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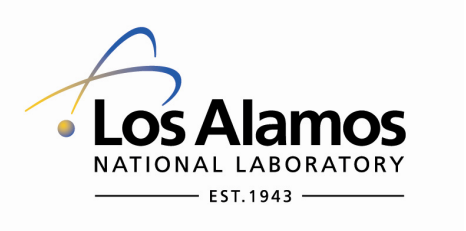
Progress Report for Cleanup Activities at Material Disposal Area B, Solid Waste Management Unit 21-015, at Technical Area 21, Second Quarter of Fiscal Year 2011



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Progress Report for Cleanup Activities at Material Disposal Area B, Solid Waste Management Unit 21-015, at Technical Area 21, Second Quarter of Fiscal Year 2011

March 2011

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EXECUTIVE SUMMARY

Material Disposal Area (MDA) B is an inactive disposal area encompassing approximately six acres of Technical Area 21 (TA-21) on DP Mesa that received chemical and radioactive waste between 1944 and 1948. MDA B is designated as Solid Waste Management Unit 21-015. The objective of excavation activities at MDA B is to remediate the site to residential cleanup levels. This objective will be achieved through the removal of foreign wastes until contamination is no longer a risk. Excavation activities at MDA B commenced on June 30, 2010. This report presents the progress of excavation, waste removal, and confirmation sampling activities at MDA B for the last three quarters, from June 30, 2010, through February 18, 2011.

Previous remediation activities at MDA B included the excavation of Areas 9 and 10 to confirm historical records indicating that waste was not buried in these areas, removal of an asphalt cover that was present over 75% of MDA B, the erection of seven enclosures over targeted excavation areas, and removal of soil overburden from the east end of MDA B. Progress during the second quarter of fiscal year 2011 included excavation of nearly 60% of the total area estimated to require excavation. Approximately two-thirds of the low-level waste (LLW) shipped from MDA B has been sent to the Energy Solutions Clive LLW disposal facility (Clive). The remainder of the LLW removed from MDA B has either been used as attic fill in disposal activities at TA-54, Area G, or is staged at TA-21 pending characterization and future shipment. Two containers of mixed low-level waste (MLLW) have also been shipped to Clive, and one 55-gal. container of MLLW intended for disposal at Clive is currently staged at TA-54. Three containers of industrial waste were disposed of at a landfill managed by Waste Control Services in Andrews, Texas, and three additional containers were disposed of at a landfill managed by Clean Harbors in Deer Trail, Colorado. The remaining contaminated soil and waste debris that has been excavated from MDA B is either awaiting characterization or is characterized and awaiting permission to ship.

As of February 18, 2011, 47 confirmation samples have been collected representing 12 distinct sampling areas. Of the areas sampled, five did not exceed residential soil screening levels (SSLs) or DOE-established radiological soil action levels (SALs) for any analyte during the first sampling attempt. Another three areas required further excavation, which yielded results below SSLs and SALs for all analytes tested. One area exhibited results slightly above SALs for one analyte. No further excavation in this area is possible because an impassible depth has been reached. Another area exhibited one analyte above SSLs but did not exceed background results. Determination for final actions in three areas is pending.

Air sampling along the northern boundary of MDA B during the reporting period indicated a maximum dose of 0.43 mrem with a year-to-date maximum total of 0.99 mrem. These measurements are significantly lower than the U.S. Environmental Protection Agency air pathway limit of 10 mrem per year.

CONTENTS

Figures

Tables

Appendixes

Plates

1.0 INTRODUCTION

Material Disposal Area (MDA) B received contaminated materials containing both chemical and radioactive waste produced during Los Alamos National Laboratory (LANL or the Laboratory) operations from 1944 to 1948. Investigation of MDA B is required by the March 1, 2005, Compliance Order on Consent (hereafter, the Consent Order). In January 2007, the New Mexico Environment Department (NMED) approved the Laboratory's investigation/remediation work plan for MDA B (LANL 2006, 095499; NMED 2007, 095475), which states that foreign wastes and limited ancillary soils will be removed sufficiently to achieve residential cleanup levels. This report focuses on the progress of excavation, waste removal, and confirmation sampling at MDA B for the project period, including the fourth quarter of fiscal year 2010 (FY2010), the first quarter of FY2011, and the second quarter of FY2011 (November 9, 2010, through February 18, 2011) as required by the investigation/remediation work plan for MDA B. Information on radioactive materials, including the results of sampling and analysis of radioactive constituents, is voluntarily provided to NMED in accordance with U.S. Department of Energy (DOE) policy.

1.1 Organization of Document

Section 1.2 presents background on the MDA B site. Section 2 presents the scope and objectives of MDA B excavation activities. Section 3 discusses waste excavation to date. Section 4 presents data analysis. Section 5 summarizes activities to date and presents the current project status. Section 6 includes references and map data sources. Appendix A presents acronyms and abbreviations, a metric conversion table, and data qualifier definitions. Appendix B describes the quality assurance and quality control program for MDA B activities. Appendix C (on DVD included with this document) provides analytical data from June 30, 2010, to February 18, 2011.

1.2 Site Background for MDA B

MDA B is an inactive subsurface disposal site at the Laboratory, designated Solid Waste Management Unit 21-015, which contains both chemical and radioactive waste. The site is located on DP Mesa in Technical Area 21 (TA-21). Figure 1.1-1 shows the location of MDA B with respect to Laboratory TAs and surrounding landholdings. MDA B occupies approximately 6 acres and consists of multiple disposal trenches. From 1944 until it closed in 1948, MDA B likely received process wastes from various Laboratory operational sites. Wastes disposed at MDA B were highly heterogeneous, consisting primarily of radioactively contaminated laboratory wastes, radioactive debris, and limited liquid-chemical waste; however, a formal waste inventory was not maintained during disposal operations (LANL 1991, 007529).

Radioactive contaminants that may be present consist of the types of radioactive materials used during the time MDA B was active: plutonium, polonium, uranium, americium, curium, radioactive lanthanum, and actinium. Additionally, there could be waste products that may be contaminated with either uranium-235 or cesium-137 from the water boiler reactor active during this time frame. Short-lived radionuclides, such as radioactive lanthanum, that may have been disposed at MDA B are no longer present because of radioactive decay. Most radioactively contaminated waste consisted of items such as paper, rags, rubber gloves, glassware, and small metal assemblies placed in cardboard boxes by the waste originator and sealed with masking tape. Additional waste may have consisted of metal debris, such as air ducts and large metal apparatus. The latter type of material was reportedly placed in wooden boxes or wrapped with paper (Meyer 1952, 028154; LANL 1991, 007529; Ferguson et al. 1998, 058212).

2.0 SCOPE AND OBJECTIVES OF EXCAVATION ACTIVITIES

The objective of excavation activities at MDA B is to remediate the site to residential cleanup levels. This objective will be achieved through the removal of foreign wastes until contamination is no longer a risk. Activities at MDA B include the removal of overburden material, excavation of contaminated soil and buried waste, sampling of contaminated soil and debris, confirmation sampling, trench backfilling, and site restoration.

2.1 Deviations from Project Plans

Sampling of overburden, waste soil and debris, and excavated trench bottom and side walls was intended to be conducted in accordance with the MDA B Sampling and Analysis Plan (SAP), Revision 0 (LANL 2010, 110411). The SAP was approved by MDA B project personnel before excavation. As excavation progressed, it became apparent that the sampling procedures in the SAP were not compatible with actual excavation procedures and site conditions. The SAP was reviewed, and modifications were made to the sampling procedures to reflect actual conditions within the excavation environment. The revised SAP was approved by MDA B project personnel on August 10, 2010 (LANL 2010, 110398). Before August 10, 2010, sampling occurred under Revision 0 of the approved SAP, although needed operational deviations were incorporated. Revision 1 of the approved SAP included these operational deviations.

As the investigation progressed and items were excavated that needed specialized sampling, additional refinements to the SAP were required. These refinements included provisions for sampling asbestos-containing material (ACM) and the reduction of contaminated soils sampling. Revision 2 of the SAP was approved by MDA B project personnel on November 3, 2010 (LANL 2010, 111195). All samples collected from June 30, 2010, through February 18, 2011, remain in compliance with approved Laboratory sampling and documentation procedures.

Protection of site workers, the public, and the environment requires limits on the amount of radioactive material at risk (MAR) that can be present aboveground at MDA B at any one time. The MAR is staged in either the excavation enclosures or the waste container storage areas (WCSAs) and is screened to ensure that the amount of radioactively contaminated material is below the DOE STD-1027 threshold quantity for a Hazard Category 3 nuclear facility (DOE 1997, 076008). The MAR is expressed in units of plutonium-239-equivalent curies (PE-Ci). The original MAR limit for each excavation enclosure, the definitive identification facility (DIF), and each WCSA was 0.52 PE-Ci (LANL 2010, 110397). This limit was operationally restrictive, and a request to raise the allowable MAR limit was submitted to DOE. Excavation activities were on standby from August 24 through September 20, 2010, and from October 14 through October 24, 2010, because the site MAR level was exceeded. On October 21, 2010, the MAR limit was raised to 5.0 PE-Ci per enclosure, for the DIF, and for each WCSA to provide operational flexibility while ensuring adequate site protection. This MAR limit modification was incorporated into Revision 1 of the MDA B Above Ground Inventory Management Plan and into Immediate Procedure Change 2 of the MDA B Waste Container Handling Operations, Revision 0 (LANL 2010, 111193; LANL 2010, 111194). The Facility Safety Plan for Material Disposal Area B, Revision 5.1, specifies a total MAR limit of less than 56 PE-Ci within the MDA B site along with all WCSAs within TA-21 (LANL 2010, 200970).

2.2 Field Monitoring

During excavation activities, industrial hygiene (IH) instrumentation was used inside the enclosures to monitor immediate-danger-to-life-and-health conditions, toxic gases, and dust that could present a hazard to personnel entering the enclosure. Field screening for radioactivity levels on surfaces and in the work

environment was also conducted within the enclosure during excavation and personnel entry and egress. All work within the enclosure was conducted in respirator protection as deemed necessary by IH monitoring.

To ensure safety, MAR screening was conducted during the excavation process for each waste container before it was removed from the enclosure. Initially, MAR levels were determined for each bin of contaminated soil and debris by taking a representative bin sample that was analyzed for isotope levels using gamma spectroscopy with a high-purity germanium detector. To facilitate real-time MAR screening, an additional instrument, a field instrument for detection of low-energy radiation (FIDLER), was installed on the boom on every excavator bucket. After the initial MAR determination using the FIDLER, a sample was taken from each bucket and sent for gamma spectroscopy analysis. These MAR screening results were used to determine approximate radioactivity levels, which provided preliminary characterization data and supported MAR tracking until further data were received. This process is presented in the MDA B Aboveground Inventory Management Plan (LANL 2010, 111193). In the event that the FIDLER measured activity levels near 30,000 counts per minute, that bucket load of soil was returned to the trench until radiological control technicians defined the necessary containerization and material handling controls (LANL 2010, 110397).

Continuous air monitoring (CAM) was used to measure alpha-emitting airborne particles. When CAM alarms were triggered, project activities were suspended until it was determined that the enclosure was in a safe configuration to allow personnel to reenter and resume operations. The operational alarm level for airborne alpha particulates is 8 derived air counts or 2.5 mrem.

Dust-suppression water was applied during active excavation. A dust track meter was used to measure the amount of particulate dust in the air. Operational conditions require a dust level below 3 mg/m^3. When dust levels exceeded that level, operations were suspended as dust suppressant was applied to the excavation area. Work was cleared to proceed after the dust levels dropped below 3 mg/m^3.

A high-volume monitoring system was used to test for the presence of airborne asbestos. Potential ACM was found during excavation activities inside enclosures 3 and 12. Although solid samples confirmed that the material was asbestos, the air samples collected from the high-volume monitoring system confirmed that friable airborne asbestos concentrations were below the 8-h time-weighted average permissible exposure limit of 0.1 $fiber/cm^3$, per 29 Code of Federal Regulations (CFR) 1910.1001(c).

2.3 Excavation Operations Overview

MDA B was split into a grid of cells, each measuring 10 ft long by 10 ft wide, as shown in Figure 2.3-1. Excavation progress was tracked using cell identification (ID) codes composed of letters along an approximate north-south axis and numbers along an approximate east-west axis. Grid cells were excavated within six discrete enclosures to protect equipment and excavation operations from weather. Excavation activities at MDA B began in enclosure 1 on June 30, 2010. Enclosure 2 became operational in July 2010, enclosures 3 and 7 became operational in the middle of September 2010, and enclosure 12 became operational in mid-October 2010. Enclosure 9 became operational in mid-February 2011. Exploratory trenches excavated in February 2010 verified that waste was not present in the westernmost portion of MDA B, previously designated as Areas 9 and 10. A separate investigation report for MDA B Areas 9 and 10 was submitted to NMED in May 2010 (LANL 2010, 109526).

2.3.1 Overburden Removal

Overburden material consisted of the soil and tuff capping the trenches that contained buried waste. Overburden also included various other clean materials. Some overburden was base-course material added during site-preparation activities that had not been in contact with contaminated soil or waste.

Other overburden was clean soil excavated from areas beyond the trench boundaries where enclosure footings were constructed.

Before enclosures were installed, several feet of overburden material were removed from the east end of MDA B and staged in a stockpile. This first stockpile was created during project activities in February 2010. Beginning in September 2010, additional material was added to a second stockpile as foundation footers were excavated for the fixed enclosures constructed in the western portion of MDA B. The stockpiles have been analyzed to determine that they are acceptable as clean fill material (below soil screening levels [SSLs] and soil action levels [SALs]) and are being used for partial backfilling of grid cells after confirmation sample results demonstrate that an excavation area's residuals are below SSLs and SALs.

Overburden material within the enclosures was removed from groups of grid cells before waste excavation began. Plate 1 indicates the grid cells that were excavated from June 30, 2010, through February 18, 2011. Overburden material was removed from each grid cell and placed into containers labeled with a unique Laboratory material-tracking barcode ID. This containerized overburden is sampled and, if results show it is acceptable, is being used in partial backfilling of grid cell areas determined by confirmation sample results to be below SSLs and SALs.

2.3.2 Overburden Sample Collection

As noted in section 2.3-1, two stockpiles of overburden material are staged at MDA B. The stockpile created in February 2010 was sampled during April and May 2010. Every 2-ft layer in this 8-ft-deep stockpile was divided into grid cells that were sampled. The second stockpile was created in September 2010. This stockpile was sampled at a frequency of 1 sample per 50 yd^3 of overburden as material was deposited onto the pile. Table 2.3-1 presents the overburden samples collected from these stockpiles in the west lay-down area and the dumped containers of overburden. See section 4.1 for a discussion of the statistical analysis of the overburden analytical results.

After the enclosures were installed, additional overburden was accumulated. Approximately one composite sample was collected for each 50 yd^3 of overburden. This sampling process ensured that each filled container was associated with a representative composite sample. At the beginning of fourth-quarter FY2010 excavation activities, there were instances when acceptable knowledge (AK) of overburden material was used to associate containers with analytical samples. Following approval of Revision 1 of the SAP, AK was no longer used to link overburden samples with their associated containers, and each filled container now has an associated representative composite sample. Excavated overburden material has subsequently been stored in labeled containers awaiting analytical results that will determine if the material can be used as backfill at MDA B. As of February 18, 2011, 45 containers filled with approximately 796 yd^3 of soil characterized as overburden were dumped during backfilling operations.

Several bins containing overburden were moved from enclosure 12 to enclosure 1, and contaminated soil was mixed with overburden. This operation was performed because the containers were partially full and the mixing allowed for a reduction of the radioactivity density of individual containers. These containers were then classified as contaminated soil. Initial overburden analytical results for these bins are no longer valid.

2.3.3 Overburden Reuse

Clean, characterized overburden material continues to be reused as backfill once the contaminated soil and buried waste debris have been removed and sampling has confirmed that contamination is no longer a risk. As of February 18, 2011, grid cells associated with enclosures 1, 2, 3, and 7 have been backfilled (see Plate 1). Backfilling operations have proceeded from September 9, 2010, through the present as grid

cells are determined to be below residential SSLs and SALs via confirmation sample results. Figure 2.3-2 shows the excavated grid cell locations.

2.4 Waste Excavation

The excavation process was to excavate the waste once the overburden material was removed from the grid cells (Plate 1). Contaminated soil and waste debris were unearthed and placed in waste containers. Waste streams were identified and samples were collected in accordance with the Laboratory-approved waste characterization strategy form (WCSF) (LANL 2010, 109754; LANL 2010, 109769).

Excavated debris items included scrap metal, rebar, pipe, copper tubing, wire, cable, empty drums and metal trash cans, glass bottles, rubber gloves, wood, concrete rubble, rubber hoses, plastic sheeting, and plastic and ceramic pieces. Contaminated soils (including small percentages of debris) were containerized in accordance with disposal site waste acceptance criteria. Table 2.4-1 presents estimated volumes of waste and overburden removed from MDA B from June 30, 2010, through February 18, 2011.

Anomalous items and potentially pressurized cylinders were also excavated. Anomalous items were segregated and packaged separately before waste verifiers made a determination regarding characterization. Potentially pressurized cylinders have been staged in an area where excavation is complete, awaiting later characterization and disposition. Cylinders determined to be carbon dioxide fire extinguishers were punctured for safety and returned to the excavation in enclosure 3.

Waste shipment began in October 2010. To date, two-thirds of the low-level waste (LLW) shipped from MDA B has been shipped to the Energy Solutions Clive LLW disposal facility (Clive). Some LLW may require disposal at the Nevada National Security Site (NNSS) LLW disposal facility, but that waste had not been shipped as of February 18, 2011. The remaining LLW shipped from MDA B has been used as attic fill at TA-54, Area G. Two containers of mixed low-level waste (MLLW) filled with contaminated soil and lead acid batteries have been shipped to Clive. One 55-gal. container of MLLW holding a lead-soldered pipe is staged at TA-54. Industrial waste has been disposed of at landfills managed by Waste Control Specialists in Andrews, Texas, and Clean Harbors in Deer Trail, Colorado. A container from enclosure 12 with ACM regulated as New Mexico Special Waste has been staged at TA-54, Area G.

The remainder of the waste is either awaiting characterization pending receipt of analytical results or awaiting permission to ship. Once characterization is complete and the requisite disposal request and shipping documents are approved, the waste will be sent to the appropriate treatment, storage, and disposal facility.

2.4.1 Waste Sample Collection

Composite samples of contaminated soil and waste debris were collected and submitted for off-site laboratory analysis. Analytical suites for each sample depended on the waste stream. As contaminated soil was excavated from the grid cells, composite sample piles were accumulated. Composite samples were collected on an average of one sample per 100 yd^3 from June 30, 2010, through November 3, 2010. Revision 2 of the SAP, implemented on November 3, 2010, taking into account information obtained through November 3, 2010, reduced the number of contaminated soil samples collected from one per 100 yd^3 to the collection of a sample only when deemed necessary by waste management personnel based on staining, volatile organic compound (VOC) levels, radiological counts, or other clues. When anomalous items were excavated, they were segregated so waste verifiers could make a preliminary determination regarding characterization. The segregated waste was packaged separately in accordance with the active revision of the approved SAP and the approved WCSF (LANL 2010, 110398; LANL 2010, 109754; LANL 2010, 109769; LANL 2010, 111195).

2.5 Confirmation Sampling

Excavation within each area continued until field screening for radioactive contaminants indicated no detectable activity or until refusal. Once field-screening results no longer indicated detectable concentrations of contamination, the confirmation samples were collected. Confirmation samples were collected within the excavation every 50 ft along the bottom and side walls after buried waste and contaminated soil were removed from the excavation trench.

Confirmation samples were collected with a dedicated, clean excavator. A randomly selected starting location was chosen using a random number generator. Sample locations were then selected in both directions at 50-ft intervals from this starting point. Biased samples were collected if deemed necessary because of visual indicators of potential contamination, such as fractures or staining. Samples were collected at a depth of 0 to 2 ft into the excavated surface. A Trimble VX Spatial Station measured the precise location where each confirmation sample was collected.

As of February 18, 2011, 47 confirmation samples, 20 of which were sampled in the same location by NMED, have been collected. Plate 1 shows the confirmation sample locations. Table 2.5-1 presents location and sample ID information for the confirmation and split samples collected at MDA B from June 30, 2010, through February 18, 2011. Section 4.3 discusses these confirmation sample results. All analytical results are presented in Appendix C (on DVD included with this document).

2.6 Air Sampling

Eight air-monitoring network (AIRNET) stations are located along the northern boundary of MDA B. The locations of these monitoring stations are shown in Figure 2.3-1, with the exception of monitoring station #169. Each AIRNET station collects airborne radionuclides, such as plutonium, americium, and uranium, on a particulate filter.

On a biweekly basis, the compliance status of the eight AIRNET stations along DP Road is determined using isotopic analyses focusing solely on plutonium, the primary contaminant of concern. A single air sample from each station per 2-wk sampling period is sent to an off-site analytical laboratory to be analyzed with alpha spectroscopy, according to the Environmental Protection Agency (EPA) requirements in 40 CFR 61, National Emission Standards for Hazardous Air Pollutants (NESHAPs), Appendix B, Test Methods. The analytical laboratory cuts the filter in half, making an A and B sample for that station and that sample period. The B sample is dissolved, and radiochemical separation is used to isolate the plutonium in the sample. Alpha spectroscopy is used to determine plutonium concentrations in the air sample. Air concentrations are converted to an estimated radioactive dose for that 2-wk sample period. Year-to-date sums and trends based on these 2-wk dose measurements are generated to evaluate the stations' compliance status in comparison with EPA's limit of 10 mrem per yr dose from the air pathway to a representative member of the public. The maximum biweekly dose measured at the eight stations during the project period (June 21, 2010, through February 1, 2011) was 0.43 mrem. Most biweekly doses measured below 0.05 mrem for the project period. The maximum year-to-date accumulated total dose for any of these eight stations is 0.99 mrem (January 1, 2010, to February 1, 2011). The station average accumulated total is 0.25 mrem over the past 12 mo.

The A sample from the particulate filter is composited with all the other Laboratory AIRNET samples collected during a 3-mo period into a single sample that is destructively analyzed for isotopic levels of plutonium, uranium, americium, and other contaminants. This analysis provides a more sensitive air concentration measurement, which is used for Rad NESHAP compliance reporting.

3.0 WASTE EXCAVATION TO DATE

Waste was excavated from MDA B during the period of June 30, 2010 through February 18, 2011. All waste containers were screened and sampled according to the procedures described in sections 2.2, 2.3, and 2.4. Once excavation is complete, confirmation samples have been collected, and results have been reviewed and approved (i.e., the SSLs and SALs are met), the excavated areas are being backfilled.

Each enclosure has distinctive attributes. Enclosures 1 and 2 are moveable. Enclosures 3 and 4 were combined into a single fixed enclosure using a synthetic material along the roofline. Because these enclosures are connected, they will hereafter be known as enclosure 3. Enclosures 7 and 8 were also combined into a single fixed enclosure and will hereafter be known as enclosure 7. Enclosures 9, 10, and 11 were combined into a single fixed enclosure, which will hereafter be known as enclosure 9. Enclosures 12 and 13 were combined into a single fixed enclosure, which will hereafter be known as enclosure 12.

The following subsections detail waste excavation at each of the enclosures.

3.1 Enclosure 1

Enclosure 1 began operation on June 30, 2010, and is located on the western portion of MDA B near the center of the site. Enclosure 1 is a movable structure with an approximate footprint 60 ft long by 60 ft wide. Based on the area of this enclosure, a maximum of six grid cells can be excavated before the enclosure is moved. Excavation depths have varied from 7 to 17 ft below ground surface (bgs).

3.1.1 Activities Completed to Date

As of February 18, 2011, 66 grid cells (AH 241 through AJ 262) were excavated. Overburden material, contaminated soil, and waste debris have been removed. Confirmation samples were collected from rows 260, 255, and 250. Twenty-one grid cells in rows 256–262 have been backfilled as of February 18, 2011. Figure 2.3-2 shows the location of the excavated grid cells, and Plate 1 shows the confirmation sampling locations.

3.1.2 Waste Streams and Volumes

Approximately 5645 yd^3 of debris, contaminated soil, and overburden have been excavated from enclosure 1 as of February 18, 2011.

Enclosure 1 waste containers are typically filled from 80% to 99% with contaminated soil. Debris items, which constitute the remainder of container fill, include scrap metal, rebar, pipe, cables, wires, crushed trash cans, and cloth. Suspect waste items removed from the excavated soil and characterized and packaged separately included bottles containing liquid, a bottle with apparent crystallization, a bottle containing powder, sealed nonpressurized containers, two neon gas cylinders, other nonpressurized cylinders, leaded glass plates, electrical panels, capacitors, and lead acid batteries.

3.2 Enclosure 2

Enclosure 2 began operation on July 19, 2010, and is located on the eastern portion of MDA B. Enclosure 2 is a movable structure with an approximate footprint 60 ft long by 60 ft wide. Based on the area of the enclosure, a maximum of six grid cells can be excavated before the enclosure is moved. Excavation depths have varied from 6 to 22 ft bgs.

3.2.1 Activities Completed to Date

As of February 18, 2011, 68 grid cells (NF 40 through NI 56) have been excavated. Overburden material, contaminated soil, and waste debris have been removed. Six confirmation samples were collected from rows 51 and 46. Thirty-six grid cells in rows 48 through 56 have been backfilled as of February 18, 2011. Figure 2.3-2 shows the location of the excavated grid cells, and Plate 1 shows the confirmation sampling locations.

3.2.2 Waste Streams and Volumes

Approximately 8442 yd^3 of debris, contaminated soil, and overburden have been excavated from enclosure 2 as of February 18, 2011.

Enclosure 2 waste containers are typically filled from 70% to 99% with contaminated soil. Debris items, which constitute the remainder of container fill, include metal cable, concrete, 55-gal. drums, pipe fittings, sheet metal, glass bottles, rubber hose, plastic sheeting, latex gloves, a metal spool, Plexiglas, asphalt, file cabinets, pipe, conduit, scrubber filters, light bulbs, rebar, an aluminum box, copper pipes, personal protective equipment (PPE), metal buckets, angle iron, a metal valve, cloth, chainlink fencing, flex pipe, graphite, batteries, electrical panels with attached wires, fire extinguishers, a transformer, mason jars, beakers, folding chairs, a capacitor, a water heater tank, and chunks of wood.

3.3 Enclosure 3

Enclosure 3 began operation on September 20, 2010, and operations were completed on January 31, 2011. Located on the western portion of MDA B at the far western end of the site, enclosure 3 is a permanent structure with a footprint 220 ft long by 75 ft wide. Excavation depths varied from 7 to 16 ft bgs.

3.3.1 Activities Completed to Date

As of completion on January 31, 2011, 86 grid cells (AH 154 through AK 174) were excavated. Overburden material, contaminated soil, and waste debris have been removed. Confirmation samples were collected in twelve grid cells. The entire excavation area has been backfilled. Figure 2.3-2 shows the location of the excavated grid cells, and Plate 1 shows the confirmation sampling locations.

Grid cell AG 167 was excavated outside enclosure 3, as this was the alleged location of a ramp used to access the disposal trench during MDA B operations. Confirmation samples were collected from this cell.

3.3.2 Waste Streams and Volumes

Approximately 6314 yd^3 of debris, contaminated soil, and overburden were excavated from enclosure 3 as of completion on January 31, 2011.

Enclosure 3 waste containers were typically filled from 85% to 99% with contaminated soil. Debris items, which constitute the remainder of container fill, included scrap metal, sheet metal, rebar, pipe, copper tubing, wiring, metal drums and trash cans, rubber hoses, broken glass, plastic pieces and sheeting, ceramic pieces, asphalt, used filters, cardboard, and rubber gloves. Suspect waste items removed from the excavated soil and characterized and packaged separately included sealed or plugged bottles, fire extinguishers, gas cylinders, other sealed cylinders, lead bricks, three 250-gal. tanks, a sealed canister, batteries, a brown cylinder, a suspect asbestos container, pipe pieces covered with unknown substances, white powder, bluish powder, pipe suspected to be lead, an electrical box, and an electrical panel.

3.4 Enclosure 7

Enclosure 7 began operation on September 22, 2010, and excavations were completed on December 12, 2010. Backfilling was completed on December 13, 2010. Located on the western portion of MDA B, enclosure 7 is a permanent structure with a footprint 140 ft long by 75 ft wide. Excavation depths varied from 12 to 17 ft bgs.

3.4.1 Activities Completed to Date

As of completion on December 12, 2010, 52 grid cells (AH 194 through AK 206) were excavated. Overburden material, contaminated soil, and waste debris have been removed. Fifteen confirmation samples were collected from rows 167, 168, 196, 200, and 205. The entire excavated area of 52 grid cells has been backfilled. Figure 2.3-2 shows the location of the excavated grid cells, and Plate 1 shows the confirmation sampling locations.

3.4.2 Waste Stream and Volumes

Approximately 4664 yd^3 of debris, contaminated soil, and overburden have been excavated from enclosure 7 as of December 12, 2010.

Enclosure 7 waste containers were typically filled from 80% to 99% with contaminated soil. Debris items, which constitute the remainder of container fill, included gas cylinders, sheet metal, a sink, clay pipe, scrubbing filters, asphalt, concrete, rebar, wire, metal pipe, a coil of braided cable, electrical conduit, light fixtures, glass jars, a flask, insulated wire, broken glass, metal mesh, cloth, rubber gaskets, a steel drum, a polyethylene drum, paper, tin scrap, copper tubing, a metal box with attached wires, metal disks, fire extinguishers, slate chunks, rubber tubing, ACM pipes, angle iron, PPE, and a possible electric motor.

3.5 Enclosure 9

Enclosure 9 began operation on February 11, 2011, and is located on the eastern portion of MDA B. Enclosure 9 is a permanent structure with a footprint 280 ft long by 75 ft wide. Excavation depths are estimated to be up to 17 ft bgs.

3.5.1 Activities Completed to Date

As of February 18, 2011, excavation had begun in grid cells 76 NE through 76 NI. Overburden material, contaminated soil, and waste debris have been removed. No confirmation samples have been taken from these grid cells, as excavation to native tuff has not yet been achieved. Figure 2.3-2 shows the location of the excavated grid cells.

3.5.2 Waste Stream and Volumes

Approximately 399 yd^3 of debris, contaminated soil, and overburden have been excavated from enclosure 9 as of February 18, 2011.

Enclosure 9 waste containers are typically filled 95% to 100% with contaminated soil. Debris items, which constitute the remainder of container fill, include scrap metal, glass bottles, wire, chainlink fence, metal drums, metal bars, gas cylinders, a fence post, and an amber bottle.

3.6 Enclosure 12

Enclosure 12 began operation on October 10, 2010, and is located on the eastern portion of MDA B. Enclosure 12 is a permanent structure with a footprint 220 ft long by 75 ft wide. As of February 18, 2011, excavation is at approximately 15 to 21 ft bgs. No native tuff has been encountered to date.

3.6.1 Activities Completed to Date

As of February 18, 2011, 55 grid cells (NE 86 through NI 96) were excavated. Overburden material, contaminated soil, and waste debris have been removed. No confirmation samples have been collected to date, and no backfilling activities have taken place. Figure 2.3-2 shows the locations of the excavated grid cells.

On October 27, 2010, two drums were uncovered along with some white cake-like material. Soon after the drums had been excavated, one of the drums was noticed to be leaking, and a high level of VOC vapors was present in the enclosure. The drums were size-reduced, placed in a container, and covered with soil. Excavation was on standby in enclosure 12 until November 9, 2010, when the material could be characterized and the enclosure was determined to be safe for further excavation.

3.6.2 Waste Streams and Volumes

Approximately 7327 yd^3 of debris, contaminated soil, and overburden have been excavated from enclosure 12 as of February 18, 2011.

Enclosure 12 waste containers are typically filled 50% to 99% with contaminated soil. Debris items, which constitute the remainder of container fill, include scrap metal, wire, conduit, empty glass bottles, metal pipe, ACM pipes, plastic, wood, a trash can, a faucet with pipes attached, sheet metal, weather stripping, rubber hose, a box apparatus with bulbs, vacuum lines with wires attached, drums, light bulbs, rolls of film, and a possible thermocouple apparatus.

4.0 DATA ANALYSIS

Three data sets are discussed in this section: the overburden sample data, the contaminated soil sample data, and the confirmation sample data. Statistics were calculated for the overburden and contaminated soil data sets received through February 18, 2011. Confirmation sample data that are presented in this report were compared with the residential SSLs and SALs and are presented in section 4.3.

4.1 Overburden Sample Statistics

Overburden samples collected from MDA B through February 18, 2011 are listed in Table 2.3-1. As discussed in section 2.3, three separate analytical events occurred when overburden was removed from the site and sampled. Before the soil could be used as backfill for the excavated trenches, samples were analyzed for organic, inorganic, and radioactive contamination. This statistical analysis of overburden samples was conducted on 172 samples collected from the first sampling event and on 59 samples from the second and third sampling events.

