ERID-243675

LA-UR-13-24556
June 2013
EP2013-0111

Investigation/Remediation Report for Material Disposal Area B, Solid Waste Management Unit 21-015, Revision 2

Los Alamos
NATIONAL LABORATORY

Prepared by the Environmental Programs Directorate

EP2013-0111

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EXECUTIVE SUMMARY

Material Disposal Area (MDA) B is an inactive subsurface disposal site located in Technical Area 21 (TA-21) at Los Alamos National Laboratory (the Laboratory). From 1944 until it closed in 1948, MDA B received Laboratory wastes that contained both hazardous constituents and radionuclides. The MDA B investigation/remediation work plan (IRWP) proposed completely removing waste from MDA B rather than evaluating corrective measures alternatives. The New Mexico Environment Department (NMED) approved the IRWP with modifications in January 2007.

This investigation/remediation report summarizes the results of the preliminary investigations performed to support the IRWP, describes the work performed pursuant to the IRWP, and demonstrates that work performed satisfied the following objectives in the IRWP.

Objective 1: Characterize the Types and Quantities of Waste at MDA B

Preliminary investigation characterization was performed using geophysical and direct-push technologies (DPT) to define the trench boundaries, estimate waste volumes, and identify probable radiological and chemical contaminants. Once waste excavation activities began, definitive characterization for both chemical and radiological constituents was performed in accordance with the MDA B waste characterization strategy forms and the MDA B sampling and analysis plan (SAP). All volatile organic compounds (VOCs) detected in the DPT samples were at trace concentrations, indicating a substantial VOC inventory is not present in the waste at MDA B. These results were confirmed by further characterization of excavated waste and borehole and soil-vapor sampling data. The waste inventory from MDA B included industrial solid waste, low-level radioactive waste (LLW), and a small volume of mixed LLW.

Objective 2: Remove and Properly Dispose of the Excavated Wastes

All waste was removed from the disposal trenches at MDA B and managed in accordance with applicable regulations. Overburden material, consisting of soil and tuff covering the disposal trenches, was removed and stockpiled for potential reuse as backfill material before the excavation of waste and contaminated soil. The approximately 12,026 yd^3 of excavated overburden met the overburden criteria in the MDA B SAP and was used to backfill the excavations. As required by NMED, overburden used as fill was placed deep in the excavations and was then topped with clean backfill material obtained from an off-site source.

The volume of radioactively contaminated soil mixed with waste that exhibited a hazardous waste characteristic was far less than originally anticipated. Only one small area of radioactively contaminated soil mixed with waste exceeded the toxicity characteristic leaching procedure limit for cadmium. This waste was managed as mixed LLW.

In addition to direct sampling, the waste was visually examined and any potential anomalies were segregated from the bulk waste for further evaluation. Over 500 waste items ranging in size from 20-mL vials to large transformers were segregated, sampled, and managed separately. Substantially less characteristically mixed hazardous waste was generated than was originally estimated because of careful waste segregation practices.

The volume of LLW was substantially greater than expected. The original estimate of the total volume of waste was based on the estimated trench dimensions and an assumed 20% bulking factor (i.e., the volume increase because of increased pore space caused by excavation). The total volume of waste exceeded the initial forecast by just over 80%. This increase in volume was because the waste trenches were deeper than anticipated.

Objective 3: Perform Confirmation Sampling in the Trenches after Wastes Are Removed

The goal of the IRWP was to achieve residential soil screening levels (SSLs) for hazardous constituents and residential screening action levels (SALs) for radionuclides. The scope of the IRWP did not include a risk assessment. A formal risk assessment report will be submitted at a later date to support a corrective action complete determination by NMED.

Once all wastes were removed, excavation within each trench continued until field screening for radioactive contaminants indicated radionuclide activity levels were below residential SALs or until safety and/or practical limitations of slope lay-back requirements prevented further excavation. A systematic random-sampling design was used to collect a statistically valid number of total confirmation samples.

For hazardous constituents, the first step in the evaluation of the confirmation sampling data was to perform a point-by-point comparison of the hazardous constituent data with the applicable residential SSL. The chemical confirmation data collected at MDA B demonstrate that all sampling results are below the individual residential SSLs, except for arsenic at two locations and benzo(a)pyrene at one location. A statistical analysis of the arsenic site data compared with the applicable background data demonstrated that arsenic concentrations are not different from background concentrations. The detection of benzo(a)pyrene greater than the residential SSL was below the 0–10 ft below ground surface (bgs) depth range for the residential exposure scenario. Therefore, the objective of meeting residential SSLs for hazardous constituents was satisfied. The method used to collect confirmation samples likely resulted in VOC loss and caused the VOC results to be biased low. An evaluation of other data, including the results from DPT samples, pore-gas samples, organic vapor monitoring, and waste characterization, however, indicates VOCs were not present above SSLs.

For radionuclides, a point-by-point comparison of the radionuclide data with the applicable residential SAL found that, except for one plutonium-239/240 result, all confirmation results in the top 10 ft bgs were below residential SALs. Plutonium-239/240 slightly exceeded the residential SAL in one sample collected at a depth of 9.9 ft bgs from the excavated trench in Enclosure 1. However, the 95% upper confidence limit for plutonium-239/240 from 0–10 ft bgs for the entire MDA B excavation is below the residential SAL. Therefore, the objective of meeting residential SALs for radionuclides was satisfied.

Objective 4: Prepare and Implement a Post-Remediation SAP to Define the Nature and Extent of Any Residual Contamination

The nature and extent of residual contamination at MDA B have been defined by results from the previous angled borehole investigations and concurrent geophysical investigations, DPT sampling, recent confirmation sampling data, soil-vapor data, and three post-remediation vertical boreholes.

The vertical extent of residual contamination has been defined because concentrations of chemicals and radionuclides in samples from angled and vertical boreholes decreased with depth from within the bottom of the excavation and were below residential SSLs and SALs. Confirmation sampling data from the trench side walls and floors defined the lateral extent of residual contamination in the excavations. Except as noted above, no chemicals were detected above residential SSLs in the side walls and floors of the excavations. Only one radionuclide, plutonium-239/240, was detected at an activity slightly above the residential SAL in one sample collected between 0–10 ft bgs from the wall of the excavation in Enclosure 1. However, plutonium-239/240 activities within the walls of the excavation were less than what was detected in the removed waste and decreased laterally as areas were further excavated and sampled.

The VOC concentrations and tritium activities in pore-gas samples collected from MDA B boreholes were evaluated using screening levels based on groundwater screening levels. The results of this screening evaluation indicate no potential groundwater impacts from VOCs and tritium present in pore gas beneath MDA B.

No perched aquifers or areas of high moisture content above the Cerro Toledo interval were observed when drilling the boreholes associated with MDA B. The low moisture content observed in samples and the corresponding unsaturated hydraulic conductivity values confirm MDA B is a dry disposal site.

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1.0 INTRODUCTION

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

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

Corrective actions for SWMUs and AOCs at the Laboratory are subject to the March 1, 2005, Compliance Order on Consent (the Consent Order). The New Mexico Environment Department (NMED), pursuant to the New Mexico Hazardous Waste Act, regulates cleanup of hazardous wastes and hazardous constituents. DOE regulates cleanup of radioactive contamination, pursuant to DOE Order 5400.5, Radiation Protection of the Public and the Environment; DOE Order 435.1, Radioactive Waste Management; and DOE Order 458.1, Administrative Change 2, Radiation Protection of the Public and the Environment. Information on radioactive materials and radionuclides, including the results of sampling and analysis of radioactive constituents, is voluntarily provided to NMED in accordance with DOE policy.

This investigation/remediation report (I/R report) addresses SWMU 21-015, also known as Material Disposal Area (MDA) B. In January 2007, NMED approved the Laboratory's investigation/remediation work plan (IRWP) for MDA B (LANL 2006, 095499; NMED 2007, 095475), which proposed the complete removal of waste material at MDA B, followed by confirmatory sampling. This I/R report describes the results of the work performed pursuant to the IRWP including the investigation of MDA B, the excavation of the buried wastes, and the results of the confirmation sampling and borehole investigation.

The MDA B I/R report was originally submitted to NMED in September 2011 (LANL 2011, 207063). Remediation waste management operations were ongoing when the report was submitted. In December 2011, following discussions with NMED, the Laboratory notified NMED that a revised I/R report would be submitted after completion of waste shipments from the site (LANL 2011, 208820). Revision 1 of the I/R report, which incorporated the information identified in the December 2011 notification, was submitted in April 2012 (LANL 2012, 215119). In March 2103, NMED issued a notice of disapproval of Revision 1 of the report (NMED 2013, 522183), which contained comments that needed to be addressed for NMED to complete its review of the document. Revision 2 of the I/R report incorporates the changes requested in NMED's disapproval comments.

1.1 Site Background

MDA B is an inactive subsurface disposal site located in Technical Area 21 (TA-21) at the Laboratory. Figure 1.1-1 shows the location of TA-21 with respect to the Laboratory and surrounding area, and Figure 1.1-2 shows the location of MDA B within TA-21 and the locations of the disposal pits within MDA B. From 1944 until it closed in 1948, MDA B received Laboratory wastes that contained both hazardous constituents and radionuclides.

The Laboratory was established in 1943 as a military reservation to develop the first atomic bomb. Based on available evidence, MDA B was actively used to dispose of radioactively contaminated wastes from April 1944 to June 1948. No construction drawings or original site engineering drawings or plans have been found that show the locations or dimensions of the trenches (LANL 1991, 007529).

Only one other disposal area for radioactively contaminated materials (MDA A) was active in the 1945 to 1946 time frame. Any contaminated material disposed of during this time would have gone to either MDA A or MDA B. MDA A was closed sometime in 1946, and from then until June 9, 1948, MDA B was the only disposal pit open for radioactive wastes. On June 10, 1948, MDA B was closed.

Most information about the waste inventory at MDA B comes from reports and memoranda generated by historical Laboratory organizations working at these sites and employee interviews. These sources indicate that the management of materials disposed of at MDA B was largely the responsibility of the waste-generation sites. The only site-specific documentation consisted of waste-pickup logbooks that were used beginning in 1947. These logbooks documented the buildings served and the types of materials (e.g., trash, solutions, and chemicals) picked up.

The vast majority of waste disposed of at MDA B was contaminated with residual radioactivity, including routine laboratory waste, glassware, obsolete equipment, wooden laboratory furniture, demolition debris, building materials, clothing, paper, trash, and small amounts of chemicals from laboratory areas. All waste and trash from the Chemistry and Metallurgy Research Division laboratories were considered contaminated by residual radioactivity. Therefore, all waste and trash were to be thrown into the “hot” receptacles that were placed in each laboratory. The largest waste contributors may have been the contaminated laundry and building demolition debris as laboratory structures and equipment were upgraded after the war. Nonroutine waste would have included materials from spills and accidental releases. No process evidence exists that large volumes of chemicals were disposed of at MDA B.

The radionuclides used during the time MDA B was active included plutonium, polonium, uranium, americium, curium, radioactive lanthanum, cesium, and actinium. Short-lived radionuclides, such as radioactive lanthanum, are no longer present because of radioactive decay. Most radioactively contaminated waste consisted of disposed laboratory items such as paper, rags, rubber gloves, glassware, and small experimental assemblies, which were placed in cardboard boxes by the waste originator and sealed with masking tape. Additional large waste items included metal debris such as air ducts and large metal apparatus. The latter type of material was typically placed in wooden boxes or wrapped with paper (Meyer 1952, 028154; LANL 1991, 007529; Ferguson et al. 1998, 058212).

After the closure of MDA B in 1948, a fence was constructed around the entire area. In 1966, the U.S. Geological Survey drilled 13 boreholes around the perimeter of MDA B. Results from these boreholes showed no indication of radioactive contamination (LANL 2004, 087290). Following the drilling of these boreholes, the western two-thirds of MDA B was fenced, compacted, and paved. Some post-closure subsidence was observed, and in 1980 surface stabilization of the eastern end of MDA B was completed. In 1982, a new fence was installed 10 ft out from the old fence, vegetation was removed, and new soil was added, compacted, and seeded. An experimental cap was installed on the eastern end of the site in 1983 to evaluate design alternatives, and soil samples were collected to evaluate shallow contamination (LANL 2004, 087290).

1.2 Report Organization

The scope of work performed during the investigation and remediation of MDA B differs from that of a typical Consent Order investigation. As a result, the organization and format of this report are different from that specified for investigation reports in section XI.C of the Consent Order. Section 1.0 provides introductory information. Section 2.0 gives an overview of the investigation and remediation process used at MDA B, including the regulatory framework and history, the specific objectives of the project, and changes to and deviations from the work scope identified in the approved IRWP. Section 3.0 summarizes the activities performed before excavation of the waste inventory, including historical investigations at MDA B. Section 4.0 describes excavation of the waste trenches, including the types and volumes of materials excavated, monitoring activities, and waste management. Confirmatory sampling within trenches to verify removal of waste and attainment of cleanup levels is described in section 5.0. The results of borehole sampling to define the nature and extent of contamination and characterize subsurface materials are presented in section 6.0. Section 7.0 summarizes conclusions with respect to specific project objectives. Section 8.0 presents recommendations. References and map data sources are provided in section 9.0. Appendix A contains a listing of acronyms, metric conversions, and data qualifiers. Data summary tables from the direct-push technology (DPT) are provided in Appendix B. All analytical data are provided in Appendix C (on DVDs included with this document), and the analytical data quality program is described in Appendix D. Appendix E contains summary statistics from analysis of overburden samples, and field methods are described in Appendix F. The results of air monitoring performed during waste removal activities are presented in Appendix G. Appendix H summarizes information on the characterization, management, and disposition of waste. Summary statistics for confirmation sample radiological data are presented in Appendix I, and Appendix J (on DVD included with this document) contains field logbooks from confirmatory sampling and borehole sampling. The borehole completion report for the vertical boreholes installed in 2011 is presented in Appendix K. An evaluation of the detectability of soil and tuff volatile organic compound (VOC) contamination using field organic vapor monitoring is presented in Appendix L, and Appendix M includes representative photographs of confirmatory sample collection.

2.0 INVESTIGATION AND REMEDIATION OBJECTIVES

2.1 Background

The Laboratory submitted the IRWP for MDA B in March 2006 (LANL 2006, 091860). On August 17, 2006, NMED issued a notice of disapproval (NOD) for this IRWP (NMED 2006, 093536). On October 13, 2006, the Laboratory submitted a response to the NOD (LANL 2006, 160385.319) and the revised IRWP (LANL 2006, 095499). The activities proposed in the revised IRWP included the removal of all buried waste and contaminated soil/tuff above residential soil screening levels (SSLs) for hazardous constituents and residential screening action levels (SALs) for radionuclides as well as the sampling of the walls and floors of the trenches to determine the nature and extent of any residual contamination.

Following review of the revised IRWP, NMED issued a notice of intent to approve the revised IRWP on November 27, 2006 (NMED 2006, 206426). The notice of intent explained NMED supported the proposed scope of work because

- it would remove the source of contamination, making the approach effective and reliable in the short-term (during implementation) and long-term (following implementation);
- it would remove the primary obstacle to further site investigation; and
- it would pose few risks to the public's health or the surrounding businesses because the primary hazards would be contained within an engineered enclosure.

2.2 Investigation and Remediation Work Plan

The approved IRWP (LANL 2006, 095499) describes the Laboratory's proposed approach for excavating the wastes, performing confirmation sampling, and characterizing the nature and extent of residual contamination. After receipt and review of public comments on its notice of intent, NMED issued an approval with modifications of the revised IRWP on January 31, 2007 (NMED 2007, 095475), which included the following technical requirements:

- The Laboratory's post-remediation sampling and analysis plan (post-remediation SAP) must clarify the sources of historical data discussed in Appendix B of the IRWP;
- The Laboratory's air-monitoring program for MDA B must include monitoring for beryllium in addition to airborne radioactive particles and airborne particulates;
- The Laboratory must collect 1 sample for every 50 yd^3 of lay-back or overburden material intended to be used as backfill to confirm the material is nonhazardous, meets residential SSLs, or both; and
- The Laboratory must notify and obtain prior approval from NMED if the use of drilling fluids other than air is necessary to install boreholes at MDA B.

2.3 Regulatory Framework

The Consent Order is the enforceable regulatory document for the performance of Resource Conservation and Recovery Act (RCRA) corrective actions at the Laboratory. The IRWP (LANL 2006, 095499) was submitted to, and approved by, NMED pursuant to the Consent Order and, therefore, specifies the activities the Laboratory must perform to fulfill the requirements of the Consent Order with respect to releases of hazardous constituents from MDA B.

The Atomic Energy Act (AEA), as amended, authorizes DOE to regulate nuclear safety at its facilities and requires DOE to protect the public health and safety. DOE is required to review and approve all activities and work, including activities and work under the Consent Order, to ensure its responsibilities for nuclear safety are met.

DOE is also responsible for controlling the radiological evaluation of MDA B for any future property transfers and for ensuring that potential radiation exposures to members of the public are as low as reasonably achievable (ALARA). Final radiological dose assessments (ALARA analyses) that are required for DOE to fulfill the requirements in DOE Order 458.1, "Radiation Protection of the Public and the Environment," are outside the scope of the Consent Order.

2.4 Objectives

The approved IRWP (LANL 2006, 095499) outlines the following four objectives:

- Objective 1: Characterize the types and quantities of waste at MDA B
- Objective 2: Remove and properly dispose of the excavated wastes
- Objective 3: Perform confirmation sampling in the trenches after wastes are removed
- Objective 4: Prepare and implement a post-remediation SAP to define the nature and extent of any residual contamination

Each of these objectives is described below.

2.4.1 Objective 1: Characterize the Types and Quantities of Waste at MDA B

Little written documentation of waste disposal activities at MDA B is available. Process knowledge was compiled by reviewing the Laboratory historical records and employee interviews. Because it was not safe to dig open-air test pits to collect more waste information and define the trench boundaries, the Laboratory conducted minimally intrusive investigations. Preliminary characterization was performed using geophysical surveys and DPT to define the trench boundaries, estimate waste volumes, and identify probable radiological and chemical contaminants. The geophysical and DPT investigations were the best way to define trench sizes and estimate waste volumes without the potential exposure to the public and workers that could have resulted from open test pits or trenching. The results of the geophysical survey investigations are summarized in section 3.1. The scope and results of the DPT sampling program are summarized in section 3.4.

2.4.2 Objective 2: Remove and Properly Dispose of the Excavated Wastes

The approved IRWP (LANL 2006, 095499) describes the procedures for excavating the trenches; characterizing overburden and lay-back materials, waste, and contaminated soil; and managing the resulting wastes. Waste characterization strategy forms (WCSFs) were prepared before excavation activities began to ensure surface debris and solid waste, overburden, and excavated waste were characterized and managed in accordance with all applicable Laboratory waste management requirements (LANL 2010, 108538; LANL 2010, 109754; LANL 2010, 108458). A supplemental WCSF (LANL 2010, 109769) and an amendment (LANL 2010, 108853) and the MDA B SAP, Revision 2 (LANL 2010, 111195) were prepared after excavation activities began to address changed conditions and ensure excavated waste was characterized and managed in accordance with all applicable Laboratory waste management requirements. Overburden and waste characterization activities are discussed in sections 4.2 and 4.3.2, respectively. Section 4.4 describes the excavation activities for each enclosure.

2.4.3 Objective 3: Perform Confirmation Sampling in the Trenches after Wastes Are Removed

The approved IRWP (LANL 2006, 095499) states that the goal of the confirmation sampling following waste removal at MDA B was to meet residential SSLs for hazardous constituents and residential SALs for radionuclides on a point-by-point basis. Consistent with NMED's exposure characteristics for the residential scenario (NMED 2012, 219971), attainment of residential SSLs is applicable to samples collected from the depth interval 0–10 ft below ground surface (bgs). A description of the implementation of the confirmation sampling protocol and the analytical results are provided in section 5.0. Confirmation sampling results are summarized in section 7.3.

2.4.4 Objective 4: Prepare and Implement a Post-Remediation SAP to Define the Nature and Extent of Any Residual Contamination

The approved IRWP (LANL 2006, 095499) states that a post-remediation SAP will be prepared at the conclusion of excavation activities. The post-remediation SAP (LANL 2010, 109266) is a separate document from the MDA B SAP described in sections 4.2 and 4.3. The objective of the post-remediation SAP was to define the nature and extent of residual contamination at MDA B by using data from previous RCRA facility investigation (RFI) work, confirmation sampling data, and new boreholes installed in accordance with the IRWP.

The approved IRWP also describes the following possible contingencies as alternatives if residential SSLs/SALs cannot be achieved:

- Use industrial cleanup levels
- Perform a site-specific human risk assessment to establish cleanup levels
- Establish restrictive covenants or other institutional controls if the property is transferred to a new owner or operator
- Develop a long-term monitoring plan and institutional controls if the property remains under DOE ownership or
- Implement a combination of these options

Because of schedule constraints, the post-remediation SAP was prepared before the end of excavation activities, and the three new boreholes were drilled in July 2011. The post-remediation SAP changes and the schedule constraints are discussed in section 2.5. The post-remediation SAP is described in sections 6.1 and 6.2, and the scope and results of the borehole investigation are described in sections 6.3 and 6.4.

2.5 Changes to the IRWP

2.5.1 IRWP Deviations

The complexity of this project led to several changes in the scope of work defined in the approved IRWP (LANL 2006, 095499). These deviations fall into three main categories: (1) waste removal and waste characterization, (2) confirmation sampling, and (3) borehole investigation.

2.5.1.1 Waste Removal and Waste Characterization

The Laboratory's original intent was to use an on-site, portable gas chromatograph/mass spectrometer (GC/MS) to analyze for organic chemicals. Before excavation activities began, the Laboratory determined that disposal facilities would not accept on-site portable GC/MS data for waste characterization, which negated the benefit of using an on-site portable GC/MS. An alternate approach was developed that specified screening-level gamma-spectroscopy analysis at an on-site laboratory, followed by analysis for chemicals and radionuclides at an off-site laboratory.

The approach specified in the approved IRWP (LANL 2006, 095499) for sampling overburden, waste soil and debris, and excavated trench bottoms and side walls, and the original June 15, 2010, MDA B SAP (LANL 2010, 110411) was developed before the start of excavation activities. The MDA B project team met with NMED on July 8, 2010, to review the original MDA B SAP.

As excavation progressed, it became apparent the sampling procedures in the original MDA B SAP were not compatible with actual excavation constraints, site conditions, and sampling requirements. The MDA B SAP was reviewed, and sampling procedures were modified to reflect actual conditions within the excavation environment. The effective date for Revision 1 of the MDA B SAP was August 10, 2010 (LANL 2010, 110398).

As the investigation progressed, wastes and anomalies were excavated that required specialized sampling and analysis methods. As a result, the MDA B SAP was revised again to include provisions for sampling asbestos-containing material (ACM) and to modify waste characterization sampling to reflect actual waste data rather than the original conservative assumptions regarding the possible types of waste. The effective date for Revision 2 of the SAP was November 3, 2010 (LANL 2010, 111195). Both revisions to the MDA B SAP are documented in the "Progress Report for Cleanup Activities at Material Disposal Area B, First Quarter of Fiscal Year 2011," which was submitted to NMED in December 2010 (LANL 2010, 111508).

2.5.1.2 Confirmation Sampling

Section 5.5 of the approved IRWP (LANL 2006, 095499) specifies the collection of a minimum of two samples from each confirmation sampling location at depths corresponding to approximately 0–0.5 ft and 1.5–2 ft below the excavation bottom. This approach was changed in Revision 1 of the MDA B SAP (LANL 2010, 110398) after it was determined that it was not safe to allow sampling personnel in the excavation for this type of sampling activity. The protocols build on the confirmation sampling strategy outlined in the approved IRWP and provide the sampling rationale and frequency for the random grid sampling and for biased sampling (i.e., where field conditions indicate biased sampling is necessary). Attachment F of the MDA B SAP, Revision 1 (LANL 2010, 110398) describes how an excavator will be used to remove 1 to 2 ft of soil/tuff for the sample rather than the more discrete sampling described in section 5.5 of the IRWP. These changes to the MDA B SAP are documented in the "Progress Report for Cleanup Activities at Material Disposal Area B, First Quarter of Fiscal Year 2011," which was submitted to NMED in December 2010 (LANL 2010, 111508).

2.5.1.3 Borehole Investigation

The approved IRWP (LANL 2006, 095499) states that a post-remediation SAP will be submitted, if necessary, to NMED for approval after completion of excavation activities. Because of scheduling constraints, which are summarized in the extension requests discussed in section 2.5.2, the post-remediation SAP (LANL 2010, 109266) was submitted to NMED on April 28, 2010, while excavation was still ongoing. Because this post-remediation SAP was submitted to NMED early in the excavation process, it did not define the number or locations of the post-remediation boreholes.

The 15-d sampling notification and addendum to the April 28, 2010, post-remediation SAP was submitted to NMED on May 20, 2011 (LANL 2011, 203594). This addendum proposed to supplement the previously installed 1998 angled boreholes at MDA B with three additional vertical boreholes. The IRWP also states that NMED approval of the post-remediation SAP is required before the borehole investigation can begin. However, NMED did not respond to either the April 28, 2010, post-remediation SAP or the May 20, 2011, post-remediation SAP addendum. To maintain the completion schedule, the Laboratory installed the three vertical boreholes described above in July 2011. NMED did request limited split sampling from the boreholes; NMED personnel visited the drilling site on July 15, 2011, to collect split samples.

The IRWP assumed that Areas 9 and 10 would require excavation. However, exploratory trenches excavated in February 2010 verified waste was not present in the westernmost portion of MDA B, previously designated as Areas 9 and 10. Based on this information, no excavation of Areas 9 and 10 was conducted. A separate investigation report for Areas 9 and 10 documenting the results of the February 2010 exploratory trenching was submitted to NMED in May 2010 (LANL 2010, 109526).

2.5.2 Schedule Extensions

Two extension requests were submitted to NMED in accordance with Section III.J.2 of the Consent Order, "Provisions Governing Extension of Time." Two additional extension requests were submitted to NMED in accordance with Section III.H.3 of the Consent Order, "Provisions for Claiming Force Majeure."

The first extension request was initially submitted to NMED on November 19, 2010 (LANL 2010, 111334). This extension request was withdrawn, and a revised extension request was submitted on November 30, 2010 (LANL 2010, 111332). The revised letter requested an extension of the report submittal date from December 31, 2010, to August 31, 2011, because of schedule impacts resulting from the following field events:

- On August 24, 2010, a small object and associated soil containing approximately 10 g of plutonium were excavated in Enclosure 1. Because this level of plutonium was significantly more than the Laboratory expected to encounter in a single excavation area, the Laboratory immediately paused work to evaluate the situation and determine the appropriate precautions required to ensure the safety of the public and workers. This event led to enhanced field monitoring and revised excavation procedures. Work resumed 28 d later on September 20, 2010.
- On October 13, 2010, a second radiological field condition related to plutonium occurred during excavation in Enclosure 1 using the revised procedures and detection equipment described above for the August 24, 2010, event. The enclosure was put in a safe condition and all excavation activities were stopped. No release outside of the enclosure and no contamination of personnel occurred.
- In response to this second event, the Laboratory worked with DOE Headquarters to obtain approval of a revised facility safety basis authorization. DOE expedited approval of the revised authorization to minimize impacts to ongoing remediation activities. The Laboratory then retrained employees and conducted prestart mockups based upon the current facility safety basis authorization. The Laboratory also changed from a 7-d work schedule to a 5-d work schedule as an employee safety measure. All affected procedures were updated, and excavation resumed the morning of October 24, 2010.
- On October 27, 2010, two degraded drums were found in Enclosure 12. The remote video camera showed a release of white powder from one of the drums, and instruments inside the enclosure detected VOC vapors. Monitoring outside the enclosures did not detect any VOCs. Work inside the enclosure was stopped while the release was properly characterized and addressed. Work resumed on October 30, 2010.

The revised completion date requested by the Laboratory was based on the time lost to the work stoppages, reductions in excavation efficiency, and safety-driven changes in work schedules. NMED approved the extension request on December 9, 2010 (NMED 2010, 111456).

The second extension request was submitted to NMED on April 26, 2011 (LANL 2011, 202576). Los Alamos experienced a severe wind storm (winds gusting to over 50 miles per hour) early in the evening of Saturday, April 9, 2011. The power outages and fluctuations resulting from this event caused equipment problems in several enclosures that led to a work stoppage. Although this letter did not request an extension of the report submittal date as a result of a force majeure event, it preserved the future option to request an extension if the storm-related work stoppage was later determined to have adversely affected the project schedule. NMED issued a notice of agreement for the force majeure request on May 2, 2011 (NMED 2011, 202846).

The third extension request was also related to a force majeure event, the Las Conchas fire. The Laboratory was closed from June 27 to July 5 because of the fire, and although a substantial number of normal operations resumed on July 13, 2011, fire-related impacts to excavation activities continued at MDA B. The Laboratory submitted a force majeure notification letter to NMED on July 21, 2011 (LANL 2011, 204379), which included a request to extend the MDA B report submittal date from September 9, 2011, to September 21, 2011. NMED approved the extension request with modifications on July 28, 2011 (NMED 2011, 204548).

The fourth extension request was submitted to NMED on September 1, 2011 (LANL 2011, 206181). This letter requested an extension of the report submittal date from September 21, 2011, to October 31, 2011, because of schedule impacts resulting from high-activity material encountered in Enclosure 1. NMED approved the extension request on September 8, 2011 (NMED 2011, 206383).

3.0 SUMMARY OF PRE-EXCAVATION INVESTIGATION RESULTS

3.1 Geophysical Surveys

No engineering or construction drawings were found for the disposal trenches at MDA B. As a result, nonintrusive geophysical surveys were conducted in 1996, 1997, and 1998 to delineate the locations and number of disposal trenches at MDA B. These survey results indicated the presence of several large trenches (Ferguson et al. 1998, 058212; Thavoris 2001, 083862).

The 1998 geophysical survey was the most comprehensive. It included the following three survey techniques: high-sensitivity metal detector (EM-61), terrain conductivity (EM-31), and ground-penetrating radar (GPR) to look for metal objects, changes in material conductivity, and anomalous objects or surfaces. The 1998 geophysical surveys indicated a single primary trench in the eastern leg of MDA B (approximately 800 ft long and varying in width from about 25 to 60 ft). Depending on the interpretation of the geophysical data, the western leg of MDA B was interpreted to contain either one continuous trench or three shorter end-to-end trenches (approximate total dimensions 1000 ft long and 40 ft wide). The depth of the existing cover was estimated to range from 1.3 to 7.2 ft bgs.

An additional geophysical survey was performed at MDA B under the approved IRWP (LANL 2006, 095499) from October 27 to November 7, 2008. The objective of this survey was to delineate the lateral boundaries and probable depths of the disposal trenches using EM-61, EM-31, and GPR. Comprehensive data from these activities are presented in “Geophysical Investigation of Material Disposal Area B” (ARM Geophysics 2009, 109161).

The EM-61 data revealed linear anomalies throughout the survey area, indicating the presence of metal material buried in linear disposal trenches. A long, narrow trench was observed in the western leg of the survey area. The eastern leg of the survey area also contained several linear trenches. The results indicated the main eastern trench was wider on the western end and held the largest concentration of metal objects. Discontinuous anomalies were observed throughout the entire survey area, which may have been from variations in the concentration of metal objects or the separation between the trenches. Discontinuous anomalies in the eastern leg were possibly caused by the separation of four smaller trenches on the southern side of the main linear trench.

The EM-31 data, which analyze terrain conductivity, showed anomalies consistent with the EM-61 data. The EM-31 data more clearly depict the previously inferred trench in the eastern leg of the survey area as continuous, indicating it is a single trench rather than a series of smaller pits and trenches.

The GPR profiles demonstrated a good correlation between the trench boundaries previously extrapolated from the high-sensitivity metal detector and terrain conductivity data. Anomalous globes observed in the EM-61 data that extend outside of the main western trench were also observed in the GPR profile, indicating deviations from the main trench that relate to areas where the trench was widened (ARM Geophysics 2009, 109161).

3.2 Surface Sampling

Surface investigations were intermittently performed at MDA B from 1966 to 2001. The results of these investigations were described in the historical investigation report in Appendix B of the IRWP (LANL 2006, 095499). Extensive changes to the surface of MDA B have occurred over the past six decades, including the addition of soil, paving, placement of an experimental barrier over portions of the site, and excavation of the waste disposal trenches. For this reason, the data are not representative of current conditions and are not presented in this report.

3.3 RFI Subsurface Investigations

3.3.1 Angled Boreholes (1998)

A subsurface investigation was conducted at MDA B in 1998 as part of the MDA B RFI (LANL 1991, 007529; LANL 1998, 059506). A total of seven angled boreholes (locations 21-10551 through 21-10557) were advanced beneath the MDA B disposal trenches as delineated by geophysical surveys and historical information. Figure 3.3-1 shows the locations of each angled borehole. Borehole angles, total length of each borehole, and samples collected are presented in Figures 3.3-2 through 3.3-8. Fifty-five core samples were analyzed for semivolatile organic compounds (SVOCs), inorganic chemicals, and radionuclides. Pore-gas samples were also collected from each of the boreholes and analyzed for VOCs and tritium. The rationale in support of selecting the boring sites and the drilling and sampling procedures are described below.

These boreholes were drilled using a hollow-stem auger rig. Drilling locations were calculated so each borehole would remain a minimum of 5 ft from the estimated outside corners of the disposal trench (LANL 1998, 059506). Continuous-core samples were logged, and samples were collected every 10 ft beneath the trench. Angled borehole locations 21-10552, 21-10553, and 21-10557 were advanced beneath the disposal trench in the western leg of MDA B. Locations 21-10551 and 21-10555 were advanced beneath either end of the eastern leg, and location 21-10554 was advanced beneath the estimated location of the chemical pit. Borehole location 21-10554 penetrated the subsurface corner of the disposal trench at a point about 11 ft from the top of the angled boring (approximately 8 ft bgs). Metal shavings observed in the core were analyzed and determined to be beryllium metal. Field screening in the 15- to 20-ft core interval indicated elevated gross-alpha/-beta/-gamma activity over instrument background.

Borehole location 21-10556 was installed at the far west end of MDA B, where trenches were expected but could not be identified by geophysical surveys (Figure 1.1-2). This portion of the site was known as Areas 9 and 10. As described in section 2.5.1, the Laboratory determined that no wastes were disposed of in these areas.

Inorganic chemical results above background values (BVs) are presented in Table 3.3-1 and Figure 3.3-9. Aluminum was detected above the BV for tuff at one depth at location 21-10556 and its concentrations decreased with depth. Arsenic was detected above the BV for tuff at two depths at location 21-10556 and at one depth at location 21-10557; concentrations decreased with depth. Cadmium, mercury, and zinc were each detected above the BV for tuff at one depth at location 21-10554, and their concentrations decreased with depth. Lead was detected above the BV for tuff at several depths at location 21-10557 and at one depth at location 21-10551; concentrations decreased with depth.

No SVOCs were detected in the samples analyzed from the 1998 angled boreholes.

Three pore-gas samples were collected for VOC analysis from each of the seven boreholes angled beneath the MDA B trenches. The samples were collected in evacuated SUMMA canisters at discrete intervals by running an extraction tube to the bottom of the borehole and sealing it off with an inflatable borehole packer. A summary of the pore-gas sample results is presented in Table 3.3-2 and illustrated in Figure 3.3-10. The samples were collected at 35 ft, 75 ft, and 100 ft along the length of the angled boreholes (approximately 25 ft, 53 ft, and 70 ft vertically bgs). The seven angled boreholes passed directly beneath the disposal trenches, where the highest potential for contamination existed. Most detected concentrations were at trace levels (low $\mu g/m^3$), with the highest concentrations being 1,1,1-trichloroethane (TCA) at 1037 $\mu g/m^3$ (0.19 ppmv) (location 21-10551 at 75 ft) and trichloroethene (TCE) at 645 $\mu g/m^3$ (0.12 ppmv) (location 21-10552 at 35 ft).

Eighteen VOCs were detected in concentrations ranging from 1.7 $\mu g/m^3$ (0.00053 ppmv) to 1037 $\mu g/m^3$ (0.19 ppmv). As discussed in Appendix L, VOC vapors at these low concentrations are not indicative of soil/tuff contamination above residential SSLs. Vapor concentrations well in excess of 10 ppmv would be needed before soil/tuff concentrations would begin to approach residential SSLs.

Table 3.3-3 and Figure 3.3-11 present the radionuclides detected or detected above background. Americium-241, plutonium-239, strontium-90, tritium, and isotopic uranium were detected or detected above background. Concentrations of all radionuclides decreased with depth or did not change with depth in all boreholes.

As described above, borehole 21-10554 encountered waste and the area characterized by borehole 21-10556 was later determined not to have been used for waste disposal. As a result, the data from these two boreholes were determined not to be representative of subsurface conditions beneath the disposal trenches, and these data were not used in the evaluation of the nature and extent of contamination presented in sections 6.4 and 7.4.

3.3.2 MDA B EMFLUX VOC Sampling (2001)

In September 2001, EMFLUX passive soil-gas collectors were installed at 80 surface locations at MDA B to collect additional VOC data to further define the lateral extent of any potential VOC contamination (LANL 2001, 070231). Rather than drilling more boreholes for VOC sampling, the EMFLUX passive soil-gas collection method was used as a nonintrusive method of collecting the additional data. The EMFLUX method measures the surface flux of VOCs and allows for large areas to be sampled relatively quickly. A flux of VOCs at the surface can be correlated to subsurface vapor-phase VOCs. The sampling locations selected provide coverage of the surface of the disposal trenches (Figure 3.3-12). TCA was not detected in the EMFLUX samples, but tetrachloroethene (PCE) and TCE were detected (Figures 3.3-13 and 3.3-14, respectively). The EMFLUX data indicate most PCE and TCE concentrations were within the estimated boundaries of the waste trenches (Figures 3.3-13 and 3.3-14). No elevated concentrations of these VOCs were detected at the west end of the western leg of the site, outside the disposal trench boundaries.

3.4 DPT Sampling

As discussed in section 1.1, few disposal records are available for MDA B, and the total inventory and distribution of hazardous and radioactive materials were not known. Process knowledge was carefully compiled from reports and memoranda archived from the operating groups, logbooks, aerial photographs, and personal interviews. Because of the broad range of possible wastes, including radionuclides, and the proximity of the site to the public, it was not possible to safely dig open-air test pits to characterize the wastes buried at MDA B. The DPT investigation was used to collect waste data to support developing

- safe waste retrieval and sorting procedures,
- an estimate of the quantity of radioactive material at risk (MAR), and
- an estimate of the types of hazardous constituents present in the waste to aid in the initial waste-sorting activities.

The DPT investigation was implemented in three phases. Phase I core sampling for all of MDA B occurred between August 13 and September 8, 2009 (LANL 2009, 107344). Phase II core sampling occurred between September 17 and October 7, 2009, and Phase III trench-boundary probing was performed in November 2009 (LANL 2009, 106154). No samples were collected during Phase III probing. Figure 3.4-1 identifies the Phase I and Phase II DPT sampling locations and the Phase III probe locations. As explained below, sampling locations for Areas 9 and 10 are not included.

Locations for Phase I DPT core sampling were selected based on the approximate trench layouts determined by the geophysical surveys described in section 3.1. Ninety-six core samples were collected at 45 locations during Phase I. Core sampling locations for Phase II of the DPT investigation were selected based on the results of the Phase I investigation. The Phase II locations focused on areas not sampled during Phase I. Sixty-one core samples were collected from 42 locations during Phase II.

During the Phase I and Phase II DPT investigations, core samples were collected in 5-ft intervals from the surface until refusal in tuff. The maximum core depth of 15 to 20 ft bgs was collected from grid cells NG56 and NG75 (Figure 3.4-1). Each 5-ft core sleeve was immediately capped when brought to the surface. Material within each end of the sleeve was screened for VOCs before the core was removed for sample collection. The core was then perforated at 1-ft intervals and screened for organic vapors at these locations using a photoionization detector (PID). Samples for VOC analysis were selected based on the results of the organic vapor screening. The core was then screened for metals and radioactivity and visually inspected for staining. Samples for metals, radionuclide, and SVOC analysis were then selected based on the results of this screening and inspection (LANL 2009, 107344, pp. 4–5).

The DPT samples were submitted for off-site laboratory analysis of target analyte list (TAL) metals, total uranium, toxicity characteristic leaching procedure (TCLP) metals, VOCs, SVOCs, gamma spectroscopy, alpha spectroscopy, strontium-90, and tritium. DPT core-sampling locations and data are provided in tables in Appendix B. DVDs containing all analytical data, including DPT data, are provided in Appendix C. Appendix D discusses the analytical data quality program and results of data validation. Appendixes B, C, and D do not include data for the DPT samples collected from Areas 9 and 10 because these data were previously reported in the investigation report for MDA B Areas 9 and 10 (LANL 2010, 109526).

Inorganic and organic chemicals detected above residential SSLs in DPT soil and tuff samples collected from MDA B are presented in Table 3.4-1. Radionuclides detected above residential SALs in DPT soil and tuff samples collected from MDA B are presented in Table 3.4-2. The remaining DPT core samples did not have concentrations above residential SSLs and SALs.

Inorganic chemicals detected above residential SSLs in DPT samples were antimony, arsenic, lead, mercury, and thallium. Antimony was detected in 17 samples with 2 results (62.7 mg/kg and 99.8 mg/kg) greater than the residential SSL (31.3 mg/kg). Six results were above the BV for soil (0.83 mg/kg). Arsenic was detected in 124 samples with 4 results (4.0 mg/kg, 4.0 mg/kg, 7.32 mg/kg, and 8.7 mg/kg) greater than the residential SSL (3.9 mg/kg). All results but 1 were below the BV for soil (8.17 mg/kg). Lead was detected in 127 samples, with 1 result (744 mg/kg) greater than the residential SSL (400 mg/kg). Sixteen results were above the BV for soil (22.3 mg/kg). Mercury was detected in 85 samples, with 2 results (23.2 mg/kg and 23.7 mg/kg) greater than the residential SSL (23.5 mg/kg). Thirty-two results were above the BV for soil (0.1 mg/kg). Thallium was detected in 41 samples, with 1 result (0.85 mg/kg) greater than the residential SSL (0.782 mg/kg). All results but 1 were below the BV for soil (0.73 mg/kg).

Organic chemicals detected above residential SSLs in DPT samples were Aroclor-1248, Aroclor-1260, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and dibenz(a,h)anthracene. Arclor-1248 was detected in 1 sample. The result (5.3 mg/kg) was greater than the residential SSL (2.22 mg/kg). Aroclor-1260 was detected in 32 samples (0.0018 mg/kg to 2.7 mg/kg), with 1 result (2.7 mg/kg) greater than the residential SSL (2.22 mg/kg). Benzo(a)anthracene was detected in 3 samples (0.205 mg/kg to 1.8 mg/kg), with 1 result (1.8 mg/kg) greater than the residential SSL (1.48 mg/kg). Benzo(a)pyrene was detected in 3 samples (0.013 mg/kg to 1.9 mg/kg), with 2 results (0.19 mg/kg and 1.9 mg/kg) greater than the residential SSL (0.148 mg/kg). Benzo(b)fluoranthene was detected in 4 samples (0.025 mg/kg to 2.3 mg/kg), with 1 result (2.3 mg/kg) greater than the residential SSL (1.48 mg/kg). Dibenz(a,h)anthracene was detected in 2 samples (0.05 mg/kg to 0.35 mg/kg), with 1 result (0.35 mg/kg) greater than the residential SSL (0.148 mg/kg).

The organic chemicals detected above residential SSLs were polychlorinated biphenyls (PCBs) and SVOCs. Twenty VOCs were detected and all VOC results were well below residential SSLs. The maximum detected VOC concentrations ranged from 0.000018% of the residential SSL for 4-isopropyltoluene to 1.4% of the residential SSL for TCE.

Radionuclides detected above residential SALs in DPT samples were americium-241, cesium-137, plutonium-238, plutonium-239/240, strontium-90, thorium-228, thorium-230, and uranium-238. Americium-241 was detected in 29 samples, with 2 results (30.2 pCi/g and 83.7 pCi/g) greater than the residential SAL (30 pCi/g). Cesium-137 was detected in 13 samples with 1 result (1869 pCi/g) greater than the residential SAL (5.6 pCi/g). Plutonium-238 was detected in 42 samples, with 2 results (72.5 pCi/g and 235 pCi/g) greater than the residential SAL (37 pCi/g). Plutonium-239/240 was detected in 151 samples, with 54 results (34.3 pCi/g to 53,752 pCi/g) greater than the residential SAL (33 pCi/g). Strontium-90 was detected in 23 samples, with 3 results (6.67 pCi/g to 2980 pCi/g) greater than the residential SAL (5.7 pCi/g). Thorium-228 was detected in 35 samples, with 1 result (7.09 pCi/g) greater than the residential SAL (2.3 pCi/g). All results but 1 were below BV for soil (2.28 pCi/g). Thorium-230 was detected in 51 samples, with 2 results (13.99 pCi/g and 14.95 pCi/g) greater than the residential SAL (5 pCi/g). All results but 3 were below BV for soil (2.29 pCi/g). Uranium-238 was detected in 152 samples, with 1 result (92.2 pCi/g) greater than the residential SAL (86 pCi/g). All results but 17 were below BVs for soil and tuff (2.29 pCi/g and 1.93 pCi/g, respectively).

3.5 Vapor Monitoring at MDA V

MDA V is located in the southeastern section of DP Mesa, just outside of the main gate to TA-21 (Figure 1.1-2). Two vapor-monitoring wells, 21-24524W and 21-24524S, were installed at MDA V in November 2009 within 10 ft of borehole location 21-24524 (Plate 1). Monitoring well 21-24524W is equipped with seven ports from depths of 45 ft bgs to 380 ft bgs. Monitoring well 21-24524S has two ports located at depths of 680 ft bgs and 715 ft bgs. Vapor monitoring with these wells was performed as part of the investigation for MDA V. Upon conclusion of the MDA V investigation, NMED requested that the Laboratory continue to sample the vapor-monitoring wells at MDA V for tritium to support remediation activities at MDA B (NMED 2010, 111393; NMED 2011, 201232).

Figure 3.5-1 illustrates tritium activities with depth for the four most recent sampling events (February 2011 to September 2011). In general, the data do not indicate a change in tritium activity over the time period monitored. The maximum tritium activity detected at each event was in the sample collected at 300 ft bgs, and tritium activities decrease with depth.

4.0 SUMMARY OF EXCAVATION ACTIVITIES

Excavation progress was methodically tracked using cell identification (ID) codes composed of letters along an approximate north-south axis and numbers along an approximate east-west axis using the same 10-ft by 10-ft grid established for the DPT sampling (Plate 1). Excavation operations, which commenced on June 30, 2010, generally consisted of overburden removal, contaminated soil and waste removal, and confirmation sampling. The following subsections outline the methodology used to meet the excavation and remediation objectives of this project.

4.1 Surface Sampling

As discussed in section 3.2, no further surface characterization was conducted as part of the current investigation and remediation project.

4.2 Overburden Removal and Sampling

Overburden material, consisting of soil and tuff covering the disposal trenches, was removed before the excavation of waste and contaminated soil. Overburden also included various other clean materials such as a man-made cap that was installed in 1985 and base-course material that was added during site-preparation activities. Section 4.4 of the approved IRWP (LANL 2006, 095499; NMED 2007, 095475) describes the field screening and analytical procedures to determine if overburden or lay-back material could be returned to the excavation as fill. In NMED's January 31, 2007, approval with modifications of the IRWP (NMED 2007, 095475), NMED added the following three requirements to the Laboratory's proposed procedures for evaluating overburden and lay-back material:

- Samples must be submitted for alpha-spectroscopy analysis.
- One sample must be collected from every 50 yd^3 of overburden and lay-back material intended for use as fill.
- Any overburden and lay-back material returned to the excavation as fill must be placed in the deeper portions of the excavation.

The overburden was stockpiled or placed into containers labeled with a unique Laboratory material-tracking bar code. Before the soil could be used as backfill for the excavated trenches, samples from every 50 yd^3 were analyzed for chemicals and radionuclides. Overburden samples collected from MDA B are listed in Table 4.2-1.

Before the enclosures were installed, several feet of overburden material was removed from the east end of MDA B and staged in a stockpile. This first stockpile was created during project activities in February 2010. Every 2-ft layer in this 8-ft-deep stockpile was divided into grid cells and sampled during April and May 2010. Between July and September 17, 2010, additional overburden was added to a second stockpile as foundation footers were excavated for the fixed enclosures constructed in the western portion of MDA B. After September 21, 2010, overburden removed from inside the enclosures was stored in containers. Additional overburden from outside the enclosures was added to the second stockpile in February and March 2011.

After the enclosures were installed, additional overburden was accumulated and sampled. A minimum of one composite sample was collected for each 50 yd^3 of overburden. Following sampling, excavated overburden material was subsequently stored in labeled containers awaiting analytical results to determine if the material could be used as backfill at MDA B.

Appendix E contains a summary of the overburden data and the statistical analysis performed to confirm the material met the criteria for use as on-site fill. The statistical analysis of overburden samples presented in Appendix E was conducted on 172 samples collected from the first sampling event and on 119 samples from the second and third sampling events. Appendix C presents all of the overburden data (on DVDs included with this document).

During activities associated with excavation of the trenches, 12,026 yd^3 of excavated overburden material was found to meet the criteria in the MDA B SAP (LANL 2010, 110411) for use as fill. All this material was returned to MDA B as fill. As required by NMED in its approval with modifications (NMED 2007, 095475), overburden used as fill was placed well below the ground surface and was then topped with clean backfill material obtained from Española Transit Mix, an off-site source.

4.3 Summary of Excavation Methodology

Excavations were completed using a standard track-mounted hydraulic excavator to expose and remove trench contents for inspection, identification, and removal. A sloping dig face was established to allow for initial visual inspection and characterization of the exposed waste. The dig face was exposed for the entire thickness of the trench, from the surface to the tuff beneath the buried waste. Advancement of the dig face was conducted in lifts of minimal practical thickness to minimize variability and volume of the waste material exposed at any given time.

NMED's approval with modifications of the IRWP (NMED 2007, 095475) required the Laboratory's MDA B air-monitoring program to include monitoring for beryllium in addition to airborne radioactive particles and airborne particulates. Because no method can measure airborne beryllium in real time, the Laboratory developed a two-prong approach to ensure worker safety. Before excavation activities began, native soil samples were analyzed to determine the fractions of potentially toxic metals. The lowest health-based action level was then used to develop a concentration limit for airborne dust that would be safe for an unprotected worker in the excavation. Based on the concentrations of metals detected in native soil samples relative to exposure limits, chromium rather than beryllium resulted in the lowest site-specific dust limit (0.36 mg/m^3). Particulate samples were also collected and submitted to an accredited laboratory for beryllium analysis to verify that beryllium concentrations never exceeded applicable health standards.

Dust-suppression liquid (i.e., a calcium chloride solution) was applied to the dig face and adjacent areas during active excavation. A dust track meter was used to measure the amount of particulate dust in the air. Operational conditions required a dust level below 0.36 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 0.36 mg/m^3. Excavation proceeded until all waste was removed and tuff was encountered. Excavation continued into the tuff approximately 1 ft or until no readings were observed from the field-screening monitoring described in section 4.3.1. Confirmation sampling was then conducted as described in section 5.0.

4.3.1 Field Monitoring

During excavation activities, industrial hygiene (IH) instrumentation was used inside the enclosures to monitor for immediate-danger-to-life-and-health conditions, toxic gases, and dust that could present a hazard to personnel entering the enclosure. Air quality was monitored by two systems. The first is an Industrial Scientific iTrans system that monitors for oxygen (O_2), hydrogen sulfide (H_2S), lower explosive limit (LEL), and carbon monoxide (CO). This system consists of a series of real-time monitoring sensors affixed to the enclosure that transmit back to the control room. The indicator panel includes a digital readout with preset alarms. The iTrans sensors are placed between the dig face and the air movers (downwind of the excavation/sampling location). The second system is a RAE Systems MultiRAE Plus. The MultiRAE Plus consists of two separate multigas monitors. The first multigas monitor is located on the excavator connected to a plastic tube, the end of which is located at the bucket of the excavator. The second multigas monitor was placed adjacent to the excavation. These two multigas monitors measure air concentrations of O_2, H_2S, LEL, CO, and VOCs and wirelessly transmit data to the control room of the enclosure where levels are monitored and recorded by an industrial hygienist or other qualified worker.

Although VOC vapor monitoring was performed for IH purposes, the monitoring method is sensitive enough to detect concentrations that would be present in the vapor phase if the bulk soil or tuff were contaminated above SSLs. That is, the vapor pressures of VOC constituents are high enough that bulk concentrations approaching SSLs have associated vapor concentrations that are easily detectable using field vapor monitoring. Appendix L presents an evaluation of the detectability of VOC contamination using field vapor monitoring. As shown in Appendix L, the concentrations of VOCs detectable using field monitoring are much less than SSLs. The results of this evaluation are consistent with the actual field screening results. Vapor monitoring detected elevated concentrations of VOCs only when a waste drum containing powder with high concentrations of the VOC naphthalene was breached (see section 4.6.4).

Field screening for radioactivity levels on surfaces and in the work environment was also performed within the enclosure during excavation. Monitoring was performed during personnel entry and egress. All work within the enclosure was conducted using the level of respiratory protection dictated by monitoring results.

To facilitate real-time MAR screening, a Field Instrument for Detection of Low-Energy Radiation (FIDLER) was installed on every excavator bucket on the boom. If the material in the bucket exhibited activity levels that exceeded the established threshold value, it was placed back into the dig face and covered with clean soil until a path forward was determined (LANL 2010, 110397). If the initial FIDLER readings indicated a safe activity level, a sample was taken from each bucket and sent for screening using 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. Anomalies (e.g., bottles, containers, cylinders) were set aside for further examination by waste management personnel and/or sampling, as required for characterization before proper disposition.

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

A high-volume air-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 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 [29 Code of Federal Regulations (CFR) 1910.1001(c)].

Eight air-monitoring network (AIRNET) stations were located along the northern boundary of MDA B to monitor ambient air outside of the enclosures. The results of this sampling program are described in section 4.5.

4.3.2 Waste Characterization

The WCSF for MDA B (LANL 2010, 109754) was drafted concurrently with the development of the initial June 15, 2010, MDA B SAP (LANL 2010, 110411). Because little was known about the types of waste that were disposed of at MDA B, the WCSF first evaluated the acceptable knowledge (AK) to determine if there was any clear documentation that listed wastes were disposed of at MDA B. Listed wastes are defined in 40 CFR Part 261, Subpart D. The determination of whether or not a waste is listed is based upon the generator’s knowledge of the source of the waste. A listed waste is hazardous because it meets the U.S. Environmental Protection Agency’s (EPA’s) listing description, not because of the concentration of any hazardous constituents or a physical or chemical property. If the AK regarding a source of contamination, contaminant, or wastes is unavailable or inconclusive, then the investigation-derived waste (IDW) is not listed.

The MDA B AK review was based on the guidance provided by the EPA's "Management of Remediation Waste Under RCRA (EPA 530 F 98 026), Determination of When Contamination Is Caused by Listed Hazardous Waste" (EPA 1998, 064705), which states the following:

> Where a facility owner/operator makes a good faith effort to determine if a material is a listed hazardous waste but cannot make such a determination because documentation regarding a source of contamination, contaminant, or waste is unavailable or inconclusive, EPA has stated that one may assume the source, contaminant or waste is not listed hazardous waste and, therefore, provided the material in question does not exhibit a characteristic of hazardous waste, RCRA requirements do not apply.
>
> Listing determinations are often particularly difficult in the remedial context because the listings are generally identified by the sources of the hazardous wastes rather than the concentrations of various hazardous constituents; therefore, analytical testing alone, without information on a waste's source, will not generally produce information that will conclusively indicate whether a given waste is a listed hazardous waste.

Because the contamination must originate from a documented release of a "listed source" proximate to the immediate area where the waste is generated, the lack of AK at MDA B led to the conclusion that no wastes at MDA B would meet the EPA's criteria for listed wastes.

After a generator has performed a listing determination, the waste must still be evaluated to determine if it exhibits any of the four hazardous waste characteristics. Determining if a waste is characteristically hazardous is based upon whether the waste exhibits the physical or chemical waste characteristic defined by the RCRA rule. Because the AK for the project was very limited, the initial sampling strategy for hazardous constituents in the MDA B SAP (LANL 2010, 110411) required full-suite sampling of each composite pile of soil (i.e., one sample per 4 × 20 yd^3 bin) to determine if the waste exhibited the toxicity characteristic for one or more constituents. The SAP and WCSF (LANL 2010, 109754) required other characteristics to be determined on a case-by-case basis (e.g., liquid wastes or containerized gases).

The project team met with NMED on July 8, 2010, to review the original SAP (LANL 2010, 110411). Revision 1 of the SAP was prepared on August 10, 2010 (LANL 2010, 110398) to reflect the types of contaminated soil and waste that were being generated. Of the 93 sample sets (i.e., approximately 400 bins) collected during the early summer of 2010, only one bin exhibited the RCRA toxicity characteristic for cadmium. This bin was anomalous because it contained discolored soil. The MDA B SAP, Revision 1 (LANL 2010, 110398), which focused on full-suite analyses of anomalies such as discolored soils, was implemented starting on August 10, 2010.

As the investigation progressed and items that needed specialized sampling were excavated, additional refinements to the SAP were required. These refinements included provisions for sampling ACM. Revision 2 of the SAP was prepared on November 3, 2010 (LANL 2010, 111195) and included requirements for sampling ACM.

For waste characterization purposes, samples of waste soil and debris excavated from the trenches were analyzed for organic chemicals, inorganic chemicals, and radionuclides. Statistical analysis of waste soil and debris samples was conducted on 79 samples collected during the remediation effort. Basic descriptive statistics were calculated for these sample results, including the number of samples; the detection rate; and the mean concentrations, standard deviation, minimum concentrations, median concentrations, and maximum concentrations. A process was used to assess whether the maximum detected concentration for a given detected analyte exceeded residential screening levels.

Four sets of screening levels were employed during this step:

- NMED SSLs,
- EPA regional SSLs,
- Laboratory radionuclide SALs, and
- TCLP standards.

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.

The results of statistical analysis of contaminated soil and debris waste samples are presented in Table 4.3-1 for inorganic chemicals, Table 4.3-2 for organic chemicals, and Table 4.3-3 for radionuclides. For these tables, the statistical evaluation of the results is presented for a particular analyte only if the analyte was detected in one or more samples. Appendix C presents all of the contaminated soil and debris waste data (on DVDs included with this document).

The Laboratory submitted a request to NMED on September 19, 2007, to approve an area of contamination designation for MDA B (LANL 2007, 520100). NMED approved the request on October 2, 2007 (NMED 2007, 098560). When fieldwork began in the spring of 2010, DOE/LANL submitted a second request to NMED on July 23, 2010, for a larger TA-21-based area of contamination (LANL 2010, 110045). This second request was based on the conservative assumption that significant volumes of soil mixed with hazardous waste (i.e., mixed LLW) could be generated as the trenches were excavated. This request specified the boundaries of the proposed area of contamination, the rationale for how the boundaries were established, and an explanation of how the boundaries were delineated. The request also described the activities to be conducted within the area of contamination. Approval of the second area of contamination was granted by NMED on August 2, 2010 (NMED 2010, 110400). The actual volume of mixed LLW generated during the remediation of MDA B was substantially less than the conservative assumptions used to establish the TA-21-based area of contamination boundary.

Packaging operations at the MDA B site began with the inspection and preparation of empty containers before they were placed in the enclosures. The decision regarding the type of container was made with input from the Laboratory’s Waste Management Group. Filling the containers was controlled by a number of factors including, but not limited to, type of waste, weight, the selected disposal facility, and MAR screening results.

4.4 Enclosure Excavations

Each enclosure has distinctive attributes. Enclosures 1 and 2 are moveable. Enclosures 3 and 4 were combined into a single fixed temporary enclosure (Enclosure 3) using a synthetic fabric material along the roofline. Enclosures 5 and 6 were also combined into a single fixed temporary enclosure (Enclosure 5). Enclosures 7 and 8 were combined into a single fixed temporary enclosure (Enclosure 7). Enclosures 9, 10, and 11 were combined into a single fixed temporary enclosure (Enclosure 9). Enclosures 12 and 13 were combined into a single fixed temporary enclosure (Enclosure 12). Enclosures 9 and 12 were combined towards the end of the project to facilitate the completion of excavation activities. The locations of the enclosures during remediation are shown on Plate 1. Fixed Enclosures 3, 5, 7, 9, and 12 were demolished from November 2012 to February 2013. Movable Enclosures 1 and 2 were moved to the east of the MDA B site.

The original estimate of the total volume of waste was based on the trench dimensions developed from the geophysical investigations and the DPT investigation and an assumed 20% bulking factor. The total volume of waste exceeded the initial forecast by just over 80%.This increase resulted from the fact that the trenches were deeper than estimated. Table 4.4-1 summarizes the actual volume of waste shipped from the site by waste type. Table 4.4-2 summarizes the original estimates for trench depths and in-place waste volumes as well as the actual trench depths and in-place waste volumes for each enclosure.

Detailed descriptions of excavation activities for each enclosure are provided below.

4.4.1 Enclosure 1 and Area 5

4.4.1.1 Enclosure 1

Located in the western portion of MDA B near the center of the site during remediation, Enclosure 1 is a moveable structure with an approximate 60-ft-long by 60-ft-wide footprint (Plate 2). Based on the area of this enclosure, a maximum of six grid cells could be excavated before the structure was moved. Enclosure 1 began operation on June 30, 2010. Waste excavation and confirmation sampling activities were completed on September 14, 2011. Excavation depths varied from 7 to 19 ft bgs. During investigation and remediation activities, 197 grid cells were excavated, removing overburden material, contaminated soil, and waste debris. Plate 1 shows the locations of the excavated grid cells.

A total of 10,169 yd^3 of waste debris, contaminated soil, and overburden was excavated from Enclosure 1, which exceeded the original estimate (Table 4.4-2). Enclosure 1 waste containers were typically filled from 85% to 99% with contaminated soil and tuff. Waste debris items, which constituted the remainder of waste container contents, included scrap metal, metal plates, sheet metal, rebar, metal pipe, cables, wires, wire mesh, crushed metal cans, crushed 55-gal. drums, broken glass, concrete, asphalt, graphite pieces, ceramic pieces, wood and plywood, plastic pieces, plastic sheeting, rubber hose, personal protective equipment (PPE), paper trash, bricks, strips of film, cardboard, and cloth. Large debris items included chainlink fencing, a small shed, a turbine fan, several open oversized metal boxes, and pieces of two crushed vehicles.

Anomalies removed from the excavated soil included various bottles containing liquids, a glass jar with a pink substance and liquid, a bottle with apparent crystallization, bottles containing powder, a 3-ft by 2-ft tank, a white tank containing liquid, two gas cylinders, sealed nonpressurized containers, other nonpressurized cylinders, leaded glass plates, electrical panels, capacitors, a transformer, two old crushed vehicles, and lead acid batteries. These anomalies were characterized and packaged separately in accordance with the MDA B SAP, Revision 2 (LANL 2010, 111195), and waste anomalies WCSF (LANL 2010, 109769).

On July 25, 2011, a zone of elevated radioactivity was encountered in Enclosure 1, row 209. This discovery occurred within 30 ft of the end of the surveyed waste trench. Excavation was immediately stopped in accordance with the project's safety protocols. A representative soil sample was collected and sent to an off-site laboratory for waste characterization analysis. Characterization of material removed from this area indicated the total radiological content of this last 1% of the MDA B trench would ultimately amount to more than half of the entire project MAR at completion. A mitigation approach was developed that was protective of workers and the public, while allowing excavation to continue, although at less than 25% of previously achieved project excavation rates.

4.4.1.2 Area 5

Area 5 is located to the south and adjacent to the trench area of Enclosure 1 (Plate 2). The review of a 1946 aerial photograph indicated Area 5 may have been a ramp used to access the disposal trench. Preexcavation geophysical investigation and DPT sampling provided further evidence that Area 5 was a ramp and not a continuation of the trench. The DPT sampling results showed that refusal was encountered within Area 5 at a depth generally less than 5 ft (assumed to be the depth to native tuff).

Following the removal of the clean soil and base course added during the site-grading process, 16 test pits were excavated within Area 5 to better define the nature and extent of the contamination observed during the DPT investigation. Each cell containing a DPT sample (AL225, AM228, AM230, AN223, and AN226) was excavated to remove the contamination observed in DPT sample results. An additional 11 test pits were also excavated down to the surface of the tuff to confirm no buried waste was present and to determine the depth to the tuff surface. If the initial round of field-laboratory gamma-spectroscopy analysis identified activities of plutonium-239/240 above residential SALs, additional soil was removed down to native tuff or to the maximum depth practicable and sampled to verify the confirmation results for the area were below residential SALs (section 5.1).

4.4.2 Enclosure 2

Located on the eastern portion of MDA B during remediation, Enclosure 2 is a moveable structure with an approximate 60-ft- long by 60-ft-wide footprint (Plate 3). Enclosure 2 began operation on July 19, 2010, and operations were completed on July 19, 2011. Based on the area of the enclosure, a maximum of six grid cells could be excavated before the structure was moved. Excavation depths varied from 6 to 30 ft bgs, which exceeded the original maximum depth estimate by approximately 20 ft.

During investigation and remediation activities, 133 grid cells were excavated, removing overburden material, contaminated soil, and waste debris. Plate 1 shows the locations of the excavated grid cells. A total of 8367 yd^3 of waste debris, contaminated soil, and overburden was excavated from Enclosure 2, which exceeded the original estimate (Table 4.4-2).

Enclosure 2 waste containers were typically filled from 70% to 99% with contaminated soil and tuff. Waste debris items, which constituted the remainder of container contents, included scrap metal, metal plates, sheet metal, rebar, metal pipe, cables, wire, wire mesh, crushed metal cans, crushed 55-gal. drums, broken glass, concrete, asphalt, graphite pieces, wood, plastic pieces, plastic sheeting, rubber hose, PPE, bricks, tile pieces, cloth, and cardboard. Large debris items included file cabinets, chainlink fencing, motors, electrical panels, an I-beam, folding chairs, six metal tanks, a set of metal stairs, and a safe.

Anomalies removed from the excavated soil included light bulbs, batteries, fire extinguishers, a transformer, a breached gas cylinder, and a water tank that returned a high reading from a FIDLER. These anomalies were characterized and packaged separately in accordance with the MDA B SAP, Revision 2 (LANL 2010, 111195) and waste anomalies WCSF (LANL 2010, 109769).

4.4.3 Enclosure 3

Located on the western portion of MDA B at the far western end of the site, Enclosure 3 was a fixed, temporary structure with a 220-ft-long by 75-ft-wide footprint (Plate 4). Enclosure 3 began operation on September 20, 2010, and operations were completed on January 31, 2011. Excavation depths varied from 7 to 15 ft bgs, which exceeded the original maximum depth estimate by approximately 5 ft.

During investigation and remediation activities, 81 grid cells were excavated within Enclosure 3. Overburden material, contaminated soil, and waste debris have been removed. Grid cell AG167, which was located just north of the main trench, was also excavated because it was identified as the possible location of the ramp used to access the disposal trench during MDA B operations. Plate 1 shows the locations of the excavated grid cells. A total of 3157 yd^3 of waste debris, contaminated soil, and overburden was excavated from Enclosure 3, which exceeded the original estimate (Table 4.4-2).

Enclosure 3 waste containers were typically filled from 85% to 99% with contaminated soil and tuff. Waste debris items, which constituted the remainder of container contents, included scrap metal, sheet metal, rebar, metal pipe, wires, crushed metal cans, crushed 55-gal. drums, broken glass, asphalt, ceramic pieces, plastic pieces, plastic sheeting, rubber hose, PPE, used filters, and cardboard.

Anomalies removed from the excavated soil 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, white powder, bluish powder, pipe suspected to be lead, an electrical box, and an electrical panel. These anomalies were characterized and packaged separately in accordance with the MDA B SAP, Revision 2 (LANL 2010, 111195) and waste anomalies WCSF (LANL 2010, 109769).

4.4.4 Enclosure 5

Located on the western portion of MDA B, Enclosure 5 was a fixed, temporary structure with a 280-ft-long by 75-ft-wide footprint (Plate 5). Enclosure 5 began operation on March 15, 2011, and operations were completed on August 2, 2011. The maximum excavation depth was approximately 15 ft bgs, which exceeded the original maximum depth estimate by approximately 4 ft.

During investigation and remediation activities, 80 grid cells were excavated, removing overburden material, contaminated soil, and waste debris. Plate 1 shows the locations of the excavated grid cells. A total of 2970 yd^3 of waste debris, contaminated soil, and overburden were excavated from Enclosure 5, which exceeded the original estimate (Table 4.4-2).

Enclosure 5 waste containers were typically filled from 85% to 99% with contaminated soil and tuff. Waste debris items, which constituted the remainder of container contents, included scrap metal, rebar, metal pipe, cables, wires, crushed 55-gal. drums, broken glass, concrete, asphalt, graphite pieces, wood, plastic pieces, plastic sheeting, rubber hose, PPE, bricks, cloth, and tree roots and branches.

Anomalies removed from the excavated soil included an amber bottle containing liquid and six small gas cylinders. These anomalies were characterized and packaged separately in accordance with the MDA B SAP, Revision 2 (LANL 2010, 111195) and waste anomalies WCSF (LANL 2010, 109769).

4.4.5 Enclosure 7

Located on the western portion of MDA B, Enclosure 7 was a fixed, temporary structure with a 140-ft-long by 75-ft-wide footprint (Plate 6). Enclosure 7 began operation on September 22, 2010, and excavations were completed on December 12, 2010. Excavation depths varied from 12 to 17 ft bgs, which exceeded the original maximum depth estimate by approximately 6 ft.

During investigation and remediation activities, 48 grid cells were excavated, removing overburden material, contaminated soil, and waste debris. Plate 1 shows the locations of the excavated grid cells. A total of 2386 yd^3 of waste debris, contaminated soil, and overburden was excavated from Enclosure 7, which exceeded the original estimate (Table 4.4-2).

Enclosure 7 waste containers were typically filled from 80% to 99% with contaminated soil and tuff. Waste debris items, which constituted the remainder of container contents, included sheet metal, rebar, metal pipe, cables, wires, wire mesh, a crushed 55-gal. drum, broken glass, concrete, asphalt, a plastic drum, rubber hose, rubber gaskets, PPE, slate pieces, clay pipe, used filters, paper trash, cloth, and a porcelain sink.

Anomalies removed from the excavated soil included gas cylinders, light fixtures, fire extinguishers, ACM pipes, an electrical box, and an electric motor. These anomalies were characterized and packaged separately in accordance with the MDA B SAP, Revision 2 (LANL 2010, 111195) and waste anomalies WCSF (LANL 2010, 109769).

4.4.6 Enclosure 9

Located on the eastern portion of MDA B, Enclosure 9 was a fixed, temporary structure with a 280-ft-long by 75-ft-wide footprint (Plate 7). Enclosure 9 began operation on February 11, 2011, and operations were completed on September 13, 2011. The maximum excavation depth was approximately 20 ft bgs, which was 7 ft deeper than the original estimate of 13 ft bgs. During investigation and remediation activities, 156 grid cells were excavated, removing overburden material, contaminated soil, and waste debris. Six additional grid cells located outside the main trench were excavated because of an anomaly in the area revealed by the geophysics survey. Plate 1 shows the locations of the excavated grid cells. A total of 6825 yd^3 of debris, contaminated soil, and overburden was excavated from Enclosure 9, which exceeded the original estimate (Table 4.4-2).

On February 22, 2011, several jars containing beryllium shavings were uncovered. Excavation activities within Enclosure 9 were paused. 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 the enclosure was a beryllium area. Excavation resumed in row 74, relocating operations farther from the area in which the jars of beryllium shavings were found. The enclosure was down-posted from a beryllium area on May 12, 2011.

Enclosure 9 waste containers were typically filled 95% to 100% with contaminated soil and tuff. Waste debris items, which constituted the remainder of waste container contents, included scrap metal, sheet metal, metal plates, rebar, metal pipe, cables, wires, crushed metal cans, crushed 55-gal. drums, broken glass, concrete chunks, asphalt chunks, ceramic tile, graphite pieces, jars of beryllium shavings, wood, plastic pieces, plastic sheeting, rubber hose, PPE, cloth, and cardboard. Large debris items included chainlink fencing, metal tanks, and unpressurized gas cylinders.

Anomalies removed from the excavated soil included pressurized cylinders, sealed bottles with unknown liquid and solid contents, a capacitor, artillery shells, sabot rounds, and chunks of lead. These anomalies were characterized and packaged separately in accordance with the MDA B SAP, Revision 2 (LANL 2010, 111195), and waste anomalies WCSF (LANL 2010, 109769).

4.4.7 Enclosure 12

Located on the eastern portion of MDA B, Enclosure 12 was a fixed, temporary structure with a 220-ft-long by 75-ft-wide footprint (Plate 8). Enclosure 12 began operation on October 10, 2010, and waste removal was completed on April 26, 2011. Excavation depths varied from 15 to 22 ft bgs, which exceeded the original maximum depth estimate by approximately 9 ft.

During investigation and remediation activities, 100 grid cells were excavated, removing overburden material, contaminated soil, and waste debris. Plate 1 shows the locations of the excavated grid cells. A total of 5473 yd^3 of debris, contaminated soil, and overburden was excavated from Enclosure 12, which exceed the original estimate (Table 4.4-2).

On October 27, 2010, two drums were uncovered and placed into the anomaly pile for sampling. The drums were in poor condition. When one of the drums was accidentally breached during the transfer, it released a cloud of white powder, which triggered the use of the dust-suppression system. The second drum appeared to be empty. Liquid was later observed trickling from behind the empty drum. When this drum was picked up, no liquid was observed coming from the drum; therefore, the liquid was assumed to be dust-suppression water. This assumption was later confirmed by the analytical results.

Organic vapors were also detected when the drum was breached. Naphthalene was determined to be the major constituent of the white powder and the source of the vapors. Excavation was on standby in Enclosure 12 until November 9, 2010, when the material was characterized and the enclosure was determined to be safe for further excavation. Excavation operations resumed the following day. This work stoppage was one of the factors in the November 2010 extension request described in section 2.5.2 (LANL 2010, 111332).

Enclosure 12 waste containers were typically filled 50% to 99% with contaminated soil and tuff. Waste debris items, which constituted the remainder of container contents, included scrap metal, sheet metal, metal pipe, wires, a crushed metal can, crushed 55-gal. drums, broken glass, wood, plastic pieces, rubber weather stripping, rubber hose, PPE, and rolls of film.

Additional anomalies included light bulbs, a box apparatus with bulbs, ACM pipe, and a possible thermocouple apparatus. These anomalies were characterized and packaged separately in accordance with the MDA B SAP, Revision 2 (LANL 2010, 111195) and waste anomalies WCSF (LANL 2010, 109769).

4.5 Air Sampling

Eight AIRNET stations are located along the northern boundary of MDA B and were installed for air sampling during remediation activities. The locations of these monitoring stations are shown in Figure 4.5-1. Each AIRNET station collected samples of airborne radionuclides, such as plutonium, americium, and uranium isotopes, on a particulate filter.

Samples were collected biweekly from these AIRNET stations. These samples were sent to an off-site analytical laboratory to be analyzed for isotopic plutonium with alpha spectroscopy, according to EPA requirements in 40 CFR 61, “National Emission Standards for Hazardous Air Pollutants” (NESHAPs), Appendix B, Test Methods. The analytical laboratory cut the filters in half, making an A and B sample for each particular AIRNET station in each sample period.

The B sample was dissolved, and radiochemical separation was used to isolate the isotopic plutonium in the sample. Alpha spectroscopy was used to determine isotopic plutonium concentrations in the air sample. Air concentrations were converted to an estimated radioactive dose for that 2-wk sampling period using procedure ENV-ES-QP-502.4, Air Pathway Dose Assessment. Year-to-date sums and trends based on these 2-wk dose measurements were generated to evaluate each station’s compliance status in comparison with EPA’s limit of 10 mrem/yr dose from the air pathway to a representative member of the public. These dose calculation sheets and plots for each station for 2010 and 2011 are provided in Appendix G.

The maximum biweekly dose measured at the eight stations during the project period (June 21, 2010, through July 4, 2011) was 1.05 mrem. Most biweekly doses measured below 0.04 mrem. The maximum year-to-date accumulated total dose for any of these eight stations was 3.10 mrem. The average accumulated total for all stations during the project period was 0.98 mrem. These values are all less than the 5-mrem Laboratory administrative rolling 12-mo allocation for the project. The EPA regulatory limit of 10 mrem/yr applies collectively to all Laboratory operations.

The A sample from the particulate filter was composited with all the other Laboratory AIRNET samples collected at the same location during a 3-mo period into a single, composite sample that was destructively analyzed for levels of plutonium, uranium, americium isotopes, and other contaminants. This analysis provided a more sensitive air concentration measurement, which was used for NESHAPs compliance reporting. Results from analyses of quarterly composited samples were well below the yearly Laboratory dose allocation for all sites.

4.6 Waste Disposition

A total of 47,350 yd^3 of waste from the trenches at MDA B was shipped from the site. An additional 782 yd^3 of soil removed from the trenches was determined to meet NMED's criteria in the approval with modifications (NMED 2007, 095475) for use as backfill. This material was used on-site as backfill. The waste inventory included industrial solid waste, LLW, and mixed LLW. Waste volumes shipped from the site are summarized by type in Table 4.4-1. Appendix H provides summary information on the characterization, management, and disposition of waste.

4.6.1 Mixed LLW

The volume of radioactively contaminated soil mixed with waste that exhibited a hazardous characteristic was far less than originally anticipated. Only 20 yd^3 of waste, less than 0.05% of the volume of soil removed, was determined to be RCRA hazardous waste. One small area of radioactively contaminated soil mixed with waste was excavated that exceeded the TCLP limit for cadmium. This waste was managed as mixed LLW and disposed of at the EnergySolutions disposal facility in Clive, UT.

4.6.2 Naval Munitions

Waste consisting of old naval munitions was discovered on three occasions during the excavation of waste from the disposal trenches at MDA B. When naval munitions were encountered, they were inspected by a bomb technician with the Laboratory's Emergency Response Group (EO-1) who determined the shells were unfired and not fused. EO-1 photographed the shells and sent the photographs to the U.S. Department of Defense (DOD) to assist in characterization.

EO-1 also reviewed classified historical records in an attempt to determine if the shells contained an explosive charge. This review found that the munitions were most likely not live rounds. Other factors that support the assumption that these shells are inert are that TA-21 has never been associated with a firing or impact range, and it was not standard practice at that time to dispose of live rounds in an operational waste pit like the trenches at MDA B.

Based on the RCRA regulations for military munitions in Subpart M of 40 CFR 266 and consultation with EO-1, the shells were determined to be solid wastes pending characterization under RCRA.

EO-1 worked with a DOD munitions expert to determine how to safely manage the shells until a processing and disposal method could be developed. Based upon this consultation, the shells were placed in a certified munitions magazine at the east end of TA-21 and access was limited to EO-1 personnel. The 1000-ft standoff distance boundary marked for the shell storage was approximately 500 ft from the TA-21-based area of contamination boundary. Before final processing and disposal, the munitions were x-rayed to determine whether they contained explosives, but the results were inconclusive. To confirm the munitions were inert, they were opened using shaped explosive charges at one of the Laboratory's firing sites. Before it was transferred to the firing site, each munition was radiologically decontaminated by abrasive blasting. All of the munitions were determined to be inert, and the metal casings were sent off-site to be recycled.

4.6.3 Cylinders

A total of 101 compressed gas cylinders were removed and segregated for separate characterization as MDA B excavation activities progressed. Each cylinder was washed with water spray, air dried, and then subjected to a radiological survey. If residual surface radiological contamination remained after this initial decontamination process, the cylinder was painted.

After over 60 yr of burial, the cylinders were in poor condition and the valves, if present, were not usable. Fifty-five of the cylinders were easily identifiable as fire extinguishers. The remaining 46 cylinders required sampling to determine a path forward. Because sampling would most likely require drilling through the cylinder wall, the Laboratory contracted with Integrated Environmental Services (IES), a company that specializes in handling waste compressed gas cylinders. IES began operations on February 16, 2012, and completed work on March 21, 2012.

IES set up its mobile analytical laboratory truck inside Enclosure 12, one of the fixed enclosures at MDA B. It is a sealed metal building that is 75 ft wide, approximately 200 ft long, with a 35-ft ceiling. The enclosure is equipped with high-efficiency particulate air (HEPA) and activated carbon filtration systems.

Each cylinder was sampled using a "tap-and-saddle" device similar to what is used by the natural gas industry to tap a pressurized natural gas pipeline. Once the cylinder was tapped, a sample was drawn and immediately analyzed at the on-site mobile laboratory to definitively identify the gas contents. These data were then used to determine how to manage the gaseous residues.

Samples were collected from any liquid residues remaining in a cylinder for additional characterization. Chemical neutralization was performed for caustic and acidic liquids that were characteristic only for corrosivity under the elementary neutralization exemption in 40 CFR 264.1(g)(6). This process occurred in a container that met the definition of an elementary neutralization unit in 40 CFR 260.10. Liquids that did not meet the requirements for elementary neutralization were transferred to a new container for shipment to a treatment, storage, and disposal facility for treatment. Three cylinders contained acidic liquid that was neutralized, and one was transferred to a new container.

If the cylinder was determined to be empty (i.e., no gaseous residues or liquids), the cylinder "carcass" was placed in a rolloff bin for disposal as LLW. Seventy-three cylinders were determined to be empty. If the cylinder contained carbon dioxide, oxygen, or nitrogen, the gaseous residue was vented directly to the atmosphere inside the enclosure. Twenty cylinders were vented in this manner.

The Generator Contingency Plan was activated on March 14, 2012, when a plastic, Tedlar sampling bag ignited during the collection of a gas sample. As described in the March 19, 2012, letter to NMED, the Laboratory's Emergency Management and Response and Hazardous Material personnel responded in accordance with the Generator Contingency Plan. A remote-controlled robot was used to obtain a sample of the liquid in the cylinder. When the manipulation of the sample resulted in a spontaneous chemical reaction, it was determined the safest path forward was to allow all of the residual liquid to react. Real-time monitoring confirmed that there was no radiological release and the VOC release was negligible (i.e., approximately 1 ppm). Based on analysis of the residue from the reaction it was determined the liquid was nickel tetracarbonyl. There were no impacts to workers, public health or safety, or the environment as a result of this nonemergency significant event.

Because of the experience with the cylinder described above, the remaining three cylinders that were suspected to contain nickel tetracarbonyl and the carcass of the cylinder that reacted were overpacked in U.S. Department of Transportation– (DOT-) exempt cylinder overpack containers on March 28, 2012. The overpack containers were removed from Enclosure 12 and temporarily stored in the approved TA-21 area of contamination pending shipment to the Perma-Fix treatment facility in Oak Ridge, TN. The overpacked cylinders were shipped on April 18, 2012.

4.6.4 Other Anomalies

Anomalies other than the shells and cylinders described above were also segregated for individual characterization. The majority of nonsoil waste removed from MDA B was construction debris that consisted primarily of wood, metal, and concrete. The remaining wastes included a wide range of materials including, but not limited to, PPE, office furniture, paper, two vehicles, three large storage tanks, PCB transformers and capacitors, small laboratory containers, and lead acid batteries. Waste debris found are listed for each enclosure in section 4.4 and the quarterly progress reports submitted to NMED [e.g., (LANL 2010, 111508)].

Approximately 300 small (i.e., from less than a pint to a gallon) laboratory containers with residual liquids or solids were segregated from the waste soil and individually characterized in accordance with the anomaly procedure in the MDA B SAP, Revision 2 (LANL 2010, 111195) and waste anomalies WCSF (LANL 2010, 109769). Each anomaly was logged, numbered, and placed in individual 5-gal. plastic shipping containers filled with absorbent. All containers were shipped to an analytical laboratory for analysis. All residues in the excavated containers were consumed in the analysis, and no samples were returned by the laboratory.

Several drums were excavated during remediation, but only two retained any contents. One drum contained liquid that appeared to be water. The sampling results indicated radioactivity but no hazardous constituents. The second drum, which is discussed in detail later in this section, contained a white crystalline powder that was determined to be naphthalene.

Items that potentially contained PCBs were segregated from the waste soil and individually characterized in accordance with the anomaly procedure in the MDA B SAP, Revision 2 (LANL 2010, 111195) and waste anomalies WCSF (LANL 2010, 109769). If the concentration of PCBs was greater than or equal to 50 ppm, the PCB equipment was shipped to the EnergySolutions facility in Clive, UT, for treatment and disposal. Lead batteries were also segregated during excavation activities and shipped to the EnergySolutions Clive facility for treatment and disposal as mixed LLW.

Discolored soil was also treated as an anomaly. One small area of discolored soil was excavated, placed in a 20 yd^3 rolloff bin, and sampled. As described in section 4.6.1, the soil failed TCLP for cadmium and was shipped to the EnergySolutions facility in Clive, UT, for treatment and disposal.

On February 22, 2011, several jars containing beryllium shavings were uncovered in Enclosure 9. Excavation activities in Enclosure 9 were placed on standby while air samples, swipes, and soil samples were taken in each enclosure to determine the extent of any possible beryllium contamination. Personnel were also given training specific to working in beryllium-contaminated areas. The standby was lifted on April 19, 2010, and operations resumed under the assumption that Enclosure 9 was a beryllium area. The enclosure was down-posted from a beryllium area on May 12, 2011.

On October 27, 2010, the excavator in Enclosure 12 revealed a drum containing white powder and field instruments identified potential organic vapors. The drum and surrounding soil were identified as an anomaly in accordance with the MDA B SAP, Revision 2 *(*LANL 2010, 111195), and moved to the anomaly pile, sampled, and held for further characterization. The sampling results demonstrated that the primary constituent of the white powder was naphthalene. The powder also contained toluene, ethanol, and methyl ether. After complete radiological and chemical sampling results were received, the white powder and the surrounding soil were characterized in accordance with the WCSF (LANL 2010, 109769) as described in section 4.3.2. The characterization process concluded that the waste was not U-listed because it could not be demonstrated that a commercial chemical product was discarded in the 1940s and because the multiple VOCs found in the waste are direct evidence that, even if a "product" was disposed of in the trench, it did not have "one sole active ingredient," as required in 40 CFR 261.33. The characterization process also concluded that it was not ignitable because the powder did not meet EPA's definition of an ignitable solid in 40 CFR 261.21(a)(2) or reactive waste in 40 CFR 261.23. Therefore, the waste was characterized as LLW.

Potential ACM was also segregated as anomalous and characterized in accordance with the MDA B SAP, Revision 2 *(*LANL 2010, 111195). All asbestos-containing waste was also radioactively contaminated and was managed as LLW.

4.6.5 LLW

A total of 47,026 yd^3 of LLW generated from excavation activities at MDA B was shipped from the site. As summarized in Table 4.4-1, LLW was shipped to TA-54, the EnergySolutions disposal facility in Clive, UT, or the Nevada National Security Site (NNSS). The LLW shipped to TA-54 includes waste disposed of at Area G as well as waste stored at Area G pending shipment for off-site disposal.

4.6.6 Industrial Waste

A total of 304 yd^3 of industrial waste was generated from nonexcavation activities at MDA B. Industrial wastes were shipped to Waste Control Specialists facility in Andrews, TX, or the Clean Harbors facility in Deer Trail, CO.

4.6.7 Waste Repackaging

Following characterization and packaging activities, it was determined that two categories of LLW containers required repackaging before they could be shipped from MDA B: overweight containers and containers with a radionuclide activity level that exceeded DOT container-specific limits. Containers that exceeded the DOT weight limit for over-the-road transport were repacked on the concrete parking lot slab located outside former building 21-209. The concrete slab was covered with heavy plastic sheeting before repacking activities began. The project team established wind-speed limits and used dust suppression and perimeter air monitoring during repackaging to ensure that no waste was managed outside the repackaging secondary containment. No releases or spills of LLW waste occurred during repackaging, and this area was released in accordance with Laboratory radioactive material control procedures.

Rolloff bins containing LLW waste that exceeded DOT container-specific limits were repackaged into IP-2 compliant containers inside Enclosure 5 and Enclosure 12. The repack area in Enclosure 5 was excavated into clean fill within sample cells 183–185 and sample cell rows AI–AK. The repack area in Enclosure 12 was excavated within sample cells 96–98 and sample cell rows NE–NG. Figure 4.6-1 shows the approximate locations of each repack area relative to the enclosure perimeter.

The first step in the repackaging process conducted within Enclosures 5 and 12 was to excavate 15-ft-long by 15-ft-wide by 5-ft-deep depressions into the clean backfill material in each enclosure. The removed clean fill was staged within each enclosure. The second step in the repackaging process involved using an excavator bucket to mix soil from the rolloff bin with lower-activity material until the activity level met DOT requirements for an IP-2 compliant container. Dust generated during repackaging activities was controlled by the use of water spray in the repack area and the HEPA filtration system on each enclosure. The atmosphere inside the enclosures was monitored for oxygen, hydrogen sulfide gas, LEL, CO, and VOCs with a MultiRAE monitor. Radiological control technicians screened the excavation area for alpha and beta emitters.

Repackaging areas in both enclosures were decontaminated following the completion of the repackaging activities to ensure any residual levels of radionuclides were below residential SALs. Soil was scraped from the side walls and bottom of the excavation, and the excavated soil was placed in rolloff bins for characterization and disposal. Composite soil samples were then collected from the side walls and bottom of the repack area excavation and sent to an off-site laboratory for analysis of isotopic plutonium and americium-241. This process was repeated until concentrations of isotopic plutonium and americium-241 were below residential SALs. Table 4.6-1 provides a summary of the results of the final samples collected from side walls and bottoms of each repackaging excavation.

