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

Prepared by the Environmental Programs Directorate

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June 2011

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EXECUTIVE SUMMARY

Material Disposal Area (MDA) B is an inactive disposal site encompassing approximately 6 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 cleanup levels consistent with the land's intended use following its release by the U.S. Department of Energy (DOE). 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 four quarters, from June 30, 2010, through May 13, 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 through the third quarter of fiscal year 2011 included excavation of nearly 80% 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 EnergySolutions Clive LLW disposal facility (Clive, Utah). 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, 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. Five containers of industrial waste were disposed of at a landfill managed by Waste Control Specialists 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.

In accordance with the approved project sampling and analysis plan, samples have been taken from trench walls and bottoms upon completion of buried waste removal in each area and analyzed for hazardous and radiological constituents. Additional excavation (and resampling) of representative wall areas has been prompted by initial radiological results in some confirmatory sampling locations. As of May 13, 2011, results for 66 confirmation samples have been received. One area exhibited an arsenic result that was above the residential soil screening level (SSL) but did not exceed background results for soils in the region. One location exceeded the inorganic chemical SSL for uranium, and reworking and resampling are planned for that area. Results for inorganic and organic constituents for all remaining areas were below residential SSLs. Thus, project excavation methods are proving highly effective in removing New Mexico regulated wastes once present in MDA B waste trenches. Radiological analysis results are likewise being obtained for all confirmatory samples and provided to the DOE regulator. Associated radiological data are included in this report.

Air sampling along the northern boundary of MDA B during the reporting period indicated a maximum dose of 0.542 mrem with a year-to-date maximum total of 1.89 mrem. These measurements are significantly lower than the U.S. Environmental Protection Agency air pathway limit of 10 mrem per year.

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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 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 sufficiently removed to achieve cleanup levels consistent with the land's intended use following its release by the U.S. Department of Energy (DOE). 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, the second quarter of FY2011, and the third quarter of FY2011 (February 19 through May 13, 2011), as required by the investigation/remediation work plan for MDA B.

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 May 13, 2011. Appendix D contains radiological data from confirmation samples. Information on radioactive materials, including the results of sampling and analysis of radioactive constituents, is voluntarily provided to NMED in accordance with DOE policy.

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 1.2-1 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 a cleanup level consistent with the intended use of the area after its release. 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 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). Samples collected from June 30, 2010, through May 13, 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 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. 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 Above Ground 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 the enclosure was determined to be 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).

Following the discovery of beryllium metal shavings in the dig face within enclosure 9, swipes and soil samples from each enclosure were tested to determine the extent of beryllium contamination. In accordance with MDA B's Beryllium Sample Plan (LANL 2011, 203606), ongoing high-volume air sampling, surface swipes, and soil samples have been collected to monitor this issue and other potential beryllium issues.

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 seven 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, enclosure 12 became operational in mid-October 2010, enclosure 9 became operational in mid-February 2011, and enclosure 5 became operational in mid-March 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 and, after confirmation sample results demonstrate that an excavation area's residuals are below soil screening levels (SSLs) and soil action levels (SALs), are being used for partial backfill of grid cells.

Overburden material within the enclosures was removed from groups of grid cells before waste excavation began. Figure 2.3-2 indicates the grid cells that were excavated from June 30, 2010, through May 13, 2011. Overburden material was removed from each grid cell and placed into containers labeled with a unique Laboratory material-tracking barcode. This overburden was sampled and, if results show it is acceptable clean fill material, has been used in partial backfilling of grid cell areas determined by confirmation sample results to be below residential 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. Every 2-ft layer in the 8-ft-deep stockpile created in February 2010 was divided into grid cells and sampled during April and May 2010. 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 May 13, 2011, approximately 1194 yd^3 of excavated overburden material has been characterized below SSLs and SALs. Forty-five containers filled with approximately 796 yd^3 of this characterized soil 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. Backfilling operations have proceeded from September 9, 2010, through the present. As of May 13, 2011, a number of grid cells within each enclosure, excepting enclosure 5, have been backfilled (see Figure 2.3-2). Plate 1 shows the excavated and backfilled grid cell and confirmation sample locations.

2.4 Waste Excavation

Following overburden removal, waste excavation commenced by grid cell (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 May 13, 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, approximately two-thirds of the low-level waste (LLW) shipped from MDA B has been shipped to the EnergySolutions Clive LLW disposal facility (Clive, Utah). Approximately 54 yd^3 of LLW was shipped for disposal at the Nevada National Security Site (NNSS) as of May 13, 2011. Approximately 6468 yd^3 of LLW from MDA B has been used as attic fill at TA-54, Area G, between January 13 and May 13, 2011. Approximately 529 yd^3 of LLW is being temporarily staged at TA-54 before shipment. 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. Fifteen drums containing soil contaminated with hydrocarbons, regulated as New Mexico Special Waste, have been staged at MDA V pending shipment.

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.

Based on information obtained during this period, Revision 2 of the SAP was implemented, thereby reducing 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. In accordance with the SAP (LANL 2010, 110411; LANL 2010, 110398; and LANL 2010, 111195), 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.

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 May 13, 2011, 66 confirmation samples, 21 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 May 13, 2011. Section 4.3 discusses these confirmation sample results. 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 these 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 U.S. 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 May 13, 2011) was 0.542 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 was 1.89 mrem (January 1, 2010, to April 25, 2011). The average accumulated total for all stations over the past 12 mo was 0.39 mrem.

The A sample from the particulate filter was 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

Waste has been excavated from MDA B from June 30, 2010, through the present. Waste containers have been screened and sampled according to the procedures described in sections 2.2, 2.3, and 2.4. Upon completion of excavation, confirmation samples have been collected. Results have been reviewed and approved (i.e., residential SSLs were met), and the excavated areas have been backfilled. Backfilling operations through May 13, 2011, used overburden material from MDA B that had previously been characterized as clean soil (i.e., residential SSLs and SALs were met).

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 5 and 6 were combined into a single fixed enclosure and will hereafter be known as enclosure 5. 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 May 13, 2011,118 grid cells (AH 227 through AJ 262, and AK 227 through AK 236) were excavated. Overburden material, contaminated soil, and waste debris have been removed. Thirteen confirmation samples were collected, and 21 grid cells have been backfilled as of May 13, 2011. An additional 16 grid cells (AH 223 through AK 226) have been partially excavated. 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 6623 yd^3 of debris, contaminated soil, and overburden have been excavated from enclosure 1 as of May 13, 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, metal boxes (intact and crushed), empty glass bottles, concrete, graphite pieces, personal protective equipment (PPE), wood pieces, plastic, angle iron, paper trash, rubber gloves, metal sheets, corroded drums, coveralls, metal trays, a broken ratchet strap, bricks, chunks of white ceramic, a 3-gal. bucket, a metal beam, a small shed, chainlink fence, a plastic tube, a crushed water heater, a small electric outlet, stairs, wooden boards, metal cabinets, polyvinyl chloride pipe, a broken winch, a metal canister, crushed metal cans, twigs and roots, asphalt, leather gloves, a Coke bottle, a metal cart, concrete cylinders, crushed metal drums, crushed metal tanks, a metal ring, a piece of T-post, a window frame, plywood, pieces of two crushed vehicles, a turbine fan, a metal disk, a graphite cylinder, plastic sheeting, and cloth.

Suspect waste items removed from the excavated soil, which were characterized and packaged separately, included bottles containing liquid, a 3 ft by 2 ft tank, a bottle with apparent crystallization, a bottle containing powder, sealed nonpressurized containers, two neon gas cylinders, other nonpressurized cylinders, a glass jar containing liquid, a white tank containing liquid, leaded glass plates, electrical panels, capacitors, a transformer, an old grease gun, two vehicles, lead acid batteries, and a glass jar with a pink substance and liquid.

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 May 13, 2011, 78 grid cells (NF 38 through NI 56, NE 55, and NE 56) have been excavated. Overburden material, contaminated soil, and waste debris have been removed. Six confirmation samples were collected, and 38 grid cells have been backfilled as of May 13, 2011. An additional 12 grid cells (NF 35 through NI 37) have been partially excavated. 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 6347 yd^3 of debris, contaminated soil, and overburden have been excavated from enclosure 2 as of May 13, 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, scrap metal, bundles of cables, coolant pipe, rebar, bricks, metal coils, metal canisters, rubber hose, plastic sheeting, green coiled wire, latex gloves, a metal spool, Plexiglas, asphalt, file cabinets, pipe, conduit, scrubber filters, light bulbs, an aluminum box, copper pipes, PPE, buckets, metal boxes (including one with legs), angle iron, a metal valve, cloth, chainlink fencing, flex pipe, graphite, batteries, electrical panels with attached wires, fire extinguishers, a transformer, mason jars, beakers, broken glass, wire, a pump, scrap folding chairs, a capacitor, two metal water tanks, two metal plates with circular holes, an I-beam, a breached gas cylinder, graphite cylinders, a metal can, a slab of concrete with pipe, concrete with rebar, small wire mesh, and chunks of wood.

Suspect waste items removed from the excavated soil, which were characterized and packaged separately, included a water tank that returned a high reading from a FIDLER.

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, 78 grid cells (AH 157 through AH 174, AI 154 through AI 174, AJ 155 through AJ 174, and AK 156 through AK 174) were excavated. Overburden material, contaminated soil, and waste debris have been removed. Twelve confirmation samples were collected, and 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. Five confirmation samples were collected from this cell.

3.3.2 Waste Streams and Volumes

Approximately 3157 yd^3 of debris, contaminated soil, and overburden were excavated from enclosure 3 upon completion.

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, which were 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, an 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 5

Enclosure 5 began operation on March 15, 2011, and is located on the western portion of MDA B. Enclosure 5 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.

3.4.1 Activities Completed to Date

As of May 13, 2011, 20 grid cells (AH 175 through AK 179) have been excavated. Overburden material, contaminated soil, and waste debris have been removed. An additional 16 grid cells (AH 180 through AK 183) have been partially excavated. No confirmation samples have yet been taken from this enclosure. Figure 2.3-2 shows the location of the excavated grid cells.

3.4.2 Waste Streams and Volumes

Approximately 1615 yd^3 of debris, contaminated soil, and overburden have been excavated from enclosure 5 as of May 13, 2010.

Enclosure 5 waste containers were typically filled from 85% to 99% with contaminated soil. Debris items, which constitute the remainder of container fill, included scrap metal, electrical wiring, crushed 55-gal. drums, broken glass, trash can lids, concrete, a metal flange, cloth, rubber hose, graphite pieces, a crushed can, plastic pieces and sheeting, bricks, asphalt chunks, tree roots, empty Coke bottles, plastic gloves, Plexiglass, glass bottles, metal debris, cables, PPE, tubing, metal fittings, small wires, small pipe, wood scraps, and rubber gloves.

Suspect waste items removed from the excavated soil, which were characterized and packaged separately, included six small gas cylinders and an amber bottle containing liquid.

3.5 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.

3.5.1 Activities Completed to Date

As of completion on December 12, 2010, 48 grid cells (AH 195 through AK 206) were excavated. Overburden material, contaminated soil, and waste debris have been removed. Eleven confirmation samples were collected, and the entire excavated area has been backfilled. Figure 2.3-2 shows the location of the excavated grid cells, and Plate 1 shows the confirmation sampling locations.

3.5.2 Waste Stream and Volumes

Approximately 2332 yd^3 of debris, contaminated soil, and overburden were excavated from enclosure 7 upon completion.

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.

3.6 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.

3.6.1 Activities Completed to Date

As of May 13, 2011, 36 grid cells (NE 70 through NI 72, NE 74 through NI 77, and NG78) were partially excavated. Overburden material, contaminated soil, and waste debris have been removed. Because of an anomaly in the area revealed by the geophysics survey, six grid cells located outside the main trench (NJ 75 through NK 77) were also excavated. The waste has been removed from these six grid cells, and they have been backfilled. No confirmation samples have yet been taken from enclosure 9. Figure 2.3-2 shows the location of the excavated grid cells.

On February 22, 2011, several jars containing beryllium shavings were uncovered. Excavation activities within enclosure 9 were placed on standby. Air samples, swipes, and soil samples were taken in each enclosure to determine the extent of possible beryllium contamination. Personnel were given training specific to working in beryllium-contaminated areas. The standby was lifted on April 19, 2010, and operations resumed under the assumption that the enclosure was a beryllium area. Excavation resumed in row 74, with operations relocated farther from the area in which the jars of beryllium shavings were found. The enclosure status as a beryllium area was downgraded on May 12, 2011.

3.6.2 Waste Stream and Volumes

Approximately 1007 yd^3 of debris, contaminated soil, and overburden have been excavated from enclosure 9 as of May 13, 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, chunks of corroded metal, broken glass, rubber gloves, coated wire, pipe, tubing, snow fence, metal filters, plastic pieces, steel bar, PPE, hose, yellow plastic bag with broken glass, asphalt chunks, tile, large white chunks, piece of lumber, plastic sheeting, several jars of beryllium metal shavings, and an amber bottle.

Suspect waste items removed from the excavated soil, which were characterized and packaged separately, included white cylinders, a yellow cylinder, a round jar with white powder, two amber jars with white powder, one amber jar with unknown contents, a capacitor, a 1-gal. bottle with possible nitric acid, and some cone-shaped objects.

3.7 Enclosure 12

Enclosure 12 began operation on October 10, 2010, and operations were completed on March 23, 2011. Enclosure 12 is a permanent structure with a footprint 220 ft long by 75 ft wide located on the eastern portion of MDA B. Excavation depth varied from 15 to 21 ft bgs.

3.7.1 Activities Completed to Date

As of completion on March 23, 2011, 100 grid cells (NE 86 through NI 105) were excavated. Overburden material, contaminated soil, and waste debris have been removed. Nineteen confirmation samples were collected, and 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.

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.

3.7.2 Waste Streams and Volumes

Approximately 5365 yd^3 of debris, contaminated soil, and overburden were excavated from enclosure 12 upon completion.

Enclosure 12 waste containers were typically filled 50% to 99% with contaminated soil. Debris items, which constitute the remainder of container fill, included scrap metal, wire, conduit, PPE, empty glass bottles, metal pipe, ACM pipe, 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 May 13, 2011. Confirmation sample data that are presented in this report were compared with the residential SSLs and are presented in section 4.3. Analyses were performed on overburden, contaminated soil, and confirmation samples in accordance with the SAP (LANL 2010, 110411; LANL 2010, 110398; and LANL 2010, 111195).

4.1 Overburden Sample Statistics

Overburden samples collected from MDA B through May 13, 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 66 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, and removal of overburden inside enclosures prior to excavation of contaminated soil and waste. 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 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 pre-enclosure 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. 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 sampling events indicated that the overburden is 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 1 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 waste and contaminated soil had been removed from the excavation trench. Confirmation sample results are compared with residential SSLs. Areas where results exceed the SSLs 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 and Table 4.3-2 for organic chemicals.

Of the 66 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, 11 were collected from enclosure 7, and 19 were collected from enclosure 12. The first three confirmation samples (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. Confirmation samples were then collected at 50-ft intervals from these starting locations. For all confirmation sample results except those described below, the inorganic chemical results (presented in Table 4.3-3) and the organic chemical results (presented in Table 4.3-4) did not exceed the SSLs.

Analytical results for the confirmation sample collected from the north-side wall of row 51 in enclosure 2 (CSMDAB-10-25079) did not exceed any SSLs for organic chemicals, but the uranium results exceeded the inorganic chemical SSL (Table 4.3-1). A determination for further action in this area is pending.

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

Radiological analysis results are likewise being obtained for all confirmatory samples, and provided to the DOE regulator. Associated data are included in Appendix C (on DVD included with this document) and summarized in Table D-1.

5.0 SUMMARY AND PROJECT STATUS

Excavation activities to remediate MDA B continued in the third quarter of FY2011. As of May 13, 2011, the following activities have been accomplished.

