	0.995 (U)	—	—	—	—	—	—	NA	—	—	—	—	—	NA	1.01 (U)	—
MD21-10-21632	21-612319	5–6	QBT 3	—	1.08 (U)	—	—	—	—	—	—	NA	—	—	—	—	—	NA	1.09 (U)	—
MD21-10-21633	21-612319	15–16	QBT 3	—	1.16 (U)	—	—	—	—	—	—	NA	—	—	—	—	—	NA	1.13 (U)	—
MD21-10-21634	21-612319	24–25	QBT 3	—	1.11 (U)	—	—	—	7.17 (J)	—	—	NA	—	—	—	—	—	NA	1.12 (U)	—
MD21-10-21637	21-612320	5–6	QBT 3	—	1.1 (UJ)	—	—	—	—	—	—	NA	—	—	—	—	—	NA	1.08 (U)	—
MD21-10-21638	21-612320	15–16	QBT 3	—	1.06 (UJ)	—	—	—	—	—	—	NA	—	—	—	—	—	NA	1.04 (U)	—
MD21-10-21639	21-612320	24–25	QBT 3	—	1.03 (UJ)	—	—	—	—	—	—	NA	—	—	—	—	—	NA	1.02 (U)	—
MD21-10-21640	21-612321	5–6	QBT 3	—	1.08 (U)	—	—	—	—	—	—	NA	—	—	—	—	—	NA	1.05 (U)	—
MD21-10-21641	21-612321	15–16	QBT 3	—	1.06 (U)	—	—	—	—	—	—	NA	—	—	—	—	—	NA	0.979 (U)	—
MD21-10-21642	21-612321	24–25	QBT 3	—	1.04 (U)	—	—	—	—	—	—	NA	—	—	—	—	—	NA	1.03 (U)	—
MD21-10-21643	21-612322	5–6	QBT 3	—	1.07 (U)	—	—	—	—	—	—	NA	74.2	—	664	—	—	NA	1.04 (U)	67.9
MD21-10-21644	21-612322	15–16	QBT 3	—	1.02 (U)	—	—	—	—	—	—	NA	21.5	—	—	—	—	NA	1.05 (U)	—
MD21-10-21645	21-612322	24–25	QBT 3	—	1.03 (U)	—	—	—	—	—	—	NA	12.2	—	—	—	—	NA	0.996 (U)	—

Table 7.2-2 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Calcium	Chromium	Cobalt	Copper	Cyanide (Total)	Lead	Magnesium	Manganese	Mercury	Nickel	Nitrate	Selenium	Zinc
Qbt 2, 3, 4 BV[a]				**7340**	**0.5**	**2.79**	**46**	**2200**	**7.14**	**3.14**	**4.66**	**0.5**	**11.2**	**1690**	**482**	**0.1**	**6.58**	**na[b]**	**0.3**	**63.5**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**6120**	**19.3**	**8.64**	**14.7**	**0.5**	**22.3**	**4610**	**671**	**0.1**	**15.4**	**na**	**1.52**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**na**	**2920[d]**	**300[e]**	**45400**	**22700**	**800**	**na**	**145000**	**310[e]**	**22700**	**1820000**	**5680**	**341000**
Recreational SSL[f]				**791000**	**317**	**27.7**	**158000**	**na**	**1910[d]**	**238**	**31700**	**15800**	**560**	**na**	**110000**	**238**	**15800**	**1260000**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**na**	**219[d]**	**23[e]**	**3130**	**1560**	**400**	**na**	**10700**	**23[e]**	**1560**	**125000**	**391**	**23500**
MD21-10-21646	21-612323	5–6	QBT 3	—	1.06 (UJ)	—	—	4080	—	—	—	NA	—	—	—	—	—	NA	1.05 (U)	—
MD21-10-21647	21-612323	15–16	QBT 3	—	1 (UJ)	—	—	—	—	—	—	NA	—	—	—	—	—	NA	1.06 (U)	—
MD21-10-21648	21-612323	24–25	QBT 3	—	1.03 (UJ)	—	—	—	—	—	—	NA	—	—	—	—	—	NA	1.05 (U)	—
MD21-10-21649	21-612324	5–6	FILL	—	1.32	—	—	9050 (J-)	—	—	—	NA	—	—	—	—	—	NA	—	63.5
MD21-10-21650	21-612324	15–16	QBT 3	—	1.07 (U)	—	—	—	—	—	—	NA	—	—	—	—	—	NA	1.06 (U)	—
MD21-10-21651	21-612324	24–25	QBT 3	—	1.07 (U)	—	—	—	—	—	—	NA	—	—	—	—	—	NA	1.06 (U)	—

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

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

[b] na = Not available.

[c] SSLs are from NMED (2009, 108070), unless otherwise noted.

[d] SSLs are for hexavalent chromium.

[e] SSLs are from EPA regional screening tables (http://www.epa.gov.earth1r6/6pd/rcra_c/pd-n/screen.htm).

[f] SSLs are from LANL (2010, 108613).

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

[h] NA = Not analyzed.

Table 7.2-3
Organic Chemicals Detected at Consolidated Unit 21-006(e)-99

Sample ID	Location ID	Depth (ft)	Media	Acetone	Anthracene	Aroclor-1242	Aroclor-1254	Aroclor-1260	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Bis(2-ethylhexyl)phthalate	Butylbenzene[n-]	Chrysene	Dichlorobenzene[1,2-]	Dichlorobenzene[1,3-]	Dichlorobenzene[1,4-]	Di-n-butylphthalate
Industrial SSL[a]				**851000**	**183000**	**8.26**	**8.26**	**8.26**	**23.4**	**2.34**	**23.4**	**18300[b]**	**234**	**1370**	**560[c]**	**2340**	**14300**	**140[c]**	**180**	**68400**
Recreational SSL[d]				**702000**	**104000**	**10.5**	**6.65**	**10.5**	**30.1**	**3.01**	**30.1**	**10400[b]**	**301**	**1830**	**69600**	**3010**	**48600**	**36100**	**1260**	**39900**
Residential SSL[a]				**67500**	**17200**	**2.22**	**1.12**	**2.22**	**6.21**	**0.621**	**6.21**	**1720[b]**	**62.1**	**347**	**140[c]**	**621**	**3010**	**69[c]**	**32.2**	**6110**
RE21-07-6466	21-602919	2–3	SOIL	—[e]	—	NA[f]	NA	NA	0.081 (J)	0.081 (J)	0.07 (J)	0.048 (J)	0.066 (J)	0.22 (J)	—	0.12 (J)	—	—	—	—
RE21-07-6467	21-602919	7–8	SOIL	0.033	—	NA	NA	NA	—	—	—	—	—	—	—	0.044 (J)	0.00024 (J)	0.00025 (J)	0.00041 (J)	—
RE21-07-6468	21-602919	12–13	QBT 3	0.0071 (J)	—	NA	NA	NA	—	—	—	—	—	—	—	0.044 (J)	—	—	—	—
RE21-07-6884	21-602919	12–13	QBT 3	NA	NA	—	0.241	0.185	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE21-07-6469	21-602920	2–3	QBT 3	—	—	NA	NA	NA	—	—	—	—	—	—	—	—	—	—	—	—
RE21-07-6472	21-602921	2–3	QBT 3	—	—	NA	NA	NA	0.045 (J)	0.039 (J)	—	—	—	—	—	0.062 (J)	—	—	—	—
RE21-07-6476	21-602922	7–8	QBT 3	—	—	NA	NA	NA	—	—	—	—	—	—	—	—	0.00041 (J)	0.00038 (J)	0.00049 (J)	—
RE21-07-6478	21-602923	2–3	QBT 3	—	—	NA	NA	NA	0.053 (J)	0.045 (J)	0.047 (J)	—	0.044 (J)	—	—	0.071 (J)	—	—	—	—
RE21-07-6479	21-602923	7–8	QBT 3	—	—	NA	NA	NA	0.087 (J)	0.077 (J)	0.074 (J)	0.041 (J)	0.069 (J)	—	—	0.12 (J)	—	—	—	—
RE21-07-6480	21-602923	12–13	QBT 3	—	—	NA	NA	NA	0.039 (J)	—	—	—	—	—	—	0.058 (J)	—	—	—	—
RE21-07-6481	21-602924	2–3	QBT 3	—	—	NA	NA	NA	—	—	—	—	—	—	—	—	0.00035 (J)	0.00033 (J)	0.0004 (J)	—
RE21-07-6482	21-602924	7–8	QBT 3	—	—	NA	NA	NA	0.042 (J)	0.038 (J)	—	—	0.038 (J)	—	—	0.052 (J)	—	—	—	—
RE21-07-6484	21-602925	2–3	QBT 3	—	—	NA	NA	NA	0.11 (J)	0.11 (J)	0.1 (J)	0.055 (J)	0.1 (J)	0.14 (J)	—	0.17 (J)	—	—	—	—
RE21-07-6485	21-602925	7–8	QBT 3	—	—	NA	NA	NA	—	—	—	—	—	—	—	0.053 (J)	—	—	—	—
RE21-07-6486	21-602925	12–13	QBT 3	—	—	NA	NA	NA	—	—	—	—	—	—	—	—	—	—	0.00039 (J)	0.5
RE21-07-6487	21-602926	2–3	QBT 3	—	—	NA	NA	NA	—	—	—	—	—	—	—	—	—	—	—	—
RE21-07-6488	21-602926	7–8	QBT 3	—	—	NA	NA	NA	—	—	—	—	—	—	—	—	—	—	—	—
RE21-07-6489	21-602926	12–13	QBT 3	—	—	NA	NA	NA	—	—	—	—	—	—	—	—	—	—	—	—
RE21-07-6491	21-602927	7–8	QBT 3	0.011 (J)	—	NA	NA	NA	—	—	—	—	—	—	0.0011 (J)	—	—	—	—	—
RE21-07-6492	21-602927	12–13	QBT 3	0.009 (J)	—	NA	NA	NA	—	—	—	—	—	—	—	—	—	—	—	—
RE21-07-6493	21-602928	2–3	QBT 3	—	—	NA	NA	NA	—	—	—	—	—	—	—	—	—	—	—	—
RE21-07-6494	21-602928	7–8	QBT 3	—	—	NA	NA	NA	—	—	—	—	—	—	—	—	—	—	—	—
RE21-07-6495	21-602928	12–13	QBT 3	—	—	NA	NA	NA	—	—	—	—	—	—	—	—	—	—	—	—
RE21-07-6498	21-602929	12–13	QBT 3	—	—	NA	NA	NA	—	—	—	—	—	—	—	—	—	—	—	—
RE21-07-6500	21-602930	7–8	QBT 3	0.016 (J)	—	NA	NA	NA	—	—	—	—	—	—	—	—	—	—	—	—
RE21-07-6502	21-602931	2–3	QBT 3	—	—	NA	NA	NA	—	—	—	—	—	—	—	—	—	—	—	—
RE21-07-6505	21-602932	2–3	QBT 3	—	0.043 (J)	NA	NA	NA	0.086 (J)	0.056 (J)	0.064 (J)	—	0.069 (J)	—	—	0.11 (J)	—	—	—	—
RE21-07-6507	21-602932	12–13	QBT 3	—	—	NA	NA	NA	—	—	—	—	—	—	—	—	—	—	—	—

Table 7.2-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Acetone	Anthracene	Aroclor-1242	Aroclor-1254	Aroclor-1260	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Bis(2-ethylhexyl)phthalate	Butylbenzene[n-]	Chrysene	Dichlorobenzene[1,2-]	Dichlorobenzene[1,3-]	Dichlorobenzene[1,4-]	Di-n-butylphthalate
Industrial SSL[a]				**851000**	**183000**	**8.26**	**8.26**	**8.26**	**23.4**	**2.34**	**23.4**	**18300[b]**	**234**	**1370**	**560[c]**	**2340**	**14300**	**140[c]**	**180**	**68400**
Recreational SSL[d]				**702000**	**104000**	**10.5**	**6.65**	**10.5**	**30.1**	**3.01**	**30.1**	**10400[b]**	**301**	**1830**	**69600**	**3010**	**48600**	**36100**	**1260**	**39900**
Residential SSL[a]				**67500**	**17200**	**2.22**	**1.12**	**2.22**	**6.21**	**0.621**	**6.21**	**1720[b]**	**62.1**	**347**	**140[c]**	**621**	**3010**	**69[c]**	**32.2**	**6110**
RE21-07-6509	21-602933	7–8	QBT 3	0.018 (J)	—	NA	NA	NA	—	—	—	—	—	—	—	—	—	—	—	—
RE21-07-6510	21-602933	12–13	QBT 3	0.01 (J)	—	NA	NA	NA	—	—	—	—	—	—	—	—	—	—	—	—
MD21-10-21629	21-612318	5–6	QBT 3	NA	NA	—	0.0446	0.0465	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21632	21-612319	5–6	QBT 3	NA	NA	—	—	0.0076 (J)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21634	21-612319	24–25	QBT 3	NA	NA	—	0.003 (J)	—	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21639	21-612320	24–25	QBT 3	NA	NA	—	0.0022 (J)	—	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21641	21-612321	15–16	QBT 3	NA	NA	0.0679	0.0343	—	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21649	21-612324	5–6	FILL	NA	NA	—	0.14	0.159	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21650	21-612324	15–16	QBT 3	NA	NA	—	0.0075	0.007	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 7.2-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Ethylbenzene	Fluoranthene	Heptachlorodibenzodioxin[1,2,3,4,6,7,8-]	Heptachlorodibenzodioxins (Total)	Heptachlorodibenzofuran[1,2,3,4,6,7,8-]	Heptachlorodibenzofuran[1,2,3,4,7,8,9-]	Heptachlorodibenzofurans (Total)	Hexachlorodibenzodioxin[1,2,3,6,7,8-]	Hexachlorodibenzodioxin[1,2,3,7,8,9-]	Hexachlorodibenzodioxins (Total)	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-]	Hexachlorodibenzofurans (Total)	Indeno(1,2,3-cd)pyrene
Industrial SSL[a]				**385**	**24400**	**na[g]**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**23.4**
Recreational SSL[d]				**2060**	**13900**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**30.1**
Residential SSL[a]				**69.7**	**2290**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**6.21**
RE21-07-6466	21-602919	2–3	SOIL	—	0.17 (J)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.043 (J)
RE21-07-6467	21-602919	7–8	SOIL	0.0016 (J)	0.047 (J)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	—
RE21-07-6468	21-602919	12–13	QBT 3	—	0.059 (J)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	—
RE21-07-6884	21-602919	12–13	QBT 3	NA	NA	0.0000119	0.0000263	0.00000467	0.00000115 (J)	0.0000118	0.000000705 (J)	0.000000639 (J)	0.00000661	0.00000348 (J)	0.00000102 (J)	0.000000379 (J)	0.000000801 (J)	0.0000125 (J)	NA
RE21-07-6469	21-602920	2–3	QBT 3	—	0.04 (J)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	—
RE21-07-6472	21-602921	2–3	QBT 3	—	0.098 (J)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	—
RE21-07-6476	21-602922	7–8	QBT 3	—	—	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	—
RE21-07-6478	21-602923	2–3	QBT 3	—	0.11 (J)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	—
RE21-07-6479	21-602923	7–8	QBT 3	—	0.2 (J)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.039 (J)
RE21-07-6480	21-602923	12–13	QBT 3	—	0.091 (J)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	—
RE21-07-6481	21-602924	2–3	QBT 3	—	0.046 (J)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	—
RE21-07-6482	21-602924	7–8	QBT 3	—	0.097 (J)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	—
RE21-07-6484	21-602925	2–3	QBT 3	—	0.28 (J)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.051 (J)
RE21-07-6485	21-602925	7–8	QBT 3	—	0.073 (J)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	—
RE21-07-6486	21-602925	12–13	QBT 3	—	—	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	—
RE21-07-6487	21-602926	2–3	QBT 3	—	—	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	—
RE21-07-6488	21-602926	7–8	QBT 3	—	0.037 (J)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	—
RE21-07-6489	21-602926	12–13	QBT 3	—	—	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	—
RE21-07-6491	21-602927	7–8	QBT 3	—	—	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	—
RE21-07-6492	21-602927	12–13	QBT 3	—	—	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	—
RE21-07-6493	21-602928	2–3	QBT 3	—	—	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	—
RE21-07-6494	21-602928	7–8	QBT 3	—	—	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	—
RE21-07-6495	21-602928	12–13	QBT 3	—	—	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	—
RE21-07-6498	21-602929	12–13	QBT 3	—	—	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	—
RE21-07-6500	21-602930	7–8	QBT 3	—	—	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	—
RE21-07-6502	21-602931	2–3	QBT 3	—	—	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	—
RE21-07-6505	21-602932	2–3	QBT 3	—	0.24 (J)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	—

Table 7.2-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Ethylbenzene	Fluoranthene	Heptachlorodibenzodioxin[1,2,3,4,6,7,8-]	Heptachlorodibenzodioxins (Total)	Heptachlorodibenzofuran[1,2,3,4,6,7,8-]	Heptachlorodibenzofuran[1,2,3,4,7,8,9-]	Heptachlorodibenzofurans (Total)	Hexachlorodibenzodioxin[1,2,3,6,7,8-]	Hexachlorodibenzodioxin[1,2,3,7,8,9-]	Hexachlorodibenzodioxins (Total)	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-]	Hexachlorodibenzofurans (Total)	Indeno(1,2,3-cd)pyrene
Industrial SSL[a]				**385**	**24400**	**na[g]**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**23.4**
Recreational SSL[d]				**2060**	**13900**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**30.1**
Residential SSL[a]				**69.7**	**2290**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**6.21**
RE21-07-6507	21-602932	12–13	QBT 3	—	—	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	—
RE21-07-6509	21-602933	7–8	QBT 3	—	—	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	—
RE21-07-6510	21-602933	12–13	QBT 3	—	—	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	—
MD21-10-21629	21-612318	5–6	QBT 3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21632	21-612319	5–6	QBT 3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21634	21-612319	24–25	QBT 3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21639	21-612320	24–25	QBT 3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21641	21-612321	15–16	QBT 3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21649	21-612324	5–6	FILL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21650	21-612324	15–16	QBT 3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 7.2-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Isopropyltoluene[4-]	Methylene Chloride	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-]	Pentachlorodibenzofurans (Totals)	Phenanthrene	Pyrene	Tetrachlorodibenzodioxins (Total)	Tetrachlorodibenzofuran[2,3,7,8-]	Tetrachlorodibenzofurans (Totals)	Toluene	Trimethylbenzene[1,2,4-]	Trimethylbenzene[1,3,5-]	Xylene (Total)
Industrial SSL[a]				**14900**[h]	**1090**	**na**	**na**	**na**	**na**	**na**	**20500**	**18300**	**na**	**0.00147**	**na**	**57900**	**260**[i]	**10000**[i]	**3610**
Recreational SSL[d]				**52700**[h]	**4520**	**na**	**na**	**na**	**na**	**na**	**12000**	**10400**	**na**	**0.00197**	**na**	**60800**	**6880**	**7930**	**27800**
Residential SSL[a]				**3210**[h]	**199**	**na**	**na**	**na**	**na**	**na**	**1830**	**1720**	**na**	**0.000374**	**na**	**5570**	**62**[i]	**780**[i]	**1090**
RE21-07-6466	21-602919	2–3	SOIL	—	—	NA	NA	NA	NA	NA	0.081 (J)	0.14 (J)	NA	NA	NA	0.0012 (J-)	0.00046 (J-)	—	—
RE21-07-6467	21-602919	7–8	SOIL	—	—	NA	NA	NA	NA	NA	—	0.041 (J)	NA	NA	NA	0.0023 (J)	0.00087 (J)	0.00029 (J)	0.0092
RE21-07-6468	21-602919	12–13	QBT 3	—	—	NA	NA	NA	NA	NA	—	0.05 (J)	NA	NA	NA	0.0014 (J)	0.00039 (J)	—	—
RE21-07-6884	21-602919	12–13	QBT 3	NA	NA	0.000104	0.00000763	0.00000335	0.00000282	0.0000201 (J)	NA	NA	0.0000000941	0.00000207	0.00000848	NA	NA	NA	NA
RE21-07-6469	21-602920	2–3	QBT 3	—	—	NA	NA	NA	NA	NA	—	—	NA	NA	NA	—	—	—	—
RE21-07-6472	21-602921	2–3	QBT 3	—	—	NA	NA	NA	NA	NA	0.06 (J)	0.087 (J)	NA	NA	NA	—	—	—	—
RE21-07-6476	21-602922	7–8	QBT 3	—	—	NA	NA	NA	NA	NA	—	—	NA	NA	NA	—	—	—	—
RE21-07-6478	21-602923	2–3	QBT 3	—	—	NA	NA	NA	NA	NA	0.052 (J)	0.092 (J)	NA	NA	NA	—	—	—	—
RE21-07-6479	21-602923	7–8	QBT 3	—	—	NA	NA	NA	NA	NA	0.098 (J)	0.17 (J)	NA	NA	NA	—	—	—	—
RE21-07-6480	21-602923	12–13	QBT 3	—	—	NA	NA	NA	NA	NA	—	0.081 (J)	NA	NA	NA	—	—	—	—
RE21-07-6481	21-602924	2–3	QBT 3	—	—	NA	NA	NA	NA	NA	—	—	NA	NA	NA	—	—	—	—
RE21-07-6482	21-602924	7–8	QBT 3	—	—	NA	NA	NA	NA	NA	0.067 (J)	0.07 (J)	NA	NA	NA	—	—	—	—
RE21-07-6484	21-602925	2–3	QBT 3	—	0.015	NA	NA	NA	NA	NA	0.16 (J)	0.19 (J)	NA	NA	NA	0.0014 (J)	—	—	—
RE21-07-6485	21-602925	7–8	QBT 3	—	—	NA	NA	NA	NA	NA	0.041 (J)	0.059 (J)	NA	NA	NA	0.00074 (J)	—	—	—
RE21-07-6486	21-602925	12–13	QBT 3	—	—	NA	NA	NA	NA	NA	—	—	NA	NA	NA	0.00057 (J)	—	—	—
RE21-07-6487	21-602926	2–3	QBT 3	—	—	NA	NA	NA	NA	NA	—	—	NA	NA	NA	0.00052 (J)	—	—	—
RE21-07-6488	21-602926	7–8	QBT 3	—	—	NA	NA	NA	NA	NA	—	—	NA	NA	NA	0.00093 (J-)	0.00043 (J-)	—	—
RE21-07-6489	21-602926	12–13	QBT 3	—	—	NA	NA	NA	NA	NA	—	—	NA	NA	NA	—	0.00044 (J)	—	—
RE21-07-6491	21-602927	7–8	QBT 3	0.0021 (J)	—	NA	NA	NA	NA	NA	—	—	NA	NA	NA	—	0.0024 (J)	0.0024 (J)	—
RE21-07-6492	21-602927	12–13	QBT 3	0.00079 (J)	—	NA	NA	NA	NA	NA	—	—	NA	NA	NA	—	—	0.00034 (J)	—
RE21-07-6493	21-602928	2–3	QBT 3	—	—	NA	NA	NA	NA	NA	—	—	NA	NA	NA	0.00075 (J)	—	—	—
RE21-07-6494	21-602928	7–8	QBT 3	—	0.01	NA	NA	NA	NA	NA	—	—	NA	NA	NA	0.00026 (J)	—	—	—
RE21-07-6495	21-602928	12–13	QBT 3	—	—	NA	NA	NA	NA	NA	—	—	NA	NA	NA	0.0002 (J)	—	—	—
RE21-07-6498	21-602929	12–13	QBT 3	—	0.012	NA	NA	NA	NA	NA	—	—	NA	NA	NA	—	—	—	—
RE21-07-6500	21-602930	7–8	QBT 3	—	—	NA	NA	NA	NA	NA	—	—	NA	NA	NA	0.00033 (J)	0.00029 (J)	—	—
RE21-07-6502	21-602931	2–3	QBT 3	—	0.01	NA	NA	NA	NA	NA	—	—	NA	NA	NA	—	—	—	—
RE21-07-6505	21-602932	2–3	QBT 3	—	0.014	NA	NA	NA	NA	NA	0.22 (J)	0.16 (J)	NA	NA	NA	—	—	—	—

Table 7.2-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Isopropyltoluene[4-]	Methylene Chloride	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-]	Pentachlorodibenzofurans (Totals)	Phenanthrene	Pyrene	Tetrachlorodibenzodioxins (Total)	Tetrachlorodibenzofuran[2,3,7,8-]	Tetrachlorodibenzofurans (Totals)	Toluene	Trimethylbenzene[1,2,4-]	Trimethylbenzene[1,3,5-]	Xylene (Total)
Industrial SSL[a]				**14900[h]**	**1090**	**na**	**na**	**na**	**na**	**na**	**20500**	**18300**	**na**	**0.00147**	**na**	**57900**	**260[i]**	**10000[i]**	**3610**
Recreational SSL[d]				**52700[h]**	**4520**	**na**	**na**	**na**	**na**	**na**	**12000**	**10400**	**na**	**0.00197**	**na**	**60800**	**6880**	**7930**	**27800**
Residential SSL[a]				**3210[h]**	**199**	**na**	**na**	**na**	**na**	**na**	**1830**	**1720**	**na**	**0.000374**	**na**	**5570**	**62[i]**	**780[i]**	**1090**
RE21-07-6507	21-602932	12–13	QBT 3	—	0.012	NA	NA	NA	NA	NA	—	—	NA	NA	NA	—	—	—	—
RE21-07-6509	21-602933	7–8	QBT 3	—	—	NA	NA	NA	NA	NA	—	—	NA	NA	NA	—	—	—	—
RE21-07-6510	21-602933	12–13	QBT 3	—	—	NA	NA	NA	NA	NA	—	—	NA	NA	NA	0.00018 (J)	—	—	—
MD21-10-21629	21-612318	5–6	QBT 3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21632	21-612319	5–6	QBT 3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21634	21-612319	24–25	QBT 3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21639	21-612320	24–25	QBT 3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21641	21-612321	15–16	QBT 3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21649	21-612324	5–6	FILL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21650	21-612324	15–16	QBT 3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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

[a] SSLs are from NMED (2009, 108070), unless otherwise noted.

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

[c] SSLs are from EPA 2007, 099314.

[d] SSLs are from LANL (2010, 108613).

[e] — = Not detected.

[f] NA = Not analyzed.

[g] na = Not available.

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

[i] SSLs are from EPA regional screening tables (http://www.epa.gov.earth1r6/6pd/rcra_c/pd-n/screen.htm).

Table 7.2-4
Radionuclides Detected or Detected above BVs/FVs at Consolidated Unit 21-006(e)-99

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-134	Cesium-137	Plutonium-238	Plutonium-239/240	Tritium	Uranium-234	Uranium-235/236
Qbt 2, 3, 4 BV[a]				**na**[b]	**na**	**na**	**na**	**na**	**na**	**1.98**	**0.09**
Soil BV[a]				**0.013**	**na**	**1.65**	**0.023**	**0.054**	**na**	**2.59**	**0.2**
Industrial SAL[c]				**180**	**9.7**	**23**	**240**	**210**	**440000**	**1500**	**87**
Recreational SAL[c]				**280**	**87**	**210**	**330**	**300**	**5300000**	**3200**	**520**
Residential SAL[c]				**30**	**2.4**	**5.6**	**37**	**33**	**750**	**170**	**17**
RE21-07-6466	21-602919	2–3	SOIL	2.93	—[d]	0.269	0.485	66.3	0.74	44.9	1.77
RE21-07-6467	21-602919	7–8	SOIL	2.63	—	0.14	0.349	52.5	2.06	87.3	3.82
RE21-07-6468	21-602919	12–13	QBT 3	1.35 (J-)	—	—	0.151	27.8	0.7	28.7	1.12
RE21-07-6469	21-602920	2–3	QBT 3	—	—	—	—	2.58	—	2.63 (J-)	—
RE21-07-6470	21-602920	7–8	QBT 3	—	—	—	—	0.815	—	—	—
RE21-07-6471	21-602920	12–13	QBT 3	—	—	—	—	1.15	—	—	—
RE21-07-6472	21-602921	2–3	QBT 3	0.419	—	—	0.076	7.32	1.67	3.96	0.188
RE21-07-6473	21-602921	7–8	QBT 3	0.1	—	—	—	1.95	1.63	2	—
RE21-07-6474	21-602921	12–13	QBT 3	0.083	—	—	—	1.74	2.39	2.11	0.105
RE21-07-6475	21-602922	2–3	QBT 3	—	—	—	—	0.447	—	12.9	0.689
RE21-07-6476	21-602922	7–8	QBT 3	—	—	—	—	0.28	—	2.84	0.16
RE21-07-6477	21-602922	12–13	QBT 3	—	—	—	—	0.254	—	—	—
RE21-07-6478	21-602923	2–3	QBT 3	0.574 (J-)	—	—	0.065	10.3	—	5.56 (J-)	—
RE21-07-6479	21-602923	7–8	QBT 3	0.301	—	—	0.067	8.74	—	5.39 (J-)	0.208 (J-)
RE21-07-6480	21-602923	12–13	QBT 3	0.324	—	—	0.081	10.6	—	5.13	0.205
RE21-07-6481	21-602924	2–3	QBT 3	0.101	—	—	—	2.18	—	2.26	0.122
RE21-07-6482	21-602924	7–8	QBT 3	—	0.068	—	—	1.13	—	—	0.132
RE21-07-6483	21-602924	12–13	QBT 3	0.042	—	—	—	1.21	—	—	0.1
RE21-07-6484	21-602925	2–3	QBT 3	6.55	—	—	—	133	—	73.6	3.59
RE21-07-6485	21-602925	7–8	QBT 3	2.05	—	—	—	64.4	—	23.9	1.04
RE21-07-6486	21-602925	12–13	QBT 3	—	—	—	—	33.2	—	17.6	0.83
RE21-07-6487	21-602926	2–3	QBT 3	—	—	—	0.063	7.05	—	6.85	0.316
RE21-07-6488	21-602926	7–8	QBT 3	—	—	—	—	19.2	—	20.3	0.67
RE21-07-6489	21-602926	12–13	QBT 3	—	—	—	—	14.1 (J)	—	8.67	0.265
RE21-07-6490	21-602927	2–3	SOIL	1.4	—	—	0.322	40.6	—	—	—
RE21-07-6491	21-602927	7–8	QBT 3	1.47	—	—	0.332	47.6	—	18.3	0.743
RE21-07-6492	21-602927	12–13	QBT 3	0.56	—	—	0.219	25.2	—	11.5	0.543
RE21-07-6493	21-602928	2–3	QBT 3	—	—	—	—	0.34	—	—	—
RE21-07-6494	21-602928	7–8	QBT 3	—	—	—	—	1.06	—	—	—

Table 7.2-4 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-134	Cesium-137	Plutonium-238	Plutonium-239/240	Tritium	Uranium-234	Uranium-235/236
Qbt 2, 3, 4 BV[a]				**na[b]**	**na**	**na**	**na**	**na**	**na**	**1.98**	**0.09**
Soil BV[a]				**0.013**	**na**	**1.65**	**0.023**	**0.054**	**na**	**2.59**	**0.2**
Industrial SAL[c]				**180**	**9.7**	**23**	**240**	**210**	**440000**	**1500**	**87**
Recreational SAL[c]				**280**	**87**	**210**	**330**	**300**	**5300000**	**3200**	**520**
Residential SAL[c]				**30**	**2.4**	**5.6**	**37**	**33**	**750**	**170**	**17**
RE21-07-6495	21-602928	12–13	QBT 3	—	—	—	—	0.122	—	—	—
RE21-07-6496	21-602929	2–3	QBT 3	—	—	—	—	0.329	—	—	—
RE21-07-6497	21-602929	7–8	QBT 3	—	—	—	—	0.446	—	—	—
RE21-07-6498	21-602929	12–13	QBT 3	—	—	—	—	0.314	—	—	—
RE21-07-6499	21-602930	2–3	QBT 3	0.072	—	—	—	2.58	—	4.24	0.167
RE21-07-6500	21-602930	7–8	QBT 3	—	—	—	—	1.6	—	2.76	0.093
RE21-07-6501	21-602930	12–13	QBT 3	0.059	—	—	—	3.27	—	5.95	0.21
RE21-07-6502	21-602931	2–3	QBT 3	—	—	—	—	0.24	—	—	—
RE21-07-6503	21-602931	7–8	QBT 3	—	—	—	—	0.542	—	—	—
RE21-07-6504	21-602931	12–13	QBT 3	—	—	—	—	0.224	—	—	—
RE21-07-6505	21-602932	2–3	QBT 3	—	—	—	—	3.15	—	2.55	0.103
RE21-07-6506	21-602932	7–8	QBT 3	—	—	—	—	1.71	—	2.15	—
RE21-07-6507	21-602932	12–13	QBT 3	—	—	—	—	1.53	—	2.1	—
RE21-07-6509	21-602933	7–8	QBT 3	0.06	—	—	—	—	—	—	—
RE21-07-6510	21-602933	12–13	QBT 3	—	—	—	—	0.039	—	—	—
MD21-10-21629	21-612318	5–6	QBT 3	NA[e]	NA	NA	—	1.87	0.250522	91.3	4.28
MD21-10-21630	21-612318	15–16	QBT 3	NA	NA	NA	—	0.0966	0.489394	26.9	1.59
MD21-10-21631	21-612318	24–25	QBT 3	NA	NA	NA	—	—	0.588562	19.6	0.902
MD21-10-21632	21-612319	5–6	QBT 3	NA	NA	NA	—	0.452	0.0144588	—	—
MD21-10-21633	21-612319	15–16	QBT 3	NA	NA	NA	0.0224	0.088	—	—	0.0943
MD21-10-21634	21-612319	24–25	QBT 3	NA	NA	NA	—	0.0317	—	—	—
MD21-10-21637	21-612320	5–6	QBT 3	—	NA	NA	—	0.0427	NA	—	—
MD21-10-21645	21-612322	24–25	QBT 3	—	NA	NA	0.35	—	NA	—	—
MD21-10-21649	21-612324	5–6	FILL	0.916	NA	NA	0.13	21.5	NA	32	1.56
MD21-10-21650	21-612324	15–16	QBT 3	0.0336	NA	NA	2.32	0.518	NA	4.26	0.193
MD21-10-21651	21-612324	24–25	QBT 3	—	NA	NA	0.0384	0.195	NA	—	—

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

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

[b] na = Not available.

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

[e] — = Not detected.

[f] NA = Not analyzed.

Table 7.3-1
Samples Collected and Analyses Requested at AOC 21-028(c)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Dioxins/Furans	Gamma-emitting Radionuclides	Tritium	Explosive Compounds	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	VOCs	Cyanide (Total)
RE21-07-5100	21-601066	2–3	SOIL	07-1001	07-1001	—*	07-1001	07-1001	—	07-1001	07-1001	07-1001	—	07-1001	07-1001	07-1001	07-1001	07-1001
RE21-07-5101	21-601066	7–8	QBT 3	07-1001	07-1001	—	07-1001	07-1001	—	07-1001	07-1001	07-1001	—	07-1001	07-1001	07-1001	07-1001	07-1001
RE21-07-6384	21-601066	12–13	QBT 3	07-1001	07-1001	—	07-1001	07-1001	—	07-1001	07-1001	07-1001	—	07-1001	07-1001	07-1001	07-1001	07-1001
RE21-07-5102	21-601067	2–3	SOIL	07-1021	07-1020	—	07-1021	07-1021	—	07-1021	07-1021	07-1020	—	07-1020	07-1021	07-1019	07-1019	07-1020
RE21-07-5103	21-601067	7–8	SOIL	07-1021	07-1020	—	07-1021	07-1021	—	07-1021	07-1021	07-1020	—	07-1020	07-1021	07-1019	07-1019	07-1020
RE21-07-6388	21-601067	12–13	QBT 3	07-1021	07-1020	—	07-1021	07-1021	—	07-1021	07-1021	07-1020	—	07-1020	07-1021	07-1019	07-1019	07-1020
RE21-07-5104	21-601068	2–3	SOIL	07-1021	07-1020	—	07-1021	07-1021	—	07-1021	07-1021	07-1020	—	07-1020	07-1021	07-1019	07-1019	07-1020
RE21-07-5105	21-601068	7–8	QBT 3	07-1021	07-1020	—	07-1021	07-1021	—	07-1021	07-1021	07-1020	—	07-1020	07-1021	07-1019	07-1019	07-1020
RE21-07-6377	21-601068	12–13	QBT 3	07-1021	07-1020	—	07-1021	07-1021	—	07-1021	07-1021	07-1020	—	07-1020	07-1021	07-1019	07-1019	07-1020
RE21-07-5106	21-601069	2–3	SOIL	07-1021	07-1020	—	07-1021	07-1021	—	07-1021	07-1021	07-1020	—	07-1020	07-1021	07-1019	07-1019	07-1020
RE21-07-5107	21-601069	7–8	QBT 3	07-1021	07-1020	—	07-1021	07-1021	—	07-1021	07-1021	07-1020	—	07-1020	07-1021	07-1019	07-1019	07-1020
RE21-07-6376	21-601069	12–13	QBT 3	07-1021	07-1020	—	07-1021	07-1021	—	07-1021	07-1021	07-1020	—	07-1020	07-1021	07-1019	07-1019	07-1020
RE21-07-5108	21-601070	2–3	SOIL	07-1021	07-1020	—	07-1021	07-1021	—	07-1021	07-1021	07-1020	—	07-1020	07-1021	07-1019	07-1019	07-1020
RE21-07-5146	21-601070	2–3	SOIL	—	—	08-5	—	—	07-1171	—	—	—	07-1171	—	—	—	—	—
RE21-07-5109	21-601070	7–8	QBT 3	07-1021	07-1020	—	07-1021	07-1021	—	07-1021	07-1021	07-1020	—	07-1020	07-1021	07-1019	07-1019	07-1020
RE21-07-6394	21-601070	12–13	QBT 3	07-1021	07-1020	—	07-1021	07-1021	—	07-1021	07-1021	07-1020	—	07-1020	07-1021	07-1019	07-1019	07-1020
RE21-07-5110	21-601071	2–3	SOIL	07-1044	07-1043	—	07-1044	07-1044	—	07-1044	07-1044	07-1043	—	07-1043	07-1044	07-1042	07-1042	07-1043
RE21-07-5111	21-601071	7–8	QBT 3	07-1044	07-1043	—	07-1044	07-1044	—	07-1044	07-1044	07-1043	—	07-1043	07-1044	07-1042	07-1042	07-1043
RE21-07-6383	21-601071	12–13	QBT 3	07-1044	07-1043	—	07-1044	07-1044	—	07-1044	07-1044	07-1043	—	07-1043	07-1044	07-1042	07-1042	07-1043
RE21-07-5112	21-601072	2–3	SOIL	07-1044	07-1043	—	07-1044	07-1044	—	07-1044	07-1044	07-1043	—	07-1043	07-1044	07-1042	07-1042	07-1043
RE21-07-5113	21-601072	7–8	QBT 3	07-1044	07-1043	—	07-1044	07-1044	—	07-1044	07-1044	07-1043	—	07-1043	07-1044	07-1042	07-1042	07-1043
RE21-07-6378	21-601072	12–13	QBT 3	07-1044	07-1043	—	07-1044	07-1044	—	07-1044	07-1044	07-1043	—	07-1043	07-1044	07-1042	07-1042	07-1043
RE21-07-5114	21-601073	2–3	QBT 3	07-1044	07-1043	—	07-1044	07-1044	—	07-1044	07-1044	07-1043	—	07-1043	07-1044	07-1042	07-1042	07-1043
RE21-07-5115	21-601073	7–8	QBT 3	07-1044	07-1043	—	07-1044	07-1044	—	07-1044	07-1044	07-1043	—	07-1043	07-1044	07-1042	07-1042	07-1043
RE21-07-6393	21-601073	12–13	QBT 3	07-1044	07-1043	—	07-1044	07-1044	—	07-1044	07-1044	07-1043	—	07-1043	07-1044	07-1042	07-1042	07-1043
RE21-07-5116	21-601074	2–3	QBT 3	07-1067	07-1066	—	07-1067	07-1067	—	07-1067	07-1067	07-1066	—	07-1066	07-1067	07-1065	07-1065	07-1066
RE21-07-5117	21-601074	7–8	QBT 3	07-1067	07-1066	—	07-1067	07-1067	—	07-1067	07-1067	07-1066	—	07-1066	07-1067	07-1065	07-1065	07-1066
RE21-07-6387	21-601074	12–13	QBT 3	07-1067	07-1066	—	07-1067	07-1067	—	07-1067	07-1067	07-1066	—	07-1066	07-1067	07-1065	07-1065	07-1066
RE21-07-5118	21-601075	2–3	QBT 3	07-1067	07-1066	—	07-1067	07-1067	—	07-1067	07-1067	07-1066	—	07-1066	07-1067	07-1065	07-1065	07-1066

Table 7.3-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Dioxins/Furans	Gamma-emitting Radionuclides	Tritium	Explosive Compounds	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	VOCs	Cyanide (Total)
RE21-07-5119	21-601075	7–8	QBT 3	07-1067	07-1066	—	07-1067	07-1067	—	07-1067	07-1067	07-1066	—	07-1066	07-1067	07-1065	07-1065	07-1066
RE21-07-6390	21-601075	12–13	QBT 3	07-1067	07-1066	—	07-1067	07-1067	—	07-1067	07-1067	07-1066	—	07-1066	07-1067	07-1065	07-1065	07-1066
RE21-07-5120	21-601076	2–3	SOIL	07-1067	07-1066	—	07-1067	07-1067	—	07-1067	07-1067	07-1066	—	07-1066	07-1067	07-1065	07-1065	07-1066
RE21-07-5121	21-601076	7–8	QBT 3	07-1067	07-1066	—	07-1067	07-1067	—	07-1067	07-1067	07-1066	—	07-1066	07-1067	07-1065	07-1065	07-1066
RE21-07-6382	21-601076	12–13	QBT 3	07-1067	07-1066	—	07-1067	07-1067	—	07-1067	07-1067	07-1066	—	07-1066	07-1067	07-1065	07-1065	07-1066
RE21-07-5122	21-601077	2–3	QBT 3	07-1067	07-1066	—	07-1067	07-1067	—	07-1067	07-1067	07-1066	—	07-1066	07-1067	07-1065	07-1065	07-1066
RE21-07-5123	21-601077	7–8	QBT 3	07-1067	07-1066	—	07-1067	07-1067	—	07-1067	07-1067	07-1066	—	07-1066	07-1067	07-1065	07-1065	07-1066
RE21-07-6395	21-601077	12–13	QBT 3	07-1067	07-1066	—	07-1067	07-1067	—	07-1067	07-1067	07-1066	—	07-1066	07-1067	07-1065	07-1065	07-1066
RE21-07-5124	21-601078	2–3	SOIL	07-1067	07-1066	—	07-1067	07-1067	—	07-1067	07-1067	07-1066	—	07-1066	07-1067	07-1065	07-1065	07-1066
RE21-07-5125	21-601078	7–8	QBT 3	07-1067	07-1066	—	07-1067	07-1067	—	07-1067	07-1067	07-1066	—	07-1066	07-1067	07-1065	07-1065	07-1066
RE21-07-6389	21-601078	12–13	QBT 3	07-1067	07-1066	—	07-1067	07-1067	—	07-1067	07-1067	07-1066	—	07-1066	07-1067	07-1065	07-1065	07-1066
RE21-07-5126	21-601079	2–3	QBT 3	07-1095	07-1094	—	07-1095	07-1095	—	07-1095	07-1095	07-1094	—	07-1094	07-1095	07-1093	07-1093	07-1094
RE21-07-5127	21-601079	7–8	QBT 3	07-1095	07-1094	—	07-1095	07-1095	—	07-1095	07-1095	07-1094	—	07-1094	07-1095	07-1093	07-1093	07-1094
RE21-07-6381	21-601079	12–13	QBT 3	07-1095	07-1094	-	07-1095	07-1095	—	07-1095	07-1095	07-1094	—	07-1094	07-1095	07-1093	07-1093	07-1094
RE21-07-5128	21-601080	2–3	QBT 3	07-1095	07-1094	-	07-1095	07-1095	—	07-1095	07-1095	07-1094	—	07-1094	07-1095	07-1093	07-1093	07-1094
RE21-07-5129	21-601080	7–8	QBT 3	07-1095	07-1094	-	07-1095	07-1095	—	07-1095	07-1095	07-1094	—	07-1094	07-1095	07-1093	07-1093	07-1094
RE21-07-6391	21-601080	12–13	QBT 3	07-1095	07-1094	-	07-1095	07-1095	—	07-1095	07-1095	07-1094	—	07-1094	07-1095	07-1093	07-1093	07-1094
RE21-07-5130	21-601081	2–3	SOIL	07-1095	07-1094	-	07-1095	07-1095	—	07-1095	07-1095	07-1094	—	07-1094	07-1095	07-1093	07-1093	07-1094
RE21-07-5131	21-601081	7–8	QBT 3	07-1095	07-1094	-	07-1095	07-1095	—	07-1095	07-1095	07-1094	—	07-1094	07-1095	07-1093	07-1093	07-1094
RE21-07-6392	21-601081	12–13	QBT 3	07-1095	07-1094	-	07-1095	07-1095	—	07-1095	07-1095	07-1094	—	07-1094	07-1095	07-1093	07-1093	07-1094
RE21-07-5132	21-601082	2–3	SOIL	07-1095	07-1094	-	07-1095	07-1095	—	07-1095	07-1095	07-1094	—	07-1094	07-1095	07-1093	07-1093	07-1094
RE21-07-5133	21-601082	7–8	QBT 3	07-1095	07-1094	-	07-1095	07-1095	—	07-1095	07-1095	07-1094	—	07-1094	07-1095	07-1093	07-1093	07-1094
RE21-07-6385	21-601082	12–13	QBT 3	07-1095	07-1094	-	07-1095	07-1095	—	07-1095	07-1095	07-1094	—	07-1094	07-1095	07-1093	07-1093	07-1094
MD21-10-21680	21-612329	5–6	QBT 3	—	—	—	—	—	—	11-201	—	11-201	11-201	—	—	—	—	—
MD21-10-21681	21-612329	15–16	QBT 3	—	—	—	—	—	—	11-201	—	11-201	11-201	—	—	—	—	—
MD21-10-21682	21-612329	24–25	QBT 3	—	—	—	—	—	—	11-201	—	11-201	11-201	—	—	—	—	—
MD21-10-21685	21-612330	5–6	QBT 3	11-187	—	—	—	—	—	11-187	—	11-187	11-187	—	—	—	—	—
MD21-10-21686	21-612330	15–16	QBT 3	11-187	—	—	—	—	—	11-187	—	11-187	11-187	—	—	—	—	—
MD21-10-21687	21-612330	24–25	QBT 3	11-187	—	—	—	—	—	11-187	—	11-187	11-187	—	—	—	—	—
MD21-10-21688	21-612331	5–6	QBT 3	11-226	—	—	—	—	—	11-226	—	11-225	11-224	—	—	—	—	—
MD21-10-21689	21-612331	15–16	QBT 3	11-226	—	—	—	—	—	11-226	—	11-225	11-224	—	—	—	—	—
MD21-10-21690	21-612331	24–25	QBT 3	11-226	—	—	—	—	—	11-226	—	11-225	11-224	—	—	—	—	—
MD21-10-21691	21-612332	5–6	QBT 3	11-226	—	—	—	—	—	11-226	—	11-225	11-224	—	—	—	—	—
MD21-10-21692	21-612332	15–16	QBT 3	11-226	—	—	—	—	—	11-226	—	11-225	11-224	—	—	—	—	—

Table 7.3-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Dioxins/Furans	Gamma-emitting Radionuclides	Tritium	Explosive Compounds	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	VOCs	Cyanide (Total)
MD21-10-21693	21-612332	24–25	QBT 3	11-226	—	—	—	—	—	11-226	—	11-225	11-224	—	—	—	—	—
MD21-10-21694	21-612333	5–6	QBT 3	11-226	—	—	—	—	—	11-226	—	11-225	11-224	—	—	—	—	—
MD21-10-21695	21-612333	15–16	QBT 3	11-226	—	—	—	—	—	11-226	—	11-225	11-224	—	—	—	—	—
MD21-10-21696	21-612333	24–25	QBT 3	11-233	—	—	—	—	—	11-233	—	11-233	11-233	—	—	—	—	—
MD21-10-21697	21-612334	5–6	QBT 3	11-233	—	—	—	—	—	11-233	—	11-233	11-233	—	—	—	—	—
MD21-10-21698	21-612334	15–16	QBT 3	11-233	—	—	—	—	—	11-233	—	11-233	11-233	—	—	—	—	—
MD21-10-21699	21-612334	24–25	QBT 3	11-233	—	—	—	—	—	11-233	—	11-233	11-233	—	—	—	—	—
MD21-10-21700	21-612335	5–6	QBT 3	11-233	—	—	—	—	—	11-233	—	11-233	11-233	—	—	—	—	—
MD21-10-21701	21-612335	15–16	QBT 3	11-233	—	—	—	—	—	11-233	—	11-233	11-233	—	—	—	—	—
MD21-10-21702	21-612335	24–25	QBT 3	11-233	—	—	—	—	—	11-233	—	11-233	11-233	—	—	—	—	—
MD21-10-21703	21-612336	5–6	SOIL	11-248	—	—	—	—	—	11-248	—	11-248	11-248	—	—	—	—	—
MD21-10-21704	21-612336	15–16	QBT 3	11-248	—	—	—	—	—	11-248	—	11-248	11-248	—	—	—	—	—
MD21-10-21705	21-612336	24–25	QBT 3	11-248	—	—	—	—	—	11-248	—	11-248	11-248	—	—	—	—	—
MD21-10-21706	21-612337	5–6	QBT 3	11-296	—	—	—	—	—	11-296	—	11-295	11-294	—	—	—	—	—
MD21-10-21707	21-612337	15–16	QBT 3	11-296	—	—	—	—	—	11-296	—	11-295	11-294	—	—	—	—	—
MD21-10-21708	21-612337	24–25	QBT 3	11-296	—	—	—	—	—	11-296	—	11-295	11-294	—	—	—	—	—
MD21-10-21709	21-612338	5–6	QBT 3	11-259	—	—	—	—	—	11-259	—	11-259	11-259	—	—	—	—	—
MD21-10-21710	21-612338	15–16	QBT 3	11-259	—	—	—	—	—	11-259	—	11-259	11-259	—	—	—	—	—
MD21-10-21711	21-612338	24–25	QBT 3	11-259	—	—	—	—	—	11-259	—	11-259	11-259	—	—	—	—	—
MD21-10-21712	21-612339	5–6	QBT 3	11-273	—	—	—	—	—	11-273	—	11-272	11-271	—	—	—	—	—
MD21-10-21713	21-612339	15–16	QBT 3	11-273	—	—	—	—	—	11-273	—	11-272	11-271	—	—	—	—	—
MD21-10-21714	21-612339	24–25	QBT 3	11-273	—	—	—	—	—	11-273	—	11-272	11-271	—	—	—	—	—
MD21-10-21715	21-612340	5–6	QBT 3	11-273	—	—	—	—	—	11-273	—	11-272	11-271	—	—	—	—	—
MD21-10-21716	21-612340	15–16	QBT 3	11-273	—	—	—	—	—	11-273	—	11-272	11-271	—	—	—	—	—
MD21-10-21717	21-612340	24–25	QBT 3	11-273	—	—	—	—	—	11-273	—	11-272	11-271	—	—	—	—	—
MD21-10-21718	21-612341	5–6	QBT 3	11-273	—	—	—	—	—	11-273	—	11-272	11-271	—	—	—	—	—
MD21-10-21719	21-612341	15–16	QBT 3	11-273	—	—	—	—	—	11-273	—	11-272	11-271	—	—	—	—	—
MD21-10-21720	21-612341	24–25	QBT 3	11-273	—	—	—	—	—	11-273	—	11-272	11-271	—	—	—	—	—
MD21-10-21721	21-612342	5–6	QBT 3	11-296	—	—	—	—	—	11-296	—	11-295	11-294	—	—	—	—	—
MD21-10-21722	21-612342	15–16	QBT 3	11-296	—	—	—	—	—	11-296	—	11-295	11-294	—	—	—	—	—
MD21-10-21723	21-612342	24–25	QBT 3	11-296	—	—	—	—	—	11-296	—	11-295	11-294	—	—	—	—	—

* — = Analysis not requested.

Table 7.3-2
Inorganic Chemicals above BVs at AOC 21-028(c)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Cadmium	Calcium	Chromium	Cobalt	Copper	Cyanide (Total)	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Silver	Vanadium	Zinc
Qbt 2, 3, 4 BV[a]				**7340**	**0.5**	**2.79**	**46**	**1.63**	**2200**	**7.14**	**3.14**	**4.66**	**0.5**	**14500**	**11.2**	**1690**	**482**	**0.1**	**6.58**	**Na[b]**	**na**	**0.3**	**1**	**17**	**63.5**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**0.4**	**6120**	**19.3**	**8.64**	**14.7**	**0.5**	**21500**	**22.3**	**4610**	**671**	**0.1**	**15.4**	**na**	**na**	**1.52**	**1**	**39.6**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**1120**	**na**	**2920[d]**	**300[e]**	**45400**	**22700**	**795000**	**800**	**na**	**145000**	**310[e]**	**22700**	**1820000**	**795**	**5680**	**5680**	**5680**	**341000**
Recreational SSL[f]				**791000**	**317**	**27.7**	**158000**	**784**	**na**	**1910[d]**	**238**	**31700**	**15800**	**554000**	**560**	**na**	**110000**	**238**	**15800**	**1260000**	**555**	**3960**	**3960**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**77.9**	**na**	**219[d]**	**23[e]**	**3130**	**1560**	**54800**	**400**	**na**	**10700**	**23[e]**	**1560**	**125000**	**54.8**	**391**	**391**	**391**	**23500**
RE21-07-5100	21-601066	2–3	SOIL	—[g]	—	—	—	—	40700	—	—	—	0.59 (U)	—	—	—	—	—	—	0.2 (J)	—	—	—	—	—
RE21-07-5101	21-601066	7–8	QBT 3	—	—	3.1	124 (J)	—	18200	7.2	—	—	0.58 (U)	—	—	1730	—	—	—	0.44	—	0.58 (U)	—	—	—
RE21-07-6384	21-601066	12–13	QBT 3	—	—	—	56.8 (J)	—	12100	—	—	—	0.56 (U)	—	—	—	—	—	—	0.35	—	0.56 (U)	—	—	—
RE21-07-5102	21-601067	2–3	SOIL	—	1.4 (J-)	—	—	—	31000	—	—	—	0.57 (U)	—	22.4	—	—	0.199	—	—	—	—	—	41.7 (J-)	59.7 (U)
RE21-07-5103	21-601067	7–8	SOIL	—	—	—	—	—	—	—	—	—	0.59 (U)	—	—	—	—	—	—	0.91	—	—	—	—	—
RE21-07-6388	21-601067	12–13	QBT 3	8440	—	—	79.3	—	4270	—	—	—	0.57 (U)	—	—	—	—	—	—	0.73	—	0.57 (UJ)	—	—	—
RE21-07-5104	21-601068	2–3	SOIL	—	1.8 (J-)	—	—	—	20800	—	—	—	0.53 (U)	—	—	—	—	0.178	—	—	0.0089	—	—	—	91.3 (U)
RE21-07-5105	21-601068	7–8	QBT 3	—	0.84 (J-)	—	88.7	—	20800	8.4 (J-)	—	62.4 (J-)	0.55 (U)	—	—	—	—	—	—	0.66	0.005 (J)	0.55 (UJ)	—	—	—
RE21-07-6377	21-601068	12–13	QBT 3	—	0.99 (J-)	—	84.3	—	12300	—	—	52.6 (J-)	0.54 (U)	—	14.6 (U)	—	—	—	—	0.49	0.0046 (J)	0.54 (UJ)	—	—	69.1 (U)
RE21-07-5106	21-601069	2–3	SOIL	—	—	—	—	—	21900	—	—	—	0.57 (U)	—	—	—	—	0.218	—	1.7	0.0096	—	—	—	—
RE21-07-5107	21-601069	7–8	QBT 3	—	—	—	73.1	—	15000	12.7 (J-)	—	11.5 (U)	0.55 (U)	—	—	—	—	—	7.4 (U)	1.1	0.0053 (J)	0.55 (UJ)	—	—	—
RE21-07-6376	21-601069	12–13	QBT 3	—	—	—	—	—	3750	—	—	—	0.54 (U)	—	—	—	—	—	—	0.54	0.0029 (J)	—	—	—	—
RE21-07-5108	21-601070	2–3	SOIL	—	0.91 (J-)	—	—	—	37800	—	—	—	0.54 (U)	—	—	—	—	0.18	—	0.63	0.0027 (J)	—	—	41.4 (J-)	60.9 (U)
RE21-07-5109	21-601070	7–8	QBT 3	—	0.73 (J-)	—	105	—	4970	8.1 (J-)	—	5.9 (U)	0.6 (U)	—	16.7 (U)	—	—	—	8.8 (U)	0.18 (J)	—	0.6 (UJ)	—	—	—
RE21-07-6394	21-601070	12–13	QBT 3	7910	1.3 (J-)	—	69.2	—	3600	—	—	—	0.57 (U)	—	—	—	—	—	—	—	—	0.57 (UJ)	—	—	—
RE21-07-5110	21-601071	2–3	SOIL	—	1.2 (J-)	—	—	—	24700 (J+)	—	—	—	0.54 (U)	—	—	—	—	0.401	—	0.14 (J)	—	—	—	—	64.8 (U)
RE21-07-5111	21-601071	7–8	QBT 3	—	—	—	—	—	9890 (J+)	—	—	31.1 (U)	0.55 (U)	—	15.1 (U)	—	—	0.117	—	0.25	—	0.55 (UJ)	—	—	—
RE21-07-6383	21-601071	12–13	QBT 3	—	—	—	—	—	5700 (J+)	—	—	—	—	—	—	—	—	—	—	—	—	0.53 (UJ)	—	—	—
RE21-07-5112	21-601072	2–3	SOIL	—	2.3 (J-)	—	—	—	28900 (J+)	—	—	15.8 (U)	0.54 (U)	—	27.7 (U)	—	—	0.432	—	0.11 (J)	—	—	—	60.6	79.3 (U)
RE21-07-5113	21-601072	7–8	QBT 3	—	0.52 (J-)	—	—	—	7800 (J+)	10.9	—	—	0.56 (U)	—	—	—	—	0.124	—	0.35	—	0.56 (UJ)	—	17.3	—
RE21-07-6378	21-601072	12–13	QBT 3	—	0.97 (J-)	—	—	—	24300 (J+)	12.4	—	5.6 (U)	0.6 (U)	—	12.8 (U)	—	—	0.211	7.2 (U)	0.36	—	0.55 (UJ)	—	40.8	—
RE21-07-5114	21-601073	2–3	QBT 3	10400 (J)	—	—	—	—	8320 (J+)	7.9 (J)	3.9 (J)	—	0.56 (U)	—	—	1850 (J)	—	—	7.2 (U)	—	—	0.56 (UJ)	—	—	—
RE21-07-5115	21-601073	7–8	QBT 3	—	—	—	—	—	4000 (J+)	8.1	—	—	0.54 (U)	—	—	—	—	—	—	—	—	—	—	—	—
RE21-07-6393	21-601073	12–13	QBT 3	—	—	—	—	—	3250 (J+)	7.2	—	—	—	—	—	—	—	—	—	—	—	0.54 (UJ)	—	—	—
RE21-07-5116	21-601074	2–3	QBT 3	7440	0.52 (J-)	—	136	—	8830	—	3.5	5.5 (U)	—	—	15.3 (U)	—	—	0.214	7 (U)	0.55	—	0.55 (UJ)	—	—	—
RE21-07-5117	21-601074	7–8	QBT 3	—	0.83 (J-)	—	52.8	—	7060	—	—	—	—	—	—	—	—	—	—	0.21	—	0.53 (UJ)	—	—	—
RE21-07-6387	21-601074	12–13	QBT 3	—	—	—	—	—	2250	—	—	—	—	—	—	—	—	—	—	0.33	—	0.54 (UJ)	—	—	—
RE21-07-5118	21-601075	2–3	QBT 3	—	1.1 (J-)	—	111	—	25500	9.3	—	5.3 (U)	—	—	15.8 (U)	1880	—	0.258	7.7 (U)	0.18 (J)	—	0.57 (UJ)	—	25.1	—
RE21-07-5119	21-601075	7–8	QBT 3	—	2 (J-)	—	64.2	—	7630	9.5	—	—	—	—	11.3 (U)	—	—	—	—	—	—	0.57 (UJ)	—	—	—

Table 7.3-2 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Cadmium	Calcium	Chromium	Cobalt	Copper	Cyanide (Total)	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Silver	Vanadium	Zinc
Qbt 2, 3, 4 BV[a]				**7340**	**0.5**	**2.79**	**46**	**1.63**	**2200**	**7.14**	**3.14**	**4.66**	**0.5**	**14500**	**11.2**	**1690**	**482**	**0.1**	**6.58**	**Na[b]**	**na**	**0.3**	**1**	**17**	**63.5**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**0.4**	**6120**	**19.3**	**8.64**	**14.7**	**0.5**	**21500**	**22.3**	**4610**	**671**	**0.1**	**15.4**	**na**	**na**	**1.52**	**1**	**39.6**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**1120**	**na**	**2920[d]**	**300[e]**	**45400**	**22700**	**795000**	**800**	**na**	**145000**	**310[e]**	**22700**	**1820000**	**795**	**5680**	**5680**	**5680**	**341000**
Recreational SSL[f]				**791000**	**317**	**27.7**	**158000**	**784**	**na**	**1910[d]**	**238**	**31700**	**15800**	**554000**	**560**	**na**	**110000**	**238**	**15800**	**1260000**	**555**	**3960**	**3960**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**77.9**	**na**	**219[d]**	**23[e]**	**3130**	**1560**	**54800**	**400**	**na**	**10700**	**23[e]**	**1560**	**125000**	**54.8**	**391**	**391**	**391**	**23500**
RE21-07-6390	21-601075	12–13	QBT 3	—	0.53 (J-)	—	—	—	5370	7.7	—	—	—	—	—	—	—	—	—	0.17 (J)	—	0.54 (UJ)	—	—	—
RE21-07-5120	21-601076	2–3	SOIL	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.0025 (J)	—	—	—	—
RE21-07-5121	21-601076	7–8	QBT 3	—	—	—	—	—	—	9.2	—	—	—	—	—	—	—	—	—	—	—	0.55 (UJ)	—	—	—
RE21-07-6382	21-601076	12–13	QBT 3	—	—	—	—	—	2290	—	—	—	—	—	—	—	—	—	—	—	—	0.54 (UJ)	—	—	—
RE21-07-5122	21-601077	2–3	QBT 3	—	1.4 (J-)	—	88.4	—	24200	15.2	3.8	6 (U)	—	—	21 (U)	—	—	0.386	7.3 (U)	0.15 (J)	—	0.55 (UJ)	—	52.4	137 (U)
RE21-07-5123	21-601077	7–8	QBT 3	—	0.66 (J-)	—	—	—	10300	14	—	—	—	—	11.3 (U)	—	—	0.202	8.8 (U)	0.41	—	0.56 (UJ)	—	21.5	—
RE21-07-6395	21-601077	12–13	QBT 3	—	0.7 (J-)	—	—	—	7500	—	—	—	—	—	—	—	—	0.12	—	0.27	—	0.55 (UJ)	—	—	—
RE21-07-5124	21-601078	2–3	SOIL	—	—	—	—	—	31200	—	—	—	—	—	28.4	—	—	0.576	—	—	—	—	—	—	118 (U)
RE21-07-5125	21-601078	7–8	QBT 3	—	—	—	47	—	6310	9.7	—	—	—	—	—	—	—	0.128	—	—	—	0.56 (UJ)	—	—	—
RE21-07-6389	21-601078	12–13	QBT 3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.36	—	0.56 (UJ)	—	—	—
RE21-07-5126	21-601079	2–3	QBT 3	—	—	—	110 (J-)	—	46200	11.7 (J-)	—	10 (U)	0.56 (U)	—	—	1710	—	0.163 (J)	8.8 (U)	0.59	0.0026 (J)	0.56 (U)	—	25.6 (J+)	—
RE21-07-5127	21-601079	7–8	QBT 3	—	0.77 (J-)	—	51.6 (J-)	—	13600	11.6 (J-)	—	—	0.56 (U)	—	—	—	—	1.31 (J)	—	0.65	0.0031 (J)	0.56 (U)	—	—	—
RE21-07-6381	21-601079	12–13	QBT 3	—	1 (J-)	—	—	—	8350	11.7 (J-)	—	—	0.56 (U)	—	—	—	—	0.684 (J)	—	1	—	0.56 (U)	1.3	—	—
RE21-07-5128	21-601080	2–3	QBT 3	—	1.2 (J-)	—	142 (J-)	—	21500	9.1 (J-)	—	7 (U)	0.57 (U)	—	20.6 (U)	1870	—	0.267 (J)	7.7 (U)	0.36	—	0.57 (U)	—	21.4 (J+)	66.9 (U)
RE21-07-5129	21-601080	7–8	QBT 3	—	0.63 (J-)	—	62.3 (J-)	—	11000	10.1 (J-)	—	—	0.56 (U)	—	—	—	—	0.418 (J)	—	1	—	0.56 (U)	—	—	—
RE21-07-6391	21-601080	12–13	QBT 3	—	—	—	—	—	3510	—	—	—	0.55 (U)	—	—	—	—	0.13 (J)	—	—	—	—	—	—	—
RE21-07-5130	21-601081	2–3	SOIL	—	1.1 (J-)	—	—	—	13500	—	—	—	—	—	—	—	—	—	—	0.39	—	—	—	—	52.1 (U)
RE21-07-5131	21-601081	7–8	QBT 3	—	1.5 (J-)	—	46.3 (J-)	—	9530	7.8 (J-)	—	29.5 (U)	—	24700	25 (U)	—	—	0.361 (J)	7.3 (U)	0.49	—	0.56 (U)	—	—	—
RE21-07-6392	21-601081	12–13	QBT 3	—	0.62 (J-)	—	—	—	7240	12.2 (J-)	—	—	0.56 (U)	—	—	—	—	—	—	0.85	—	0.56 (U)	—	—	—
RE21-07-5132	21-601082	2–3	SOIL	—	—	—	—	—	36100	—	—	—	0.55 (U)	—	—	—	—	0.339 (J)	—	0.54	0.007	—	—	86.3 (J+)	50.9 (U)
RE21-07-5133	21-601082	7–8	QBT 3	—	0.75 (J-)	—	97.9 (J-)	—	13000	17 (J-)	—	6.7 (U)	—	—	11.7 (U)	—	—	—	—	0.7	0.0041 (J)	0.56 (U)	—	—	—
RE21-07-6385	21-601082	12–13	QBT 3	—	—	—	—	—	5640	—	—	—	0.58 (U)	—	—	—	—	0.236 (J)	—	0.59	0.0034 (J)	0.58 (U)	—	—	—
MD21-10-21680	21-612329	5–6	QBT 3	—	1.09 (U)	—	88.8	—	26800	—	—	—	NA[h]	—	—	—	—	—	—	NA	NA	1.09 (U)	—	—	—
MD21-10-21681	21-612329	15–16	QBT 3	—	1.09 (U)	5.04	—	—	—	—	—	—	NA	—	—	—	—	—	—	NA	NA	1.07 (U)	—	—	—
MD21-10-21682	21-612329	24–25	QBT 3	—	1.01 (U)	—	—	—	—	—	—	—	NA	—	28.2 (J)	—	—	—	—	NA	NA	1 (U)	—	—	—
MD21-10-21685	21-612330	5–6	QBT 3	—	1.08 (U)	—	—	—	11100	—	—	—	NA	—	—	—	—	—	—	NA	NA	1.08 (U)	—	—	—
MD21-10-21686	21-612330	15–16	QBT 3	—	1.06 (U)	—	—	—	—	—	—	—	NA	—	—	—	—	—	—	NA	NA	1.04 (U)	—	—	—
MD21-10-21687	21-612330	24–25	QBT 3	—	1.05 (U)	—	—	—	—	—	—	—	NA	—	—	—	—	—	—	NA	NA	1.02 (U)	—	—	—
MD21-10-21688	21-612331	5–6	QBT 3	—	1.06 (U)	—	—	—	—	—	—	—	NA	—	—	—	—	0.186	—	NA	NA	1.09 (UJ)	—	—	—
MD21-10-21689	21-612331	15–16	QBT 3	—	1.06 (U)	—	—	—	—	—	—	—	NA	—	—	—	—	—	—	NA	NA	1.03 (UJ)	—	—	—
MD21-10-21690	21-612331	24–25	QBT 3	—	1.06 (U)	—	—	—	—	—	—	—	NA	—	—	—	—	—	—	NA	NA	1.03 (UJ)	—	—	—

Table 7.3-2 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Cadmium	Calcium	Chromium	Cobalt	Copper	Cyanide (Total)	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Silver	Vanadium	Zinc
Qbt 2, 3, 4 BV[a]				**7340**	**0.5**	**2.79**	**46**	**1.63**	**2200**	**7.14**	**3.14**	**4.66**	**0.5**	**14500**	**11.2**	**1690**	**482**	**0.1**	**6.58**	**Na[b]**	**na**	**0.3**	**1**	**17**	**63.5**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**0.4**	**6120**	**19.3**	**8.64**	**14.7**	**0.5**	**21500**	**22.3**	**4610**	**671**	**0.1**	**15.4**	**na**	**na**	**1.52**	**1**	**39.6**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**1120**	**na**	**2920[d]**	**300[e]**	**45400**	**22700**	**795000**	**800**	**na**	**145000**	**310[e]**	**22700**	**1820000**	**795**	**5680**	**5680**	**5680**	**341000**
Recreational SSL[f]				**791000**	**317**	**27.7**	**158000**	**784**	**na**	**1910[d]**	**238**	**31700**	**15800**	**554000**	**560**	**na**	**110000**	**238**	**15800**	**1260000**	**555**	**3960**	**3960**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**77.9**	**na**	**219[d]**	**23[e]**	**3130**	**1560**	**54800**	**400**	**na**	**10700**	**23[e]**	**1560**	**125000**	**54.8**	**391**	**391**	**391**	**23500**
MD21-10-21691	21-612332	5–6	QBT 3	—	1.07 (U)	—	—	—	4050	—	—	—	NA	—	—	—	—	—	—	NA	NA	1.07 (UJ)	—	—	—
MD21-10-21692	21-612332	15–16	QBT 3	—	1.01 (U)	—	89.1	—	—	7.42	—	7.19	NA	—	12.9	2340	625	—	—	NA	NA	0.986 (UJ)	—	—	95
MD21-10-21693	21-612332	24–25	QBT 3	—	1.01 (U)	—	—	—	—	—	—	—	NA	—	—	—	—	—	—	NA	NA	1.04 (UJ)	—	—	—
MD21-10-21694	21-612333	5–6	QBT 3	—	1.06 (U)	—	—	—	—	—	—	—	NA	—	—	—	—	—	—	NA	NA	1.08 (UJ)	—	—	—
MD21-10-21695	21-612333	15–16	QBT 3	—	1.09 (U)	—	47.1	—	—	—	—	—	NA	—	—	—	—	—	—	NA	NA	1.08 (UJ)	—	—	—
MD21-10-21696	21-612333	24–25	QBT 3	—	1.08 (U)	—	—	—	—	—	—	—	NA	—	—	—	—	—	—	NA	NA	1.08 (UJ)	—	—	—
MD21-10-21697	21-612334	5–6	QBT 3	—	1.08 (U)	—	—	—	5190	15.8	—	—	NA	—	—	—	—	0.235	—	NA	NA	1.09 (UJ)	—	—	—
MD21-10-21698	21-612334	15–16	QBT 3	—	1.03 (U)	—	—	—	—	—	—	—	NA	—	—	—	—	—	—	NA	NA	1.06 (UJ)	—	—	—
MD21-10-21699	21-612334	24–25	QBT 3	—	1.06 (U)	6.06 (J-)	—	—	—	—	—	—	NA	—	20.6	—	—	—	—	NA	NA	1.07 (UJ)	—	—	—
MD21-10-21700	21-612335	5–6	QBT 3	—	—	—	—	—	4650	—	—	—	NA	—	—	—	—	0.23	—	NA	NA	1.09 (UJ)	—	—	—
MD21-10-21701	21-612335	15–16	QBT 3	—	1.07 (U)	—	—	—	—	—	—	—	NA	—	—	—	—	—	—	NA	NA	1.07 (UJ)	—	—	—
MD21-10-21702	21-612335	24–25	QBT 3	—	1 (U)	—	—	—	—	—	—	—	NA	—	—	—	—	—	—	NA	NA	0.996 (UJ)	—	—	—
MD21-10-21703	21-612336	5–6	SOIL	—	—	—	—	0.599 (U)	21900	—	—	—	NA	—	—	—	—	—	—	NA	NA	—	—	—	—
MD21-10-21704	21-612336	15–16	QBT 3	—	1.06 (U)	—	—	—	—	—	—	—	NA	—	—	—	—	—	—	NA	NA	1.05 (UJ)	—	—	—
MD21-10-21705	21-612336	24–25	QBT 3	—	1.05 (U)	—	—	—	—	—	—	—	NA	—	—	—	—	—	—	NA	NA	1 (UJ)	—	—	—
MD21-10-21706	21-612337	5–6	QBT 3	—	1.02 (U)	—	49.1	—	2510 (J+)	—	—	5.89	NA	—	165 (J+)	—	—	—	8.22 (J+)	NA	NA	1.05 (U)	—	—	—
MD21-10-21707	21-612337	15–16	QBT 3	—	1.04 (U)	—	—	—	—	7.62	—	6.82	NA	—	46.8 (J+)	—	—	—	—	NA	NA	1.02 (U)	—	—	—
MD21-10-21708	21-612337	24–25	QBT 3	—	0.995 (U)	—	—	—	—	—	—	—	NA	—	35.4 (J+)	—	—	—	—	NA	NA	1.05 (U)	—	—	—
MD21-10-21709	21-612338	5–6	QBT 3	—	1.08 (U)	—	—	—	—	—	—	—	NA	—	—	—	—	—	—	NA	NA	1.06 (U)	—	—	—
MD21-10-21710	21-612338	15–16	QBT 3	—	1.07 (U)	—	—	—	—	—	—	—	NA	—	—	—	—	—	—	NA	NA	1.07 (U)	—	—	—
MD21-10-21711	21-612338	24–25	QBT 3	—	1.02 (U)	—	—	—	—	—	—	—	NA	—	—	—	—	—	—	NA	NA	1.06 (U)	—	—	—
MD21-10-21712	21-612339	5–6	QBT 3	—	0.877 (J)	—	—	—	2660 (J+)	—	—	—	NA	—	—	—	—	—	—	NA	NA	0.973 (U)	—	—	—
MD21-10-21713	21-612339	15–16	QBT 3	—	1.06 (U)	—	—	—	—	—	—	—	NA	—	—	—	—	—	—	NA	NA	1.06 (U)	—	—	—
MD21-10-21714	21-612339	24–25	QBT 3	—	0.989	—	—	—	—	—	—	—	NA	—	—	—	—	—	—	NA	NA	1.03 (U)	—	—	—
MD21-10-21715	21-612340	5–6	QBT 3	—	0.597 (J)	—	—	—	3850 (J+)	—	—	—	NA	—	—	—	—	—	—	NA	NA	1.04 (U)	—	—	—
MD21-10-21716	21-612340	15–16	QBT 3	—	0.999 (U)	—	—	—	—	—	—	—	NA	—	—	—	—	—	—	NA	NA	1.05 (U)	—	—	—
MD21-10-21717	21-612340	24–25	QBT 3	—	—	—	—	—	—	—	—	—	NA	—	—	—	—	—	—	NA	NA	1.01 (U)	—	—	—
MD21-10-21718	21-612341	5–6	QBT 3	—	5.28	—	77.8	—	21900 (J+)	9.87	—	13.3	NA	—	13.1	—	—	0.103	—	NA	NA	1.09 (U)	—	26.5	163
MD21-10-21719	21-612341	15–16	QBT 3	—	1.07 (U)	—	—	—	—	—	—	—	NA	—	—	—	—	—	—	NA	NA	1.07 (U)	—	—	—
MD21-10-21720	21-612341	24–25	QBT 3	—	1.04 (U)	—	—	—	—	—	—	—	NA	—	—	—	—	—	—	NA	NA	1.02 (U)	—	—	—
MD21-10-21721	21-612342	5–6	QBT 3	—	0.966 (U)	—	—	—	—	—	—	—	NA	—	—	—	—	—	—	NA	NA	0.914 (U)	—	—	—

Table 7.3-2 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Cadmium	Calcium	Chromium	Cobalt	Copper	Cyanide (Total)	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Nitrate	Perchlorate	Selenium	Silver	Vanadium	Zinc
Qbt 2, 3, 4 BV[a]				**7340**	**0.5**	**2.79**	**46**	**1.63**	**2200**	**7.14**	**3.14**	**4.66**	**0.5**	**14500**	**11.2**	**1690**	**482**	**0.1**	**6.58**	**Na[b]**	**na**	**0.3**	**1**	**17**	**63.5**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**0.4**	**6120**	**19.3**	**8.64**	**14.7**	**0.5**	**21500**	**22.3**	**4610**	**671**	**0.1**	**15.4**	**na**	**na**	**1.52**	**1**	**39.6**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**1120**	**na**	**2920[d]**	**300[e]**	**45400**	**22700**	**795000**	**800**	**na**	**145000**	**310[e]**	**22700**	**1820000**	**795**	**5680**	**5680**	**5680**	**341000**
Recreational SSL[f]				**791000**	**317**	**27.7**	**158000**	**784**	**na**	**1910[d]**	**238**	**31700**	**15800**	**554000**	**560**	**na**	**110000**	**238**	**15800**	**1260000**	**555**	**3960**	**3960**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**77.9**	**na**	**219[d]**	**23[e]**	**3130**	**1560**	**54800**	**400**	**na**	**10700**	**23[e]**	**1560**	**125000**	**54.8**	**391**	**391**	**391**	**23500**
MD21-10-21722	21-612342	15–16	QBT 3	—	1.03 (U)	—	—	—	—	—	—	—	NA	—	—	—	—	—	—	NA	NA	1.05 (U)	—	—	—
MD21-10-21723	21-612342	24–25	QBT 3	—	0.954 (U)	—	—	—	—	—	—	—	NA	—	—	—	—	—	—	NA	NA	1.02 (U)	—	—	—

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

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

[b] na = Not available.

[c] SSLs are from NMED (2009, 108070), unless otherwise noted.

[d] SSLs are for hexavalent chromium.

[e] SSLs are from EPA regional screening tables (http://www.epa.gov.earth1r6/6pd/rcra_c/pd-n/screen.htm).

[f] SSLs are from LANL (2010, 108613).

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

[h] NA = Not analyzed.

Table 7.3-3
Organic Chemicals Detected at AOC 21-028(c)

Sample ID	Location ID	Depth (ft)	Media	Acetone	Anthracene	Aroclor-1242	Aroclor-1248	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	Bromobenzene	Butylbenzylphthalate
Industrial SSL[a]				**851000**	**183000**	**8.26**	**8.26**	**8.26**	**8.26**	**23.4**	**2.34**	**23.4**	**18300[b]**	**234**	**2500000[c]**	**1370**	**410**	**9100[c]**
Recreational SSL[d]				**702000**	**104000**	**10.5**	**10.5**	**6.65**	**10.5**	**30.1**	**3.01**	**30.1**	**10400[b]**	**301**	**1590000**	**1830**	**5730**	**13500**
Residential SSL[a]				**67500**	**17200**	**2.22**	**2.22**	**1.12**	**2.22**	**6.21**	**0.621**	**6.21**	**1720[b]**	**62.1**	**240000[c]**	**347**	**94**	**2600[c]**
RE21-07-5100	21-601066	2–3	SOIL	—[e]	—	NA[f]	NA	NA	NA	—	—	—	—	—	—	—	—	—
RE21-07-5101	21-601066	7–8	QBT 3	0.0045 (J-)	—	NA	NA	NA	NA	—	—	—	—	—	—	—	—	—
RE21-07-6384	21-601066	12–13	QBT 3	—	—	NA	NA	NA	NA	0.039 (J)	—	—	—	—	—	—	—	—
RE21-07-5102	21-601067	2–3	SOIL	—	—	NA	NA	NA	NA	0.062 (J)	0.058 (J)	0.065 (J)	0.05 (J)	0.059 (J)	—	0.22 (J)	—	—
RE21-07-5103	21-601067	7–8	SOIL	—	—	NA	NA	NA	NA	—	—	—	—	—	—	—	—	—
RE21-07-5104	21-601068	2–3	SOIL	—	—	NA	NA	NA	NA	0.11 (J)	0.094 (J)	0.099 (J)	0.058 (J)	0.086 (J)	—	0.11 (J)	—	—
RE21-07-5105	21-601068	7–8	QBT 3	—	—	NA	NA	NA	NA	0.046 (J)	0.047 (J)	0.046 (J)	—	0.042 (J)	—	0.056 (J)	—	—
RE21-07-6377	21-601068	12–13	QBT 3	—	—	NA	NA	NA	NA	0.11 (J)	0.1 (J)	0.1 (J)	0.063 (J)	0.097 (J)	—	—	—	—

Table 7.3-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Acetone	Anthracene	Aroclor-1242	Aroclor-1248	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	Bromobenzene	Butylbenzylphthalate
Industrial SSL[a]				**851000**	**183000**	**8.26**	**8.26**	**8.26**	**8.26**	**23.4**	**2.34**	**23.4**	**18300[b]**	**234**	**2500000[c]**	**1370**	**410**	**9100[c]**
Recreational SSL[d]				**702000**	**104000**	**10.5**	**10.5**	**6.65**	**10.5**	**30.1**	**3.01**	**30.1**	**10400[b]**	**301**	**1590000**	**1830**	**5730**	**13500**
Residential SSL[a]				**67500**	**17200**	**2.22**	**2.22**	**1.12**	**2.22**	**6.21**	**0.621**	**6.21**	**1720[b]**	**62.1**	**240000[c]**	**347**	**94**	**2600[c]**
RE21-07-5106	21-601069	2–3	SOIL	—	—	NA	NA	NA	NA	0.034 (J)	0.036 (J)	0.035 (J)	—	0.036 (J)	—	—	—	—
RE21-07-6376	21-601069	12–13	QBT 3	—	—	NA	NA	NA	NA	—	—	—	—	—	—	—	—	—
RE21-07-5108	21-601070	2–3	SOIL	—	—	NA	NA	NA	NA	0.092 (J)	0.093 (J)	0.089 (J)	0.074 (J)	0.083 (J)	—	—	—	—
RE21-07-5146	21-601070	2–3	SOIL	NA	NA	—	—	0.0808 (J)	0.0219	NA	NA	NA	NA	NA	NA	NA	NA	NA
RE21-07-6394	21-601070	12–13	QBT 3	—	—	NA	NA	NA	NA	0.063 (J)	0.07 (J)	0.058 (J)	0.047 (J)	0.061 (J)	—	0.043 (J)	—	—
RE21-07-5110	21-601071	2–3	SOIL	—	—	NA	NA	NA	NA	0.046 (J)	0.047 (J)	0.047 (J)	—	0.05 (J)	—	0.061 (J)	—	—
RE21-07-5111	21-601071	7–8	QBT 3	—	—	NA	NA	NA	NA	—	—	—	—	—	—	—	—	—
RE21-07-6383	21-601071	12–13	QBT 3	—	—	NA	NA	NA	NA	—	—	—	—	—	—	—	—	—
RE21-07-5112	21-601072	2–3	SOIL	—	—	NA	NA	NA	NA	0.077 (J)	0.074 (J)	0.072 (J)	0.038 (J)	0.071 (J)	—	0.27 (J)	—	—
RE21-07-5113	21-601072	7–8	QBT 3	—	—	NA	NA	NA	NA	—	—	—	—	—	—	0.041 (J)	—	—
RE21-07-6378	21-601072	12–13	QBT 3	—	—	NA	NA	NA	NA	—	—	—	—	—	—	0.11 (J)	—	—
RE21-07-5114	21-601073	2–3	QBT 3	—	—	NA	NA	NA	NA	—	0.045 (J)	0.041 (J)	0.043 (J)	0.038 (J)	—	—	—	—
RE21-07-6393	21-601073	12–13	QBT 3	—	—	NA	NA	NA	NA	0.043 (J)	—	0.036 (J)	—	—	—	—	—	—
RE21-07-5116	21-601074	2–3	QBT 3	—	—	NA	NA	NA	NA	0.037 (J)	—	—	—	—	—	—	—	—
RE21-07-5118	21-601075	2–3	QBT 3	—	—	NA	NA	NA	NA	0.049 (J)	0.049 (J)	0.046 (J)	—	0.046 (J)	—	0.089 (J)	—	—
RE21-07-5119	21-601075	7–8	QBT 3	0.011 (J)	—	NA	NA	NA	NA	—	—	—	—	—	—	—	—	—
RE21-07-6390	21-601075	12–13	QBT 3	0.013 (J-)	—	NA	NA	NA	NA	—	—	—	—	—	—	—	—	—
RE21-07-5122	21-601077	2–3	QBT 3	0.012 (J-)	—	NA	NA	NA	NA	0.079 (J)	0.064 (J)	0.066 (J)	0.038 (J)	0.068 (J)	—	0.073 (J)	—	—
RE21-07-5123	21-601077	7–8	QBT 3	0.009 (J-)	—	NA	NA	NA	NA	—	—	—	—	—	—	—	—	—
RE21-07-6395	21-601077	12–13	QBT 3	—	—	NA	NA	NA	NA	—	—	—	—	—	—	—	—	—
RE21-07-5124	21-601078	2–3	SOIL	—	—	NA	NA	NA	NA	—	—	—	—	—	0.4 (J)	—	—	—
RE21-07-5125	21-601078	7–8	QBT 3	0.019 (J-)	—	NA	NA	NA	NA	—	—	—	—	—	—	—	0.00053 (J-)	—
RE21-07-5126	21-601079	2–3	QBT 3	0.016 (J)	—	NA	NA	NA	NA	0.092 (J-)	0.074 (J-)	0.062 (J-)	0.055 (J-)	0.062 (J-)	—	0.2 (J-)	—	0.038 (J-)
RE21-07-5127	21-601079	7–8	QBT 3	0.013 (J)	—	NA	NA	NA	NA	0.077 (J)	0.07 (J)	0.07 (J)	—	0.067 (J)	—	0.067 (J)	—	—
RE21-07-6381	21-601079	12–13	QBT 3	0.017 (J)	—	NA	NA	NA	NA	—	—	—	—	—	—	—	—	—
RE21-07-5128	21-601080	2–3	QBT 3	0.013 (J)	—	NA	NA	NA	NA	0.096 (J-)	0.089 (J-)	0.08 (J-)	0.075 (J-)	0.07 (J-)	—	—	—	0.042 (J-)
RE21-07-5129	21-601080	7–8	QBT 3	0.022 (J)	—	NA	NA	NA	NA	0.064 (J)	0.057 (J)	0.046 (J)	0.04 (J)	0.05 (J)	—	—	—	—
RE21-07-6391	21-601080	12–13	QBT 3	0.0095 (J)	—	NA	NA	NA	NA	—	—	—	—	—	—	—	—	—
RE21-07-5130	21-601081	2–3	SOIL	0.018 (J)	—	NA	NA	NA	NA	—	—	—	—	—	—	—	—	—

Table 7.3-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Acetone	Anthracene	Aroclor-1242	Aroclor-1248	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	Bromobenzene	Butylbenzylphthalate
Industrial SSL[a]				**851000**	**183000**	**8.26**	**8.26**	**8.26**	**8.26**	**23.4**	**2.34**	**23.4**	**18300[b]**	**234**	**2500000[c]**	**1370**	**410**	**9100[c]**
Recreational SSL[d]				**702000**	**104000**	**10.5**	**10.5**	**6.65**	**10.5**	**30.1**	**3.01**	**30.1**	**10400[b]**	**301**	**1590000**	**1830**	**5730**	**13500**
Residential SSL[a]				**67500**	**17200**	**2.22**	**2.22**	**1.12**	**2.22**	**6.21**	**0.621**	**6.21**	**1720[b]**	**62.1**	**240000[c]**	**347**	**94**	**2600[c]**
RE21-07-5131	21-601081	7–8	QBT 3	0.012 (J)	0.048 (J)	NA	NA	NA	NA	0.13 (J)	0.12 (J)	0.097 (J)	0.1 (J)	0.11 (J)	—	0.065 (J)	—	0.041 (J)
RE21-07-6392	21-601081	12–13	QBT 3	—	—	NA	NA	NA	NA	—	—	—	—	—	—	—	—	—
RE21-07-5132	21-601082	2–3	SOIL	0.012 (J)	—	NA	NA	NA	NA	0.044 (J)	0.039 (J)	—	—	0.04 (J)	—	—	—	—
RE21-07-5133	21-601082	7–8	QBT 3	0.026 (J)	—	NA	NA	NA	NA	—	—	—	—	—	—	0.043 (J)	—	—
RE21-07-6385	21-601082	12–13	QBT 3	0.016 (J)	—	NA	NA	NA	NA	—	—	—	—	—	—	—	—	—
MD21-10-21680	21-612329	5–6	QBT 3	NA	NA	—	—	0.0472	0.0173	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21681	21-612329	15–16	QBT 3	NA	NA	—	—	0.0028 (J)	—	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21685	21-612330	5–6	QBT 3	NA	NA	—	—	0.0451	0.0264	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21686	21-612330	15–16	QBT 3	NA	NA	—	—	0.0052	0.0028 (J)	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21688	21-612331	5–6	QBT 3	NA	NA	—	—	0.0272	—	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21689	21-612331	15–16	QBT 3	NA	NA	—	—	0.004	—	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21691	21-612332	5–6	QBT 3	NA	NA	—	—	0.183	—	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21692	21-612332	15–16	QBT 3	NA	NA	—	—	0.0019 (J)	—	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21697	21-612334	5–6	QBT 3	NA	NA	—	—	0.0225	0.0032 (J)	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21700	21-612335	5–6	QBT 3	NA	NA	0.0659	—	0.158	0.0166 (J)	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21701	21-612335	15–16	QBT 3	NA	NA	—	—	0.0643	0.0068 (J)	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21703	21-612336	5–6	SOIL	NA	NA	—	—	0.273	0.0264 (J)	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21706	21-612337	5–6	QBT 3	NA	NA	—	—	0.073	0.0091	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21707	21-612337	15–16	QBT 3	NA	NA	—	—	0.0019 (J)	—	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21709	21-612338	5–6	QBT 3	NA	NA	—	—	0.0172	0.0039	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21710	21-612338	15–16	QBT 3	NA	NA	—	—	0.0019 (J)	—	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21712	21-612339	5–6	QBT 3	NA	NA	—	—	0.0972	0.0109	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21713	21-612339	15–16	QBT 3	NA	NA	—	—	0.0092 (J)	—	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21715	21-612340	5–6	QBT 3	NA	NA	—	0.01	0.0224	0.0037	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21716	21-612340	15–16	QBT 3	NA	NA	—	—	0.0324	—	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21718	21-612341	5–6	QBT 3	NA	NA	—	—	0.0086	0.0027 (J)	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21719	21-612341	15–16	QBT 3	NA	NA	—	—	0.002 (J)	0.002 (J)	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21721	21-612342	5–6	QBT 3	NA	NA	—	0.0028 (J)	0.0024 (J)	—	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 7.3-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Chrysene	Dichlorobenzene[1,2-]	Dichlorobenzene[1,3-]	Ethylbenzene	Fluoranthene	Heptachlorodibenzodioxin[1,2,3,4,6,7,8-]	Heptachlorodibenzodioxins (Total)	Heptachlorodibenzofuran[1,2,3,4,6,7,8-]	Heptachlorodibenzofuran[1,2,3,4,7,8,9-]	Heptachlorodibenzofurans (Total)	Hexachlorodibenzodioxins (Total)	Hexachlorodibenzofuran[2,3,4,6,7,8-]	Hexachlorodibenzofurans (Total)	Indeno(1,2,3-cd)pyrene
Industrial SSL[a]				**2340**	**14300**	**140[g]**	**385**	**24400**	**na[h]**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**23.4**
Recreational SSL[d]				**3010**	**48600**	**36100**	**2060**	**13900**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**30.1**
Residential SSL[a]				**621**	**3010**	**69[g]**	**69.7**	**2290**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**6.21**
RE21-07-5100	21-601066	2–3	SOIL	—	—	—	—	—	NA	NA	NA	NA	NA	NA	NA	NA	—
RE21-07-5101	21-601066	7–8	QBT 3	—	—	—	—	—	NA	NA	NA	NA	NA	NA	NA	NA	—
RE21-07-6384	21-601066	12–13	QBT 3	0.057 (J)	—	—	—	0.075 (J)	NA	NA	NA	NA	NA	NA	NA	NA	—
RE21-07-5102	21-601067	2–3	SOIL	0.1 (J)	—	—	—	0.14 (J)	NA	NA	NA	NA	NA	NA	NA	NA	0.043 (J)
RE21-07-5103	21-601067	7–8	SOIL	—	—	—	—	—	NA	NA	NA	NA	NA	NA	NA	NA	—
RE21-07-5104	21-601068	2–3	SOIL	0.17 (J)	—	—	—	0.25 (J)	NA	NA	NA	NA	NA	NA	NA	NA	0.052 (J)
RE21-07-5105	21-601068	7–8	QBT 3	0.067 (J)	—	—	—	0.099 (J)	NA	NA	NA	NA	NA	NA	NA	NA	—
RE21-07-6377	21-601068	12–13	QBT 3	0.15 (J)	—	—	—	0.16 (J)	NA	NA	NA	NA	NA	NA	NA	NA	0.052 (J)
RE21-07-5106	21-601069	2–3	SOIL	0.055 (J)	—	—	—	0.073 (J)	NA	NA	NA	NA	NA	NA	NA	NA	—
RE21-07-6376	21-601069	12–13	QBT 3	—	—	—	—	—	NA	NA	NA	NA	NA	NA	NA	NA	—
RE21-07-5108	21-601070	2–3	SOIL	0.14 (J)	—	—	—	0.23 (J)	NA	NA	NA	NA	NA	NA	NA	NA	0.056 (J)
RE21-07-5146	21-601070	2–3	SOIL	NA	NA	NA	NA	NA	0.00000851	0.0000179	0.00000338	0.000000331 (J)	0.00000703	0.00000144	0.000000239 (J)	0.00000397 (J)	NA
RE21-07-6394	21-601070	12–13	QBT 3	0.093 (J)	—	—	—	0.13 (J)	NA	NA	NA	NA	NA	NA	NA	NA	0.047 (J)
RE21-07-5110	21-601071	2–3	SOIL	0.079 (J)	—	—	—	0.11 (J)	NA	NA	NA	NA	NA	NA	NA	NA	—
RE21-07-5111	21-601071	7–8	QBT 3	0.037 (J)	—	—	—	0.049 (J)	NA	NA	NA	NA	NA	NA	NA	NA	—
RE21-07-6383	21-601071	12–13	QBT 3	—	—	—	0.001 (J-)	—	NA	NA	NA	NA	NA	NA	NA	NA	—
RE21-07-5112	21-601072	2–3	SOIL	0.13 (J)	—	—	0.00036 (J-)	0.18 (J)	NA	NA	NA	NA	NA	NA	NA	NA	—
RE21-07-5113	21-601072	7–8	QBT 3	0.039 (J)	—	—	—	0.047 (J)	NA	NA	NA	NA	NA	NA	NA	NA	—
RE21-07-6378	21-601072	12–13	QBT 3	0.053 (J)	—	—	—	0.071 (J)	NA	NA	NA	NA	NA	NA	NA	NA	—
RE21-07-5114	21-601073	2–3	QBT 3	0.047 (J)	—	—	—	0.039 (J)	NA	NA	NA	NA	NA	NA	NA	NA	—
RE21-07-6393	21-601073	12–13	QBT 3	0.059 (J)	—	—	—	0.1 (J)	NA	NA	NA	NA	NA	NA	NA	NA	—
RE21-07-5116	21-601074	2–3	QBT 3	0.052 (J)	—	—	—	0.075 (J)	NA	NA	NA	NA	NA	NA	NA	NA	—
RE21-07-5118	21-601075	2–3	QBT 3	0.081 (J)	—	—	—	0.12 (J)	NA	NA	NA	NA	NA	NA	NA	NA	—
RE21-07-5119	21-601075	7–8	QBT 3	0.042 (J)	—	—	—	0.059 (J)	NA	NA	NA	NA	NA	NA	NA	NA	—
RE21-07-6390	21-601075	12–13	QBT 3	—	—	—	0.00022 (J-)	—	NA	NA	NA	NA	NA	NA	NA	NA	—
RE21-07-5122	21-601077	2–3	QBT 3	0.13 (J)	—	—	—	0.17 (J)	NA	NA	NA	NA	NA	NA	NA	NA	—
RE21-07-5123	21-601077	7–8	QBT 3	0.046 (J)	—	—	—	0.065 (J)	NA	NA	NA	NA	NA	NA	NA	NA	—

Table 7.3-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Chrysene	Dichlorobenzene[1,2-]	Dichlorobenzene[1,3-]	Ethylbenzene	Fluoranthene	Heptachlorodibenzodioxin[1,2,3,4,6,7,8-]	Heptachlorodibenzodioxins (Total)	Heptachlorodibenzofuran[1,2,3,4,6,7,8-]	Heptachlorodibenzofuran[1,2,3,4,7,8,9-]	Heptachlorodibenzofurans (Total)	Hexachlorodibenzodioxins (Total)	Hexachlorodibenzofuran[2,3,4,6,7,8-]	Hexachlorodibenzofurans (Total)	Indeno(1,2,3-cd)pyrene
Industrial SSL[a]				**2340**	**14300**	**140**[g]	**385**	**24400**	**na**[h]	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**23.4**
Recreational SSL[d]				**3010**	**48600**	**36100**	**2060**	**13900**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**30.1**
Residential SSL[a]				**621**	**3010**	**69**[g]	**69.7**	**2290**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**6.21**
RE21-07-6395	21-601077	12–13	QBT 3	0.046 (J)	—	—	—	0.074 (J)	NA	NA	NA	NA	NA	NA	NA	NA	—
RE21-07-5124	21-601078	2–3	SOIL	0.042 (J)	—	—	—	0.055 (J)	NA	NA	NA	NA	NA	NA	NA	NA	—
RE21-07-5125	21-601078	7–8	QBT 3	—	0.00054 (J-)	0.00049 (J-)	0.00027 (J-)	—	NA	NA	NA	NA	NA	NA	NA	NA	—
RE21-07-5126	21-601079	2–3	QBT 3	0.12 (J-)	—	—	—	0.2 (J-)	NA	NA	NA	NA	NA	NA	NA	NA	0.05 (J-)
RE21-07-5127	21-601079	7–8	QBT 3	0.12 (J)	—	—	—	0.19 (J)	NA	NA	NA	NA	NA	NA	NA	NA	0.037 (J)
RE21-07-6381	21-601079	12–13	QBT 3	—	—	—	—	—	NA	NA	NA	NA	NA	NA	NA	NA	—
RE21-07-5128	21-601080	2–3	QBT 3	0.15 (J-)	—	—	—	0.19 (J-)	NA	NA	NA	NA	NA	NA	NA	NA	0.072 (J-)
RE21-07-5129	21-601080	7–8	QBT 3	0.099 (J)	—	—	—	0.12 (J)	NA	NA	NA	NA	NA	NA	NA	NA	—
RE21-07-6391	21-601080	12–13	QBT 3	—	—	—	—	—	NA	NA	NA	NA	NA	NA	NA	NA	—
RE21-07-5130	21-601081	2–3	SOIL	—	—	—	—	—	NA	NA	NA	NA	NA	NA	NA	NA	—
RE21-07-5131	21-601081	7–8	QBT 3	0.19 (J+)	0.00049 (J)	—	—	0.29 (J)	NA	NA	NA	NA	NA	NA	NA	NA	0.098 (J)
RE21-07-6392	21-601081	12–13	QBT 3	0.045 (J)	—	—	—	0.06 (J)	NA	NA	NA	NA	NA	NA	NA	NA	—
RE21-07-5132	21-601082	2–3	SOIL	0.063 (J)	—	—	—	0.099 (J)	NA	NA	NA	NA	NA	NA	NA	NA	—
RE21-07-5133	21-601082	7–8	QBT 3	0.039 (J+)	—	—	—	0.054 (J)	NA	NA	NA	NA	NA	NA	NA	NA	—
RE21-07-6385	21-601082	12–13	QBT 3	—	—	—	—	—	NA	NA	NA	NA	NA	NA	NA	NA	—
MD21-10-21680	21-612329	5–6	QBT 3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21681	21-612329	15–16	QBT 3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21685	21-612330	5–6	QBT 3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21686	21-612330	15–16	QBT 3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21688	21-612331	5–6	QBT 3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21689	21-612331	15–16	QBT 3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21691	21-612332	5–6	QBT 3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21692	21-612332	15–16	QBT 3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21697	21-612334	5–6	QBT 3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21700	21-612335	5–6	QBT 3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21701	21-612335	15–16	QBT 3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21703	21-612336	5–6	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 7.3-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Chrysene	Dichlorobenzene[1,2-]	Dichlorobenzene[1,3-]	Ethylbenzene	Fluoranthene	Heptachlorodibenzodioxin[1,2,3,4,6,7,8-]	Heptachlorodibenzodioxins (Total)	Heptachlorodibenzofuran[1,2,3,4,6,7,8-]	Heptachlorodibenzofuran[1,2,3,4,7,8,9-]	Heptachlorodibenzofurans (Total)	Hexachlorodibenzodioxins (Total)	Hexachlorodibenzofuran[2,3,4,6,7,8-]	Hexachlorodibenzofurans (Total)	Indeno(1,2,3-cd)pyrene
Industrial SSL[a]				**2340**	**14300**	**140[g]**	**385**	**24400**	**na[h]**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**23.4**
Recreational SSL[d]				**3010**	**48600**	**36100**	**2060**	**13900**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**30.1**
Residential SSL[a]				**621**	**3010**	**69[g]**	**69.7**	**2290**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**6.21**
MD21-10-21706	21-612337	5–6	QBT 3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21707	21-612337	15–16	QBT 3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21709	21-612338	5–6	QBT 3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21710	21-612338	15–16	QBT 3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21712	21-612339	5–6	QBT 3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21713	21-612339	15–16	QBT 3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21715	21-612340	5–6	QBT 3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21716	21-612340	15–16	QBT 3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21718	21-612341	5–6	QBT 3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21719	21-612341	15–16	QBT 3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21721	21-612342	5–6	QBT 3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 7.3-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Isopropyltoluene[4-]	Methylene Chloride	Octachlorodibenzodioxin[1,2,3,4,6,7,8,9-]	Octachlorodibenzofuran[1,2,3,4,6,7,8,9-]	Pentachlorodibenzofuran[2,3,4,7,8-]	Pentachlorodibenzofurans (Totals)	Phenanthrene	Pyrene	Tetrachlorodibenzofuran[2,3,7,8-]	Tetrachlorodibenzofurans (Totals)	Tetrachloroethene	Toluene	Trimethylbenzene[1,2,4-]	Xylene (Total)
Industrial SSL[a]				**14900[i]**	**1090**	**na**	**na**	**na**	**na**	**20500**	**18300**	**0.00147**	**na**	**36.4**	**57900**	**260[c]**	**3610**
Recreational SSL[d]				**52700[i]**	**4520**	**na**	**na**	**na**	**na**	**12000**	**10400**	**0.00197**	**na**	**91.7**	**60800**	**6880**	**27800**
Residential SSL[a]				**3210[i]**	**199**	**na**	**na**	**na**	**na**	**1830**	**1720**	**0.000374**	**na**	**6.99**	**5570**	**62[c]**	**1090**
RE21-07-5100	21-601066	2–3	SOIL	—	—	NA	NA	NA	NA	—	—	NA	NA	—	—	0.00038 (J)	—
RE21-07-5101	21-601066	7–8	QBT 3	—	—	NA	NA	NA	NA	—	—	NA	NA	—	0.0003 (J-)	—	—
RE21-07-6384	21-601066	12–13	QBT 3	—	—	NA	NA	NA	NA	0.047 (J)	0.063 (J)	NA	NA	—	0.00055 (J-)	0.00029 (J-)	—
RE21-07-5102	21-601067	2–3	SOIL	—	—	NA	NA	NA	NA	0.059 (J)	0.097 (J)	NA	NA	—	—	—	—
RE21-07-5103	21-601067	7–8	SOIL	—	—	NA	NA	NA	NA	—	—	NA	NA	0.0014 (J)	0.00021 (J)	—	—
RE21-07-5104	21-601068	2–3	SOIL	—	—	NA	NA	NA	NA	0.15 (J)	0.18 (J)	NA	NA	0.00081 (J-)	0.00039 (J-)	—	—
RE21-07-5105	21-601068	7–8	QBT 3	—	—	NA	NA	NA	NA	0.06 (J)	0.071 (J)	NA	NA	—	0.00027 (J-)	—	—
RE21-07-6377	21-601068	12–13	QBT 3	—	0.0043 (J-)	NA	NA	NA	NA	—	0.14 (J)	NA	NA	—	—	0.00035 (J)	—
RE21-07-5106	21-601069	2–3	SOIL	—	—	NA	NA	NA	NA	0.04 (J)	0.052 (J)	NA	NA	—	0.00028 (J-)	0.00031 (J-)	—
RE21-07-6376	21-601069	12–13	QBT 3	—	—	NA	NA	NA	NA	—	—	NA	NA	—	—	0.00025 (J)	—
RE21-07-5108	21-601070	2–3	SOIL	0.0041 (J-)	—	NA	NA	NA	NA	0.12 (J)	0.16 (J)	NA	NA	—	—	0.00038 (J-)	—
RE21-07-5146	21-601070	2–3	SOIL	NA	NA	0.0000852	0.00000411 (J)	0.000000362 (J)	0.00000276 (J)	NA	NA	0.000000312 (J)	0.00000121	NA	NA	NA	NA
RE21-07-6394	21-601070	12–13	QBT 3	0.0097	—	NA	NA	NA	NA	0.073 (J)	0.11 (J)	NA	NA	0.0012 (J)	—	0.0004 (J)	—
RE21-07-5110	21-601071	2–3	SOIL	—	—	NA	NA	NA	NA	0.045 (J)	0.08 (J)	NA	NA	—	0.00077 (J+)	—	—
RE21-07-5111	21-601071	7–8	QBT 3	—	—	NA	NA	NA	NA	—	0.038 (J)	NA	NA	—	—	—	—
RE21-07-6383	21-601071	12–13	QBT 3	—	—	NA	NA	NA	NA	—	—	NA	NA	—	0.00079 (J-)	0.00043 (J)	0.0071 (J-)
RE21-07-5112	21-601072	2–3	SOIL	—	—	NA	NA	NA	NA	0.091 (J)	0.14 (J)	NA	NA	—	0.00074 (J-)	0.00039 (J-)	—
RE21-07-5113	21-601072	7–8	QBT 3	—	—	NA	NA	NA	NA	—	—	NA	NA	—	—	0.00041 (J-)	—
RE21-07-6378	21-601072	12–13	QBT 3	—	—	NA	NA	NA	NA	—	0.053 (J)	NA	NA	—	—	—	—
RE21-07-5114	21-601073	2–3	QBT 3	—	—	NA	NA	NA	NA	—	0.041 (J)	NA	NA	—	—	—	—
RE21-07-6393	21-601073	12–13	QBT 3	—	—	NA	NA	NA	NA	0.05 (J)	0.078 (J)	NA	NA	—	—	—	—
RE21-07-5116	21-601074	2–3	QBT 3	—	—	NA	NA	NA	NA	0.039 (J)	0.062 (J)	NA	NA	—	0.00069 (J)	0.00046 (J)	—
RE21-07-5118	21-601075	2–3	QBT 3	—	—	NA	NA	NA	NA	0.05 (J)	0.1 (J)	NA	NA	—	0.0017 (J)	—	—
RE21-07-5119	21-601075	7–8	QBT 3	—	—	NA	NA	NA	NA	—	0.045 (J)	NA	NA	—	—	—	—
RE21-07-6390	21-601075	12–13	QBT 3	—	—	NA	NA	NA	NA	—	—	NA	NA	—	0.00051 (J-)	0.00042 (J-)	—
RE21-07-5122	21-601077	2–3	QBT 3	—	—	NA	NA	NA	NA	0.084 (J)	0.13 (J)	NA	NA	—	0.00072 (J-)	—	—
RE21-07-5123	21-601077	7–8	QBT 3	—	—	NA	NA	NA	NA	—	0.05 (J)	NA	NA	—	0.00061 (J-)	—	—

Table 7.3-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Isopropyltoluene[4-]	Methylene Chloride	Octachlorodibenzodioxin[1,2,3,4,6,7,8,9-]	Octachlorodibenzofuran[1,2,3,4,6,7,8,9-]	Pentachlorodibenzofuran[2,3,4,7,8-]	Pentachlorodibenzofurans (Totals)	Phenanthrene	Pyrene	Tetrachlorodibenzofuran[2,3,7,8-]	Tetrachlorodibenzofurans (Totals)	Tetrachloroethene	Toluene	Trimethylbenzene[1,2,4-]	Xylene (Total)
Industrial SSL[a]				**14900[i]**	**1090**	**na**	**na**	**na**	**na**	**20500**	**18300**	**0.00147**	**na**	**36.4**	**57900**	**260[c]**	**3610**
Recreational SSL[d]				**52700[i]**	**4520**	**na**	**na**	**na**	**na**	**12000**	**10400**	**0.00197**	**na**	**91.7**	**60800**	**6880**	**27800**
Residential SSL[a]				**3210[i]**	**199**	**na**	**na**	**na**	**na**	**1830**	**1720**	**0.000374**	**na**	**6.99**	**5570**	**62[c]**	**1090**
RE21-07-6395	21-601077	12–13	QBT 3	—	—	NA	NA	NA	NA	0.045 (J)	0.062 (J)	NA	NA	—	—	—	—
RE21-07-5124	21-601078	2–3	SOIL	—	—	NA	NA	NA	NA	—	0.044 (J)	NA	NA	—	—	0.0005 (J)	—
RE21-07-5125	21-601078	7–8	QBT 3	0.00028 (J-)	—	NA	NA	NA	NA	—	—	NA	NA	—	0.00041 (J-)	0.00068 (J-)	—
RE21-07-5126	21-601079	2–3	QBT 3	—	0.011 (J-)	NA	NA	NA	NA	0.16 (J-)	0.2 (J-)	NA	NA	—	0.00031 (J-)	—	—
RE21-07-5127	21-601079	7–8	QBT 3	—	0.0034 (J-)	NA	NA	NA	NA	0.084 (J)	0.15 (J)	NA	NA	—	0.00024 (J-)	—	—
RE21-07-6381	21-601079	12–13	QBT 3	—	0.01 (J-)	NA	NA	NA	NA	—	—	NA	NA	—	0.00021 (J-)	—	—
RE21-07-5128	21-601080	2–3	QBT 3	—	0.013	NA	NA	NA	NA	0.1 (J-)	0.19 (J-)	NA	NA	—	0.00078 (J)	—	—
RE21-07-5129	21-601080	7–8	QBT 3	—	0.011	NA	NA	NA	NA	0.064 (J)	0.12 (J)	NA	NA	—	0.00036 (J)	—	—
RE21-07-6391	21-601080	12–13	QBT 3	—	0.0071	NA	NA	NA	NA	—	—	NA	NA	—	—	—	—
RE21-07-5130	21-601081	2–3	SOIL	—	0.011	NA	NA	NA	NA	—	—	NA	NA	—	0.00055 (J)	—	—
RE21-07-5131	21-601081	7–8	QBT 3	—	0.0033 (J)	NA	NA	NA	NA	0.2 (J)	0.29 (J)	NA	NA	—	0.00083 (J)	—	—
RE21-07-6392	21-601081	12–13	QBT 3	—	—	NA	NA	NA	NA	—	0.048 (J)	NA	NA	—	—	—	—
RE21-07-5132	21-601082	2–3	SOIL	—	0.011 (J-)	NA	NA	NA	NA	0.048 (J)	0.08 (J)	NA	NA	—	0.00024 (J-)	—	—
RE21-07-5133	21-601082	7–8	QBT 3	—	—	NA	NA	NA	NA	0.041 (J)	0.057 (J)	NA	NA	—	0.00028 (J)	—	—
RE21-07-6385	21-601082	12–13	QBT 3	—	0.0098 (J-)	NA	NA	NA	NA	—	—	NA	NA	—	0.00022 (J-)	—	—
MD21-10-21680	21-612329	5–6	QBT 3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21681	21-612329	15–16	QBT 3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21685	21-612330	5–6	QBT 3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21686	21-612330	15–16	QBT 3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21688	21-612331	5–6	QBT 3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21689	21-612331	15–16	QBT 3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21691	21-612332	5–6	QBT 3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21692	21-612332	15–16	QBT 3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21697	21-612334	5–6	QBT 3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21700	21-612335	5–6	QBT 3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21701	21-612335	15–16	QBT 3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21703	21-612336	5–6	SOIL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 7.3-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Isopropyltoluene[4-]	Methylene Chloride	Octachlorodibenzodioxin[1,2,3,4,6,7,8,9-]	Octachlorodibenzofuran[1,2,3,4,6,7,8,9-]	Pentachlorodibenzofuran[2,3,4,7,8-]	Pentachlorodibenzofurans (Totals)	Phenanthrene	Pyrene	Tetrachlorodibenzofuran[2,3,7,8-]	Tetrachlorodibenzofurans (Totals)	Tetrachloroethene	Toluene	Trimethylbenzene[1,2,4-]	Xylene (Total)
Industrial SSL[a]				**14900[i]**	**1090**	**na**	**na**	**na**	**na**	**20500**	**18300**	**0.00147**	**na**	**36.4**	**57900**	**260[c]**	**3610**
Recreational SSL[d]				**52700[i]**	**4520**	**na**	**na**	**na**	**na**	**12000**	**10400**	**0.00197**	**na**	**91.7**	**60800**	**6880**	**27800**
Residential SSL[a]				**3210[i]**	**199**	**na**	**na**	**na**	**na**	**1830**	**1720**	**0.000374**	**na**	**6.99**	**5570**	**62[c]**	**1090**
MD21-10-21706	21-612337	5–6	QBT 3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21707	21-612337	15–16	QBT 3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21709	21-612338	5–6	QBT 3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21710	21-612338	15–16	QBT 3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21712	21-612339	5–6	QBT 3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21713	21-612339	15–16	QBT 3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21715	21-612340	5–6	QBT 3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21716	21-612340	15–16	QBT 3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21718	21-612341	5–6	QBT 3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21719	21-612341	15–16	QBT 3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MD21-10-21721	21-612342	5–6	QBT 3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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

[a] SSLs are from NMED (2009, 108070), unless otherwise noted.

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

[c] SSLs are from EPA regional screening tables (http://www.epa.gov.earth1r6/6pd/rcra_c/pd-n/screen.htm).

[d] SSLs are from LANL (2010, 108613).

[e] — = Not detected.

[f] NA = Not analyzed.

[g] SSLs are from EPA (2007, 099314).

[h] na = Not available.

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

Table 7.3-4
Radionuclides Detected or Detected above BVs/FVs at AOC 21-028(c)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-137	Plutonium-238	Plutonium-239/240	Tritium	Uranium-234	Uranium-235/236
Qbt 2, 3, 4 BV[a]				**na[b]**	**na**	**na**	**na**	**na**	**1.98**	**0.09**
Soil BV[a]				**0.013**	**1.65**	**0.023**	**0.054**	**na**	**2.59**	**0.2**
Industrial SAL[c]				**180**	**23**	**240**	**210**	**440000**	**1500**	**87**
Recreational SAL[c]				**280**	**210**	**330**	**300**	**5300000**	**3200**	**520**
Residential SAL[c]				**30**	**5.6**	**37**	**33**	**750**	**170**	**17**
RE21-07-5100	21-601066	2–3	SOIL	—[d]	—	0.038 (J)	0.424	—	—	—
RE21-07-5101	21-601066	7–8	QBT 3	—	—	0.121 (J)	0.317	—	—	—
RE21-07-6384	21-601066	12–13	QBT 3	—	—	0.178 (J)	0.72	—	—	—
RE21-07-5102	21-601067	2–3	SOIL	0.151 (J-)	—	0.216	2.03	—	2.91	—
RE21-07-5103	21-601067	7–8	SOIL	—	—	0.069	1.34	—	—	—
RE21-07-6388	21-601067	12–13	QBT 3	—	—	0.0315	0.351	—	—	—
RE21-07-5104	21-601068	2–3	SOIL	1.71 (J-)	0.173	0.591	10.7	0.193	—	—
RE21-07-5105	21-601068	7–8	QBT 3	0.168	—	0.204	2.79	—	—	—
RE21-07-6377	21-601068	12–13	QBT 3	0.135 (J-)	—	0.153	1.94	—	—	—
RE21-07-5106	21-601069	2–3	SOIL	0.279 (J-)	0.225	0.329	2.24	—	—	—
RE21-07-5107	21-601069	7–8	QBT 3	0.085 (J-)	—	0.24	0.962	—	—	—
RE21-07-6376	21-601069	12–13	QBT 3	—	—	0.088	0.346	—	—	—
RE21-07-5108	21-601070	2–3	SOIL	0.4 (J-)	—	0.631	5.2	—	—	—
RE21-07-5109	21-601070	7–8	QBT 3	0.174 (J-)	—	0.102	1.04	—	—	0.092
RE21-07-6394	21-601070	12–13	QBT 3	0.264 (J-)	—	0.142	2.96	—	—	—
RE21-07-5110	21-601071	2–3	SOIL	0.093	—	0.889	2.73	—	—	—
RE21-07-5111	21-601071	7–8	QBT 3	—	—	0.258	0.95	—	—	—
RE21-07-6383	21-601071	12–13	QBT 3	—	—	0.316	0.385	—	—	—
RE21-07-5112	21-601072	2–3	SOIL	—	—	1.17	3.22	—	4.91	—
RE21-07-5113	21-601072	7–8	QBT 3	0.391	—	0.299	0.863	—	—	—
RE21-07-6378	21-601072	12–13	QBT 3	0.089	—	0.677	1.04	—	—	—
RE21-07-5115	21-601073	7–8	QBT 3	0.106	—	—	—	—	—	—
RE21-07-6393	21-601073	12–13	QBT 3	—	—	—	0.147	—	—	—
RE21-07-5116	21-601074	2–3	QBT 3	0.192 (J)	—	0.243 (J)	1.65 (J)	—	—	—
RE21-07-5117	21-601074	7–8	QBT 3	0.1 (J)	—	0.073 (J)	0.681 (J)	—	—	—
RE21-07-6387	21-601074	12–13	QBT 3	—	—	—	0.442 (J)	—	—	—

Table 7.3-4 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-137	Plutonium-238	Plutonium-239/240	Tritium	Uranium-234	Uranium-235/236
Qbt 2, 3, 4 BV[a]				**na[b]**	**na**	**na**	**na**	**na**	**1.98**	**0.09**
Soil BV[a]				**0.013**	**1.65**	**0.023**	**0.054**	**na**	**2.59**	**0.2**
Industrial SAL[c]				**180**	**23**	**240**	**210**	**440000**	**1500**	**87**
Recreational SAL[c]				**280**	**210**	**330**	**300**	**5300000**	**3200**	**520**
Residential SAL[c]				**30**	**5.6**	**37**	**33**	**750**	**170**	**17**
RE21-07-5118	21-601075	2–3	QBT 3	0.265 (J)	—	0.61 (J)	1.86 (J)	—	—	—
RE21-07-5119	21-601075	7–8	QBT 3	0.101 (J)	—	0.222 (J)	0.663 (J)	—	—	—
RE21-07-6390	21-601075	12–13	QBT 3	—	—	0.127 (J)	0.301 (J)	—	—	—
RE21-07-5120	21-601076	2–3	SOIL	0.084 (J)	—	0.115 (J)	0.66 (J)	—	—	—
RE21-07-5121	21-601076	7–8	QBT 3	—	—	0.045 (J)	0.196 (J)	—	—	—
RE21-07-6382	21-601076	12–13	QBT 3	—	—	0.038 (J)	0.172 (J)	—	—	—
RE21-07-5122	21-601077	2–3	QBT 3	1.1 (J-)	—	6.52 (J)	11.9 (J)	—	—	—
RE21-07-5123	21-601077	7–8	QBT 3	2.06 (J)	—	0.831 (J)	4.59 (J)	—	—	—
RE21-07-6395	21-601077	12–13	QBT 3	0.159 (J)	—	0.349 (J)	2.2 (J)	—	—	—
RE21-07-5124	21-601078	2–3	SOIL	0.32 (J)	—	0.519 (J)	3.14 (J)	—	—	—
RE21-07-5125	21-601078	7–8	QBT 3	0.12 (J)	—	0.225 (J)	1.4 (J)	—	—	—
RE21-07-6389	21-601078	12–13	QBT 3	0.158 (J)	—	0.18 (J)	3.02 (J)	—	—	—
RE21-07-5126	21-601079	2–3	QBT 3	0.482	—	0.691	2.82	—	—	—
RE21-07-5127	21-601079	7–8	QBT 3	2.63	—	2.69	12.5	—	2.02	—
RE21-07-6381	21-601079	12–13	QBT 3	3.68	—	2.58	13.7	—	3.12	—
RE21-07-5128	21-601080	2–3	QBT 3	2.03	—	14.4	15.4	—	—	—
RE21-07-5129	21-601080	7–8	QBT 3	1.33	—	0.95	8.86	—	—	—
RE21-07-6391	21-601080	12–13	QBT 3	0.288	—	0.222	3.86	—	—	—
RE21-07-5130	21-601081	2–3	SOIL	1.57	—	0.84	11.8	0.238	—	—
RE21-07-5131	21-601081	7–8	QBT 3	0.69	—	0.463	13.8	—	—	—
RE21-07-6392	21-601081	12–13	QBT 3	0.368	—	0.256	3.06	0.301	—	—
RE21-07-5132	21-601082	2–3	SOIL	2.73	—	1.83	28.4	—	—	—
RE21-07-5133	21-601082	7–8	QBT 3	1.41	—	0.568	3.16	—	2.25	0.128
RE21-07-6385	21-601082	12–13	QBT 3	0.369	—	0.223	1.85	0.21	—	0.127
MD21-10-21680	21-612329	5–6	QBT 3	NA[e]	NA	0.337	1.47	NA	NA	NA
MD21-10-21681	21-612329	15–16	QBT 3	NA	NA	—	0.029	NA	NA	NA
MD21-10-21685	21-612330	5–6	QBT 3	0.224	NA	0.21 (J-)	4.77 (J-)	NA	NA	NA
MD21-10-21686	21-612330	15–16	QBT 3	—	NA	—	0.129	NA	NA	NA
MD21-10-21688	21-612331	5–6	QBT 3	0.102	NA	0.125	1.36	NA	NA	NA
MD21-10-21689	21-612331	15–16	QBT 3	—	NA	0.0146	0.619	NA	NA	NA
MD21-10-21690	21-612331	24–25	QBT 3	0.317	NA	—	22.8	NA	NA	NA

Table 7.3-4 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-137	Plutonium-238	Plutonium-239/240	Tritium	Uranium-234	Uranium-235/236
Qbt 2, 3, 4 BV[a]				**na[b]**	**na**	**na**	**na**	**na**	**1.98**	**0.09**
Soil BV[a]				**0.013**	**1.65**	**0.023**	**0.054**	**na**	**2.59**	**0.2**
Industrial SAL[c]				**180**	**23**	**240**	**210**	**440000**	**1500**	**87**
Recreational SAL[c]				**280**	**210**	**330**	**300**	**5300000**	**3200**	**520**
Residential SAL[c]				**30**	**5.6**	**37**	**33**	**750**	**170**	**17**
MD21-10-21691	21-612332	5–6	QBT 3	0.268	NA	0.0835	1.17	NA	NA	NA
MD21-10-21692	21-612332	15–16	QBT 3	—	NA	—	0.0325	NA	NA	NA
MD21-10-21693	21-612332	24–25	QBT 3	0.056	NA	—	2.68	NA	NA	NA
MD21-10-21694	21-612333	5–6	QBT 3	0.207	NA	0.115	1.27	NA	NA	NA
MD21-10-21695	21-612333	15–16	QBT 3	—	NA	—	0.0253	NA	NA	NA
MD21-10-21697	21-612334	5–6	QBT 3	0.168	NA	0.0702	5.87	NA	NA	NA
MD21-10-21698	21-612334	15–16	QBT 3	0.0458	NA	—	0.0561	NA	NA	NA
MD21-10-21699	21-612334	24–25	QBT 3	—	NA	—	0.0231	NA	NA	NA
MD21-10-21700	21-612335	5–6	QBT 3	0.214	NA	0.119	1.83	NA	NA	NA
MD21-10-21701	21-612335	15–16	QBT 3	0.0366	NA	0.017	0.346	NA	NA	NA
MD21-10-21702	21-612335	24–25	QBT 3	—	NA	—	0.0266	NA	NA	NA
MD21-10-21703	21-612336	5–6	SOIL	0.0864	NA	0.106	0.711	NA	NA	NA
MD21-10-21706	21-612337	5–6	QBT 3	0.346	NA	6	1.94	NA	NA	NA
MD21-10-21707	21-612337	15–16	QBT 3	1.31	NA	—	0.162	NA	NA	NA
MD21-10-21708	21-612337	24–25	QBT 3	0.07	NA	—	0.144	NA	NA	NA
MD21-10-21709	21-612338	5–6	QBT 3	—	NA	—	0.0499	NA	NA	NA
MD21-10-21710	21-612338	15–16	QBT 3	—	NA	—	0.0167	NA	NA	NA
MD21-10-21712	21-612339	5–6	QBT 3	0.139	NA	0.217	2.93	NA	NA	NA
MD21-10-21713	21-612339	15–16	QBT 3	—	NA	—	0.0895	NA	NA	NA
MD21-10-21715	21-612340	5–6	QBT 3	0.0879	NA	0.0586	0.975	NA	NA	NA
MD21-10-21716	21-612340	15–16	QBT 3	—	NA	—	0.0193	NA	NA	NA
MD21-10-21718	21-612341	5–6	QBT 3	0.273	NA	1.48	3.02	NA	NA	NA
MD21-10-21719	21-612341	15–16	QBT 3	0.0211	NA	—	0.125	NA	NA	NA
MD21-10-21721	21-612342	5–6	QBT 3	0.0352	NA	—	0.202	NA	NA	NA
MD21-10-21723	21-612342	24–25	QBT 3	0.127	NA	0.0157	5.16	NA	NA	NA

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

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

[b] na = Not available.

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

[d] — = Not detected.

Table 8.6-1
Samples Collected and Analyses Requested at TA-26

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Gamma-emitting Radionuclides	Tritium	Explosive Compounds	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	VOCs	Cyanide (Total)
RE26-07-3507	26-600773	3.1–5	QBT 3	08-37	08-36	08-37	08-37	08-35	08-37	08-37	08-36	08-35	08-36	08-37	08-35	08-35	08-36
RE26-07-3508	26-600773	5.1–7.1	QBT 3	08-37	08-36	08-37	08-37	08-35	08-37	08-37	08-36	08-35	08-36	08-37	08-35	08-35	08-36
RE26-07-3509	26-600773	7.5–9	QBT 3	08-37	08-36	08-37	08-37	08-35	08-37	08-37	08-36	08-35	08-36	08-37	08-35	08-35	08-36
RE26-07-3510	26-600774	3.1–5.1	QBT 3	08-37	08-36	08-37	08-37	08-35	08-37	08-37	08-36	08-35	08-36	08-37	08-35	08-35	08-36
RE26-07-3511	26-600774	5.1–7	QBT 3	08-37	08-36	08-37	08-37	08-35	08-37	08-37	08-36	08-35	08-36	08-37	08-35	08-35	08-36
RE26-07-3512	26-600774	7.6–9	QBT 3	08-37	08-36	08-37	08-37	08-35	08-37	08-37	08-36	08-35	08-36	08-37	08-35	08-35	08-36
RE26-07-3513	26-600775	0.5–1.5	QBT 3	08-37	08-36	08-37	08-37	08-35	08-37	08-37	08-36	08-35	08-36	08-37	08-35	08-35	08-36
RE26-07-3514	26-600775	2.5–3	QBT 3	08-37	08-36	08-37	08-37	08-35	08-37	08-37	08-36	08-35	08-36	08-37	08-35	08-35	08-36
RE26-07-3516	26-600776	0.6–1.1	QBT 3	08-37	08-36	08-37	08-37	08-35	08-37	08-37	08-36	08-35	08-36	08-37	08-35	08-35	08-36
RE26-07-3517	26-600776	2.6–3.1	QBT 3	08-37	08-36	08-37	08-37	08-35	08-37	08-37	08-36	08-35	08-36	08-37	08-35	08-35	08-36
RE26-07-3522	26-600777	0.8–1.9	QBT 3	07-1155	07-1154	07-1155	07-1155	07-1153	07-1155	07-1155	07-1154	07-1153	07-1154	07-1155	07-1153	07-1153	07-1154
RE26-07-3523	26-600777	2.8–3.4	QBT 3	07-1155	07-1154	07-1155	07-1155	07-1153	07-1155	07-1155	07-1154	07-1153	07-1154	07-1155	07-1153	07-1153	07-1154
RE26-07-3519	26-600778	2.5–3.1	QBT 3	07-1155	07-1154	07-1155	07-1155	07-1153	07-1155	07-1155	07-1154	07-1153	07-1154	07-1155	07-1153	07-1153	07-1154
RE26-07-3525	26-600779	0.5–1.4	QBT 3	08-30	08-29	08-30	08-30	08-28	08-30	08-30	08-29	08-28	08-29	08-30	08-28	08-28	08-29
RE26-07-3526	26-600779	2.5–2.9	QBT 3	08-30	08-29	08-30	08-30	08-28	08-30	08-30	08-29	08-28	08-29	08-30	08-28	08-28	08-29
RE26-07-3528	26-600780	0.7–1.2	QBT 3	08-30	08-29	08-30	08-30	08-28	08-30	08-30	08-29	08-28	08-29	08-30	08-28	08-28	08-29
RE26-07-3529	26-600780	3.2–3.9	QBT 3	08-30	08-29	08-30	08-30	08-28	08-30	08-30	08-29	08-28	08-29	08-30	08-28	08-28	08-29
RE26-07-3531	26-600781	0.8–1.6	QBT 3	08-30	08-29	08-30	08-30	08-28	08-30	08-30	08-29	08-28	08-29	08-30	08-28	08-28	08-29
RE26-07-3532	26-600781	2.8–3.4	QBT 3	08-30	08-29	08-30	08-30	08-28	08-30	08-30	08-29	08-28	08-29	08-30	08-28	08-28	08-29
RE26-07-3533	26-600781	4.8–5.8	QBT 3	08-30	08-29	08-30	08-30	08-28	08-30	08-30	08-29	08-28	08-29	08-30	08-28	08-28	08-29
RE26-07-3537	26-600783	1–2.5	QBT 3	07-1155	07-1154	07-1155	07-1155	07-1153	07-1155	07-1155	07-1154	07-1153	07-1154	07-1155	07-1153	07-1153	07-1154
RE26-07-3538	26-600783	3.5–4.5	QBT 3	07-1155	07-1154	07-1155	07-1155	07-1153	07-1155	07-1155	07-1154	07-1153	07-1154	07-1155	07-1153	07-1153	07-1154
RE26-07-3539	26-600783	5.5–6.1	QBT 3	07-1155	07-1154	07-1155	07-1155	07-1153	07-1155	07-1155	07-1154	07-1153	07-1154	07-1155	07-1153	07-1153	07-1154
RE26-07-3540	26-600784	0.7–1.3	QBT 3	08-30	08-29	08-30	08-30	08-28	08-30	08-30	08-29	08-28	08-29	08-30	08-28	08-28	08-29
RE26-07-3541	26-600784	2.7–3.3	QBT 3	08-30	08-29	08-30	08-30	08-28	08-30	08-30	08-29	08-28	08-29	08-30	08-28	08-28	08-29
RE26-07-3543	26-600785	0.8–1.3	QBT 3	08-30	08-29	08-30	08-30	08-28	08-30	08-30	08-29	08-28	08-29	08-30	08-28	—	08-29
RE26-07-3544	26-600785	2–3.3	QBT 3	08-30	08-29	08-30	08-30	08-28	08-30	08-30	08-29	08-28	08-29	08-30	08-28	08-28	08-29
RE26-07-3545	26-600785	4.8–5.3	QBT 3	08-30	08-29	08-30	08-30	08-28	08-30	08-30	08-29	08-28	08-29	08-30	08-28	08-28	08-29
RE26-07-3546	26-600786	0.5–1.2	QBT 3	08-30	08-29	08-30	08-30	08-28	08-30	08-30	08-29	08-28	08-29	08-30	08-28	08-28	08-29
RE26-07-3549	26-600787	0.7–1.2	QBT 3	08-30	08-29	08-30	08-30	08-28	08-30	08-30	08-29	08-28	08-29	08-30	08-28	—	08-29
RE26-07-3550	26-600787	2.7–3.2	QBT 3	08-30	08-29	08-30	08-30	08-28	08-30	08-30	08-29	08-28	08-29	08-30	08-28	08-28	08-29
RE26-07-3552	26-600788	0.7–1.2	QBT 3	08-30	08-29	08-30	08-30	08-28	08-30	08-30	08-29	08-28	08-29	08-30	08-28	08-28	08-29
RE26-07-3553	26-600788	2.7–3.2	QBT 3	08-30	08-29	08-30	08-30	08-28	08-30	08-30	08-29	08-28	08-29	08-30	08-28	08-28	08-29
RE26-07-3554	26-600788	4.7–5.2	QBT 3	08-30	08-29	08-30	08-30	08-28	08-30	08-30	08-29	08-28	08-29	08-30	08-28	08-28	08-29

Table 8.6-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Gamma-emitting Radionuclides	Tritium	Explosive Compounds	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	VOCs	Cyanide (Total)
RE26-07-3555	26-600789	0.5–1	QBT 3	08-30	08-29	08-30	08-30	08-28	08-30	08-30	08-29	08-28	08-29	08-30	08-28	08-28	08-29
RE26-07-3556	26-600789	2.5–3	QBT 3	08-30	08-29	08-30	08-30	08-28	08-30	08-30	08-29	08-28	08-29	08-30	08-28	08-28	08-29
RE26-07-3557	26-600789	4.5–5	QBT 3	08-30	08-29	08-30	08-30	08-28	08-30	08-30	08-29	08-28	08-29	08-30	08-28	08-28	08-29
RE26-07-3558	26-600790	0.7–1.2	QBT 3	08-30	08-29	08-30	08-30	08-28	08-30	08-30	08-29	08-28	08-29	08-30	08-28	08-28	08-29
RE26-07-3559	26-600790	2.7–3.2	QBT 3	08-30	08-29	08-30	08-30	08-28	08-30	08-30	08-29	08-28	08-29	08-30	08-28	08-28	08-29
RE26-07-3561	26-600791	0.5–1	QBT 3	08-30	08-29	08-30	08-30	08-28	08-30	08-30	08-29	08-28	08-29	08-30	08-28	08-28	08-29
RE26-07-3562	26-600791	2.5–3.2	QBT 3	08-30	08-29	08-30	08-30	08-28	08-30	08-30	08-29	08-28	08-29	08-30	08-28	08-28	08-29
RE26-07-3564	26-600792	0.5–2	QBT 3	08-30	08-29	08-30	08-30	08-28	08-30	08-30	08-29	08-28	08-29	08-30	08-28	08-28	08-29
RE26-07-3565	26-600792	2.5–3.2	QBT 3	08-30	08-29	08-30	08-30	08-28	08-30	08-30	08-29	08-28	08-29	08-30	08-28	08-28	08-29
RE26-08-7047	26-600910	3.5–5.5	QBT 3	08-54	08-53	08-54	08-54	08-52	08-54	08-54	08-53	08-52	08-53	08-54	08-52	08-52	08-53
RE26-08-7048	26-600910	5.5–8.5	QBT 3	08-54	08-53	08-54	08-54	08-52	08-54	08-54	08-53	08-52	08-53	08-54	08-52	08-52	08-53
RE26-08-7049	26-600910	8.5–11	QBT 3	08-54	08-53	08-54	08-54	08-52	08-54	08-54	08-53	08-52	08-53	08-54	08-52	08-52	08-53
RE26-08-7044	26-600911	0.5–3.5	QBT 3	08-54	08-53	08-54	08-54	08-52	08-54	08-54	08-53	08-52	08-53	08-54	08-52	08-52	08-53
RE26-08-7045	26-600911	3.5–5.5	QBT 3	08-54	08-53	08-54	08-54	08-52	08-54	08-54	08-53	08-52	08-53	08-54	08-52	08-52	08-53
RE26-08-7046	26-600911	5.5–8.5	QBT 3	08-54	08-53	08-54	08-54	08-52	08-54	08-54	08-53	08-52	08-53	08-54	08-52	08-52	08-53
RE26-08-7041	26-600912	0.8–3.5	QBT 3	08-54	08-53	08-54	08-54	08-52	08-54	08-54	08-53	08-52	08-53	08-54	08-52	08-52	08-53
RE26-08-7042	26-600912	3.5–5.5	QBT 3	08-54	08-53	08-54	08-54	08-52	08-54	08-54	08-53	08-52	08-53	08-54	08-52	08-52	08-53
RE26-08-7043	26-600912	5.5–11	QBT 3	08-54	08-53	08-54	08-54	08-52	08-54	08-54	08-53	08-52	08-53	08-54	08-52	08-52	08-53
RE26-08-7038	26-600913	0.5–3.5	QBT 3	08-54	08-53	08-54	08-54	08-52	08-54	08-54	08-53	08-52	08-53	08-54	08-52	08-52	08-53
RE26-08-7039	26-600913	3.5–5.5	QBT 3	08-54	08-53	08-54	08-54	08-52	08-54	08-54	08-53	08-52	08-53	08-54	08-52	08-52	08-53
RE26-08-7040	26-600913	5.5–8.5	QBT 3	08-54	08-53	08-54	08-54	08-52	08-54	08-54	08-53	08-52	08-53	08-54	08-52	08-52	08-53
RE26-08-7035	26-600914	0.5–2.7	QBT 3	08-54	08-53	08-54	08-54	08-52	08-54	08-54	08-53	08-52	08-53	08-54	08-52	08-52	08-53
RE26-08-7036	26-600914	3.5–6	QBT 3	08-54	08-53	08-54	08-54	08-52	08-54	08-54	08-53	08-52	08-53	08-54	08-52	08-52	08-53
RE26-08-7037	26-600914	6–8.5	QBT 3	08-54	08-53	08-54	08-54	08-52	08-54	08-54	08-53	08-52	08-53	08-54	08-52	08-52	08-53
RE26-07-4215	26-600915	1.5–2	QBT 3	08-27	08-26	08-27	08-27	08-25	08-27	08-27	08-26	08-25	08-26	08-27	08-25	08-25	08-26
RE26-07-4216	26-600915	3.5–4.5	QBT 3	08-33	08-32	08-33	08-33	08-31	08-33	08-33	08-32	08-31	08-32	08-33	08-31	08-31	08-32
RE26-07-4217	26-600915	6–7.5	QBT 3	08-33	08-32	08-33	08-33	08-31	08-33	08-33	08-32	08-31	08-32	08-33	08-31	08-31	08-32
RE26-07-4218	26-600916	1–3.5	QBT 3	08-40	08-41	08-40	08-40	08-39	08-40	08-40	08-41	08-39	08-41	08-40	08-39	08-39	08-41
RE26-07-4219	26-600916	3.5–5.5	QBT 3	08-40	08-41	08-40	08-40	08-39	08-40	08-40	08-41	08-39	08-41	08-40	08-39	08-39	08-41
RE26-07-4220	26-600916	5.5–9.5	QBT 3	08-40	08-41	08-40	08-40	08-39	08-40	08-40	08-41	08-39	08-41	08-40	08-39	08-39	08-41
RE26-07-4221	26-600917	0–2.5	QBT 3	08-40	08-41	08-40	08-40	08-39	08-40	08-40	08-41	08-39	08-41	08-40	08-39	08-39	08-41
RE26-07-4222	26-600917	2.5–5	QBT 3	08-40	08-41	08-40	08-40	08-39	08-40	08-40	08-41	08-39	08-41	08-40	08-39	08-39	08-41
RE26-07-4223	26-600917	5–9	QBT 3	08-40	08-41	08-40	08-40	08-39	08-40	08-40	08-41	08-39	08-41	08-40	08-39	08-39	08-41
RE26-07-4224	26-600918	2.1–2.6	QBT 3	08-27	08-26	08-27	08-27	08-25	08-27	08-27	08-26	08-25	08-26	08-27	08-25	08-25	08-26
RE26-07-4225	26-600918	4.1–5.6	QBT 3	08-33	08-32	08-33	08-33	08-31	08-33	08-33	08-32	08-31	08-32	08-33	08-31	08-31	08-32

Table 8.6-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Gamma-emitting Radionuclides	Tritium	Explosive Compounds	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	VOCs	Cyanide (Total)
RE26-07-4226	26-600918	6.6–13.5	QBT 3	08-33	08-32	08-33	08-33	08-31	08-33	08-33	08-32	08-31	08-32	08-33	08-31	08-31	08-32
RE26-07-4227	26-600919	2.6–3.1	QBT 3	08-27	08-26	08-27	08-27	08-25	08-27	08-27	08-26	08-25	08-26	08-27	08-25	08-25	08-26
RE26-07-4228	26-600919	4.6–7	QBT 3	08-33	08-32	08-33	08-33	08-31	08-33	08-33	08-32	08-31	08-32	08-33	08-31	08-31	08-32
RE26-07-4229	26-600919	8–10.2	QBT 3	08-33	08-32	08-33	08-33	08-31	08-33	08-33	08-32	08-31	08-32	08-33	08-31	08-31	08-32
RE26-07-4230	26-600920	2.5–3	QBT 3	08-27	08-26	08-27	08-27	08-25	08-27	08-27	08-26	08-25	08-26	08-27	08-25	08-25	08-26
RE26-07-4231	26-600920	3.5–5	QBT 3	08-27	08-26	08-27	08-27	08-25	08-27	08-27	08-26	08-25	08-26	08-27	08-25	08-25	08-26
RE26-07-4232	26-600920	7–9	QBT 3	08-33	08-32	08-33	08-33	08-31	08-33	08-33	08-32	08-31	08-32	08-33	08-31	08-31	08-32
RE26-07-4233	26-600921	0.9–2.1	QBT 3	08-22	08-21	08-22	08-22	08-20	08-22	08-22	08-21	08-20	08-21	08-22	08-20	08-20	08-21
RE26-07-4234	26-600921	2.9–3.5	QBT 3	08-22	08-21	08-22	08-22	08-20	08-22	08-22	08-21	08-20	08-21	08-22	08-20	08-20	08-21
RE26-07-4236	26-600922	1–1.8	QBT 3	08-22	08-21	08-22	08-22	08-20	08-22	08-22	08-21	08-20	08-21	08-22	08-20	08-20	08-21
RE26-07-4239	26-600923	1.2–1.7	QBT 3	08-22	08-21	08-22	08-22	08-20	08-22	08-22	08-21	08-20	08-21	08-22	08-20	08-20	08-21
RE26-08-7032	26-600924	0.5–3	QBT 3	08-54	08-53	08-54	08-54	08-52	08-54	08-54	08-53	08-52	08-53	08-54	08-52	08-52	08-53
RE26-08-7033	26-600924	3.5–5.5	QBT 3	08-54	08-53	08-54	08-54	08-52	08-54	08-54	08-53	08-52	08-53	08-54	08-52	08-52	08-53
RE26-08-7034	26-600924	5.5–11	QBT 3	08-54	08-53	08-54	08-54	08-52	08-54	08-54	08-53	08-52	08-53	08-54	08-52	08-52	08-53
RE26-07-4245	26-600925	0.5–3	QBT 3	08-49	08-48	08-49	08-49	08-47	08-49	08-49	08-48	08-47	08-48	08-49	08-47	08-47	08-48
RE26-07-4246	26-600925	3–5.5	QBT 3	08-49	08-48	08-49	08-49	08-47	08-49	08-49	08-48	08-47	08-48	08-49	08-47	08-47	08-48
RE26-07-4247	26-600925	5.5–8	QBT 3	08-49	08-48	08-49	08-49	08-47	08-49	08-49	08-48	08-47	08-48	08-49	08-47	08-47	08-48
RE26-07-4248	26-600926	0.8–1.4	QBT 3	08-38	08-38	08-38	08-38	08-38	08-38	08-38	08-38	08-38	08-38	08-38	08-38	08-38	08-38
RE26-07-4249	26-600926	2.8–3.2	QBT 3	08-38	08-38	08-38	08-38	08-38	08-38	08-38	08-38	08-38	08-38	08-38	08-38	08-38	08-38
RE26-07-4251	26-600927	2–3	QBT 3	08-38	08-38	08-38	08-38	08-38	08-38	08-38	08-38	08-38	08-38	08-38	08-38	08-38	08-38
RE26-07-4254	26-600928	0–2.5	QBT 3	08-49	08-48	08-49	08-49	08-47	08-49	08-49	08-48	08-47	08-48	08-49	08-47	08-47	08-48
RE26-07-4255	26-600928	2.5–4.5	QBT 3	08-49	08-48	08-49	08-49	08-47	08-49	08-49	08-48	08-47	08-48	08-49	08-47	08-47	08-48
RE26-07-4256	26-600928	4.5–6.9	QBT 3	08-49	08-48	08-49	08-49	08-47	08-49	08-49	08-48	08-47	08-48	08-49	08-47	08-47	08-48
RE26-07-4257	26-600929	2.5–4.7	QBT 3	08-40	08-41	08-40	08-40	08-39	08-40	08-40	08-41	08-39	08-41	08-40	08-39	08-39	08-41
RE26-07-4258	26-600929	4.5–7	QBT 3	08-40	08-41	08-40	08-40	08-39	08-40	08-40	08-41	08-39	08-41	08-40	08-39	08-39	08-41
RE26-07-4259	26-600929	7–10.8	QBT 3	08-40	08-41	08-40	08-40	08-39	08-40	08-40	08-41	08-39	08-41	08-40	08-39	08-39	08-41
RE26-10-21535	26-612294	0–0.5	SOIL	—*	10-3802	10-3802	—	—	—	—	10-3802	—	—	—	—	—	—
RE26-10-21536	26-612294	5–6	QBT 3	—	10-3802	10-3802	—	—	—	—	10-3802	—	—	—	—	—	—
RE26-10-21537	26-612294	9–10	QBT 3	—	10-3802	10-3802	—	—	—	—	10-3802	—	—	—	—	—	—
RE26-10-21538	26-612295	0–0.5	SOIL	—	10-3809	10-3809	—	—	—	—	10-3809	—	—	—	—	—	—
RE26-10-21539	26-612295	5–6	QBT 3	—	10-3809	10-3809	—	—	—	—	10-3809	—	—	—	—	—	—
RE26-10-21540	26-612295	9–10	QBT 3	—	10-3809	10-3809	—	—	—	—	10-3809	—	—	—	—	—	—
RE26-10-21541	26-612296	0–0.5	SOIL	—	10-3809	10-3809	—	—	—	—	10-3809	—	—	—	—	—	—
RE26-10-21542	26-612296	5–6	QBT 3	—	10-3809	10-3809	—	—	—	—	10-3809	—	—	—	—	—	—
RE26-10-21543	26-612296	9–10	QBT 3	—	10-3809	10-3809	—	—	—	—	10-3809	—	—	—	—	—	—

Table 8.6-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Nitrate	Gamma-emitting Radionuclides	Tritium	Explosive Compounds	Isotopic Plutonium	Isotopic Uranium	TAL Metals	PCBs	Perchlorate	Strontium-90	SVOCs	VOCs	Cyanide (Total)
RE26-10-21544	26-612297	0–0.5	SOIL	—	10-3828	10-3828	—	—	—	—	10-3828	—	—	—	—	—	—
RE26-10-21545	26-612297	5–6	SOIL	—	10-3828	10-3828	—	—	—	—	10-3828	—	—	—	—	—	—
RE26-10-21546	26-612297	9–10	QBT 3	—	10-3886	10-3886	—	—	—	—	10-3886	—	—	—	—	—	—
RE26-10-21547	26-612298	0–0.5	SOIL	—	10-3828	10-3828	—	—	—	—	10-3828	—	—	—	—	—	—
RE26-10-21548	26-612298	5–6	QBT 3	—	10-3828	10-3828	—	—	—	—	10-3828	—	—	—	—	—	—
RE26-10-21549	26-612298	9–10	QBT 3	—	10-3828	10-3828	—	—	—	—	10-3828	—	—	—	—	—	—
RE26-10-21550	26-612299	0–0.5	SOIL	—	10-3886	10-3886	—	—	—	—	10-3886	—	—	—	—	—	—
RE26-10-21551	26-612299	5–6	QBT 3	—	10-3937	10-3937	—	—	—	—	10-3937	—	—	—	—	—	—
RE26-10-21552	26-612299	9–10	QBT 3	—	10-3937	10-3937	—	—	—	—	10-3937	—	—	—	—	—	—
RE26-10-21553	26-612300	0–0.5	SOIL	—	10-3886	10-3886	—	—	—	—	10-3886	—	—	—	—	—	—
RE26-10-21554	26-612300	5–6	QBT 3	—	10-3886	10-3886	—	—	—	—	10-3886	—	—	—	—	—	—
RE26-10-21555	26-612300	6–6.6	QBT 3	—	10-3886	10-3886	—	—	—	—	10-3886	—	—	—	—	—	—
RE26-10-21556	26-612301	0–0.5	SOIL	—	10-3886	10-3886	—	—	—	—	10-3886	—	—	—	—	—	—
RE26-10-21557	26-612301	5–6	QBT 3	—	10-3937	10-3937	—	—	—	—	10-3937	—	—	—	—	—	—
RE26-10-21558	26-612301	9–10	QBT 3	—	10-3937	10-3937	—	—	—	—	10-3937	—	—	—	—	—	—
RE26-10-21559	26-612302	0–0.5	SOIL	—	10-3886	10-3886	—	—	—	—	10-3886	—	—	—	—	—	—
RE26-10-21560	26-612302	5–6	QBT 3	—	10-3937	10-3937	—	—	—	—	10-3937	—	—	—	—	—	—
RE26-10-21561	26-612302	9–10	QBT 3	—	10-3937	10-3937	—	—	—	—	10-3937	—	—	—	—	—	—
RE26-10-21566	26-612303	0–0.5	SOIL	—	—	—	—	—	—	—	10-3776	—	—	—	—	—	—
RE26-10-21567	26-612303	5–6	QBT 3	—	—	—	—	—	—	—	10-3776	—	—	—	—	—	—
RE26-10-21568	26-612303	15–16	QBT 3	—	—	—	—	—	—	—	10-3776	—	—	—	—	—	—
RE26-10-21569	26-612303	24–25	QBT 3	—	—	—	—	—	—	—	10-3776	—	—	—	—	—	—
RE26-10-21570	26-612304	0–0.5	SOIL	—	—	—	—	—	—	—	10-3776	—	—	—	—	—	—
RE26-10-21571	26-612304	5–6	QBT 3	—	—	—	—	—	—	—	10-3776	—	—	—	—	—	—
RE26-10-21572	26-612304	15–16	QBT 3	—	—	—	—	—	—	—	10-3776	—	—	—	—	—	—
RE26-10-21573	26-612304	24–25	QBT 3	—	—	—	—	—	—	—	10-3776	—	—	—	—	—	—
RE26-10-21574	26-612305	0–0.5	SOIL	—	—	—	—	—	—	—	10-3776	—	—	—	—	—	—
RE26-10-21575	26-612305	5–6	QBT 3	—	—	—	—	—	—	—	10-3802	—	—	—	—	—	—
RE26-10-21576	26-612305	15–16	QBT 3	—	—	—	—	—	—	—	10-3802	—	—	—	—	—	—
RE26-10-21577	26-612305	24–25	QBT 3	—	—	—	—	—	—	—	10-3802	—	—	—	—	—	—
RE26-10-21578	26-612306	0–0.5	SOIL	—	—	—	—	—	—	—	10-3802	—	—	—	—	—	—
RE26-10-21579	26-612306	5–6	QBT 3	—	—	—	—	—	—	—	10-3802	—	—	—	—	—	—
RE26-10-21580	26-612306	15–16	QBT 3	—	—	—	—	—	—	—	10-3802	—	—	—	—	—	—
RE26-10-21581	26-612306	24–25	QBT 3	—	—	—	—	—	—	—	10-3802	—	—	—	—	—	—

* — = Analysis not requested.

Table 8.6-2
Inorganic Chemicals above BVs at TA-26

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Cyanide (Total)	Lead	Magnesium	Manganese	Nickel	Nitrate	Perchlorate	Potassium	Selenium	Thallium	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**	**0.5**	**11.2**	**1690**	**482**	**6.58**	**na[b]**	**na**	**3500**	**0.3**	**1.1**	**17**	**63.5**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**1.83**	**0.4**	**6120**	**19.3**	**8.64**	**14.7**	**na**	**22.3**	**4610**	**671**	**15.4**	**na**	**na**	**3460**	**1.52**	**0.73**	**39.6**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**2260**	**1120**	**na**	**2920[d]**	**300[e]**	**45400**	**22700**	**800**	**na**	**145000**	**22700**	**1820000**	**795**	**na**	**5680**	**74.9**	**5680**	**341000**
Recreational SSL[f]				**791000**	**317**	**27.7**	**158000**	**1580**	**784**	**na**	**1910[d]**	**238**	**31700**	**15800**	**560**	**na**	**110000**	**15800**	**1260000**	**555**	**na**	**3960**	**52.3**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**156**	**77.9**	**na**	**219[d]**	**23[e]**	**3130**	**1560**	**400**	**na**	**10700**	**1560**	**125000**	**54.8**	**na**	**391**	**5.16**	**391**	**23500**
RE26-07-3507	26-600773	3.1–5	QBT 3	—[g]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5.44	—	—	—
RE26-07-3508	26-600773	5.1–7.1	QBT 3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.662 (J-)	—	—	5.51	—	—	—
RE26-07-3509	26-600773	7.5–9	QBT 3	—	—	—	—	—	—	—	34.4	—	6.84	—	—	—	—	—	—	—	—	7.18	—	—	—
RE26-07-3510	26-600774	3.1–5.1	QBT 3	—	—	6.48	—	—	—	10600 (J+)	—	—	—	—	—	1770 (J+)	—	—	0.716 (J-)	0.00169 (J)	—	10.1	—	22.8 (J)	—
RE26-07-3511	26-600774	5.1–7	QBT 3	—	—	6.02	46.3	—	—	18400 (J+)	10.7 (U)	—	—	—	—	—	—	—	—	0.000947 (J)	—	15.7	—	—	—
RE26-07-3512	26-600774	7.6–9	QBT 3	—	—	3.74	—	—	—	4150 (J+)	12.9 (U)	—	—	—	—	—	—	—	—	0.000521 (J)	—	6.36	—	—	—
RE26-07-3513	26-600775	0.5–1.5	QBT 3	—	—	4.47	72.2	—	—	18700 (J+)	—	—	—	—	—	—	—	—	4.41 (J-)	0.000539 (J)	—	10.5	—	—	—
RE26-07-3514	26-600775	2.5–3	QBT 3	—	—	4.1	—	—	—	8160 (J+)	—	—	—	—	—	—	—	—	2.59 (J-)	—	—	7.7	—	—	—
RE26-07-3516	26-600776	0.6–1.1	QBT 3	—	—	4.8	76.5	—	—	10400 (J+)	—	—	5.63	—	13.6	—	—	—	3.21 (J-)	0.00194 (J)	—	13.9	—	—	—
RE26-07-3517	26-600776	2.6–3.1	QBT 3	—	—	4.64	54.3	—	—	16000 (J+)	—	—	—	—	—	—	—	—	—	0.000777 (J)	—	12.6	—	—	—
RE26-07-3522	26-600777	0.8–1.9	QBT 3	—	—	3.45	84.4	—	—	15100	—	—	—	—	—	—	—	—	2.92	—	—	11.4	—	—	—
RE26-07-3523	26-600777	2.8–3.4	QBT 3	—	—	3.31	72.2	—	—	15500	—	—	—	—	—	—	—	—	15.9	0.000676 (J)	—	9.74	—	—	—
RE26-07-3519	26-600778	2.5–3.1	QBT 3	—	—	—	55.9	—	—	6640	—	—	—	—	—	—	—	—	50.6	0.00148 (J)	—	6.46	—	—	—
RE26-07-3525	26-600779	0.5–1.4	QBT 3	—	—	2.88	60.5	—	—	—	—	—	—	—	—	—	—	—	3.35	—	—	9.59	—	—	—
RE26-07-3526	26-600779	2.5–2.9	QBT 3	—	—	—	—	—	—	—	7.88 (J)	—	—	—	—	—	—	—	2.43	—	—	6.69	—	—	—
RE26-07-3528	26-600780	0.7–1.2	QBT 3	—	—	2.85	—	—	—	5310	—	—	—	—	—	—	—	—	4.28	—	—	6.85	—	—	—
RE26-07-3529	26-600780	3.2–3.9	QBT 3	—	—	—	—	—	—	4690	—	—	—	—	—	—	—	—	25.2	0.0038	—	7.35	—	—	—
RE26-07-3531	26-600781	0.8–1.6	QBT 3	—	—	—	—	—	—	3710	—	—	—	—	—	—	—	—	1.04	—	—	6.93	—	—	—
RE26-07-3532	26-600781	2.8–3.4	QBT 3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.69	0.00122 (J)	—	4.91	—	—	—
RE26-07-3533	26-600781	4.8–5.8	QBT 3	—	—	—	—	—	—	3690	—	—	—	—	—	—	—	—	1.67	0.0019 (J)	—	5.08	—	—	—
RE26-07-3537	26-600783	1–2.5	QBT 3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4.15	—	—	5.55	—	—	—
RE26-07-3538	26-600783	3.5–4.5	QBT 3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.42	—	—	4.06	—	—	—
RE26-07-3539	26-600783	5.5–6.1	QBT 3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.885 (J)	—	—	4.1	—	—	—
RE26-07-3540	26-600784	0.7–1.3	QBT 3	—	—	3.85	87.4	—	—	7680	—	—	—	—	—	—	—	—	1.18	0.00066 (J)	—	10.8	—	—	—
RE26-07-3541	26-600784	2.7–3.3	QBT 3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.979 (J)	—	—	6.04	—	—	—
RE26-07-3543	26-600785	0.8–1.3	QBT 3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.18	—	—	5.44	—	—	—
RE26-07-3544	26-600785	2–3.3	QBT 3	—	—	—	—	—	—	2520	—	—	—	—	—	—	—	—	1.09	—	—	4.64	—	—	—
RE26-07-3545	26-600785	4.8–5.3	QBT 3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4.39	—	—	—
RE26-07-3546	26-600786	0.5–1.2	QBT 3	—	—	—	—	—	—	3810	—	—	—	—	—	—	—	—	1.55	—	—	4.1	—	—	—

Table 8.6-2 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Cyanide (Total)	Lead	Magnesium	Manganese	Nickel	Nitrate	Perchlorate	Potassium	Selenium	Thallium	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**	**0.5**	**11.2**	**1690**	**482**	**6.58**	**na[b]**	**na**	**3500**	**0.3**	**1.1**	**17**	**63.5**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**1.83**	**0.4**	**6120**	**19.3**	**8.64**	**14.7**	**na**	**22.3**	**4610**	**671**	**15.4**	**na**	**na**	**3460**	**1.52**	**0.73**	**39.6**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**2260**	**1120**	**na**	**2920[d]**	**300[e]**	**45400**	**22700**	**800**	**na**	**145000**	**22700**	**1820000**	**795**	**na**	**5680**	**74.9**	**5680**	**341000**
Recreational SSL[f]				**791000**	**317**	**27.7**	**158000**	**1580**	**784**	**na**	**1910[d]**	**238**	**31700**	**15800**	**560**	**na**	**110000**	**15800**	**1260000**	**555**	**na**	**3960**	**52.3**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**156**	**77.9**	**na**	**219[d]**	**23[e]**	**3130**	**1560**	**400**	**na**	**10700**	**1560**	**125000**	**54.8**	**na**	**391**	**5.16**	**391**	**23500**
RE26-07-3549	26-600787	0.7–1.2	QBT 3	—	—	—	—	—	—	2430	—	—	—	—	—	—	—	—	1.31	—	—	5.08	—	—	—
RE26-07-3550	26-600787	2.7–3.2	QBT 3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4.53	—	—	—
RE26-07-3552	26-600788	0.7–1.2	QBT 3	—	—	—	69.6	—	—	8260	—	—	—	—	—	—	—	—	1.11	—	—	9.02	—	—	—
RE26-07-3553	26-600788	2.7–3.2	QBT 3	—	—	—	—	—	—	3250	—	—	—	—	—	—	—	—	1.52	—	—	6.83	—	—	—
RE26-07-3554	26-600788	4.7–5.2	QBT 3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.3	—	—	3.5	—	—	—
RE26-07-3555	26-600789	0.5–1	QBT 3	—	—	3.09	75	—	—	—	—	3.74	—	—	—	—	—	—	—	0.0012 (J)	—	11	—	—	—
RE26-07-3556	26-600789	2.5–3	QBT 3	—	—	—	65.4	—	—	2910	7.49 (J)	3.33	—	0.604	—	—	—	—	1.24	—	—	9.68	—	—	—
RE26-07-3557	26-600789	4.5–5	QBT 3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.971 (J)	—	—	5.6	—	—	—
RE26-07-3558	26-600790	0.7–1.2	QBT 3	—	—	—	—	—	—	5170 (J-)	—	—	—	0.74	—	—	—	—	1.39	0.000894 (J)	—	7.65	—	—	—
RE26-07-3559	26-600790	2.7–3.2	QBT 3	—	—	—	—	—	—	3280 (J-)	9.25	—	—	—	—	—	—	—	1.21	0.000731 (J)	—	5.15	—	—	—
RE26-07-3561	26-600791	0.5–1	QBT 3	—	—	—	—	—	—	4990 (J-)	—	—	—	—	—	—	—	—	1.61	—	—	4.42	—	—	—
RE26-07-3562	26-600791	2.5–3.2	QBT 3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.978 (J)	—	—	3.12	—	—	—
RE26-07-3564	26-600792	0.5–2	QBT 3	—	—	3.5	—	—	—	9510 (J-)	—	—	—	—	—	—	—	—	1.26	—	—	4.83	—	—	—
RE26-07-3565	26-600792	2.5–3.2	QBT 3	—	—	—	—	—	—	2980 (J-)	—	—	—	—	—	—	—	—	—	—	—	3.04	—	—	—
RE26-08-7047	26-600910	3.5–5.5	QBT 3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9.21	—	—	—
RE26-08-7048	26-600910	5.5–8.5	QBT 3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.28	—	—	—
RE26-08-7049	26-600910	8.5–11	QBT 3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.28	—	—	—
RE26-08-7044	26-600911	0.5–3.5	QBT 3	—	—	4.28	68.2	—	—	9870 (J+)	7.93 (J)	—	5.83	—	—	—	—	7.45	—	—	—	12.1	—	—	—
RE26-08-7045	26-600911	3.5–5.5	QBT 3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.37	—	—	—
RE26-08-7046	26-600911	5.5–8.5	QBT 3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.42	—	—	—
RE26-08-7041	26-600912	0.8–3.5	QBT 3	—	—	—	—	—	—	4050 (J+)	—	—	—	—	—	—	—	—	0.75 (J)	—	—	9.15	—	—	—
RE26-08-7042	26-600912	3.5–5.5	QBT 3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.12	—	—	—
RE26-08-7043	26-600912	5.5–11	QBT 3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.34	—	—	—
RE26-08-7038	26-600913	0.5–3.5	QBT 3	—	—	3.58	61.6	—	—	3840 (J+)	—	—	—	—	—	—	—	7.3	1.61	0.000665 (J)	—	10.8	—	—	—
RE26-08-7039	26-600913	3.5–5.5	QBT 3	—	—	3.87	—	—	—	—	—	—	—	—	—	—	881	—	—	0.000732 (J)	—	9.74	—	—	72.5
RE26-08-7040	26-600913	5.5–8.5	QBT 3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.05	—	—	—
RE26-08-7035	26-600914	0.5–2.7	QBT 3	—	—	3.41	—	—	—	7570 (J+)	—	—	—	—	—	—	—	—	—	—	—	8.13	—	—	—
RE26-08-7036	26-600914	3.5–6	QBT 3	—	—	3.54	—	—	—	6680 (J+)	—	—	—	—	—	—	—	—	—	—	—	8.66	—	—	—
RE26-08-7037	26-600914	6–8.5	QBT 3	—	—	3.48	—	—	—	7520 (J+)	7.35 (J)	—	—	—	—	—	—	—	—	—	—	9.56	—	—	—
RE26-07-4215	26-600915	1.5–2	QBT 3	—	0.627 (J-)	4.04	102	—	—	13300 (J-)	—	—	6.33	—	12.6	1770 (J+)	—	7.44 (U)	1.07 (J)	0.000863 (J+)	—	13.3	—	—	—
RE26-07-4216	26-600915	3.5–4.5	QBT 3	—	—	3.07	49.5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9.55	—	—	—

Table 8.6-2 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Cyanide (Total)	Lead	Magnesium	Manganese	Nickel	Nitrate	Perchlorate	Potassium	Selenium	Thallium	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**	**0.5**	**11.2**	**1690**	**482**	**6.58**	**na[b]**	**na**	**3500**	**0.3**	**1.1**	**17**	**63.5**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**1.83**	**0.4**	**6120**	**19.3**	**8.64**	**14.7**	**na**	**22.3**	**4610**	**671**	**15.4**	**na**	**na**	**3460**	**1.52**	**0.73**	**39.6**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**2260**	**1120**	**na**	**2920[d]**	**300[e]**	**45400**	**22700**	**800**	**na**	**145000**	**22700**	**1820000**	**795**	**na**	**5680**	**74.9**	**5680**	**341000**
Recreational SSL[f]				**791000**	**317**	**27.7**	**158000**	**1580**	**784**	**na**	**1910[d]**	**238**	**31700**	**15800**	**560**	**na**	**110000**	**15800**	**1260000**	**555**	**na**	**3960**	**52.3**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**156**	**77.9**	**na**	**219[d]**	**23[e]**	**3130**	**1560**	**400**	**na**	**10700**	**1560**	**125000**	**54.8**	**na**	**391**	**5.16**	**391**	**23500**
RE26-07-4217	26-600915	6–7.5	QBT 3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.87	—	—	—
RE26-07-4218	26-600916	1–3.5	QBT 3	—	—	5.45	107	—	—	30400	—	—	5.53	—	—	1750 (J+)	—	8.44	0.889 (J)	0.00079 (J)	—	16.3	—	—	—
RE26-07-4219	26-600916	3.5–5.5	QBT 3	—	—	3.73	—	—	—	—	8.03 (U)	—	—	—	—	—	492	—	7.43	—	—	7.63	—	—	—
RE26-07-4220	26-600916	5.5–9.5	QBT 3	—	—	4.12	58.5	—	—	4270	—	—	5.52	—	17.6	1730 (J+)	—	—	7.12	—	—	12.7	—	—	—
RE26-07-4221	26-600917	0–2.5	QBT 3	—	—	8.34	102	—	—	26800	—	—	—	—	—	2040 (J+)	—	—	5.52	0.000656 (J)	—	15.4	—	22.4	—
RE26-07-4222	26-600917	2.5–5	QBT 3	—	—	3.41	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.47	—	—	—
RE26-07-4223	26-600917	5–9	QBT 3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5.06	—	—	—
RE26-07-4224	26-600918	2.1–2.6	QBT 3	—	—	3.22	89.9	—	—	8370 (J-)	—	—	—	—	—	—	—	—	—	—	—	9.96	—	—	—
RE26-07-4225	26-600918	4.1–5.6	QBT 3	—	—	3.65	—	—	—	—	8.72	—	—	—	—	—	—	—	—	—	—	9.28	—	—	—
RE26-07-4226	26-600918	6.6–13.5	QBT 3	—	—	—	—	—	—	—	7.89	—	—	—	—	—	—	—	—	—	—	6.62	—	—	—
RE26-07-4227	26-600919	2.6–3.1	QBT 3	—	—	3.87	112	—	—	11200 (J-)	—	—	5.95	—	11.3	—	—	7.63 (U)	2.29	0.00191 (J+)	—	12.3	—	—	—
RE26-07-4228	26-600919	4.6–7	QBT 3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5.97	—	—	—
RE26-07-4229	26-600919	8–10.2	QBT 3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.15	—	—	—
RE26-07-4230	26-600920	2.5–3	QBT 3	—	—	3.33	148	—	—	12300 (J-)	—	3.8	9.74	—	—	1940 (J+)	—	12.1 (U)	2.06	—	—	15.1	—	18.2	—
RE26-07-4231	26-600920	3.5–5	QBT 3	—	—	6.75	—	—	—	—	7.49 (U)	—	—	—	—	—	—	—	—	—	—	5.02	—	—	—
RE26-07-4232	26-600920	7–9	QBT 3	—	—	2.96	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8.23	—	—	—
RE26-07-4233	26-600921	0.9–2.1	QBT 3	—	—	4.45	75.4	—	—	17000	—	—	—	—	—	—	—	—	3.85	—	—	8.27 (J)	—	—	—
RE26-07-4234	26-600921	2.9–3.5	QBT 3	—	—	4.47	75.9	—	1.71 (J)	17900	24.9 (J-)	—	5.37 (J)	—	—	—	—	—	3.51	—	—	13.6 (J)	—	—	—
RE26-07-4236	26-600922	1–1.8	QBT 3	—	—	3.81	56.3	—	—	7170	8.95 (J-)	—	—	—	—	—	—	—	6.47	—	—	6.05 (J)	—	—	—
RE26-07-4239	26-600923	1.2–1.7	QBT 3	—	—	3.39	72.8	—	—	10400	7.93 (J-)	—	—	0.531	17.4	—	—	—	4.14	0.00131 (J)	—	7.55 (J)	—	—	—
RE26-08-7032	26-600924	0.5–3	QBT 3	—	—	4.27	95	—	—	28100 (J+)	—	—	—	—	—	—	533	7.62	—	—	—	17	—	—	—
RE26-08-7033	26-600924	3.5–5.5	QBT 3	—	—	—	—	—	—	3240 (J+)	9.7 (J)	—	—	—	—	—	—	—	—	—	—	7.82	—	—	—
RE26-08-7034	26-600924	5.5–11	QBT 3	—	—	—	—	—	—	—	—	—	—	—	94.1	—	—	—	—	—	—	6.48	1.27 (U)	—	—
RE26-07-4245	26-600925	0.5–3	QBT 3	—	—	—	54.9	—	—	11000 (J)	—	—	—	—	—	1840	—	—	0.819 (J)	0.0014 (J)	—	1.59 (U)	—	—	—
RE26-07-4246	26-600925	3–5.5	QBT 3	—	—	—	—	—	—	2220 (J)	16.7 (U)	—	—	—	—	—	—	—	—	—	—	1.49 (U)	—	—	—
RE26-07-4247	26-600925	5.5–8	QBT 3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.62 (J)	—	—	—
RE26-07-4248	26-600926	0.8–1.4	QBT 3	—	—	4.18	81.8	—	—	6130	—	—	6.75	—	12.1	—	—	—	4.5 (J-)	—	—	9.05	—	—	—
RE26-07-4249	26-600926	2.8–3.2	QBT 3	—	—	—	—	—	—	—	14.6	—	—	—	—	—	—	—	1.23 (J-)	—	—	5.61	—	—	—
RE26-07-4251	26-600927	2–3	QBT 3	—	—	4.48	194	—	—	23900	—	—	6.68	—	—	1950 (J+)	—	—	5.52 (J-)	0.00141 (J)	—	14.9	—	—	—
RE26-07-4254	26-600928	0–2.5	QBT 3	—	—	4.31	79.1	—	—	18500 (J)	18.8 (J)	—	5.66 (J)	—	—	—	—	—	—	—	—	0.616 (J)	—	—	—
RE26-07-4255	26-600928	2.5–4.5	QBT 3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.52 (U)	—	—	—

Table 8.6-2 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Cyanide (Total)	Lead	Magnesium	Manganese	Nickel	Nitrate	Perchlorate	Potassium	Selenium	Thallium	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**	**0.5**	**11.2**	**1690**	**482**	**6.58**	**na[b]**	**na**	**3500**	**0.3**	**1.1**	**17**	**63.5**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**1.83**	**0.4**	**6120**	**19.3**	**8.64**	**14.7**	**na**	**22.3**	**4610**	**671**	**15.4**	**na**	**na**	**3460**	**1.52**	**0.73**	**39.6**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**2260**	**1120**	**na**	**2920[d]**	**300[e]**	**45400**	**22700**	**800**	**na**	**145000**	**22700**	**1820000**	**795**	**na**	**5680**	**74.9**	**5680**	**341000**
Recreational SSL[f]				**791000**	**317**	**27.7**	**158000**	**1580**	**784**	**na**	**1910[d]**	**238**	**31700**	**15800**	**560**	**na**	**110000**	**15800**	**1260000**	**555**	**na**	**3960**	**52.3**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**156**	**77.9**	**na**	**219[d]**	**23[e]**	**3130**	**1560**	**400**	**na**	**10700**	**1560**	**125000**	**54.8**	**na**	**391**	**5.16**	**391**	**23500**
RE26-07-4256	26-600928	4.5–6.9	QBT 3	—	—	—	—	—	—	5300 (J)	11.5 (U)	—	—	—	—	—	—	—	—	—	—	1.48 (U)	—	—	—
RE26-07-4257	26-600929	2.5–4.7	QBT 3	—	—	4.27	—	—	—	7060	—	—	—	—	—	—	—	—	2.58	—	—	6.46	—	—	—
RE26-07-4258	26-600929	4.5–7	QBT 3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.01	—	—	—
RE26-07-4259	26-600929	7–10.8	QBT 3	—	—	—	—	—	—	—	—	—	—	1.86	—	—	—	—	1.03	—	—	5.78	—	—	—
RE26-10-21535	26-612294	0–0.5	SOIL	—	—	—	—	—	—	—	26.6	—	—	NA[h]	—	—	—	—	0.78	NA	—	—	1.066 (U)	—	—
RE26-10-21536	26-612294	5–6	QBT 3	—	—	—	—	—	—	3400	14.3	—	—	NA	—	—	—	8.1	0.17 (J)	NA	—	1.6	—	—	—
RE26-10-21537	26-612294	9–10	QBT 3	—	—	—	—	—	—	2600	48.9	—	—	NA	—	—	—	22.6	0.18 (J)	NA	—	1.6	—	—	—
RE26-10-21538	26-612295	0–0.5	SOIL	—	—	—	—	—	—	17200	—	—	—	NA	27.8	—	—	—	2.6	NA	—	2.3	—	—	—
RE26-10-21539	26-612295	5–6	QBT 3	—	—	—	—	—	—	—	—	—	—	NA	—	—	—	—	1.3	NA	—	1.6	—	—	—
RE26-10-21540	26-612295	9–10	QBT 3	—	—	—	—	—	—	—	—	—	—	NA	—	—	—	—	0.69	NA	—	1.4	—	—	—
RE26-10-21541	26-612296	0–0.5	SOIL	—	—	—	—	—	—	13700	—	—	—	NA	—	—	—	—	7.3	NA	—	1.8	—	—	—
RE26-10-21542	26-612296	5–6	QBT 3	—	—	—	—	—	—	7600	9.9	—	—	NA	—	—	—	—	0.87	NA	—	1.7	—	—	—
RE26-10-21543	26-612296	9–10	QBT 3	—	—	—	—	—	—	2700	11.2	—	—	NA	—	—	—	—	1.2	NA	—	1.5	—	—	—
RE26-10-21544	26-612297	0–0.5	SOIL	—	—	—	—	—	—	10400	—	—	—	NA	—	—	—	—	2	NA	—	—	—	—	—
RE26-10-21545	26-612297	5–6	SOIL	—	8.1	—	—	—	—	17200	—	—	—	NA	—	—	—	—	1.1	NA	—	1.8	—	—	—
RE26-10-21546	26-612297	9–10	QBT 3	7570	11.9	—	137	—	—	13400	—	3.5	6.9	NA	13.7 (J-)	1780	—	6.8	3.5	NA	—	1.6	—	—	—
RE26-10-21547	26-612298	0–0.5	SOIL	—	—	—	—	—	—	11600	—	—	—	NA	—	—	—	—	3.5	NA	—	1.8	—	—	—
RE26-10-21548	26-612298	5–6	QBT 3	—	—	—	—	—	—	2760	—	—	—	NA	—	—	—	—	12.1	NA	—	2.2	—	—	—
RE26-10-21549	26-612298	9–10	QBT 3	—	—	—	—	—	—	—	—	—	—	NA	—	—	—	—	7.4	NA	—	2.3	—	—	—
RE26-10-21550	26-612299	0–0.5	SOIL	—	—	—	—	—	—	6420	—	—	—	NA	—	—	—	—	3.3	NA	—	—	—	—	—
RE26-10-21551	26-612299	5–6	QBT 3	—	—	—	—	—	—	2880	—	—	—	NA	—	—	—	—	0.19 (J)	NA	—	1.5	—	—	—
RE26-10-21552	26-612299	9–10	QBT 3	—	—	—	—	—	—	—	—	—	—	NA	—	—	—	—	0.22	NA	—	1.2	—	—	—
RE26-10-21553	26-612300	0–0.5	SOIL	—	—	—	—	—	—	—	—	—	—	NA	—	—	—	—	2.5	NA	—	—	—	—	—
RE26-10-21554	26-612300	5–6	QBT 3	—	—	—	—	1.3	—	20900	—	—	6.6	NA	—	2980	—	6.6	0.27	NA	—	5.4	—	—	—
RE26-10-21555	26-612300	6–6.6	QBT 3	—	—	—	—	1.3	—	16600	10.4	—	8.1	NA	—	2850	—	8.9	0.44	NA	—	5.3	—	—	—
RE26-10-21556	26-612301	0–0.5	SOIL	—	—	—	—	—	—	6690	—	—	—	NA	—	—	—	—	2.5	NA	—	1.8	—	—	—
RE26-10-21557	26-612301	5–6	QBT 3	—	—	—	—	—	—	2810	16.8 (J)	—	10.7 (J)	NA	—	—	—	10.7 (J)	0.77	NA	—	2.6	—	—	—
RE26-10-21558	26-612301	9–10	QBT 3	—	—	—	—	—	—	—	9.7 (J)	—	12 (J)	NA	—	—	—	7.5 (J)	0.58	NA	—	1.6	—	—	—
RE26-10-21559	26-612302	0–0.5	SOIL	—	15.5	—	—	—	—	—	—	—	—	NA	—	—	—	—	4.3	NA	—	—	—	—	—
RE26-10-21560	26-612302	5–6	QBT 3	—	—	—	—	—	—	—	—	—	6.4 (J)	NA	—	—	—	—	0.15 (J)	NA	—	1.4	—	—	—
RE26-10-21561	26-612302	9–10	QBT 3	—	—	—	—	—	—	4320	—	—	6.9 (J)	NA	—	—	—	—	0.54	NA	—	1.7	—	—	—

Table 8.6-2 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Cyanide (Total)	Lead	Magnesium	Manganese	Nickel	Nitrate	Perchlorate	Potassium	Selenium	Thallium	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**	**0.5**	**11.2**	**1690**	**482**	**6.58**	**na[b]**	**na**	**3500**	**0.3**	**1.1**	**17**	**63.5**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**1.83**	**0.4**	**6120**	**19.3**	**8.64**	**14.7**	**na**	**22.3**	**4610**	**671**	**15.4**	**na**	**na**	**3460**	**1.52**	**0.73**	**39.6**	**48.8**
Industrial SSL[c]				**1130000**	**454**	**17.7**	**224000**	**2260**	**1120**	**na**	**2920[d]**	**300[e]**	**45400**	**22700**	**800**	**na**	**145000**	**22700**	**1820000**	**795**	**na**	**5680**	**74.9**	**5680**	**341000**
Recreational SSL[f]				**791000**	**317**	**27.7**	**158000**	**1580**	**784**	**na**	**1910[d]**	**238**	**31700**	**15800**	**560**	**na**	**110000**	**15800**	**1260000**	**555**	**na**	**3960**	**52.3**	**3960**	**238000**
Residential SSL[c]				**78100**	**31.3**	**3.9**	**15600**	**156**	**77.9**	**na**	**219[d]**	**23[e]**	**3130**	**1560**	**400**	**na**	**10700**	**1560**	**125000**	**54.8**	**na**	**391**	**5.16**	**391**	**23500**
RE26-10-21566	26-612303	0–0.5	SOIL	—	1.03 (U)	—	—	—	0.513 (U)	27100	—	—	—	NA	—	5420 (J+)	—	—	NA	NA	3490 (J+)	—	—	—	—
RE26-10-21567	26-612303	5–6	QBT 3	—	1.02 (U)	—	—	—	—	2680	—	—	—	NA	—	—	—	—	NA	NA	—	1.03 (U)	—	—	—
RE26-10-21568	26-612303	15–16	QBT 3	—	1.01 (U)	—	—	—	—	—	—	—	—	NA	—	—	—	—	NA	NA	—	1.01 (U)	—	—	—
RE26-10-21569	26-612303	24–25	QBT 3	—	1.04 (U)	—	—	—	—	—	—	—	—	NA	—	—	—	—	NA	NA	—	1.04 (U)	—	—	—
RE26-10-21570	26-612304	0–0.5	SOIL	—	0.993 (U)	—	—	—	—	—	—	—	—	NA	—	—	—	—	NA	NA	—	—	—	—	—
RE26-10-21571	26-612304	5–6	QBT 3	—	1.02 (U)	—	—	—	—	—	—	—	—	NA	—	—	—	—	NA	NA	—	1.01 (U)	—	—	—
RE26-10-21572	26-612304	15–16	QBT 3	—	1.02 (U)	—	—	—	—	—	—	—	—	NA	—	—	—	—	NA	NA	—	1.01 (U)	—	—	—
RE26-10-21573	26-612304	24–25	QBT 3	—	1.02 (U)	—	—	—	—	—	—	—	—	NA	—	—	—	—	NA	NA	—	1.01 (U)	—	—	—
RE26-10-21574	26-612305	0–0.5	SOIL	—	1.01 (U)	—	—	—	0.506 (U)	29600	—	—	—	NA	—	—	—	—	NA	NA	—	—	—	—	—
RE26-10-21575	26-612305	5–6	QBT 3	—	—	—	—	—	—	—	19.7	—	—	NA	—	—	—	10.3	NA	NA	—	1.7	—	—	—
RE26-10-21576	26-612305	15–16	QBT 3	—	—	—	—	—	—	—	14.8	—	—	NA	—	—	—	7.4	NA	NA	—	1.4	—	—	—
RE26-10-21577	26-612305	24–25	QBT 3	—	—	—	—	—	—	—	—	—	—	NA	—	—	—	—	NA	NA	—	1.3	—	—	—
RE26-10-21578	26-612306	0–0.5	SOIL	—	—	—	—	—	—	—	—	—	—	NA	39.2	—	—	—	NA	NA	—	—	—	—	—
RE26-10-21579	26-612306	5–6	QBT 3	—	—	—	—	—	—	12300	—	—	—	NA	—	—	—	—	NA	NA	—	1.9	—	—	—
RE26-10-21580	26-612306	15–16	QBT 3	—	—	—	—	—	—	—	—	—	—	NA	—	—	—	—	NA	NA	—	1.5	—	—	—
RE26-10-21581	26-612306	24–25	QBT 3	—	—	—	—	—	—	—	12.9	—	—	NA	—	—	—	6.6	NA	NA	—	1.7	—	—	—

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

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

[b] na = Not available.

[c] SSLs are from NMED (2009, 108070), unless otherwise noted.

[d] SSLs are for hexavalent chromium.

[e] SSLs are from EPA regional screening tables (http://www.epa.gov.earth1r6/6pd/rcra_c/pd-n/screen.htm).

[f] SSLs are from LANL (2010, 108613).

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

[h] NA = Not analyzed.

Table 8.6-3
Organic Chemicals Detected at TA-26

Sample ID	Location ID	Depth (ft)	Media	Acetone	Aroclor-1248	Aroclor-1260	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Chrysene	Fluoranthene	Hexanone[2-]	Isopropyltoluene[4-]	Phenanthrene	Pyrene	Toluene
Industrial SSL[a]				**851000**	**8.26**	**8.26**	**23.4**	**2.34**	**23.4**	**2340**	**24400**	**1400**[b,c]	**14900**[d]	**20500**	**18300**	**57900**
Recreational SSL[e]				**702000**	**10.5**	**10.5**	**30.1**	**3.01**	**30.1**	**3010**	**13900**	**3230**	**52700**[d]	**12000**	**10400**	**60800**
Residential SSL[a]				**67500**	**2.22**	**2.22**	**6.21**	**0.621**	**6.21**	**621**	**2290**	**210**[c]	**3210**[d]	**1830**	**1720**	**5570**
RE26-07-3511	26-600774	5.1–7	QBT 3	—[f]	0.0301	—	—	—	—	—	—	—	0.000896 (J)	—	—	—
RE26-07-3513	26-600775	0.5–1.5	QBT 3	0.00452 (J)	—	—	—	—	—	—	—	—	—	—	—	—
RE26-07-3516	26-600776	0.6–1.1	QBT 3	—	—	—	—	—	—	—	—	—	—	—	—	0.000676 (J+)
RE26-07-3517	26-600776	2.6–3.1	QBT 3	0.00596 (J)	—	—	—	—	—	—	—	—	—	—	—	0.000915 (J)
RE26-07-3519	26-600778	2.5–3.1	QBT 3	—	—	—	—	—	—	—	—	—	—	—	—	0.000696 (J)
RE26-07-3525	26-600779	0.5–1.4	QBT 3	—	0.073	—	—	—	—	—	—	—	—	—	—	0.0012
RE26-07-3526	26-600779	2.5–2.9	QBT 3	—	—	—	—	—	—	—	—	—	—	—	—	0.000479 (J)
RE26-07-3528	26-600780	0.7–1.2	QBT 3	—	—	—	—	—	—	—	—	—	—	—	—	0.000485 (J)
RE26-07-3529	26-600780	3.2–3.9	QBT 3	—	—	—	—	—	—	—	—	—	—	—	—	0.000818 (J)
RE26-07-3531	26-600781	0.8–1.6	QBT 3	—	—	—	—	—	—	—	—	—	—	—	—	0.000823 (J)
RE26-07-3532	26-600781	2.8–3.4	QBT 3	—	—	—	—	—	—	—	—	—	—	—	—	0.000344 (J)
RE26-07-3537	26-600783	1–2.5	QBT 3	—	—	—	—	—	—	—	—	—	—	—	—	0.00087 (J)
RE26-07-3540	26-600784	0.7–1.3	QBT 3	—	—	—	—	—	—	—	—	—	—	—	—	0.00034 (J)
RE26-07-3550	26-600787	2.7–3.2	QBT 3	—	—	—	—	—	—	—	—	—	—	—	—	0.00048 (J)
RE26-07-3552	26-600788	0.7–1.2	QBT 3	—	—	—	—	—	—	—	—	—	—	—	—	0.000428 (J)
RE26-07-3553	26-600788	2.7–3.2	QBT 3	—	—	—	—	—	—	—	—	—	—	—	—	0.00123
RE26-07-3555	26-600789	0.5–1	QBT 3	—	—	—	—	—	—	—	—	—	—	—	—	0.000536 (J)
RE26-07-3556	26-600789	2.5–3	QBT 3	—	—	—	—	—	—	—	—	—	0.00237	—	—	0.000721 (J)
RE26-07-3558	26-600790	0.7–1.2	QBT 3	—	—	—	0.0106 (J)	—	—	0.0104 (J)	0.0114 (J)	—	—	—	0.0105 (J)	0.00118
RE26-07-3559	26-600790	2.7–3.2	QBT 3	—	—	—	—	—	—	—	—	—	—	—	—	0.000336 (J)
RE26-08-7047	26-600910	3.5–5.5	QBT 3	—	—	—	—	—	—	—	—	0.00163 (J+)	—	—	—	—
RE26-08-7044	26-600911	0.5–3.5	QBT 3	—	—	—	—	—	—	—	—	—	—	—	—	0.000377 (J)
RE26-08-7041	26-600912	0.8–3.5	QBT 3	—	—	—	0.0405	0.0262 (J)	0.0489	0.0216 (J)	0.0647	—	—	0.0334 (J)	0.0454	—
RE26-07-4215	26-600915	1.5–2	QBT 3	—	—	—	—	—	—	—	0.0128 (J)	—	—	—	0.0166 (J)	0.000989 (J)
RE26-07-4216	26-600915	3.5–4.5	QBT 3	—	—	—	—	—	—	—	—	—	—	—	—	0.000398 (J)
RE26-07-4217	26-600915	6–7.5	QBT 3	—	—	—	—	—	—	—	—	0.00218 (J)	—	—	—	—
RE26-07-4224	26-600918	2.1–2.6	QBT 3	—	—	—	—	—	—	—	—	—	—	—	—	0.000498 (J)
RE26-07-4227	26-600919	2.6–3.1	QBT 3	—	—	—	—	—	—	—	—	—	—	—	—	0.00182
RE26-07-4230	26-600920	2.5–3	QBT 3	—	—	—	—	—	—	—	—	—	—	—	—	0.00524

Table 8.6-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Acetone	Aroclor-1248	Aroclor-1260	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Chrysene	Fluoranthene	Hexanone[2-]	Isopropyltoluene[4-]	Phenanthrene	Pyrene	Toluene
Industrial SSL[a]				**851000**	**8.26**	**8.26**	**23.4**	**2.34**	**23.4**	**2340**	**24400**	**1400[b,c]**	**14900[d]**	**20500**	**18300**	**57900**
Recreational SSL[e]				**702000**	**10.5**	**10.5**	**30.1**	**3.01**	**30.1**	**3010**	**13900**	**3230**	**52700[d]**	**12000**	**10400**	**60800**
Residential SSL[a]				**67500**	**2.22**	**2.22**	**6.21**	**0.621**	**6.21**	**621**	**2290**	**210[c]**	**3210[d]**	**1830**	**1720**	**5570**
RE26-07-4234	26-600921	2.9–3.5	QBT 3	—	—	—	—	—	—	—	—	—	—	—	—	0.00073 (J+)
RE26-07-4236	26-600922	1–1.8	QBT 3	—	—	0.0041 (J)	—	—	—	—	—	—	—	—	—	—
RE26-07-4239	26-600923	1.2–1.7	QBT 3	0.00331 (J)	—	0.0073 (J)	—	—	—	—	—	—	—	—	—	0.000579 (J+)
RE26-07-4248	26-600926	0.8–1.4	QBT 3	—	—	0.0513	—	—	0.0123 (J)	—	0.013 (J)	—	—	—	—	—
RE26-07-4249	26-600926	2.8–3.2	QBT 3	—	—	0.0108	—	—	—	—	—	—	—	—	—	—
RE26-07-4251	26-600927	2–3	QBT 3	—	—	0.0053	—	—	—	—	—	—	—	—	—	—

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

[a] SSLs are from NMED (2009, 108070), unless otherwise noted.

[b] Butanone [2-] is used as a surrogate based on structural similarity.

[c] SSLs are from EPA regional screening tables (http://www.epa.gov.earth1r6/6pd/rcra_c/pd-n/screen.htm).

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

[e] SSLs are from LANL (2010, 108613).

[f] — = Not detected.

Table 8.6-4
Radionuclides Detected or Detected above BVs/FVs at TA-26

Sample ID	Location ID	Depth (ft)	Media	Cesium-137	Plutonium-238	Plutonium-239/240	Strontium-90	Tritium	Uranium-234	SSSS	Uranium-238
Qbt 2, 3, 4 BV[a]				**na[b]**	**na**	**na**	**na**	**na**	**1.98**	**0.09**	**1.93**
Industrial SAL[c]				**23**	**240**	**210**	**1900**	**440000**	**1500**	**87**	**430**
Recreational SAL[c]				**210**	**330**	**300**	**5600**	**5300000**	**3200**	**520**	**2100**
Residential SAL[c]				**5.6**	**37**	**33**	**5.7**	**750**	**170**	**17**	**87**
RE26-07-3507	26-600773	3.1–5	QBT 3	—[d]	—	—	—	0.0374977	—	—	—
RE26-07-3508	26-600773	5.1–7.1	QBT 3	—	—	—	—	—	—	0.0921	—
RE26-07-3510	26-600774	3.1–5.1	QBT 3	—	—	—	—	0.273009	2.51	0.125	2.54
RE26-07-3513	26-600775	0.5–1.5	QBT 3	—	—	—	—	0.17849	—	—	—
RE26-07-3516	26-600776	0.6–1.1	QBT 3	0.514	—	0.0269 (J-)	—	—	—	—	—
RE26-07-3517	26-600776	2.6–3.1	QBT 3	—	—	—	—	0.0890857	—	—	—
RE26-07-3522	26-600777	0.8–1.9	QBT 3	—	—	—	—	0.442916	—	—	—
RE26-07-3523	26-600777	2.8–3.4	QBT 3	—	—	—	—	0.0973961	—	—	—
RE26-07-3519	26-600778	2.5–3.1	QBT 3	—	—	—	—	0.0125885	—	—	—
RE26-07-3525	26-600779	0.5–1.4	QBT 3	—	—	—	—	0.00547492	—	—	—
RE26-07-3531	26-600781	0.8–1.6	QBT 3	0.243	—	—	—	—	—	—	—

Table 8.6-4 (continued)

Sample ID	Location ID	Depth (ft)	Media	Cesium-137	Plutonium-238	Plutonium-239/240	Strontium-90	Tritium	Uranium-234	SSSS	Uranium-238
Qbt 2, 3, 4 BV[a]				**na**[b]	**na**	**na**	**na**	**na**	**1.98**	**0.09**	**1.93**
Industrial SAL[c]				**23**	**240**	**210**	**1900**	**440000**	**1500**	**87**	**430**
Recreational SAL[c]				**210**	**330**	**300**	**5600**	**5300000**	**3200**	**520**	**2100**
Residential SAL[c]				**5.6**	**37**	**33**	**5.7**	**750**	**170**	**17**	**87**
RE26-07-3532	26-600781	2.8–3.4	QBT 3	—	—	—	—	0.00916236	—	0.0993	—
RE26-07-3537	26-600783	1–2.5	QBT 3	—	1.43	0.154	—	—	—	—	—
RE26-07-3540	26-600784	0.7–1.3	QBT 3	—	—	—	—	0.0488085	—	—	—
RE26-07-3541	26-600784	2.7–3.3	QBT 3	—	—	—	—	—	—	0.102	—
RE26-07-3543	26-600785	0.8–1.3	QBT 3	—	—	—	—	—	—	0.139	—
RE26-07-3546	26-600786	0.5–1.2	QBT 3	—	—	—	—	0.04224	—	0.0977	—
RE26-07-3549	26-600787	0.7–1.2	QBT 3	0.36	—	—	—	0.0366175	—	0.0983	—
RE26-07-3550	26-600787	2.7–3.2	QBT 3	—	—	—	—	—	—	0.106	—
RE26-07-3552	26-600788	0.7–1.2	QBT 3	—	—	—	—	0.00940406	—	—	—
RE26-07-3555	26-600789	0.5–1	QBT 3	0.177	—	—	—	0.0129471	—	—	—
RE26-07-3556	26-600789	2.5–3	QBT 3	—	—	—	—	0.0408419	—	—	—
RE26-07-3558	26-600790	0.7–1.2	QBT 3	0.164	—	—	—	0.0160767	—	—	—
RE26-07-3561	26-600791	0.5–1	QBT 3	0.224	—	—	0.164	—	—	—	—
RE26-07-3562	26-600791	2.5–3.2	QBT 3	—	—	—	—	—	—	0.173	—
RE26-08-7047	26-600910	3.5–5.5	QBT 3	—	—	—	—	0.0639466	—	0.112	—
RE26-08-7048	26-600910	5.5–8.5	QBT 3	—	—	—	—	0.108985	—	0.0933	—
RE26-08-7049	26-600910	8.5–11	QBT 3	—	—	—	—	0.39062	—	0.0927	—
RE26-08-7045	26-600911	3.5–5.5	QBT 3	—	—	—	—	—	—	0.111	—
RE26-08-7038	26-600913	0.5–3.5	QBT 3	—	—	—	—	—	—	0.0918	—
RE26-08-7039	26-600913	3.5–5.5	QBT 3	—	—	—	—	0.0232274	—	0.101	—
RE26-08-7040	26-600913	5.5–8.5	QBT 3	—	—	—	—	0.0236356	—	0.0911	—
RE26-08-7036	26-600914	3.5–6	QBT 3	—	—	—	—	—	—	0.128	—
RE26-07-4215	26-600915	1.5–2	QBT 3	—	—	—	—	0.0573405	—	—	—
RE26-07-4216	26-600915	3.5–4.5	QBT 3	—	—	—	—	0.0618511	—	—	—
RE26-07-4217	26-600915	6–7.5	QBT 3	—	—	—	—	0.16949	—	—	—
RE26-07-4218	26-600916	1–3.5	QBT 3	—	—	—	—	0.0275419	—	—	—
RE26-07-4219	26-600916	3.5–5.5	QBT 3	—	—	—	—	0.0520392	—	—	—
RE26-07-4220	26-600916	5.5–9.5	QBT 3	—	—	—	—	0.280074	—	—	—
RE26-07-4221	26-600917	0–2.5	QBT 3	0.189	—	—	—	0.0224571	—	—	—
RE26-07-4222	26-600917	2.5–5	QBT 3	—	—	—	—	0.0212409	—	—	—
RE26-07-4224	26-600918	2.1–2.6	QBT 3	—	—	—	—	0.0209038	—	0.0945	—
RE26-07-4225	26-600918	4.1–5.6	QBT 3	—	—	—	0.13	0.0345999	—	—	—
RE26-07-4226	26-600918	6.6–13.5	QBT 3	—	—	—	—	0.507251	—	—	—
RE26-07-4227	26-600919	2.6–3.1	QBT 3	—	—	—	—	0.157226	—	—	—
RE26-07-4228	26-600919	4.6–7	QBT 3	—	—	—	—	0.0136797	—	—	—

Table 8.6-4 (continued)

Sample ID	Location ID	Depth (ft)	Media	Cesium-137	Plutonium-238	Plutonium-239/240	Strontium-90	Tritium	Uranium-234	SSSS	Uranium-238
Qbt 2, 3, 4 BV[a]				**na[b]**	**na**	**na**	**na**	**na**	**1.98**	**0.09**	**1.93**
Industrial SAL[c]				**23**	**240**	**210**	**1900**	**440000**	**1500**	**87**	**430**
Recreational SAL[c]				**210**	**330**	**300**	**5600**	**5300000**	**3200**	**520**	**2100**
Residential SAL[c]				**5.6**	**37**	**33**	**5.7**	**750**	**170**	**17**	**87**
RE26-07-4229	26-600919	8–10.2	QBT 3	—	—	—	—	0.0519242	—	—	—
RE26-07-4230	26-600920	2.5–3	QBT 3	—	—	—	—	0.0502996	—	—	—
RE26-07-4231	26-600920	3.5–5	QBT 3	—	—	—	—	0.0469744	—	—	—
RE26-07-4232	26-600920	7–9	QBT 3	—	—	—	—	0.0244345	—	—	—
RE26-07-4233	26-600921	0.9–2.1	QBT 3	0.311	—	—	—	0.0167871	—	—	—
RE26-07-4234	26-600921	2.9–3.5	QBT 3	—	—	—	—	0.038172	—	—	—
RE26-07-4236	26-600922	1–1.8	QBT 3	0.415	—	0.0769 (J)	—	—	—	—	—
RE26-07-4239	26-600923	1.2–1.7	QBT 3	0.2	—	—	—	0.0188317	—	—	—
RE26-08-7032	26-600924	0.5–3	QBT 3	—	—	—	—	0.0173553	—	—	—
RE26-08-7033	26-600924	3.5–5.5	QBT 3	—	—	—	—	0.0143531	—	—	—
RE26-08-7034	26-600924	5.5–11	QBT 3	—	—	—	—	0.00634808	—	—	—
RE26-07-4245	26-600925	0.5–3	QBT 3	—	—	—	—	—	2.65	0.187	2.61
RE26-07-4247	26-600925	5.5–8	QBT 3	—	—	—	—	0.0232763	—	0.0919	—
RE26-07-4248	26-600926	0.8–1.4	QBT 3	—	—	—	—	0.100239	—	—	—
RE26-07-4249	26-600926	2.8–3.2	QBT 3	—	—	—	—	0.00832311	—	0.124	—
RE26-07-4251	26-600927	2–3	QBT 3	0.281	—	—	—	0.082043	—	—	—
RE26-07-4255	26-600928	2.5–4.5	QBT 3	—	—	—	—	0.00733878	—	—	—
RE26-07-4256	26-600928	4.5–6.9	QBT 3	—	—	—	—	0.00826904	—	0.107	—
RE26-07-4257	26-600929	2.5–4.7	QBT 3	—	—	—	—	0.0424488	—	—	—
RE26-07-4258	26-600929	4.5–7	QBT 3	—	—	—	—	0.0538452	—	—	—
RE26-07-4259	26-600929	7–10.8	QBT 3	—	—	—	—	—	—	0.0977	—

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

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

[b] na = Not available.

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

[e] — = Not detected.

Table 10.1-1
Summary of Investigation Results and Recommendations

Consolidated Unit	SWMU/AOC	Site Description	Extent Defined?	Potential Unacceptable Risk/Dose?	Potential Unacceptable Human Health Risk/Dose
TA-02					
	AOC 02-003(a)	Soil contamination from stack-gas valve house and gaseous effluent line	Yes	Not for industrial and recreational scenarios; Unacceptable dose from radionuclides for residential	Perform ecological risk assessment
	AOC 02-003(b)	Soil contamination at condensate trap and line 119	Yes	No	Perform ecological risk assessment
	AOC 02-003(c)	Soil contamination at gaseous effluent delay tanks	Yes	No	Perform ecological risk assessment
	AOC 02-003(d)	Soil contamination at site of upper part of line 119 and temporary vent line	Yes	No	Perform ecological risk assessment
	AOC 02-003(e)	Soil contamination	Yes	Not for industrial and recreational scenarios; Unacceptable doses from non- carcinogens and radionuclides for residential	Perform ecological risk assessment
	AOC 02-004(a)	Former reactor facility	Yes	Not for industrial and recreational scenarios; Unacceptable doses from non-carcinogens and radionuclides for residential	Perform ecological risk assessment
	AOC 02-004(b) AOC 02-004(c) AOC 02-004(d)	Former storage tanks for effluent from OWR and equipment building	Yes	Not for industrial and recreational scenarios; Unacceptable risk from carcinogens for residential	Perform ecological risk assessment
	AOC 02-004(e)	Former acid pit/ transfer sump	Yes	Not for industrial and recreational scenarios; Unacceptable risk from carcinogens for residential	Perform ecological risk assessment
	AOC 02-004(f)	Former equipment building and acid waste line to TA-50	Yes	No	Perform ecological risk assessment
	AOC 02-004(g)	Soil contamination	Yes	Not for industrial and recreational scenarios; Unacceptable dose from radionuclides for residential	Perform ecological risk assessment
	SWMU 02-005	Soil contamination	Yes	No	Perform ecological risk assessment
	SWMU 02-006(a)	Former French drain	Yes	Not for industrial and recreational scenarios; Unacceptable dose from radionuclides for residential	Corrective action complete with controls
	SWMU 02-006(b)	Former acid waste line, laboratory effluent	Yes	Not for industrial and recreational scenarios; Unacceptable risk from carcinogens for residential	Perform ecological risk assessment
	AOC 02-006(c)	Former drainline from offices, restrooms, control room	Yes	Not for industrial and recreational scenarios; Unacceptable dose from radionuclides for residential	Perform ecological risk assessment
	AOC 02-006(d)	Duplicate of AOC 02-006(c)	Yes	Same as AOC 02-006(c)	Same as AOC 02-006(c)
	AOC 02-006(e)	Former sump for reactor room floor drains and mezzanine	Yes	Not for industrial and recreational scenarios; Unacceptable dose from radionuclides for residential	Perform ecological risk assessment
02-007-00	SWMU 02-007	Septic system for floor drains in OWR building and chemical shack	Yes	No	Perform ecological risk assessment
	SWMU 02-009(a)	Soil contamination	Yes	No	Perform ecological risk assessment
	SWMU 02-009(b)	Soil contamination	Yes	Not for industrial and recreational scenarios; Unacceptable dose from radionuclides for residential	Perform ecological risk assessment
	SWMU 02-009(c)	Soil contamination	Yes	Not for industrial and recreational scenarios; Unacceptable dose from radionuclides for residential	Perform ecological risk assessment
	SWMU 02-008(a)	Outfall	Yes	No	Perform ecological risk assessment
	AOC 02-008(c)	Outfall for seepage into basement of OWR building	Yes	Not for industrial and recreational scenarios; Unacceptable risk from carcinogens for residential	Perform ecological risk assessment
	AOC 02-009(d)	Soil contamination	Yes	Not for industrial and recreational scenarios; Unacceptable dose from radionuclides for residential	Perform ecological risk assessment

Table 10.1-1 (continued)

Consolidated Unit	SWMU/AOC	Site Description	Extent Defined?	Potential Unacceptable Risk/Dose?	Recommendation
	AOC 02-009(e)	Duplicate of SWMU 02-009(c)	Yes	Same as AOC 02-009(c)	Same as AOC 02-009(c)
	AOC 02-010	Soil contamination	Yes	Not for industrial and recreational scenarios; Unacceptable dose from radionuclides for residential	Perform ecological risk assessment
	AOC 02-011(a)	Storm drains, outfalls	No	n/a*	Additional extent sampling
	AOC 02-011(b)	Former drainlines from stack-gas valve house	Yes	Not for recreational scenario; Unacceptable dose from radionuclides for the industrial and residential	Clean up for industrial scenario
	AOC 02-011(c)	Storm drain	Yes	No	Perform ecological risk assessment
	AOC 02-011(d)	Outfall from equipment building	Yes	Not for industrial and recreational scenarios; Unacceptable dose from radionuclides for residential	Perform ecological risk assessment
	AOC 02-011(e)	Duplicate of SWMU 02-008(a)	Yes	Same as SWMU 02-008(a)	Same as SWMU 02-008(a)
	AOC 02-012	Soil contamination	Yes	No	Perform ecological risk assessment
TA-21					
21-006(e)-99	SWMU 21-006(e)	Seepage pit	No	n/a	Additional extent sampling
	AOC 21-006(f)	Seepage pit			
	AOC 21-028(c)	Storage areas	No	n/a	Additional extent sampling
TA-26					
	SWMU 26-001	Surface disposal site	No	n/a	Additional extent sampling
	SWMU 26-002(a)	Soil contamination			
	SWMU 26-002(b)	Drainline			
	SWMU 26-003	Septic tank			

Note: Shading denotes consolidated unit.
*n/a = Not available.

Appendix A

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

A-1.0 ACRONYMS AND ABBREVIATIONS

AK	acceptable knowledge
ALARA	as low as reasonably achievable
AOC	area of concern
ATSDR	Agency for Toxic Substances and Disease Registry
AUF	area use factor
BCG	Biota Concentration Guide (DOE)
bgs	below ground surface
BV	background value
CCB	continuous calibration blank
CCV	continuing calibration verification
CMP	corrugated metal pipe
COC	chain of custody
Consent Order	Compliance Order on Consent
COPEC	chemical of potential ecological concern
COPC	chemical of potential concern
DAF	dilution attenuation factor
D&D	decontamination and decommissioning
DGPS	differential global-positioning system
DL	detection limit
DOE	Department of Energy (U.S.)
dpm	disintegrations per minute
DRO	diesel range organics
EC_{XX}	effective concentration for XX% of the population
EDL	estimated detection limit
Eh	oxidation-reduction potential
EPA	U.S. Environmental Protection Agency
EPC	exposure point concentration
EQL	estimated quantitation limit
ESL	ecological screening level
FV	fallout value
HE	high explosives
HI	hazard index

HQ	hazard quotient
HR	home range
HYPO	high power (reactor)
ICB	initial calibration blank
ICS	interference check sample
ICV	initial calibration verification
I.D.	inside diameter
IDL	instrument detection limit
IDW	investigation-derived waste
IS	internal standard
K_d	soil-water partition coefficient
K_{oc}	organic carbon-water partition coefficient
K_{ow}	octanol-water partition coefficient
LANL	Los Alamos National Laboratory
LAL	lower acceptance limit
LCS	laboratory control sample
LLW	low-level waste
LOAEL	lowest observed adverse effect level
LOEC	lowest observed effect concentration
LOPO	low power (reactor)
MATC	maximum acceptable toxicant concentration
MDA	material disposal area
MDC	minimum detectable concentration
MDL	method detection limit
MLLW	mixed low-level waste
mm Hg	millimeters of mercury
MS	matrix spike
MSD	matrix spike duplicate
MSW	municipal solid waste
NMED	New Mexico Environment Department
NOAEL	no observed adverse effect level
NOEC	no observed effect concentration
NPDES	National Pollutant Discharge Elimination System
OU	operable unit

OWR	Omega West Reactor
%R	percent recovery
%RSD	percent relative standard deviation
PAH	polycyclic aromatic hydrocarbon
PAUF	population area use factor
PCB	polychlorinated biphenyl
PID	photoionization detector
PRG	preliminary remediation goal
QA	quality assurance
QC	quality control
QP	quality procedure
RAGS	Risk Assessment Guidance for Superfund
RCRA	Resource Conservation and Recovery Act
RCT	radiation control technician
RDA	recommended daily allowance
RESRAD	residual radioactive (model)
RfD	reference dose
RFI	RCRA facility investigation
RL	reporting limit
RPD	relative percent difference
RFP	Records Processing Facility
SAL	screening action level
SCL	sample collection log
SF	slope factor
SMO	Sample Management Office
SOP	standard operating procedure
SOW	statement of work
SSL	soil screening level
SUPO	super power (reactor)
SVOC	semivolatile organic compound
SWMU	solid waste management unit
T&E	threatened and endangered
TA	technical area
TAL	target analyte list

TCDD	2,3,7,8-tetrachlorodibenzo-p-dioxin
TEF	toxicity equivalency factor
TPH	total petroleum hydrocarbons
TPU	total propagated uncertainty
TRV	toxicity reference value
UAL	upper acceptance limit
UCL	upper confidence limit
UST	underground storage tank
VCP	vitrified clay pipe
VOC	volatile organic compound
WBR	water boiler reactor
WCSF	waste characterization strategy form

A-2.0 METRIC CONVERSION TABLE

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

A-3.0 DATA QUALIFIER DEFINITIONS

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

Appendix B

Field Methods

B-1.0 INTRODUCTION

This appendix summarizes field methods implemented during the 2010 Phase II investigation at the Middle Los Alamos Canyon Aggregate Area at Los Alamos National Laboratory (LANL or the Laboratory). Table B-1.0-1 summarizes the field investigation methods, and the following sections provide more detailed descriptions of these methods. All activities were conducted in accordance with approved subcontractor procedures that are technically equivalent to the Laboratory standard operating procedures (SOPs) listed in Table B-1.0-2 and available at http://www.lanl.gov/environment/all/qa/adep.shtml.

B-2.0 EXPLORATORY DRILLING CHARACTERIZATION

No exploratory drilling characterization was conducted during the 2010 Phase II investigation. All drilling was conducted for the purpose of collecting investigation samples.

B-3.0 FIELD-SCREENING METHODS

This section summarizes the field-screening methods used during the investigation activities. Field screening for organic vapors was performed as necessary for health and safety purposes. Field screening for radioactivity was performed on every sample submitted to the Sample Management Office (SMO). Field-screening results for all investigation activities are described in section 3.2-2 and are presented in Table 3.2-2 of the investigation report.

B-3.1 Field Screening for Organic Vapors

Field screening for organic vapors was conducted for all samples, except when the sampling media was saturated. Screening was conducted using a MiniRAE 2000 photoionization detector (PID) equipped with an 11.7-electron volt lamp. Screening was performed in accordance with the manufacturer's specifications and SOP-06.33, Headspace Vapor Screening with a Photo Ionization Detector. Screening was performed on each sample collected, and screening measurements were recorded on the field sample collection logs (SCLs), provided on DVD in Appendix F. The field-screening results are presented in Table 3.2-2 of the investigation report.

B-3.2 Field Screening for Radioactivity

All samples collected were field screened for radioactivity before they were submitted to the SMO, targeting alpha and beta/gamma emitters. A Laboratory radiation control technician (RCT) conducted radiological screening using an Eberline E-600 radiation meter with an SHP-380AB alpha/beta scintillation detector held within 1 in. of the sample. The Eberline E-600 with attachment SHP-380AB consists of a dual phosphor plate covered by two Mylar windows housed in a light-excluding metal body. The phosphor plate is a plastic scintillator used to detect beta and gamma emissions and is thinly coated with zinc sulfide to detect alpha emissions. The operational range varies from trace emissions to 1 million disintegrations per minute. Screening measurements were recorded on the SCLs and are provided on DVD in Appendix G. The screening results are presented in Table 3.2-2 of the investigation report.

B-4.0 FIELD INSTRUMENT CALIBRATION

Instrument calibration and/or function check was completed daily. Several environmental factors affected the instruments' integrity, including air temperature, atmospheric pressure, wind speed, and humidity. Calibration of the PID was conducted by the site-safety officer. The RCT calibrated the Eberline E-600 instrument according to the manufacturer's specifications and requirements.

B-4.1 MiniRAE 2000 Instrument Calibration

The MiniRAE 2000 PID was calibrated both to ambient air and a standard reference gas (100 ppm isobutylene). The ambient-air calibration determined the zero point of the instrument sensor calibration curve in ambient air. Calibration with the standard reference gas determined a second point of the sensor calibration curve. Each calibration was within 3% of 100 ppm isobutylene, qualifying the instrument for use.

The following calibration information was recorded daily on operational calibration logs:

- instrument identification number
- final span settings
- date and time
- concentration and type of calibration gas used (isobutylene at 100 ppm)
- name of the personnel performing the calibration

All daily calibration procedures for the MiniRAE 2000 PID met the manufacturer's specifications for standard reference gas calibration.

B-4.2 Eberline E-600 Instrument Calibration

The RCT calibrated the Eberline E-600 daily before local background levels for radioactivity were measured. The instrument was calibrated using plutonium-239 and chloride-36 sources for alpha and beta emissions, respectively. The following five checks were performed as part of the calibration procedures:

- calibration date
- physical damage
- battery
- response to a source of radioactivity
- background

All calibrations performed for the Eberline E-600 met the manufacturer's specifications and the applicable radiation detection instrument manual.

B-5.0 SURFACE AND SUBSURFACE SAMPLING

This section summarizes the methods used for collecting surface and subsurface samples, including soil, fill, tuff, and sediment samples, according to the approved Phase II investigation work plan (LANL 2009, 105073; NMED 2009, 105595).

B-5.1 Surface Sampling Methods

Surface samples were collected in Technical Area 02 (TA-02) and TA-26 using either hand-auger or spade-and-scoop methods. Surface samples were collected in accordance with approved subcontractor procedures technically equivalent to SOP-06.10, Hand Auger and Thin-Wall Tube Sampler, or SOP-06.09, Spade and Scoop Method for the Collection of Soil Samples. A hand auger or spade and scoop was used to collect material in approximately 6-in. increments. The samples were transferred to sterile sample collection jars or bags. Samples were preserved using coolers to maintain the required temperature and chemical preservatives such as nitric acid in accordance with an approved subcontractor procedure technically equivalent to SOP-5056, Sample Containers and Preservation.

Samples were appropriately labeled, sealed with custody seals, and documented before transporting to the SMO. Samples were managed according to approved subcontractor procedures technically equivalent to SOP-5057, Handling, Packaging, and Transporting Field Samples, and SOP-5058, Sample Control and Field Documentation.

Sample collection tools were decontaminated (section B-5.7) immediately before each sample was collected in accordance with a subcontractor procedure technically equivalent to SOP-5061, Field Decontamination of Equipment.

B-5.2 Borehole Logging

Borehole logs were completed for all boreholes drilled at TA-02, TA-21, TA-26, and TA-61 with a hollow-stem auger drill rig. During drilling, all boreholes were continuously cored and logged in 2.5-ft intervals. Information recorded in field boring logs included footage and percent recovery, lithology and depths of lithologic contacts, depth of samples collected, field screening results, core descriptions, and other relevant observations. The borehole logs are presented in Appendix C.

B-5.3 Subsurface Tuff Sampling Methods

Subsurface samples were collected using approved subcontractor procedures technically equivalent to SOP-06.10, Hand Auger and Thin-Wall Tube Sampler, or SOP-06.26, Core Barrel Sampling for Subsurface Earth Materials. Borehole samples were collected in a stainless-steel split-spoon core-barrel sampler that retrieved core in 2.5-ft intervals. The samples collected, listed by borehole and depth, are provided in tables for each site discussed in the investigation report.

Core retrieved from the subsurface was field screened for organic vapors, visually inspected, and logged. Following inspection, samples for volatile organic compound (VOC) analysis were collected immediately to minimize the loss of subsurface VOCs during the sample collection process. After collection of the VOC samples, the 2.5-ft core section to be sampled was removed from the core barrel and placed in a stainless-steel bowl. The material was crushed, if necessary, with a decontaminated rock hammer and stainless-steel spoon to allow core material to fit into sample containers. The samples for the remaining analytical suites were transferred to sterile sample collection jars or bags for transport to the SMO.

The tools used to collect samples were decontaminated (section B-5.7) immediately before each sample was collected in accordance with an approved subcontractor procedure technically equivalent to SOP-5061, Field Decontamination of Equipment.

If alluvial or shallow groundwater was encountered during drilling of characterization holes, the saturated interval was sealed using a temporary surface casing or other appropriate technique to allow continuation of the hole without transporting water into the deeper intervals. If sampling was not possible because of saturated conditions, the planned samples were collected at the first practicable depth below the saturated zone.

B-5.4 Quality Control Samples

Quality control (QC) samples were collected in accordance with an approved subcontractor procedure technically equivalent to SOP-5059, Field Quality Control Samples. The QC samples included field duplicates, field rinsate blanks, and field trip blanks. Field duplicate samples were collected from the same material as a regular investigation sample and submitted for the same analyses. Field duplicate samples were collected at a frequency of at least 1 duplicate sample for every 10 samples.

Field rinsate blanks were collected to evaluate field decontamination procedures. Rinsate blanks were collected by rinsing sampling equipment (i.e., auger buckets, sampling bowls and spoons) after decontamination with deionized water. The rinsate water was collected in a sample container and submitted to the SMO. Field rinsate blank samples were analyzed for inorganic chemicals (target analyte list metals, hexavalent chromium, perchlorate, and total cyanide) and were collected from sampling equipment at a frequency of at least 1 rinsate sample for every 10 solid samples.

Field trip blanks also were collected at a frequency of one per day at the time samples were collected for VOCs. Trip blanks consisted of containers of certified clean sand opened and kept with the other sample containers during the sampling process.

B-5.5 Sample Documentation and Handling

Field personnel completed a SCL form for each sample. Sample containers were sealed with signed custody seals and placed in coolers at approximately 4°C. Samples were handled in accordance with approved subcontractor procedures technically equivalent to SOP-5057, Handling, Packaging, and Transporting Field Samples, and SOP-5056, Sample Containers and Preservation. Swipe samples were collected from the exterior of sample containers and analyzed by the RCT before the sample containers were removed from the site. Samples were transported to the SMO for processing and shipment to off-site contract analytical laboratories. The SMO personnel reviewed and approved the SCLs and accepted custody of the samples.

B-5.6 Borehole Abandonment

All boreholes were abandoned in accordance with an approved subcontractor procedure technically equivalent to SOP-5034, Monitoring Well and RFI Borehole Abandonment, by filling the boreholes with bentonite chips up to 2.0–3.0 ft from the ground surface. The chips were hydrated and clean soil placed on top. Pavement was patched as necessary depending on existing site conditions. All cuttings were managed as investigation-derived waste (IDW), as described in Appendix D.

B-5.7 Decontamination of Sampling Equipment

The split-spoon core barrels and all other sampling equipment that came (or could have come) in contact with sample material were decontaminated after each core was retrieved and logged. Decontamination included wiping the equipment with Fantastik and paper towels. Decontamination of the drilling equipment was conducted before mobilization of the drill rig to another borehole to avoid cross-contamination between samples and borehole locations. Residual material adhering to equipment was removed using dry decontamination methods such as the use of wire brushes and scrapers. Decontamination activities were performed in accordance with an approved subcontractor procedure technically equivalent to

SOP-5061, Field Decontamination of Equipment. Decontaminated equipment was surveyed by an RCT before it was released from the site.

B-5.8 Site Demobilization and Restoration

The first drill rig was demobilized from the site on October 12, 2010, and the second drill rig was demobilized from the site on November 10, 2011. Before equipment was removed from the site, a Laboratory RCT screened the equipment for radioactivity to ensure all materials were clean of site contamination. All temporary fencing and staging areas were dismantled and returned to preinvestigation conditions. All excavated and disturbed areas will be regraded and reseeded with native grass mix.

B-6.0 SOIL REMEDIATION

At TA-02, the approved Phase II investigation work plan identified 15 locations for soil remediation. The work plan and NMED approval (LANL 2009, 105073; NMED 2009, 105595) provided guidelines for soil remediation, including extending excavations and collecting additional confirmation samples if required.

B-6.1 Target Cleanup Levels

At 11 of the 15 soil remediation locations, an elevated detection of polychorinated biphenyls (PCBs) during 2007 Phase I was driving remediation. The target cleanup level for PCBs is 1 mg/kg. At two locations, remediation activities targeted cesium-137, at one location, remediation activities targeted polycyclic aromatic hydrocarbons (PAHs), and at one location remediation activities targeted semivolatile organic compounds. Target cleanup levels for cesium-137 and PAHs were industrial soil screening levels (SSLs).

B-6.2 Preexcavation Sampling

Where possible, preexcavation samples were collected and analyzed for the target analyte(s) to define lateral and vertical extent before remediation began. Preexcavation sampling locations were offset 4 ft to the north, south, east, and west from the proposed remediation location to define lateral extent, per the approved Phase II investigation work plan (LANL 2009, 105073; NMED 2009, 105595). Preexcavation samples were also collected at depth to define vertical extent and were submitted for fixed-laboratory analysis of the target analyte(s) on a 48-h turnaround schedule. If a preexcavation result was greater than the cleanup level specified in the approved Phase II work plan (LANL 2009, 105073), additional samples were collected at offset locations or at deeper depths, as appropriate. If a preexcavation result was less than the proposed cleanup level, the sample became a confirmation sample and the excavation was defined in that direction or depth.

B-6.3 Excavation

A backhoe or small track mounted excavator was used to remove environmental media exceeding target cleanup levels, and the media was managed as IDW in compliance with an approved waste characterization strategy form (WCSF) (see section B-8.0). If required, additional confirmation samples were collected. Following remediation, the excavated area was backfilled with clean fill, compacted, and revegetated as described above in section B-5.8.

B-6.4 Decontamination of Excavation Equipment

Decontamination activities were performed in accordance with an approved subcontractor procedure technically equivalent to SOP-5061, Field Decontamination of Equipment. Residual material adhering to equipment was removed using dry decontamination methods such as the use of wire brushes and scrapers. All decontaminated equipment was surveyed by an RCT before it was released from the site. PCB swipe samples were collected from the tires and bucket of equipment used for remediation of PCB contamination to ensure it met release criteria. Additional decontamination and swipe sampling was conducted, if necessary, before equipment was removed from the site.

B-7.0 GEODETIC SURVEYING

Geodetic surveys of all sample locations were performed using a Trimble RTK 5700 differential global-positioning system (DGPS) referenced from published and monumented external Laboratory survey control points in the vicinity. All sampling locations were surveyed in accordance with an approved subcontractor procedure technically equivalent to SOP-5028, Coordinating and Evaluating Geodetic Surveys. Horizontal accuracy of the monumented control points is within 0.1 ft. The DGPS instrument referenced from Laboratory control points is accurate within 0.2 ft. The surveyed coordinates are presented in Table 3.2-1 of the investigation report.

B-8.0 IDW STORAGE AND DISPOSAL

All IDW generated during the field investigation was managed in accordance with SOP-5238, Characterization and Management of Environmental Program Waste. This procedure incorporates the requirements of all applicable U.S. Environmental Protection Agency (EPA) and New Mexico Environment Department (NMED) regulations, U.S. Department of Energy orders, and Laboratory implementation requirements. IDW was also managed in accordance with the approved WCSF and the IDW management appendix of the approved Phase II investigation work plan (LANL 2009, 105073; NMED 2009, 105595). Details of IDW management for the Phase II investigation are presented in Appendix D.

B-9.0 DEVIATIONS FROM THE WORK PLAN

Implementation of Phase II activities resulted in the following deviations from the approved Phase II investigation work plan:

- At approximately 12 ft below ground surface at location 02-612435 (work plan location 22), a fuel-oil odor was detected in the borehole cuttings. Therefore, the analytical suite for all subsequent samples collected at location 02-612435 included total petroleum hydrocarbons-diesel range organics.
- Because of safety concerns, location 02-612983 (work plan location 29) was moved 20 ft northwest and supplemented by additional samples collected from location 02-612982 (20 ft northeast).
- Because of the presence of large rocks, concrete, or borehole/hand-auger refusal, several sampling locations were moved from the planned locations. Actual locations were resurveyed and coordinates uploaded to the Sample Management Database.Table B-9.0-1 presents the sampling locations that were moved a significant distance from the proposed location and explains the reason for the move.

- Following six rounds of step-out sampling at location 02-600449 (work plan location 11), the lateral and vertical extent of PCB contamination were still not defined. Remediation activities for location 02-600449 were not completed because of the unanticipated magnitude of the excavation. Further sampling and remediation are proposed as part of the Phase III investigation.
- Because of safety concerns and practicability, remediation activities could not be performed at location 02-600561 (work plan location 60), which is on a steep, rocky slope inaccessible by mechanized equipment. Instead, additional step-out sampling was performed to define the extent of PCB contamination and ensure recreational SSLs were not exceeded at this location. Although regular recreational use of this site is unlikely given the steepness of the slope, it is the only potential land use. In addition, this location is situated in a small side drainage that appears to be the source of contamination in the area. Based on the distribution of Aroclor-1260. (i.e., higher concentrations to the north), it appears that contamination is not coming from TA-02. The lateral and vertical extent of PCBs are defined, the recreational SSLs are not exceeded, and the site will be proposed for stabilization to mitigate potential stormwater migration in the Phase III investigation work plan.

B-10.0 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. This information is also included in text citations. ER IDs are assigned by the Environmental Programs Directorate's Records Processing Facility (RPF) and are used to locate the document at the RPF and, where applicable, in the master reference set.

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

LANL (Los Alamos National Laboratory), February 2009. "Phase II Investigation Work Plan for Middle Los Alamos Canyon Aggregate Area, Revision 1," Los Alamos National Laboratory document LA-UR-09-1206, Los Alamos, New Mexico. (LANL 2009, 105073)

NMED (New Mexico Environment Department), March 25, 2009. "Approval, Middle Los Alamos Canyon Aggregate Area Phase II Work Plan, 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 2009, 105595)

Table B-1.0-1
Summary of Field Investigation Methods

Method	Summary
Spade and Scoop Collection of Soil Samples	This method was used to collect shallow (i.e., approximately 0-12 in.) soil or sediment samples. The spade-and-scoop method involved digging a hole to the desired depth, as prescribed in the approved work plan, and collecting a discrete grab sample. Each sample was placed in a clean stainless-steel bowl for transfer into various sample containers.
Hand Auger Sampling	This method is typically used for sampling soil or sediment at depths of less than 10–15 ft, but in some cases may be used to collect samples of weathered or nonwelded tuff. The method involves hand-turning a stainless-steel bucket auger (typically 3–4 in. inside diameter [I.D.]), creating a vertical hole that can be advanced to the desired sampling depth. When the desired depth was reached, the auger was decontaminated before advancing the hole through the sampling depth. The sample material was transferred from the auger bucket to a stainless-steel sampling bowl before the various required sample containers were filled.
Split-Spoon Core-Barrel Sampling	In this method, a stainless-steel core barrel (typically 4 in. I.D., 2.5 ft long) is advanced using a powered drilling rig. The core barrel extracts a continuous length of soil and/or rock that can be examined as a unit. The split-spoon core barrel is a cylindrical barrel split lengthwise so the two halves can be separated to expose the core sample. Once extracted, the section of core was screened for radioactivity and organic vapors and described in a geologic log. A portion of the core was then collected as a discrete sample from the desired depth.
Headspace Vapor Screening	Individual soil, rock, or sediment samples were field screened for VOCs by placing a portion of the sample in a plastic sample bag or in a glass container with a foil-sealed cover. The container was sealed, gently shaken, and allowed to equilibrate for 5 min. The sample was then screened by inserting a PID probe into the container and measuring and recording any detected vapors.
Handling, Packaging, and Shipping of Samples	Field team members sealed and labeled samples before packing them to ensure the sample containers and the containers used for transport were free of external contamination. Field team members packaged all samples to minimize the possibility of breakage during transport. After all environmental samples were collected, packaged, and preserved, a field team member transported them to the SMO. The SMO arranged to ship the samples to the analytical laboratories.
Sample Control and Field Documentation	The collection, screening, and transport of samples were documented on standard forms generated by the SMO. These included SCLs and sample container labels. SCLs were completed at the time of sample collection, and the logs were signed by the sampler and a reviewer who verified the logs for completeness and accuracy. Corresponding labels were initialed and applied to each sample container, and custody seals were placed around each sample container. SCLs were completed and signed to verify that the samples were not left unattended.
Field Quality Control Samples	Field quality control samples were collected as follows: *Field Duplicates*: At a frequency 10%; collected at the same time as a regular sample and submitted for the same analyses. *Equipment Rinsate Blank*: At a frequency of 10%; collected by rinsing sampling equipment with deionized water that was collected in a sample container and submitted for laboratory analysis. *Trip Blanks*: Required for all field events that include the collection of samples for VOC analysis. Trip blanks containers of certified clean sand were opened and kept with the other sample containers during the sampling process.