The approximate final dimensions of each repackaging area excavation following removal of residual levels of radioactive material were 25 ft long by 25 ft wide by 5 ft deep for Enclosure 5 and 30 ft long by 30 ft wide by 12 ft deep for Enclosure 12. Final confirmation samples from the bottom and south side wall of the Enclosure 5 repackaging excavation area were collected in tuff. These Enclosure 5 locations correspond to confirmation sample CSMDAB-11-14081 collected from the trench bottom in sample cell AJ185, and confirmation sample CSMDAB-14077 collected from the trench south side wall in sample cell AL185. The final confirmation sample from the north side wall of the Enclosure 12 repackaging excavation area was collected in tuff. This Enclosure 12 location corresponds to the location of confirmation sample CSMDAB-11-4862 collected from the trench north side wall in sample cell NF96.

Upon completion of the decontamination and confirmation sampling of the repackaging areas, the top 6 in. of soil was removed from the entire surface of Enclosures 5 and 12 and characterized for disposal. Following the removal of soil from the enclosure floor, the repackaging excavation areas were backfilled with clean fill and the entire surface of each enclosure was covered with 6 in. of clean base course.

5.0 TRENCH CONFIRMATION SAMPLING

The goal of the remediation activities conducted at MDA B was to achieve residential SSLs for hazardous constituents and residential SALs for radionuclides. A tiered approach was used to confirm all waste and contaminated media above SSLs and SALs had been removed. The tiers in this approach are (1) visual evidence of waste removal; (2) field radiation screening; (3) field radiological laboratory analysis; and (4) off-site chemical and radiological laboratory analysis. Screening emphasized radiological rather than chemical constituents because radiological contamination was more pervasive and easier to detect using screening methods. That is, the results of the DPT sampling (section 3.4) showed radionuclides were detected far more frequently and at much higher concentrations relative to screening levels than inorganic and organic chemicals.

Section 4.4 of the approved IRWP (LANL 2006, 095499) describes the general approach for field screening of the excavation floor and side walls and the collection of confirmation samples. Initially, all visible waste and contaminated media was removed, and the excavation was advanced into undisturbed tuff. Excavation continued until field radiological screening indicated contamination was no longer present. Samples were then collected, and screening-level gamma-spectroscopy analysis was performed at an on-site laboratory. These data were used to determine if further excavation was required. Chemical and radiological analyses to verify removal to SSLs and SALs was then performed at off-site analytical laboratories.

Field screening at the dig face was performed using an excavator boom-mounted FIDLER, which provided real-time data. Excavation continued until the FIDLER indicated background levels of radiation. If there was no indication of contamination based on visual inspection and field screening, confirmation samples were collected and analyzed on-site with gamma spectroscopy using a high-purity germanium detector. These revised screening procedures were described in the MDA B SAP, Revision 2 (LANL 2010, 111195), and documented in the quarterly project reports submitted to NMED [e.g., (LANL 2010, 111508)] and the November 2010 extension request (LANL 2010, 111332). The results of the field-laboratory gamma-spectroscopy analyses are presented in Table 5.0-1. A PID was used to screen for organic vapors, and a RAE Systems MultiRAE was used to screen for CO, LEL, H_2S, and O_2.

Field screening at the dig face was also performed for organic vapors. While this screening was primarily performed for IH purposes, organic vapor monitoring is capable of detecting VOC contamination in excess of cleanup levels (see section 4.3.1 and Appendix L).

A confirmation sampling program was developed based upon an initial estimate of the number of statistically valid samples. During the course of the remediation, the statistical validity of the number of samples was periodically reevaluated to verify the total number of samples collected and analyzed was sufficient to confirm that contamination in excess of residential SSLs/SALs had been removed. The analytical data were compared with residential SSLs/SALs on a point-by-point basis. The first sample was collected from a location that was selected using a random-number generator. Subsequent confirmation samples were collected at 50-ft intervals along the bottom and side walls of each trench.

To determine whether the site had been appropriately sampled and adequately characterized based on the proposed sampling frequency in the approved IRWP (LANL 2006, 095499), an analysis was conducted using confirmation samples collected and data from the MDA B trenches. This analysis included using statistical tools contained in the “Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM)” (NRC et al. 1997, 063128). The results of the MARSSIM analysis indicated the number of samples collected for each radionuclide detected from 0–10 ft and from all depths exceeded the number of samples needed to illustrate that the site was appropriately sampled (Appendix I). Therefore, there is a 95% confidence that the site is adequately characterized.

Excavation within each area continued until field screening for radioactive contaminants indicated no detectable activity. This screening process focused on radionuclides because residual concentrations of hazardous constituents were typically below residential SSLs or at background. Once tuff was encountered, excavation proceeded 1 ft into the tuff, per the approved IRWP (LANL 2006, 095499), until field screening revealed no abnormal or elevated readings. Confirmation samples were then collected in accordance with the MDA B SAP and its revisions (LANL 2010, 110411; LANL 2010, 110398; LANL 2010, 111195). 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. Samples were sent to an on-site laboratory for screening-level gamma-spectroscopy analysis. Because of its lower detectable activity and copresence with plutonium in TA-21 wastes, americium-241 was used to indicate plutonium contamination. Based on the results of these analyses, samples were either submitted for off-site laboratory analysis, or additional excavation was performed. The results from the on-site gamma-spectroscopy analyses are presented in Table 5.0-1.

Sampling for the trench bottoms and side walls was conducted using an excavator bucket because of safety concerns with personnel working directly within an excavation (section 2.5.1). The excavator operator removed 1–2 ft of soil/tuff from the trench sampling location using the excavator bucket. The material from the bucket of the excavator was placed on a sheet of plastic to allow the sampler to complete sample collection as soon as possible following removal of the material from the trench. Sample media were screened for organic vapors and alpha, beta, and gamma radiation for IH purposes before samples were collected. No organic vapors were detected during this screening process. If the sample consisted of broken tuff, the sampler further reduced the size using a decontaminated rock hammer or stainless-steel trowel, only to the extent required to containerize the sample. The material was then passed through a 2-mm sieve into a sample bowl to remove foreign material. The sample material from the bowl was placed in appropriate sampling containers. The sample container for VOCs was filled first, and then all remaining sample containers were filled. All sample containers were filled to the top to minimize headspace. Photographs of the sampling procedure are provided in Appendix M. Following sample collection, all samples were kept at a temperature of 4°C until they were delivered to the Sample Management Office (SMO), where samples were prepared for shipment to the analytical laboratory.

Confirmation samples were shipped to an off-site laboratory for analysis of TAL metals, VOCs, SVOCs, dioxins/furans, PCBs, perchlorate, nitrate, total cyanide, and total uranium. In cases where confirmation sampling results indicated concentrations above residential SSLs, the area was excavated further and resampled.

Confirmation samples were also shipped for off-site laboratory radionuclide analysis of americium-241, tritium, isotopic uranium, isotopic plutonium, strontium-90, and gamma-emitting radionuclides. Excavation continued for radionuclides to achieve residential SALs unless deeper excavation could not be performed because of safety and/or the practical limitations of slope lay-back requirements. Plates 2 through 8 show the areal extents and depths of the excavations within each enclosure and excavation area. These plates clearly show where the excavations were extended laterally and vertically on the basis of field-screening and laboratory analysis results to meet cleanup levels. The plates also show locations where confirmation sample results exceeded cleanup screening levels and additional excavation was required. The confirmation samples collected in each enclosure are listed in Table 5.0-2.

During the course of this investigation, 187 confirmation samples representing the extent of excavation were collected from 181 locations within the excavated trenches; NMED collected 55 split samples from 55 of these locations. Plates 2 through 8 show the confirmation sampling locations. Table 5.0-2 presents location and sample coordinates for each of the confirmation and split samples collected at MDA B. The analyses requested for each sample are presented in Table 5.0-3. Sections 5.1 through 5.7 summarize the confirmation sampling results by enclosure. All analytical results are presented in Appendix C (on DVDs included with this document). The analytical data quality program and results of data validation are discussed in Appendix D. Appendix F describes the field methods used during sampling, and field logbooks documenting sampling activities are presented in Appendix J.

Collection of samples from consolidated material such as tuff inherently results in significant sample disturbance, which can result in VOC loss. Therefore, the VOC results for the confirmatory samples are likely biased low. The potential for VOC loss should not, however, affect the conclusions of the confirmatory sampling. Specifically, the results of the DPT sampling, pore-gas sampling, VOC monitoring, and waste sampling (sections 3.3.1, 3.4, 4.3.1, and 6.4.3 and Appendixes B and L) did not indicate the presence of substantial amounts of VOCs. DPT samples were collected from within the trenches using sealed sampling tubes to minimize VOC loss. No VOC results for DPT samples exceeded residential SSLs and only one result was greater than 1 mg/kg. Similarly, concentrations of VOCs detected in pore-gas samples and during VOC monitoring did not indicate VOC concentrations exceeded SSLs. VOCs were also not detected at high concentrations in samples of waste removed from the trenches, indicating low likelihood of residual contamination above SSLs. Thus, although the confirmatory sampling procedure may have biased the VOC results low, based on the DPT, pore-gas, VOC-monitoring, and waste-analysis results there appears to be little likelihood for VOCs to have been present in confirmatory samples above residential SSLs.

The trench walls and floors were also inspected for the presence of any significant fractures that could serve as a migration pathway for waste constituents. Rock fractures are a common feature of welded ash-flow tuffs such as in the Bandelier Tuff. Although fracture apertures were not measured or studied during the course of the excavation remediation, visual and video inspection of completed excavation walls and floor cuts into the Bandelier Tuff do not show any evidence of abnormal fracturing. This is supported by the fact that tuff walls were stable and did not shown signs of weakening or collapse during excavation of MDA B. In addition, analytical results from the post-remediation boreholes indicate a pathway for contaminant infiltration and migration is not present.

5.1 Enclosure 1 and Area 5

5.1.1 Enclosure 1

Fifty confirmation samples were collected from 48 locations within the excavated trench within Enclosure 1 (Plate 2). Eight of these sampling locations underwent further excavation after initial confirmation sample collection. Nine samples from these locations are identified as “Excavated” on Plate 2, and data from these samples are not included in the data summary tables (Tables 5.1-1 through 5.1-3). No inorganic or organic chemicals exceeded their respective residential SSLs at any depth. Detected inorganic chemical concentrations by sample are presented in Table 5.1-1. Detected organic chemical concentrations by sample are presented in Table 5.1-2. Only one radionuclide at one location (plutonium-239/240) slightly exceeded its residential SAL (33 pCi/g) in the top 10 ft. Detected radionuclide concentrations by sample are presented in Table 5.1-3.

All results for aluminum, arsenic, beryllium, chromium, cobalt, iron, magnesium, manganese, nickel, potassium, silver, sodium, thallium, and vanadium were below tuff BVs. Antimony was detected above the tuff BV in 10 samples. Barium was detected above the tuff BV in three samples. Cadmium, copper, and zinc were each detected above the tuff BV in one sample. Calcium and uranium were each detected above the tuff BV in four samples. Lead and mercury were each detected above the tuff BV in three samples. Nitrate and perchlorate have no BVs and were detected in eight and six samples, respectively. Total cyanide and selenium were not detected in any samples. All inorganic chemical results were below residential SSLs.

Twenty organic chemicals (acetone; benzo[a]anthracene; benzo[a]pyrene; benzo[b]fluoranthene; benzo[g,h,i]perylene; 2-butanone; chrysene; 4,4’-DDT [dichlorodiphenyltrichloroethane]; endrin; fluoranthene; 1,2,3,4,6,7,8-heptachlorodibenzodioxin; 1,2,3,4,6,7,8-heptachlorodibenzofuran; indeno[1,2,3-cd]pyrene; methylene chloride; naphthalene; 1,2,3,4,6,7,8,9-octachlorodibenzodioxin; 1,2,3,4,6,7,8,9-octachlorodibenzofuran; pyrene; trichloroethene; and 1,2,4-trimethylbenzene) were detected in a total of eight samples. All results were at trace levels (i.e., less than 0.1 mg/kg), and all results were less than residential SSLs.

Americium-241 was detected in 14 samples, and all results were below the residential SAL. Cesium-137 was detected in four samples. All results were below the residential SAL (5.6 pCi/g), except for one result (10.3 pCi/g) in a sample collected at a depth of 13.7 ft. Plutonium-238 was detected in 10 samples, and all results were below the residential SAL. Plutonium-239/240 was detected in 39 samples. All results for samples collected from a depth of 10 ft or less were below the residential SAL (33 pCi/g), except for one sample collected at a depth of 9.9 ft, which had a detected activity of 40.2 pCi/g. Five other samples, collected from depths ranging from 12.3 to 17.3 ft, had results above the residential SAL, ranging from 60.9 pCi/g to 958 pCi/g. Strontium-90 and tritium were detected in one and four samples, respectively, and all results were below residential SALs. Uranium-234 was detected in 26 samples. Four results were above the tuff BV, and all results were less than the residential SAL. Uranium-235/236 was detected in 19 samples. Nine results were above the tuff BV, and all results were less than the residential SAL. Uranium-238 was detected in 26 samples. Four results were above the tuff BV, and all results were less than the residential SAL.

5.1.2 Area 5

Twenty-five confirmation samples were collected from 25 locations within Area 5 and analyzed for TCLP metals and isotopic plutonium during the course of the remediation. Nine of these sampling locations underwent further excavation after initial confirmation sample collection. Nine samples from these locations are identified as “Excavated” on Plate 2, and data from these samples are not included in the data summary tables (Tables 5.1-1 through 5.1-3). Based on the results for the DPT samples collected in Area 5 (Appendix B), confirmation samples were not analyzed for TAL metals or organic chemicals. The DPT samples collected from Area 5 showed no TAL metals or organic chemicals exceeding their respective residential SSLs at any depth. Only two metals (calcium and mercury) were detected above soil BVs (both with maximum concentrations less than 2 times BVs), and no organic chemicals were detected above estimated quantitation limits.

Inorganic chemicals detected in confirmation samples are presented in Table 5.1-1. All results for, arsenic and silver were below tuff BVs. Barium was detected above the tuff BV in three samples. Chromium, lead, and mercury were each detected above their respective tuff BV in one sample. All inorganic chemical results were below residential SSLs.

Radionuclides detected in confirmation samples are presented in Table 5.1-3. Plutonium-238 was detected in 1 sample, and all results were below the residential SAL. Plutonium-239/240 was detected in 13 samples; all results were below the residential SAL (33 pCi/g).

5.2 Enclosure 2

Twenty-one confirmation samples were collected from 21 locations within the excavated trench within Enclosure 2 (Plate 3). One of these sampling locations underwent further excavation after initial confirmation sample collection. The sample from this location is identified as “Excavated” on Plate 3, and data from this sample is not included in the data summary tables (Tables 5.1-1 through 5.1-3). No inorganic or organic chemicals exceeded their respective residential SSLs. Detected inorganic chemical concentrations by sample are presented in Table 5.1-1. Detected organic chemical concentrations by sample are presented in Table 5.1-2. No radionuclides exceeded their respective residential SALs in the top 10 ft. Detected radionuclide concentrations by sample are presented in Table 5.1-3.

All results for aluminum, beryllium, cadmium, chromium, cobalt, total cyanide, magnesium, manganese, nickel, potassium, silver, sodium, thallium, and zinc were below tuff BVs. Antimony was detected above the tuff BV in three samples. Arsenic, calcium, copper, iron, selenium, and vanadium were each detected above the tuff BV in one sample. Barium was detected above the tuff BV in four samples. Lead and mercury were each detected above the tuff BV in two samples. Uranium was detected above the tuff BV in five samples. Nitrate and perchlorate have no BVs and were detected in 12 and 14 samples, respectively. All inorganic chemical results were below residential SSLs.

Six organic chemicals (diethylphthalate; heptachlor epoxide; 1,2,3,4,6,7,8-heptachlorodibenzodioxin; 1,2,3,4,6,7,8-heptachlorodibenzofuran; 1,2,3,4,6,7,8,9-octachlorodibenzodioxin; and 1,2,3,4,6,7,8,9-octachlorodibenzofuran) were detected in a total of four samples. All results were at trace levels (i.e., less than 0.1 mg/kg), and all results were less than residential SSLs.

Americium-241 was detected in 13 samples, and all results were below the residential SAL. Cesium-137 was detected in 3 samples, and all results were below the residential SAL. Plutonium-238 was detected in 6 samples, and all results were below the residential SAL. Plutonium-239/240 was detected in 15 samples, and all results for samples collected from a depth of 10 ft or less were below the residential SAL (33 pCi/g). Four other samples, collected from depths ranging from 18.4 to 29.6 ft bgs, had results above the residential SAL, ranging from 34.2 pCi/g to 87.9 pCi/g. Strontium-90 was not detected. Tritium was detected in 15 samples, and all results were below the residential SAL. Uranium-234 was detected in 20 samples. Five results were above the tuff BV, and all results were less than the residential SAL. Uranium-235/236 was detected in 14 samples. Nine results were above the tuff BV, and all results were less than the residential SAL. Uranium-238 was detected in 20 samples. Six results were above the tuff BV, and all results were less than the residential SAL.

5.3 Enclosure 3

Seventeen confirmation samples were collected from 17 locations within the excavated trench within Enclosure 3 (Plate 4). Grid cell AG167 was excavated outside Enclosure 3 because it was thought to be the location of a ramp used to access the disposal trench during MDA B operations. Five confirmation samples were collected from this cell.

With the exception of arsenic, no inorganic or organic chemicals exceeded their respective residential SSLs. Detected inorganic chemical concentrations by sample are presented in Table 5.1-1. Detected organic chemical concentrations by sample are presented in Table 5.1-2. No radionuclides exceeded their respective residential SALs in the top 10 ft bgs. Detected radionuclide concentrations by sample are presented in Table 5.1-3.

All results for aluminum, beryllium, cadmium, chromium, total cyanide, iron, magnesium, manganese, potassium, silver, sodium, thallium, uranium, vanadium, and zinc were below tuff BVs. Antimony, calcium, cobalt, lead, and nickel were each detected above the tuff BV in one sample. Arsenic, barium, copper, and mercury were each detected above the tuff BV in two samples. Both arsenic results (4.02 mg/kg at a depth of 7 ft and 5.71 mg/kg at a depth of 14.6 ft) are greater than the residential SSL (3.9 mg/kg). As described below, however, these detected concentrations are consistent with background concentrations. Nitrate and perchlorate have no BVs and were detected in six and five samples, respectively. Selenium was not detected in any of the samples. All inorganic chemical results other than arsenic were below residential SSLs.

Eight organic chemicals (2-butanone; 4,4'-DDT; 1,2,3,4,6,7,8-heptachlorodibenzodioxin; 1,2,3,4,6,7,8-heptachlorodibenzofuran; 2-hexanone; 4-methyl-2-pentanone; 1,2,3,4,6,7,8,9-octachlorodibenzodioxin; and 1,2,3,4,6,7,8,9-octachlorodibenzofuran) were detected in a total of three samples. All results were at trace levels (i.e., less than 0.1 mg/kg), and all results were less than residential SSLs.

Americium-241 was detected in 2 samples, and all results were below the residential SAL. Cesium-137 and strontium-90 were not detected. Plutonium-238 was detected in 1 sample, and the result was below the residential SAL. Plutonium-239/240 was detected in 14 samples, and all results were below the residential SAL. Tritium was detected in 5 samples, and all results were below the residential SAL. Uranium-234 was detected in 12 samples, and all results were below the tuff BV and less than the residential SAL. Uranium-235/236 was detected in 8 samples. Two results were above the tuff BV, and all results were less than the residential SAL. Uranium-238 was detected in 12 samples, and all results were below the tuff BV and less than the residential SAL.

Analytical results for arsenic in the confirmation samples collected from the north side wall and the excavation floor in row 160 (locations MDAB-613126 and MDAB-613127) slightly exceeded the arsenic residential SSL of 3.9 mg/kg. Using statistical tests, the arsenic confirmation results were compared with arsenic background data for Qbt 2, Qbt 3, and Qbt 4 to determine if these confirmation samples are consistent with background.

The Gehan and quantile statistical tests were performed to compare arsenic confirmation data and Qbt 2, Qbt 3, and Qbt 4 background data using EPA's ProUCL Version 4.1 software program (available at http://www.epa.gov/osp/hstl/tsc/software.htm). Because there were 10% nondetects in the combined confirmation and background data sets, the Gehan test was performed with a 95% confidence coefficient, and the quantile test was evaluated at the 90th quantile.

The p-values for both tests were greater than 0.05 (Table 5.3-1). A box plot comparing the arsenic confirmation data and the Laboratory background data is presented in Figure 5.3-1. Based on the results of the statistical comparisons, arsenic confirmation data was not statistically different from arsenic background data. Therefore, the cleanup level for arsenic established in the approved IRWP (LANL 2006, 095499) has been satisfied.

5.4 Enclosure 5

Eighteen confirmation samples were collected from 18 locations within the excavated trench within Enclosure 5 (Plate 5). Six of these sampling locations underwent further excavation after initial confirmation sample collection. Six samples from these locations are identified as "Excavated" on Plate 5, and data from these samples are not included in the data summary tables (Tables 5.1-1 through 5.1-3). No inorganic or organic chemicals exceeded their respective residential SSLs except benzo(a)pyrene. Detected inorganic chemical concentrations by sample are presented in Table 5.1-1. Detected organic chemical concentrations by sample are presented in Table 5.1-2. No radionuclides exceeded their respective residential SALs in the top 10 ft bgs. Detected radionuclide concentrations by sample are presented in Table 5.1-3.

All results for aluminum, arsenic, barium, beryllium, calcium, chromium, cobalt, copper, iron, magnesium, manganese, nickel, potassium, sodium, thallium, uranium, vanadium, and zinc were below tuff BVs. Lead was detected above the tuff BV in three samples. Mercury was detected above the tuff BV in two samples. Nitrate and perchlorate have no BVs and were detected in six and one samples, respectively. Antimony, cadmium, total cyanide, selenium, and silver were not detected in any of the samples. All inorganic chemical results were below residential SSLs.

Fourteen organic chemicals (benzo[a]anthracene; benzo[a]pyrene; benzo[b]fluoranthene; benzo[g,h,i]perylene; benzo[k]fluoranthene; chrysene; 4,4'-DDD [dichlorodiphenyldichloroethane]; 4,4'-DDT; dibenz[a,h]anthracene; 1,2,3,4,6,7,8-heptachlorodibenzodioxin; 1,2,3,4,6,7,8-heptachlorodibenzofuran; indeno[1,2,3-cd]pyrene; 1,2,3,4,6,7,8,9-octachlorodibenzodioxin; and 1,2,3,4,6,7,8,9-octachlorodibenzofuran) were detected in a total of two samples. Most results were at trace levels (i.e., less than 0.1 mg/kg), with a maximum detected concentration of 0.26 mg/kg. All results were below residential SSLs, except for benzo(a)pyrene detected above the residential SSL (0.148 mg/kg) at 0.209 mg/kg in a sample collected at a depth of 13.6 ft.

Americium-241 was detected in 5 samples, and all results were below the residential SAL. Cesium-137 was not detected. Plutonium-238 was detected in 2 samples, and all results were below the residential SAL. Plutonium-239/240 was detected in 11 samples. All results for samples collected from a depth of 10 ft or less were below the residential SAL (33 pCi/g). One other sample, collected at a depth of 13.6 ft, had a detected activity of 68.5 pCi/g, which is greater than the residential SAL. Strontium-90 was detected in 1 sample, and the result was below the residential SAL. Tritium was detected in 4 samples, and all results were below the residential SAL. Uranium-234 was detected in 12 samples, and all results were below the tuff BV and less than the residential SAL. Uranium-235/236 was not detected. Uranium 238 was detected in 12 samples, and all results were below the tuff BV and less than the residential SAL.

5.5 Enclosure 7

Eleven confirmation samples were collected from 10 locations within the excavated trench within Enclosure 7 (Plate 6). Four of these sampling locations underwent further excavation after initial confirmation sample collection. Four samples from these locations are identified as “Excavated” on Plate 6, and data from these samples are not included in the data summary tables (Tables 5.1-1 through 5.1-3). No inorganic or organic chemicals exceeded their respective residential SSLs. Detected inorganic chemical concentrations by sample are presented in Table 5.1-1. Detected organic chemical concentrations by sample are presented in Table 5.1-2. No radionuclides exceeded their respective residential SALs in the top 10 ft bgs. Detected radionuclide concentrations by sample are presented in Table 5.1-3.

All results for aluminum, beryllium, cadmium, chromium, cobalt, iron, magnesium, manganese, nickel, potassium, silver, sodium, thallium, vanadium, and zinc were below tuff BVs. Antimony, arsenic, calcium, copper, and uranium were each detected above the tuff BV in one sample. Barium and lead were detected above the tuff BV in three samples. Mercury was detected above the tuff BV in two samples. Nitrate and perchlorate have no BVs and were detected in two and one samples, respectively. Total cyanide and selenium were not detected in any of the samples. All inorganic chemical results were below residential SSLs.

Seven organic chemicals (4,4’-DDE [dichlorophenyldichloroethylene]; 4,4’-DDT; 1,2,3,4,6,7,8-heptachlorodibenzodioxin; 1,2,3,4,6,7,8-heptachlorodibenzofuran; 4-isopropyltoluene; 1,2,3,4,6,7,8,9-octachlorodibenzodioxin; and trichloroethene) were detected in a total of three samples. All results were at trace levels (i.e., less than 0.1 mg/kg), and all results were less than residential SSLs.

Radionuclides detected in confirmation samples are presented in Table 5.1-3. Americium-241 was detected in three samples, and all results were below the residential SAL. Cesium-137 and strontium-90 were not detected. Plutonium-238 was detected in two samples, and all results were below the residential SAL. Plutonium-239/240 was detected in seven samples, and all results were below the residential SAL. Tritium was detected in three samples, and all results were below the residential SAL. Uranium-234 was detected in seven samples; one result was above the tuff BV, and all results were below the residential SAL. Uranium-235/236 was detected in five samples; three results were above the tuff BV, and all results were less than the residential SAL. Uranium-238 was detected in seven samples; one result was above the tuff BV, and all results were less than the residential SAL.

5.6 Enclosure 9

Twenty-six confirmation samples were collected from 26 locations within the excavated trench within Enclosure 9 (Plate 7). Eight of these sampling locations underwent further excavation after initial confirmation sample collection. Eight samples from these locations are identified as “Excavated” on Plate 7, and data from these samples are not included in the data summary tables (Tables 5.1-1 through 5.1-3). No inorganic or organic chemicals exceeded their respective residential SSLs. Detected inorganic chemical concentrations by sample are presented in Table 5.1-1. Detected organic chemical concentrations by sample are presented in Table 5.1-2. No radionuclides exceeded their respective residential SALs in the top 10 ft bgs. Detected radionuclide concentrations by sample are presented in Table 5.1-3.

All results for aluminum, arsenic, barium, beryllium, chromium, cobalt, copper, iron, magnesium, manganese, nickel, potassium, silver, sodium, thallium, vanadium, and zinc were below tuff BVs. Antimony, calcium, and mercury were each detected above the tuff BV in two samples. Lead, selenium, and uranium were each detected above the tuff BV in one sample. Nitrate and perchlorate have no BVs and were detected in seven and nine samples, respectively. Cadmium and total cyanide were not detected in any of the samples. All inorganic chemical results were below residential SSLs.

Eight organic chemicals (acetone; 2-butanone; 1,2,3,4,6,7,8-heptachlorodibenzodioxin; 1,2,3,4,6,7,8-heptachlorodibenzofuran; 2-hexanone; 4-methyl-2-pentanone; 1,2,3,4,6,7,8,9-octachlorodibenzodioxin; and trichloroethene) were detected in a total of three samples. All results were at trace levels (i.e., less than 0.1 mg/kg), and all results were less than residential SSLs.

Americium-241 was detected in 7 samples, and all results were below the residential SAL. Cesium-137 and strontium-90 were not detected. Plutonium-238 was detected in 5 samples, and all results were below the residential SAL. Plutonium-239/240 was detected in 17 samples. All results for samples collected from a depth of 10 ft or less were below the residential SAL (33 pCi/g). One sample, collected at a depth of 17.6 ft, had a detected activity of 61.5 pCi/g, which is greater than the residential SAL. Tritium was detected in 11 samples, and all results were below the residential SAL. Uranium-234 was detected in 12 samples; 4 results were above the tuff BV, and all results were below the residential SAL. Uranium-235/236 was detected in 9 samples; 4 results were above the tuff BV, and all results were less than the residential SAL. Uranium-238 was detected in 12 samples; 2 results were above the tuff BV, and all results were less than the residential SAL.

5.7 Enclosure 12

Nineteen confirmation samples were collected from 16 locations within the excavated trench within Enclosure 12 (Plate 8). Three of these sample locations underwent further excavation after initial confirmation sample collection. Three samples from these locations are identified as “Excavated” on Plate 8, and data from these samples are not included in the data summary tables (Tables 5.1-1 through 5.1-3). No inorganic or organic chemicals exceeded their respective residential SSLs. Detected inorganic chemical concentrations by sample are presented in Table 5.1-1. Detected organic chemical concentrations by sample are presented in Table 5.1-2. No radionuclides exceeded their respective residential SALs in the top 10 ft bgs. Detected radionuclide concentrations by sample are presented in Table 5.1-3.

All results for aluminum, arsenic, beryllium, cadmium, chromium, cobalt, copper, total cyanide, iron, lead, magnesium, manganese, nickel, potassium, sodium, thallium, vanadium, and zinc were below tuff BVs. Antimony, barium, and silver were each detected above the tuff BV in one sample. Calcium was detected above the tuff BV in five samples. Mercury and uranium were each detected above the tuff BV in two samples. Nitrate and perchlorate have no BVs and were detected in 10 and 7 samples, respectively. Selenium was not detected in any of the samples. All inorganic chemical results were below residential SSLs.

Six organic chemicals (2-butanone; 4,4-DDT; 1,2,3,4,6,7,8-heptachlorodibenzodioxin; 4-isopropyltoluene; naphthalene; and 1,2,3,4,6,7,8,9-octachlorodibenzodioxin) were detected in a total of six samples. All results were at trace levels (i.e., less than 0.1 mg/kg), and all results were less than residential SSLs.

Americium-241 was detected in 8 samples, and all results were below the residential SAL. Cesium-137 and strontium-90 were not detected. Plutonium-238 was detected in 6 samples, and all results were below the residential SAL. Plutonium-239/240 was detected in 16 samples. All results for samples collected from a depth of 10 ft or less were below the residential SAL (33 pCi/g). Two samples, collected from depths of 10.4 and 17.4 ft bgs, had results of 391 pCi/g and 36.6 pCi/g, respectively, which are greater than the residential SAL. Tritium was detected in 9 samples, and all results were below the residential SAL. Uranium-234 was detected in 11 samples; 3 results were above the tuff BV, and all results were below the residential SAL. Uranium-235/236 was detected in 6 samples; 3 results were above the tuff BV, and all results were less than the residential SAL. Uranium-238 was detected in 11 samples; 2 results were above the tuff BV, and all results were less than the residential SAL.

6.0 BOREHOLE INVESTIGATION

6.1 Post-remediation SAP

The approved IRWP stated that a post-remediation SAP would be submitted to NMED for approval after completion of excavation activities. Because of scheduling constraints, the MDA B post-remediation borehole drilling SAP was submitted to NMED on April 28, 2010 (LANL 2010, 109266), before completion of excavation activities. This SAP described methods for drilling, borehole sampling, geotechnical analysis, geophysical logging, borehole abandonment, equipment decontamination, and IDW management. Because it was submitted to NMED early in the excavation process, the SAP did not define the number or locations of post-remediation boreholes.

6.2 Post-remediation SAP Objectives

The principal objectives of the borehole investigation, as stated in the SAP for post-remediation borehole drilling (LANL 2010, 109266), were to

- characterize the nature and extent associated with any residual hazardous constituent or radionuclide contamination exceeding the residential SSLs/SALs at MDA B,
- evaluate the permeability of the tuff unit overlying the Cerro Toledo interval, and
- determine if perched groundwater is present beneath the site.

The following three changes to field procedures were noted in the 15-d sampling notification and addendum (LANL 2011, 203594):

- *Borehole Plug and Abandonment*. From a worker-safety perspective, it was necessary to plug and abandon the boreholes once soil-vapor gas samples had been collected.
- *Borehole Geophysical Logging.* Geophysical logging of the subsurface was deferred until the lithologic logging was reviewed to determine if significant porous or fractured zones were present.
- *Geotechnical Analysis.* Collection of geotechnical samples was based on conditions observed in the field during drilling and visual inspection of the recovered core instead of a minimum number.

6.3 Post-remediation Fieldwork Summary

Three vertical boreholes (MDAB-612802, MDAB-614478, and MDAB-614483) were drilled in July 2011 using a CME-85 hollow-stem auger rig. Plate 1 shows the locations of these vertical boreholes.

Drilling was accomplished using a hollow-stem auger rig. Continuous lithologic logging and tuff sample collection was accomplished using a 5-ft long, 3-in.-diameter core barrel that was advanced into the undisturbed tuff ahead of the drill augers. Borehole logs are presented in the borehole completion report provided in Appendix K. Following the removal of the core barrel from the borehole, the barrel was opened and screened for organic vapors (using a PID) and alpha, beta, and gamma radiation; and the lithology was logged. If a particular interval was selected for analytical sampling, samples of the broken tuff were removed from the core barrel and placed into the sampling bowl. The sampler further reduced the sample size using a decontaminated rock hammer or stainless-steel trowel, only to the extent required to containerize the sample. Samples for VOCs were collected first, after which all remaining sample containers were filled to the top to minimize headspace. Following sample collection, all samples were kept at a temperature of 4°C until they were delivered to the SMO, where samples were prepared for shipment to the analytical laboratory.

Continuous core was logged by an on-site geologist at 5-ft intervals using a 5-ft-long core barrel from the ground surface to total depth (TD). No drilling fluids were used during the installation of these boreholes as drilling was performed using a hollow-stem auger rig. Geologic unit stratigraphy was fully characterized. A detailed account of drilling activities and geologic logging is presented in the borehole completion report provided in Appendix K.

The location of vertical borehole MDAB-612802 was selected from row 250 because of its central location at MDA B, and this location corresponds to confirmation sample location MDAB-614397 where elevated plutonium-239/240 and cesium-137 were detected in the bottom of the excavation at 13.74 ft bgs. Borehole MDAB-612802 was advanced 12.5 ft bgs into the Cerro Toledo interval, with a TD of 325 ft bgs (Figure 6.3-1).

Vertical borehole MDAB-612898 was located in the center of row 51 and corresponded to confirmation sampling location MDAB-612898, where elevated plutonium-239/240 was detected in the bottom of the excavation at 18.4 ft bgs. Shortly after drilling began at this location, the drill bit broke at 12 ft bgs. The drill rig was moved 5 ft west of the original borehole to new location MDAB-614478. From the base of the excavated trench to 40 ft bgs, no core was recovered because of the presence of a large quartzite cobble that was pulled up on the 35–40 ft bgs run. The quartzite cobble was removed from the end of the core barrel, and the subsequent 40–45 ft bgs run contained recovered core. TD was reached for location MDAB-614478 at 50 ft bgs (Figure 6.3-2).

The drill rig was then moved approximately 5 ft to the west of location MDAB-614478 to location MDAB-614483. This borehole was advanced to a TD of 24 ft bgs to allow a sample to be collected at the base of the excavated trench (Figure 6.3-3).

Five samples were collected from the deep borehole, and a total of two samples were collected from each of the shallow boreholes (Figures 6.3-1, 6.3-2, and 6.3-3). The sampling intervals were selected using the following criteria:

- the sample exhibiting the highest field-screening detection
- the sample collected from the maximum depth in each borehole that shows field-screening evidence of contamination
- the sample located immediately below the base of the disposal trench
- the sample from the TD of the borehole
- a sample from a fracture-fill material and adjacent tuff matrix (paired sample) if sufficient fracture material volume is available to sample.

Field screening for organic vapors was performed using headspace analysis at 10-ft intervals in each borehole. Headspace vapor screening of subsurface core for organic vapors was performed using a PID equipped with an 11.7 electronvolt lamp, as specified in Standard Operating Procedure (SOP) 06.33, Headspace Vapor Screening with a Photoionization Detector. The maximum sustained reading and the ambient air temperature were recorded in the field borehole log for each sample. Radiological field screening targeted gross alpha, beta, and gamma radiation. Field screening for alpha, beta, and gamma radiation was conducted within 6 in. of the core material. All instrument background checks, background ranges, and calibration procedures were documented daily in the field logbooks (Appendix J).

All tuff samples collected from the three vertical boreholes were submitted for off-site laboratory analysis of VOCs, SVOCs, pH, PCBs, dioxins/furans, nitrates, perchlorate, TAL metals, total uranium, total cyanide, americium-241, tritium, isotopic uranium, isotopic plutonium, strontium-90, and gamma-emitting radionuclides in accordance with the approved IRWP (LANL 2006, 095499).

Because samples for VOC analysis were not collected in sleeves and were handled before they were sealed in sample jars, some potential for VOC loss occurred during sample collection, and VOC results may be biased low. As described in section 5.0, however, based on the results of the DPT sampling, there was not a substantial inventory of VOCs present at MDA B, and there appears to be little likelihood for borehole sample VOC results to have exceeded residential SSLs even if samples had been collected in sleeves.

Soil pore gas was collected from vertical boreholes MDAB-612802 and MDAB-614478 using a two-bladder straddle packer configuration from within the open borehole in accordance with SOP-5074, Sampling Subsurface Vapor. One sample was collected at a depth equivalent to the base of the target disposal unit. A second sample was collected from the TD of each borehole. The soil-vapor sample is collected from the center of the straddle packer assembly, resulting in a sample horizon approximately 6.5 ft above the base of the available open borehole. Both vapor samples from each borehole were analyzed for VOCs and tritium in accordance with the approved IRWP (LANL 2006, 095499).

The post-remediation SAP (LANL 2010, 109266) required a minimum of four geotechnical samples from the deep borehole (location MDAB-612802). The geotechnical samples were collected while drilling borehole MDAB-612802 from the following depths:

- 5 ft below the base of the trench
- the two intervals above the Cerro Toledo interval
- 7.5 ft into the Cerro Toledo interval

Geotechnical samples were collected in Lexan tubes and analyzed for saturated and unsaturated hydraulic conductivity, porosity, bulk density, matric potential, chloride-ion concentration, and moisture content (LANL 2010, 109266).

An additional four geotechnical samples were supposed to be collected from the shallow boreholes (locations MDAB-614478 and MDAB-614483). However, because of the problems encountered with core retrieval, no geotechnical samples were collected while drilling the shallow boreholes.

6.4 Post-remediation Borehole Investigation Results

Vertical borehole samples collected and analyses requested are presented in Table 6.4-1. Analytical results for the borehole samples are presented in Appendix C (on DVDs included with this document).

6.4.1 Inorganic and Organic Chemicals

Inorganic chemicals detected in vertical borehole samples are presented in Table 6.4-2. All results for aluminum, arsenic, barium, beryllium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, nickel, potassium, silver, sodium, uranium, and vanadium were below tuff BVs. Zinc was detected above the BV for the lower tuff units (Qbt 1g, Qct, Qbo) in one sample at location MDAB-612802 (48 mg/kg versus 40 mg/kg). Nitrate and perchlorate have no BVs and were detected in three and one samples, respectively. All inorganic chemical results were below residential SSLs.

Organic chemicals detected in vertical borehole samples are presented in Table 6.4-3. One organic chemical, acetone, was detected. Acetone was detected in sample DSMDAB-11-22290 at a trace concentration, orders of magnitude below the residential SSL and was not detected in deeper samples.

As described in section 6.3, it was necessary to break the tuff samples into small pieces to fit into sample bottles. Handling the sample in this manner will likely result in loss of VOCs that will bias the VOC analytical results low. As noted in section 5.0, however, other lines of evidence, including the results of pore gas sampling, can be used as an indication of whether VOCs are present above SSLs in tuff samples (see section 6.4.3).

6.4.2 Radionuclides

Radionuclides detected in vertical borehole samples are presented in Table 6.4-4. Americium-241 and plutonium-239/240 were each detected in one sample, and the results were below the residential SALs and decreased with depth. Tritium was detected in three samples, and all results were below the residential SAL and decreased with depth. Uranium-234 was detected in seven samples; all results were below tuff BVs, except for the sample collected from 287–290 ft bgs at location MDAB-612802. This sample was collected from the Tsankawi pumice (Qbtt), which does not have a BV. All uranium-234 results were below the residential SAL. Uranium-235/236 was detected in three samples; one result was above the tuff BV, and one result was for the Qbtt sample, for which there is no BV. All uranium-235/236 results were less than the residential SAL. Uranium-238 was detected in seven samples; all results were below tuff BVs except for the Qbtt sample, for which there is no BV. All uranium-238 results were less than the residential SAL.

6.4.3 Soil Vapor

Laboratory analytical results for the soil-vapor samples collected from the two vertical boreholes are discussed in this section. Analytical results for the borehole samples are presented in Appendix C (on DVDs included with this report). VOCs detected in the vertical borehole soil-vapor samples are presented in Table 6.4-5. Tritium concentrations detected in the vertical borehole soil-vapor samples are presented in Table 6.4-6.

Eleven VOCs were detected in soil-vapor samples. To evaluate the potential for VOC contamination of groundwater, the VOC results were evaluated using screening levels based on groundwater screening levels, in the same manner as done in periodic monitoring reports for vapor sampling (e.g., LANL 2012, 210348). Table 6.4-7 identifies the 11 detected VOCs and presents the Henry's Law constants and groundwater screening levels used in the screening evaluation. The results of the screening evaluation are presented in Table 6.4-8. As shown in Table 6.4-8, only one VOC, TCE, was present at a concentration above pore-gas screening levels. The maximum detected concentration of TCE (2800 $\mu g/m^3$) slightly exceeded the gas-phase TCE concentration (2020 $\mu g/m^3$) that would be in equilibrium with a water-phase concentration equal to the groundwater cleanup level for TCE. The 2020 $\mu g/m^3$ screening level represents the minimum gas-phase concentration that could result in groundwater contamination exceeding the groundwater cleanup level. This screening evaluation is very conservative and does not consider processes that would dilute or attenuate vapors during migration to groundwater. All other detections of TCE were at least an order of magnitude less than the maximum detected concentration and well below the screening level. Thus, the potential for VOCs present in subsurface vapor at MDA B to result in groundwater contamination is extremely low.

The results of analysis of pore-gas samples for tritium are presented in Table 6.4-6. The potential for tritium in subsurface vapor to pose a risk of groundwater contamination was evaluated by comparing the tritium activities to the drinking water maximum contaminant level (MCL) for tritium (20,000 pCi/L). The maximum detected tritium activity (9943 pCi/L) is less than half the MCL. Therefore, the potential for tritium present in subsurface vapor at MDA B to result in groundwater contamination is extremely low.

As described in section 3.3.1, pore-gas data can also be used as an indication of potential VOC contamination of the associated solid media. The 11 VOCs detected in the pore gas samples ranged in concentration from 35 $\mu g/m^3$ (0.011 ppmv) to 2800 $\mu g/m^3$ (0.52 ppmv). As discussed in Appendix L, VOC vapors at these low concentrations are not indicative of contamination in tuff borehole samples above residential SSLs. Vapor concentrations well in excess of 10 ppmv would be needed before soil/tuff concentrations would begin to approach residential SSLs.

6.4.4 Geotechnical Data

Eight core samples were collected for geotechnical analyses from several stratigraphic units while drilling borehole location MDAB-612802. The units sampled included units 3, 1v, and 1g of the Tshirege Member of the Bandelier Tuff (Qbt3, Qbt1v, and Qbt1g); the Tsankawi Pumice Bed (Qbtt); and the Cerro Toledo interval (Qct). The Tsankawi Pumice Bed overlies the Cerro Toledo interval. Table 6.4-9 presents the saturated hydraulic conductivity and moisture content as provided by the analytical laboratory and calculated values of permeability and unsaturated conductivity.

6.4.5 Summary

The results of the vertical borehole investigation satisfied the borehole investigation objectives stated in the post-remediation SAP for borehole drilling (LANL 2010, 109266):

- **Characterize the nature and extent associated with any residual hazardous constituent or radionuclide contamination exceeding the residential SSLs/SALs at MDA B**. All core samples from the borehole investigation were below residential SSLs for hazardous constituents and below residential SALs for radionuclides and decreased with depth from the bottom of the excavation. These data, combined with the data from the 1998 borehole sampling and DPT sampling, support the conclusion that the nature and extent of potential releases of hazardous constituents and radionuclides from the MDA B disposal trenches have been defined. Evaluation of pore-gas VOC and tritium results with screening levels based on groundwater screening levels supports the conclusion that VOCs and tritium in subsurface pore gas pose an extremely low risk of groundwater contamination.
- **Evaluate the permeability of the tuff unit overlying the Cerro Toledo interval.** The low moisture content observed in the geotechnical samples collected and the corresponding unsaturated hydraulic conductivity values are consistent with MDA B being a dry disposal site.
- **Determine if perched groundwater is present beneath the site.** No perched aquifers or areas of high moisture content were observed during drilling of any of the boreholes associated with MDA B. These observations are consistent with the absence of perched water or saturated zones in boreholes advanced to a maximum depth of 717.5 ft bgs at nearby MDA V.

7.0 SUMMARY AND CONCLUSIONS

7.1 Objective 1: Characterize the Types and Quantities of Waste at MDA B

MDA B, one of the first disposal sites at the Laboratory for radioactively contaminated wastes, operated from April 1944 to June 1948. Because it was not safe to dig open-air test pits to collect more waste information and define the trench boundaries, the Laboratory conducted minimally intrusive investigations. Preliminary characterization was performed using geophysical and DPT to define the trench boundaries, estimate waste volumes, and identify probable radiological and chemical contaminants. All VOCs detected in the DPT samples were at trace concentrations, indicating substantial VOC inventory is not present in the waste at MDA B. These results were confirmed by further characterization of excavated waste, borehole and soil vapor sampling data, organic vapor screening of confirmation samples, and IH monitoring conducted during excavation activities inside the enclosures to monitor for immediate-danger-to-life-and-health conditions, including VOCs. Vapors were detected by this monitoring in Enclosure 12 when naphthalene was determined to be the major constituent of the white powder in two excavated drums and the source of the vapors.

Once waste excavation activities began, definitive characterization for both chemical and radiological constituents was performed in accordance with the MDA B WCSF (LANL 2010, 109754) and MDA B SAP, Revision 2 (LANL 2010, 111195). The waste inventory from MDA B included industrial solid waste, and a small volume of mixed LLW. Table 4.4-1 summarizes the types and quantities of waste shipped from MDA B. All wastes have been removed from the TA-21 area of contamination.

The volume generated of soil mixed with waste that exhibited a hazardous characteristic was far less than originally anticipated. Only one small area of soil mixed with waste was excavated that exceeded the TCLP limit for cadmium. This waste was managed as mixed LLW.

In addition to direct sampling, the waste was visually examined and any potential anomalies were segregated from the bulk waste for further evaluation. Over 500 waste items ranging in size from 20-mL vials to large transformers were segregated, sampled, and managed separately. Substantially less characteristically mixed hazardous waste was generated than was originally estimated because of careful waste segregation practices.

Excavation continued in each trench until all waste was removed. The original estimate of the total volume of waste was based on the trench dimensions developed based on the results of the geophysical investigations and the DPT investigation and a 20% bulking factor. The final volume of waste exceeded this initial estimate by approximately 80%. This increase resulted from the fact that waste depth in several areas exceeded the maximum estimated trench depth of 15 ft bgs by an additional 20 ft.

7.2 Objective 2: Remove and Properly Dispose of the Excavated Wastes

All wastes were removed from the trenches. Overburden material, consisting of soil and tuff capping the disposal trenches, was removed before the excavation of waste and contaminated soil. All 12,026 yd^3 of excavated overburden material that met the overburden criteria in the MDA B SAP, Revision 2 (LANL 2010, 111195) was used as fill during backfilling operations.

No wastes from MDA B trench excavation or waste repackaging activities remain within the TA-21-based area of contamination boundary. The waste inventory included industrial solid waste, LLW, and mixed LLW. Waste volumes by type are summarized in Table 4.4-1.

7.3 Objective 3: Perform Confirmation Sampling in the Trenches after Wastes Are Removed

Once all wastes were removed, excavation within each area continued until field screening for radioactive contaminants indicated no detectable activity or until deeper excavation could not be performed because of safety and/or the practical limitations of slope lay-back requirements. A systematic random-sampling design was used to collect a statistically valid number of total samples. Samples were collected at a depth of 0–2 ft into the excavated surface as discussed in section 2.5.1.

The goal in the approved IRWP (LANL 2006, 095499) was to achieve residential SSLs for hazardous constituents and residential SALs for radionuclides. The scope of the approved IRWP did not, however, include a risk assessment. A formal risk assessment report will be submitted at a later date to support a request for a corrective action complete determination from NMED.

A point-by-point comparison of the confirmation data from the final confirmation samples with the applicable residential SSLs and SALs was conducted. Consistent with NMED's exposure characteristics for the residential exposure scenario (NMED 2012, 219971), comparisons with residential SSLs and SALs were made using data from samples collected from the depth interval of 0–10 ft bgs. With the exception of arsenic in Enclosure 3, no inorganic or organic chemical concentrations from samples collected in the depth range of 0 to 10 ft bgs exceeded residential SSLs (Table 7.3-1). As discussed in section 5.3, the arsenic confirmation data were not statistically different from background data, thereby meeting the cleanup goal for arsenic. Concentrations for all radionuclides were below the residential SALs from 0–10 ft bgs (Table 7.3-2), except for one sample, which slightly exceeded the residential SAL for plutonium 239/240. The overall 95% upper confidence limit (UCL) (9.85 pCi/g) for plutonium 239/240 from 0–10 ft bgs was below the residential SAL (Appendix I presents the ProUCL input and output files). There were also activities of plutonium-239/240 and cesium-137 above 33 pCi/g and 5.6 pCi/g, respectively, at depths greater than 10 ft, which is below the exposure depth interval for the residential scenario (Table 7.3-3).

As noted in section 5.0, the technique used to collect confirmation samples likely resulted in a loss of VOCs that would bias the VOC results low. The concentrations of VOCs detected in confirmation samples ranged from 0.000015% of the residential SSL for acetone to 0.011% of the residential SSL for TCE. Based on these results, even if 99.9% of the VOCs had been lost during sample handling, the concentrations measured in the confirmation samples would still indicate concentrations in the in-place material that are less than residential SSLs. Thus, it is very unlikely that the concentrations of VOCs in the excavation floor and sidewalls exceeded residential SSLs. As described previously, there are also other lines of evidence to support this conclusion, including vapor-monitoring data, DPT sampling data, pore-gas data, and waste-characterization data.

First, the waste data described in section 4.3.2 and DPT sampling data described in section 3.4 indicate the amounts and concentrations of VOCs present in the wastes in the MDA B disposal trenches were low. This conclusion is supported by the real-time organic vapor monitoring performed during waste excavation (section 4.3.1). Vapor monitoring indicated only one instance of elevated organic vapors, which occurred when a container of material containing naphthalene was breached. Organic vapor monitoring did not indicate any of the other excavated material contained elevated VOCs. Absent a significant inventory of VOCs in the wastes, the likelihood of significant VOC contamination in the tuff surrounding the trenches is low. Again, real-time vapor monitoring performed during confirmation sampling did not indicate elevated VOCs. As described in Appendix L, the vapor monitoring was sensitive enough to detect VOC concentrations in soil or tuff above residential SSLs. Pore-gas sampling performed during the RFI (section 3.5) and during the remediation (section 6.4.3) did not indicate a release of VOCs above SSLs into the tuff beneath the trenches.

The various VOC data were combined to provide a more complete picture of potential VOC contamination at the MDA B site. VOC data for four different media sampled at MDA B are plotted on Plate 9. The media presented on the plate include the following:

- the waste/soil sampled during the 2009 DPT program,
- the waste characterization samples collected during the excavation of the MDA B trench waste/soil,
- the confirmation samples collected from the MDA B trench sidewalls and bottom following waste removal, and
- the pore gas samples collected from boreholes drilled during the RFI (1998) and remediation efforts (2011).

The detected VOC results are normalized through division by the applicable SSL or screening level. Thus, data are presented as orders of magnitude above or below the applicable SSL, represented by the colors shown in the plate legend. The light red through dark red colors represent samples above SSLs (i.e., positive orders of magnitude), while the green and blue colors represent samples below SSLs (i.e., negative orders of magnitude). If a sample collected from any of the four media evaluated had no VOC results above detectable levels, then the plotted symbol representing this sample is outlined in light green and has no fill color. Pore-gas VOC detects were used to estimate the associated concentration of VOCs in the tuff bulk media. The calculations used to estimate the bulk media VOC concentrations are presented in Appendix L. Plate 9 shows locations of all samples collected for VOC analysis, including samples with detected VOCs as well as those with VOC results below levels of detection. This information provides a visual perspective of the extent that samples were collected and analyzed for VOCs at MDA B.

In Plate 10, the samples with no VOCs detected are removed to show only those samples that exhibited detectable levels of VOCs. As the plate shows, in all but two locations the results are less than the SSL and are represented by the green and blue colors. The locations with results above SSL are represented by the areas in red. The dark red area represents the sample of naphthalene-containing white powder that was sampled in Enclosure 12, while the light red area represents samples of soil and waste that contained smaller amounts of this material. All the naphthalene-contaminated material and soil have been removed from the site.

In Plate 11, only the samples representing the final conditions of the trenches are plotted. Results for samples that represent the excavated waste (DPT and waste/soil samples) have been removed, leaving only the results for confirmation and pore-gas samples. The VOC results for the confirmation samples are 3 orders of magnitude or more below the SSL, while the VOC bulk concentrations calculated using the pore gas VOC are 4 orders of magnitude or more below the SSL.

An interesting observation of the VOC confirmation data is that the detections are grouped and the grouped confirmation detects have fingerprints similar to the waste characterization and DPT data from the same area. Two examples stand out. First, four confirmation samples collected in the center and west end of Enclosure 12 have naphthalene as the primary detected VOC, with the highest concentration still 4 orders of magnitude below the SSL for naphthalene. This area of the site is near the location where the white powder containing naphthalene was uncovered and where waste samples had detectable levels of naphthalene. The second example is a group of seven confirmation samples collected in the east end of Enclosure 7 and at the west end of the Enclosure 1 excavation. The primary VOC detected in these samples was TCE, with the highest concentration 3 orders of magnitude below the SSL for TCE. Waste characterization and DPT samples collected from this area had TCE as the predominant VOC detected, with the maximum TCE concentration in the waste samples 1 order of magnitude below the SSL for TCE.

In summary, while some uncertainty is associated with the methods used to collect the tuff confirmation samples, potentially creating a low bias for VOCs in these samples, the levels of VOCs in waste and DPT samples are also 1 to 2 orders of magnitude below the SSL, except for the two waste samples from Enclosure 12 where the naphthalene-containing material was uncovered. VOC concentrations in the rock pore gas are also very low, corresponding to a rock bulk VOC level 4 orders of magnitude below the corresponding SSLs. In addition, confirmation VOC results are validated by the fact that VOCs detected in confirmation samples are the same VOCs detected in nearby waste and DPT samples with the confirmation sample VOC levels 1 to 2 orders of magnitude below the levels observed in the waste and DPT samples.

In conclusion, the multiple lines of evidence discussed above and presented on Plates 9 through 11 clearly demonstrate that waste buried at MDA B did not contain significant quantities of VOCs. Further, the levels of VOCs detected in tuff samples collected from the trench walls and in rock pore-gas samples collected from boreholes drilled beneath the trenches are representative of the final remediated site conditions; therefore, further sampling and analysis for VOCs are not warranted. DOE is responsible for controlling the radiological evaluation of MDA B for any future property transfers and for ensuring that potential radiation exposures to members of the public are ALARA. Final radiological dose assessments (including ALARA analyses) that are required for DOE to fulfill the requirements in DOE Order 458.1, “Radiation Protection of the Public and the Environment,” are outside the scope of the Consent Order.

7.4 Objective 4: Prepare and Implement a Post-remediation SAP to Define the Nature and Extent of Any Residual Contamination.

The nature and extent of residual contamination at MDA B have been defined by results from previous investigations including the 1998 angled boreholes, DPT sampling, confirmation sample data, soil-vapor data, and the results from the three post-remediation vertical boreholes drilled beneath the trenches at MDA B. These data demonstrate the nature and extent of historical waste disposal activities have been defined, and no contaminants from MDA B wastes have impacted the surrounding environment.

The network of boreholes defines the vertical extent of residual contamination that may have been associated with past disposal practices across the MDA B site. Results from samples collected from the five angled boreholes installed beneath the disposal trenches in 1998 and three vertical boreholes installed in 2011 were below residential SSLs/SALs. As described in section 3.3.1, data from the two other angled boreholes installed in 1998 were not suitable for evaluation of extent of contamination. Figures 7.4-1 through 7.4-10 illustrate the relationship between the boreholes and the nearest confirmation sample location.

The confirmation samples collected defined the lateral extent of residual contamination from historical disposal practices at MDA B. Lateral extent is defined because the concentrations decreased from what was detected in the waste and decreased as areas were further excavated and sampled. In addition, the definition of extent is supported by the following:

- Aluminum, beryllium, total cyanide, magnesium, manganese, potassium, silver, sodium, and thallium were not detected above background in the trench wall confirmation samples.
- Chromium, iron, nickel, and vanadium concentrations were less than or equal to the maximum Qbt 2, 3, 4 background concentrations (LANL 1998, 059730). The maximum detected concentrations of cobalt and selenium in the trench wall confirmation samples were only slightly above background: 3.48 mg/kg versus the BV of 3.14 mg/kg, and 0.386 mg/kg versus the BV of 0.3 mg/kg, respectively. The maximum concentration of arsenic exceeds the BV, but the arsenic results are not statistically different from background (section 5.3).

- The maximum detected concentrations of barium, copper, nitrate, perchlorate, uranium, and zinc in the trench wall confirmation samples are an order of magnitude or more below the residential SSLs.
- The maximum detected concentrations of antimony, cadmium, lead, and mercury in the trench wall confirmation samples are about 23%, 17%, 45%, and 14% of the residential SSLs, respectively.
- The maximum detected concentration of calcium (12,800 mg/kg) exceeds the maximum background concentration (2230 mg/kg), but there is no residential SSL for calcium.
- Organic chemicals were infrequently detected in the trench wall confirmation samples and were generally below the estimated quantitation limits, with maximum concentrations less than residential SSLs by several orders of magnitude.

VOC and tritium pore-gas data from the MDA B boreholes installed in 2011 were screened using screening levels based on groundwater screening levels. The results of this screening evaluation indicate VOCs and tritium in subsurface pore gas below MDA B pose an extremely low risk of groundwater contamination. Additionally, no perched aquifers or areas of high moisture content above the Cerro Toledo interval were observed during drilling of any of the boreholes associated with MDA B.

8.0 RECOMMENDATIONS

Based on review of the data presented in this report, the IRWP objectives have been met and the nature and extent of residual contamination from historical waste disposal activities have been defined. Because the chemical confirmation data are below residential SSLs and the radionuclide confirmation data are either below residential SALs or the 95% UCL for plutonium-239/240 is below the residential SAL for the top 10 ft, it is not necessary to implement any of the possible contingencies listed in section 2.4.4 as alternatives if residential SSLs/SALs cannot be achieved. Therefore, further sampling and/or remediation at MDA B are not necessary pending a risk/dose assessment for the site. The Laboratory recommends that a risk/dose assessment be prepared based on the results of the confirmation samples.

9.0 REFERENCES AND MAP DATA SOURCES

9.1 References

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

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

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9.2 Map Data Sources

Legend Item/Type	Data Source
ER Project Locations	Los Alamos National Laboratory, ESH&Q Waste and Environmental Services Division, 2010-2E; 1:2,500 Scale Data; 04 October 2010.
Streets	County of Los Alamos, Information Services; as published 16 May 2006.
Dirt Road Arcs	Los Alamos National Laboratory, KSL Site Support Services, Planning, Locating and Mapping Section; 06 January 2004; as published 29 November 2010.
Security and Industrial Fences and Gates	Los Alamos National Laboratory, KSL Site Support Services, Planning, Locating and Mapping Section; 06 January 2004; as published 29 November 2010.
Paved Parking	Los Alamos National Laboratory, KSL Site Support Services, Planning, Locating and Mapping Section; 12 August 2002; as published 29 November 2010.
Technical Area Boundaries	Los Alamos National Laboratory, Site Planning & Project Initiation Group, Infrastructure Planning Office; September 2007; as published 13 August 2010.
Excavation Grid Cell	as published; Portage Environmental Services.
Fixed Enclosure	as published; Portage Environmental Services.
Excavation Outline	as published; Portage Environmental Services.
Material Disposal Areas	Los Alamos National Laboratory, ENV Environmental Remediation and Surveillance Program; ER2004-0221; 1:2,500 Scale Data; 23 April 2004.
Drainage	County of Los Alamos, Information Services; as published 16 May 2006.
Los Alamos County Parks	County of Los Alamos, Information Services; as published 16 May 2006.
Structures	County of Los Alamos, Information Services; as published 29 October 2007.
Hypsography, 2, 10, 20, 100 Foot Contour Interval	Los Alamos National Laboratory, ENV Environmental Remediation and Surveillance Program; 1991.
Trench Excavation	raster extracted from Portage Environmental survey data; as published.
Pre excavation estimated trench area	unknown data source; as published.
EMFLUX sampling location	Los Alamos National Laboratory, ESH&Q Waste and Environmental Services Division, 2010-2E; 1:2,500 Scale Data; 04 October 2010.

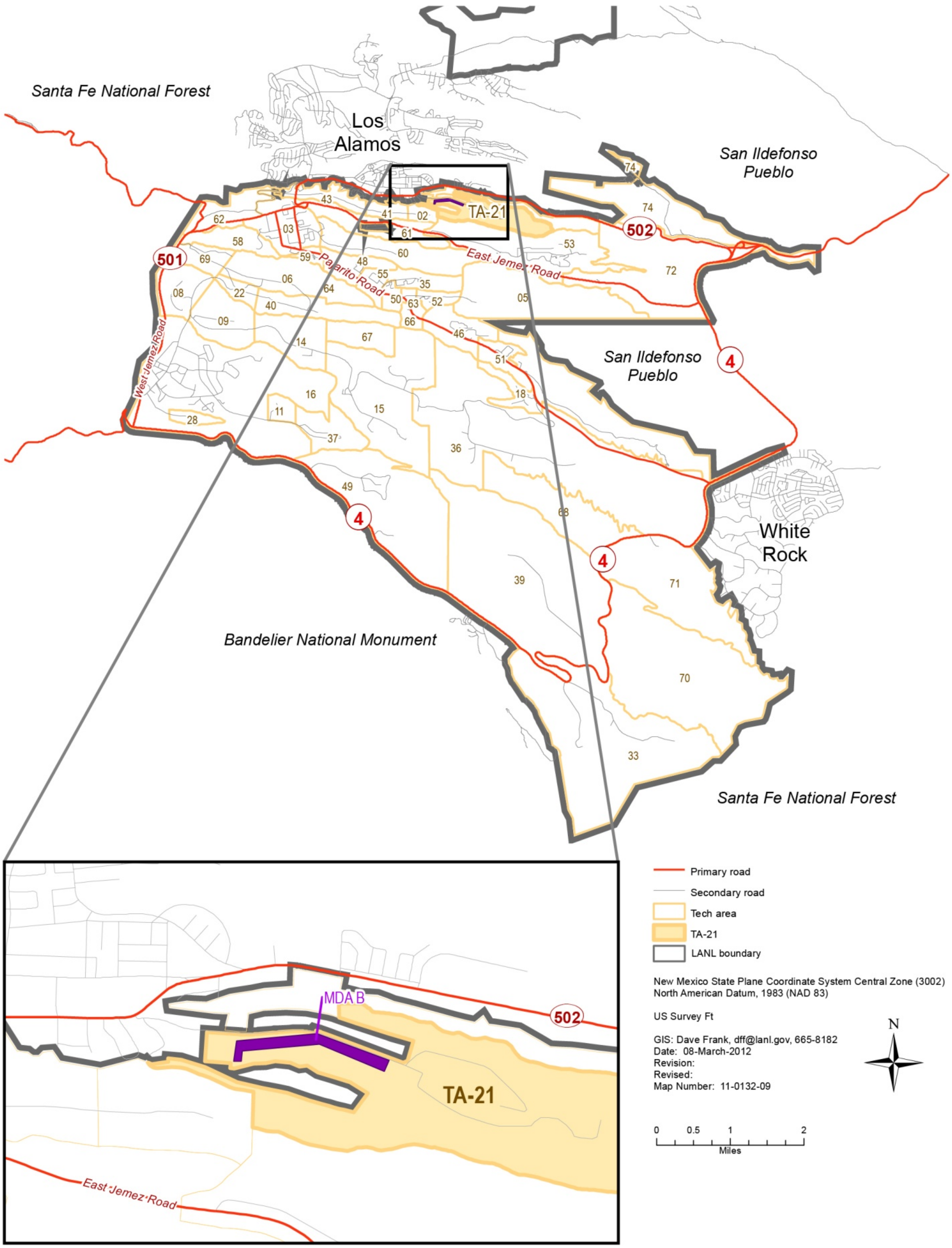

Figure 1.1-1 MDA B in TA-21 with respect to Laboratory TAs and surrounding landholdings

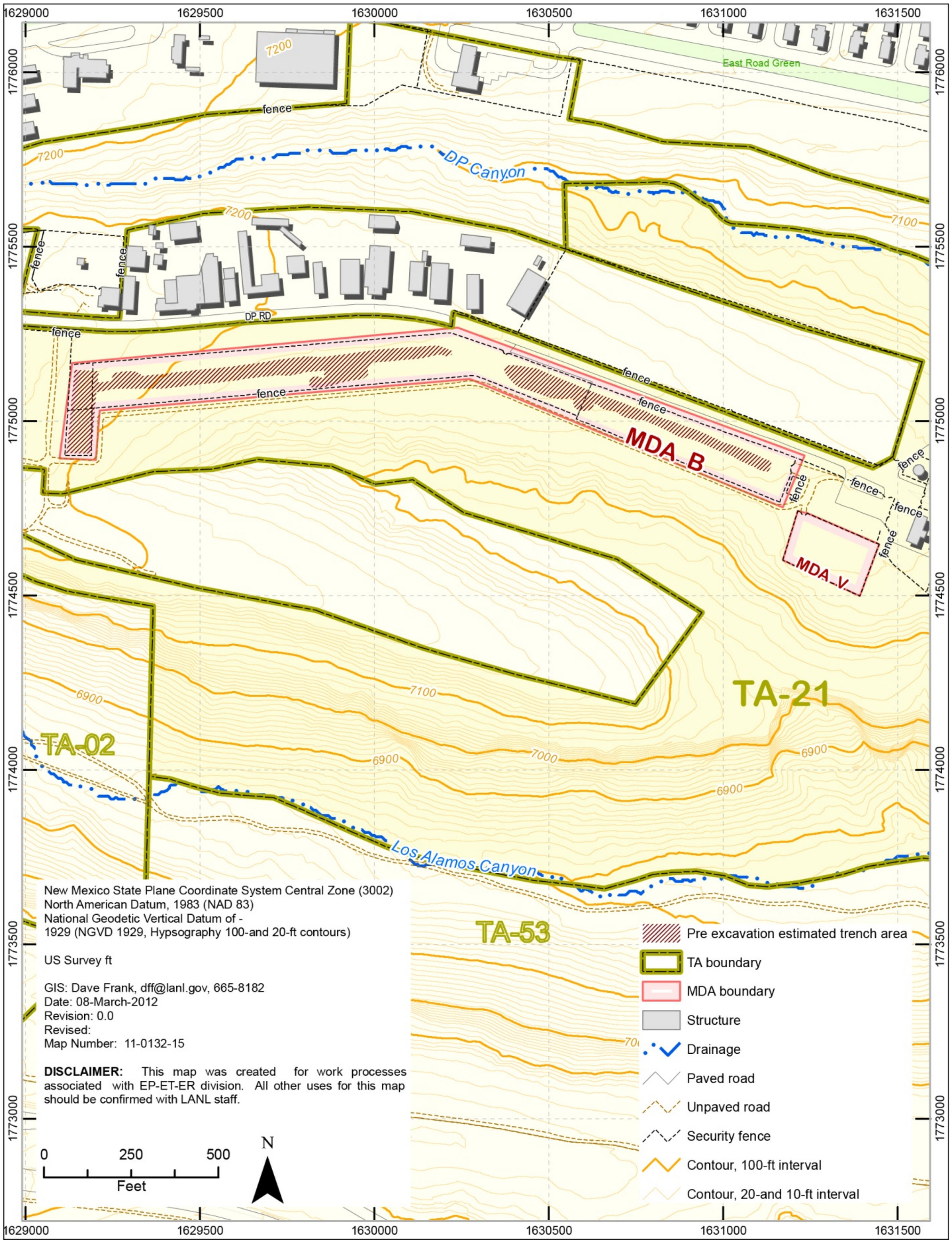

Figure 1.1-2 MDA B in TA-21 site plan

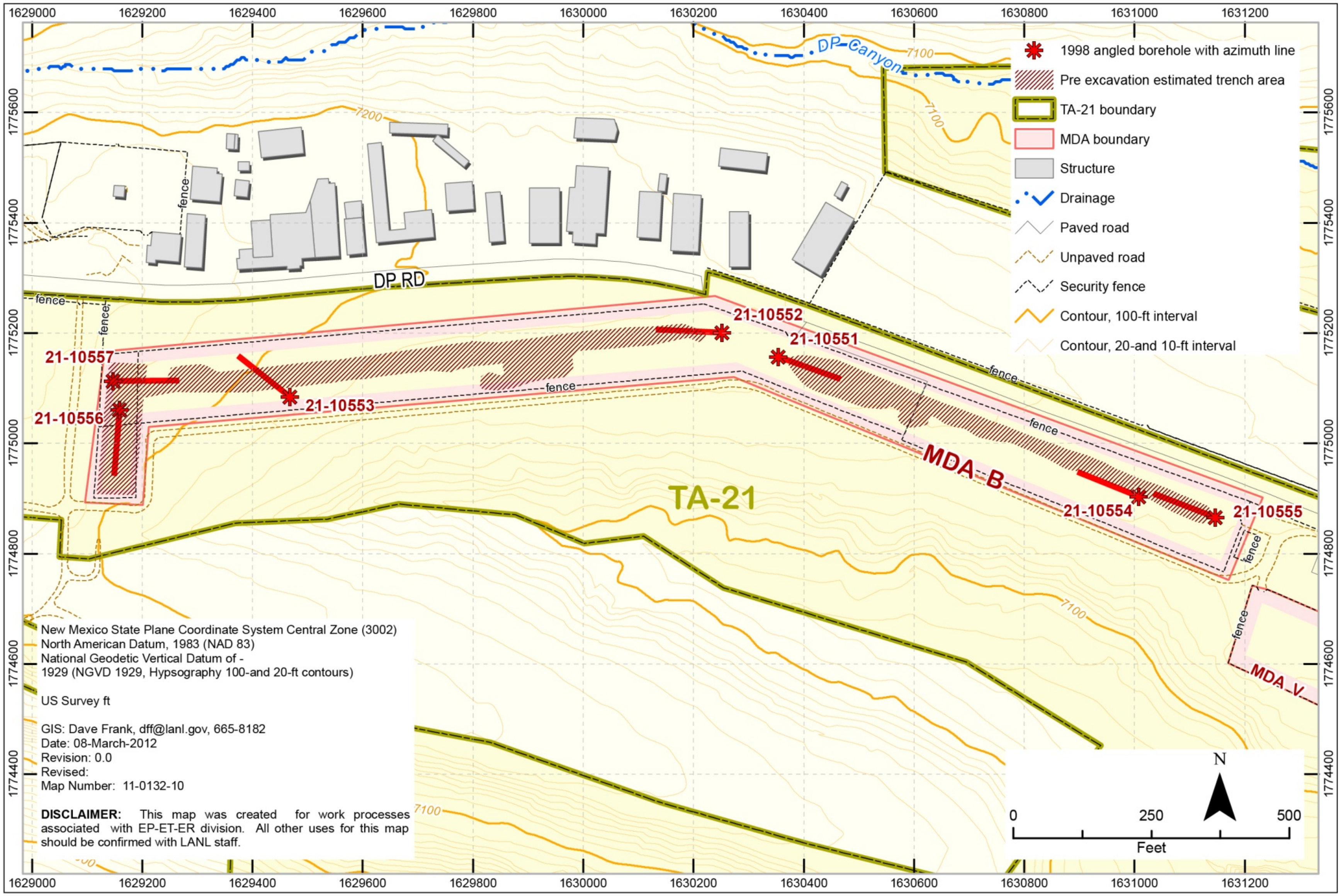

Figure 3.3-1 Locations of angled boreholes drilled in 1998

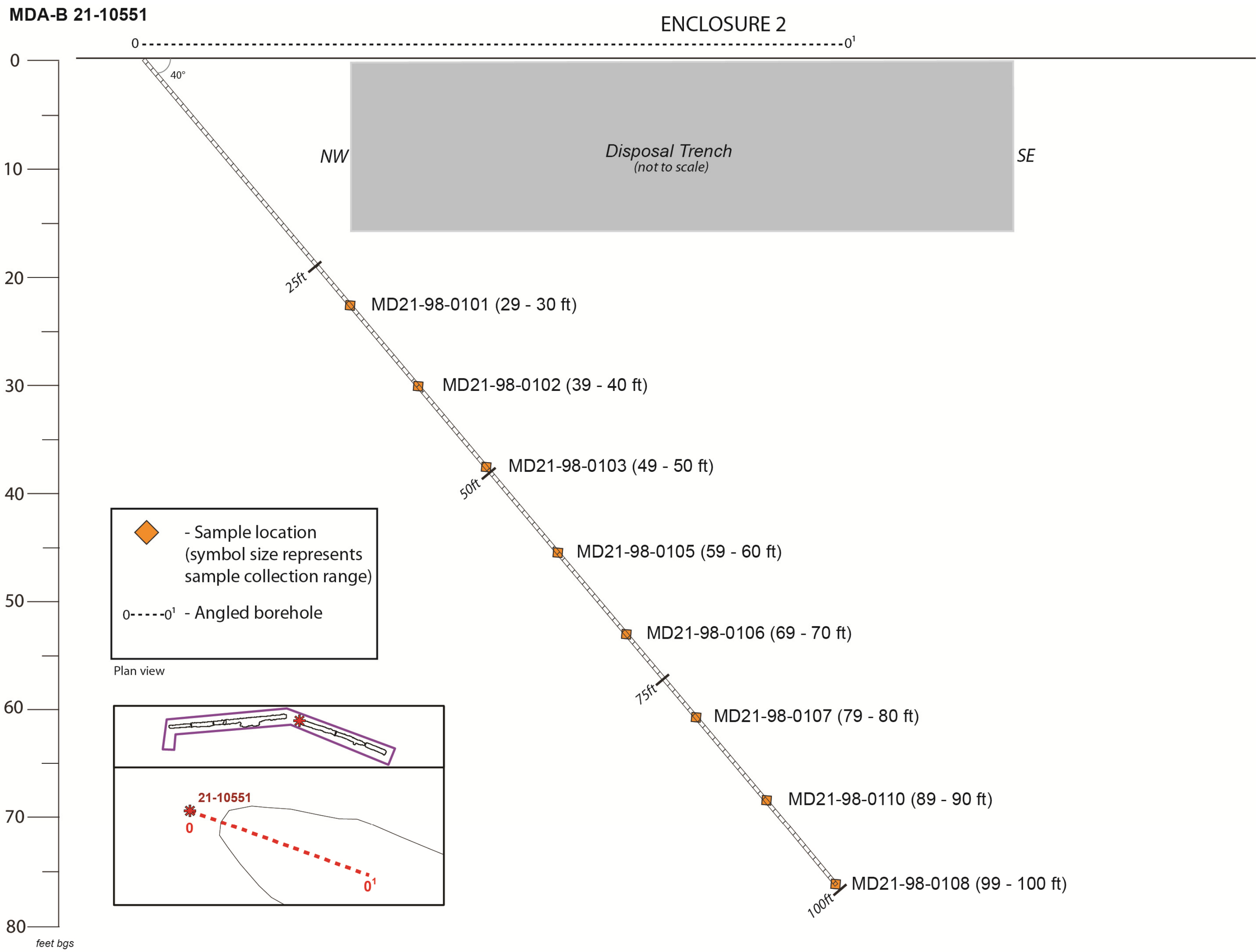

Figure 3.3-2 Schematic profile of MDA B location ID 21-10551

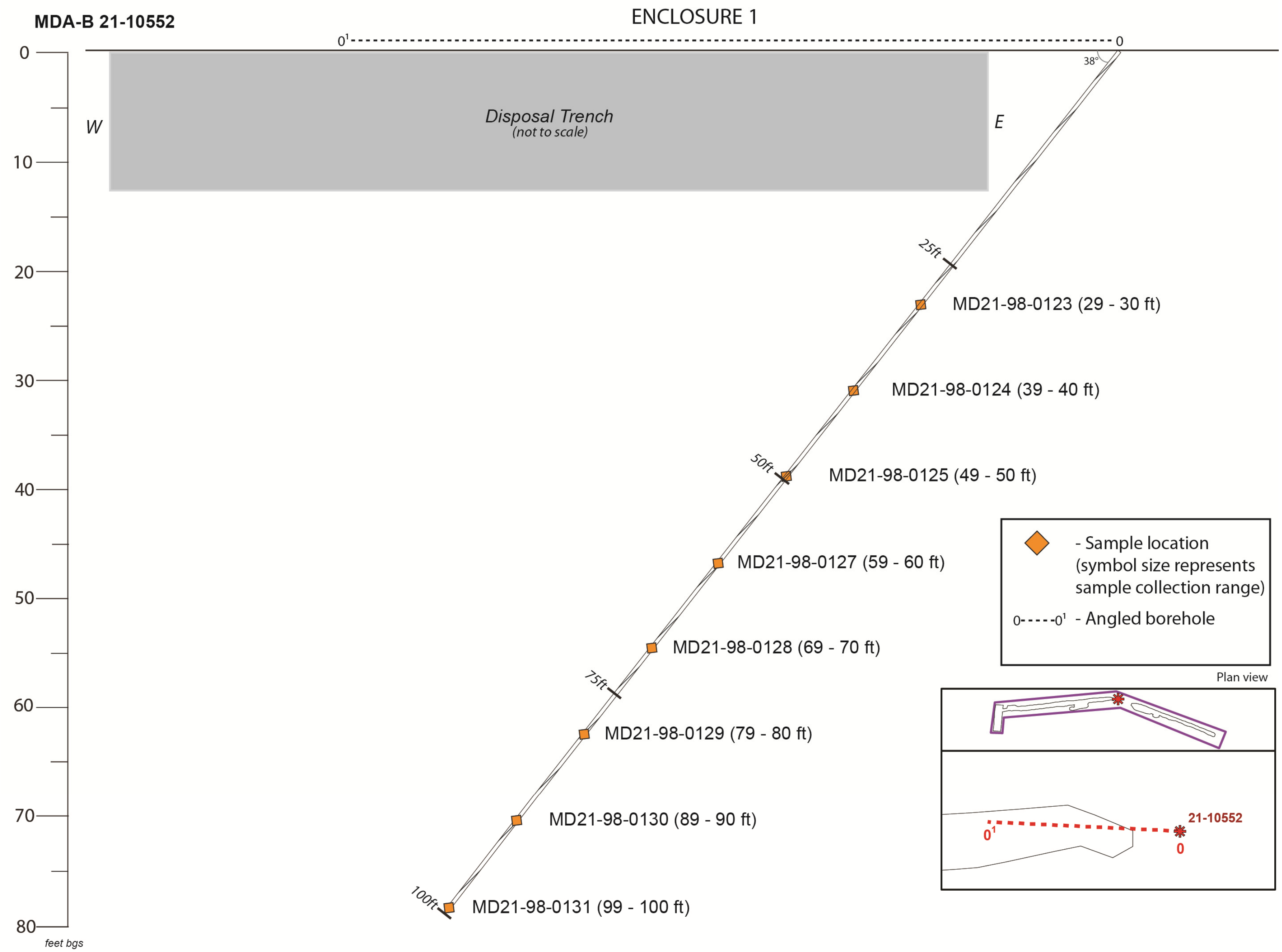

Figure 3.3-3 Schematic profile of MDA B location ID 21-10552

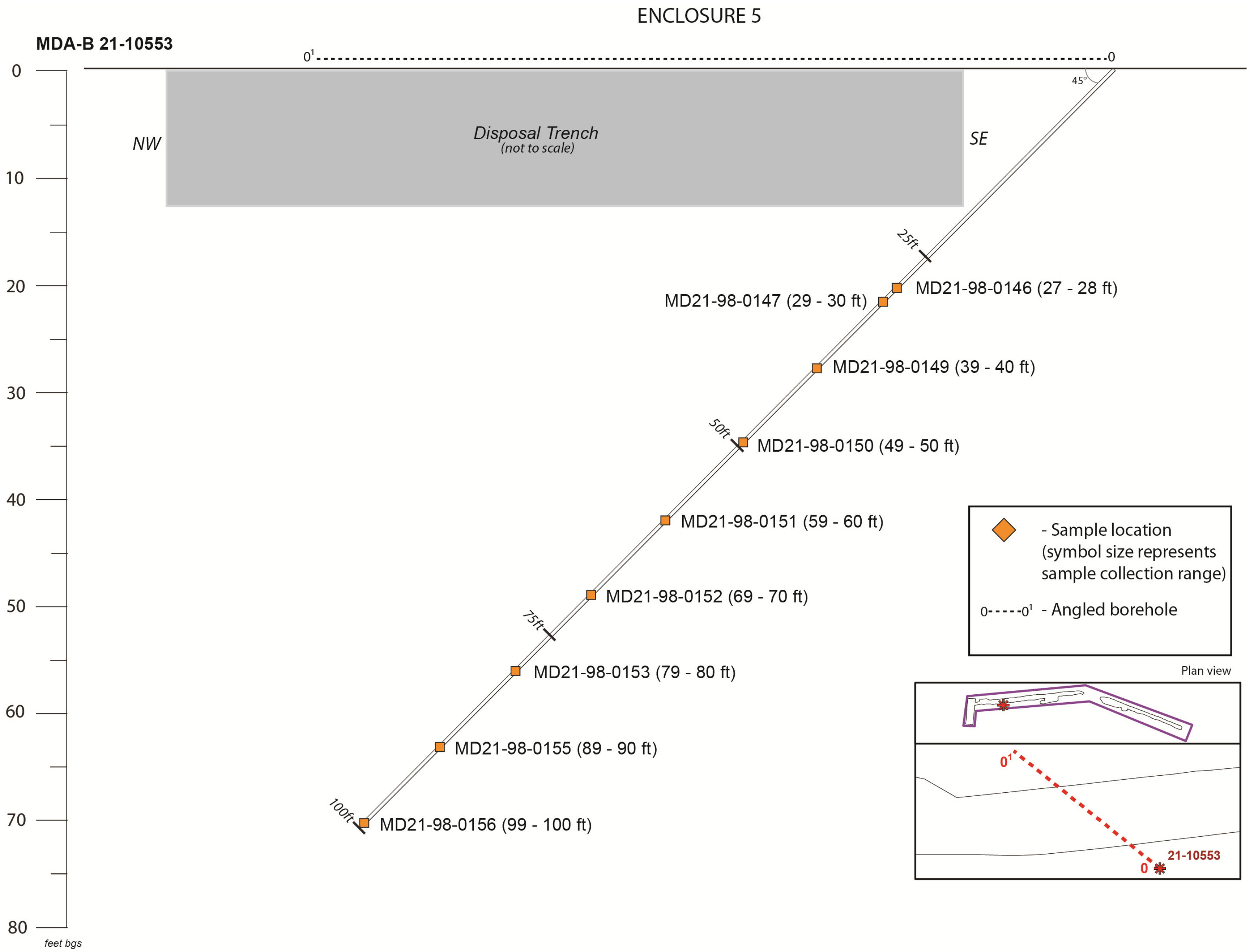

Figure 3.3-4 Schematic profile of MDA B location ID 21-10553

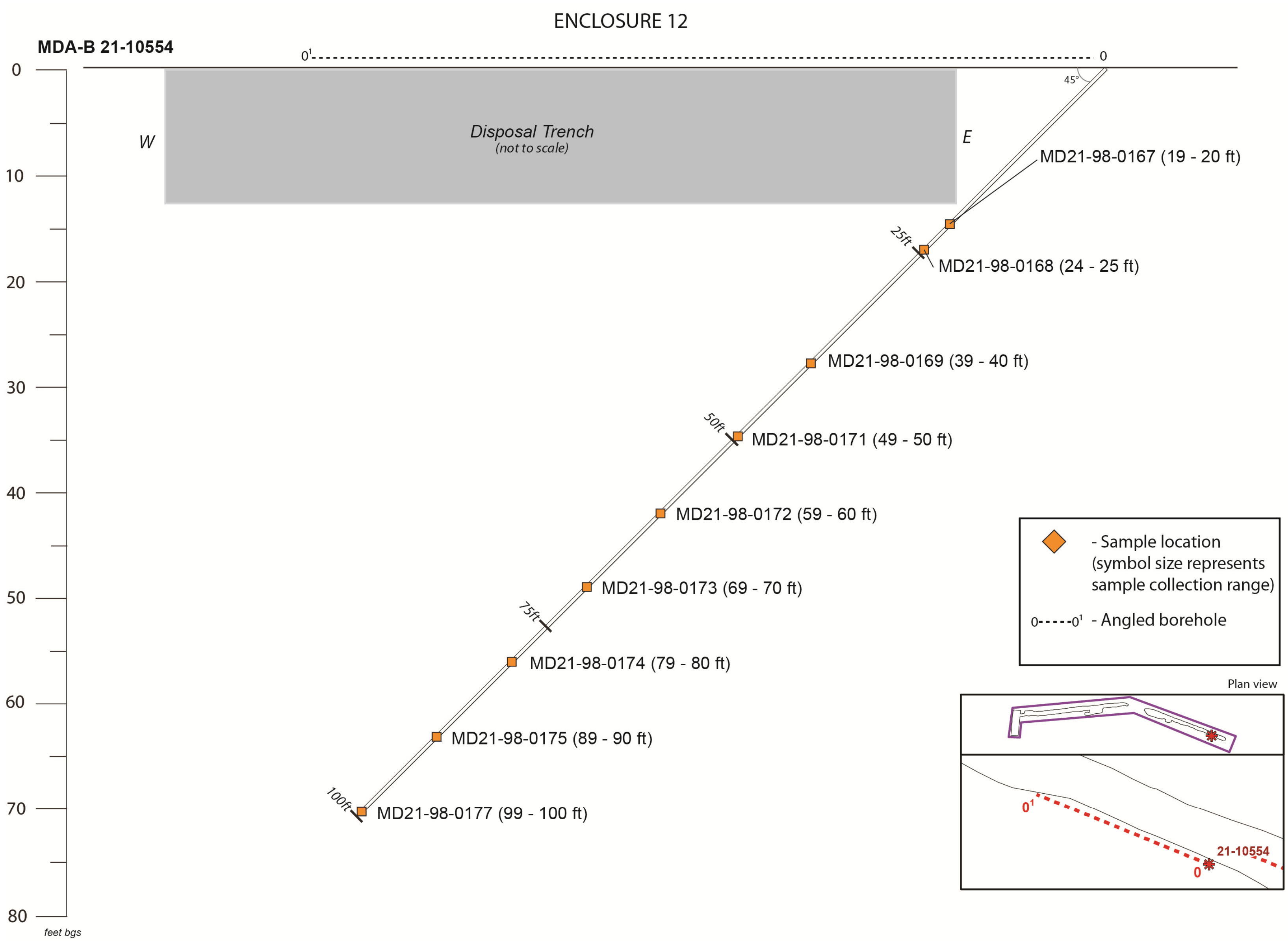

Figure 3.3-5 Schematic profile of MDA B location ID 21-10554

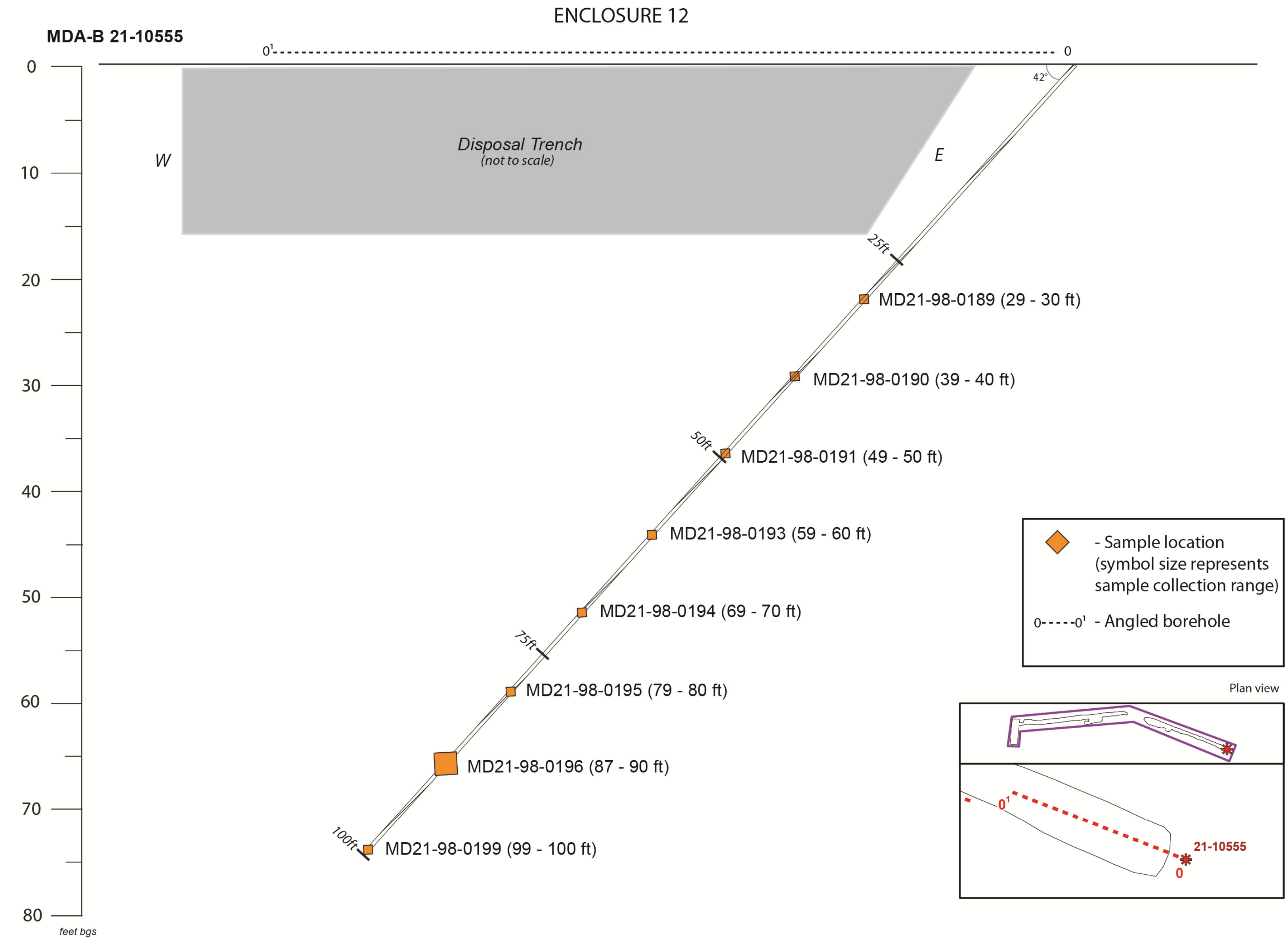

Figure 3.3-6 Schematic profile of MDA B location ID 21-10555

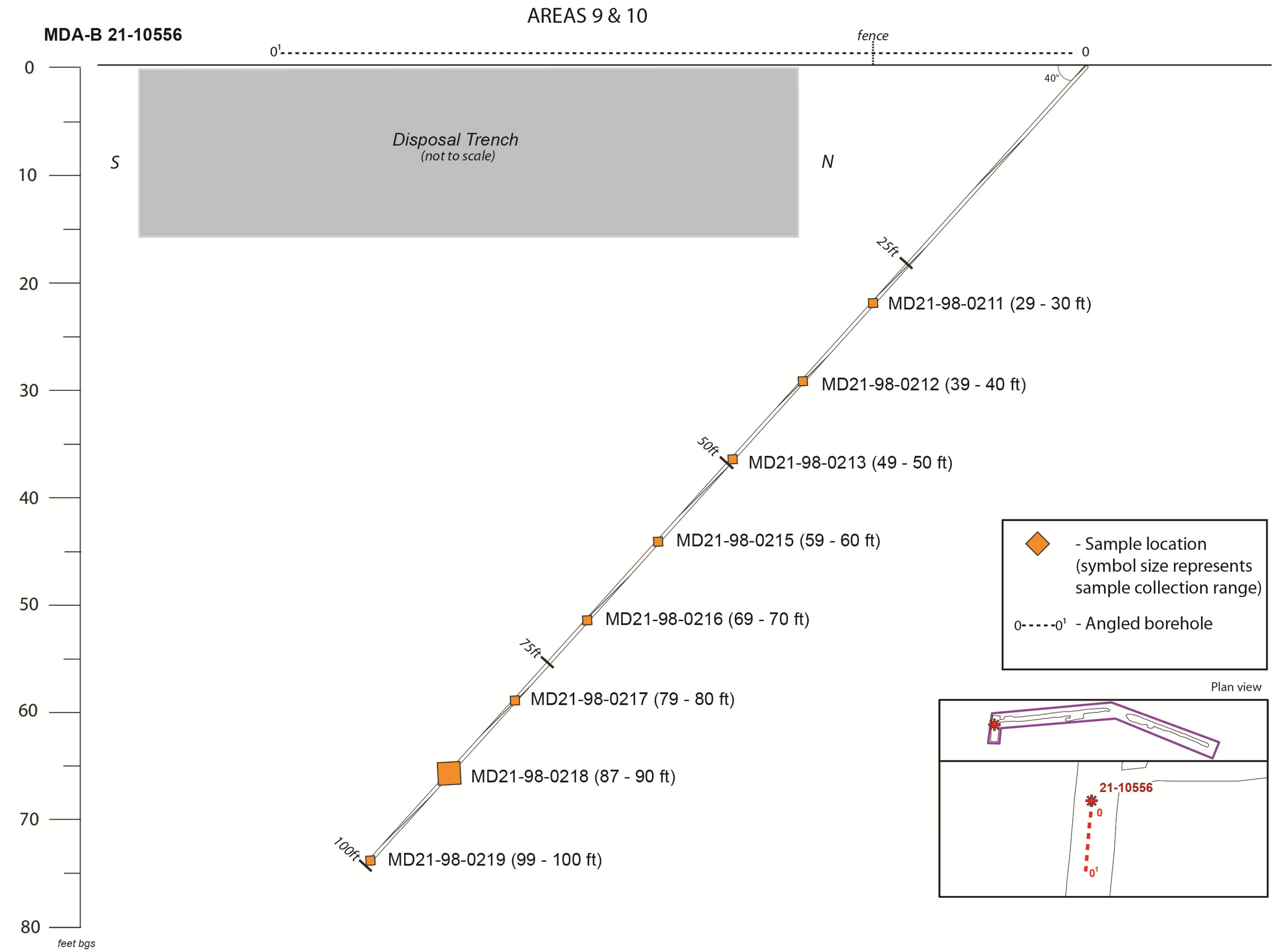

Figure 3.3-7 Schematic profile of MDA B location ID 21-10556

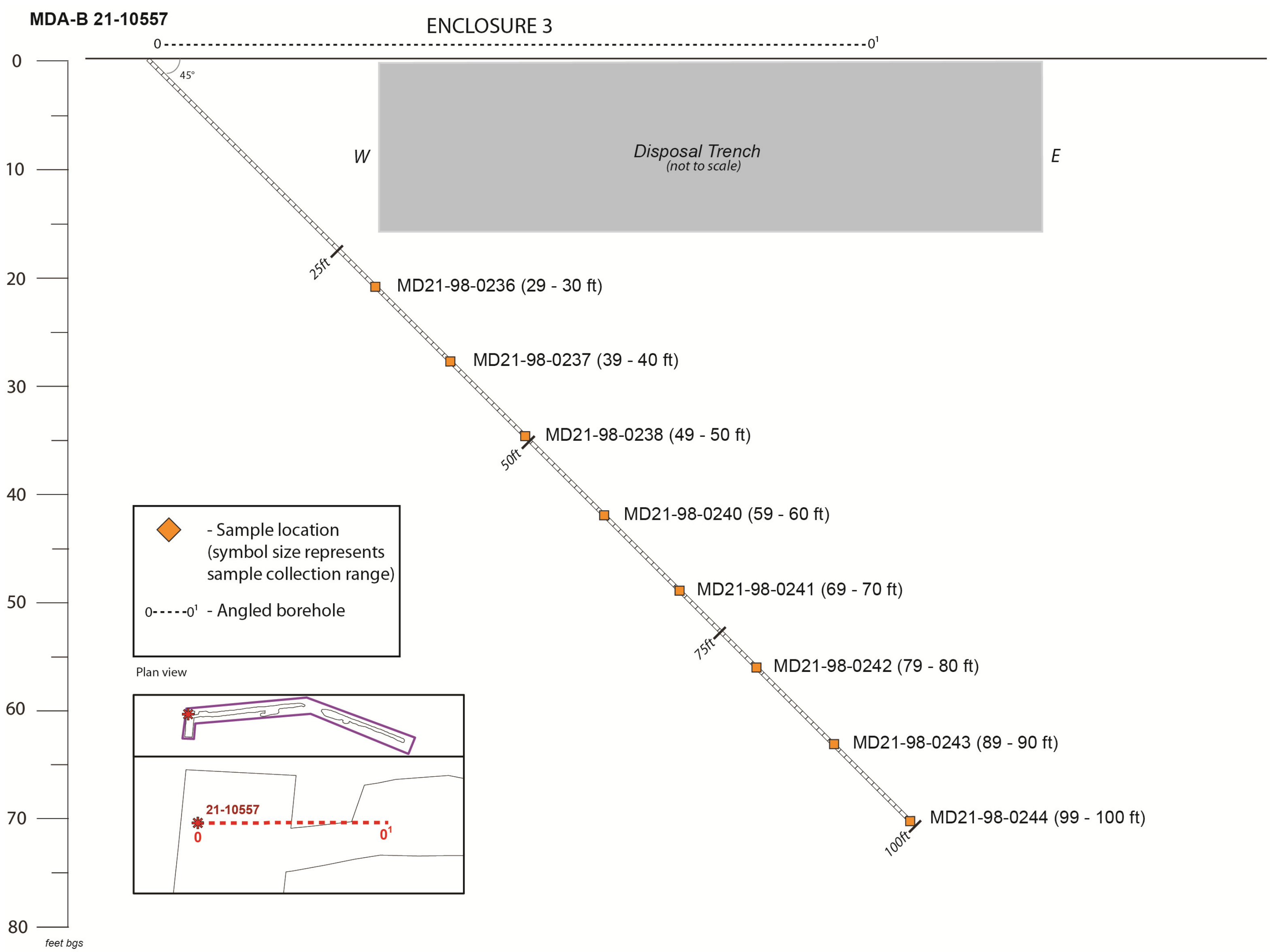

Figure 3.3-8 Schematic profile of MDA B location ID 21-10557

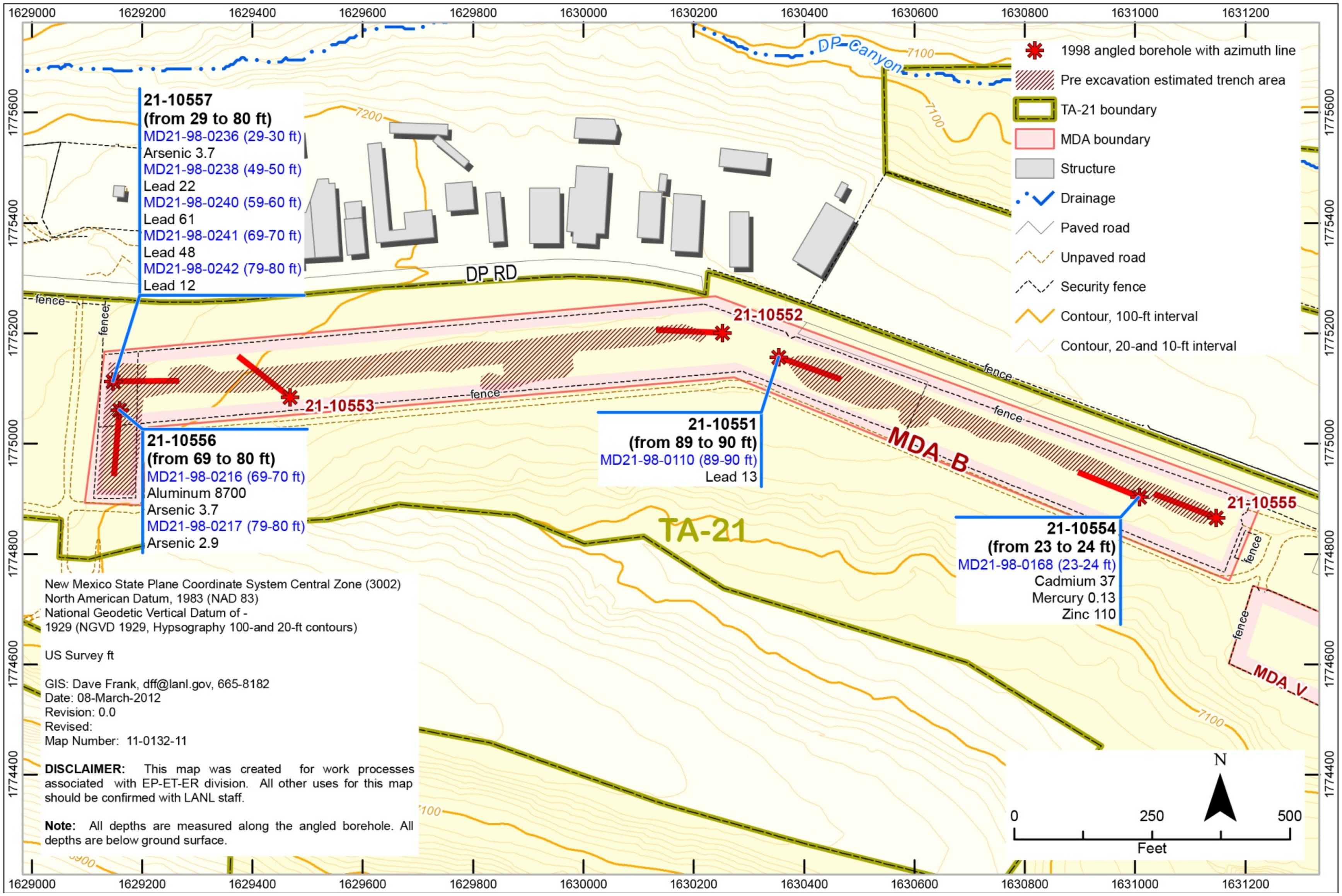

Figure 3.3-9 Inorganic chemicals above background in 1998 angled borehole samples (in mg/kg)