- Eighty percent of the area estimated to require excavation has been excavated.
- A total of 118 grid cells within enclosure 1 have been excavated, and an additional 16 have been partially excavated. Twenty-one grid cells in enclosure 1 have been backfilled. Estimated volumes of waste and overburden removed from enclosure 1 total approximately 6623 yd^3. Waste and overburden samples have been sent for characterization analysis. Thirteen confirmation samples were collected 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.
- Seventy-eight grid cells within enclosure 2 have been excavated, and an additional 12 have been partially excavated. Thirty-eight grid cells in enclosure 2 have been backfilled. Estimated volumes of waste and overburden removed from enclosure 2 total approximately 6347 yd^3. Waste and overburden samples have been sent for characterization analysis. Six confirmation samples were collected and sent for analysis to an off-site analytical laboratory.
- Seventy-eight grid cells within enclosure 3 were excavated, backfilled, and completed. Estimated volumes of waste and overburden removed from enclosure 3 total approximately 3157 yd^3. Waste and overburden samples were sent for characterization analysis. Twelve confirmation samples were collected and sent for analysis to an off-site analytical laboratory. NMED split samples were collected simultaneously with these confirmation samples. Five additional confirmation samples were collected in cell AG 167 at the location of a former access ramp that led into the pit during disposal operations.
- Twenty grid cells within enclosure 5 were excavated, and an additional 16 have been partially excavated. None have been backfilled. Estimated volumes of waste and overburden removed from enclosure 5 total approximately 1615 $yd^{3.}$ Waste and overburden samples were sent for characterization analysis. No confirmation samples have been collected.

- Forty-eight grid cells within enclosure 7 were excavated, backfilled, and completed. Estimated volumes of waste and overburden removed from enclosure 7 total approximately 2332 yd^3. Waste and overburden samples were sent for characterization analysis. Eleven confirmation samples were collected and sent for analysis to an off-site analytical laboratory. NMED split samples were collected simultaneously with CSMDAB-10-26802, CSMDAB-10-26803, and CSMDAB-10-26804.
- Thirty-six grid cells within enclosure 9 have been partially excavated. Six grid cells on the edge of the main trench were excavated, the waste was removed, and the cells were backfilled. Estimated volumes of waste and overburden removed from the trench in enclosure 9 total approximately 1007 yd^3. Waste and overburden samples have been collected and sent for characterization analysis. No confirmation samples have been collected.
- One hundred grid cells within enclosure 12 were excavated, backfilled, and completed. Estimated volumes of waste and overburden removed from enclosure 12 total approximately 5365 yd^3. Waste and overburden samples have been sent for characterization analysis. Nineteen confirmation samples were collected and sent for analysis to an off-site analytical laboratory.

Air sampling along the northern boundary of MDA B during the project period indicated a maximum dose of 0.542 mrem to the public, with a year-to-date maximum total of 1.89 mrem. These measurements are significantly lower than EPA's limit of 10 mrem per yr 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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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

Legend Item	Data Source
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

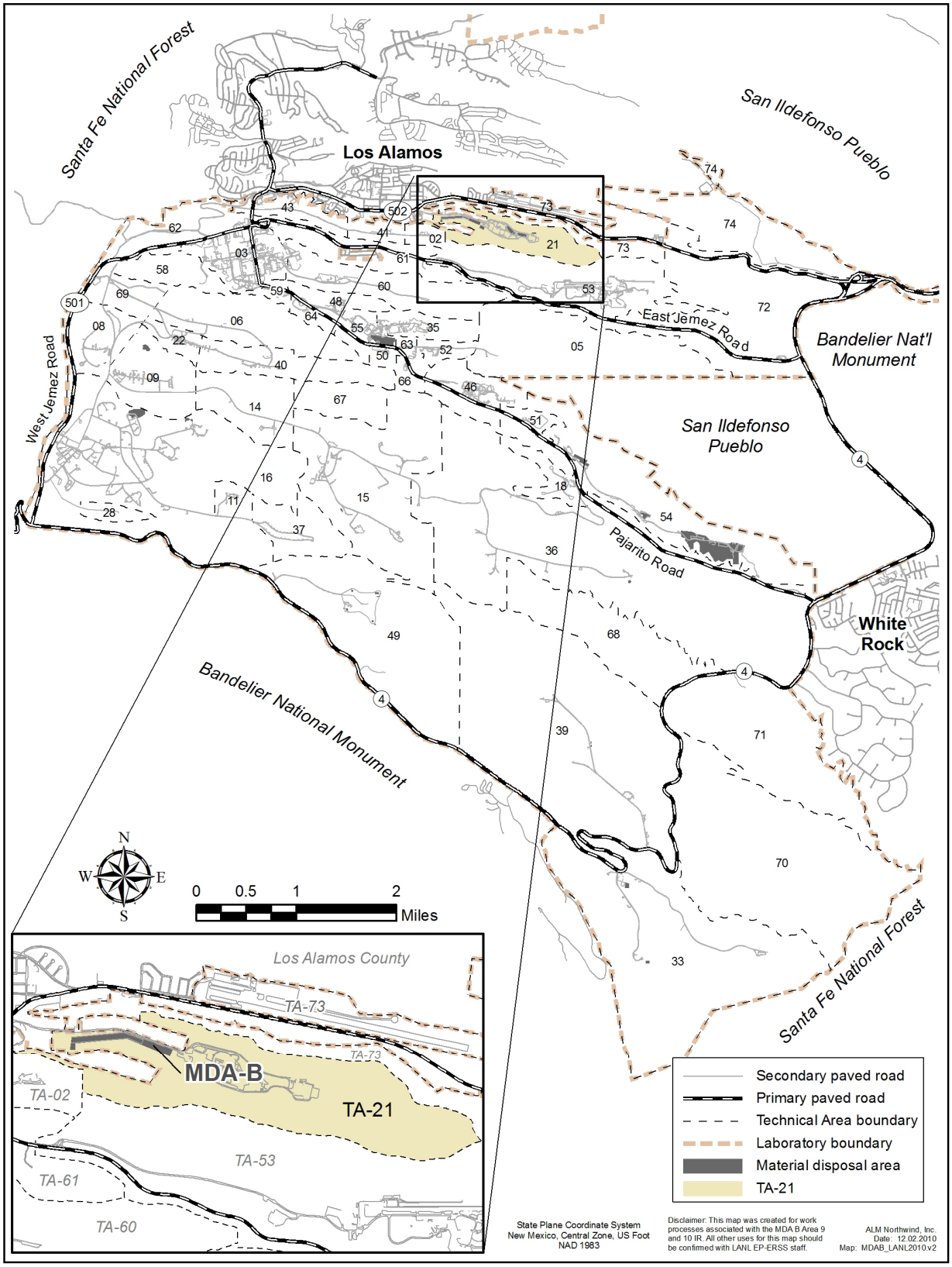

Figure 1.2-1 MDA B in TA-21 with respect to Laboratory TAs and surrounding landholdings

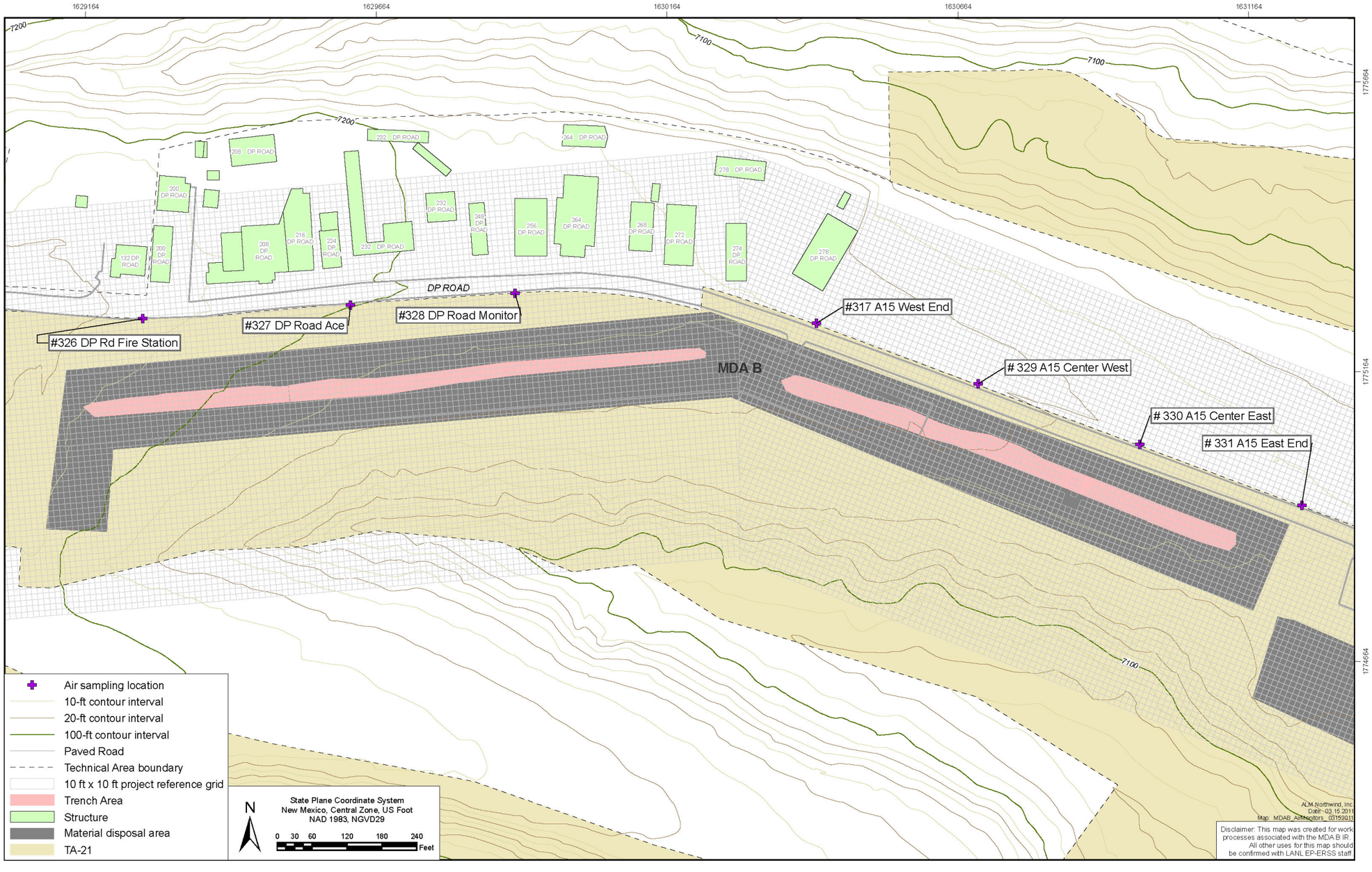

Figure 2.3-1 Grid-cell locations within MDA B and AIRNET monitoring stations near MDA B excavation

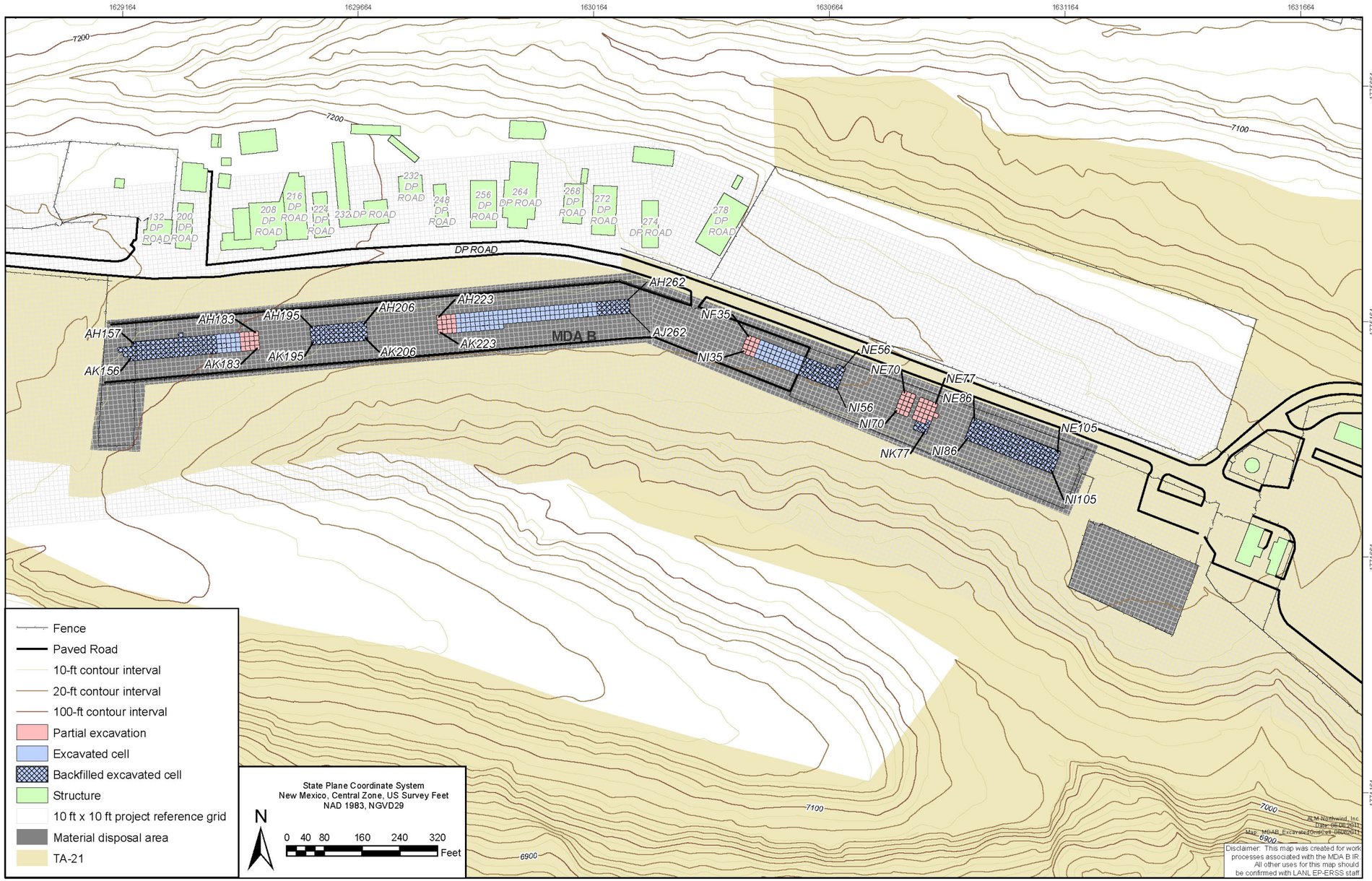

Figure 2.3-2 Excavated grid cell locations

Table 2.3-1
Overburden Samples Collected through May 13, 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	MD21-10-16121	below SSLs and SALs	MD21-10-16150	below SSLs and SALs
MD21-10-16095	below SSLs and SALs	MD21-10-16122	below SSLs and SALs	MD21-10-16151	below SSLs and SALs
MD21-10-16096	below SSLs and SALs	MD21-10-16123	below SSLs and SALs	MD21-10-16152	below SSLs and SALs
MD21-10-16097	below SSLs and SALs	MD21-10-16124	below SSLs and SALs	MD21-10-16153	below SSLs and SALs
MD21-10-16098	below SSLs and SALs	MD21-10-16125	below SSLs and SALs	MD21-10-16154	below SSLs and SALs
MD21-10-16099	below SSLs and SALs	MD21-10-16126	below SSLs and SALs	MD21-10-16155	below SSLs and SALs
MD21-10-16100	below SSLs and SALs	MD21-10-16127	below SSLs and SALs	MD21-10-16156	below SSLs and SALs
MD21-10-16101	below SSLs and SALs	MD21-10-16129	below SSLs and SALs	MD21-10-16157	below SSLs and SALs
MD21-10-16102	below SSLs and SALs	MD21-10-16130	below SSLs and SALs	MD21-10-16158	below SSLs and SALs
MD21-10-16103	below SSLs and SALs	MD21-10-16131	below SSLs and SALs	MD21-10-16159	below SSLs and SALs
MD21-10-16104	below SSLs and SALs	MD21-10-16132	below SSLs and SALs	MD21-10-16160	below SSLs and SALs
MD21-10-16105	below SSLs and SALs	MD21-10-16133	below SSLs and SALs	MD21-10-16161	below SSLs and SALs
MD21-10-16106	below SSLs and SALs	MD21-10-16134	below SSLs and SALs	MD21-10-16162	below SSLs and SALs
MD21-10-16107	below SSLs and SALs	MD21-10-16135	below SSLs and SALs	MD21-10-16163	below SSLs and SALs
MD21-10-16108	below SSLs and SALs	MD21-10-16136	below SSLs and SALs	MD21-10-16164	below SSLs and SALs
MD21-10-16109	below SSLs and SALs	MD21-10-16137	below SSLs and SALs	MD21-10-16165	below SSLs and SALs
MD21-10-16110	below SSLs and SALs	MD21-10-16139	below SSLs and SALs	MD21-10-16166	below SSLs and SALs
MD21-10-16111	below SSLs and SALs	MD21-10-16140	below SSLs and SALs	MD21-10-16167	below SSLs and SALs
MD21-10-16112	below SSLs and SALs	MD21-10-16141	below SSLs and SALs	MD21-10-16168	below SSLs and SALs
MD21-10-16113	below SSLs and SALs	MD21-10-16142	below SSLs and SALs	MD21-10-16169	below SSLs and SALs
MD21-10-16114	below SSLs and SALs	MD21-10-16143	below SSLs and SALs	MD21-10-16170	below SSLs and SALs
MD21-10-16115	below SSLs and SALs	MD21-10-16144	below SSLs and SALs	MD21-10-16171	below SSLs and SALs
MD21-10-16116	below SSLs and SALs	MD21-10-16145	below SSLs and SALs	MD21-10-16172	below SSLs and SALs
MD21-10-16117	below SSLs and SALs	MD21-10-16146	below SSLs and SALs	MD21-10-16173	below SSLs and SALs
MD21-10-16118	below SSLs and SALs	MD21-10-16147	below SSLs and SALs	MD21-10-16174	below SSLs and SALs
MD21-10-16119	below SSLs and SALs	MD21-10-16148	below SSLs and SALs	MD21-10-16175	below SSLs and SALs
MD21-10-16120	below SSLs and SALs	MD21-10-16149	below SSLs and SALs	MD21-10-16176	below SSLs and SALs