Separate statistical analyses were performed for the first sampling event (pre-enclosure sample set) and the second and third sampling event (post-enclosure sampling set). The pre-enclosure sampling event occurred during April and May 2010, comprising 6292 yd^3 of overburden soil that was removed and stockpiled before the installation of enclosures 1 and 2. The post-enclosure sampling event, comprising

the removal and stockpiling of 1970 yd^3 of overburden, coincided with the excavation of foundations for fixed enclosures 3, 7, and 12. Overburden determined to be below residential SSLs and SALs continues to be reused as backfill in the excavated trenches.

Basic descriptive statistics were calculated for all of the overburden soil sample results, including the number of samples; the detection rate; and the mean, standard deviation, minimum, median, and maximum concentration detections. A two-step statistical process was used to characterize the overburden soil. The first step assessed whether the maximum measured concentration for a given analyte exceeded residential screening levels. Four sets of screening levels were employed during this step: the NMED SSLs, the EPA regional SSLs, the Laboratory radionuclide SALs, and the toxicity characteristic leaching procedure (TCLP). If the maximum measured detection for an analyte exceeded the applicable screening level, then the second step of this statistical analysis was performed. If the maximum measured value for an analyte did not exceed the relevant screening level, the soil was considered clean for that analyte and no further statistical analysis was performed on that analyte. The order of precedence for performing comparisons for inorganic and organic chemicals was NMED SSLs, followed by EPA SSLs (where no NMED SSL exists for the analyte), and TCLP limits, if available.

Statistical results for the pre-enclosure overburden sampling event are presented in Table 4.1-1 for inorganic chemicals, Table 4.1-2 for organic chemicals, and Table 4.1-3 for radionuclides. A total of 282 analytes were evaluated in the first step of the May 2010 data set. For those analytes that were detected at a value exceeding a screening level, the second statistical step was used to calculate the 95% upper confidence limit (UCL) of the results to determine if the soil would be classified as clean or as waste. The EPA software program ProUCL (EPA 2007, 102895) was used to perform these calculations. In addition, the ProUCL software examined the data distribution and evaluated whether there were statistical outliers. ProUCL was calibrated to select the Rosner and Dixon tests, as appropriate.

Five analytes exceeded at least one of the screening levels: arsenic, thallium, benzo(a)pyrene, radium-226, and plutonium-239/240. The 95% UCLs calculated for these five analytes are presented in Table 4.1-4. None of the 95% UCLs exceeded the SSLs or SALs. Based on this analysis, the stockpiled overburden from April to May 2010 is suitable for use as backfill.

Statistical results for the combined post-enclosure overburden sampling events—which included both overburden removed from enclosures 3, 7, and 12 in September 2010 and overburden collected in containers—are presented in Table 4.1-5 for inorganic chemicals, Table 4.1-6 for organic chemicals, and Table 4.1-7 for radionuclides. A total of 280 analytes were evaluated in the first step of the September 2010 data set. Only one arsenic result exceeded SSLs. The 95% UCL calculated for arsenic in the second step of the statistical analysis is presented in Table 4.1-8. The arsenic 95% UCL did not exceed the relevant screening levels. Based on this analysis, the post-enclosure overburden sampling events are suitable for use as backfill.

4.2 Contaminated Soil Statistics

As described in section 2.4.1, composite sample piles of contaminated soil were accumulated as waste was removed from the trench. Composite samples were collected at an average rate of one sample per 100 yd^3 through November 3, 2010. Revision 2 of the SAP was approved November 3, 2010, at which point contaminated soil samples were collected as requested by waste management personnel. Basic descriptive statistics were calculated for the contaminated soil sample results, including the number of samples; the detection rate; and the mean, standard deviation, minimum, median, and maximum concentration detection. Results of the statistical analyses are presented in Table 4.2-1 for inorganic chemicals, Table 4.2-2 for organic chemicals, and Table 4.2-3 for radionuclides.

4.3 Confirmation Sample Results

As discussed in section 2.5, confirmation samples were collected within the excavation every 50 ft along the bottom and side walls after buried waste and contaminated soil had been removed from the excavation trench. Confirmation sample results are compared with residential SSLs and SALs. Areas where results exceed the SSLs and/or SALs are examined further to make a determination for the area. Maximum contaminant concentrations detected in the confirmation samples are presented in Table 4.3-1 for inorganic chemicals, Table 4.3-2 for organic chemicals, and Table 4.3-3 for radionuclides.

Of the 47 confirmation samples presented in Table 2.5-1, 13 were collected from enclosure 1, 6 were collected from enclosure 2, 12 were collected from enclosure 3, 5 were collected outside the main trench of enclosure 3, and 11 were collected from enclosure 7. The first three confirmation samples (sample IDs CSMDAB-10-24585, CSMDAB-10-24586, and CSMDAB-10-24587) were random samples collected from the north-side wall, the south-side wall, and the bottom of the excavation trench in enclosure 1. The inorganic chemical results presented in Table 4.3-4 and the organic chemical results presented in Table 4.3-5 did not exceed the SSLs. However, one plutonium-239/240 result presented in Table 4.3-6, for sample ID CSMDAB-10-24586, did exceed the residential SAL. Because of this result, additional material was removed, and three additional biased confirmation samples (sample IDs CSMDAB-10-24589, CSMDAB-10-24590, and CSMDAB-10-24591) were collected in the north-side wall at three locations surrounding sample CSMDAB-10-24587. Results for these three additional samples, which were analyzed for americium-241, plutonium-238, and plutonium-239/240, were less than the residential SALs, indicating that the lateral extent of contamination in that portion of the trench had been defined. Following the removal of additional soil from the vicinity of sample CSMDAB-10-24587, another sample was collected from the north-side wall of grid cell AH 260 (sample ID CSMDAB-10-24592) and analyzed for radionuclides to confirm that radionuclides were below SALs. None of the residential SALs were exceeded in the resample following the removal of additional soil.

Analytical results for two confirmation samples collected from row 250 in enclosure 1 (sample IDs CSMDAB-10-24597 and CSMDAB-10-24598) did not exceed the inorganic or organic chemical SSLs but exceeded residential SALs for plutonium-239/240 and cesium-137 (Table 4.3-6). A determination for further action in this area is pending.

Analytical results for the confirmation sample collected from the excavation trench floor of row 51 in enclosure 2 (sample ID CSMDAB-10-25077) did not exceed the inorganic or organic chemical SSLs, but the plutonium-239/240 result exceeded the residential SAL (Table 4.3-6). As excavation in that trench has reached an impassable depth, no additional tuff removal is planned. The plutonium-239/240 result from sample ID CSMDAB-10-25077 will be used with the other confirmation sample site data to calculate a sitewide 95% UCL for plutonium-239/240.

Analytical results for the confirmation sample collected from the north-side wall of row 51 in enclosure 2 (sample ID CSMDAB-10-25079) did not exceed the inorganic or organic chemical SSLs, but the uranium-234, uranium-235, uranium-235/236, and uranium-238 results exceeded the residential SALs (Table 4.3-6). A determination for further action in this area is pending.

Analytical results for the confirmation sample collected from the north-side wall and the trench bottom in row 160 in enclosure 3 (sample IDs CSMDAB-10-26776 and CSMDAB-10-26777) did not exceed the organic chemical SSLs or the residential SALs, but one inorganic SSL was exceeded. The arsenic SSL of 3.9 mg/kg was exceeded in the two samples (Table 4.3-4). However, the arsenic background levels were not exceeded, and no additional tuff removal is planned.

Analytical results for the confirmation samples collected from the trench bottom of row 196, the trench bottom of row 200, the north-side wall of row 205, and the south-side wall of row 205 in enclosure 7

(sample IDs CSMDAB-10-26803, CSMDAB-10-26807, CSMDAB-10-26808, and CSMDAB-10-26809) did not exceed the inorganic or organic chemical SSLs, but the plutonium-239/240 results exceeded the residential SALs (Table 4.3-6). Further excavation was conducted in rows 196 and 200 to remove additional soil, and a second confirmation sample was collected at each location. The confirmation samples collected following further excavation in rows 196 and 200 did not exceed the residential SALs. A determination for further action for row 205 is pending.

5.0 SUMMARY AND PROJECT STATUS

Excavation activities to remediate MDA B to residential cleanup levels continued in the second quarter of FY2011.

As of February 18, 2011, the following activities have been accomplished.

- Fifty-six percent of the area estimated to require excavation has been excavated.
- Sixty-six grid cells within enclosure 1 have been excavated. Twenty-one grid cells in enclosure 1 have been backfilled. Estimated volumes of waste and overburden removed from enclosure 1 total approximately 5645 yd^3. Waste and overburden samples have been sent for characterization analysis. Thirteen confirmation samples were collected from grid cells in rows 260, 255, and 250 and sent for analysis to an off-site analytical laboratory. NMED split samples were collected simultaneously with CSMDAB-10-24585, CSMDAB-10-24586, CSMDAB-10-24587, and CSMDAB-10-24597.
- Sixty-eight grid cells within enclosure 2 have been excavated. Thirty-six grid cells in enclosure 2 have been backfilled. Estimated volumes of waste and overburden removed from enclosure 2 total approximately 8442 yd^3. Waste and overburden samples have been sent for characterization analysis. Six confirmation samples were taken from grid cells in rows 46 and 51 and sent for analysis to an off-site analytical laboratory.
- Eighty-six grid cells within enclosure 3 were excavated, backfilled, and completed. Estimated volumes of waste and overburden removed from enclosure 3 total approximately 6314 yd^3. Waste and overburden samples were sent for characterization analysis. Twelve confirmation samples were collected from rows 155, 160, 166, and 171. NMED split samples were collected simultaneously with these confirmation samples.
- Fifty-two grid cells within enclosure 7 were excavated, backfilled, and completed. Estimated volumes of waste and overburden removed from enclosure 7 total approximately 4664 yd^3. Waste and overburden samples were sent for characterization analysis. Fifteen confirmation samples were collected from rows 196, 200, and 205. NMED split samples were collected simultaneously with CSMDAB-10-26802, CSMDAB-10-26803, and CSMDAB-10-26804.
- Approximately 200 yd^3 of overburden soil has been moved to one side of enclosure 9. Estimated volumes of waste and overburden removed from the trench in enclosure 9 total approximately 399 yd^3. Overburden samples have been collected and sent for characterization analysis. No waste or confirmation samples have been collected.
- Fifty-five grid cells within enclosure 12 have been excavated. None have been backfilled. Estimated volumes of waste and overburden removed from enclosure 12 total approximately 7327 yd^3. Waste and overburden samples have been sent for characterization analysis. No confirmation samples have been collected from enclosure 12.

Air sampling along the northern boundary of MDA B during the project period indicated a maximum dose of 0.43 mrem to the public, with a year-to-date maximum total of 0.99 mrem. These measurements are significantly lower than EPA's limit of 10 mrem per year from the air pathway.

6.0 REFERENCES AND MAP DATA SOURCES

6.1 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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EPA (U.S. Environmental Protection Agency), April 2007. "ProUCL Version 4.00.02 User Guide," EPA/600/R-07/038, Office of Research and Development, Washington, D.C. (EPA 2007, 102895)

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NMED (New Mexico Environment Department), January 31, 2007. "Approval with Modifications for the Investigation/Remediation Work Plan for Material Disposal Area B, Solid Waste Management Unit 21-015, At Technical Area 21, Revision 1," New Mexico Environment Department letter to D. Gregory (DOE-LASO) and D. McInroy (LANL) from J.P. Bearzi (NMED-HWB), Santa Fe, New Mexico. (NMED 2007, 095475)

NMED (New Mexico Environment Department), December 2009. "Technical Background Document for Development of Soil Screening Levels, Revision 5.0," with revised Table A-1, New Mexico Environment Department, Hazardous Waste Bureau and Ground Water Quality Bureau Voluntary Remediation Program, Santa Fe, New Mexico. (NMED 2009, 108070)

6.2 Map Data Sources

Legend Item	Data Source
10-ft by 10-ft Project reference grid	10 ft by 10 ft Project Reference Grid, Material Disposal Area B, Unpublished Data; Portage, Inc., January 1, 2009
Air sampling location	AIRNET radiological ambient air sampling network. Los Alamos National Laboratory, Waste and Environmental Services Division; as published August 8, 2010
Confirmation sample	MDA B Confirmation Samples, TA-21 Material Disposal Area B, Unpublished Data; Portage, Inc., August 11, 2010
Fence	Security and Industrial Fences and Gates; Los Alamos National Laboratory, KSL Site Support Services, Planning, Locating and Mapping Section; January 6, 2004; as published October 15, 2008
Laboratory boundary	LANL Areas Used and Occupied; Los Alamos National Laboratory, Site Planning & Project Initiation Group, Infrastructure Planning Office; September 19, 2007; as published December 4, 2008
Material disposal area	Materials Disposal Areas; Los Alamos National Laboratory, ENV Environmental Remediation and Surveillance Program; ER 2004-0221, 1:2,500 Scale Data, April 23, 2004
MDA B direct-push sampling	MDA B DPT All Phases; Los Alamos National Laboratory, ENV Environmental Remediation and Surveillance Program, December 14, 2009
Paved road	Paved Road Arcs; Los Alamos National Laboratory, KSL Site Support Services, Planning, Locating and Mapping Section; January 6, 2004; as published October 15, 2008
Primary paved road/secondary paved road	Road Centerlines for the County of Los Alamos; County of Los Alamos, Information Services; as published December 3, 2007
Structure	Los Alamos County Structures; County of Los Alamos; Original data from Los Alamos National Laboratory, Environmental Restoration (ER) Project. After 2003 flyover, 1400 new structure polygons added by Bohannan Houston, Inc.; as published August 2003
Technical area boundary	LANL Technical Areas of Department of Energy Property in and around the Los Alamos National Laboratory Area. Los Alamos National Laboratory, Site and Project Planning (PM-1); as published September 2007
Trench area	Trench Boundaries per Direct Push Technology, Material Disposal Area B, Unpublished Data; Portage, Inc., January 12, 2010
Unpaved road	Dirt Road Arcs; Los Alamos National Laboratory, KSL Site Support Services, Planning, Locating and Mapping Section; January 6, 2004; as published October 15, 2008

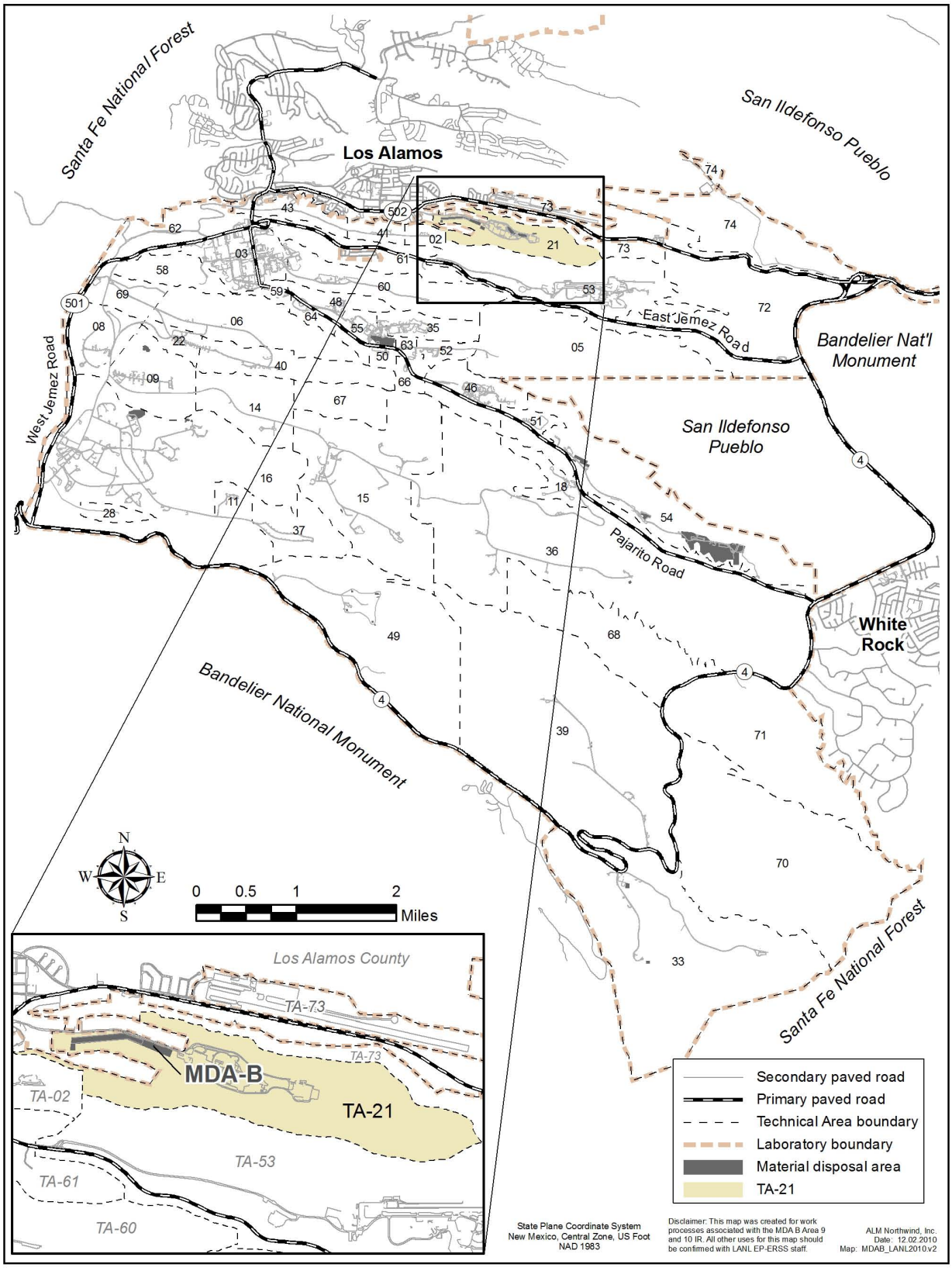

Figure 1.1-1 MDA B in TA-21 with respect to Laboratory TAs and surrounding landholdings

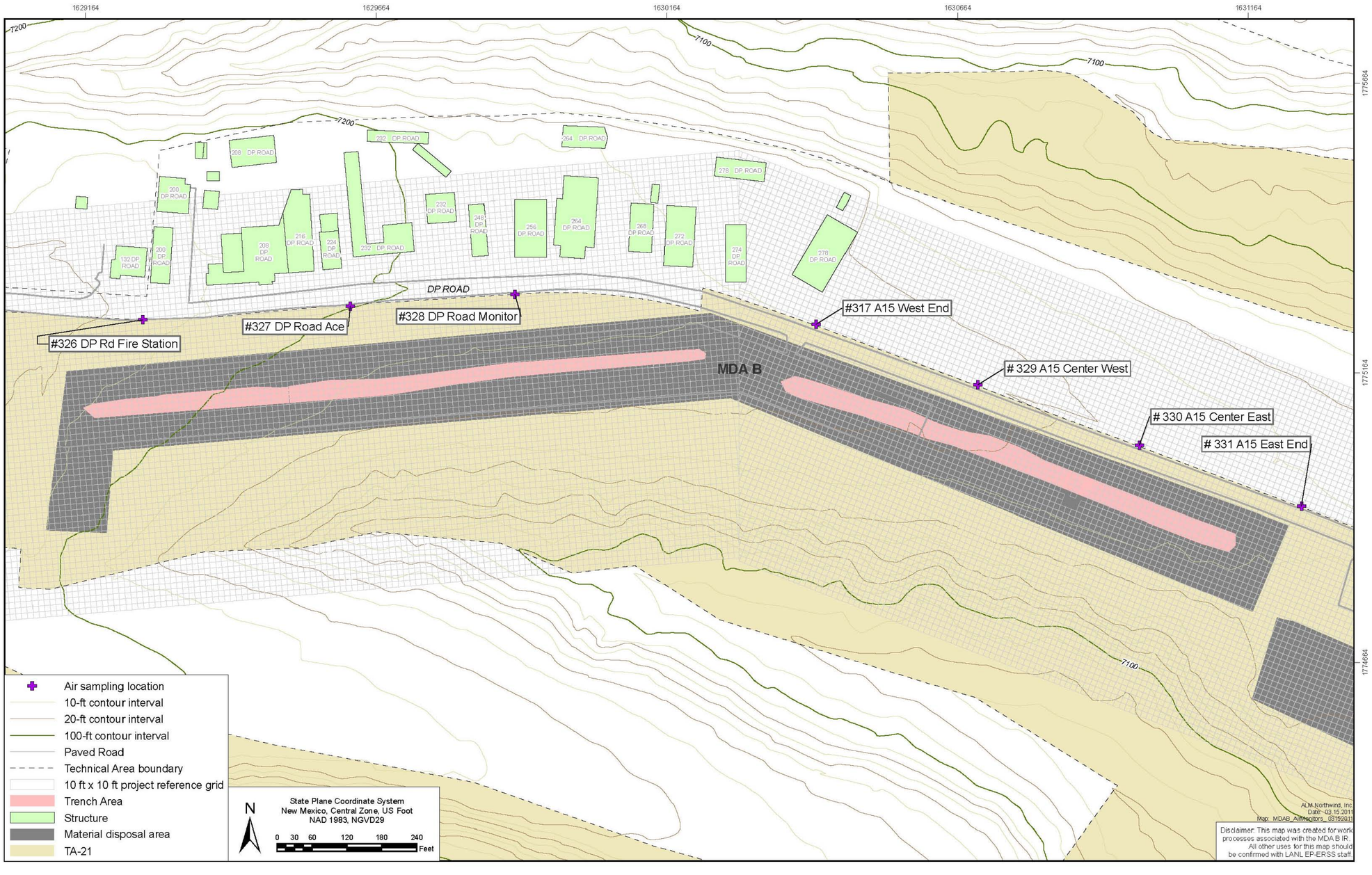

Figure 2.3-1 Grid-cell locations within MDA B and AIRNET monitoring stations near MDA B excavation

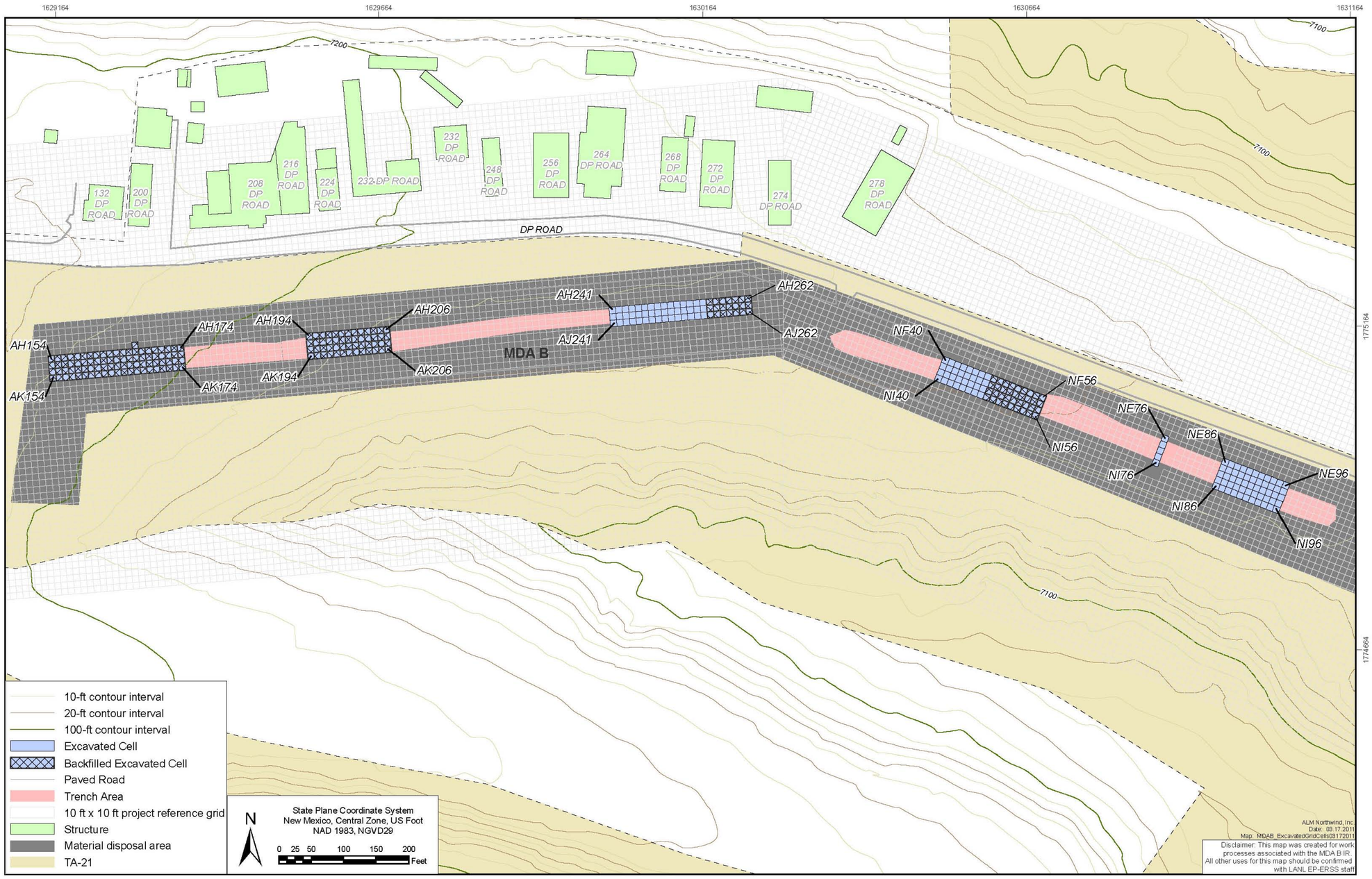

Figure 2.3-2 Excavated grid cell locations

Table 2.3-1
Overburden Samples Collected through February 18, 2011

Sample ID	Soil Type	Sample ID	Soil Type	Sample ID	Soil Type
MD21-10-16019	below SSLs and SALs *	MD21-10-16044	below SSLs and SALs	MD21-10-16069	below SSLs and SALs
MD21-10-16020	below SSLs and SALs	MD21-10-16045	below SSLs and SALs	MD21-10-16070	below SSLs and SALs
MD21-10-16021	below SSLs and SALs	MD21-10-16046	below SSLs and SALs	MD21-10-16071	below SSLs and SALs
MD21-10-16022	below SSLs and SALs	MD21-10-16047	below SSLs and SALs	MD21-10-16072	below SSLs and SALs
MD21-10-16023	below SSLs and SALs	MD21-10-16048	below SSLs and SALs	MD21-10-16073	below SSLs and SALs
MD21-10-16024	below SSLs and SALs	MD21-10-16049	below SSLs and SALs	MD21-10-16074	below SSLs and SALs
MD21-10-16025	below SSLs and SALs	MD21-10-16050	below SSLs and SALs	MD21-10-16075	below SSLs and SALs
MD21-10-16026	below SSLs and SALs	MD21-10-16051	below SSLs and SALs	MD21-10-16076	below SSLs and SALs
MD21-10-16027	below SSLs and SALs	MD21-10-16052	below SSLs and SALs	MD21-10-16077	below SSLs and SALs
MD21-10-16028	below SSLs and SALs	MD21-10-16053	below SSLs and SALs	MD21-10-16078	below SSLs and SALs
MD21-10-16029	below SSLs and SALs	MD21-10-16054	below SSLs and SALs	MD21-10-16079	below SSLs and SALs
MD21-10-16030	below SSLs and SALs	MD21-10-16055	below SSLs and SALs	MD21-10-16080	below SSLs and SALs
MD21-10-16031	below SSLs and SALs	MD21-10-16056	below SSLs and SALs	MD21-10-16081	below SSLs and SALs
MD21-10-16032	below SSLs and SALs	MD21-10-16057	below SSLs and SALs	MD21-10-16082	below SSLs and SALs
MD21-10-16033	below SSLs and SALs	MD21-10-16058	below SSLs and SALs	MD21-10-16083	below SSLs and SALs
MD21-10-16034	below SSLs and SALs	MD21-10-16059	below SSLs and SALs	MD21-10-16084	below SSLs and SALs
MD21-10-16035	below SSLs and SALs	MD21-10-16060	below SSLs and SALs	MD21-10-16085	below SSLs and SALs
MD21-10-16036	below SSLs and SALs	MD21-10-16061	below SSLs and SALs	MD21-10-16086	below SSLs and SALs
MD21-10-16037	below SSLs and SALs	MD21-10-16062	below SSLs and SALs	MD21-10-16087	below SSLs and SALs
MD21-10-16038	below SSLs and SALs	MD21-10-16063	below SSLs and SALs	MD21-10-16088	below SSLs and SALs
MD21-10-16039	below SSLs and SALs	MD21-10-16064	below SSLs and SALs	MD21-10-16089	below SSLs and SALs
MD21-10-16040	below SSLs and SALs	MD21-10-16065	below SSLs and SALs	MD21-10-16090	below SSLs and SALs
MD21-10-16041	below SSLs and SALs	MD21-10-16066	below SSLs and SALs	MD21-10-16091	below SSLs and SALs
MD21-10-16042	below SSLs and SALs	MD21-10-16067	below SSLs and SALs	MD21-10-16092	below SSLs and SALs
MD21-10-16043	below SSLs and SALs	MD21-10-16068	below SSLs and SALs	MD21-10-16093	below SSLs and SALs

Table 2.3-1 (continued)

Sample ID	Soil Type	Sample ID	Soil Type	Sample ID	Soil Type
MD21-10-16094	below SSLs and SALs	MD21-10-16151	below SSLs and SALs	MD21-10-16178	below SSLs and SALs
MD21-10-16095	below SSLs and SALs	MD21-10-16152	below SSLs and SALs	MD21-10-16179	below SSLs and SALs
MD21-10-16096	below SSLs and SALs	MD21-10-16153	below SSLs and SALs	MD21-10-16180	below SSLs and SALs
MD21-10-16097	below SSLs and SALs	MD21-10-16154	below SSLs and SALs	MD21-10-16181	below SSLs and SALs
MD21-10-16098	below SSLs and SALs	MD21-10-16155	below SSLs and SALs	MD21-10-16182	below SSLs and SALs
MD21-10-16099	below SSLs and SALs	MD21-10-16156	below SSLs and SALs	MD21-10-16183	below SSLs and SALs
MD21-10-16100	below SSLs and SALs	MD21-10-16157	below SSLs and SALs	MD21-10-16184	below SSLs and SALs
MD21-10-16101	below SSLs and SALs	MD21-10-16158	below SSLs and SALs	MD21-10-16185	below SSLs and SALs
MD21-10-16102	below SSLs and SALs	MD21-10-16159	below SSLs and SALs	MD21-10-16186	below SSLs and SALs
MD21-10-16103	below SSLs and SALs	MD21-10-16160	below SSLs and SALs	MD21-10-16187	below SSLs and SALs
MD21-10-16104	below SSLs and SALs	MD21-10-16161	below SSLs and SALs	MD21-10-16188	below SSLs and SALs
MD21-10-16105	below SSLs and SALs	MD21-10-16162	below SSLs and SALs	MD21-10-16189	below SSLs and SALs
MD21-10-16106	below SSLs and SALs	MD21-10-16163	below SSLs and SALs	MD21-10-16190	below SSLs and SALs
MD21-10-16107	below SSLs and SALs	MD21-10-16164	below SSLs and SALs	MD21-10-16191	below SSLs and SALs
MD21-10-16108	below SSLs and SALs	MD21-10-16165	below SSLs and SALs	MD21-10-16192	below SSLs and SALs
MD21-10-16109	below SSLs and SALs	MD21-10-16166	below SSLs and SALs	MD21-10-16193	below SSLs and SALs
MD21-10-16110	below SSLs and SALs	MD21-10-16167	below SSLs and SALs	MD21-10-16194	below SSLs and SALs
MD21-10-16111	below SSLs and SALs	MD21-10-16168	below SSLs and SALs	MD21-10-16195	below SSLs and SALs
MD21-10-16112	below SSLs and SALs	MD21-10-16169	below SSLs and SALs	MD21-10-16196	below SSLs and SALs
MD21-10-16113	below SSLs and SALs	MD21-10-16170	below SSLs and SALs	MD21-10-16197	below SSLs and SALs
MD21-10-16114	below SSLs and SALs	MD21-10-16171	below SSLs and SALs	MD21-10-16198	below SSLs and SALs
MD21-10-16115	below SSLs and SALs	MD21-10-16172	below SSLs and SALs	MD21-10-16199	below SSLs and SALs
MD21-10-16116	below SSLs and SALs	MD21-10-16173	below SSLs and SALs	MD21-10-16200	below SSLs and SALs
MD21-10-16117	below SSLs and SALs	MD21-10-16174	below SSLs and SALs	MD21-10-16201	below SSLs and SALs
MD21-10-16118	below SSLs and SALs	MD21-10-16175	below SSLs and SALs	MD21-10-16202	below SSLs and SALs
MD21-10-16149	below SSLs and SALs	MD21-10-16176	below SSLs and SALs	MD21-10-16203	below SSLs and SALs
MD21-10-16150	below SSLs and SALs	MD21-10-16177	below SSLs and SALs	MD21-10-16204	below SSLs and SALs
MD21-10-16205	below SSLs and SALs	MDABEWS1-10-21237	below SSLs and SALs	MDABEWS1-10-21265	below SSLs and SALs

Table 2.3-1 (continued)

Sample ID	Soil Type	Sample ID	Soil Type	Sample ID	Soil Type
MD21-10-16206	below SSLs and SALs	MDABEWS1-10-21238	below SSLs and SALs	MDABEWS1-10-21266	below SSLs and SALs
MD21-10-16207	below SSLs and SALs	MDABEWS1-10-21239	below SSLs and SALs	MDABEWS1-10-21267	below SSLs and SALs
MD21-10-16208	below SSLs and SALs	MDABEWS1-10-21240	below SSLs and SALs	MDABEWS1-10-21268	below SSLs and SALs
MD21-10-16209	below SSLs and SALs	MDABEWS1-10-21241	below SSLs and SALs	MDABEWS1-10-21269	below SSLs and SALs
MD21-10-16210	below SSLs and SALs	MDABEWS1-10-21242	below SSLs and SALs	MDABEWS1-10-21270	below SSLs and SALs
MD21-10-16211	below SSLs and SALs	MDABEWS1-10-21244	below SSLs and SALs	MDABEWS1-10-21271	below SSLs and SALs
MD21-10-16212	below SSLs and SALs	MDABEWS1-10-21245	below SSLs and SALs	MDABEWS1-10-21272	below SSLs and SALs
MD21-10-16213	below SSLs and SALs	MDABEWS1-10-21246	below SSLs and SALs	MDABEWS1-10-21273	below SSLs and SALs
MD21-10-16214	below SSLs and SALs	MDABEWS1-10-21247	below SSLs and SALs	MDABEWS1-10-21274	below SSLs and SALs
MD21-10-16215	below SSLs and SALs	MDABEWS1-10-21249	below SSLs and SALs	MDABEWS1-10-21275	below SSLs and SALs
MD21-10-16216	below SSLs and SALs	MDABEWS1-10-21250	below SSLs and SALs	MDABEWS1-10-21276	below SSLs and SALs
MD21-10-16217	below SSLs and SALs	MDABEWS1-10-21251	below SSLs and SALs	MDABEWS1-10-21277	below SSLs and SALs
MD21-10-16218	below SSLs and SALs	MDABEWS1-10-21252	below SSLs and SALs	MDABEWS1-10-21278	below SSLs and SALs
MD21-10-16219	below SSLs and SALs	MDABEWS1-10-21253	below SSLs and SALs	MDABEWS1-10-21279	below SSLs and SALs
MD21-10-16220	below SSLs and SALs	MDABEWS1-10-21254	below SSLs and SALs	MDABEWS1-10-21280	below SSLs and SALs
MDABEWS1-10-21228	below SSLs and SALs	MDABEWS1-10-21255	below SSLs and SALs	MDABEWS1-10-21281	below SSLs and SALs
MDABEWS1-10-21229	below SSLs and SALs	MDABEWS1-10-21256	below SSLs and SALs	MDABEWS1-10-21284	below SSLs and SALs
MDABEWS1-10-21230	below SSLs and SALs	MDABEWS1-10-21257	below SSLs and SALs	MDABEWS1-10-21285	below SSLs and SALs
MDABEWS1-10-21231	below SSLs and SALs	MDABEWS1-10-21258	below SSLs and SALs	MDABEWS1-10-21287	below SSLs and SALs
MDABEWS1-10-21232	below SSLs and SALs	MDABEWS1-10-21260	below SSLs and SALs	MDABEWS1-10-21288	below SSLs and SALs
MDABEWS1-10-21233	below SSLs and SALs	MDABEWS1-10-21261	below SSLs and SALs	MDABEWS1-10-21289	below SSLs and SALs
MDABEWS1-10-21234	below SSLs and SALs	MDABEWS1-10-21262	below SSLs and SALs	MDABEWS1-10-21290	below SSLs and SALs
MDABEWS1-10-21235	below SSLs and SALs	MDABEWS1-10-21263	below SSLs and SALs	MDABEWS1-10-21291	below SSLs and SALs
MDABEWS1-10-21236	below SSLs and SALs	MDABEWS1-10-21264	below SSLs and SALs	MDABEWS1-10-21293	below SSLs and SALs

* Source: SSLs from (NMED 2009, 108070), or www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/index.htm; SALs from (LANL 2009, 107655).