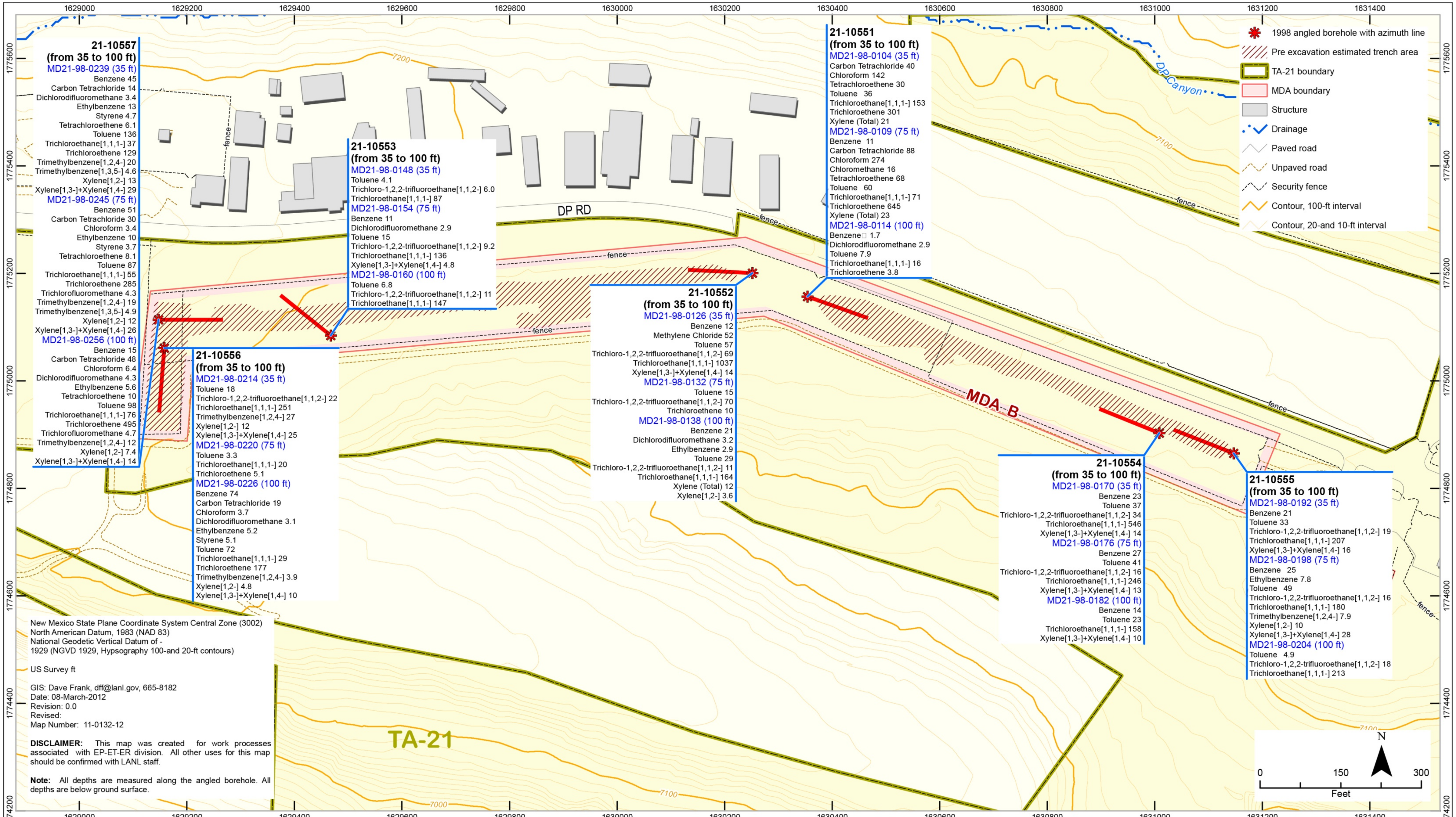

Figure 3.3-10 VOCs detected in pore-gas samples from 1998 angled boreholes (µg/m^3)

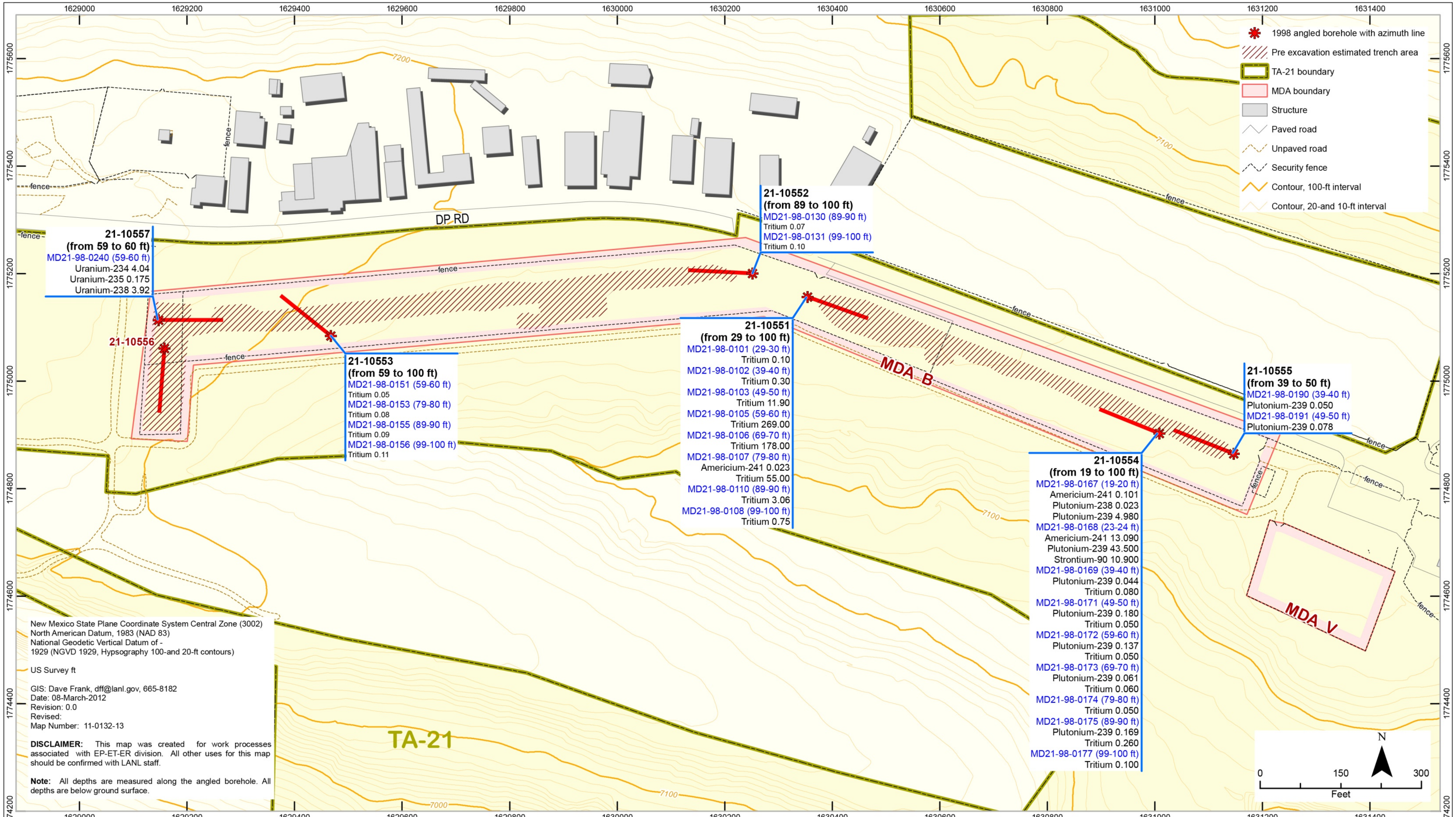

Figure 3.3-11 Radionuclides above background in 1998 angled borehole samples (pCi/g)

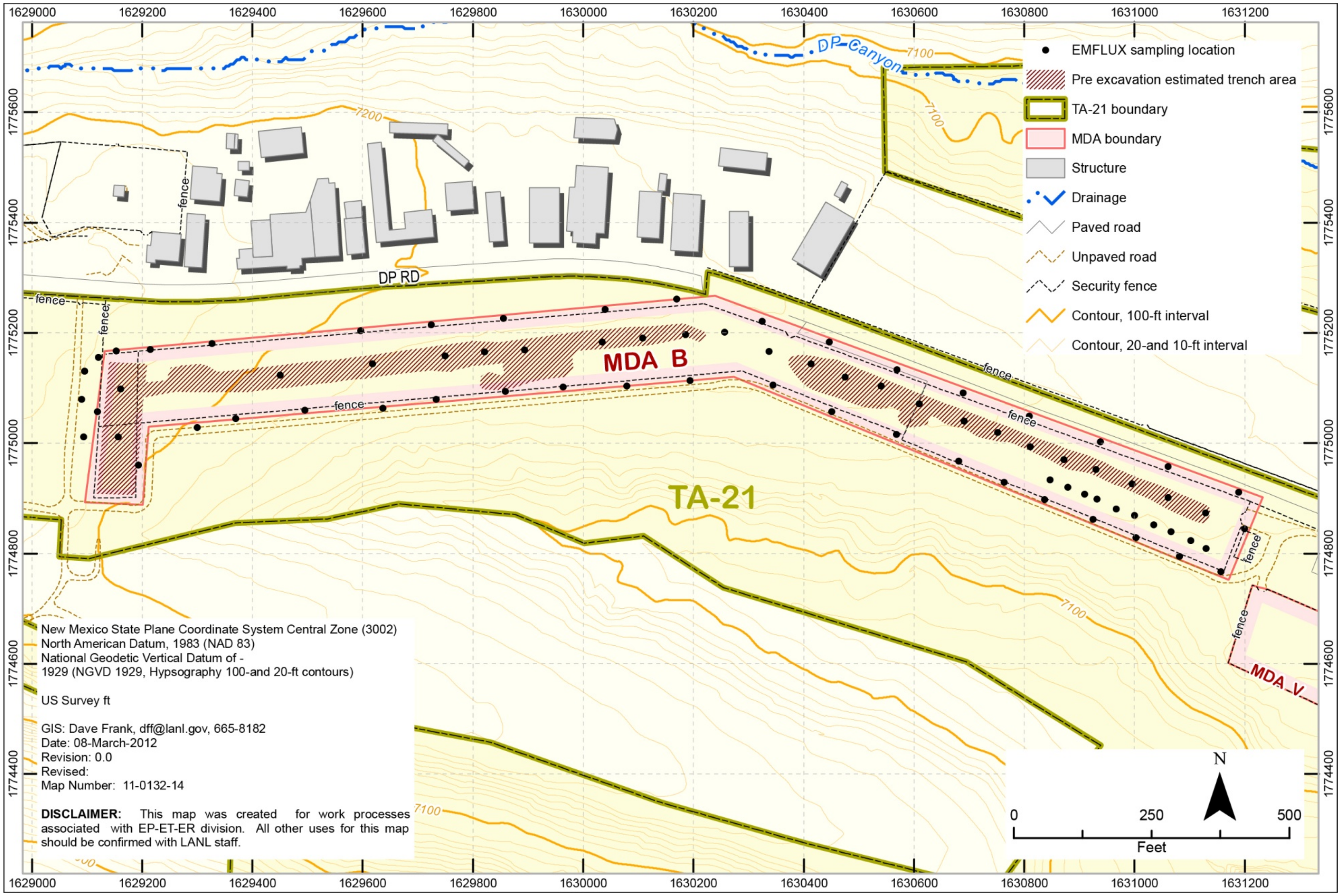

Figure 3.3-12 EMFLUX passive soil-gas VOC sampling locations

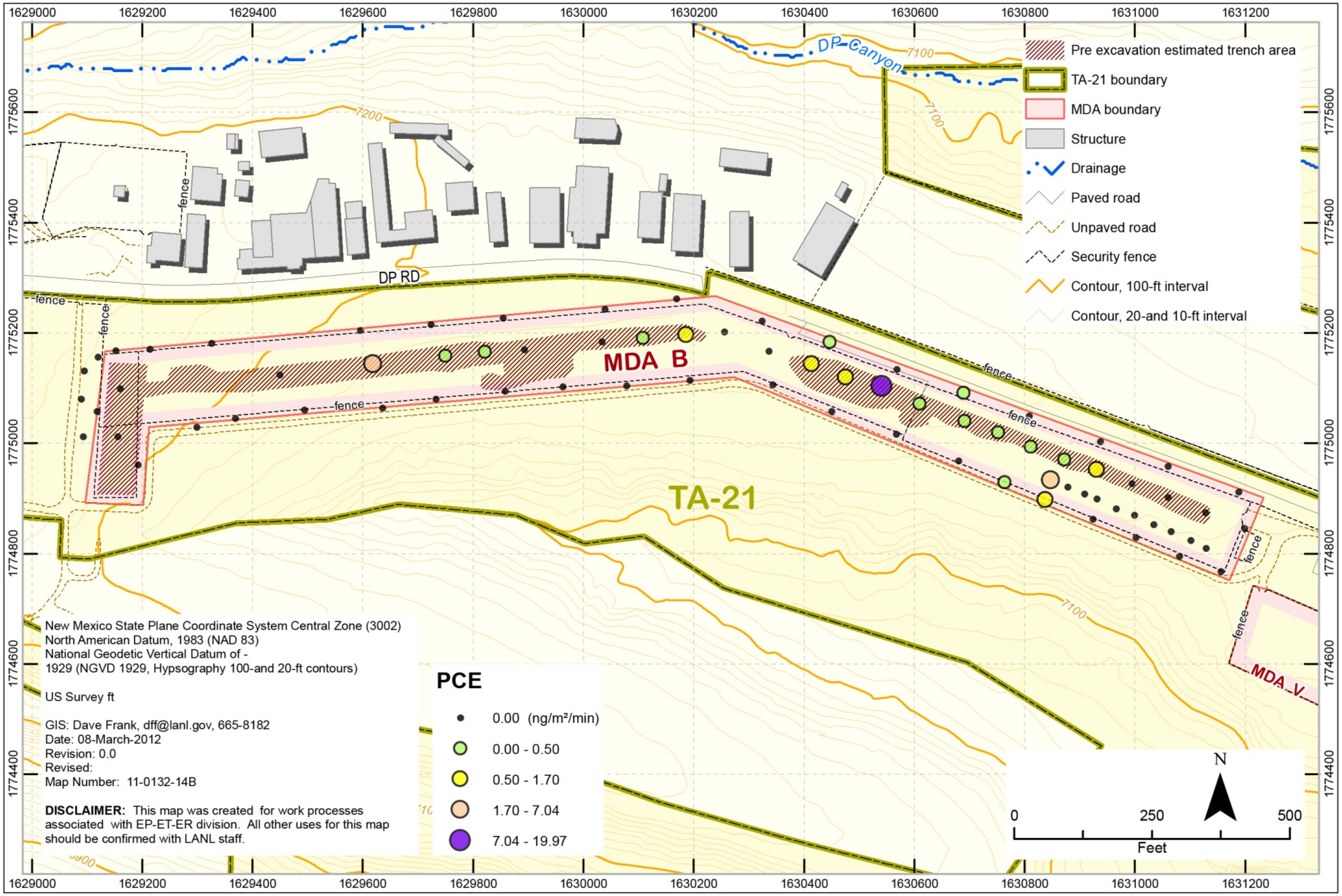

Figure 3.3-13 PCE concentrations in EMFLUX passive soil-gas samples

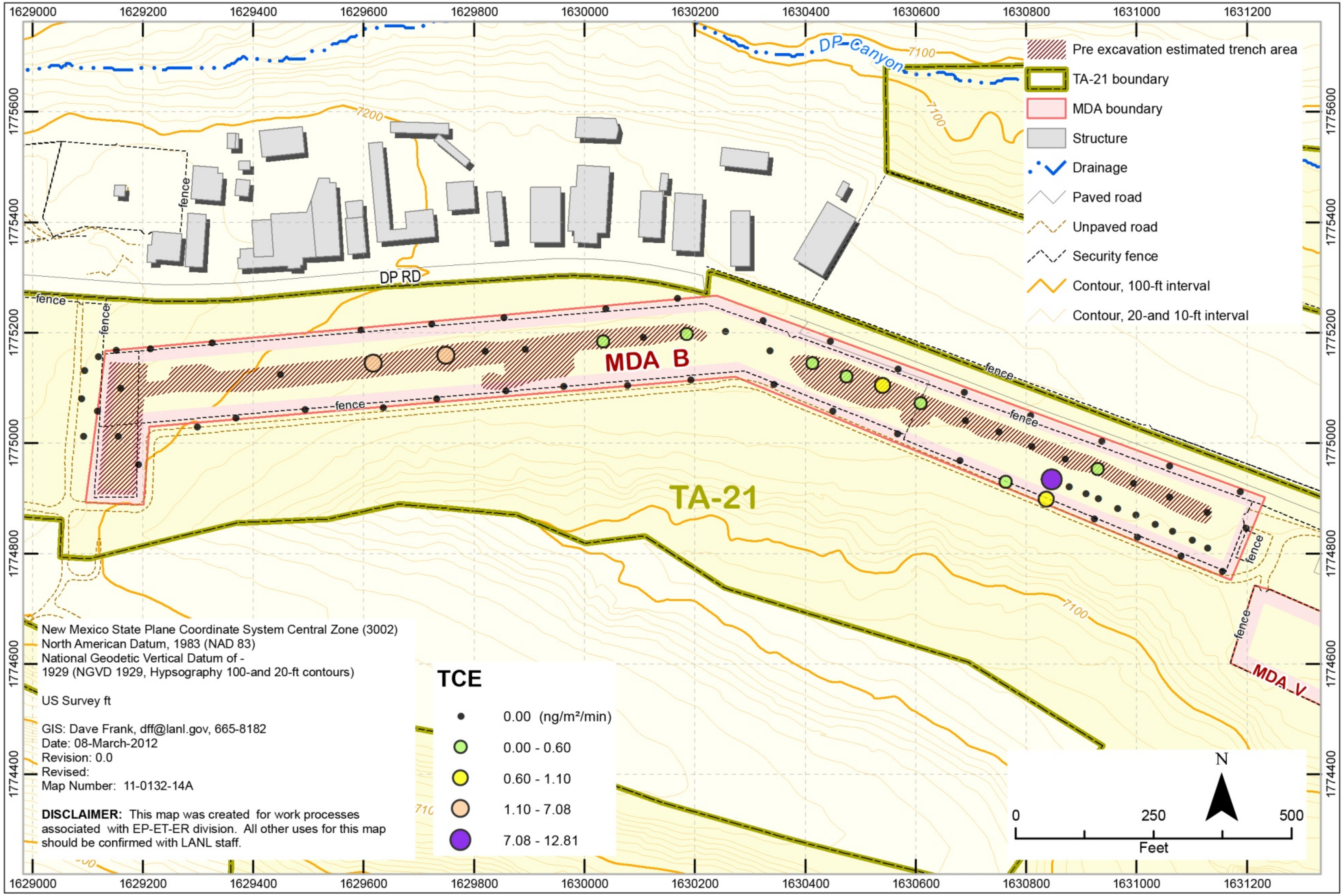

Figure 3.3-14 TCE concentration in EMFLUX passive soil-gas samples

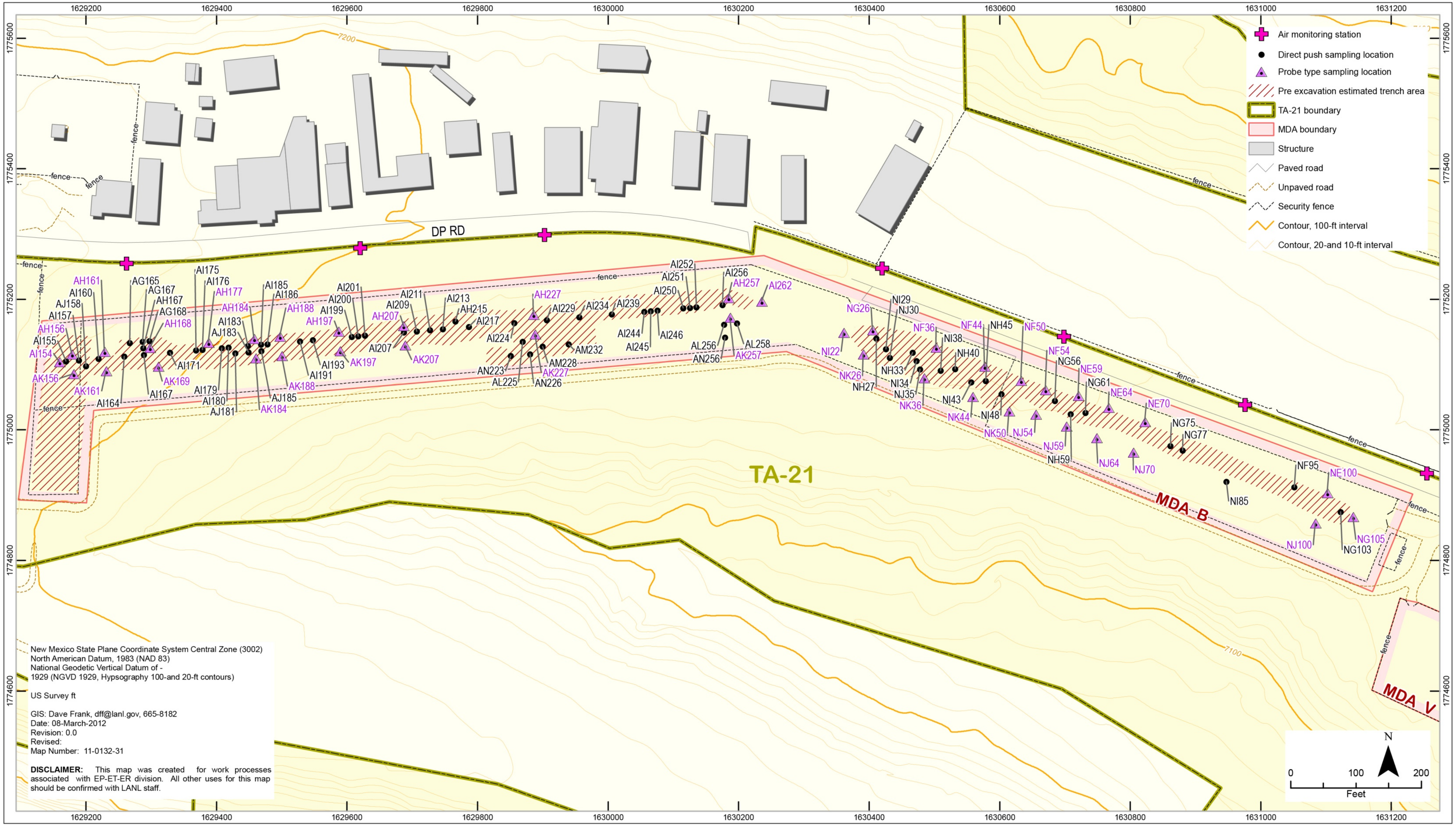

Figure 3.4-1 DPT sampling locations

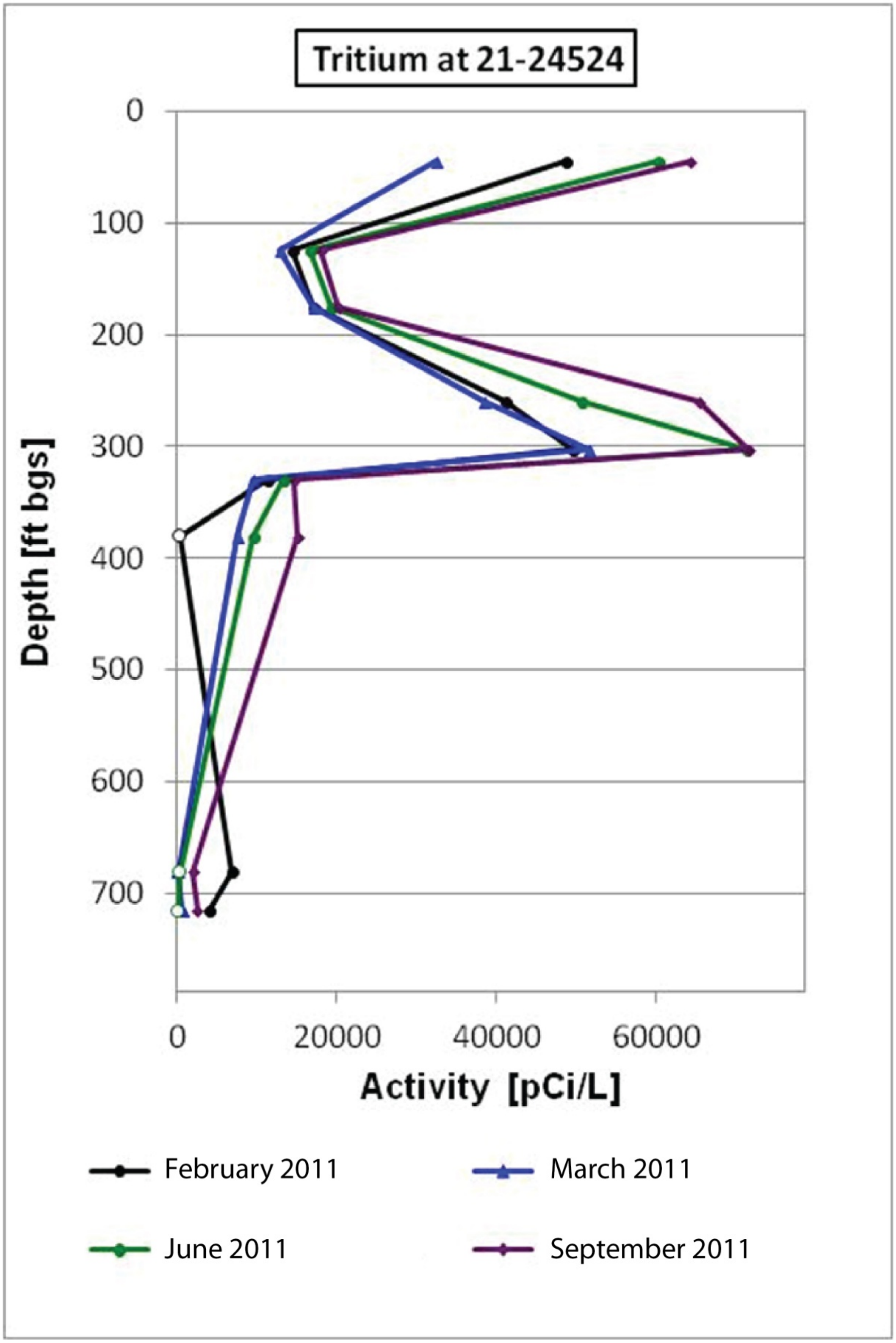

Figure 3.5-1 Quarterly tritium activities at vapor-monitoring well 21-24524 in 2011

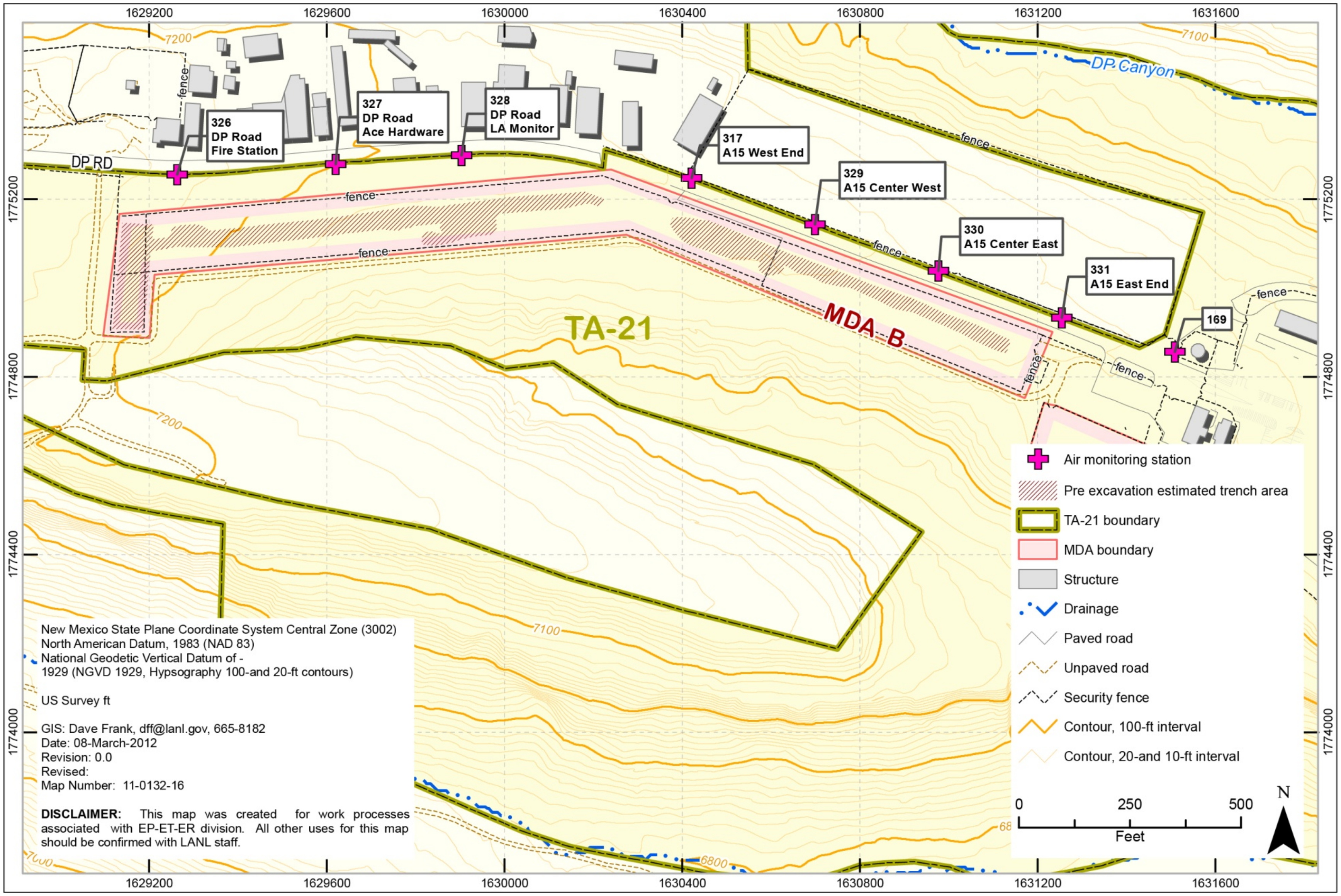

Figure 4.5-1 AIRNET station locations at and near MDA B

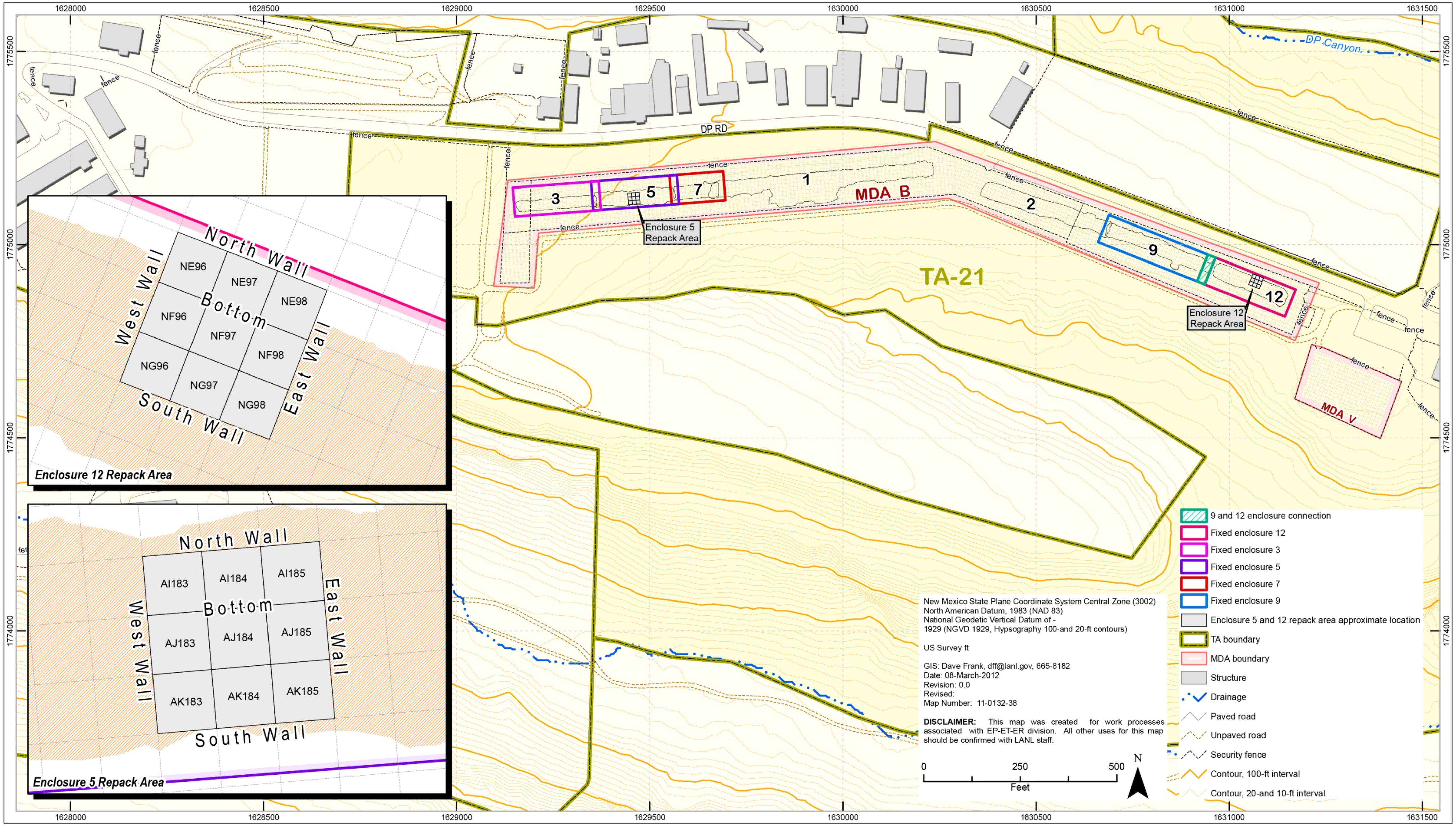

Figure 4.6-1 Approximate locations of repack areas in Enclosures 5 and 12

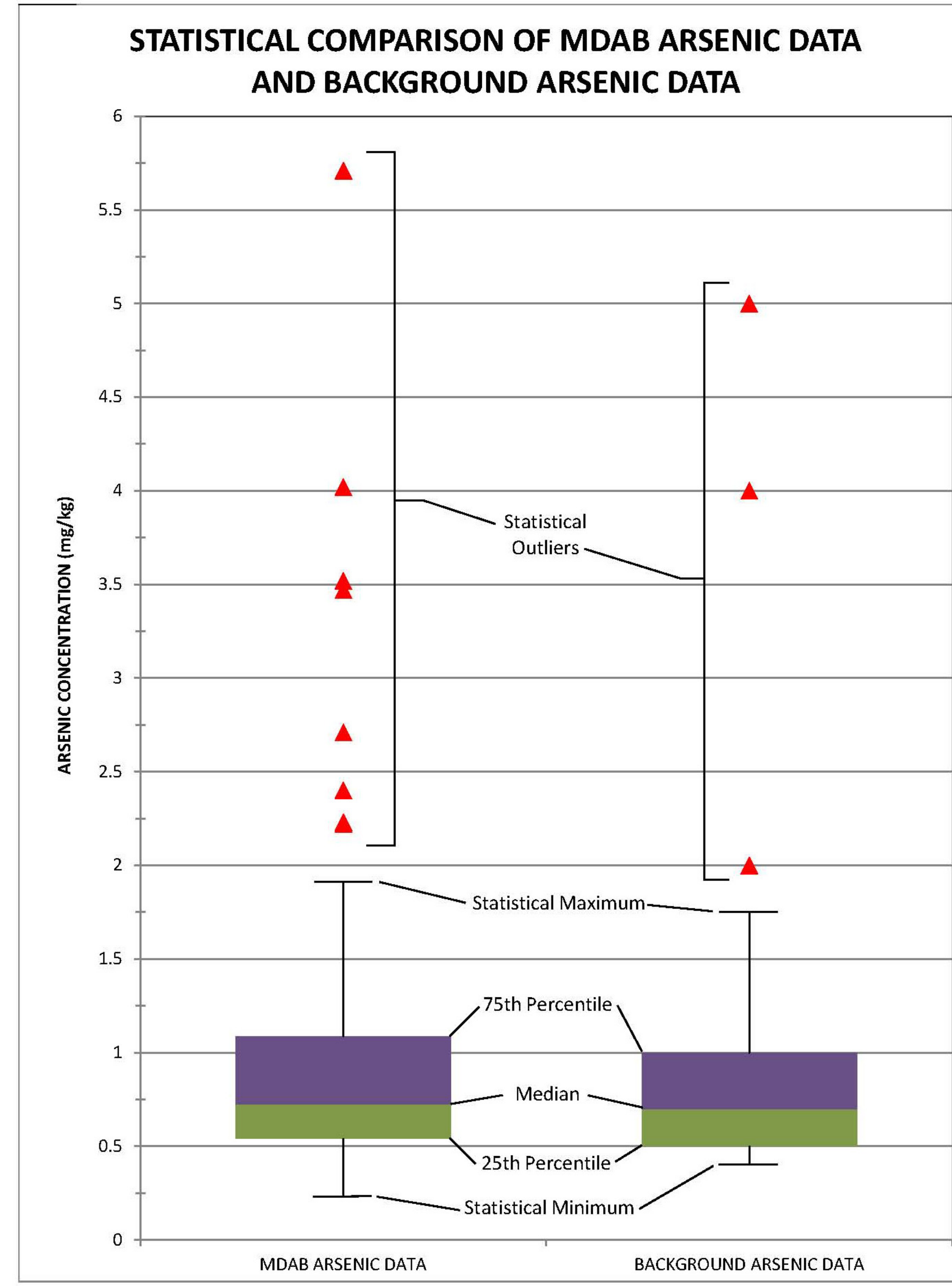

Figure 5.3-1 Box plot for arsenic in Enclosure 3

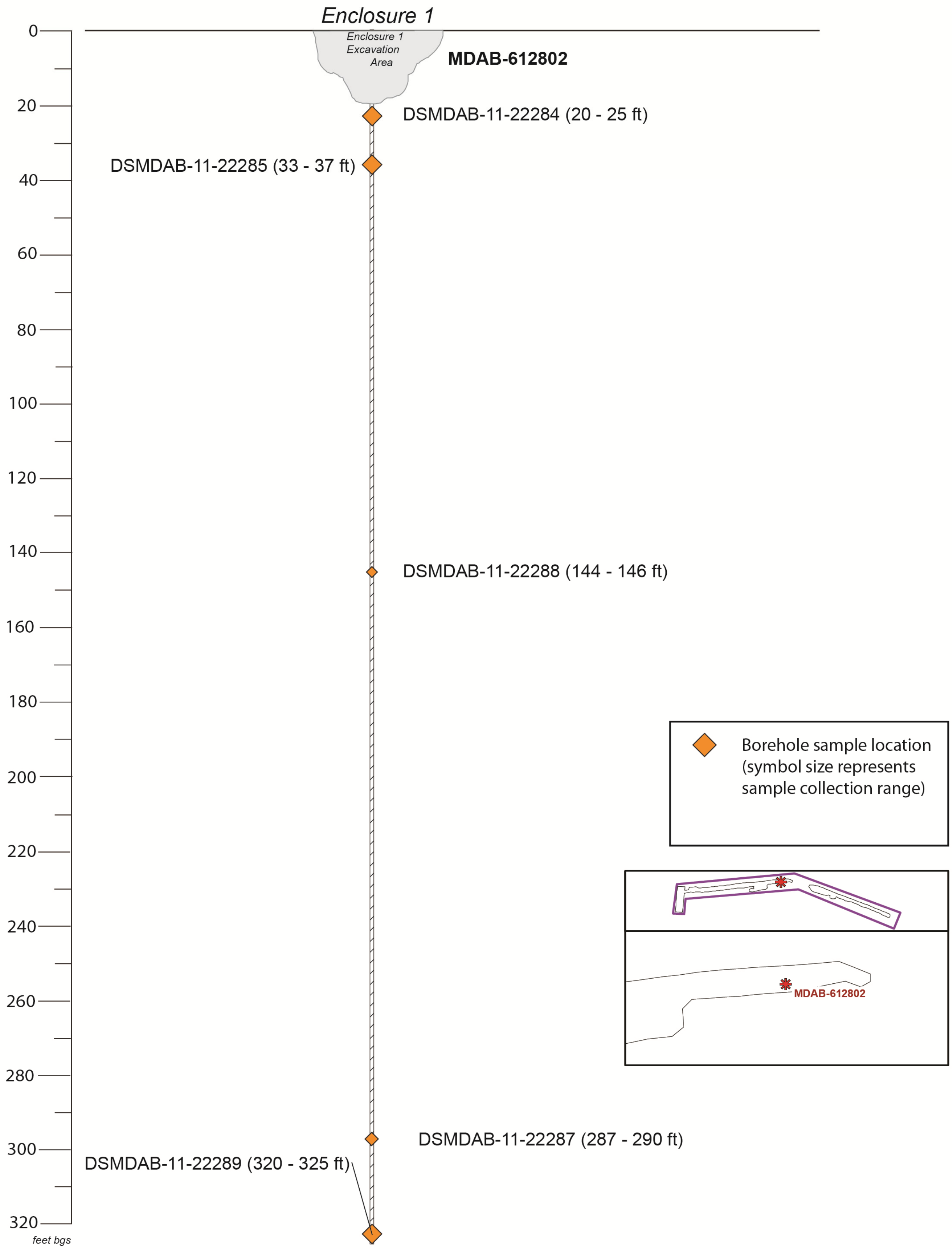

Figure 6.3-1 Schematic of MDAB-612802

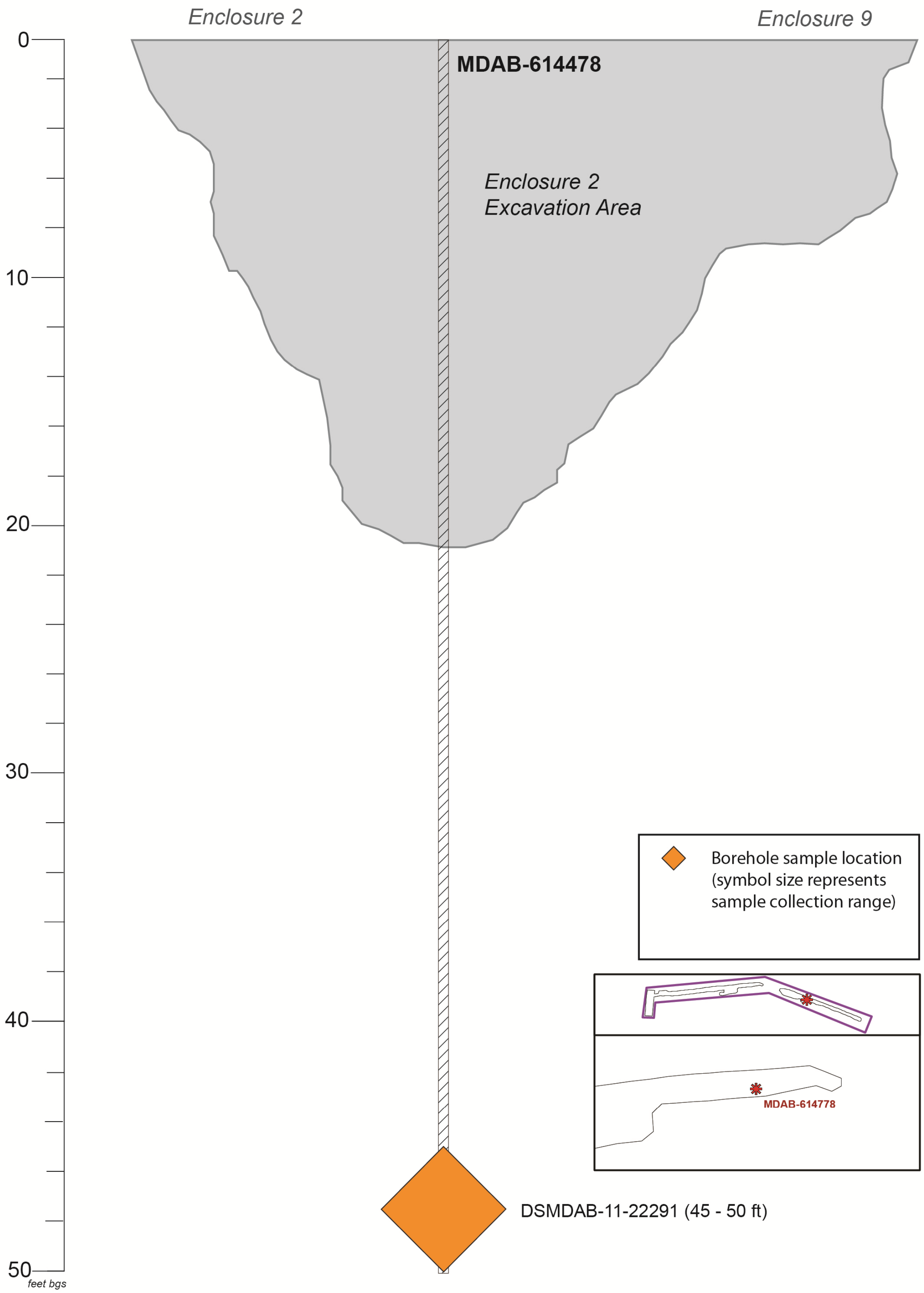

Figure 6.3-2 Schematic of MDAB-614478

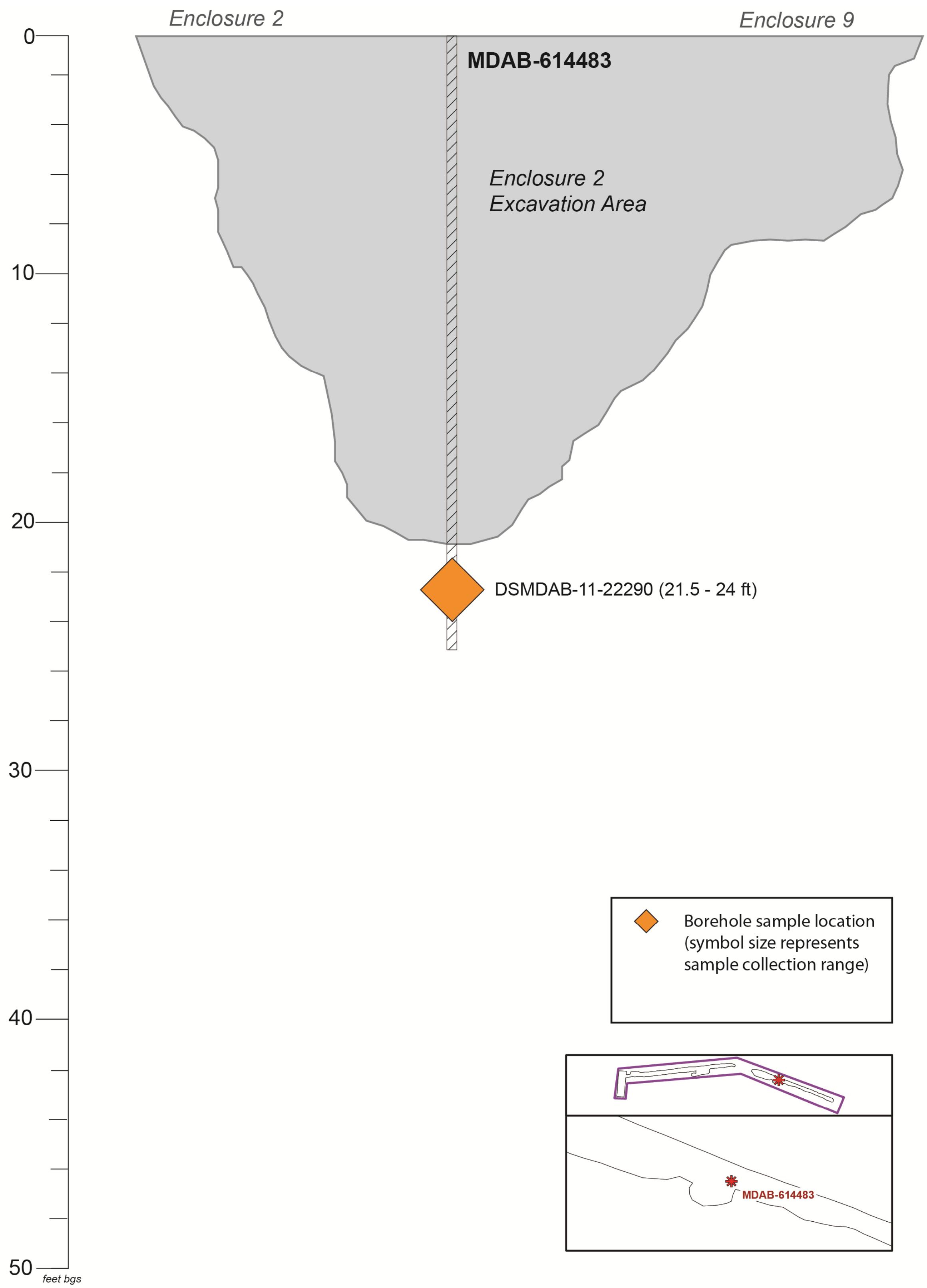

Figure 6.3-3 Schematic of MDAB-614483

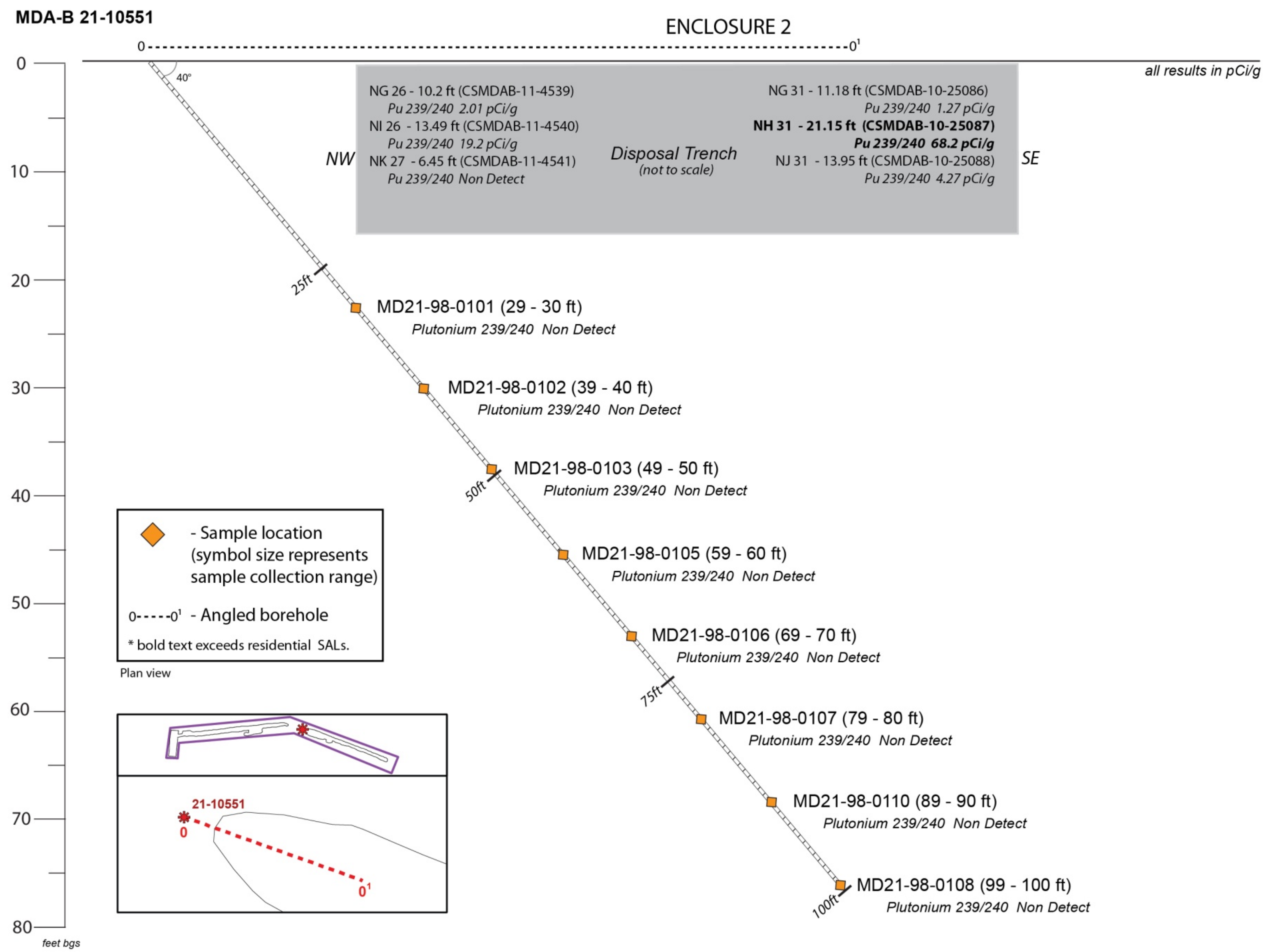

Figure 7.4-1 Borehole diagram of 21-10551

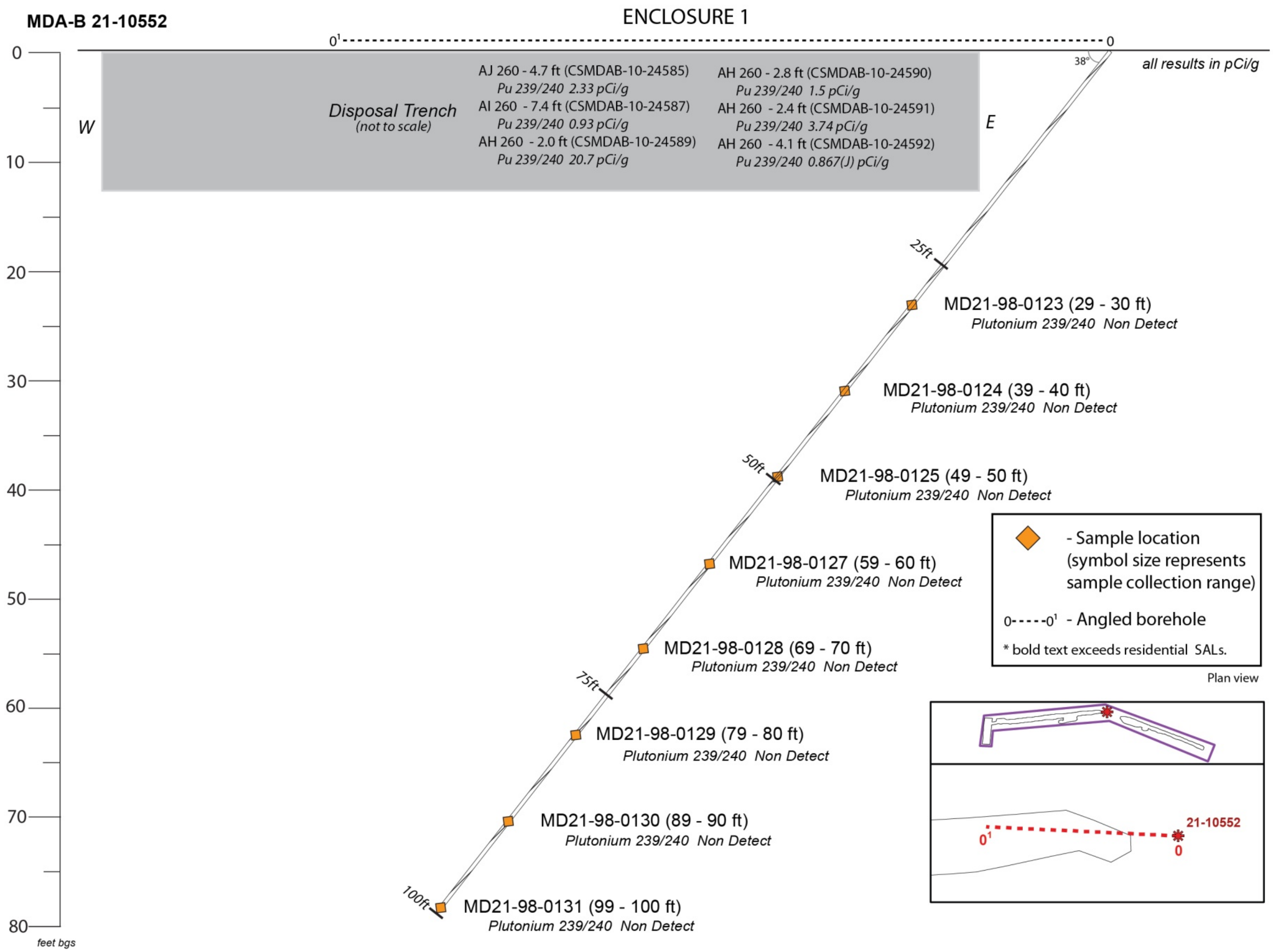

Figure 7.4-2 Borehole diagram of 21-10552

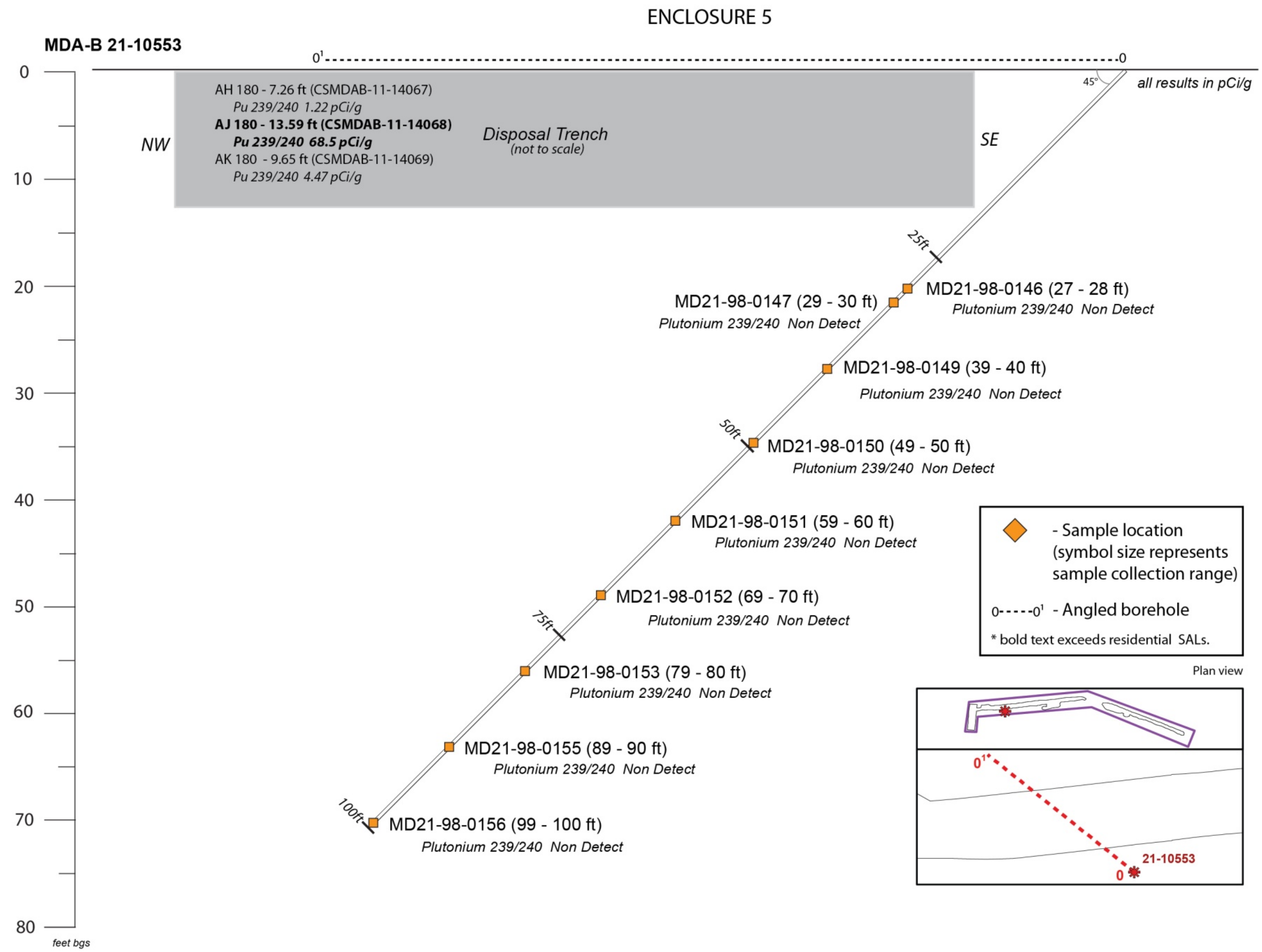

Figure 7.4-3 Borehole diagram of 21-10553

ENCLOSURE 12

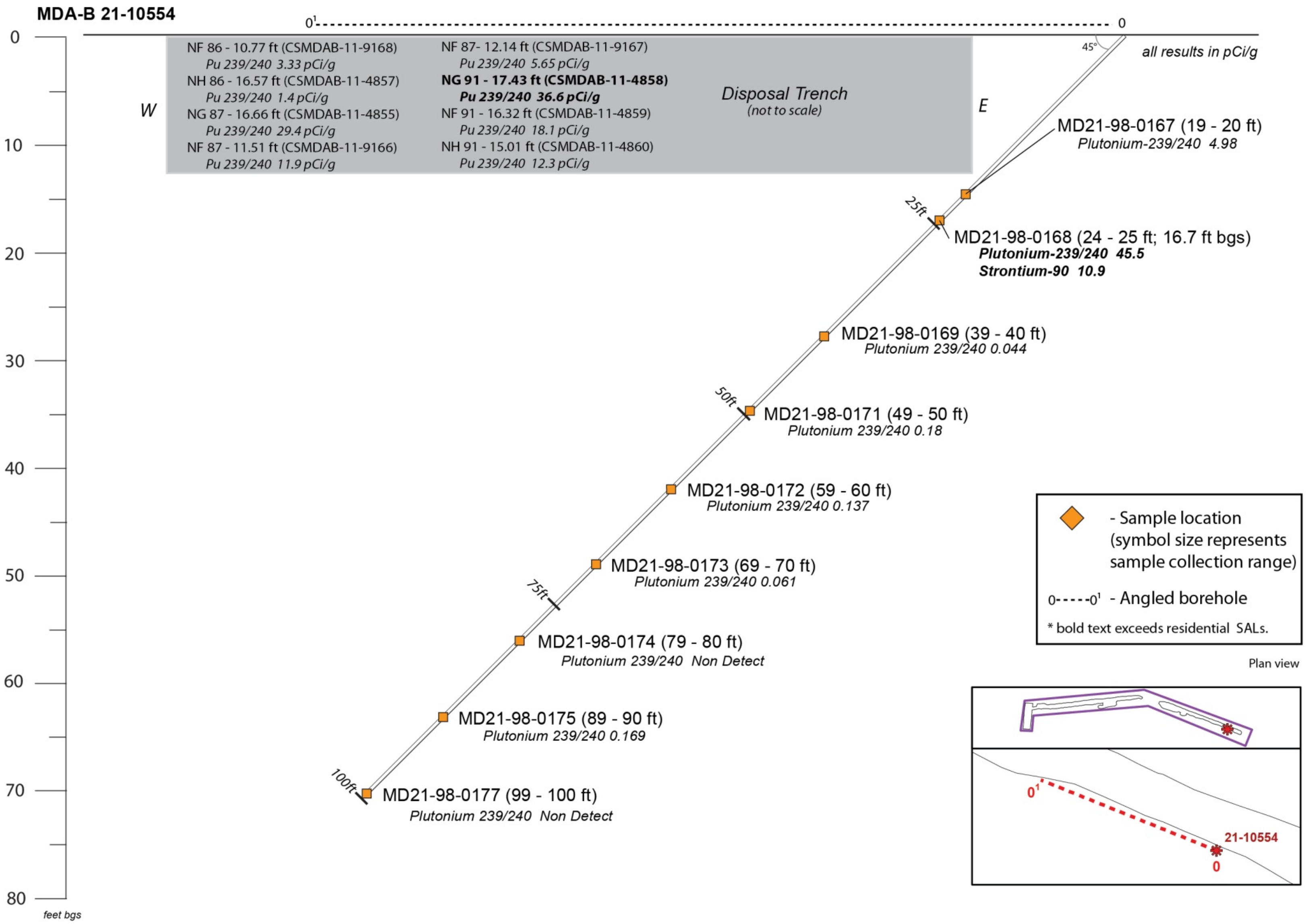

Figure 7.4-4 Borehole diagram of 21-10554

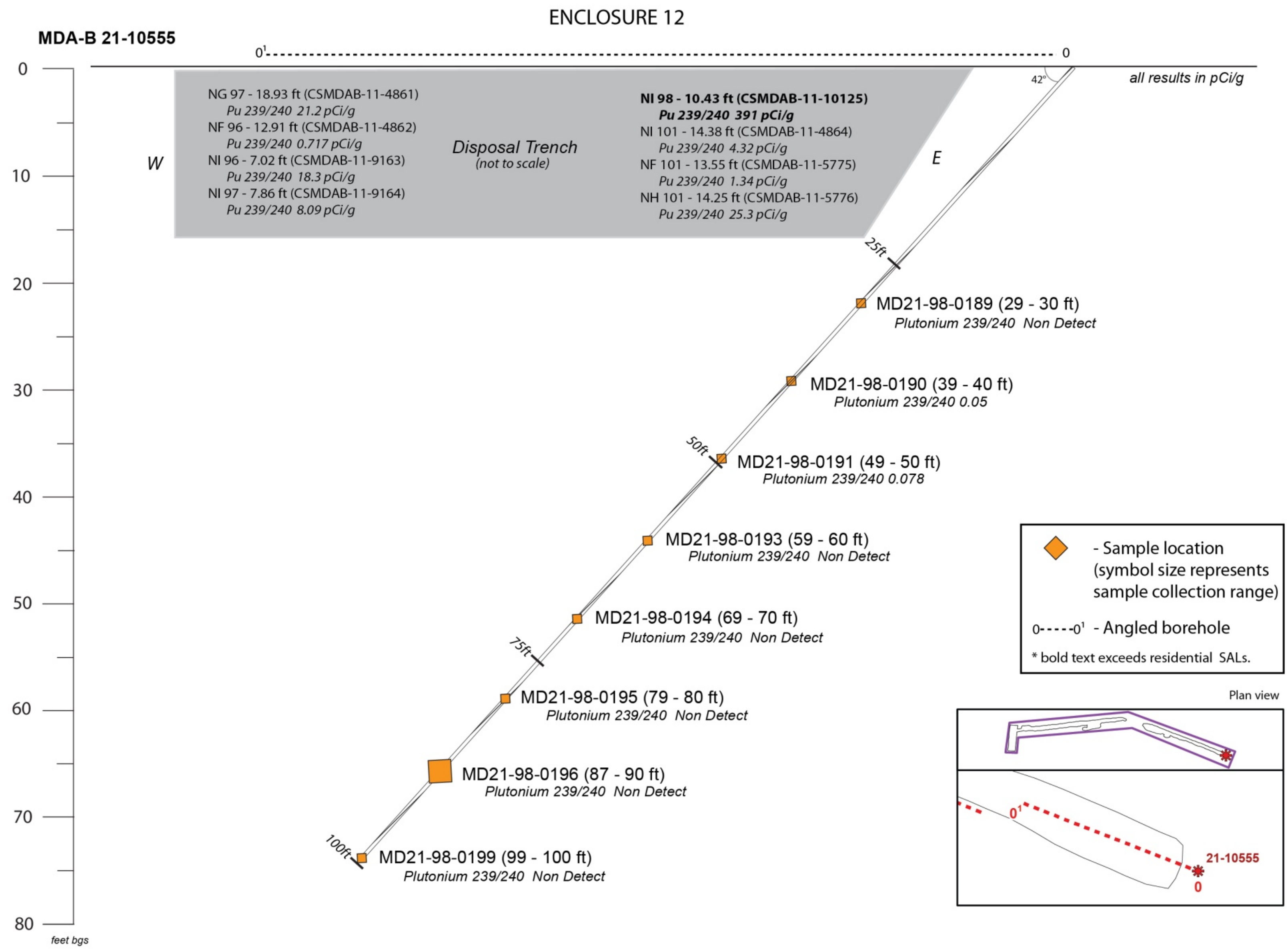

Figure 7.4-5 Borehole diagram of 21-10555

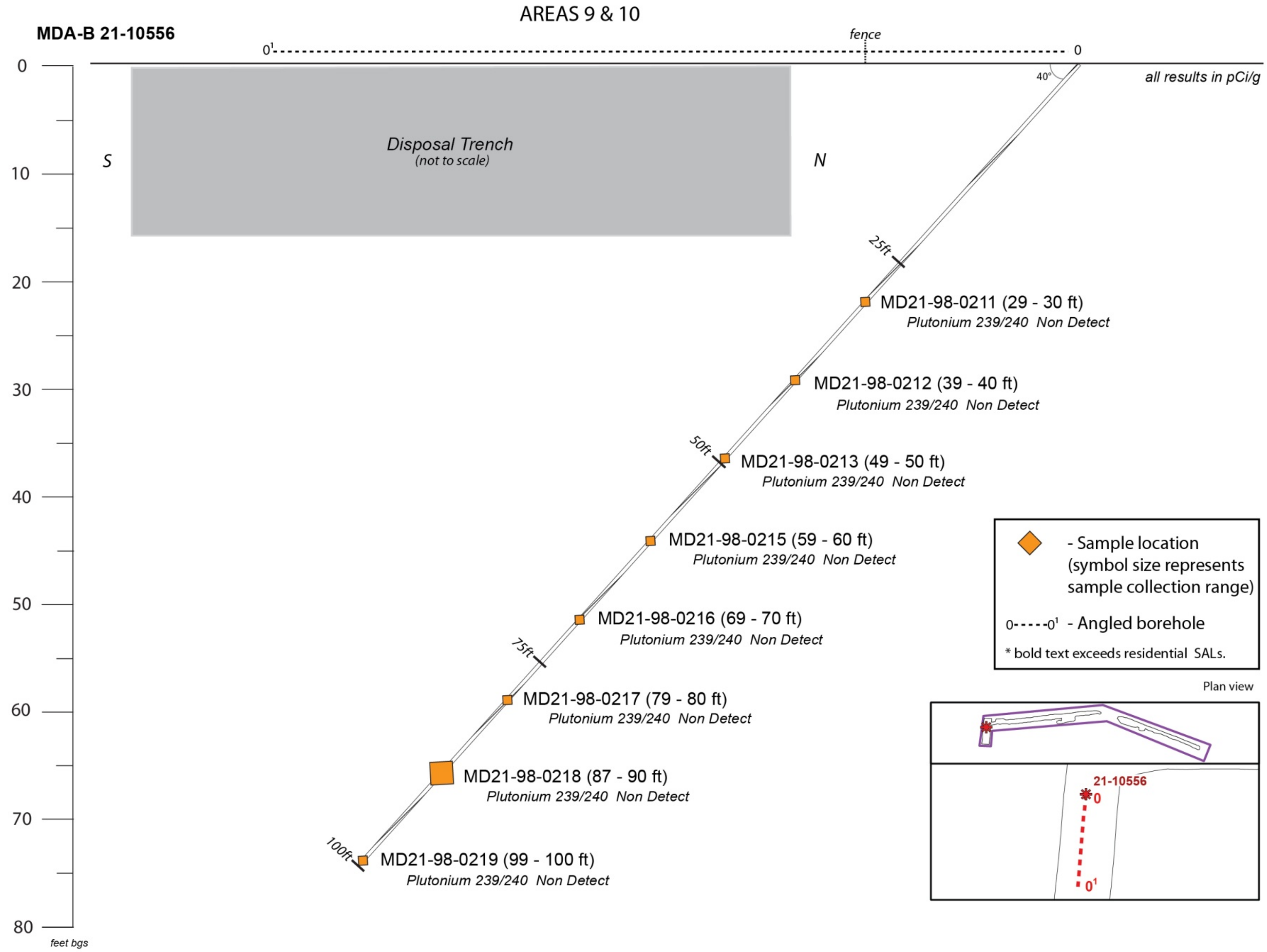

Figure 7.4-6 Borehole diagram of 21-10556

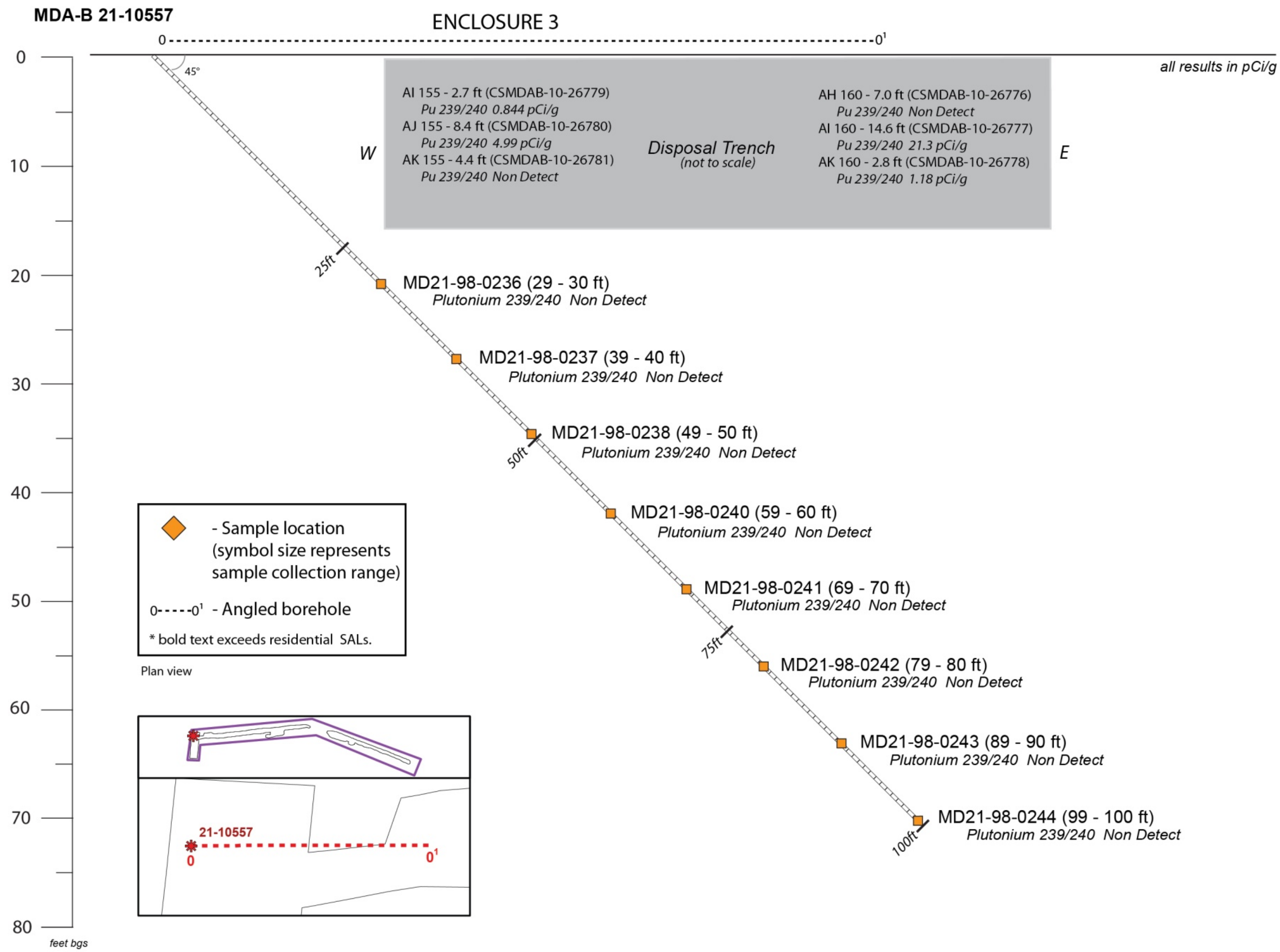

Figure 7.4-7 Borehole diagram of 21-10557

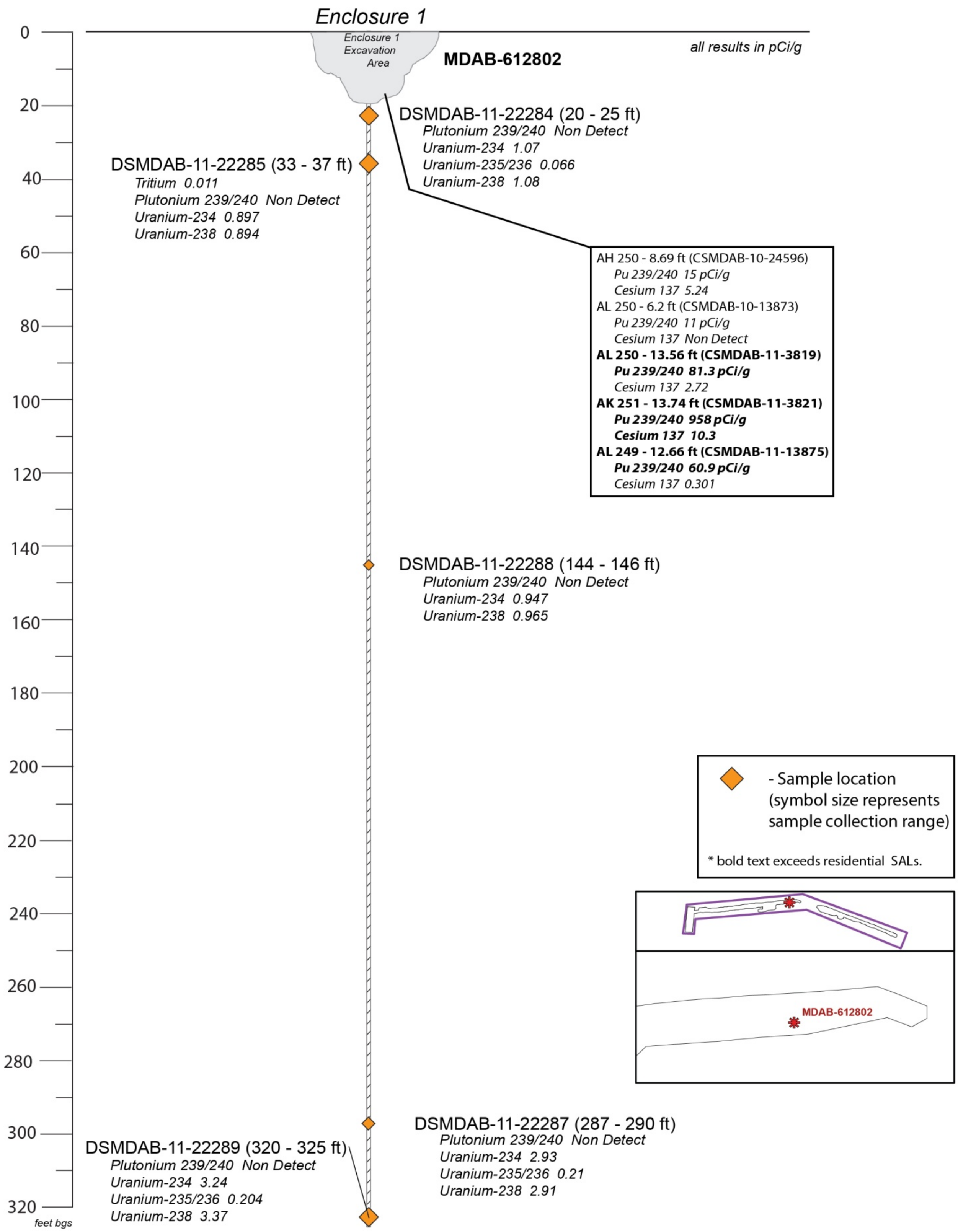

Figure 7.4-8 Borehole diagram of MDAB-612802

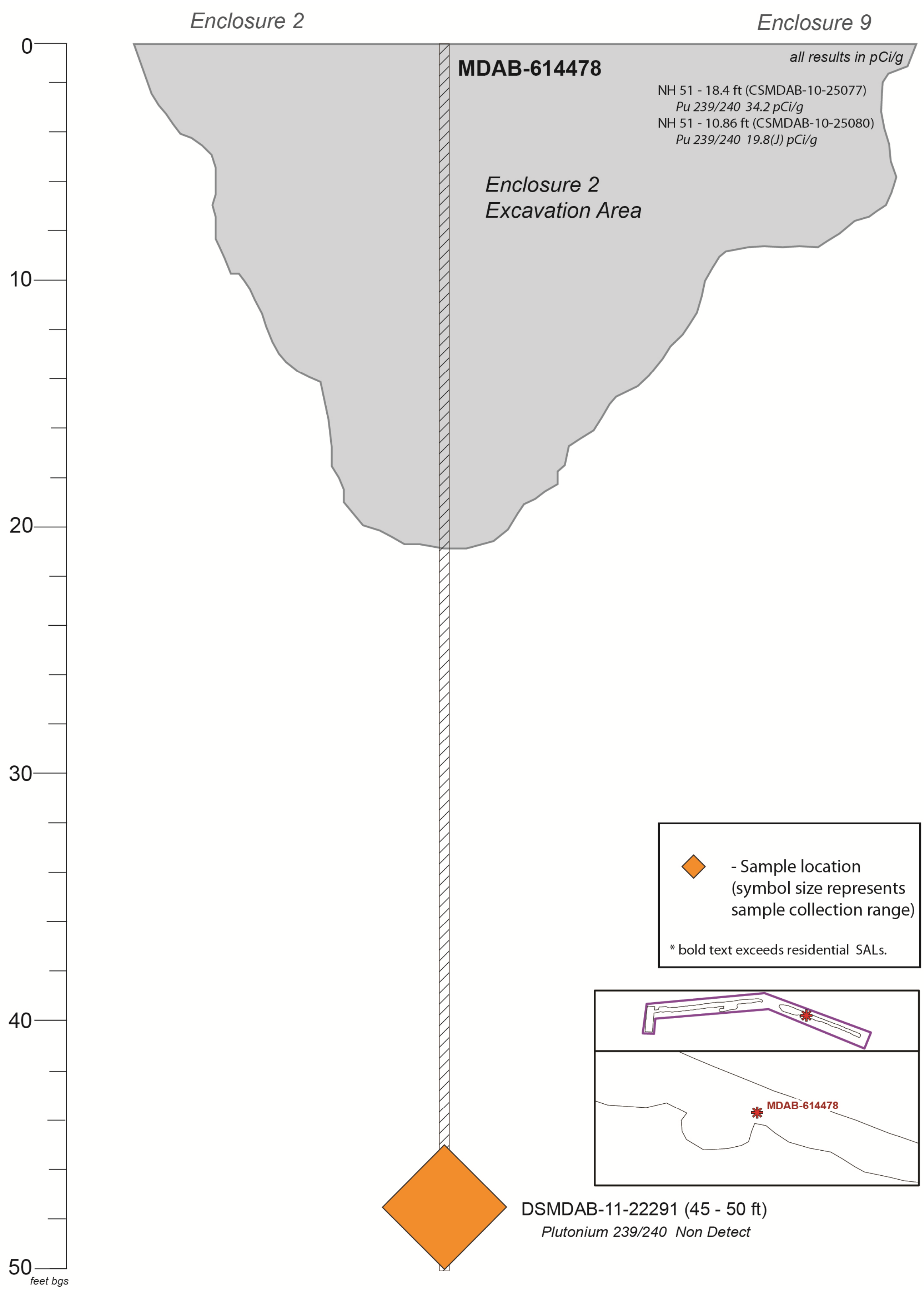

Figure 7.4-9 Borehole diagram of MDAB-614478

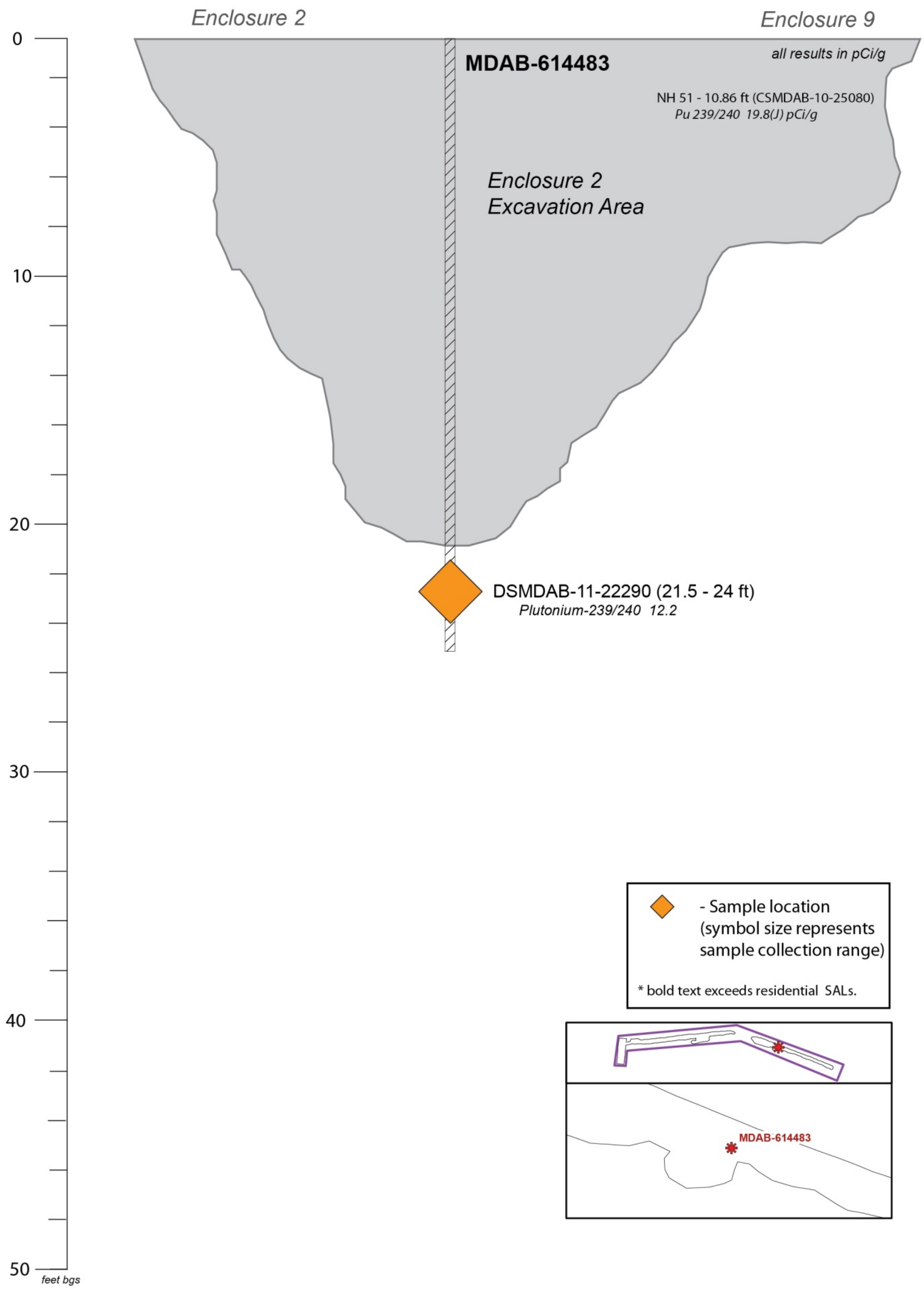

Figure 7.4-10 Borehole diagram of MDAB-614483

Table 3.3-1
Inorganic Chemical Results above BVs in Subsurface Samples Collected in 1998 at MDA B