Table 2.3-1 (continued)

Sample ID	Soil Type	Sample ID	Soil Type	Sample ID	Soil Type
MD21-10-16177	below SSLs and SALs	MD21-10-16204	below SSLs and SALs	MD21-10-16260	below SSLs and SALs
MD21-10-16178	below SSLs and SALs	MD21-10-16205	below SSLs and SALs	MD21-10-16261	below SSLs and SALs
MD21-10-16179	below SSLs and SALs	MD21-10-16206	below SSLs and SALs	MD21-10-16262	below SSLs and SALs
MD21-10-16180	below SSLs and SALs	MD21-10-16207	below SSLs and SALs	MD21-10-16263	below SSLs and SALs
MD21-10-16181	below SSLs and SALs	MD21-10-16208	below SSLs and SALs	MD21-10-16264	below SSLs and SALs
MD21-10-16182	below SSLs and SALs	MD21-10-16209	below SSLs and SALs	MD21-10-16265	below SSLs and SALs
MD21-10-16183	below SSLs and SALs	MD21-10-16210	below SSLs and SALs	MD21-10-16266	below SSLs and SALs
MD21-10-16184	below SSLs and SALs	MD21-10-16211	below SSLs and SALs	MD21-10-16267	below SSLs and SALs
MD21-10-16185	below SSLs and SALs	MD21-10-16212	below SSLs and SALs	MD21-10-16270	below SSLs and SALs
MD21-10-16186	below SSLs and SALs	MD21-10-16213	below SSLs and SALs	MD21-10-16271	below SSLs and SALs
MD21-10-16187	below SSLs and SALs	MD21-10-16214	below SSLs and SALs	MD21-10-16272	below SSLs and SALs
MD21-10-16188	below SSLs and SALs	MD21-10-16215	below SSLs and SALs	MD21-10-16273	below SSLs and SALs
MD21-10-16189	below SSLs and SALs	MD21-10-16216	below SSLs and SALs	MD21-10-16274	below SSLs and SALs
MD21-10-16190	below SSLs and SALs	MD21-10-16217	below SSLs and SALs	MD21-10-16275	below SSLs and SALs
MD21-10-16191	below SSLs and SALs	MD21-10-16218	below SSLs and SALs	MD21-10-16276	below SSLs and SALs
MD21-10-16192	below SSLs and SALs	MD21-10-16219	below SSLs and SALs	MDABEWS1-10-21228	below SSLs and SALs
MD21-10-16193	below SSLs and SALs	MD21-10-16220	below SSLs and SALs	MDABEWS1-10-21229	below SSLs and SALs
MD21-10-16194	below SSLs and SALs	MD21-10-16249	below SSLs and SALs	MDABEWS1-10-21230	below SSLs and SALs
MD21-10-16195	below SSLs and SALs	MD21-10-16250	below SSLs and SALs	MDABEWS1-10-21231	below SSLs and SALs
MD21-10-16196	below SSLs and SALs	MD21-10-16251	below SSLs and SALs	MDABEWS1-10-21232	below SSLs and SALs
MD21-10-16197	below SSLs and SALs	MD21-10-16252	below SSLs and SALs	MDABEWS1-10-21233	below SSLs and SALs
MD21-10-16198	below SSLs and SALs	MD21-10-16253	below SSLs and SALs	MDABEWS1-10-21234	below SSLs and SALs
MD21-10-16199	below SSLs and SALs	MD21-10-16254	below SSLs and SALs	MDABEWS1-10-21235	below SSLs and SALs
MD21-10-16200	below SSLs and SALs	MD21-10-16255	below SSLs and SALs	MDABEWS1-10-21236	below SSLs and SALs
MD21-10-16201	below SSLs and SALs	MD21-10-16256	below SSLs and SALs	MDABEWS1-10-21237	below SSLs and SALs
MD21-10-16202	below SSLs and SALs	MD21-10-16257	below SSLs and SALs	MDABEWS1-10-21238	below SSLs and SALs
MD21-10-16203	below SSLs and SALs	MD21-10-16259	below SSLs and SALs	MDABEWS1-10-21239	below SSLs and SALs

Table 2.3-1 (continued)

Sample ID	Soil Type	Sample ID	Soil Type	Sample ID	Soil Type
MDABEWS1-10-21240	below SSLs and SALs	MDABEWS1-10-21262	below SSLs and SALs	MDABEWS1-10-21281	below SSLs and SALs
MDABEWS1-10-21241	below SSLs and SALs	MDABEWS1-10-21263	below SSLs and SALs	MDABEWS1-10-21284	below SSLs and SALs
MDABEWS1-10-21242	below SSLs and SALs	MDABEWS1-10-21264	below SSLs and SALs	MDABEWS1-10-21285	below SSLs and SALs
MDABEWS1-10-21244	below SSLs and SALs	MDABEWS1-10-21265	below SSLs and SALs	MDABEWS1-10-21287	below SSLs and SALs
MDABEWS1-10-21245	below SSLs and SALs	MDABEWS1-10-21266	below SSLs and SALs	MDABEWS1-10-21288	below SSLs and SALs
MDABEWS1-10-21246	below SSLs and SALs	MDABEWS1-10-21267	below SSLs and SALs	MDABEWS1-10-21289	below SSLs and SALs
MDABEWS1-10-21247	below SSLs and SALs	MDABEWS1-10-21268	below SSLs and SALs	MDABEWS1-10-21290	below SSLs and SALs
MDABEWS1-10-21249	below SSLs and SALs	MDABEWS1-10-21269	below SSLs and SALs	MDABEWS1-10-21291	below SSLs and SALs
MDABEWS1-10-21250	below SSLs and SALs	MDABEWS1-10-21270	below SSLs and SALs	MDABEWS1-10-21293	below SSLs and SALs
MDABEWS1-10-21251	below SSLs and SALs	MDABEWS1-10-21271	below SSLs and SALs	MDABEWS1-10-21296	below SSLs and SALs
MDABEWS1-10-21252	below SSLs and SALs	MDABEWS1-10-21272	below SSLs and SALs	MDABEWS1-10-21297	below SSLs and SALs
MDABEWS1-10-21253	below SSLs and SALs	MDABEWS1-10-21273	below SSLs and SALs	MDABEWS1-10-21298	below SSLs and SALs
MDABEWS1-10-21254	below SSLs and SALs	MDABEWS1-10-21274	below SSLs and SALs	MDABEWS1-10-21299	below SSLs and SALs
MDABEWS1-10-21255	below SSLs and SALs	MDABEWS1-10-21275	below SSLs and SALs	MDABEWS1-10-21300	below SSLs and SALs
MDABEWS1-10-21256	below SSLs and SALs	MDABEWS1-10-21276	below SSLs and SALs	MDABEWS1-10-21301	below SSLs and SALs
MDABEWS1-10-21257	below SSLs and SALs	MDABEWS1-10-21277	below SSLs and SALs	MDABEWS1-10-21302	below SSLs and SALs
MDABEWS1-10-21258	below SSLs and SALs	MDABEWS1-10-21278	below SSLs and SALs	MDABEWS1-10-21303	below SSLs and SALs
MDABEWS1-10-21260	below SSLs and SALs	MDABEWS1-10-21279	below SSLs and SALs		
MDABEWS1-10-21261	below SSLs and SALs	MDABEWS1-10-21280	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 through May 13, 2011

Total Waste and Overburden Removed (yd^3)	Awaiting Characterization (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 (yd^3)	MLLW to Clive (yd^3)	Industrial Waste Shipped[d] (yd^3)	New Mexico Special Waste[e] (yd^3)
29,746	12,425.13	1194	6468	9863.3	54	36.27[f]	361	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] Industrial waste shipped to Waste Control Specialists in Andrews, Texas, or Clean Harbors Deer Trail in Deer Trail, Colorado.

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

[f] One 0.27-yd^3 55-gal. drum had not been shipped as of May 13, 2011.

Table 2.5-1
Confirmation Samples Collected through May 13, 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

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])
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	Sampled	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
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

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])
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
12	CSMDAB-11-10125	MDAB-614275	NI98	NS	South-side wall	04/26/11	7161.17
12	CSMDAB-11-4855	MDAB-613862	NG87	NS	Excavation floor	03/24/11	7156.84
12	CSMDAB-11-4856	MDAB-613863	NF87	NS	North-side wall	03/24/11	7158.28
12	CSMDAB-11-4857	MDAB-613864	NH86	NS	South-side wall	03/24/11	7156.93
12	CSMDAB-11-4858	MDAB-613865	NG91	NS	Excavation floor	03/23/11	7155.07
12	CSMDAB-11-4859	MDAB-613866	NF91	NS	North-side wall	03/23/11	7156.18
12	CSMDAB-11-4860	MDAB-613867	NH91	NS	South-side wall	03/23/11	7157.49
12	CSMDAB-11-4861	MDAB-613868	NG97	NS	Excavation floor	03/23/11	7152.67
12	CSMDAB-11-4862	MDAB-613869	NF96	NS	North-side wall	03/23/11	7158.69
12	CSMDAB-11-4863	MDAB-613870	NI97	NS	South-side wall	03/23/11	7159.92
12	CSMDAB-11-4864	MDAB-613871	NI101	NS	South-side wall	03/23/11	7156.62
12	CSMDAB-11-5775	MDAB-613975	NF101	NS	North-side wall	03/23/11	7157.45
12	CSMDAB-11-5776	MDAB-613976	NH101	NS	Excavation floor	03/23/11	7156.75
12	CSMDAB-11-9163	MDAB-614274	NI96	NS	South-side wall	04/07/11	7164.58
12	CSMDAB-11-9164	MDAB-613870	NI97	NS	South-side wall	04/07/11	7163.74
12	CSMDAB-11-9165	MDAB-614275	NI98	NS	South-side wall	04/07/11	7161.17
12	CSMDAB-11-9166	MDAB-613863	NF87	NS	North-side wall	04/07/11	7161.99
12	CSMDAB-11-9167	MDAB-614277	NF87	NS	North-side wall	04/07/11	7161.36
12	CSMDAB-11-9168	MDAB-614276	NF86	NS	North-side wall	04/07/11	7162.73
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	AG167	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	n/a
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 (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[h] (µg/L)	Maximum Concentration above Residential Standards
Arsenic	172	0	0%	n/a	n/a	n/a	n/a	n/a	5000	n/a
Barium	172	172	100%	694.738	123.710	380	677.5	1100	100,000	No
Cadmium	172	15	9%	19.903	18.072	1.11	10	50	1000	No
Chromium	172	5	3%	45.919	37.483	13	20	100	5000	n/a
Lead	172	24	14%	18.171	13.629	2.5	13.75	44.1	5000	No
Mercury	172	26	15%	1.283	0.539	0.2	1	2	200	No
Selenium	172	23	13%	24.562	15.147	6.3	19.2	52	1000	No
Silver	172	0	0%	n/a	n/a	n/a	n/a	n/a	5000	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] 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
Chloroform	172	0	0%	n/a	n/a	n/a	n/a	n/a	5.72	0.29	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
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
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

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[1,4-]	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
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

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
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
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

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
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
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

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
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
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

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
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
Methylphenol[2-]	172	0	0%	n/a	n/a	n/a	n/a	n/a	200,000	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[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 (2005,088493).

[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	66	66	100%	5716.6667	1759.3699	3090	5760	10,300	78,100	No[b]
Antimony	66	10	15%	1.0284848	0.5409409	0.354	1.04	4.91	31.3	No
Arsenic	66	66	100%	1.5829242	0.7172149	0.914	1.52	6.58	3.9	Yes[c]
Barium	66	66	100%	99.477273	64.602733	52.6	81.85	558	15,600	No
Beryllium	66	66	100%	0.5234242	0.1775033	0.238	0.5635	1.08	156	No
Cadmium	66	44	67%	0.4004848	0.5112395	0.108	0.286	4.27	77.9	No
Calcium	66	66	100%	4349.697	1815.9668	1840	3785	8590	na[d]	n/a[e]
Chromium	66	61	92%	7.7936364	2.0117093	3.63	7.33	13	113,000	No

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 SSLa (mg/kg)	Maximum Concentration above Residential Standards
Cobalt	66	66	100%	3.5356061	0.8859052	1.61	3.53	5.72	23[f]	No
Copper	66	55	83%	34.678182	111.06663	4.98	10.3	855	3130	No
Cyanide (total)	62	6	10%	0.2924742	0.4072088	0.087	0.251	3.43	1560	No
Iron	66	66	100%	11,186.667	1356.328	9140	10,900	15,000	54,800	No
Lead	66	46	70%	13.102273	9.7462216	4.99	8.685	50.4	400	No
Magnesium	66	66	100%	1778.4848	456.10809	1040	1675	3130	na	n/a
Manganese	66	66	100%	274	39.347759	172	277	395	10,700	No
Mercury	66	60	91%	0.025195	0.0159162	0.00653	0.0206	0.0776	7.71	No
Nickel	66	62	94%	6.3384848	1.20049	4	6.145	10.1	1560	No
Nitrate	66	48	73%	2.5530606	1.6278738	0.88	1.8	7.33	125,000	No
Nitrite	66	0	0%	n/a	n/a	n/a	n/a	n/a	7820	No
Perchlorate	62	48	77%	0.006703823	0.013791486	0.000515	0.00218	0.0806	54.8	No
Potassium	66	66	100%	913.42424	260.95057	494	870.5	1490	na	n/a
Selenium	66	0	0%	n/a	n/a	n/a	n/a	n/a	391	No
Silver	66	29	44%	0.7758939	0.7472871	0.119	0.5205	3.58	391	No
Sodium	66	25	38%	224	83.65224	74.6	229	479	na	n/a
Thallium	66	50	76%	0.2032515	0.3967644	0.0603	0.15	3.33	5.16	No
Uranium	66	62	94%	0.8549091	0.3699067	0.433	0.7515	2.35	235[g]	No
Vanadium	66	66	100%	19.531364	4.308446	8.97	19.35	29.6	391	No
Zinc	66	49	74%	67.727273	99.583446	24.7	30.9	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)	SSLa (mg/kg)	Maximum Concentration above Residential Standards
2,4-Diamino-6-nitrotoluene	54	0	0%	n/a[b]	n/a	n/a	n/a	n/a	na[c]	No[d]
2,6-Diamino-4-nitrotoluene	54	0	0%	n/a	n/a	n/a	n/a	n/a	na	No
3,5-Dinitroaniline	54	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a
Acenaphthene	66	1	2%	0.0624242	0.0784963	0.0177	0.03615	0.36	3440	No
Acenaphthylene	66	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a
Acetone	66	0	0%	n/a	n/a	n/a	n/a	n/a	67,500	n/a
Aldrin	66	0	0%	n/a	n/a	n/a	n/a	n/a	0.284	n/a
Amino-2,6-dinitrotoluene[4-]	54	0	0%	n/a	n/a	n/a	n/a	n/a	150[e]	n/a
Amino-4,6-dinitrotoluene[2-]	54	0	0%	n/a	n/a	n/a	n/a	n/a	150[e]	n/a
Aniline	66	0	0%	n/a	n/a	n/a	n/a	n/a	85[e]	n/a
Anthracene	66	0	0%	n/a	n/a	n/a	n/a	n/a	17,200	n/a
Aroclor-1016	52	0	0%	n/a	n/a	n/a	n/a	n/a	3.93	n/a
Aroclor-1221	52	0	0%	n/a	n/a	n/a	n/a	n/a	1.76	n/a
Aroclor-1232	52	1	2%	0.013941	0.0151267	0.0034	0.01635	0.076	1.76	No
Aroclor-1242	52	0	0%	n/a	n/a	n/a	n/a	n/a	2.22	n/a
Aroclor-1248	52	0	0%	n/a	n/a	n/a	n/a	n/a	2.22	n/a
Aroclor-1254	52	5	10%	0.0141383	0.0150545	0.0022	0.0175	0.076	1.12	No
Aroclor-1260	52	7	13%	0.0144392	0.0149251	0.0023	0.0175	0.076	2.22	No
Azobenzene	66	0	0%	n/a	n/a	n/a	n/a	n/a	5.1[e]	n/a
Benzene	66	0	0%	n/a	n/a	n/a	n/a	n/a	15.5	n/a
Benzo(a)anthracene	66	3	5%	0.0620167	0.0786808	0.0113	0.036	0.36	6.21	No
Benzo(a)pyrene	66	2	3%	0.0622136	0.0785874	0.0185	0.03615	0.36	0.621	No
Benzo(b)fluoranthene	66	3	5%	0.0620909	0.0786513	0.016	0.0361	0.36	6.21	No
Benzo(g,h,i)perylene	66	1	2%	0.0624152	0.0785058	0.016	0.0362	0.36	na	n/a
Benzo(k)fluoranthene	66	1	2%	0.0623833	0.0785253	0.0139	0.0362	0.36	62.1	No