Table B-1.0-1 (continued)

Method	Summary
Field Decontamination of Drilling and Sampling Equipment	Dry decontamination was used to minimize the generation of liquid waste. Dry decontamination included the use of a wire brush or other tool to remove soil or other material adhering to the sampling equipment, followed by use of a commercial cleaning agent (nonacid, waxless cleaners) and paper wipes.
Containers and Preservation of Samples	Specific requirements/processes for sample containers, preservation techniques, and holding times are based on EPA guidance for environmental sampling, preservation, and quality assurance. Specific requirements for each sample were printed on the SCL provided by the SMO (size and type of container [e.g., glass, amber glass, and polyethylene]). All samples were preserved by placing them with ice in insulated containers to maintain a temperature of 4°C.
Coordinating and Evaluating Geodetic Surveys	Geodetic surveys focused on obtaining survey data of acceptable quality to use during project investigations. Geodetic surveys were conducted with a Trimble 5700 DGPS. The survey data conformed to Laboratory Information Architecture project standards IA-CB02, GIS Horizontal Spatial Reference System, and IA-D802, Geospatial Positioning Accuracy Standard for A/E/C/ and Facility Management. All coordinates were expressed as State Plane Coordinate System 83, NM Central, U.S. feet. All elevation data were reported relative to the National Geodetic Vertical Datum of 1983.
Management of Environmental Restoration Project Waste, Waste Characterization	IDW was managed, characterized, and stored in accordance with an approved WCSF that documented the site history, field activities, and characterization approach for each waste stream managed. Waste characterization complied with on- or off-site waste acceptance criteria. All stored IDW was marked with appropriate signage and labels. Drummed IDW was stored on pallets to prevent deterioration of containers. A waste storage area was established before waste was generated. Waste storage areas were located in controlled areas of the Laboratory to prevent unauthorized personnel from inadvertently adding or managing wastes. Each container of waste generated was individually labeled with waste classification, item identification number, and radioactivity (if applicable), immediately following containerization. All waste was segregated by classification and compatibility to prevent cross-contamination. Management of IDW is described in Appendix D.

Table B-1.0-2
SOPs Used for Investigation Activities Conducted at Middle Los Alamos Canyon Aggregate Area

SOP-5018, Integrated Fieldwork Planning and Authorization
SOP-5028, Coordinating and Evaluating Geodetic Surveys
SOP-5034, Monitor Well and RFI Borehole Abandonment
SOP-5055, General Instructions for Field Investigations
SOP-5056, Sample Containers and Preservation
SOP-5057, Handling, Packaging, and Transporting Field Samples
SOP-5058, Sample Control and Field Documentation
SOP-5059, Field Quality Control Samples
SOP-5061, Field Decontamination of Equipment
SOP-5181, Notebook and Logbook Documentation for Environmental Directorate Technical and Field Activities
SOP-01.12, Field Site Closeout Checklist
SOP-5238, Characterization and Management of Environmental Program Waste
SOP-06.09, Spade and Scoop Method for the Collection of Soil Samples
SOP-06.10, Hand Auger and Thin-Wall Tube Sampler
SOP-06.26, Core Barrel Sampling for Subsurface Earth Materials
SOP-06.33, Headspace Vapor Screening with a Photo Ionization Detector
EP-DIR-QAP-0001, Quality Assurance Plan for the Environmental Programs

Note: Procedures used were approved subcontractor procedures technically equivalent to the procedures listed.

Table B-9.0-1
Summary of Sampling Deviations from the Approved Work Plan

SWMU/AOC	Work Plan Location	Sampling Location	Description of Deviation
02-004(a,f), 02-011(a)(iv)	19	02-612346	Moved 2 ft east because of a culvert
02-011(a)(x), 02-008(c)(ii)	29	02-612983	Moved 15 ft northwest because of the proximity to drainage
02-003(c), 02-009(c)	36	02-612420	Moved 2 ft southeast because of a large boulder
02-009(a)	37	02-612421	Moved 7 ft west because of a large boulder and tree
02-006(c), 02-011(a)(ix)	22	02-612345	Moved 1 ft north because of refusal
TA-02 core area	43	02-612409	Moved 1 ft north because of refusal
TA-02 core area	47	02-612413	Moved 5 ft north because of refusal
02-005	60	02-600561	Moved 1 ft west because of refusal
02-006(a)	1	02-612651	Moved 12 ft east because of overhead utility
02-006(a)	5	02-612650	Moved 18 ft west because of overhead utility
02-006(a)	8	02-612649	Moved 8 ft east because of overhead utility
02-006(a)	9	02-612642	Moved 3 ft south because of underground utility
02-006(a)	13	02-612648	Moved 18 ft west because of overhead utility
21-028(c)	2	21-612336	Moved 5 ft southwest because of refusal
21-028(c)	3	21-612342	Moved 5 ft southeast because of underground utility
21-028(c)	5	21-612337	Moved 5 ft west because of underground utility

Appendix C

Borehole Logs
(on CD included with this document)

Appendix D

Investigation-Derived Waste Management

D-1.0 INTRODUCTION

This appendix contains the waste management records for the investigation-derived waste (IDW) generated during the implementation of the Phase II investigation work plan for the Middle Los Alamos Canyon Aggregate Area of Los Alamos National Laboratory (the Laboratory). In general, IDW generated during the field investigation was managed in accordance with Standard Operating Procedure (SOP) 5238, Characterization and Management of Environmental Program Waste. This procedure incorporates the requirements of applicable U.S. Environmental Protection Agency (EPA) and New Mexico Environment Department (NMED) regulations, U.S. Department of Energy orders, and Laboratory policies and procedures.

Consistent with Laboratory procedures, a waste characterization strategy form (WCSF) was prepared to address characterization approaches, on-site management, and final disposition options for wastes. Analytical data and information on wastes generated during previous investigations and/or acceptable knowledge (AK) were used to complete the WCSF. All available waste documentation, including WCSFs, WCSF amendments, and waste profile forms are provided in Attachment D-1 (on CD).

The selection of waste containers was based on appropriate U.S. Department of Transportation requirements, waste types, and estimated volumes of IDW to be generated. Immediately following containerization, each waste container was individually labeled with a unique identification number and with information regarding waste classification, contents, and radioactivity, if applicable.

Wastes were staged in clearly marked, appropriately constructed waste accumulation areas. Waste accumulation area postings, regulated storage duration, and inspection requirements were based on the type of IDW and its classification. Container and storage requirements were detailed in the WCSF and approved before waste was generated.

Investigation activities were conducted in a manner that minimized the generation of waste. Waste minimization was accomplished by implementing the most recent version of the Los Alamos National Laboratory Hazardous Waste Minimization Report.

D-2.0 WASTE STREAMS

The IDW streams generated and managed during the investigation are described below and are summarized in Table D-2.0-1. The waste stream numbers correspond with those identified in the WCSF.

- WCSF Waste Stream #1: Drill Cuttings (IDW)—Drill cuttings consisted of sediment, soil, and rock removed during investigative sampling activities. Approximately 57 yd^3 of drill cuttings was generated during this investigation and stored in 1-yd^3 wrangler bags, 55-gal. drums, or 20-yd^3 bins. All wrangler bags and bins were directly sampled. Approximately 38 yd^3 of cuttings will be land-applied as they meet the criteria in ENV-RCRA-QP-011.2. Land Application of Drill Cuttings. Approximately 19 yd^3 of cuttings cannot be land-applied as they are low-level waste (LLW) and will be used as attic cover at Technical Area 54 (TA-54).
- WCSF Waste Stream #2: Contact Waste—Contact waste consisted of spent personal protective equipment, material used in dry decontamination of sampling equipment (e.g., paper towels), and sampling equipment and other materials that contacted, or potentially contacted, contaminated environmental media and could not be decontaminated. This waste included, but was not limited to, plastic sheeting (e.g., tarps and liners), used wrangler bags, gloves, paper towels, plastic and glass sample bottles, and disposable sampling supplies. These wastes were containerized at the

point of generation and were characterized based on AK of the waste materials, the methods of generation, and analytical data for the media with which they came into contact. Approximately 2 yd^3 of contact waste was generated and will be recycled through the Laboratory's Green Is Clean program.

- WCSF Waste Streams #3 and #6—No decontamination fluids or petroleum-contaminated soils were generated.
- WCSF Waste Stream #4: Excavated Media and Debris—Contaminated soil and tuff were excavated from the TA-02 core area to remove soil that exceeded cleanup objectives. The total amount of excavated environmental media removed was approximately 126 yd^3. These media are nonhazardous, low-level waste (LLW) and will be used as attic cover at TA-54.
- WCSF Waste Stream #5—Municipal solid waste (MSW) consisted of noncontact trash and debris and empty sample preservation containers. Approximately 2 yd^3 of waste was generated and was determined to be nonhazardous, nonradioactive MSW. It was stored in plastic-lined trash cans and disposed of at the Los Alamos County landfill.
- WCSF Waste Stream #7: Returned or Excess Samples—This waste stream consisted of soil and tuff samples returned from a laboratory. Approximately 0.5 yd^3 of material were generated from this activity. These materials were placed into the same containers as the environmental media from which they were taken.

Table D-2.0-1
Summary of IDW Generation and Management

WCSF Waste Stream #	Waste Stream	Waste Type	Volume	Characterization Method	On-Site Management	Disposition
1	Drill cuttings	Reusable material, Industrial, LLW	57 yd^3	Direct sampling and use of environmental samples	1-yd^3 wrangler bags, 55-gal. drums, and 20-yd^3 rolloff bins	Intended path: land application or TA-54
2	Contact waste	Industrial	2 yd^3	AK and analytical results of site characterization	20-yd^3 rolloff bins	Intended path: authorized off-site disposal facility or Green Is Clean program
4	Excavated media and debris	LLW	126 yd^3	Data from 2007 investigation augmented by additional solid waste management unit sampling per the WCSF	20-yd^3 rolloff bins, 1-yd^3 wrangler bags.	Intended path: TA-54
5	Municipal solid waste	MSW	2 yd^3	AK	Plastic bags	Off-site municipal landfill
7	Returned or excess samples	See waste stream #1	0.5 yd^3	See waste stream #1	See waste stream #1	See waste stream #1

Attachment D-1

Waste Documentation
(on CD included with this document)

Appendix E

Analytical Program

E-1.0 INTRODUCTION

This appendix discusses the analytical methods and data-quality review for samples collected during investigations at the Middle Los Alamos Canyon Aggregate Area at Los Alamos National Laboratory (LANL or the Laboratory). Additionally, this appendix gives a summary of the effects of data-quality issues on the acceptability of the analytical data.

Quality assurance (QA), quality control (QC), and data validation procedures were implemented in accordance with the Quality Assurance Project Plan Requirements for Sampling and Analysis (LANL 1996, 054609), and the Laboratory's statements of work (SOWs) for analytical laboratories (LANL 1995, 049738; LANL 2000, 071233; LANL 2008, 109962). The results of the QA/QC procedures were used to estimate the accuracy, bias, and precision of the analytical measurements. Samples for QC include method blanks, matrix spikes (MSs), laboratory control samples (LCSs), internal standards, initial calibration verifications (ICVs) and continuing calibration verifications (CCVs), surrogates, and tracers.

The type and frequency of laboratory QC analyses are described in the SOWs for analytical laboratories (LANL 1995, 049738; LANL 2000, 071233; LANL 2008, 109962). Other QC factors, such as sample preservation and holding times, were also assessed in accordance with the requirements outlined in Standard Operating Procedure (SOP) 5056, Sample Containers and Preservation.

The following SOPs, available at http://www.lanl.gov/environment/all/qa/adep.shtml, were used for data validation:

- SOP-5161, Routine Validation of Volatile Organic Compound (VOC) Analytical Data
- SOP-5162, Routine Validation of Semivolatile Organic Compound (SVOC) Analytical Data
- SOP-5163, Routine Validation of Organochlorine Pesticide (PEST) and Polychlorinated Biphenyl (PCB) Analytical Data
- SOP-5164, Routine Validation of High Explosive (HE) Analytical Data
- SOP-5165, Routine Validation of Metals Analytical Data
- SOP-5166, Routine Validation of Gamma Spectroscopy, Chemical Separation Alpha Spectrometry, Gas Proportional Counting, and Liquid Scintillation Analytical Data
- SOP-5168, Routine Validation of LC/MS/MS High Explosive Analytical Data
- SOP-5169, Routine Validation Of Dioxin Furan Analytical Data (EPA Method 1618 and SW-846 EPA Method 8290)
- SOP-5171, Routine Validation of Total Petroleum Hydrocarbons Gasoline Range Organics/Diesel Range Organics Analytical Data (Method 8015B)
- SOP-5191, Routine Validation of LC/MS/MS Perchlorate Analytical Data (SW-846 EPA Method 6850)

Routine data validation was performed for each data package (referred to by a request number), and analytical data were reviewed and evaluated based on U.S. Environmental Protection Agency (EPA) National Functional Guidelines, where applicable (EPA 1994, 048639; EPA 1999, 066649). As a result of the data validation and assessment efforts, qualifiers are assigned to the analytical records as appropriate. The data qualifier definitions are provided in Appendix A. Sample collection logs (SCLs) and chain of custody forms (COCs) are provided in Appendix F (on DVD included with this document). The analytical data, instrument printouts, and data validation reports are provided in Appendix F.

E-2.0 ANALYTICAL DATA ORGANIZATION

Historical data evaluated in this report were collected during Resource Conservation and Recovery Act facility investigations, other corrective actions, and other investigations. All historical investigation samples were submitted to and analyzed by approved off-site laboratories. These data are determined to be of sufficient quality for decision-making purposes and have been reviewed and revalidated to current QA standards.

E-3.0 INORGANIC CHEMICAL ANALYSES

A total of 1802 samples (plus 204 field duplicates) collected within the Middle Los Alamos Canyon Aggregate Area were analyzed for inorganic chemicals. A total of 1783 samples (plus 202 field duplicates) were analyzed for target analyte list (TAL) metals; 1213 samples (plus 144 field duplicates) were analyzed for nitrate; 1209 samples (plus 143 field duplicates) were analyzed for perchlorate; 1262 samples (plus 149 field duplicates) were analyzed for total cyanide; and 570 samples (plus 58 field duplicates) were analyzed for hexavalent chromium. The analytical methods used for inorganic chemicals are listed in Table E-1.0-1.

Tables in the investigation report summarize all samples collected and the analyses requested for the investigation of the sites within the Middle Los Alamos Canyon Aggregate Area. All analyses conducted during the investigation are presented in Appendix F (on DVD included with this document).

E-3.1 Inorganic Chemical QA/QC Samples

QA/QC samples are used to produce measures of the reliability of the data. The results of the QA/QC analyses performed on a sample provide confidence about whether the analyte is present and whether the concentration reported is accurate. To assess the accuracy and precision of inorganic chemical analyses, this investigation included analyses of LCSs, preparation blanks, MSs, laboratory duplicate samples, interference check samples (ICSs), and serial dilution samples. Each of these QA/QC sample types is defined in the analytical services SOWs (LANL 1995, 049738; LANL 2000, 071233; LANL 2008, 109962) and is described briefly in the paragraphs below.

The LCS serves as a monitor of the overall performance of each step during the analysis, including sample digestion. For inorganic chemicals in soil or tuff, LCS percent recoveries (%R) should fall within the control limits of 75% to 125% (LANL 1995, 049738; LANL 2000, 071233; LANL 2008, 109962).

The preparation 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; it is extracted and analyzed in the same manner as the corresponding environmental samples. Preparation blanks are used to measure bias and potential cross-contamination. All inorganic chemical results should be below the method detection limit (MDL).

MS samples assess the accuracy of inorganic chemical analyses. These samples are designed to provide information about the effect of the sample matrix on the sample preparation procedures and analytical technique. The MS acceptance criterion is 75% to 125%, inclusive, for all spiked analytes (LANL 1995, 049738; LANL 2000, 071233; LANL 2008, 109962).

Laboratory duplicate samples assess the precision of inorganic chemical analyses. All relative percent differences (RPDs) between the sample and laboratory duplicate should be ±35% for soil (LANL 1995, 049738; LANL 2000, 071233; LANL 2008, 109962).

The ICSs assess the accuracy of the analytical laboratory's interelement and background correction factors used for inductively coupled plasma emission spectroscopy. The ICS %R should be within the acceptance range of 80% to 120%. The QC acceptance limits are ±20%.

Serial dilution samples measure potential physical or chemical interferences and correspond to a sample dilution ratio of 1:5. The chemical concentration in the undiluted sample must be at least 50 times the MDL (100 times for inductively coupled plasma mass spectroscopy) for valid comparison. For sufficiently high concentrations, the RPD should be within 10%.

E-3.2 Data Quality Results for Inorganic Chemicals

The majority of the analytical results for inorganic chemicals were either not assigned a qualifier or qualified as not detected (U) because the analytes were not detected by the respective analytical methods. These data do not have any quality issues associated with the values presented.

A total of 3627 TAL metals results, 235 cyanide results, 201 perchlorate results, 102 hexavalent chromium results, and 56 nitrate results were qualified as estimated (J) because the analytical laboratory qualified the detected result as estimated.

Two hexavalent chromium results were qualified as estimated (J) because the validator identified quality deficiencies in the reported data that required qualification.

Fourteen hexavalent chromium results and six perchlorate results were qualified as estimated not detected (UJ) because the validator identified quality deficiencies in the reported data that required qualification.

E-3.2.1 Maintenance of COC

SCL/COC forms were maintained properly for all samples analyzed for inorganic chemicals (see Appendix F, on DVD included with this document).

E-3.2.2 Sample Documentation

All samples analyzed for inorganic chemicals were properly documented on SCL/COC forms in the field (see Appendix F, on DVD included with this document).

E-3.2.3 Sample Dilutions

Some samples were diluted for inorganic chemical analyses. No qualifiers were applied to any inorganic chemical sample results because of dilutions.

E-3.2.4 Sample Preservation

Preservation criteria were met for all samples analyzed for inorganic chemicals.

E-3.2.5 Holding Times

Fourteen nitrate results were qualified as estimated and biased low (J-) because the extraction/analytical holding time was exceeded by less than 2 times the applicable holding time.

Thirteen nitrate results and 13 cyanide results were qualified as estimated not detected (UJ) because the extraction/analytical holding time was exceeded by less than 2 times the applicable holding time.

E-3.2.6 ICVs and CCVs

Eleven perchlorate results were qualified as estimated and biased low (J-) because the associated ICV or CCV was recovered below the lower warning limit but was greater than the lower acceptance limit (LAL).

Sixty-one perchlorate results were qualified as estimated not detected (UJ) because the associated ICV or CCV was recovered below the lower warning limit but was greater than the LAL.

Eight TAL metals results and four nitrate results were qualified as estimated and biased high (J+) because the associated ICV or CCV was recovered above the upper warning limit but was less than or equal to the upper acceptance limit (UAL).

E-3.2.7 Interference Check Sample and/or Serial Dilutions

Twenty-five perchlorate results were qualified as estimated and biased high (J+) because the associated ICS was recovered above the UAL.

Forty-four TAL metals results were qualified as estimated (J) because the serial dilution sample RPD exceeded criteria.

One TAL metals result was qualified as estimated (J) because the serial dilution sample RPD was greater than 10% and the sample result was greater than 50 times the MDL.

E-3.2.8 Laboratory Duplicate Samples

A total of 223 TAL metals results were qualified as estimated (J) because the sample and the duplicate sample results were greater than 5 times the reporting limit (RL) and the duplicate RPD was greater than 35%.

One TAL metals result was qualified as estimated not detected (UJ) because the duplicate sample was analyzed on a sample not collected on-site.

A total of 1416 TAL metals results and 11 nitrate results were qualified as estimated (J) because the duplicate results exceeded the RPD requirements.

Thirteen TAL metals results and four nitrate results were qualified as estimated not detected (UJ) because the duplicate results exceeded the RPD requirements.

A total of 127 TAL metals results were qualified as estimated (J) because either the sample results or the duplicate sample results or both were greater than or equal to 5 times the RL, and the difference between the samples was greater than 2 times the RL.

One TAL metals result and one cyanide result were qualified as estimated not detected (UJ) because either the sample results or the duplicate sample results or both were greater than or equal to 5 times the RL, and the difference between the samples was greater than 2 times the RL.

E-3.2.9 Blanks

A total of 244 TAL metals results and 2 cyanide results were qualified as not detected (U) because the sample results were less than 5 times the concentration of the related analytes in the equipment rinsate blank.

A total of 2836 TAL metals results, 69 cyanide results, 23 hexavalent chromium results, and 1 perchlorate result were qualified as not detected (U) because the sample result was less than 5 times the concentration of the related analyte in the method blank.

A total of 180 TAL metals results were qualified as estimated (J) because the analyte was identified in the method blank but was greater than 5 times the RL.

A total of 107 TAL metals results were qualified as not detected (U) because the sample result was less than or equal to 5 times the concentration of the related analyte in the initial calibration blank/continuous calibration blank.

E-3.2.10 MS Samples

A total of 597 TAL metals results, 135 nitrate results, 25 hexavalent chromium results, 14 perchlorate results, and 1 cyanide result were qualified as estimated and biased low (J-) because the MS %R value was less than the LAL but greater than 30%.

A total of 951 TAL metals results, 134 nitrate results, 25 hexavalent chromium results, 18 perchlorate results, and 5 cyanide results were qualified as estimated not detected (UJ) because the MS %R value was less than the LAL but greater than 30%.

Seventeen TAL metals results were qualified as estimated (J) because there was insufficient sample for an MS to be analyzed on a field sample.

Eleven TAL metals results were qualified as estimated not detected (UJ) because there was insufficient sample for an MS to be analyzed on a field sample.

A total of 1234 TAL metals results and 10 nitrate results were qualified as estimated and biased high (J+) because the analyte was recovered above the UAL but less than 150% of the associated MS sample.

A total of 1127 TAL metals results were qualified as estimated and biased high (J+) because the analyte was recovered above 150% in the associated MS sample.

Seven TAL metals results were qualified as estimated not detected (UJ) because the analyte was recovered above 150% in the associated MS sample.

A total of 114 TAL metals results, 17 hexavalent chromium results, and 2 cyanide results were qualified as estimated not detected (UJ) because the associated MS recovery was less than the LAL but greater than 10%.

A total of 218 TAL metals results were qualified as estimated and biased low (J-) because the associated MS recovery was less than the LAL but greater than 10%.

A total of 770 TAL metals results were qualified as estimated and biased high (J+) because the associated MS recovery was greater than the UAL.

Twenty-one TAL metals results were qualified as estimated not detected (UJ) because the associated MS recovery was greater than the UAL.

E-3.2.11 LCS Recoveries

Five TAL metals results were qualified as estimated and biased low (J-) because the LCS %R was less than the LAL but greater than 10%.

Sixteen TAL metals results were qualified as estimated not detected (UJ) because the LCS %R was less than the LAL but greater than 10%.

Forty-nine TAL metals results, three cyanide results, and one perchlorate result were qualified as estimated and biased high (J+) because the associated LCS was recovered above the upper warning limit.

Sixty-three TAL metals results and one perchlorate result were qualified as estimated and biased low (J-) because the associated LCS was recovered below the lower warning limit but greater than or equal to the LAL.

Three TAL metals results and two perchlorate results were qualified as estimated not detected (UJ) because the associated LCS was recovered below the lower warning limit but greater than or equal to the LAL.

E-3.2.12 Detection Limits

A total of 551 TAL metals results, 10 hexavalent chromium results, and 1 perchlorate result were qualified as estimated (J) because the sample result was reported as detected between the instrument detection limit and the estimated detection limit.

E-3.2.13 Rejected Results

A total of 307 TAL metals results, 52 hexavalent chromium results, 18 nitrate results, 15 perchlorate results, and 7 cyanide results were qualified as rejected (R) because the MS %R value was less than 30%.

One nitrate result was qualified as rejected (R) because the extraction holding time was exceeded by more than 2 times the acceptable holding time.

Eight TAL metals results, eight hexavalent chromium results, and three cyanide results were qualified as rejected (R) because the associated MS recovery was less than 10%.

The rejected data were not used to determine the nature and extent of contamination or to assess the potential human and ecological risks. However, sufficient data of good quality are available to characterize the site(s) and conduct the risk assessments. The results of other qualified data were used as reported and do not affect the usability of the sampling results.

E-4.0 ORGANIC CHEMICAL ANALYSES

A total of 1709 samples (plus 114 field duplicates) collected within the Middle Los Alamos Canyon Aggregate Area were analyzed for organic chemicals. A total of 857 samples (plus 114 field duplicates) were analyzed for volatile organic compounds (VOCs); 1441 samples (plus 160 field duplicates) were analyzed for semivolatile organic compounds (SVOCs); 1375 samples (plus 161 field duplicates) were analyzed for polychlorinated biphenyls (PCBs); 177 samples (plus 32 field duplicates) were analyzed for dioxins and furans; 4 samples were analyzed for pesticides; 146 samples (plus 18 field duplicates) were analyzed for total petroleum hydrocarbon (TPH) diesel range organics (DRO); and 97 samples (plus 8 field duplicates) were analyzed for explosive compounds. All QC procedures were followed as required by the analytical laboratory SOWs (LANL 1995, 049738; LANL 2000, 071233; LANL 2008, 109962). The analytical methods used for organic chemicals are listed in Table E-1.0-1.

Tables within the investigation report summarize all samples collected from the Middle Los Alamos Canyon Aggregate Area and the analyses requested. All organic chemical results are provided on DVD in Appendix F.

E-4.1 Organic Chemical QA/QC Samples

QA/QC samples are used to produce measures of the reliability of the data. The results of the QA/QC analyses performed on a sample provide confidence about whether the analyte is present and whether the concentration reported is accurate. To assess the accuracy and precision of organic chemical analyses, this investigation included calibration verifications and the analysis of LCSs, method blanks, MSs, surrogates, and internal standards (ISs). Each of these QA/QC sample types is defined in the analytical services SOWs (LANL 1995, 049738; LANL 2000, 071233; LANL 2008, 109962) and described briefly in the paragraphs below.

Calibration verification is the establishment of a quantitative relationship between the response of the analytical procedure and the concentration of the target analyte. There are two aspects of calibration verification: initial and continuing. The initial calibration verifies the accuracy of the calibration curve as well as 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 that analyte identification criteria such as retention times and spectral matching are being met.

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 overall performance on a “controlled” sample. The LCS is the primary demonstration, on a daily basis, of the ability to analyze samples with good qualitative and quantitative accuracy. The LCS recoveries should within the method-specific acceptance criteria.

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; it 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 contract-required detection limit in the method blank.

MS samples are used to measure the ability to recover prescribed analytes from a native sample matrix and consist of 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 between the LAL and UAL.

A surrogate compound (surrogate) is an organic compound used in the analyses of 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 extraction and analysis. The recovery percentage of the surrogates must be within specified ranges or the sample may be rejected or assigned a qualifier.

ISs are chemical compounds added to every blank, sample, and standard extract at a known concentration. They are used to compensate for (1) analyte concentration changes that might occur during storage of the extract, and (2) quantitation variations that can occur during analysis. Internal standards are used as the basis for quantitation of target analytes. The %R for ISs should be within the range of 50% to 200%.

E-4.2 Data Quality Results for Organic Chemicals

The majority of the analytical results for organic chemicals were either not assigned a qualifier or qualified as not detected (U) because the analytes were not detected by the respective analytical methods. These data do not have any quality issues associated with the values presented.

A total of 1560 SVOC results, 678 dioxin/furan results, 276 PCB results, 254 VOC results, and 57 TPH-DRO results were qualified as estimated (J) because the analytical laboratory qualified the detected result as estimated.

Forty-three dioxin/furan results were qualified as estimated (J) because the validator identified quality deficiencies in the reported data that required qualification.

E-4.2.1 Maintenance of COC

SCL/COC forms were maintained properly for all samples analyzed for organic chemicals (see Appendix F, on DVD included with this document).

E-4.2.2 Sample Documentation

All samples analyzed for organic chemicals were properly documented on the SCL in the field (see Appendix F, on DVD included with this document).

E-4.2.3 Sample Dilutions

Some samples were diluted for organic chemical analyses. No qualifiers were applied to any organic chemical sample results because of dilutions.

E-4.2.4 Sample Preservation

Preservation criteria were met for all samples analyzed for organic chemicals.

E-4.2.5 Holding Times

Thirty-four SVOC results, 21 PCB results, and 16 VOC results were qualified as estimated and biased low (J-) because the extraction/analytical holding time was exceeded by less than 2 times the published method holding times.

A total of 1068 SVOC results, 222 VOC results, and 77 PCB results were qualified as estimated not detected (UJ) because the extraction/analytical holding time was exceeded by less than 2 times the published method holding times.

E-4.2.6 ICVs and CCVs

Three SVOC results and three PCB results were qualified as estimated (J) because the ICV and/or CCV were recovered outside the method-specific limits.

A total of 729 SVOC results were qualified as estimated not detected (UJ) because the ICV and/or CCV were recovered outside the method-specific limits.

A total of 118 SVOC results were qualified as estimated (J) because the ICV and/or CCV were not analyzed at the appropriate method frequency.

A total of 530 SVOC results were qualified as estimated not detected (UJ) because the ICV and/or CCV were not analyzed at the appropriate method frequency.

A total of 4018 SVOC results, 1874 VOC results, 239 high explosives (HE) results, and 60 PCB results were qualified as estimated not detected (UJ) because the initial calibration curve exceeded the percent relative standard deviation (%RSD) criteria and/or the associated multipoint calibration correlation coefficient was less than 0.995.

Thirty SVOC results, 24 VOC results, and 22 PCB results were qualified as estimated (J) because the initial calibration curve exceeded the %RSD criteria and/or the associated multipoint calibration correlation coefficient was less than 0.995.

E-4.2.7 Surrogate Recoveries

Twenty-four VOC results, 22 SVOC results, 18 PCB results, and 3 dioxin/furan results were qualified as estimated and biased low (J-) because the surrogate recovery percentage was less than the LAL but greater than or equal to 10%.

Ten PCB results were qualified as estimated and biased high (J+) because the associated surrogate recovery was greater than the UAL.

Twelve VOC results were qualified as estimated and biased high (J+) because the associated surrogate recovery was greater than the UAL.

A total of 629 VOC results and 149 PCB results were qualified as estimated not detected (UJ) because the associated surrogate recovery was less than the LAL but greater than or equal to 10%.

A total of 289 SVOC results were qualified as estimated not detected (UJ) because at least 2 sample surrogate recoveries in the same fraction were less than the LAL but greater than 10%.

Fifty-one SVOC results were qualified as estimated not detected (UJ) because at least one surrogate was greater than the UAL and one surrogate was less than the LAL.

Nine VOC results were qualified as estimated and biased low (J-) because one surrogate recovery percentage was less than 10%.

One SVOC result was qualified as estimated and biased low (J-) because one sample surrogate recovery was less than 10%.

E-4.2.8 IS Responses

A total of 1335 SVOC results and 187 VOC results were qualified as estimated not detected (UJ) because the %R of the associated IS area counts was between 10% and 50% when compared with the area counts in the applicable continuing calibration standard.

A total of 282 SVOC results and 6 VOC results were qualified as estimated (J) because the %R of the associated IS area counts was between 10% and 50% when compared with the area counts in the applicable continuing calibration standard.

Six SVOC results were qualified as estimated (J) because the quantitating IS area count was less than 10% of the expected value.

Eight SVOC results were qualified as estimated not detected (UJ) because the quantitating IS area count was less than 50% but greater than 10% relative to the previous continuing calibration.

Seven SVOC results and one VOC result were qualified as estimated (J) because the associated IS area count was greater than 200% of the previous continuing calibration standard.

Forty-two SVOC results were qualified as estimated not detected (UJ) because the associated IS area count was greater than 200% of the previous continuing calibration standard.

Twenty-two SVOC results were qualified as estimated (J) because the %R of the associated IS area counts was either less than 50% or greater than 200% when compared with the area counts in the applicable continuing calibration standard.

Seventy-three SVOC results and 11 VOC results were qualified as estimated not detected (UJ) because the mass spectrum did not meet specifications.

E-4.2.9 Blanks

Seventy-five dioxin/furan results, seven PCB results, and one VOC result were qualified as estimated (J) because the sample concentration was greater than 5 times the amount in the method blank.

Seventy SVOC results, four dioxin/furan results, six TPH-DRO results, and three PCB results were qualified as not detected (U) because the sample result was less than 5 times the concentration of the related analyte in the method blank.

A total of 198 VOC results were qualified as not detected (U) because the associated sample concentration was less than 5 times/10 times the amount in the method blank.

E-4.2.10 MS Samples

Three TPH-DRO results were qualified as estimated not detected (UJ) because the MS/matrix spike duplicate %R was greater than or equal to 10% but less than 70%.

E-4.2.11 Laboratory Duplicate Samples

Laboratory duplicates collected for organic chemical analyses indicated acceptable precision for all samples.

E-4.2.12 LCS Recoveries

A total of 193 VOC results, 171 SVOC results, 67 PCB results, and 18 HE results were qualified as estimated not detected (UJ) because the associated LCS recovery was less than the LAL but greater than 10%.

Ten PCB results were qualified as estimated and biased low (J-) because the LCS %R was less than 70% but greater than or equal to 10%.

One SVOC result was qualified as estimated and biased high (J+) because the LCS %R was greater than the UAL.

One SVOC result was qualified as estimated and biased low (J-) because the LCS %R was less than the LAL but greater than 10%.

Two SVOC results and two VOC results were qualified as estimated and biased high (J+) because the LCS %R was greater than the UAL.

Thirty-three SVOC results were qualified as estimated not detected (UJ) because the LCS %R was less than the LAL but greater than 10%.

E-4.2.13 Rejected Data

A total of 413 VOC results and 136 SVOC results were qualified as rejected (R) because the sample surrogate recovery was less than 10%.

A total of 206 SVOC results were qualified as rejected (R) because the extraction holding time was exceeded by 2 times the method-published holding-time requirements.

Sixty-three SVOC results were qualified as rejected (R) because the results were not analyzed with a valid 5-point calibration curve and/or a standard at the reporting limit.

Twenty-one SVOC results and three VOC results were qualified as rejected (R) because the affected analytes were analyzed with a relative response factor of less than 0.05 in the initial calibration and/or CCV.

Six TPH-DRO results were qualified as rejected (R) because the validator identified quality deficiencies in the reported data that required qualification.

The rejected data were not used to characterize the nature and extent of contamination or assess the potential human and ecological risks. However, sufficient data of good quality are available to characterize the site(s) and conduct the risk assessments. The results of other qualified data were used as reported and do not affect the usability of the sampling results.

E-5.0 RADIONUCLIDE ANALYSES

A total of 1833 samples (plus 203 field duplicates) collected within the Middle Los Alamos Canyon Aggregate Area were analyzed for radionuclides. A total of 1380 samples (plus 165 field duplicates) were analyzed for americium-241; 1683 samples (plus 185 field duplicates) were analyzed for gamma-emitting radionuclides; 1701 samples (plus 189 field duplicates) were analyzed for isotopic plutonium; 1624 samples (plus 181 field duplicates) were analyzed for isotopic uranium; 1720 samples (plus 192 field duplicates) were analyzed for tritium; 1567 samples (plus 173 field duplicates) were analyzed for strontium-90; and 85 samples (plus 5 field duplicates) were analyzed for technetium-99. The analytical methods used for radionuclides are listed in Table E-1.0-1.

Tables in the investigation report summarize all samples collected from the Middle Los Alamos Canyon Aggregate Area and the analyses requested. All radionuclide results are provided on DVD (Appendix F).

E-5.1 Radionuclide QA/QC Samples

To assess the accuracy and precision of radionuclide analyses, this investigation included analyses of LCSs, method blanks, MS samples, laboratory duplicate samples, and tracers. Each of these QA/QC sample types is defined in the analytical services SOWs (LANL 1995, 049738; LANL 2000, 071233; LANL 2008, 109962) and is described briefly in the paragraphs below.

The LCS serves as a monitor of the overall performance of each step during the analysis, including sample digestion. For radionuclides in soil or tuff, LCS %R should fall between the control limits of 80% and 120%.

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; it is analyzed in the same manner as the corresponding environmental samples. Method blanks are used to assess the potential for sample contamination during analysis. All radionuclide results should be below the minimum detectable concentration (MDC).

MS samples assess the accuracy of radionuclide analyses. These samples are designed to provide information about the effect of the sample matrix on the sample preparation procedures and analytical technique. The MS acceptance criterion is 75% to 125%.

Tracers are radioisotopes added to a sample for the purposes of monitoring losses of the target analyte. The tracer is assumed to behave in the same manner as the target analytes. The tracer recoveries should fall between the LAL and UAL.

Laboratory duplicate samples assess the precision of radionuclide analyses. All RPDs between the sample and laboratory duplicate should be ±35% for soil (LANL 1995, 049738; LANL 2000, 071233; LANL 2008, 109962).

E-5.2 Data Quality Results for Radionuclides

Approximately one-third (6403) of the analytical results for radionuclides either were not assigned a qualifier or were qualified as not detected (U) because the analytes were not detected by the respective analytical methods. These data do not have any quality issues associated with the values presented.

All procedures were followed as required by the analytical services SOWs (LANL 1995, 049738; LANL 2000, 071233; LANL 2008, 109962). The majority of results (11,604) were qualified as not detected (U) because the associated sample concentration was less than or equal to the MDC. A total of 208 sample results were qualified as not detected (U) because the associated sample concentration was less than or equal to 3 times the total propagated uncertainty (TPU). This data qualification is related to detection status only, not to the quality of the data.

E-5.2.1 Maintenance of COC

SCL/COC forms were maintained properly for all samples (see Appendix F, on DVD included with this document).

E-5.2.2 Sample Documentation

All samples were properly documented on the SCL/COC forms in the field (see Appendix F, on DVD included with this document).

E-5.2.3 Sample Dilutions

Some samples were diluted for radionuclide analyses. No qualifiers were applied to any radionuclide sample results because of dilutions.

E-5.2.4 Sample Preservation

Preservation criteria were met for all samples analyzed for radionuclides.

E-5.2.5 Holding Times

Holding-time criteria were met for all samples analyzed for radionuclides.

E-5.2.6 Method Blanks

Seven americium-241 results were qualified as not detected (U) because the sample results were less than or equal to 5 times the concentration of the analyte in the method blank.

E-5.2.7 MS Samples

Six strontium-90 results were qualified as estimated not detected (UJ) because the MS recovery was less than the LAL but greater than 10%.

Four strontium-90 results were qualified as estimated and biased low (J-) because the associated MS recovery was less than the LAL but greater than 10%.

Three tritium results were qualified as estimated and biased high (J+) because the MS recovery was greater than the UAL.

E-5.2.8 Tracer Recoveries

Seventeen isotopic uranium results, 11 americium-241 results, and 2 isotopic plutonium results were qualified as estimated and biased low (J-) because the tracer %R was less than 30% but greater than 10%.

Nine americium-241 results, seven isotopic uranium results, and four isotopic plutonium results were qualified as estimated not detected (UJ) because the tracer %R was less than 30% but greater than 10%.

Three isotopic uranium results and two isotopic plutonium results were qualified as estimated and biased low (J-) because the tracer recovery was less than the LAL but greater than or equal to 10%.

Four isotopic plutonium results were qualified as estimated not detected (UJ) because the tracer recovery was less than the LAL but greater than or equal to 10%.

Three isotopic uranium results and one isotopic plutonium result were qualified as estimated and biased high (J+) because the tracer recovery was greater than the UAL.

E-5.2.9 LCS Recoveries

Ninety-nine isotopic uranium results, 33 isotopic plutonium results, 11 strontium-90 results, and 8 tritium results were qualified as estimated and biased low (J-) because the associated LCS recovery was less than the LAL but greater than 10%.

Five cesium-137 results, four isotopic plutonium results, and one strontium-90 result were qualified as estimated and biased high (J+) because the associated analyte in the LCS was recovered above the UAL.

A total of 287 isotopic plutonium results, 10 tritium results, 7 strontium-90 results, and 2 isotopic uranium results were qualified as estimated not detected (UJ) because the LCS recovery was less than the LAL but greater than 10%.

One cesium-137 result was qualified as estimated and biased high (J+) because the LCS %R was greater than the UAL.

E-5.2.10 Laboratory Duplicate Sample Recoveries

Thirty-three isotopic plutonium results and 10 americium-241 results were qualified as estimated (J) because the duplicate error ratio was greater than 2.0.

One isotopic plutonium result was qualified as estimated (J) because the duplicate information was missing.

One isotopic plutonium result was qualified as estimated not detected (UJ) because the duplicate information was missing.

E-5.2.11 Rejected Data

A total of 454 cesium-134 results, 118 cesium-137 results, 34 cobalt-60 results, 6 sodium-22 results, 2 strontium-90 results, and 1 isotopic uranium result were qualified as rejected (R) because spectral interference prevented positive identification of the analytes.

A total of 129 cesium-134 results, 2 cesium-137 results, 1 cobalt-60 result, and 1 sodium-22 result were qualified as rejected (R) because the MDC and/or TPU documentation was missing.

Three isotopic uranium results were qualified as rejected (R) because the tracer recovery was less than 10%.

Three cesium-134 results, three sodium-22 results, three technetium-99 results, two cobalt-60 results, one cesium-137 result, and one isotopic plutonium result were qualified as rejected (R) because the validator identified quality deficiencies in the reported data that required qualification.

The rejected data were not used to determine the nature and extent of contamination or to assess the potential human and ecological risks. However, sufficient data of good quality are available to characterize the site(s) and conduct the risk assessments. The results of other qualified data were used as reported and do not affect the usability of the sampling results.

E-6.0 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. This information is also included in text citations. ER IDs are assigned by the Environmental Programs Directorate's Records Processing Facility (RPF) and are used to locate the document at the RPF and, where applicable, in the master reference set.

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

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)

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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)

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LANL (Los Alamos National Laboratory), June 30, 2008. "Exhibit "D" Scope of Work and Technical Specifications, Analytical Laboratory Services for General Inorganic, Organic, Radiochemical, Asbestos, Low-Level Tritium, Particle Analysis, Bioassay, Dissolved Organic Carbon Fractionation, and PCB Congeners," Los Alamos National Laboratory document RFP No. 63639-RFP-08, Los Alamos, New Mexico. (LANL 2008, 109962)

Table E-1.0-1
Inorganic Chemical, Organic Chemical, and Radionuclide Analytical Methods for Samples Collected in the Middle Los Alamos Canyon Aggregate Area

Analytical Method	Analytical Description	Analytical Suite
Inorganic Chemicals		
EPA 300.0	Ion chromatography	Anions (nitrate)
EPA SW-846: 6010/6010B	Inductively coupled plasma emission spectroscopy—atomic emission spectroscopy	Aluminum, antimony, arsenic, barium, beryllium, calcium, cadmium, cobalt, chromium, copper, iron, lead, magnesium, manganese, nickel, potassium, selenium, silver, sodium, thallium, uranium, vanadium, and zinc (TAL metals)
EPA SW-846:6020	Inductively coupled plasma mass spectrometry	Aluminum, antimony, arsenic, barium, beryllium, calcium, cadmium, cobalt, chromium, copper, iron, lead, magnesium, manganese, nickel, potassium, selenium, silver, sodium, thallium, vanadium, and zinc (TAL metals)
EPA SW-846:9012A	Automated colorimetric/off-line distillation	Total cyanide
EPA SW-846:6850	Liquid chromatography–mass spectrometry/mass spectrometry	Perchlorate
EPA SW-846:7471A	Cold vapor atomic absorption	Mercury
Organic Chemicals		
EPA SW-846: 8082	Gas chromatography	PCBs
EPA SW-846:8240 EPA SW-846:8260 EPA SW-846:8260B	Gas chromatography-mass spectrometry	VOCs
EPA SW-846:8270C	Gas chromatography-mass spectrometry	SVOCs
EPA SW-846:8290	High-resolution gas chromatography/high-resolution mass spectrometry	Dioxins/furans
EPA SW-846: 8321A _MOD	High performance liquid chromatography	Explosive compounds
EPA SW-846:8081A	Gas chromatography	Pesticides
EPA SW-846:8080	Gas chromatography	Pesticides/PCBs
EPA SW-846:8015M_EXTRACTABLE	Gas chromatography /flame ionization detector	TPH-DRO
EPA:418.1	Infrared spectrophotometry	TPH unknown range; Total recoverable petroleum hydrocarbons
Radionuclides		
EPA 901.1	Gamma spectroscopy	Americium-241, cesium-134, cesium-137, cobalt-60, europium-152, ruthenium-106, sodium-22, uranium-235
HASL Method 300:ISOPU HASL Method 300:ISOU	Chemical separation alpha spectrometry	Isotopic plutonium Isotopic uranium
EPA 905.0	Gas proportional counting	Strontium-90
EPA 906.0	Liquid scintillation	Tritium

Appendix G

Box Plots and Statistical Results

G-1.0 BOX PLOTS FOR AOC 02-003(a)

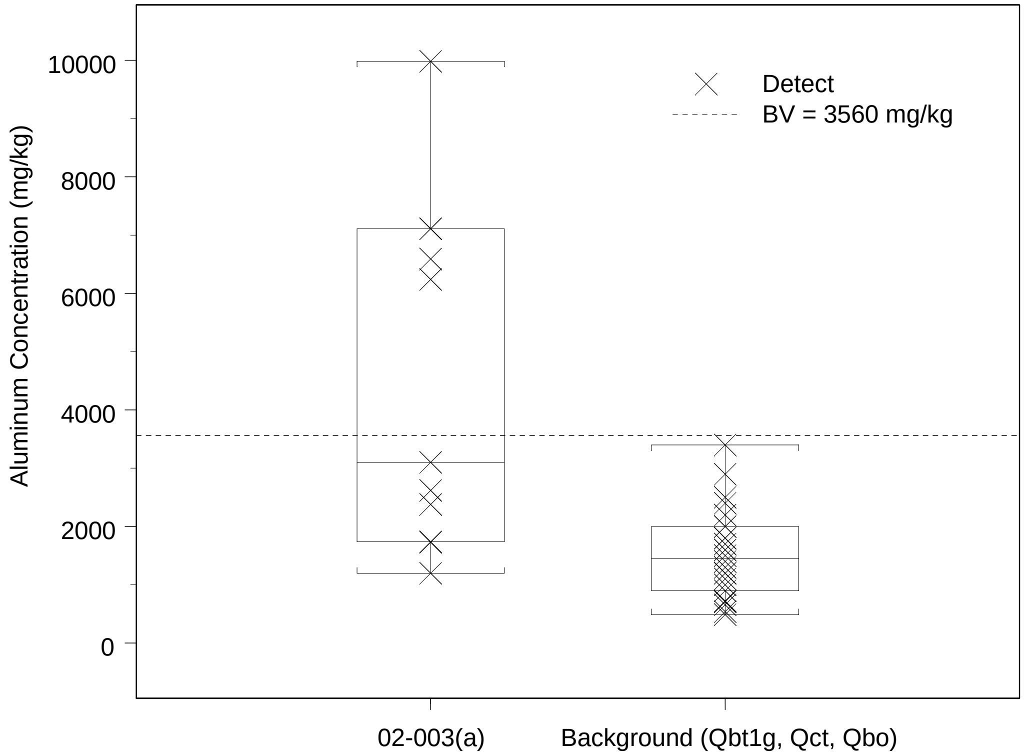

Figure G-1.0-1 Box plot of aluminum in Qbo tuff at AOC 02-003(a)

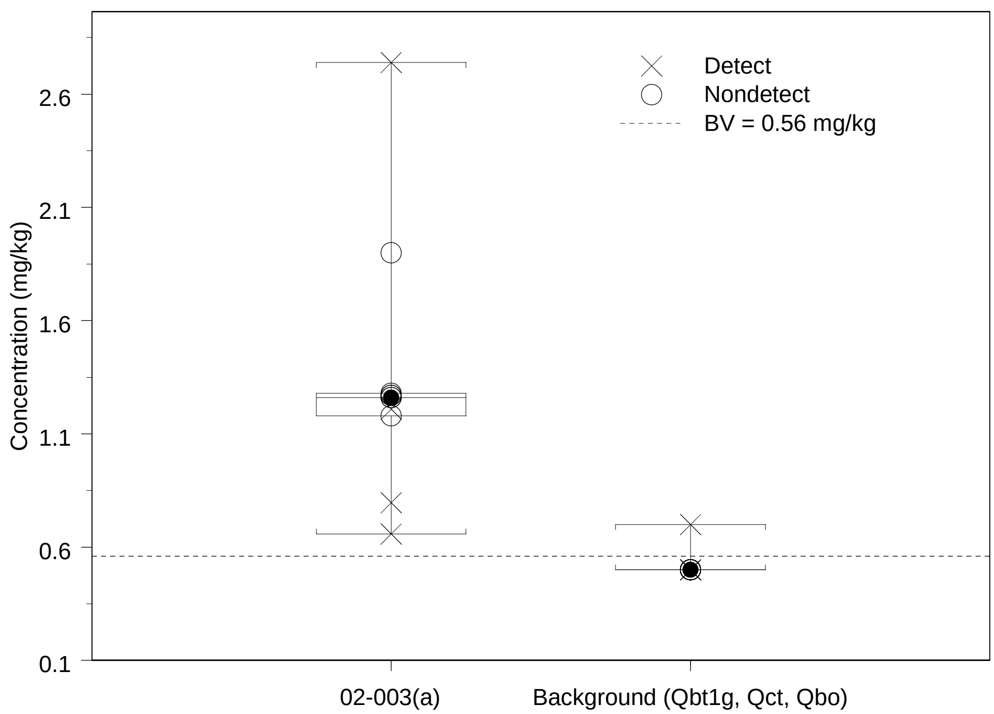

Figure G-1.0-2 Box plot of arsenic in Qbo tuff at AOC 02-003(a)

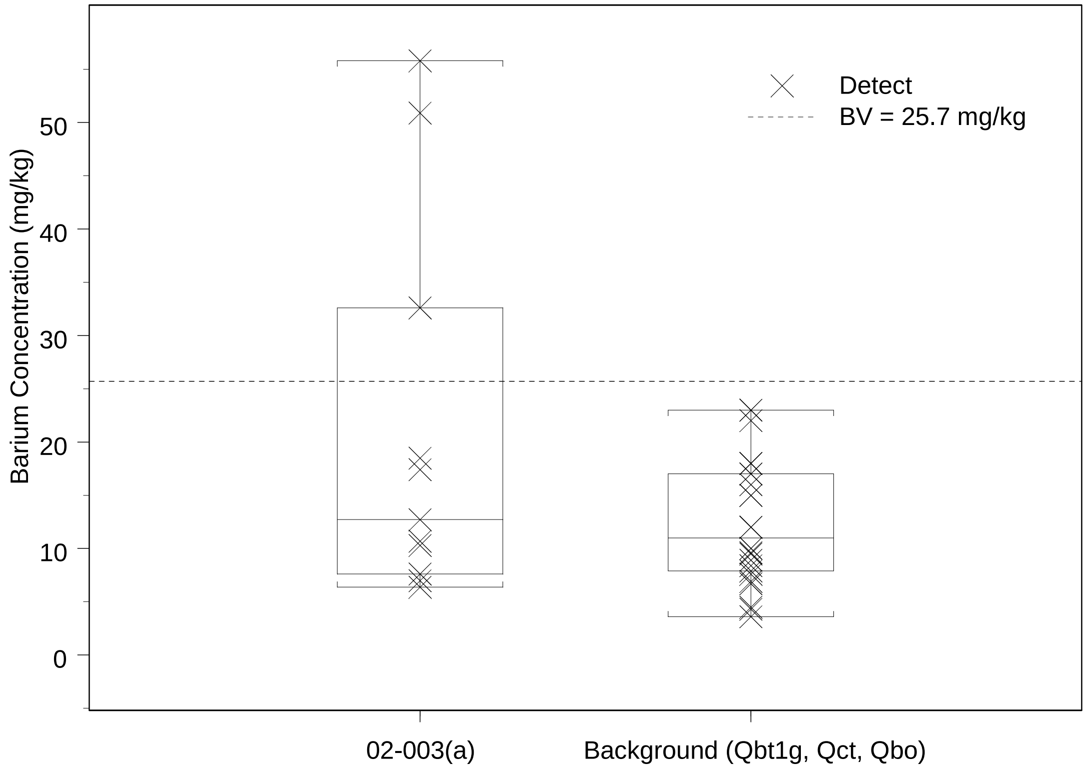

Figure G-1.0-3 Box plot of barium in Qbo tuff at AOC 02-003(a)

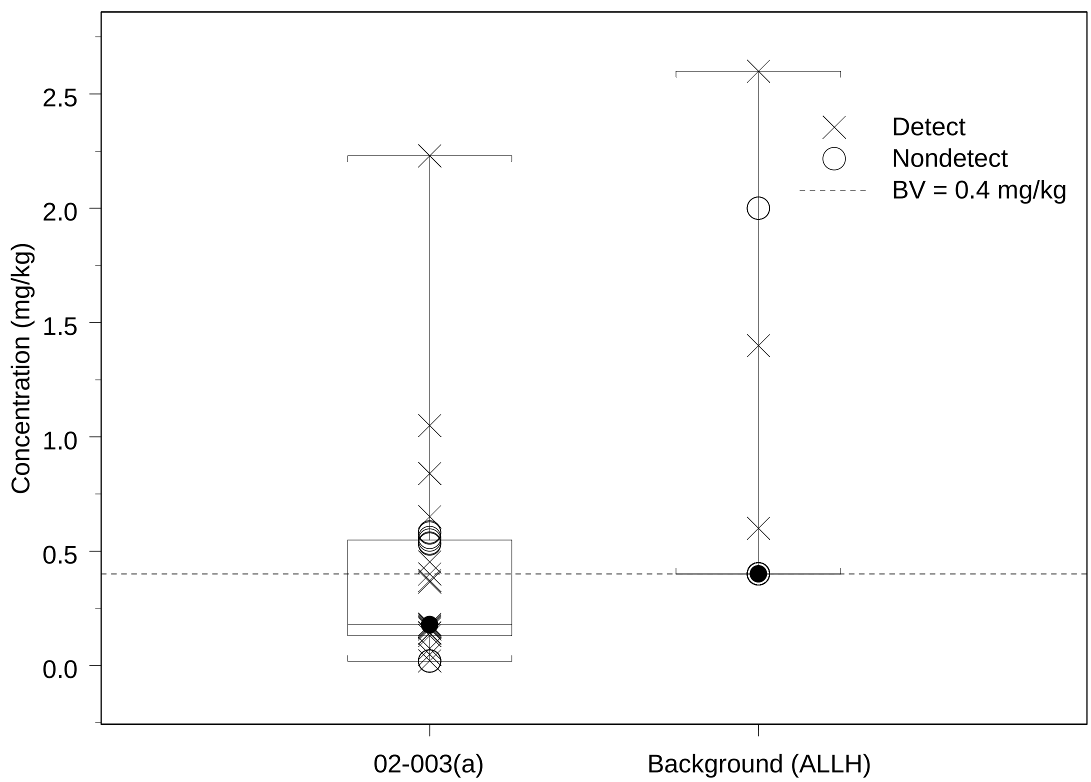

Figure G-1.0-4 Box plot of cadmium in soil at AOC 02-003(a)

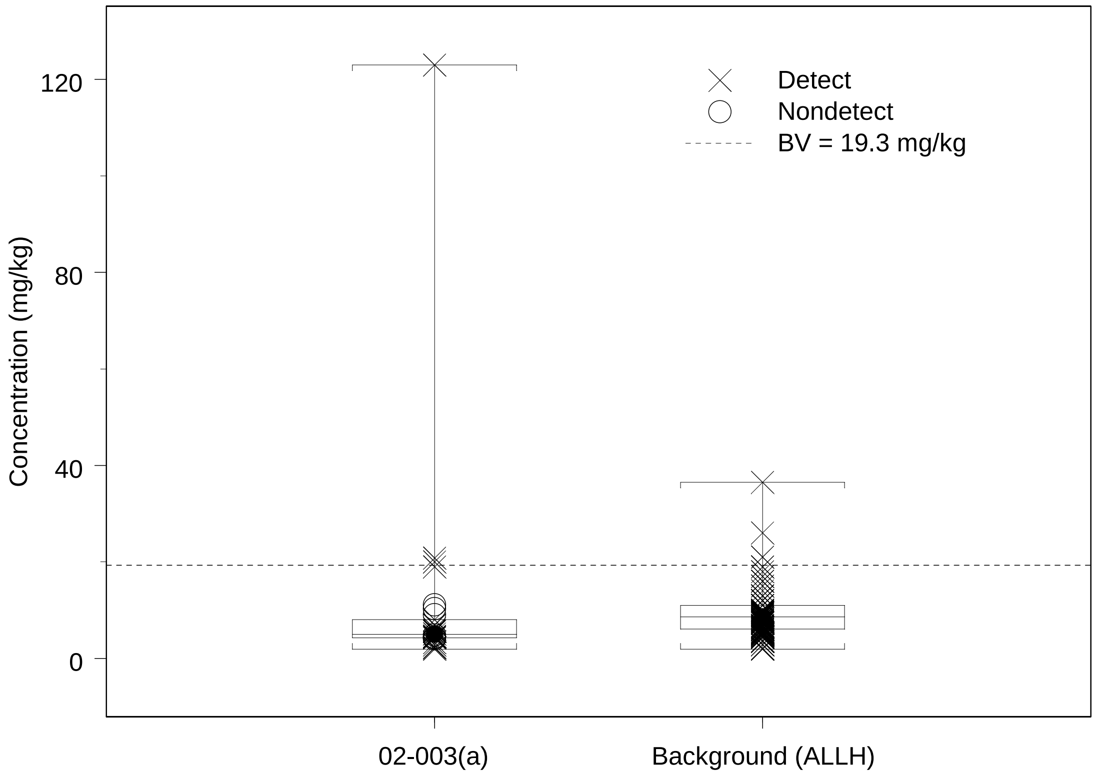

Figure G-1.0-5 Box plot of chromium in soil at AOC 02-003(a)

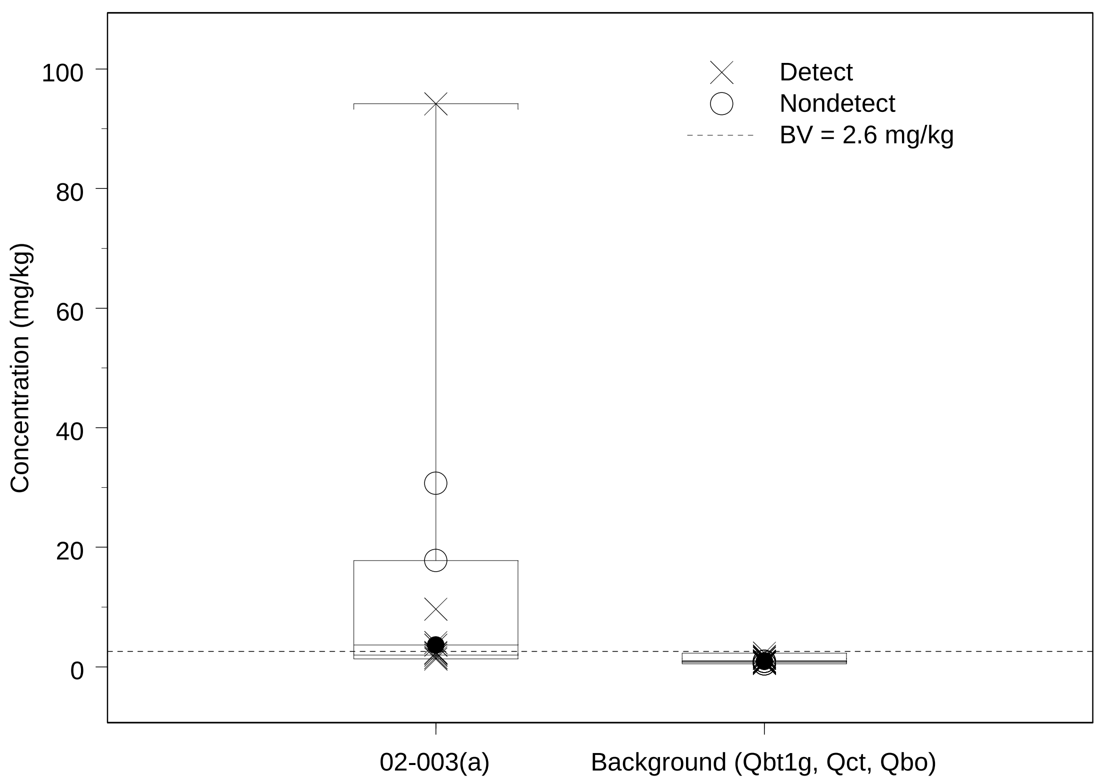

Figure G-1.0-6 Box plot of chromium in Qbo tuff at AOC 02-003(a)

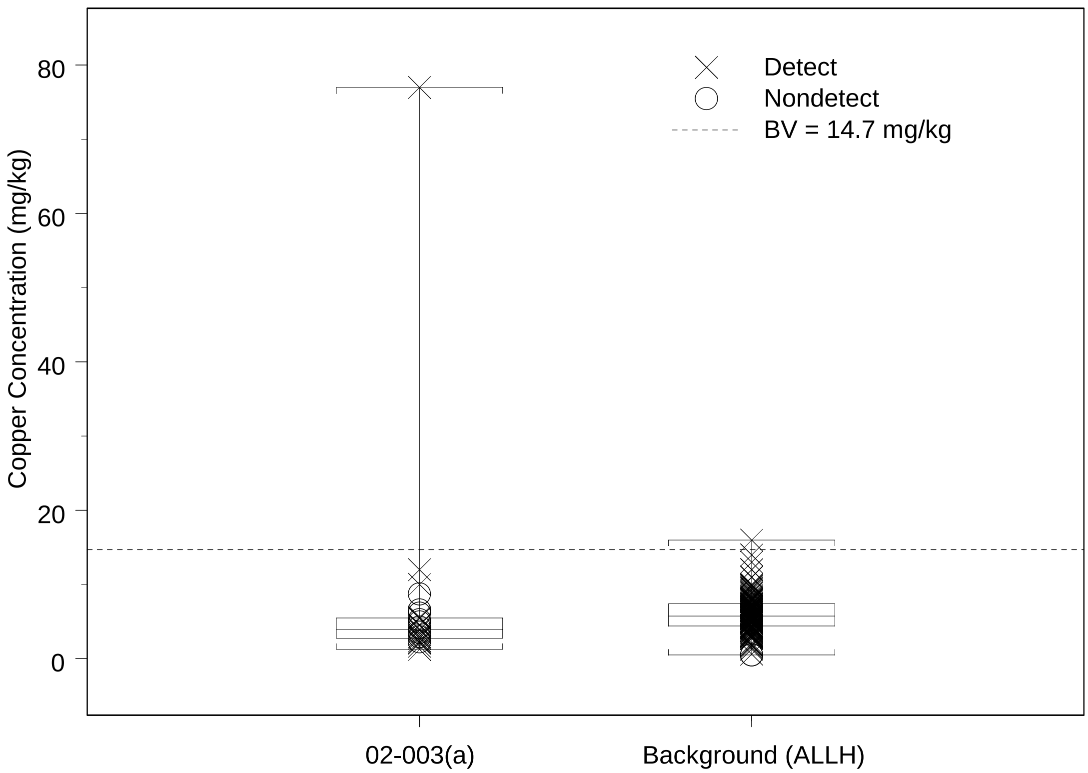

Figure G-1.0-7 Box plot of copper in soil at AOC 02-003(a)

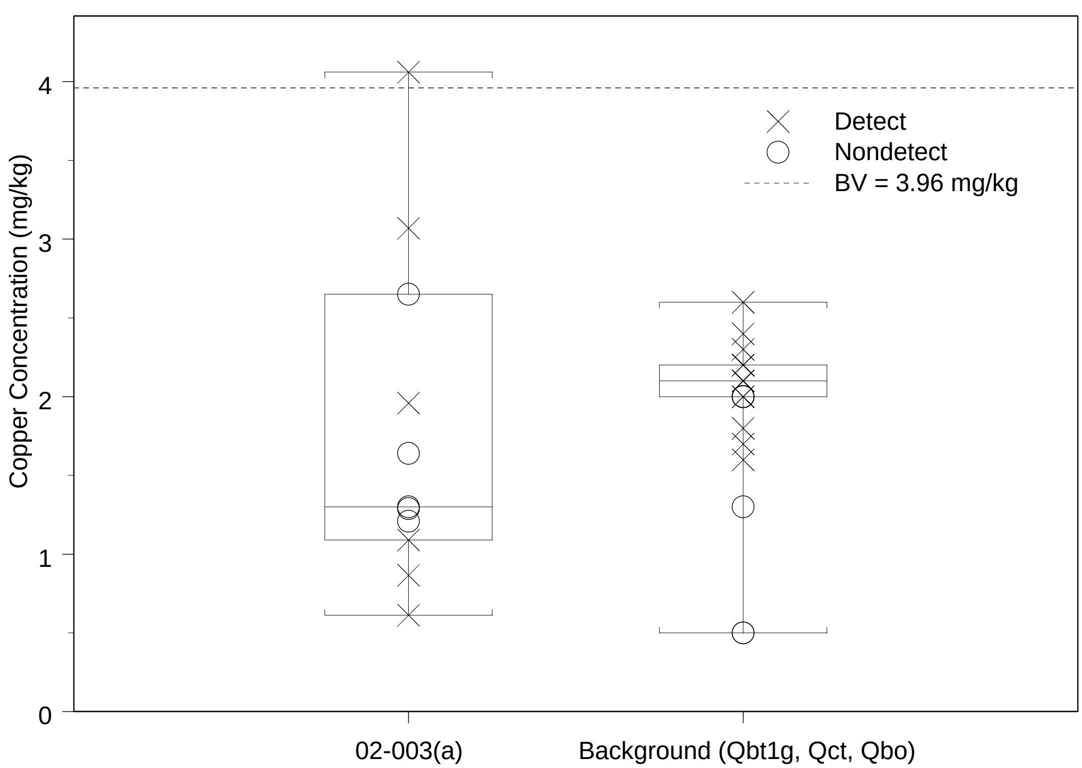

Figure G-1.0-8 Box plot of copper in Qbo tuff at AOC 02-003(a)

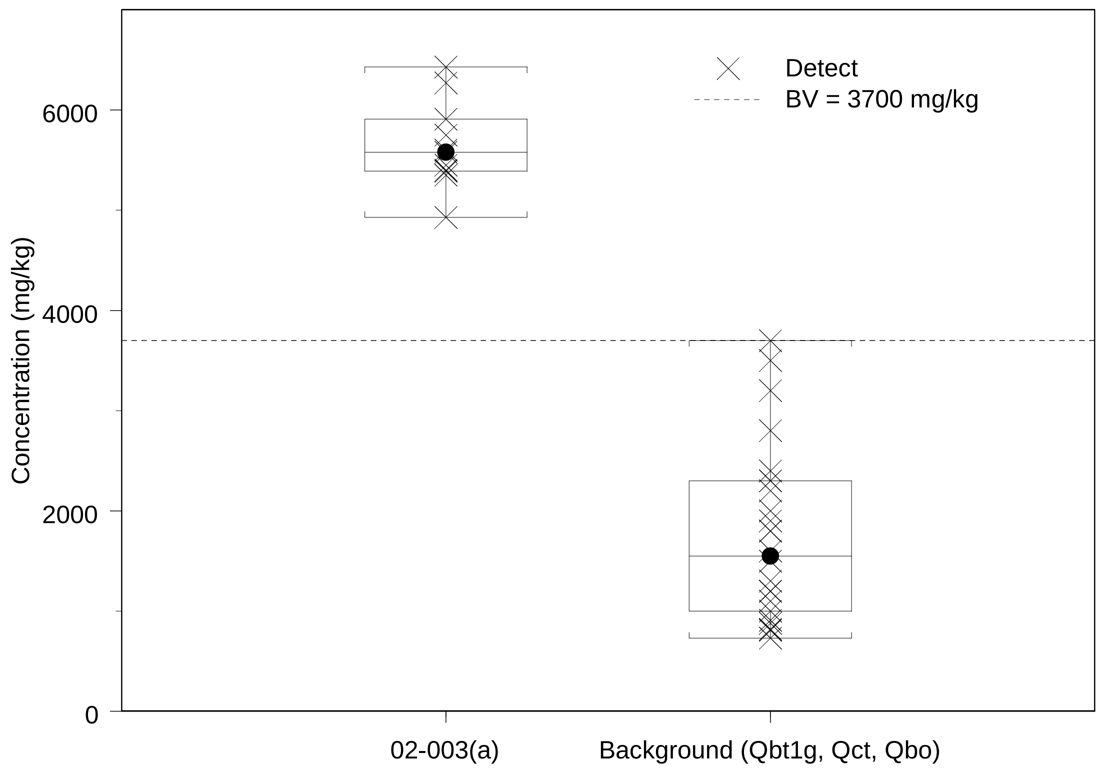

Figure G-1.0-9 Box plot of iron in Qbo tuff at AOC 02-003(a)

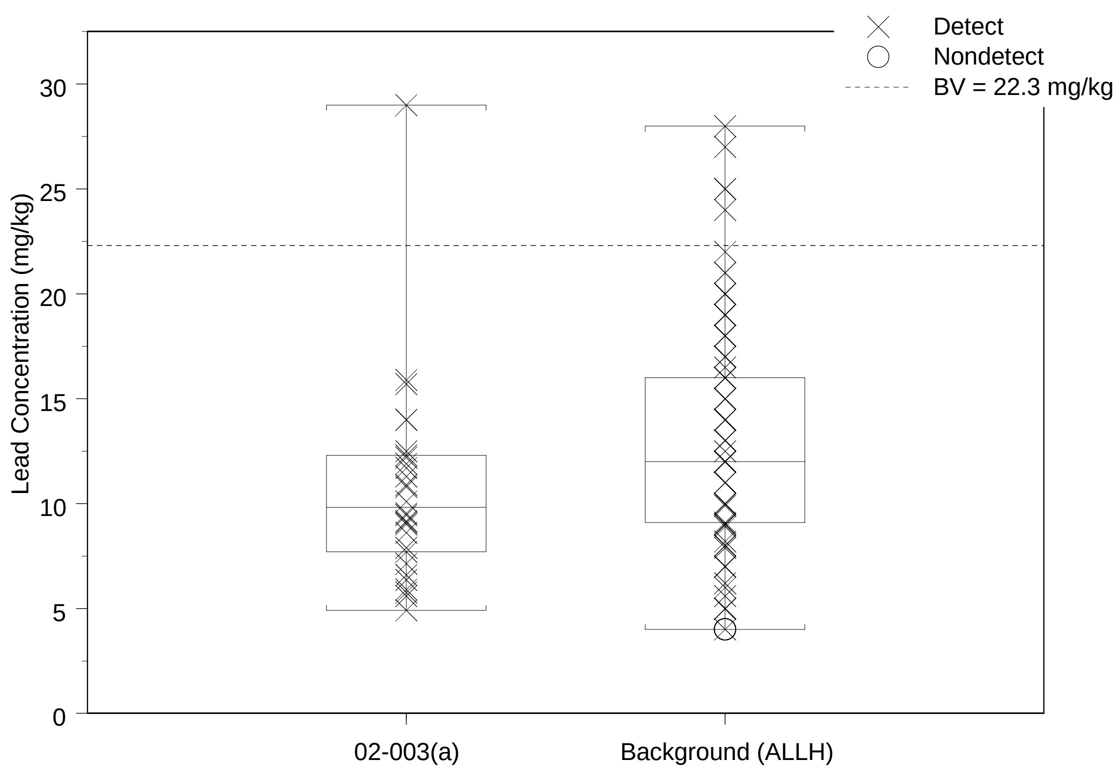

Figure G-1.0-10   Box plot of lead in soil at AOC 02-003(a)

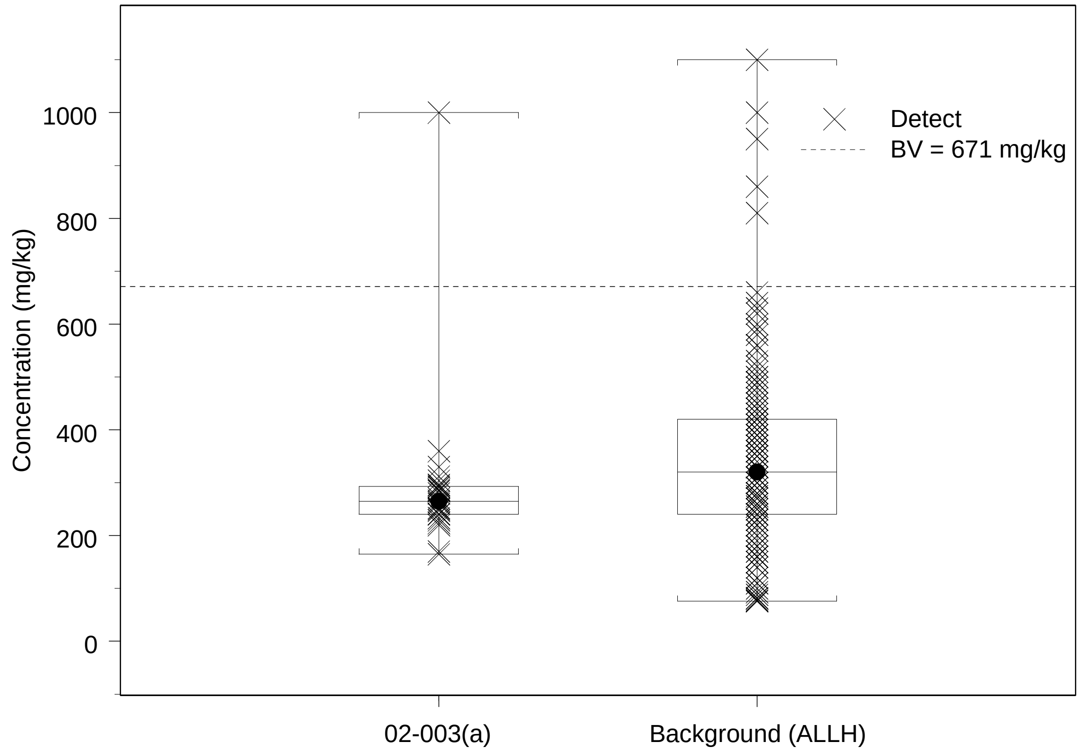

Figure G-1.0-11   Box plot of manganese in soil at AOC 02-003(a)

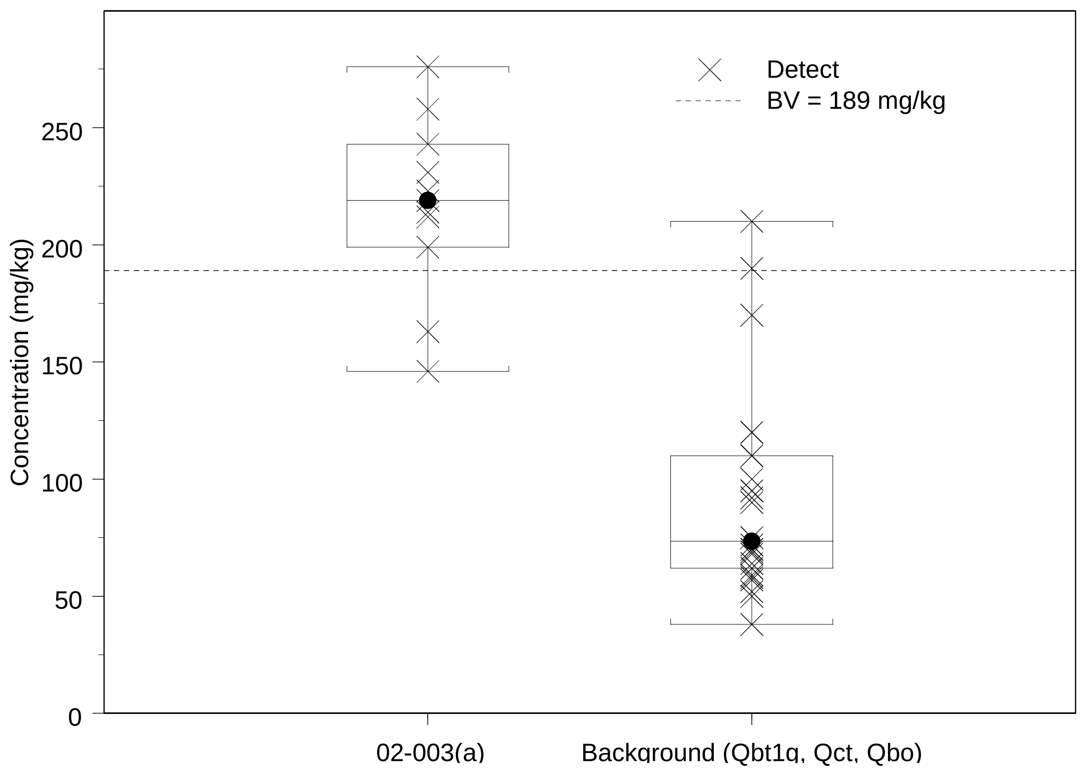

Figure G-1.0-12   Box plot of manganese in Qbo tuff at AOC 02-003(a)

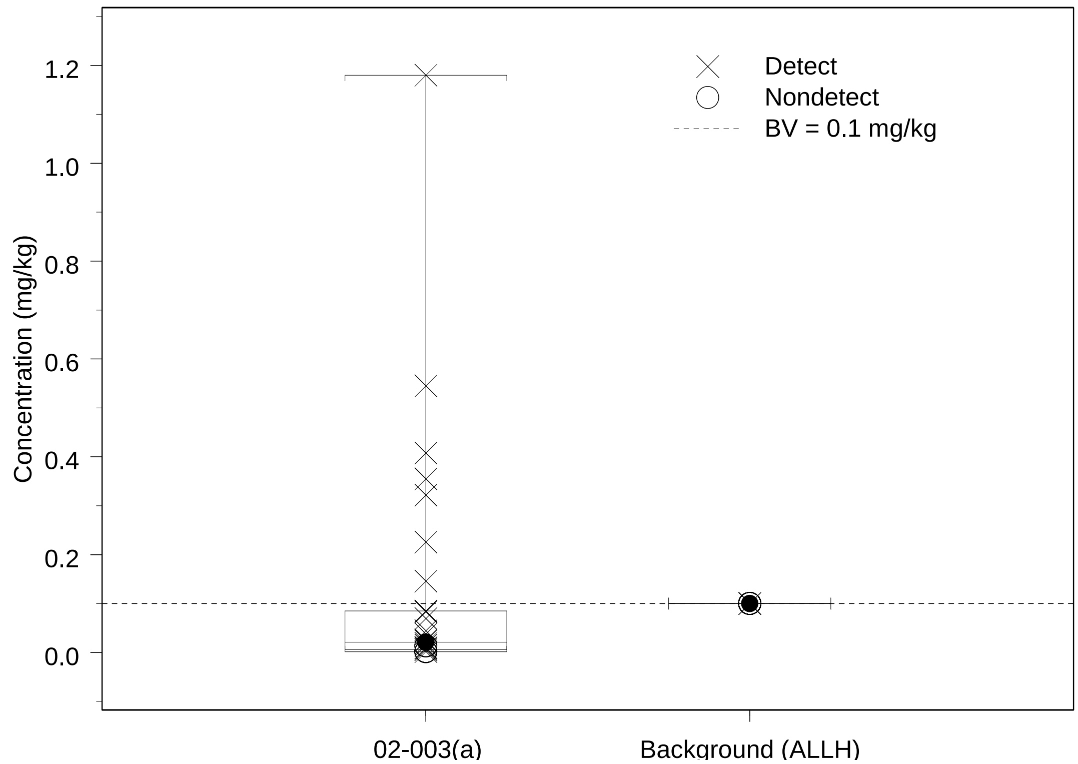

Figure G-1.0-13 Box plot of mercury in soil at AOC 02-003(a)

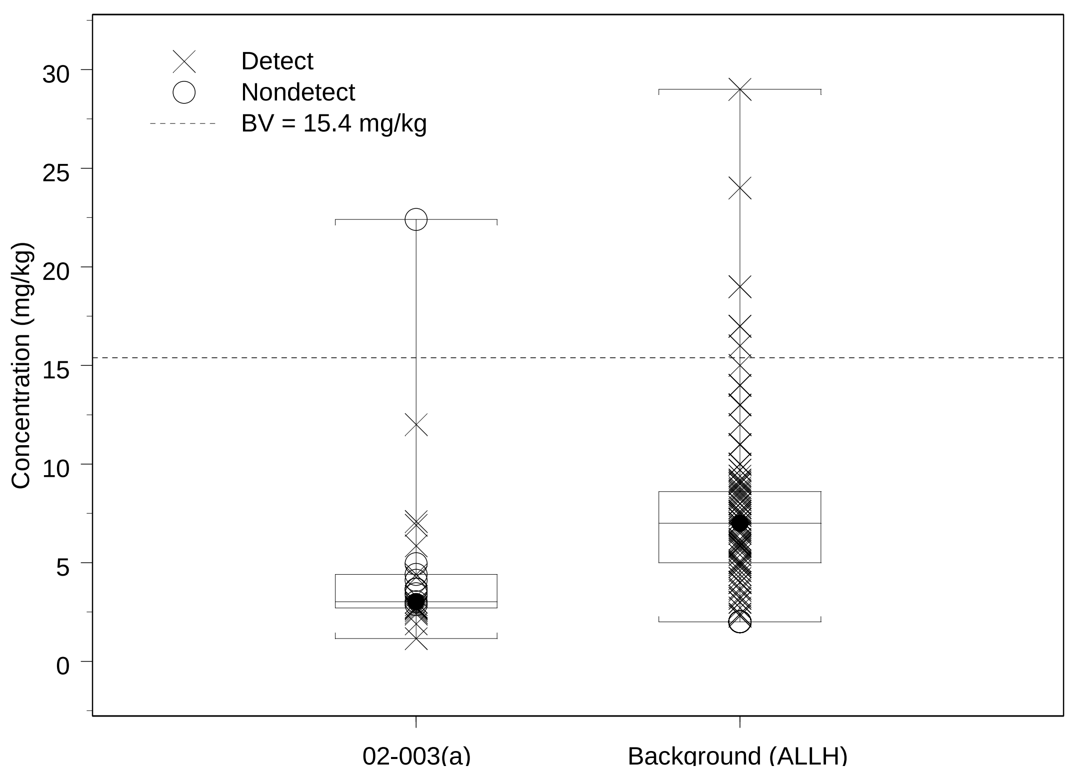

Figure G-1.0-14 Box plot of nickel in soil at AOC 02-003(a)

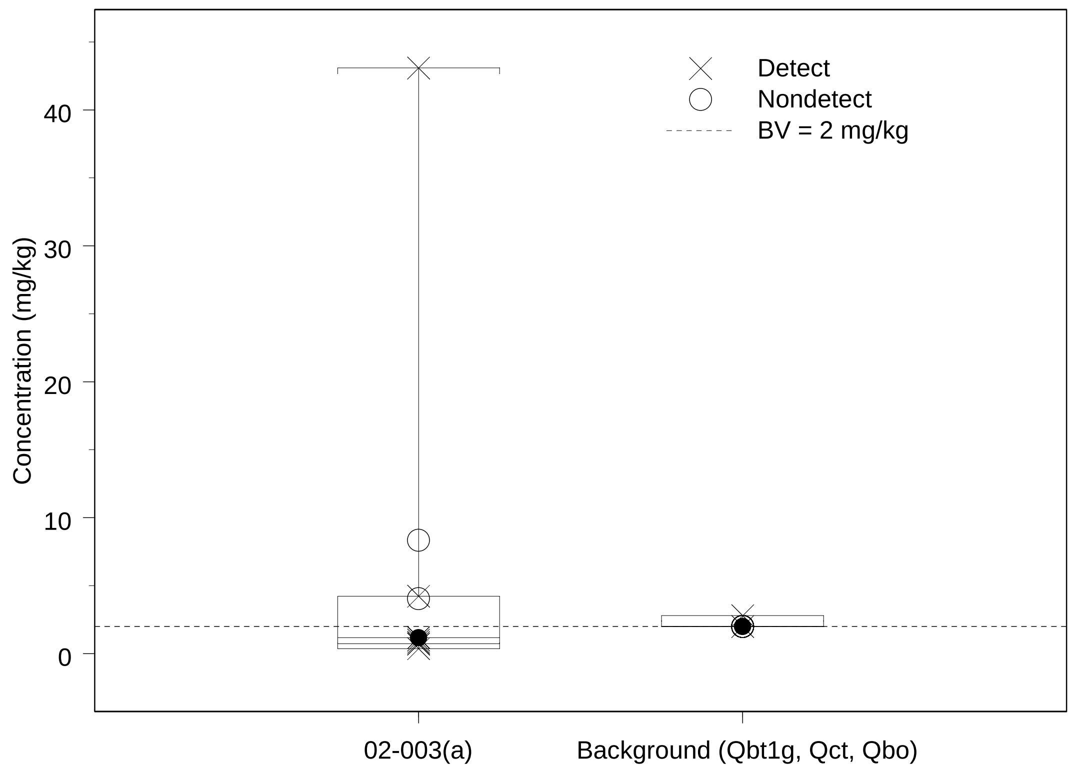

Figure G-1.0-15 Box plot of nickel in Qbo tuff at AOC 02-003(a)

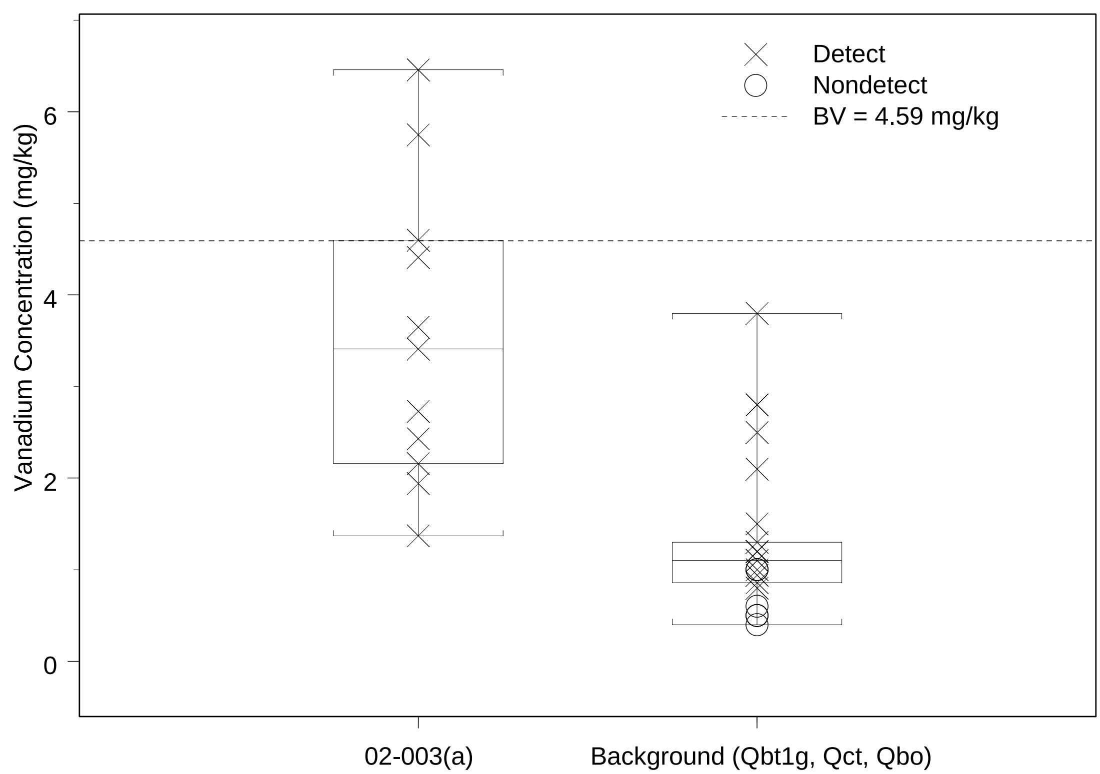

Figure G-1.0-16 Box plot of vanadium in Qbo tuff at AOC 02-003(a)

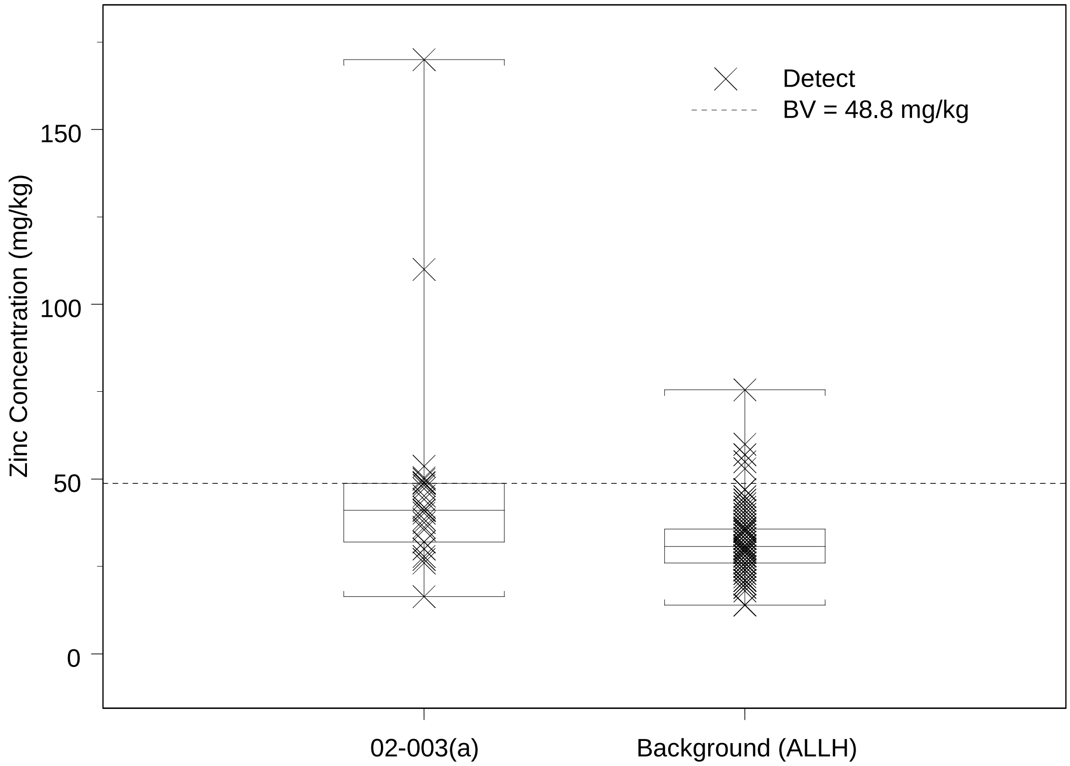

Figure G-1.0-17 Box plot of zinc in soil at AOC 02-003(a)

G-2.0 BOX PLOTS FOR AOC 02-003(b)

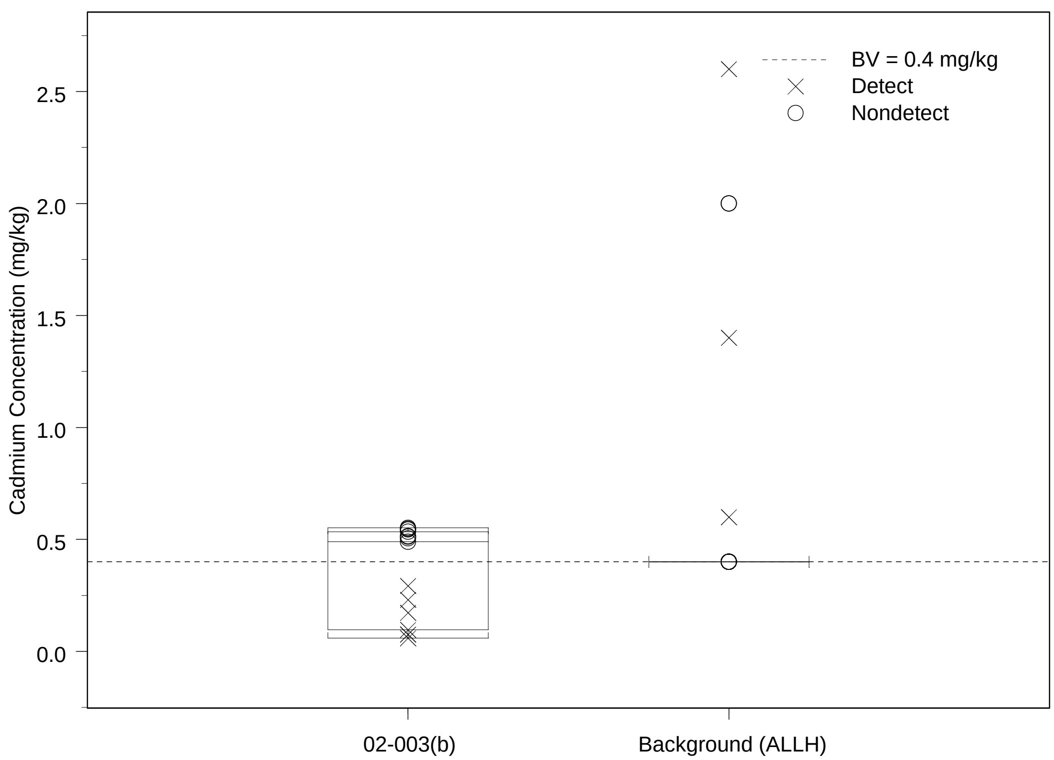

Figure G-2.0-1 Box plot of cadmium in soil at AOC 02-003(b)

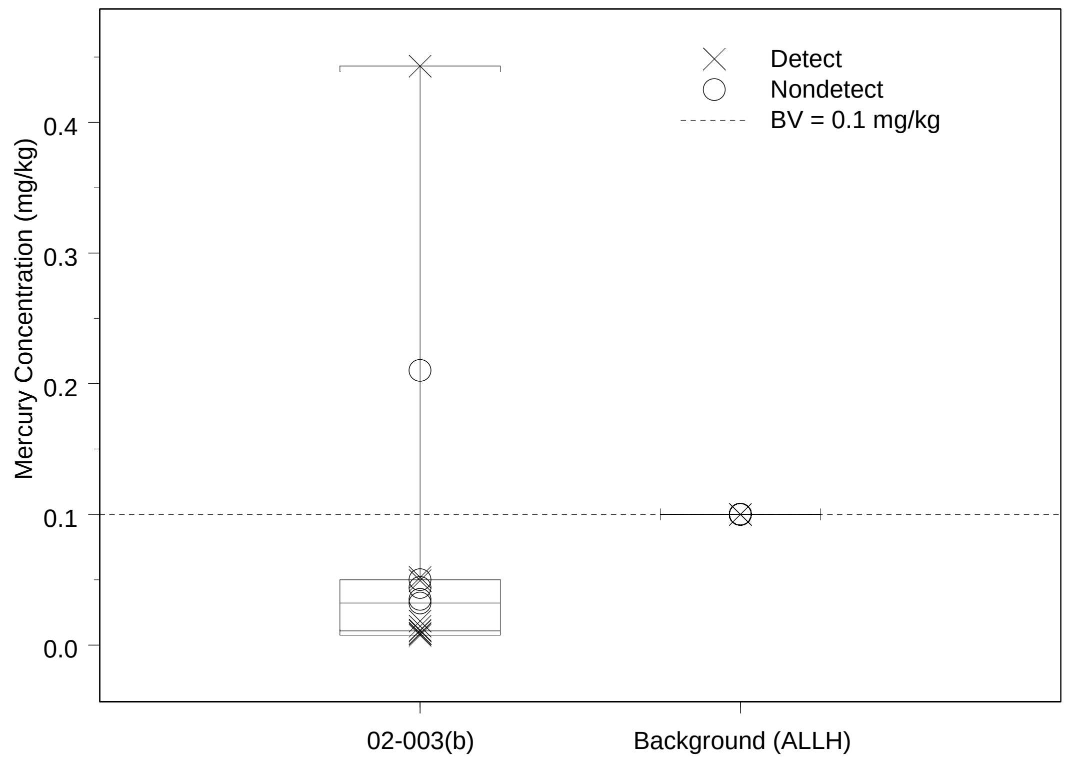

Figure G-2.0-2 Box plot of mercury in soil at AOC 02-003(b)

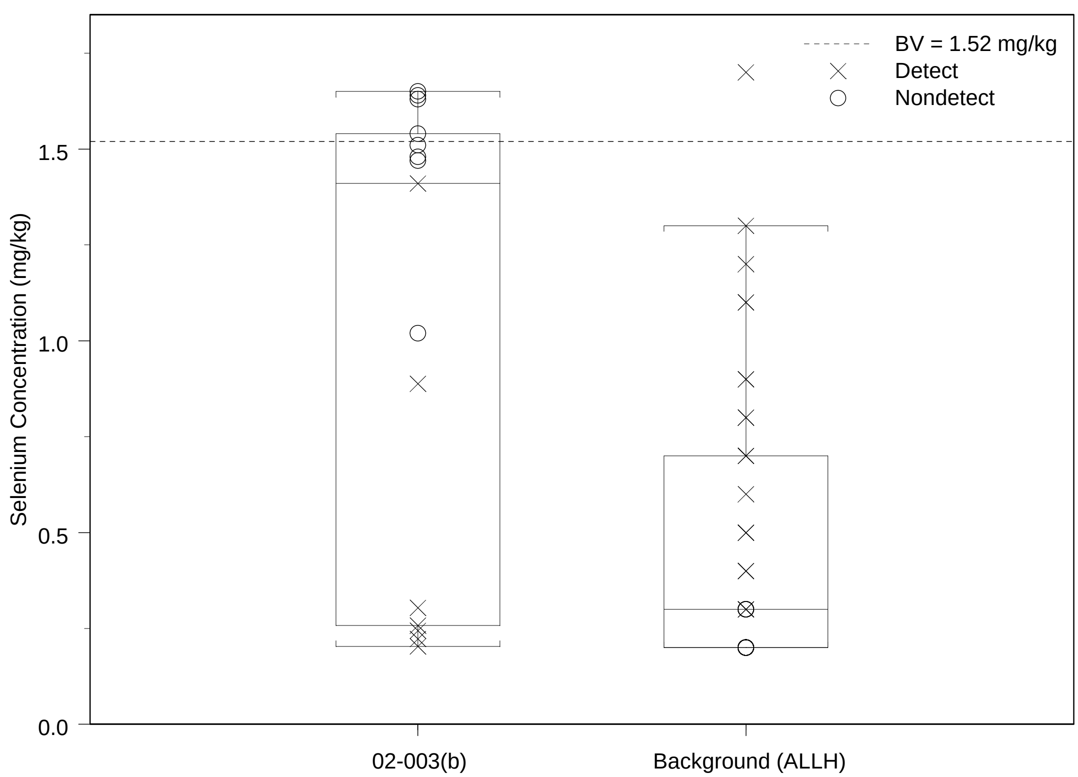

Figure G-2.0-3 Box plot of selenium in soil at AOC 02-003(b)

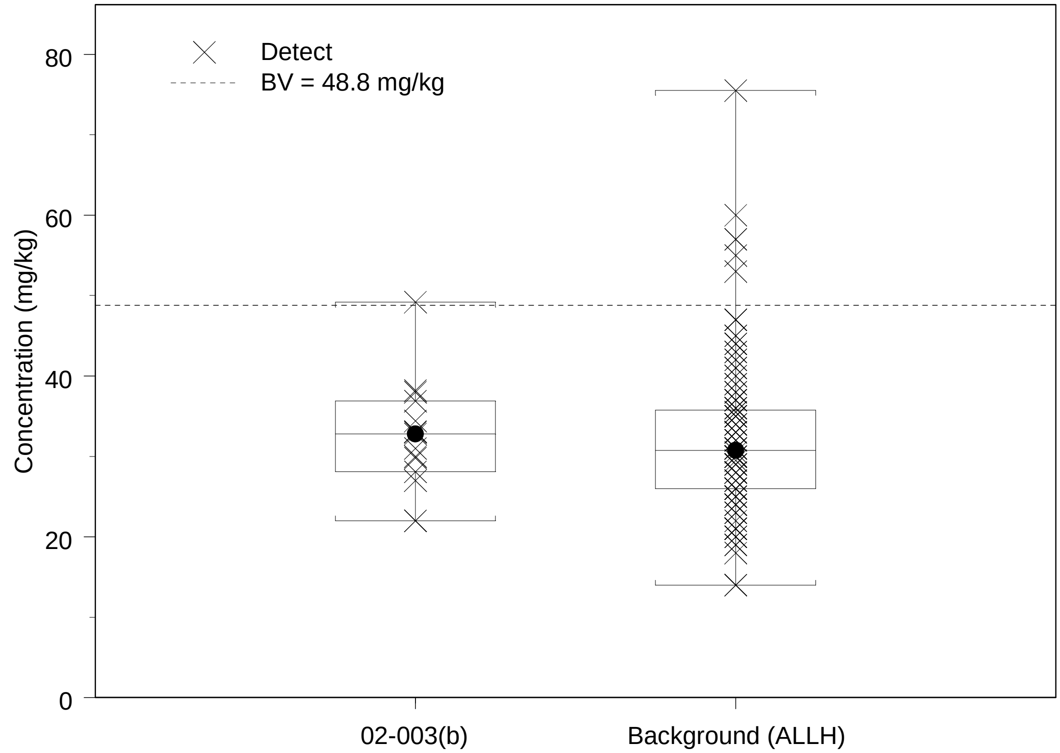

Figure G-2.0-4 Box plot of zinc in soil at AOC 02-003(b)

G-3.0 BOX PLOTS FOR AOC 02-003(c)

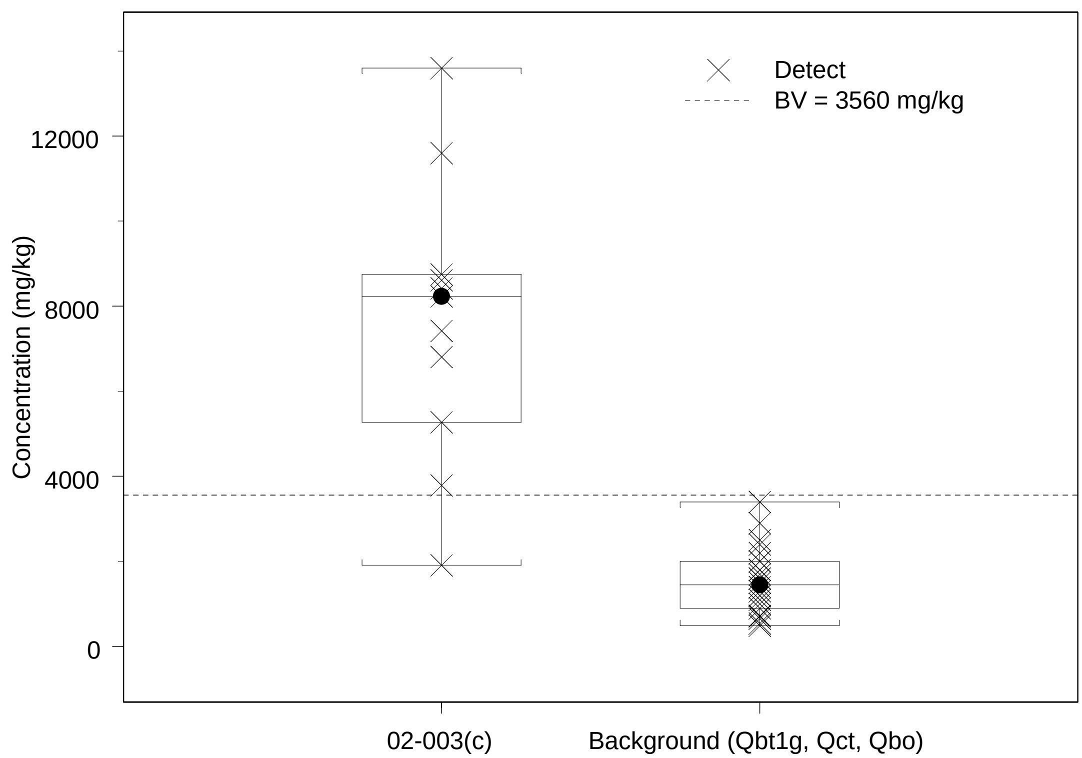

Figure G-3.0-1 Box plot of aluminum in Qbo tuff at AOC 02-003(c)

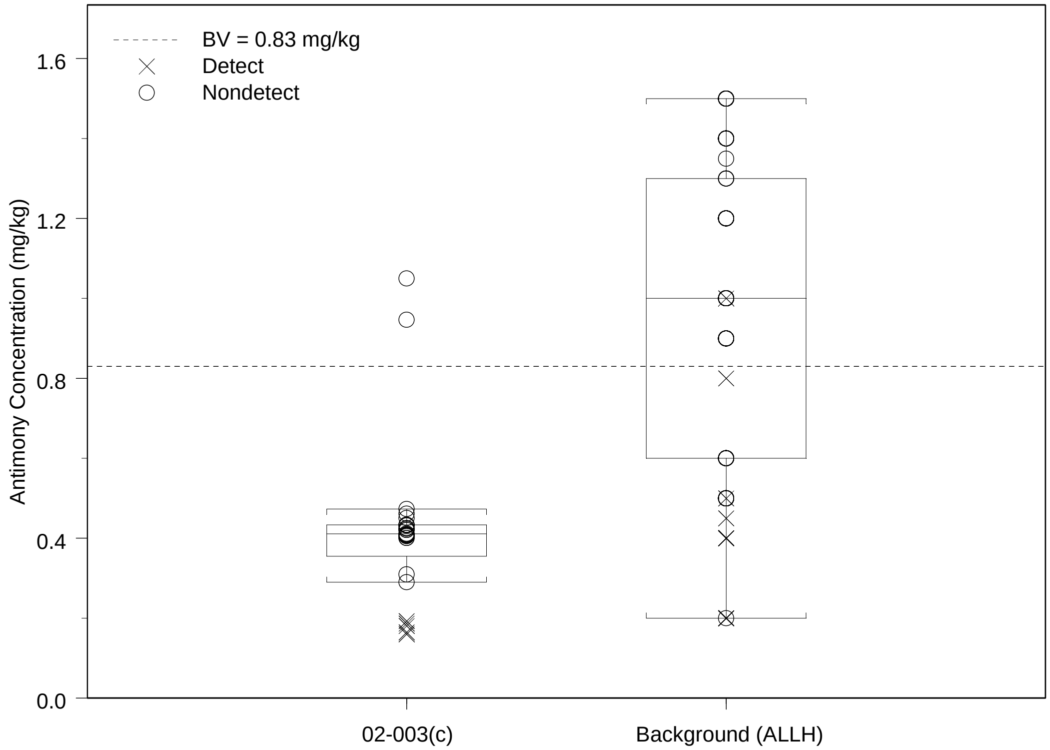

Figure G-3.0-2 Box plot of antimony in soil at AOC 02-003(c)

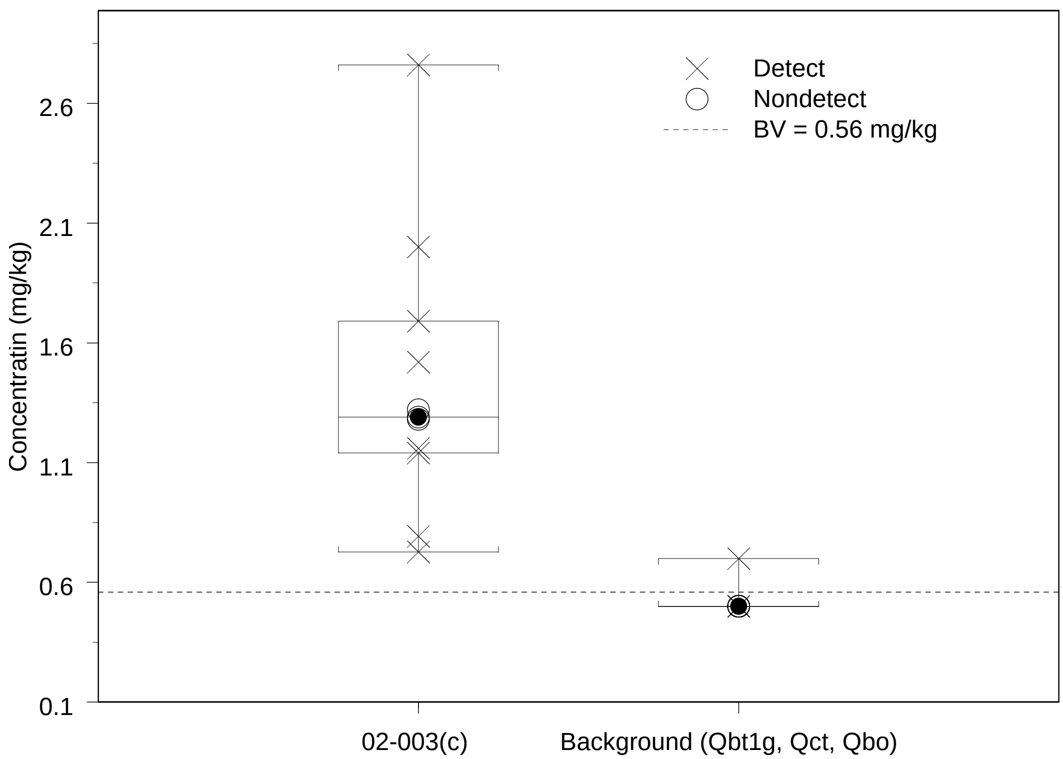

Figure G-3.0-3 Box plot of arsenic in Qbo tuff at AOC 02-003(c)

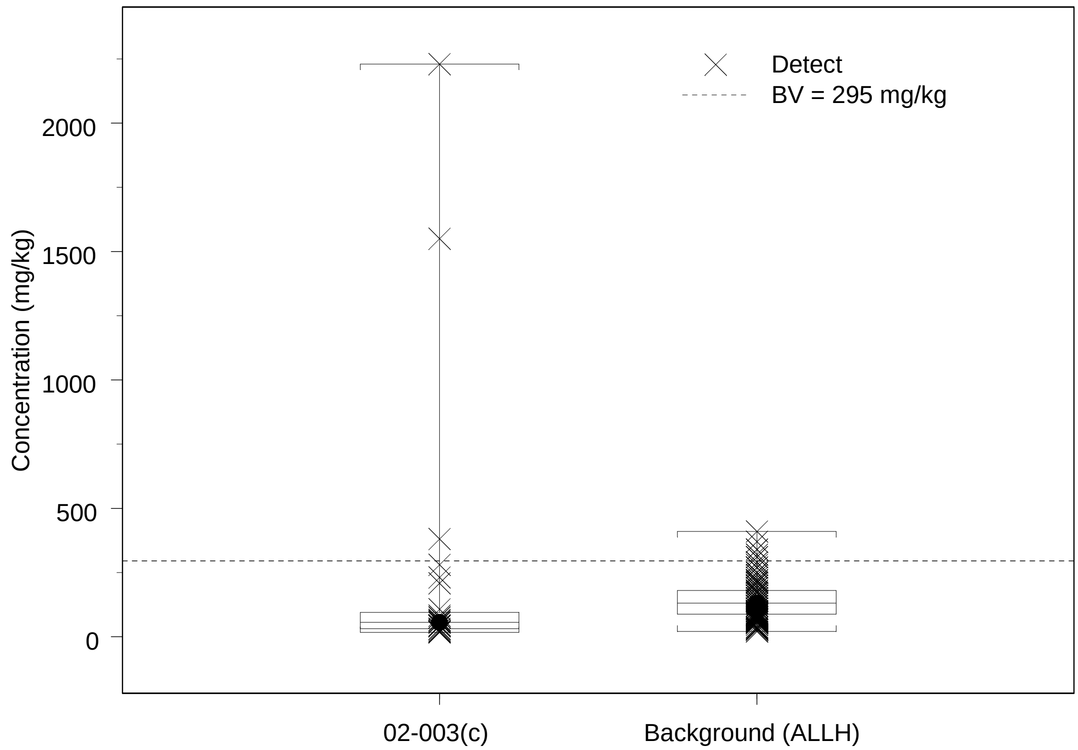

Figure G-3.0-4 Box plot of barium in soil at AOC 02-003(c)

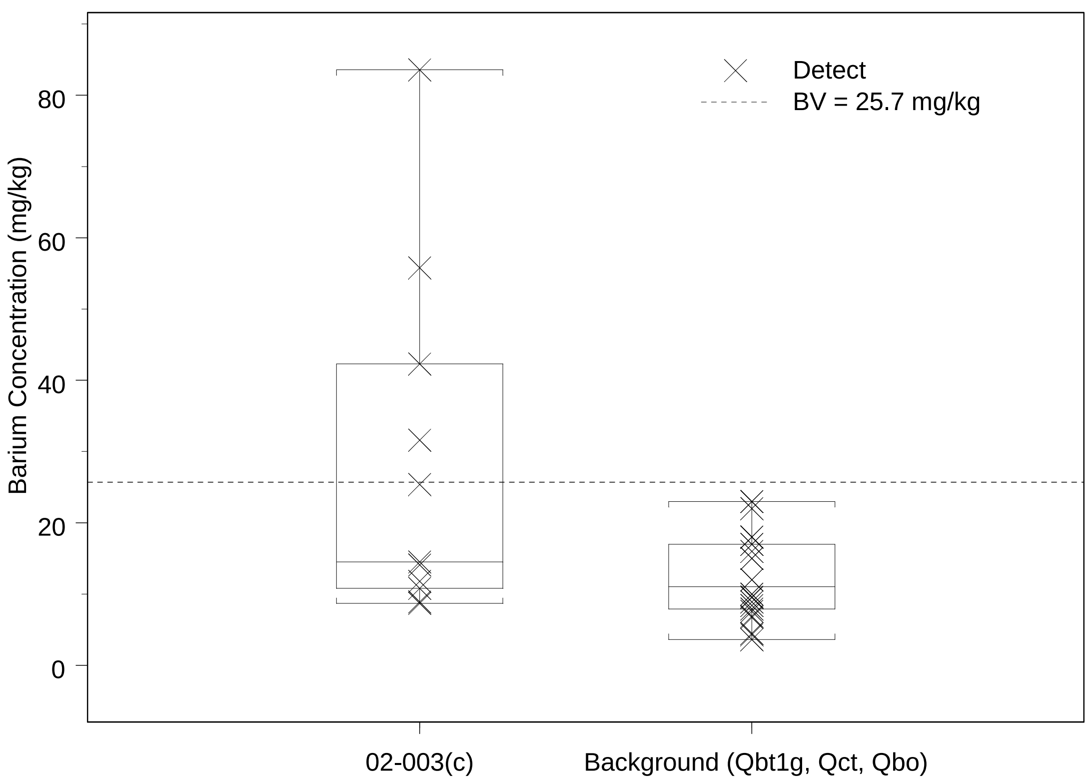

Figure G-3.0-5 Box plot of barium in Qbo tuff at AOC 02-003(c)

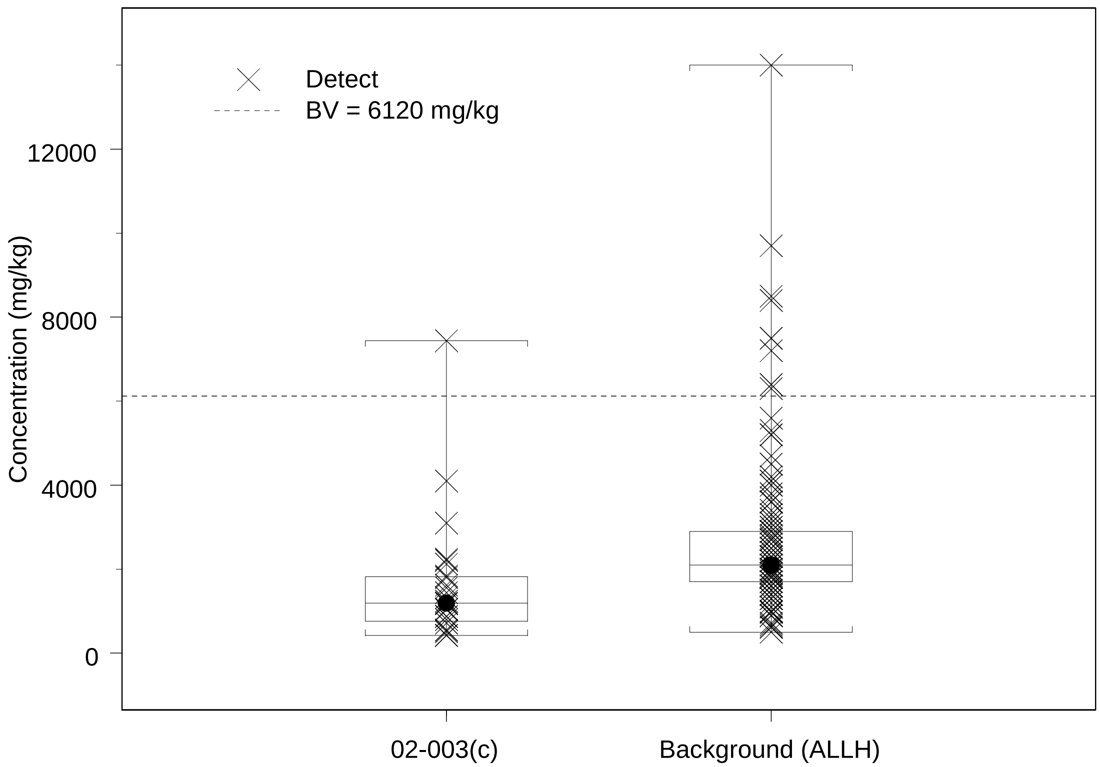

Figure G-3.0-6 Box plot of calcium in soil at AOC 02-003(c)

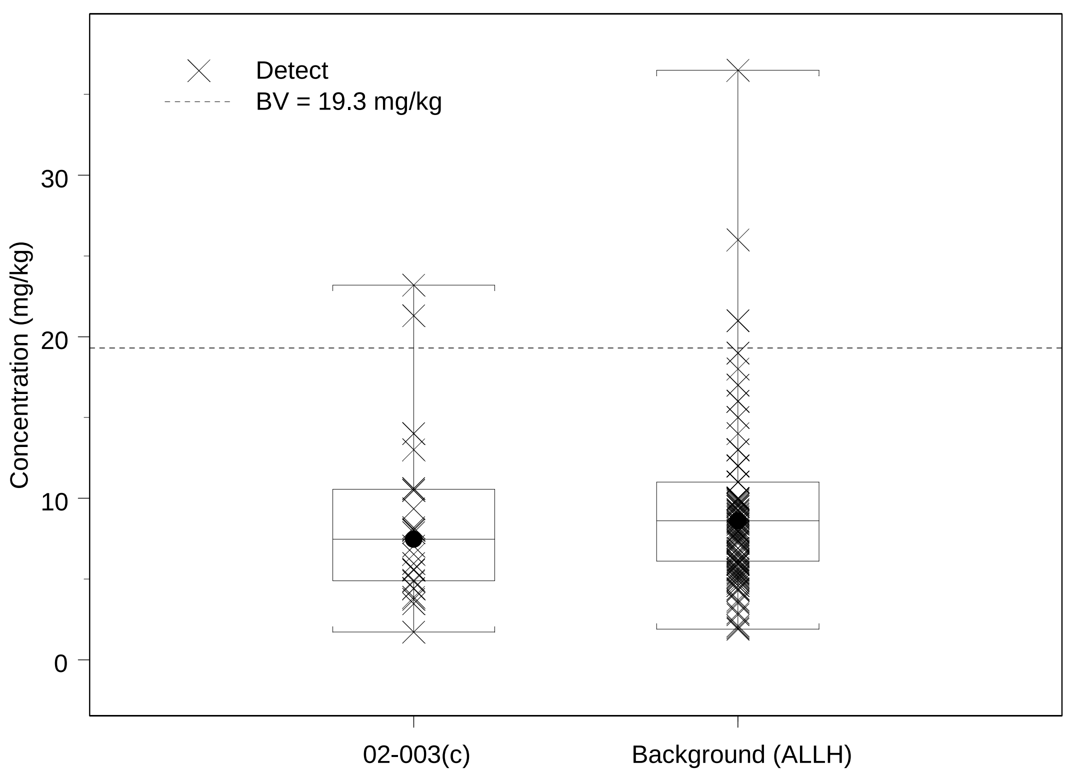

Figure G-3.0-7 Box plot of chromium in soil at AOC 02-003(c)

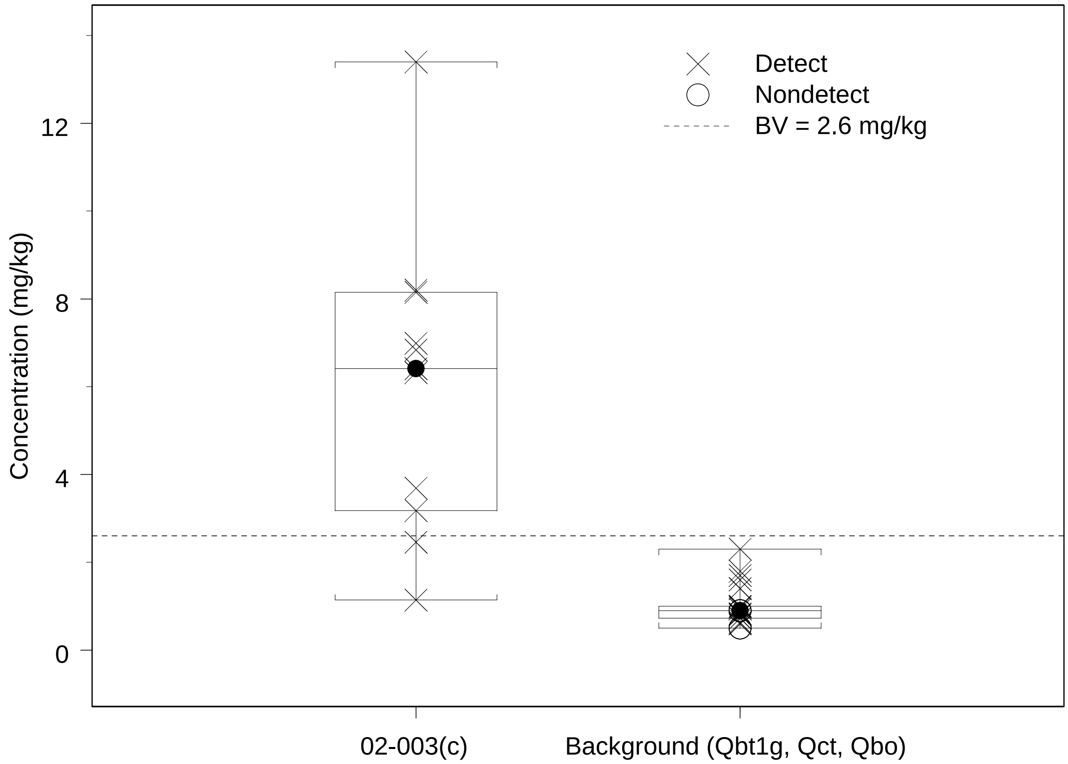

Figure G-3.0-8 Box plot of chromium in Qbo tuff at AOC 02-003(c)

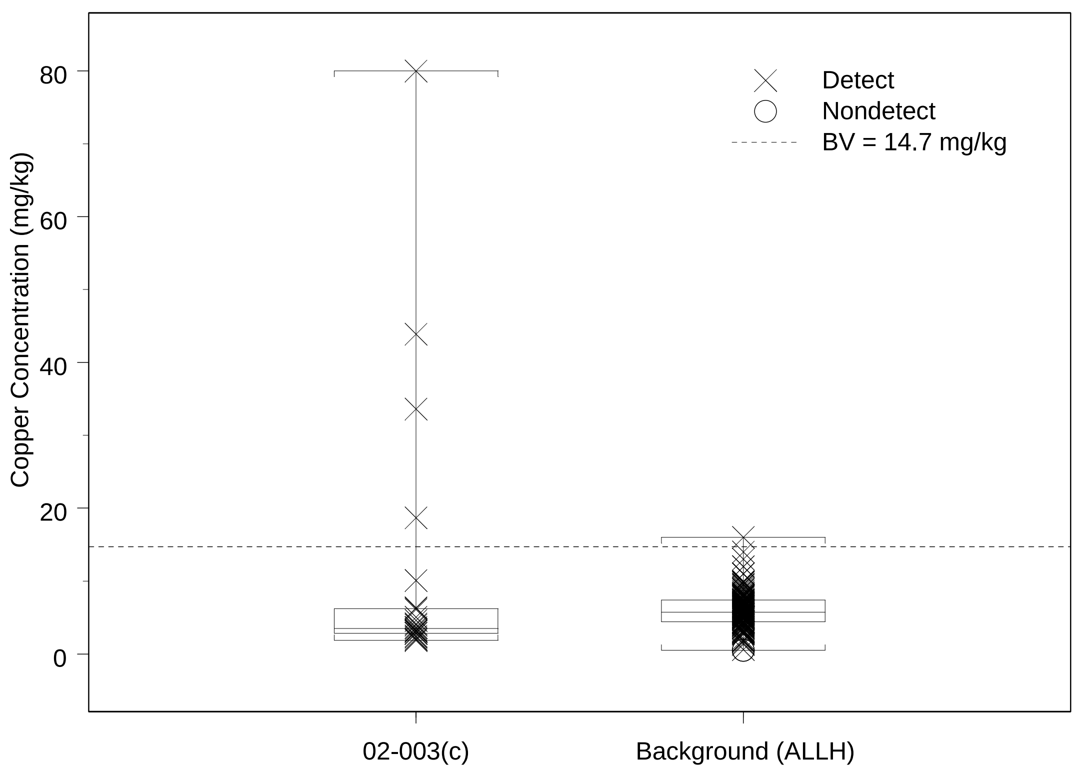

Figure G-3.0-9 Box plot of copper in soil at AOC 02-003(c)

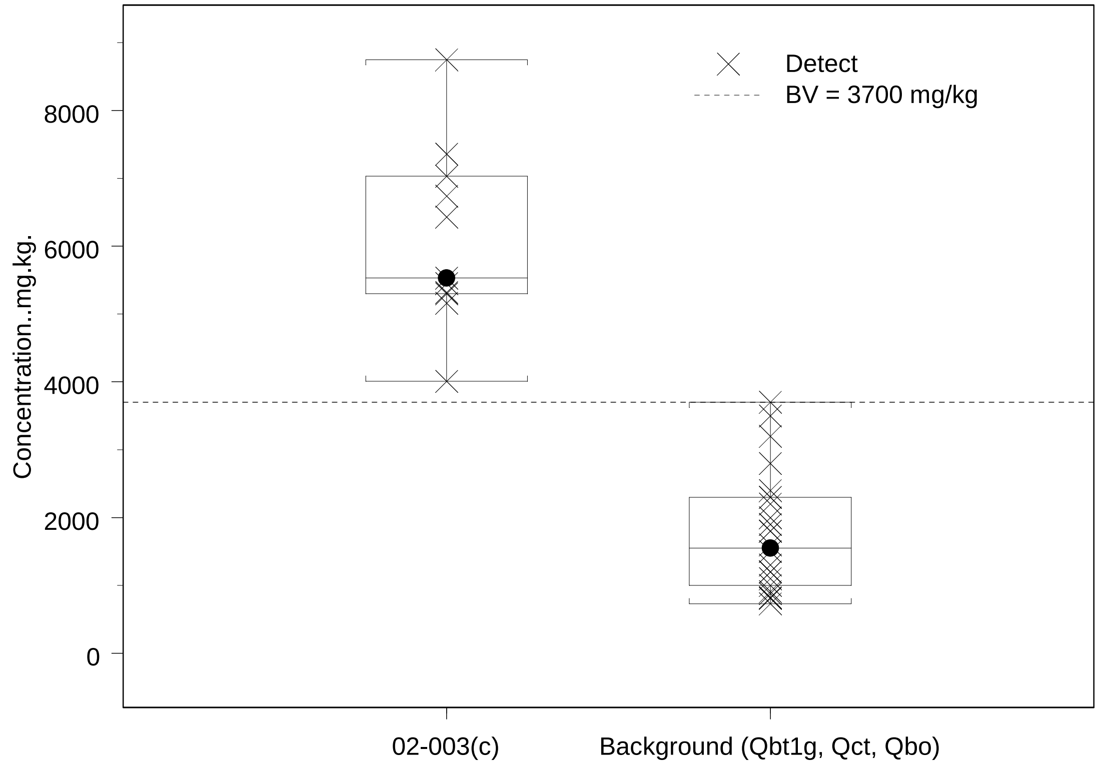

Figure G-3.0-10 Box plot of iron in Qbo tuff at AOC 02-003(c)

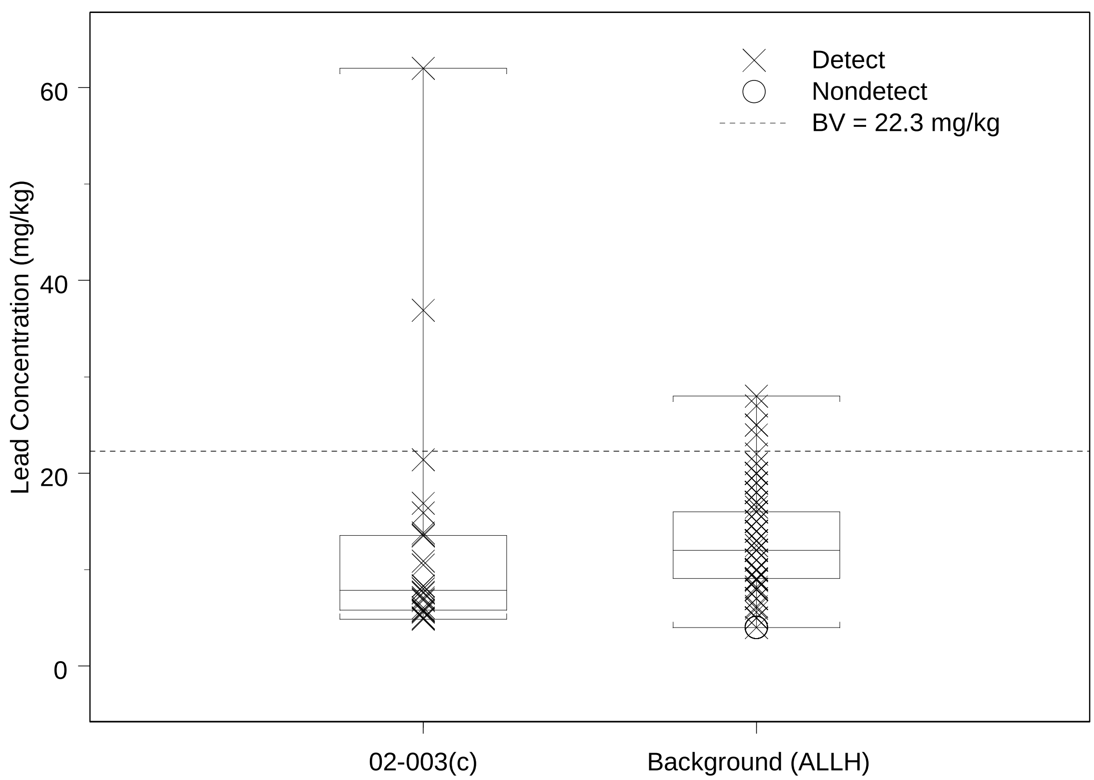

Figure G-3.0-11 Box plot of lead in soil at AOC 02-003(c)

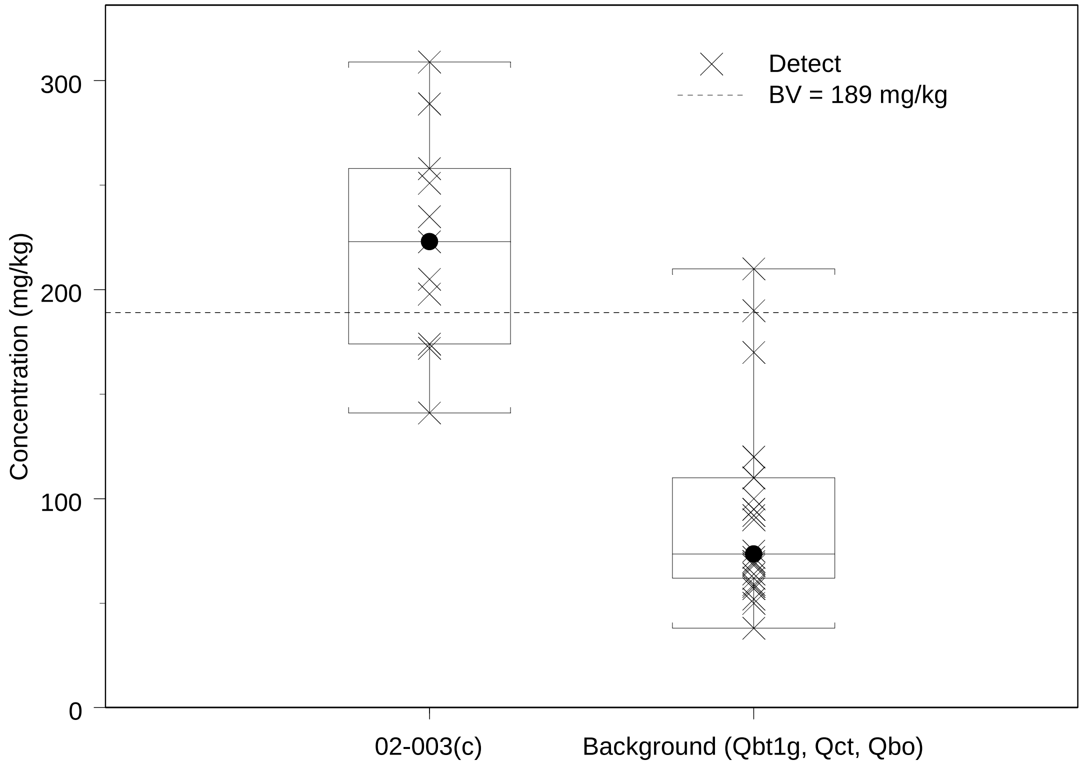

Figure G-3.0-12 Box plot of manganese in Qbo tuff at AOC 02-003(c)

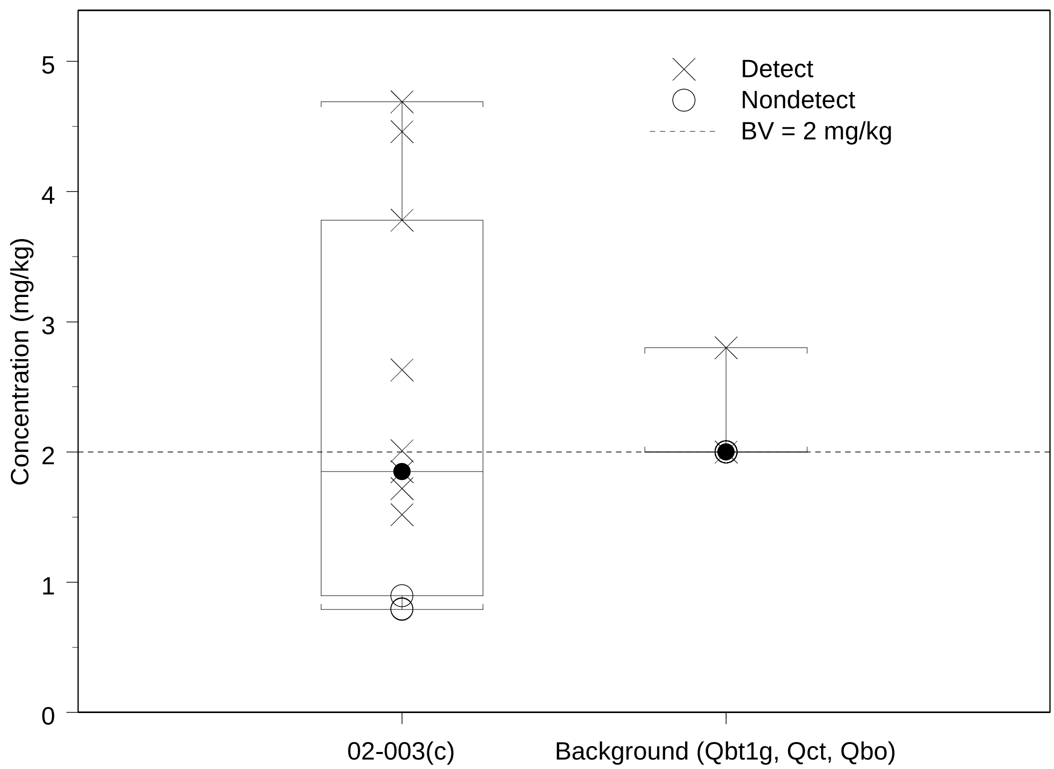

Figure G-3.0-13 Box plot of nickel in Qbo tuff at AOC 02-003(c)

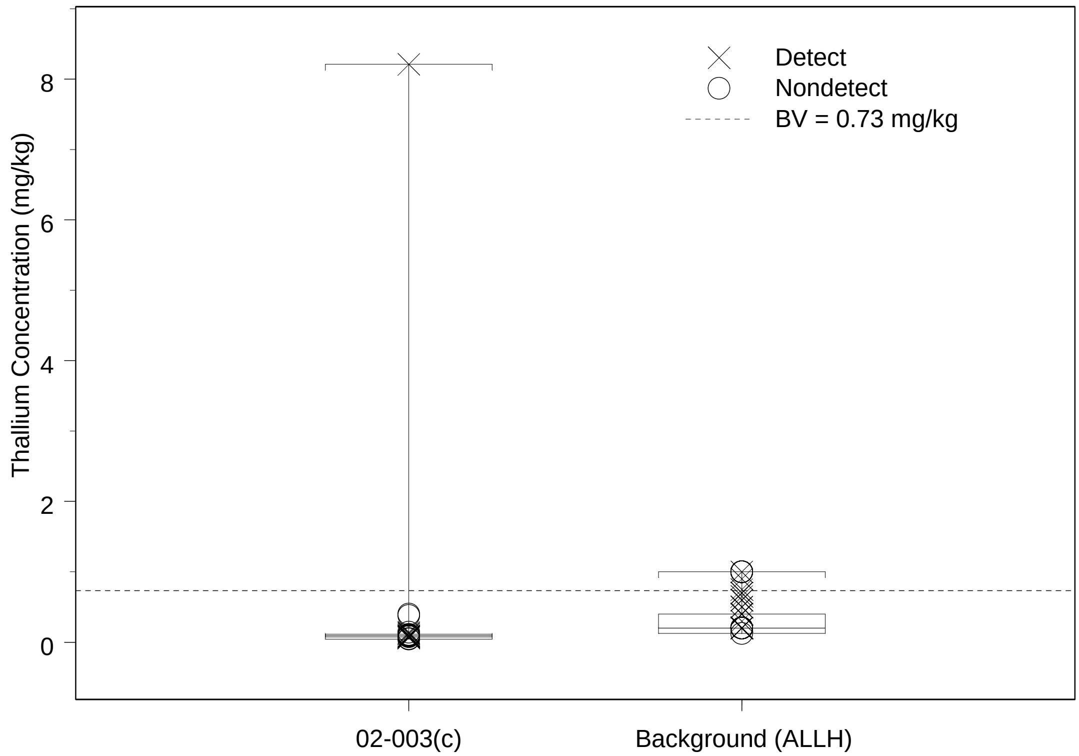

Figure G-3.0-14 Box plot of thallium in soil at AOC 02-003(c)

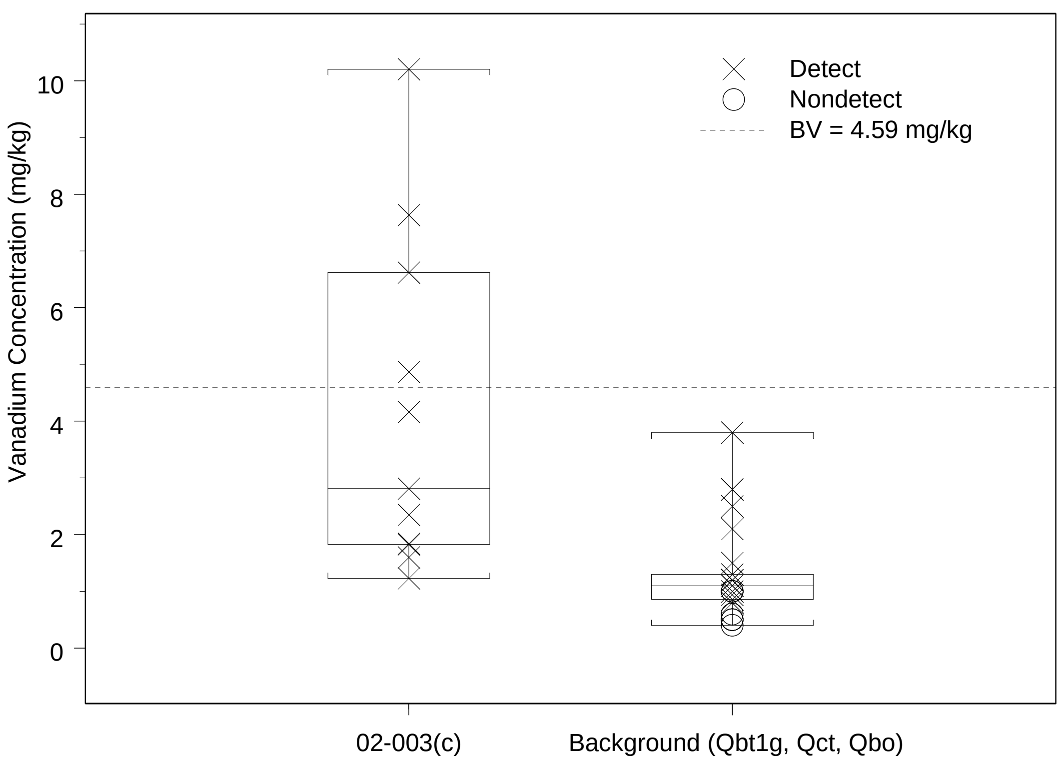

Figure G-3.0-15 Box plot of vanadium in Qbo tuff at AOC 02-003(c)

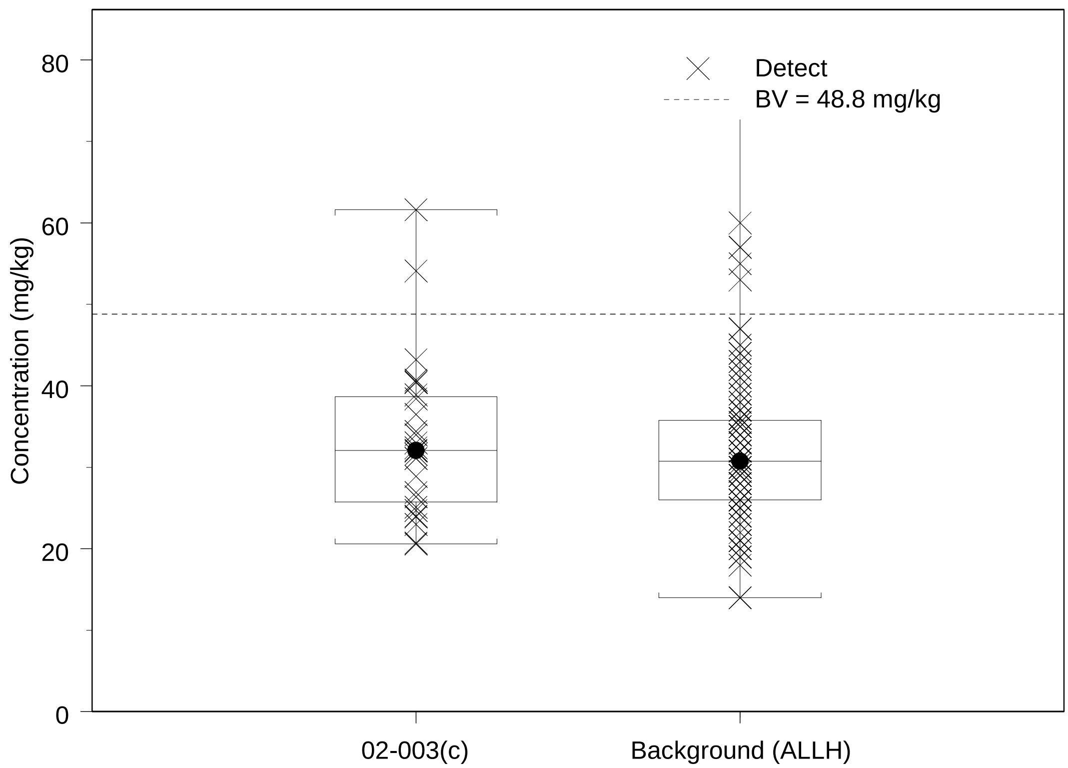

Figure G-3.0-16 Box plot of zinc in soil at AOC 02-003(c)

G-4.0 BOX PLOTS FOR AOC 02-003(d)

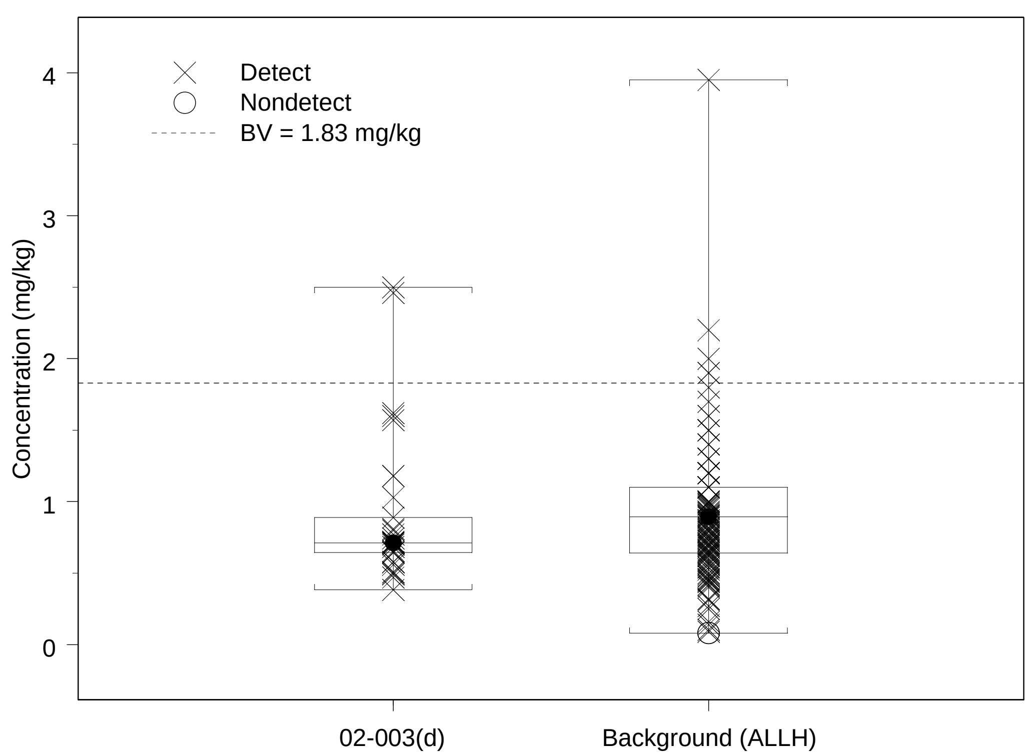

Figure G-4.0-1 Box plot of beryllium in soil at AOC 02-003(d)

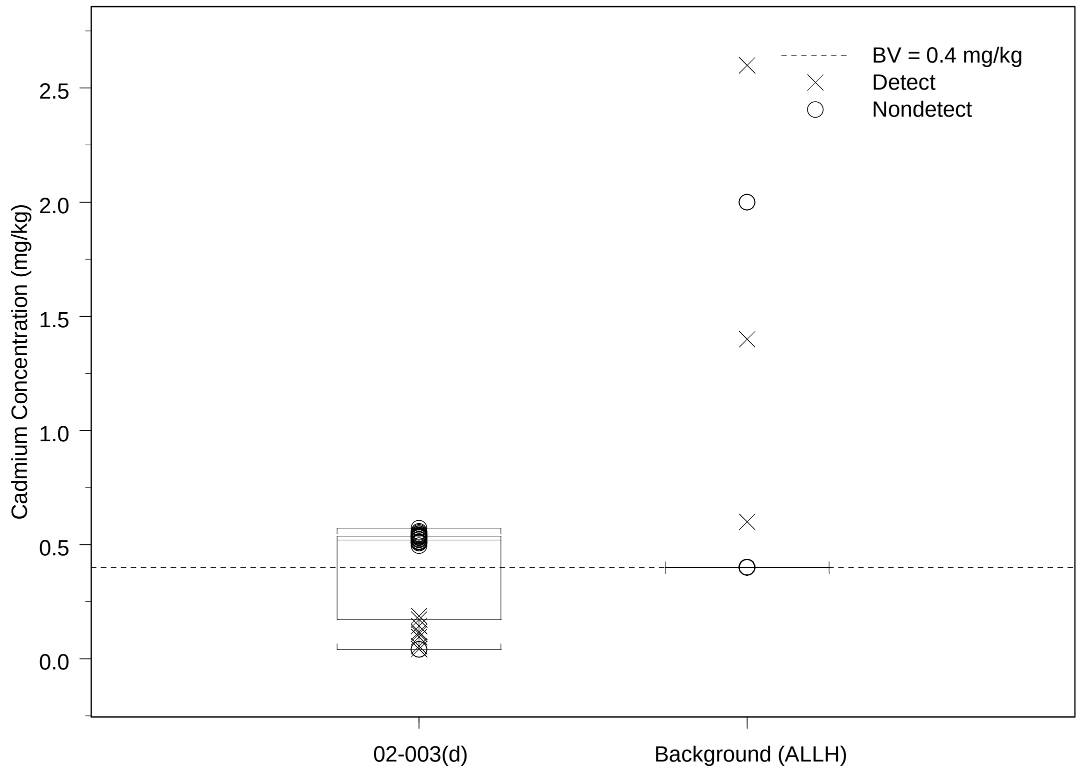

Figure G-4.0-2 Box plot of cadmium in soil at AOC 02-003(d)

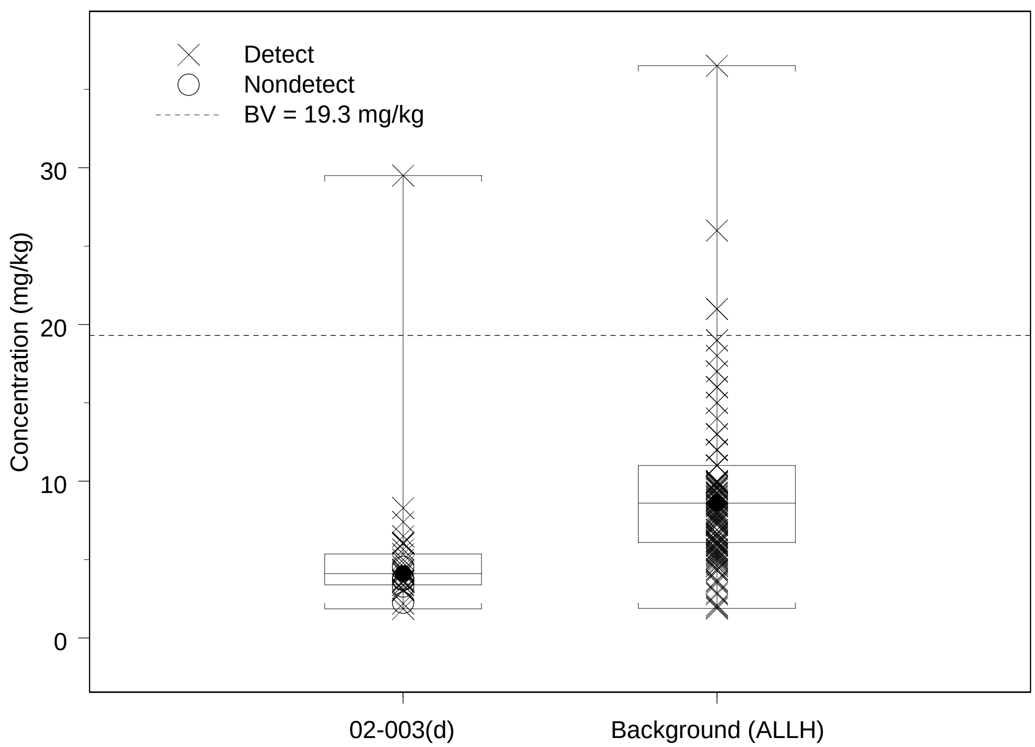

Figure G-4.0-3 Box plot of chromium in soil at AOC 02-003(d)

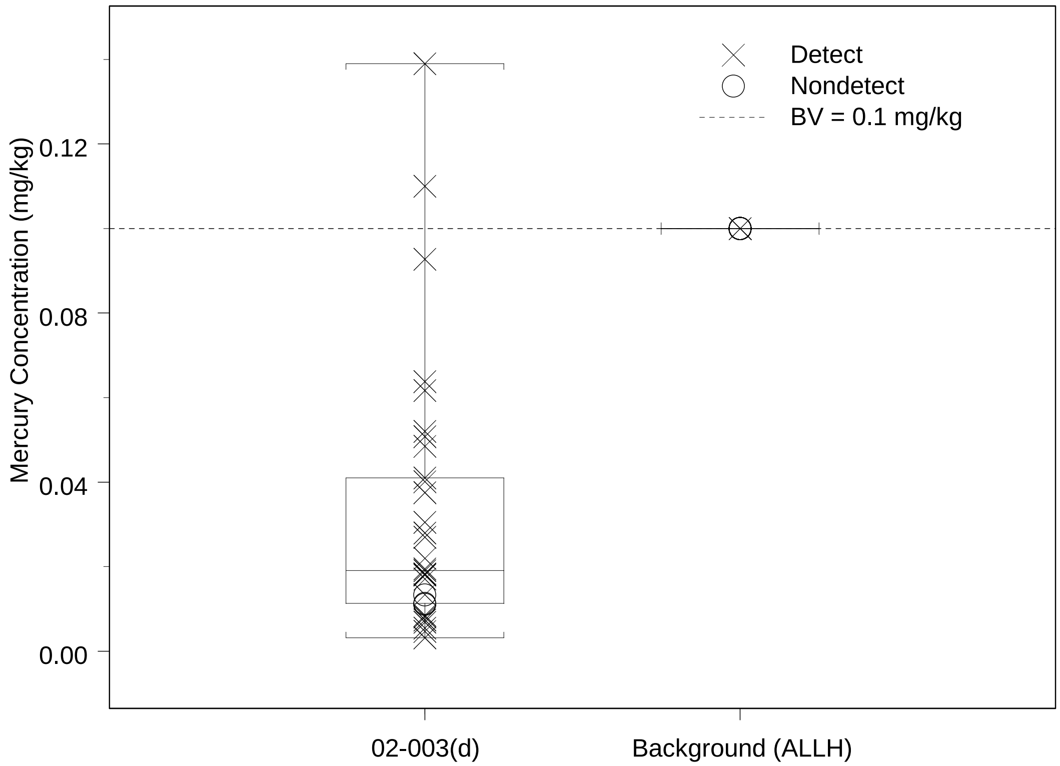

Figure G-4.0-4 Box plot of mercury in soil at AOC 02-003(d)

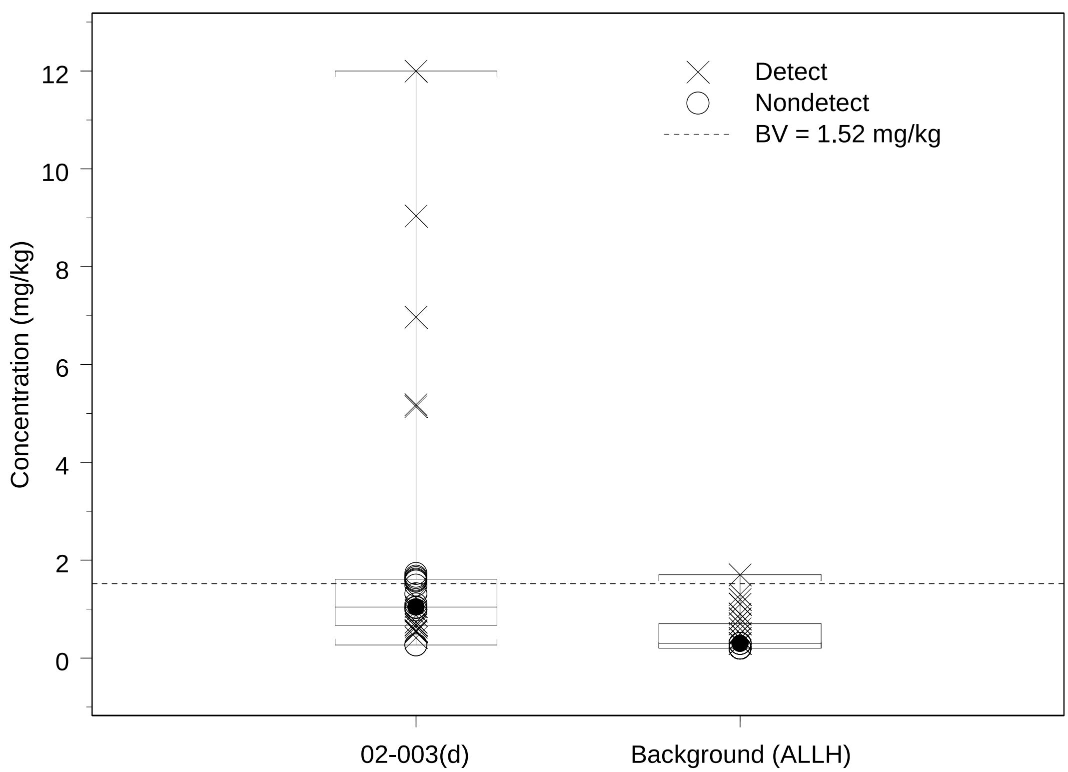

Figure G-4.0-5 Box plot of selenium in soil at AOC 02-003(d)

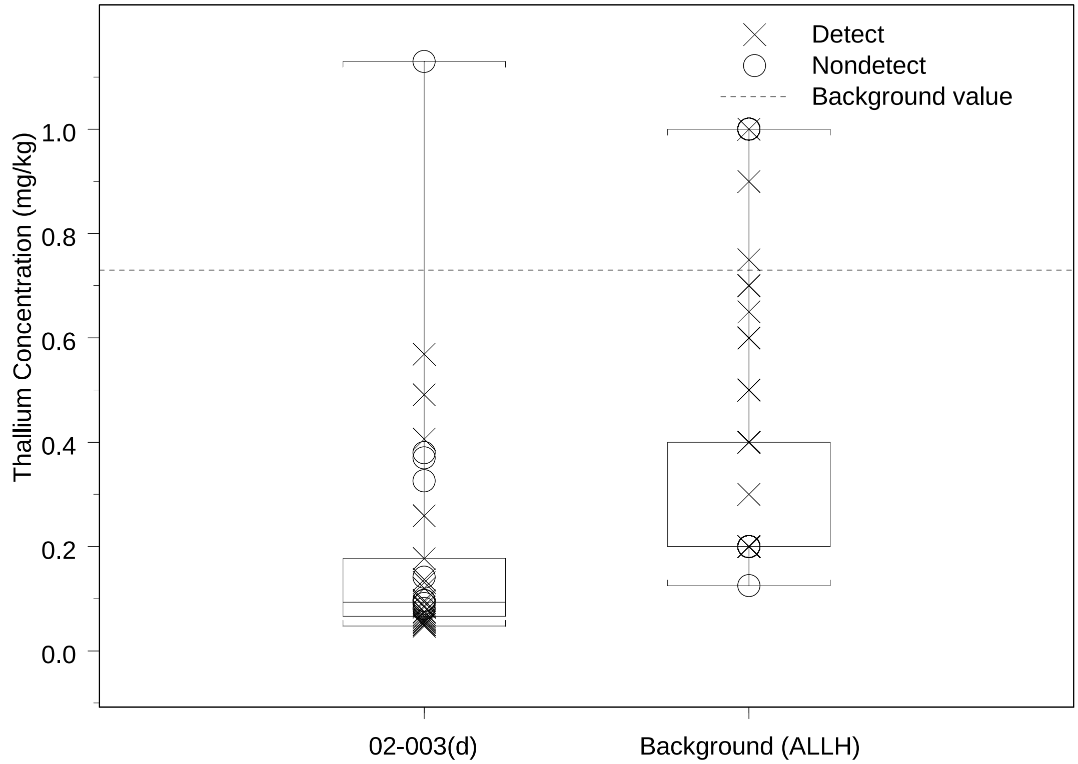

Figure G-4.0-6 Box plot of thallium in soil at AOC 02-003(d)

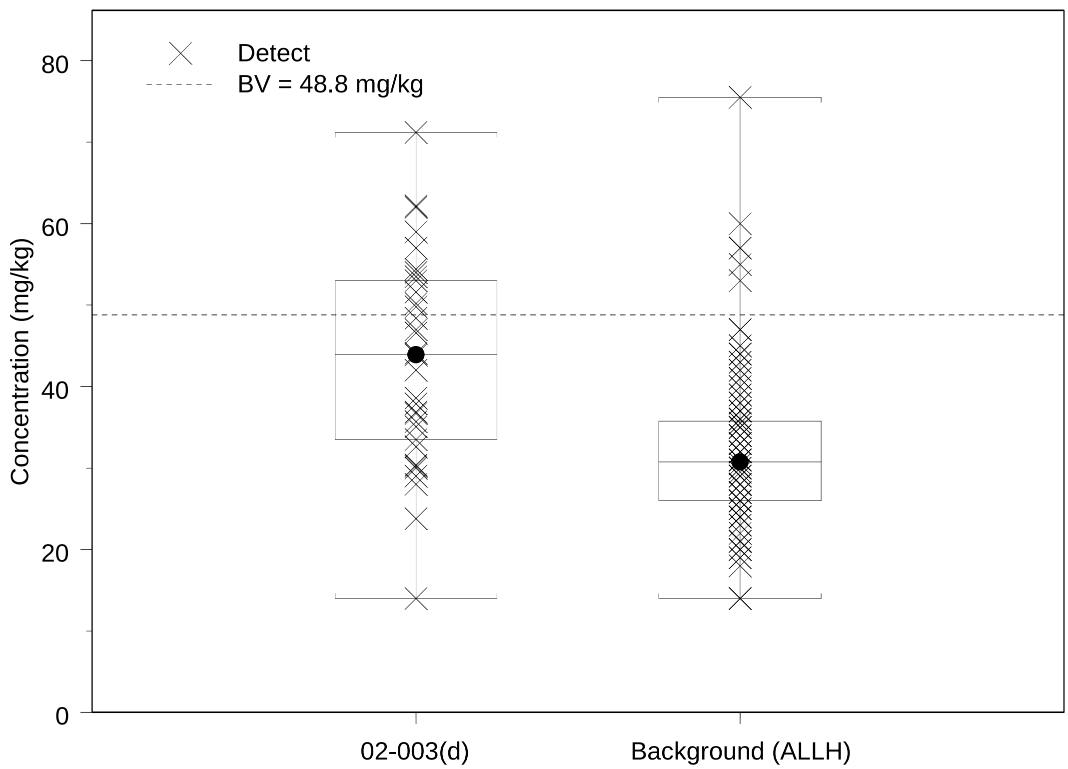

Figure G-4.0-7 Box plot of zinc in soil at AOC 02-003(d)

G-5.0 BOX PLOTS FOR AOC 02-003(e)

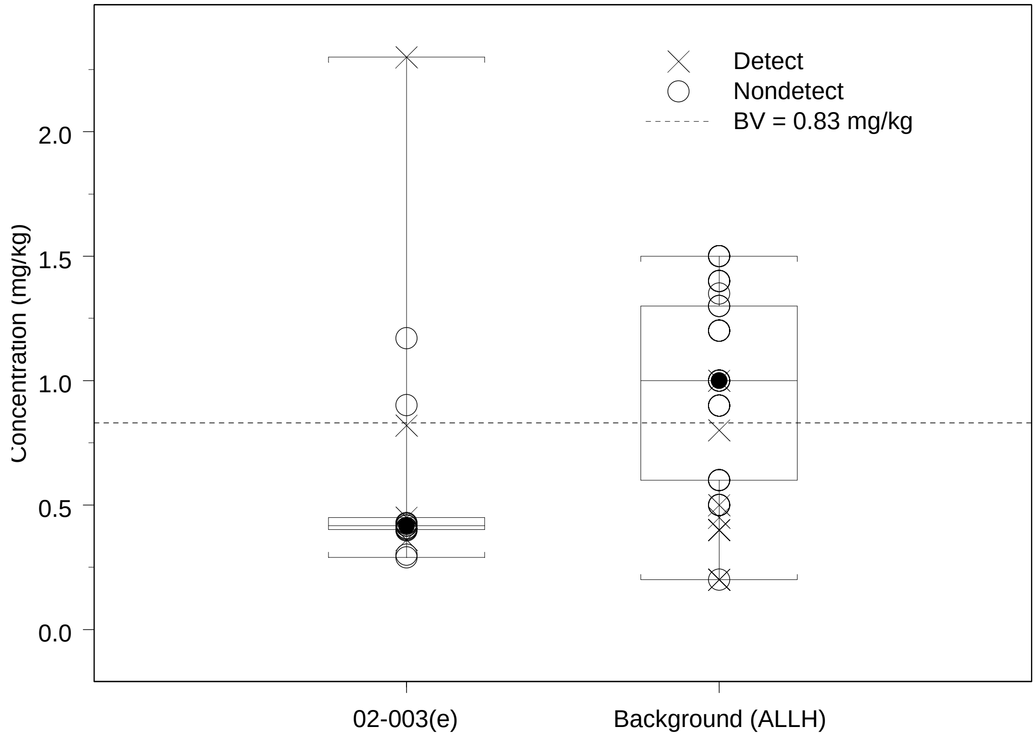

Figure G-5.0-1 Box plot of antimony in soil at AOC 02-003(e)

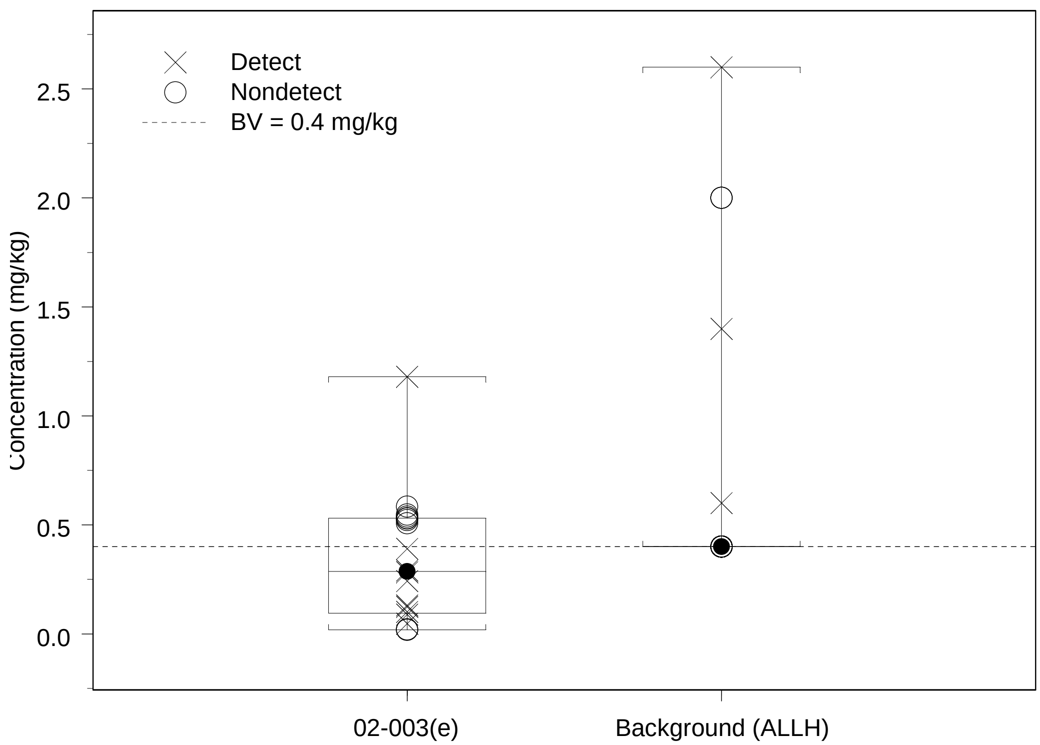

Figure G-5.0-2 Box plot of cadmium in soil at AOC 02-003(e)

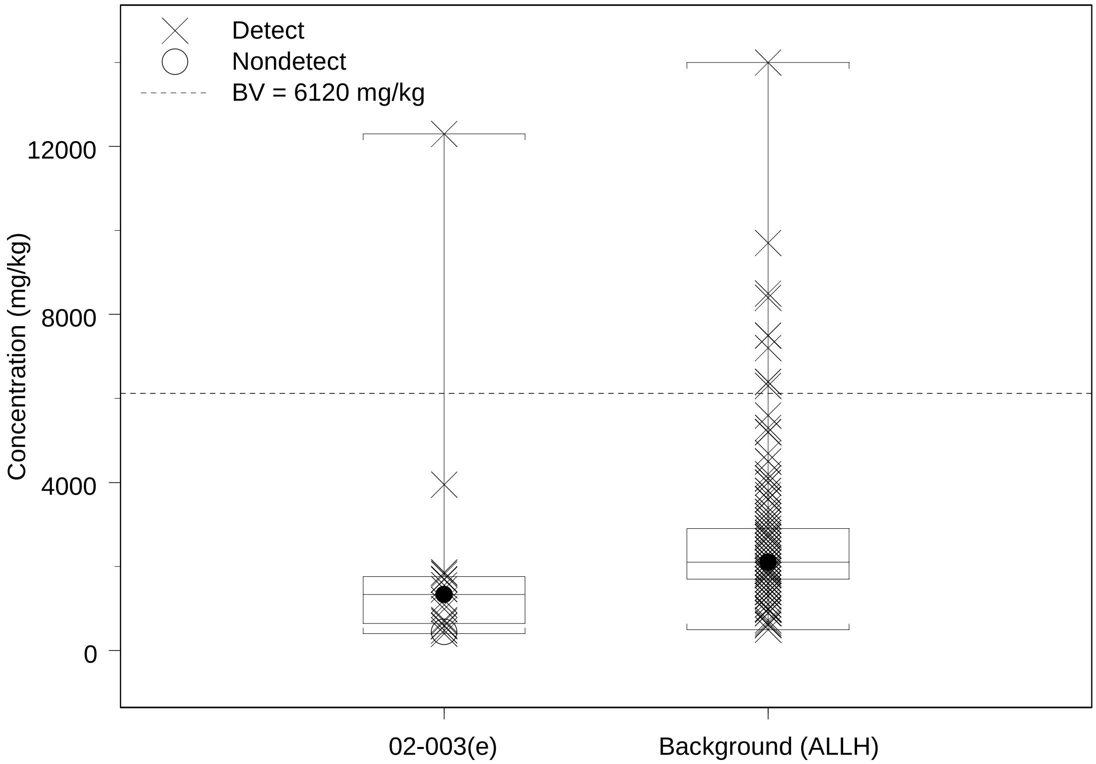

Figure G-5.0-3 Box plot of calcium in soil at AOC 02-003(e)

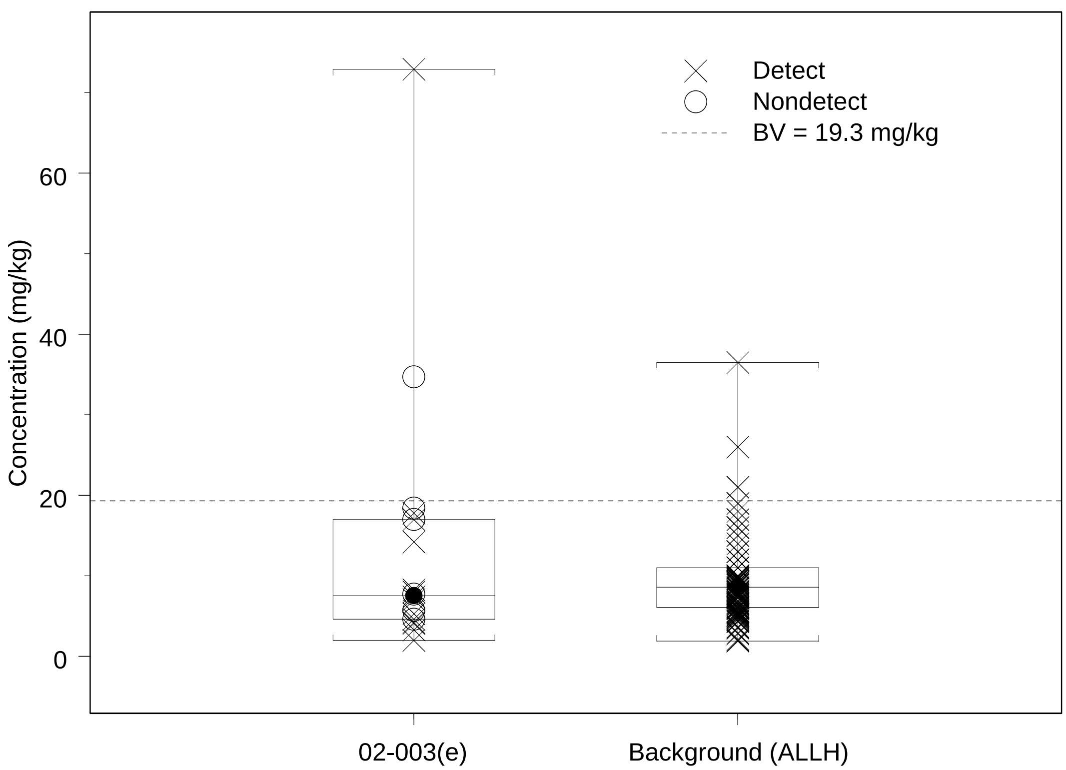

Figure G-5.0-4 Box plot of chromium in soil at AOC 02-003(e)

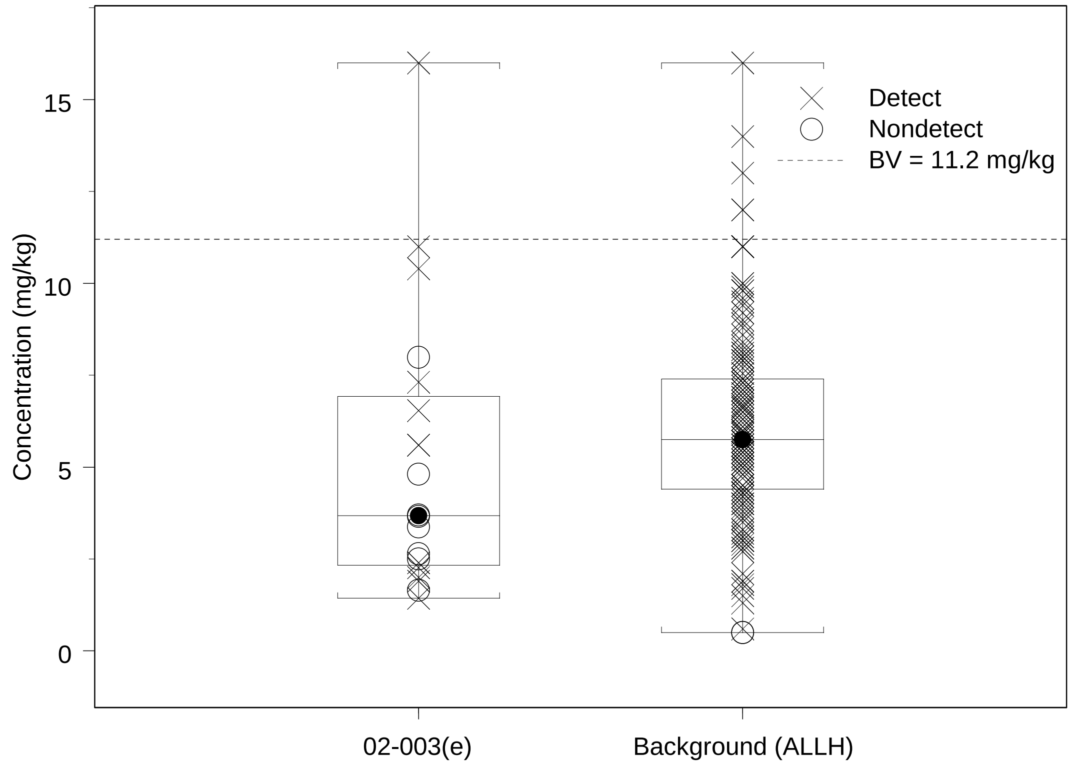

Figure G-5.0-5 Box plot of copper in soil at AOC 02-003(e)

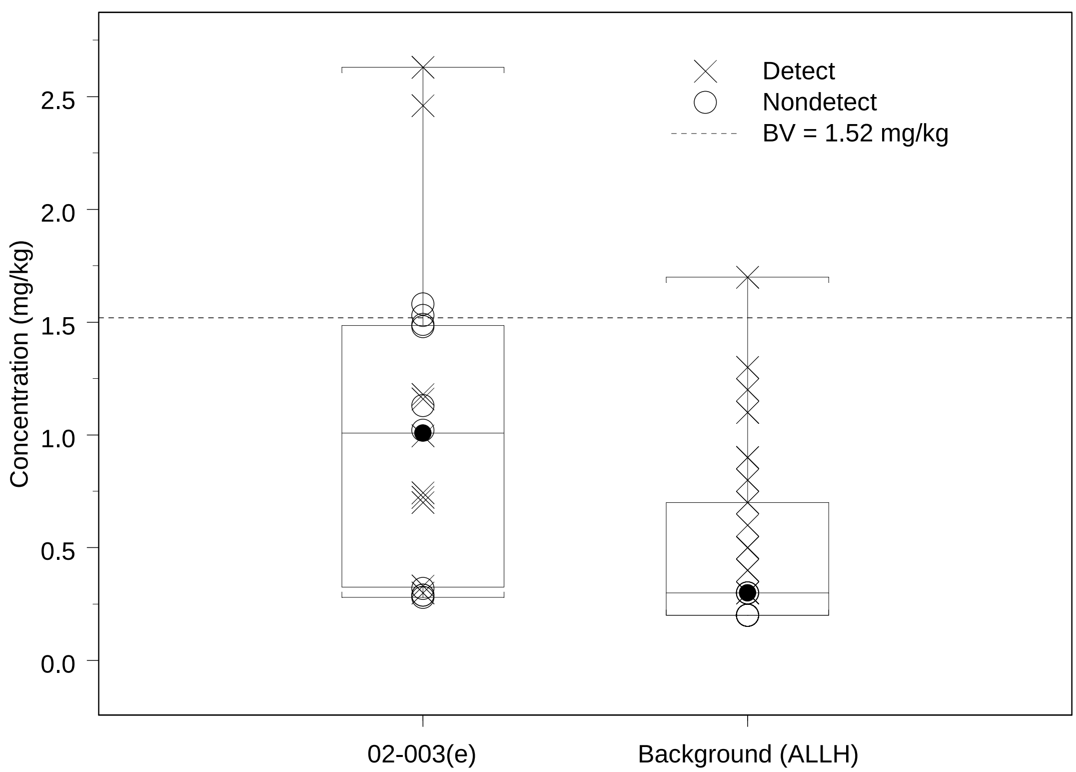

Figure G-5.0-6 Box plot of selenium in soil at AOC 02-003(e)

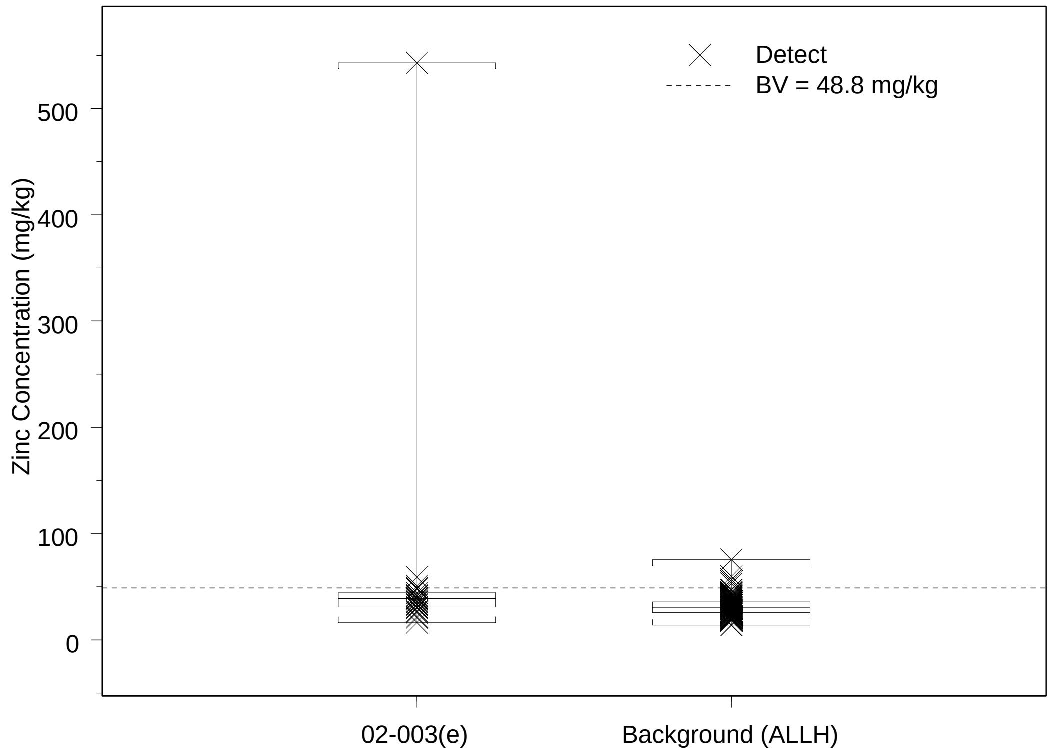

Figure G-5.0-7 Box plot of zinc in soil at AOC 02-003(e)

G-6.0 BOX PLOTS FOR AOC 02-004(a)

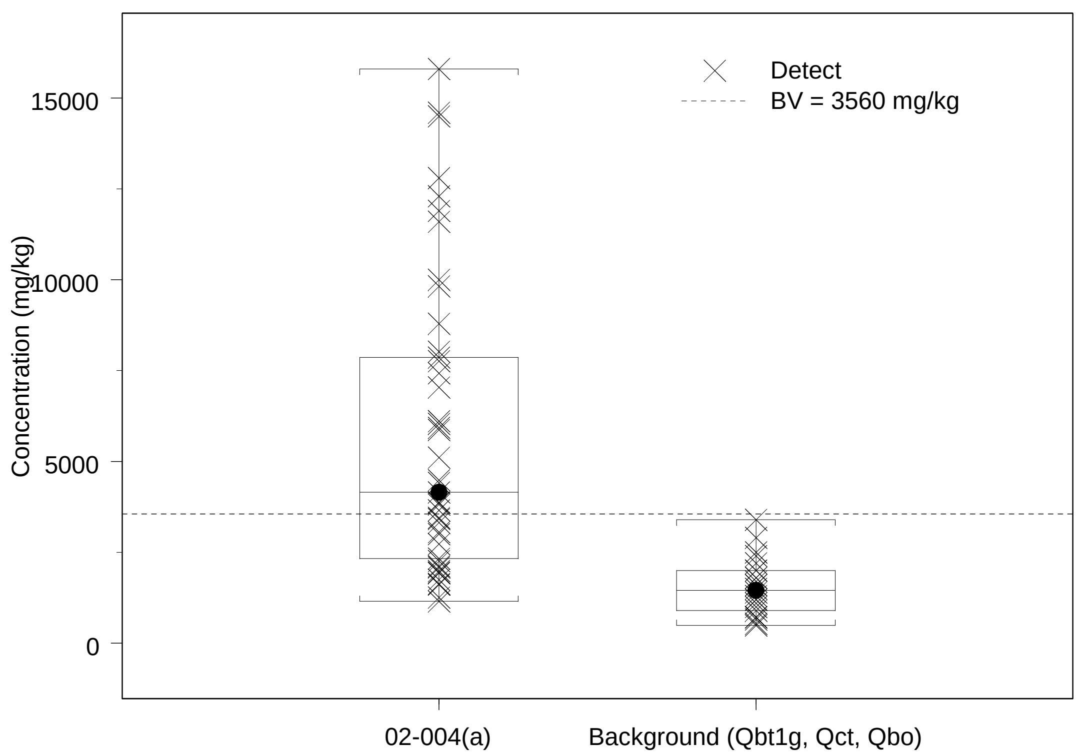

Figure G-6.0-1 Box plot of aluminum in Qbo tuff at AOC 02-004(a)

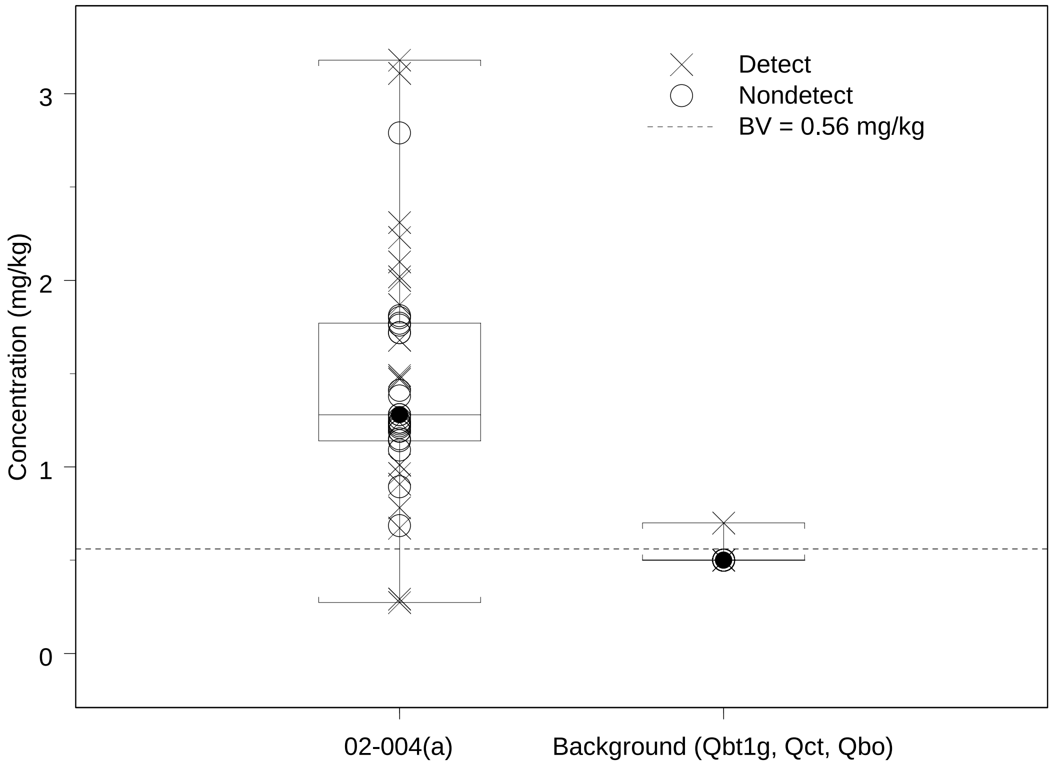

Figure G-6.0-2 Box plot of arsenic in Qbo tuff at AOC 02-004(a)

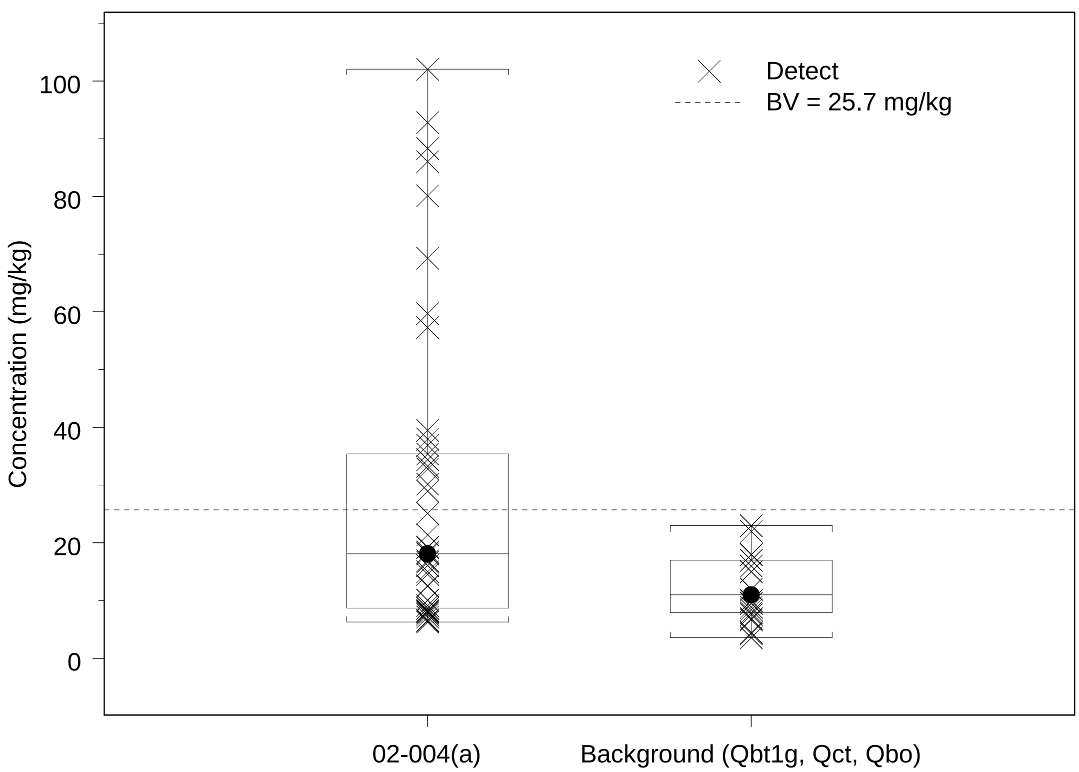

Figure G-6.0-3 Box plot of barium in Qbo tuff at AOC 02-004(a)

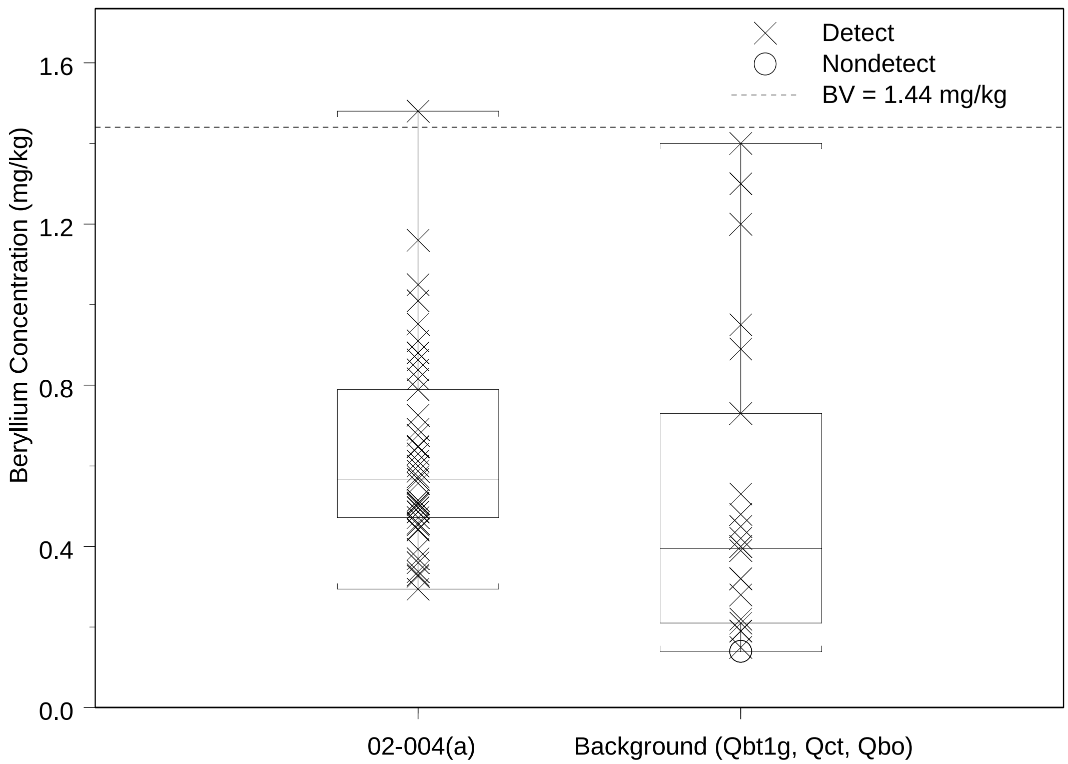

Figure G-6.0-4 Box plot of beryllium in Qbo tuff at AOC 02-004(a)

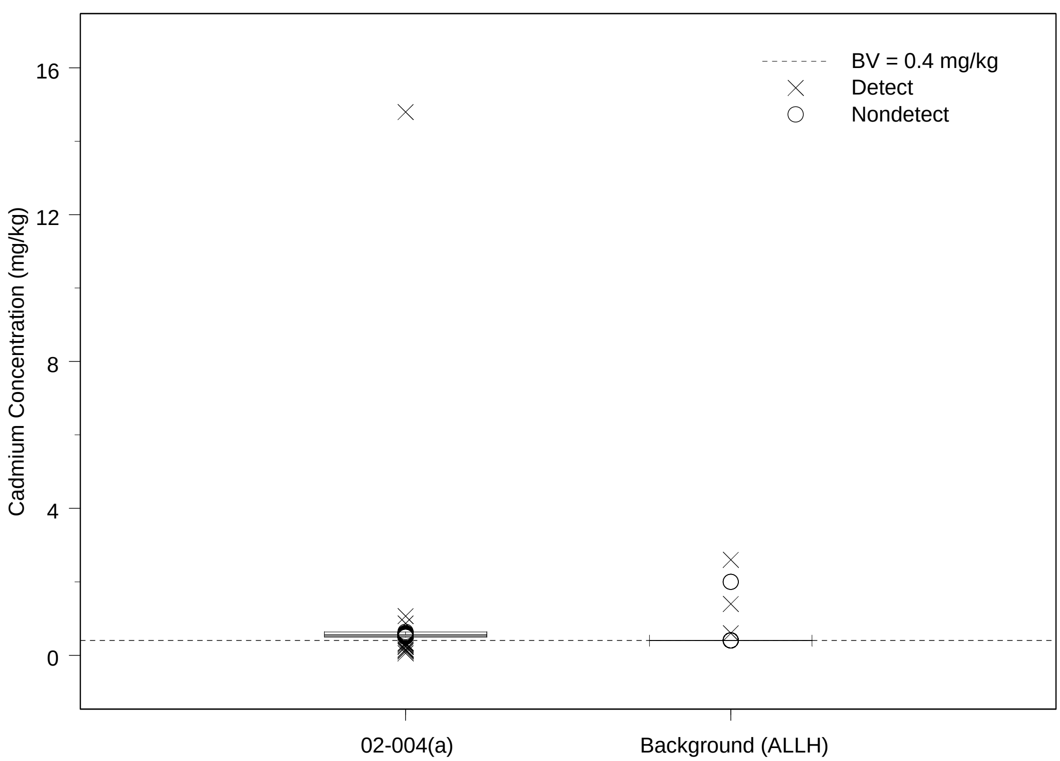

Figure G-6.0-5 Box plot of cadmium in soil at AOC 02-004(a)

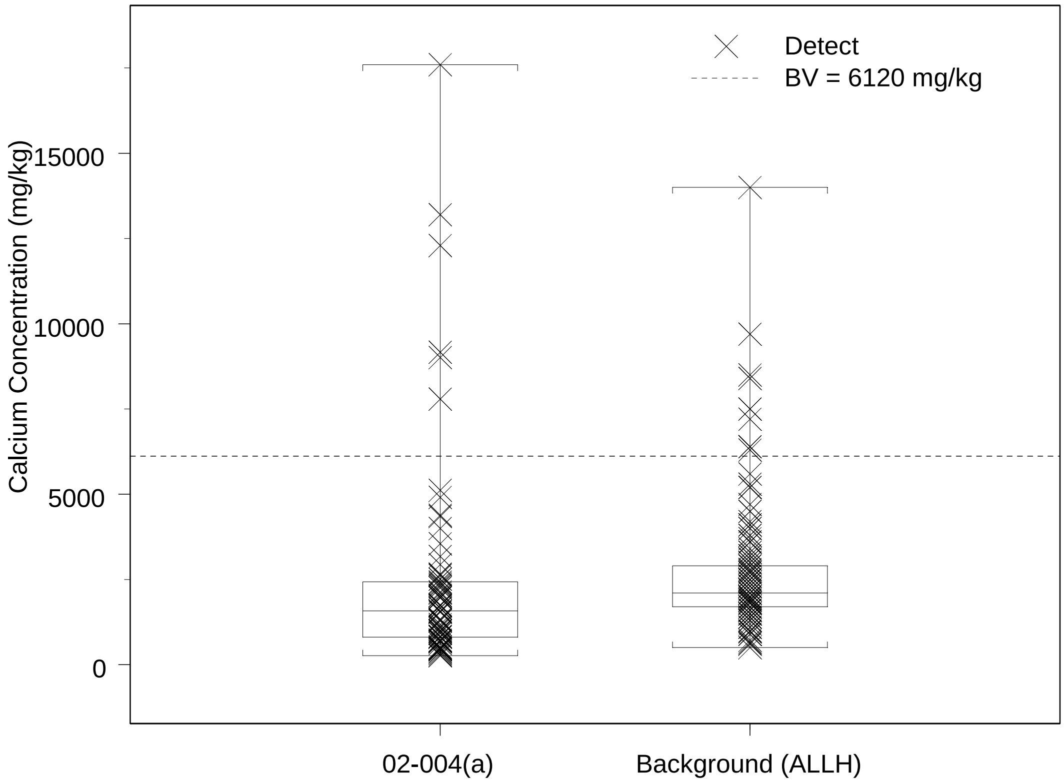

Figure G-6.0-6 Box plot of calcium in soil at AOC 02-004(a)

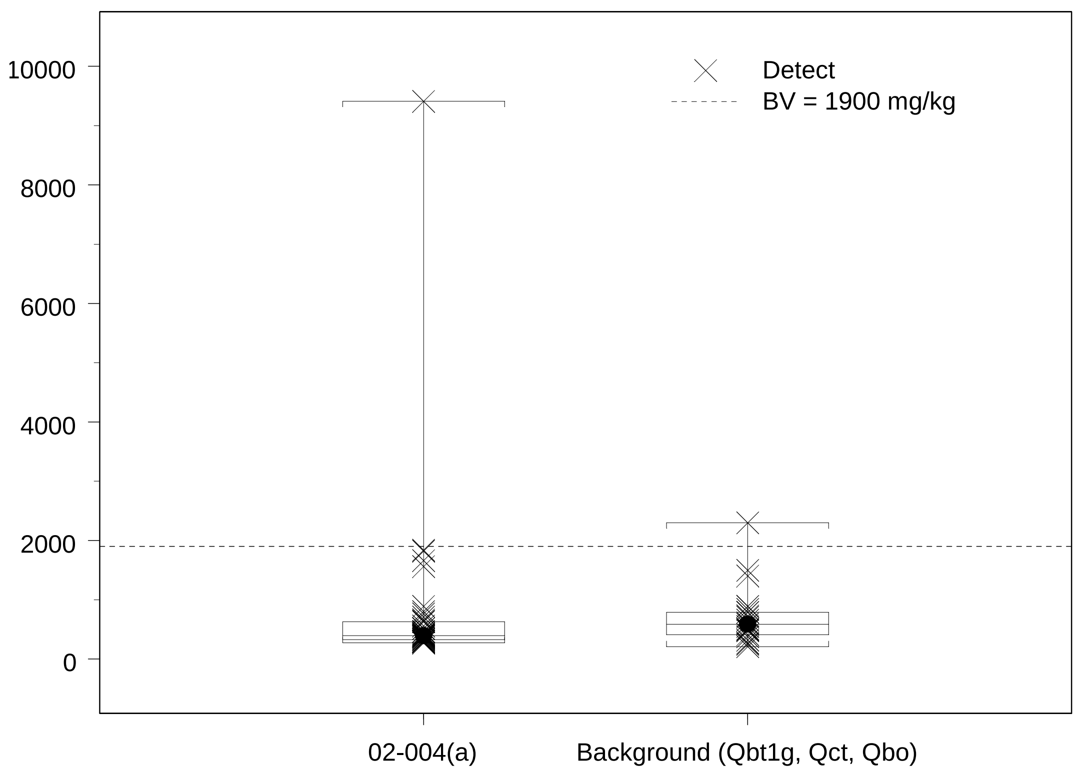

Figure G-6.0-7 Box plot of calcium in Qbo tuff at AOC 02-004(a)

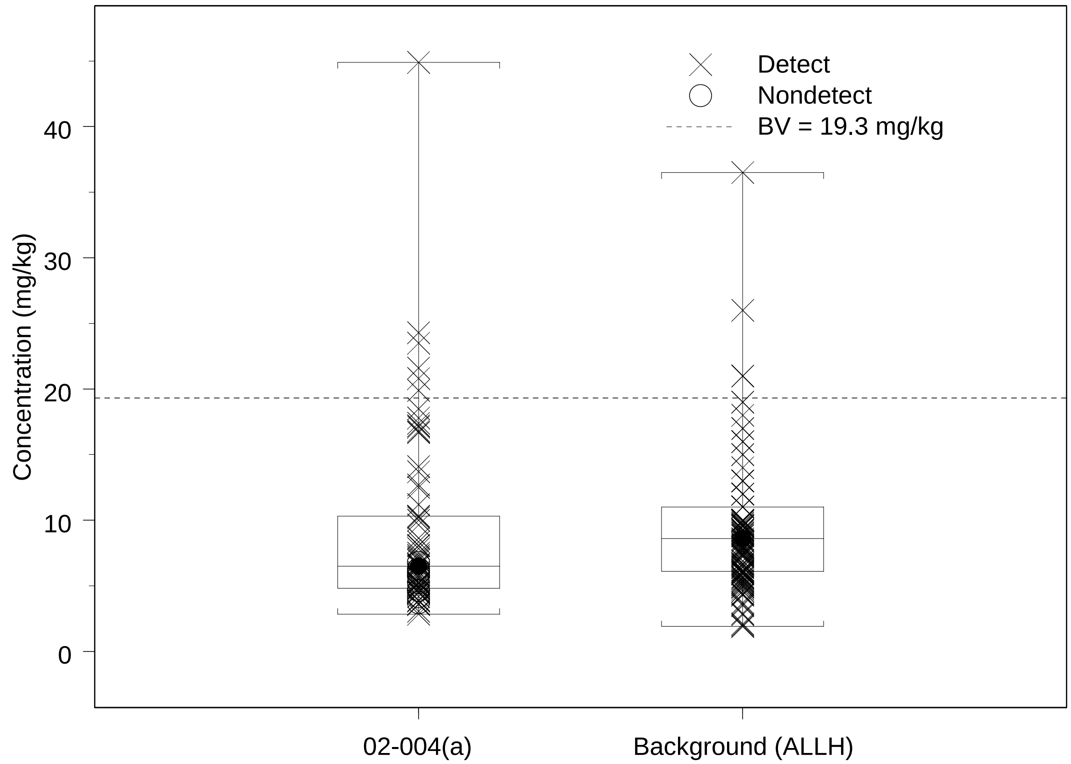

Figure G-6.0-8 Box plot of chromium in soil at AOC 02-004(a)

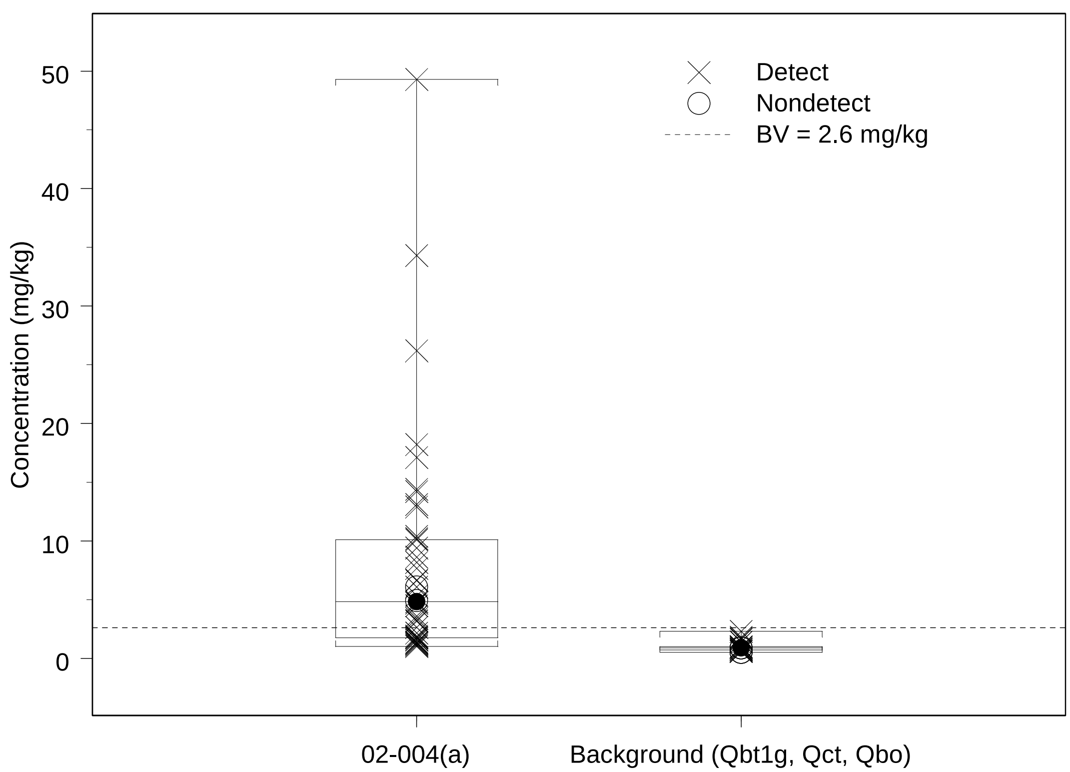

Figure G-6.0-9 Box plot of chromium in Qbo tuff at AOC 02-004(a)

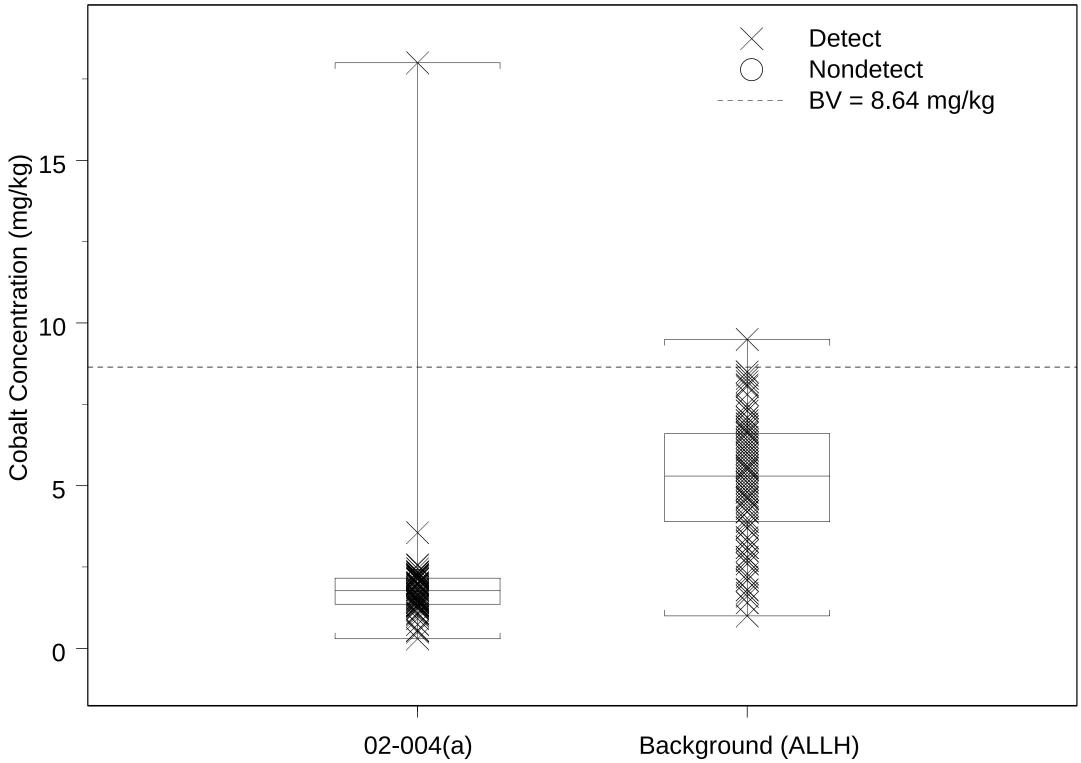

Figure G-6.0-10 Box plot of cobalt in soil at AOC 02-004(a)

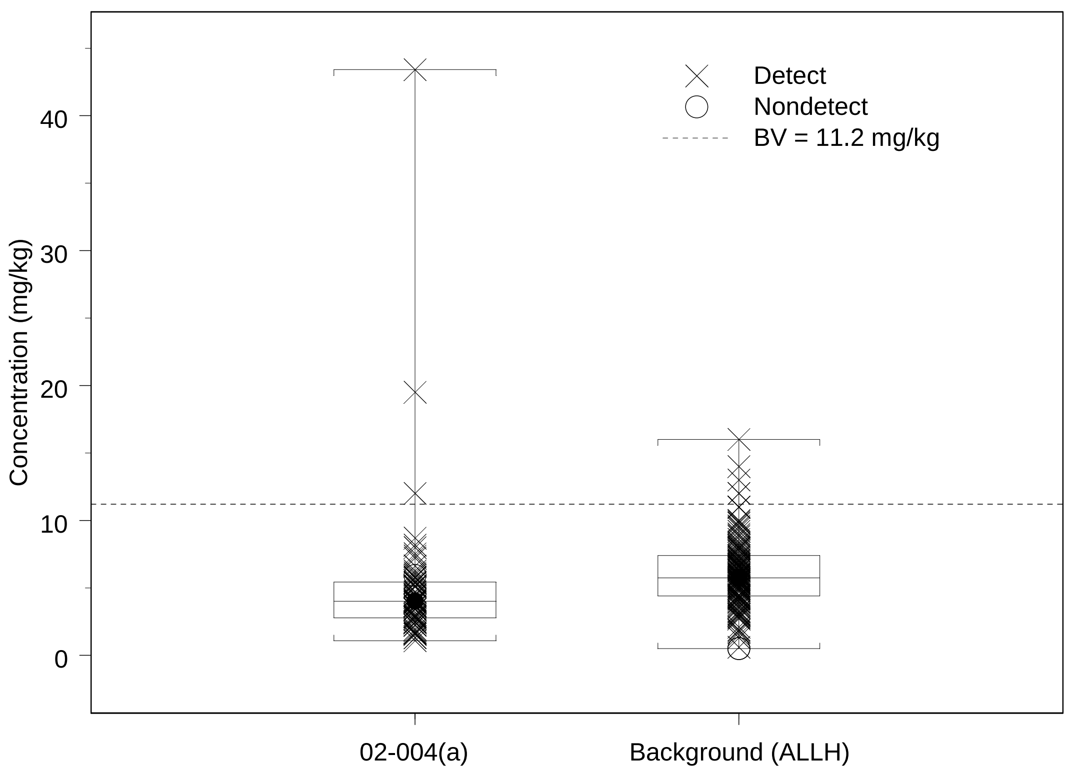

Figure G-6.0-11 Box plot of copper in soil at AOC 02-004(a)

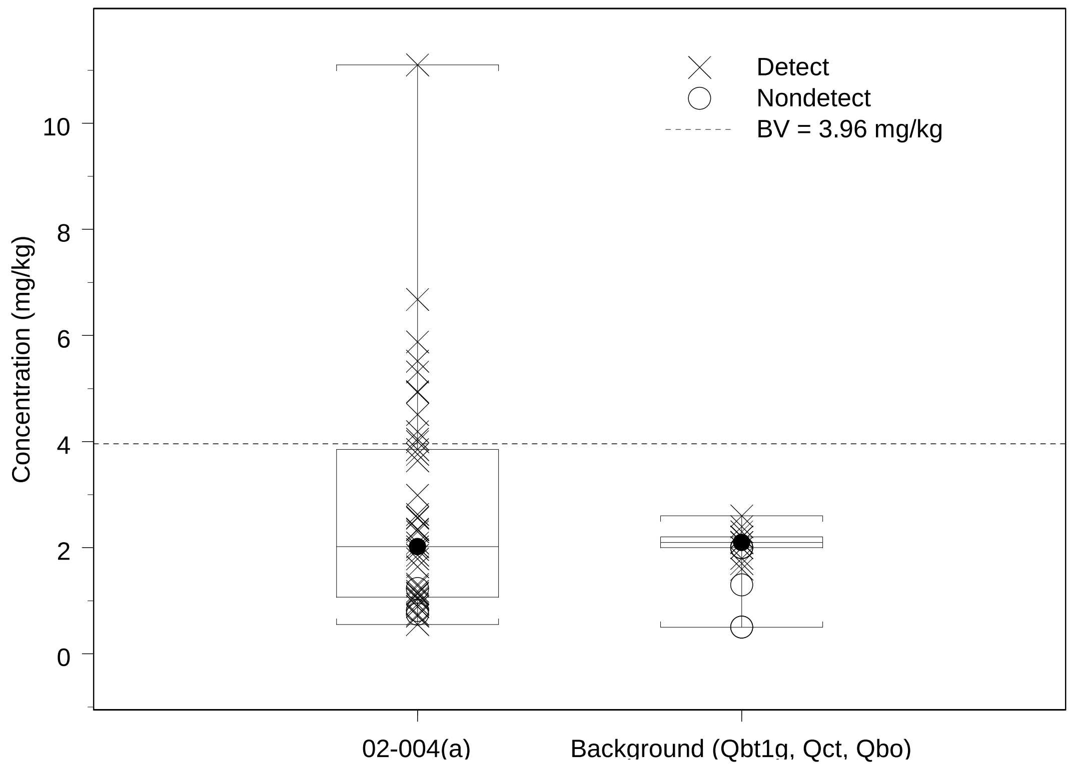

Figure G-6.0-12 Box plot of copper in Qbo tuff at AOC 02-004(a)

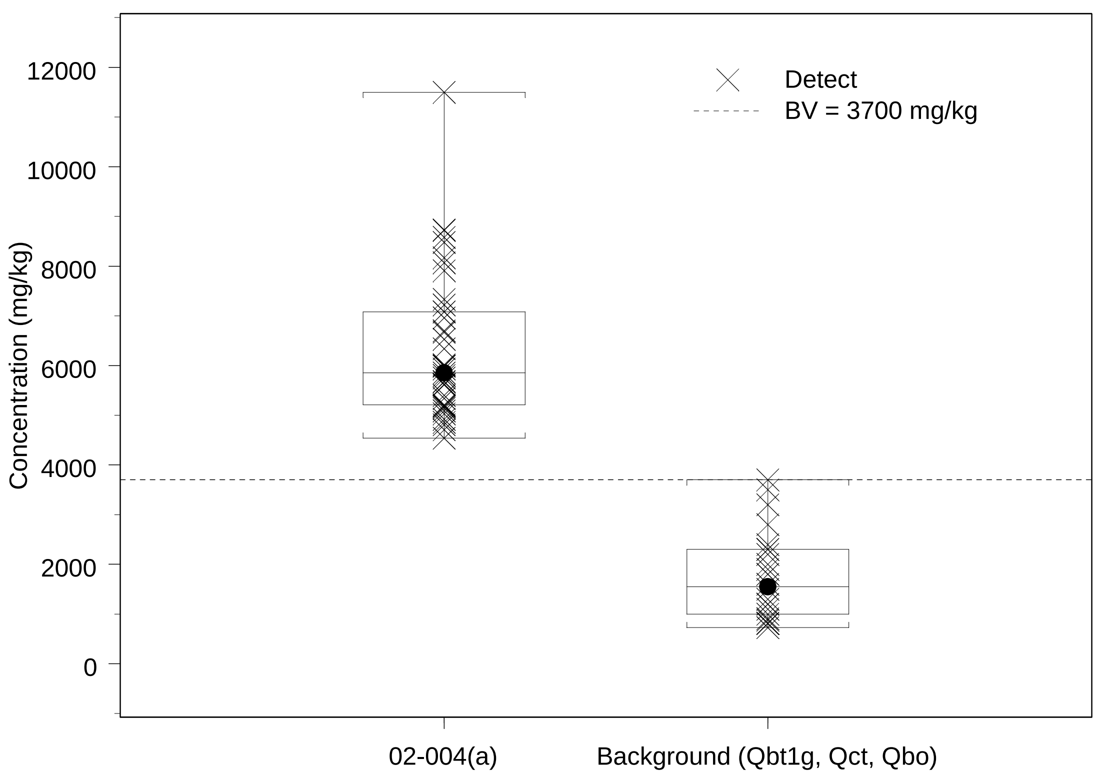

Figure G-6.0-13 Box plot of iron in Qbo tuff at AOC 02-004(a)

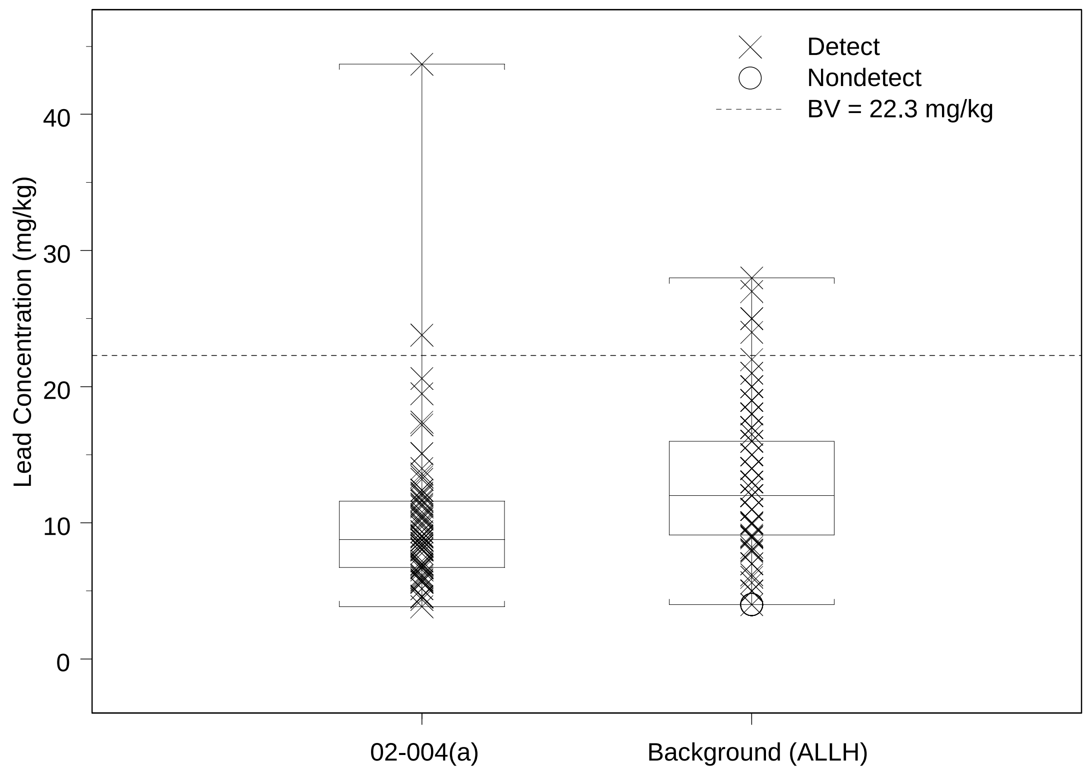

Figure G-6.0-14 Box plot of lead in soil at AOC 02-004(a)

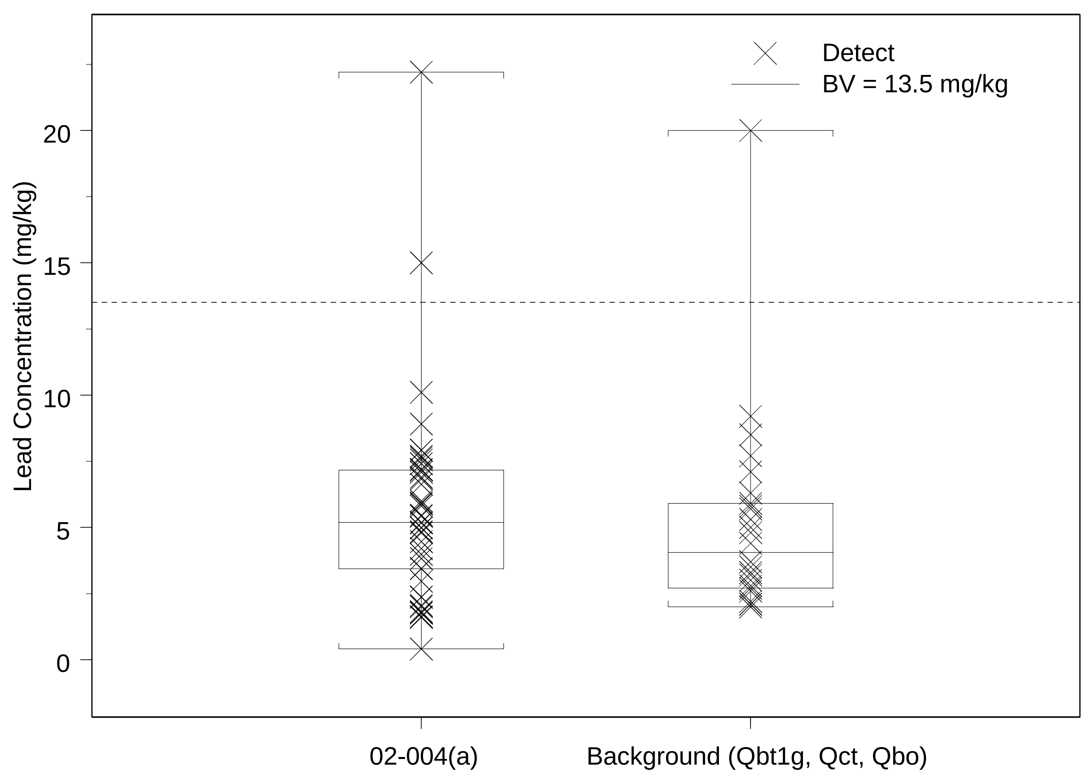

Figure G-6.0-15 Box plot of lead in Qbo tuff at AOC 02-004(a)

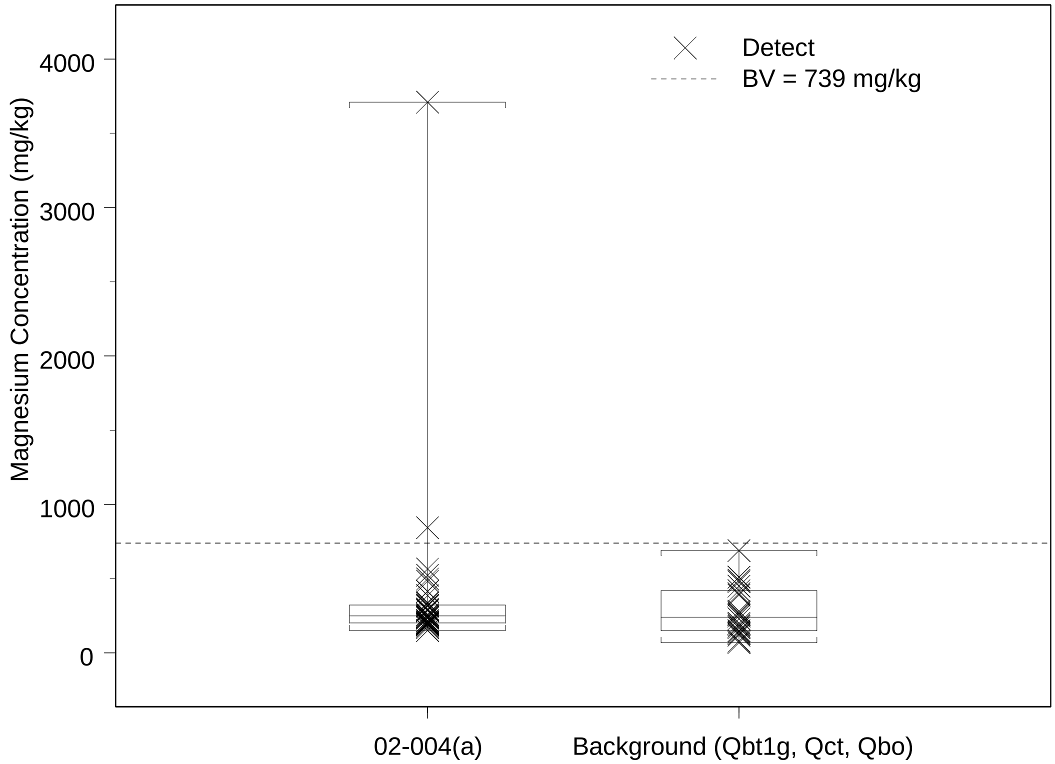

Figure G-6.0-16   Box plot of magnesium in Qbo tuff at AOC 02-004(a)

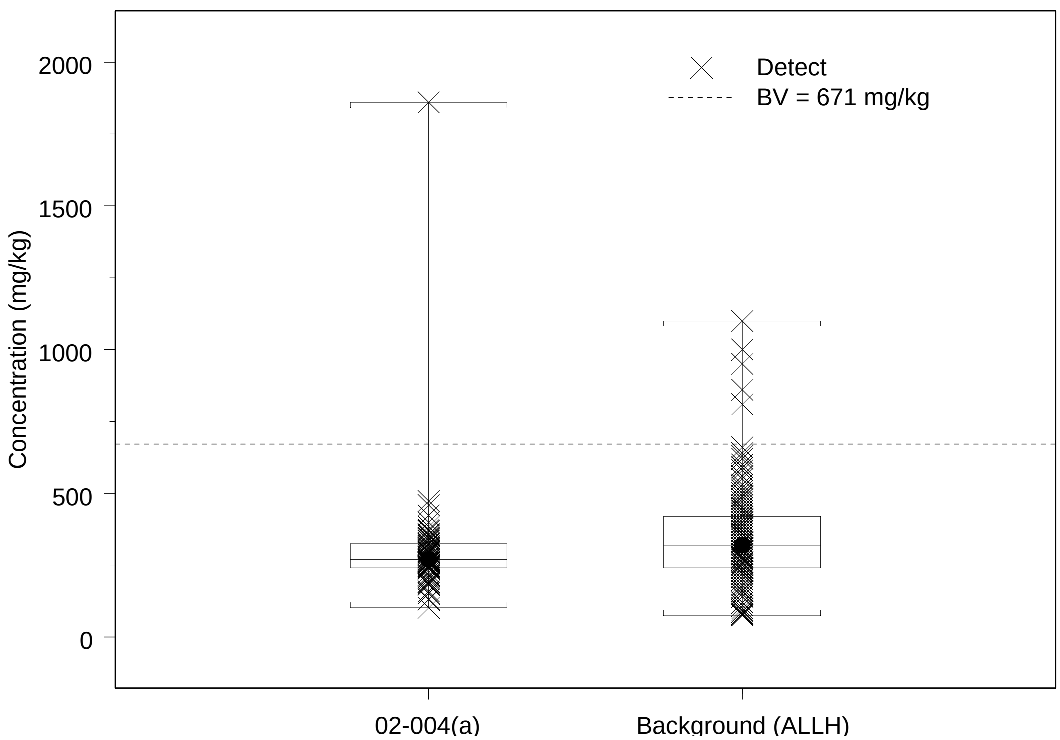

Figure G-6.0-17   Box plot of manganese in soil at AOC 02-004(a)