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Cadmium	Lead	Mercury	Selenium	Silver	Thallium	Zinc
Qbt 2, 3, 4 BV[a]				**7340**	**0.5**	**2.79**	**1.63**	**11.2**	**0.1**	**0.3**	**1**	**1.1**	**63.5**
Residential SSL[b]				**78,000**	**31.3**	**3.9**	**70.3**	**400**	**15.6**[c]	**391**	**391**	**0.782**	**23,500**
MD21-98-0101	21-10551	29–30	Tuff[d]	—[e]	11 (UJ)	—	—	—	0.11 (U)	0.53 (UJ)	2.1 (UJ)	—	—
MD21-98-0102	21-10551	39–40	Tuff	—	11 (UJ)	—	—	—	0.11 (U)	0.54 (UJ)	2.2 (UJ)	—	—
MD21-98-0103	21-10551	49–50	Tuff	—	11 (UJ)	—	—	—	0.11 (U)	0.54 (UJ)	2.2 (UJ)	—	—
MD21-98-0105	21-10551	59–60	Tuff	—	11 (UJ)	—	—	—	0.11 (U)	0.56 (UJ)	2.2 (UJ)	—	—
MD21-98-0106	21-10551	69–70	Tuff	—	11 (UJ)	—	—	—	0.11 (U)	0.55 (UJ)	2.2 (UJ)	—	—
MD21-98-0107	21-10551	79–80	Tuff	—	—	—	—	—	0.11 (U)	1.1 (U)	2.2 (U)	—	—
MD21-98-0110	21-10551	89–90	Tuff	—	—	—	—	13	0.11 (U)	1.1 (U)	2.2 (U)	—	—
MD21-98-0108	21-10551	99–100	Tuff	—	—	—	—	—	0.11 (U)	1.1 (U)	2.2 (U)	—	—
MD21-98-0123	21-10552	29–30	Tuff	—	—	—	—	—	0.11 (U)	1.1 (U)	2.2 (U)	—	—
MD21-98-0124	21-10552	39–40	Tuff	—	—	—	—	—	0.11 (U)	1.1 (U)	2.2 (U)	—	—
MD21-98-0125	21-10552	49–50	Tuff	—	—	—	—	—	0.11 (U)	0.53 (U)	2.1 (U)	—	—
MD21-98-0127	21-10552	59–60	Tuff	—	—	—	—	—	0.11 (U)	0.53 (U)	2.1 (U)	—	—
MD21-98-0128	21-10552	69–70	Tuff	—	—	—	—	—	0.11 (U)	0.54 (U)	2.2 (U)	—	—
MD21-98-0129	21-10552	79–80	Tuff	—	—	—	—	—	0.11 (U)	0.54 (U)	2.2 (U)	—	—
MD21-98-0130	21-10552	89–90	Tuff	—	—	—	—	—	0.11 (U)	0.54 (U)	2.2 (U)	—	—
MD21-98-0131	21-10552	99–100	Tuff	—	—	—	—	—	0.11 (U)	0.54 (U)	2.2 (U)	—	—
MD21-98-0146	21-10553	27–30	Tuff	—	—	—	—	—	0.11 (U)	0.53 (U)	2.1 (U)	—	—
MD21-98-0147	21-10553	29–30	Tuff	—	—	—	—	—	0.11 (U)	0.53 (U)	2.1 (U)	—	—
MD21-98-0149	21-10553	39–40	Tuff	—	—	—	—	—	0.11 (U)	0.54 (U)	2.2 (U)	—	—
MD21-98-0150	21-10553	49–50	Tuff	—	—	—	—	—	0.11 (U)	0.55 (U)	2.2 (U)	—	—

Table 3.3-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Cadmium	Lead	Mercury	Selenium	Silver	Thallium	Zinc
Qbt 2, 3, 4 BV[a]				**7340**	**0.5**	**2.79**	**1.63**	**11.2**	**0.1**	**0.3**	**1**	**1.1**	**63.5**
Residential SSL[b]				**78,000**	**31.3**	**3.9**	**70.3**	**400**	**15.6**[c]	**391**	**391**	**0.782**	**23,500**
MD21-98-0151	21-10553	59–60	Tuff	—	—	—	—	—	0.13 (U)	0.63 (U)	2.5 (U)	—	—
MD21-98-0152	21-10553	69–70	Tuff	—	—	—	—	—	0.11 (U)	0.54 (U)	2.2 (U)	—	—
MD21-98-0153	21-10553	79–80	Tuff	—	—	—	—	—	0.11 (U)	0.54 (U)	2.2 (U)	—	—
MD21-98-0155	21-10553	89–90	Tuff	—	—	—	—	—	0.11 (U)	0.53 (U)	2.1 (U)	—	—
MD21-98-0156	21-10553	99–100	Tuff	—	—	—	—	—	0.11 (U)	0.54 (U)	2.2 (U)	—	—
MD21-98-0168	21-10554	23–24	Tuff	—	10 (U)	—	37	—	0.13	1 (U)	2.1 (U)	—	110
MD21-98-0169	21-10554	39–40	Tuff	—	11 (U)	—	—	—	0.11 (U)	1.1 (U)	2.1 (U)	—	—
MD21-98-0171	21-10554	49–50	Tuff	—	10 (U)	—	—	—	—	1 (U)	2.1 (U)	—	—
MD21-98-0172	21-10554	59–60	Tuff	—	10 (U)	—	—	—	—	1 (U)	2.1 (U)	—	—
MD21-98-0173	21-10554	69–70	Tuff	—	10 (U)	—	—	—	—	1 (U)	2.1 (U)	—	—
MD21-98-0174	21-10554	79–80	Tuff	—	10 (U)	—	—	—	—	1 (U)	2.1 (U)	—	—
MD21-98-0175	21-10554	89–90	Tuff	—	10 (U)	—	—	—	—	1 (U)	2.1 (U)	—	—
MD21-98-0177	21-10554	99–100	Tuff	—	10 (U)	—	—	—	—	1 (U)	2.1 (U)	—	—
MD21-98-0189	21-10555	29–30	Tuff	—	—	—	—	—	—	1 (U)	2 (U)	—	—
MD21-98-0190	21-10555	39–40	Tuff	—	—	—	—	—	—	1 (U)	2 (U)	—	—
MD21-98-0191	21-10555	49–50	Tuff	—	—	—	—	—	0.11 (U)	1.1 (U)	2.1 (U)	—	—
MD21-98-0193	21-10555	59–60	Tuff	—	10 (U)	—	—	—	—	1 (U)	2.1 (U)	—	—
MD21-98-0194	21-10555	69–70	Tuff	—	10 (U)	—	—	—	—	1 (U)	2.1 (U)	—	—
MD21-98-0195	21-10555	79–80	Tuff	—	10 (U)	—	—	—	—	1 (U)	2.1 (U)	—	—
MD21-98-0196	21-10555	88–90	Tuff	—	10 (U)	—	—	—	—	1 (U)	2.1 (U)	—	—
MD21-98-0197	21-10555	88–90	Tuff	—	10 (U)	—	—	—	—	1 (U)	2.1 (U)	—	—
MD21-98-0199	21-10555	99–100	Tuff	—	10 (U)	—	—	—	—	1 (U)	2.1 (U)	—	—

Table 3.3-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Cadmium	Lead	Mercury	Selenium	Silver	Thallium	Zinc
Qbt 2, 3, 4 BV[a]				**7340**	**0.5**	**2.79**	**1.63**	**11.2**	**0.1**	**0.3**	**1**	**1.1**	**63.5**
Residential SSL[b]				**78,000**	**31.3**	**3.9**	**70.3**	**400**	**15.6[c]**	**391**	**391**	**0.782**	**23,500**
MD21-98-0211	21-10556	29–30	Tuff	—	10 (U)	—	—	—	—	1 (U)	2.1 (U)	—	—
MD21-98-0212	21-10556	39–40	Tuff	—	10 (U)	—	—	—	—	1 (U)	2.1 (U)	—	—
MD21-98-0213	21-10556	49–50	Tuff	—	10 (U)	—	—	—	—	1 (U)	2.1 (U)	—	—
MD21-98-0215	21-10556	59–60	Tuff	—	10 (U)	—	—	—	—	1 (U)	2.1 (U)	—	—
MD21-98-0216	21-10556	69–70	Tuff	8700	11 (U)	3.7	—	—	0.11 (U)	0.55 (U)	2.2 (U)	—	—
MD21-98-0217	21-10556	79–80	Tuff	—	11 (U)	2.9	—	—	0.11 (U)	0.54 (U)	2.2 (U)	—	—
MD21-98-0218	21-10556	89–90	Tuff	—	11 (U)	—	—	—	0.11 (U)	0.54 (U)	2.2 (U)	—	—
MD21-98-0219	21-10556	99–100	Tuff	—	10 (U)	—	—	—	—	0.52 (U)	2.1 (U)	—	—
MD21-98-0236	21-10557	29–30	Tuff	—	11 (U)	3.3	—	—	0.11 (U)	1.1 (U)	2.2 (U)	2.2 (U)	—
MD21-98-0237	21-10557	39–40	Tuff	—	11 (U)	—	—	—	0.11 (U)	1.1 (U)	2.1 (U)	2.1 (U)	—
MD21-98-0238	21-10557	49–50	Tuff	—	11 (U)	—	—	22	0.11 (U)	1.1 (U)	2.2 (U)	2.2 (U)	—
MD21-98-0240	21-10557	59–60	Tuff	—	11 (U)	—	—	61	0.11 (U)	1.1 (U)	2.2 (U)	2.2 (U)	—
MD21-98-0241	21-10557	69–70	Tuff	—	11 (U)	—	—	48	0.11 (U)	1.1 (U)	2.2 (U)	2.2 (U)	—
MD21-98-0242	21-10557	79–80	Tuff	—	11 (U)	—	—	12	0.11 (U)	1.1 (U)	2.2 (U)	2.2 (U)	—
MD21-98-0243	21-10557	89–90	Tuff	—	11 (U)	—	—	—	0.11 (U)	1.1 (U)	2.2 (U)	2.2 (U)	—
MD21-98-0244	21-10557	99–100	Tuff	—	11 (U)	—	—	—	0.11 (U)	1.1 (U)	2.2 (U)	2.2 (U)	—

Notes: Units are mg/kg. Depths are angled distance from top of borehole, not vertical depth bgs. See Appendix A for data qualifier definitions.

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

[b] SSLs from NMED (2012, 219971).

[c] SSL for elemental mercury.

[d] All samples were collected from within tuff units Qbt 2 and Qbt 3, but the specific units were not differentiated in sample logs..

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

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Table 3.3-2
Summary of Pore-Gas Sampling Results Collected in 1998 at MDA B

Sample ID	Location ID	Analyte Name	Result (µg/m³)	Collection Date
MD21-98-0226	21-10556	Benzene	74	10/2/1998
MD21-98-0245	21-10557	Benzene	51	10/8/1998
MD21-98-0239	21-10557	Benzene	45	10/7/1998
MD21-98-0176	21-10554	Benzene	27	9/23/1998
MD21-98-0198	21-10555	Benzene	25	9/28/1998
MD21-98-0170	21-10554	Benzene	23	9/22/1998
MD21-98-0138	21-10552	Benzene	21	9/15/1998
MD21-98-0192	21-10555	Benzene	21	9/25/1998
MD21-98-0256	21-10557	Benzene	15	10/8/1998
MD21-98-0182	21-10554	Benzene	14	9/24/1998
MD21-98-0126	21-10552	Benzene	12	9/11/1998
MD21-98-0154	21-10553	Benzene	11	9/18/1998
MD21-98-0109	21-10551	Benzene	11	9/4/1998
MD21-98-0114	21-10551	Benzene	1.7	9/10/1998
MD21-98-0109	21-10551	Carbon Tetrachloride	88	9/4/1998
MD21-98-0256	21-10557	Carbon Tetrachloride	48	10/8/1998
MD21-98-0104	21-10551	Carbon Tetrachloride	40	9/3/1998
MD21-98-0245	21-10557	Carbon Tetrachloride	30	10/8/1998
MD21-98-0226	21-10556	Carbon Tetrachloride	19	10/2/1998
MD21-98-0239	21-10557	Carbon Tetrachloride	14	10/7/1998
MD21-98-0109	21-10551	Chloroform	274	9/4/1998
MD21-98-0104	21-10551	Chloroform	142	9/3/1998
MD21-98-0256	21-10557	Chloroform	6.4	10/8/1998
MD21-98-0226	21-10556	Chloroform	3.7	10/2/1998
MD21-98-0245	21-10557	Chloroform	3.4	10/8/1998
MD21-98-0109	21-10551	Chloromethane	16	9/4/1998
MD21-98-0256	21-10557	Dichlorodifluoromethane	4.3	10/8/1998
MD21-98-0239	21-10557	Dichlorodifluoromethane	3.4	10/7/1998
MD21-98-0138	21-10552	Dichlorodifluoromethane	3.2	9/15/1998
MD21-98-0226	21-10556	Dichlorodifluoromethane	3.1	10/2/1998
MD21-98-0114	21-10551	Dichlorodifluoromethane	2.9	9/10/1998
MD21-98-0154	21-10553	Dichlorodifluoromethane	2.9	9/18/1998
MD21-98-0239	21-10557	Ethylbenzene	13	10/7/1998
MD21-98-0245	21-10557	Ethylbenzene	10	10/8/1998
MD21-98-0198	21-10555	Ethylbenzene	7.8	9/28/1998
MD21-98-0256	21-10557	Ethylbenzene	5.6	10/8/1998

Table 3.3-2 (continued)

Sample ID	Location ID	Analyte Name	Result ($\mu g/m^3$)	Collection Date
MD21-98-0226	21-10556	Ethylbenzene	5.2	10/2/1998
MD21-98-0138	21-10552	Ethylbenzene	2.9	9/15/1998
MD21-98-0126	21-10552	Methylene Chloride	52	9/11/1998
MD21-98-0226	21-10556	Styrene	5.1	10/2/1998
MD21-98-0239	21-10557	Styrene	4.7	10/7/1998
MD21-98-0245	21-10557	Styrene	3.7	10/8/1998
MD21-98-0109	21-10551	Tetrachloroethene	68	9/4/1998
MD21-98-0104	21-10551	Tetrachloroethene	30	9/3/1998
MD21-98-0256	21-10557	Tetrachloroethene	10	10/8/1998
MD21-98-0245	21-10557	Tetrachloroethene	8.1	10/8/1998
MD21-98-0239	21-10557	Tetrachloroethene	6.1	10/7/1998
MD21-98-0239	21-10557	Toluene	136	10/7/1998
MD21-98-0256	21-10557	Toluene	98	10/8/1998
MD21-98-0245	21-10557	Toluene	87	10/8/1998
MD21-98-0226	21-10556	Toluene	72	10/2/1998
MD21-98-0109	21-10551	Toluene	60	9/4/1998
MD21-98-0126	21-10552	Toluene	57	9/11/1998
MD21-98-0198	21-10555	Toluene	49	9/28/1998
MD21-98-0176	21-10554	Toluene	41	9/23/1998
MD21-98-0170	21-10554	Toluene	37	9/22/1998
MD21-98-0104	21-10551	Toluene	36	9/3/1998
MD21-98-0192	21-10555	Toluene	33	9/25/1998
MD21-98-0138	21-10552	Toluene	29	9/15/1998
MD21-98-0182	21-10554	Toluene	23	9/24/1998
MD21-98-0214	21-10556	Toluene	18	9/30/1998
MD21-98-0132	21-10552	Toluene	15	9/14/1998
MD21-98-0154	21-10553	Toluene	15	9/18/1998
MD21-98-0114	21-10551	Toluene	7.9	9/10/1998
MD21-98-0160	21-10553	Toluene	6.8	9/18/1998
MD21-98-0204	21-10555	Toluene	4.9	9/28/1998
MD21-98-0148	21-10553	Toluene	4.1	9/17/1998
MD21-98-0220	21-10556	Toluene	3.3	10/1/1998
MD21-98-0132	21-10552	Trichloro-1,2,2-trifluoroethane[1,1,2-]	70	9/14/1998
MD21-98-0126	21-10552	Trichloro-1,2,2-trifluoroethane[1,1,2-]	69	9/11/1998
MD21-98-0170	21-10554	Trichloro-1,2,2-trifluoroethane[1,1,2-]	34	9/22/1998
MD21-98-0214	21-10556	Trichloro-1,2,2-trifluoroethane[1,1,2-]	22	9/30/1998
MD21-98-0192	21-10555	Trichloro-1,2,2-trifluoroethane[1,1,2-]	19	9/25/1998

Table 3.3-2 (continued)

Sample ID	Location ID	Analyte Name	Result (µg/m³)	Collection Date
MD21-98-0204	21-10555	Trichloro-1,2,2-trifluoroethane[1,1,2-]	18	9/28/1998
MD21-98-0198	21-10555	Trichloro-1,2,2-trifluoroethane[1,1,2-]	16	9/28/1998
MD21-98-0176	21-10554	Trichloro-1,2,2-trifluoroethane[1,1,2-]	16	9/23/1998
MD21-98-0138	21-10552	Trichloro-1,2,2-trifluoroethane[1,1,2-]	11	9/15/1998
MD21-98-0160	21-10553	Trichloro-1,2,2-trifluoroethane[1,1,2-]	11	9/18/1998
MD21-98-0154	21-10553	Trichloro-1,2,2-trifluoroethane[1,1,2-]	9.2	9/18/1998
MD21-98-0148	21-10553	Trichloro-1,2,2-trifluoroethane[1,1,2-]	6.0	9/17/1998
MD21-98-0126	21-10552	Trichloroethane[1,1,1-]	1037	9/11/1998
MD21-98-0170	21-10554	Trichloroethane[1,1,1-]	546	9/22/1998
MD21-98-0214	21-10556	Trichloroethane[1,1,1-]	251	9/30/1998
MD21-98-0176	21-10554	Trichloroethane[1,1,1-]	246	9/23/1998
MD21-98-0204	21-10555	Trichloroethane[1,1,1-]	213	9/28/1998
MD21-98-0192	21-10555	Trichloroethane[1,1,1-]	207	9/25/1998
MD21-98-0198	21-10555	Trichloroethane[1,1,1-]	180	9/28/1998
MD21-98-0138	21-10552	Trichloroethane[1,1,1-]	164	9/15/1998
MD21-98-0182	21-10554	Trichloroethane[1,1,1-]	158	9/24/1998
MD21-98-0104	21-10551	Trichloroethane[1,1,1-]	153	9/3/1998
MD21-98-0160	21-10553	Trichloroethane[1,1,1-]	147	9/18/1998
MD21-98-0154	21-10553	Trichloroethane[1,1,1-]	136	9/18/1998
MD21-98-0148	21-10553	Trichloroethane[1,1,1-]	87	9/17/1998
MD21-98-0256	21-10557	Trichloroethane[1,1,1-]	76	10/8/1998
MD21-98-0109	21-10551	Trichloroethane[1,1,1-]	71	9/4/1998
MD21-98-0245	21-10557	Trichloroethane[1,1,1-]	55	10/8/1998
MD21-98-0239	21-10557	Trichloroethane[1,1,1-]	37	10/7/1998
MD21-98-0226	21-10556	Trichloroethane[1,1,1-]	29	10/2/1998
MD21-98-0220	21-10556	Trichloroethane[1,1,1-]	20	10/1/1998
MD21-98-0114	21-10551	Trichloroethane[1,1,1-]	16	9/10/1998
MD21-98-0109	21-10551	Trichloroethene	645	9/4/1998
MD21-98-0256	21-10557	Trichloroethene	495	10/8/1998
MD21-98-0104	21-10551	Trichloroethene	301	9/3/1998
MD21-98-0245	21-10557	Trichloroethene	285	10/8/1998
MD21-98-0226	21-10556	Trichloroethene	177	10/2/1998
MD21-98-0239	21-10557	Trichloroethene	129	10/7/1998
MD21-98-0132	21-10552	Trichloroethene	10	9/14/1998
MD21-98-0220	21-10556	Trichloroethene	5.1	10/1/1998
MD21-98-0114	21-10551	Trichloroethene	3.8	9/10/1998
MD21-98-0256	21-10557	Trichlorofluoromethane	4.7	10/8/1998

Table 3.3-2 (continued)

Sample ID	Location ID	Analyte Name	Result (µg/m³)	Collection Date
MD21-98-0245	21-10557	Trichlorofluoromethane	4.3	10/8/1998
MD21-98-0214	21-10556	Trimethylbenzene[1,2,4-]	27	9/30/1998
MD21-98-0239	21-10557	Trimethylbenzene[1,2,4-]	20	10/7/1998
MD21-98-0245	21-10557	Trimethylbenzene[1,2,4-]	19	10/8/1998
MD21-98-0256	21-10557	Trimethylbenzene[1,2,4-]	12	10/8/1998
MD21-98-0198	21-10555	Trimethylbenzene[1,2,4-]	7.9	9/28/1998
MD21-98-0226	21-10556	Trimethylbenzene[1,2,4-]	3.9	10/2/1998
MD21-98-0245	21-10557	Trimethylbenzene[1,3,5-]	4.9	10/8/1998
MD21-98-0239	21-10557	Trimethylbenzene[1,3,5-]	4.6	10/7/1998
MD21-98-0109	21-10551	Xylene (Total)	23	9/4/1998
MD21-98-0104	21-10551	Xylene (Total)	21	9/3/1998
MD21-98-0138	21-10552	Xylene (Total)	12	9/15/1998
MD21-98-0239	21-10557	Xylene[1,2-]	13	10/7/1998
MD21-98-0214	21-10556	Xylene[1,2-]	12	9/30/1998
MD21-98-0245	21-10557	Xylene[1,2-]	12	10/8/1998
MD21-98-0198	21-10555	Xylene[1,2-]	10	9/28/1998
MD21-98-0256	21-10557	Xylene[1,2-]	7.4	10/8/1998
MD21-98-0226	21-10556	Xylene[1,2-]	4.8	10/2/1998
MD21-98-0138	21-10552	Xylene[1,2-]	3.6	9/15/1998
MD21-98-0239	21-10557	Xylene[1,3-]+Xylene[1,4-]	29	10/7/1998
MD21-98-0198	21-10555	Xylene[1,3-]+Xylene[1,4-]	28	9/28/1998
MD21-98-0245	21-10557	Xylene[1,3-]+Xylene[1,4-]	26	10/8/1998
MD21-98-0214	21-10556	Xylene[1,3-]+Xylene[1,4-]	25	9/30/1998
MD21-98-0192	21-10555	Xylene[1,3-]+Xylene[1,4-]	16	9/25/1998
MD21-98-0170	21-10554	Xylene[1,3-]+Xylene[1,4-]	14	9/22/1998
MD21-98-0256	21-10557	Xylene[1,3-]+Xylene[1,4-]	14	10/8/1998
MD21-98-0126	21-10552	Xylene[1,3-]+Xylene[1,4-]	14	9/11/1998
MD21-98-0176	21-10554	Xylene[1,3-]+Xylene[1,4-]	13	9/23/1998
MD21-98-0182	21-10554	Xylene[1,3-]+Xylene[1,4-]	10	9/24/1998
MD21-98-0226	21-10556	Xylene[1,3-]+Xylene[1,4-]	10	10/2/1998
MD21-98-0154	21-10553	Xylene[1,3-]+Xylene[1,4-]	4.8	9/18/1998

Table 3.3-3
Radionuclides Detected above BVs in Subsurface Samples Collected in 1998 at MDA B

Sample ID	Location ID	Depth (ft)	Medium	Americium-241	Plutonium-239	Strontium-90	Tritium	Uranium-234	Uranium-235	Uranium-238
Qbt 2, 3, 4 BV[a]				**na[b]**	**na**	**na**	**na**	**1.98**	**0.09**	**1.93**
Residential SAL[c]				**30**	**33**	**5.7**	**750**	**170**	**17**	**87**
MD21-98-0101	21-10551	29–30	Tuff	—[d]	—	—	0.1	—	—	—
MD21-98-0102	21-10551	39–40	Tuff	—	—	—	0.3	—	—	—
MD21-98-0103	21-10551	49–50	Tuff	—	—	—	11.9	—	—	—
MD21-98-0105	21-10551	59–60	Tuff	—	—	—	269	—	—	—
MD21-98-0106	21-10551	69–70	Tuff	—	—	—	178	—	—	—
MD21-98-0107	21-10551	79–80	Tuff	0.0227	—	—	55	—	—	—
MD21-98-0110	21-10551	89–90	Tuff	—	—	—	3.06	—	—	—
MD21-98-0108	21-10551	99–100	Tuff	—	—	—	0.75	—	—	—
MD21-98-0130	21-10552	89–90	Tuff	—	—	—	0.07	—	—	—
MD21-98-0131	21-10552	99–100	Tuff	—	—	—	0.1	—	—	—
MD21-98-0151	21-10553	59–60	Tuff	—	—	—	0.05	—	—	—
MD21-98-0153	21-10553	79–80	Tuff	—	—	—	0.08	—	—	—
MD21-98-0155	21-10553	89–90	Tuff	—	—	—	0.09	—	—	—
MD21-98-0156	21-10553	99–100	Tuff	—	—	—	0.11	—	—	—
MD21-98-0168	21-10554	23–24	Tuff	13.09	43.5	10.9	—	—	—	—
MD21-98-0169	21-10554	39–40	Tuff	—	0.044	—	0.08	—	—	—
MD21-98-0171	21-10554	49–50	Tuff	—	0.18	—	0.05	—	—	—
MD21-98-0172	21-10554	59–60	Tuff	—	0.137	—	0.05	—	—	—

Table 3.3-3 (continued)

Sample ID	Location ID	Depth (ft)	Medium	Americium-241	Plutonium-239	Strontium-90	Tritium	Uranium-234	Uranium-235	Uranium-238
Qbt 2, 3, 4 BV[a]				**na**[b]	**na**	**na**	**na**	**1.98**	**0.09**	**1.93**
Residential SAL[c]				**30**	**33**	**5.7**	**750**	**170**	**17**	**87**
MD21-98-0173	21-10554	69–70	Tuff	—	0.061	—	0.06	—	—	—
MD21-98-0174	21-10554	79–80	Tuff	—	—	—	0.05	—	—	—
MD21-98-0175	21-10554	89–90	Tuff	—	0.169	—	0.26	—	—	—
MD21-98-0177	21-10554	99–100	Tuff	—	—	—	0.1	—	—	—
MD21-98-0190	21-10555	39–40	Tuff	—	0.05	—	—	—	—	—
MD21-98-0191	21-10555	49–50	Tuff	—	0.078	—	—	—	—	—
MD21-98-0240	21-10557	59–60	Tuff	—	—	—	—	4.04	0.175	3.92

Notes: Units are pCi/g. Depths are angled distance from top of borehole, not vertical depth bgs.

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

[b] na = Not available.

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

[d] — = Not detected or not detected above background unless otherwise indicated.

Table 3.4-1
Inorganic and Organic Chemical Concentrations above Residential SSLs in DPT Samples

Constituent	Residential SSL[a]	Number of Samples above Residential SSL	Maximum Detected Concentration	Sampling Location of Maximum Detect	Depth (ft)
Antimony	31.3	2	99.8	AJ183	5–9
Arsenic	3.9	4	8.7	AI217	5–8
Lead	400	1	744	AI157	5–9
Mercury	15.6[b]	2	23.7	AI176	5–9
Thallium	0.782	1	0.85	NG77	0–5
Aroclor-1248	2.22	1	5.3	AI176	5–9
Aroclor-1260	2.22	1	2.7	AI200	0–5
Benzo(a)anthracene	1.48	1	1.8	AI251	0–5
Benzo(a)pyrene	0.148	2	1.9	AI251	0–5
Benzo(b)fluoranthene	1.48	1	2.3	AI251	0–5
Dibenz(a,h)anthracene	0.148	1	0.35	AI251	0–5

Note: Units are mg/kg.
[a] SSLs from NMED (2012, 219971).
[b] SSL for elemental mercury.

Table 3.4-2
Radionuclide Activities above Residential SALs in DPT Samples

Constituent	Residential SAL*	Number of Samples above Residential SAL	Maximum Detected Activity	Sampling Location of Maximum Detect	Depth (ft)
Americium-241	30	12	19,021	AI209	10–10.2
Cesium-137	5.6	1	1869.3	AI164	5–10
Plutonium-238	37	2	234.666	AI209	10–10.2
Plutonium-239/240	33	54	53,752.3	AI209	10–10.2
Strontium-90	5.7	3	2980.3	AI164	10–12
Thorium-228	2.3	1	7.0878	AI183	0–5
Thorium-230	5	2	14.953	AI183	0–5
Uranium-238	87	1	92.2	AI186	0–6

Note: Units are pCi/g.
* SALs from LANL (2009, 107655).

Table 4.2-1
Overburden Samples Collected during Excavation Activities

Sample ID	Screening Results	Sample ID	Screening Results	Sample ID	Screening Results
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 4.2-1 (continued)

Sample ID	Screening Results	Sample ID	Screening Results	Sample ID	Screening Results
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
MD21-10-16177	Below SSLs and SALs	MD21-10-16204	Below SSLs and SALs	MD21-10-16260	Below SSLs and SALs

Table 4.2-1 (continued)

Sample ID	Screening Results	Sample ID	Screening Results	Sample ID	Screening Results
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
MDABEWS1-10-21240	Below SSLs and SALs	MDABEWS1-10-21263	Below SSLs and SALs	MDABEWS1-10-21285	Below SSLs and SALs
MDABEWS1-10-21241	Below SSLs and SALs	MDABEWS1-10-21264	Below SSLs and SALs	MDABEWS1-10-21287	Below SSLs and SALs

Table 4.2-1 (continued)

Sample ID	Screening Results	Sample ID	Screening Results	Sample ID	Screening Results
MDABEWS1-10-21242	Below SSLs and SALs	MDABEWS1-10-21265	Below SSLs and SALs	MDABEWS1-10-21288	Below SSLs and SALs
MDABEWS1-10-21244	Below SSLs and SALs	MDABEWS1-10-21266	Below SSLs and SALs	MDABEWS1-10-21289	Below SSLs and SALs
MDABEWS1-10-21245	Below SSLs and SALs	MDABEWS1-10-21267	Below SSLs and SALs	MDABEWS1-10-21290	Below SSLs and SALs
MDABEWS1-10-21246	Below SSLs and SALs	MDABEWS1-10-21268	Below SSLs and SALs	MDABEWS1-10-21291	Below SSLs and SALs
MDABEWS1-10-21247	Below SSLs and SALs	MDABEWS1-10-21269	Below SSLs and SALs	MDABEWS1-10-21293	Below SSLs and SALs
MDABEWS1-10-21249	Below SSLs and SALs	MDABEWS1-10-21270	Below SSLs and SALs	MDABEWS1-10-21296	Below SSLs and SALs
MDABEWS1-10-21250	Below SSLs and SALs	MDABEWS1-10-21271	Below SSLs and SALs	MDABEWS1-10-21297	Below SSLs and SALs
MDABEWS1-10-21251	Below SSLs and SALs	MDABEWS1-10-21272	Below SSLs and SALs	MDABEWS1-10-21298	Below SSLs and SALs
MDABEWS1-10-21252	Below SSLs and SALs	MDABEWS1-10-21273	Below SSLs and SALs	MDABEWS1-10-21299	Below SSLs and SALs
MDABEWS1-10-21253	Below SSLs and SALs	MDABEWS1-10-21274	Below SSLs and SALs	MDABEWS1-10-21300	Below SSLs and SALs
MDABEWS1-10-21254	Below SSLs and SALs	MDABEWS1-10-21275	Below SSLs and SALs	MDABEWS1-10-21301	Below SSLs and SALs
MDABEWS1-10-21255	Below SSLs and SALs	MDABEWS1-10-21276	Below SSLs and SALs	MDABEWS1-10-21302	Below SSLs and SALs
MDABEWS1-10-21256	Below SSLs and SALs	MDABEWS1-10-21277	Below SSLs and SALs	MDABEWS1-10-21303	Below SSLs and SALs
MDABEWS1-10-21257	Below SSLs and SALs	MDABEWS1-10-21278	Below SSLs and SALs	MDABEWS1-10-21307	Below SSLs and SALs
MDABEWS1-10-21258	Below SSLs and SALs	MDABEWS1-10-21279	Below SSLs and SALs	MDABEWS1-10-21308	Below SSLs and SALs
MDABEWS1-10-21260	Below SSLs and SALs	MDABEWS1-10-21280	Below SSLs and SALs	MDABEWS1-10-21309	Below SSLs and SALs
MDABEWS1-10-21261	Below SSLs and SALs	MDABEWS1-10-21281	Below SSLs and SALs		
MDABEWS1-10-21262	Below SSLs and SALs	MDABEWS1-10-21284	Below SSLs and SALs		

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

Table 4.3-1
Inorganic Chemicals Detected in Contaminated Soil and Debris Waste Samples

Total Inorganic Chemical Results										
Analyte	Number of Analyses	Detects	Detection Rate	Mean (mg/kg)	Standard Deviation (mg/kg)	Minimum (mg/kg)	Median (mg/kg)	Maximum (mg/kg)	Residential SSL[a] (mg/kg)	Maximum Concentration Above Residential SSL
Aluminum	78	78	100%	4217	1390	914	4075	12700	78000	No[b]
Antimony	78	37	47%	1.9	2.2	0.314	1.08	9.81	31.3	No
Arsenic	78	77	99%	1.40	0.70	0.659	1.29	6.3	3.9	Yes[c]
Barium	78	78	100%	69.0	23.0	11.8	65.8	159	15600	No
Beryllium	78	78	100%	0.52	0.29	0.0265	0.448	1.9	156	No
Cadmium	78	65	83%	22.3	102.2	0.107	0.332	690	70.3	Yes
Calcium	78	77	99%	3919	1624	431	3710	9260	na[d]	n/a[e]
Chromium	78	71	91%	6.4	1.9	2.26	5.93	11.7	117000[f]	No
Cobalt	78	77	99%	3.3	5.0	1.08	2.75	46.1	23[g]	Yes
Copper	78	73	94%	31.7	114.2	3.15	13.2	984	3130	No
Iron	78	78	100%	9945	2126	882	9890	15400	54800	No
Lead	78	70	90%	28.0	69.4	5.52	15	578	400	Yes
Magnesium	78	78	100%	1369	466.3	120	1360	2620	na	n/a
Manganese	78	78	100%	262.6	55.4	17	266.5	515	1860[f]	No
Mercury	78	78	100%	3.8	16.1	0.0625	0.5035	123	23.5	Yes
Nickel	78	74	95%	6.3	4.4	0.546	5.54	35.6	1560	No
Potassium	78	75	96%	641	157.6	146	616	1260	na	n/a
Selenium	78	3	4%	0.59	0.22	0.339	0.702	0.731	391	No
Silver	78	30	38%	0.7	1.4	0.125	0.312	7.43	391	No
Sodium	78	69	88%	193.0	83.5	43.5	185	574	na	n/a
Thallium	78	63	81%	0.12	0.03	0.0594	0.113	0.196	0.782	No
Uranium	78	75	96%	104.6	588.9	0.115	2.81	4630	235	Yes
Vanadium	78	78	100%	14.6	5.5	1.1	15.15	28.6	391	No
Zinc	78	76	97%	126.0	228.6	3.17	63.35	1620	23500	No

Table 4.3-1 (continued)

TCLP Inorganic Results										
Analyte	Number of Analyses	Detects	Detection Rate	Mean (µg/L)	Standard Deviation (µg/L)	Minimum (µg/L)	Median (µg/L)	Maximum (µg/L)	TCLP Regulatory Level[h] (µg/L)	Maximum Concentration Above TCLP Regulatory Level
Cadmium TCLP	6	6	100%	5192	11321	318	609.5	28300	1000	Yes
Lead TCLP	5	5	100%	869.7	1423	12.1	158	3350	5000	No
Mercury TCLP	8	5	63%	22.9	30.8	2.57	5.36	74.9	200	No

[a] SSLs from NMED (2012, 219971), unless otherwise indicated.

[b] No = Does not exceed SSL or TCLP regulatory level.

[c] Yes = Exceeds SSL or TCLP regulatory level.

[d] na = Not available.

[e] n/a = Not applicable.

[f] SSL for trivalent chromium.

[g] Source: http://www.epa.gov/region06/6pd/rcra_c/pd-n/screen.htm.

[h] Source: 40 CFR 261.24.

Table 4.3-2
Organic Chemicals Detected in Contaminated Soil and Debris Waste Samples

Analyte		Number of Analyses	Detects	Detection Rate	Mean (mg/kg)	Standard Deviation (mg/kg)	Minimum (mg/kg)	Median (mg/kg)	Maximum (mg/kg)	Residential SSL[a] (mg/kg)	Maximum Concentration above Residential SSL
Volatile Organic Compounds	Acetone	78	4	5%	0.441	0.807	0.0027	0.0565	1.65	66600	No[b]
	Bromobenzene	78	1	1%	0.004	n/a[c]	0.0039	0.0039	0.0039	300[d]	No
	Bromoform	78	2	3%	0.001	0.000	0.0005	0.0006	0.0007	616	No
	Butanone[2-]	78	3	4%	0.013	0.015	0.0037	0.0046	0.0305	37100	No
	Butylbenzene[n-]	78	1	1%	0.000	n/a	0.0004	0.0004	0.0004	3900[d]	No
	Butylbenzene[sec-]	78	1	1%	0.000	n/a	0.0004	0.0004	0.0004	3900[d]	No
	Dichlorobenzene[1,2-]	78	1	1%	0.052	n/a	0.0520	0.0520	0.0520	2310	No
	Ethylbenzene	78	1	1%	0.003	n/a	0.0028	0.0028	0.0028	68.4	No
	Hexanone[2-]	78	1	1%	0.012	n/a	0.0119	0.0119	0.0119	na[e]	n/a
	Isopropylbenzene	78	1	1%	0.000	n/a	0.0005	0.0005	0.0005	2430	No
	Isopropyltoluene[4-]	78	4	5%	0.001	0.000	0.0005	0.0005	0.0012	na	n/a
	Methyl-2-pentanone[4-]	78	3	4%	0.002	0.000	0.0015	0.0023	0.0023	5820	No
	Methylene Chloride	78	5	6%	0.004	0.001	0.0027	0.0035	0.0061	409	No
	Naphthalene	27	9	33%	9162	27203	0.0005	0.0013	81700	43	Yes[f]
	Propylbenzene[1-]	78	1	1%	0.0009	n/a	0.0009	0.0009	0.0009	3400[d]	No
	Styrene	78	2	3%	0.001	0.000	0.0004	0.0007	0.0011	7280	No
	Tetrachloroethane[1,1,2,2-]	78	1	1%	0.0011	n/a	0.0011	0.0011	0.0011	8.02	No
	Tetrachloroethene	78	4	5%	0.001	0.001	0.0004	0.0005	0.0030	7.02	No
	Toluene	78	10	13%	0.048	0.096	0.0004	0.0008	0.2590	5270	No
	Trichloroethene	78	11	14%	0.086	0.270	0.0005	0.0056	0.9010	8.77	No
	Trimethylbenzene[1,2,4-]	78	5	6%	0.007	0.014	0.0005	0.0008	0.0327	62[d]	No
	Trimethylbenzene[1,3,5-]	78	2	3%	0.010	0.014	0.0004	0.0100	0.0196	780[d]	No
	Xylene[1,2-]	78	1	1%	0.0098	n/a	0.0098	0.0098	0.0098	898	No
	Xylene[1,3-]+Xylene[1,4-]	78	6	8%	0.004	0.008	0.0004	0.0008	0.0202	814[d]	No

Table 4.3-2 (continued)

Analyte		Number of Analyses	Detects	Detection Rate	Mean (mg/kg)	Standard Deviation (mg/kg)	Minimum (mg/kg)	Median (mg/kg)	Maximum (mg/kg)	Residential SSL[a] (mg/kg)	Maximum Concentration above Residential SSL
Semi-Volatile Organic Compounds	Acenaphthene	78	1	1%	0.018	n/a	0.018	0.018	0.018	3440	No
	Acenaphthylene	78	1	1%	0.0116	n/a	0.0116	0.0116	0.0116	na	n/a
	Aniline	78	1	1%	3.27	n/a	3.27	3.27	3.27	na	n/a
	Anthracene	78	3	4%	0.068	0.060	0.00794	0.0687	0.128	17200	No
	Benzo(a)anthracene	78	9	12%	0.080	0.066	0.0124	0.0529	0.179	1.48	No
	Benzo(a)pyrene	78	11	14%	0.065	0.054	0.0133	0.0438	0.145	0.148	No
	Benzo(b)fluoranthene	78	12	15%	0.070	0.068	0.0151	0.03745	0.229	1.48	No
	Benzo(g,h,i)perylene	78	9	12%	0.032	0.025	0.0134	0.0239	0.0913	na	n/a
	Benzo(k)fluoranthene	78	5	6%	0.043	0.030	0.018	0.0315	0.0899	14.8	No
	Benzoic Acid	78	5	6%	2.308	3.943	0.463	0.53	9.36	240000[d]	No
	Bis(2-ethylhexyl)phthalate	78	6	8%	0.136	0.083	0.082	0.0969	0.294	347	No
	Chrysene	78	15	19%	0.059	0.068	0.0118	0.0251	0.257	148	No
	Dibenz(a,h)anthracene	78	1	1%	0.024	n/a	0.024	0.024	0.024	0.148	No
	Dimethyl Phthalate	78	3	4%	0.985	0.691	0.434	0.76	1.76	611000	No
	Di-n-butylphthalate	78	27	35%	0.481	0.542	0.0739	0.268	2.57	6110	No
	Fluoranthene	78	18	23%	0.096	0.157	0.0122	0.0332	0.653	2290	No
	Fluorene	78	1	1%	0.0251	n/a	0.0251	0.0251	0.0251	2290	No
	Indeno(1,2,3-cd)pyrene	78	6	8%	0.042	0.035	0.0120	0.0322	0.109	1.48	No
	Methylnaphthalene[2-]	78	10	13%	0.100	0.258	0.0094	0.0155	0.834	na	n/a
	Naphthalene	78	9	12%	3787	10888	0.0126	1.18	32800	43	Yes
	Phenanthrene	78	6	8%	0.127	0.166	0.0116	0.0285	0.388	1830	No
	Pyrene	78	20	26%	0.111	0.140	0.0132	0.0444	0.525	1720	No
PCBs	Aroclor-1242	20	2	10%	0.0887	0.0910	0.0243	0.0887	0.153	2.22	No
	Aroclor-1248	20	1	5%	5.65	n/a	5.65	5.65	5.65	2.22	Yes
	Aroclor-1254	20	16	80%	0.561	1.435	0.00720	0.1445	5.84	1.12	Yes
	Aroclor-1260	20	10	50%	0.281	0.487	0.00180	0.0852	1.59	2.22	No

Table 4.3-2 (continued)

Analyte		Number of Analyses	Detects	Detection Rate	Mean (mg/kg)	Standard Deviation (mg/kg)	Minimum (mg/kg)	Median (mg/kg)	Maximum (mg/kg)	Residential SSL[a] (mg/kg)	Maximum Concentration above Residential SSL
Pesticides	Aldrin	78	1	1%	0.00117	n/a	0.00117	0.00117	0.00117	0.284	No
	BHC[alpha-]	78	1	1%	0.000387	n/a	0.000387	0.000387	0.000387	0.772	No
	Chlordane[gamma-]	78	1	1%	0.000492	n/a	0.000492	0.000492	0.000492	16.2	No
	DDD[4,4'-]	78	2	3%	0.00146	0.000424	0.00116	0.00146	0.00176	20.3	No
	DDE[4,4'-]	78	7	9%	0.00316	0.00272	0.00049	0.00199	0.0066	14.3	No
	DDT[4,4'-]	78	19	24%	0.00522	0.00809	0.000424	0.00203	0.0354	17.2	No
	Heptachlor	78	1	1%	0.0193	n/a	0.0193	0.0193	0.0193	1.08	No
Explosives	Nitrotoluene[4-]	20	4	20%	17.18	28.41	0.78	5.45	59.7	244	No
Herbicides	D[2,4-]	78	1	1%	0.0159	n/a	0.0159	0.0159	0.0159	na	n/a
	DB[2,4-]	78	1	1%	0.0298	n/a	0.0298	0.0298	0.0298	na	n/a
	Dichlorprop	78	2	3%	0.01445	0.0027577	0.0125	0.01445	0.0164	na	n/a
Dioxins & Furans	Heptachlorodibenzodioxin [1,2,3,4,6,7,8-]	8	5	63%	3.37E-05	2.69E-05	5.80E-06	2.50E-05	7.72E-05	na	n/a
	Heptachlorodibenzodioxins (Total)	8	8	100%	4.03E-05	4.63E-05	1.05E-06	2.51E-05	1.36E-04	na	n/a
	Heptachlorodibenzofuran [1,2,3,4,6,7,8-]	8	7	88%	7.24E-05	1.03E-04	5.07E-07	2.57E-05	2.85E-04	na	n/a
	Heptachlorodibenzofuran [1,2,3,4,7,8,9-]	8	3	38%	1.11E-06	8.57E-07	5.26E-07	6.99E-07	2.09E-06	na	n/a
	Heptachlorodibenzofurans (Total)	8	8	100%	1.22E-04	1.88E-04	1.18E-06	3.13E-05	5.48E-04	na	n/a
	Hexachlorodibenzodioxin [1,2,3,6,7,8-]	8	4	50%	2.93E-06	2.63E-06	1.05E-06	1.92E-06	6.82E-06	na	n/a
	Hexachlorodibenzodioxin [1,2,3,7,8,9-]	8	1	13%	5.13E-07	n/a	5.13E-07	5.13E-07	5.13E-07	na	n/a
	Hexachlorodibenzodioxins (Total)	8	5	63%	1.01E-05	9.38E-06	5.40E-07	8.25E-06	2.50E-05	na	n/a

Table 4.3-2 (continued)

Analyte		Number of Analyses	Detects	Detection Rate	Mean (mg/kg)	Standard Deviation (mg/kg)	Minimum (mg/kg)	Median (mg/kg)	Maximum (mg/kg)	Residential SSL[a] (mg/kg)	Maximum Concentration above Residential SSL
	Hexachlorodibenzofuran [1,2,3,4,7,8-]	8	4	50%	1.89E-06	1.37E-06	1.11E-06	1.26E-06	3.94E-06	na	n/a
	Hexachlorodibenzofuran [1,2,3,6,7,8-]	8	3	38%	1.02E-06	6.68E-07	5.87E-07	6.85E-07	1.79E-06	na	n/a
	Hexachlorodibenzofuran [1,2,3,7,8,9-]	8	1	13%	1.85E-06	n/a	1.85E-06	1.85E-06	1.85E-06	na	n/a
	Hexachlorodibenzofuran [2,3,4,6,7,8-]	8	3	38%	1.05E-06	5.94E-07	5.35E-07	9.16E-07	1.70E-06	na	n/a
	Hexachlorodibenzofurans (Total)	8	7	88%	4.55E-05	6.09E-05	7.58E-07	2.16E-05	1.68E-04	na	n/a
	Octachlorodibenzodioxin [1,2,3,4,6,7,8,9-]	8	8	100%	1.98E-04	2.43E-04	1.01E-05	9.78E-05	6.67E-04	na	n/a
	Octachlorodibenzofuran [1,2,3,4,6,7,8,9-]	8	5	63%	4.80E-05	4.86E-05	3.05E-06	4.22E-05	1.29E-04	na	n/a
	Pentachlorodibenzodioxins (Total)	8	1	13%	1.68E-06	n/a	1.68E-06	1.68E-06	1.68E-06	na	n/a
	Pentachlorodibenzofuran [2,3,4,7,8-]	8	2	25%	8.64E-07	3.49E-07	6.17E-07	8.64E-07	1.11E-06	na	n/a
	Pentachlorodibenzofurans (Totals)	8	6	75%	3.27E-06	2.69E-06	6.86E-07	2.17E-06	7.45E-06	na	n/a
	Tetrachlorodibenzofurans (Totals)	8	2	25%	1.63E-06	1.74E-06	3.95E-07	1.63E-06	2.86E-06	na	n/a

[a] SSLs from NMED (2012, 219971), unless otherwise indicated.

[b] No = Does not exceed SSL.

[c] n/a = Not applicable.

[d] Source: http://www.epa.gov/region06/6pd/rcra_c/pd-n/screen.htm.

[e] na = Not available.

[f] Yes = Exceeds SSL.

Table 4.3-3
Radionuclides Detected in Contaminated Soil and Debris Waste Samples

Analyte	Number of Analyses	Detects	Detection Rate	Mean (pCi/g)	Standard Deviation (pCi/g)	Minimum (pCi/g)	Median (pCi/g)	Maximum (pCi/g)	Residential SAL[a] (pCi/g)	Maximum Activity above Residential SAL
Americium-241	79	75	95%	433.0	2658	0.149	5.67	22900	30	Yes[b]
Plutonium-238	79	68	86%	185.4	1273	0.0735	1.52	10500	37	Yes
Plutonium-239/240	79	79	100%	33293	248597	0.788	243	2210000	33	Yes
Strontium-90	78	5	6%	116.23	251.44	0.962	5.79	566	5.7	Yes
Tritium	78	53	68%	176.03	1230	0.0120	0.2406	8961	750	Yes
Uranium-234	78	76	97%	26.15	106.68	0.623	3.49	831	170	Yes
Uranium-235/236[c]	78	67	86%	2.33	9.17	0.0419	0.216	55	17	Yes
Uranium-238	78	78	100%	59.5	367.6	0.0681	2.205	3150	86	Yes
Americium-241	78	78	100%	449.3	2182	0.0173	9.92	17500	30	Yes
Bismuth-211	78	77	99%	3.80	0.79	1.54	3.89	6.65	na[d]	n/a[e]
Bismuth-214	78	77	99%	1.16	0.22	0.566	1.16	1.99	na	n/a
Cadmium-109	78	64	82%	3.59	1.98	1.31	3.165	13.1	na	n/a
Cerium-139	78	1	1%	0.087	n/a	0.087	0.087	0.087	na	n/a
Cesium-137	78	7	9%	577	1475	0.288	7.46	3920	5.6	Yes
Lead-212	78	75	96%	1.67	0.33	0.851	1.7	2.5	na	n/a
Lead-214	78	76	97%	1.38	0.29	0.558	1.405	2.42	na	n/a
Potassium-40	78	77	99%	27.04	3.17	19.1	26.9	33.6	na	n/a
Thallium-208	78	77	99%	0.50	0.12	0.268	0.504	1.09	na	n/a
Thorium-234	78	35	45%	88.8	303.8	1.46	7.72	1620	na	n/a
Uranium-235[f]	78	28	36%	5.73	16.96	0.278	1.45	90.6	17	Yes

[a] SALs from LANL (2009, 107655).
[b] Yes = Exceeds SAL.
[c] Analysis by alpha spectroscopy.
[d] na = Not available.
[e] n/a = Not applicable.
[f] Analysis by gamma spectroscopy.

Table 4.4-1
Waste Volumes Shipped from MDA B

Total Volume Shipped (yd^3)	LLW to TA-54[a] (yd^3)	LLW to Clive (yd^3)	LLW to NNSS (yd^3)	Mixed LLW to Clive (yd^3)	Industrial Waste Shipped[b] (yd^3)
47,350	28,029	13,838	5159	20	304

[a] Includes wastes shipped to TA-54 for storage pending off-site disposal.

[b] Industrial waste shipped to Waste Control Specialists in Andrews, TX, or Clean Harbors in Deer Trail, CO.

Table 4.4-2
Excavation Completion Summary

	Enclosure								Total (yd^3)
	1	2	3/4	5/6	7/8	9/10/11	12/13	Area 5	
Excavation End Date	14-Sep-11	19-Jul-11	26-Jan-11	28-Jul-11	10-Dec-10	13-Sep-11	26-Apr-11	19-Sep-11	n/a[a]
Estimated Volume (yd^3)[b]	4651	4699	1619	1757	1383	4251	2529	1127	22,016
Actual Volume (yd^3)[b]	10,169	8367	3157	2970	2386	6825	5473	576	39,922
Projected Average Depth (ft)	10–11	9–10	9–10	9–11	9–11	11–13	11–13	3–5	n/a
Actual Maximum Depth (ft)	19.1	29.6	14.8	14.5	16.7	20.2	22	12.6	n/a

[a] n/a = Not applicable.

[b] Volume is based on volume of excavation and does not include bulking factor.

Table 4.6-1
Results of Repack Area Confirmation Sampling

Sample ID	Date Sampled	Location	Americium-241	Plutonium-238	Plutonium-239/240
Residential SAL*			**30**	**37**	**33**
Enclosure 5 Repack Area Final Sampling Results					
CSMDAB-12-2093	1/19/2012	E.5 Repack Bottom	0.334	0.163 (U)	5.55
CSMDAB-12-1914	12/21/2011	E.5 Repack North wall	0.116	0.509 (U)	7.12
CSMDAB-12-2053	1/19/2012	E.5 Repack East Wall	0.108	0.072 (U)	2.21
CSMDAB-12-2042	1/9/2012	E.5 Repack South Wall	0.199	0.091 (U)	2.45
CSMDAB-12-2052	1/19/2012	E.5 Repack West Wall	0.363	0.064 (U)	4.69
Enclosure 12 Repack Area Final Sampling Results					
CSMDAB-12-1921	12/22/2011	E.12 Repack Bottom	1.34	0.604 (U)	23.7
CSMDAB-12-2092	1/19/2012	E.12 Repack North Wall	0.132 (U)	0.07 (U)	0.113 (U)
CSMDAB-12-1923	12/22/2011	E.12 Repack East Wall	0.274	0.622 (U)	6.51
CSMDAB-12-1924	12/22/2011	E.12 Repack South Wall	0.341	0.753 (U)	10.5
CSMDAB-12-1925	12/22/2011	E.12 Repack West Wall	0.168	0.55 (U)	2.5

Notes: Units are pCi/g. See Appendix A for data qualifier definitions.

* SALs from LANL (2009, 107655).

Table 5.0-1
Results of Field Laboratory Gamma-Spectroscopy Screening Analyses

Screening Sample ID	Date	Grid Cell	Trench/Boring Location	Am-241[a] (pCi/g)	Field Decision
Trench Confirmation Samples					
South Wall	8/11/2010	260	South	< Minimum detectable activity	Sample shipped to off-site lab
Enc 1 North Wall	8/11/2010	260	North	< Minimum detectable activity	Sample shipped to off-site lab
Enc 1 Floor of Pit	8/11/2010	260	Bottom	<0.589	Sample shipped to off-site lab
Sample 3 Cell 260	9/16/2010	260	North	1.14	Sample shipped to off-site lab
Sample 4 Cell 260	9/16/2010	260	North	<0.848	Sample shipped to off-site lab
Sample 2 Cell 52	9/16/2010	52	North	<1.07	Sample shipped to off-site lab
Enc-2 Confirmation Row 51	10/11/2010	51	Bottom	<1.08	Sample shipped to off-site lab
Enc-2 Confirmation Sample Grid 200 Base	12/10/2010	200	Bottom	<1.15	Sample shipped to off-site lab
Enc-7 North Wall Grid 205	12/10/2010	205	North	<1.53	Sample shipped to off-site lab
Enc-7 Conf sample Grid 205 S-Wall	12/10/2010	205	South	<1.47	Sample shipped to off-site lab
Enc-7 Base Floor Grid 205	12/10/2010	205	Bottom	<1.52	Sample shipped to off-site lab
Enc-1 Confirmation Sample S-Wall 255	1/5/2010	255	South	<1.52	Sample shipped to off-site lab
Enc-1 Confirmation Sample N-Wall	1/5/2010	255	North	<1.58	Sample shipped to off-site lab
Enc-1 Confirmation Sample Bottom	1/5/2010	255	Bottom	<1.49	Sample shipped to off-site lab
Enc-3 North Wall Row 165	1/11/2010	165	North	<1.28	Sample shipped to off-site lab
Enc-3 Bottom Row 165	1/11/2010	165	Bottom	<1.36	Sample shipped to off-site lab
Enc-3 North Wall Row 170	1/11/2010	170	North	<1.03	Sample shipped to off-site lab
Enc-3 South Wall Row 170	1/11/2010	170	South	<1.45	Sample shipped to off-site lab
Enc-3 South Wall Row 165	1/11/2010	165	South	<1.13	Sample shipped to off-site lab
Enc-3 Bottom Row 170	1/11/2010	170	Bottom	<1.22	Sample shipped to off-site lab
Enc-1 Row 250-Bottom	1/31/2011	250	Bottom	2.35	Sample shipped to off-site lab
Enc-1 Row 250-South Wall Confirmation	1/31/2011	250	South	2.14	Sample shipped to off-site lab

Table 5.0-1 (continued)

Screening Sample ID	Date	Grid Cell	Trench/Boring Location	Am-241[a] (pCi/g)	Field Decision
Enc-1 Row 250-North Wall Confirmation	1/31/2011	250	North	<1.97	Sample shipped to off-site lab
Enc-2 South Wall Confirmation	1/31/2011	46	South	<1.48	Sample shipped to off-site lab
Enc-2 Bottom Confirmation	1/31/2011	46	Bottom	<1.96	Sample shipped to off-site lab
Enc-2 North Wall Confirmation	1/31/2011	46	North	<1.84	Sample shipped to off-site lab
Enc-12 Confirmation	4/26/2011	98	South	<2.31	Sample shipped to off-site lab
Enc-5 CSMDAB-11-14064	6/9/2011	176	North	17.1	Additional excavation with follow-up sample
Enc-5 CSMDAB-11-14065	6/9/2011	175	Bottom	3.06	Additional excavation with follow-up sample
Enc-5 CSMDAB-11-14066	6/9/2011	175	South	4.79	Additional excavation with follow-up sample
Enc-5 CSMDAB-11-14067	6/9/2011	180	North	137	Additional excavation with follow-up sample
Enc-5 CSMDAB-11-14068	6/9/2011	180	Bottom	1.98	Additional excavation with follow-up sample
Enc-5 CSMDAB-11-14069	6/9/2011	180	South	5.48	Additional excavation with follow-up sample
Enc-5 CSMDAB-11-14070	6/9/2011	185	North	33.6	Additional excavation with follow-up sample
Enc-5 CSMDAB-11-14071	6/9/2011	184	Bottom	6.91	Additional excavation with follow-up sample
Enc-5 CSMDAB-11-14072	6/9/2011	184	South	43.5	Additional excavation with follow-up sample
Enc-5 CSMDAB-11-14073	6/9/2011	191	North	<0.735	Additional excavation with follow-up sample
Enc-5 CSMDAB-11-14074	6/9/2011	190	Bottom	<0.961	Additional excavation with follow-up sample
Enc-5 CSMDAB-11-14075	6/9/2011	190	South	10.7	Additional excavation with follow-up sample
Enc-5 CSMDAB-11-14064A	7/5/2011	175	North	<0.743	Resampled because of Las Conchas fire
Enc-5 CSMDAB-11-14065A	7/5/2011	175	Bottom	1.12	Resampled because of Las Conchas fire
Enc-5 CSMDAB-11-14066A	7/5/2011	175	South	<7.66	Resampled because of Las Conchas fire
Enc-5 CSMDAB-11-14067A	7/5/2011	180	North	<0.971	Resampled because of Las Conchas fire
Enc-5 CSMDAB-11-14068A	7/5/2011	180	Bottom	<0.938	Resampled because of Las Conchas fire
Enc-5 CSMDAB-11-14069A	7/5/2011	180	South	<0.977	Resampled because of Las Conchas fire
Enc-5 CSMDAB-11-14070A	7/5/2011	185	North	2.15	Resampled because of Las Conchas fire
Enc-5 CSMDAB-11-14071A	7/5/2011	185	Bottom	<1.01	Resampled because of Las Conchas fire
Enc-5 CSMDAB-11-14072A	7/5/2011	185	South	<0.767	Resampled because of Las Conchas fire
Enc-5 CSMDAB-11-14073A	7/5/2011	190	North	<0.772	Resampled because of Las Conchas fire

Table 5.0-1 (continued)

Screening Sample ID	Date	Grid Cell	Trench/Boring Location	Am-241[a] (pCi/g)	Field Decision
Enc-5 CSMDAB-11-14074A	7/5/2011	190	Bottom	<0.717	Resampled because of Las Conchas fire
Enc-5 CSMDAB-11-14075A	7/5/2011	190	South	1.95	Resampled because of Las Conchas fire
Enc-5 CSMDAB-11-14064B	7/7/2011	175	North	<5.19	Sample shipped to off-site lab
Enc-5 CSMDAB-11-14065B	7/7/2011	175	Bottom	<0.748	Sample shipped to off-site lab
Enc-5 CSMDAB-11-14066B	7/7/2011	175	South	1.03	Sample shipped to off-site lab
Enc-5 CSMDAB-11-14067B	7/7/2011	180	North	<0.744	Sample shipped to off-site lab
Enc-5 CSMDAB-11-14068B	7/7/2011	180	Bottom	<5.16	Sample shipped to off-site lab
Enc-5 CSMDAB-11-14069B	7/7/2011	180	South	0.979	Sample shipped to off-site lab
Enc-5 CSMDAB-11-14070B	7/7/2011	185	North	<0.756	Sample shipped to off-site lab
Enc-5 CSMDAB-11-14071B	7/7/2011	185	Bottom	6.37	Additional excavation with follow-up sample
Enc-5 CSMDAB-11-14072B	7/7/2011	185	South	1.04	Additional excavation with follow-up sample
Enc-5 CSMDAB-11-14073B	7/7/2011	190	North	30.9	Additional excavation with follow-up sample
Enc-5 CSMDAB-11-14074B	7/7/2011	190	Bottom	2.83	Additional excavation with follow-up sample
Enc-5 CSMDAB-11-14075B	7/7/2011	190	South	2.15	Additional excavation with follow-up sample
Enc-2 South	7/15/2011	26	South	<1.52	Collected final sample
Enc-2 North	7/15/2011	26	North	<1.29	Collected final sample
Enc-2 Bottom	7/15/2011	26	Bottom	<1.32	Collected final sample
Enc-2 CSMDAB-11-4539 North Wall Grid 26	7/19/2011	26	North	<0.622	Sample shipped to off-site lab
Enc-2 CSMDAB-11-4541 South Wall Grid 26	7/19/2011	26	South	<0.723	Sample shipped to off-site lab
Enc-2 CSMDAB-11-4540 Bottom Grid 26	7/19/2011	26	Bottom	<0.826	Sample shipped to off-site lab
Enc-1 CSMDAB-11-24007 North Wall	7/21/2010	220	North	<0.745	Sample shipped to off-site lab
Enc-1 CSMDAB-11-24008 Bottom	7/21/2010	220	Bottom	<0.748	Sample shipped to off-site lab
Enc-1 CSMDAB-11-23969 South Wall	7/21/2010	230	South	<0.779	Sample shipped to off-site lab
Enc-1 CSMDAB-11-23966 South Wall	7/21/2010	225	South	<0.723	Sample shipped to off-site lab
Enc-1 CSMDAB-11-23967 North Wall	7/21/2010	230	North	<0.909	Sample shipped to off-site lab
Enc-1 CSMDAB-11-23968 Bottom	7/21/2010	230	Bottom	<1.03	Sample shipped to off-site lab
Enc-1 CSMDAB-11-13877 Bottom	7/21/2010	225	Bottom	<0.828	Sample shipped to off-site lab

Table 5.0-1 (continued)

Screening Sample ID	Date	Grid Cell	Trench/Boring Location	Am-241[a] (pCi/g)	Field Decision
Enc-1 CSMDAB-11-24009 South Wall	7/21/2010	220	South	<0.769	Sample shipped to off-site lab
Enc-1 CSMDAB-11-13876 North	7/21/2010	225	North	<1.03	Sample shipped to off-site lab
Enc-2 CSMDAB-11-24386 South Wall Grid 41	7/22/2011	41	South	<0.823	Sample shipped to off-site lab
Enc-2 CSMDAB-11-24387 Bottom Grid 41	7/22/2011	41	Bottom	<0.822	Sample shipped to off-site lab
Enc-2 CSMDAB-11-24388 North Grid 41	7/22/2011	41	North	<0.933	Sample shipped to off-site lab
Enc-2 CSMDAB-10-25086 North Wall Grid 31	7/22/2011	31	North	<0.806	Sample shipped to off-site lab
Enc-2 CSMDAB-10-25087 Bottom Wall Grid 31	7/22/2011	31	Bottom	1.05	Sample shipped to off-site lab
Enc-2 CSMDAB-10-25088 South Wall Grid 31	7/22/2011	31	South	<0.775	Sample shipped to off-site lab
Enc-2 CSMDAB-10-25089 North Wall Grid 36	7/22/2011	36	North	<0.869	Sample shipped to off-site lab
Enc-2 CSMDAB-10-25090 Bottom Grid 36	7/22/2011	36	Bottom	<0.740	Sample shipped to off-site lab
Enc-2 CSMDAB-10-25091 South Wall Grid 36	7/22/2011	36	South	1.93	Sample shipped to off-site lab
Enc-5 CSMDAB-11-14076 North Wall 175	7/22/2011	175	North	<1.03	Sample shipped to off-site lab
Enc-5 CSMDAB-11-14077 South Wall Grid 185	7/22/2011	185	South	<1.24	Sample shipped to off-site lab
Enc-5 CSMDAB-11-14078 Bottom Grid 190	7/22/2011	190	Bottom	<1.51	Sample shipped to off-site lab
Enc-5 CSMDAB-11-14079 North Grid 190	7/22/2011	190	North	<1.10	Sample shipped to off-site lab
Enc-5 CSMDAB-11-14080 South Grid 190	7/22/2011	190	South	<1.49	Sample shipped to off-site lab
Enc-5 CSMDAB-11-14081 Bottom Wall Grid 185	7/22/2011	185	Bottom	<1.40	Sample shipped to off-site lab
CSMDAB-11-25730	8/9/2011	57	North	<0.964	Sample shipped to off-site lab
Enc-9 CSMDAB-11-25731	8/9/2011	57	Bottom	<0.740	Sample shipped to off-site lab
CSMDAB-11-25732	8/9/2011	57	South	2.57	Sample shipped to off-site lab
Enc-9 CSMDAB-11-25734	8/9/2011	60	North	<0.964	Sample shipped to off-site lab
CSMDAB-11-25735	8/9/2011	60	Bottom	1.09	Sample shipped to off-site lab
Enc-9 CSMDAB-11-25737	8/9/2011	61	South	2.46	Sample shipped to off-site lab
Enc-9 CSMDAB-11-5060	8/9/2011	65	North	4.99	Additional excavation with follow-up sample
Enc-9 CSMDAB-11-5061	8/9/2011	65	Bottom	<0.873	Sample shipped to off-site lab
Enc-9 CSMDAB-11-5062	8/9/2011	65	South	0.766	Sample shipped to off-site lab
Enc-9 CSMDAB-11-5063	8/9/2011	72	North	9.15	Additional excavation with follow-up sample

Table 5.0-1 (continued)

Screening Sample ID	Date	Grid Cell	Trench/Boring Location	Am-241[a] (pCi/g)	Field Decision
Enc-9 CSMDAB-11-5064	8/9/2011	72	Bottom	4.13	Additional excavation with follow-up sample
Enc-9 CSMDAB-11-5065	8/9/2011	72	South	6.02	Additional excavation with follow-up sample
CSMDAB-11-25984	8/16/2011	215	North	<0.737	Sample shipped to off-site lab
CSMDAB-11-25985	8/16/2011	215	Bottom	<0.691	Sample shipped to off-site lab
CSMDAB-11-25986	8/16/2011	215	South	1.37	Sample shipped to off-site lab
Enc-9 CSMDAB-11-5057	8/24/2011	57	South	<0.956	Sample shipped to off-site lab
Enc-9 CSMDAB-11-5058	8/24/2011	61	South	0.821	Sample shipped to off-site lab
Enc-1 CSMDAB-11-26997	9/2/2011	210	North	1.85	Additional excavation with follow-up sample
Enc-1 CSMDAB-11-26998	9/2/2011	210	Bottom	138	Additional excavation with follow-up sample
Enc-1 CSMDAB-11-26700	9/2/2011	210	South	6.4	Additional excavation with follow-up sample
Enc-9 CSMDAB-11-5056	9/16/2011	81.5	North	1.08	Sample shipped to off-site lab
Enc-9 CSMDAB-11-5059	9/16/2011	81.5	Bottom	<1.35	Sample shipped to off-site lab
Area 5 CSMDAB-11-27623	9/16/2011	AM232	Bottom	<1.37	Sample shipped to off-site lab
Area 5 CSMDAB-11-27624	9/16/2011	AM230	Bottom	<1.33	Sample shipped to off-site lab
Enc-9 CSMDAB-11-27591	9/16/2011	81.5	South	<1.01	Sample shipped to off-site lab
Enc-9 CSMDAB-11-27592	9/16/2011	76.5	North	<0.945	Sample shipped to off-site lab
Enc-9 CSMDAB-11-27593	9/16/2011	76.5	Bottom	<0.667	Sample shipped to off-site lab
Enc-9 CSMDAB-11-27594	9/16/2011	76.5	South	0.919	Sample shipped to off-site lab
Area 5 CSMDAB-11-27625	9/19/2011	AN228	Bottom	<1.46	Sample shipped to off-site lab
Area 5 CSMDAB-11-27626	9/19/2011	AM228	Bottom	3.91	Additional excavation with follow-up sample
Area 5 CSMDAB-11-27627	9/19/2011	AL228	Bottom	2.33	Additional excavation with follow-up sample
Area 5 CSMDAB-11-27628	9/19/2011	AM227	Bottom	1.91	Additional excavation with follow-up sample
Area 5 CSMDAB-11-27629	9/19/2011	AN226	Bottom	2.52	Additional excavation with follow-up sample
Area 5 CSMDAB-11-27630	9/19/2011	AN223	Bottom	<1.21	Additional excavation with follow-up sample
Area 5 CSMDAB-11-27631	9/19/2011	AN222	Bottom	1.26	Additional excavation with follow-up sample
Enc-9 North Wall	9/19/2011	64.5	North	<0.832	Sample shipped to off-site lab
Enc-1 Bottom 210	9/20/2011	210	Bottom	5.59	Additional excavation with follow-up sample

Table 5.0-1 (continued)

Screening Sample ID	Date	Grid Cell	Trench/Boring Location	Am-241[a] (pCi/g)	Field Decision
Enc-9 North 81	9/20/2011	81	North	<0.555	Sample shipped to off-site lab
Enc-9 South 76	9/20/2011	76	South	<0.926	Sample shipped to off-site lab
Enc-9 North 71	9/20/2011	71	North	<0.991	Sample shipped to off-site lab
Enc-9 South 71	9/20/2011	71	South	<1.32	Sample shipped to off-site lab
Enc-9 Bottom 71	9/20/2011	71	Bottom	<0.838	Sample shipped to off-site lab
Enc-1 Bottom Grid 210	9/21/2011	210	Bottom	<0.569	Sample shipped to off-site lab
Area 5 AM228	9/21/2011	AM228	Bottom	<1.39	Sample shipped to off-site lab
Area 5 AL228	9/21/2011	AL228	Bottom	<0.871	Sample shipped to off-site lab
Area 5 AM227	9/21/2011	AM227	Bottom	<1.12	Additional excavation with follow-up sample
Area 5 AN226	9/21/2011	AN226	Bottom	<1.04	Sample shipped to off-site lab
Area 5 AN223	9/21/2011	AN223	Bottom	<1.38	Sample shipped to off-site lab
Area 5 AN222	9/21/2011	AN222	Bottom	1.2	Additional excavation with follow-up sample
Enc-1 South 215	9/21/2011	215	South	<1.05	Sample shipped to off-site lab
Enc-1 North 245	9/21/2011	245	North	<1.05	Sample shipped to off-site lab
Enc-1 North 210	9/21/2011	210	North	8.58	Additional excavation with follow-up sample
Enc-1 South 250	9/21/2011	250	South	1.77	Additional excavation with follow-up sample
Enc-1 South 210	9/21/2011	210	South	16.9	Additional excavation with follow-up sample
Area 5 AN-222	9/21/2011	AN222	Bottom	<1.16	Sample shipped to off-site lab
Area 5 AM-227	9/21/2011	AM227	Bottom	<0.863	Sample shipped to off-site lab
Enc-1 South 210	9/21/2011	210	South	0.983	Additional excavation with follow-up sample
Enc-1 North 210	9/21/2011	210	North	<1.03	Sample shipped to off-site lab
Enc-1 South 250	9/21/2011	250	South	<1.08	Sample shipped to off-site lab
Enc-1 South 210	9/22/2011	210	South	1.52	Additional excavation with follow-up sample
Enc-1 South 205	9/22/2011	205	South	0.669	Sample shipped to off-site lab
Enc-1 South 210	9/22/2011	210	South	1.53	Additional excavation with follow-up sample
Enc-1 South 210	9/22/2011	210	South	<0.818	Sample shipped to off-site lab
Enc-1 North 205	9/22/2011	205	North	2.19	Additional excavation with follow-up sample
Enc-1 North 205	9/22/2011	205	North	<0.614	Sample shipped to off-site lab

Table 5.0-1 (continued)

Screening Sample ID	Date	Grid Cell	Trench/Boring Location	Am-241[a] (pCi/g)	Field Decision
Soil-Boring Samples					
DSMDAB-11-22284	6/16/2011	n/a[b]	Boring MDAB-612802 20–25 ft bgs	<0.746	Sample shipped to off-site lab
DSMDAB-11-22285	6/20/2011	n/a	Boring MDAB-612802 33–37 ft bgs	<0.791	Sample shipped to off-site lab
DSMDAB-11-22286 (Sampled but not submitted)	6/23/2011	n/a	Boring MDAB-612802 232.5–235 ft bgs	<0.798	Sample not shipped to off-site lab
DSMDAB-11-22288	6/24/2011	n/a	Boring MDAB-612802 144–146 ft bgs	<0.749	Sample shipped to off-site lab
DSMDAB-11-22287	7/6/2011	n/a	Boring MDAB-612802 287–290 ft bgs	<0.809	Sample shipped to off-site lab
DSMDAB-11-22289	7/7/2011	n/a	Boring MDAB-612802 320–325 ft bgs	<1.05	Sample shipped to off-site lab
DSMDAB-11-22291	7/14/2011	n/a	Boring MDAB-614478 45–50 ft bgs	<1.11	Sample shipped to off-site lab
DSMDAB-11-22290	7/14/2011	n/a	Boring MDAB-614478 21.5–24 ft bgs	<0.783	Sample shipped to off-site lab
DSMDAB-11-22294 (Duplicate of DSMDAB-11-22289)	7/17/2011	n/a	Boring MDAB-612802 320–325 ft bgs	<0.828	Sample shipped to off-site lab

[a] < = Activity is below the reported minimum detectable activity.

[b] n/a = Not applicable.