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
Benzoic acid	66	0	0%	n/a	n/a	n/a	n/a	n/a	240,000[e]	n/a
Benzyl alcohol	66	0	0%	n/a	n/a	n/a	n/a	n/a	6100[e]	n/a
BHC[alpha-]	66	0	0%	n/a	n/a	n/a	n/a	n/a	0.772	n/a
BHC[beta-]	66	0	0%	n/a	n/a	n/a	n/a	n/a	2.7	n/a
BHC[delta-]	66	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a
BHC[gamma-]	66	0	0%	n/a	n/a	n/a	n/a	n/a	5.17	n/a
Bis(2-chloroethoxy)methane	66	0	0%	n/a	n/a	n/a	n/a	n/a	180[e]	n/a
Bis(2-chloroethyl)ether	66	0	0%	n/a	n/a	n/a	n/a	n/a	2.56	n/a
Bis(2-ethylhexyl)phthalate	66	0	0%	n/a	n/a	n/a	n/a	n/a	347	n/a
Bromobenzene	66	0	0%	n/a	n/a	n/a	n/a	n/a	300[e]	n/a
Bromochloromethane	66	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a
Bromodichloromethane	66	0	0%	n/a	n/a	n/a	n/a	n/a	5.25	n/a
Bromoform	66	0	0%	n/a	n/a	n/a	n/a	n/a	616	n/a
Bromomethane	66	0	0%	n/a	n/a	n/a	n/a	n/a	22.3	n/a
Bromophenyl-phenylether[4-]	66	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a
Butanone[2-]	66	0	0%	n/a	n/a	n/a	n/a	n/a	39,600	n/a
Butylbenzene[n-]	66	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a
Butylbenzene[sec-]	66	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a
Butylbenzene[tert-]	66	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a
Butylbenzylphthalate	66	0	0%	n/a	n/a	n/a	n/a	n/a	260[e]	n/a
Carbon disulfide	66	0	0%	n/a	n/a	n/a	n/a	n/a	1940	n/a
Carbon tetrachloride	66	0	0%	n/a	n/a	n/a	n/a	n/a	4.38	n/a
Chlordane[alpha-]	66	6	9%	0.0016453	0.0021873	0.000446	0.000725	0.00719	na	n/a
Chlordane[gamma-]	66	5	8%	0.0016703	0.0021934	0.000573	0.000725	0.00719	na	n/a
Chloro-3-methylphenol[4-]	66	0	0%	n/a	n/a	n/a	n/a	n/a	6100[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
Chloroaniline[4-]	66	0	0%	n/a	n/a	n/a	n/a	n/a	2.4[e]	n/a
Chlorobenzene	66	0	0%	n/a	n/a	n/a	n/a	n/a	508	n/a
Chlorodibromomethane	66	0	0%	n/a	n/a	n/a	n/a	n/a	11.9	n/a
Chloroethane	66	0	0%	n/a	n/a	n/a	n/a	n/a	43,600	n/a
Chloroform	66	0	0%	n/a	n/a	n/a	n/a	n/a	5.72	n/a
Chloromethane	66	0	0%	n/a	n/a	n/a	n/a	n/a	35.6	n/a
Chloronaphthalene[2-]	66	0	0%	n/a	n/a	n/a	n/a	n/a	6260	n/a
Chlorophenol[2-]	66	0	0%	n/a	n/a	n/a	n/a	n/a	391	n/a
Chlorophenyl-phenyl[4-] ether	66	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a
Chlorotoluene[2-]	66	0	0%	n/a	n/a	n/a	n/a	n/a	1560	n/a
Chlorotoluene[4-]	66	0	0%	n/a	n/a	n/a	n/a	n/a	5500[e]	n/a
Chrysene	66	5	8%	0.0614455	0.0789344	0.0126	0.03585	0.36	621	No
D[2,4-]	66	1	2%	0.0056348	0.0012435	0.00402	0.005365	0.0112	690[e]	No
Dalapon	66	0	0%	n/a	n/a	n/a	n/a	n/a	1800[e]	n/a
DB[2,4-]	66	0	0%	n/a	n/a	n/a	n/a	n/a	490[e]	n/a
DDD[4,4'-]	66	5	8%	0.0031225	0.0044096	0.00041	0.00144	0.0144	20.3	No
DDE[4,4'-]	66	10	15%	0.0031535	0.0044049	0.00047	0.001445	0.0144	14.3	No
DDT[4,4'-]	66	16	24%	0.0037335	0.0047751	0.00044	0.00144	0.0144	17.2	No
Dibenz(a,h)anthracene	66	0	0%	n/a	n/a	n/a	n/a	n/a	0.621	n/a
Dibenzofuran	66	0	0%	n/a	n/a	n/a	n/a	n/a	78[e]	n/a
Dibromo-3-chloropropane[1,2-]	66	0	0%	n/a	n/a	n/a	n/a	n/a	0.194	n/a
Dibromoethane[1,2-]	66	0	0%	n/a	n/a	n/a	n/a	n/a	0.574	n/a
Dibromomethane	66	0	0%	n/a	n/a	n/a	n/a	n/a	782	n/a
Dicamba	66	0	0%	n/a	n/a	n/a	n/a	n/a	1800[e]	n/a
Dichlorobenzene[1,2-]	66	0	0%	n/a	n/a	n/a	n/a	n/a	3010	n/a
Dichlorobenzene[1,3-]	66	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-]	66	0	0%	n/a	n/a	n/a	n/a	n/a	32.2	n/a
Dichlorobenzidine[3,3'-]	66	0	0%	n/a	n/a	n/a	n/a	n/a	10.8	n/a
Dichlorodifluoromethane	66	0	0%	n/a	n/a	n/a	n/a	n/a	481	n/a
Dichloroethane[1,1-]	66	0	0%	n/a	n/a	n/a	n/a	n/a	62.9	n/a
Dichloroethane[1,2-]	66	0	0%	n/a	n/a	n/a	n/a	n/a	7.74	n/a
Dichloroethene[1,1-]	66	0	0%	n/a	n/a	n/a	n/a	n/a	618	n/a
Dichloroethene[cis-1,2-]	66	0	0%	n/a	n/a	n/a	n/a	n/a	782	n/a
Dichloroethene[trans-1,2-]	66	0	0%	n/a	n/a	n/a	n/a	n/a	273	n/a
Dichlorophenol[2,4-]	66	0	0%	n/a	n/a	n/a	n/a	n/a	183	n/a
Dichloropropane[1,2-]	66	0	0%	n/a	n/a	n/a	n/a	n/a	14.7	n/a
Dichloropropane[1,3-]	66	0	0%	n/a	n/a	n/a	n/a	n/a	1600[e]	n/a
Dichloropropane[2,2-]	66	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a
Dichloropropene[1,1-]	66	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a
Dichloropropene[cis-1,3-]	66	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a
Dichloropropene[trans-1,3-]	66	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a
Dichlorprop	66	4	6%	0.0056029	0.0012902	0.00291	0.00536	0.0112	na	n/a
Dieldrin	66	4	6%	0.0031187	0.004412	0.000368	0.001445	0.0144	0.304	No
Diethylphthalate	66	0	0%	n/a	n/a	n/a	n/a	n/a	48,900	n/a
Dimethyl phthalate	66	0	0%	n/a	n/a	n/a	n/a	n/a	611,000	n/a
Dimethylphenol[2,4-]	66	0	0%	n/a	n/a	n/a	n/a	n/a	1220	n/a
Di-n-butylphthalate	66	0	0%	n/a	n/a	n/a	n/a	n/a	6110	n/a
Dinitro-2-methylphenol[4,6-]	66	0	0%	n/a	n/a	n/a	n/a	n/a	6.11	n/a
Dinitrobenzene[1,3-]	54	0	0%	n/a	n/a	n/a	n/a	n/a	6.1[e]	n/a
Dinitrophenol[2,4-]	66	0	0%	n/a	n/a	n/a	n/a	n/a	122	n/a
Dinitrotoluene[2,4-]	54	0	0%	n/a	n/a	n/a	n/a	n/a	15.7	n/a
Dinitrotoluene[2,4-]	66	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[2,6-]	54	0	0%	n/a	n/a	n/a	n/a	n/a	61.2	n/a
Dinitrotoluene[2,6-]	66	0	0%	n/a	n/a	n/a	n/a	n/a	61.2	n/a
Di-n-octylphthalate	66	1	2%	0.6239091	0.7851603	0.155	0.3615	3.6	na	n/a
Dinoseb	66	0	0%	n/a	n/a	n/a	n/a	n/a	61[e]	n/a
Diphenylamine	66	0	0%	n/a	n/a	n/a	n/a	n/a	1500[e]	n/a
Endosulfan I	66	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a
Endosulfan II	66	1	2%	0.0031575	0.004393	0.000408	0.00145	0.0144	na	n/a
Endosulfan sulfate	66	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a
Endrin	66	0	0%	n/a	n/a	n/a	n/a	n/a	18.3	n/a
Endrin aldehyde	66	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a
Endrin ketone	66	2	3%	0.0031497	0.0043967	0.00052	0.00145	0.0144	na	n/a
Ethylbenzene	66	0	0%	n/a	n/a	n/a	n/a	n/a	69.7	n/a
Fluoranthene	66	5	8%	0.0616394	0.0788236	0.0126	0.03585	0.36	2290	No
Fluorene	66	0	0%	n/a	n/a	n/a	n/a	n/a	2290	n/a
Heptachlor	66	0	0%	n/a	n/a	n/a	n/a	n/a	1.08	n/a
Heptachlor epoxide	66	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-]	52	35	67%	6.897E-06	1.024E-05	3.18E-07	1.65E-06	0.0000429	na	n/a
Heptachlorodibenzodioxins (total)	52	38	73%	1.609E-05	2.48E-05	3.18E-07	3.74E-06	0.000105	na	n/a
Heptachlorodibenzofuran[1,2,3,4,6,7,8-]	52	33	63%	4.085E-06	6.277E-06	2.26E-07	9.105E-07	0.000022	na	n/a
Heptachlorodibenzofuran[1,2,3,4,7,8,9-]	52	5	10%	5.494E-07	3.159E-07	2.79E-07	4.705E-07	2.37E-06	na	n/a
Heptachlorodibenzofurans (total)	52	36	69%	8.86E-06	1.446E-05	2.26E-07	1.78E-06	0.0000531	na	n/a
Hexachlorobenzene	66	0	0%	n/a	n/a	n/a	n/a	n/a	3.04	n/a
Hexachlorobutadiene	66	0	0%	n/a	n/a	n/a	n/a	n/a	61.1	n/a
Hexachlorocyclopentadiene	66	0	0%	n/a	n/a	n/a	n/a	n/a	367	n/a
Hexachlorodibenzodioxin[1,2,3,4,7,8-]	52	5	10%	5.609E-07	3.499E-07	2.57E-07	4.705E-07	2.56E-06	na	n/a
Hexachlorodibenzodioxin[1,2,3,6,7,8-]	52	13	25%	9.853E-07	1.387E-06	2.59E-07	4.755E-07	8.39E-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[1,2,3,7,8,9-]	52	9	17%	6.705E-07	5.833E-07	2.63E-07	4.755E-07	3.71E-06	na	n/a
Hexachlorodibenzodioxins (total)	52	21	40%	5.211E-06	1.048E-05	2.57E-07	4.815E-07	0.0000562	na	n/a
Hexachlorodibenzofuran[1,2,3,4,7,8-]	52	10	19%	8.949E-07	1.201E-06	1.58E-07	4.755E-07	7.27E-06	na	n/a
Hexachlorodibenzofuran[1,2,3,6,7,8-]	52	11	21%	9.601E-07	1.36E-06	1.48E-07	4.755E-07	7.49E-06	na	n/a
Hexachlorodibenzofuran[1,2,3,7,8,9-]	52	8	15%	7.779E-07	1.017E-06	1.76E-07	4.71E-07	6.63E-06	na	n/a
Hexachlorodibenzofuran[2,3,4,6,7,8-]	52	11	21%	1.361E-06	2.294E-06	1.57E-07	4.755E-07	0.0000114	na	n/a
Hexachlorodibenzofurans (total)	52	25	48%	1.605E-05	3.451E-05	1.48E-07	5.12E-07	0.000163	na	n/a
Hexachloroethane	66	0	0%	n/a	n/a	n/a	n/a	n/a	61.1	n/a
Hexanone[2-]	66	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)	54	0	0%	n/a	n/a	n/a	n/a	n/a	3060	n/a
Indeno(1,2,3-cd)pyrene	66	1	2%	0.0624439	0.078485	0.019	0.03615	0.36	6.21	No
Iodomethane	66	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a
Isophorone	66	0	0%	n/a	n/a	n/a	n/a	n/a	5120	n/a
Isopropylbenzene	66	0	0%	n/a	n/a	n/a	n/a	n/a	3210	n/a
Isopropyltoluene[4-]	66	2	3%	0.0010897	6.959E-05	0.00102	0.001075	0.00158	na	n/a
MCPA	66	0	0%	n/a	n/a	n/a	n/a	n/a	31[e]	n/a
MCPP	66	4	6%	1.0953182	0.2913671	0.302	1.07	2.24	61[e]	No
Methoxychlor[4,4'-]	66	0	0%	n/a	n/a	n/a	n/a	n/a	310[e]	n/a
Methyl-2-pentanone[4-]	66	0	0%	n/a	n/a	n/a	n/a	n/a	5950	n/a
Methylene chloride	66	0	0%	n/a	n/a	n/a	n/a	n/a	199	n/a
Methylnaphthalene[2-]	66	12	18%	0.0647286	0.0802953	0.00723	0.03585	0.36	310[e]	No
Methylphenol[2-]	66	0	0%	n/a	n/a	n/a	n/a	n/a	3100[e]	n/a
Methylphenol[4-]	66	0	0%	n/a	n/a	n/a	n/a	n/a	310[e]	n/a
Naphthalene	66	6	9%	0.0636318	0.0783145	0.0177	0.0361	0.36	45	No
Nitroaniline[2-]	66	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-]	66	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a
Nitroaniline[4-]	66	0	0%	n/a	n/a	n/a	n/a	n/a	24[e]	n/a
Nitrobenzene	54	0	0%	n/a	n/a	n/a	n/a	n/a	49.4	n/a
Nitrobenzene	66	0	0%	n/a	n/a	n/a	n/a	n/a	49.4	n/a
Nitrophenol[2-]	66	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a
Nitrophenol[4-]	66	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a
Nitrosodimethylamine[N-]	66	0	0%	n/a	n/a	n/a	n/a	n/a	0.0954	n/a
Nitroso-di-n-propylamine[N-]	66	0	0%	n/a	n/a	n/a	n/a	n/a	0.069[e]	n/a
Nitrotoluene[2-]	54	0	0%	n/a	n/a	n/a	n/a	n/a	29.1	n/a
Nitrotoluene[3-]	54	0	0%	n/a	n/a	n/a	n/a	n/a	1560	n/a
Nitrotoluene[4-]	54	3	6%	0.4858889	0.0671413	0.105	0.5	0.53	244	No
Octachlorodibenzodioxin[1,2,3,4,6,7,8,9-]	52	40	77%	4.918E-05	7.505E-05	1.83E-06	0.0000125	0.000311	na	n/a
Octachlorodibenzofuran[1,2,3,4,6,7,8,9-]	52	25	48%	4.411E-06	6.273E-06	6.55E-07	1.255E-06	0.000024	na	n/a
Oxybis(1-chloropropane)[2,2'-]	66	0	0%	n/a	n/a	n/a	n/a	n/a	4.6[e]	n/a
Pentachlorodibenzodioxin[1,2,3,7,8-]	52	8	15%	6.734E-07	6.911E-07	2.04E-07	4.71E-07	0.0000046	na	n/a
Pentachlorodibenzodioxins (total)	52	11	21%	2.157E-06	5.086E-06	2.04E-07	4.755E-07	0.0000297	na	n/a
Pentachlorodibenzofuran[1,2,3,7,8-]	52	6	12%	5.029E-07	1.649E-07	1.52E-07	4.685E-07	1.34E-06	na	n/a
Pentachlorodibenzofuran[2,3,4,7,8-]	52	15	29%	2.037E-06	3.887E-06	1.52E-07	4.775E-07	0.0000187	na	n/a
Pentachlorodibenzofurans (total)	52	34	65%	2.542E-05	5.693E-05	1.38E-07	6.97E-07	0.000262	na	n/a
Pentachlorophenol	66	0	0%	n/a	n/a	n/a	n/a	n/a	29.8	n/a
PETN (pentaerythritol tetranitrate)	54	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a
Phenanthrene	66	6	9%	0.0625045	0.078545	0.0144	0.036	0.36	1830	No
Phenol	66	0	0%	n/a	n/a	n/a	n/a	n/a	18,300	n/a
Propylbenzene[1-]	66	0	0%	n/a	n/a	n/a	n/a	n/a	3400[e]	n/a
Pyrene	66	6	9%	0.0618061	0.0787763	0.0129	0.0359	0.36	1720	No
Pyridine	66	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)	54	0	0%	n/a	n/a	n/a	n/a	n/a	44.2	n/a
Styrene	66	0	0%	n/a	n/a	n/a	n/a	n/a	8970	n/a
T[2,4,5-]	66	0	0%	n/a	n/a	n/a	n/a	n/a	610[e]	n/a
TATB (triaminotrinitrobenzene)	54	5	9%	1.0011111	0.008165	1	1	1.06	na	n/a
Tetrachlorodibenzodioxin[2,3,7,8-]	52	1	2%	1.282E-07	6.658E-08	8.07E-08	9.6E-08	3.68E-07	0.000045	No
Tetrachlorodibenzodioxins (total)	52	8	15%	2.89E-07	6.313E-07	8.07E-08	9.6E-08	4.11E-06	na	n/a
Tetrachlorodibenzofuran[2,3,7,8-]	52	12	23%	4.985E-07	3.294E-07	2.02E-07	3.975E-07	1.66E-06	0.000374	No
Tetrachlorodibenzofurans (total)	52	22	42%	1.042E-05	2.195E-05	9.39E-08	1.055E-06	0.0000994	na	n/a
Tetrachloroethane[1,1,1,2-]	66	0	0%	n/a	n/a	n/a	n/a	n/a	29.2	n/a
Tetrachloroethane[1,1,2,2-]	66	0	0%	n/a	n/a	n/a	n/a	n/a	7.98	n/a
Tetrachloroethene	66	0	0%	n/a	n/a	n/a	n/a	n/a	6.99	n/a
Tetryl	54	0	0%	n/a	n/a	n/a	n/a	n/a	244	n/a
Toluene	66	5	8%	0.0010428	0.0001343	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 (TPH-GRO)	1	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a
Toxaphene (technical grade)	66	0	0%	n/a	n/a	n/a	n/a	n/a	4.42	n/a
TP[2,4,5-]	66	0	0%	n/a	n/a	n/a	n/a	n/a	490[e]	n/a
Trichloro-1,2,2-trifluoroethane[1,1,2-]	66	0	0%	n/a	n/a	n/a	n/a	n/a	104,000	n/a
Trichlorobenzene[1,2,4-]	66	0	0%	n/a	n/a	n/a	n/a	n/a	143	n/a
Trichloroethane[1,1,1-]	66	0	0%	n/a	n/a	n/a	n/a	n/a	21,800	n/a
Trichloroethane[1,1,2-]	66	0	0%	n/a	n/a	n/a	n/a	n/a	17.2	n/a
Trichloroethene	66	0	0%	n/a	n/a	n/a	n/a	n/a	45.7	n/a
Trichlorofluoromethane	66	0	0%	n/a	n/a	n/a	n/a	n/a	2010	n/a
Trichlorophenol[2,4,5-]	66	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-]	66	0	0%	n/a	n/a	n/a	n/a	n/a	61.1	n/a
Trichloropropane[1,2,3-]	66	0	0%	n/a	n/a	n/a	n/a	n/a	0.915	n/a
Trimethylbenzene[1,2,4-]	66	2	3%	0.0010607	0.0001188	0.000363	0.00107	0.00116	62[e]	No
Trimethylbenzene[1,3,5-]	66	0	0%	n/a	n/a	n/a	n/a	n/a	780[e]	n/a
Trinitrobenzene[1,3,5-]	54	0	0%	n/a	n/a	n/a	n/a	n/a	2200[e]	n/a
Trinitrotoluene[2,4,6-]	54	0	0%	n/a	n/a	n/a	n/a	n/a	35.9	n/a
Tris (o-cresyl) phosphate	54	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a
Vinyl chloride	66	0	0%	n/a	n/a	n/a	n/a	n/a	0.865	n/a
Xylene[1,2-]	66	0	0%	n/a	n/a	n/a	n/a	n/a	9550	n/a
Xylene[1,3-]+xylene[1,4-]	66	8	12%	0.0020173	0.0004179	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]	66	13	20%	0.0543124	0.074378	−0.0461	0.0289	0.339	30	No[c]
Americium-241	Gamma[d]	66	6	9%	0.0388478	0.2137543	−0.514	0.0368	1.2	30	No
Bismuth-211	Gamma	66	0	0%	n/a[e]	n/a	n/a	n/a	n/a	na[f]	n/a
Bismuth-214	Gamma	66	66	100%	1.0302273	0.2156154	0.546	1.08	1.39	na	n/a
Cadmium-109	Gamma	66	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a
Cerium-139	Gamma	66	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a
Cesium-134	Gamma	66	0	0%	n/a	n/a	n/a	n/a	n/a	2.4	n/a
Cesium-137	Gamma	66	5	8%	0.0170943	0.0492618	−0.0481	0.002695	0.193	5.6	No
Cobalt-60	Gamma	66	0	0%	n/a	n/a	n/a	n/a	n/a	1.3	n/a
Europium-152	Gamma	66	0	0%	n/a	n/a	n/a	n/a	n/a	2.9	n/a
Lanthanum-140	Gamma	66	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a
Lead-212	Gamma	66	66	100%	1.4336667	0.3065364	0.736	1.5	1.93	na	n/a
Lead-214	Gamma	66	66	100%	1.2190909	0.2283791	0.659	1.265	1.57	na	n/a
Mercury-203	Gamma	66	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a
Plutonium-238	Isotopic[g]	66	3	5%	0.0159694	0.0356892	−0.0467	0.0053	0.153	37	No
Plutonium-239/240	Isotopic	66	51	77%	0.9920739	1.7570838	−0.00422	0.332	9.53	33	No
Potassium-40	Gamma	66	66	100%	24.774242	3.6729494	17.5	25.55	32.1	na	n/a
Radium-223	Gamma	66	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a
Radium-224	Gamma	66	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a
Radium-226	Gamma	66	49	74%	1.0302273	0.2156154	0.546	1.08	1.39	5	No
Radium-228	Gamma	66	61	92%	1.5498788	0.3414223	0.791	1.63	2.07	5	No
Ruthenium-106	Gamma	66	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	66	0	0%	n/a	n/a	n/a	n/a	n/a	1.6	n/a
Strontium-85	Gamma	66	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a
Strontium-90	Sr-90[h]	66	0	0%	n/a	n/a	n/a	n/a	n/a	5.7	n/a
Thallium-208	Gamma	66	66	100%	0.4354242	0.091871	0.241	0.45	0.645	na	n/a
Thorium-227	Gamma	66	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a
Thorium-231	Gamma	66	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a
Thorium-234	Gamma	66	11	17%	1.3033924	1.007075	−1.32	1.23	4.91	na	n/a
Tin-113	Gamma	66	0	0%	n/a	n/a	n/a	n/a	n/a	na	n/a
Tritium	H^3 [i]	66	57	86%	16.381426	66.043465	−0.001551	0.1650185	373.205	750	No
Uranium-234	Isotopic	66	66	100%	1.0368182	0.4558222	0.512	0.9765	3.58	170	No
Uranium-235	Gamma	66	0	0%	n/a	n/a	n/a	n/a	n/a	17	n/a
Uranium-235/236	Isotopic	66	48	73%	0.0688411	0.0306068	−0.00769	0.06175	0.173	17	No
Uranium-238	Isotopic	66	66	100%	0.9664394	0.296094	0.551	0.957	2.54	87	No
Yttrium-88	Gamma	66	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]	66	100%	1.7	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 May 13, 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	71	71	100%	4228.3099	1250.6615	2690	4080	12,700
Antimony	71	33	46%	1.5787183	1.7792575	0.39	1.07	9.81
Arsenic	71	71	100%	1.3972958	0.7259277	0.659	1.28	6.3
Barium	71	71	100%	69.461972	21.093075	37.9	65.7	159
Beryllium	71	71	100%	0.5265493	0.2902037	0.264	0.442	1.9
Cadmium	71	60	85%	10.505648	55.648447	0.107	0.377	464
Calcium	71	70	99%	4030.7042	1589.8709	1590	3720	9260
Chromium	71	65	92%	6.4212676	2.02437	2.26	6.2	11.7
Cobalt	71	71	100%	3.3864789	5.2071536	1.08	2.75	46.1
Copper	71	67	94%	30.963944	115.77685	3.15	12.8	984
Iron	71	71	100%	10,136.197	1786.7571	6140	9950	15,400