Table 2.4-1
Waste and Overburden Volumes Removed and Shipped through February 18, 2011

Total Waste and Overburden Removed (yd^3)	Awaiting Characterization or Permission to Ship (waste type TBD[a]) (yd^3)	Clean Soil Backfill below SSLs and SALs[b] (yd^3)	LLW to TA-54[c] (yd^3)	LLW to Clive (yd^3)	LLW to NNSS[d] (yd^3)	MLLW to Clive (yd^3)	Industrial Waste Shipped[e] (yd^3)	New Mexico Special Waste[f] (yd^3)
20,882	8010.33	796	3188	6503	84	36.27[g]	2268	0

[a] TBD = To be determined.

[b] SSLs from (NMED 2009, 108070) or www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/index.htm and SALs from (LANL 2009, 107655).

[c] Disposed at TA-54, MDA G.

[d] No LLW destined for disposal at NNSS had been shipped as of February 18, 2011.

[e] Industrial waste shipped to Waste Control Specialists in Andrews, Texas, or Clean Harbors-Deer Trail in Deer Trail, Colorado.

[f] Includes ACM. None has been shipped yet.

[g] One 0.27-yd^3 (55-gal.) drum had not been shipped as of February 18, 2011.

Table 2.5-1
Confirmation Samples Collected through February 18, 2011

MDA B Enclosure	LANL Sample ID	Location ID	Grid Cell	NMED Split	Trench Location	Date Collected	Elevation (ft asl[a])
1	CSMDAB-10-24585	MDAB-612790	AJ260	Sampled[b]	South-side wall	08/11/10	7182.3
1	CSMDAB-10-24586	MDAB-612791	AH260	Sampled	North-side wall	08/11/10	7182.7
1	CSMDAB-10-24587	MDAB-612792	AI260	Sampled	Excavation floor	08/11/10	7179.6
1	CSMDAB-10-24589	MDAB-612794	AH260	NS[c]	North-side wall	09/16/10	7185
1	CSMDAB-10-24590	MDAB-612795	AH260	NS	North-side wall	09/16/10	7184.2
1	CSMDAB-10-24591	MDAB-612796	AH260	NS	North-side wall	09/16/10	7184.6
1	CSMDAB-10-24592	MDAB-612797	AH260	NS	North-side wall	10/13/10	7182.9
1	CSMDAB-10-24593	MDAB-612798	AI255	NS	Excavation floor	01/05/11	7180.809
1	CSMDAB-10-24594	MDAB-612799	AH255	NS	North-side wall	01/05/11	7184.136
1	CSMDAB-10-24595	MDAB-612800	AJ255	NS	South-side wall	01/05/11	7183.976
1	CSMDAB-10-24596	MDAB-612801	AH250	NS	North-side wall	01/29/11	7179.81
1	CSMDAB-10-24597	MDAB-612802	AI250	Sampled	Excavation floor	01/29/11	7175.22
1	CSMDAB-10-24598	MDAB-612803	AJ250	NS	South-side wall	01/29/11	7179.02
2	CSMDAB-10-25077	MDAB-612898	NH51	Sampled	Excavation floor	10/11/10	7162.1
2	CSMDAB-10-25079	MDAB-612900	NF51	NS	North-side wall	11/23/10	7171.381
2	CSMDAB-10-25080	MDAB-612901	NH51	NS	South-side wall	11/23/10	7169.636
2	CSMDAB-10-25083	MDAB-612904	NH46	yes	Excavation floor	01/29/11	7158.41
2	CSMDAB-10-25084	MDAB-612905	NF46	NS	North-side wall	01/29/11	7167.8
2	CSMDAB-10-25085	MDAB-612906	NH46	NS	South-side wall	01/29/11	7161.06
3	CSMDAB-10-26776	MDAB-613126	AH160	Sampled	North-side wall	10/18/10	7201
3	CSMDAB-10-26777	MDAB-613127	AI160	Sampled	Excavation floor	10/18/10	7193.4
3	CSMDAB-10-26778	MDAB-613128	AK160	Sampled	South-side wall	10/18/10	7205.2
3	CSMDAB-10-26779	MDAB-613129	AI155	Sampled	North-side wall	10/18/10	7206.3
3	CSMDAB-10-26780	MDAB-613130	AJ155	Sampled	Excavation floor	10/18/10	7200.6

Table 2.5-1 (continued)

MDA B Enclosure	LANL Sample ID	Location ID	Grid Cell	NMED Split	Trench Location	Date Collected	Elevation (ft asl[a])
3	CSMDAB-10-26781	MDAB-613131	AK155	Sampled	South-side wall	10/18/10	7204.6
3	CSMDAB-10-26782	MDAB-613132	AH166	Sampled	North-side wall	01/10/11	7197.998
3	CSMDAB-10-26783	MDAB-613133	AK166	Sampled	South-side wall	01/10/11	7198.566
3	CSMDAB-10-26784	MDAB-613134	AJ166	Sampled	Excavation floor	01/10/11	7191.4
3	CSMDAB-10-26785	MDAB-613135	AI171	Sampled	North-side wall	01/10/11	7197.21
3	CSMDAB-10-26786	MDAB-613136	AK171	Sampled	South-side wall	01/10/11	7195.4
3	CSMDAB-10-26787	MDAB-613137	AJ171	Sampled	Excavation floor	01/10/11	7191.64
7	CSMDAB-10-26802	MDAB-613141	AH196	Sampled	North-side wall	10/19/10	7188.6
7	CSMDAB-10-26803	MDAB-613142	AI196	Sampled	Excavation floor	10/19/10	7181.1
7	CSMDAB-10-26804	MDAB-613143	AK196	Sampled	South-side wall	10/19/10	7187.4
7	CSMDAB-10-26805	MDAB-613144	AH200	NS	North-side wall	11/10/10	7185.79
7	CSMDAB-10-26806	MDAB-613145	AK200	NS	South-side wall	11/10/10	7186.3
7	CSMDAB-10-26807	MDAB-613146	AJ200	NS	Excavation floor	11/10/10	7177.3
7	CSMDAB-10-26808	MDAB-613147	AH205	NS	North-side wall	12/10/10	7180.53
7	CSMDAB-10-26809	MDAB-613148	AK205	NS	South-side wall	12/10/10	7179.06
7	CSMDAB-10-26810	MDAB-613149	AJ205	NS	Excavation floor	12/10/10	7174.26
7	CSMDAB-10-26811	MDAB-613142	AI196	NS	Excavation floor	11/10/10	7181.06
7	CSMDAB-10-26812	MDAB-613151	AJ200	NS	Excavation floor	12/10/10	7176.78
3	MDABEWS2-11-4532	MDAB-613857	AG167	NS	South-side wall	01/26/11	7200.49
3	MDABEWS2-11-4533	MDAB-613858	AG167	NS	East-side wall	01/26/11	7201.43
3	MDABEWS2-11-4535	MDAB-613860	AG167	NS	West-side wall	01/26/11	7201.52
3	MDABEWS2-11-4536	MDAB-613859	AF167	NS	North-side wall	01/26/11	7201.57
3	MDABEWS2-11-4537	MDAB-613861	AG167	NS	Excavation floor	01/26/11	7200.34

[a] asl = Above sea level.

[b] Sampled = Location was sampled by NMED.

[c] NS = Location was not sampled by NMED.

Table 4.1-1
Inorganic Chemicals Detected in the Pre-Enclosure Overburden Sample Set

Total Inorganic Results											
Analyte	Number of Analyses	Detects	Detection Rate	Mean (mg/kg)	Standard Deviation (mg/kg)	Minimum (mg/kg)	Median (mg/kg)	Maximum (mg/kg)	NMED SSL[a] (mg/kg)	EPA SSL[b] (mg/kg)	Maximum Concentration above Residential Standards
Aluminum	172	172	100%	6868.837	1674.192	2810	7210	10,400	78,100	77,000	No[c]
Antimony	172	52	30%	0.815	0.947	0.081	0.32	5.26	31.3	31	No
Arsenic	172	158	92%	2.433	0.665	0.994	2.5	7.3	3.9	0.39	Yes[d]
Barium	172	172	100%	99.142	25.844	35.7	102	235	15,600	15,000	No
Beryllium	172	172	100%	0.678	0.122	0.3	0.7	0.93	156	160	No
Cadmium	172	143	83%	0.184	0.176	0.038	0.1	0.73	77.9	70	No
Calcium	172	172	100%	2292.424	1566.806	759	2065	18,400	na[e]	na	n/a[f]
Chromium	172	172	100%	6.038	1.514	2.4	6.2	13	113,000	100,000	No
Cobalt	172	172	100%	3.840	1.098	1.59	3.8	8.6	na	23	No
Copper	172	128	74%	7.480	5.253	2.3	6.4	56.5	3130	3100	No
Iron	172	172	100%	9169.360	1697.015	4540	9000	14,000	54,800	55,000	No
Lead	172	172	100%	14.357	4.184	5.5	14.15	33.9	400	400	No
Magnesium	172	172	100%	1292.384	303.683	534	1330	2100	na	na	n/a
Manganese	172	158	92%	273.779	79.480	124	260	860	10,700	1800	No
Mercury	172	145	84%	0.032	0.014	0.0091	0.0291	0.108	7.71	5.6	No
Nickel	172	162	94%	5.513	1.120	2.5	5.625	8.64	1560	1500	No
Potassium	172	172	100%	1013.791	246.823	390	1060	1500	na	na	n/a
Selenium	172	115	67%	0.961	0.336	0.31	1	2.4	391	390	No
Silver	172	120	70%	0.364	0.456	0.028	0.0985	1.2	391	390	No
Sodium	172	47	27%	124.852	52.419	28	119	240	na	na	n/a
Thallium	172	64	37%	0.486	0.626	0.0858	0.22	6.8	5.16	na	Yes
Uranium	172	172	100%	0.843	0.243	0.42	0.835	2.12	235[g]	na	No
Vanadium	172	172	100%	14.963	3.277	6.9	15.2	22	391	5.5	No
Zinc	172	163	95%	37.664	13.593	15.7	34.75	158	23,500	23,000	No

Table 4.1-1
Inorganic Chemicals Detected in the Pre-Enclosure Overburden Sample Set

Total Inorganic Results											
Analyte	Number of Analyses	Detects	Detection Rate	Mean (mg/kg)	Standard Deviation (mg/kg)	Minimum (mg/kg)	Median (mg/kg)	Maximum (mg/kg)	NMED SSL[a] (mg/kg)	EPA SSL[b] (mg/kg)	Maximum Concentration above Residential Standards
TCLP											
Arsenic	172	0	0%	n/a	n/a	n/a	n/a	n/a	5000	n/a	Arsenic
Barium	172	172	100%	694.738	123.710	380	677.5	1100	100,000	No	Barium
Cadmium	172	15	9%	19.903	18.072	1.11	10	50	1000	No	Cadmium
Chromium	172	5	3%	45.919	37.483	13	20	100	5000	No	Chromium
Lead	172	24	14%	18.171	13.629	2.5	13.75	44.1	5000	No	Lead
Mercury	172	26	15%	1.283	0.539	0.2	1	2	200	No	Mercury
Selenium	172	23	13%	24.562	15.147	6.3	19.2	52	1000	No	Selenium
Silver	172	0	0%	n/a	n/a	n/a	n/a	n/a	5000	n/a	Silver

[a] Source: NMED (2009, 108070).

[b] Source: www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/index.htm.

[c] No = Does not exceed SSLs.

[d] Yes = Exceeds SSLs.

[e] na = Not available.

[f] n/a = Not applicable. Statistics were not performed on analytes that were below detection limits.

[g] SSL for uranium soluble salts.

[h] Source: 40 CFR 261.24.

Table 4.1-2
Organic Chemicals Detected in the Pre-Enclosure Overburden Sample Set

Total Organic Results											
Analyte	Number of Analyses	Detects	Detection Rate	Mean (mg/kg)	Standard Deviation (mg/kg)	Minimum (mg/kg)	Median (mg/kg)	Maximum (mg/kg)	NMED SSL[a] (mg/kg)	EPA SSL_b (mg/kg)	Maximum Concentration above Residential Standards
Acenaphthene	172	4	2%	0.341	0.100	0.0349	0.36	0.94	3440	3400	No[c]
Acenaphthylene	172	0	0%	n/a[d]	n/a	n/a	n/a	n/a	na[e]	na	n/a
Acetone	172	4	2%	0.020	0.005	0.0052	0.022	0.047	67,500	61,000	No
Aldrin	172	0	0%	n/a	n/a	n/a	n/a	n/a	0.284	0.029	n/a
Aniline	172	0	0%	n/a	n/a	n/a	n/a	n/a	na	85	n/a
Anthracene	172	2	1%	0.341	0.083	0.0349	0.36	0.39	17,200	17,000	No
Azobenzene	172	0	0%	n/a	n/a	n/a	n/a	n/a	na	5.1	n/a
Benzene	172	0	0%	n/a	n/a	n/a	n/a	n/a	15.5	1.1	n/a
Benzo(a)anthracene	172	2	1%	0.346	0.091	0.0349	0.36	0.81	6.21	0.15	No
Benzo(a)pyrene	172	2	1%	0.345	0.086	0.0349	0.36	0.67	0.621	0.015	Yes[f]
Benzo(b)fluoranthene	172	5	3%	0.347	0.100	0.0124	0.36	1	6.21	0.15	No
Benzo(g,h,i)perylene	172	3	2%	0.339	0.086	0.0349	0.36	0.39	na	na	n/a
Benzo(k)fluoranthene	172	2	1%	0.343	0.083	0.0349	0.36	0.49	62.1	1.5	No
Benzoic acid	172	0	0%	n/a	n/a	n/a	n/a	n/a	na	200,000	n/a
Benzyl alcohol	172	0	0%	n/a	n/a	n/a	n/a	n/a	na	6100	n/a
Benzene hexachloride (BHC)[alpha-]	172	0	0%	n/a	n/a	n/a	n/a	n/a	0.772	0.077	n/a
BHC[beta-]	172	0	0%	n/a	n/a	n/a	n/a	n/a	2.7	0.27	n/a
BHC[delta-]	172	0	0%	n/a	n/a	n/a	n/a	n/a	na	na	n/a
BHC[gamma-]	172	0	0%	n/a	n/a	n/a	n/a	n/a	5.17	0.52	n/a
Bis(2-chloroethoxy)methane	172	0	0%	n/a	n/a	n/a	n/a	n/a	na	180	n/a

Table 4.1-2 (continued)

Total Organic Results											
Analyte	Number of Analyses	Detects	Detection Rate	Mean (mg/kg)	Standard Deviation (mg/kg)	Minimum (mg/kg)	Median (mg/kg)	Maximum (mg/kg)	NMED SSL[a] (mg/kg)	EPA SSL[b] (mg/kg)	Maximum Concentration above Residential Standards
Bis(2-chloroethyl)ether	172	0	0%	n/a	n/a	n/a	n/a	n/a	2.56	0.21	n/a
Bis(2-ethylhexyl) phthalate	172	21	12%	0.396	0.311	0.056	0.366	3.57	347	35	No
Bromobenzene	172	0	0%	n/a	n/a	n/a	n/a	n/a	na	300	n/a
Bromochloromethane	172	0	0%	n/a	n/a	n/a	n/a	n/a	na	na	n/a
Bromodichloro-methane	172	0	0%	n/a	n/a	n/a	n/a	n/a	5.25	0.27	n/a
Bromoform	172	0	0%	n/a	n/a	n/a	n/a	n/a	616	61	n/a
Bromomethane	172	0	0%	n/a	n/a	n/a	n/a	n/a	22.3	7.3	n/a
Bromophenyl-phenylether[4-]	172	0	0%	n/a	n/a	n/a	n/a	n/a	na	na	n/a
Butanone[2-]	172	0	0%	n/a	n/a	n/a	n/a	n/a	39,600	28,000	n/a
Butylbenzene[n-]	172	0	0%	n/a	n/a	n/a	n/a	n/a	na	na	n/a
Butylbenzene[sec-]	172	0	0%	n/a	n/a	n/a	n/a	n/a	na	na	n/a
Butylbenzene[tert-]	172	0	0%	n/a	n/a	n/a	n/a	n/a	na	na	n/a
Butylbenzylphthalate	172	1	1%	0.413	0.301	0.042	0.37	3.57	na	260	No
Carbazole	46	2	4%	0.364	0.039	0.18	0.37	0.39	na	na	n/a
Carbon disulfide	172	0	0%	n/a	n/a	n/a	n/a	n/a	1940	820	n/a
Carbon tetrachloride	172	0	0%	n/a	n/a	n/a	n/a	n/a	4.38	0.61	n/a
Chlordane[alpha-]	172	5	3%	0.006	0.006	0.0017	0.0038	0.038	na	na	n/a
Chlordane[gamma-]	172	13	8%	0.006	0.006	0.0003	0.0038	0.038	na	na	n/a
Chloro-3-methylphenol[4-]	172	0	0%	n/a	n/a	n/a	n/a	n/a	na	6100	n/a
Chloroaniline[4-]	172	0	0%	n/a	n/a	n/a	n/a	n/a	na	2.4	n/a
Chlorobenzene	172	0	0%	n/a	n/a	n/a	n/a	n/a	508	290	n/a
Chlorodibromo-methane	172	0	0%	n/a	n/a	n/a	n/a	n/a	11.9	0.68	n/a
Chloroethane	172	0	0%	n/a	n/a	n/a	n/a	n/a	43,600	15,000	n/a

Table 4.1-2 (continued)

Total Organic Results											
Analyte	Number of Analyses	Detects	Detection Rate	Mean (mg/kg)	Standard Deviation (mg/kg)	Minimum (mg/kg)	Median (mg/kg)	Maximum (mg/kg)	NMED SSL[a] (mg/kg)	EPA SSL[b] (mg/kg)	Maximum Concentration above Residential Standards
Chloroform	172	0	0%	n/a	n/a	n/a	n/a	n/a	5.72	0.29	n/a
Chloromethane	172	0	0%	n/a	n/a	n/a	n/a	n/a	35.6	120	n/a
Chloronaphthalene[2-]	172	0	0%	n/a	n/a	n/a	n/a	n/a	6260	6300	n/a
Chlorophenol[2-]	172	0	0%	n/a	n/a	n/a	n/a	n/a	391	390	n/a
Chlorophenyl-phenyl[4-] ether	172	0	0%	n/a	n/a	n/a	n/a	n/a	na	na	n/a
Chlorotoluene[2-]	172	0	0%	n/a	n/a	n/a	n/a	n/a	1560	1600	n/a
Chlorotoluene[4-]	172	0	0%	n/a	n/a	n/a	n/a	n/a	na	5500	n/a
Chrysene	172	3	2%	0.345	0.086	0.0269	0.36	0.64	621	15	No
Dichlorophenoxyacetic acid (D)[2,4-]	172	0	0%	n/a	n/a	n/a	n/a	n/a	na	690	n/a
Dalapon	172	0	0%	n/a	n/a	n/a	n/a	n/a	na	1800	n/a
Dichlorophenoxy butyric acid (DB)[2,4-]	172	0	0%	n/a	n/a	n/a	n/a	n/a	na	490	n/a
Dichlorodiphenyldichloroethane (DDD)[4,4'-]	172	4	2%	0.006	0.006	0.0002	0.0038	0.038	20.3	2	No
Dichlorophenyltrichloroethylene (DDE)[4,4'-]	172	22	13%	0.006	0.006	0.0006	0.0037	0.038	14.3	1.4	No
Dichlorodiphenyltrichloroethane (DDT)[4,4'-]	172	27	16%	0.006	0.006	0.001	0.0038	0.038	17.2	1.7	No
Dibenz(a,h)anthracene	172	1	1%	0.341	0.084	0.0349	0.36	0.39	0.621	0.015	No
Dibenzofuran	172	1	1%	0.414	0.300	0.11	0.37	3.57	na	78	No
Dibromo-3-chloropropane[1,2-]	172	0	0%	n/a	n/a	n/a	n/a	n/a	0.194	0.005	n/a
Dibromoethane[1,2-]	172	0	0%	n/a	n/a	n/a	n/a	n/a	0.574	0.034	n/a
Dibromomethane	172	0	0%	n/a	n/a	n/a	n/a	n/a	782	25	n/a
Dicamba	172	3	2%	0.032	0.020	0.0052	0.043	0.12	na	1800	No

Table 4.1-2 (continued)

Total Organic Results											
Analyte	Number of Analyses	Detects	Detection Rate	Mean (mg/kg)	Standard Deviation (mg/kg)	Minimum (mg/kg)	Median (mg/kg)	Maximum (mg/kg)	NMED SSL[a] (mg/kg)	EPA SSL[b] (mg/kg)	Maximum Concentration above Residential Standards
Dichlorobenzene[1,2-]	172	0	0%	n/a	n/a	n/a	n/a	n/a	3010	1900	n/a
Dichlorobenzene[1,3-]	172	0	0%	n/a	n/a	n/a	n/a	n/a	na	na	n/a
Dichlorobenzene[1,4-]	172	0	0%	n/a	n/a	n/a	n/a	n/a	32.2	2.4	n/a
Dichlorobenzidine [3,3'-]	172	0	0%	n/a	n/a	n/a	n/a	n/a	10.8	1.1	n/a
Dichlorodifluoro-methane	172	0	0%	n/a	n/a	n/a	n/a	n/a	481	180	n/a
Dichloroethane[1,1-]	172	0	0%	n/a	n/a	n/a	n/a	n/a	62.9	3.3	n/a
Dichloroethane[1,2-]	172	0	0%	n/a	n/a	n/a	n/a	n/a	7.74	0.43	n/a
Dichloroethene[1,1-]	172	0	0%	n/a	n/a	n/a	n/a	n/a	618	240	n/a
Dichloroethene [cis/trans-1,2-]	112	0	0%	n/a	n/a	n/a	n/a	n/a	na	700	n/a
Dichloroethene[cis-1,2-]	60	0	0%	n/a	n/a	n/a	n/a	n/a	782	780	n/a
Dichloroethene[trans-1,2-]	60	0	0%	n/a	n/a	n/a	n/a	n/a	273	150	n/a
Dichlorophenol[2,4-]	172	0	0%	n/a	n/a	n/a	n/a	n/a	183	180	n/a
Dichloropropane[1,2-]	172	0	0%	n/a	n/a	n/a	n/a	n/a	14.7	0.89	n/a
Dichloropropane[1,3-]	172	0	0%	n/a	n/a	n/a	n/a	n/a	na	1600	n/a
Dichloropropane[2,2-]	172	0	0%	n/a	n/a	n/a	n/a	n/a	na	na	n/a
Dichloropropene[1,1-]	172	0	0%	n/a	n/a	n/a	n/a	n/a	na	na	n/a
Dichloropropene[cis-1,3-]	172	0	0%	n/a	n/a	n/a	n/a	n/a	na	na	n/a
Dichloropropene [trans-1,3-]	172	0	0%	n/a	n/a	n/a	n/a	n/a	na	na	n/a
Dichlorprop	172	0	0%	n/a	n/a	n/a	n/a	n/a	na	na	n/a
Dieldrin	172	4	2%	0.006	0.006	0.0004	0.0038	0.038	0.304	0.03	No
Diethylphthalate	172	5	3%	0.415	0.308	0.065	0.37	3.57	48,900	49,000	No
Dimethyl phthalate	172	0	0%	n/a	n/a	n/a	n/a	n/a	611,000	na	n/a
Dimethylphenol[2,4-]	172	0	0%	n/a	n/a	n/a	n/a	n/a	1220	1200	n/a

Table 4.1-2 (continued)

Total Organic Results											
Analyte	Number of Analyses	Detects	Detection Rate	Mean (mg/kg)	Standard Deviation (mg/kg)	Minimum (mg/kg)	Median (mg/kg)	Maximum (mg/kg)	NMED SSL[a] (mg/kg)	EPA SSL[b] (mg/kg)	Maximum Concentration above Residential Standards
Di-n-butylphthalate	172	3	2%	0.416	0.304	0.053	0.37	3.57	6110	6100	No
Dinitro-2-methylphenol[4,6-]	172	0	0%	n/a	n/a	n/a	n/a	n/a	6.11	4.9	n/a
Dinitrophenol[2,4-]	172	0	0%	n/a	n/a	n/a	n/a	n/a	122	120	n/a
Dinitrotoluene[2,4-]	172	0	0%	n/a	n/a	n/a	n/a	n/a	15.7	1.6	n/a
Dinitrotoluene[2,6-]	172	0	0%	n/a	n/a	n/a	n/a	n/a	61.2	61	n/a
Di-n-octylphthalate	172	0	0%	n/a	n/a	n/a	n/a	n/a	na	na	n/a
Dinoseb	172	0	0%	n/a	n/a	n/a	n/a	n/a	na	61	n/a
Diphenylamine	15	0	0%	n/a	n/a	n/a	n/a	n/a	na	1500	n/a
Endosulfan I	172	0	0%	n/a	n/a	n/a	n/a	n/a	na	na	n/a
Endosulfan II	172	0	0%	n/a	n/a	n/a	n/a	n/a	na	na	n/a
Endosulfan sulfate	172	0	0%	n/a	n/a	n/a	n/a	n/a	na	na	n/a
Endrin	172	0	0%	n/a	n/a	n/a	n/a	n/a	18.3	18	n/a
Endrin aldehyde	172	0	0%	n/a	n/a	n/a	n/a	n/a	na	na	n/a
Endrin ketone	172	0	0%	n/a	n/a	n/a	n/a	n/a	na	na	n/a
Ethylbenzene	172	0	0%	n/a	n/a	n/a	n/a	n/a	69.7	5.4	n/a
Fluoranthene	172	13	8%	0.339	0.152	0.0138	0.36	1.6	2290	2300	No
Fluorene	172	1	1%	0.341	0.084	0.0349	0.36	0.39	2290	2300	No
Heptachlor	172	0	0%	n/a	n/a	n/a	n/a	n/a	1.08	0.11	n/a
Heptachlor epoxide	172	1	1%	0.006	0.006	0.0016	0.0038	0.038	na	0.053	No
Hexachlorobenzene	172	0	0%	n/a	n/a	n/a	n/a	n/a	3.04	0.3	n/a
Hexachlorobutadiene	172	0	0%	n/a	n/a	n/a	n/a	n/a	61.1	6.2	n/a
Hexachlorobutadiene	45	0	0%	n/a	n/a	n/a	n/a	n/a	61.1	6.2	n/a
Hexachlorocyclopentadiene	172	0	0%	n/a	n/a	n/a	n/a	n/a	367	370	n/a

Table 4.1-2 (continued)

Total Organic Results											
Analyte	Number of Analyses	Detects	Detection Rate	Mean (mg/kg)	Standard Deviation (mg/kg)	Minimum (mg/kg)	Median (mg/kg)	Maximum (mg/kg)	NMED SSL[a] (mg/kg)	EPA SSL[b] (mg/kg)	Maximum Concentration above Residential Standards
Hexachloroethane	172	0	0%	n/a	n/a	n/a	n/a	n/a	61.1	35	n/a
Hexanone[2-]	172	0	0%	n/a	n/a	n/a	n/a	n/a	na	210	n/a
Indeno(1,2,3-cd)pyrene	172	2	1%	0.341	0.083	0.0349	0.36	0.39	6.21	0.15	No
Iodomethane	172	0	0%	n/a	n/a	n/a	n/a	n/a	na	na	n/a
Isophorone	172	0	0%	n/a	n/a	n/a	n/a	n/a	5120	510	n/a
Isopropylbenzene	172	0	0%	n/a	n/a	n/a	n/a	n/a	3210	2100	n/a
Isopropyltoluene[4-]	172	2	1%	0.005	0.001	0.0005	0.0055	0.006	na	na	n/a
Methyl chlorophenoxy acetic acid (MCPA)	172	6	3%	6.727	2.967	0.65	8.7	9.4	na	31	No
2- (2-methyl-4-chlorophenoxy) propionic acid (MCPP)	172	6	3%	6.767	2.917	0.394	8.7	9.4	na	61	No
Methoxychlor[4,4'-]	172	0	0%	n/a	n/a	n/a	n/a	n/a	na	310	n/a
Methyl tert-butyl ether	157	0	0%	n/a	n/a	n/a	n/a	n/a	862	43	n/a
Methyl-2-pentanone [4-]	172	0	0%	n/a	n/a	n/a	n/a	n/a	5950	5300	n/a
Methylene chloride	172	42	24%	0.011	0.013	0.0017	0.0056	0.056	199	11	No
Methylnaphthalene[1-]	45	0	0%	n/a	n/a	n/a	n/a	n/a	na	22	n/a
Methylnaphthalene[2-]	172	0	0%	n/a	n/a	n/a	n/a	n/a	na	310	n/a
Methylphenol[2-]	172	0	0%	n/a	n/a	n/a	n/a	n/a	na	3100	n/a
Methylphenol[3-]	45	0	0%	n/a	n/a	n/a	n/a	n/a	na	3100	n/a
Methylphenol[4-]	127	0	0%	n/a	n/a	n/a	n/a	n/a	na	310	n/a
Naphthalene	172	1	1%	0.341	0.084	0.0349	0.36	0.39	45	3.6	No
Naphthalene	45	0	0%	n/a	n/a	n/a	n/a	n/a	45	3.6	n/a
Nitroaniline[2-]	172	0	0%	n/a	n/a	n/a	n/a	n/a	na	610	n/a
Nitroaniline[3-]	172	0	0%	n/a	n/a	n/a	n/a	n/a	na	na	n/a