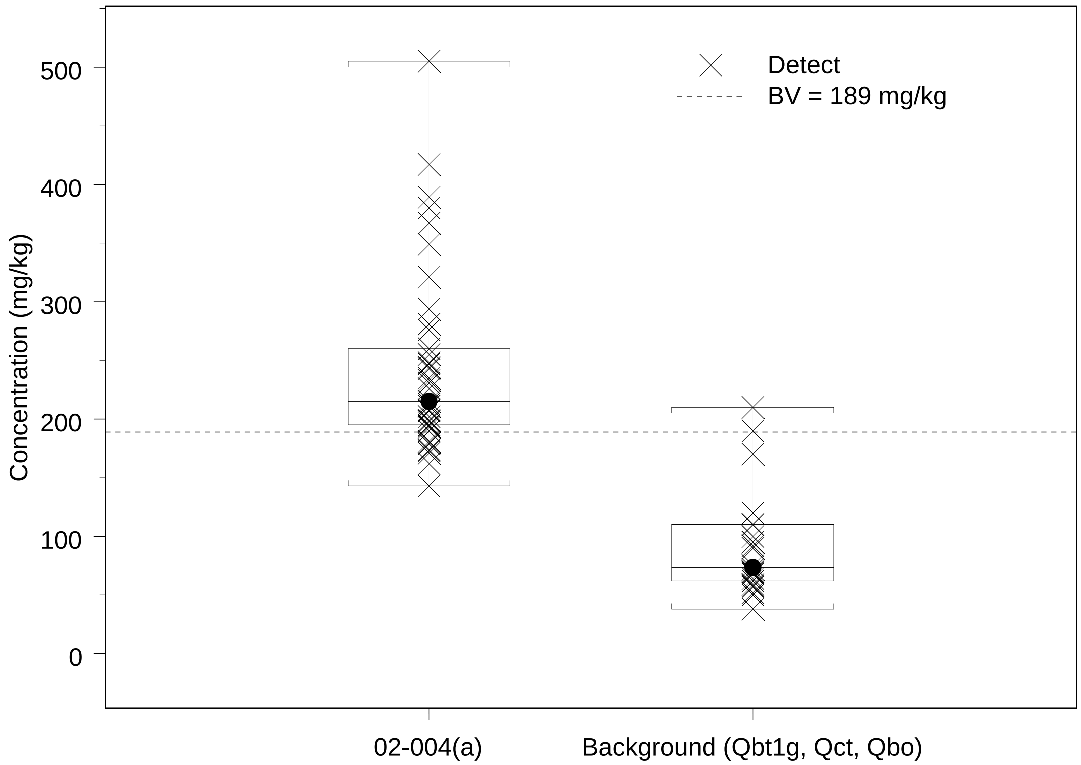

Figure G-6.0-18 Box plot of manganese in Qbo tuff at AOC 02-004(a)

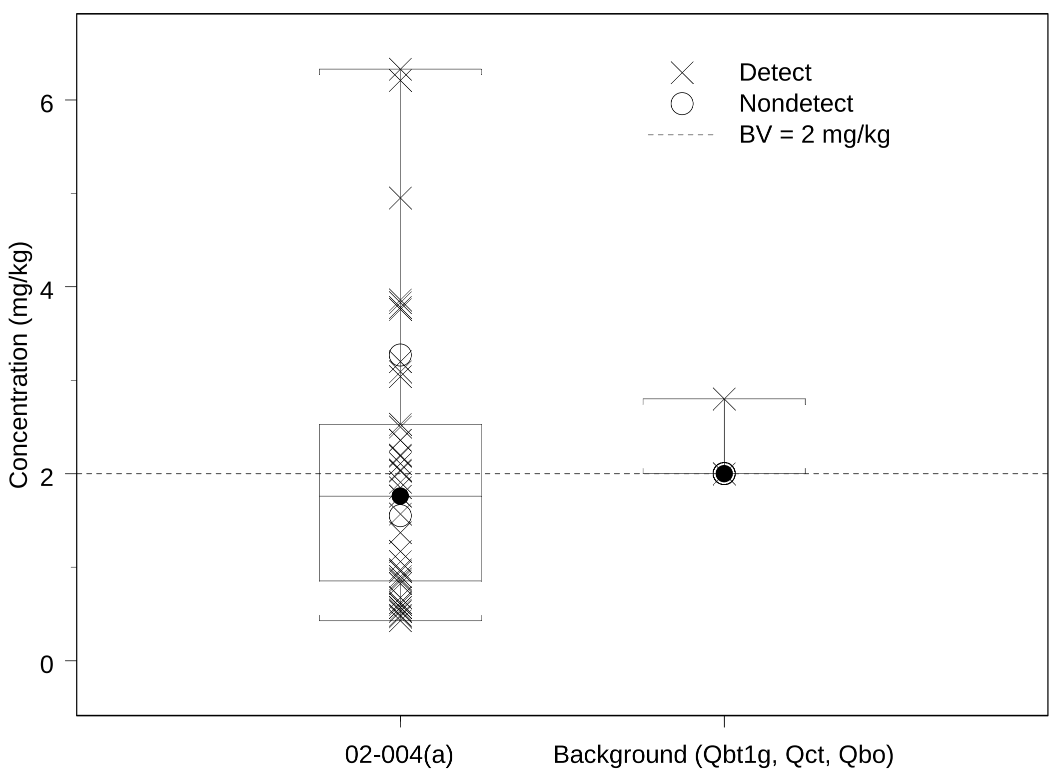

Figure G-6.0-19 Box plot of nickel in Qbo tuff at AOC 02-004(a)

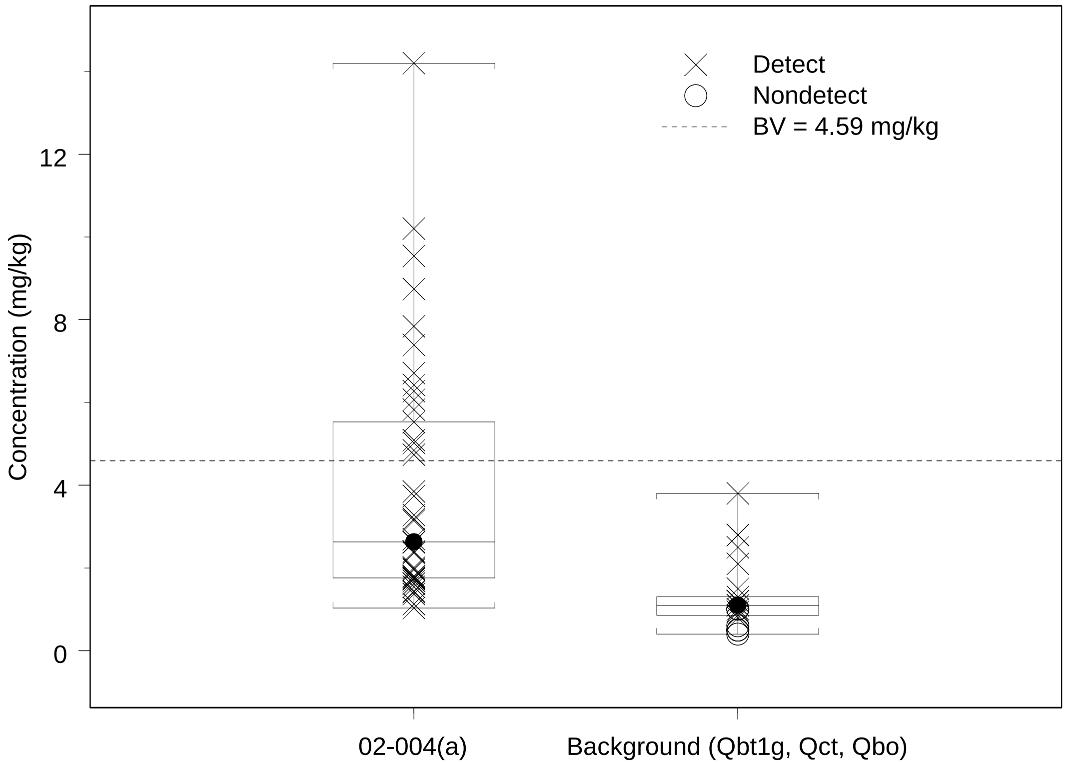

Figure G-6.0-20 Box plot of vanadium in Qbo tuff at AOC 02-004(a)

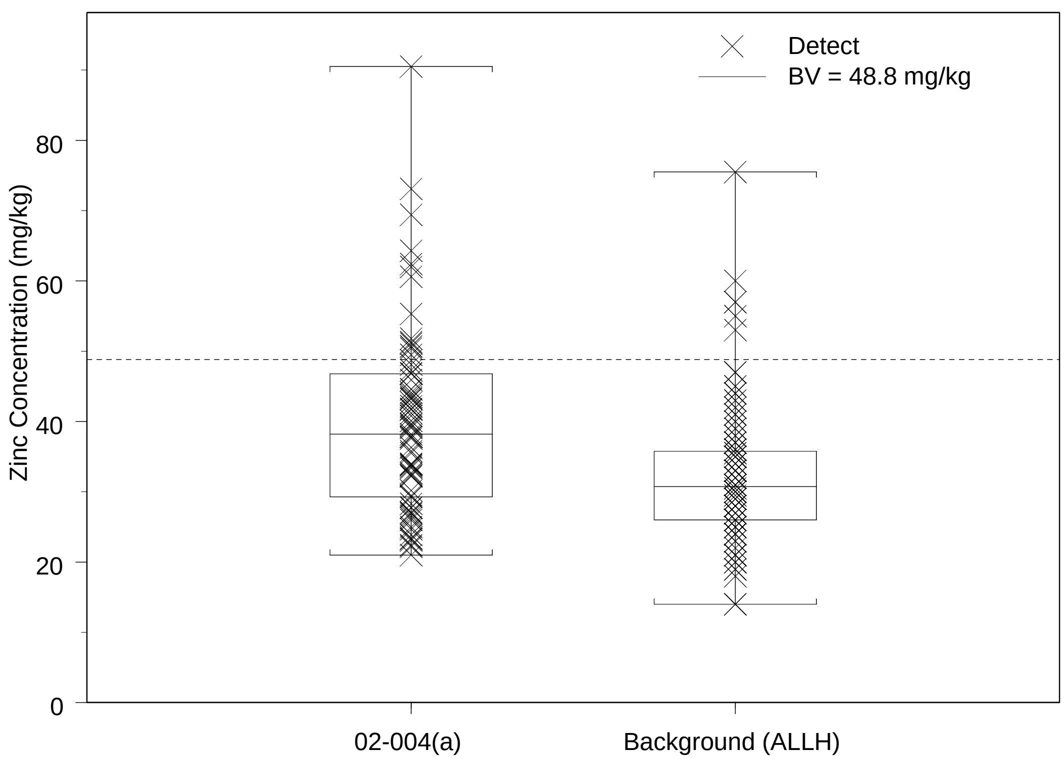

Figure G-6.0-21 Box plot of zinc in soil at AOC 02-004(a)

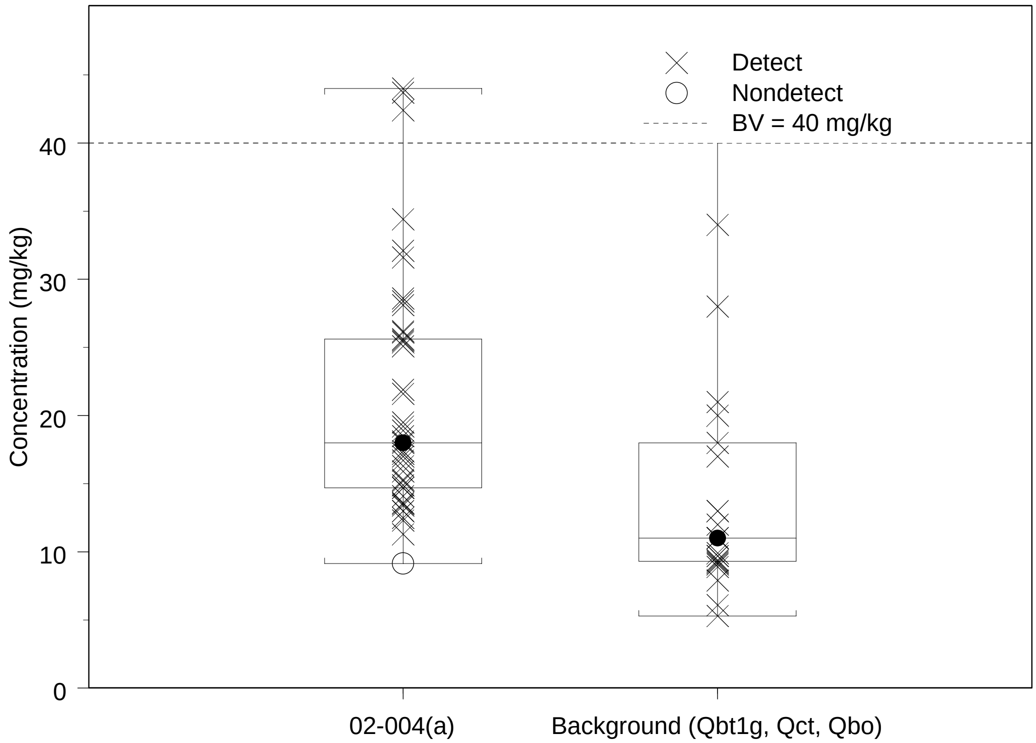

Figure G-6.0-22 Box plot of zinc in Qbo tuff at AOC 02-004(a)

G-7.0 BOX PLOTS FOR AOCs 02-004(b,c,d)

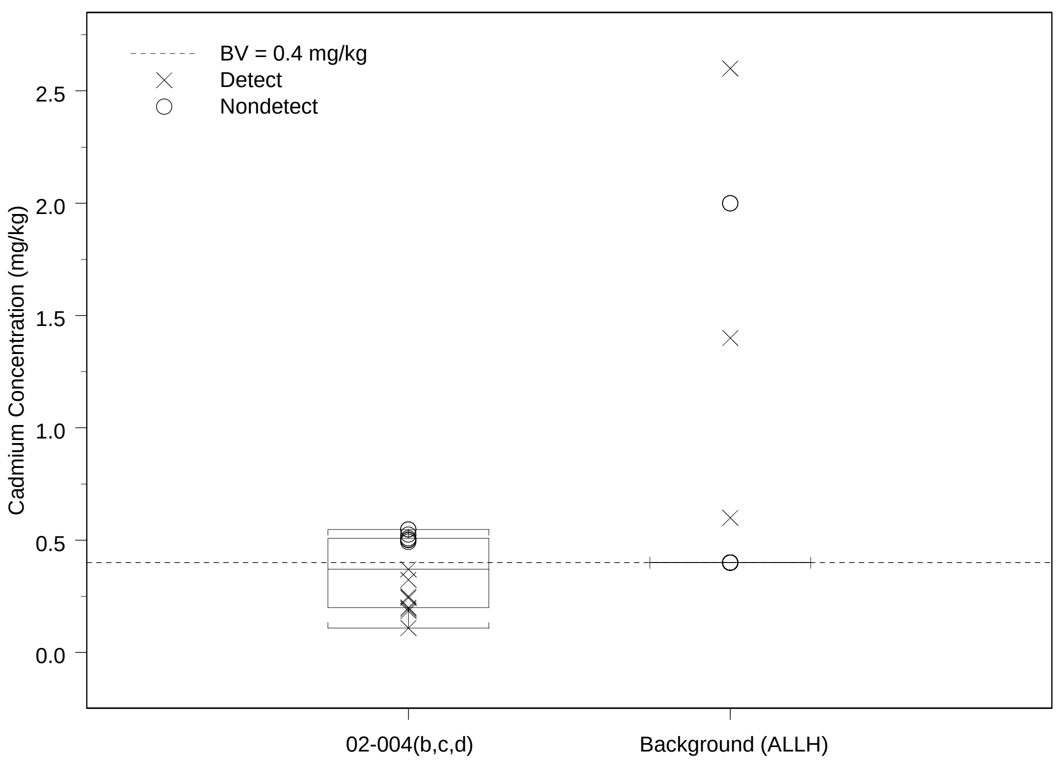

Figure G-7.0-1 Box plot of cadmium in soil at AOCs 02-004(b,c,d)

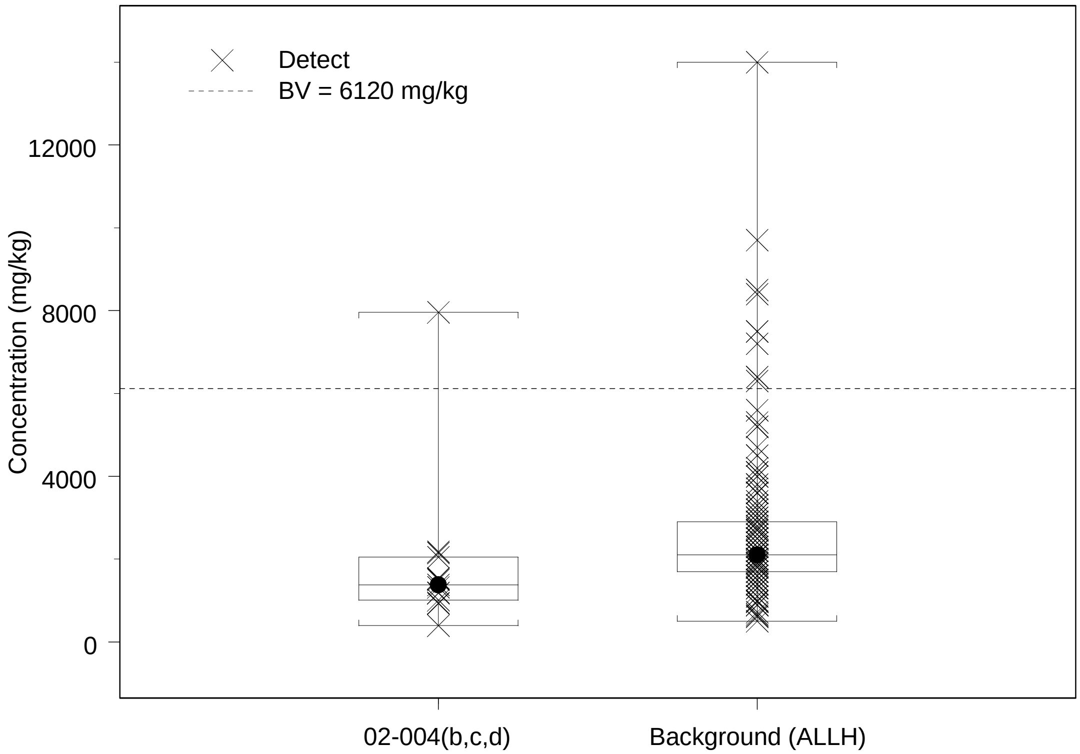

Figure G-7.0-2 Box plot of calcium in soil at AOCs 02-004(b,c,d)

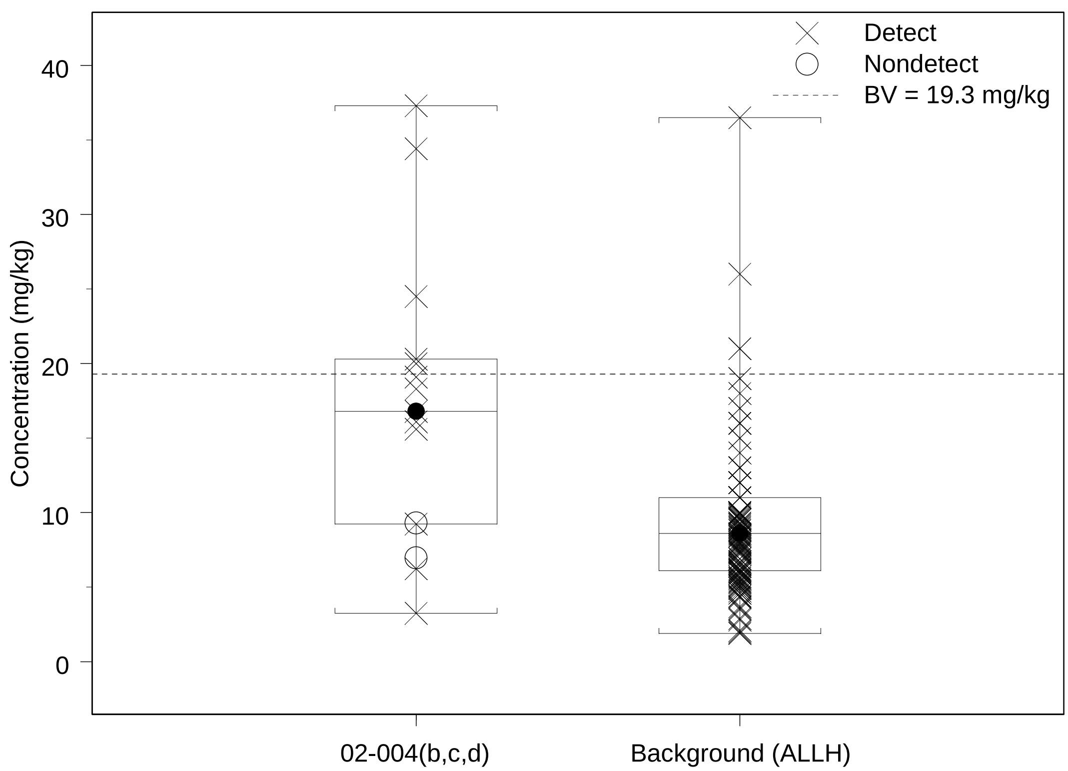

Figure G-7.0-3 Box plot of chromium in soil at AOCs 02-004(b,c,d)

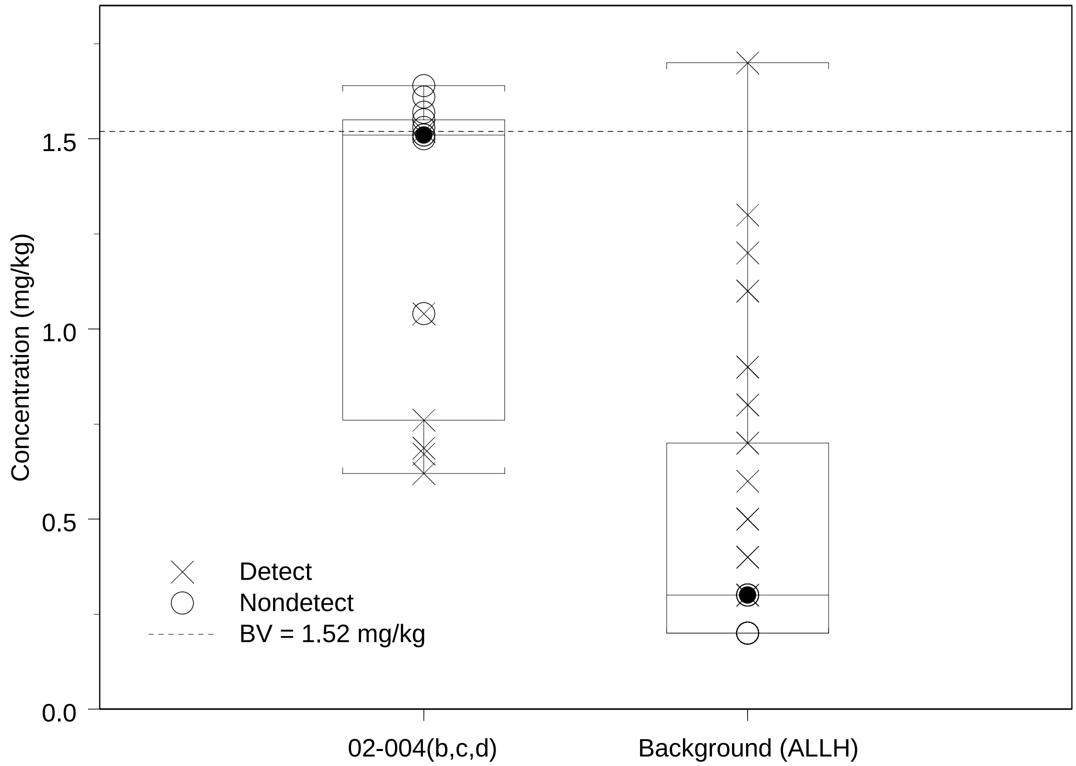

Figure G-7.0-4 Box plot of selenium in soil at AOCs 02-004(b,c,d)

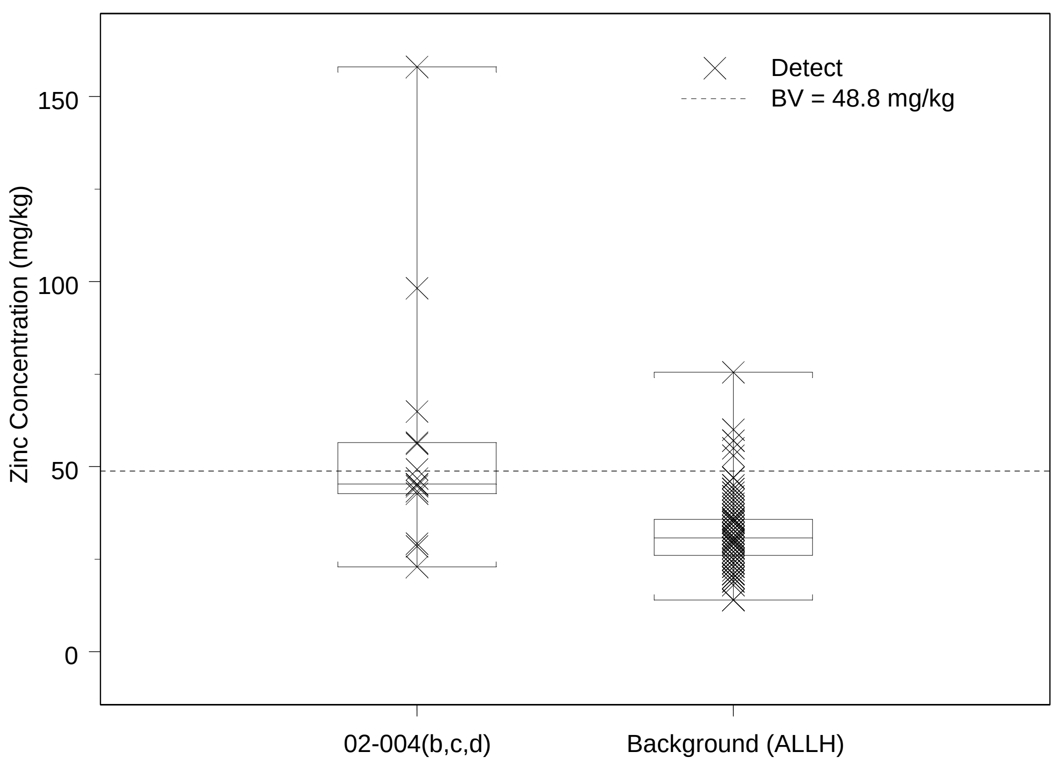

Figure G-7.0-5 Box plot of zinc in soil at AOCs 02-004(b,c,d)

G-8.0 BOX PLOTS FOR AOC 02-004(f)

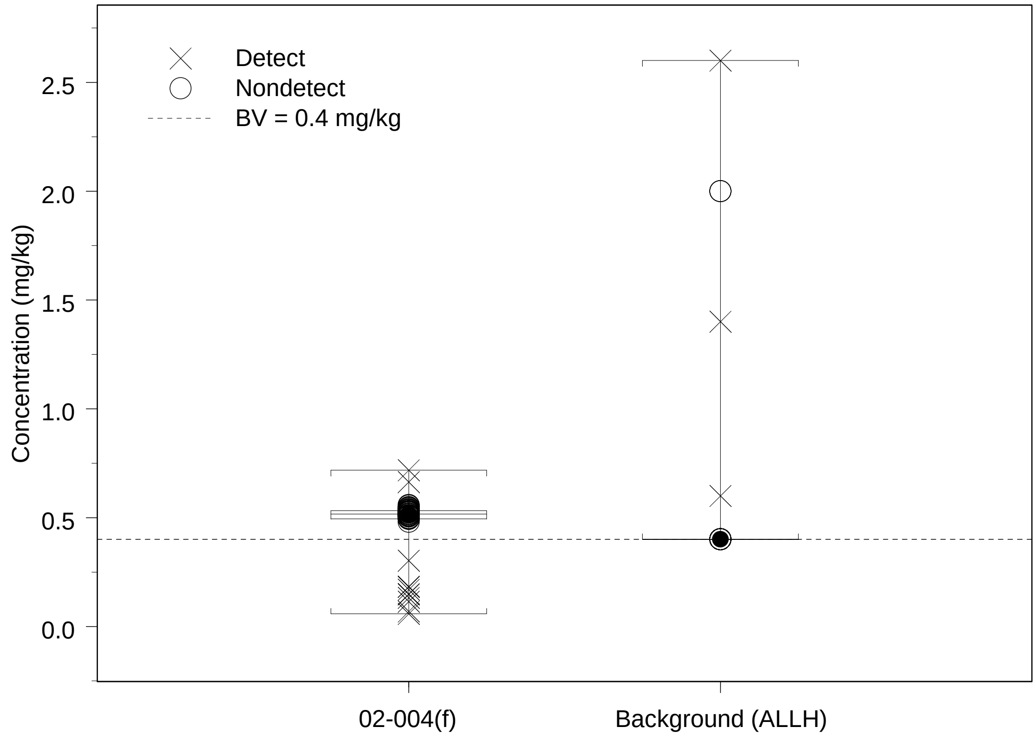

Figure G-8.0-1 Box plot of cadmium in soil at AOC 02-004(f)

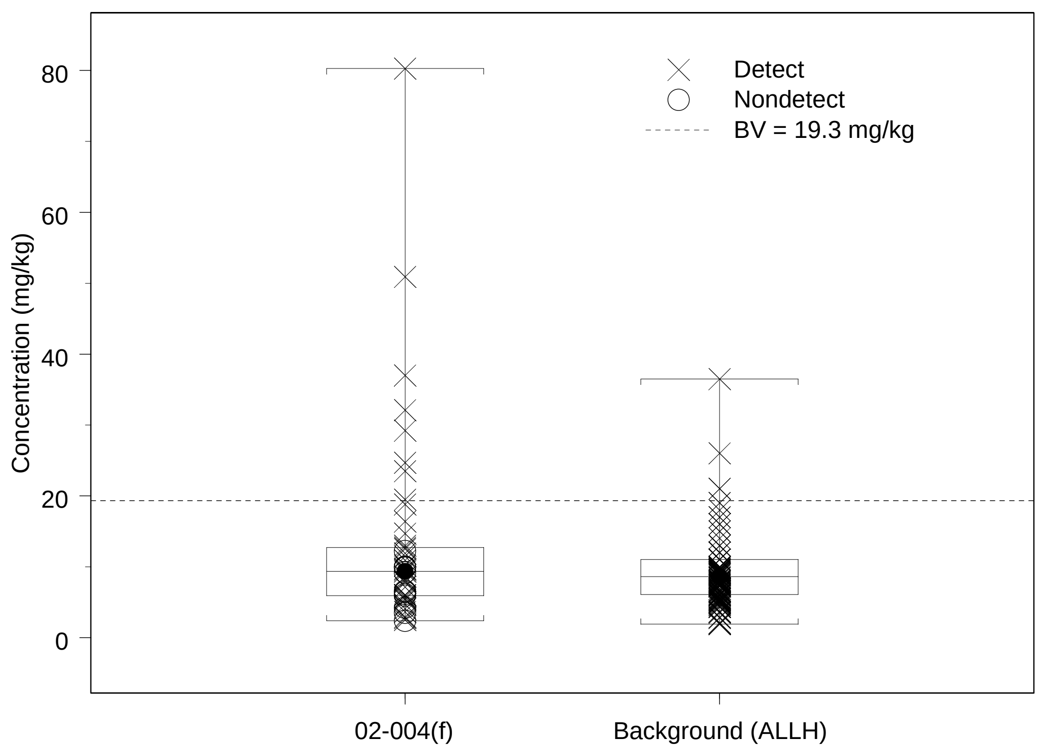

Figure G-8.0-2 Box plot of chromium in soil at AOC 02-004(f)

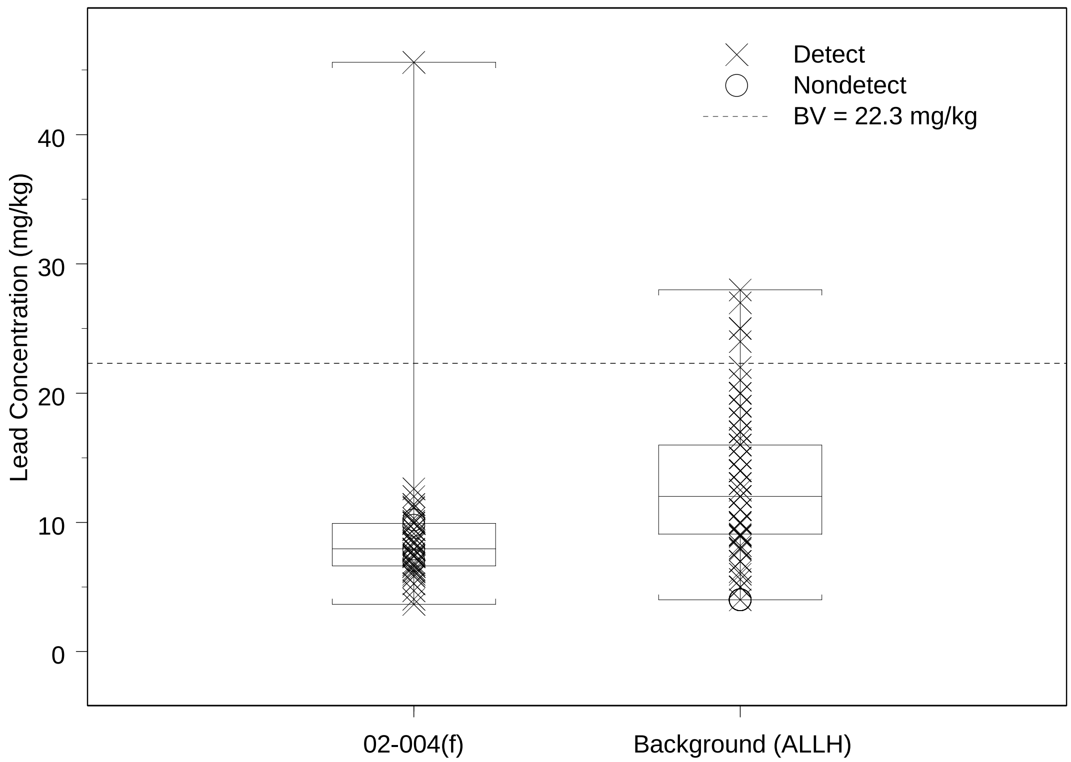

Figure G-8.0-3 Box plot of lead in soil at AOC 02-004(f)

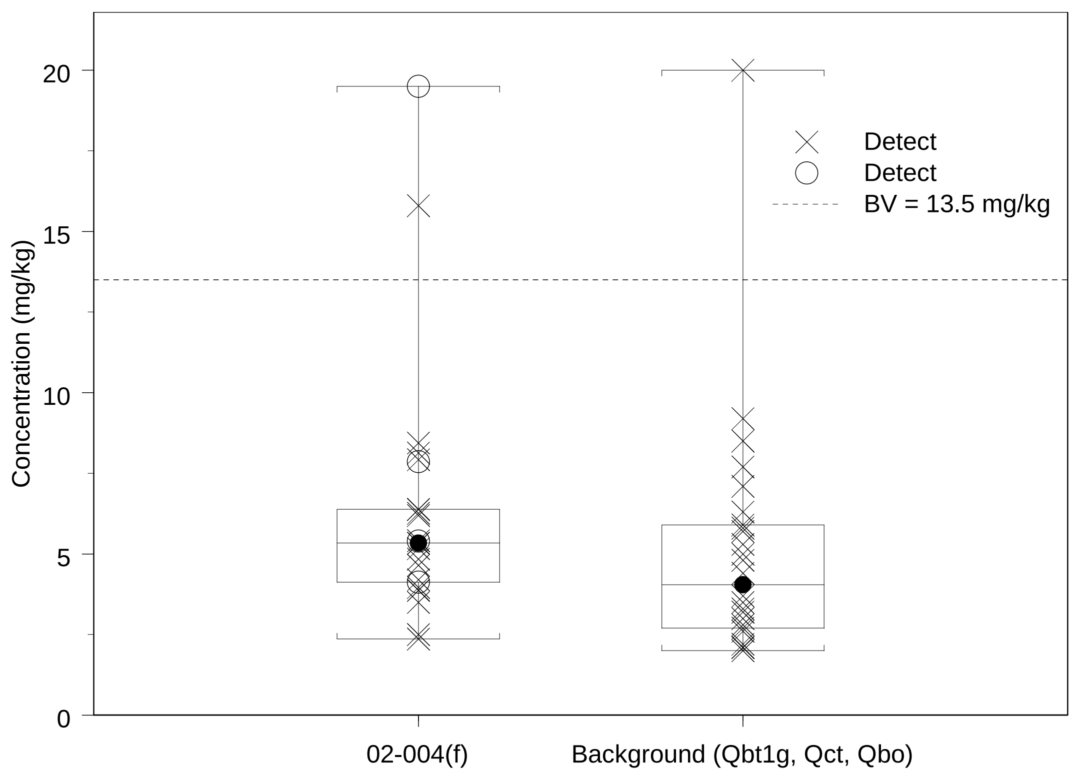

Figure G-8.0-4 Box plot of lead in Qbo tuff at AOC 02-004(f)

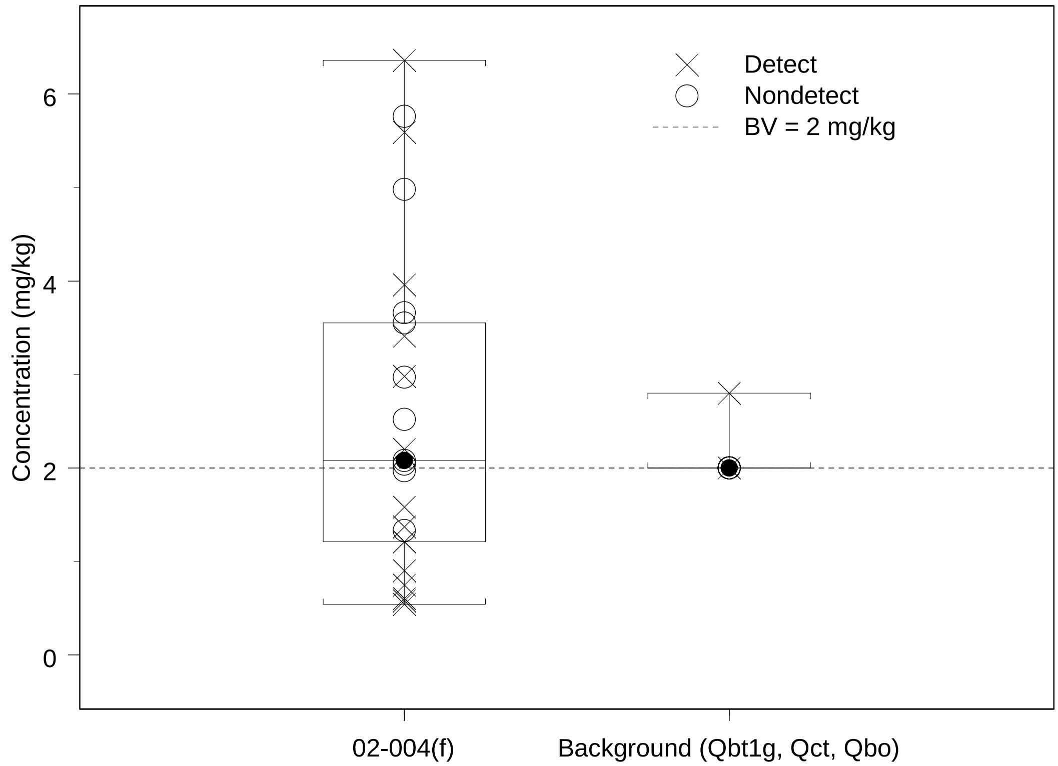

Figure G-8.0-5 Box plot of nickel in Qbo tuff at AOC 02-004(f)

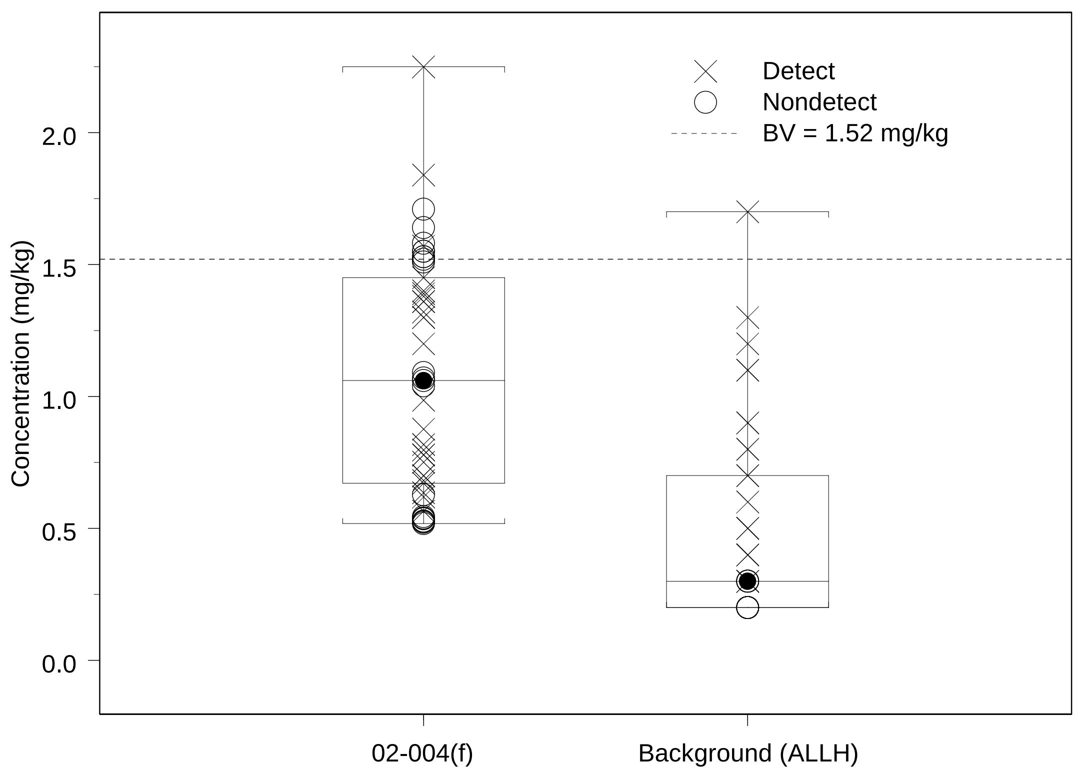

Figure G-8.0-6 Box plot of selenium in soil at AOC 02-004(f)

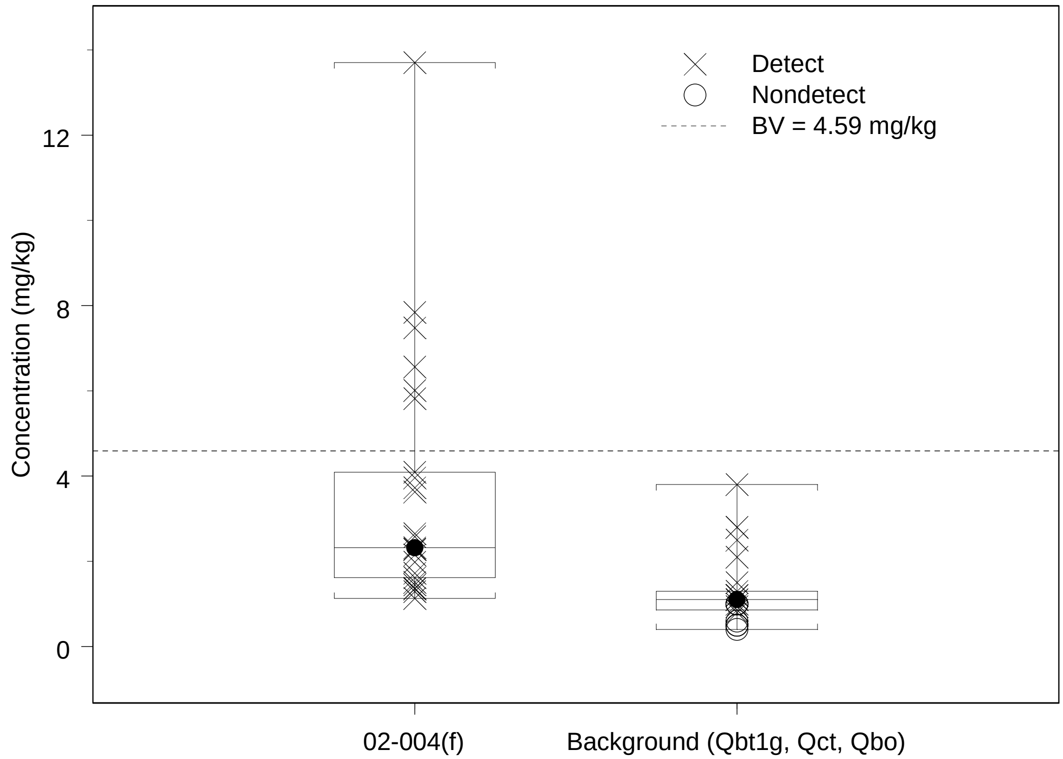

Figure G-8.0-7 Box plot of vanadium in Qbo tuff at AOC 02-004(f)

G-9.0 BOX PLOTS FOR AOC 02-004(g)

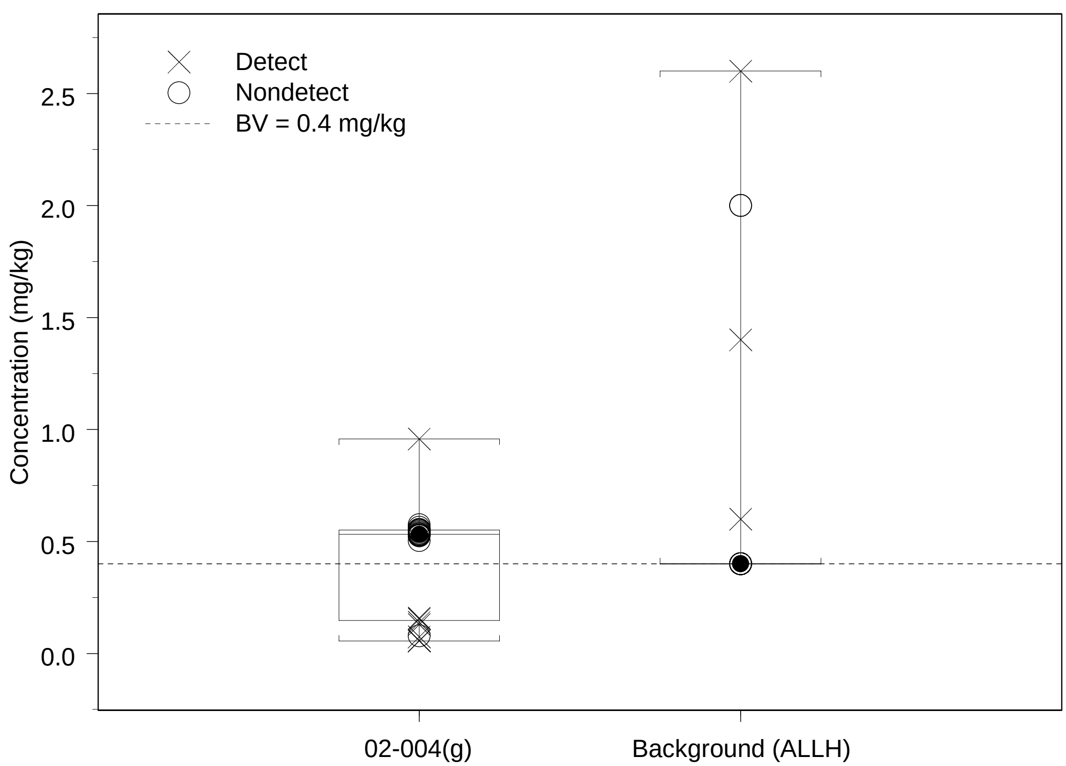

Figure G-9.0-1 Box plot of cadmium in soil at AOC 02-004(g)

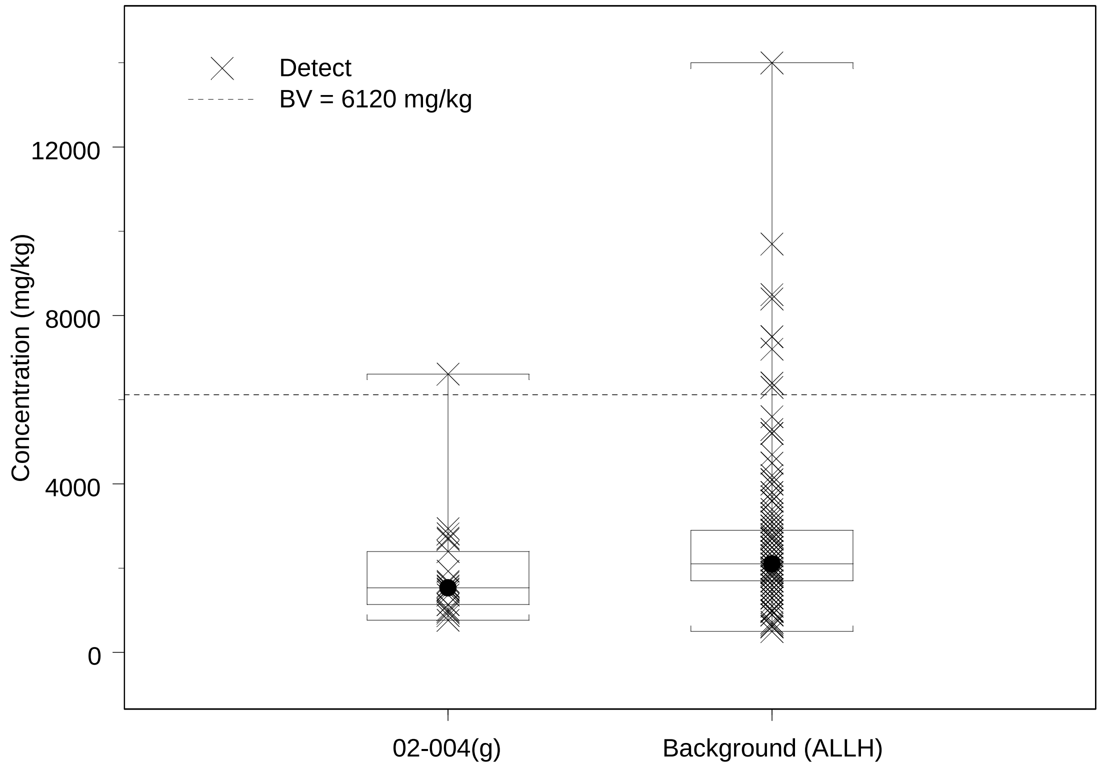

Figure G-9.0-2 Box plot of calcium in soil at AOC 02-004(g)

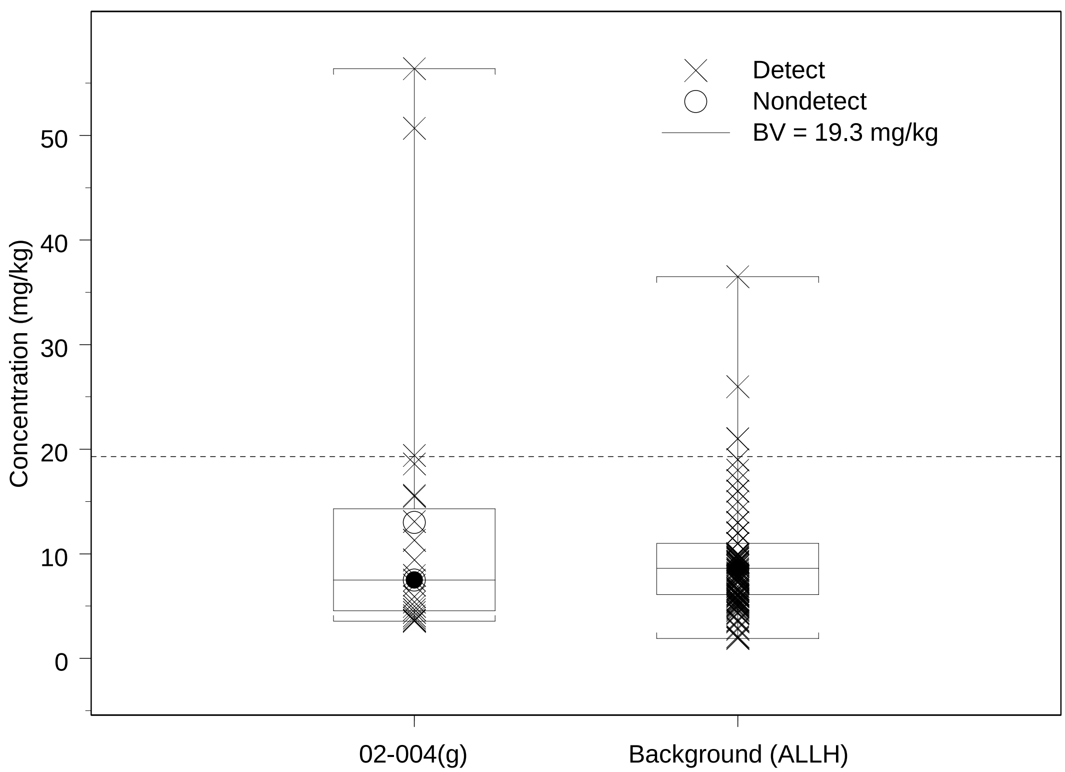

Figure G-9.0-3 Box plot of chromium in soil at AOC 02-004(g)

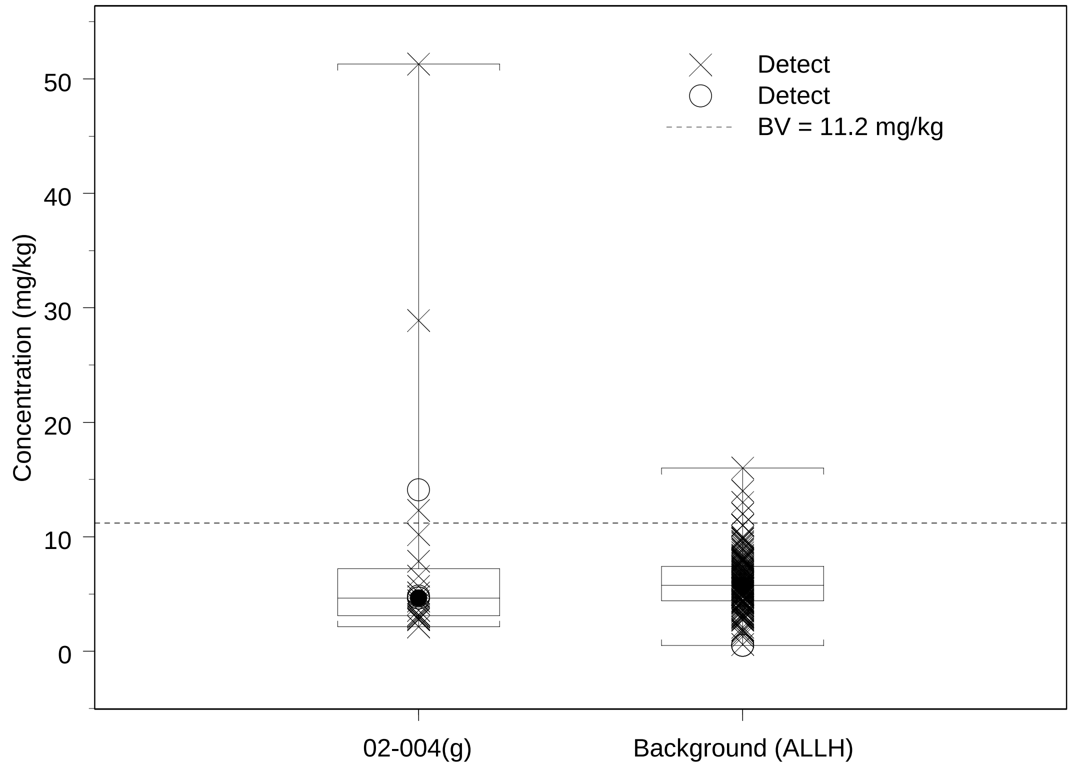

Figure G-9.0-4 Box plot of copper in soil at AOC 02-004(g)

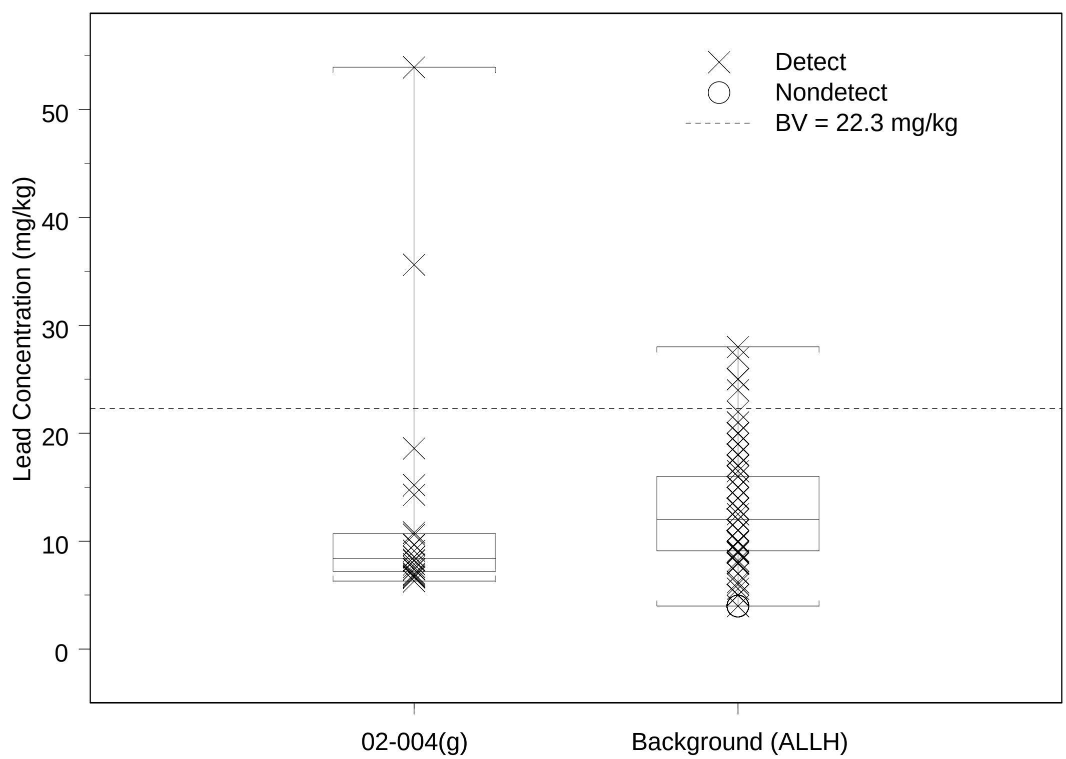

Figure G-9.0-5 Box plot of lead in soil at AOC 02-004(g)

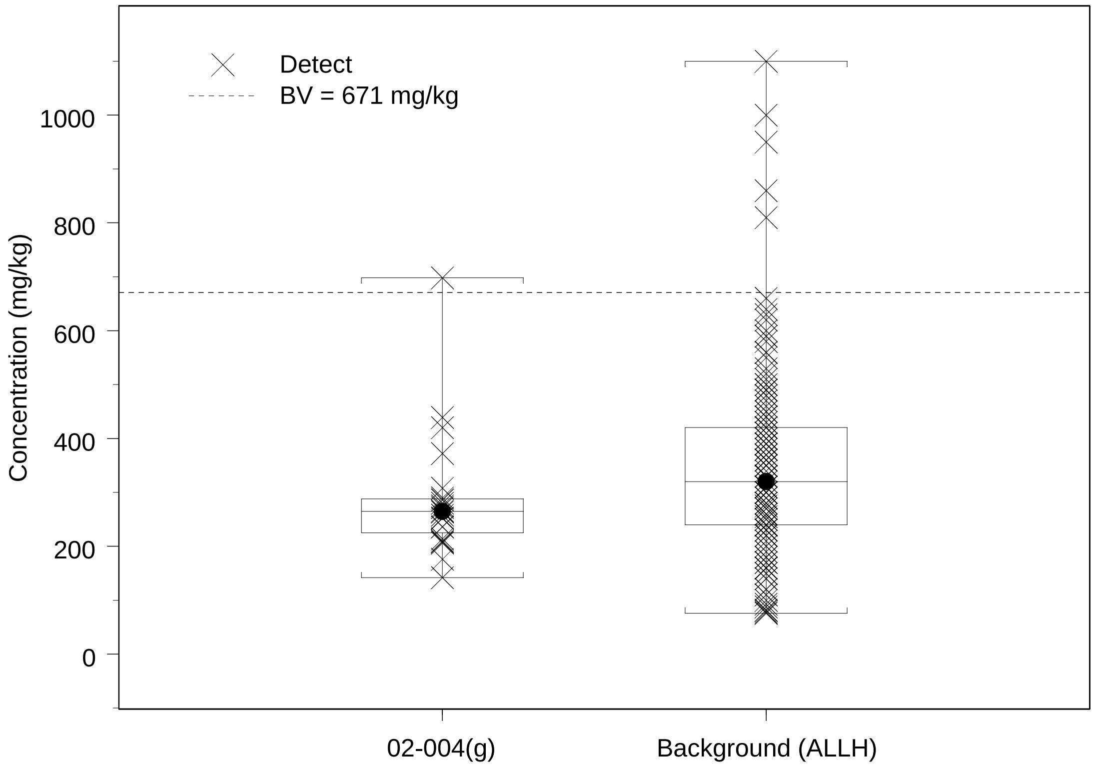

Figure G-9.0-6 Box plot of manganese in soil at AOC 02-004(g)

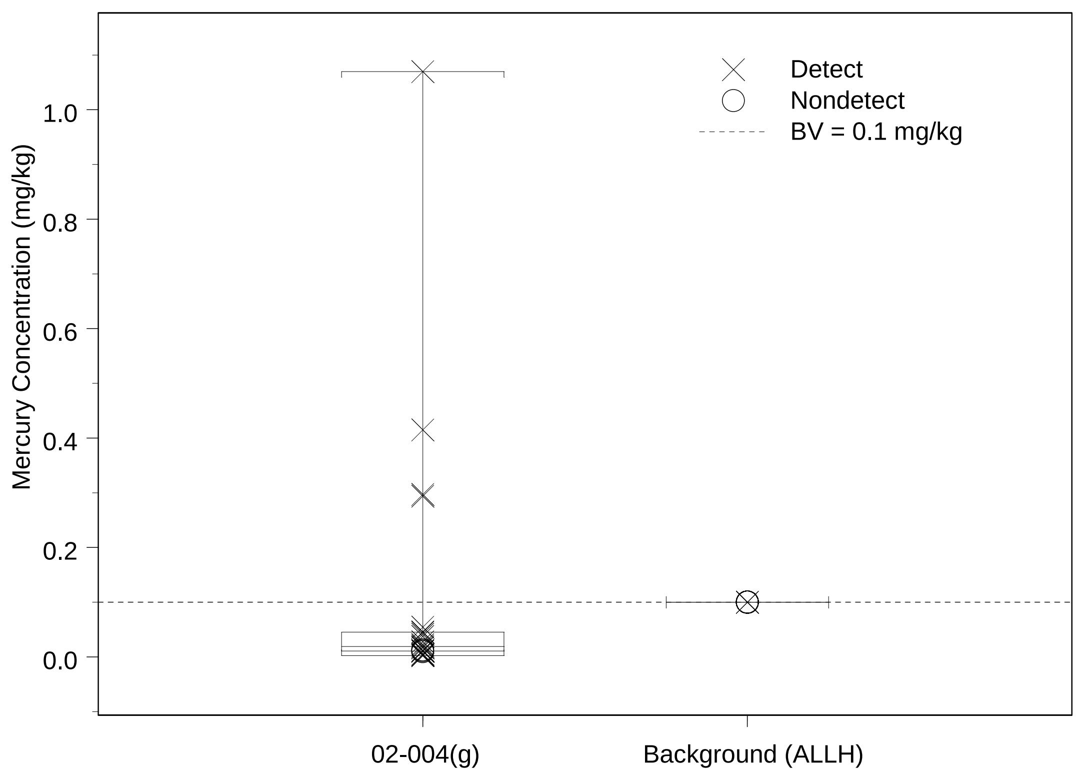

Figure G-9.0-7 Box plot of mercury in soil at AOC 02-004(g)

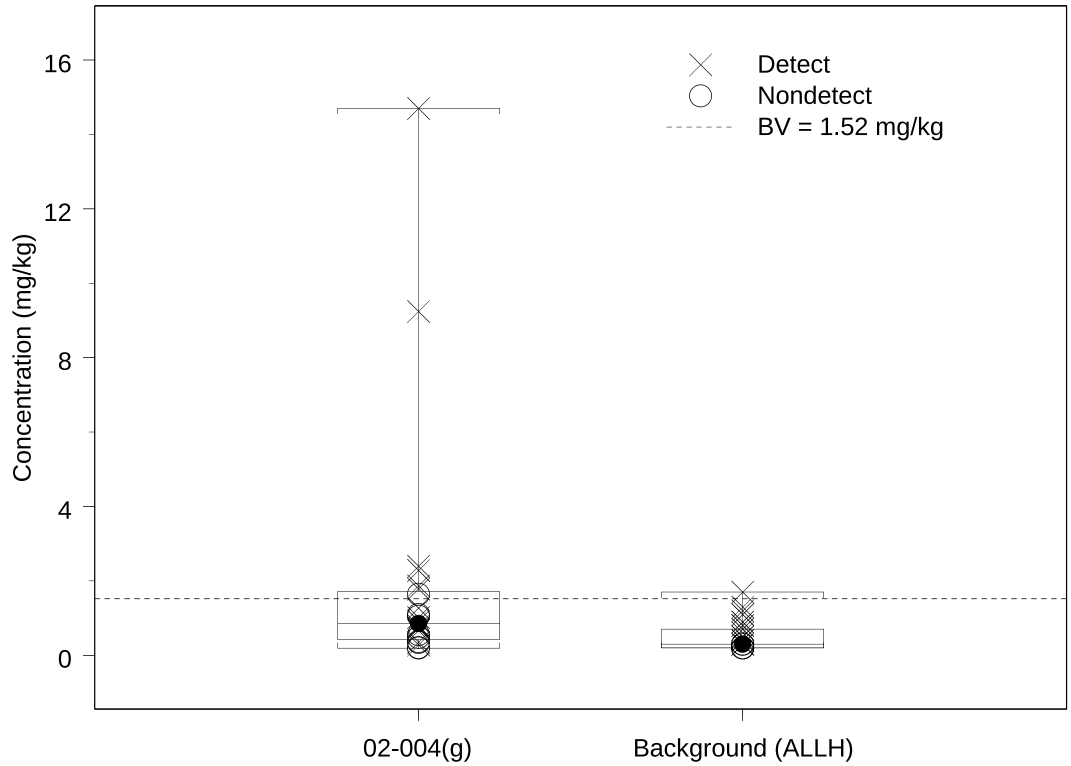

Figure G-9.0-8 Box plot of selenium in soil at AOC 02-004(g)

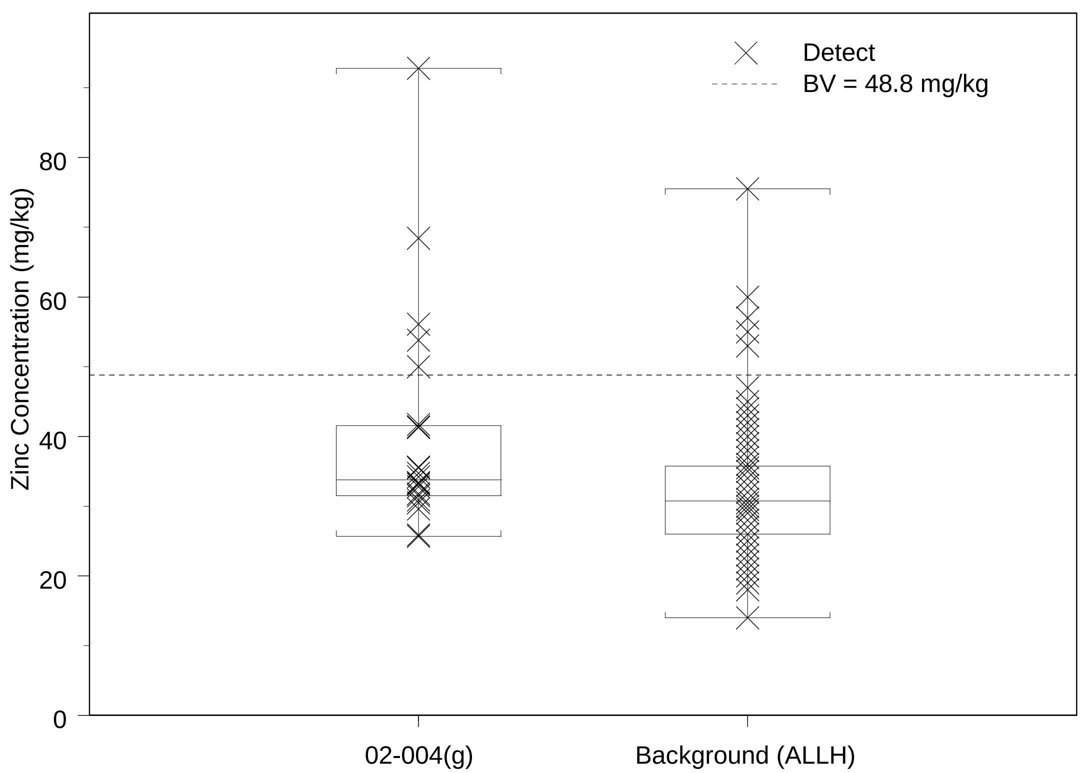

Figure G-9.0-9 Box plot of zinc in soil at AOC 02-004(g)

G-10.0 BOX PLOTS FOR SWMU 02-005

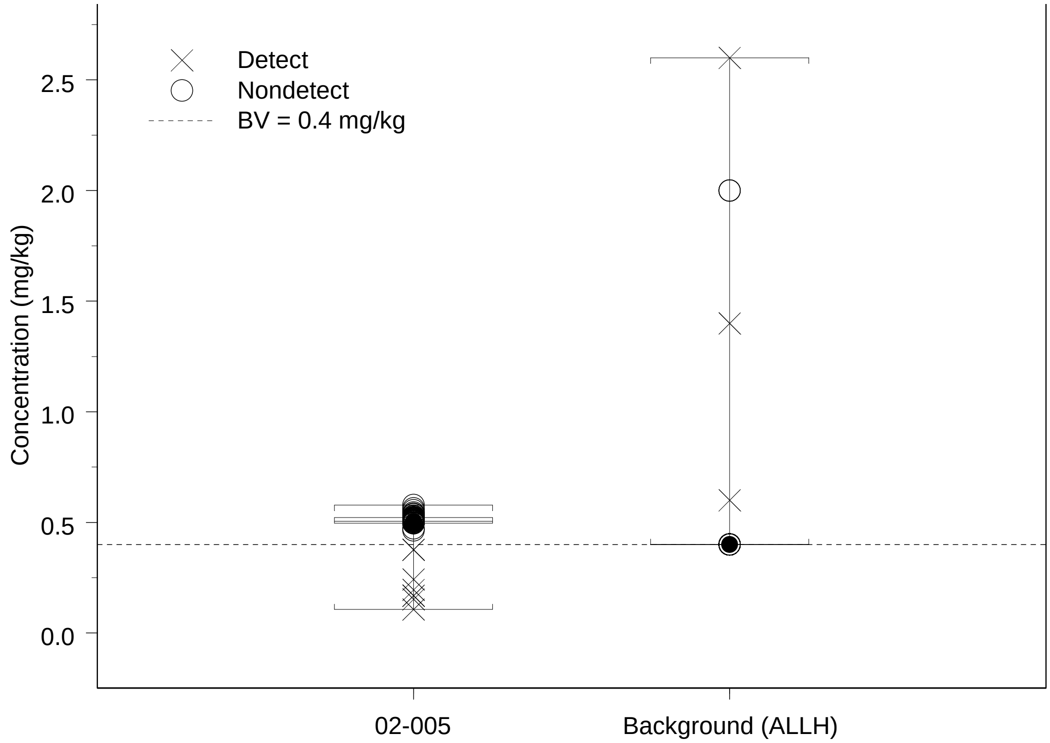

Figure G-10.0-1 Box plot of cadmium in soil at SWMU 02-005

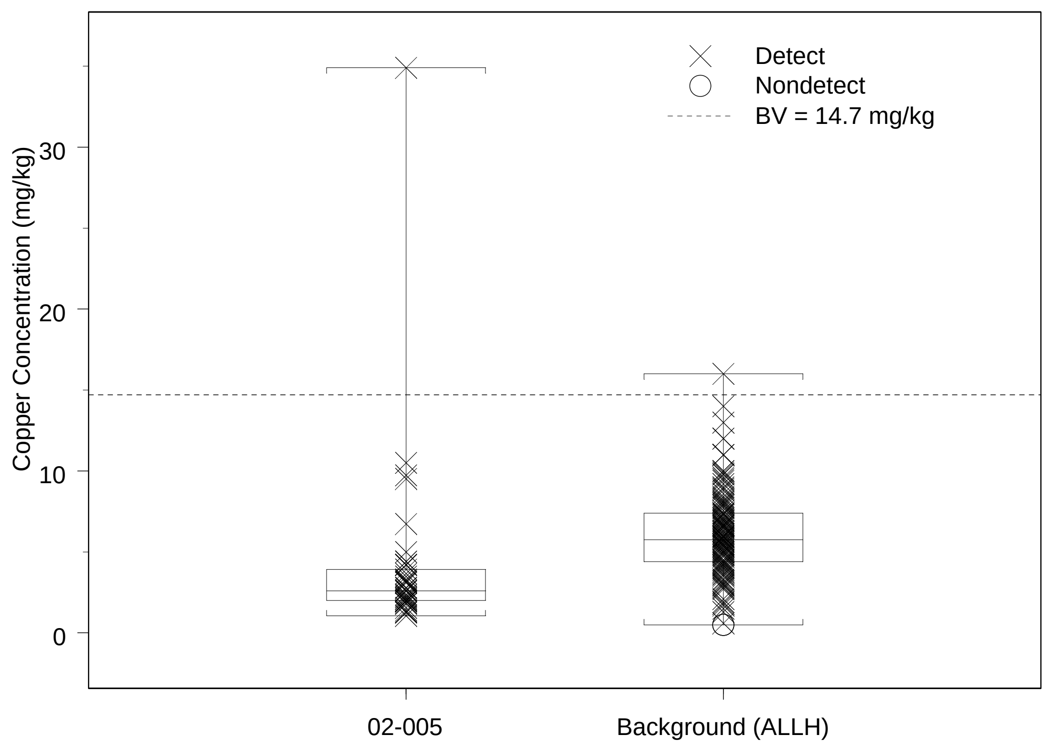

Figure G-10.0-2 Box plot of copper in soil at SWMU 02-005

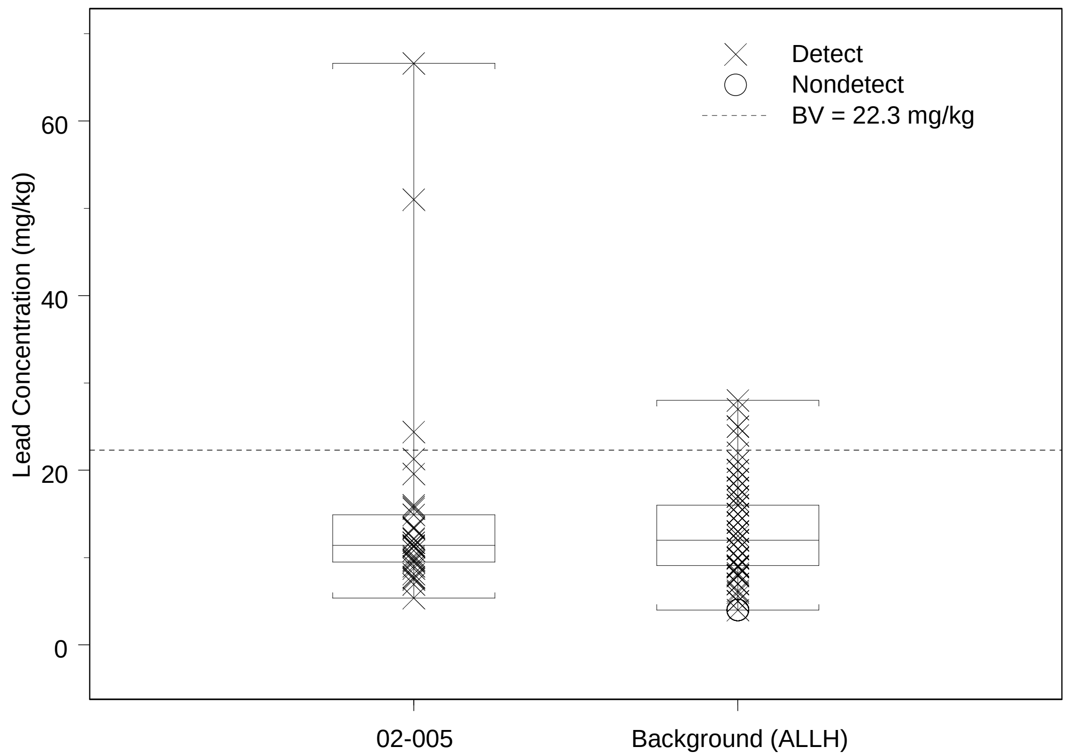

Figure G-10.0-3 Box plot of lead in soil at SWMU 02-005

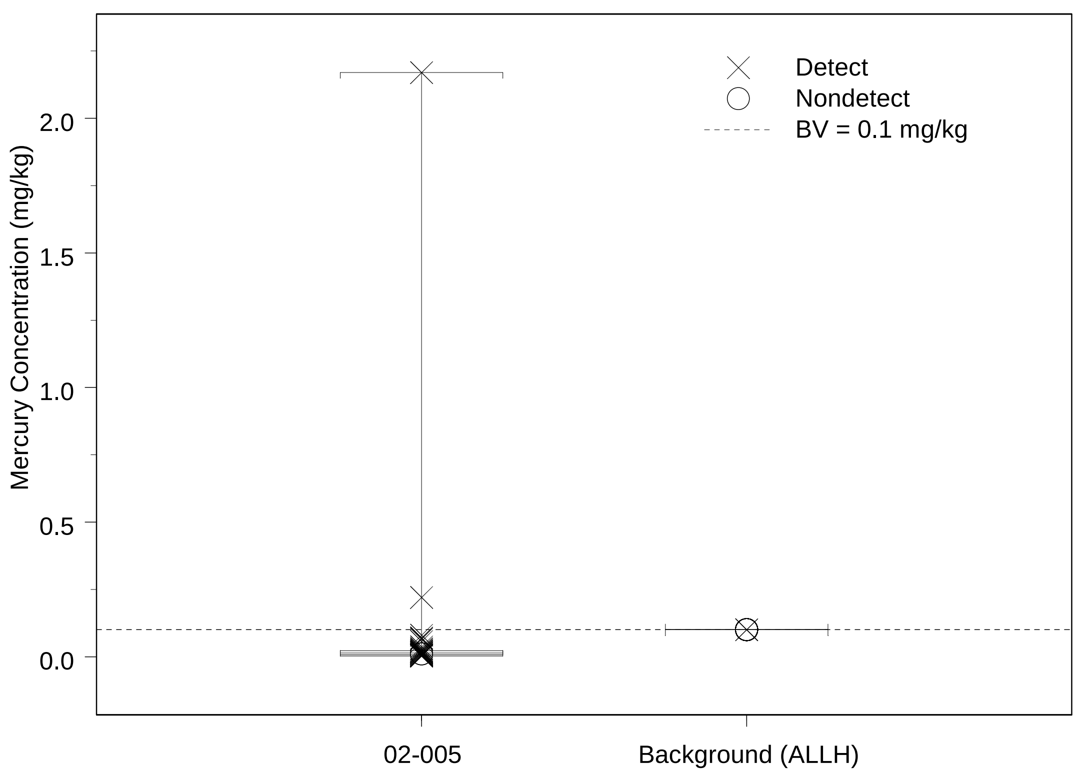

Figure G-10.0-4 Box plot of mercury in soil at SWMU 02-005

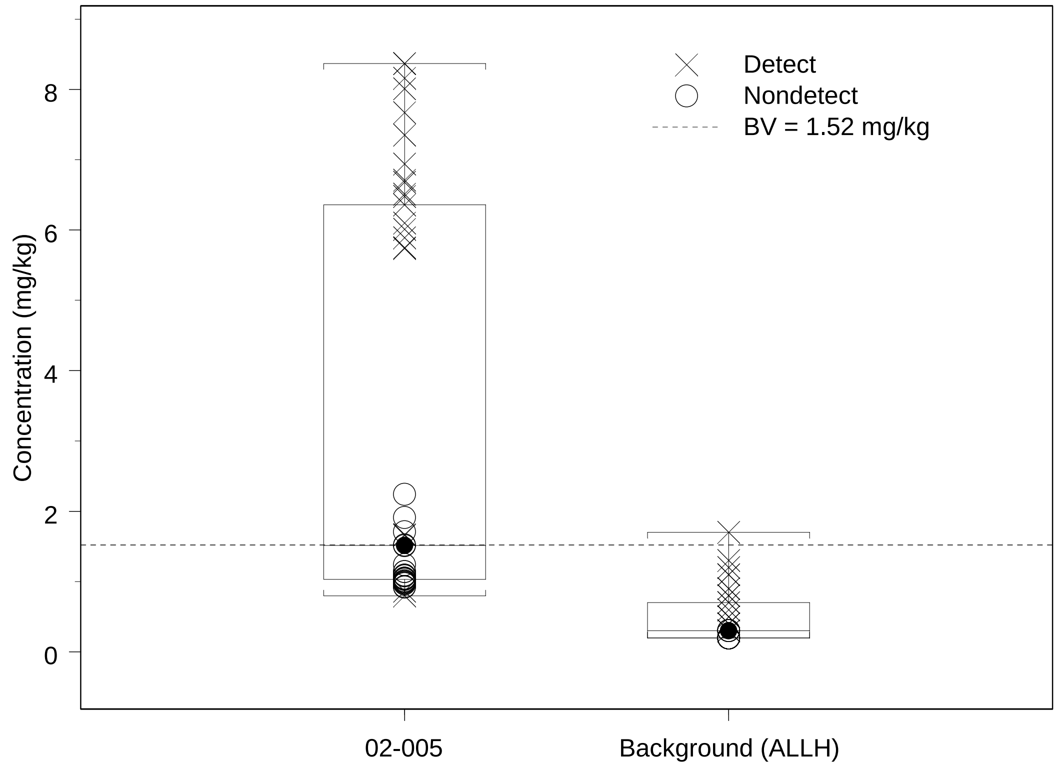

Figure G-10.0-5 Box plot of selenium in soil at SWMU 02-005

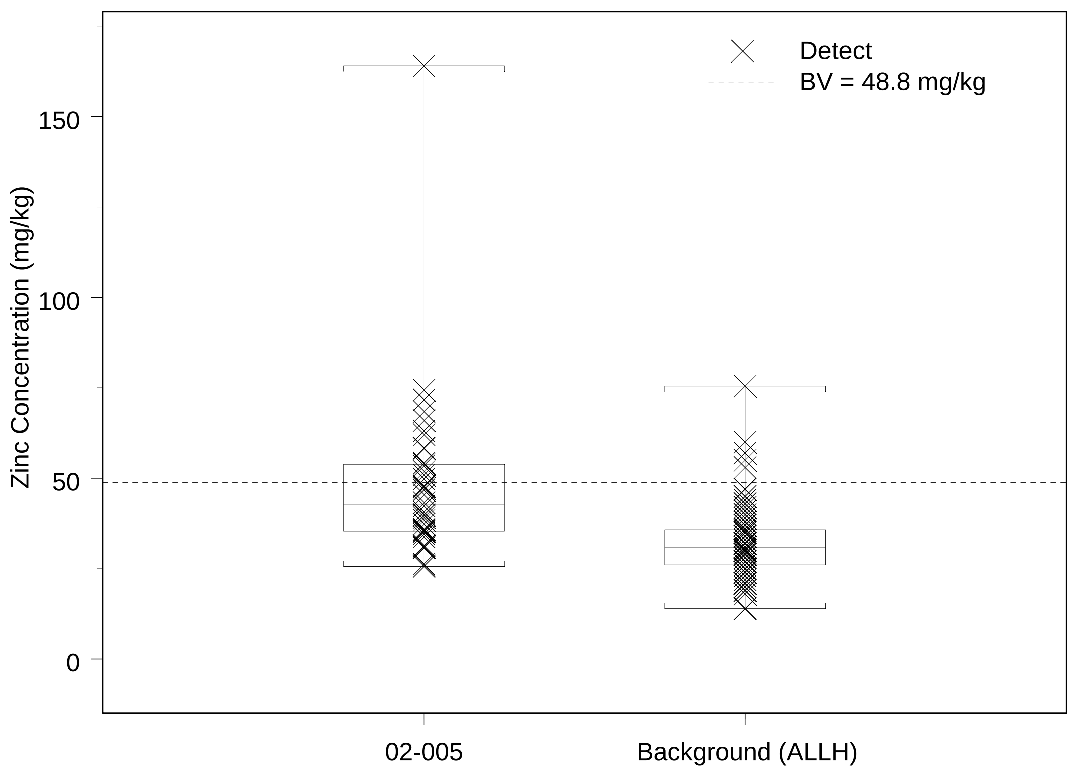

Figure G-10.0-6 Box plot of zinc in soil at SWMU 02-005

G-11.0 BOX PLOTS FOR SWMU 02-006(a)

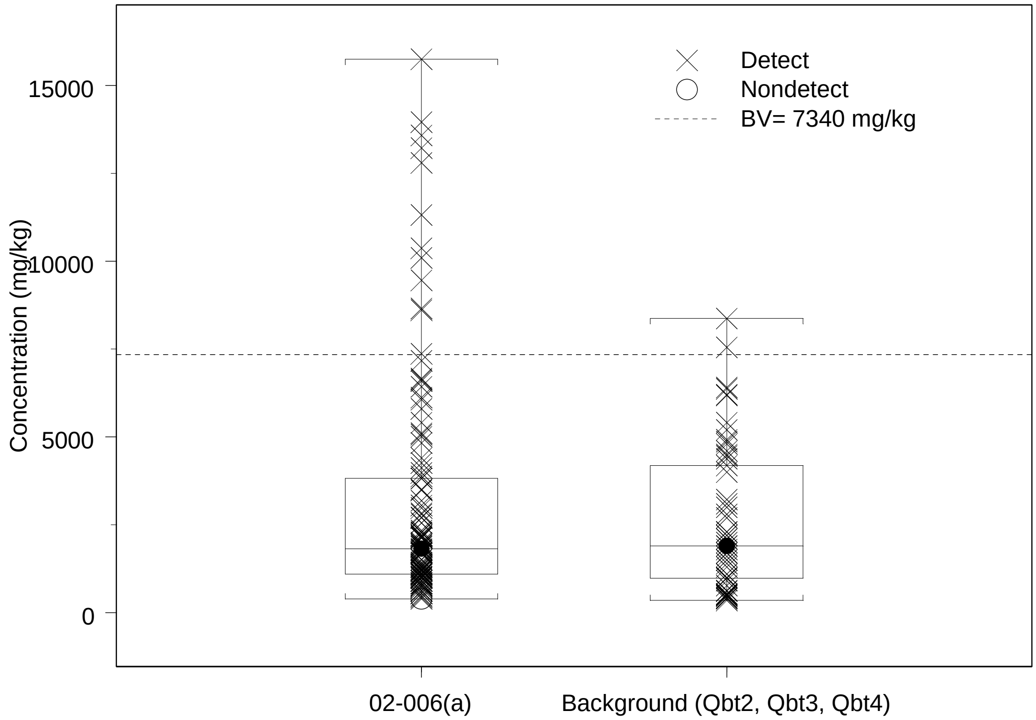

Figure G-11.0-1 Box plot of aluminum in Qbt 3 tuff at SWMU 02-006(a)

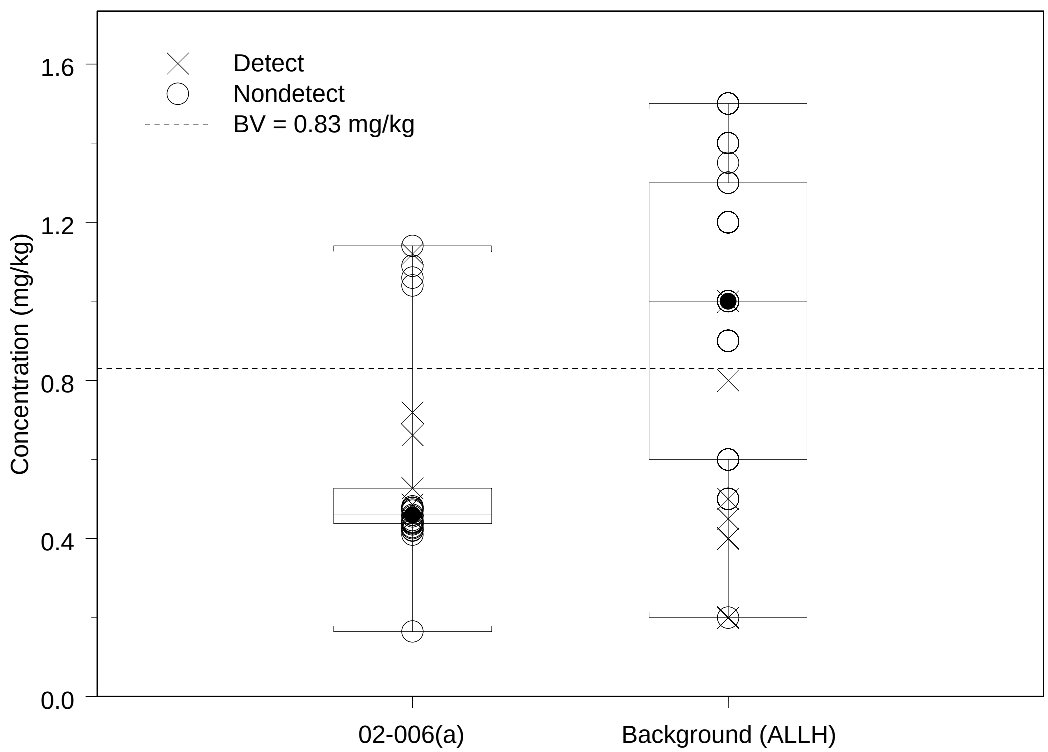

Figure G-11.0-2 Box plot of antimony in soil at SWMU 02-006(a)

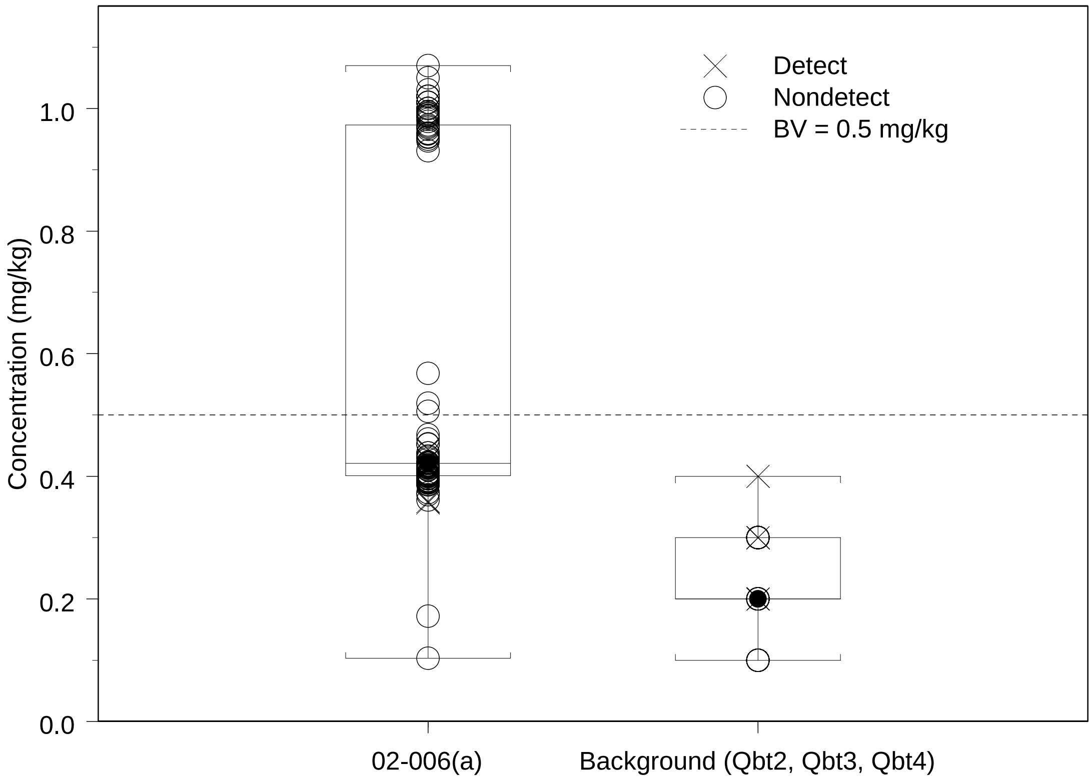

Figure G-11.0-3 Box plot of antimony in Qbt 3 tuff at SWMU 02-006(a)

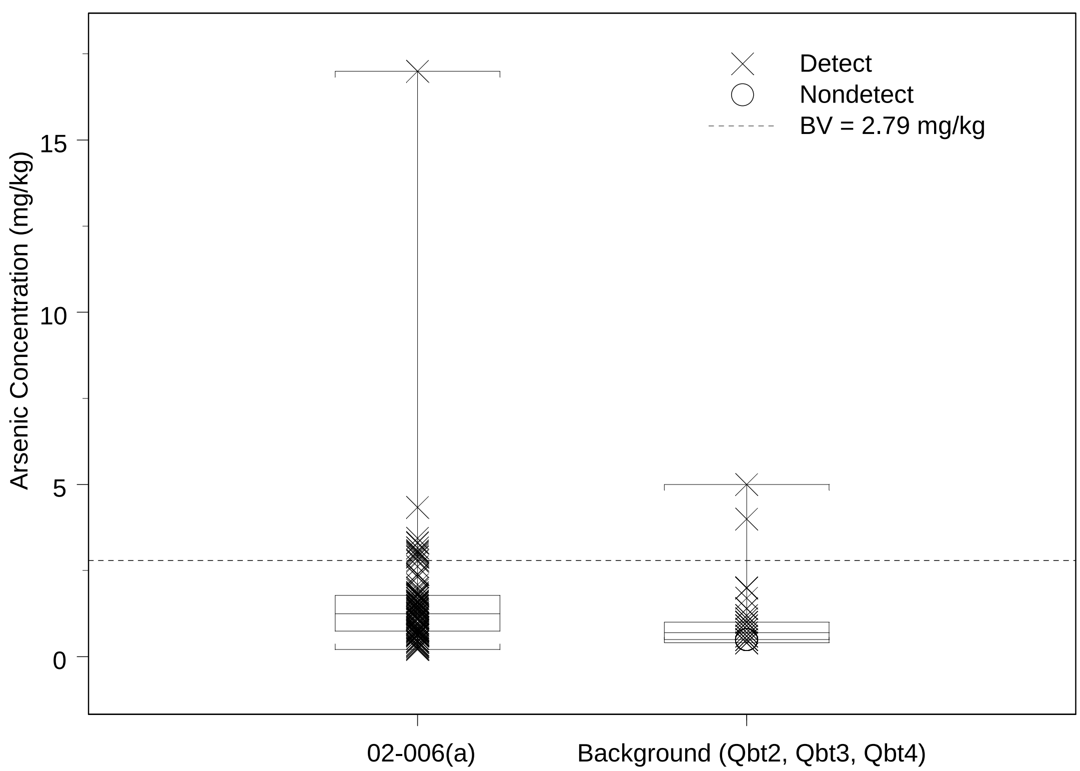

Figure G-11.0-4 Box plot of arsenic in Qbt 3 tuff at SWMU 02-006(a)

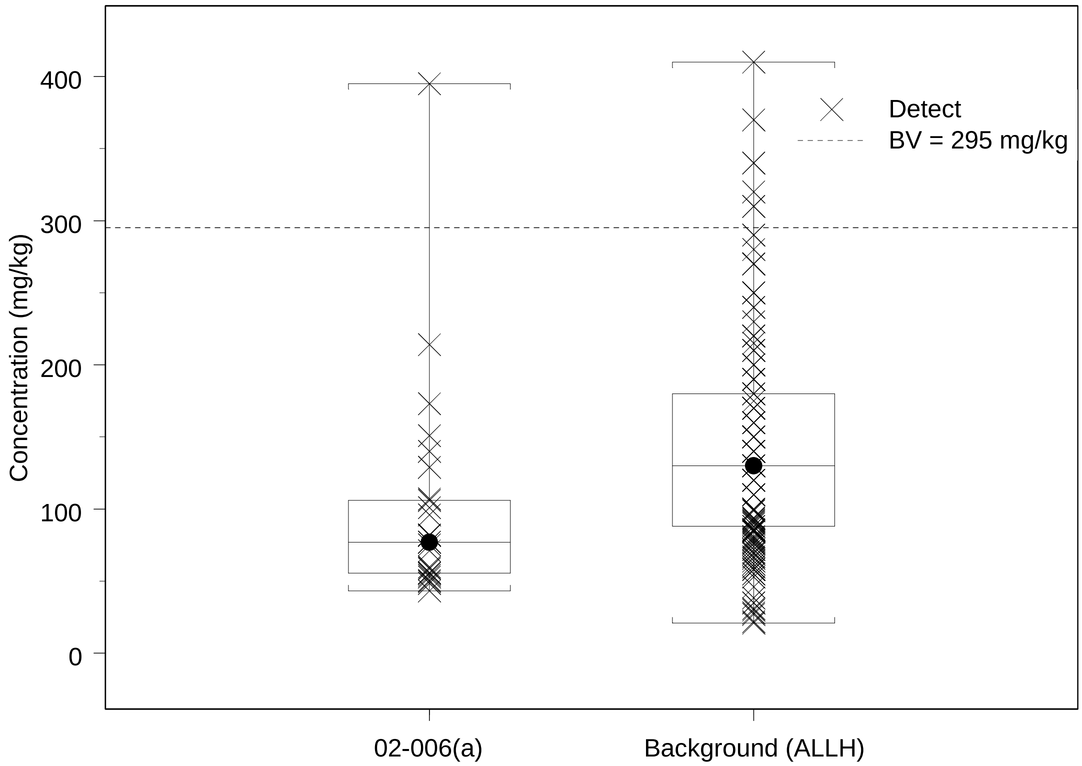

Figure G-11.0-5 Box plot of barium in soil at SWMU 02-006(a)

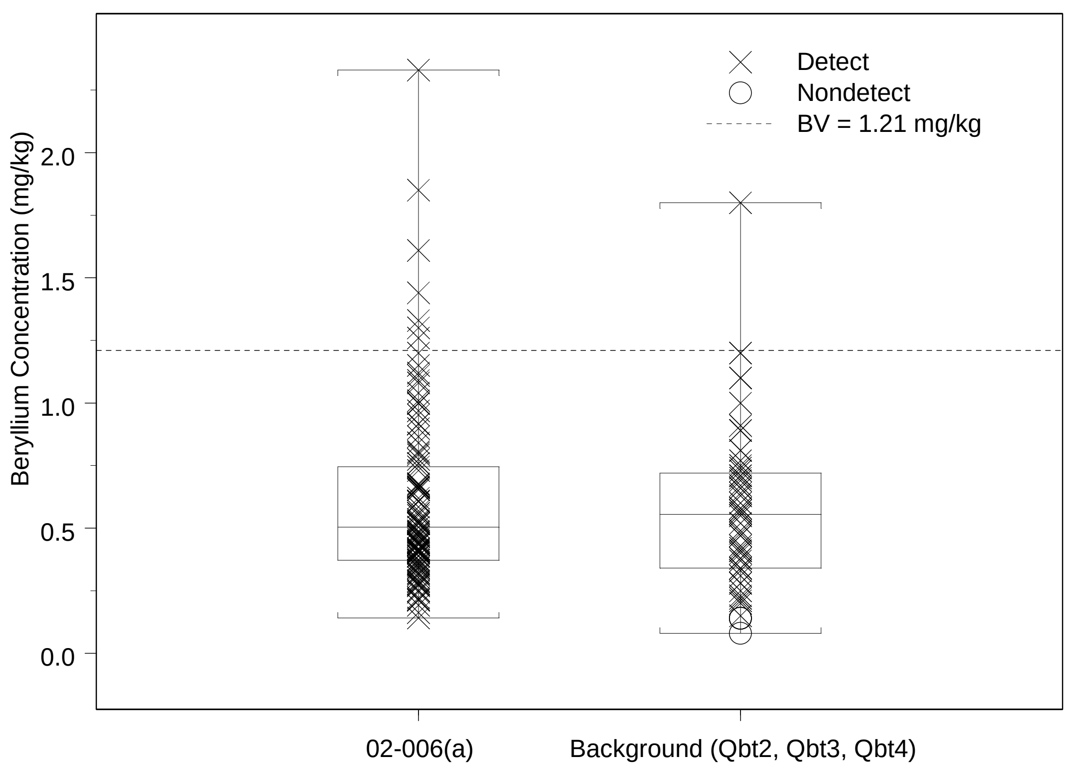

Figure G-11.0-6 Box plot of beryllium in Qbt 3 tuff at SWMU 02-006(a)

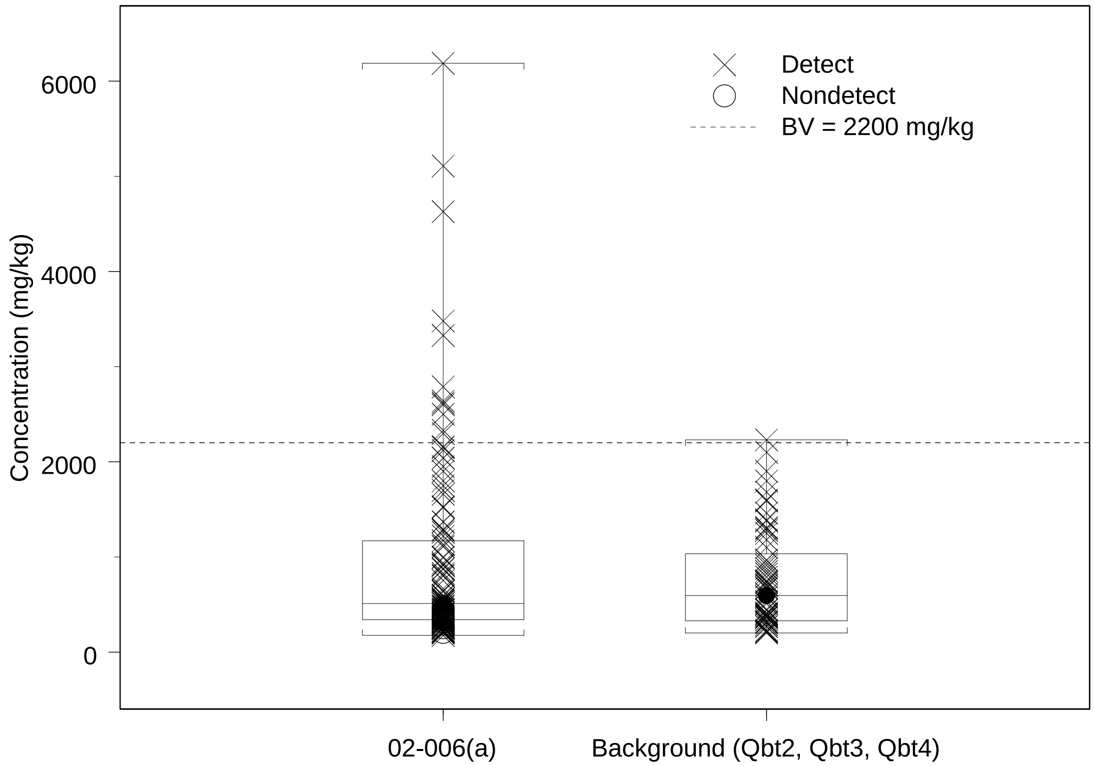

Figure G-11.0-7 Box plot of calcium in Qbt 3 tuff at SWMU 02-006(a)

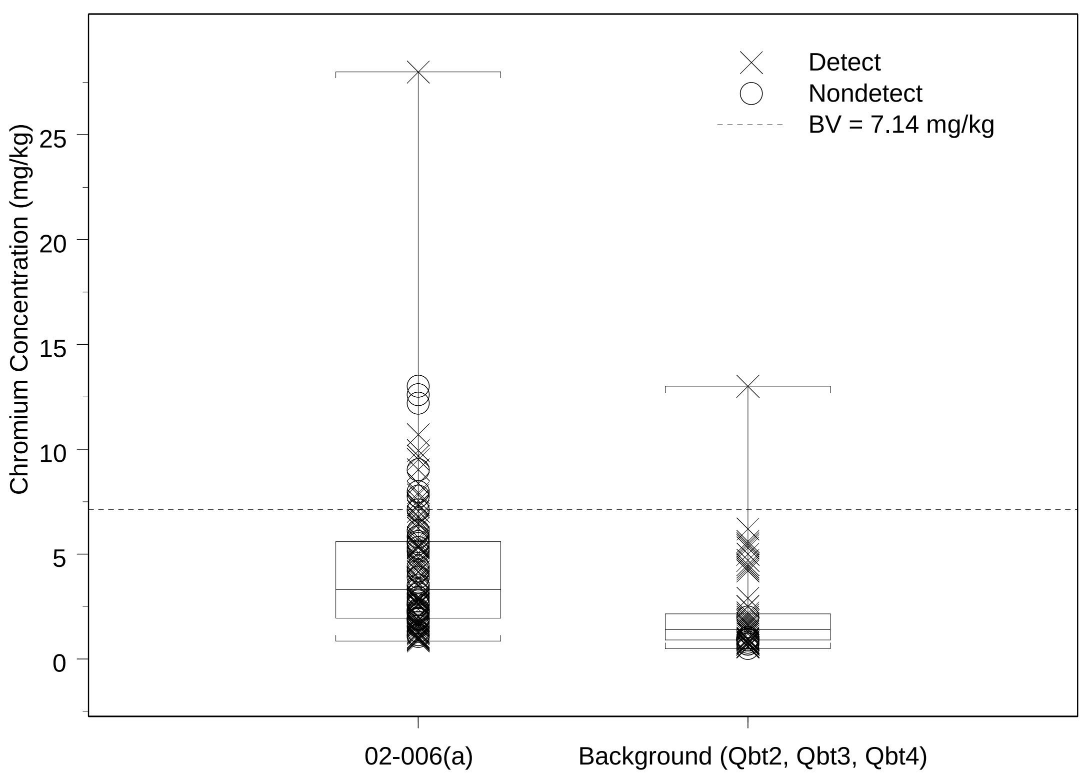

Figure G-11.0-8 Box plot of chromium in Qbt 3 tuff at SWMU 02-006(a)

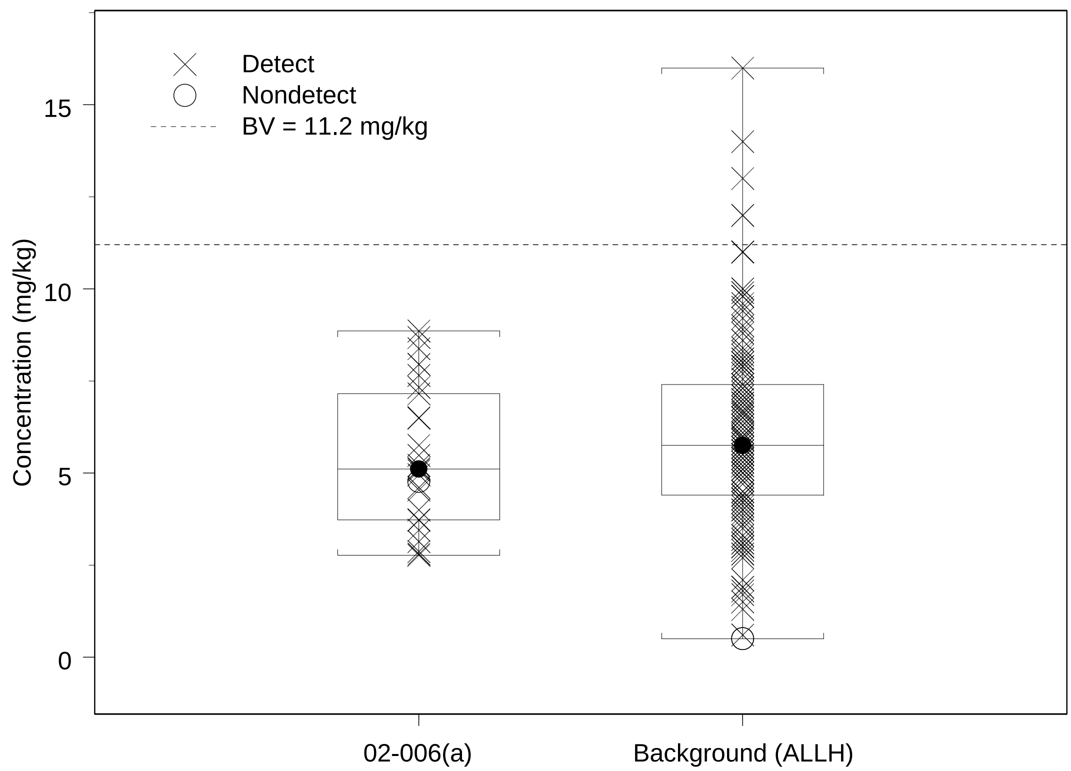

Figure G-11.0-9   Box plot of copper in soil at SWMU 02-006(a)

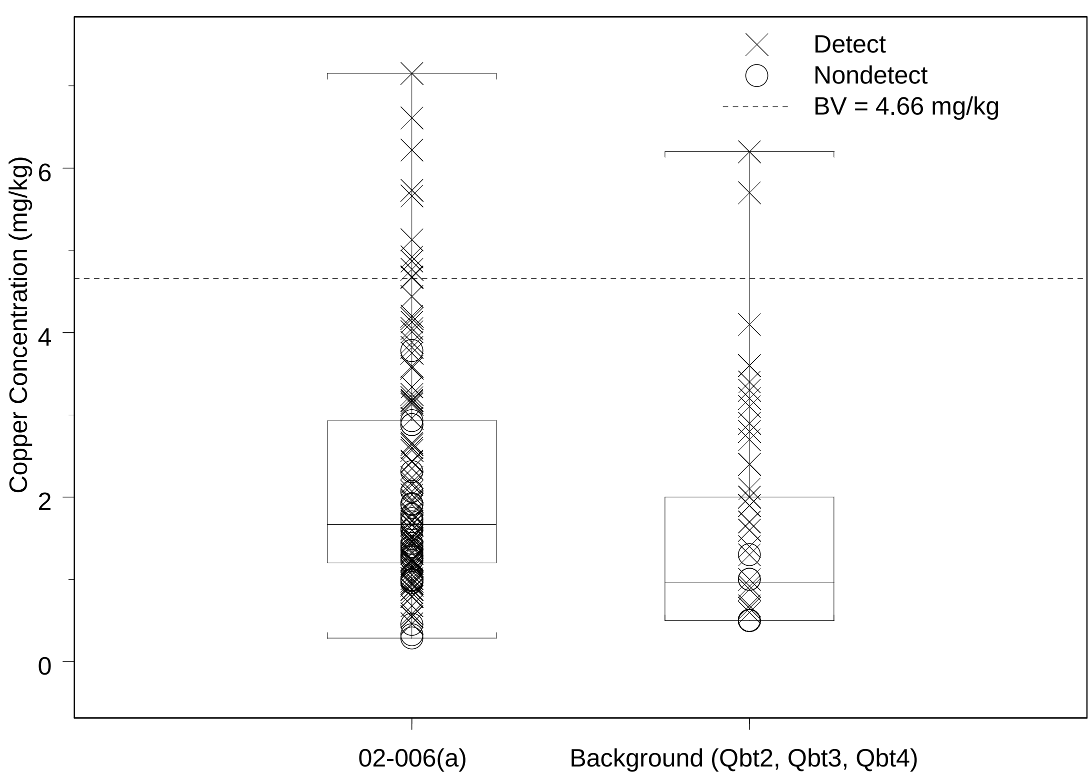

Figure G-11.0-10 Box plot of copper in Qbt 3 tuff at SWMU 02-006(a)

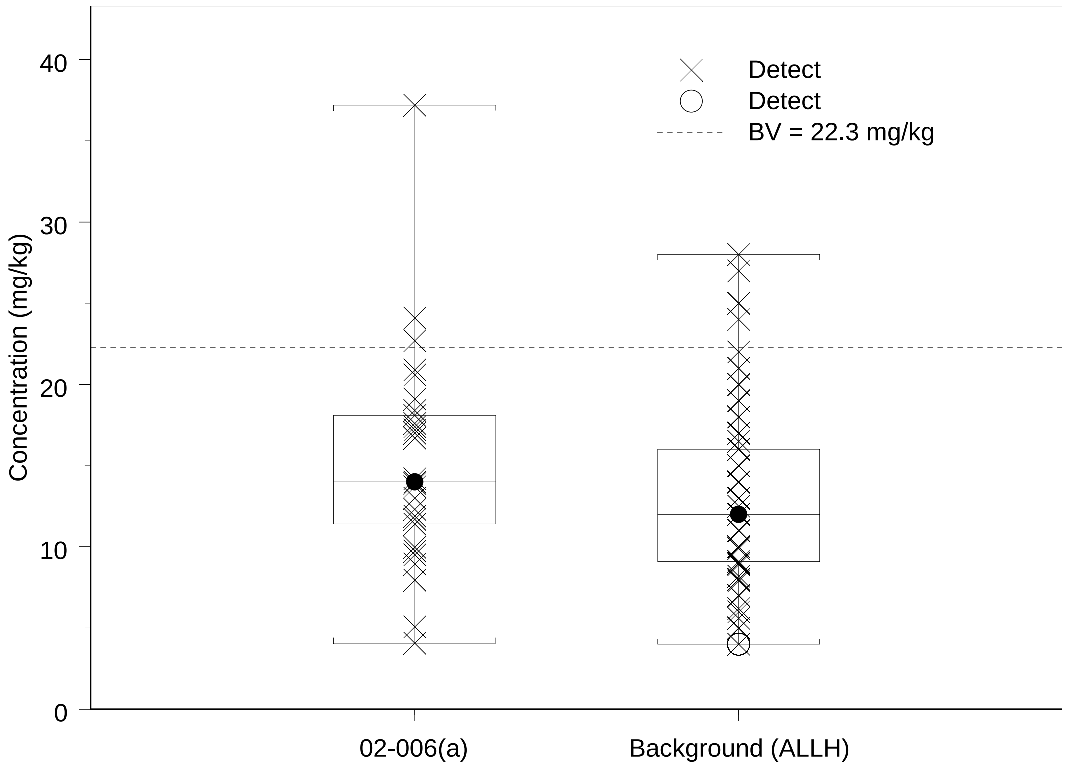

Figure G-11.0-11 Box plot of lead in soil at SWMU 02-006(a)

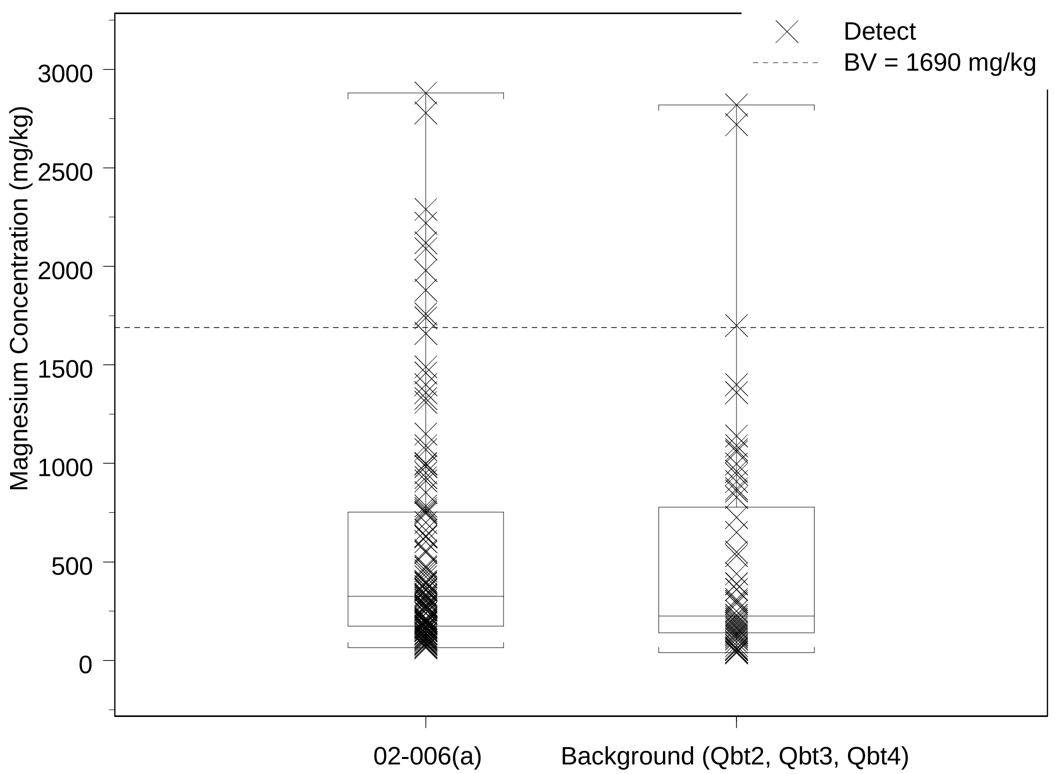

Figure G-11.0-12 Box plot of magnesium in Qbt 3 tuff at SWMU 02-006(a)

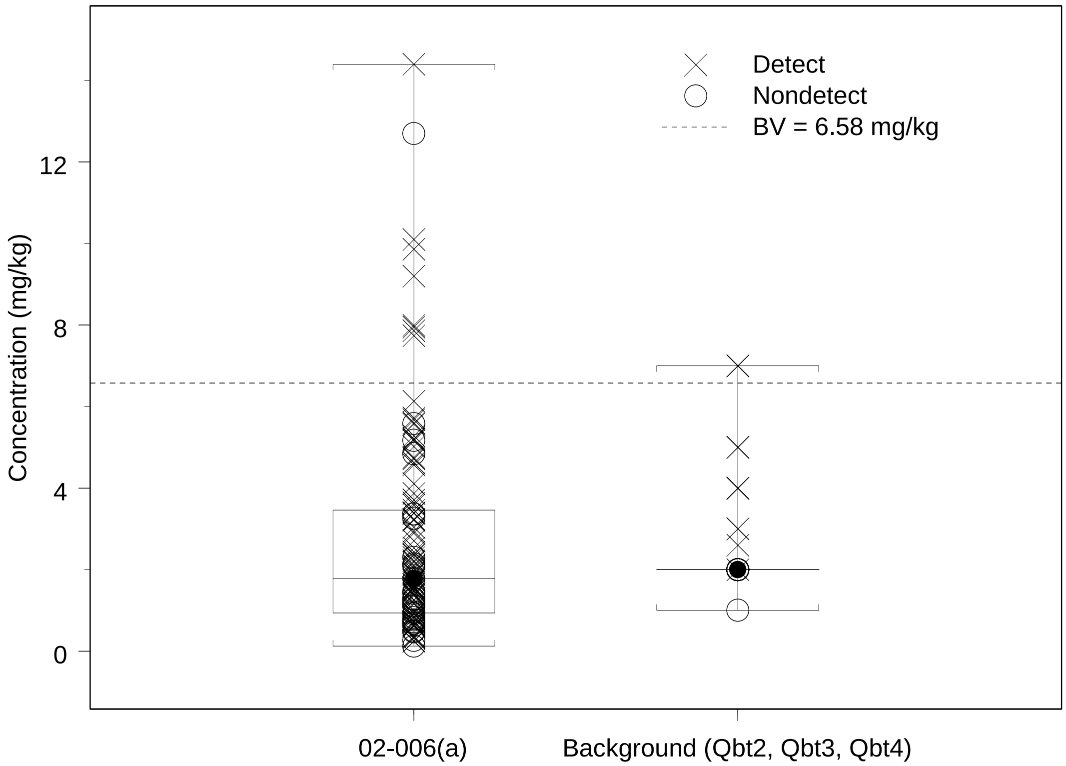

Figure G-11.0-13 Box plot of nickel in Qbt 3 tuff at SWMU 02-006(a)

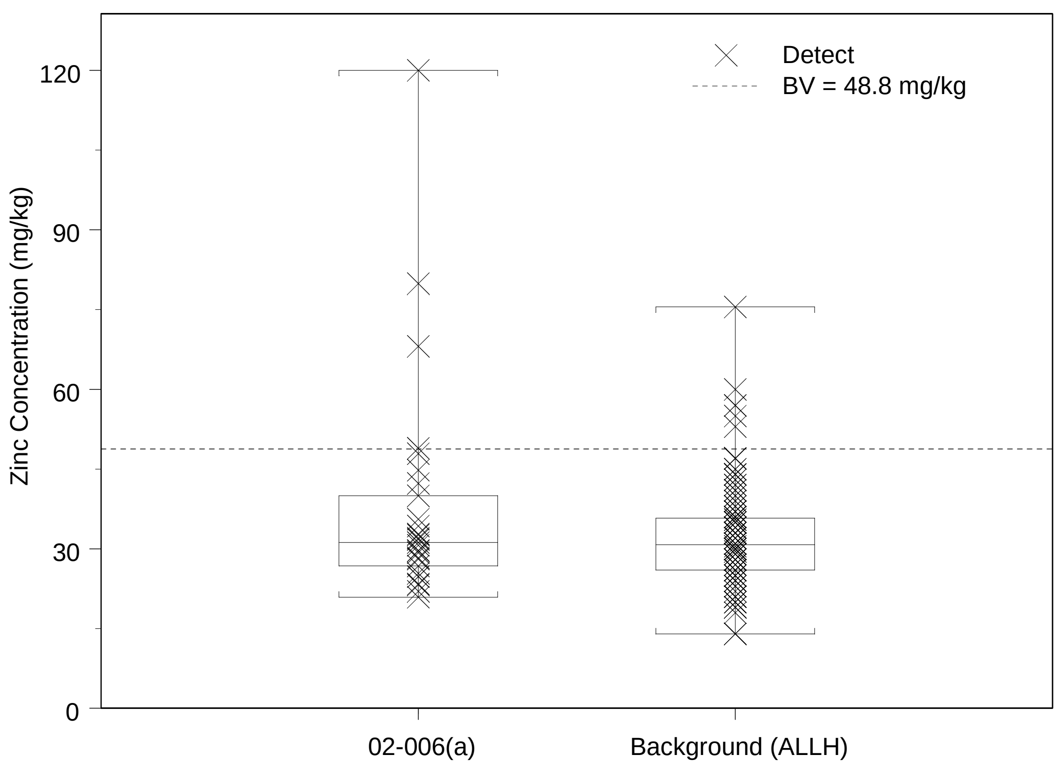

Figure G-11.0-14 Box plot of zinc in soil at SWMU 02-006(a)

G-12.0 BOX PLOTS FOR SWMU 02-006(b)

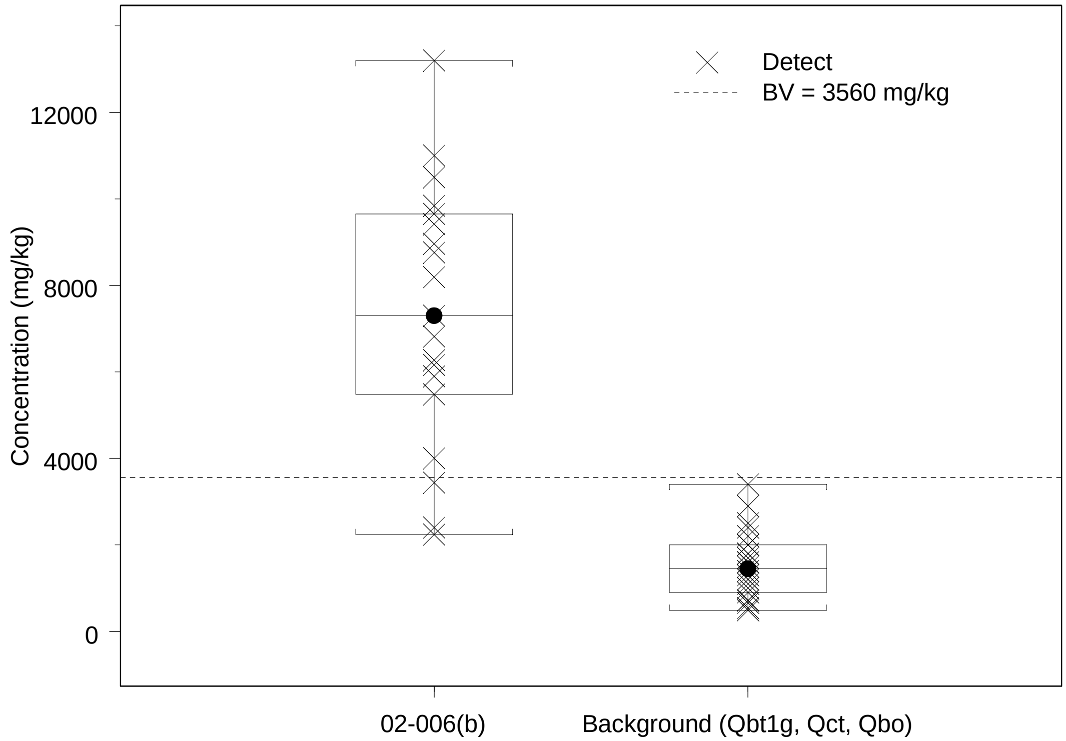

Figure G-12.0-1 Box plot of aluminum in Qbo tuff at SWMU 02-006(b)

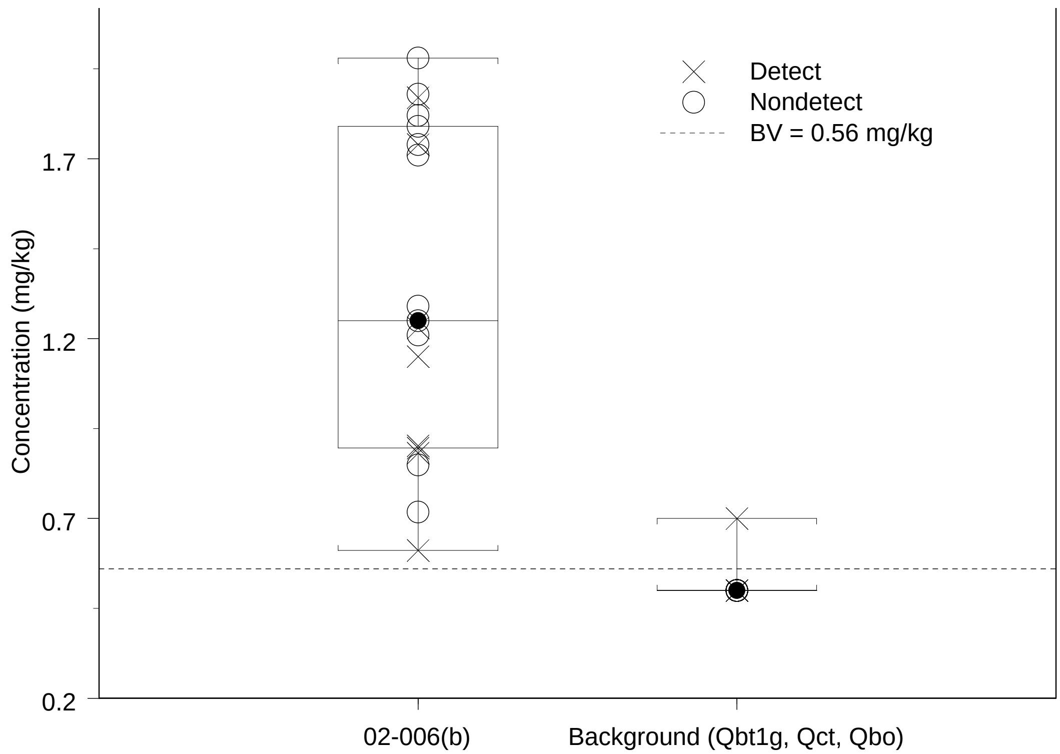

Figure G-12.0-2 Box plot of arsenic in Qbo tuff at SWMU 02-006(b)

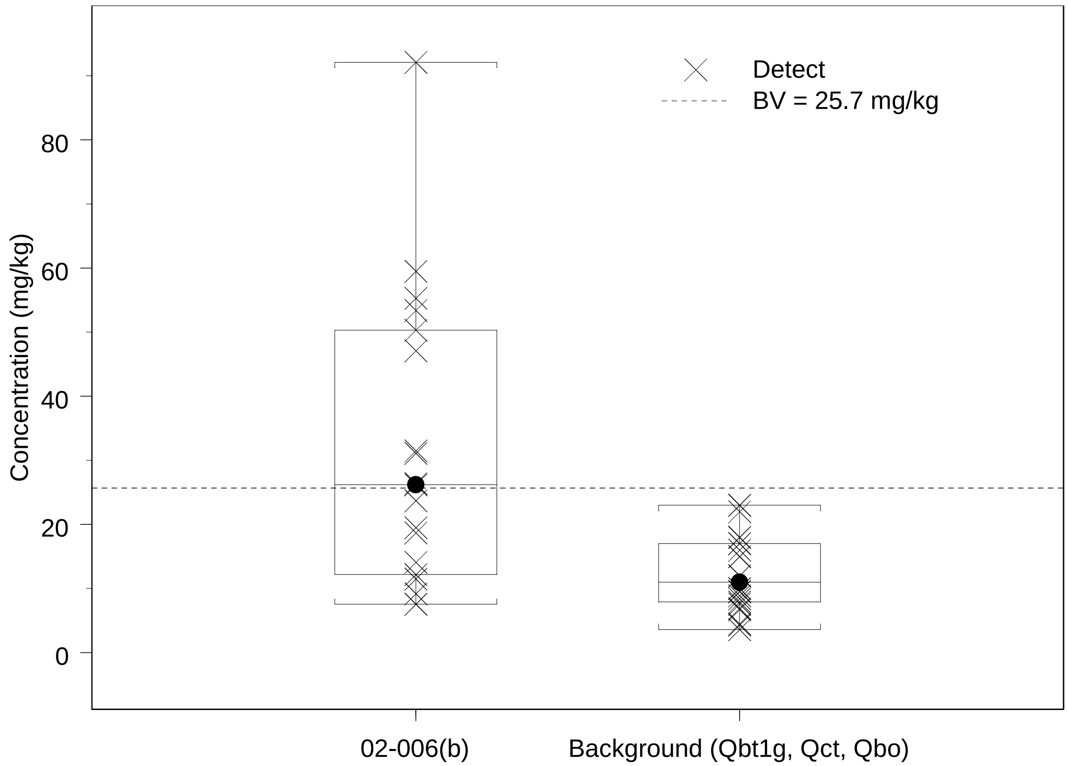

Figure G-12.0-3 Box plot of barium in Qbo tuff at SWMU 02-006(b)

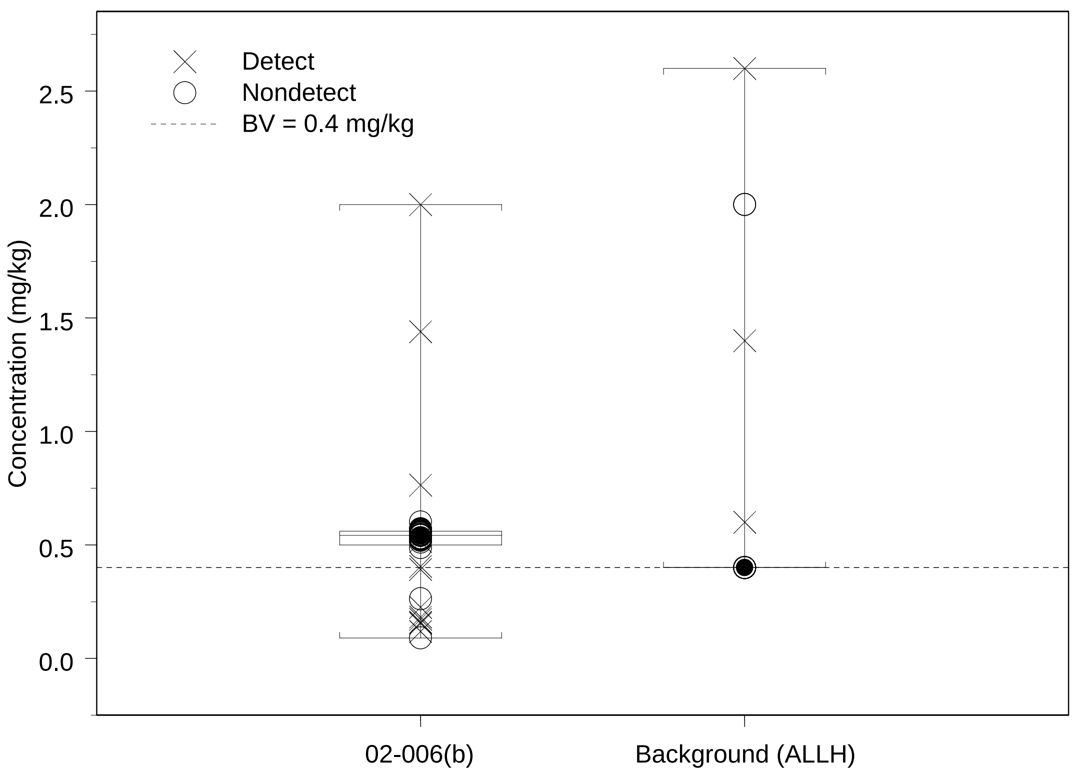

Figure G-12.0-4 Box plot of cadmium in soil at SWMU 02-006(b)

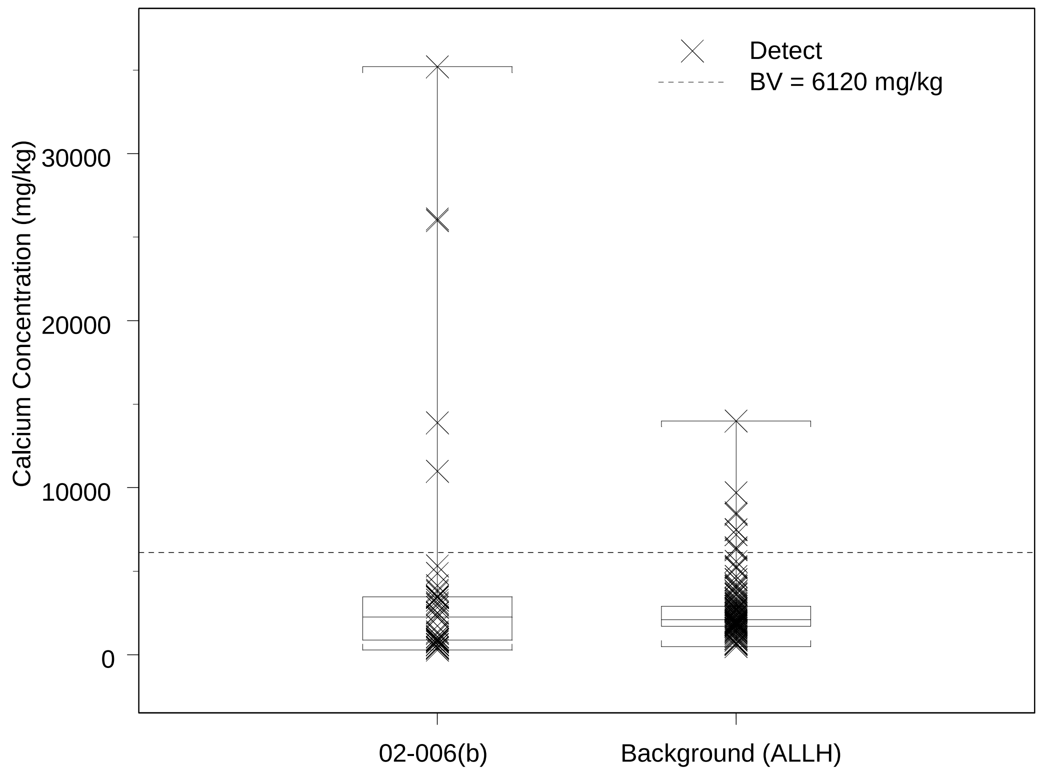

Figure G-12.0-5 Box plot of calcium in soil at SWMU 02-006(b)

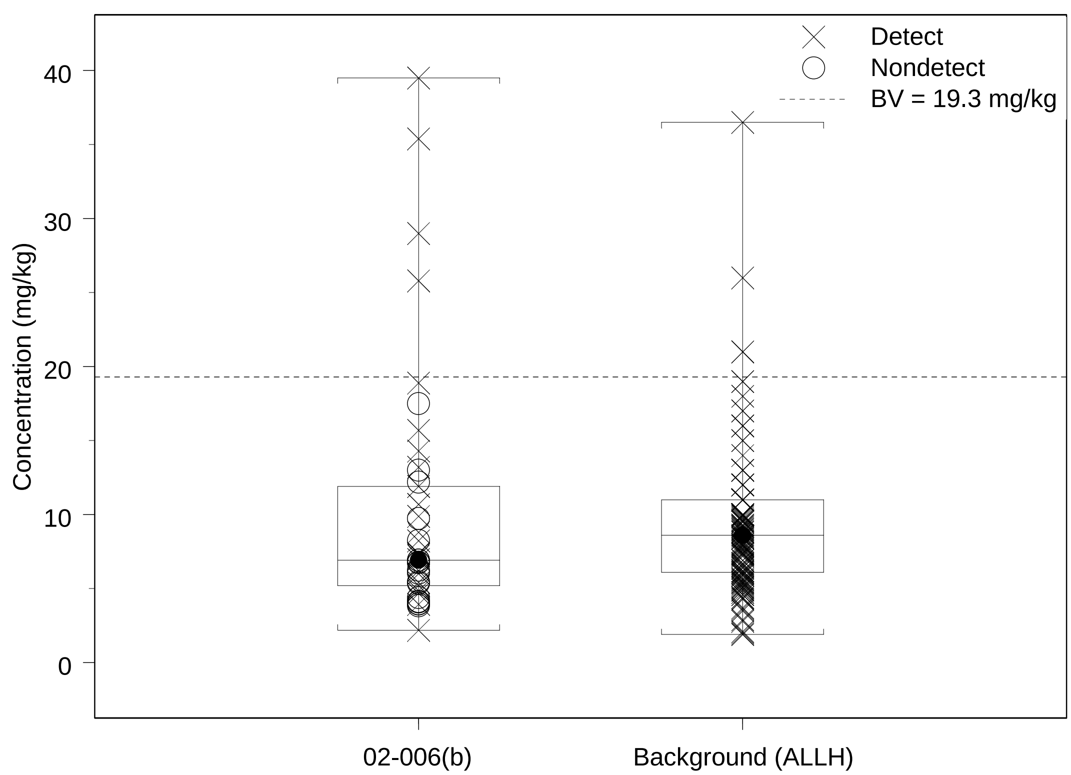

Figure G-12.0-6 Box plot of chromium in soil at SWMU 02-006(b)

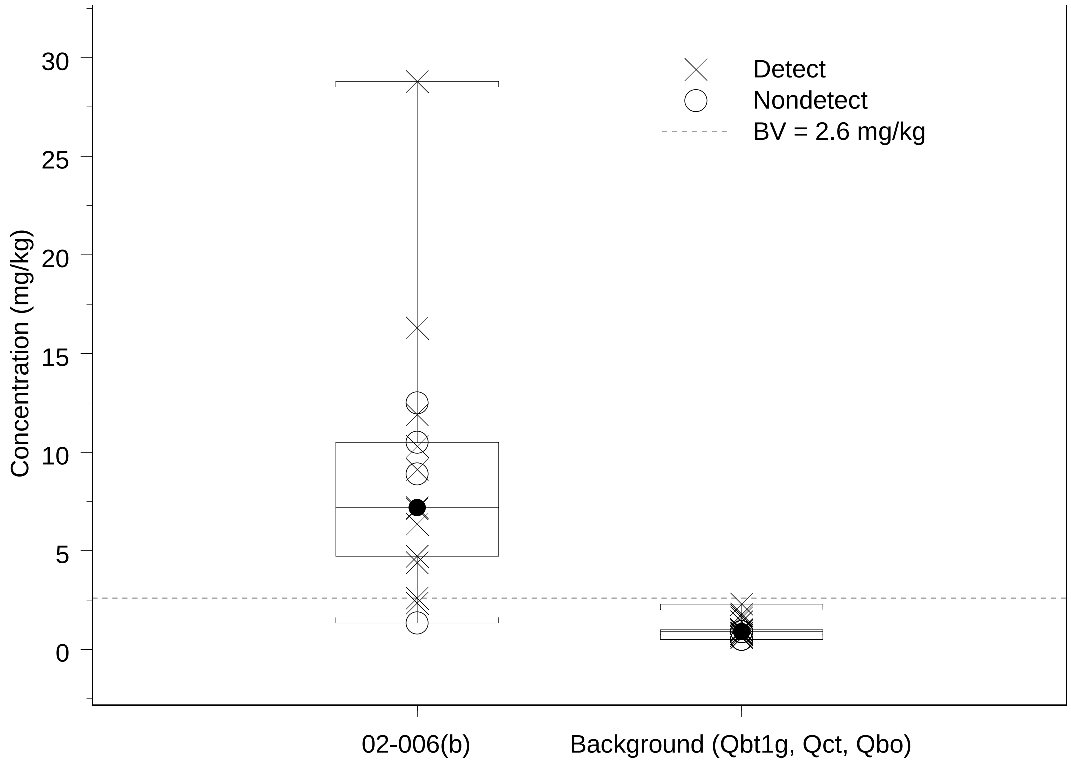

Figure G-12.0-7 Box plot of chromium in Qbo tuff at SWMU 02-006(b)

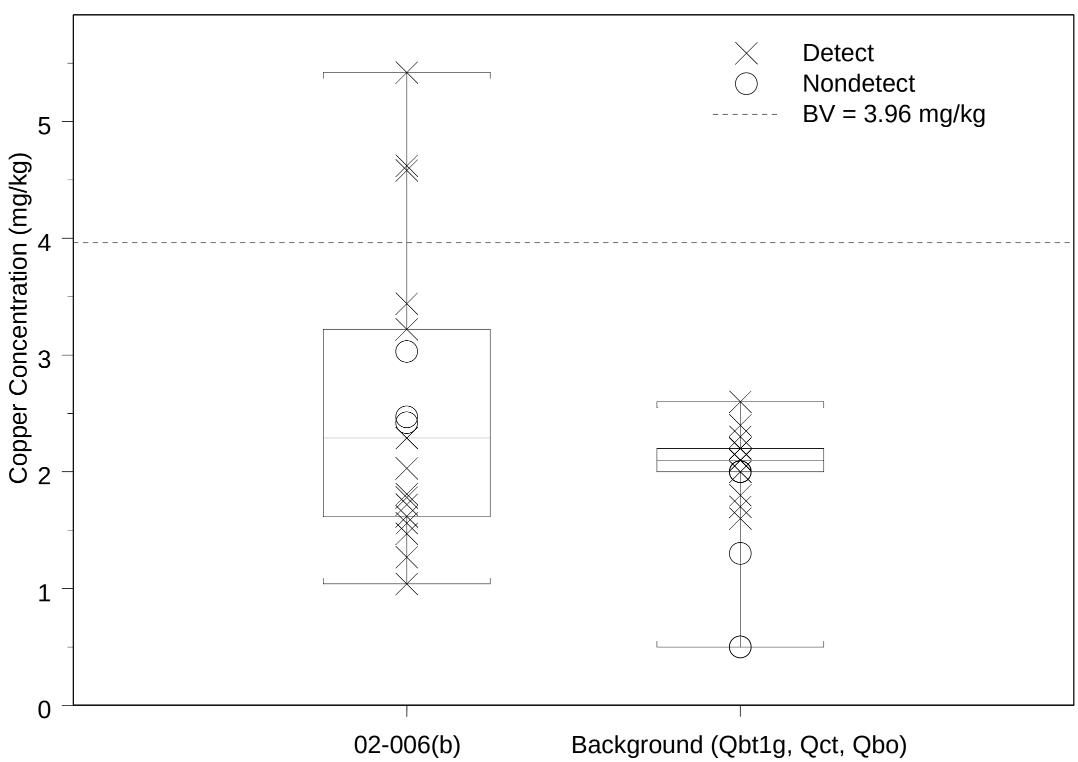

Figure G-12.0-8 Box plot of copper in Qbo tuff at SWMU 02-006(b)

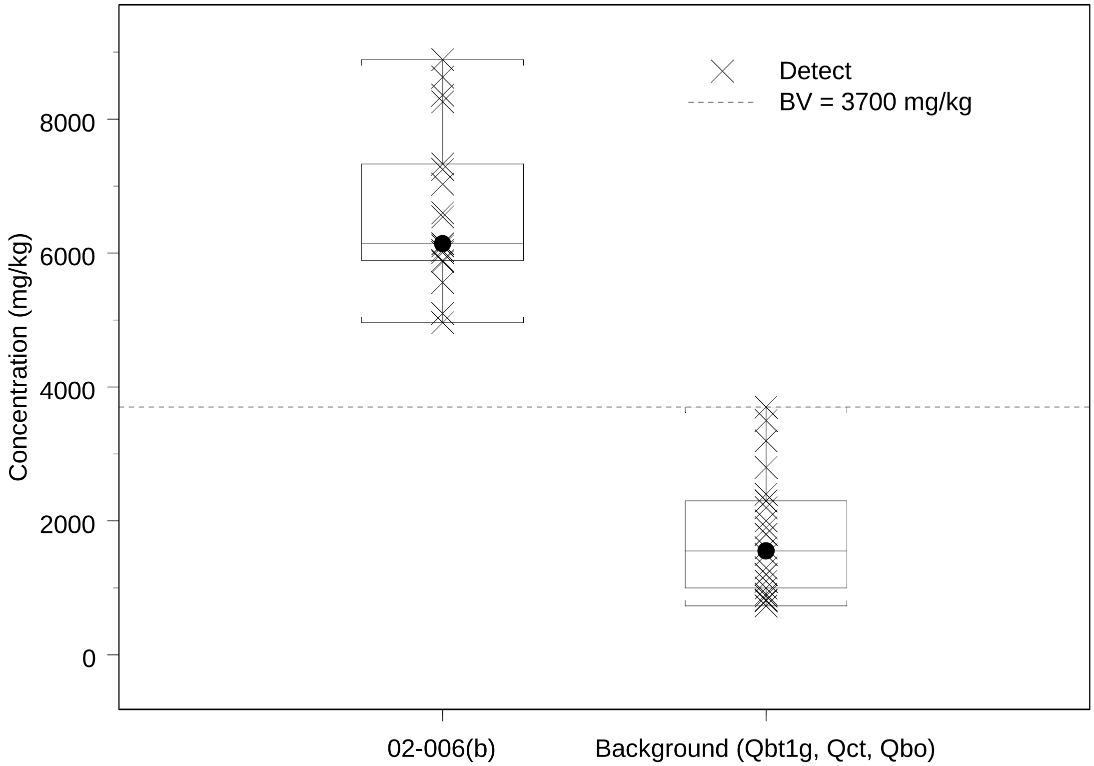

Figure G-12.0-9 Box plot of iron in Qbo tuff at SWMU 02-006(b)

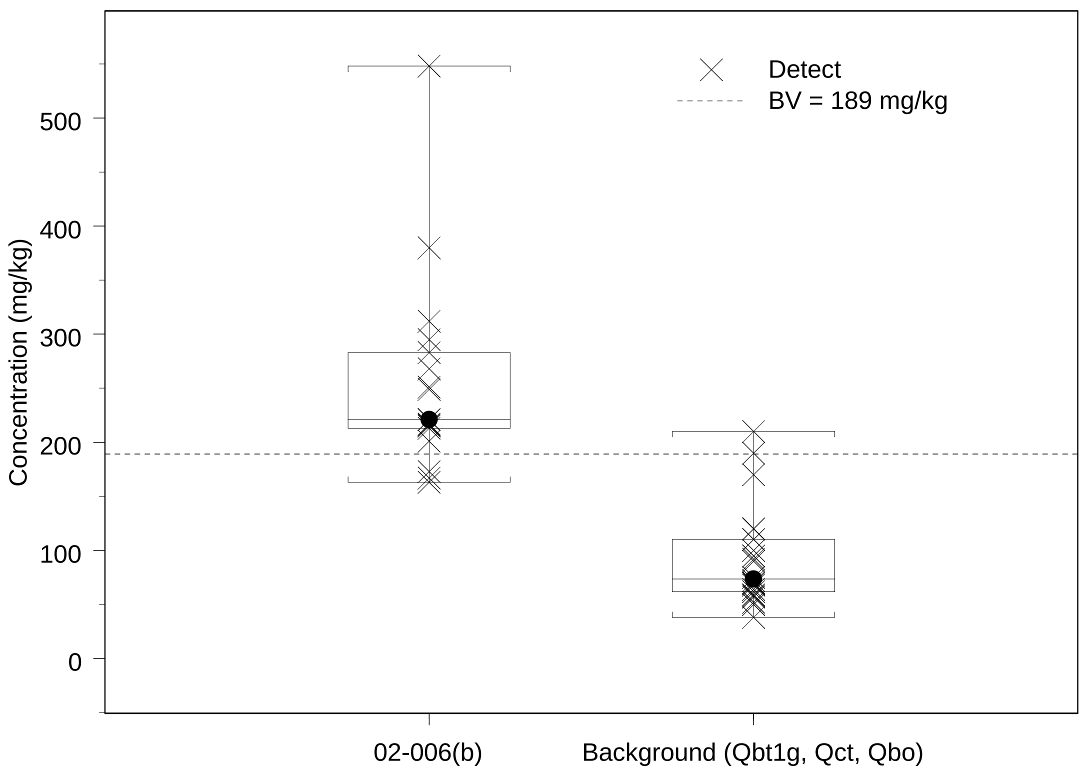

Figure G-12.0-10 Box plot of manganese in Qbo tuff at SWMU 02-006(b)

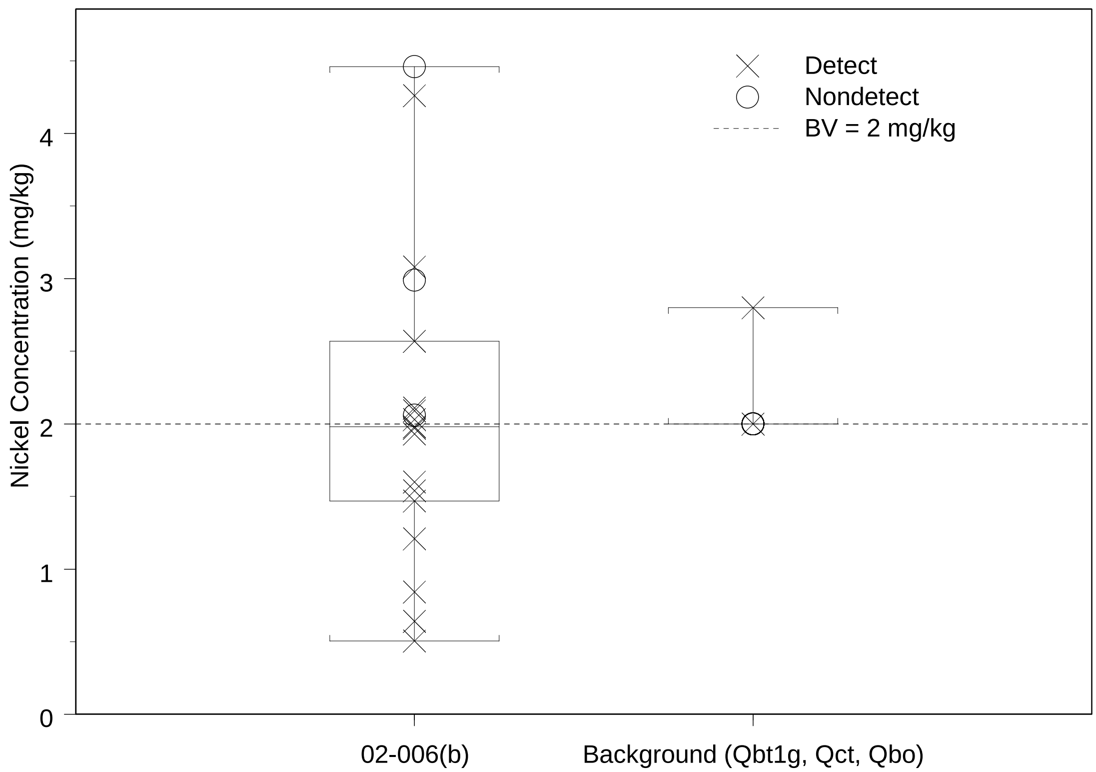

Figure G-12.0-11 Box plot of nickel in Qbo tuff at SWMU 02-006(b)

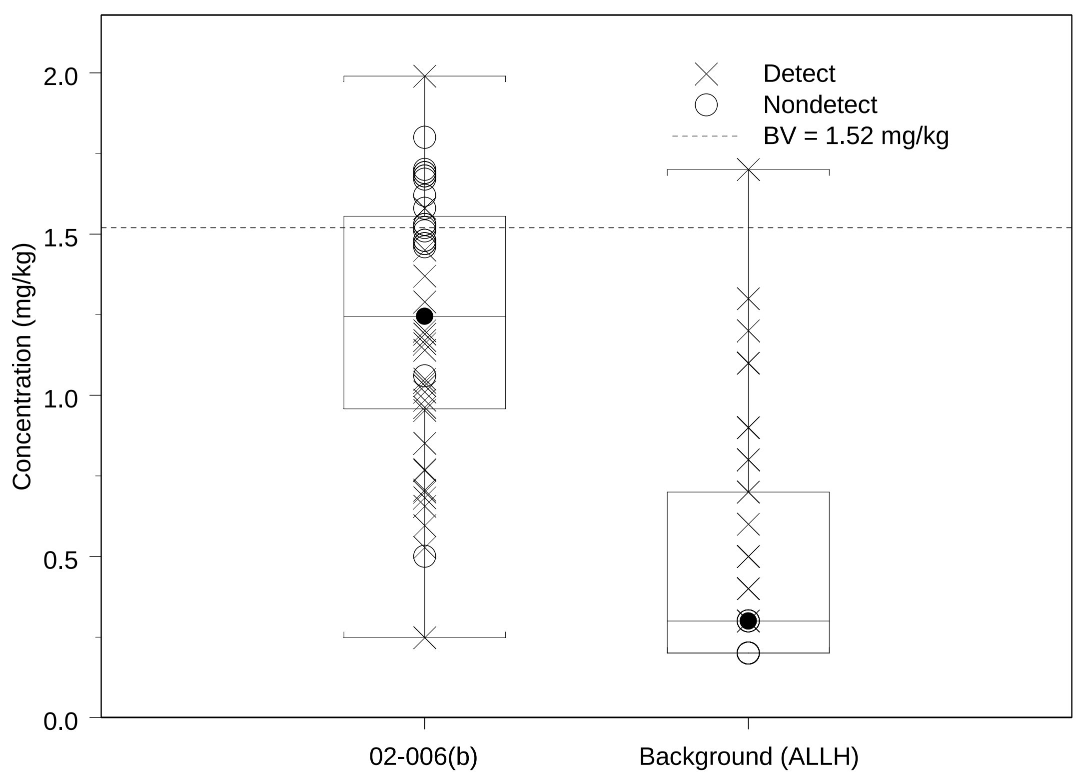

Figure G-12.0-12 Box plot of selenium in soil at SWMU 02-006(b)

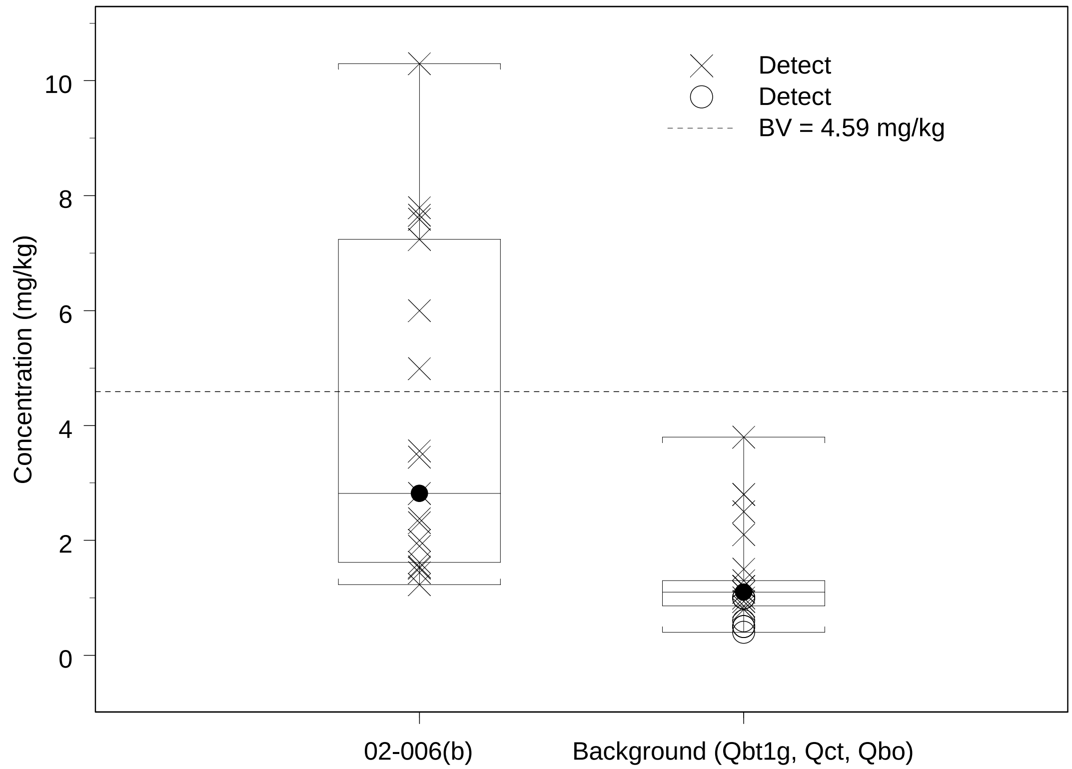

Figure G-12.0-13 Box plot of vanadium in Qbo tuff at SWMU 02-006(b)

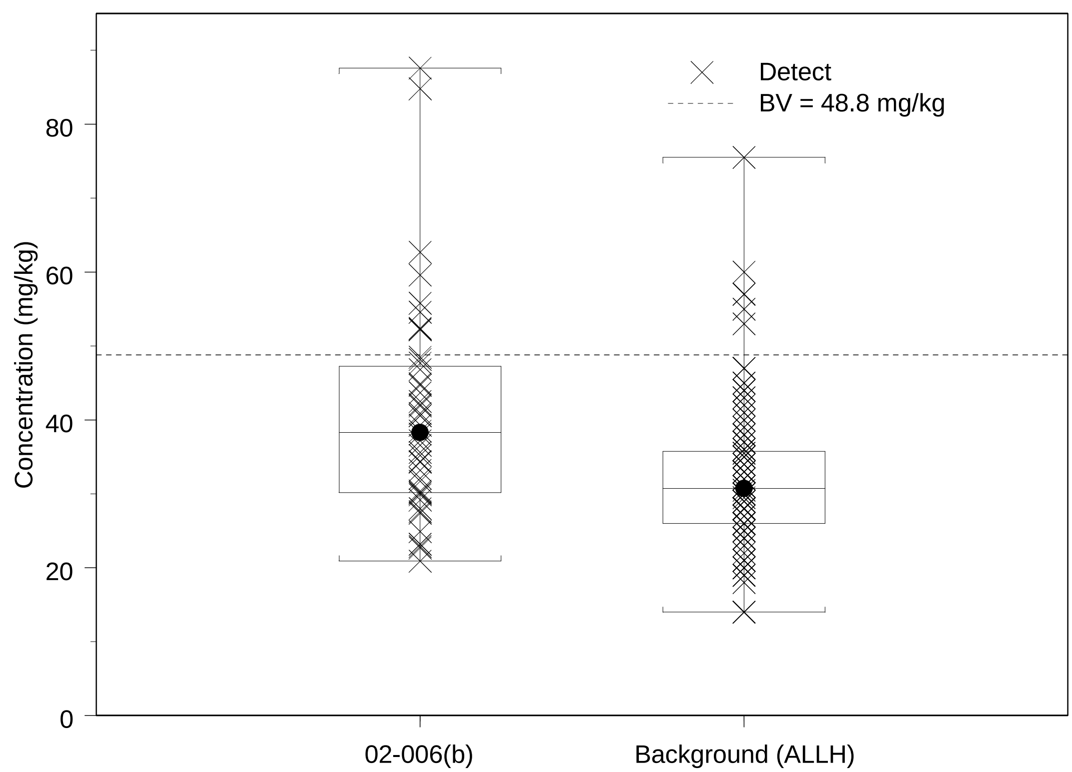

Figure G-12.0-14 Box plot of zinc in soil at SWMU 02-006(b)

G-13.0 BOX PLOTS FOR AOC 02-006(c)

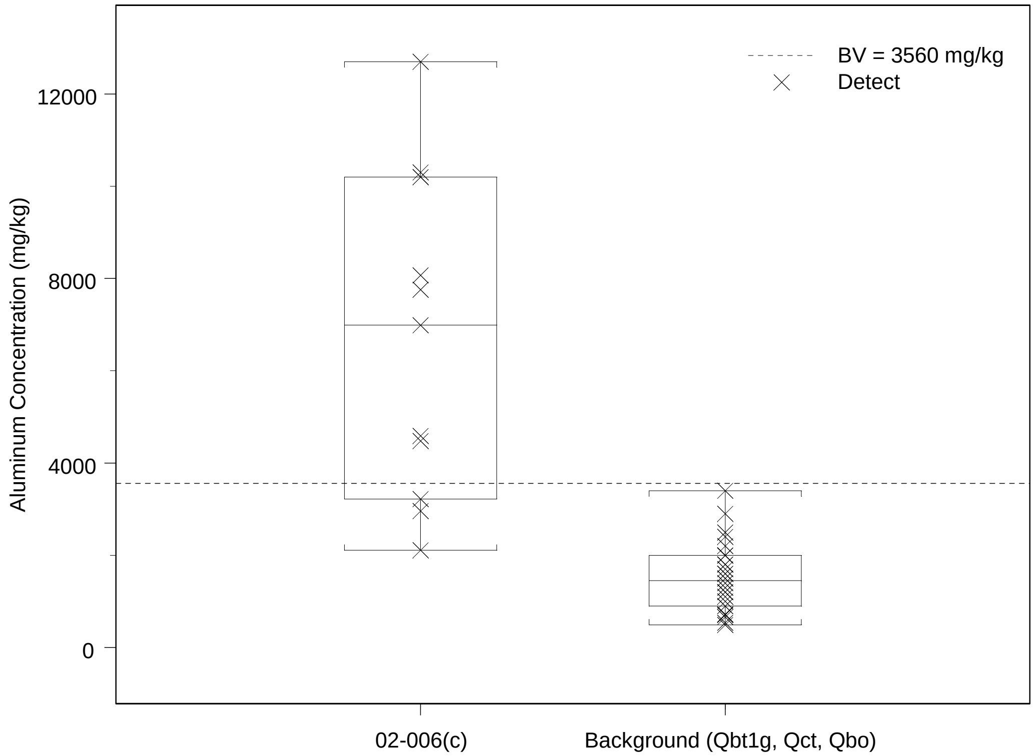

Figure G-13.0-1 Box plot of aluminum in Qbo tuff at AOC 02-006(c)

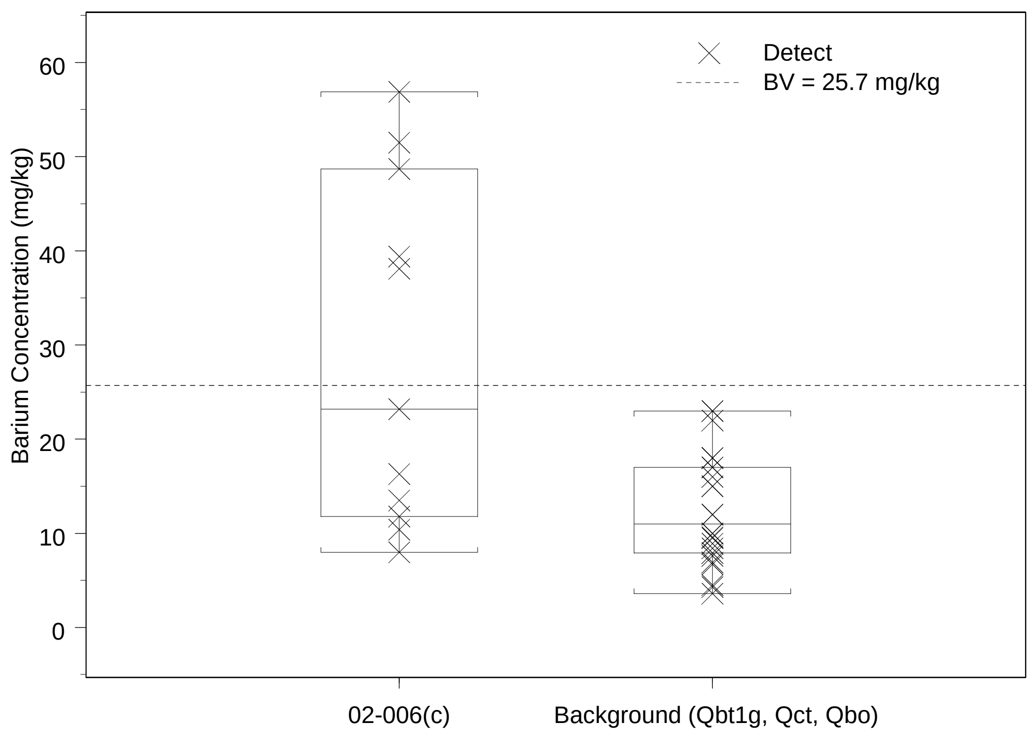

Figure G-13.0-2 Box plot of barium in Qbo tuff at AOC 02-006(c)

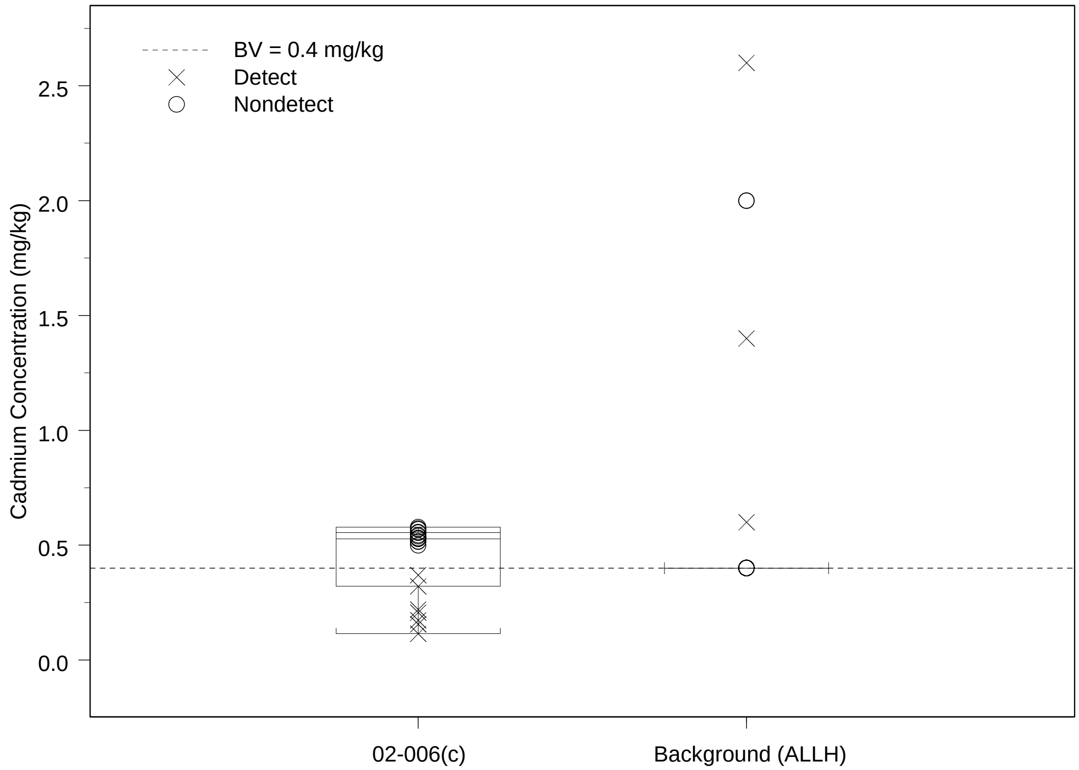

Figure G-13.0-3 Box plot of cadmium in soil at AOC 02-006(c)

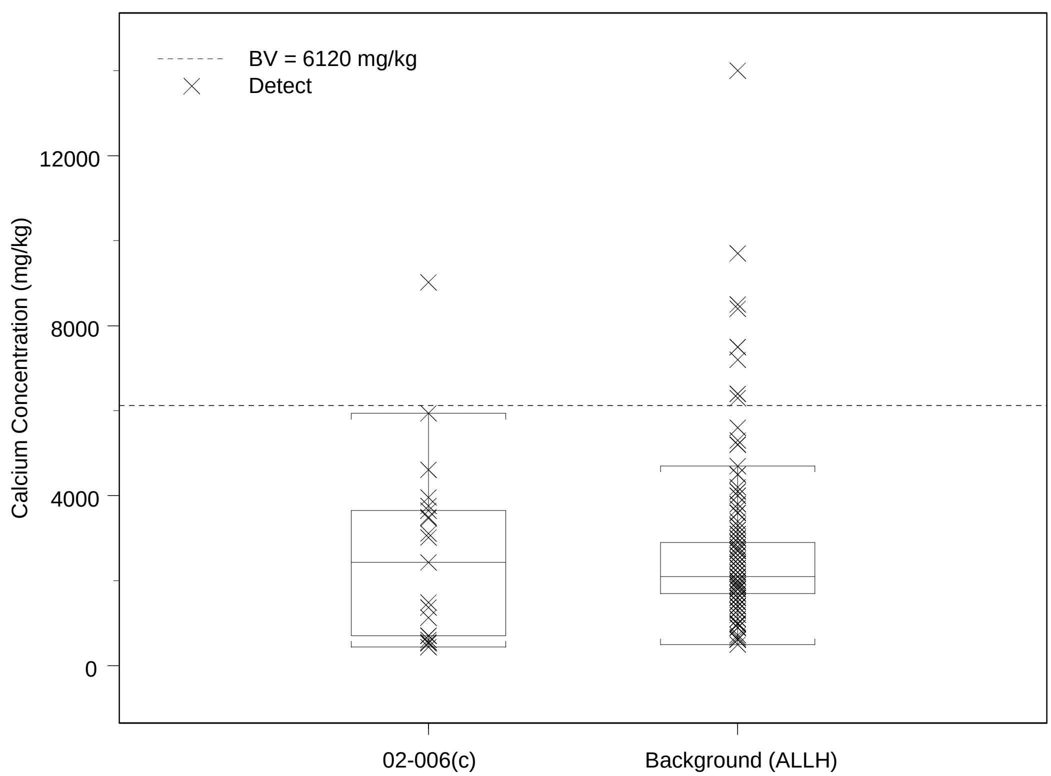

Figure G-13.0-4 Box plot of calcium in soil at AOC 02-006(c)

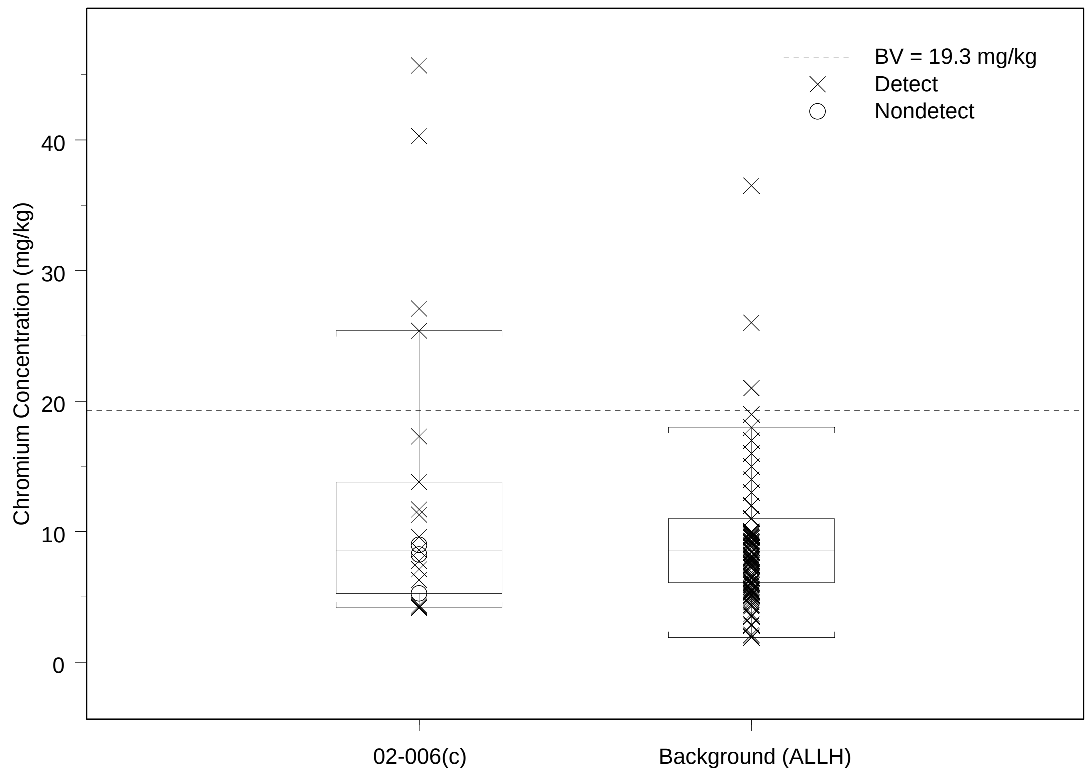

Figure G-13.0-5   Box plot of chromium in soil at AOC 02-006(c)

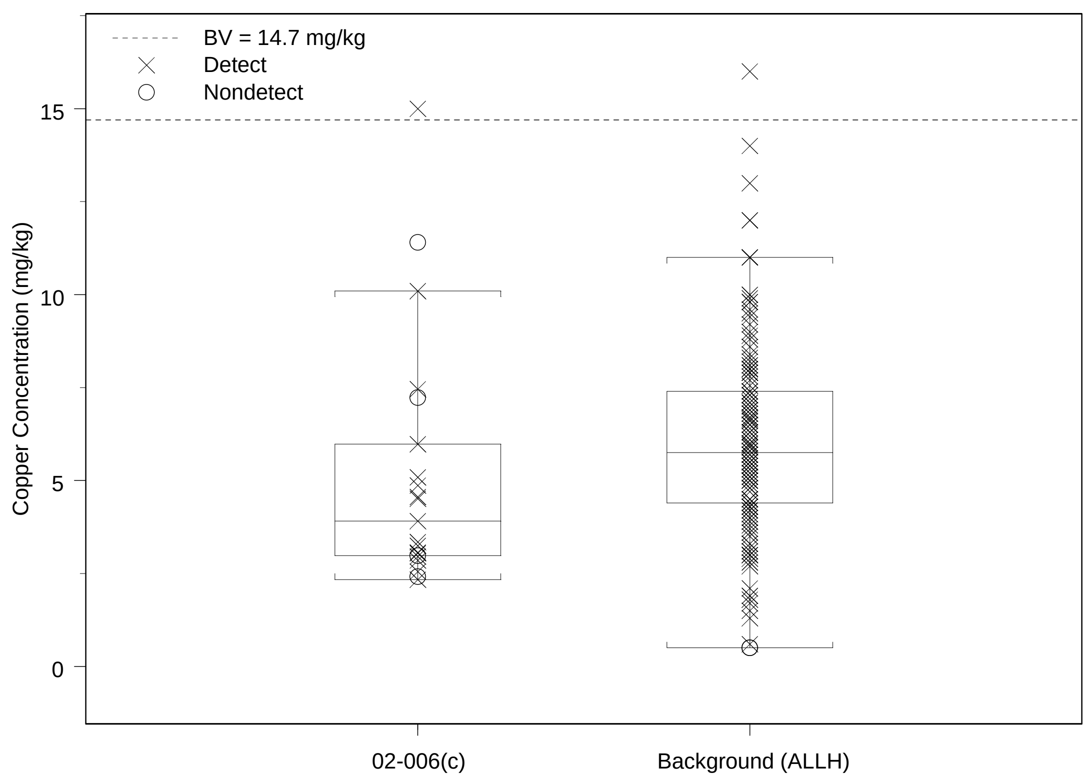

Figure G-13.0-6   Box plot of copper in soil at AOC 02-006(c)

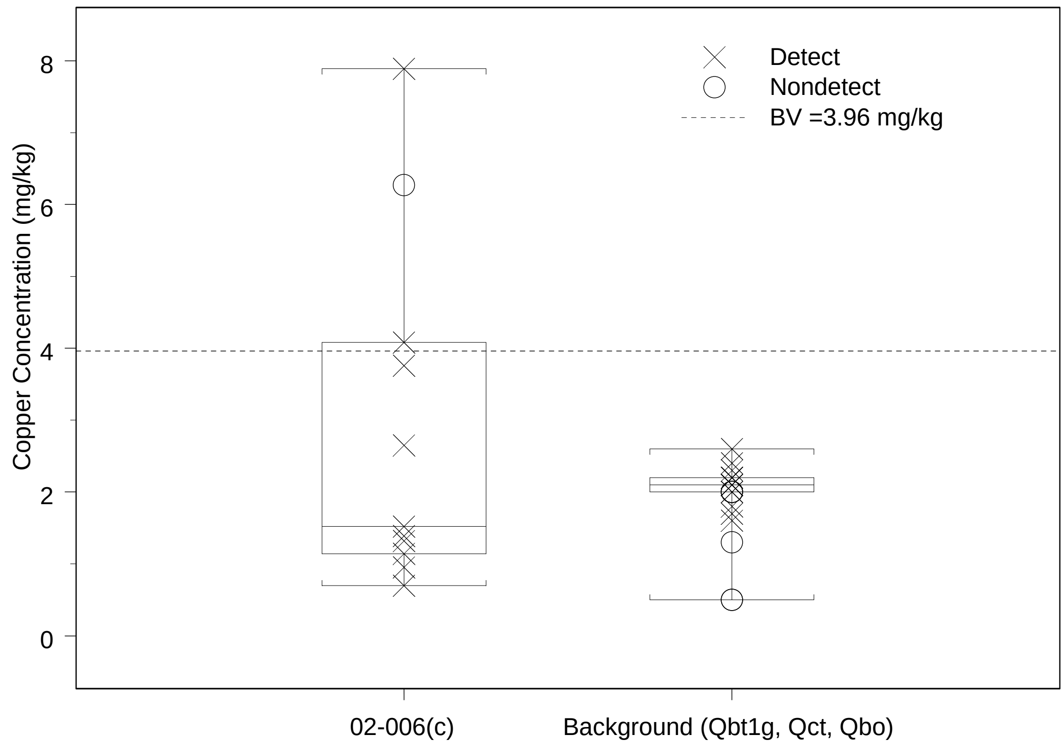

Figure G-13.0-7 Box plot of copper in Qbo tuff at AOC 02-006(c)

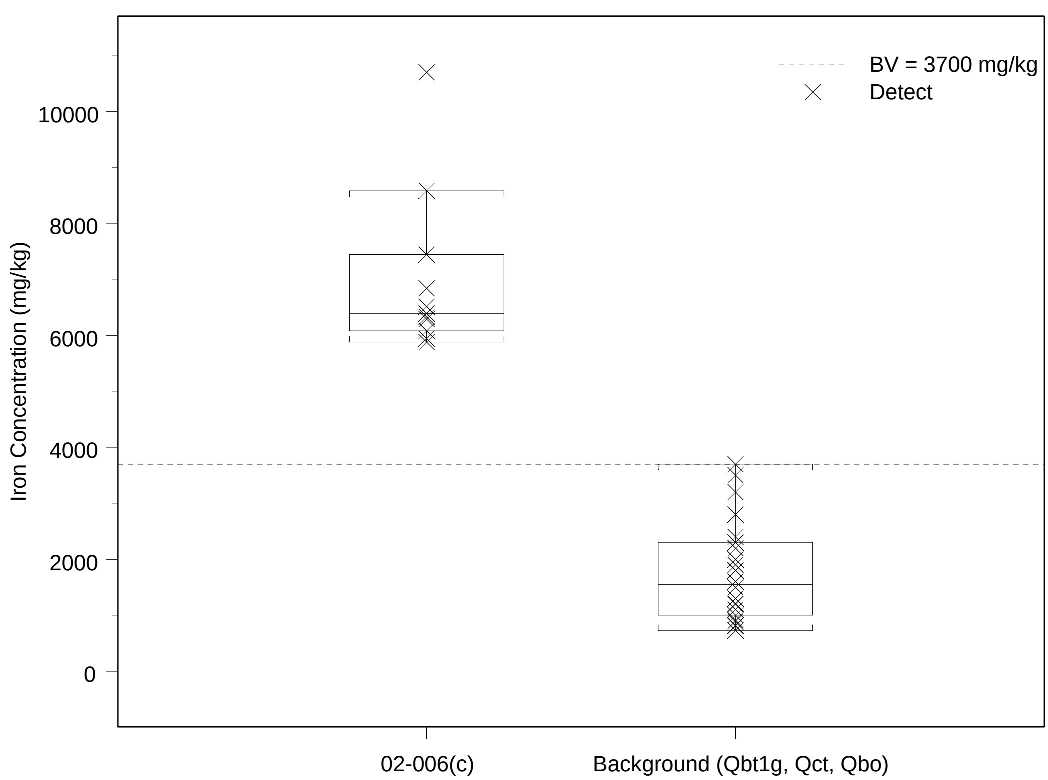

Figure G-13.0-8 Box plot of iron in Qbo tuff at AOC 02-006(c)

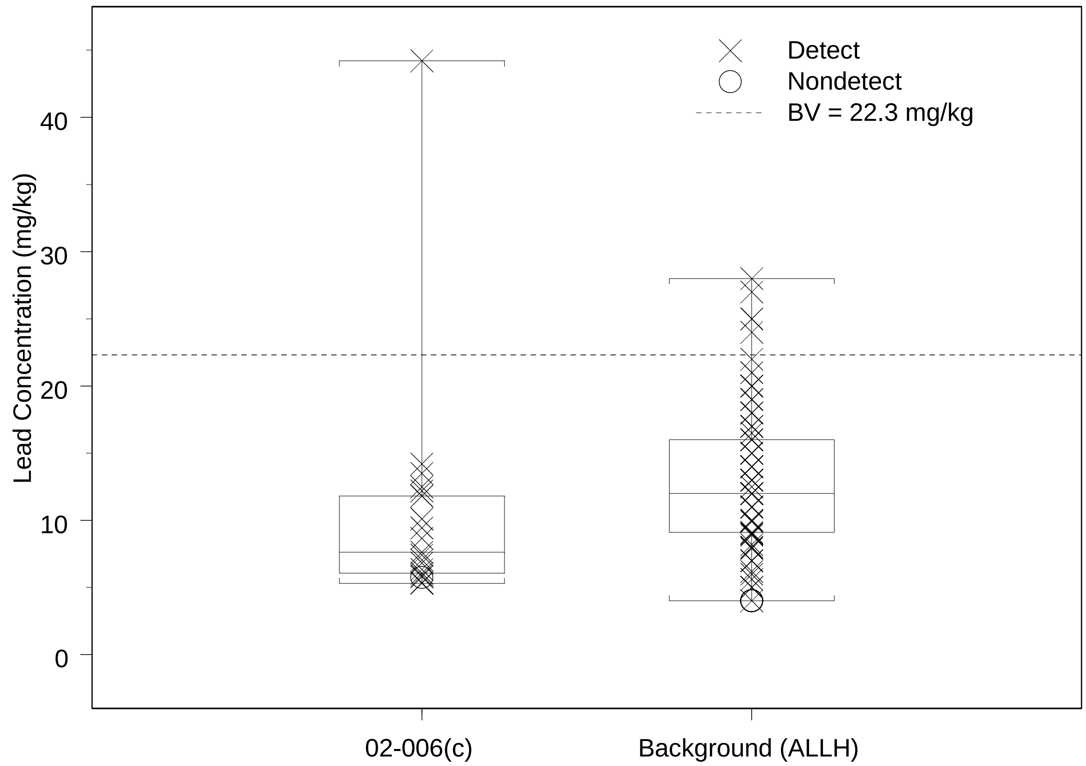

Figure G-13.0-9 Box plot of lead in soil at AOC 02-006(c)

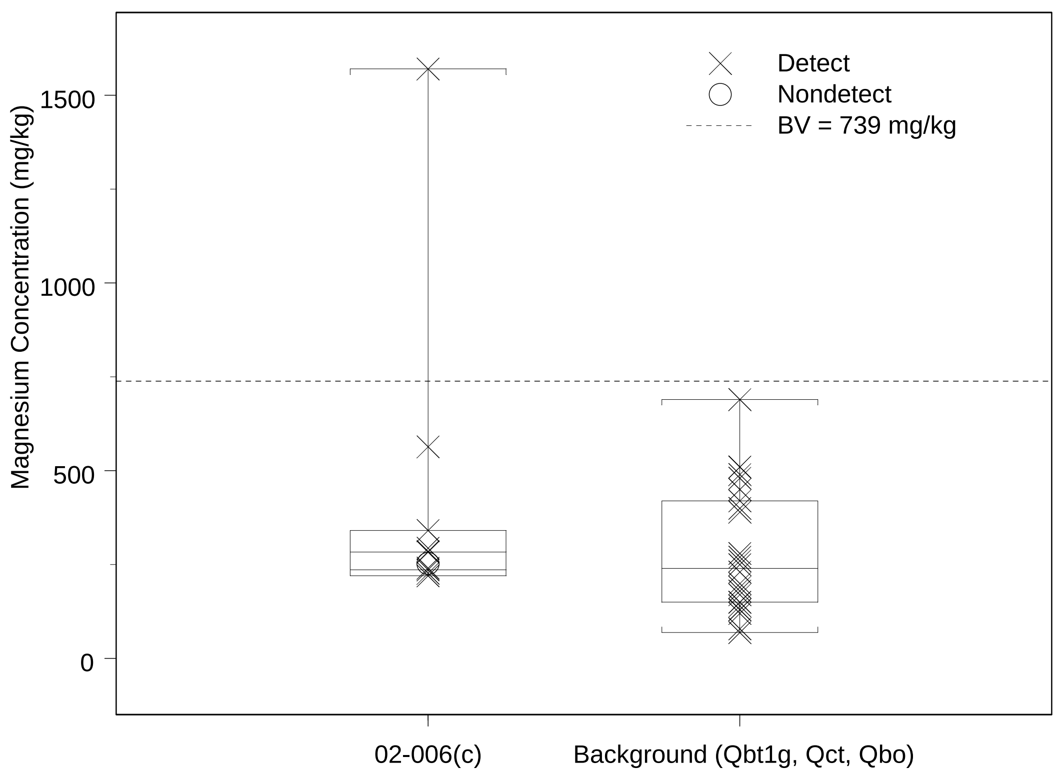

Figure G-13.0-10 Box plot of magnesium in Qbo tuff at AOC 02-006(c)

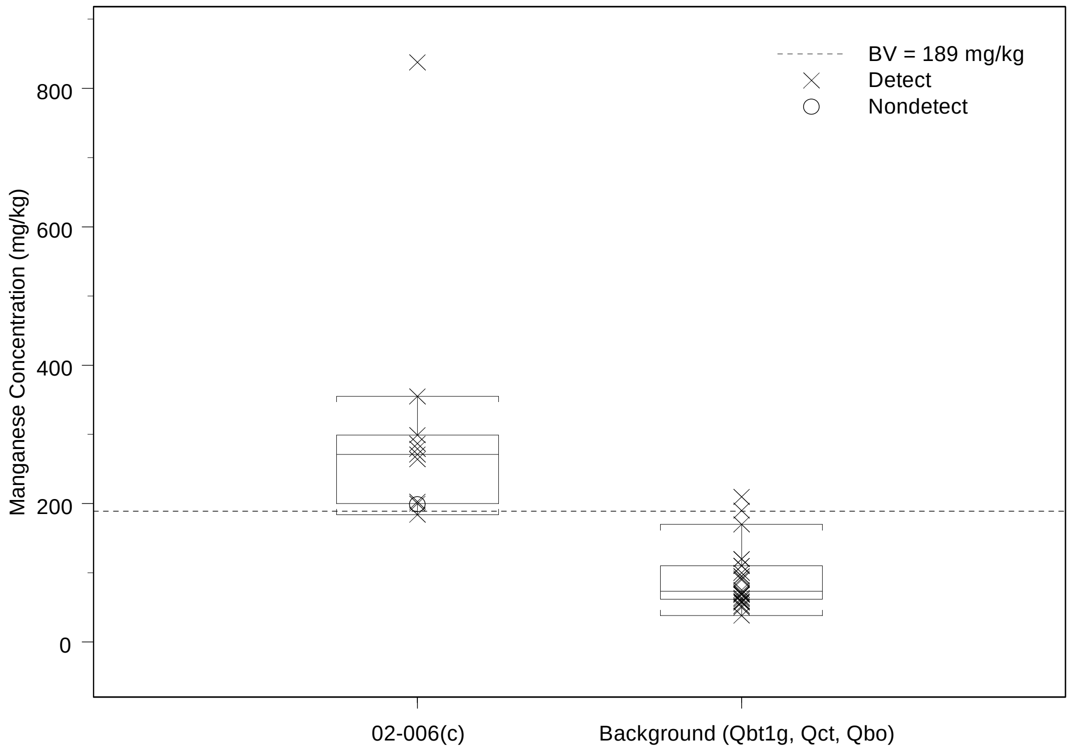

Figure G-13.0-11 Box plot of manganese in Qbo tuff at AOC 02-006(c)

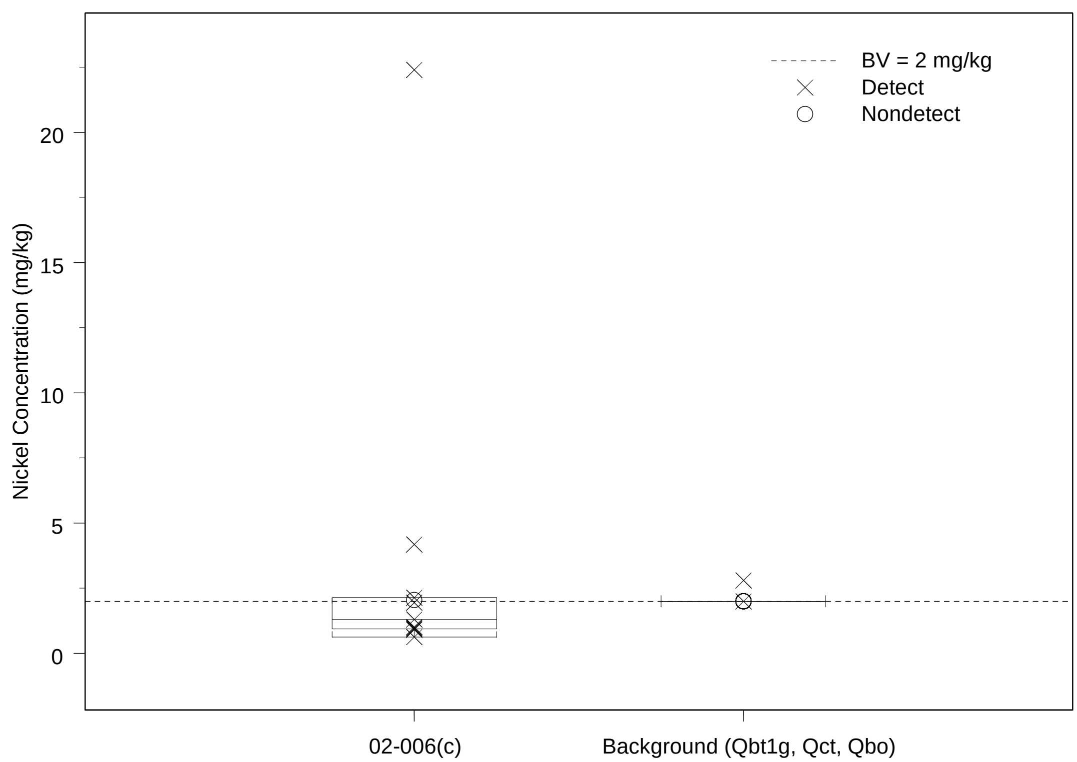

Figure G-13.0-12 Box plot of nickel in Qbo tuff at AOC 02-006(c)

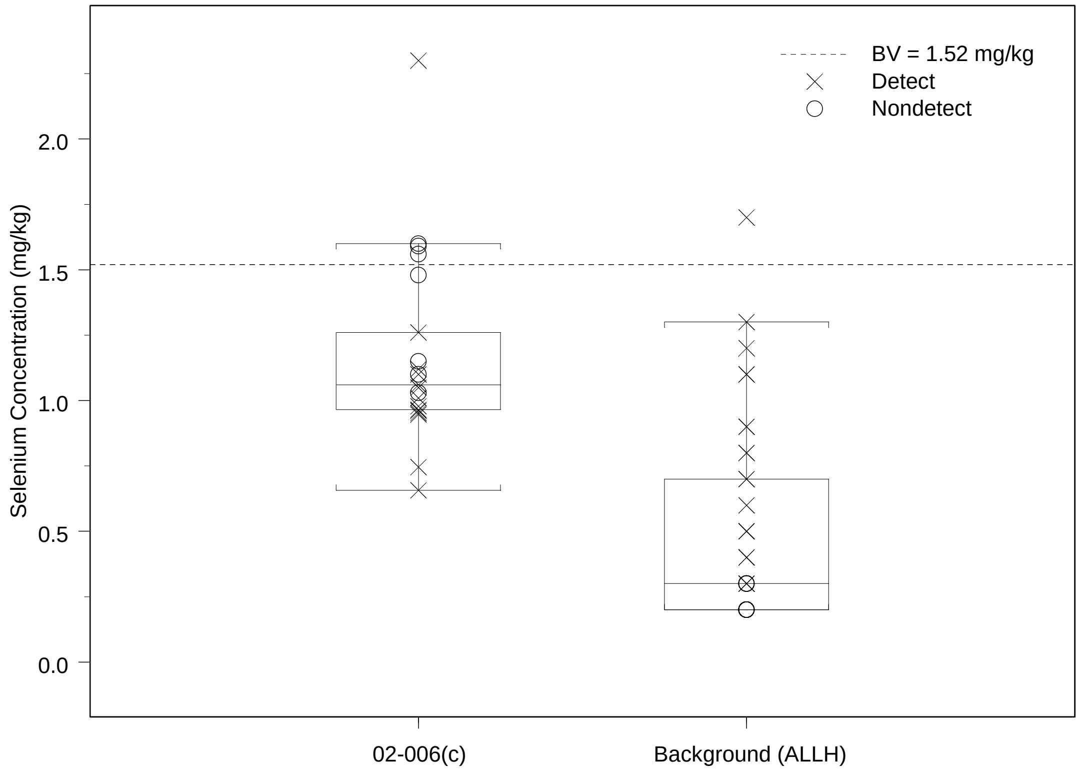

Figure G-13.0-13 Box plot of selenium in soil at AOC 02-006(c)

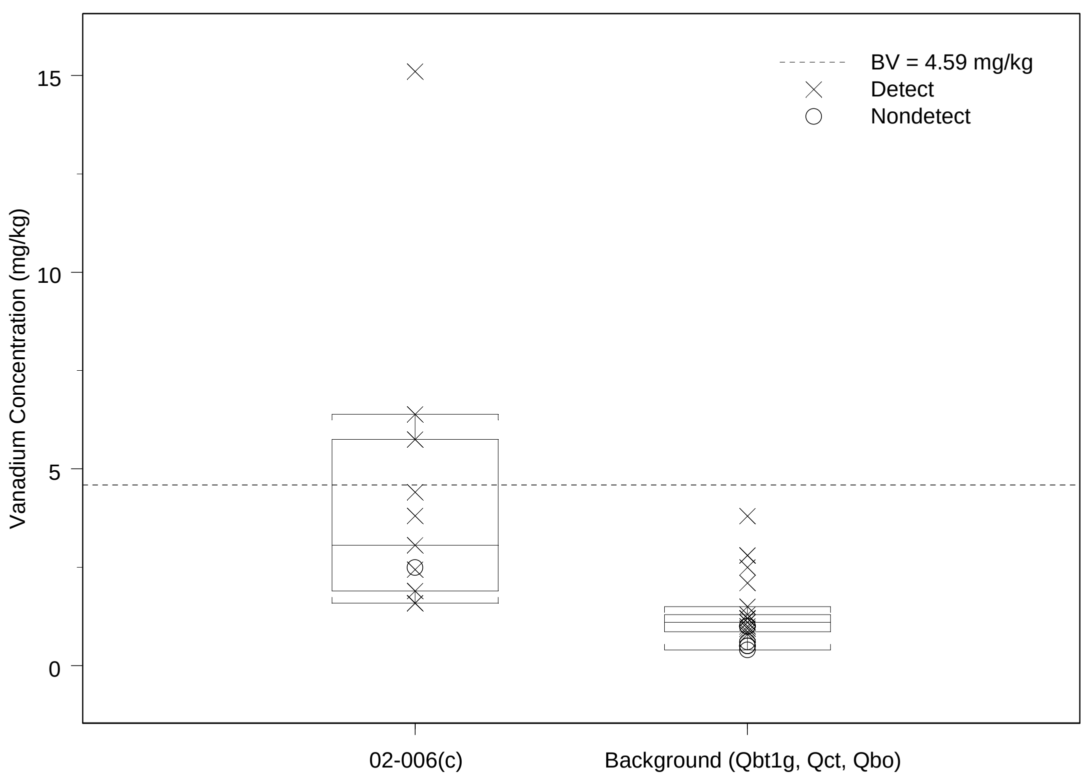

Figure G-13.0-14 Box plot of vanadium in Qbo tuff at AOC 02-006(c)

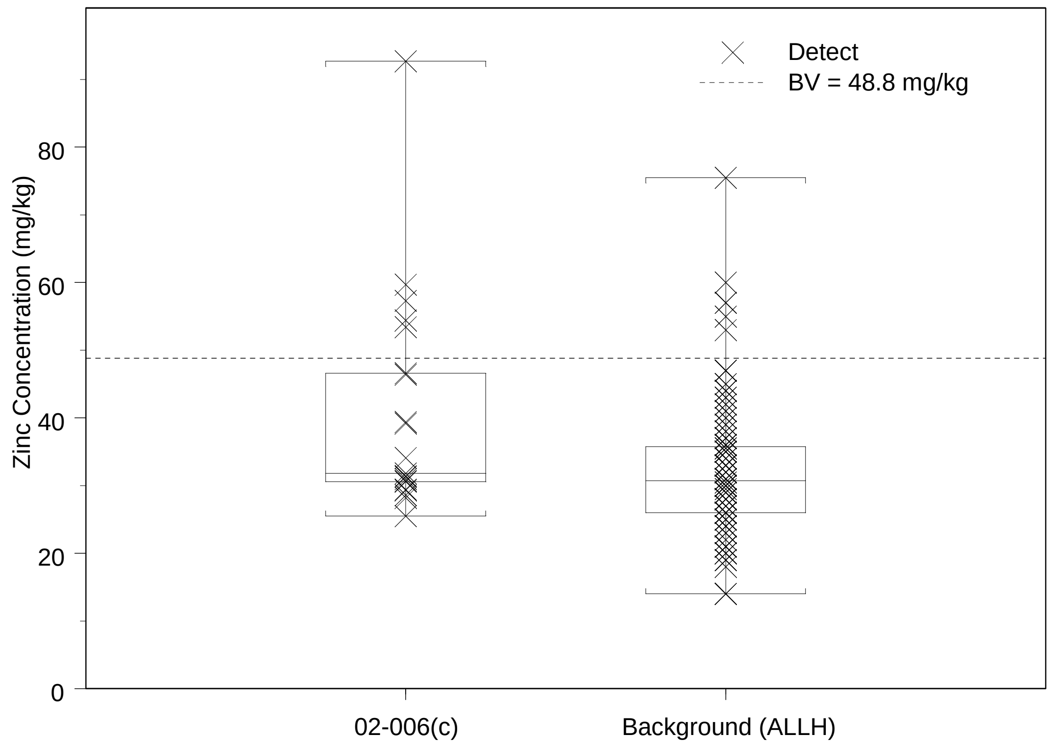

Figure G-13.0-15 Box plot of zinc in soil at AOC 02-006(c)

G-14.0 BOX PLOTS FOR AOC 02-006(e)

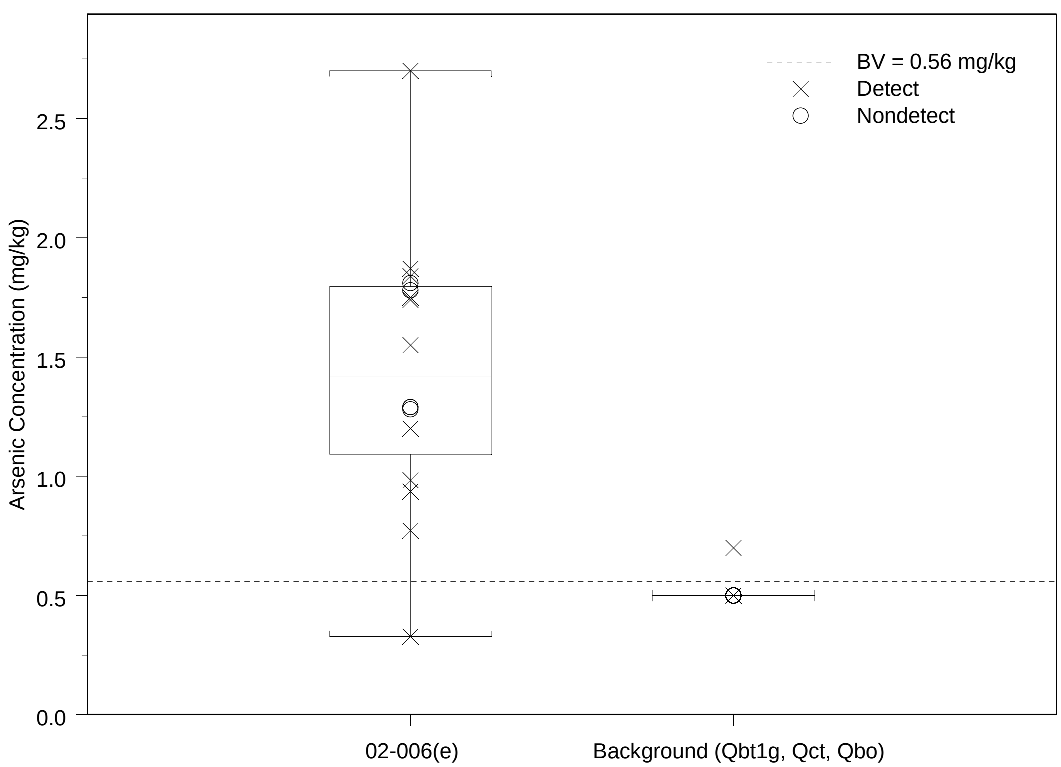

Figure G-14.0-1 Box plot of arsenic in Qbo tuff at AOC 02-006(e)

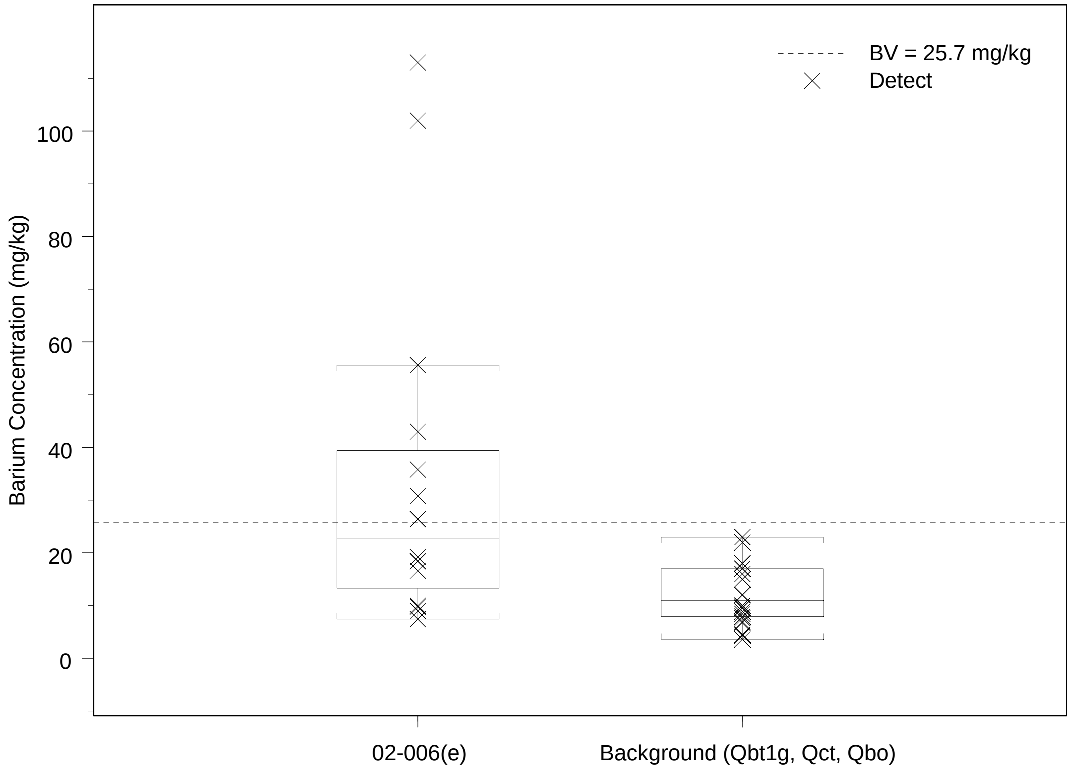

Figure G-14.0-2 Box plot of barium in Qbo tuff at AOC 02-006(e)

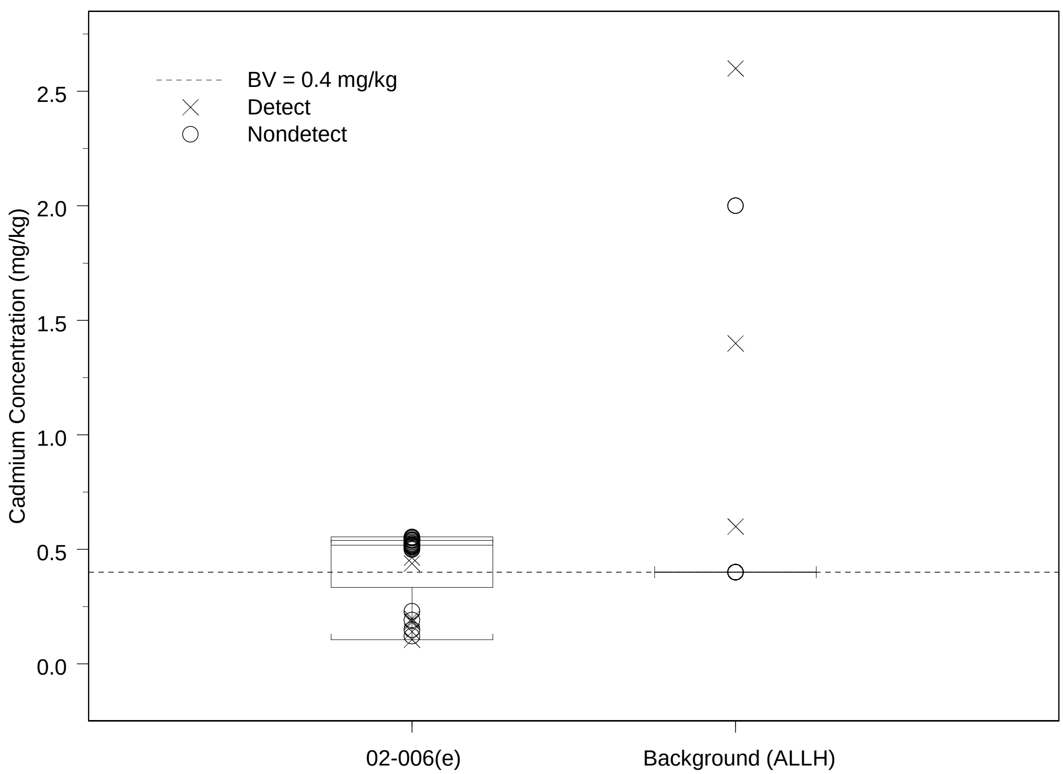

Figure G-14.0-3 Box plot of cadmium in soil at AOC 02-006(e)

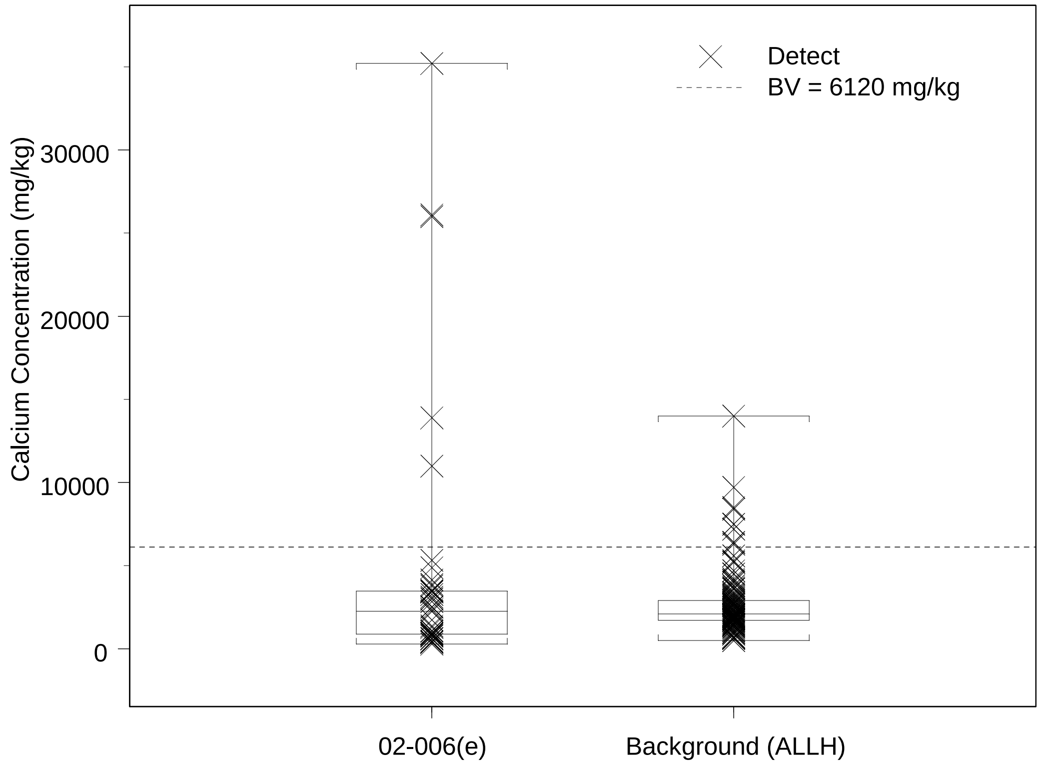

Figure G-14.0-4 Box plot of calcium in soil at AOC 02-006(e)

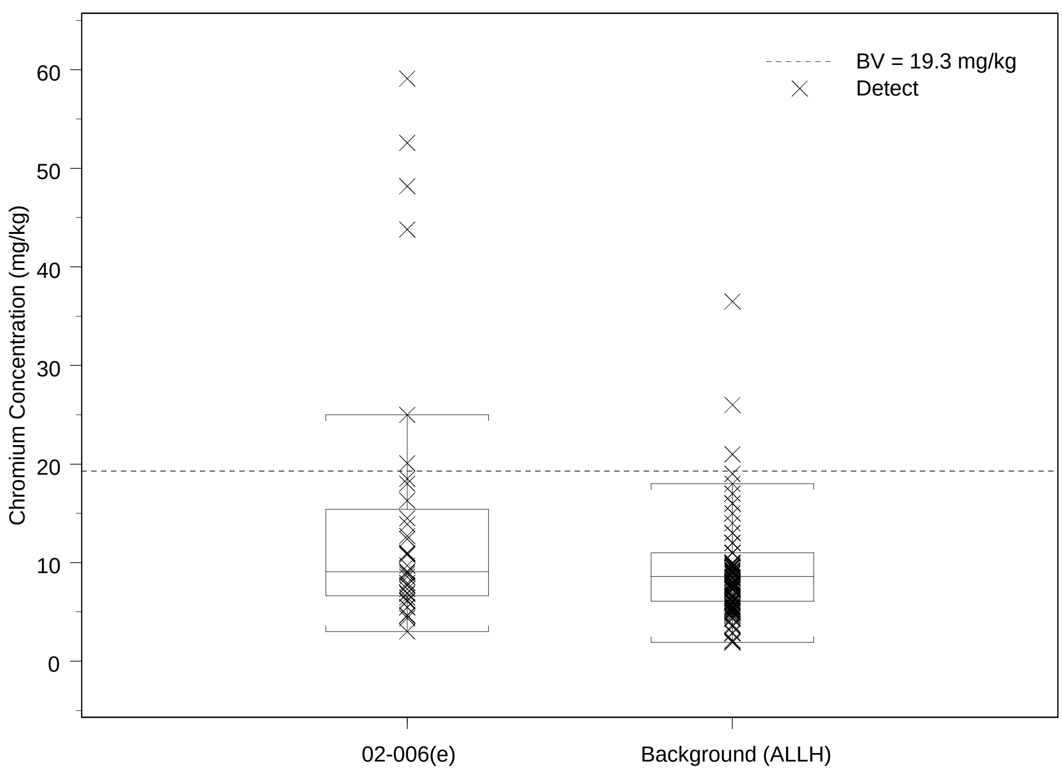

Figure G-14.0-5 Box plot of chromium in soil at AOC 02-006(e)

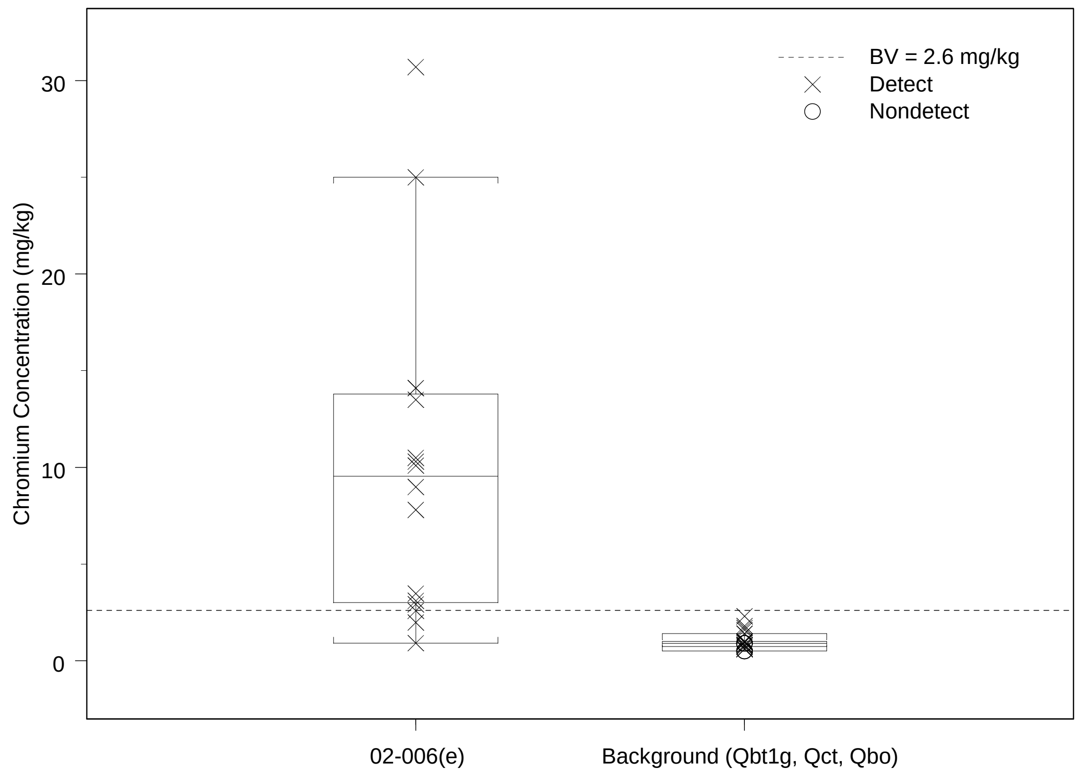

Figure G-14.0-6 Box plot of chromium in Qbo tuff at AOC 02-006(e)

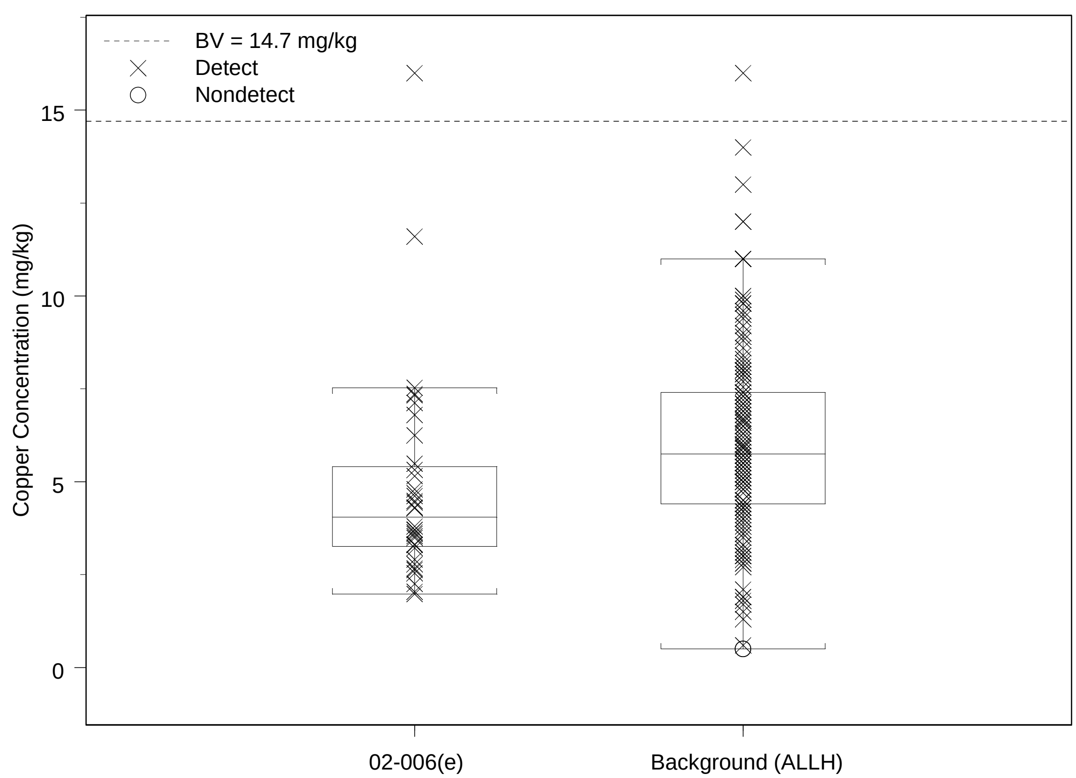

Figure G-14.0-7 Box plot of copper in soil at AOC 02-006(e)

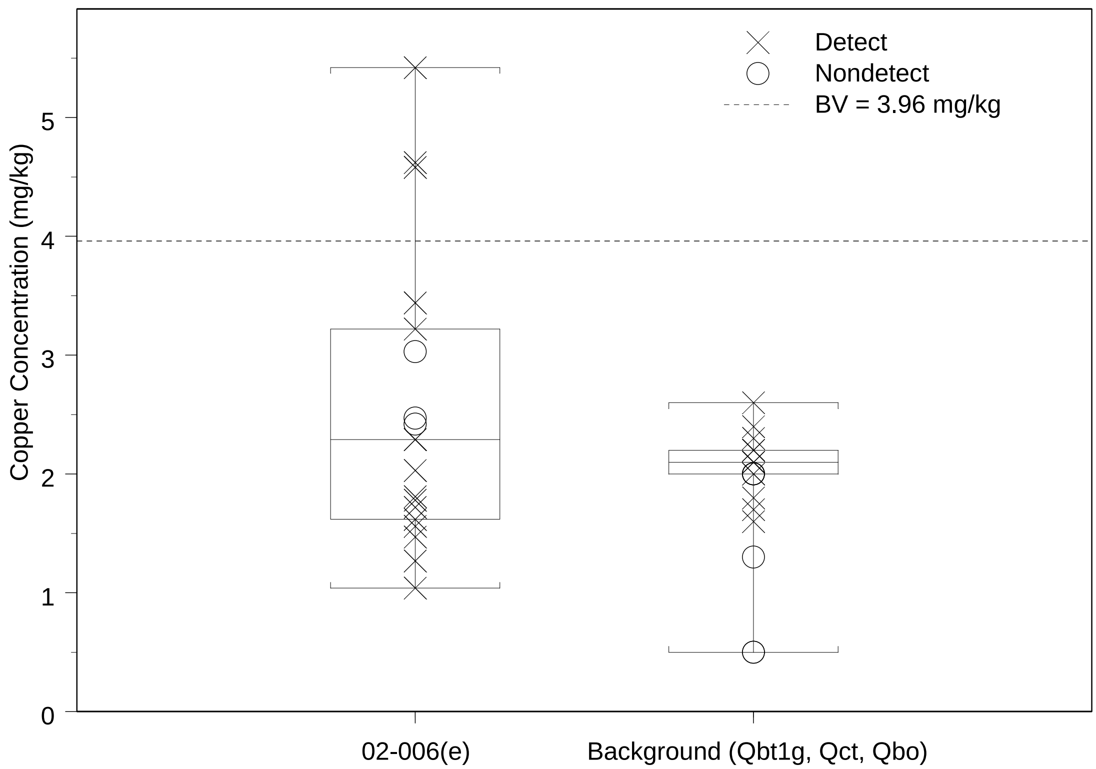

Figure G-14.0-8 Box plot of copper in Qbo tuff at AOC 02-006(e)

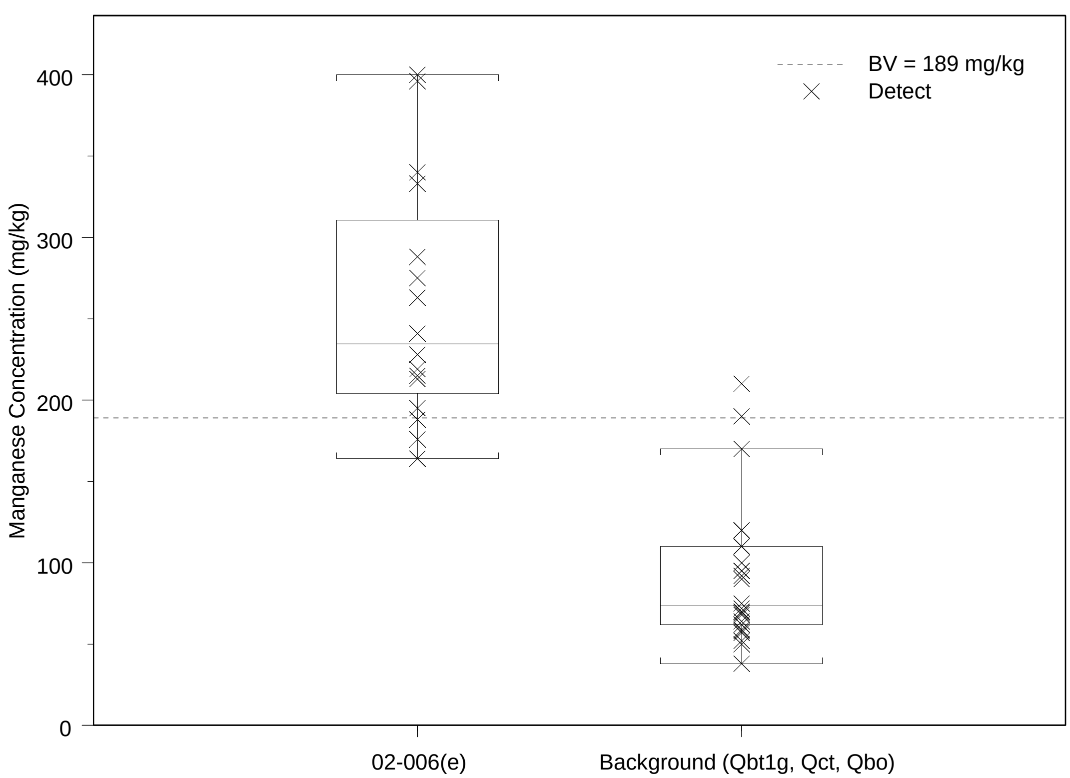

Figure G-14.0-9 Box plot of manganese in Qbo tuff at AOC 02-006(e)

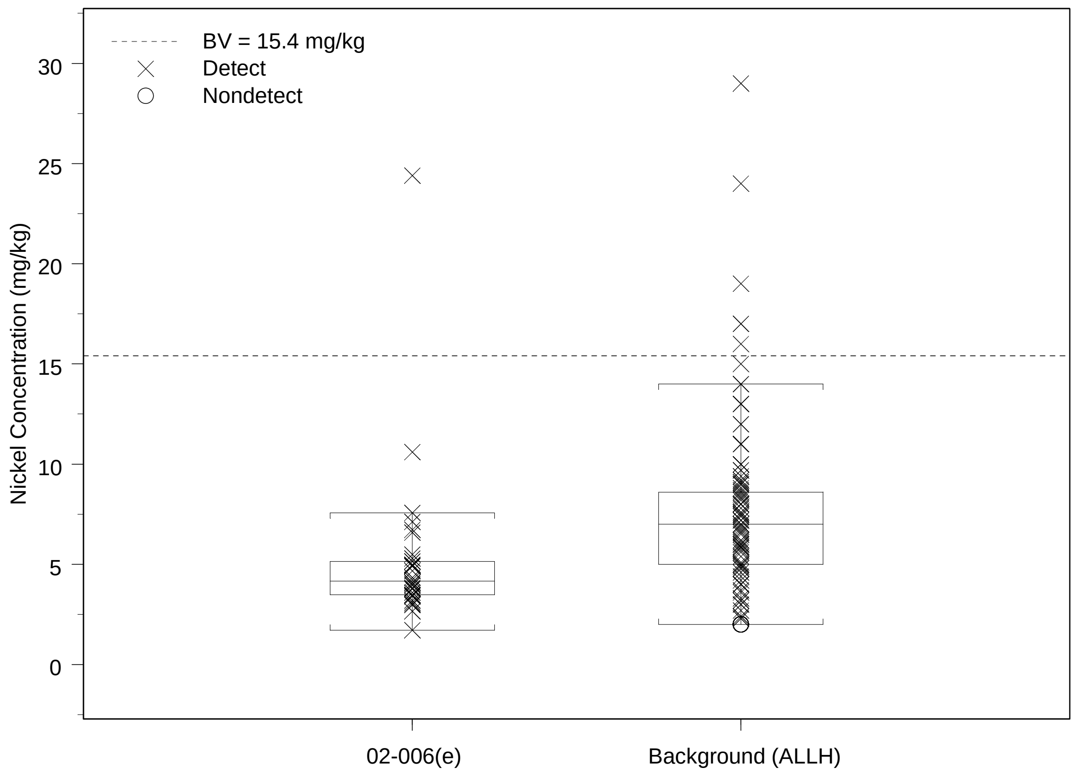

Figure G-14.0-10 Box plot of nickel in soil at AOC 02-006(e)

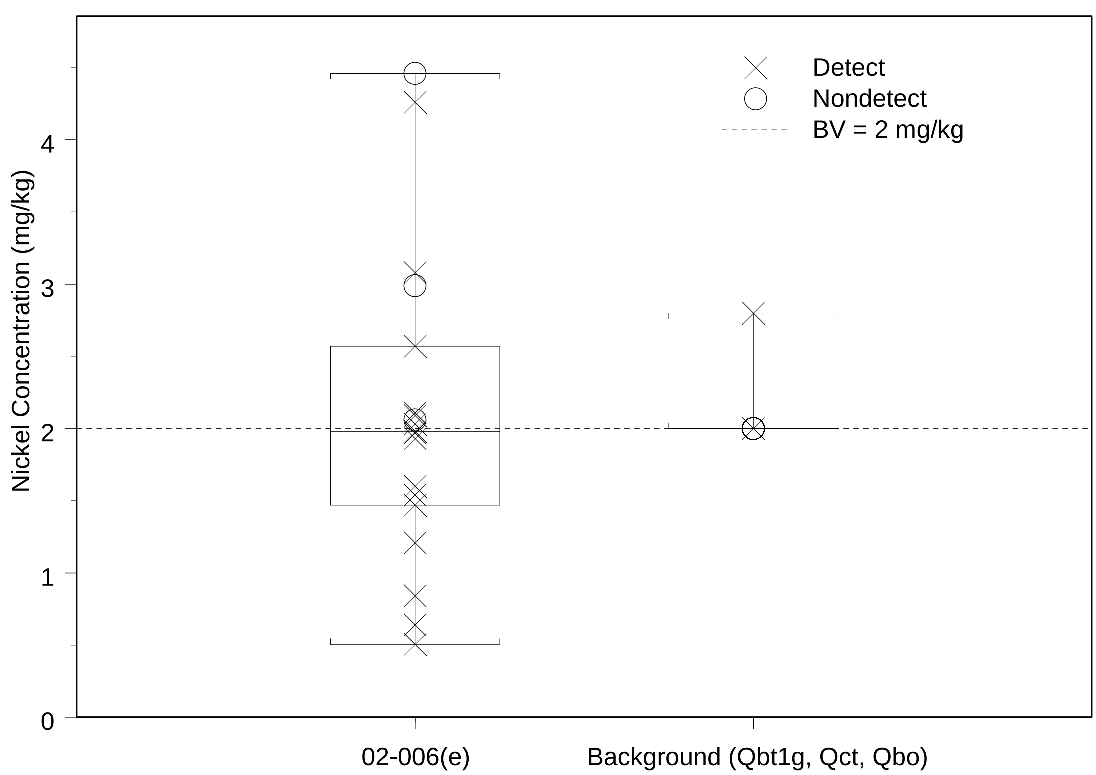

Figure G-14.0-11 Box plot of nickel in Qbo tuff at AOC 02-006(e)