Table 4.2-1 (continued)

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)**
Lead	71	64	90%	27.111831	68.808082	5.52	14.8	578
Magnesium	71	71	100%	1397.6056	436.34333	686	1400	2620
Manganese	71	71	100%	267.49296	45.893004	167	268	515
Mercury	71	71	100%	3.9824225	16.853018	0.0691	0.497	123
Nickel	71	65	92%	6.2853521	4.2329722	3.25	5.52	35.6
Potassium	71	68	96%	641.16901	125.32404	400	610	1090
Selenium	71	1	1%	1.0533803	0.0598392	0.731	1.06	1.23
Silver	71	27	38%	0.6256479	1.0049825	0.125	0.53	7.43
Sodium	71	63	89%	193.84225	79.732332	81.1	183	574
Thallium	71	57	80%	0.1772915	0.2238276	0.0594	0.119	1.08
Uranium	70	68	97%	45.503814	266.41462	0.508	2.925	2230
Vanadium	71	71	100%	14.970423	5.2353418	5.02	15.2	28.6
Zinc	71	67	94%	124.31831	233.79735	25.8	62.7	1620
TCLP								
Analyte	**Number of Analyses**	**Detects**	**Detection Rate**	**Mean (µg/L)**	**Standard Deviation (µg/L)**	**Minimum (µg/L)**	**Median (µg/L)**	**Maximum (µg/L)**
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	7	4	57%	16.427143	27.366659	2	2.57	74.9