Table 4.1-2 (continued)

Total Organic Results											
Analyte	Number of Analyses	Detects	Detection Rate	Mean (mg/kg)	Standard Deviation (mg/kg)	Minimum (mg/kg)	Median (mg/kg)	Maximum (mg/kg)	NMED SSL[a] (mg/kg)	EPA SSL[b] (mg/kg)	Maximum Concentration above Residential Standards
Nitroaniline[4-]	172	0	0%	n/a	n/a	n/a	n/a	n/a	na	24	n/a
Nitrobenzene	172	0	0%	n/a	n/a	n/a	n/a	n/a	49.4	4.8	n/a
Nitrophenol[2-]	172	0	0%	n/a	n/a	n/a	n/a	n/a	na	na	n/a
Nitrophenol[4-]	172	0	0%	n/a	n/a	n/a	n/a	n/a	na	na	n/a
Nitrosodimethylamine [N-]	172	0	0%	n/a	n/a	n/a	n/a	n/a	0.0954	0.002	n/a
Nitroso-di-n-propylamine[N-]	172	0	0%	n/a	n/a	n/a	n/a	n/a	na	0.069	n/a
Nitrosodiphenylamine [N-]	157	0	0%	n/a	n/a	n/a	n/a	n/a	993	99	n/a
Oxybis(1-chloropropane)[2,2'-]	172	0	0%	n/a	n/a	n/a	n/a	n/a	na	4.6	n/a
Pentachlorophenol	172	0	0%	n/a	n/a	n/a	n/a	n/a	29.8	3	n/a
Phenanthrene	172	8	5%	0.341	0.117	0.0151	0.36	1.2	1830	na	No
Phenol	172	0	0%	n/a	n/a	n/a	n/a	n/a	18,300	18,000	n/a
Propylbenzene [1-]	172	0	0%	n/a	n/a	n/a	n/a	n/a	na	3400	n/a
Pyrene	172	13	8%	0.344	0.161	0.0108	0.36	1.9	1720	1700	No
Pyridine	80	0	0%	n/a	n/a	n/a	n/a	n/a	na	78	n/a
Styrene	172	0	0%	n/a	n/a	n/a	n/a	n/a	8970	6300	n/a
Trichlorophenoxyacetic acid (T)[2,4,5-]	172	2	1%	0.016	0.009	0.0035	0.022	0.033	na	610	No
Tetrachloroethane [1,1,1,2-]	172	0	0%	n/a	n/a	n/a	n/a	n/a	29.2	1.9	n/a
Tetrachloroethane [1,1,2,2-]	172	0	0%	n/a	n/a	n/a	n/a	n/a	7.98	0.56	n/a
Tetrachloroethene	172	0	0%	n/a	n/a	n/a	n/a	n/a	6.99	0.55	n/a
Tetrachlorophenol [2,3,4,6-]	45	0	0%	n/a	n/a	n/a	n/a	n/a	na	1800	n/a
Toluene	172	1	1%	0.005	0.001	0.0009	0.0055	0.006	5570	5000	No
Toxaphene	172	0	0%	n/a	n/a	n/a	n/a	n/a	4.42	0.44	n/a

Table 4.1-2 (continued)

Total Organic Results											
Analyte	Number of Analyses	Detects	Detection Rate	Mean (mg/kg)	Standard Deviation (mg/kg)	Minimum (mg/kg)	Median (mg/kg)	Maximum (mg/kg)	NMED SSL[a] (mg/kg)	EPA SSL[b] (mg/kg)	Maximum Concentration above Residential Standards
Trichlorophenoxy propionic acid (TP)[2,4,5-]	172	0	0%	n/a	n/a	n/a	n/a	n/a	na	490	n/a
Trichloro-1,2,2-trifluoroethane[1,1,2-]	127	0	0%	n/a	n/a	n/a	n/a	n/a	104,000	43,000	n/a
Trichlorobenzene [1,2,3-]	45	0	0%	n/a	n/a	n/a	n/a	n/a	na	49	n/a
Trichlorobenzene [1,2,4-]	172	0	0%	n/a	n/a	n/a	n/a	n/a	143	22	n/a
Trichlorobenzene [1,2,4-]	45	0	0%	n/a	n/a	n/a	n/a	n/a	143	22	n/a
Trichloroethane[1,1,1-]	172	0	0%	n/a	n/a	n/a	n/a	n/a	21,800	8700	n/a
Trichloroethane[1,1,2-]	172	0	0%	n/a	n/a	n/a	n/a	n/a	17.2	1.1	n/a
Trichloroethene	172	0	0%	n/a	n/a	n/a	n/a	n/a	45.7	2.8	n/a
Trichlorofluoromethane	172	2	1%	0.009	0.003	0.0003	0.011	0.012	2010	790	No
Trichlorophenol[2,4,5-]	172	0	0%	n/a	n/a	n/a	n/a	n/a	6110	6100	n/a
Trichlorophenol[2,4,6-]	172	0	0%	n/a	n/a	n/a	n/a	n/a	61.1	44	n/a
Trichloropropane [1,2,3-]	172	0	0%	n/a	n/a	n/a	n/a	n/a	0.915	0.005	n/a
Trichlorotrifluoroethane	45	0	0%	n/a	n/a	n/a	n/a	n/a	na	na	n/a
Trimethylbenzene [1,2,4-]	172	7	4%	0.003	0.002	0.0004	0.0012	0.006	na	62	No
Trimethylbenzene [1,3,5-]	172	0	0%	n/a	n/a	n/a	n/a	n/a	na	780	n/a
Vinyl acetate	45	0	0%	n/a	n/a	n/a	n/a	n/a	3650	970	n/a
Vinyl chloride	172	0	0%	n/a	n/a	n/a	n/a	n/a	0.865	0.06	n/a
Xylene (Total)	112	0	0%	n/a	n/a	n/a	n/a	n/a	1090	630	n/a
Xylene[1,2-]	60	0	0%	n/a	n/a	n/a	n/a	n/a	9550	3800	n/a
Xylene[1,3-] +xylene[1,4-]	60	0	0%	n/a	n/a	n/a	n/a	n/a	1090	630	n/a

Table 4.1-2 (continued)

TCLP										
Analyte	Number of Analyses	Detects	Detection Rate	Mean (µg/L)	Standard Deviation (µg/L)	Minimum (µg/L)	Median (µg/L)	Maximum (µg/L)	TCLP Level[g] (µg/L)	Maximum Concentration above Residential Standards
Benzene	172	0	0%	n/a	n/a	n/a	n/a	n/a	500	n/a
BHC[gamma-]	172	1	1%	0.473	0.088	0.067	0.5	0.5	400	No
Butanone[2-]	172	0	0%	n/a	n/a	n/a	n/a	n/a	200,000	n/a
Carbon tetrachloride	172	0	0%	n/a	n/a	n/a	n/a	n/a	500	n/a
Chlordane	45	0	0%	n/a	n/a	n/a	n/a	n/a	30	n/a
Chlordane [alpha/gamma]	127	0	0%	n/a	n/a	n/a	n/a	n/a	30	n/a
Chlordane[alpha-]	45	0	0%	n/a	n/a	n/a	n/a	n/a	30	n/a
Chlordane[gamma-]	45	0	0%	n/a	n/a	n/a	n/a	n/a	30	n/a
Chlorobenzene	172	0	0%	n/a	n/a	n/a	n/a	n/a	100,000	n/a
Chloroform	172	0	0%	n/a	n/a	n/a	n/a	n/a	6000	n/a
D[2,4-]	172	0	0%	n/a	n/a	n/a	n/a	n/a	10,000	n/a
Dichlorobenzene[1,4-]	172	1	1%	63	22.115	36	50	100	7500	No
Dichlorobenzene[1,4-]	15	0	0%	n/a	n/a	n/a	n/a	n/a	7500	n/a
Dichloroethane[1,2-]	172	0	0%	n/a	n/a	n/a	n/a	n/a	500	n/a
Dichloroethene[1,1-]	172	0	0%	n/a	n/a	n/a	n/a	n/a	700	n/a
Dinitrotoluene[2,4-]	172	0	0%	n/a	n/a	n/a	n/a	n/a	130	n/a
Endrin	172	0	0%	n/a	n/a	n/a	n/a	n/a	20	n/a
Heptachlor	172	0	0%	n/a	n/a	n/a	n/a	n/a	8	n/a
Heptachlor epoxide	172	0	0%	n/a	n/a	n/a	n/a	n/a	8	n/a
Hexachlorobenzene	172	0	0%	n/a	n/a	n/a	n/a	n/a	130	n/a
Hexachlorobutadiene	172	0	0%	n/a	n/a	n/a	n/a	n/a	500	n/a
Hexachloroethane	172	0	0%	n/a	n/a	n/a	n/a	n/a	3000	n/a
Methoxychlor[4,4'-]	172	0	0%	n/a	n/a	n/a	n/a	n/a	10,000	n/a

Table 4.1-2 (continued)

TCLP										
Analyte	Number of Analyses	Detects	Detection Rate	Mean (µg/L)	Standard Deviation (µg/L)	Minimum (µg/L)	Median (µg/L)	Maximum (µg/L)	TCLP Level[g] (µg/L)	Maximum Concentration above Residential Standards
Methylphenol[2-]	172	0	0%	n/a	n/a	n/a	n/a	n/a	200,000	n/a
Methylphenol[3-]	45	0	0%	n/a	n/a	n/a	n/a	n/a	200,000	n/a
Methylphenol[4-]	127	0	0%	n/a	n/a	n/a	n/a	n/a	200,000	n/a
Nitrobenzene	172	0	0%	n/a	n/a	n/a	n/a	n/a	2000	n/a
Pentachlorophenol	172	0	0%	n/a	n/a	n/a	n/a	n/a	100,000	n/a
Pyridine	172	0	0%	n/a	n/a	n/a	n/a	n/a	5000	n/a
Tetrachloroethene	172	0	0%	n/a	n/a	n/a	n/a	n/a	700	n/a
Toxaphene	172	0	0%	n/a	n/a	n/a	n/a	n/a	500	n/a
TP[2,4,5-]	172	0	0%	n/a	n/a	n/a	n/a	n/a	1000	n/a
Trichloroethene	172	6	3%	124.983	191.118	0.95	50	500	500	No
Trichlorophenol[2,4,5-]	172	0	0%	n/a	n/a	n/a	n/a	n/a	400,000	n/a
Trichlorophenol[2,4,6-]	172	0	0%	n/a	n/a	n/a	n/a	n/a	2000	n/a
Vinyl chloride	172	0	0%	n/a	n/a	n/a	n/a	n/a	200	n/a

[a] Source: NMED (2009, 108070).

[b] Source: www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/index.htm.

[c] No = Does not exceed SSLs.

[d] n/a = Not applicable. Statistics were not performed on analytes that were below detection limits.

[e] na = Not available.

[f] Yes= Exceeds SSLs.

[g] Source: 40 CFR 261.24.

Table 4.1-3
Radionuclides Detected in the Pre-Enclosure Overburden Sample Set

Analyte	Analytical Suite	Number of Analyses	Detects	Detection Rate	Mean (pCi/g)	Standard Deviation (pCi/g)	Minimum (pCi/g)	Median (pCi/g)	Maximum (pCi/g)	LANL SAL[a] (pCi/g)	Maximum Concentration above Residential Standards
Americium-241	Am-241[b]	172	97	56%	0.072	0.073	0.0005	0.05	0.575	30	No[c]
Americium-241	Gamma[d]	172	6	3%	0.079	0.254	−1.31	0.085	1	30	No
Bismuth-211	Gamma	127	4	3%	0.346	1.409	−1.48	0	4.78	na[e]	n/a[f]
Bismuth-212	Gamma	42	38	90%	3.053	0.630	1.63	3.03	4.24	na	n/a
Bismuth-214	Gamma	172	90	52%	1.518	0.769	0.523	1.27	4.72	na	n/a
Cadmium-109	Gamma	172	32	19%	1.507	1.693	−4.41	1.9	6.95	na	n/a
Cerium-139	Gamma	172	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a
Cesium-134	Gamma	172	0	0%	n/a	n/a	n/a	n/a	n/a	2.4	n/a
Cesium-137	Gamma	172	3	2%	0.023	0.042	−0.091	0.022	0.19	5.6	No
Cobalt-60	Gamma	172	0	0%	n/a	n/a	n/a	n/a	n/a	1.3	n/a
Europium-152	Gamma	172	0	0%	n/a	n/a	n/a	n/a	n/a	2.9	n/a
Lanthanum-140	Gamma	15	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a
Lead-212	Gamma	172	172	100%	1.525	0.168	0.895	1.52	2.03	na	n/a
Lead-214	Gamma	172	77	45%	0.842	0.877	0	1.09	5.4	na	n/a
Mercury-203	Gamma	172	1	1%	0.009	0.035	−0.135	0.0009	0.119	na	n/a
Plutonium-238	Isotopic[g]	172	36	21%	0.030	0.023	−0.004	0.028	0.143	37	No
Plutonium-239/240	Isotopic	172	172	100%	1.994	3.316	0.038	1.32	33.7	33	Yes[h]
Potassium-40	Gamma	172	172	100%	26.474	2.981	19.3	26.25	33.7	na	n/a
Radium-223	Gamma	172	4	2%	−0.052	0.450	−1.48	0	1.26	na	n/a
Radium-224	Gamma	172	4	2%	−0.788	3.889	−11.6	−1.9	17.1	na	n/a
Radium-226	Gamma	127	31	24%	1.636	0.889	0.955	1.35	6.39	5	Yes
Radium-228	Gamma	172	160	93%	1.617	0.294	0.82	1.62	2.49	5	No

Table 4.1-3 (continued)

Analyte	Analytical Suite	Number of Analyses	Detects	Detection Rate	Mean (pCi/g)	Standard Deviation (pCi/g)	Minimum (pCi/g)	Median (pCi/g)	Maximum (pCi/g)	LANL SAL[a] (pCi/g)	Maximum Concentration above Residential Standards
Ruthenium-106	Gamma	172	0	0%	n/a	n/a	n/a	n/a	n/a	20	n/a
Sodium-22	Gamma	172	0	0%	n/a	n/a	n/a	n/a	n/a	1.6	n/a
Strontium-85	Gamma	172	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a
Strontium-90	Sr-90[i]	172	1	1%	0.026	0.130	−0.41	0.03	0.45	5.7	No
Thallium-208	Gamma	172	172	100%	0.541	0.094	0.296	0.5395	0.821	na	n/a
Thorium-227	Gamma	172	4	2%	−0.250	0.830	−4.8	−0.0424	4.1	na	n/a
Thorium-231	Gamma	172	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a
Thorium-234	Gamma	172	55	32%	1.726	1.002	−0.6	1.675	5.24	na	n/a
Tin-113	Gamma	172	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a
Tritium	H^{3}[j]	172	136	79%	7.997	13.504	−0.23	1.71	69.7	750	No
Uranium-234	Isotopic	172	172	100%	0.768	0.437	0.231	0.6825	3.4	170	No
Uranium-235	Gamma	172	0	0%	n/a	n/a	n/a	n/a	n/a	17	n/a
Uranium-235	Isotopic	80	7	9%	0.029	0.017	−0.008	0.0275	0.071	17	No
Uranium-235/236	Isotopic	92	15	16%	0.043	0.027	0	0.037	0.177	17	No
Uranium-238	Isotopic	172	172	100%	0.714	0.300	0.272	0.6585	2.8	87	No
Yttrium-88	Gamma	172	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a

[a] Source: LANL (2009, 107655).

[b] Am-241 = Americium-241 analysis.

[c] No = Does not exceed SALs.

[d] Gamma = Gamma spectroscopy.

[e] na = Not available.

[f] n/a = Not applicable. Statistics were not performed on analytes that were below detection limits.

[g] Isotopic = Isotopic analysis.

[h] Yes = Exceeds SALs.

[I] Sr-90 = Strontium-90 analysis.

[j] H^{3} = Tritium analysis.

Table 4.1-4
Upper Confidence Limits for Analytes Exceeding SSLs and SALs in the Pre-Enclosure Overburden Sample Set

Analyte	Number of Analyses	Detection Rate	95% Upper Confidence Limit	NMED SSL[a] (mg/kg)	EPA SSL[b] (mg/kg)	LANL SAL[c] (pCi/g)	UCL above Residential Standards
Arsenic	172	92%	2.519	3.9	0.39	n/a[d]	No[e]
Benzo(a)pyrene[f]	172	1%	0.374	0.621	0.015	n/a	No
Plutonium-239/240	172	100%	3.573	n/a	n/a	33	No
Radium-226	127	24%	1.77	n/a	n/a	5	No
Thallium	172	37%	0.694	5.16	na[g]	n/a	No

[a] Source: NMED (2009, 108070).

[b] Source: www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/index.htm.

[c] Source: LANL (2009, 107655).

[d] n/a = Not applicable.

[e] No = Does not exceed SSLs and SALs.

[f] Nondetection reporting level exceeds EPA SSL.

[g] na = Not available.

Table 4.1-5
Inorganic Chemicals Detected in the Post-Enclosure Overburden Sample Set

Analyte	Number of Analyses	Detects	Detection Rate	Mean (mg/kg)	Standard Deviation (mg/kg)	Minimum (mg/kg)	Median (mg/kg)	Maximum (mg/kg)	NMED SSL[a] (mg/kg)	Maximum Concentration above Residential Standards
Aluminum	58	58	100%	5951.2069	1744.7295	3090	5950	10,300	78,100	No[b]
Antimony	58	7	12%	1.0584138	0.5609897	0.354	1.04	4.91	31.3	No
Arsenic	58	58	100%	1.6257241	0.749774	0.961	1.53	6.58	3.9	Yes[c]
Barium	58	58	100%	103.90172	67.724021	52.6	86.95	558	15,600	No
Beryllium	58	58	100%	0.5529655	0.1677675	0.238	0.586	1.08	156	No
Cadmium	58	36	62%	0.428569	0.539727	0.108	0.35	4.27	77.9	No
Calcium	58	58	100%	4006.5517	1596.7517	1840	3660	8590	na[d]	n/a[e]
Chromium	58	54	93%	7.4598276	1.8308415	3.63	7.19	12.5	113,000	No
Cobalt	58	58	100%	3.4789655	0.9177465	1.61	3.485	5.72	23[f]	No
Copper	58	55	95%	37.507931	118.31644	4.98	9.415	855	3130	No
Total cyanide	54	6	11%	0.2978037	0.4365872	0.087	0.2505	3.43	1560	No
Iron	58	58	100%	11,062.414	1327.5717	9140	10,900	15,000	54,800	No
Lead	58	46	79%	13.928793	10.123532	4.99	9.84	50.4	400	No
Magnesium	58	58	100%	1704.4828	423.61507	1040	1610	3130	na	n/a
Manganese	58	58	100%	274.67241	41.029466	172	277.5	395	10,700	No
Mercury	58	52	90%	0.0246105	0.0148603	0.00733	0.0206	0.0776	7.71	No
Nickel	58	54	93%	6.2296552	1.2115076	4	6.065	10.1	1560	No
Nitrate	58	43	74%	2.6271034	1.6948817	0.88	1.925	7.33	125,000	No
Nitrite	58	0	0%	n/a	n/a	n/a	n/a	n/a	7820	n/a
Perchlorate	54	44	81%	0.0063936	0.0143718	0.000515	0.00218	0.0806	54.8	No
Potassium	58	58	100%	947.10345	260.49384	494	900.5	1490	na	n/a
Selenium	58	0	0%	n/a	n/a	n/a	n/a	n/a	391	n/a

Table 4.1-5 (continued)

Analyte	Number of Analyses	Detects	Detection Rate	Mean (mg/kg)	Standard Deviation (mg/kg)	Minimum (mg/kg)	Median (mg/kg)	Maximum (mg/kg)	NMED SSL[a] (mg/kg)	Maximum Concentration above Residential Standards
Silver	58	29	50%	0.8127241	0.7907965	0.119	0.5205	3.58	391	No
Sodium	58	25	43%	218.75862	87.194976	74.6	222.5	479	na	n/a
Thallium	58	48	83%	0.2083586	0.4202067	0.0618	0.154	3.33	5.16	No
Uranium	58	58	100%	0.8628621	0.3722594	0.433	0.7565	2.35	235[g]	No
Vanadium	58	58	100%	18.98569	4.1948361	8.97	18.7	29.6	391	No
Zinc	58	48	83%	72.927586	105.26121	24.7	31	516	23,500	No

[a] Source: NMED (2009, 108070), unless otherwise noted.

[b] No = Does not exceed SSL.

[c] Yes = Exceeds SSL.

[d] na = Not available.

[e] n/a = Not applicable. Statistics were not performed on analytes that were below detection limits.

[f] Source: www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/index.htm.

[g] SSL for uranium soluble salts.

Table 4.1-6
Organic Chemicals Detected in the Post-Enclosure Overburden Sample Set

Analyte	Number of Analyses	Detects	Detection Rate	Mean (mg/kg)	Standard Deviation (mg/kg)	Minimum (mg/kg)	Median (mg/kg)	Maximum (mg/kg)	SSL[a] (mg/kg)	Maximum Concentration above Residential Standards
2,4-Diamino-6-nitrotoluene	46	0	0%	n/a[b]	n/a	n/a	n/a	n/a	na[c]	n/a
2,6-Diamino-4-nitrotoluene	46	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a
3,5-Dinitroaniline	46	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a
Acenaphthene	58	1	2%	0.0499517	0.0499132	0.0177	0.0362	0.36	3440	No[d]
Acenaphthylene	58	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a
Acetone	58	0	0%	n/a	n/a	n/a	n/a	n/a	67,500	n/a
Aldrin	58	0	0%	n/a	n/a	n/a	n/a	n/a	0.284	n/a
Amino-2,6-dinitrotoluene[4-]	46	0	0%	n/a	n/a	n/a	n/a	n/a	150[e]	n/a
Amino-4,6-dinitrotoluene[2-]	46	0	0%	n/a	n/a	n/a	n/a	n/a	150[e]	n/a
Aniline	58	0	0%	n/a	n/a	n/a	n/a	n/a	85[e]	n/a
Anthracene	58	0	0%	n/a	n/a	n/a	n/a	n/a	17,200	n/a
Aroclor-1016	44	0	0%	n/a	n/a	n/a	n/a	n/a	3.93	n/a
Aroclor-1221	44	0	0%	n/a	n/a	n/a	n/a	n/a	1.76	n/a
Aroclor-1232	44	1	2%	0.0142209	0.0161852	0.0034	0.009575	0.076	1.76	No
Aroclor-1242	44	0	0%	n/a	n/a	n/a	n/a	n/a	2.22	n/a
Aroclor-1248	44	0	0%	n/a	n/a	n/a	n/a	n/a	2.22	n/a
Aroclor-1254	44	5	11%	0.0144541	0.0161007	0.0022	0.01245	0.076	1.12	No
Aroclor-1260	44	7	16%	0.0148098	0.0159494	0.0023	0.01485	0.076	2.22	No
Azobenzene	58	0	0%	n/a	n/a	n/a	n/a	n/a	5.1[e]	n/a
Benzene	58	0	0%	n/a	n/a	n/a	n/a	n/a	15.5	n/a
Benzo(a)anthracene	58	3	5%	0.0494879	0.0501258	0.0113	0.0361	0.36	6.21	No
Benzo(a)pyrene	58	2	3%	0.0497121	0.0500157	0.0185	0.0362	0.36	0.621	No
Benzo(b)fluoranthene	58	3	5%	0.0495724	0.0500946	0.016	0.03615	0.36	6.21	No
Benzo(g,h,i)perylene	58	1	2%	0.0499414	0.0499276	0.016	0.0362	0.36	na	n/a
Benzo(k)fluoranthene	58	1	2%	0.0499052	0.0499534	0.0139	0.0362	0.36	62.1	No
Benzoic acid	58	0	0%	n/a	n/a	n/a	n/a	n/a	240,000[e]	n/a

Table 4.1-6 (continued)

Analyte	Number of Analyses	Detects	Detection Rate	Mean (mg/kg)	Standard Deviation (mg/kg)	Minimum (mg/kg)	Median (mg/kg)	Maximum (mg/kg)	SSL[a] (mg/kg)	Maximum Concentration above Residential Standards
Benzyl alcohol	58	0	0%	n/a	n/a	n/a	n/a	n/a	6100[e]	n/a
BHC[alpha-]	58	0	0%	n/a	n/a	n/a	n/a	n/a	0.772	n/a
BHC[beta-]	58	0	0%	n/a	n/a	n/a	n/a	n/a	2.7	n/a
BHC[delta-]	58	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a
BHC[gamma-]	58	0	0%	n/a	n/a	n/a	n/a	n/a	5.17	n/a
Bis(2-chloroethoxy)methane	58	0	0%	n/a	n/a	n/a	n/a	n/a	180e	n/a
Bis(2-chloroethyl)ether	58	0	0%	n/a	n/a	n/a	n/a	n/a	2.56	n/a
Bis(2-ethylhexyl)phthalate	58	0	0%	n/a	n/a	n/a	n/a	n/a	347	n/a
Bromobenzene	58	0	0%	n/a	n/a	n/a	n/a	n/a	300[e]	n/a
Bromochloromethane	58	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a
Bromodichloromethane	58	0	0%	n/a	n/a	n/a	n/a	n/a	5.25	n/a
Bromoform	58	0	0%	n/a	n/a	n/a	n/a	n/a	616	n/a
Bromomethane	58	0	0%	n/a	n/a	n/a	n/a	n/a	22.3	n/a
Bromophenyl-phenylether[4-]	58	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a
Butanone[2-]	58	0	0%	n/a	n/a	n/a	n/a	n/a	39,600	n/a
Butylbenzene[n-]	58	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a
Butylbenzene[sec-]	58	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a
Butylbenzene[tert-]	58	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a
Butylbenzylphthalate	58	0	0%	n/a	n/a	n/a	n/a	n/a	260[e]	n/a
Carbon disulfide	58	0	0%	n/a	n/a	n/a	n/a	n/a	1940	n/a
Carbon tetrachloride	58	0	0%	n/a	n/a	n/a	n/a	n/a	4.38	n/a
Chlordane[alpha-]	58	6	10%	0.0009006	0.0008932	0.000446	0.0007205	0.00719	na	n/a
Chlordane[gamma-]	58	5	9%	0.000929	0.0009335	0.000573	0.0007205	0.00719	na	n/a
Chloro-3-methylphenol[4-]	58	0	0%	n/a	n/a	n/a	n/a	n/a	6100[e]	n/a
Chloroaniline[4-]	58	0	0%	n/a	n/a	n/a	n/a	n/a	2.4e	n/a
Chlorobenzene	58	0	0%	n/a	n/a	n/a	n/a	n/a	508	n/a

Table 4.1-6 (continued)

Analyte	Number of Analyses	Detects	Detection Rate	Mean (mg/kg)	Standard Deviation (mg/kg)	Minimum (mg/kg)	Median (mg/kg)	Maximum (mg/kg)	SSL[a] (mg/kg)	Maximum Concentration above Residential Standards
Chlorodibromomethane	58	0	0%	n/a	n/a	n/a	n/a	n/a	11.9	n/a
Chloroethane	58	0	0%	n/a	n/a	n/a	n/a	n/a	43,600	n/a
Chloroform	58	0	0%	n/a	n/a	n/a	n/a	n/a	5.72	n/a
Chloromethane	58	0	0%	n/a	n/a	n/a	n/a	n/a	35.6	n/a
Chloronaphthalene[2-]	58	0	0%	n/a	n/a	n/a	n/a	n/a	6260	n/a
Chlorophenol[2-]	58	0	0%	n/a	n/a	n/a	n/a	n/a	391	n/a
Chlorophenyl-phenyl[4-] ether	58	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a
Chlorotoluene[2-]	58	0	0%	n/a	n/a	n/a	n/a	n/a	1560	n/a
Chlorotoluene[4-]	58	0	0%	n/a	n/a	n/a	n/a	n/a	5500[e]	n/a
Chrysene	58	5	9%	0.0488379	0.0504138	0.0126	0.0359	0.36	621	No
D[2,4-]	58	1	2%	0.0056833	0.0013202	0.00402	0.005395	0.0112	690e	No
Dalapon	58	0	0%	n/a	n/a	n/a	n/a	n/a	1800[e]	n/a
DB[2,4-]	58	0	0%	n/a	n/a	n/a	n/a	n/a	490e	n/a
DDD[4,4'-]	58	5	9%	0.0016101	0.0017222	0.00041	0.00143	0.0144	20.3	No
DDE[4,4'-]	58	10	17%	0.0016454	0.0017398	0.00047	0.00143	0.0144	14.3	No
DDT[4,4'-]	58	16	28%	0.0023054	0.002979	0.00044	0.00143	0.0144	17.2	No
Dibenz(a,h)anthracene	58	0	0%	n/a	n/a	n/a	n/a	n/a	0.621	n/a
Dibenzofuran	58	0	0%	n/a	n/a	n/a	n/a	n/a	78[e]	n/a
Dibromo-3-chloropropane[1,2-]	58	0	0%	n/a	n/a	n/a	n/a	n/a	0.194	n/a
Dibromoethane[1,2-]	58	0	0%	n/a	n/a	n/a	n/a	n/a	0.574	n/a
Dibromomethane	58	0	0%	n/a	n/a	n/a	n/a	n/a	782	n/a
Dicamba	58	0	0%	n/a	n/a	n/a	n/a	n/a	1800[e]	n/a
Dichlorobenzene[1,2-]	58	0	0%	n/a	n/a	n/a	n/a	n/a	3010	n/a
Dichlorobenzene[1,2-]	58	0	0%	n/a	n/a	n/a	n/a	n/a	3010	n/a
Dichlorobenzene[1,3-]	58	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a
Dichlorobenzene[1,3-]	58	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a

Table 4.1-6 (continued)

Analyte	Number of Analyses	Detects	Detection Rate	Mean (mg/kg)	Standard Deviation (mg/kg)	Minimum (mg/kg)	Median (mg/kg)	Maximum (mg/kg)	SSL[a] (mg/kg)	Maximum Concentration above Residential Standards
Dichlorobenzene[1,4-]	58	0	0%	n/a	n/a	n/a	n/a	n/a	32.2	n/a
Dichlorobenzene[1,4-]	58	0	0%	n/a	n/a	n/a	n/a	n/a	32.2	n/a
Dichlorobenzidine[3,3'-]	58	0	0%	n/a	n/a	n/a	n/a	n/a	10.8	n/a
Dichlorodifluoromethane	58	0	0%	n/a	n/a	n/a	n/a	n/a	481	n/a
Dichloroethane[1,1-]	58	0	0%	n/a	n/a	n/a	n/a	n/a	62.9	n/a
Dichloroethane[1,2-]	58	0	0%	n/a	n/a	n/a	n/a	n/a	7.74	n/a
Dichloroethene[1,1-]	58	0	0%	n/a	n/a	n/a	n/a	n/a	618	n/a
Dichloroethene[cis-1,2-]	58	0	0%	n/a	n/a	n/a	n/a	n/a	782	n/a
Dichloroethene[trans-1,2-]	58	0	0%	n/a	n/a	n/a	n/a	n/a	273	n/a
Dichlorophenol[2,4-]	58	0	0%	n/a	n/a	n/a	n/a	n/a	183	n/a
Dichloropropane[1,2-]	58	0	0%	n/a	n/a	n/a	n/a	n/a	14.7	n/a
Dichloropropane[1,3-]	58	0	0%	n/a	n/a	n/a	n/a	n/a	1600[e]	n/a
Dichloropropane[2,2-]	58	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a
Dichloropropene[1,1-]	58	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a
Dichloropropene[cis-1,3-]	58	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a
Dichloropropene[trans-1,3-]	58	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a
Dichlorprop	58	4	7%	0.0056469	0.0013716	0.00291	0.005375	0.0112	na	n/a
Dieldrin	58	4	7%	0.0016058	0.0017252	0.000368	0.00143	0.0144	0.304	No
Diethylphthalate	58	0	0%	n/a	n/a	n/a	n/a	n/a	48,900	n/a
Dimethyl phthalate	58	0	0%	n/a	n/a	n/a	n/a	n/a	611,000	n/a
Dimethylphenol[2,4-]	58	0	0%	n/a	n/a	n/a	n/a	n/a	1220	n/a
Di-n-butylphthalate	58	0	0%	n/a	n/a	n/a	n/a	n/a	6110	n/a
Dinitro-2-methylphenol[4,6-]	58	0	0%	n/a	n/a	n/a	n/a	n/a	6.11	n/a
Dinitrobenzene[1,3-]	46	0	0%	n/a	n/a	n/a	n/a	n/a	6.1e	n/a
Dinitrophenol[2,4-]	58	0	0%	n/a	n/a	n/a	n/a	n/a	122	n/a
Dinitrotoluene[2,4-]	46	0	0%	n/a	n/a	n/a	n/a	n/a	15.7	n/a