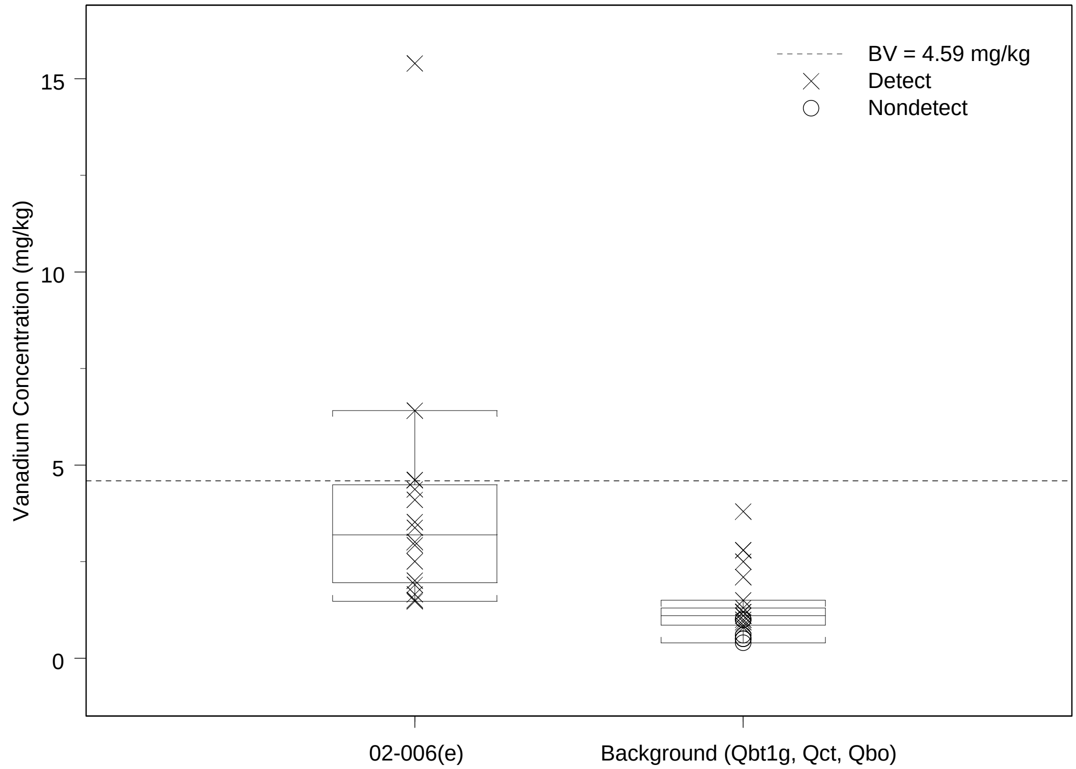

Figure G-14.0-12 Box plot of vanadium in Qbo tuff at AOC 02-006(e)

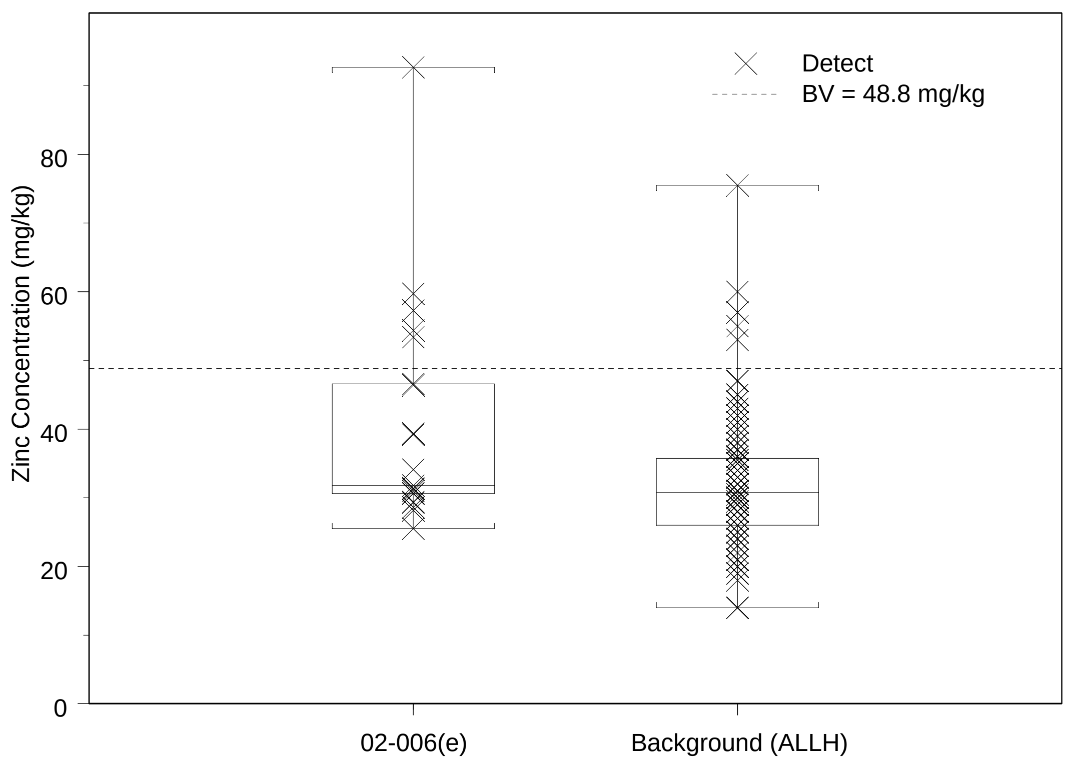

Figure G-14.0-13 Box plot of zinc in soil at AOC 02-006(e)

G-15.0 BOX PLOTS FOR SWMU 02-007 AND SWMUs 02-009(a,b,c)

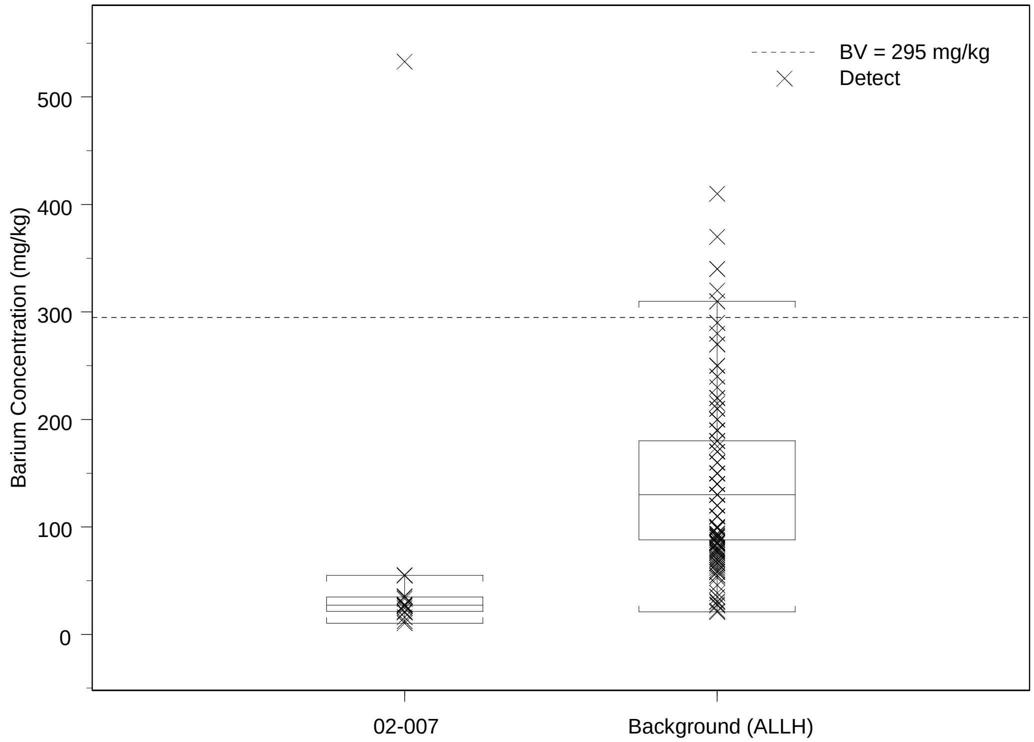

Figure G-15.0-1 Box plot of barium in soil at SWMU 02-007

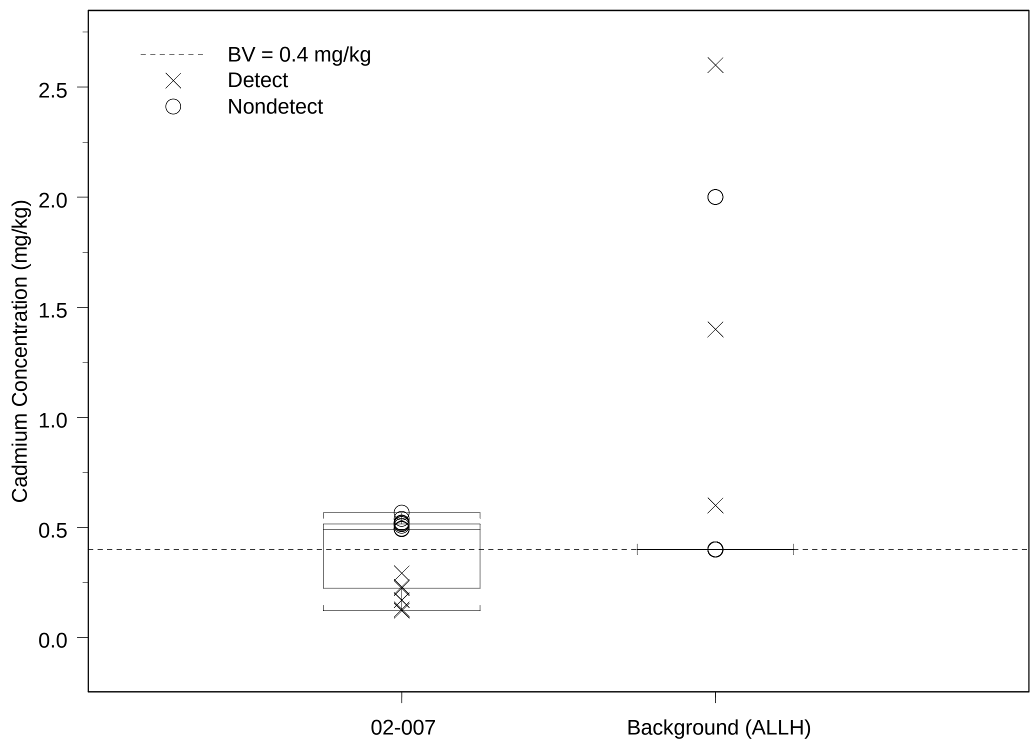

Figure G-15.0-2 Box plot of cadmium in soil at SWMU 02-007

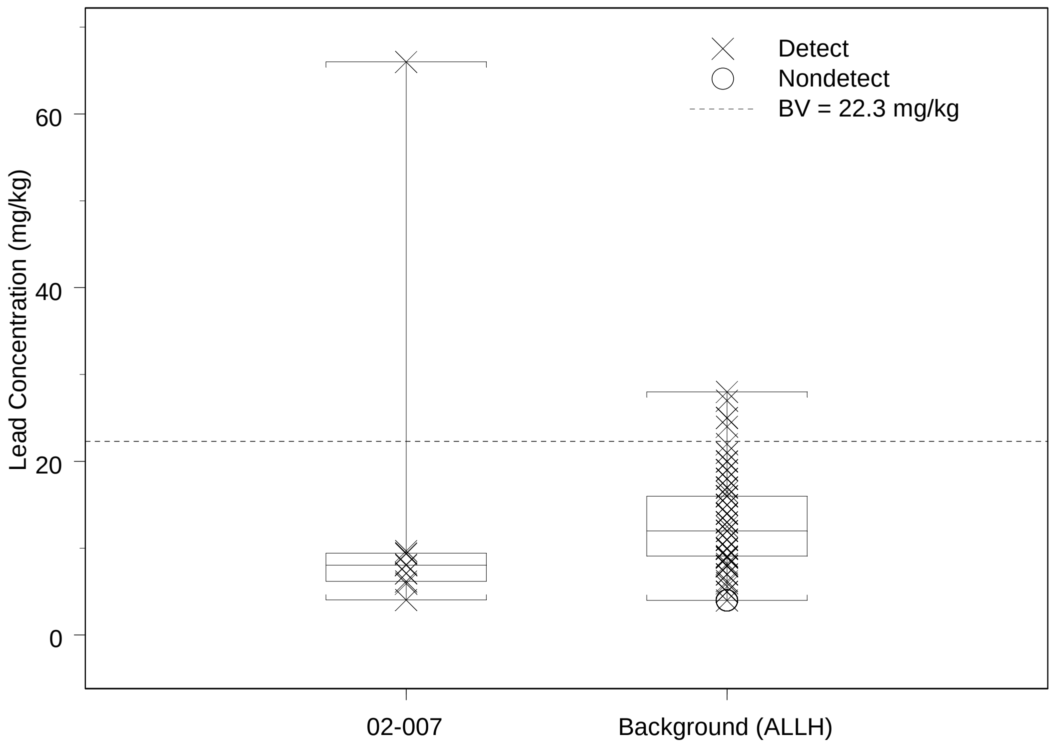

Figure G-15.0-3 Box plot of lead in soil at SWMU 02-007

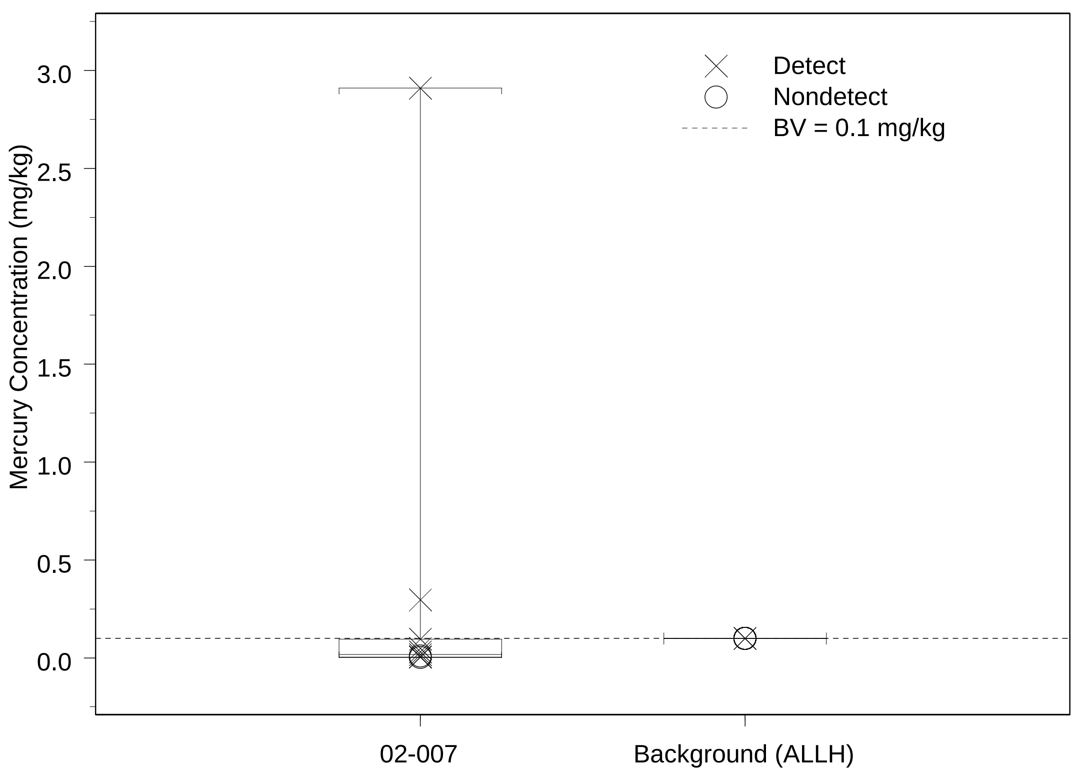

Figure G-15.0-4 Box plot of mercury in soil at SWMU 02-007

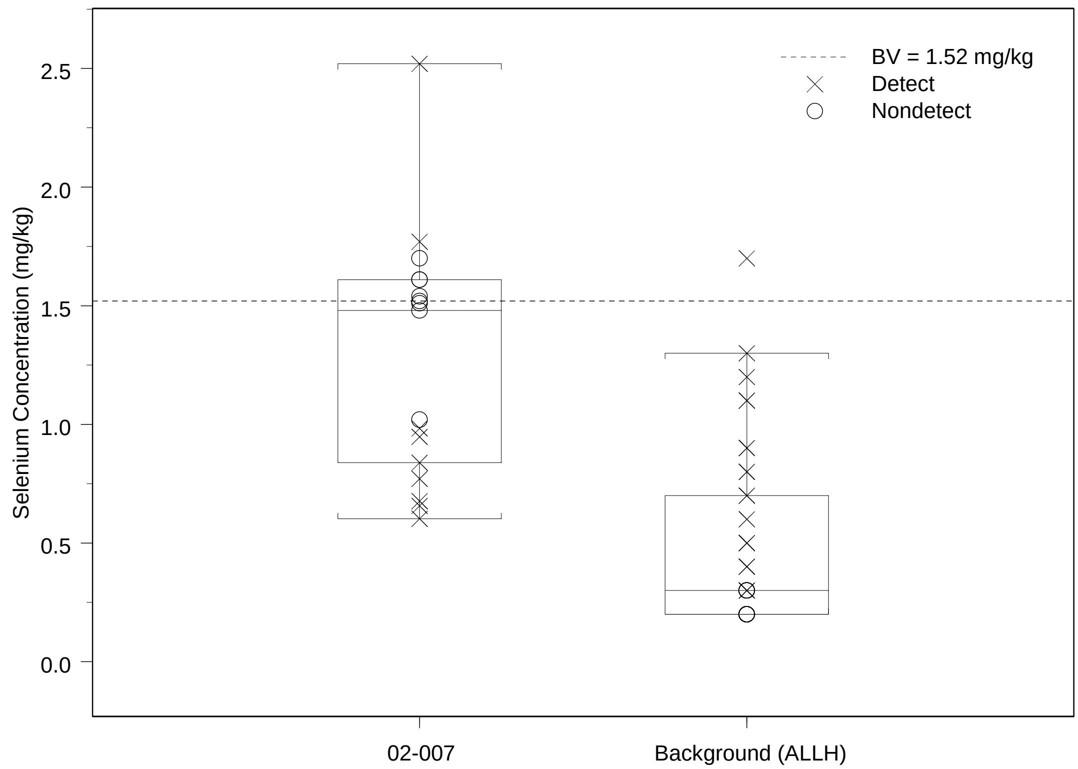

Figure G-15.0-5 Box plot of selenium in soil at SWMU 02-007

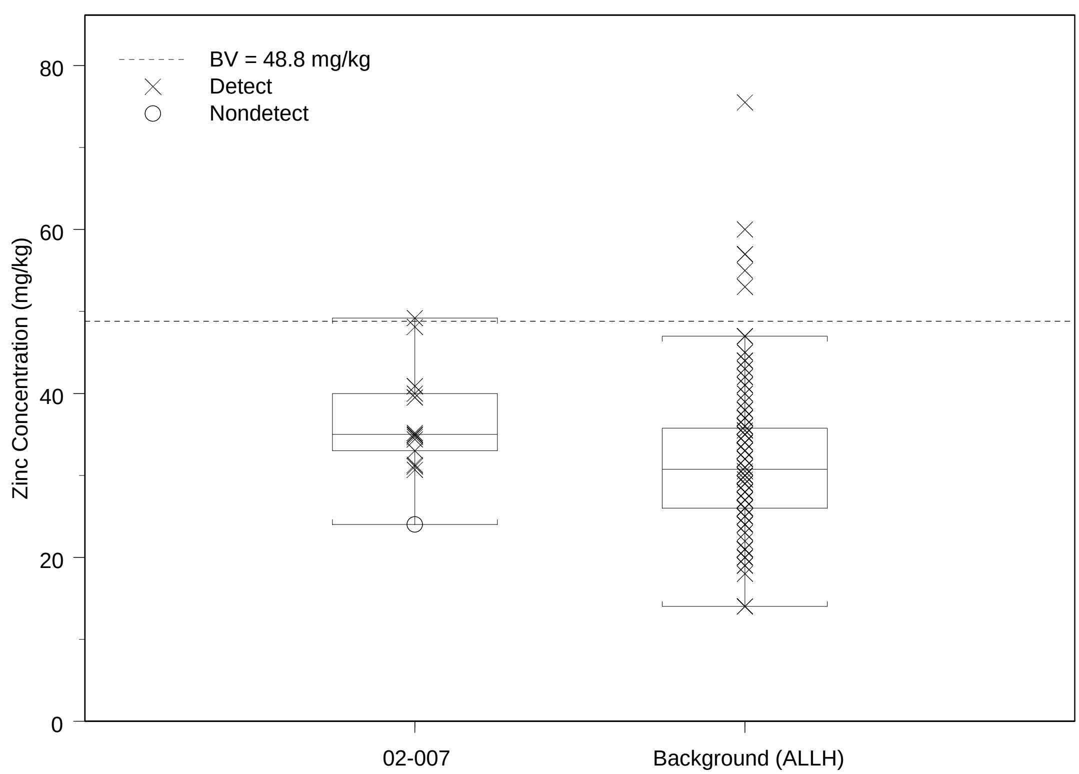

Figure G-15.0-6 Box plot of zinc in soil at SWMU 02-007

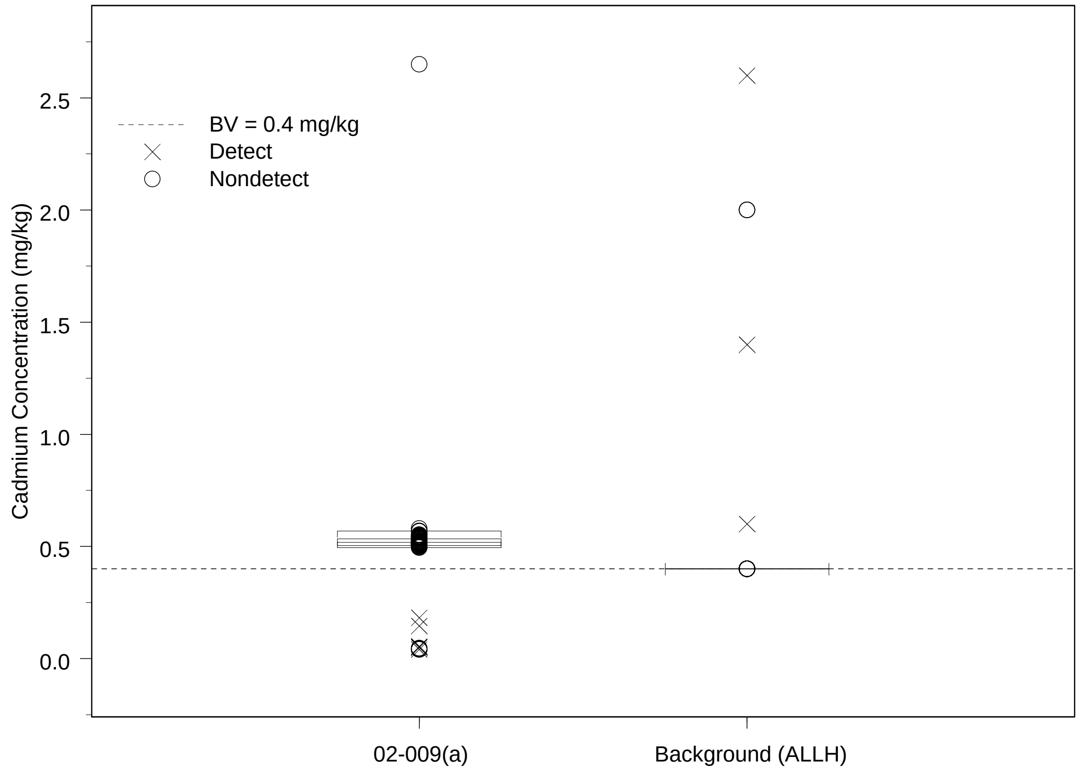

Figure G-15.0-7 Box plot of cadmium in soil at SWMU 02-009(a)

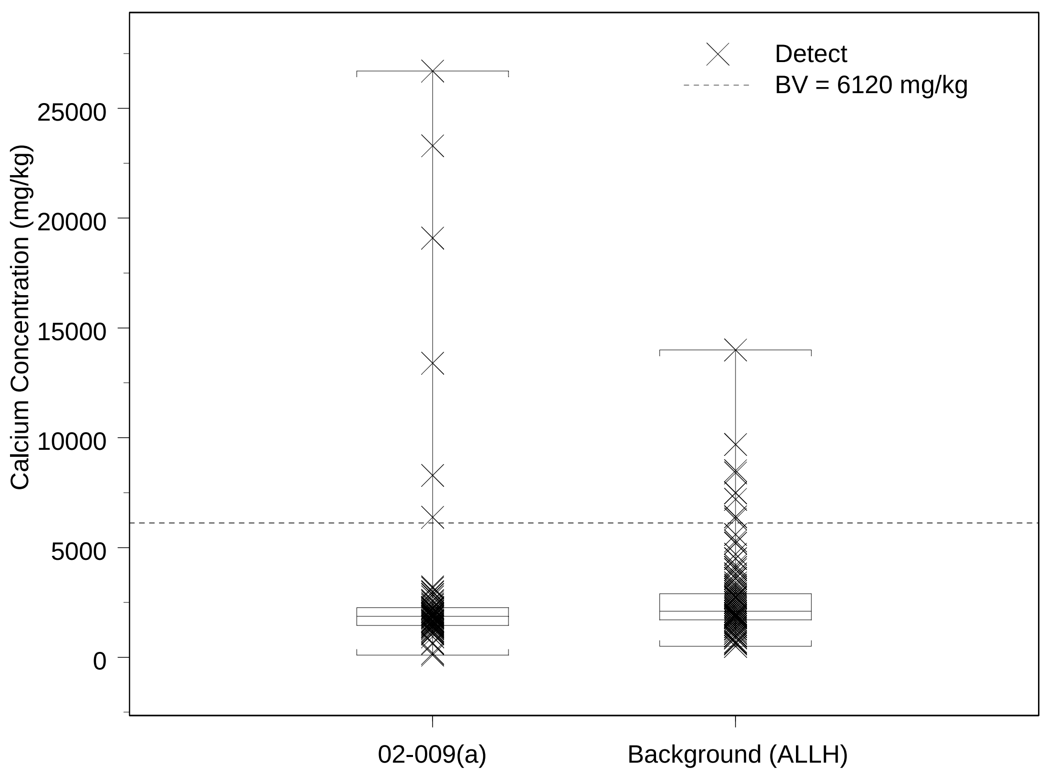

Figure G-15.0-8 Box plot of calcium in soil at SWMU 02-009(a)

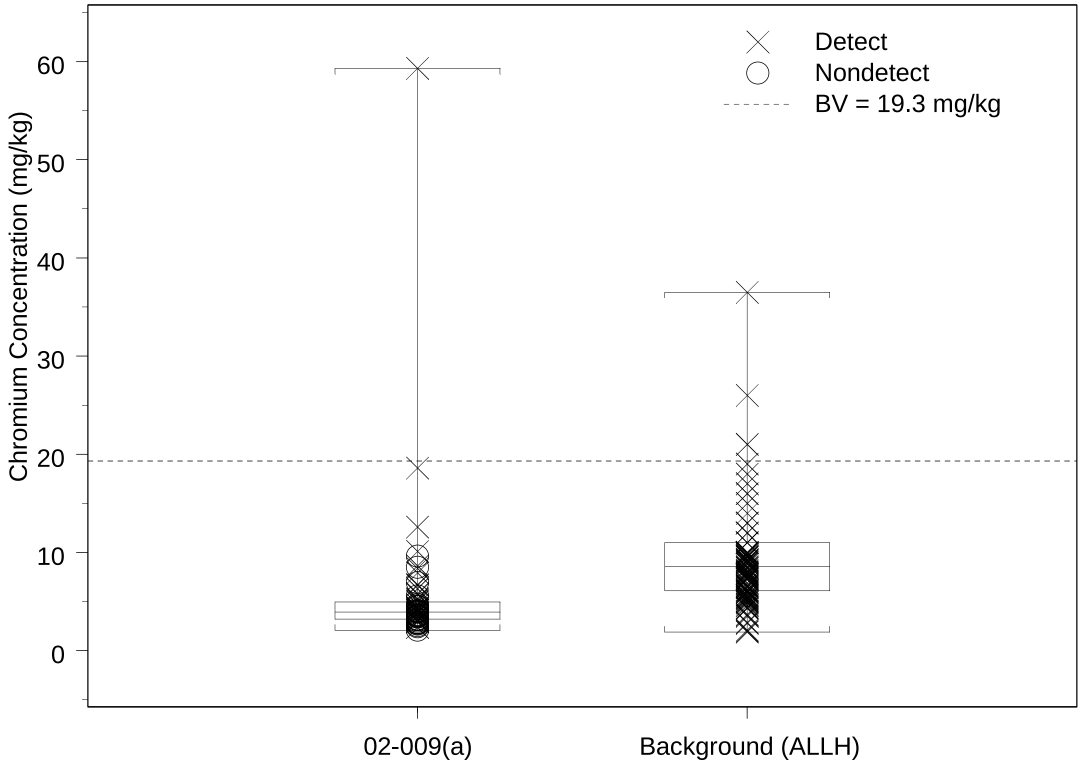

Figure G-15.0-9 Box plot of chromium in soil at SWMU 02-009(a)

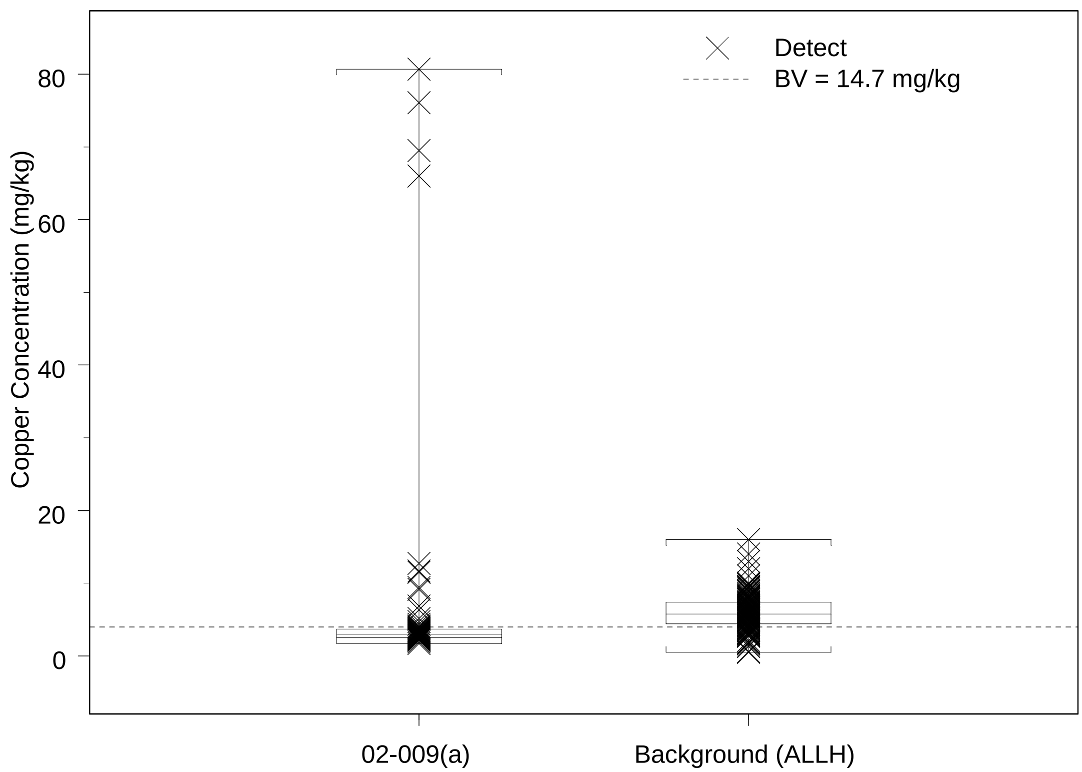

Figure G-15.0-10 Box plot of copper in soil at SWMU 02-009(a)

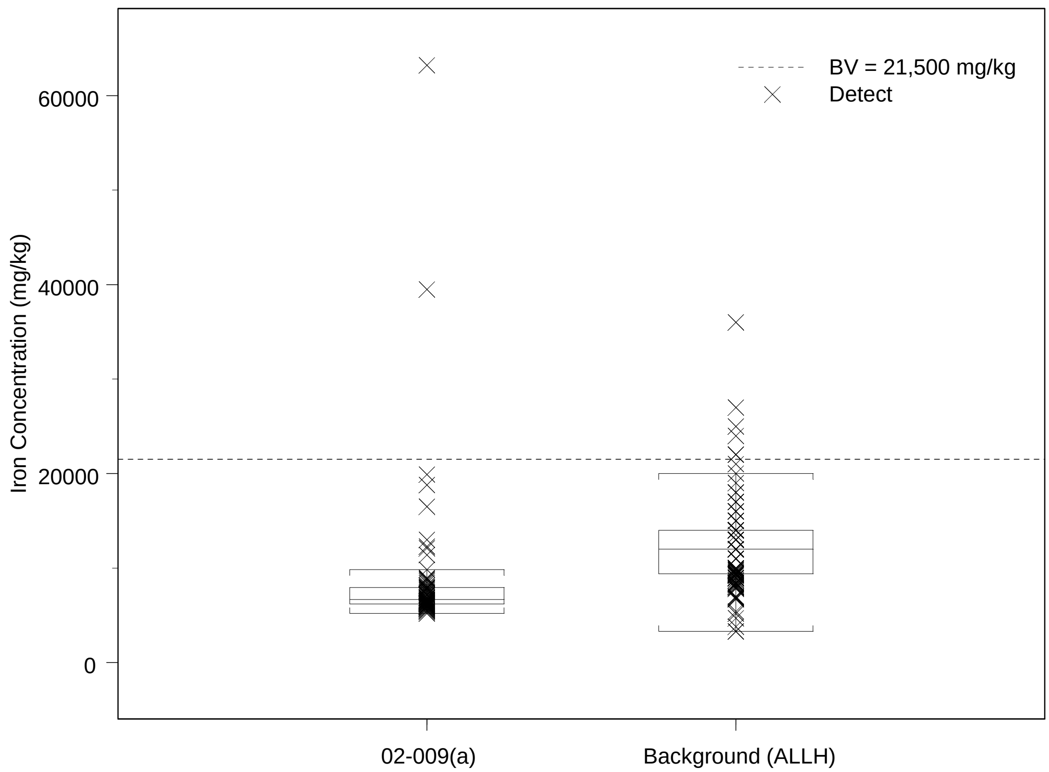

Figure G-15.0-11 Box plot of iron in soil at SWMU 02-009(a)

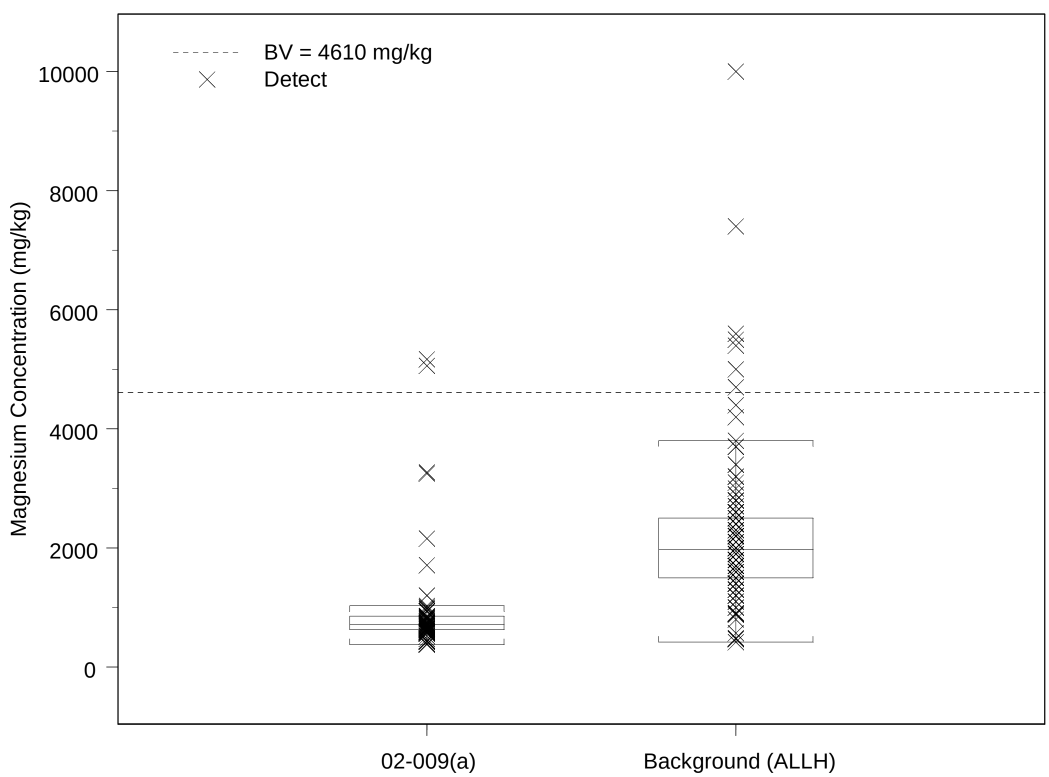

Figure G-15.0-12 Box plot of magnesium in soil at SWMU 02-009(a)

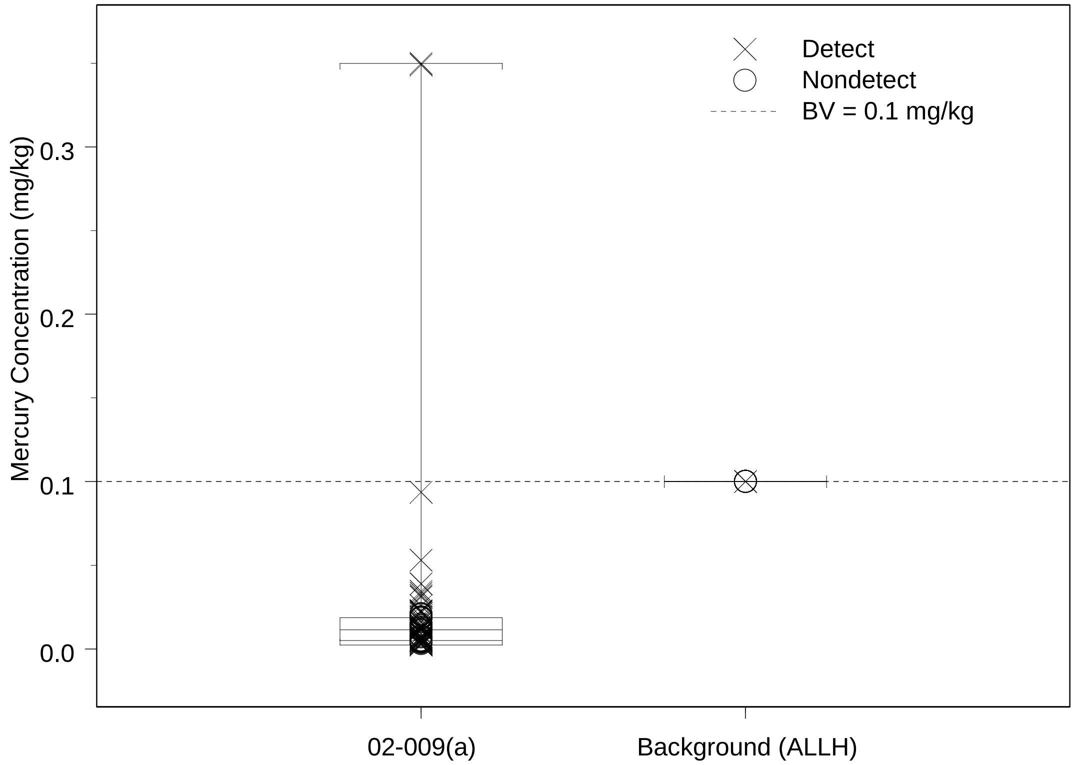

Figure G-15.0-13 Box plot of mercury in soil at SWMU 02-009(a)

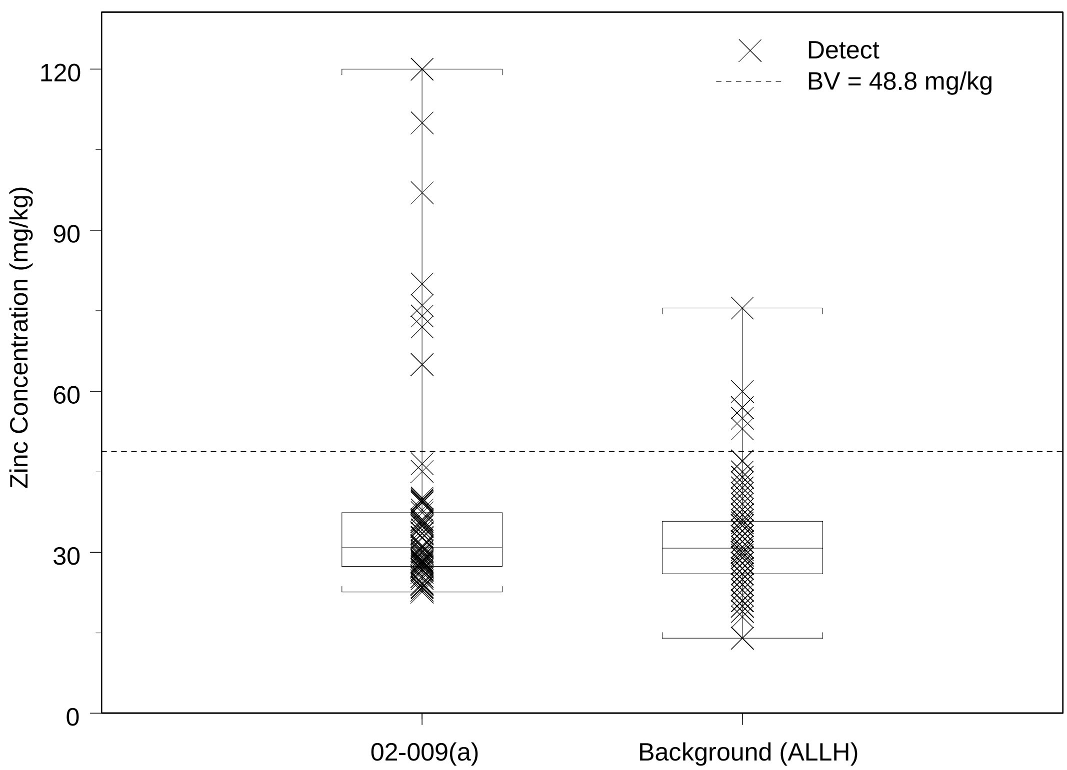

Figure G-15.0-14 Box plot of zinc in soil at SWMU 02-009(a)

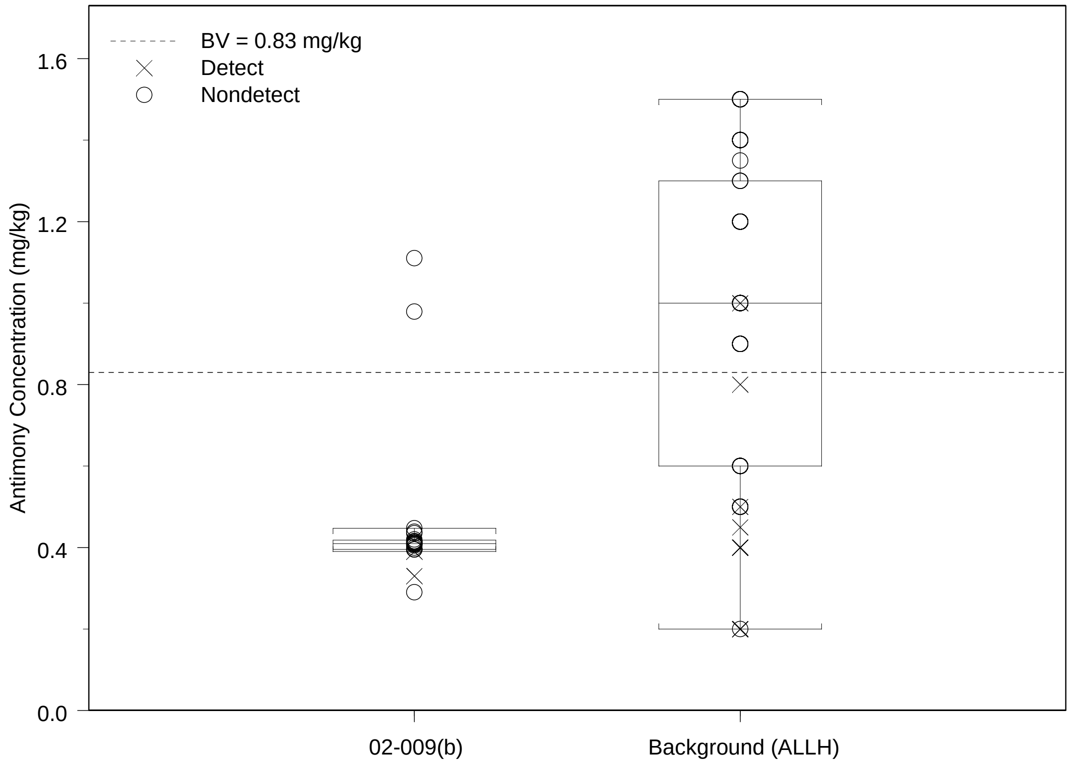

Figure G-15.0-15 Box plot of antimony in soil at SWMU 02-009(b)

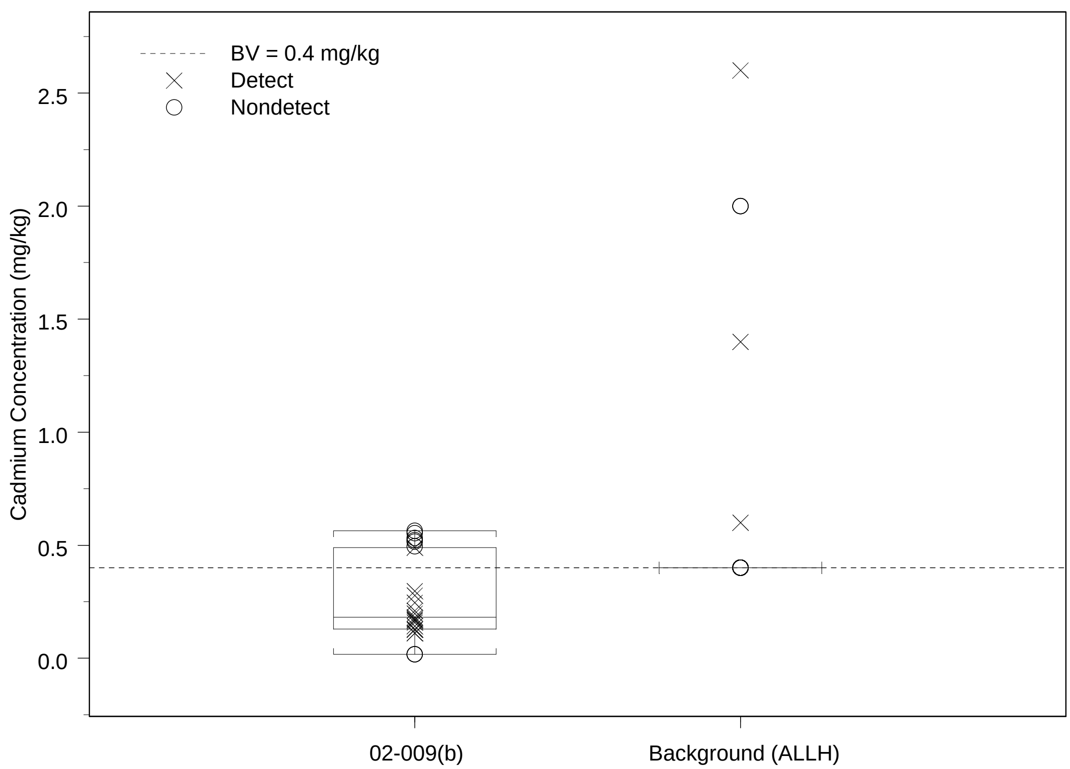

Figure G-15.0-16 Box plot of cadmium in soil at SWMU 02-009(b)

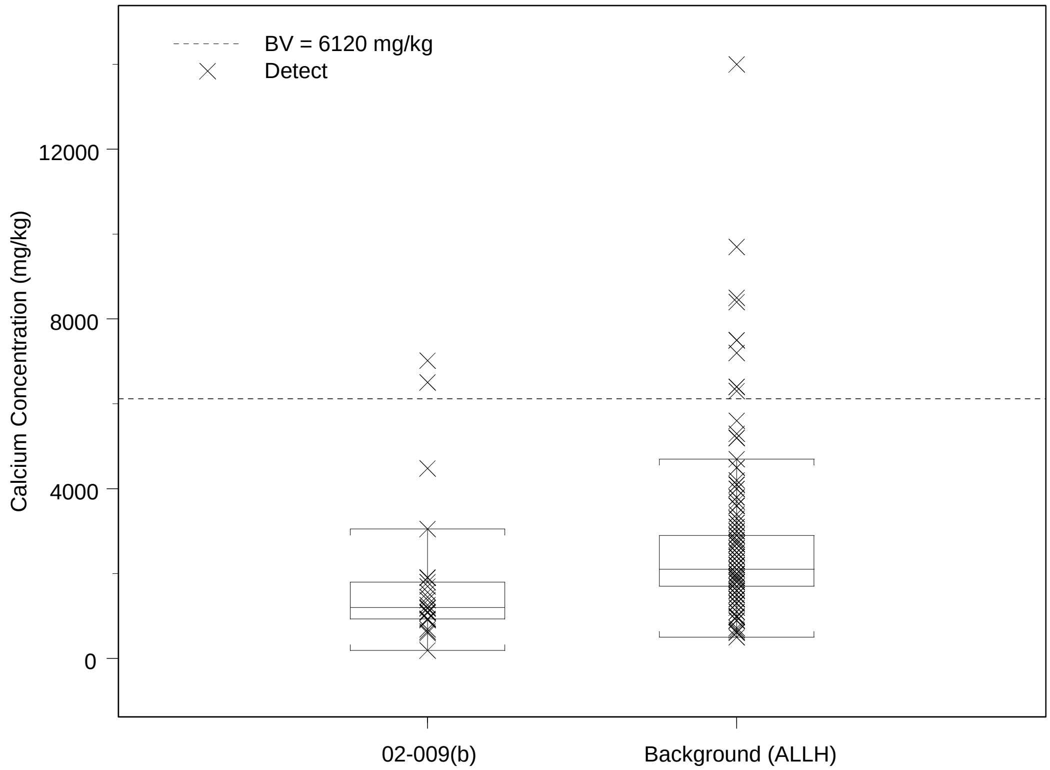

Figure G-15.0-17 Box plot of calcium in soil at SWMU 02-009(b)

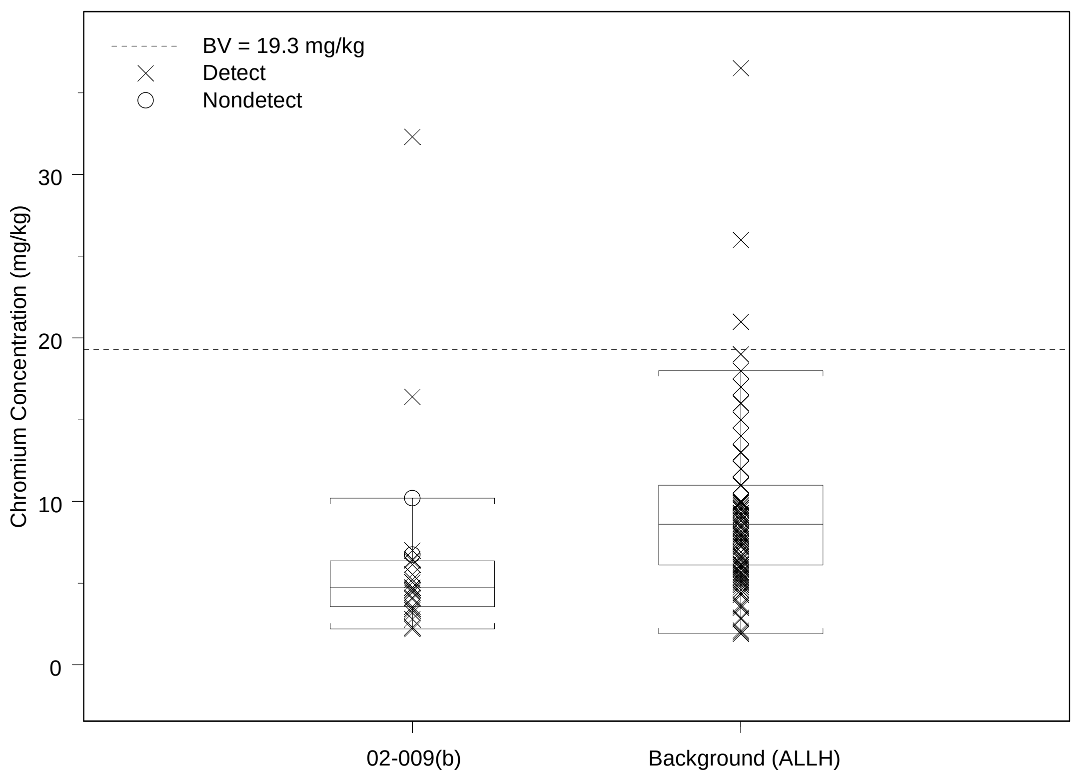

Figure G-15.0-18 Box plot of chromium in soil at SWMU 02-009(b)

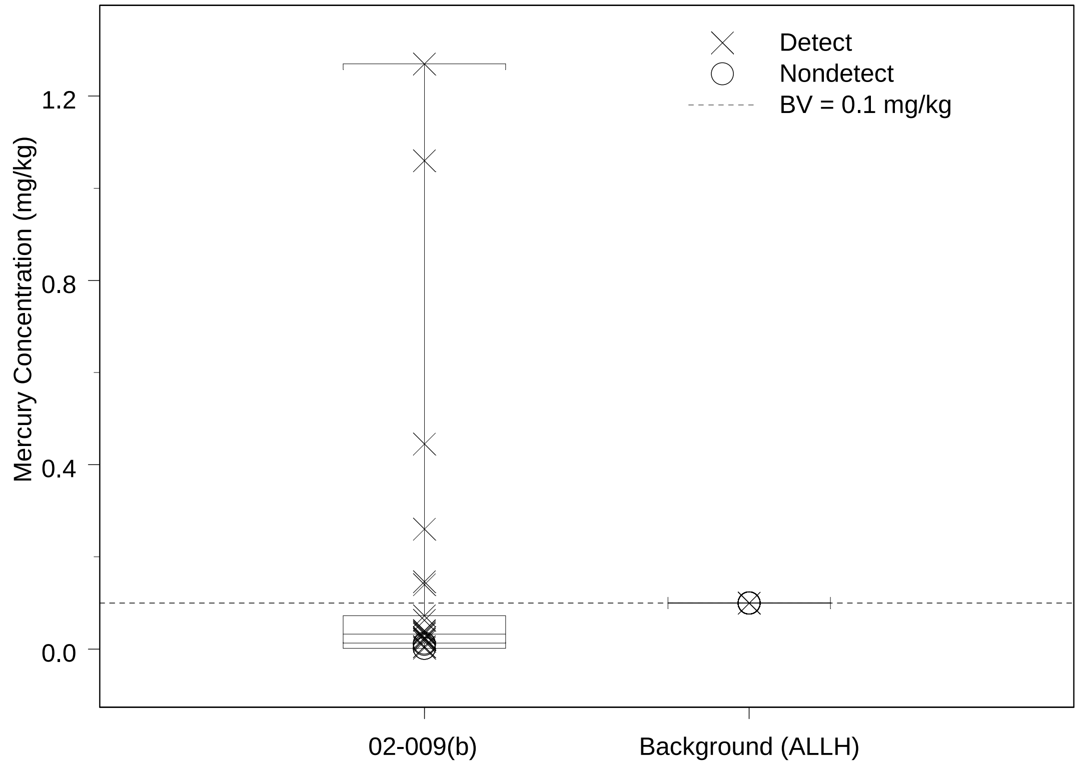

Figure G-15.0-19 Box plot of mercury in soil at SWMU 02-009(b)

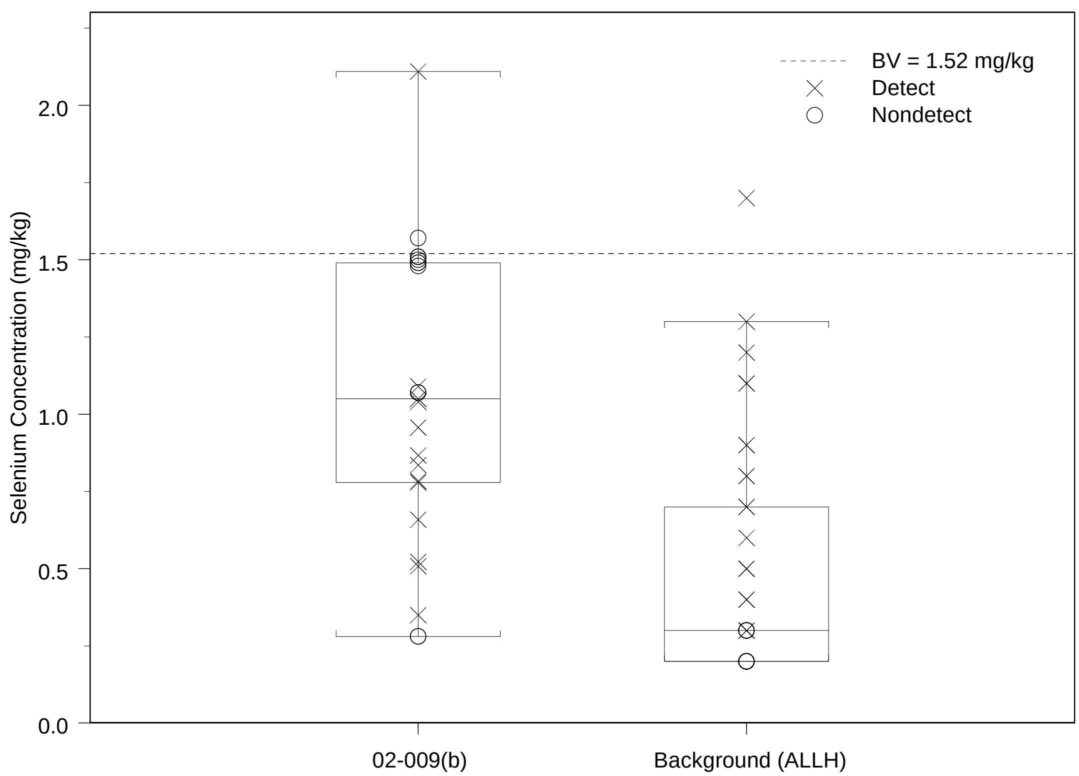

Figure G-15.0-20 Box plot of selenium in soil at SWMU 02-009(b)

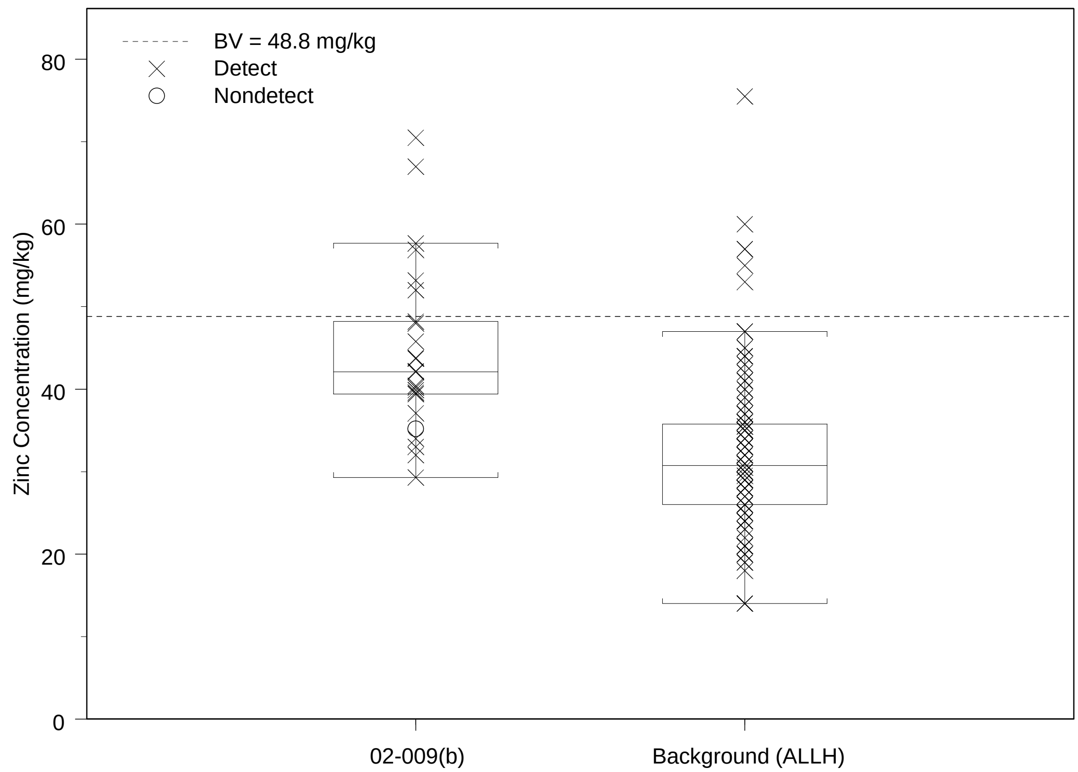

Figure G-15.0-21 Box plot of zinc in soil at SWMU 02-009(b)

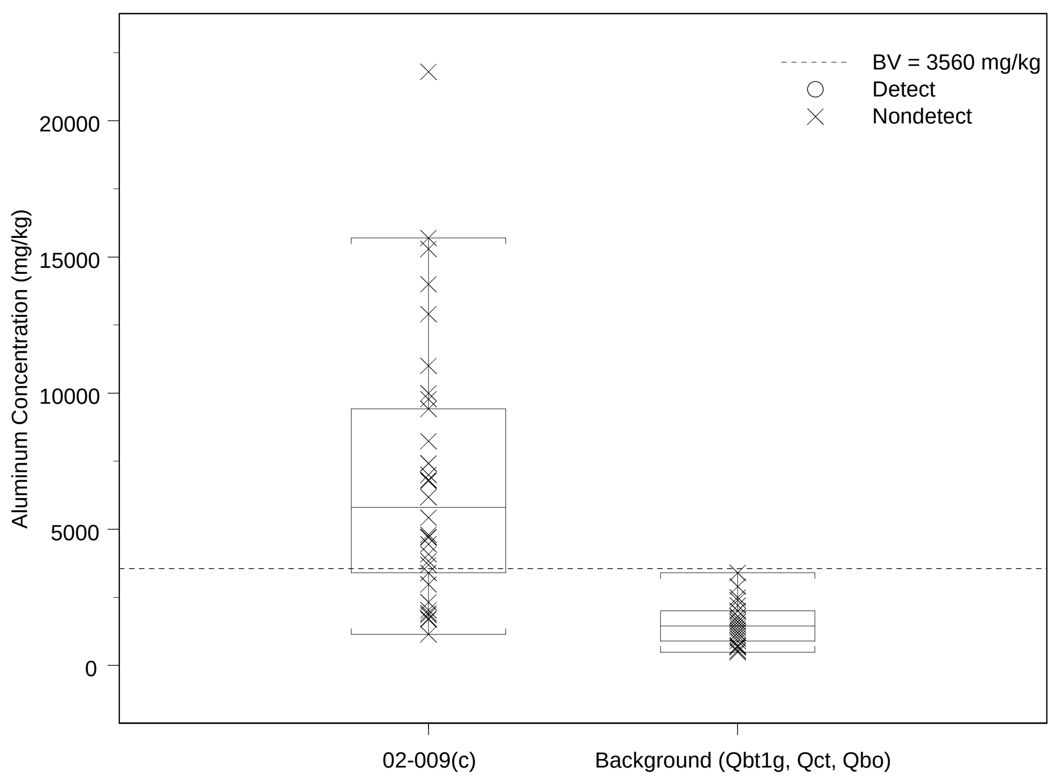

Figure G-15.0-22 Box plot of aluminum in Qbo tuff at SWMU 02-009(c)

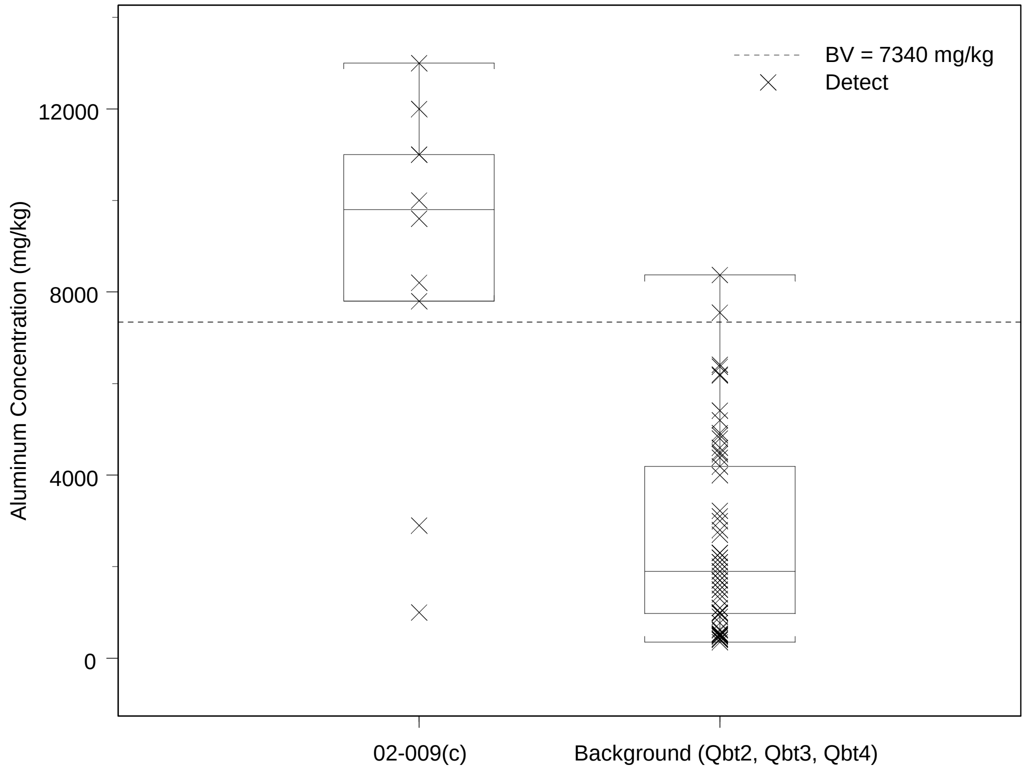

Figure G-15.0-23 Box plot of aluminum in Qbt 2 tuff at SWMU 02-009(c)

Figure G-15.0-24 Box plot of arsenic in Qbo tuff at SWMU 02-009(c)

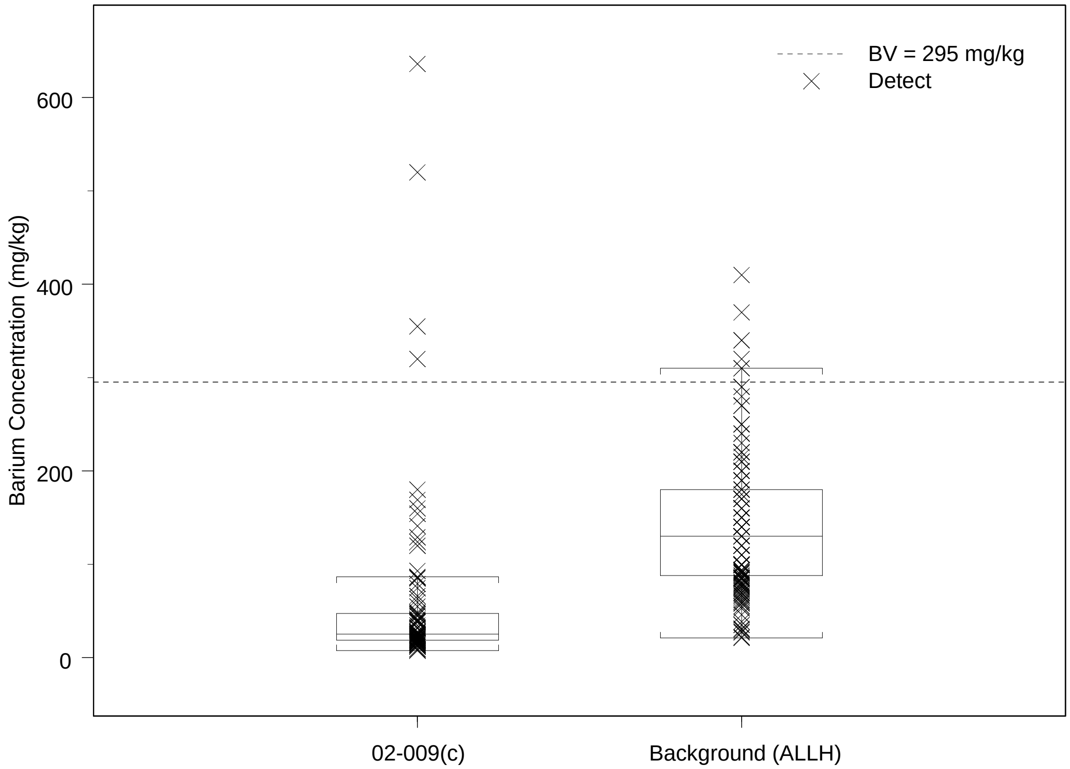

Figure G-15.0-25 Box plot of barium in soil at SWMU 02-009(c)

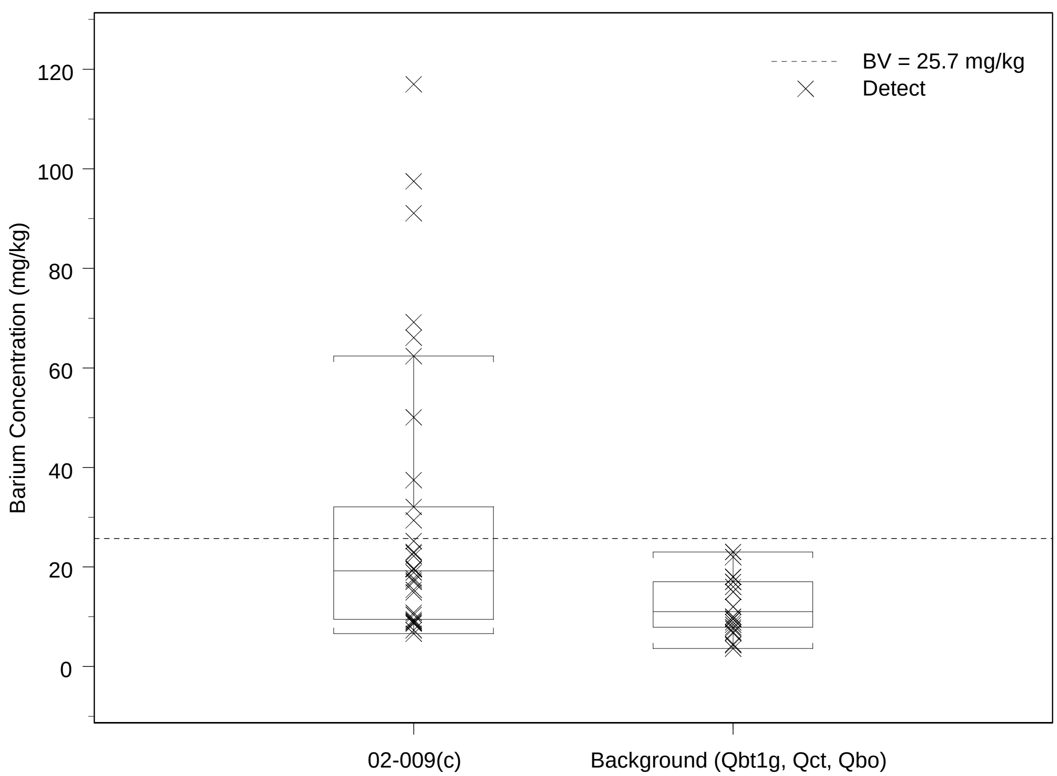

Figure G-15.0-26 Box plot of barium in Qbo tuff at SWMU 02-009(c)

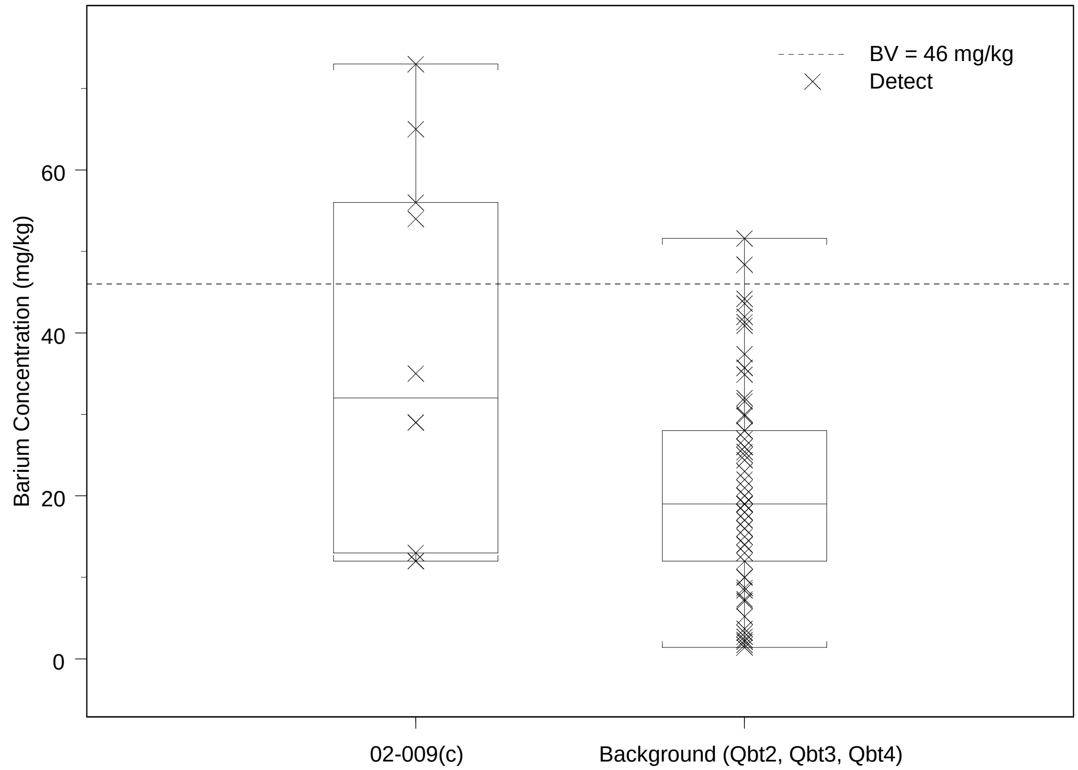

Figure G-15.0-27 Box plot of barium in Qbt 2 tuff at SWMU 02-009(c)

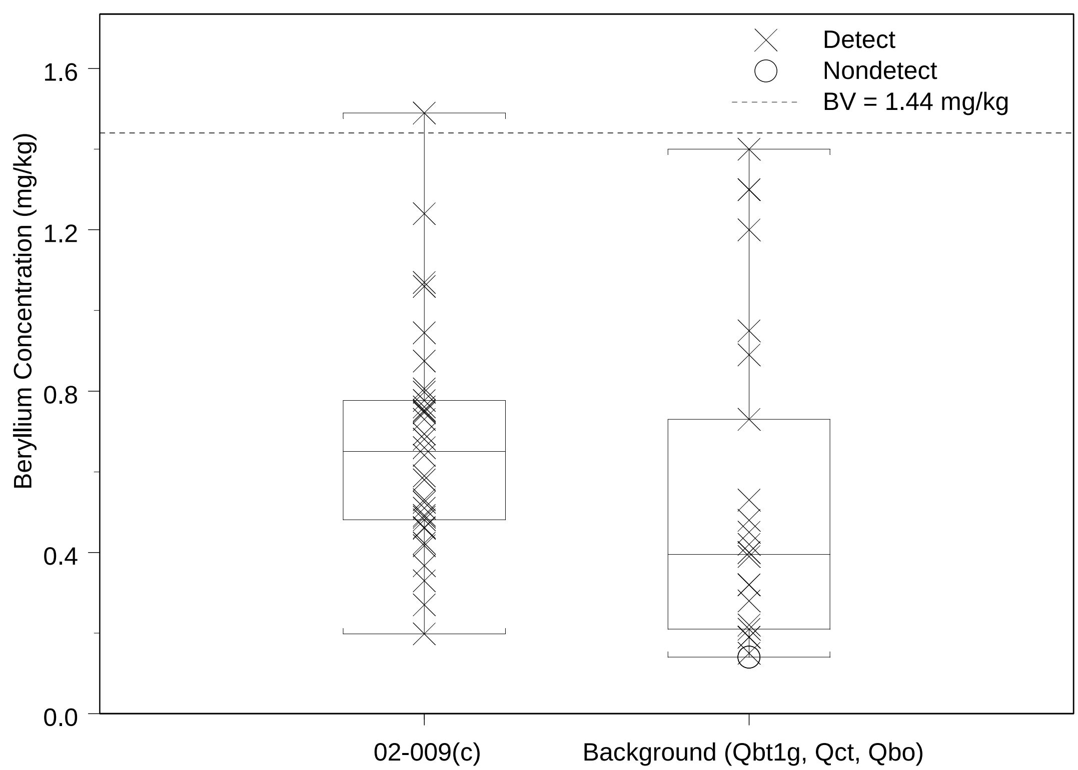

Figure G-15.0-28 Box plot of beryllium in Qbo tuff at SWMU 02-009(c)

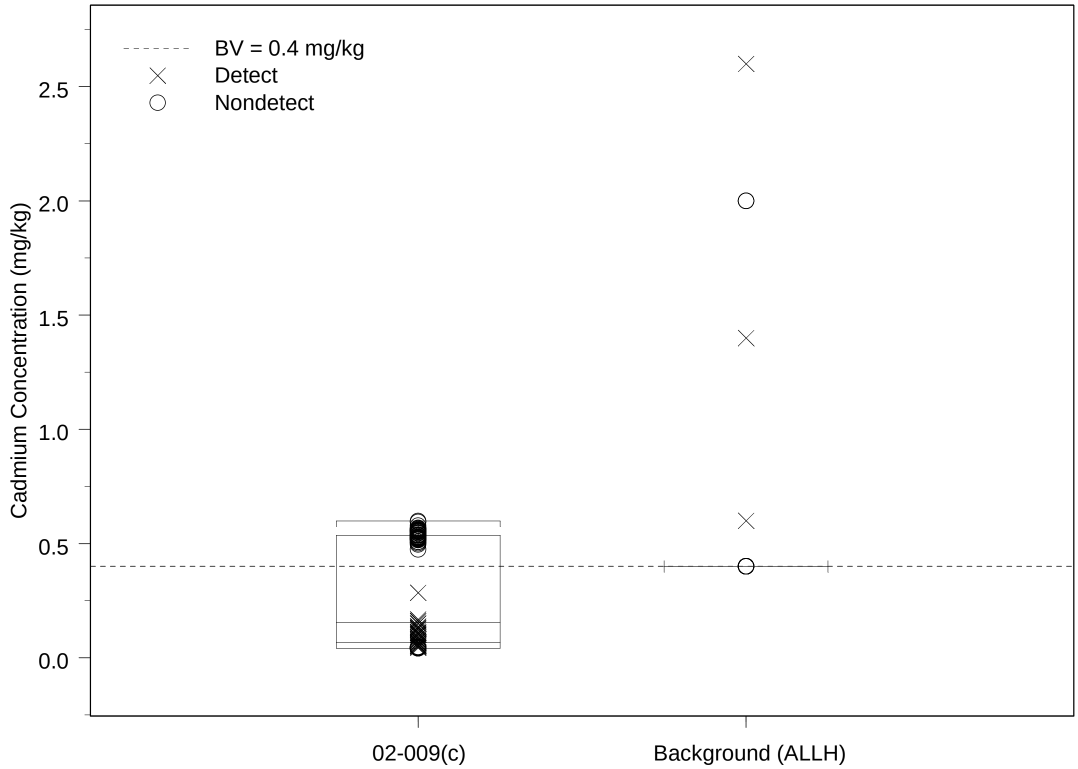

Figure G-15.0-29 Box plot of cadmium in soil at SWMU 02-009(c)

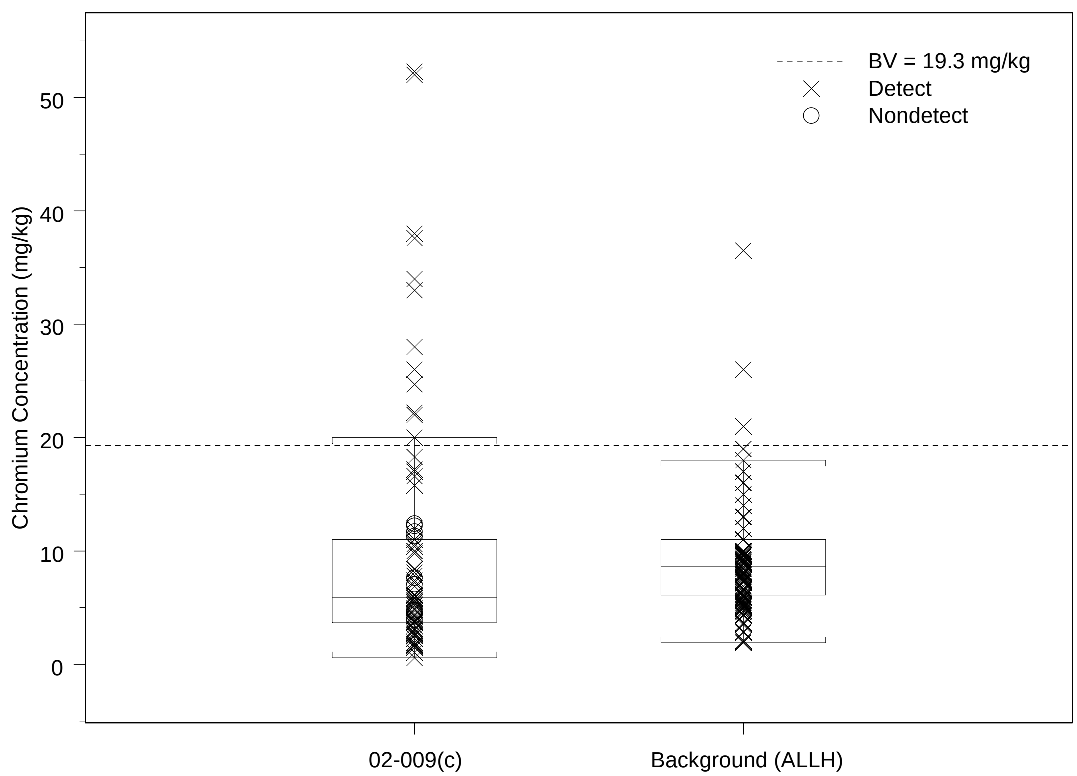

Figure G-15.0-30 Box plot of chromium in soil at SWMU 02-009(c)

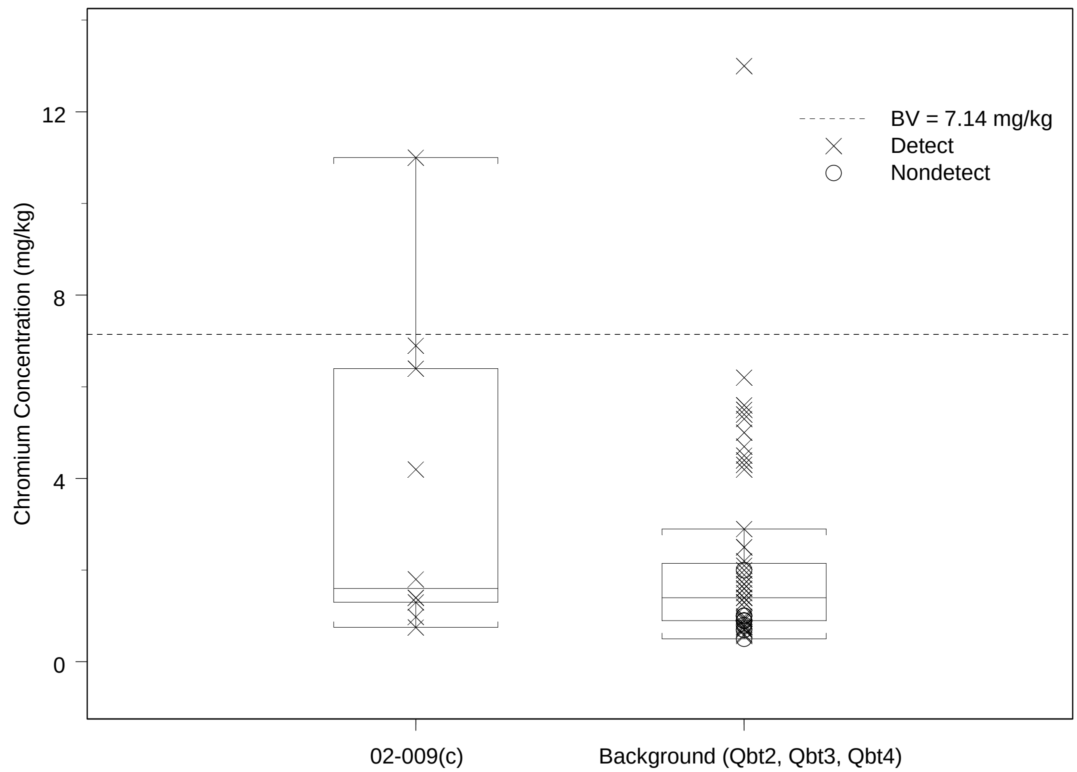

Figure G-15.0-31 Box plot of chromium in Qbt 2 tuff at SWMU 02-009(c)

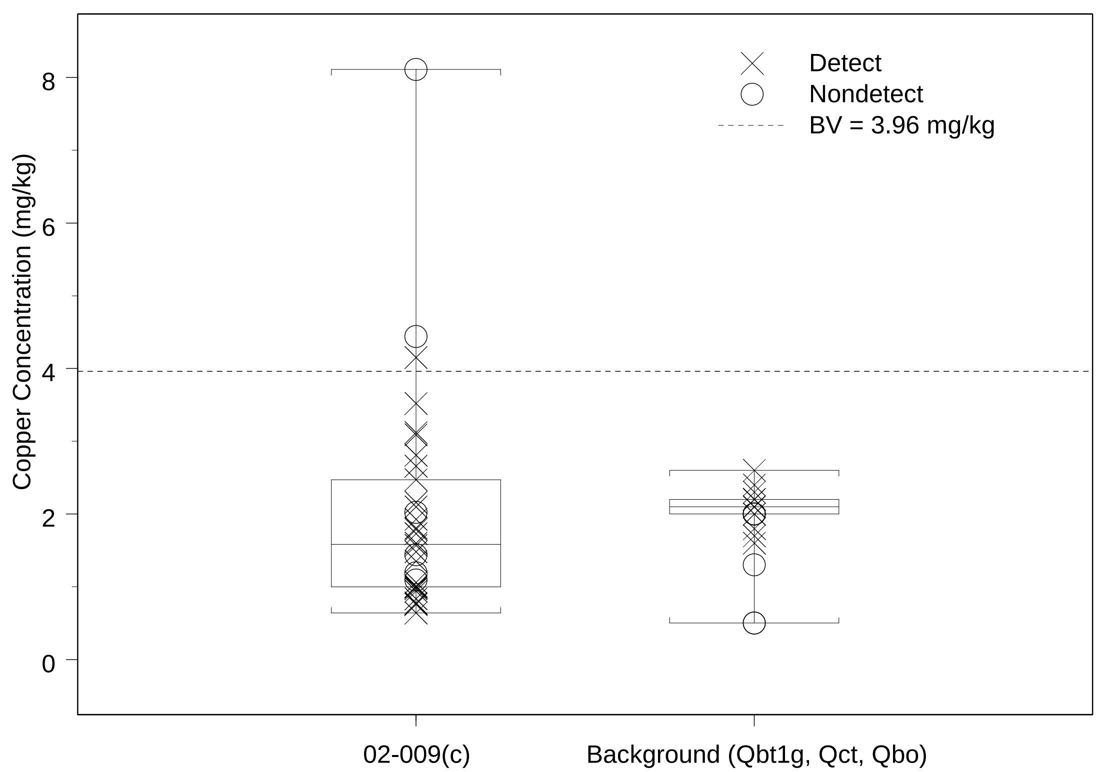

Figure G-15.0-32 Box plot of copper in Qbo tuff at SWMU 02-009(c)

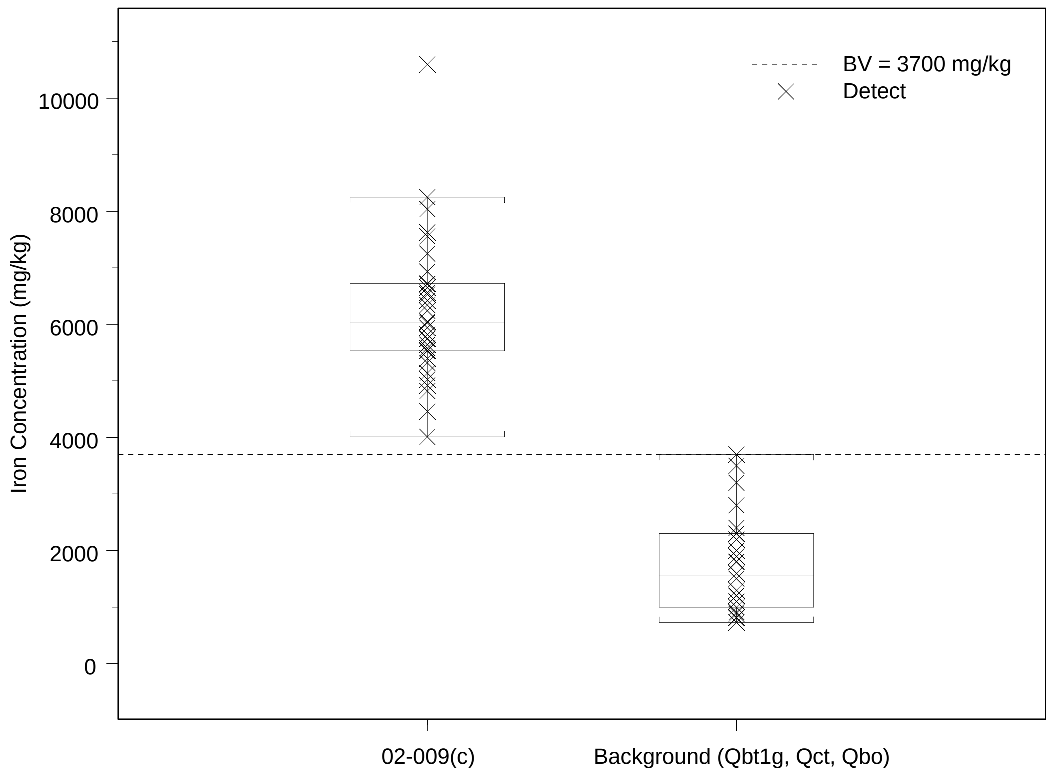

Figure G-15.0-33 Box plot of iron in Qbo tuff at SWMU 02-009(c)

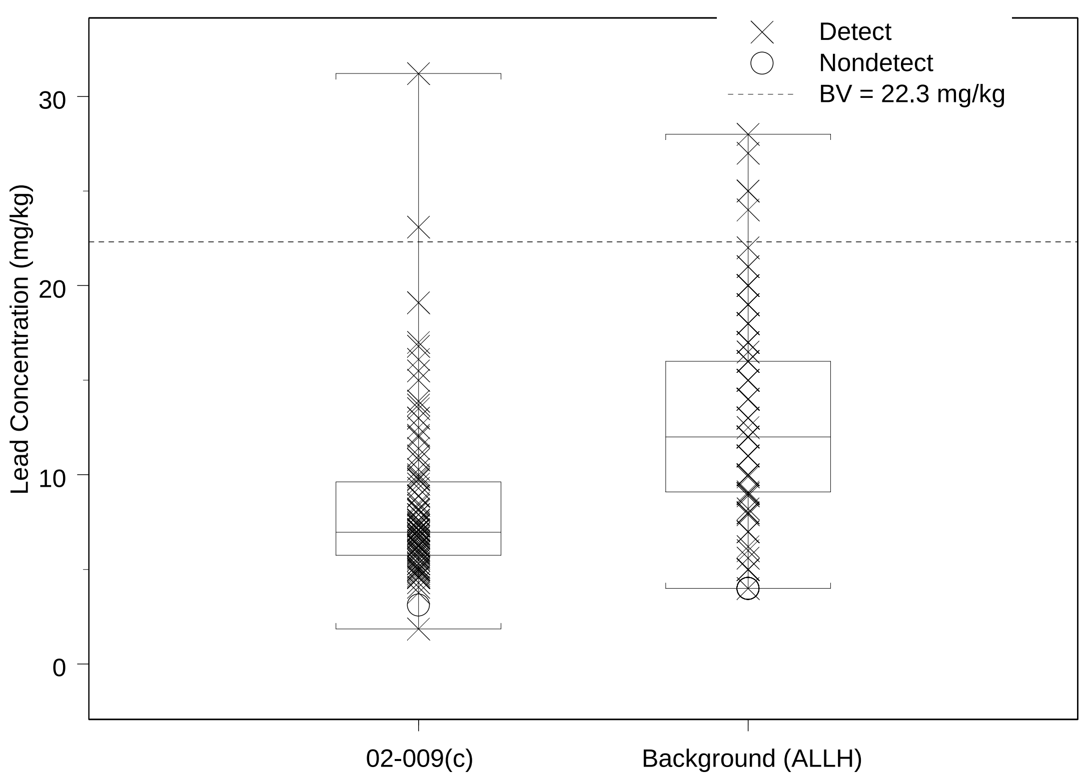

Figure G-15.0-34 Box plot of lead in soil at SWMU 02-009(c)

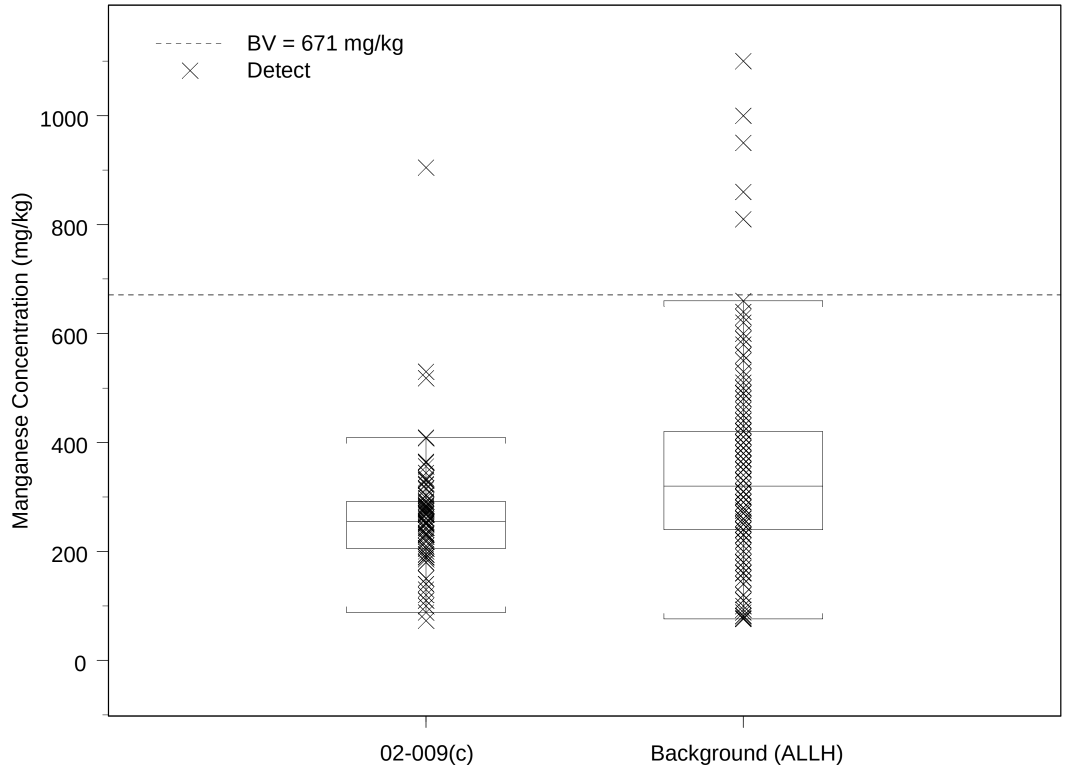

Figure G-15.0-35 Box plot of manganese in soil at SWMU 02-009(c)

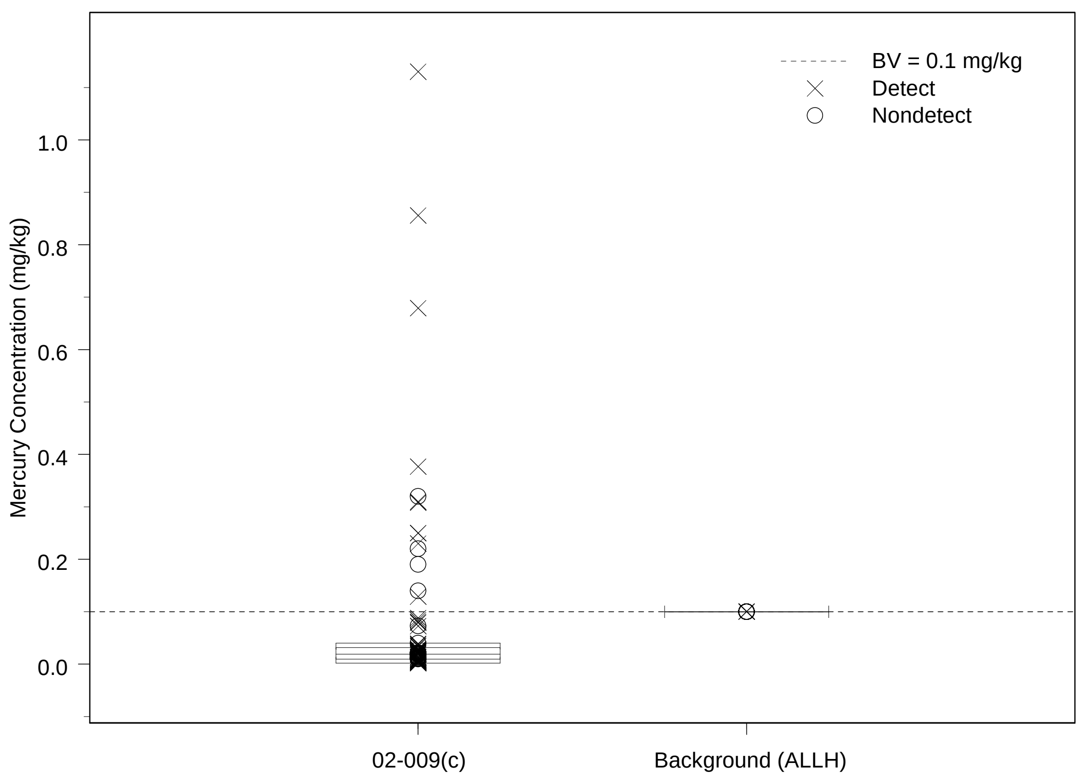

Figure G-15.0-36 Box plot of mercury in soil at SWMU 02-009(c)

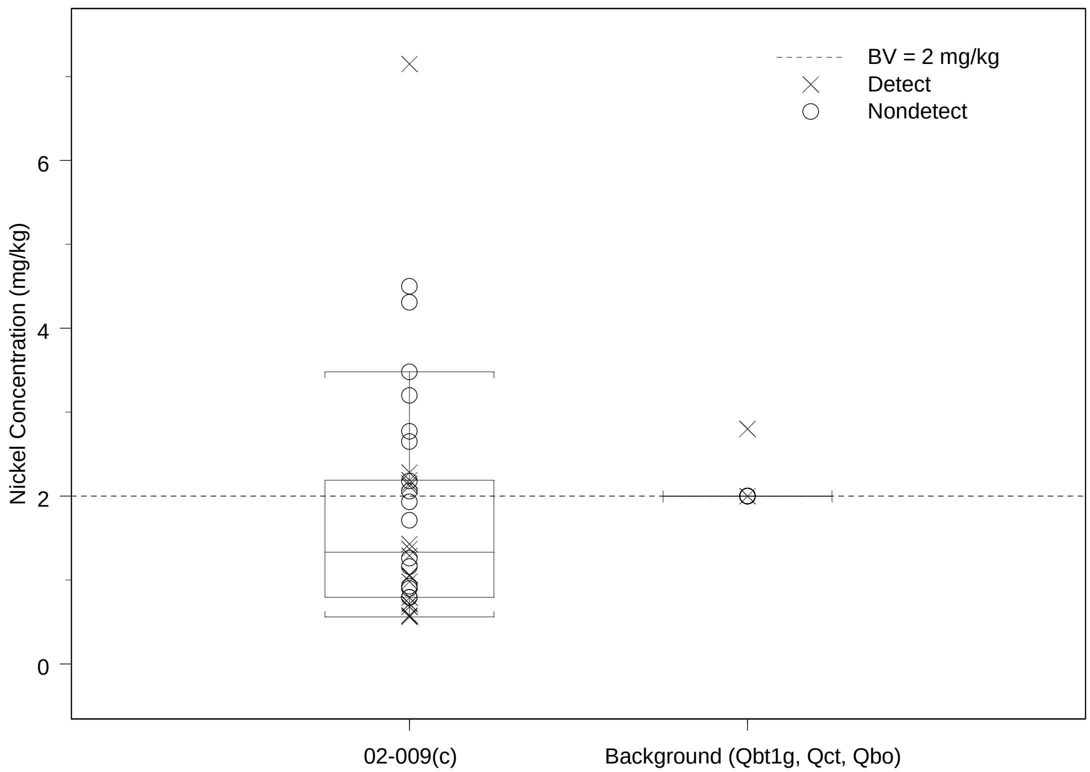

Figure G-15.0-37 Box plot of nickel in Qbo tuff at SWMU 02-009(c)

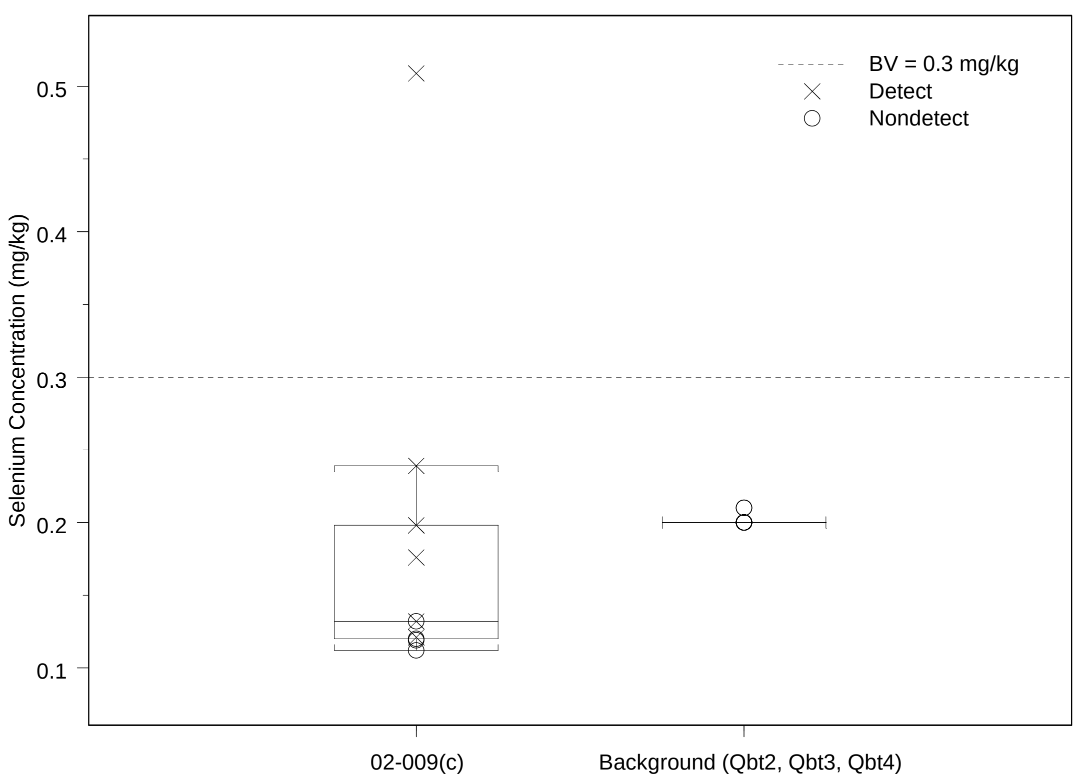

Figure G-15.0-38 Box plot of selenium in Qbt 2 tuff at SWMU 02-009(c)

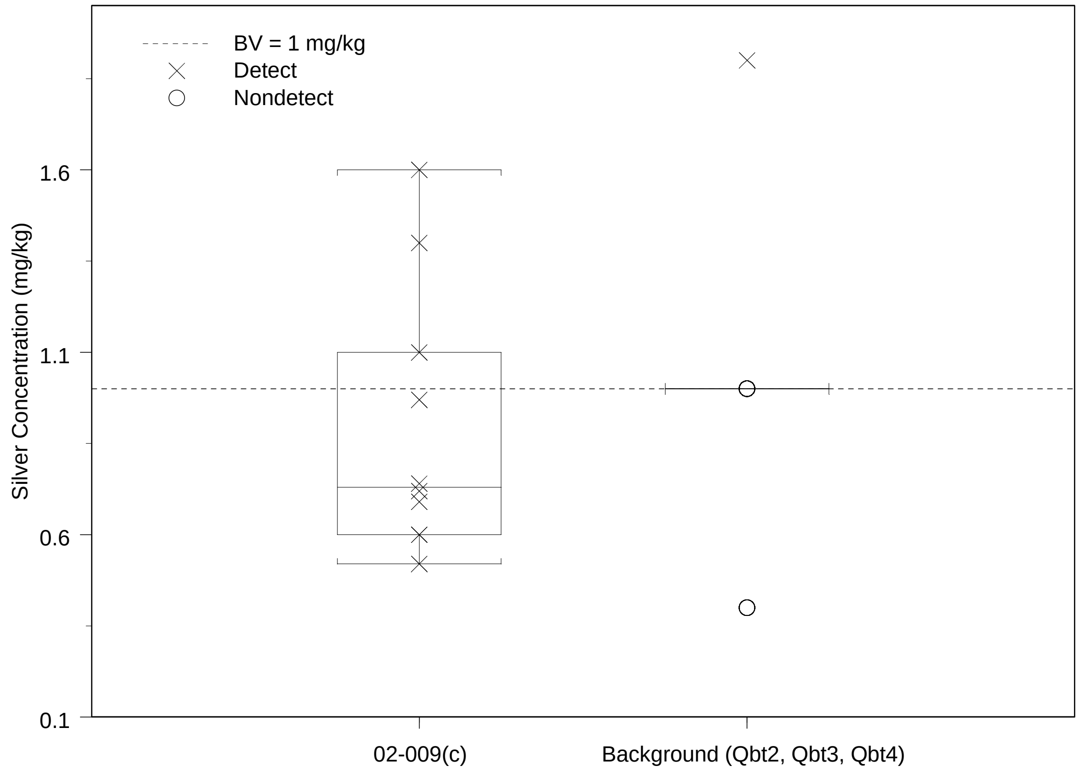

Figure G-15.0-39 Box plot of silver in Qbt 2 tuff at SWMU 02-009(c)

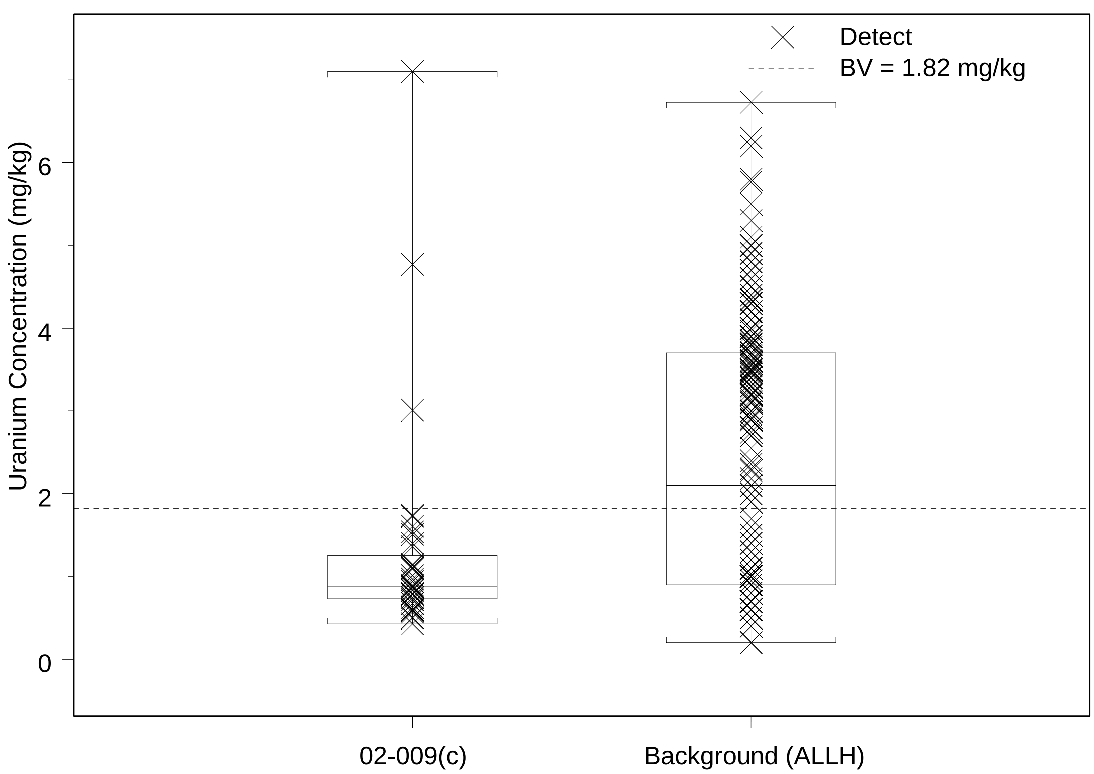

Figure G-15.0-40 Box plot of uranium in soil at SWMU 02-009(c)

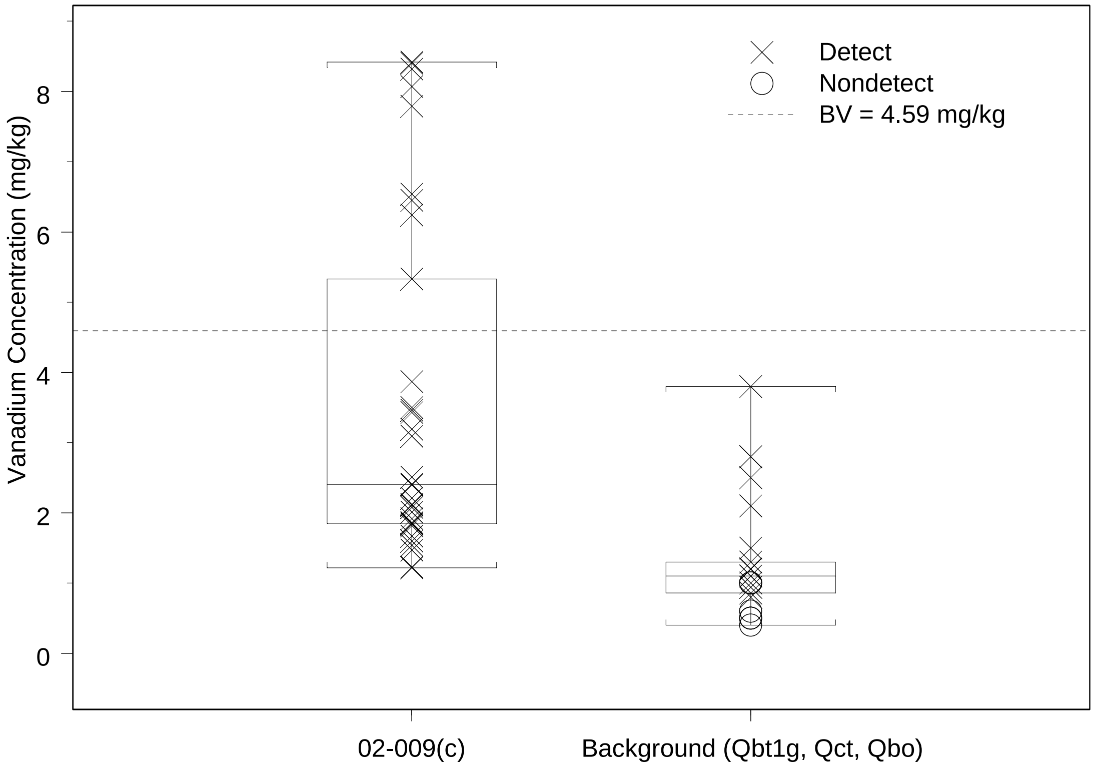

Figure G-15.0-41 Box plot of vanadium in Qbo tuff at SWMU 02-009(c)

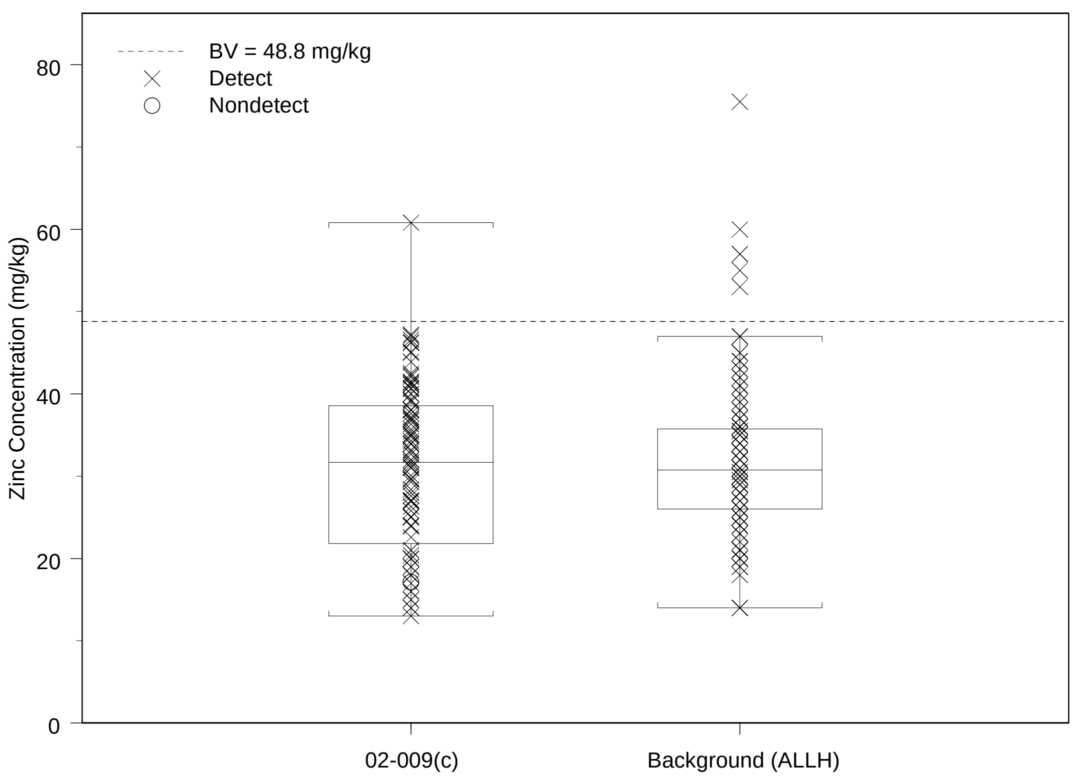

Figure G-15.0-42 Box plot of zinc in soil at SWMU 02-009(c)

G-16.0 BOX PLOTS FOR SWMU 02-008(a)

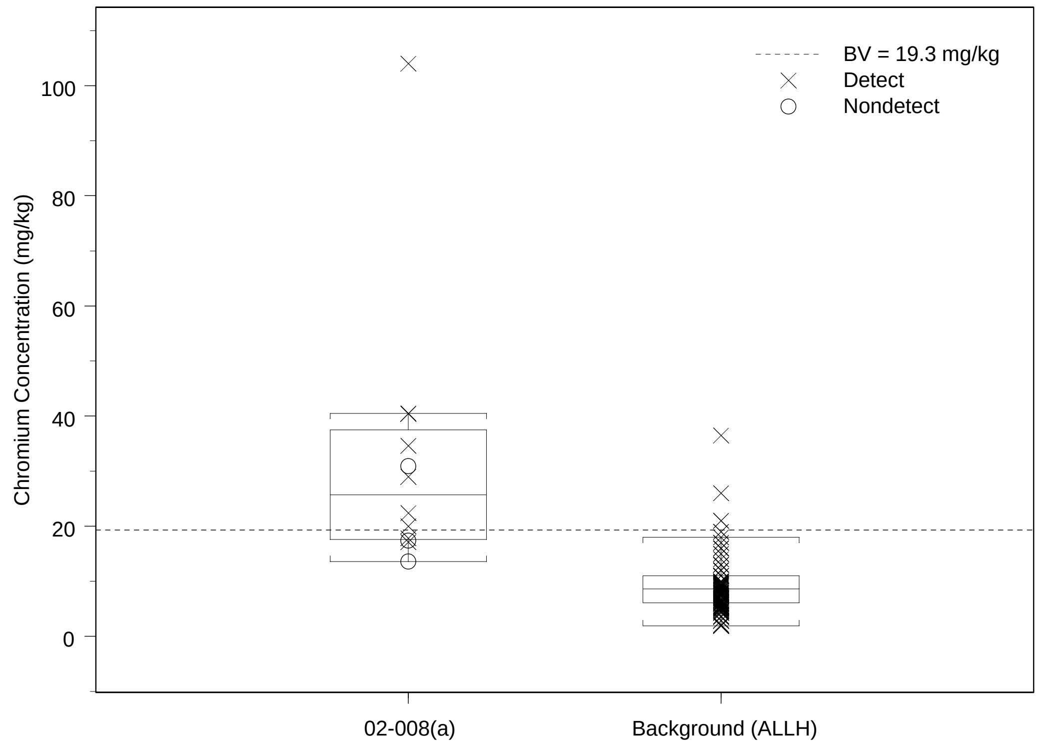

Figure G-16.0-1 Box plot of chromium in soil at SWMU 02-008(a)

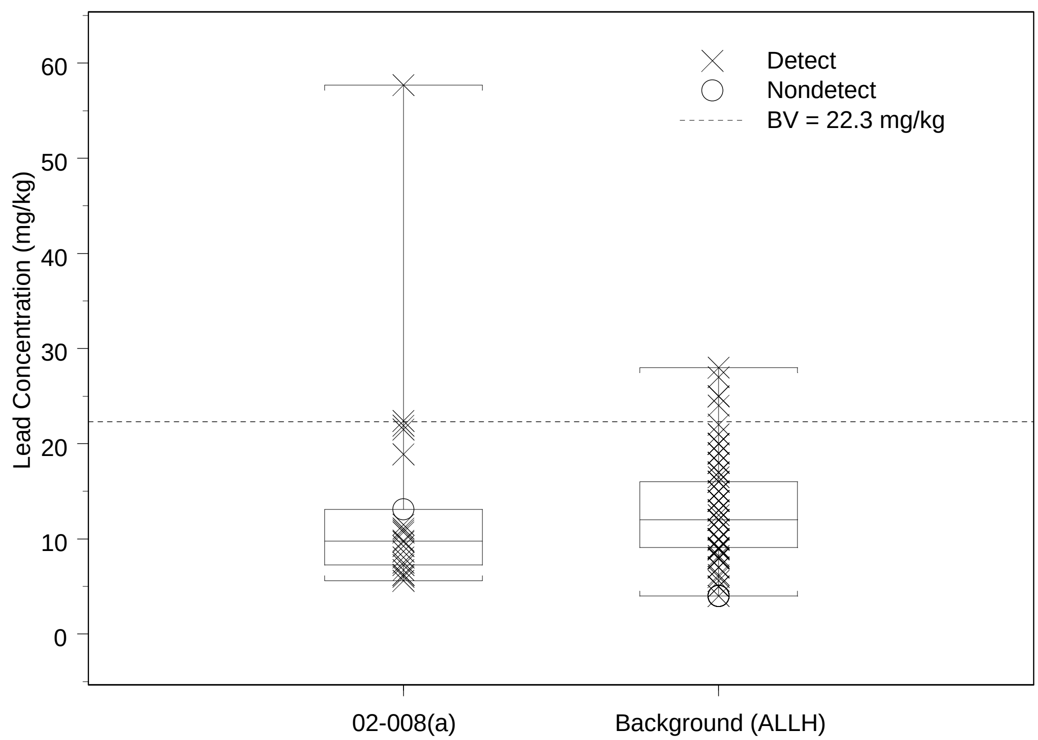

Figure G-16.0-2 Box plot of lead in soil at SWMU 02-008(a)

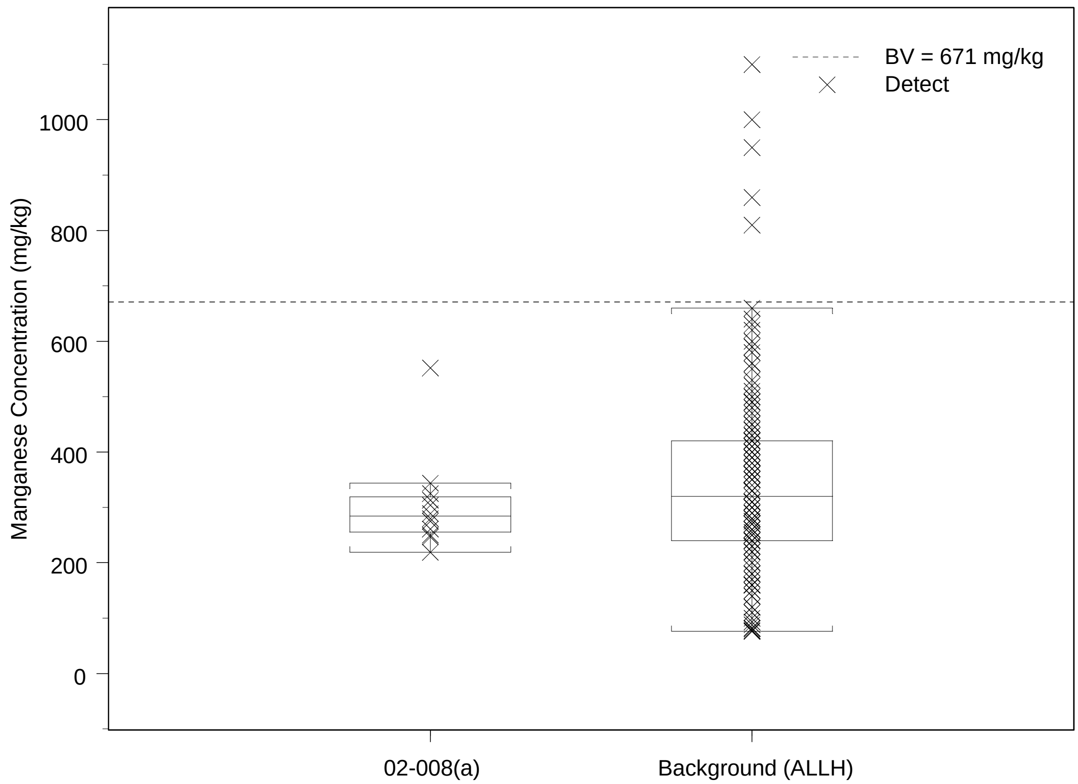

Figure G-16.0-3   Box plot of manganese in soil at SWMU 02-008(a)

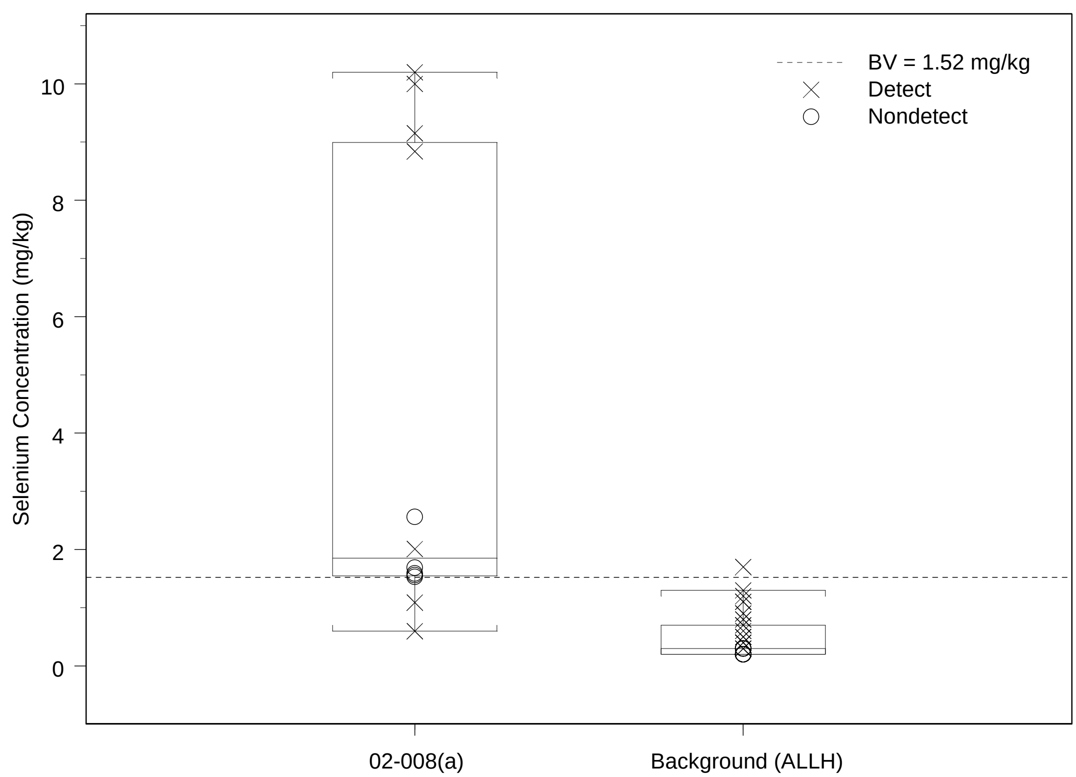

Figure G-16.0-4   Box plot of selenium in soil at SWMU 02-008(a)

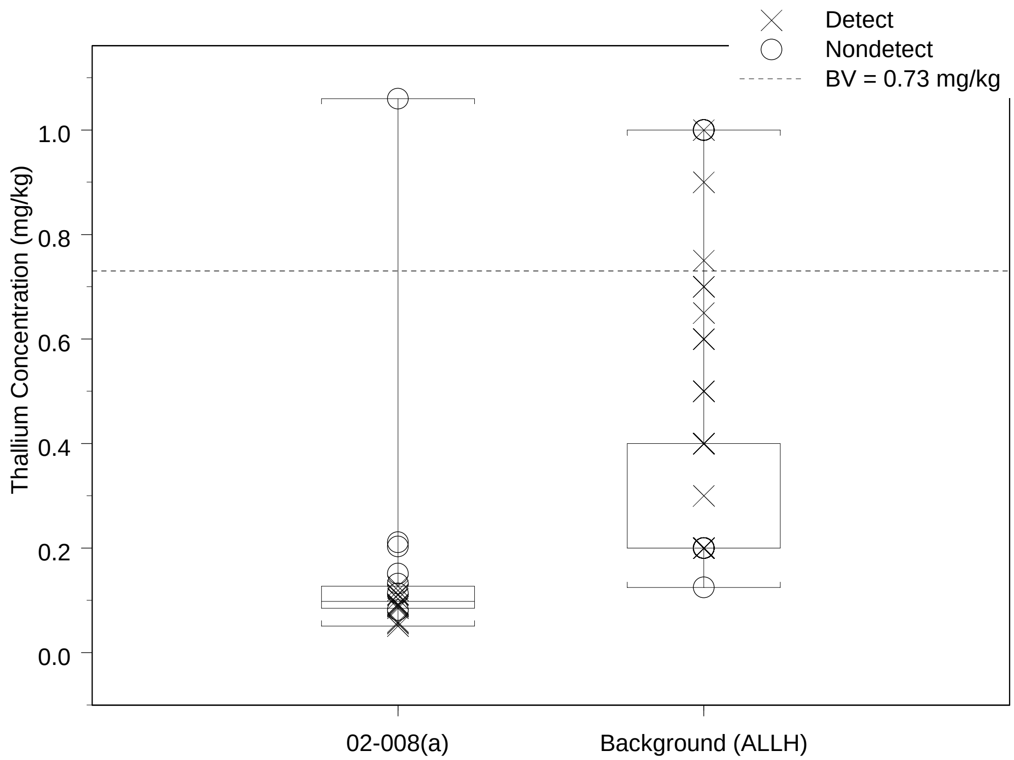

Figure G-16.0-5 Box plot of thallium in soil at SWMU 02-008(a)

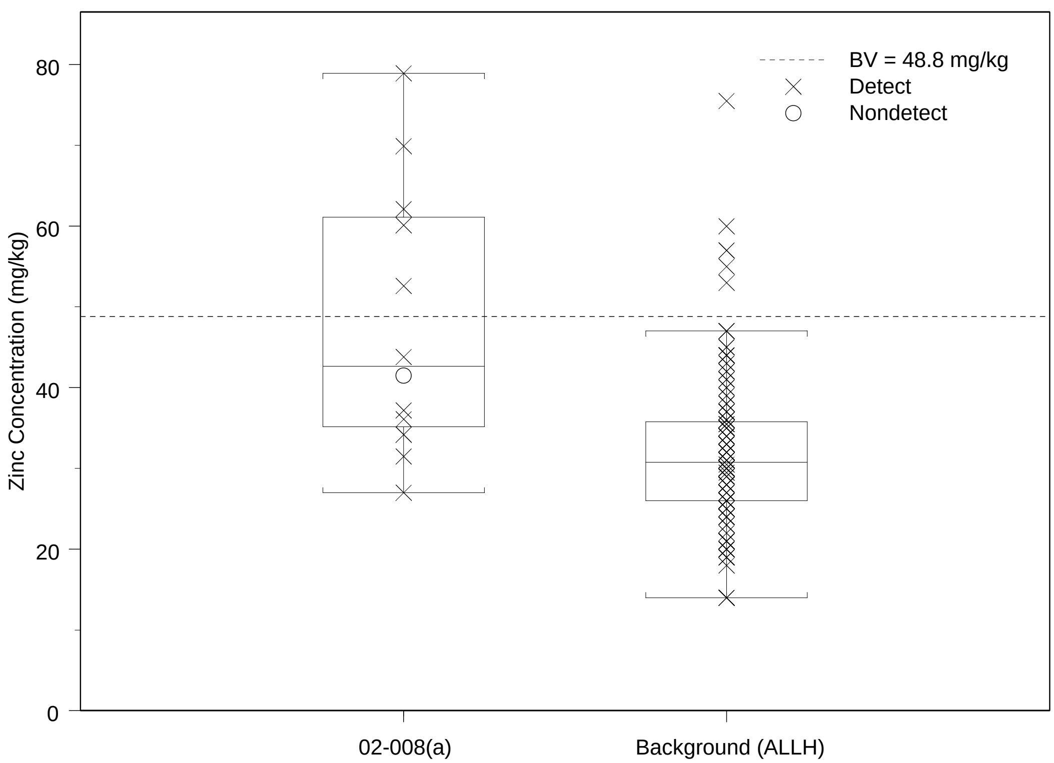

Figure G-16.0-6 Box plot of zinc in soil at SWMU 02-008(a)

G-17.0 BOX PLOTS FOR AOC 02-008(c)

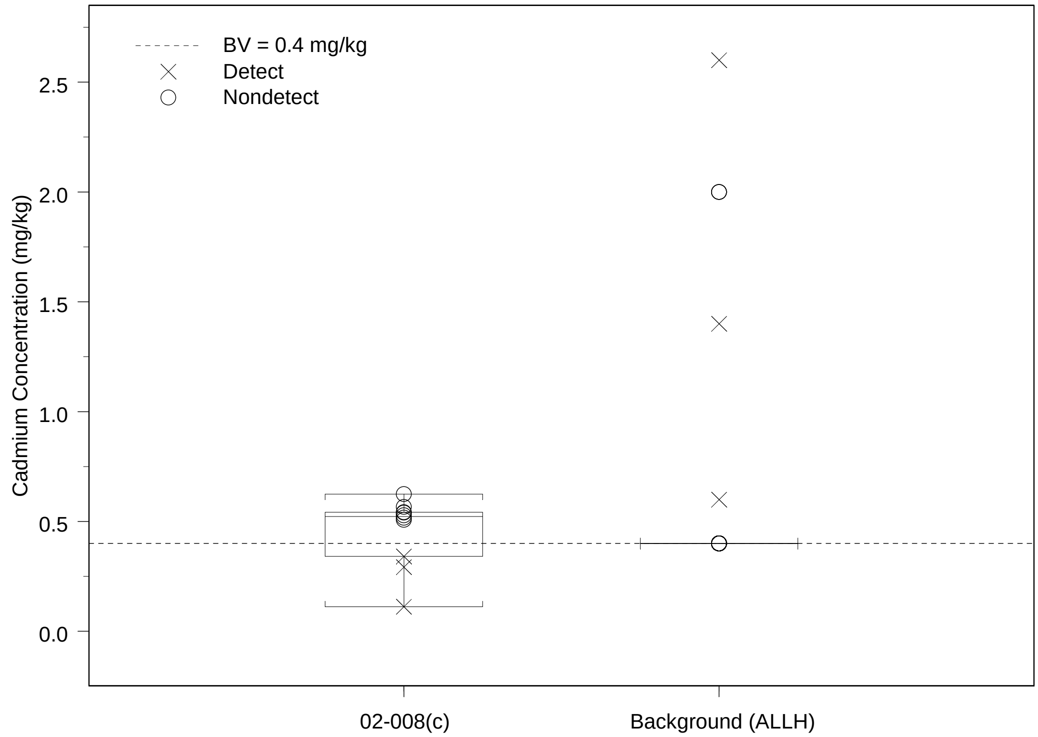

Figure G-17.0-1 Box plot of cadmium in soil at AOC 02-008(c)

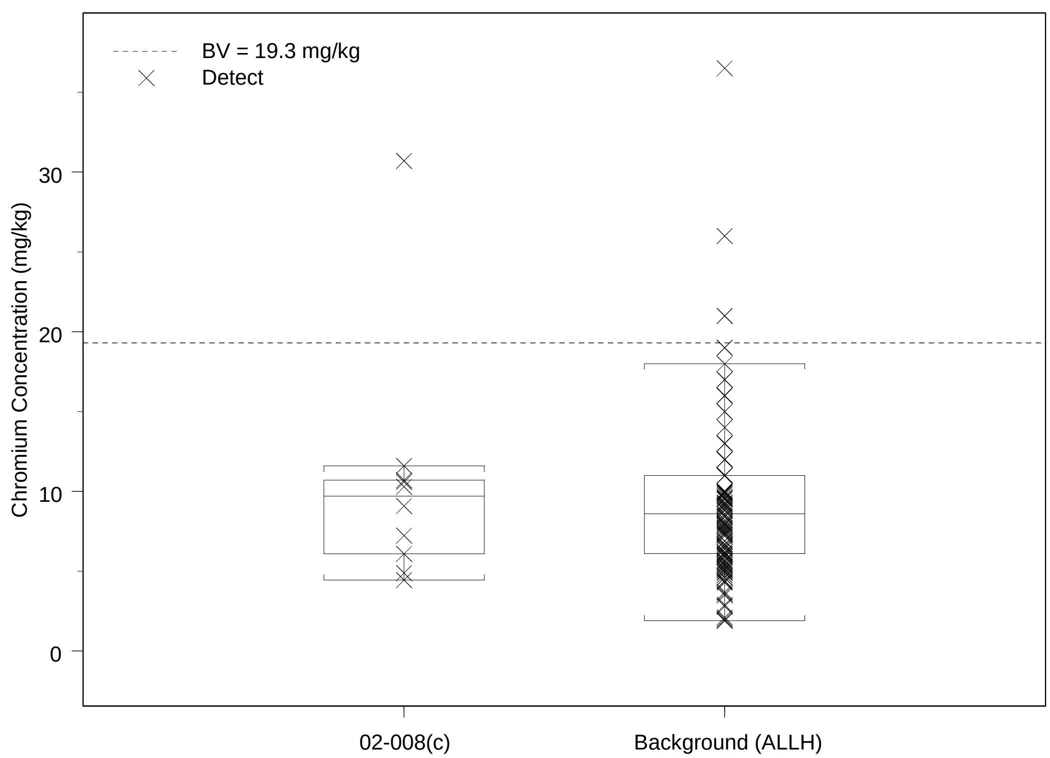

Figure G-17.0-2 Box plot of chromium in soil at AOC 02-008(c)

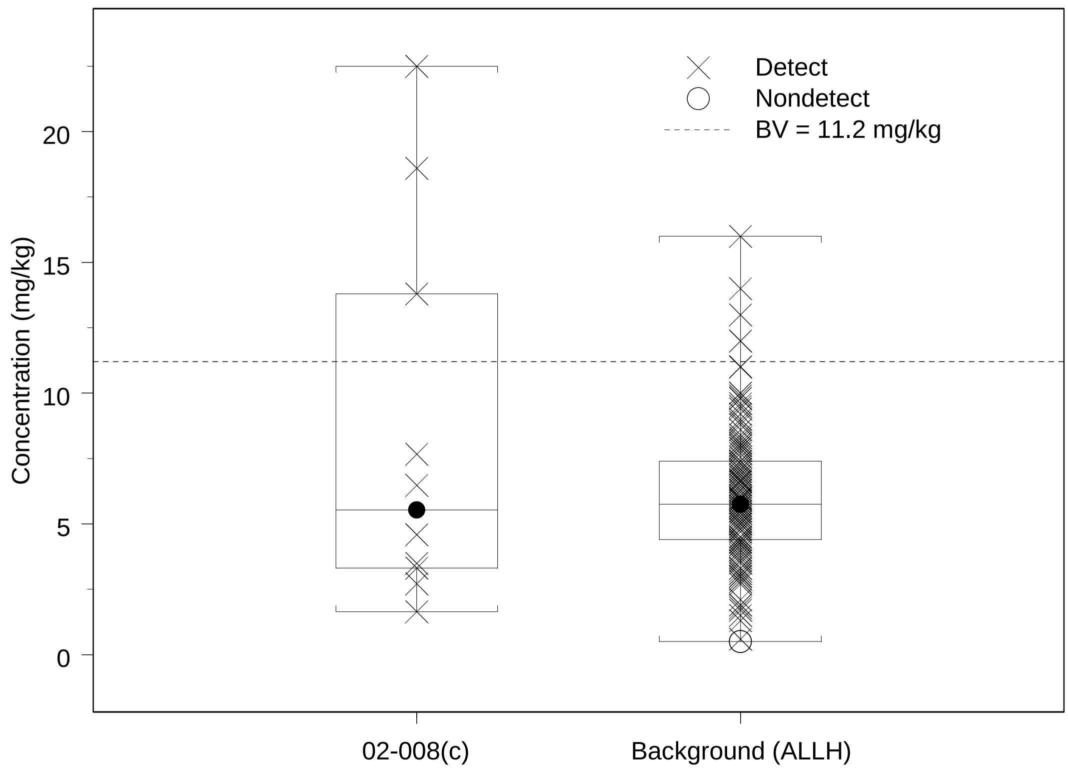

Figure G-17.0-3 Box plot of copper in soil at AOC 02-008(c)

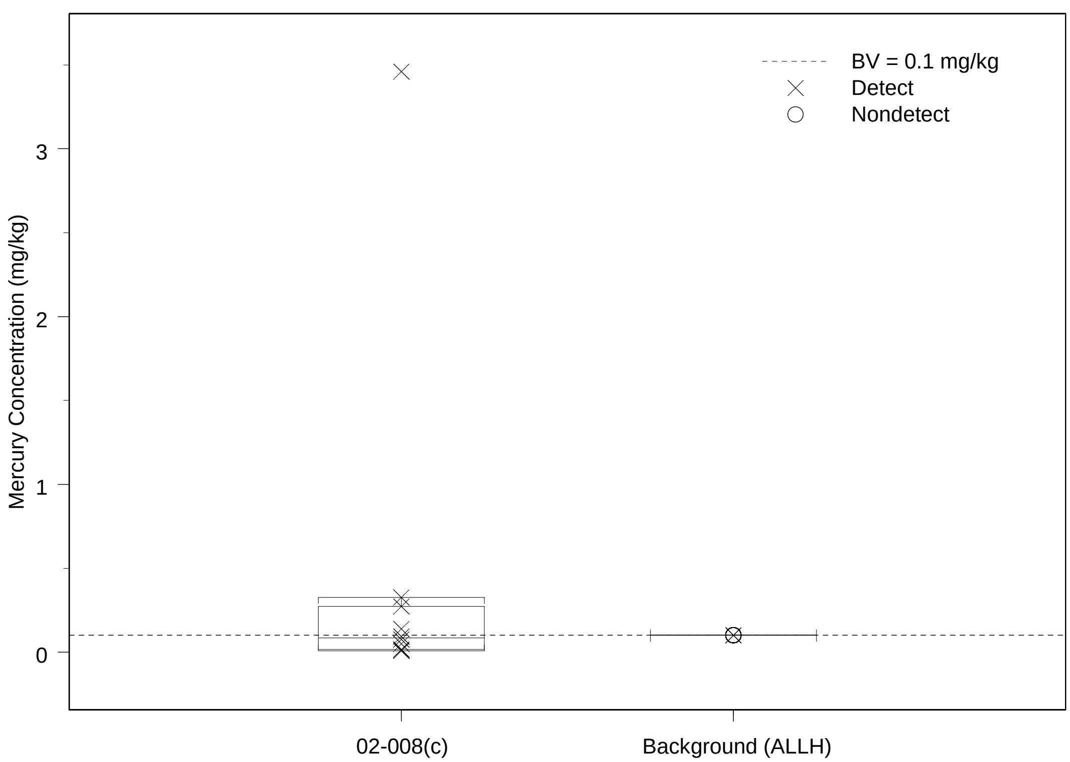

Figure G-17.0-4 Box plot of mercury in soil at AOC 02-008(c)

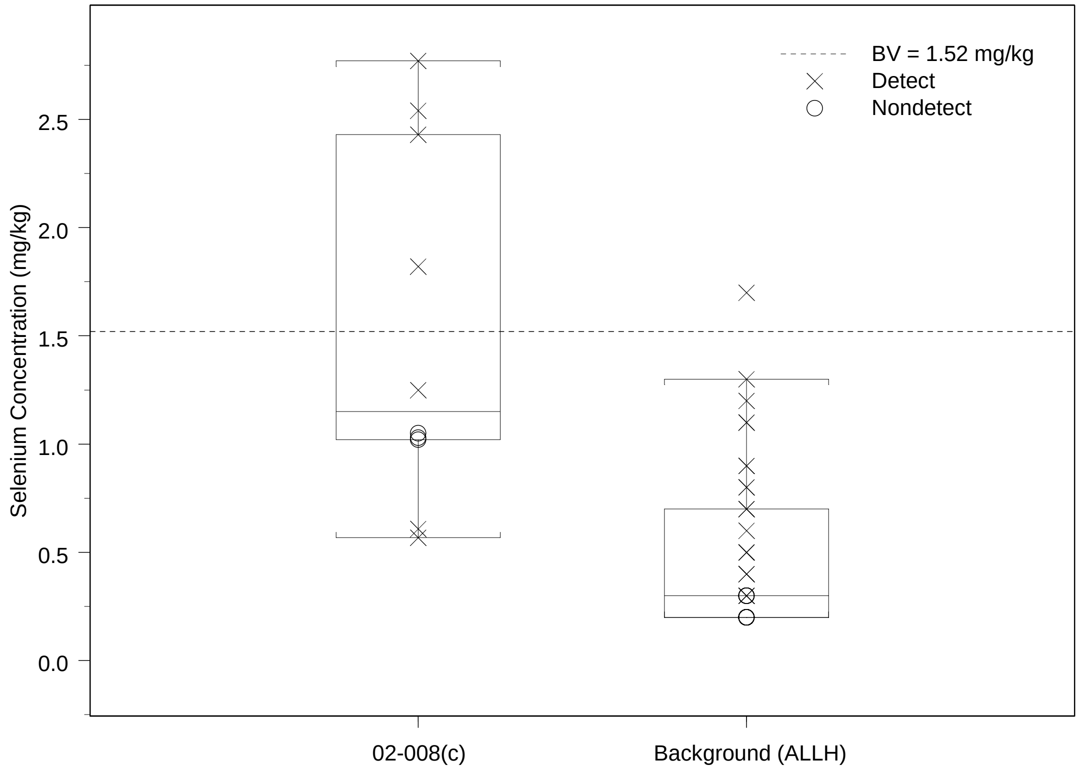

Figure G-17.0-5 Box plot of selenium in soil at AOC 02-008(c)

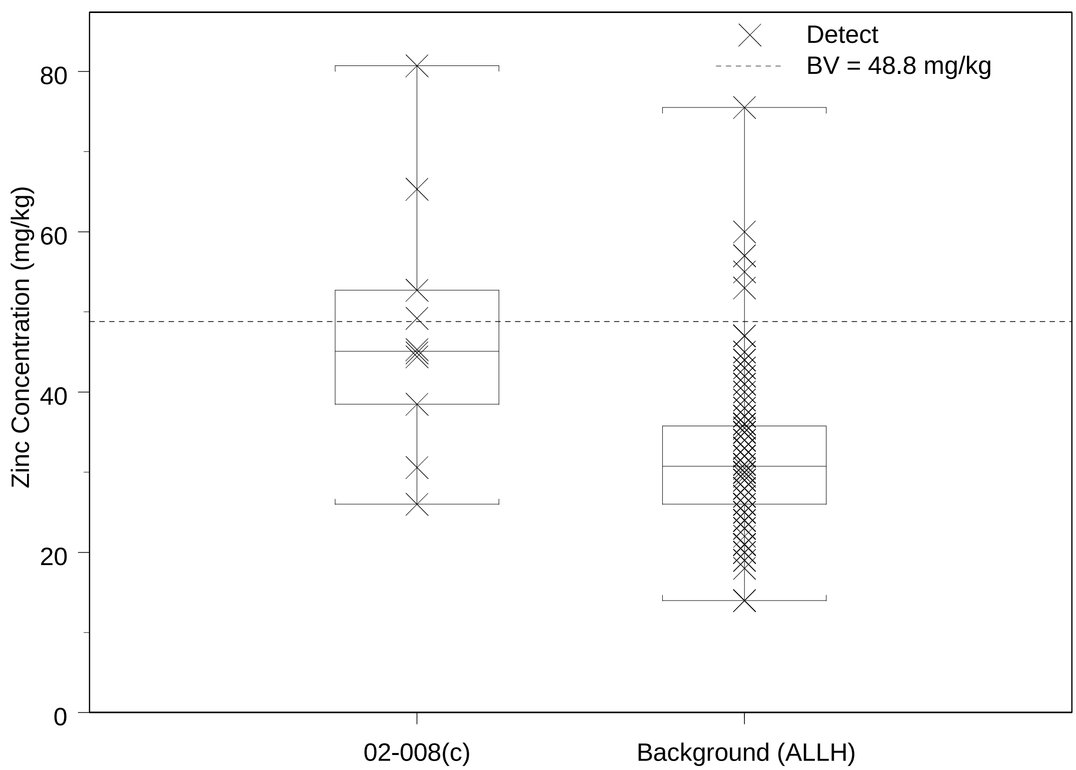

Figure G-17.0-6 Box plot of zinc in soil at AOC 02-008(c)

G-18.0 BOX PLOTS FOR AOC 02-009(d)

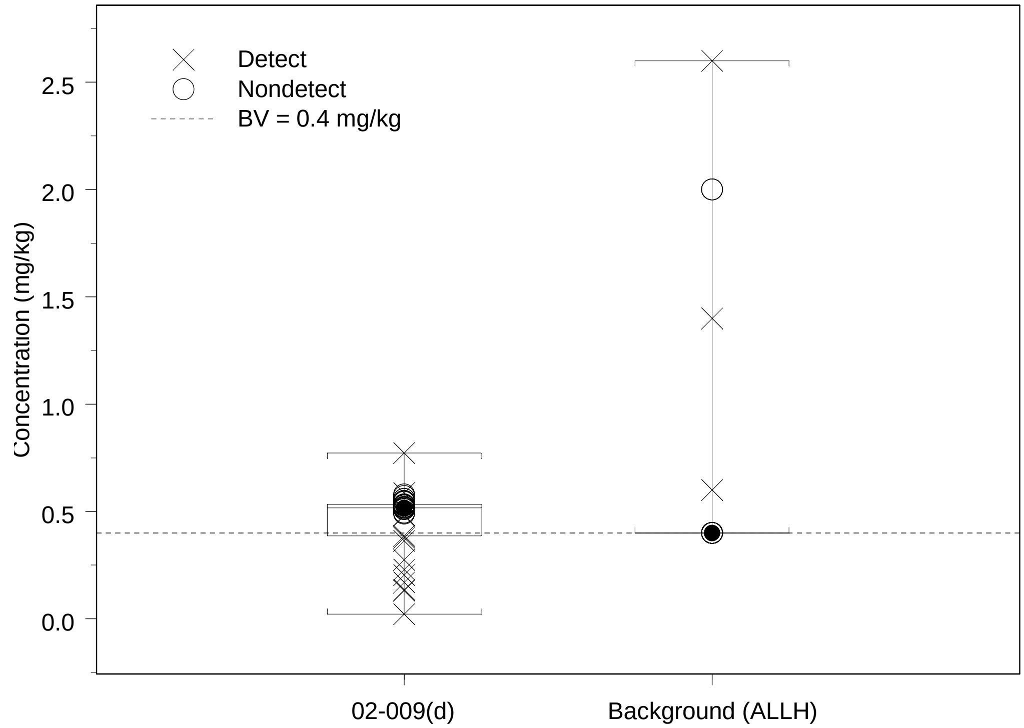

Figure G-18.0-1 Box plot of cadmium in soil at AOC 02-009(d)

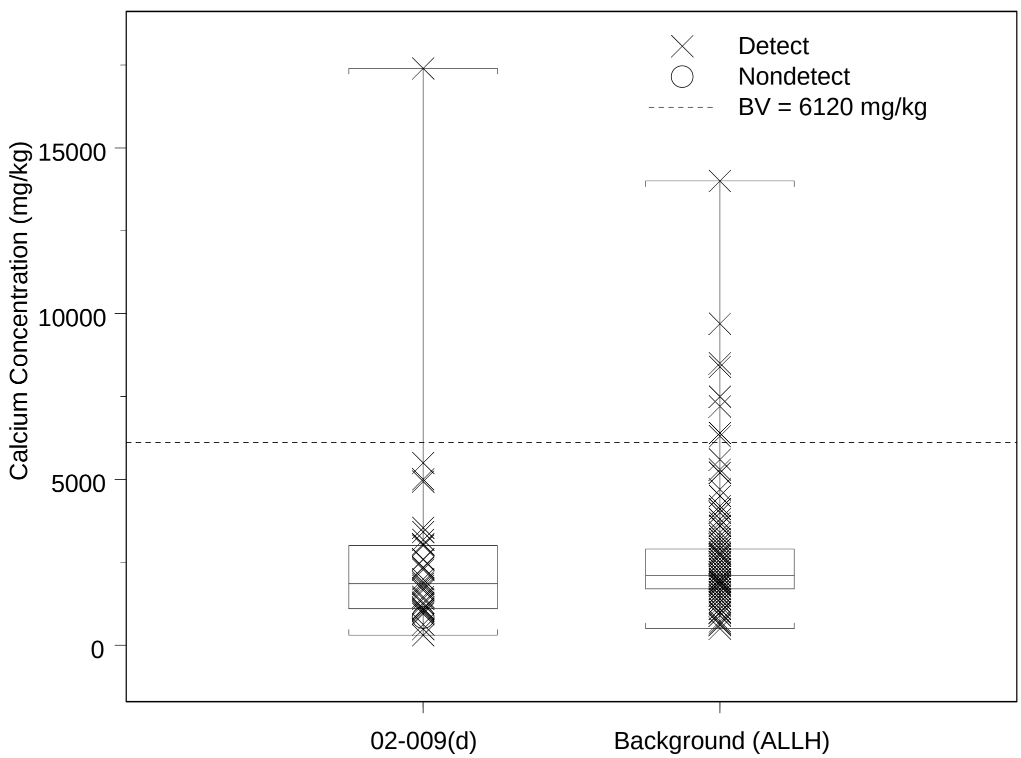

Figure G-18.0-2 Box plot of calcium in soil at AOC 02-009(d)

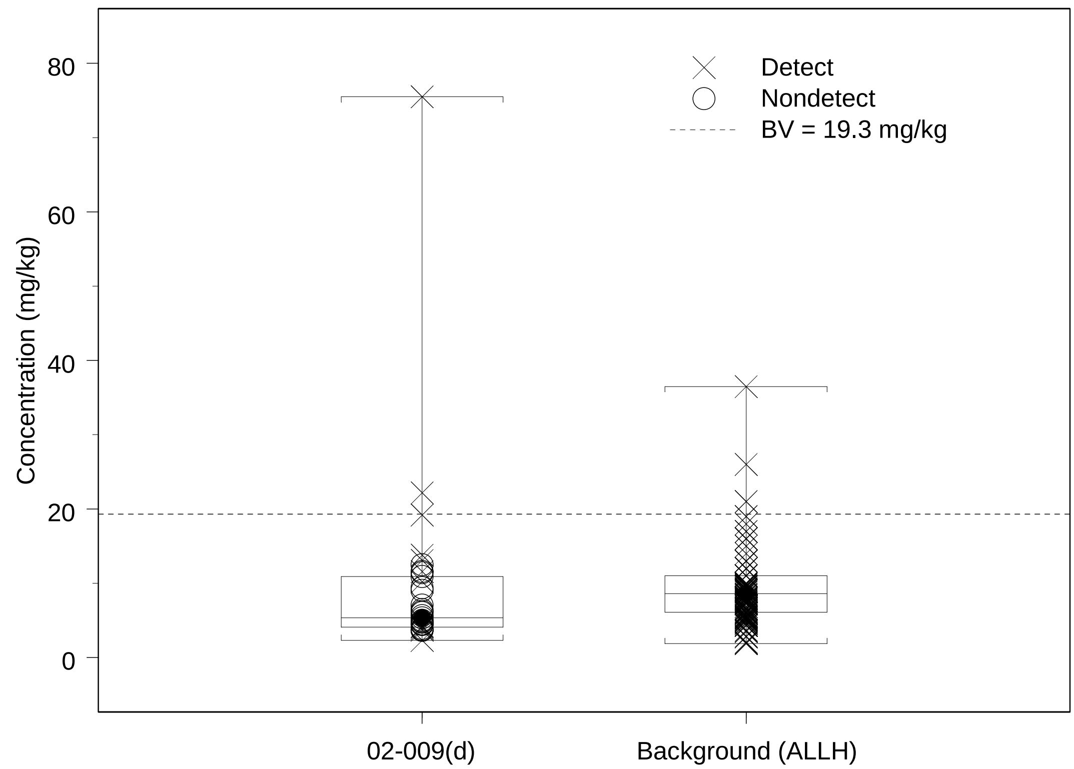

Figure G-18.0-3 Box plot of chromium in soil at AOC 02-009(d)

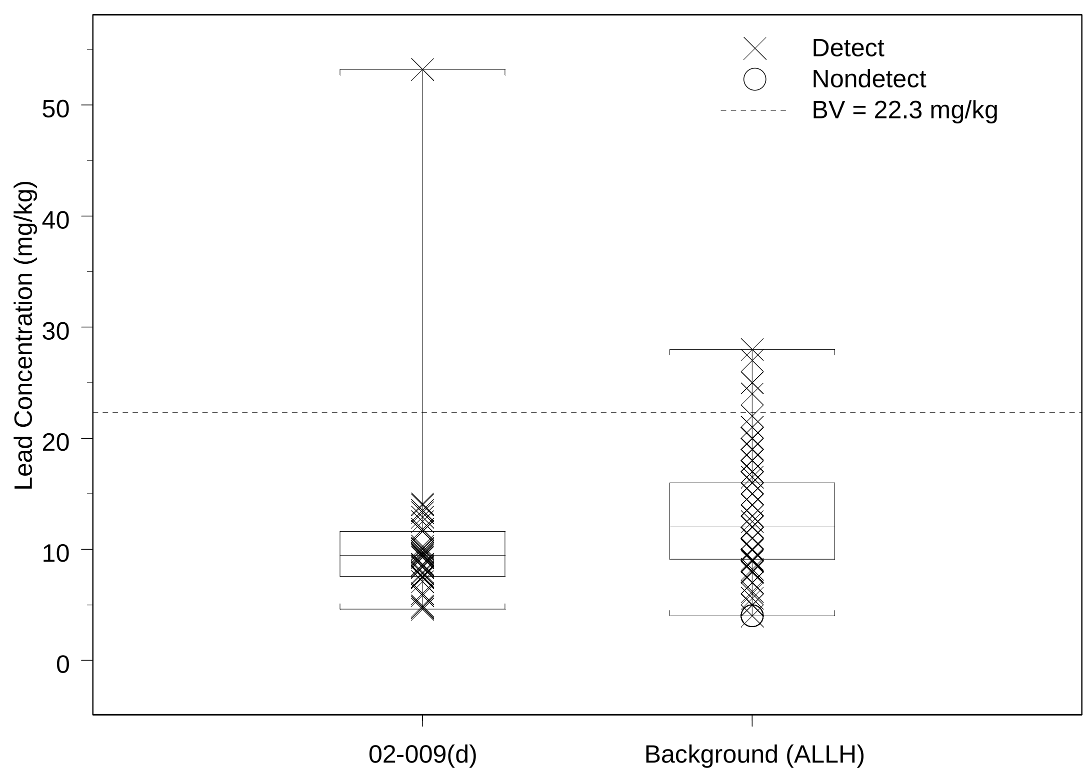

Figure G-18.0-4 Box plot of lead in soil at AOC 02-009(d)

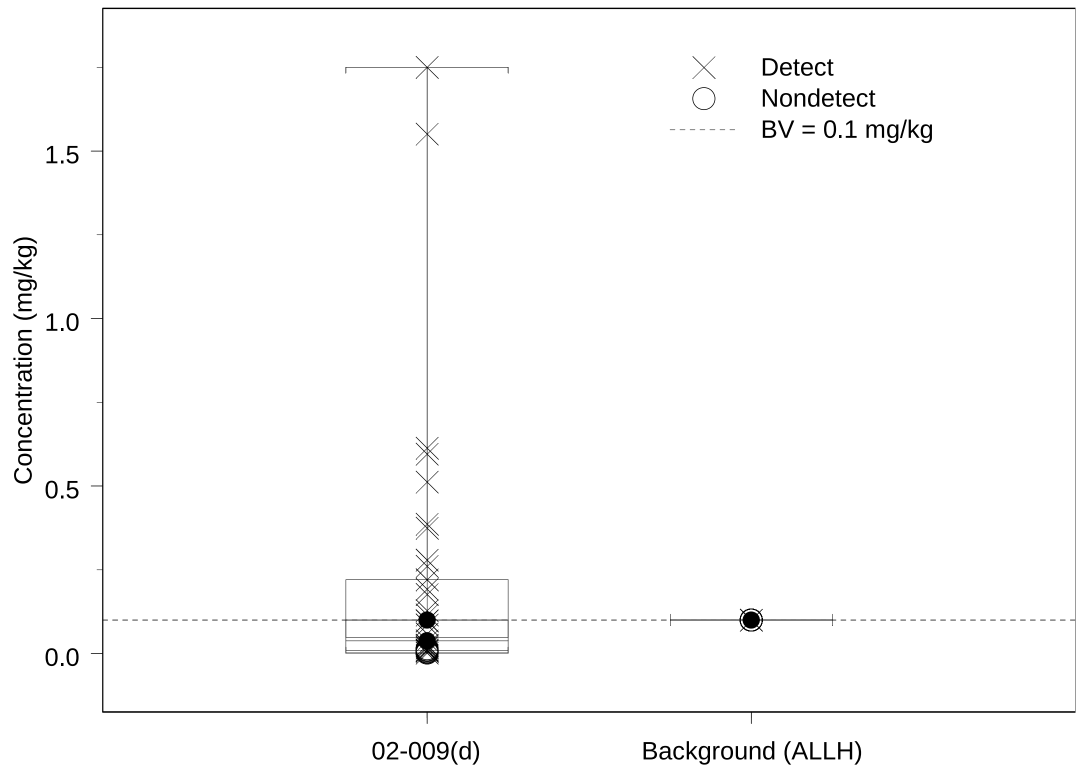

Figure G-18.0-5   Box plot of mercury in soil at AOC 02-009(d)

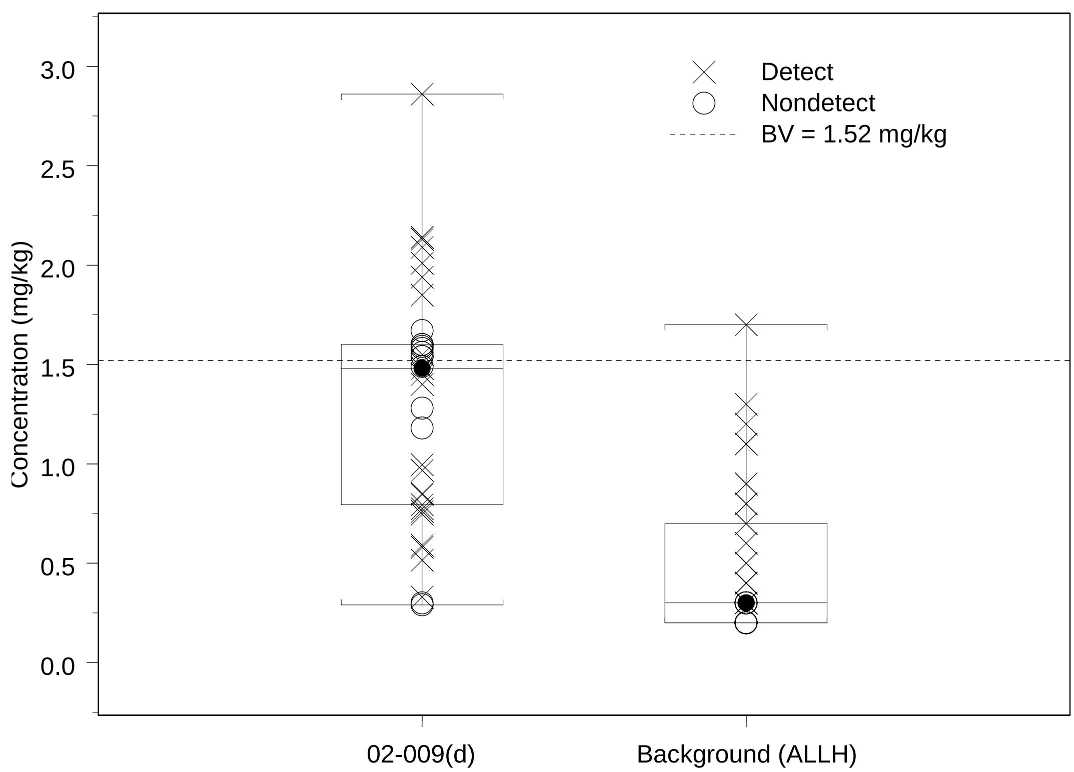

Figure G-18.0-6   Box plot of selenium in soil at AOC 02-009(d)

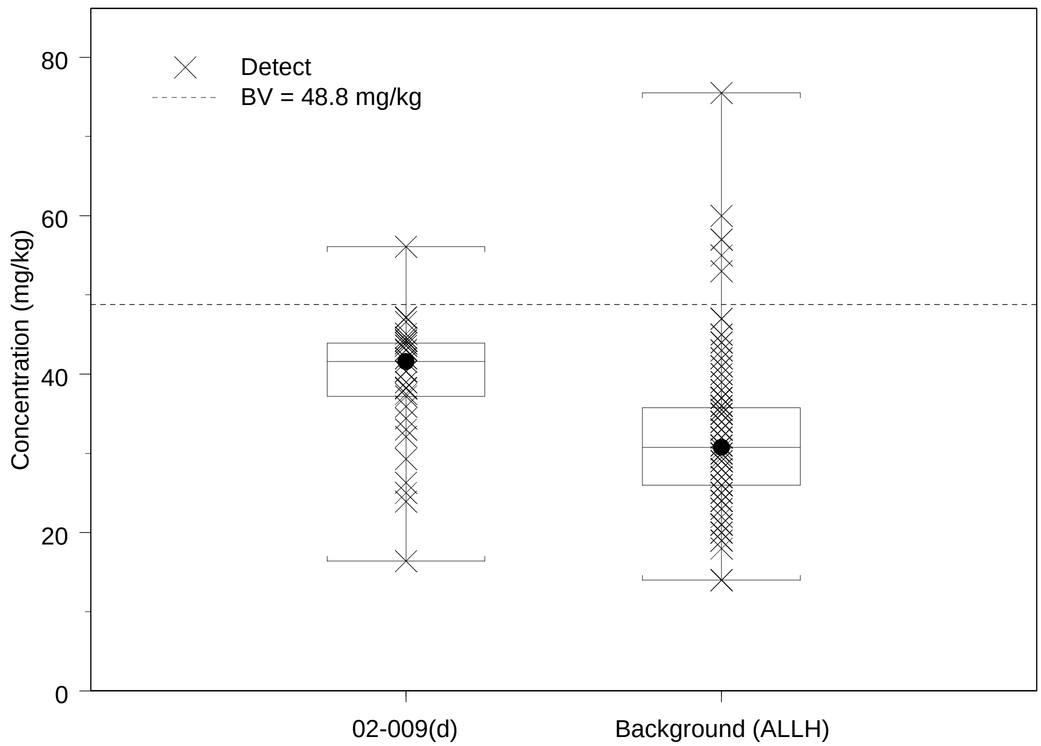

Figure G-18.0-7   Box plot of zinc in soil at AOC 02-009(d)

G-19.0 BOX PLOTS FOR AOC 02-010

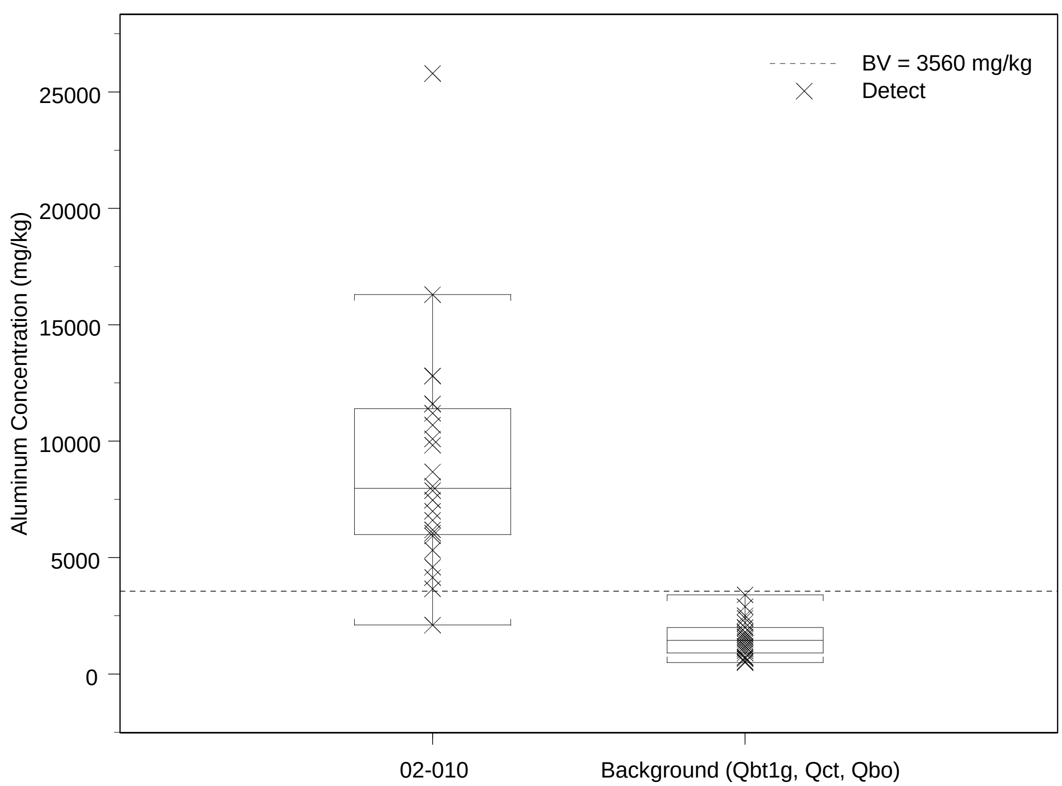

Figure G-19.0-1   Box plot of aluminum in Qbo tuff at AOC 02-010

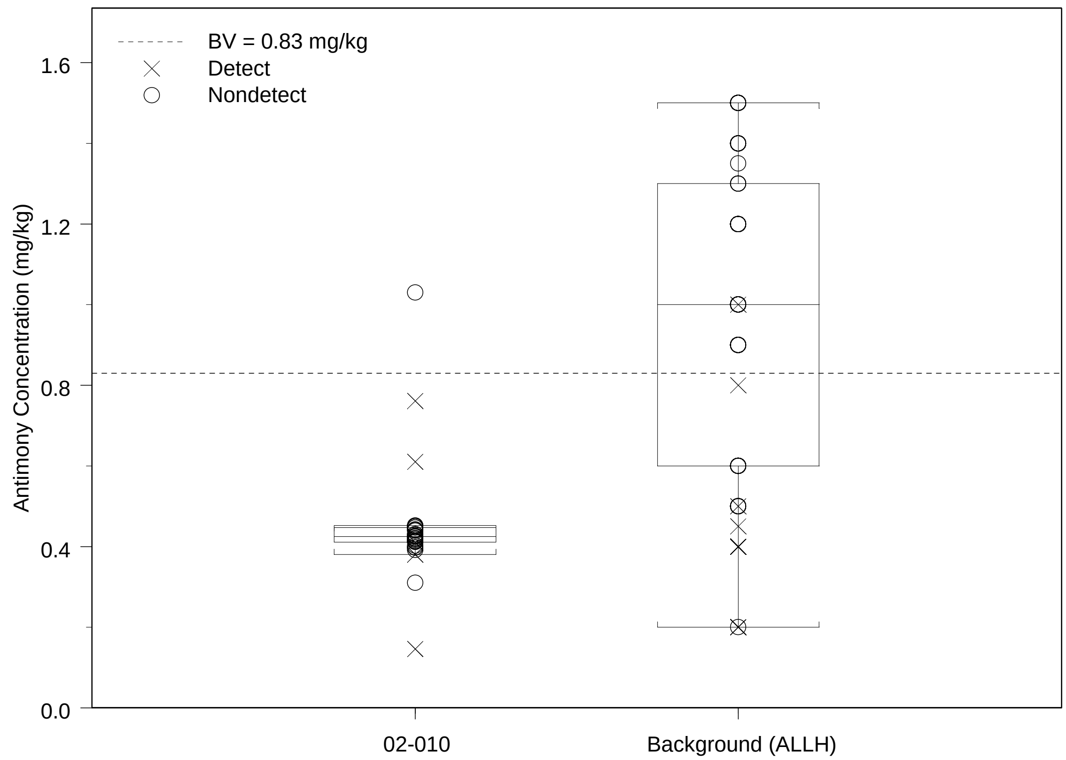

Figure G-19.0-2   Box plot of antimony in soil at AOC 02-010

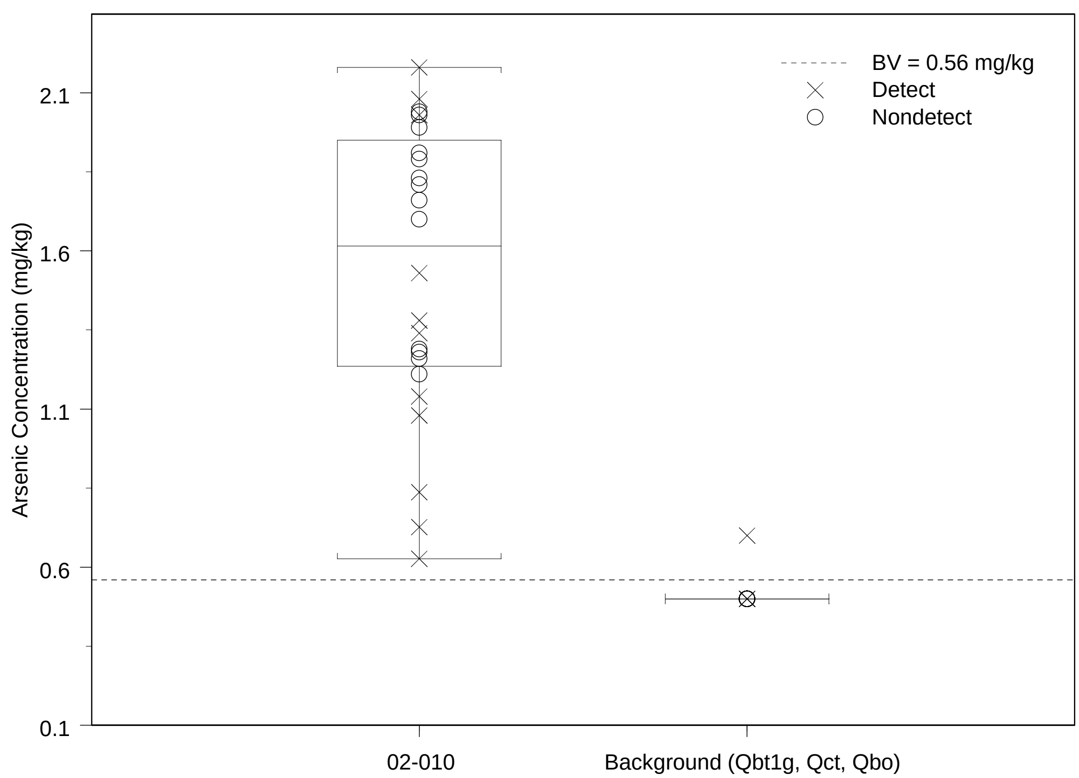

Figure G-19.0-3   Box plot of arsenic in Qbo tuff at AOC 02-010

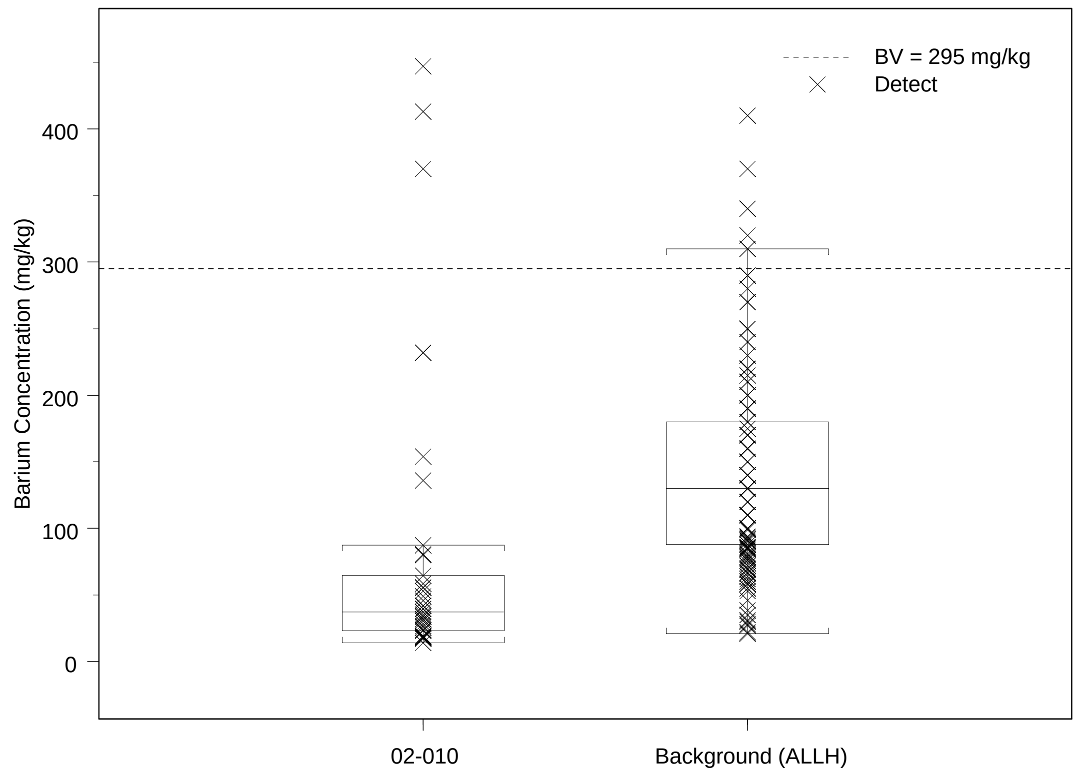

Figure G-19.0-4 Box plot of barium in soil at AOC 02-010

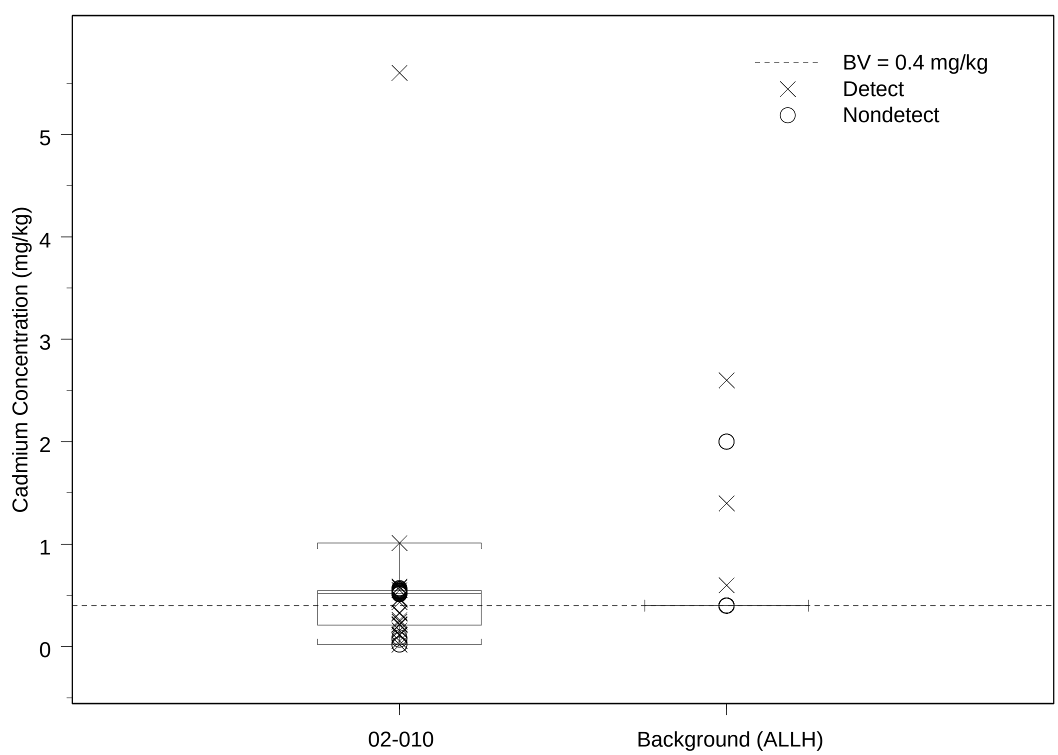

Figure G-19.0-5 Box plot of cadmium in soil at AOC 02-010

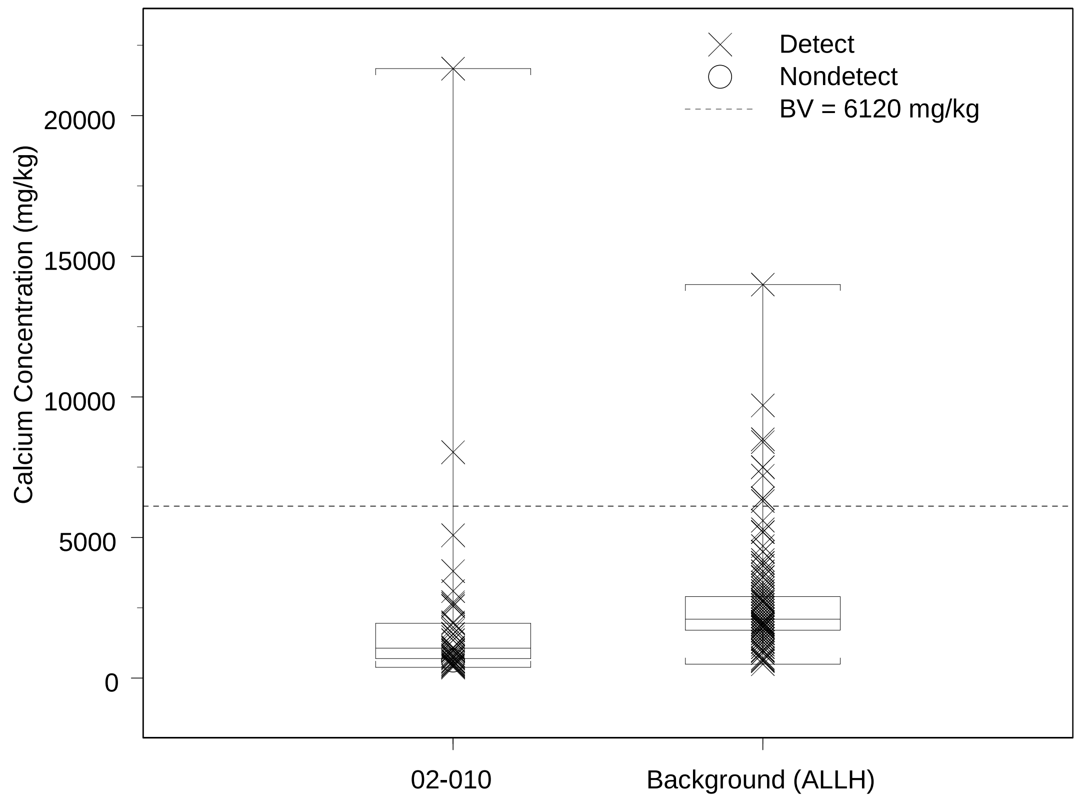

Figure G-19.0-6   Box plot of calcium in soil at AOC 02-010

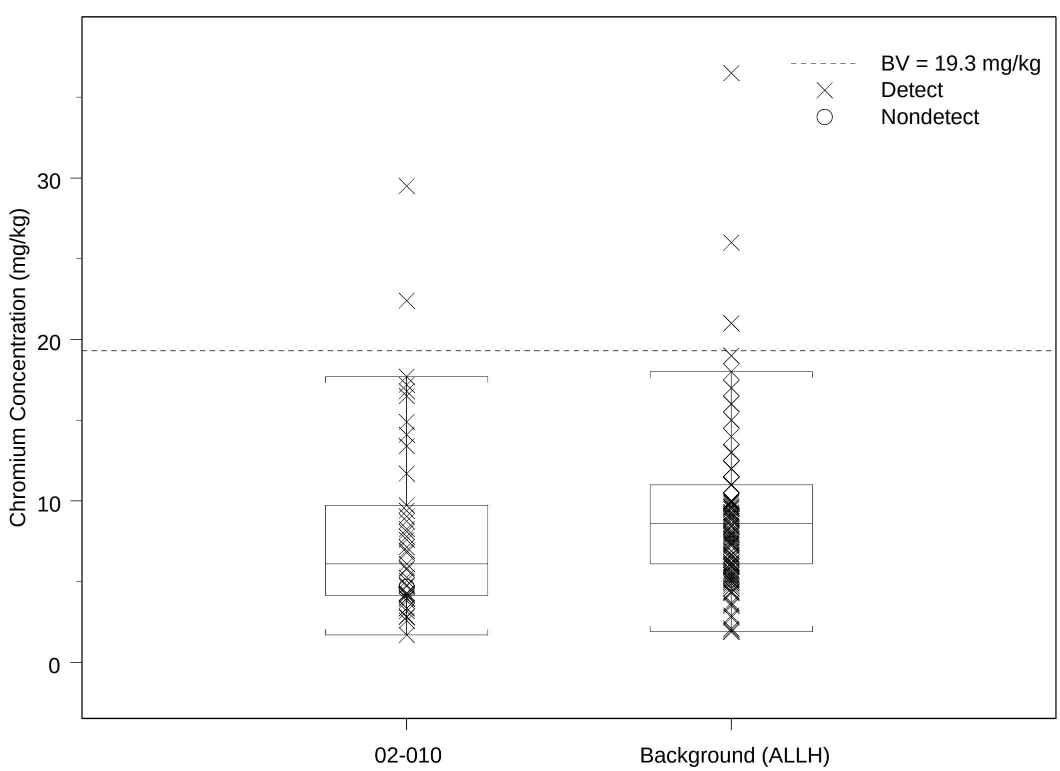

Figure G-19.0-7   Box plot of chromium in soil at AOC 02-010

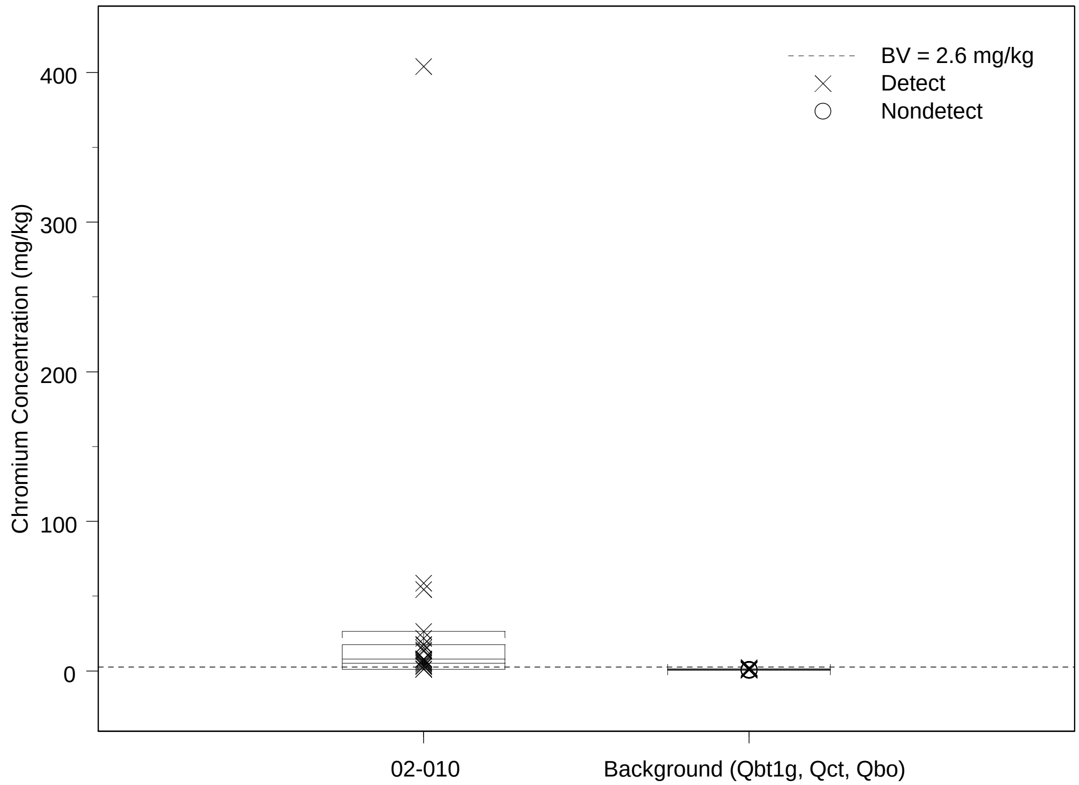

Figure G-19.0-8 Box plot of chromium in Qbo tuff at AOC 02-010

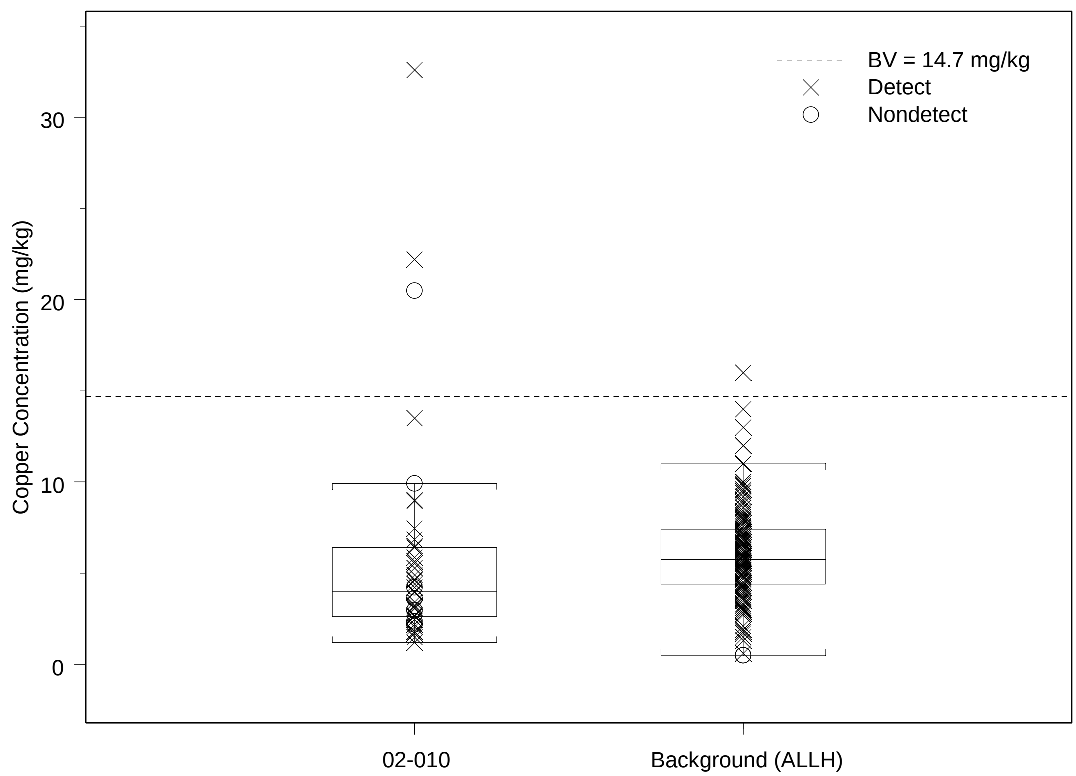

Figure G-19.0-9 Box plot of copper in soil at AOC 02-010

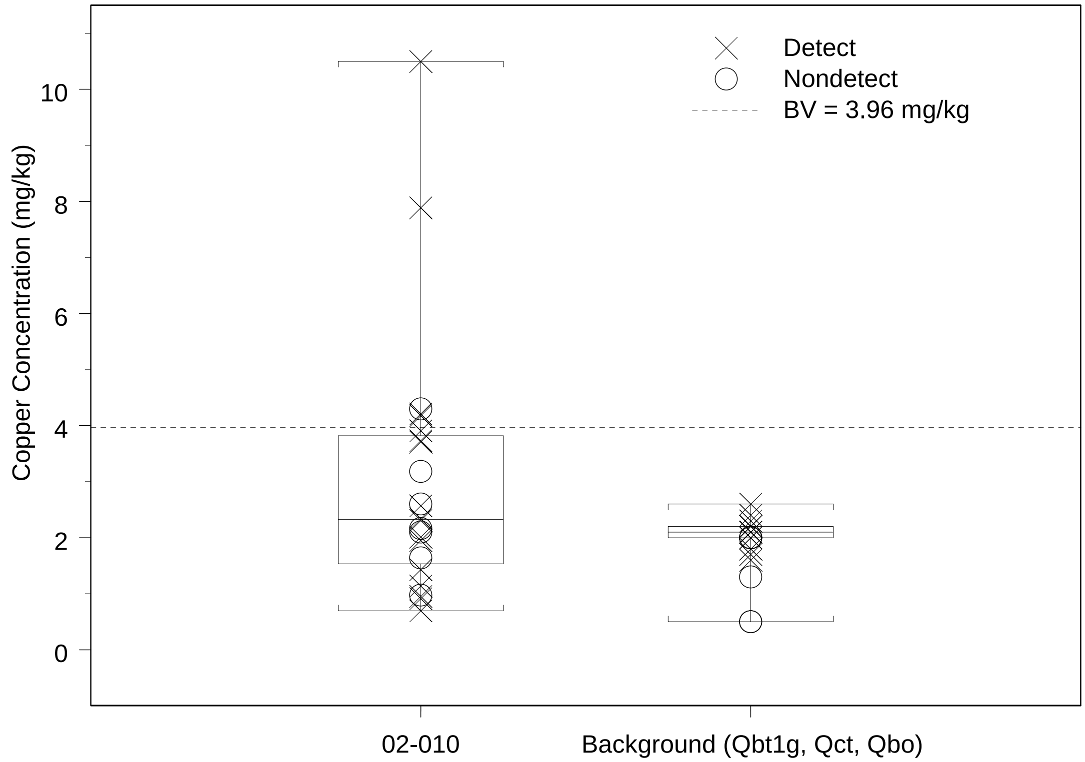

Figure G-19.0-10 Box plot of copper in Qbo tuff at AOC 02-010

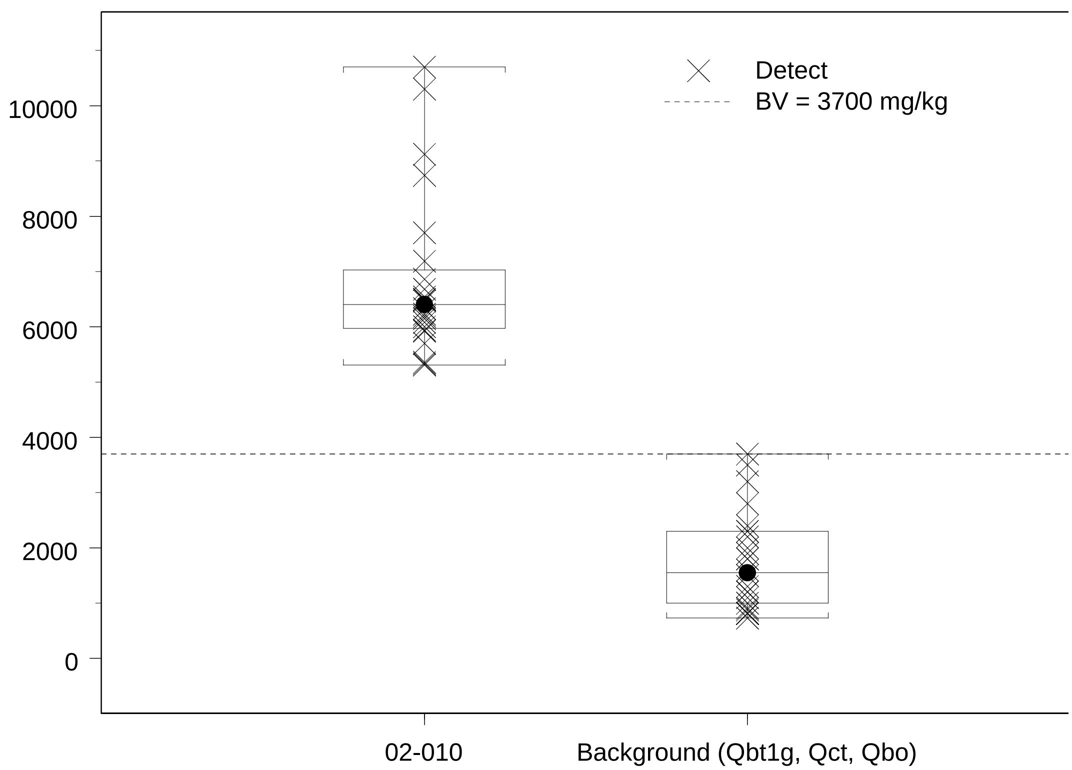

Figure G-19.0-11 Box plot of iron in Qbo tuff at AOC 02-010

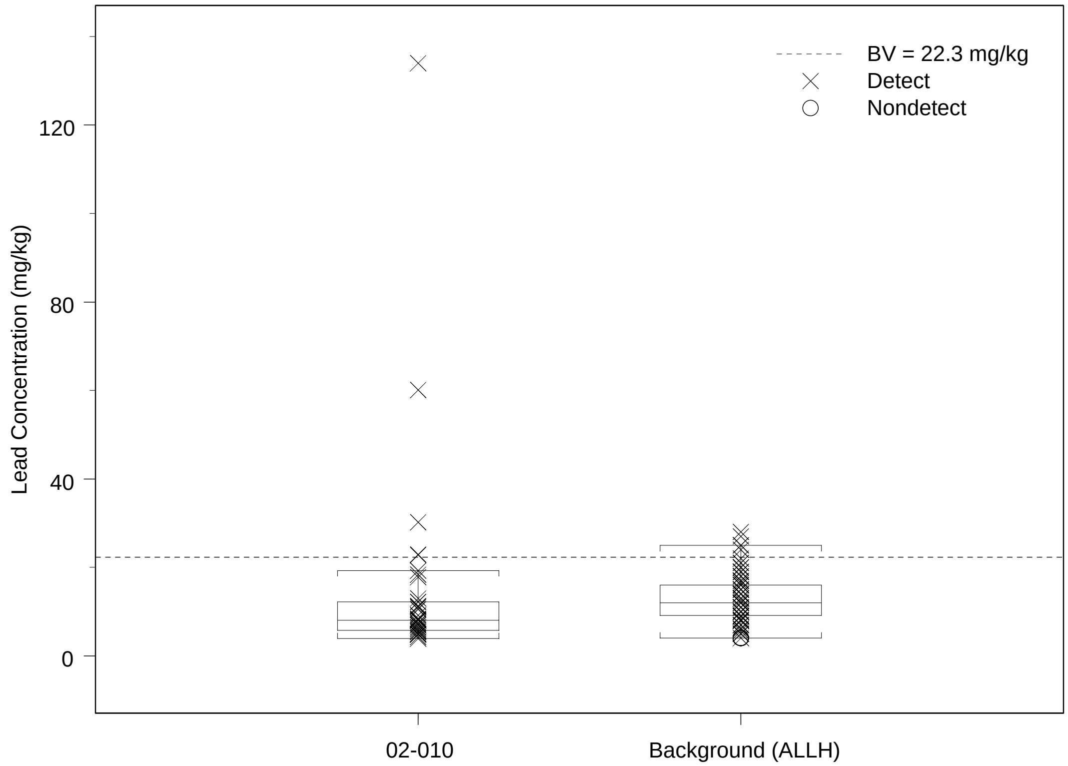

Figure G-19.0-12 Box plot of lead in soil at AOC 02-010

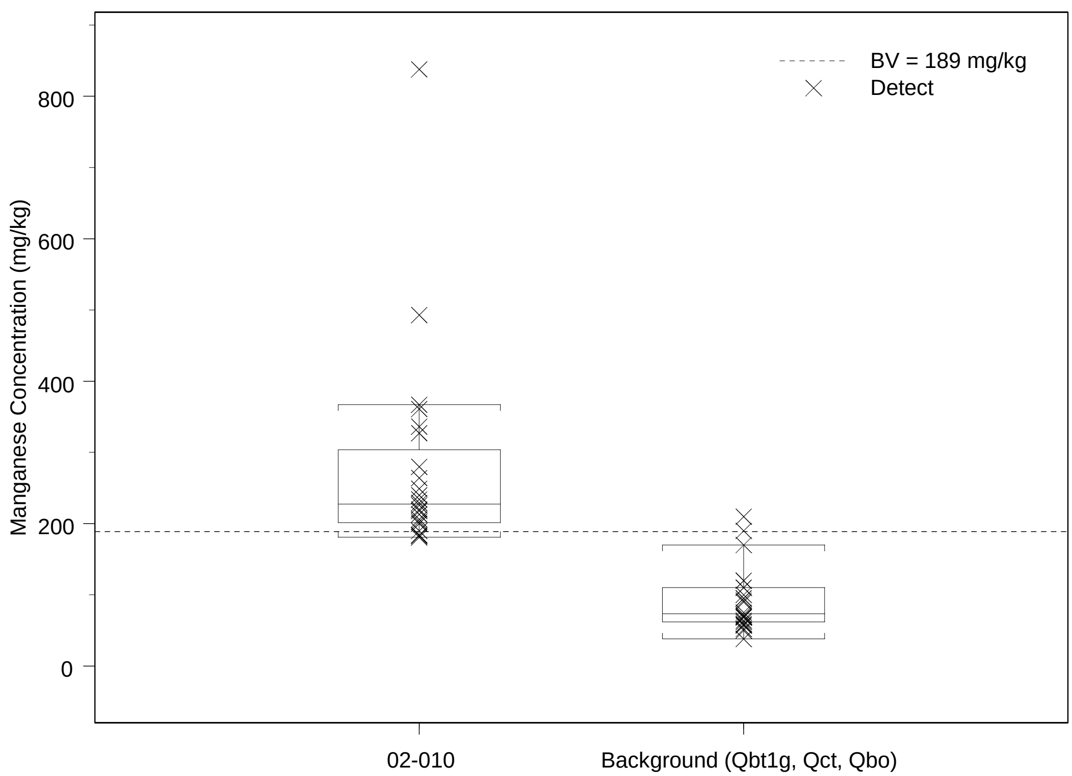

Figure G-19.0-13 Box plot of manganese in Qbo tuff at AOC 02-010

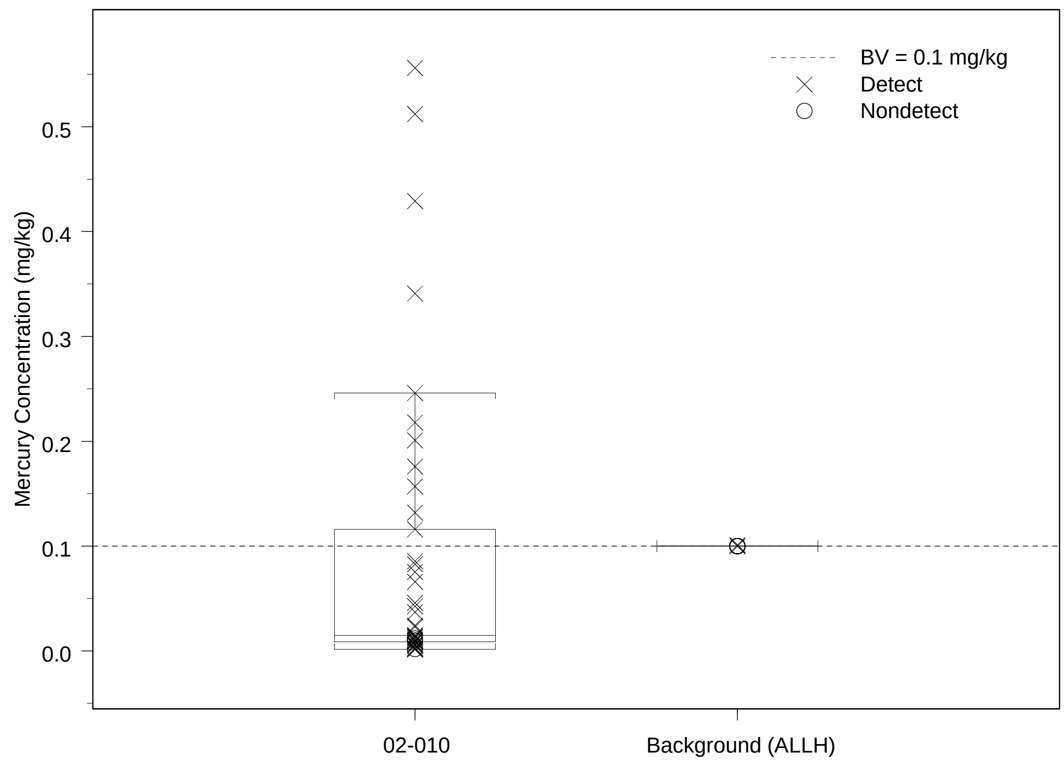

Figure G-19.0-14 Box plot of mercury in soil at AOC 02-010

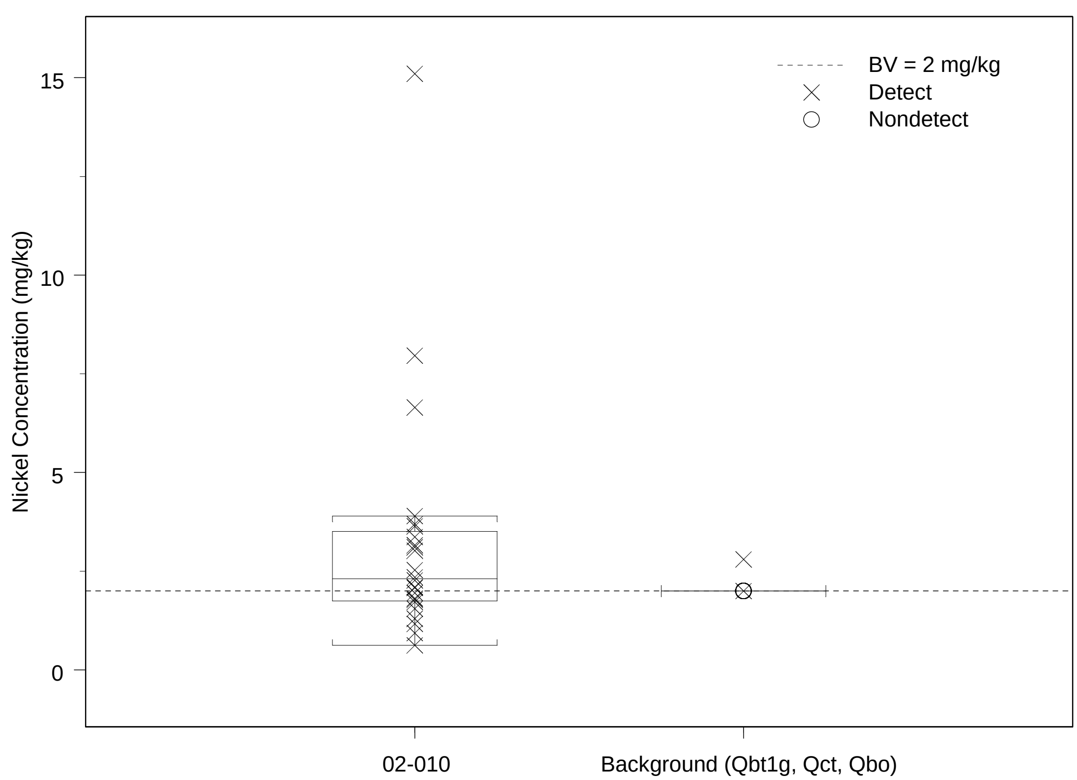

Figure G-19.0-15 Box plot of nickel in Qbo tuff at AOC 02-010

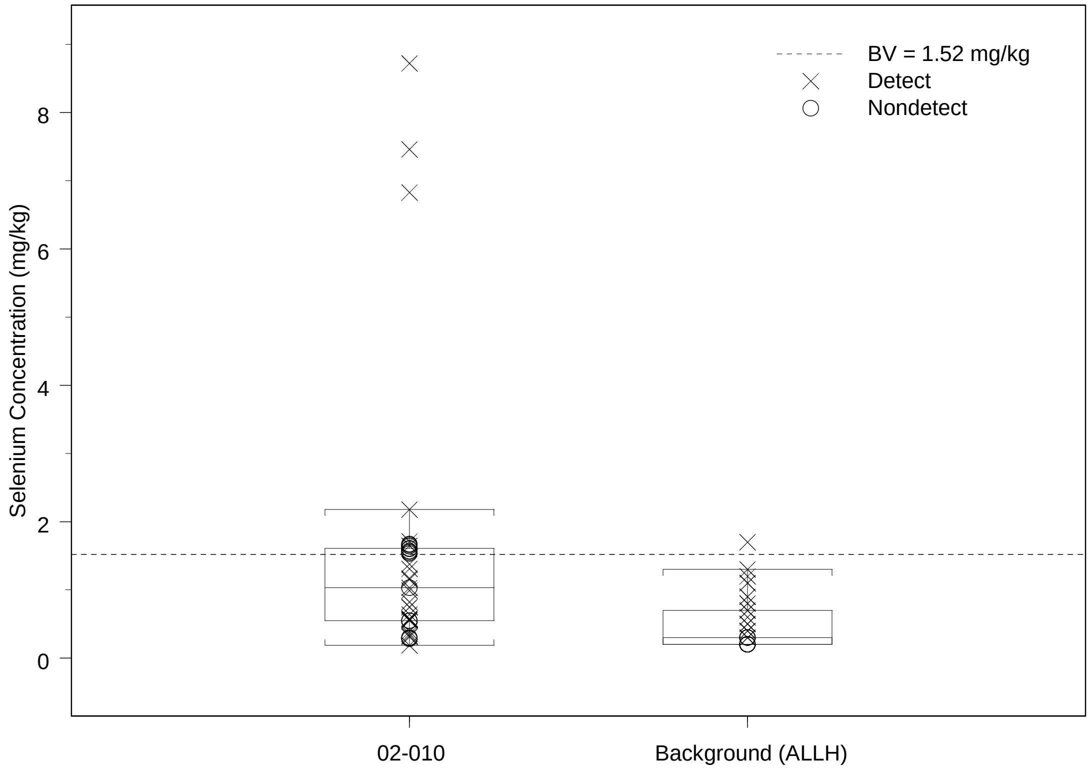

Figure G-19.0-16 Box plot of selenium in soil at AOC 02-010

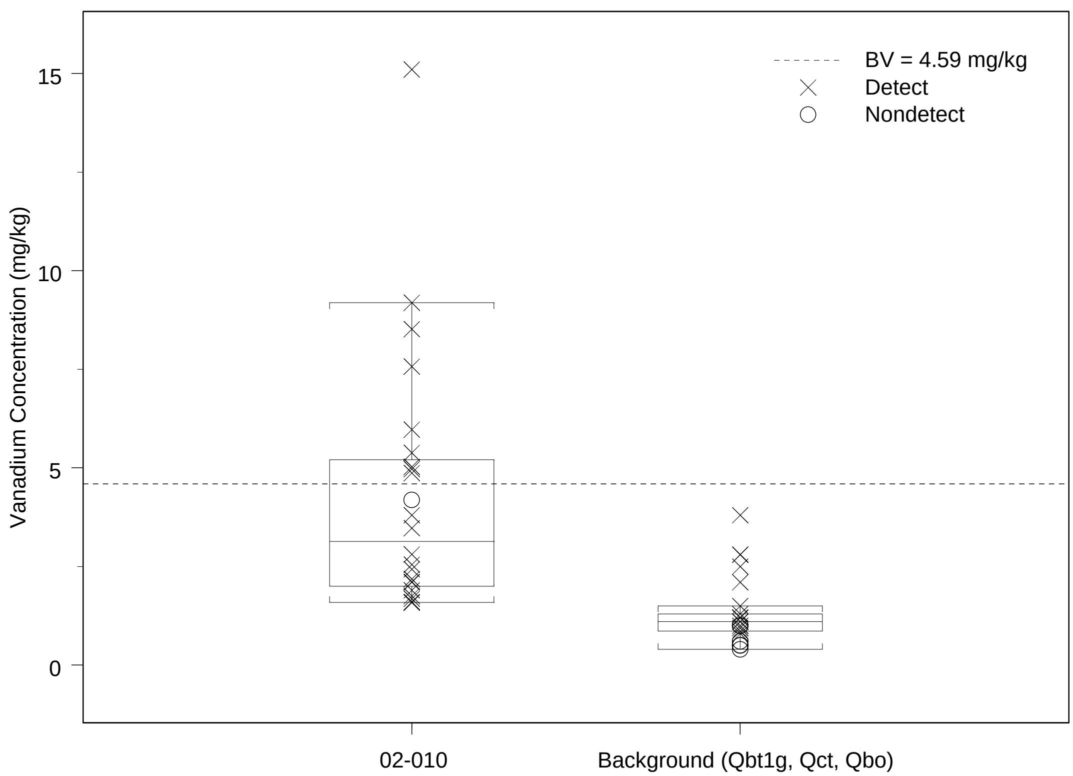

Figure G-19.0-17 Box plot of vanadium in Qbo tuff at AOC 02-010

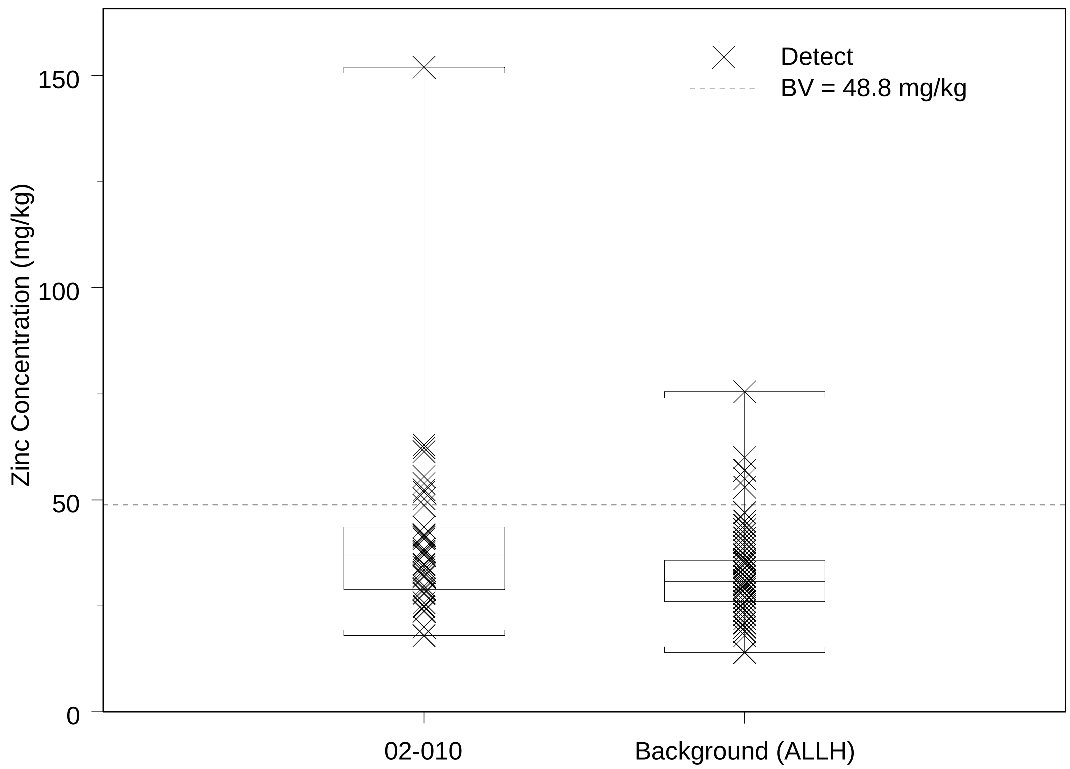

Figure G-19.0-18 Box plot of zinc in soil at AOC 02-010

G-20.0 BOX PLOTS FOR AOC 02-011(b)

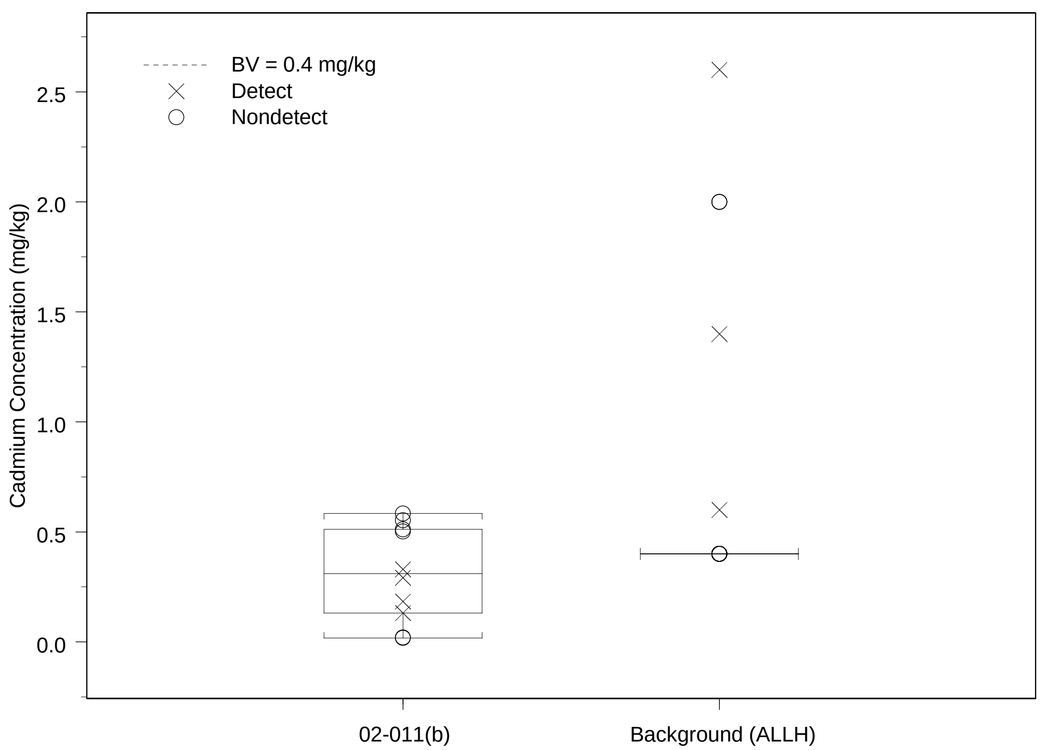

Figure G-20.0-1 Box plot of cadmium in soil at AOC 02-011(b)

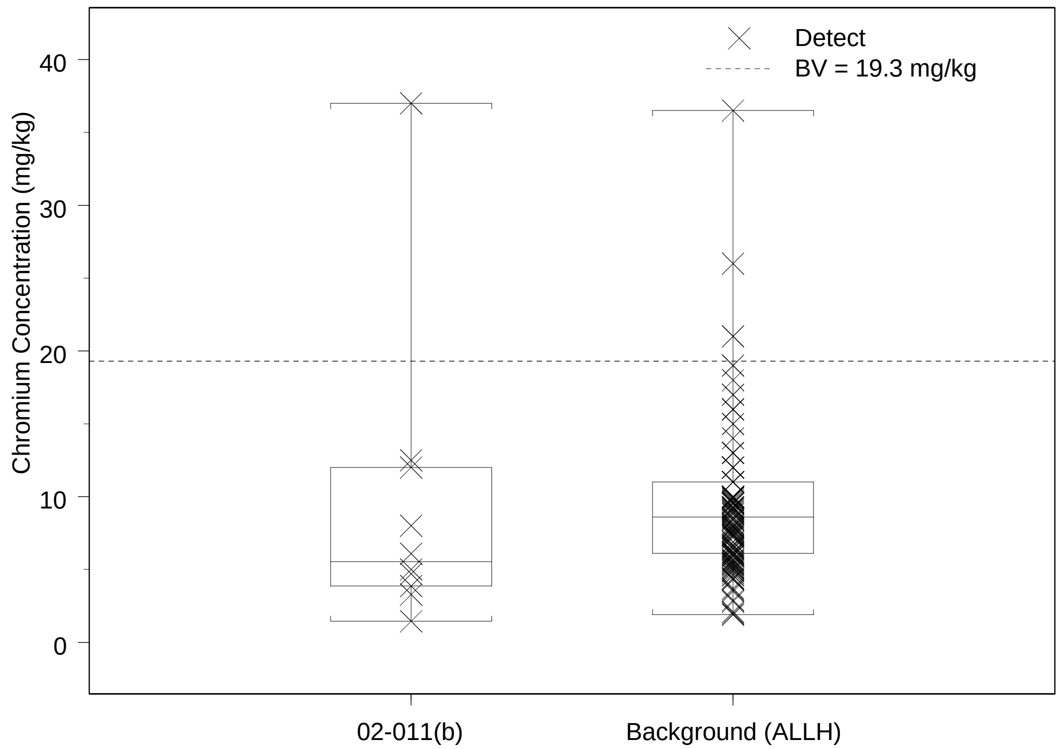

Figure G-20.0-2 Box plot of chromium in soil at AOC 02-011(b)

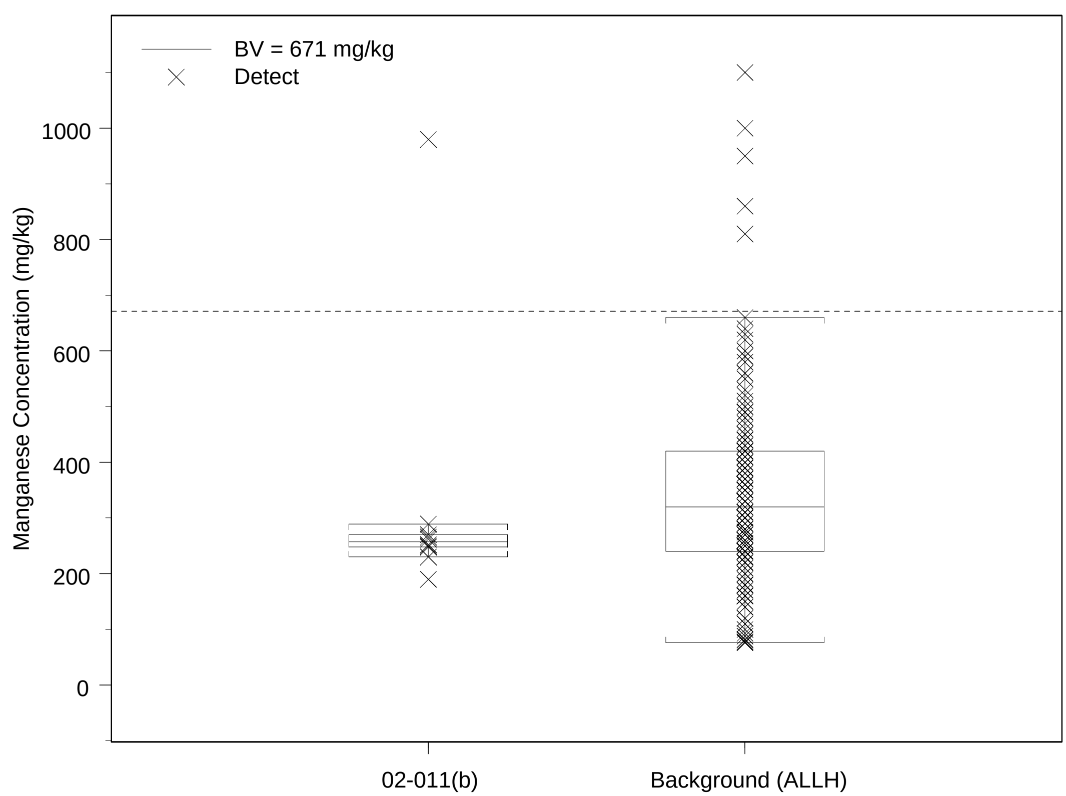

Figure G-20.0-3 Box plot of manganese in soil at AOC 02-011(b)

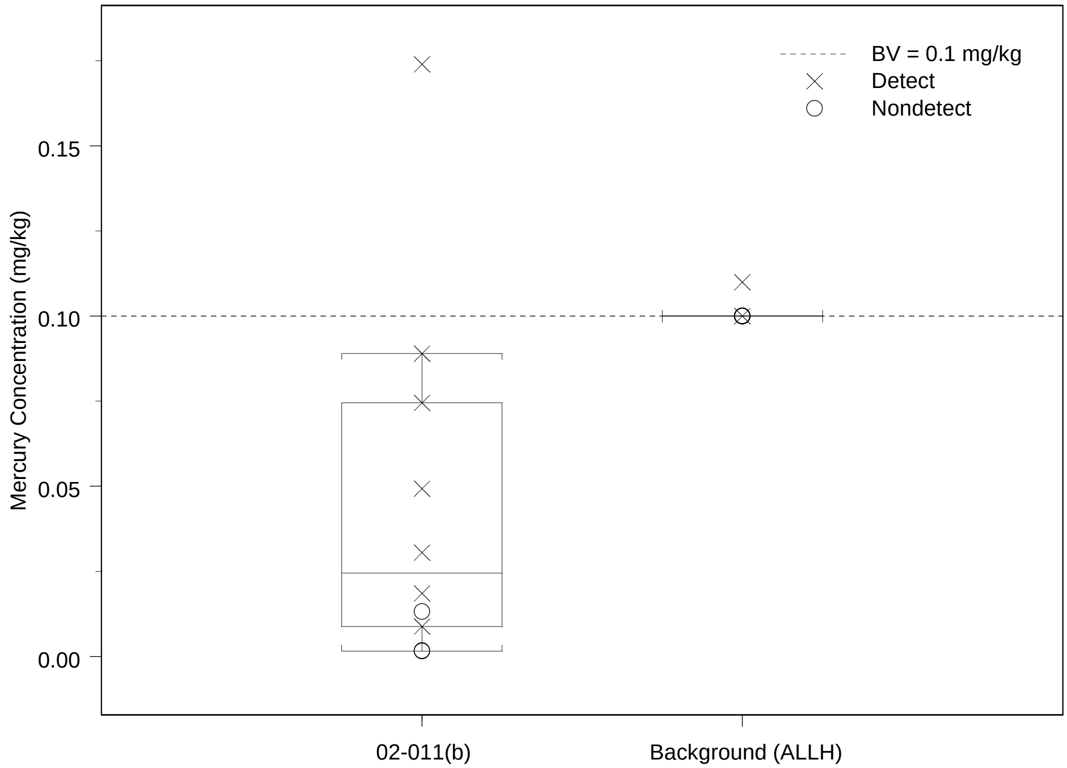

Figure G-20.0-4 Box plot of mercury in soil at AOC 02-011(b)

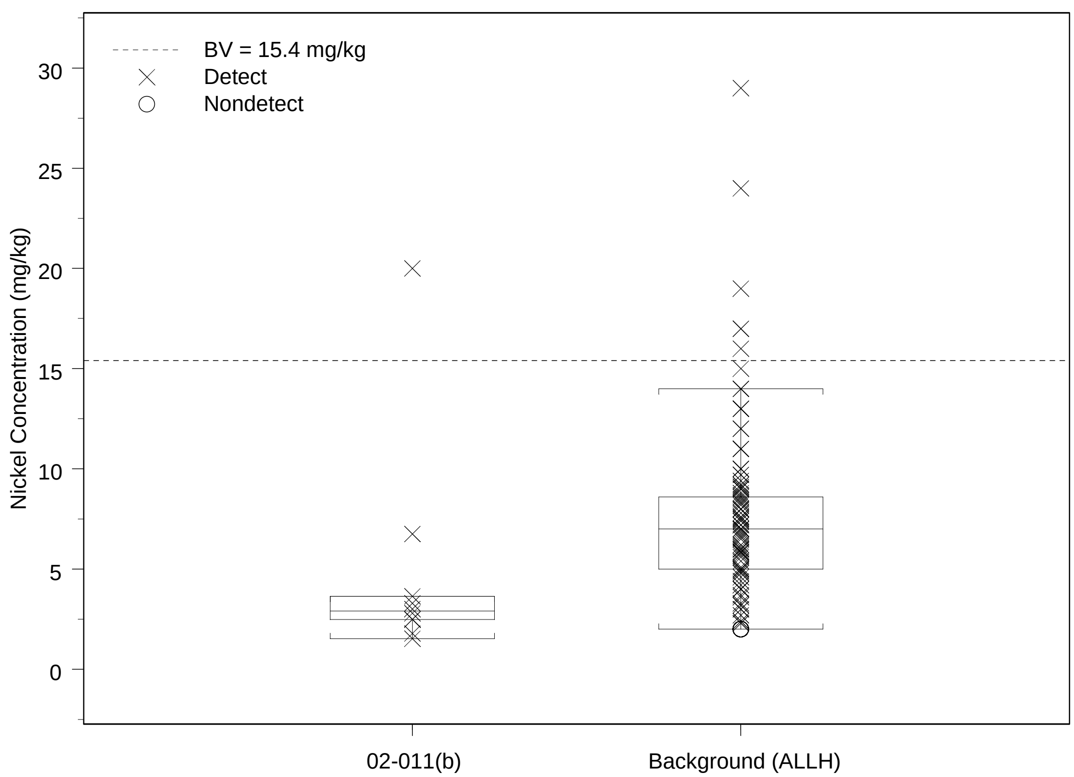

Figure G-20.0-5 Box plot of nickel in soil at AOC 02-011(b)