Table 5.0-2
Confirmation Samples Collected during Excavation Activities

Sample ID	Location ID	Excavated[a]	Grid Cell	NMED Split Sample ID	Trench Location	Date Collected	X Coordinate	Y Coordinate	Elevation (ft amsl)	Sample Depth (ft bgs)
Enclosure 1										
CSMDAB-10-24585	MDAB-612790	No	AJ260	MDA-B-260-Swall	South-side wall	08/11/2010	1630213.183	1775183.589	7182.3	4.7
CSMDAB-10-24586	MDAB-612791	Yes	AH260	MDA-B-260-Nwall	North-side wall	08/11/2010	1630213.196	1775203.692	7182.7	4.3
CSMDAB-10-24587	MDAB-612792	No	AI260	MDA-B-260-Floor	Excavation floor	08/11/2010	1630212.605	1775193.884	7179.6	7.4
CSMDAB-10-24589	MDAB-612794	No	AH260	NS[b]	North-side wall	09/16/2010	1630201.889	1775207.004	7185	2
CSMDAB-10-24590	MDAB-612795	No	AH260	NS	North-side wall	09/16/2010	1630215.095	1775208.673	7184.2	2.8
CSMDAB-10-24591	MDAB-612796	No	AH260	NS	North-side wall	09/16/2010	1630221.236	1775209.667	7184.6	2.4
CSMDAB-10-24592	MDAB-612797	No	AH260	NS	North-side wall	10/13/2010	1630212.13	1775207.7	7182.9	4.1
CSMDAB-10-24593	MDAB-612798	No	AI255	MDA-B-255-Floor	Excavation floor	01/05/2011	1630164.31	1775194.59	7180.809	6.69
CSMDAB-10-24594	MDAB-612799	No	AH255	NS	North-side wall	01/05/2011	1630165.06	1775205.05	7184.136	3.36
CSMDAB-10-24595	MDAB-612800	No	AJ255	NS	South-side wall	01/05/2011	1630164.61	1775182.44	7183.976	3.52
CSMDAB-10-24596	MDAB-612801	No	AH250	NS	North-side wall	01/29/2011	1630112.63	1775198.83	7179.81	8.69
CSMDAB-10-24597	MDAB-612802	Yes	AI250	NS	Excavation floor	01/29/2011	1630113.5	1775187.52	7175.22	13.28
CSMDAB-10-24598	MDAB-612803	Yes	AJ250	NS	South-side wall	01/29/2011	1630113.88	1775173.07	7179.02	9.48
CSMDAB-10-24599	MDAB-612804	No	AH240	NS	North-side wall	04/19/2011	1630013.88	1775192.25	7178.71	9.79
CSMDAB-11-13873	MDAB-614399	No	AL250	NS	South-side wall	05/26/2011	1630121.99	1775167.54	7182.3	6.2
CSMDAB-11-13874	MDAB-612803	Yes	AK250	NS	South-side wall	05/26/2011	1630113.88	1775173.07	7182.33	6.17
CSMDAB-11-13875	MDAB-614398	No	AL249	NS	Excavation floor	05/26/2011	1630109.63	1775189.25	7175.84	12.66
CSMDAB-11-13876	MDAB-614601	No	AH225	MDA-B-225-Nwall	North-side wall	07/21/2011	1629868.019	1775177.95	7182.308	6.19
CSMDAB-11-13877	MDAB-614600	No	AI225	MDA-B-225-Floor	Excavation floor	07/21/2011	1629869.14	1775163.55	7173.3	15.2
CSMDAB-11-23966	MDAB-614489	No	AK225	MDA-B-225-Swall	South-side wall	07/21/2011	1629870.687	1775147.24	7180.305	8.19
CSMDAB-11-23967	MDAB-614490	No	AH229	MDA-B-230-Nwall	North-side wall	07/21/2011	1629905.782	1775183.12	7177.29	10.96
CSMDAB-11-23968	MDAB-614491	No	AI229	MDA-B-230-Floor	Excavation floor	07/21/2011	1629909.33	1775171.22	7171.32	16.93
CSMDAB-11-23969	MDAB-614492	No	AJ230	MDA-B-230-Swall	South-side wall	07/21/2011	1629912.8	1775158.525	7179.491	8.76
CSMDAB-11-24007	MDAB-614498	No	AG220	MDA-B-220-Nwall	North-side wall	07/20/2011	1629810.257	1775176.204	7186.294	2.71
CSMDAB-11-24008	MDAB-614499	No	AI220	MDA-B-220-Floor	Excavation floor	07/20/2011	1629813.867	1775157.76	7182.242	6.76
CSMDAB-11-24009	MDAB-614500	No	AK220	MDA-B-220-Swall	South-side wall	07/21/2011	1629815.545	1775145.48	7183.747	5.25
CSMDAB-11-25984	MDAB-614674	No	AH215	NS	North-side wall	08/15/2011	1629764.375	1775168.381	7180.39	9.11
CSMDAB-11-25985	MDAB-614675	No	AJ215	NS	Excavation floor	08/15/2011	1629769.852	1775150.762	7175.125	14.38
CSMDAB-11-25986	MDAB-614676	Yes	AL215	NS	South-side wall	08/15/2011	1629764.46	1775131.191	7179.656	9.84
CSMDAB-11-26997	MDAB-614694	Yes	AH210	NS	North-side wall	09/02/2011	1629716.966	1775161.998	7181.02	8.98
CSMDAB-11-26998	MDAB-614695	Yes	AJ210	NS	Excavation floor	09/02/2011	1629719.736	1775141.254	7174.19	15.81
CSMDAB-11-27000	MDAB-614696	Yes	AK210	NS	South-side wall	09/02/2011	1629718.647	1775130.025	7180.23	9.77
CSMDAB-11-27001	MDAB-614697	No	205	NS	South-side wall	09/22/2011	1629666.66	1775124.59	7178.57	12.43
CSMDAB-11-27002	MDAB-614698	No	205	NS	North-side wall	09/22/2011	1629662.8	1775155.76	7179.56	11.44
CSMDAB-11-27936	MDAB-614715	No	210	NS	Excavation floor	09/20/2011	1629717.58	1775142.26	7170.86	19.14
CSMDAB-11-27937	MDAB-614716	No	215	NS	South-side wall	09/21/2011	1629764.16	1775130.96	7179.59	9.91
CSMDAB-11-27938	MDAB-614717	No	245	NS	North-side wall	09/21/2011	1630062.82	1775200.57	7183.92	4.58

Table 5.0-2 (continued)

Sample ID	Location ID	Excavated[a]	Grid Cell	NMED Split Sample ID	Trench Location	Date Collected	X Coordinate	Y Coordinate	Elevation (ft amsl)	Sample Depth (ft bgs)
CSMDAB-11-27939	MDAB-614718	No	210	NS	North-side wall	09/21/2011	1629716.19	1775163.37	7179.85	10.15
CSMDAB-11-27940	MDAB-614719	No	250	NS	South-side wall	09/21/2011	1630116.66	1775162.47	7182.52	5.98
CSMDAB-11-27941	MDAB-614720	No	210	NS	South-side wall	09/22/2011	1629710.43	1775122.77	7174.98	15.02
CSMDAB-11-3808	MDAB-614332	No	AJ240	NS	South-side wall	04/19/2011	1630017.8	1775167.42	7179.82	8.68
CSMDAB-11-3809	MDAB-614334	No	AJ245	NS	South-side wall	04/19/2011	1630066.42	1775174.69	7178.54	9.96
CSMDAB-11-3811	MDAB-614337	No	AI235	MDA-B-235-Floor	Excavation floor	04/20/2011	1629962.8	1775177.64	7171.21	17.29
CSMDAB-11-3812	MDAB-614338	No	AJ235	NS	South-side wall	04/20/2011	1629968.69	1775165.09	7178.03	10.47
CSMDAB-11-3817	MDAB-614335	No	AI245	MDA-B-245-Floor	Excavation floor	04/19/2011	1630062.87	1775186.18	7176.21	12.29
CSMDAB-11-3818	MDAB-614333	No	AI240	MDA-B-240-Floor	Excavation floor	04/19/2011	1630013.6	1775180.22	7172.63	15.87
CSMDAB-11-3819	MDAB-612802	No	AL250	NS	Excavation floor	05/26/2011	1630113.5	1775187.52	7174.94	13.56
CSMDAB-11-3820	MDAB-614339	No	AG235	NS	North-side wall	04/20/2011	1629965.25	1775189.65	7179.79	8.71
CSMDAB-11-3821	MDAB-614397	No	AK251	NS	Excavation floor	05/26/2011	1630125.5	1775188.63	7174.76	13.74
CSMDAB-11-4549	MDAB-614336	Yes	AH245	NS	North-side wall	04/19/2011	1630063.13	1775197.54	7180.09	8.41
Area 5										
CSMDAB-11-25880	MDAB-614656	No	AL222	NS	East-side wall	08/09/2011	1629837.61	1775133.468	7181.971	6.029
CSMDAB-11-25881	MDAB-614657	No	AL225	NS	East-side wall	08/11/2011	1629868.04	1775136.055	7182.118	5.382
CSMDAB-11-25882	MDAB-614658	Yes	AL228	NS	East-side wall	08/11/2011	1629898.017	1775137.81	7180.96	6.54
CSMDAB-11-25883	MDAB-614659	No	AL231	NS	East-side wall	08/12/2011	1629928.477	1775140.374	7182.035	5.465
CSMDAB-11-25884	MDAB-614660	No	AL234	NS	East-side wall	08/12/2011	1629957.8	1775142.396	7181.201	6.799
CSMDAB-11-25885	MDAB-614661	No	AM225	NS	East-side wall	08/11/2011	1629861.178	1775124.35	7181.403	6.347
CSMDAB-11-25886	MDAB-614662	Yes	AM227	NS	East-side wall	08/11/2011	1629887.453	1775127.579	7180.635	6.865
CSMDAB-11-25887	MDAB-614663	Yes	AM228	NS	East-side wall	08/11/2011	1629898.567	1775126.818	7179.652	7.848
CSMDAB-11-25888	MDAB-614664	Yes	AM230	NS	East-side wall	08/11/2011	1629918.822	1775129.737	7181.635	5.865
CSMDAB-11-25889	MDAB-614665	Yes	AM232	NS	East-side wall	08/12/2011	1629939.259	1775131.576	7180.798	6.952
CSMDAB-11-25890	MDAB-614666	Yes	AN222	NS	East-side wall	08/09/2011	1629840.927	1775110.387	7180.243	7.757
CSMDAB-11-25891	MDAB-614667	Yes	AN223	NS	East-side wall	08/09/2011	1629850.183	1775111.325	7180.226	7.524
CSMDAB-11-25892	MDAB-614668	Yes	AN226	NS	East-side wall	08/11/2011	1629879.756	1775115.53	7179.82	7.68
CSMDAB-11-25893	MDAB-614669	Yes	AN228	NS	East-side wall	08/11/2011	1629900.331	1775119.026	7178.678	8.822
CSMDAB-11-25894	MDAB-614670	No	AN231	NS	East-side wall	08/12/2011	1629929.302	1775121.62	7181.38	6.12
CSMDAB-11-25895	MDAB-614671	No	AN234	NS	East-side wall	08/12/2011	1629960.537	1775123.517	7179.144	8.856
CSMDAB-11-27623	MDAB-614706	No	AM232	NS	No Information	09/16/2011	1629939.4	1775130.05	7179.98	7.77
CSMDAB-11-27624	MDAB-614707	No	AM230	NS	No Information	09/16/2011	1629919.4	1775127.87	7180.32	7.18
CSMDAB-11-27625	MDAB-614708	No	AN228	NS	No Information	09/19/2011	1629899.98	1775117.82	7178.48	9.02
CSMDAB-11-27626	MDAB-614709	No	AM228	NS	No Information	09/20/2011	1629898.56	1775126.83	7177.48	10.02
CSMDAB-11-27627	MDAB-614710	No	AL228	NS	No Information	09/20/2011	1629898.04	1775137.81	7178.71	8.79
CSMDAB-11-27628	MDAB-614711	No	AM227	NS	No Information	09/21/2011	1629889.02	1775125.91	7175.97	11.53
CSMDAB-11-27629	MDAB-614712	No	AN226	NS	No Information	09/20/2011	1629879.77	1775115.53	7176.27	11.23

Table 5.0-2 (continued)

Sample ID	Location ID	Excavated[a]	Grid Cell	NMED Split Sample ID	Trench Location	Date Collected	X Coordinate	Y Coordinate	Elevation (ft amsl)	Sample Depth (ft bgs)
CSMDAB-11-27630	MDAB-614713	No	AN223	NS	No Information	09/20/2011	1629850.2	1775111.33	7176.14	11.61
CSMDAB-11-27631	MDAB-614714	No	AN222	NS	No Information	09/21/2011	1629841.59	1775113.42	7175.36	12.64
Enclosure 2										
CSMDAB-10-25077	MDAB-612898	No	NH51	MDA-B-51-Floor	Excavation floor	10/11/2010	1630635.448	1775057.849	7162.1	18.4
CSMDAB-10-25079	MDAB-612900	Yes	NF51	MDA-B-51-Nwall	North-side wall	11/23/2010	1630639.75	1775072.76	7171.381	9.12
CSMDAB-10-25080	MDAB-612901	No	NH51	MDA-B-51-Swall	South-side wall	11/23/2010	1630628.67	1775050.48	7169.636	10.86
CSMDAB-10-25083	MDAB-612904	No	NH46	NS	Excavation floor	01/29/2011	1630588.91	1775076.18	7158.41	23.09
CSMDAB-10-25084	MDAB-612905	No	NF46	NS	North-side wall	01/29/2011	1630594	1775095.55	7167.8	13.7
CSMDAB-10-25085	MDAB-612906	No	NH46	NS	South-side wall	01/29/2011	1630587.81	1775067.31	7161.06	20.44
CSMDAB-10-25086	MDAB-612907	No	NG31	NS	North-side wall	07/22/2011	1630452.69	1775138.12	7172.32	11.18
CSMDAB-10-25087	MDAB-612908	No	NH31	NS	Excavation floor	07/22/2011	1630447.66	1775123.61	7162.35	21.15
CSMDAB-10-25088	MDAB-612909	No	NJ31	NS	South-side wall	07/22/2011	1630445.32	1775109.96	7169.55	13.95
CSMDAB-10-25089	MDAB-612910	No	NF36	NS	North-side wall	07/22/2011	1630499.63	1775122.39	7170.18	12.82
CSMDAB-10-25090	MDAB-612911	No	NH36	NS	Excavation floor	07/22/2011	1630493.32	1775111.97	7153.44	29.56
CSMDAB-10-25091	MDAB-612912	No	NI36	NS	South-side wall	07/22/2011	1630491.55	1775100.38	7163.97	19.03
CSMDAB-11-24386	MDAB-614604	No	NI41	NS	South-side wall	07/22/2011	1630538.36	1775079.13	7167.23	15.27
CSMDAB-11-24387	MDAB-614603	No	NG41	NS	Excavation floor	07/22/2011	1630542.81	1775096.63	7159.61	22.89
CSMDAB-11-24388	MDAB-614602	No	NF41	NS	North-side wall	07/22/2011	1630547.64	1775111.33	7168.04	14.46
CSMDAB-11-24851	MDAB-614643	No	NF50	NS	West-side wall	07/30/2011	1630632.883	1775079.303	7172.512	7.988
CSMDAB-11-24852	MDAB-614644	No	NF52	NS	East-side wall	07/30/2011	1630647.949	1775072.783	7172.299	8.201
CSMDAB-11-24853	MDAB-614645	No	NF51	NS	Excavation floor	07/30/2011	1630639.577	1775077.978	7173.222	7.278
CSMDAB-11-4539	MDAB-614592	No	NG26	MDA-B-26-Nwall	North-side wall	07/19/2011	1630409.51	1775151.65	7174.3	10.2
CSMDAB-11-4540	MDAB-614593	No	NI26	MDA-B-26-Floor	Excavation floor	07/19/2011	1630402.12	1775134.13	7171.01	13.49
CSMDAB-11-4541	MDAB-614594	No	NK27	MDA-B-26-Swall	South-side wall	07/19/2011	1630395.24	1775111.96	7178.05	6.45
Enclosure 3										
CSMDAB-10-26776	MDAB-613126	No	AH160	MDA-B-160-Nwall	North-side wall	10/18/2010	1629216.43	1775115.89	7201	7
CSMDAB-10-26777	MDAB-613127	No	AI160	MDA-B-160-Floor	Excavation floor	10/18/2010	1629217.67	1775107.82	7193.4	14.6
CSMDAB-10-26778	MDAB-613128	No	AK160	MDA-B-160-Swall	South-side wall	10/18/2010	1629220.39	1775090.06	7205.2	2.8
CSMDAB-10-26779	MDAB-613129	No	AI155	MDA-B-155-Nwall	North-side wall	10/18/2010	1629170.57	1775087.35	7206.3	2.7
CSMDAB-10-26780	MDAB-613130	No	AJ155	MDA-B-155-Floor	Excavation floor	10/18/2010	1629169.82	1775099.26	7200.6	8.4
CSMDAB-10-26781	MDAB-613131	No	AK155	MDA-B-155-Swall	South-side wall	10/18/2010	1629169.74	1775108.77	7204.6	4.4
CSMDAB-10-26782	MDAB-613132	No	AH166	NS	North-side wall	01/10/2011	1629277.15	1775119.65	7197.998	8
CSMDAB-10-26783	MDAB-613133	No	AK166	NS	South-side wall	01/10/2011	1629277.45	1775095.8	7198.566	7.43
CSMDAB-10-26784	MDAB-613134	No	AJ166	MDA-B-165-Floor	Excavation floor	01/10/2011	1629277.16	1775108.68	7191.4	14.6
CSMDAB-10-26785	MDAB-613135	No	AI171	NS	North-side wall	01/10/2011	1629324.34	1775122.77	7197.21	6.29
CSMDAB-10-26786	MDAB-613136	No	AK171	NS	South-side wall	01/10/2011	1629329.17	1775100.3	7195.4	8.1
CSMDAB-10-26787	MDAB-613137	No	AJ171	MDA-B-170-Floor	Excavation floor	01/10/2011	1629326.72	1775112.58	7191.64	11.86
MDABEWS2-11-4532	MDAB-613857	No	AG167	NS	South-side wall	01/26/2011	1629287.94	1775130.82	7200.49	5.01

Table 5.0-2 (continued)

Sample ID	Location ID	Excavated[a]	Grid Cell	NMED Split Sample ID	Trench Location	Date Collected	X Coordinate	Y Coordinate	Elevation (ft amsl)	Sample Depth (ft bgs)
MDABEWS2-11-4533	MDAB-613858	No	AG168	NS	East-side wall	01/26/2011	1629292.42	1775135.33	7201.43	4.07
MDABEWS2-11-4535	MDAB-613860	No	AG167	NS	West-side wall	01/26/2011	1629283.51	1775134.45	7201.52	3.98
MDABEWS2-11-4536	MDAB-613859	No	AF167	NS	North-side wall	01/26/2011	1629289.43	1775140.77	7201.57	3.93
MDABEWS2-11-4537	MDAB-613861	No	AG167	NS	Excavation floor	01/26/2011	1629287.27	1775135.7	7200.34	5.16
Enclosure 5										
CSMDAB-11-14064	MDAB-614400	Yes	AH176	MDA-B-175-Nwall	North-side wall	07/06/2011	1629372.85	1775128.62	7190.88	10.62
CSMDAB-11-14065	MDAB-614401	No	AJ175	MDA-B-175-Floor	Excavation floor	07/06/2011	1629371.08	1775112.81	7186.98	14.52
CSMDAB-11-14066	MDAB-614402	No	AK175	MDA-B-175-Swall	South-side wall	07/06/2011	1629368.4	1775101.25	7191.88	9.62
CSMDAB-11-14067	MDAB-614403	No	AH180	MDA-B-180-Nwall	North-side wall	07/07/2011	1629412.47	1775134.83	7191.74	7.26
CSMDAB-11-14068	MDAB-614404	No	AJ180	MDA-B-180-Floor	Excavation floor	07/07/2011	1629415.73	1775118.35	7185.41	13.59
CSMDAB-11-14069	MDAB-614405	No	AK180	MDA-B-180-Swall	South-side wall	07/07/2011	1629417.09	1775106.56	7189.35	9.65
CSMDAB-11-14070	MDAB-614406	No	AH185	MDA-B-185-Nwall	North-side wall	07/07/2011	1629467.03	1775138.71	7191.31	5.69
CSMDAB-11-14071	MDAB-614407	Yes	AJ184	MDA-B-185-Floor	Excavation floor	07/07/2011	1629460.03	1775120.76	7187.83	9.17
CSMDAB-11-14072	MDAB-614408	Yes	AK184	MDA-B-185-Swall	South-side wall	07/07/2011	1629463.88	1775108.01	7189.37	7.63
CSMDAB-11-14073	MDAB-614409	Yes	AI191	MDA-B-190-Nwall	North-side wall	07/08/2011	1629522.64	1775138.66	7191.82	3.18
CSMDAB-11-14074	MDAB-614410	Yes	AJ190	MDA-B-190-Floor	Excavation floor	07/08/2011	1629519.16	1775125.85	7189.43	5.57
CSMDAB-11-14075	MDAB-614411	Yes	AK190	MDA-B-190-Swall	South-side wall	07/08/2011	1629519.07	1775112.64	7188.12	6.88
CSMDAB-11-14076	MDAB-614412	No	AH175	NS	North-side wall	07/22/2011	1629366.67	1775133.62	7195.299	6.2
CSMDAB-11-14077	MDAB-614413	No	AL185	NS	South-side wall	07/22/2011	1629469.978	1775104.451	7189.577	7.42
CSMDAB-11-14078	MDAB-614414	No	AJ190	NS	Excavation floor	07/22/2011	1629516.767	1775126.904	7186.95	8.05
CSMDAB-11-14079	MDAB-614415	No	AH190	NS	North-side wall	07/22/2011	1629515.286	1775145.904	7189.042	5.96
CSMDAB-11-14080	MDAB-614416	No	AL190	NS	South-side wall	07/22/2011	1629520.848	1775107.779	7188.206	6.79
CSMDAB-11-14081	MDAB-614417	No	AJ185	NS	Excavation floor	07/22/2011	1629464.805	1775122.268	7185.465	11.53
Enclosure 7										
CSMDAB-10-26802	MDAB-613141	No	AH196	MDA-B-196-Nwall	North-side wall	10/19/2010	1629572.28	1775149.98	7188.6	4.9
CSMDAB-10-26803	MDAB-613142	Yes	AI196	MDA-B-196-Floor	Excavation floor	10/19/2010	1629575.9	1775138.19	7181.1	12.4
CSMDAB-10-26804	MDAB-613143	No	AK196	MDA-B-196-Swall	South-side wall	10/19/2010	1629576.96	1775118.51	7187.4	6.1
CSMDAB-10-26805	MDAB-613144	No	AH200	NS	North-side wall	11/10/2010	1629615.8	1775151.26	7185.79	6.21
CSMDAB-10-26806	MDAB-613145	No	AK200	NS	South-side wall	11/10/2010	1629620.2	1775123.13	7186.3	5.7
CSMDAB-10-26807	MDAB-613146	Yes	AJ200	NS	Excavation floor	11/10/2010	1629614.83	1775134.31	7177.3	14.7
CSMDAB-10-26808	MDAB-613147	Yes	AH205	NS	North-side wall	12/10/2010	1629663.27	1775153.19	7180.53	10.47
CSMDAB-10-26809	MDAB-613148	Yes	AK205	NS	South-side wall	12/10/2010	1629667.16	1775124.69	7179.06	11.94
CSMDAB-10-26810	MDAB-613149	No	AJ205	NS	Excavation floor	12/10/2010	1629667.47	1775141.88	7174.26	16.74
CSMDAB-10-26811	MDAB-613142	No	AI196	NS	Excavation floor	11/10/2010	1629575.9	1775138.19	7181.06	12.44
CSMDAB-10-26812	MDAB-613151	No	AJ200	NS	Excavation floor	12/10/2010	1629616.25	1775133.91	7176.78	15.22

Table 5.0-2 (continued)

Sample ID	Location ID	Excavated[a]	Grid Cell	NMED Split Sample ID	Trench Location	Date Collected	X Coordinate	Y Coordinate	Elevation (ft amsl)	Sample Depth (ft bgs)
Enclosure 9										
CSMDAB-11-25730	MDAB-614648	No	NF57	NS	North-side wall	08/08/2011	1630697.854	1775052.202	7169.857	9.643
CSMDAB-11-25731	MDAB-614649	No	NG57	NS	Excavation floor	08/08/2011	1630693.624	1775041.417	7161.509	17.991
CSMDAB-11-25732	MDAB-614650	Yes	NH57	NS	South-side wall	08/08/2011	1630688.833	1775028.241	7166.077	13.423
CSMDAB-11-25734	MDAB-614651	No	NF60	MDA-B-61-Nwall	North-side wall	08/09/2011	1630727.701	1775041.404	7168.791	8.709
CSMDAB-11-25735	MDAB-614652	No	NG60	MDA-B-61-Floor	Excavation floor	08/08/2011	1630720.766	1775029.808	7159.941	17.559
CSMDAB-11-25737	MDAB-614653	Yes	NH61	MDA-B-61-Swall	South-side wall	08/08/2011	1630722.666	1775016.107	7166.983	10.517
CSMDAB-11-27591	MDAB-614702	No	81.5	NS	South-side wall	09/16/2011	1630916.66	1774934.96	7164.36	9.64
CSMDAB-11-27592	MDAB-614703	No	76.5	NS	North-side wall	09/19/2011	1630880.98	1774982.56	7167.29	7.71
CSMDAB-11-27593	MDAB-614704	No	76.5	NS	Excavation floor	09/19/2011	1630875.35	1774966.73	7157.4	17.6
CSMDAB-11-27594	MDAB-614705	Yes	76.5	NS	South-side wall	09/19/2011	1630867.69	1774953.49	7164.31	10.69
CSMDAB-11-27942	MDAB-614721	No	76	NS	South-side wall	09/20/2011	1630867.82	1774952.6	7165.19	9.81
CSMDAB-11-27943	MDAB-614722	No	81	NS	North-side wall	09/20/2011	1630927.41	1774965.98	7163.95	10.05
CSMDAB-11-27944	MDAB-614723	No	64.5	NS	North-side wall	09/19/2011	1630773.79	1775027.11	7166.89	9.11
CSMDAB-11-27945	MDAB-614724	No	71	NS	North-side wall	09/20/2011	1630839.03	1775000.52	7165.16	10.34
CSMDAB-11-27946	MDAB-614725	No	71	NS	Excavation floor	09/20/2011	1630827.73	1774988.39	7155.34	20.16
CSMDAB-11-27947	MDAB-614726	No	71	NS	South-side wall	09/20/2011	1630821.91	1774970.53	7168.02	7.48
CSMDAB-11-5056	MDAB-613930	Yes	81.5	NS	North-side wall	09/16/2011	1630927.65	1774964.35	7165.55	8.45
CSMDAB-11-5057	MDAB-613931	No	NI57	NS	South-side wall	08/24/2011	1630689.38	1775023.4	7168.39	11.11
CSMDAB-11-5058	MDAB-613932	No	NI61	NS	South-side wall	08/24/2011	1630723.8	1775012.02	7164.65	12.85
CSMDAB-11-5059	MDAB-613933	No	81.5	NS	Excavation floor	09/16/2011	1630918.19	1774949.5	7154.23	19.77
CSMDAB-11-5060	MDAB-613934	Yes	NF65	NS	North-side wall	08/09/2011	1630771.584	1775026.332	7166.626	9.374
CSMDAB-11-5061	MDAB-613935	No	NG65	NS	Excavation floor	08/09/2011	1630766.705	1775015.579	7159.547	16.453
CSMDAB-11-5062	MDAB-613936	No	NH65	NS	South-side wall	08/09/2011	1630764.877	1775000.083	7165.259	10.741
CSMDAB-11-5063	MDAB-613937	Yes	NF72	MDA-B-71-Nwall	North-side wall	08/09/2011	1630834.986	1774998.151	7165.019	10.481
CSMDAB-11-5064	MDAB-613938	Yes	NG72	MDA-B-71-Floor	Excavation floor	08/09/2011	1630830.681	1774988.225	7158.578	16.922
CSMDAB-11-5065	MDAB-613939	Yes	NH72	MDA-B-71-Swall	South-side wall	08/09/2011	1630826.311	1774975.261	7167.411	8.089
Enclosure 12										
CSMDAB-11-10125	MDAB-614275	No	NI98	NS	South-side wall	04/26/2011	1631068.9	1774872.54	7161.17	10.43
CSMDAB-11-4855	MDAB-613862	No	NG87	MDA-B-86-Floor	Excavation floor	03/24/2011	1630968.425	1774931.449	7156.84	16.66
CSMDAB-11-4856	MDAB-613863	Yes	NF87	NS	North-side wall	03/24/2011	1630972.26	1774941.975	7158.28	15.22
CSMDAB-11-4857	MDAB-613864	No	NH86	NS	South-side wall	03/24/2011	1630964.404	1774922.115	7156.93	16.57
CSMDAB-11-4858	MDAB-613865	No	NG91	NS	Excavation floor	03/23/2011	1631010.473	1774913.843	7155.07	17.43
CSMDAB-11-4859	MDAB-613866	No	NF91	MDA-B-91-Floor	North-side wall	03/23/2011	1631013.479	1774925.894	7156.18	16.32
CSMDAB-11-4860	MDAB-613867	No	NH91	NS	South-side wall	03/23/2011	1631007.927	1774904.128	7157.49	15.01
CSMDAB-11-4861	MDAB-613868	No	NG97	MDA-B-96-Floor	Excavation floor	03/23/2011	1631063.929	1774893.038	7152.67	18.93
CSMDAB-11-4862	MDAB-613869	No	NF96	NS	North-side wall	03/23/2011	1631066.122	1774909.814	7158.69	12.91
CSMDAB-11-4863	MDAB-613870	Yes	NI97	NS	South-side wall	03/23/2011	1631058.916	1774879.665	7159.92	11.68

Table 5.0-2 (continued)

Sample ID	Location ID	Excavated[a]	Grid Cell	NMED Split Sample ID	Trench Location	Date Collected	X Coordinate	Y Coordinate	Elevation (ft amsl)	Sample Depth (ft bgs)
CSMDAB-11-4864	MDAB-613871	No	NI101	NS	South-side wall	03/23/2011	1631096.864	1774865.385	7156.62	14.38
CSMDAB-11-5775	MDAB-613975	No	NF101	NS	North-side wall	03/23/2011	1631107.88	1774888.344	7157.45	13.55
CSMDAB-11-5776	MDAB-613976	No	NH101	MDA-B-101-Floor	Excavation floor	03/23/2011	1631102.54	1774875.587	7156.75	14.25
CSMDAB-11-9163	MDAB-614274	No	NI96	NS	South-side wall	04/07/2011	1631049.17	1774878.94	7164.58	7.02
CSMDAB-11-9164	MDAB-613870	No	NI97	NS	South-side wall	04/07/2011	1631058.916	1774879.665	7163.74	7.86
CSMDAB-11-9165	MDAB-614275	Yes	NI98	NS	South-side wall	04/07/2011	1631068.9	1774872.54	7161.17	10.43
CSMDAB-11-9166	MDAB-613863	No	NF87	NS	North-side wall	04/07/2011	1630972.26	1774941.975	7161.99	11.51
CSMDAB-11-9167	MDAB-614277	No	NF87	NS	North-side wall	04/07/2011	1630981.7	1774942.82	7161.36	12.14
CSMDAB-11-9168	MDAB-614276	No	NF86	NS	North-side wall	04/07/2011	1630970.79	1774946.68	7162.73	10.77

[a] "Yes" indicates sampling location was excavated and resampled. "No" indicates sampling location is final confirmation sampling location.

[b] NS = No split sample collected.

Table 5.0-3
Confirmation Samples Collected and Analyses Requested

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cyanide	Dioxins/Furans	Explosive Comounds	Gamma-Emitting Radionuclides	Herbicides	Isotopic Plutonium	Isotopic Uranium	Nitrate	PCBs	Perchlorate	Pesticides	Stroniutm-90	SVOCs	TAL Metals	Tritium	VOCs
CSMDAB-10-24585	MDAB-612790	4.7–4.7	ALLH	10-4134[a]	10-4134	10-4179	10-4133	10-4134	10-4133	10-4134	10-4134	10-4134	—[b]	10-4134	10-4133	10-4134	10-4133	10-4134	10-4134	10-4133
CSMDAB-10-24586	MDAB-612791	4.3–4.3	ALLH	10-4134	10-4134	—	—	10-4134	10-4133	10-4134	10-4134	10-4134	—	10-4134	10-4133	10-4134	10-4133	10-4134	10-4134	10-4133
CSMDAB-10-24587	MDAB-612792	7.4–7.4	ALLH	10-4134	10-4134	—	—	10-4134	10-4133	10-4134	10-4134	10-4134	—	10-4134	10-4133	10-4134	10-4133	10-4134	10-4134	10-4133
CSMDAB-10-24589	MDAB-612794	2–2	ALLH	10-4642	—	—	—	—	—	10-4642	—	—	—	—	—	—	—	—	—	—
CSMDAB-10-24590	MDAB-612795	2.8–2.8	ALLH	10-4642	—	—	—	—	—	10-4642	—	—	—	—	—	—	—	—	—	—
CSMDAB-10-24591	MDAB-612796	2.4–2.4	ALLH	10-4642	—	—	—	—	—	10-4642	—	—	—	—	—	—	—	—	—	—
CSMDAB-10-24592	MDAB-612797	4.1–4.1	ALLH	11-150	—	—	—	11-150	—	11-150	11-150	—	—	—	—	—	—	—	—	—
CSMDAB-10-24593	MDAB-612798	6.69–6.69	ALLH	11-1028	11-1027	—	—	11-1028	11-1026	11-1028	11-1028	11-1027	—	11-1027	11-1026	11-1028	11-1026	11-1027	11-1028	11-1026
CSMDAB-10-24594	MDAB-612799	3.36–3.36	ALLH	11-1028	11-1027	—	—	11-1028	11-1026	11-1028	11-1028	11-1027	—	11-1027	11-1026	11-1028	11-1026	11-1027	11-1028	11-1026
CSMDAB-10-24595	MDAB-612800	3.52–3.52	ALLH	11-1028	11-1027	11-1080	11-1026	11-1028	11-1026	11-1028	11-1028	11-1027	—	11-1027	11-1026	11-1028	11-1026	11-1027	11-1028	11-1026
CSMDAB-10-24596	MDAB-612801	8.69–8.69	ALLH	11-1263	11-1263	—	—	11-1263	11-1262	11-1263	11-1263	11-1263	—	11-1263	11-1262	11-1263	11-1262	11-1263	11-1263	11-1262
CSMDAB-10-24597	MDAB-612802	13.28–13.28	ALLH	11-1263	11-1263	—	—	11-1263	11-1262	11-1263	11-1263	11-1263	—	11-1263	11-1262	11-1263	11-1262	11-1263	11-1263	11-1262
CSMDAB-11-3819	MDAB-612802	13.56–13.56	ALLH	—	—	—	—	11-2558	—	11-2558	—	—	—	—	—	—	—	—	—	—
CSMDAB-11-13874	MDAB-612803	6.17–6.17	ALLH	—	—	—	—	11-2558	—	11-2558	—	—	—	—	—	—	—	—	—	—
CSMDAB-10-24598	MDAB-612803	9.48–9.48	ALLH	11-1263	11-1263	—	—	11-1263	11-1262	11-1263	11-1263	11-1263	—	11-1263	11-1262	11-1263	11-1262	11-1263	11-1263	11-1262
CSMDAB-10-24599	MDAB-612804	9.79–9.79	ALLH	11-2104	11-2103	—	11-2102	11-2104	11-2102	11-2104	11-2104	11-2103	—	11-2103	11-2102	11-2104	11-2102	11-2103	11-2104	11-2102

Table 5.0-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cyanide	Dioxins/Furans	Explosive Comounds	Gamma-Emitting Radionuclides	Herbicides	Isotopic Plutonium	Isotopic Uranium	Nitrate	PCBs	Perchlorate	Pesticides	Stroniutm-90	SVOCs	TAL Metals	Tritium	VOCs
CSMDAB-10-25077	MDAB-612898	18.4–18.4	ALLH	11-118	11-118	—	—	11-118	11-117	11-118	11-118	11-118	—	11-118	11-117	11-118	11-117	11-117	11-118	11-117
CSMDAB-10-25079	MDAB-612900	9.12–9.12	ALLH	11-637	11-637	—	—	11-637	11-636	11-637	11-637	11-637	—	11-637	11-636	11-637	11-636	11-637	11-637	11-636
CSMDAB-10-25080	MDAB-612901	10.86–10.86	ALLH	11-637	11-637	—	—	11-637	11-636	11-637	11-637	11-637	—	11-637	11-636	11-637	11-636	11-637	11-637	11-636
CSMDAB-10-25083	MDAB-612904	23.09–23.09	ALLH	11-1261	11-1261	—	—	11-1261	11-1260	11-1261	11-1261	11-1261	—	11-1261	11-1260	11-1261	11-1260	11-1261	11-1261	11-1260
CSMDAB-10-25084	MDAB-612905	13.7–13.7	ALLH	11-1261	11-1261	—	—	11-1261	11-1260	11-1261	11-1261	11-1261	—	11-1261	11-1260	11-1261	11-1260	11-1261	11-1261	11-1260
CSMDAB-10-25085	MDAB-612906	20.44–20.44	ALLH	11-1261	11-1261	—	—	11-1261	11-1260	11-1261	11-1261	11-1261	—	11-1261	11-1260	11-1261	11-1260	11-1261	11-1261	11-1260
CSMDAB-10-25086	MDAB-612907	11.18–11.18	ALLH	11-2917	11-2916	—	—	11-2917	11-2915	11-2917	11-2917	11-2916	—	11-2916	11-2915	11-2917	11-2915	11-2916	11-2917	11-2915
CSMDAB-10-25087	MDAB-612908	21.15–21.15	ALLH	11-2917	11-2916	—	—	11-2917	11-2915	11-2917	11-2917	11-2916	—	11-2916	11-2915	11-2917	11-2915	11-2916	11-2917	11-2915
CSMDAB-10-25088	MDAB-612909	13.95–13.95	ALLH	11-2917	11-2916	—	—	11-2917	11-2915	11-2917	11-2917	11-2916	—	11-2916	11-2915	11-2917	11-2915	11-2916	11-2917	11-2915
CSMDAB-10-25089	MDAB-612910	12.82–12.82	ALLH	11-2917	11-2916	—	—	11-2917	11-2915	11-2917	11-2917	11-2916	—	11-2916	11-2915	11-2917	11-2915	11-2916	11-2917	11-2915
CSMDAB-10-25090	MDAB-612911	29.56–29.56	ALLH	11-2917	11-2916	11-2960	11-2915	11-2917	11-2915	11-2917	11-2917	11-2916	—	11-2916	11-2915	11-2917	11-2915	11-2916	11-2917	11-2915
CSMDAB-10-25091	MDAB-612912	19.03–19.03	ALLH	11-2917	11-2916	—	—	11-2917	11-2915	11-2917	11-2917	11-2916	—	11-2916	11-2915	11-2917	11-2915	11-2916	11-2917	11-2915
CSMDAB-10-26776	MDAB-613126	7–7	ALLH	11-216	11-215	—	—	11-216	11-214	11-216	11-216	11-215	—	11-215	11-214	11-216	11-214	11-215	11-216	11-214
CSMDAB-10-26777	MDAB-613127	14.6–14.6	ALLH	11-216	11-215	—	—	11-216	11-214	11-216	11-216	11-215	—	11-215	11-214	11-216	11-214	11-215	11-216	11-214
CSMDAB-10-26778	MDAB-613128	2.8–2.8	ALLH	11-216	11-215	11-257	11-214	11-216	11-214	11-216	11-216	11-215	11-214	11-215	11-214	11-216	11-214	11-215	11-216	11-214
CSMDAB-10-26779	MDAB-613129	2.7–2.7	ALLH	11-216	11-215	—	—	11-216	11-214	11-216	11-216	11-215	—	11-215	11-214	11-216	11-214	11-215	11-216	11-214
CSMDAB-10-26780	MDAB-613130	8.4–8.4	ALLH	11-216	11-215	—	—	11-216	11-214	11-216	11-216	11-215	—	11-215	11-214	11-216	11-214	11-215	11-216	11-214
CSMDAB-10-26781	MDAB-613131	4.4–4.4	ALLH	11-216	11-215	—	—	11-216	11-214	11-216	11-216	11-215	—	11-215	11-214	11-216	11-214	11-215	11-216	11-214
CSMDAB-10-26782	MDAB-613132	8–8	ALLH	11-1052	11-1052	—	—	11-1052	11-1051	11-1052	11-1052	11-1052	—	11-1052	11-1051	11-1052	11-1051	11-1052	11-1052	11-1051
CSMDAB-10-26783	MDAB-613133	7.43–7.43	ALLH	11-1052	11-1052	—	—	11-1052	11-1051	11-1052	11-1052	11-1052	—	11-1052	11-1051	11-1052	11-1051	11-1052	11-1052	11-1051
CSMDAB-10-26784	MDAB-613134	14.6–14.6	ALLH	11-1052	11-1052	—	—	11-1052	11-1051	11-1052	11-1052	11-1052	—	11-1052	11-1051	11-1052	11-1051	11-1052	11-1052	11-1051
CSMDAB-10-26785	MDAB-613135	6.29–6.29	ALLH	11-1052	11-1052	—	—	11-1052	11-1051	11-1052	11-1052	11-1052	—	11-1052	11-1051	11-1052	11-1051	11-1052	11-1052	11-1051
CSMDAB-10-26786	MDAB-613136	8.1–8.1	ALLH	11-1052	11-1052	—	—	11-1052	11-1051	11-1052	11-1052	11-1052	—	11-1052	11-1051	11-1052	11-1051	11-1052	11-1052	11-1051
CSMDAB-10-26787	MDAB-613137	11.86–11.86	ALLH	11-1052	11-1052	11-1079	11-1051	11-1052	11-1051	11-1052	11-1052	11-1052	—	11-1052	11-1051	11-1052	11-1051	11-1052	11-1052	11-1051
CSMDAB-10-26802	MDAB-613141	4.9–4.9	na[c]	11-219	11-218	—	—	11-219	11-217	11-219	11-219	11-218	—	11-218	11-217	11-219	11-217	11-218	11-219	11-217
CSMDAB-10-26803	MDAB-613142	12.4–12.4	na	11-219	11-218	—	—	11-219	11-217	11-219	11-219	11-218	—	11-218	11-217	11-219	11-217	11-218	11-219	11-217
CSMDAB-10-26811	MDAB-613142	12.44–12.44	Qbt 1g	11-476	—	—	—	11-476	—	11-476	11-476	—	—	—	—	11-476	—	—	—	—
CSMDAB-10-26804	MDAB-613143	6.1–6.1	na	11-219	11-218	11-256	11-217	11-219	11-217	11-219	11-219	11-218	11-217	11-218	11-217	11-219	11-217	11-218	11-219	11-217
CSMDAB-10-26805	MDAB-613144	6.21–6.21	ALLH	11-476	11-477	—	—	11-476	11-476	11-476	11-476	11-477	—	11-477	11-476	11-476	11-476	11-477	11-476	11-476
CSMDAB-10-26806	MDAB-613145	5.7–5.7	ALLH	11-476	11-477	—	—	11-476	11-476	11-476	11-476	11-477	—	11-477	11-476	11-476	11-476	11-477	11-476	11-476
CSMDAB-10-26807	MDAB-613146	14.7–14.7	Qbt 1g	11-476	11-477	—	—	11-476	11-476	11-476	11-476	11-477	—	11-477	11-476	11-476	11-476	11-477	11-476	11-476
CSMDAB-10-26808	MDAB-613147	10.47–10.47	ALLH	11-918	11-917	—	—	11-918	11-916	11-918	11-918	11-917	—	11-917	11-916	11-918	11-916	11-917	11-918	11-916

Table 5.0-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cyanide	Dioxins/Furans	Explosive Comounds	Gamma-Emitting Radionuclides	Herbicides	Isotopic Plutonium	Isotopic Uranium	Nitrate	PCBs	Perchlorate	Pesticides	Stroniutm-90	SVOCs	TAL Metals	Tritium	VOCs
CSMDAB-10-26809	MDAB-613148	11.94–11.94	ALLH	11-918	11-917	—	—	11-918	11-916	11-918	11-918	11-917	—	11-917	11-916	11-918	11-916	11-917	11-918	11-916
CSMDAB-10-26810	MDAB-613149	16.74–16.74	ALLH	11-918	11-917	11-983	11-916	11-918	11-916	11-918	11-918	11-917	—	11-917	11-916	11-918	11-916	11-917	11-918	11-916
CSMDAB-10-26812	MDAB-613151	15.22–15.22	ALLH	11-918	11-917	—	—	11-918	11-916	11-918	11-918	11-917	—	11-917	11-916	11-918	11-916	11-917	11-918	11-916
CSMDAB-11-4855	MDAB-613862	16.66–16.66	ALLH	11-1765	11-1765	—	—	11-1765	11-1764	11-1765	11-1765	11-1765	—	11-1765	11-1764	11-1765	11-1764	11-1765	11-1765	11-1764
CSMDAB-11-9166	MDAB-613863	11.51–11.51	ALLH	—	—	—	—	—	—	11-1975	—	—	—	—	—	—	—	—	—	—
CSMDAB-11-4856	MDAB-613863	15.22–15.22	ALLH	11-1765	11-1765	—	—	11-1765	11-1764	11-1765	11-1765	11-1765	—	11-1765	11-1764	11-1765	11-1764	11-1765	11-1765	11-1764
CSMDAB-11-4857	MDAB-613864	16.57–16.57	ALLH	11-1765	11-1765	—	—	11-1765	11-1764	11-1765	11-1765	11-1765	—	11-1765	11-1764	11-1765	11-1764	11-1765	11-1765	11-1764
CSMDAB-11-4858	MDAB-613865	17.43–17.43	ALLH	11-1755	11-1755	—	—	11-1755	11-1753	11-1755	11-1755	11-1755	—	11-1755	11-1753	11-1755	11-1753	11-1755	11-1755	11-1753
CSMDAB-11-4859	MDAB-613866	16.32–16.32	ALLH	11-1755	11-1755	11-1754	11-1753	11-1755	11-1753	11-1755	11-1755	11-1755	—	11-1755	11-1753	11-1755	11-1753	11-1755	11-1755	11-1753
CSMDAB-11-4860	MDAB-613867	15.01–15.01	ALLH	11-1755	11-1755	—	—	11-1755	11-1753	11-1755	11-1755	11-1755	—	11-1755	11-1753	11-1755	11-1753	11-1755	11-1755	11-1753
CSMDAB-11-4861	MDAB-613868	18.93–18.93	ALLH	11-1755	11-1755	—	—	11-1755	11-1753	11-1755	11-1755	11-1755	—	11-1755	11-1753	11-1755	11-1753	11-1755	11-1755	11-1753
CSMDAB-11-4862	MDAB-613869	12.91–12.91	ALLH	11-1755	11-1755	—	—	11-1755	11-1753	11-1755	11-1755	11-1755	—	11-1755	11-1753	11-1755	11-1753	11-1755	11-1755	11-1753
CSMDAB-11-4863	MDAB-613870	11.68–11.68	ALLH	11-1755	11-1755	—	—	11-1755	11-1753	11-1755	11-1755	11-1755	—	11-1755	11-1753	11-1755	11-1753	11-1755	11-1755	11-1753
CSMDAB-11-9164	MDAB-613870	7.86–7.86	ALLH	—	—	—	—	—	—	11-1964	—	—	—	—	—	—	—	—	—	—
CSMDAB-11-4864	MDAB-613871	14.38–14.38	ALLH	11-1755	11-1755	11-1754	11-1753	11-1755	11-1753	11-1755	11-1755	11-1755	—	11-1755	11-1753	11-1755	11-1753	11-1755	11-1755	11-1753
CSMDAB-11-5056	MDAB-613930	8.45–8.45	ALLH	11-3623	11-3622	—	—	11-3623	11-3621	11-3623	11-3623	11-3622	—	11-3622	11-3621	11-3623	11-3621	11-3622	11-3623	11-3621
CSMDAB-11-5057	MDAB-613931	11.11–11.11	ALLH	—	—	—	—	—	—	11-3306	—	—	—	—	—	—	—	11-3306	—	—
CSMDAB-11-5058	MDAB-613932	12.85–12.85	ALLH	—	—	—	—	—	—	11-3306	—	—	—	—	—	—	—	—	—	—
CSMDAB-11-5059	MDAB-613933	19.77–19.77	ALLH	11-3623	11-3622	—	—	11-3623	11-3621	11-3623	11-3623	11-3622	—	11-3622	11-3621	11-3623	11-3621	11-3622	11-3623	11-3621
CSMDAB-11-5060	MDAB-613934	9.374–9.374	ALLH	11-3101	11-3099	—	—	11-3101	11-3100	11-3101	11-3101	11-3099	—	11-3099	11-3100	11-3101	11-3100	11-3099	11-3101	11-3100
CSMDAB-11-5061	MDAB-613935	16.45–16.45	ALLH	11-3101	11-3099	—	—	11-3101	11-3100	11-3101	11-3101	11-3099	—	11-3099	11-3100	11-3101	11-3100	11-3099	11-3101	11-3100
CSMDAB-11-5062	MDAB-613936	10.74–10.74	ALLH	11-3101	11-3099	—	—	11-3101	11-3100	11-3101	11-3101	11-3099	—	11-3099	11-3100	11-3101	11-3100	11-3099	11-3101	11-3100
CSMDAB-11-5063	MDAB-613937	10.48–10.48	ALLH	11-3101	11-3099	—	—	11-3101	11-3100	11-3101	11-3101	11-3099	—	11-3099	11-3100	11-3101	11-3100	11-3099	11-3101	11-3100
CSMDAB-11-5064	MDAB-613938	16.92–16.92	ALLH	11-3101	11-3099	11-3160	11-3100	11-3101	11-3100	11-3101	11-3101	11-3099	—	11-3099	11-3100	11-3101	11-3100	11-3099	11-3101	11-3100
CSMDAB-11-5065	MDAB-613939	8.09–8.09	ALLH	11-3101	11-3099	—	—	11-3101	11-3100	11-3101	11-3101	11-3099	—	11-3099	11-3100	11-3101	11-3100	11-3099	11-3101	11-3100
CSMDAB-11-5775	MDAB-613975	13.55–13.55	ALLH	11-1755	11-1755	—	—	11-1755	11-1753	11-1755	11-1755	11-1755	—	11-1755	11-1753	11-1755	11-1753	11-1755	11-1755	11-1753
CSMDAB-11-5776	MDAB-613976	14.25–14.25	ALLH	11-1755	11-1755	—	—	11-1755	11-1753	11-1755	11-1755	11-1755	—	11-1755	11-1753	11-1755	11-1753	11-1755	11-1755	11-1753
CSMDAB-11-9163	MDAB-614274	7.02–7.02	ALLH	—	—	—	—	—	—	11-1964	—	—	—	—	—	—	—	—	—	—
CSMDAB-11-10125	MDAB-614275	10.43–10.43	ALLH	11-2198	—	—	—	11-2198	—	11-2198	11-2198	—	—	—	—	11-2198	—	—	—	—
CSMDAB-11-9165	MDAB-614275	10.43–10.43	ALLH	—	—	—	—	—	—	11-1964	—	—	—	—	—	—	—	—	—	—
CSMDAB-11-9168	MDAB-614276	10.77–10.77	ALLH	—	—	—	—	—	—	11-1975	—	—	—	—	—	—	—	—	—	—
CSMDAB-11-9167	MDAB-614277	12.14–12.14	ALLH	—	—	—	—	—	—	11-1975	—	—	—	—	—	—	—	—	—	—

Table 5.0-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cyanide	Dioxins/Furans	Explosive Comounds	Gamma-Emitting Radionuclides	Herbicides	Isotopic Plutonium	Isotopic Uranium	Nitrate	PCBs	Perchlorate	Pesticides	Stroniutm-90	SVOCs	TAL Metals	Tritium	VOCs
CSMDAB-11-3808	MDAB-614332	8.68–8.68	ALLH	11-2104	11-2103	—	—	11-2104	11-2102	11-2104	11-2104	11-2103	—	11-2103	11-2102	11-2104	11-2102	11-2103	11-2104	11-2102
CSMDAB-11-3818	MDAB-614333	15.87–15.87	ALLH	11-2104	11-2103	—	—	11-2104	11-2102	11-2104	11-2104	11-2103	—	11-2103	11-2102	11-2104	11-2102	11-2103	11-2104	11-2102
CSMDAB-11-3809	MDAB-614334	9.96–9.96	ALLH	11-2104	11-2103	—	—	11-2104	11-2102	11-2104	11-2104	11-2103	—	11-2103	11-2102	11-2104	11-2102	11-2103	11-2104	11-2102
CSMDAB-11-3817	MDAB-614335	12.29–12.29	ALLH	11-2104	11-2103	—	—	11-2104	11-2102	11-2104	11-2104	11-2103	—	11-2103	11-2102	11-2104	11-2102	11-2103	11-2104	11-2102
CSMDAB-11-4549	MDAB-614336	8.41–8.41	ALLH	11-2104	11-2103	—	—	11-2104	11-2102	11-2104	11-2104	11-2103	—	11-2103	11-2102	11-2104	11-2102	11-2103	11-2104	11-2102
CSMDAB-11-3811	MDAB-614337	17.29–17.29	ALLH	11-2119	11-2121	—	—	11-2119	11-2120	11-2119	11-2119	11-2121	—	11-2121	11-2120	11-2119	11-2120	11-2121	11-2119	11-2120
CSMDAB-11-3812	MDAB-614338	10.47–10.47	ALLH	11-2119	11-2121	—	—	11-2119	11-2120	11-2119	11-2119	11-2121	—	11-2121	11-2120	11-2119	11-2120	11-2121	11-2119	11-2120
CSMDAB-11-3820	MDAB-614339	8.71–8.71	ALLH	11-2119	11-2121	—	—	11-2119	11-2120	11-2119	11-2119	11-2121	—	11-2121	11-2120	11-2119	11-2120	11-2121	11-2119	11-2120
CSMDAB-11-3821	MDAB-614397	13.74–13.74	ALLH	—	—	—	—	11-2558	—	11-2558	—	—	—	—	—	—	—	—	—	—
CSMDAB-11-13875	MDAB-614398	12.66–12.66	ALLH	—	—	—	—	11-2558	—	11-2558	—	—	—	—	—	—	—	—	—	—
CSMDAB-11-13873	MDAB-614399	6.2–6.2	ALLH	—	—	—	—	11-2558	—	11-2558	—	—	—	—	—	—	—	—	—	—
CSMDAB-11-14064	MDAB-614400	10.62–10.62	ALLH	11-2761	11-2760	—	—	11-2761	11-2760	11-2761	11-2761	11-2760	—	—	11-2760	11-2761	11-2760	11-2760	11-2760	11-2760
CSMDAB-11-14065	MDAB-614401	14.52–14.52	ALLH	11-2761	11-2760	—	—	11-2761	11-2760	11-2761	11-2761	11-2760	—	—	11-2760	11-2761	11-2760	11-2760	11-2760	11-2760
CSMDAB-11-14066	MDAB-614402	9.62–9.62	ALLH	11-2761	11-2760	—	—	11-2761	11-2760	11-2761	11-2761	11-2760	—	—	11-2760	11-2761	11-2760	11-2760	11-2760	11-2760
CSMDAB-11-14067	MDAB-614403	7.26–7.26	ALLH	11-2765	11-2767	—	—	11-2765	11-2766	11-2765	11-2765	11-2767	—	11-2767	11-2766	11-2765	11-2766	11-2767	11-2766	11-2766
CSMDAB-11-14068	MDAB-614404	13.59–13.59	ALLH	11-2765	11-2767	11-2808	11-2766	11-2765	11-2766	11-2765	11-2765	11-2767	—	11-2767	11-2766	11-2765	11-2766	11-2767	11-2766	11-2766
CSMDAB-11-14069	MDAB-614405	9.65–9.65	ALLH	11-2765	11-2767	—	—	11-2765	11-2766	11-2765	11-2765	11-2767	—	11-2767	11-2766	11-2765	11-2766	11-2767	11-2766	11-2766
CSMDAB-11-14070	MDAB-614406	5.69–5.69	ALLH	11-2765	11-2767	—	—	11-2765	11-2766	11-2765	11-2765	11-2767	—	11-2767	11-2766	11-2765	11-2766	11-2767	11-2766	11-2766
CSMDAB-11-14071	MDAB-614407	9.17–9.17	ALLH	11-2765	11-2767	—	—	11-2765	11-2766	11-2765	11-2765	11-2767	—	11-2767	11-2766	11-2765	11-2766	11-2767	11-2766	11-2766
CSMDAB-11-14072	MDAB-614408	7.63–7.63	ALLH	11-2765	11-2767	—	—	11-2765	11-2766	11-2765	11-2765	11-2767	—	11-2767	11-2766	11-2765	11-2766	11-2767	11-2766	11-2766
CSMDAB-11-14073	MDAB-614409	3.18–3.18	ALLH	11-2771	11-2771	—	11-2770	11-2771	11-2770	11-2771	11-2771	11-2771	—	11-2771	11-2770	11-2771	11-2770	11-2771	11-2771	11-2770
CSMDAB-11-14074	MDAB-614410	5.57–5.57	ALLH	11-2771	11-2771	—	—	11-2771	11-2770	11-2771	11-2771	11-2771	—	11-2771	11-2770	11-2771	11-2770	11-2771	11-2771	11-2770
CSMDAB-11-14075	MDAB-614411	6.88–6.88	ALLH	11-2771	11-2771	—	—	11-2771	11-2770	11-2771	11-2771	11-2771	—	11-2771	11-2770	11-2771	11-2770	11-2771	11-2771	11-2770
CSMDAB-11-14076	MDAB-614412	6.2–6.2	ALLH	11-2919	—	—	—	11-2919	—	11-2919	11-2919	—	—	—	—	11-2919	—	—	—	—
CSMDAB-11-14077	MDAB-614413	7.42–7.42	ALLH	11-2919	—	—	—	11-2919	—	11-2919	11-2919	—	—	—	—	11-2919	—	—	—	—
CSMDAB-11-14078	MDAB-614414	8.05–8.05	ALLH	11-2919	—	—	—	11-2919	—	11-2919	11-2919	—	—	—	—	11-2919	—	—	—	—
CSMDAB-11-14079	MDAB-614415	5.96–5.96	ALLH	11-2919	—	—	—	11-2919	—	11-2919	11-2919	—	—	—	—	11-2919	—	—	—	—
CSMDAB-11-14080	MDAB-614416	6.79–6.79	ALLH	11-2919	—	—	—	11-2919	—	11-2919	11-2919	—	—	—	—	11-2919	—	—	—	—
CSMDAB-11-14081	MDAB-614417	11.53–11.53	ALLH	11-2919	—	—	—	11-2919	—	11-2919	11-2919	—	—	—	—	11-2919	—	—	—	—
CSMDAB-11-23966	MDAB-614489	8.19–8.19	ALLH	11-2906	11-2907	—	—	11-2906	11-2905	11-2906	11-2906	11-2907	—	11-2907	11-2905	11-2906	11-2905	11-2907	11-2906	11-2905
CSMDAB-11-23967	MDAB-614490	10.96–10.96	ALLH	11-2906	11-2907	—	—	11-2906	11-2905	11-2906	11-2906	11-2907	—	11-2907	11-2905	11-2906	11-2905	11-2907	11-2906	11-2905
CSMDAB-11-23968	MDAB-614491	16.93–16.93	ALLH	11-2906	11-2907	—	11-2905	11-2906	11-2905	11-2906	11-2906	11-2907	—	11-2907	11-2905	11-2906	11-2905	11-2907	11-2906	11-2905

Table 5.0-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cyanide	Dioxins/Furans	Explosive Comounds	Gamma-Emitting Radionuclides	Herbicides	Isotopic Plutonium	Isotopic Uranium	Nitrate	PCBs	Perchlorate	Pesticides	Stroniutm-90	SVOCs	TAL Metals	Tritium	VOCs
CSMDAB-11-23969	MDAB-614492	8.76–8.76	ALLH	11-2906	11-2907	—	—	11-2906	11-2905	11-2906	11-2906	11-2907	—	11-2907	11-2905	11-2906	11-2905	11-2907	11-2906	11-2905
CSMDAB-11-24007	MDAB-614498	2.71–2.71	ALLH	11-2906	11-2907	—	—	11-2906	11-2905	11-2906	11-2906	11-2907	—	11-2907	11-2905	11-2906	11-2905	11-2907	11-2906	11-2905
CSMDAB-11-24008	MDAB-614499	6.76–6.76	ALLH	11-2906	11-2907	11-2959	11-2905	11-2906	11-2905	11-2906	11-2906	11-2907	—	11-2907	11-2905	11-2906	11-2905	11-2907	11-2906	11-2905
CSMDAB-11-24009	MDAB-614500	5.25–5.25	ALLH	11-2906	11-2907	—	—	11-2906	11-2905	11-2906	11-2906	11-2907	—	11-2907	11-2905	11-2906	11-2905	11-2907	11-2906	11-2905
CSMDAB-11-4539	MDAB-614592	10.2–10.2	ALLH	11-2881	11-2881	—	—	11-2881	11-2880	11-2881	11-2881	11-2881	—	11-2881	11-2880	11-2881	11-2880	11-2881	11-2881	11-2880
CSMDAB-11-4540	MDAB-614593	13.49–13.49	ALLH	11-2881	11-2881	11-2960	11-2880	11-2881	11-2880	11-2881	11-2881	11-2881	—	11-2881	11-2880	11-2881	11-2880	11-2881	11-2881	11-2880
CSMDAB-11-4541	MDAB-614594	6.45–6.45	ALLH	11-2881	11-2881	—	—	11-2881	11-2880	11-2881	11-2881	11-2881	—	11-2881	11-2880	11-2881	11-2880	11-2881	11-2881	11-2880
CSMDAB-11-13877	MDAB-614600	15.2–15.2	ALLH	11-2906	11-2907	—	—	11-2906	11-2905	11-2906	11-2906	11-2907	—	11-2907	11-2905	11-2906	11-2905	11-2907	11-2906	11-2905
CSMDAB-11-13876	MDAB-614601	6.19–6.19	ALLH	11-2906	11-2907	—	—	11-2906	11-2905	11-2906	11-2906	11-2907	—	11-2907	11-2905	11-2906	11-2905	11-2907	11-2906	11-2905
CSMDAB-11-24388	MDAB-614602	14.46–14.46	ALLH	11-2917	11-2916	—	—	11-2917	11-2915	11-2917	11-2917	11-2916	—	11-2916	11-2915	11-2917	11-2915	11-2916	11-2917	11-2915
CSMDAB-11-24387	MDAB-614603	22.89–22.89	ALLH	11-2917	11-2916	—	—	11-2917	11-2915	11-2917	11-2917	11-2916	—	11-2916	11-2915	11-2917	11-2915	11-2916	11-2917	11-2915
CSMDAB-11-24386	MDAB-614604	15.27–15.27	ALLH	11-2917	11-2916	—	—	11-2917	11-2915	11-2917	11-2917	11-2916	—	11-2916	11-2915	11-2917	11-2915	11-2916	11-2917	11-2915
CSMDAB-11-24851	MDAB-614643	7.99–7.99	ALLH	—	—	—	—	—	—	—	11-2994	—	—	—	—	—	—	11-2994	—	—
CSMDAB-11-24852	MDAB-614644	8.20–8.20	ALLH	—	—	—	—	—	—	—	11-2994	—	—	—	—	—	—	11-2994	—	—
CSMDAB-11-24853	MDAB-614645	7.28–7.28	ALLH	—	—	—	—	—	—	—	11-2994	—	—	—	—	—	—	11-2994	—	—
CSMDAB-11-25730	MDAB-614648	9.64–9.64	ALLH	11-3098	11-3097	—	—	11-3098	11-3096	11-3098	11-3098	11-3097	—	11-3097	11-3096	11-3098	11-3096	11-3097	11-3098	11-3096
CSMDAB-11-25731	MDAB-614649	17.99–17.99	ALLH	11-3098	11-3097	—	—	11-3098	11-3096	11-3098	11-3098	11-3097	—	11-3097	11-3096	11-3098	11-3096	11-3097	11-3098	11-3096
CSMDAB-11-25732	MDAB-614650	13.42–13.42	ALLH	11-3098	11-3097	—	—	11-3098	11-3096	11-3098	11-3098	11-3097	—	11-3097	11-3096	11-3098	11-3096	11-3097	11-3098	11-3096
CSMDAB-11-25734	MDAB-614651	8.71–8.71	ALLH	11-3101	11-3099	—	—	11-3101	11-3100	11-3101	11-3101	11-3099	—	11-3099	11-3100	11-3101	11-3100	11-3099	11-3101	11-3100
CSMDAB-11-25735	MDAB-614652	17.56–17.56	ALLH	11-3098	11-3097	11-3160	11-3096	11-3098	11-3096	11-3098	11-3098	11-3097	—	11-3097	11-3096	11-3098	11-3096	11-3097	11-3098	11-3096
CSMDAB-11-25737	MDAB-614653	10.52–10.52	ALLH	11-3098	11-3097	—	—	11-3098	11-3096	11-3098	11-3098	11-3097	—	11-3097	11-3096	11-3098	11-3096	11-3097	11-3098	11-3096
CSMDAB-11-25880	MDAB-614656	6.03–6.03	na	—	—	—	—	—	—	11-3155	—	—	—	—	—	—	—	11-3155	—	—
CSMDAB-11-25881	MDAB-614657	5.38–5.38	na	—	—	—	—	—	—	11-3169	—	—	—	—	—	—	—	11-3169	—	—
CSMDAB-11-25882	MDAB-614658	6.54–6.54	na	—	—	—	—	—	—	11-3182	—	—	—	—	—	—	—	11-3182	—	—
CSMDAB-11-25883	MDAB-614659	5.46–5.46	na	—	—	—	—	—	—	11-3182	—	—	—	—	—	—	—	11-3182	—	—
CSMDAB-11-25884	MDAB-614660	6.80–6.80	na	—	—	—	—	—	—	11-3182	—	—	—	—	—	—	—	11-3182	—	—
CSMDAB-11-25885	MDAB-614661	6.35–6.35	na	—	—	—	—	—	—	11-3169	—	—	—	—	—	—	—	11-3169	—	—
CSMDAB-11-25886	MDAB-614662	6.86–6.86	na	—	—	—	—	—	—	11-3169	—	—	—	—	—	—	—	11-3169	—	—
CSMDAB-11-25887	MDAB-614663	7.855–7.85	na	—	—	—	—	—	—	11-3182	—	—	—	—	—	—	—	11-3182	—	—
CSMDAB-11-25888	MDAB-614664	5.86–5.86	na	—	—	—	—	—	—	11-3182	—	—	—	—	—	—	—	11-3182	—	—
CSMDAB-11-25889	MDAB-614665	6.95–6.95	na	—	—	—	—	—	—	11-3182	—	—	—	—	—	—	—	11-3182	—	—
CSMDAB-11-25890	MDAB-614666	7.76–7.76	na	—	—	—	—	—	—	11-3155	—	—	—	—	—	—	—	11-3155	—	—

Table 5.0-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cyanide	Dioxins/Furans	Explosive Comounds	Gamma-Emitting Radionuclides	Herbicides	Isotopic Plutonium	Isotopic Uranium	Nitrate	PCBs	Perchlorate	Pesticides	Stroniutm-90	SVOCs	TAL Metals	Tritium	VOCs
CSMDAB-11-25891	MDAB-614667	7.52–7.52	na	—	—	—	—	—	—	11-3155	—	—	—	—	—	—	—	11-3155	—	—
CSMDAB-11-25892	MDAB-614668	7.68–7.68	na	—	—	—	—	—	—	11-3169	—	—	—	—	—	—	—	11-3169	—	—
CSMDAB-11-25893	MDAB-614669	8.82–8.82	na	—	—	—	—	—	—	11-3169	—	—	—	—	—	—	—	11-3169	—	—
CSMDAB-11-25894	MDAB-614670	6.12–6.12	na	—	—	—	—	—	—	11-3182	—	—	—	—	—	—	—	11-3182	—	—
CSMDAB-11-25895	MDAB-614671	8.86–8.86	na	—	—	—	—	—	—	11-3182	—	—	—	—	—	—	—	11-3182	—	—
CSMDAB-11-25984	MDAB-614674	9.11–9.11	ALLH	11-3223	11-3222	—	—	11-3223	11-3221	11-3223	11-3223	11-3222	—	11-3222	11-3221	11-3223	11-3221	11-3222	11-3223	11-3221
CSMDAB-11-25985	MDAB-614675	14.38–14.38	ALLH	11-3223	11-3222	—	—	11-3223	11-3221	11-3223	11-3223	11-3222	—	11-3222	11-3221	11-3223	11-3221	11-3222	11-3223	11-3221
CSMDAB-11-25986	MDAB-614676	9.84–9.84	ALLH	11-3223	11-3222	—	—	11-3223	11-3221	11-3223	11-3223	11-3222	—	11-3222	11-3221	11-3223	11-3221	11-3222	11-3223	11-3221
CSMDAB-11-26997	MDAB-614694	8.98–8.98	ALLH	11-3418	11-3418	—	—	11-3418	11-3417	11-3418	11-3418	11-3418	—	11-3418	11-3417	11-3418	11-3417	11-3418	11-3418	11-3417
CSMDAB-11-26998	MDAB-614695	15.81–15.81	ALLH	11-3418	11-3418	—	—	11-3418	11-3417	11-3418	11-3418	11-3418	—	11-3418	11-3417	11-3418	11-3417	11-3418	11-3418	11-3417
CSMDAB-11-27000	MDAB-614696	9.77–9.77	ALLH	11-3418	11-3418	—	—	11-3418	11-3417	11-3418	11-3418	11-3418	—	11-3418	11-3417	11-3418	11-3417	11-3418	11-3418	11-3417
CSMDAB-11-27001	MDAB-614697	12.43–12.43	ALLH	11-3702	—	—	—	11-3702	—	11-3702	—	—	—	—	—	—	—	—	—	—
CSMDAB-11-27002	MDAB-614698	11.44–11.44	ALLH	11-3702	—	—	—	11-3702	—	11-3702	—	—	—	—	—	—	—	—	—	—
CSMDAB-11-27003	MDAB-614699	0–0	ALLH	—	—	—	—	—	—	11-3725	—	—	—	—	—	—	—	—	—	—
CSMDAB-11-27591	MDAB-614702	9.64–9.64	ALLH	11-3623	11-3622	—	—	11-3623	11-3621	11-3623	11-3623	11-3622	—	11-3622	11-3621	11-3623	11-3621	11-3622	11-3623	11-3621
CSMDAB-11-27592	MDAB-614703	7.71–7.71	ALLH	11-3637	11-3636	—	—	11-3637	11-3635	11-3637	11-3637	11-3636	—	11-3636	11-3635	11-3637	11-3635	11-3636	11-3637	11-3635
CSMDAB-11-27593	MDAB-614704	17.6–17.6	ALLH	11-3637	11-3636	—	—	11-3637	11-3635	11-3637	11-3637	11-3636	—	11-3636	11-3635	11-3637	11-3635	11-3636	11-3637	11-3635
CSMDAB-11-27594	MDAB-614705	10.69–10.69	ALLH	11-3637	11-3636	—	11-3635	11-3637	11-3635	11-3637	11-3637	11-3636	—	11-3636	11-3635	11-3637	11-3635	11-3636	11-3637	11-3635
CSMDAB-11-27623	MDAB-614706	7.77–7.77	ALLH	—	—	—	—	—	—	11-3638	—	—	—	—	—	—	—	—	—	—
CSMDAB-11-27624	MDAB-614707	7.18–7.18	ALLH	—	—	—	—	—	—	11-3638	—	—	—	—	—	—	—	—	—	—
CSMDAB-11-27625	MDAB-614708	9.02–9.02	ALLH	—	—	—	—	—	—	11-3638	—	—	—	—	—	—	—	—	—	—
CSMDAB-11-27626	MDAB-614709	10.02–10.02	ALLH	—	—	—	—	—	—	11-3675	—	—	—	—	—	—	—	—	—	—
CSMDAB-11-27627	MDAB-614710	8.79–8.79	ALLH	—	—	—	—	—	—	11-3675	—	—	—	—	—	—	—	—	—	—
CSMDAB-11-27628	MDAB-614711	11.53–11.53	ALLH	—	—	—	—	—	—	11-3675	—	—	—	—	—	—	—	—	—	—
CSMDAB-11-27629	MDAB-614712	11.23–11.23	ALLH	—	—	—	—	—	—	11-3675	—	—	—	—	—	—	—	—	—	—
CSMDAB-11-27630	MDAB-614713	11.61–11.61	ALLH	—	—	—	—	—	—	11-3675	—	—	—	—	—	—	—	—	—	—
CSMDAB-11-27631	MDAB-614714	12.64–12.64	ALLH	—	—	—	—	—	—	11-3675	—	—	—	—	—	—	—	—	—	—
CSMDAB-11-27936	MDAB-614715	19.14–19.14	ALLH	11-3676	—	—	—	11-3676	—	11-3676	—	—	—	—	—	—	—	—	—	—
CSMDAB-11-27937	MDAB-614716	9.91–9.91	ALLH	11-3676	—	—	—	11-3676	—	11-3676	—	—	—	—	—	—	—	—	—	—
CSMDAB-11-27938	MDAB-614717	4.58–4.58	ALLH	11-3676	—	—	—	11-3676	—	11-3676	—	—	—	—	—	—	—	—	—	—
CSMDAB-11-27939	MDAB-614718	10.15–10.15	ALLH	—	—	—	—	—	—	11-3702	—	—	—	—	—	—	—	—	—	—
CSMDAB-11-27940	MDAB-614719	5.98–5.98	ALLH	—	—	—	—	—	—	11-3702	—	—	—	—	—	—	—	—	—	—

Table 5.0-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cyanide	Dioxins/Furans	Explosive Comounds	Gamma-Emitting Radionuclides	Herbicides	Isotopic Plutonium	Isotopic Uranium	Nitrate	PCBs	Perchlorate	Pesticides	Stroniutm-90	SVOCs	TAL Metals	Tritium	VOCs
CSMDAB-11-27941	MDAB-614720	15.02–15.02	ALLH	—	—	—	—	—	—	11-3702	—	—	—	—	—	—	—	—	—	—
CSMDAB-11-27942	MDAB-614721	9.81–9.81	ALLH	11-3653	—	—	—	11-3653	—	11-3653	11-3653	—	—	—	—	11-3653	—	—	11-3653	—
CSMDAB-11-27943	MDAB-614722	10.05–10.05	ALLH	11-3653	—	—	—	11-3653	—	11-3653	11-3653	—	—	—	—	11-3653	—	—	11-3653	—
CSMDAB-11-27944	MDAB-614723	9.11–9.11	ALLH	—	—	—	—	—	—	11-3653	—	—	—	—	—	—	—	—	—	—
CSMDAB-11-27945	MDAB-614724	10.34–10.34	ALLH	—	—	—	—	—	—	11-3653	—	—	—	—	—	—	—	—	—	—
CSMDAB-11-27946	MDAB-614725	20.16–20.16	ALLH	—	—	—	—	—	—	11-3653	—	—	—	—	—	—	—	—	—	—
CSMDAB-11-27947	MDAB-614726	7.48–7.48	ALLH	—	—	—	—	—	—	11-3653	—	—	—	—	—	—	—	—	—	—

[a] Analytical request number.
[b] — = Analysis not requested.
[c] na = Not available.

Table 5.1-1
Inorganic Chemicals Detected during Confirmation Sampling

Sample ID	Location ID	Grid Cell	Depth (ft)	Media Code	Collection Date	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Cyanide (Total)	Iron	Lead	Magnesium
Qbt 2, 3, 4 BV[a]						**7340**	**0.5**	**2.79**	**46**	**1.21**	**1.63**	**2200**	**7.14**	**3.14**	**4.66**	**0.5**	**14,500**	**11.2**	**1690**
Residential SSL[b]						**78,000**	**31.3**	**3.9**	**15,600**	**156**	**70.3**	**na**[c]	**117,000**[d]	**23**[e]	**3130**	**46.9**	**54,800**	**400**	**na**
Enclosure 1																			
CSMDAB-10-24585	MDAB-612790	AJ260	4.7	Qbt 3	8/11/2010	1640 (J+)	ND[f]	0.681 (J)	33.6	0.245	ND	4790	2.94	1.01	4.27	ND	8100	3.35	807
CSMDAB-10-24587	MDAB-612792	AI260	7.4	Qbt 3	8/11/2010	546 (J+)	1.07	0.23 (J)	11.4	0.316	ND	880	0.739	0.156 (J)	1.42	ND	5880	0.552 (J)	184
CSMDAB-10-24593	MDAB-612798	AI255	6.69	Qbt 3	1/5/2011	292	ND	0.228 (J)	10.8	0.199	ND	195	ND	0.254 (J)	ND	ND	5480	ND	92.4 (J+)
CSMDAB-10-24594	MDAB-612799	AH255	3.36	Qbt 3	1/5/2011	1070	ND	0.412 (J)	29.5	0.218	ND	1390	ND	0.472 (J)	ND	ND	7600	ND	282 (J+)
CSMDAB-10-24595	MDAB-612800	AJ255	3.52	Qbt 3	1/5/2011	2590	0.566 (J)	0.635 (J)	41.1	0.339	ND	1190	ND	0.657	ND	ND	6290	ND	526 (J+)
CSMDAB-10-24596	MDAB-612801	AH250	8.69	Qbt 3	1/29/2011	645 (J+)	ND	0.558 (J)	16.8	0.37	0.886	1150	0.868	0.281 (J)	8.69	ND	6550	4.38	215
CSMDAB-10-24599	MDAB-612804	AH240	9.79	Qbt 3	4/19/2011	599 (J+)	0.664 (J)	0.416 (J)	12.9	0.4	ND	ND	ND	0.405 (J)	ND	ND	6130	ND	163
CSMDAB-11-13876	MDAB-614601	AH225	6.19	Qbt 3	7/21/2011	608	ND	0.717 (J)	11	0.398	ND	1090	0.909	0.326 (J)	1.38	ND	5330	2.69	156 (J+)
CSMDAB-11-13877	MDAB-614600	AI225	15.2	Qbt 3	7/21/2011	1300	ND	0.751 (J)	10.9	0.771	ND	682	0.938	0.391 (J)	1.69	ND	5020	5.73	280 (J+)
CSMDAB-11-23966	MDAB-614489	AK225	8.19	Qbt 3	7/21/2011	878	ND	1.72	7.24	0.284	ND	926	0.881	0.33 (J)	1.09	ND	4530	43.3	266 (J+)
CSMDAB-11-23967	MDAB-614490	AH229	10.96	Qbt 3	7/21/2011	5050	ND	0.66 (J)	69.7	0.523	ND	1070	2.92	0.961	2.93	ND	4770	4.2	783 (J+)
CSMDAB-11-23968	MDAB-614491	AI229	16.93	Qbt 3	7/21/2011	2680	ND	1.21	28.2	0.445	ND	517	2.48	0.648	2.66	ND	6210	4.49	342 (J+)
CSMDAB-11-23969	MDAB-614492	AJ230	8.76	Qbt 3	7/21/2011	1830	ND	1.08	39.5	0.609	ND	733	1.39	0.438 (J)	1.66	ND	5460	3.41	395 (J+)
CSMDAB-11-24007	MDAB-614498	AG220	2.71	Qbt 3	7/20/2011	910	ND	0.512 (J)	19.2	0.244	ND	1120	0.971	0.496	1.97	ND	6590	3.79	213 (J+)

Table 5.1-1 (continued)

Sample ID	Location ID	Grid Cell	Depth (ft)	Media Code	Collection Date	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Cyanide (Total)	Iron	Lead	Magnesium
Qbt 2, 3, 4 BV[a]						**7340**	**0.5**	**2.79**	**46**	**1.21**	**1.63**	**2200**	**7.14**	**3.14**	**4.66**	**0.5**	**14,500**	**11.2**	**1690**
Residential SSL[b]						**78,000**	**31.3**	**3.9**	**15,600**	**156**	**70.3**	**na[c]**	**117,000[d]**	**23[e]**	**3130**	**46.9**	**54,800**	**400**	**na**
CSMDAB-11-24008	MDAB-614499	AI220	6.76	Qbt 3	7/20/2011	2090	ND	0.595 (J)	33	0.459	ND	1780	1.64	0.49 (J)	1.76	ND	5430	34.5	591 (J+)
CSMDAB-11-24009	MDAB-614500	AK220	5.25	Qbt 3	7/21/2011	838	ND	0.44 (J)	17.9	0.223	ND	499	0.997	0.429 (J)	2.14	ND	5000	3.85	197 (J+)
CSMDAB-11-25984	MDAB-614674	AH215	9.11	Qbt 3	8/15/2011	2030 (J+)	ND	0.631 (J)	18.3	0.592	0.527 (J)	722	1.92	0.663	2.04	ND	5480	9.88	498 (J+)
CSMDAB-11-25985	MDAB-614675	AJ215	14.38	Qbt 3	8/15/2011	1300 (J+)	ND	0.422 (J)	11.5	0.613	ND	921	1.31	0.371 (J)	1.41	ND	5040	3.98	361 (J+)
CSMDAB-11-3808	MDAB-614332	AJ240	8.68	Qbt 3	4/19/2011	3010 (J+)	0.744 (J)	0.851 (J)	45.5	0.472	11.8	2650	ND	0.702	ND	ND	7330	ND	618
CSMDAB-11-3809	MDAB-614334	AJ245	9.96	Qbt 3	4/19/2011	684 (J+)	7.18	0.485 (J)	13.5	0.786	0.81	800	ND	0.346 (J)	ND	ND	5390	ND	201
CSMDAB-11-3811	MDAB-614337	AI235	17.29	Qbt 3	4/20/2011	3490	1.98	0.872 (J)	37.6	0.427	0.134 (J)	3590	3.98	1.14	5.25	ND	6850	7.72	660
CSMDAB-11-3812	MDAB-614338	AJ235	10.47	Qbt 3	4/20/2011	5830	0.618 (J)	0.494 (J)	48.1	0.512	ND	2320	3.04	1.02	3.44	ND	4400	4.73	914
CSMDAB-11-3817	MDAB-614335	AI245	12.29	Qbt 3	4/19/2011	327 (J+)	0.626 (J)	0.345 (J)	10.3	0.237	1.24	1040	ND	0.35 (J)	ND	ND	4490	ND	144
CSMDAB-11-3818	MDAB-614333	AI240	15.87	Qbt 3	4/19/2011	1820 (J+)	2.24	0.666 (J)	62.8	0.614	0.679	1880	ND	0.449 (J)	ND	ND	6000	ND	482
CSMDAB-11-3820	MDAB-614339	AG235	8.71	Qbt 3	4/20/2011	2020	0.92 (J)	1.04 (J)	20.5	0.351	ND	1390	1.55	0.686	1.78	ND	5550	35.9	406
Area 5																			
CSMDAB-11-25880	MDAB-614656	AL222	6.029	Qbt 3	8/9/2011	NA[g]	NA	1.28	65.4	NA	ND	NA	7.48 (J)	NA	NA	NA	NA	10.8	NA
CSMDAB-11-25881	MDAB-614657	AL225	5.382	Qbt 3	8/11/2011	NA	NA	1	38.4	NA	ND	NA	3.12	NA	NA	NA	NA	12.4	NA
CSMDAB-11-25883	MDAB-614659	AL231	5.465	Qbt 3	8/12/2011	NA	NA	0.908 (J)	38.3	NA	ND	NA	2.67	NA	NA	NA	NA	6	NA
CSMDAB-11-25884	MDAB-614660	AL234	6.799	Qbt 3	8/12/2011	NA	NA	0.889 (J)	37.8	NA	ND	NA	2.8	NA	NA	NA	NA	5.78	NA
CSMDAB-11-25885	MDAB-614661	AM225	6.347	Qbt 3	8/11/2011	NA	NA	1.2	57.1	NA	ND	NA	3.87	NA	NA	NA	NA	10.5	NA
CSMDAB-11-25894	MDAB-614670	AN231	6.12	Qbt 3	8/12/2011	NA	NA	1.22	62.5	NA	ND	NA	6.07	NA	NA	NA	NA	9.05	NA
CSMDAB-11-25895	MDAB-614671	AN234	8.856	Qbt 3	8/12/2011	NA	NA	0.949 (J)	40.2	NA	ND	NA	2.59	NA	NA	NA	NA	7.53	NA
Enclosure 2																			
CSMDAB-10-25077	MDAB-612898	NH51	18.4	Qbt 3	10/11/2010	1110 (J+)	0.66 (J)	0.566 (J)	18.1	0.383	0.115 (J)	486	1.17	0.464 (J)	4.71	ND	6760	5.67	232
CSMDAB-10-25080	MDAB-612901	NH51	10.86	Qbt 3	11/23/2010	3990	0.656 (J)	1.36	48.6 (J+)	0.621	ND	2730	3.15	1.28	3.79	ND	7870	7.58	906 (J+)
CSMDAB-10-25083	MDAB-612904	NH46	23.09	Qbt 3	1/29/2011	983 (J+)	0.481 (J)	0.343 (J)	12.4	0.277	ND	1050	ND	0.337 (J)	ND	ND	6790	ND	277
CSMDAB-10-25084	MDAB-612905	NF46	13.7	Qbt 3	1/29/2011	5190 (J+)	0.369 (J)	0.721 (J)	61	0.538	ND	1260	ND	0.617	ND	ND	3920	ND	774
CSMDAB-10-25085	MDAB-612906	NH46	20.44	Qbt 3	1/29/2011	2220 (J+)	ND	1.23	23.9	0.557	ND	848	ND	0.693	ND	ND	8500	ND	490
CSMDAB-10-25086	MDAB-612907	NG31	11.18	Qbt 3	7/22/2011	414	ND	1.12	14.2	0.471	ND	224	1.06	0.344 (J)	1.53	0.392	6650	4.26	96.2
CSMDAB-10-25087	MDAB-612908	NH31	21.15	Qbt 3	7/22/2011	4230	ND	0.908 (J)	53.3	0.393	ND	1350	3.55	1.14	4.25	0.413	5810	15.7	695
CSMDAB-10-25088	MDAB-612909	NJ31	13.95	Qbt 3	7/22/2011	4950	ND	1.25	34.3	0.525	ND	1240	2.4	0.72	2.16	ND	4400	4.18	707
CSMDAB-10-25089	MDAB-612910	NF36	12.82	Qbt 3	7/22/2011	3180	ND	0.772 (J)	36.8	0.39	ND	609	1.77	0.58	2.17	ND	6180	4.62	367
CSMDAB-10-25090	MDAB-612911	NH36	29.56	Qbt 3	7/22/2011	4130	ND	3.47	63.2	0.688	ND	805	3.41	2.06	1.66	ND	17000	12.4	541
CSMDAB-10-25091	MDAB-612912	NI36	19.03	Qbt 3	7/22/2011	524	ND	0.635 (J)	17.1	0.265	ND	265	1.18	0.289 (J)	1.68	ND	6870	3.04	115
CSMDAB-11-24386	MDAB-614604	NI41	15.27	Qbt 3	7/22/2011	1000	ND	0.567 (J)	16.7	0.341	ND	813	1.25	0.403 (J)	1.43	ND	7570	3.62	247
CSMDAB-11-24387	MDAB-614603	NG41	22.89	Qbt 3	7/22/2011	1010	ND	0.872 (J)	32.5	0.453	ND	521	1.48	0.381 (J)	2.02	ND	6950	3.09	203
CSMDAB-11-24388	MDAB-614602	NF41	14.46	Qbt 3	7/22/2011	3700	ND	0.368 (J)	43.5	0.293	ND	996	1.98	0.7	1.8	ND	3840	2.56	562
CSMDAB-11-24851	MDAB-614643	NF50	7.988	Qbt 3	7/30/2011	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 5.1-1 (continued)

Sample ID	Location ID	Grid Cell	Depth (ft)	Media Code	Collection Date	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Cyanide (Total)	Iron	Lead	Magnesium
Qbt 2, 3, 4 BV[a]						**7340**	**0.5**	**2.79**	**46**	**1.21**	**1.63**	**2200**	**7.14**	**3.14**	**4.66**	**0.5**	**14,500**	**11.2**	**1690**
Residential SSL[b]						**78,000**	**31.3**	**3.9**	**15,600**	**156**	**70.3**	**na**[c]	**117,000**[d]	**23**[e]	**3130**	**46.9**	**54,800**	**400**	**na**
CSMDAB-11-24852	MDAB-614644	NF52	8.201	Qbt 3	7/30/2011	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CSMDAB-11-24853	MDAB-614645	NF51	7.278	Qbt 3	7/30/2011	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CSMDAB-11-4539	MDAB-614592	NG26	10.2	Qbt 3	7/19/2011	1020 (J+)	0.515 (J)	0.646 (J)	26.5	0.292	ND	1640	1.82	0.637	2.07	ND	5630	2.7	332 (J+)
CSMDAB-11-4540	MDAB-614593	NI26	13.49	Qbt 3	7/19/2011	1450 (J+)	ND	0.775 (J)	28.4	0.353	ND	1890	1.11	0.479 (J)	2.12	ND	4660	2.99	376 (J+)
CSMDAB-11-4541	MDAB-614594	NK27	6.45	Qbt 3	7/19/2011	3500 (J+)	ND	0.568 (J)	45.2	0.384	ND	1550	2.18	0.928	1.96	ND	3660	3.06	688 (J+)
Enclosure 3																			
CSMDAB-10-26776	MDAB-613126	AH160	7	Qbt 3	10/18/2010	1410 (J+)	ND	**4.02**	11.3	0.433	ND	531	1.92	0.578	ND	ND	4710	5.48	345 (J+)
CSMDAB-10-26777	MDAB-613127	AI160	14.6	Qbt 3	10/18/2010	1740 (J+)	ND	**5.71**	17.8	0.377	ND	612	1.9	0.647	2	ND	6090	8.67	333 (J+)
CSMDAB-10-26778	MDAB-613128	AK160	2.8	Qbt 3	10/18/2010	4900 (J+)	ND	2.71	75.8	0.638	ND	1730	4.42	2.34	4.68	ND	9450	16.6	888 (J+)
CSMDAB-10-26779	MDAB-613129	AI155	2.7	Qbt 3	10/18/2010	2160 (J+)	ND	2.4	23.2	0.408	ND	1980	2.07	1.34	2.71	ND	6670	5.52	699 (J+)
CSMDAB-10-26780	MDAB-613130	AJ155	8.4	Qbt 3	10/18/2010	1830 (J+)	ND	2.23	23.1	0.443	0.276 (J)	1170	2.07	0.847	2.54	0.0915 (J)	5950	7.14	406 (J+)
CSMDAB-10-26781	MDAB-613131	AK155	4.4	Qbt 3	10/18/2010	6760 (J+)	ND	2.22	178	0.79	ND	5210	5.42	3.48	4.88	ND	10600	9.06	1610 (J+)
CSMDAB-10-26782	MDAB-613132	AH166	8	Qbt 3	1/10/2011	1410 (J+)	1.43	0.542 (J)	15.7	0.419	ND	1280 (J)	1.48	0.467 (J)	1.4	ND	7160	5.44	413 (J+)
CSMDAB-10-26783	MDAB-613133	AK166	7.43	Qbt 3	1/10/2011	2550 (J+)	0.418 (J)	0.848 (J)	35	0.643	ND	1430 (J)	2.64	1.01	3.91	ND	8820	7.33	525 (J+)
CSMDAB-10-26784	MDAB-613134	AJ166	14.6	Qbt 3	1/10/2011	2030 (J+)	ND	0.843 (J)	23.6	0.603	ND	1590 (J)	1.78	0.565	1.93	ND	8190	6.85	485 (J+)
CSMDAB-10-26785	MDAB-613135	AI171	6.29	Qbt 3	1/10/2011	375 (J+)	ND	0.347 (J)	10.4	0.233	ND	404 (J)	2.08	0.244 (J)	1.33	ND	7120	4.27	122 (J+)
CSMDAB-10-26786	MDAB-613136	AK171	8.1	Qbt 3	1/10/2011	1840 (J+)	ND	1.53	28.3	0.401	ND	760 (J)	2.9	0.697	2.26	ND	7420	8.41	394 (J+)
CSMDAB-10-26787	MDAB-613137	AJ171	11.86	Qbt 3	1/10/2011	783 (J+)	0.389 (J)	0.441 (J)	13.2	0.319	ND	555 (J)	1.2	0.253 (J)	1.12	ND	6160	8.63	202 (J+)
Enclosure 5																			
CSMDAB-11-14065	MDAB-614401	AJ175	14.52	Qbt 3	7/6/2011	485	ND	0.36 (J)	13.6 (J)	0.27	ND	397	0.782	0.191 (J)	1.24	ND	4670	4.75	133 (J+)
CSMDAB-11-14066	MDAB-614402	AK175	9.62	Qbt 3	7/6/2011	1990	ND	1.09	23.4 (J)	0.413	ND	585	1.82	0.425 (J)	1.48	ND	6480	16.1	374 (J+)
CSMDAB-11-14067	MDAB-614403	AH180	7.26	Qbt 3	7/7/2011	2000	ND	0.819 (J)	25.3 (J+)	0.552	ND	846	1.83	0.473 (J)	2.23	ND	7090	38.6	542 (J+)
CSMDAB-11-14068	MDAB-614404	AJ180	13.59	Qbt 3	7/7/2011	1150	ND	0.622 (J)	17.1 (J+)	0.312	ND	1000	1.37	0.495	3.14	ND	5390	15.4	268 (J+)
CSMDAB-11-14069	MDAB-614405	AK180	9.65	Qbt 3	7/7/2011	475	ND	0.661 (J)	11.2 (J+)	0.278	ND	420	0.72	0.214 (J)	1.28	ND	5210	5.59	124 (J+)
CSMDAB-11-14070	MDAB-614406	AH185	5.69	Qbt 3	7/7/2011	2220	ND	0.684 (J)	32 (J+)	0.427	ND	1920	1.86	0.539	1.66	ND	7370	8.92	560 (J+)
Enclosure 7																			
CSMDAB-10-26802	MDAB-613141	AH196	4.9	Qbt 3	10/19/2010	2770 (J+)	ND	0.881 (J)	52.7	0.391	ND	2730	2.69	1.14	3.02	ND	8030	8.27	712 (J+)
CSMDAB-10-26804	MDAB-613143	AK196	6.1	Qbt 3	10/19/2010	2080 (J+)	ND	1.14	31.1	0.422	ND	699	1.76	0.973	2.91	ND	8380	22.4	403 (J+)
CSMDAB-10-26805	MDAB-613144	AH200	6.21	Qbt 3	11/10/2010	3850	0.474 (J)	1.56	46.4	1.05	ND	2180	3.24 (J)	1.08	4.22	ND	7310	77.3	1050 (J+)
CSMDAB-10-26806	MDAB-613145	AK200	5.7	Qbt 3	11/10/2010	5000	0.404 (J)	1.85	69	0.994	ND	2940	5.14 (J)	2.19	7.67	ND	8840	36.2	1150 (J+)
CSMDAB-10-26810	MDAB-613149	AJ205	16.74	Qbt 3	12/10/2010	1350	0.773 (J)	3.52	15.1	0.386	0.255 (J)	579 (J-)	ND	0.307 (J)	ND	ND	5650	ND	282
CSMDAB-10-26812	MDAB-613151	AJ200	15.22	Qbt 3	12/10/2010	1320	0.394 (J)	0.542 (J)	14.9	0.566	ND	815 (J-)	ND	0.36 (J)	ND	ND	6000	ND	349