Table 4.1-6 (continued)

Analyte	Number of Analyses	Detects	Detection Rate	Mean (mg/kg)	Standard Deviation (mg/kg)	Minimum (mg/kg)	Median (mg/kg)	Maximum (mg/kg)	SSL[a] (mg/kg)	Maximum Concentration above Residential Standards
Dinitrotoluene[2,4-]	58	0	0%	n/a	n/a	n/a	n/a	n/a	15.7	n/a
Dinitrotoluene[2,6-]	46	0	0%	n/a	n/a	n/a	n/a	n/a	61.2	n/a
Dinitrotoluene[2,6-]	58	0	0%	n/a	n/a	n/a	n/a	n/a	61.2	n/a
Di-n-octylphthalate	58	1	2%	0.4991379	0.4993894	0.155	0.362	3.6	na	n/a
Dinoseb	58	0	0%	n/a	n/a	n/a	n/a	n/a	61e	n/a
Diphenylamine	58	0	0%	n/a	n/a	n/a	n/a	n/a	1500[e]	n/a
Endosulfan I	58	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a
Endosulfan II	58	1	2%	0.00165	0.0017094	0.000408	0.00144	0.0144	na	n/a
Endosulfan sulfate	58	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a
Endrin	58	0	0%	n/a	n/a	n/a	n/a	n/a	18.3	n/a
Endrin aldehyde	58	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a
Endrin ketone	58	2	3%	0.0016411	0.0017123	0.00052	0.001445	0.0144	na	n/a
Ethylbenzene	58	0	0%	n/a	n/a	n/a	n/a	n/a	69.7	n/a
Fluoranthene	58	5	9%	0.0490586	0.0502721	0.0126	0.0359	0.36	2290	No
Fluorene	58	0	0%	n/a	n/a	n/a	n/a	n/a	2290	n/a
Heptachlor	58	0	0%	n/a	n/a	n/a	n/a	n/a	1.08	n/a
Heptachlor epoxide	58	0	0%	n/a	n/a	n/a	n/a	n/a	0.053[e]	n/a
Heptachlorodibenzodioxin[1,2,3,4,6,7,8-]	44	28	64%	7.549E-06	1.091E-05	3.18E-07	1.65E-06	0.0000429	na	n/a
Heptachlorodibenzodioxins (total)	44	30	68%	1.763E-05	2.639E-05	3.18E-07	3.595E-06	0.000105	na	n/a
Heptachlorodibenzofuran[1,2,3,4,6,7,8-]	44	27	61%	4.539E-06	6.687E-06	2.26E-07	9.105E-07	0.000022	na	n/a
Heptachlorodibenzofuran[1,2,3,4,7,8,9-]	44	5	11%	5.611E-07	3.427E-07	2.79E-07	4.635E-07	2.37E-06	na	n/a
Heptachlorodibenzofurans (total)	44	30	68%	9.92E-06	1.543E-05	2.26E-07	1.725E-06	0.0000531	na	n/a
Hexachlorobenzene	58	0	0%	n/a	n/a	n/a	n/a	n/a	3.04	n/a
Hexachlorobutadiene	58	0	0%	n/a	n/a	n/a	n/a	n/a	61.1	n/a
Hexachlorocyclopentadiene	58	0	0%	n/a	n/a	n/a	n/a	n/a	367	n/a
Hexachlorodibenzodioxin[1,2,3,4,7,8-]	44	5	11%	5.748E-07	3.793E-07	2.57E-07	4.635E-07	2.56E-06	na	n/a

Table 4.1-6 (continued)

Analyte	Number of Analyses	Detects	Detection Rate	Mean (mg/kg)	Standard Deviation (mg/kg)	Minimum (mg/kg)	Median (mg/kg)	Maximum (mg/kg)	SSL[a] (mg/kg)	Maximum Concentration above Residential Standards
Hexachlorodibenzodioxin[1,2,3,6,7,8-]	44	12	27%	1.072E-06	1.493E-06	2.59E-07	4.685E-07	8.39E-06	na	n/a
Hexachlorodibenzodioxin[1,2,3,7,8,9-]	44	9	20%	7.042E-07	6.293E-07	2.63E-07	4.685E-07	3.71E-06	na	n/a
Hexachlorodibenzodioxins (total)	44	18	41%	5.918E-06	1.123E-05	2.57E-07	4.79E-07	0.0000562	na	n/a
Hexachlorodibenzofuran[1,2,3,4,7,8-]	44	10	23%	9.694E-07	1.293E-06	1.58E-07	4.685E-07	7.27E-06	na	n/a
Hexachlorodibenzofuran[1,2,3,6,7,8-]	44	11	25%	1.046E-06	1.464E-06	1.48E-07	4.685E-07	7.49E-06	na	n/a
Hexachlorodibenzofuran[1,2,3,7,8,9-]	44	8	18%	8.311E-07	1.099E-06	1.76E-07	4.665E-07	6.63E-06	na	n/a
Hexachlorodibenzofuran[2,3,4,6,7,8-]	44	11	25%	1.52E-06	2.465E-06	1.57E-07	4.685E-07	0.0000114	na	n/a
Hexachlorodibenzofurans (total)	44	21	48%	1.87E-05	3.694E-05	1.48E-07	5.12E-07	0.000163	na	n/a
Hexachloroethane	58	0	0%	n/a	n/a	n/a	n/a	n/a	61.1	n/a
Hexanone[2-]	58	0	0%	n/a	n/a	n/a	n/a	n/a	210[e]	n/a
HMX (1,3,5,7-tetranitro-1,3,5,7-tetrazocine)	46	0	0%	n/a	n/a	n/a	n/a	n/a	3060	n/a
Indeno(1,2,3-cd)pyrene	58	1	2%	0.0499741	0.0498987	0.019	0.0362	0.36	6.21	No
Iodomethane	58	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a
Isophorone	58	0	0%	n/a	n/a	n/a	n/a	n/a	5120	n/a
Isopropylbenzene	58	0	0%	n/a	n/a	n/a	n/a	n/a	3210	n/a
Isopropyltoluene[4-]	58	2	3%	0.0010941	7.301E-05	0.00102	0.00108	0.00158	na	n/a
MCPA	58	0	0%	n/a	n/a	n/a	n/a	n/a	31[e]	n/a
MCPP	58	4	7%	1.1007069	0.3107173	0.302	1.075	2.24	61[e]	No
Methoxychlor[4,4'-]	58	0	0%	n/a	n/a	n/a	n/a	n/a	310[e]	n/a
Methyl-2-pentanone[4-]	58	0	0%	n/a	n/a	n/a	n/a	n/a	5950	n/a
Methylene chloride	58	0	0%	n/a	n/a	n/a	n/a	n/a	199	n/a
Methylnaphthalene[2-]	58	12	21%	0.052574	0.0536916	0.00723	0.0359	0.36	310[e]	No
Methylphenol[2-]	58	0	0%	n/a	n/a	n/a	n/a	n/a	3100[e]	n/a
Methylphenol[4-]	58	0	0%	n/a	n/a	n/a	n/a	n/a	310[e]	n/a
Naphthalene	58	6	10%	0.0513259	0.0499346	0.0177	0.03615	0.36	45	No
Nitroaniline[2-]	58	0	0%	n/a	n/a	n/a	n/a	n/a	610[e]	n/a

Table 4.1-6 (continued)

Analyte	Number of Analyses	Detects	Detection Rate	Mean (mg/kg)	Standard Deviation (mg/kg)	Minimum (mg/kg)	Median (mg/kg)	Maximum (mg/kg)	SSL[a] (mg/kg)	Maximum Concentration above Residential Standards
Nitroaniline[3-]	58	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a
Nitroaniline[4-]	58	0	0%	n/a	n/a	n/a	n/a	n/a	24[e]	n/a
Nitrobenzene	46	0	0%	n/a	n/a	n/a	n/a	n/a	49.4	n/a
Nitrobenzene	58	0	0%	n/a	n/a	n/a	n/a	n/a	49.4	n/a
Nitrophenol[2-]	58	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a
Nitrophenol[4-]	58	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a
Nitrosodimethylamine[N-]	58	0	0%	n/a	n/a	n/a	n/a	n/a	0.0954	n/a
Nitroso-di-n-propylamine[N-]	58	0	0%	n/a	n/a	n/a	n/a	n/a	0.069[e]	n/a
Nitrotoluene[2-]	46	0	0%	n/a	n/a	n/a	n/a	n/a	29.1	n/a
Nitrotoluene[3-]	46	0	0%	n/a	n/a	n/a	n/a	n/a	1560	n/a
Nitrotoluene[4-]	46	3	7%	0.4834348	0.0725797	0.105	0.5	0.53	244	No
Octachlorodibenzodioxin[1,2,3,4,6,7,8,9-]	44	32	73%	5.382E-05	8.005E-05	1.83E-06	1.215E-05	0.000311	na	n/a
Octachlorodibenzofuran[1,2,3,4,6,7,8,9-]	44	20	45%	4.877E-06	6.7E-06	6.55E-07	1.21E-06	0.000024	na	n/a
Oxybis(1-chloropropane)[2,2'-]	58	0	0%	n/a	n/a	n/a	n/a	n/a	4.6[e]	n/a
Pentachlorodibenzodioxin[1,2,3,7,8-]	44	8	18%	7.076E-07	7.475E-07	2.04E-07	4.655E-07	0.0000046	na	n/a
Pentachlorodibenzodioxins (total)	44	11	25%	2.461E-06	5.483E-06	2.04E-07	4.685E-07	0.0000297	na	n/a
Pentachlorodibenzofuran[1,2,3,7,8-]	44	6	14%	5.062E-07	1.794E-07	1.52E-07	4.62E-07	1.34E-06	na	n/a
Pentachlorodibenzofuran[2,3,4,7,8-]	44	14	32%	2.318E-06	4.17E-06	1.52E-07	4.705E-07	0.0000187	na	n/a
Pentachlorodibenzofurans (total)	44	29	66%	2.975E-05	6.098E-05	1.38E-07	6.97E-07	0.000262	na	n/a
Pentachlorophenol	58	0	0%	n/a	n/a	n/a	n/a	n/a	29.8	n/a
PETN (pentaerythritol tetranitrate)	46	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a
Phenanthrene	58	6	10%	0.0500431	0.0500237	0.0144	0.0361	0.36	1830	No
Phenol	58	0	0%	n/a	n/a	n/a	n/a	n/a	18,300	n/a
Propylbenzene[1-]	58	0	0%	n/a	n/a	n/a	n/a	n/a	3400e	n/a
Pyrene	58	6	10%	0.0492483	0.0502357	0.0129	0.036	0.36	1720	No
Pyridine	58	0	0%	n/a	n/a	n/a	n/a	n/a	78 [e]	n/a

Table 4.1-6 (continued)

Analyte	Number of Analyses	Detects	Detection Rate	Mean (mg/kg)	Standard Deviation (mg/kg)	Minimum (mg/kg)	Median (mg/kg)	Maximum (mg/kg)	SSL[a] (mg/kg)	Maximum Concentration above Residential Standards
RDX (hexahydro-1,3,5-trinitro-1,3,5-triazine)	46	0	0%	n/a	n/a	n/a	n/a	n/a	44.2	n/a
Styrene	58	0	0%	n/a	n/a	n/a	n/a	n/a	8970	n/a
T[2,4,5-]	58	0	0%	n/a	n/a	n/a	n/a	n/a	610e	n/a
TATB (Triaminotrinitrobenzene)	46	5	11%	1.0013043	0.0088465	1	1	1.06	na	n/a
Tetrachlorodibenzodioxin[2,3,7,8-]	44	1	2%	1.339E-07	7.101E-08	8.07E-08	9.505E-08	3.68E-07	0.000045	No
Tetrachlorodibenzodioxins (total)	44	7	16%	3.232E-07	6.819E-07	8.07E-08	9.505E-08	4.11E-06	na	n/a
Tetrachlorodibenzofuran[2,3,7,8-]	44	12	27%	5.12E-07	3.558E-07	2.02E-07	3.96E-07	1.66E-06	0.000374	No
Tetrachlorodibenzofurans (total)	44	21	48%	1.203E-05	2.354E-05	9.39E-08	8.175E-07	0.0000994	na	n/a
Tetrachloroethane[1,1,1,2-]	58	0	0%	n/a	n/a	n/a	n/a	n/a	29.2	n/a
Tetrachloroethane[1,1,2,2-]	58	0	0%	n/a	n/a	n/a	n/a	n/a	7.98	n/a
Tetrachloroethene	58	0	0%	n/a	n/a	n/a	n/a	n/a	6.99	n/a
Tetryl	46	0	0%	n/a	n/a	n/a	n/a	n/a	244	n/a
Toluene	58	5	9%	0.0010408	0.0001432	0.000411	0.00107	0.00114	5570	No
Total petroleum hydrocarbon–diesel range organics (TPH-DRO)	1	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a
Total petroleum hydrocarbon– gasoline range organics (TPD-GRO)	1	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a
Toxaphene (technical grade)	58	0	0%	n/a	n/a	n/a	n/a	n/a	4.42	n/a
TP[2,4,5-]	58	0	0%	n/a	n/a	n/a	n/a	n/a	490[e]	n/a
Trichloro-1,2,2-trifluoroethane[1,1,2-]	58	0	0%	n/a	n/a	n/a	n/a	n/a	104,000	n/a
Trichlorobenzene[1,2,4-]	58	0	0%	n/a	n/a	n/a	n/a	n/a	143	n/a
Trichloroethane[1,1,1-]	58	0	0%	n/a	n/a	n/a	n/a	n/a	21,800	n/a
Trichloroethane[1,1,2-]	58	0	0%	n/a	n/a	n/a	n/a	n/a	17.2	n/a
Trichloroethene	58	0	0%	n/a	n/a	n/a	n/a	n/a	45.7	n/a
Trichlorofluoromethane	58	0	0%	n/a	n/a	n/a	n/a	n/a	2010	n/a
Trichlorophenol[2,4,5-]	58	0	0%	n/a	n/a	n/a	n/a	n/a	6110	n/a

Table 4.1-6 (continued)

Analyte	Number of Analyses	Detects	Detection Rate	Mean (mg/kg)	Standard Deviation (mg/kg)	Minimum (mg/kg)	Median (mg/kg)	Maximum (mg/kg)	SSL[a] (mg/kg)	Maximum Concentration above Residential Standards
Trichlorophenol[2,4,6-]	58	0	0%	n/a	n/a	n/a	n/a	n/a	61.1	n/a
Trichloropropane[1,2,3-]	58	0	0%	n/a	n/a	n/a	n/a	n/a	0.915	n/a
Trimethylbenzene[1,2,4-]	58	2	3%	0.0010612	0.0001267	0.000363	0.00108	0.00116	62[e]	No
Trimethylbenzene[1,3,5-]	58	0	0%	n/a	n/a	n/a	n/a	n/a	780[e]	n/a
Trinitrobenzene[1,3,5-]	46	0	0%	n/a	n/a	n/a	n/a	n/a	2200[e]	n/a
Trinitrotoluene[2,4,6-]	46	0	0%	n/a	n/a	n/a	n/a	n/a	35.9	n/a
Tris (o-cresyl) phosphate	46	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a
Vinyl chloride	58	0	0%	n/a	n/a	n/a	n/a	n/a	0.865	n/a
Xylene[1,2-]	58	0	0%	n/a	n/a	n/a	n/a	n/a	9550	n/a
Xylene[1,3-]+xylene[1,4-]	58	8	14%	0.0020037	0.0004444	0.000424	0.00214	0.00228	1090	No

[a] Source: NMED (2009, 108070), unless otherwise noted.

[b] n/a = Not applicable. Statistics were not performed on analytes that were below detection limits.

[c] na = Not available.

[d] No = Does not exceed SSL.

[e] Source: www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/index.htm.

Table 4.1-7
Radionuclides Detected in the Post-Enclosure Overburden Sample Set

Analyte	Analytical Suite	Number of Analyses	Detects	Detection Rate	Mean (pCi/g)	Standard Deviation (pCi/g)	Minimum (pCi/g)	Median (pCi/g)	Maximum (pCi/g)	LANL SAL[a] (pCi/g)	Maximum Concentration above Residential Standards
Americium-241	Am-241[b]	58	11	19%	0.0517657	0.0730807	−0.0461	0.0248	0.339	30	No[c]
Americium-241	Gamma[d]	58	5	9%	0.039013	0.22637	−0.514	0.0368	1.2	30	No
Bismuth-211	Gamma	58	0	0%	n/a[e]	n/a	n/a	n/a	n/a	na[f]	n/a
Bismuth-214	Gamma	58	58	100%	1.0608793	0.2109941	0.546	1.105	1.39	na	n/a
Cadmium-109	Gamma	58	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a
Cerium-139	Gamma	58	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a
Cesium-134	Gamma	58	0	0%	n/a	n/a	n/a	n/a	n/a	2.4	n/a
Cesium-137	Gamma	58	5	9%	0.0196446	0.051755	−0.0481	0.00552	0.193	5.6	No
Cobalt-60	Gamma	58	0	0%	n/a	n/a	n/a	n/a	n/a	1.3	n/a
Europium-152	Gamma	58	0	0%	n/a	n/a	n/a	n/a	n/a	2.9	n/a
Lanthanum-140	Gamma	58	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a
Lead-212	Gamma	58	58	100%	1.4786552	0.2958805	0.736	1.53	1.93	na	n/a
Lead-214	Gamma	58	58	100%	1.2398276	0.2351841	0.659	1.295	1.57	na	n/a
Mercury-203	Gamma	58	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a
Plutonium-238	Isotopic[g]	58	3	5%	0.0164738	0.0367358	−0.0467	0.0053	0.153	37	No
Plutonium-239/240	Isotopic	58	43	74%	1.0315152	1.8484526	−0.00422	0.332	9.53	33	No
Potassium-40	Gamma	58	58	100%	25.513793	3.2392033	18.1	25.95	32.1	na	n/a
Radium-223	Gamma	58	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a
Radium-224	Gamma	58	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a
Radium-226	Gamma	58	49	84%	1.0608793	0.2109941	0.546	1.105	1.39	5	No
Radium-228	Gamma	58	57	98%	1.6132931	0.310426	0.934	1.665	2.07	5	No
Ruthenium-106	Gamma	58	0	0%	n/a	n/a	n/a	n/a	n/a	20	n/a

Table 4.1-7 (continued)

Analyte	Analytical Suite	Number of Analyses	Detects	Detection Rate	Mean (pCi/g)	Standard Deviation (pCi/g)	Minimum (pCi/g)	Median (pCi/g)	Maximum (pCi/g)	LANL SAL[a] (pCi/g)	Maximum Concentration above Residential Standards
Sodium-22	Gamma	58	0	0%	n/a	n/a	n/a	n/a	n/a	1.6	n/a
Strontium-85	Gamma	58	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a
Strontium-90	Sr-90[h]	58	0	0%	n/a	n/a	n/a	n/a	n/a	5.7	n/a
Thallium-208	Gamma	58	58	100%	0.4477586	0.0904184	0.241	0.4605	0.645	na	n/a
Thorium-227	Gamma	58	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a
Thorium-231	Gamma	58	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a
Thorium-234	Gamma	58	10	17%	1.33255	1.0432153	−1.32	1.29	4.91	na	n/a
Tin-113	Gamma	58	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a
Tritium	H^3[i]	58	49	84%	18.211021	70.311939	−0.001551	0.1650185	373.205	750	No
Uranium-234	Isotopic	58	58	100%	1.0406897	0.4591997	0.604	0.9765	3.58	170	No
Uranium-235	Gamma	58	0	0%	n/a	n/a	n/a	n/a	n/a	17	n/a
Uranium-235/236	Isotopic	58	43	74%	0.0693209	0.030586	−0.00769	0.0624	0.173	17	No
Uranium-238	Isotopic	58	58	100%	0.9995172	0.2966916	0.615	0.9685	2.54	87	No
Yttrium-88	Gamma	58	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a

[a] Source: LANL (2009, 107655).

[b] Am-241 = Americium-241 analysis.

[c] No = Does not exceed SAL.

[d] Gamma = Gamma spectroscopy.

[e] n/a = Not applicable. Statistics were not performed on analytes that were below detection limits.

[f] na = Not available.

[g] Isotopic = Isotopic analysis.

[h] Sr-90 = Strontium-90 analysis.

[i] H^3 = Tritium analysis.

Table 4.1-8
Upper Confidence Limit for Analyte
Exceeding SSLs in the Post-Enclosure Overburden Sample Set

Analyte	Number of Analyses	Detection Rate	95% Upper Confidence Limit	NMED SSL[a] (mg/kg)	EPA SSL[b] (mg/kg)	UCL above Residential Standards
Arsenic[c]	58	100%	1.8	3.9	0.39	No[d]

[a] Source: NMED (2009, 108070).

[b] Source: www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/index.htm.

[c] Nondetection reporting level exceeds EPA SSL.

[d] No = Does not exceed residential SSLs.

Table 4.2-1
Inorganic Chemicals Detected in Contaminated Soil through February 18, 2011

Total Inorganic Results								
Analyte	Number of Analyses	Detects	Detection Rate	Mean (mg/kg)	Standard Deviation (mg/kg)	Minimum (mg/kg)	Median (mg/kg)	Maximum (mg/kg)
Aluminum	65	65	100%	4124.308	733.9724	2690	4080	7590
Antimony	65	27	42%	1.477969	1.715401	0.39	1.07	9.81
Arsenic	65	65	100%	1.415231	0.752685	0.659	1.29	6.3
Barium	65	65	100%	69.32462	19.14979	37.9	65.9	159
Beryllium	65	65	100%	0.521062	0.292459	0.264	0.441	1.9
Cadmium	65	55	85%	11.01591	58.11962	0.108	0.357	464
Calcium	65	64	98%	3981.692	1587.822	1590	3720	9260
Chromium	65	61	94%	6.453538	1.999307	2.26	6.22	11.7
Cobalt	65	65	100%	3.452	5.433726	1.08	2.84	46.1
Copper	65	62	95%	16.99877	15.55868	3.15	12.4	98.9
Iron	65	65	100%	10,228	1763.508	6140	9950	15,400
Lead	65	61	94%	27.07446	71.68514	5.52	14.8	578
Magnesium	65	65	100%	1426.2	436.8028	686	1410	2620

Table 4.2-1 (continued)

Analyte	Number of Analyses	Detects	Detection Rate	Mean (mg/kg)	Standard Deviation (mg/kg)	Minimum (mg/kg)	Median (mg/kg)	Maximum (mg/kg)
Manganese	65	65	100%	265.4308	33.07566	188	268	383
Mercury	65	65	100%	4.129092	17.60238	0.0691	0.438	123
Nickel	65	61	94%	5.666769	1.458423	3.25	5.52	10.7
Potassium	65	62	95%	645.5385	127.201	400	616	1090
Selenium	65	1	2%	1.056062	0.061026	0.731	1.07	1.23
Silver	65	24	37%	0.557154	0.878638	0.125	0.53	7.43
Sodium	65	61	94%	197.2308	81.31169	81.1	185	574
Thallium	65	51	78%	0.182383	0.233351	0.0594	0.118	1.08
Uranium	64	62	97%	10.97683	25.82629	0.508	2.55	160
Vanadium	65	65	100%	15.46138	5.130682	5.02	15.8	28.6
Zinc	65	62	95%	106.56	207.2232	25.8	61.5	1620
TCLP								
Cadmium	6	6	100%	5192.333	11,321.39	318	609.5	28,300
Lead	5	5	100%	869.68	1423.208	12.1	158	3350
Mercury	6	3	50%	6.681667	10.04672	2	2.285	27.1

Table 4.2-2
Organic Chemicals Detected in Contaminated Soil through February 18, 2011

Analyte	Number of Analyses	Detects	Detection Rate	Mean (mg/kg)	Standard Deviation (mg/kg)	Minimum (mg/kg)	Median (mg/kg)	Maximum (mg/kg)
2,4-Diamino-6-nitrotoluene	16	0	0%	n/a*	n/a	n/a	n/a	n/a
2,6-Diamino-4-nitrotoluene	16	0	0%	n/a	n/a	n/a	n/a	n/a
3,5-Dinitroaniline	16	0	0%	n/a	n/a	n/a	n/a	n/a
Acenaphthene	65	0	0%	n/a	n/a	n/a	n/a	n/a
Acenaphthylene	65	1	2%	0.084915385	0.105360291	0.0116	0.0367	0.374
Acetone	65	2	3%	0.039943846	0.216641371	0.00182	0.00547	1.65
Aldrin	65	1	2%	0.003797338	0.00417881	0.000696	0.000745	0.0231
Amino-2,6-dinitrotoluene[4-]	16	0	0%	n/a	n/a	n/a	n/a	n/a
Amino-4,6-dinitrotoluene[2-]	16	0	0%	n/a	n/a	n/a	n/a	n/a
Aniline	65	0	0%	n/a	n/a	n/a	n/a	n/a
Anthracene	65	2	3%	0.085696	0.105525606	0.00794	0.0367	0.374
Aroclor-1016	14	0	0%	n/a	n/a	n/a	n/a	n/a
Aroclor-1221	14	0	0%	n/a	n/a	n/a	n/a	n/a
Aroclor-1232	14	0	0%	n/a	n/a	n/a	n/a	n/a
Aroclor-1242	14	1	7%	0.032179286	0.04256574	0.00346	0.01465	0.153
Aroclor-1248	14	0	0%	n/a	n/a	n/a	n/a	n/a
Aroclor-1254	14	11	79%	0.192391429	0.303247079	0.00359	0.01215	0.942
Aroclor-1260	14	7	50%	0.079235714	0.149236288	0.0018	0.01785	0.55
Azobenzene	65	0	0%	n/a	n/a	n/a	n/a	n/a
Benzene	65	0	0%	n/a	n/a	n/a	n/a	n/a
Benzo(a)anthracene	65	5	8%	0.083361538	0.099968254	0.018	0.0367	0.374
Benzo(a)pyrene	65	9	14%	0.08178	0.099798668	0.0133	0.0367	0.374
Benzo(b)fluoranthene	65	9	14%	0.0836	0.10108428	0.0151	0.0367	0.374
Benzo(g,h,i)perylene	65	8	12%	0.083896923	0.106042291	0.0134	0.0365	0.374
Benzo(k)fluoranthene	65	3	5%	0.084726154	0.105446197	0.018	0.0366	0.374

Table 4.2-2 (continued)

Analyte	Number of Analyses	Detects	Detection Rate	Mean (mg/kg)	Standard Deviation (mg/kg)	Minimum (mg/kg)	Median (mg/kg)	Maximum (mg/kg)
Benzoic acid	65	3	5%	1.695738462	2.107829751	0.472	0.733	7.48
Benzyl alcohol	65	0	0%	n/a	n/a	n/a	n/a	n/a
BHC[alpha-]	65	1	2%	0.003785046	0.004187805	0.000387	0.000745	0.0231
BHC[beta-]	65	0	0%	n/a	n/a	n/a	n/a	n/a
BHC[delta-]	65	0	0%	n/a	n/a	n/a	n/a	n/a
BHC[gamma-]	65	0	0%	n/a	n/a	n/a	n/a	n/a
Bis(2-chloroethoxy)methane	65	0	0%	n/a	n/a	n/a	n/a	n/a
Bis(2-chloroethyl)ether	65	0	0%	n/a	n/a	n/a	n/a	n/a
Bis(2-ethylhexyl)phthalate	65	5	8%	0.833066154	1.063036507	0.082	0.366	3.74
Bromobenzene	65	0	0%	n/a	n/a	n/a	n/a	n/a
Bromochloromethane	65	0	0%	n/a	n/a	n/a	n/a	n/a
Bromodichloromethane	65	0	0%	n/a	n/a	n/a	n/a	n/a
Bromoform	65	1	2%	0.0030438	0.015246595	0.000497	0.00109	0.124
Bromomethane	65	0	0%	n/a	n/a	n/a	n/a	n/a
Bromophenyl-phenylether[4-]	65	0	0%	n/a	n/a	n/a	n/a	n/a
Butanone[2-]	65	1	2%	0.015224462	0.076105696	0.00373	0.00547	0.619
Butylbenzene[n-]	65	0	0%	n/a	n/a	n/a	n/a	n/a
Butylbenzene[sec-]	65	0	0%	n/a	n/a	n/a	n/a	n/a
Butylbenzene[tert-]	65	0	0%	n/a	n/a	n/a	n/a	n/a
Butylbenzylphthalate	65	0	0%	n/a	n/a	n/a	n/a	n/a
Carbon disulfide	65	0	0%	n/a	n/a	n/a	n/a	n/a
Carbon tetrachloride	65	0	0%	n/a	n/a	n/a	n/a	n/a
Chlordane[alpha-]	65	0	0%	n/a	n/a	n/a	n/a	n/a
Chlordane[gamma-]	65	1	2%	0.0037868	0.004186391	0.000492	0.000745	0.0231
Chloro-3-methylphenol[4-]	65	0	0%	n/a	n/a	n/a	n/a	n/a

Table 4.2-2 (continued)

Analyte	Number of Analyses	Detects	Detection Rate	Mean (mg/kg)	Standard Deviation (mg/kg)	Minimum (mg/kg)	Median (mg/kg)	Maximum (mg/kg)
Chloroaniline[4-]	65	0	0%	n/a	n/a	n/a	n/a	n/a
Chlorobenzene	65	0	0%	n/a	n/a	n/a	n/a	n/a
Chlorodibromomethane	65	0	0%	n/a	n/a	n/a	n/a	n/a
Chloroethane	65	0	0%	n/a	n/a	n/a	n/a	n/a
Chloroform	65	0	0%	n/a	n/a	n/a	n/a	n/a
Chloromethane	65	0	0%	n/a	n/a	n/a	n/a	n/a
Chloronaphthalene[2-]	65	0	0%	n/a	n/a	n/a	n/a	n/a
Chlorophenol[2-]	65	0	0%	n/a	n/a	n/a	n/a	n/a
Chlorophenyl-phenyl[4-] ether	65	0	0%	n/a	n/a	n/a	n/a	n/a
Chlorotoluene[2-]	65	0	0%	n/a	n/a	n/a	n/a	n/a
Chlorotoluene[4-]	65	0	0%	n/a	n/a	n/a	n/a	n/a
Chrysene	65	12	18%	0.082646154	0.102169085	0.0124	0.0366	0.374
D[2,4-]	65	0	0%	n/a	n/a	n/a	n/a	n/a
Dalapon	65	0	0%	n/a	n/a	n/a	n/a	n/a
DB[2,4-]	65	1	2%	0.008329538	0.008565019	0.00523	0.00549	0.0563
DDD[4,4'-]	65	2	3%	0.007580923	0.008371435	0.00116	0.00149	0.0463
DDE[4,4'-]	65	6	9%	0.007369215	0.008254762	0.000499	0.00149	0.0463
DDT[4,4'-]	65	17	26%	0.007129015	0.00812447	0.000424	0.00203	0.0463
Dibenz(a,h)anthracene	65	1	2%	0.085112308	0.105233706	0.024	0.0367	0.374
Dibenzofuran	65	0	0%	n/a	n/a	n/a	n/a	n/a
Dibromo-3-chloropropane[1,2-]	65	0	0%	n/a	n/a	n/a	n/a	n/a
Dibromoethane[1,2-]	65	0	0%	n/a	n/a	n/a	n/a	n/a
Dibromomethane	65	0	0%	n/a	n/a	n/a	n/a	n/a
Dicamba	65	0	0%	n/a	n/a	n/a	n/a	n/a
Dichlorobenzene[1,2-]	65	0	0%	n/a	n/a	n/a	n/a	n/a
Dichlorobenzene[1,3-]	65	0	0%	n/a	n/a	n/a	n/a	n/a

Table 4.2-2 (continued)