Table 4.2-2
Organic Chemicals Detected in Contaminated Soil through May 13, 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[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	71	1	1%	0.0808775	0.1016103	0.018	0.0366	0.374
Acenaphthylene	71	1	1%	0.0808056	0.1016616	0.0116	0.0367	0.374
Acetone	71	2	3%	0.0370413	0.2073727	0.00182	0.00547	1.65
Aldrin	71	1	1%	0.003999	0.0041149	0.000696	0.000825	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	71	1	1%	0.852507	1.0541467	0.333	0.367	3.74
Anthracene	71	3	4%	0.0819597	0.1017224	0.00794	0.0367	0.374
Aroclor-1016	17	0	0%	n/a	n/a	n/a	n/a	n/a
Aroclor-1221	17	0	0%	n/a	n/a	n/a	n/a	n/a
Aroclor-1232	17	0	0%	n/a	n/a	n/a	n/a	n/a
Aroclor-1242	17	1	6%	0.06883	0.1583836	0.00346	0.0179	0.665
Aroclor-1248	17	1	6%	0.3634771	1.3629961	0.00346	0.0179	5.65
Aroclor-1254	17	13	76%	0.5059518	1.4024514	0.00359	0.0254	5.84
Aroclor-1260	17	8	47%	0.1619941	0.3921924	0.0018	0.019	1.59
Azobenzene	71	0	0%	n/a	n/a	n/a	n/a	n/a
Benzene	71	0	0%	n/a	n/a	n/a	n/a	n/a
Benzo(a)anthracene	71	7	10%	0.0803099	0.0965813	0.018	0.0367	0.374
Benzo(a)pyrene	71	10	14%	0.0788437	0.0961914	0.0133	0.0367	0.374
Benzo(b)fluoranthene	71	10	14%	0.0809746	0.0976458	0.0151	0.0367	0.374
Benzo(g,h,i)perylene	71	9	13%	0.080069	0.1022013	0.0134	0.0365	0.374
Benzo(k)fluoranthene	71	4	6%	0.0808704	0.1016533	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	71	3	4%	1.6137746	2.0337215	0.472	0.733	7.48
Benzyl alcohol	71	0	0%	n/a	n/a	n/a	n/a	n/a
BHC[alpha-]	71	1	1%	0.0039877	0.0041238	0.000387	0.000751	0.0231
BHC[beta-]	71	0	0%	n/a	n/a	n/a	n/a	n/a
BHC[delta-]	71	0	0%	n/a	n/a	n/a	n/a	n/a
BHC[gamma-]	71	0	0%	n/a	n/a	n/a	n/a	n/a
Bis(2-chloroethoxy)methane	71	0	0%	n/a	n/a	n/a	n/a	n/a
Bis(2-chloroethyl)ether	71	0	0%	n/a	n/a	n/a	n/a	n/a
Bis(2-ethylhexyl)phthalate	71	5	7%	0.7933282	1.024967	0.082	0.366	3.74
Bromobenzene	71	0	0%	n/a	n/a	n/a	n/a	n/a
Bromochloromethane	71	0	0%	n/a	n/a	n/a	n/a	n/a
Bromodichloromethane	71	0	0%	n/a	n/a	n/a	n/a	n/a
Bromoform	71	1	1%	0.0028785	0.0145888	0.000497	0.00109	0.124
Bromomethane	71	0	0%	n/a	n/a	n/a	n/a	n/a
Bromophenyl-phenylether[4-]	71	0	0%	n/a	n/a	n/a	n/a	n/a
Butanone[2-]	71	1	1%	0.0143977	0.0728226	0.00373	0.00547	0.619
Butylbenzene[n-]	71	1	1%	0.0028774	0.014589	0.000387	0.00109	0.124
Butylbenzene[sec-]	71	1	1%	0.0028768	0.0145891	0.000406	0.00109	0.124
Butylbenzene[tert-]	71	0	0%	n/a	n/a	n/a	n/a	n/a
Butylbenzylphthalate	71	0	0%	n/a	n/a	n/a	n/a	n/a
Carbon disulfide	71	0	0%	n/a	n/a	n/a	n/a	n/a
Carbon tetrachloride	71	0	0%	n/a	n/a	n/a	n/a	n/a
Chlordane[alpha-]	71	0	0%	n/a	n/a	n/a	n/a	n/a
Chlordane[gamma-]	71	1	1%	0.0039893	0.0041224	0.000492	0.000751	0.0231
Chloro-3-methylphenol[4-]	71	0	0%	n/a	n/a	n/a	n/a	n/a
Chloroaniline[4-]	71	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)
Chlorobenzene	71	0	0%	n/a	n/a	n/a	n/a	n/a
Chlorodibromomethane	71	0	0%	n/a	n/a	n/a	n/a	n/a
Chloroethane	71	0	0%	n/a	n/a	n/a	n/a	n/a
Chloroform	71	0	0%	n/a	n/a	n/a	n/a	n/a
Chloromethane	71	0	0%	n/a	n/a	n/a	n/a	n/a
Chloronaphthalene[2-]	71	0	0%	n/a	n/a	n/a	n/a	n/a
Chlorophenol[2-]	71	0	0%	n/a	n/a	n/a	n/a	n/a
Chlorophenyl-phenyl[4-] ether	71	0	0%	n/a	n/a	n/a	n/a	n/a
Chlorotoluene[2-]	71	0	0%	n/a	n/a	n/a	n/a	n/a
Chlorotoluene[4-]	71	0	0%	n/a	n/a	n/a	n/a	n/a
Chrysene	71	14	20%	0.0794676	0.098708	0.0118	0.0366	0.374
D[2,4-]	71	0	0%	n/a	n/a	n/a	n/a	n/a
Dalapon	71	0	0%	n/a	n/a	n/a	n/a	n/a
DB[2,4-]	71	1	1%	0.0088	0.0096037	0.00523	0.00549	0.0563
DDD[4,4'-]	71	2	3%	0.0079845	0.0082426	0.00116	0.00165	0.0463
DDE[4,4'-]	71	6	8%	0.0077907	0.0081443	0.000499	0.00199	0.0463
DDT[4,4'-]	71	17	24%	0.0075708	0.0080356	0.000424	0.00288	0.0463
Dibenz(a,h)anthracene	71	1	1%	0.0809859	0.1015491	0.024	0.0367	0.374
Dibenzofuran	71	0	0%	n/a	n/a	n/a	n/a	n/a
Dibromo-3-chloropropane[1,2-]	71	0	0%	n/a	n/a	n/a	n/a	n/a
Dibromoethane[1,2-]	71	0	0%	n/a	n/a	n/a	n/a	n/a
Dibromomethane	71	0	0%	n/a	n/a	n/a	n/a	n/a
Dicamba	71	0	0%	n/a	n/a	n/a	n/a	n/a
Dichlorobenzene[1,2-]	71	0	0%	n/a	n/a	n/a	n/a	n/a
Dichlorobenzene[1,3-]	71	0	0%	n/a	n/a	n/a	n/a	n/a
Dichlorobenzene[1,4-]	71	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)
Dichlorobenzidine[3,3'-]	71	0	0%	n/a	n/a	n/a	n/a	n/a
Dichlorodifluoromethane	71	0	0%	n/a	n/a	n/a	n/a	n/a
Dichloroethane[1,1-]	71	0	0%	n/a	n/a	n/a	n/a	n/a
Dichloroethane[1,2-]	71	0	0%	n/a	n/a	n/a	n/a	n/a
Dichloroethene[1,1-]	71	0	0%	n/a	n/a	n/a	n/a	n/a
Dichloroethene[cis-1,2-]	71	0	0%	n/a	n/a	n/a	n/a	n/a
Dichloroethene[trans-1,2-]	71	0	0%	n/a	n/a	n/a	n/a	n/a
Dichlorophenol[2,4-]	71	0	0%	n/a	n/a	n/a	n/a	n/a
Dichloropropane[1,2-]	71	0	0%	n/a	n/a	n/a	n/a	n/a
Dichloropropane[1,3-]	71	0	0%	n/a	n/a	n/a	n/a	n/a
Dichloropropane[2,2-]	71	0	0%	n/a	n/a	n/a	n/a	n/a
Dichloropropene[1,1-]	71	0	0%	n/a	n/a	n/a	n/a	n/a
Dichloropropene[cis-1,3-]	71	0	0%	n/a	n/a	n/a	n/a	n/a
Dichloropropene[trans-1,3-]	71	0	0%	n/a	n/a	n/a	n/a	n/a
Dichlorprop	71	2	3%	0.0089393	0.0095674	0.00523	0.00551	0.0563
Dieldrin	71	0	0%	n/a	n/a	n/a	n/a	n/a
Diethylphthalate	71	0	0%	n/a	n/a	n/a	n/a	n/a
Dimethyl phthalate	71	3	4%	0.8379859	1.0172986	0.349	0.367	3.74
Dimethylphenol[2,4-]	71	0	0%	n/a	n/a	n/a	n/a	n/a
Di-n-butylphthalate	71	27	38%	0.7876662	0.992631	0.0739	0.365	3.74
Dinitro-2-methylphenol[4,6-]	71	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-]	71	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-]	71	0	0%	n/a	n/a	n/a	n/a	n/a
Dinitrotoluene[2,6-]	16	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-]	71	0	0%	n/a	n/a	n/a	n/a	n/a
Di-n-octylphthalate	71	0	0%	n/a	n/a	n/a	n/a	n/a
Dinoseb	71	0	0%	n/a	n/a	n/a	n/a	n/a
Diphenylamine	71	0	0%	n/a	n/a	n/a	n/a	n/a
Endosulfan I	71	0	0%	n/a	n/a	n/a	n/a	n/a
Endosulfan II	71	0	0%	n/a	n/a	n/a	n/a	n/a
Endosulfan sulfate	71	0	0%	n/a	n/a	n/a	n/a	n/a
Endrin	71	0	0%	n/a	n/a	n/a	n/a	n/a
Endrin aldehyde	71	0	0%	n/a	n/a	n/a	n/a	n/a
Endrin ketone	71	0	0%	n/a	n/a	n/a	n/a	n/a
Ethylbenzene	71	1	1%	0.0029106	0.0145861	0.00098	0.00109	0.124
Fluoranthene	71	16	23%	0.0896141	0.1207728	0.0122	0.0366	0.653
Fluorene	71	1	1%	0.0809775	0.101551	0.0251	0.0366	0.374
Heptachlor	71	0	0%	n/a	n/a	n/a	n/a	n/a
Heptachlor epoxide	71	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	71	0	0%	n/a	n/a	n/a	n/a	n/a
Hexachlorobutadiene	71	0	0%	n/a	n/a	n/a	n/a	n/a
Hexachlorocyclopentadiene	71	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
Hexachlorodibenzodioxin[1,2,3,7,8,9-]	8	1	12%	5.08875E-07	1.40333E-07	0.000000384	0.000000473	0.000000843

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)
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	71	0	0%	n/a	n/a	n/a	n/a	n/a
Hexanone[2-]	71	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	71	6	8%	0.08107465	0.10183238	0.012	0.0366	0.374
Iodomethane	71	0	0%	n/a	n/a	n/a	n/a	n/a
Isophorone	71	0	0%	n/a	n/a	n/a	n/a	n/a
Isopropylbenzene	71	1	1%	0.0028778	0.01458894	0.000474	0.00109	0.124
Isopropyltoluene[4-]	71	2	3%	0.00287023	0.01459	0.000508	0.00109	0.124
MCPA	71	0	0%	n/a	n/a	n/a	n/a	n/a
MCPP	71	0	0%	n/a	n/a	n/a	n/a	n/a
Methoxychlor[4,4'-]	71	0	0%	n/a	n/a	n/a	n/a	n/a
Methyl-2-pentanone[4-]	71	2	3%	0.01432648	0.07283358	0.00153	0.00547	0.619
Methylene chloride	71	5	7%	0.01419155	0.07285118	0.00273	0.00547	0.619
Methylnaphthalene[2-]	71	8	11%	0.07858944	0.10285849	0.00942	0.0365	0.374
Methylphenol[2-]	71	0	0%	n/a	n/a	n/a	n/a	n/a
Methylphenol[4-]	71	0	0%	n/a	n/a	n/a	n/a	n/a
Naphthalene (SVOC analysis)[b]	71	8	11%	18.1319423	150.695449	0.0126	0.0367	1270
Naphthalene(VOC analysis)[c]	20	4	20%	0.0684085	0.2564222	0.000456	0.001115	1.14
Nitroaniline[2-]	71	0	0%	n/a	n/a	n/a	n/a	n/a
Nitroaniline[3-]	71	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[4-]	71	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	71	0	0%	n/a	n/a	n/a	n/a	n/a
Nitrophenol[2-]	71	0	0%	n/a	n/a	n/a	n/a	n/a
Nitrophenol[4-]	71	0	0%	n/a	n/a	n/a	n/a	n/a
Nitrosodimethylamine[N-]	71	0	0%	n/a	n/a	n/a	n/a	n/a
Nitroso-di-n-propylamine[N-]	71	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	14.7323431	0.49	0.5	59.7
Octachlorodibenzodioxin[1,2,3,4,6,7,8,9-]	8	8	100%	0.00019831	0.00024342	0.0000101	0.00009775	0.000667
Octachlorodibenzofuran[1,2,3,4,6,7,8,9-]	8	5	62%	3.1217E-05	4.3422E-05	9.82E-07	0.000013435	0.000129
Oxybis(1-chloropropane)[2,2'-]	71	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%	6.1563E-07	4.3156E-07	3.84E-07	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	71	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	71	6	8%	0.088292958	0.110694263	0.0116	0.0366	0.388
Phenol	71	0	0%	n/a	n/a	n/a	n/a	n/a
Propylbenzene[1-]	71	1	1%	0.002883521	0.014588059	0.00088	0.00109	0.124
Pyrene	71	18	25%	0.088338028	0.109790375	0.0132	0.0367	0.525
Pyridine	71	0	0%	n/a	n/a	n/a	n/a	n/a
RDX	16	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)
Styrene	71	2	3%	0.002876704	0.014589115	0.000406	0.00109	0.124
T[2,4,5-]	71	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-]	71	0	0%	n/a	n/a	n/a	n/a	n/a
Tetrachloroethane[1,1,2,2-]	71	1	1%	0.002885915	0.01458774	0.00098	0.00109	0.124
Tetrachloroethene	71	3	4%	0.002859056	0.01459168	0.000351	0.00109	0.124
Tetryl	16	0	0%	n/a	n/a	n/a	n/a	n/a
Toluene	71	7	10%	0.007816155	0.038054087	0.000366	0.00109	0.259
TPH-DRO	7	6	86%	6494.177143	16587.44052	7.74	74.5	44100
TPH-GRO	7	3	43%	0.082585714	0.096971704	0.0216	0.0559	0.3
Toxaphene (technical grade)	71	0	0%	n/a	n/a	n/a	n/a	n/a
TP[2,4,5-]	71	0	0%	n/a	n/a	n/a	n/a	n/a
Trichloro-1,2,2-trifluoroethane[1,1,2-]	71	0	0%	n/a	n/a	n/a	n/a	n/a
Trichlorobenzene[1,2,4-]	71	0	0%	n/a	n/a	n/a	n/a	n/a
Trichloroethane[1,1,1-]	71	0	0%	n/a	n/a	n/a	n/a	n/a
Trichloroethane[1,1,2-]	71	0	0%	n/a	n/a	n/a	n/a	n/a
Trichloroethene	71	8	11%	0.003292732	0.014622211	0.000457	0.00109	0.124
Trichlorofluoromethane	71	0	0%	n/a	n/a	n/a	n/a	n/a
Trichlorophenol[2,4,5-]	71	0	0%	n/a	n/a	n/a	n/a	n/a
Trichlorophenol[2,4,6-]	71	0	0%	n/a	n/a	n/a	n/a	n/a
Trichloropropane[1,2,3-]	71	0	0%	n/a	n/a	n/a	n/a	n/a
Trimethylbenzene[1,2,4-]	71	4	6%	0.003323606	0.015009793	0.000529	0.00109	0.124

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[1,3,5-]	71	2	3%	0.003128704	0.014723012	0.000365	0.00109	0.124
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	71	0	0%	n/a	n/a	n/a	n/a	n/a
Xylene[1,2-]	71	1	1%	0.003004887	0.014609957	0.000637	0.00109	0.124
Xylene[1,3-]+xylene[1,4-]	71	5	7%	0.005903859	0.029121026	0.000387	0.00219	0.247

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

[b] SVOC = Semivolatile organic compound.

[c] Naphthalene maximum results by VOC analysis in the previous quarterly report were much higher because of the inclusion of a data point that did not belong to the data set. This data point was removed from the statistical analysis.

Table 4.2-3
Radionuclides Detected in Contaminated Soil through May 13, 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]	71	68	96%	132.9495859	402.3037122	0.0766	5.66	2300
Americium-241	Gamma[b]	71	70	99%	241.6410141	1013.201176	0.137	9.44	8050
Bismuth-211	Gamma	71	0	0%	n/a[c]	n/a	n/a	n/a	n/a
Bismuth-214	Gamma	71	70	99%	1.14443662	0.242279752	0.164	1.15	1.99
Cadmium-109	Gamma	71	0	0%	n/a	n/a	n/a	n/a	n/a
Cerium-139	Gamma	71	0	0%	n/a	n/a	n/a	n/a	n/a
Cesium-134	Gamma	71	0	0%	n/a	n/a	n/a	n/a	n/a
Cesium-137	Gamma	71	4	6%	55.51704788	465.1872908	−0.0344	0.00719	3920
Cobalt-60	Gamma	71	0	0%	n/a	n/a	n/a	n/a	n/a
Europium-152	Gamma	71	0	0%	n/a	n/a	n/a	n/a	n/a
Lanthanum-140	Gamma	71	0	0%	n/a	n/a	n/a	n/a	n/a
Lead-212	Gamma	71	70	99%	1.663901408	0.335496142	0.851	1.7	2.5
Lead-214	Gamma	71	70	99%	1.381690141	0.270557498	0.707	1.4	2.42
Mercury-203	Gamma	71	0	0%	n/a	n/a	n/a	n/a	n/a
Plutonium-238	Isotopic[d]	71	62	87%	29.50422254	88.2985386	0.0477	1.32	599
Plutonium-239/240	Isotopic	71	71	100%	5830.654789	17,518.57017	3.03	243	118,000
Potassium-40	Gamma	71	71	100%	27.06901408	3.131480323	19.1	27.2	33.6
Radium-223	Gamma	71	0	0%	n/a	n/a	n/a	n/a	n/a
Radium-224	Gamma	71	0	0%	n/a	n/a	n/a	n/a	n/a
Radium-226	Gamma	71	21	30%	1.14443662	0.242279752	0.164	1.15	1.99
Radium-228	Gamma	71	69	97%	1.627478873	0.307888888	0.918	1.61	2.26
Ruthenium-106	Gamma	71	0	0%	n/a	n/a	n/a	n/a	n/a
Sodium-22	Gamma	71	0	0%	n/a	n/a	n/a	n/a	n/a
Strontium-85	Gamma	71	0	0%	n/a	n/a	n/a	n/a	n/a
Strontium-90	Sr-90[e]	71	4	6%	8.254436197	67.14520969	−0.286	0.0979	566

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)
Thallium-208	Gamma	71	70	99%	0.503042254	0.120833231	0.268	0.503	1.09
Thorium-227	Gamma	71	0	0%	n/a	n/a	n/a	n/a	n/a
Thorium-231	Gamma	71	0	0%	n/a	n/a	n/a	n/a	n/a
Thorium-234	Gamma	71	31	44%	32.65821268	192.2501684	−1.25	2.98	1620
Tin-113	Gamma	71	4	6%	0.087617592	0.399047607	−0.064	0.00721	3.15
Tritium	H^{3}[f]	71	49	69%	2.28209688	13.27090159	−0.00116667	0.0697541	110.953
Uranium-234	Isotopic	71	71	100%	21.48140845	99.91930687	0.623	3.49	831
Uranium-235	Gamma	71	24	34%	2.225392549	10.83885389	−0.0914	0.307	90.6
Uranium-235/236	Isotopic	71	62	87%	1.458260563	6.701288906	0.0271	0.193	55
Uranium-238	Isotopic	71	71	100%	20.58995775	101.9431541	0.627	2.3	848
Yttrium-88	Gamma	71	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	12,800	na[d]	n/a[e]
Chromium	5.42	113,000	No
Cobalt	3.48	23[f]	No
Copper	8.69	3130	No
Cyanide (total)	0.338	1560	No
Iron	10,600	54,800	No
Lead	77.3	400	No
Magnesium	1610	na	n/a
Manganese	342	10,700	No
Mercury	0.917	7.71	No
Nickel	7	1560	No
Nitrate	19.5	125,000	No
Perchlorate	0.0867	54.8	No
Potassium	1280	na	n/a
Silver	3.5	391	No
Sodium	268	na	n/a
Thallium	0.189	5.16	No
Uranium	5790	235[g]	Yes
Vanadium	13.3	391	No
Zinc	53.2	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-]	0.000774	na	n/a
Methyl-2-pentanone[4-]	0.00287	5950	No
Naphthalene	0.0205	45	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
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	na[b]	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
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 (J)	10.4	0.233	ND	404 (J)	2.08