Table 5.1-1 (continued)

Sample ID	Location ID	Grid Cell	Depth (ft)	Media Code	Collection Date	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Cyanide (Total)	Iron	Lead	Magnesium
Qbt 2, 3, 4 BV[a]						**7340**	**0.5**	**2.79**	**46**	**1.21**	**1.63**	**2200**	**7.14**	**3.14**	**4.66**	**0.5**	**14,500**	**11.2**	**1690**
Residential SSL[b]						**78,000**	**31.3**	**3.9**	**15,600**	**156**	**70.3**	**na[c]**	**117,000[d]**	**23[e]**	**3130**	**46.9**	**54,800**	**400**	**na**
Enclosure 9																			
CSMDAB-11-25730	MDAB-614648	NF57	9.643	Qbt 3	8/8/2011	2320	2.15	0.79 (J)	29.3	0.405	ND	2050	1.97	0.939	3.27	ND	6830	4.8	535
CSMDAB-11-25731	MDAB-614649	NG57	17.991	Qbt 3	8/8/2011	2420	ND	0.554 (J)	25.2	0.644	ND	3930	2.23	1.08	4.07	ND	8800	6.46	522
CSMDAB-11-25734	MDAB-614651	NF60	8.709	Qbt 3	8/9/2011	373	ND	0.395 (J)	10.7	0.357	ND	ND	ND	0.459 (J)	ND	ND	5990	5.15	267
CSMDAB-11-25735	MDAB-614652	NG60	17.559	Qbt 3	8/8/2011	528	ND	0.396 (J)	10.9	0.274	ND	837	0.789	0.491 (J)	2.21	ND	5740	5.02	176
CSMDAB-11-27591	MDAB-614702	81.5	9.64	Qbt 3	9/16/2011	493 (J)	ND	0.573 (J)	11.9	0.306	ND	293 (J)	0.995 (J)	0.375 (J)	1.52	ND	4910	3.19 (J)	128 (J-)
CSMDAB-11-27592	MDAB-614703	76.5	7.71	Qbt 3	9/19/2011	254 (J+)	ND	0.46 (J)	8.53	0.167	ND	480	1.1	0.225 (J)	0.617 (J)	ND	3920	3.03	94.2 (J+)
CSMDAB-11-27593	MDAB-614704	76.5	17.6	Qbt 3	9/19/2011	1710 (J+)	1.1	0.498 (J)	22.5	0.706	ND	806	1.56	0.423 (J)	1.78	ND	4960	4.93	365 (J+)
CSMDAB-11-5057	MDAB-613931	NI57	11.11	Qbt 3	8/24/2011	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CSMDAB-11-5059	MDAB-613933	81.5	19.77	Qbt 3	9/16/2011	854 (J)	ND	0.378 (J)	11.4	0.49	ND	324 (J)	ND	0.438 (J)	2.03	ND	4660	5.79 (J)	389 (J-)
CSMDAB-11-5061	MDAB-613935	NG65	16.453	Qbt 3	8/9/2011	1060	ND	0.32 (J)	11.5	0.349	ND	3040	ND	0.685	ND	ND	7330	181	375
CSMDAB-11-5062	MDAB-613936	NH65	10.741	Qbt 3	8/9/2011	1100	ND	0.467 (J)	17.8	0.33	ND	1530	ND	0.58	ND	ND	5280	ND	321
Enclosure 12																			
CSMDAB-11-4855	MDAB-613862	NG87	16.66	Qbt 3	3/24/2011	1230 (J+)	ND	0.455 (J)	31.4	0.233	0.261 (J)	2810	ND	0.415 (J)	ND	0.338	5670	ND	346
CSMDAB-11-4857	MDAB-613864	NH86	16.57	Qbt 3	3/24/2011	422 (J+)	ND	0.372 (J)	9.23	0.338	ND	ND	ND	0.193 (J)	ND	ND	4900	ND	146
CSMDAB-11-4858	MDAB-613865	NG91	17.43	Qbt 3	3/23/2011	901 (J+)	ND	0.452 (J)	12.2	0.279	0.11 (J)	1480	0.925	0.255 (J)	1.69	ND	6030	4.51	284
CSMDAB-11-4859	MDAB-613866	NF91	16.32	Qbt 3	3/23/2011	727 (J+)	0.535 (J)	0.748 (J)	11.7	0.167	0.664	2150	0.864	0.2 (J)	1.43	ND	5220	4.08	257
CSMDAB-11-4860	MDAB-613867	NH91	15.01	Qbt 3	3/23/2011	1360 (J+)	ND	0.756 (J)	17.5	0.439	ND	2820	1.27	0.611	1.91	ND	5890	4.6	515
CSMDAB-11-4861	MDAB-613868	NG97	18.93	Qbt 3	3/23/2011	1230 (J+)	ND	0.449 (J)	15.9	0.177	0.114 (J)	12800	1.62	0.496 (J)	1.58	ND	5590	4.27	1100
CSMDAB-11-4862	MDAB-613869	NF96	12.91	Qbt 3	3/23/2011	2870 (J+)	ND	0.984 (J)	50.9	0.324	0.113 (J)	4200	2.31	1.18	3.02	ND	6960	6.6	872
CSMDAB-11-4864	MDAB-613871	NI101	14.38	Qbt 3	3/23/2011	365 (J+)	0.429 (J)	0.725 (J)	6.97	0.241	ND	245	0.749	0.175 (J)	1.32	ND	5270	4.06	84.2
CSMDAB-11-5775	MDAB-613975	NF101	13.55	Qbt 3	3/23/2011	1290 (J+)	ND	0.571 (J)	20.2	0.138	ND	2050	1.27	0.368 (J)	1.94	ND	5260	3.32	401
CSMDAB-11-5776	MDAB-613976	NH101	14.25	Qbt 3	3/23/2011	660 (J+)	ND	0.251 (J)	7.57	0.194	ND	7280	0.843	0.21 (J)	1.85	ND	4810	3.19	609

Table 5.1-1 (continued)

Sample ID	Location ID	Grid Cell	Depth (ft)	Media Code	Collection Date	Manganese	Mercury	Nickel	Nitrate	Perchlorate	Potassium	Selenium	Silver	Sodium	Thallium	Uranium	Vanadium	Zinc
Qbt 2, 3, 4 BV[a]						**482**	**0.1**	**6.58**	**na**[c]	**na**	**3500**	**0.3**	**1**	**2770**	**1.1**	**2.4**	**17**	**63.5**
Residential SSL[b]						**1860**	**15.6**[h]	**1560**	**125,000**	**54.8**	**na**	**391**	**391**	**na**	**0.782**	**235**	**391**	**23500**
Enclosure 1																		
CSMDAB-10-24585	MDAB-612790	AJ260	4.7	Qbt 3	8/11/2010	265	0.00664 (J)	2.53	ND	ND	291	ND	ND	173	ND	0.369	7.67	35.6
CSMDAB-10-24587	MDAB-612792	AI260	7.4	Qbt 3	8/11/2010	196	ND	0.962	ND	ND	142	ND	ND	127	ND	0.378	1.85	35
CSMDAB-10-24593	MDAB-612798	AI255	6.69	Qbt 3	1/5/2011	218	0.0396	ND	ND	ND	ND	ND	ND	72.3	0.0775 (J)	0.469	1.54	37.3
CSMDAB-10-24594	MDAB-612799	AH255	3.36	Qbt 3	1/5/2011	234	0.0384	ND	0.822 (J)	ND	ND	ND	ND	86.1	0.0946 (J)	0.4	3.5	37.1
CSMDAB-10-24595	MDAB-612800	AJ255	3.52	Qbt 3	1/5/2011	256	0.022	ND	0.976 (J)	ND	ND	ND	ND	54.2	0.105 (J)	0.576	4.09	19
CSMDAB-10-24596	MDAB-612801	AH250	8.69	Qbt 3	1/29/2011	228	0.254 (J-)	3.16	ND	ND	156	ND	ND	126	ND	0.567	2.24	43.2
CSMDAB-10-24599	MDAB-612804	AH240	9.79	Qbt 3	4/19/2011	223	0.0244	ND	ND	ND	ND	ND	ND	ND	0.111 (J)	ND	1.98 (J)	36.9 (J)
CSMDAB-11-13876	MDAB-614601	AH225	6.19	Qbt 3	7/21/2011	224	0.00739 (J)	1.35	1.18	ND	138	ND	ND	71.2	ND	0.657	2.21	32.5
CSMDAB-11-13877	MDAB-614600	AI225	15.2	Qbt 3	7/21/2011	228	0.0066 (J)	1.45	ND	0.000831 (J)	182	ND	ND	62.6	0.0819 (J)	7.4	2.28	49.4
CSMDAB-11-23966	MDAB-614489	AK225	8.19	Qbt 3	7/21/2011	240	ND	1.21	ND	ND	167	ND	ND	76.7	0.109 (J)	0.615	2.13	29.5 (J)
CSMDAB-11-23967	MDAB-614490	AH229	10.96	Qbt 3	7/21/2011	97.8	0.00733 (J)	3.48	ND	0.000695 (J)	628	ND	0.125 (J)	178	0.0779 (J)	0.259	6.56	13.3 (J)
CSMDAB-11-23968	MDAB-614491	AI229	16.93	Qbt 3	7/21/2011	247	0.00456 (J)	2.06	1.19	1.69	297	ND	0.122 (J)	49.9	0.0716 (J)	0.994	5.22	31.7
CSMDAB-11-23969	MDAB-614492	AJ230	8.76	Qbt 3	7/21/2011	219	ND	2.47	ND	0.00166 (J)	272	ND	ND	51.5	0.0626 (J)	0.59	3.5	30.7
CSMDAB-11-24007	MDAB-614498	AG220	2.71	Qbt 3	7/20/2011	258	0.00874 (J)	1.52	ND	ND	168	ND	ND	94.3	ND	0.561	2.71	37.3
CSMDAB-11-24008	MDAB-614499	AI220	6.76	Qbt 3	7/20/2011	207	0.0115 (J)	2.63	1.42	ND	323	ND	ND	79.1	0.121 (J)	0.63	3.85	27.1 (J)
CSMDAB-11-24009	MDAB-614500	AK220	5.25	Qbt 3	7/21/2011	239	0.0127	1.55	ND	ND	156	ND	ND	85.7	ND	0.473	2.41	30.3
CSMDAB-11-25984	MDAB-614674	AH215	9.11	Qbt 3	8/15/2011	269	0.679 (J-)	2.77	ND	ND	284 (J)	ND	ND	70.9 (J)	ND	8.75	3.32	40.7
CSMDAB-11-25985	MDAB-614675	AJ215	14.38	Qbt 3	8/15/2011	257	0.00624 (J-)	1.82	ND	0.000773 (J)	235 (J)	ND	ND	74.5 (J)	ND	0.958	2.03	34
CSMDAB-11-3808	MDAB-614332	AJ240	8.68	Qbt 3	4/19/2011	210	0.039	ND	1.28	ND	331	ND	0.129 (J)	ND	0.103 (J)	ND	5.36	33.6 (J)
CSMDAB-11-3809	MDAB-614334	AJ245	9.96	Qbt 3	4/19/2011	230	0.0198	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.96 (J)	30.3 (J)
CSMDAB-11-3811	MDAB-614337	AI235	17.29	Qbt 3	4/20/2011	270	0.115 (J)	3.12	1.89	ND	404	ND	ND	88.1	ND	11.2 (J-)	5.36	71.9
CSMDAB-11-3812	MDAB-614338	AJ235	10.47	Qbt 3	4/20/2011	71.8	0.0292 (J)	3.52	ND	ND	653	ND	ND	171	ND	2.66 (J-)	6.23	10.8
CSMDAB-11-3817	MDAB-614335	AI245	12.29	Qbt 3	4/19/2011	242	0.0258	ND	ND	ND	ND	ND	0.141 (J)	ND	ND	ND	1.35 (J)	47.9 (J)
CSMDAB-11-3818	MDAB-614333	AI240	15.87	Qbt 3	4/19/2011	228	0.0563	ND	1.38	0.00102 (J)	250	ND	0.116 (J)	ND	0.0716 (J)	ND	2.77 (J)	49.3 (J)
CSMDAB-11-3820	MDAB-614339	AG235	8.71	Qbt 3	4/20/2011	262	0.00746 (J)	1.68	ND	ND	275	ND	ND	57.6	ND	0.542 (J-)	3.05	37.6
Area 5																		
CSMDAB-11-25880	MDAB-614656	AL222	6.029	Qbt 3	8/9/2011	NA	0.0157	NA	NA	NA	NA	ND	0.319 (J)	NA	NA	NA	NA	NA
CSMDAB-11-25881	MDAB-614657	AL225	5.382	Qbt 3	8/11/2011	NA	0.0396	NA	NA	NA	NA	ND	0.244 (J)	NA	NA	NA	NA	NA
CSMDAB-11-25883	MDAB-614659	AL231	5.465	Qbt 3	8/12/2011	NA	0.0401	NA	NA	NA	NA	ND	0.239 (J)	NA	NA	NA	NA	NA
CSMDAB-11-25884	MDAB-614660	AL234	6.799	Qbt 3	8/12/2011	NA	0.0142	NA	NA	NA	NA	ND	0.141 (J)	NA	NA	NA	NA	NA
CSMDAB-11-25885	MDAB-614661	AM225	6.347	Qbt 3	8/11/2011	NA	0.0829	NA	NA	NA	NA	ND	0.3 (J)	NA	NA	NA	NA	NA
CSMDAB-11-25894	MDAB-614670	AN231	6.12	Qbt 3	8/12/2011	NA	0.0545	NA	NA	NA	NA	ND	0.436 (J)	NA	NA	NA	NA	NA
CSMDAB-11-25895	MDAB-614671	AN234	8.856	Qbt 3	8/12/2011	NA	0.101	NA	NA	NA	NA	ND	0.21 (J)	NA	NA	NA	NA	NA

Table 5.1-1 (continued)

Sample ID	Location ID	Grid Cell	Depth (ft)	Media Code	Collection Date	Manganese	Mercury	Nickel	Nitrate	Perchlorate	Potassium	Selenium	Silver	Sodium	Thallium	Uranium	Vanadium	Zinc
Qbt 2, 3, 4 BV[a]						**482**	**0.1**	**6.58**	**na**[c]	**na**	**3500**	**0.3**	**1**	**2770**	**1.1**	**2.4**	**17**	**63.5**
Residential SSL[b]						**1860**	**15.6**[h]	**1560**	**125,000**	**54.8**	**na**	**391**	**391**	**na**	**0.782**	**235**	**391**	**23,500**
Enclosure 2																		
CSMDAB-10-25077	MDAB-612898	NH51	18.4	Qbt 3	10/11/2010	265	0.0496	0.831	ND	0.00176 (J)	222	ND	ND	119	ND	1.26 (J)	3.15	39
CSMDAB-10-25080	MDAB-612901	NH51	10.86	Qbt 3	11/23/2010	224	0.0617	4.45	1.45	0.000827 (J)	637	ND	ND	110	ND	1.08	8.01	31.1
CSMDAB-10-25083	MDAB-612904	NH46	23.09	Qbt 3	1/29/2011	222	0.01 (J-)	ND	1.17	ND	205	ND	ND	ND	ND	0.538	2.58	ND
CSMDAB-10-25084	MDAB-612905	NF46	13.7	Qbt 3	1/29/2011	43.5	0.00855 (J-)	ND	1.01 (J)	ND	813	ND	0.143 (J)	ND	0.07 (J)	0.357	5.16	ND
CSMDAB-10-25085	MDAB-612906	NH46	20.44	Qbt 3	1/29/2011	256	0.00647 (J-)	ND	ND	0.00178 (J)	373	ND	ND	ND	0.151 (J)	0.587	4.55	40.9
CSMDAB-10-25086	MDAB-612907	NG31	11.18	Qbt 3	7/22/2011	289	0.00583 (J)	1.91	ND	ND	154	ND	0.135 (J)	80.5 (J)	0.0648 (J)	3.38	2.77	37.3
CSMDAB-10-25087	MDAB-612908	NH31	21.15	Qbt 3	7/22/2011	125	0.479	2.37	2.09	0.00237	525	ND	0.476	107 (J)	0.113 (J)	10.4	6.56	21.4
CSMDAB-10-25088	MDAB-612909	NJ31	13.95	Qbt 3	7/22/2011	94.2	0.136	3.01	1.5	0.00201 (J)	639	ND	0.177 (J)	135 (J)	0.0867 (J)	0.924	4.43	11.9 (J)
CSMDAB-10-25089	MDAB-612910	NF36	12.82	Qbt 3	7/22/2011	178	ND	1.83	1.44	0.0055	373	ND	0.234 (J)	133 (J)	0.067 (J)	7.76	4.27	26.5
CSMDAB-10-25090	MDAB-612911	NH36	29.56	Qbt 3	7/22/2011	475	0.00861 (J)	2.23	1.74	0.00488	405	ND	0.884	66.4 (J)	0.197 (J)	11	17.5	49.6
CSMDAB-10-25091	MDAB-612912	NI36	19.03	Qbt 3	7/22/2011	221	0.0199	0.871	1.29	0.000896 (J)	140	ND	0.175 (J)	63.2 (J)	ND	0.662	2.95	34.2
CSMDAB-11-24386	MDAB-614604	NI41	15.27	Qbt 3	7/22/2011	226	ND	1.46	ND	0.000635 (J)	173	ND	0.177 (J)	59.5 (J)	ND	0.679	2.53	34.5
CSMDAB-11-24387	MDAB-614603	NG41	22.89	Qbt 3	7/22/2011	270	ND	1.11	ND	0.00129 (J)	167	ND	0.146 (J)	52.7 (J)	ND	0.887	3.55	32
CSMDAB-11-24388	MDAB-614602	NF41	14.46	Qbt 3	7/22/2011	68.1	ND	2.18	1.85	0.00375	528	ND	0.19 (J)	293 (J)	ND	1.56	4.17	10 (J)
CSMDAB-11-24851	MDAB-614643	NF50	7.988	Qbt 3	7/30/2011	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.25	NA	NA
CSMDAB-11-24852	MDAB-614644	NF52	8.201	Qbt 3	7/30/2011	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.471	NA	NA
CSMDAB-11-24853	MDAB-614645	NF51	7.278	Qbt 3	7/30/2011	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.11	NA	NA
CSMDAB-11-4539	MDAB-614592	NG26	10.2	Qbt 3	7/19/2011	222	0.0247	2.02	1.38	0.0022	211	0.332 (J)	ND	104	0.1 (J)	0.72	4.47	22.6
CSMDAB-11-4540	MDAB-614593	NI26	13.49	Qbt 3	7/19/2011	228	0.0548	2.72	1.26	0.000787 (J)	299	ND	ND	52.1	0.0643 (J)	0.77	2.82	27.2
CSMDAB-11-4541	MDAB-614594	NK27	6.45	Qbt 3	7/19/2011	51.3	0.0142	2.96	1.72	0.000583 (J)	631	ND	0.147 (J)	72.7	ND	0.164	5.2	8.93
Enclosure 3																		
CSMDAB-10-26776	MDAB-613126	AH160	7	Qbt 3	10/18/2010	212	0.0249	2.59	ND	ND	291	ND	ND	ND	0.134 (J)	0.781	3.51	17.8
CSMDAB-10-26777	MDAB-613127	AI160	14.6	Qbt 3	10/18/2010	236	0.348	2.88	ND	0.00145 (J)	384	ND	ND	ND	0.179 (J)	1.24	4.31	23.5
CSMDAB-10-26778	MDAB-613128	AK160	2.8	Qbt 3	10/18/2010	281	0.0249	4.92	ND	ND	753	ND	0.208 (J)	ND	0.178 (J)	0.79	11.8	36.5
CSMDAB-10-26779	MDAB-613129	AI155	2.7	Qbt 3	10/18/2010	290	0.0107 (J)	2.57	ND	ND	390	ND	0.122 (J)	ND	0.113 (J)	1.26	4.96	21.9
CSMDAB-10-26780	MDAB-613130	AJ155	8.4	Qbt 3	10/18/2010	277	0.119	2.85	ND	0.00344	344	ND	0.133 (J)	ND	0.0847 (J)	1.02	3.27	35.3
CSMDAB-10-26781	MDAB-613131	AK155	4.4	Qbt 3	10/18/2010	314	0.0144	7	ND	ND	1280	ND	0.156 (J)	ND	0.189 (J)	0.961	13.3	33.4
CSMDAB-10-26782	MDAB-613132	AH166	8	Qbt 3	1/10/2011	226	0.162	3.63 (J)	1.08 (J)	0.00199 (J)	262	ND	ND	72.3	0.0675 (J)	0.486	3.05	38.4
CSMDAB-10-26783	MDAB-613133	AK166	7.43	Qbt 3	1/10/2011	290	0.0125	2.74 (J)	1.2	0.000573 (J)	419	ND	ND	75.7	0.107 (J)	0.388	5.35	45.2
CSMDAB-10-26784	MDAB-613134	AJ166	14.6	Qbt 3	1/10/2011	252	0.00977 (J)	1.7 (J)	0.969 (J)	0.000604 (J)	341	ND	ND	76.6	0.0877 (J)	0.489	3.94	39.3
CSMDAB-10-26785	MDAB-613135	AI171	6.29	Qbt 3	1/10/2011	192	0.0375	0.929 (J)	0.917 (J)	ND	138	ND	ND	96.4	ND	0.794	1.65	44.7
CSMDAB-10-26786	MDAB-613136	AK171	8.1	Qbt 3	1/10/2011	261	0.0117 (J)	1.84 (J)	0.878 (J)	ND	306	ND	ND	64.1	0.0659 (J)	0.371	3.93	37.3
CSMDAB-10-26787	MDAB-613137	AJ171	11.86	Qbt 3	1/10/2011	264	0.00823 (J)	0.913 (J)	0.967 (J)	ND	165	ND	ND	86.4	ND	0.452	1.71	41.1

Table 5.1-1 (continued)

Sample ID	Location ID	Grid Cell	Depth (ft)	Media Code	Collection Date	Manganese	Mercury	Nickel	Nitrate	Perchlorate	Potassium	Selenium	Silver	Sodium	Thallium	Uranium	Vanadium	Zinc
Qbt 2, 3, 4 BV[a]						**482**	**0.1**	**6.58**	**na[c]**	**na**	**3500**	**0.3**	**1**	**2770**	**1.1**	**2.4**	**17**	**63.5**
Residential SSL[b]						**1860**	**15.6[h]**	**1560**	**125,000**	**54.8**	**na**	**391**	**391**	**na**	**0.782**	**235**	**391**	**23,500**
Enclosure 5																		
CSMDAB-11-14065	MDAB-614401	AJ175	14.52	Qbt 3	7/6/2011	208	0.00753 (J)	0.734	1.24	NA	119	ND	ND	66.6	ND	0.558	1.61	30.9 (J)
CSMDAB-11-14066	MDAB-614402	AK175	9.62	Qbt 3	7/6/2011	255	ND	1.48	1.18	NA	266	ND	ND	68.6	0.111 (J)	0.621	3.17	44
CSMDAB-11-14067	MDAB-614403	AH180	7.26	Qbt 3	7/7/2011	310	0.0106 (J)	1.8	1.24 (J-)	ND	300 (J+)	ND	ND	73	ND	0.511 (J)	4.79	37.6 (J-)
CSMDAB-11-14068	MDAB-614404	AJ180	13.59	Qbt 3	7/7/2011	212	2.24	1.46	1.45 (J-)	0.00134 (J)	210 (J+)	ND	ND	69.7	ND	0.596 (J)	3.19	33.9 (J-)
CSMDAB-11-14069	MDAB-614405	AK180	9.65	Qbt 3	7/7/2011	212	0.901	1.61	1.17 (J-)	ND	126 (J+)	ND	ND	71	ND	0.38 (J)	1.77	23.3 (J-)
CSMDAB-11-14070	MDAB-614406	AH185	5.69	Qbt 3	7/7/2011	280	0.0195	1.73	1.19 (J-)	ND	263 (J+)	ND	ND	86.1	ND	0.439 (J)	4.3	46.3 (J-)
Enclosure 7																		
CSMDAB-10-26802	MDAB-613141	AH196	4.9	Qbt 3	10/19/2010	253	0.0214	2.39	ND	ND	316	ND	0.122 (J)	65.5	0.0912 (J)	0.7	6.88	37.4
CSMDAB-10-26804	MDAB-613143	AK196	6.1	Qbt 3	10/19/2010	293	0.00816 (J)	2.44	ND	ND	287	ND	0.136 (J)	47.6	0.0873 (J)	0.693	4.96	46.2
CSMDAB-10-26805	MDAB-613144	AH200	6.21	Qbt 3	11/10/2010	221	0.212	4.97	ND	ND	472 (J+)	ND	ND	70.2	ND	0.616	7.51	26.8 (J)
CSMDAB-10-26806	MDAB-613145	AK200	5.7	Qbt 3	11/10/2010	342	0.0572	5.88	1.01 (J)	ND	681 (J+)	ND	ND	110	ND	0.919	12.2	39.4
CSMDAB-10-26810	MDAB-613149	AJ205	16.74	Qbt 3	12/10/2010	270	ND	ND	1.26	ND	210	ND	ND	ND	ND	0.737 (J+)	2.38	37.6
CSMDAB-10-26812	MDAB-613151	AJ200	15.22	Qbt 3	12/10/2010	223	0.178	ND	ND	0.0867	248	ND	ND	ND	ND	5.62 (J+)	3.61	46.3
Enclosure 9																		
CSMDAB-11-25730	MDAB-614648	NF57	9.643	Qbt 3	8/8/2011	201	0.089	2.02	4.08	0.00557	400	ND	0.197 (J)	135	ND	1.09	4.34	34.9
CSMDAB-11-25731	MDAB-614649	NG57	17.991	Qbt 3	8/8/2011	226	0.1	1.75	2.75	0.144	332	ND	0.283 (J)	157	ND	0.713	4.7	35.6
CSMDAB-11-25734	MDAB-614651	NF60	8.709	Qbt 3	8/9/2011	262	0.164	ND	ND	0.00129 (J)	207	ND	ND	ND	ND	1.2	1.44	46.7
CSMDAB-11-25735	MDAB-614652	NG60	17.559	Qbt 3	8/8/2011	218	0.428	0.746	2.82	0.0409	137	ND	0.115 (J)	112	ND	1.86	1.69	40.9
CSMDAB-11-27591	MDAB-614702	81.5	9.64	Qbt 3	9/16/2011	226	ND	1.94	1.23 (J-)	0.0124	122 (J)	ND	ND	77.5	ND	0.517 (J-)	1.46	30.4
CSMDAB-11-27592	MDAB-614703	76.5	7.71	Qbt 3	9/19/2011	223	0.00727 (J)	1.36	1.78 (J-)	0.0556	111	ND	ND	1650 (J+)	ND	0.429	0.974	27.8
CSMDAB-11-27593	MDAB-614704	76.5	17.6	Qbt 3	9/19/2011	221	0.0221	2.88	3 (J-)	0.00595	257	ND	ND	1060 (J+)	0.0838 (J)	1.58	2.37	36.4
CSMDAB-11-5057	MDAB-613931	NI57	11.11	Qbt 3	8/24/2011	NA	0.0173 (J-)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CSMDAB-11-5059	MDAB-613933	81.5	19.77	Qbt 3	9/16/2011	262	ND	1.1	2.12 (J-)	0.0146	296 (J)	0.386 (J)	ND	121	ND	8.34 (J-)	2.12	32.9
CSMDAB-11-5061	MDAB-613935	NG65	16.453	Qbt 3	8/9/2011	386	0.0452	ND	ND	ND	302	ND	0.126 (J)	ND	0.169 (J)	1.6	9.33	60.5
CSMDAB-11-5062	MDAB-613936	NH65	10.741	Qbt 3	8/9/2011	209	0.0317	ND	ND	0.000858 (J)	193	ND	0.128 (J)	ND	ND	ND	2.07	35.8
Enclosure 12																		
CSMDAB-11-4855	MDAB-613862	NG87	16.66	Qbt 3	3/24/2011	194	0.917	ND	19.5	0.000749 (J)	ND	ND	3.5	ND	ND	1.17	2.02	53.2
CSMDAB-11-4857	MDAB-613864	NH86	16.57	Qbt 3	3/24/2011	228	0.42	ND	1.3	ND	ND	ND	ND	ND	ND	ND	1.19	31.3
CSMDAB-11-4858	MDAB-613865	NG91	17.43	Qbt 3	3/23/2011	270	ND	0.73	3.22	0.00192 (J)	180	ND	ND	105	ND	0.667	1.66	28.3
CSMDAB-11-4859	MDAB-613866	NF91	16.32	Qbt 3	3/23/2011	229	0.01 (J)	0.885	6.36	0.00153 (J)	180	ND	ND	137	ND	0.821	1.24	24.9
CSMDAB-11-4860	MDAB-613867	NH91	15.01	Qbt 3	3/23/2011	244	ND	2.13	4.1	0.000926 (J)	239	ND	ND	132	ND	0.661	3.03	26.9
CSMDAB-11-4861	MDAB-613868	NG97	18.93	Qbt 3	3/23/2011	220	0.00491 (J)	1.71	2.4	ND	263	ND	ND	268	ND	3.84	2.9	24.6
CSMDAB-11-4862	MDAB-613869	NF96	12.91	Qbt 3	3/23/2011	233	0.00662 (J)	2.45	2.55	0.000615 (J)	666	ND	ND	243	0.127 (J)	13.2	6.51	23.4
CSMDAB-11-4864	MDAB-613871	NI101	14.38	Qbt 3	3/23/2011	264	ND	1.38	1.24	0.00366	130	ND	ND	129	ND	0.502	1.11	34.6

Table 5.1-1 (continued)

Sample ID	Location ID	Grid Cell	Depth (ft)	Media Code	Collection Date	Manganese	Mercury	Nickel	Nitrate	Perchlorate	Potassium	Selenium	Silver	Sodium	Thallium	Uranium	Vanadium	Zinc
Qbt 2, 3, 4 BV[a]						**482**	**0.1**	**6.58**	**na[c]**	**na**	**3500**	**0.3**	**1**	**2770**	**1.1**	**2.4**	**17**	**63.5**
Residential SSL[b]						**1860**	**15.6[h]**	**1560**	**125,000**	**54.8**	**na**	**391**	**391**	**na**	**0.782**	**235**	**391**	**23,500**
CSMDAB-11-5775	MDAB-613975	NF101	13.55	Qbt 3	3/23/2011	224	ND	1.24	2.03	ND	283	ND	ND	168	ND	0.409	2.37	36
CSMDAB-11-5776	MDAB-613976	NH101	14.25	Qbt 3	3/23/2011	227	ND	1.31	2.1	0.00059 (J)	180	ND	ND	224	ND	0.427	1.12	31.4

Notes: Units are mg/kg. Bold text indicates value exceeds residential SSL. Data qualifiers are defined in Appendix A.

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

[b] SSLs from NMED (2012, 219971), unless otherwise indicated.

[c] na = Not available.

[d] Chromium(III) SSL used.

[e] SSL from EPA regional screening table (http://www.epa.gov/region06/6pd/rcra_c/pd-n/screen.htm).

[f] ND = Not detected.

[g] NA = Not analyzed.

[h] Elemental mercury SSL used.

Table 5.1-2
Organic Chemicals Detected during Confirmation Sampling

Sample ID	Location ID	Grid Cell	Depth (ft)	Media Code	Collection Date	Acetone	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Butanone(2-)	Chrysene	DDD(4,4'-)	DDE(4,4'-)	DDT(4,4'-)	Dibenz(a,h)anthracene
Residential SSL[a]						**66,600**	**1.48**	**0.148**	**1.48**	**1720[b]**	**14.8**	**37,100**	**148**	**20.3**	**14.3**	**17.2**	**0.148**
Enclosure 1																	
CSMDAB-10-24585	MDAB-612790	AJ260	4.7	Qbt 3	8/11/10	ND[c]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CSMDAB-10-24595	MDAB-612800	AJ255	3.52	Qbt 3	1/5/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CSMDAB-11-25984	MDAB-614674	AH215	9.11	Qbt 3	8/15/11	0.00353 (J)	ND	ND	ND	ND	ND	0.00173 (J)	ND	ND	ND	0.00082 (J)	ND
CSMDAB-11-3809	MDAB-614334	AJ245	9.96	Qbt 3	4/19/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CSMDAB-11-3811	MDAB-614337	AI235	17.29	Qbt 3	4/20/11	ND	0.031 (J)	0.0373	0.0233 (J)	0.0137 (J)	ND	ND	0.0244 (J)	ND	ND	0.000475 (J)	ND
CSMDAB-11-3817	MDAB-614335	AI245	12.29	Qbt 3	4/19/11	ND	0.0205 (J)	ND	ND	ND	ND	ND	0.0125 (J)	ND	ND	ND	ND
CSMDAB-11-3818	MDAB-614333	AI240	15.87	Qbt 3	4/19/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CSMDAB-11-3820	MDAB-614339	AG235	8.71	Qbt 3	4/20/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Enclosure 2																	
CSMDAB-10-25090	MDAB-612911	NH36	29.56	Qbt 3	7/22/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CSMDAB-11-4539	MDAB-614592	NG26	10.2	Qbt 3	7/19/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CSMDAB-11-4540	MDAB-614593	NI26	13.49	Qbt 3	7/19/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CSMDAB-11-4541	MDAB-614594	NK27	6.45	Qbt 3	7/19/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Enclosure 3																	
CSMDAB-10-26778	MDAB-613128	AK160	2.8	Qbt 3	10/18/10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.000577 (J)	ND
CSMDAB-10-26785	MDAB-613135	AI171	6.29	Qbt 3	1/10/11	ND	ND	ND	ND	ND	ND	0.0217 (J+)	ND	ND	ND	ND	ND
CSMDAB-10-26787	MDAB-613137	AJ171	11.86	Qbt 3	1/10/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Enclosure 5																	
CSMDAB-11-14065	MDAB-614401	AJ175	14.52	Qbt 3	7/6/11	ND	ND	ND	ND	ND	ND	ND	ND	0.000352 (J)	ND	0.000419 (J)	ND
CSMDAB-11-14068	MDAB-614404	AJ180	13.59	Qbt 3	7/7/11	ND	0.124	**0.209**	0.26	0.142	0.0878	ND	0.121	ND	ND	ND	0.0553
Enclosure 7																	
CSMDAB-10-26804	MDAB-613143	AK196	6.1	Qbt 3	10/19/10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CSMDAB-10-26805	MDAB-613144	AH200	6.21	Qbt 3	11/10/10	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00165	0.0068	ND
CSMDAB-10-26806	MDAB-613145	AK200	5.7	Qbt 3	11/10/10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Enclosure 9																	
CSMDAB-11-25730	MDAB-614648	NF57	9.643	Qbt 3	8/8/11	0.00547	ND	ND	ND	ND	ND	0.003 (J)	ND	ND	ND	ND	ND
CSMDAB-11-25731	MDAB-614649	NG57	17.991	Qbt 3	8/8/11	0.0101	ND	ND	ND	ND	ND	0.00685	ND	ND	ND	ND	ND
CSMDAB-11-25735	MDAB-614652	NG60	17.559	Qbt 3	8/8/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Table 5.1-2 (continued)

Sample ID	Location ID	Grid Cell	Depth (ft)	Media Code	Collection Date	Acetone	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Butanone(2-)	Chrysene	DDD(4,4'-)	DDE(4,4'-)	DDT(4,4'-)	Dibenz(a,h)anthracene
Residential SSL[a]						**66,600**	**1.48**	**0.148**	**1.48**	**1720**[b]	**14.8**	**37,100**	**148**	**20.3**	**14.3**	**17.2**	**0.148**
Enclosure 12																	
CSMDAB-11-4855	MDAB-613862	NG87	16.66	Qbt 3	3/24/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CSMDAB-11-4859	MDAB-613866	NF91	16.32	Qbt 3	3/23/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.000757 (J)	ND
CSMDAB-11-4860	MDAB-613867	NH91	15.01	Qbt 3	3/23/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CSMDAB-11-4861	MDAB-613868	NG97	18.93	Qbt 3	3/23/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CSMDAB-11-4864	MDAB-613871	NI101	14.38	Qbt 3	3/23/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CSMDAB-11-5775	MDAB-613975	NF101	13.55	Qbt 3	3/23/11	ND	ND	ND	ND	ND	ND	0.00189 (J)	ND	ND	ND	ND	ND

Table 5.1-2 (continued)

Sample ID	Location ID	Grid Cell	Depth (ft)	Media Code	Collection Date	Diethylphthalate	Endrin	Fluoranthene	Heptachlor epoxide	Heptachlorodibenzodioxin (1,2,3,4,6,7,8-)	Heptachlorodibenzodioxins (total)	Heptachlorodibenzofuran (1,2,3,4,6,7,8-)	Heptachlorodibenzofurans (total)	Hexachlorodibenzodioxins (total)	Hexachlorodibenzofurans (total)	Hexanone(2-)
Residential SSL[a]						**48,900**	**18.3**	**2290**	**0.53[d]**	**na[e]**	**na**	**na**	**na**	**na**	**na**	**210[d]**
Enclosure 1																
CSMDAB-10-24585	MDAB-612790	AJ260	4.7	Qbt 3	8/11/10	ND	ND	ND	ND	0.00000168 (J)	0.00000288 (J)	0.00000195 (J)	0.00000559	ND	0.000000603 (J)	ND
CSMDAB-10-24595	MDAB-612800	AJ255	3.52	Qbt 3	1/5/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CSMDAB-11-25984	MDAB-614674	AH215	9.11	Qbt 3	8/15/11	ND	ND	ND	ND	NA[f]	NA	NA	NA	NA	NA	ND
CSMDAB-11-3809	MDAB-614334	AJ245	9.96	Qbt 3	4/19/11	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND
CSMDAB-11-3811	MDAB-614337	AI235	17.29	Qbt 3	4/20/11	ND	ND	0.0465	ND	NA	NA	NA	NA	NA	NA	ND
CSMDAB-11-3817	MDAB-614335	AI245	12.29	Qbt 3	4/19/11	ND	0.000729 (J)	0.0261 (J)	ND	NA	NA	NA	NA	NA	NA	ND
CSMDAB-11-3818	MDAB-614333	AI240	15.87	Qbt 3	4/19/11	ND	0.00101 (J)	ND	ND	NA	NA	NA	NA	NA	NA	ND
CSMDAB-11-3820	MDAB-614339	AG235	8.71	Qbt 3	4/20/11	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND
Enclosure 2																
CSMDAB-10-25090	MDAB-612911	NH36	29.56	Qbt 3	7/22/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CSMDAB-11-4539	MDAB-614592	NG26	10.2	Qbt 3	7/19/11	ND	ND	ND	0.000586 (J)	NA	NA	NA	NA	NA	NA	ND
CSMDAB-11-4540	MDAB-614593	NI26	13.49	Qbt 3	7/19/11	ND	ND	ND	ND	0.00000337 (J)	0.0000077 (J)	0.00000256 (J)	0.00000556	ND	0.00000101 (J)	ND
CSMDAB-11-4541	MDAB-614594	NK27	6.45	Qbt 3	7/19/11	0.107 (J)	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND
Enclosure 3																
CSMDAB-10-26778	MDAB-613128	AK160	2.8	Qbt 3	10/18/10	ND	ND	ND	ND	0.00000718 (J+)	0.0000161	0.00000357 (J)	0.00000661	0.00000317 (J)	0.00000247 (J)	ND
CSMDAB-10-26785	MDAB-613135	AI171	6.29	Qbt 3	1/10/11	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	0.0348 (J+)
CSMDAB-10-26787	MDAB-613137	AJ171	11.86	Qbt 3	1/10/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Enclosure 5																
CSMDAB-11-14065	MDAB-614401	AJ175	14.52	Qbt 3	7/6/11	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND
CSMDAB-11-14068	MDAB-614404	AJ180	13.59	Qbt 3	7/7/11	ND	ND	ND	ND	0.0000057	0.0000147	0.00000263 (J)	0.00000495	ND	0.00000113 (J)	ND
Enclosure 7																
CSMDAB-10-26804	MDAB-613143	AK196	6.1	Qbt 3	10/19/10	ND	ND	ND	ND	0.00000137 (J)	0.00000341 (J)	0.000000576 (J)	0.000000576 (J)	0.000000479 (J)	ND	ND
CSMDAB-10-26805	MDAB-613144	AH200	6.21	Qbt 3	11/10/10	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND
CSMDAB-10-26806	MDAB-613145	AK200	5.7	Qbt 3	11/10/10	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND
Enclosure 9																
CSMDAB-11-25730	MDAB-614648	NF57	9.643	Qbt 3	8/8/11	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND
CSMDAB-11-25731	MDAB-614649	NG57	17.991	Qbt 3	8/8/11	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	0.0243
CSMDAB-11-25735	MDAB-614652	NG60	17.559	Qbt 3	8/8/11	ND	ND	ND	ND	0.00000471	0.00000957	0.0000113	0.0000186	ND	0.00000864	ND

Table 5.1-2 (continued)

Sample ID	Location ID	Grid Cell	Depth (ft)	Media Code	Collection Date	Diethylphthalate	Endrin	Fluoranthene	Heptachlor epoxide	Heptachlorodibenzodioxin (1,2,3,4,6,7,8-)	Heptachlorodibenzodioxins (total)	Heptachlorodibenzofuran (1,2,3,4,6,7,8-)	Heptachlorodibenzofurans (total)	Hexachlorodibenzodioxins (total)	Hexachlorodibenzofurans (total)	Hexanone(2-)
Residential SSL[a]						**48,900**	**18.3**	**2290**	**0.53[d]**	**na[e]**	**na**	**na**	**na**	**na**	**na**	**210[d]**
Enclosure 12																
CSMDAB-11-4855	MDAB-613862	NG87	16.66	Qbt 3	3/24/11	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND
CSMDAB-11-4859	MDAB-613866	NF91	16.32	Qbt 3	3/23/11	ND	ND	ND	ND	ND	0.000000417 (J)	ND	ND	ND	ND	ND
CSMDAB-11-4860	MDAB-613867	NH91	15.01	Qbt 3	3/23/11	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND
CSMDAB-11-4861	MDAB-613868	NG97	18.93	Qbt 3	3/23/11	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND
CSMDAB-11-4864	MDAB-613871	NI101	14.38	Qbt 3	3/23/11	ND	ND	ND	ND	0.00000102 (J)	0.00000102 (J)	ND	0.000000416 (J)	ND	ND	ND
CSMDAB-11-5775	MDAB-613975	NF101	13.55	Qbt 3	3/23/11	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND

Table 5.1-2 (continued)

Sample ID	Location ID	Grid Cell	Depth (ft)	Media Code	Collection Date	Indeno(1,2,3-cd)pyrene	Isopropyltoluene(4-)	Methyl-2-pentanone(4-)	Methylene chloride	Naphthalene	Octachlorodibenzodioxin (1,2,3,4,6,7,8,9-)	Octachlorodibenzofuran (1,2,3,4,6,7,8,9-)	Pentachlorodibenzofurans (total)	Pyrene	Tetrachlorodibenzofurans (total)	Trichloroethene	Trimethylbenzene(1,2,4-)
Residential SSL[a]						**1.48**	**2430[g]**	**5820**	**409**	**43**	**na**	**na**	**na**	**1720**	**na**	**8.77**	**62[d]**
Enclosure 1																	
CSMDAB-10-24585	MDAB-612790	AJ260	4.7	Qbt 3	8/11/10	ND	ND	ND	ND	NA	0.0000133	0.00000888 (J)	ND	ND	ND	ND	ND
CSMDAB-10-24595	MDAB-612800	AJ255	3.52	Qbt 3	1/5/11	ND	ND	ND	ND	ND	0.00000107 (J)	ND	ND	ND	ND	ND	ND
CSMDAB-11-25984	MDAB-614674	AH215	9.11	Qbt 3	8/15/11	ND	ND	ND	ND	0.000406 (J)	NA	NA	NA	ND	NA	ND	ND
CSMDAB-11-3809	MDAB-614334	AJ245	9.96	Qbt 3	4/19/11	ND	ND	ND	ND	ND	NA	NA	NA	ND	NA	ND	0.000432 (J)
CSMDAB-11-3811	MDAB-614337	AI235	17.29	Qbt 3	4/20/11	0.0129 (J)	ND	ND	0.0031 (J)	ND	NA	NA	NA	0.0657	NA	0.000489 (J)	ND
CSMDAB-11-3817	MDAB-614335	AI245	12.29	Qbt 3	4/19/11	ND	ND	ND	ND	ND	NA	NA	NA	0.0201 (J)	NA	ND	ND
CSMDAB-11-3818	MDAB-614333	AI240	15.87	Qbt 3	4/19/11	ND	ND	ND	ND	ND	NA	NA	NA	ND	NA	ND	ND
CSMDAB-11-3820	MDAB-614339	AG235	8.71	Qbt 3	4/20/11	ND	ND	ND	0.00301 (J)	ND	NA	NA	NA	ND	NA	ND	ND
Enclosure 2																	
CSMDAB-10-25090	MDAB-612911	NH36	29.56	Qbt 3	7/22/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.000000286 (J)	ND	ND
CSMDAB-11-4539	MDAB-614592	NG26	10.2	Qbt 3	7/19/11	ND	ND	ND	ND	ND	NA	NA	NA	ND	NA	ND	ND
CSMDAB-11-4540	MDAB-614593	NI26	13.49	Qbt 3	7/19/11	ND	ND	ND	ND	ND	0.0000368 (J)	0.00000286 (J)	ND	ND	ND	ND	ND
CSMDAB-11-4541	MDAB-614594	NK27	6.45	Qbt 3	7/19/11	ND	ND	ND	ND	ND	NA	NA	NA	ND	NA	ND	ND
Enclosure 3																	
CSMDAB-10-26778	MDAB-613128	AK160	2.8	Qbt 3	10/18/10	ND	ND	ND	ND	NA	0.0000428 (J+)	0.00000234 (J)	0.00000131 (J)	ND	0.0000022 (J)	ND	ND
CSMDAB-10-26785	MDAB-613135	AI171	6.29	Qbt 3	1/10/11	ND	ND	0.00287 (J+)	ND	ND	NA	NA	NA	ND	NA	ND	ND
CSMDAB-10-26787	MDAB-613137	AJ171	11.86	Qbt 3	1/10/11	ND	ND	ND	ND	ND	0.00000104 (J)	ND	ND	ND	ND	ND	ND
Enclosure 5																	
CSMDAB-11-14065	MDAB-614401	AJ175	14.52	Qbt 3	7/6/11	ND	ND	ND	ND	ND	NA	NA	NA	ND	NA	ND	ND
CSMDAB-11-14068	MDAB-614404	AJ180	13.59	Qbt 3	7/7/11	0.13	ND	ND	ND	ND	0.0000857	0.00000243 (J)	0.00000254 (J)	ND	ND	ND	ND
Enclosure 7																	
CSMDAB-10-26804	MDAB-613143	AK196	6.1	Qbt 3	10/19/10	ND	ND	ND	ND	NA	0.00000996	ND	ND	ND	ND	ND	ND
CSMDAB-10-26805	MDAB-613144	AH200	6.21	Qbt 3	11/10/10	ND	ND	ND	ND	ND	NA	NA	NA	ND	NA	0.000957 (J)	ND
CSMDAB-10-26806	MDAB-613145	AK200	5.7	Qbt 3	11/10/10	ND	0.00038 (J)	ND	ND	ND	NA	NA	NA	ND	NA	ND	ND
Enclosure 9																	
CSMDAB-11-25730	MDAB-614648	NF57	9.643	Qbt 3	8/8/11	ND	ND	ND	ND	ND	NA	NA	NA	ND	NA	ND	ND
CSMDAB-11-25731	MDAB-614649	NG57	17.99	Qbt 3	8/8/11	ND	ND	0.00311 (J)	ND	ND	NA	NA	NA	ND	NA	ND	ND
CSMDAB-11-25735	MDAB-614652	NG60	17.56	Qbt 3	8/8/11	ND	ND	ND	ND	ND	0.0000403	0.00000423 (J)	0.00000123 (J)	ND	ND	ND	ND

Table 5.1-2 (continued)

Sample ID	Location ID	Grid Cell	Depth (ft)	Media Code	Collection Date	Indeno(1,2,3-cd)pyrene	Isopropyltoluene(4-)	Methyl-2-pentanone(4-)	Methylene chloride	Naphthalene	Octachlorodibenzodioxin (1,2,3,4,6,7,8,9-)	Octachlorodibenzofuran (1,2,3,4,6,7,8,9-)	Pentachlorodibenzofurans (total)	Pyrene	Tetrachlorodibenzofurans (total)	Trichloroethene	Trimethylbenzene(1,2,4-)
Residential SSL[a]						**1.48**	**2430**[g]	**5820**	**409**	**43**	**na**	**na**	**na**	**1720**	**na**	**8.77**	**62**[d]
Enclosure 12																	
CSMDAB-11-4855	MDAB-613862	NG87	16.66	Qbt 3	3/24/11	ND	ND	ND	ND	0.0205	NA	NA	NA	ND	NA	ND	ND
CSMDAB-11-4859	MDAB-613866	NF91	16.32	Qbt 3	3/23/11	ND	ND	ND	ND	ND	0.00000208 (J)	ND	ND	ND	ND	ND	ND
CSMDAB-11-4860	MDAB-613867	NH91	15.01	Qbt 3	3/23/11	ND	ND	ND	ND	0.00057 (J)	NA	NA	NA	ND	NA	ND	ND
CSMDAB-11-4861	MDAB-613868	NG97	18.93	Qbt 3	3/23/11	ND	0.000774 (J)	ND	ND	0.000449 (J)	NA	NA	NA	ND	NA	ND	ND
CSMDAB-11-4864	MDAB-613871	NI101	14.38	Qbt 3	3/23/11	ND	ND	ND	ND	ND	0.00000619 (J)	ND	ND	ND	ND	ND	ND
CSMDAB-11-5775	MDAB-613975	NF101	13.55	Qbt 3	3/23/11	ND	ND	ND	ND	ND	NA	NA	NA	ND	NA	ND	ND

Note: Units are mg/kg. Bold text indicates value exceeds residential SSL. Data qualifiers are defined in Appendix A.

[a] SSLs from NMED (2012, 219971), unless otherwise indicated.

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

[c] ND = Not detected.

[d] SSL from EPA regional screening table (http://www.epa.gov/region06/6pd/rcra_c/pd-n/screen.htm) .

[e] na = Not available.

[f] NA = Not analyzed.

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

Table 5.1-3
Radionuclides Detected during Confirmation Sampling

Sample ID	Location ID	Grid Cell	Depth (ft)	Media Code	Collection Date	Americium-241	Cesium-137	Plutonium-238	Plutonium-239/240	Strontium-90	Tritium	Uranium-234	Uranium-235/236	Uranium-238
Qbt 2, 3, 4 BV[a]						**na[b]**	**na**	**na**	**na**	**na**	**na**	**1.98**	**0.09**	**1.93**
Residential SAL[c]						**30**	**5.6**	**37**	**33**	**5.7**	**750**	**170**	**17**	**87**
Enclosure 1														
CSMDAB-10-24585	MDAB-612790	AJ260	4.7	Qbt 3	8/11/10	ND[d]	ND	ND	2.33	ND	ND	0.789	ND	0.799
CSMDAB-10-24587	MDAB-612792	AI260	7.4	Qbt 3	8/11/10	ND	ND	ND	0.93	ND	ND	0.857	ND	0.859
CSMDAB-10-24589	MDAB-612794	AH260	2	Qbt 3	9/16/10	0.247	NA[e]	0.123	20.7	NA	NA	NA	NA	NA
CSMDAB-10-24590	MDAB-612795	AH260	2.8	Qbt 3	9/16/10	ND	NA	ND	1.5	NA	NA	NA	NA	NA
CSMDAB-10-24591	MDAB-612796	AH260	2.4	Qbt 3	9/16/10	ND	NA	0.0654	3.74	NA	NA	NA	NA	NA
CSMDAB-10-24592	MDAB-612797	AH260	4.1	Qbt 3	10/13/10	ND	ND	0.203 (J)	0.867 (J)	NA	NA	0.843	0.12	0.759
CSMDAB-10-24593	MDAB-612798	AI255	6.69	Qbt 3	1/5/11	0.0726	ND	ND	2.52	ND	ND	0.799	0.0723	0.799
CSMDAB-10-24594	MDAB-612799	AH255	3.36	Qbt 3	1/5/11	0.0926	ND	ND	4.53	ND	ND	0.902	0.0653	0.893
CSMDAB-10-24595	MDAB-612800	AJ255	3.52	Qbt 3	1/5/11	ND	ND	ND	0.423	ND	ND	0.765	0.0601	0.766
CSMDAB-10-24596	MDAB-612801	AH250	8.69	Qbt 3	1/29/11	0.303	5.24	ND	15	1.38	ND	0.905	ND	1.02
CSMDAB-10-24599	MDAB-612804	AH240	9.79	Qbt 3	4/19/11	ND	ND	ND	2.04	ND	ND	0.81	0.111	0.824
CSMDAB-11-13873	MDAB-614399	AL250	6.2	Qbt 3	5/26/11	NA	ND	ND	11	NA	NA	NA	NA	NA
CSMDAB-11-13875	MDAB-614398	AL249	12.66	Qbt 3	5/26/11	NA	0.301	ND	**60.9**	NA	NA	NA	NA	NA
CSMDAB-11-13876	MDAB-614601	AH225	6.19	Qbt 3	7/21/11	0.269	ND	ND	7.89	ND	ND	0.976	ND	0.925
CSMDAB-11-13877	MDAB-614600	AI225	15.2	Qbt 3	7/21/11	ND	ND	0.157	3.67	ND	ND	3.21	0.173	3.3
CSMDAB-11-23966	MDAB-614489	AK225	8.19	Qbt 3	7/21/11	ND	ND	ND	0.418	ND	0.0215098	1.01	0.07	1.02
CSMDAB-11-23967	MDAB-614490	AH229	10.96	Qbt 3	7/21/11	ND	ND	ND	ND	ND	0.0279421	1.4	0.0881	1.4
CSMDAB-11-23968	MDAB-614491	AI229	16.93	Qbt 3	7/21/11	0.22	ND	ND	5.89	ND	0.0152634	1.17	0.0823	1.25
CSMDAB-11-23969	MDAB-614492	AJ230	8.76	Qbt 3	7/21/11	ND	ND	ND	0.541	ND	ND	0.77	ND	0.797
CSMDAB-11-24007	MDAB-614498	AG220	2.71	Qbt 3	7/20/11	ND	ND	ND	0.591	ND	ND	0.845	ND	0.787
CSMDAB-11-24008	MDAB-614499	AI220	6.76	Qbt 3	7/20/11	ND	ND	ND	0.134	ND	ND	0.727	ND	0.793
CSMDAB-11-24009	MDAB-614500	AK220	5.25	Qbt 3	7/21/11	ND	ND	ND	0.653	ND	ND	0.734	0.0579	0.656
CSMDAB-11-25984	MDAB-614674	AH215	9.11	Qbt 3	8/15/11	0.587	ND	ND	19.9	ND	ND	4.82	0.349	4.82
CSMDAB-11-25985	MDAB-614675	AJ215	14.38	Qbt 3	8/15/11	ND	ND	ND	2.54	ND	ND	0.911	0.08	0.944
CSMDAB-11-27001	MDAB-614697	205	12.43	Qbt 3	9/22/11	0.225	ND	ND	11.2	NA	NA	NA	NA	NA
CSMDAB-11-27002	MDAB-614698	205	11.44	Qbt 3	9/22/11	0.663	ND	ND	19.7	NA	NA	NA	NA	NA
CSMDAB-11-27936	MDAB-614715	210	19.14	Qbt 3	9/20/11	NA	NA	ND	1.32	NA	NA	NA	NA	NA
CSMDAB-11-27937	MDAB-614716	215	9.91	Qbt 3	9/21/11	NA	NA	0.299	**40.2**	NA	NA	NA	NA	NA
CSMDAB-11-27938	MDAB-614717	245	4.58	Qbt 3	9/21/11	NA	NA	ND	0.234	NA	NA	NA	NA	NA
CSMDAB-11-27939	MDAB-614718	210	10.15	Qbt 3	9/21/11	NA	NA	0.279	16.3	NA	NA	NA	NA	NA

Table 5.1-3 (continued)

Sample ID	Location ID	Grid Cell	Depth (ft)	Media Code	Collection Date	Americium-241	Cesium-137	Plutonium-238	Plutonium-239/240	Strontium-90	Tritium	Uranium-234	Uranium-235/236	Uranium-238
Qbt 2, 3, 4 BV[a]						**na**[b]	**na**	**na**	**na**	**na**	**na**	**1.98**	**0.09**	**1.93**
Residential SAL[c]						**30**	**5.6**	**37**	**33**	**5.7**	**750**	**170**	**17**	**87**
CSMDAB-11-27940	MDAB-614719	250	5.98	Qbt 3	9/21/11	NA	NA	ND	ND	NA	NA	NA	NA	NA
CSMDAB-11-27941	MDAB-614720	210	15.02	Qbt 3	9/22/11	NA	NA	ND	19.3	NA	NA	NA	NA	NA
CSMDAB-11-3808	MDAB-614332	AJ240	8.68	Qbt 3	4/19/11	0.267	ND	0.204	9.9	ND	ND	0.908	0.0564	0.987
CSMDAB-11-3809	MDAB-614334	AJ245	9.96	Qbt 3	4/19/11	0.336	ND	ND	5.38	ND	ND	1.98	0.151	1.84
CSMDAB-11-3811	MDAB-614337	AI235	17.29	Qbt 3	4/20/11	6.89	ND	1.69	**286**	ND	ND	5.67	0.291	5.64
CSMDAB-11-3812	MDAB-614338	AJ235	10.47	Qbt 3	4/20/11	ND	ND	ND	0.945	ND	ND	2.24	0.179	2.31
CSMDAB-11-3817	MDAB-614335	AI245	12.29	Qbt 3	4/19/11	4.16	ND	1.07	**148**	ND	0.146115	1.4	0.14	1.39
CSMDAB-11-3818	MDAB-614333	AI240	15.87	Qbt 3	4/19/11	0.563	ND	ND	20.7	ND	ND	1.32	0.105	1.23
CSMDAB-11-3819	MDAB-612802	AL250	13.56	Qbt 3	5/26/11	NA	2.72	ND	**81.3**	NA	NA	NA	NA	NA
CSMDAB-11-3820	MDAB-614339	AG235	8.71	Qbt 3	4/20/11	ND	ND	ND	2.01	ND	ND	1.1	0.0779	1.11
CSMDAB-11-3821	MDAB-614397	AK251	13.74	Qbt 3	5/26/11	NA	**10.3**	6.3	**958**	NA	NA	NA	NA	NA
Area 5														
CSMDAB-11-25880	MDAB-614656	AL222	6.029	Qbt 3	8/9/11	NA	NA	0.117	7.81	NA	NA	NA	NA	NA
CSMDAB-11-25881	MDAB-614657	AL225	5.382	Qbt 3	8/11/11	NA	NA	ND	17.3	NA	NA	NA	NA	NA
CSMDAB-11-25883	MDAB-614659	AL231	5.465	Qbt 3	8/12/11	NA	NA	ND	27.5	NA	NA	NA	NA	NA
CSMDAB-11-25884	MDAB-614660	AL234	6.799	Qbt 3	8/12/11	NA	NA	ND	2.96	NA	NA	NA	NA	NA
CSMDAB-11-25885	MDAB-614661	AM225	6.347	Qbt 3	8/11/11	NA	NA	ND	31.8	NA	NA	NA	NA	NA
CSMDAB-11-25894	MDAB-614670	AN231	6.12	Qbt 3	8/12/11	NA	NA	ND	31.7	NA	NA	NA	NA	NA
CSMDAB-11-25895	MDAB-614671	AN234	8.856	Qbt 3	8/12/11	NA	NA	ND	21	NA	NA	NA	NA	NA
CSMDAB-11-27623	MDAB-614706	AM232	7.77	Qbt 3	9/16/11	NA	NA	ND	2.24	NA	NA	NA	NA	NA
CSMDAB-11-27624	MDAB-614707	AM230	7.18	Qbt 3	9/16/11	NA	NA	ND	2.22	NA	NA	NA	NA	NA
CSMDAB-11-27625	MDAB-614708	AN228	9.02	Qbt 3	9/19/11	NA	NA	ND	11.2	NA	NA	NA	NA	NA
CSMDAB-11-27626	MDAB-614709	AM228	10.02	Qbt 3	9/20/11	NA	NA	ND	4.52	NA	NA	NA	NA	NA
CSMDAB-11-27627	MDAB-614710	AL228	8.79	Qbt 3	9/20/11	NA	NA	ND	0.542	NA	NA	NA	NA	NA
CSMDAB-11-27628	MDAB-614711	AM227	11.53	Qbt 3	9/21/11	NA	NA	ND	ND	NA	NA	NA	NA	NA
CSMDAB-11-27629	MDAB-614712	AN226	11.23	Qbt 3	9/20/11	NA	NA	ND	ND	NA	NA	NA	NA	NA
CSMDAB-11-27630	MDAB-614713	AN223	11.61	Qbt 3	9/20/11	NA	NA	ND	0.404	NA	NA	NA	NA	NA
CSMDAB-11-27631	MDAB-614714	AN222	12.64	Qbt 3	9/21/11	NA	NA	ND	ND	NA	NA	NA	NA	NA
Enclosure 2														
CSMDAB-10-25077	MDAB-612898	NH51	18.4	Qbt 3	10/11/10	0.658	ND	0.387 (J)	**34.2**	ND	0.0896629	1.58	0.112	1.54
CSMDAB-10-25080	MDAB-612901	NH51	10.86	Qbt 3	11/23/10	0.473	ND	0.147 (J)	19.8 (J)	ND	0.125233	1.24	0.0748	0.868
CSMDAB-10-25083	MDAB-612904	NH46	23.09	Qbt 3	1/29/11	0.574 (J+)	ND	0.2	31.9	ND	0.0351603	1.14	ND	0.854
CSMDAB-10-25084	MDAB-612905	NF46	13.7	Qbt 3	1/29/11	ND	ND	ND	ND	ND	0.0417807	1.47	ND	1.37

Table 5.1-3 (continued)

Sample ID	Location ID	Grid Cell	Depth (ft)	Media Code	Collection Date	Americium-241	Cesium-137	Plutonium-238	Plutonium-239/240	Strontium-90	Tritium	Uranium-234	Uranium-235/236	Uranium-238
Qbt 2, 3, 4 BV[a]						**na[b]**	**na**	**na**	**na**	**na**	**na**	**1.98**	**0.09**	**1.93**
Residential SAL[c]						**30**	**5.6**	**37**	**33**	**5.7**	**750**	**170**	**17**	**87**
CSMDAB-10-25085	MDAB-612906	NH46	20.44	Qbt 3	1/29/11	0.285	ND	ND	13.2	ND	0.0269592	0.952	ND	0.976
CSMDAB-10-25086	MDAB-612907	NG31	11.18	Qbt 3	7/22/11	ND	ND	ND	1.27	ND	0.0290769	2.31	0.124	2.19
CSMDAB-10-25087	MDAB-612908	NH31	21.15	Qbt 3	7/22/11	0.748	0.334	0.311	**68.2**	ND	0.13109	5.91	0.296	5.02
CSMDAB-10-25088	MDAB-612909	NJ31	13.95	Qbt 3	7/22/11	0.199	0.109	ND	4.27	ND	0.0427143	1.62	ND	1.65
CSMDAB-10-25089	MDAB-612910	NF36	12.82	Qbt 3	7/22/11	0.104	ND	ND	5.77	ND	0.0346552	4.7	0.306	4.58
CSMDAB-10-25090	MDAB-612911	NH36	29.56	Qbt 3	7/22/11	0.985	ND	0.268	**53.8**	ND	0.044829	8.32	0.485	6.41
CSMDAB-10-25091	MDAB-612912	NI36	19.03	Qbt 3	7/22/11	1.84	ND	0.441	**87.9**	ND	ND	1.1 (J+)	ND	1.06 (J+)
CSMDAB-11-24386	MDAB-614604	NI41	15.27	Qbt 3	7/22/11	0.561	ND	ND	29.1	ND	ND	0.832	0.0694	0.999
CSMDAB-11-24387	MDAB-614603	NG41	22.89	Qbt 3	7/22/11	0.207	ND	ND	9.24	ND	0.015196	1.25	0.0911	1.18
CSMDAB-11-24388	MDAB-614602	NF41	14.46	Qbt 3	7/22/11	ND	ND	ND	0.47	ND	0.0439345	1.97	0.0819	2.01
CSMDAB-11-24851	MDAB-614643	NF50	7.988	Qbt 3	7/30/11	NA	NA	NA	NA	NA	NA	3.26	0.158	2.73
CSMDAB-11-24852	MDAB-614644	NF52	8.201	Qbt 3	7/30/11	NA	NA	NA	NA	NA	NA	1.22	0.0708	1.4
CSMDAB-11-24853	MDAB-614645	NF51	7.278	Qbt 3	7/30/11	NA	NA	NA	NA	NA	NA	1.59	0.0925	1.58
CSMDAB-11-4539	MDAB-614592	NG26	10.2	Qbt 3	7/19/11	0.0922	0.342	ND	2.01	ND	0.602107	0.79	0.074	0.851
CSMDAB-11-4540	MDAB-614593	NI26	13.49	Qbt 3	7/19/11	0.706	ND	ND	19.2	ND	350.297	0.9	ND	0.812
CSMDAB-11-4541	MDAB-614594	NK27	6.45	Qbt 3	7/19/11	ND	ND	ND	ND	ND	0.637897	1.43	0.111	1.48
Enclosure 3														
CSMDAB-10-26776	MDAB-613126	AH160	7	Qbt 3	10/18/10	ND	ND	ND	ND	ND	ND	0.813	0.0598	0.778
CSMDAB-10-26777	MDAB-613127	AI160	14.6	Qbt 3	10/18/10	ND	ND	0.426	21.3	ND	ND	1.08	ND	0.945
CSMDAB-10-26778	MDAB-613128	AK160	2.8	Qbt 3	10/18/10	ND	ND	ND	1.18	ND	ND	0.8	ND	0.859
CSMDAB-10-26779	MDAB-613129	AI155	2.7	Qbt 3	10/18/10	ND	ND	ND	0.844	ND	ND	1.01	ND	0.976
CSMDAB-10-26780	MDAB-613130	AJ155	8.4	Qbt 3	10/18/10	ND	ND	ND	4.99	ND	ND	1.12	0.0888	1.12
CSMDAB-10-26781	MDAB-613131	AK155	4.4	Qbt 3	10/18/10	ND	ND	ND	ND	ND	ND	0.817	ND	0.928
CSMDAB-10-26782	MDAB-613132	AH166	8	Qbt 3	1/10/11	ND	ND	ND	1.51	ND	0.195405	0.909	0.0448	0.855
CSMDAB-10-26783	MDAB-613133	AK166	7.43	Qbt 3	1/10/11	ND	ND	ND	0.754	ND	1.5361	0.815	0.066	0.887
CSMDAB-10-26784	MDAB-613134	AJ166	14.6	Qbt 3	1/10/11	ND	ND	ND	1.46	ND	0.0749095	0.953	0.105	0.972
CSMDAB-10-26785	MDAB-613135	AI171	6.29	Qbt 3	1/10/11	0.22	ND	ND	8.79	ND	0.0152591	1.45	0.208	1.36
CSMDAB-10-26786	MDAB-613136	AK171	8.1	Qbt 3	1/10/11	ND	ND	ND	1.76	ND	ND	0.823	0.076	0.827
CSMDAB-10-26787	MDAB-613137	AJ171	11.86	Qbt 3	1/10/11	0.335	ND	ND	14	ND	0.0320997	0.993	0.0813	0.961
MDABEWS2-11-4532	MDAB-613857	AG167	5.01	Qbt 3	1/26/11	NA	NA	ND	2.09	NA	NA	NA	NA	NA
MDABEWS2-11-4533	MDAB-613858	AG168	4.07	Qbt 3	1/26/11	NA	NA	ND	0.189	NA	NA	NA	NA	NA
MDABEWS2-11-4535	MDAB-613860	AG167	3.98	Qbt 3	1/26/11	NA	NA	ND	0.597	NA	NA	NA	NA	NA
MDABEWS2-11-4536	MDAB-613859	AF167	3.93	Qbt 3	1/26/11	NA	NA	ND	ND	NA	NA	NA	NA	NA

Table 5.1-3 (continued)

Sample ID	Location ID	Grid Cell	Depth (ft)	Media Code	Collection Date	Americium-241	Cesium-137	Plutonium-238	Plutonium-239/240	Strontium-90	Tritium	Uranium-234	Uranium-235/236	Uranium-238
Qbt 2, 3, 4 BV[a]						**na[b]**	**na**	**na**	**na**	**na**	**na**	**1.98**	**0.09**	**1.93**
Residential SAL[c]						**30**	**5.6**	**37**	**33**	**5.7**	**750**	**170**	**17**	**87**
MDABEWS2-11-4537	MDAB-613861	AG167	5.16	Qbt 3	1/26/11	NA	NA	ND	0.36	NA	NA	NA	NA	NA
Enclosure 5														
CSMDAB-11-14065	MDAB-614401	AJ175	14.52	Qbt 3	7/6/11	0.524	ND	ND	10.3	ND	ND	0.777	ND	0.866
CSMDAB-11-14066	MDAB-614402	AK175	9.62	Qbt 3	7/6/11	ND	ND	ND	ND	ND	0.0182698	0.768	ND	0.793
CSMDAB-11-14067	MDAB-614403	AH180	7.26	Qbt 3	7/7/11	ND	ND	0.504	1.22	ND	ND	0.857	ND	0.937
CSMDAB-11-14068	MDAB-614404	AJ180	13.59	Qbt 3	7/7/11	1.94	ND	0.953	**68.5**	ND	0.00938436	1.13	ND	1.25
CSMDAB-11-14069	MDAB-614405	AK180	9.65	Qbt 3	7/7/11	ND	ND	ND	4.47	ND	0.0092719	0.707	ND	0.874
CSMDAB-11-14070	MDAB-614406	AH185	5.69	Qbt 3	7/7/11	0.626	ND	ND	19.1	ND	0.0177972	0.989	ND	1.04
CSMDAB-11-14076	MDAB-614412	AH175	6.2	Qbt 3	7/22/11	ND	ND	ND	0.802	1.27	NA	0.836	ND	0.778
CSMDAB-11-14077	MDAB-614413	AL185	7.42	Qbt 3	7/22/11	ND	ND	ND	0.361	ND	NA	0.732	ND	0.867
CSMDAB-11-14078	MDAB-614414	AJ190	8.05	Qbt 3	7/22/11	0.414	ND	ND	0.798	ND	NA	0.854	ND	0.884
CSMDAB-11-14079	MDAB-614415	AH190	5.96	Qbt 3	7/22/11	ND	ND	ND	1.4	ND	NA	0.706	ND	0.805
CSMDAB-11-14080	MDAB-614416	AL190	6.79	Qbt 3	7/22/11	ND	ND	ND	0.228	ND	NA	0.695	ND	0.794
CSMDAB-11-14081	MDAB-614417	AJ185	11.53	Qbt 3	7/22/11	0.239	ND	ND	4.11	ND	NA	0.851	ND	0.971
Enclosure 7														
CSMDAB-10-26802	MDAB-613141	AH196	4.9	Qbt 3	10/19/10	ND	ND	ND	0.653	ND	ND	0.858	ND	0.792
CSMDAB-10-26804	MDAB-613143	AK196	6.1	Qbt 3	10/19/10	ND	ND	ND	2.74	ND	0.0480166	0.837	ND	0.838
CSMDAB-10-26805	MDAB-613144	AH200	6.21	Qbt 3	11/10/10	ND	ND	ND	5.6	ND	ND	1.01	0.13	0.95
CSMDAB-10-26806	MDAB-613145	AK200	5.7	Qbt 3	11/10/10	0.609	ND	ND	9.39	ND	ND	1.01	0.0827	0.981
CSMDAB-10-26810	MDAB-613149	AJ205	16.74	Qbt 3	12/10/10	0.472	ND	0.367	19.5 (J)	ND	0.0213746	1.03	0.073	1.03
CSMDAB-10-26811	MDAB-613142	AI196	12.44	Qbt 3	11/10/10	ND	ND	0.185	7.27	ND	NA	1.02	0.11	1.02
CSMDAB-10-26812	MDAB-613151	AJ200	15.22	Qbt 3	12/10/10	0.361	ND	ND	11.8 (J)	ND	0.0186432	3.15	0.214	2.84
Enclosure 9														
CSMDAB-11-25730	MDAB-614648	NF57	9.643	Qbt 3	8/8/11	0.117	ND	ND	2.89	ND	0.393564	2.45	0.137	1.48
CSMDAB-11-25731	MDAB-614649	NG57	17.991	Qbt 3	8/8/11	0.44	ND	0.167	31.8	ND	0.522058	1.64	ND	1.16
CSMDAB-11-25734	MDAB-614651	NF60	8.709	Qbt 3	8/9/11	ND	ND	ND	0.686	ND	0.18882	3.92	0.119	1.27
CSMDAB-11-25735	MDAB-614652	NG60	17.559	Qbt 3	8/8/11	1.18	ND	0.407	**61.5**	ND	1.06915	3.78	0.183	2.45
CSMDAB-11-27591	MDAB-614702	81.5	9.64	Qbt 3	9/16/11	0.0966	ND	ND	5.15	ND	ND	0.845	ND	0.849
CSMDAB-11-27592	MDAB-614703	76.5	7.71	Qbt 3	9/19/11	ND	ND	ND	ND	ND	8.47	0.801	ND	0.853
CSMDAB-11-27593	MDAB-614704	76.5	17.6	Qbt 3	9/19/11	0.11	ND	ND	5.31	ND	66.0572	1.65	0.0769	1.3
CSMDAB-11-27942	MDAB-614721	76	9.81	Qbt 3	9/20/11	ND	ND	ND	0.396	ND	8.05456	0.913	0.0544	0.876
CSMDAB-11-27943	MDAB-614722	81	10.05	Qbt 3	9/20/11	ND	ND	ND	1.37	ND	0.0582977	0.882	0.0687	0.988
CSMDAB-11-27944	MDAB-614723	64.5	9.11	Qbt 3	9/20/11	NA	NA	ND	0.218	NA	NA	NA	NA	NA

Table 5.1-3 (continued)

Sample ID	Location ID	Grid Cell	Depth (ft)	Media Code	Collection Date	Americium-241	Cesium-137	Plutonium-238	Plutonium-239/240	Strontium-90	Tritium	Uranium-234	Uranium-235/236	Uranium-238
Qbt 2, 3, 4 BV[a]						**na[b]**	**na**	**na**	**na**	**na**	**na**	**1.98**	**0.09**	**1.93**
Residential SAL[c]						**30**	**5.6**	**37**	**33**	**5.7**	**750**	**170**	**17**	**87**
CSMDAB-11-27945	MDAB-614724	71	10.34	Qbt 3	9/20/11	NA	NA	ND	0.73	NA	NA	NA	NA	NA
CSMDAB-11-27946	MDAB-614725	71	20.16	Qbt 3	9/20/11	NA	NA	0.229	18.7	NA	NA	NA	NA	NA
CSMDAB-11-27947	MDAB-614726	71	7.48	Qbt 3	9/20/11	NA	NA	ND	0.439	NA	NA	NA	NA	NA
CSMDAB-11-5057	MDAB-613931	NI57	11.11	Qbt 3	8/24/11	NA	NA	ND	2.11	NA	NA	NA	NA	NA
CSMDAB-11-5058	MDAB-613932	NI61	12.85	Qbt 3	8/24/11	NA	NA	0.114	1.1	NA	NA	NA	NA	NA
CSMDAB-11-5059	MDAB-613933	81.5	19.77	Qbt 3	9/16/11	ND	ND	ND	1.31	ND	0.232922	4.42	0.168	3.98
CSMDAB-11-5061	MDAB-613935	NG65	16.453	Qbt 3	8/9/11	0.662	ND	0.161	23.6	ND	0.224058	1.2	0.0744	1.16
CSMDAB-11-5062	MDAB-613936	NH65	10.741	Qbt 3	8/9/11	0.175	ND	ND	9.63	ND	0.311527	0.955	0.0774	0.822
Enclosure 12														
CSMDAB-11-10125	MDAB-614275	NI98	10.43	Qbt 3	4/26/11	7.82	ND	ND	**391**	ND	NA	1.06	ND	1.09
CSMDAB-11-4855	MDAB-613862	NG87	16.66	Qbt 3	3/24/11	0.729	ND	0.185	29.4	ND	0.0652086	3.11	0.0897	1.27
CSMDAB-11-4857	MDAB-613864	NH86	16.57	Qbt 3	3/24/11	ND	ND	ND	1.4	ND	0.0402062	0.903	0.0571	0.794
CSMDAB-11-4858	MDAB-613865	NG91	17.43	Qbt 3	3/23/11	0.608	ND	0.212	**36.6**	ND	0.015722	1.18	0.0952	1.07
CSMDAB-11-4859	MDAB-613866	NF91	16.32	Qbt 3	3/23/11	0.387	ND	0.0684	18.1	ND	0.0190082	1.25	ND	1.05
CSMDAB-11-4860	MDAB-613867	NH91	15.01	Qbt 3	3/23/11	0.184	ND	ND	12.3	ND	0.0243368	0.858	ND	1.03
CSMDAB-11-4861	MDAB-613868	NG97	18.93	Qbt 3	3/23/11	0.475	ND	0.103	21.2	ND	0.0829326	2.95	0.195	2.97
CSMDAB-11-4862	MDAB-613869	NF96	12.91	Qbt 3	3/23/11	ND	ND	ND	0.717	ND	0.0328182	8.59	0.508	7.56
CSMDAB-11-4864	MDAB-613871	NI101	14.38	Qbt 3	3/23/11	0.0949	ND	0.0619	4.32	ND	0.0106491	0.864	ND	0.832
CSMDAB-11-5775	MDAB-613975	NF101	13.55	Qbt 3	3/23/11	ND	ND	ND	1.34	ND	0.0194798	1.08	0.0697	1
CSMDAB-11-5776	MDAB-613976	NH101	14.25	Qbt 3	3/23/11	0.578	ND	0.15	25.3	ND	ND	1.02	ND	0.971
CSMDAB-11-9163	MDAB-614274	NI96	7.02	Qbt 3	4/7/11	NA	NA	ND	18.3	NA	NA	NA	NA	NA
CSMDAB-11-9164	MDAB-613870	NI97	7.86	Qbt 3	4/7/11	NA	NA	ND	8.09	NA	NA	NA	NA	NA
CSMDAB-11-9166	MDAB-613863	NF87	11.51	Qbt 3	4/7/11	NA	NA	ND	11.9	NA	NA	NA	NA	NA
CSMDAB-11-9167	MDAB-614277	NF87	12.14	Qbt 3	4/7/11	NA	NA	ND	5.65	NA	NA	NA	NA	NA
CSMDAB-11-9168	MDAB-614276	NF86	10.77	Qbt 3	4/7/11	NA	NA	ND	3.33	NA	NA	NA	NA	NA

Note: Units are pCi/g. Bold indicates value exceeds residential SAL. Data qualifiers are defined in Appendix A.

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

[b] na = Not available.

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

[d] ND = Not detected.

[e] NA = Not analyzed.

Table 5.3-1
Results of Statistical Tests for Arsenic in Tuff at MDA B

Analyte	Gehan p-value	Quantile p-value	Site data different from background?
Arsenic	0.239	0.985	No

Table 6.4-1
Vertical Borehole Samples Collected and Analyses Requested

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cyanide	Dioxins/Furans	Explosive Comounds	Gamma-Emitting Radionuclides	Isotopic Plutonium	Isotopic Uranium	Nitrate	PCBs	Perchlorate	Stroniutm-90	SVOCs	TAL Metals	Tritium	VOCs
DSMDAB-11-22284	MDAB-612802	20–25	Qbt 3	11-2687[a]	11-2687	—[b]	11-2687	11-2687	11-2687	11-2687	11-2687	11-2687	11-2687	11-2687	11-2687	11-2687	11-2687	11-2687
DSMDAB-11-22306	MDAB-612802	27–30	Gas	—	—	—	—	—	—	—	—	—	—	—	—	—	11-2701	—
DSMDAB-11-22308	MDAB-612802	27–30	Gas	—	—	—	—	—	—	—	—	—	—	—	—	—	—	11-2702
DSMDAB-11-22285	MDAB-612802	33–37	Qbt 3	11-2717	11-2717	—	11-2717	11-2717	11-2717	11-2717	11-2717	11-2717	11-2717	11-2717	11-2717	—	11-2717	11-2717
DSMDAB-11-22288	MDAB-612802	144–146	Qbt 2	11-2755	—	—	—	11-2755	11-2755	11-2755	—	—	—	11-2755	—	—	—	—
DSMDAB-11-22287	MDAB-612802	287–290	Qbtt	11-2759	11-2759	11-2807	11-2759	11-2759	11-2759	11-2759	11-2759	11-2759	11-2759	11-2759	11-2759	11-2759	11-2759	11-2759
DSMDAB-11-22289	MDAB-612802	320–325	Qct	11-2764	11-2764	11-2807	11-2764	11-2764	11-2764	11-2764	11-2764	11-2764	11-2764	11-2764	11-2764	11-2764	11-2764	11-2764
DSMDAB-11-22307	MDAB-612802	322–325	Gas	—	—	—	—	—	—	—	—	—	—	—	—	—	11-2780	—
DSMDAB-11-22309	MDAB-612802	322–325	Gas	—	—	—	—	—	—	—	—	—	—	—	—	—	—	11-2772
DSMDAB-11-22310	MDAB-614478	24–27.5	Gas	—	—	—	—	—	—	—	—	—	—	—	—	—	11-2829	—
DSMDAB-11-22312	MDAB-614478	24–27.5	Gas	—	—	—	—	—	—	—	—	—	—	—	—	—	—	11-2830
DSMDAB-11-22291	MDAB-614478	45–50	Qbt 3	11-2833	11-2833	11-2961	11-2833	11-2833	11-2833	11-2833	11-2833	11-2833	11-2833	11-2833	11-2833	11-2833	11-2833	11-2833
DSMDAB-11-22311	MDAB-614478	47–50	Gas	—	—	—	—	—	—	—	—	—	—	—	—	—	11-2844	—
DSMDAB-11-22313	MDAB-614478	47–50	Gas	—	—	—	—	—	—	—	—	—	—	—	—	—	—	11-2843
DSMDAB-11-22290	MDAB-614483	21.5–24	Qbt 3	11-2838	11-2838	11-2961	11-2838	11-2838	11-2838	11-2838	11-2838	11-2838	11-2838	11-2838	11-2838	11-2838	11-2838	11-2838

[a] Analytical request number.
[b] — = Analysis not requested.

Table 6.4-2
Inorganic Chemicals Detected in Vertical Borehole Samples

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Arsenic	Barium	Beryllium	Calcium	Chromium	Cobalt	Copper
Qbt 2, 3, 4 BV[a]				**7340**	**2.79**	**46**	**1.21**	**2200**	**7.14**	**3.14**	**4.66**
Qbt 1g, Qct, Qbo BV[a]				**3560**	**0.56**	**25.7**	**1.44**	**1900**	**2.6**	**8.89**	**3.96**
Residential SSL[b]				**78,000**	**3.9**	**15,600**	**156**	**na**[c]	**117,000**[d]	**23**[e]	**3130**
DSMDAB-11-22284	MDAB-612802	20–25	Qbt 3	247	0.345 (J)	9.5	0.247	200	5.84	0.335 (J)	1.29
DSMDAB-11-22285	MDAB-612802	33–37	Qbt 3	—[f]	—	—	—	—	—	—	—
DSMDAB-11-22287	MDAB-612802	287–290	Qbtt	631 (J+)	ND[g]	2.52	0.322	252 (J+)	1.06	ND	0.664 (J)
DSMDAB-11-22289	MDAB-612802	320–325	Qct	710 (J+)	ND	4.94	0.285	286 (J+)	1.01	ND	0.635 (J)
DSMDAB-11-22290	MDAB-614483	21.5–24	Qbt 3	226 (J+)	0.34 (J)	7.11	0.245	924 (J+)	1.37	0.196 (J)	1.45
DSMDAB-11-22291	MDAB-614478	45–50	Qbt3	656	0.303 (J)	7.25	0.19	243 (J+)	1.82	0.245 (J)	0.948 (J)

Table 6.4-2 (continued)

Sample ID	Location ID	Depth (ft)	Media	Iron	Lead	Magnesium	Manganese	Nickel	Nitrate	Perchlorate	Potassium
Qbt 2, 3, 4 BV				**14,500**	**11.2**	**1690**	**482**	**6.58**	**na**	**na**	**3500**
Qbt 1g, Qct, Qbo BV				**3700**	**13.5**	**739**	**189**	**20**	**na**	**na**	**2390**
Residential SSL				**54,800**	**400**	**na**	**1860**	**1560**	**125,000**	**54.8**	**na**
DSMDAB-11-22284	MDAB-612802	20–25	Qbt 3	3190	2.49	65.1	184 (J+)	0.331 (J)	ND	ND	112
DSMDAB-11-22285	MDAB-612802	33–37	Qbt 3	—	—	—	—	—	ND	ND	—
DSMDAB-11-22287	MDAB-612802	287–290	Qbtt	1730 (J+)	ND	91.5 (J+)	52.4 (J+)	0.196 (J)	1.25	ND	202
DSMDAB-11-22289	MDAB-612802	320–325	Qct	1970 (J+)	9.23 (J)	143 (J+)	122 (J+)	0.42 (J)	1.35 (J-)	ND	220
DSMDAB-11-22290	MDAB-614483	21.5–24	Qbt 3	5290	2.52	150 (J+)	209	0.501	ND	0.000842 (J)	105
DSMDAB-11-22291	MDAB-614478	45–50	Qbt3	4740	3.05	102 (J+)	246	0.497	1.21 (J-)	0.0296	123

Table 6.4-2 (continued)

Sample ID	Location ID	Depth (ft)	Media	Silver	Sodium	Uranium	Vanadium	Zinc
Qbt 2, 3, 4 BV				**1.0**	**2770**	**2.4**	**17**	**63.5**
Qbt 1g, Qct, Qbo BV				**1.0**	**4350**	**0.72**	**4.59**	**40**
Residential SSL				**391**	**na**	**235**	**391**	**23,500**
DSMDAB-11-22284	MDAB-612802	20–25	Qbt 3	ND	75.7	0.634	0.83	34.2
DSMDAB-11-22285	MDAB-612802	33–37	Qbt 3	—	—	—	—	—
DSMDAB-11-22287	MDAB-612802	287–290	Qbtt	ND	339	0.139	0.823	7.51 (J)
DSMDAB-11-22289	MDAB-612802	320–325	Qct	ND	344	0.269	1.01	48.1
DSMDAB-11-22290	MDAB-614483	21.5–24	Qbt 3	0.165 (J)	73.2	0.496	1.36	32.9
DSMDAB-11-22291	MDAB-614478	45–50	Qbt3	ND	82.8	0.434	1.37	32.1

Notes: Units are mg/kg. See Appendix A for data qualifier definitions.

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

[b] SSLs are from NMED (2012, 219971), unless otherwise indicated.

[c] na = Not available.

[d] SSL for trivalent chromium.

[e] SSL for cobalt is from www.epa.gov/region06/6pd/rcra_c/pd-n/screen.htm.

[f] — = Not analyzed.

[g] ND = Not detected.

Table 6.4-3
Organic Chemicals Detected in Vertical Borehole Samples

Sample ID	Location ID	Depth (ft)	Media	Acetone	Tetrachlorodibenzofurans (Total)
Residential SSL[a]				**66,600**	**na**[b]
DSMDAB-11-22284	MDAB-612802	20–25	Qbt 3	ND[c]	—[d]
DSMDAB-11-22285	MDAB-612802	33–37	Qbt 3	ND	—
DSMDAB-11-22287	MDAB-612802	287–290	Qbtt	ND	0.00000071 (J)
DSMDAB-11-22289	MDAB-612802	320–325	Qct	ND	0.000000644 (J)
DSMDAB-11-22290	MDAB-614483	21.5–24	Qbt 3	0.00524	—
DSMDAB-11-22291	MDAB-614478	45–50	Qbt3	ND	—

Notes: Units are mg/kg. See Appendix A for data qualifier definitions.

[a] SSLs are from NMED (2012, 219971).

[b] na = Not available.

[c] ND = Not detected.

[d] — = Not analyzed.

Table 6.4-4
Radionuclides Detected in Vertical Borehole Samples

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Plutonium-239/240	Tritium	Uranium-234	Uranium-235/236	Uranium-238
Qbt 2, 3, 4 BV[a]				**n/a**[b]	**n/a**	**n/a**	**1.98**	**0.09**	**1.93**
Qbt 1g, Qct, Qbo BV[a]				**n/a**	**n/a**	**n/a**	**4.0**	**0.18**	**3.90**
Residential SAL[c]				**30**	**33**	**750**	**170**	**17**	**87**
DSMDAB-11-22284	MDAB-612802	20–25	Qbt 3	ND[d]	ND	ND	1.07	0.066	1.08
DSMDAB-11-22285	MDAB-612802	33–37	Qbt 3	ND	ND	0.0105127	0.897	ND	0.894
DSMDAB-11-22287	MDAB-612802	287–290	Qbtt	ND	ND	ND	2.93	0.21	2.91
DSMDAB-11-22288	MDAB-612802	144–146	Qbt 2	ND	ND	—[e]	0.947	ND	0.965
DSMDAB-11-22289	MDAB-612802	320–325	Qct	ND	ND	ND	3.24	0.204	3.37
DSMDAB-11-22290	MDAB-614483	21.5–24	Qbt3	0.163	12.2	0.162274	0.98	ND	0.909
DSMDAB-11-22291	MDAB-614478	45–50	Qbt 3	ND	ND	0.124568	0.99	ND	1.09

Note: Units are pCi/g.