Analyte	Number of Analyses	Detects	Detection Rate	Mean (mg/kg)	Standard Deviation (mg/kg)	Minimum (mg/kg)	Median (mg/kg)	Maximum (mg/kg)
Dichlorobenzene[1,4-]	65	0	0%	n/a	n/a	n/a	n/a	n/a
Dichlorobenzidine[3,3'-]	65	0	0%	n/a	n/a	n/a	n/a	n/a
Dichlorodifluoromethane	65	0	0%	n/a	n/a	n/a	n/a	n/a
Dichloroethane[1,1-]	65	0	0%	n/a	n/a	n/a	n/a	n/a
Dichloroethane[1,2-]	65	0	0%	n/a	n/a	n/a	n/a	n/a
Dichloroethene[1,1-]	65	0	0%	n/a	n/a	n/a	n/a	n/a
Dichloroethene[cis-1,2-]	65	0	0%	n/a	n/a	n/a	n/a	n/a
Dichloroethene[trans-1,2-]	65	0	0%	n/a	n/a	n/a	n/a	n/a
Dichlorophenol[2,4-]	65	0	0%	n/a	n/a	n/a	n/a	n/a
Dichloropropane[1,2-]	65	0	0%	n/a	n/a	n/a	n/a	n/a
Dichloropropane[1,3-]	65	0	0%	n/a	n/a	n/a	n/a	n/a
Dichloropropane[2,2-]	65	0	0%	n/a	n/a	n/a	n/a	n/a
Dichloropropene[1,1-]	65	0	0%	n/a	n/a	n/a	n/a	n/a
Dichloropropene[cis-1,3-]	65	0	0%	n/a	n/a	n/a	n/a	n/a
Dichloropropene[trans-1,3-]	65	0	0%	n/a	n/a	n/a	n/a	n/a
Dichlorprop	65	2	3%	0.008481692	0.008528894	0.00523	0.00549	0.0563
Dieldrin	65	0	0%	n/a	n/a	n/a	n/a	n/a
Diethylphthalate	65	0	0%	n/a	n/a	n/a	n/a	n/a
Dimethyl phthalate	65	1	2%	0.853907692	1.050945404	0.349	0.367	3.74
Dimethylphenol[2,4-]	65	0	0%	n/a	n/a	n/a	n/a	n/a
Di-n-butylphthalate	65	23	35%	0.823729231	1.02793962	0.0739	0.366	3.74
Dinitro-2-methylphenol[4,6-]	65	0	0%	n/a	n/a	n/a	n/a	n/a
Dinitrobenzene[1,3-]	16	0	0%	n/a	n/a	n/a	n/a	n/a
Dinitrophenol[2,4-]	65	0	0%	n/a	n/a	n/a	n/a	n/a
Dinitrotoluene[2,4-]	16	0	0%	n/a	n/a	n/a	n/a	n/a
Dinitrotoluene[2,4-]	65	0	0%	n/a	n/a	n/a	n/a	n/a

Table 4.2-2 (continued)

Analyte	Number of Analyses	Detects	Detection Rate	Mean (mg/kg)	Standard Deviation (mg/kg)	Minimum (mg/kg)	Median (mg/kg)	Maximum (mg/kg)
Dinitrotoluene[2,6-]	16	0	0%	n/a	n/a	n/a	n/a	n/a
Dinitrotoluene[2,6-]	65	0	0%	n/a	n/a	n/a	n/a	n/a
Di-n-octylphthalate	65	0	0%	n/a	n/a	n/a	n/a	n/a
Dinoseb	65	0	0%	n/a	n/a	n/a	n/a	n/a
Diphenylamine	65	0	0%	n/a	n/a	n/a	n/a	n/a
Endosulfan I	65	0	0%	n/a	n/a	n/a	n/a	n/a
Endosulfan II	65	0	0%	n/a	n/a	n/a	n/a	n/a
Endosulfan sulfate	65	0	0%	n/a	n/a	n/a	n/a	n/a
Endrin	65	0	0%	n/a	n/a	n/a	n/a	n/a
Endrin aldehyde	65	0	0%	n/a	n/a	n/a	n/a	n/a
Endrin ketone	65	0	0%	n/a	n/a	n/a	n/a	n/a
Ethylbenzene	65	0	0%	n/a	n/a	n/a	n/a	n/a
Fluoranthene	65	14	22%	0.090481538	0.122283363	0.0122	0.0366	0.653
Fluorene	65	0	0%	n/a	n/a	n/a	n/a	n/a
Heptachlor	65	0	0%	n/a	n/a	n/a	n/a	n/a
Heptachlor epoxide	65	0	0%	n/a	n/a	n/a	n/a	n/a
Heptachlorodibenzodioxin[1,2,3,4,6,7,8-]	8	5	62%	2.20704E-05	2.59505E-05	0.000000853	0.00001415	0.0000772
Heptachlorodibenzodioxins (total)	8	8	100%	4.03388E-05	4.63149E-05	0.00000105	0.0000251	0.000136
Heptachlorodibenzofuran[1,2,3,4,6,7,8-]	8	7	88%	6.39021E-05	9.82984E-05	0.000000507	0.000015185	0.000285
Heptachlorodibenzofuran[1,2,3,4,7,8,9-]	8	3	38%	7.4925E-07	5.62461E-07	0.000000384	5.085E-07	0.00000209
Heptachlorodibenzofurans (total)	8	8	100%	0.000121799	0.00018793	0.00000118	0.000031275	0.000548
Hexachlorobenzene	65	0	0%	n/a	n/a	n/a	n/a	n/a
Hexachlorobutadiene	65	0	0%	n/a	n/a	n/a	n/a	n/a
Hexachlorocyclopentadiene	65	0	0%	n/a	n/a	n/a	n/a	n/a
Hexachlorodibenzodioxin[1,2,3,4,7,8-]	8	0	0%	n/a	n/a	n/a	n/a	n/a
Hexachlorodibenzodioxin[1,2,3,6,7,8-]	8	4	50%	1.69013E-06	2.17129E-06	0.000000384	7.705E-07	0.00000682

Table 4.2-2 (continued)

Analyte	Number of Analyses	Detects	Detection Rate	Mean (mg/kg)	Standard Deviation (mg/kg)	Minimum (mg/kg)	Median (mg/kg)	Maximum (mg/kg)
Hexachlorodibenzodioxin[1,2,3,7,8,9-]	8	1	12%	5.08875E-07	1.40333E-07	0.000000384	0.000000473	0.000000843
Hexachlorodibenzodioxins (total)	8	5	62%	6.48963E-06	8.67558E-06	0.000000384	0.00000256	0.000025
Hexachlorodibenzofuran[1,2,3,4,7,8-]	8	4	50%	1.17388E-06	1.18249E-06	0.000000384	8.005E-07	0.00000394
Hexachlorodibenzofuran[1,2,3,6,7,8-]	8	3	38%	6.7325E-07	4.59934E-07	0.000000384	0.000000497	0.00000179
Hexachlorodibenzofuran[1,2,3,7,8,9-]	8	1	12%	6.395E-07	4.90514E-07	0.000000384	0.000000482	0.00000185
Hexachlorodibenzofuran[2,3,4,6,7,8-]	8	3	38%	6.985E-07	4.35483E-07	0.000000384	0.000000513	0.0000017
Hexachlorodibenzofurans (total)	8	7	88%	3.99111E-05	5.85985E-05	0.000000491	0.000012015	0.000168
Hexachloroethane	65	0	0%	n/a	n/a	n/a	n/a	n/a
Hexanone[2-]	65	0	0%	n/a	n/a	n/a	n/a	n/a
HMX	16	0	0%	n/a	n/a	n/a	n/a	n/a
Indeno(1,2,3-cd)pyrene	65	5	8%	0.08514	0.105559092	0.012	0.0366	0.374
Iodomethane	65	0	0%	n/a	n/a	n/a	n/a	n/a
Isophorone	65	0	0%	n/a	n/a	n/a	n/a	n/a
Isopropylbenzene	65	0	0%	n/a	n/a	n/a	n/a	n/a
Isopropyltoluene[4-]	65	1	2%	0.003044277	0.015246503	0.000548	0.00109	0.124
MCPA	65	0	0%	n/a	n/a	n/a	n/a	n/a
MCPP	65	0	0%	n/a	n/a	n/a	n/a	n/a
Methoxychlor[4,4'-]	65	0	0%	n/a	n/a	n/a	n/a	n/a
Methyl-2-pentanone[4-]	65	0	0%	n/a	n/a	n/a	n/a	n/a
Methylene chloride	65	5	8%	0.015067846	0.076128371	0.00273	0.00547	0.619
Methylnaphthalene[2-]	65	7	11%	0.082916154	0.106479045	0.00942	0.0365	0.374
Methylphenol[2-]	65	0	0%	n/a	n/a	n/a	n/a	n/a
Methylphenol[4-]	65	0	0%	n/a	n/a	n/a	n/a	n/a
Naphthalene	65	7	11%	19.80238	157.4946446	0.0126	0.0367	1270
Naphthalene	16	4	25%	47.52251	189.4610109	0.000456	0.001115	758
Nitroaniline[2-]	65	0	0%	n/a	n/a	n/a	n/a	n/a

Table 4.2-2 (continued)

Analyte	Number of Analyses	Detects	Detection Rate	Mean (mg/kg)	Standard Deviation (mg/kg)	Minimum (mg/kg)	Median (mg/kg)	Maximum (mg/kg)
Nitroaniline[3-]	65	0	0%	n/a	n/a	n/a	n/a	n/a
Nitroaniline[4-]	65	0	0%	n/a	n/a	n/a	n/a	n/a
Nitrobenzene	16	0	0%	n/a	n/a	n/a	n/a	n/a
Nitrobenzene	65	0	0%	n/a	n/a	n/a	n/a	n/a
Nitrophenol[2-]	65	0	0%	n/a	n/a	n/a	n/a	n/a
Nitrophenol[4-]	65	0	0%	n/a	n/a	n/a	n/a	n/a
Nitrosodimethylamine[N-]	65	0	0%	n/a	n/a	n/a	n/a	n/a
Nitroso-di-n-propylamine[N-]	65	0	0%	n/a	n/a	n/a	n/a	n/a
Nitrotoluene[2-]	16	0	0%	n/a	n/a	n/a	n/a	n/a
Nitrotoluene[3-]	16	0	0%	n/a	n/a	n/a	n/a	n/a
Nitrotoluene[4-]	16	4	25%	4.6739375	14.73234313	0.49	0.5	59.7
Octachlorodibenzodioxin[1,2,3,4,6,7,8,9-]	8	8	100%	0.000198313	0.000243418	0.0000101	0.00009775	0.000667
Octachlorodibenzofuran[1,2,3,4,6,7,8,9-]	8	5	62%	3.12165E-05	4.34223E-05	0.000000982	0.000013435	0.000129
Oxybis(1-chloropropane)[2,2'-]	65	0	0%	n/a	n/a	n/a	n/a	n/a
Pentachlorodibenzodioxin[1,2,3,7,8-]	8	0	0%	n/a	n/a	n/a	n/a	n/a
Pentachlorodibenzodioxins (total)	8	1	12%	6.15625E-07	4.31562E-07	0.000000384	0.000000473	0.00000168
Pentachlorodibenzofuran[1,2,3,7,8-]	8	0	0%	n/a	n/a	n/a	n/a	n/a
Pentachlorodibenzofuran[2,3,4,7,8-]	8	2	25%	5.64875E-07	2.29331E-07	0.000000384	4.825E-07	0.00000111
Pentachlorodibenzofurans (total)	8	6	75%	2.56388E-06	2.62744E-06	0.000000384	0.00000165	0.00000745
Pentachlorophenol	65	0	0%	n/a	n/a	n/a	n/a	n/a
PETN	16	0	0%	n/a	n/a	n/a	n/a	n/a
Phenanthrene	65	4	6%	0.089496923	0.111984061	0.0116	0.0366	0.388
Phenol	65	0	0%	n/a	n/a	n/a	n/a	n/a
Propylbenzene[1-]	65	0	0%	n/a	n/a	n/a	n/a	n/a
Pyrene	65	16	25%	0.090304615	0.112762332	0.0132	0.0367	0.525
Pyridine	65	0	0%	n/a	n/a	n/a	n/a	n/a

Table 4.2-2 (continued)

Analyte	Number of Analyses	Detects	Detection Rate	Mean (mg/kg)	Standard Deviation (mg/kg)	Minimum (mg/kg)	Median (mg/kg)	Maximum (mg/kg)
RDX	16	0	0%	n/a	n/a	n/a	n/a	n/a
Styrene	65	1	2%	0.003052923	0.015245225	0.00105	0.00109	0.124
T[2,4,5-]	65	0	0%	n/a	n/a	n/a	n/a	n/a
TATB	16	0	0%	n/a	n/a	n/a	n/a	n/a
Tetrachlorodibenzodioxin[2,3,7,8-]	8	0	0%	n/a	n/a	n/a	n/a	n/a
Tetrachlorodibenzodioxins (total)	8	0	0%	n/a	n/a	n/a	n/a	n/a
Tetrachlorodibenzofuran[2,3,7,8-]	8	0	0%	n/a	n/a	n/a	n/a	n/a
Tetrachlorodibenzofurans (total)	8	2	25%	1.06775E-06	1.01664E-06	0.000000269	0.000000516	0.00000286
Tetrachloroethane[1,1,1,2-]	65	0	0%	n/a	n/a	n/a	n/a	n/a
Tetrachloroethane[1,1,2,2-]	65	1	2%	0.003051846	0.015245365	0.00105	0.00109	0.124
Tetrachloroethene	65	3	5%	0.003022508	0.015249811	0.000351	0.00109	0.124
Tetryl	16	0	0%	n/a	n/a	n/a	n/a	n/a
Toluene	65	5	8%	0.008401815	0.039744517	0.000366	0.00109	0.259
TPH-DRO	4	3	75%	310.71	540.2146799	7.74	57.55	1120
TPH-GRO	4	1	25%	0.11715	0.121903199	0.0553	0.05665	0.3
Toxaphene (technical grade)	65	0	0%	n/a	n/a	n/a	n/a	n/a
TP[2,4,5-]	65	0	0%	n/a	n/a	n/a	n/a	n/a
Trichloro-1,2,2-trifluoroethane[1,1,2-]	65	0	0%	n/a	n/a	n/a	n/a	n/a
Trichlorobenzene[1,2,4-]	65	0	0%	n/a	n/a	n/a	n/a	n/a
Trichloroethane[1,1,1-]	65	0	0%	n/a	n/a	n/a	n/a	n/a
Trichloroethane[1,1,2-]	65	0	0%	n/a	n/a	n/a	n/a	n/a
Trichloroethene	65	7	11%	0.003415908	0.015277813	0.000457	0.00109	0.124
Trichlorofluoromethane	65	0	0%	n/a	n/a	n/a	n/a	n/a
Trichlorophenol[2,4,5-]	65	0	0%	n/a	n/a	n/a	n/a	n/a
Trichlorophenol[2,4,6-]	65	0	0%	n/a	n/a	n/a	n/a	n/a
Trichloropropane[1,2,3-]	65	0	0%	n/a	n/a	n/a	n/a	n/a

Table 4.2-2 (continued)

Analyte	Number of Analyses	Detects	Detection Rate	Mean (mg/kg)	Standard Deviation (mg/kg)	Minimum (mg/kg)	Median (mg/kg)	Maximum (mg/kg)
Trimethylbenzene[1,2,4-]	65	1	2%	0.0030478	0.01524595	0.000757	0.00109	0.124
Trimethylbenzene[1,3,5-]	65	0	0%	n/a	n/a	n/a	n/a	n/a
Trinitrobenzene[1,3,5-]	16	0	0%	n/a	n/a	n/a	n/a	n/a
Trinitrotoluene[2,4,6-]	16	0	0%	n/a	n/a	n/a	n/a	n/a
Tris (o-cresyl) phosphate	16	0	0%	n/a	n/a	n/a	n/a	n/a
Vinyl chloride	65	0	0%	n/a	n/a	n/a	n/a	n/a
Xylene[1,2-]	65	0	0%	n/a	n/a	n/a	n/a	n/a
Xylene[1,3-]+xylene[1,4-]	65	2	3%	0.006045785	0.030373323	0.000489	0.00219	0.247

* n/a = Not applicable. Statistics were not performed on analytes that were below detection limits.

Table 4.2-3
Radionuclides Detected in Contaminated Soil through February 18, 2011

Analyte	Analytical Suite	Number of Analyses	Detects	Detection Rate	Mean (pCi/g)	Standard Deviation (pCi/g)	Minimum (pCi/g)	Median (pCi/g)	Maximum (pCi/g)
Americium-241	Am-241[a]	65	62	95%	82.17278	278.4316	0.0766	5.08	1540
Americium-241	Gamma[b]	65	64	98%	90.29742	268.3077	0.137	7.98	1360
Bismuth-211	Gamma	65	0	0%	n/a[c]	n/a	n/a	n/a	n/a
Bismuth-214	Gamma	65	64	98%	1.131769	0.244874	0.164	1.14	1.99
Cadmium-109	Gamma	65	0	0%	n/a	n/a	n/a	n/a	n/a
Cerium-139	Gamma	65	0	0%	n/a	n/a	n/a	n/a	n/a
Cesium-134	Gamma	65	0	0%	n/a	n/a	n/a	n/a	n/a
Cesium-137	Gamma	65	3	5%	60.62841	486.1817	−0.0344	0.00639	3920
Cobalt-60	Gamma	65	0	0%	n/a	n/a	n/a	n/a	n/a
Europium-152	Gamma	65	0	0%	n/a	n/a	n/a	n/a	n/a
Lanthanum-140	Gamma	65	0	0%	n/a	n/a	n/a	n/a	n/a
Lead-212	Gamma	65	64	98%	1.641185	0.325814	0.851	1.69	2.27
Lead-214	Gamma	65	64	98%	1.370615	0.269539	0.707	1.39	2.42
Mercury-203	Gamma	65	0	0%	n/a	n/a	n/a	n/a	n/a
Plutonium-238	Isotopic[d]	65	57	88%	19.01307	54.48118	0.0477	1.24	245
Plutonium-239/240	Isotopic	65	65	100%	3382.758	9149.742	3.03	218	39,400
Potassium-40	Gamma	65	65	100%	26.94615	3.110922	19.1	26.9	33.6
Radium-223	Gamma	65	0	0%	n/a	n/a	n/a	n/a	n/a
Radium-224	Gamma	65	0	0%	n/a	n/a	n/a	n/a	n/a
Radium-226	Gamma	65	21	32%	1.131769	0.244874	0.164	1.14	1.99
Radium-228	Gamma	65	65	100%	1.609708	0.304328	0.918	1.61	2.26
Ruthenium-106	Gamma	65	0	0%	n/a	n/a	n/a	n/a	n/a
Sodium-22	Gamma	65	0	0%	n/a	n/a	n/a	n/a	n/a
Strontium-85	Gamma	65	0	0%	n/a	n/a	n/a	n/a	n/a
Strontium-90	Sr-90e	65	3	5%	8.908847	70.18262	−0.286	0.0813	566
Thallium-208	Gamma	65	64	98%	0.497662	0.1212	0.268	0.486	1.09
Thorium-227	Gamma	65	0	0%	n/a	n/a	n/a	n/a	n/a
Thorium-231	Gamma	65	0	0%	n/a	n/a	n/a	n/a	n/a
Thorium-234	Gamma	65	27	42%	8.804663	21.32826	−1.25	2.65	150

Table 4.2-3 (continued)

Analyte	Analytical Suite	Number of Analyses	Detects	Detection Rate	Mean (pCi/g)	Standard Deviation (pCi/g)	Minimum (pCi/g)	Median (pCi/g)	Maximum (pCi/g)
Tin-113	Gamma	65	3	5%	0.028483	0.102479	−0.064	0.0068	0.556
Tritium	H3f	65	44	68%	0.742448	2.329657	−0.00117	0.069754	17.7978
Uranium-234	Isotopic	65	65	100%	8.401692	21.12705	0.623	3.16	152
Uranium-235	Gamma	65	19	29%	0.682906	1.275568	−0.0914	0.278	8.24
Uranium-235/236	Isotopic	65	57	88%	0.606694	1.820338	0.0271	0.177	13.8
Uranium-238	Isotopic	65	65	100%	7.669646	21.87214	0.627	1.99	159
Yttrium-88	Gamma	65	0	0%	n/a	n/a	n/a	n/a	n/a

[a] Am-241 = Americium-241 analysis.

[b] Gamma = Gamma spectroscopy.

[c] n/a = Not applicable. Statistics were not performed on analytes that were below detection limits.

[d] Isotopic = Isotopic analysis.

[e] Sr-90 = Strontium-90 analysis.

[f] H^3 = Tritium analysis.

Table 4.3-1
Maximum Inorganic Results in
Confirmation Samples Compared with Residential SSLs

Analyte	Maximum Concentration Detected (mg/kg)	Residential SSL[a] (mg/kg)	Maximum Concentration Above Residential Standards
Aluminum	6760	78,100	No[b]
Antimony	1.43	31.3	No
Arsenic	5.71	3.9	Yes[c]
Barium	178	15,600	No
Beryllium	1.05	156	No
Cadmium	0.886	77.9	No
Calcium	5210	na[d]	n/a[e]
Chromium	5.42	113,000	No
Cobalt	3.48	23[f]	No
Copper	8.69	3130	No
Total cyanide	0.0915	1560	No
Iron	10,600	54,800	No
Lead	77.3	400	No
Magnesium	1610	na	n/a
Manganese	342	10,700	No
Mercury	0.349	7.71	No
Nickel	7	1560	No
Nitrite	2.5	7800	No
Perchlorate	0.0867	54.8	No
Potassium	1280	na	n/a
Silver	0.208	391	No
Sodium	185	na	n/a
Thallium	0.189	5.16	No
Uranium	5790	235[g]	Yes
Vanadium	13.3	391	No
Zinc	53	23,500	No

[a] SSLs are from NMED (2009, 108070), unless indicated otherwise.

[b] No = Does not exceed SSL.

[c] Yes = Exceeds SSL.

[d] na = Not available.

[e] n/a = Not applicable.

[f] SSL for cobalt is from www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/index.htm.

[g] SSL for uranium soluble salts.

Table 4.3-2
Maximum Organic Results in
Confirmation Samples Compared with Residential SSLs

Analyte	Maximum Concentration Detected (mg/kg)	Residential SSL[a] (mg/kg)	Maximum Concentration Above Residential Standards
Acetone	0.00172	67,500	No[b]
Butanone[2-]	0.0217	39,600	No
DDD[4,4'-]	0.00118	20.3	No
DDE[4,4'-]	0.0085	14.3	No
DDT[4,4'-]	0.0176	17.2	No
Dichloroethene[cis-1,2-]	0.000507	782	No
Heptachlorodibenzodioxin[1,2,3,4,6,7,8-]	0.00000718	na[c]	n/a[d]
Heptachlorodibenzodioxins (total)	0.0000161	na	n/a
Heptachlorodibenzofuran[1,2,3,4,6,7,8-]	0.00000357	na	n/a
Heptachlorodibenzofurans (total)	0.00000661	na	n/a
Hexachlorodibenzodioxins (total)	0.00000317	na	n/a
Hexachlorodibenzofurans (total)	0.00000247	na	n/a
Hexanone[2-]	0.0348	210	No
Isopropyltoluene[4-]	0.00038	na	n/a
Methyl-2-pentanone[4-]	0.00287	5950	No
Octachlorodibenzodioxin[1,2,3,4,6,7,8,9-]	0.0000428	na	n/a
Octachlorodibenzofuran[1,2,3,4,6,7,8,9-]	0.00000888	na	n/a
Pentachlorodibenzofurans (total)	0.00000131	na	n/a
Tetrachlorodibenzofurans (total)	0.0000022	na	n/a
Tetrachloroethene	0.000863	6.99	No
Trichloroethene	0.0194	45.7	No

[a] SSLs are from NMED (2009, 108070).

[b] No = Does not exceed SSL.

[c] na = Not available.

[d] n/a = Not applicable.

Table 4.3-3
Maximum Radionuclide Results in
Confirmation Samples Compared with Residential SALs

Analyte	Analytical Suite	Maximum Concentration Detected (pCi/g)	Residential SAL[a] (pCi/g)	Maximum Concentration Above Residential Standards
Americium-241	Am-241[b]	5.71	30	No[c]
Americium-241	Gamma[d]	9.33	30	No
Bismuth-214	Gamma	1.61	na[e]	n/a[f]
Cesium-137	Gamma	28.4	5.6	Yes[g]
Lead-212	Gamma	2.43	na	n/a
Lead-214	Gamma	1.87	na	n/a
Plutonium-238	Isotopic[h]	2.23	37	No
Plutonium-239/240[i]	Isotopic	347	33	Yes
Potassium-40	Gamma	37.2	na	n/a
Radium-226[j]	Gamma	1.6	5	No
Radium-228[j]	Gamma	2.66	5	No
Strontium-90	Sr-90[k]	2.7	5.7	No
Thallium-208	Gamma	0.738	na	n/a
Thorium-234	Gamma	2980	na	n/a
Tritium	H^{3} [l]	1.5361	750	No
Uranium-234	Isotopic	2250	170	Yes
Uranium-235	Gamma	148	17	Yes
Uranium-235/236	Isotopic	156	17	Yes
Uranium-238	Isotopic	2260	87	Yes

[a] SALs are from LANL (2009, 107655), unless indicated otherwise.

[b] Am-241 = Americium-241 analysis.

[c] No = Does not exceed SAL.

[d] Gamma = Gamma spectroscopy.

[e] na = Not available.

[f] n/a = Not applicable.

[g] Yes = Exceeds SAL.

[h] Isotopic = Isotopic analysis.

[i] Plutonium-239 and plutonium-240 are typically unresolved in laboratory analysis. SALs for the two isotopes are identical.

[j] The SAL is the generic soil guideline for release of property published in Chapter 4 (Residual Radioactive Material) of DOE Order 5400.5. For the concentration averaged over the first 15 cm of soil below the surface, 5 pCi/g applies; for subsequent 15-cm-thick layers, the generic soil guideline is 15 pCi/g. If both thorium-230 and radium-226 or both thorium-232 and radium-228 are present and not in secular equilibrium, or if other mixtures of radon-generating radionuclides occur, refer to DOE Order 5400.5 for guidance in establishing soil criteria.

[k] Sr-90 = Strontium-90 analysis.

[l] H^{3} = Tritium analysis.

Table 4.3-4
Inorganic Chemicals Detected during Confirmation Sampling

Sample ID	NMED Split	Location ID	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium
Analytical Suite			Metals	Metals	Metals	Metals	Metals	Metals	Metals	Metals
Residential SSL (mg/kg)[a]			78,100	31.3	3.9	15,600	156	77.9	nab	113,000
CSMDAB-10-24585	Sampled[c]	AJ260, south-side wall	1640 (J+)	ND[d]	0.681 (J)	33.6	0.245	ND	4790	2.94
CSMDAB-10-24586	Sampled	AH260, north-side wall	727 (J+)	ND	0.41 (J)	14.8	0.253	ND	2670	0.972
CSMDAB-10-24587	Sampled	AI260, excavation floor	546 (J+)	1.07	0.23 (J)	11.4	0.316	ND	880	0.739
CSMDAB-10-24593	NS[e]	AI255, excavation floor	292	ND	0.228 (J)	10.8	0.199	ND	195	ND
CSMDAB-10-24594	NS	AH255, north-side wall	1070	ND	0.412 (J)	29.5	0.218	ND	1390	ND
CSMDAB-10-24595	NS	AJ255, south-side wall	2590	0.566 (J)	0.635 (J)	41.1	0.339	ND	1190	ND
CSMDAB-10-24596	NS	AH250, north-side wall	645 (J+)	ND	0.558 (J)	16.8	0.37	0.886	1150	0.868
CSMDAB-10-24597	Sampled	AI250, excavation floor	624 (J+)	0.886 (J)	0.38 (J)	16.1	0.306	ND	1980	1.02
CSMDAB-10-24598	NS	AJ250, south-side wall	1040 (J+)	0.669 (J)	0.607 (J)	22.1	0.263	ND	2930	1.52
CSMDAB-10-25077	Sampled	NH51, excavation floor	1110 (J+)	0.66 (J)	0.566 (J)	18.1	0.383	0.115 (J)	486	1.17
CSMDAB-10-25079	NS	NF51, north-side wall	3710	1.03	1.37	65.3 (J+)	0.593	ND	2540	3.15 (J)
CSMDAB-10-25080	NS	NH51, south-side wall	3990	0.656 (J)	1.36	48.6 (J+)	0.621	ND	2730	3.15
CSMDAB-10-25083	Sampled	NH46, excavation floor	983 (J+)	0.481 (J)	0.343 (J)	12.4	0.277	ND	1050	ND
CSMDAB-10-25084	NS	NF46, north-side wall	5190 (J+)	0.369 (J)	0.721 (J)	61	0.538	ND	1260	ND
CSMDAB-10-25085	NS	NH46, south-side wall	2220 (J+)	ND	1.23	23.9	0.557	ND	848	ND
CSMDAB-10-26776	Sampled	AH160, north-side wall	1410 (J+)	ND	4.02	11.3	0.433	ND	531	1.92
CSMDAB-10-26777	Sampled	AI160, excavation floor	1740 (J+)	ND	5.71	17.8	0.377	ND	612	1.9
CSMDAB-10-26778	Sampled	AK160, south-side wall	4900 (J+)	ND	2.71	75.8	0.638	ND	1730	4.42
CSMDAB-10-26779	Sampled	AI155, north-side wall	2160 (J+)	ND	2.4	23.2	0.408	ND	1980	2.07
CSMDAB-10-26780	Sampled	AJ155, excavation floor	1830 (J+)	ND	2.23	23.1	0.443	0.276 (J)	1170	2.07
CSMDAB-10-26781	Sampled	AK155, south-side wall	6760 (J+)	ND	2.22	178	0.79	ND	5210	5.42

Table 4.3-4 (continued)

Sample ID	NMED Split	Location ID	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium
Analytical Suite			Metals	Metals	Metals	Metals	Metals	Metals	Metals	Metals
Residential SSL (mg/kg)[a]			78,100	31.3	3.9	15,600	156	77.9	nab	113,000
CSMDAB-10-26782	Sampled	AH166, north-side wall	1410 (J+)	1.43	0.542 (J)	15.7	0.419	ND	1280 (J)	1.48
CSMDAB-10-26783	Sampled	AK166, south-side wall	2550 (J+)	0.418 (J)	0.848 (J)	35	0.643	ND	1430 (J)	2.64
CSMDAB-10-26784	Sampled	AJ166, excavation floor	2030 (J+)	ND	0.843 (J)	23.6	0.603	ND	1590 (J)	1.78
CSMDAB-10-26785	Sampled	AI171, north-side wall	375 (J+)	ND	0.347	10.4	0.233	ND	404 (J)	2.08
CSMDAB-10-26786	Sampled	AK171, south-side wall	1840 (J+)	ND	1.53	28.3	0.401	ND	760 (J)	2.9
CSMDAB-10-26787	Sampled	AJ171, excavation floor	783 (J+)	0.389 (J)	0.441 (J)	13.2	0.319	ND	555 (J)	1.2
CSMDAB-10-26802	Sampled	AH196, north-side wall	2770 (J+)	ND	0.881 (J)	52.7	0.391	ND	2730	2.69
CSMDAB-10-26803	Sampled	AI196, excavation floor	1460 (J+)	ND	0.595 (J)	24.7	0.343	ND	871	2.55
CSMDAB-10-26804	Sampled	AK196, south-side wall	2080 (J+)	ND	1.14	31.1	0.422	ND	699	1.76
CSMDAB-10-26805	NS	AH200, north-side wall	3850	0.474 (J)	1.56	46.4	1.05	ND	2180	3.24 (J)
CSMDAB-10-26806	NS	AK200, south-side wall	5000	0.404 (J)	1.85	69	0.994	ND	2940	5.14 (J)
CSMDAB-10-26807	NS	AJ200, excavation floor	1330	ND	0.692 (J)	16.3	0.427	ND	1050	1.54 (J)
CSMDAB-10-26808	NS	AH205, north-side wall	3690	1.1	1.4	40.4	0.516	ND	1280 (J-)	ND
CSMDAB-10-26809	NS	AK205, south-side wall	849	ND	0.362 (J)	12.3	0.24	0.208 (J)	1750 (J-)	ND
CSMDAB-10-26810	NS	AJ205, excavation floor	1350	0.773 (J)	3.52	15.1	0.386	0.255 (J)	579 (J-)	ND
CSMDAB-10-26812	NS	AJ200, excavation floor	1320	0.394 (J)	0.542 (J)	14.9	0.566	ND	815 (J-)	ND

Table 4.3-4 (continued)