Table 4.3-3 (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	na	113,000
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[h]	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[i]	NS	AJ200, excavation floor	1320	0.394 (J)	0.542 (J)	14.9	0.566	ND	815 (J-)	ND
CSMDAB-11-4855	NS	NG87, excavation floor	1230 (J+)	ND	0.455 (J)	31.4	0.233	0.261 (J)	2810	ND
CSMDAB-11-4856	NS	NF87, north-side wall	362 (J+)	ND	0.519 (J)	11.8	0.17	0.111 (J)	1770	ND
CSMDAB-11-4857	NS	NH86, south-side wall	422 (J+)	ND	0.372 (J)	9.23	0.338	ND	ND	ND
CSMDAB-11-4858	NS	NG91, excavation floor	901 (J+)	ND	0.452 (J)	12.2	0.279	0.11 (J)	1480	0.925
CSMDAB-11-4859	NS	NF91, north-side wall	727 (J+)	0.535 (J)	0.748 (J)	11.7	0.167	0.664	2150	0.864
CSMDAB-11-4860	NS	NH91, south-side wall	1360 (J+)	ND	0.756 (J)	17.5	0.439	ND	2820	1.27
CSMDAB-10-26812[i]	NS	AJ200, excavation floor	1320	0.394 (J)	0.542 (J)	14.9	0.566	ND	815 (J-)	ND
CSMDAB-11-4861	NS	NG97, excavation floor	1230 (J+)	ND	0.449 (J)	15.9	0.177	0.114 (J)	12800	1.62
CSMDAB-11-4862	NS	NF96, north-side wall	2870 (J+)	ND	0.984 (J)	50.9	0.324	0.113 (J)	4200	2.31
CSMDAB-11-4863	NS	NI97, south-side wall	683 (J+)	ND	0.621 (J)	8.66	0.156	ND	4150	1.06
CSMDAB-11-4864	NS	NI101, south-side wall	365 (J+)	0.429 (J)	0.725 (J)	6.97	0.241	ND	245	0.749
CSMDAB-11-5775	NS	NF101, north-side wall	1290 (J+)	ND	0.571 (J)	20.2	0.138	ND	2050	1.27
CSMDAB-11-5776	NS	NH101, excavation floor	660 (J+)	ND	0.251 (J)	7.57	0.194	ND	7280	0.843

Table 4.3-3 (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
CSMDAB-10-26782	Sampled	AH166, north-side wall	0.467 (J)	1.4	ND	7160	5.44	413 (J+)	226	0.162
CSMDAB-10-26779	Sampled	AI155, north-side wall	1.34	2.71	ND	6670	5.52	699 (J+)	290	0.0107 (J)
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

Table 4.3-3 (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-10-26786	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[h]	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[i]	NS	AJ200, excavation floor	0.36 (J)	ND	ND	6000	ND	349	223	0.178
CSMDAB-11-4855	NS	NG87, excavation floor	0.415 (J)	ND	0.338	5670	ND	346	194	0.917
CSMDAB-11-4856	NS	NF87, north-side wall	0.206 (J)	ND	ND	5160	ND	157	237	0.00987 (J)
CSMDAB-11-4857	NS	NH86, south-side wall	0.193 (J)	ND	ND	4900	ND	146	228	0.42
CSMDAB-11-4858	NS	NG91, excavation floor	0.255 (J)	1.69	ND	6030	4.51	284	270	ND
CSMDAB-11-4859	NS	NF91, north-side wall	0.2 (J)	1.43	ND	5220	4.08	257	229	0.01 (J)
CSMDAB-11-4860	NS	NH91, south-side wall	0.611	1.91	ND	5890	4.6	515	244	ND
CSMDAB-11-4861	NS	NG97, excavation floor	0.496 (J)	1.58	ND	5590	4.27	1100	220	0.00491 (J)
CSMDAB-11-4862	NS	NF96, north-side wall	1.18	3.02	ND	6960	6.6	872	233	0.00662 (J)
CSMDAB-11-4863	NS	NI97, south-side wall	0.311 (J)	1.96	ND	5560	4.38	405	256	0.0171
CSMDAB-11-4864	NS	NI101, south-side wall	0.175 (J)	1.32	ND	5270	4.06	84.2	264	ND
CSMDAB-11-5775	NS	NF101, north-side wall	0.368 (J)	1.94	ND	5260	3.32	401	224	ND
CSMDAB-11-5776	NS	NH101, excavation floor	0.21 (J)	1.85	ND	4810	3.19	609	227	ND

Table 4.3-3 (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
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

Table 4.3-3 (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-10-26786	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[h]	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[i]	NS	AJ200, excavation floor	ND	ND	0.0867	248	ND	ND	ND	5.62 (J+)
CSMDAB-11-4855	NS	NG87, excavation floor	ND	19.5	0.000749 (J)	ND	3.5	ND	ND	1.17
CSMDAB-11-4856	NS	NF87, north-side wall	ND	2.79	ND	ND	ND	ND	ND	1.18
CSMDAB-11-4857	NS	NH86, south-side wall	ND	1.3	ND	ND	ND	ND	ND	ND
CSMDAB-11-4858	NS	NG91, excavation floor	0.73	3.22	0.00192 (J)	180	ND	105	ND	0.667
CSMDAB-11-4859	NS	NF91, north-side wall	0.885	6.36	0.00153 (J)	180	ND	137	ND	0.821
CSMDAB-11-4860	NS	NH91, south-side wall	2.13	4.1	0.000926 (J)	239	ND	132	ND	0.661
CSMDAB-11-4861	NS	NG97, excavation floor	1.71	2.4	ND	263	ND	268	ND	3.84
CSMDAB-11-4862	NS	NF96, north-side wall	2.45	2.55	0.000615 (J)	666	ND	243	0.127 (J)	13.2
CSMDAB-11-4863	NS	NI97, south-side wall	1.15	2.24	0.000839 (J)	170	ND	154	ND	1.3
CSMDAB-11-4864	NS	NI101, south-side wall	1.38	1.24	0.00366	130	ND	129	ND	0.502
CSMDAB-11-5775	NS	NF101, north-side wall	1.24	2.03	ND	283	ND	168	ND	0.409
CSMDAB-11-5776	NS	NH101, excavation floor	1.31	2.1	0.00059 (J)	180	ND	224	ND	0.427

Table 4.3-3 (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
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

Table 4.3-3 (continued)

Sample ID	NMED Split	Location ID	Vanadium	Zinc
Analytical Suite			Metals	Metals
Residential SSL (mg/kg)[a]			391	23,500
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[h]	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[i]	NS	AJ200, excavation floor	3.61	46.3
CSMDAB-11-4855	NS	NG87, excavation floor	2.02	53.2
CSMDAB-11-4856	NS	NF87, north-side wall	1.26	37.4
CSMDAB-11-4857	NS	NH86, south-side wall	1.19	31.3
CSMDAB-11-4858	NS	NG91, excavation floor	1.66	28.3
CSMDAB-11-4859	NS	NF91, north-side wall	1.24	24.9
CSMDAB-11-4860	NS	NH91, south-side wall	3.03	26.9
CSMDAB-11-4861	NS	NG97, excavation floor	2.9	24.6
CSMDAB-11-4862	NS	NF96, north-side wall	6.51	23.4
CSMDAB-11-4863	NS	NI97, south-side wall	1.7	27.4

Table 4.3-3 (continued)

Sample ID	NMED Split	Location ID	Vanadium	Zinc
Analytical Suite			Metals	Metals
Residential SSL (mg/kg)[a]			391	23,500
CSMDAB-11-4864	NS	NI101, south-side wall	1.11	34.6
CSMDAB-11-5775	NS	NF101, north-side wall	2.37	36
CSMDAB-11-5776	NS	NH101, excavation floor	1.12	31.4

[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.

[h] Sample results were invalidated because of subsequent excavation and resampling.

[I] Area was resampled.

Table 4.3-4
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	NDd	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
CSMDAB-11-4855	NS	NG87, excavation floor	ND	ND	ND	ND	ND
CSMDAB-11-4856	NS	NF87, north-side wall	ND	ND	ND	ND	ND
CSMDAB-11-4859	NS	NF91, north-side wall	ND	ND	ND	ND	0.000757 (J)
CSMDAB-11-4860	NS	NH91, south-side wall	ND	ND	ND	ND	ND
CSMDAB-11-4861	NS	NG97, excavation floor	ND	ND	ND	ND	ND
CSMDAB-11-4863	NS	NI97, south-side wall	ND	ND	0.000354 (J)	ND	0.000387 (J)
CSMDAB-11-4864	NS	NI101, south-side wall	ND	ND	ND	ND	ND
CSMDAB-11-5775	NS	NF101, north-side wall	ND	0.00189 (J)	ND	ND	ND
CSMDAB-11-4860	NS	NH91, south-side wall	ND	ND	ND	ND	ND

Table 4.3-4 (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**	**Dioxin/Furan**	**Dioxin/Furan**	**Dioxin/Furan**	**Dioxin/Furan**
Residential SSL (mg/kg)[b]			**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
CSMDAB-11-4855	NS	NG87, excavation floor	ND	ND	ND	ND	ND
CSMDAB-11-4856	NS	NF87, north-side wall	ND	ND	ND	ND	ND
CSMDAB-11-4859	NS	NF91, north-side wall	ND	ND	0.000000417 (J)	ND	ND
CSMDAB-11-4860	NS	NH91, south-side wall	ND	ND	ND	ND	ND
CSMDAB-11-4861	NS	NG97, excavation floor	ND	ND	ND	ND	ND
CSMDAB-11-4863	NS	NI97, south-side wall	ND	ND	ND	ND	ND
CSMDAB-11-4864	NS	NI101, south-side wall	ND	0.00000102 (J)	0.00000102 (J)	ND	0.000000416 (J)
CSMDAB-11-5775	NS	NF101, north-side wall	ND	ND	ND	ND	ND

Table 4.3-4 (continued)

Sample ID	NMED Split	Location ID	Hexachlorodibenzodioxins (total)	Hexachlorodibenzofurans (total)	Hexanone[2-]	Isopropyltoluene[4-]	Methyl-2-pentanone[4-]
Analytical Suite			**Dioxin/Furan**	**Dioxin/Furan**	**VOC**	**VOC**	**VOC**
Residential SSL (mg/kg)[b]			**na**	**na**	**210[g]**	**na**	**5950**
CSMDAB-10-24585	Sampled	AJ260, south-side wall	ND	0.000000603 (J)	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	0.00000317 (J)	0.00000247 (J)	ND	ND	ND
CSMDAB-10-26785	Sampled	AI171, north-side wall	ND	ND	0.0348 (J+)	ND	0.00287 (J+)
CSMDAB-10-26787	Sampled	AJ171, excavation floor	ND	ND	ND	ND	ND
CSMDAB-10-26804	Sampled	AK196, south-side wall	0.000000479 (J)	ND	ND	ND	ND
CSMDAB-10-26805	NS	AH200, north-side wall	ND	ND	ND	ND	ND
CSMDAB-10-26806	NS	AK200, south-side wall	ND	ND	ND	0.00038 (J)	ND
CSMDAB-10-26807	NS	AJ200, excavation floor	ND	ND	ND	ND	ND
CSMDAB-10-26808	NS	AH205, north-side wall	ND	ND	ND	ND	ND
CSMDAB-10-26809	NS	AK205, south-side wall	ND	ND	ND	ND	ND
CSMDAB-11-4855	NS	NG87, excavation floor	ND	ND	ND	ND	ND
CSMDAB-11-4856	NS	NF87, north-side wall	ND	ND	ND	ND	ND
CSMDAB-11-4859	NS	NF91, north-side wall	ND	ND	ND	ND	ND
CSMDAB-11-4860	NS	NH91, south-side wall	ND	ND	ND	ND	ND
CSMDAB-11-4861	NS	NG97, excavation floor	ND	ND	ND	0.000774 (J)	ND
CSMDAB-11-4863	NS	NI97, south-side wall	ND	ND	ND	ND	ND
CSMDAB-11-4864	NS	NI101, south-side wall	ND	ND	ND	ND	ND
CSMDAB-11-5775	NS	NF101, north-side wall	ND	ND	ND	ND	ND

Table 4.3-4 (continued)

Sample ID	NMED Split	Location ID	Naphthalene	Octachlorodibenzodioxin[1,2,3,4,6,7,8,9-]	Octachlorodibenzofuran[1,2,3,4,6,7,8,9-]	Pentachlorodibenzofurans (total)	Tetrachlorodibenzofurans (total)
Analytical Suite			VOC	Dioxin/Furan	Dioxin/Furan	Dioxin/Furan	Dioxin/Furan
Residential SSL (mg/kg)[b]			45	na	na	na	na
CSMDAB-10-24585	Sampled	AJ260, south-side wall	ND	0.0000133	0.00000888 (J)	ND	ND
CSMDAB-10-24595	NS	AJ255, south-side wall	ND	0.00000107 (J)	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	0.0000428 (J+)	0.00000234 (J)	0.00000131 (J)	0.0000022 (J)
CSMDAB-10-26785	Sampled	AI171, north-side wall	ND	ND	ND	ND	ND
CSMDAB-10-26787	Sampled	AJ171, excavation floor	ND	0.00000104 (J)	ND	ND	ND
CSMDAB-10-26804	Sampled	AK196, south-side wall	ND	0.00000996	ND	ND	ND
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	ND	ND	ND	ND	ND
CSMDAB-10-26809	NS	AK205, south-side wall	ND	ND	ND	ND	ND
CSMDAB-11-4855	NS	NG87, excavation floor	0.0205	ND	ND	ND	ND
CSMDAB-11-4856	NS	NF87, north-side wall	0.00113	ND	ND	ND	ND
CSMDAB-11-4859	NS	NF91, north-side wall	ND	0.00000208 (J)	ND	ND	ND
CSMDAB-11-4860	NS	NH91, south-side wall	0.00057 (J)	ND	ND	ND	ND
CSMDAB-11-4861	NS	NG97, excavation floor	0.000449 (J)	ND	ND	ND	ND
CSMDAB-11-4863	NS	NI97, south-side wall	ND	ND	ND	ND	ND
CSMDAB-11-4864	NS	NI101, south-side wall	ND	0.00000619 (J)	ND	ND	ND
CSMDAB-11-5775	NS	NF101, north-side wall	ND	ND	ND	ND	ND

Table 4.3-4 (continued)

Sample ID	NMED Split	Location ID	Tetrachloroethene	Trichloroethene
Analytical Suite			**VOC**	**VOC**
Residential SSL (mg/kg)[b]			**6.99**	**45.7**
CSMDAB-10-24585	Sampled	AJ260, south-side wall	ND	ND
CSMDAB-10-24595	NS	AJ255, south-side wall	ND	ND
CSMDAB-10-25079	NS	NF51, north-side wall	ND	ND
CSMDAB-10-26778	Sampled	AK160, south-side wall	ND	ND
CSMDAB-10-26785	Sampled	AI171, north-side wall	ND	ND
CSMDAB-10-26787	Sampled	AJ171, excavation floor	ND	ND
CSMDAB-10-26804	Sampled	AK196, south-side wall	ND	ND
CSMDAB-10-26805	NS	AH200, north-side wall	ND	0.000957 (J)
CSMDAB-10-26806	NS	AK200, south-side wall	ND	ND
CSMDAB-10-26807	NS	AJ200, excavation floor	ND	ND
CSMDAB-10-26808	NS	AH205, north-side wall	0.000863 (J)	0.0194
CSMDAB-10-26809	NS	AK205, south-side wall	ND	0.000676 (J)
CSMDAB-11-4855	NS	NG87, excavation floor	ND	ND
CSMDAB-11-4856	NS	NF87, north-side wall	ND	ND
CSMDAB-11-4859	NS	NF91, north-side wall	ND	ND

Table 4.3-4 (continued)

Sample ID	NMED Split	Location ID	Tetrachloroethene	Trichloroethene
Analytical Suite			**VOC**	**VOC**
Residential SSL (mg/kg)b			**6.99**	**45.7**
CSMDAB-11-4860	NS	NH91, south-side wall	ND	ND
CSMDAB-11-4861	NS	NG97, excavation floor	ND	ND
CSMDAB-11-4863	NS	NI97, south-side wall	ND	ND
CSMDAB-11-4864	NS	NI101, south-side wall	ND	ND
CSMDAB-11-5775	NS	NF101, north-side wall	ND	ND

[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.