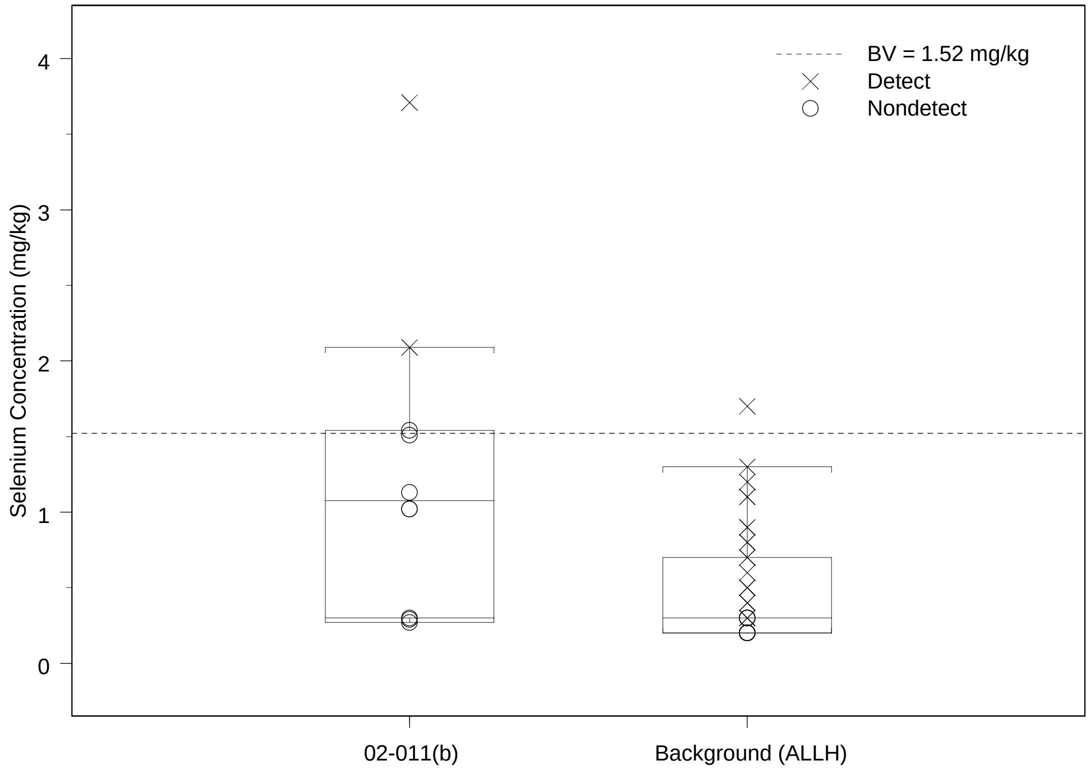

Figure G-20.0-6 Box plot of selenium in soil at AOC 02-011(b)

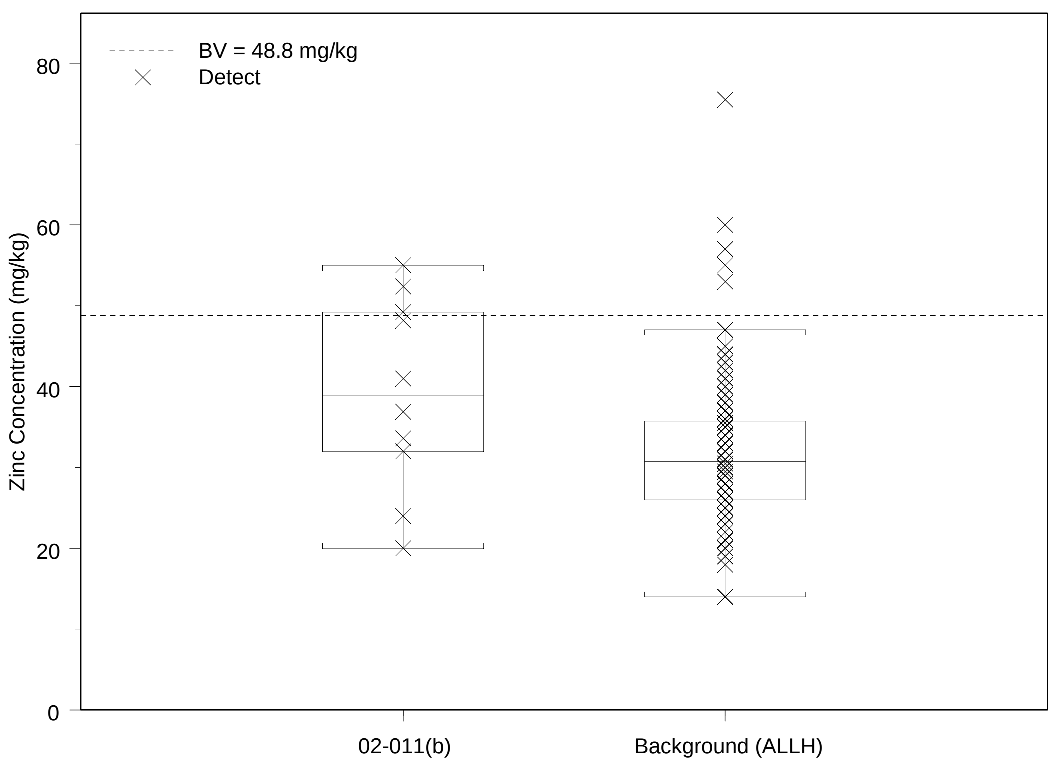

Figure G-20.0-7 Box plot of zinc in soil at AOC 02-011(b)

G-21.0 BOX PLOTS FOR AOC 02-012

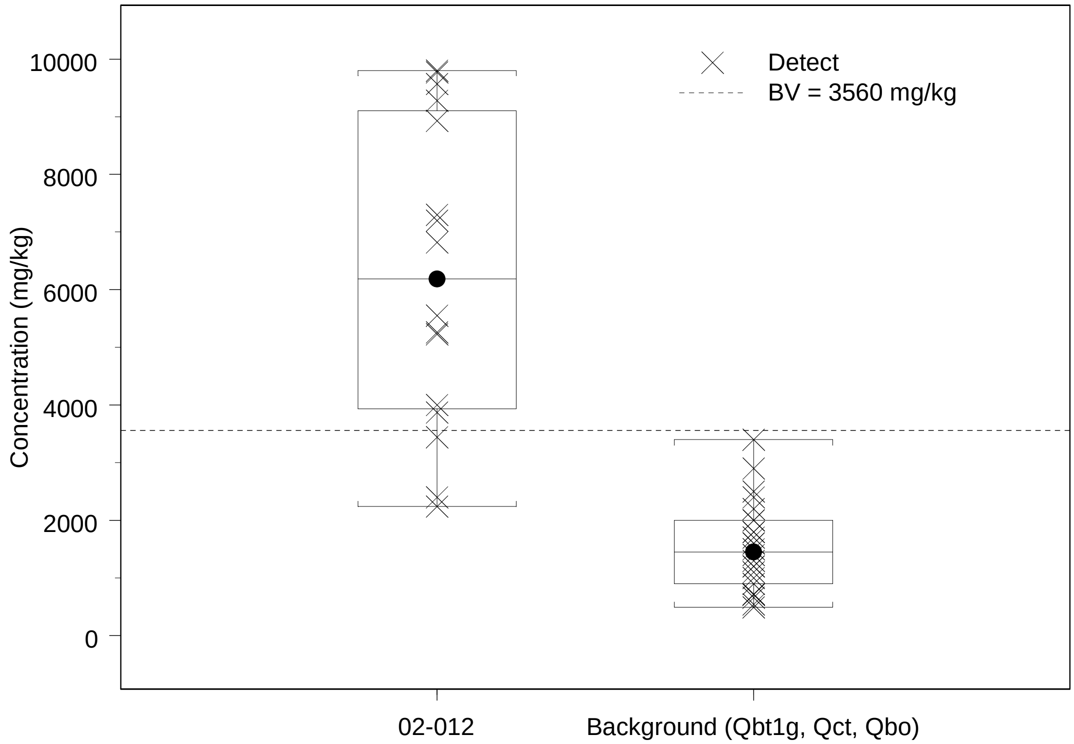

Figure G-21.0-1 Box plot of aluminum in Qbo tuff at AOC 02-012

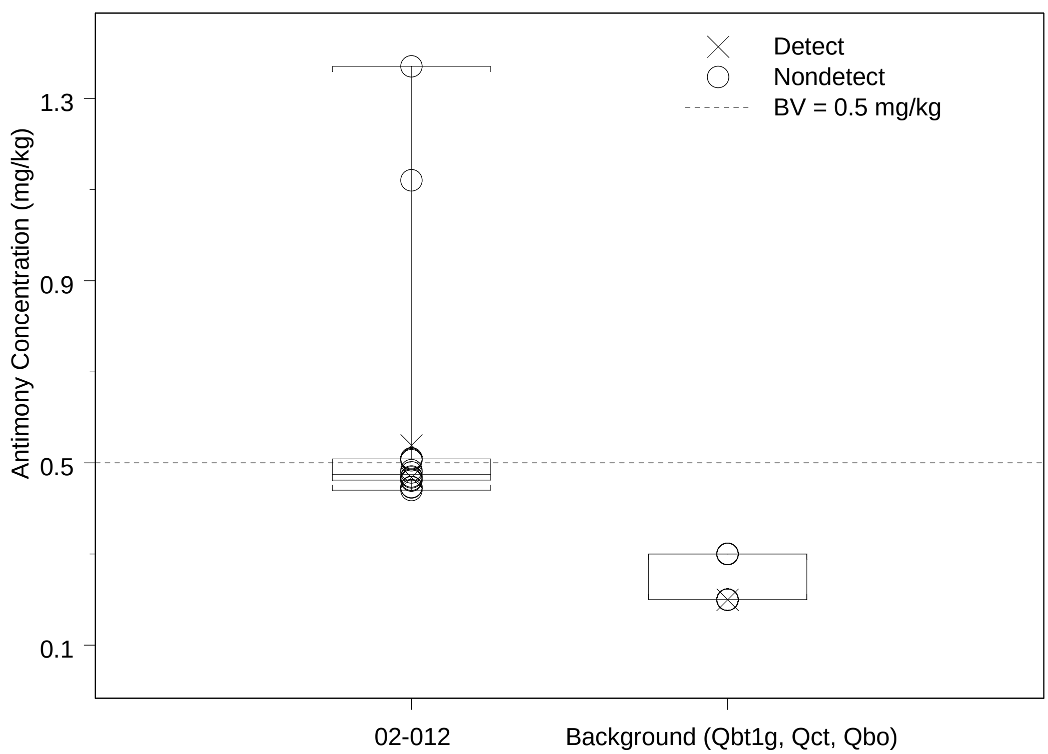

Figure G-21.0-2 Box plot of antimony in Qbo tuff at AOC 02-012

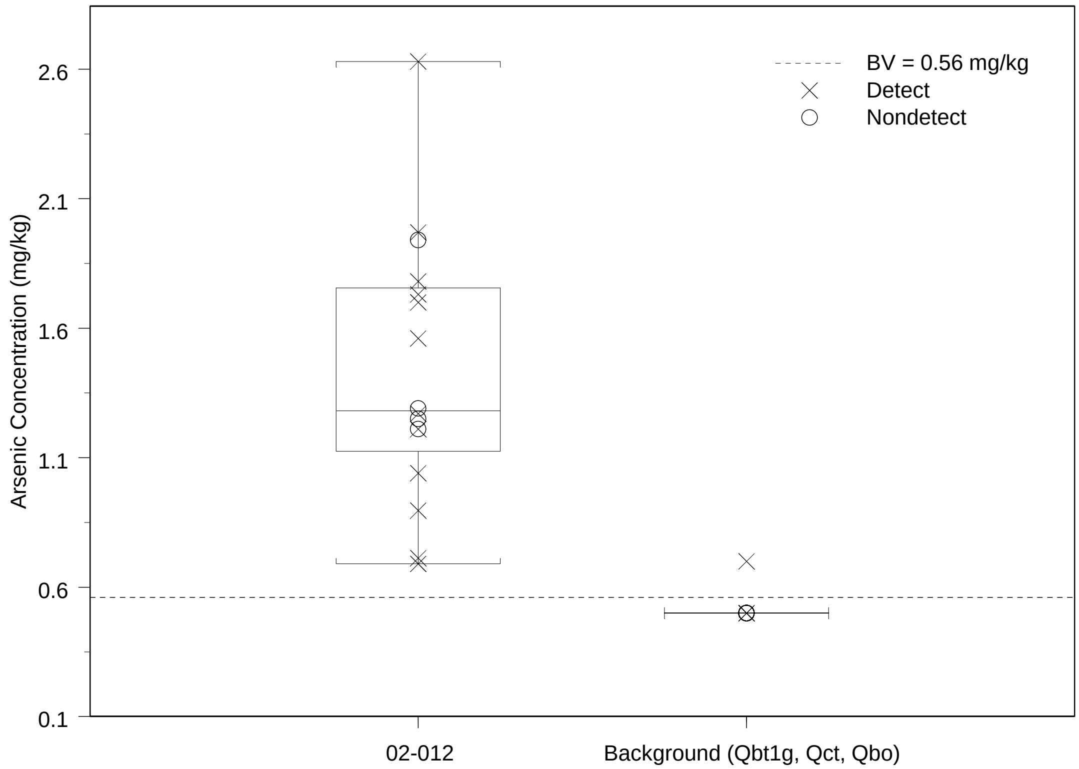

Figure G-21.0-3 Box plot of arsenic in Qbo tuff at AOC 02-012

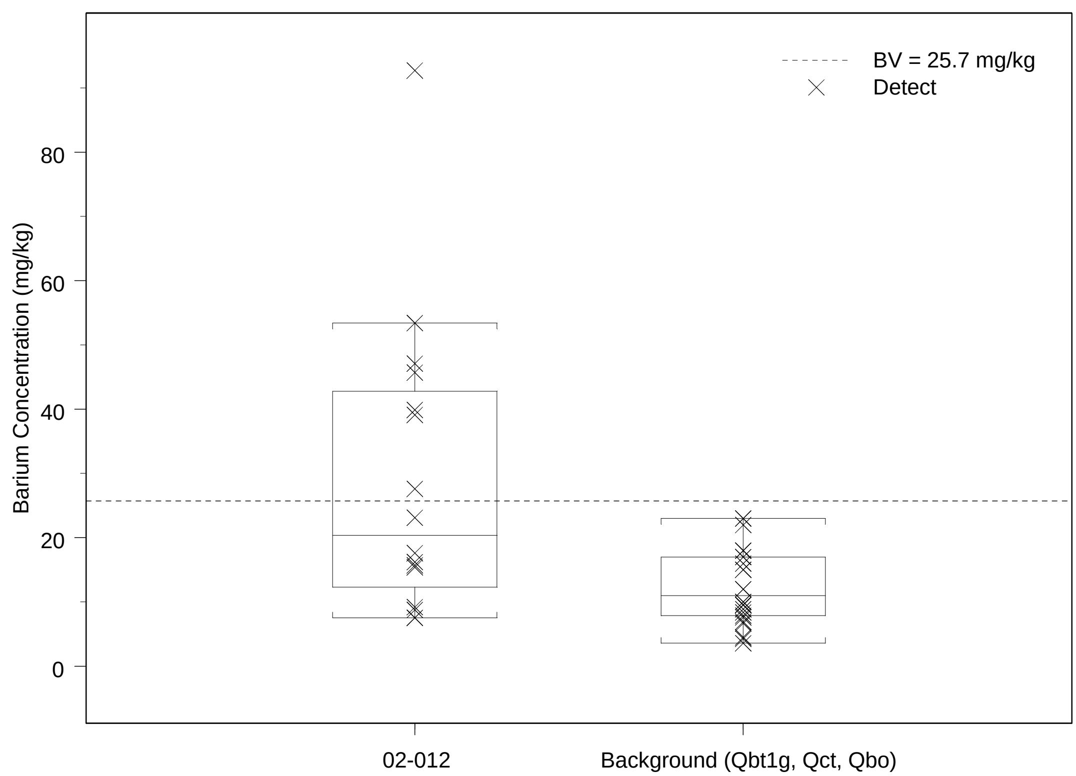

Figure G-21.0-4 Box plot of barium in Qbo tuff at AOC 02-012

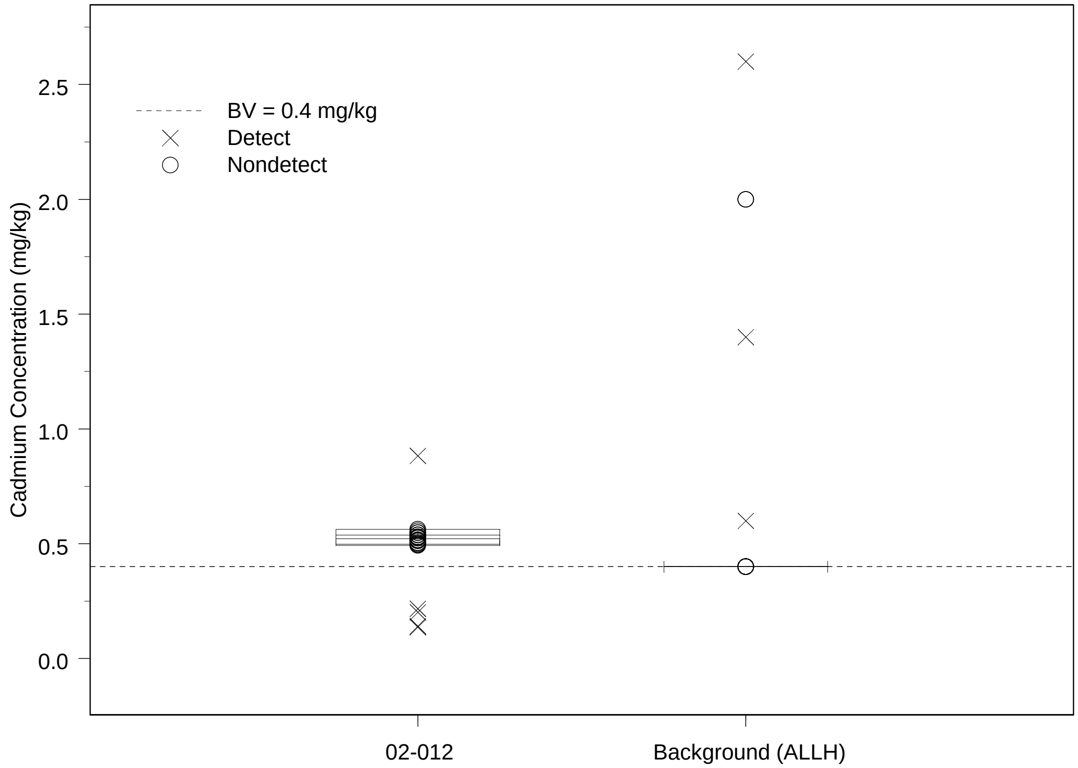

Figure G-21.0-5 Box plot of cadmium in soil at AOC 02-012

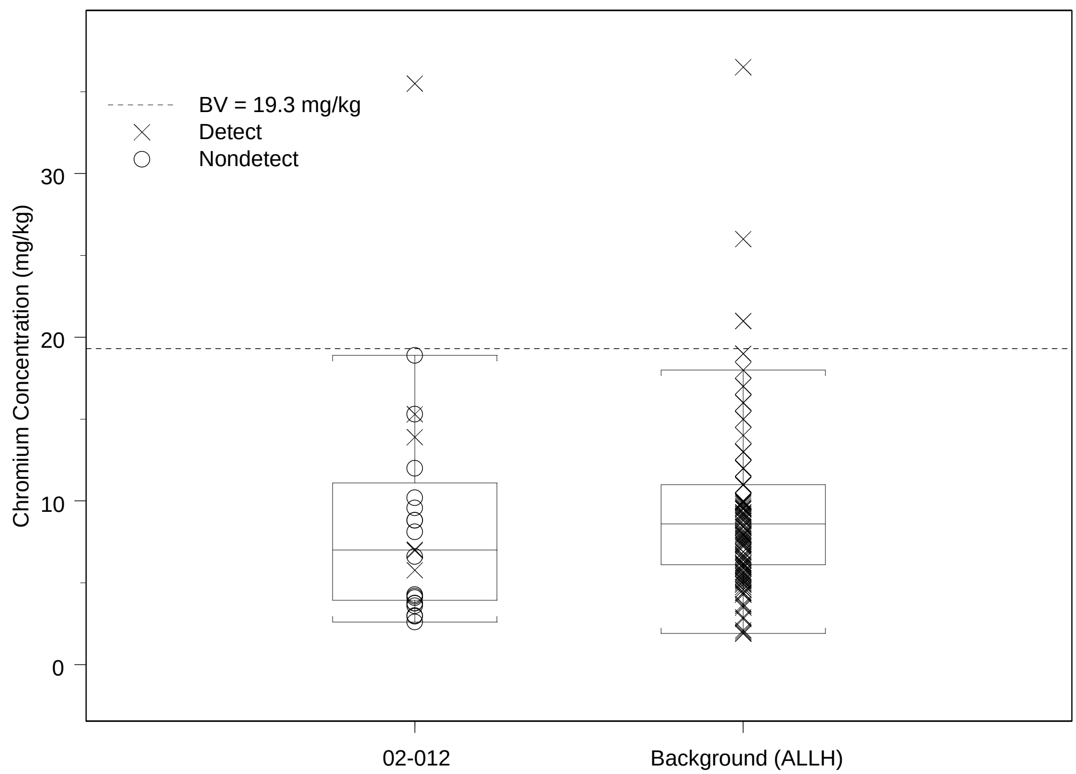

Figure G-21.0-6 Box plot of chromium in soil at AOC 02-012

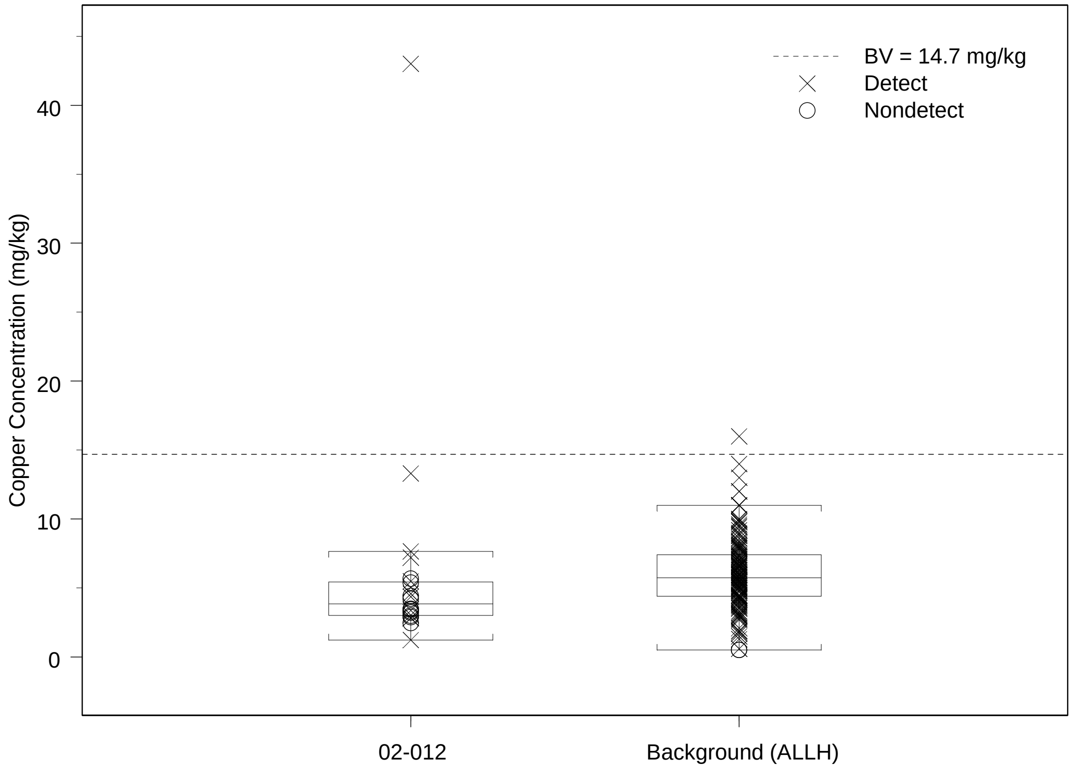

Figure G-21.0-7 Box plot of copper in soil at AOC 02-012

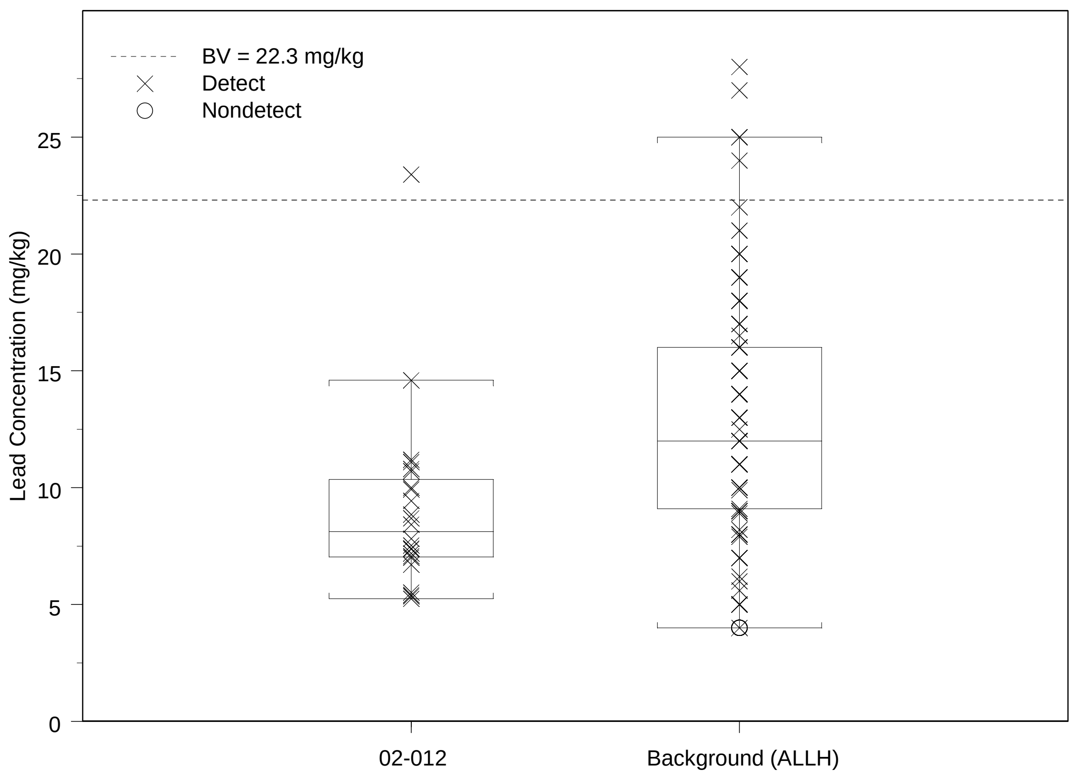

Figure G-21.0-8 Box plot of lead in soil at AOC 02-012

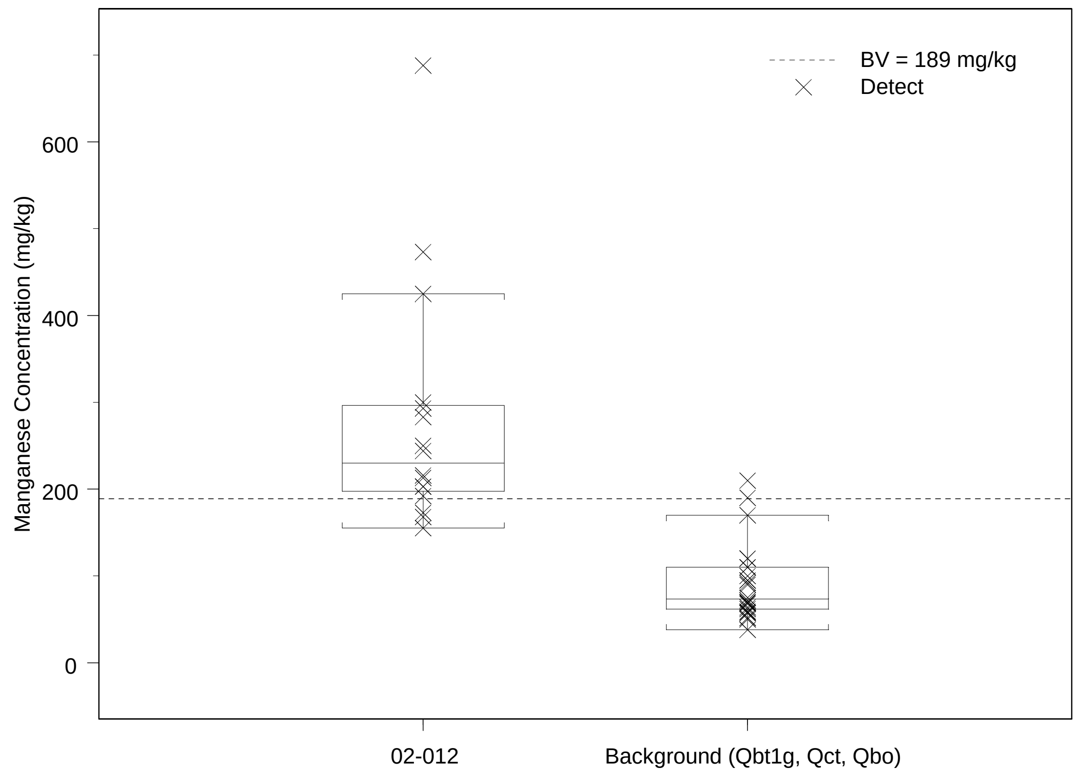

Figure G-21.0-9 Box plot of manganese in Qbo tuff at AOC 02-012

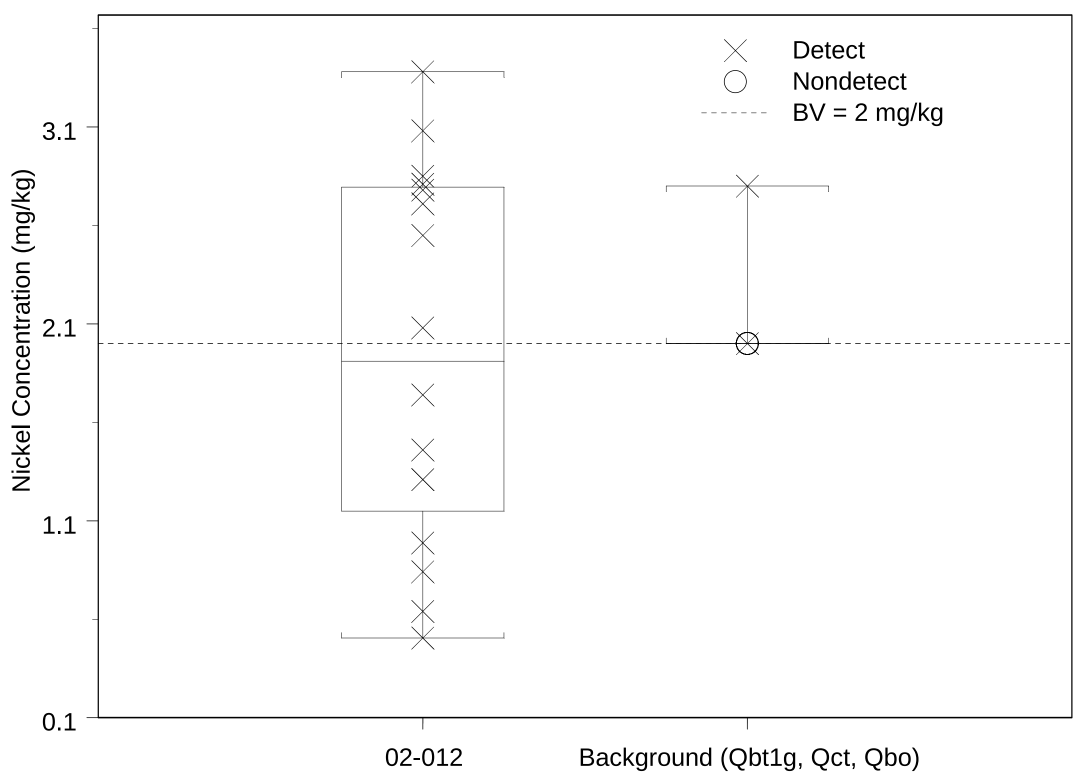

Figure G-21.0-10 Box plot of nickel in Qbo tuff at AOC 02-012

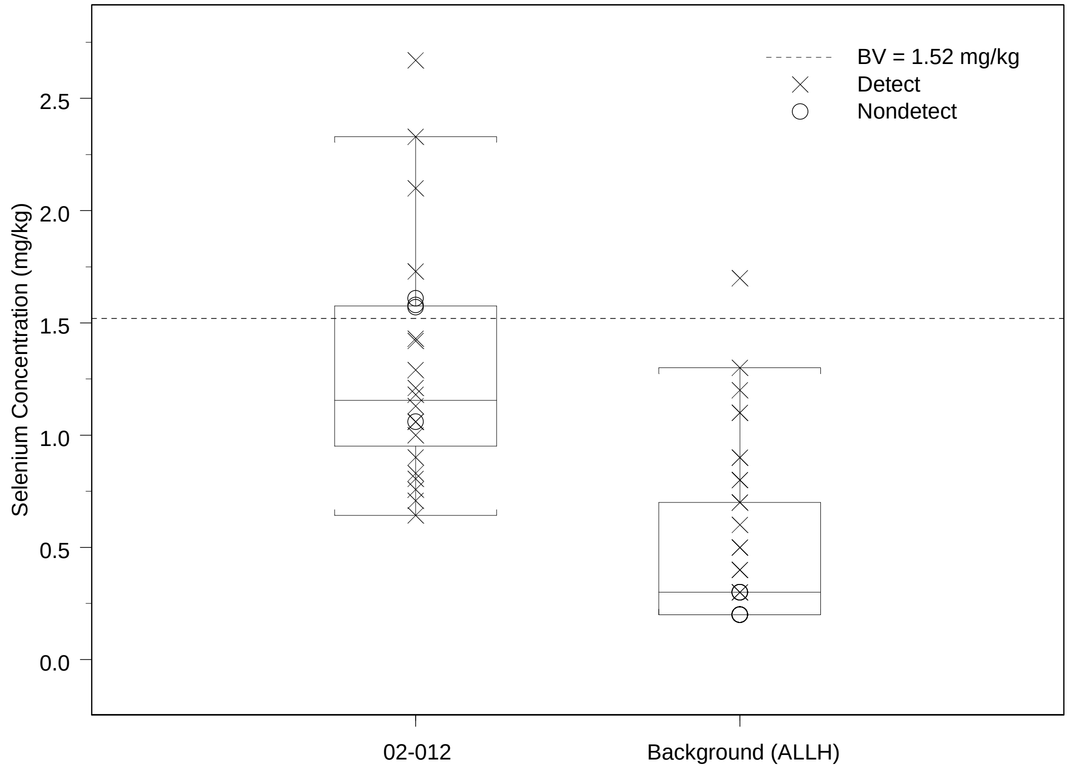

Figure G-21.0-11 Box plot of selenium in soil at AOC 02-012

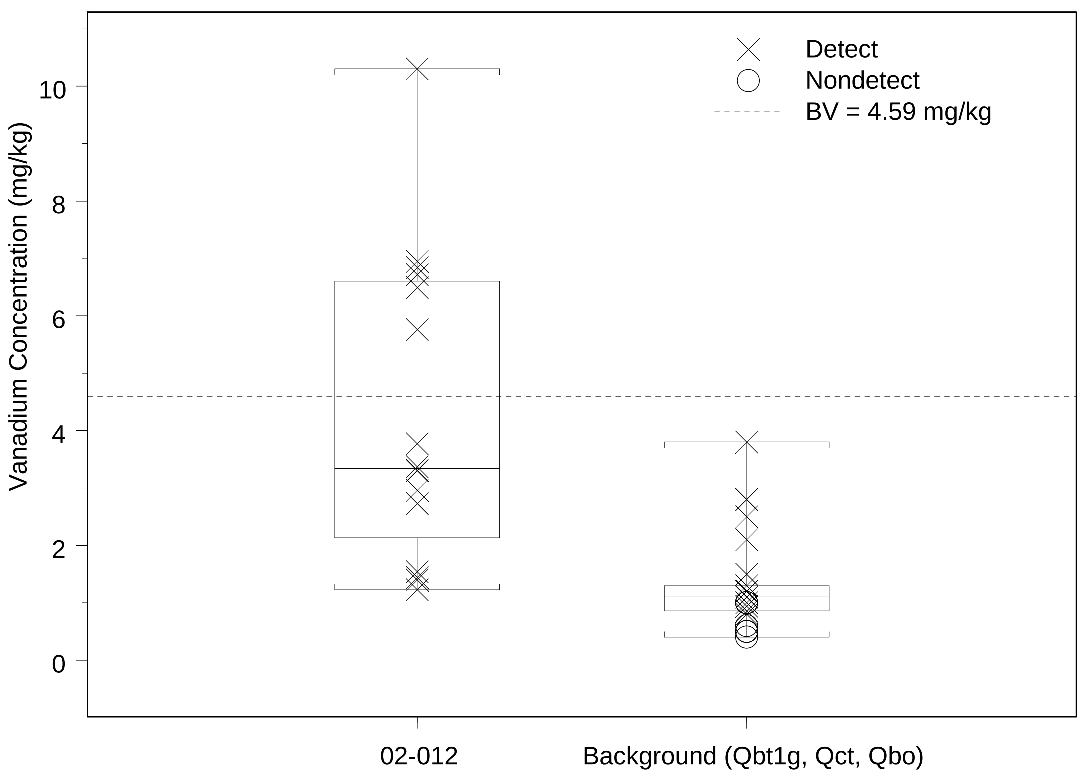

Figure G-21.0-12 Box plot of vanadium in Qbo tuff at AOC 02-012

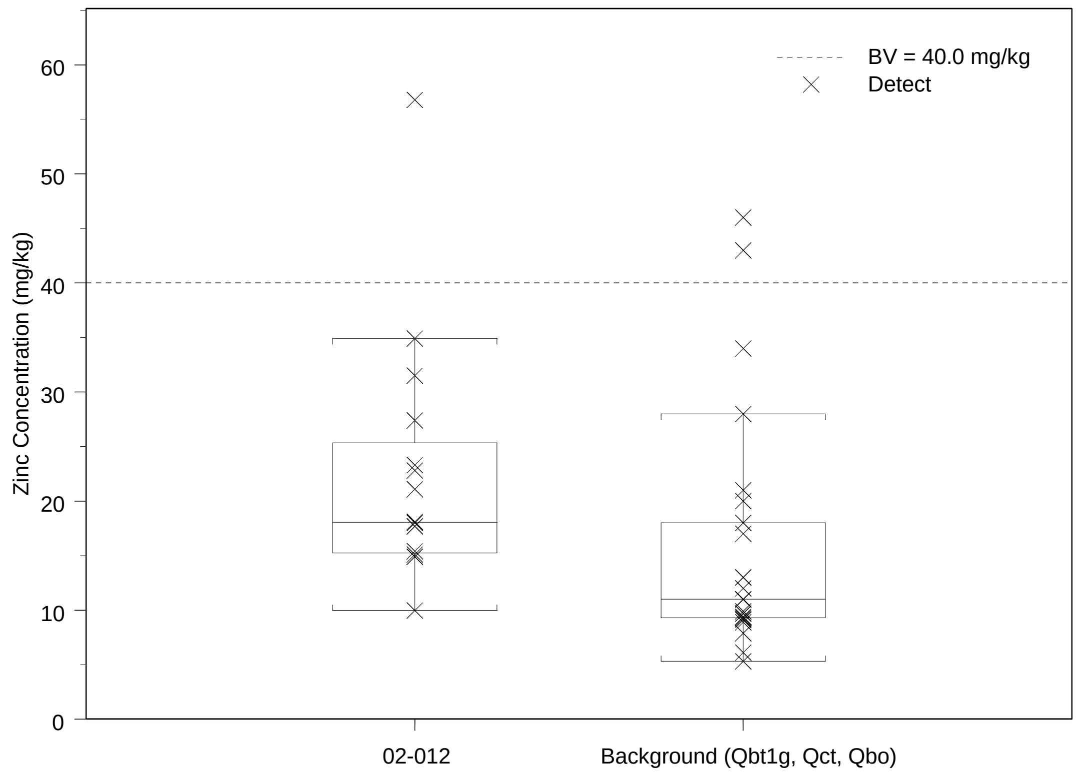

Figure G-21.0-13 Box plot of zinc in Qbo tuff at AOC 02-012

G-22.0 BOX PLOTS FOR THE LATERAL BOUNDARY OF THE TA-02 CORE AREA

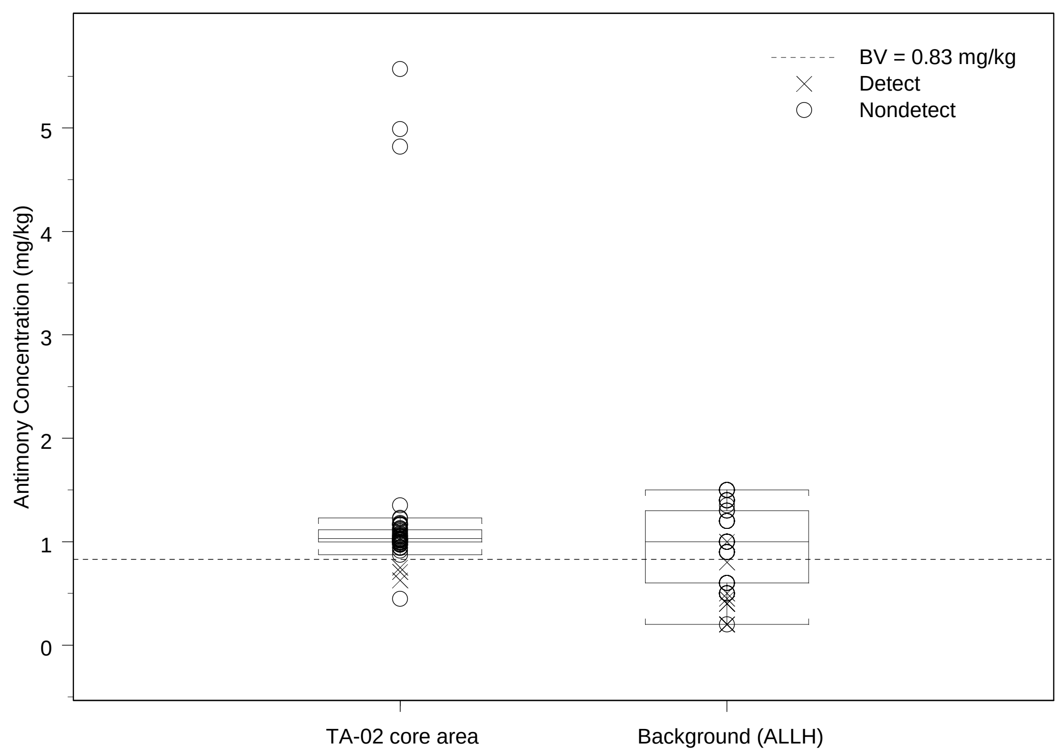

Figure G-22.0-1 Box plot of antimony in soil at the lateral boundary of the TA-02 core area

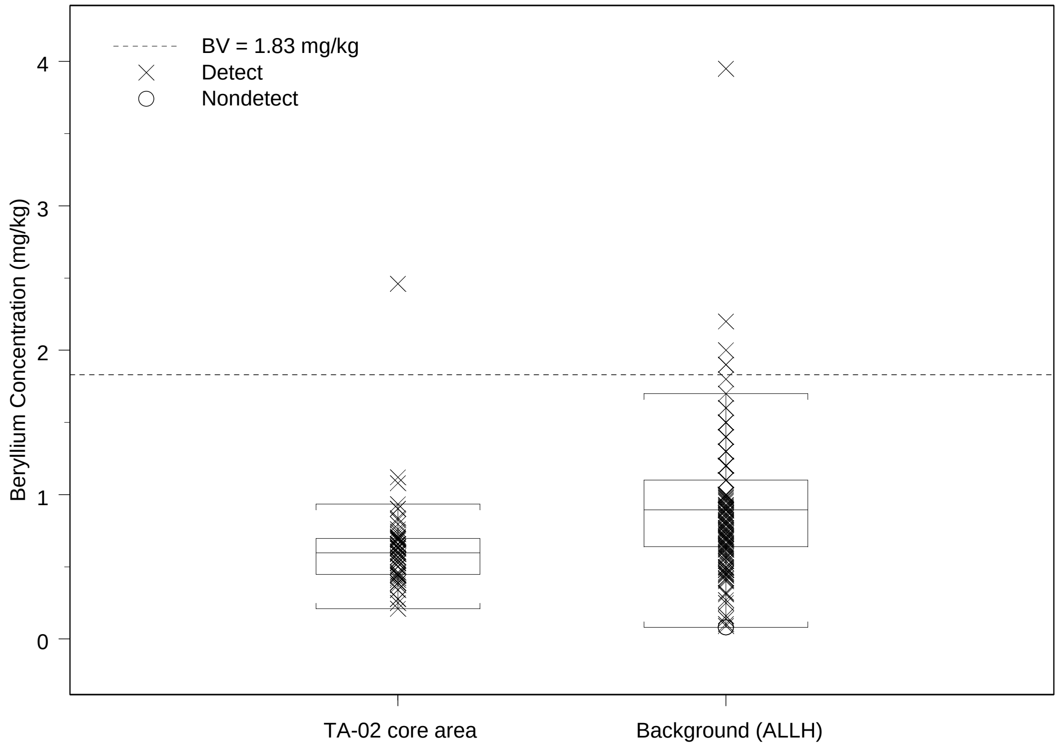

Figure G-22.0-2 Box plot of beryllium in soil at the lateral boundary of the TA-02 core area

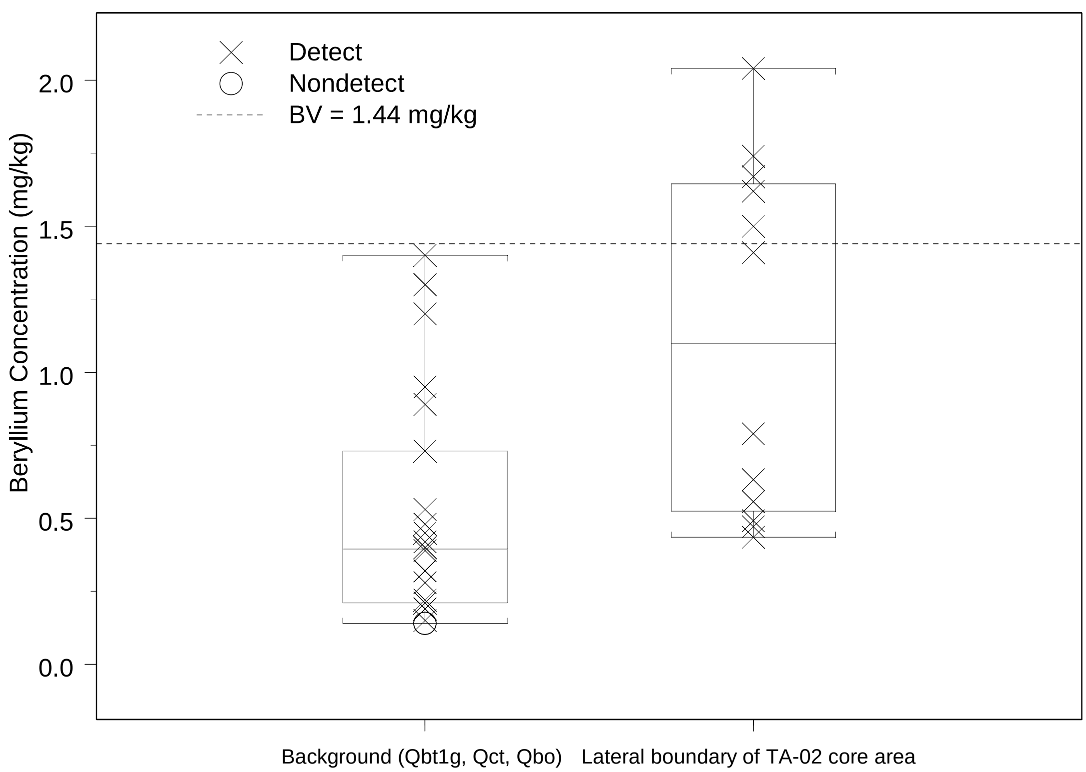

Figure G-22.0-3 Box plot of beryllium in Qbt 1g/Qct tuff at the lateral boundary of the TA-02 core area

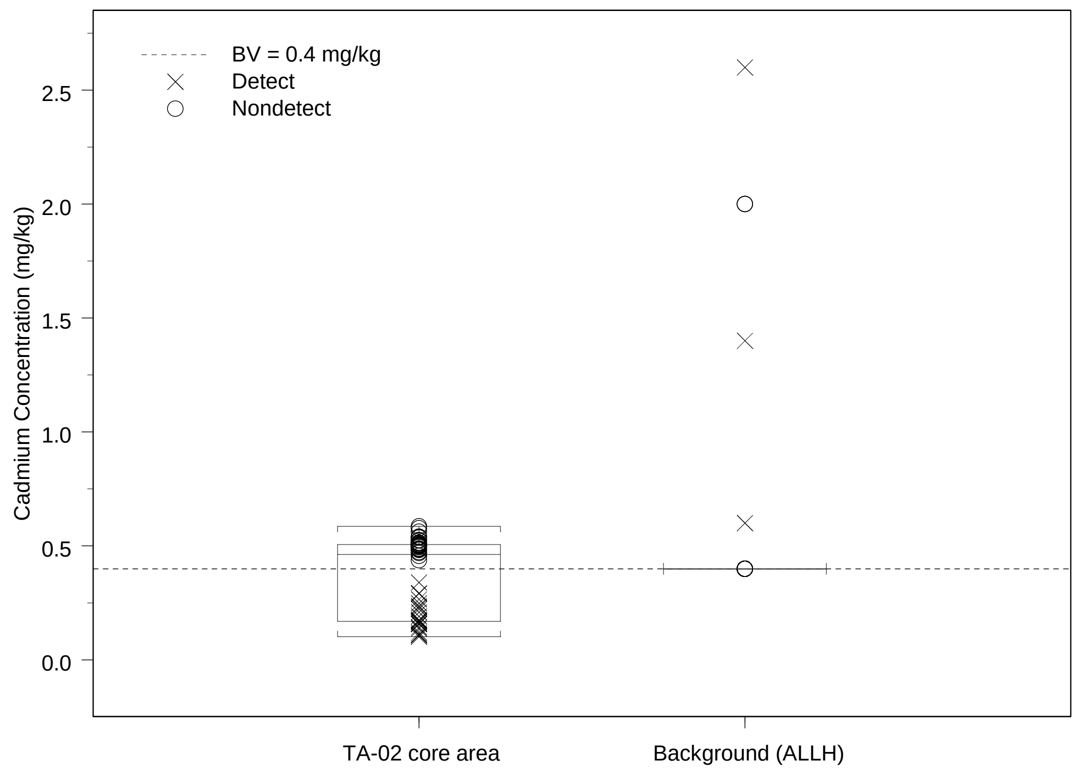

Figure G-22.0-4 Box plot of cadmium in soil at the lateral boundary of the TA-02 core area

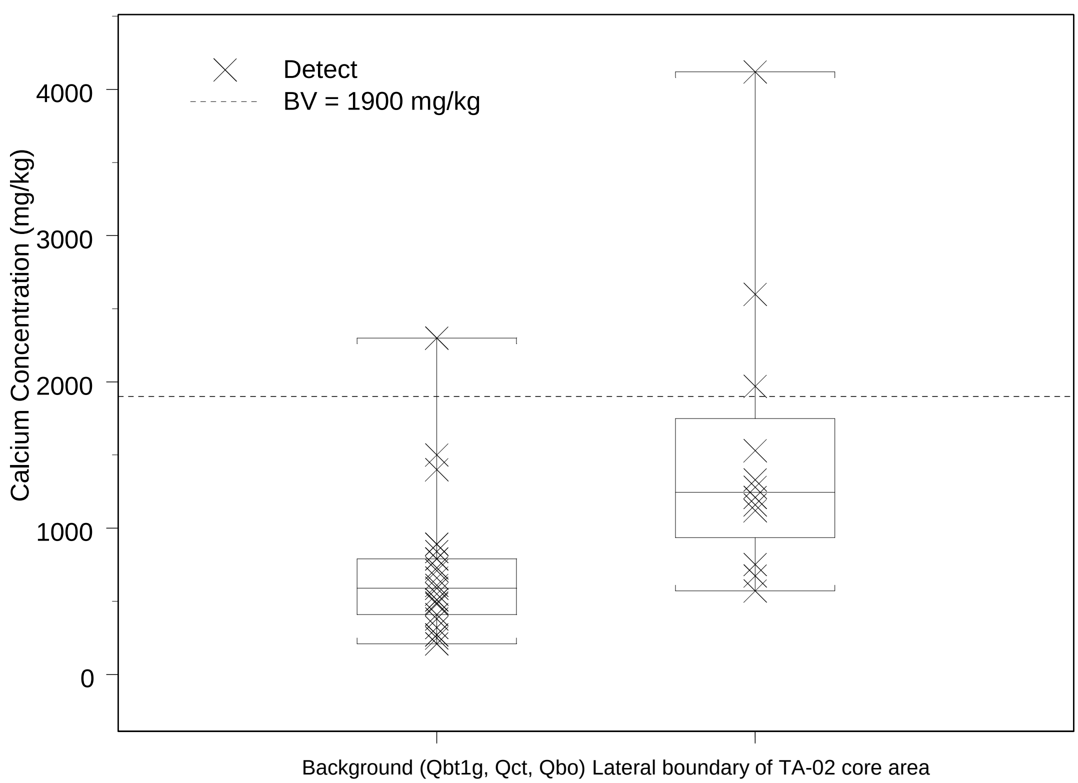

Figure G-22.0-5 Box plot of calcium in Qbt 1g/Qct tuff at the lateral boundary of the TA-02 core area

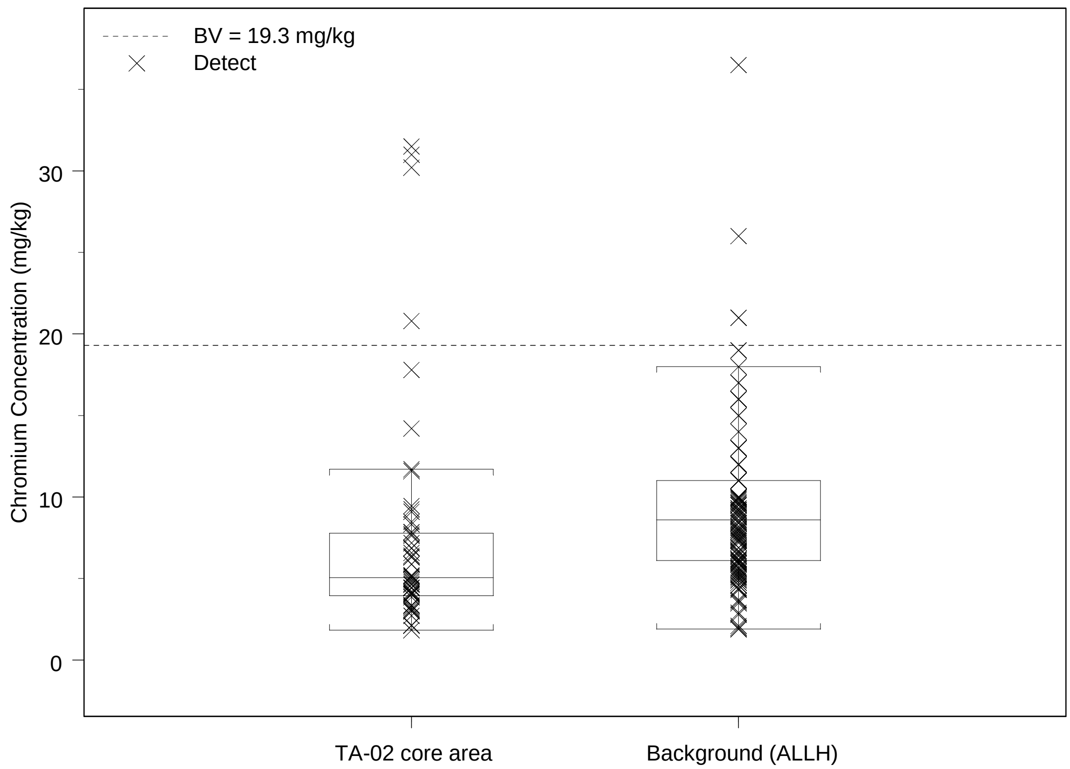

Figure G-22.0-6 Box plot of chromium in soil at the lateral boundary of the TA-02 core area

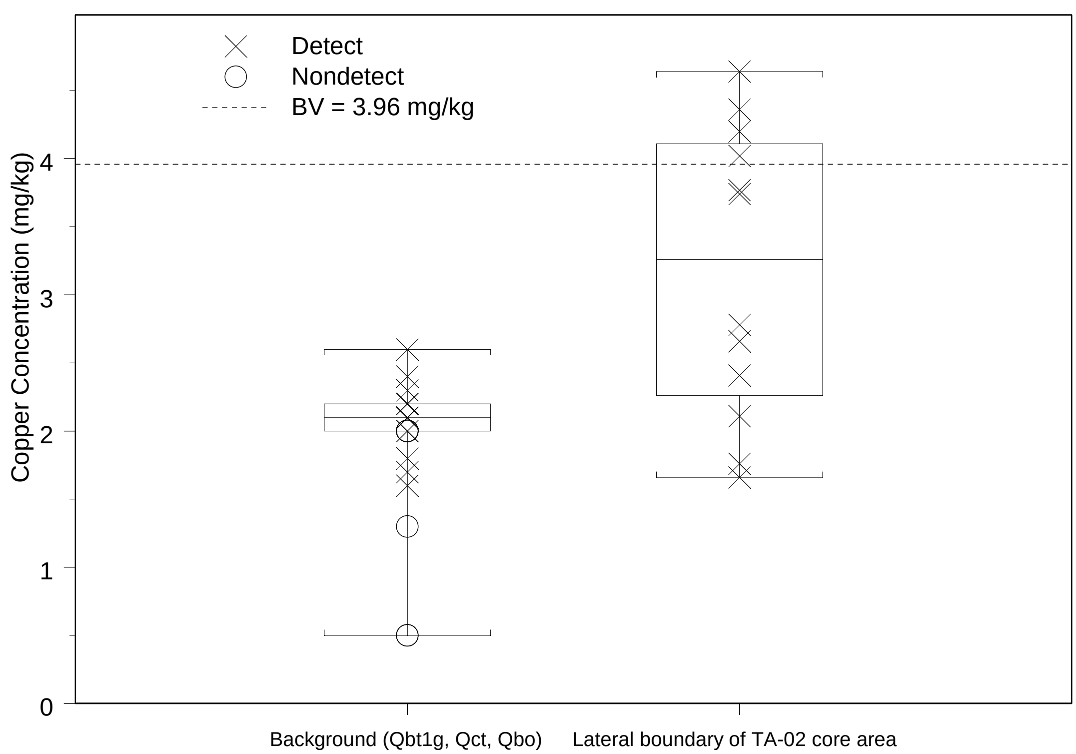

Figure G-22.0-7 Box plot of copper in Qbt 1g/Qct tuff at the lateral boundary of the TA-02 core area

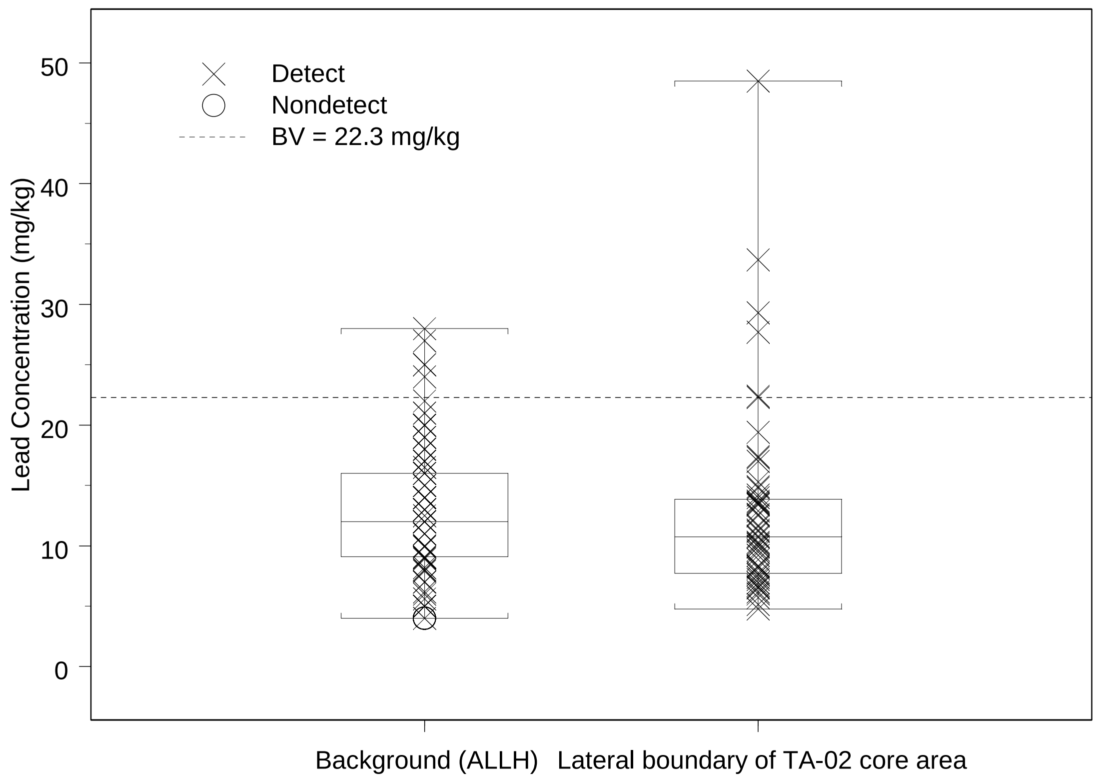

Figure G-22.0-8 Box plot of lead in soil at the lateral boundary of the TA-02 core area

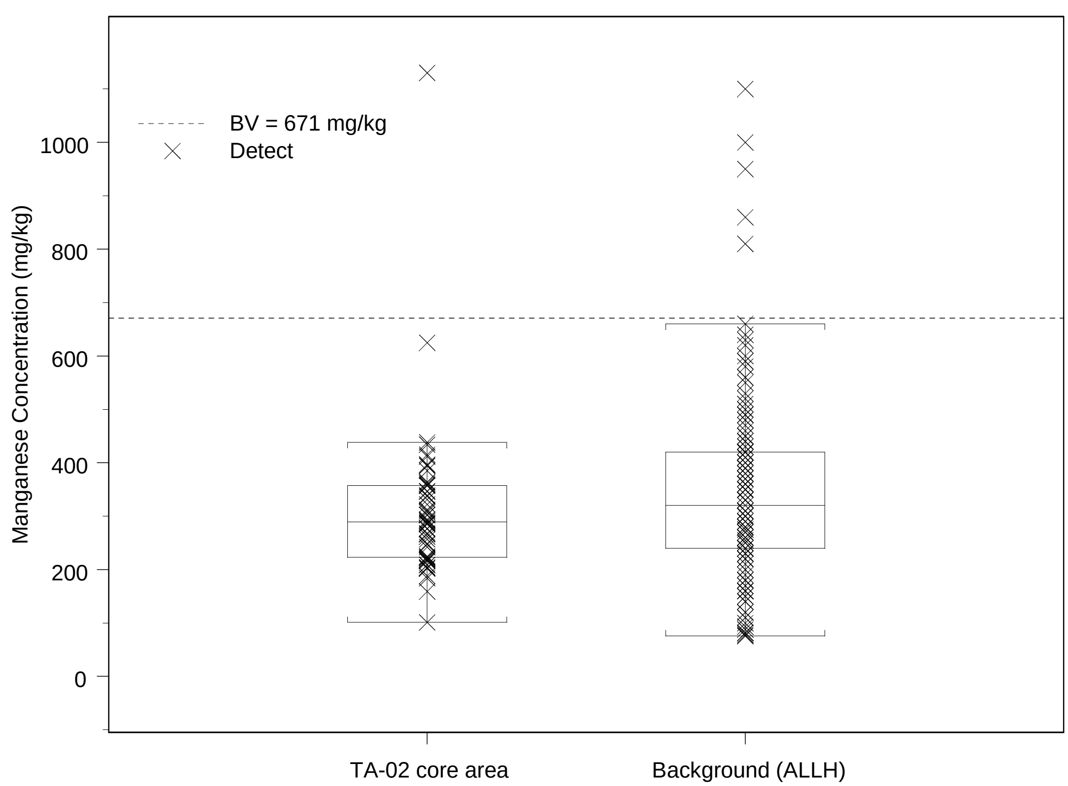

Figure G-22.0-9 Box plot of manganese in soil at the lateral boundary of the TA-02 core area

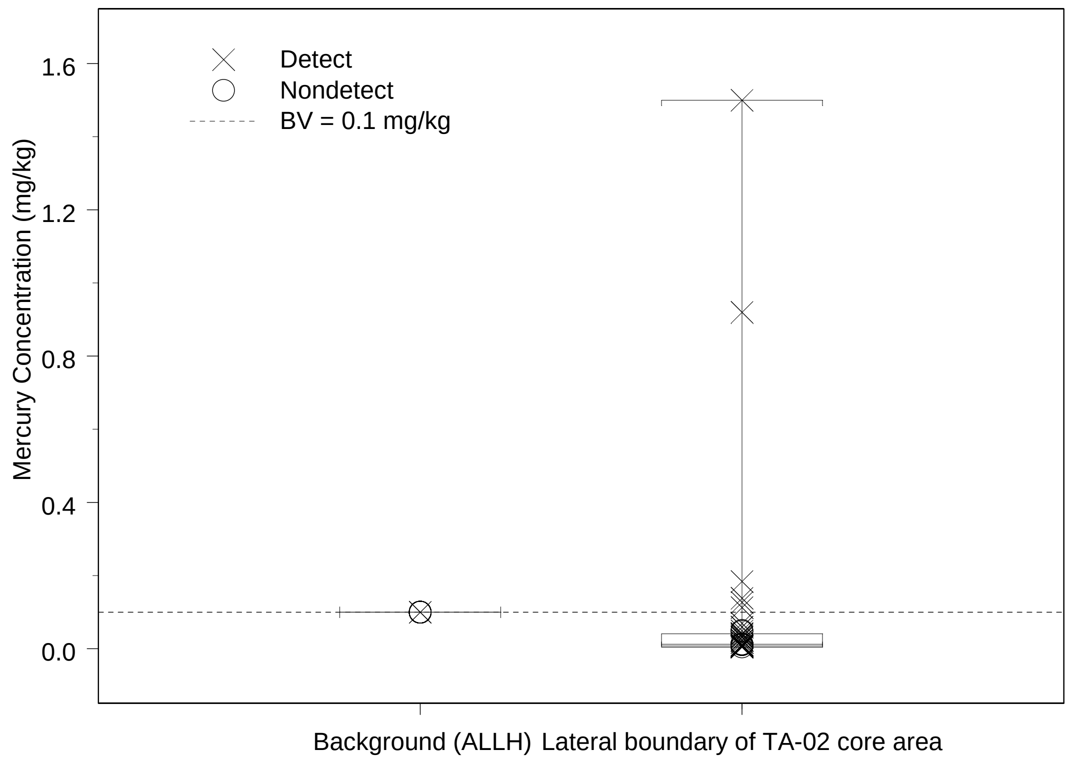

Figure G-22.0-10 Box plot of mercury in soil at the lateral boundary of the TA-02 core area

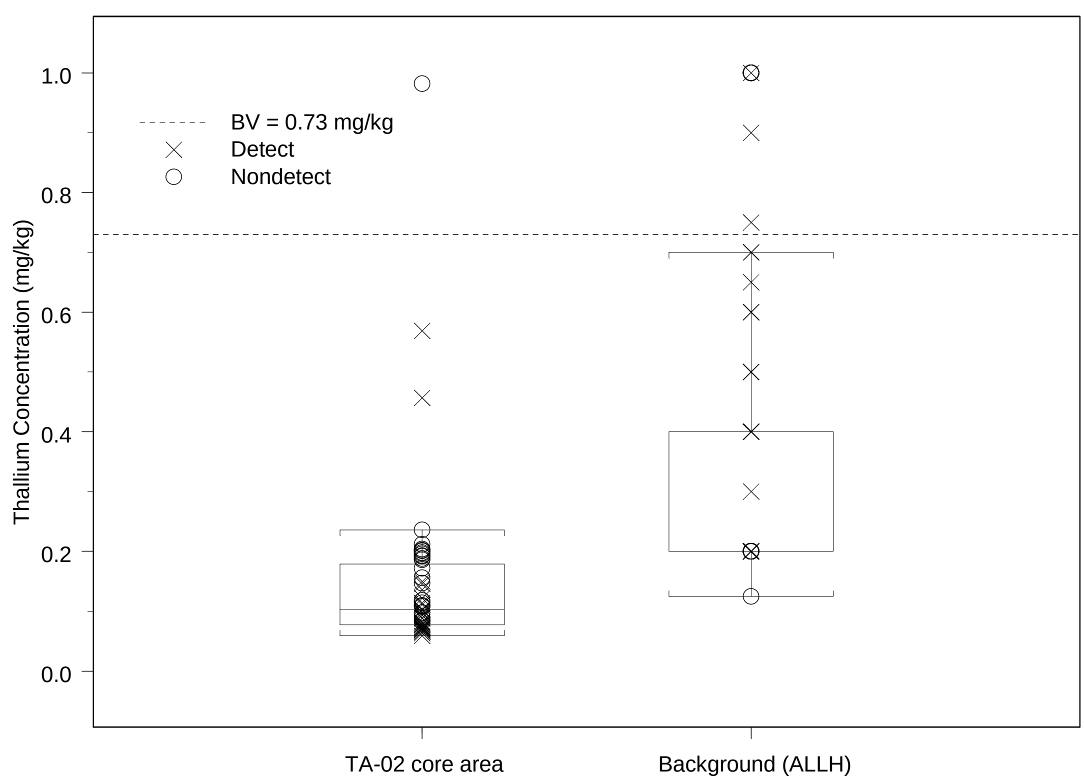

Figure G-22.0-11 Box plot of thallium in soil at the lateral boundary of the TA-02 core area

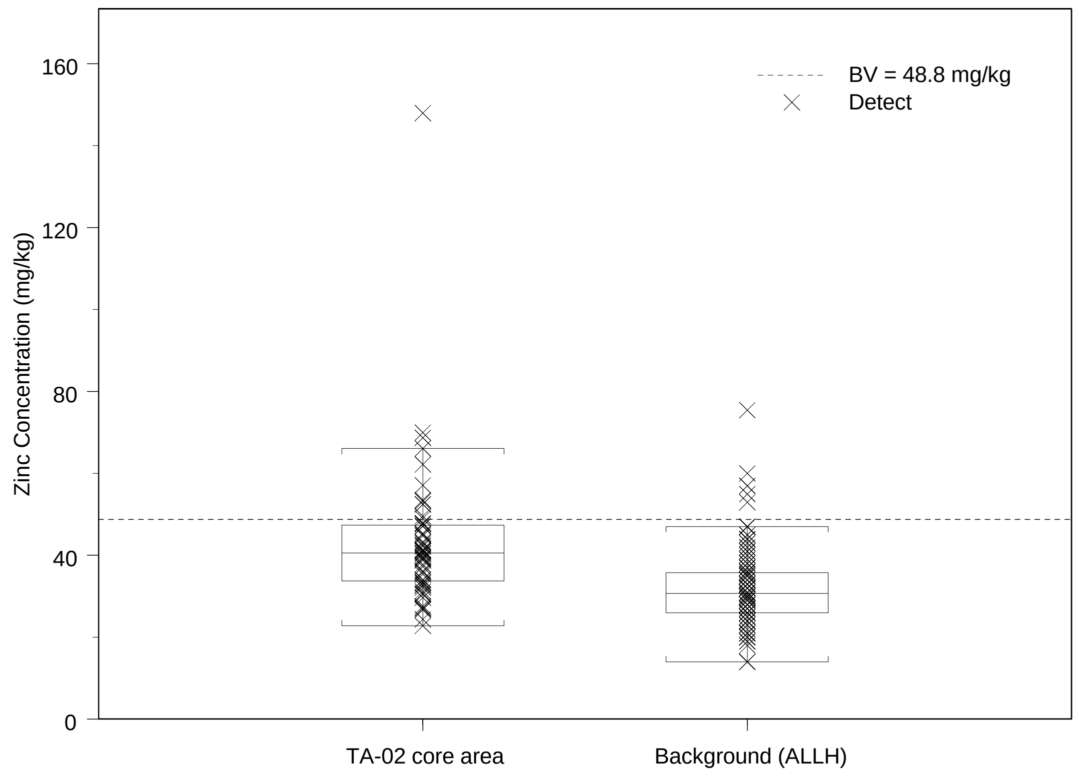

Figure G-22.0-12 Box plot of zinc in soil at the lateral boundary of the TA-02 core area

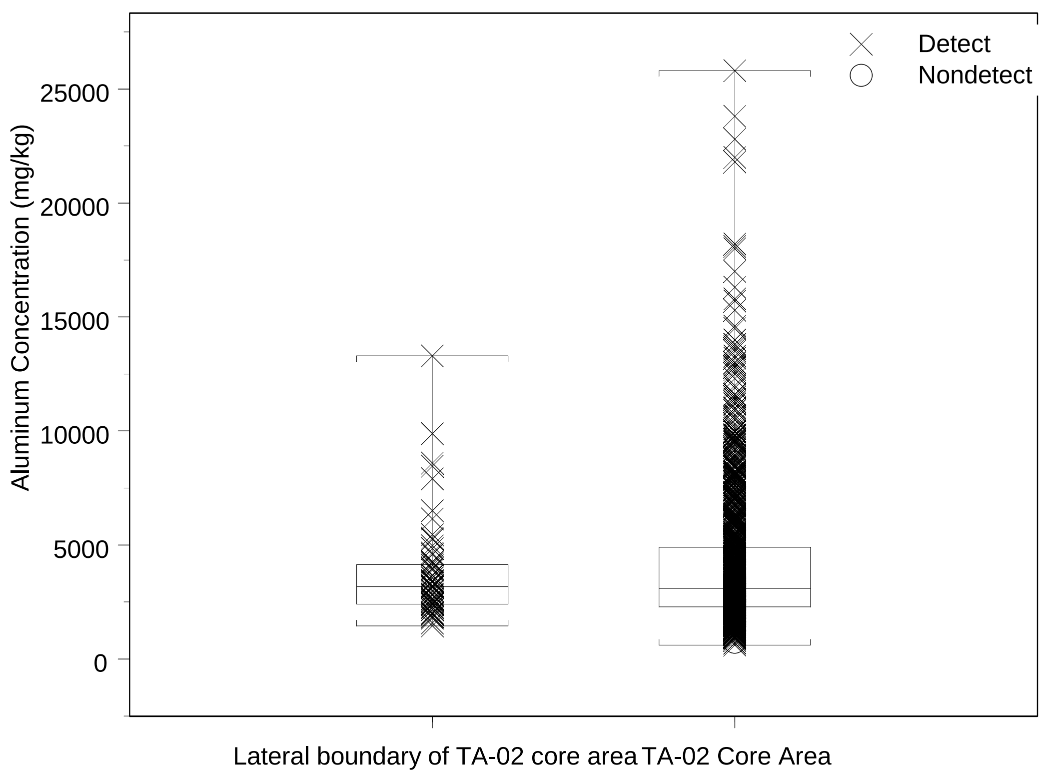

Figure G-22.0-13 Box plot of aluminum concentrations at the lateral boundary of the TA-02 core area and within the TA-02 core area

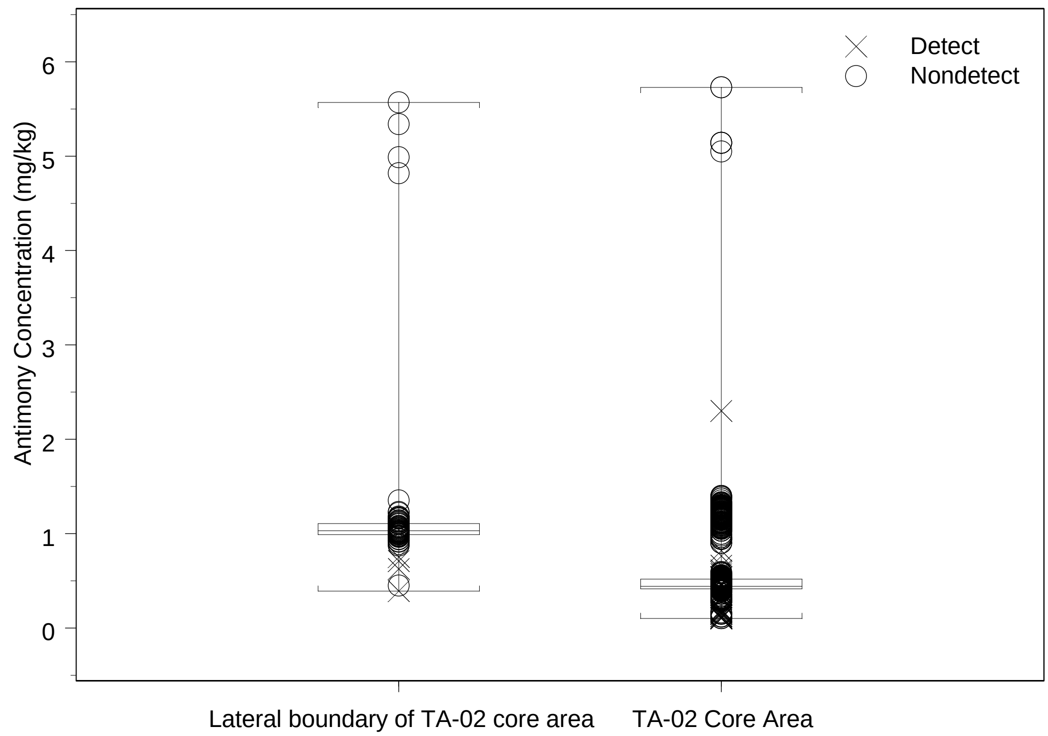

Figure G-22.0-14 Box plot of antimony concentrations at the lateral boundary of the TA-02 core area and within the TA-02 core area

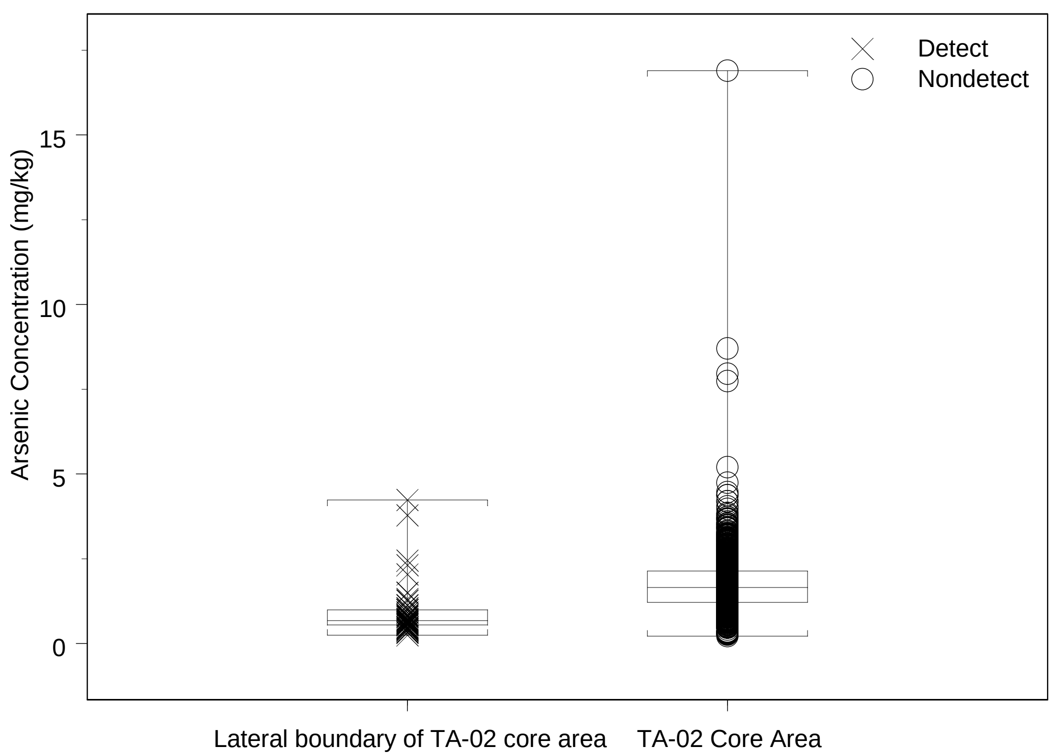

Figure G-22.0-15 Box plot of arsenic concentrations at the lateral boundary of the TA-02 core area and within the TA-02 core area

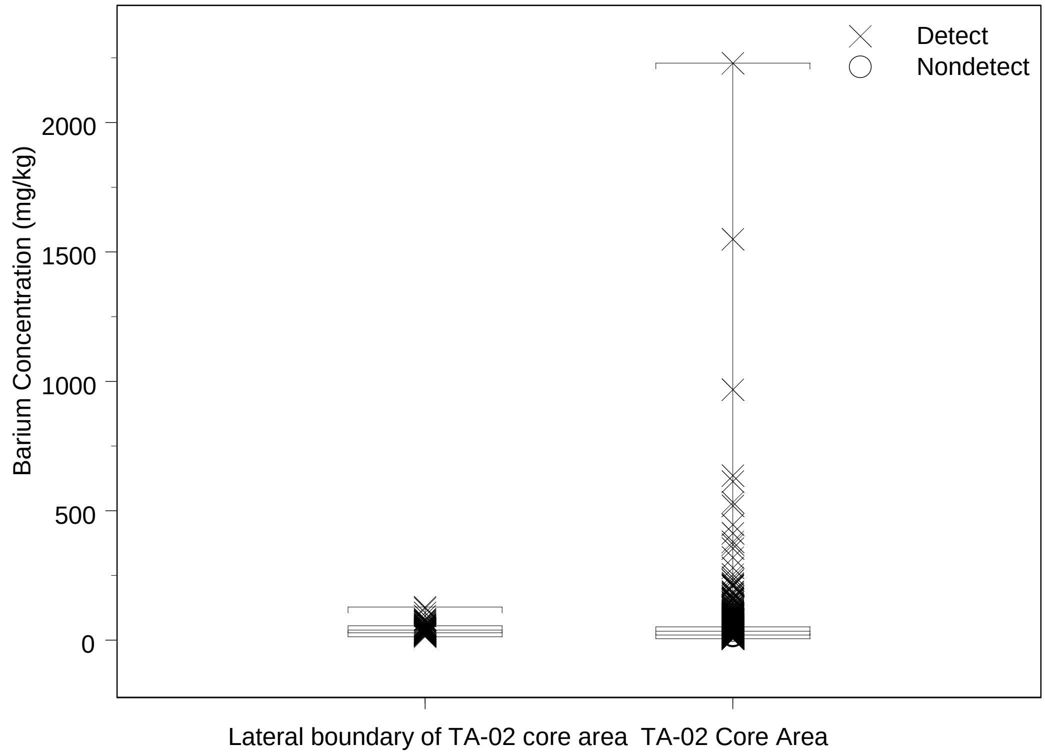

Figure G-22.0-16 Box plot of barium concentrations at the lateral boundary of the TA-02 core area and within the TA-02 core area

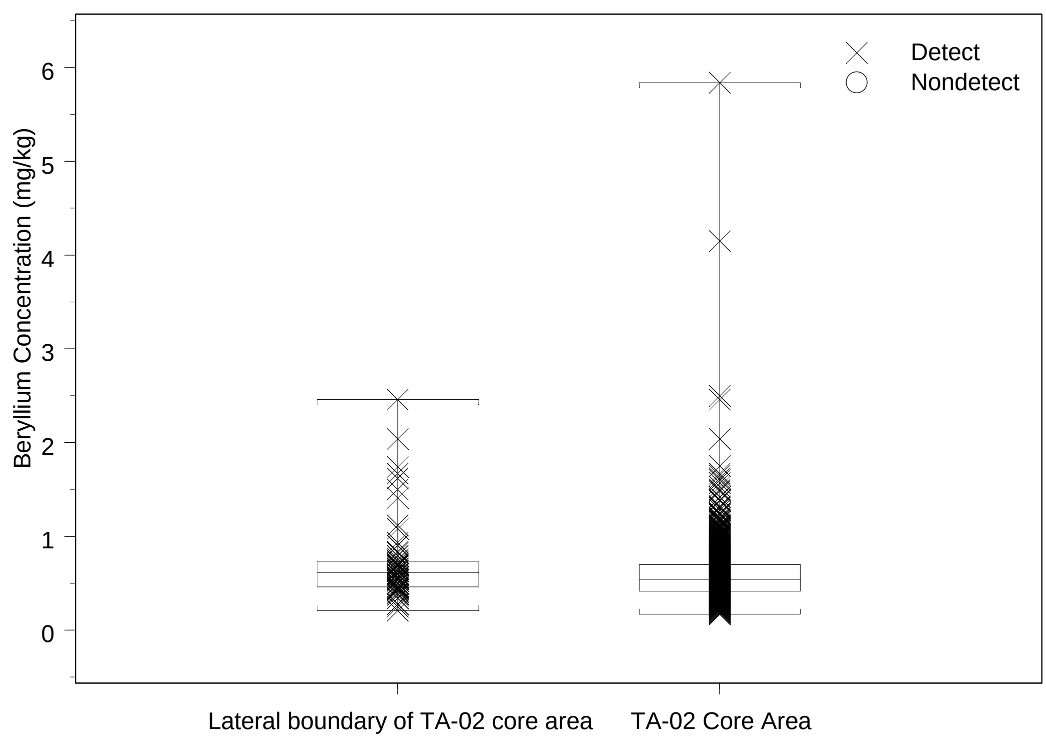

Figure G-22.0-17 Box plot of beryllium concentrations at the lateral boundary of the TA-02 core area and within the TA-02 core area

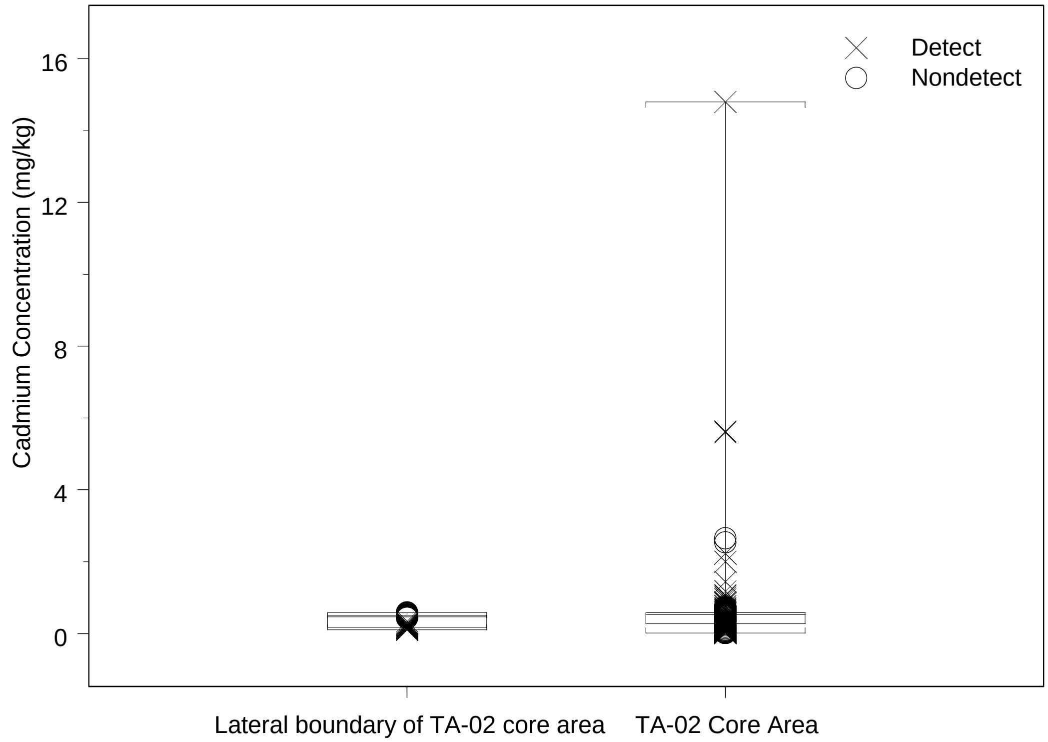

Figure G-22.0-18 Box plot of cadmium concentrations at the lateral boundary of the TA-02 core area and within the TA-02 core area

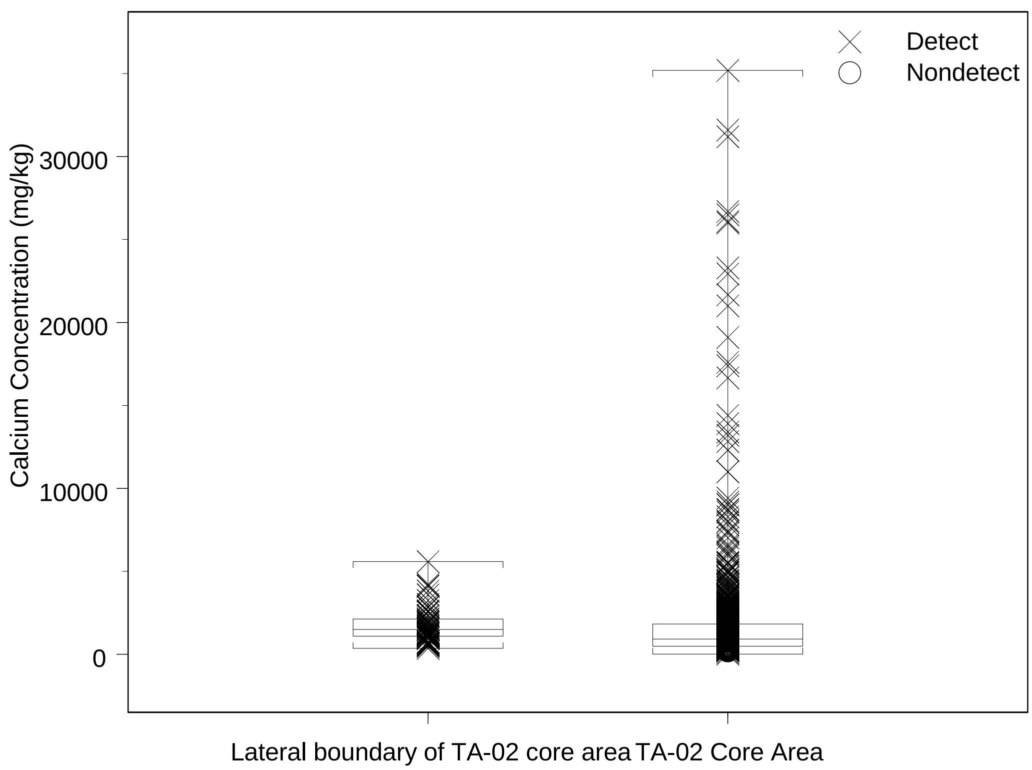

Figure G-22.0-19 Box plot of calcium concentrations at the lateral boundary of the TA-02 core area and within the TA-02 core area

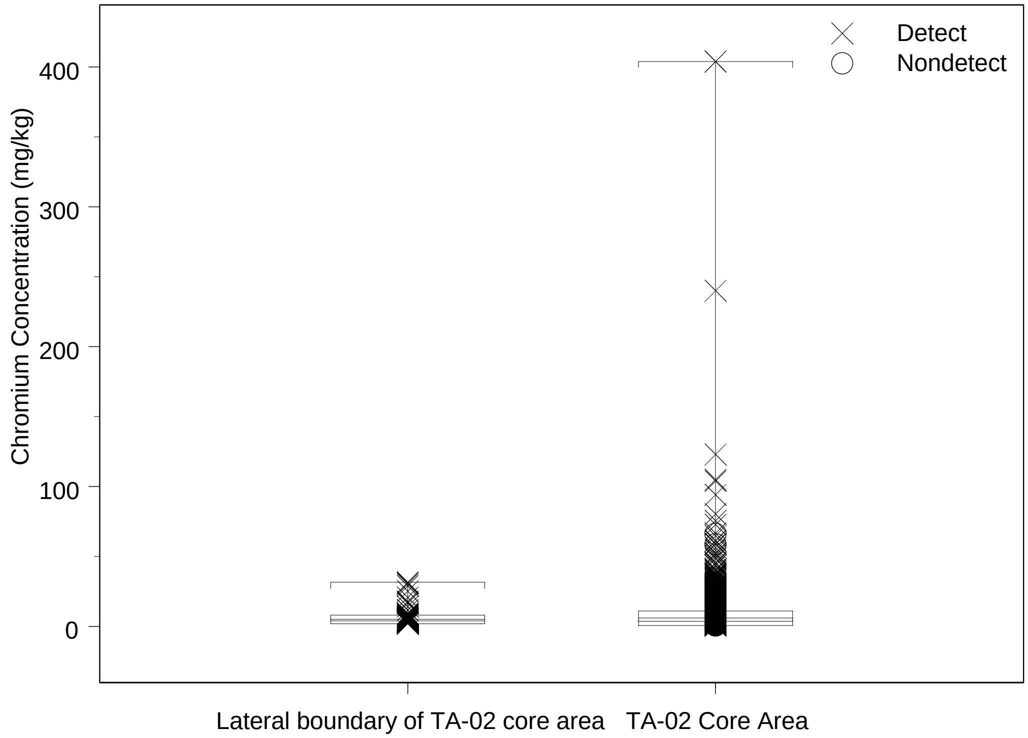

Figure G-22.0-20 Box plot of chromium concentrations at the lateral boundary of the TA-02 core area and within the TA-02 core area

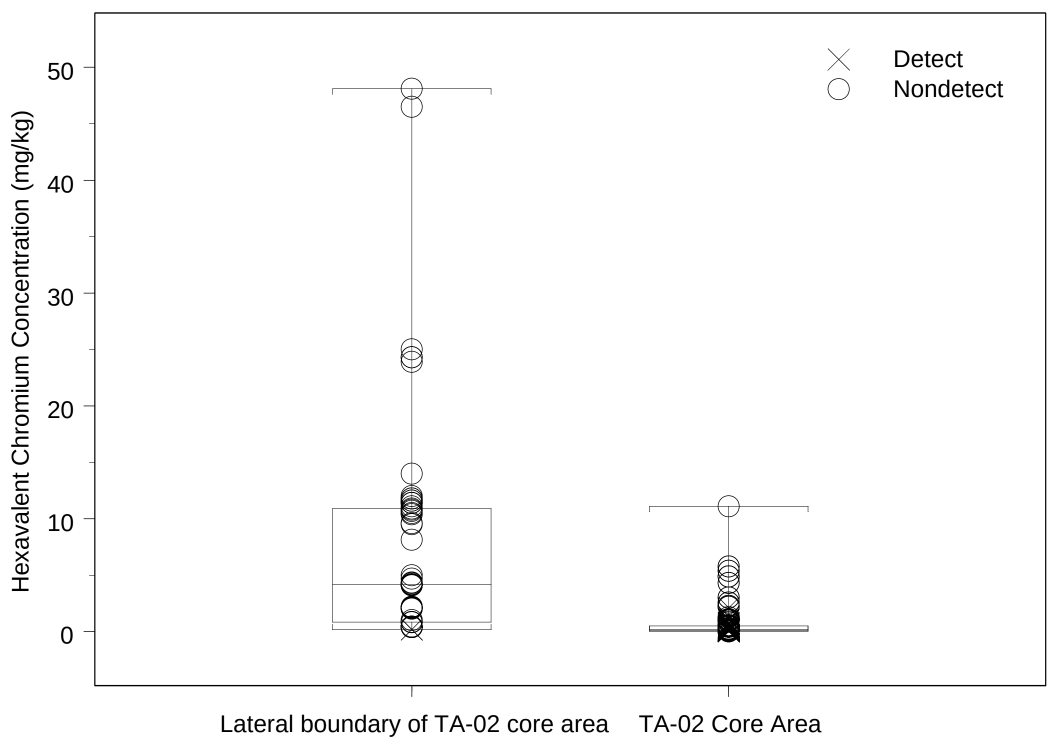

Figure G-22.0-21 Box plot of hexavalent chromium concentrations at the lateral boundary of the TA-02 core area and within the TA-02 core area

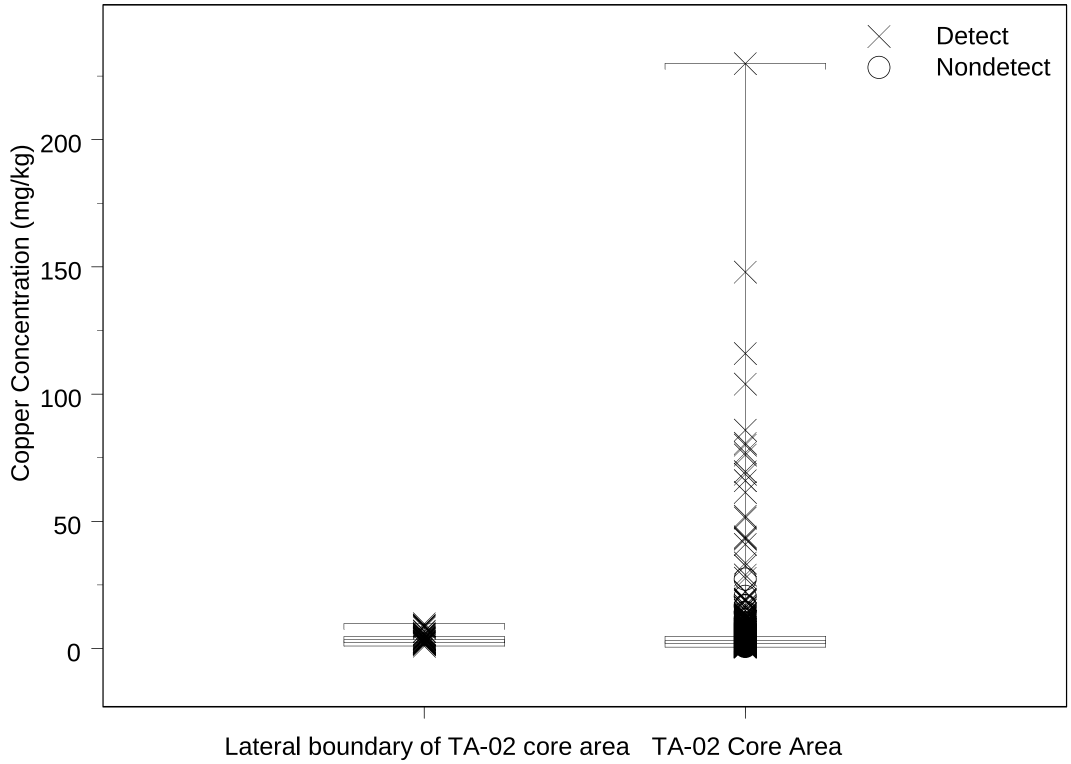

Figure G-22.0-22 Box plot of copper concentrations at the lateral boundary of the TA-02 core area and within the TA-02 core area

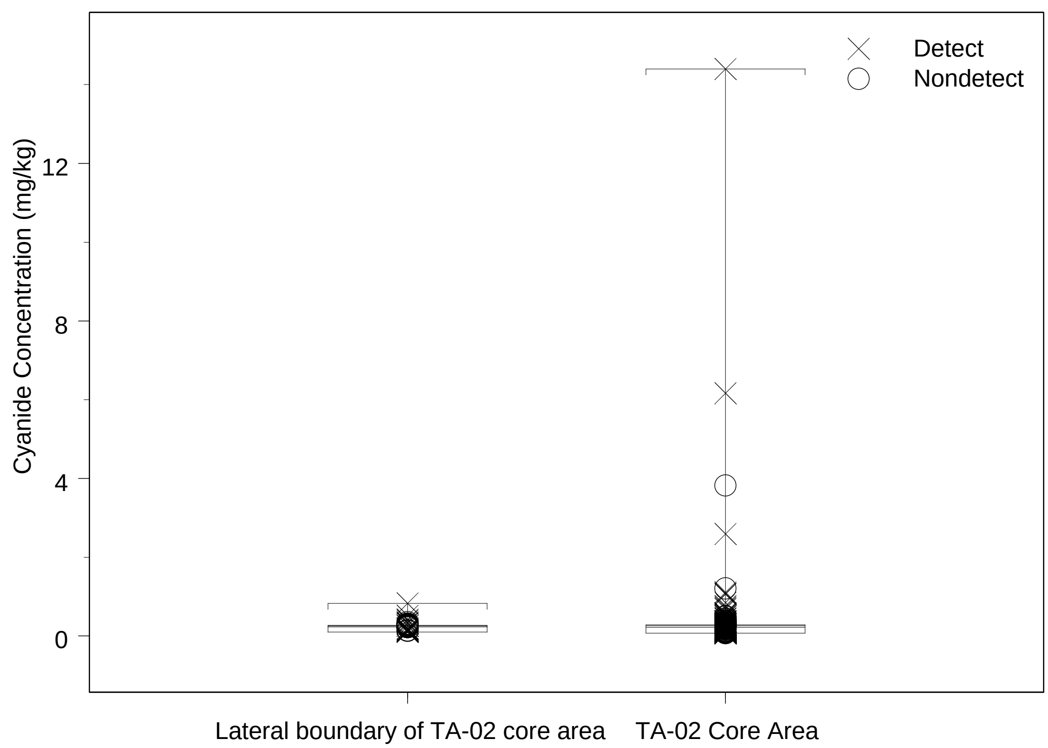

Figure G-22.0-23 Box plot of cyanide concentrations at the lateral boundary of the TA-02 core area and within the TA-02 core area

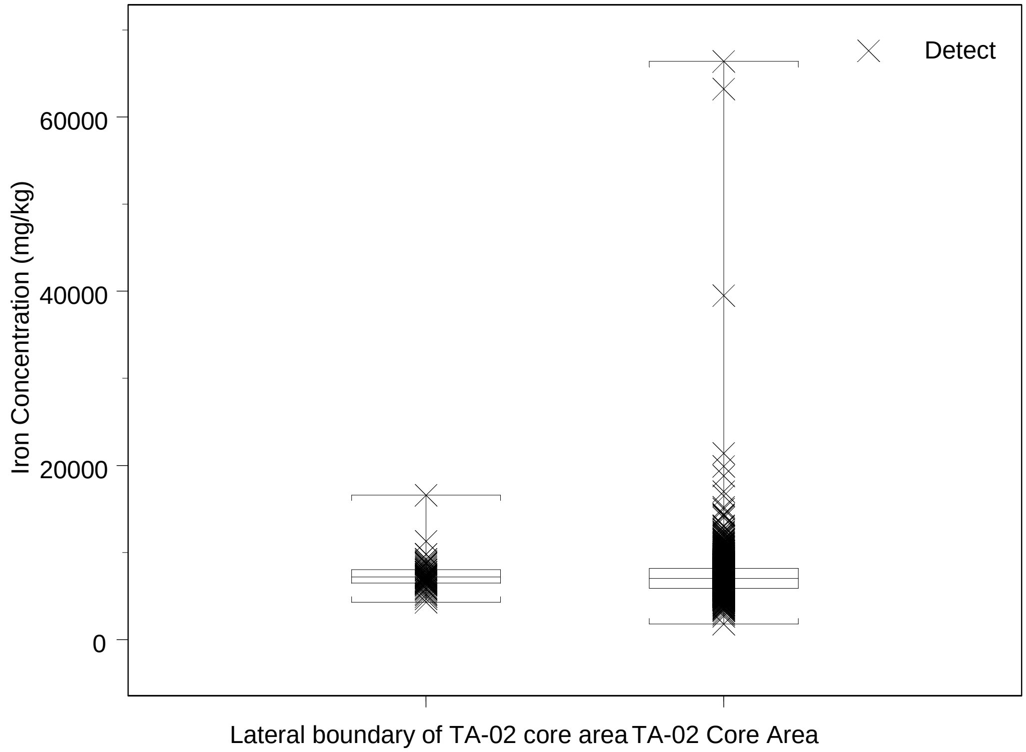

Figure G-22.0-24 Box plot of iron concentrations at the lateral boundary of the TA-02 core area and within the TA-02 core area

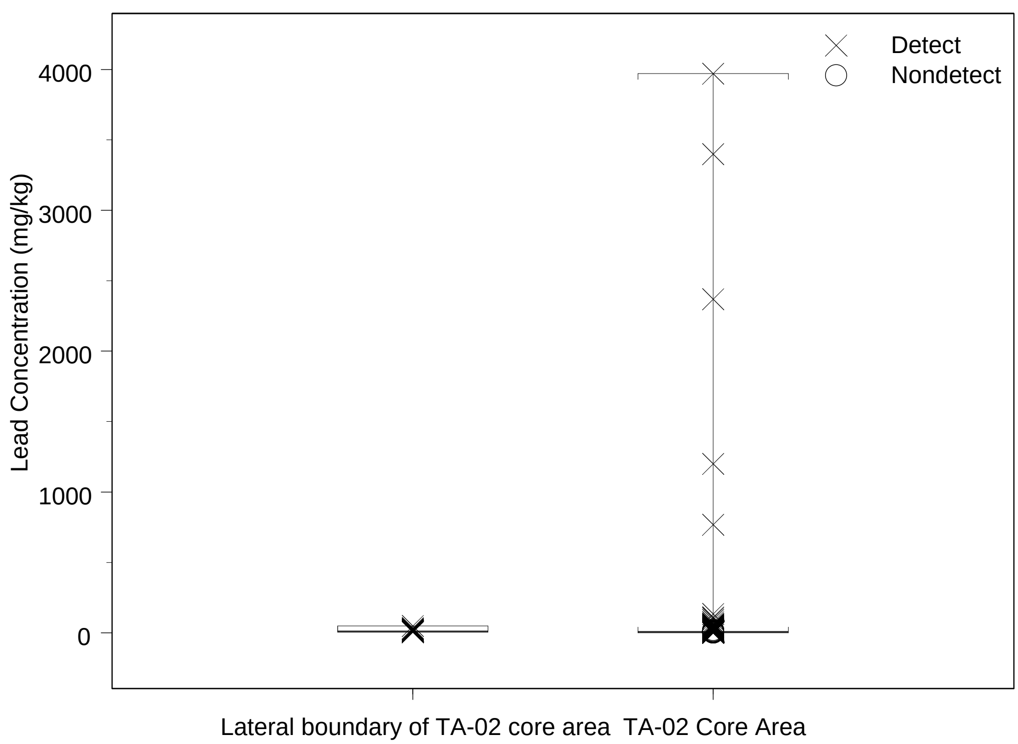

Figure G-22.0-25 Box plot of lead concentrations at the lateral boundary of the TA-02 core area and within the TA-02 core area

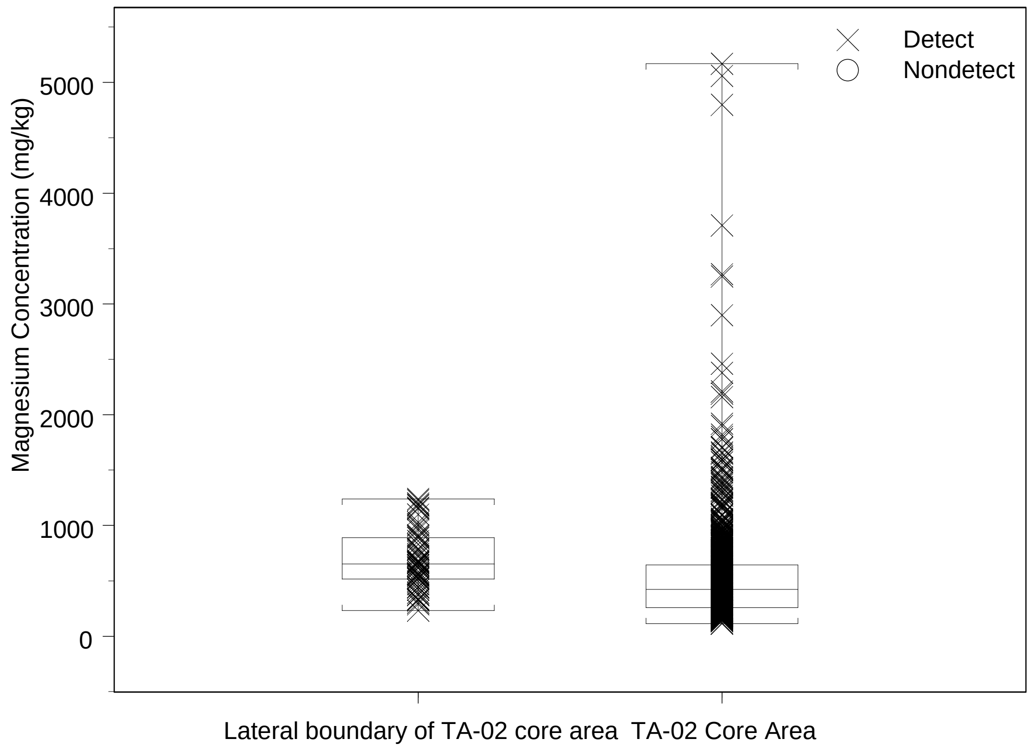

Figure G-22.0-26 Box plot of magnesium concentrations at the lateral boundary of the TA-02 core area and within the TA-02 core area

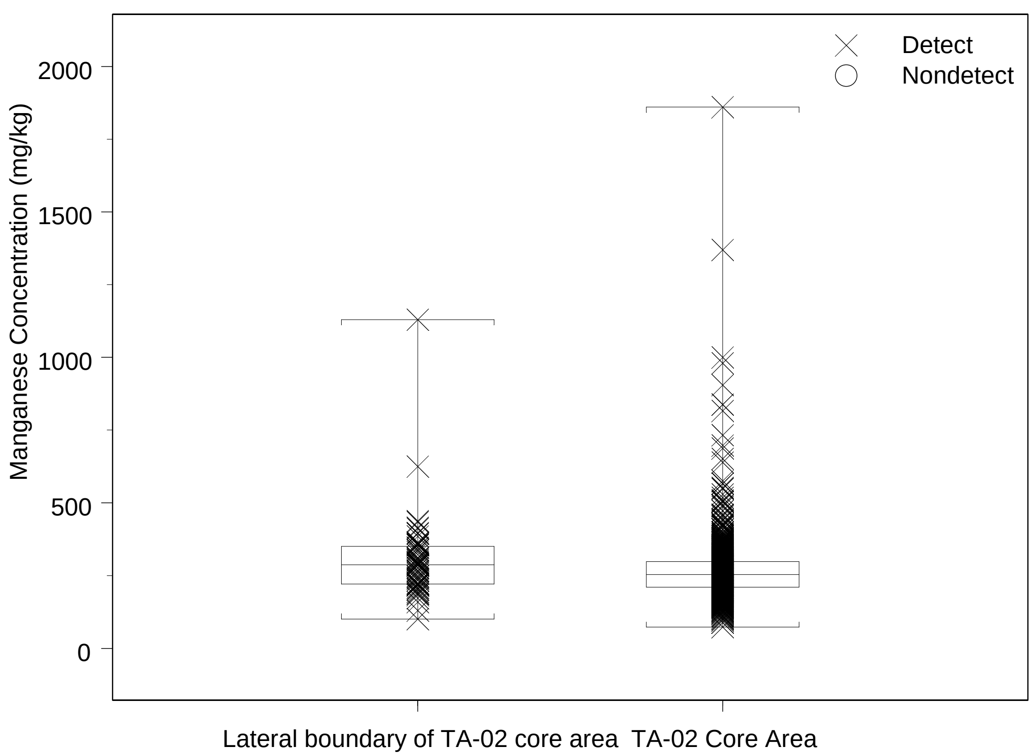

Figure G-22.0-27 Box plot of manganese concentrations at the lateral boundary of the TA-02 core area and within the TA-02 core area

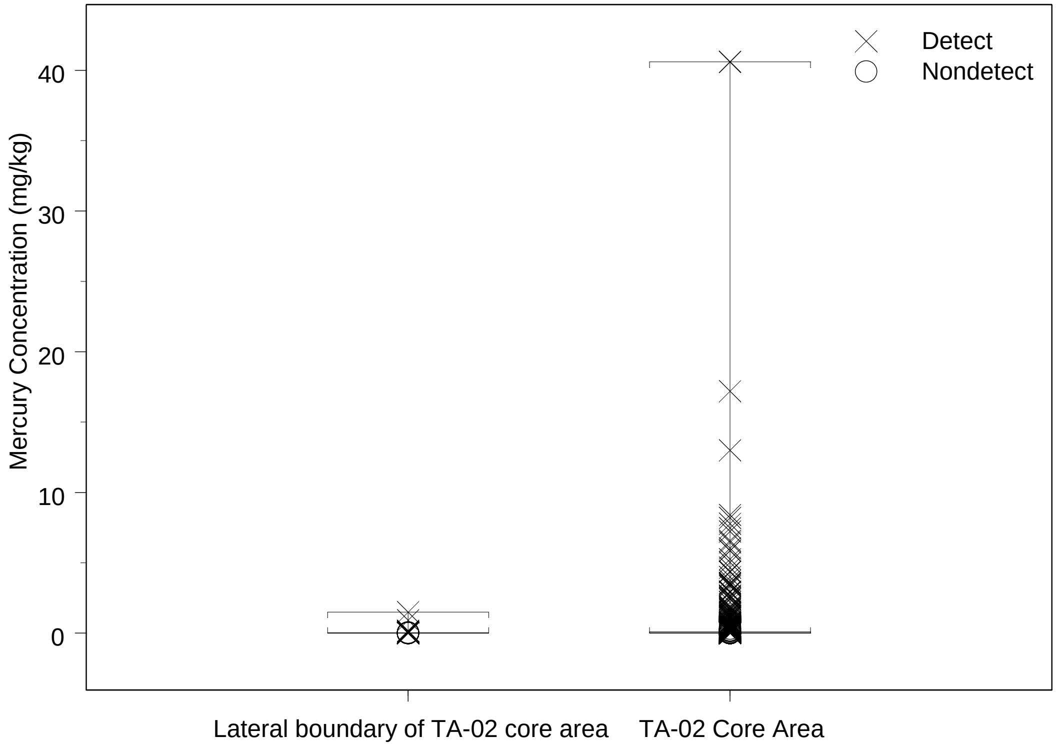

Figure G-22.0-28 Box plot of mercury concentrations at the lateral boundary of the TA-02 core area and within the TA-02 core area

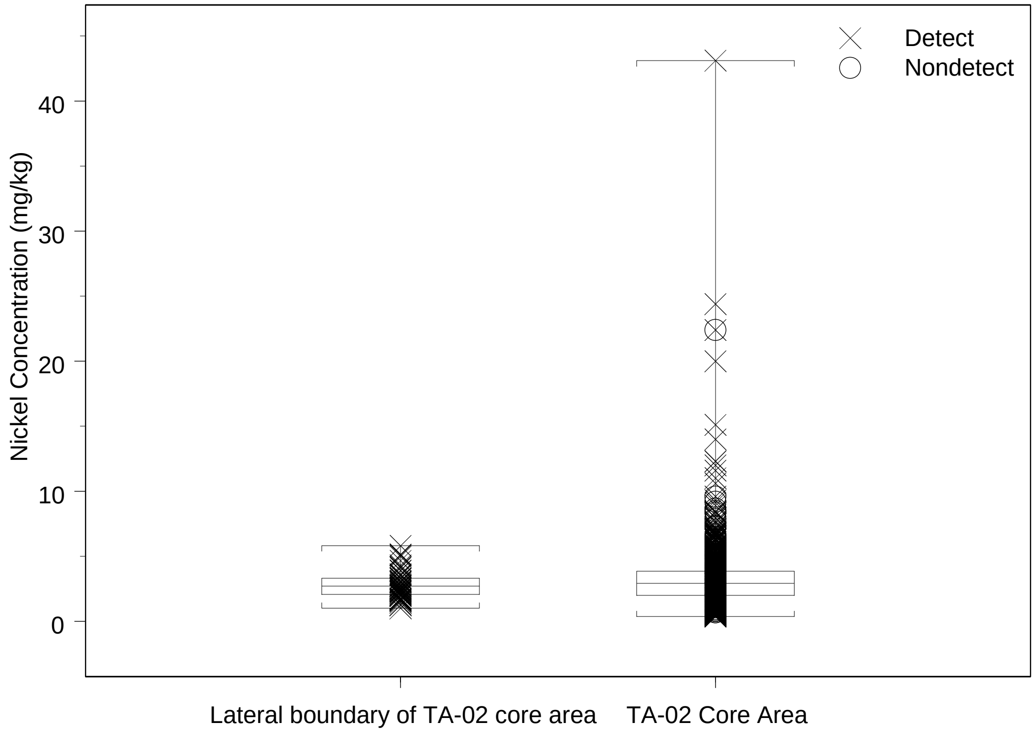

Figure G-22.0-29 Box plot of nickel concentrations at the lateral boundary of the TA-02 core area and within the TA-02 core area

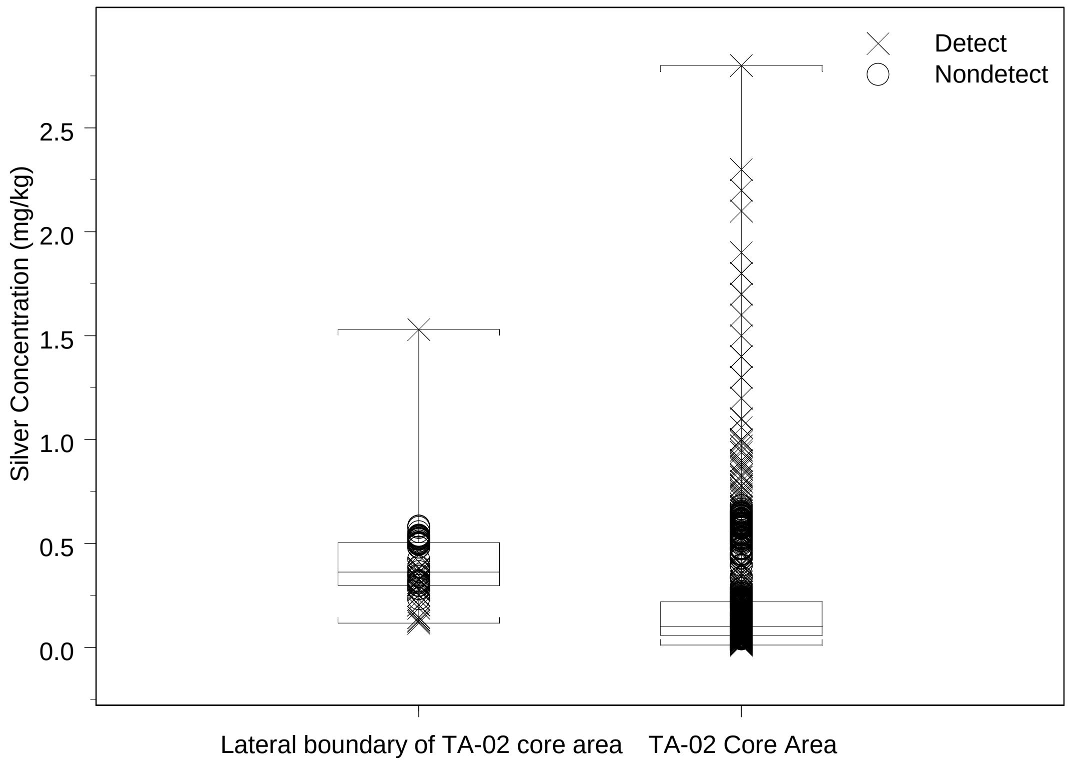

Figure G-22.0-30 Box plot of silver concentrations at the lateral boundary of the TA-02 core area and within the TA-02 core area

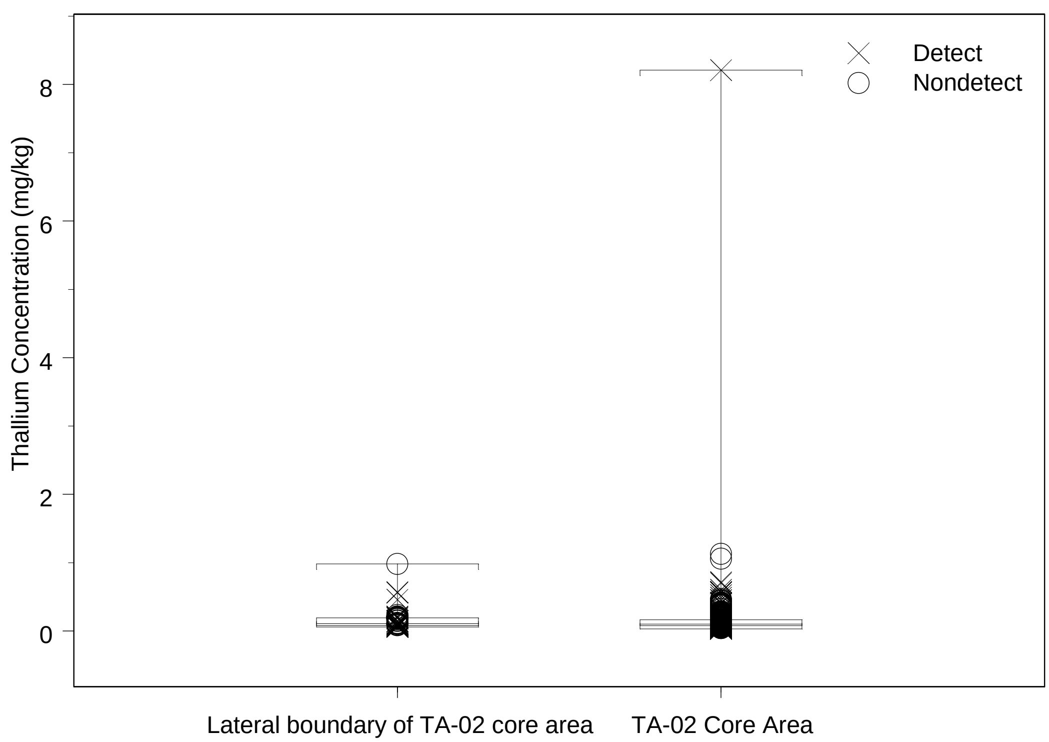

Figure G-22.0-31 Box plot of thallium concentrations at the lateral boundary of the TA-02 core area and within the TA-02 core area

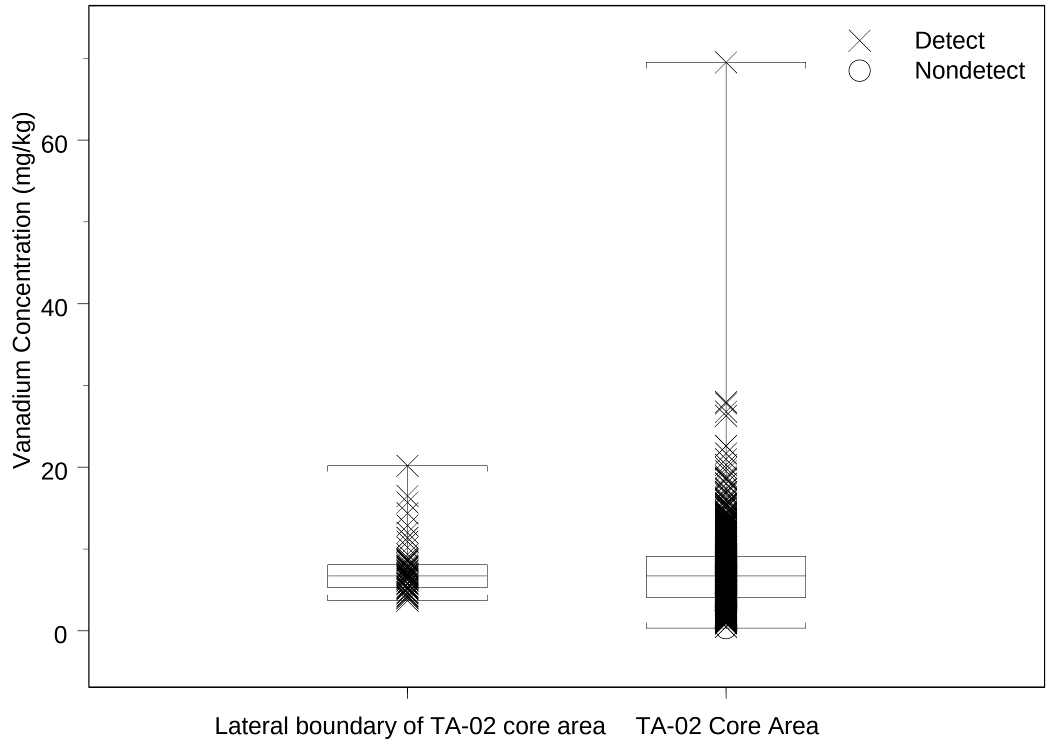

Figure G-22.0-32 Box plot of vanadium concentrations at the lateral boundary of the TA-02 core area and within the TA-02 core area

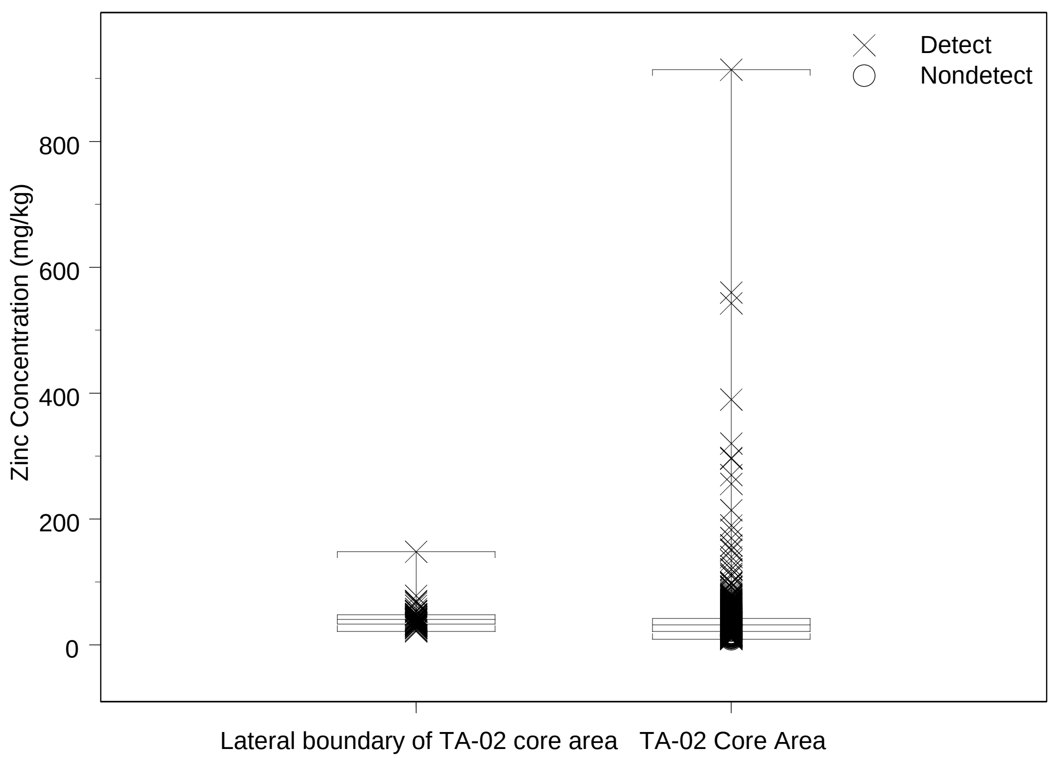

Figure G-22.0-33 Box plot of zinc concentrations at the lateral boundary of the TA-02 core area and within the TA-02 core area

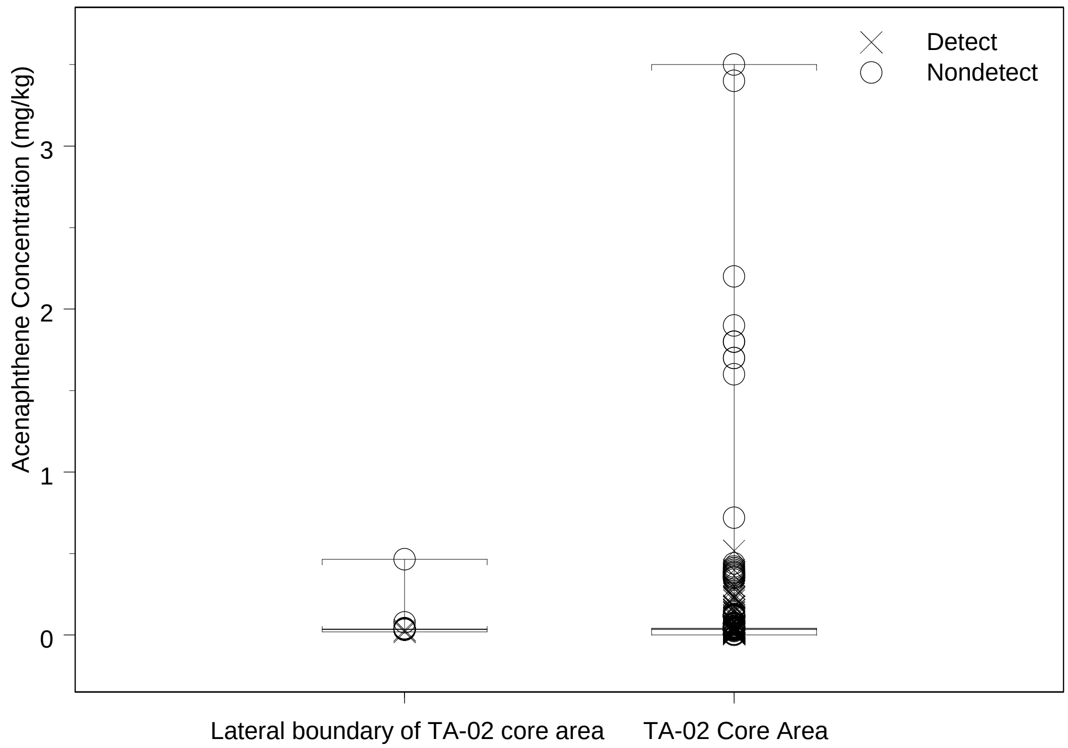

Figure G-22.0-34 Box plot of acenaphthene concentrations at the lateral boundary of the TA-02 core area and within the TA-02 core area

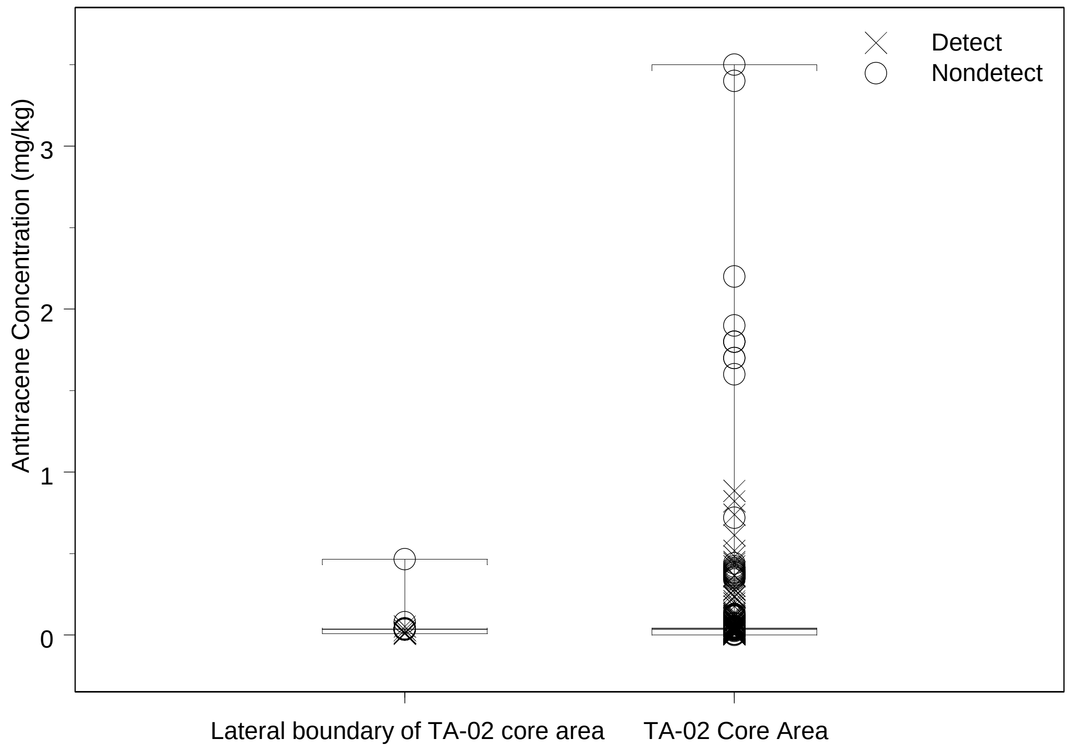

Figure G-22.0-35 Box plot of anthracene concentrations at the lateral boundary of the TA-02 core area and within the TA-02 core area

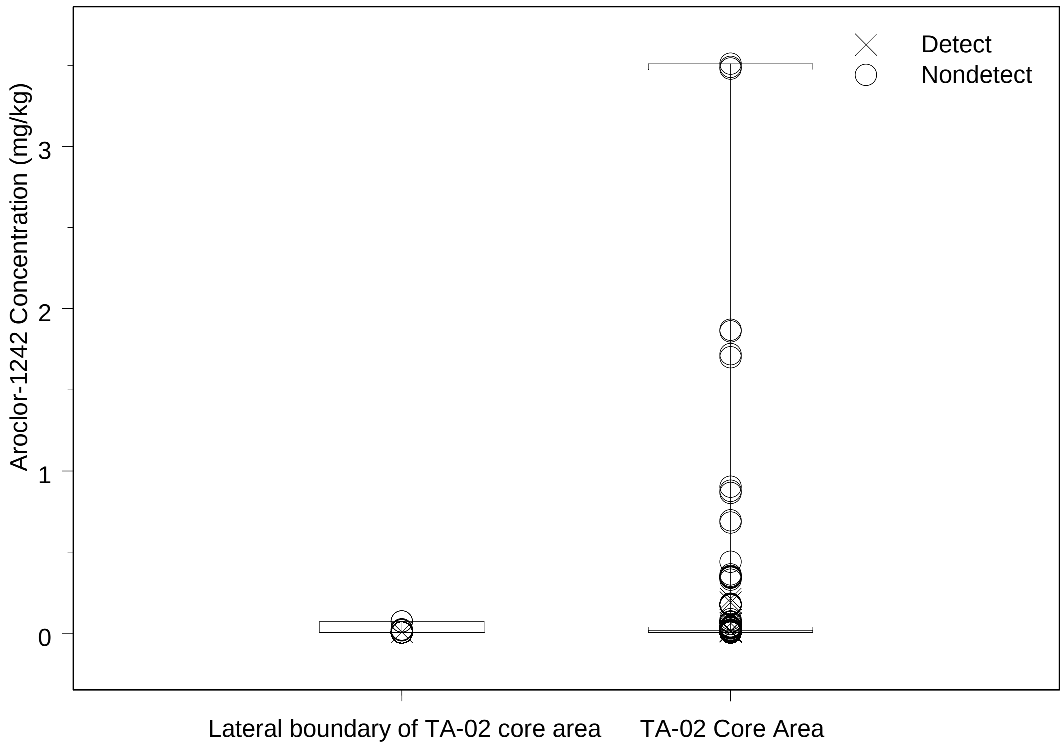

Figure G-22.0-36 Box plot of Aroclor-1242 concentrations at the lateral boundary of the TA-02 core area and within the TA-02 core area

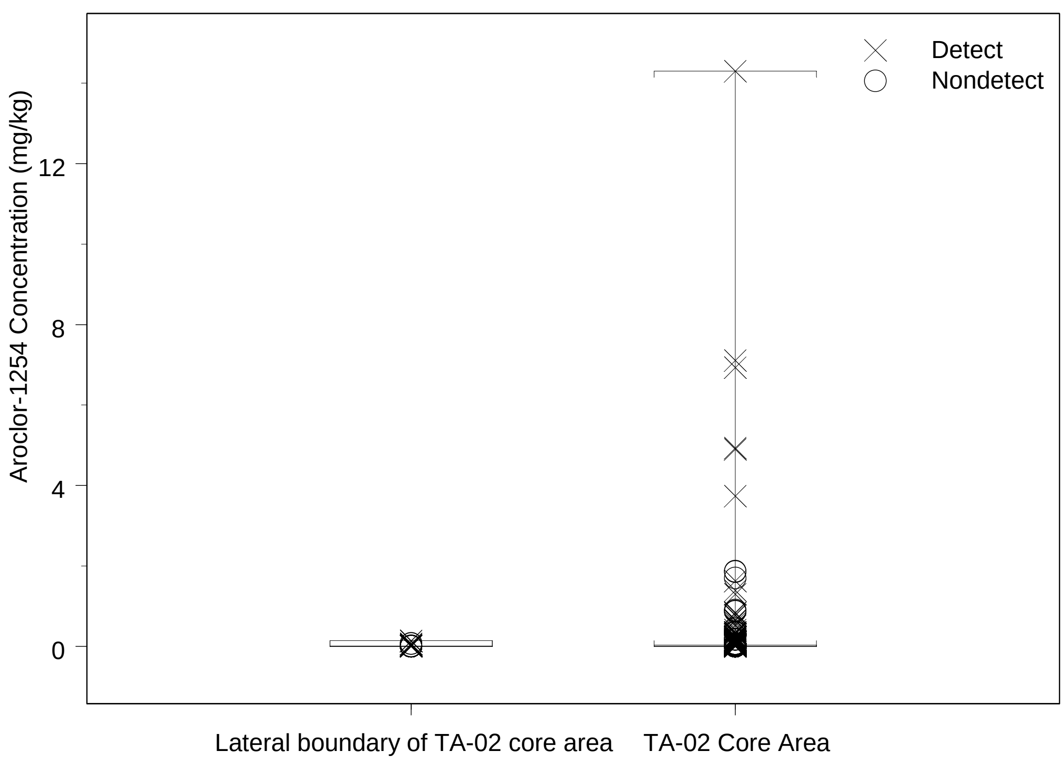

Figure G-22.0-37 Box plot of Aroclor-1254 concentrations at the lateral boundary of the TA-02 core area and within the TA-02 core area

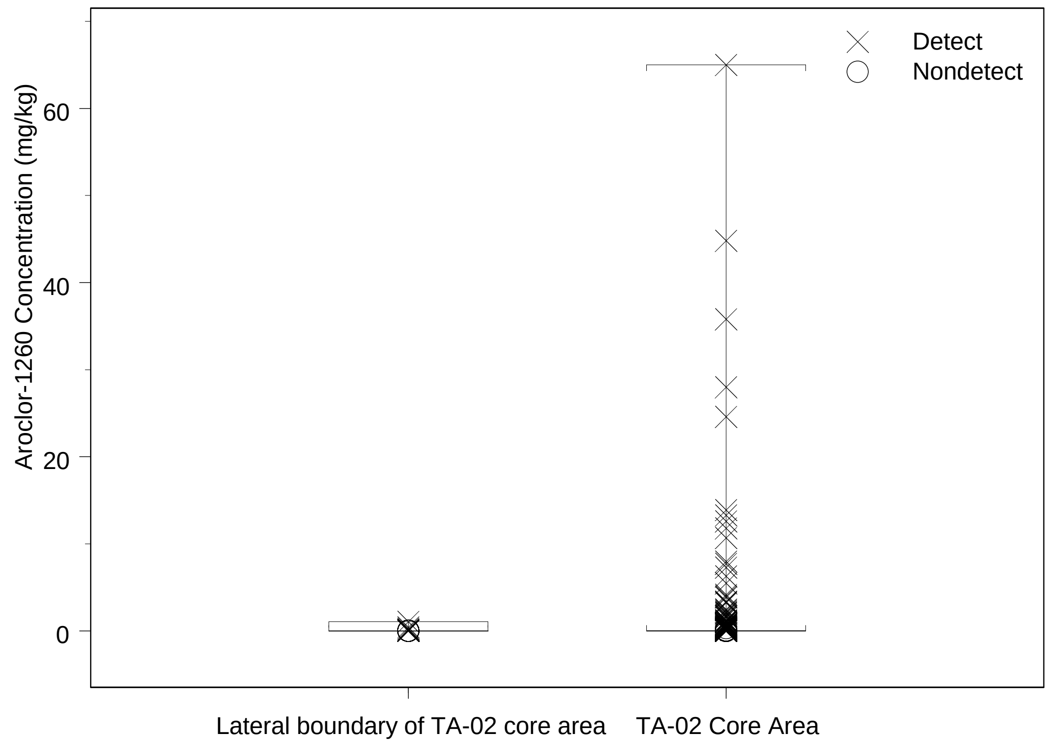

Figure G-22.0-38 Box plot of Aroclor-1260 concentrations at the lateral boundary of the TA-02 core area and within the TA-02 core area

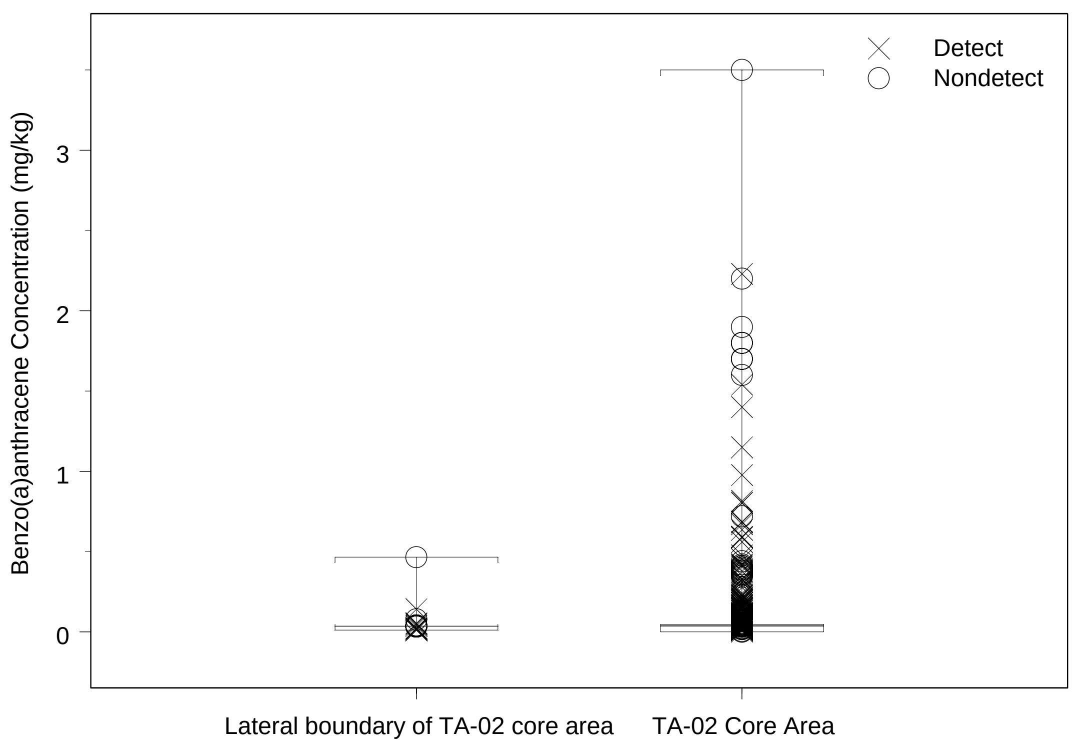

Figure G-22.0-39 Box plot of benzo(a)anthracene concentrations at the lateral boundary of the TA-02 core area and within the TA-02 core area

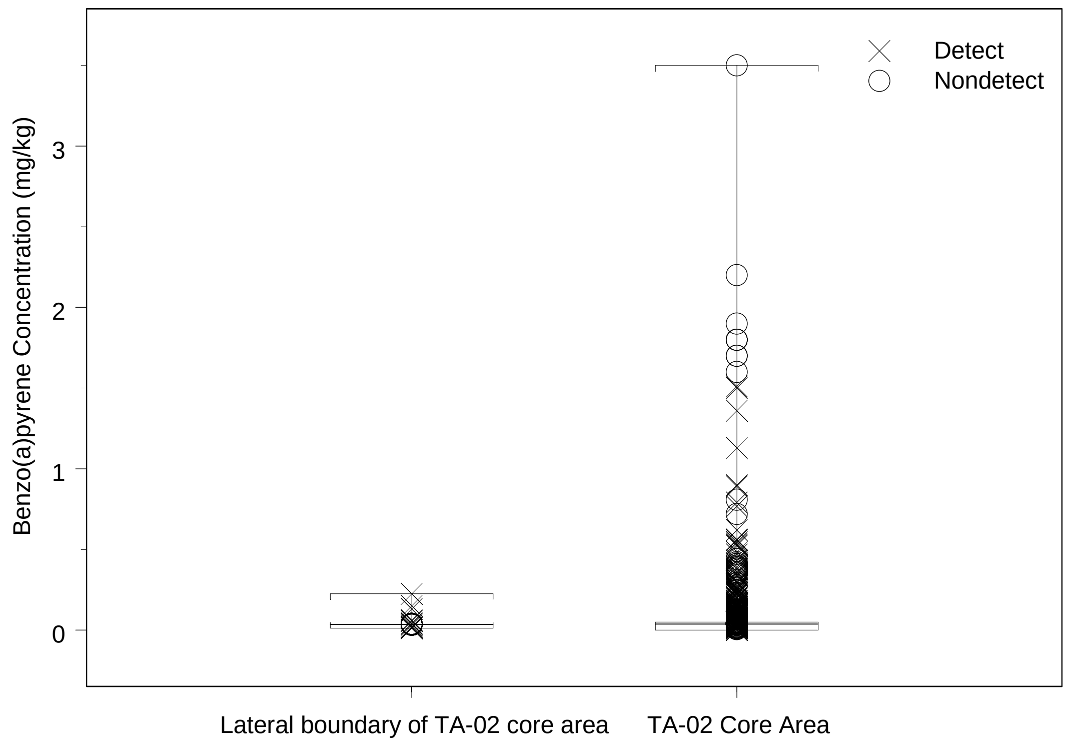

Figure G-22.0-40 Box plot of benzo(a)pyrene concentrations at the lateral boundary of the TA-02 core area and within the TA-02 core area

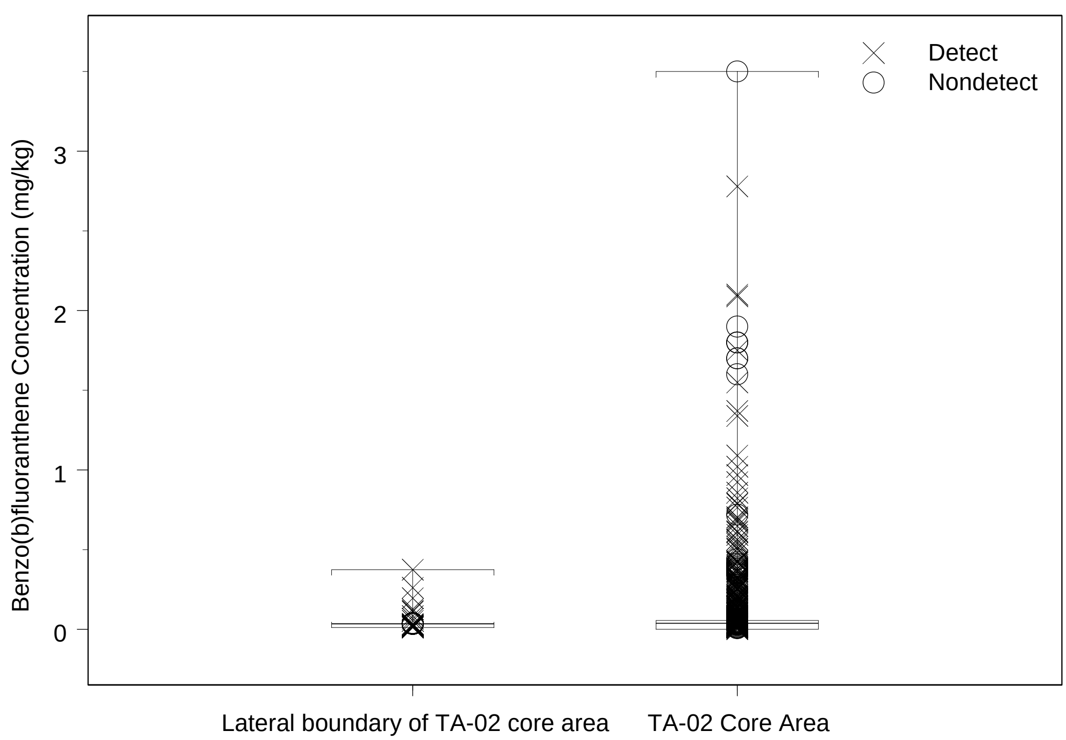

Figure G-22.0-41 Box plot of benzo(b)fluoranthene concentrations at the lateral boundary of the TA-02 core area and within the TA-02 core area

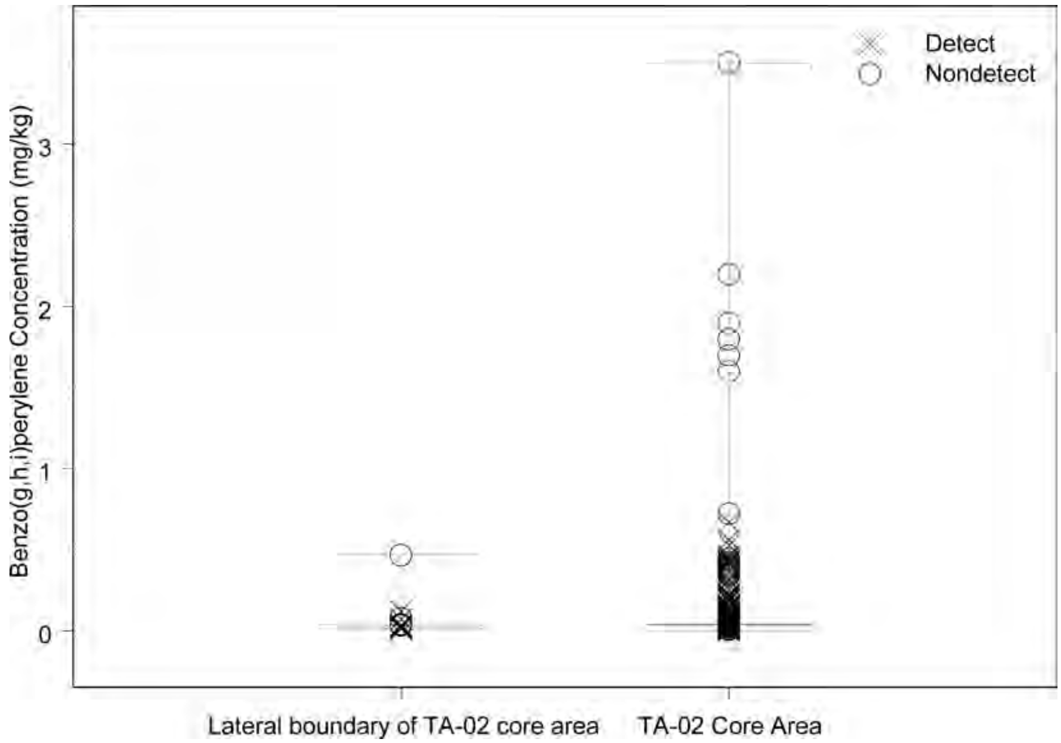

Figure G-22.0-42 Box plot of benzo(g,h,i)perylene concentrations at the lateral boundary of the TA-02 core area and within the TA-02 core area

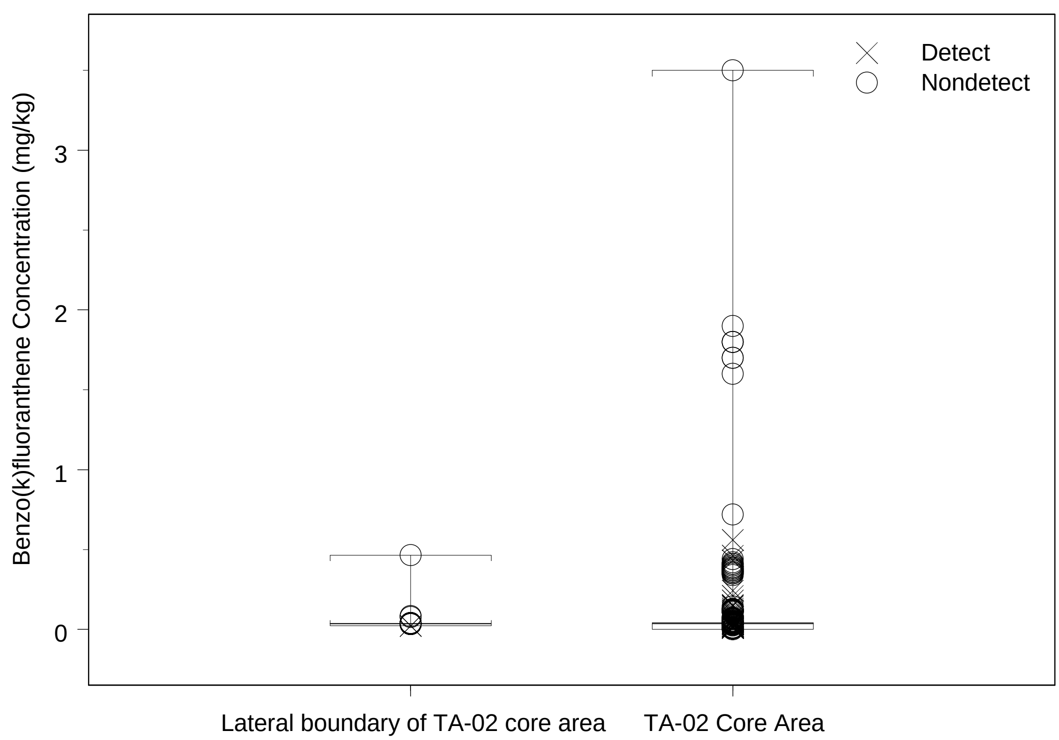

Figure G-22.0-43 Box plot of benzo(k)fluoranthene concentrations at the lateral boundary of the TA-02 core area and within the TA-02 core area

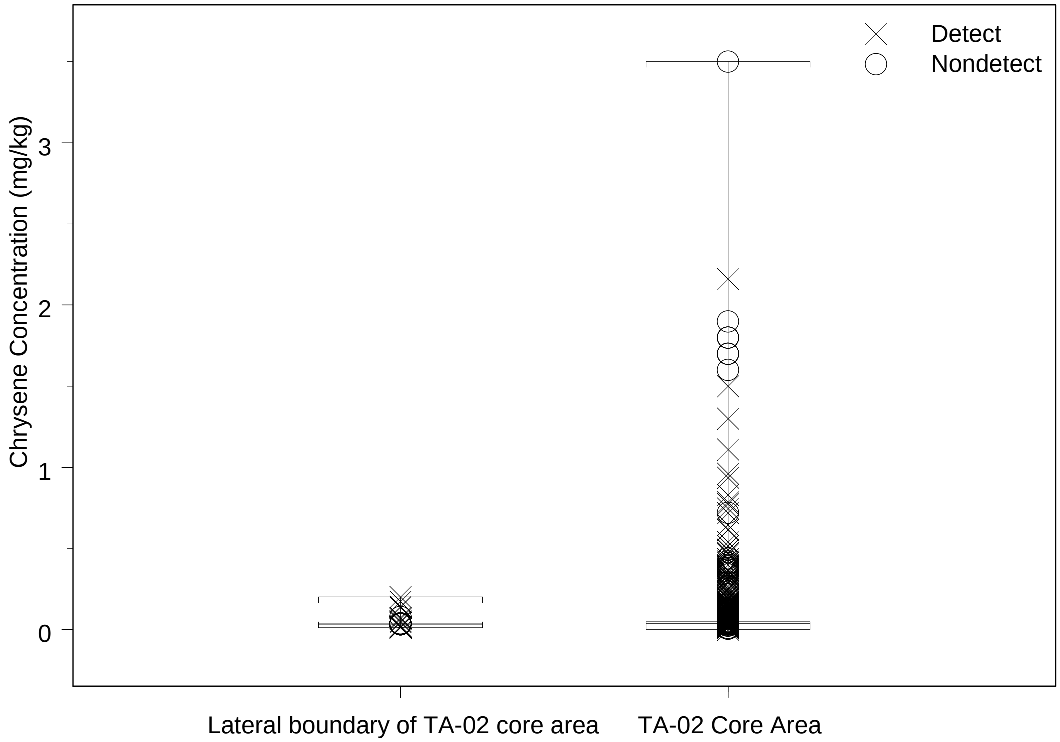

Figure G-22.0-44 Box plot of chrysene concentrations at the lateral boundary of the TA-02 core area and within the TA-02 core area

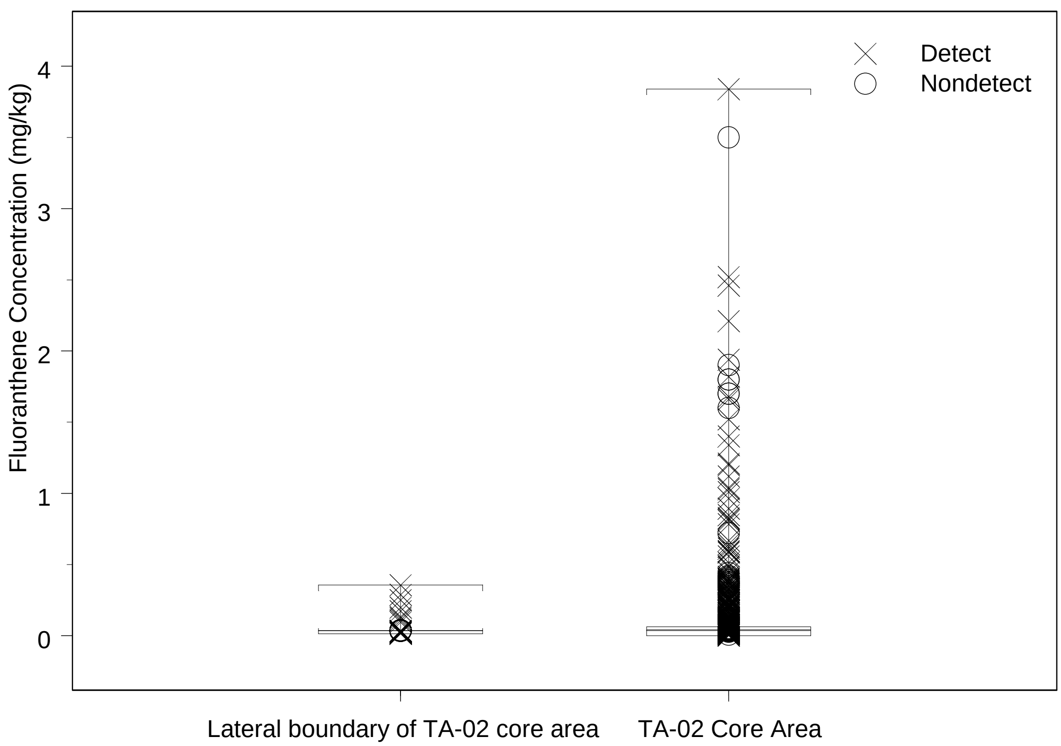

Figure G-22.0-45 Box plot of fluoranthene concentrations at the lateral boundary of the TA-02 core area and within the TA-02 core area

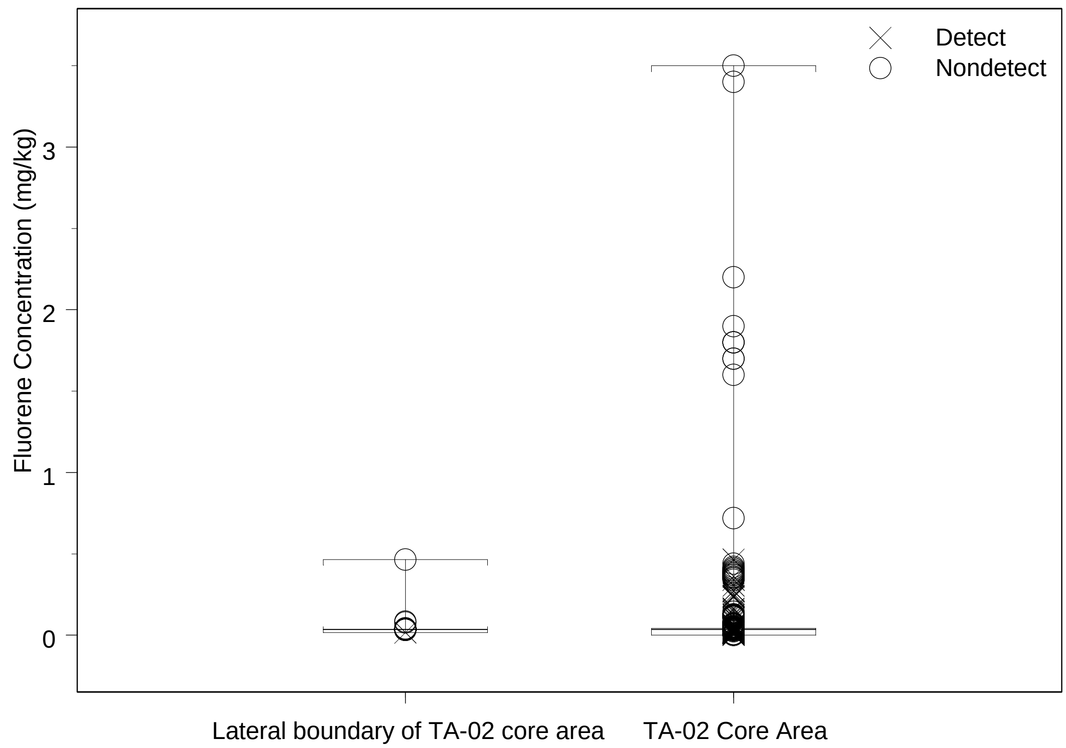

Figure G-22.0-46 Box plot of fluorene concentrations at the lateral boundary of the TA-02 core area and within the TA-02 core area

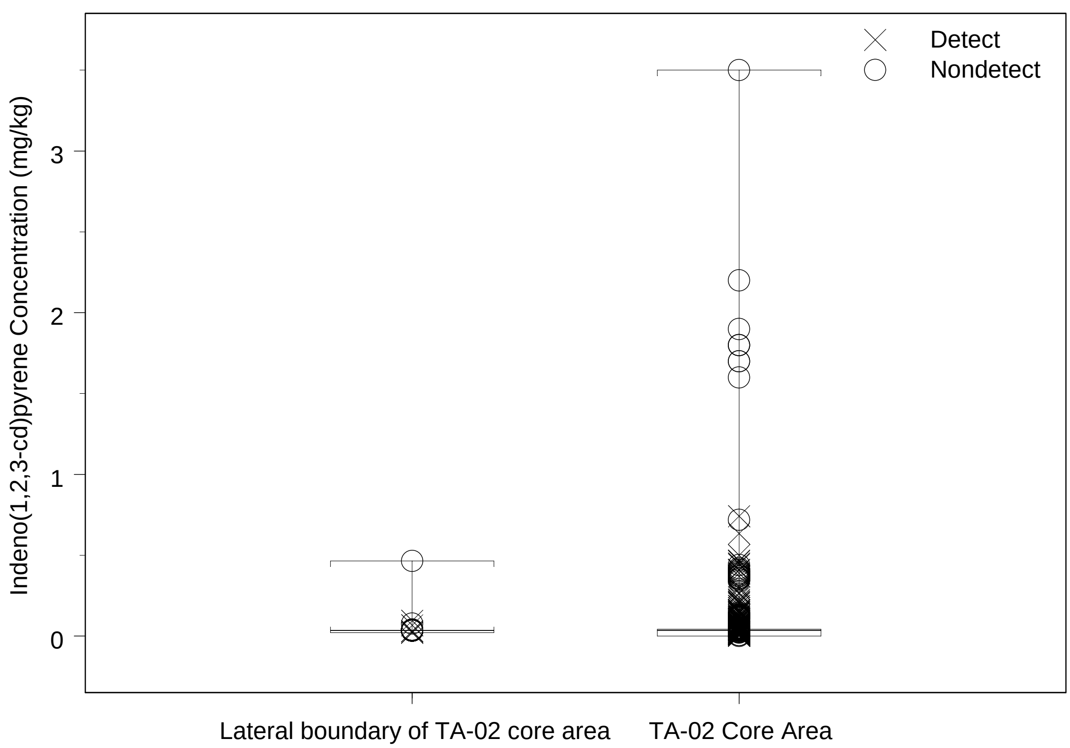

Figure G-22.0-47 Box plot of indeno(1,2,3-cd)pyrene concentrations at the lateral boundary of the TA-02 core area and within the TA-02 core area

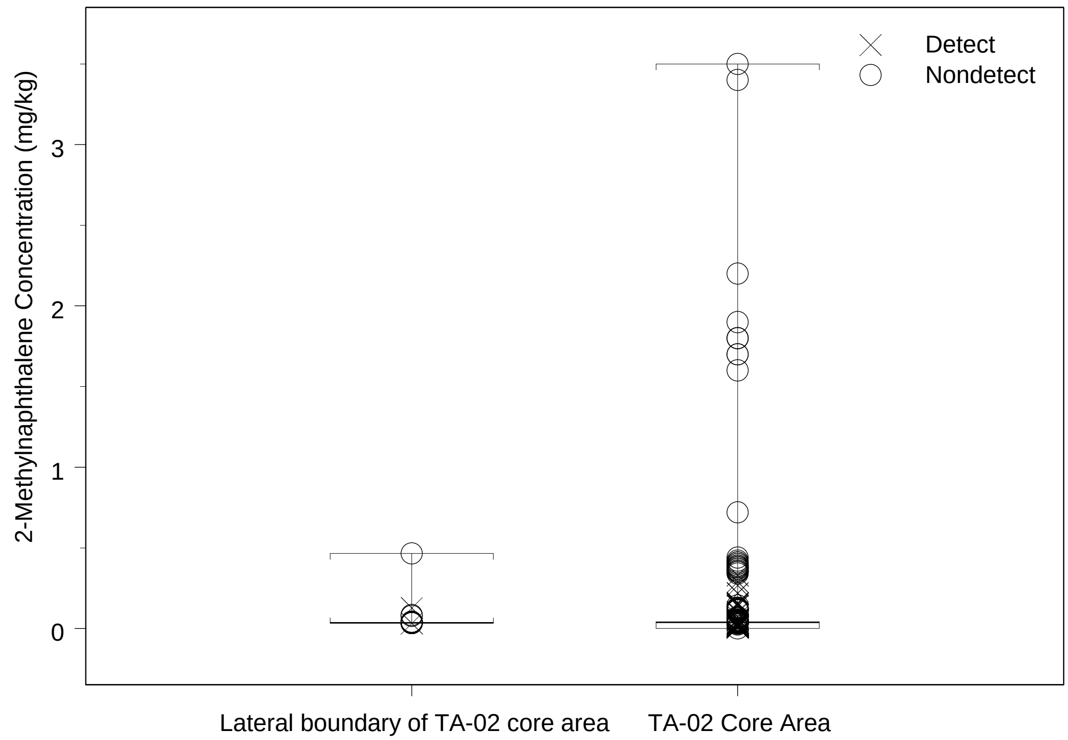

Figure G-22.0-48 Box plot of 2-methylnaphthalene concentrations at the lateral boundary of the TA-02 core area and within the TA-02 core area

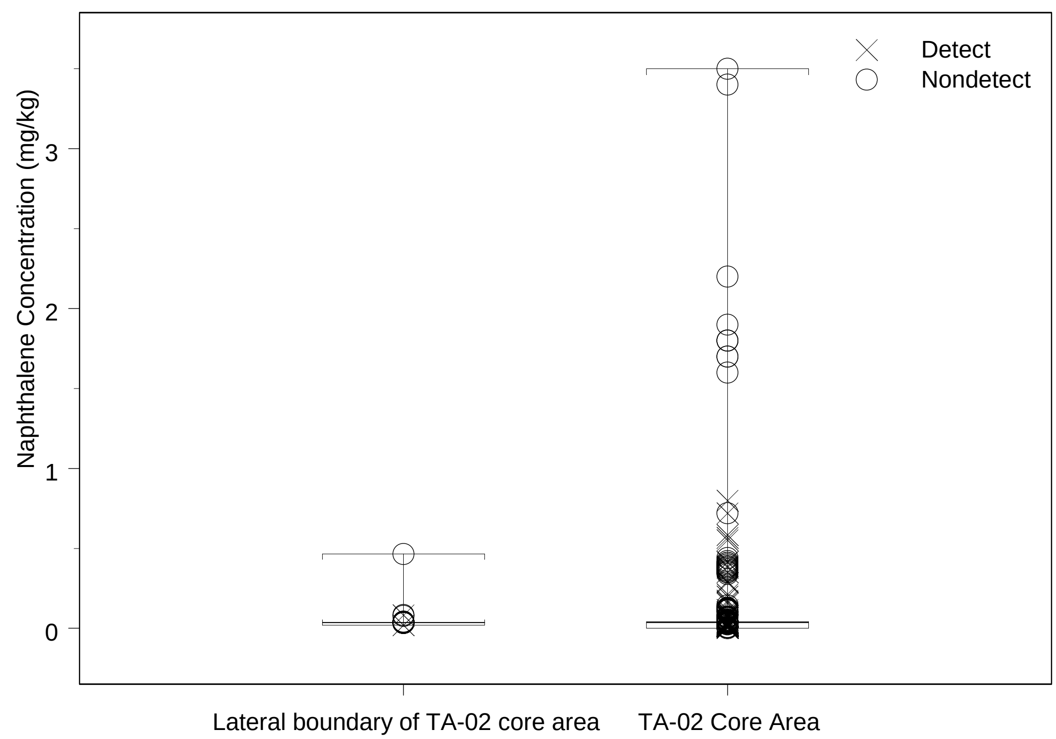

Figure G-22.0-49 Box plot of naphthalene concentrations at the lateral boundary of the TA-02 core area and within the TA-02 core area

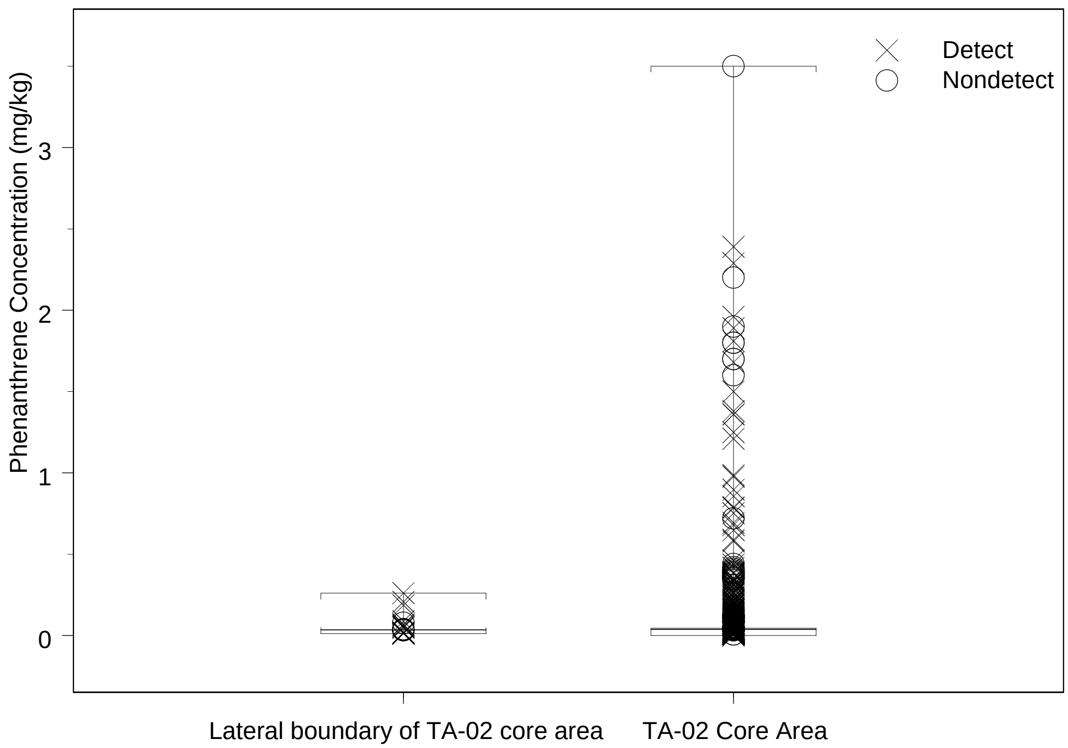

Figure G-22.0-50 Box plot of phenanthrene concentrations at the lateral boundary of the TA-02 core area and within the TA-02 core area

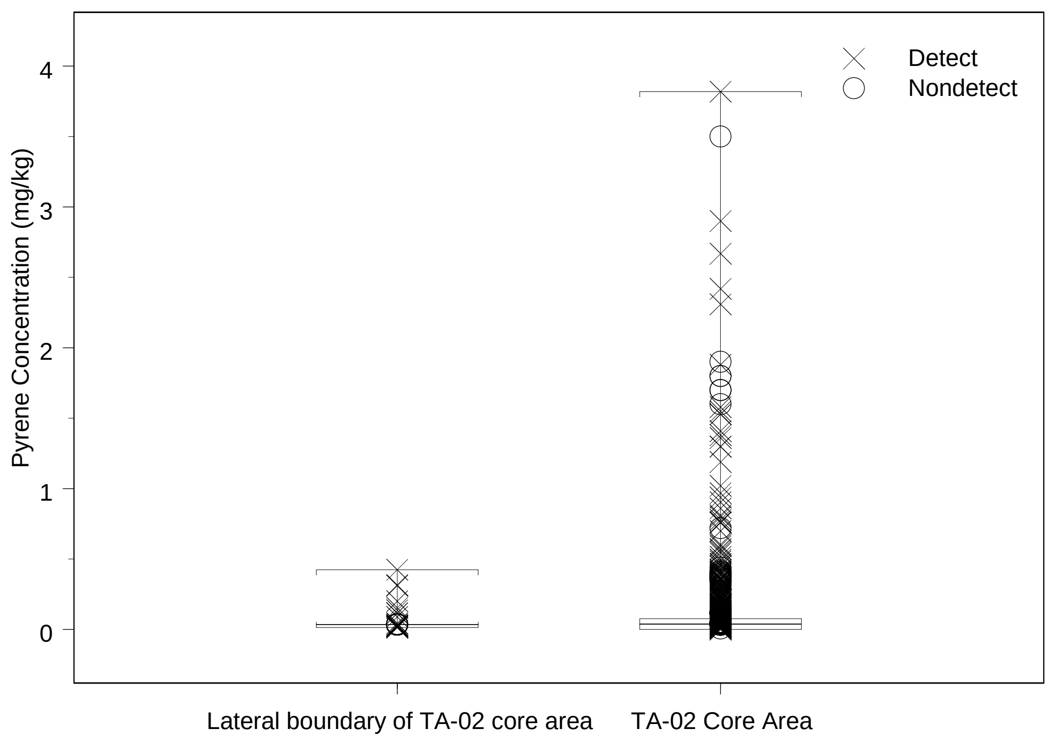

Figure G-22.0-51 Box plot of pyrene concentrations at the lateral boundary of the TA-02 core area and within the TA-02 core area

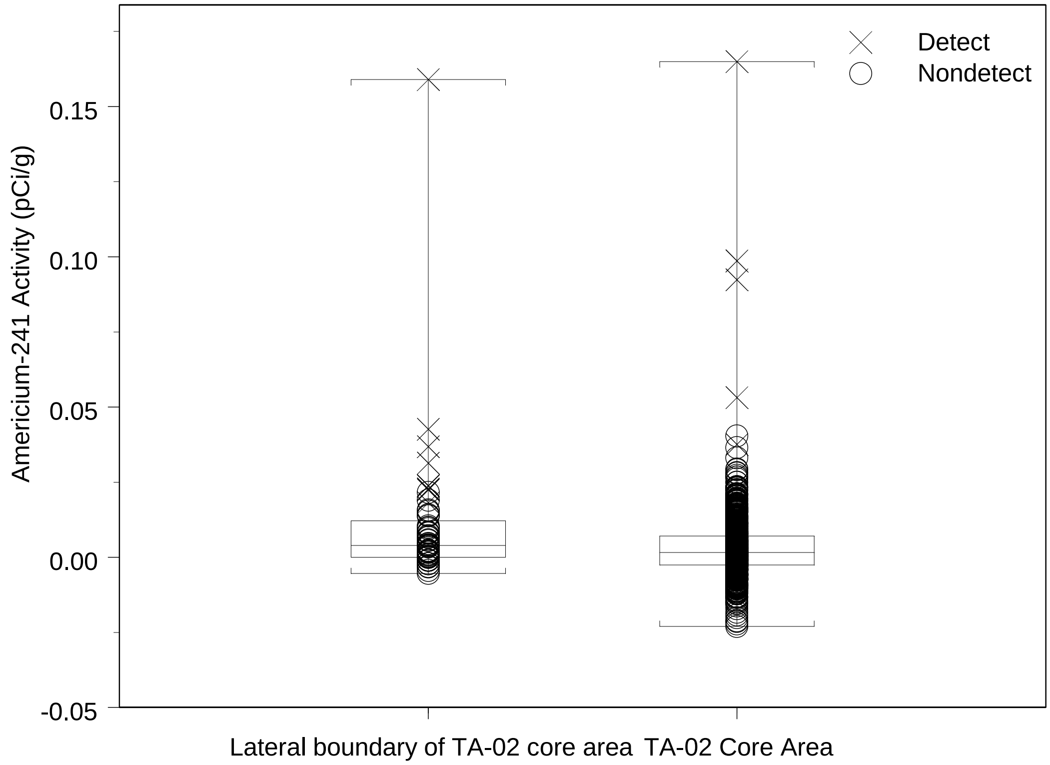

Figure G-22.0-52 Box plot of americium-241 concentrations at the lateral boundary of the TA-02 core area and within the TA-02 core area

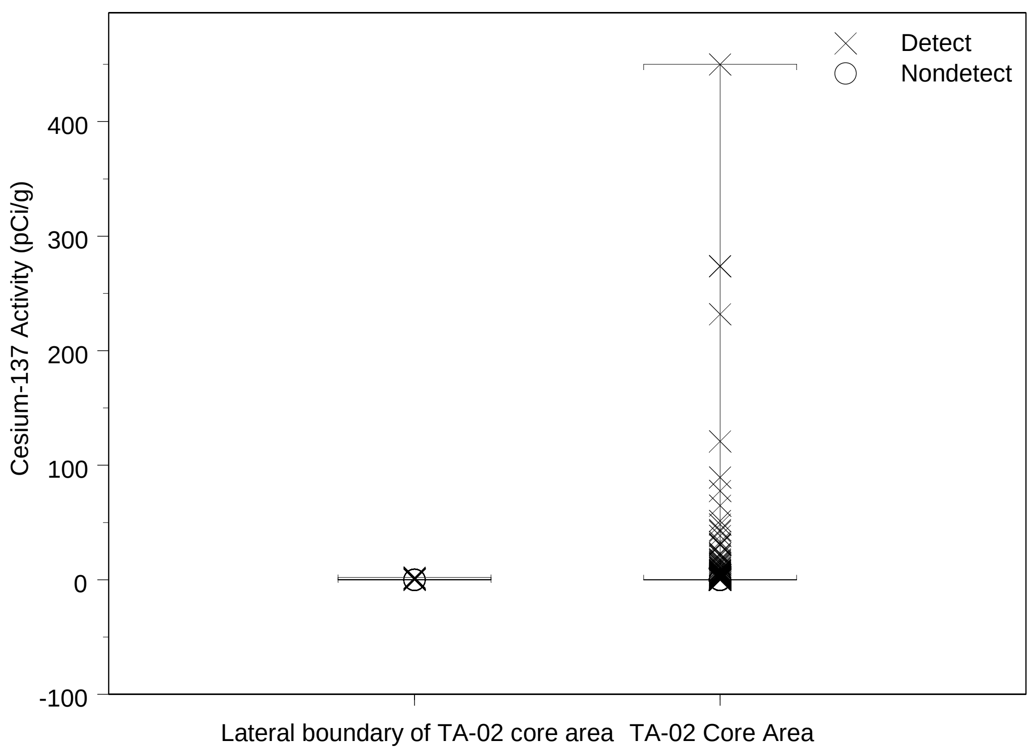

Figure G-22.0-53 Box plot of cesium-137 concentrations at the lateral boundary of the TA-02 core area and within the TA-02 core area

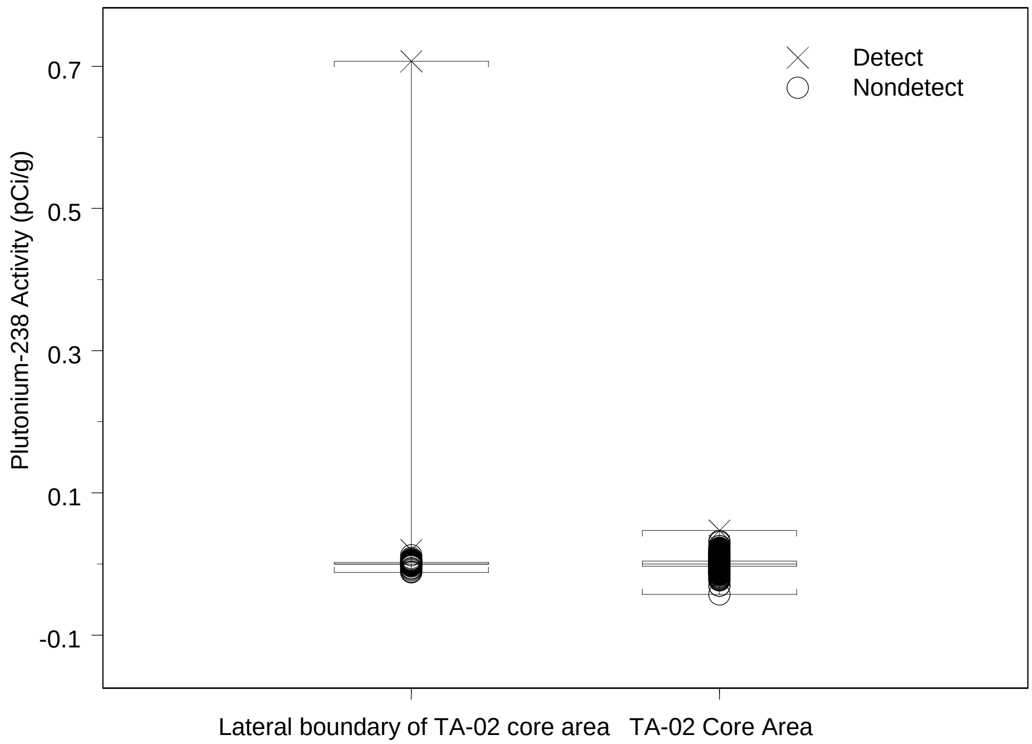

Figure G-22.0-54 Box plot of plutonium-238 concentrations at the lateral boundary of the TA-02 core area and within the TA-02 core area

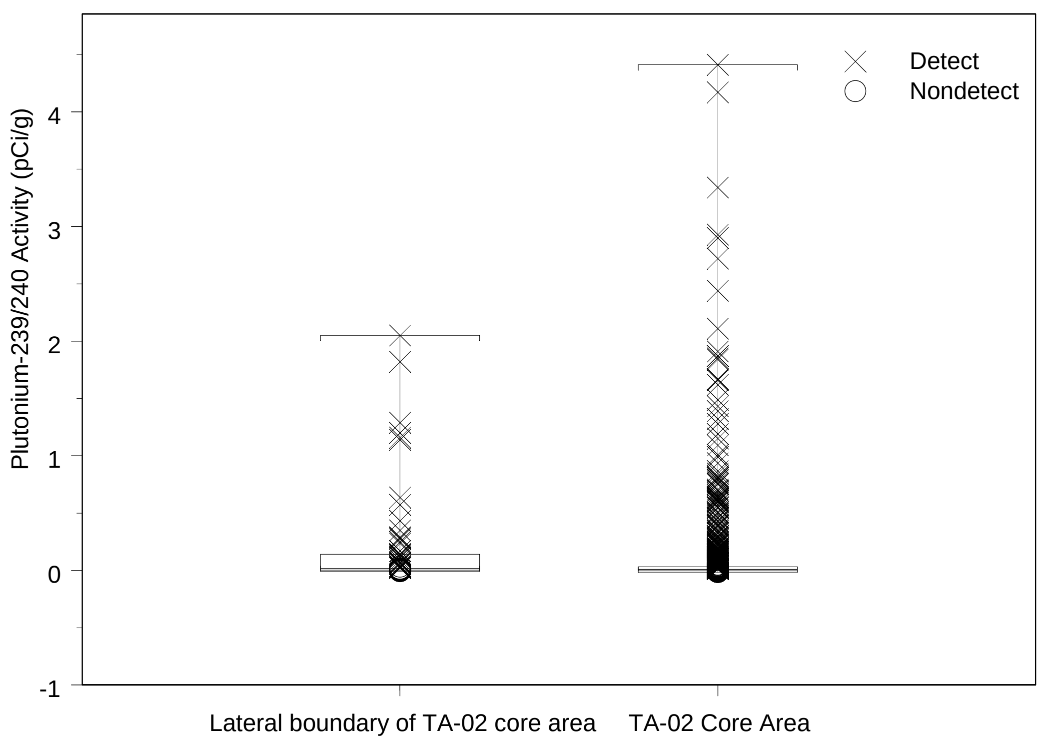

Figure G-22.0-55 Box plot of plutonium-239/240 concentrations at the lateral boundary of the TA-02 core area and within the TA-02 core area

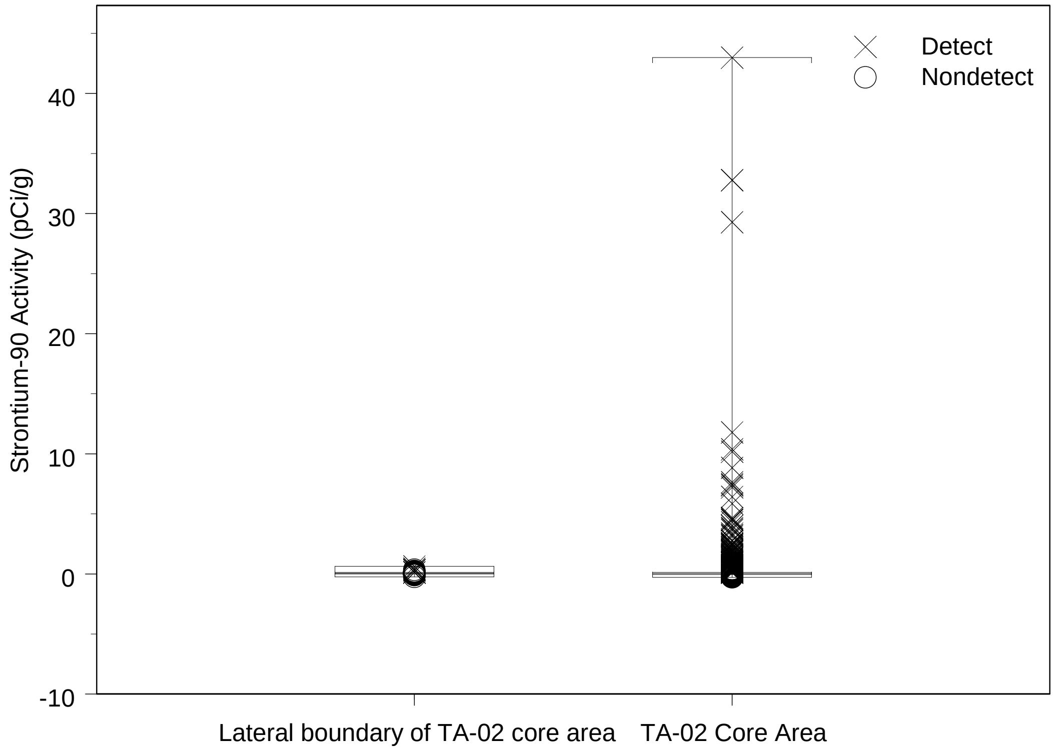

Figure G-22.0-56 Box plot of strontium-90 concentrations at the lateral boundary of the TA-02 core area and within the TA-02 core area

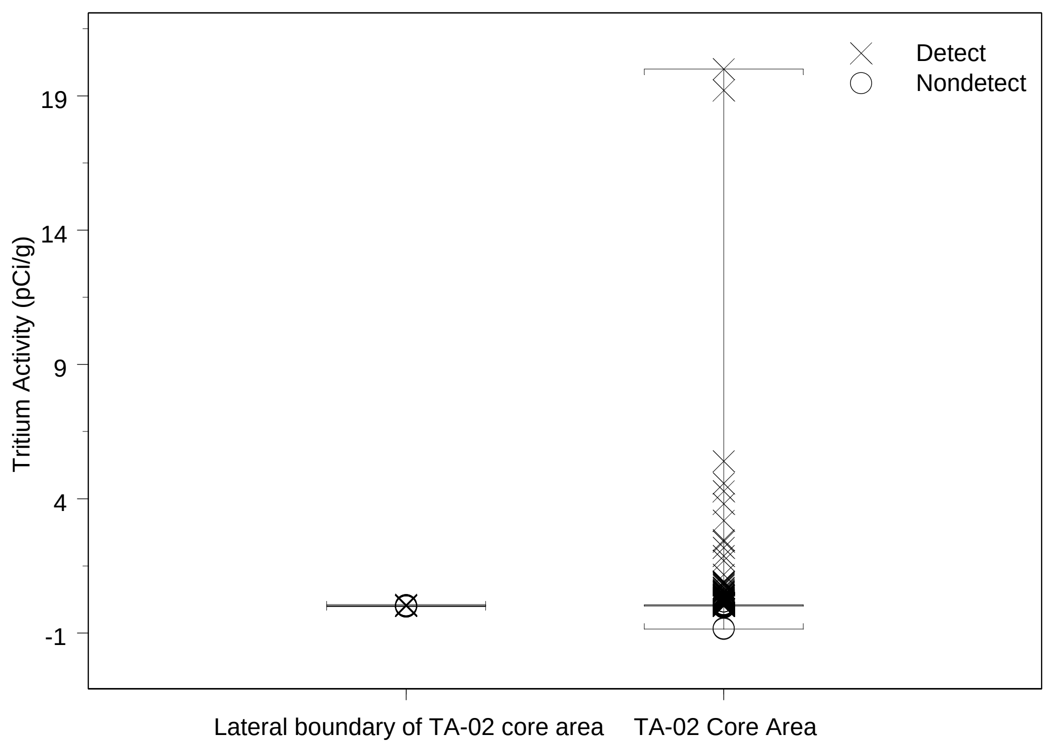

Figure G-22.0-57 Box plot of tritium concentrations at the lateral boundary of the TA-02 core area and within the TA-02 core area

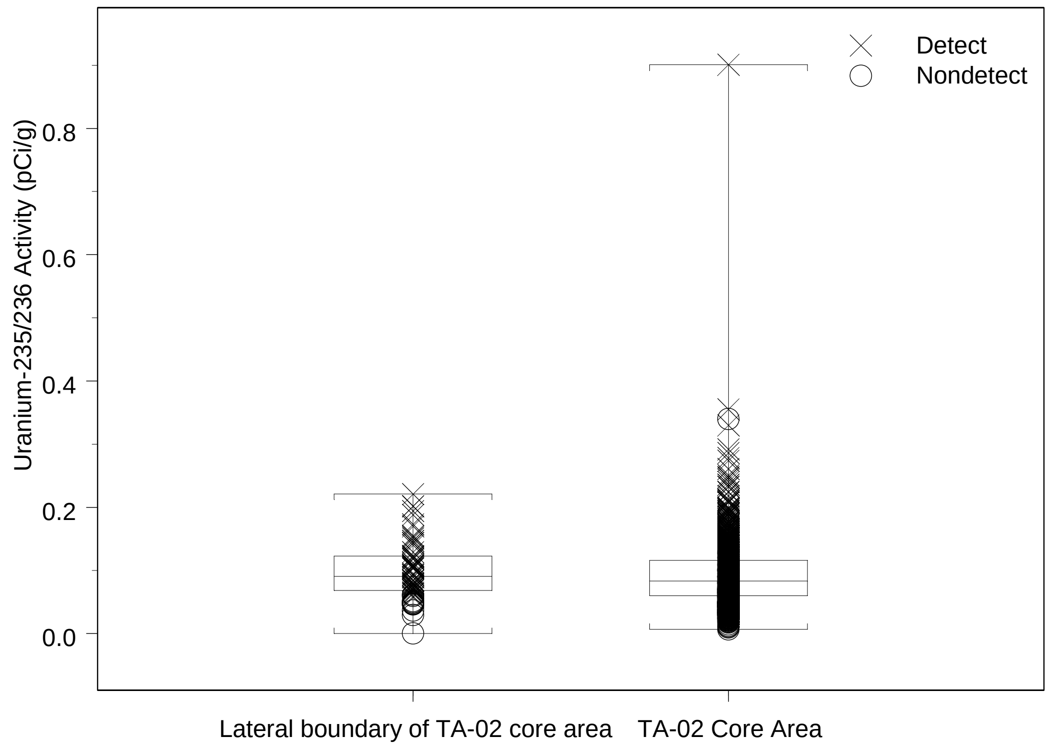

Figure G-22.0-58 Box plot of uranium-235-236 concentrations at the lateral boundary of the TA-02 core area and within the TA-02 core area

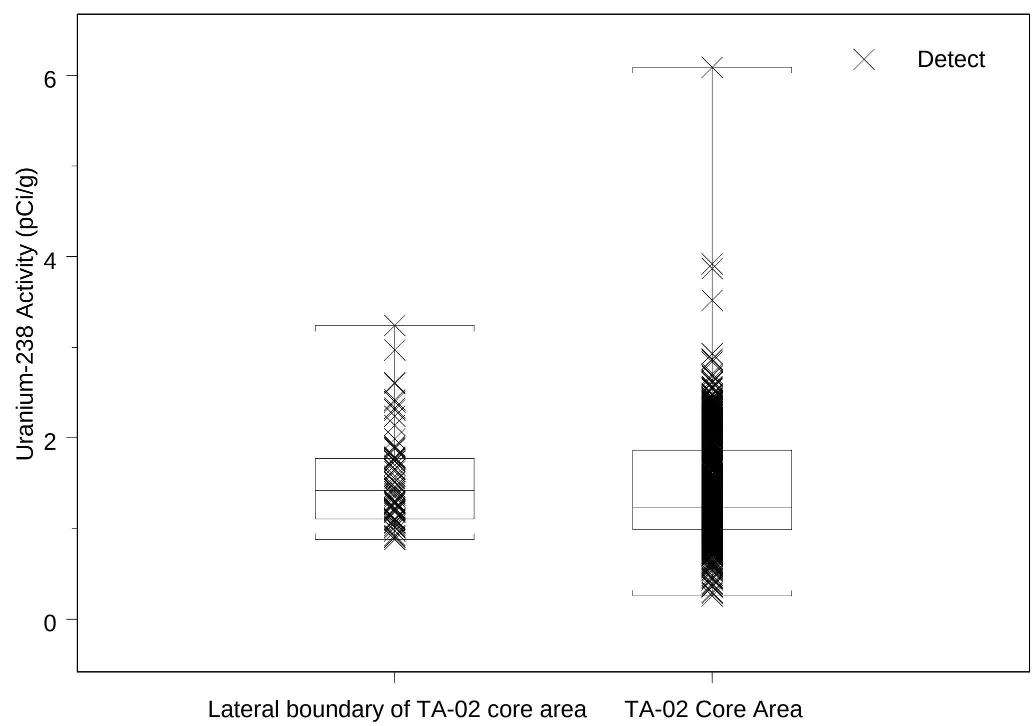

Figure G-22.0-59 Box plot of uranium-238 concentrations at the lateral boundary of the TA-02 core area and within the TA-02 core area

G-23.0 BOX PLOTS FOR TA-26

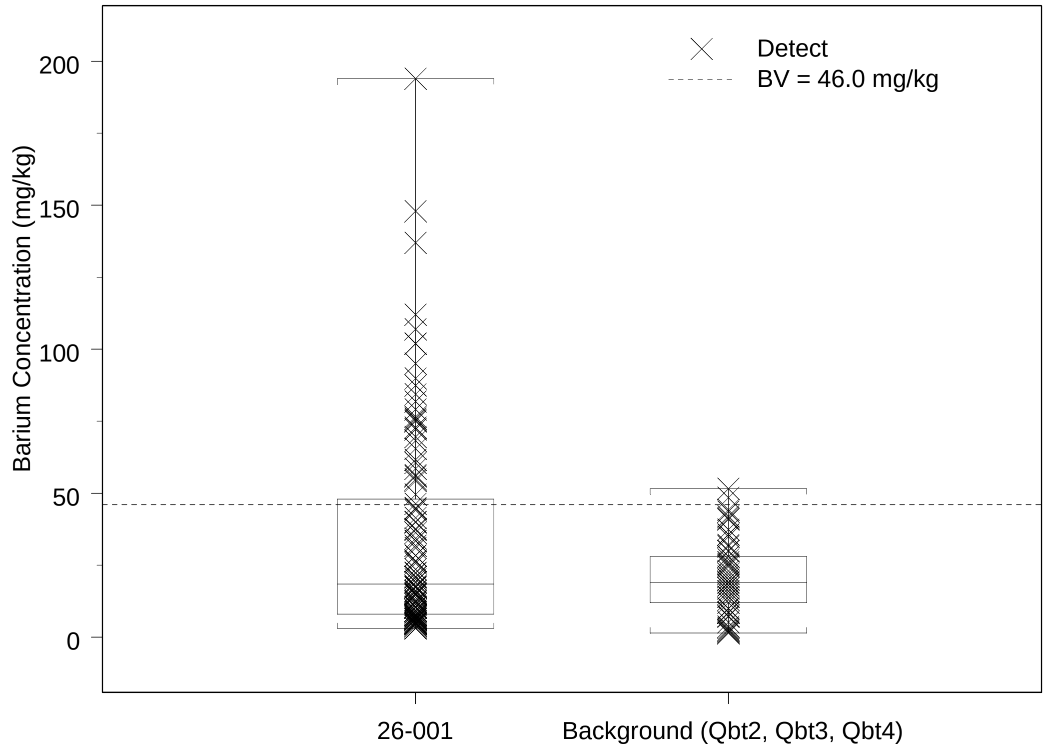

Figure G-23.0-1 Box plot of barium in Qbt 3 tuff at TA-26

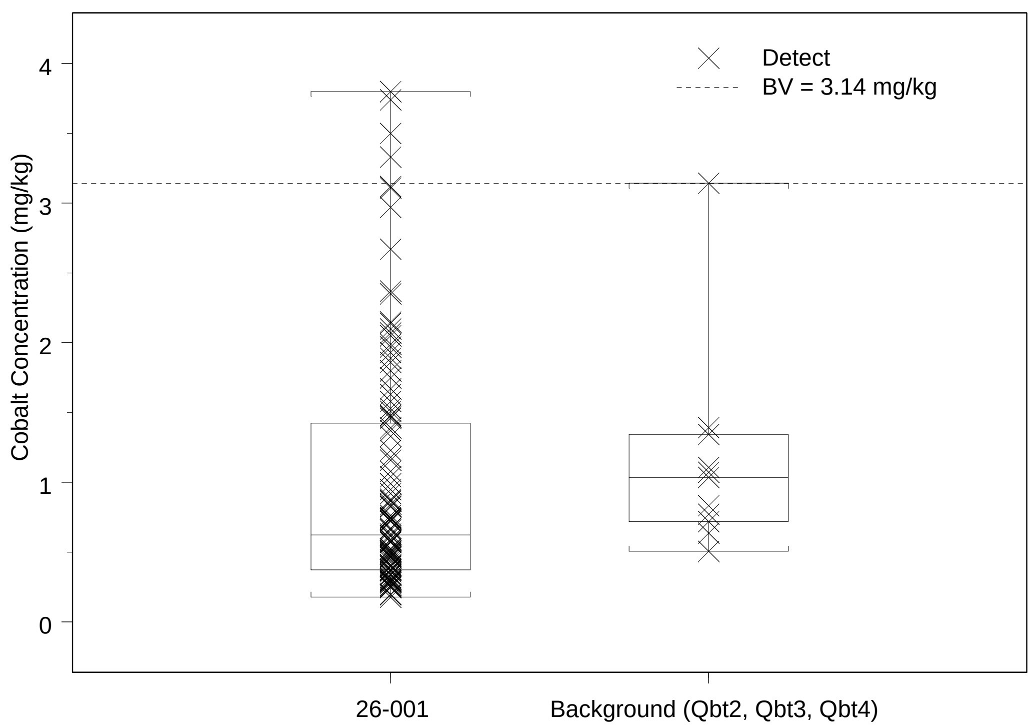

Figure G-23.0-2 Box plot of cobalt in Qbt 3 tuff at TA-26

Table G-1
Results of Statistical Tests for Inorganic Chemicals at AOC 02-003(a)

Analyte	Media	Gehan p-value	Quantile p-value	Slippage p-value	COPC?
Aluminum	Qbo	0.000696	—[a]	—	Yes
Arsenic	Qbo	n/a[b]	2.00×10^{-8}	—	Yes
Barium	Qbo	0.273	0.373	n/a	No
Cadmium	Soil	n/a	0.0401	—	Yes
Chromium	Soil	1.64×10^{-5}	—	—	Yes
	Qbo	0.000104	—	—	Yes
Copper	Soil	2.07×10^{-6}	—	—	Yes
	Qbo	0.0480	—	—	Yes
Iron	Qbo	2.00×10^{-6}	—	—	Yes
Lead	Soil	0.000114	—	—	Yes
Manganese	Soil	0.0129	—	—	Yes
	Qbo	6.18×10^{-6}	—	—	Yes
Mercury	Soil	n/a	1	0.00189	Yes
Nickel	Soil	1.53×10^{-8}	—	—	No[c]
	Qbo	n/a	1	0.0826	No
Vanadium	Qbo	0.000145	—	—	Yes
Zinc	Soil	0.0000126	—	—	Yes

[a] — = Test not performed because the first test indicated site samples are significantly different than background.

[b] n/a = Not applicable.

[c] Statistically different but less than background.

Table G-2
Results of Statistical Tests for Inorganic Chemicals at AOC 02-003(b)

Analyte	Media	Gehan p-value	Quantile p-value	Slippage p-value	COPC?
Cadmium	Soil	n/a[a]	0.00744	—[b]	No[c]
Mercury	Soil	n/a	1	0.722	No
Selenium	Soil	0.292	0.148	n/a	No
Zinc	Soil	0.457	0.319	n/a	No

[a] n/a = Not applicable.

[b] — = Test not performed because the first test indicated site samples are significantly different than background.

[c] Statistically different but less than background.

Table G-3
Results of Statistical Tests for Inorganic Chemicals at AOC 02-003(c)

Analyte	Media	Gehan p-value	Quantile p-value	Slippage p-value	COPC?
Aluminum	Qbo	6.17×10^{-6}	—[a]	—	Yes
Antimony	Soil	n/a[b]	1.00	1	No
Arsenic	Qbo	n/a	2.00×10^{-8}	—	Yes
Barium	Soil	0.0000461	—	—	Yes
	Qbo	0.046	—	—	Yes
Calcium	Soil	2.04×10^{-6}	—	—	No[c]
Chromium	Soil	0.207	0.969	n/a	No
	Qbo	5.16×10^{-6}	—	—	Yes
Copper	Soil	0.00118	—	—	Yes
Iron	Qbo	2.00×10^{-6}	—	—	Yes
Lead	Soil	0.0000189	—	—	Yes
Manganese	Qbo	8.44×10^{-6}	—	—	Yes
Nickel	Qbo	n/a	0.00537	—	Yes
Thallium	Soil	0	—	—	Yes
Vanadium	Qbo	0.000217	—	—	Yes
Zinc	Soil	0.407	0.115	n/a	No

[a] — = Test not performed because the first test indicated site samples are significantly different than background.

[b] n/a = Not applicable.

[c] Statistically different but less than background.

Table G-4
Results of Statistical Tests for Inorganic Chemicals at AOC 02-003(d)

Analyte	Media	Gehan p-value	Quantile p-value	Slippage p-value	COPC?
Beryllium	Soil	0.183	0.999	n/a[a]	No
Cadmium	Soil	n/a	2.84×10^{-6}	—[b]	No[c]
Chromium	Soil	1.33×10^{-11}	—	—	No[c]
Mercury	Soil	n/a	1	0.290	No
Selenium	Soil	0.00401	—	—	Yes
Thallium	Soil	0	—	—	Yes
Zinc	Soil	4.19×10^{-7}	—	—	Yes

[a] n/a = Not applicable.

[b] — = Test not performed because the first test indicated site samples are significantly different than background.

[c] Statistically different but less than background.

Table G-5
Results of Statistical Tests for Inorganic Chemicals at AOC 02-003(e)

Analyte	Media	Gehan p-value	Quantile p-value	Slippage p-value	COPC?
Antimony	Soil	n/a[a]	1.00	0.123	No
Cadmium	Soil	n/a	0.0394	—[b]	Yes
Calcium	Soil	0.0000276	—	—	No[c]
Chromium	Soil	0.0761	0.944	n/a	No
Copper	Soil	0.00622	—	—	No[c]
Selenium	Soil	0.163	0.0212	n/a	Yes
Zinc	Soil	0.000430	—	—	Yes

[a] — = Test not performed because the first test indicated site samples are significantly different than background.
[b] n/a = Not applicable.
[c] Statistically different but less than background.

Table G-6
Results of Statistical Tests for Inorganic Chemicals at AOC 02-004(a)

Analyte	Media	Gehan p-value	Quantile p-value	Slippage p-value	COPC?
Aluminum	Qbo	1.01×10^{-8}	—[a]	—	Yes
Arsenic	Qbo	n/a[b]	2.84×10^{-11}	—	Yes
Barium	Qbo	0.00959	—	—	Yes
Beryllium	Qbo	0.00818	—	—	Yes
Cadmium	Soil	n/a	7.58×10^{-8}	—	Yes
Calcium	Soil	0.0000312	—	—	Yes
	Qbo	0.0979	0.999	—	No
Chromium	Soil	0.0104	—	—	Yes
	Qbo	7.85×10^{-10}	—	—	Yes
Cobalt	Soil	0	—	—	Yes
Copper	Soil	3.40×10^{-8}	—	—	Yes
	Qbo	0.306	0.796	n/a	No
Iron	Qbo	2.89×10^{-12}	—	—	Yes
Lead	Soil	1.36×10^{-8}	—	—	Yes
	Qbo	0.371	0.258	n/a	No
Magnesium	Qbo	0.275	0.632	—	No
Manganese	Soil	0.00285	—	—	Yes
	Qbo	3.34×10^{-11}	—	—	Yes
Nickel	Qbo	n/a	1	0.0069	Yes

Table G-6 (continued)

Analyte	Media	Gehan p-value	Quantile p-value	Slippage p-value	COPC?
Vanadium	Qbo	7.27×10^{-8}	—	—	Yes
Zinc	Soil	1.57×10^{-6}	—	—	Yes
	Qbo	0.000382	—	—	Yes

[a] — = Test not performed because the first test indicated site samples are significantly different than background.
[b] n/a = Not applicable.

Table G-7
Results of Statistical Tests for Inorganic Chemicals at AOCs 02-004(b,c,d)

Analyte	Media	Gehan p-value	Quantile p-value	Slippage p-value	COPC?
Cadmium	Soil	n/a[a]	0.0227	—[b]	No[c]
Calcium	Soil	0.000792	—	—	No[c]
Chromium	Soil	0.00245	—	—	Yes
Selenium	Soil	2.01×10^{-6}	—	—	Yes
Zinc	Soil	2.54×10^{-5}	—	—	Yes

[a] n/a = Not applicable.
[b] — = Test not performed because the first test indicated site samples are significantly different than background.
[c] Statistically different but less than background.

Table G-8
Results of Statistical Tests for Inorganic Chemicals at AOC 02-004(f)

Analyte	Media	Gehan p-value	Quantile p-value	Slippage p-value	COPC?
Cadmium	Soil	n/a[a]	3.81×10^{-9}	—[b]	Yes
Chromium	Soil	0.763	0.346	n/a	No
Lead	Soil	7.57×10^{-13}	—	—	Yes
	Qbo	0.230	0.104	n/a	No
Nickel	Qbo	n/a	0.0000374	—	Yes
Selenium	Soil	0.0009	—	—	Yes
Vanadium	Qbo	4.20×10^{-6}	—	—	Yes

[a] n/a = Not applicable.
[b] — = Test not performed because the first test indicated site samples are significantly different than background.

Table G-9
Results of Statistical Tests for Inorganic Chemicals at AOC 02-004(g)

Analyte	Media	Gehan p-value	Quantile p-value	Slippage p-value	COPC?
Cadmium	Soil	n/a[a]	0.0000495	—[b]	Yes
Calcium	Soil	0.00251	—	—	No[c]
Chromium	Soil	0.416	0.856	n/a	No
Copper	Soil	0.0279	—	—	Yes
Lead	Soil	2.60×10^{-5}	—	—	Yes
Manganese	Soil	0.0432	—	—	No[c]
Mercury	Soil	n/a	1	0.00432	Yes
Selenium	Soil	0.0258	—	—	Yes
Zinc	Soil	0.00284	—	—	Yes

[a] n/a = Not applicable.

[b] — = Test not performed because the first test indicated site samples are significantly different than background.

[c] Statistically different but less than background.

Table G-10
Results of Statistical Tests for Inorganic Chemicals at AOC 02-005

Analyte	Media	Gehan p-value	Quantile p-value	Slippage p-value	COPC?
Cadmium	Soil	n/a[a]	4.21×10^{-9}	—[b]	Yes
Copper	Soil	3.29×10^{-12}	—	—	Yes
Lead	Soil	0.0752	0.850	n/a	No
Mercury	Soil	n/a	1	0.466	No
Selenium	Soil	0.000201	—	—	Yes
Zinc	Soil	3.05×10^{-11}	—	—	Yes

[a] n/a = Not applicable.

[b] — = Test not performed because the first test indicated site samples are significantly different than background.

Table G-11
Results of Statistical Tests for Inorganic Chemicals at SWMU 02-006(a)

Analyte	Media	Gehan p-value	Quantile p-value	Slippage p-value	COPC?
Aluminum	Qbt 3	0.516	0.621	n/a[a]	No
Antimony	Soil	n/a	0.999	0.177	No
	Qbt 3	n/a	1.95×10^{-13}	—[b]	Yes
Arsenic	Qbt 3	1.59×10^{-5}	—	—	Yes
Barium	Soil	0.0000478	—	—	Yes
Beryllium	Qbt 3	0.663	0.794	n/a	No
Calcium	Qbt 3	0.868	0.794	n/a	No
Chromium	Qbt 3	1.23×10^{-5}	—	—	Yes
Copper	Soil	0.177	0.949	n/a	No
	Qbt 3	0.00172	—	—	Yes
Lead	Soil	0.728	0.126	n/a	No
Magnesium	Qbt 3	0.106	0.0622	n/a	No
Nickel	Qbt 3	n/a	0.00194	—	Yes
Zinc	Soil	0.402	0.512	n/a	No

[a] n/a = Not applicable.
[b] — = Test not performed because the first test indicated site samples are significantly different than background.

Table G-12
Results of Statistical Tests for Inorganic Chemicals at SWMU 02-006(b)

Analyte	Media	Gehan p-value	Quantile p-value	Slippage p-value	COPC?
Aluminum	Qbo	3.70×10^{-8}	—[a]	—	Yes
Arsenic	Qbo	n/a[b]	1.42×10^{-11}	—	Yes
Barium	Qbo	0.000727	—	—	Yes
Cadmium	Soil	n/a	5.91×10^{-9}	—	Yes
Calcium	Soil	0.226	0.394	n/a	No
Chromium	Soil	0.00466	—	—	Yes
	Qbo	3.39×10^{-6}	—	—	Yes
Copper	Qbo	0.763	0.649	n/a	No
Iron	Qbo	1.37×10^{-8}	—	—	Yes
Manganese	Qbo	4.48×10^{-8}	—	—	Yes
Nickel	Qbo	n/a	0.000782	—	Yes
Selenium	Soil	0.0000162	—	—	Yes
Vanadium	Qbo	5.23×10^{-6}	—	—	Yes
Zinc	Soil	0.0000185	—	—	Yes

[a] — = Test not performed because the first test indicated site samples are significantly different than background.
[b] n/a = Not applicable.

Table G-13
Results of Statistical Tests for Inorganic Chemicals at SWMU 02-006(c)

Analyte	Media	Gehan p-value	Quantile p-value	Slippage p-value	COPC?
Aluminum	Qbo	6.17×10^{-6}	—[a]	—	Yes
Barium	Qbo	0.00863	—	—	Yes
Cadmium	Soil	n/a[b]	0.0000984	—	No[c]
Calcium	Soil	0.525	0.460	n/a	No
Chromium	Soil	0.988	0.659	n/a	No
Copper	Soil	0.00251	—	—	No[c]
	Qbo	0.929	0.795	n/a	No
Iron	Qbo	2.00×10^{-6}	—	—	Yes
Lead	Soil	3.57×10^{-6}	—	—	Yes
Magnesium	Qbo	0.290	0.457	n/a	No
Manganese	Qbo	0.0000204	—	—	Yes
Nickel	Qbo	n/a	1	0.0826	No
Selenium	Soil	0.000269	—	—	Yes
Vanadium	Qbo	0.000209	—	—	Yes
Zinc	Soil	0.00799	—	—	Yes

[a] — = Test not performed because the first test indicated site samples are significantly different than background.

[b] n/a = Not applicable.

[c] Statistically different but less than background.

Table G-14
Results of Statistical Tests for Inorganic Chemicals at AOC 02-006(e)

Analyte	Media	Gehan p-value	Quantile p-value	Slippage p-value	COPC?
Arsenic	Qbo	n/a[a]	3.89×10^{-9}	—[b]	Yes
Barium	Qbo	0.00131	—	—	Yes
Cadmium	Soil	n/a	1.60×10^{-7}	—	Yes
Calcium	Soil	0.226	0.394	n/a	No
Chromium	Soil	0.109	0.281	n/a	No
	Qbo	2.45×10^{-7}	—	—	Yes
Copper	Soil	0.000346	—	—	No[c]
	Qbo	0.763	0.649	n/a	No
Manganese	Qbo	2.21×10^{-7}	—	—	Yes
Nickel	Soil	0.000014	—	—	Yes
	Qbo	n/a	0.000208	—	Yes
Vanadium	Qbo	4.98×10^{-6}	—	—	Yes
Zinc	Soil	0.00799	—	—	Yes

[a] n/a = Not applicable.

[b] — = Test not performed because the first test indicated site samples are significantly different than background.

[c] Statistically different but less than background.

Table G-15
Results of Statistical Tests for
Inorganic Chemicals at Consolidated Unit 02-007-00

Analyte	Media	Gehan p-value	Quantile p-value	Slippage p-value	COPC?
SWMU 02-007					
Barium	Soil	1.08×10^{-8}	—[a]	—	Yes
Cadmium	Soil	n/a[b]	0.00171	—	No[c]
Lead	Soil	6.96×10^{-7}	—	—	Yes
Mercury	Soil	n/a	1	0.0449	Yes
Selenium	Soil	0.0128	—	—	Yes
Zinc	Soil	0.0045	—	—	No[c]
SWMU 02-009(a)					
Cadmium	Soil	n/a	1.26×10^{-7}	—	Yes
Calcium	Soil	0.00682	—	—	Yes
Chromium	Soil	0	—	—	Yes
Copper	Soil	6.35×10^{-14}	—	—	Yes
Iron	Soil	0	—	—	Yes
Magnesium	Soil	0	—	—	No[c]
Mercury	Soil	n/a	1	0.272	No

Table G-15 (continued)

Analyte	Media	Gehan p-value	Quantile p-value	Slippage p-value	COPC?
Zinc	Soil	0.132	0.553	n/a	No
SWMU 02-009(b)					
Antimony	Soil	n/a	1	1	No
Cadmium	Soil	n/a	1	1	No
Calcium	Soil	0.0000303	—	—	No[c]
Chromium	Soil	6.18×10^{-7}	—	—	Yes
Mercury	Soil	n/a	1	0.00236	Yes
Selenium	Soil	0.0342	—	—	Yes
Zinc	Soil	3.49×10^{-8}	—	—	Yes
SWMU 02-009(c)					
Aluminum	Qbo	1.26×10^{-8}	—	—	Yes
	Qbt 2	0.00069	—	—	Yes
Arsenic	Qbo	n/a	4.74×10^{-12}	—	Yes
Barium	Soil	0	—	—	Yes
	Qbo	0.00371	—	—	Yes
	Qbt 2	0.0321	—	—	Yes
Beryllium	Qbo	0.00953	—	—	Yes
Cadmium	Soil	n/a	1	1	No
Chromium	Soil	0.000177	—	—	Yes
	Qbt 2	0.0983	0.523	n/a	No
Copper	Qbo	0.0993	1.00	n/a	No
Iron	Qbo	4.27×10^{-11}	—	—	Yes
Lead	Soil	4.44×10^{-16}	—	—	Yes
Manganese	Soil	4.09×10^{-6}	—	—	Yes
Mercury	Soil	n/a	1	0.0325	Yes
Nickel	Qbo	n/a	1	0.567	No
Selenium	Qbt 2	0.00708	—	—	Yes
Silver	Qbt 2	n/a	0.999	1	No
Uranium	Soil	6.02×10^{-6}	—	—	Yes
Vanadium	Qbo	3.90×10^{-7}	—	—	Yes
Zinc	Soil	0.925	0.305	n/a	No

[a] — = Test not performed because the first test indicated site samples are significantly different than background.

[b] n/a = Not applicable.

[c] Statistically different but less than background.

Table G-16
Results of Statistical Tests for Inorganic Chemicals at SWMU 02-008(a)

Analyte	Media	Gehan p-value	Quantile p-value	Slippage p-value	COPC?
Chromium	Soil	0.0000224	—[a]	—	Yes
Lead	Soil	0.00125	—	—	Yes
Manganese	Soil	0.414	0.926	n/a[b]	No
Selenium	Soil	0.00217	—	—	Yes
Thallium	Soil	0	—	—	No[c]
Zinc	Soil	0.000808	—	—	Yes

[a] — = Test not performed because the first test indicated site samples are significantly different than background.

[b] n/a = Not applicable.

[c] Statistically different but less than background.

Table G-17
Results of Statistical Tests for Inorganic Chemicals at AOC 02-008(c)

Analyte	Media	Gehan p-value	Quantile p-value	Slippage p-value	COPC?
Cadmium	Soil	n/a[a]	0.00159	—[b]	No[c]
Chromium	Soil	0.735	0.353	n/a	No
Copper	Soil	0.985	0.627	n/a	No
Mercury	Soil	n/a	1	0.000991	Yes
Selenium	Soil	0.00429	—	—	Yes
Zinc	Soil	0.000408	—	—	Yes

[a] n/a = Not applicable.

[b] — = Test not performed because the first test indicated site samples are significantly different than background.

[c] Statistically different but less than background.

Table G-18
Results of Statistical Tests for Inorganic Chemicals at AOC 02-009(d)

Analyte	Media	Gehan p-value	Quantile p-value	Slippage p-value	COPC?
Cadmium	Soil	n/a[a]	3.37×10^{-7}	—[b]	Yes
Calcium	Soil	0.0139	—	—	Yes
Chromium	Soil	5.45×10^{-5}	0.986	—	No[c]
Lead	Soil	5.20×10^{-7}	—	—	Yes
Mercury	Soil	n/a	1	8.89×10^{-6}	Yes
Selenium	Soil	0.0000596	—	—	Yes
Zinc	Soil	8.42×10^{-8}	—	—	Yes

[a] n/a = Not applicable.

[b] — = Test not performed because the first test indicated site samples are significantly different than background.

[c] Statistically different but less than background.

Table G-19
Results of Statistical Tests for Inorganic Chemicals at AOC 02-010

Analyte	Media	Gehan p-value	Quantile p-value	Slippage p-value	COPC?
Aluminum	Qbo	2.48×10^{-9}	—[a]	—	Yes
Antimony	Soil	0.412	1	n/a	No
Arsenic	Qbo	n/a[b]	9.52×10^{-12}	—	Yes
Barium	Soil	5.25×10^{-11}	—	—	Yes
Cadmium	Soil	n/a	0.0000259	—	Yes
Calcium	Soil	2.60×10^{-9}	—	—	Yes
Chromium	Soil	0.00998	—	—	Yes
	Qbo	3.15×10^{-9}	—	—	Yes
Copper	Soil	0.0000821	—	—	Yes
	Qbo	0.476	0.0464	n/a	Yes
Iron	Qbo	1.36×10^{-9}	—	—	Yes
Lead	Soil	0.00058	—	—	Yes
Manganese	Qbo	5.34×10^{-9}	—	—	Yes
Mercury	Soil	n/a	1	0.000411	Yes
Nickel	Qbo	n/a	7.05×10^{-6}	—	Yes
Selenium	Soil	0.00788	—	—	Yes
Vanadium	Qbo	8.84×10^{-7}	—	—	Yes
Zinc	Soil	0.00186	—	—	Yes

[a] — = Test not performed because the first test indicated site samples are significantly different than background.

[b] n/a = Not applicable.

Table G-20
Results of Statistical Tests for Inorganic Chemicals at AOC 02-011(b)

Analyte	Media	Gehan p-value	Quantile p-value	Slippage p-value	COPC?
Cadmium	Soil	n/a[a]	0.103	1	No
Chromium	Soil	0.171	0.948	n/a	No
Manganese	Soil	0.156	0.999	n/a	No
Mercury	Soil	n/a	1	0.204	No
Nickel	Soil	0.00378	—[b]	—	No[c]
Selenium	Soil	1	0.161	n/a	No
Zinc	Soil	0.0335	—	n/a	Yes

[a] n/a = Not applicable.
[b] — = Test not performed because the first test indicated site samples are significantly different than background.
[c] Statistically different but less than background.

Table G-21
Results of Statistical Tests for Inorganic Chemicals at AOC 02-012

Analyte	Media	Gehan p-value	Quantile p-value	Slippage p-value	COPC?
Aluminum	Qbo	2.05×10^{-7}	—[a]	—	Yes
Antimony	Qbo	n/a[b]	5.99×10^{-12}	—	Yes
Arsenic	Qbo	n/a	1.65×10^{-10}	—	Yes
Barium	Qbo	0.0103	—	—	Yes
Cadmium	Soil	n/a	1.00×10^{-7}	—	Yes
Chromium	Soil	0.000385	—	—	Yes
Copper	Soil	0.00013	—	—	Yes
Lead	Soil	0.000078	—	—	No[c]
Manganese	Qbo	3.34×10^{-7}	—	—	Yes
Nickel	Qbo	n/a	0.000776	—	Yes
Selenium	Soil	1.8×10^{-6}	—	—	Yes
Vanadium	Qbo	8.60×10^{-6}	—	—	Yes
Zinc	Qbo	0.00327	—	—	Yes

[a] — = Test not performed because the first test indicated site samples are significantly different than background.
[b] n/a = Not applicable.
[c] Statistically different but less than background.

Table G-22
Results of Statistical Tests for
Inorganic Chemicals at the Lateral Boundary of the TA-02 Core Area

Analyte	Media	Gehan p-value	Quantile p-value	Slippage p-value	COPC?
Antimony	Soil	0.0257	—[a]	n/a[b]	Yes
Beryllium	Soil	5.16×10^{-9}	—	—	Yes
	Qbt 1g/Qct	0.00564	—	—	Yes
Cadmium	Soil	n/a	1	1	No
Calcium	Qbt 1g/Qct	0.000933	—	—	Yes
Chromium	Soil	1.83×10^{-7}	—	—	Yes
Copper	Qbt 1g/Qct	0.000577	—	—	Yes
Lead	Soil	0.0960	0.198	n/a	No
Manganese	Soil	0.0959	0.0456	n/a	Yes
Mercury	Soil	-6.08×10^{-14}	—	—	Yes
Thallium	Soil	8.88×10^{-15}	—	—	No[c]
Zinc	Soil	5.83×10^{-11}	—	—	Yes

[a] — = Test not performed because the first test indicated site samples are significantly different than background.

[b] n/a = Not applicable.

[c] Statistically different but less than background.

Table G-23
Results of Statistical Tests for Inorganic Chemicals at TA-26

Analyte	Media	Gehan Test p-Value	Quantile Test p-Value	Slippage p-value	Retain as COPC?
Barium	Qbt 3	0.363	0.287	n/a*	No
Cobalt	Qbt 3	0.0859	0.996	n/a	No

* n/a = Not applicable.

Appendix H

Risk Assessments

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H-1.0 INTRODUCTION

This appendix presents the results of the human health and ecological risk-screening assessments for the 2010 investigation activities at sites within the Middle Los Alamos Canyon Aggregate Area at Los Alamos National Laboratory (LANL or the Laboratory). Sites include solid waste management units (SWMUs) and areas of concern (AOCs) located within Technical Area 02 (TA-02). The nature and extent of contamination was defined for 29 SWMUs and AOCs within the Middle Los Alamos Canyon Aggregate Area during the 2010 investigation.

Human health risk-screening assessments were conducted for AOCs 02-003(a,b,c,d,e); AOCs 02-004(a,b,c,d,e,f,g); SWMU 02-005; SWMUs 02-006(a,b); AOCs 02-006(c,e); Consolidated Unit 02-007-00 [SWMUs 02-007 and 02-009(a,b,c)]; SWMU 02-008(a); AOC 02-008(c); AOC 02-009(d); AOC 02-010; AOCs 02-011(b,c,d); AOC 02-012; and the lateral extent samples for TA-02.

The ecological risk-screening assessment for the TA-02 sites was not conducted because the investigation of one site is not complete. The ecological risk-screening assessment for the TA-02 sites within the canyon bottom will be conducted as one exposure unit because the sites overlap and have a high density within a small area. However, an ecological risk-screening assessment was conducted for SWMU 02-006(a) because it is not within the footprint of TA-02 and is located on the mesa top.

The SWMUs and AOCs for which risk-screening assessments were conducted include areas of soil contamination, a former reactor facility, former storage tanks, former buildings, former acid waste lines, a former septic system, former drainlines, and outfalls. The SWMUs and AOCs are described in section 7 of the investigation report and are summarized below.

H-2.0 TA-02 BACKGROUND

TA-02 was used to house a series of research reactors from 1943 to 2003 when the decontamination and decommissioning (D&D) of the site occurred. The main reactor building (02-1) was constructed in 1943. It housed five separate nuclear reactors: three iterations of water boiler reactors (WBRs) located on the east side of the building, one plutonium-fueled reactor (the Clementine Reactor) followed by an enriched uranium reactor, and the Omega West Reactor (OWR). A number of facilities were constructed over the years to support the TA-02 research activities. TA-02 was active from 1943 to 1993.

Various remedial actions, such as soil removal and D&D, were conducted in the bottom of Los Alamos Canyon, including at TA-02, after the Cerro Grande fire. These actions were taken to reduce the risk of contaminants dispersing from post-fire floods. Approximately 54 yd^3 of soil contaminated with cesium-137 was removed in 2000, following an extensive field survey for gross-gamma radiation. The OWR and associated structures underwent D&D in 2002 and 2003.

After all structures at TA-02 were removed, field radiological surveys were conducted to confirm that surface contamination release limits were not exceeded. The land was returned to its original contour and reseeded. The road accessing the reactor site is controlled by the Laboratory via a locked gate.

H-2.1 Site Descriptions

H-2.1.1 AOC 02-003(a), Soil Contamination from Stack-Gas Valve House and Gaseous Effluent Line

AOC 02-003(a) was the site of the stack-gas valve house (structure 02-019) and associated stainless-steel gaseous effluent vent lines (lines 117 and 118), as shown on engineering drawing C-1718. This system was associated with a WBR, a homogeneous liquid-fueled reactor fueled by an enriched uranyl-salt compound.

The stack-gas valve house and effluent vent lines system were installed in 1944 and received off-gas from the WBR. The off-gas contained gaseous fission products, including cesium-137, strontium-90, technetium-99, and iodine-131.

The stack-gas valve house was primarily aboveground and was constructed of reinforced concrete, 11 ft × 9 ft × 10 ft high, with 18-in.-thick walls. From 1944 to 1948, gaseous effluent entered the stack-gas valve house from line 117 and was directed via line 118 to the southeast. Line 118 was used as a temporary gas vent until July 1948 when the condensate trap and line 119 [AOC 02-003(b)] became operational. Line 118 was left in place from 1948 to its removal in 1985. Line 117 and the stack-gas valve house remained in use until 1974 when they became inactive and were removed and disposed of during D&D efforts in 1985.

H-2.1.2 AOC 02-003(b), Soil Contamination at Condensate Trap and Line 119

AOC 02-003(b) consisted of the condensate trap (structure 02-048) and associated stainless-steel line (line 119). The WBR off-gas system consisted of the stack-gas valve house, condensate trap, mesa-top vent stack located above TA-02 at TA-61, and associated stainless-steel lines.

The condensate trap was a concrete manhole superstructure and a small-diameter standpipe. It was located at the lowest point of line 119 between the stack-gas valve house [structure 02-019, AOC 02-003(a)] and the delay tanks [structure 02-131, AOC 02-003(c)].

Line 119 consisted of an approximately 78-ft-long east-west trending pipe section that ran from the stack-gas valve house (structure 02-019) to the condensate trap and a 205-ft-long north-south trending section that ran from the condensate trap to the delay tanks.

Line 119 continued from the delay tanks to the junction with the main OWR gaseous effluent vent line and up to the mesa-top stack (structure 02-009) and French drain [SWMU 02-006(a)] located at TA-61. The upper portion of the gaseous effluent vent line (line 119) from the delay tanks to the mesa-top stack is addressed as AOC 02-003(d).