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

[b] n/a = Not applicable.

[c] SALs are from LANL (2009, 107655).

[d] ND = Not detected.

[e] — = Not analyzed.

Table 6.4-5
Organic Chemicals Detected in Soil Vapor during Borehole Sampling

Sample ID	Location ID	Depth (ft)	Acetone	Benzene	Butadiene[1,3-]	Carbon tetrachloride	Chloroform	Cyclohexane	n-Heptane	Hexane	Propylene	Toluene	Trichloroethene
DSMDAB-11-22308	MDAB-612802	27–30	ND*	ND	ND	ND	ND	ND	ND	ND	ND	68	64
DSMDAB-11-22309	MDAB-612802	322–325	ND	ND	ND	330	54	ND	ND	ND	ND	1400	2800
DSMDAB-11-22312	MDAB-614478	24–27.5	210	58	51	ND	ND	41	53	95	530	140	75
DSMDAB-11-22313	MDAB-614478	47–50	140	35	84	ND	ND	ND	74	74	600	1700	240

Note: Units are µg/m^3.

* ND = Not detected.

Table 6.4-6
Tritium Detected in Soil Vapor during Borehole Sampling

Sample Name	Location	Depth (ft)	Tritium
DSMDAB-11-22306	MDAB-612802	27–30	ND*
DSMDAB-11-22307	MDAB-612802	322–325	ND
DSMDAB-11-22310	MDAB-614478	24–27.5	7226.38
DSMDAB-11-22311	MDAB-614478	47–50	9942.68 (J)

Notes: Units are pCi/L. See Appendix A for data qualifier definitions.

* ND = Not detected.

Table 6.4-7
Henry's Law Constants, Groundwater Screening Levels, and Calculated Concentrations Corresponding to Groundwater Screening Levels for Detected VOCs in Pore Gas

VOC	Henry's Law Constant[a] (dimensionless)	Groundwater Screening Level (µg/L)[a]	Calculated Concentrations in Pore-Gas Corresponding to Groundwater Standard[b] ($\mu g/m^3$)
Acetone	0.00144	21,800	31,400
Benzene	0.23	5[c]	1150
1,3-Butadiene	2.99	0.176	526
Carbon Tetrachloride	1.11	5[c]	5550
Chloroform	0.15	80[c]	12,000
Cyclohexane	6.1[d]	13,000[d]	79,300,000
n-Heptane	na[e]	na	na
Hexane	7.38	876	6,460,000
Propylene	na	na	na
Toluene	0.272	750[f]	204,000
TCE	0.404	5[c]	2020

[a] Henry's Law constants and screening levels from NMED (2012, 219971), unless otherwise indicated.

[b] Equal to product of dimensionless Henry's Law constant and groundwater screening level.

[c] EPA MCL (40 CFR 141.61).

[d] Henry's Law constant and screening level from EPA regional screening tables (http://www.epa.gov/region06/6pd/rcra_c/pd-n/screen.htm).

[e] na = Not available.

[f] New Mexico Water Quality Control Commission groundwater standard (20.6.2.3103 New Mexico Administrative Code).

Table 6.4-8
Screening of VOCs in Pore Gas at MDA B

VOCs	Maximum Pore-Gas Concentration ($\mu g/m^3$)	Calculated Concentrations in Pore Gas Corresponding to Groundwater Standard ($\mu g/m^3$)[a]	Screening Value (unitless)[b]
Acetone	210	31,400	6.6×10^{-3}
Benzene	58	1150	5.0×10^{-2}
Butadiene[1,3-]	84	526	1.6×10^{-1}
Carbon Tetrachloride	330	5550	5.9×10^{-2}
Chloroform	54	12,000	4.5×10^{-3}
Cyclohexane	41	79,300,000	5.2×10^{-7}
n-Heptane	74	na[c]	na
Hexane	95	6,460,000	1.5×10^{-5}
Propylene	600	na	na
Toluene	1700	204,000	8.5×10^{-3}
TCE	2800	2020	**1.4**

[a] Equal to product of dimensionless Henry's Law constant and groundwater screening level.

[b] Equal to maximum pore-gas concentration divided by calculated concentrations in pore gas corresponding to groundwater standard. Screening values greater than 1 are in bold.

[c] na = Not available.

Table 6.4-9
Geotechnical Data for the Tuff Units Overlying the Cerro Toledo Interval

Sample ID	Depth (ft bgs)	Stratigraphic Unit	Saturated Hydraulic Conductivity (cm/s)	Permeability (m^2)	Volumetric Moisture Content (%)	Calculated Unsaturated Hydraulic Conductivity (cm/s)
DSMDAB-11-23971	25–27.5	Qbt3	1.2E-02	1.2E-11	6.6	3.1E-08
DSMDAB-11-23972	27.5–30	Qbt3	4.4E-03	4.5E-12	9.8	1.6E-06
DSMDAB-11-23973	180–182.5	Qbt1v	7.2E-03	7.3E-12	8.9	6.8E-07
DSMDAB-11-23974	182.5–185	Qbt1v	4.2E-03	4.3E-12	9.4	2.5E-07
DSMDAB-11-23975	240–242.5	Qbt1g	1.2E-03	1.2E-12	12.9	2.0E-07
DSMDAB-11-23976	242.5–245	Qbt1g	1.8E-03	1.8E-12	11.6	1.0E-07
DSMDAB-11-23977	292.5–295	Qbtt	1.3E-03	1.3E-12	12.4	1.7E-07
DSMDAB-11-23978	317.5–320	Qct	1.3E-02	1.3E-11	19.6	3.0E-07

Table 7.3-1
Comparison of Maximum Chemical Concentrations in Confirmation Samples (0–10 ft bgs) with Residential SSLs

Chemical	Maximum Detected Concentration	Residential SSL[a]
Aluminum	6760	78,000
Antimony	7.18	31.3
Arsenic	4.02	3.9
Barium	178	15,600
Beryllium	1.05	156
Cadmium	11.8	70.3
Chromium	7.48	117,000[b]
Cobalt	3.48	23[c]
Copper	8.69	3130
Cyanide	0.0915	46.9
Iron	10,600	54,800
Lead	43.3	400
Manganese	342	1860
Mercury	0.901	15.6[d]
Nickel	7	1560
Nitrate	1.72	125,000
Perchlorate	0.0124	54.8
Selenium	ND	391
Silver	0.436	391
Thallium	0.121	0.782
Uranium	11.2	235
Vanadium	12.2	391
Zinc	46.7	23,500
Acetone	0.00547	66,600
Benzo(a)anthracene	ND[e]	1.48
Benzo(a)pyrene	ND	0.148
Benzo(b)fluoranthene	ND	1.48
Benzo(g,h,i)perylene	ND	1720[f]
Benzo(k)fluoranthene	ND	14.8
Butanone[2-]	0.0217	37,100
Chrysene	ND	148
DDD[4,4'-]	ND	20.3
DDE[4,4'-]	0.00165	14.3
DDT[4,4'-]	0.0068	17.2
Dibenz(a,h)anthracene	ND	0.148
Diethylphthalate	0.107	48,900
Endrin	ND	18.3
Fluoranthene	ND	2290

Table 7.3-1 (continued)

Chemicals	Maximum Detected Concentrations	Residential SSL[a]
Heptachlor epoxide	ND	0.53[c]
Hexanone[2-]	0.0348	210[c]
Indeno(1,2,3-cd)pyrene	ND	1.48
Isopropyltoluene[4-]	0.00038	2430[g]
Methyl-2-pentanone[4-]	0.00287	5820
Methylene chloride	0.00301	409
Naphthalene	0.000406	43
Pyrene	ND	1720
Trichloroethene	0.000957	8.77
Trimethylbenzene[1,2,4-]	0.000432	62[c]

Note: Units are mg/kg.

[a] SSLs from NMED (2012, 219971) unless otherwise indicated.

[b] Trivalent chromium SSL used.

[c] SSL from EPA regional tables (http://www.epa.gov/region06/6pd/rcra_c/pd-n/screen.htm).

[d] Elemental mercury SSL used.

[e] ND = Not detected in interval 0–10 ft bgs.

[f] Pyrene SSL used as surrogate based on structural similarity.

[g] Isopropylbenzene SSL used as surrogate based on structural similarity.

Table 7.3-2
Comparison of Maximum Radionuclide Activities in Confirmation Samples with Residential SALs (0–10 ft)

Radionuclide	Maximum Detected Activity (0–10 ft)	Residential SAL*
Americium-241	0.626	30
Cesium-137	5.24	5.6
Plutonium-238	0.504	37
Plutonium-239/240	40.2	33
Strontium-90	1.38	5.7
Tritium	8.47	750
Uranium-234	4.82	170
Uranium-235	0.349	17
Uranium-238	4.82	87

Note: Units are pCi/g.

* SALs from LANL (2009, 107655).

Table 7.3-3
Comparison of Maximum Radionuclide Activities
in Confirmation Samples with Residential SALs below 10 ft at MDA B

Radionuclide	Maximum Detected Activity	Residential SAL*
Americium-241	7.82	30
Cesium-137	10.3	5.6
Plutonium-238	6.3	37
Plutonium-239/240	958	33
Tritium	350.3	750
Uranium-234	8.59	170
Uranium-235	0.508	17
Uranium-238	7.56	87

Note: Units are pCi/g.
* SALs from LANL (2009, 107655).

Appendix A

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

A-1.0 ACRONYMS AND ABBREVIATIONS

ACM	asbestos-containing material
AEA	Atomic Energy Act
AIRNET	air-monitoring network
AK	acceptable knowledge
ALARA	as low as reasonably achievable
amsl	above mean sea level
AOC	area of concern
bgs	below ground surface
BV	background value
CAM	continuous air monitoring
CFR	Code of Federal Regulations
COC	chain of custody
Consent Order	Compliance Order on Consent
DDD	dichlorodiphenyldichloroethane
DDE	dichlorophenyldichloroethylene
DDT	dichlorodiphenyltrichloroethane
DGPS	differential global positioning system
DOE	Department of Energy (U.S.)
DOD	Department of Defense (U.S.)
DOT	Department of Transportation (U.S.)
DPT	direct-push technology
EO-1	Emergency Response Group (LANL)
EPA	Environmental Protection Agency (U.S.)
FIDLER	Field Instrument for Detection of Low-Energy Radiation
GC/MS	gas chromatograph/mass spectrometer
GPR	ground-penetrating radar
HE	high explosives
HEPA	high-efficiency particulate air
HPGe	high-purity germanium
ID	identification
IDW	investigation-derived waste
IES	Integrated Environmental Services

IH	industrial hygiene
I/R	investigation/remediation
IRWP	investigation/remediation work plan
LAL	lower acceptance limit
LANL	Los Alamos National Laboratory
LEL	lower explosive limit
LLW	low-level (radioactive) waste
MAR	material at risk
MARSSIM	Multi-Agency Radiation Survey and Site Investigation Manual
MDA	material disposal area
MDL	method detection limit
NESHAPs	National Emission Standards for Hazardous Air Pollutants
NMED	New Mexico Environment Department
NNSS	Nevada National Security Site
NOD	notice of disapproval
PCB	polychlorinated biphenyl
PCE	tetrachloroethene
PID	photoionization detector
PPE	personal protective equipment
PQL	practical quantitation limit
QA	quality assurance
QC	quality control
RCRA	Resource Conservation and Recovery Act
RCT	radiation control technician
RFI	RCRA facility investigation
RPD	relative percent difference
RPF	Records Processing Facility
SAL	screening action level
SAP	sampling and analysis plan
SCL	sample collection log
SMO	Sample Management Office
SOP	standard operating procedure
SOW	statement of work
SSL	soil screening level

SVOC	semivolatile organic compound
SWMU	solid waste management unit
TA	technical area
TAL	target analyte list (EPA)
TCA	1,1,1-trichloroethane
TCE	trichloroethene
TCLP	toxicity characteristic leaching procedure
TD	total depth
TPH	total petroleum hydrocarbon(s)
UAL	upper acceptance limit
UCL	upper confidence limit
U.S.C.	United States Code
VOC	volatile organic compound
WCSF	waste characterization strategy form

A-2.0 METRIC CONVERSION TABLE

Multiply SI (Metric) Unit	By	To Obtain U.S. Customary Unit
kilometers (km)	0.622	miles (mi)
kilometers (km)	3281	feet (ft)
meters (m)	3.281	feet (ft)
meters (m)	39.37	inches (in.)
centimeters (cm)	0.03281	feet (ft)
centimeters (cm)	0.394	inches (in.)
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

Direct-Push Technology Sampling Data Summary Tables

Table B-1
DPT Samples Collected and Analyses Requested

Sample ID	Location ID	Depth (ft)	Media	Gamma Spectroscopy	Strontium-90	Tritium	Americium-241	Isotopic Plutonium	Isotopic Thorium	Isotopic Uranium
MDAB_00_04-09-13063	AF153	0–2.5	ALLH	09-3272[a]	09-3272	09-3272	09-3272	09-3272	09-3272	09-3272
MDAB_00_04-09-13045	AF155	0–3	ALLH	09-3272	09-3272	09-3272	09-3272	09-3272	09-3272	09-3272
MDAB_00_04-09-13105	AG165	0–2.5	QBT3	09-3336	09-3336	09-3336	09-3336	09-3336	09-3336	09-3336
MDAB_00_04-09-10205	AG167	0–4	ALLH	09-2988	09-2988	09-2988	09-2988	09-2988	09-2988	09-2988
MDAB_00_04-09-13104	AG168	0–2.5	FILL	09-3336	09-3336	09-3336	09-3336	09-3336	09-3336	09-3336
MDAB_00_04-09-10209	AH167	0–4	ALLH	09-2975	09-2975	09-2975	09-2975	09-2975	09-2975	09-2975
MDAB_00_04-09-10245	AH215	0–5	ALLH	09-3018	09-3018	09-3018	—[b]	09-3018	09-3018	09-3018
MDAB_04_08-09-10246	AH215	5–7	ALLH	09-3024	09-3024	09-3024	09-3024	09-3024	09-3024	09-3024
MDAB_00_04-09-13092	AI153	0–4.5	ALLH	09-3292	09-3292	09-3292	09-3292	09-3292	09-3292	09-3292
MDAB_00_04-09-10193	AI155	0–5	FILL	09-2918	09-2918	09-2918	09-2918	09-2918	09-2918	09-2918
MDAB_04_08-09-10194	AI155	5–9	ALLH	09-2918	09-2918	09-2918	09-2918	09-2918	09-2918	09-2918
MDAB_00_04-09-10197	AI157	0–5	ALLH	09-2950	09-2950	09-2950	09-2950	09-2950	09-2950	09-2950
MDAB_04_08-09-10198	AI157	5–9	ALLH	09-2950	09-2950	09-2950	09-2950	09-2950	09-2950	09-2950
MDAB_00_04-09-13049	AI160	0–5	ALLH	09-3292	09-3292	09-3292	09-3292	09-3292	09-3292	09-3292
MDAB_04_08-09-13050	AI160	5–11	ALLH	09-3292	09-3292	09-3292	09-3292	09-3292	09-3292	09-3292
MDAB_00_04-09-13053	AI164	0–5	ALLH	09-3323	09-3323	09-3323	09-3323	09-3323	09-3323	09-3323
MDAB_04_08-09-13054	AI164	5–10	QBT3	09-3323	09-3323	09-3323	09-3323	09-3323	09-3323	09-3323
MDAB_08_12-09-13056	AI164	10–10.2	QBT3	09-3323	09-3323	09-3323	09-3323	09-3323	09-3323	09-3323
MDAB_00_04-09-13041	AI167	0–5	ALLH	09-3292	09-3292	09-3292	09-3292	09-3292	09-3292	09-3292
MDAB_04_08-09-13042	AI167	5–10	ALLH	09-3292	09-3292	09-3292	09-3292	09-3292	09-3292	09-3292

Table B-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Gamma Spectroscopy	Strontium-90	Tritium	Americium-241	Isotopic Plutonium	Isotopic Thorium	Isotopic Uranium
MDAB_08_12-09-13043	AI167	10–11	ALLH	09-3324	09-3324	09-3324	09-3324	09-3324	09-3324	09-3324
MDAB_00_04-09-13097	AI171	0–5	ALLH	10-7	10-7	10-7	10-7	10-7	10-7	10-7
MDAB_04_08-09-13098	AI171	5–10	ALLH	09-3336	09-3336	09-3336	09-3336	09-3336	09-3336	09-3336
MDAB_00_04-09-13112	AI175	0–5	ALLH	10-7	10-7	10-7	10-7	10-7	10-7	10-7
MDAB_04_08-09-13111	AI175	5–9	ALLH	10-349	10-349	10-349	10-349	10-349	10-349	10-349
MDAB_00_04-09-10213	AI176	0–5	ALLH	09-2988	09-2988	09-2988	09-2988	09-2988	09-2988	09-2988
MDAB_04_08-09-10214	AI176	5–9	ALLH	09-2988	09-2988	09-2988	09-2988	09-2988	09-2988	09-2988
MDAB_00_04-09-13115	AI179	0–5	ALLH	10-7	10-7	10-7	10-7	10-7	10-7	10-7
MDAB_04_08-09-13116	AI179	5–10	ALLH	10-7	10-7	10-7	10-7	10-7	10-7	10-7
MDAB_00_04-09-10221	AI180	0–5	ALLH	09-3011	09-3011	09-3011	09-3011	09-3011	09-3011	09-3011
MDAB_04_08-09-10222	AI180	5–10	ALLH	09-3011	09-3011	09-3011	09-3011	09-3011	09-3011	09-3011
MDAB_00_04-09-13038	AI183	0–5	ALLH	10-32	10-32	10-32	10-32	10-32	10-32	10-32
MDAB_00_04-09-10225	AI185	0–5	ALLH	09-3011	09-3011	09-3011	09-3011	09-3011	09-3011	09-3011
MDAB_04_08-09-10226	AI185	5–6	ALLH	09-3011	09-3011	09-3011	09-3011	09-3011	09-3011	09-3011
MDAB_00_04-09-13031	AI186	0–6	ALLH	10-9	10-9	10-9	10-9	10-9	10-9	10-9
MDAB_00_04-09-10229	AI191	0–4.5	ALLH	09-3011	09-3011	09-3011	09-3011	09-3011	09-3011	09-3011
MDAB_00_04-09-13028	AI193	0–5	ALLH	10-9	10-9	10-9	10-9	10-9	10-9	10-9
MDAB_04_08-09-13027	AI193	5–7	ALLH	10-9	10-9	10-9	10-9	10-9	10-9	10-9
MDAB_00_04-09-13021	AI199	0–5	ALLH	10-28	10-28	10-28	10-28	10-28	10-28	10-28
MDAB_04_08-09-13023	AI199	5–8	ALLH	10-28	10-28	10-28	10-28	10-28	10-28	10-28
MDAB_00_04-09-10233	AI200	0–5	ALLH	09-3011	09-3011	09-3011	09-3011	09-3011	09-3011	09-3011

Table B-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Gamma Spectroscopy	Strontium-90	Tritium	Americium-241	Isotopic Plutonium	Isotopic Thorium	Isotopic Uranium
MDAB_04_08-09-10234	AI200	5–11	ALLH	09-3011	09-3011	09-3011	09-3011	09-3011	09-3011	09-3011
MDAB_00_04-09-13020	AI201	0–5	ALLH	10-28	10-28	10-28	10-28	10-28	10-28	10-28
MDAB_04_08-09-13017	AI201	5–8	ALLH	10-28	10-28	10-28	10-28	10-28	10-28	10-28
MDAB_00_04-09-13013	AI207	0–5	ALLH	10-28	10-28	10-28	10-28	10-28	10-28	10-28
MDAB_04_08-09-13014	AI207	5–10	ALLH	10-28	10-28	10-28	10-28	10-28	10-28	10-28
MDAB_08_12-09-13015	AI207	10–15	ALLH	10-32	10-32	10-32	10-32	10-32	10-32	10-32
MDAB_00_04-09-10237	AI209	0–5	ALLH	09-3011	09-3011	09-3011	09-3011	09-3011	09-3011	09-3011
MDAB_04_08-09-10238	AI209	5–10	ALLH	09-3018	09-3018	09-3018	09-3018	09-3018	09-3018	09-3018
MDAB_12_16-09-10240	AI209	10–10.2	ALLH	09-3226	09-3226	09-3226	09-3226	09-3226	—	09-3226
MDAB_00_04-09-13012	AI211	0–5	ALLH	10-28	10-28	10-28	10-28	10-28	10-28	10-28
MDAB_04_08-09-13011	AI211	5–10	ALLH	10-28	10-28	10-28	10-28	10-28	10-28	10-28
MDAB_08_12-09-13010	AI211	10–12.5	ALLH	10-28	10-28	10-28	10-28	10-28	10-28	10-28
MDAB_00_04-09-10241	AI213	0–5	ALLH	09-3018	09-3018	09-3018	—	09-3018	09-3018	09-3018
MDAB_04_08-09-10242	AI213	5–11	ALLH	09-3018	09-3018	09-3018	09-3018	09-3018	09-3018	09-3018
MDAB_00_04-09-10249	AI217	0–5	ALLH	09-3024	09-3024	09-3024	09-3024	09-3024	09-3024	09-3024
MDAB_04_08-09-10250	AI217	5–8	ALLH	09-3038	09-3038	09-3038	09-3038	09-3038	09-3038	09-3038
MDAB_00_04-09-10253	AI224	0–2	ALLH	09-3026	09-3026	09-3026	09-3026	09-3026	09-3026	09-3026
MDAB_00_04-09-10398	AI229	0–5	ALLH	09-3040	09-3040	09-3040	09-3040	09-3040	09-3040	09-3040
MDAB_04_08-09-10399	AI229	5–10	ALLH	09-3040	09-3040	09-3040	—	09-3040	09-3040	09-3040
MDAB_00_04-09-10258	AI234	0–5	ALLH	09-3068	09-3068	09-3068	09-3068	09-3068	09-3068	09-3068
MDAB_04_08-09-10257	AI234	5–10	ALLH	09-3068	09-3068	09-3068	09-3068	09-3068	09-3068	09-3068

Table B-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Gamma Spectroscopy	Strontium-90	Tritium	Americium-241	Isotopic Plutonium	Isotopic Thorium	Isotopic Uranium
MDAB_08_12-09-10259	AI234	10–13	ALLH	09-3068	09-3068	09-3068	09-3068	09-3068	09-3068	09-3068
MDAB_00_04-09-12997	AI239	0–5	ALLH	10-61	10-61	10-61	10-61	10-61	10-61	10-61
MDAB_04_08-09-12998	AI239	5–10	ALLH	10-61	10-61	10-61	10-61	10-61	10-61	10-61
MDAB_08_12-09-12999	AI239	10–12.5	ALLH	10-61	10-61	10-61	10-61	10-61	10-61	10-61
MDAB_00_04-09-12995	AI244	0–3	ALLH	10-61	10-61	10-61	10-61	10-61	10-61	10-61
MDAB_00_04-09-10261	AI245	0–5	ALLH	09-3040	09-3040	09-3040	09-3040	09-3040	09-3040	09-3040
MDAB_04_08-09-10262	AI245	5–12	ALLH	09-3040	09-3040	09-3040	09-3040	09-3040	09-3040	09-3040
MDAB_00_04-09-12991	AI246	0–5	ALLH	10-61	10-61	10-61	10-61	10-61	10-61	10-61
MDAB_04_08-09-12990	AI246	5–12	ALLH	10-61	10-61	10-61	10-61	10-61	10-61	10-61
MDAB_00_04-09-12986	AI250	0–5	ALLH	10-61	10-61	10-61	10-61	10-61	10-61	10-61
MDAB_04_08-09-12988	AI250	5–10	ALLH	10-61	10-61	10-61	10-61	10-61	10-61	10-61
MDAB_08_12-09-12987	AI250	10–13	ALLH	10-61	10-61	10-61	10-61	10-61	10-61	10-61
MDAB_00_04-09-10265	AI251	0–5	ALLH	09-3068	09-3068	09-3068	09-3068	09-3068	09-3068	09-3068
MDAB_04_08-09-10266	AI251	5–9	ALLH	09-3068	09-3068	09-3068	09-3068	09-3068	—	09-3068
MDAB_00_04-09-12981	AI252	0–5	ALLH	10-61	10-61	10-61	10-61	10-61	10-61	10-61
MDAB_00_04-09-10269	AI256	0–5	ALLH	09-3068	09-3068	09-3068	09-3068	09-3068	—	09-3068
MDAB_04_08-09-10270	AI256	5–9	ALLH	09-3068	09-3068	09-3068	09-3068	09-3068	—	09-3068
MDAB_00_04-09-10201	AJ158	0–5	ALLH	09-2975	09-2975	09-2975	09-2975	09-2975	09-2975	09-2975
MDAB_04_08-09-10202	AJ158	5–9	ALLH	09-2975	09-2975	09-2975	09-2975	09-2975	09-2975	09-2975
MDAB_00_04-09-13122	AJ181	0–5	ALLH	10-7	10-7	10-7	10-7	10-7	10-7	10-7
MDAB_04_08-09-13124	AJ181	5–10	ALLH	10-7	10-7	10-7	10-7	10-7	10-7	10-7

Table B-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Gamma Spectroscopy	Strontium-90	Tritium	Americium-241	Isotopic Plutonium	Isotopic Thorium	Isotopic Uranium
MDAB_00_04-09-10217	AJ183	0–5	ALLH	09-2988	09-2988	09-2988	09-2988	09-2988	09-2988	09-2988
MDAB_04_08-09-10218	AJ183	5–9	ALLH	09-2988	09-2988	09-2988	09-2988	09-2988	09-2988	09-2988
MDAB_00_04-09-13034	AJ185	0–7.5	ALLH	10-9	10-9	10-9	10-9	10-9	10-9	10-9
MDAB_00_04-09-13057	AK155	0–4	ALLH	09-3272	09-3272	09-3272	09-3272	09-3272	09-3272	09-3272
MDAB_00_04-09-13004	AL225	0–2.5	ALLH	10-28	10-28	10-28	10-28	10-28	10-28	10-28
MDAB_00_04-09-10273	AL256	0–5	ALLH	09-3068	09-3068	09-3068	09-3068	09-3068	—	09-3068
MDAB_00_04-09-12973	AL258	0–4	ALLH	10-85	10-85	10-85	10-85	10-85	10-85	10-85
MDAB_00_04-09-13118	AM153	0–4	ALLH	09-3292	09-3292	09-3292	09-3292	09-3292	09-3292	09-3292
MDAB_00_04-09-13088	AM155	0–4	ALLH	09-3292	09-3292	09-3292	09-3292	09-3292	09-3292	09-3292
MDAB_00_04-09-10281	AM228	0–4	ALLH	09-3040	09-3040	09-3040	09-3040	09-3040	09-3040	09-3040
MDAB_00_04-09-10285	AM232	0–4	ALLH	09-3040	09-3040	09-3040	09-3040	09-3040	09-3040	09-3040
MDAB_00_04-09-13065	AN152	0–5	ALLH	09-3272	09-3272	09-3272	09-3272	09-3272	09-3272	09-3272
MDAB_00_04-09-13008	AN223	0–4.5	ALLH	10-28	10-28	10-28	10-28	10-28	10-28	10-28
MDAB_00_04-09-10277	AN226	0–3	ALLH	09-3040	09-3040	09-3040	09-3040	09-3040	09-3040	09-3040
MDAB_00_04-09-12979	AN256	0–5	ALLH	10-85	10-85	10-85	10-85	10-85	10-85	10-85
MDAB_04_08-09-12978	AN256	5–7	ALLH	10-85	10-85	10-85	10-85	10-85	10-85	10-85
MDAB_00_04-09-13070	AQ151	0–4.5	ALLH	09-3231	09-3231	09-3231	09-3231	09-3231	09-3231	09-3231
MDAB_00_04-09-13075	AS151	0–4.5	ALLH	09-3231	09-3231	09-3231	09-3231	09-3231	09-3231	09-3231
MDAB_00_04-09-10173	AS153	0–5	ALLH	09-2801	09-2801	09-2801	09-2801	09-2801	09-2801	09-2801
MDAB_00_04-09-13079	AU150	0–5	ALLH	09-3231	09-3231	09-3231	09-3231	09-3231	09-3231	09-3231
MDAB_00_04-09-10178	AU152	0–5	ALLH	09-2801	09-2801	09-2801	09-2801	09-2801	09-2801	09-2801

Table B-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Gamma Spectroscopy	Strontium-90	Tritium	Americium-241	Isotopic Plutonium	Isotopic Thorium	Isotopic Uranium
MDAB_04_08-09-10177	AU152	5–6	ALLH	09-2801	09-2801	09-2801	09-2801	09-2801	09-2801	09-2801
MDAB_00_04-09-10181	AU154	0–5	ALLH	09-2801	09-2801	09-2801	09-2801	09-2801	09-2801	09-2801
MDAB_00_04-09-13081	AW150	0–5	ALLH	09-3231	09-3231	09-3231	09-3231	09-3231	09-3231	09-3231
MDAB_04_08-09-13082	AW150	5–7.5	ALLH	09-3231	09-3231	09-3231	09-3231	09-3231	09-3231	09-3231
MDAB_00_04-09-10185	AW152	0–5	ALLH	09-2801	09-2801	09-2801	09-2801	09-2801	09-2801	09-2801
MDAB_04_08-09-10186	AW152	5–6.5	ALLH	09-2801	09-2801	09-2801	09-2801	09-2801	09-2801	09-2801
MDAB_00_04-09-13096	AY153	0–5	ALLH	09-3231	09-3231	09-3231	09-3231	09-3231	09-3231	09-3231
MDAB_04_08-09-13095	AY153	5–7.5	ALLH	09-3231	09-3231	09-3231	09-3231	09-3231	09-3231	09-3231
MDAB_00_04-09-10189	BB153	0–5	FILL	09-2849	09-2849	09-2849	09-2849	09-2849	09-2849	09-2849
MDAB_00_04-09-10390	NF95	0–5	ALLH	09-3128	09-3128	09-3128	09-3128	09-3128	—	09-3128
MDAB_04_08-09-10391	NF95	5–8	ALLH	09-3128	09-3128	09-3128	09-3128	09-3128	—	09-3128
MDAB_00_04-09-10394	NG103	0–5	ALLH	09-3128	09-3128	09-3128	09-3128	09-3128	—	09-3128
MDAB_04_08-09-10395	NG103	5–10	ALLH	09-3128	09-3128	09-3128	09-3128	09-3128	—	09-3128
MDAB_08_12-09-10396	NG103	10–11	ALLH	09-3128	09-3128	09-3128	09-3128	09-3128	—	09-3128
MDAB_00_04-09-10317	NG56	0–5	ALLH	09-3120	09-3120	09-3120	09-3120	09-3120	—	09-3120
MDAB_04_08-09-10318	NG56	5–10	ALLH	09-3120	09-3120	09-3120	09-3120	09-3120	—	09-3120
MDAB_08_12-09-10319	NG56	10–15	ALLH	09-3120	09-3120	09-3120	09-3120	09-3120	—	09-3120
MDAB_12_16-09-10320	NG56	15–20	ALLH	09-3120	09-3120	09-3120	09-3120	09-3120	—	09-3120
MDAB_00_04-09-10325	NG61	0–5	ALLH	09-3120	09-3120	09-3120	09-3120	09-3120	—	09-3120
MDAB_04_08-09-10326	NG61	5–10	ALLH	09-3120	09-3120	09-3120	09-3120	09-3120	—	09-3120
MDAB_08_12-09-10327	NG61	10–15	ALLH	09-3120	09-3120	09-3120	09-3120	09-3120	—	09-3120

Table B-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Gamma Spectroscopy	Strontium-90	Tritium	Americium-241	Isotopic Plutonium	Isotopic Thorium	Isotopic Uranium
MDAB_12_16-09-10328	NG61	15–16	ALLH	09-3120	09-3120	09-3120	09-3120	09-3120	—	09-3120
MDAB_00_04-09-10329	NG75	0–5	ALLH	09-3120	09-3120	09-3120	09-3120	09-3120	—	09-3120
MDAB_04_08-09-10330	NG75	5–10	ALLH	09-3120	09-3120	09-3120	09-3120	09-3120	—	09-3120
MDAB_08_12-09-10331	NG75	10–15.5	ALLH	09-3120	09-3120	09-3120	09-3120	09-3120	—	09-3120
MDAB_00_04-09-10382	NG77	0–5	ALLH	09-3120	09-3120	09-3120	09-3120	09-3120	—	09-3120
MDAB_04_08-09-10383	NG77	5–10	ALLH	09-3120	09-3120	09-3120	09-3120	09-3120	—	09-3120
MDAB_08_12-09-10385	NG77	10–15	ALLH	09-3120	09-3120	09-3120	09-3120	09-3120	—	09-3120
MDAB_12_16-09-10384	NG77	15–16	ALLH	09-3120	09-3120	09-3120	09-3120	09-3120	—	09-3120
MDAB_00_04-09-10289	NH27	0–5	ALLH	09-3095	09-3095	09-3095	09-3095	09-3095	—	09-3095
MDAB_04_08-09-10290	NH27	5–10	ALLH	09-3095	09-3095	09-3095	09-3095	09-3095	—	09-3095
MDAB_00_04-09-10305	NH33	0–2.5	ALLH	09-3095	09-3095	09-3095	09-3095	09-3095	—	09-3095
MDAB_00_04-09-12961	NH40	0–5	ALLH	10-78	10-78	10-78	10-78	10-78	10-78	10-78
MDAB_04_08-09-12962	NH40	5–10	ALLH	10-78	10-78	10-78	10-78	10-78	10-78	10-78
MDAB_08_12-09-12964	NH40	10–15	ALLH	10-78	10-78	10-78	10-78	10-78	10-78	10-78
MDAB_12_16-09-12963	NH40	15–18	ALLH	10-78	10-78	10-78	10-78	10-78	10-78	10-78
MDAB_00_04-09-12965	NH45	0–2	ALLH	10-78	10-78	10-78	10-78	10-78	10-78	10-78
MDAB_00_04-09-10321	NH59	0–5	ALLH	09-3120	09-3120	09-3120	09-3120	09-3120	—	09-3120
MDAB_04_08-09-10322	NH59	5–10	ALLH	09-3120	09-3120	09-3120	09-3120	09-3120	—	09-3120
MDAB_08_12-09-10323	NH59	10–15	ALLH	09-3120	09-3120	09-3120	09-3120	09-3120	—	09-3120
MDAB_12_16-09-10324	NH59	15–16	ALLH	09-3120	09-3120	09-3120	09-3120	09-3120	—	09-3120
MDAB_00_04-09-12969	NI29	0–5	ALLH	10-85	10-85	10-85	10-85	10-85	10-85	10-85

Table B-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Gamma Spectroscopy	Strontium-90	Tritium	Americium-241	Isotopic Plutonium	Isotopic Thorium	Isotopic Uranium
MDAB_04_08-09-12970	NI29	5–10	ALLH	10-85	10-85	10-85	10-85	10-85	10-85	10-85
MDAB_00_04-09-12957	NI34	0–5	ALLH	10-78	10-78	10-78	10-78	10-78	10-78	10-78
MDAB_04_08-09-12958	NI34	5–10	ALLH	10-78	10-78	10-78	10-78	10-78	10-78	10-78
MDAB_00_04-09-10313	NI38	0–3	ALLH	09-3095	09-3095	09-3095	09-3095	09-3095	—	09-3095
MDAB_00_04-09-10309	NI43	0–5	ALLH	09-3095	09-3095	09-3095	09-3095	09-3095	—	09-3095
MDAB_04_08-09-10310	NI43	5–7	ALLH	09-3095	09-3095	09-3095	09-3095	09-3095	—	09-3095
MDAB_00_04-09-10301	NI48	0–5	ALLH	09-3095	09-3095	09-3095	09-3095	09-3095	—	09-3095
MDAB_00_04-09-10389	NI85	0–4	ALLH	09-3128	09-3128	09-3128	09-3128	09-3128	—	09-3128
MDAB_00_04-09-10293	NJ30	0–5	ALLH	09-3095	09-3095	09-3095	09-3095	09-3095	—	09-3095
MDAB_04_08-09-10294	NJ30	5–9.5	ALLH	09-3095	09-3095	09-3095	09-3095	09-3095	—	09-3095
MDAB_00_04-09-10297	NJ35	0–4.5	ALLH	09-3095	09-3095	09-3095	09-3095	09-3095	—	09-3095
MDAB_00_04-10-462	WST-600902[c]	0–0	FILL	10-108	10-108	10-108	10-108	10-108	10-108	10-108
MDAB_00_04-10-463	WST-600902[c]	0–0	FILL	10-108	10-108	10-108	10-108	10-108	10-108	10-108
MDAB_00_04-10-464	WST-600902[c]	0–0	FILL	10-108	10-108	10-108	10-108	10-108	10-108	10-108

Table B-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	TAL Metals	TCLP Metals	Cyanide	Pesticides	TCLP Pesticides	PCBs
MDAB_00_04-09-13063	AF153	0–2.5	ALLH	09-3271	09-3271	09-3271	09-3271	—	09-3271
MDAB_00_04-09-13045	AF155	0–3	ALLH	09-3271	09-3271	09-3271	09-3271	09-3271	09-3271
MDAB_00_04-09-13105	AG165	0–2.5	QBT3	09-3335	09-3335	09-3335	09-3335	09-3335	09-3335
MDAB_00_04-09-10205	AG167	0–4	ALLH	09-2989	09-2989	09-2989	09-2989	09-2989	09-2989
MDAB_00_04-09-13104	AG168	0–2.5	FILL	09-3335	09-3335	09-3335	09-3335	09-3335	09-3335
MDAB_00_04-09-10209	AH167	0–4	ALLH	09-2974	09-2974	09-2974	09-2974	09-2974	09-2974
MDAB_00_04-09-10245	AH215	0–5	ALLH	09-3017	09-3017	09-3017	09-3017	09-3017	09-3017
MDAB_04_08-09-10246	AH215	5–7	ALLH	09-3025	09-3025	09-3025	09-3025	09-3025	09-3025
MDAB_00_04-09-13092	AI153	0–4.5	ALLH	09-3291	09-3291	09-3291	09-3291	09-3291	09-3291
MDAB_00_04-09-10193	AI155	0–5	FILL	09-2917	09-2917	09-2917	09-2917	09-2917	09-2917
MDAB_04_08-09-10194	AI155	5–9	ALLH	09-2917	09-2917	09-2917	09-2917	09-2917	09-2917
MDAB_00_04-09-10197	AI157	0–5	ALLH	09-2949	09-2949	09-2949	09-2949	09-2949	09-2949
MDAB_04_08-09-10198	AI157	5–9	ALLH	09-2949	09-2949	09-2949	09-2949	09-2949	09-2949
MDAB_00_04-09-13049	AI160	0–5	ALLH	—	—	—	09-3291	09-3291	09-3291
MDAB_04_08-09-13050	AI160	5–11	ALLH	09-3291	09-3291	09-3291	09-3291	09-3291	09-3291
MDAB_00_04-09-13053	AI164	0–5	ALLH	09-3322	09-3322	09-3322	09-3322	09-3322	09-3322
MDAB_04_08-09-13054	AI164	5–10	QBT3	09-3322	09-3322	09-3322	09-3322	09-3322	09-3322
MDAB_08_12-09-13056	AI164	10–10.2	QBT3	—	—	—	—	—	—
MDAB_00_04-09-13041	AI167	0–5	ALLH	09-3291	09-3291	09-3291	09-3291	09-3291	09-3291
MDAB_04_08-09-13042	AI167	5–10	ALLH	09-3291	09-3291	09-3291	09-3291	09-3291	09-3291
MDAB_08_12-09-13043	AI167	10–11	ALLH	—	—	—	—	—	—
MDAB_00_04-09-13097	AI171	0–5	ALLH	10-6	—10-6	10-6	10-6	10-6	10-6
MDAB_04_08-09-13098	AI171	5–10	ALLH	—09-3335	09-3335	09-3335	09-3335	—	09-3335
MDAB_00_04-09-13112	AI175	0–5	ALLH	10-6	—10-6	10-6	10-6	10-6	10-6

Table B-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	TAL Metals	TCLP Metals	Cyanide	Pesticides	TCLP Pesticides	PCBs
MDAB_04_08-09-13111	AI175	5–9	ALLH	—	—	—	—	—	—
MDAB_00_04-09-10213	AI176	0–5	ALLH	09-2989	09-2989	09-2989	09-2989	09-2989	09-2989
MDAB_04_08-09-10214	AI176	5–9	ALLH	09-2989	09-2989	09-2989	09-2989	09-2989	09-2989
MDAB_00_04-09-13115	AI179	0–5	ALLH	10-6	—10-6	10-6	10-6	—	10-6
MDAB_04_08-09-13116	AI179	5–10	ALLH	—	—	—	—	—	—
MDAB_00_04-09-10221	AI180	0–5	ALLH	09-3010	09-3010	09-3010	09-3010	09-3010	09-3010
MDAB_04_08-09-10222	AI180	5–10	ALLH	09-3010	09-3010	09-3010	09-3010	09-3010	09-3010
MDAB_00_04-09-13038	AI183	0–5	ALLH	10-31	—10-31	10-31	10-31	10-31	10-31
MDAB_00_04-09-10225	AI185	0–5	ALLH	09-3010	09-3010	09-3010	09-3010	09-3010	09-3010
MDAB_04_08-09-10226	AI185	5–6	ALLH	09-3010	09-3010	09-3010	09-3010	09-3010	09-3010
MDAB_00_04-09-13031	AI186	0–6	ALLH	10-8	—10-8	10-8	10-8	—	10-8
MDAB_00_04-09-10229	AI191	0–4.5	ALLH	—09-3010	09-3010	09-3010	09-3010	09-3010	09-3010
MDAB_00_04-09-13028	AI193	0–5	ALLH	10-8	—10-8	10-8	10-8	—	10-8
MDAB_04_08-09-13027	AI193	5–7	ALLH	—	—	—	10-8	—	10-8
MDAB_00_04-09-13021	AI199	0–5	ALLH	10-27	—10-27	10-27	10-27	—	10-27
MDAB_04_08-09-13023	AI199	5–8	ALLH	—	—	—	—	—	—
MDAB_00_04-09-10233	AI200	0–5	ALLH	09-3010	09-3010	09-3010	09-3010	09-3010	09-3010
MDAB_04_08-09-10234	AI200	5–11	ALLH	09-3010	09-3010	09-3010	09-3010	09-3010	09-3010
MDAB_00_04-09-13020	AI201	0–5	ALLH	10-27	—10-27	10-27	10-27	10-27	10-27
MDAB_04_08-09-13017	AI201	5–8	ALLH	—	—	—	—	—	—
MDAB_00_04-09-13013	AI207	0–5	ALLH	10-27	10-27	10-27	10-27	10-27	10-27
MDAB_04_08-09-13014	AI207	5–10	ALLH	10-27	10-27	10-27	10-27	10-27	10-27
MDAB_08_12-09-13015	AI207	10–15	ALLH	—	—	—	10-31	—	10-31
MDAB_00_04-09-10237	AI209	0–5	ALLH	09-3010	09-3010	09-3010	09-3010	09-3010	09-3010

Table B-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	TAL Metals	TCLP Metals	Cyanide	Pesticides	TCLP Pesticides	PCBs
MDAB_04_08-09-10238	AI209	5–10	ALLH	09-3017	09-3017	09-3017	09-3017	09-3017	09-3017
MDAB_12_16-09-10240	AI209	10–10.2	ALLH	—	—	—	—	—	—
MDAB_00_04-09-13012	AI211	0–5	ALLH	10-27	—10-27	10-27	10-27	—	10-27
MDAB_04_08-09-13011	AI211	5–10	ALLH	—	—	—	10-27	—	10-27
MDAB_08_12-09-13010	AI211	10–12.5	ALLH	09-3010	—	—	—	—	—
MDAB_00_04-09-10241	AI213	0–5	ALLH	09-3017	09-3017	09-3017	09-3017	09-3017	09-3017
MDAB_04_08-09-10242	AI213	5–11	ALLH	—	09-3017	09-3017	09-3017	09-3017	09-3017
MDAB_00_04-09-10249	AI217	0–5	ALLH	—	09-3025	09-3025	09-3025	09-3025	09-3025
MDAB_04_08-09-10250	AI217	5–8	ALLH	09-3010	09-3037	09-3037	09-3037	09-3037	09-3037
MDAB_00_04-09-10253	AI224	0–2	ALLH	09-3017	09-3027	09-3027	09-3027	09-3027	09-3027
MDAB_00_04-09-10398	AI229	0–5	ALLH	—	09-3039	09-3039	09-3039	09-3039	09-3039
MDAB_04_08-09-10399	AI229	5–10	ALLH	—	09-3039	09-3039	09-3039	09-3039	09-3039
MDAB_00_04-09-10258	AI234	0–5	ALLH	09-3010	09-3067	09-3067	09-3067	09-3067	09-3067
MDAB_04_08-09-10257	AI234	5–10	ALLH	09-3017	09-3067	09-3067	09-3067	09-3067	09-3067
MDAB_08_12-09-10259	AI234	10–13	ALLH	—	09-3067	09-3067	09-3067	09-3067	09-3067
MDAB_00_04-09-12997	AI239	0–5	ALLH	—	10-60	10-60	10-60	—	10-60
MDAB_04_08-09-12998	AI239	5–10	ALLH	09-3010	10-60	10-60	10-60	—	10-60
MDAB_08_12-09-12999	AI239	10–12.5	ALLH	09-3017	—	—	—	—	—
MDAB_00_04-09-12995	AI244	0–3	ALLH	—	—	—	10-60	—	10-60
MDAB_00_04-09-10261	AI245	0–5	ALLH	—	09-3039	09-3039	09-3039	09-3039	09-3039
MDAB_04_08-09-10262	AI245	5–12	ALLH	09-3010	09-3039	09-3039	09-3039	09-3039	09-3039
MDAB_00_04-09-12991	AI246	0–5	ALLH	09-3017	—	—	10-60	—	10-60
MDAB_04_08-09-12990	AI246	5–12	ALLH	—	—	—	10-60	—	10-60
MDAB_00_04-09-12986	AI250	0–5	ALLH	—	10-60	10-60	10-60	10-60	10-60

Table B-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	TAL Metals	TCLP Metals	Cyanide	Pesticides	TCLP Pesticides	PCBs
MDAB_04_08-09-12988	AI250	5–10	ALLH	09-3010	—	—	—	—	—
MDAB_08_12-09-12987	AI250	10–13	ALLH	09-3017	—	—	—	—	—
MDAB_00_04-09-10265	AI251	0–5	ALLH	—	09-3067	09-3067	09-3067	09-3067	09-3067
MDAB_04_08-09-10266	AI251	5–9	ALLH	—	09-3067	09-3067	09-3067	09-3067	09-3067
MDAB_00_04-09-12981	AI252	0–5	ALLH	09-3010	10-60	10-60	10-60	—	10-60
MDAB_00_04-09-10269	AI256	0–5	ALLH	09-3017	09-3067	09-3067	09-3067	09-3067	09-3067
MDAB_04_08-09-10270	AI256	5–9	ALLH	—	—	—	—	—	—
MDAB_00_04-09-10201	AJ158	0–5	ALLH	—	09-2974	09-2974	09-2974	09-2974	09-2974
MDAB_04_08-09-10202	AJ158	5–9	ALLH	09-3010	09-2974	09-2974	09-2974	09-2974	09-2974
MDAB_00_04-09-13122	AJ181	0–5	ALLH	10-6	10-6	10-6	10-6	—	10-6
MDAB_04_08-09-13124	AJ181	5–10	ALLH	10-6	10-6	10-6	10-6	10-6	10-6
MDAB_00_04-09-10217	AJ183	0–5	ALLH	09-2989	09-2989	09-2989	09-2989	09-2989	09-2989
MDAB_04_08-09-10218	AJ183	5–9	ALLH	09-2989	09-2989	09-2989	09-2989	09-2989	09-2989
MDAB_00_04-09-13034	AJ185	0–7.5	ALLH	10-8	—10-8	10-8	10-8	—	10-8
MDAB_00_04-09-13057	AK155	0–4	ALLH	09-3271	09-3271	09-3271	09-3271	09-3271	09-3271
MDAB_00_04-09-13004	AL225	0–2.5	ALLH	—	—	—	10-27	—	10-27
MDAB_00_04-09-10273	AL256	0–5	ALLH	09-3067	09-3067	09-3067	09-3067	09-3067	09-3067
MDAB_00_04-09-12973	AL258	0–4	ALLH	10-86	10-86	10-86	10-86	—	10-86
MDAB_00_04-09-13118	AM153	0–4	ALLH	09-3291	09-3291	09-3291	09-3291	09-3291	09-3291
MDAB_00_04-09-13088	AM155	0–4	ALLH	09-3291	09-3291	09-3291	09-3291	09-3291	09-3291
MDAB_00_04-09-10281	AM228	0–4	ALLH	09-3039	09-3039	09-3039	09-3039	09-3039	09-3039
MDAB_00_04-09-10285	AM232	0–4	ALLH	09-3039	09-3039	09-3039	09-3039	09-3039	09-3039
MDAB_00_04-09-13065	AN152	0–5	ALLH	09-3271	09-3271	09-3271	09-3271	09-3271	09-3271
MDAB_00_04-09-13008	AN223	0–4.5	ALLH	—	—	—	10-27	10-27	10-27

Table B-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	TAL Metals	TCLP Metals	Cyanide	Pesticides	TCLP Pesticides	PCBs
MDAB_00_04-09-10277	AN226	0–3	ALLH	09-3039	09-3039	09-3039	09-3039	09-3039	09-3039
MDAB_00_04-09-12979	AN256	0–5	ALLH	10-86	10-86	10-86	10-86	—	10-86
MDAB_04_08-09-12978	AN256	5–7	ALLH	—	—	—	10-86	—	10-86
MDAB_00_04-09-13070	AQ151	0–4.5	ALLH	09-3230	09-3230	09-3230	09-3230	09-3230	09-3230
MDAB_00_04-09-13075	AS151	0–4.5	ALLH	09-3230	09-3230	09-3230	09-3230	09-3230	09-3230
MDAB_00_04-09-10173	AS153	0–5	ALLH	09-2802	09-2802	09-2802	09-2802	09-2802	09-2802
MDAB_00_04-09-13079	AU150	0–5	ALLH	09-3230	09-3230	09-3230	09-3230	09-3230	09-3230
MDAB_00_04-09-10178	AU152	0–5	ALLH	09-2802	09-2802	09-2802	09-2802	09-2802	09-2802
MDAB_04_08-09-10177	AU152	5–6	ALLH	09-2802	09-2802	09-2802	09-2802	09-2802	09-2802
MDAB_00_04-09-10181	AU154	0–5	ALLH	09-2802	09-2802	09-2802	09-2802	09-2802	09-2802
MDAB_00_04-09-13081	AW150	0–5	ALLH	09-3230	09-3230	09-3230	09-3230	09-3230	09-3230
MDAB_04_08-09-13082	AW150	5–7.5	ALLH	—	—	—	09-3230	—	09-3230
MDAB_00_04-09-10185	AW152	0–5	ALLH	09-2802	09-2802	09-2802	09-2802	09-2802	09-2802
MDAB_04_08-09-10186	AW152	5–6.5	ALLH	09-2802	09-2802	09-2802	09-2802	09-2802	09-2802
MDAB_00_04-09-13096	AY153	0–5	ALLH	09-3230	09-3230	09-3230	09-3230	09-3230	09-3230
MDAB_04_08-09-13095	AY153	5–7.5	ALLH	—	—	—	09-3230	—	09-3230
MDAB_00_04-09-10189	BB153	0–5	FILL	09-2848	09-2848	09-2848	09-2848	09-2848	09-2848
MDAB_00_04-09-10390	NF95	0–5	ALLH	09-3127	09-3127	09-3127	09-3127	09-3127	09-3127
MDAB_04_08-09-10391	NF95	5–8	ALLH	—	—	—	09-3127	—	09-3127
MDAB_00_04-09-10394	NG103	0–5	ALLH	09-3127	09-3127	09-3127	09-3127	09-3127	09-3127
MDAB_04_08-09-10395	NG103	5–10	ALLH	09-3127	09-3127	09-3127	09-3127	09-3127	09-3127
MDAB_08_12-09-10396	NG103	10–11	ALLH	—	—	—	—	—	—
MDAB_00_04-09-10317	NG56	0–5	ALLH	09-3119	09-3119	09-3119	09-3119	09-3119	09-3119
MDAB_04_08-09-10318	NG56	5–10	ALLH	09-3119	09-3119	09-3119	09-3119	09-3119	09-3119

Table B-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	TAL Metals	TCLP Metals	Cyanide	Pesticides	TCLP Pesticides	PCBs
MDAB_08_12-09-10319	NG56	10–15	ALLH	—	—	—	09-3119	—	09-3119
MDAB_12_16-09-10320	NG56	15–20	ALLH	09-3119	09-3119	09-3119	09-3119	—	09-3119
MDAB_00_04-09-10325	NG61	0–5	ALLH	09-3119	09-3119	09-3119	09-3119	09-3119	09-3119
MDAB_04_08-09-10326	NG61	5–10	ALLH	09-3119	09-3119	09-3119	09-3119	—	09-3119
MDAB_08_12-09-10327	NG61	10–15	ALLH	09-3119	09-3119	09-3119	09-3119	—	09-3119
MDAB_12_16-09-10328	NG61	15–16	ALLH	—	—	—	—	—	—
MDAB_00_04-09-10329	NG75	0–5	ALLH	09-3119	09-3119	09-3119	09-3119	09-3119	09-3119
MDAB_04_08-09-10330	NG75	5–10	ALLH	09-3119	09-3119	09-3119	09-3119	09-3119	09-3119
MDAB_08_12-09-10331	NG75	10–15.5	ALLH	09-3119	09-3119	09-3119	09-3119	—	09-3119
MDAB_00_04-09-10382	NG77	0–5	ALLH	09-3119	09-3119	09-3119	09-3119	09-3119	09-3119
MDAB_04_08-09-10383	NG77	5–10	ALLH	09-3119	09-3119	09-3119	09-3119	09-3119	09-3119
MDAB_08_12-09-10385	NG77	10–15	ALLH	09-3119	09-3119	09-3119	09-3119	09-3119	09-3119
MDAB_12_16-09-10384	NG77	15–16	ALLH	—	—	—	—	—	—
MDAB_00_04-09-10289	NH27	0–5	ALLH	09-3094	09-3094	09-3094	09-3094	09-3094	09-3094
MDAB_04_08-09-10290	NH27	5–10	ALLH	09-3094	09-3094	09-3094	09-3094	09-3094	09-3094
MDAB_00_04-09-10305	NH33	0–2.5	ALLH	—	—	—	—	—	—
MDAB_00_04-09-12961	NH40	0–5	ALLH	—	—	—	10-79	—	10-79
MDAB_04_08-09-12962	NH40	5–10	ALLH	10-79	10-79	10-79	10-79	—	10-79
MDAB_08_12-09-12964	NH40	10–15	ALLH	10-79	10-79	10-79	10-79	—	10-79
MDAB_12_16-09-12963	NH40	15–18	ALLH	10-79	10-79	10-79	10-79	—	10-79
MDAB_00_04-09-12965	NH45	0–2	ALLH	—	—	—	—	—	—
MDAB_00_04-09-10321	NH59	0–5	ALLH	09-3119	09-3119	09-3119	09-3119	09-3119	09-3119
MDAB_04_08-09-10322	NH59	5–10	ALLH	09-3119	09-3119	09-3119	09-3119	09-3119	09-3119
MDAB_08_12-09-10323	NH59	10–15	ALLH	09-3119	09-3119	09-3119	09-3119	—	09-3119

Table B-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	TAL Metals	TCLP Metals	Cyanide	Pesticides	TCLP Pesticides	PCBs
MDAB_12_16-09-10324	NH59	15–16	ALLH	—	—	—	—	—	—
MDAB_00_04-09-12969	NI29	0–5	ALLH	10-86	10-86	10-86	10-86	—	10-86
MDAB_04_08-09-12970	NI29	5–10	ALLH	10-86	10-86	10-86	10-86	10-86	10-86
MDAB_00_04-09-12957	NI34	0–5	ALLH	10-79	10-79	10-79	10-79	—	10-79
MDAB_04_08-09-12958	NI34	5–10	ALLH	10-79	10-79	10-79	10-79	—	10-79
MDAB_00_04-09-10313	NI38	0–3	ALLH	09-3094	09-3094	09-3094	09-3094	09-3094	09-3094
MDAB_00_04-09-10309	NI43	0–5	ALLH	09-3094	09-3094	09-3094	09-3094	09-3094	09-3094
MDAB_04_08-09-10310	NI43	5–7	ALLH	09-3094	09-3094	09-3094	09-3094	—	09-3094
MDAB_00_04-09-10301	NI48	0–5	ALLH	09-3094	09-3094	09-3094	09-3094	09-3094	09-3094
MDAB_00_04-09-10389	NI85	0–4	ALLH	09-3127	09-3127	09-3127	09-3127	09-3127	09-3127
MDAB_00_04-09-10293	NJ30	0–5	ALLH	09-3094	09-3094	09-3094	09-3094	—	09-3094
MDAB_04_08-09-10294	NJ30	5–9.5	ALLH	09-3094	09-3094	09-3094	09-3094	09-3094	09-3094
MDAB_00_04-09-10297	NJ35	0–4.5	ALLH	09-3094	09-3094	09-3094	09-3094	09-3094	09-3094
MDAB_00_04-10-462	WST-600902	0–0	FILL	10-109	10-109	10-109	10-109	—	10-109
MDAB_00_04-10-463	WST-600902	0–0	FILL	10-109	10-109	10-109	10-109	10-109	10-109
MDAB_00_04-10-464	WST-600902	0–0	FILL	10-109	10-109	10-109	10-109	10-109	10-109

Table B-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Herbicides	TCLP Herbicides	VOCs	TCLP VOCs	SVOCs	TCLP SVOCs
MDAB_00_04-09-13063	AF153	0–2.5	ALLH	09-3271	—	09-3271	—	09-3271	—
MDAB_00_04-09-13045	AF155	0–3	ALLH	09-3271	09-3271	09-3271	09-3271	09-3271	09-3271
MDAB_00_04-09-13105	AG165	0–2.5	QBT3	09-3335	09-3335	09-3335	09-3335	09-3335	09-3335
MDAB_00_04-09-10205	AG167	0–4	ALLH	09-2989	09-2989	09-2989	09-2989	09-2989	09-2989
MDAB_00_04-09-13104	AG168	0–2.5	FILL	09-3335	09-3335	09-3335	09-3335	09-3335	09-3335
MDAB_00_04-09-10209	AH167	0–4	ALLH	09-2974	09-2974	09-2974	09-2974	09-2974	09-2974
MDAB_00_04-09-10245	AH215	0–5	ALLH	09-3017	09-3017	09-3017	09-3017	09-3017	09-3017
MDAB_04_08-09-10246	AH215	5–7	ALLH	09-3025	09-3025	09-3025	09-3025	09-3025	09-3025
MDAB_00_04-09-13092	AI153	0–4.5	ALLH	09-3291	09-3291	09-3291	09-3291	09-3291	09-3291
MDAB_00_04-09-10193	AI155	0–5	FILL	09-2917	09-2917	09-2917	09-2917	09-2917	09-2917
MDAB_04_08-09-10194	AI155	5–9	ALLH	09-2917	09-2917	09-2917	09-2917	09-2917	09-2917
MDAB_00_04-09-10197	AI157	0–5	ALLH	09-2949	09-2949	09-2949	09-2949	09-2949	09-2949
MDAB_04_08-09-10198	AI157	5–9	ALLH	09-2949	09-2949	09-2949	09-2949	09-2949	09-2949
MDAB_00_04-09-13049	AI160	0–5	ALLH	09-3291	09-3291	09-3291	09-3291	09-3291	09-3291
MDAB_04_08-09-13050	AI160	5–11	ALLH	09-3291	09-3291	09-3291	09-3291	09-3291	09-3291
MDAB_00_04-09-13053	AI164	0–5	ALLH	09-3322	09-3322	09-3322	09-3322	09-3322	09-3322
MDAB_04_08-09-13054	AI164	5–10	QBT3	09-3322	09-3322	09-3322	09-3322	09-3322	09-3322
MDAB_08_12-09-13056	AI164	10–10.2	QBT3	—	—	—	—	—	—
MDAB_00_04-09-13041	AI167	0–5	ALLH	09-3291	09-3291	09-3291	09-3291	09-3291	09-3291
MDAB_04_08-09-13042	AI167	5–10	ALLH	09-3291	09-3291	09-3291	09-3291	09-3291	09-3291
MDAB_08_12-09-13043	AI167	10–11	ALLH	—	—	—	—	—	—
MDAB_00_04-09-13097	AI171	0–5	ALLH	10-6	10-6	10-6	10-6	10-6	10-6
MDAB_04_08-09-13098	AI171	5–10	ALLH	09-3335	—	—	—	09-3335	—
MDAB_00_04-09-13112	AI175	0–5	ALLH	10-6	10-6	10-6	10-6	10-6	10-6

Table B-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Herbicides	TCLP Herbicides	VOCs	TCLP VOCs	SVOCs	TCLP SVOCs
MDAB_04_08-09-13111	AI175	5–9	ALLH	—	—	—	—	—	—
MDAB_00_04-09-10213	AI176	0–5	ALLH	09-2989	09-2989	09-2989	09-2989	09-2989	09-2989
MDAB_04_08-09-10214	AI176	5–9	ALLH	09-2989	09-2989	09-2989	09-2989	09-2989	09-2989
MDAB_00_04-09-13115	AI179	0–5	ALLH	10-6	—	—	—	10-6	—
MDAB_04_08-09-13116	AI179	5–10	ALLH	—	—	—	—	—	—
MDAB_00_04-09-10221	AI180	0–5	ALLH	09-3010	09-3010	09-3010	09-3010	09-3010	09-3010
MDAB_04_08-09-10222	AI180	5–10	ALLH	09-3010	09-3010	09-3010	09-3010	09-3010	09-3010
MDAB_00_04-09-13038	AI183	0–5	ALLH	10-31	10-31	10-31	10-31	10-31	10-31
MDAB_00_04-09-10225	AI185	0–5	ALLH	09-3010	09-3010	09-3010	09-3010	09-3010	09-3010
MDAB_04_08-09-10226	AI185	5–6	ALLH	09-3010	09-3010	09-3010	09-3010	09-3010	09-3010
MDAB_00_04-09-13031	AI186	0–6	ALLH	10-8	—	10-8	—	10-8	—
MDAB_00_04-09-10229	AI191	0–4.5	ALLH	09-3010	09-3010	09-3010	09-3010	09-3010	09-3010
MDAB_00_04-09-13028	AI193	0–5	ALLH	10-8	—	—	—	10-8	—
MDAB_04_08-09-13027	AI193	5–7	ALLH	10-8	—	—	—	10-8	—
MDAB_00_04-09-13021	AI199	0–5	ALLH	10-27	—	—	—	10-27	—
MDAB_04_08-09-13023	AI199	5–8	ALLH	—	—	—	—	—	—
MDAB_00_04-09-10233	AI200	0–5	ALLH	09-3010	09-3010	09-3010	09-3010	09-3010	09-3010
MDAB_04_08-09-10234	AI200	5–11	ALLH	09-3010	09-3010	09-3010	09-3010	09-3010	09-3010
MDAB_00_04-09-13020	AI201	0–5	ALLH	10-27	10-27	10-27	10-27	10-27	10-27
MDAB_04_08-09-13017	AI201	5–8	ALLH	—	—	—	—	—	—
MDAB_00_04-09-13013	AI207	0–5	ALLH	10-27	10-27	10-27	10-27	10-27	10-27
MDAB_04_08-09-13014	AI207	5–10	ALLH	10-27	10-27	10-27	10-27	10-27	10-27
MDAB_08_12-09-13015	AI207	10–15	ALLH	10-31	—	—	—	10-31	—
MDAB_00_04-09-10237	AI209	0–5	ALLH	09-3010	09-3010	09-3010	09-3010	09-3010	09-3010

Table B-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Herbicides	TCLP Herbicides	VOCs	TCLP VOCs	SVOCs	TCLP SVOCs
MDAB_04_08-09-10238	AI209	5–10	ALLH	09-3017	09-3017	09-3017	09-3017	09-3017	09-3017
MDAB_12_16-09-10240	AI209	10–10.2	ALLH	—	—	—	—	—	—
MDAB_00_04-09-13012	AI211	0–5	ALLH	10-27	—	10-27	—	10-27	—
MDAB_04_08-09-13011	AI211	5–10	ALLH	10-27	—	—	—	10-27	—
MDAB_08_12-09-13010	AI211	10–12.5	ALLH	—	—	—	—	—	—
MDAB_00_04-09-10241	AI213	0–5	ALLH	09-3017	09-3017	09-3017	09-3017	09-3017	09-3017
MDAB_04_08-09-10242	AI213	5–11	ALLH	09-3017	09-3017	09-3017	09-3017	09-3017	09-3017
MDAB_00_04-09-10249	AI217	0–5	ALLH	09-3025	09-3025	09-3025	09-3025	09-3025	09-3025
MDAB_04_08-09-10250	AI217	5–8	ALLH	09-3037	09-3037	09-3037	09-3037	09-3037	09-3037
MDAB_00_04-09-10253	AI224	0–2	ALLH	09-3027	09-3027	09-3027	09-3027	09-3027	09-3027
MDAB_00_04-09-10398	AI229	0–5	ALLH	09-3039	09-3039	09-3039	09-3039	09-3039	09-3039
MDAB_04_08-09-10399	AI229	5–10	ALLH	09-3039	09-3039	09-3039	09-3039	09-3039	09-3039
MDAB_00_04-09-10258	AI234	0–5	ALLH	09-3067	09-3067	09-3067	09-3067	09-3067	09-3067
MDAB_04_08-09-10257	AI234	5–10	ALLH	09-3067	09-3067	09-3067	09-3067	09-3067	09-3067
MDAB_08_12-09-10259	AI234	10–13	ALLH	09-3067	09-3067	09-3067	09-3067	09-3067	09-3067
MDAB_00_04-09-12997	AI239	0–5	ALLH	10-60	—	—	—	10-60	—
MDAB_04_08-09-12998	AI239	5–10	ALLH	10-60	—	10-60	—	10-60	—
MDAB_08_12-09-12999	AI239	10–12.5	ALLH	—	—	—	—	—	—
MDAB_00_04-09-12995	AI244	0–3	ALLH	10-60	—	—	—	10-60	—
MDAB_00_04-09-10261	AI245	0–5	ALLH	09-3039	09-3039	09-3039	09-3039	09-3039	09-3039
MDAB_04_08-09-10262	AI245	5–12	ALLH	09-3039	09-3039	09-3039	09-3039	09-3039	09-3039
MDAB_00_04-09-12991	AI246	0–5	ALLH	10-60	—	—	—	10-60	—
MDAB_04_08-09-12990	AI246	5–12	ALLH	10-60	—	—	—	10-60	—
MDAB_00_04-09-12986	AI250	0–5	ALLH	10-60	10-60	10-60	10-60	10-60	10-60

Table B-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Herbicides	TCLP Herbicides	VOCs	TCLP VOCs	SVOCs	TCLP SVOCs
MDAB_04_08-09-12988	AI250	5–10	ALLH	—	—	—	—	—	—
MDAB_08_12-09-12987	AI250	10–13	ALLH	—	—	—	—	—	—
MDAB_00_04-09-10265	AI251	0–5	ALLH	09-3067	09-3067	09-3067	09-3067	09-3067	09-3067
MDAB_04_08-09-10266	AI251	5–9	ALLH	09-3067	09-3067	09-3067	09-3067	09-3067	09-3067
MDAB_00_04-09-12981	AI252	0–5	ALLH	10-60	—	—	—	10-60	—
MDAB_00_04-09-10269	AI256	0–5	ALLH	09-3067	09-3067	09-3067	09-3067	09-3067	09-3067
MDAB_04_08-09-10270	AI256	5–9	ALLH	—	—	—	—	—	—
MDAB_00_04-09-10201	AJ158	0–5	ALLH	09-2974	09-2974	09-2974	09-2974	09-2974	09-2974
MDAB_04_08-09-10202	AJ158	5–9	ALLH	09-2974	09-2974	09-2974	09-2974	09-2974	09-2974
MDAB_00_04-09-13122	AJ181	0–5	ALLH	10-6	—	10-6	—	10-6	—
MDAB_04_08-09-13124	AJ181	5–10	ALLH	10-6	10-6	10-6	10-6	10-6	10-6
MDAB_00_04-09-10217	AJ183	0–5	ALLH	09-2989	09-2989	09-2989	09-2989	09-2989	09-2989
MDAB_04_08-09-10218	AJ183	5–9	ALLH	09-2989	09-2989	09-2989	09-2989	09-2989	09-2989
MDAB_00_04-09-13034	AJ185	0–7.5	ALLH	10-8	—	10-8	—	10-8	—
MDAB_00_04-09-13057	AK155	0–4	ALLH	09-3271	09-3271	09-3271	09-3271	09-3271	09-3271
MDAB_00_04-09-13004	AL225	0–2.5	ALLH	10-27	—	—	—	10-27	—
MDAB_00_04-09-10273	AL256	0–5	ALLH	09-3067	09-3067	09-3067	09-3067	09-3067	09-3067
MDAB_00_04-09-12973	AL258	0–4	ALLH	10-86	—	10-86	—	10-86	—
MDAB_00_04-09-13118	AM153	0–4	ALLH	09-3291	09-3291	09-3291	09-3291	09-3291	09-3291
MDAB_00_04-09-13088	AM155	0–4	ALLH	09-3291	09-3291	09-3291	09-3291	09-3291	09-3291
MDAB_00_04-09-10281	AM228	0–4	ALLH	09-3039	09-3039	09-3039	09-3039	09-3039	09-3039
MDAB_00_04-09-10285	AM232	0–4	ALLH	09-3039	09-3039	09-3039	09-3039	09-3039	09-3039
MDAB_00_04-09-13065	AN152	0–5	ALLH	09-3271	09-3271	09-3271	09-3271	09-3271	09-3271
MDAB_00_04-09-13008	AN223	0–4.5	ALLH	10-27	10-27	10-27	10-27	10-27	10-27

Table B-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Herbicides	TCLP Herbicides	VOCs	TCLP VOCs	SVOCs	TCLP SVOCs
MDAB_00_04-09-10277	AN226	0–3	ALLH	09-3039	09-3039	09-3039	09-3039	09-3039	09-3039
MDAB_00_04-09-12979	AN256	0–5	ALLH	10-86	—	10-86	—	10-86	—
MDAB_04_08-09-12978	AN256	5–7	ALLH	10-86	—	—	—	10-86	—
MDAB_00_04-09-13070	AQ151	0–4.5	ALLH	09-3230	09-3230	09-3230	09-3230	09-3230	09-3230
MDAB_00_04-09-13075	AS151	0–4.5	ALLH	09-3230	09-3230	09-3230	09-3230	09-3230	09-3230
MDAB_00_04-09-10173	AS153	0–5	ALLH	09-2802	09-2802	09-2802	09-2802	09-2802	09-2802
MDAB_00_04-09-13079	AU150	0–5	ALLH	09-3230	09-3230	09-3230	09-3230	09-3230	09-3230
MDAB_00_04-09-10178	AU152	0–5	ALLH	09-2802	09-2802	09-2802	09-2802	09-2802	09-2802
MDAB_04_08-09-10177	AU152	5–6	ALLH	09-2802	09-2802	09-2802	09-2802	09-2802	09-2802
MDAB_00_04-09-10181	AU154	0–5	ALLH	09-2802	09-2802	09-2802	09-2802	09-2802	09-2802
MDAB_00_04-09-13081	AW150	0–5	ALLH	09-3230	09-3230	09-3230	09-3230	09-3230	09-3230
MDAB_04_08-09-13082	AW150	5–7.5	ALLH	09-3230	—	—	—	09-3230	—
MDAB_00_04-09-10185	AW152	0–5	ALLH	09-2802	09-2802	09-2802	09-2802	09-2802	09-2802
MDAB_04_08-09-10186	AW152	5–6.5	ALLH	09-2802	09-2802	09-2802	09-2802	09-2802	09-2802
MDAB_00_04-09-13096	AY153	0–5	ALLH	09-3230	09-3230	09-3230	09-3230	09-3230	09-3230
MDAB_04_08-09-13095	AY153	5–7.5	ALLH	09-3230	—	—	—	09-3230	—
MDAB_00_04-09-10189	BB153	0–5	FILL	09-2848	09-2848	09-2848	09-2848	09-2848	09-2848
MDAB_00_04-09-10390	NF95	0–5	ALLH	09-3127	09-3127	09-3127	09-3127	09-3127	09-3127
MDAB_04_08-09-10391	NF95	5–8	ALLH	09-3127	—	09-3127	—	09-3127	—
MDAB_00_04-09-10394	NG103	0–5	ALLH	09-3127	09-3127	09-3127	09-3127	09-3127	09-3127
MDAB_04_08-09-10395	NG103	5–10	ALLH	09-3127	09-3127	09-3127	09-3127	09-3127	09-3127
MDAB_08_12-09-10396	NG103	10–11	ALLH	—	—	—	—	—	—
MDAB_00_04-09-10317	NG56	0–5	ALLH	09-3119	09-3119	09-3119	09-3119	09-3119	09-3119
MDAB_04_08-09-10318	NG56	5–10	ALLH	09-3119	09-3119	09-3119	09-3119	09-3119	09-3119

Table B-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Herbicides	TCLP Herbicides	VOCs	TCLP VOCs	SVOCs	TCLP SVOCs
MDAB_08_12-09-10319	NG56	10–15	ALLH	09-3119	—	09-3119	—	09-3119	—
MDAB_12_16-09-10320	NG56	15–20	ALLH	09-3119	—	09-3119	—	09-3119	—
MDAB_00_04-09-10325	NG61	0–5	ALLH	09-3119	09-3119	09-3119	09-3119	09-3119	09-3119
MDAB_04_08-09-10326	NG61	5–10	ALLH	09-3119	—	09-3119	—	09-3119	—
MDAB_08_12-09-10327	NG61	10–15	ALLH	09-3119	—	09-3119	—	09-3119	—
MDAB_12_16-09-10328	NG61	15–16	ALLH	—	—	—	—	—	—
MDAB_00_04-09-10329	NG75	0–5	ALLH	09-3119	09-3119	09-3119	09-3119	09-3119	09-3119
MDAB_04_08-09-10330	NG75	5–10	ALLH	09-3119	09-3119	09-3119	09-3119	09-3119	09-3119
MDAB_08_12-09-10331	NG75	10–15.5	ALLH	09-3119	—	09-3119	—	09-3119	—
MDAB_00_04-09-10382	NG77	0–5	ALLH	09-3119	09-3119	09-3119	09-3119	09-3119	09-3119
MDAB_04_08-09-10383	NG77	5–10	ALLH	09-3119	09-3119	09-3119	09-3119	09-3119	09-3119
MDAB_08_12-09-10385	NG77	10–15	ALLH	09-3119	09-3119	09-3119	09-3119	09-3119	09-3119
MDAB_12_16-09-10384	NG77	15–16	ALLH	—	—	—	—	—	—
MDAB_00_04-09-10289	NH27	0–5	ALLH	09-3094	09-3094	09-3094	09-3094	09-3094	09-3094
MDAB_04_08-09-10290	NH27	5–10	ALLH	09-3094	09-3094	09-3094	09-3094	09-3094	09-3094
MDAB_00_04-09-10305	NH33	0–2.5	ALLH	—	—	—	—	—	—
MDAB_00_04-09-12961	NH40	0–5	ALLH	10-79	—	—	—	10-79	—
MDAB_04_08-09-12962	NH40	5–10	ALLH	10-79	—	10-79	—	10-79	—
MDAB_08_12-09-12964	NH40	10–15	ALLH	10-79	—	10-79	—	10-79	—
MDAB_12_16-09-12963	NH40	15–18	ALLH	10-79	—	10-79	—	10-79	—
MDAB_00_04-09-12965	NH45	0–2	ALLH	—	—	—	—	—	—
MDAB_00_04-09-10321	NH59	0–5	ALLH	09-3119	09-3119	09-3119	09-3119	09-3119	09-3119
MDAB_04_08-09-10322	NH59	5–10	ALLH	09-3119	09-3119	09-3119	09-3119	09-3119	09-3119
MDAB_08_12-09-10323	NH59	10–15	ALLH	09-3119	—	09-3119	—	09-3119	—

Table B-1 (continued)

Sample ID	Location ID	Depth (ft)	Media	Herbicides	TCLP Herbicides	VOCs	TCLP VOCs	SVOCs	TCLP SVOCs
MDAB_12_16-09-10324	NH59	15–16	ALLH	—	—	—	—	—	—
MDAB_00_04-09-12969	NI29	0–5	ALLH	10-86	—	10-86	—	10-86	—
MDAB_04_08-09-12970	NI29	5–10	ALLH	10-86	10-86	10-86	10-86	10-86	10-86
MDAB_00_04-09-12957	NI34	0–5	ALLH	10-79	—	—	—	10-79	—
MDAB_04_08-09-12958	NI34	5–10	ALLH	10-79	—	10-79	—	10-79	—
MDAB_00_04-09-10313	NI38	0–3	ALLH	09-3094	09-3094	09-3094	09-3094	09-3094	09-3094
MDAB_00_04-09-10309	NI43	0–5	ALLH	09-3094	09-3094	09-3094	09-3094	09-3094	09-3094
MDAB_04_08-09-10310	NI43	5–7	ALLH	09-3094	—	09-3094	—	09-3094	—
MDAB_00_04-09-10301	NI48	0–5	ALLH	09-3094	09-3094	09-3094	09-3094	09-3094	09-3094
MDAB_00_04-09-10389	NI85	0–4	ALLH	09-3127	09-3127	09-3127	09-3127	09-3127	09-3127
MDAB_00_04-09-10293	NJ30	0–5	ALLH	09-3094	—	09-3094	—	09-3094	—
MDAB_04_08-09-10294	NJ30	5–9.5	ALLH	09-3094	09-3094	09-3094	09-3094	09-3094	09-3094
MDAB_00_04-09-10297	NJ35	0–4.5	ALLH	09-3094	09-3094	09-3094	09-3094	09-3094	09-3094
MDAB_00_04-10-462	WST-600902	0–0	FILL	10-109	—	10-109	—	10-109	—
MDAB_00_04-10-463	WST-600902	0–0	FILL	10-109	10-109	10-109	10-109	10-109	10-109
MDAB_00_04-10-464	WST-600902	0–0	FILL	10-109	10-109	10-109	10-109	10-109	10-109

[a] Analytical request number.

[b] — = Analysis not requested.

[c] Sample from location WST-600902 is a composite waste sample.

Table B-2
Maximum Inorganic Chemical Concentrations
Detected in DPT Core Samples

Analyte	Residential SSL[a]	Maximum Detected Concentration	Above Residential SSLs?
Aluminum	78,000	12,900	No[b]
Antimony	31.3	99.8	Yes[c]
Arsenic	3.9	8.7	Yes
Barium	15,600	1790	No
Beryllium	156	5	No
Cadmium	70.3	29.1	No
Calcium	na[d]	42,200	n/a[e]
Chromium	117,000[f]	133	No
Cobalt	23[g]	6.8	No
Copper	3130	1000	No
Iron	54,800	21,900	No
Lead	400	744	Yes
Magnesium	na	3110	n/a
Manganese	1860	740	No
Mercury	15.6[h]	23.7	Yes
Nickel	1560	31.4	No
Potassium	na	2360	n/a
Selenium	391	1.9	No
Silver	391	15.8	No
Sodium	na	269	n/a
Sulfide, reactive	na	196	n/a
Thallium	0.782	0.85	Yes
Uranium	235	68.4	No
Vanadium	391	29.2	No
Zinc	23,500	1230	No

Note: Units in mg/kg.

[a] Soil screening levels (SSLs) are from NMED (2012, 219971).

[b] No = Does not exceed SSL.

[c] Yes = Exceeds SSL.

[d] na = Not available.

[e] n/a = Not applicable.

[f] SSL is for trivalent chromium.

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

[h] SSL is for elemental mercury.