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 sea level
bgs	below ground surface
BHC	benzene hexachloride
CAM	continuous air monitoring
CFR	Code of Federal Regulations
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	octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine
ID	identification
IH	industrial hygiene
LAL	lower acceptance limit
LANL	Los Alamos National Laboratory
LLW	low-level waste
MAR	material at risk
MCPA	methyl-chlorophenoxyacetic 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
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
SVOC	semivolatile organic compound
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

During the site investigation of Material Disposal Area (MDA) B, overburden and layback soil samples have been collected to determine if the soil can be reused as backfill in the trenches being excavated. Confirmation samples have also been collected to determine if uncontaminated tuff has been reached. This appendix presents the analytical methods used and data quality review for 66 overburden soil and fill samples collected between June 29, 2010, and May 13, 2011, and for 66 confirmation samples collected between August 11, 2010, and May 13, 2011.

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 (where necessary) 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 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 are provided in Appendix C (on DVD 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. This appendix presents data from 66 overburden samples collected from June 29, 2010, through May 13, 2011. These overburden samples were collected from the stockpile in the west lay-down yard and from the containerized overburden. Thirty overburden field trip blanks were collected in association with this overburden sampling, as well as nine field duplicates and ten field rinsate samples. This appendix also presents data from the 18 field trip blanks, 7 field duplicates, and 6 field rinsates collected in association with the 66 confirmation samples.

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 DVD 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

Seven confirmation samples and 120 overburden organic analyte results were qualified as estimated not detected (UJ) and 3 overburden organic analyte results were qualified as estimated (J) because the affected analytes were analyzed with an initial calibration verification and/or continuing calibration verification that was recovered outside method-specific limits.

Twenty-four 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 organic results 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 139 overburden and 20 confirmation sample 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 25 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 sample organic 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.

Seven 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.

One overburden organic result was 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

Six 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 six 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. Thirteen 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

A total of 139 overburden and 2 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

Thirteen overburden and two confirmation sample inorganic results were qualified as estimated (J) because the analyte was detected in the method blank. Twenty overburden and 11 confirmation sample

inorganic 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 135 overburden and 75 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 overburden and nine 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. Forty-eight 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 13 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 304 confirmation sample gamma spectroscopy results were qualified as rejected (R) because spectral interferences prevented the positive identification of the analyte.

A total of 330 overburden gamma spectroscopy results were qualified as rejected (R) because spectral interferences prevented positive identification of the analyte.

A total of 1489 overburden and 1051 confirmation sample radionuclide results were qualified as not detected (U) because the detected concentration was less than the minimum detectable activity. Thirteen overburden and 26 confirmation sample results were qualified as estimated not detected (U) 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 (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

Three radionuclide results from overburden sampling were qualified as estimated biased low (J-) because the tracer was recovered below the LAL but above 10% recovery. Two radionuclide results from overburden sampling were 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. Four 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

Thirty field trip blanks were collected in association with overburden sampling. Two field trip blanks associated with overburden samples had a detectable concentration of methylene chloride, five 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.

Eighteen field trip blanks were collected in association with confirmation sampling. Five field trip blanks had detectable levels of acetone, and one had a detectable level of isopropyltoluene. These results were above the method detection limit but below the practical quantitation limit; therefore, no field sample data were qualified based on the analyte detections in these field trip blanks. One field trip blank had a detectable level of acetone above the practical quantitation limit. No acetone was detected in the associated confirmation samples. Therefore, no data were qualified based on this result.

B-6.2 Field Duplicates

Seven field duplicates were collected in association with confirmation samples and nine were collected in association with overburden samples.

SOP-5059, Field Quality Control Samples, recommends a RPD between a field duplicate and its associated field sample of less than 20%. Sixteen 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.

Thirty-two 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

Ten field rinsates were collected in association with overburden sampling. All ten field rinsates collected in association with overburden sampling had detectable, usually quantifiable, concentrations of aluminum, copper, iron, lead, manganese, sodium, and zinc. Nine field rinsates had detectable concentrations of barium, calcium, iron, and nickel. Eight had detectable levels of chromium, magnesium, and vanadium. Seven had detectable concentrations of elemental uranium. Six had detectable concentrations of nitrate. Five had detectable concentrations of potassium. Three had detectable concentrations of beryllium and cadmium, and one had a detectable concentration of antimony. From associated overburden samples, 11 copper, 5 chromium, 43 sodium, 21 lead, 17 zinc, 4 uranium, 13 nitrate, and 4 nickel results were flagged as nondetects (U) because of being indistinguishable from associated rinsate results.

Six field rinsates were collected in association with confirmation sampling. Five field rinsates had detectable concentrations of sodium, calcium, aluminum, manganese, barium, chromium, copper, lead, and iron. Four had detectable concentrations of potassium, zinc, and nickel. One rinsate result showed levels of nitrate, cyanide, cadmium, magnesium, and selenium above the method detection limit but below the practical quantitation limit. Two field rinsates had levels of uranium above the method detection limit but below the practical quantitation limit. From associated confirmation samples, 14 copper, 13 chromium, 17 sodium, 13 lead, 2 zinc, 1 nitrate, 6 potassium, and 13 nickel results were flagged as nondetects (U) because of being indistinguishable from associated rinsate results.

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)

EPA (U.S. Environmental Protection Agency), October 1999. "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review," EPA540/R-99/008, Office of Emergency and Remedial Response, Washington, D.C. (EPA 1999, 066649)

LANL (Los Alamos National Laboratory), 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, through May 13, 2011
(on DVD included with this document)

Appendix D

Radionuclides Detected during Confirmation Sampling

Table D-1
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[f]	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[f]	NS[g]	AH260, north-side wall	0.247	ND	ND	ND	ND	ND	0.123	20.7
CSMDAB-10-24590[f]	NS	AH260, north-side wall	ND	ND	ND	ND	ND	ND	ND	1.5
CSMDAB-10-24591[f]	NS	AH260, north-side wall	ND	ND	ND	ND	ND	ND	0.0654	3.74
CSMDAB-10-24592[h]	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

Table D-1 (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 SALs (pCi/g)[a]			30	30	na	5.6	na	na	37	33
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
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[f]	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[f]	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)

Table D-1 (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 SALs (pCi/g)[a]			30	30	na	5.6	na	na	37	33
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[h]	NS	AI196, excavation floor	ND	0.251	1.52	ND	2.22	1.58	0.185	7.27
CSMDAB-10-26812[h]	NS	AJ200, excavation floor	0.361	0.667	1.53	ND	2.16	1.66	ND	11.8 (J)
CSMDAB-11-10125[h]	NS	NI98, south-side wall	7.82	15.3	1.38	ND	1.92	1.64	ND	391
CSMDAB-11-4855	NS	NG87, excavation floor	0.729	0.989	1.39	ND	2.22	1.85	0.185	29.4
CSMDAB-11-4856[i]	NS	NF87, north-side wall	1.45	4.17	1.3	ND	2.18	1.68	0.294	84.7
CSMDAB-11-4857	NS	NH86, south-side wall	ND	ND	1.62	ND	2.29	1.74	ND	1.4
CSMDAB-11-4858	NS	NG91, excavation floor	0.608	1.01	1.45	ND	2.43	1.62	0.212	36.6
CSMDAB-11-4859	NS	NF91, north-side wall	0.387	ND	1.38	ND	2.33	1.83	0.0684	18.1
CSMDAB-11-4860	NS	NH91, south-side wall	0.184	ND	1.24	ND	2.17	1.49	ND	12.3
CSMDAB-11-4861	NS	NG97, excavation floor	0.475	0.801	1.29	ND	1.97	1.67	0.103	21.2
CSMDAB-11-4862	NS	NF96, north-side wall	ND	ND	1.08	ND	2.03	1.45	ND	0.717
CSMDAB-11-4863[f]	NS	NI97, south-side wall	4.03	6.14	1.38	ND	2.32	1.89	1.07 (J-)	228 (J-)
CSMDAB-11-4864	NS	NI101, south-side wall	0.0949	ND	1.48	ND	2.21	1.59	0.0619	4.32
CSMDAB-11-5775	NS	NF101, north-side wall	ND	ND	1.42	ND	2.23	1.69	ND	1.34
CSMDAB-11-5776	NS	NH101, excavation floor	0.578	ND	1.49	ND	2.1	1.66	0.15	25.3
CSMDAB-11-9163	NS	NI96, south-side wall	ND	ND	ND	ND	ND	ND	ND	18.3
CSMDAB-11-9164[f]	NS	NI97, south-side wall	ND	ND	ND	ND	ND	ND	ND	8.09
CSMDAB-11-9165[f]	NS	NI98, south-side wall	ND	ND	ND	ND	ND	ND	26.4	6130
CSMDAB-11-9166[h]	NS	NF87, north-side wall	ND	ND	ND	ND	ND	ND	ND	11.9
CSMDAB-11-9167[h]	NS	NF87, north-side wall	ND	ND	ND	ND	ND	ND	ND	5.65

Table D-1 (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 SALs (pCi/g)[a]			**30**	**30**	**na**	**5.6**	**na**	**na**	**37**	**33**
CSMDAB-11-9168[h]	NS	NF86, north-side wall	ND	ND	ND	ND	ND	ND	ND	3.33
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 D-1 (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[f]	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[f]	NS	AH260, north-side wall	ND	ND	ND	ND	ND	ND	ND	ND
CSMDAB-10-24590[f]	NS	AH260, north-side wall	ND	ND	ND	ND	ND	ND	ND	ND
CSMDAB-10-24591[f]	NS	AH260, north-side wall	ND	ND	ND	ND	ND	ND	ND	ND
CSMDAB-10-24592[h]	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	Sampled	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

Table D-1 (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-10-26779	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
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[f]	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[f]	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[h]	NS	AI196, excavation floor	34.4	ND	2.06	ND	0.738	ND	ND	1.02
CSMDAB-10-26812[h]	NS	AJ200, excavation floor	36.3	ND	2.14	ND	0.59	3.89	0.0186432	3.15
CSMDAB-11-10125[h]	NS	NI98, south-side wall	27	ND	ND	ND	0.569	ND	ND	1.06

Table D-1 (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-11-4855	NS	NG87, excavation floor	33.8	ND	2.33	ND	0.603	ND	0.0652086	3.11
CSMDAB-11-4856[i]	NS	NF87, north-side wall	35.2	ND	2.33	ND	0.659	3.09	0.024	1.28
CSMDAB-11-4857	NS	NH86, south-side wall	33.6	ND	2.34	ND	0.673	ND	0.0402062	0.903
CSMDAB-11-4858	NS	NG91, excavation floor	34.5	ND	2.06	ND	0.592	ND	0.015722	1.18
CSMDAB-11-4859	NS	NF91, north-side wall	35.5	ND	1.91	ND	0.708	ND	0.0190082	1.25
CSMDAB-11-4860	NS	NH91, south-side wall	34.2	ND	1.88	ND	0.58	ND	0.0243368	0.858
CSMDAB-11-4861	NS	NG97, excavation floor	33.5	ND	1.97	ND	0.57	4.36	0.0829326	2.95
CSMDAB-11-4862	NS	NF96, north-side wall	34.8	ND	1.93	ND	0.557	7.51	0.0328182	8.59
CSMDAB-11-4863[f]	NS	NI97, south-side wall	32.4	ND	2.06	ND	0.675	2.47	0.0235426	1.38
CSMDAB-11-4864	NS	NI101, south-side wall	36.9	ND	2.03	ND	0.582	ND	0.0106491	0.864
CSMDAB-11-5775	NS	NF101, north-side wall	35.8	ND	2.05	ND	0.592	ND	0.0194798	1.08
CSMDAB-11-5776	NS	NH101, excavation floor	34.9	ND	1.86	ND	0.618	ND	ND	1.02
CSMDAB-11-9163	NS	NI96, south-side wall	ND	ND	ND	ND	ND	ND	ND	ND
CSMDAB-11-9164[f]	NS	NI97, south-side wall	ND	ND	ND	ND	ND	ND	ND	ND
CSMDAB-11-9165[f]	NS	NI98, south-side wall	ND	ND	ND	ND	ND	ND	ND	ND
CSMDAB-11-9166[h]	NS	NF87, north-side wall	ND	ND	ND	ND	ND	ND	ND	ND
CSMDAB-11-9167[h]	NS	NF87, north-side wall	ND	ND	ND	ND	ND	ND	ND	ND
CSMDAB-11-9168[h]	NS	NF86, north-side wall	ND	ND	ND	ND	ND	ND	ND	ND
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 D-1 (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[f]	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[f]	NS	AH260, north-side wall	ND	ND	ND
CSMDAB-10-24590[f]	NS	AH260, north-side wall	ND	ND	ND
CSMDAB-10-24591[f]	NS	AH260, north-side wall	ND	ND	ND
CSMDAB-10-24592[h]	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

Table D-1 (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-10-26776	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
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[f]	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[f]	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

Table D-1 (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-10-26810	NS	AJ205, excavation floor	ND	0.073	1.03
CSMDAB-10-26811[h]	NS	AI196, excavation floor	ND	0.11	1.02
CSMDAB-10-26812[h]	NS	AJ200, excavation floor	ND	0.214	2.84
CSMDAB-11-10125[h]	NS	NI98, south-side wall	ND	ND	1.09
CSMDAB-11-4855	NS	NG87, excavation floor	ND	0.0897	1.27
CSMDAB-11-4856[i]	NS	NF87, north-side wall	ND	0.0727	1.48
CSMDAB-11-4857	NS	NH86, south-side wall	ND	0.0571	0.794
CSMDAB-11-4858	NS	NG91, excavation floor	ND	0.0952	1.07
CSMDAB-11-4859	NS	NF91, north-side wall	ND	ND	1.05
CSMDAB-11-4860	NS	NH91, south-side wall	ND	ND	1.03
CSMDAB-11-4861	NS	NG97, excavation floor	ND	0.195	2.97
CSMDAB-11-4862	NS	NF96, north-side wall	ND	0.508	7.56
CSMDAB-11-4863[f]	NS	NI97, south-side wall	ND	0.0805	1.35
CSMDAB-11-4864	NS	NI101, south-side wall	ND	ND	0.832
CSMDAB-11-5775	NS	NF101, north-side wall	ND	0.0697	1
CSMDAB-11-5776	NS	NH101, excavation floor	ND	ND	0.971
CSMDAB-11-9163	NS	NI96, south-side wall	ND	ND	ND
CSMDAB-11-9164[f]	NS	NI97, south-side wall	ND	ND	ND
CSMDAB-11-9165[f]	NS	NI98, south-side wall	ND	ND	ND
CSMDAB-11-9166[h]	NS	NF87, north-side wall	ND	ND	ND
CSMDAB-11-9167[h]	NS	NF87, north-side wall	ND	ND	ND

Table D-1 (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-11-9168[h]	NS	NF86, north-side wall	ND	ND	ND
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

[a] Unless indicated otherwise, SALs are from "Radionuclide Screening Action Levels (SALs) from RESRAD, Version 6.5," Los Alamos National Laboratory document LA-UR-09-8111, Los Alamos, New Mexico. (LANL 2009, 107655).

[b] na = Not available.

[c] Sampled = Location sampled by NMED.

[d] ND = Not detected.

[e] Reanalysis.

[f] Radionuclide results were invalidated because of subsequent excavation and resampling.

[g] NS = Location not sampled by NMED.

[h] Area was resampled.

[i] Plutonium results were invalidated because of subsequent excavation and resampling.