Sample ID	NMED Split	Location ID	Cobalt	Copper	Cyanide (total)	Iron	Lead	Magnesium	Manganese	Mercury
Analytical Suite			Metals	Metals	Wet Chem	Metals	Metals	Metals	Metals	Metals
Residential SSL (mg/kg)[a]			23[f]	3130	1560	54,800	400	na	10,700	7.71
CSMDAB-10-24585	Sampled	AJ260, south-side wall	1.01	4.27	ND	8100	3.35	807	265	0.00664 (J)
CSMDAB-10-24586	Sampled	AH260, north-side wall	0.264 (J)	1.96	ND	7300	0.459 (J)	339	247	0.0454
CSMDAB-10-24587	Sampled	AI260, excavation floor	0.156 (J)	1.42	ND	5880	0.552 (J)	184	196	ND
CSMDAB-10-24593	NS	AI255, excavation floor	0.254 (J)	ND	ND	5480	ND	92.4 (J+)	218	0.0396
CSMDAB-10-24594	NS	AH255, north-side wall	0.472 (J)	ND	ND	7600	ND	282 (J+)	234	0.0384
CSMDAB-10-24595	NS	AJ255, south-side wall	0.657	ND	ND	6290	ND	526 (J+)	256	0.022
CSMDAB-10-24596	NS	AH250, north-side wall	0.281 (J)	8.69	ND	6550	4.38	215	228	0.254 (J-)
CSMDAB-10-24597	Sampled	AI250, excavation floor	0.328 (J)	2.72	ND	5790	4.87	250	252	0.349 (J-)
CSMDAB-10-24598	NS	AJ250, south-side wall	0.64	3.01	ND	5540	4.88	407	306	0.173 (J-)
CSMDAB-10-25077	Sampled	NH51, excavation floor	0.464 (J)	4.71	ND	6760	5.67	232	265	0.0496
CSMDAB-10-25079	NS	NF51, north-side wall	2.11	6 (J)	ND	7580	8.6	1060 (J+)	205	0.0317
CSMDAB-10-25080	NS	NH51, south-side wall	1.28	3.79	ND	7870	7.58	906 (J+)	224	0.0617
CSMDAB-10-25083	Sampled	NH46, excavation floor	0.337 (J)	ND	ND	6790	ND	277	222	0.01 (J-)
CSMDAB-10-25084	NS	NF46, north-side wall	0.617	ND	ND	3920	ND	774	43.5	0.00855 (J-)
CSMDAB-10-25085	NS	NH46, south-side wall	0.693	ND	ND	8500	ND	490	256	0.00647 (J-)
CSMDAB-10-26776	Sampled	AH160, north-side wall	0.578	ND	ND	4710	5.48	345 (J+)	212	0.0249
CSMDAB-10-26777	Sampled	AI160, excavation floor	0.647	2	ND	6090	8.67	333 (J+)	236	0.348
CSMDAB-10-26778	Sampled	AK160, south-side wall	2.34	4.68	ND	9450	16.6	888 (J+)	281	0.0249
CSMDAB-10-26779	Sampled	AI155, north-side wall	1.34	2.71	ND	6670	5.52	699 (J+)	290	0.0107 (J)
CSMDAB-10-26780	Sampled	AJ155, excavation floor	0.847	2.54	0.0915 (J)	5950	7.14	406 (J+)	277	0.119
CSMDAB-10-26781	Sampled	AK155, south-side wall	3.48	4.88	ND	10,600	9.06	1610 (J+)	314	0.0144

Table 4.3-4 (continued)

Sample ID	NMED Split	Location ID	Cobalt	Copper	Cyanide (total)	Iron	Lead	Magnesium	Manganese	Mercury
Analytical Suite			Metals	Metals	Wet Chem	Metals	Metals	Metals	Metals	Metals
Residential SSL (mg/kg)[a]			23[f]	3130	1560	54,800	400	na	10,700	7.71
CSMDAB-10-26782	Sampled	AH166, north-side wall	0.467 (J)	1.4	ND	7160	5.44	413 (J+)	226	0.162
CSMDAB-10-26783	Sampled	AK166, south-side wall	1.01	3.91	ND	8820	7.33	525 (J+)	290	0.0125
CSMDAB-10-26784	Sampled	AJ166, excavation floor	0.565	1.93	ND	8190	6.85	485 (J+)	252	0.00977 (J)
CSMDAB-10-26785	Sampled	AI171, north-side wall	0.244 (J)	1.33	ND	7120	4.27	122 (J+)	192	0.0375
CSMDAB-10-26786	Sampled	AK171, south-side wall	0.697	2.26	ND	7420	8.41	394 (J+)	261	0.0117 (J)
CSMDAB-10-26787	Sampled	AJ171, excavation floor	0.253 (J)	1.12	ND	6160	8.63	202 (J+)	264	0.00823 (J)
CSMDAB-10-26802	Sampled	AH196, north-side wall	1.14	3.02	ND	8030	8.27	712 (J+)	253	0.0214
CSMDAB-10-26803	Sampled	AI196, excavation floor	0.87	3.03	ND	7500	14.2	432 (J+)	297	0.0192
CSMDAB-10-26804	Sampled	AK196, south-side wall	0.973	2.91	ND	8380	22.4	403 (J+)	293	0.00816 (J)
CSMDAB-10-26805	NS	AH200, north-side wall	1.08	4.22	ND	7310	77.3	1050 (J+)	221	0.212
CSMDAB-10-26806	NS	AK200, south-side wall	2.19	7.67	ND	8840	36.2	1150 (J+)	342	0.0572
CSMDAB-10-26807	NS	AJ200, excavation floor	0.467 (J)	3.21	ND	6450	30.2	349 (J+)	278	0.0829
CSMDAB-10-26808	NS	AH205, north-side wall	1.41	ND	ND	8970	ND	696	294	0.0935
CSMDAB-10-26809	NS	AK205, south-side wall	0.301 (J)	ND	ND	5730	ND	237	220	0.0271
CSMDAB-10-26810	NS	AJ205, excavation floor	0.307 (J)	ND	ND	5650	ND	282	270	ND
CSMDAB-10-26812	NS	AJ200, excavation floor	0.36 (J)	ND	ND	6000	ND	349	223	0.178

Table 4.3-4 (continued)

Sample ID	NMED Split	Location ID	Nickel	Nitrate	Perchlorate	Potassium	Silver	Sodium	Thallium	Uranium
Analytical Suite			Metals	Anion	Perchlorate	Metals	Metals	Metals	Metals	Metals
Residential SSL (mg/kg) [a]			1560	125,000	54.8	na	391	na	5.16	235[g]
CSMDAB-10-24585	Sampled	AJ260, south-side wall	2.53	ND	ND	291	ND	173	ND	0.369
CSMDAB-10-24586	Sampled	AH260, north-side wall	1.18	1.1	ND	171	ND	138	ND	0.53
CSMDAB-10-24587	Sampled	AI260, excavation floor	0.962	ND	ND	142	ND	127	ND	0.378
CSMDAB-10-24593	NS	AI255, excavation floor	ND	ND	ND	ND	ND	72.3	0.0775 (J)	0.469
CSMDAB-10-24594	NS	AH255, north-side wall	ND	0.822 (J)	ND	ND	ND	86.1	0.0946 (J)	0.4
CSMDAB-10-24595	NS	AJ255, south-side wall	ND	0.976 (J)	ND	ND	ND	54.2	0.105 (J)	0.576
CSMDAB-10-24596	NS	AH250, north-side wall	3.16	ND	ND	156	ND	126	ND	0.567
CSMDAB-10-24597	Sampled	AI250, excavation floor	0.806	1.07 (J)	ND	203	ND	185	ND	7.43
CSMDAB-10-24598	NS	AJ250, south-side wall	1.83	1.21	ND	233	ND	159	0.0759 (J)	21
CSMDAB-10-25077	Sampled	NH51, excavation floor	0.831	ND	0.00176 (J)	222	ND	119	ND	1.26 (J)
CSMDAB-10-25079	NS	NF51, north-side wall	4.72	2.5	0.0013 (J)	640	ND	145	ND	5790
CSMDAB-10-25080	NS	NH51, south-side wall	4.45	1.45	0.000827 (J)	637	ND	110	ND	1.08
CSMDAB-10-25083	Sampled	NH46, excavation floor	ND	1.17	ND	205	ND	ND	ND	0.538
CSMDAB-10-25084	NS	NF46, north-side wall	ND	1.01 (J)	ND	813	0.143 (J)	ND	0.07 (J)	0.357
CSMDAB-10-25085	NS	NH46, south-side wall	ND	ND	0.00178 (J)	373	ND	ND	0.151 (J)	0.587
CSMDAB-10-26776	Sampled	AH160, north-side wall	2.59	ND	ND	291	ND	ND	0.134 (J)	0.781
CSMDAB-10-26777	Sampled	AI160, excavation floor	2.88	ND	0.00145 (J)	384	ND	ND	0.179 (J)	1.24
CSMDAB-10-26778	Sampled	AK160, south-side wall	4.92	ND	ND	753	0.208 (J)	ND	0.178 (J)	0.79
CSMDAB-10-26779	Sampled	AI155, north-side wall	2.57	ND	ND	390	0.122 (J)	ND	0.113 (J)	1.26
CSMDAB-10-26780	Sampled	AJ155, excavation floor	2.85	ND	0.00344	344	0.133 (J)	ND	0.0847 (J)	1.02
CSMDAB-10-26781	Sampled	AK155, south-side wall	7	ND	ND	1280	0.156 (J)	ND	0.189 (J)	0.961

Table 4.3-4 (continued)

Sample ID	NMED Split	Location ID	Nickel	Nitrate	Perchlorate	Potassium	Silver	Sodium	Thallium	Uranium
Analytical Suite			Metals	Anion	Perchlorate	Metals	Metals	Metals	Metals	Metals
Residential SSL (mg/kg) [a]			1560	125,000	54.8	na	391	na	5.16	235 [g]
CSMDAB-10-26782	Sampled	AH166, north-side wall	3.63 (J)	1.08 (J)	0.00199 (J)	262	ND	72.3	0.0675 (J)	0.486
CSMDAB-10-26783	Sampled	AK166, south-side wall	2.74 (J)	1.2	0.000573 (J)	419	ND	75.7	0.107 (J)	0.388
CSMDAB-10-26784	Sampled	AJ166, excavation floor	1.7 (J)	0.969 (J)	0.000604 (J)	341	ND	76.6	0.0877 (J)	0.489
CSMDAB-10-26785	Sampled	AI171, north-side wall	0.929 (J)	0.917 (J)	ND	138	ND	96.4	ND	0.794
CSMDAB-10-26786	Sampled	AK171, south-side wall	1.84 (J)	0.878 (J)	ND	306	ND	64.1	0.0659 (J)	0.371
CSMDAB-10-26787	Sampled	AJ171, excavation floor	0.913 (J)	0.967 (J)	ND	165	ND	86.4	ND	0.452
CSMDAB-10-26802	Sampled	AH196, north-side wall	2.39	ND	ND	316	0.122 (J)	65.5	0.0912 (J)	0.7
CSMDAB-10-26803	Sampled	AI196, excavation floor	1.56	ND	ND	276	0.115 (J)	86.6	ND	1.29
CSMDAB-10-26804	Sampled	AK196, south-side wall	2.44	ND	ND	287	0.136 (J)	47.6	0.0873 (J)	0.693
CSMDAB-10-26805	NS	AH200, north-side wall	4.97	ND	ND	472 (J+)	ND	70.2	ND	0.616
CSMDAB-10-26806	NS	AK200, south-side wall	5.88	1.01 (J)	ND	681 (J+)	ND	110	ND	0.919
CSMDAB-10-26807	NS	AJ200, excavation floor	2.51	ND	0.021	227 (J+)	ND	82.1	ND	1.54
CSMDAB-10-26808	NS	AH205, north-side wall	ND	1.41	0.00333	537	ND	ND	ND	1.46 (J+)
CSMDAB-10-26809	NS	AK205, south-side wall	ND	1.25	ND	183	ND	ND	ND	0.519 (J+)
CSMDAB-10-26810	NS	AJ205, excavation floor	ND	1.26	ND	210	ND	ND	ND	0.737 (J+)
CSMDAB-10-26812	NS	AJ200, excavation floor	ND	ND	0.0867	248	ND	ND	ND	5.62 (J+)

Table 4.3-4 (continued)

Sample ID	NMED Split	Location ID	Vanadium	Zinc
Analytical Suite			**Metals**	**Metals**
Residential SSL (mg/kg) [a]			**391**	**23,500**
CSMDAB-10-24585	Sampled	AJ260, south-side wall	7.67	35.6
CSMDAB-10-24586	Sampled	AH260, north-side wall	2.56	42.1
CSMDAB-10-24587	Sampled	AI260, excavation floor	1.85	35
CSMDAB-10-24593	NS	AI255, excavation floor	1.54	37.3
CSMDAB-10-24594	NS	AH255, north-side wall	3.5	37.1
CSMDAB-10-24595	NS	AJ255, south-side wall	4.09	19
CSMDAB-10-24596	NS	AH250, north-side wall	2.24	43.2
CSMDAB-10-24597	Sampled	AI250, excavation floor	1.9	47
CSMDAB-10-24598	NS	AJ250, south-side wall	3.22	39.7
CSMDAB-10-25077	Sampled	NH51, excavation floor	3.15	39
CSMDAB-10-25079	NS	NF51, north-side wall	11.8	31.1
CSMDAB-10-25080	NS	NH51, south-side wall	8.01	31.1
CSMDAB-10-25083	Sampled	NH46, excavation floor	2.58	ND
CSMDAB-10-25084	NS	NF46, north-side wall	5.16	ND
CSMDAB-10-25085	NS	NH46, south-side wall	4.55	40.9
CSMDAB-10-26776	Sampled	AH160, north-side wall	3.51	17.8
CSMDAB-10-26777	Sampled	AI160, excavation floor	4.31	23.5
CSMDAB-10-26778	Sampled	AK160, south-side wall	11.8	36.5
CSMDAB-10-26779	Sampled	AI155, north-side wall	4.96	21.9
CSMDAB-10-26780	Sampled	AJ155, excavation floor	3.27	35.3
CSMDAB-10-26781	Sampled	AK155, south-side wall	13.3	33.4

Table 4.3-4 (continued)

Sample ID	NMED Split	Location ID	Vanadium	Zinc
Analytical Suite			Metals	Metals
Residential SSL (mg/kg) [a]			391	23,500
CSMDAB-10-26782	Sampled	AH166, north-side wall	3.05	38.4
CSMDAB-10-26783	Sampled	AK166, south-side wall	5.35	45.2
CSMDAB-10-26784	Sampled	AJ166, excavation floor	3.94	39.3
CSMDAB-10-26785	Sampled	AI171, north-side wall	1.65	44.7
CSMDAB-10-26786	Sampled	AK171, south-side wall	3.93	37.3
CSMDAB-10-26787	Sampled	AJ171, excavation floor	1.71	41.1
CSMDAB-10-26802	Sampled	AH196, north-side wall	6.88	37.4
CSMDAB-10-26803	Sampled	AI196, excavation floor	4.44	50.8
CSMDAB-10-26804	Sampled	AK196, south-side wall	4.96	46.2
CSMDAB-10-26805	NS	AH200, north-side wall	7.51	26.8 (J)
CSMDAB-10-26806	NS	AK200, south-side wall	12.2	39.4
CSMDAB-10-26807	NS	AJ200, excavation floor	2.87	53
CSMDAB-10-26808	NS	AH205, north-side wall	8.71	51.1
CSMDAB-10-26809	NS	AK205, south-side wall	2.05	44.3
CSMDAB-10-26810	NS	AJ205, excavation floor	2.38	37.6
CSMDAB-10-26812	NS	AJ200, excavation floor	3.61	46.3

Note: Units in mg/kg.

a SSLs are from NMED (2009, 108070), unless indicated otherwise.

b na = Not available.

c Sampled = Location was sampled by NMED.

d ND = Not detected.

e NS = Location was not sampled by NMED.

f SSL for cobalt is from www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/index.htm.

g SSL for uranium soluble salts.

Table 4.3-5
Organic Chemicals Detected during Confirmation Sampling

Sample ID	NMED Split	Location ID	Acetone	Butanone[2-]	DDD[4,4'-]	DDE[4,4'-]	DDT[4,4'-]
Analytical Suite			**VOC**	**VOC**	**PEST[a]**	**PEST**	**PEST**
Residential SSL (mg/kg)[b]			**67,500**	**39,600**	**20.3**	**14.3**	**17.2**
CSMDAB-10-24585	Sampled[c]	AJ260, south-side wall	ND[d]	ND	ND	ND	ND
CSMDAB-10-24595	NS[e]	AJ255, south-side wall	ND	ND	ND	ND	ND
CSMDAB-10-25079	NS	NF51, north-side wall	0.00172 (J)	ND	ND	ND	ND
CSMDAB-10-26778	Sampled	AK160, south-side wall	ND	ND	ND	ND	0.000577 (J)
CSMDAB-10-26785	Sampled	AI171, north-side wall	ND	0.0217 (J+)	ND	ND	ND
CSMDAB-10-26787	Sampled	AJ171, excavation floor	ND	ND	ND	ND	ND
CSMDAB-10-26804	Sampled	AK196, south-side wall	ND	ND	ND	ND	ND
CSMDAB-10-26805	NS	AH200, north-side wall	ND	ND	ND	0.00165	0.0068
CSMDAB-10-26806	NS	AK200, south-side wall	ND	ND	ND	ND	ND
CSMDAB-10-26807	NS	AJ200, excavation floor	ND	ND	0.00118 (J)	ND	ND
CSMDAB-10-26808	NS	AH205, north-side wall	ND	ND	ND	0.0085 (J)	0.0176
CSMDAB-10-26809	NS	AK205, south-side wall	ND	ND	ND	ND	ND

Table 4.3-5 (continued)

Sample ID	NMED Split	Location ID	Dichloroethene[cis-1,2-]	Heptachlorodibenzodioxin[1,2,3,4,6,7,8-]	Heptachlorodibenzodioxins (total)	Heptachlorodibenzofuran[1,2,3,4,6,7,8-]	Heptachlorodibenzofurans (total)
Analytical Suite			**VOC**	**Dixon Furan**	**Dixon Furan**	**Dixon Furan**	**Dixon Furan**
Residential SSL (mg/kg)[a]			**782**	**na[f]**	**na**	**na**	**na**
CSMDAB-10-24585	Sampled	AJ260, south-side wall	ND	0.00000168 (J)	0.00000288 (J)	0.00000195 (J)	0.00000559
CSMDAB-10-24595	NS	AJ255, south-side wall	ND	ND	ND	ND	ND
CSMDAB-10-25079	NS	NF51, north-side wall	ND	ND	ND	ND	ND
CSMDAB-10-26778	Sampled	AK160, south-side wall	ND	0.00000718 (J+)	0.0000161	0.00000357 (J)	0.00000661
CSMDAB-10-26785	Sampled	AI171, north-side wall	ND	ND	ND	ND	ND
CSMDAB-10-26787	Sampled	AJ171, excavation floor	ND	ND	ND	ND	ND
CSMDAB-10-26804	Sampled	AK196, south-side wall	ND	0.00000137 (J)	0.00000341 (J)	0.000000576 (J)	0.000000576 (J)
CSMDAB-10-26805	NS	AH200, north-side wall	ND	ND	ND	ND	ND
CSMDAB-10-26806	NS	AK200, south-side wall	ND	ND	ND	ND	ND
CSMDAB-10-26807	NS	AJ200, excavation floor	ND	ND	ND	ND	ND
CSMDAB-10-26808	NS	AH205, north-side wall	0.000507 (J)	ND	ND	ND	ND
CSMDAB-10-26809	NS	AK205, south-side wall	ND	ND	ND	ND	ND

Table 4.3-5 (continued)

Sample ID	NMED Split	Location ID	Hexachlorodibenzodioxins (total)	Hexachlorodibenzofurans (total)	Hexanone[2-]	Isopropyltoluene[4-]	Methyl-2-pentanone[4-]	Octachlorodibenzodioxin[1,2,3,4,6,7,8,9-]
Analytical Suite			**Dixon Furan**	**Dixon Furan**	**VOC**	**VOC**	**VOC**	**Dixon Furan**
Residential SSL (mg/kg) [a]			**na**	**na**	**210** [g]	**na**	**5950**	**na**
CSMDAB-10-24585	Sampled	AJ260, south-side wall	ND	0.000000603 (J)	ND	ND	ND	0.0000133
CSMDAB-10-24595	NS	AJ255, south-side wall	ND	ND	ND	ND	ND	0.00000107 (J)
CSMDAB-10-25079	NS	NF51, north-side wall	ND	ND	ND	ND	ND	ND
CSMDAB-10-26778	Sampled	AK160, south-side wall	0.00000317 (J)	0.00000247 (J)	ND	ND	ND	0.0000428 (J+)
CSMDAB-10-26785	Sampled	AI171, north-side wall	ND	ND	0.0348 (J+)	ND	0.00287 (J+)	ND
CSMDAB-10-26787	Sampled	AJ171, excavation floor	ND	ND	ND	ND	ND	0.00000104 (J)
CSMDAB-10-26804	Sampled	AK196, south-side wall	0.000000479 (J)	ND	ND	ND	ND	0.00000996
CSMDAB-10-26805	NS	AH200, north-side wall	ND	ND	ND	ND	ND	ND
CSMDAB-10-26806	NS	AK200, south-side wall	ND	ND	ND	0.00038 (J)	ND	ND
CSMDAB-10-26807	NS	AJ200, excavation floor	ND	ND	ND	ND	ND	ND
CSMDAB-10-26808	NS	AH205, north-side wall	ND	ND	ND	ND	ND	ND
CSMDAB-10-26809	NS	AK205, south-side wall	ND	ND	ND	ND	ND	ND

Table 4.3-5 (continued)

Sample ID	NMED Split	Location ID	Octachlorodibenzofuran[1,2,3,4,6,7,8,9-]	Pentachlorodibenzofurans (total)	Tetrachlorodibenzofurans (total)	Tetrachloroethene	Trichloroethene
Analytical Suite			**Dixon Furan**	**Dixon Furan**	**Dixon Furan**	**VOC**	**VOC**
Residential SSL (mg/kg)[a]			**na**	**na**	**na**	**6.99**	**45.7**
CSMDAB-10-24585	Sampled	AJ260, south-side wall	0.00000888 (J)	ND	ND	ND	ND
CSMDAB-10-24595	NS	AJ255, south-side wall	ND	ND	ND	ND	ND
CSMDAB-10-25079	NS	NF51, north-side wall	ND	ND	ND	ND	ND
CSMDAB-10-26778	Sampled	AK160, south-side wall	0.00000234 (J)	0.00000131 (J)	0.0000022 (J)	ND	ND
CSMDAB-10-26785	Sampled	AI171, north-side wall	ND	ND	ND	ND	ND
CSMDAB-10-26787	Sampled	AJ171, excavation floor	ND	ND	ND	ND	ND
CSMDAB-10-26804	Sampled	AK196, south-side wall	ND	ND	ND	ND	ND
CSMDAB-10-26805	NS	AH200, north-side wall	ND	ND	ND	ND	0.000957 (J)
CSMDAB-10-26806	NS	AK200, south-side wall	ND	ND	ND	ND	ND
CSMDAB-10-26807	NS	AJ200, excavation floor	ND	ND	ND	ND	ND
CSMDAB-10-26808	NS	AH205, north-side wall	ND	ND	ND	0.000863 (J)	0.0194
CSMDAB-10-26809	NS	AK205, south-side wall	ND	ND	ND	ND	0.000676 (J)

Note: Units in mg/kg.

[a] PEST = pesticide.

[b] SSLs are from NMED (2009, 108070), unless indicated otherwise.

[c] Sampled = Location was sampled by NMED.

[d] ND = Not detected.

[e] NS = Location was not sampled by NMED.

[f] na = Not available.

[g] SSL for Hexanone[2-] is from www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/index.htm.

Table 4.3-6
Radionuclides Detected during Confirmation Sampling

Sample ID	NMED Split	Location ID	Americium-241	Americium-241	Bismuth-214	Cesium-137	Lead-212	Lead-214	Plutonium-238	Plutonium-239/240
Analytical Suite			**Am-241**	**Gamma**	**Gamma**	**Gamma**	**Gamma**	**Gamma**	**Isotopic**	**Isotopic**
Residential SAL (pCi/g)[a]			**30**	**30**	**na[b]**	**5.6**	**na**	**na**	**37**	**33**
CSMDAB-10-24585	Sampled [c]	AJ260, south-side wall	ND[d]	ND	1.2	ND	1.72	1.52	ND	2.33[e]
CSMDAB-10-24586	Sampled	AH260, north-side wall	0.963[e]	1.72	1.43	ND	1.92	1.49	ND	55.1 (J-)[e]
CSMDAB-10-24587	Sampled	AI260, excavation floor	ND	ND	1.18	ND	1.9	1.59	ND	0.93[e]
CSMDAB-10-24589	NS [f]	AH260, north-side wall	0.247	ND	ND	ND	ND	ND	0.123	20.7
CSMDAB-10-24590	NS	AH260, north-side wall	ND	ND	ND	ND	ND	ND	ND	1.5
CSMDAB-10-24591	NS	AH260, north-side wall	ND	ND	ND	ND	ND	ND	0.0654	3.74
CSMDAB-10-24592	NS	AH260, north-side wall	ND	ND	1.25	ND	2.09	1.62	0.203 (J)	0.867 (J)
CSMDAB-10-24593	NS	AI255, excavation floor	0.0726	ND	1.42	ND	2.18	1.68	ND	2.52
CSMDAB-10-24594	NS	AH255, north-side wall	0.0926	0.154	1.43	ND	2.09	1.59	ND	4.53
CSMDAB-10-24595	NS	AJ255, south-side wall	ND	ND	1.16	ND	2.18	1.66	ND	0.423
CSMDAB-10-24596	NS	AH250, north-side wall	0.303	0.415	1.47	5.24	2.07	1.58	ND	15
CSMDAB-10-24597	Sampled	AI250, excavation floor	2	2.71	1.6	28.4	2.19	1.87	1.14	136
CSMDAB-10-24598	NS	AJ250, south-side wall	1.64	3.69	1.39	12.2	2	1.62	ND	103
CSMDAB-10-25077	Sampled	NH51, excavation floor	0.658	0.842	1.39	ND	1.92	1.56	0.387 (J)	34.2
CSMDAB-10-25079	NS	NF51, north-side wall	ND	ND	1.21	ND	1.46	1.63	0.0997	2.37 (J)
CSMDAB-10-25080	NS	NH51, south-side wall	0.473	0.877	1.35	ND	1.97	1.8	0.147 (J)	19.8 (J)
CSMDAB-10-25083	Sampled	NH46, excavation floor	0.574 (J+)	0.627	1.53	ND	2.13	1.59	0.2	31.9
CSMDAB-10-25084	NS	NF46, north-side wall	ND	ND	1.5	ND	2.05	1.68	ND	ND
CSMDAB-10-25085	NS	NH46, south-side wall	0.285	ND	1.4	ND	2.26	1.54	ND	13.2
CSMDAB-10-26776	Sampled	AH160, north-side wall	ND	ND	1.23	ND	2.25	1.64	ND	ND
CSMDAB-10-26777	Sampled	AI160, excavation floor	ND	1.69	1.31	ND	2.32	1.59	0.426	21.3
CSMDAB-10-26778	Sampled	AK160, south-side wall	ND	ND	1.35	ND	2.14	1.62	ND	1.18
CSMDAB-10-26779	Sampled	AI155, north-side wall	ND	ND	1.35	ND	1.92	1.51	ND	0.844

Table 4.3-6 (continued)

Sample ID	NMED Split	Location ID	Americium-241	Americium-241	Bismuth-214	Cesium-137	Lead-212	Lead-214	Plutonium-238	Plutonium-239/240
Analytical Suite			**Am-241**	**Gamma**	**Gamma**	**Gamma**	**Gamma**	**Gamma**	**Isotopic**	**Isotopic**
Residential SAL (pCi/g)[a]			**30**	**30**	**na[b]**	**5.6**	**na**	**na**	**37**	**33**
CSMDAB-10-26780	Sampled	AJ155, excavation floor	ND	ND	1.4	ND	2.27	1.72	ND	4.99
CSMDAB-10-26781	Sampled	AK155, south-side wall	ND	ND	1.27	ND	2	1.64	ND	ND
CSMDAB-10-26782	Sampled	AH166, north-side wall	ND	ND	1.61	ND	2.21	1.73	ND	1.51
CSMDAB-10-26783	Sampled	AK166, south-side wall	ND	ND	1.18	ND	1.99	1.58	ND	0.754
CSMDAB-10-26784	Sampled	AJ166, excavation floor	ND	ND	1.5	ND	2.21	1.73	ND	1.46
CSMDAB-10-26785	Sampled	AI171, north-side wall	0.22	ND	1.33	ND	2.05	1.64	ND	8.79
CSMDAB-10-26786	Sampled	AK171, south-side wall	ND	ND	1.46	ND	2.01	1.61	ND	1.76
CSMDAB-10-26787	Sampled	AJ171, excavation floor	0.335	ND	1.14	ND	2.02	1.57	ND	14
CSMDAB-10-26802	Sampled	AH196, north-side wall	ND	ND	1.34	ND	2.06	1.63	ND	0.653
CSMDAB-10-26803	Sampled	AI196, excavation floor	2.25	4.95	1.47	ND	2.3	1.53	0.414	61
CSMDAB-10-26804	Sampled	AK196, south-side wall	ND	ND	1.32	ND	2.16	1.64	ND	2.74
CSMDAB-10-26805	NS	AH200, north-side wall	ND	0.628	1.35	ND	1.85	1.57	ND	5.6
CSMDAB-10-26806	NS	AK200, south-side wall	0.609	0.97	1.06	ND	1.99	1.39	ND	9.39
CSMDAB-10-26807	NS	AJ200, excavation floor	0.847	1.27	1.48	ND	2.2	1.64	0.435	49.8
CSMDAB-10-26808	NS	AH205, north-side wall	5.71	9.33	1.44	ND	2.43	1.66	2.23	347 (J)
CSMDAB-10-26809	NS	AK205, south-side wall	0.553	ND	1.22	ND	1.99	1.62	ND	37.5 (J)
CSMDAB-10-26810	NS	AJ205, excavation floor	0.472	1.03	1.44	ND	2.31	1.83	0.367	19.5 (J)
CSMDAB-10-26811	NS	AI196, excavation floor	ND	0.251	1.52	ND	2.22	1.58	0.185	7.27
CSMDAB-10-26812	NS	AJ200, excavation floor	0.361	0.667	1.53	ND	2.16	1.66	ND	11.8 (J)
MDABEWS2-11-4532	NS	AG167, south-side wall	ND	ND	ND	ND	ND	ND	ND	2.09
MDABEWS2-11-4533	NS	AG167, East Side Wall	ND	ND	ND	ND	ND	ND	ND	0.189
MDABEWS2-11-4535	NS	AG167, West Side Wall	ND	ND	ND	ND	ND	ND	ND	0.597
MDABEWS2-11-4537	NS	AG167, excavation floor	ND	ND	ND	ND	ND	ND	ND	0.36

Table 4.3-6 (continued)

Sample ID	NMED Split	Location ID	Potassium-40	Radium-226	Radium-228	Strontium-90	Thallium-208	Thorium-234	Tritium	Uranium-234
Analytical Suite			**Gamma**	**Gamma**	**Gamma**	**Sr-90**	**Gamma**	**Gamma**	**H^3**	**Isotopic**
Residential SALs (pCi/g)[a]			**na**	**5**	**5**	**5.7**	**na**	**na**	**750**	**170**
CSMDAB-10-24585	Sampled	AJ260, south-side wall	33.6	1.2	2.08	ND	0.471	ND	ND	0.789 [e]
CSMDAB-10-24586	Sampled	AH260, north-side wall	35.5	1.43	1.91	ND	0.636	ND	ND	0.931 [e]
CSMDAB-10-24587	Sampled	AI260, excavation floor	35.4	1.18	2.18	ND	0.532	ND	ND	0.857 [e]
CSMDAB-10-24589	NS	AH260, north-side wall	ND	ND	ND	ND	ND	ND	ND	ND
CSMDAB-10-24590	NS	AH260, north-side wall	ND	ND	ND	ND	ND	ND	ND	ND
CSMDAB-10-24591	NS	AH260, north-side wall	ND	ND	ND	ND	ND	ND	ND	ND
CSMDAB-10-24592	NS	AH260, north-side wall	35.5	ND	2.03	ND	0.566	3.42	ND	0.843
CSMDAB-10-24593	NS	AI255, excavation floor	36.3	ND	2.01	ND	0.555	ND	ND	0.799
CSMDAB-10-24594	NS	AH255, north-side wall	33	ND	2.11	ND	0.608	2.5	ND	0.902
CSMDAB-10-24595	NS	AJ255, south-side wall	35.4	ND	2.17	ND	0.633	ND	ND	0.765
CSMDAB-10-24596	NS	AH250, north-side wall	36.2	1.47	1.94	1.38	0.614	2.52	ND	0.905
CSMDAB-10-24597	Sampled	AI250, excavation floor	34.8	1.6	1.93	2.7	0.682	6.59	ND	4.16
CSMDAB-10-24598	NS	AJ250, south-side wall	35	1.39	1.97	ND	0.535	4.92	0.0334967	3.41
CSMDAB-10-25077	Sampled	NH51, excavation floor	34.6	1.39	1.94	ND	0.544	2.59	0.0896629	1.58
CSMDAB-10-25079	NS	NF51, north-side wall	31.3	ND	2.12	ND	0.575	2980	0.0404908	2250 (J+)
CSMDAB-10-25080	NS	NH51, south-side wall	31.2	ND	1.97	ND	0.529	ND	0.125233	1.24
CSMDAB-10-25083	yes	NH46, excavation floor	34	ND	2.34	ND	0.692	2.26	0.0351603	1.14
CSMDAB-10-25084	Sampled	NF46, north-side wall	34.2	ND	2.31	ND	0.588	ND	0.0417807	1.47
CSMDAB-10-25085	NS	NH46, south-side wall	33.7	ND	1.97	ND	0.583	ND	0.0269592	0.952
CSMDAB-10-26776	Sampled	AH160, north-side wall	35.6	ND	1.84	ND	0.57	ND	ND	0.813
CSMDAB-10-26777	Sampled	AI160, excavation floor	35.7	ND	2.18	ND	0.634	ND	ND	1.08
CSMDAB-10-26778	Sampled	AK160, south-side wall	30.5	ND	2.15	ND	0.712	ND	ND	0.8
CSMDAB-10-26779	Sampled	AI155, north-side wall	33.9	ND	1.74	ND	0.587	ND	ND	1.01
CSMDAB-10-26780	Sampled	AJ155, excavation floor	35.3	ND	2.14	ND	0.64	ND	ND	1.12
CSMDAB-10-26781	Sampled	AK155, south-side wall	30.1	ND	1.87	ND	0.563	ND	ND	0.817