The WBR off-gas system was installed in 1948. The off-gas contained gaseous fission products, including cesium-137, strontium-90, technetium-99, and iodine-131.

The condensate trap and line 119 from the stack-gas valve house (structure 02-019) to the delay tanks remained in use through 1974. The units were inactive from 1974 to 1985 and were removed and disposed of during D&D efforts in 1985.

H-2.1.3 AOC 02-003(c), Soil Contamination at Gaseous Effluent Delay Tanks

AOC 02-003(c) consisted of two parallel underground stainless-steel gaseous effluent delay tanks (each 1 ft in diameter by 20 ft long and buried 4 ft deep). The tanks were part of the gaseous effluent vent line system associated with the WBR.

The gaseous effluent vent system was in place by 1951 and received off-gas from the WBR. The off-gas contained gaseous fission products, including cesium-137, strontium-90, technetium-99, and iodine-131. It is unclear when the delay tanks were installed. The original as-built drawing of the condensate trap and line 119 dated 1947 does not show the delay tank system. The tanks appear to have been installed in 1951 when other modifications to the gaseous effluent vent line system were made; however, no installation record is available. The delay tanks remained in use until 1974 and were inactive from 1974 to 1985. The tanks were removed and disposed of during D&D efforts in 1985.

H-2.1.4 AOC 02-003(d), Soil Contamination at Site of Upper Part of Line 119 and Temporary Vent Line

AOC 02-003(d) consists of two distinct areas. One is the potential soil contamination area associated with a temporary gaseous effluent vent, the garden hose that reportedly served as a temporary vent line for the WBR during initial operations. This area is located approximately 120 ft northeast of the former OWR building.

The second and primary area of AOC 02-003(d) is the 1200-ft gaseous effluent vent line from the delay tanks (structure 02-131) to the mesa-top stack [structure 02-009, SWMU 02-006(a)].

The garden hose discharge was reportedly used from 1943 to when the stack on the mesa top (structure 02-009, located at TA-61) was built in 1948. The gaseous effluent vent line received gaseous effluent from the WBR from 1948 to 1974 and from the OWR from 1953 to 1993.

The mesa-top stack remained in use from 1948 to 1993. The stack received waste from only the WBR from 1948 to 1956, when the OWR was brought online. The stack received waste from both the WBR and the OWR from 1956 to 1974. The stack received effluent from only the OWR from 1974 to 1993. The stack became inactive in 1993 when the OWR was deactivated, and the stack was removed and disposed of in November 2002. Line 119 was removed in April 2003.

H-2.1.5 AOC 02-003(e), Soil Contamination

AOC 02-003(e) is the former location of an 800-L stainless-steel holding tank (structure 02-062), installed in approximately 1944, and was associated with operation of the WBR. The holding tank was adjacent to the stack-gas valve house (structure 02-019) and was designed to collect WBR cooling water in the event of a cooling coil breach.

The WBR holding tank was installed in approximately 1944 and may have been used until 1974, when the WBR was placed in safe-shutdown mode. The holding tank was removed and disposed of during D&D activities in 1985. During D&D, the tank reportedly showed no sign of having been used. However, reports of a “surge tank” running over indicate an original tank may have been used and replaced during its active life.

H-2.1.6 AOC 02-004(a), Former Reactor Facility

AOC 02-004(a) is the OWR facility (building 02-001) and is composed of the OWR, the OWR fuel-handling area, the OWR cooling-liquid recirculating piping, the OWR gaseous effluent vent line, the OWR material storage area, and the WBR. To facilitate discussion, AOC 02-004(a) is divided into the following three areas.

H-2.1.7 OWR, Fuel-Handling Area, Cooling-Liquid Recirculating Piping, and Gaseous Effluent Vent Line

A 25-kilowatt fast-neutron research reactor, Clementine, was located in the western third of building 02-001. The reactor was self-contained and operated from 1946 to 1953. Clementine was the precursor to the OWR and was dismantled in 1954.

The OWR was built above the former Clementine site in the western third of building 02-001. The OWR was an 8-megawatt water-cooled tank-type research reactor fueled by enriched solid uranium. It was put online in 1956 and operated until it was put on standby status in 1993. The reactor remained inactive until it was decommissioned, removed, and disposed of in 2003.

The OWR fuel-handing area consisted of a fuel pit and a closed recirculating system that serviced only the fuel pit. It was located adjacent to the OWR and was used for temporary storage of fuel rods before they were recycled.

The OWR operated with a cooling-liquid recirculating system that consisted of a series of closed-loop pipes in a 100-ft-long corridor that extended from the OWR west to the reactor facility equipment building [building 02-044, AOC 02-004(f)]. The water was routed through pumps, filters, and chillers in the reactor facility equipment building and back to the reactor. The cooling tower (structure 02-049) was added in 1959 to supplement the building 02-044 chillers in this closed system. The recirculating system was active from 1956 to 1993, when it was put on standby status during the OWR shutdown.

Off-gas from the OWR was routed through the gaseous effluent vent line to a connection into line 119 on the east side of TA-02, where the effluent continued up to the mesa-top stack [structure 02-009, SWMU 02-006(a)]. The gaseous effluent vent line teed off from the piping corridor between the OWR and OWR equipment building (02-044).

H-2.1.8 OWR Material Storage Area

Operation of the OWR included the temporary storage of material (isotope columns, through-put port metal sleeves, etc.) that became activated during contact in the reactor neutron flux field. The material was stored in a structure adjacent to the guard quarters (building 02-004), located south of the reactor, to await final disposition. The material storage structure was present in 1958 and was removed in 2000.

H-2.1.9 WBR

The WBR was the name used for a series of three small research reactors, low power (LOPO), high power (HYPO), and super power (SUPO), located in the eastern third of the OWR building (02-001). The reactors were each progressively stronger in power output, each consisted generally of a 1-ft-diameter sphere filled with liquid fuel, and each was surrounded with neutron-reflecting blocks sitting on a graphite base. The LOPO reactor became functional in May 1944. The LOPO was dismantled, removed, and disposed of in September 1944. The HYPO reactor became operational in December 1944 and was later upgraded to SUPO, which became operational in 1951. The SUPO was decommissioned, removed, and disposed of in 1990.

The reactors were surrounded by a 15-ft × 15-ft × 11-ft concrete biological shield. A shallow sand pit and a utility trench were present beneath the reactor sphere and were used to collect liquids and gases from the reactor and transport them to support structures on the east side of building 02-001. External structures and underground piping associated with the gaseous effluent vent line system were removed and disposed of in 1986. Six concrete structures were dismantled, and 435 ft of contaminated underground piping was removed and disposed of. Cesium-137 contamination was found in the OWR building (02-001) near the sand pit and the utility trench during D&D activities. The soil was removed and disposed of during D&D activities.

At peak operation, the WBR generated approximately 0.25 L/min of excess gas containing some fission products. These gases were managed through the WBR gaseous effluent vent line system. Some radionuclides may have been deposited on the ground surface as gaseous effluent drifted from this system, and condensate from the gaseous effluent may have leaked from portions of the vent line system. These releases are addressed as AOCs 02-003(a,b,c,d).

The OWR experienced a cooling system water leak in January 1993. As a result, the reactor was put on standby status in 1993 and remained inactive until it was decommissioned in 2003.

H-2.1.10 AOCs 02-004(b,c,d), Former Storage Tanks for Effluent from OWR and Equipment Building

AOCs 02-004(b,c,d) consisted of a system of three individual liquid waste storage tanks. Each tank is a separate AOC, but because of their proximity to one another and identical processes associated with all three tanks, the three AOCs are discussed together, and the data for all three are evaluated together. The system contained three underground 1200-gal. stainless-steel effluent storage tanks (structures 02-054, 02-055, and 02-056) with rubberized liners, approximately 150 ft west of building 02-001. The tanks received liquid waste that was primarily flushed effluent from the ion-exchange system associated with the OWR [AOC 02-004(a)]. The tanks also received any spills or leaks collected from the floor of the OWR equipment building [02-044, AOC 02-004(f)].

The tanks were approximately 5-ft-high and 6-ft-diameter cylinders with approximately 2 ft of spacing between them within a single reinforced-concrete vault. The vault was rectangular and approximately 8 ft × 23 ft. The top of the vault was approximately 4 ft below ground surface (bgs). The vault was adjacent to the reactor facility acid pit/transfer sump [structure 02-053, AOC 02-004(e)] and aligned perpendicular to Los Alamos Creek. The southernmost tank was structure 02-054 [AOC 02-004(b)], structure 02-055 [AOC 02-004(c)] was the center tank, and structure 02-056 [AOC 02-004(d)] was the northernmost tank. The bottom of the vault was approximately 10 ft bgs. The lines from the tanks to the reactor facility acid pit/transfer sump [(AOC 02-004(e)] were approximately 8 ft long and were used to temporarily store the liquid until it was transferred to the liquid acid waste line [AOC 02-004(f)] leading to TA-50 or to the aboveground portable tank [AOC 02-004(g)].

The tanks, vault, transfer sump, and lines were installed in 1962. Leaks in the OWR cooling-liquid system led to the shutdown of the OWR in 1993. All systems were put on standby status in 1993; in 1995, all lines and tanks were drained and the liquids were disposed of. In 2000, the tanks, vault, and transfer sump were removed and disposed of. In 2003, the lines connecting the tanks to the acid pit/transfer sump [structure 02-053, AOC 02-004(e)], OWR equipment building [02-044, AOC 02-004(f)], the liquid acid waste line leading to TA-50, and the acid pit/transfer sump [structure 02-053, AOC 02-004(e)] outfall [AOC 02-011(d)] were removed and disposed of.

H-2.1.11 AOC 02-004(e), Former Acid Pit/Transfer Sump

AOC 02-004(e) was a liquid transfer system that consisted of a series of valves and pumps that transferred waste from the OWR equipment building (02-044) to the structure 02-054, 02-055, or 02-056 tanks, the portable aboveground tank [no structure number, AOC 02-004(g)], or the liquid acid waste line leading to TA-50. The equipment was housed in a partially belowground transfer sump, referred to as the acid pit/transfer sump (structure 02-053). The unit was a reinforced-concrete pit that measured 7 ft wide × 11 ft long × 7 ft deep. Approximately 1 ft of the pit was aboveground.

The liquid waste line entered the sump from the OWR equipment building [02-044, AOC 02-004(f)] at approximately 5 ft bgs and connected to the tanks at 8 ft bgs.

The acid pit/transfer sump was operational beginning in 1963. The system transferred liquid wastes from the OWR equipment building to three storage tanks [AOCs 02-004(b,c,d]. The tanks were used to store the liquid temporarily until it was transferred to the liquid acid waste line (no structure number) leading to TA-50 or to the portable aboveground tank [(no structure number) AOC 02-004(g)].

Use of the acid pit/transfer sump was discontinued in 1993 when the OWR was shut down. All liquid waste was drained from the system in 1995, and in 2000 the structure and equipment were decommissioned and removed. All remaining buried pipes and drains were removed and disposed of in 2003.

H-2.1.12 AOC 02-004(f), Former Equipment Building and Acid Waste Line to TA-50

AOC 02-004(f) was a 49-ft × 26-ft equipment building (02-044) that contained several pumps, including the main circulating pump for the OWR cooling water, a buffalo chiller (a cooling system), and an ion-exchange filter system to maintain the OWR cooling-liquids system. At a later date, these systems were also connected to TA-50 by a liquid acid waste line. Lines associated with the OWR equipment building were present at approximately 4 ft bgs.

Building 02-044 became operational in 1954 and had floor drains that discharged to Los Alamos Creek through an outfall located at SWMU 02-008(a). Modifications to the cooling water system, with the addition of the cooling tower (structure 02-049) and associated outfall, were made in 1959. The drain from the OWR equipment building was connected to the cooling tower outfall in 1959. The outfalls in Los Alamos Creek were physically the same [location of SWMU 02-008(a)]. When the acid pit/transfer sump and effluent storage tank structures (02-053, 02-054, and 02-055) were added in 1962, the wastewater discharge from the OWR equipment building was routed through the acid pit/transfer sump, thus minimizing direct discharge to Los Alamos Creek from building 02-044.

The OWR equipment building operated until 1993, when the OWR was shut down. In 1995, all liquid waste was removed from the system and disposed of at TA-54. In 2003, the building and all remaining buried pipes and drains were removed and disposed of at approved disposal facilities.

H-2.1.13 AOC 02-004(g), Soil Contamination

AOC 02-004(g) was a 300-gal. portable storage tank located on a platform near the guard station (structure 02-012) at the west end of the OWR facility.

The storage tank was used for temporarily storing liquids to supplement the three OWR effluent storage tanks [AOCs 02-004(b,c,d)]. The portable aboveground storage tank was installed and began operations in 1962. The platform and portable aboveground storage tank were removed by 1993, but removal and disposal details are not available.

H-2.1.14 SWMU 02-005, Soil Contamination

SWMU 02-005 consists of an area potentially affected by airborne drift of potassium dichromate used to inhibit corrosion in the OWR cooling tower (structure 02-049).

The cooling tower was installed and became operational in 1957. It was constructed with aluminum heat exchangers that were prone to corrosion. Potassium dichromate was added to the make-up water to inhibit corrosion of the heat exchangers. Stainless-steel heat exchangers were installed to eliminate the use of potassium dichromate in 1975.

The cooling tower operated until the OWR was shut down in 1993. In 1995, all liquid was drained from the system. In 2000, the cooling tower structure and equipment were removed and disposed of at TA-54. In 2003, the remaining buried pipes and drains were removed and disposed of at TA-54 or Envirocare.

H-2.1.15 SWMU 02-006(a), Former French Drain

SWMU 02-006(a) was an 8-ft-deep French drain system. The system consisted of the exhaust stack and French drain, all located in TA-61 on the Los Alamos Canyon south rim mesa top above TA-02. The stack system was the termination point of the gaseous effluent vent line (line 119) from the OWR and WBR at TA-02.

The French drain was installed in 1948, designated as structure 02-009, and was also identified as structure 61-026. The French drain was designed to catch condensate that collected as reactor exhaust gases cooled during venting through the tower exhaust stack. The vent stack and French drain system were active from their installation in 1948 to the OWR deactivation in 1993. The French drain system and contaminated soil were removed and disposed of during D&D activities in 2003.

H-2.1.16 SWMU 02-006(b), Former Acid Waste Line, Laboratory Effluent

SWMU 02-006(b) was an acid waste line that carried effluent from several laboratory rooms in the center of the OWR building (02-001) south to a discharge point into Los Alamos Creek.

Construction of the OWR building (02-001) and associated laboratory rooms, sinks, and waste line [SWMU 02-006(b)] was completed in 1946. The OWR became operational in 1956. The acid waste line was reportedly taken out of service in the 1960s; however, no record of its removal is available. All SWMU 02-006(b) lines and connections were removed and disposed of in 2003.

H-2.1.17 AOC 02-006(c), Former Drainline from Offices, Restrooms, Control Room

AOC 02-006(c) was a waste line that extended from the office areas in the reactor building to the septic tank (structure 02-043, SWMU 02-007). AOC 02-006(c) was identified as a drainline that was connected to the chemical room in the OWR building (02-001) and several OWR laboratories.

AOC 02-006(c) was the drainline that served the office or central portion of the OWR building, 02-001.The line was separate from the OWR acid waste line [SWMU 02-006(b)] that connected to the chemical laboratories.

The AOC 02-006(c) waste line received wastewater from the evaporative cooler and drinking fountain associated with the control room, restrooms, and office areas. The sanitary service provided by AOC 02-006(c) was transferred to TA-41 in the mid-1970s. However, the AOC 02-006(c) drainline continued to convey basement seepage to the AOC 02-008(c) outfalls installed in 1985 and 1988. The AOC 02-006(c) sewer line was removed and disposed of during D&D activities in 2003.

H-2.1.18 AOC 02-006(e), Former Sump for Reactor Room Floor Drains and Mezzanine

AOC 02-006(e) was a sump (structure 02-026) and drainline that received effluent from the OWR building (02-001) reactor room floor drains and mezzanine.

The AOC 02-006(e) drainline was connected to floor drains in the main reactor room and became operational in 1944. A second collection sump (structure 02-082) was added to the AOC 02-006(e) drainline in 1990. A drainline from the structure 02-082 sump was connected directly to the AOC 02-004(e) acid pit/transfer sump (structure 02-053), possibly replacing the AOC 02-006(e) direct discharge to Los Alamos Creek; however, the sump (structure 02-026) and the original drainline remained in place until they were removed and disposed of during D&D activities in 2003. The second sump (structure 02-082) and the drainline to structure 02-053 [AOC 02-004(e)] were also removed and disposed of during D&D activities in 2003.

H-2.1.19 Consolidated Unit 02-007-00

Consolidated Unit 02-007-00 consists of the following SWMUs:

- 02-007, a septic tank and outfall
- 02-009(a), a radioactively contaminated soil area behind the storage building
- 02-009(b), a radioactively contaminated soil area north of the stack-gas valve house
- 02-009(c), a leach field and a radioactively contaminated soil area associated with the condensate trap removal

SWMU 02-007, Septic System for Floor Drains in OWR Building and Chemical Shack

SWMU 02-007 is a former septic tank (structure 02-043) and outfall. The septic tank was constructed of reinforced concrete and measured 13 ft long × 8 ft wide × 6 ft deep. The septic system received effluent from drains in the OWR facility (building 02-001).

The SWMU 02-007 septic tank and outfall were installed in 1944 and removed in 1985. Overflow from the tank discharged to Los Alamos Creek through a 6-in.-diameter vitrified clay pipe (VCP). However, the location of the outfall discharge is not known. Laboratory wastes were discharged into the septic system. In 1947, the chemical waste shack (building 02-003, AOC 02-010) was connected to the septic system and remained connected until the chemical waste shack was decommissioned in 1971. The septic tank and overflow outfall and surrounding soil were removed and disposed of in 1986.

SWMU 02-009(a), Soil Contamination

SWMU 02-009(a) is an area of beta/gamma radioactive soil contamination located around a boulder, south of the southeast fence corner east of the former Omega-50 storage building (building 02-050).

SWMU 02-009(a) was identified in 1986 during D&D of the WBR. No other information regarding the origin of contamination is available. A limited amount of soil was removed at the site, and the soil was disposed of in 1986.

SWMU 02-009(b), Soil Contamination

SWMU 02-009(b) is an area of radioactive soil contamination located north of the former stack-gas valve house (structure 02-019) and the east bridge at TA-02.

Detectable beta/gamma radioactivity was identified in 1986 when the area of SWMU 02-009(b) was used for truck staging during D&D of the WBR. A limited amount of soil was removed from the site and disposed of.

SWMU 02-009(c), Soil Contamination

SWMU 02-009(c) is a leach field and an area of alpha-, beta-, and gamma-emitting radioactively contaminated soil south of the condensate trap [structure 02-048, AOC 02-003(b)].

Radioactive soil contamination was identified at SWMU 02-009(c) during 1985–1986 D&D activities associated with the condensate trap. Two sections of contaminated 6-in.-diameter VCP, one 34 ft long and one 20 ft long and lying parallel to the septic tank overflow pipe, were uncovered during D&D activities at the condensate trap. The pipes were approximately 5 ft below and to either side of the septic tank overflow pipe. The purpose of the pipes is unknown. The pipes were present at depths of 3–8 ft bgs. All structures (pipes) and adjacent soils down to the saturated zone were removed and disposed of during the 1985–1986 D&D activities.

H-2.1.20 SWMU 02-008(a), Outfall

SWMU 02-008(a) is a former U.S. Environmental Protection Agency (EPA) National Pollutant Discharge Elimination System– (NPDES-) permitted outfall (EPA 03A020) that discharged cooling water from the OWR cooling tower (structure 02-049).

The SWMU 02-008(a) outfall was also identified as AOC 02-011(e), NPDES-permitted outfall EPA 03A020. All discussions regarding outfall EPA 03A020 are addressed under SWMU 02-008(a).

The cooling tower became an operational component of the OWR system in 1957. The cooling tower facility began use of potassium dichromate to control aluminum heat exchanger corrosion in 1959. The aluminum heat exchangers were replaced by stainless-steel ones in 1975, thus eliminating the use of potassium dichromate. A shutdown of the OWR in 1993 placed the cooling tower on standby status; in 1995, all liquid waste was drained from the system. In 2000, the cooling tower structure and equipment were decommissioned and removed. In 2003, the remaining buried pipes and drains were removed and disposed of. The outfall (EPA 03A020) was removed from the Laboratory's NPDES permit in July 1990.

H-2.1.21 AOC 02-008(c), Outfall for Seepage into Basement of OWR Building

AOC 02-008(c) consists of two specific areas: outfall drains AOCs 02-008(c)(i) and 02-008(c)(ii). The outfall drains were two unpermitted outfalls that received OWR building (02-001) basement groundwater seepage.

In 1985, the AOC 02-008(c)(i) outfall drain was created to discharge groundwater seepage from the basement of the OWR building basement sump to Los Alamos Creek. In 1988, the AOC 02-008(c)(i) outfall drain became plugged and was abandoned in place. A second drainline was installed, and the outfall of AOC 02-008(c)(ii) was created approximately 100 ft west of the original outfall. Both drainpipes and outfalls were removed and disposed of during D&D activities in 2003.

H-2.1.22 AOC 02-009(d), Soil Contamination

AOC 02-009(d) is an area of radioactive soil contamination located near the east end of the OWR building (02-001). Beta and gamma radioactivity were identified during decommissioning and removal of inactive WBR structures at TA-02 during 1985 and 1986. The source of contamination at AOC 02-009(d) is unknown.

H-2.1.23 AOC 02-010, Soil Contamination

AOC 02-010 is residual soil contamination associated with a small chemical handling building (the chemical waste shack, 02-003) that contained a small underground chamber for working with various radioactive and chemical materials.

The chemical waste shack was built in 1944 and was decommissioned, removed, and disposed of in 1971. It is not known if soil was removed when the AOC 02-010 structures were removed. A boiler house (building 02-063) was built in the area after the chemical waste shack was removed in 1971.

H-2.1.24 AOC 02-011(b), Former Drainlines from Stack-Gas Valve House

AOC 02-011(b) consists of two drains and outfalls associated with the stack-gas valve house (structure 02-019). One drain was a 9-ft-long × 15-in.-diameter corrugated metal pipe (CMP) between the stack-gas valve house and the catch basin (structure 02-035). The second drain was a 9-ft-long × 24-in.-diameter CMP that drained from the catch basin (structure 02-035) to Los Alamos Creek outside the east fence.

The drains and outfalls were presumably installed at the same time the stack-gas valve house [AOC 02-003(a)] was constructed in 1944. The stack-gas valve house was in use through 1974 when it became inactive and was removed during 1985 D&D activities. The actual purpose of the drainlines and catch basin is not documented. The drains and outfalls remained in place until they were removed and disposed of during 2003 D&D activities.

H-2.1.25 AOC 02-011(c), Storm Drain

AOC 02-011(c) was a storm drain associated with the OWR equipment building [02-044, AOC 02-004(f)]. The drainline was a 4-in.-diameter VCP that was approximately 12 ft long and drained to the surface west of the western fence. The drainline was installed in 1954. The drainline was removed and disposed of in 2003.

The OWR equipment building was in operation from 1954 to 1993. The AOC 02-011(c) storm drain and outfall collected and discharged stormwater from the vicinity of the building from 1954 to 2003. The AOC 02-011(c) outfall piping was decommissioned and removed, and the waste was disposed of at an approved facility in 2003.

H-2.1.26 AOC 02-011(d), Outfall from Equipment Building

AOC 02-011(d) was an NPDES-permitted outfall that discharged effluent from the OWR equipment building [02-044, AOC 02-004(f)]. The line ran from the equipment building south-southwest, past the western side of the cooling tower (structure 02-049), to Los Alamos Creek.

The outfall at AOC 02-011(d) became operational in 1949, discharging effluent to Los Alamos Creek. The discharge consisted primarily of regenerated water from the ion-exchange system. Discharge was rerouted through the OWR effluent storage tanks and disposed of through the liquid acid waste line to TA-50 beginning in 1963. The outfall was removed from the NPDES permit in 1995.

H-2.1.27 AOC 02-012, Soil Contamination

AOC 02-012 consists of the potential soil contamination associated with two removed New Mexico Environment Department– (NMED-) registered underground fuel storage tanks, structures 02-029 and 02-067 (tank 02-1).

In approximately 1944, a 1000-gal. fuel-oil storage tank (structure 02-029) was installed along the south wall of the OWR building (02-001). The tank was removed in 1950. In 1982, a 517-gal. diesel tank (structure 02-067, NMED-registered tank 02-1) was installed on the north side of the OWR building. The diesel tank (structure 02-067, NMED registered tank 02-1) and associated lines were removed and disposed of in 1998 in accordance with NMED requirements.

H-2.2 Sampling Results and Determination of Chemicals of Potential Concern

The data used to identify chemicals of potential concern (COPCs) and to evaluate potential risks or doses to human health and the environment for the Middle Los Alamos Canyon Aggregate Area sites consisted of all qualified analytical results compiled from both historical sampling activities and the 2010 investigation. Only those data determined to be of decision-level quality following the data-quality assessment (Appendix E) are included in the data sets evaluated in this risk appendix. The data are presented in Appendix F (on DVD).

Tables H-2.2-1 to H-2.2-57 summarize the COPCs evaluated for potential risk for each site. Section 5 of the investigation report summarizes the COPC selection process. Inorganic chemicals and radionuclides above background values (BVs) or fallout values (FVs) and detected organic chemicals or radionuclides in tuff are retained as COPCs. The risk-screening assessment(s) for a site included all COPCs detected within the depth interval relevant for each exposure scenario. The depth intervals are 0–10 ft bgs for the residential scenario, 0–5 ft bgs for ecological risk, and 0–1 ft bgs for the industrial and recreational scenarios. Therefore, the COPCs evaluated for each scenario may differ for the site depending on the depth at which the COPC was detected. Because sampling depths often overlapped during multiple investigations, all samples with a starting depth less than the lower bound of the interval for each scenario were included in the risk assessments.

H-3.0 CONCEPTUAL SITE MODEL

Releases at the sites occurred as a result of Laboratory operations (production and research), reactor processes, chemical storage, and waste disposal practices. Types of investigation sites include the following:

- sites associated with the WBR gaseous effluent vent system: AOCs 02-003(a,b,c,d,e)
- former OWR building: AOC 02-004(a)
- holding or storage tanks: AOCs 02-004(b,c,d,g) and AOC 02-012
- sump and associated drainline: AOC 02-004(e) and AOC 02-006(e)
- former OWR equipment building: AOC 02-004(f)
- airborne contaminant deposition: SWMU 02-005
- drainlines, acid waste line, and outfalls: SWMUs 02-006(a,b), AOCs 02-006(c), SWMU 02-008(a), AOC 02-008(c), and AOCs 02-011(b,d)
- septic tank and outfall: SWMU 02-007 of Consolidated Unit 02-007-00

- soil contamination: SWMUs 02-009(a,b,c) of Consolidated Unit 02-007-00 and AOC 02-009(d)
- former chemical waste shack: AOC 02-010
- storm drains: AOC 02-011(c)

COPCs may be found in surface material and may have also migrated into the subsurface.

H-3.1 Receptors and Exposure Pathways

The current and reasonably foreseeable future land use for the SWMUs and AOCs in the Middle Los Alamos Canyon Aggregate Area is industrial; the receptor being a Laboratory worker. However, the recreational scenario may also be applicable. The construction worker and residential scenarios are not current and reasonably foreseeable future land uses for TA-02. However, the residential scenario is evaluated per the Compliance Order on Consent.

The primary exposure pathway for human receptors is surface soil and subsurface soil or tuff that may be brought to the surface through intrusive activities. Human receptors may be exposed through direct contact with soil or suspended particulates by ingestion, inhalation, dermal contact, and external irradiation pathways. Direct contact exposure pathways from subsurface contamination to human receptors are complete for the resident. The exposure pathways are the same as those for surface soil. Sources, exposure pathways, and receptors are presented in the conceptual site model (Figure H-3.1-1).

The sites within the Middle Los Alamos Canyon Aggregate Area are in a former industrial area, which provides some potential habitat for ecological receptors. Exposure pathways are complete to surface soil and tuff for ecological receptors. Exposure is assessed across the site to a depth of 0–5 ft. Weathering of tuff is the only viable natural process that may result in the exposure of receptors to COPCs in tuff. However, because of the slow rate of weathering expected for tuff, exposure to COPCs in tuff is negligible, although it is included in the assessments. Exposure pathways to subsurface contamination below 5 ft are not complete unless contaminated soil or tuff were excavated and brought to the surface. The potential pathways are root uptake by plants, inhalation of dust, dermal contact, incidental ingestion of soil, external irradiation, and food-web transport. Pathways from subsurface releases may be complete for plants. Surface water was not evaluated because of the lack of surface water features. Sources, exposure pathways, and receptors are presented in the conceptual site model (Figure H-3.1-1).

H-3.2 Environmental Fate and Transport

The evaluation of environmental fate addresses the chemical processes affecting the persistence of a chemical in the environment; the evaluation of transport addresses the physical processes affecting mobility of a contaminant along a migration pathway. Migration through soil and tuff depends on properties such as soil pH, rate of precipitation or snowmelt, soil moisture content, soil/tuff hydraulic properties, and properties of the COPCs. Migration into and through tuff also depends on the unsaturated flow properties of the tuff and the presence of joints and fractures.

The most important factor with respect to the potential for COPCs to migrate to groundwater is the presence of saturated conditions. Downward migration in the vadose zone is also limited by a lack of hydrostatic pressure as well as the lack of a source for the continued release of contamination. Without sufficient moisture and a source, little or no potential migration of materials through the vadose zone to groundwater occurs.

Contamination at depth is addressed in the discussion of nature and extent presented in the report. Results from the deepest samples collected showed either no detected concentrations of COPCs or low or trace-level concentrations of only a few inorganic, radionuclide, and/or organic COPCs in tuff. The limited extent of contamination is related to the absence of the key factors that facilitate migration, as mentioned above. Given how long the contamination has been present in the subsurface, physical and chemicals properties of the COPCs, and the lack of saturated conditions, the potential for contaminant migration to groundwater is very low.

NMED guidance (NMED 2009, 108070) contains screening levels that consider the potential for contaminants in soil to result in groundwater contamination. These screening levels consider equilibrium partitioning of contaminants among solid, aqueous, and vapor phases and account for dilution and attenuation in groundwater through the use of dilution attenuation factors (DAFs). These DAF soil screening levels (SSLs) can be used to identify chemical concentrations in soil that have the potential to contaminate groundwater (EPA 1996, 059902). Screening contaminant concentrations in soil against these DAF SSLs does not, however, provide an indication of the potential for contaminants to migrate to groundwater. The assumptions used in the development of these DAF SSLs include an assumption of uniform contaminant concentrations from the contaminant source to the water table (i.e., it is assumed that migration to groundwater has already occurred). For these reasons, screening of contaminant concentrations in soil against the DAF SSLs was not performed.

The relevant release and transport processes of the COPCs are a function of chemical-specific properties that include the relationship between the physical form of the constituents and the nature of the constituent transport processes in the environment. Specific properties include the degree of saturation, the potential for ion exchange or sorption, and the potential for natural bioremediation. The transport of volatile organic compounds (VOCs) occurs primarily in the vapor phase by diffusion or advection in subsurface air. The chemical and physical properties of the Middle Los Alamos Canyon Aggregate Area COPCs are presented in Tables H-3.2-1 to H-3.2-3.

The primary release and transport mechanisms that may lead to the potential exposure of receptors include

- dissolution and/or particulate transport of surface contaminants from precipitation and runoff,
- airborne transport of contaminated surface soil or particulates,
- continued dissolution and advective/dispersive transport of chemical and radiological contaminants contained in subsurface soil and bedrock,
- biotic perturbation and/or translocation of contaminants in subsurface contaminated media, and
- uptake of contaminants from soil and water by biota.

Contaminant distributions at the sites indicate that after the initial deposition of contaminants from operational activities and historical remediation efforts, elevated levels of contaminants tend to remain concentrated in the vicinity of the original release points.

H-3.2.1 Inorganic Chemicals

In general, and particularly in a semiarid climate such as that found at the sites within the Middle Los Alamos Canyon Aggregate Area, inorganic chemicals are not highly soluble or mobile in the environment. The primary physical and chemical factors that determine and describe the distribution of inorganic COPCs within the soil and tuff are the water solubility of the inorganic chemical and the soil-water partition coefficient (K_d). Other factors besides the K_d values, such as speciation in soil and oxidation-reduction potential (Eh) and pH, also play a role in the likelihood that inorganic chemicals will migrate. The K_d values provide a general assessment of the potential for migration through the subsurface; chemicals with higher K_d values are less likely to be mobile than those with lower K_d values. Inorganic chemicals with K_d values greater than 40 are very unlikely to migrate through soil towards the water table (Kincaid et al. 1998, 093270). Table H-3.2-1 presents the K_d values for the inorganic COPCs identified at the Middle Los Alamos Canyon Aggregate Area sites. Based on this criterion, aluminum, antimony, barium, beryllium, cadmium, chromium, cobalt, lead, manganese, mercury, nickel, thallium, vanadium, and zinc have a low potential to mobilize and migrate through soil and the vadose zone. The K_d values for arsenic, copper, cyanide, iron, nitrate, perchlorate, selenium, silver, and uranium are less than 40 and may indicate that these inorganic chemicals have a greater potential to mobilize and migrate through soil and the vadose zone. These COPCs are discussed further in the following sections. Information about the fate and transport properties of inorganic chemicals was obtained from individual chemical profiles published by the Agency for Toxic Substances and Disease Registry (ATSDR) (1997, 056531). Information for these inorganic chemicals is also available from the ATSDR website at http://www.atsdr.cdc.gov/toxprofiles/index.asp.

- Arsenic may undergo a variety of reactions including oxidation-reduction reactions, ligand exchange, precipitation, and biotransformation. Arsenic forms insoluble complexes with iron, aluminum, and magnesium oxides commonly found in soil, and in this form, arsenic is relatively immobile. However, under low pH and reducing conditions, arsenic can become soluble and may potentially leach into groundwater or result in runoff of arsenic into surface waters. Arsenic is expected to have low mobility under the environmental conditions (average pH = 8.06).
- Copper movement in soil is determined by physical and chemical interactions with the soil components. Most copper deposited in soil is strongly adsorbed and remains in the upper few centimeters. Copper will adsorb to organic matter, carbonate minerals, clay minerals, hydrous iron, and manganese oxides. In most temperate soil, pH, organic matter, and ionic strength of the soil solutions are the key factors affecting adsorption. Copper binds to soil much more strongly than other divalent cations, and the distribution of copper in the soil solution is less affected by pH than other metals. Copper is expected to be bound to the soil and move in the system by way of transport of soil particles by water as opposed to movement as dissolved species. The average soil pH is 8.06, so leaching of copper is unlikely.
- Cyanide tends to adsorb onto various natural media, including clay and sediment; however, sorption is insignificant relative to the potential for cyanide to volatilize and/or biodegrade. At soil surfaces, volatilization of hydrogen cyanide is a significant mechanism for cyanide loss. Cyanide occurring at low concentrations in subsurface soil is likely to biodegrade under both aerobic and anaerobic conditions. The extent of cyanide is defined.
- Iron is naturally occurring in soil and tuff and may be relatively mobile under reducing conditions. Iron is sensitive to soil pH conditions and occurs in two oxidation states: iron(III), the insoluble oxidized form, and iron(II), the reduced soluble form. Most iron in well drained neutral to alkaline soil is present as precipitates of iron(III) hydroxides and oxides. With time, these precipitates are mineralized and form various iron-bearing minerals, such as lepidcrocite, hematite, and goethite. Iron is not expected to be mobile in soil with an average pH of 8.06. The extent of iron is defined.
- Nitrate (and to a lesser degree perchlorate) is highly soluble in water and may migrate with water molecules in saturated soil. As noted above, the subsurface material beneath the Middle Los Alamos Canyon Aggregate Area sites has low moisture content, which inhibits the mobility of nitrate and perchlorate as well as most other inorganic chemicals.

- Selenium is not often found in the environment in its elemental form but is usually combined with sulfide minerals or with silver, copper, lead, and nickel minerals. In soil, pH and Eh are determining factors in the transport and partitioning of selenium. In soil with a pH of greater than 7.5, selenates, which have high solubility and a low tendency to adsorb onto soil particles, are the major selenium species and are very mobile. The average soil pH is 8.06, which indicates that selenium is not likely to migrate.

- Silver sorbs onto soil and sediment and tends to form complexes with inorganic chemicals and humic substances in soil. Organic matter complexes with silver and reduces its mobility. Silver compounds tend to leach from well-drained soil so silver may potentially migrate into the subsurface. The extent of silver is defined at depth.

- Uranium is a natural and commonly occurring radioactive element present in nearly all rock and soil. The mobility of uranium in soil and its vertical transport to groundwater depend on properties of the soil such as pH, Eh, concentration of complexing anions, porosity of the soil, soil-particle size, and sorption properties as well as the amount of water available. In general, the actinide nuclides form comparatively insoluble compounds in the environment and are therefore not considered biologically mobile. The actinides are transported in ecosystems mainly by physical and sometimes chemical processes. They tend to attach, sometimes strongly, to surfaces and tend to accumulate in soil and sediment, which ultimately serve as strong reservoirs. Subsequent movement is largely associated with geological processes such as erosion and sometimes leaching.

H-3.2.2 Organic Chemicals

Table H-3.2-2 presents the physical and chemical properties (organic carbon-water partition coefficient [K_{oc}], logarithm to the base 10 octanol-water partition coefficient [log K_{ow}], and solubility) of the organic COPCs identified for the Middle Los Alamos Canyon Aggregate Area. Physical and chemical properties of organic chemicals are important when evaluating their fate and transport. The following physiochemical property information illustrates some aspects of the fate and transport tendencies of the Middle Los Alamos Canyon Aggregate Area COPCs. The information is summarized from Ney (1995, 058210).

Water solubility may be the most important chemical characteristic used to assess mobility of organic chemicals. The higher the water solubility of a chemical, the more likely it is to be mobile and the less likely it is to accumulate, bioaccumulate, volatilize, or persist in the environment. A highly soluble chemical (water solubility greater than 1000 mg/L) is prone to biodegradation and metabolism that may detoxify the parent chemical. Acetone, benzoic acid, chloroform, chloromethane, diethylphthalate, di-n-butyl phthalate, 4-methyl-2-pentanone, methylene chloride, phenol, and trichloroethene have water solubilities greater than 1000 mg/L.

The lower the water solubility of a chemical, especially below 10 mg/L, the more likely it will be immobilized by adsorption. Chemicals with lower water solubilities are more likely to accumulate or bioaccumulate and persist in the environment, to be slightly prone to biodegradation, and to be metabolized in plants and animals. The COPCs identified as having water solubilities less than 10 mg/L are acenaphthene; anthracene; Aroclor-1242; Aroclor-1248; Aroclor-1254; Aroclor-1260; benzo[a]anthracene; benzo[a]pyrene; benzo[b]fluoranthene; benzo[g,h,i]perylene; benzo[k]fluoranthene; bis[2-ethylhexyl]phthalate; butylbenzylphthalate; chrysene; dibenzofuran; fluoranthene; fluorene; indeno[1,2,3-cd]pyrene; phenanthrene; pyrene; and 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD).

Vapor pressure is a chemical characteristic used to evaluate the tendency of organic chemicals to volatilize. Chemicals with vapor pressure greater than 0.01 millimeters of mercury (mm Hg) are likely to volatilize, and therefore, concentrations at the site are reduced over time; vapors of these chemicals are more likely to travel toward the atmosphere and not migrate toward groundwater. Acetone; butylbenzene[n-]; butylbenzene[sec-]; chloroform; chloromethane; 1,4-dichlorobenzene; ethylbenzene; isopropylbenzene; 4-isopropyltoluene; 4-methyl-2-pentanone; methylene chloride; 2-methylnaphthalene; pentachlorophenol; styrene; trichloroethene; tetrachloroethene; toluene; 1,2,4-trimethylbenzene; 1,3,5-trimethylbenzene; 1,2-xylene; and 1,3-xylene + 1,4-xylene have vapor pressures greater than 0.01 mm Hg.

Chemicals with vapor pressures less than 0.00001 mm Hg are less likely to volatilize and, therefore, tend to remain immobile. Anthracene; Aroclor-1254; benzo[a]anthracene; benzo[a]pyrene; benzo[b]fluoranthene; benzo[g,h,i]perylene; benzo[k]fluoranthene; bis[2-ethylhexyl]phthalate; butylbenzylphthalate; chrysene; fluoranthene; indeno[1,2,3-cd]pyrene; and pyrene have vapor pressures less than 0.00001 mm Hg.

The K_{ow} is an indicator of a chemical's potential to bioaccumulate or bioconcentrate in the fatty tissues of living organisms. The unitless K_{ow} value is an indicator of water solubility, mobility, sorption, and bioaccumulation. The higher the K_{ow} is above 1000, the greater the affinity the chemical has for bioaccumulation in the food chain, the greater its potential for sorption in the soil, and the lower its mobility (Ney 1995, 058210). The COPCs with a K_{ow} greater than 1000 include anthracene; Aroclor-1242; Aroclor-1254; Aroclor-1260; benzo[a]anthracene; benzo[a]pyrene; benzo[b]fluoranthene; benzo[g,h,i]perylene; benzo[k]fluoranthene; bis[2-ethylhexyl]phthalate; butylbenzylphthalate; chrysene; dibenzofuran; ethylbenzene; fluoranthene; fluorene; indeno[1,2,3-cd]pyrene; 4-isopropyltoluene; 2-methylnaphthalene; naphthalene; phenanthrene; pyrene; tetrachloroethene; 1,2,4-trimethylbenzene; 1,3,5-trimethylbenzene; 1,2-xylene; and 1,3-xylene + 1,4-xylene. A K_{ow} of less than 500 indicates high water solubility, high mobility, little to no affinity for bioaccumulation, and degradability by microbes, plants, and animals. Acetone, benzoic acid, methylene chloride, and trichlorofluoromethane have K_{ow} values less than 500.

The K_{oc} measures the tendency of a chemical to adsorb to organic carbon in soil. K_{oc} values above 500 L/kg indicate a strong tendency to adsorb to soil, leading to low mobility (NMED 2009, 108070). Acenaphthene; anthracene; Aroclor-1242; Aroclor-1248; Aroclor-1254; Aroclor-1260; benzo[a]anthracene; benzo[a]pyrene; benzo[b]fluoranthene; benzo[g,h,i]perylene; benzo[k]fluoranthene; bis[2-ethylhexyl]phthalate; butylbenzylphthalate; n-butylbenzene; sec-butylbenzene; chrysene; dibenzofuran; fluoranthene; fluorene; indeno[1,2,3-cd]pyrene; isopropylbenzene; 2-methylnaphthalene; naphthalene; pentachlorophenol; phenanthrene; pyrene; styrene; 2,3,7,8-TCDD; 1,2,4-trimethylbenzene; and 1,3, 5-trimethylbenzene have K_{oc} values above 500 L/kg, indicating a very low potential to migrate toward groundwater. The COPCs with K_{oc} values less than 500 L/kg are acetone; benzoic acid; chloroform; chloromethane; diethylphthalate; di-n-butylphthalate; ethylbenzene; 4-methyl-2-pentanone; methylene chloride; phenol; trichloroethene; 1,1,1-trichloroethane; tetrachloroethene; toluene; 1,2-xylene; and 1,3-xylene + 1,4-xylene.

Anthracene; Aroclor-1242; Aroclor-1248; Aroclor-1254; Aroclor-1260; benzo[a]anthracene; benzo[a]pyrene; benzo[b]fluoranthene; benzo[g,h,i]perylene; benzo[k]fluoranthene; bis[2-ethylhexyl]phthalate; chrysene; fluoranthene; fluorene; phenanthrene; pyrene; and 2,3,7,8-TCDD are the least mobile and the most likely to bioaccumulate. The more soluble and volatile COPCs acetone; benzoic acid; methylene chloride; tetrachloroethene; toluene; 1,2-xylene; and 1,3-xylene + 1,4-xylene are more mobile but are also more likely to travel toward the atmosphere and not migrate toward groundwater. Because the organic COPCs were detected at low concentrations and the extent is defined, they are not likely to migrate to groundwater.

H-3.2.3 Radionuclides

Radionuclides are generally not highly soluble or mobile in the environment, particularly in the semiarid climate of the Laboratory. The physical and chemical factors that determine the distribution of radionuclides within soil and tuff are the K_d, the pH of the soil and other soil characteristics (e.g., sand or clay content), and the Eh. The interaction of these factors is complex, but K_d values provide a general assessment of the potential for migration through the subsurface: chemicals with higher K_d values are less likely to be mobile than those with lower values. Radionuclides with K_d values greater than 40 are very unlikely to migrate through soil towards the water table (Kincaid et al. 1998, 093270).

Table H-3.2-3 presents physical and chemical properties of the radionuclide COPCs identified at the Middle Los Alamos Canyon Aggregate Area sites. Based on K_d values, americium-241, cesium 137, cobalt-60, plutonium-238, and plutonium 239/240 have a very low potential to migrate towards groundwater. The K_d values for strontium-90, tritium, uranium-234, uranium-235/236, and uranium-238 are less than 40 and indicate a potential to migrate towards groundwater.

A major portion of stable and radioactive strontium in soil dissolves in water, so it might move deeper into the subsurface. However, the K_d value of 35 indicates that strontium-90 is relatively immobile in the subsurface.

One or more uranium isotopes were retained as COPCs at the Middle Los Alamos Canyon Aggregate Area sites. In general, the actinide nuclides form comparatively insoluble compounds in the environment and are therefore not considered biologically mobile. The actinides are transported in ecosystems mainly by physical and sometimes chemical processes. They tend to attach, sometimes strongly, to surfaces, and they tend to accumulate in soil and sediment. Subsequent movement is largely associated with geological processes such as erosion and sometimes leaching. The extent of isotopic uranium is defined.

Tritium's initial behavior in the environment is determined by the source. If it is released as a gas or vapor to the atmosphere, substantial dispersion can be expected, and the rapidity of deposition is dependent on climatic factors. If tritium is released in liquid form, it is diluted in surface water and is subject to physical dispersion, percolation, and evaporation (Whicker and Schultz 1982, 058209, p. 147). Tritium concentrations in the subsurface at the area of elevated radioactivity are low (<1 pCi/g), indicating that the area of elevated radioactivity is not a significant source of tritium, although this radionuclide is relatively mobile. Because tritium migrates in association with moisture, the low moisture content of the subsurface limits the potential for tritium to migrate to groundwater.

H-3.3 Exposure Point Concentration Calculations

The exposure point concentrations (EPCs) represent upper bound concentrations of COPCs. For comparison to risk-screening levels, the upper confidence limit (UCL) of the arithmetic mean was calculated when possible and used as the EPC. If an appropriate UCL of the mean could not be calculated or if the UCL exceeded the maximum concentration, the maximum detected concentration (or the maximum detection limit) of the COPC was used as the EPC. Calculation of UCLs of the mean concentrations was done using EPA's ProUCL, Version 4.00.05 (EPA 2010, 109944), which is based on EPA guidance (EPA 2002, 085640). The ProUCL program calculates 95%, 97.5%, and 99% UCLs and recommends a distribution and UCL. The ProUCL software performs distributional tests on the data set for each COPC and calculates the most appropriate UCL based on the distribution of the data set. The UCL for the recommended calculation method was used as the EPC, and the 95% UCL was selected as the representative UCL. Environmental data may have a normal, lognormal, or gamma distribution but are often nonparametric (no definable shape to the distribution). The ProUCL documentation strongly recommends against using the maximum detected concentration for the EPC. However, the maximum detected concentration was used to represent the EPC when the data did not allow a UCL to be calculated. The summary statistics, including the EPC for each COPC for the human health and the ecological risk-screening assessments and the distribution used for the calculation, are presented in Tables H-2.2-1 to H-2.2-57. Input and output data files for ProUCL calculations are provided on CD as Attachment H-1.

H-4.0 HUMAN HEALTH RISK-SCREENING ASSESSMENTS

The human health risk-screening assessments were conducted for 29 sites within the Middle Los Alamos Canyon Aggregate Area where extent is defined. An additional human health risk-screening assessment was conducted on samples collected for lateral extent that are not associated with any of the sites. All sites were screened for the industrial and recreational scenarios using data from 0–1 ft bgs, and sites were screened for the residential scenario using data from 0–10 ft bgs. The human health risk-screening assessments compare the EPC of each COPC with SSLs for chemicals or the EPC of each COPC with screening action levels (SALs) for radionuclides.

H-4.1 SSLs

Human health risk-screening assessments were conducted using the SSLs obtained from NMED guidance (NMED 2009, 108070) or the EPA regional tables (http://www.epa.gov/region06/6pd/rcra_c/pd-n/screen.htm). The SSLs are based on either a cancer risk of 1×10^{-5} or a hazard quotient (HQ) of 1. The EPA SSLs for carcinogens were multiplied by 10 to adjust from a 10^{-6} cancer risk level to the NMED target cancer risk level of 10^{-5}. Laboratory screening levels were used for the recreational scenario (LANL 2010, 108613). Surrogate chemicals were used for some COPCs without a screening value based on structural similarity or because the COPC is a breakdown product (NMED 2003, 081172). Exposure parameters used to calculate the SSLs are presented in Table H-4.1-1.

Radionuclide SALs are used for comparison with radionuclide COPC EPCs and were derived using the residual radioactive (RESRAD) model, Version 6.5 (LANL 2009, 107655). The SALs are based on a 15-mrem/yr dose (DOE 2000, 067489). Exposure parameters used to calculate the SALs are presented in Tables H-4.1-2 and H-4.1-3.

H-4.2 Results of the Human Health Risk-Screening Evaluations

The EPC of each COPC was compared with the SSL/SAL for the appropriate scenario. The EPCs for carcinogenic COPCs were divided by the SSL and multiplied by 1×10^{-5}. The sums of the cancer risks were compared with the NMED target cancer risk level of 1×10^{-5} (NMED 2009, 108070). An HQ was generated for each noncarcinogenic COPC by dividing the EPC by the SSL. The HQs were summed to generate a hazard index (HI). The HI was compared with the NMED target HI of 1 (NMED 2009, 108070). The radionuclide EPCs were divided by the SAL and multiplied by 15 mrem/yr. The sum of the doses were compared with the U.S. Department of Energy (DOE) target level of 15 mrem/yr (DOE 2000, 067489). The results of the human health screening evaluations are presented in Tables H-4.2-1 to H-4.2-270.

H-4.2.1 AOC 02-003(a)

The results of the risk-screening assessments for the industrial scenario are presented in Tables H-4.2-1 to H-4.2-3. The total excess cancer risk is 3×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.004, which is below the NMED target HI of 1 (NMED 2009, 108070).

The total dose for the industrial scenario is 2 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

The results of the risk-screening assessments for the recreational scenario are presented in Tables H-4.2-4 to H-4.2-6. The total excess cancer risk is 2×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.04, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose for the recreational scenario is 0.3 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

The results of the risk-screening assessments for the residential scenario are presented in Tables H-4.2-7 to H-4.2-9. The total excess cancer risk is approximately 8×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.5, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose for the residential scenario is 184 mrem/yr, which is above the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

H-4.2.2 AOC 02-003(b)

The results of the risk-screening assessments for the industrial scenario are presented in Tables H-4.2-10 to H-4.2-12. The total excess cancer risk is 2×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.0004, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose for the industrial scenario is 0.5 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

The results of the risk-screening assessments for the recreational scenario are presented in Tables H-4.2-13 to H-4.2-15. The total excess cancer risk is 9×10^{-7}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.1, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose for the recreational scenario is 0.1 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

The results of the risk-screening assessments for the residential scenario are presented in Tables H-4.2-16 to H-4.2-18. The total excess cancer risk is approximately 9×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.7, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose for the residential scenario is 11 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

H-4.2.3 AOC 02-003(c)

The results of the risk-screening assessments for the industrial scenario are presented in Tables H-4.2-19 to H-4.2-21. The total excess cancer risk is 5×10^{-7}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.005, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose for the industrial scenario is 0.7 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

The results of the risk-screening assessments for the recreational scenario are presented in Tables H-4.2-22 to H-4.2-24. The total excess cancer risk is 3×10^{-7}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.007, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose for the recreational scenario is 0.09 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

The results of the risk-screening assessments for the residential scenario are presented in Tables H-4.2-25 to H-4.2-27. The total excess cancer risk is approximately 6×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.7, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose for the residential scenario is 7 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

H-4.2.4 AOC 02-003(d)

The results of the risk-screening assessments for the industrial scenario are presented in Tables H-4.2-28 to H-4.2-30. The total excess cancer risk is 2×10^{-7}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.005, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose for the industrial scenario is 3 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

The results of the risk-screening assessments for the recreational scenario are presented in Tables H-4.2-31 to H-4.2-33. The total excess cancer risk is 1×10^{-7}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.008, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose for the recreational scenario is 0.4 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

The results of the risk-screening assessments for the residential scenario are presented in Tables H-4.2-34 to H-4.2-36. The total excess cancer risk is approximately 6×10^{-7}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.2, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose for the residential scenario is 13 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

H-4.2.5 AOC 02-003(e)

The results of the risk-screening assessments for the industrial scenario are presented in Tables H-4.2-37 to H-4.2-39. The total excess cancer risk is 1×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.01, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose for the industrial scenario is 0.0000003 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

The results of the risk-screening assessments for the recreational scenario are presented in Tables H-4.2-40 to H-4.2-42. The total excess cancer risk is 1×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.01, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose for the recreational scenario is 0.00000003 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

The results of the risk-screening assessments for the residential scenario are presented in Tables H-4.2-43 to H-4.2-45. The total excess cancer risk is approximately 8×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 3, which is above the NMED target HI of 1 (NMED 2009, 108070), primarily because of lead. The total dose for the residential scenario is 608 mrem/yr, which is above the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

H-4.2.6 AOC 02-004(a)

Calcium does not have a published toxicity value, but is among those elements identified in section 5.9.4 of the Risk Assessment Guidance for Superfund (RAGS) (EPA 1989, 008021) as an essential macronutrient. As an essential nutrient, calcium may be compared with the recommended daily allowance

(RDA) for adults and children. The RDA is 1200 mg/d of calcium for an adult and 800 mg/d for a child (National Research Council 1989, 064000, pp. 179–181). If all the daily incidental ingestion of soil were to occur at the location of the maximum concentration detected between 0–10 ft at AOC 02-004(a) of 17,600 mg/kg, at the EPA default adult soil ingestion rate of 100 mg/d of soil, an adult would ingest approximately 2.51 mg/d of calcium. At the intake level of 2.51 mg/d of calcium, the adult's ingestion of calcium is less than the RDA for calcium of 1200 mg/d. If all the daily incidental ingestion of soil were to occur at the location of the maximum concentration detected between 0–10 ft at AOC 02-004(a) of 17,600 mg/kg, at the EPA default child soil ingestion rate of 200 mg/d of soil, a child would ingest approximately 5.87 mg/d of calcium. At the intake level of 5.87 mg/d of calcium, the child's ingestion of calcium is less than the RDA for calcium of 800 mg/d. Therefore, no adverse health effects are expected from calcium at 17,600 mg/kg, and calcium is eliminated as a COPC.

The dioxin and furan congener toxicity equivalency factor (TEF) calculations are presented in Table H-4.2-46. The results of the risk-screening assessments for the industrial scenario are presented in Tables H-4.2-47 to H-4.2-50. The total excess cancer risk is 3×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.04, which is below the NMED target HI of 1 (NMED 2009, 108070). The total petroleum hydrocarbons–diesel range organic (TPH-DRO) EPC was compared with the NMED industrial screening guideline for diesel No. 2 (NMED 2006, 094614). The TPH-DRO HQ is 0.1, which is below the NMED target HI of 1. The total dose for the industrial scenario is 8 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

The dioxin and furan congener TEF calculations are presented in Table H-4.2-46. The results of the risk-screening assessments for the recreational scenario are presented in Tables H-4.2-51 to H-4.2-53. The total excess cancer risk is 2×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.08, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose for the recreational scenario is 1 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

The dioxin and furan congener TEF calculations are presented in Table H-4.2-54. The results of the risk-screening assessments for the residential scenario are presented in Tables H-4.2-55 to H-4.2-58. The total excess cancer risk is approximately 2×10^{-5}, which is above the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is approximately 0.8, which is below the NMED target HI of 1 (NMED 2009, 108070). The TPH-DRO EPC was compared with the NMED residential screening guideline for diesel No. 2 (NMED 2006, 094614). The TPH-DRO HQ is 0.2, which is below the NMED target HI of 1. The total dose for the residential scenario is 20 mrem/yr, which is above the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

H-4.2.7 AOCs 02-004(b,c,d)

The dioxin and furan congener TEF calculations are presented in Table H-4.2-59. The results of the risk-screening assessments for the industrial scenario are presented in Tables H-4.2-60 to H-4.2-62. The total excess cancer risk is 2×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.01, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose for the industrial scenario is 3 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

The dioxin and furan congener TEF calculations are presented in Table H-4.2-59. The results of the risk-screening assessments for the recreational scenario are presented in Tables H-4.2-63 to H-4.2-65. The total excess cancer risk is 2×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.03, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose for the recreational scenario is 0.3 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

The dioxin and furan congener TEF calculations are presented in Table H-4.2-66. The results of the risk-screening assessments for the residential scenario are presented in Tables H-4.2-67 to H-4.2-69. The total excess cancer risk is approximately 2×10^{-5}, which is above the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.4, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose for the residential scenario is 12 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

H-4.2.8 AOC 02-004(e)

The dioxin and furan congener TEF calculations are presented in Table H-4.2-70. The results of the risk-screening assessments for the industrial scenario are presented in Tables H-4.2-71 to H-4.2-73. The total excess cancer risk is 3×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.04, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose for the industrial scenario is 0.03 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

The dioxin and furan congener TEF calculations are presented in Table H-4.2-70. The results of the risk-screening assessments for the recreational scenario are presented in Tables H-4.2-74 to H-4.2-76. The total excess cancer risk is 2×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.08, which is below the NMED target HI of 1(NMED 2009, 108070). The total dose for the recreational scenario is 0.02 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

The dioxin and furan congener TEF calculations are presented in Table H-4.2-77. The results of the risk-screening assessments for the residential scenario are presented in Tables H-4.2-78 to H-4.2-80. The total excess cancer risk is approximately 1×10^{-5}, which is equivalent to the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.3, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose for the residential scenario is 3 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

H-4.2.9 AOC 02-004(f)

The dioxin and furan congener TEF calculations are presented in Table H-4.2-81. The results of the risk-screening assessments for the industrial scenario are presented in Tables H-4.2-82 to H-4.2-84. The total excess cancer risk is 2×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.03, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose for the industrial scenario is 0.3 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

The dioxin and furan congener TEF calculations are presented in Table H-4.2-81. The results of the risk-screening assessments for the recreational scenario are presented in Tables H-4.2-85 to H-4.2-87. The total excess cancer risk is 1×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.05, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose for the recreational scenario is 0.04 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

The dioxin and furan congener TEF calculations are presented in Table H-4.2-88. The results of the risk-screening assessments for the residential scenario are presented in Tables H-4.2-89 to H-4.2-91. The total excess cancer risk is approximately 4×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.4, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose for the residential scenario is 4 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

H-4.2.10 AOC 02-004(g)

The dioxin and furan congener TEF calculations are presented in Table H-4.2-92. The results of the risk-screening assessments for the industrial scenario are presented in Tables H-4.2-93 to H-4.2-95. The total excess cancer risk is 3×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.05, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose for the industrial scenario is 3 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

The dioxin and furan congener TEF calculations are presented in Table H-4.2-92. The results of the risk-screening assessments for the recreational scenario are presented in Tables H-4.2-96 to H-4.2-98. The total excess cancer risk is 2×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.08, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose for the recreational scenario is 0.5 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

The dioxin and furan congener TEF calculations are presented in Table H-4.2-99. The results of the risk-screening assessments for the residential scenario are presented in Tables H-4.2-100 to H-4.2-102. The total excess cancer risk is approximately 1×10^{-5}, which is equivalent to the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.2, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose for the residential scenario is 17 mrem/yr, which is above the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

H-4.2.11 SWMU 02-005

The results of the risk-screening assessments for the industrial scenario are presented in Tables H-4.2-103 to H-4.2-105. The total excess cancer risk is 7×10^{-7}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.002, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose for the industrial scenario is 0.3 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

The results of the risk-screening assessments for the recreational scenario are presented in Tables H-4.2-106 to H-4.2-108. The total excess cancer risk is 5×10^{-7}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.01, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose for the recreational scenario is 0.06 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

The results of the risk-screening assessments for the residential scenario are presented in Tables H-4.2-109 to H-4.2-111. The total excess cancer risk is approximately 1×10^{-5}, which is equivalent to the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.2, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose for the residential scenario is 1 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

H-4.2.12 SWMU 02-006(a)

The results of the risk-screening assessments for the industrial scenario are presented in Tables H-4.2-112 to H-4.2-114. The total excess cancer risk is 2×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.03, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose for the industrial scenario is 6 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

The results of the risk-screening assessments for the recreational scenario are presented in Tables H-4.2-115 to H-4.2-117. The total excess cancer risk is 1×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.04, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose for the recreational scenario is 0.6 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

The results of the risk-screening assessments for the residential scenario are presented in Tables H-4.2-118 to H-4.2-120. The total excess cancer risk is approximately 6×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.1, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose for the residential scenario is 15 mrem/yr, which is equivalent to the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

H-4.2.13 SWMU 02-006(b)

The results of the risk-screening assessments for the industrial scenario are presented in Tables H-4.2-121 to H-4.2-124. The total excess cancer risk is 5×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.03, which is below the NMED target HI of 1 (NMED 2009, 108070). The TPH-DRO EPC was compared with the NMED industrial screening guideline for diesel No. 2 (NMED 2006, 094614). The TPH-DRO HQ is 0.06, which is below the NMED target HI of 1. The total dose for the industrial scenario is 0.3 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

The results of the risk-screening assessments for the recreational scenario are presented in Tables H-4.2-125 to H-4.2-127. The total excess cancer risk is 4×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.05, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose for the recreational scenario is 0.1 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

The results of the risk-screening assessments for the residential scenario are presented in Tables H-4.2-128 to H-4.2-131. The total excess cancer risk is approximately 2×10^{-5}, which is above the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is approximately 2, which is above the NMED target HI of 1 (NMED 2009, 108070), primarily because of lead. The TPH-DRO EPC was compared with the NMED residential screening guideline for diesel No. 2 (NMED 2006, 094614). The TPH-DRO HQ is 0.06, which is below the NMED target HI of 1. The total dose for the residential scenario is 2 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

H-4.2.14 AOC 02-006(c)

The results of the risk-screening assessments for the industrial scenario are presented in Tables H-4.2-132 to H-4.2-135. The total excess cancer risk is 2×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.01, which is below the NMED target HI of 1 (NMED 2009, 108070). The TPH-DRO EPC was compared with the NMED industrial screening guideline for diesel No. 2 (NMED 2006, 094614). The TPH-DRO HQ is 0.01, which is below the NMED target HI of 1. The total dose for the industrial scenario is 11 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

The results of the risk-screening assessments for the recreational scenario are presented in Tables H-4.2-136 to H-4.2-138. The total excess cancer risk is 1×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.02, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose for the recreational scenario is 1 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

The results of the risk-screening assessments for the residential scenario are presented in Tables H-4.2-139 to H-4.2-142. The total excess cancer risk is approximately 2×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.3, which is below the NMED target HI of 1 (NMED 2009, 108070). The TPH-DRO EPC was compared with the NMED residential screening guideline for diesel No. 2 (NMED 2006, 094614). The TPH-DRO HQ is 1, which is equivalent to the NMED target HI of 1. The total dose for the residential scenario is 23 mrem/yr, which is above the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

H-4.2.15 AOC 02-006(e)

The results of the risk-screening assessments for the industrial scenario are presented in Tables H-4.2-143 to H-4.2-145. The total excess cancer risk is 3×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.08, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose for the industrial scenario is 1 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

The results of the risk-screening assessments for the recreational scenario are presented in Tables H-4.2-146 to H-4.2-148. The total excess cancer risk is 2×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.2, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose for the recreational scenario is 0.2 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

The results of the risk-screening assessments for the residential scenario are presented in Tables H-4.2-149 to H-4.2-151. The total excess cancer risk is approximately 1×10^{-5}, which is equivalent to the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.7 which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose for the residential scenario is 4 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

H-4.2.16 SWMU 02-007

The results of the risk-screening assessments for the industrial scenario are presented in Tables H-4.2-152 to H-4.2-154. The total excess cancer risk is 3×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.0004, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose for the industrial scenario is 0.02 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

The results of the risk-screening assessments for the recreational scenario are presented in Tables H-4.2-155 to H-4.2-157. The total excess cancer risk is 9×10^{-7}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.2, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose for the recreational scenario is 0.007 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

The results of the risk-screening assessments for the residential scenario are presented in Tables H-4.2-158 to H-4.2-160. The total excess cancer risk is approximately 5×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.7, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose for the residential scenario is 7 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

H-4.2.17 SWMU 02-008(a)

The results of the risk-screening assessments for the industrial scenario are presented in Tables H-4.2-161 to H-4.2-163. The total excess cancer risk is 1×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.04, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose for the industrial scenario is 0.1 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

The results of the risk-screening assessments for the recreational scenario are presented in Tables H-4.2-164 to H-4.2-166. The total excess cancer risk is 7×10^{-7}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.09, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose for the recreational scenario is 0.09 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

The results of the risk-screening assessments for the residential scenario are presented in Tables H-4.2-167 to H-4.2-169. The total excess cancer risk is approximately 1×10^{-5}, which is equivalent to the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.6, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose for the residential scenario is 1 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

H-4.2.18 AOC 02-008(c)

The results of the risk-screening assessments for the industrial scenario are presented in Tables H-4.2-170 to H-4.2-172. The total excess cancer risk is 3×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.02, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose for the industrial scenario is 0.06 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

The results of the risk-screening assessments for the recreational scenario are presented in Tables H-4.2-173 to H-4.2-175. The total excess cancer risk is 3×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.03, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose for the recreational scenario is 0.04 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

The results of the risk-screening assessments for the residential scenario are presented in Tables H-4.2-176 to H-4.2-178. The total excess cancer risk is approximately 1×10^{-5}, which is equivalent to the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.3, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose for the residential scenario is 6 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

H-4.2.19 SWMU 02-009(a)

Calcium does not have a published toxicity value, but is among those elements identified in section 5.9.4 of RAGS (EPA 1989, 008021) as an essential macronutrient. As an essential nutrient, calcium may be compared with the RDA for adults and children. The RDA is 1200 mg/d of calcium for an adult and

800 mg/d for a child (National Research Council 1989, 064000, pp. 179–181). If all the daily incidental ingestion of soil were to occur at the location of the maximum concentration detected between 0–10 ft at SWMU 02-009(a) of 26,700 mg/kg, at the EPA default adult soil ingestion rate of 100 mg/d of soil, an adult would ingest approximately 3.81 mg/d of calcium. At the intake level of 3.81 mg/d of calcium, the adult's ingestion of calcium is less than the RDA for calcium of 1200 mg/d. If all the daily incidental ingestion of soil were to occur at the location of the maximum concentration detected between 0–10 ft at SWMU 02-009(a) of 26,700 mg/kg, at the EPA default child soil ingestion rate of 200 mg/d of soil, a child would ingest approximately 8.9 mg/d of calcium. At the intake level of 8.9 mg/d of calcium, the child's ingestion of calcium is less than the RDA for calcium of 800 mg/d. Therefore, no adverse health effects are expected from calcium at 26,700 mg/kg, and calcium is eliminated as a COPC.

The results of the risk-screening assessments for the industrial scenario are presented in Tables H-4.2-179 to H-4.2-181. The total excess cancer risk is 1×10^{-7}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.02, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose for the industrial scenario is 3 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

The results of the risk-screening assessments for the recreational scenario are presented in Tables H-4.2-182 to H-4.2-184. The total excess cancer risk is 9×10^{-8}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.03, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose for the recreational scenario is 0.3 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

The results of the risk-screening assessments for the residential scenario are presented in Tables H-4.2-185 to H-4.2-187. The total excess cancer risk is approximately 8×10^{-7}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.3, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose for the residential scenario is 6 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

H-4.2.20 SWMU 02-009(b)

The results of the risk-screening assessments for the industrial scenario are presented in Tables H-4.2-188 to H-4.2-190. The total excess cancer risk is 8×10^{-7}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.004, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose for the industrial scenario is 6 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

The results of the risk-screening assessments for the recreational scenario are presented in Tables H-4.2-191 to H-4.2-193. The total excess cancer risk is 6×10^{-7}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.01, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose for the recreational scenario is 0.6 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

The results of the risk-screening assessments for the residential scenario are presented in Tables H-4.2-194 to H-4.2-196. The total excess cancer risk is approximately 2×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.06, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose for the residential scenario is 19 mrem/yr, which is above the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

H-4.2.21 SWMU 02-009(c)

The results of the risk-screening assessments for the industrial scenario are presented in Tables H-4.2-197 to H-4.2-199. The total excess cancer risk is 6×10^{-7}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.03, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose for the industrial scenario is 3 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

The results of the risk-screening assessments for the recreational scenario are presented in Tables H-4.2-200 to H-4.2-202. The total excess cancer risk is 4×10^{-7}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.06, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose for the recreational scenario is 0.4 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

The results of the risk-screening assessments for the residential scenario are presented in Tables H-4.2-203 to H-4.2-205. The total excess cancer risk is approximately 6×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.4, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose for the residential scenario is 68 mrem/yr, which is above the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

H-4.2.22 AOC 02-009(d)

Calcium does not have a published toxicity value but is among those elements identified in section 5.9.4 of RAGS (EPA 1989, 008021) as an essential macronutrient. As an essential nutrient, calcium may be compared with the RDA for adults and children. The RDA is 1200 mg/d of calcium for an adult and 800 mg/d for a child (National Research Council 1989, 064000, pp. 179–181). If all the daily incidental ingestion of soil were to occur at the location of the maximum concentration detected between 0–10 ft at AOC 02-009(d) of 17,400 mg/kg, at the EPA default adult soil ingestion rate of 100 mg/d of soil, an adult would ingest approximately 2.5 mg/d of calcium. At the intake level of 2.5 mg of calcium, the adult’s ingestion of calcium is less than the RDA for calcium of 1200 mg/d. If all the daily incidental ingestion of soil were to occur at the location of the maximum concentration detected between 0–10 ft at AOC 02-009(d) of 17,400 mg/kg, at the EPA default child soil ingestion rate of 200 mg/d of soil, a child would ingest approximately 5.8 mg/d of calcium. At the intake level of 5.8 mg/d of calcium, the child’s ingestion of calcium is less than the RDA for calcium of 800 mg/d. Therefore, no adverse health effects are expected from calcium at 17,400 mg/kg, and calcium is eliminated as a COPC.

The results of the risk-screening assessments for the industrial scenario are presented in Tables H-4.2-206 to H-4.2-208. The total excess cancer risk is 1×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.005, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose for the industrial scenario is 3 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

The results of the risk-screening assessments for the recreational scenario are presented in Tables H-4.2-209 to H-4.2-211. The total excess cancer risk is 2×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.01, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose for the recreational scenario is 0.4 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

The results of the risk-screening assessments for the residential scenario are presented in Tables H-4.2-212 to H-4.2-214. The total excess cancer risk is approximately 3×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.08, which is below the NMED target

HI of 1 (NMED 2009, 108070). The total dose for the residential scenario is 27 mrem/yr, which is above the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

H-4.2.23 AOC 02-010

Calcium does not have a published toxicity value, but is among those elements identified in section 5.9.4 of RAGS (EPA 1989, 008021) as an essential macronutrient. As an essential nutrient, calcium may be compared with the RDA for adults and children. The RDA is 1200 mg/d of calcium for an adult and 800 mg/d for a child (National Research Council 1989, 064000, pp. 179–181). If all the daily incidental ingestion of soil were to occur at the location of the maximum concentration detected between 0–10 ft at SWMU 02-010 of 21,680 mg/kg, at the EPA default adult soil ingestion rate of 100 mg/s of soil, an adult would ingest approximately 3.1 mg/d calcium. At the intake level of 3.1 mg/d of calcium, the adult's ingestion of calcium is less than the RDA for calcium of 1200 mg/d. If all the daily incidental ingestion of soil were to occur at the location of the maximum concentration detected between 0–10 ft at SWMU 02-010 of 21,680 mg/kg, at the EPA default child soil ingestion rate of 200 mg/d of soil, a child would ingest approximately 7.2 mg/d of calcium. At the intake level of 7.2 mg/d of calcium, the child's ingestion of calcium is less than the RDA for calcium of 800 mg/d. Therefore, no adverse health effects are expected from calcium at 21,680 mg/kg, and calcium is eliminated as a COPC.

The results of the risk-screening assessments for the industrial scenario are presented in Tables H-4.2-215 to H-4.2-217. The total excess cancer risk is 1×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.07, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose for the industrial scenario is 5 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

The results of the risk-screening assessments for the recreational scenario are presented in Tables H-4.2-218 to H-4.2-220. The total excess cancer risk is 7×10^{-7}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.1, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose for the recreational scenario is 0.6 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

The results of the risk-screening assessments for the residential scenario are presented in Tables H-4.2-221 to H-4.2-223. The total excess cancer risk is approximately 2×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.2, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose for the residential scenario is 17 mrem/yr, which is above the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

H-4.2.24 AOC 02-011(b)

The results of the risk-screening assessments for the industrial scenario are presented in Tables H-4.2-224 to H-4.2-226. The total excess cancer risk is 1×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.002, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose for the industrial scenario is 11 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

The results of the risk-screening assessments for the recreational scenario are presented in Tables H-4.2-227 to H-4.2-229. The total excess cancer risk is 7×10^{-7}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.03, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose for the recreational scenario is 1 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

The results of the risk-screening assessments for the residential scenario are presented in Tables H-4.2-230 to H-4.2-232. The total excess cancer risk is approximately 3×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.3, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose for the residential scenario is 274 mrem/yr, which is above the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

H-4.2.25 AOC 02-011(c)

The dioxin and furan congener TEF calculations are presented in Table H-4.2-233. The results of the risk-screening assessments for the industrial scenario are presented in Tables H-4.2-234 and H-4.2-235. The total excess cancer risk is 7×10^{-7}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.000002, which is below the NMED target HI of 1 (NMED 2009, 108070). No radionuclide COPCs were detected from the 0–1 ft depth at this site.

The dioxin and furan congener TEF calculations are presented in Table H-4.2-233. The results of the risk-screening assessments for the recreational scenario are presented in Tables H-4.2-236 and H-4.2-237. The total excess cancer risk is 5×10^{-7}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.008, which is below the NMED target HI of 1 (NMED 2009, 108070). No radionuclide COPCs were detected from the 0–1 ft depth at this site.

The dioxin and furan congener TEF calculations are presented in Table H-4.2-238. The results of the risk-screening assessments for the residential scenario are presented in Tables H-4.2-239 to H-4.2-241. The total excess cancer risk is approximately 3×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.08, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose for the residential scenario is 0.0006 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

H-4.2.26 AOC 02-011(d)

Calcium does not have a published toxicity value, but is among those elements identified in section 5.9.4 of RAGS (EPA 1989, 008021) as an essential macronutrient. As an essential nutrient, calcium may be compared with the RDA for adults and children. The RDA is 1200 mg/d of calcium for an adult and 800 mg/d for a child (National Research Council 1989, 064000, pp. 179–181). If all the daily incidental ingestion of soil were to occur at the location of the maximum concentration detected between 0–10 ft at AOC 02-011(d) of 11,000 mg/kg, at the EPA default adult soil ingestion rate of 100 mg/d of soil, an adult would ingest approximately 1.57 mg/d of calcium. At the intake level of 1.57 mg/d of calcium, the adult’s ingestion of calcium is less than the RDA for calcium of 1200 mg/d. If all the daily incidental ingestion of soil were to occur at the location of the maximum concentration detected between 0–10 ft at AOC 02-011(d) of 11,000 mg/kg, at the EPA default child soil ingestion rate of 200 mg/d of soil, a child would ingest approximately 3.67 mg/d of calcium. At the intake level of 3.67 mg/d of calcium, the child’s ingestion of calcium is less than the RDA for calcium of 800 mg/d. Therefore, no adverse health effects are expected from calcium at 11,000 mg/kg, and calcium is eliminated as a COPC.

The results of the risk-screening assessments for the industrial scenario are presented in Tables H-4.2-242 to H-4.2-244. The total excess cancer risk is 6×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.1, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose for the industrial scenario is 8 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

The results of the risk-screening assessments for the recreational scenario are presented in Tables H-4.2-245 to H-4.2-247. The total excess cancer risk is 4×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.2, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose for the recreational scenario is 0.9 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

The results of the risk-screening assessments for the residential scenario are presented in Tables H-4.2-248 to H-4.2-250. The total excess cancer risk is approximately 2×10^{-5}, which is above the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is approximately 1, which is equivalent to the NMED target HI of 1 (NMED 2009, 108070). The total dose for the residential scenario is 19 mrem/yr, which is above the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

H-4.2.27 AOC 02-012

The results of the risk-screening assessments for the industrial scenario are presented in Tables H-4.2-251 to H-4.2-254. The total excess cancer risk is 1×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.02, which is below the NMED target HI of 1 (NMED 2009, 108070). The TPH-DRO EPC was compared with the NMED industrial screening guideline for diesel No. 2 (NMED 2006, 094614). The TPH-DRO HQ is 0.07, which is below the NMED target HI of 1. The total dose for the industrial scenario is 0.0000003 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

The results of the risk-screening assessments for the recreational scenario are presented in Tables H-4.2-255 to H-4.2-257. The total excess cancer risk is 1×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.03, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose for the recreational scenario is 0.00000003 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

The results of the risk-screening assessments for the residential scenario are presented in Tables H-4.2-258 to H-4.2-261. The total excess cancer risk is approximately 9×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.4, which is below the NMED target HI of 1 (NMED 2009, 108070). The TPH-DRO EPC was compared with the NMED residential screening guideline for diesel No. 2 (NMED 2006, 094614). The TPH-DRO HQ is 0.05, which is below the NMED target HI of 1. The total dose for the residential scenario is 0.2 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

H-4.2.28 Lateral Extent Samples at TA-02

Calcium does not have a published toxicity value, but is among those elements identified in section 5.9.4 of RAGS (EPA 1989, 008021) as an essential macronutrient. As an essential nutrient, calcium may be compared with the RDA for adults and children. The RDA is 1200 mg/d of calcium for an adult and 800 mg/d for a child (National Research Council 1989, 064000, pp. 179–181). If all the daily incidental ingestion of soil were to occur at the location of the maximum concentration detected between 0–10 ft of 5580 mg/kg, at the EPA default adult soil ingestion rate of 100 mg/d of soil, an adult would ingest approximately 0.8 mg/d of calcium. At the intake level of 0.8 mg/d of calcium, the adult's ingestion of calcium is less than the RDA for calcium of 1200 mg/d. If all the daily incidental ingestion of soil were to occur at the location of the maximum concentration detected between 0–10 ft at of 5580 mg/kg, at the EPA default child soil ingestion rate of 200 mg/d of soil, a child would ingest approximately 1.9 mg/d of calcium. At the intake level of 1.9 mg/d of calcium, the child's ingestion of calcium is less than the RDA for calcium of 800 mg/d. Therefore, no adverse health effects are expected from calcium at 5580 mg/kg, and calcium is eliminated as a COPC.

Magnesium does not have a published toxicity value, but is among those elements identified in section 5.9.4 of RAGS (EPA 1989, 008021) as an essential macronutrient. As an essential nutrient, magnesium may be compared with the RDA for adults and children. The RDA is 310,420 mg/d of magnesium for an adult and 80,240 mg/d for a child (National Research Council 1989, 064000, pp. 179–181). If all the daily incidental ingestion of soil were to occur at the location of the maximum concentration detected between 0–10 ft of 1240 mg/kg at the EPA default adult soil ingestion rate of 100 mg/d of soil, an adult would ingest approximately 0.18 mg/d of magnesium. At the intake level of 0.18 mg/d of magnesium, the adult's ingestion of magnesium is less than the RDA for magnesium of 310,420 mg/d. If all the daily incidental ingestion of soil were to occur at the location of the maximum concentration detected between 0–10 ft of 1240 mg/kg, at the EPA default child soil ingestion rate of 200 mg/d of soil, a child would ingest approximately 0.41 mg/d of magnesium. At the intake level of 0.41 mg/d of magnesium, the child's ingestion of magnesium is less than the RDA for magnesium of 80,240 mg/d. Therefore, no adverse health effects are expected from magnesium at 1240 mg/kg, and magnesium is eliminated as a COPC.

The results of the risk-screening assessments for the industrial scenario are presented in Tables H-4.2-262 to H-4.2-264. The total excess cancer risk is 8×10^{-7}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.01, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose for the industrial scenario is 0.9 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

The results of the risk-screening assessments for the recreational scenario are presented in Tables H-4.2-265 to H-4.2-267. The total excess cancer risk is 5×10^{-7}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.02, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose for the recreational scenario is 0.2 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

The results of the risk-screening assessments for the residential scenario are presented in Tables H-4.2-268 to H-4.2-270. The total excess cancer risk is approximately 4×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.4, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose for the residential scenario is 2 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

H-4.3 Evaluation of Vapor Intrusion

The vapor-intrusion indoor air pathway was not evaluated because structures and buildings have been removed, and no buildings will be constructed in the future at TA-02. In addition, VOCs were typically not used at the TA-02 sites, the sites have only a few VOCs detected (0–13 VOCs, most with 6 VOCs or less) with concentrations near or below the estimated quantitation limits (EQLs), and detections were sporadic in nature (all but one site with 6 or fewer detections per VOC). Given these conditions, a VOC plume is not present at any of these sites that would impact the vapor-intrusion pathway, and there is no complete pathway for exposure.

H-4.4 Uncertainty Analysis

The human health risk-screening assessments are subject to varying degrees and types of uncertainty. Aspects of data evaluation and COPC identification, exposure assessment, toxicity assessment, and the additive approach all contribute to uncertainties in the risk-evaluation process. Each or all of these uncertainties may affect the evaluation results.

H-4.4.1 Data Evaluation and COPC Identification Process

A primary uncertainty associated with the COPC identification process is the possibility that a chemical may be inappropriately identified as a COPC when it is actually not a COPC or that a chemical may not be identified as a COPC when it actually should be identified as a COPC. Inorganic chemicals are appropriately identified as COPCs because only those chemicals that are either detected or have detection limits above background are retained for further analysis. However, established BVs may not accurately represent certain subunits of the Bandelier Tuff (e.g., fractured, clay-rich material) that may be encountered during sampling because such data are not included in the background data set. Some inorganic chemicals and radionuclides may also have been retained as COPCs that are not site-related. There are no established BVs for organic chemicals; therefore, all detected organic chemicals are identified as COPCs and are retained for further analysis.

Other uncertainties associated with inorganic and organic chemicals may include errors in sampling, laboratory analysis, and data analysis. However, because concentrations used in the risk-screening evaluations are less than estimated detection or quantitation limits, data evaluation uncertainties are expected to have little effect on the risk-screening results.

H-4.4.2 Exposure Assessment

The following exposure assessment uncertainties were identified for the risk assessment: (1) the applicability of the standard scenarios, (2) the assumptions underlying the exposure pathways, and (3) the derivation of EPCs.

The current and reasonably foreseeable future land use is industrial although some recreational activity occurs in the vicinity. To the degree actual activity patterns are not represented by those activities assumed by the industrial and recreational scenarios, uncertainties are introduced in the assessment, and the evaluation presented in this assessment overestimates potential risk. An individual may be subject to exposures in a different manner than the exposure assumptions used to derive the SSLs. For the sites evaluated, individuals are not on-site at present or in the future for that frequency and duration. The industrial assumptions for the SSLs are that the potentially exposed individual is outside on-site for 8 h/d, 225 d/yr, for 25 yr (NMED 2009, 108070), while the recreational SSLs are based on exposure of 1 h/d, 200 d/yr, for 30 yr (LANL 2010, 108613). The residential SSLs are based on exposure of 24 h/d, 350 d/yr, for 30 yr (NMED 2009, 108070). As a result, the industrial, recreational, and residential scenarios evaluated at these sites likely overestimate the exposure and risk.

A number of assumptions are made relative to exposure pathways, including input parameters, whether or not a given pathway is complete, the contaminated media to which an individual may be exposed, and intake rates for different routes of exposure. In the absence of site-specific data, the exposure assumptions used were consistent with default values (NMED 2009, 108070). When several upper-bound values (such as those found in NMED guidance [NMED 2009, 108070]) are combined to estimate exposure for any one pathway, the resulting risk can exceed the 99th percentile and, therefore, can exceed the range of risk that may be reasonably expected. Also, the assumption that residual concentrations of chemicals in the tuff are available and cause exposure in the same manner as if they were in soil overestimates the potential risk to receptors.

Uncertainty is introduced in the concentration aggregation of data for estimating the EPCs at a site. The use of a UCL is intended to provide a protective, upper-bound estimate of the COPC concentration and is assumed to be representative of average exposure to a COPC across the entire site. Potential risk and exposure from a single location or area with relatively high COPC concentrations may be overestimated if a representative, sitewide value is used. The use of the maximum detected concentration for the EPC overestimates the exposure to contamination because receptors are not consistently exposed to the maximum detected concentration across the site.

Several sites have potential risks that exceeded NMED target levels. The potential risks were overestimated because of uncertainties associated with the EPCs and/or the COPCs at these sites.

AOC 02-003(e)

The SSL for lead is based on the soil lead level that limits exposure of a child for a resident to no more than a 5% chance of exceeding a 10 µg/dL blood lead level. The HQ for lead is an indication of whether the blood lead level criterion is exceeded. At AOC 02-003(e), the residential HI is approximately 3 with the lead HQ contributing approximately 2.9. Without lead the HI is 0.4. Therefore, the lead EPC does exceed the residential SSL, but the noncarcinogenic HI is below the NMED target level of 1.

AOCs 02-004(b,c,d)

The potential total excess cancer risk (approximately 2×10^{-5}) for the residential scenario is slightly above the NMED target risk level in part from arsenic. However, exposure to arsenic across the site as represented by the UCL cannot be distinguished from exposure to naturally occurring levels of arsenic across the site, i.e., the mean exposure across the site is similar to background. Although a concentration of arsenic was detected above background (only one Qbo sample result is above the maximum background concentration, and no soil/Qal results were above the soil BV), the UCL of the mean concentration (2.117 mg/kg) is within the range of arsenic background concentrations, indicating no difference in potential risk from exposure across the site, whether from the site EPC or from naturally occurring concentrations. Given the infrequent and isolated occurrence of arsenic above the maximum background concentrations at AOCs 02-004(b,c,d), the potential exposure to, and risk from, arsenic are overestimated by the screening-level comparison.

The UCL is intended to represent the average concentration of a contaminant and the reasonable maximum exposure (RME) over time for a receptor at a site. The RME is the maximum exposure that is reasonably expected to occur at a site and represents the average concentration during the exposure period. The UCL concentration does not reflect the maximum concentration that a receptor could be exposed to at any one time (i.e., the worst case) and is a reasonable estimate of the exposure concentration over time because long-term contact with the maximum concentration is generally not reasonable. If the EPC falls within the range of background concentrations, then the receptor is exposed to an average concentration that cannot be distinguished from naturally occurring levels.

Because the arsenic EPC of 2.117 mg/kg falls within the range of arsenic background concentrations (0.3 mg/kg to 9.3 mg/kg for soil), the EPC does not indicate an incremental cancer risk and the arsenic site risk is not substantially different from the arsenic risk from background (risk from soil background concentrations is approximately 1×10^{-5}). Although statistically the arsenic site data set is different from the arsenic background data set(s), it does not necessarily indicate an unacceptable incremental risk, especially when the arsenic residential SSL is also within the range of background concentrations (residential SSL of 3.9 mg/kg and range of arsenic background concentrations of 0.3 mg/kg to 9.3 mg/kg for soil). Therefore, arsenic does not contribute to the potential risk at the RME concentration, which overestimates the potential incremental risk.

The calculated risk for a site represents the total excess cancer risk to a receptor above what he/she is typically exposed to. As a result, the risk from arsenic is not included in the final site risk as it is not incrementally above the risk that would result from exposure to naturally occurring levels of arsenic. Therefore, the total excess cancer risk is overestimated, and the contribution from arsenic is not included in the total risk estimate. Without arsenic, the total excess cancer risk for the residential scenario is approximately 1×10^{-5}, which is below the NMED target risk level.

AOC 02-004(g)

The residential dose is approximately 17 mrem/yr, partly because of cesium-137. Cesium-137 contributes approximately 46% of the dose based on one detected concentration (2.88 pCi/g) in surface soil. Subtracting the cesium-137 FV from the detected concentration results in an EPC above background of 1.23 pCi/g. This concentration results in a dose of 3.2 mrem/yr and a total dose of approximately 12 mrem/yr, which is below the DOE target dose of 15 mrem/yr.

SWMU 02-006(b)

The potential total excess cancer risk (approximately 2×10^{-5}) for the residential scenario is slightly above the NMED target risk level in part from arsenic. However, exposure to arsenic across the site as represented by the UCL cannot be distinguished from exposure to naturally occurring levels of arsenic across the site, i.e., the mean exposure across the site is similar to background. Although a concentration of arsenic was detected above background (only one Qbo sample result is above the maximum background concentration, and no soil/Qal results were above the soil BV), the UCL of the mean concentration (2.026 mg/kg) is within the range of arsenic background concentrations, indicating no difference in potential risk from exposure across the site, whether from the site EPC or from naturally occurring concentrations. Given the infrequent and isolated occurrence of arsenic above the maximum background concentrations at SWMU 02-006(b), the potential exposure to, and risk from, arsenic are overestimated by the screening-level comparison.

The UCL is intended to represent the average concentration of a contaminant and the RME over time for a receptor at a site. The RME is the maximum exposure that is reasonably expected to occur at a site and represents the average concentration during the exposure period. The UCL concentration does not reflect the maximum concentration that a receptor could be exposed to at any one time (i.e., the worst case) and is a reasonable estimate of the exposure concentration over time because long-term contact with the maximum concentration is generally not reasonable. If the EPC falls within the range of background concentrations, then the receptor is exposed to an average concentration that cannot be distinguished from naturally occurring levels.

Because the arsenic EPC of 2.026 mg/kg falls within the range of arsenic background concentrations (0.3 mg/kg to 9.3 mg/kg for soil), the EPC does not indicate an incremental cancer risk and arsenic site risk is not substantially different from the arsenic risk from background concentrations (risk from soil background concentrations is approximately 1×10^{-5}). Although statistically the arsenic site data set is different from the arsenic background data set(s), it does not necessarily indicate an unacceptable incremental risk, especially when the arsenic residential SSL is also within the range of background concentrations (residential SSL of 3.9 mg/kg and range of arsenic background concentrations of 0.3 mg/kg to 9.3 mg/kg for soil). Therefore, the arsenic does not contribute to the potential risk at the RME concentration, which overestimates the potential incremental risk.

The calculated risk for a site represents the total excess cancer risk to a receptor above what he/she is typically exposed to. As a result, the risk from arsenic is not included in the final site risk as it is not incrementally above the risk that would result from exposure to naturally occurring levels of arsenic. Therefore, the total excess cancer risk is overestimated, and the contribution from arsenic is not included in the total risk estimate. Without arsenic, the total excess cancer risk for the residential scenario is approximately 1×10^{-5}, which is below the NMED target risk level.

The SSL for lead is based on the soil lead level that limits exposure of a child for a resident to no more than a 5% chance of exceeding a 10-µg/dL blood lead level. The HQ for lead is an indication of whether the blood lead level criterion is exceeded. At SWMU 02-006(b), the residential HI is approximately 2 with the lead HQ contributing 1.1. Without lead the HI is 0.4. Therefore, the lead EPC is similar to the residential SSL, and the noncarcinogenic HI is below the NMED target level of 1.

AOC 02-006(e)

The total excess cancer risk for the residential scenario is approximately 1×10^{-5}, primarily from arsenic. However, exposure to arsenic across the site as represented by the UCL cannot be distinguished from exposure to naturally occurring levels of arsenic across the site, i.e., the mean exposure across the site is similar to background. Although concentrations of arsenic were detected above background,(only one Qbo sample result is above the maximum background concentration, and no soil/Qal results were above the soil BV), the UCL of the mean concentration (2.635 mg/kg) is within the range of arsenic background concentrations, indicating no difference in potential risk from exposure across the site whether from the site EPC or the range of background concentrations. Given the infrequent and isolated occurrence of arsenic concentrations above the maximum background concentrations at AOC 02-006(e), the potential exposure to, and risk from, arsenic are substantially overestimated by the screening-level comparison.

The UCL is intended to represent the average concentration of a contaminant and the RME over time for a receptor at a site. The RME is the maximum exposure that is reasonably expected to occur at a site and represents the average concentration during the exposure period. The UCL concentration does not reflect the maximum concentration that a receptor could be exposed to at any one time (i.e., the worst case) and is a reasonable estimate of the exposure concentration over time because long-term contact with the maximum concentration is generally not reasonable. If the EPC falls within the range of background concentrations, then the receptor is exposed to an average concentration that cannot be distinguished from naturally occurring levels.

Because the arsenic EPC of 2.635 mg/kg falls within the range of arsenic background concentrations (0.3 mg/kg to 9.3 mg/kg for soil), the EPC does not indicate an incremental cancer risk and indicates arsenic site risk is not substantially different from the arsenic risk from background concentrations (risk from soil background concentrations is approximately 1×10^{-5}). Although statistically the arsenic site data set is different from the arsenic background data set(s), it does not necessarily indicate an unacceptable incremental risk, especially when the arsenic residential SSL is also within the range of background concentrations (residential SSL of 3.9 mg/kg and range of arsenic background concentrations of 0.3 mg/kg to 9.3 mg/kg for soil). Therefore, arsenic does not contribute to the potential risk at the RME concentration, which overestimates the potential incremental risk.

The calculated risk for a site represents the total excess cancer risk to a receptor above what he/she is typically exposed to. As a result, the risk from arsenic is not included in the final site risk as it is not incrementally above the risk that would result from exposure to naturally occurring levels of arsenic. Therefore, the total excess cancer risk is overestimated, and the contribution from arsenic is not included in the total risk estimate. Without arsenic, the total excess cancer risk for the residential scenario is approximately 6×10^{-6}, which is below the NMED target risk level.

AOC 02-011(d)

The total excess cancer risk for the residential scenario is approximately 2×10^{-5}, primarily from arsenic. However, exposure to arsenic across the site as represented by the UCL cannot be distinguished from exposure to naturally occurring levels of arsenic across the site, i.e., the mean exposure across the site is similar to background. Although a concentration of arsenic was detected above background (only one sediment sample result is above the maximum background concentration, and no soil/Qal results were above the soil BV), the EPC of 8.7 mg/kg is the maximum detected concentration. This concentration is also within the range of arsenic soil background concentrations (0.3 mg/kg to 9.3 mg/kg for soil) and is similar to the soil BV (8.17 mg/kg). Given the infrequent and isolated occurrence of arsenic concentrations above background at AOC 02-011(d), the potential exposure to, and risk from, arsenic are substantially overestimated by the screening-level comparison.

Although there are only five samples within the 0–10 ft interval, a UCL was calculated in order to provide a more representative EPC than the maximum detected concentration. The UCL is intended to represent the average concentration of a contaminant and the RME over time for a receptor at a site. The RME is the maximum exposure that is reasonably expected to occur at a site and represents the average concentration during the exposure period. The UCL concentration does not reflect the maximum concentration that a receptor could be exposed to at any one time (i.e., the worst case) and is a reasonable estimate of the exposure concentration over time because long-term contact with the maximum concentration is generally not reasonable. The UCL for arsenic is 6.31 mg/kg and is also within the range of background concentrations. Therefore, the receptor is exposed to an average concentration that cannot be distinguished from naturally occurring levels.

Because the arsenic EPC and UCL falls within the range of arsenic background concentrations (0.3 mg/kg to 9.3 mg/kg for soil), the EPC does not indicate an incremental cancer risk and arsenic site risk is not substantially different from the arsenic risk from background concentrations (risk from soil background concentrations is approximately 1×10^{-5}). Although the arsenic EPC is different from the arsenic background data set(s), it does not necessarily indicate an unacceptable incremental risk, especially when the arsenic residential SSL is also within the range of background concentrations (residential SSL of 3.9 mg/kg and range of arsenic background concentrations of 0.3 mg/kg to 9.3 mg/kg for soil). Therefore, arsenic does not contribute to the potential risk at the RME concentration, which overestimates the potential incremental risk.

The calculated risk for a site represents the total excess cancer risk to a receptor above what he/she is typically exposed to. As a result, the risk from arsenic is not included in the final site risk as it is not incrementally above the risk that would result from exposure to naturally occurring levels of arsenic. Therefore, the total excess cancer risk is overestimated, and the contribution from arsenic is not included in the total risk estimate. Without arsenic, the total excess cancer risk for the residential scenario is approximately 3×10^{-6}, which is below the NMED target risk level.

The samples from AOC 02-011(d) were analyzed for both total chromium and hexavalent chromium. No SSLs exist for total chromium. As a result, the EPC for total chromium was compared with the hexavalent chromium SSL because this is the most conservative comparison. The HQ for total chromium at AOC 02-011(d) is approximately 1 and is overestimated using this method because the majority of the total chromium is trivalent chromium as evidenced by the differences in concentrations between total chromium and hexavalent chromium. The EPC for total chromium is 240 mg/kg (this is also the maximum detected concentration), while the EPC for hexavalent chromium is 0.775 mg/kg (also the maximum detected concentration). Removing the HQ for total chromium leaves an HI of 0.2. Comparing the total chromium EPC with the trivalent chromium residential SSL (113,000 mg/kg) results in an HQ of 0.002 and an HI of 0.2, which is below the NMED target level.

H-4.4.3 Toxicity Assessment

The primary uncertainty associated with the screening values is related to the derivation of toxicity values used in their calculation. Toxicity values (slope factors [SFs] and reference doses [RfDs]) were used to derive the screening values used in this screening evaluation (NMED 2009, 108070). Uncertainties were identified in five areas with respect to the toxicity values: (1) extrapolation from other animals to humans,

(2) interindividual variability in the human population, (3) the derivation of RfDs and SFs, (4) the chemical form of the COPC, and (5) the use of surrogate chemicals.

Extrapolation from Animals to Humans

The SFs and RfDs are often determined by extrapolation from animal data to humans, which may result in uncertainties in toxicity values because differences exist between other animals and humans in chemical absorption, metabolism, excretion, and toxic response. Differences in body weight, surface area, and pharmacokinetic relationships between animals and humans are taken into account to address these uncertainties in the dose-response relationship. However, conservatism is usually incorporated into each of these steps, resulting in the overestimation of potential risk.

Individual Variability in the Human Population

For noncarcinogenic effects, the degree of human variability in physical characteristics is important in determining the risks that can be expected at low exposures and in determining the no observed adverse effect level (NOAEL). The NOAEL uncertainty factor approach incorporates a factor of 10 to reflect the possible interindividual variability in the human population that can contribute to uncertainty in the risk evaluation. This factor of 10 is generally considered to result in a conservative estimate of risk to noncarcinogenic COPCs.

Derivation of RfDs and SFs

The RfDs and SFs for different chemicals are derived from experiments conducted by different laboratories that may have different accuracy and precision that could lead to an over- or underestimation of the risk.

The uncertainty associated with the toxicity factors for noncarcinogens is measured by the uncertainty factor, the modifying factor, and the confidence level. For carcinogens, the weight of evidence classification indicates the likelihood that a contaminant is a human carcinogen. Toxicity values with high uncertainties may change as new information is evaluated.

Chemical Form of the COPC

COPCs may be bound to the environmental matrix and not available for absorption into the human body. However, the exposure scenarios default to the assumption that the COPCs are bioavailable. This assumption can lead to an overestimation of the total risk.

Use of Surrogate Chemicals

The use of surrogates for chemicals that do not have EPA-approved or provisional toxicity values also contributes to uncertainty in risk assessment. Surrogates were used to establish toxicity values for benzo[g,h,i]perylene and 4-isopropyltoluene based on structural similarity or because the surrogate is the parent compound (NMED 2003, 081172). The overall impact of surrogates on the risk assessment is minimal because the COPCs were detected at low concentrations, and the HQs and cancer risks were minimal.

H-4.4.4 Additive Approach

For noncarcinogens, the effects of exposure to multiple chemicals are generally not known, and possible interactions could be synergistic or antagonistic, resulting in either an over- or underestimation of the potential risk. Additionally, RfDs used in the risk calculations typically are not based on the same endpoints with respect to severity, effects, or target organs. Therefore, the potential for noncarcinogenic effects may be overestimated for individual COPCs that act by different mechanisms and on different target organs but are addressed additively.

H-4.5 Interpretation of Human Health Risk-Screening Results

H-4.5.1 AOC 02-003(a)

Industrial Scenario

The total excess cancer risk is 3×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.004, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 2 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 2×10^{-7}, based on a comparison with EPA's outdoor worker preliminary remediation goals (PRGs) for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Recreational Scenario

The total excess cancer risk is 2×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.04, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 0.3 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose for the recreational scenario is equivalent to a total risk of 1×10^{-6}, based on conversion from dose using RESRAD, Version 6.5.

Residential Scenario

The total excess cancer risk is approximately 8×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.5, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 184 mrem/yr, which is above the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 4×10^{-5}, based on a comparison with EPA's residential PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Based on the screening-assessment results, no potential unacceptable risks or doses exist for the industrial and recreational scenarios. Based on the screening-assessment results, no potential unacceptable risks exist for the residential scenario, but a potential unacceptable dose exists for the residential scenario.

H-4.5.2 AOC 02-003(b)

Industrial Scenario

The total excess cancer risk is 2×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.0004, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 0.5 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489).

The total dose is equivalent to a total risk of 3×10^{-7}, based on a comparison with EPA's outdoor worker PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Recreational Scenario

The total excess cancer risk is 9×10^{-7}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.1, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 0.1 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 3×10^{-7}, based on conversion from dose using RESRAD, Version 6.5.

Residential Scenario

The total excess cancer risk is approximately 9×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.7, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 11 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 5×10^{-6}, based on a comparison with EPA's residential PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Based on the screening-assessment results, no potential unacceptable risks or doses exist for the industrial, recreational, and residential scenarios.

H-4.5.3 AOC 02-003(c)

Industrial Scenario

The total excess cancer risk is 5×10^{-7}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.005, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 0.7 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 5×10^{-6}, based on a comparison with EPA's outdoor worker PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Recreational Scenario

The total excess cancer risk is 3×10^{-7}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.007, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 0.09 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 3×10^{-7}, based on conversion from dose using RESRAD, Version 6.5.

Residential Scenario

The total excess cancer risk is approximately 6×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.7, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 7 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 7×10^{-6}, based on a comparison with EPA's residential PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Based on the screening-assessment results, no potential unacceptable risks or doses exist for the industrial, recreational, and residential scenarios.

H-4.5.4 AOC 02-003(d)

Industrial Scenario

The total excess cancer risk is 2×10^{-7}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.005, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 3 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 2×10^{-5}, based on a comparison with EPA's outdoor worker PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Recreational Scenario

The total excess cancer risk is 1×10^{-7}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.008, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 0.4 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 1×10^{-6}, based on conversion from dose using RESRAD, Version 6.5.

Residential Scenario

The total excess cancer risk is approximately 6×10^{-7}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.2, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 13 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 3×10^{-3}, based on a comparison with EPA's residential PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Based on the screening-assessment results, no potential unacceptable risks or doses exist for the industrial, recreational, and residential scenarios.

H-4.5.5 AOC 02-003(e)

Industrial Scenario

The total excess cancer risk is 1×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.01, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 0.0000003 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 7×10^{-8}, based on a comparison with EPA's outdoor worker PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Recreational Scenario

The total excess cancer risk is 1×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.01, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 0.00000003 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 2×10^{-12}, based on conversion from dose using RESRAD, Version 6.5.

Residential Scenario

The total excess cancer risk is approximately 8×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 3, which is above the NMED target HI of 1 (NMED 2009, 108070), primarily because of lead. Without lead the HI is 0.4, but lead does exceed the residential SSL. The total dose is 608 mrem/yr, which is above the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 8×10^{-5}, based on a comparison with EPA's residential PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Based on the screening-assessment results, no potential unacceptable risks or doses exist for the industrial and recreational scenarios. Based on the screening-assessment results, a potential unacceptable risk from lead and a potential unacceptable dose exist for the residential scenario.

H-4.5.6 AOC 02-004(a)

Industrial Scenario

The total excess cancer risk is 3×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.04, which is below the NMED target HI of 1 (NMED 2009, 108070). The TPH-DRO HQ is 0.1, which is below the NMED target HI of 1. The total dose is 8 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 5×10^{-5}, based on a comparison with EPA's outdoor worker PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Recreational Scenario

The total excess cancer risk is 2×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.08, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 1 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 3×10^{-6}, based on conversion from dose using RESRAD, Version 6.5.

Residential Scenario

The total excess cancer risk is approximately 2×10^{-5}, which is above the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is approximately 0.8, which is below the NMED target HI of 1 (NMED 2009, 108070). The TPH-DRO HQ is 0.2, which is below the NMED target HI of 1. The total dose is 20 mrem/yr, which is above the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 4×10^{-5}, based on a comparison with EPA's residential PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Based on the screening-assessment results, no potential unacceptable risks or doses from COPCs exist for the industrial and recreational scenarios. Based on the screening-assessment results, no potential unacceptable noncarcinogenic risk exists for the residential scenario, but a potential unacceptable cancer risk and a potential unacceptable dose exist for the residential scenario.

H-4.5.7 AOCs 02-004(b,c,d)

Industrial Scenario

The total excess cancer risk is 2×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.01, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 3 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 1×10^{-5}, based on a comparison with EPA's outdoor worker PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Recreational Scenario

The total excess cancer risk is 2×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.03, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 0.3 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 1×10^{-6}, based on conversion from dose using RESRAD, Version 6.5.

Residential Scenario

The total excess cancer risk is approximately 2×10^{-5}, which is above the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The cancer risk is partly because of arsenic and is overestimated. As discussed in the uncertainty analysis (section H-4.4.2), the arsenic EPC is similar to being exposed to a naturally occurring arsenic level ,and the risk does not incrementally increase above that which would result from exposure to naturally occurring levels of arsenic. The risk is reduced to approximately 1×10^{-5} without arsenic and is equivalent to the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.4, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 12 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 3×10^{-5}, based on a comparison with EPA's residential PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Based on the screening-assessment results, no potential unacceptable risks or doses exist for the industrial, recreational, and residential scenarios.

H-4.5.8 AOC 02-004(e)

Industrial Scenario

The total excess cancer risk is 3×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.04, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 0.03 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 1×10^{-7}, based on a comparison with EPA's outdoor worker PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Recreational Scenario

The total excess cancer risk is 2×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.08, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 0.02 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 6×10^{-9}, based on conversion from dose using RESRAD, Version 6.5.

Residential Scenario

The total excess cancer risk is approximately 1×10^{-5}, which is equivalent to the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.3, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 3 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 5×10^{-6}, based on a comparison with EPA's residential PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Based on the screening-assessment results, no potential unacceptable risks or doses exist for the industrial, recreational, and residential scenarios.

H-4.5.9 AOC 02-004(f)

Industrial Scenario

The total excess cancer risk is 2 × 10^{-6}, which is below the NMED target risk level of 1 × 10^{-5} (NMED 2009, 108070). The HI is 0.03, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 0.3 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 3 × 10^{-6}, based on a comparison with EPA's outdoor worker PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Recreational Scenario

The total excess cancer risk is 1 × 10^{-6}, which is below the NMED target risk level of 1 × 10^{-5} (NMED 2009, 108070). The HI is 0.05, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 0.04 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 1 × 10^{-7}, based on conversion from dose using RESRAD, Version 6.5.

Residential Scenario

The total excess cancer risk is approximately 4 × 10^{-6}, which is below the NMED target risk level of 1 × 10^{-5} (NMED 2009, 108070). The HI is 0.4, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 4 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 8 × 10^{-6}, based on a comparison with EPA's residential PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Based on the screening-assessment results, no potential unacceptable risks or doses exist for the industrial, recreational, and residential scenarios.

H-4.5.10 AOC 02-004(g)

Industrial Scenario

The total excess cancer risk is 3 × 10^{-6}, which is below the NMED target risk level of 1 × 10^{-5} (NMED 2009, 108070). The HI is 0.05, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 3 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 9 × 10^{-6}, based on a comparison with EPA's outdoor worker PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Recreational Scenario

The total excess cancer risk is 2 × 10^{-6}, which is below the NMED target risk level of 1 × 10^{-5} (NMED 2009, 108070). The HI is 0.08, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 0.5 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 1 × 10^{-6}, based on conversion from dose using RESRAD, Version 6.5.

Residential Scenario

The total excess cancer risk is approximately 1 × 10^{-5}, which is equivalent to the NMED target risk level of 1 × 10^{-5} (NMED 2009, 108070). The HI is 0.2, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 17 mrem/yr, which is above the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). As discussed in the uncertainty analysis (section H-4.4.2), subtracting the cesium-137 FV from the detected concentration results in a cesium-137 EPC above background of 1.23 pCi/g. This concentration results in a dose of 3.2 mrem/yr and a total dose of approximately 12 mrem/yr, which is below the DOE target dose of 15 mrem/yr. The total dose is equivalent to a total risk of 2×10^{-5}, based on a comparison with EPA's residential PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Based on the screening-assessment results, no potential unacceptable risks or doses exist for the industrial, recreational, and residential scenarios.

H-4.5.11 SWMU 02-005

Industrial Scenario

The total excess cancer risk is 7×10^{-7}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.002, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 0.3 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 2×10^{-6}, based on a comparison with EPA's outdoor worker PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Recreational Scenario

The total excess cancer risk is 5×10^{-7}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.01, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 0.06 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 1×10^{-7}, based on conversion from dose using RESRAD, Version 6.5.

Residential Scenario

The total excess cancer risk is approximately 1×10^{-5}, which is equivalent to the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.2, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 1 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 6×10^{-7}, based on a comparison with EPA's residential PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Based on the screening-assessment results, no potential unacceptable risks or doses exist for the industrial, recreational, and residential scenarios.

H-4.5.12 SWMU 02-006(a)

Industrial Scenario

The total excess cancer risk is 2×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.03, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 6 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 4×10^{-6}, based on a comparison with EPA's outdoor worker PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Recreational Scenario

The total excess cancer risk is 1×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.04, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 0.6 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 3×10^{-6}, based on conversion from dose using RESRAD, Version 6.5.

Residential Scenario

The total excess cancer risk is approximately 6×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.1, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 15 mrem/yr, which is equal to the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 5×10^{-5}, based on a comparison with EPA's residential PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Based on the screening-assessment results, no potential unacceptable risks or doses exist for the industrial, recreational, and residential scenarios.

H-4.5.13 SWMU 02-006(b)

Industrial Scenario

The total excess cancer risk is 5×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.03, which is below the NMED target HI of 1 (NMED 2009, 108070). The TPH-DRO HQ is 0.06, which is below the NMED target HI of 1. The total dose is 0.3 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 1×10^{-6}, based on a comparison with EPA's outdoor worker PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Recreational Scenario

The total excess cancer risk is 4×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.05, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 0.1 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 8×10^{-8}, based on conversion from dose using RESRAD, Version 6.5.

Residential Scenario

The total excess cancer risk is approximately 2×10^{-5}, which is above the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The cancer risk is partly because of arsenic and is overestimated. As discussed in the uncertainty analysis (section H-4.4.2), the arsenic EPC is similar to being exposed to a naturally occurring arsenic level, and the risk does not incrementally increase above that which would result from exposure to naturally occurring levels of arsenic. The risk is reduced to approximately 1×10^{-5} without arsenic and is equivalent to the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is approximately 2, which is above the NMED target HI of 1 (NMED 2009, 108070), primarily because of lead. The lead HQ is approximately 1.1 (EPC = 420 mg/kg), and without lead the HI is 0.4. Therefore, the lead EPC is similar to the residential SSL, and the noncarcinogenic HI is below the NMED target level of 1. The TPH-DRO HQ is 0.06, which is below the NMED target HI of 1. The total dose is 2 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of a comparison with EPA's residential PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Based on the screening-assessment results, no potential unacceptable risks or doses exist for the industrial, recreational, and residential scenarios.

H-4.5.14 AOC 02-006(c)

Industrial Scenario

The total excess cancer risk is 2 × 10^{-6}, which is below the NMED target risk level of 1 × 10^{-5} (NMED 2009, 108070). The HI is 0.01, which is below the NMED target HI of 1 (NMED 2009, 108070). The TPH-DRO HQ is 0.01, which is below the NMED target HI of 1. The total dose is 11 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 5 × 10^{-7}, based on a comparison with EPA's outdoor worker PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Recreational Scenario

The total excess cancer risk is 1 × 10^{-6}, which is below the NMED target risk level of 1 × 10^{-5} (NMED 2009, 108070). The HI is 0.02, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 1 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 5 × 10^{-6}, based on conversion from dose using RESRAD, Version 6.5.

Residential Scenario

The total excess cancer risk is approximately 2 × 10^{-6}, which is below the NMED target risk level of 1 × 10^{-5} (NMED 2009, 108070). The HI is 0.3, which is below the NMED target HI of 1 (NMED 2009, 108070). The TPH-DRO HQ is approximately 1, which is equivalent to the NMED target HI of 1. The total dose is 23 mrem/yr, which is above the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 1 × 10^{-5}, based on a comparison with EPA's residential PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Based on the screening-assessment results, no potential unacceptable risks or doses exist for the industrial and recreational scenarios. Based on the screening-assessment results, no potential unacceptable risk exists for the residential scenario, but a potential unacceptable dose exists for the residential scenario.

H-4.5.15 AOC 02-006(e)

Industrial Scenario

The total excess cancer risk is 3 × 10^{-6}, which is below the NMED target risk level of 1 × 10^{-5} (NMED 2009, 108070). The HI is 0.08, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 1 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 3 × 10^{-6}, based on a comparison with EPA's outdoor worker PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Recreational Scenario

The total excess cancer risk is 2 × 10^{-6}, which is below the NMED target risk level of 1 × 10^{-5} (NMED 2009, 108070). The HI is 0.2, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 0.2 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 5 × 10^{-7}, based on conversion from dose using RESRAD, Version 6.5.

Residential Scenario

The total excess cancer risk is approximately 1 × 10^{-5}, which is equivalent to the NMED target risk level of 1 × 10^{-5} (NMED 2009, 108070). The cancer risk is partly because of arsenic and is overestimated. As discussed in the uncertainty analysis (section H-4.4.2), the arsenic EPC is similar to being exposed to a naturally occurring arsenic level, and the risk does not incrementally increase above that which would result from exposure to naturally occurring levels of arsenic. The risk is reduced to approximately 6 × 10^{-6} without arsenic and is below the NMED target risk level of 1 × 10^{-5} (NMED 2009, 108070). The HI is 0.7, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 4 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 8 × 10^{-6}, based on a comparison with EPA's residential PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Based on the screening-assessment results, no potential unacceptable risks or doses exist for the industrial, recreational, and residential scenarios.

H-4.5.16 SWMU 02-007

Industrial Scenario

The total excess cancer risk is 3 × 10^{-6}, which is below the NMED target risk level of 1 × 10^{-5} (NMED 2009, 108070). The HI is 0.0004, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 0.02 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 2 × 10^{-7}, based on a comparison with EPA's outdoor worker PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Recreational Scenario

The total excess cancer risk is 9 × 10^{-7}, which is below the NMED target risk level of 1 × 10^{-5} (NMED 2009, 108070). The HI is 0.2, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 0.007 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 2 × 10^{-8}, based on conversion from dose using RESRAD, Version 6.5.

Residential Scenario

The total excess cancer risk is approximately 5 × 10^{-6}, which is below the NMED target risk level of 1 × 10^{-5} (NMED 2009, 108070). The HI is 0.7, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 7 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 5 × 10^{-6}, based on a comparison with EPA's residential PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Based on the screening-assessment results, no potential unacceptable risks or doses exist for the industrial, recreational, and residential scenarios.

H-4.5.17 SWMU 02-008(a)

Industrial Scenario

The total excess cancer risk is 1 × 10^{-6}, which is below the NMED target risk level of 1 × 10^{-5} (NMED 2009, 108070). The HI is 0.04, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 0.1 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 2 × 10^{-6}, based on a comparison with EPA's outdoor worker PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Recreational Scenario

The total excess cancer risk is 7 × 10^{-7}, which is below the NMED target risk level of 1 × 10^{-5} (NMED 2009, 108070). The HI is 0.09, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 0.09 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 3 × 10^{-8}, based on conversion from dose using RESRAD, Version 6.5.

Residential Scenario

The total excess cancer risk is approximately 1 × 10^{-5}, which is equivalent to the NMED target risk level of 1 × 10^{-5} (NMED 2009, 108070). The HI is 0.6, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 1 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 8 × 10^{-7}, based on a comparison with EPA's residential PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Based on the screening-assessment results, no potential unacceptable risks or doses exist for the industrial, recreational, and residential scenarios.

H-4.5.18 AOC 02-008(c)

Industrial Scenario

The total excess cancer risk is 3 × 10^{-6}, which is below the NMED target risk level of 1 × 10^{-5} (NMED 2009, 108070). The HI is 0.02, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 0.06 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 8 × 10^{-7}, based on a comparison with EPA's outdoor worker PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Recreational Scenario

The total excess cancer risk is 3 × 10^{-6}, which is below the NMED target risk level of 1 × 10^{-5} (NMED 2009, 108070). The HI is 0.03, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 0.04 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 1 × 10^{-8}, based on conversion from dose using RESRAD, Version 6.5.

Residential Scenario

The total excess cancer risk is approximately 1 × 10^{-5}, which is equivalent to the NMED target risk level of 1 × 10^{-5} (NMED 2009, 108070). The HI is 0.3, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 6 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 3 × 10^{-6}, based on a comparison with EPA's residential PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Based on the screening-assessment results, no potential unacceptable risks or doses exist for the industrial, recreational, and residential scenarios.

H-4.5.19 SWMU 02-009(a)

Industrial Scenario

The total excess cancer risk is 1×10^{-7}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.02, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 3 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 6×10^{-7}, based on a comparison with EPA's outdoor worker PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Recreational Scenario

The total excess cancer risk is 9×10^{-8}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.03, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 0.3 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 1×10^{-6}, based on conversion from dose using RESRAD, Version 6.5.

Residential Scenario

The total excess cancer risk is approximately 8×10^{-7}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.3, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 6 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 1×10^{-6}, based on a comparison with EPA's residential PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Based on the screening-assessment results, no potential unacceptable risks or doses from COPCs exist for the industrial, recreational, and residential scenarios.

H-4.5.20 SWMU 02-009(b)

Industrial Scenario

The total excess cancer risk is 8×10^{-7}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.004, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 6 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 3×10^{-7}, based on a comparison with EPA's outdoor worker PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Recreational Scenario

The total excess cancer risk is 6×10^{-7}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.01, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 0.6 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 3×10^{-6}, based on conversion from dose using RESRAD, Version 6.5.

Residential Scenario

The total excess cancer risk is approximately 2×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.06, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 19 mrem/yr, which is above the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 5 × 10^{-6}, based on a comparison with EPA's residential PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Based on the screening-assessment results, no potential unacceptable risks or doses from COPCs exist for the industrial and recreational scenarios. Based on the screening-assessment results, no potential unacceptable risk exists for the residential scenario, but a potential unacceptable dose exists for the residential scenario.

H-4.5.21 SWMU 02-009(c)

Industrial Scenario

The total excess cancer risk is 6 × 10^{-7}, which is below the NMED target risk level of 1 × 10^{-5} (NMED 2009, 108070). The HI is 0.03, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 3 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 2 × 10^{-7}, based on a comparison with EPA's outdoor worker PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Recreational Scenario

The total excess cancer risk is 4 × 10^{-7}, which is below the NMED target risk level of 1 × 10^{-5} (NMED 2009, 108070). The HI is 0.06, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 0.4 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 5 × 10^{-7}, based on conversion from dose using RESRAD, Version 6.5.

Residential Scenario

The total excess cancer risk is approximately 6 × 10^{-6}, which is below the NMED target risk level of 1 × 10^{-5} (NMED 2009, 108070). The HI is 0.4, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 68 mrem/yr, which is above the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 1 × 10^{-5}, based on a comparison with EPA's residential PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Based on the screening-assessment results, no potential unacceptable risks or doses from COPCs exist for the industrial and recreational scenarios. Based on the screening-assessment results, no potential unacceptable risk exists for the residential scenario, but a potential unacceptable dose exists for the residential scenario.

H-4.5.22 AOC 02-009(d)

Industrial Scenario

The total excess cancer risk is 1 × 10^{-6}, which is below the NMED target risk level of 1 × 10^{-5} (NMED 2009, 108070). The HI is 0.005, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 3 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 5 × 10^{-6}, based on a comparison with EPA's outdoor worker PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Recreational Scenario

The total excess cancer risk is 2 × 10^{-6}, which is below the NMED target risk level of 1 × 10^{-5} (NMED 2009, 108070). The HI is 0.01, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 0.4 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 2 × 10^{-6}, based on conversion from dose using RESRAD, Version 6.5.

Residential Scenario

The total excess cancer risk is approximately 3 × 10^{-6}, which is below the NMED target risk level of 1 × 10^{-5} (NMED 2009, 108070). The HI is 0.08, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 27 mrem/yr, which is above the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 2 × 10^{-5}, based on a comparison with EPA's residential PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Based on the screening-assessment results, no potential unacceptable risks or doses from COPCs exist for the industrial and recreational scenarios. Based on the screening-assessment results, no potential unacceptable risk exists for the residential scenario, but a potential unacceptable dose exists for the residential scenario.

H-4.5.23 AOC 02-010

Industrial Scenario

The total excess cancer risk is 1 × 10^{-6}, which is below the NMED target risk level of 1 × 10^{-5} (NMED 2009, 108070). The HI is 0.07, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 5 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 1 × 10^{-6}, based on a comparison with EPA's outdoor worker PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Recreational Scenario

The total excess cancer risk is 7 × 10^{-7}, which is below the NMED target risk level of 1 × 10^{-5} (NMED 2009, 108070). The HI is 0.1, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 0.6 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 2 × 10^{-6}, based on conversion from dose using RESRAD, Version 6.5.

Residential Scenario

The total excess cancer risk is approximately 2 × 10^{-6}, which is below the NMED target risk level of 1 × 10^{-5} (NMED 2009, 108070). The HI is 0.2, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 17 mrem/yr, which is above the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 7 × 10^{-6}, based on a comparison with EPA's residential PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Based on the screening-assessment results, no potential unacceptable risks or doses from COPCs exist for the industrial and recreational scenarios. Based on the screening-assessment results, no potential unacceptable risk exists for the residential scenario, but a potential unacceptable dose exists for the residential scenario.

H-4.5.24 AOC 02-011(b)

Industrial Scenario

The total excess cancer risk is 1×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.002, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 11 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 1×10^{-6}, based on a comparison with EPA's outdoor worker PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Recreational Scenario

The total excess cancer risk is 7×10^{-7}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.03, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 1 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 5×10^{-6}, based on conversion from dose using RESRAD, Version 6.5.

Residential Scenario

The total excess cancer risk is approximately 3×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.3, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 274 mrem/yr, which is above the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 6×10^{-5}, based on a comparison with EPA's residential PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Based on the screening-assessment results, no potential unacceptable risks or doses from COPCs exist for the industrial and recreational scenarios. Based on the screening-assessment results, no potential unacceptable risk exists for the residential scenario, but a potential unacceptable dose exists for the residential scenario.

H-4.5.25 AOC 02-011(c)

Industrial Scenario

The total excess cancer risk is 7×10^{-7}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.000002, which is below the NMED target HI of 1 (NMED 2009, 108070). No radionuclide COPCs were detected from the 0–1 ft depth at this site.

Recreational Scenario

The total excess cancer risk is 5×10^{-7}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.008, which is below the NMED target HI of 1 (NMED 2009, 108070). No radionuclide COPCs were detected from the 0–1 ft depth at this site.

Residential Scenario

The total excess cancer risk is approximately 3×10^{-6}, which is below the NMED target risk level of 1×10^{-5} (NMED 2009, 108070). The HI is 0.08, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 0.0006 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 1×10^{-7}, based on a comparison with EPA's residential PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Based on the screening-assessment results, no potential unacceptable risks or doses from COPCs exist for the industrial, recreational, and residential scenarios.

H-4.5.26 AOC 02-011(d)

Industrial Scenario

The total excess cancer risk is 6 × 10^{-6}, which is below the NMED target risk level of 1 × 10^{-5} (NMED 2009, 108070). The HI is 0.1, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 8 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 4 × 10^{-5}, based on a comparison with EPA's outdoor worker PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Recreational Scenario

The total excess cancer risk is 4 × 10^{-6}, which is below the NMED target risk level of 1 × 10^{-5} (NMED 2009, 108070). The HI is 0.2, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 0.9 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 3 × 10^{-6}, based on conversion from dose using RESRAD, Version 6.21.

Residential Scenario

The total excess cancer risk is approximately 2 × 10^{-5}, which is above the NMED target risk level of 1 × 10^{-5} (NMED 2009, 108070). The cancer risk is partly because of arsenic and is overestimated. As discussed in the uncertainty analysis (section H-4.4.2), the arsenic EPC is similar to being exposed to a naturally occurring arsenic level, and the risk does not incrementally increase above that which would result from exposure to naturally occurring levels of arsenic. The risk is reduced to approximately 3 × 10^{-6} without arsenic and is below the NMED target risk level of 1 × 10^{-5} (NMED 2009, 108070). The HI is 1, which is equivalent to the NMED target HI of 1 (NMED 2009, 108070). The HI is overestimated because total chromium is primarily composed of trivalent chromium and not hexavalent chromium. Comparing the total chromium EPC with the trivalent chromium SSL results in an HI of 0.2, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 19 mrem/yr, which is above the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 4 × 10^{-5}, based on a comparison with EPA's residential PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Based on the screening-assessment results, no potential unacceptable risks or doses from COPCs exist for the industrial and recreational scenarios. Based on the screening-assessment results, no potential unacceptable risks from COPCs exist for the residential scenario, but potential unacceptable dose exists for the residential scenario.

H-4.5.27 AOC 02-012

Industrial Scenario

The total excess cancer risk is 1 × 10^{-6}, which is below the NMED target risk level of 1 × 10^{-5} (NMED 2009, 108070). The HI is 0.02, which is below the NMED target HI of 1 (NMED 2009, 108070). The TPH-DRO HQ is 0.07, which is below the NMED target HI of 1. The total dose is 0.0000003 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 7 × 10^{-8}, based on a comparison with EPA's outdoor worker PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Recreational Scenario

The total excess cancer risk is 1 × 10^{-6}, which is below the NMED target risk level of 1 × 10^{-5} (NMED 2009, 108070). The HI is 0.03, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 0.00000003 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 2 × 10^{-12}, based on conversion from dose using RESRAD, Version 6.21.

Residential Scenario

The total excess cancer risk is approximately 9 × 10^{-6}, which is below the NMED target risk level of 1 × 10^{-5} (NMED 2009, 108070). The HI is 0.4, which is below the NMED target HI of 1 (NMED 2009, 108070). The TPH-DRO HQ is 0.05, which is below the NMED target HI of 1. The total dose is 0.2 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 6 × 10^{-7}, based on a comparison with EPA's residential PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Based on the screening-assessment results, no potential unacceptable risks or doses from COPCs exist for the industrial, recreational, and residential scenarios.

H-4.5.28 Lateral Extent Samples for TA-02

Industrial Scenario

The total excess cancer risk is 8 × 10^{-7}, which is below the NMED target risk level of 1 × 10^{-5} (NMED 2009, 108070). The HI is 0.01, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 0.9 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 6 × 10^{-7}, based on a comparison with EPA's outdoor worker PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Recreational Scenario

The total excess cancer risk is 5 × 10^{-7}, which is below the NMED target risk level of 1 × 10^{-5} (NMED 2009, 108070). The HI is 0.02, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 0.2 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 4 × 10^{-7}, based on conversion from dose using RESRAD, Version 6.21.

Residential Scenario

The total excess cancer risk is approximately 4 × 10^{-6}, which is below the NMED target risk level of 1 × 10^{-5} (NMED 2009, 108070). The HI is 0.4, which is below the NMED target HI of 1 (NMED 2009, 108070). The total dose is 2 mrem/yr, which is below the DOE target dose limit of 15 mrem/yr (DOE 2000, 067489). The total dose is equivalent to a total risk of 1 × 10^{-6}, based on a comparison with EPA's residential PRGs for radionuclides (http://epa-prgs.ornl.gov/radionuclides/download/rad_master_prg_table_pci.xls).

Based on the screening-assessment results, no potential unacceptable risks or doses from COPCs exist for the industrial, recreational, and residential scenarios.

H-5.0 ECOLOGICAL RISK-SCREENING ASSESSMENTS

The approach for conducting ecological risk-screening assessments is described in the “Screening-Level Ecological Risk Assessment Methods, Revision 2” (LANL 2004, 087630). The assessment consists of the following four parts: (1) a scoping evaluation, (2) a screening evaluation, (3) an uncertainty analysis, and (4) an interpretation of the results.

The ecological risk-screening assessment for the TA-02 sites within the canyon bottom will be conducted as one exposure unit because the sites overlap and have a high density within a small area. The ecological risk-screening assessment for the entire exposure unit was not conducted because the investigation at one site requires additional cleanup and sampling. However, the ecological risk-screening assessment for SWMU 02-006(a) was conducted because it is not within the footprint of TA-02 and is located on the mesa top.

H-5.1 Scoping Evaluation

The scoping evaluation establishes the breadth and focus of the screening assessment. The ecological scoping checklists for the four sites evaluated within this aggregate area are useful tools for organizing existing ecological information (Attachment H-2). The information in the scoping checklists is used to determine whether ecological receptors may be affected, identify the types of receptors that may be present, and develop the ecological conceptual site model for each site. The sites are in industrially developed areas.

The scoping portion of the assessment indicated that terrestrial receptors were appropriate for evaluating the concentrations of contaminants in soil and tuff samples. Aquatic receptors were not evaluated because no aquatic communities and no aquatic habitat or perennial source of water exist at any of the sites evaluated. The potential exposure pathways for terrestrial receptors in soil and tuff are root uptake, inhalation, soil ingestion, dermal contact, external irradiation, and food-web transport (Figure H-3.1-1). The weathering of tuff is the only viable natural process that may result in the exposure of receptors to contaminants in tuff. Because of the slow rate of weathering expected for tuff, exposure in tuff is negligible, although it is included in the assessment. Plant exposure in tuff is largely limited to fractures near the surface, which does not produce sufficient biomass to support an herbivore population. Consequently, the contaminants in tuff are not available to receptors.

The potential risk was evaluated in the risk-screening assessments for the following ecological receptors representing several trophic levels:

- a plant,
- soil-dwelling invertebrates (represented by the earthworm),
- the deer mouse (mammalian omnivore),
- the Montane shrew (mammalian insectivore),
- the desert cottontail (mammalian herbivore),
- the red fox (mammalian carnivore),
- the American robin (avian insectivore, avian omnivore, and avian herbivore), and
- the American kestrel (avian intermediate carnivore and avian carnivore (surrogate for threatened and endangered [T&E] species).

The rationale for these receptors is presented in "Screening-Level Ecological Risk Assessment Methods, Revision 2" (LANL 2004, 087630). The ecological screening levels (ESLs) are derived for each of these receptors where information was available. The ESLs are based on similar species and are derived from experimentally determined NOAELs, lowest observed adverse effect levels (LOAELs), or doses determined lethal to 50% of the test population. Information relevant to the calculation of ESLs, including concentration equations, dose equations, bioconcentration factors, transfer factors, and toxicity reference values (TRVs), are presented in the ECORISK Database, Release 2.5 (LANL 2010, 110846).

H-5.2 Assessment Endpoints

An assessment endpoint is an explicit expression of the environmental value to be protected. These endpoints are ecologically relevant and help sustain the natural structure, function, and biodiversity of an ecosystem or its components (EPA 1998, 062809). In a screening-level assessment, assessment endpoints are attributes of ecological receptors that may be adversely affected by exposure to hazardous wastes from past operations (EPA 1997, 059370), wherein receptors are populations and communities (EPA 1999, 070086).

The ecological screening assessment is designed to protect populations and communities of biota rather than individual organisms, except for listed or candidate T&E species or treaty-protected species (EPA 1999, 070086). The protection of individual organisms within these designated protected species could also be achieved at the population level; the populations of these species tend to be small, and the loss of an individual adversely affects the species.

In accordance with this guidance, the Laboratory developed generic assessment endpoints to ensure that values at all levels of the food chain are considered in the ecological screening process (LANL 1999, 064137). These general assessment endpoints can be measured using impacts on reproduction, growth, and survival to represent categories of effects that may adversely impact populations. In addition, specific receptor species were chosen to represent each functional group. The receptor species were chosen because of their presence at the site, their sensitivity to the COPCs, and their potential for exposure to those COPCs. These categories of effects and the chosen receptor species were used to select the types of effects seen in toxicity studies considered in the development of the TRVs. Toxicity studies used in the development of TRVs included only those in which the evaluated adverse effect affected reproduction, survival, and/or growth.

The selection of receptors and assessment endpoints is designed to be protective of both the representative species used as screening receptors and the other species within their feeding guilds and the overall food web for the terrestrial and aquatic ecosystems. Focusing the assessment endpoints on the general characteristics of species that affect populations (rather than the biochemical and behavioral changes that may affect only the studied species) also ensures applicability to the ecosystem of concern.

H-5.3 Screening Evaluation

The ecological risk-screening assessments identify chemicals of potential ecological concern (COPECs) based on the comparison of EPCs with ESLs in accordance with Laboratory guidance (LANL 2004, 087630). The EPCs are presented in Table H-2.2-24, and the derivation is summarized in section H-3.4. The ESLs for all COPCs and receptors evaluated were obtained from the ECORISK Database, Release 2.5 (LANL 2010, 110846) and are presented in Table H-5.3-1.

The risk-screening assessments involve the calculation of HQs for all COPECs and all screening receptors (LANL 2004, 087630). The HQs are the ratios of the EPCs (UCLs, maximum detected concentrations, or maximum detection limits) to the ESLs. The analysis begins with a comparison of the minimum ESL with the EPC for each COPC. The COPCs with HQs greater than 0.3 are identified as COPECs and are evaluated further. The COPECs are evaluated by receptor with individual HQs for a receptor summed to produce an HI. For the purposes of the ecological screening, it is assumed nonradionuclides have common toxicological effects. An HI greater than 1 requires further assessment to determine if exposure to multiple COPECs results in potential adverse impacts to a given receptor population. The HQ and HI analysis is a conservative indication of potential adverse effects and is designed to minimize the potential of overlooking possible COPECs at the site. COPCs without ESLs are retained as COPECs and are evaluated further in the uncertainty section.

H-5.3.1 SWMU 02-006(a)

The results of the minimum ESL comparisons are presented in Table H-5.3-2. Antimony, arsenic, barium, chromium, copper, cyanide (total), lead, nickel, and selenium have HQs greater than 0.3 and are retained as COPECs.

Table H-5.3-3 presents the HQs and HIs for each receptor/COPEC at SWMU 02-006(a). The HI analysis indicates all receptors, except the red fox and the carnivorous kestrel, have HIs greater than 1 and are discussed in the uncertainty analysis.

Perchlorate does not have ESLs for any receptors. As a result, perchlorate is retained as COPECs and discussed in the uncertainty section.

H-5.4 Uncertainty Analysis

The uncertainty analysis describes the key sources of uncertainty related to the screening evaluations. This analysis can result in either adding or removing chemicals from the list of COPECs. The following is a qualitative uncertainty analysis of the issues relevant to evaluating potential ecological risk at each site.

H-5.4.1 Chemical Form

The assumptions used in the ESL derivations are conservative and not necessarily representative of actual conditions. These assumptions include maximum chemical bioavailability, maximum receptor ingestion rates, minimum body weight, and additive effects of multiple COPECs. These factors tend to result in conservative ESL estimates, which may lead to an overestimation of the potential risk. The assumption of additive effects for multiple COPECs may result in an over- or underestimation of the potential risk to receptors.

The chemical form of the individual COPCs was not determined as part of the investigation. Toxicological data are typically based on the most toxic and bioavailable chemical species, which are not typically found in the environment. Inorganic, radionuclide, and organic COPECs are generally not 100% bioavailable to receptors in the natural environment because of interference from other natural processes, such as the adsorption of chemical constituents to matrix surfaces (e.g., soil) or rapid oxidation or reduction changes that render harmful chemical forms unavailable to biotic processes. The ESLs were calculated to ensure a conservative indication of potential risk (LANL 2004, 087630), and the values are biased toward overestimating the potential risk to receptors.

H-5.4.2 Exposure Assumptions

The EPCs used in the HQ calculations are the UCLs or the maximum detected concentrations in the soil, fill, or tuff to depths of 5 ft bgs and are conservative estimates of exposure to each COPEC. The sampling efforts focused on areas of known contamination, and receptors were assumed to ingest 100% of their food and spend 100% of their time at the site. These exposure assumptions for terrestrial receptors in the Middle Los Alamos Canyon Aggregate Area are likely to overestimate potential ecological exposure and risk.

H-5.4.3 Toxicity Values

The HQs were calculated using ESLs, which are based on NOAELs as threshold effect levels; actual risk for a given COPEC/receptor combination occurs at a higher level, somewhere between the NOAEL-based threshold and the threshold based on the LOAEL. The use of NOAELs leads to an overestimation of potential risk to ecological receptors. ESLs are based on laboratory studies requiring extrapolation to wildlife receptors. Laboratory studies are typically based on artificial and maintained populations with genetically similar individuals and are limited to single chemical exposures in isolated and controlled conditions using a single exposure pathway. Wild species are concomitantly exposed to a variety of chemical and environmental stressors, potentially rendering them more susceptible to chemical stress. On the other hand, wild populations are probably more genetically diverse than laboratory populations, making wild populations, as a whole, less sensitive to chemical exposure than laboratory populations. The uncertainties associated with the ESLs tend to lead to an overestimation of potential risk.

H-5.4.4 Comparison with Background Concentrations

Although concentrations of inorganic chemicals were detected above background, the UCLs for some inorganic chemicals were similar to the range of background concentrations, indicating no potential risk from exposure across the site. This relationship is presented in Table H-5.4-1 for SWMU 02-006(a). The UCL is intended to represent the average concentration of a contaminant and the RME over time for a receptor at a site. The RME is the maximum exposure that is reasonably expected to occur at a site and represents the average concentration that is contacted over the exposure period. Although the RME concentration does not reflect the maximum concentration that could be contacted at any one time, it is regarded as a reasonable estimate of the concentration that could be contacted over time. This is because an assumption of long-term contact with the maximum concentration is generally not reasonable. If the EPCs are similar to the range of background concentrations, then the receptor is exposed to an average concentration, which is comparable with naturally occurring levels across the site. Whether some concentrations are elevated and reflect site releases is incorporated into the UCL calculations. If the EPC is similar to the range of background concentrations, the RME across the site is indistinguishable from background. For example, if the chromium EPC is 15 mg/kg and the ranges of background concentrations are 1.9 to 36.5 mg/kg for soil and 0.25 mg/kg to 13 mg/kg for Qbt 2, Qbt 3, and Qbt 4, the EPC is not a true reflection of potential toxicity. It is also an indication that site concentrations are not substantially different from background concentrations. Therefore, a conclusion that inorganic chemicals with EPCs similar to the range of background concentrations are contributing risk overestimates the potential risk and does not reflect actual exposure and risk.

SWMU 02-006(a)

The ecological screening assessment for this site is based on the exposure of ecological receptors to contamination to a depth of 5 ft bgs. The EPCs for some of the inorganic COPECs are similar to the range of background concentrations, indicating exposure to these inorganic chemicals across the site is similar to background (Table H-5.4-1). Antimony, arsenic, barium, chromium, copper, cyanide, lead, and nickel are eliminated as COPECs because their EPCs are similar to the range of background concentrations. Selenium is retained as a COPEC.

H-5.4.5 Area Use Factors

In addition to the direct comparison of the EPC with the ESLs, area use factors (AUFs) are used to account for the amount of time that a receptor is likely to spend within the contaminated areas based on the size of the receptor's home range (HR). The AUFs for individual organisms were developed by dividing the size of the site by the HR for that receptor. Because T&E species must be assessed on an individual, basis (EPA 1999, 070086), the AUF is used for the Mexican spotted owl. The kestrel (top carnivore) is used as the surrogate receptor for the Mexican spotted owl. The unadjusted HI (0.6) for the kestrel (top carnivore) is less than 1 for SWMU 02-006(a). The site area is 0.0081hectares (ha), and the HR for the Mexican spotted owl is 366 ha. Therefore, the AUF for the Mexican spotted owl is 0.00002 (Table H-5.4-2). Application of the AUF for the Mexican spotted owl to the HQs for the kestrel (top carnivore) results in an adjusted HI of 0.00001. Therefore, no potential exists for adverse impacts to the Mexican spotted owl.

H-5.4.6 Population Area Use Factors

EPA guidance is to manage the ecological risk to populations rather than to individuals, with the exception of T&E species (EPA 1999, 070086). One approach to address the potential effects on populations is to estimate the spatial extent of the area inhabited by the local population that overlaps with the contaminated area. The population area for each receptor is based on the individual receptor home range and its dispersal distance (Bowman et al. 2002, 073475). Bowman et al. (2002, 073475) estimate that the median dispersal distance for mammals is 7 times the linear dimension of the HR (i.e., the square root of the HR area). If only the dispersal distances for the mammals with HRs within the range of the screening receptors are used, the median dispersal distance becomes 3.6 times the square root of the HR ($R^2 = 0.91$) (Bowman et al. 2002, 073475). If it is assumed that the receptors can disperse over the same distance in any direction, the population area is circular and the dispersal distance is the radius of the circle. Therefore, the population area for each receptor can be derived by $\pi(3.6\sqrt{HR})^2$ or approximately 40HR.

The population area use factor (PAUF) is calculated by dividing the site area by the population area of the receptor. The PAUFs for the site are presented in Table H-5.4-2. The HQs are recalculated minus the COPECs eliminated based on similarity to background (section H-5.4.4) and adjusted by multiplying by the PAUFs. If the PAUF is greater than 1, the HQs are not adjusted for that receptor. The HQs for the plant and earthworm are not adjusted by PAUFs because these receptors do not have HRs. The adjusted HIs for the site are presented in Table H-5.4-3.

H-5.4.7 LOAEL Analysis

SWMU 02-006(a) has HIs greater than 1 for the earthworm and the plant. To address these HIs and reduce the associated uncertainty, a LOAEL analysis was conducted using ESLs calculated based on a LOAEL rather than a NOAEL. The LOAEL-based ESLs were calculated based on toxicity information in the ECORISK Database, Release 2.5 (LANL 2010, 110846) and are presented in Table H-5.4-4, along with the basis for each LOAEL used in the ESL calculations. The analysis addresses some of the uncertainties and conservativeness of the ESLs used in the initial screening assessments. The HI analyses were conducted using the LOAEL-based ESLs.

H-5.4.8 Site Discussions

SWMU 02-006(a)

The adjusted HIs for SWMU 02-006(a) (Table H-5.4-3) are less than 1 for the kestrel (intermediate and top carnivore); robin (herbivore, omnivore, and insectivore); cottontail; deer mouse; montane shrew; and red fox. The adjusted HIs are greater than 1 for the earthworm and the plant with selenium being the primary COPEC.

The LOAEL analysis results in HIs of 0.2 for the earthworm and approximately 3 for the plant (Table H-5.4-5). In addition, field observations made during the site visit found no indication of adverse effects on the plant community (Attachment H-2). Because the plant community does not appear to be affected by COPECs, the earthworm population is also probably not affected. Field observations indicated no adverse effects of any kind, and there appears to be a functioning ecological habitat for all terrestrial receptors, including plants, invertebrates, birds, and mammals. Therefore, the HIs are not consistent with field observations and do not indicate potential risk to these receptors.

H-5.4.9 COPECs without ESLs

Several COPECs do not have ESLs for any receptor in release 2.5 of the ECORISK Database (LANL 2010, 110846) because literature searches for relevant toxicity data for these chemicals have not been completed. In an effort to address this uncertainty and provide a quantitative assessment of potential ecological risk, several online toxicity databases have been searched to determine if any relevant toxicity information is available. The online databases searched were EPA Ecotox Database, EPA Office of Pesticide Programs Aquatic Life Benchmarks, U.S. Army Corps of Engineers/EPA Environmental Residue-Effects, California Cal/Ecotox Database, Pesticide Action Network Pesticide Database, U.S. Army Wildlife Toxicity Assessment Program, USDA Integrated Pesticide Management Database, American Bird Conservancy Pesticide Toxicity Database, and Oak Ridge National Laboratory Risk Assessment Information System. Toxicity data were obtained for several COPECs and receptors as a result of this online database search. However, several COPECs did not have any relevant toxicity data in the online databases listed above.

In the absence of a chemical-specific ESL, COPEC concentrations can be compared with the ESLs for a surrogate chemical. Comparison to surrogate ESLs provides an estimate of potential effects of a chemically related compound and a line of evidence to indicate the likelihood that ecological receptors are potentially impacted.

Some COPECs without ESLs do not have chemical-specific toxicity data or surrogate chemicals to be used in the screening assessments and cannot be assessed quantitatively for potential ecological risk. These COPECs are often infrequently detected across the site. In these cases, comparisons to residential human health SSLs are presented as part of a qualitative assessment. The comparison of COPEC concentrations to residential human health SSLs is a viable alternative for several reasons. Animal studies are used to infer effects on humans and is the basic premise of modern toxicology (EPA 1989, 008021). In addition, toxicity values derived for the calculation of human health SSLs are often based on potential effects that are more sensitive than the ones used to derive ESLs (e.g., cellular effects for humans versus survival or reproductive effects for terrestrial animals). The EPA also applies uncertainty factors or modifying factors to ensure that the toxicity values are protective (i.e., they are adjusted by uncertainty factors to values much lower than the study results). COPEC concentrations compared with these values are an order of magnitude or more below the SSLs, which corresponds to uncertainty factors of 10 or more. Therefore, it is assumed the differences in toxicity would not be more than an order of magnitude for any given chemical. The relative difference between values provides a weight of evidence that the potential toxicity of the COPC is likely to be low or very low to the receptor(s).

H-5.4.9.1 SWMU 02-006(a)

No ESLs are available in the ECORISK Database, Release 2.5 (LANL 2010, 110846) for perchlorate. In addition, no toxicity data were found as a result of the online database searches.

Perchlorate was detected in 26 samples with a maximum detected concentration of 0.00814 mg/kg. No background data are available for perchlorate. The NMED residential SSL for perchlorate is 54.8 mg/kg, indicating that potential toxicity is low. Because of the potential low toxicity, perchlorate is eliminated as a COPEC.

H-5.4.10 DOE Tier I Bioconcentration Guide

The DOE Tier I Biota Concentration Guide (BCG) (DOE 2002, 085637) is a lower value for cesium-137 (20.8 pCi/g) and strontium-90 (22.5 pCi/g) than the ECORISK Database final ESLs (680 pCi/g and 560 pCi/g, respectively). Using the EPCs for cesium-137 and strontium-90 for SWMU 02-006(a) and the DOE Tier I BCG, the HQs for these radionuclides are all less than 0.3. These HQs are too small to impact the HIs for these sites. In addition, the DOE BCG incorporates bioaccumulation factors that are orders of magnitude higher than those in the ECORISK Database. Environmental surveillance and monitoring at the Laboratory indicate that bioaccumulation factors are not as high as those used by DOE (Bennett et al. 1996, 056035). Therefore, the ESL comparison is more representative than the BCG comparison.

H-5.5 Interpretation of Ecological Risk-Screening Results

H-5.5.1 Receptor Lines of Evidence

Based on the ecological risk-screening assessments, several COPECs (including COPECs without ESLs) were identified at SWMU 02-006(a) (Tables H-5.3-2 and H-5.3-3). Receptors were evaluated using several lines of evidence: minimum ESL comparisons, HI analyses, comparison with background concentrations, potential effects to populations (individuals for T&E species), and LOAEL analyses.

Red Fox (Carnivore)

- Initial screening using the minimum ESLs eliminated a number of COPECs because the HQs for all of the receptors, including the red fox, were less than 0.3.
- The HI analysis indicated that the HI for the red fox was less than 1.

These lines of evidence support the conclusion that no potential ecological risk to the red fox exists at SWMU 02-006(a).

Kestrel (Top Carnivore)

- Initial screening using the minimum ESLs eliminated a number of COPECs because the HQs for all of the receptors, including the kestrel (top carnivore), were less than 0.3.
- The HI analysis indicated that the HI for the kestrel (top carnivore) was less than 1.

These lines of evidence support the conclusion that no potential ecological risk to the kestrel (top carnivore) or the Mexican spotted owl exists at SWMU 02-006(a).

Kestrel (Intermediate Carnivore)

- Initial screening using the minimum ESLs eliminated a number of COPECs because the HQs for all of the receptors, including the kestrel, were less than 0.3.
- Several COPECs were eliminated because their EPCs were similar to background concentrations.
- The HIs were adjusted by the PAUFs, which is the ratio of the site area to the kestrel's population area. The adjusted HI was less than 1 for the kestrel (intermediate carnivore) for SWMU 02-006(a).

These lines of evidence support the conclusion that no potential ecological risk to the kestrel (intermediate carnivore) exists at SWMU 02-006(a).

Robin (all feeding guilds)

- Initial screening using the minimum ESLs eliminated a number of COPECs because the HQs for all of the receptors, including the robin, were less than 0.3.
- Several COPECs were eliminated because their EPCs were similar to background concentrations.
- The HIs were adjusted by the PAUFs, which is the ratio of the site area to the robin's population area. The adjusted robin HIs were less than 1 at SWMU 02-006(a).

These lines of evidence support the conclusion that no potential ecological risk to the robin (all feeding guilds) exists at SWMU 02-006(a).

Deer Mouse (Omnivore)

- Initial screening using the minimum ESLs eliminated a number of COPECs because the HQs for all of the receptors, including the deer mouse, were less than 0.3.
- Several COPECs were eliminated because their EPCs were similar to background concentrations.
- The HIs were adjusted by the PAUF, which is the ratio of the site area to the deer mouse's population area. The adjusted HI was less than 1 at SWMU 02-006(a).

These lines of evidence support the conclusion that no potential ecological risk to the deer mouse exists at SWMU 02-006(a).

Desert Cottontail (Herbivore)

- Initial screening using the minimum ESLs eliminated a number of COPECs because the HQs for all of the receptors, including the cottontail, were less than 0.3.
- Several COPECs were eliminated because their EPCs were similar to background concentrations.
- The HIs were adjusted by the PAUFs, which is the ratio of the site area to the cottontail's population area. The adjusted HI was less than 1 at SWMU 02-006(a).

These lines of evidence support the conclusion that no potential ecological risk to the cottontail exists at SWMU 02-006(a).

Montane Shrew (Insectivore)

- Initial screening using the minimum ESLs eliminated a number of COPECs because the HQs for all of the receptors, including the shrew, were less than 0.3.
- Several COPECs were eliminated because their EPCs were similar to background concentrations.
- The HIs were adjusted by the PAUFs, which is the ratio of the site area to the shrew's population area. The adjusted HI was less than 1 at SWMU 02-006(a).

These lines of evidence support the conclusion that no potential ecological risk to the montane shrew exists at SWMU 02-006(a).

Earthworm (Invertebrate)

- Initial screening using the minimum ESLs eliminated a number of COPECs because the HQs for all of the receptors, including the earthworm, were less than 0.3.
- Several COPECs were eliminated because their EPCs were similar to background concentrations.
- A LOAEL analysis was conducted and resulted in an HI of 0.2.

These lines of evidence support the conclusion that no potential ecological risk to the earthworm exists at SWMU 02-006(a).

Plant

- Initial screening using the minimum ESLs eliminated a number of COPECs because the HQs for all of the receptors, including the plant, were less than 0.3.
- Several COPECs were eliminated because their EPCs were similar to background concentrations.
- A LOAEL analysis was conducted and resulted in an HI of approximately 3.
- The plant communities were evaluated at all sites during site visits. No evidence of adverse impacts of contamination to the plant community based on field observations was found during site visits; the plant community is typical of the surrounding area and appears healthy. Field observations indicated no adverse effects of any kind, and there appears to be functioning ecological habitat for all terrestrial receptors, including plants, invertebrates, birds, and mammals.

These lines of evidence support the conclusion that no potential ecological risk to the plant exists at SWMU 02-006(a).

H-5.5.2 COPECs with No ESLs

The COPECs with no ESLs were evaluated and were eliminated. The analysis of COPECs with no ESLs supports the conclusion that no potential ecological risk to any receptor exists at SWMU 02-006(a).

H-5.5.3 Summary

Based on evaluations of the minimum ESL, HI analysis, comparisons to background, potential effects to populations (individuals for T&E species), and LOAEL analysis, no potential ecological risk exists at SWMU 02-006(a).

H-6.0 CONCLUSIONS

H-6.1 Human Health

The human health risk-screening assessments indicated no potential unacceptable risks and doses from COPCs for the industrial, recreational, and residential scenarios for 19 sites evaluated in the Middle Los Alamos Canyon Aggregate Area. The human health risk-screening assessments indicated no potential unacceptable risks or doses from COPCs for the industrial and recreational scenarios for an additional 10 sites (for a total of 29) evaluated in the Middle Los Alamos Canyon Aggregate Area. The total excess cancer risks were less than or equivalent to the NMED target risk level of 1×10^{-5} (NMED 2009, 108070) for the industrial, recreational, and residential scenarios for 28 sites. The HIs for the industrial, recreational, and residential scenarios were less than or equivalent to the NMED target HI of 1 (NMED 2009, 108070) for 28 sites. The total doses for the industrial, recreational, and residential scenarios were less than or equivalent to the DOE target dose of 15 mrem/yr (DOE 2000, 067489) for 19 sites. Ten sites had a total dose greater than 15 mrem/yr for the residential scenario, one site had a total excess cancer risk slightly above 1×10^{-5} for the residential scenario, and one site had a lead EPC above the residential SSL. In addition, the lateral extent samples around TA-02 indicated no potential unacceptable risks and doses from COPCs for the industrial, recreational, and residential scenarios. The total equivalent risks ranged from 7×10^{-8} to 5×10^{-5} for the industrial scenario, 2×10^{-12} to 5×10^{-6} for the recreational scenario, and 1×10^{-7} to 3×10^{-3} for the residential scenario.

The Laboratory’s as low as reasonably achievable (ALARA) program description states that quantitative ALARA evaluations are not necessary for a potential annual public exposure less than a 3-mrem total effective dose equivalent individual dose (“Los Alamos National Laboratory Environmental ALARA Program,” PD410, p. 7, effective November 8, 2008). For TA-02, where public access is possible, the recreational scenario is the likely scenario, while the industrial and residential scenarios are highly unlikely because the site is in the canyon and in the floodplain, and the Laboratory has no plans to use the area. The calculated radiation dose(s) for the recreational scenario at all of the TA-02 sites evaluated ranged from no dose to 1 mrem/yr. The calculated radiation dose(s) for the industrial scenario at all of the TA-02 sites evaluated ranged from no dose to 11 mrem/yr. The calculated radiation dose(s) for the residential scenario at 19 TA-02 sites ranged from 0.0006 mrem/yr to 15 mrem/yr. The total doses at the other 10 TA-02 sites were above 15 mrem/yr for the residential scenario.

Several sites had the doses background- and/or decay-corrected (cobalt-60 only) for the industrial and/or residential scenarios, which resulted in the total doses for some sites being less than or equal to 3 mrem/yr. As a result, the total doses for these sites are ALARA. ALARA analyses were conducted for nine sites with residential doses between 3 mrem/yr and 15 mrem/yr, and six sites with industrial doses between 3 mrem/yr and 15 mrem/yr (Attachment H-3). Based on the ALARA analyses, the doses for the industrial scenario at six sites and the residential scenario at nine sites between 3 mrem/yr and 15 mrem/yr are ALARA.

In summary, the potential annual public exposure to radiation for the recreational scenario at the 29 sites assessed, the industrial scenario for 29 sites and the residential scenario for 19 sites are less than or equivalent to 15 mrem/yr. However, because TA-02 is currently not being used, and will not be used, for industrial or residential purposes, the doses for the industrial and residential scenarios are not representative of the area and no further remediation is necessary. Per PD410, the doses at the TA-02 sites for the recreational scenario, which is the current and foreseeable future land use, do not exceed 3 mrem/yr and are ALARA.

H-6.2 Ecology

No potential ecological risks were found for any receptor based on minimum ESL comparisons, HI analyses, comparisons to background concentrations, potential effects to populations (individuals for T&E species), and LOAEL analyses at SWMU 02-006(a). These lines of evidence, discussed above for each receptor, and the analysis of COPECs with no ESLs support the conclusion that no potential ecological risks exist at SWMU 02-006(a).

H-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. This information is also included in text citations. ER IDs are assigned by the Environmental Programs Directorate's Records Processing Facility (RPF) and are used to locate the document at the RPF and, where applicable, in the master reference set.

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

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Primary Source	Primary Release Mechanism	Affected Media	Secondary Release Mechanism	Impacted Media	Exposure Pathways	Residential	Recreational	Industrial	Biota
Laboratory Operations, Waste Disposal, and Releases to Surface Soil, Subsurface Soil/Tuff, and Sediment	Infiltration Percolation	Groundwater	Domestic Use	Water	None	O	O	O	O
			Seeps	Water	None	O	O	O	O
	Volatilization	Soil and Tuff	Volatilization	Air	Inhalation	X	X	X	O
	Resuspension	Airborne Particulates		Air	Inhalation	X	X	X	O
	Direct Release	Surface Soil (0–1 ft)		Soil	Ingestion Dermal External Irradiation	X X X	X X X	X X X	X X X
			Erosion	Sediment	Ingestion Dermal External Irradiation	X X X	X X X	X X X	X X X
		Subsurface Soil (1–10 ft or 1–5 ft)		Soil and Tuff	Ingestion Dermal External Irradiation	X X X	O O O	O O O	X X X
		Subsurface Soil (Below 10 ft or 5 ft)		Soil and Tuff	None	O	O	O	O

X = Evaluated in risk screen; major or minor pathway.

O = Not evaluated in risk screen; no pathway.

Figure H-3.1-1 Conceptual site model for human and ecological receptors at TA-02

Table H-2.2-1
EPCs for AOC 02-003(a) for the Industrial and Recreational Scenarios

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Inorganic Chemicals (mg/kg)							
Arsenic	8	8	1.1	2.6	Normal	2.002	95% Student's-t
Cadmium	8	8	0.021	1.05	Approximate Gamma	0.614	95% Approximate Gamma
Copper	8	6	3.24	77	Nonparametric	53.89	95% KM(Chebyshev)
Mercury	8	8	0.026	1.18	Gamma	0.758	95% Approximate Gamma
Perchlorate	8	2	0.000827	0.00565	n/a[a]	0.00565	Maximum detected concentration
Selenium	8	2	0.28	1.54(U)	n/a	0.821[b]	Maximum detected concentration
Zinc	8	8	27	50.4	Normal	43.8	95% Student's-t
Organic Chemicals (mg/kg)							
Acenaphthene	6	1	0.0136	0.0359(U)	n/a	0.0136[b]	Maximum detected concentration
Anthracene	6	3	0.007	0.0342(U)	n/a	0.0214[b]	Maximum detected concentration
Aroclor-1254	6	4	0.0094	0.171	n/a	0.171	Maximum detected concentration
Aroclor-1260	6	4	0.0109	0.74	n/a	0.74	Maximum detected concentration
Benzo(a)anthracene	6	3	0.0203(U)	0.0683	n/a	0.0683	Maximum detected concentration
Benzo(a)pyrene	6	3	0.0298	0.099	n/a	0.099	Maximum detected concentration
Benzo(b)fluoranthene	6	2	0.0146(U)	0.0436	n/a	0.0436	Maximum detected concentration
Benzo(g,h,i)perylene	6	1	0.0121	0.0343(U)	n/a	0.0121[b]	Maximum detected concentration
Chrysene	6	5	0.0152	0.0649	n/a	0.0649	Maximum detected concentration
Fluoranthene	6	6	0.0145	0.173	n/a	0.173	Maximum detected concentration
Indeno(1,2,3-cd)pyrene	6	1	0.0298(U)	0.0554	n/a	0.0554	Maximum detected concentration
Naphthalene	6	1	0.0111	0.0343(U)	n/a	0.0111[b]	Maximum detected concentration
Phenanthrene	6	5	0.0111	0.0942	n/a	0.0942	Maximum detected concentration
Pyrene	6	6	0.0253	0.158	n/a	0.158	Maximum detected concentration
Radionuclides (pCi/g)							
Cesium-137	9	8	0.139	5.7	Gamma	3.678	95% KM(Chebyshev)
Plutonium-239/240	9	4	0.007(U)	0.252	n/a	0.252	Maximum detected concentration
Tritium	9	2	-0.0122(U)	0.0209	n/a	0.0209	Maximum detected concentration

Note: Data qualifiers are defined in Appendix A.
[a] n/a = Not applicable.
[b] The maximum concentration of the data set is a nondetect (U or UJ); thus, the maximum detected concentration is less than the maximum concentration.

Table H-2.2-2
EPCs for AOC 02-003(a) for the Residential Scenario

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Inorganic Chemicals (mg/kg)							
Antimony	24	3	0.101	1.12(U)	n/a[a]	0.66[b]	Maximum detected concentration
Arsenic	24	24	0.644	2.88	Lognormal	1.769	95% Student's-t
Cadmium	24	18	0.019(U)	2.23	Approximate Gamma	0.791	95% KM(Chebyshev)
Chromium	24	16	1.9	123	Nonparametric	19.71	95% KM(BCA)
Copper	24	16	2.1	77	Nonparametric	13.32	95% KM(BCA)
Iron	24	24	5150	10300	Normal	7633	95% Student's-t
Manganese	24	24	170	330	Normal	276.1	95% Student's-t
Mercury	24	21	0.0017(U)	1.18	Gamma	0.391	95% KM(Chebyshev)
Perchlorate	17	5	0.000596	0.00565	Normal	0.00168	95% KM(t)
Selenium	24	8	0.28(U)	1.61(U)	Normal	0.758	95% KM(t)
Vanadium	24	24	5.3	13	Normal	8.936	95% Student's-t
Zinc	24	24	27	170	Nonparametric	55.73	95% Student's-t
Organic Chemicals (mg/kg)							
Acenaphthene	18	1	0.0136	0.0405(U)	n/a	0.0136[b]	Maximum detected concentration
Anthracene	18	3	0.007	0.0405(U)	n/a	0.0214[b]	Maximum detected concentration
Aroclor-1254	18	11	0.00347(U)	0.653	Gamma	0.189	95% KM(BCA)
Aroclor-1260	18	12	0.0018	1.25	Gamma	0.3	95% KM(BCA)
Benzo(a)anthracene	18	6	0.0122	0.0683	Normal	0.0315	95% KM(t)
Benzo(a)pyrene	18	4	0.0278	0.099	n/a	0.099	Maximum detected concentration
Benzo(b)fluoranthene	18	3	0.0146(U)	0.0436	n/a	0.0436	Maximum detected concentration
Benzo(g,h,i)perylene	18	2	0.0121	0.0405(U)	n/a	0.0203[b]	Maximum detected concentration

Table H-2.2-2 (continued)

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Benzo(k)fluoranthene	18	1	0.0129(U)	0.0405(U)	n/a	0.0182[b]	Maximum detected concentration
Bis(2-ethylhexyl)phthalate	18	1	0.149(U)	0.396(U)	n/a	0.153[b]	Maximum detected concentration
Chrysene	18	6	0.0152	0.0649	Gamma	0.0314	95% KM(t)
Dichlorobenzene[1,4-]	28	1	0.000563	0.405(U)	n/a	0.000563[b]	Maximum detected concentration
Fluoranthene	18	11	0.0102	0.173	Gamma	0.048	95% KM(Percentile Bootstrap)
Indeno(1,2,3-cd)pyrene	18	2	0.0165	0.0554	n/a	0.0554	Maximum detected concentration
Methylene Chloride	10	2	0.00355	0.00608(U)	n/a	0.00452[b]	Maximum detected concentration
Naphthalene	18	1	0.0111	0.0405(U)	n/a	0.0111b	Maximum detected concentration
Phenanthrene	18	8	0.0107	0.0942	Gamma	0.0347	95% KM(t)
Pyrene	18	10	0.0114	0.158	Gamma	0.0485	95% KM(t)
Toluene	10	2	0.000362	0.00122(U)	n/a	0.00037[b]	Maximum detected concentration
Radionuclides (pCi/g)							
Cesium-137	26	20	-0.0385(U)	274	Nonparametric	61.42	95% KM(Chebyshev)
Plutonium-239/240	27	14	3.01E-10(U)	3.34	Lognormal	0.877	95% KM(Chebyshev)
Strontium-90	27	12	-0.133(U)	43	Gamma	7.362	95% KM(t)
Tritium	27	10	-0.01222(U)	0.107	Gamma	0.0315	95% KM(t)

Note: Data qualifiers are defined in Appendix A.

[a] n/a = Not applicable.

[b] The maximum concentration of the data set is a nondetect (U or UJ); thus, the maximum detected concentration is less than the maximum concentration.

Table H-2.2-3
EPCs for AOC 02-003(b) for the Industrial and Recreational Scenarios

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Inorganic Chemicals (mg/kg)							
Cadmium	5	1	0.172	0.521(U)	n/a[a]	0.172[b]	Maximum detected concentration
Selenium	5	1	0.888	1.56(U)	n/a	0.888[b]	Maximum detected concentration
Organic Chemicals (mg/kg)							
Anthracene	5	3	0.00862	0.0351	n/a	0.0351	Maximum detected concentration
Aroclor-1254	5	5	0.0079	0.844	n/a	0.844	Maximum detected concentration
Aroclor-1260	5	5	0.0093	0.369	n/a	0.369	Maximum detected concentration
Benzo(a)anthracene	5	3	0.0342(U)	0.0831	n/a	0.0831	Maximum detected concentration
Benzo(a)pyrene	5	2	0.0342(U)	0.114	n/a	0.114	Maximum detected concentration
Benzo(b)fluoranthene	5	3	0.0105	0.164	n/a	0.164	Maximum detected concentration
Benzo(g,h,i)perylene	5	1	0.0342(U)	0.0467	n/a	0.0467	Maximum detected concentration
Benzo(k)fluoranthene	5	2	0.0342(U)	0.0654	n/a	0.0654	Maximum detected concentration
Chrysene	5	2	0.0342(U)	0.107	n/a	0.107	Maximum detected concentration
Fluoranthene	5	4	0.0125	0.228	n/a	0.228	Maximum detected concentration
Fluorene	5	1	0.0223	0.0365(U)	n/a	0.0223[b]	Maximum detected concentration
Methylnaphthalene[2-]	5	1	0.0137	0.0365(U)	n/a	0.0137[b]	Maximum detected concentration
Pyrene	5	3	0.0111	0.175	n/a	0.175	Maximum detected concentration
Radionuclides (pCi/g)							
Cesium-137	5	4	0.0774(U)	0.644	n/a	0.644	Maximum detected concentration
Plutonium-239/240	5	3	0.0162(U)	0.768	n/a	0.768	Maximum detected concentration
Uranium-234	5	5	1.03	1.17	n/a	1.17	Maximum detected concentration
Uranium-235/236	5	3	0.0391(U)	0.0695	n/a	0.0695	Maximum detection limit
Uranium-238	5	5	1.02	1.15	n/a	1.15	Maximum detected concentration

Note: Data qualifiers are defined in Appendix A.

[a] n/a = Not applicable.

[b] The maximum concentration of the data set is a nondetect (U or UJ); thus, the maximum detected concentration is less than the maximum concentration.

Table H-2.2-4
EPCs for AOC 02-003(b) for the Residential Scenario

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Inorganic Chemicals (mg/kg)							
Aluminum	15	15	1080	7190	Gamma	3227	95% Appoximate Gamma
Antimony	12	0	0.398(U)	0.941(U)	n/a[a]	0.941(U)	Maximum detection limit
Arsenic	15	15	0.803	3.25	Normal	2.214	95% Student's-t
Barium	12	12	12.6	62.8	Normal	40.58	95% Student's-t
Cadmium	15	5	0.075	0.562(U)	Normal	0.244	95% KM(t)
Chromium	15	6	1.08(U)	16.6(U)	Normal	7.719	95% KM(t)
Copper	15	9	1.66(U)	6.07(U)	Normal	3.193	95% KM(t)
Iron	15	15	5100	9160	Normal	7353	95% Student's-t
Manganese	15	15	202	350	Normal	289.5	95% Student's-t
Nickel	15	12	1.08	5.02(U)	Normal	3.132	95% KM(t)
Selenium	15	5	0.203	1.69(U)	Normal	0.954	95% KM(t)
Silver	15	13	0.0543	1.1	Lognormal	0.693	95% KM(Chebyshev)
Vanadium	15	15	2.62	12.2	Normal	8.14	95% Student's-t
Organic Chemicals (mg/kg)							
Anthracene	16	3	0.00862	1.8(U)	n/a	0.0351[b]	Maximum detected concentration
Aroclor-1254	12	9	0.0035	0.844	Gamma	0.399	95% KM(Chebyshev)
Aroclor-1260	12	12	0.0015	0.369	Approximate Gamma	0.149	95% Adjusted Gamma
Benzo(a)anthracene	16	2	0.0342(U)	1.8(U)	n/a	0.0831[b]	Maximum detected concentration
Benzo(a)pyrene	16	2	0.0342(U)	1.8(U)	n/a	0.114[b]	Maximum detected concentration
Benzo(b)fluoranthene	16	3	0.0105	1.8(U)	n/a	0.164[b]	Maximum detected concentration
Benzo(g,h,i)perylene	16	1	0.0342(U)	1.8(U)	n/a	0.0467[b]	Maximum detected concentration
Benzo(k)fluoranthene	16	2	0.0342(U)	1.8(U)	n/a	0.0654[b]	Maximum detected concentration
Butylbenzene[n-]	6	1	0.000661	0.00118(U)	n/a	0.000661[b]	Maximum detected concentration

Table H-2.2-4 (continued)

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Chrysene	16	2	0.0342(U)	1.8(U)	n/a	0.107[b]	Maximum detected concentration
Di-n-butylphthalate	16	1	0.042(U)	1.8(U)	n/a	0.2[b]	Maximum detected concentration
Fluoranthene	16	6	0.0124	0.4(U)	Normal	0.0799	95% KM(t)
Fluorene	16	1	0.0223	1.8(U)	n/a	0.0223[b]	Maximum detected concentration
Isopropyltoluene[4-]	6	1	0.000403	0.00118(U)	n/a	0.000403[b]	Maximum detected concentration
Methylnaphthalene[2-]	16	1	0.0137	1.8(U)	n/a	0.0137[b]	Maximum detected concentration
Phenanthrene	16	1	0.0342(U)	0.4(U)	n/a	0.091[b]	Maximum detected concentration
Pyrene	16	5	0.0111	0.4(U)	Normal	0.0672	95% KM(t)
Trimethylbenzene[1,2,4-]	6	1	0.000229	0.00111(U)	n/a	0.000229[b]	Maximum detected concentration
Radionuclides (pCi/g)							
Cesium-137	13	10	0.0278(U)	4.46	Nonparametric	2.842	95% KM(Chebyshev)
Plutonium-239/240	16	7	0.001(U)	0.768	Normal	0.32	95% KM(t)
Strontium-90	16	4	-0.13(U)	0.96	n/a	0.96	Maximum detected concentration
Uranium-234	16	16	0.965	2.27	Nonparametric	1.42	95% Student's-t
Uranium-235/236	16	9	0.0363(U)	0.155	Normal	0.0908	95% KM(t)
Uranium-238	16	16	0.99	2.11	Approximate Gamma	1.367	95% Approximate Gamma

Note: Data qualifiers are defined in Appendix A.

[a] n/a = Not applicable.

[b] The maximum concentration of the data set is a nondetect (U or UJ); thus, the maximum detected concentration is less than the maximum concentration.

Table H-2.2-5
EPCs for AOC 02-003(c) for the Industrial and Recreational Scenarios

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Inorganic Chemicals (mg/kg)							
Barium	12	12	26.1	380	Gamma	182.3	95% Approximate Gamma
Cadmium	12	6	0.136	0.59(U)	Normal	0.268	95% KM(t)
Copper	12	12	2.29	80	Nonparametric	47.01	95% Chebyshev (Mean, Sd)
Mercury	12	12	0.0254	1.11	Normal	0.503	95% Student's-t
Perchlorate	11	2	0.000591	0.00236(U)	n/a[a]	0.000745[b]	Maximum detected concentration
Selenium	12	7	0.642	14.6	Normal	5.505	95% KM(t)
Organic Chemicals (mg/kg)							
Anthracene	11	4	0.00767	0.0368(U)	n/a	0.0132[b]	Maximum detected concentration
Aroclor-1254	2	1	0.00347(U)	0.0065	n/a	0.0065	Maximum detected concentration
Aroclor-1260	2	2	0.0019	0.0077	n/a	0.0077	Maximum detected concentration
Benzo(a)anthracene	11	4	0.0294	0.0702	n/a	0.0702	Maximum detected concentration
Benzo(a)pyrene	11	4	0.0231	0.0858	n/a	0.0858	Maximum detected concentration
Benzo(b)fluoranthene	11	7	0.0213	0.132	Normal	0.0679	95% KM(t)
Benzo(g,h,i)perylene	11	1	0.0137	0.0384(U)	n/a	0.0137[b]	Maximum detected concentration
Chrysene	11	7	0.0144	0.0891	Normal	0.0485	95% KM(t)
Fluoranthene	11	8	0.0149	0.129	Normal	0.0684	95% KM(t)
Phenanthrene	11	7	0.0141	0.0702	Normal	0.0437	95% KM(t)
Pyrene	11	8	0.0141	0.131	Normal	0.0688	95% KM(t)
Radionuclides (pCi/g)							
Cobalt-60	12	1	-0.0112(U)	0.24	n/a	0.24	Maximum detected concentration
Plutonium-239/240	12	9	0.00907(U)	0.327	Normal	0.177	95% KM(t)
Tritium	12	3	-0.0052(U)	0.138	n/a	0.138	Maximum detected concentration

Note: Data qualifiers are defined in Appendix A.

[a] n/a = Not applicable.

[b] The maximum concentration of the data set is a nondetect (U or UJ); thus, the maximum detected concentration is less than the maximum concentration.

Table H-2.2-6
EPCs for AOC 02-003(c) for the Residential Scenario

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Inorganic Chemicals (mg/kg)							
Antimony	27	5	0.16	0.947(U)	Normal	0.188[b]	95% KM(t)
Arsenic	27	26	0.547(U)	3.09	Normal	2.047	95% KM(t)
Barium	27	27	14.5	2230	Nonparametric	628.2	95% Chebyshev (Mean, Sd)
Cadmium	27	6	0.018(U)	0.59(U)	Normal	0.253	95% KM(t)
Chromium	27	27	1.71	23.2	Gamma	9.637	95% Approximate Gamma
Copper	27	27	1.85	80	Nonparametric	24.22	95% Chebyshev (Mean, Sd)
Iron	27	27	5080	14400	Gamma	8109	95% Approximate Gamma
Lead	27	27	4.59	62	Nonparametric	22.44	95% Chebyshev (Mean, Sd)
Manganese	27	27	162	360	Normal	259.2	95% Student's-t
Mercury	27	27	0.0028	2.43	Gamma	0.517	95% Adjusted Gamma
Perchlorate	24	3	0.000591	0.00236(U)	n/a[a]	0.00113[b]	Maximum detected concentration
Selenium	27	17	0.28(U)	14.6	Nonparametric	7.228	95% KM(Chebyshev)
Thallium	27	14	0.0453(U)	8.21	Nonparametric	1.719	95% KM(Chebyshev)
Vanadium	27	27	3.67	12.7	Normal	8.993	95% Student's-t
Organic Chemicals (mg/kg)							
Acenaphthene	24	1	0.0167	0.115(U)	n/a	0.0167[b]	Maximum detected concentration
Acetone	14	1	0.00526(U)	0.0101	n/a	0.0101	Maximum detected concentration
Anthracene	24	5	0.00767	0.115(U)	Normal	0.0155	95% KM(t)
Aroclor-1254	4	1	0.00347(U)	0.0065	n/a	0.0065	Maximum detected concentration
Aroclor-1260	4	3	0.0019	0.0077	n/a	0.0077	Maximum detected concentration
Benzo(a)anthracene	24	6	0.0175(U)	0.115(U)	Normal	0.0383	95% KM(t)

Table H-2.2-6 (continued)

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Benzo(a)pyrene	24	6	0.0197	0.115(U)	Normal	0.0387	95% KM(t)
Benzo(b)fluoranthene	24	10	0.0192	0.132	Normal	0.0469	95% KM(t)
Benzo(g,h,i)perylene	24	2	0.0137	0.115(U)	n/a	0.0434[b]	Maximum detected concentration
Benzo(k)fluoranthene	24	1	0.0326(U)	0.115(U)	n/a	0.0393[b]	Maximum detected concentration
Chloroform	14	4	0.000257	0.00115(U)	n/a	0.00319[b]	Maximum detected concentration
Chrysene	24	11	0.0144	0.115(U)	Gamma	0.037	95% KM(t)
Fluoranthene	24	12	0.0149	0.129	Gamma	0.0511	95% KM(t)
Indeno(1,2,3-cd)pyrene	24	1	0.0326(U)	0.158	n/a	0.158	Maximum detected concentration
Methylnaphthalene[2-]	24	1	0.00792	0.115(U)	n/a	0.00792[b]	Maximum detected concentration
Naphthalene	24	1	0.0161	0.115(U)	n/a	0.0161[b]	Maximum detected concentration
Phenanthrene	24	11	0.0141	0.115(U)	Normal	0.0391	95% KM(t)
Pyrene	24	12	0.0141	0.131	Gamma	0.0495	95% KM(t)
Toluene	14	6	0.00037	0.00116(U)	Normal	0.0007981	95% KM(t)
Radionuclides (pCi/g)							
Cesium-137	28	20	-0.0621(U)	6.27	Gamma	1.335	95% KM(Percentile Bootstrap)
Cobalt-60	29	1	-0.0287(U)	0.24	n/a	0.24	Maximum detected concentration
Plutonium-239/240	29	14	0.00158(U)	0.327	Gamma	0.0954	95% KM(t)
Tritium	29	8	-0.02291(U)	0.1597	Normal	0.043	95% KM(t)

Note: Data qualifiers are defined in Appendix A.

[a] n/a = Not applicable.

[b] The maximum concentration of the data set is a nondetect (U or UJ); thus, the maximum detected concentration is less than the maximum concentration.

Table H-2.2-7
EPCs for AOC 02-003(d) for the Industrial and Recreational Scenarios

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Inorganic Chemicals (mg/kg)							
Antimony	13	0	0.28(U)	1.08(U)	n/a[a]	1.08	Maximum detection limit
Cadmium	20	7	0.042	0.572(U)	Normal	0.156	95% KM(t)
Nitrate	16	15	1.07(U)	22.6	Gamma	12.87	95% KM(Chebyshev)
Perchlorate	16	12	0.000627	0.00243	Normal	0.00166	95% KM(t)
Selenium	20	13	0.27(U)	9.04	Nonparametric	4.058	95% KM(Chebyshev)
Silver	20	16	0.045(U)	1.3	Approximate Gamma	0.567	95% KM(Chebyshev)
Thallium	20	16	0.0476	1.13	Nonparametric	0.131	95% KM(BCA)
Zinc	20	20	23.8	71.2	Normal	50.32	95% Student's-t
Organic Chemicals (mg/kg)							
Aroclor-1254	6	3	0.0035	0.0082	n/a	0.0082	Maximum detected concentration
Aroclor-1260	6	3	0.0027	0.0053	n/a	0.0053	Maximum detected concentration
Benzo(a)anthracene	17	7	0.0135	0.0381(U)	Normal	0.0208	95% KM(t)
Benzo(a)pyrene	17	1	0.0124(U)	0.0385(U)	n/a	0.0299[b]	Maximum detected concentration
Benzo(b)fluoranthene	17	8	0.0132	0.0763	Normal	0.034	95% KM(t)
Benzo(k)fluoranthene	17	1	0.013	0.0386(U)	n/a	0.013[b]	Maximum detected concentration
Chrysene	17	7	0.0139	1.0498	Normal	0.0275	95% KM(t)
Fluoranthene	17	10	0.0119	0.0779	Gamma	0.0342	95% KM(t)
Phenanthrene	17	5	0.0107	0.0385(U)	Normal	0.028	95% KM(t)
Pyrene	17	9	0.0143	0.0919	Gamma	0.0374	95% KM(t)
Radionuclides (pCi/g)							
Cesium-137	20	20	0.128	1.15	Normal	0.597	95% Student's-t
Cobalt-60	20	1	-0.0314(U)	0.97	n/a	0.97	Maximum detected concentration
Plutonium-239/240	20	16	0.00153(U)	0.198	Nonparametric	0.095	95% KM(BCA)
Tritium	19	2	-0.00716(U)	0.103	n/a	0.103	Maximum detected concentration
Uranium-238	20	20	0.912	2.57	Normal	1.756	95% Student's-t

Note: Data qualifiers are defined in Appendix A.

[a] n/a = Not applicable.

[b] The maximum concentration of the data set is a nondetect (U or UJ); thus, the maximum detected concentration is less than the maximum concentration.

Table H-2.2-8
EPCs for AOC 02-003(d) for the Residential Scenario

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Inorganic Chemicals (mg/kg)							
Antimony	27	1	0.28(U)	1.08(U)	n/a[a]	0.32[b]	Maximum detected concentration
Beryllium	39	39	0.274	5.84	Nonparametric	1.852	95% Chebyshev (Mean, Sd)
Cadmium	39	11	0.0402	0.572(U)	Normal	0.147	95% KM(t)
Calcium	39	39	232	3850	Gamma	1643	95% Approximate Gamma
Chromium	39	32	1.87	29.5	Nonparametric	8.993	95% KM(Chebyshev)
Copper	39	36	0.866(U)	6.13	Normal	3.497	95% KM(t)
Iron	39	39	3590	10500	Normal	7781	95% Student's-t
Magnesium	39	39	167	2380	Gamma	877.8	95% Approximate Gamma
Manganese	39	39	142	426	Normal	288.6	95% Student's-t
Nickel	39	39	0.504	9.12	Gamma	3.493	95% Approximate Gamma
Nitrate	30	24	0.888	22.6	Gamma	5.798	95% KM(BCA)
Perchlorate	30	18	0.000565	0.00271	Gamma	0.00147	95% KM(t)
Selenium	39	23	0.27(U)	12	Nonparametric	3.73	95% KM(Chebyshev)
Silver	39	30	0.045(U)	1.3	Nonparametric	0.426	95% KM(Chebyshev)
Thallium	39	27	0.0476	1.13	Nonparametric	0.212	95% KM(BCA)
Vanadium	39	36	0.934	13.5	Nonparametric	8.214	95% KM(Chebyshev)
Zinc	39	39	9.96	78.2	Normal	48.31	95% Student's-t
Organic Chemicals (mg/kg)							
Aroclor-1254	17	5	0.0015	0.0302	Gamma	0.00739	95% KM(t)
Aroclor-1260	17	3	0.0027	0.0053	n/a	0.0053	Maximum detected concentration
Benzo(a)anthracene	33	8	0.0135	0.0381(U)	Normal	0.0213	95% KM(t)
Benzo(a)pyrene	33	2	0.0124(U)	0.0385(U)	n/a	0.0299[b]	Maximum detected concentration
Benzo(b)fluoranthene	33	9	0.0132	0.0763	Normal	0.0297	95% KM(t)
Benzo(k)fluoranthene	33	2	0.013	0.0386(U)	n/a	0.0144[b]	Maximum detected concentration

Table H-2.2-8 (continued)

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Chrysene	33	8	0.0139	0.0498	Normal	0.0277	95% KM(t)
Fluoranthene	33	11	0.0119	0.109	Gamma	0.324	95% KM(t)
Phenanthrene	33	6	0.0107	0.0631	Nromal	0.0264	95% KM(t)
Pyrene	33	10	0.0143	0.0919	Gamma	0.0326	95% KM(t)
Toluene	14	3	0.000375	0.00113(U)	n/a	0.000646[b]	Maximum detected concentration
Radionuclides (pCi/g)							
Cesium-137	38	25	-0.0454(U)	1.15	Normal	0.398	95% KM(t)
Cobalt-60	39	1	-0.0776(U)	0.97	n/a	0.97	Maximum detected concentration
Plutonium-239/240	39	19	-0.00449(U)	0.198	Gamma	0.0615	95% KM(t)
Tritium	38	12	-0.00716(U)	0.103	Normal	0.0264	95% KM(t)
Uranium-234	39	39	0.727	2.89	Lognormal	1.596	95% Student’s-t
Uranium-235/236	39	32	0.042	0.197	Gamma	0.105	95% KM(BCA)
Uranium-238	39	39	0.912	2.93	Gamma	1.712	95% Approximate Gamma

Note: Data qualifiers are defined in Appendix A.

[a] n/a = Not applicable.

[b] The maximum concentration of the data set is a nondetect (U or UJ); thus, the maximum detected concentration is less than the maximum concentration.

Table H-2.2-9
EPCs for AOC 02-003(e) for the Industrial and Recreational Scenarios

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Inorganic Chemicals (mg/kg)							
Cadmium	4	3	0.124	0.507(U)	n/a[a]	0.291[b]	Maximum detected concentration
Mercury	4	4	0.0296	2.58	n/a	2.58	Maximum detected concentration
Perchlorate	4	1	0.000527	0.00207(U)	n/a	0.000527[b]	Maximum detected concentration
Selenium	4	2	0.723	1.53(U)	n/a	0.743[b]	Maximum detected concentration
Zinc	4	4	30.1	59.1	n/a	59.1	Maximum detected concentration
Organic Chemicals (mg/kg)							
Aroclor-1260	4	3	0.0216	0.611	n/a	0.611	Maximum detected concentration
Benzo(a)anthracene	4	2	0.0174	0.0343(U)	n/a	0.0239[b]	Maximum detected concentration
Benzo(a)pyrene	4	3	0.0188	0.101	n/a	0.101	Maximum detected concentration
Benzo(b)fluoranthene	4	4	0.0153	0.0467	n/a	0.0467	Maximum detected concentration
Benzo(g,h,i)perylene	4	1	0.0328(U)	0.0458	n/a	0.0458	Maximum detected concentration
Bis(2-ethylhexyl)phthalate	4	1	0.0882	0.172(U)	n/a	0.0882[b]	Maximum detected concentration
Chrysene	4	4	0.0109	0.0336	n/a	0.0336	Maximum detected concentration
Fluoranthene	4	4	0.0195	0.0679	n/a	0.0679	Maximum detected concentration
Indeno(1,2,3-cd)pyrene	4	1	0.0328(U)	0.0607	n/a	0.0607	Maximum detected concentration
Phenanthrene	4	4	0.0123	0.0328	n/a	0.0328	Maximum detected concentration
Pyrene	4	4	0.0155	0.0669	n/a	0.0669	Maximum detected concentration
Radionuclides (pCi/g)							
Tritium	4	1	0.00279(U)	0.00996	n/a	0.00996	Maximum detected concentration

Note: Data qualifiers are defined in Appendix A.

[a] n/a = Not applicable.

[b] The maximum concentration of the data set is a nondetect (U or UJ); thus, the maximum detected concentration is less than the maximum concentration.

Table H-2.2-10
EPCs for AOC 02-003(e) for the Residential Scenario

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Inorganic Chemicals (mg/kg)							
Antimony	15	2	0.29(U)	2.3	n/a[a]	2.3	Maximum detected concentration
Arsenic	16	16	0.644	3.54	Normal	2.148	95% Student's-t
Barium	16	16	17.6	99.7	Normal	54.52	95% Student's-t
Cadmium	16	10	0.047	1.18	Gamma	0.377	95% KM(Percentile Bootstrap)
Chromium	16	10	2	72.9	Approximate Gamma	19.37	95% KM(BCA)
Lead	16	16	5.71	3400	Nonparametric	1147	95% Chebyshev (Mean, Sd)
Mercury	16	14	0.0016(U)	2.58	Gamma	0.937	95% KM(Chebyshev)
Perchlorate	12	3	0.000527	0.0296	n/a	0.0296	Maximum detected concentration
Selenium	16	9	0.28(U)	2.63	Gamma	1.268	95% KM(t)
Zinc	16	16	26	543	Nonparametric	208.4	95% Chebyshev (Mean, Sd)
Organic Chemicals (mg/kg)							
Aroclor-1254	13	5	0.00355(U)	0.298	Normal	0.0868	95% KM(t)
Aroclor-1260	13	9	0.0032	0.611	Lognormal	0.275	95% KM(Chebyshev)
Benzo(a)anthracene	13	3	0.0174	0.0365(U)	n/a	0.0239[b]	Maximum detected concentration
Benzo(a)pyrene	13	5	0.0184	0.101	Nonparametric	0.0384	95% KM(t)
Benzo(b)fluoranthene	13	6	0.0153	0.0467	Normal	0.0319	95% KM(t)
Benzo(g,h,i)perylene	13	1	0.0328(U)	0.0458	n/a	0.0458	Maximum detected concentration
Bis(2-ethylhexyl)phthalate	13	2	0.0882	0.358(U)	n/a	0.11[b]	Maximum detected concentration

Table H-2.2-10 (continued)

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Chrysene	13	6	0.0109	0.0365(U)	Normal	0.0261	95% KM(t)
Fluoranthene	13	6	0.0195	0.0679	Normal	0.0386	95% KM(t)
Indeno(1,2,3-cd)pyrene	13	1	0.0328(U)	0.0607	n/a	0.0607	Maximum detected concentration
Phenanthrene	13	7	0.0106	0.0365(U)	Normal	0.0269	95% KM(t)
Pyrene	13	6	0.0155	0.0669	Normal	0.0381	95% KM(t)
Toluene	8	1	0.00043	0.0011(U)	n/a	0.00043[b]	Maximum detected concentration
Radionuclides (pCi/g)							
Americium-241	13	1	-0.0041(U)	0.0376	n/a	0.0376	Maximum detected concentration
Cesium-137	14	12	0.00203(U)	450	Gamma	218.7	95% KM(Chebyshev)
Plutonium-239/240	16	8	0.0083(U)	2.9	Gamma	0.812	95% KM(t)
Strontium-90	16	7	-0.00041(U)	32.8	Gamma	8.171	95% KM(t)
Tritium	16	8	-0.0003(U)	0.0779	Normal	0.0294	95% KM(t)

Note: Data qualifiers are defined in Appendix A.

[a] n/a = Not applicable.

[b] The maximum concentration of the data set is a nondetect (U or UJ); thus, the maximum detected concentration is less than the maximum concentration.

Table H-2.2-11
EPCs for AOC 02-004(a) for the Industrial and Recreational Scenarios

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Inorganic Chemicals (mg/kg)							
Cadmium	32	10	0.113	14.8	Nonparametric	1.627	95% KM(BCA)
Calcium	32	32	1010	17600	Nonparametric	5362	95% Chebyshev (Mean, Sd)
Chromium	32	25	3.06	44.9	Lognormal	13.14	95% KM(BCA)
Copper	32	31	2.25	43.4	Nonparametric	11.53	95% KM(Chebyshev)
Cyanide (Total)	32	11	0.085	2.59	Gamma	0.437	95% KM(t)
Lead	32	32	7.76	23.8	Gamma	13.49	95% Approximate Gamma
Mercury	32	32	0.0153	8.2	Lognormal	3.255	95% Chebyshev (Mean, Sd)
Perchlorate	32	6	0.000521	0.00251(U)	Normal	0.00108	95% KM(t)
Selenium	32	21	0.559	11.3	Nonparametric	7.311	95% KM(Chebyshev)
Zinc	32	32	26.9	90.5	Normal	51.61	95% Student's-t
Organic Chemicals (mg/kg)							
Acenaphthene	32	11	0.000363(U)	0.303	Nonparametric	0.0477	95% KM(t)
Anthracene	32	17	0.000363(U)	0.483	Gamma	0.072	95% KM(BCA)
Aroclor-1254	29	15	0.002	0.659	Gamma	0.172	95% KM(BCA)
Aroclor-1260	29	27	0.003	2.42	Gamma	0.899	95% KM(Chebyshev)
Benzo(a)pyrene	32	20	0.000251	0.899	Gamma	0.192	95% KM(BCA)
Benzo(g,h,i)perylene	32	14	0.00012	0.43	Gamma	0.0891	95% KM(t)
Chrysene	32	24	0.000201	0.785	Gamma	0.236	95% KM(Chebyshev)
Fluoranthene	32	27	0.000348	1.52	Gamma	0.41	95% KM(Chebyshev)
Fluorene	32	9	0.000363(U)	0.273	Lognormal	0.438	95% KM(t)
Heptachlorodibenzodioxin[1,2,3,4,6,7,8-]	9	9	2.03E-05	0.000116	Gamma	6.981E-005	95% Approximate Gamma
Heptachlorodibenzofuran[1,2,3,4,6,7,8-]	9	9	5.52E-06	4.24E-05	Gamma	2.224E-05	95% Approximate Gamma
Heptachlorodibenzofuran[1,2,3,4,7,8,9-]	9	8	1.8E-07	2.05E-06	Normal	1.386E-06	95% KM(t)
Hexachlorodibenzodioxin[1,2,3,4,7,8-]	9	2	2.56E-07(U)	7.82E-07(U)	n/a[a]	7.55E-07[b]	Maximum detected concentration

Table H-2.2-11 (continued)

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Hexachlorodibenzodioxin[1,2,3,6,7,8-]	9	8	5.18E-07	2.44E-06	Normal	1.78E-06	95% KM(t)
Hexachlorodibenzodioxin[1,2,3,7,8,9-]	9	4	1.95E-07(U)	1.48E-06	n/a	1.48E-06	Maximum detected concentration
Hexachlorodibenzofuran[1,2,3,4,7,8-]	9	9	1.83E-07	1.44E-05	Normal	7.734E-06	95% Student's-t
Hexachlorodibenzofuran[1,2,3,6,7,8-]	9	7	8.74E-08(U)	5.56E-06	Normal	3.093E-06	95% KM(t)
Hexachlorodibenzofuran[1,2,3,7,8,9-]	9	4	8E-08(U)	1.01E-06	n/a	1.01E-06	Maximum detected concentration
Hexachlorodibenzofuran[2,3,4,6,7,8-]	9	9	1.65E-07	8.23E-06	Normal	4.742E-06	95% Student's-t
Indeno(1,2,3-cd)pyrene	32	12	0.000363(U)	0.411	Normal	0.0925	95% KM(t)
Methylnaphthalene[2-]	32	6	0.000363(U)	0.16	Gamma	0.0331	95% KM(t)
Naphthalene	32	7	0.000363(U)	0.352	Gamma	0.0538	95% KM(t)
Octachlorodibenzodioxin[1,2,3,4,6,7,8,9-]	9	9	0.000292	0.0022	Nonparametric	0.0015	95% Chebyshev (Mean, Sd)
Octachlorodibenzofuran[1,2,3,4,6,7,8,9-]	9	9	0.000016	0.000183	Nonparametric	0.001192	95% Chebyshev (Mean, Sd)
Pentachlorodibenzodioxin[1,2,3,7,8-]	9	3	6.09E-08(U)	4.21E-07	n/a	4.21E-07	Maximum detected concentration
Pentachlorodibenzofuran[1,2,3,7,8-]	9	7	1.31E-07(U)	4.81E-06	Normal	2.418E-06	95% KM(t)
Pentachlorodibenzofuran[2,3,4,7,8-]	9	9	1.8E-07	2.72E-05	Normal	1.431E-05	95% Student's-t
Phenanthrene	32	25	0.000179	1.5	Gamma	0.337	95% KM(Chebyshev)
Pyrene	32	27	0.000265	1.36	Gamma	0.398	95% KM(Chebyshev)
Tetrachlorodibenzofuran[2,3,7,8-]	9	8	1.02E-07	1.53E-05	Normal	7.888E-06	95% KM(t)
TPH-DRO	18	16	0.112(U)	454	Lognormal	150.6	95% KM(Chebyshev)
Radionuclides (pCi/g)							
Cobalt-60	24	2	-0.00267(U)	2.86	n/a	2.86	Maximum detected concentration
Plutonium-239/240	32	5	-0.00147(U)	0.806	n/a	0.806	Maximum detected concentration
Strontium-90	32	3	-0.0969(U)	1.61	n/a	1.61	Maximum detected concentration
Tritium	30	11	-0.00998(U)	0.0478(U)	Normal	0.015	95% KM(t)

Note: Data qualifiers are defined in Appendix A.

[a] n/a = Not applicable.

[b] The maximum concentration of the data set is a nondetect (U or UJ); thus, the maximum detected concentration is less than the maximum concentration.

Table H-2.2-12
EPCs for AOC 02-004(a) for the Residential Scenario

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Inorganic Chemicals (mg/kg)							
Aluminum	75	75	964	5390	Normal	3485	95% Student's-t
Antimony	74	0	0.118(U)	1.21(U)	n/a[a]	1.21(U)	Maximum detection limit
Arsenic	75	70	0.644	3.97	Normal	2.177	95% KM(t)
Barium	75	75	11	128	Normal	44.62	95% Student's-t
Cadmium	75	17	0.058	14.8	Nonparametric	0.891	95% KM(BCA)
Calcium	75	75	263	17600	Nonparametric	4131	95% Chebyshev (Mean, Sd)
Chromium	75	66	3.06	44.9	Lognormal	10.29	95% KM(BCA)
Chromium hexavalent	5	4	0.0641	0.13	n/a	0.13	Maximum detected concentration
Cobalt	75	74	0.294	18	Nonparametric	2.416	95% KM(BCA)
Copper	75	74	1.08	43.4	Lognormal	5.975	95% KM(BCA)
Cyanide (Total)	65	19	0.085	2.59	Nonparametric	0.298	95% KM(t)
Iron	75	75	4700	11600	Normal	8236	95% Student's-t
Lead	75	75	3.85	43.7	Gamma	11.14	95% Approximate Gamma
Manganese	75	75	102	505	Normal	293.1	95% Student's-t
Mercury	75	73	0.002	40.6	Nonparametric	4.069	95% KM(Chebyshev)
Nickel	75	65	0.955	14	Lognormal	3.844	95% KM(BCA)
Perchlorate	65	11	0.000521	0.00271(U)	Normal	0.00124	95% KM(t)
Selenium	75	45	0.233	11.3	Nonparametric	4.861	95% KM(Chebyshev)
Vanadium	75	75	2.05	16	Normal	9.694	95% Student's-t
Zinc	75	75	17	90.5	Normal	42.55	95% Student's-t

Table H-2.2-12 (continued)

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Organic Chemicals (mg/kg)							
Acenaphthene	76	17	0.000363(U)	0.303	Gamma	0.0343	95% KM(t)
Anthracene	76	31	0.000363(U)	0.885	Gamma	0.0678	95% KM(BCA)
Aroclor-1248	59	2	0.00342(U)	0.347(U)	n/a	0.0867[b]	Maximum detected concentration
Aroclor-1254	59	24	0.002	0.659	Lognormal	0.0958	95% KM(BCA)
Aroclor-1260	59	46	0.0026	2.42	Nonparametric	0.465	95% KM(Chebyshev)
Benzo(a)anthracene	76	39	0.000363(U)	2.23	Lognormal	0.263	95% KM(Chebyshev)
Benzo(a)pyrene	76	36	0.000251	0.899	Gamma	0.11	95% KM(t)
Benzo(b)fluoranthene	76	43	0.000318	2.78	Gamma	0.242	95% KM(BCA)
Benzo(g,h,i)perylene	76	27	0.00012	0.668	Gamma	0.0738	95% KM(t)
Benzo(k)fluoranthene	76	7	0.000363(U)	0.244	Normal	0.0262	95% KM(t)
Chloroform	33	2	0.000232	0.00136(U)	n/a	0.000242[b]	Maximum detected concentration
Chrysene	76	41	0.000201	2.16	Nonparametric	0.258	95% KM(Chebyshev)
Dibenzofuran	66	1	0.00363(U)	1.15(U)	n/a	0.174[b]	Maximum detected concentration
Fluoranthene	76	47	0.000348	2.46	Lognormal	0.343	95% KM(Chebyshev)
Fluorene	76	16	0.000363(U)	0.273	Nonparametric	0.0334	95% KM(BCA)
Heptachlorodibenzodioxin[1,2,3,4,6,7,8-]	24	22	3.29E-07(U)	0.000116	Gamma	4.732E-05	95% KM(Chebyshev)
Heptachlorodibenzofuran[1,2,3,4,6,7,8-]	24	20	1.1E-07	4.24E-05	Gamma	1.435E-05	95% KM(Chebyshev)
Heptachlorodibenzofuran[1,2,3,4,7,8,9-]	24	11	1.63E-08(U)	2.05E-06	Normal	7.131E-07	95% KM(t)
Hexachlorodibenzodioxin[1,2,3,4,7,8-]	24	5	7.63E-08(U)	7.82E-07(U)	Normal	3.418E-08	95% KM(t)
Hexachlorodibenzodioxin[1,2,3,6,7,8-]	24	11	8.5E-08(U)	2.44E-06	Normal	1.038E-06	95% KM(t)
Hexachlorodibenzodioxin[1,2,3,7,8,9-]	24	6	7.85E-08(U)	1.48E-06	Lognormal	6.145E-07	95% KM(t)
Hexachlorodibenzofuran[1,2,3,4,7,8-]	24	16	3.39E-08(U)	1.44E-05	Gamma	3.929E-06	95% KM(BCA)
Hexachlorodibenzofuran[1,2,3,6,7,8-]	24	8	1.98E-08(U)	5.56E-06	Normal	1.566E-06	95% KM(t)
Hexachlorodibenzofuran[1,2,3,7,8,9-]	24	4	2.77E-08(U)	1.01E-06	n/a	1.01E-06	Maximum detected concentration
Hexachlorodibenzofuran[2,3,4,6,7,8-]	24	14	1.97E-08(U)	8.23E-06	Gamma	2.048E-06	95% KM(BCA)

Table H-2.2-12 (continued)

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Indeno(1,2,3-cd)pyrene	76	25	0.000363(U)	0.635	Gamma	0.0716	95% KM(t)
Methylnaphthalene[2-]	66	7	0.000363(U)	0.16	Gamma	0.0267	95% KM(t)
Naphthalene	76	13	0.000363(U)	0.352	Gamma	0.028	95% KM(t)
Octachlorodibenzodioxin[1,2,3,4,6,7,8,9-]	24	22	5.6E-07(U)	0.0022	Gamma	6.8960E-04	95% KM(Chebyshev)
Octachlorodibenzofuran[1,2,3,4,6,7,8,9-]	24	21	3.33E-07(U)	0.000183	Gamma	5.077E-05	95% KM(Chebyshev)
Pentachlorodibenzodioxin[1,2,3,7,8-]	24	5	5.26E-08(U)	4.21E-07	Normal	1.772E-07	95% KM(t)
Pentachlorodibenzofuran[1,2,3,7,8-]	24	11	5.89E-08(U)	4.81E-06	Gamma	9.938E-07	95% KM(y)
Pentachlorodibenzofuran[2,3,4,7,8-]	24	15	6.42E-08	2.72E-05	Lognormal	9.52E-06	95% KM(Chebyshev)
Phenanthrene	76	44	0.000179	2.29	Nonparametric	0.271	95% KM(Chebyshev)
Pyrene	76	48	0.000265	2.42	Nonparametric	0.384	95% KM(Chebyshev)
Tetrachlorodibenzofuran[2,3,7,8-]	24	13	6.51E-08(U)	0.0000153	Gamma	7.1855E-06	95% KM(Chebyshev)
Toluene	33	3	0.000478	0.00136(U)	n/a	0.00107[b]	Maximum detected concentration
TPH-DRO	34	26	0.112(U)	454	Lognormal	84.87	95% KM(Chebyshev)
Xylene[1,2-]	33	1	0.000353	0.00116(U)	n/a	0.000353[b]	Maximum detected concentration
Xylene[1,3-]+Xylene[1,4-]	33	1	0.000839	0.00233(U)	n/a	0.000839[b]	Maximum detected concentration
Radionuclides (pCi/g)							
Americium-241	64	1	-0.0162(U)	0.0532	n/a	0.0532	Maximum detected concentration
Cesium-137	57	23	-0.0726(U)	4.76	Lognormal	0.735	95% KM(Chebyshev)
Cobalt-60	64	6	-0.0685(U)	4.29	Normal	1.143	95% KM(t)
Plutonium-239/240	74	11	-0.00638U)	2.44	Nonparametric	0.231	95% KM(Chebyshev)
Strontium-90	69	3	-0.01042(U)	1.61	n/a	1.61	Maximum detected concentration
Tritium	72	44	-0.00998(U)	19.2	Lognormal	1.734	95% KM(Chebyshev)

Note: Data qualifiers are defined in Appendix A.

[a] n/a = Not applicable.

[b] The maximum concentration of the data set is a nondetect (U or UJ); thus, the maximum detected concentration is less than the maximum concentration.

Table H-2.2-13
EPCs for AOCs 02-004(b,c,d) for the Industrial and Recreational Scenarios

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Inorganic Chemicals (mg/kg)							
Cadmium	9	4	0.109	0.525(U)	n/a[a]	0.371[b]	Maximum detected concentration
Chromium	9	9	6.23	37.3	Normal	26.29	95% Student's-t
Cyanide (Total)	9	6	0.0937	0.54	Normal	0.305	95% KM(t)
Perchlorate	9	6	0.000599	0.00208(U)	Normal	0.00139	95% KM(t)
Selenium	9	3	0.671	1.57(U)	n/a	0.76[b]	Maximum detected concentration
Zinc	9	9	43.4	158	Gamma	93.83	95% Approximate Gamma
Organic Chemicals (mg/kg)							
Acenaphthene	9	3	0.0265	0.231	n/a	0.231	Maximum detected concentration
Anthracene	9	6	0.0105	0.301	Lognormal	0.194	95% KM(Chebyshev)
Aroclor-1254	9	7	0.0075	0.197	Normal	0.114	95% KM(t)
Aroclor-1260	9	9	0.0092	0.431	Gamma	0.363	95% Approximate Gamma
Benzo(a)anthracene	9	9	0.0172	0.351	Gamma	0.224	95% Approximate Gamma
Benzo(a)pyrene	9	6	0.0341(U)	0.411	Normal	0.21	95% KM(t)
Benzo(b)fluoranthene	9	7	0.0282	0.537	Normal	0.296	95% KM(t)
Benzo(g,h,i)perylene	9	4	0.0341(U)	0.285	n/a	0.285	Maximum detected concentration
Chrysene	9	9	0.0149	0.369	Gamma	0.235	95% Approximate Gamma
Dibenzofuran	9	1	0.163	0.35(U)	n/a	0.163b	Maximum detected concentration
Fluoranthene	9	9	0.0294	0.818	Gamma	0.468	95% Approximate Gamma
Fluorene	9	3	0.0233	0.254	n/a	0.254	Maximum detected concentration
Heptachlorodibenzodioxin[1,2,3,4,6,7,8-]	9	9	0.000197	0.00651	Gamma	0.00387	95% Approximate Gamma
Heptachlorodibenzofuran[1,2,3,4,6,7,8-]	9	9	2.15E-05	0.00027	Normal	1.595E-04	95% Student's-t
Heptachlorodibenzofuran[1,2,3,4,7,8,9-]	9	8	1.62E-06(U)	2.15E-05	Normal	1.468E-05	95% KM(t)
Hexachlorodibenzodioxin[1,2,3,4,7,8-]	9	9	1.28E-06	1.39E-05	Gamma	8.3394E-06	95% Approximate Gamma
Hexachlorodibenzodioxin[1,2,3,6,7,8-]	9	9	4.37E-06	0.000078	Gamma	4.609E-05	95% Approximate Gamma

Table H-2.2-13 (continued)

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Hexachlorodibenzodioxin[1,2,3,7,8,9-]	9	9	3.08E-06	0.000033	Normal	1.755E-05	95% Student's-t
Hexachlorodibenzofuran[1,2,3,4,7,8-]	9	8	8.19E-07(U)	9.88E-06	Normal	6.565E-06	95% KM(t)
Hexachlorodibenzofuran[1,2,3,6,7,8-]	9	9	7.37E-07	8.05E-06	Normal	4.975E-06	95% Student's-t
Hexachlorodibenzofuran[1,2,3,7,8,9-]	9	8	1.35E-07(U)	1.42E-06	Normal	9.515E-07	95% KM(t)
Hexachlorodibenzofuran[2,3,4,6,7,8-]	9	9	9.27E-07	1.15E-05	Normal	7.041E-06	95% Student's-t
Indeno(1,2,3-cd)pyrene	9	5	0.0341(U)	0.263	Normal	0.152	95% KM(t)
Methylnaphthalene[2-]	9	3	0.00703	0.156	n/a	0.156	Maximum detected concentration
Naphthalene	9	3	0.017	0.551	n/a	0.551	Maximum detected concentration
Octachlorodibenzodioxin[1,2,3,4,6,7,8,9-]	9	9	0.00182	0.0494	Gamma	0.037	95% Approximate Gamma
Octachlorodibenzofuran[1,2,3,4,6,7,8,9-]	9	9	8.34E-05	0.00859	Normal	5.611E-04	95% Student's-t
Pentachlorodibenzodioxin[1,2,3,7,8-]	9	8	5.25E-07(U)	4.83E-06	Normal	2.655E-06	95% KM(t)
Pentachlorodibenzofuran[1,2,3,7,8-]	9	6	8.63E-08(U)	2.17E-06	Normal	1.218E-06	95% KM(t)
Pentachlorodibenzofuran[2,3,4,7,8-]	9	6	2.31E-07	1.36E-05	Normal	6.747E-06	95% KM(t)
Phenanthrene	9	9	0.0141	1.21	Gamma	0.561	95% Approximate Gamma
Pyrene	9	9	0.0266	0.904	Gamma	0.525	95% Approximate Gamma
Tetrachlorodibenzodioxin[2,3,7,8-]	9	4	1.13E-07(U)	6.33E-07	n/a	6.33E-07	Maximum detected concentration
Tetrachlorodibenzofuran[2,3,7,8-]	9	8	1.81E-07(U)	7.61E-06	Gamma	5.632E-06	95% KM(Chebyshev)
Radionuclides (pCi/g)							
Cobalt-60	7	2	0.000681(U)	0.884	n/a	0.884	Maximum detected concentration
Plutonium-239/240	9	7	0.0263(U)	0.756	Gamma	0.507	95% KM(Chebyshev)
Tritium	9	4	-6.1E-05(U)	0.0166	n/a	0.0166	Maximum detected concentration

Note: Data qualifiers are defined in Appendix A.

[a] n/a = Not applicable.

[b] The maximum concentration of the data set is a nondetect (U or UJ); thus, the maximum detected concentration is less than the maximum concentration.

Table H-2.2-14
EPCs for AOCs 02-004(b,c,d) for the Residential Scenario

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Inorganic Chemicals (mg/kg)							
Aluminum	16	15	2180	8160	Nonparametric	3839	95% Student's-t
Arsenic	16	16	1.03	2.78	Normal	2.117	95% Student's-t
Barium	16	8	24.8	70.9	Normal	46.72	95% Student's-t
Cadmium	16	14	0.109	0.604(U)	Normal	0.286	95% KM(t)
Chromium	15	8	6.97(U)	37.3	Normal	20.58	95% KM(t)
Cyanide (Total)	16	16	0.0937	0.54	Gamma	0.244	95% KM(t)
Iron	16	16	5520	11400	Normal	8543	95% Student's-t
Manganese	14	7	198	733	Nonparametric	377.6	95% Student's-t
Perchlorate	16	16	0.000599	0.0025(U)	Normal	0.0015	95% KM(t)
Selenium	16	15	0.62	1.64(U)	Gamma	0.974	95% KM(t)
Vanadium	16	16	4.61	15.4	Gamma	9.742	95% Approximate Gamma
Zinc	16	16	19.8	158	Gamma	68.19	95% Approximate Gamma
Organic Chemicals (mg/kg)							
Acenaphthene	15	3	0.0265	0.231	n/a[a]	0.231	Maximum detected concentration
Anthracene	15	8	0.0105	0.301	Lognormal	0.124	95% KM(Chebyshev)
Aroclor-1254	16	9	0.00359(U)	0.197	Normal	0.0716	95% KM(t)
Aroclor-1260	16	14	0.0092	0.431	Gamma	0.241	95% KM(Chebyshev)
Benzo(a)anthracene	15	11	0.172	0.351	Gamma	0.187	95% KM(Chebyshev)
Benzo(a)pyrene	15	8	0.0221	0.411	Gamma	0.135	95% KM(t)
Benzo(b)fluoranthene	15	9	0.0233	0.537	Normal	0.195	95% KM(t)
Benzo(g,h,i)perylene	15	5	0.0341(U)	0.285	Normal	0.0914	95% KM(t)
Chrysene	15	11	0.0149	0.369	Gamma	0.192	95% KM(Chebyshev)
Dibenzofuran	15	1	0.163	0.416(U)	n/a	0.163[b]	Maximum detected concentration
Fluoranthene	15	9	0.0294	0.818	Gamma	0.39	95% KM(Chebyshev)
Fluorene	15	3	0.0233	0.254	n/a	0.254	Maximum detected concentration
Heptachlorodibenzodioxin[1,2,3,4,6,7,8-]	15	14	3.3E-07(U)	0.00651	Gamma	0.00318	95% KM(Chebyshev)
Heptachlorodibenzofuran[1,2,3,4,6,7,8-]	15	15	1.96E-07	0.00027	Gamma	0.00018	95% Adjusted Gamma

Table H-2.2-14 (continued)

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Heptachlorodibenzofuran[1,2,3,4,7,8,9-]	15	9	4.98E-08(U)	2.15E-05	Normal	1.01E-05	95% KM(t)
Hexachlorodibenzodioxin[1,2,3,4,7,8-]	15	10	1.15E-07(U)	1.39E-05	Gamma	5.28E-06	95% KM(Percentile Bootstrap)
Hexachlorodibenzodioxin[1,2,3,6,7,8-]	15	11	2.12E-07	0.000078	Gamma	3.95E-05	95% KM(Chebyshev)
Hexachlorodibenzodioxin[1,2,3,7,8,9-]	15	10	1.17E-007(U)	0.000033	Gamma	1.2E-05	95% KM(Percentile Bootstrap)
Hexachlorodibenzofuran[1,2,3,4,7,8-]	15	10	8.06E-08(U)	9.88E-06	Normal	4.3E-06	95% KM(t)
Hexachlorodibenzofuran[1,2,3,6,7,8-]	15	11	3.82E-08	8.05E-06	Normal	3.29E-06	95% KM(t)
Hexachlorodibenzofuran[1,2,3,7,8,9-]	15	8	2.37E-08(U)	1.42E-06	Normal	6.78E-07	95% KM(t)
Hexachlorodibenzofuran[2,3,4,6,7,8-]	15	11	5.08E-08(U)	1.15E-05	Normal	4.63E-06	95% KM(t)
Indeno(1,2,3-cd)pyrene	15	7	0.0127	0.263	Normal	0.0942	95% KM(t)
Methylnaphthalene[2-]	15	3	0.00703	0.156	n/a	0.156	Maximum detected concentration
Naphthalene	15	3	0.017	0.551	n/a	0.551	Maximum detected concentration
Octachlorodibenzodioxin[1,2,3,4,6,7,8,9-]	15	15	2.83E-06	0.0494	Gamma	0.0358	95% Adjusted Gamma
Octachlorodibenzofuran[1,2,3,4,6,7,8,9-]	15	13	6.77E-07(U)	0.00859	Gamma	0.00056	95% KM(Chebyshev)
Pentachlorodibenzodioxin[1,2,3,7,8-]	15	8	5.14E-08(U)	4.83E-06	Normal	1.9E-06	95% KM(t)
Pentachlorodibenzofuran[1,2,3,7,8-]	15	6	3.91E-08(U)	2.17E-06	Normal	8.45E-07	95% KM(t)
Pentachlorodibenzofuran[2,3,4,7,8-]	15	7	7.2E-08	1.36E-05	Normal	4.12E-06	95% KM(t)
Phenanthrene	15	11	0.0141	1.21	Gamma	0.479	95% KM(Chebyshev)
Pyrene	15	11	0.0266	0.904	Gamma	0.424	95% KM(Chebyshev)
Tetrachlorodibenzodioxin[2,3,7,8-]	15	4	4.63E-08(U)	6.33E-07	n/a	6.33E-07	Maximum detected concentration
Tetrachlorodibenzofuran[2,3,7,8-]	15	10	4.72E-08	7.61E-06	Gamma	2.33E-06	95% KM(BCA)
Radionuclides (pCi/g)							
Cesium-137	11	9	-0.0254	1.29	Gamma	0.653	95% KM(BCA)
Cobalt-60	11	3	-0.00713(U)	0.884	n/a	0.884	Maximum detected concentration
Plutonium-239/240	13	8	0.0064(U)	0.756	Gamma	0.247	95% KM(BCA)
Tritium	14	7	-6.11E-05(U)	0.217	Gamma	0.212	95% KM(t)

Note: Data qualifiers are defined in Appendix A.

[a] n/a = Not applicable.

[b] The maximum concentration of the data set is a nondetect (U or UJ); thus, the maximum detected concentration is less than the maximum concentration.

Table H-2.2-15
EPCs for AOC 02-004(e) for the Industrial and Recreational Scenarios

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Inorganic Chemicals (mg/kg)							
Chromium	3	2	29	66.2(U)	n/a[a]	31.6[b]	Maximum detected concentration
Copper	3	3	6.59	19	n/a	19	Maximum detected concentration
Lead	3	3	10.3	23.2	n/a	23.2	Maximum detected concentration
Mercury	3	3	0.0633	1.2	n/a	1.2	Maximum detected concentration
Perchlorate	3	3	0.00054	0.00162	n/a	0.00162	Maximum detected concentration
Zinc	3	3	65.8	120	n/a	120	Maximum detected concentration
Organic Chemicals (mg/kg)							
Acenaphthene	3	1	0.0202	0.0354(U)	n/a	0.0202[b]	Maximum detected concentration
Anthracene	3	2	0.00721	0.0405	n/a	0.0405	Maximum detected concentration
Aroclor-1254	3	1	0.00346(U)	0.0736	n/a	0.0736	Maximum detected concentration
Aroclor-1260	3	3	0.00455	0.18	n/a	0.18	Maximum detected concentration
Benzo(a)anthracene	3	3	0.0211	0.139	n/a	0.139	Maximum detected concentration
Benzo(a)pyrene	3	3	0.0261	0.122	n/a	0.122	Maximum detected concentration
Benzo(b)fluoranthene	3	3	0.033	0.204	n/a	0.204	Maximum detected concentration
Benzo(g,h,i)perylene	3	1	0.035(U)	0.0618	n/a	0.0618	Maximum detected concentration
Chrysene	3	3	0.02	0.14	n/a	0.14	Maximum detected concentration
Fluoranthene	3	3	0.0274	0.278	n/a	0.278	Maximum detected concentration
Fluorene	3	1	0.016	0.0354(U)	n/a	0.016[b]	Maximum detected concentration
Heptachlorodibenzodioxin[1,2,3,4,6,7,8-]	3	3	0.00175	0.00314	n/a	0.00314	Maximum detected concentration
Heptachlorodibenzofuran[1,2,3,4,6,7,8-]	3	3	0.000187	0.000471	n/a	0.000471	Maximum detected concentration
Heptachlorodibenzofuran[1,2,3,4,7,8,9-]	3	3	1.69E-05	4.99E-05	n/a	4.99E-05	Maximum detected concentration
Hexachlorodibenzodioxin[1,2,3,4,7,8-]	3	3	7.64E-06	1.83E-05	n/a	1.83E-05	Maximum detected concentration
Hexachlorodibenzodioxin[1,2,3,6,7,8-]	3	3	3.36E-05	8.69E-05	n/a	8.69E-05	Maximum detected concentration

Table H-2.2-15 (continued)

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Hexachlorodibenzodioxin[1,2,3,7,8,9-]	3	3	1.73E-05	4.17E-05	n/a	4.17E-05	Maximum detected concentration
Hexachlorodibenzofuran[1,2,3,4,7,8-]	3	3	8.33E-06	1.55E-05	n/a	1.55E-05	Maximum detected concentration
Hexachlorodibenzofuran[1,2,3,6,7,8-]	3	3	6.81E-06	1.61E-05	n/a	1.61E-05	Maximum detected concentration
Hexachlorodibenzofuran[1,2,3,7,8,9-]	3	3	1.52E-06	3.41E-06	n/a	3.41E-06	Maximum detected concentration
Hexachlorodibenzofuran[2,3,4,6,7,8-]	3	3	8.55E-06	2.13E-05	n/a	2.13E-05	Maximum detected concentration
Indeno(1,2,3-cd)pyrene	3	1	0.035	0.0486	n/a	0.0486	Maximum detected concentration
Octachlorodibenzodioxin[1,2,3,4,6,7,8,9-]	3	3	0.0151	0.0285	n/a	0.0285	Maximum detected concentration
Octachlorodibenzofuran[1,2,3,4,6,7,8,9-]	3	3	0.000567	0.00133	n/a	0.00133	Maximum detected concentration
Pentachlorodibenzodioxin[1,2,3,7,8-]	3	3	2.78E-06	8.06E-06	n/a	8.06E-06	Maximum detected concentration
Pentachlorodibenzofuran[1,2,3,7,8-]	3	3	1.44E-06	2.54E-06	n/a	2.54E-06	Maximum detected concentration
Pentachlorodibenzofuran[2,3,4,7,8-]	3	3	5.82E-06	8.64E-06	n/a	8.64E-06	Maximum detected concentration
Phenanthrene	3	3	0.0171	0.202	n/a	0.202	Maximum detected concentration
Pyrene	3	3	0.0328	0.327	n/a	0.327	Maximum detected concentration
Tetrachlorodibenzodioxin[2,3,7,8-]	3	2	3.27E-07	1.05E-06	n/a	1.05E-06	Maximum detected concentration
Tetrachlorodibenzofuran[2,3,7,8-]	3	3	2.82E-06	4.7E-06	n/a	4.7E-06	Maximum detected concentration
Radionuclides (pCi/g)							
Plutonium-239/240	3	2	0.00768(U)	0.392	n/a	0.392	Maximum detected concentration
Tritium	3	1	0.000645(U)	0.011	n/a	0.011	Maximum detected concentration

Note: Data qualifiers are defined in Appendix A.

[a] n/a = Not applicable.

[b] The maximum concentration of the data set is a nondetect (U or UJ); thus, the maximum detected concentration is less than the maximum concentration.

Table H-2.2-16
EPCs for AOC 02-004(e) for the Residential Scenario

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Inorganic Chemicals (mg/kg)							
Cadmium	6	4	0.116	0.573(U)	n/a[a]	0.284	Maximum detected concentration
Chromium	6	4	4.94	66.2(U)	n/a	31.6	Maximum detected concentration
Copper	6	5	2.22	19	n/a	19	Maximum detected concentration
Lead	6	6	6.36	23.2	n/a	23.2	Maximum detected concentration
Mercury	6	5	0.0042(U)	1.2	n/a	1.2	Maximum detected concentration
Perchlorate	5	3	0.000536	0.0023(U)	n/a	0.00162	Maximum detected concentration
Selenium	6	3	0.551	1.72(U)	n/a	1.51	Maximum detected concentration
Zinc	6	6	13	120	n/a	120	Maximum detected concentration
Organic Chemicals (mg/kg)							
Acenaphthene	5	1	0.0202	0.0384(U)	n/a	0.0202[b]	Maximum detected concentration
Anthracene	5	2	0.00721	0.0405	n/a	0.0405	Maximum detected concentration
Aroclor-1254	6	2	0.00346(U)	0.0736	n/a	0.0736	Maximum detected concentration
Aroclor-1260	6	3	0.00455	0.18	n/a	0.18	Maximum detected concentration
Benzo(a)anthracene	5	3	0.0211	0.139	n/a	0.139	Maximum detected concentration
Benzo(a)pyrene	5	3	0.0261	0.122	n/a	0.122	Maximum detected concentration
Benzo(b)fluoranthene	5	3	0.033	0.204	n/a	0.204	Maximum detected concentration
Benzo(g,h,i)perylene	5	1	0.035(U)	0.0618	n/a	0.0618	Maximum detected concentration
Chrysene	5	3	0.02	0.14	n/a	0.14	Maximum detected concentration
Fluoranthene	5	3	0.0274	0.278	n/a	0.278	Maximum detected concentration
Fluorene	5	1	0.016	0.0354(U)	n/a	0.016[b]	Maximum detected concentration
Heptachlorodibenzodioxin[1,2,3,4,6,7,8-]	5	5	2.34E-06	0.00314	n/a	0.00314	Maximum detected concentration
Heptachlorodibenzofuran[1,2,3,4,6,7,8-]	5	5	8.42E-07	0.000471	n/a	0.000471	Maximum detected concentration
Heptachlorodibenzofuran[1,2,3,4,7,8,9-]	5	4	5.13E-08(U)	4.99E-05	n/a	4.99E-05	Maximum detected concentration
Hexachlorodibenzodioxin[1,2,3,4,7,8-]	5	4	9.11E-08	1.8E-05	n/a	1.8E-05	Maximum detected concentration

Table H-2.2-16 (continued)

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Hexachlorodibenzodioxin[1,2,3,6,7,8-]	5	4	1.05E-07	8.69E-05	n/a	8.69E-05	Maximum detected concentration
Hexachlorodibenzodioxin[1,2,3,7,8,9-]	5	4	9.56E-08(U)E-05	4.17E-05	n/a	4.17E-05	Maximum detected concentration
Hexachlorodibenzofuran[1,2,3,4,7,8-]	5	5	8.4E-06	1.55E-05	n/a	1.55E-05	Maximum detected concentration
Hexachlorodibenzofuran[1,2,3,6,7,8-]	5	4	5.17E-08	1.61E-05	n/a	1.61E-05	Maximum detected concentration
Hexachlorodibenzofuran[1,2,3,7,8,9-]	5	3	7.29E-08	3.41E-06	n/a	3.41E-06	Maximum detected concentration
Hexachlorodibenzofuran[2,3,4,6,7,8-]	5	5	6.42E-08	2.13E-05	n/a	2.13E-05	Maximum detected concentration
Indeno(1,2,3-cd)pyrene	5	1	0.035	0.0486	n/a	0.0486	Maximum detected concentration
Octachlorodibenzodioxin[1,2,3,4,6,7,8,9-]	5	5	2.57E-05	0.0285	n/a	0.0285	Maximum detected concentration
Octachlorodibenzofuran[1,2,3,4,6,7,8,9-]	5	5	1.16E-06	0.00133	n/a	0.00133	Maximum detected concentration
Pentachlorodibenzodioxin[1,2,3,7,8-]	5	3	6.84E-08	8.06E-06	n/a	8.06E-06	Maximum detected concentration
Pentachlorodibenzofuran[1,2,3,7,8-]	5	3	5.39E-08(U)	2.54E-06	n/a	2.54E-06	Maximum detected concentration
Pentachlorodibenzofuran[2,3,4,7,8-]	5	4	7.74E-08	8.64E-06	n/a	8.64E-06	Maximum detected concentration
Phenanthrene	5	3	0.0171	0.202	n/a	0.202	Maximum detected concentration
Pyrene	5	3	0.0328	0.327	n/a	0.327	Maximum detected concentration
Tetrachlorodibenzodioxin[2,3,7,8-]	5	2	6.21E-08(U)	1.05E-06	n/a	105E-06	Maximum detected concentration
Tetrachlorodibenzofuran[2,3,7,8-]	5	4	5.94E-08	4.7E-06	n/a	4.7E-06	Maximum detected concentration
Radionuclides (pCi/g)							
Cesium-137	6	5	-0.0327(U)	0.447	n/a	0.447	Maximum detected concentration
Cobalt-60	5	1	-0.00235(U)	0.139	n/a	0.139	Maximum detected concentration
Plutonium-239/240	6	4	0.00768(U)	0.392	n/a	0.392	Maximum detected concentration
Tritium	6	3	0.000645(U)	0.217	n/a	0.217	Maximum detected concentration

Note: Data qualifiers are defined in Appendix A.

[a] n/a = Not applicable.

[b] The maximum concentration of the data set is a nondetect (U or UJ); thus, the maximum detected concentration is less than the maximum concentration.

Table H-2.2-17
EPCs for AOC 02-004(f) for the Industrial and Recreational Scenarios

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Inorganic Chemicals (mg/kg)							
Cadmium	21	5	0.058	0.718	Normal	0.293	95% KM(t)
Chromium	21	15	2.37(U)	37	Gamma	14.24	95% KM(Percentile Bootstrap)
Chromium hexavalent	4	4	0.0666	0.327	n/a[a]	0.327	Maximum detected concentration
Copper	21	21	2.56	61.4	Nonparametric	19.79	95% Chebyshev (Mean, Sd)
Cyanide (Total)	17	6	0.0755	1.06	Lognormal	0.307	95% KM(t)
Lead	21	21	5.27	45.6	Nonparametric	13.91	95% Student's-t
Mercury	21	20	0.00732	2.9	Lognormal	1.018	95% KM(Chebyshev)
Perchlorate	17	7	0.000556	0.00657	Gamma	0.00214	95% KM(t)
Selenium	21	13	0.518	1.84	Normal	1.169	95% KM(t)
Vanadium	21	21	5.92	18.9	Normal	12.11	95% Student's-t
Zinc	21	21	26.9	270	Gamma	78.14	95% Approximate Gamma
Organic Chemicals (mg/kg)							
Acenaphthene	17	1	0.0194	0.0353(U)	n/a	0.0194[b]	Maximum detected concentration
Anthracene	17	1	0.0282	0.0353(U)	n/a	0.0282[b]	Maximum detected concentration
Aroclor-1254	17	10	0.00343(U)	0.24	Lognormal	0.0861	95% KM(t)
Aroclor-1260	17	14	0.0056	0.687	Gamma	0.404	95% KM(Chebyshev)
Benzo(a)anthracene	17	9	0.0109	0.0978	Lognormal	0.0339	95% KM(t)
Benzo(a)pyrene	17	9	0.0126	0.0853	Lognormal	0.0327	95% KM(t)
Benzo(b)fluoranthene	17	10	0.0124	0.143	Gamma	0.0497	95% KM(t)
Benzo(g,h,i)perylene	17	2	0.0141	0.0353(U)	n/a	0.0337[b]	Maximum detected concentration
Benzo(k)fluoranthene	17	2	0.0107	0.353(U)	n/a	0.0235[b]	Maximum detected concentration
Bis(2-ethylhexyl)phthalate	17	1	0.166(U)	0.591	n/a	0.591	Maximum detected concentration
Chrysene	17	10	0.0118	0.113	Nonparametric	0.0378	95% KM(t)
Di-n-butylphthalate	17	5	0.04	0.352(U)	Normal	0.0536	95% KM(t)
Fluoranthene	17	14	0.0123	0.153	Nonparametric	0.0826	95% KM(Chebyshev)
Fluorene	17	1	0.0196	0.0353(U)	n/a	0.0196[b]	Maximum detected concentration
Heptachlorodibenzodioxin[1,2,3,4,6,7,8-]	17	17	6.72E-06	0.0017	Gamma	7.9080E-04	95% Approximate Gamma

Table H-2.2-17 (continued)

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Heptachlorodibenzofuran[1,2,3,4,6,7,8-]	17	17	1.72E-06	0.000269	Gamma	1.037E-04	95% Approximate Gamma
Heptachlorodibenzofuran[1,2,3,4,7,8,9-]	17	15	1.26E-07	1.68E-05	Gamma	9.994E-06	95% KM(Chebyshev)
Hexachlorodibenzodioxin[1,2,3,4,7,8-]	17	14	9.67E-08	8.39E-06	Gamma	4.763E-06	95% KM(Chebyshev)
Hexachlorodibenzodioxin[1,2,3,6,7,8-]	17	17	3.27E-07	3.84E-05	Gamma	1.646E-05	95% Approximate Gamma
Hexachlorodibenzodioxin[1,2,3,7,8,9-]	17	15	2.56E-07	1.66E-05	Gamma	1.021E-05	95% KM(Chebyshev)
Hexachlorodibenzofuran[1,2,3,4,7,8-]	17	17	1.06E-07	9.64E-06	Gamma	4.476E-06	95% Approximate Gamma
Hexachlorodibenzofuran[1,2,3,6,7,8-]	17	15	1.06E-07(U)	5.24E-06	Normal	2.61E-06	95% KM(t)
Hexachlorodibenzofuran[1,2,3,7,8,9-]	17	8	2E-08	9.49E-07	Normal	5.264E-07	95% KM(t)
Hexachlorodibenzofuran[2,3,4,6,7,8-]	17	17	1.18E-07	7.04E-06	Gamma	4.351E-06	95% Approximate Gamma
Methylnaphthalene[2-]	17	1	0.00811	0.353(U)	n/a	0.00811[b]	Maximum detected concentration
Naphthalene	17	1	0.0147	0.353(U)	n/a	0.0147[b]	Maximum detected concentration
Octachlorodibenzodioxin[1,2,3,4,6,7,8,9-]	17	17	8.04E-05	0.0157	Gamma	0.00735	95% Approximate Gamma
Octachlorodibenzofuran[1,2,3,4,6,7,8,9-]	17	17	3.98E-06	0.00124	Gamma	4.994E-04	95% Adjusted Gamma
Pentachlorodibenzodioxin[1,2,3,7,8-]	17	12	6.09E-08(U)	3.03E-06	Normal	1.2460E-06	95% KM(t)
Pentachlorodibenzofuran[1,2,3,7,8-]	17	9	4.84E-08	3.32E-06	Gamma	9.2442E-07	95% KM(t)
Pentachlorodibenzofuran[2,3,4,7,8-]	17	16	6.25E-08	2.05E-05	Gamma	7.766E-06	95% KM(Chebyshev)
Pentachlorophenol	17	1	0.301	0.353(U)	n/a	0.301[b]	Maximum detected concentration
Phenanthrene	17	7	0.0114	0.118	Gamma	0.0356	95% KM(t)
Pyrene	17	13	0.0112	0.177	Lognormal	0.0625	95% KM(BCA)
Tetrachlorodibenzodioxin[2,3,7,8-]	17	6	4.89E-08	3.89 E-07	Normal	2.639E-07	95% KM(t)
Tetrachlorodibenzofuran[2,3,7,8-]	17	16	4.86E-08(U)	1.12E-05	Lognormal	4.281E-06	95% KM(Chebyshev)
Radionuclides (pCi/g)							
Cobalt-60	19	1	-0.0278(U)	0.11	n/a	0.11	Maximum detected concentration
Plutonium-239/240	21	8	-0.013(U)	0.115	Normal	0.046	95% KM(t)
Tritium	21	10	0.00126(U)	0.923	Gamma	0.159	95% KM(t)

Note: Data qualifiers are defined in Appendix A.

[a] n/a = Not applicable.

[b] The maximum concentration of the data set is a nondetect (U or UJ); thus, the maximum detected concentration is less than the maximum concentration.

Table H-2.2-18
EPCs for AOC 02-004(f) for the Residential Scenario

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Inorganic Chemicals (mg/kg)							
Antimony	38	1	0.104	1.05(U)	n/a[a]	0.104[b]	Maximum detected concentration
Cadmium	46	12	0.058	0.718	Lognormal	0.219	95% KM(t)
Chromium	46	35	2.37(U)	80.3	Lognormal	15.61	95% KM(BCA)
Chromium hexavalent	9	6	0.0666	2.19(U)	Normal	0.205	95% KM(t)
Copper	46	42	1.32	85.9	Nonparametric	17.52	95% KM(Chebyshev)
Cyanide (Total)	36	6	0.0755	1.06	Lognormal	0.232	95% KM(t)
Lead	46	43	3.66	45.6	Nonparametric	12.6	95% KM(Chebyshev)
Mercury	46	40	0.0018	40.6	Lognormal	4.995	95% KM(Chebyshev)
Perchlorate	36	8	0.000556	0.00657	Gamma	0.00165	95% KM(t)
Selenium	46	26	0.518(U)	2.25	Lognormal	1.048	95% KM(t)
Vanadium	46	46	4.04	18.9	Lognormal	9.666	95% Student's-t
Zinc	46	46	22.8	270	Nonparametric	58.11	95% Student's-t
Organic Chemicals (mg/kg)							
Acenaphthene	38	2	0.0194	0.0466	n/a	0.0466	Maximum detected concentration
Anthracene	38	2	0.0282	0.0532	n/a	0.0532	Maximum detected concentration
Aroclor-1254	78	31	0.0025	0.822	Gamma	0.0912	95% KM(t)
Aroclor-1260	78	49	0.0014	1.11	Nonparametric	0.22	95% KM(Chebyshev)
Benzo(a)anthracene	38	10	0.0109	0.201	Lognormal	0.0345	95% KM(t)
Benzo(a)pyrene	38	11	0.0126	0.192(U)	Gamma	0.0314	95% KM(t)
Benzo(b)fluoranthene	38	14	0.0124	0.247	Nonparametric	0.0431	95% KM(t)
Benzo(g,h,i)perylene	38	3	0.0141	0.0597	n/a	0.0597	Maximum detected concentration
Benzo(k)fluoranthene	38	2	0.0107	0.0394(U)	n/a	0.0235[b]	Maximum detected concentration
Bis(2-ethylhexyl)phthalate	38	1	0.166(U)	0.591	n/a	0.591	Maximum detected concentration
Chrysene	38	12	0.0115	0.162	Nonparametric	0.0334	95% KM(t)
Di-n-butylphthalate	38	9	0.0331(U)	0.394(U)	Normal	0.049	95% KM(t)
Fluoranthene	38	18	0.0123	0.323	Nonparametric	0.0508	95% KM(t)
Fluorene	38	2	0.0185	0.0394(U)	n/a	0.0196[b]	Maximum detected concentration
Heptachlorodibenzodioxin[1,2,3,4,6,7,8-]	36	33	1.49E-07(U)	0.0017	Gamma	5.713E-04	95% KM(Chebyshev)
Heptachlorodibenzofuran[1,2,3,4,6,7,8-]	36	31	9E-08(U)	0.000269	Gamma	7.612E-05	95% KM(Chebyshev)
Heptachlorodibenzofuran[1,2,3,4,7,8,9-]	36	23	2.91E-08(U)	1.68E-05	Lognormal	5.32E-06	97.5% KM(Chebyshev)

Table H-2.2-18 (continued)

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Hexachlorodibenzodioxin[1,2,3,4,7,8-]	36	16	9.7E-08	8.39E-06	Gamma	1.652E-06	95% KM(t)
Hexachlorodibenzodioxin[1,2,3,6,7,8-]	36	25	8.57E-08(U)	3.84E-05	Gamma	8.282E-06	95% KM(BCA)
Hexachlorodibenzodioxin[1,2,3,7,8,9-]	36	20	8.01E-08	1.66E-05	Gamma	3.682E-06	95% KM(BCA)
Hexachlorodibenzofuran[1,2,3,4,7,8-]	36	28	4.18E-08)	9,64E-06	Gamma	2.997E-06	95% KM(Chebyshev)
Hexachlorodibenzofuran[1,2,3,6,7,8-]	36	33	2.15E-08(U)	5.24E-06	Gamma	1.44E-06	95% KM(BCA)
Hexachlorodibenzofuran[1,2,3,7,8,9-]	36	8	2E-08(U)	9,49E-07	Normal	3.846E-07	95% KM(t)
Hexachlorodibenzofuran[2,3,4,6,7,8-]	36	24	1.95E-08)	7.04E-06	Gamma	1.976E-06	95% KM(Chebyshev)
Indeno(1,2,3-cd)pyrene	38	1	0.0245(U)	0.631	n/a	0.631	Maximum detected concentration
Methylene Chloride	19	4	0.00215	0.00637(U)	n/a	0.00563[b]	Maximum detected concentration
Methylnaphthalene[2-]	38	1	0.00811	0.0394(U)	n/a	0.00811[b]	Maximum detected concentration
Naphthalene	38	2	0.0143	0.0394(U)	n/a	0.0147[b]	Maximum detected concentration
Octachlorodibenzodioxin[1,2,3,4,6,7,8,9-]	36	35	1.33E-06	0.0338	Gamma	0.00768	95% KM(Chebyshev)
Octachlorodibenzofuran[1,2,3,4,6,7,8,9-]	36	30	1.94E-07	0.00124	Lognormal	3.18E-04	95% KM(Chebyshev)
Pentachlorodibenzodioxin[1,2,3,7,8-]	36	14	5.19E-08(U)	3.03E-06	Normal	6.785E-07	95% KM(t)
Pentachlorodibenzofuran[1,2,3,7,8-]	36	12	4.39E-08(U)	3.32E-06	Gamma	4.385E-07	95% KM(t)
Pentachlorodibenzofuran[2,3,4,7,8-]	36	21	4.32E-08(U)	2.05E-05	Gamma	2.591E-06	95% KM(BCA)
Pentachlorophenol	38	1	0.301	0.394(U)	n/a	0.301[b]	Maximum detected concentration
Phenanthrene	38	9	0.0114	0.185	Nonparametric	0.0345	95% KM(BCA)
Pyrene	38	17	0.0112	0.279	Nonparametric	0.0501	95% KM(t)
Tetrachlorodibenzodioxin[2,3,7,8-]	36	7	4.89E-08(U)	3.89E-07	Normal	2.301E-07	95% KM(t)
Tetrachlorodibenzofuran[2,3,7,8-]	36	19	4.86E-08(U)	1.12E-05	Lognormal	2.222E-06	95% KM(Chebyshev)
Toluene	19	6	0.000411	0.00113(U)	Gamma	5.818E-04	95% KM(t)
Radionuclides (pCi/g)							
Cesium-137	39	12	-0.0488(U)	1.29	Gamma	0.238	95% KM(t)
Cobalt-60	42	1	-0.037(U)	0.11	n/a	0.11	Maximum detected concentration
Plutonium-239/240	46	9	-0.013(U)	0.115	Normal	0.0334	95% KM(t)
Strontium-90	44	2	-0.192(U)	0.716	n/a	0.716	Maximum detected concentration
Tritium	46	26	0.001156	3.81	Gamma	0.512	95% KM(BCA)

Note: Data qualifiers are defined in Appendix A.

[a] n/a = Not applicable.

[b] The maximum concentration of the data set is a nondetect (U or UJ); thus, the maximum detected concentration is less than the maximum concentration.

Table H-2.2-19
EPCs for AOC 02-004(g) for the Industrial and Recreational Scenarios

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Inorganic Chemicals (mg/kg)							
Cadmium	12	7	0.0576	0.958	Lognormal	0.321	95% KM(t)
Chromium	12	12	2.56	56.4	Gamma	21.63	95% Approximate Gamma
Chromium hexavalent	3	2	0.0661	0.108	n/a[a]	0.108	Maximum detected concentration
Copper	12	7	1.38(U)	28.9	Gamma	10.6	95% KM(t)
Lead	12	12	6.35	53.9	Nonparametric	34.07	95% Chebyshev (Mean, Sd)
Mercury	12	12	0.0124	0.415	Lognormal	0.285	95% Chebyshev (Mean, Sd)
Selenium	12	8	0.205(U)	14.7	Nonparametric	8.465	95% KM(Chevyshev)
Zinc	12	12	25.7	92.8	Approximate Gamma	57	95% Approximate Gamma
Organic Chemicals (mg/kg)							
Acenaphthene	9	1	0.0261	0.128(U)	n/a	0.0261[b]	Maximum detected concentration
Anthracene	9	2	0.00712	0.128(U)	n/a	0.0356[b]	Maximum detected concentration
Aroclor-1254	9	5	0.0042	0.0528	Normal	0.0295	95%KM(t)
Aroclor-1260	9	5	0.0034	0.0382	Normal	0.0199	95%KM(t)
Benzo(a)anthracene	9	1	0.0328(U)	0.128(U)	n/a	0.119[b]	Maximum detected concentration
Benzo(a)pyrene	9	5	0.0141	0.123	Normal	0.0715	95%KM(t)
Benzo(b)fluoranthene	9	6	0.0164	0.18	Gamma	0.0972	95%KM(BCA)
Benzo(g,h,i)perylene	9	2	0.0328(U)	0.0552	n/a	0.0552	Maximum detected concentration
Chrysene	9	4	0.0167	0.128(U)	n/a	0.111[b]	Maximum detected concentration
Fluoranthene	9	6	0.0169	0.187	Gamma	0.0993	95%KM(BCA)
Fluorene	9	1	0.0141	0.128(U)	n/a	0.0141[b]	Maximum detected concentration
Heptachlorodibenzodioxin[1,2,3,4,6,7,8-]	9	9	1.02E-06	0.00125	Lognormal	8.624E-04	95%Chebyshev (Mean, Sd)
Heptachlorodibenzofuran[1,2,3,4,6,7,8-]	9	9	1.34E-06	0.000553	Lognormal	3.383E-04	95%Chebyshev (Mean, Sd)
Heptachlorodibenzofuran[1,2,3,4,7,8,9-]	9	6	7.63E-08(U)	4.69E-05	Lognormal	2.953E-05	95% KM(Chebyshev)

Table H-2.2-19 (continued)

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Hexachlorodibenzodioxin[1,2,3,6,7,8-]	9	6	2.24E-07(U)	7.34E-05	Gamma	2.656E-05	95% KM(BCA)
Hexachlorodibenzodioxin[1,2,3,7,8,9-]	9	5	2.18E-07(U)	8.18E-05	Gamma	2.855E-05	95% KM(BCA)
Hexachlorodibenzofuran[1,2,3,4,7,8-]	9	7	6.41E-08(U)	4.89E-05	Gamma	3.023E-05	95% KM(Chebyshev)
Hexachlorodibenzofuran[1,2,3,6,7,8-]	9	7	7.16E-08(U)	4.24E-05	Gamma	2.602E-05	95% KM(Chebyshev)
Hexachlorodibenzofuran[1,2,3,7,8,9-]	9	3	9.4E-08(U)	8.19E-06	n/a	8.19E-06	Maximum detected concentration
Hexachlorodibenzofuran[2,3,4,6,7,8-]	9	7	8.1E-08(U)	4.92E-05	Gamma	3.031E-05	95% KM(Chebyshev)
Indeno(1,2,3-cd)pyrene	9	1	0.0328(U)	0.128(U)	n/a	0.0401[b]	Maximum detected concentration
Methylnaphthalene[2-]	9	2	0.00783	0.128(U)	n/a	0.0152[b]	Maximum detected concentration
Naphthalene	9	1	0.0178	0.128(U)	n/a	0.0178[b]	Maximum detected concentration
Octachlorodibenzodioxin [1,2,3,4,6,7,8,9-]	9	9	8.21E-06	0.015	Lognormal	0.0066	95% Chebyshev (Mean, Sd)
Octachlorodibenzofuran[1,2,3,4,6,7,8,9-]	9	9	9.09E-07	0.000652	Gamma	5.746E-04	95% Adjusted Gamma
Pentachlorodibenzodioxin[1,2,3,7,8-]	9	4	9.1E-08(U)	2.06E-05	n/a	2.06E-05	Maximum detected concentration
Pentachlorodibenzofuran[1,2,3,7,8-]	9	3	1.22E-07(U)	4.03E-06	n/a	4.03E-06	Maximum detected concentration
Pentachlorodibenzofuran[2,3,4,7,8-]	9	6	1.46E-07(U)	1.24E-05	Normal	5.511E-06	95% KM(t)
Phenanthrene	9	5	0.0144	0.118	Normal	0.0625	95% KM(t)
Pyrene	9	7	0.0158	0.221	Gamma	0.183	95% KM(Chebyshev)
Tetrachlorodibenzodioxin[2,3,7,8-]	9	2	6.44E-08(U)	7.56E-07	n/a	7.56E-07	Maximum detected concentration
Tetrachlorodibenzofuran[2,3,7,8-]	9	6	1.02E-07(U)	3.43E-06	Gamma	1.431E-06	95% KM(BCA)
Radionuclides (pCi/g)							
Americium-241	9	1	-0.00973(U)	0.165	n/a	0.165	Maximum detected concentration
Cesium-137	10	3	-0.0263(U)	2.88	n/a	2.88	Maximum detected concentration
Cobalt-60	12	1	-0.0421(U)	0.504	n/a	0.504	Maximum detected concentration
Plutonium-239/240	12	9	0.0108(U)	1.85	Lognormal	0.905	95% KM(Chebyshev)
Tritium	12	4	-0.852(U)	0.0753	n/a	0.0753	Maximum detected concentration

Note: Data qualifiers are defined in Appendix A.

[a] n/a = Not applicable.

[b] The maximum concentration of the data set is a nondetect (U or UJ); thus, the maximum detected concentration is less than the maximum concentration.

Table H-2.2-20
EPCs for AOC 02-004(g) for the Residential Scenario

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Inorganic Chemicals (mg/kg)							
Antimony	18	1	0.112	1.06(U)	n/a[a]	0.112[b]	Maximum detected concentration
Cadmium	24	8	0.0557	0.958	Lognormal	0.208	95% KM(t)
Chromium	24	22	2.56	56.4	Gamma	24.2	95% KM(Chebyshev)
Chromium hexavalent	8	5	0.0661	0.262	Gamma	0.145	95% KM(Percentile Bootstrap)
Copper	24	19	1.38(U)	51.3	Nonparametric	12.1	95% KM(BCA)
Lead	24	24	6.31	53.9	Nonparametric	21.65	95% Chebyshev (Mean, Sd)
Mercury	24	21	0.0024	1.07	Lognormal	0.311	95% KM(Chebyshev)
Perchlorate	15	2	0.00062	0.00231(U)	n/a	0.000966[b]	Maximum detected concentration
Selenium	24	15	0.195(U)	14.7	Lognormal	4.753	95% KM(Chebyshev)
Zinc	24	24	25.7	92.8	Nonparametric	45.06	95% Student's-t
Organic Chemicals (mg/kg)							
Acenaphthene	16	1	0.0261	0.128(U)	n/a	0.0261[b]	Maximum detected concentration
Anthracene	16	2	0.00712	0.128(U)	n/a	0.00356[b]	Maximum detected concentration
Aroclor-1254	16	5	0.00353(U)	0.0528	Normal	0.0183	95% KM(t)
Aroclor-1260	16	5	0.0034	0.0382	Normal	0.0125	95% KM(t)
Benzo(a)anthracene	16	1	0.0328(U)	0.128(U)	n/a	0.119[b]	Maximum detected concentration
Benzo(a)pyrene	16	5	0.0141	0.123	Normal	0.05	95% KM(t)
Benzo(b)fluoranthene	16	6	0.0164	0.18	Gamma	0.0689	95% KM(t)
Benzo(g,h,i)perylene	16	2	0.0328(U)	0.0552	n/a	0.0552	Maximum detected concentration
Chloroform	6	1	0.000313	0.00115(U)	n/a	0.000313[b]	Maximum detected concentration
Chrysene	16	4	0.0167	0.128(U)	n/a	0.111[b]	Maximum detected concentration
Di-n-butylphthalate	16	1	0.0641	1.28(U)	n/a	0.0641[b]	Maximum detected concentration

Table H-2.2-20 (continued)

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Fluoranthene	16	6	0.0169	0.187	Gamma	0.0684	95% KM(t)
Fluorene	16	1	0.0141	0.128(U)	n/a	0.0141[b]	Maximum detected concentration
Heptachlorodibenzodioxin[1,2,3,4,6,7,8-]	15	14	1.05E-07	0.00125	Lognormal	5.305E-04	95% KM(Chebyshev)
Heptachlorodibenzofuran[1,2,3,4,6,7,8-]	15	13	6.07E-08(U)	0.000553	Lognormal	2.059E-04	99% KM(Chebyshev)
Heptachlorodibenzofuran[1,2,3,4,7,8,9-]	15	6	2.56E-08(U)	4.69E-05	Lognormal	1.838E-05	95% KM(Chebyshev)
Hexachlorodibenzodioxin[1,2,3,4,7,8-]	15	4	6.24E-08(U)	3.46E-05	n/a	3.46E-05	Maximum detected concentration
Hexachlorodibenzodioxin[1,2,3,6,7,8-]	15	6	6.74E-08(U)	7.34E-05	Gamma	1.544E-05	95% KM(t)
Hexachlorodibenzodioxin[1,2,3,7,8,9-]	15	5	6.32E-08(U)	8.18E-05	Gamma	1.67E-05	95% KM(t)
Hexachlorodibenzofuran[1,2,3,4,7,8-]	15	8	2.56E-08(U)	4.89E-05	Gamma	1.075E-05	95% KM(BCA)
Hexachlorodibenzofuran[1,2,3,6,7,8-]	15	8	2.26E-08(U)	4.24E-05	Gamma	9.202E-06	95% KM(BCA)
Hexachlorodibenzofuran[1,2,3,7,8,9-]	15	3	1.52E-08(U)	8.19E-06	n/a	8.19E-06	Maximum detected concentration
Hexachlorodibenzofuran[2,3,4,6,7,8-]	15	8	2.48E-08(U)	4.92E-05	Gamma	1.105E-05	95% KM(BCA)
Indeno(1,2,3-cd)pyrene	16	1	0.0328(U)	0.128(U)	n/a	0.0401[b]	Maximum detected concentration
Methylene Chloride	6	1	0.00254	0.00576(U)	n/a	0.00254[b]	Maximum detected concentration
Methylnaphthalene[2-]	16	2	0.00783	0.128(U)	n/a	0.0152[b]	Maximum detected concentration
Naphthalene	16	1	0.0178	0.128(U)	n/a	0.0178[b]	Maximum detected concentration
Octachlorodibenzodioxin[1,2,3,4,6,7,8,9-]	15	14	4.8E-07(U)	0.015	Lognormal	0.00599	95% KM(Chebyshev)
Octachlorodibenzofuran[1,2,3,4,6,7,8,9-]	15	13	8.18E-08(U)	0.000652	Gamma	2.585E-04	95% KM(Chebyshev)
Pentachlorodibenzodioxin[1,2,3,7,8-]	15	4	5.03E-08(U)	2.06E-05	n/a	2.06E-05	Maximum detected concentration
Pentachlorodibenzofuran[1,2,3,7,8-]	15	3	4.09E-08(U)	4.03E-06	n/a	4.03E-06	Maximum detected concentration
Pentachlorodibenzofuran[2,3,4,7,8-]	15	6	3.85E-08(U)	1.24E-05	Normal	3.566E-06	95% KM(t)
Phenanthrene	16	5	0.0114	0.118	Normal	0.0449	95% KM(t)
Pyrene	16	7	0.0144	0.221	Gamma	0.0731	95% KM(t)
Tetrachlorodibenzodioxin[2,3,7,8-]	15	2	4.48E-08(U)	7.56E-07	n/a	7.56E-07	Maximum detected concentration
Tetrachlorodibenzofuran[2,3,7,8-]	15	6	2.96E-08(U)	3.43E-06	Gamma	9.288E-07	95% KM(t)
Tetrachloroethene	6	1	0.000302	0.00115(U)	n/a	0.000302[b]	Maximum detected concentration

Table H-2.2-20 (continued)

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Toluene	6	2	0.000343	0.00336	n/a	0.00336	Maximum detected concentration
Trichloroethene	6	1	0.000884	0.00115(U)	n/a	0.000884[b]	Maximum detected concentration
Radionuclides (pCi/g)							
Americium-241	16	1	-0.00973(U)	0.165	n/a	0.165	Maximum detected concentration
Cesium-137	22	4	-0.0276(U)	2.88	n/a	2.88	Maximum detected concentration
Cobalt-60	24	1	-0.0421(U)	0.504	n/a	0.504	Maximum detected concentration
Plutonium-239/240	24	10	-0.00543(U)	1.85	Lognormal	0.488	95% KM(Chebyshev)
Strontium-90	24	4	-0.091(U)	0.965	n/a	0.965	Maximum detected concentration
Tritium	24	10	-0.852(U)	0.0904	Normal	0.0323	95% KM(t)

Note: Data qualifiers are defined in Appendix A.

[a] n/a = Not applicable.

[b] The maximum concentration of the data set is a nondetect (U or UJ); thus, the maximum detected concentration is less than the maximum concentration.

Table H-2.2-21
EPCs for SWMU 02-005 for the Industrial and Recreational Scenarios

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Inorganic Chemicals (mg/kg)							
Antimony	25	1	0.169	1.16(U)	n/a[a]	0.169[b]	Maximum detected concentration
Cadmium	25	6	0.106	0.578(U)	Normal	0.318	95% KM(t)
Chromium hexavalent	17	6	0.0353(U)	11.8(U)	n/a	0.768[b]	Maximum detected concentration
Copper	25	25	1.05	34.9	Nonparametric	10.75	95% Chebyshev (Mean, Sd)
Perchlorate	16	5	0.000622	0.00227(U)	Normal	0.0009463	95% KM(t)
Selenium	25	14	0.799	8.37	Nonparametric	4.562	95% KM(t)
Zinc	25	25	30.9	164	Approximate Gamma	60.17	95% Approximate Gamma
Organic Chemicals (mg/kg)							
Aroclor-1242	16	1	0.00342(U)	0.148(U)	n/a	0.0062[b]	Maximum detected concentration
Aroclor-1254	16	9	0.0017	0.148(U)	Nonparametric	0.0403	95% KM(Chebyshev)
Aroclor-1260	16	13	0.002	1.42	Nonparametric	0.486	95% KM(Chebyshev)
Benzo(b)fluoranthene	2	2	0.0156	0.0182	n/a	0.0182	Maximum detected concentration
Fluoranthene	2	2	0.0173	0.0232	n/a	0.0232	Maximum detected concentration
Phenanthrene	2	1	0.0149	0.0337(U)	n/a	0.0149[b]	Maximum detected concentration
Pyrene	2	2	0.0154	0.0283	n/a	0.0283	Maximum detected concentration
Radionuclides (pCi/g)							
Americium-241	25	2	-0.00841(U)	0.0304	n/a	0.0304	Maximum detected concentration
Cesium-137	24	19	-0.00938(U)	1.01	Gamma	0.434	99% KM(Percentile Bootstrap)
Plutonium-239/240	25	16	0.00135(U)	1.6	Lognormal	0.508	95% KM(Chebyshev)
Tritium	25	4	-0.01191(U)	0.251	n/a	0.251	Maximum detected concentration

Note: Data qualifiers are defined in Appendix A.

[a] n/a = Not applicable.

[b] The maximum concentration of the data set is a nondetect (U or UJ); thus, the maximum detected concentration is less than the maximum concentration.

Table H-2.2-22
EPCs for SWMU 02-005 for the Residential Scenario

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Inorganic Chemicals (mg/kg)							
Antimony	47	1	0.169	1.16(U)	n/a[a]	0.169[b]	Maximum detected concentration
Arsenic	47	47	0.384	4.59	Gamma	1.922	95% Approximate Gamma
Cadmium	47	8	0.106	0.578(U)	Normal	0.284	95% KM(t)
Chromium	47	47	0.984	8.45	Gamma	3.91	95% Approximate Gamma
Chromium hexavalent	31	12	0.0353(U)	11.8(U)	Normal	0.32	95% KM(t)
Copper	47	47	1.05	34.9	Nonparametric	7.068	95% Chebyshev (Mean, Sd)
Iron	47	47	3990	11700	Normal	7733	95% Student's-t
Manganese	47	47	131	402	Normal	287.8	95% Student's-t
Nickel	47	47	0.453	4.72	Normal	2.611	95% Student's-t
Perchlorate	28	8	0.000622	0.00253	Gamma	0.00106	95% KM(t)
Selenium	47	22	0.799	8.37	Nonparametric	3.891	95% KM(t)
Zinc	47	47	25.6	164	Gamma	51.85	95% Approximate Gamma
Organic Chemicals (mg/kg)							
Aroclor-1242	44	1	0.0034(U)	0.193(U)	n/a	0.0062[b]	Maximum detected concentration
Aroclor-1254	44	16	0.0017	0.206	Lognormal	0.038	95% KM(Chebyshev)
Aroclor-1260	44	30	0.002	4.21	Nonparametric	1.089	95% KM(Chebyshev)
Benzo(b)fluoranthene	5	2	0.0156	0.0358(U)	n/a	0.0182[b]	Maximum detected concentration
Fluoranthene	5	2	0.0173	0.0358(U)	n/a	0.0232[b]	Maximum detected concentration
Phenanthrene	5	1	0.0149	0.0358(U)	n/a	0.0149[b]	Maximum detected concentration
Pyrene	5	2	0.0154	0.0358(U)	n/a	0.0283[b]	Maximum detected concentration
Toluene	1	1	0.00142	0.00142	n/a	0.00142	Maximum detected concentration

Table H-2.2-22 (continued)

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Radionuclides (pCi/g)							
Americium-241	47	3	-0.00841(U)	0.139	n/a	0.139	Maximum detected concentration
Cesium-137	44	24	-0.0751(U)	1.01	Gamma	0.335	95% KM(t)
Plutonium-238	47	1	-0.0102(U)	0.0198(U)	n/a	0.0138[b]	Maximum detected concentration
Plutonium-239/240	47	22	-0.00148(U)	6.8	Nonparametric	0.908	95% KM(Chebyshev)
Tritium	47	11	-0.01191(U)	0.251	Gamma	0.0243	95% KM(t)

Note: Data qualifiers are defined in Appendix A.

[a] n/a = Not applicable.

[b] The maximum concentration of the data set is a nondetect (U or UJ); thus, the maximum detected concentration is less than the maximum concentration.

Table H-2.2-23
EPCs for SWMU 02-006(a) for the Industrial and Recreational Scenarios

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Inorganic Chemicals (mg/kg)							
Antimony	31	6	0.165(U)	1.14(U)	Normal	0.54	95% KM(t)
Arsenic	31	31	0.867	5.4	Normal	2.904	95% Student's-t
Barium	31	31	19.3	395	Lognormal	104.9	95% H-UCL
Chromium	31	25	3.87(U)	18.4	Gamma	8.703	95% KM(BCA)
Chromium hexavalent	11	6	0.0279	0.238(U)	Normal	0.0581	95% KM(t)
Copper	31	30	1.01	8.86	Normal	5.247	95% KM(t)
Cyanide (Total)	20	6	0.0785	1.4	Gamma	0.298	95% KM(t)
Lead	31	31	5.08	42.1	Gamma	17.61	95% Approximate Gamma
Nickel	31	30	2.03	10.3	Normal	6.69	95% KM(t)
Perchlorate	20	11	0.000772	0.00245(U)	Gamma	0.00159	95% KM(t)
Selenium	31	20	0.628	14.1	Nonparametric	9.467	95% KM(BCA)

Table H-2.2-23 (continued)

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Organic Chemicals (mg/kg)							
Aroclor-1254	20	7	0.0019	0.011	Normal	0.00409	95% KM(t)
Aroclor-1260	20	3	0.0016	0.00408(U)	n/a[a]	0.0028[b]	Maximum detected concentration
Radionuclides (pCi/g)							
Cesium-137	18	16	-0.032(U)	29.8	Gamma	8.594	95% KM(BCA)
Plutonium-239/240	20	1	-0.00311(U)	0.0626	n/a	0.0626	Maximum detected concentration
Strontium-90	20	4	-0.116(U)	2.69	n/a	2.69	Maximum detected concentration
Tritium	31	14	-0.01038(U)	1.73	Normal	0.502	95% KM(t)

Note: Data qualifiers are defined in Appendix A.

[a] n/a = Not applicable.

[b] The maximum concentration of the data set is a nondetect (U or UJ); thus, the maximum detected concentration is less than the maximum concentration.

Table H-2.2-24
EPCs for SWMU 02-006(a) for the Ecological Scenario

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Inorganic Chemicals (mg/kg)							
Antimony	53	6	0.165(U)	1.14(U)	Normal	0.501	95% KM(t)
Arsenic	53	53	0.867	5.4	Normal	2.676	95% Student's-t
Barium	53	53	11.6	395	Gamma	88.37	95% Approximate Gamma
Chromium	53	40	2.57(U)	28	Gamma	8.365	95% KM(Percentile Bootstrap)
Chromium hexavalent	33	12	0.0247	0.238(U)	Normal	0.0526	95% KM(t)
Copper	53	51	1.01	8.86	Normal	4.633	95% KM(t)
Cyanide (Total)	36	7	0.0728	1.4	Approximate Gamma	0.207	95% KM(t)
Lead	53	53	1.84	59.8	Gamma	16.68	95% Approximate Gamma
Nickel	53	47	1.25	12.7	Normal	5.917	95% KM(t)
Perchlorate	36	26	0.000549	0.00814	Approximate Gamma	0.00211	95% KM(Percentile Bootstrap)
Selenium	53	35	0.304	14.1	Nonparametric	8.516	95% KM(Chebyshev)

Table H-2.2-24 (continued)

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Organic Chemicals (mg/kg)							
Aroclor-1242	36	3	0.0028	0.0043	n/a[a]	0.0043	Maximum detected concentration
Aroclor-1254	36	9	0.0019	0.011	Gamma	0.0032	95% KM(t)
Aroclor-1260	36	3	0.0016	0.00408(U)	n/a	0.0028[b]	Maximum detected concentration
Dichlorobenzene[1,4-]	60	1	0.000215	0.407(U)	n/a	0.00215[b]	Maximum detected concentration
Toluene	24	1	0.000328	0.00117(U)	n/a	0.000328[b]	Maximum detected concentration
Trichloroethene	34	3	0.000275	0.00117(U)	n/a	0.000313[b]	Maximum detected concentration
Radionuclides (pCi/g)							
Cesium-137	40	25	-0.0711(U)	29.8	Approximate Gamma	4.315	95% KM(Percentile Bootstrap)
Plutonium-239/240	42	1	-0.00544(U)	0.0626	n/a	0.0626	Maximum detected concentration
Strontium-90	42	11	-0.116(U)	2.69	Approximate Gamma	0.344	95% KM(t)
Tritium	53	35	-0.01038(U)	67.61	Lognormal	10.96	95% KM(Chebyshev)
Uranium-235/236	42	12	0.0153(U)	0.128(U)	Normal	0.0602	95% KM(t)

Note: Data qualifiers are defined in Appendix A.

[a] n/a = Not applicable.

[b] The maximum concentration of the data set is a nondetect (U or UJ); thus, the maximum detected concentration is less than the maximum concentration.

Table H-2.2-25
EPCs for SWMU 02-006(a) for the Residential Scenario

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Inorganic Chemicals (mg/kg)							
Antimony	78	7	0.165	1.14(U)	Normal	0.407	95% KM(t)
Arsenic	78	78	0.295	5.4	Normal	2.339	95% Student's-t
Barium	78	78	9.32	395	Gamma	72.22	95% Approximate Gamma
Calcium	78	76	254	6190	Gamma	2275	95% KM(Chebyshev)
Chromium	78	57	1.43	28	Normal	6.932	95% KM(t)
Chromium hexavalent	46	15	0.0247	0.238(U)	Normal	0.0523	95% KM(t)
Copper	78	71	0.545	8.86	Normal	4.052	95% KM(t)
Cyanide (Total)	48	9	0.0728	2.89	Lognormal	0.346	95% KM(BCA)
Lead	78	78	1.69	116	Lognormal	17.16	95% H-UCL
Nickel	78	66	0.928	12.7(U)	Normal	5.098	95% KM(t)
Perchlorate	48	36	0.000549	0.0147	Nonparametric	0.0027	95% KM(BCA)
Selenium	78	44	0.304	14.1	Nonparametric	6.981	95% KM(Chebyshev)
Organic Chemicals (mg/kg)							
Aroclor-1242	48	3	0.0028	0.0043	n/a[a]	0.0043	Maximum detected concentration
Aroclor-1254	48	9	0.0019	0.011	Gamma	0.00285	95% KM(t)
Aroclor-1260	48	3	0.0016	0.00408(U)	n/a	0.0028[b]	Maximum detected concentration
Dichlorobenzene[1,4-]	84	1	0.000215	0.407(U)	n/a	0.000215	Maximum detected concentration
Toluene	36	1	0.000328	0.00117(U)	n/a	0.000328[b]	Maximum detected concentration
Trichloroethene	36	3	0.000275	0.00117(U)	n/a	0.000313[b]	Maximum detected concentration
Radionuclides (pCi/g)							
Cesium-137	53	27	-0.0711(U)	29.8	Lognormal	5.22	95% KM(Chebyshev)
Plutonium-239/240	56	1	-0.00544(U)	0.0626	n/a	0.0626	Maximum detected concentration
Strontium-90	56	11	-0.116(U)	2.69	Approximate Gamma	0.272	95% KM(t)
Tritium	79	52	-0.01038(U)	167.68	Gamma	11.74	99% KM(Percentile Bootstrap)
Uranium-235/236	56	14	-0.0383(U)	0.128	Normal	0.0571	95% KM(t)

Note: Data qualifiers are defined in Appendix A.

[a] n/a = Not applicable.

[b] The maximum concentration of the data set is a nondetect (U or UJ); thus, the maximum detected concentration is less than the maximum concentration.

Table H-2.2-26
EPCs for SWMU 02-006(b) for the Industrial and Recreational Scenarios

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Inorganic Chemicals (mg/kg)							
Cadmium	19	14	0.119	2	Lognormal	0.64	95% KM(BCA)
Lead	19	19	8.17	31	Nonparametric	15.04	95% Student's-t
Mercury	19	19	0.179	6.04	Lognormal	1.51	95% H-UCL
Perchlorate	19	3	0.000516	0.039(U)	n/a[a]	0.00135[b]	Maximum detected concentration
Selenium	19	10	0.4	1.53(U)	Normal	0.911	95% KM(t)
Silver	19	18	0.0595	1.7	Nonparametric	0.629	95% KM(Chebyshev)
Zinc	19	19	37.2	140	Nonparametric	66.06	95% Student's-t
Organic Chemicals (mg/kg)							
Acenaphthene	19	13	0.0172	2.2	Gamma	0.191	95% KM(BCA)
Anthracene	19	16	0.0117	2.2	Gamma	0.48	95% KM(Chebyshev)
Aroclor-1254	19	3	0.0168(U)	0.44(U)	n/a	0.0782[b]	Maximum detected concentration
Aroclor-1260	19	19	0.0138	1	Lognormal	0.27	95% H-UCL
Benzo(a)anthracene	19	14	0.0347(U)	2.2(U)	Gamma	0.503	95% KM(Percentile Bootstrap)
Benzo(a)pyrene	19	18	0.0473	2.2(U)	Gamma	0.869	95% KM(Chebyshev)
Benzo(b)fluoranthene	19	19	0.0623	2.1	Lognormal	1.133	95% Chebyshev (Mean, Sd)
Benzo(g,h,i)perylene	19	16	0.0252	2.2	Gamma	0.235	95% KM(BCA)
Benzo(k)fluoranthene	19	5	0.0336(U)	0.21	Normal	0.0932	95% KM(t)
Chrysene	19	19	0.0415	1.3	Gamma	0.523	95% Approximate Gamma
Dibenzofuran	19	6	0.0704	2.2(U)	Normal	0.231	95% KM(t)
Diethylphthalate	19	1	0.336(U)	2.2(U)	n/a	0.37[b]	Maximum detected concentration
Di-n-butylphthalate	19	2	0.0343	2.2(U)	n/a	0.356[b]	Maximum detected concentration
Fluoranthene	19	19	0.0629	2.52	Gamma	1.028	95% Approximate Gamma
Fluorene	19	13	0.0158	2.2(U)	Gamma	0.161	95% KM(BCA)
Indeno(1,2,3-cd)pyrene	19	18	0.0131	2.2(U)	Gamma	0.324	95% KM(Chebyshev)
Methylnaphthalene[2-]	19	12	0.0078	2.2(U)	Gamma	0.0994	95% KM(BCA)

Table H-2.2-26 (continued)

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Naphthalene	19	13	0.0128	2.2(U)	Gamma	0.23	95% KM(BCA)
Phenanthrene	19	18	0.0382	2.39	Gamma	1.329	95% KM(Chebyshev)
Pyrene	19	19	0.0759	2.9	Gamma	1.146	95% Approximate Gamma
TPH-DRO	5	5	12.2	66.7	n/a	66.7	Maximum detected concentration
Radionuclides (pCi/g)							
Plutonium-239/240	19	3	-0.00857(U)	2.11	n/a	2.11	Maximum detected concentration
Tritium	19	9	0.001354(U)	0.277	Nonparametric	0.0623	95% KM(BCA)
Uranium-234	18	18	0.735	7.87	Nonparametric	3.102	95% Chebyshev (Mean, Sd)
Uranium-235/236	18	17	0.0426(U)	0.278	Gamma	0.134	95% KM(BCA)

Note: Data qualifiers are defined in Appendix A.

[a] n/a = Not applicable.

[b] The maximum concentration of the data set is a nondetect (U or UJ); thus, the maximum detected concentration is less than the maximum concentration.

Table H-2.2-27
EPCs for SWMU 02-006(b) for the Residential Scenario

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Inorganic Chemicals (mg/kg)							
Aluminum	52	52	923	8960	Nonparametric	4001	95% Student's-t
Arsenic	52	45	0.641	3.69	Gamma	2.026	95% KM(BCA)
Barium	52	52	12.2	89.3	Normal	46.75	95% Student's-t
Cadmium	52	15	0.0901(U)	2	Nonparametric	0.383	95% KM(t)
Chromium	48	27	2.2	39.5	Approximate Gamma	10.51	95% KM(t)
Chromium hexavalent	2	1	0.108(U)	0.158	n/a[a]	0.158	Maximum detected concentration
Iron	52	52	5160	14000	Normal	8743	95% Student's-t
Lead	52	52	4.04	3970	Nonparametric	420.1	95% Chebyshev (Mean, Sd)
Manganese	52	52	102	441	Normal	286.8	95% Student's-t

Table H-2.2-27 (continued)

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Mercury	52	49	0.0056	6.04	Approximate Gamma	0.976	95% KM(Chebyshev)
Nickel	52	29	1.25	7.85(U)	Normal	3.236	95% KM(t)
Nitrate	47	28	0.8	25.8	Nonparametric	3.855	95% KM(t)
Perchlorate	51	11	0.000516	0.0437(U)	Approximate Gamma	0.00164	95% KM(t)
Selenium	52	32	0.248	1.99	Normal	1.042	95% KM(t)
Silver	52	40	0.0422	1.7	Nonparametric	0.203	95% KM(BCA)
Vanadium	52	52	4.09	21.7	Gamma	10.42	95% Approximate Gamma
Zinc	52	52	20.9	140	Approximate Gamma	47.82	95% Approximate Gamma
Organic Chemicals (mg/kg)							
Acenaphthene	52	26	0.0164	2.2(U)	Approximate Gamma	0.111	95% KM(t)
Acetone	32	1	0.00434	0.025(U)	n/a	0.00434[b]	Maximum detected concentration
Anthracene	52	29	0.0117	2.2(U)	Gamma	0.177	95% KM(BCA)
Aroclor-1254	50	19	0.0014	0.44(U)	Gamma	0.0248	95% KM(t)
Aroclor-1260	50	36	0.0014	1	Lognormal	0.166	97.5% KM(Chebyshev)
Benzo(a)anthracene	52	26	0.0347	2.2(U)	Gamma	0.285	95% KM(t)
Benzo(a)pyrene	52	34	0.022(U)	2.2(U)	Approximate Gamma	0.335	95% KM(Percentile bootstrap)
Benzo(b)fluoranthene	52	36	0.0106	2.1	Gamma	0.413	95% KM(BCA)
Benzo(g,h,i)perylene	52	27	0.0155	2.2(U)	Gamma	0.144	95% KM(t)
Benzo(k)fluoranthene	52	11	0.0336(U)	0.462	Gamma	0.101	95% KM(t)
Bis(2-ethylhexyl)phthalate	52	2	0.0982	2.2(U)	n/a	0.109[b]	Maximum detected concentration
Chrysene	52	34	0.0199	1.3	Gamma	0.288	95% KM(Percentile bootstrap)
Dibenz(a,h)anthracene	52	2	0.0336(U)	2.2(U)	n/a	0.194[b]	Maximum detected concentration
Dibenzofuran	52	11	0.0269	2.2(U)	Normal	0.204	95% KM(t)
Diethylphthalate	52	1	0.336(U)	2.2(U)	n/a	0.37[b]	Maximum detected concentration
Di-n-butylphthalate	52	5	0.0343	2.2(U)	Nonparametric	0.1	95% KM(t)
Ethylbenzene	32	1	0.000276	0.008(U)	n/a	0.000276[b]	Maximum detected concentration
Fluoranthene	52	36	0.0352(U)	2.52	Approximate Gamma	0.583	95% KM(BCA)

Table H-2.2-27 (continued)

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Fluorene	52	26	0.005	2.2(U)	Approximate Gamma	0.0994	95% KM(t)
Indeno(1,2,3-cd)pyrene	52	29	0.0131	2.2(U)	Ggamma	0.148	95% KM(t)
Isopropyltoluene[4-]	32	1	0.000507	0.008(U)	n/a	0.000507[b]	Maximum detected concentration
Methyl-2-pentanone[4-]	32	1	0.00528(U)	0.032(U)	n/a	0.01[b]	Maximum detected concentration
Methylene Chloride	32	2	0.00265	0.02(U)	n/a	0.00265[b]	Maximum detected concentration
Methylnaphthalene[2-]	52	23	0.0074	2.2(U)	Gamma	0.0663	95% KM(t)
Naphthalene	52	25	0.0128	2.2(U)	Approximate Gamma	0.15	95% KM(t)
Phenanthrene	52	35	0.0258	2.39	Approximate Gamma	0.533	95% KM(BCA)
Pyrene	52	36	0.0352(U)	2.9	Gamma	0.611	95% KM(BCA)
Styrene	32	1	0.00023	0.008(U)	n/a	0.00023[b]	Maximum detected concentration
Toluene	32	1	0.000433	0.008(U)	n/a	0.000433[b]	Maximum detected concentration
TPH-DRO	14	11	3.87(U)	143(U)	Normal	31.45	95% KM(t)
Trichloroethene	32	1	0.000265	0.008(U)	n/a	0.000265[b]	Maximum detected concentration
Trimethylbenzene[1,2,4-]	32	2	0.000293	0.008(U)	n/a	0.000494[b]	Maximum detected concentration
Trimethylbenzene[1,3,5-]	32	2	0.000232	0.008(U)	n/a	0.000234[b]	Maximum detected concentration
Xylene[1,2-]	30	1	0.000493	0.00125(U)	n/a	0.000493[b]	Maximum detected concentration
Xylene[1,3-]+Xylene[1,4-]	30	3	0.000305	0.00251(U)	n/a	0.000469[b]	Maximum detected concentration
Radionuclides (pCi/g)							
Cesium-137	47	13	-0.0771(U)	1.83	Lognormal	0.44	95% KM(Chebyshev)
Plutonium-239/240	52	5	-0.00857(U)	2.11	Gamma	0.215	95% KM(t)
Strontium-90	52	6	-0.13(U)	1.29	Normal	0.264	95% KM(t)
Tritium	52	29	-0.00868(U)	2.46	Gamma	0.223	95% KM(t)
Uranium-234	51	51	0.384	7.87	Nonparametric	1.46	95% Student's-t
Uranium-235/236	51	41	0.0294(U)	0.278	Gamma	0.108	95% KM(BCA)

Note: Data qualifiers are defined in Appendix A.

[a] n/a = Not applicable.

[b] The maximum concentration of the data set is a nondetect (U or UJ); thus, the maximum detected concentration is less than the maximum concentration.

Table H-2.2-28
EPCs for AOC 02-006(c) for the Industrial and Recreational Scenarios

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Inorganic Chemicals (mg/kg)							
Cadmium	7	5	0.115	0.515(U)	n/a[a]	0.37[b]	Maximum detected concentration
Chromium hexavalent	5	1	0.0733	0.519(U)	n/a	0.0733[b]	Maximum detected concentration
Mercury	7	7	0.183	1.36	n/a	1.36	Maximum detected concentration
Perchlorate	7	1	0.00204(U)	0.00242	n/a	0.00242	Maximum detected concentration
Selenium	7	5	0.961	1.56(U)	n/a	1.12[b]	Maximum detected concentration
Zinc	7	7	30.6	59.7	n/a	59.7	Maximum detected concentration
Organic Chemicals (mg/kg)							
Acenaphthene	7	3	0.0245	0.0566	n/a	0.0566	Maximum detected concentration
Anthracene	7	4	0.011	0.0992	n/a	0.0992	Maximum detected concentration
Aroclor-1254	7	3	0.00369(U)	0.118	n/a	0.118	Maximum detected concentration
Aroclor-1260	7	7	0.019	0.169	n/a	0.169	Maximum detected concentration
Benzo(a)anthracene	7	3	0.0322(U)	0.213	n/a	0.213	Maximum detected concentration
Benzo(a)pyrene	7	3	0.0343(U)	0.238	n/a	0.238	Maximum detected concentration
Benzo(b)fluoranthene	7	6	0.0209	0.365	n/a	0.365	Maximum detected concentration
Benzo(g,h,i)perylene	7	3	0.0335(U)	0.142	n/a	0.142	Maximum detected concentration
Benzo(k)fluoranthene	7	1	0.0335(U)	0.0428	n/a	0.0428	Maximum detected concentration
Chrysene	7	6	0.0175	0.226	n/a	0.226	Maximum detected concentration
Fluoranthene	7	6	0.0347(U)	0.398	n/a	0.398	Maximum detected concentration
Fluorene	7	3	0.0203	0.0482	n/a	0.0482	Maximum detected concentration
Indeno(1,2,3-cd)pyrene	7	2	0.0335(U)	0.132	n/a	0.132	Maximum detected concentration
Methylnaphthalene[2-]	7	3	0.00717	0.0347(U)	n/a	0.0259[b]	Maximum detected concentration
Naphthalene	7	3	0.0114	0.054	n/a	0.054	Maximum detected concentration
Phenanthrene	7	6	0.0213	0.333	n/a	0.333	Maximum detected concentration
Pyrene	7	7	0.0227	0.557	n/a	0.557	Maximum detected concentration
TPH-DRO	2	2	3.93	13.9	n/a	13.9	Maximum detected concentration

Table H-2.2-28 (continued)

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Radionuclides (pCi/g)							
Cesium-137	5	5	0.315	16.9	n/a	16.9	Maximum detected concentration
Plutonium-239/240	7	1	-0.0162(U)	0.112	n/a	0.112	Maximum detected concentration
Strontium-90	7	2	-0.0476(U)	3.86	n/a	3.86	Maximum detected concentration
Tritium	7	1	0.001224(U)	0.0162	n/a	0.0162	Maximum detected concentration

Note: Data qualifiers are defined in Appendix A.

[a] n/a = Not applicable.

[b] The maximum concentration of the data set is a nondetect (U or UJ); thus, the maximum detected concentration is less than the maximum concentration.

Table H-2.2-29
EPCs for AOC 02-006(c) for the Residential Scenario

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Inorganic Chemicals (mg/kg)							
Antimony	19	0	0.393(U)	1.09(U)	n/a[a]	1.09(U)	Maximum detection limit
Cadmium	19	7	0.115	0.572(U)	Normal	0.283	95% KM(t)
Chromium	19	16	4.16	45.7	Approximate Gamma	17.58	95% KM(BCA)
Chromium hexavalent	11	5	0.0302	2.28(U)	Normal	0.129	95% KM(t)
Lead	19	18	5.3	44.2	Approximate Gamma	14.72	95% KM(BCA)
Mercury	19	18	0.0055	1.36	Gamma	0.607	95% KM(Chebyshev)
Perchlorate	17	3	0.00132	0.00242	n/a	0.00242	Maximum detected concentration
Selenium	19	13	0.657	2.3	Nonparametric	1.18	95% KM(BCA)
Zinc	19	19	25.5	92.7	Nonparametric	48.1	95% Student's-t

Table H-2.2-29 (continued)

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Organic Chemicals (mg/kg)							
Acenaphthene	18	4	0.0241	0.116(U)	n/a	0.0566[b]	Maximum detected concentration
Anthracene	18	7	0.00951	0.116(U)	Normal	0.0412	95% KM(t)
Aroclor-1242	19	1	0.00357(U)	0.0369(U)	n/a	0.0128[b]	Maximum detected concentration
Aroclor-1254	19	4	0.00357(U)	0.118	n/a	0.118	Maximum detected concentration
Aroclor-1260	19	12	0.0013	0.169	Gamma	0.0429	95% KM(BCA)
Benzo(a)anthracene	18	6	0.0275	0.213	Normal	0.0869	95% KM(t)
Benzo(a)pyrene	18	6	0.0211	0.238	Normal	0.0784	95% KM(t)
Benzo(b)fluoranthene	18	9	0.0209	0.365	Normal	0.132	95% KM(t)
Benzo(g,h,i)perylene	18	6	0.0155	0.142	Normal	0.0555	95% KM(t)
Benzo(k)fluoranthene	18	2	0.0335(U)	0.116(U)	Normal	0.0489	95% KM(t)
Chrysene	18	9	0.0175	0.266	Normal	0.0884	95% KM(t)
Di-n-butylphthalate	18	3	0.0451	1.16(U)	n/a	0.0522[b]	Maximum detected concentration
Fluoranthene	18	10	0.0129	0.398	Normal	0.142	95% KM(t)
Fluorene	18	4	0.0202	0.116(U)	n/a	0.0482	Maximum detected concentration
Indeno(1,2,3-cd)pyrene	18	4	0.0335	0.132	n/a	0.132	Maximum detected concentration
Methylnaphthalene[2-]	18	5	0.00717	0.116(U)	Normal	0.0238	95% KM(t)
Naphthalene	18	5	0.0114	0.116(U)	Normal	0.0321	95% KM(t)
Phenanthrene	18	9	0.0213	0.333	Normal	0.111	95% KM(t)
Pyrene	18	11	0.0124	0.557	Gamma	0.162	95% KM(BCA)
Toluene	10	1	0.00037	0.00117(U)	n/a	0.00037[b]	Maximum detected concentration
TPH-DRO	6	4	1.39	537	n/a	537	Maximum detected concentration
Radionuclides (pCi/g)							
Cesium-137	14	8	-0.0207(U)	16.9	Gamma	4.923	95% KM(t)
Plutonium-239/240	18	2	-0.0162(U)	0.112	n/a	0.112	Maximum detected concentration
Strontium-90	18	4	-0.122(U)	3.86	n/a	3.86	Maximum detected concentration
Tritium	19	9	0.001224(U)	0.506	Approximate Gamma	0.128	95% KM(t)

Note: Data qualifiers are defined in Appendix A.

[a] n/a = Not applicable.

[b] The maximum concentration of the data set is a nondetect (U or UJ); thus, the maximum detected concentration is less than the maximum concentration.

Table H-2.2-30
EPCs for AOC 02-006(e) for the Industrial and Recreational Scenarios

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Inorganic Chemicals (mg/kg)							
Cadmium	13	5	0.106	0.551(U)	Normal	0.258	95% KM(t)
Chromium	13	13	4.39	48.2	Nonparametric	24.72	95% Chebyshev (Mean, Sd)
Chromium hexavalent	11	3	0.0431(U)	11.1(U)	n/a[a]	0.117[b]	Maximum detected concentration
Lead	13	13	8.89	110	Nonparametric	53.38	95% Chebyshev (Mean, Sd)
Mercury	13	13	0.168	4.34	Gamma	2.496	95% Approximate Gamma
Perchlorate	13	5	0.000559	0.0156(U)	Normal	0.000772	95% KM(t)
Selenium	13	9	0.221	2.04(U)	Normal	1.147	95% KM(t)
Silver	13	13	0.0574	1.4	Nonparametric	0.655	95% Chebyshev (Mean, Sd)
Zinc	13	13	34.3	320	Nonparametric	163.9	95% Chebyshev (Mean, Sd)
Organic Chemicals (mg/kg)							
Acenaphthene	13	4	0.0232	3.4(U)	n/a	0.24[b]	Maximum detected concentration
Anthracene	13	10	0.00794	3.4(U)	Lognormal	0.237	95% KM(Chebyshev)
Aroclor-1242	12	1	0.0345(U)	0.33(U)	n/a	0.0627[b]	Maximum detected concentration
Aroclor-1248	12	1	0.0345(U)	0.408	n/a	0.408	Maximum detected concentration
Aroclor-1254	12	6	0.0228	1.3	Nonparametric	0.358	95% KM(BCA)
Aroclor-1260	12	9	0.0178	0.33(U)	Gamma	0.0618	95% KM(Percentile Bootstrap)
Benzo(a)anthracene	13	8	0.0345(U)	0.637	Gamma	0.314	95% KM(BCA)
Benzo(a)pyrene	13	10	0.0292	0.808(U)	Normal	0.269	95% KM(t)
Benzo(b)fluoranthene	13	12	0.0353(U)	1.34	Gamma	0.766	95% KM(Chebyshev)
Benzo(g,h,i)perylene	13	7	0.0331(U)	1.7(U)	Normal	0.203	95% KM(t)
Benzo(k)fluoranthene	13	2	0.0326(U)	0.56	n/a	0.56	Maximum detected concentration
Bis(2-ethylhexyl)phthalate	13	1	0.0822	3.4(U)	n/a	0.0822[b]	Maximum detected concentration
Chrysene	13	12	0.0307	0.83	Gamma	0.552	95% KM(Chebyshev)
Dibenzofuran	13	1	0.165	3.4(U)	n/a	0.165[b]	Maximum detected concentration

Table H-2.2-30 (continued)

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Fluoranthene	13	13	0.0134	1.34	Gamma	0.767	95% Approximate Gamma
Fluorene	13	4	0.0174	3.4(U)	n/a	0.233[b]	Maximum detected concentration
Indeno(1,2,3-cd)pyrene	13	7	0.0202	1.7(U)	Normal	0.185	95% KM(t)
Methylnaphthalene[2-]	13	3	0.0165	3.4(U)	n/a	0.153[b]	Maximum detected concentration
Naphthalene	13	2	0.0331(U)	3.4(U)	n/a	1.7[b]	Maximum detected concentration
Phenanthrene	13	12	0.0353(U)	1.38	Gamma	0.727	95% KM(Chebyshev)
Pyrene	13	13	0.0193	1.58	Gamma	0.962	95% Approximate Gamma
Radionuclides (pCi/g)							
Cesium-137	11	9	0.0288(U)	1.75	Lognormal	1.034	95% KM(Chebyshev)
Cobalt-60	11	1	-0.0194(U)	0.116	n/a	0.116	Maximum detected concentration
Plutonium-239/240	13	8	-0.00651(U)	1.62	Nonparametric	0.918	95% KM(Chebyshev)
Tritium	13	9	0.005055(U)	0.294	Nonparametric	0.103	95% KM(BCA)

Note: Data qualifiers are defined in Appendix A.

[a] n/a = Not applicable.

[b] The maximum concentration of the data set is a nondetect (U or UJ); thus, the maximum detected concentration is less than the maximum concentration.

Table H-2.2-31
EPCs for AOC 02-006(e) for the Residential Scenario

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Inorganic Chemicals (mg/kg)							
Antimony	34	1	0.127	1.03(U)	n/a[a]	0.127[b]	Maximum detected concentration
Arsenic	37	37	0.67	4.74	Normal	2.635	95% Student's-t
Cadmium	37	10	0.106	0.551(U)	Normal	0.272	95% KM(t)
Chromium	37	37	3.01	59.1	Nonparametric	24.2	95% Chebyshev (Mean, Sd)
Chromium hexavalent	29	15	0.0361(U)	4.31(U)	Nonparametric	0.236	95% KM(t)
Iron	37	37	3600	11100	Normal	8703	95% Student's-t
Lead	37	37	4.49	110	Nonparametric	24.09	95% Chebyshev (Mean, Sd)
Mercury	37	37	0.0043	5.03	Gamma	1.616	95% Approximate Gamma
Nickel	37	37	1.71	24.4	Nonparametric	6.037	95% Student's-t
Perchlorate	31	6	0.000559	0.0156(U)	Normal	0.000748	95% KM(t)
Selenium	37	19	0.17	2.04(U)	Normal	0.893	95% KM(t)
Silver	37	33	0.0298	1.4	Nonparametric	0.313	95% KM(Chebyshev)
Vanadium	37	37	5.3	18.6	Normal	11.36	95% Student's-t
Zinc	37	37	24.1	320	Nonparametric	62.66	95% Student's-t
Organic Chemicals (mg/kg)							
Acenaphthene	32	7	0.0142	3.4(U)	Gamma	0.0535	95% KM(t)
Anthracene	32	14	0.00794	3.4(U)	Lognormal	0.0799	95% KM(BCA)
Aroclor-1242	31	1	0.00353(U)	0.33(U)	n/a	0.0627[b]	Maximum detected concentration
Aroclor-1248	31	2	0.00353(U)	0.408	n/a	0.408	Maximum detected concentration
Aroclor-1254	31	16	0.0022	1.3	Lognormal	0.242	95% KM(Chebyshev)
Aroclor-1260	31	23	0.0023	0.33(U)	Approximate Gamma	0.053	95% KM(Chebyshev)
Benzo(a)anthracene	32	12	0.0293	1.7(U)	Gamma	0.16	95% KM(t)
Benzo(a)pyrene	32	14	0.0282	1.7(U)	Gamma	0.146	95% KM(t)
Benzo(b)fluoranthene	32	18	0.0328(U)	1.7(U)	Gamma	0.268	95% KM(BCA)
Benzo(g,h,i)perylene	32	10	0.0229	1.7(U)	Gamma	0.104	95% KM(t)

Table H-2.2-31 (continued)

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Benzo(k)fluoranthene	32	2	0.0326(U)	1.7(U)	n/a	0.56[b]	Maximum detected concentration
Bis(2-ethylhexyl)phthalate	32	1	0.0822	3.4(U)	n/a	0.0822[b]	Maximum detected concentration
Chloroform	19	1	0.000279	0.006(U)	n/a	0.000279[b]	Maximum detected concentration
Chrysene	32	18	0.0253	1.7(U)	Gamma	0.195	95% KM(BCA)
Dibenzofuran	32	2	0.13	3.4(U)	n/a	0.165[b]	Maximum detected concentration
Fluoranthene	32	19	0.0134	1.7(U)	Gamma	0.325	95% KM(BCA)
Fluorene	32	6	0.0174	3.4(U)	Normal	0.0506	95% KM(t)
Indeno(1,2,3-cd)pyrene	32	11	0.0121	1.7(U)	Gamma	0.0914	95% KM(t)
Isopropylbenzene	19	3	0.000328	0.006(U)	n/a	0.000392[b]	Maximum detected concentration
Methylnaphthalene[2-]	32	5	0.0165	3.4(U)	Normal	0.0407	95% KM(t)
Naphthalene	32	4	0.0328(U)	3.4(U)	n/a	0.415[b]	Maximum detected concentration
Phenanthrene	32	18	0.0235	1.7(U)	Lognormal	0.405	95% KM(Chebyshev)
Pyrene	32	19	0.0193	1.7(U)	Gamma	0.407	95% KM(BCA)
Toluene	19	1	0.000522	0.006(U)	n/a	0.000522[b]	Maximum detected concentration
Radionuclides (pCi/g)							
Cesium-137	30	12	-0.0198(U)	1.75	Gamma	0.279	95% KM(t)
Cobalt-60	33	6	-0.0196(U)	1.05	Normal	0.232	95% KM(t)
Plutonium-239/240	37	16	-0.0116(U)	1.62	Nonparametric	0.366	95% KM(Chebyshev)
Tritium	37	25	0.000162(U)	0.833	Nonparametric	0.225	95% KM(Chebyshev)
Uranium-235/236	36	29	0.0246(U)	0.292	Approximate Gamma	0.0906	95% KM(BCA)

Note: Data qualifiers are defined in Appendix A.

[a] n/a = Not applicable.

[b] The maximum concentration of the data set is a nondetect (U or UJ); thus, the maximum detected concentration is less than the maximum concentration.

Table H-2.2-32
EPCs for SWMU 02-007 for the Industrial and Recreational Scenarios

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Inorganic Chemicals (mg/kg)							
Cadmium	6	2	0.224	0.507(U)	n/a[a]	0.23[b]	Maximum detected concentration
Perchlorate	6	2	0.000706	0.00209(U)	n/a	0.000997[b]	Maximum detected concentration
Organic Chemicals (mg/kg)							
Aroclor-1254	6	5	0.00348(U)	1.63	n/a	1.63	Maximum detected concentration
Aroclor-1260	6	5	0.00348(U)	0.859	n/a	0.859	Maximum detected concentration
Benzo(a)anthracene	6	1	0.0155	0.0353(U)	n/a	0.0155[b]	Maximum detected concentration
Benzo(a)pyrene	6	1	0.0119	0.0353(U)	n/a	0.0119[b]	Maximum detected concentration
Benzo(b)fluoranthene	6	1	0.0136	0.0353(U)	n/a	0.0136[b]	Maximum detected concentration
Fluoranthene	6	4	0.0115	0.0353(U)	n/a	0.0238[b]	Maximum detected concentration
Phenanthrene	6	2	0.0109	0.0353(U)	n/a	0.0131[b]	Maximum detected concentration
Pyrene	6	3	0.015	0.0353(U)	n/a	0.02[b]	Maximum detected concentration
Radionuclides (pCi/g)							
Plutonium-239/240	6	1	0.00422(U)	0.0626	n/a	0.0626	Maximum detected concentration
Strontium-90	6	1	0.0256(U)	1.41	n/a	1.41	Maximum detected concentration
Tritium	6	1	0.001211(U)	0.0169	n/a	0.0169	Maximum detected concentration

Note: Data qualifiers are defined in Appendix A.

[a] n/a = Not applicable.

[b] The maximum concentration of the data set is a nondetect (U or UJ); thus, the maximum detected concentration is less than the maximum concentration.

Table H-2.2-33
EPCs for SWMU 02-007 for the Residential Scenario

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Inorganic Chemicals (mg/kg)							
Antimony	15	1	0.383	0.941(U)	n/a[a]	0.383[b]	Maximum detected concentration
Barium	17	17	10.5	533	Nonparametric	188.1	95% Chebyshev (Mean, Sd)
Cadmium	17	7	0.122	0.567(U)	Normal	0.231	95% KM(t)
Cyanide (Total)	16	9	0.118	0.762	Nonparametric	0.253	95% KM(t)
Lead	17	17	3.4	66	Nonparametric	25.89	95% Chebyshev (Mean, Sd)
Mercury	17	14	0.0023	2.91	Lognormal	0.952	95% KM(Chebyshev)
Perchlorate	16	6	0.000673	0.0048	Nonparametric	0.00164	95% KM(t)
Selenium	16	9	0.602	2.52	Gamma	1.165	95% KM(t)
Organic Chemicals (mg/kg)							
Acenaphthene	17	1	0.0341(U)	0.0443	n/a	0.0443	Maximum detected concentration
Anthracene	17	1	0.0341(U)	0.079	n/a	0.079	Maximum detected concentration
Aroclor-1254	17	12	0.00348(U)	1.63	Gamma	0.596	95% KM(Chebyshev)
Aroclor-1260	17	12	0.0025	0.859	Approximate Gamma	0.311	95% KM(Chebyshev)
Benzo(a)anthracene	17	2	0.0155	0.102	n/a	0.102	Maximum detected concentration
Benzo(a)pyrene	17	2	0.0119	0.183	n/a	0.183	Maximum detected concentration
Benzo(b)fluoranthene	17	2	0.0136	0.163	n/a	0.163	Maximum detected concentration
Benzo(g,h,i)perylene	17	1	0.0341(U)	0.101	n/a	0.101	Maximum detected concentration
Butylbenzylphthalate	17	1	0.254	0.382(U)	n/a	0.254[b]	Maximum detected concentration
Chrysene	17	1	0.0341(U)	0.109	n/a	0.109	Maximum detected concentration
Fluoranthene	17	5	0.0115	0.225	Nonparametric	0.0556	95% KM(BCA)
Fluorene	17	1	0.0341(U)	0.0471	n/a	0.0471	Maximum detected concentration
Indeno(1,2,3-cd)pyrene	17	1	0.0341(U)	0.108	n/a	0.108	Maximum detected concentration
Methylnaphthalene[2-]	17	1	0.0281	0.0382(U)	n/a	0.0281[b]	Maximum detected concentration

Table H-2.2-33 (continued)

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Naphthalene	17	1	0.0341(U)	0.0755	n/a	0.0755	Maximum detected concentration
Phenanthrene	17	3	0.0109	0.233	n/a	0.233	Maximum detected concentration
Pyrene	17	5	0.0126	0.18	Nonparametric	0.047	95% KM(BCA)
Toluene	9	1	0.000311	0.00109(U)	n/a	0.000311[b]	Maximum detected concentration
Radionuclides (pCi/g)							
Cesium-137	17	5	-0.0544(U)	4.44	Normal	1.263	95% KM(t)
Plutonium-239/240	17	4	-2.8E-05(U)	0.595	n/a	0.595	Maximum detected concentration
Strontium-90	17	4	-0.115(U)	1.41	n/a	1.41	Maximum detected concentration
Tritium	17	5	0.001211(U)	0.073	Approximate Gamma	0.027	95% KM(t)

Note: Data qualifiers are defined in Appendix A.

[a] n/a = Not applicable.

[b] The maximum concentration of the data set is a nondetect (U or UJ); thus, the maximum detected concentration is less than the maximum concentration.

Table H-2.2-34
EPCs for SWMU 02-009(a) for the Industrial and Recreational Scenarios

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Inorganic Chemicals (mg/kg)							
Cadmium	27	2	0.041	2.65(U)	n/a[a]	0.05[b]	Maximum detected concentration
Calcium	27	26	181(U)	23300	Nonparametric	8752	95 KM (Chevyshev)
Copper	27	27	2.5	80.7	Nonparametric	20.06	95% Chebyshev (Mean, Sd)
Cyanide (Total)	23	17	0.138	0.51	Gamma	0.285	95% KM(Percentile Bootstrap)
Iron	27	27	5200	63200	Nonparametric	12849	95% Student's-t
Perchlorate	23	8	0.00061	0.00231(U)	Normal	0.00153	95% KM(t)
Selenium	27	26	0.144	70.5	Nonparametric	20.73	95% KM(Chebyshev)

Table H-2.2-34 (continued

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Organic Chemicals (mg/kg)							
Anthracene	23	1	0.00912	0.0385(U)	n/a	0.00912[b]	Maximum detected concentration
Aroclor-1254	23	7	0.0019	0.0043	Normal	0.00272	95% KM(t)
Aroclor-1260	23	11	0.0013	0.0144	Lognormal	0.00398	95% KM(t)
Benzo(a)pyrene	23	2	0.0189	0.0385(U)	n/a	0.02[b]	Maximum detected concentration
Benzo(b)fluoranthene	23	2	0.0297	0.0708	n/a	0.0708	Maximum detected concentration
Butylbenzylphthalate	23	1	0.281	0.385(U)	n/a	0.281[b]	Maximum detected concentration
Chrysene	23	2	0.0179	0.0695	n/a	0.0695	Maximum detected concentration
Fluoranthene	23	6	0.012	0.171	Nonparametric	0.0379	95% KM(BCA)
Phenanthrene	23	2	0.0345(U)	0.0828	n/a	0.828	Maximum detected concentration
Pyrene	23	5	0.0133	0.136	Approximate Gamma	0.0367	95% KM(t)
Radionuclides (pCi/g)							
Cesium-137	26	24	0.0648(U)	12.1	Approximate Gamma	3.966	95% KM(Chebyshev)
Plutonium-239/240	27	11	0(U)	0.142	Normal	0.0578	95% KM(t)
Tritium	27	2	-0.01312(U)	0.0774	n/a	0.0774	Maximum detected concentration

Note: Data qualifiers are defined in Appendix A.

[a] n/a = Not applicable.

[b] The maximum concentration of the data set is a nondetect (U or UJ); thus, the maximum detected concentration is less than the maximum concentration.

Table H-2.2-35
EPCs for SWMU 02-009(a) for the Residential Scenario

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Inorganic Chemicals (mg/kg)							
Antimony	69	1	0.103(U)	1.03(U)	n/a[a]	0.531[b]	Maximum detected concentration
Cadmium	79	5	0.0406(U)	2.65(U)	Nonparametric	0.0701	95% KM(t)
Calcium	79	78	103	26700	Nonparametric	3815	95% KM(BCA)
Chromium	79	41	2.09(U)	59.3	Nonparametric	6	95% KM(t)
Copper	79	79	1.72	80.7	Nonparametric	14.78	95% Chebyshev (Mean, Sd)
Cyanide (Total)	67	36	0.0766	1.21(U)	Gamma	0.201	95% KM(t)
Iron	79	79	5200	63200	Nonparametric	9923	95% Student's-t
Perchlorate	67	38	0.000535	0.00623	Approximate Gamma	0.0015	95% KM(t)
Selenium	79	71	0.106	70.5	Nonparametric	11.47	95% KM(Chebyshev)
Organic Chemicals (mg/kg)							
Acetone	44	2	0.00513(U)	0.041	n/a	0.041	Maximum detected concentration
Anthracene	69	1	0.00912	0.0385(U)	n/a	0.00912[b]	Maximum detected concentration
Aroclor-1248	69	1	0.00342(U)	0.0478	n/a	0.0478	Maximum detected concentration
Aroclor-1254	69	7	0.0019	0.0043	Normal	0.00262	95% KM(t)
Aroclor-1260	69	12	0.0013	0.0144	Nonparametric	0.00297	95% KM(t)
Benzo(a)pyrene	69	2	0.0189	0.0385(U)	n/a	0.02[b]	Maximum detected concentration
Benzo(b)fluoranthene	69	2	0.0297	0.0708	n/a	0.0708	Maximum detected concentration
Butylbenzylphthalate	69	1	0.281	0.385(U)	n/a	0.281[b]	Maximum detected concentration
Chloroform	44	5	0.000231	0.00115	Normal	0.000268	95% KM(t)
Chloromethane	44	1	0.00103(U)	0.00288	n/a	0.00288	Maximum detected concentration
Chrysene	69	2	0.0179	0.0695	n/a	0.0695	Maximum detected concentration

Table H-2.2-35 (continued)

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Di-n-butylphthalate	69	3	0.0358	0.385(U)	n/a	0.0388[b]	Maximum detected concentration
Fluoranthene	69	6	0.012	0.171	Nonparametric	0.0225	95% KM(BCA)
Isopropyltoluene[4-]	44	3	0.000324	0.00115(U)	n/a	0.000519[b]	Maximum detected concentration
Pentachlorophenol	69	1	0.257	0.385(U)	n/a	0.257[b]	Maximum detected concentration
Phenanthrene	69	2	0.034(U)	0.0828	n/a	0.0828	Maximum detected concentration
Phenol	69	1	0.102	0.385(U)	n/a	0.102[b]	Maximum detected concentration
Pyrene	69	5	0.0133	0.136	Approximate Gamma	0.0209	95% KM(t)
Toluene	44	31	0.000308	0.00143	Nonparametric	0.00067	95% KM(BCA)
Trimethylbenzene[1,2,4-]	44	1	0.000843	0.00115(U)	n/a	0.000843[b]	Maximum detected concentration
Trimethylbenzene[1,3,5-]	44	1	0.000535	0.00115(U)	n/a	0.000535[b]	Maximum detected concentration
Xylene[1,2-]	44	2	0.000619	0.00115(U)	n/a	0.000648[b]	Maximum detected concentration
Radionuclides (pCi/g)							
Cesium-137	75	40	-0.0351(U)	12.1	Nonparametric	1.796	95% KM(Chebyshev)
Plutonium-238	79	1	-0.0231(U)	0.047	n/a	0.047	Maximum detected concentration
Plutonium-239/240	79	15	-0.00487(U)	4.17	Nonparametric	0.317	95% KM(Chebyshev)
Strontium-90	79	8	-0.139	0.876	Normal	0.262	95% KM(t)
Tritium	79	25	-0.01312	0.0775	Gamma	0.0208	95% KM(t)

Note: Data qualifiers are defined in Appendix A.

[a] n/a = Not applicable.

[b] The maximum concentration of the data set is a nondetect (U or UJ); thus, the maximum detected concentration is less than the maximum concentration.

Table H-2.2-36
EPCs for SWMU 02-009(b) for the Industrial and Recreational Scenarios

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Inorganic Chemicals (mg/kg)							
Cadmium	9	7	0.126	0.564(U)	Normal	0.34	95% KM(t)
Cyanide (Total)	9	3	0.0941	3.82(U)	n/a[a]	0.108[b]	Maximum detected concentration
Mercury	9	9	0.0229	1.27	Nonparametric	0.808	95% Hall's Bootstrap
Perchlorate	9	2	0.000669	0.00206(U)	n/a	0.0017[b]	Maximum detected concentration
Zinc	9	8	35.2(U)	70.5	Normal	57.9	95% KM(t)
Organic Chemicals (mg/kg)							
Acenaphthene	9	1	0.0131	0.0343(U)	n/a	0.0131[b]	Maximum detected concentration
Anthracene	9	4	0.00697	0.0421	n/a	0.0421	Maximum detected concentration
Aroclor-1254	9	5	0.0125	0.0711	Nonparametric	0.0334	95% KM(t)
Aroclor-1260	9	7	0.0066	0.14	Gamma	0.11	95% KM(Chebyshev)
Benzo(a)anthracene	9	6	0.0191	0.233	Normal	0.128	95% KM(t)
Benzo(a)pyrene	9	5	0.0188	0.198	Normal	0.11	95% KM(t)
Benzo(b)fluoranthene	9	6	0.0261	0.379	Normal	0.193	95% KM(t)
Benzo(g,h,i)perylene	9	4	0.0272	0.109	n/a	0.109	Maximum detected concentration
Benzo(k)fluoranthene	9	4	0.0126	0.095	n/a	0.095	Maximum detected concentration
Bis(2-ethylhexyl)phthalate	9	1	0.0684	0.192(U)	n/a	0.0684[b]	Maximum detected concentration
Chrysene	9	7	0.0164	0.253	Normal	0.142	95% KM(t)
Di-n-butylphthalate	9	2	0.0478	0.38(U)	n/a	0.0789[b]	Maximum detected concentration
Fluoranthene	9	8	0.0104	0.559	Gamma	0.473	95% KM(Chebyshev)
Fluorene	9	1	0.0106	0.0383(U)	n/a	0.0106[b]	Maximum detected concentration
Indeno(1,2,3-cd)pyrene	9	5	0.013	0.106	Normal	0.0578	95% KM(t)
Phenanthrene	9	6	0.0114	0.206	Normal	0.107	95% KM(t)
Pyrene	9	9	0.0117	0.426	Gamma	0.332	95% Approximate Gamma

Table H-2.2-36 (continued)

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Radionuclides (pCi/g)							
Cesium-137	7	7	0.547	8.62	n/a	8.62	Maximum detected concentration
Plutonium-239/240	9	5	0.0214(U)	0.432	Gamma	0.2	95% KM(t)
Strontium-90	9	3	-0.126(U)	2.49	n/a	2.49	Maximum detected concentration
Tritium	9	1	0.00023(U)	0.00728	n/a	0.00728	Maximum detected concentration
Uranium-234	9	9	0.623	2.87	Gamma	1.629	95% Approximate Gamma

Note: Data qualifiers are defined in Appendix A.

[a] n/a = Not applicable.

[b] The maximum concentration of the data set is a nondetect (U or UJ); thus, the maximum detected concentration is less than the maximum concentration.

Table H-2.2-37
EPCs for SWMU 02-009(b) for the Residential Scenario

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Inorganic Chemicals (mg/kg)							
Antimony	20	1	0.29(U)	0.979(U)	n/a[a]	0.39[b]	Maximum detected concentration
Cadmium	20	16	0.018(U)	0.564	Gamma	0.229	95% KM(BCA)
Cyanide (Total)	17	5	0.0941	3.82(U)	Lognormal	0.301	95% KM(t)
Mercury	20	18	0.0016(U)	1.27	Lognormal	0.532	95% KM(Chebyshev)
Perchlorate	17	4	0.000564	0.00219(U)	n/a	0.0017[b]	Maximum detected concentration
Selenium	20	10	0.28(U)	1.57(U)	Normal	0.886	95% KM(t)
Zinc	20	19	32	70.5	Normal	49.61	95% KM(t)
Organic Chemicals (mg/kg)							
Acenaphthene	18	1	0.0131	0.0383(U)	n/a	0.0131[b]	Maximum detected concentration
Anthracene	18	4	0.00697	0.0421	n/a	0.0421	Maximum detected concentration
Aroclor-1254	18	9	0.0023	0.0711	Gamma	0.0209	95% KM(t)
Aroclor-1260	18	14	0.0016	0.14	Lognormal	0.0619	95% KM(Chebyshev)

Table H-2.2-37 (continued)

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Benzo(a)anthracene	18	9	0.0161	0.233	Gamma	0.0763	95% KM(t)
Benzo(a)pyrene	18	7	0.0107(U)	0.198	Normal	0.0665	95% KM(t)
Benzo(b)fluoranthene	18	11	0.012	0.379	Gamma	0.109	95% KM(BCA)
Benzo(g,h,i)perylene	18	5	0.0201	0.109	Normal	0.0432	95% KM(t)
Benzo(k)fluoranthene	18	4	0.0126	0.095	n/a	0.095	Maximum detected concentration
Bis(2-ethylhexyl)phthalate	18	1	0.0684	0.367(U)	n/a	0.0684[b]	Maximum detected concentration
Chrysene	18	11	0.0111	0.253	Gamma	0.0818	95% KM(BCA)
Di-n-butylphthalate	18	3	0.0461	0.38(U)	n/a	0.0789[b]	Maximum detected concentration
Fluoranthene	18	15	0.0104	0.559	Lognormal	0.264	95% KM(Chebyshev)
Fluorene	18	1	0.0106	0.0383(U)	n/a	0.0106[b]	Maximum detected concentration
Indeno(1,2,3-cd)pyrene	18	6	0.013	0.106	Normal	0.039	95% KM(t)
Isopropylbenzene	8	1	0.000342	0.00109(U)	n/a	0.000342[b]	Maximum detected concentration
Methylnaphthalene[2-]	18	1	0.00949	0.038(U)	n/a	0.00949[b]	Maximum detected concentration
Phenanthrene	18	8	0.0114	0.206	Gamma	0.0626	95% KM(t)
Pyrene	18	15	0.0117	0.426	Nonparametric	0.208	95% KM(Chebyshev)
Toluene	8	2	0.000653	0.00136	n/a	0.00136	Maximum detected concentration
Radionuclides (pCi/g)							
Cesium-137	18	17	-0.0227(U)	8.62	Nonparametric	5.879	95% KM(Chebyshev)
Plutonium-239/240	20	14	0(U)	0.432	Gamma	0.17	95% KM(Percentile Bootstrap)
Strontium-90	20	8	-0.126(U)	4.02	Normal	1.084	95% KM(t)
Tritium	20	7	-0.00019(U)	0.174	Gamma	0.0368	95% KM(t)
Uranium-234	20	19	0.623	2.87	Gamma	1.425	95% Approximate Gamma
Uranium-235/236	20	18	0.0327	0.199	Normal	0.11	95% KM(t)

Note: Data qualifiers are defined in Appendix A.

[a] n/a = Not applicable.

[b] The maximum concentration of the data set is a nondetect (U or UJ); thus, the maximum detected concentration is less than the maximum concentration.

Table H-2.2-38
EPCs for SWMU 02-009(c) for the Industrial and Recreational Scenarios

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Inorganic Chemicals (mg/kg)							
Barium	28	28	16.8	636	Nonparametric	203.8	95% Chebyshev (Mean, Sd)
Cadmium	28	13	0.102	0.538(U)	Nonparametric	0.267	95% KM(t)
Chromium hexavalent	26	8	0.203(U)	1.33	Nonparametric	0.458	95% KM(t)
Iron	28	28	5400	15200	Gamma	8608	95% Approximate Gamma
Lead	28	28	4.61	31.2	Gamma	15.27	95% Approximate Gamma
Mercury	28	28	0.0034	1.13	Lognormal	0.373	95% Chebyshev (Mean, Sd)
Perchlorate	26	11	0.000557	0.00224(U)	Normal	0.0013	95% KM(t)
Selenium	28	16	0.284	1.62(U)	Normal	0.824	95% KM(t)
Silver	28	21	0.0441	1.5	Nonparametric	0.299	95% KM(BCA)
Zinc	28	28	28	77.2	Gamma	46.21	95% Approximate Gamma
Organic Chemicals (mg/kg)							
Acenaphthene	27	7	0.0161	0.37(U)	Lognormal	0.0317	95% KM(t)
Anthracene	27	10	0.00744	0.37(U)	Gamma	0.0422	95% KM(t)
Aroclor-1248	19	1	0.0034(U)	0.037(U)	n/a[a]	0.0045[b]	Maximum detected concentration
Aroclor-1254	19	13	0.0022	0.126	Lognormal	0.0614	95% KM(Chebyshev)
Aroclor-1260	19	16	0.0016	0.146	Nonparametric	0.073	95% KM(Chebyshev)
Benzo(a)anthracene	27	11	0.0239	0.37(U)	Normal	0.0863	95% KM(t)
Benzo(a)pyrene	27	9	0.0145	0.37(U)	Normal	0.0774	95% KM(t)
Benzo(b)fluoranthene	27	13	0.0111	0.379	Normal	0.118	95% KM(t)
Benzo(g,h,i)perylene	27	6	0.034(U)	0.37(U)	Normal	0.066	95% KM(t)
Benzo(k)fluoranthene	27	4	0.034(U)	0.37(U)	n/a	0.15	Maximum detected concentration
Chrysene	27	14	0.0116	0.262	Normal	0.0903	95% KM(t)
Fluoranthene	27	17	0.0109	0.668	Gamma	0.164	95% KM(BCA)
Fluorene	27	7	0.0152	0.37(U)	Lognormal	0.0283	95% KM(t)
Indeno(1,2,3-cd)pyrene	27	5	0.034(U)	0.37(U)	Normal	0.0753	95% KM(t)

Table H-2.2-38 (continued)

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Methylnaphthalene[2-]	27	10	0.00922	0.29	Nonparametric	0.0489	95% KM(t)
Naphthalene	27	8	0.011	0.2	Lognormal	0.0392	95% KM(t)
Phenanthrene	27	16	0.0105	0.589	Gamma	0.136	95% KM(BCA)
Pyrene	27	16	0.0114	0.592	Gamma	0.166	95% KM(BCA)
Radionuclides (pCi/g)							
Cesium-137	22	15	-0.0673(U)	15.2	Lognormal	4.77	95% KM(Chebyshev)
Plutonium-239/240	28	17	0.000947(U)	0.934	Gamma	0.297	95% KM(Percentile Bootstrap)
Strontium-90	28	6	-0.124(U)	1.94	Normal	0.491	95% KM(t)
Tritium	28	5	0.001433(U)	0.051	Normal	0.0186	95% KM(t)

Note: Data qualifiers are defined in Appendix A.

[a] n/a = Not applicable.

[b] The maximum concentration of the data set is a nondetect (U or UJ); thus, the maximum detected concentration is less than the maximum concentration.

Table H-2.2-39
EPCs for SWMU 02-009(c) for the Residential Scenario

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Inorganic Chemicals (mg/kg)							
Aluminum	90	90	616	15700	Lognormal	3513	95% H-UCL
Antimony	58	0	0.102(U)	1.06(U)	n/a[a]	1.06	Maximum detection limit
Arsenic	90	85	0.539	4.2	Gamma	1.808	95% KM(BCA)
Barium	87	87	7.5	636	Nonparametric	110.1	95% Chebyshev (Mean, Sd)
Cadmium	90	34	0.0411(U)	0.73(U)	Nonparametric	0.146	95% KM(t)
Chromium	84	74	0.57	43.5	Nonparametric	9.636	95% KM(BCA)
Chromium hexavalent	57	22	0.0387	1.33	Gamma	0.242	95% KM(t)
Iron	90	90	1800	15200	Normal	7115	95% Student's-t

Table H-2.2-39 (continued)

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Lead	90	89	1.86	31.2	Nonparametric	10.03	95% KM(BCA)
Manganese	84	84	73	905	Nonparametric	296.9	95% Student's-t
Mercury	90	67	0.0019	1.13	Lognormal	0.147	95% KM(Chebyshev)
Perchlorate	61	16	0.000557	0.00901	Nonparametric	0.00162	95% KM(t)
Selenium	90	63	0.14	11.4	Nonparametric	2.345	95% KM(Chebyshev)
Silver	90	65	0.0441	2.8	Nonparametric	0.676	95% KM(Chebyshev)
Uranium	25	25	0.508	7.1	Nonparametric	2.484	95% Chebyshev (Mean, Sd)
Vanadium	90	90	1.1	15.6	Normal	7.309	95% Student's-t
Zinc	90	89	14	77.2	Normal	35.87	95% KM(t)
Organic Chemicals (mg/kg)							
Acenaphthene	91	8	0.0161	1.9(U)	Nonparametric	0.0279	95% KM(t)
Acetone	35	1	0.00523(U)	0.133	n/a	0.133	Maximum detected concentration
Anthracene	91	11	0.00744	1.9(U)	Gamma	0.0326	95% KM(t)
Aroclor-1248	50	1	0.0034(U)	0.037(U)	n/a	0.0045[b]	Maximum detected concentration
Aroclor-1254	50	26	0.0022	0.126	Lognormal	0.0293	95% KM(Chebyshev)
Aroclor-1260	50	32	0.0014	0.146	Nonparametric	0.0337	95% KM(Chebyshev)
Benzo(a)anthracene	91	15	0.0136	1.9(U)	Normal	0.0479	95% KM(t)
Benzo(a)pyrene	91	12	0.0118	1.9(U)	Nonparametric	0.0436	95% KM(BCA)
Benzo(b)fluoranthene	91	17	0.0111	1.9(U)	Gamma	0.0587	95% KM(t)
Benzo(g,h,i)perylene	91	7	0.034(U)	1.9(U)	Normal	0.0601	95% KM(t)
Benzo(k)fluoranthene	91	4	0.034(U)	1.9(U)	n/a	0.15[b]	Maximum detected concentration
Bis(2-ethylhexyl)phthalate	92	8	0.02	1.9(U)	Approximate Gamma	0.0471	95% KM(t)
Chloroform	35	2	0.000223	0.00148(U)	n/a	0.0000223[b]	Maximum detected concentration
Chrysene	91	18	0.0116	1.9(U)	Gamma	0.0498	95% KM(t)
Dibenzofuran	91	1	0.061	1.9(U)	n/a	0.061[b]	Maximum detected concentration
Di-n-butylphthalate	91	3	0.02(U)	1.9(U)	n/a	0.068[b]	Maximum detected concentration
Fluoranthene	91	24	0.0109	1.9(U)	Gamma	0.0762	95% KM(t)

Table H-2.2-39 (continued)

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Fluorene	91	8	0.0152	1.9(U)	Lognormal	0.0246	95% KM(t)
Indeno(1,2,3-cd)pyrene	91	6	0.034(U)	1.9(U)	Normal	0.0719	95% KM(t)
Isopropyltoluene[4-]	35	1	0.00105(U)	0.0505	n/a	0.0505	Maximum detected concentration
Methylnaphthalene[2-]	91	12	0.00922	1.9(U)	Nonparametric	0.0321	95% KM(t)
Naphthalene	91	10	0.011	1.9(U)	Lognormal	0.0286	95% KM(t)
Phenanthrene	91	22	0.0105	1.9(U)	Approximate Gamma	0.0633	95% KM(t)
Phenol	91	1	0.04	1.9(U)	n/a	0.04[b]	Maximum detected concentration
Pyrene	91	22	0.0114	1.9(U)	Gamma	0.0759	95% KM(t)
Toluene	35	4	0.000418	0.00456	n/a	0.00456	Maximum detected concentration
Radionuclides (pCi/g)							
Cesium-137	85	66	-0.0697(U)	232	Nonparametric	24.29	95% KM(Chebyshev)
Plutonium-239/240	99	52	-0.0107(U)	0.992	Nonparametric	0.209	95% KM(Chebyshev)
Strontium-90	99	39	-0.124(U)	11.8	Approximate Gamma	0.91	95% KM(t)
Tritium	99	37	-0.02734(U)	0.573	Lognormal	0.0949	95% KM(Chebyshev)
Uranium-234	99	99	0.285	4.37	Nonparametric	1.362	95% Student's-t
Uranium-235/236	99	65	0.0125(U)	0.211	Normal	0.0731	95% KM(t)
Uranium-238	99	99	0.285	3.92	Nonparametric	1.323	95% Student's-t

Note: Data qualifiers are defined in Appendix A.

[a] n/a = Not applicable.

[b] The maximum concentration of the data set is a nondetect (U or UJ); thus, the maximum detected concentration is less than the maximum concentration.

Table H-2.2-40
EPCs for SWMU 02-008(a) for the Industrial and Recreational Scenarios

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Inorganic Chemicals (mg/kg)							
Cadmium	6	3	0.105	0.562(U)	n/a[a]	0.18[b]	Maximum detected concentration
Chromium	6	5	13.6(U)	37	n/a	37	Maximum detected concentration
Chromium hexavalent	4	1	0.104(U)	0.524(U)	n/a	0.151	Maximum detected concentration
Copper	6	5	2.53	13	n/a	13	Maximum detected concentration
Cyanide (Total)	5	2	0.139	0.723	n/a	0.723	Maximum detected concentration
Lead	6	6	6.72	22	n/a	22	Maximum detected concentration
Selenium	6	2	0.282	2.01	n/a	2.01	Maximum detected concentration
Silver	6	5	0.0473	1.1	n/a	1.1	Maximum detected concentration
Zinc	6	6	27	68	n/a	68	Maximum detected concentration
Organic Chemicals (mg/kg)							
Acenaphthene	5	1	0.021	0.0383(U)	n/a	0.021[b]	Maximum detected concentration
Anthracene	5	1	0.0345(U)	0.0383(U)	n/a	0.0368[b]	Maximum detected concentration
Aroclor-1254	5	3	0.00354(U)	0.186	n/a	0.186	Maximum detected concentration
Aroclor-1260	5	5	0.0034	0.246	n/a	0.246	Maximum detected concentration
Benzo(a)anthracene	6	2	0.0242	0.096	n/a	0.096	Maximum detected concentration
Benzo(a)pyrene	6	3	0.0345(U)	0.0976	n/a	0.0976	Maximum detected concentration
Benzo(b)fluoranthene	5	3	0.0164	0.144	n/a	0.144	Maximum detected concentration
Benzo(g,h,i)perylene	5	1	0.032	0.0383(U)	n/a	0.032[b]	Maximum detected concentration
Benzo(k)fluoranthene	5	1	0.0131	0.0383(U)	n/a	0.0131[b]	Maximum detected concentration
Bis(2-ethylhexyl)phthalate	5	1	0.164	0.191(U)	n/a	0.164[b]	Maximum detected concentration
Chrysene	5	3	0.0157	0.12	n/a	0.12	Maximum detected concentration
Fluoranthene	5	3	0.0247	0.254	n/a	0.254	Maximum detected concentration
Fluorene	5	1	0.0178	0.0383(U)	n/a	0.0178[b]	Maximum detected concentration
Indeno(1,2,3-cd)pyrene	5	2	0.0354(U)	0.104	n/a	0.104	Maximum detected concentration

Table H-2.2-40 (continued)

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Phenanthrene	5	2	0.0237	0.165	n/a	0.165	Maximum detected concentration
Pyrene	5	3	0.0335	0.216	n/a	0.216	Maximum detected concentration
Radionuclides (pCi/g)							
Plutonium-239/240	6	6	0.135	1.87	n/a	1.87	Maximum detected concentration
Tritium	6	2	-0.00142(U)	0.257	n/a	0.257	Maximum detected concentration

Note: Data qualifiers are defined in Appendix A.

[a] n/a = Not applicable.

[b] The maximum concentration of the data set is a nondetect (U or UJ); thus, the maximum detected concentration is less than the maximum concentration.

Table H-2.2-41
EPCs for SWMU 02-008(a) for the Residential Scenario

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Inorganic Chemicals (mg/kg)							
Aluminum	14	14	2140	6610	Nonparametric	4171	95% Student's-t
Arsenic	14	12	0.89	3.1	Normal	2.448	95% KM(t)
Cadmium	14	3	0.105	0.596(U)	n/a[a]	0.18[b]	Maximum detected concentration
Chromium	14	10	2.08(U)	104	Gamma	42.26	95% KM(Percentile Bootstrap)
Chromium hexavalent	12	3	0.104(U)	1.12	n/a	1.1	Maximum detected concentration
Copper	14	12	1.71(U)	230	Lognormal	99.33	95% KM(Chebyshev)
Cyanide (Total)	13	2	0.139	0.723	n/a	0.723	Maximum detected concentration
Iron	14	14	4600	14440	Normal	9469	95% Student's-t
Lead	14	12	3.73(U)	57.7	Nonparametric	30.59	95% KM(Chebyshev)
Manganese	14	14	160	552	Gamma	331.7	95% Approximate Gamma
Selenium	14	8	0.282	10.2	Approximate Gamma	5.419	95% KM(BCA)
Silver	14	10	0.0473	1.1	Nonparametric	0.293	95% KM(BCA)
Zinc	14	12	14.3(U)	78.9	Normal	55.64	95% KM(t)

Table H-2.2-41 (continued)

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Organic Chemicals (mg/kg)							
Acenaphthene	13	1	0.021	0.041(U)	n/a	0.021[b]	Maximum detected concentration
Anthracene	13	2	0.0238	0.041(U)	n/a	0.0368[b]	Maximum detected concentration
Aroclor-1254	13	6	0.00345(U)	0.186	Normal	0.0704	95% KM(t)
Aroclor-1260	13	11	0.0027	0.246	Approximate Gamma	0.168	95% KM(Chebyshev)
Benzo(a)anthracene	13	3	0.0242	0.129	n/a	0.129	Maximum detected concentration
Benzo(a)pyrene	13	4	0.0345(U)	0.118	n/a	0.118	Maximum detected concentration
Benzo(b)fluoranthene	13	4	0.0164	0.162	n/a	0.162	Maximum detected concentration
Benzo(g,h,i)perylene	13	1	0.032	0.041(U)	n/a	0.032[b]	Maximum detected concentration
Benzo(k)fluoranthene	13	2	0.0131	0.0659	n/a	0.0659	Maximum detected concentration
Bis(2-ethylhexyl)phthalate	13	1	0.164	0.205(U)	n/a	0.164[b]	Maximum detected concentration
Chrysene	13	4	0.0157	0.138	n/a	0.138	Maximum detected concentration
Fluoranthene	13	4	0.0247	0.254	n/a	0.254	Maximum detected concentration
Fluorene	13	1	0.0178	0.041(U)	n/a	0.0178[b]	Maximum detected concentration
Indeno(1,2,3-cd)pyrene	13	3	0.0345(U)	0.118	n/a	0.118	Maximum detected concentration
Methylene Chloride	8	3	0.00295	0.00571(U)	n/a	0.00385[b]	Maximum detected concentration
Phenanthrene	13	3	0.0237	0.165	n/a	0.165	Maximum detected concentration
Pyrene	13	4	0.0335	0.267	n/a	0.267	Maximum detected concentration
Styrene	8	1	0.00107(U)	0.00589	n/a	0.00589	Maximum detected concentration
Toluene	8	1	0.000665	0.00123(U)	n/a	0.000665[b]	Maximum detected concentration
Radionuclides (pCi/g)							
Cesium-137	13	7	-0.029(U)	0.353	Normal	0.215	95% KM(t)
Plutonium-239/240	14	11	0.00383(U)	1.87	Gamma	0.956	95% KM(Chebyshev)
Tritium	14	5	-0.00723(U)	0.257	Gamma	0.0758	95% KM(t)

Note: Data qualifiers are defined in Appendix A.

[a] n/a = Not applicable.

[b] The maximum concentration of the data set is a nondetect (U or UJ); thus, the maximum detected concentration is less than the maximum concentration.

Table H-2.2-42
EPCs for AOC 02-008(c) for the Industrial and Recreational Scenarios

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Inorganic Chemicals (mg/kg)							
Cadmium	6	3	0.047	0.625(U)	n/a[a]	0.112[b]	Maximum detected concentration
Copper	6	6	3.31	22.5	n/a	22.5	Maximum detected concentration
Mercury	6	6	0.033	3.46	n/a	3.46	Maximum detected concentration
Perchlorate	6	2	0.000606	0.0156(U)	n/a	0.00168[b]	Maximum detected concentration
Selenium	6	6	0.202	2.77	n/a	2.77	Maximum detected concentration
Silver	6	5	0.069	1.8	n/a	1.8	Maximum detected concentration
Vanadium	6	6	8.81	21	n/a	21	Maximum detected concentration
Zinc	6	6	34	65.3	n/a	65.3	Maximum detected concentration
Organic Chemicals (mg/kg)							
Acenaphthene	6	1	0.0247(U)	1.6(U)	n/a	0.118[b]	Maximum detected concentration
Anthracene	6	2	0.00914	1.6(U)	n/a	0.0137[b]	Maximum detected concentration
Aroclor-1254	4	1	0.00433(U)	0.0788	n/a	0.0788	Maximum detected concentration
Aroclor-1260	4	4	0.0084	0.0872	n/a	0.0872	Maximum detected concentration
Benzo(a)anthracene	6	3	0.0247(U)	1.6(U)	n/a	0.682[b]	Maximum detected concentration
Benzo(a)pyrene	6	3	0.0247(U)	1.6(U)	n/a	0.559[b]	Maximum detected concentration
Benzo(b)fluoranthene	6	3	0.0247(U)	1.6(U)	n/a	1.09[b]	Maximum detected concentration
Benzo(g,h,i)perylene	6	2	0.0247(U)	1.6(U)	n/a	0.16[b]	Maximum detected concentration
Chrysene	6	3	0.0247(U)	1.6(U)	n/a	0.617[b]	Maximum detected concentration
Fluoranthene	6	5	0.0233	1.6(U)	n/a	1.12[b]	Maximum detected concentration
Fluorene	6	1	0.0247(U)	1.6(U)	n/a	0.0513[b]	Maximum detected concentration
Indeno(1,2,3-cd)pyrene	6	3	0.0194	1.6(U)	n/a	0.153[b]	Maximum detected concentration
Methylnaphthalene[2-]	6	1	0.00892	1.6(U)	n/a	0.00892[b]	Maximum detected concentration
Naphthalene	6	1	0.0247(U)	1.6(U)	n/a	0.0271[b]	Maximum detected concentration
Phenanthrene	6	4	0.0109	1.6(U)	n/a	0.648[b]	Maximum detected concentration
Pyrene	6	5	0.0227	1.6(U)	n/a	1.38[b]	Maximum detected concentration

Table H-2.2-42 (continued)

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Radionuclides (pCi/g)							
Plutonium-239/240	7	6	0.0268(U)	0.808	n/a	0.808	Maximum detected concentration
Tritium	7	1	0.001965(U)	0.111	n/a	0.111	Maximum detected concentration

Note: Data qualifiers are defined in Appendix A.

[a] n/a = Not applicable.

[b] The maximum concentration of the data set is a nondetect (U or UJ); thus, the maximum detected concentration is less than the maximum concentration.

Table H-2.2-43
EPCs for AOC 02-008(c) for the Residential Scenario

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Inorganic Chemicals (mg/kg)							
Antimony	9	1	0.354	1.08(U)	n/a[a]	0.354[b]	Maximum detected concentration
Cadmium	11	5	0.047	0.625(U)	Normal	0.281	95% KM(t)
Chromium	11	11	4.45	30.7	Gamma	14.24	95% Approximate Gamma
Chromium hexavalent	1	1	0.191	0.191	n/a	0.191	Maximum detected concentration
Copper	11	11	2.71	22.5	Normal	13.72	95% Student's-t
Mercury	11	11	0.0131	3.46	Lognormal	1.758	95% Chebyshev (Mean, Sd)
Perchlorate	9	2	0.000606	0.0156(U)	n/a	0.00168[b]	Maximum detected concentration
Selenium	11	9	0.202	2.77	Normal	1.765	95% KM(t)
Silver	11	9	0.057	1.8	Approximate Gamma	1.015	95% KM(Chebyshev)
Vanadium	11	11	6.48	21	Gamma	12.31	95% Approximate Gamma
Zinc	11	11	30.6	80.7	Normal	56.96	95% Student's-t

Table H-2.2-43 (continued)

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Organic Chemicals (mg/kg)							
Acenaphthene	11	1	0.0247(U)	1.6(U)	n/a	0.118[b]	Maximum detected concentration
Anthracene	11	2	0.00914	1.6(U)	n/a	0.0137[b]	Maximum detected concentration
Aroclor-1254	9	4	0.0018	0.0788	n/a	0.0788	Maximum detected concentration
Aroclor-1260	9	8	0.0018	0.0872	Gamma	0.0554	95% KM(Chebyshev)
Benzo(a)anthracene	11	3	0.0247(U)	1.6(U)	n/a	0.682[b]	Maximum detected concentration
Benzo(a)pyrene	11	3	0.0247(U)	1.6(U)	n/a	0.559[b]	Maximum detected concentration
Benzo(b)fluoranthene	11	3	0.0247(U)	1.6(U)	n/a	1.09[b]	Maximum detected concentration
Benzo(g,h,i)perylene	11	2	0.0247(U)	1.6(U)	n/a	0.16[b]	Maximum detected concentration
Chrysene	11	3	0.0247(U)	1.6(U)	n/a	0.617[b]	Maximum detected concentration
Fluoranthene	11	5	0.0233	1.6(U)	Gamma	0.369	95% KM(t)
Fluorene	11	1	0.0247(U)	1.6(U)	n/a	0.0513[b]	Maximum detected concentration
Indeno(1,2,3-cd)pyrene	11	3	0.0194	1.6(U)	n/a	0.153[b]	Maximum detected concentration
Isopropyltoluene[4-]	3	1	0.00113(U)	0.0029	n/a	0.0029	Maximum detected concentration
Methylnaphthalene[2-]	11	1	0.00892	1.6(U)	n/a	0.00892[b]	Maximum detected concentration
Naphthalene	11	1	0.0247(U)	1.6(U)	n/a	0.0271[b]	Maximum detected concentration
Phenanthrene	11	4	0.0109	1.6(U)	n/a	0.648[b]	Maximum detected concentration
Pyrene	11	6	0.0126	1.6(U)	Gamma	0.459	95% KM(BCA)
Toluene	3	2	0.000475	0.00114(U)	n/a	0.000516[b]	Maximum detected concentration
Radionuclides (pCi/g)							
Cesium-137	11	8	-0.00091(U)	4.44	Gamma	1.486	95% KM(Percentile Bootstrap)
Plutonium-239/240	12	9	0.00373(U)	0.808	Normal	0.384	95% KM(t)
Strontium-90	11	3	-0.18(U)	0.679	n/a	0.679	Maximum detected concentration
Tritium	12	2	0(U)	0.111	n/a	0.111	Maximum detected concentration

Note: Data qualifiers are defined in Appendix A.

[a] n/a = Not applicable.

[b] The maximum concentration of the data set is a nondetect (U or UJ); thus, the maximum detected concentration is less than the maximum concentration.

Table H-2.2-44
EPCs for AOC 02-009(d) for the Industrial and Recreational Scenarios

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Inorganic Chemicals (mg/kg)							
Cadmium	11	8	0.131	0.773	Normal	0.49	95% KM(t)
Calcium	11	11	1280	17400	Lognormal	6509	95%H-UCL
Mercury	11	11	0.0198	1.75	Gamma	1.087	95% Approximate Gamma
Perchlorate	11	7	0.000603	0.0021(U)	Normal	0.00132	95% KM(t)
Selenium	11	8	0.516	1.94	Normal	1.523	95% KM(t)
Zinc	11	11	38.3	56.1	Nonparametric	46.63	95% Student's-t
Organic Chemicals (mg/kg)							
Acenaphthene	11	2	0.0156	0.0805	n/a[a]	0.0805	Maximum detected concentration
Anthracene	11	4	0.0176	0.239	n/a	0.239	Maximum detected concentration
Aroclor-1248	11	1	0.00343(U)	0.0352(U)	n/a	0.0059	Maximum detected concentration
Aroclor-1254	11	9	0.00343(U)	0.0581	Normal	0.0301	95% KM(t)
Aroclor-1260	11	11	0.0022	0.118	Normal	0.0674	95% Student's-t
Benzo(a)anthracene	11	2	0.0343(U)	0.588	n/a	0.588	Maximum detected concentration
Benzo(a)pyrene	11	6	0.0193	0.562	Gamma	0.182	95% KM(BCA)
Benzo(b)fluoranthene	11	8	0.0223	0.764	Gamma	0.41	95% KM(Chebyshev)
Benzo(g,h,i)perylene	11	3	0.0286	0.312	n/a	0.312	Maximum detected concentration
Benzo(k)fluoranthene	11	1	0.0343(U)	0.0555	n/a	0.0555	Maximum detected concentration
Chrysene	11	9	0.0136	0.615	Lognormal	0.324	95% KM(Chebyshev)
Fluoranthene	11	10	0.0141	1.4	Gamma	0.724	95% KM(Chebyshev)
Fluorene	11	2	0.0129	0.0834	n/a	0.0834	Maximum detected concentration
Indeno(1,2,3-cd)pyrene	11	3	0.019	0.293	n/a	0.293	Maximum detected concentration
Methylnaphthalene[2-]	11	1	0.00756	0.0352(U)	n/a	0.00756	Maximum detected concentration
Naphthalene	11	2	0.0121	0.0352	n/a	0.0122[b]	Maximum detected concentration
Phenanthrene	11	9	0.0139	0.987	Nonparametric	0.507	95% KM(Chebyshev)
Pyrene	11	10	0.0143	1.53	Lognormal	0.788	95% KM(Chebyshev)

Table H-2.2-44 (continued)

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Radionuclides (pCi/g)							
Cesium-137	10	10	0.393	7.69	Normal	4.097	95% Student's-t
Cobalt-60	9	1	-0.0299(U)	0.162	n/a	0.162	Maximum detected concentration
Plutonium-239/240	11	5	-0.00261(U)	0.102	Normal	0.066	95% KM(t)
Strontium-90	11	7	-0.0833(U)	5.86	Nonparametric	3.712	95% KM(Chebyshev)
Tritium	11	3	-0.00029(U)	0.0421	n/a	0.0421	Maximum detected concentration
Uranium-234	11	11	0.964	12.8	Nonparametric	6.846	95% Chebyshev (Mean, Sd)
Uranium-235/236	11	9	0.0375(U)	0.901	Nonparametric	0.481	95% KM(Chebyshev)

Note: Data qualifiers are defined in Appendix A.

[a] n/a = Not applicable.

[b] The maximum concentration of the data set is a nondetect (U or UJ); thus, the maximum detected concentration is less than the maximum concentration.

Table H-2.2-45
EPCs for AOC 02-009(d) for the Residential Scenario

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Inorganic Chemicals (mg/kg)							
Antimony	25	1	0.31(U)	1.12(U)	n/a[a]	0.35[b]	Maximum detected concentration
Cadmium	25	13	0.131	0.773	Normal	0.398	95% KM(t)
Calcium	25	25	1040	17400	Nonparametric	5792	95% Chebyshev (Mean, Sd)
Chromium hexavalent	9	1	0.0437(U)	0.538(U)	n/a	0.156[b]	Maximum detected concentration
Mercury	25	24	0.0017(U)	1.75	Gamma	0.693	95% KM(Chebyshev)
Perchlorate	22	12	0.000603	0.00227(U)	Gamma	0.00111	95% KM(t)
Selenium	25	16	0.29(U)	2.14	Normal	1.287	95% KM(t)
Zinc	25	25	1800	3990	Gamma	44.51	95% Approximate Gamma

Table H-2.2-45 (continued)

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Organic Chemicals (mg/kg)							
Acenaphthene	25	3	0.0156	1.8(U)	n/a	0.0805	Maximum detected concentration
Anthracene	25	6	0.00877	1.8(U)	Nonparametric	0.0486	95% KM(BCA)
Aroclor-1248	23	1	0.00343(U)	0.036(U)	n/a	0.0059[b]	Maximum detected concentration
Aroclor-1254	23	17	0.00343(U)	0.0734	Gamma	0.0261	95% KM(Percentile Bootstrap)
Aroclor-1260	23	23	0.0022	0.118	Gamma	0.0509	95% Approximate Gamma
Benzo(a)anthracene	25	5	0.012	1.8(U)	Gamma	0.0933	95% KM(t)
Benzo(a)pyrene	25	8	0.0154	1.8(U)	Gamma	0.0919	95% KM(t)
Benzo(b)fluoranthene	25	12	0.0179	1.8(U)	Nonparametric	0.13	95% KM(BCA)
Benzo(g,h,i)perylene	25	4	0.0286	1.8(U)	n/a	0.312[c]	Maximum detected concentration
Benzo(k)fluoranthene	25	2	0.011	1.8(U)	n/a	0.0555[b]	Maximum detected concentration
Chrysene	25	14	0.0116	1.8(U)	Nonparametric	0.165	95% KM(Chebyshev)
Dichlorobenzene[1,4-]	25	2	0.000213	1.8(U)	Na	0.000595[b]	Maximum detected concentration
Di-n-butylphthalate	25	2	0.0385	1.8(U)	n/a	0.0421[b]	Maximum detected concentration
Fluoranthene	25	16	0.0141	1.8(U)	Nonparametric	0.359	95% KM(Chebyshev)
Fluorene	25	3	0.0129	1.8(U)	n/a	0.0834[b]	Maximum detected concentration
Indeno(1,2,3-cd)pyrene	25	4	0.019	1.8(U)	n/a	0.293[b]	Maximum detected concentration
Isopropyltoluene[4-]	11	1	0.00103(U)	0.0034	n/a	0.0034	Maximum detected concentration
Methylnaphthalene[2-]	25	1	0.00756	1.8(U)	n/a	0.00756[b]	Maximum detected concentration
Naphthalene	25	2	0.0121	1.8(U)	n/a	0.0122[b]	Maximum detected concentration
Phenanthrene	25	13	0.0139	1.8(U)	Nonparametric	0.252	95% KM(Chebyshev)
Pyrene	25	16	0.0143	1.8(U)	Lognormal	0.388	95% KM(Chebyshev)
Styrene	11	1	0.00103(U)	0.00113(U)	n/a	0.00111[b]	Maximum detected concentration
Toluene	11	2	0.000533	0.00113(U)	n/a	0.000775[b]	Maximum detected concentration

Table H-2.2-45 (continued)

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Radionuclides (pCi/g)							
Cesium-137	24	23	-0.0385(U)	14	Gamma	4.653	95% KM(BCA)
Cobalt-60	23	1	-0.0299(U)	0.162	n/a	0.162	Maximum detected concentration
Plutonium-239/240	25	10	-0.00261(U)	1.19	Nonparametric	0.306	95% KM(Chebyshev)
Strontium-90	25	18	-0.0833(U)	29.3	Gamma	4.693	95% KM(Percentile Bootstrap)
Tritium	25	8	-0.00258(U)	0.109	Normal	0.0265	95% KM(t)
Uranium-234	25	25	0.964	12.8	Nonparametric	3.939	95% Chebyshev (Mean, Sd)
Uranium-235/236	25	23	0.0375(U)	0.901	Nonparametric	0.273	95% KM(Chebyshev)

Note: Data qualifiers are defined in Appendix A.

[a] n/a = Not applicable.

[b] The maximum concentration of the data set is a nondetect (U or UJ); thus, the maximum detected concentration is less than the maximum concentration.

Table H-2.2-46
EPCs for AOC 02-010 for the Industrial and Recreational Scenarios

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Inorganic Chemicals (mg/kg)							
Barium	16	16	35.3	447	Nonparametric	306.4	95% Chebyshev (Mean, Sd)
Cadmium	16	12	0.0889(U)	5.6	Nonparametric	1.411	95% KM(BCA)
Calcium	16	16	746	21680	Lognormal	5874	95% H-UCL
Chromium hexavalent	3	3	0.0625	0.26	n/a[a]	0.26	Maximum detected concentration
Copper	16	16	3.1	32.6	Lognormal	12.53	95% H-UCL
Cyanide (Total)	12	2	0.243(U)	14.4	n/a	14.4	Maximum detected concentration
Lead	16	16	6.41	134	Nonparametric	55.64	95% Chebyshev (Mean, Sd)
Mercury	16	16	0.0149	0.556	Normal	0.279	95% Student's-t
Perchlorate	16	2	0.00203(U)	0.117	n/a	0.117	Maximum detected concentration
Selenium	16	12	0.28(U)	8.72	Approximate Gamma	2.306	95% KM(Percentile Bootstrap)
Zinc	16	16	23.9	152	Nonparametric	65.36	95% Student's-t

Table H-2.2-46 (continued)

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Organic Chemicals (mg/kg)							
Acenaphthene	16	4	0.0161	3.5(U)	n/a	0.0374[b]	Maximum detected concentration
Anthracene	16	8	0.00735	3.5(U)	Normal	0.0316	95% KM(t)
Aroclor-1254	12	3	0.00359(U)	0.199	n/a	0.199	Maximum detected concentration
Aroclor-1260	12	10	0.00359(U)	0.329	Gamma	0.22	95% KM(Chebyshev)
Benzo(a)anthracene	16	7	0.025	3.5(U)	Normal	0.0738	95% KM(t)
Benzo(a)pyrene	16	7	0.0341(U)	3.5(U)	Normal	0.116	95% KM(t)
Benzo(b)fluoranthene	16	9	0.0328	3.5(U)	Normal	0.127	95% KM(t)
Benzo(g,h,i)perylene	16	8	0.0341(U)	3.5(U)	Normal	0.0642	95% KM(t)
Benzo(k)fluoranthene	16	3	0.0311	3.5(U)	n/a	0.0774[b]	Maximum detected concentration
Bis(2-ethylhexyl)phthalate	16	2	0.0429	3.5(U)	n/a	0.0534[b]	Maximum detected concentration
Chrysene	16	11	0.0192	3.5(U)	Normal	0.0828	95% KM(t)
Di-n-butylphthalate	16	2	0.0381	3.5(U)	n/a	0.983[b]	Maximum detected concentration
Fluoranthene	16	12	0.0284	3.5(U)	Normal	0.134	95% KM(t)
Fluorene	16	6	0.0045	3.5(U)	Normal	0.0232	95% KM(t)
Indeno(1,2,3-cd)pyrene	16	6	0.0306	3.5(U)	Normal	0.0782	95% KM(t)
Methylnaphthalene[2-]	16	4	0.00701	3.5(U)	n/a	0.0121[b]	Maximum detected concentration
Naphthalene	16	3	0.0169	3.5(U)	n/a	0.022[b]	Maximum detected concentration
Phenanthrene	16	10	0.0116	3.5(U)	Normal	0.0883	95% KM(t)
Pyrene	16	12	0.0153	3.5(U)	Normal	0.143	95% KM(t)
Radionuclides (pCi/g)							
Cesium-137	16	16	0.28	17.2	Nonparametric	7.76	95% Chebyshev (Mean, Sd)
Plutonium-239/240	16	11	-0.0102(U)	1.43	Gamma	0.587	95% KM(Percentile Bootstrap)
Strontium-90	16	8	-0.173(U)	7.22	Gamma	1.837	95% KM(t)
Tritium	16	3	-0.00497(U)	0.136	n/a	0.136	Maximum detected concentration

Note: Data qualifiers are defined in Appendix A.

[a] n/a = Not applicable.

[b] The maximum concentration of the data set is a nondetect (U or UJ); thus, the maximum detected concentration is less than the maximum concentration.

Table H-2.2-47
EPCs for AOC 02-010 for the Residential Scenario

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Inorganic Chemicals (mg/kg)							
Antimony	29	4	0.146	1.03(U)	n/a[a]	0.761[b]	Maximum detected concentration
Barium	38	38	17.2	447	Nonparametric	162.1	95% Chebyshev (Mean, Sd)
Cadmium	38	20	0.02	5.6	Lognormal	1.047	95% KM(Chebyshev)
Calcium	38	38	423	21680	Nonparametric	4706	95% Chebyshev (Mean, Sd)
Chromium hexavalent	9	5	0.0625	0.43(U)	Normal	0.161	95% KM(t)
Copper	38	33	1.7	32.6	Lognormal	9.837	95% KM(Chebyshev)
Cyanide (Total)	27	3	0.109	14.4	n/a	14.4	Maximum detected concentration
Lead	38	38	3.9	134	Nonparametric	30.51	95% Chebyshev (Mean, Sd)
Mercury	38	35	0.0016	0.556	Approximate Gamma	0.2	95% KM(Chebyshev)
Perchlorate	37	5	0.00169	0.117	Normal	0.0135	95% KM(t)
Selenium	38	23	0.186	8.72	Lognormal	1.855	95% KM(BCA)
Zinc	38	38	20	152	Nonparametric	47.58	95% Student's-t
Organic Chemicals (mg/kg)							
Acenaphthene	37	4	0.0161	3.5(U)	n/a	0.0374[b]	Maximum detected concentration
Anthracene	37	10	0.00735	3.5(U)	Normal	0.0268	95% KM(t)
Aroclor-1248	28	1	0.00353(U)	0.0375(U)	n/a	0.0066[b]	Maximum detected concentration
Aroclor-1254	28	5	0.00353(U)	0.199	Normal	0.0301	95% KM(t)
Aroclor-1260	28	18	0.0013	0.329	Gamma	0.0664	95% KM(BCA)
Benzo(a)anthracene	37	9	0.025	3.5(U)	Normal	0.0543	95% KM(t)
Benzo(a)pyrene	37	10	0.0201	3.5(U)	Normal	0.0599	95% KM(t)
Benzo(b)fluoranthene	37	11	0.0192(U)	3.5(U)	Normal	0.0702	95% KM(t)
Benzo(g,h,i)perylene	37	9	0.0341(U)	3.5(U)	Approximate Gamma	0.0491	95% KM(t)
Benzo(k)fluoranthene	37	4	0.0311	3.5(U)	n/a	0.0774[b]	Maximum detected concentration
Bis(2-ethylhexyl)phthalate	37	5	0.0353	3.5(U)	Nonparametric	0.0688	95% KM(t)

Table H-2.2-47 (continued)

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Chloroform	15	1	0.000216(U)	0.00115(U)	n/a	0.000219[b]	Maximum detected concentration
Chrysene	37	14	0.0136	3.5(U)	Normal	0.0539	95% KM(t)
Di-n-butylphthalate	37	2	0.0381	3.5(U)	n/a	0.983[b]	Maximum detected concentration
Fluoranthene	37	15	0.0174	3.5(U)	Gamma	0.093	95% KM(t)
Fluorene	37	6	0.0045	3.5(U)	Normal	0.023	95% KM(t)
Indeno(1,2,3-cd)pyrene	37	7	0.0306	3.5(U)	Normal	0.052	95% KM(t)
Methylene Chloride	15	1	0.00213	0.00575(U)	n/a	0.00213[b]	Maximum detected concentration
Methylnaphthalene[2-]	37	4	0.00701	3.5(U)	n/a	0.0121[b]	Maximum detected concentration
Naphthalene	37	3	0.0169	3.5(U)	n/a	0.022[b]	Maximum detected concentration
Phenanthrene	37	13	0.0116	3.5(U)	Normal	0.0545	95% KM(t)
Pyrene	37	15	0.0153	3.5(U)	Normal	0.0871	95% KM(t)
Toluene	15	4	0.000372	0.00115(U)	n/a	0.000593[b]	Maximum detected concentration
Radionuclides (pCi/g)							
Cesium-137	55	41	-0.118(U)	18.2	Nonparametric	4.671	95% KM(Chebyshev)
Plutonium-239/240	37	17	-0.0102(U)	2.93	Gamma	0.45	95% KM(t)
Strontium-90	38	16	-0.173(U)	7.22	Lognormal	1.578	95% KM(Chebyshev)
Tritium	38	15	-0.005(U)	0.136	Normal	0.0445	95% KM(t)
Uranium-234	38	38	0.365	3.26	Nonparametric	1.245	95% Student's-t
Uranium-235/236	38	24	0.00673(U)	0.208	Gamma	0.0843	95% KM(Percentile Bootstrap)
Uranium-238	38	38	0.484	2.48	Approximate Gamma	1.135	95% Approximate Gamma

Note: Data qualifiers are defined in Appendix A.

[a] n/a = Not applicable.

[b] The maximum concentration of the data set is a nondetect (U or UJ); thus, the maximum detected concentration is less than the maximum concentration.

Table H-2.2-48
EPCs for AOC 02-011(b) for the Industrial and Recreational Scenarios

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Inorganic Chemicals (mg/kg)							
Cadmium	6	4	0.019	0.503(U)	n/a[a]	0.243[b]	Maximum detected concentration
Chromium hexavalent	5	5	0.0852	0.693	n/a	0.693	Maximum detected concentration
Mercury	6	5	0.0016(U)	0.461	n/a	0.461	Maximum detected concentration
Selenium	6	1	0.27(U)	1.55(U)	n/a	0.845[b]	Maximum detected concentration
Zinc	6	6	22	70.1	n/a	70.1	Maximum detected concentration
Organic Chemicals (mg/kg)							
Acenaphthene	5	1	0.0321	0.0364(U)	n/a	0.0321[b]	Maximum detected concentration
Anthracene	5	3	0.0127	0.0453	n/a	0.0453	Maximum detected concentration
Aroclor-1254	5	5	0.0043	0.159	n/a	0.159	Maximum detected concentration
Aroclor-1260	5	5	0.0045	0.212	n/a	0.212	Maximum detected concentration
Benzo(a)anthracene	5	4	0.0119	0.112	n/a	0.112	Maximum detected concentration
Benzo(a)pyrene	5	3	0.0343(U)	0.119	n/a	0.119	Maximum detected concentration
Benzo(b)fluoranthene	5	4	0.0143	0.169	n/a	0.169	Maximum detected concentration
Benzo(g,h,i)perylene	5	3	0.0343(U)	0.0901	n/a	0.0901	Maximum detected concentration
Benzo(k)fluoranthene	5	2	0.0343(U)	0.0782	n/a	0.0782	Maximum detected concentration
Bis(2-ethylhexyl)phthalate	5	1	0.137	0.182(U)	n/a	0.137[b]	Maximum detected concentration
Chrysene	5	3	0.0343(U)	0.121	n/a	0.121	Maximum detected concentration
Fluoranthene	5	4	0.0161	0.205	n/a	0.205	Maximum detected concentration
Fluorene	5	1	0.0244	0.0364(U)	n/a	0.0244[b]	Maximum detected concentration
Indeno(1,2,3-cd)pyrene	5	3	0.0343(U)	0.0792	n/a	0.0792	Maximum detected concentration
Methylnaphthalene[2-]	5	1	0.0151	0.0364(U)	n/a	0.0151[b]	Maximum detected concentration
Naphthalene	5	1	0.0239	0.0364(U)	n/a	0.0239[b]	Maximum detected concentration
Phenanthrene	5	3	0.0343(U)	0.158	n/a	0.158	Maximum detected concentration
Pyrene	5	4	0.0136	0.21	n/a	0.21	Maximum detected concentration

Table H-2.2-48 (continued)

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Radionuclides (pCi/g)							
Cesium-137	8	6	0.0509(U)	23.3	Nonparametric	16.11	95% KM(Chebyshev)
Plutonium-239/240	8	8	0.017	0.845	Normal	0.605	95% Student's-t
Tritium	8	3	-0.00098(U)	0.122	n/a	0.122	Maximum detected concentration

Note: Data qualifiers are defined in Appendix A.

[a] n/a = Not applicable.

[b] The maximum concentration of the data set is a nondetect (U or UJ); thus, the maximum detected concentration is less than the maximum concentration.

Table H-2.2-49
EPCs for AOC 02-011(b) for the Residential Scenario

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Inorganic Chemicals (mg/kg)							
Antimony	13	0	0.29(U)	0.941(U)	n/a[a]	0.941(U)	Maximum detection limit
Cadmium	13	8	0.018(U)	0.553(U)	Normal	0.25	95% KM(t)
Chromium hexavalent	8	7	0.0804	0.693	Normal	0.463	95% KM(t)
Manganese	13	13	190	980	Nonparametric	431.2	95% Student's-t
Mercury	13	11	0.0016(U)	0.461	Gamma	0.251	95% KM(Chebyshev)
Selenium	13	3	0.27(U)	3.71	n/a	2.09	Maximum detected concentration
Uranium	3	3	0.858	6.83	n/a	6.83	Maximum detected concentration
Zinc	13	13	20	70.1	Normal	55.48	95% Student's-t
Organic Chemicals (mg/kg)							
Acenaphthene	10	1	0.0321	0.0364(U)	n/a	0.0321[b]	Maximum detected concentration
Anthracene	10	3	0.0127	0.0453	n/a	0.0453	Maximum detected concentration
Aroclor-1254	10	9	0.0038(U)	0.298	Gamma	0.215	95% KM(Chebyshev)
Aroclor-1260	10	8	0.0038(U)	0.212	Gamma	0.183	95% KM(Chebyshev)
Benzo(a)anthracene	10	4	0.0119	0.112	n/a	0.112	Maximum detected concentration

Table H-2.2-49 (continued)

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Benzo(a)pyrene	10	3	0.0327(U)	0.119	n/a	0.119	Maximum detected concentration
Benzo(b)fluoranthene	10	5	0.0128	0.169	Approximate Gamma	0.1	95% KM(t)
Benzo(g,h,i)perylene	10	3	0.0327(U)	0.0901	n/a	0.0901	Maximum detected concentration
Benzo(k)fluoranthene	10	2	0.0327(U)	0.0782	n/a	0.0782	Maximum detected concentration
Bis(2-ethylhexyl)phthalate	10	1	0.137	0.36(U)	n/a	0.137[b]	Maximum detected concentration
Chrysene	10	3	0.0327(U)	0.121	n/a	0.121	Maximum detected concentration
Fluoranthene	10	5	0.0109	0.205	Normal	0.118	95% KM(t)
Fluorene	10	1	0.0244	0.038(U)	n/a	0.0244[b]	Maximum detected concentration
Indeno(1,2,3-cd)pyrene	10	3	0.0327(U)	0.0792	n/a	0.0792	Maximum detected concentration
Methylnaphthalene[2-]	10	1	0.0151	0.038(U)	n/a	0.0151[b]	Maximum detected concentration
Naphthalene	10	1	0.0239	0.038(U)	n/a	0.0239[b]	Maximum detected concentration
Phenanthrene	10	3	0.0327(U)	0.158	n/a	0.158	Maximum detected concentration
Pyrene	10	5	0.0126	0.21	Normal	0.116	95% KM(t)
Radionuclides (pCi/g)							
Cesium-137	17	14	0.0509(U)	274	Approximate Gamma	90.87	95% KM(Chebyshev)
Plutonium-238	17	1	-0.0126(U)	0.0255	n/a	0.0255	Maximum detected concentration
Plutonium-239/240	17	16	0.0156(U)	4.41	Gamma	1.886	95% KM(Chebyshev)
Strontium-90	17	11	-0.0782(U)	32.8	Nonparametric	10.92	95% KM(Chebyshev)
Tritium	17	8	-0.00098(U)	0.175	Normal	0.0723	95% KM(t)
Uranium-234	17	17	0.622	6.33	Lognormal	2.526	95% H-UCL
Uranium-235/236	17	11	0.0253(U)	0.274	Normal	0.15	95% KM(t)
Uranium-238	17	17	0.622	6.09	Lognormal	2.378	95% H-UCL

Note: Data qualifiers are defined in Appendix A.

[a] n/a = Not applicable.

[b] The maximum concentration of the data set is a nondetect (U or UJ); thus, the maximum detected concentration is less than the maximum concentration.

Table H-2.2-50
EPCs for AOC 02-011(c) for the Industrial and Recreational Scenarios

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Organic Chemicals (mg/kg)							
Aroclor-1254	1	1	0.0518	0.0518	n/a*	0.0518	Maximum detected concentration
Aroclor-1260	1	1	0.12	0.12	n/a	0.12	Maximum detected concentration
Benzo(a)anthracene	1	1	0.0137	0.0137	n/a	0.0137	Maximum detected concentration
Fluoranthene	1	1	0.0143	0.0143	n/a	0.0143	Maximum detected concentration
Heptachlorodibenzodioxin[1,2,3,4,6,7,8-]	1	1	00000532	0.000532	n/a	0.000532	Maximum detected concentration
Heptachlorodibenzofuran[1,2,3,4,6,7,8-]	1	1	0.000132	0.000132	n/a	0.000132	Maximum detected concentration
Heptachlorodibenzofuran[1,2,3,4,7,8,9-]	1	1	1.56E-05	1.56E-05	n/a	1.56E-05	Maximum detected concentration
Hexachlorodibenzodioxin[1,2,3,4,7,8-]	1	1	3.76E-06	3.76E-06	n/a	3.76E-06	Maximum detected concentration
Hexachlorodibenzodioxin[1,2,3,6,7,8-]	1	1	1.63E-05	1.63E-05	n/a	1.63E-05	Maximum detected concentration
Hexachlorodibenzodioxin[1,2,3,7,8,9-]	1	1	8.15E-06	8.15E-06	n/a	8.15E-06	Maximum detected concentration
Hexachlorodibenzofuran[1,2,3,4,7,8-]	1	1	5.44E-06	5.44E-06	n/a	5.44E-06	Maximum detected concentration
Hexachlorodibenzofuran[1,2,3,6,7,8-]	1	1	5.19E-06	5.19E-06	n/a	5.19E-06	Maximum detected concentration
Hexachlorodibenzofuran[1,2,3,7,8,9-]	1	1	1.2E-06	1.2E-06	n/a	1.2E-06	Maximum detected concentration
Hexachlorodibenzofuran[2,3,4,6,7,8-]	1	1	6.74E-06	6.74E-06	n/a	6.74E-06	Maximum detected concentration
Octachlorodibenzodioxin[1,2,3,4,6,7,8,9-]	1	1	0.00536	0.00536	n/a	0.00536	Maximum detected concentration
Octachlorodibenzofuran[1,2,3,4,6,7,8,9-]	1	1	0.000272	0.000272	n/a	0.000272	Maximum detected concentration
Pentachlorodibenzodioxin[1,2,3,7,8-]	1	1	1.19E-06	1.19E-06	n/a	1.19E-06	Maximum detected concentration
Pentachlorodibenzofuran[1,2,3,7,8-]	1	1	8.81E-07	8.81E-07	n/a	8.81E-07	Maximum detected concentration
Pentachlorodibenzofuran[2,3,4,7,8-]	1	1	2.62E-06	2.62E-06	n/a	2.62E-06	Maximum detected concentration
Pyrene	1	1	0.0177	0.00177	n/a	0.0177	Maximum detected concentration
Tetrachlorodibenzodioxin[2,3,7,8-]	1	1	6.61E-07	6.61E-07	n/a	6.61E-07	Maximum detected concentration
Tetrachlorodibenzofuran[2,3,7,8-]	1	1	1.26E-06	1.26E-06	n/a	1.26E-06	Maximum detected concentration

Note: Data qualifiers are defined in Appendix A.

* n/a = Not applicable.

Table H-2.2-51
EPCs for AOC 02-011(c) for the Residential Scenario

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Inorganic Chemicals (mg/kg)							
Antimony	3	0	0.421(U)	0.996(U)	n/a[a]	0.996(U)	Maximum detection limit
Cadmium	4	2	0.132	0.535(U)	n/a	0.175[b]	Maximum detected concentration
Nitrate	3	2	1.02(U)	31.9	n/a	31.9	Maximum detected concentration
Selenium	4	2	1.06(U)	1.7	n/a	1.7	Maximum detected concentration
Organic Chemicals (mg/kg)							
Aroclor-1254	4	1	0.00358(U)	0.0518	n/a	0.0518	Maximum detected concentration
Aroclor-1260	4	2	0.00358(U)	0.12	n/a	0.12	Maximum detected concentration
Benzo(a)anthracene	4	1	0.0137	0.0371(U)	n/a	0.0137[b]	Maximum detected concentration
Fluoranthene	4	1	0.0143	0.0371(U)	n/a	0.0143[b]	Maximum detected concentration
Heptachlorodibenzodioxin[1,2,3,4,6,7,8-]	3	3	5.04E-07	0.000532	n/a	0.000532	Maximum detected concentration
Heptachlorodibenzofuran[1,2,3,4,6,7,8-]	3	3	4.05E-07	0.000132	n/a	0.000132	Maximum detected concentration
Heptachlorodibenzofuran[1,2,3,4,7,8,9-]	3	3	2.75E-08	1.56E-05	n/a	1.56E-05	Maximum detected concentration
Hexachlorodibenzodioxin[1,2,3,4,7,8-]	3	1	1.11E-07(U)	3.76E-06	n/a	3.76E-06	Maximum detected concentration
Hexachlorodibenzodioxin[1,2,3,6,7,8-]	3	1	1.24E-07(U)	1.63E-05	n/a	1.63E-05	Maximum detected concentration
Hexachlorodibenzodioxin[1,2,3,7,8,9-]	3	1	1.14E-07(U)	8.15E-06	n/a	8.15E-06	Maximum detected concentration
Hexachlorodibenzofuran[1,2,3,4,7,8-]	3	3	1.02E-07	5.44E-06	n/a	5.44E-06	Maximum detected concentration
Hexachlorodibenzofuran[1,2,3,6,7,8-]	3	2	2.25E-08	5.19E-06	n/a	5.19E-06	Maximum detected concentration
Hexachlorodibenzofuran[1,2,3,7,8,9-]	3	1	3.21E-08(U)	1.2E-06	n/a	1.2E-06	Maximum detected concentration
Hexachlorodibenzofuran[2,3,4,6,7,8-]	3	2	2.47E-08(U)	6.74E-06	n/a	6.74E-06	Maximum detected concentration
Octachlorodibenzodioxin[1,2,3,4,6,7,8,9-]	3	3	3.19E-06	0.00536	n/a	0.00536	Maximum detected concentration
Octachlorodibenzofuran[1,2,3,4,6,7,8,9-]	3	3	5.02E-07	0.000272	n/a	0.000272	Maximum detected concentration
Pentachlorodibenzodioxin[1,2,3,7,8-]	3	1	5.05E-08(U)	1.19E-06	n/a	1.19E-06	Maximum detected concentration
Pentachlorodibenzofuran[1,2,3,7,8-]	3	3	7.26E-08	8.81E-07	n/a	8.81E-07	Maximum detected concentration
Pentachlorodibenzofuran[2,3,4,7,8-]	3	3	4.72E-08	2.62E-06	n/a	2.62E-06	Maximum detected concentration

Table H-2.2-51 (continued)

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Pyrene	4	1	0.0177	0.0371(U)	n/a	0.0177[b]	Maximum detected concentration
Tetrachlorodibenzodioxin[2,3,7,8-]	3	1	4.87E-08(U)	6.61E-07	n/a	6.61E-07	Maximum detected concentration
Tetrachlorodibenzofuran[2,3,7,8-]	3	2	9.81E-08	1.26E-06	n/a	1.26E-06	Maximum detected concentration
Toluene	2	1	0.000674	0.00107(U)	n/a	0.000674[b]	Maximum detected concentration
Radionuclides (pCi/g)							
Tritium	4	1	0.00106(U)	0.0308	n/a	0.0308	Maximum detected concentration

Note: Data qualifiers are defined in Appendix A.

[a] n/a = Not applicable.

[b] The maximum concentration of the data set is a nondetect (U or UJ); thus, the maximum detected concentration is less than the maximum concentration.

Table H-2.2-52
EPCs for AOC 02-011(d) for the Industrial and Recreational Scenarios

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Inorganic Chemicals (mg/kg)							
Arsenic	3	3	2.26	8.7	n/a*	8.7	Maximum detected concentration
Cadmium	3	3	0.24	0.69	n/a	0.69	Maximum detected concentration
Calcium	3	3	1020	11000	n/a	11000	Maximum detected concentration
Chromium	3	3	27.1	240	n/a	240	Maximum detected concentration
Copper	3	3	11	41	n/a	41	Maximum detected concentration
Lead	3	3	24	44.4	n/a	44.4	Maximum detected concentration
Perchlorate	1	1	0.00111	0.00111	n/a	0.00111	Maximum detected concentration
Silver	3	2	0.0756(U)	1.1	n/a	1.1	Maximum detected concentration
Zinc	3	3	92	190	n/a	190	Maximum detected concentration

Table H-2.2-52 (continued)

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Organic Chemicals (mg/kg)							
Acenaphthene	1	1	0.0223	0.0223	n/a	0.0223	Maximum detected concentration
Anthracene	1	1	0.0286	0.0286	n/a	0.0286	Maximum detected concentration
Aroclor-1254	1	1	0.12	0.12	n/a	0.12	Maximum detected concentration
Aroclor-1260	1	1	0.0831	0.0831	n/a	0.0831	Maximum detected concentration
Benzo(a)anthracene	1	1	0.082	0.082	n/a	0.082	Maximum detected concentration
Benzo(a)pyrene	1	1	0.103	0.103	n/a	0.103	Maximum detected concentration
Benzo(b)fluoranthene	1	1	0.129	0.129	n/a	0.129	Maximum detected concentration
Benzo(g,h,i)perylene	1	1	0.0544	0.0544	n/a	0.0544	Maximum detected concentration
Chrysene	1	1	0.0917	0.0917	n/a	0.0917	Maximum detected concentration
Fluoranthene	1	1	0.153	0.153	n/a	0.153	Maximum detected concentration
Fluorene	1	1	0.0181	0.0181	n/a	0.0181	Maximum detected concentration
Indeno(1,2,3-cd)pyrene	1	1	0.0482	0.0482	n/a	0.0482	Maximum detected concentration
Methylnaphthalene[2-]	1	1	0.00869	0.00869	n/a	0.00869	Maximum detected concentration
Naphthalene	1	1	0.0164	0.0164	n/a	0.0164	Maximum detected concentration
Phenanthrene	1	1	0.13	0.13	n/a	0.13	Maximum detected concentration
Pyrene	1	1	0.159	0.159	n/a	0.159	Maximum detected concentration
Radionuclides (pCi/g)							
Cesium-137	5	5	0.208	1.66	n/a	1.66	Maximum detected concentration
Cobalt-60	5	4	0.07(U)	2.19	n/a	2.19	Maximum detected concentration
Plutonium-239/240	5	5	0.139	1.28	n/a	1.28	Maximum detected concentration
Tritium	5	5	0.009295	0.103	n/a	0.103	Maximum detected concentration
Uranium-234	5	5	1.36	2.87	n/a	2.87	Maximum detected concentration

Note: Data qualifiers are defined in Appendix A.

* n/a = Not applicable.

Table H-2.2-53
EPCs for AOC 02-011(d) for the Residential Scenario

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Inorganic Chemicals (mg/kg)							
Arsenic	5	5	1.03	8.7	n/a[a]	8.7	Maximum detected concentration
Cadmium	5	5	0.193	0.69	n/a	0.69	Maximum detected concentration
Calcium	5	5	1020	11000	n/a	11000	Maximum detected concentration
Chromium	5	5	15.6	240	n/a	240	Maximum detected concentration
Chromium hexavalent	3	1	0.427(U)	0.775	n/a	0.775	Maximum detected concentration
Copper	5	5	5.1	41	n/a	41	Maximum detected concentration
Lead	5	5	9.43	44.4	n/a	44.4	Maximum detected concentration
Perchlorate	2	2	0.000995	0.00111	n/a	0.00111	Maximum detected concentration
Silver	5	3	0.0756(U)	1.1	n/a	1.1	Maximum detected concentration
Zinc	5	5	46.8	190	n/a	190	Maximum detected concentration
Organic Chemicals (mg/kg)							
Acenaphthene	2	1	0.0223	0.0379(U)	n/a	0.0223[b]	Maximum detected concentration
Anthracene	2	1	0.0286	0.0379(U)	n/a	0.0286[b]	Maximum detected concentration
Aroclor-1254	3	3	0.0438	0.12	n/a	0.12	Maximum detected concentration
Aroclor-1260	3	3	0.0286	0.0831	n/a	0.0831	Maximum detected concentration
Benzo(a)anthracene	2	1	0.0379(U)	0.082	n/a	0.082	Maximum detected concentration
Benzo(a)pyrene	2	1	0.0379(U)	0.103	n/a	0.103	Maximum detected concentration
Benzo(b)fluoranthene	2	2	0.0195	0.129	n/a	0.129	Maximum detected concentration
Benzo(g,h,i)perylene	2	1	0.0379(U)	0.0544	n/a	0.0544	Maximum detected concentration
Chrysene	2	2	0.0166	0.0917	n/a	0.0917	Maximum detected concentration
Fluoranthene	2	2	0.0192	0.153	n/a	0.153	Maximum detected concentration
Fluorene	2	1	0.0181	0.0379(U)	n/a	0.0181[b]	Maximum detected concentration
Indeno(1,2,3-cd)pyrene	2	1	0.0379(U)	0.0482	n/a	0.0482	Maximum detected concentration
Methylnaphthalene[2-]	2	1	0.00869	0.0379(U)	n/a	0.00869[b]	Maximum detected concentration
Naphthalene	2	1	0.0164	0.0379(U)	n/a	0.0164[b]	Maximum detected concentration

Table H-2.2-53 (continued)

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Phenanthrene	2	2	0.0121	0.13	n/a	0.13	Maximum detected concentration
Pyrene	2	2	0.0192	0.159	n/a	0.159	Maximum detected concentration
Radionuclides (pCi/g)							
Cesium-137	8	8	0.2	1.66	Normal	1.007	95% Student's-t
Cobalt-60	8	6	0.07(U)	2.19	Normal	1.338	95% KM(t)
Plutonium-239/240	8	8	0.0581	1.28	Normal	0.752	95% Student's-t
Tritium	8	7	0.009295	0.217	Normal	0.124	95% KM(t)
Uranium-234	8	8	1.06	2.87	Normal	2.198	95% Student's-t

Note: Data qualifiers are defined in Appendix A.

[a] n/a = Not applicable.

[b] The maximum concentration of the data set is a nondetect (U or UJ); thus, the maximum detected concentration is less than the maximum concentration.

Table H-2.2-54
EPCs for AOC 02-012 for the Industrial and Recreational Scenarios

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Inorganic Chemicals (mg/kg)							
Cadmium	11	2	0.202	0.883	n/a[a]	0.883	Maximum detected concentration
Chromium	11	1	2.61(U)	35.5	n/a	35.5	Maximum detected concentration
Mercury	11	10	0.0103(U)	4.65	Gamma	2.822	95% KM(Chebyshev)
Perchlorate	11	3	0.000514	0.0022(U)	n/a	0.00172[b]	Maximum detected concentration
Selenium	11	11	0.708	2.33	Gamma	1.571	95% Approximate Gamma
Zinc	11	11	33.7	560	Nonparametric	298.2	95% Chebyshev (Mean, Sd)

Table H-2.2-54 (continued)

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Organic Chemicals (mg/kg)							
Acenaphthene	11	8	0.0116	0.181	Gamma	0.0707	95% KM(Percentile Bootstrap)
Anthracene	11	10	0.00779	0.282	Gamma	0.17	95% KM(Chebyshev)
Benzo(a)anthracene	11	9	0.0329(U)	0.477	Normal	0.237	95% KM(t)
Benzo(a)pyrene	11	9	0.0216	0.537	Normal	0.24	95% KM(t)
Benzo(b)fluoranthene	11	11	0.0406	0.787	Normal	0.421	95% Student's-t
Benzo(g,h,i)perylene	11	4	0.0329(U)	0.186	n/a	0.186	Maximum detected concentration
Chrysene	11	11	0.024	0.466	Normal	0.24	95% Student's-t
Dibenzofuran	11	1	0.109	0.366(U)	n/a	0.109[b]	Maximum detected concentration
Di-n-butylphthalate	11	3	0.037	0.366(U)	n/a	0.049[b]	Maximum detected concentration
Fluoranthene	11	11	0.0419	1.03	Gamma	0.489	95% Approximate Gamma
Fluorene	11	7	0.0171	0.164	Gamma	0.0643	95% KM(Percentile Bootstrap)
Indeno(1,2,3-cd)pyrene	11	4	0.0329(U)	0.189	n/a	0.189	Maximum detected concentration
Methylnaphthalene[2-]	11	6	0.0106	0.0975	Normal	0.0425	95% KM(t)
Naphthalene	11	6	0.0111	0.213	Normal	0.0929	95% KM(t)
Phenanthrene	11	11	0.015	0.977	Gamma	0.43	95% Approximate Gamma
Pyrene	11	11	0.0387	0.968	Normal	0.527	95% Student's-t
TPH-DRO	11	10	4.91	128	Lognormal	80.61	95% KM(Chebyshev)
Radionuclides (pCi/g)							
Tritium	11	4	-0.0025(U)	0.0138(U)	n/a	0.00971[b]	Maximum detected concentration

Note: Data qualifiers are defined in Appendix A.

[a] n/a = Not applicable.

[b] The maximum concentration of the data set is a nondetect (U or UJ); thus, the maximum detected concentration is less than the maximum concentration.

Table H-2.2-55
EPCs for AOC 02-012 for the Residential Scenario

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Inorganic Chemicals (mg/kg)							
Aluminum	26	26	1780	9280	Approximate Gamma	3887	95% Approximate Gamma
Antimony	26	2	0.127	0.557(U)	n/a[a]	0.172[b]	Maximum detected concentration
Arsenic	26	26	0.925	3.19	Normal	2.213	95% Student's-t
Barium	26	26	16.2	92.7	Normal	47.95	95% Student's-t
Cadmium	26	5	0.137	0.883	n/a	0.883	Maximum detected concentration
Chromium	26	7	2.61(U)	35.5	Gamma	10.38	95% KM(t)
Copper	26	13	1.23	43	Lognormal	7.831	95% KM(t)
Iron	26	26	5200	12200	Normal	8437	95% Student's-t
Manganese	26	26	203	688	Nonparametric	320.6	95% Student's-t
Mercury	26	21	0.0027	4.65	Approximate Gamma	1.281	95% KM(Chebyshev)
Nickel	26	19	1.74	6.88	Gamma	3.107	95% KM(Percentile Bootstrap)
Perchlorate	25	5	0.000514	0.00259	Approximate Gamma	0.00152	95% KM(t)
Selenium	26	22	0.643	2.67	Normal	1.489	95% KM(t)
Vanadium	26	26	3.3	13.6	Normal	9.376	95% Student's-t
Zinc	26	26	18.1	560	Nonparametric	153.7	95% Chebyshev (Mean, Sd)
Organic Chemicals (mg/kg)							
Acenaphthene	26	10	0.0116	0.181	Gamma	0.0525	95% KM(t)
Anthracene	26	15	0.00779	0.282	Gamma	0.0718	95% KM(t)
Aroclor-1254	1	1	0.0027	0.0027	n/a	0.0027	Maximum detected concentration
Aroclor-1260	1	1	0.0019	0.0019	n/a	0.0019	Maximum detected concentration
Benzo(a)anthracene	26	16	0.0142	0.447	Normal	0.149	95% KM(t)
Benzo(a)pyrene	26	15	0.0164	0.537	Normal	0.155	95% KM(t)

Table H-2.2-55 (continued)

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Benzo(b)fluoranthene	26	18	0.0112	0.787	Normal	0.265	95% KM(t)
Benzo(g,h,i)perylene	26	9	0.0329(U)	0.186	Normal	0.0764	95% KM(t)
Chrysene	26	17	0.024	0.466	Gamma	0.165	95% KM(Percentile Bootstrap)
Dibenzofuran	26	2	0.108	0.713	n/a	0.109[b]	Maximum detected concentration
Dichlorobenzene[1,4-]	40	1	0.000252	0.383(U)	n/a	0.000252	Maximum detected concentration
Di-n-butylphthalate	26	4	0.037	0.713(U)	n/a	0.0678[b]	Maximum detected concentration
Fluoranthene	26	19	0.0156	1.03	Gamma	0.305	95% KM(Percentile Bootstrap)
Fluorene	26	8	0.0171	0.164	Gamma	0.0487	95% KM(t)
Indeno(1,2,3-cd)pyrene	26	7	0.0329(U)	0.189	Normal	0.0768	95% KM(t)
Methylene Chloride	14	4	0.00217	0.00597(U)	n/a	0.00416[b]	Maximum detected concentration
Methylnaphthalene[2-]	26	7	0.0106	0.14	Normal	0.0373	95% KM(t)
Naphthalene	26	9	0.0111	0.381	Gamma	0.0782	95% KM(t)
Phenanthrene	26	17	0.015	0.977	Gamma	0.231	95% KM(BCA)
Pyrene	26	19	0.0147	0.968	Normal	0.474	95% KM(Chebyshev)
TPH-DRO	32	20	1.82	143(U)	Gamma	24.84	95% KM(BCA)
Trichloroethene	14	1	0.000635	0.0013(U)	n/a	0.000635[b]	Maximum detected concentration
Radionuclides (pCi/g)							
Americium-241	27	1	-0.0148(U)	0.0987	n/a	0.0987	Maximum detected concentration
Plutonium-239/240	26	1	-0.00656(U)	0.228	n/a	0.228	Maximum detected concentration
Tritium	26	14	-0.0025(U)	0.446	Gamma	0.11	95% KM(t)

Note: Data qualifiers are defined in Appendix A.

[a] n/a = Not applicable.

[b] The maximum concentration of the data set is a nondetect (U or UJ); thus, the maximum detected concentration is less than the maximum concentration.

Table H-2.2-56
EPCs for Lateral Extent of TA-02 Core Area for the Industrial and Recreational Scenarios

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Inorganic Chemicals (mg/kg)							
Antimony	24	1	0.751	1.35(U)	n/a[a]	0.751	Maximum detected concentration
Cadmium	24	18	0.109	0.586(U)	Normal	0.206	95% KM(t)
Chromium	24	24	3.12	31	Nonparametric	8.161	95% Student's-t
Cyanide (Total)	23	11	0.103	0.518	Normal	0.234	95% KM(t)
Mercury	24	21	0.00873	1.5	Nonparametric	0.446	95% KM(Chebyshev)
Silver	24	10	0.205	1.53	Nonparametric	0.445	95% KM(t)
Zinc	24	24	30.7	148	Nonparametric	58.33	95% Student's-t
Organic Chemicals (mg/kg)							
Acenaphthene	24	2	0.0194	0.466(U)	n/a	0.0311[b]	Maximum detected concentration
Anthracene	24	7	0.00817	0.466(U)	Gamma	0.0225	95% KM(t)
Aroclor-1242	24	1	0.00346(U)	0.0729(U)	n/a	0.0062[b]	Maximum detected concentration
Aroclor-1254	24	19	0.00386(U)	0.142	Nonparametric	0.059	95% KM(Chebyshev)
Aroclor-1260	24	20	0.00386(U)	1.05	Nonparametric	0.26	95% KM(Chebyshev)
Benzo(a)anthracene	24	11	0.0116	0.466(U)	Gamma	0.0401	95% KM(t)
Benzo(a)pyrene	24	14	0.0128	0.226	Gamma	0.0633	95% KM(t)
Benzo(b)fluoranthene	24	23	0.0111	0.375	Nonparametric	0.152	95% KM(Chebyshev)
Benzo(g,h,i)perylene	24	9	0.0118	0.466(U)	Gamma	0.0404	95% KM(t)
Benzo(k)fluoranthene	24	2	0.0228	0.466(U)	n/a	0.0232[b]	Maximum detected concentration
Benzoic Acid	24	3	0.532	9.33(U)	n/a	0.705[b]	Maximum detected concentration
Chrysene	24	17	0.0135	0.201	Nonparametric	0.0708	95% KM(BCA)t)
Fluoranthene	24	24	0.0135	0.355	Nonparametric	0.175	95% Chebyshev (Mean, Sd)
Fluorene	24	1	0.0172	0.466(U)	n/a	0.0172[b]	Maximum detected concentration
Indeno(1,2,3-cd)pyrene	24	6	0.0218	0.466(U)	Normal	0.0394	95% KM(t)

Table H-2.2-56 (continued)

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Methylnaphthalene[2-]	24	2	0.0313	0.466(U)	n/a	0.128[b]	Maximum detected concentration
Naphthalene	24	2	0.0199	0.466(U)	n/a	0.0823[b]	Maximum detected concentration
Phenanthrene	24	20	0.0127	0.261	Nonparametric	0.116	95% KM(Chebyshev)
Pyrene	24	24	0.0143	0.425	Nonparametric	0.195	95% Chebyshev (Mean, Sd)
Radionuclides (pCi/g)							
Americium-241	24	8	0.000691(U)	0.0426	Normal	0.0238	95% KM(t)
Cesium-137	24	24	0.145	2.21	Gamma	1.074	95% Approximate Gamma
Plutonium-238	24	1	-0.0109(U)	0.707	n/a	0.707	Maximum detected concentration
Plutonium-239/240	24	23	0.033(U)	1.82	Gamma	0.725	95% KM(Chebyshev)
Tritium	24	2	-0.02216(U)	0.0611	n/a	0.0611	Maximum detected concentration
Uranium-235/236	24	23	0.0592	0.221	Normal	0.14	95% KM(t)
Uranium-238	24	24	1.11	3.24	Normal	2.19	95% Student's-t

Note: Data qualifiers are defined in Appendix A.

[a] n/a = Not applicable.

[b] The maximum concentration of the data set is a nondetect (U or UJ); thus, the maximum detected concentration is less than the maximum concentration.

Table H-2.2-57
EPCs for Lateral Extent of TA-02 Core Area for the Residential Scenario

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Inorganic Chemicals (mg/kg)							
Aluminum	72	72	1460	13300	Lognormal	4059	95% Student's-t
Antimony	72	5	0.391	5.57(U)	Normal	0.712	95% KM(t)
Arsenic	72	72	0.246	4.23	Lognormal	0.972	95% H-UCL
Barium	72	72	13	128	Gamma	49.73	95% Approximate Gamma
Beryllium	72	72	0.209	2.46	Nonparametric	0.784	95% Student's-t
Cadmium	72	32	0.102	0.586	Gamma	0.195	95% KM(t)
Calcium	72	72	352	5580	Gamma	1970	95% Approximate Gamma
Chromium	72	72	1.84	31.5	Nonparametric	11.4	95% Chebyshev (Mean, Sd)
Chromium hexavalent	65	2	0.186	48.1(U)	n/a[a]	0.192[b]	Maximum detected concentration
Copper	72	72	0.924	9.79	Lognormal	4.385	95% H-UCL
Cyanide (Total)	69	19	0.103	0.828	Gamma	0.201	95% KM(t)
Iron	72	72	4290	16600	Gamma	7703	95% Approximate Gamma
Magnesium	72	72	231	1240	Gamma	748.8	95% Approximate Gamma
Manganese	72	72	101	1130	Lognormal	324.5	95% Student's-t
Mercury	72	47	0.00444	1.5	Nonparametric	0.161	95% KM(Chebyshev)
Nickel	72	72	1.01	5.81	Gamma	3.049	95% Approximate Gamma
Selenium	72	0	0.905(U)	1.39(U)	n/a	1.39(U)	Maximum detection limit
Silver	72	33	0.118	1.53	Nonparametric	0.324	95% KM(t)
Vanadium	72	72	3.7	20.2	Lognormal	7.966	95% Student's-t
Zinc	72	72	21.6	148	Lognormal	46.27	95% Student's-t
Organic Chemicals (mg/kg)							
Acenaphthene	72	2	0.0194	0.466(U)	n/a	0.0311[b]	Maximum detected concentration
Anthracene	72	7	0.00817	0.466(U)	Gamma	0.0206	95% KM(t)
Aroclor-1242	72	1	0.0034(U)	0.0729(U)	n/a	0.0062[b]	Maximum detected concentration
Aroclor-1254	72	25	0.0014	0.142	Lognormal	0.0157	95% KM(BCA)

Table H-2.2-57 (continued)

COPC	Number of Analyses	Number of Detects	Minimum Concentration	Maximum Concentration	Distribution	EPC	EPC Method
Aroclor-1260	72	31	0.0013	1.05	Nonparametric	0.105	95% KM(Chebyshev)
Benzo(a)anthracene	72	11	0.0116	0.466(U)	Gamma	0.0263	95% KM(t)
Benzo(a)pyrene	72	15	0.0128	0.226	Gamma	0.0334	95% KM(t)
Benzo(b)fluoranthene	72	24	0.0111	0.375	Nonparametric	0.0494	95% KM(BCA)
Benzo(g,h,i)perylene	72	9	0.0118	0.466(U)	Gamma	0.0277	95% KM(t)
Benzo(k)fluoranthene	72	2	0.0228	0.466(U)	n/a	0.0232[b]	Maximum detected concentration
Benzoic Acid	72	4	0.508(U)	9.33(U)	n/a	0.705[b]	Maximum detected concentration
Chrysene	72	18	0.0133	0.201	Nonparametric	0.0354	95% KM(t)
Fluoranthene	72	26	0.0135	0.355	Nonparametric	0.0586	95% KM(BCA)
Fluorene	72	1	0.0172	0.466(U)	n/a	0.0172[b]	Maximum detected concentration
Indeno(1,2,3-cd)pyrene	72	6	0.0218	0.466(U)	Normal	0.0333	95% KM(t)
Methylnaphthalene[2-]	72	2	0.0313	0.466(U)	n/a	0.128[b]	Maximum detected concentration
Naphthalene	72	2	0.0199	0.466(U)	n/a	0.0823[b]	Maximum detected concentration
Phenanthrene	72	21	0.0127	0.261	Nonparametric	0.0371	95% KM(BCA)
Pyrene	72	26	0.0143	0.425	Nonparametric	0.0629	95% KM(BCA)
Radionuclides (pCi/g)							
Americium-241	72	10	-0.00539(U)	0.159	Nonparametric	0.0304	95% KM(Chebyshev)
Cesium-137	71	34	-0.071(U)	2.21	Gamma	0.447	95% KM(t)
Plutonium-238	72	2	-0.0119(U)	0.707	n/a	0.707	Maximum detected concentration
Plutonium-239/240	72	35	-0.00631	2.05	Gamma	0.281	95% KM(t)
Strontium-90	72	9	-0.241	0.664	Normal	0.171	95% KM(t)
Tritium	72	23	-0.02216	0.0611	Gamma	0.00973	95% KM(t)
Uranium-235/236	72	60	0(U)	0.221	Gamma	0.11	95% KM(BCA)
Uranium-238	72	72	0.88	3.24	Gamma	1.631	95% Approximate Gamma

Note: Data qualifiers are defined in Appendix A.

[a] n/a = Not applicable.

[b] The maximum concentration of the data set is a nondetect (U or UJ); thus, the maximum detected concentration is less than the maximum concentration.

Table H-3.2-1
Physical and Chemical Properties of Inorganic COPCs

COPC	K_d[a] (cm^3/g)	Water Solubility[a,b] (g/L)
Aluminum	1500	Insoluble
Antimony	45	Insoluble
Arsenic	29	Insoluble
Barium	41	Insoluble
Beryllium	790	Insoluble
Cadmium	75	Insoluble
Chromium	850	Insoluble
Cobalt	45	Insoluble
Copper	35	Insoluble
Cyanide (total)	9.9	na[c]
Iron	25	Insoluble
Lead	900	Insoluble
Manganese	65	Insoluble
Mercury	52	Insoluble
Nickel	65	Insoluble
Nitrate	0.0356	Soluble
Perchlorate	na	245
Selenium	5	Insoluble
Silver	8.3	Insoluble
Thallium	71	Insoluble
Uranium	0.4	Insoluble
Vanadium	1000	Insoluble
Zinc	62	Insoluble

[a] Information from http://rais.ornl.gov/cgi-bin/tools/TOX_search?select=chem_spef.

[b] Denotes reference information from http://www.epa.gov/superfund/sites/npl/hrsres/tools/scdm.htm.

[c] na = Not available.

Table H-3.2-2
Physical and Chemical Properties of Organic COPCs

COPC	Water Solubility[a] (mg/L)	Organic Carbon Coefficient K_{oc}[a] (L/kg)	Log Octanol-Water Partition Coefficient K_{ow}[a]	Vapor Pressure[a] (mm Hg at 25°C)
Acenaphthene	3.6E+00 [b]	6.12E+03	3.92E+00[b]	2.5E-03[b]
Acetone	1.00E+06[b]	1.98E+00	-2.40E-01[b]	2.31E+02[b]
Anthracene	4.34E-02[b]	2.04E+04	4.45E+00[b]	2.67E-06[b]
Aroclor-1242	2.77E-01	7.81E+04	6.29E+00	8.63E-05
Aroclor-1248	6.34E+00	7.65E+04	1.0E-01	4.94E-04
Aroclor-1254	3.40E-03[b]	5.30E+05[c]	6.79E+00[b]	6.53E-06[b]
Aroclor-1260	2.84E-04[b]	5.30E+05[c]	8.27E+00[b]	4.05E-05[b]
Benzo(a)anthracene	9.40E-03[b]	2.31E+05	5.76+00[b]	1.90E-06[b]
Benzo(a)pyrene	1.62E-03[b]	7.87E+05	6.13E+00[b]	5.49E-09[b]
Benzo(b)fluoranthene	1.50E-03[b]	8.03E+05	5.78E+00[b]	5.00E-07[b]
Benzo(g,h,i)perylene	2.60E-04[b]	2.68E+06	6.63E+00[b]	1.00E-10[b]
Benzo(k)fluoranthene	8.00E-04[b]	7.87E+05	6.1E+00[b]	9.65E-10[b]
Benzoic acid	3.40E+03[b]	1.45E+01	1.87E+00[b]	7.00E-04[b]
Bis(2-ethylhexyl)phthalate	2.70E-01[b]	1.65E+05	7.60E+00[b]	1.42E-07[b]
Butylbenzene[n-]	1.18E+01	1.76E+03	4.38E+00	1.06E+00
Butylbenzene[sec]	1.76E+01	1.58E+03	4.57E+00	1.75E+00
Butylbenzylphthalate	2.69E+00	7.16E+03	4.73E+00	8.25E-06
Chloroform	7.95E+03	3.18E+01	1.97E+00	1.97E+02
Chloromethane	5.23E+03	1.32E+01	9.10E-01	4.30E+03
Chrysene	6.30E-03[b]	2.36E+05	5.81E+00[b]	6.23E-09[b]
Dibenzofuran	3.10E+00	1.13E+04	4.12E+00	2.48E-03
1,4-Dichlorobenzene	8.13E+01	3.75E+02	3.44E+00	1.74E+00
Diethylphthalate	1.08E+03	1.05E+02	2.42E+00	2.10E-03
Di-n-butyl phthalate	1.46E+03	4.50E+00	1.12E+01	2.01E-05
Ethylbenzene	1.69E+02	4.46E+02	3.15E+00	9.60E+00
Fluoranthene	2.06E-01[c]	7.09E+04[c]	5.16E+00[c]	9.22E-06[c]
Fluorene	1.89E+00[b]	1.13E+04	4.18E+00[b]	8.42E-04[b]
Indeno(1,2,3-cd)pyrene	1.90E-04[b]	2.68E+06	6.70E+00[b]	1.25E-10[b]
Isopropylbenzene	6.13E+01	6.98E+02	3.66E+00	4.50E+00
Isopropyltoluene[4-]	2.34E+01[b]	na[d]	4.10E+00[b]	1.64E+00[b]
Methyl-2-pentanone[4-]	1.90E+04	1.26E+01	1.31E+00	1.99E+01
Methylene chloride	1.30E+04[b]	2.37E+01	1.30E+00[b]	4.30E+02[b]
Methylnaphthalene[2-]	2.46E+01	2.98E+03	3.86E+00	5.50E-02
Naphthalene	3.10E+01	1.84E+03	3.30E+00	8.50E-02
Pentachlorophenol	1.40E+01	4.96E+03	5.12E+00	1.10E+04

Table H-3.2-2 (continued)

COPC	Water Solubility[a] (mg/L)	Organic Carbon Coefficient K_{oc}[a] (L/kg)	Log Octanol-Water Partition Coefficient K_{ow}[a]	Vapor Pressure[a] (mm Hg at 25°C)
Phenanthrene	1.15E+00[b]	2.08E+04	4.46E+00[b]	1.12E-04[b]
Phenol	8.28E+04	1.87E+02	1.46E+00	3.50E-01
Pyrene	1.35E-01[b]	6.94E+04	4.88E+00[b]	4.50E-06[b]
Stryene	3.10E+02	5.18E+02	2.95E+00	6.4E+00
TCDD[2,3,7,8-]	2.00E-04	1.46E+05	na	na
Tetrachloroethene	2.06E+02	9.49E+01	3.40E+00	1.85E+01
Toluene	5.26E+02	2.68E+02	2.73E+00	2.84E+01
Trichloroethene	1.28E+03	6.07E+01	2.42E+00	6.90E+01
Trimethylbenzene[1,2,4-]	5.70E+01	7.18E+02	3.63E+00	2.10E+00
Trimethylbenzene[1,3,5-]	4.82E+01	6.02E+02	3.42E+00	2.10E+00
Xylene[1,2-]	1.78E+02	3.83E+02	3.12E+00	7.99E+00
Xylene[1,3-]+Xylene[1,4-]	1.06E+02	3.83E+02	3.12E+00	7.99E+00

[a] Information from http://rais.ornl.gov/cgi-bin/tools/TOX_search, unless noted otherwise.

[b] Information from http://www.epa.gov/superfund/sites/npl/hrsres/tools/scdm.htm.

[c] Information from NMED (2009, 108070).

[d] na = Not available.

Table H-3.2-3
Physical and Chemical Properties of Radionuclide COPCs

COPC	Soil-Water Partition Coefficient, K_d[a] (cm^3/g)	Water Solubility[b] (g/L)
Americium-241	680	Insoluble
Cesium-137	1000	Insoluble
Cobalt-60	45	Insoluble
Plutonium-238	4500	Insoluble
Plutonium-239/240	4500	Insoluble
Strontium-90	35	Insoluble
Tritium	9.9	Soluble
Uranium-234	0.4	Insoluble
Uranium-235/236	0.4	Insoluble
Uranium-238	0.4	Insoluble

[a] Superfund Chemical Data Matrix (EPA 1996, 064708).

[b] Information from http://www.epa.gov/superfund/sites/npl/hrsres/tools/scdm.htm.

Table H-4.1-1
Exposure Parameter Values Used to Calculate Chemical SSLs for the Industrial, Recreational, and Residential Scenarios

Parameters	Residential Values	Industrial Values	Recreational Values
Target HQ	1	1	1
Target cancer risk	10^{-5}	10^{-5}	10^{-5}
Averaging time (carcinogen)	70 yr × 5 d	70 yr × 365 d	70 yr × 365 d
Averaging time (noncarcinogen)	Exposure duration × 365 d	Exposure duration × 365 d	Exposure duration × 365 d
Skin absorption factor	Semivolatile organic compound = 0.1	Semivolatile organic compound = 0.1	Semivolatile organic compound = 0.1
	Chemical-specific	Chemical-specific	Chemical-specific
Adherence factor–child	0.2 mg/cm^2	n/a[a]	0.2 mg/cm^2
Body weight–child	15 kg (0–6 yr of age)	n/a	31 kg (6–11 yr of age)
Cancer slope factor–oral (chemical-specific)	$(mg/kg\text{-}d)^{-1}$	$(mg/kg\text{-}d)^{-1}$	$(mg/kg\text{-}d)^{-1}$
Inhalation unit risk (chemical-specific)	$(\mu g/m^3)$	$(\mu g/m^3)$	$(\mu g/m^3)$
Exposure frequency	350 d/yr	225 d/yr	200 events/yr
Exposure time	24 h/d	8 h/d	1 h/event
Exposure duration–child	6 yr	n/a	6 yr
Age-adjusted ingestion factor	114 mg-yr/kg-d	n/a	22.6 mg-yr/kg-d
Age-adjusted inhalation factor	11 m^3-yr/kg-d	n/a	0.8 m^3-yr/kg-d
Inhalation rate–child	10 m^3/d	n/a	1.2 m^3/d
Soil ingestion rate–child	200 mg/d	n/a	71.4 mg/d
Particulate emission factor	6.61×10^9 m^3/kg	6.61×10^9 m^3/kg	6.61×10^9 m^3/kg
Reference dose–oral (chemical-specific)	(mg/kg-d)	(mg/kg-d)	(mg/kg-d)
Reference dose–inhalation (chemical-specific)	(mg/kg-d)	(mg/kg-d)	(mg/kg-d)
Exposed surface area–child	2800 cm^2/d	n/a	3525 cm^2
Age-adjusted skin contact factor for carcinogens	361 mg-yr/kg-d	n/a	273.3 mg-yr/kg-d
Volatilization factor for soil (chemical-specific)	(m^3/kg)	(m^3/kg)	(m^3/kg)
Body weight–adult	70 kg	70 kg	70 kg
Exposure duration[b]	30 yr	25 yr	30 yr
Adherence factor–adult	0.07 mg/cm^2	0.2 mg/cm^2	0.07 mg/cm^2
Soil ingestion rate–adult	100 mg/d	100 mg/d	25.6 mg/d
Exposed surface area–adult	5700 cm^2/d	3300 cm^2/d	5700 cm^2/d
Inhalation rate–adult	20 m^3/d	20 m^3/d	1.6 m^3/d

Note: Parameter values from NMED (2009, 108070).

[a] n/a = Not applicable.

[b] Exposure duration for lifetime resident is 30 yr. For carcinogens, the exposures are combined for child (6 yr) and adult (24 yr).

Table H-4.1-2
Parameters Values Used to Calculate
Radionuclide SALs for the Residential and Recreational Scenarios

Parameters	Residential, Adult	Residential, Child	Recreational, Adult	Residential, Child
Inhalation rate (m^3/yr)	7305[a]	3652.5[b]	14,035[c]	10,526[d]
Mass loading (g/m^3)	1.5×10^{-7}[e]	1.5×10^{-7}[e]	1.5×10^{-7}[e]	1.5×10^{-7}[e]
Outdoor time fraction	0.0599[f]	0.2236[g]	0.0228[h]	0.0228[h]
Indoor time fraction	0.8984[i]	0.7347[j]	0	0
Soil ingestion (g/yr)	36.5[k]	73[l]	225[m]	73[n]

[a] Calculated as [10 m^3/d × 350 d/yr] / [indoor + outdoor time fractions], where 10 m^3/d is the daily inhalation rate of a child (NMED 2009, 108070).

[b] Calculated as [20 m^3/d × 350 d/yr] / [indoor + outdoor time fractions], where 20 m^3/d is the daily inhalation rate of an adult (NMED 2009, 108070).

[c] Calculated as [1.60 m^3/d × 200 h/yr] / [indoor + outdoor time fractions], where 1.6 m^3/d is the adult inhalation rate for moderate activity (EPA 1997, 066596, Table 5-23).

[d] Calculated as [1.2 m^3/d × 200 h/yr] / [indoor + outdoor time fractions], where 1.2 m^3/d is the child inhalation rate for moderate activity (EPA 1997, 066596, Table 5-23).

[e] Calculated as [1/ 6.6 × 10^{+9} m^3/kg) × 1000 g/kg, where 6.6 × 10^{+9} m^3/kg is the particulate emission factor (NMED 2009, 108070).

[f] Calculated as [1.5 h/d × 350 d/yr] / 8766 h/yr, where 1.5 h/d is an estimate of time spent outdoors for an adult 12 yr and older (EPA 1997, 066598, Section 15.4-1).

[g] Calculated as [5.6 h/d × 350 d/yr] / 8766 h/yr, where 5.6 h/d is an estimate of time spent outdoors for a 3–11-yr-old child (EPA 1997, 066598, Section 15.4-1).

[h] Calculated as [1 h/d × 200 d/yr] / 8766 h/yr, where 1 h/d is an estimate of exposure time for a recreational adult or child (LANL 2007, 094496).

[i] Calculated as [24-1.5 h/d × 350 d/yr] / 8766 h/yr.

[j] Calculated as [24-5.6 h/d × 350 d/yr] / 8766 h/yr.

[k] Calculated as [0.1 g/d × 350 d/yr] / [indoor + outdoor time fractions], where 0.1 g/d is the adult soil ingestion rate (NMED 2009, 108070).

[l] Calculated as [0.2 g/d × 350 d/yr] / [indoor + outdoor time fractions], where 0.2 g/d is the child soil ingestion rate (NMED 2009, 108070).

[m] Calculated as [(0.1 g/d × 3.9 h/d) × 200 h/yr] / [indoor + outdoor time fractions], where 3.9 h/d is the time-weighted average for "doers" ages 12–44 (EPA 1997, 066598, Table 15-10), and where 0.1 g/d is the adult soil-ingestion rate (NMED 2009, 108070).

[n] Calculated as [(0.4 g/d × 5.6 h/d) × 200 h/yr] / [indoor + outdoor time fractions], where 5.6 h/d is the time spent outdoors for a child (EPA 1997, 066598, Section 15.4.1), and where 0.4 g/d is the upper bound child soil-ingestion rate (EPA 1997, 066598, Table 4-23).

Table H-4.1-3
Parameter Values Used to Calculate Radionuclide SALs for the Industrial Scenario

Parameters	Industrial, Adult
Inhalation rate (m^3/yr)	19,481[a]
Mass loading (g/m^3)	1.5×10^{-7} [b]
Outdoor time fraction	0.2053[c]
Indoor time fraction	0
Soil ingestion (g/yr)	97.4[d]

[a] Calculated as [20 m^3/d × 225 d/yr] / [indoor + outdoor time fractions], where 20 m^3/d is the daily inhalation rate of an adult and 225 d/yr is the exposure frequency (NMED 2009, 108070).

[b] Calculated as [1/ 6.6 × 10^{+9} m^3/kg] × 1000 g/kg, where 6.6 × 10^{+9} m^3/kg is the particulate emission factor (NMED 2009, 108070).

[c] Calculated as [8 h/d × 225 d/yr] / 8766 h/yr, where 8 h/d is an estimate of the average length of the work day.

[d] Calculated as [0.1 g/d × 225 d/yr] / [indoor + outdoor time fractions], where 0.1 g/d is the adult soil ingestion rate (NMED 2009, 108070).

Table H-4.2-1
Industrial Carcinogenic Screening Evaluation for AOC 02-003(a)

COPC	EPC (mg/kg)	Industrial SSL* (mg/kg)	Excess Cancer Risk
Arsenic	2.002	17.7	1E-06
Aroclor-1254	0.171	8.26	2E-07
Aroclor-1260	0.74	8.26	9E-07
Benzo(a)anthracene	0.068	23.4	3E-08
Benzo(a)pyrene	0.099	2.34	4E-07
Benzo(b)fluoranthene	0.044	23.4	2E-08
Chrysene	0.065	2340	3E-10
Indeno(1,2,3-cd)pyrene	0.055	23.4	2E-08
Naphthalene	0.011	252	4E-10
		Total Excess Cancer Risk	**3E-06**

*SSLs from NMED (2009, 108070).

Table H-4.2-2
Industrial Noncarcinogenic Screening Evaluation for AOC 02-003(a)

COPC	EPC (mg/kg)	Industrial SSL[a] (mg/kg)	HQ
Cadmium	0.614	1120	6E-04
Copper	53.89	45400	1E-03
Mercury	0.758	310[b]	2E-03
Perchlorate	0.0057	795	7E-06
Selenium	0.821	5680	1E-04
Zinc	43.8	341	1E-04
Acenaphthene	0.0136	36700	4E-07
Anthracene	0.0214	183000	1E-07
Benzo(g,h,i)perylene	0.0121	18300[c]	7E-07
Fluoranthene	0.173	24400	7E-06
Phenanthrene	0.0942	20500	5E-06
Pyrene	0.254	18300	1E-05
		HI	**0.004**

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

[b] SSL from EPA regional tables (http://www.epa.gov/region06/6pd/rcra_c/pd-n/screen.htm).

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

Table H-4.2-3
Industrial Radionuclide Screening Evaluation for AOC 02-003(a)

COPC	EPC (pCi/g)	Industrial SAL* (pCi/g)	Dose (mrem/yr)
Cesium-137	3.678	23	2
Plutonium-239/240	0.252	210	0.02
Tritium	0.021	440000	0.0000007
		Total Dose	**2**

* SALs from LANL (2009, 107655).

Table H-4.2-4
Recreational Carcinogenic Screening Evaluation for AOC 02-003(a)

COPC	EPC (mg/kg)	Recreational SSL* (mg/kg)	Cancer Risk
Arsenic	2.002	27.7	7E-07
Aroclor-1260	0.74	10.5	7E-07
Benzo(a)anthracene	0.068	30.1	2E-08
Benzo(a)pyrene	0.099	3.01	3E-07
Benzo(b)fluoranthene	0.044	30.1	1E-08
Chrysene	0.065	3010	2E-10
Indeno(1,2,3-cd)pyrene	0.055	30.1	2E-08
Naphthalene	0.011	1950	6E-11
		Total Excess Cancer Risk	**2E-06**

* SSLs from LANL (2010, 108613).

Table H-4.2-5
Recreational Noncarcinogenic Screening Evaluation for AOC 02-003(a)

COPC	EPC (mg/kg)	Recreational SSL[a] (mg/kg)	HQ
Cadmium	0.614	784	8E-04
Copper	53.89	31700	2E-03
Mercury	0.758	238	3E-03
Perchlorate	0.0057	555	1E-05
Selenium	0.821	3960	2E-04
Zinc	43.8	238000	2E-04
Acenaphthene	0.0136	20800	7E-07
Anthracene	0.0214	104000	2E-07
Aroclor-1254	0.171	6.65	3E-02
Benzo(g,h,i)perylene	0.0121	10400[b]	1E-06
Fluoranthene	0.173	13900	1E-05
Phenanthrene	0.0942	12000	8E-06
Pyrene	0.254	10400	2E-05
		HI	**0.04**

[a] SSLs from LANL (2010, 108613).

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

Table H-4.2-6
Recreational Radionuclide Screening Evaluation for AOC 02-003(a)

COPC	EPC (pCi/g)	Recreational SAL* (pCi/g)	Dose (mrem/yr)
Cesium-137	3.678	210	0.3
Plutonium-239/240	0.252	300	0.01
Tritium	0.021	5300000	0.00000006
		Total Dose	**0.3**

* SALs from LANL (2009, 107655).

Table H-4.2-7
Residential Carcinogenic Screening Evaluation for AOC 02-003(a)

COPC	EPC (mg/kg)	Residential SSL* (mg/kg)	Cancer Risk
Arsenic	1.769	3.9	5E-06
Aroclor-1260	0.3	2.22	1E-06
Benzo(a)anthracene	0.0315	6.21	5E-08
Benzo(a)pyrene	0.099	0.621	2E-06
Benzo(b)fluoranthene	0.044	6.21	7E-08
Benzo(k)fluoranthene	0.018	62.1	3E-09
Bis(2-ethylhexyl)phthalate	0.153	347	4E-09
Chrysene	0.0314	621	5E-10
1,4-Dichlorobenzene	0.00056	32.2	2E-10
Indeno(1,2,3-cd)pyrene	0.055	6.21	9E-08
Methylene chloride	0.0045	199	2E-10
Naphthalene	0.011	45	2E-09
		Total Excess Cancer Risk	**8E-06**

* SSLs from NMED (2009, 108070).

Table H-4.2-8
Residential Noncarcinogenic Screening Evaluation for AOC 02-003(a)

COPC	EPC (mg/kg)	Residential SSL[a] (mg/kg)	HQ
Antimony	0.66	31.3	2E-02
Cadmium	0.791	77.9	1E-02
Chromium	19.71	219[b]	9E-02
Copper	13.32	3130	4E-03
Iron	7633	54800	1E-01
Manganese	276.1	10700	3E-02
Mercury	0.391	23[c]	2E-02
Perchlorate	0.00168	54.8	3E-05
Selenium	0.758	391	2E-03
Vanadium	8.936	391	2E-02
Zinc	55.73	23500	2E-03
Acenaphthene	0.014	3440	4E-06
Anthracene	0.021	17200	1E-06
Aroclor-1254	0.189	1.12	2E-01
Benzo(g,h,i)perylene	0.020	1720[d]	1E-05
Fluoranthene	0.048	2290	2E-05
Phenanthrene	0.0347	1830	2E-05
Pyrene	0.0485	1720	3E-05
Toluene	0.0004	5570	7E-08
		HI	**0.5**

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

[b] SSL for chromium(VI).

[c] SSL from EPA regional tables (http://www.epa.gov/region06/6pd/rcra_c/pd-n/screen.htm).

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

Table H-4.2-9
Residential Radionuclide Screening Evaluation for AOC 02-003(a)

COPC	EPC (pCi/g)	Residential SAL* (pCi/g)	Dose (mrem/yr)
Cesium-137	61.42	5.6	165
Plutonium-239/240	0.877	33	0.4
Strontium-90	7.362	5.7	19
Tritium	0.0315	750	0.0006
		Total Dose	**184**

* SALs from LANL (2009, 107655).

Table H-4.2-10
Industrial Carcinogenic Screening Evaluation for AOC 02-003(b)

COPC	EPC (mg/kg)	Industrial SSL* (mg/kg)	Excess Cancer Risk
Aroclor-1254	0.844	8.26	1E-06
Aroclor-1260	0.369	8.26	4E-07
Benzo(a)anthracene	0.083	23.4	4E-08
Benzo(a)pyrene	0.114	2.34	5E-07
Benzo(b)fluoranthene	0.164	23.4	7E-08
Benzo(k)fluoranthene	0.065	234	3E-09
Chrysene	0.107	2340	5E-10
		Total Excess Cancer Risk	**2E-06**

* SSLs from NMED (2009, 108070).

Table H-4.2-11
Industrial Noncarcinogenic Screening Evaluation for AOC 02-003(b)

COPC	EPC (mg/kg)	Industrial SSL[a] (mg/kg)	HQ
Cadmium	0.172	1120	2E-04
Selenium	0.888	5680	2E-04
Anthracene	0.035	183000	2E-07
Benzo(g,h,i)perylene	0.047	18300[b]	3E-06
Fluoranthene	0.228	24400	9E-06
Fluorene	0.022	24400	9E-07
Methylnaphthalene[2-]	0.14	4100[c]	4E-06
Pyrene	0.175	18300	1E-05
		HI	**0.0004**

[a] SSLs from NMED (2009, 108070), unless otherwise noted.
[b] Pyrene SSL used as a surrogate based on structural similarity.
[c] SSL from EPA regional tables (http://www.epa.gov/region06/6pd/rcra_c/pd-n/screen.htm).

Table H-4.2-12
Industrial Radionuclide Screening Evaluation for AOC 02-003(b)

COPC	EPC (pCi/g)	Industrial SAL* (pCi/g)	Dose (mrem/yr)
Cesium-137	0.644	23	0.4
Plutonium-239/240	0.768	210	0.05
Uranium-234	1.17	1500	0.01
Uranium-235/236	0.0695	87	0.01
Uranium-238	1.15	430	0.04
		Total Dose	**0.5**

* SALs from LANL (2009, 107655).

Table H-4.2-13
Recreational Carcinogenic Screening Evaluation for AOC 02-003(b)

COPC	EPC (mg/kg)	Recreational SSL* (mg/kg)	Cancer Risk
Aroclor-1260	0.369	10.5	4E-07
Benzo(a)anthracene	0.083	30.1	3E-08
Benzo(a)pyrene	0.114	3.01	4E-07
Benzo(b)fluoranthene	0.164	30.1	5E-08
Benzo(k)fluoranthene	0.065	301	2E-09
Chrysene	0.107	3010	4E-10
		Total Excess Cancer Risk	**9E-07**

* SSLs from LANL (2010, 108613).

Table H-4.2-14
Recreational Noncarcinogenic Screening Evaluation for AOC 02-003(b)

COPC	EPC (mg/kg)	Recreational SSL[a] (mg/kg)	HQ
Cadmium	0.172	784	2E-04
Selenium	0.888	3960	2E-04
Anthracene	0.035	10400	3E-07
Aroclor-1254	0.844	6.65	1E-01
Benzo(g,h,i)perylene	0.047	10400[b]	5E-06
Fluoranthene	0.228	13900	2E-05
Fluorene	0.022	139000	2E-06
2-Methylnaphthalene	0.014	3170[c]	4E-06
Pyrene	0.175	10400	2E-05
		HI	**0.1**

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

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

[c] SSL from EPA regional tables (http://www.epa.gov/region06/6pd/rcra_c/pd-n/screen.htm).

Table H-4.2-15
Recreational Radionuclide Screening Evaluation for AOC 02-003(b)

COPC	EPC (pCi/g)	Recreational SAL* (pCi/g)	Dose (mrem/yr)
Cesium-137	0.644	210	0.05
Plutonium-239/240	0.768	300	0.04
Uranium-234	1.17	3200	0.005
Uranium-235/236	0.069	43	0.002
Uranium-238	1.15	2100	0.01
		Total Dose	**0.1**

* SALs from LANL (2009, 107655).

Table H-4.2-16
Residential Carcinogenic Screening Evaluation for AOC 02-003(b)

COPC	EPC (mg/kg)	Residential SSL* (mg/kg)	Cancer Risk
Arsenic	2.214	3.9	6E-06
Aroclor-1260	0.149	2.22	7E-07
Benzo(a)anthracene	0.0831	6.21	1E-07
Benzo(a)pyrene	0.114	0.621	2E-06
Benzo(b)fluoranthene	0.164	6.21	3E-07
Benzo(k)fluoranthene	0.065	62.1	1E-08
Chrysene	0.107	621	2E-09
		Total Excess Cancer Risk	**9E-06**

***** SSLs from NMED (2009, 108070).

Table H-4.2-17
Residential Noncarcinogenic Screening Evaluation for AOC 02-003(b)

COPC	EPC (mg/kg)	Residential SSL[a] (mg/kg)	HQ
Aluminum	3227	78100	4E-02
Antimony	0.941(U)	31.3	3E-02
Barium	40.58	15600	3E-03
Cadmium	0.244	77.9	3E-03
Chromium	7.719	219[b]	4E-02
Copper	3.193	3130	1E-03
Iron	7353	54800	1E-01
Manganese	289.5	10700	3E-02
Nickel	3.132	1560	2E-03
Selenium	0.954	391	2E-03
Silver	0.693	391	2E-03
Vanadium	8.14	391	2E-02
Anthracene	0.035	17200	2E-06
Aroclor-1254	0.399	1.12	4E-01
Benzo(g,h,i)perylene	0.047	1720[c]	3E-05
Butylbenzene[n-]	0.000661	140[d]	5E-06
Di-n-butyl phthalate	0.2	6110	3E-05
Fluoranthene	0.0799	2290	4E-05
Fluorene	0.022	2290	1E-05
Isopropyltoluene[4-]	0.0004	3210[e]	1E-07
2-Methylnaphthalene	0.0137	310[f]	4E-05

Table H-4.2-17 (continued)

COPC	EPC (mg/kg)	Residential SSL[a] (mg/kg)	HQ
Phenanthrene	0.091	1830	5E-05
Pyrene	0.0672	1720	4E-05
Trimethylbenzene[1,2,4-]	0.00023	62[f]	4E-06
		HI	**0.7**

[a] SSLs from NMED (2009, 108070), unless otherwise noted.
[b] SSL for chromium(VI).
[c] Pyrene SSL used as a surrogate based on structural similarity.
[d] SSL from EPA (2007, 099314).
[e] Isopropylbenzene SSL used as a surrogate based on structural similarity.
[f] SSL from EPA regional tables (http://www.epa.gov/region06/6pd/rcra_c/pd-n/screen.htm).

Table H-4.2-18
Residential Radionuclide Screening Evaluation for AOC 02-003(b)

COPC	EPC (pCi/g)	Residential SAL* (pCi/g)	Dose (mrem/yr)
Cesium-137	2.842	5.6	8
Plutonium-239/240	0.32	33	0.2
Strontium-90	0.96	5.7	3
Uranium-234	1.42	170	0.1
Uranium-235/236	0.0908	17	0.08
Uranium-238	1.367	87	0.2
		Total Dose	**11**

* SALs from LANL (2009, 107655).

Table H-4.2-19
Industrial Carcinogenic Screening Evaluation for AOC 02-003(c)

COPC	EPC (mg/kg)	Industrial SSL* (mg/kg)	Excess Cancer Risk
Aroclor-1254	0.0065	8.26	8E-09
Aroclor-1260	0.0077	8.26	9E-09
Benzo(a)anthracene	0.07	23.4	3E-08
Benzo(a)pyrene	0.086	2.34	4E-07
Benzo(b)fluoranthene	0.0679	23.4	3E-08
Chrysene	0.0485	2340	2E-10
		Total Excess Cancer Risk	**5E-07**

* SSLs from NMED (2009, 108070).

Table H-4.2-20
Industrial Noncarcinogenic Screening Evaluation for AOC 02-003(c)

COPC	EPC (mg/kg)	Industrial SSL[a] (mg/kg)	HQ
Barium	182.3	224000	8E-04
Cadmium	0.268	1120	2E-04
Copper	47.01	45400	1E-03
Mercury	0.503	310[b]	2E-03
Perchlorate	0.000745	795	9E-07
Selenium	5.505	5680	1E-03
Anthracene	0.0132	183000	7E-08
Benzo(g,h,i)perylene	0.014	18300[c]	7E-07
Fluoranthene	0.0684	24400	3E-06
Phenanthrene	0.0437	20500	2E-06
Pyrene	0.0688	18300	4E-06
		HI	**0.005**

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

[b] SSL from EPA regional tables (http://www.epa.gov/region06/6pd/rcra_c/pd-n/screen.htm).

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

Table H-4.2-21
Industrial Radionuclide Screening Evaluation for AOC 02-003(c)

COPC	EPC (pCi/g)	Industrial SAL* (pCi/g)	Dose (mrem/yr)
Cobalt-60	0.24	5.1	0.7
Plutonium-239/240	0.177	210	0.01
Tritium	0.138	440000	0.000005
		Total Dose	**0.7**

* SALs from LANL (2009, 107655).

Table H-4.2-22
Recreational Carcinogenic Screening Evaluation for AOC 02-003(c)

COPC	EPC (mg/kg)	Recreational SSL* (mg/kg)	Cancer Risk
Aroclor-1260	0.0077	10.5	7E-09
Benzo(a)anthracene	0.07	30.1	2E-08
Benzo(a)pyrene	0.086	3.01	3E-07
Benzo(b)fluoranthene	0.0679	30.1	2E-08
Chrysene	0.0485	3010	2E-10
		Total Excess Cancer Risk	**3E-07**

* SSLs from LANL (2010, 108613).

Table H-4.2-23
Recreational Noncarcinogenic Screening Evaluation for AOC 02-003(c)

COPC	EPC (mg/kg)	Recreational SSL[a] (mg/kg)	HQ
Barium	182.3	158000	1E-03
Cadmium	0.268	784	3E-04
Copper	47.01	31700	2E-03
Mercury	0.503	238	2E-03
Perchlorate	0.000745	555	1E-06
Selenium	5.505	3960	1E-03
Anthracene	0.0132	10400	1E-07
Aroclor-1254	0.0065	6.65	1E-03
Benzo(g,h,i)perylene	0.014	10400[b]	1E-06
Fluoranthene	0.0684	13900	5E-06
Phenanthrene	0.0437	12000	4E-06
Pyrene	0.0688	10400	7E-06
		HI	**0.007**

[a] SSLs from LANL (2010, 108613).

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

Table H-4.2-24
Recreational Radionuclide Screening Evaluation for AOC 02-003(c)

COPC	EPC (pCi/g)	Recreational SAL* (pCi/g)	Dose (mrem/yr)
Cobalt-60	0.24	46	0.08
Plutonium-239/240	0.177	300	0.01
Tritium	0.138	5300000	0.0000004
		Total Dose	**0.09**

* SALs from LANL (2009, 107655).

Table H-4.2-25
Residential Carcinogenic Screening Evaluation for AOC 02-003(c)

COPC	EPC (mg/kg)	Residential SSL* (mg/kg)	Cancer Risk
Arsenic	2.047	3.9	5E-06
Aroclor-1260	0.0077	2.22	3E-08
Benzo(a)anthracene	0.0383	6.21	6E-08
Benzo(a)pyrene	0.0387	0.621	6E-07
Benzo(b)fluoranthene	0.0469	6.21	8E-08
Benzo(k)fluoranthene	0.0393	62.1	6E-09
Chloroform	0.0032	5.72	6E-09
Chrysene	0.037	621	6E-10
Indeno(1,2,3-c,d)pyrene	0.158	6.21	3E-07
Naphthalene	0.0161	45	4E-09
		Total Excess Cancer Risk	**6E-06**

* SSLs from NMED (2009, 108070).

Table H-4.2-26
Residential Noncarcinogenic Screening Evaluation for AOC 02-003(c)

COPC	EPC (mg/kg)	Residential SSL[a] (mg/kg)	HQ
Antimony	0.188	31.3	6E-03
Barium	628.2	15600	4E-02
Cadmium	0.253	77.9	3E-03
Chromium	9.637	219[b]	4E-02
Copper	24.22	3130	8E-03
Iron	8109	54800	2E-01
Lead	22.44	400	6E-02
Manganese	259.2	10700	2E-02
Mercury	0.517	23[c]	2E-02
Perchlorate	0.00113	54.8	2E-05
Selenium	7.228	391	2E-02
Thallium	1.719	5.16	3E-01
Vanadium	8.993	391	2E-02
Acenaphthene	0.0167	3440	5E-06
Acetone	0.0101	67500	2E-07
Anthracene	0.0155	17200	9E-07
Aroclor-1254	0.0065	1.12	6E-03
Benzo(g,h,i)perylene	0.0434	1720[d]	2E-05
Fluoranthene	0.0511	2290	2E-05

Table H-4.2-26 (continued)

COPC	EPC (mg/kg)	Residential SSL[a] (mg/kg)	HQ
Methylnaphthalene[2-]	0.0079	310 [c]	3E-05
Phenanthrene	0.0391	1830	2E-05
Pyrene	0.0495	1720	3E-05
Toluene	0.000798	5570	1E-07
		HI	**0.7**

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

[b] SSL for chromium(VI).

[c] SSL from EPA regional tables (http://www.epa.gov/region06/6pd/rcra_c/pd-n/screen.htm).

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

Table H-4.2-27
Residential Radionuclide Screening Evaluation for AOC 02-003(c)

COPC	EPC (pCi/g)	Residential SAL* (pCi/g)	Dose (mrem/yr)
Cesium-137	1.335	5.6	4
Cobalt-60	0.24	1.3	3
Plutonium-239/240	0.0954	33	0.04
Tritium	0.043	750	0.0009
		Total Dose	**7**

* SALs from LANL (2009, 107655).

Table H-4.2-28
Industrial Carcinogenic Screening Evaluation for AOC 02-003(d)

COPC	EPC (mg/kg)	Industrial SSL* (mg/kg)	Excess Cancer Risk
Aroclor-1254	0.0082	8.26	1E-08
Aroclor-1260	0.0053	8.26	6E-09
Benzo(a)anthracene	0.0208	23.4	9E-09
Benzo(a)pyrene	0.0299	2.34	1E-07
Benzo(b)fluoranthene	0.034	23.4	1E-08
Benzo(k)fluoranthene	0.013	234	6E-10
Chrysene	0.0275	2340	1E-10
		Total Excess Cancer Risk	**2E-07**

* SSLs from NMED (2009, 108070).

Table H-4.2-29
Industrial Noncarcinogenic Screening Evaluation for AOC 02-003(d)

COPC	EPC (mg/kg)	Industrial SSL* (mg/kg)	HQ
Antimony	1.08	454	2E-03
Cadmium	0.156	1120	1E-04
Nitrate	12.87	1820000	7E-06
Perchlorate	0.00166	795	2E-06
Selenium	4.058	5680	7E-04
Silver	0.567	5680	1E-04
Thallium	0.131	74.9	2E-03
Zinc	50.32	341000	2E-04
Fluoranthene	0.0342	24400	1E-06
Phenanthrene	0.028	20500	1E-06
Pyrene	0.0374	18300	2E-06
		HI	**0.005**

*SSLs from NMED (2009, 108070).

Table H-4.2-30
Industrial Radionuclide Screening Evaluation for AOC 02-003(d)

COPC	EPC (pCi/g)	Industrial SAL* (pCi/g)	Dose (mrem/yr)
Cesium-137	0.597	23	0.4
Cobalt-60	0.97	5.1	3
Plutonium-239/240	0.095	210	0.01
Tritium	0.103	440000	0.000004
Uranium-238	1.756	430	0.06
		Total Dose	**3**

* SALs from LANL (2009, 107655).

Table H-4.2-31
Recreational Carcinogenic Screening Evaluation for AOC 02-003(d)

COPC	EPC (mg/kg)	Recreational SSL* (mg/kg)	Cancer Risk
Aroclor-1260	0.0053	10.5	5E-09
Benzo(a)anthracene	0.0208	30.1	7E-09
Benzo(a)pyrene	0.0299	3.01	1E-07
Benzo(b)fluoranthene	0.034	30.1	1E-08
Benzo(k)fluoranthene	0.013	301	4E-10
Chrysene	0.0275	3010	9E-11
		Total Excess Cancer Risk	**1E-07**

* SSLs from LANL (2010, 108613).

Table H-4.2-32
Recreational Noncarcinogenic Screening Evaluation for AOC 02-003(d)

COPC	EPC (mg/kg)	Recreational SSL* (mg/kg)	HQ
Antimony	1.08	317	3E-03
Cadmium	0.156	784	2E-04
Nitrate	12.87	1260000	1E-05
Perchlorate	0.00166	555	3E-06
Selenium	4.058	3960	1E-03
Silver	0.567	3960	1E-04
Thallium	0.131	52.3	2E-03
Zinc	50.32	238000	2E-04
Aroclor-1254	0.0082	6.65	1E-03
Fluoranthene	0.0342	13900	2E-06
Phenanthrene	0.028	12000	2E-06
Pyrene	0.037	10400	4E-06
		HI	**0.008**

* SSLs from LANL (2010, 108613).

Table H-4.2-33
Recreational Radionuclide Screening Evaluation for AOC 02-003(d)

COPC	EPC (pCi/g)	Recreational SAL* (pCi/g)	Dose (mrem/yr)
Cesium-137	0.597	210	0.04
Cobalt-60	0.97	46	0.3
Plutonium-239/240	0.095	300	0.005
Tritium	0.103	5300000	0.0000003
Uranium-238	1.756	2100	0.01
		Total Dose	**0.4**

* SALs from LANL (2009, 107655).

Table H-4.2-34
Residential Carcinogenic Screening Evaluation for AOC 02-003(d)

COPC	EPC (mg/kg)	Residential SSL* (mg/kg)	Cancer Risk
Aroclor-1260	0.0053	2.22	2E-08
Benzo(a)anthracene	0.0213	6.21	3E-08
Benzo(a)pyrene	0.0299	0.621	5E-07
Benzo(b)fluoranthene	0.0297	6.21	5E-08
Benzo(k)fluoranthene	0.0144	62.1	2E-09
Chrysene	0.0277	621	4E-10
		Total Excess Cancer Risk	**6E-07**

*SSLs from NMED (2009, 108070).

Table H-4.2-35
Residential Noncarcinogenic Screening Evaluation for AOC 02-003(d)

COPC	EPC (mg/kg)	Residential SSL[a] (mg/kg)	HQ
Antimony	0.32	31.3	1E-02
Beryllium	1.852	156	1E-02
Cadmium	0.147	77.9	2E-03
Chromium	8.993	219[b]	4E-02
Copper	3.497	3130	1E-03
Iron	7781	54800	1E-01
Manganese	288.6	10700	3E-02
Nickel	3.493	1560	2E-03
Nitrate	5.798	125000	5E-05
Perchlorate	0.00147	54.8	3E-05
Selenium	3.73	391	1E-02
Silver	0.426	391	1E-03
Thallium	0.212	5.16	4E-02
Vanadium	8.214	391	2E-02
Zinc	48.31	23500	2E-03
Aroclor-1254	0.0074	1.12	7E-03
Fluoranthene	0.324	2290	1E-04
Phenanthrene	0.0264	1830	1E-05
Pyrene	0.0326	1720	2E-05
Toluene	0.000646	5570	1E-07
		HI	**0.2**

[a] SSLs from NMED (2009, 108070).

[b] SSL for chromium(VI).

Table H-4.2-36
Residential Radionuclide Screening Evaluation for AOC 02-003(d)

COPC	EPC (pCi/g)	Residential SAL* (pCi/g)	Dose (mrem/yr)
Cesium-137	0.398	5.6	1.1
Cobalt-60	0.97	1.3	11.2
Plutonium-239/240	0.0615	33	0.03
Tritium	0.0264	750	0.0005
Uranium-234	1.596	170	0.1
Uranium-235/236	0.105	17	0.09
Uranium-238	1.712	87	0.3
		Total Dose	**13**

* SALs from LANL (2009, 107655).

Table H-4.2-37
Industrial Carcinogenic Screening Evaluation for AOC 02-003(e)

COPC	EPC (mg/kg)	Industrial SSL* (mg/kg)	Excess Cancer Risk
Aroclor-1260	0.611	8.26	7E-07
Benzo(a)anthracene	0.0239	23.4	1E-08
Benzo(a)pyrene	0.101	2.34	4E-07
Benzo(b)fluoranthene	0.0467	23.4	2E-08
Bis(2-ethylhexyl)phthalate	0.0882	1370	6E-10
Chrysene	0.0336	2340	1E-10
Indeno(1,2,3-c,d)pyrene	0.0607	23.4	3E-08
		Total Excess Cancer Risk	**1E-06**

* SSLs from NMED (2009, 108070).

Table H-4.2-38
Industrial Noncarcinogenic Screening Evaluation for AOC 02-003(e)

COPC	EPC (mg/kg)	Industrial SSL[a] (mg/kg)	HQ
Cadmium	0.291	1120	3E-04
Mercury	2.58	310[b]	8E-03
Perchlorate	0.000527	795	7E-07
Selenium	0.743	5680	1E-04
Zinc	59.1	341000	2E-04
Benzo(g,h,i)perylene	0.458	18300[c]	2E-06
Fluoranthene	0.0679	24400	3E-06
Phenanthrene	0.0328	20500	2E-06
Pyrene	0.0669	18300	4E-06
		HI	**0.01**

[a] SSLs from NMED (2009, 108070).

[b] SSL from EPA regional tables (http://www.epa.gov/region06/6pd/rcra_c/pd-n/screen.htm).

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

Table H-4.2-39
Industrial Radionuclide Screening Evaluation for AOC 02-003(e)

COPC	EPC (pCi/g)	Industrial SAL* (pCi/g)	Dose (mrem/yr)
Tritium	0.00996	440000	0.0000003
		Total Dose	**0.0000003**

* SALs from LANL (2009, 107655).

Table H-4.2-40
Recreational Carcinogenic Screening Evaluation for AOC 02-003(e)

COPC	EPC (mg/kg)	Recreational SSL* (mg/kg)	Cancer Risk
Aroclor-1260	0.611	10.5	6E-07
Benzo(a)anthracene	0.0239	30.1	8E-09
Benzo(a)pyrene	0.101	3.01	3E-07
Benzo(b)fluoranthene	0.0467	30.1	2E-08
Bis(2-ethylhexyl)phthalate	0.0882	1830	5E-10
Chrysene	0.0336	3010	1E-10
Indeno(1,2,3-c,d)pyrene	0.0607	30.1	2E-08
		Total Excess Cancer Risk	**1E-06**

* SSLs from LANL (2010, 108613).

Table H-4.2-41
Recreational Noncarcinogenic Screening Evaluation for AOC 02-003(e)

COPC	EPC (mg/kg)	Recreational SSL[a] (mg/kg)	HQ
Cadmium	0.291	784	4E-04
Perchlorate	0.000527	555	1E-06
Mercury	2.58	238	1E-02
Selenium	0.743	3960	2E-04
Zinc	59.1	238000	2E-04
Benzo(g,h,i)perylene	0.0458	10400[b]	4E-06
Fluoranthene	0.0679	13900	5E-06
Phenanthrene	0.0328	12000	3E-06
Pyrene	0.0669	10400	6E-06
		HI	**0.01**

[a] SSLs from LANL (2010, 108613).

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

Table H-4.2-42
Recreational Radionuclide Screening Evaluation for AOC 02-003(e)

COPC	EPC (pCi/g)	Recreational SAL* (pCi/g)	Dose (mrem/yr)
Tritium	0.00996	5300000	0.00000003
		Total Dose	**0.00000003**

* SALs from LANL (2009, 107655).

Table H-4.2-43
Residential Carcinogenic Screening Evaluation for AOC 02-003(e)

COPC	EPC (mg/kg)	Residential SSL* (mg/kg)	Cancer Risk
Arsenic	2.148	3.9	6E-06
Aroclor-1260	0.275	2.22	1E-06
Benzo(a)anthracene	0.0239	6.21	4E-08
Benzo(a)pyrene	0.0384	0.621	6E-07
Benzo(b)fluoranthene	0.0319	6.21	5E-08
Bis(2-ethylhexyl)phthalate	0.11	347	3E-09
Chrysene	0.0261	621	4E-10
Indeno(1,2,3-c,d)pyrene	0.0607	6.21	1E-07
Total Excess Cancer Risk			**8E-06**

* SSLs from NMED (2009, 108070).

Table H-4.2-44
Residential Noncarcinogenic Screening Evaluation for AOC 02-003(e)

COPC	EPC (mg/kg)	Residential SSL[a] (mg/kg)	HQ
Antimony	2.3	31.3	7E-02
Barium	54.52	15600	4E-03
Cadmium	0.377	77.9	5E-03
Chromium	19.37	219[b]	9E-02
Lead	1147	400	3
Mercury	0.937	23[c]	4E-02
Perchlorate	0.0296	54.8	5E-04
Selenium	1.268	391	3E-03
Zinc	208.4	23500	9E-03
Aroclor-1254	0.0868	1.12	8E-02
Benzo(g,h,i)perylene	0.0458	10400[d]	3E-05
Fluoranthene	0.0386	2290	2E-05
Phenanthrene	0.0269	1830	2E-05
Pyrene	0.0381	1720	2E-05
Toluene	0.00043	5570	8E-08
HI			**3**

[a] SSLs from NMED (2009, 108070).
[b] SSL for chromium(VI).
[c] SSL from EPA regional tables (http://www.epa.gov/region06/6pd/rcra_c/pd-n/screen.htm).
[d] Pyrene SSL used as a surrogate based on structural similarity.

Table H-4.2-45
Residential Radionuclide Screening Evaluation for AOC 02-003(e)

COPC	EPC (pCi/g)	Residential SAL* (pCi/g)	Dose (mrem/yr)
Americium-241	0.0376	30	0.02
Cesium-137	218.7	5.6	586
Plutonium-239/240	0.812	33	0.4
Strontium-90	8.171	5.7	22
Tritium	0.0294	750	0.0006
		Total Dose	**608**

* SALs from LANL (2009, 107655).

Table H-4.2-46
Dioxin/Furan Calculation for AOC 02-004(a) for the Industrial and Recreational Scenarios

COPCs	EPC (mg/kg) (0–1 ft)	Toxic Equivalency Factor (TEF)*	Toxic Equivalency Calculation
Heptachlorodibenzodioxin[1,2,3,4,6,7,8-]	6.98E-05	0.001	7.0E-08
Hexachlorodibenzodioxin[1,2,3,4,7,8-]	7.55E-07	0.1	7.6E-08
Hexachlorodibenzodioxin[1,2,3,6,7,8-]	1.78E-06	0.1	1.8E-07
Hexachlorodibenzodioxin[1,2,3,7,8,9-]	1.48E-06	0.1	1.5E-07
Octachlorodibenzodioxin[1,2,3,4,6,7,8,9-]	0.0015	0.0003	4.5E-07
Pentachlorodibenzodioxin[1,2,3,7,8-]	4.21E-07	1	4.2E-07
Heptachlorodibenzofuran[1,2,3,4,6,7,8-]	2.22E-05	0.01	2.2E-07
Heptachlorodibenzofuran[1,2,3,4,7,8,9-]	1.39E-06	0.01	1.4E-08
Hexachlorodibenzofuran[1,2,3,4,7,8-]	7.73E-06	0.1	7.7E-07
Hexachlorodibenzofuran[1,2,3,6,7,8-]	3.09E-06	0.1	3.1E-07
Hexachlorodibenzofuran[1,2,3,7,8,9-]	1.01E-06	0.1	1.0E-07
Hexachlorodibenzofuran[2,3,4,6,7,8-]	4.74E-06	0.1	4.7E-07
Octachlorodibenzofuran[1,2,3,4,6,7,8,9-]	1.19E-04	0.0003	3.6E-08
Pentachlorodibenzofuran[1,2,3,7,8-]	2.42E-06	0.03	7.3E-08
Pentachlorodibenzofuran[2,3,4,7,8-]	1.43E-05	0.3	4.3E-06
Tetrachlorodibenzofuran[2,3,7,8-]	7.89E-06	0.1	7.9E-07
		2,3,7,8-TCDD Sum	**8.43E-06**

*TEFs from www.who.int/ipcs/assessment/tef_update/en/print.html.

Table H-4.2-47
Industrial Carcinogenic Screening Evaluation for AOC 02-004(a)

COPC	EPC (mg/kg)	Industrial SSL* (mg/kg)	Excess Cancer Risk
Aroclor-1254	0.172	8.26	2E-07
Aroclor-1260	0.899	8.26	1E-06
Benzo(a)pyrene	0.192	2.34	8E-07
Benzo(b)fluoranthene	0.4	23.4	2E-07
Chrysene	0.236	2340	1E-09
Indeno(1,2,3-c,d)pyrene	0.0925	23.4	4E-08
Naphthalene	0.0538	45	2E-09
2,3,7,8-TCDD	0.00000843	0.000204	4E-07
		Total Excess Cancer Risk	**3E-06**

* SSLs from NMED (2009, 108070).

Table H-4.2-48
Industrial Noncarcinogenic Screening Evaluation for AOC 02-004(a)

COPC	EPC (mg/kg)	Industrial SSL[a] (mg/kg)	HQ
Cadmium	1.627	1120	1E-03
Chromium	13.14	2920[b]	4E-03
Copper	11.53	45400	2E-04
Cyanide	0.437	22700	2E-05
Lead	13.49	800	2E-02
Mercury	3.255	310[c]	1E-02
Perchlorate	0.00108	795	1E-06
Selenium	7.311	5680	1E-03
Zinc	51.61	341000	2E-04
Acenaphthene	0.0477	36700	1E-06
Anthracene	0.072	183000	4E-07
Benzo(g,h,i)perylene	0.0891	18300[d]	5E-06
Fluoranthene	0.41	24400	2E-05
Fluorene	0.438	24400	2E-05
Methylnaphthalene[2-]	0.0331	4100 [c]	8E-06
Phenanthrene	0.337	20500	2E-05
Pyrene	0.398	18300	2E-05
		HI	**0.04**

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

[b] SSL for chromium(VI).

[c] SSL from EPA regional tables (http://www.epa.gov/region06/6pd/rcra_c/pd-n/screen.htm).

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

Table H-4.2-49
Industrial TPH Screening Evaluation for AOC 02-004(a)

COPC	EPC (mg/kg)	Industrial* (mg/kg)	HQ
TPH-DRO	150.6	1120	0.13
		HI	**0.1**

* Screening guideline for diesel No. 2 from NMED (2006, 094614).

Table H-4.2-50
Industrial Radionuclide Screening Evaluation for AOC 02-004(a)

COPC	EPC (pCi/g)	Industrial SAL* (pCi/g)	Dose (mrem/yr)
Cobalt-60	2.86	5.1	8
Plutonium-239/240	0.806	210	0.06
Strontium-90	1.61	1900	0.01
Tritium	0.015	440000	0.0000005
		Total Dose	**8**

* SALs from LANL (2009, 107655).

Table H-4.2-51
Recreational Carcinogenic Screening Evaluation for AOC 02-004(a)

COPC	EPC (mg/kg)	Recreational SSL* (mg/kg)	Cancer Risk
Aroclor-1260	0.899	10.5	9E-07
Benzo(a)pyrene	0.192	3.01	6E-07
Benzo(b)fluoranthene	0.4	30.1	1E-07
Chrysene	0.236	3010	8E-10
Indeno(1,2,3-c,d)pyrene	0.0925	30.1	3E-08
Naphthalene	0.0538	1950	3E-10
2,3,7,8-TCDD	0.00000843	0.000319	3E-07
		Total Excess Cancer Risk	**2E-06**

***** SSLs from LANL (2010, 108613).

Table H-4.2-52
Recreational Noncarcinogenic Screening Evaluation for AOC 02-004(a)

COPC	EPC (mg/kg)	Recreational SSL[a] (mg/kg)	HQ
Cadmium	1.627	784	2E-03
Chromium	13.14	1910[b]	7E-03
Copper	11.53	31700	4E-04
Cyanide	0.437	15800	3E-05
Lead	13.49	560	2E-02
Mercury	3.255	238	1E-02
Perchlorate	0.00108	555	2E-06
Selenium	7.311	3960	2E-03
Zinc	51.61	238000	2E-04
Acenaphthene	0.0477	20800	2E-06
Anthracene	0.072	104000	7E-07
Aroclor-1254	0.172	6.65	3E-02
Benzo(g,h,i)perylene	0.0891	10400[c]	9E-06
Fluoranthene	0.41	13900	3E-05
Fluorene	0.438	13900	3E-05
Methylnaphthalene[2-]	0.0331	3170	1E-05
Phenanthrene	0.337	12000	3E-05
Pyrene	0.398	10400	4E-05
		HI	**0.08**

[a] SSLs from LANL (2010, 108613), unless otherwise noted.

[b] SSL for chromium(VI).

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

Table H-4.2-53
Recreational Radionuclide Screening Evaluation for AOC 02-004(a)

COPC	EPC (pCi/g)	Recreational SAL* (pCi/g)	Dose (mrem/yr)
Cobalt-60	2.86	46	0.93
Plutonium-239/240	0.806	300	0.04
Strontium-90	1.61	5600	0.004
Tritium	0.015	5300000	0.00000004
		Total Dose	**1**

* SALs from LANL (2009, 107655).

Table H-4.2-54
Dioxin/Furan Calculation for AOC 02-004(a) for the Residential Scenario

COPCs	EPC (mg/kg) (0–10 ft)	Toxic Equivalency Factor (TEF)*	Toxic Equivalency Calculation
Heptachlorodibenzodioxin[1,2,3,4,6,7,8-]	4.73E-05	0.001	4.7E-08
Hexachlorodibenzodioxin[1,2,3,4,7,8-]	1.04E-06	0.1	1.0E-07
Hexachlorodibenzodioxin[1,2,3,6,7,8-]	6.15E-07	0.1	6.1E-08
Hexachlorodibenzodioxin[1,2,3,7,8,9-]	6.79E-07	0.1	6.8E-08
Octachlorodibenzodioxin[1,2,3,4,6,7,8,9-]	6.90E-04	0.0003	2.1E-07
Pentachlorodibenzodioxin[1,2,3,7,8-]	1.77E-07	1	1.8E-07
Heptachlorodibenzofuran[1,2,3,4,6,7,8-]	1.44E-05	0.01	1.4E-07
Heptachlorodibenzofuran[1,2,3,4,7,8,9-]	7.13E-07	0.01	7.1E-09
Hexachlorodibenzofuran[1,2,3,4,7,8-]	3.93E-06	0.1	3.9E-07
Hexachlorodibenzofuran[1,2,3,6,7,8-]	1.57E-06	0.1	1.6E-07
Hexachlorodibenzofuran[1,2,3,7,8,9-]	1.01E-06	0.1	1.0E-07
Hexachlorodibenzofuran[2,3,4,6,7,8-]	2.05E-06	0.1	2.0E-07
Octachlorodibenzofuran[1,2,3,4,6,7,8,9-]	5.08E-05	0.0003	1.5E-08
Pentachlorodibenzofuran[1,2,3,7,8-]	9.94E-07	0.03	3.0E-08
Pentachlorodibenzofuran[2,3,4,7,8-]	9.52E-06	0.3	2.9E-06
Tetrachlorodibenzofuran[2,3,7,8-]	7.19E-06	0.1	7.2E-07
		2,3,7,8-TCDD Sum	**5.29E-05**

*TEFs from www.who.int/ipcs/assessment/tef_update/en/print.html.

Table H-4.2-55
Residential Carcinogenic Screening Evaluation for AOC 02-004(a)

COPC	EPC (mg/kg)	Residential SSL* (mg/kg)	Cancer Risk
Arsenic	2.177	3.9	5E-06
Aroclor-1248	0.0867	2.22	4E-07
Aroclor-1260	0.465	2.22	2E-06
Benzo(a)anthracene	0.263	6.21	4E-07
Benzo(a)pyrene	0.11	0.621	2E-06
Benzo(b)fluoranthene	0.242	6.21	4E-07
Benzo(k)fluoranthene	0.0262	62.1	4E-09
Chloroform	0.000242	5.72	4E-10
Chrysene	0.258	621	4E-09
Indeno(1,2,3-c,d)pyrene	0.0716	6.21	1E-07
Naphthalene	0.028	45	6E-09
2,3,7,8-TCDD	0.0000529	0.000045	1E-05
		Total Excess Cancer Risk	**2E-05**

* SSLs from NMED (2009, 108070).

Table H-4.2-56
Residential Noncarcinogenic Screening Evaluation for AOC 02-004(a)

COPC	EPC (mg/kg)	Residential SSL[a] (mg/kg)	HQ
Aluminum	3485	78100	4E-02
Antimony	1.21(U)	31.3	4E-02
Barium	44.64	15600	3E-03
Cadmium	0.891	77.9	1E-02
Chromium	10.29	219[b]	5E-02
Chromium hexavalent	0.13	219	6E-04
Cobalt	2.416	23[c]	1E-01
Copper	5.975	3130	2E-03
Cyanide	0.298	1560	2E-04
Iron	8236	54800	2E-01
Lead	11.14	400	3E-02
Manganese	293.1	10700	3E-02
Mercury	4.069	23[c]	2E-01
Nickel	3.844	1560	2E-03
Perchlorate	0.00124	54.8	2E-05
Selenium	4.861	391	1E-02
Vanadium	9.694	391	2E-02
Zinc	42.55	23500	2E-03
Acenaphthene	0.0343	3440	1E-05
Anthracene	0.0678	17200	4E-06
Aroclor-1254	0.0958	1.12	8E-02
Benzo(g,h,i)perylene	0.0738	1720[d]	4E-05
Dibenzofuran	0.174	78[c]	2E-03
Fluoranthene	0.343	2290	2E-04
Fluorene	0.0334	2290	2E-05
Methylnaphthalene[2-]	0.0267	310[c]	9E-05
Phenanthrene	0.271	1830	2E-04
Pyrene	0.384	1720	2E-04
Toluene	0.00107	5570	2E-07
Xylene[1,2-]	0.000353	9550	4E-08
Xylene[1,3-]+Xylene[1,4-]	0.000839	1090[e]	8E-07
		HI	**0.8**

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

[b] SSL for chromium(VI).

[c] SSL from EPA regional tables (http://www.epa.gov/region06/6pd/rcra_c/pd-n/screen.htm).

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

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

Table H-4.2-57
Residential TPH Screening Evaluation for AOC 02-004(a)

COPC	EPC (mg/kg)	Residential* (mg/kg)	HQ
TPH-DRO	84.87	520	0.16
		HI	**0.2**

* Screening guideline for diesel No. 2 from NMED (2006, 094614).

Table H-4.2-58
Residential Radionuclide Screening Evaluation for AOC 02-004(a)

COPC	EPC (pCi/g)	Residential SAL* (pCi/g)	Dose (mrem/yr)
Americium-241	0.0532	30	0.03
Cesium-137	0.735	5.6	2
Cobalt-60	1.143	1.3	13
Plutonium-239/240	0.231	33	0.1
Strontium-90	1.61	5.7	4
Tritium	1.734	750	0.03
		Total Dose	**20**

* SALs from LANL (2009, 107655).

Table H-4.2-59
Dioxin/Furan Calculation for AOC 02-004(b,c,d) for the Industrial and Recreational Scenarios

COPCs	EPC (mg/kg) (0–1 ft)	Toxic Equivalency Factor (TEF)*	Toxic Equivalency Calculation
Heptachlorodibenzodioxin[1,2,3,4,6,7,8-]	0.00387	0.001	7.0E-08
Hexachlorodibenzodioxin[1,2,3,4,7,8-]	8.34E-06	0.1	7.6E-08
Hexachlorodibenzodioxin[1,2,3,6,7,8-]	4.61E-05	0.1	1.8E-07
Hexachlorodibenzodioxin[1,2,3,7,8,9-]	1.75E-05	0.1	1.5E-07
Octachlorodibenzodioxin[1,2,3,4,6,7,8,9-]	0.037	0.0003	4.5E-07
Pentachlorodibenzodioxin[1,2,3,7,8-]	2.65E-06	1	4.2E-07
Tetrachlorodibenzodioxin[2,3,7,8-]	6.33E-07	1	6.33E-07
Heptachlorodibenzofuran[1,2,3,4,6,7,8-]	1.59E-04	0.01	1.59E-06
Heptachlorodibenzofuran[1,2,3,4,7,8,9-]	6.57E-06	0.01	6.57E-08
Hexachlorodibenzofuran[1,2,3,4,7,8-]	6.57E-06	0.1	6.57E-07
Hexachlorodibenzofuran[1,2,3,6,7,8-]	4.98E-06	0.1	4.98E-07
Hexachlorodibenzofuran[1,2,3,7,8,9-]	9.51E-07	0.1	9.51E-08
Hexachlorodibenzofuran[2,3,4,6,7,8-]	7.04E-06	0.1	7.04E-07

Table H-4.2-59 (continued)

COPCs	EPC (mg/kg) (0–1 ft)	Toxic Equivalency Factor (TEF)*	Toxic Equivalency Calculation
Octachlorodibenzofuran[1,2,3,4,6,7,8,9-]	5.61E-04	0.0003	1.68E-07
Pentachlorodibenzofuran[1,2,3,7,8-]	1.22E-06	0.03	3.65E-08
Pentachlorodibenzofuran[2,3,4,7,8-]	6.75E-06	0.3	2.02E-06
Tetrachlorodibenzofuran[2,3,7,8-]	5.63E-06	0.1	5.63E-07
		2,3,7,8-TCDD Sum	**3.19E-05**

*TEFs from www.who.int/ipcs/assessment/tef_update/en/print.html.

Table H-4.2-60
Industrial Carcinogenic Screening Evaluation for AOC 02-004 (b,c,d)

COPC	EPC (mg/kg)	Industrial SSL* (mg/kg)	Excess Cancer Risk
Aroclor-1254	0.114	8.26	1E-07
Aroclor-1260	0.363	8.26	4E-07
Benzo(a)anthracene	0.224	23.4	1E-07
Benzo(a)pyrene	0.21	2.34	9E-07
Benzo(b)fluoranthene	0.296	23.4	1E-07
Chrysene	0.235	2340	1E-09
Indeno(1,2,3-c,d)pyrene	0.152	23.4	6E-08
Naphthalene	0.551	45	2E-08
2,3,7,8-TCDD	0.00000319	0.000204	2E-06
		Total Excess Cancer Risk	**2E-06**

* SSLs from NMED (2009, 108070).