Table 4.3-6 (continued)

Sample ID	NMED Split	Location ID	Potassium-40	Radium-226	Radium-228	Strontium-90	Thallium-208	Thorium-234	Tritium	Uranium-234
Analytical Suite			**Gamma**	**Gamma**	**Gamma**	**Sr-90**	**Gamma**	**Gamma**	**H^3**	**Isotopic**
Residential SALs (pCi/g)[a]			**na**	**5**	**5**	**5.7**	**na**	**na**	**750**	**170**
CSMDAB-10-26782	Sampled	AH166, north-side wall	33.9	ND	2.12	ND	0.655	ND	0.195405	0.909
CSMDAB-10-26783	Sampled	AK166, south-side wall	33.2	ND	1.7	ND	0.574	ND	1.5361	0.815
CSMDAB-10-26784	Sampled	AJ166, excavation floor	34.6	ND	2	ND	0.654	2.5	0.0749095	0.953
CSMDAB-10-26785	Sampled	AI171, north-side wall	35.6	ND	1.97	ND	0.562	ND	0.0152591	1.45
CSMDAB-10-26786	Sampled	AK171, south-side wall	35.8	ND	2.38	ND	0.6	ND	ND	0.823
CSMDAB-10-26787	Sampled	AJ171, excavation floor	37.2	ND	1.98	ND	0.486	ND	0.0320997	0.993
CSMDAB-10-26802	Sampled	AH196, north-side wall	34.1	ND	1.83	ND	0.573	ND	ND	0.858
CSMDAB-10-26803	Sampled	AI196, excavation floor	34.5	ND	1.99	ND	0.695	ND	0.0384161	1.15
CSMDAB-10-26804	Sampled	AK196, south-side wall	36.5	ND	2.14	ND	0.564	ND	0.0480166	0.837
CSMDAB-10-26805	NS	AH200, north-side wall	31.6	ND	2.66	ND	0.701	1.69	ND	1.01
CSMDAB-10-26806	NS	AK200, south-side wall	27.9	ND	1.85	ND	0.493	ND	ND	1.01
CSMDAB-10-26807	NS	AJ200, excavation floor	35.6	ND	1.97	ND	0.604	ND	ND	0.85
CSMDAB-10-26808	NS	AH205, north-side wall	33.2	ND	2	ND	0.633	ND	1.47695	1.32
CSMDAB-10-26809	NS	AK205, south-side wall	36.7	ND	2.05	ND	0.566	ND	0.294666	0.867
CSMDAB-10-26810	NS	AJ205, excavation floor	33.7	ND	1.96	ND	0.637	ND	0.0213746	1.03
CSMDAB-10-26811	NS	AI196, excavation floor	34.4	ND	2.06	ND	0.738	ND	ND	1.02
CSMDAB-10-26812	NS	AJ200, excavation floor	36.3	ND	2.14	ND	0.59	3.89	0.0186432	3.15
MDABEWS2-11-4532	NS	AG167, south-side wall	ND	ND	ND	ND	ND	ND	ND	ND
MDABEWS2-11-4533	NS	AG167, East Side Wall	ND	ND	ND	ND	ND	ND	ND	ND
MDABEWS2-11-4535	NS	AG167, West Side Wall	ND	ND	ND	ND	ND	ND	ND	ND
MDABEWS2-11-4537	NS	AG167, excavation floor	ND	ND	ND	ND	ND	ND	ND	ND

Table 4.3-6 (continued)

Sample ID	NMED Split	Location ID	Uranium-235	Uranium-235/236	Uranium-238
Analytical Suite			**Gamma**	**Isotopic**	**Isotopic**
Residential SALs (pCi/g)[a]			**17**	**17**	**87**
CSMDAB-10-24585	Sampled	AJ260, south-side wall	ND	ND	0.799 [e]
CSMDAB-10-24586	Sampled	AH260, north-side wall	ND	0.0681 [e]	1.08 [e]
CSMDAB-10-24587	Sampled	AI260, excavation floor	ND	ND	0.859 [e]
CSMDAB-10-24589	NS	AH260, north-side wall	ND	ND	ND
CSMDAB-10-24590	NS	AH260, north-side wall	ND	ND	ND
CSMDAB-10-24591	NS	AH260, north-side wall	ND	ND	ND
CSMDAB-10-24592	NS	AH260, north-side wall	ND	0.12	0.759
CSMDAB-10-24593	NS	AI255, excavation floor	ND	0.0723	0.799
CSMDAB-10-24594	NS	AH255, north-side wall	ND	0.0653	0.893
CSMDAB-10-24595	NS	AJ255, south-side wall	ND	0.0601	0.766
CSMDAB-10-24596	NS	AH250, north-side wall	ND	ND	1.02
CSMDAB-10-24597	Sampled	AI250, excavation floor	ND	0.267	3.94
CSMDAB-10-24598	NS	AJ250, south-side wall	ND	0.182	3.02
CSMDAB-10-25077	Sampled	NH51, excavation floor	ND	0.112	1.54
CSMDAB-10-25079	NS	NF51, north-side wall	148	156 (J+)	2260 (J+)
CSMDAB-10-25080	NS	NH51, south-side wall	ND	0.0748	0.868
CSMDAB-10-25083	Sampled	NH46, excavation floor	ND	ND	0.854
CSMDAB-10-25084	NS	NF46, north-side wall	ND	ND	1.37
CSMDAB-10-25085	NS	NH46, south-side wall	ND	ND	0.976
CSMDAB-10-26776	Sampled	AH160, north-side wall	ND	0.0598	0.778
CSMDAB-10-26777	Sampled	AI160, excavation floor	ND	ND	0.945
CSMDAB-10-26778	Sampled	AK160, south-side wall	ND	ND	0.859
CSMDAB-10-26779	Sampled	AI155, north-side wall	ND	ND	0.976
CSMDAB-10-26780	Sampled	AJ155, excavation floor	ND	0.0888	1.12

Table 4.3-6 (continued)

Sample ID	NMED Split	Location ID	Uranium-235	Uranium-235/236	Uranium-238
Analytical Suite			Gamma	Isotopic	Isotopic
Residential SALs (pCi/g)[a]			17	17	87
CSMDAB-10-26781	Sampled	AK155, south-side wall	ND	ND	0.928
CSMDAB-10-26782	Sampled	AH166, north-side wall	ND	0.0448	0.855
CSMDAB-10-26783	Sampled	AK166, south-side wall	ND	0.066	0.887
CSMDAB-10-26784	Sampled	AJ166, excavation floor	ND	0.105	0.972
CSMDAB-10-26785	Sampled	AI171, north-side wall	ND	0.208	1.36
CSMDAB-10-26786	Sampled	AK171, south-side wall	ND	0.076	0.827
CSMDAB-10-26787	Sampled	AJ171, excavation floor	ND	0.0813	0.961
CSMDAB-10-26802	Sampled	AH196, north-side wall	ND	ND	0.792
CSMDAB-10-26803	Sampled	AI196, excavation floor	ND	0.0661	1.06
CSMDAB-10-26804	Sampled	AK196, south-side wall	ND	ND	0.838
CSMDAB-10-26805	NS	AH200, north-side wall	ND	0.13	0.95
CSMDAB-10-26806	NS	AK200, south-side wall	ND	0.0827	0.981
CSMDAB-10-26807	NS	AJ200, excavation floor	ND	0.0915	0.858
CSMDAB-10-26808	NS	AH205, north-side wall	ND	0.0796	1.22
CSMDAB-10-26809	NS	AK205, south-side wall	ND	0.0416	0.934
CSMDAB-10-26810	NS	AJ205, excavation floor	ND	0.073	1.03
CSMDAB-10-26811	NS	AI196, excavation floor	ND	0.11	1.02
CSMDAB-10-26812	NS	AJ200, excavation floor	ND	0.214	2.84
MDABEWS2-11-4532	NS	AG167, south-side wall	ND	ND	ND
MDABEWS2-11-4533	NS	AG167, East Side Wall	ND	ND	ND
MDABEWS2-11-4535	NS	AG167, West Side Wall	ND	ND	ND
MDABEWS2-11-4537	NS	AG167, excavation floor	ND	ND	ND

Note: Units in pCi/g.

[a] SALs are from LANL (2009, 107655), unless indicated otherwise.

[b] na = Not available.

[c] Sample = Location sampled by NMED.

[d] ND = Not detected.

[e] Reanalysis.

[f] NS = Location not sampled by NMED.

Appendix A

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

A-1.0 ACRONYMS AND ABBREVIATIONS

ACM	asbestos containing material
AIRNET	air-monitoring network
AK	acceptable knowledge
asl	above seal level
bgs	below ground surface
BHC	benzene hexachloride
CAM	continuous air monitoring
CFR	Code of Federal Regulations
Clive	Energy Solutions Clive low-level waste disposal facility
COC	chain of custody
Consent Order	Compliance Order on Consent
D	dichlorophenoxyacetic acid
DB	dichlorophenoxy butyric acid
DDD	dichlorodiphenyldichloroethane
DDE	dichlorophenyltrichloroethylene
DDT	dichlorodiphenyltrichloroethane
DIF	definitive identification facility
DOE	Department of Energy (U.S.)
DRO	diesel range organics
EPA	Environmental Protection Agency (U.S.)
FIDLER	field instrument for detection of low energy radiation
FY	fiscal year
GRO	gasoline range organics
HMX	1,3,5,7-tetranitro-1,3,5,7-tetrazocine
ID	identification code
IH	industrial hygiene
LAL	lower acceptance limit
LANL	Los Alamos National Laboratory
LLW	low-level waste
MAR	material at risk
MCPA	methyl chlorophenoxy acetic acid
MCPP	2- (2-methyl-4-chlorophenoxy) propionic acid

MDA	material disposal area
MLLW	mixed low-level waste
NESHAPs	National Emission Standards for Hazardous Air Pollutants
NMED	New Mexico Environment Department
NNSS	Nevada National Security Site
PE-Ci	plutonium-239-equivalent curie
PEST	pesticide
PETN	pentaerythritol tetranitrate
PPE	personal protective equipment
QA	quality assurance
QC	quality control
RDX	hexahydro-1,3,5-trinitro-1,3,5-triazine
RPD	relative percent difference
SAL	screening action level
SAP	Sampling and Analysis Plan
SSL	soil screening level
SOP	standard operating procedure
SOW	statement of work
T	trichlorophenoxyacetic acid
TA	technical area
TATB	triaminotrinitrobenzene
TBD	to be determined
TCLP	toxicity characteristic leaching procedure
TP	trichlorophenoxy propionic acid
TPH	total petroleum hydrocarbons
UAL	upper acceptance limit
UCL	upper confidence limit
VOC	volatile organic compound
WCSA	waste container storage area
WCSF	waste characterization strategy form

A-2.0 METRIC CONVERSION TABLE

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

A-3.0 DATA QUALIFIER DEFINITIONS

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

Appendix B

Quality Assurance and Quality Control Program

B-1.0 INTRODUCTION

Overburden and layback soil samples were collected from Material Disposal Area (MDA) B to determine if this soil could be reused as backfill in the trenches being excavated during the site investigation. Sixty-eight overburden soil and fill samples were collected between June 29 and September 30, 2010. Confirmation samples were also collected to determine if uncontaminated tuff had been reached. Between August 11, 2010, and February 9, 2011, these confirmation samples were collected from rows 46, 51, 155, 160, 167, 168, 171, 196, 200, 205, 255, and 260. This appendix presents the analytical methods used and data quality review for these samples.

Quality assurance (QA), quality control (QC), and data validation procedures were implemented in accordance with the Los Alamos National Laboratory (LANL or the Laboratory) Quality Assurance Project Plan Requirements for the Environmental Programs Directorate (EP-DIR-QAP-0001) and the MDA B Sampling and Analysis Plan (LANL 2010, 110411; LANL 2010, 110398; LANL 2010, 111195). The results of these QA/QC activities were used to estimate the accuracy, bias, and precision of the analytical measurements. QC samples, including method blanks, blank spikes, matrix spikes, laboratory control samples, internal standards, initial and continuing calibrations, and surrogates, were used to assess laboratory accuracy and bias.

The type and frequency of QC analyses are described in the MDA B Sampling and Analysis Plan. Other QC factors, such as sample preservation and holding times, were also assessed. The requirements for sample preservation and holding times are presented in the standard operating procedure (SOP) 5056, Sample Containers and Preservation. Evaluating these QC indicators allows estimates to be made regarding the accuracy, bias, and precision of the analytical suites. A focused data validation was also performed for all the data packages (identified by request number) including a more detailed review of the raw data. The SOPs used for data validation are presented in Table B-1.0-1. Analytical data is provided in Appendix C (on CD included with this document).

Analytical data were reviewed and evaluated based on U.S. Environmental Protection Agency (EPA) National Functional Guidelines for organic chemical data review, where applicable (EPA 1994, 048639; EPA 1999, 066649). Data have also been assessed using guidelines established in SW-846, Test Methods for Evaluating Solid Waste, Laboratory Manuals, Physical/Chemical Methods (EPA 1997, 057589). As a result of the data validation and assessment efforts, qualifiers have been assigned to the appropriate analytical records.

B-2.0 LABORATORY ANALYSIS SUMMARY

Overburden and confirmation samples collected from MDA B are shown in Tables 2.3-1 and 2.5-1. Sixty-eight overburden samples were collected from June 29 through October 7, 2010. Forty-three of these overburden samples were collected from the stockpile in the west lay-down yard, while 25 were collected from the containerized overburden. Twenty-eight overburden field trip blanks were collected along with eight field duplicates and eight field rinsate samples. Forty-eight confirmation samples were collected, along with 14 field trip blanks, 5 field duplicates, and 4 field rinsates, from August 11, 2010, through January 29, 2011.

Samples were submitted to certified analytical laboratories for numerous analyses, including volatile organic compounds (VOCs), semivolatile organic compounds, high explosives, herbicides, pesticides, diesel range organics, gasoline range organics, dioxins and furans, perchlorate, nitrite/nitrate, total cyanide, polychlorinated biphenyls, metals, americium-241, gamma spectroscopy, isotopic plutonium, isotopic uranium, tritium, and strontium-90. Table B-2.0-1 shows the analytical methods used for the

sample analysis. Excavation grid location and confirmatory sampling locations are presented on Plate 1. Tables 2.3-1 and 2.5-1 present the sample identification numbers. Validated analytical results are presented in Appendix C (on CD, included with this document).

Inorganic, organic, and radionuclide analyses for both the confirmation samples and the overburden samples are summarized in the following sections. The required minimum detectable activity or estimated quantitation limit is prescribed in the analytical services statement of work (SOW) (LANL 2000, 071233).

B-3.0 ORGANIC CHEMICAL ANALYSES

Organic results from six overburden samples were rejected because the affected analytes were analyzed with a relative response factor of less than 0.05 in the initial calibration verification and/or the continuing calibration verification.

B-3.1 Maintenance of Chain of Custody

Chain of custody (COC) was properly maintained for all confirmation and overburden samples.

B-3.2 Sample Documentation

All samples were properly documented in the field.

B-3.3 Sample Preservation

Preservation criteria were met for all samples analyzed for organic chemicals.

B-3.4 Holding Time

Holding times were met for all confirmation and overburden samples.

B-3.5 Initial and Continuing Calibration Verification

Initial and continuing calibration verifications were within acceptable ranges for all organic analyses of confirmation samples.

A total of 123 overburden organic analyte results were qualified as estimated not detected (UJ) because the affected analytes were analyzed with an initial calibration verification and/or continuing calibration verification that was recovered outside method-specific limits.

Thirty organic analyte results from overburden samples were qualified as estimated not detected (UJ) because the affected analytes were analyzed with relative response factors of less than 0.05 in their initial and/or continuing calibration verification results.

B-3.6 Analyte Quantitation

Twelve overburden and three confirmation sample results for organics were qualified as not detected (U) because they were detected at a concentration of less than or equal to 5 times the related analyte in the field trip blank or field rinsate.

B-3.7 Method Blank

A total of 133 overburden and 19 confirmation sampling organic results were qualified as not detected (U) because the results were less than or equal to 5 times the concentration of the same analyte in the method blank. One confirmation and 30 overburden sample organic results were qualified as estimated (J) because the analyte was present in the method blank but at a concentration in the sample greater than 5 times the concentration of the same analyte in the method blank.

B-3.8 Matrix Spikes

Matrix spike recoveries were within acceptable limits for all confirmation analyses.

B-3.9 Surrogate Recoveries

Ten overburden organic results were qualified as estimated not detected (UJ) because surrogate recoveries for associated analytes were less than the lower acceptable limit (LAL) but greater than 10%. Three confirmation sample results were qualified as estimated biased high (J+) because surrogate recoveries were above the upper acceptance limit (UAL).

B-3.10 Matrix Spike and Matrix Spike Duplicates

Two overburden organic results were qualified as estimated not detected (UJ) because the matrix spike/matrix spike duplicate percent recovery was greater than the UAL.

Five overburden and two confirmation sample organic results were qualified as estimated biased high (J+) because the matrix spike/matrix spike duplicate percent recovery was greater than the UAL

Two overburden organic results were qualified as estimated not detected (UJ) because the matrix spike/matrix spike duplicate percent recovery was greater than 10% but less than the LAL.

B-3.11 Internal Standard Responses

All internal standard responses were within acceptable limits.

B-3.12 Laboratory Control Spike Recoveries

Eighteen overburden organic results were qualified as estimated not detected (UJ) because the laboratory control spike was less than the LAL but greater than 10% recovery.

Six overburden organic results were qualified as estimated biased high (J+) because the laboratory control spike percent recovery was greater than the UAL.

B-3.13 Laboratory Duplicates Precision

Laboratory duplicates indicated acceptable precision. For three organic results from overburden samples, the matrix spike/matrix spike duplicate relative percent difference (RPD) acceptance limits are not reported. The RPD is greater than 30%, so the results are flagged as estimated not detected (UJ).

B-3.14 Instrument and Continuing Calibration Blanks

Results for initial calibration and continuing calibration blanks were within limits for all organic overburden and confirmation sample results.

B-3.15 Field Trip Blanks

Field trip blanks are analyzed only for VOCs. Twelve overburden and three confirmation samples were flagged as not detected (U) because the concentration of the affected analytes in the samples was less than or equal to 5 times the concentration of the same analytes in the associated trip blanks, rinsates, or equipment blanks.

B-4.0 INORGANIC ANALYSES

Inorganic analyses included analyses for anions, metals, perchlorates, and total cyanide.

No inorganic results for overburden or confirmation samples were rejected.

B-4.1 Maintenance of Chain of Custody

COC was properly maintained for all inorganic confirmation and overburden samples.

B-4.2 Sample Documentation

All samples were properly documented in the field.

B-4.3 Sample Preservation

Sample preservation requirements were met for all inorganic analyses of overburden and confirmation samples.

B-4.4 Holding Time

Holding times were met for all inorganic analyses of overburden and confirmation samples.

B-4.5 Initial and Continuing Calibration Verification

Initial and/or continuing calibration verification was within acceptable limits for all inorganic analyses of overburden and confirmation samples.

B-4.6 Analyte Identification (Including Internal Standards and Spectral Review)

Internal standards and spectral review were within acceptable limits for all inorganic analyses of overburden and confirmation samples.

B-4.7 Analyte Quantitation

Ninety-eight overburden and 58 confirmation sample inorganic results were qualified as not detected (U) because the affected analyte concentrations in the samples were less than or equal to 5 times the concentration of the same analytes in the corresponding trip blanks, rinsates, or equipment blanks.

B-4.8 Method Blank, Instrument Blank and Continuing Calibration Blank

Sixteen overburden and two confirmation sample inorganic results were qualified as estimated (J) because the analyte was detected in the method blank. Thirty overburden results were qualified as not detected (U) because the results were less than or equal to 5 times the concentration of the same analyte in the method blank. Three overburden results were qualified as not detected (U) because the affected result was less than 5 times the concentration of the same analyte in the instrument blank or continuing calibration blank.

B-4.9 Internal Standard Responses

Internal standard responses met method-specific limits for inorganic samples.

B-4.10 Laboratory Control Spike Recoveries

Laboratory control spike recoveries were within method acceptance limits for all overburden and confirmation sample inorganic results.

B-4.11 Matrix Spikes and Matrix Spike Duplicates

A total of 143 overburden and 63 confirmation inorganic sample results were qualified as estimated biased high (J+) because the matrix spike or matrix spike duplicate percent recovery was greater than the UAL. Forty-two overburden and eight confirmation inorganic sample results were qualified as estimated not detected (UJ) because the matrix spike or matrix spike duplicate percent recovery was greater than 10% but less than the LAL. Sixty overburden and 13 confirmation inorganic sample results were qualified as biased low (J-) because the matrix spike or matrix spike duplicate percent recovery was greater than 10% but less than the LAL.

B-4.12 Laboratory Duplicate Precision

Sixteen confirmation and 15 overburden inorganic sample results were qualified as estimated (J) because the sample and the laboratory duplicate were greater than or equal to 5 times the reporting limit and the RPD was greater than the UAL.

B-5.0 RADIOCHEMICAL ANALYSES

Confirmation and overburden samples were analyzed for gamma-emitting radionuclides by gamma spectroscopy; for americium-241, isotopic plutonium, isotopic uranium, and isotopic thorium by chemical separation alpha spectrometry; for tritium by liquid scintillation; and for strontium-90 by gas proportional counting.

B-5.1 Maintenance of Chain of Custody

COC was properly maintained for all radionuclide confirmation and overburden samples.

B-5.2 Sample Documentation

Samples were properly documented in the field.

B-5.3 Sample Preservation

No sample preservation is required for radionuclides.

B-5.4 Holding Times

Holding times were met for all radionuclide analyses.

B-5.5 Analyte Quantitation (Including Spectral Interferences)

A total of 229 confirmation sample gamma spectroscopy results were qualified as rejected (R) because spectral interferences prevented the positive identification of the analyte.

A total of 323 overburden gamma spectroscopy results were qualified as rejected (R) because spectral interferences prevented positive identification of the analyte.

A total of 1462 overburden and 894 confirmation sample radionuclide results were qualified as not detected (U) because the detected concentration was less than the minimum detectable activity. Sixteen overburden and 17 confirmation sample results were qualified as estimated not detected (UJ) because the detected concentration was less than 3 times the 1 sigma total propagated uncertainty.

B-5.6 Method Blanks

Three radionuclide results from confirmatory sampling and four results from overburden sampling were qualified as estimated biased high (J+) because the related analyte was detected in the method blank.

B-5.7 Laboratory Control Spike Recoveries

Laboratory control spike percent recoveries were within acceptable limits for all radionuclide analyses for both confirmation and overburden samples.

B-5.8 Tracer Recoveries

One radionuclide result from confirmatory sampling and two from overburden sampling were qualified as estimated biased low (J-) because the tracer was recovered below the LAL, but above 10% recovery. One radionuclide result from overburden sampling was qualified as estimated not detected (UJ) because the tracer was recovered below the LAL but above 10% recovery, and the result was higher than the minimum detectable limit. Four radionuclide results from confirmatory sampling were qualified as estimated biased high (J+) because the tracer recovery percent was greater than the UAL.

B-5.9 Laboratory and Duplicates

Two overburden and two confirmation sample gamma results were qualified as rejected (R) because the activity level was below the minimum detectable activity level and the sample had a duplicate error ratio or replicate error ratio greater than the analytical laboratory's acceptance limits. Six overburden and 21 confirmation sample gamma results were qualified as estimated (J) because the activity level was above the minimum detectable activity level and the sample had a duplicate error ratio or replicate error ratio greater than the analytical laboratory's acceptance limits.

B-6.0 FIELD QUALITY CONTROL SUMMARY

B-6.1 Field Trip Blanks

Twenty-eight field trip blanks were collected in association with overburden sampling. One field trip blank associated with overburden samples had a detectable concentration of methylene chloride, four had detectable concentrations of acetone, and one had a detectable concentration of xylene[1,3]+xylene[1,4]. All detections were above the method detection limit but below the practical quantitation limit, and associated field results were less than 5 times the concentrations in the field blanks.

Fourteen field trip blanks were collected in association with confirmation sampling. One field trip blank had a detectable level of toluene, five had detectable levels of acetone, and one had a detectable level of isopropyltoluene. All results were above the method detection limit but below the practical quantitation limit; and therefore no field sample data was qualified based on the analyte detections in field trip blanks.

B-6.2 Field Duplicates

SOP-5059, Field Quality Control Samples, recommends a RPD between a field duplicate and its associated field sample of less than 20%. Fifteen results detected in the confirmation field duplicates and associated field samples had RPDs greater than 20%. Four of these analytes were not detected (U) in either the field sample or the associated duplicate but were detected above the practical quantitation limit in the related sample.

Thirteen results for analytes detected in the overburden samples had RPDs greater than 20% between the field samples and associated duplicates.

B-6.3 Field Rinsates

Eight field rinsates were collected in association with overburden sampling. All eight field rinsates collected in association with overburden sampling had detectable, usually quantifiable, concentrations of aluminum, calcium, chromium, copper, iron, lead, manganese, nickel, potassium, sodium, vanadium, and zinc. Seven field rinsates had detectable concentrations of barium and magnesium, six had detectable concentrations of elemental uranium, five had detectable concentrations of nitrate, two had detectable concentrations of beryllium, one had a detectable concentration of cadmium, one had a detectable concentration of antimony, and one had a detectable concentration of perchlorate.

Four field rinsates were collected in association with confirmation sampling. Fourteen field rinsate results associated with confirmation samples had detectable concentrations of 11 inorganic metals and nitrate. No sample data was qualified because of these detections.

B-7.0 REFERENCES

The following list includes all documents cited in this appendix. Parenthetical information following each reference provides the author(s), publication date, and ER ID. 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.

EPA (U.S. Environmental Protection Agency), February 1994. "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review," EPA-540/R-94/013, Office of Emergency and Remedial Response, Washington, D.C. (EPA 1994, 048639)

EPA (U.S. Environmental Protection Agency), 1997. "Test Methods for Evaluating Solid Waste, Laboratory Manual, Physical/Chemical Methods," SW-846, 3rd ed., Update III, Office of Solid Waste and Emergency Response, Washington, D.C. (EPA 1997, 057589)

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LANL (Los Alamos National Laboratory), December 2000. "University of California, Los Alamos National Laboratory (LANL), I8980SOW0-8S, Statement of Work for Analytical Laboratories," Rev. 1, Los Alamos National Laboratory, Los Alamos, New Mexico. (LANL 2000, 071233)

LANL (Los Alamos National Laboratory), June 15, 2010. "MDA-B Sampling and Analysis Plan," TA-21 Document No. TA21-MDAB-PLAN-00017, Rev. 0, Los Alamos National Laboratory, Los Alamos, New Mexico. (LANL 2010, 110411)

LANL (Los Alamos National Laboratory), August 10, 2010. "MDA-B Sampling and Analysis Plan," TA-21 Document No. TA21-MDAB-PLAN-00017, Rev. 1, Los Alamos National Laboratory, Los Alamos, New Mexico. (LANL 2010, 110398)

LANL (Los Alamos National Laboratory), November 3, 2010. "MDA-B Sampling and Analysis Plan," TA-21 Document No. TA21-MDAB-PLAN-00017, Rev. 2, Los Alamos National Laboratory, Los Alamos, New Mexico. (LANL 2010, 111195)

Table B-1.0-1
Data Validation Procedures

Procedure	Title	Effective Date
SOP-5161, Rev. 0	Routine Validation of Volatile Organic Compound (VOC) Analytical Data	6/10/2008
SOP-5162, Rev. 0	Routine Validation of Semivolatile Organic Compound (SVOC) Analytical Data	6/30/2008
SOP-5163, Rev. 0	Routine Validation of Organochlorine Pesticide (PEST) and Polychlorinated Biphenyl (PCB) Analytical Data	6/17/2008
SOP-5165, Rev. 0	Routine Validation of Metals Analytical Data	6/17/2008
SOP-5166, Rev. 0	Routine Validation of Gamma Spectroscopy, Chemical Separation Alpha Spectrometry, Gas Proportional Counting, and Liquid Scintillation Analytical Data	6/30/2008
SOP-5167, Rev. 0	Routine Validation of General Chemistry Analytical Data	6/30/2008
SOP-5168, Rev. 0	Routine Validation of LC/MS/MS High Explosive Analytical Data	7/1/2008
SOP-5169, Rev. 0	Routine Validation of Dioxin Furan Analytical Data (EPA Method 1618 and SW-846 EPA Method 8290)	6/3/2008
SOP-5171, Rev. 0	Routine Validation of Total Petroleum Hydrocarbons Gasoline Range Organics/Diesel Range Organics Analytical Data (Method 8015B)	6/30/2008
SOP-5191, Rev. 0	Routine Validation of LC/MS/MS Perchlorate Analytical Data (SW-846 EPA Method 6850)	6/30/2008

Table B-2.0-1
Analytical Methods Used for Sample Analyses

Analytical Method	Analytical Suite	Target Analyte(s)
SW-846:8260B	Volatile organic compounds	Analytical services SOW Attachment 3, Table VII(a) (LANL 2000, 071233)
SW-846:8270C	Semivolatile organic compounds	Analytical services SOW Attachment 3, Table IX(a) (LANL 2000, 071233)
SW-846:8015M	Total petroleum hydrocarbons, including diesel range organics and gasoline range organics	Analytical services SOW Attachment 3, Table I (LANL 2000, 071233)
SW-846:9012A	Wet chemistry	Total cyanide, Nitrate-nitrite as nitrogen
SW-846:8081A	Pesticides	Analytical services SOW Attachment 3, Table V(a) (LANL 2000, 071233)
SW-846:8151A	Herbicides	Chlorinated herbicides
SW-846:8082	Polychlorinated biphenyls	Analytical services SOW Attachment 3, Table VI(a) (LANL 2000, 071233)
SW-846:6020	Metals	Aluminum, antimony, arsenic, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, nickel, potassium, selenium, silver, thallium, uranium, vanadium, zinc
SW-846:8280A	Dioxans and furans	Analytical services SOW Attachment 3, Table XI (LANL 2000, 071233)
SW-846:7471A and SW-846:7470A	Mercury	Elemental mercury

Table B-2.0-1 (continued)

Analytical Method	Analytical Suite	Target Analyte(s)
SW-846:6850	Perchlorate	ClO_4
SW-846:8321A	High explosives	Analytical services SOW Attachment 3, Table XII (LANL 2000, 071233)
EPA:901.1	Gamma spectroscopy	Cesium-134, cesium-137, cobalt-60, europium-152, ruthenium-106, sodium-22, thorium-228
HASL-300:AM-241	Americium-241	americium-241
EPA:906.0	Tritium	Tritium
EPA:300.0	Anion	Nitrite and nitrate
EPA:905.0	Strontium-90	Strontium-90
HASL-300:ISOTH	Thorium	Thorium-228, thorium-230, thorium-232
HASL-300:ISOPU	Plutonium	Plutonium-238, plutonium-239/240
HASL-300:ISOU	Uranium	Uranium-234, uranium-235/236, uranium-238

Appendix C

Analytical Data June 30, 2010 to February 18, 2011
(on DVD included with this document)