Table H-4.2-61
Industrial Noncarcinogenic Screening Evaluation for AOC 02-004 (b,c,d)

COPC	EPC (mg/kg)	Industrial SSL[a] (mg/kg)	HQ
Cadmium	0.371	1120	3E-04
Chromium	26.29	2920[b]	9E-03
Cyanide	0.305	22700	1E-05
Perchlorate	0.00139	795	2E-06
Selenium	0.76	5680	1E-04
Zinc	93.83	341000	3E-04
Acenaphthene	0.231	36700	6E-06
Anthracene	0.194	183000	1E-06
Benzo(g,h,i)perylene	0.285	18300[c]	2E-05
Dibenzofuran	0.163	1000[d]	2E-04
Fluoranthene	0.468	24400	2E-05
Fluorene	0.254	24400	1E-05
Methylnaphthalene[2-]	0.156	4100[d]	4E-05
Phenanthrene	0.561	20500	3E-05
Pyrene	0.525	18300	3E-05
		HI	**0.01**

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

[b] SSL for chromium(VI).

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

[d] SSL from EPA regional tables (http://www.epa.gov/region06/6pd/rcra_c/pd-n/screen.htm).

Table H-4.2-62
Industrial Radionuclide Screening Evaluation for AOC 02-004 (b,c,d)

COPC	EPC (pCi/g)	Industrial SAL* (pCi/g)	Dose (mrem/yr)
Cobalt-60	0.884	5.1	2.6
Plutonium-239/240	0.507	210	0.04
Tritium	0.0166	440000	0.0000006
		Total Dose	**3**

* SALs from LANL (2009, 107655).

Table H-4.2-63
Recreational Carcinogenic Screening Evaluation for AOC 02-004 (b,c,d)

COPC	EPC (mg/kg)	Recreational SSL* (mg/kg)	Cancer Risk
Aroclor-1260	0.363	10.5	3E-07
Benzo(a)anthracene	0.224	30.1	7E-08
Benzo(a)pyrene	0.21	3.01	7E-07
Benzo(b)fluoranthene	0.296	30.1	1E-07
Chrysene	0.235	3010	8E-10
Indeno(1,2,3-c,d)pyrene	0.152	30.1	5E-08
Naphthalene	0.551	1950	3E-09
2,3,7,8-TCDD	0.00000319	0.000319	1E-06
		Total Excess Cancer Risk	**2E-06**

* SSLs from LANL (2010, 108613).

Table H-4.2-64
Recreational Noncarcinogenic Screening Evaluation for AOC 02-004 (b,c,d)

COPC	EPC (mg/kg)	Recreational SSL[a] (mg/kg)	HQ
Cadmium	0.371	784	5E-04
Chromium	26.29	1910[b]	1E-02
Cyanide	0.305	15800	2E-05
Perchlorate	0.00139	555	2E-06
Selenium	0.76	3960	2E-04
Zinc	93.83	238000	4E-04
Acenaphthene	0.231	20800	1E-05
Anthracene	0.194	104000	2E-06
Aroclor-1254	0.114	6.65	2E-02
Benzo(g,h,i)perylene	0.285	10400[c]	3E-05
DIbenzofuran	0.163	399	4E-04
Fluoranthene	0.468	13900	3E-05
Fluorene	0.254	13900	2E-05
Methylnaphthalene[2-]	0.156	3170	5E-05
Phenanthrene	0.561	12000	5E-05
Pyrene	0.525	10400	5E-05
		HI	**0.03**

[a] SSLs from LANL (2010, 108613).
[b] SSL for chromium(VI).
[c] Pyrene SSL used as a surrogate based on structural similarity.

Table H-4.2-65
Recreational Radionuclide Screening Evaluation for AOC 02-004(b,c,d)

COPC	EPC (pCi/g)	Recreational SAL* (pCi/g)	Dose (mrem/yr)
Cobalt-60	0.884	46	0.3
Plutonium-239/240	0.507	300	0.03
Tritium	0.0166	5300000	0.00000005
		Total Dose	**0.3**

* SALs from LANL (2009, 107655).

Table H-4.2-66
Dioxin/Furan Calculation for AOC 02-004(b,c,d) for the Residential Scenario

COPCs	EPC (mg/kg) (0–10 ft)	Toxic Equivalency Factor (TEF)*	Toxic Equivalency Calculation
Heptachlorodibenzodioxin[1,2,3,4,6,7,8-]	0.00318	0.001	3.18E-06
Hexachlorodibenzodioxin[1,2,3,4,7,8-]	5.28E-06	0.1	5.28E-07
Hexachlorodibenzodioxin[1,2,3,6,7,8-]	3.95E-05	0.1	3.95E-06
Hexachlorodibenzodioxin[1,2,3,7,8,9-]	1.20E-05	0.1	1.20E-06
Octachlorodibenzodioxin[1,2,3,4,6,7,8,9-]	0.0358	0.0003	1.07E-05
Pentachlorodibenzodioxin[1,2,3,7,8-]	1.90E-06	1	1.90E-06
Tetrachlorodibenzodioxin[2,3,7,8-]	6.33E-07	1	6.33E-07
Heptachlorodibenzofuran[1,2,3,4,6,7,8-]	1.80E-04	0.01	1.80E-06
Heptachlorodibenzofuran[1,2,3,4,7,8,9-]	1.01E-05	0.01	1.01E-07
Hexachlorodibenzofuran[1,2,3,4,7,8-]	4.30E-06	0.1	4.30E-07
Hexachlorodibenzofuran[1,2,3,6,7,8-]	3.29E-06	0.1	3.29E-07
Hexachlorodibenzofuran[1,2,3,7,8,9-]	6.78E-07	0.1	6.78E-08
Hexachlorodibenzofuran[2,3,4,6,7,8-]	4.63E-06	0.1	4.63E-07
Octachlorodibenzofuran[1,2,3,4,6,7,8,9-]	5.60E-04	0.0003	1.68E-07
Pentachlorodibenzofuran[1,2,3,7,8-]	8.45E-07	0.03	2.54E-08
Pentachlorodibenzofuran[2,3,4,7,8-]	4.12E-06	0.3	1.24E-06
Tetrachlorodibenzofuran[2,3,7,8-]	2.33E-06	0.1	2.33E-07
		2,3,7,8-TCDD Sum	**2.70E-05**

*TEFs from www.who.int/ipcs/assessment/tef_update/en/print.html.

Table H-4.2-67
Residential Carcinogenic Screening Evaluation for AOC 02-004 (b,c,d)

COPC	EPC (mg/kg)	Residential SSL* (mg/kg)	Cancer Risk
Arsenic	2.117	3.9	5E-06
Aroclor-1260	0.241	2.22	1E-06
Benzo(a)anthracene	0.187	6.21	3E-07
Benzo(a)pyrene	0.135	0.621	2E-06
Benzo(b)fluoranthene	0.195	6.21	3E-07
Chrysene	0.192	621	3E-09
Indeno(1,2,3-c,d)pyrene	0.0942	6.21	2E-07
Naphthalene	0.551	45	1E-07
2,3,7,8-TCDD	0.000027	0.000045	6E-06
Total Excess Cancer Risk			**2E-05**

* SSLs from NMED (2009, 108070).

Table H-4.2-68
Residential Noncarcinogenic Screening Evaluation for AOC 02-004(b,c,d)

COPC	EPC (mg/kg)	Residential SSL[a] (mg/kg)	HQ
Aluminum	3839	78100	5E-02
Barium	46.72	15600	3E-03
Cadmium	0.286	77.9	4E-02
Chromium	20.58	219[b]	9E-02
Cyanide	0.244	1560	2E-04
Iron	8543	54800	2E-01
Manganese	377.6	10700	4E-02
Perchlorate	0.0015	54.8	3E-05
Selenium	0.974	391	2E-03
Vanadium	9.742	391	2E-02
Zinc	68.19	23500	3E-03
Acenaphthene	0.231	3440	7E-05
Anthracene	0.124	17200	7E-06
Aroclor-1254	0.0716	1.12	6E-02
Benzo(g,h,i)perylene	0.0914	1720[c]	5E-05
Dibenzofuran	0.163	78 [d]	2E-03
Fluoranthene	0.39	2290	2E-04
Fluorene	0.254	2290	1E-04

Table H-4.2-68 (continued)

COPC	EPC (mg/kg)	Residential SSL[a] (mg/kg)	HQ
Methylnaphthalene[2-]	0.156	310[d]	5E-04
Phenanthrene	0.479	1830	3E-04
Pyrene	0.424	1720	3E-04
		HI	**0.4**

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

[b] SSL for chromium(VI).

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

[d] SSL from EPA regional tables (http://www.epa.gov/region06/6pd/rcra_c/pd-n/screen.htm).

Table H-4.2-69
Residential Radionuclide Screening Evaluation for AOC 02-004 (b,c,d)

COPC	EPC (pCi/g)	Residential SAL* (pCi/g)	Dose (mrem/yr)
Cesium-137	0.653	5.6	2
Cobalt-60	0.884	1.3	10
Plutonium-239/240	0.247	33	0.1
Tritium	0.212	750	0.004
		Total Dose	**12**

* SALs from LANL (2009, 107655).

Table H-4.2-70
Dioxin/Furan Calculation for AOC 02-004(e) for the Industrial and Recreational Scenarios

COPCs	EPC (mg/kg) (0–1 ft)	Toxic Equivalency Factor (TEF)*	Toxic Equivalency Calculation
Heptachlorodibenzodioxin[1,2,3,4,6,7,8-]	0.00314	0.001	3.14E-06
Hexachlorodibenzodioxin[1,2,3,4,7,8-]	1.83E-05	0.1	1.83E-06
Hexachlorodibenzodioxin[1,2,3,6,7,8-]	8.69E-05	0.1	8.69E-06
Hexachlorodibenzodioxin[1,2,3,7,8,9-]	4.17E-05	0.1	4.17E-06
Octachlorodibenzodioxin[1,2,3,4,6,7,8,9-]	0.0285	0.0003	8.55E-06
Pentachlorodibenzodioxin[1,2,3,7,8-]	8.06E-06	1	8.06E-06
Tetrachlorodibenzodioxin[2,3,7,8-]	1.05E-06	1	1.05E-06
Heptachlorodibenzofuran[1,2,3,4,6,7,8-]	4.71E-04	0.01	4.71E-06
Heptachlorodibenzofuran[1,2,3,4,7,8,9-]	4.99E-05	0.01	4.99E-07
Hexachlorodibenzofuran[1,2,3,4,7,8-]	1.55E-05	0.1	1.55E-06
Hexachlorodibenzofuran[1,2,3,6,7,8-]	1.61E-05	0.1	1.61E-06
Hexachlorodibenzofuran[1,2,3,7,8,9-]	3.41E-06	0.1	3.41E-07

Table H-4.2-70 (continued)

COPCs	EPC (mg/kg) (0–1 ft)	Toxic Equivalency Factor (TEF)*	Toxic Equivalency Calculation
Hexachlorodibenzofuran[2,3,4,6,7,8-]	2.13E-05	0.1	2.13E-06
Octachlorodibenzofuran[1,2,3,4,6,7,8,9-]	0.00133	0.0003	3.99E-07
Pentachlorodibenzofuran[1,2,3,7,8-]	2.54E-06	0.03	7.62E-08
Pentachlorodibenzofuran[2,3,4,7,8-]	8.64E-06	0.3	2.59E-06
Tetrachlorodibenzofuran[2,3,7,8-]	4.70E-06	0.1	4.70E-07
		2,3,7,8-TCDD Sum	**4.99E-05**

*TEFs from www.who.int/ipcs/assessment/tef_update/en/print.html.

Table H-4.2-71
Industrial Carcinogenic Screening Evaluation for AOC 02-004(e)

COPC	EPC (mg/kg)	Industrial SSL* (mg/kg)	Excess Cancer Risk
Aroclor-1254	0.0736	8.26	9E-08
Aroclor-1260	0.18	8.26	2E-07
Benzo(a)anthracene	0.139	23.4	6E-08
Benzo(a)pyrene	0.122	2.34	5E-07
Benzo(b)fluoranthene	0.204	23.4	9E-08
Chrysene	0.14	2340	6E-10
Indeno(1,2,3-c,d)pyrene	0.0486	23.4	2E-08
2,3,7,8-TCDD	0.0000499	0.000204	2E-06
		Total Excess Cancer Risk	**3E-06**

* SSLs from NMED (2009, 108070).

Table H-4.2-72
Industrial Noncarcinogenic Screening Evaluation for AOC 02-004(e)

COPC	EPC (mg/kg)	Industrial SSL[a] (mg/kg)	HQ
Chromium	31.6	2920[b]	1E-02
Copper	19	45400	4E-04
Lead	23.2	800	3E-02
Mercury	1.2	310[c]	4E-03
Perchlorate	0.00162	795	2E-06
Zinc	120	341000	4E-04
Acenaphthene	0.0202	36700	6E-07
Anthracene	0.0405	183000	2E-07
Benzo(g,h,i)perylene	0.0618	18300[d]	3E-06
Fluoranthene	0.278	24400	1E-05
Fluorene	0.016	24400	6E-07
Phenanthrene	0.202	20500	1E-05
Pyrene	0.327	18300	2E-05
		HI	**0.04**

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

[b] SSL for chromium(VI).

[c] SSL from EPA regional tables (http://www.epa.gov/region06/6pd/rcra_c/pd-n/screen.htm).

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

Table H-4.2-73
Industrial Radionuclide Screening Evaluation for AOC 02-004(e)

COPC	EPC (pCi/g)	Industrial SAL* (pCi/g)	Dose (mrem/yr)
Plutonium-239/240	0.392	210	0.03
Tritium	0.011	440000	0.0000004
		Total Dose	**0.03**

* SALs from LANL (2009, 107655).

Table H-4.2-74
Recreational Carcinogenic Screening Evaluation for AOC 02-004(e)

COPC	EPC (mg/kg)	Recreational SSL* (mg/kg)	Cancer Risk
Aroclor-1260	0.18	10.5	2E-07
Benzo(a)anthracene	0.139	30.1	5E-08
Benzo(a)pyrene	0.122	3.01	4E-07
Benzo(b)fluoranthene	0.204	30.1	7E-08
Chrysene	0.14	3010	5E-10
Indeno(1,2,3-c,d)pyrene	0.0486	30.1	2E-08
2,3,7,8-TCDD	0.0000499	0.000319	2E-06
		Total Excess Cancer Risk	**2E-06**

* SSLs from LANL (2010, 108613).

Table H-4.2-75
Recreational Noncarcinogenic Screening Evaluation for AOC 02-004(e)

COPC	EPC (mg/kg)	Recreational SSL[a] (mg/kg)	HQ
Chromium	31.6	1910[b]	2E-02
Copper	19	31700	6E-04
Lead	23.2	560	4E-02
Mercury	1.2	238	5E-03
Perchlorate	0.00162	555	3E-06
Zinc	120	238000	5E-04
Acenaphthene	0.0202	20800	1E-06
Anthracene	0.0405	104000	4E-07
Aroclor-1254	0.0736	6.65	1E-02
Benzo(g,h,i)perylene	0.0618	10400[c]	6E-06
Fluoranthene	0.278	13900	2E-05
Fluorene	0.016	13900	1E-06
Phenanthrene	0.202	12000	2E-05
Pyrene	0.327	10400	3E-05
		HI	**0.08**

[a] SSLs from LANL (2010, 108613).

[b] SSL for chromium(VI).

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

Table H-4.2-76
Recreational Radionuclide Screening Evaluation for AOC 02-004(e)

COPC	EPC (pCi/g)	Recreational SAL* (pCi/g)	Dose (mrem/yr)
Plutonium-239/240	0.392	300	0.02
Tritium	0.011	5300000	0.00000003
		Total Dose	**0.02**

* SALs from LANL (2009, 107655).

Table H-4.2-77
Dioxin/Furan Calculation for AOC 02-004(e) for the Residential Scenario

COPCs	EPC (mg/kg) (0–10 ft)	Toxic Equivalency Factor (TEF)*	Toxic Equivalency Calculation
Heptachlorodibenzodioxin[1,2,3,4,6,7,8-]	0.00314	0.001	3.14E-06
Hexachlorodibenzodioxin[1,2,3,4,7,8-]	1.80E-05	0.1	1.80E-06
Hexachlorodibenzodioxin[1,2,3,6,7,8-]	8.69E-05	0.1	8.69E-06
Hexachlorodibenzodioxin[1,2,3,7,8,9-]	4.17E-05	0.1	4.17E-06
Octachlorodibenzodioxin[1,2,3,4,6,7,8,9-]	0.0285	0.0003	8.55E-06
Pentachlorodibenzodioxin[1,2,3,7,8-]	8.06E-06	1	8.06E-06
Tetrachlorodibenzodioxin[2,3,7,8-]	1.05E-06	1	1.05E-06
Heptachlorodibenzofuran[1,2,3,4,6,7,8-]	4.70E-04	0.01	4.70E-06
Heptachlorodibenzofuran[1,2,3,4,7,8,9-]	4.99E-05	0.01	4.99E-07
Hexachlorodibenzofuran[1,2,3,4,7,8-]	1.55E-05	0.1	1.55E-06
Hexachlorodibenzofuran[1,2,3,6,7,8-]	1.61E-05	0.1	1.61E-06
Hexachlorodibenzofuran[1,2,3,7,8,9-]	3.41E-06	0.1	3.41E-07
Hexachlorodibenzofuran[2,3,4,6,7,8-]	2.13E-05	0.1	2.13E-06
Octachlorodibenzofuran[1,2,3,4,6,7,8,9-]	0.00133	0.0003	3.99E-07
Pentachlorodibenzofuran[1,2,3,7,8-]	2.54E-06	0.03	7.62E-08
Pentachlorodibenzofuran[2,3,4,7,8-]	8.64E-06	0.3	2.59E-06
Tetrachlorodibenzofuran[2,3,7,8-]	4.70E-06	0.1	4.70E-07
		2,3,7,8-TCDD Sum	**4.98E-05**

*TEFs from www.who.int/ipcs/assessment/tef_update/en/print.html.

Table H-4.2-78
Residential Carcinogenic Screening Evaluation for AOC 02-004(e)

COPC	EPC (mg/kg)	Residential SSL* (mg/kg)	Cancer Risk
Aroclor-1260	0.18	2.22	8E-07
Benzo(a)anthracene	0.139	6.21	2E-07
Benzo(a)pyrene	0.122	0.621	2E-06
Benzo(b)fluoranthene	0.204	6.21	3E-07
Chrysene	0.14	621	2E-09
Indeno(1,2,3-c,d)pyrene	0.0486	6.21	8E-08
2,3,7,8-TCDD	0.0000498	0.000045	1E-05
		Total Excess Cancer Risk	**1E-05**

* SSLs from NMED (2009, 108070).

Table H-4.2-79
Residential Noncarcinogenic Screening Evaluation for AOC 02-004(e)

COPC	EPC (mg/kg)	Residential SSL[a] (mg/kg)	HQ
Cadmium	0.284	77.9	4E-03
Chromium	31.6	219[b]	1E-01
Copper	19	3130	6E-03
Lead	23.2	400	6E-02
Mercury	1.2	23[c]	5E-02
Perchlorate	0.00162	54.8	3E-05
Selenium	1.51	391	4E-03
Zinc	120	23500	5E-03
Acenaphthene	0.0202	3440	6E-06
Anthracene	0.0405	17200	2E-06
Aroclor-1254	0.0736	1.12	6E-02
Benzo(g,h,i)perylene	0.0618	1720[d]	4E-05
Fluoranthene	0.278	2290	1E-04
Fluorene	0.016	2290	7E-06
Phenanthrene	0.202	1830	1E-04
Pyrene	0.327	1720	2E-04
		HI	**0.3**

[a] SSLs from NMED (2009, 108070), unless otherwise noted.
[b] SSL for chromium(VI).
[c] SSL from EPA regional tables (http://www.epa.gov/region06/6pd/rcra_c/pd-n/screen.htm).
[d] Pyrene SSL used as a surrogate based on structural similarity.

Table H-4.2-80
Residential Radionuclide Screening Evaluation for AOC 02-004(e)

COPC	EPC (pCi/g)	Residential SAL* (pCi/g)	Dose (mrem/yr)
Cesium-137	0.447	5.6	1
Cobalt-60	0.139	1.3	2
Plutonium-239/240	0.392	33	0.2
Tritium	0.25	750	0.01
		Total Dose	**3**

* SALs from LANL (2009, 107655).

Table H-4.2-81
Dioxin/Furan Calculation for AOC 02-004(f) for the Industrial and Recreational Scenarios

COPCs	EPC (mg/kg) (0–1 ft)	Toxic Equivalency Factor (TEF)*	Toxic Equivalency Calculation
Heptachlorodibenzodioxin[1,2,3,4,6,7,8-]	7.91E-04	0.001	7.0E-08
Hexachlorodibenzodioxin[1,2,3,4,7,8-]	4.76E-06	0.1	7.6E-08
Hexachlorodibenzodioxin[1,2,3,6,7,8-]	1.65E-05	0.1	1.8E-07
Hexachlorodibenzodioxin[1,2,3,7,8,9-]	1.02E-05	0.1	1.5E-07
Octachlorodibenzodioxin[1,2,3,4,6,7,8,9-]	0.00735	0.0003	4.5E-07
Pentachlorodibenzodioxin[1,2,3,7,8-]	1.25E-06	1	4.2E-07
Tetrachlorodibenzodioxin[2,3,7,8-]	2.64E-07	1	2.6E-07
Heptachlorodibenzofuran[1,2,3,4,6,7,8-]	1.04E-04	0.01	2.2E-07
Heptachlorodibenzofuran[1,2,3,4,7,8,9-]	9.99E-06	0.01	1.4E-08
Hexachlorodibenzofuran[1,2,3,4,7,8-]	9.66E-05	0.1	7.7E-07
Hexachlorodibenzofuran[1,2,3,6,7,8-]	2.61E-06	0.1	3.1E-07
Hexachlorodibenzofuran[1,2,3,7,8,9-]	5.26E-07	0.1	1.0E-07
Hexachlorodibenzofuran[2,3,4,6,7,8-]	4.35E-06	0.1	4.7E-07
Octachlorodibenzofuran[1,2,3,4,6,7,8,9-]	4.99E-04	0.0003	3.6E-08
Pentachlorodibenzofuran[1,2,3,7,8-]	9.24E-07	0.03	7.3E-08
Pentachlorodibenzofuran[2,3,4,7,8-]	7.77E-06	0.3	4.3E-06
Tetrachlorodibenzofuran[2,3,7,8-]	4.28E-06	0.1	4.3E-07
		2,3,7,8-TCDD Sum	**2.21E-05**

*TEFs from www.who.int/ipcs/assessment/tef_update/en/print.html.

Table H-4.2-82
Industrial Carcinogenic Screening Evaluation for AOC 02-004(f)

COPC	EPC (mg/kg)	Industrial SSL* (mg/kg)	Excess Cancer Risk
Aroclor-1254	0.0861	8.26	1E-07
Aroclor-1260	0.404	8.26	5E-07
Benzo(a)anthracene	0.0339	23.4	1E-08
Benzo(a)pyrene	0.0327	2.34	1E-07
Benzo(b)fluoranthene	0.0497	23.4	2E-08
Benzo(k)fluoranthene	0.0235	234	1E-09
Bis(2-ethylhexyl)phthalate	0.591	1370	4E-09
Chrysene	0.0378	2340	2E-10
Naphthalene	0.0147	45	6E-10
Pentachlorophenol	0.301	100	3E-08
2,3,7,8-TCDD	0.0000221	0.000204	1E-06
		Total Excess Cancer Risk	**2E-06**

***** SSLs from NMED (2009, 108070).

Table H-4.2-83
Industrial Noncarcinogenic Screening Evaluation for AOC 02-004(f)

COPC	EPC (mg/kg)	Industrial SSL[a] (mg/kg)	HQ
Cadmium	0.293	1120	3E-04
Chromium	14.24	2920[b]	5E-03
Chromium hexavalent	0.327	2920	1E-04
Copper	19.79	45400	4E-04
Cyanide	0.307	22700	1E-05
Lead	13.91	800	2E-02
Mercury	1.018	310[c]	3E-03
Perchlorate	0.00214	795	3E-06
Selenium	1.169	5680	2E-04
Vanadium	12.11	5680	2E-03
Zinc	78.14	341000	2E-04
Acenaphthene	0.0194	36700	5E-07
Anthracene	0.0282	183000	2E-07
Benzo(g,h,i)perylene	0.0337	18300[d]	2E-06
Di-n-butylphthalate	0.0536	68400	8E-07
Fluoranthene	0.0826	24400	3E-06
Fluorene	0.01964	24400	8E-07

Table H-4.2-83 (continued)

COPC	EPC (mg/kg)	Industrial SSL[a] (mg/kg)	HQ
Methylnaphthalene[2-]	0.0081	4100 [c]	2E-06
Phenanthrene	0.0356	20500	2E-06
Pyrene	0.0625	18300	3E-06
		HI	**0.03**

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

[b] SSL for chromium(VI).

[c] SSL from EPA regional tables (http://www.epa.gov/region06/6pd/rcra_c/pd-n/screen.htm).

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

Table H-4.2-84
Industrial Radionuclide Screening Evaluation for AOC 02-004(f)

COPC	EPC (pCi/g)	Industrial SAL* (pCi/g)	Dose (mrem/yr)
Cobalt-60	0.11	5.1	0.3
Plutonium-239/240	0.046	210	0.003
Tritium	0.159	440000	0.000005
		Total Dose	**0.3**

* SALs from LANL (2009, 107655).

Table H-4.2-85
Recreational Carcinogenic Screening Evaluation for AOC 02-004(f)

COPC	EPC (mg/kg)	Recreational SSL* (mg/kg)	Cancer Risk
Aroclor-1260	0.404	10.5	4E-07
Benzo(a)anthracene	0.0339	30.1	1E-08
Benzo(a)pyrene	0.0327	3.01	1E-07
Benzo(b)fluoranthene	0.0497	30.1	2E-08
Benzo(k)fluoranthene	0.0235	301	8E-10
Bis(2-ethylhexyl)phthalate	0.591	1830	3E-09
Chrysene	0.0378	3010	1E-10
Naphthalene	0.0147	1950	8E-11
Pentachlorophenol	0.301	117	3E-08
2,3,7,8-TCDD	0.0000221	0.000319	7E-07
		Total Excess Cancer Risk	**1E-06**

* SSLs from LANL (2010, 108613).

Table H-4.2-86
Recreational Noncarcinogenic Screening Evaluation for AOC 02-004(f)

COPC	EPC (mg/kg)	Recreational SSL[a] (mg/kg)	HQ
Cadmium	0.293	784	4E-04
Chromium	14.24	1910[b]	8E-03
Chromium hexavalent	0.327	1910	2E-04
Copper	19.79	31700	6E-04
Cyanide	0.307	15800	2E-05
Lead	13.91	560	2E-02
Mercury	1.018	238	4E-03
Perchlorate	0.00214	555	4E-06
Selenium	1.169	3960	3E-04
Vanadium	12.11	3960	3E-03
Zinc	78.14	238000	3E-04
Acenaphthene	0.0194	20800	9E-07
Anthracene	0.0282	104000	3E-07
Aroclor-1254	0.0861	6.65	1E-02
Benzo(g,h,i)perylene	0.0337	10400[c]	3E-06
Di-n-butlyphthalate	0.0536	39900	1E-06
Fluoranthene	0.0826	13900	6E-06
Fluorene	0.0196	13900	1E-06
Methylnaphthalene[2-]	0.0081	3170	3E-06
Phenanthrene	0.0356	12000	3E-06
Pyrene	0.0625	10400	6E-06
		HI	**0.05**

[a] SSLs from LANL (2010, 108613).
[b] SSL for chromium(VI).
[c] Pyrene SSL used as a surrogate based on structural similarity.

Table H-4.2-87
Recreational Radionuclide Screening Evaluation for AOC 02-004(f)

COPC	EPC (pCi/g)	Recreational SAL* (pCi/g)	Dose (mrem/yr)
Cobalt-60	0.11	46	0.04
Plutonium-239/240	0.046	300	0.002
Tritium	0.159	5300000	0.0000004
		Total Dose	**0.04**

* SALs from LANL (2009, 107655).

Table H-4.2-88
Dioxin/Furan Calculation for AOC 02-004(f) for the Residential Scenario

COPCs	EPC (mg/kg) (0–10 ft)	Toxic Equivalency Factor (TEF)*	Toxic Equivalency Calculation
Heptachlorodibenzodioxin[1,2,3,4,6,7,8-]	5.71E-04	0.001	5.71E-07
Hexachlorodibenzodioxin[1,2,3,4,7,8-]	1.65E-06	0.1	1.65E-07
Hexachlorodibenzodioxin[1,2,3,6,7,8-]	8.28E-06	0.1	8.28E-07
Hexachlorodibenzodioxin[1,2,3,7,8,9-]	3.68E-06	0.1	3.68E-07
Octachlorodibenzodioxin[1,2,3,4,6,7,8,9-]	0.00768	0.0003	2.30E-06
Pentachlorodibenzodioxin[1,2,3,7,8-]	6.79E-07	1	6.79E-07
Tetrachlorodibenzodioxin[2,3,7,8-]	2.30E-07	1	2.30E-07
Heptachlorodibenzofuran[1,2,3,4,6,7,8-]	7.61E-05	0.01	7.61E-07
Heptachlorodibenzofuran[1,2,3,4,7,8,9-]	5.32E-06	0.01	5.32E-08
Hexachlorodibenzofuran[1,2,3,4,7,8-]	3.00E-06	0.1	3.00E-07
Hexachlorodibenzofuran[1,2,3,6,7,8-]	1.44E-06	0.1	1.44E-07
Hexachlorodibenzofuran[1,2,3,7,8,9-]	3.85E-07	0.1	3.85E-08
Hexachlorodibenzofuran[2,3,4,6,7,8-]	1.98E-06	0.1	1.98E-07
Octachlorodibenzofuran[1,2,3,4,6,7,8,9-]	3.18E-04	0.0003	9.54E-08
Pentachlorodibenzofuran[1,2,3,7,8-]	4.39E-07	0.03	1.32E-08
Pentachlorodibenzofuran[2,3,4,7,8-]	2.59E-06	0.3	7.77E-07
Tetrachlorodibenzofuran[2,3,7,8-]	2.22E-06	0.1	2.22E-07
		2,3,7,8-TCDD Sum	**7.75E-06**

*TEFs from www.who.int/ipcs/assessment/tef_update/en/print.html.

Table H-4.2-89
Residential Carcinogenic Screening Evaluation for AOC 02-004(f)

COPC	EPC (mg/kg)	Residential SSL* (mg/kg)	Cancer Risk
Aroclor-1260	0.22	2.22	1E-06
Benzo(a)anthracene	0.0345	6.21	6E-08
Benzo(a)pyrene	0.0314	0.621	5E-07
Benzo(b)fluoranthene	0.0431	6.21	7E-08
Benzo(k)fluoranthene	0.0235	62.1	4E-09
Bis(2-ethylhexyl)phthalate	0.0374	621	2E-08
Chrysene	0.033	621	5E-10
Indeno(1,2,3-c,d)pyrene	0.631	6.21	1E-06
Methylene chloride	0.00563	199	3E-10
Naphthalene	0.0147	45	3E-09
Pentachlorophenol	0.301	29.8	1E-07
2,3,7,8-TCDD	0.00000775	0.000045	2E-06
		Total Excess Cancer Risk	**4E-06**

* SSLs from NMED (2009, 108070).

Table H-4.2-90
Residential Noncarcinogenic Screening Evaluation for AOC 02-004(f)

COPC	EPC (mg/kg)	Residential SSL[a] (mg/kg)	HQ
Antimony	0.104	31.3	3E-03
Cadmium	0.219	77.9	3E-03
Chromium	15.61	219[b]	7E-02
Chromium hexavalent	0.205	219	9E-04
Copper	17.52	3130	6E-03
Cyanide	0.232	1560	2E-04
Lead	12.6	400	3E-02
Mercury	4.995	23[c]	2E-01
Perchlorate	0.00165	54.8	3E-05
Selenium	1.048	391	3E-03
Vanadium	9.666	391	3E-02
Zinc	58.11	23500	3E-03
Acenaphthene	0.0466	3440	1E-05
Anthracene	0.0532	17200	3E-06
Aroclor-1254	0.0912	1.12	8E-02
Benzo(g,h,i)perylene	0.0597	1720[d]	4E-05
Di-n-butylphthalate	0.049	6110	8E-06
Fluoranthene	0.0508	2290	2E-05
Fluorene	0.0196	2290	8E-06
Methylnaphthalene[2-]	0.0081	310 [c]	3E-05
Phenanthrene	0.0345	1830	2E-05
Pyrene	0.0501	1720	3E-05
Toluene	0.000582	5570	1E-07
		HI	**0.4**

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

[b] SSL for chromium(VI).

[c] SSL from EPA regional tables (http://www.epa.gov/region06/6pd/rcra_c/pd-n/screen.htm).

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

Table H-4.2-91
Residential Radionuclide Screening Evaluation for AOC 02-004(f)

COPC	EPC (pCi/g)	Residential SAL* (pCi/g)	Dose (mrem/yr)
Cesium-137	0.238	5.6	0.6
Cobalt-60	0.11	1.3	1
Plutonium-239/240	0.0334	33	0.02
Strontium-90	0.716	5.7	2
Tritium	0.512	750	0.01
		Total Dose	**4**

* SALs from LANL (2009, 107655).

Table H-4.2-92
Dioxin/Furan Calculation for AOC 02-004(g) for the Industrial and Recreational Scenarios

COPCs	EPC (mg/kg) (0–1 ft)	Toxic Equivalency Factor (TEF)*	Toxic Equivalency Calculation
Heptachlorodibenzodioxin[1,2,3,4,6,7,8-]	8.62E-04	0.001	8.62E-07
Hexachlorodibenzodioxin[1,2,3,4,7,8-]	3.46E-05	0.1	3.46E-06
Hexachlorodibenzodioxin[1,2,3,6,7,8-]	2.66E-05	0.1	2.66E-06
Hexachlorodibenzodioxin[1,2,3,7,8,9-]	2.86E-05	0.1	2.86E-06
Octachlorodibenzodioxin[1,2,3,4,6,7,8,9-]	6.60E-03	0.0003	1.98E-06
Pentachlorodibenzodioxin[1,2,3,7,8-]	2.06E-05	1	2.06E-05
Tetrachlorodibenzodioxin[2,3,7,8-]	7.56E-07	1	7.56E-07
Heptachlorodibenzofuran[1,2,3,4,6,7,8-]	3.38E-04	0.01	3.38E-06
Heptachlorodibenzofuran[1,2,3,4,7,8,9-]	2.95E-05	0.01	2.95E-07
Hexachlorodibenzofuran[1,2,3,4,7,8-]	3.02E-05	0.1	3.02E-06
Hexachlorodibenzofuran[1,2,3,6,7,8-]	2.60E-05	0.1	2.60E-06
Hexachlorodibenzofuran[1,2,3,7,8,9-]	8.19E-06	0.1	8.19E-07
Hexachlorodibenzofuran[2,3,4,6,7,8-]	3.03E-05	0.1	3.03E-06
Octachlorodibenzofuran[1,2,3,4,6,7,8,9-]	5.75E-04	0.0003	1.73E-07
Pentachlorodibenzofuran[1,2,3,7,8-]	4.03E-06	0.03	1.21E-07
Pentachlorodibenzofuran[2,3,4,7,8-]	5.51E-06	0.3	1.65E-06
Tetrachlorodibenzofuran[2,3,7,8-]	1.43E-06	0.1	1.43E-07
		2,3,7,8-TCDD Sum	**4.84E-05**

*TEFs from www.who.int/ipcs/assessment/tef_update/en/print.html.

Table H-4.2-93
Industrial Carcinogenic Screening Evaluation for AOC 02-004(g)

COPC	EPC (mg/kg)	Industrial SSL* (mg/kg)	Excess Cancer Risk
Aroclor-1254	0.0295	8.26	4E-08
Aroclor-1260	0.0199	8.26	2E-08
Benzo(a)anthracene	0.119	23.4	5E-08
Benzo(a)pyrene	0.0715	2.34	3E-07
Benzo(b)fluoranthene	0.0972	23.4	4E-08
Chrysene	0.111	2340	5E-10
Indeno(1,2,3-c,d)pyrene	0.0401	23.4	2E-08
Naphthalene	0.0178	45	7E-10
2,3,7,8-TCDD	0.0000484	0.000204	2E-06
		Total Excess Cancer Risk	**3E-06**

* SSLs from NMED (2009, 108070)

Table H-4.2-94
Industrial Noncarcinogenic Screening Evaluation for AOC 02-004(g)

COPC	EPC (mg/kg)	Industrial SSL[a] (mg/kg)	HQ
Cadmium	0.321	1120	3E-04
Chromium	21.63	2920[b]	7E-03
Chromium hexavalent	0.108	2920	4E-05
Copper	10.6	45400	2E-04
Lead	34.07	800	4E-02
Mercury	0.285	310[c]	9E-04
Selenium	8.465	5680	2E-03
Zinc	57	341000	2E-04
Acenaphthene	0.0261	36700	7E-07
Anthracene	0.0356	183000	2E-07
Benzo(g,h,i)perylene	0.0552	18300[d]	3E-06
Fluoranthene	0.0993	24400	4E-06
Fluorene	0.0141	24400	6E-07
Methylnaphthalene[2-]	0.0178	4100 [c]	4E-06
Phenanthrene	0.0625	20500	3E-06
Pyrene	0.183	18300	1E-05
		HI	**0.05**

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

[b] SSL for chromium(VI).

[c] SSL from EPA regional tables (http://www.epa.gov/region06/6pd/rcra_c/pd-n/screen.htm).

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

Table H-4.2-95
Industrial Radionuclide Screening Evaluation for AOC 02-004(g)

COPC	EPC (pCi/g)	Industrial SAL* (pCi/g)	Dose (mrem/yr)
Americium-241	0.165	180	0.01
Cesium-137	2.88	23	2
Cobalt-60	0.504	5.1	1
Plutonium-239/240	0.905	210	0.06
Tritium	0.0753	440000	0.000003
		Total Dose	**3**

* SALs from LANL (2009, 107655).

Table H-4.2-96
Recreational Carcinogenic Screening Evaluation for AOC 02-004(g)

COPC	EPC (mg/kg)	Recreational SSL* (mg/kg)	Cancer Risk
Aroclor-1260	0.0199	10.5	2E-08
Benzo(a)anthracene	0.119	30.1	4E-08
Benzo(a)pyrene	0.0715	3.01	2E-07
Benzo(b)fluoranthene	0.0972	30.1	3E-08
Chrysene	0.111	3010	4E-10
Indeno(1,2,3-c,d)pyrene	0.0401	30.1	1E-08
Naphthalene	0.0178	1950	9E-11
2,3,7,8-TCDD	0.0000484	0.000319	2E-06
		Total Excess Cancer Risk	**2E-06**

* SSLs from LANL (2010, 108613).

Table H-4.2-97
Recreational Noncarcinogenic Screening Evaluation for AOC 02-004(g)

COPC	EPC (mg/kg)	Recreational SSL[a] (mg/kg)	HQ
Cadmium	0.321	784	4E-04
Chromium	21.63	1910[b]	1E-02
Chromium hexavalent	0.108	1910	6E-05
Copper	10.6	31700	3E-04
Lead	34.07	560	6E-02
Mercury	0.285	238	1E-03
Selenium	8.465	3960	2E-03
Zinc	57	238000	2E-04
Acenaphthene	0.0261	20800	1E-06
Anthracene	0.0356	104000	3E-07
Aroclor-1254	0.0295	6.65	4E-03
Benzo(g,h,i)perylene	0.0552	10400[c]	5E-06
Fluoranthene	0.0993	13900	7E-06
Fluorene	0.0141	13900	1E-06
Methylnaphthalene[2-]	0.0178	3170	5E-06
Phenanthrene	0.0625	12000	5E-06
Pyrene	0.183	10400	2E-05
		HI	**0.08**

[a] SSLs from LANL (2010, 108613).
[b] SSL for chromium(VI).
[c] Pyrene SSL used as a surrogate based on structural similarity.

Table H-4.2-98
Recreational Radionuclide Screening Evaluation for AOC 02-004(g)

COPC	EPC (pCi/g)	Recreational SAL* (pCi/g)	Dose (mrem/yr)
Americium-241	0.165	280	0.01
Cesium-137	2.88	210	0.2
Cobalt-60	0.504	46	0.2
Plutonium-239/240	0.905	300	0.05
Tritium	0.0753	5300000	0.0000002
		Total Dose	**0.5**

***** SALs from LANL (2009, 107655).

Table H-4.2-99
Dioxin/Furan Calculation for AOC 02-004(g) for the Residential Scenario

COPCs	EPC (mg/kg) (0–10 ft)	Toxic Equivalency Factor (TEF)*	Toxic Equivalency Calculation
Heptachlorodibenzodioxin[1,2,3,4,6,7,8-]	5.31E-04	0.001	5.31E-07
Hexachlorodibenzodioxin[1,2,3,4,7,8-]	3.46E-05	0.1	3.46E-06
Hexachlorodibenzodioxin[1,2,3,6,7,8-]	1.54E-05	0.1	1.54E-06
Hexachlorodibenzodioxin[1,2,3,7,8,9-]	1.67E-05	0.1	1.67E-06
Octachlorodibenzodioxin[1,2,3,4,6,7,8,9-]	5.99E-03	0.0003	1.80E-06
Pentachlorodibenzodioxin[1,2,3,7,8-]	2.06E-05	1	2.06E-05
Tetrachlorodibenzodioxin[2,3,7,8-]	7.56E-07	1	7.56E-07
Heptachlorodibenzofuran[1,2,3,4,6,7,8-]	2.06E-04	0.01	2.06E-06
Heptachlorodibenzofuran[1,2,3,4,7,8,9-]	1.84E-05	0.01	1.84E-07
Hexachlorodibenzofuran[1,2,3,4,7,8-]	1.08E-05	0.1	1.08E-06
Hexachlorodibenzofuran[1,2,3,6,7,8-]	9.20E-06	0.1	9.20E-07
Hexachlorodibenzofuran[1,2,3,7,8,9-]	8.19E-06	0.1	8.19E-07
Hexachlorodibenzofuran[2,3,4,6,7,8-]	1.10E-05	0.1	1.10E-06
Octachlorodibenzofuran[1,2,3,4,6,7,8,9-]	2.59E-04	0.0003	7.76E-08
Pentachlorodibenzofuran[1,2,3,7,8-]	4.03E-06	0.03	1.21E-07
Pentachlorodibenzofuran[2,3,4,7,8-]	3.57E-06	0.3	1.07E-06
Tetrachlorodibenzofuran[2,3,7,8-]	9.29E-07	0.1	9.29E-08
		2,3,7,8-TCDD Sum	**3.79E-05**

*TEFs from www.who.int/ipcs/assessment/tef_update/en/print.html.

Table H-4.2-100
Residential Carcinogenic Screening Evaluation for AOC 02-004(g)

COPC	EPC (mg/kg)	Residential SSL* (mg/kg)	Cancer Risk
Aroclor-1260	0.0125	2.22	6E-08
Benzo(a)anthracene	0.119	6.21	2E-07
Benzo(a)pyrene	0.05	0.621	8E-07
Benzo(b)fluoranthene	0.0689	6.21	1E-07
Chloroform	0.000313	5.72	5E-10
Chrysene	0.111	621	2E-09
Indeno(1,2,3-c,d)pyrene	0.0401	6.21	6E-08
Methylene chloride	0.00254	199	1E-10
Naphthalene	0.0178	45	4E-09
2,3,7,8-TCDD	0.0000379	0.000045	8E-06
Tetrachloroethene	0.000302	6.99	4E-10
Trichloroethene	0.000884	45.67	2E-10
		Total Excess Cancer Risk	**1E-05**

* SSLs from NMED (2009, 108070).

Table H-4.2-101
Residential Noncarcinogenic Screening Evaluation for AOC 02-004(g)

COPC	EPC (mg/kg)	Residential SSL[a] (mg/kg)	HQ
Antimony	0.112	31.3	4E-03
Cadmium	0.208	77.9	3E-03
Chromium	24.2	219[b]	1E-01
Chromium hexavalent	0.145	219	7E-04
Copper	12.1	3130	4E-03
Lead	21.65	400	5E-02
Mercury	0.311	23[c]	1E-02
Perchlorate	0.000966	54.8	2E-05
Selenium	4.753	391	1E-02
Zinc	45.06	23500	2E-03
Acenaphthene	0.0261	3440	8E-06
Anthracene	0.00356	17200	2E-07
Aroclor-1254	0.0183	1.12	2E-02
Benzo(g,h,i)perylene	0.0552	1720[d]	3E-05
Di-n-butylphthalate	0.0641	6110	1E-05
Fluoranthene	0.0684	2290	3E-05
Fluorene	0.0141	2290	6E-06
Methylnaphthalene[2-]	0.0178	310 [c]	5E-05
Phenanthrene	0.0449	1830	2E-05
Pyrene	0.0731	1720	4E-05
Toluene	0.00336	5570	6E-07
		HI	**0.2**

[a] SSLs from NMED (2009, 108070), unless otherwise noted.
[b] SSL for chromium(VI).
[c] SSL from EPA regional tables (http://www.epa.gov/region06/6pd/rcra_c/pd-n/screen.htm).
[d] Pyrene SSL used as a surrogate based on structural similarity.

Table H-4.2-102
Residential Radionuclide Screening Evaluation for AOC 02-004(g)

COPC	EPC (pCi/g)	Residential SAL* (pCi/g)	Dose (mrem/yr)
Americium-241	0.165	30	0.08
Cesium-137	2.88	5.6	8
Cobalt-60	0.504	1.3	6
Plutonium-239/240	0.488	33	0.2
Strontium-90	0.965	5.7	3
Tritium	0.0323	750	0.0007
		Total Dose	**17**

* SALs from LANL (2009, 107655).

Table H-4.2-103
Industrial Carcinogenic Screening Evaluation for SWMU 02-005

COPC	EPC (mg/kg)	Industrial SSL* (mg/kg)	Excess Cancer Risk
Aroclor-1242	0.0062	8.26	8E-09
Aroclor-1254	0.0403	8.26	5E-08
Aroclor-1260	0.486	8.26	6E-07
Benzo(b)fluoranthene	0.0182	23.4	8E-09
		Total Excess Cancer Risk	**7E-07**

* SSLs from NMED (2009, 108070).

Table H-4.2-104
Industrial Noncarcinogenic Screening Evaluation for SWMU 02-005

COPC	EPC (mg/kg)	Industrial SSL* (mg/kg)	HQ
Antimony	0.169	454	4E-04
Cadmium	0.318	1120	3E-04
Chromium hexavalent	0.768	2920	3E-04
Copper	10.75	45400	2E-04
Perchlorate	0.000946	795	1E-06
Selenium	4.562	5680	8E-04
Zinc	60.17	341000	2E-04
Fluoranthene	0.0232	24400	1E-06
Phenanthrene	0.0149	20500	7E-07
Pyrene	0.0283	18300	2E-06
		HI	**0.002**

* SSLs from NMED (2009, 108070).

Table H-4.2-105
Industrial Radionuclide Screening Evaluation for SWMU 02-005

COPC	EPC (pCi/g)	Industrial SAL* (pCi/g)	Dose (mrem/yr)
Americium-241	0.0304	180	0.003
Cesium-137	0.434	23	0.3
Plutonium-239/240	0.508	210	0.04
Tritium	0.251	440000	0.000009
		Total Dose	**0.3**

* SALs from LANL (2009, 107655).

Table H-4.2-106
Recreational Carcinogenic Screening Evaluation for SWMU 02-005

COPC	EPC (mg/kg)	Recreational SSL* (mg/kg)	Cancer Risk
Aroclor-1242	0.0062	10.5	6E-09
Aroclor-1260	0.486	10.5	5E-07
Benzo(b)fluoranthene	0.0182	30.1	6E-09
		Total Excess Cancer Risk	**5E-07**

* SSLs from LANL (2010, 108613).

Table H-4.2-107
Recreational Noncarcinogenic Screening Evaluation for SWMU 02-005

COPC	EPC (mg/kg)	Recreational SSL* (mg/kg)	HQ
Antimony	0.169	317	5E-04
Cadmium	0.318	784	4E-04
Chromium hexavalent	0.768	1910	4E-04
Copper	10.75	31700	3E-04
Perchlorate	0.000946	555	2E-06
Selenium	4.562	3960	1E-03
Zinc	60.17	238000	2E-04
Aroclor-1254	0.0403	6.65	6E-03
Fluoranthene	0.0232	13900	2E-06
Phenanthrene	0.0149	12000	1E-06
Pyrene	0.0283	10400	3E-06
		HI	**0.01**

* SSLs from LANL (2010, 108613).

Table H-4.2-108
Recreational Radionuclide Screening Evaluation for SWMU 02-005

COPC	EPC (pCi/g)	Recreational SAL* (pCi/g)	Dose (mrem/yr)
Americium-241	0.0304	280	0.002
Cesium-137	0.434	210	0.03
Plutonium-239/240	0.508	300	0.03
Tritium	0.251	5300000	0.0000007
		Total Dose	**0.06**

* SALs from LANL (2009, 107655).

Table H-4.2-109
Residential Carcinogenic Screening Evaluation for SWMU 02-005

COPC	EPC (mg/kg)	Residential SSL* (mg/kg)	Cancer Risk
Arsenic	1.922	3.9	5E-06
Aroclor-1242	0.0062	2.22	3E-08
Aroclor-1260	1.089	2.22	5E-06
Benzo(b)fluoranthene	0.0182	6.21	3E-08
		Total Excess Cancer Risk	**1E-05**

* SSLs from NMED (2009, 108070).

Table H-4.2-110
Residential Noncarcinogenic Screening Evaluation for SWMU 02-005

COPC	EPC (mg/kg)	Residential SSL[a] (mg/kg)	HQ
Antimony	0.169	31.3	5E-03
Cadmium	0.284	77.9	4E-03
Chromium	3.91	219[b]	2E-02
Chromium hexavalent	0.32	219	2E-03
Copper	7.068	3130	2E-03
Iron	7733	54800	1E-01
Manganese	287.8	10700	3E-02
Nickel	2.611	1560	2E-03
Perchlorate	0.00106	54.8	2E-05
Selenium	3.891	391	1E-02
Zinc	51.85	23500	2E-03
Aroclor-1254	0.038	1.12	3E-02
Fluoranthene	0.0232	2290	1E-05
Phenanthrene	0.0149	1830	8E-06
Pyrene	0.0283	1720	2E-05
Toluene	0.000142	5570	3E-07
		HI	**0.2**

[a] SSLs from NMED (2009, 108070).

[b] SSL for chromium(VI).

Table H-4.2-111
Residential Radionuclide Screening Evaluation for SWMU 02-005

COPC	EPC (pCi/g)	Residential SAL* (pCi/g)	Dose (mrem/yr)
Americium-241	0.139	30	0.07
Cesium-137	0.335	5.6	0.9
Plutonium-238	0.0138	37	0.01
Plutonium-239/240	0.908	33	0.4
Tritium	0.0243	750	0.0005
		Total Dose	**1**

* SALs from LANL (2009, 107655).

Table H-4.2-112
Industrial Carcinogenic Screening Evaluation for SWMU 02-006(a)

COPC	EPC (mg/kg)	Industrial SSL* (mg/kg)	Excess Cancer Risk
Arsenic	2.904	17.7	2E-06
Aroclor-1254	0.00409	8.26	5E-09
Aroclor-1260	0.0028	8.26	3E-09
		Total Excess Cancer Risk	**2E-06**

* SSLs from NMED (2009, 108070).

Table H-4.2-113
Industrial Noncarcinogenic Screening Evaluation for SWMU 02-006(a)

COPC	EPC (mg/kg)	Industrial SSL[a] (mg/kg)	HQ
Antimony	0.54	454	1E-03
Barium	104.9	224000	5E-04
Chromium	8.703	2920[b]	3E-03
Chromium hexavalent	0.0581	2920	2E-05
Copper	5.247	45400	1E-04
Cyanide	0.298	22700	1E-05
Lead	17.61	800	2E-02
Nickel	6.69	22700	3E-04
Perchlorate	0.00159	795	2E-06
Selenium	9.467	5680	2E-03
		HI	**0.03**

[a] SSLs from NMED (2009, 108070).

[b] SSL for chromium(VI).

Table H-4.2-114
Industrial Radionuclide Screening Evaluation for SWMU 02-006(a)

COPC	EPC (pCi/g)	Industrial SAL* (pCi/g)	Dose (mrem/yr)
Cesium-137	8.594	23	6
Plutonium-239/240	0.0626	210	0.004
Strontium-90	2.69	1900	0.02
Tritium	0.502	440000	0.00002
		Total Dose	**6**

* SALs from LANL (2009, 107655).

Table H-4.2-115
Recreational Carcinogenic Screening Evaluation for SWMU 02-006(a)

COPC	EPC (mg/kg)	Recreational SSL* (mg/kg)	Cancer Risk
Arsenic	2.904	27.7	1E-06
Aroclor-1260	0.0028	10.5	3E-09
		Total Excess Cancer Risk	**1E-06**

* SSLs from LANL (2010, 108613).

Table H-4.2-116
Recreational Noncarcinogenic Screening Evaluation for SWMU 02-006(a)

COPC	EPC (mg/kg)	Recreational **SSL**[a] (mg/kg)	HQ
Antimony	0.54	317	2E-03
Barium	104.9	158000	7E-04
Chromium	8.703	1910[b]	5E-03
Chromium hexavalent	0.0581	1910	3E-05
Copper	5.247	31700	2E-04
Cyanide	0.298	15800	2E-05
Lead	17.61	560	3E-02
Nickel	6.69	15800	4E-04
Perchlorate	0.00159	555	3E-06
Selenium	9.467	3960	2E-03
Aroclor-1254	0.00409	6.65	6E-04
		HI	**0.04**

[a] SSLs from LANL (2010, 108613).

[b] SSL for chromium(VI).

Table H-4.2-117
Recreational Radionuclide Screening Evaluation for SWMU 02-006(a)

COPC	EPC (pCi/g)	Recreational SAL* (pCi/g)	Dose (mrem/yr)
Cesium-137	8.594	210	0.6
Plutonium-239/240	0.0626	300	0.003
Strontium-90	2.69	5600	0.01
Tritium	0.502	5300000	0.000001
		Total Dose	**0.6**

* SALs from LANL (2009, 107655).

Table H-4.2-118
Residential Carcinogenic Screening Evaluation for SWMU 02-006(a)

COPC	EPC (mg/kg)	Residential SSL* (mg/kg)	Cancer Risk
Arsenic	2.339	3.9	6E-06
Aroclor-1242	0.0043	2.22	2E-08
Aroclor-1260	0.0028	2.22	1E-08
1,4-Dichlorobenzene	0.000215	32.2	7E-11
Trichloroethene	0.000313	45.7	7E-11
		Total Excess Cancer Risk	**6E-06**

* SSLs from NMED (2009, 108070), unless otherwise noted.

Table H-4.2-119
Residential Noncarcinogenic Screening Evaluation for SWMU 02-006(a)

COPC	EPC (mg/kg)	Residential SSL[a] (mg/kg)	HQ
Antimony	0.407	31.3	1E-02
Barium	72.22	15600	5E-03
Chromium	6.932	219[b]	3E-02
Chromium hexavalent	0.0523	219	2E-04
Copper	4.052	3130	1E-03
Cyanide	0.346	1560	2E-04
Lead	17.16	400	4E-02
Nickel	5.098	1560	3E-03
Perchlorate	0.0027	54.8	5E-05
Selenium	6.981	391	2E-02
Aroclor-1254	0.00285	1.12	2E-03
Toluene	0.000328	5570	6E-08
		HI	**0.1**

[a] SSLs from NMED (2009, 108070).

[b] SSL for chromium(VI).

Table H-4.2-120
Residential Radionuclide Screening Evaluation for SWMU 02-006(a)

COPC	EPC (pCi/g)	Residential SAL* (pCi/g)	Dose (mrem/yr)
Cesium-137	5.22	5.6	14
Plutonium-239/240	0.0626	33	0.03
Strontium-90	0.272	5.7	0.7
Tritium	11.74	750	0.2
Uranium-235/236	0.0571	17	0.05
		Total Dose	**15**

* SALs from LANL (2009, 107655).

Table H-4.2-121
Industrial Carcinogenic Screening Evaluation for SWMU 02-006(b)

COPC	EPC (mg/kg)	Industrial SSL* (mg/kg)	Excess Cancer Risk
Aroclor-1254	0.0782	8.26	9E-08
Aroclor-1260	0.27	8.26	3E-07
Benzo(a)anthracene	0.503	23.4	2E-07
Benzo(a)pyrene	0.869	2.34	4E-06
Benzo(b)fluoranthene	1.133	23.4	5E-07
Benzo(k)fluoranthene	0.0932	234	4E-09
Chrysene	0.523	2340	2E-09
Indeno(1,2,3-c,d)pyrene	0.324	23.4	1E-07
Naphthalene	0.23	45	9E-09
		Total Excess Cancer Risk	**5E-06**

* SSLs from NMED (2009, 108070).

Table H-4.2-122
Industrial Noncarcinogenic Screening Evaluation for SWMU 02-006(b)

COPC	EPC (mg/kg)	Industrial SSL[a] (mg/kg)	HQ
Cadmium	0.64	1120	6E-04
Lead	15.04	800	2E-02
Mercury	1.51	310[b]	5E-03
Perchlorate	0.00135	795	2E-06
Selenium	0.911	5680	2E-04
Silver	0.629	5680	1E-04
Zinc	66.06	341000	2E-04
Acenaphthene	0.191	36700	5E-06
Anthracene	0.48	183000	3E-06
Benzo(g,h,i)perylene	0.235	18300[c]	1E-05
Dibenzofuran	0.231	1000[b]	2E-04
Diethylphthalate	0.37	547000	7E-07
Di-n-butylphthalate	0.356	68400	5E-06
Fluoranthene	1.028	24400	4E-05
Fluorene	0.161	24400	7E-06
Methylnaphthalene[2-]	0.0994	4100 [c]	2E-05
Phenanthrene	1.329	20500	6E-05
Pyrene	1.146	18300	6E-05
		HI	**0.03**

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

[b] SSL from EPA regional tables (http://www.epa.gov/region06/6pd/rcra_c/pd-n/screen.htm).

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

Table H-4.2-123
Industrial TPH Screening Evaluation for SWMU 02-006(b)

COPC	EPC (mg/kg)	Industrial* (mg/kg)	HQ
TPH-DRO	66.7	1120	0.06
		HI	**0.06**

* Screening guideline for diesel No. 2 from NMED (2006, 094614).

Table H-4.2-124
Industrial Radionuclide Screening Evaluation for SWMU 02-006(b)

COPC	EPC (pCi/g)	Industrial SAL* (pCi/g)	Dose (mrem/yr)
Plutonium-239/240	2.11	210	0.2
Tritium	0.0623	440000	0.000002
Uranium-234	3.102	1500	0.03
Uranium-235/236	0.134	87	0.02
		Total Dose	**0.3**

* SALs from LANL (2009, 107655).

Table H-4.2-125
Recreational Carcinogenic Screening Evaluation for SWMU 02-006(b)

COPC	EPC (mg/kg)	Recreational SSL* (mg/kg)	Cancer Risk
Aroclor-1260	0.27	10.5	3E-07
Benzo(a)anthracene	0.503	30.1	2E-07
Benzo(a)pyrene	0.869	3.01	3E-06
Benzo(b)fluoranthene	1.133	30.1	4E-07
Benzo(k)fluoranthene	0.0932	301	3E-09
Chrysene	0.523	3010	2E-09
Indeno(1,2,3-c,d)pyrene	0.324	30.1	1E-07
Naphthalene	0.23	1950	1E-09
		Total Excess Cancer Risk	**4E-06**

* SSLs from LANL (2010, 108613).

Table H-4.2-126
Recreational Noncarcinogenic Screening Evaluation for SWMU 02-006(b)

COPC	EPC (mg/kg)	Recreational SSL[a] (mg/kg)	HQ
Cadmium	0.64	784	8E-04
Lead	15.04	560	3E-02
Mercury	1.51	238	6E-03
Perchlorate	0.00135	555	2E-06
Selenium	0.911	3960	2E-04
Silver	0.629	3960	2E-04
Zinc	66.06	238000	3E-04
Acenaphthene	0.191	20800	9E-06
Anthracene	0.48	104000	5E-06
Aroclor-1254	0.0782	6.65	1E-02
Benzo(g,h,i)perylene	0.235	10400[b]	2E-05
Dibenzofuran	0.231	399	6E-04
Diethylphthalate	0.37	319000	1E-06
Di-n-butylphthalate	0.356	39900	9E-06
Fluoranthene	1.028	13900	7E-05
Fluorene	0.161	13900	1E-05
Methylnaphthalene[2-]	0.0994	3170	3E-05
Phenanthrene	1.329	12000	1E-04
Pyrene	1.146	10400	1E-04
		HI	**0.05**

[a] SSLs from LANL (2010, 108613).
[b] Pyrene SSL used as a surrogate based on structural similarity.

Table H-4.2-127
Recreational Radionuclide Screening Evaluation for SWMU 02-006(b)

COPC	EPC (pCi/g)	Recreational SAL* (pCi/g)	Dose (mrem/yr)
Plutonium-239/240	2.11	300	0.1
Tritium	0.0623	5300000	0.0000002
Uranium-234	3.102	3200	0.01
Uranium-235/236	0.134	520	0.004
		Total Dose	**0.1**

* SALs from LANL (2009, 107655).

Table H-4.2-128
Residential Carcinogenic Screening Evaluation for SWMU 02-006(b)

COPC	EPC (mg/kg)	Residential SSL* (mg/kg)	Cancer Risk
Arsenic	2.026	3.9	5E-06
Aroclor-1260	0.166	2.22	7E-07
Benzo(a)anthracene	0.285	6.21	5E-07
Benzo(a)pyrene	0.335	0.621	5E-06
Benzo(b)fluoranthene	0.413	6.21	7E-07
Benzo(k)fluoranthene	0.101	62.1	2E-08
Bis(2-ethylhexyl)phthalate	0.109	347	3E-09
Chrysene	0.288	621	5E-09
Dibenz(a,h)anthracene	0.194	0.621	3E-06
Ethylbenzene	0.000276	69.7	4E-11
Indeno(1,2,3-c,d)pyrene	0.148	6.21	2E-07
Methylene chloride	0.00265	199	1E-10
Naphthalene	0.15	45	3E-08
Trichloroethene	0.000265	45.7	6E-11
		Total Excess Cancer Risk	**2E-05**

* SSLs from NMED (2009, 108070).

Table H-4.2-129
Residential Noncarcinogenic Screening Evaluation for SWMU 02-006(b)

COPC	EPC (mg/kg)	Residential SSL[a] (mg/kg)	HQ
Aluminum	4001	78100	5E-02
Barium	46.75	15600	3E-03
Cadmium	0.383	77.9	5E-03
Chromium	10.51	219[b]	5E-02
Chromium hexavalent	0.158	219	7E-04
Iron	8743	54800	2E-01
Lead	420.1	400	1.1
Manganese	286.8	10700	3E-02
Mercury	0.976	23[c]	4E-02
Nickel	3.236	1560	2E-03
Nitrate	3.855	125000	3E-05
Perchlorate	0.00164	54.8	3E-05
Selenium	1.042	391	3E-03
Silver	0.203	391	5E-04
Vanadium	10.42	391	3E-02

Table H-4.2-129 (continued)

COPC	EPC (mg/kg)	Residential SSL[a] (mg/kg)	HQ
Zinc	47.82	23500	2E-03
Acenaphthene	0.111	3440	3E-05
Acetone	0.00434	67500	6E-08
Anthracene	0.177	17200	1E-05
Aroclor-1254	0.0248	1.12	2E-02
Benzo(g,h,i)perylene	0.144	1720[d]	8E-05
Dibenzofuran	0.204	78[c]	3E-03
Diethylphthalate	0.37	48900	8E-06
Di-n-butylphthalate	0.1	6110	2E-05
Fluoranthene	0.583	2290	2E-04
Fluorene	0.0994	2290	4E-05
Isopropyltoluene[4-]	0.0005	3210[e]	2E-07
Methylnaphthalene[2-]	0.0663	310[c]	2E-04
Methyl-2-pentanone[4-]	0.01	5950	2E-06
Phenanthrene	0.533	1830	3E-04
Pyrene	0.611	1720	4E-04
Stryene	0.00023	8970	3E-08
Toluene	0.000433	5570	8E-08
1,2,4-Trimethylbenzene	0.000494	62[c]	8E-06
1,3,5-Trimethylbenzene	0.000234	780[c]	3E-07
Xylene[1,2-]	0.000493	9550	5E-08
Xylene[1,3-]+ Xylene[1,4-]	0.000469	1090[f]	4E-06
		HI	**2**

[a] SSLs from NMED (2009, 108070), unless otherwise noted.
[b] SSL for chromium(VI).
[c] SSL from EPA regional tables (http://www.epa.gov/region06/6pd/rcra_c/pd-n/screen.htm).
[d] Pyrene SSL used as a surrogate based on structural similarity.
[e] Isopropylbenzene SSL used as a surrogate based on structural similarity.
[f] Xylenes SSL used as a surrogate based on structural similarity.

Table H-4.2-130
Residential TPH Screening Evaluation for SWMU 02-006(b)

COPC	EPC (mg/kg)	Residential* (mg/kg)	HQ
TPH-DRO	31.45	520	0.06
		HI	**0.06**

* Screening guideline for diesel No. 2 from NMED (2006, 094614).

Table H-4.2-131
Residential Radionuclide Screening Evaluation for SWMU 02-006(b)

COPC	EPC (pCi/g)	Residential SAL* (pCi/g)	Dose (mrem/yr)
Cesium-137	0.44	5.6	1
Plutonium-239/240	0.215	33	0.1
Strontium-90	0.264	5.7	0.7
Tritium	0.223	750	0.004
Uranium-234	1.46	170	0.1
Uranium-235/236	0.108	17	0.1
		Total Dose	**2**

* SALs from LANL (2009, 107655).

Table H-4.2-132
Industrial Carcinogenic Screening Evaluation for AOC 02-006(c)

COPC	EPC (mg/kg)	Industrial SSL* (mg/kg)	Excess Cancer Risk
Aroclor-1254	0.118	8.26	1E-07
Aroclor-1260	0.169	8.26	2E-07
Benzo(a)anthracene	0.213	23.4	9E-08
Benzo(a)pyrene	0.238	2.34	1E-06
Benzo(b)fluoranthene	0.365	23.4	2E-07
Benzo(k)fluoranthene	0.0428	234	2E-09
Chrysene	0.226	2340	1E-09
Indeno(1,2,3-c,d)pyrene	0.132	23.4	6E-08
Naphthalene	0.054	45	2E-09
		Total Excess Cancer Risk	**2E-06**

* SSLs from NMED (2009, 108070).

Table H-4.2-133
Industrial Noncarcinogenic Screening Evaluation for AOC 02-006(c)

COPC	EPC (mg/kg)	Industrial SSL[a] (mg/kg)	HQ
Cadmium	0.37	1120	3E-04
Chromium hexavalent	0.0733	2920	2E-05
Mercury	1.36	310[b]	4E-03
Perchlorate	0.002427	795	3E-06
Selenium	1.12	5680	2E-04
Zinc	59.7	341000	2E-04
Acenaphthene	0.0566	36700	2E-06
Anthracene	0.0992	183000	5E-07
Benzo(g,h,i)perylene	0.142	18300[c]	8E-06
Fluoranthene	0.398	24400	2E-05
Fluorene	0.0482	24400	2E-06
Methylnaphthalene[2-]	0.0259	4100 [b]	6E-06
Phenanthrene	0.333	20500	2E-05
Pyrene	0.557	18300	3E-05
		HI	**0.01**

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

[b] SSL from EPA regional tables (http://www.epa.gov/region06/6pd/rcra_c/pd-n/screen.htm).

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

Table H-4.2-134
Industrial TPH Screening Evaluation for AOC 02-006(c)

COPC	EPC (mg/kg)	Industrial* (mg/kg)	HQ
TPH-DRO	13.9	1120	0.01
		HI	**0.01**

* Screening guideline for diesel No. 2 from NMED (2006, 094614).

Table H-4.2-135
Industrial Radionuclide Screening Evaluation for AOC 02-006(c)

COPC	EPC (pCi/g)	Industrial SAL* (pCi/g)	Dose (mrem/yr)
Cesium-137	16.9	23	11
Plutonium-239/240	0.112	210	0.01
Strontium-90	3.86	1900	0.031
Tritium	0.0162	440000	0.0000006
		Total Dose	**11**

* SALs from LANL (2009, 107655).

Table H-4.2-136
Recreational Carcinogenic Screening Evaluation for AOC 02-006(c)

COPC	EPC (mg/kg)	Recreational SSL* (mg/kg)	Cancer Risk
Aroclor-1260	0.169	10.5	2E-07
Benzo(a)anthracene	0.213	30.1	7E-08
Benzo(a)pyrene	0.238	3.01	8E-07
Benzo(b)fluoranthene	0.365	30.1	1E-07
Benzo(k)fluoranthene	0.0428	301	1E-09
Chrysene	0.226	3010	8E-10
Indeno(1,2,3-c,d)pyrene	0.132	30.1	4E-08
Naphthalene	0.054	1950	3E-10
		Total Excess Cancer Risk	**1E-06**

* SSLs from LANL (2010, 108613).

Table H-4.2-137
Recreational Noncarcinogenic Screening Evaluation for AOC 02-006(c)

COPC	EPC (mg/kg)	Recreational SSL[a] (mg/kg)	HQ
Cadmium	0.37	784	5E-04
Chromium hexavalent	0.0733	1910	4E-05
Mercury	1.36	238	6E-03
Perchlorate	0.002427	555	4E-06
Selenium	1.12	3960	3E-04
Zinc	59.7	238000	2E-04
Acenaphthene	0.0566	20800	3E-06
Anthracene	0.0992	104000	1E-06
Aroclor-1254	0.118	6.65	2E-02
Benzo(g,h,i)perylene	0.142	10400[b]	1E-05
Fluoranthene	0.398	13900	3E-05
Fluorene	0.0482	13900	4E-06
Methylnaphthalene[2-]	0.0259	3170	8E-06
Phenanthrene	0.333	12000	3E-05
Pyrene	0.557	10400	5E-05
		HI	**0.02**

[a] SSLs from LANL (2010, 108613).

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

Table H-4.2-138
Recreational Radionuclide Screening Evaluation for AOC 02-006(c)

COPC	EPC (pCi/g)	Recreational SAL* (pCi/g)	Dose (mrem/yr)
Cesium-137	16.9	210	1
Plutonium-239/240	0.112	300	0.01
Strontium-90	3.86	5600	0.01
Tritium	0.0162	5300000	0.00000005
		Total Dose	**1**

* SALs from LANL (2009, 107655).

Table H-4.2-139
Residential Carcinogenic Screening Evaluation for AOC 02-006(c)

COPC	EPC (mg/kg)	Residential SSL* (mg/kg)	Cancer Risk
Aroclor-1242	0.0128	2.22	6E-08
Aroclor-1260	0.0429	2.22	2E-07
Benzo(a)anthracene	0.0869	6.21	1E-07
Benzo(a)pyrene	0.0784	0.621	1E-06
Benzo(b)fluoranthene	0.132	6.21	2E-07
Benzo(k)fluoranthene	0.0489	62.1	8E-09
Chrysene	0.0884	621	1E-09
Indeno(1,2,3-c,d)pyrene	0.132	6.21	2E-07
Naphthalene	0.0321	45	7E-09
		Total Excess Cancer Risk	**2E-06**

* SSLs from NMED (2009, 108070).

Table H-4.2-140
Residential Noncarcinogenic Screening Evaluation for AOC 02-006(c)

COPC	EPC (mg/kg)	Residential SSL[a] (mg/kg)	HQ
Antimony	1.09(U)	31.3	4E-02
Cadmium	0.283	77.9	4E-03
Chromium	17.58	219[b]	8E-02
Chromium hexavalent	0.129	219	6E-04
Lead	14.72	400	4E-02
Mercury	0.607	23[c]	3E-02
Perchlorate	0.00242	54.8	4E-05
Selenium	1.18	391	3E-03
Zinc	48.1	23500	2E-03
Acenaphthene	0.0566	3440	2E-05
Anthracene	0.0412	17200	2E-06
Aroclor-1254	0.118	1.12	1E-01
Benzo(g,h,i)perylene	0.0555	1720[d]	3E-05
Di-n-butylphthalate	0.0522	6110	8E-06
Fluoranthene	0.142	2290	6E-05
Fluorene	0.0482	2290	2E-05
Methylnaphthalene[2-]	0.0238	310 [c]	8E-05
Phenanthrene	0.111	1830	6E-05
Pyrene	0.162	1720	9E-05
Toluene	0.00037	5570	7E-08
		HI	**0.3**

[a] SSLs from NMED (2009, 108070), unless otherwise noted.
[b] SSL for chromium(VI).
[c] SSL from EPA regional tables (http://www.epa.gov/region06/6pd/rcra_c/pd-n/screen.htm).
[d] Pyrene SSL used as a surrogate based on structural similarity.

Table H-4.2-141
Residential TPH Screening Evaluation for AOC 02-006(c)

COPC	EPC (mg/kg)	Residential* (mg/kg)	HQ
TPH-DRO	537	520	1
		HI	**1**

* Screening guideline for diesel No. 2 from NMED (2006, 094614).

Table H-4.2-142
Residential Radionuclide Screening Evaluation for AOC 02-006(c)

COPC	EPC (pCi/g)	Residential SAL* (pCi/g)	Dose (mrem/yr)
Cesium-137	4.923	5.6	13
Plutonium-239/240	0.112	33	0.05
Strontium-90	3.86	5.7	10
Tritium	0.128	750	0.003
		Total Dose	**23**

* SALs from LANL (2009, 107655).

Table H-4.2-143
Industrial Carcinogenic Screening Evaluation for AOC 02-006(e)

COPC	EPC (mg/kg)	Industrial SSL* (mg/kg)	Excess Cancer Risk
Aroclor-1242	0.06272	8.26	8E-07
Aroclor-1248	0.408	8.26	5E-07
Aroclor-1254	0.358	8.26	4E-07
Aroclor-1260	0.0618	8.26	7E-08
Benzo(a)anthracene	0.314	23.4	1E-07
Benzo(a)pyrene	0.269	2.34	1E-06
Benzo(b)fluoranthene	0.766	23.4	3E-07
Benzo(k)fluoranthene	0.56	234	2E-08
Bis(2-ethylhexyl)phthalate	0.0822	2340	6E-10
Chrysene	0.552	2340	2E-09
Indeno(1,2,3-c,d)pyrene	0.185	23.4	8E-08
Naphthalene	1.7	45	7E-08
		Total Excess Cancer Risk	**3E-06**

* SSLs from NMED (2009, 108070).

Table H-4.2-144
Industrial Noncarcinogenic Screening Evaluation for AOC 02-006(e)

COPC	EPC (mg/kg)	Industrial SSL[a] (mg/kg)	HQ
Cadmium	0.258	1120	2E-04
Chromium	24.72	2920[b]	8E-03
Chromium hexavalent	0.117	2920	4E-05
Lead	53.38	800	7E-02
Mercury	2.496	310[c]	8E-03
Perchlorate	0.000772	795	1E-06
Selenium	1.147	5680	2E-04
Silver	0.655	5680	1E-04
Zinc	163.9	341000	5E-04
Acenaphthene	0.24	36700	7E-06
Anthracene	0.237	183000	1E-06
Benzo(g,h,i)perylene	0.203	18300[d]	1E-05
Dibenzofuran	0.165	1000[c]	2E-04
Fluoranthene	0.767	24400	3E-05
Fluorene	0.233	24400	1E-05
Methylnaphthalene[2-]	0.153	4100[c]	4E-05
Phenanthrene	0.727	20500	4E-05
Pyrene	0.962	18300	5E-05
		HI	**0.08**

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

[b] SSL for chromium(VI).

[c] SSL from EPA regional tables (http://www.epa.gov/region06/6pd/rcra_c/pd-n/screen.htm).

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

Table H-4.2-145
Industrial Radionuclide Screening Evaluation for AOC 02-006(e)

COPC	EPC (pCi/g)	Industrial SAL* (pCi/g)	Dose (mrem/yr)
Cesium-137	1.034	23	0.7
Cobalt-60	0.116	5.1	0.3
Plutonium-239/240	0.918	210	0.07
Tritium	0.103	440000	0.000004
		Total Dose	**1**

* SALs from LANL (2009, 107655).

Table H-4.2-146
Recreational Carcinogenic Screening Evaluation for AOC 02-006(e)

COPC	EPC (mg/kg)	Recreational SSL* (mg/kg)	Cancer Risk
Aroclor-1242	0.06272	10.5	6E-08
Aroclor-1248	0.408	10.5	4E-07
Aroclor-1260	0.0618	10.5	6E-08
Benzo(a)anthracene	0.314	30.1	1E-07
Benzo(a)pyrene	0.269	3.01	9E-07
Benzo(b)fluoranthene	0.766	30.1	3E-07
Benzo(k)fluoranthene	0.56	301	2E-08
Bis(2-ethylhexyl)phthalate	0.0822	1830	4E-10
Chrysene	0.552	3010	2E-09
Indeno(1,2,3-c,d)pyrene	0.185	30.1	6E-08
Naphthalene	1.7	1950	9E-09
Total Excess Cancer Risk			**2E-06**

* SSLs from LANL (2010, 108613).

Table H-4.2-147
Recreational Noncarcinogenic Screening Evaluation for AOC 02-006(e)

COPC	EPC (mg/kg)	Recreational SSL[a] (mg/kg)	HQ
Cadmium	0.258	784	3E-04
Chromium	24.72	1910[b]	1E-02
Chromium hexavalent	0.117	1910	6E-05
Lead	53.38	560	1E-01
Mercury	2.496	238	1E-02
Perchlorate	0.000772	555	1E-06
Selenium	1.147	3960	3E-04
Silver	0.655	3960	2E-04
Zinc	163.9	238000	7E-04
Acenaphthene	0.24	20800	1E-05
Anthracene	0.237	104000	2E-06
Aroclor-1254	0.358	6.65	5E-02
Benzo(g,h,i)perylene	0.203	10400[c]	2E-05
Dibenzofuran	0.165	399	4E-04
Fluoranthene	0.767	13900	6E-05
Fluorene	0.233	13900	2E-05

Table H-4.2-147 (continued)

COPC	EPC (mg/kg)	Recreational SSL[a] (mg/kg)	HQ
Methylnaphthalene[2-]	0.153	3170	5E-05
Phenanthrene	0.727	12000	6E-05
Pyrene	0.962	10400	9E-05
		HI	**0.2**

[a] SSLs from LANL (2010, 108613).

[b] SSL for chromium(VI).

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

Table H-4.2-148
Recreational Radionuclide Screening Evaluation for AOC 02-006(e)

COPC	EPC (pCi/g)	Recreational SAL* (pCi/g)	Dose (mrem/yr)
Cesium-137	1.034	210	0.07
Cobalt-60	0.116	46	0.04
Plutonium-239/240	0.918	300	0.05
Tritium	0.103	5300000	0.0000003
		Total Dose	**0.2**

* SALs from LANL (2009, 107655).

Table H-4.2-149
Residential Carcinogenic Screening Evaluation for AOC 02-006(e)

COPC	EPC (mg/kg)	Residential SSL* (mg/kg)	Cancer Risk
Arsenic	2.635	3.9	7E-06
Aroclor-1242	0.0627	2.22	3E-07
Aroclor-1248	0.408	2.22	2E-06
Aroclor-1260	0.053	2.22	2E-07
Benzo(a)anthracene	0.16	6.21	3E-07
Benzo(a)pyrene	0.146	0.621	2E-06
Benzo(b)fluoranthene	0.268	6.21	4E-07
Benzo(k)fluoranthene	0.56	62.1	9E-08
Bis(2-ethylhexyl)phthalate	0.0822	347	2E-09
Chloroform	0.000279	5.72	5E-10
Chrysene	0.195	621	3E-09
Indeno(1,2,3-c,d)pyrene	0.0914	6.21	1E-07
Naphthalene	0.415	45	9E-08
		Total Excess Cancer Risk	**1E-05**

* SSLs from NMED (2009, 108070).

Table H-4.2-150
Residential Noncarcinogenic Screening Evaluation for AOC 02-006(e)

COPC	EPC (mg/kg)	Residential SSL[a] (mg/kg)	HQ
Antimony	0.127	31.3	4E-03
Cadmium	0.272	77.9	3E-03
Chromium	24.2	219[b]	1E-01
Chromium hexavalent	0.236	219	1E-03
Iron	8703	54800	2E-01
Lead	24.09	400	6E-02
Mercury	1.616	23[c]	7E-02
Nickel	6.037	1560	4E-03
Perchlorate	0.000748	54.8	1E-05
Selenium	0.893	391	2E-03
Silver	0.313	391	8E-04
Vanadium	11.36	391	3E-02
Zinc	62.66	23500	3E-03
Acenaphthene	0.0535	3440	2E-05
Anthracene	0.0799	17200	5E-06
Aroclor-1254	0.242	1.12	2E-01
Benzo(g,h,i)perylene	0.104	1720[d]	6E-05
Dibenzofuran	0.165	78[c]	2E-03
Fluoranthene	0.325	2290	1E-04
Fluorene	0.0506	2290	2E-05
Isopropylbenzene	0.000392	3210	1E-07
Methylnaphthalene[2-]	0.0407	310 [c]	1E-04
Phenanthrene	0.405	1830	2E-04
Pyrene	0.407	1720	2E-04
Toluene	0.000522	5570	9E-08
		HI	**0.7**

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

[b] SSL for chromium(VI).

[c] SSL from EPA regional tables (http://www.epa.gov/region06/6pd/rcra_c/pd-n/screen.htm).

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

Table H-4.2-151
Residential Radionuclide Screening Evaluation for AOC 02-006(e)

COPC	EPC (pCi/g)	Residential SAL* (pCi/g)	Dose (mrem/yr)
Cesium-137	0.279	5.6	0.8
Cobalt-60	0.232	1.3	3
Plutonium-239/240	0.366	33	0.2
Tritium	0.225	750	0.005
Uranium-235/236	0.0906	17	0.08
		Total Dose	**4**

* SALs from LANL (2009, 107655).

Table H-4.2-152
Industrial Carcinogenic Screening Evaluation for SWMU 02-007

COPC	EPC (mg/kg)	Industrial SSL* (mg/kg)	Excess Cancer Risk
Aroclor-1254	1.63	8.26	2E-06
Aroclor-1260	0.859	8.26	1E-06
Benzo(a)anthracene	0.0155	23.4	7E-09
Benzo(a)pyrene	0.0119	2.34	5E-08
Benzo(b)fluoranthene	0.0136	23.4	6E-09
		Total Excess Cancer Risk	**3E-06**

* SSLs from NMED (2009, 108070).

Table H-4.2-153
Industrial Noncarcinogenic Screening Evaluation for SWMU 02-007

COPC	EPC (mg/kg)	Industrial SSL* (mg/kg)	HQ
Cadmium	0.23	1120	2E-04
Perchlorate	0.000997	795	1E-06
Fluoranthene	0.0238	24400	1E-06
Phenanthrene	0.0131	20500	6E-07
Pyrene	0.02	18300	1E-06
		HI	**0.0004**

* SSLs from NMED (2009, 108070).

Table H-4.2-154
Industrial Radionuclide Screening Evaluation for SWMU 02-007

COPC	EPC (pCi/g)	Industrial SAL* (pCi/g)	Dose (mrem/yr)
Plutonium-239/240	0.0626	210	0.004
Strontium-90	1.41	1900	0.01
Tritium	0.0169	440000	0.0000006
		Total Dose	**0.02**

* SALs from LANL (2009, 107655).

Table H-4.2-155
Recreational Carcinogenic Screening Evaluation for SWMU 02-007

COPC	EPC (mg/kg)	Recreational SSL* (mg/kg)	Cancer Risk
Aroclor-1260	0.859	10.5	8E-07
Benzo(a)anthracene	0.0155	30.1	5E-09
Benzo(a)pyrene	0.0119	3.01	4E-08
Benzo(b)fluoranthene	0.0136	30.1	5E-09
		Total Excess Cancer Risk	**9E-07**

* SSLs from LANL (2010, 108613).

Table H-4.2-156
Recreational Noncarcinogenic Screening Evaluation for SWMU 02-007

COPC	EPC (mg/kg)	Recreational SSL* (mg/kg)	HQ
Cadmium	0.23	784	3E-04
Perchlorate	0.000997	555	2E-06
Aroclor-1254	1.63	6.65	2E-01
Fluoranthene	0.0238	13900	2E-06
Phenanthrene	0.0131	12000	1E-06
Pyrene	0.02	10400	2E-06
		HI	**0.2**

* SSLs from LANL (2010, 108613).

Table H-4.2-157
Recreational Radionuclide Screening Evaluation for SWMU 02-007

COPC	EPC (pCi/g)	Recreational SAL* (pCi/g)	Dose (mrem/yr)
Plutonium-239/240	0.0626	300	0.003
Strontium-90	1.41	5600	0.004
Tritium	0.0169	5300000	0.00000004
		Total Dose	**0.007**

* SALs from LANL (2009, 107655).

Table H-4.2-158
Residential Carcinogenic Screening Evaluation for SWMU 02-007

COPC	EPC (mg/kg)	Residential SSL[a] (mg/kg)	Cancer Risk
Aroclor-1260	0.311	2.22	1E-06
Benzo(a)anthracene	0.102	6.21	2E-07
Benzo(a)pyrene	0.183	0.621	3E-06
Benzo(b)fluoranthene	0.163	6.21	3E-07
Butylbenzylphthalate	0.254	2620[b]	1E-09
Chrysene	0.109	621	2E-09
Indeno(1,2,3-c,d)pyrene	0.108	6.21	2E-07
Naphthalene	0.0755	45	2E-08
		Total Excess Cancer Risk	**5E-06**

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

[b] SSL from EPA regional tables (http://www.epa.gov/region06/6pd/rcra_c/pd-n/screen.htm).

Table H-4.2-159
Residential Noncarcinogenic Screening Evaluation for SWMU 02-007

COPC	EPC (mg/kg)	Residential SSL[a] (mg/kg)	HQ
Antimony	0.383	31.3	1E-02
Barium	188.1	15600	1E-02
Cadmium	0.231	77.9	3E-03
Cyanide	0.253	1560	2E-04
Lead	25.89	400	6E-02
Mercury	0.952	23[b]	4E-02
Perchlorate	0.00164	54.8	3E-05
Selenium	1.165	391	3E-03
Acenaphthene	0.0443	3440	1E-05
Anthracene	0.079	17200	5E-06
Aroclor-1254	0.596	1.12	5E-01
Benzo(g,h,i)perylene	0.101	1720[c]	6E-05
Fluoranthene	0.0556	2290	2E-05
Fluorene	0.0471	2290	2E-05
Methylnaphthalene[2-]	0.0281	310 [b]	9E-05
Phenanthrene	0.233	1830	1E-04
Pyrene	0.047	1720	3E-05
Toluene	0.000311	5570	6E-08
		HI	**0.7**

[a] SSLs from NMED (2009, 108070), unless otherwise noted.
[b] SSL from EPA regional tables (http://www.epa.gov/region06/6pd/rcra_c/pd-n/screen.htm).
[c] Pyrene SSL used as a surrogate based on structural similarity.

Table H-4.2-160
Residential Radionuclide Screening Evaluation for SWMU 02-007

COPC	EPC (pCi/g)	Residential SAL* (pCi/g)	Dose (mrem/yr)
Cesium-137	1.263	5.6	3
Plutonium-239/240	0.595	33	0.3
Strontium-90	1.41	5.7	4
Tritium	0.027	750	0.0005
		Total Dose	**7**

* SALs from LANL (2009, 107655).

Table H-4.2-161
Industrial Carcinogenic Screening Evaluation for SWMU 02-008(a)

COPC	EPC (mg/kg)	Industrial SSL* (mg/kg)	Excess Cancer Risk
Aroclor-1254	0.186	8.26	2E-07
Aroclor-1260	0.246	8.26	3E-07
Benzo(a)anthracene	0.096	23.4	4E-08
Benzo(a)pyrene	0.0976	2.34	4E-07
Benzo(b)fluoranthene	0.144	23.4	6E-08
Benzo(k)fluoranthene	0.0131	234	6E-10
Bis(2-ethylhexyl)phthalate	0.164	2340	1E-09
Chrysene	0.12	2340	5E-10
Indeno(1,2,3-c,d)pyrene	0.104	23.4	4E-08
		Total Excess Cancer Risk	**1E-06**

* SSLs from NMED (2009, 108070).

Table H-4.2-162
Industrial Noncarcinogenic Screening Evaluation for SWMU 02-008(a)

COPC	EPC (mg/kg)	Industrial SSL[a] (mg/kg)	HQ
Cadmium	0.18	1120	2E-04
Chromium	37	2920[b]	1E-02
Chromium hexavalent	0.151	2920	5E-05
Copper	13	45400	3E-04
Cyanide	0.723	22700	3E-05
Lead	22	800	3E-02
Selenium	2.01	5680	4E-04
Silver	1.1	5680	2E-04
Zinc	68	341000	2E-04
Acenaphthene	0.021	36700	6E-07
Anthracene	0.0368	183000	2E-07
Benzo(g,h,i)perylene	0.032	18300[c]	2E-06
Fluoranthene	0.254	24400	1E-05
Fluorene	0.0178	24400	7E-07
Phenanthrene	0.165	20500	8E-06
Pyrene	0.216	18300	1E-05
		HI	**0.04**

[a] SSLs from NMED (2009, 108070).

[b] SSL for chromium(VI).

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

Table H-4.2-163
Industrial Radionuclide Screening Evaluation for SWMU 02-008(a)

COPC	EPC (pCi/g)	Industrial SAL* (pCi/g)	Dose (mrem/yr)
Plutonium-239/240	1.87	210	0.1
Tritium	0.257	440000	0.000009
		Total Dose	**0.1**

* SALs from LANL (2009, 107655).

Table H-4.2-164
Recreational Carcinogenic Screening Evaluation for SWMU 02-008(a)

COPC	EPC (mg/kg)	Recreational SSL* (mg/kg)	Cancer Risk
Aroclor-1260	0.246	10.5	2E-07
Benzo(a)anthracene	0.096	30.1	3E-08
Benzo(a)pyrene	0.0976	3.01	3E-07
Benzo(b)fluoranthene	0.144	30.1	5E-08
Benzo(k)fluoranthene	0.0131	301	4E-10
Bis(2-ethylhexyl)phthalate	0.164	1830	9E-10
Chrysene	0.12	3010	4E-10
Indeno(1,2,3-c,d)pyrene	0.104	30.1	3E-08
		Total Excess Cancer Risk	**7E-07**

* SSLs from LANL (2010, 108613).

Table H-4.2-165
Recreational Noncarcinogenic Screening Evaluation for SWMU 02-008(a)

COPC	EPC (mg/kg)	Recreational SSL[a] (mg/kg)	HQ
Cadmium	0.18	784	2E-04
Chromium	37	1910[b]	2E-02
Chromium hexavalent	0.151	1910	8E-05
Copper	13	31700	4E-04
Cyanide	0.723	15800	5E-05
Lead	22	560	4E-02
Selenium	2.01	3960	5E-04
Silver	1.1	3960	3E-04
Zinc	68	238000	3E-04
Acenaphthene	0.021	20800	1E-06
Anthracene	0.0368	104000	4E-07
Aroclor-1254	0.186	6.65	3E-02

Table H-4.2-165 (continued)

COPC	EPC (mg/kg)	Recreational SSL[a] (mg/kg)	HQ
Benzo(g,h,i)perylene	0.032	10400[c]	3E-06
Fluoranthene	0.254	13900	2E-05
Fluorene	0.0178	13900	1E-06
Phenanthrene	0.165	12000	1E-05
Pyrene	0.216	10400	2E-05
		HI	**0.09**

[a] SSLs from LANL (2010, 108613).

[b] SSL for chromium(VI).

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

Table H-4.2-166
Recreational Radionuclide Screening Evaluation for SWMU 02-008(a)

COPC	EPC (pCi/g)	Recreational SAL* (pCi/g)	Dose (mrem/yr)
Plutonium-239/240	1.87	300	0.09
Tritium	0.257	5300000	0.0000007
		Total Dose	**0.09**

* SALs from LANL (2009, 107655).

Table H-4.2-167
Residential Carcinogenic Screening Evaluation for SWMU 02-008(a)

COPC	EPC (mg/kg)	Residential SSL* (mg/kg)	Cancer Risk
Arsenic	2.448	3.9	6E-06
Aroclor-1260	0.168	2.22	8E-07
Benzo(a)anthracene	0.129	6.21	2E-07
Benzo(a)pyrene	0.118	0.621	2E-06
Benzo(b)fluoranthene	0.162	6.21	3E-07
Benzo(k)fluoranthene	0.0659	62.1	1E-08
Bis(2-ethylhexyl)phthalate	0.164	347	5E-09
Chrysene	0.138	621	2E-09
Indeno(1,2,3-c,d)pyrene	0.118	6.21	2E-07
Methylene chloride	0.00385	199	2E-10
		Total Excess Cancer Risk	**1E-05**

* SSLs from NMED (2009, 108070).

Table H-4.2-168
Residential Noncarcinogenic Screening Evaluation for SWMU 02-008(a)

COPC	EPC (mg/kg)	Residential SSL[a] (mg/kg)	HQ
Aluminum	4171	78100	5E-02
Cadmium	0.18	77.9	2E-03
Chromium	42.26	219[b]	2E-01
Chromium hexavalent	1.1	219	5E-03
Copper	99.33	3130	3E-02
Cyanide	0.723	1560	5E-04
Iron	9469	54800	2E-01
Lead	30.59	400	8E-02
Manganese	331.7	10700	3E-02
Selenium	5.419	391	1E-02
Silver	0.293	391	7E-04
Zinc	55.64	23500	2E-03
Acenaphthene	0.021	3440	6E-06
Anthracene	0.0368	17200	2E-06
Aroclor-1254	0.0704	1.12	6E-02
Benzo(g,h,i)perylene	0.032	1720[c]	2E-05
Fluoranthene	0.254	2290	1E-04
Fluorene	0.0178	2290	8E-06
Phenanthrene	0.165	1830	9E-05
Pyrene	0.267	1720	2E-04
Stryene	5.89E-03	8970	7E-07
Toluene	6.65E-04	5570	1E-07
		HI	**0.6**

[a] SSLs from NMED (2009, 108070), unless otherwise noted.
[b] SSL for chromium(VI).
[c] Pyrene SSL used as a surrogate based on structural similarity.

Table H-4.2-169
Residential Radionuclide Screening Evaluation for SWMU 02-008(a)

COPC	EPC (pCi/g)	Residential SAL* (pCi/g)	Dose (mrem/yr)
Cesium-137	0.215	5.6	0.6
Plutonium-239/240	0.956	33	0.4
Tritium	0.0758	750	0.002
		Total Dose	**1**

* SALs from LANL (2009, 107655).

Table H-4.2-170
Industrial Carcinogenic Screening Evaluation for AOC 02-008(c)

COPC	EPC (mg/kg)	Industrial SSL* (mg/kg)	Excess Cancer Risk
Aroclor-1254	0.0788	8.26	1E-07
Aroclor-1260	0.0872	8.26	1E-07
Benzo(a)anthracene	0.682	23.4	3E-07
Benzo(a)pyrene	0.559	2.34	2E-06
Benzo(b)fluoranthene	1.09	23.4	5E-07
Chrysene	0.617	2340	3E-09
Indeno(1,2,3-c,d)pyrene	0.153	23.4	7E-08
Naphthalene	0.0271	252	1E-09
		Total Excess Cancer Risk	**3E-06**

***** SSLs from NMED (2009, 108070).

Table H-4.2-171
Industrial Noncarcinogenic Screening Evaluation for AOC 02-008(c)

COPC	EPC (mg/kg)	Industrial SSL[a] (mg/kg)	HQ
Cadmium	0.112	1120	1E-04
Copper	22.5	45400	5E-04
Mercury	3.46	310[b]	1E-02
Perchlorate	0.00168	795	2E-06
Selenium	2.77	5680	5E-04
Silver	1.8	5680	3E-04
Vanadium	21	5680	4E-03
Zinc	65.3	341000	2E-04
Acenaphthene	0.118	36700	3E-06
Anthracene	0.0137	183000	7E-08
Benzo(g,h,i)perylene	0.16	18300[c]	9E-06
Fluoranthene	1.12	24400	5E-05
Fluorene	0.0513	24400	2E-06
Methylnaphthalene[2-]	0.00892	4100 [b]	2E-06
Phenanthrene	0.648	20500	3E-05
Pyrene	1.38	18300	8E-05
		HI	**0.02**

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

[b] SSL from EPA regional tables (http://www.epa.gov/region06/6pd/rcra_c/pd-n/screen.htm).

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

Table H-4.2-172
Industrial Radionuclide Screening Evaluation for AOC 02-008(c)

COPC	EPC (pCi/g)	Industrial SAL* (pCi/g)	Dose (mrem/yr)
Plutonium-239/240	0.808	210	0.06
Tritium	0.111	440000	0.000004
		Total Dose	**0.06**

* SALs from LANL (2009, 107655).

Table H-4.2-173
Recreational Carcinogenic Screening Evaluation for AOC 02-008(c)

COPC	EPC (mg/kg)	Recreational SSL* (mg/kg)	Cancer Risk
Aroclor-1260	0.0872	10.5	8E-08
Benzo(a)anthracene	0.682	30.1	2E-07
Benzo(a)pyrene	0.559	3.01	2E-06
Benzo(b)fluoranthene	1.09	30.1	4E-07
Chrysene	0.617	3010	2E-09
Indeno(1,2,3-c,d)pyrene	0.153	30.1	5E-08
Naphthalene	0.0271	1950	1E-10
		Total Excess Cancer Risk	**3E-06**

***** SSLs from LANL (2010, 108613).

Table H-4.2-174
Recreational Noncarcinogenic Screening Evaluation for AOC 02-008(c)

COPC	EPC (mg/kg)	Recreational SSL[a] (mg/kg)	HQ
Cadmium	0.112	784	1E-04
Copper	22.5	31700	7E-04
Mercury	3.46	238	1E-02
Perchlorate	0.00168	555	3E-06
Selenium	2.77	3960	7E-04
Silver	1.8	3960	5E-04
Vanadium	21	3960	5E-03
Zinc	65.3	238000	3E-04
Acenaphthene	0.118	20800	6E-06
Anthracene	0.0137	104000	1E-07
Aroclor-1254	0.0788	6.65	1E-02
Benzo(g,h,i)perylene	0.16	10400[b]	2E-05
Fluoranthene	1.12	13900	8E-05

Table H-4.2-174 (continued)

COPC	EPC (mg/kg)	Recreational SSL[a] (mg/kg)	HQ
Fluorene	0.0513	13900	4E-06
Methylnaphthalene[2-]	0.00892	3170	3E-06
Phenanthrene	0.648	12000	0E+00
Pyrene	1.38	10400	5E-05
		HI	**0.03**

[a] SSLs from LANL (2010, 108613).

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

Table H-4.2-175
Recreational Radionuclide Screening Evaluation for AOC 02-008(c)

COPC	EPC (pCi/g)	Recreational SAL* (pCi/g)	Dose (mrem/yr)
Plutonium-239/240	0.808	300	0.04
Tritium	0.111	5300000	0.0000003
		Total Dose	**0.04**

***** SALs from LANL (2009, 107655).

Table H-4.2-176
Residential Carcinogenic Screening Evaluation for AOC 02-008(c)

COPC	EPC (mg/kg)	Residential SSL* (mg/kg)	Cancer Risk
Aroclor-1260	0.0544	2.22	2E-07
Benzo(a)anthracene	0.682	6.21	1E-06
Benzo(a)pyrene	0.559	0.621	9E-06
Benzo(b)fluoranthene	1.09	6.21	2E-06
Chrysene	0.617	621	1E-08
Indeno(1,2,3-c,d)pyrene	0.153	6.21	2E-07
Naphthalene	0.0271	45	6E-09
		Total Excess Cancer Risk	**1E-05**

***** SSLs from NMED (2009, 108070).

Table H-4.2-177
Residential Noncarcinogenic Screening Evaluation for AOC 02-008(c)

COPC	EPC (mg/kg)	Residential SSL[a] (mg/kg)	HQ
Antimony	0.354	31.3	1E-02
Cadmium	0.281	77.9	4E-03
Chromium	14.24	219[b]	6E-02
Chromium hexavalent i	0.191	219	9E-04
Copper	13.72	3130	4E-03
Mercury	1.758	23[c]	8E-02
Perchlorate	0.00168	54.8	3E-05
Selenium	1.765	391	5E-03
Silver	1.015	391	3E-03
Vanadium	12.31	391	3E-02
Zinc	56.96	23500	2E-03
Acenaphthene	0.118	3440	3E-05
Anthracene	0.0137	17200	8E-07
Aroclor-1254	0.0788	1.12	7E-02
Benzo(g,h,i)perylene	0.16	1720[d]	9E-05
Fluoranthene	0.369	2290	2E-04
Fluorene	0.0513	2290	2E-05
Isopropyltoluene[4-]	0.0029	3210[e]	9E-07
Methylnaphthalene[2-]	0.00892	310[c]	3E-05
Phenanthrene	0.648	1830	4E-04
Pyrene	0.459	1720	3E-04
Toluene	0.000516	5570	9E-08
		HI	**0.3**

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

[b] SSL for chromium(VI).

[c] SSL from EPA regional tables (http://www.epa.gov/region06/6pd/rcra_c/pd-n/screen.htm).

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

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

Table H-4.2-178
Residential Radionuclide Screening Evaluation for AOC 02-008(c)

COPC	EPC (pCi/g)	Residential SAL* (pCi/g)	Dose (mrem/yr)
Cesium-137	1.486	5.6	4
Plutonium-239/240	0.384	33	0.2
Strontium-90	0.679	5.7	2
Tritium	0.111	750	0.002
		Total Dose	**6**

***** SALs from LANL (2009, 107655).

Table H-4.2-179
Industrial Carcinogenic Screening Evaluation for SWMU 02-009(a)

COPC	EPC (mg/kg)	Industrial SSL[a] (mg/kg)	Excess Cancer Risk
Aroclor-1254	0.00272	8.26	3E-09
Aroclor-1260	0.00398	8.26	5E-09
Benzo(a)pyrene	0.02	2.34	9E-08
Benzo(b)fluoranthene	0.0708	23.4	3E-08
Butylbenzylphthalate	0.281	2340[b]	3E-10
Chrysene	0.0695	2340	3E-10
		Total Excess Cancer Risk	**1E-07**

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

[b] SSL from EPA regional tables (http://www.epa.gov/region06/6pd/rcra_c/pd-n/screen.htm).

Table H-4.2-180
Industrial Noncarcinogenic Screening Evaluation for SWMU 02-009(a)

COPC	EPC (mg/kg)	Industrial SSL* (mg/kg)	HQ
Cadmium	0.05	1120	4E-05
Copper	20.06	45400	4E-04
Cyanide	0.285	22700	1E-05
Iron	12849	795000	2E-02
Perchlorate	0.00153	795	2E-06
Selenium	20.73	5680	4E-03
Anthracene	0.00912	183000	5E-08
Fluoranthene	0.0379	24400	2E-06
Phenanthrene	0.828	20500	4E-05
Pyrene	0.0367	18300	2E-06
		HI	**0.02**

* SSLs from NMED (2009, 108070).

Table H-4.2-181
Industrial Radionuclide Screening Evaluation for SWMU 02-009(a)

COPC	EPC (pCi/g)	Industrial SAL* (pCi/g)	Dose (mrem/yr)
Cesium-137	3.966	23	3
Plutonium-239/240	0.0578	210	0.004
Tritium	0.0774	440000	0.000003
		Total Dose	**3**

***** SALs from LANL (2009, 107655).

Table H-4.2-182
Recreational Carcinogenic Screening Evaluation for SWMU 02-009(a)

COPC	EPC (mg/kg)	Recreational SSL* (mg/kg)	Cancer Risk
Aroclor-1260	0.00398	10.5	4E-09
Benzo(a)pyrene	0.02	3.01	7E-08
Benzo(b)fluoranthene	0.0708	30.1	2E-08
Butylbenzylphthalate	0.281	13500	2E-10
Chrysene	0.0695	3010	2E-10
		Total Excess Cancer Risk	**9E-08**

***** SSLs from LANL (2010, 108613).

Table H-4.2-183
Recreational Noncarcinogenic Screening Evaluation for SWMU 02-009(a)

COPC	EPC (mg/kg)	Recreational SSL* (mg/kg)	HQ
Cadmium	0.05	784	6E-05
Copper	20.06	31700	6E-04
Cyanide	0.285	15800	2E-05
Iron	12849	554000	2E-02
Perchlorate	0.00153	555	3E-06
Selenium	20.73	3960	5E-03
Anthracene	0.00912	104000	9E-08
Aroclor-1254	0.00272	6.65	4E-04
Fluoranthene	0.0379	13900	3E-06
Phenanthrene	0.828	12000	7E-05
Pyrene	0.0367	10400	4E-06
		HI	**0.03**

***** SSLs from LANL (2010, 108613).

Table H-4.2-184
Recreational Radionuclide Screening Evaluation for SWMU 02-009(a)

COPC	EPC (pCi/g)	Recreational SAL* (pCi/g)	Dose (mrem/yr)
Cesium-137	3.966	210	0.3
Plutonium-239/240	0.0578	300	0.003
Tritium	0.0774	5300000	0.0000002
		Total Dose	**0.3**

***** SALs from LANL (2009, 107655).

Table H-4.2-185
Residential Carcinogenic Screening Evaluation for SWMU 02-009(a)

COPC	EPC (mg/kg)	Residential SSL[a] (mg/kg)	Cancer Risk
Aroclor-1248	0.0478	2.22	2E-07
Aroclor-1260	0.00297	2.22	1E-08
Benzo(a)pyrene	0.02	0.621	3E-07
Benzo(b)fluoranthene	0.0708	6.21	1E-07
Butylbenzylphthalate	0.281	2600[b]	1E-09
Chloroform	0.000268	5.72	5E-10
Chloromethane	0.00288	35.6	8E-10
Chrysene	0.0695	621	1E-09
Pentachlorophenol	0.257	29.8	9E-08
		Total Excess Cancer Risk	**8E-07**

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

[b] SSL from EPA regional tables (http://www.epa.gov/region06/6pd/rcra_c/pd-n/screen.htm).

Table H-4.2-186
Residential Noncarcinogenic Screening Evaluation for SWMU 02-009(a)

COPC	EPC (mg/kg)	Residential SSL[a] (mg/kg)	HQ
Antimony	0.531	31.3	2E-02
Cadmium	0.0701	77.9	9E-04
Chromium	6	219[b]	3E-02
Copper	14.78	3130	5E-03
Cyanide	0.201	1560	1E-04
Iron	9923	54800	2E-01
Perchlorate	0.0015	54.8	3E-05
Selenium	11.47	391	3E-02
Acetone	0.041	67500	6E-07
Anthracene	0.00912	17200	5E-07
Aroclor-1254	0.00262	1.12	2E-03
Di-n-butylphthalate	0.0388	6110	6E-06
Fluoranthene	0.0225	2290	1E-05
Isopropyltoluene[4-]	0.000519	3210[c]	2E-07
Phenanthrene	0.0828	1830	5E-05
Phenol	0.102	18300	6E-06
Pyrene	0.0209	1720	1E-05
Toluene	0.00067	5570	1E-07
Trimethylbenzene[1,2,4-]	0.000843	62 [d]	1E-05
Trimethylbenzene[1,3,5-]	0.000535	780[d]	7E-07
Xylene[1,2-]	0.000648	9550	7E-08
		HI	**0.3**

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

[b] SSL for chromium(VI).

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

[d] SSL from EPA regional tables (http://www.epa.gov/region06/6pd/rcra_c/pd-n/screen.htm).

Table H-4.2-187
Residential Radionuclide Screening Evaluation for SWMU 02-009(a)

COPC	EPC (pCi/g)	Residential SAL* (pCi/g)	Dose (mrem/yr)
Cesium-137	1.796	5.6	5
Plutonium-238	0.047	37	0.02
Plutonium-239/240	0.317	33	0.1
Strontium-90	0.262	5.7	0.7
Tritium	0.0208	750	0.0004
		Total Dose	**6**

* SALs from LANL (2009, 107655).

Table H-4.2-188
Industrial Carcinogenic Screening Evaluation for SWMU 02-009(b)

COPC	EPC (mg/kg)	Industrial SSL* (mg/kg)	Excess Cancer Risk
Aroclor-1254	0.0334	8.26	4E-08
Aroclor 1260	0.11	8.26	1E-07
Benzo(a)anthracene	0.128	23.4	5E-08
Benzo(a)pyrene	0.11	2.34	5E-07
Benzo(b)fluoranthene	0.193	23.4	8E-08
Benzo(k)fluoranthene	0.095	234	4E-09
Bis(2-ethylhexyl)phthalate	0.0684	1370	5E-10
Chrysene	0.142	2340	6E-10
Indeno(1,2,3-c,d)pyrene	0.0578	23.4	2E-08
		Total Excess Cancer Risk	**8E-07**

***** SSLs from NMED (2009, 108070).

Table H-4.2-189
Industrial Noncarcinogenic Screening Evaluation for SWMU 02-009(b)

COPC	EPC (mg/kg)	Industrial SSL[a] (mg/kg)	HQ
Cadmium	0.34	1120	3E-04
Cyanide	0.108	22700	5E-06
Mercury	0.808	310[b]	3E-03
Perchlorate	0.0017	795	2E-06
Zinc	57.9	341000	2E-04
Acenaphthene	0.0131	36700	4E-07
Anthracene	0.0421	183000	2E-07
Benzo(g,h,i)perylene	0.109	18300[c]	6E-06
Di-n-butylphthalate	0.0789	68400	1E-06
Fluoranthene	0.473	24400	2E-05
Fluorene	0.0106	24400	4E-07
Phenanthrene	0.107	20500	5E-06
Pyrene	0.332	18300	2E-05
		HI	**0.004**

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

[b] SSL from EPA regional tables (http://www.epa.gov/region06/6pd/rcra_c/pd-n/screen.htm).

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

Table H-4.2-190
Industrial Radionuclide Screening Evaluation for SWMU 02-009(b)

COPC	EPC (pCi/g)	Industrial SAL* (pCi/g)	Dose (mrem/yr)
Cesium-137	8.62	23	6
Plutonium-239/240	0.2	210	0.01
Strontium-90	2.49	1900	0.02
Tritium	0.00728	440000	0.0000002
Uranium-234	1.629	1500	0.02
		Total Dose	**6**

* SALs from LANL (2009, 107655).

Table H-4.2-191
Recreational Carcinogenic Screening Evaluation for SWMU 02-009(b)

COPC	EPC (mg/kg)	Recreational SSL* (mg/kg)	Cancer Risk
Aroclor 1260	0.11	10.5	1E-07
Benzo(a)anthracene	0.128	30.1	4E-08
Benzo(a)pyrene	0.11	3.01	4E-07
Benzo(b)fluoranthene	0.193	30.1	6E-08
Benzo(k)fluoranthene	0.095	301	3E-09
Bis(2-ethylhexyl)phthalate	0.0684	1830	4E-10
Chrysene	0.142	3010	5E-10
Indeno(1,2,3-c,d)pyrene	0.0578	30.1	2E-08
		Total Excess Cancer Risk	**6E-07**

* SSLs from LANL (2010, 108613).

Table H-4.2-192
Recreational Noncarcinogenic Screening Evaluation for SWMU 02-009(b)

COPC	EPC (mg/kg)	Recreational SSL[a] (mg/kg)	HQ
Cadmium	0.34	784	4E-04
Cyanide	0.108	15800	7E-06
Mercury	0.808	238	3E-03
Perchlorate	0.0017	555	3E-06
Zinc	57.9	238000	2E-04
Acenaphthene	0.0131	20800	6E-07
Anthracene	0.0421	104000	4E-07
Aroclor-1254	0.0334	6.65	5E-03
Benzo(g,h,i)perylene	0.109	10400[b]	1E-05
Di-n-butylphthalate	0.0789	39900	2E-06
Fluoranthene	0.473	13900	3E-05
Fluorene	0.0106	13900	8E-07
Phenanthrene	0.107	12000	9E-06
Pyrene	0.332	10400	3E-05
		HI	**0.01**

[a] SSLs from LANL (2010, 108613).

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

Table H-4.2-193
Recreational Radionuclide Screening Evaluation for SWMU 02-009(b)

COPC	EPC (pCi/g)	Recreational SAL* (pCi/g)	Dose (mrem/yr)
Cesium-137	8.62	210	0.6
Plutonium-239/240	0.2	300	0.01
Strontium-90	2.49	5600	0.01
Tritium	0.00728	5300000	0.00000002
Uranium-234	1.629	3200	0.008
		Total Dose	**0.6**

* SALs from LANL (2009, 107655).

Table H-4.2-194
Residential Carcinogenic Screening Evaluation for SWMU 02-009(b)

COPC	EPC (mg/kg)	Residential SSL* (mg/kg)	Cancer Risk
Aroclor-1260	0.0619	2.22	3E-07
Benzo(a)anthracene	0.0763	6.21	1E-07
Benzo(a)pyrene	0.0665	0.621	1E-06
Benzo(b)fluoranthene	0.109	6.21	2E-07
Benzo(k)fluoranthene	0.095	62.1	2E-08
Bis(2-ethylhexyl)phthalate	0.0684	347	2E-09
Chrysene	0.0818	621	1E-09
Indeno(1,2,3-c,d)pyrene	0.039	6.21	6E-08
		Total Excess Cancer Risk	**2E-06**

***** SSLs from NMED (2009, 108070).

Table H-4.2-195
Residential Noncarcinogenic Screening Evaluation for SWMU 02-009(b)

COPC	EPC (mg/kg)	Residential SSL[a] (mg/kg)	HQ
Antimony	0.39	31.3	1E-02
Cadmium	0.229	77.9	3E-03
Cyanide	0.301	1560	2E-04
Mercury	0.532	23[b]	2E-02
Perchlorate	0.0017	54.8	3E-05
Selenium	0.886	391	2E-03
Zinc	49.61	23500	2E-03
Acenaphthene	0.0131	3440	4E-06
Anthracene	0.0421	17200	2E-06
Aroclor-1254	0.0209	1.12	2E-02
Benzo(g,h,i)perylene	0.0432	1720[c]	3E-05
Di-n-butylphthalate	0.0789	6110	1E-05
Fluoranthene	0.264	2290	1E-04
Fluorene	0.0106	2290	5E-06
Isopropylbenzene	0.000342	3210	1E-07
Methylnaphthalene[2-]	0.00949	310 [b]	3E-05
Phenanthrene	0.0626	1830	3E-05
Pyrene	0.208	1720	1E-04
Toluene	0.00136	5570	2E-07
		HI	**0.06**

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

[b] SSL from EPA regional tables (http://www.epa.gov/region06/6pd/rcra_c/pd-n/screen.htm).

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

Table H-4.2-196
Residential Radionuclide Screening Evaluation for SWMU 02-009(b)

COPC	EPC (pCi/g)	Residential SAL* (pCi/g)	Dose (mrem/yr)
Cesium-137	5.879	5.6	16
Plutonium-239/240	0.17	33	0.08
Strontium-90	1.084	5.7	3
Tritium	0.0368	750	0.0007
Uranium-234	1.425	170	0.1
Uranium-235/236	0.11	17	0.1
		Total Dose	**19**

* SALs from LANL (2009, 107655).

Table H-4.2-197
Industrial Carcinogenic Screening Evaluation for SWMU 02-009(c)

COPC	EPC (mg/kg)	Industrial SSL* (mg/kg)	Excess Cancer Risk
Aroclor-1248	0.0045	8.26	5E-09
Aroclor-1254	0.0614	8.26	7E-08
Aroclor-1260	0.073	8.26	9E-08
Benzo(a)anthracene	0.0863	23.4	4E-08
Benzo(a)pyrene	0.0774	2.34	3E-07
Benzo(b)fluoranthene	0.118	23.4	5E-08
Benzo(k)fluoranthene	0.15	234	6E-09
Chrysene	0.0903	2340	4E-10
Indeno(1,2,3-c,d)pyrene	0.0753	23.4	3E-08
Naphthalene	0.0392	252	2E-09
		Total Excess Cancer Risk	**6E-07**

* SSLs from NMED (2009, 108070).

Table H-4.2-198
Industrial Noncarcinogenic Screening Evaluation for SWMU 02-009(c)

COPC	EPC (mg/kg)	Industrial SSL[a] (mg/kg)	HQ
Barium	203.8	224000	9E-04
Cadmium	0.267	1120	2E-04
Chromium hexavalent	0.458	2920	2E-04
Iron	8608	795000	1E-02
Lead	15.27	800	2E-02
Mercury	0.373	310[b]	1E-03
Perchlorate	0.0013	795	2E-06
Selenium	0.824	5680	1E-04
Silver	0.299	5680	5E-05
Zinc	46.21	341000	1E-04
Acenaphthene	0.0317	36700	2E-06
Anthracene	0.0422	183000	2E-07
Benzo(g,h,i)perylene	0.066	18300[c]	4E-06
Fluoranthene	0.164	24400	7E-06
Fluorene	0.0283	24400	1E-06
Methylnaphthalene[2-]	0.0489	4100 [b]	1E-05
Phenanthrene	0.136	20500	7E-06
Pyrene	0.166	18300	9E-06
		HI	**0.03**

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

[b] SSL from EPA regional tables (http://www.epa.gov/region06/6pd/rcra_c/pd-n/screen.htm).

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

Table H-4.2-199
Industrial Radionuclide Screening Evaluation for SWMU 02-009(c)

COPC	EPC (pCi/g)	Industrial SAL* (pCi/g)	Dose (mrem/yr)
Cesium-137	4.77	23	3
Plutonium-239/240	0.297	210	0.02
Strontium-90	0.491	1900	0.004
Tritium	0.0186	440000	0.0000006
		Total Dose	**3**

* SALs from LANL (2009, 107655).

Table H-4.2-200
Recreational Carcinogenic Screening Evaluation for SWMU 02-009(c)

COPC	EPC (mg/kg)	Recreational SSL* (mg/kg)	Cancer Risk
Aroclor-1248	0.0045	10.5	4E-09
Aroclor-1260	0.073	10.5	7E-08
Benzo(a)anthracene	0.0863	30.1	3E-08
Benzo(a)pyrene	0.0774	3.01	3E-07
Benzo(b)fluoranthene	0.118	30.1	4E-08
Benzo(k)fluoranthene	0.15	301	5E-09
Chrysene	0.0903	3010	3E-10
Indeno(1,2,3-c,d)pyrene	0.0753	30.1	3E-08
Naphthalene	0.0392	1950	2E-10
		Total Excess Cancer Risk	**4E-07**

* SSLs from LANL (2010, 108613).

Table H-4.2-201
Recreational Noncarcinogenic Screening Evaluation for SWMU 02-009(c)

COPC	EPC (mg/kg)	Recreational SSL[a] (mg/kg)	HQ
Barium	203.8	158000	1E-03
Cadmium	0.267	784	3E-04
Chromium hexavalent	0.458	1910	2E-04
Iron	8608	554000	2E-02
Lead	15.27	560	3E-02
Mercury	0.373	238	2E-03
Perchlorate	0.0013	555	2E-06
Selenium	0.824	3960	2E-04
Silver	0.299	3960	8E-05
Zinc	46.21	238000	2E-04
Acenaphthene	0.0317	20800	2E-06
Anthracene	0.0422	104000	4E-07
Aroclor-1254	0.0614	6.65	9E-03
Benzo(g,h,i)perylene	0.066	10400[b]	6E-06
Fluoranthene	0.164	13900	1E-05
Fluorene	0.0283	13900	2E-06
Methylnaphthalene[2-]	0.0489	3170	2E-05
Phenanthrene	0.136	12000	1E-05
Pyrene	0.166	10400	2E-05
		HI	**0.06**

[a] SSLs from LANL (2010, 108613), unless otherwise noted.

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

Table H-4.2-202
Recreational Radionuclide Screening Evaluation for SWMU 02-009(c)

COPC	EPC (pCi/g)	Recreational SAL* (pCi/g)	Dose (mrem/yr)
Cesium-137	4.77	210	0.34
Plutonium-239/240	0.297	300	0.01
Strontium-90	0.491	5600	0.001
Tritium	0.0186	5300000	0.00000005
		Total Dose	**0.4**

* SALs from LANL (2009, 107655).

Table H-4.2-203
Residential Carcinogenic Screening Evaluation for SWMU 02-009(c)

COPC	EPC (mg/kg)	Residential SSL* (mg/kg)	Cancer Risk
Arsenic	1.808	3.9	5E-06
Aroclor-1248	0.0045	2.22	2E-08
Aroclor-1260	0.0337	2.22	2E-07
Benzo(a)anthracene	0.0479	6.21	8E-08
Benzo(a)pyrene	0.0436	0.621	7E-07
Benzo(b)fluoranthene	0.0587	6.21	9E-08
Benzo(k)fluoranthene	0.15	6.21	2E-08
Bis(2-ethylhexyl) phthalate	0.0471	347	1E-09
Chloroform	0.0000223	5.72	4E-11
Chrysene	0.0498	621	8E-10
Indeno(1,2,3-c,d)pyrene	0.0719	6.21	1E-07
Naphthalene	0.0286	45	6E-09
		Total Excess Cancer Risk	**6E-06**

* SSLs from NMED (2009, 108070).

Table H-4.2-204
Residential Noncarcinogenic Screening Evaluation for SWMU 02-009(c)

COPC	EPC (mg/kg)	Residential SSL[a] (mg/kg)	HQ
Aluminum	3513	78100	4E-02
Antimony	1.06	31.3	3E-02
Barium	110.1	15600	7E-03
Cadmium	0.146	77.9	2E-03
Chromium	9.636	219[b]	4E-02
Chromium hexavalent	0.242	219	1E-03
Iron	7115	54800	1E-01
Lead	10.03	400	3E-02
Manganese	296.9	10700	3E-02
Mercury	0.147	23[c]	6E-03
Perchlorate	0.00162	54.8	3E-05
Selenium	2.345	391	6E-03
Silver	0.676	391	2E-03
Uranium	2.484	235	1E-02
Vanadium	7.309	391	2E-02
Zinc	35.87	23500	2E-03
Acenaphthene	0.0279	3440	8E-06
Acetone	0.133	67500	2E-06
Anthracene	0.0326	17200	2E-06
Aroclor-1254	0.0293	1.12	3E-02
Benzo(g,h,i)perylene	0.0601	1720[d]	3E-05
Dibenzofuran	0.061	78[c]	8E-04
Di-n-butylphthalate	0.068	6110	1E-05
Fluoranthene	0.0762	2290	3E-05
Fluorene	0.0246	2290	1E-05
Isopropyltoluene[4-]	0.0505	3210[e]	2E-05
Methylnaphthalene[2-]	0.0321	310[c]	1E-04
Phenanthrene	0.0633	1830	3E-05
Phenol	0.04	18300	2E-06
Pyrene	0.0759	1720	4E-05
Toluene	0.00456	5570	8E-07
		HI	**0.4**

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

[b] SSL for chromium(VI).

[c] SSL from EPA regional tables (http://www.epa.gov/region06/6pd/rcra_c/pd-n/screen.htm).

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

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

Table H-4.2-205
Residential Radionuclide Screening Evaluation for SWMU 02-009(c)

COPC	EPC (pCi/g)	Residential SAL* (pCi/g)	Dose (mrem/yr)
Cesium-137	24.29	5.6	65
Plutonium-239/240	0.209	33	0.1
Strontium-90	0.91	5.7	2
Tritium	0.0949	750	0.002
Uranium-234	1.362	170	0.1
Uranium-235/236	0.0731	17	0.06
Uranium-238	1.323	87	0.2
		Total Dose	**68**

* SALs from LANL (2009, 107655).

Table H-4.2-206
Industrial Carcinogenic Screening Evaluation for AOC 02-009(d)

COPC	EPC (mg/kg)	Industrial SSL* (mg/kg)	Excess Cancer Risk
Aroclor-1248	0.0059	8.26	7E-09
Aroclor-1254	0.0301	8.26	4E-08
Aroclor-1260	0.0674	8.26	8E-08
Benzo(a)anthracene	0.588	23.4	3E-07
Benzo(a)pyrene	0.182	2.34	8E-07
Benzo(b)fluoranthene	0.41	23.4	2E-07
Benzo(k)fluoranthene	0.0555	234	2E-09
Chrysene	0.324	2340	1E-09
Indeno(1,2,3-c,d)pyrene	0.293	23.4	1E-07
Naphthalene	0.0122	252	5E-10
		Total Excess Cancer Risk	**1E-06**

* SSLs from NMED (2009, 108070).

Table H-4.2-207
Industrial Noncarcinogenic Screening Evaluation for AOC 02-009(d)

COPC	EPC (mg/kg)	Industrial SSL[a] (mg/kg)	HQ
Cadmium	0.49	1120	4E-04
Mercury	1.087	310[b]	4E-03
Perchlorate	0.00132	795	2E-06
Selenium	1.523	5680	3E-04
Zinc	46.63	341000	1E-04
Acenaphthene	0.0805	36700	2E-06
Anthracene	0.239	183000	1E-06
Benzo(g,h,i)perylene	0.312	18300[c]	2E-05
Fluoranthene	0.724	24400	3E-05
Fluorene	0.0834	24400	3E-06
Methylnaphthalene[2-]	0.00756	4100 [b]	2E-06
Phenanthrene	0.507	20500	2E-05
Pyrene	0.788	18300	4E-05
		HI	**0.005**

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

[b] SSL from EPA regional tables (http://www.epa.gov/region06/6pd/rcra_c/pd-n/screen.htm).

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

Table H-4.2-208
Industrial Radionuclide Screening Evaluation for AOC 02-009(d)

COPC	EPC (pCi/g)	Industrial SAL* (pCi/g)	Dose (mrem/yr)
Cesium-137	4.097	23	2.7
Cobalt-60	0.162	5.1	0.5
Plutonium-239/240	0.066	210	0.005
Strontium-90	3.712	1900	0.03
Tritium	0.0421	440000	0.000001
Uranium-234	6.846	1500	0.07
Uranium-235/236	0.481	87	0.08
		Total Dose	**3**

* SALs from LANL (2009, 107655).

Table H-4.2-209
Recreational Carcinogenic Screening Evaluation for AOC 02-009(d)

COPC	EPC (mg/kg)	Recreational SSL* (mg/kg)	Cancer Risk
Aroclor-1248	0.0059	10.5	6E-09
Aroclor-1260	0.0674	10.5	6E-07
Benzo(a)anthracene	0.588	30.1	2E-07
Benzo(a)pyrene	0.182	3.01	6E-07
Benzo(b)fluoranthene	0.41	30.1	1E-07
Benzo(k)fluoranthene	0.0555	301	2E-09
Chrysene	0.324	3010	1E-09
Indeno(1,2,3-c,d)pyrene	0.293	30.1	1E-07
Naphthalene	0.0122	1950	6E-11
		Total Excess Cancer Risk	**2E-06**

* SSLs from LANL (2010, 108613).

Table H-4.2-210
Recreational Noncarcinogenic Screening Evaluation for AOC 02-009(d)

COPC	EPC (mg/kg)	Recreational SSL[a] (mg/kg)	HQ
Cadmium	0.49	784	6E-04
Mercury	1.087	238	5E-03
Perchlorate	0.00132	555	2E-06
Selenium	1.523	3960	4E-04
Zinc	46.63	238000	2E-04
Acenaphthene	0.0805	20800	4E-06
Anthracene	0.239	104000	2E-06
Aroclor-1254	0.0301	6.65	5E-03
Benzo(g,h,i)perylene	0.312	10400[b]	3E-05
Fluoranthene	0.724	13900	5E-05
Fluorene	0.0834	13900	6E-06
Methylnaphthalene[2-]	0.00756	3170	2E-06
Phenanthrene	0.507	12000	4E-05
Pyrene	0.788	10400	8E-05
		HI	**0.01**

[a] SSLs from LANL (2010, 108613).

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

Table H-4.2-211
Recreational Radionuclide Screening Evaluation for AOC 02-009(d)

COPC	EPC (pCi/g)	Recreational SAL* (pCi/g)	Dose (mrem/yr)
Cesium-137	4.097	210	0.3
Cobalt-60	0.162	46	0.05
Plutonium-239/240	0.066	300	0.003
Strontium-90	3.712	5600	0.01
Tritium	0.0421	5300000	0.0000001
Uranium-234	6.846	3200	0.03
Uranium-235/236	0.481	520	0.01
		Total Dose	**0.4**

* SALs from LANL (2009, 107655).

Table H-4.2-212
Residential Carcinogenic Screening Evaluation for AOC 02-009(d)

COPC	EPC (mg/kg)	Residential SSL* (mg/kg)	Cancer Risk
Aroclor-1248	0.0059	2.22	3E-08
Aroclor-1260	0.0509	2.22	2E-07
Benzo(a)anthracene	0.0933	6.21	2E-07
Benzo(a)pyrene	0.0919	0.621	1E-06
Benzo(b)fluoranthene	0.13	6.21	2E-07
Benzo(k)fluoranthene	0.0555	6.21	9E-09
Chrysene	0.165	621	3E-09
Dichlorobenzene[1,4-]	0.000595	32.2	2E-10
Indeno(1,2,3-c,d)pyrene	0.293	6.21	5E-07
Naphthalene	0.0122	45	3E-09
		Total Excess Cancer Risk	**3E-06**

* SSLs from NMED (2009, 108070).

Table H-4.2-213
Residential Noncarcinogenic Screening Evaluation for AOC 02-009(d)

COPC	EPC (mg/kg)	Residential SSL[a] (mg/kg)	HQ
Antimony	0.35	31.3	1E-02
Cadmium	0.398	77.9	5E-03
Chromium hexavalent	0.156	219	7E-04
Mercury	0.693	23[b]	3E-02
Perchlorate	0.00111	54.8	2E-05
Selenium	1.287	391	3E-03
Zinc	44.51	23500	2E-03
Acenaphthene	0.0805	3440	2E-05
Anthracene	0.0486	17200	3E-06
Aroclor-1254	0.0261	1.12	2E-02
Benzo(g,h,i)perylene	0.312	1720[c]	2E-04
Di-n-butylphthalate	0.0421	6110	7E-06
Fluoranthene	0.359	2290	2E-04
Fluorene	0.0834	2290	4E-05
Isopropyltoluene[4-]	0.0034	3210[d]	1E-06
Methylnaphthalene[2-]	0.00756	310 [b]	2E-05
Phenanthrene	0.252	1830	1E-04
Pyrene	0.388	1720	2E-04
Styrene	0.00111	8970	1E-07
Toluene	0.000775	5570	1E-07
		HI	**0.08**

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

[b] SSL from EPA regional tables (http://www.epa.gov/region06/6pd/rcra_c/pd-n/screen.htm).

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

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

Table H-4.2-214
Residential Radionuclide Screening Evaluation for AOC 02-009(d)

COPC	EPC (pCi/g)	Residential SAL* (pCi/g)	Dose (mrem/yr)
Cesium-137	4.653	5.6	12
Cobalt-60	0.162	1.3	2
Plutonium-239/240	0.306	33	0.1
Strontium-90	4.693	5.7	12
Tritium	0.0265	750	0.0005
Uranium-234	3.939	170	0.4
Uranium-235/236	0.273	17	0.2
		Total Dose	**27**

* SALs from LANL (2009, 107655).

Table H-4.2-215
Industrial Carcinogenic Screening Evaluation for AOC 02-010

COPC	EPC (mg/kg)	Industrial SSL* (mg/kg)	Excess Cancer Risk
Aroclor-1254	0.199	8.26	2E-07
Aroclor-1260	0.22	8.26	3E-07
Benzo(a)anthracene	0.0738	23.4	3E-08
Benzo(a)pyrene	0.116	2.34	5E-07
Benzo(b)fluoranthene	0.127	23.4	5E-08
Benzo(k)fluoranthene	0.0774	234	3E-09
Bis(2-ethylhexyl)phthalate	0.0534	1370	4E-10
Chrysene	0.0828	2340	4E-10
Indeno(1,2,3-c,d)pyrene	0.0782	23.4	3E-08
Naphthalene	0.022	252	9E-10
		Total Excess Cancer Risk	**1E-06**

***** SSLs from NMED (2009, 108070).

Table H-4.2-216
Industrial Noncarcinogenic Screening Evaluation for AOC 02-010

COPC	EPC (mg/kg)	Industrial SSL[a] (mg/kg)	HQ
Barium	306.4	224000	1E-03
Cadmium	1.411	1120	1E-03
Chromium hexavalent	0.26	2920	9E-05
Copper	12.53	45400	3E-04
Cyanide	14.4	22700	6E-04
Lead	55.64	800	7E-02
Mercury	0.279	310[b]	9E-04
Perchlorate	0.117	795	1E-04
Selenium	2.306	5680	4E-04
Zinc	65.36	341000	2E-04
Acenaphthene	0.0374	36700	1E-06
Anthracene	0.0316	183000	2E-07
Benzo(g,h,i)perylene	0.0642	18300[c]	4E-06
Di-n-butylphthalate	0.983	68400	1E-05
Fluoranthene	0.134	24400	5E-06
Fluorene	0.0232	24400	9E-07
Methylnaphthalene[2-]	0.0121	4100[b]	3E-06
Phenanthrene	0.0883	20500	4E-06
Pyrene	0.143	18300	8E-06
		HI	**0.07**

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

[b] SSL from EPA regional tables (http://www.epa.gov/region06/6pd/rcra_c/pd-n/screen.htm).

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

Table H-4.2-217
Industrial Radionuclide Screening Evaluation for AOC 02-010

COPC	EPC (pCi/g)	Industrial SAL* (pCi/g)	Dose (mrem/yr)
Cesium-137	7.76	23	5
Plutonium-239/240	0.587	210	0.04
Strontium-90	1.837	1900	0.01
Tritium	0.136	440000	0.000005
		Total Dose	**5**

* SALs from LANL (2009, 107655).

Table H-4.2-218
Recreational Carcinogenic Screening Evaluation for AOC 02-010

COPC	EPC (mg/kg)	Recreational SSL* (mg/kg)	Cancer Risk
Aroclor-1260	0.22	10.5	2E-07
Benzo(a)anthracene	0.0738	30.1	2E-08
Benzo(a)pyrene	0.116	3.01	4E-07
Benzo(b)fluoranthene	0.127	30.1	4E-08
Benzo(k)fluoranthene	0.0774	301	3E-09
Bis(2-ethylhexyl)phthalate	0.0534	1830	3E-10
Chrysene	0.0828	3010	3E-10
Indeno(1,2,3-c,d)pyrene	0.0782	30.1	3E-08
Naphthalene	0.022	1950	1E-10
		Total Excess Cancer Risk	**7E-07**

* SSLs from LANL (2010, 108613).

Table H-4.2-219
Recreational Noncarcinogenic Screening Evaluation for AOC 02-010

COPC	EPC (mg/kg)	Recreational SSL[a] (mg/kg)	HQ
Barium	306.4	158000	2E-03
Cadmium	1.411	784	2E-03
Chromium hexavalent	0.26	1910	1E-04
Copper	12.53	31700	4E-04
Cyanide	14.4	15800	9E-04
Lead	55.64	560	1E-01
Mercury	0.279	238	1E-03
Perchlorate	0.117	555	2E-04
Selenium	2.306	3960	6E-04
Zinc	65.36	238000	3E-04
Acenaphthene	0.0374	20800	2E-06
Anthracene	0.0316	104000	3E-07
Aroclor-1254	0.199	6.65	3E-02
Benzo(g,h,i)perylene	0.0642	10400[b]	6E-06
Di-n-butylphthalate	0.983	39900	2E-05
Fluoranthene	0.134	13900	1E-05
Fluorene	0.0232	13900	2E-06
Methylnaphthalene[2-]	0.0121	3170	4E-06
Phenanthrene	0.0883	12000	7E-06
Pyrene	0.143	10400	1E-05
		HI	**0.1**

[a] SSLs from LANL (2010, 108613).

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

Table H-4.2-220
Recreational Radionuclide Screening Evaluation for AOC 02-010

COPC	EPC (pCi/g)	Recreational SAL* (pCi/g)	Dose (mrem/yr)
Cesium-137	7.76	210	0.6
Plutonium-239/240	0.587	300	0.03
Strontium-90	1.837	5600	0.005
Tritium	0.136	5300000	0.0000004
		Total Dose	**0.6**

* SALs from LANL (2009, 107655).

Table H-4.2-221
Residential Carcinogenic Screening Evaluation for AOC 02-010

COPC	EPC (mg/kg)	Residential SSL* (mg/kg)	Cancer Risk
Aroclor-1248	0.0066	2.22	3E-08
Aroclor-1260	0.0664	2.22	3E-07
Benzo(a)anthracene	0.0543	6.21	9E-08
Benzo(a)pyrene	0.0599	0.621	1E-06
Benzo(b)fluoranthene	0.0702	6.21	1E-07
Benzo(k)fluoranthene	0.0774	6.21	1E-08
Bis(2-ethylhexyl)phthalate	0.0688	347	2E-09
Choroform	0.000219	5.72	4E-10
Chrysene	0.0539	621	9E-10
Indeno(1,2,3-c,d)pyrene	0.052	6.21	8E-08
Methylene chloride	0.00213	199	1E-10
Naphthalene	0.022	45	5E-09
		Total Excess Cancer Risk	**2E-06**

* SSLs from NMED (2009, 108070).

Table H-4.2-222
Residential Noncarcinogenic Screening Evaluation for AOC 02-010

COPC	EPC (mg/kg)	Residential SSL[a] (mg/kg)	HQ
Antimony	0.761	31.3	2E-02
Barium	162.1	15600	1E-02
Cadmium	1.047	77.9	1E-02
Chromium hexavalent	0.161	219	7E-04
Copper	9.837	3130	3E-03
Cyanide	14.4	1560	9E-03
Lead	30.51	400	8E-02
Mercury	0.2	23[b]	9E-03
Perchlorate	0.0135	54.8	2E-04
Selenium	1.855	391	5E-03
Zinc	47.58	23500	2E-03
Acenaphthene	0.0374	3440	1E-05
Anthracene	0.0268	17200	2E-06
Aroclor-1254	0.0301	1.12	3E-02
Benzo(g,h,i)perylene	0.0491	1720[c]	3E-05
Di-n-butylphthalate	0.983	6110	2E-04
Fluoranthene	0.093	2290	4E-05

Table H-4.2-222 (continued)

COPC	EPC (mg/kg)	Residential SSL[a] (mg/kg)	HQ
Fluorene	0.023	2290	1E-05
Methylnaphthalene[2-]	0.0121	310[b]	4E-05
Phenanthrene	0.0545	1830	3E-05
Pyrene	0.0871	1720	5E-05
Toluene	0.000593	5570	1E-07
		HI	**0.2**

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

[b] SSL from EPA regional tables (http://www.epa.gov/region06/6pd/rcra_c/pd-n/screen.htm).

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

Table H-4.2-223
Residential Radionuclide Screening Evaluation for AOC 02-010

COPC	EPC (pCi/g)	Residential SAL* (pCi/g)	Dose (mrem/yr)
Cesium-137	4.671	5.6	13
Plutonium-239/240	0.45	33	0.2
Strontium-90	1.578	5.7	4
Tritium	0.0445	750	0.0009
Uranium-234	1.245	170	0.1
Uranium-235/236	0.0843	17	0.07
Uranium-238	1.135	87	0.2
		Total Dose	**17**

* SALs from LANL (2009, 107655).

Table H-4.2-224
Industrial Carcinogenic Screening Evaluation for AOC 02-011(b)

COPC	EPC (mg/kg)	Industrial SSL* (mg/kg)	Excess Cancer Risk
Aroclor-1254	0.159	8.26	2E-07
Aroclor-1260	0.212	8.26	3E-07
Benzo(a)anthracene	0.112	23.4	5E-08
Benzo(a)pyrene	0.119	2.34	5E-07
Benzo(b)fluoranthene	0.169	23.4	7E-08
Benzo(k)fluoranthene	0.0782	234	3E-09
Bis(2-ethylhexyl)phthalate	0.137	1370	1E-09
Chrysene	0.121	2340	5E-10
Indeno(1,2,3-c,d)pyrene	0.0792	23.4	3E-08
Naphthalene	0.0239	252	9E-10
		Total Excess Cancer Risk	**1E-06**

* SSLs from NMED (2009, 108070).

Table H-4.2-225
Industrial Noncarcinogenic Screening Evaluation for AOC 02-011(b)

COPC	EPC (mg/kg)	Industrial SSL[a] (mg/kg)	HQ
Cadmium	0.243	1120	2E-04
Chromium hexavalent	0.693	2920	2E-04
Mercury	0.461	310[b]	1E-03
Selenium	0.845	5680	1E-04
Zinc	70.1	341000	2E-04
Acenaphthene	0.0321	36700	9E-07
Anthracene	0.0453	183000	2E-07
Benzo(g,h,i)perylene	0.0901	18300[c]	5E-06
Fluoranthene	0.205	24400	8E-06
Fluorene	0.0244	24400	1E-06
Methylnaphthalene[2-]	0.0151	4100 [b]	4E-06
Phenanthrene	0.158	20500	8E-06
Pyrene	0.21	18300	1E-05
		HI	**0.002**

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

[b] SSL from EPA regional tables (http://www.epa.gov/region06/6pd/rcra_c/pd-n/screen.htm).

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

Table H-4.2-226
Industrial Radionuclide Screening Evaluation for AOC 02-011(b)

COPC	EPC (pCi/g)	Industrial SAL* (pCi/g)	Dose (mrem/yr)
Cesium-137	16.11	23	11
Plutonium-239/240	0.605	210	0.04
Tritium	0.122	440000	0.000004
		Total Dose	**11**

* SALs from LANL (2009, 107655).

Table H-4.2-227
Recreational Carcinogenic Screening Evaluation for AOC 02-011(b)

COPC	EPC (mg/kg)	Recreational SSL* (mg/kg)	Cancer Risk
Aroclor-1260	0.212	10.5	2E-07
Benzo(a)anthracene	0.112	30.1	4E-08
Benzo(a)pyrene	0.119	3.01	4E-07
Benzo(b)fluoranthene	0.169	30.1	6E-08
Benzo(k)fluoranthene	0.0782	301	3E-09
Bis(2-ethylhexyl)phthalate	0.137	1830	7E-10
Chrysene	0.121	3010	4E-10
Indeno(1,2,3-c,d)pyrene	0.0792	30.1	3E-08
Naphthalene	0.0239	1950	1E-10
		Total Excess Cancer Risk	**7E-07**

* SSLs from LANL (2010, 108613).

Table H-4.2-228
Recreational Noncarcinogenic Screening Evaluation for AOC 02-011(b)

COPC	EPC (mg/kg)	Recreational SSL[a] (mg/kg)	HQ
Cadmium	0.243	784	3E-04
Chromium hexavalent	0.693	1910	4E-04
Mercury	0.461	238	2E-03
Selenium	0.845	3960	2E-04
Zinc	70.1	238000	3E-04
Acenaphthene	0.0321	20800	2E-06
Anthracene	0.0453	104000	4E-07
Aroclor-1254	0.159	6.65	2E-02
Benzo(g,h,i)perylene	0.0901	10400[b]	9E-06
Fluoranthene	0.205	13900	1E-05
Fluorene	0.0244	13900	2E-06
Methylnaphthalene[2-]	0.0151	3170	5E-06
Phenanthrene	0.158	12000	1E-05
Pyrene	0.21	10400	2E-05
		HI	**0.03**

[a] SSLs from LANL (2010, 108613).
[b] Pyrene SSL used as a surrogate based on structural similarity.

Table H-4.2-229
Recreational Radionuclide Screening Evaluation for AOC 02-011(b)

COPC	EPC (pCi/g)	Recreational SAL* (pCi/g)	Dose (mrem/yr)
Cesium-137	16.11	210	1
Plutonium-239/240	0.605	300	0.03
Tritium	0.122	5300000	0.0000004
		Total Dose	**1**

* SALs from LANL (2009, 107655).

Table H-4.2-230
Residential Carcinogenic Screening Evaluation for AOC 02-011(b)

COPC	EPC (mg/kg)	Residential SSL* (mg/kg)	Cancer Risk
Aroclor-1260	0.183	2.22	8E-07
Benzo(a)anthracene	0.112	6.21	2E-07
Benzo(a)pyrene	0.119	0.621	2E-06
Benzo(b)fluoranthene	0.1	6.21	2E-07
Benzo(k)fluoranthene	0.0782	6.21	1E-08
Bis(2-ethylhexyl)phthalate	0.137	347	4E-09
Chrysene	0.121	621	2E-09
Indeno(1,2,3-c,d)pyrene	0.0792	6.21	1E-07
Naphthalene	0.0239	45	5E-09
		Total Excess Cancer Risk	**3E-06**

* SSLs from NMED (2009, 108070).

Table H-4.2-231
Residential Noncarcinogenic Screening Evaluation for AOC 02-011(b)

COPC	EPC (mg/kg)	Residential SSL[a] (mg/kg)	HQ
Antimony	0.941	31.3	3E-02
Cadmium	0.25	77.9	3E-03
Chromium hexavalent	0.463	219	2E-03
Manganese	431.2	10700	4E-02
Mercury	0.251	23[b]	1E-02
Selenium	2.09	391	5E-03
Uranium	6.83	235	3E-02
Zinc	55.48	23500	2E-03
Acenaphthene	0.0321	3440	9E-06
Anthracene	0.0453	17200	3E-06
Aroclor-1254	0.215	1.12	2E-01
Benzo(g,h,i)perylene	0.0901	1720[c]	5E-05
Fluoranthene	0.118	2290	5E-05
Fluorene	0.0244	2290	1E-05
Methylnaphthalene[2-]	0.0151	310 [b]	5E-05
Phenanthrene	0.158	1830	9E-05
Pyrene	0.116	1720	7E-05
		HI	**0.3**

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

[b] SSL from EPA regional tables (http://www.epa.gov/region06/6pd/rcra_c/pd-n/screen.htm).

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

Table H-4.2-232
Residential Radionuclide Screening Evaluation for AOC 02-011(b)

COPC	EPC (pCi/g)	Residential SAL* (pCi/g)	Dose (mrem/yr)
Cesium-137	90.87	5.6	243
Plutonium-238	0.0255	37	0.01
Plutonium-239/240	1.886	33	0.9
Strontium-90	10.92	5.7	29
Tritium	0.0723	750	0.001
Uranium-234	2.526	170	0.2
Uranium-235/236	0.15	17	0.1
Uranium-238	2.378	87	0.4
		Total Dose	**274**

* SALs from LANL (2009, 107655).

Table H-4.2-233
Dioxin/Furan Calculation for AOC 02-011(c) for the Industrial and Recreational Scenarios

COPCs	EPC (mg/kg) (0–1 ft)	Toxic Equivalency Factor (TEF)*	Toxic Equivalency Calculation
Heptachlorodibenzodioxin[1,2,3,4,6,7,8-]	5.32E-04	0.001	5.32E-07
Hexachlorodibenzodioxin[1,2,3,4,7,8-]	3.76E-06	0.1	3.76E-07
Hexachlorodibenzodioxin[1,2,3,6,7,8-]	1.63E-05	0.1	1.63E-06
Hexachlorodibenzodioxin[1,2,3,7,8,9-]	8.15E-06	0.1	8.15E-07
Octachlorodibenzodioxin[1,2,3,4,6,7,8,9-]	5.36E-03	0.0003	1.61E-06
Pentachlorodibenzodioxin[1,2,3,7,8-]	1.19E-06	1	1.19E-06
Tetrachlorodibenzodioxin[2,3,7,8-]	6.61E-07	1	6.61E-07
Heptachlorodibenzofuran[1,2,3,4,6,7,8-]	1.32E-04	0.01	1.32E-06
Heptachlorodibenzofuran[1,2,3,4,7,8,9-]	1.56E-05	0.01	1.56E-07
Hexachlorodibenzofuran[1,2,3,4,7,8-]	5.44E-06	0.1	5.44E-07
Hexachlorodibenzofuran[1,2,3,6,7,8-]	5.19E-06	0.1	5.19E-07
Hexachlorodibenzofuran[1,2,3,7,8,9-]	1.20E-06	0.1	1.20E-07
Hexachlorodibenzofuran[2,3,4,6,7,8-]	6.74E-06	0.1	6.74E-07
Octachlorodibenzofuran[1,2,3,4,6,7,8,9-]	2.72E-04	0.0003	8.16E-08
Pentachlorodibenzofuran[1,2,3,7,8-]	8.81E-07	0.03	2.64E-08
Pentachlorodibenzofuran[2,3,4,7,8-]	2.62E-06	0.3	7.86E-07
Tetrachlorodibenzofuran[2,3,7,8-]	1.26E-06	0.1	1.26E-07
		2,3,7,8-TCDD Sum	**1.12E-05**

*TEFs from www.who.int/ipcs/assessment/tef_update/en/print.html.

Table H-4.2-234
Industrial Carcinogenic Screening Evaluation for AOC 02-011(c)

COPC	EPC (mg/kg)	Industrial SSL* (mg/kg)	Excess Cancer Risk
Aroclor-1254	0.0518	8.26	6E-08
Aroclor-1260	0.12	8.26	1E-07
Benzo(a)anthracene	0.0137	23.4	6E-09
2,3,7,8-TCDD	0.0000112	0.000204	5E-07
		Total Excess Cancer Risk	**7E-07**

* SSLs from NMED (2009, 108070).

Table H-4.2-235
Industrial Noncarcinogenic Screening Evaluation for AOC 02-011(c)

COPC	EPC (mg/kg)	Industrial SSL* (mg/kg)	HQ
Fluoranthene	0.0143	24400	6E-08
Pyrene	0.0177	18300	1E-06
		HI	**0.000002**

* SSLs from NMED (2009, 108070).

Table H-4.2-236
Recreational Carcinogenic Screening Evaluation for AOC 02-011(c)

COPC	EPC (mg/kg)	Recreational SSL* (mg/kg)	Cancer Risk
Aroclor-1260	0.12	10.5	1E-07
Benzo(a)anthracene	0.0137	30.1	5E-09
2,3,7,8-TCDD	0.0000112	0.000319	4E-07
		Total Excess Cancer Risk	**5E-07**

* SSLs from LANL (2010, 108613).

Table H-4.2-237
Recreational Noncarcinogenic Screening Evaluation for AOC 02-011(c)

COPC	EPC (mg/kg)	Recreational SSL* (mg/kg)	HQ
Aroclor-1254	0.0518	6.65	8E-03
Fluoranthene	0.0143	13900	1E-06
Pyrene	0.0177	10400	2E-06
		HI	**0.008**

* SSLs from LANL (2010, 108613).

Table H-4.2-238
Dioxin/Furan Calculation for AOC 02-011(c) for the Residential Scenario

COPCs	EPC (mg/kg) (0–10 ft)	Toxic Equivalency Factor (TEF)*	Toxic Equivalency Calculation
Heptachlorodibenzodioxin[1,2,3,4,6,7,8-]	5.32E-04	0.001	5.32E-07
Hexachlorodibenzodioxin[1,2,3,4,7,8-]	3.76E-06	0.1	3.76E-07
Hexachlorodibenzodioxin[1,2,3,6,7,8-]	1.63E-05	0.1	1.63E-06
Hexachlorodibenzodioxin[1,2,3,7,8,9-]	8.15E-06	0.1	8.15E-07
Octachlorodibenzodioxin[1,2,3,4,6,7,8,9-]	5.36E-03	0.0003	1.61E-06
Pentachlorodibenzodioxin[1,2,3,7,8-]	1.19E-06	1	1.19E-06
Tetrachlorodibenzodioxin[2,3,7,8-]	6.61E-07	1	6.61E-07
Heptachlorodibenzofuran[1,2,3,4,6,7,8-]	1.32E-04	0.01	1.32E-06
Heptachlorodibenzofuran[1,2,3,4,7,8,9-]	1.56E-05	0.01	1.56E-07
Hexachlorodibenzofuran[1,2,3,4,7,8-]	5.44E-06	0.1	5.44E-07
Hexachlorodibenzofuran[1,2,3,6,7,8-]	5.19E-06	0.1	5.19E-07
Hexachlorodibenzofuran[1,2,3,7,8,9-]	1.20E-06	0.1	1.20E-07
Hexachlorodibenzofuran[2,3,4,6,7,8-]	6.74E-06	0.1	6.74E-07
Octachlorodibenzofuran[1,2,3,4,6,7,8,9-]	2.72E-04	0.0003	8.16E-08
Pentachlorodibenzofuran[1,2,3,7,8-]	8.81E-07	0.03	2.64E-08
Pentachlorodibenzofuran[2,3,4,7,8-]	2.62E-06	0.3	7.86E-07
Tetrachlorodibenzofuran[2,3,7,8-]	1.26E-06	0.1	1.26E-07
		2,3,7,8-TCDD Sum	**1.12E-05**

* TEFs from www.who.int/ipcs/assessment/tef_update/en/print.html.

Table H-4.2-239
Residential Carcinogenic Screening Evaluation for AOC 02-011(c)

COPC	EPC (mg/kg)	Residential SSL* (mg/kg)	Cancer Risk
Aroclor-1260	0.12	2.22	5E-07
Benzo(a)anthracene	0.0137	6.21	2E-08
2,3,7,8-TCDD	0.0000112	0.000045	2E-06
		Total Excess Cancer Risk	**3E-06**

* SSLs from NMED (2009, 108070).

Table H-4.2-240
Residential Noncarcinogenic Screening Evaluation for AOC 02-011(c)

COPC	EPC (mg/kg)	Residential SSL* (mg/kg)	HQ
Antimony	0.996	31.3	3E-02
Cadmium	0.175	77.9	2E-03
Nitrate	31.9	125000	3E-04
Selenium	1.7	391	4E-03
Aroclor-1254	0.0518	1.12	5E-02
Fluoranthene	0.0143	2290	6E-06
Pyrene	0.0177	1720	1E-05
Toluene	0.000674	5570	1E-07
		HI	**0.08**

* SSLs from NMED (2009, 108070).

Table H-4.2-241
Residential Radionuclide Screening Evaluation for AOC 02-011(c)

COPC	EPC (pCi/g)	Residential SAL* (pCi/g)	Dose (mrem/yr)
Tritium	0.031	750	0.0006
		Total Dose	**0.0006**

* SALs from LANL (2009, 107655).

Table H-4.2-242
Industrial Carcinogenic Screening Evaluation for AOC 02-011(d)

COPC	EPC (mg/kg)	Industrial SSL* (mg/kg)	Excess Cancer Risk
Arsenic	8.7	17.7	5E-06
Aroclor-1254	0.12	8.26	1E-07
Aroclor-1260	0.0831	8.26	1E-07
Benzo(a)anthracene	0.082	23.4	3E-08
Benzo(a)pyrene	0.103	2.34	4E-07
Benzo(b)fluoranthene	0.129	23.4	6E-08
Chrysene	0.0917	2340	4E-10
Indeno(1,2,3-c,d)pyrene	0.0482	23.4	2E-08
Naphthalene	0.0164	252	7E-10
		Total Excess Cancer Risk	**6E-06**

* SSLs from NMED (2009, 108070).

Table H-4.2-243
Industrial Noncarcinogenic Screening Evaluation for AOC 02-011(d)

COPC	EPC (mg/kg)	Industrial SSL[a] (mg/kg)	HQ
Cadmium	0.69	1120	6E-04
Chromium	240	2920[b]	8E-02
Copper	41	45400	9E-04
Lead	44.4	800	6E-02
Perchlorate	0.00111	795	1E-06
Silver	1.1	5680	2E-04
Zinc	190	341000	6E-04
Acenaphthene	0.0223	36700	6E-07
Anthracene	0.0286	183000	2E-07
Benzo(g,h,i)perylene	0.0544	18300[c]	3E-06
Fluoranthene	0.153	24400	6E-06
Fluorene	0.0181	24400	7E-07
Methylnaphthalene[2-]	0.00869	4100[d]	2E-06
Phenanthrene	0.13	20500	6E-06
Pyrene	0.159	18300	9E-06
		HI	**0.1**

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

[b] SSL for chromium(VI).

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

[d] SSL from EPA regional tables (http://www.epa.gov/region06/6pd/rcra_c/pd-n/screen.htm).

Table H-4.2-244
Industrial Radionuclide Screening Evaluation for AOC 02-011(d)

COPC	EPC (pCi/g)	Industrial SAL* (pCi/g)	Dose (mrem/yr)
Cesium-137	1.66	23	1
Cobalt-60	2.19	5.1	6.4
Plutonium-239/240	1.28	210	0.09
Tritium	0.103	440000	0.000004
Uranium-234	2.87	1500	0.03
		Total Dose	**8**

* SALs from LANL (2009, 107655).

Table H-4.2-245
Recreational Carcinogenic Screening Evaluation for AOC 02-011(d)

COPC	EPC (mg/kg)	Recreational SSL* (mg/kg)	Cancer Risk
Arsenic	8.7	27.7	3E-06
Aroclor-1260	0.0831	10.5	8E-08
Benzo(a)anthracene	0.082	30.1	3E-08
Benzo(a)pyrene	0.103	3.01	3E-07
Benzo(b)fluoranthene	0.129	30.1	4E-08
Chrysene	0.0917	3010	3E-10
Indeno(1,2,3-c,d)pyrene	0.0482	30.1	2E-08
Naphthalene	0.0164	1950	8E-11
		Total Excess Cancer Risk	**4E-06**

* SSLs from LANL (2010, 108613).

Table H-4.2-246
Recreational Noncarcinogenic Screening Evaluation for AOC 02-011(d)

COPC	EPC (mg/kg)	Recreational SSL[a] (mg/kg)	HQ
Cadmium	0.69	784	9E-04
Chromium	240	1910[b]	1E-01
Copper	41	31700	1E-03
Lead	44.4	560	8E-02
Perchlorate	0.00111	555	2E-06
Silver	1.1	3960	3E-04
Zinc	190	238000	8E-04
Acenaphthene	0.0223	20800	1E-06
Anthracene	0.0286	104000	3E-07
Aroclor-1254	0.12	6.65	2E-02
Benzo(g,h,i)perylene	0.0544	10400[c]	5E-06
Fluoranthene	0.153	13900	1E-05
Fluorene	0.0181	13900	1E-06
Methylnaphthalene[2-]	0.00869	3170	3E-06
Phenanthrene	0.13	12000	1E-05
Pyrene	0.159	10400	2E-05
		HI	**0.2**

[a] SSLs from LANL (2010, 108613).
[b] SSL for chromium(VI).
[c] Pyrene SSL used as a surrogate based on structural similarity.

Table H-4.2-247
Recreational Radionuclide Screening Evaluation for AOC 02-011(d)

COPC	EPC (pCi/g)	Recreational SAL* (pCi/g)	Dose (mrem/yr)
Cesium-137	1.66	210	0.1
Cobalt-60	2.19	46	0.7
Plutonium-239/240	1.28	300	0.06
Tritium	0.103	5300000	0.0000003
Uranium-234	2.87	3200	0.01
		Total Dose	**0.9**

* SALs from LANL (2009, 107655).

Table H-4.2-248
Residential Carcinogenic Screening Evaluation for AOC 02-011(d)

COPC	EPC (mg/kg)	Residential SSL* (mg/kg)	Cancer Risk
Arsenic	8.7	3.9	2E-05
Aroclor-1260	0.0831	2.22	4E-07
Benzo(a)anthracene	0.082	6.21	1E-07
Benzo(a)pyrene	0.103	0.621	2E-06
Benzo(b)fluoranthene	0.129	6.21	2E-07
Chrysene	0.0917	621	1E-09
Indeno(1,2,3-c,d)pyrene	0.0482	6.21	8E-08
Naphthalene	0.0164	45	4E-09
		Total Excess Cancer Risk	**2E-05**

* SSLs from NMED (2009, 108070).

Table H-4.2-249
Residential Noncarcinogenic Screening Evaluation for SWMU 02-011(d)

COPC	EPC (mg/kg)	Residential SSL[a] (mg/kg)	HQ
Cadmium	0.69	77.9	9E-03
Chromium	240	219[b]	1.1
Chromium hexavalent	0.775	219	4E-03
Copper	41	3130	1E-02
Lead	44.4	400	1E-01
Perchlorate	0.00111	54.8	2E-05
Silver	1.1	391	3E-03
Zinc	190	23500	8E-03
Acenaphthene	0.0223	3440	6E-06
Anthracene	0.0286	17200	2E-06
Aroclor-1254	0.12	1.12	1E-01
Benzo(g,h,i)perylene	0.0544	1720[c]	3E-05
Fluoranthene	0.153	2290	7E-05
Fluorene	0.0181	2290	8E-06
Methylnaphthalene[2-]	0.00869	310 [d]	3E-05
Phenanthrene	0.13	1830	7E-05
Pyrene	0.159	1720	9E-05
		HI	**1**

[a] SSLs from NMED (2009, 108070), unless otherwise noted.
[b] SSL for chromium(VI).
[c] Pyrene SSL used as a surrogate based on structural similarity.
[d] SSL from EPA regional tables (http://www.epa.gov/region06/6pd/rcra_c/pd-n/screen.htm).

Table H-4.2-250
Residential Radionuclide Screening Evaluation for AOC 02-011(d)

COPC	EPC (pCi/g)	Residential SAL* (pCi/g)	Dose (mrem/yr)
Cesium-137	1.007	5.6	3
Cobalt-60	1.338	1.3	15
Plutonium-239/240	0.752	33	0.3
Tritium	0.124	750	0.002
Uranium-234	2.198	170	0.2
		Total Dose	**19**

* SALs from LANL (2009, 107655).

Table H-4.2-251
Industrial Carcinogenic Screening Evaluation for AOC 02-012

COPC	EPC (mg/kg)	Industrial SSL* (mg/kg)	Excess Cancer Risk
Benzo(a)anthracene	0.237	23.4	1E-07
Benzo(a)pyrene	0.24	2.34	1E-06
Benzo(b)fluoranthene	0.421	23.4	2E-07
Chrysene	0.24	2340	1E-09
Indeno(1,2,3-c,d)pyrene	0.189	23.4	8E-08
Naphthalene	0.0929	45	4E-09
		Total Excess Cancer Risk	**1E-06**

* SSLs from NMED (2009, 108070).

Table H-4.2-252
Industrial Noncarcinogenic Screening Evaluation for AOC 02-012

COPC	EPC (mg/kg)	Industrial SSL[a] (mg/kg)	HQ
Cadmium	0.883	1120	8E-04
Chromium	35.5	2920[b]	1E-02
Mercury	2.822	310[c]	9E-03
Perchlorate	0.00172	795	2E-06
Selenium	1.571	5680	3E-04
Zinc	298.2	341000	9E-04
Acenaphthene	0.0707	36700	2E-06
Anthracene	0.17	183000	9E-07
Benzo(g,h,i)perylene	0.186	18300[d]	8E-06
Dibenzofuran	0.109	1000[c]	1E-05
Di-n-butylphthalate	0.049	68400	1E-04
Fluoranthene	0.489	24400	7E-07
Fluorene	0.0643	24400	2E-05
2-Methylnaphthalene	0.0425	4100[c]	1E-05
Phenanthrene	0.43	20500	3E-06
Pyrene	0.527	18300	2E-05
		HI	**0.02**

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

[b] SSL for chromium(VI).

[c] SSL from EPA regional tables (http://www.epa.gov/region06/6pd/rcra_c/pd-n/screen.htm).

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

Table H-4.2-253
Industrial TPH Screening Evaluation for AOC 02-012

COPC	EPC (mg/kg)	Industrial* (mg/kg)	HQ
TPH-DRO	80.61	1120	0.07
		HI	**0.07**

* Screening guideline for diesel No. 2 from NMED (2006, 094614).

Table H-4.2-254
Industrial Radionuclide Screening Evaluation for AOC 02-012

COPC	EPC (pCi/g)	Industrial SAL* (pCi/g)	Dose (mrem/yr)
Tritium	9.71E-03	440000	0.0000003
		Total Dose	**0.0000003**

* SALs from LANL (2009, 107655).

Table H-4.2-255
Recreational Carcinogenic Screening Evaluation for AOC 02-012

COPC	EPC (mg/kg)	Recreational SSL* (mg/kg)	Cancer Risk
Benzo(a)anthracene	0.237	30.1	8E-08
Benzo(a)pyrene	0.24	3.01	8E-07
Benzo(b)fluoranthene	0.421	30.1	1E-07
Chrysene	0.24	3010	8E-10
Indeno(1,2,3-c,d)pyrene	0.189	30.1	6E-08
Naphthalene	0.0929	1950	5E-10
		Total Excess Cancer Risk	**1E-06**

* SSLs from LANL (2010, 108613).

Table H-4.2-256
Recreational Noncarcinogenic Screening Evaluation for AOC 02-012

COPC	EPC (mg/kg)	Recreational SSL[a] (mg/kg)	HQ
Cadmium	0.883	784	1E-03
Chromium	35.5	1910[b]	2E-02
Mercury	2.822	238	1E-02
Perchlorate	0.00172	555	3E-06
Selenium	1.571	3960	4E-04
Zinc	298.2	238000	1E-03
Acenaphthene	0.0707	20800	3E-06
Anthracene	0.17	104000	2E-06
Benzo(g,h,i)perylene	0.186	10400[c]	2E-05
Dibenzofuran	0.109	399	3E-04
Di-n-butylphthalate	0.049	39900	1E-06
Fluoranthene	0.489	13900	4E-05
Fluorene	0.0643	13900	5E-06
2-Methylnaphthalene	0.0425	3170	1E-05
Phenanthrene	0.43	12000	4E-05
Pyrene	0.527	10400	5E-05
		HI	**0.03**

[a] SSLs from LANL (2010, 108613).

[b] SSL for chromium(VI).

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

Table H-4.2-257
Recreational Radionuclide Screening Evaluation for AOC 02-012

COPC	EPC (pCi/g)	Recreational SAL* (pCi/g)	Dose (mrem/yr)
Tritium	9.71E-03	5300000	0.00000003
		Total Dose	**0.00000003**

* SALs from LANL (2009, 107655).

Table H-4.2-258
Residential Carcinogenic Screening Evaluation for AOC 02-012

COPC	EPC (mg/kg)	Residential SSL* (mg/kg)	Cancer Risk
Arsenic	2.213	3.9	6E-06
Aroclor 1260	0.0019	2.22	9E-09
Benzo(a)anthracene	0.149	6.21	2E-07
Benzo(a)pyrene	0.155	0.621	2E-06
Benzo(b)fluoranthene	0.265	6.21	4E-07
Chrysene	0.165	621	3E-09
1,4-Dichlorobenzene	0.000252	32.2	8E-11
Indeno(1,2,3-c,d)pyrene	0.0768	6.21	1E-07
Methylene chloride	0.00416	199	2E-09
Naphthalene	0.0782	45	2E-08
Trichloroethene	0.000635	45.7	1E-10
		Total Excess Cancer Risk	**9E-06**

* SSLs from NMED (2009, 108070)

Table H-4.2-259
Residential Noncarcinogenic Screening Evaluation for SWMU 02-012

COPC	EPC (mg/kg)	Residential SSL[a] (mg/kg)	HQ
Aluminum	3887	78100	5E-02
Antimony	0.172	31.3	5E-03
Barium	47.95	15600	3E-03
Cadmium	0.883	77.9	1E-02
Chromium	10.38	219[b]	5E-02
Copper	7.831	3130	3E-03
Iron	8437	54800	2E-01
Manganese	320.6	10700	3E-02
Mercury	1.281	23[c]	6E-02
Nickel	3.107	1560	2E-03
Perchlorate	0.00152	54.8	3E-05
Selenium	1.489	391	4E-03
Vanadium	9.376	391	2E-02
Zinc	153.7	23500	7E-03
Acenaphthene	0.0525	3440	2E-05
Anthracene	0.0718	17200	4E-06
Aroclor-1254	0.0027	1.12	2E-03
Benzo(g,h,i)perylene	0.0764	1720[d]	4E-05

Table H-4.2-259 (continued)

COPC	EPC (mg/kg)	Residential SSL[a] (mg/kg)	HQ
Dibenzofuran	0.109	78[c]	1E-03
Di-n-butylphthalate	0.0678	6110	1E-05
Fluoranthene	0.305	2290	1E-04
Fluorene	0.0487	2290	2E-05
2-Methylnaphthalene	0.0373	310 [c]	1E-04
Phenanthrene	0.231	1830	1E-04
Pyrene	0.474	1720	3E-04
		HI	**0.4**

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

[b] SSL for chromium(VI).

[c] SSL from EPA regional tables (http://www.epa.gov/region06/6pd/rcra_c/pd-n/screen.htm).

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

Table H-4.2-260
Residential TPH Screening Evaluation for AOC 02-012

COPC	EPC (mg/kg)	Residential* (mg/kg)	HQ
TPH-DRO	24.84	520	0.05
		HI	**0.05**

* Screening guideline for diesel No. 2 from NMED (2006, 094614).

Table H-4.2-261
Residential Radionuclide Screening Evaluation for AOC 02-012

COPC	EPC (pCi/g)	Residential SAL* (pCi/g)	Dose (mrem/yr)
Americium-241	0.0987	30	0.05
Plutonium-239/240	0.228	33	0.1
Tritium	0.11	750	0.002
		Total Dose	**0.2**

* SALs from LANL (2009, 107655).

Table H-4.2-262
Industrial Carcinogenic Screening Evaluation for Lateral Extent at TA-02

COPC	EPC (mg/kg)	Industrial SSL* (mg/kg)	Excess Cancer Risk
Aroclor-1242	0.0062	8.26	8E-09
Aroclor-1254	0.059	8.26	7E-08
Aroclor-1260	0.26	8.26	3E-07
Benzo(a)anthracene	0.0401	23.4	2E-08
Benzo(a)pyrene	0.0633	2.34	3E-07
Benzo(b)fluoranthene	0.152	23.4	6E-08
Benzo(k)fluoranthene	0.0232	234	1E-09
Chrysene	0.0708	2340	3E-10
Indeno(1,2,3-c,d)pyrene	0.0394	23.4	2E-08
Naphthalene	0.0823	252	3E-09
		Total Excess Cancer Risk	**8E-07**

* SSLs from NMED (2009, 108070).

Table H-4.2-263
Industrial Noncarcinogenic Screening Evaluation for Lateral Extent at TA-02

COPC	EPC (mg/kg)	Industrial SSL[a] (mg/kg)	HQ
Antimony	0.751	454	2E-03
Cadmium	0.206	1120	2E-04
Chromium	8.161	2920[b]	3E-03
Cyanide	0.234	22700	1E-05
Mercury	0.446	310 [c]	1E-03
Silver	0.445	5680	8E-05
Zinc	58.33	341000	2E-04
Acenaphthene	0.0311	36700	8E-07
Anthracene	0.0225	183000	1E-07
Benzo(g,h,i)perylene	0.0404	18300[d]	2E-06
Benzoic acid	0.705	2500000 [c]	3E-07
Fluoranthene	0.175	24400	7E-06
Fluorene	0.0172	24400	7E-07
Methylnaphthalene[2-]	0.128	4100 [c]	3E-05
Phenanthrene	0.116	20500	6E-06
Pyrene	0.195	18300	1E-05
		HI	**0.01**

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

[b] SSL for chromium(VI).

[c] SSL from EPA regional tables (http://www.epa.gov/region06/6pd/rcra_c/pd-n/screen.htm).

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

Table H-4.2-264
Industrial Radionuclide Screening Evaluation for Lateral Extent at TA-02

COPC	EPC (pCi/g)	Industrial SAL* (pCi/g)	Dose (mrem/yr)
Americium-241	0.0238	180	0.002
Cesium-137	1.074	23	0.7
Plutonium-238	0.707	240	0.04
Plutonium-239/240	0.725	210	0.05
Tritium	0.0611	440000	0.000002
Uranium-235/236	0.14	87	0.02
Uranium-238	2.19	430	0.08
		Total Dose	**0.9**

* SALs from LANL (2009, 107655).

Table H-4.2-265
Recreational Carcinogenic Screening Evaluation for Lateral Extent at TA-02

COPC	EPC (mg/kg)	Recreational SSL* (mg/kg)	Cancer Risk
Aroclor-1242	0.0062	10.5	6E-09
Aroclor-1260	0.26	10.5	2E-07
Benzo(a)anthracene	0.0401	30.1	1E-08
Benzo(a)pyrene	0.0633	3.01	2E-07
Benzo(b)fluoranthene	0.152	30.1	5E-08
Benzo(k)fluoranthene	0.0232	301	8E-10
Chrysene	0.0708	3010	2E-10
Indeno(1,2,3-c,d)pyrene	0.0394	30.1	1E-08
Naphthalene	0.0823	1950	4E-10
		Total Excess Cancer Risk	**5E-07**

* SSLs from LANL (2010, 108613).

Table H-4.2-266
Recreational Noncarcinogenic Screening Evaluation for Lateral Extent at TA-02

COPC	EPC (mg/kg)	Recreational SSL[a] (mg/kg)	HQ
Antimony	0.751	317	2E-03
Cadmium	0.206	784	3E-04
Chromium	8.161	1910[b]	4E-03
Cyanide	0.234	15800	1E-05
Mercury	0.446	238	2E-03
Silver	0.445	3960	1E-04
Zinc	58.33	238000	2E-04
Acenaphthene	0.0311	20800	1E-06
Anthracene	0.0225	104000	2E-07
Aroclor-1254	0.059	6.65	9E-03
Benzo(g,h,i)perylene	0.0404	10400[c]	4E-06
Benzoic acid	0.705	1590000	4E-07
Fluoranthene	0.175	13900	1E-05
Fluorene	0.0172	13900	1E-06
Methylnaphthalene[2-]	0.128	3170	4E-05
Phenanthrene	0.116	12000	1E-05
Pyrene	0.195	10400	2E-05
		HI	**0.02**

[a] SSLs from LANL (2010, 108613).
[b] SSL for chromium(VI).
[c] Pyrene SSL used as a surrogate based on structural similarity.

Table H-4.2-267
Recreational Radionuclide Screening Evaluation for Lateral Extent at TA-02

COPC	EPC (pCi/g)	Recreational SAL* (pCi/g)	Dose (mrem/yr)
Americium-241	0.0238	280	0.001
Cesium-137	1.074	210	0.08
Plutonium-238	0.707	330	0.03
Plutonium-239/240	0.725	300	0.04
Tritium	0.0611	5300000	0.0000002
Uranium-236/236	0.14	520	0.004
Uranium-238	2.19	2100	0.02
		Total Dose	**0.2**

* SALs from LANL (2009, 107655).

Table H-4.2-268
Residential Carcinogenic Screening Evaluation for Lateral Extent at TA-02

COPC	EPC (mg/kg)	Residential SSL* (mg/kg)	Cancer Risk
Arsenic	0.972	3.9	2E-06
Aroclor-1242	0.0062	2.22	3E-08
Aroclor-1260	0.105	2.22	5E-07
Benzo(a)anthracene	0.0263	6.21	4E-08
Benzo(a)pyrene	0.0334	0.621	5E-07
Benzo(b)fluoranthene	0.0494	6.21	8E-08
Benzo(k)fluoranthene	0.0232	6.21	4E-09
Chrysene	0.0354	621	6E-10
Indeno(1,2,3-c,d)pyrene	0.0333	6.21	5E-08
Naphthalene	0.0823	45	2E-08
Total Excess Cancer Risk			**4E-06**

* SSLs from NMED (2009, 108070)

Table H-4.2-269
Residential Noncarcinogenic Screening Evaluation for Lateral Extent at TA-02

COPC	EPC (mg/kg)	Residential SSL[a] (mg/kg)	HQ
Aluminum	4059	78100	5E-02
Antimony	0.712	31.3	2E-02
Barium	49.73	15600	3E-03
Beryllium	0.784	156	5E-03
Cadmium	0.195	77.9	3E-03
Chromium	11.4	219[b]	5E-02
Chromium hexavalent	0.192	219	9E-04
Copper	4.385	3130	1E-03
Cyanide	0.201	1560	1E-04
Iron	7703	54800	1E-01
Manganese	324.5	10700	3E-02
Mercury	0.161	23[c]	7E-03
Nickel	3.049	1560	2E-03
Selenium	1.39	391	4E-03
Silver	0.324	391	8E-04
Vanadium	7.966	391	2E-02
Zinc	46.27	23500	2E-03
Acenaphthene	0.0311	3440	9E-06
Anthracene	0.0206	17200	1E-06

Table H-4.2-269 (continued)

COPC	EPC (mg/kg)	Residential SSL[a] (mg/kg)	HQ
Aroclor-1254	0.0157	1.12	1E-02
Benzo(g,h,i)perylene	0.0277	1720[d]	2E-05
Benzoic Acid	0.705	240000 [c]	3E-06
Fluoranthene	0.0586	2290	3E-05
Fluorene	0.0172	2290	7E-06
Methylnaphthalene[2-]	0.128	310 [c]	4E-04
Phenanthrene	0.0371	1830	2E-05
Pyrene	0.0629	1720	4E-05
		HI	**0.4**

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

[b] SSL for chromium(VI).

[c] SSL from EPA regional tables (http://www.epa.gov/region06/6pd/rcra_c/pd-n/screen.htm).

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

Table H-4.2-270
Residential Radionuclide Screening Evaluation for Lateral Extent at TA-02

COPC	EPC (pCi/g)	Residential SAL* (pCi/g)	Dose (mrem/yr)
Americium-241	0.0304	30	0.02
Cesium-137	0.447	5.6	1
Plutonium-238	0.707	37	0.3
Plutonium-239/240	0.281	33	0.1
Strontium-90	0.171	5.7	0.4
Tritium	0.00973	750	0.0002
Uranium-235/236	0.11	17	0.1
Uranium-238	1.631	87	0.3
		Total Dose	**2**

* SALs from LANL (2009, 107655).

Table H-5.3-1
ESLs for Terrestrial Receptors

COPC	Red Fox (mammalian top carnivore)	American Kestrel (avian top carnivore)	Kestrel (avian intermediate American carnivore)	American Robin (avian herbivore)	American Robin (avian omnivore)	American Robin (avian insectivore)	Desert Cottontail (mammalian herbivore)	Montane Shrew (mammalian insectivore)	Deer Mouse (mammalian omnivore)	Earthworm (soil dwelling invertebrate)	Plant (terrestrial autotroph-producer)
Inorganic Chemicals (mg/kg)											
Antimony	45	na*	na	na	na	na	2.9	0.26	0.48	78	0.05
Arsenic	810	1100	160	42	26	18	160	15	32	6.8	18
Barium	41000	37000	11000	820	930	1000	3300	1300	1800	330	110
Chromium (total)	30000	37000	7700	1900	1100	830	13000	750	1900	2.3	2.4
Chromium (hexavalent)	7200	5400	2200	280	220	190	3200	280	860	0.34	0.35
Copper	3800	1600	110	38	22	15	270	38	64	80	70
Cyanide (total)	2200	0.58	0.47	0.1	0.1	0.1	740	310	340	na	na
Lead	3700	810	120	21	16	14	370	72	120	1700	120
Nickel	1200	2900	160	160	38	21	500	9.7	20	280	38
Selenium	84	97	5.6	1	0.87	0.75	2.1	0.66	0.83	4.1	0.52
Organic Chemicals (mg/kg)											
Aroclor-1242	16	1.4	0.26	1	0.079	0.041	30	0.38	0.76	na	na
Aroclor-1254	0.15	0.22	0.17	1.3	0.08	0.041	52	0.44	0.88	na	160
Aroclor-1260	0.14	4.6	3.7	46	1.7	0.88	3000	10	20	na	na
Dichlorobenzene[1,4-]	72	na	na	na	na	na	11	0.88	1.5	1.2	na
Toluene	3100	na	na	na	na	na	61	23	25	na	200
Trichloroethene	6400	na	na	na	na	na	170	42	55	na	na

Table H-5.3-1 (continued)

COPC	Red Fox (mammalian top carnivore)	American Kestrel (avian top carnivore)	Kestrel (avian intermediate American carnivore)	American Robin (avian herbivore)	American Robin (avian omnivore)	American Robin (avian insectivore)	Desert Cottontail (mammalian herbivore)	Montane Shrew (mammalian insectivore)	Deer Mouse (mammalian omnivore)	Earthworm (soil dwelling invertebrate)	Plant (terrestrial autotroph-producer)
Radionuclides (pCi/g)											
Cesium-137	680	2900	3700	4200	3700	3800	2300	2400	2400	1700	2300
Plutonium-239/240	33000	160000	34000	8600	2100	2100	170000	110000	150000	47	160000
Strontium-90	560	1900	2400	600	930	1500	1300	1700	1700	1200	1300
Tritium	190000	580000	630000	300000	440000	600000	230000	340000	330000	48000	36000
Uranium-235	4800	10000	10000	9000	6400	6400	5100	5100	5100	55	4000

Note: Values from ECORISK Database, Release 2.5 (LANL 2010, 110846).

* na = Not available.

Table H-5.3-2
Minimum ESL Comparison for SWMU 02-006(a)

COPC	EPC	ESL	Receptor	HQ
Inorganic Chemicals (mg/kg)				
Antimony	0.501	0.05	Plant	**10**
Arsenic	2.676	6.8	Earthworm	**0.39**
Barium	88.37	110	Plant	**0.80**
Chromium (total)	8.37	2.3	Earthworm	**3.64**
Chromium (hexavalent)	0.0526	0.34	Earthworm	0.15
Copper	4.633	15	Robin	**0.31**
Cyanide (total)	0.21	0.1	Robin	**2.07**
Lead	16.68	14	Robin	**1.19**
Nickel	5.92	9.7	Shrew	**0.61**
Selenium	8.52	0.52	Plant	**16.4**
Organic Chemicals (mg/kg)				
Aroclor-1242	0.0043	0.041	Robin	0.10
Aroclor-1254	0.0032	0.041	Robin	0.08
Aroclor-1260	0.0028	0.14	Red fox	0.02
Dichlorobenzene[1,4-]	0.00215	0.88	Shrew	0.002
Toluene	0.000328	23	Shrew	0.000014
Trichloroethene	0.000313	42	Shrew	0.0000075
Radionuclides (pCi/g)				
Cesium-137	4.315	680	Red fox	0.0064
Plutonium-239	0.0626	47	Earthworm	0.0013
Strontium-90	0.344	560	Red fox	0.00061
Tritium	10.96	36000	Plant	0.0003
Uranium-235	0.0602	55	Earthworm	0.0011

Note: Bolded values indicate HQ greater than 0.3.

Table H-5.3-3
HI Analysis for SWMU 02-006(a)

COPECs	EPC (mg/kg)	Red Fox (mammalian top carnivore)	American Kestrel (avian top carnivore)	Kestrel (avian intermediate American carnivore)	American Robin (avian herbivore)	American Robin (avian omnivore)	American Robin (avian insectivore)	Desert Cottontail (mammalian herbivore)	Montane Shrew (mammalian insectivore)	Deer Mouse (mammalian omnivore)	Earthworm (soil dwelling invertebrate)	Plant (terrestrial autotroph-producer)
Inorganic Chemicals												
Antimony	0.501	0.01	na*	na	na	na	na	0.17	**1.93**	**1.04**	0.01	**10.02**
Arsenic	2.676	0.003	0.002	0.02	0.06	0.10	0.15	0.02	0.18	0.08	**0.39**	0.15
Barium	88.37	0.002	0.002	0.01	0.11	0.10	0.09	0.03	0.07	0.05	0.27	**0.8**
Chromium (total)	8.37	0.0003	0.0002	0.001	0.004	0.01	0.01	0.001	0.01	0.004	**3.64**	**3.49**
Copper	4.633	0.001	0.003	0.04	0.1	0.2	**0.31**	0.02	0.1	0.07	0.06	0.07
Cyanide	0.21	0.0001	**0.36**	**0.45**	**2.1**	**2.1**	**2.1**	0.0003	0.001	0.001	na	na
Lead	16.68	0.005	0.02	0.14	**0.79**	**1.04**	**1.19**	0.05	0.23	0.14	0.01	0.14
Nickel	5.92	0.005	0.002	0.04	0.04	0.16	0.28	0.01	**0.61**	0.30	0.02	0.16
Selenium	8.52	0.10	0.09	**1.52**	**8.52**	**9.79**	**11**	**4.06**	**13**	**10**	**2.08**	**16**
	HI	0.1	0.5	**2**	**12**	**13**	**15**	**4**	**16**	**12**	**6**	**31**

Note: Bolded values indicate HQ greater than 0.3 or HI greater than 1.0.

* na = Not available.

Table H-5.4-1
Comparison of EPCs with Background Concentrations for SWMU 02-006(a)

COPEC	EPC (mg/kg)	Soil Background Concentrations[a] (mg/kg)	Tuff Background Concentrations[a] (mg/kg)
Antimony	0.501	0.1–1.0	0.5[b]
Arsenic	2.676	0.3–9.3	0.25–5
Barium	88.37	21–410	1.4–51.6
Chromium	8.37	1.9–36.5	0.25–13
Copper	4.633	0.25–16	0.25–6.2
Cyanide	0.21	0.5[b]	0.5[b]
Lead	16.68	2–28	1.6–15.5
Nickel	5.92	1–29	0.5–7
Selenium	8.52	0.1–1.7	0.1–0.105

Note: Bolded COPEC is retained.
[a] Background concentrations from LANL (1998, 059730).
[b] BV used.

Table H-5.4-2
PAUFs for Ecological Receptors for SWMU 02-006(a)

Receptor	HR[a] (ha)	Population Area (ha)	PAUF[b]
American Kestrel	106	4240	1.9E-06
American Robin	0.42	16.8	4.8E-04
Deer Mouse	0.077	3.1	2.6E-03
Montane Shrew	0.39	15.6	5.2E-04
Desert Cottontail	3.1	124	6.6E-05
Red Fox	1038	41,520	2.0E-07
Mexican spotted owl	366	n/a[c]	2.2E-05

[a] Values from EPA (1993, 059384).
[b] PAUF is calculated as the area of the site (0.0081 ha) divided by the population area.
[c] n/a = Not applicable.

Table H-5.4-3
Adjusted HIs at SWMU 02-006(a)

COPECs	EPC (mg/kg)	Red Fox (mammalian top carnivore)	American Kestrel (avian top carnivore)	Kestrel (avian intermediate American carnivore)	American Robin (avian herbivore)	American Robin (avian omnivore)	American Robin (avian insectivore)	Desert Cottontail (mammalian herbivore)	Montane Shrew (mammalian insectivore)	Deer Mouse (mammalian omnivore)	Earthworm (soil dwelling invertebrate)	Plant (terrestrial autotroph-producer)
Inorganic Chemicals (mg/kg)												
Selenium	8.52	2.0E-08	1.7E-07	2.9E-06	0.0041	0.0047	0.0055	0.0027	0.0067	0.027	**2.08**	**16**
Adjusted HI		0.00000002	0.0000002	0.000003	0.004	0.005	0.006	0.003	0.007	0.03	**2**	**16**

Note: Bolded values indicate HQ greater than 0.3 or HI greater than 1.0.

Table H-5.4-4
Summary of LOAEL-Based ESLs for Terrestrial Receptors

COPEC	Receptor	LOAEL-Based TRV	Unit	LOAEL-Based ESL (mg/kg soil)	Rationale for Deriving LOAELs/LOECs
Selenium	Earthworm	41	mg/kg	4.1E+01	Lowest observed effect concentration (LOEC) is from the literature. The no observed effect concentration (NOEC) is derived from this LOEC by applying an uncertainty factor of 0.1.
	Plant	3.4	mg/kg	3.4E+00	LOEC is extrapolated from EPA geometric mean NOEC data set (http://www.epa.gov/ecotox/ecossl/pdf/eco-ssl_selenium.pdf). Uncertainty factor of 5 used for maximum acceptable toxicant concentrations (MATCs) and 10 used for effective concentrations for 20% of the population (EC_{20}s) and calculated geometric mean.

Notes: Some COPECs (e.g., inorganic chemicals from EPA Eco-SSL documents) do not have LOAELs or LOECs. In these cases, an uncertainty factor of 10 was applied to the NOAEL/NOEC (i.e., EC_{10} and EC_{20}) data in accordance with the acknowledged uncertainty between the LOAEL/LOEC and NOAEL/NOEC in Dourson and Stara (1983, 073474), Calbrese and Baldwin (1993, 110405), and EPA (http://www.epa.gov/epawaste/hazard/tsd/td/combust/ecorisk.htm). In the cases where EPA used MATCs for the NOAEL/NOEC data, an uncertainty factor of 5 was used to adjust to the LOAEL/LOEC because the MATC is between the NOAEL/NOEC and the LOAEL/LOEC.

Table H-5.4-5
HI Analysis Using LOAEL-Based ESLs for SWMU 02-006(a)

COPECs	EPC (mg/kg)	Earthworm	Plant
Selenium	8.52	0.2	2.5
	HI	0.2	**3**

Attachment H-1

ProUCL Files
(on CD included with this document)

Attachment H-2

Ecological Scoping Checklist for
Middle Los Alamos Canyon Aggregate Area

Part A—Scoping Meeting Documentation

Site ID	SWMU 02-006(a)
Form of site releases (solid, liquid, vapor). Describe all relevant known or suspected mechanisms of release (spills, dumping, material disposal, outfall, explosive testing, etc.) and describe potential areas of release. Reference locations on a map as appropriate.	Solid Waste Management Unit (SWMU) 02-006(a) is located on the mesa top above Technical Area 02 (TA-02) on the south rim of Los Alamos Canyon in TA-61. SWMU 02-006(a) is a French drain associated with a mesa top stack. The French drain system was designed to collect condensate that collected as reactor gases cooled while venting through the exhaust stack. The form of site release from SWMU 02-006(a) is liquid leaking, spilling, or discharging from the French drain system. Potential areas of release were to surface and subsurface soil and tuff.
List of Primary Impacted Media **(Indicate all that apply.)**	**Surface soil** – X **Surface water/sediment** – X (Sediment) **Subsurface** – X **Groundwater** – N/A **Other, explain** – None
FIMAD vegetation class based on Arcview vegetation coverage **(Indicate all that apply.)**	**Water** – N/A **Bare Ground/Unvegetated** – X **Spruce/fir/aspen/mixed conifer** – N/A **Ponderosa pine** – X **Piñon juniper/juniper savannah** – X **Grassland/shrubland** – X **Developed** – Unpaved road, overhead power lines, fencing
Is T&E Habitat Present? **If applicable, list species known or suspected to use the site for breeding or foraging.**	No threatened and endangered (T&E) species habitat is present.
Provide list of Neighboring/ Contiguous/ Up-gradient sites, include a brief summary of COPCs and form of releases for relevant sites and reference map as appropriate. **(Use information to evaluate need to aggregate sites for screening.)**	There are no upgradient sites from SWMU 02-006(a).
Surface Water Erosion Potential Information **Summarize information from SOP 2.01, including the run-off subscore (maximum of 46); terminal point of surface water transport; slope; and surface water runon sources.**	Surface water transport and erosion potential at SWMU 02-006(a), on the mesa top, is considered low because of the relatively flat terrain (<10% slope). Los Alamos Canyon is the terminal point for surface water transport via runoff from the mesa top.

Part B—Site Visit Documentation

Site ID	SWMU 02-006(a)
Date of Site Visit	**02/18/2011**
Site Visit Conducted by	**John Branch**

Receptor Information:

Estimate cover	Relative vegetative cover (high, medium, low, none) = medium Relative wetland cover (high, medium, low, none) = none Relative structures/asphalt, etc. cover (high, medium, low, none) = low
Field notes on the FIMAD vegetation class to assist in ground-truthing the Arcview information	The SWMU exhibits a moderate amount of variable vegetative cover throughout. Vegetation from the ponderosa pine zone and piñon/juniper zone is established throughout the site, and limited amounts of secondary successional grass and shrub species in the areas resulting from disturbances and erosion are also present.
Field notes on T&E Habitat, if applicable. Consider the need for a site visit by a T&E subject matter expert to support the use of the site by T&E receptors.	No T&E species habitat is present.
Are ecological receptors present at the site? **(yes/no/uncertain)** **Describe the general types of receptors present at the site (terrestrial and aquatic), and make notes on the quality of habitat present at the site.**	Yes. Receptors are present at SWMU 02-006(a). The general types of receptors are terrestrial biota such as reptiles, small mammals, invertebrate insects, birds, and plants. The quality of habitat at the sites is sustainable for native plant and animal species present in the area.

Contaminant Transport Information:

Surface water transport **Field notes on the erosion potential, including a discussion of the terminal point of surface water transport (if applicable).**	SWMU 02-006(a) contains moderate vegetation, resulting in greater stability of the media at the site. In addition, the site is located in the central area of the mesa, thus decreasing the likelihood of surface water transport. The only areas where a slight possibility of surface water transport exists are areas near the mesa edge that consist of bare ground and short, spotty bunch grasses. The transport of surface water terminates at the bottom of Los Alamos Canyon.
Are there any off-site transport pathways (surface water, air, or groundwater)? **(yes/no/uncertain)** **Provide explanation**	Storm events may produce ephemeral surface drainage downgradient. No groundwater transport pathway exists. Surface contamination may be dispersed by wind although moderate vegetation cover inhibits this process.
Interim action needed to limit off-site transport? **(yes/no/uncertain)** **Provide explanation/ recommendation to project lead for IA SMDP.**	No. The levels of contaminants for SWMU 02-006(a) are low and off-site transport is not likely.

Ecological Effects Information:

Physical Disturbance **(Provide list of major types of disturbances, including erosion and construction activities, review historical aerial photos where appropriate.)**	The site has a low amount of physical disturbance, primarily from erosion and the installation of dirt roads, a fence, and power lines.
Are there obvious ecological effects? **(yes/no/uncertain)** **Provide explanation and apparent cause (e.g., contamination, physical disturbance, other).**	No.
Interim action needed to limit apparent ecological effects? **(yes/no/uncertain)** **Provide explanation and recommendations to mitigate apparent exposure pathways to project lead for IA SMDP.**	No.

No Exposure/Transport Pathways:

If there are no complete exposure pathways to ecological receptors onsite and no transport pathways to offsite receptors, the remainder of the checklist should not be completed. Stop here and provide additional explanation/justification for proposing an ecological No Further Action recommendation (if needed). At a minimum, the potential for future transport should include likelihood that future construction activities could make contamination more available for exposure or transport.

Not Applicable.

Adequacy of Site Characterization:

Do existing or proposed data provide information on the nature, rate and extent of contamination? **(yes/no/uncertain)** **Provide explanation** **(Consider if the maximum value was captured by existing sample data.)**	The Middle Los Alamos Canyon Aggregate Area investigation was designed to provide data to define nature and extent of contamination at SMWU 02-006(a). The nature and extent of contamination is defined for SWMU 02-006(a).
Do existing or proposed data for the site address potential transport pathways of site contamination? **(yes/no/uncertain)** **Provide explanation** **(Consider if other sites should aggregated to characterize potential ecological risk.)**	Yes. The data include sites downgradient of the contamination to accommodate for potential transport pathways of site contamination.

Part C—Ecological Pathways Conceptual Exposure Model

Question A:

Could soil contaminants reach receptors via vapors?

- **Volatility of the hazardous substance (volatile chemicals generally have Henry's Law constant >10^{-5} atm-me/mol and molecular weight <200 g/mol).**

Answer (likely/unlikely/uncertain): Unlikely

Provide explanation: Volatile organic compounds are infrequently detected, in the subsurface, and are at low concentrations.

Question B:

Could the soil contaminants reach receptors through fugitive dust carried in air?

- **Soil contamination would have to be on the actual surface of the soil to become available for dust.**
- **In the case of dust exposures to burrowing animals, the contamination would have to occur in the depth interval where these burrows occur.**

Answer (likely/unlikely/uncertain): Likely

Provide explanation: Low percentage of vegetative cover makes the likelihood of soil contaminants reaching receptors through fugitive dust likely.

Question C:

Can contaminated soil be transported to aquatic ecological communities (use SOP 2.01 run-off score and terminal point of surface water runoff to help answer this question)?

- **If the SOP 2.01 run-off score* for each SWMU included in the site is equal to zero, this suggests that erosion at the site is not a transport pathway. (* Note that the runoff score is not the entire erosion potential score, rather it is a subtotal of this score with a maximum value of 46 points).**
- **If erosion is a transport pathway, evaluate the terminal point to see if aquatic receptors could be affected by contamination from this site.**

Answer (likely/unlikely/uncertain): Unlikely

Provide explanation: There are no aquatic ecological communities on or within close proximity to the sites and there is limited runoff from the sites.

Question D:

Is contaminated groundwater potentially available to biological receptors through seeps or springs or shallow groundwater?

- **Known or suspected presence of contaminants in groundwater.**
- **The potential for contaminants to migrate via groundwater and discharge into habitats and/or surface waters.**

- **Contaminants may be taken up by terrestrial and rooted aquatic plants whose roots are in contact with groundwater present within the root zone (~1 m depth).**
- **Terrestrial wildlife receptors generally will not contact groundwater unless it is discharged to the surface.**

Answer (likely/unlikely/uncertain): Unlikely

Provide explanation: There are no seeps, springs, or perched groundwater present on or near the sites. The depth of groundwater is greater than 1000 ft below ground surface at SWMU 02-006(a).

<u>Question E:</u>

Is infiltration/percolation from contaminated subsurface material a viable transport and exposure pathway?

- **Suspected ability of contaminants to migrate to groundwater.**
- **The potential for contaminants to migrate via groundwater and discharge into habitats and/or surface waters.**
- **Contaminants may be taken up by terrestrial and rooted aquatic plants whose roots are in contact with groundwater present within the root zone (~1 m depth).**
- **Terrestrial wildlife receptors generally will not contact groundwater unless it is discharged to the surface.**

Answer (likely/unlikely/uncertain): Unlikely

Provide explanation: Contaminants are unlikely to migrate to the regional aquifer given the depth to groundwater. The lack of a significant hydraulic driver (e.g., no standing surface water) facilitating infiltration also mitigates the potential for contaminants reaching groundwater.

<u>Question F:</u>

Might erosion or mass wasting events be a potential release mechanism for contaminants from subsurface materials or perched aquifers to the surface?

- **This question is only applicable to release sites located on or near the mesa edge.**
- **Consider the erodability of surficial material and the geologic processes of canyon/mesa edges.**

Answer (likely/unlikely/uncertain): Unlikely

Provide explanation: No perched aquifers exist on or near these sites. No evidence of mass wasting events in the area was found, and the erosion potential is minimal.

<u>Question G:</u>

Could airborne contaminants interact with receptors through respiration of vapors?

- **Contaminants must be present as volatiles in the air.**
- **Consider the importance of inhalation of vapors for burrowing animals.**
- **Foliar uptake of organic vapors is typically not a significant exposure pathway.**

Provide quantification of exposure pathway (0=no pathway, 1=unlikely pathway, 2=minor pathway, 3=major pathway):

Terrestrial Plants: 1

Terrestrial Animals: 1

Provide explanation: Volatile organic compounds are detected infrequently and at low concentrations.

<u>Question H:</u>

Could airborne contaminants interact with plants through deposition of particulates or with animals through inhalation of fugitive dust?

- **Contaminants must be present as particulates in the air or as dust for this exposure pathway to be complete.**
- **Exposure via inhalation of fugitive dust is particularly applicable to ground-dwelling species that would be exposed to dust disturbed by their foraging or burrowing activities or by wind movement.**

Provide quantification of exposure pathway (0=no pathway, 1=unlikely pathway, 2=minor pathway, 3=major pathway):

Terrestrial Plants: 2

Terrestrial Animals: 2

Provide explanation: Moderate vegetative ground cover, along with the burrowing activities of ground-dwelling terrestrial animals may create a minor pathway for fugitive dust in air to reach receptors.

<u>Question I:</u>

Could contaminants interact with plants through root uptake or rain splash from surficial soils?

- **Contaminants in bulk soil may partition into soil solution, making them available to roots.**
- **Exposure of terrestrial plants to contaminants present in particulates deposited on leaf and stem surfaces by rain striking contaminated soils (i.e., rain splash).**

Provide quantification of exposure pathway (0=no pathway, 1=unlikely pathway, 2=minor pathway, 3=major pathway):

Terrestrial Plants: 2

Provide explanation: Low concentrations of chemicals of potential concern (COPCs) were detected in surficial soil.

<u>Question J:</u>

Could contaminants interact with receptors through food web transport from surficial soils?

- **The chemicals may bioaccumulate in animals.**
- **Animals may ingest contaminated food items.**

Provide quantification of exposure pathway (0=no pathway, 1=unlikely pathway, 2=minor pathway, 3=major pathway):

Terrestrial Animals: 2

Provide explanation: Some bioaccumulating contaminants are present but at low enough concentrations so the transport pathway through the food webs to receptors is minimal.

Question K:

Could contaminants interact with receptors via incidental ingestion of surficial soils?

- **Incidental ingestion of contaminated soil could occur while animals grub for food resident in the soil, feed on plant matter covered with contaminated soil or while grooming themselves clean of soil.**

Provide quantification of exposure pathway (0=no pathway, 1=unlikely pathway, 2=minor pathway, 3=major pathway):

Terrestrial Animals: 2

Provide explanation: COPCs in surface and subsurface are at low levels.

Question L:

Could contaminants interact with receptors through dermal contact with surficial soils?

- **Significant exposure via dermal contact would generally be limited to organic contaminants that are lipophilic and can cross epidermal barriers.**

Provide quantification of exposure pathway (0=no pathway, 1=unlikely pathway, 2=minor pathway, 3=major pathway):

Terrestrial Animals: 2

Provide explanation: Lipophilic chemicals were detected at low concentrations at these sites.

Question M:

Could contaminants interact with plants or animals through external irradiation?

- **External irradiation effects are most relevant for gamma emitting radionuclides.**
- **Burial of contamination attenuates radiological exposure.**

Provide quantification of exposure pathway (0=no pathway, 1=unlikely pathway, 2=minor pathway, 3=major pathway):

Terrestrial Plants: 2

Terrestrial Animals: 2

Provide explanation: Radionuclides were detected infrequently and at low levels.

Stream Channel

Question N:

Could contaminants interact with plants through direct uptake from water and sediment or sediment rain splash?

- **Contaminants may be taken-up by terrestrial plants whose roots are in contact with surface waters.**
- **Terrestrial plants may be exposed to particulates deposited on leaf and stem surfaces by rain striking contaminated sediments (i.e., rain splash) in an area that is only periodically inundated with water.**
- **Contaminants in sediment may partition into soil solution, making them available to roots.**

Provide quantification of exposure pathway (0=no pathway, 1=unlikely pathway, 2=minor pathway, 3=major pathway):

Terrestrial Plants: 0

Provide explanation: No aquatic habitat exists on-site.

Question O:

Could contaminants interact with receptors through food web transport from water and sediment?

- **The chemicals may bioconcentrate in food items.**
- **Animals may ingest contaminated food items.**

Provide quantification of exposure pathway (0=no pathway, 1=unlikely pathway, 2=minor pathway, 3=major pathway):

Terrestrial Animals: 0

Provide explanation: No aquatic habitat exists on-site.

Question P:

Could contaminants interact with receptors via ingestion of water and suspended sediments?

- **If sediments are present in an area that is only periodically inundated with water, terrestrial receptors may incidentally ingest sediments.**
- **Terrestrial receptors may ingest water-borne contaminants if contaminated surface waters are used as a drinking water source.**

Provide quantification of exposure pathway (0=no pathway, 1=unlikely pathway, 2=minor pathway, 3=major pathway):

Terrestrial Animals: 0

Provide explanation: No aquatic habitat exists on-site.

<u>Question Q:</u>

Could contaminants interact with receptors through dermal contact with water and sediment?

- **If sediments are present in an area that is only periodically inundated with water, terrestrial species may be dermally exposed during dry periods.**
- **Terrestrial organisms may be dermally exposed to water-borne contaminants as a result of wading or swimming in contaminated waters.**

Provide quantification of exposure pathway (0=no pathway, 1=unlikely pathway, 2=minor pathway, 3=major pathway):

Terrestrial Animals: 0

Provide explanation: No aquatic habitat exists on-site.

<u>Question R:</u>

Could contaminants interact with plants or animals through external irradiation?

- **External irradiation effects are most relevant for gamma emitting radionuclides.**
- **Burial of contamination attenuates radiological exposure.**

Provide quantification of exposure pathway (0=no pathway, 1=unlikely pathway, 2=minor pathway, 3=major pathway):

Terrestrial Plants: 0

Terrestrial Animals: 0

Provide explanation: No aquatic habitat exists on-site.

<u>Question S:</u>

Could contaminants bioconcentrate in free floating aquatic, attached aquatic plants, or emergent vegetation?

- **Aquatic plants are in direct contact with water.**
- **Contaminants in sediment may partition into pore water, making them available to submerged roots.**

Provide quantification of exposure pathway (0=no pathway, 1=unlikely pathway, 2=minor pathway, 3=major pathway):

Aquatic Plants/Emergent Vegetation: 0

Provide explanation: No aquatic habitat exists on-site.

Question T:

Could contaminants bioconcentrate in sedimentary or water column organisms?

- **Aquatic receptors may actively or incidentally ingest sediment while foraging.**
- **Aquatic receptors may be directly exposed to contaminated sediments or may be exposed to contaminants through osmotic exchange, respiration, or ventilation of sediment pore waters.**
- **Aquatic receptors may be exposed through osmotic exchange, respiration, or ventilation of surface waters.**

Provide quantification of exposure pathway (0=no pathway, 1=unlikely pathway, 2=minor pathway, 3=major pathway):

Aquatic Animals: 0

Provide explanation: No aquatic habitat exists on-site.

Question U:

Could contaminants bioaccumulate in sedimentary or water column organisms?

- **Lipophilic organic contaminants and some metals may concentrate in an organism's tissues**
- **Ingestion of contaminated food items may result in contaminant bioaccumulation through the food web.**

Provide quantification of exposure pathway (0=no pathway, 1=unlikely pathway, 2=minor pathway, 3=major pathway):

Aquatic Animals: 0

Provide explanation: No aquatic habitat exists on-site.

Question V:

Could contaminants interact with aquatic plants or animals through external irradiation?

- **External irradiation effects are most relevant for gamma emitting radionuclides.**
- **The water column acts to absorb radiation, thus external irradiation is typically more important for sediment dwelling organisms.**

Provide quantification of exposure pathway (0=no pathway, 1=unlikely pathway, 2=minor pathway, 3=major pathway):

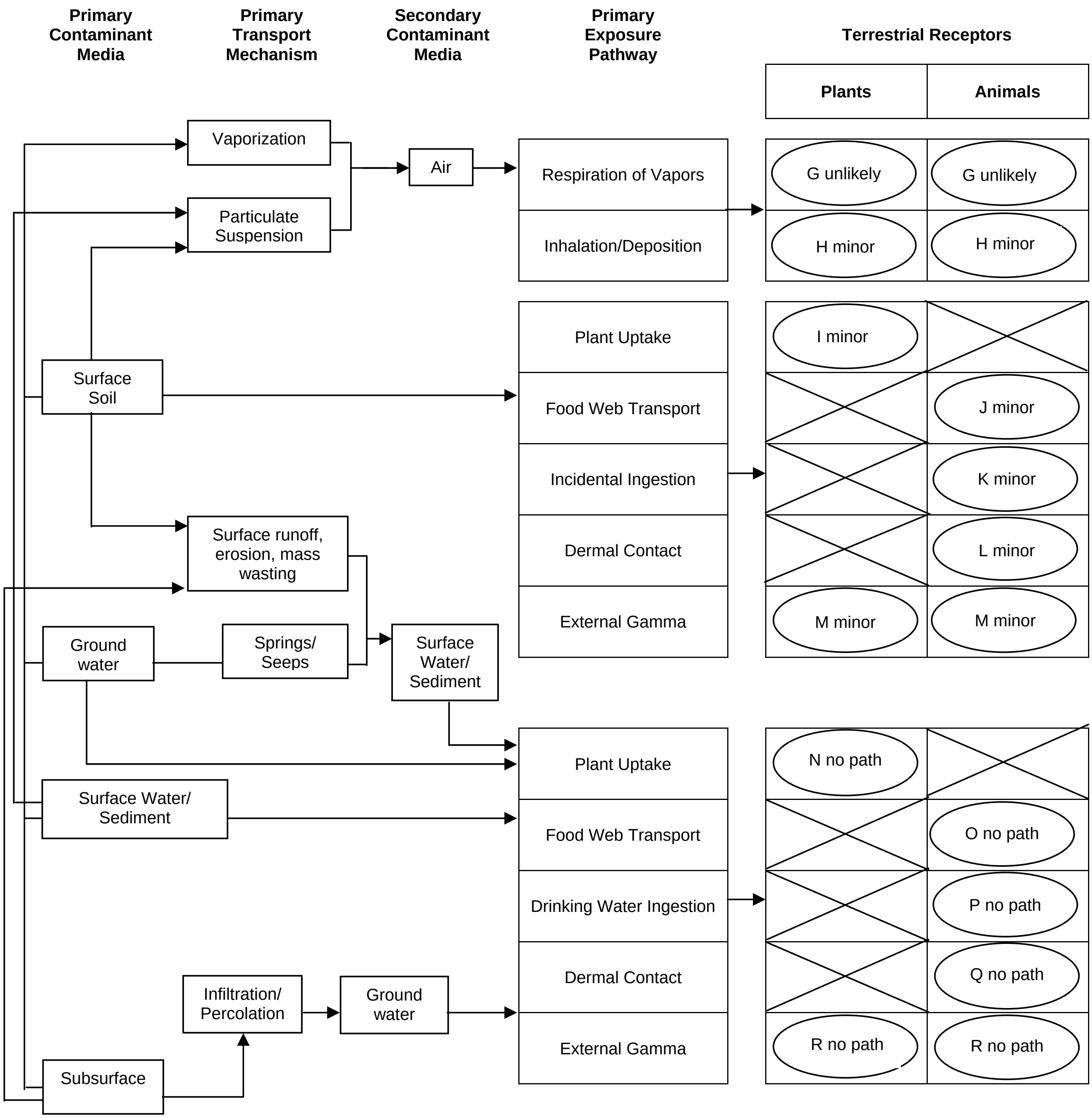
Aquatic Plants: 0

Aquatic Animals: 0

Provide explanation: No aquatic habitat exists on-site.

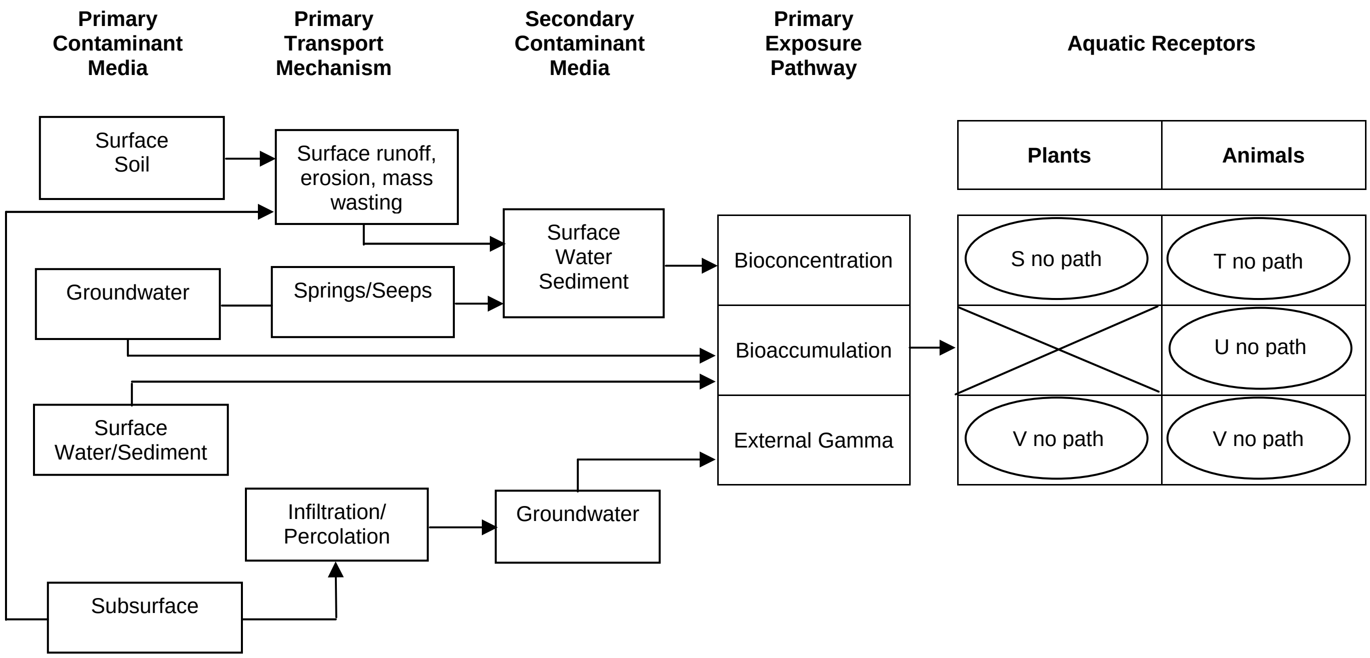
NOTE:
Letters in circles refer to questions on the Scoping Checklist

Ecological Scoping Checklist
Terrestrial Receptors
Ecological Pathways Conceptual Exposure Model



Ecological Scoping Checklist
Aquatic Receptors
Ecological Pathways Conceptual Exposure Model

NOTE:
Letters in circles refer to questions on the Scoping Checklist



Signatures and certifications:

Checklist completed by (provide name, organization, and phone number):

Name (printed): John P. Branch

Name (signature): John Branch

Organization: Los Alamos Technical Associates

Phone number: (505) 662-1822

Date Completed: **02/18/2011**

Verification by another party (provide name, organization, and phone number):

Name (printed): Richard Mirenda

Name (signature): Richard Mirenda

Organization: LANL ET-ER

Phone number: (505) 665-6953

Date Completed: **03/17/2011**

Attachment H-3

Technical Area 02 ALARA Assessment

The areas of concern (AOCs) and solid waste management units (SWMUs) at Technical Area 02 (TA-02), located within the Middle Los Alamos Canyon Aggregate Area, were evaluated for compliance with as low as reasonably achievable (ALARA) requirements. The calculated radiation doses for the recreational scenario at all of the TA-02 sites evaluated ranged from no dose to 1 mrem/yr. Therefore, the doses for the recreational scenario at the TA-02 sites, which is the current and foreseeable future land use, did not exceed 3 mrem/yr and are ALARA. The calculated radiation doses for the industrial scenario at all of the TA-02 sites evaluated ranged from no dose to 11 mrem/yr. The calculated radiation doses for the residential scenario at 19 TA-02 sites ranged from 0.0006 mrem/yr to 15 mrem/yr. The total doses at the other 10 TA-02 sites were above 15 mrem/yr for the residential scenario. After correction for decay of cobalt-60 from the sample collection date to the present, background subtraction for naturally occurring isotopic uranium for the residential scenario and background subtraction for naturally occurring isotopic uranium and fallout radionuclides for the industrial scenario, several AOCs and SWMUs still had doses between 3 mrem/yr and 15 mrem/yr for one or both of the scenarios, thus necessitating a quantitative ALARA analysis. Using a population density of 4.2 persons/hectare for the residential scenario and 26 persons/hectare for the industrial scenario and a 200-yr collective dose time period for both scenarios, the collective doses ranged from 0.06 person-rem to 6.1 person-rem for these sites.

Using a $2000 per person-rem monetary equivalent (U.S. Department of Energy–recommended value) results in $0.115K to $12.2K being reasonably spent for further remediation of these AOCs and SWMUs. However, the cost of actually remediating these sites, based on estimates for similar remediation projects previously conducted, would range from $287K to $4.8M. As a result, the amount that should be spent based on the person-rem estimate is much lower than the cost actually required to remediate the sites. Therefore, the individual and collective doses for these AOCs and SWMUs are ALARA from a quantitative standpoint.

The tables shaded in green are sites where decay correction and/or background subtraction resulted in the total dose being reduced to 3 mrem/yr or less. Tables not shaded are sites with total doses above 3 mrem/yr even after decay correction and/or background subtraction. Zeroes under the soil background column indicate no background subtraction occurred.

Residential Radionuclide Screening Evaluation for AOC 02-003(b)

COPC	EPC (pCi/g)	Soil Background **(pCi/g)**	Residential SAL (pCi/g)	Dose (mrem/yr)
Cesium-137	2.842	0	5.6	7.61
Plutonium-239/240	0.32	0	33	0.1
Strontium-90	0.96	0	5.7	2.53
Uranium-234	1.42	2.59	170	-0.103
Uranium-235/236	0.0908	0.2	17	-0.096
Uranium-238	1.367	2.29	87	-0.16
			Total Dose	**9.9**

Residential Radionuclide Screening Evaluation for AOC 02-003(c)

COPC	EPC (pCi/g)	Soil Background (pCi/g)	Residential SAL (pCi/g)	Dose (mrem/yr)
Cesium-137	1.335	0	5.6	3.6
Cobalt-60	0.153 (decay corrected)	No background	1.3	1.8
Plutonium-239/240	0.0954	0	33	0.043
Tritium	0.043	No background	750	0.00086
			Total Dose	**5.4**

Industrial Radionuclide Screening Evaluation for AOC 02-003(d)

COPC	EPC (pCi/g)	Soil Background (pCi/g)	Industrial SAL (pCi/g)	Dose (mrem/yr)
Cesium-137	0.597	1.65	23	-0.69
Cobalt-60	0.614 (decay corrected)	No background	5.1	1.81
Plutonium-239/240	0.095	0.054	210	0.0029
Tritium	0.103	No background	440000	0.0000035
Uranium-238	1.756	2.29	430	-0.019
			Total Dose	**1.1**

Residential Radionuclide Screening Evaluation for AOC 02-003(d)

COPC	EPC (pCi/g)	Soil Background (pCi/g)	Residential SAL (pCi/g)	Dose (mrem/yr)
Cesium-137	0.398	0	5.6	1.07
Cobalt-60	0.614 (decay corrected)	No background	1.3	7.1
Plutonium-239/240	0.0615	0	33	0.028
Tritium	0.0264	No background	750	0.00053
Uranium-234	1.596	2.59	170	-0.088
Uranium-235/236	0.105	0.2	17	-0.084
Uranium-238	1.712	2.29	87	-0.0997
			Total Dose	**7.9**

Industrial Radionuclide Screening Evaluation for AOC 02-004(a)

COPC	EPC (pCi/g)	Soil Background (pCi/g)	Industrial SAL* (pCi/g)	Dose (mrem/yr)
Cobalt-60	1.82 (decay corrected)	No background	5.1	5.4
Plutonium-239/240	0.806	0.054	210	0.1
Strontium-90	1.61	1.31	1900	0.0
Tritium	0.015	No background	440000	5.1E-07
			Total Dose	**5.4**

Residential Radionuclide Screening Evaluation for SWMU 02-007

COPC	EPC (pCi/g)	Soil Background (pCi/g)	Residential SAL (pCi/g)	Dose (mrem/yr)
Cesium-137	1.263	1.65	5.6	-1.04
Plutonium-239/240	0.595	0.054	33	0.2
Strontium-90	1.41	1.31	5.7	0.26
Tritium	0.027	No background	750	0.00054
			Total Dose	**-0.5**

Industrial Radionuclide Screening Evaluation for SWMU 02-009(a)

COPC	EPC (pCi/g)	Soil Background (pCi/g)	Industrial SAL (pCi/g)	Dose (mrem/yr)
Cesium-137	3.966	1.65	23	1.51
Plutonium-239/240	0.0578	0.054	210	0.00027
Tritium	0.0774	No background	440000	0.0000026
			Total Dose	**1.5**

Residential Radionuclide Screening Evaluation for SWMU 02-009(a)

COPC	EPC (pCi/g)	Soil Background (pCi/g)	Residential SAL (pCi/g)	Dose (mrem/yr)
Cesium-137	1.796	0	5.6	4.81
Plutonium-238	0.047	0	37	0.019
Plutonium-239/240	0.317	0	33	0.14
Strontium-90	0.262	0	5.7	0.69
Tritium	0.0208	No background	750	0.00042
			Total Dose	**5.7**

Industrial Radionuclide Screening Evaluation for AOC 02-006(c)

COPC	EPC (pCi/g)	Soil Background (pCi/g)	Industrial SAL (pCi/g)	Dose (mrem/yr)
Cesium-137	16.9	1.65	23	9.9
Plutonium-239/240	0.112	0.054	210	0.0041
Strontium-90	3.86	1.31	1900	0.0201
Tritium	0.0162	No background	440000	0.00000055
			Total Dose	**10.0**

Residential Radionuclide Screening Evaluation for AOC 02-006(e)

COPC	EPC (pCi/g)	Soil Background (pCi/g)	Residential SAL (pCi/g)	Dose (mrem/yr)
Cesium-137	0.279	0	5.6	0.7
Cobalt-60	0.137 (decay corrected)	No background	1.3	1.58
Plutonium-239/240	0.366	0	33	0.17
Tritium	0.225	No background	750	0.0045
Uranium-235/236	0.0906	0.2	17	-0.097
			Total Dose	**2.4**

Industrial Radionuclide Screening Evaluation for SWMU 02-006(a)

COPC	EPC (pCi/g)	Soil Background (pCi/g)	Industrial SAL (pCi/g)	Dose (mrem/yr)
Cesium-137	8.594	1.65	23	4.53
Plutonium-239/240	0.0626	0.054	210	0.00061
Strontium-90	2.69	1.31	1900	0.011
Tritium	0.502	No background	440000	0.000017
			Total Dose	**4.5**

Residential Radionuclide Screening Evaluation for SWMU 02-006(a)

COPC	EPC (pCi/g)	Soil Background (pCi/g)	Residential SAL (pCi/g)	Dose (mrem/yr)
Cesium-137	5.22	0	5.6	14.0
Plutonium-239/240	0.0626	0	33	0.03
Strontium-90	0.272	0	5.7	0.7
Tritium	11.74	No background	750	0.2
Uranium-235/236	0.0571	0.2	17	-0.13
			Total Dose	**14.8**

Industrial Radionuclide Screening Evaluation for AOC 02-004(b,c,d)

COPC	EPC (pCi/g)	Soil Background (pCi/g)	Industrial SAL (pCi/g)	Dose (mrem/yr)
Cobalt-60	0.555 (decay corrected)	No background	5.1	1.6
Plutonium-239/240	0.507	0.054	210	0.0
Tritium	0.0166	No background	440000	0.0
			Total Dose	**1.7**

Residential Radionuclide Screening Evaluation for AOC 02-004(b,c,d)

COPC	EPC (pCi/g)	Soil Background (pCi/g)	Residential SAL (pCi/g)	Dose (mrem/yr)
Cesium-137	0.653	0	5.6	1.7
Cobalt-60	0.555 (decay corrected)	No background	1.3	6.4
Plutonium-239/240	0.247	0	33	0.11
Tritium	0.212	No background	750	0.0042
			Total Dose	**8.3**

Residential Radionuclide Screening Evaluation for AOC 02-004(f)

COPC	EPC (pCi/g)	Soil Background (pCi/g)	Residential SAL (pCi/g)	Dose (mrem/yr)
Cesium-137	0.238	0	5.6	0.64
Cobalt-60	0.0405 (decay corrected)	No background	1.3	0.47
Plutonium-239/240	0.0334	0	33	0.015
Strontium-90	0.716	0	5.7	1.88
Tritium	0.512	No background	750	0.01
Total Dose				**3.0**

Industrial Radionuclide Screening Evaluation for AOC 02-004(g)

COPC	EPC (pCi/g)	Soil Background (pCi/g)	Industrial SAL (pCi/g)	Dose (mrem/yr)
Americium-241	0.165	0.013	180	0.013
Cesium-137	2.88	1.65	23	0.802
Cobalt-60	0.317 (decay corrected)	No background	5.1	0.93
Plutonium-239/240	0.905	0.054	210	0.061
Tritium	0.0753	No background	440000	0.0000026
			Total Dose	**1.8**

Residential Radionuclide Screening Evaluation for AOC 02-008(c)

COPC	EPC (pCi/g)	Soil Background (pCi/g)	Residential SAL (pCi/g)	Dose (mrem/yr)
Cesium-137	1.486	0	5.6	3.98
Plutonium-239/240	0.384	0	33	0.17
Strontium-90	0.679	0	5.7	1.79
Tritium	0.111	No background	750	0.0022
			Total Dose	**5.9**

Industrial Radionuclide Screening Evaluation for SWMU 02-009(b)

COPC	EPC (pCi/g)	Soil Background (pCi/g)	Industrial SAL (pCi/g)	Dose (mrem/yr)
Cesium-137	8.62	1.65	23	4.55
Plutonium-239/240	0.432	0.054	210	0.027
Strontium-90	2.49	1.31	1900	0.0093
Tritium	0.0073	No background	440000	0.00000025
Uranium-235/236	0.168	0.2	87	-0.0055
			Total Dose	**4.6**

Industrial Radionuclide Screening Evaluation for SWMU 02-009(c)

COPC	EPC (pCi/g)	Soil Background (pCi/g)	Industrial SAL (pCi/g)	Dose (mrem/yr)
Cesium-137	4.77	1.65	23	2.03
Plutonium-239/240	0.297	0.054	210	0.0174
Strontium-90	0.491	1.31	1900	-0.0065
Tritium	0.0186	No background	440000	0.00000063
			Total Dose	**2.0**

Industrial Radionuclide Screening Evaluation for AOC 02-009(d)

COPC	EPC (pCi/g)	Soil Background (pCi/g)	Industrial SAL (pCi/g)	Dose (mrem/yr)
Cesium-137	4.097	1.65	23	1.6
Cobalt-60	0.102 (decay corrected)	No background	5.1	0.3
Plutonium-239/240	0.066	0.054	210	0.00086
Strontium-90	3.712	1.31	1900	0.019
Tritium	0.04212	No background	440000	0.0000014
Uranium-234	6.846	2.59	1500	0.043
Uranium-235/236	0.481	0.2	87	0.048
			Total Dose	**2.0**

Industrial Radionuclide Screening Evaluation for AOC 02-010

COPC	EPC (pCi/g)	Soil Background (pCi/g)	Industrial SAL (pCi/g)	Dose (mrem/yr)
Cesium-137	7.76	1.65	23	3.98
Plutonium-239/240	0.587	0.054	210	0.038
Strontium-90	1.837	1.31	1900	0.0042
Tritium	0.136	No background	440000	0.0000046
			Total Dose	**4.0**

Industrial Radionuclide Screening Evaluation for AOC 02-011(b)

COPC	EPC (pCi/g)	Soil Background (pCi/g)	Industrial SAL (pCi/g)	Dose (mrem/yr)
Cesium-137	16.11	1.65	23	9.43
Plutonium-239/240	0.605	0.054	210	0.039
Tritium	0.122	No background	440000	0.0000042
			Total Dose	**9.5**

Collective Dose and Cost Estimates for Quantitative ALARA Analyses of TA-02 Sites

AOC/SWMU	Scenario	Individual DR (mrem/yr)	Individual DR (rem/yr)	Population Density (persons/ hectare)	AOC/SWMU Areas (Hectares)	Persons per AOC/ SWMU	Collective Dose Time Period (yr)	Collective Dose (person-rem)	$ Equivalent to Dose ($2K per person-rem)	Remediation Cost per AOC/SWMU
AOC 02-003(b)	Residential	9.9	9.90E-03	4.2	0.0190	0.080	200	1.58E-01	$316.01	$418,913.45
AOC 02-003(c)	Residential	4.3	4.30E-03	4.2	0.0160	0.067	200	5.76E-02	$115.24	$352,769,23
AOC 02-003(d)	Residential	7.9	7.90E-03	4.2	0.0658	0.276	200	4.37E-01	$873.30	$1,450,763.44
AOC 02-004(a)	Industrial	5.4	5.40E-03	26	0.2180	5.668	200	6.12E+00	$12,242.88	$4,806,480.69
SWMU 02-009(a)	Residential	5.7	5.70E-03	4.2	0.0910	0.382	200	4.36E-01	$871.42	$2,006,374.97
AOC 02-006(c)	Industrial	10.0	9.97E-03	26	0.0370	0.962	200	1.92E+00	$3,836.43	$815,778.83
SWMU 02-006(a)	Industrial	4.5	4.54E-03	26	0.0160	0.416	200	3.78E-01	$755.49	$352,769.23
SWMU 02-006(a)	Residential	14.8	1.48E-02	4.2	0.0160	0.067	200	1.99E-01	$397.82	$352,769.23
AOC 02-004(b,c,d)	Residential	6.4	6.40E-03	4.2	0.0140	0.059	200	7.53E-02	$150.53	$308,673.07
AOC 02-008(c)	Residential	5.9	5.90E-03	4.2	0.0130	0.055	200	6.44E-02	$128.86	$286,625.00
SWMU 02-009(b)	Industrial	4.6	4.58E-03	26	0.0420	1.092	200	9.99E-01	$1,998.99	$926,019.22
AOC 02-010	Industrial	4.0	4.03E-03	26	0.0200	0.520	200	4.19E-01	$837.62	$440,961.53
AOC 02-011(b)	Industrial	9.5	9.47E-03	26	0.0130	0.338	200	6.40E-01	$1,280.32	$286,625.00