Table B-3
Inorganic Chemicals Detected above BVs in DPT Samples

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium
Soil BV[a]				**29,200**	**0.83**	**8.17**	**295**	**1.83**	**0.4**	**6120**	**19.3**
Qbt 2,3 4 BV[a]				**7340**	**0.5**	**2.79**	**46**	**1.21**	**1.63**	**2200**	**7.14**
Residential SSL[b]				**78,000**	**31.3**	**3.9**	**15,600**	**156**	**70.3**	**na[b]**	**117,000[c]**
MDAB_00_04-09-13045	AF155	0–3	SOIL	—[d]	1.1 (U)	—	—	—	—	—	—
MDAB_00_04-09-13105	AG165	0–2.5	QBT3	7720	—	—	122	—	—	3180	—
MDAB_00_04-09-10205	AG167	0–4	SOIL	—	1.1 (U)	—	—	—	—	—	—
MDAB_00_04-09-13104	AG168	0–2.5	FILL	—	—	—	—	—	—	—	—
MDAB_00_04-09-10209	AH167	0–4	SOIL	—	—	—	—	—	—	9130	—
MDAB_00_04-09-10245	AH215	0–5	SOIL	—	—	—	—	—	0.84	—	—
MDAB_04_08-09-10246	AH215	5–7	SOIL	—	—	—	—	—	1.6 (J+)	—	—
MDAB_00_04-09-10193	AI155	0–5	FILL	—	1.13 (U)	—	—	—	—	—	—
MDAB_04_08-09-10194	AI155	5–9	SOIL	—	1.18 (U)	—	—	—	0.592 (U)	—	—
MDAB_00_04-09-10197	AI157	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-10198	AI157	5–9	SOIL	—	—	—	—	—	0.52	—	—
MDAB_04_08-09-13050	AI160	5–11	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-13053	AI164	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-13054	AI164	5–10	QBT3	—	—	2.8	115	—	—	—	—
MDAB_04_08-09-13042	AI167	5–10	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-13097	AI171	0–5	SOIL	—	1.11 (U)	—	—	—	0.556 (U)	—	—
MDAB_04_08-09-13098	AI171	5–10	SOIL	—	—	—	—	5	10.3	—	—
MDAB_00_04-09-13112	AI175	0–5	SOIL	—	1.11 (U)	—	—	—	0.556 (U)	—	—

Table B-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium
Soil BV[a]				**29,200**	**0.83**	**8.17**	**295**	**1.83**	**0.4**	**6120**	**19.3**
Qbt 2,3 4 BV[a]				**7340**	**0.5**	**2.79**	**46**	**1.21**	**1.63**	**2200**	**7.14**
Residential SSL[b]				**78,000**	**31.3**	**3.9**	**15,600**	**156**	**70.3**	**na[b]**	**117,000[c]**
MDAB_04_08-09-10214	AI176	5–9	SOIL	—	3.2 (U)	—	—	—	10.8 (J+)	—	—
MDAB_00_04-09-13115	AI179	0–5	SOIL	—	1.14 (U)	—	—	—	0.569 (U)	—	—
MDAB_04_08-09-10222	AI180	5–10	SOIL	—	—	—	—	—	0.41	—	—
MDAB_00_04-09-13038	AI183	0–5	SOIL	—	1.1 (U)	—	—	—	0.55 (U)	—	—
MDAB_00_04-09-10225	AI185	0–5	SOIL	—	8.9 (J-)	—	—	—	—	—	—
MDAB_04_08-09-10226	AI185	5–6	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-13031	AI186	0–6	SOIL	—	1.13 (U)	—	—	—	0.564 (U)	—	—
MDAB_00_04-09-13028	AI193	0–5	SOIL	—	1.09 (U)	—	—	—	0.554	—	—
MDAB_00_04-09-13021	AI199	0–5	SOIL	—	1.1 (U)	—	—	—	0.55 (U)	—	—
MDAB_04_08-09-10234	AI200	5–11	SOIL	—	—	—	—	—	29.1	—	—
MDAB_00_04-09-13020	AI201	0–5	SOIL	—	1.1 (U)	—	—	—	0.55 (U)	—	19.6
MDAB_00_04-09-13013	AI207	0–5	SOIL	—	1.09 (U)	—	—	—	0.544 (U)	—	—
MDAB_04_08-09-13014	AI207	5–10	SOIL	—	1.07 (U)	—	—	—	0.536 (U)	—	—
MDAB_00_04-09-10237	AI209	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-10238	AI209	5–10	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-13012	AI211	0–5	SOIL	—	1.07 (U)	—	—	—	0.534 (U)	—	—
MDAB_04_08-09-10242	AI213	5–11	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-10249	AI217	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-10250	AI217	5–8	SOIL	—	—	8.7	—	—	0.55	—	—
MDAB_00_04-09-10253	AI224	0–2	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-10399	AI229	5–10	SOIL	—	1.5	—	—	—	—	—	—

Table B-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium
Soil BV[a]				**29,200**	**0.83**	**8.17**	**295**	**1.83**	**0.4**	**6120**	**19.3**
Qbt 2,3 4 BV[a]				**7340**	**0.5**	**2.79**	**46**	**1.21**	**1.63**	**2200**	**7.14**
Residential SSL[b]				**78,000**	**31.3**	**3.9**	**15,600**	**156**	**70.3**	**na[b]**	**117,000[c]**
MDAB_00_04-09-10258	AI234	0–5	SOIL	—	—	—	—	—	—	8670	—
MDAB_04_08-09-10257	AI234	5–10	SOIL	—	—	—	—	—	—	—	—
MDAB_08_12-09-10259	AI234	10–13	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-12997	AI239	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-10261	AI245	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-10262	AI245	5–12	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-12986	AI250	0–5	SOIL	—	29.5	—	—	—	—	42200	—
MDAB_00_04-09-10265	AI251	0–5	SOIL	—	—	—	—	—	—	7490	133
MDAB_04_08-09-10266	AI251	5–9	SOIL	—	0.84 (U)	—	—	—	0.44	—	—
MDAB_04_08-09-10202	AJ158	5–9	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-13122	AJ181	0–5	SOIL	—	1.14 (U)	—	—	—	0.571 (U)	—	—
MDAB_04_08-09-13124	AJ181	5–10	SOIL	—	1.17 (U)	—	—	—	0.585 (U)	—	—
MDAB_00_04-09-10217	AJ183	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-10218	AJ183	5–9	SOIL	—	99.8	—	—	2.3 (J+)	4.3 (J+)	—	—
MDAB_00_04-09-13034	AJ185	0–7.5	SOIL	—	1.14 (U)	—	—	—	—	—	—
MDAB_00_04-09-12973	AL258	0–4	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-13118	AM153	0–4	SOIL	—	—	—	—	—	—	8260	—
MDAB_00_04-09-13088	AM155	0–4	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-10285	AM232	0–4	SOIL	—	—	—	—	—	—	11200	—
MDAB_00_04-09-13065	AN152	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-10277	AN226	0–3	SOIL	—	0.9 (U)	—	—	—	—	—	—
MDAB_00_04-09-13075	AS151	0–4.5	SOIL	—	—	—	—	—	—	—	—

Table B-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium
Soil BV[a]				**29,200**	**0.83**	**8.17**	**295**	**1.83**	**0.4**	**6120**	**19.3**
Qbt 2,3 4 BV[a]				**7340**	**0.5**	**2.79**	**46**	**1.21**	**1.63**	**2200**	**7.14**
Residential SSL[b]				**78,000**	**31.3**	**3.9**	**15,600**	**156**	**70.3**	**na[b]**	**117,000[c]**
MDAB_00_04-09-10173	AS153	0–5	SOIL	—	1.9	—	—	—	—	—	—
MDAB_00_04-09-10178	AU152	0–5	SOIL	—	—	—	—	—	—	—	42.7
MDAB_00_04-09-10185	AW152	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-10186	AW152	5–6.5	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-10189	BB153	0–5	FILL	—	—	—	—	—	—	—	—
MDAB_00_04-09-10390	NF95	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-10394	NG103	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-10318	NG56	5–10	SOIL	—	—	—	—	—	—	—	—
MDAB_12_16-09-10320	NG56	15–20	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-10329	NG75	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_08_12-09-10331	NG75	10–15.5	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-10382	NG77	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-10289	NH27	0–5	SOIL	—	62.7	—	—	—	—	21300	—
MDAB_12_16-09-12963	NH40	15–18	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-10321	NH59	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-10322	NH59	5–10	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-12969	NI29	0–5	SOIL	—	—	—	1790	—	—	—	—
MDAB_04_08-09-12970	NI29	5–10	SOIL	—	—	—	1480	—	—	—	—
MDAB_00_04-09-12957	NI34	0–5	SOIL	—	—	—	—	—	—	6440 (J+)	—
MDAB_00_04-09-10301	NI48	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-10293	NJ30	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-10294	NJ30	5–9.5	SOIL	—	—	—	—	—	—	—	—

Table B-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium
Soil BV[a]				**29,200**	**0.83**	**8.17**	**295**	**1.83**	**0.4**	**6120**	**19.3**
Qbt 2,3 4 BV[a]				**7340**	**0.5**	**2.79**	**46**	**1.21**	**1.63**	**2200**	**7.14**
Residential SSL[b]				**78,000**	**31.3**	**3.9**	**15,600**	**156**	**70.3**	**na[b]**	**117,000[c]**
MDAB_00_04-09-10297	NJ35	0–4.5	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-10-462	WST-600902[e]	0–0	FILL	—	—	—	—	—	—	10500	—
MDAB_00_04-10-464	WST-600902[e]	0–0	FILL	—	—	—	—	—	—	—	—

Table B-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Cobalt	Copper	Iron	Lead	Manganese	Mercury	Nickel
Soil BV[a]				**8.64**	**14.7**	**21,500**	**22.3**	**671**	**0.1**	**15.4**
Qbt 2,3,4 BV[a]				**3.14**	**4.68**	**14,500**	**11.2**	**482**	**0.1**	**6.58**
Residential SSL[b]				**23[f]**	**3130**	**54,800**	**400**	**1860**	**15.6[g]**	**1560**
MDAB_00_04-09-13045	AF155	0–3	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13105	AG165	0–2.5	QBT3	—	6.8 (J)	—	—	—	—	—
MDAB_00_04-09-10205	AG167	0–4	SOIL	—	—	—	48.6 (J+)	—	—	—
MDAB_00_04-09-13104	AG168	0–2.5	FILL	—	—	—	—	—	—	—
MDAB_00_04-09-10209	AH167	0–4	SOIL	—	—	—	22.5 (J+)	—	—	—
MDAB_00_04-09-10245	AH215	0–5	SOIL	—	32.5	21900	65	—	2.52	16.7
MDAB_04_08-09-10246	AH215	5–7	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10193	AI155	0–5	FILL	—	24.5	—	—	—	—	—
MDAB_04_08-09-10194	AI155	5–9	SOIL	—	—	—	—	—	0.435	—
MDAB_00_04-09-10197	AI157	0–5	SOIL	—	21.5	—	—	—	—	—
MDAB_04_08-09-10198	AI157	5–9	SOIL	—	—	—	744	—	2.81 (J-)	—
MDAB_04_08-09-13050	AI160	5–11	SOIL	—	—	—	29.4	—	—	—
MDAB_00_04-09-13053	AI164	0–5	SOIL	—	15.8 (J)	—	—	—	—	—
MDAB_04_08-09-13054	AI164	5–10	QBT3	3.9	—	—	11.4 (J+)	—	—	—
MDAB_04_08-09-13042	AI167	5–10	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13097	AI171	0–5	SOIL	—	—	—	—	—	0.166 (J+)	—
MDAB_04_08-09-13098	AI171	5–10	SOIL	—	—	—	—	—	11.9	—
MDAB_00_04-09-13112	AI175	0–5	SOIL	—	—	—	64.2	—	—	—
MDAB_04_08-09-10214	AI176	5–9	SOIL	—	19.3	—	25.5 (J+)	—	23.7	—
MDAB_00_04-09-13115	AI179	0–5	SOIL	—	—	—	—	—	—	—

Table B-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Cobalt	Copper	Iron	Lead	Manganese	Mercury	Nickel
Soil BV[a]				**8.64**	**14.7**	**21,500**	**22.3**	**671**	**0.1**	**15.4**
Qbt 2,3,4 BV[a]				**3.14**	**4.68**	**14,500**	**11.2**	**482**	**0.1**	**6.58**
Residential SSL[b]				**23**[f]	**3130**	**54,800**	**400**	**1860**	**15.6**[g]	**1560**
MDAB_04_08-09-10222	AI180	5–10	SOIL	—	16	—	26.4	—	14.8	—
MDAB_00_04-09-13038	AI183	0–5	SOIL	—	34.2 (J–)	—	—	—	—	—
MDAB_00_04-09-10225	AI185	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10226	AI185	5–6	SOIL	—	18.7	—	—	—	0.454	—
MDAB_00_04-09-13031	AI186	0–6	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13028	AI193	0–5	SOIL	—	198 (J+)	—	—	—	—	—
MDAB_00_04-09-13021	AI199	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10234	AI200	5–11	SOIL	—	—	—	62	—	23.2	—
MDAB_00_04-09-13020	AI201	0–5	SOIL	—	101 (J)	—	35.1	—	3.14 (J)	—
MDAB_00_04-09-13013	AI207	0–5	SOIL	—	—	—	143	—	0.282 (J)	—
MDAB_04_08-09-13014	AI207	5–10	SOIL	—	—	—	—	—	—	31.4
MDAB_00_04-09-10237	AI209	0–5	SOIL	—	—	—	—	—	0.288	—
MDAB_04_08-09-10238	AI209	5–10	SOIL	—	—	—	—	—	0.147	—
MDAB_00_04-09-13012	AI211	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10242	AI213	5–11	SOIL	—	—	—	—	—	0.254	—
MDAB_00_04-09-10249	AI217	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10250	AI217	5–8	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10253	AI224	0–2	SOIL	—	—	—	—	—	0.129	—
MDAB_04_08-09-10399	AI229	5–10	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10258	AI234	0–5	SOIL	—	—	—	—	—	—	—

Table B-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Cobalt	Copper	Iron	Lead	Manganese	Mercury	Nickel
Soil BV[a]				**8.64**	**14.7**	**21,500**	**22.3**	**671**	**0.1**	**15.4**
Qbt 2,3,4 BV[a]				**3.14**	**4.68**	**14,500**	**11.2**	**482**	**0.1**	**6.58**
Residential SSL[b]				**23[f]**	**3130**	**54,800**	**400**	**1860**	**15.6[g]**	**1560**
MDAB_04_08-09-10257	AI234	5–10	SOIL	—	—	—	—	—	—	—
MDAB_08_12-09-10259	AI234	10–13	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-12997	AI239	0–5	SOIL	—	—	—	—	—	10.3	—
MDAB_00_04-09-10261	AI245	0–5	SOIL	—	—	—	—	—	0.155	—
MDAB_04_08-09-10262	AI245	5–12	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-12986	AI250	0–5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10265	AI251	0–5	SOIL	—	—	—	—	—	0.203	—
MDAB_04_08-09-10266	AI251	5–9	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10202	AJ158	5–9	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13122	AJ181	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-13124	AJ181	5–10	SOIL	—	—	—	—	—	0.59 (J+)	—
MDAB_00_04-09-10217	AJ183	0–5	SOIL	—	—	—	24.9 (J+)	—	—	—
MDAB_04_08-09-10218	AJ183	5–9	SOIL	—	15.4	—	31 (J+)	—	0.829	18.3
MDAB_00_04-09-13034	AJ185	0–7.5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-12973	AL258	0–4	SOIL	—	—	—	—	—	0.106	—
MDAB_00_04-09-13118	AM153	0–4	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13088	AM155	0–4	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10285	AM232	0–4	SOIL	—	—	—	—	—	0.124	—
MDAB_00_04-09-13065	AN152	0–5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10277	AN226	0–3	SOIL	—	—	—	—	—	0.193	—

Table B-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Cobalt	Copper	Iron	Lead	Manganese	Mercury	Nickel
Soil BV[a]				**8.64**	**14.7**	**21,500**	**22.3**	**671**	**0.1**	**15.4**
Qbt 2,3,4 BV[a]				**3.14**	**4.68**	**14,500**	**11.2**	**482**	**0.1**	**6.58**
Residential SSL[b]				**23[f]**	**3130**	**54,800**	**400**	**1860**	**15.6[g]**	**1560**
MDAB_00_04-09-13075	AS151	0–4.5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10173	AS153	0–5	SOIL	—	—	—	—	740	—	—
MDAB_00_04-09-10178	AU152	0–5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10185	AW152	0–5	SOIL	—	1000	—	84.8	—	—	—
MDAB_04_08-09-10186	AW152	5–6.5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10189	BB153	0–5	FILL	—	—	—	—	—	—	—
MDAB_00_04-09-10390	NF95	0–5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10394	NG103	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10318	NG56	5–10	SOIL	—	—	—	—	—	13.8	—
MDAB_12_16-09-10320	NG56	15–20	SOIL	—	—	—	—	—	0.502	—
MDAB_00_04-09-10329	NG75	0–5	SOIL	—	—	—	—	—	—	—
MDAB_08_12-09-10331	NG75	10–15.5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10382	NG77	0–5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10289	NH27	0–5	SOIL	—	—	—	23.7	—	0.125	—
MDAB_12_16-09-12963	NH40	15–18	SOIL	—	—	—	—	—	0.163	—
MDAB_00_04-09-10321	NH59	0–5	SOIL	—	—	—	—	—	0.179	—
MDAB_04_08-09-10322	NH59	5–10	SOIL	—	—	—	—	—	0.799	—
MDAB_00_04-09-12969	NI29	0–5	SOIL	—	—	—	—	—	0.166	—
MDAB_04_08-09-12970	NI29	5–10	SOIL	—	—	—	42.8	—	—	—
MDAB_00_04-09-12957	NI34	0–5	SOIL	—	—	—	—	—	—	—

Table B-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Cobalt	Copper	Iron	Lead	Manganese	Mercury	Nickel
Soil BV[a]				**8.64**	**14.7**	**21,500**	**22.3**	**671**	**0.1**	**15.4**
Qbt 2,3,4 BV[a]				**3.14**	**4.68**	**14,500**	**11.2**	**482**	**0.1**	**6.58**
Residential SSL[b]				**23[f]**	**3130**	**54,800**	**400**	**1860**	**15.6[g]**	**1560**
MDAB_00_04-09-10301	NI48	0–5	SOIL	—	—	—	—	—	0.229	—
MDAB_00_04-09-10293	NJ30	0–5	SOIL	—	—	—	—	—	0.107	—
MDAB_04_08-09-10294	NJ30	5–9.5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10297	NJ35	0–4.5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-10-462	WST-600902	0–0	FILL	—	—	—	—	—	—	—
MDAB_00_04-10-464	WST-600902	0–0	FILL	—	—	—	—	—	—	—

Table B-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Selenium	Silver	Sulfide, Reactive	Thallium	Uranium	Zinc
Soil BV[a]				**1.52**	**1**	**na[h]**	**0.73**	**1.82**	**48.8**
Qbt 2,3,4 BV[a]				**0.3**	**1**	**na**	**1.1**	**2.4**	**63.5**
Residential SSL[b]				**391**	**391**	**na**	**0.782**	**235**	**23,500**
MDAB_00_04-09-13045	AF155	0–3	SOIL	—	—	34.5	—	—	—
MDAB_00_04-09-13105	AG165	0–2.5	QBT3	1.1	—	—	—	—	—
MDAB_00_04-09-10205	AG167	0–4	SOIL	—	—	—	—	—	90.9 (J+)
MDAB_00_04-09-13104	AG168	0–2.5	FILL	—	—	—	—	—	50.5
MDAB_00_04-09-10209	AH167	0–4	SOIL	—	—	—	—	—	—
MDAB_00_04-09-10245	AH215	0–5	SOIL	—	—	—	—	68.4	159
MDAB_04_08-09-10246	AH215	5–7	SOIL	—	—	—	—	34.6 (J)	—
MDAB_00_04-09-10193	AI155	0–5	FILL	—	—	—	—	1.83	53.5
MDAB_04_08-09-10194	AI155	5–9	SOIL	—	—	—	—	2.75	—
MDAB_00_04-09-10197	AI157	0–5	SOIL	—	1.1	—	1 (U)	—	59.3
MDAB_04_08-09-10198	AI157	5–9	SOIL	—	—	—	0.94 (U)	3.8 (J)	314
MDAB_04_08-09-13050	AI160	5–11	SOIL	1.6	—	—	—	—	112
MDAB_00_04-09-13053	AI164	0–5	SOIL	—	—	32.4	—	—	—
MDAB_04_08-09-13054	AI164	5–10	QBT3	0.99	—	32.2	—	—	—
MDAB_04_08-09-13042	AI167	5–10	SOIL	1.9	—	33.6	—	—	—
MDAB_00_04-09-13097	AI171	0–5	SOIL	—	—	—	—	—	—
MDAB_04_08-09-13098	AI171	5–10	SOIL	—	—	33.7	—	18.9	217
MDAB_00_04-09-13112	AI175	0–5	SOIL	—	—	—	—	—	—
MDAB_04_08-09-10214	AI176	5–9	SOIL	—	—	—	—	33	603 (J+)
MDAB_00_04-09-13115	AI179	0–5	SOIL	—	—	—	—	—	—

Table B-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Selenium	Silver	Sulfide, Reactive	Thallium	Uranium	Zinc
Soil BV[a]				**1.52**	**1**	**na[h]**	**0.73**	**1.82**	**48.8**
Qbt 2,3,4 BV[a]				**0.3**	**1**	**na**	**1.1**	**2.4**	**63.5**
Residential SSL[b]				**391**	**391**	**na**	**0.782**	**235**	**23,500**
MDAB_04_08-09-10222	AI180	5–10	SOIL	—	—	—	—	—	424
MDAB_00_04-09-13038	AI183	0–5	SOIL	—	—	—	—	—	—
MDAB_00_04-09-10225	AI185	0–5	SOIL	—	—	—	—	—	—
MDAB_04_08-09-10226	AI185	5–6	SOIL	—	—	—	—	—	293
MDAB_00_04-09-13031	AI186	0–6	SOIL	—	—	—	—	—	—
MDAB_00_04-09-13028	AI193	0–5	SOIL	—	—	—	—	3.07	49.1 (J)
MDAB_00_04-09-13021	AI199	0–5	SOIL	—	—	—	—	—	—
MDAB_04_08-09-10234	AI200	5–11	SOIL	—	1.9	—	—	4.2	287
MDAB_00_04-09-13020	AI201	0–5	SOIL	—	—	—	—	—	60.1
MDAB_00_04-09-13013	AI207	0–5	SOIL	—	—	—	—	—	58.2
MDAB_04_08-09-13014	AI207	5–10	SOIL	—	—	—	—	—	—
MDAB_00_04-09-10237	AI209	0–5	SOIL	—	—	—	—	—	—
MDAB_04_08-09-10238	AI209	5–10	SOIL	—	—	—	—	—	87.4
MDAB_00_04-09-13012	AI211	0–5	SOIL	—	—	—	—	—	—
MDAB_04_08-09-10242	AI213	5–11	SOIL	—	—	—	—	1.9	59.2
MDAB_00_04-09-10249	AI217	0–5	SOIL	—	—	—	0.92 (U)	—	—
MDAB_04_08-09-10250	AI217	5–8	SOIL	1.8	—	—	—	—	84.8
MDAB_00_04-09-10253	AI224	0–2	SOIL	—	—	196	—	—	—
MDAB_04_08-09-10399	AI229	5–10	SOIL	—	—	—	—	—	—
MDAB_00_04-09-10258	AI234	0–5	SOIL	—	—	—	—	—	—

Table B-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Selenium	Silver	Sulfide, Reactive	Thallium	Uranium	Zinc
Soil BV[a]				**1.52**	**1**	**na[h]**	**0.73**	**1.82**	**48.8**
Qbt 2,3,4 BV[a]				**0.3**	**1**	**na**	**1.1**	**2.4**	**63.5**
Residential SSL[b]				**391**	**391**	**na**	**0.782**	**235**	**23,500**
MDAB_04_08-09-10257	AI234	5–10	SOIL	1.8	—	—	—	—	—
MDAB_08_12-09-10259	AI234	10–13	SOIL	1.6	—	—	—	7.4	97
MDAB_00_04-09-12997	AI239	0–5	SOIL	—	—	—	—	—	—
MDAB_00_04-09-10261	AI245	0–5	SOIL	1.6	—	—	—	—	—
MDAB_04_08-09-10262	AI245	5–12	SOIL	—	—	—	—	3.1	—
MDAB_00_04-09-12986	AI250	0–5	SOIL	—	—	—	—	—	147
MDAB_00_04-09-10265	AI251	0–5	SOIL	1.7	—	—	—	—	—
MDAB_04_08-09-10266	AI251	5–9	SOIL	—	—	—	—	—	138
MDAB_04_08-09-10202	AJ158	5–9	SOIL	—	—	—	0.76 (U)	—	72.4
MDAB_00_04-09-13122	AJ181	0–5	SOIL	—	—	—	—	—	—
MDAB_04_08-09-13124	AJ181	5–10	SOIL	—	—	—	—	—	—
MDAB_00_04-09-10217	AJ183	0–5	SOIL	—	—	73.6	—	—	—
MDAB_04_08-09-10218	AJ183	5–9	SOIL	—	—	—	1.2 (U)	5.1	1230 (J+)
MDAB_00_04-09-13034	AJ185	0–7.5	SOIL	—	—	—	—	—	213 (J)
MDAB_00_04-09-12973	AL258	0–4	SOIL	—	—	—	—	—	—
MDAB_00_04-09-13118	AM153	0–4	SOIL	—	—	—	—	—	—
MDAB_00_04-09-13088	AM155	0–4	SOIL	—	—	34.2	—	—	—
MDAB_00_04-09-10285	AM232	0–4	SOIL	—	—	—	—	—	—
MDAB_00_04-09-13065	AN152	0–5	SOIL	—	—	54.8	—	—	—
MDAB_00_04-09-10277	AN226	0–3	SOIL	—	—	—	—	—	—

Table B-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Selenium	Silver	Sulfide, Reactive	Thallium	Uranium	Zinc
Soil BV[a]				**1.52**	**1**	**na[h]**	**0.73**	**1.82**	**48.8**
Qbt 2,3,4 BV[a]				**0.3**	**1**	**na**	**1.1**	**2.4**	**63.5**
Residential SSL[b]				**391**	**391**	**na**	**0.782**	**235**	**23,500**
MDAB_00_04-09-13075	AS151	0–4.5	SOIL	—	—	—	—	—	50.6
MDAB_00_04-09-10173	AS153	0–5	SOIL	—	—	—	—	—	—
MDAB_00_04-09-10178	AU152	0–5	SOIL	—	—	—	—	—	—
MDAB_00_04-09-10185	AW152	0–5	SOIL	—	15.8	—	—	—	350
MDAB_04_08-09-10186	AW152	5–6.5	SOIL	—	—	177	—	2.1	—
MDAB_00_04-09-10189	BB153	0–5	FILL	—	—	—	—	9.3 (J)	—
MDAB_00_04-09-10390	NF95	0–5	SOIL	2.7 (U)	—	—	—	—	—
MDAB_00_04-09-10394	NG103	0–5	SOIL	2.7 (U)	—	—	—	—	—
MDAB_04_08-09-10318	NG56	5–10	SOIL	—	—	—	—	—	—
MDAB_12_16-09-10320	NG56	15–20	SOIL	—	5.2	—	—	—	52.2
MDAB_00_04-09-10329	NG75	0–5	SOIL	2.7 (U)	—	—	—	—	—
MDAB_08_12-09-10331	NG75	10–15.5	SOIL	—	—	—	—	3.6	—
MDAB_00_04-09-10382	NG77	0–5	SOIL	2.7 (U)	—	—	0.85	—	—
MDAB_00_04-09-10289	NH27	0–5	SOIL	—	—	—	—	—	111
MDAB_12_16-09-12963	NH40	15–18	SOIL	—	—	—	—	—	—
MDAB_00_04-09-10321	NH59	0–5	SOIL	—	—	—	—	—	—
MDAB_04_08-09-10322	NH59	5–10	SOIL	—	—	—	—	—	—
MDAB_00_04-09-12969	NI29	0–5	SOIL	—	—	—	—	—	—
MDAB_04_08-09-12970	NI29	5–10	SOIL	1.7	—	—	—	—	—
MDAB_00_04-09-12957	NI34	0–5	SOIL	—	—	—	—	—	—

Table B-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Selenium	Silver	Sulfide, Reactive	Thallium	Uranium	Zinc
Soil BV[a]				**1.52**	**1**	**na[h]**	**0.73**	**1.82**	**48.8**
Qbt 2,3,4 BV[a]				**0.3**	**1**	**na**	**1.1**	**2.4**	**63.5**
Residential SSL[b]				**391**	**391**	**na**	**0.782**	**235**	**23,500**
MDAB_00_04-09-10301	NI48	0–5	SOIL	—	—	—	—	—	71.3
MDAB_00_04-09-10293	NJ30	0–5	SOIL	—	—	—	—	4.8	—
MDAB_04_08-09-10294	NJ30	5–9.5	SOIL	—	—	—	—	11.9	—
MDAB_00_04-09-10297	NJ35	0–4.5	SOIL	—	—	—	—	—	54.2
MDAB_00_04-10-462	WST-600902	0–0	FILL	—	—	—	—	—	143
MDAB_00_04-10-464	WST-600902	0–0	FILL	1.6	—	—	—	—	—

Notes: Units in mg/kg. See Appendix A for data qualifier definitions.

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

[b] SSLs are from NMED (2012, 219971), unless indicated otherwise.

[c] SSL is for trivalent chromium.

[d] — = Not detected above BV.

[e] Sample from location WST-600902 is a composite waste sample.

[f] SSL from www.epa.gov/region06/6pd/rcra_c/pc-h/screen.htm.

[g] SSL is for elemental mercury.

[h] na = Not available.

Table B-4
Maximum Organic Chemical Concentrations
Detected in Direct-Push Technology Core Samples

Analyte	Residential SSL[a]	Maximum Detected Concentration	Above Residential SSLs?
Acenaphthene	3440	0.053	No[b]
Acenaphthylene	1720[c]	0.0238	No
Acetone	66,600	4.7	No
Aldrin	0.284	0.0004	No
Anthracene	17,200	0.24	No
Aroclor-1242	2.22	0.464	No
Aroclor-1248	2.22	5.3	Yes[d]
Aroclor-1254	1.12	0.26	No
Aroclor-1260	2.22	2.7	Yes
Benzene	15.4	0.025	No
Benzo(a)anthracene	1.48	1.8	Yes
Benzo(a)pyrene	0.148	1.9	Yes
Benzo(b)fluoranthene	1.48	2.3	Yes
Benzo(g,h,i)perylene	1720[c]	0.73	No
Benzo(k)fluoranthene	14.8	1.8	No
Benzoic acid	240,000[e]	2.1	No
Benzyl alcohol	6100[e]	0.089	No
BHC[alpha-]	0.772	0.00111	No
BHC[gamma-]	5.17	0.00016	No
Bis(2-ethylhexyl)phthalate	347	1.29	No
Bromobenzene	300[e]	0.0031	No
Bromoform	620[e]	0.016	No
Butanone[2-]	37,100	0.029	No
Carbon disulfide	1530	0.0015	No
Carbon tetrachloride	10.8	0.00077	No
Chlordane (alpha + gamma)	16.2	0.0101	No
Chloronaphthalene[2-]	6260	0.0206	No
Chrysene	148	1.7	No
Dichlorophenoxybutyric acid[2,4-]	490[e]	0.55	No
Dichlorodiphenyldichloroethane[4,4'-]	20.3	0.0102	No
Dichlorophenyldichloroethylene[4,4'-]	14.3	0.0406	No
Dichlorodiphenyltrichloroethane[4,4'-]	17.2	0.0551	No
Dibenz(a,h)anthracene	0.148	0.35	Yes
Dibenzofuran	78[e]	0.091	No
Dicamba	1800[e]	0.009	No

Table B-4 (continued)

Analyte	Residential SSL[a]	Maximum Detected Concentration	Above Residential SSLs?
Dichloroethene[1,1-]	449	0.000546	No
Diethylphthalate	48,900	0.06	No
Dimethyl phthalate	611,000	0.12	No
Di-n-butylphthalate	6110	17.6	No
Di-n-octylphthalate	6110[f]	0.26	No
Endrin aldehyde	18.3[g]	0.00149	No
Endrin ketone	18.3[g]	0.0008	No
Fluoranthene	2290	2.7	No
Fluorene	2290	0.0233	No
Heptachlor epoxide	0.53[e]	0.00017	No
Hexanone[2-]	210[e]	0.71	No
Indeno(1,2,3-cd)pyrene	1.48	0.81	No
Isopropyltoluene[4-]	2430[h]	0.00055	No
Methoxychlor[4,4'-]	310[e]	0.00062	No
Methyl-2-pentanone[4-]	5820	0.12	No
Methylene chloride	409	0.018	No
Methylnaphthalene[2-]	310[e]	0.63	No
Naphthalene	43	0.45	No
Phenanthrene	1830	0.91	No
Phenol	18,300	0.96	No
Pyrene	1720	2.1	No
Styrene	7280	0.0083	No
Trichlorophenoxyacetic acid[2,4,5-]	610[e]	0.022	No
Tetrachloroethene	702	0.0045	No
Toluene	5270	0.067	No
Trichloroethene	8.77	0.12	No
Trichlorofluoromethane	1410	0.002	No
Trimethylbenzene[1,2,4-]	62[e]	0.0013	No
Trimethylbenzene[1,3,5-]	780[e]	0.0031	No
Xylene (Total)	814	0.023	No

Note: Units in mg/kg.

[a] Soil screening levels (SSLs) are from NMED (2012, 219971) unless otherwise noted.

[b] No = Does not exceed SSL.

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

[d] Yes = Exceeds SSL.

[e] SSL from www.epa.gov/region06/6pd/rcra_c/pc-h/screen.htm.

[f] Di-n-butylphthalate used as surrogate based on structural similarity.

[g] Endrin used as surrogate based on structural similarity.

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

Table B-5
Organic Chemicals Detected in DPT Samples

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Acenaphthylene	Acetone	Aldrin	Anthracene	Aroclor-1242	Aroclor-1248
Residential SSL[a]				**3440**	**1720[b]**	**66,600**	**0.284**	**17,200**	**2.22**	**2.22**
MDAB_00_04-09-13063	AF153	0–2.5	SOIL	—[c]	—	—	—	—	—	—
MDAB_00_04-09-13045	AF155	0–3	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13104	AG168	0–2.5	FILL	—	—	—	—	—	—	—
MDAB_00_04-09-10209	AH167	0–4	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10245	AH215	0–5	SOIL	—	—	0.057	—	—	—	—
MDAB_04_08-09-10246	AH215	5–7	SOIL	—	—	4.7	—	—	—	—
MDAB_00_04-09-10193	AI155	0–5	FILL	—	—	—	—	—	—	—
MDAB_04_08-09-10194	AI155	5–9	SOIL	0.0237 (J)	0.0238 (J)	—	—	0.0258 (J)	—	—
MDAB_00_04-09-10197	AI157	0–5	SOIL	—	—	—	0.00018 (J)	—	—	—
MDAB_04_08-09-10198	AI157	5–9	SOIL	—	—	—	0.0004 (J)	—	—	—
MDAB_00_04-09-13049	AI160	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-13050	AI160	5–11	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-13054	AI164	5–10	QBT3	—	—	—	—	—	—	—
MDAB_00_04-09-13041	AI167	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-13042	AI167	5–10	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13097	AI171	0–5	SOIL	—	—	0.0106	—	—	—	—
MDAB_04_08-09-13098	AI171	5–10	SOIL	—	—	NA[d]	—	—	—	—
MDAB_04_08-09-10214	AI176	5–9	SOIL	—	—	—	—	—	—	5.3 (J)
MDAB_00_04-09-13115	AI179	0–5	SOIL	—	—	NA	—	—	—	—

Table B-5 (continued)

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Acenaphthylene	Acetone	Aldrin	Anthracene	Aroclor-1242	Aroclor-1248
Residential SSL[a]				**3440**	**1720[b]**	**66,600**	**0.284**	**17,200**	**2.22**	**2.22**
MDAB_00_04-09-10221	AI180	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10222	AI180	5–10	SOIL	—	—	0.044 (J)	0.0003 (J)	—	—	—
MDAB_00_04-09-13038	AI183	0–5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10225	AI185	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10226	AI185	5–6	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13031	AI186	0–6	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10229	AI191	0–4.5	SOIL	—	—	0.0097 (J)	—	—	—	—
MDAB_04_08-09-13027	AI193	5–7	SOIL	—	—	NA	—	—	0.0075	—
MDAB_00_04-09-13021	AI199	0–5	SOIL	—	—	NA	—	—	—	—
MDAB_00_04-09-10233	AI200	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10234	AI200	5–11	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13020	AI201	0–5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13013	AI207	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-13014	AI207	5–10	SOIL	—	—	—	—	—	—	—
MDAB_08_12-09-13015	AI207	10–15	SOIL	—	—	NA	—	—	—	—
MDAB_00_04-09-10237	AI209	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10238	AI209	5–10	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13012	AI211	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-13011	AI211	5–10	SOIL	—	—	NA	—	—	—	—
MDAB_00_04-09-10241	AI213	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10242	AI213	5–11	SOIL	—	—	—	—	—	—	—

Table B-5 (continued)

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Acenaphthylene	Acetone	Aldrin	Anthracene	Aroclor-1242	Aroclor-1248
Residential SSL[a]				**3440**	**1720**[b]	**66,600**	**0.284**	**17,200**	**2.22**	**2.22**
MDAB_00_04-09-10249	AI217	0–5	SOIL	—	—	0.021 (J)	—	—	—	—
MDAB_04_08-09-10250	AI217	5–8	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10253	AI224	0–2	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10398	AI229	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10399	AI229	5–10	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10258	AI234	0–5	SOIL	—	—	0.022	—	—	—	—
MDAB_04_08-09-10257	AI234	5–10	SOIL	—	—	—	—	—	—	—
MDAB_08_12-09-10259	AI234	10–13	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-12998	AI239	5–10	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-12995	AI244	0–3	SOIL	—	—	NA	—	—	—	—
MDAB_00_04-09-10261	AI245	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10262	AI245	5–12	SOIL	—	—	—	0.00016 (J)	—	—	—
MDAB_00_04-09-12991	AI246	0–5	SOIL	—	—	NA	—	—	—	—
MDAB_04_08-09-12990	AI246	5–12	SOIL	—	—	NA	—	—	—	—
MDAB_00_04-09-12986	AI250	0–5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10265	AI251	0–5	SOIL	0.053 (J)	—	—	—	0.24 (J)	—	—
MDAB_04_08-09-10266	AI251	5–9	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-12981	AI252	0–5	SOIL	—	—	NA	—	—	—	—
MDAB_00_04-09-10201	AJ158	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10202	AJ158	5–9	SOIL	—	—	0.0077 (J)	—	—	—	—
MDAB_04_08-09-13124	AJ181	5–10	SOIL	—	—	—	—	—	—	—

Table B-5 (continued)

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Acenaphthylene	Acetone	Aldrin	Anthracene	Aroclor-1242	Aroclor-1248
Residential SSL[a]				**3440**	**1720[b]**	**66,600**	**0.284**	**17,200**	**2.22**	**2.22**
MDAB_00_04-09-10217	AJ183	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10218	AJ183	5–9	SOIL	—	—	—	0.00025 (J)	—	—	—
MDAB_00_04-09-13034	AJ185	0–7.5	SOIL	—	—	—	—	—	0.464	—
MDAB_00_04-09-13057	AK155	0–4	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13004	AL225	0–2.5	SOIL	—	—	NA	—	—	—	—
MDAB_00_04-09-12973	AL258	0–4	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13118	AM153	0–4	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13088	AM155	0–4	SOIL	—	—	0.018 (J)	—	—	—	—
MDAB_00_04-09-10281	AM228	0–4	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10285	AM232	0–4	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13065	AN152	0–5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13008	AN223	0–4.5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10277	AN226	0–3	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-12979	AN256	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-12978	AN256	5–7	SOIL	—	—	NA	—	—	—	—
MDAB_00_04-09-13075	AS151	0–4.5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10173	AS153	0–5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13079	AU150	0–5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10178	AU152	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10177	AU152	5–6	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10181	AU154	0–5	SOIL	—	—	—	—	—	—	—

Table B-5 (continued)

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Acenaphthylene	Acetone	Aldrin	Anthracene	Aroclor-1242	Aroclor-1248
Residential SSL[a]				**3440**	**1720**[b]	**66,600**	**0.284**	**17,200**	**2.22**	**2.22**
MDAB_04_08-09-13082	AW150	5–7.5	SOIL	—	—	NA	—	—	—	—
MDAB_00_04-09-10185	AW152	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10186	AW152	5–6.5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13096	AY153	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-13095	AY153	5–7.5	SOIL	—	—	NA	—	—	—	—
MDAB_00_04-09-10189	BB153	0–5	FILL	—	—	—	—	—	—	—
MDAB_00_04-09-10390	NF95	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10391	NF95	5–8	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10394	NG103	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10395	NG103	5–10	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10317	NG56	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10318	NG56	5–10	SOIL	—	—	—	—	—	—	—
MDAB_08_12-09-10319	NG56	10–15	SOIL	—	—	—	—	—	—	—
MDAB_12_16-09-10320	NG56	15–20	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10325	NG61	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10326	NG61	5–10	SOIL	—	—	—	—	—	—	—
MDAB_08_12-09-10327	NG61	10–15	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10329	NG75	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10330	NG75	5–10	SOIL	—	—	—	—	—	—	—
MDAB_08_12-09-10331	NG75	10–15.5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10382	NG77	0–5	SOIL	—	—	—	—	—	—	—

Table B-5 (continued)

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Acenaphthylene	Acetone	Aldrin	Anthracene	Aroclor-1242	Aroclor-1248
Residential SSL[a]				**3440**	**1720**[b]	**66,600**	**0.284**	**17,200**	**2.22**	**2.22**
MDAB_04_08-09-10383	NG77	5–10	SOIL	—	—	—	—	—	—	—
MDAB_08_12-09-10385	NG77	10–15	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10289	NH27	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10290	NH27	5–10	SOIL	—	—	0.019 (J)	—	—	—	—
MDAB_00_04-09-12961	NH40	0–5	SOIL	—	—	NA	—	—	—	—
MDAB_04_08-09-12962	NH40	5–10	SOIL	—	—	—	—	—	—	—
MDAB_08_12-09-12964	NH40	10–15	SOIL	—	—	—	—	—	—	—
MDAB_12_16-09-12963	NH40	15–18	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10321	NH59	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10322	NH59	5–10	SOIL	—	—	—	—	—	—	—
MDAB_08_12-09-10323	NH59	10–15	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-12969	NI29	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-12970	NI29	5–10	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-12957	NI34	0–5	SOIL	—	—	NA	—	—	—	—
MDAB_04_08-09-12958	NI34	5–10	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10313	NI38	0–3	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10310	NI43	5–7	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10301	NI48	0–5	SOIL	—	—	0.011 (J)	—	—	—	—
MDAB_00_04-09-10389	NI85	0–4	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10293	NJ30	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10294	NJ30	5–9.5	SOIL	—	—	—	—	—	—	—

Table B-5 (continued)

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Acenaphthylene	Acetone	Aldrin	Anthracene	Aroclor-1242	Aroclor-1248
Residential SSL[a]				**3440**	**1720[b]**	**66,600**	**0.284**	**17,200**	**2.22**	**2.22**
MDAB_00_04-09-10297	NJ35	0–4.5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-10-462	WST-600902[e]	0–0	FILL	—	—	—	—	—	—	—
MDAB_00_04-10-463	WST-600902[e]	0–0	FILL	—	—	—	—	—	—	—
MDAB_00_04-10-464	WST-600902[e]	0–0	FILL	—	—	—	—	—	—	—

Table B-5 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aroclor-1254	Aroclor-1260	Benzene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene
Residential SSL[a]				**1.12**	**2.22**	**15.4**	**1.48**	**0.148**	**1.48**	**1720**[b]	**14.8**
MDAB_00_04-09-13063	AF153	0–2.5	SOIL	—	0.0033 (J)	—	—	—	—	—	—
MDAB_00_04-09-13045	AF155	0–3	SOIL	—	—	—	—	—	0.08 (J)	—	0.08 (J)
MDAB_00_04-09-13104	AG168	0–2.5	FILL	—	—	—	—	—	—	—	—
MDAB_00_04-09-10209	AH167	0–4	SOIL	—	—	0.00067 (J+)	—	—	—	—	—
MDAB_00_04-09-10245	AH215	0–5	SOIL	—	0.0068 (J)	—	—	—	—	—	—
MDAB_04_08-09-10246	AH215	5–7	SOIL	0.017 (J)	—	—	—	—	—	—	—
MDAB_00_04-09-10193	AI155	0–5	FILL	—	—	—	—	—	—	—	—
MDAB_04_08-09-10194	AI155	5–9	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-10197	AI157	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-10198	AI157	5–9	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-13049	AI160	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-13050	AI160	5–11	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-13054	AI164	5–10	QBT3	—	—	—	—	—	—	—	—
MDAB_00_04-09-13041	AI167	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-13042	AI167	5–10	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-13097	AI171	0–5	SOIL	0.0129 (J)	0.0222	—	—	—	—	—	—
MDAB_04_08-09-13098	AI171	5–10	SOIL	—	0.034 (J)	NA	—	—	—	—	—
MDAB_04_08-09-10214	AI176	5–9	SOIL	—	0.49	0.0013 (J)	—	—	—	—	—
MDAB_00_04-09-13115	AI179	0–5	SOIL	—	—	NA	—	—	—	—	—
MDAB_00_04-09-10221	AI180	0–5	SOIL	—	—	—	—	—	—	—	—

Table B-5 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aroclor-1254	Aroclor-1260	Benzene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene
Residential SSL[a]				**1.12**	**2.22**	**15.4**	**1.48**	**0.148**	**1.48**	**1720**[b]	**14.8**
MDAB_04_08-09-10222	AI180	5–10	SOIL	—	—	0.025 (J)	—	—	—	—	—
MDAB_00_04-09-13038	AI183	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-10225	AI185	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-10226	AI185	5–6	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-13031	AI186	0–6	SOIL	—	0.0155 (J)	—	—	—	—	—	—
MDAB_00_04-09-10229	AI191	0–4.5	SOIL	—	0.0063 (J)	—	—	—	—	—	—
MDAB_04_08-09-13027	AI193	5–7	SOIL	0.0099	0.0157	NA	—	—	—	—	—
MDAB_00_04-09-13021	AI199	0–5	SOIL	—	0.252	NA	0.0205 (J)	0.013 (J)	0.025 (J)	—	—
MDAB_00_04-09-10233	AI200	0–5	SOIL	—	2.7 (J)	—	—	—	—	—	—
MDAB_04_08-09-10234	AI200	5–11	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-13020	AI201	0–5	SOIL	—	0.148	—	—	—	—	—	—
MDAB_00_04-09-13013	AI207	0–5	SOIL	—	0.016	—	—	—	—	—	—
MDAB_04_08-09-13014	AI207	5–10	SOIL	—	0.0089	—	—	—	—	—	—
MDAB_08_12-09-13015	AI207	10–15	SOIL	0.0106 (J)	0.0092 (J)	NA	—	—	—	—	—
MDAB_00_04-09-10237	AI209	0–5	SOIL	—	0.083	—	—	—	—	—	—
MDAB_04_08-09-10238	AI209	5–10	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-13012	AI211	0–5	SOIL	—	0.0018 (J)	—	—	—	—	—	—
MDAB_04_08-09-13011	AI211	5–10	SOIL	—	—	NA	—	—	—	—	—
MDAB_00_04-09-10241	AI213	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-10242	AI213	5–11	SOIL	—	—	—	—	—	—	—	—

Table B-5 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aroclor-1254	Aroclor-1260	Benzene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene
Residential SSL[a]				**1.12**	**2.22**	**15.4**	**1.48**	**0.148**	**1.48**	**1720[b]**	**14.8**
MDAB_00_04-09-10249	AI217	0–5	SOIL	0.2 (J)	—	—	—	—	—	—	—
MDAB_04_08-09-10250	AI217	5–8	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-10253	AI224	0–2	SOIL	0.022 (J)	—	—	—	—	—	—	—
MDAB_00_04-09-10398	AI229	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-10399	AI229	5–10	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-10258	AI234	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-10257	AI234	5–10	SOIL	—	—	—	—	—	—	—	—
MDAB_08_12-09-10259	AI234	10–13	SOIL	0.029 (J)	—	—	—	—	—	—	—
MDAB_04_08-09-12998	AI239	5–10	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-12995	AI244	0–3	SOIL	0.041 (J)	—	NA	—	—	—	—	—
MDAB_00_04-09-10261	AI245	0–5	SOIL	0.056	0.02 (J)	—	—	—	—	—	—
MDAB_04_08-09-10262	AI245	5–12	SOIL	0.022 (J)	—	—	—	—	—	—	—
MDAB_00_04-09-12991	AI246	0–5	SOIL	0.15 (J)	0.06 (J)	NA	—	—	—	—	—
MDAB_04_08-09-12990	AI246	5–12	SOIL	0.015 (J)	0.0089 (J)	NA	—	—	—	—	—
MDAB_00_04-09-12986	AI250	0–5	SOIL	0.013 (J)	0.011 (J)	—	—	—	—	—	—
MDAB_00_04-09-10265	AI251	0–5	SOIL	0.044	—	—	1.8	1.9	2.3	0.73	1.8
MDAB_04_08-09-10266	AI251	5–9	SOIL	0.037 (J+)	—	—	—	—	—	—	—
MDAB_00_04-09-12981	AI252	0–5	SOIL	—	—	NA	—	—	—	0.043 (J)	—
MDAB_00_04-09-10201	AJ158	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-10202	AJ158	5–9	SOIL	—	—	—	0.24 (J)	0.19 (J)	0.28 (J)	0.1 (J)	0.3 (J)

Table B-5 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aroclor-1254	Aroclor-1260	Benzene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene
Residential SSL[a]				**1.12**	**2.22**	**15.4**	**1.48**	**0.148**	**1.48**	**1720**[b]	**14.8**
MDAB_04_08-09-13124	AJ181	5–10	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-10217	AJ183	0–5	SOIL	—	0.0058 (J)	—	—	—	—	—	—
MDAB_04_08-09-10218	AJ183	5–9	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-13034	AJ185	0–7.5	SOIL	0.26	—	—	—	—	—	—	—
MDAB_00_04-09-13057	AK155	0–4	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-13004	AL225	0–2.5	SOIL	—	0.0096 (J)	NA	—	—	—	—	—
MDAB_00_04-09-12973	AL258	0–4	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-13118	AM153	0–4	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-13088	AM155	0–4	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-10281	AM228	0–4	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-10285	AM232	0–4	SOIL	0.016 (J)	0.0077 (J)	—	—	—	—	—	—
MDAB_00_04-09-13065	AN152	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-13008	AN223	0–4.5	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-10277	AN226	0–3	SOIL	0.017 (J)	—	—	—	—	—	—	—
MDAB_00_04-09-12979	AN256	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-12978	AN256	5–7	SOIL	—	—	NA	—	—	—	—	—
MDAB_00_04-09-13075	AS151	0–4.5	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-10173	AS153	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-13079	AU150	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-10178	AU152	0–5	SOIL	—	—	—	—	—	—	—	—

Table B-5 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aroclor-1254	Aroclor-1260	Benzene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene
Residential SSL[a]				**1.12**	**2.22**	**15.4**	**1.48**	**0.148**	**1.48**	**1720[b]**	**14.8**
MDAB_04_08-09-10177	AU152	5–6	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-10181	AU154	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-13082	AW150	5–7.5	SOIL	—	—	NA	—	—	—	—	—
MDAB_00_04-09-10185	AW152	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-10186	AW152	5–6.5	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-13096	AY153	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-13095	AY153	5–7.5	SOIL	—	—	NA	—	—	—	—	—
MDAB_00_04-09-10189	BB153	0–5	FILL	—	—	—	—	—	—	—	—
MDAB_00_04-09-10390	NF95	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-10391	NF95	5–8	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-10394	NG103	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-10395	NG103	5–10	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-10317	NG56	0–5	SOIL	—	0.0047 (J)	—	—	—	—	—	—
MDAB_04_08-09-10318	NG56	5–10	SOIL	—	—	—	—	—	—	—	—
MDAB_08_12-09-10319	NG56	10–15	SOIL	—	—	—	—	—	—	—	—
MDAB_12_16-09-10320	NG56	15–20	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-10325	NG61	0–5	SOIL	—	0.0073 (J)	—	—	—	—	—	—
MDAB_04_08-09-10326	NG61	5–10	SOIL	—	—	—	—	—	—	—	—
MDAB_08_12-09-10327	NG61	10–15	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-10329	NG75	0–5	SOIL	—	0.0062 (J)	—	—	—	—	—	—

Table B-5 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aroclor-1254	Aroclor-1260	Benzene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene
Residential SSL[a]				**1.12**	**2.22**	**15.4**	**1.48**	**0.148**	**1.48**	**1720[b]**	**14.8**
MDAB_04_08-09-10330	NG75	5–10	SOIL	—	—	—	—	—	—	—	—
MDAB_08_12-09-10331	NG75	10–15.5	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-10382	NG77	0–5	SOIL	—	0.0061 (J)	—	—	—	—	—	—
MDAB_04_08-09-10383	NG77	5–10	SOIL	—	—	—	—	—	—	—	—
MDAB_08_12-09-10385	NG77	10–15	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-10289	NH27	0–5	SOIL	0.13	—	—	—	—	—	—	—
MDAB_04_08-09-10290	NH27	5–10	SOIL	0.016 (J)	—	—	—	—	—	—	—
MDAB_00_04-09-12961	NH40	0–5	SOIL	—	0.026 (J)	NA	—	—	—	—	—
MDAB_04_08-09-12962	NH40	5–10	SOIL	—	—	—	—	—	—	—	—
MDAB_08_12-09-12964	NH40	10–15	SOIL	—	—	—	—	—	—	—	—
MDAB_12_16-09-12963	NH40	15–18	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-10321	NH59	0–5	SOIL	—	0.4	—	—	—	—	—	—
MDAB_04_08-09-10322	NH59	5–10	SOIL	—	—	—	—	—	—	—	—
MDAB_08_12-09-10323	NH59	10–15	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-12969	NI29	0–5	SOIL	0.024 (J)	0.01 (J)	—	—	—	—	—	—
MDAB_04_08-09-12970	NI29	5–10	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-12957	NI34	0–5	SOIL	—	—	NA	—	—	—	—	—
MDAB_04_08-09-12958	NI34	5–10	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-10313	NI38	0–3	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-10310	NI43	5–7	SOIL	—	0.0034 (J)	—	—	—	—	—	—

Table B-5 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aroclor-1254	Aroclor-1260	Benzene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene
Residential SSL[a]				**1.12**	**2.22**	**15.4**	**1.48**	**0.148**	**1.48**	**1720**[b]	**14.8**
MDAB_00_04-09-10301	NI48	0–5	SOIL	0.038	0.049	—	—	—	—	—	—
MDAB_00_04-09-10389	NI85	0–4	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-10293	NJ30	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-10294	NJ30	5–9.5	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-10297	NJ35	0–4.5	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-10-462	WST-600902	0–0	FILL	—	—	—	—	—	—	0.43 (J)	—
MDAB_00_04-10-463	WST-600902	0–0	FILL	—	—	—	—	—	—	—	—
MDAB_00_04-10-464	WST-600902	0–0	FILL	—	—	—	—	—	—	—	—

Table B-5 (continued)

Sample ID	Location ID	Depth (ft)	Media	Benzoic Acid	Benzyl Alcohol	BHC[alpha-]	BHC[gamma-]	Bis(2-ethylhexyl)phthalate	Bromobenzene	Bromoform
Residential SSL[a]				**240,000**[f]	**6100**[f]	**0.772**	**5.17**	**347**	**300**[f]	**620**[f]
MDAB_00_04-09-13063	AF153	0–2.5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13045	AF155	0–3	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13104	AG168	0–2.5	FILL	—	—	—	—	—	—	—
MDAB_00_04-09-10209	AH167	0–4	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10245	AH215	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10246	AH215	5–7	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10193	AI155	0–5	FILL	—	—	—	—	—	—	—
MDAB_04_08-09-10194	AI155	5–9	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10197	AI157	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10198	AI157	5–9	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13049	AI160	0–5	SOIL	—	—	—	—	0.06 (J)	—	—
MDAB_04_08-09-13050	AI160	5–11	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-13054	AI164	5–10	QBT3	—	—	—	—	0.073 (J)	—	—
MDAB_00_04-09-13041	AI167	0–5	SOIL	—	—	—	—	0.094 (J)	—	—
MDAB_04_08-09-13042	AI167	5–10	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13097	AI171	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-13098	AI171	5–10	SOIL	—	—	—	—	—	NA	NA
MDAB_04_08-09-10214	AI176	5–9	SOIL	—	—	—	—	—	0.0031 (J)	—

Table B-5 (continued)

Sample ID	Location ID	Depth (ft)	Media	Benzoic Acid	Benzyl Alcohol	BHC[alpha-]	BHC[gamma-]	Bis(2-ethylhexyl)phthalate	Bromobenzene	Bromoform
Residential SSL[a]				**240,000**[f]	**6100**[f]	**0.772**	**5.17**	**347**	**300**[f]	**620**[f]
MDAB_00_04-09-13115	AI179	0–5	SOIL	—	—	—	—	—	NA	NA
MDAB_00_04-09-10221	AI180	0–5	SOIL	—	—	—	—	0.14 (J)	—	—
MDAB_04_08-09-10222	AI180	5–10	SOIL	—	—	—	—	0.32 (J)	—	—
MDAB_00_04-09-13038	AI183	0–5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10225	AI185	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10226	AI185	5–6	SOIL	—	—	0.00013 (J)	—	0.12 (J)	—	—
MDAB_00_04-09-13031	AI186	0–6	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10229	AI191	0–4.5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-13027	AI193	5–7	SOIL	—	—	0.000785	—	1.29	NA	NA
MDAB_00_04-09-13021	AI199	0–5	SOIL	—	—	—	—	—	NA	NA
MDAB_00_04-09-10233	AI200	0–5	SOIL	—	—	—	—	0.24 (J)	—	—
MDAB_04_08-09-10234	AI200	5–11	SOIL	—	—	—	—	0.15 (J)	—	—
MDAB_00_04-09-13020	AI201	0–5	SOIL	—	—	—	—	0.0806 (J)	—	—
MDAB_00_04-09-13013	AI207	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-13014	AI207	5–10	SOIL	—	—	—	—	0.0869 (J)	—	—
MDAB_08_12-09-13015	AI207	10–15	SOIL	—	—	—	—	—	NA	NA
MDAB_00_04-09-10237	AI209	0–5	SOIL	—	—	—	—	0.15 (J)	—	—
MDAB_04_08-09-10238	AI209	5–10	SOIL	—	—	—	—	0.11 (J)	—	—
MDAB_00_04-09-13012	AI211	0–5	SOIL	—	—	—	—	0.08 (J)	—	—

Table B-5 (continued)

Sample ID	Location ID	Depth (ft)	Media	Benzoic Acid	Benzyl Alcohol	BHC[alpha-]	BHC[gamma-]	Bis(2-ethylhexyl)phthalate	Bromobenzene	Bromoform
Residential SSL[a]				**240,000**[f]	**6100**[f]	**0.772**	**5.17**	**347**	**300**[f]	**620**[f]
MDAB_04_08-09-13011	AI211	5–10	SOIL	—	—	—	—	0.0971 (J)	NA	NA
MDAB_00_04-09-10241	AI213	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10242	AI213	5–11	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10249	AI217	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10250	AI217	5–8	SOIL	—	—	0.00018 (J)	—	—	—	—
MDAB_00_04-09-10253	AI224	0–2	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10398	AI229	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10399	AI229	5–10	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10258	AI234	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10257	AI234	5–10	SOIL	—	—	—	—	—	—	—
MDAB_08_12-09-10259	AI234	10–13	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-12998	AI239	5–10	SOIL	0.62 (J)	—	—	—	—	—	—
MDAB_00_04-09-12995	AI244	0–3	SOIL	—	—	—	—	—	NA	NA
MDAB_00_04-09-10261	AI245	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10262	AI245	5–12	SOIL	—	—	—	0.00016 (J)	—	—	—
MDAB_00_04-09-12991	AI246	0–5	SOIL	—	—	—	—	—	NA	NA
MDAB_04_08-09-12990	AI246	5–12	SOIL	—	—	—	—	—	NA	NA
MDAB_00_04-09-12986	AI250	0–5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10265	AI251	0–5	SOIL	—	—	—	—	—	—	—

Table B-5 (continued)

Sample ID	Location ID	Depth (ft)	Media	Benzoic Acid	Benzyl Alcohol	BHC[alpha-]	BHC[gamma-]	Bis(2-ethylhexyl)phthalate	Bromobenzene	Bromoform
Residential SSL[a]				**240,000[f]**	**6100[f]**	**0.772**	**5.17**	**347**	**300[f]**	**620[f]**
MDAB_04_08-09-10266	AI251	5–9	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-12981	AI252	0–5	SOIL	—	0.089 (J)	—	—	—	NA	NA
MDAB_00_04-09-10201	AJ158	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10202	AJ158	5–9	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-13124	AJ181	5–10	SOIL	—	—	0.00111	—	—	—	—
MDAB_00_04-09-10217	AJ183	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10218	AJ183	5–9	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13034	AJ185	0–7.5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13057	AK155	0–4	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13004	AL225	0–2.5	SOIL	—	—	—	—	0.0882 (J)	NA	NA
MDAB_00_04-09-12973	AL258	0–4	SOIL	—	—	—	—	0.055 (J)	—	—
MDAB_00_04-09-13118	AM153	0–4	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13088	AM155	0–4	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10281	AM228	0–4	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10285	AM232	0–4	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13065	AN152	0–5	SOIL	—	—	—	—	0.6	—	—
MDAB_00_04-09-13008	AN223	0–4.5	SOIL	—	—	—	—	0.109 (J)	—	—
MDAB_00_04-09-10277	AN226	0–3	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-12979	AN256	0–5	SOIL	—	—	—	—	0.24 (J)	—	—

Table B-5 (continued)

Sample ID	Location ID	Depth (ft)	Media	Benzoic Acid	Benzyl Alcohol	BHC[alpha-]	BHC[gamma-]	Bis(2-ethylhexyl)phthalate	Bromobenzene	Bromoform
Residential SSL[a]				**240,000[f]**	**6100[f]**	**0.772**	**5.17**	**347**	**300[f]**	**620[f]**
MDAB_04_08-09-12978	AN256	5–7	SOIL	—	—	—	—	0.1 (J)	NA	NA
MDAB_00_04-09-13075	AS151	0–4.5	SOIL	—	—	—	—	0.16 (J)	—	—
MDAB_00_04-09-10173	AS153	0–5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13079	AU150	0–5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10178	AU152	0–5	SOIL	—	—	—	—	0.059 (J)	—	—
MDAB_04_08-09-10177	AU152	5–6	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10181	AU154	0–5	SOIL	—	—	—	—	0.15 (J)	—	—
MDAB_04_08-09-13082	AW150	5–7.5	SOIL	—	—	—	—	—	NA	NA
MDAB_00_04-09-10185	AW152	0–5	SOIL	—	—	—	—	0.075 (J)	—	—
MDAB_04_08-09-10186	AW152	5–6.5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13096	AY153	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-13095	AY153	5–7.5	SOIL	—	—	—	—	—	NA	NA
MDAB_00_04-09-10189	BB153	0–5	FILL	—	—	—	—	0.32 (J)	—	—
MDAB_00_04-09-10390	NF95	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10391	NF95	5–8	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10394	NG103	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10395	NG103	5–10	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10317	NG56	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10318	NG56	5–10	SOIL	—	—	—	—	—	—	—

Table B-5 (continued)

Sample ID	Location ID	Depth (ft)	Media	Benzoic Acid	Benzyl Alcohol	BHC[alpha-]	BHC[gamma-]	Bis(2-ethylhexyl)phthalate	Bromobenzene	Bromoform
Residential SSL[a]				**240,000[f]**	**6100[f]**	**0.772**	**5.17**	**347**	**300[f]**	**620[f]**
MDAB_08_12-09-10319	NG56	10–15	SOIL	—	—	—	—	—	—	—
MDAB_12_16-09-10320	NG56	15–20	SOIL	—	—	—	—	0.19 (J)	—	—
MDAB_00_04-09-10325	NG61	0–5	SOIL	—	—	—	—	0.08 (J)	—	—
MDAB_04_08-09-10326	NG61	5–10	SOIL	—	—	—	—	—	—	—
MDAB_08_12-09-10327	NG61	10–15	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10329	NG75	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10330	NG75	5–10	SOIL	—	—	—	—	—	—	—
MDAB_08_12-09-10331	NG75	10–15.5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10382	NG77	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10383	NG77	5–10	SOIL	—	—	—	—	—	—	—
MDAB_08_12-09-10385	NG77	10–15	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10289	NH27	0–5	SOIL	—	—	—	—	—	—	0.016
MDAB_04_08-09-10290	NH27	5–10	SOIL	—	—	—	—	—	—	0.013
MDAB_00_04-09-12961	NH40	0–5	SOIL	—	—	—	—	—	NA	NA
MDAB_04_08-09-12962	NH40	5–10	SOIL	—	—	—	—	—	—	—
MDAB_08_12-09-12964	NH40	10–15	SOIL	—	—	—	—	—	—	—
MDAB_12_16-09-12963	NH40	15–18	SOIL	—	—	—	—	0.17 (J)	—	—
MDAB_00_04-09-10321	NH59	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10322	NH59	5–10	SOIL	—	—	—	—	—	—	—

Table B-5 (continued)

Sample ID	Location ID	Depth (ft)	Media	Benzoic Acid	Benzyl Alcohol	BHC[alpha-]	BHC[gamma-]	Bis(2-ethylhexyl)phthalate	Bromobenzene	Bromoform
Residential SSL[a]				**240,000[f]**	**6100[f]**	**0.772**	**5.17**	**347**	**300[f]**	**620[f]**
MDAB_08_12-09-10323	NH59	10–15	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-12969	NI29	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-12970	NI29	5–10	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-12957	NI34	0–5	SOIL	—	—	—	—	0.069 (J)	NA	NA
MDAB_04_08-09-12958	NI34	5–10	SOIL	—	—	—	—	0.083 (J)	—	—
MDAB_00_04-09-10313	NI38	0–3	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10310	NI43	5–7	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10301	NI48	0–5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10389	NI85	0–4	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10293	NJ30	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10294	NJ30	5–9.5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10297	NJ35	0–4.5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-10-462	WST-600902	0–0	FILL	2 (J)	—	—	—	—	—	—
MDAB_00_04-10-463	WST-600902	0–0	FILL	2.1 (J)	—	—	—	—	—	—
MDAB_00_04-10-464	WST-600902	0–0	FILL	2 (J)	—	—	—	—	—	—

Table B-5 (continued)

Sample ID	Location ID	Depth (ft)	Media	Butanone[2-]	Carbon Disulfide	Carbon Tetrachloride	Chlordane[alpha-]	Chlordane[gamma-]	Chloronaphthalene[2-]	Chrysene
Residential SSL[a]				**37,100**	**1530**	**10.8**	**16.2**	**16.2**	**6260**	**148**
MDAB_00_04-09-13063	AF153	0–2.5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13045	AF155	0–3	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13104	AG168	0–2.5	FILL	—	—	—	—	—	—	—
MDAB_00_04-09-10209	AH167	0–4	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10245	AH215	0–5	SOIL	0.029	—	—	—	—	—	—
MDAB_04_08-09-10246	AH215	5–7	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10193	AI155	0–5	FILL	—	—	—	—	—	—	—
MDAB_04_08-09-10194	AI155	5–9	SOIL	—	—	—	—	—	0.0206 (J)	—
MDAB_00_04-09-10197	AI157	0–5	SOIL	—	—	—	0.00052 (J)	0.00017 (J)	—	—
MDAB_04_08-09-10198	AI157	5–9	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13049	AI160	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-13050	AI160	5–11	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-13054	AI164	5–10	QBT3	—	—	—	—	—	—	—
MDAB_00_04-09-13041	AI167	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-13042	AI167	5–10	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13097	AI171	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-13098	AI171	5–10	SOIL	NA	NA	NA	—	—	NA	—
MDAB_04_08-09-10214	AI176	5–9	SOIL	—	—	—	—	—	—	—

Table B-5 (continued)

Sample ID	Location ID	Depth (ft)	Media	Butanone[2-]	Carbon Disulfide	Carbon Tetrachloride	Chlordane[alpha-]	Chlordane[gamma-]	Chloronaphthalene[2-]	Chrysene
Residential SSL[a]				**37,100**	**1530**	**10.8**	**16.2**	**16.2**	**6260**	**148**
MDAB_00_04-09-13115	AI179	0–5	SOIL	NA	NA	NA	—	—	NA	—
MDAB_00_04-09-10221	AI180	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10222	AI180	5–10	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13038	AI183	0–5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10225	AI185	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10226	AI185	5–6	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13031	AI186	0–6	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10229	AI191	0–4.5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-13027	AI193	5–7	SOIL	NA	NA	NA	—	—	NA	—
MDAB_00_04-09-13021	AI199	0–5	SOIL	NA	NA	NA	—	—	NA	—
MDAB_00_04-09-10233	AI200	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10234	AI200	5–11	SOIL	—	—	0.00077 (J+)	0.0015 (J)	0.0018 (J)	—	—
MDAB_00_04-09-13020	AI201	0–5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13013	AI207	0–5	SOIL	—	—	—	0.00151 (J)	0.00238	—	—
MDAB_04_08-09-13014	AI207	5–10	SOIL	—	—	—	—	—	—	—
MDAB_08_12-09-13015	AI207	10–15	SOIL	NA	NA	NA	0.00111 (J)	0.00216 (J)	NA	—
MDAB_00_04-09-10237	AI209	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10238	AI209	5–10	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13012	AI211	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-13011	AI211	5–10	SOIL	NA	NA	NA	—	—	NA	—

Table B-5 (continued)

Sample ID	Location ID	Depth (ft)	Media	Butanone[2-]	Carbon Disulfide	Carbon Tetrachloride	Chlordane[alpha-]	Chlordane[gamma-]	Chloronaphthalene[2-]	Chrysene
Residential SSL[a]				**37,100**	**1530**	**10.8**	**16.2**	**16.2**	**6260**	**148**
MDAB_00_04-09-10241	AI213	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10242	AI213	5–11	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10249	AI217	0–5	SOIL	0.019 (J)	—	—	—	—	—	—
MDAB_04_08-09-10250	AI217	5–8	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10253	AI224	0–2	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10398	AI229	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10399	AI229	5–10	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10258	AI234	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10257	AI234	5–10	SOIL	—	—	—	—	—	—	—
MDAB_08_12-09-10259	AI234	10–13	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-12998	AI239	5–10	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-12995	AI244	0–3	SOIL	NA	NA	NA	—	—	NA	—
MDAB_00_04-09-10261	AI245	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10262	AI245	5–12	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-12991	AI246	0–5	SOIL	NA	NA	NA	—	—	NA	—
MDAB_04_08-09-12990	AI246	5–12	SOIL	NA	NA	NA	—	—	NA	—
MDAB_00_04-09-12986	AI250	0–5	SOIL	—	0.0004 (J)	—	—	—	—	—
MDAB_00_04-09-10265	AI251	0–5	SOIL	—	—	—	—	—	—	1.7
MDAB_04_08-09-10266	AI251	5–9	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-12981	AI252	0–5	SOIL	NA	NA	NA	—	—	NA	—

Table B-5 (continued)

Sample ID	Location ID	Depth (ft)	Media	Butanone[2-]	Carbon Disulfide	Carbon Tetrachloride	Chlordane[alpha-]	Chlordane[gamma-]	Chloronaphthalene[2-]	Chrysene
Residential SSL[a]				**37,100**	**1530**	**10.8**	**16.2**	**16.2**	**6260**	**148**
MDAB_00_04-09-10201	AJ158	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10202	AJ158	5–9	SOIL	—	—	—	—	0.0038	—	—
MDAB_04_08-09-13124	AJ181	5–10	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10217	AJ183	0–5	SOIL	—	—	—	0.0045 (J)	0.0056 (J)	—	—
MDAB_04_08-09-10218	AJ183	5–9	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13034	AJ185	0–7.5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13057	AK155	0–4	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13004	AL225	0–2.5	SOIL	NA	NA	NA	—	—	NA	—
MDAB_00_04-09-12973	AL258	0–4	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13118	AM153	0–4	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13088	AM155	0–4	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10281	AM228	0–4	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10285	AM232	0–4	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13065	AN152	0–5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13008	AN223	0–4.5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10277	AN226	0–3	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-12979	AN256	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-12978	AN256	5–7	SOIL	NA	NA	NA	—	—	NA	—
MDAB_00_04-09-13075	AS151	0–4.5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10173	AS153	0–5	SOIL	—	—	—	—	—	—	—

Table B-5 (continued)

Sample ID	Location ID	Depth (ft)	Media	Butanone[2-]	Carbon Disulfide	Carbon Tetrachloride	Chlordane[alpha-]	Chlordane[gamma-]	Chloronaphthalene[2-]	Chrysene
Residential SSL[a]				**37,100**	**1530**	**10.8**	**16.2**	**16.2**	**6260**	**148**
MDAB_00_04-09-13079	AU150	0–5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10178	AU152	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10177	AU152	5–6	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10181	AU154	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-13082	AW150	5–7.5	SOIL	NA	NA	NA	—	—	NA	—
MDAB_00_04-09-10185	AW152	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10186	AW152	5–6.5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13096	AY153	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-13095	AY153	5–7.5	SOIL	NA	NA	NA	—	—	NA	—
MDAB_00_04-09-10189	BB153	0–5	FILL	—	—	—	—	—	—	—
MDAB_00_04-09-10390	NF95	0–5	SOIL	—	0.0014 (J)	—	—	—	—	—
MDAB_04_08-09-10391	NF95	5–8	SOIL	—	0.0015 (J)	—	—	—	—	—
MDAB_00_04-09-10394	NG103	0–5	SOIL	—	0.0011 (J)	—	—	—	—	—
MDAB_04_08-09-10395	NG103	5–10	SOIL	—	0.0012 (J)	—	—	—	—	—
MDAB_00_04-09-10317	NG56	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10318	NG56	5–10	SOIL	—	—	—	—	—	—	—
MDAB_08_12-09-10319	NG56	10–15	SOIL	—	—	—	—	—	—	—
MDAB_12_16-09-10320	NG56	15–20	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10325	NG61	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10326	NG61	5–10	SOIL	—	—	—	—	—	—	—

Table B-5 (continued)

Sample ID	Location ID	Depth (ft)	Media	Butanone[2-]	Carbon Disulfide	Carbon Tetrachloride	Chlordane[alpha-]	Chlordane[gamma-]	Chloronaphthalene[2-]	Chrysene
Residential SSL[a]				**37,100**	**1530**	**10.8**	**16.2**	**16.2**	**6260**	**148**
MDAB_08_12-09-10327	NG61	10–15	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10329	NG75	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10330	NG75	5–10	SOIL	—	0.001 (J)	—	—	—	—	—
MDAB_08_12-09-10331	NG75	10–15.5	SOIL	—	0.0009 (J)	—	—	—	—	—
MDAB_00_04-09-10382	NG77	0–5	SOIL	—	0.0013 (J)	—	—	—	—	—
MDAB_04_08-09-10383	NG77	5–10	SOIL	—	0.00087 (J)	—	—	—	—	—
MDAB_08_12-09-10385	NG77	10–15	SOIL	—	0.0011 (J)	—	—	—	—	—
MDAB_00_04-09-10289	NH27	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10290	NH27	5–10	SOIL	—	0.00079 (J)	—	—	—	—	—
MDAB_00_04-09-12961	NH40	0–5	SOIL	NA	NA	NA	—	—	NA	—
MDAB_04_08-09-12962	NH40	5–10	SOIL	—	—	—	—	—	—	—
MDAB_08_12-09-12964	NH40	10–15	SOIL	—	—	—	—	—	—	—
MDAB_12_16-09-12963	NH40	15–18	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10321	NH59	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10322	NH59	5–10	SOIL	—	—	—	—	—	—	—
MDAB_08_12-09-10323	NH59	10–15	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-12969	NI29	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-12970	NI29	5–10	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-12957	NI34	0–5	SOIL	NA	NA	NA	—	—	NA	—
MDAB_04_08-09-12958	NI34	5–10	SOIL	—	—	—	—	—	—	—

Table B-5 (continued)

Sample ID	Location ID	Depth (ft)	Media	Butanone[2-]	Carbon Disulfide	Carbon Tetrachloride	Chlordane[alpha-]	Chlordane[gamma-]	Chloronaphthalene[2-]	Chrysene
Residential SSL[a]				**37,100**	**1530**	**10.8**	**16.2**	**16.2**	**6260**	**148**
MDAB_00_04-09-10313	NI38	0–3	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10310	NI43	5–7	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10301	NI48	0–5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10389	NI85	0–4	SOIL	—	0.0014 (J)	—	—	—	—	—
MDAB_00_04-09-10293	NJ30	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10294	NJ30	5–9.5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10297	NJ35	0–4.5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-10-462	WST-600902	0–0	FILL	—	—	—	—	—	—	—
MDAB_00_04-10-463	WST-600902	0–0	FILL	—	—	—	—	—	—	—
MDAB_00_04-10-464	WST-600902	0–0	FILL	—	—	—	—	—	—	—

Table B-5 (continued)

Sample ID	Location ID	Depth (ft)	Media	Dichlorophenoxybutyric acid [2,4-]	Dichlorodiphenyldichloroethane [4,4'-]	Dichlorophenyldichloroethylene [4,4'-]	Dichlorodiphenyltrichloroethane [4,4'-]	Dibenz(a,h)anthracene	Dibenzofuran	Dicamba
Residential SSL[a]				**490[f]**	**20.3**	**14.3**	**17.2**	**0.148**	**78[f]**	**1800[f]**
MDAB_00_04-09-13063	AF153	0–2.5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13045	AF155	0–3	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13104	AG168	0–2.5	FILL	0.22	—	—	—	—	—	—
MDAB_00_04-09-10209	AH167	0–4	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10245	AH215	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10246	AH215	5–7	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10193	AI155	0–5	FILL	—	—	0.00181	0.00649	—	—	—
MDAB_04_08-09-10194	AI155	5–9	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10197	AI157	0–5	SOIL	—	0.00098 (J)	0.0055	0.0034	—	—	—
MDAB_04_08-09-10198	AI157	5–9	SOIL	—	0.00045 (J)	0.0015 (J)	0.0024	—	—	—
MDAB_00_04-09-13049	AI160	0–5	SOIL	—	—	0.0022 (J)	0.0017 (J)	—	—	—
MDAB_04_08-09-13050	AI160	5–11	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-13054	AI164	5–10	QBT3	—	—	—	—	—	—	—
MDAB_00_04-09-13041	AI167	0–5	SOIL	0.13	—	—	—	—	—	—
MDAB_04_08-09-13042	AI167	5–10	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13097	AI171	0–5	SOIL	—	—	—	0.00238 (J)	—	—	—
MDAB_04_08-09-13098	AI171	5–10	SOIL	0.13	—	—	—	—	—	—

Table B-5 (continued)

Sample ID	Location ID	Depth (ft)	Media	Dichlorophenoxybutyric acid [2,4-]	Dichlorodiphenyldichloroethane [4,4'-]	Dichlorophenyldichloroethylene [4,4'-]	Dichlorodiphenyltrichloroethane [4,4'-]	Dibenz(a,h)anthracene	Dibenzofuran	Dicamba
Residential SSL[a]				**490**[f]	**20.3**	**14.3**	**17.2**	**0.148**	**78**[f]	**1800**[f]
MDAB_04_08-09-10214	AI176	5–9	SOIL	—	—	0.026 (J)	—	—	—	—
MDAB_00_04-09-13115	AI179	0–5	SOIL	—	—	0.00243 (J)	—	—	—	—
MDAB_00_04-09-10221	AI180	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10222	AI180	5–10	SOIL	—	0.00043 (J)	0.0012 (J)	0.00094 (J)	—	0.058 (J)	—
MDAB_00_04-09-13038	AI183	0–5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10225	AI185	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10226	AI185	5–6	SOIL	—	0.0006 (J)	—	—	—	0.091 (J)	—
MDAB_00_04-09-13031	AI186	0–6	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10229	AI191	0–4.5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-13027	AI193	5–7	SOIL	—	—	0.000834 (J)	0.00168 (J)	—	—	—
MDAB_00_04-09-13021	AI199	0–5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10233	AI200	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10234	AI200	5–11	SOIL	—	—	0.0028	0.0035	—	—	—
MDAB_00_04-09-13020	AI201	0–5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13013	AI207	0–5	SOIL	—	—	0.00162 (J)	0.00783 (J)	—	—	—
MDAB_04_08-09-13014	AI207	5–10	SOIL	—	0.000554 (J)	0.0105 (J)	0.0197	—	—	—
MDAB_08_12-09-13015	AI207	10–15	SOIL	—	0.0102	0.0406	0.0551	—	—	—

Table B-5 (continued)

Sample ID	Location ID	Depth (ft)	Media	Dichlorophenoxybutyric acid [2,4-]	Dichlorodiphenyldichloroethane [4,4'-]	Dichlorophenyldichloroethylene [4,4'-]	Dichlorodiphenyltrichloroethane [4,4'-]	Dibenz(a,h)anthracene	Dibenzofuran	Dicamba
Residential SSL[a]				**490**[f]	**20.3**	**14.3**	**17.2**	**0.148**	**78**[f]	**1800**[f]
MDAB_00_04-09-10237	AI209	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10238	AI209	5–10	SOIL	—	—	—	0.0034	—	—	—
MDAB_00_04-09-13012	AI211	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-13011	AI211	5–10	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10241	AI213	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10242	AI213	5–11	SOIL	—	—	0.0086	0.042	—	—	—
MDAB_00_04-09-10249	AI217	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10250	AI217	5–8	SOIL	—	0.00097 (J)	0.0013 (J)	0.0047	—	—	—
MDAB_00_04-09-10253	AI224	0–2	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10398	AI229	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10399	AI229	5–10	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10258	AI234	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10257	AI234	5–10	SOIL	—	—	—	—	—	—	—
MDAB_08_12-09-10259	AI234	10–13	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-12998	AI239	5–10	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-12995	AI244	0–3	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10261	AI245	0–5	SOIL	—	—	—	—	—	—	—

Table B-5 (continued)

Sample ID	Location ID	Depth (ft)	Media	Dichlorophenoxybutyric acid [2,4-]	Dichlorodiphenyldichloroethane [4,4'-]	Dichlorophenyldichloroethylene [4,4'-]	Dichlorodiphenyltrichloroethane [4,4'-]	Dibenz(a,h)anthracene	Dibenzofuran	Dicamba
Residential SSL[a]				**490**[f]	**20.3**	**14.3**	**17.2**	**0.148**	**78**[f]	**1800**[f]
MDAB_04_08-09-10262	AI245	5–12	SOIL	—	—	—	0.0011 (J)	—	—	—
MDAB_00_04-09-12991	AI246	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-12990	AI246	5–12	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-12986	AI250	0–5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10265	AI251	0–5	SOIL	—	—	—	—	0.35 (J)	0.047 (J)	—
MDAB_04_08-09-10266	AI251	5–9	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-12981	AI252	0–5	SOIL	0.2	—	—	—	—	—	—
MDAB_00_04-09-10201	AJ158	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10202	AJ158	5–9	SOIL	—	—	—	—	0.05 (J)	—	—
MDAB_04_08-09-13124	AJ181	5–10	SOIL	—	0.000958 (J)	0.00391	0.00539 (J)	—	—	—
MDAB_00_04-09-10217	AJ183	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10218	AJ183	5–9	SOIL	—	0.0053	0.014 (J)	0.022 (J)	—	—	—
MDAB_00_04-09-13034	AJ185	0–7.5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13057	AK155	0–4	SOIL	0.23	—	—	—	—	—	—
MDAB_00_04-09-13004	AL225	0–2.5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-12973	AL258	0–4	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13118	AM153	0–4	SOIL	—	—	—	—	—	—	—

Table B-5 (continued)

Sample ID	Location ID	Depth (ft)	Media	Dichlorophenoxybutyric acid [2,4-]	Dichlorodiphenyldichloroethane [4,4'-]	Dichlorophenyldichloroethylene [4,4'-]	Dichlorodiphenyltrichloroethane [4,4'-]	Dibenz(a,h)anthracene	Dibenzofuran	Dicamba
Residential SSL[a]				**490**[f]	**20.3**	**14.3**	**17.2**	**0.148**	**78**[f]	**1800**[f]
MDAB_00_04-09-13088	AM155	0–4	SOIL	0.28	—	—	—	—	—	—
MDAB_00_04-09-10281	AM228	0–4	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10285	AM232	0–4	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13065	AN152	0–5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13008	AN223	0–4.5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10277	AN226	0–3	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-12979	AN256	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-12978	AN256	5–7	SOIL	0.3 (J)	—	—	—	—	—	—
MDAB_00_04-09-13075	AS151	0–4.5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10173	AS153	0–5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13079	AU150	0–5	SOIL	0.16	—	—	—	—	—	—
MDAB_00_04-09-10178	AU152	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10177	AU152	5–6	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10181	AU154	0–5	SOIL	—	—	—	0.00037 (J)	—	—	—
MDAB_04_08-09-13082	AW150	5–7.5	SOIL	—	—	—	0.0013 (J)	—	—	—
MDAB_00_04-09-10185	AW152	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10186	AW152	5–6.5	SOIL	—	—	—	—	—	—	0.009 (J)

Table B-5 (continued)

Sample ID	Location ID	Depth (ft)	Media	Dichlorophenoxybutyric acid [2,4-]	Dichlorodiphenyldichloroethane [4,4'-]	Dichlorophenyldichloroethylene [4,4'-]	Dichlorodiphenyltrichloroethane [4,4'-]	Dibenz(a,h)anthracene	Dibenzofuran	Dicamba
Residential SSL[a]				**490[f]**	**20.3**	**14.3**	**17.2**	**0.148**	**78[f]**	**1800[f]**
MDAB_00_04-09-13096	AY153	0–5	SOIL	—	—	0.001 (J)	—	—	—	—
MDAB_04_08-09-13095	AY153	5–7.5	SOIL	—	—	0.00098 (J)	0.0013 (J)	—	—	—
MDAB_00_04-09-10189	BB153	0–5	FILL	—	—	—	—	—	—	—
MDAB_00_04-09-10390	NF95	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10391	NF95	5–8	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10394	NG103	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10395	NG103	5–10	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10317	NG56	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10318	NG56	5–10	SOIL	—	—	—	—	—	—	—
MDAB_08_12-09-10319	NG56	10–15	SOIL	—	—	—	—	—	—	—
MDAB_12_16-09-10320	NG56	15–20	SOIL	—	—	—	0.0014 (J)	—	—	—
MDAB_00_04-09-10325	NG61	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10326	NG61	5–10	SOIL	—	—	—	—	—	—	—
MDAB_08_12-09-10327	NG61	10–15	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10329	NG75	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10330	NG75	5–10	SOIL	—	—	—	—	—	—	—
MDAB_08_12-09-10331	NG75	10–15.5	SOIL	—	—	—	—	—	—	—

Table B-5 (continued)

Sample ID	Location ID	Depth (ft)	Media	Dichlorophenoxybutyric acid [2,4-]	Dichlorodiphenyldichloroethane [4,4'-]	Dichlorophenyldichloroethylene [4,4'-]	Dichlorodiphenyltrichloroethane [4,4'-]	Dibenz(a,h)anthracene	Dibenzofuran	Dicamba
Residential SSL[a]				**490**[f]	**20.3**	**14.3**	**17.2**	**0.148**	**78**[f]	**1800**[f]
MDAB_00_04-09-10382	NG77	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10383	NG77	5–10	SOIL	—	—	—	—	—	—	—
MDAB_08_12-09-10385	NG77	10–15	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10289	NH27	0–5	SOIL	—	—	0.0082 (J)	—	—	—	—
MDAB_04_08-09-10290	NH27	5–10	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-12961	NH40	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-12962	NH40	5–10	SOIL	0.55	—	—	—	—	—	—
MDAB_08_12-09-12964	NH40	10–15	SOIL	—	—	—	—	—	—	—
MDAB_12_16-09-12963	NH40	15–18	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10321	NH59	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10322	NH59	5–10	SOIL	—	—	—	—	—	—	—
MDAB_08_12-09-10323	NH59	10–15	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-12969	NI29	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-12970	NI29	5–10	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-12957	NI34	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-12958	NI34	5–10	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10313	NI38	0–3	SOIL	—	—	—	—	—	—	—

Table B-5 (continued)

Sample ID	Location ID	Depth (ft)	Media	Dichlorophenoxybutyric acid [2,4-]	Dichlorodiphenyldichloroethane [4,4'-]	Dichlorophenyldichloroethylene [4,4'-]	Dichlorodiphenyltrichloroethane [4,4'-]	Dibenz(a,h)anthracene	Dibenzofuran	Dicamba
Residential SSL[a]				**490**[f]	**20.3**	**14.3**	**17.2**	**0.148**	**78**[f]	**1800**[f]
MDAB_04_08-09-10310	NI43	5–7	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10301	NI48	0–5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10389	NI85	0–4	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10293	NJ30	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10294	NJ30	5–9.5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10297	NJ35	0–4.5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-10-462	WST-600902	0–0	FILL	—	—	—	—	—	—	—
MDAB_00_04-10-463	WST-600902	0–0	FILL	—	—	—	—	—	—	—
MDAB_00_04-10-464	WST-600902	0–0	FILL	—	—	—	—	—	—	—

Table B-5 (continued)

Sample ID	Location ID	Depth (ft)	Media	Dichloroethene[1,1-]	Diethylphthalate	Dimethyl Phthalate	Di-n-butylphthalate	Di-n-octylphthalate	Endrin Aldehyde	Endrin Ketone	Fluoranthene
Residential SSL[a]				**449**	**48,900**	**611,000**	**6110**	**6110[g]**	**18.3[h]**	**18.3[h]**	**2290**
MDAB_00_04-09-13063	AF153	0–2.5	SOIL	—	—	—	—	0.26 (J)	—	—	—
MDAB_00_04-09-13045	AF155	0–3	SOIL	—	—	—	—	—	—	—	0.53
MDAB_00_04-09-13104	AG168	0–2.5	FILL	—	—	—	—	—	—	—	—
MDAB_00_04-09-10209	AH167	0–4	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-10245	AH215	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-10246	AH215	5–7	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-10193	AI155	0–5	FILL	—	—	—	—	—	—	—	0.0131 (J)
MDAB_04_08-09-10194	AI155	5–9	SOIL	—	—	0.12 (J)	17.6	—	—	—	0.0248 (J)
MDAB_00_04-09-10197	AI157	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-10198	AI157	5–9	SOIL	—	—	—	0.075 (J)	—	—	—	—
MDAB_00_04-09-13049	AI160	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-13050	AI160	5–11	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-13054	AI164	5–10	QBT3	—	—	—	—	—	—	—	—
MDAB_00_04-09-13041	AI167	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-13042	AI167	5–10	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-13097	AI171	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-13098	AI171	5–10	SOIL	NA	—	—	—	—	—	—	—
MDAB_04_08-09-10214	AI176	5–9	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-13115	AI179	0–5	SOIL	NA	—	—	—	—	—	—	—
MDAB_00_04-09-10221	AI180	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-10222	AI180	5–10	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-13038	AI183	0–5	SOIL	—	—	—	—	—	—	—	—

Table B-5 (continued)

Sample ID	Location ID	Depth (ft)	Media	Dichloroethene[1,1-]	Diethylphthalate	Dimethyl Phthalate	Di-n-butylphthalate	Di-n-octylphthalate	Endrin Aldehyde	Endrin Ketone	Fluoranthene
Residential SSL[a]				**449**	**48,900**	**611,000**	**6110**	**6110**[g]	**18.3**[h]	**18.3**[h]	**2290**
MDAB_00_04-09-10225	AI185	0–5	SOIL	—	—	—	0.12 (J)	—	—	—	—
MDAB_04_08-09-10226	AI185	5–6	SOIL	—	—	—	—	—	—	—	0.037 (J)
MDAB_00_04-09-13031	AI186	0–6	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-10229	AI191	0–4.5	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-13027	AI193	5–7	SOIL	NA	—	—	0.108 (J)	—	—	—	—
MDAB_00_04-09-13021	AI199	0–5	SOIL	NA	—	—	—	—	—	—	0.033 (J)
MDAB_00_04-09-10233	AI200	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-10234	AI200	5–11	SOIL	—	—	—	0.47	—	—	—	—
MDAB_00_04-09-13020	AI201	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-13013	AI207	0–5	SOIL	—	—	—	—	—	0.00149 (J)	—	—
MDAB_04_08-09-13014	AI207	5–10	SOIL	—	—	—	—	—	—	—	—
MDAB_08_12-09-13015	AI207	10–15	SOIL	NA	—	—	—	—	—	—	—
MDAB_00_04-09-10237	AI209	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-10238	AI209	5–10	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-13012	AI211	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-13011	AI211	5–10	SOIL	NA	—	—	—	—	—	—	—
MDAB_00_04-09-10241	AI213	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-10242	AI213	5–11	SOIL	—	—	—	0.1 (J)	—	—	—	—
MDAB_00_04-09-10249	AI217	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-10250	AI217	5–8	SOIL	—	0.045 (J)	—	—	—	—	0.00033 (J)	—
MDAB_00_04-09-10253	AI224	0–2	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-10398	AI229	0–5	SOIL	—	—	—	—	—	—	—	—

Table B-5 (continued)

Sample ID	Location ID	Depth (ft)	Media	Dichloroethene[1,1-]	Diethylphthalate	Dimethyl Phthalate	Di-n-butylphthalate	Di-n-octylphthalate	Endrin Aldehyde	Endrin Ketone	Fluoranthene
Residential SSL[a]				**449**	**48,900**	**611,000**	**6110**	**6110**[g]	**18.3**[h]	**18.3**[h]	**2290**
MDAB_04_08-09-10399	AI229	5–10	SOIL	—	0.041 (J)	—	—	—	—	—	—
MDAB_00_04-09-10258	AI234	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-10257	AI234	5–10	SOIL	—	—	—	—	—	—	—	—
MDAB_08_12-09-10259	AI234	10–13	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-12998	AI239	5–10	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-12995	AI244	0–3	SOIL	NA	—	—	0.13 (J)	—	—	—	—
MDAB_00_04-09-10261	AI245	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-10262	AI245	5–12	SOIL	—	0.053 (J)	—	—	—	—	0.0008 (J)	—
MDAB_00_04-09-12991	AI246	0–5	SOIL	NA	—	—	0.042 (J)	—	—	—	—
MDAB_04_08-09-12990	AI246	5–12	SOIL	NA	—	—	—	—	—	—	—
MDAB_00_04-09-12986	AI250	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-10265	AI251	0–5	SOIL	—	—	—	5.2	—	—	—	2.7
MDAB_04_08-09-10266	AI251	5–9	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-12981	AI252	0–5	SOIL	NA	—	—	—	—	—	—	—
MDAB_00_04-09-10201	AJ158	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-10202	AJ158	5–9	SOIL	—	—	—	1	—	—	—	0.41
MDAB_04_08-09-13124	AJ181	5–10	SOIL	0.000546 (J)	—	—	—	—	—	—	—
MDAB_00_04-09-10217	AJ183	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-10218	AJ183	5–9	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-13034	AJ185	0–7.5	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-13057	AK155	0–4	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-13004	AL225	0–2.5	SOIL	NA	—	—	—	—	—	—	—

Table B-5 (continued)

Sample ID	Location ID	Depth (ft)	Media	Dichloroethene[1,1-]	Diethylphthalate	Dimethyl Phthalate	Di-n-butylphthalate	Di-n-octylphthalate	Endrin Aldehyde	Endrin Ketone	Fluoranthene
Residential SSL[a]				**449**	**48,900**	**611,000**	**6110**	**6110**[g]	**18.3**[h]	**18.3**[h]	**2290**
MDAB_00_04-09-12973	AL258	0–4	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-13118	AM153	0–4	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-13088	AM155	0–4	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-10281	AM228	0–4	SOIL	—	0.038 (J)	—	—	—	—	—	—
MDAB_00_04-09-10285	AM232	0–4	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-13065	AN152	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-13008	AN223	0–4.5	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-10277	AN226	0–3	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-12979	AN256	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-12978	AN256	5–7	SOIL	NA	—	—	—	—	—	—	—
MDAB_00_04-09-13075	AS151	0–4.5	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-10173	AS153	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-13079	AU150	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-10178	AU152	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-10177	AU152	5–6	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-10181	AU154	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-13082	AW150	5–7.5	SOIL	NA	—	—	—	—	—	—	—
MDAB_00_04-09-10185	AW152	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-10186	AW152	5–6.5	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-13096	AY153	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-13095	AY153	5–7.5	SOIL	NA	—	—	—	—	—	—	—
MDAB_00_04-09-10189	BB153	0–5	FILL	—	—	—	—	—	—	—	—

Table B-5 (continued)

Sample ID	Location ID	Depth (ft)	Media	Dichloroethene[1,1-]	Diethylphthalate	Dimethyl Phthalate	Di-n-butylphthalate	Di-n-octylphthalate	Endrin Aldehyde	Endrin Ketone	Fluoranthene
Residential SSL[a]				**449**	**48,900**	**611,000**	**6110**	**6110[g]**	**18.3[h]**	**18.3[h]**	**2290**
MDAB_00_04-09-10390	NF95	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-10391	NF95	5–8	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-10394	NG103	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-10395	NG103	5–10	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-10317	NG56	0–5	SOIL	—	0.037 (J)	—	—	—	—	—	—
MDAB_04_08-09-10318	NG56	5–10	SOIL	—	—	—	—	—	—	—	—
MDAB_08_12-09-10319	NG56	10–15	SOIL	—	—	—	—	—	—	—	—
MDAB_12_16-09-10320	NG56	15–20	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-10325	NG61	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-10326	NG61	5–10	SOIL	—	—	—	—	—	—	—	—
MDAB_08_12-09-10327	NG61	10–15	SOIL	—	—	—	—	0.12 (J)	—	—	—
MDAB_00_04-09-10329	NG75	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-10330	NG75	5–10	SOIL	—	—	—	—	—	—	—	—
MDAB_08_12-09-10331	NG75	10–15.5	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-10382	NG77	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-10383	NG77	5–10	SOIL	—	—	—	—	—	—	—	—
MDAB_08_12-09-10385	NG77	10–15	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-10289	NH27	0–5	SOIL	—	0.041 (J)	—	—	—	—	—	—
MDAB_04_08-09-10290	NH27	5–10	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-12961	NH40	0–5	SOIL	NA	—	—	—	—	—	—	—
MDAB_04_08-09-12962	NH40	5–10	SOIL	—	—	—	—	—	—	—	—
MDAB_08_12-09-12964	NH40	10–15	SOIL	—	—	—	—	—	—	—	—

Table B-5 (continued)

Sample ID	Location ID	Depth (ft)	Media	Dichloroethene[1,1-]	Diethylphthalate	Dimethyl Phthalate	Di-n-butylphthalate	Di-n-octylphthalate	Endrin Aldehyde	Endrin Ketone	Fluoranthene
Residential SSL[a]				**449**	**48,900**	**611,000**	**6110**	**6110**[g]	**18.3**[h]	**18.3**[h]	**2290**
MDAB_12_16-09-12963	NH40	15–18	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-10321	NH59	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-10322	NH59	5–10	SOIL	—	—	—	—	—	—	—	—
MDAB_08_12-09-10323	NH59	10–15	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-12969	NI29	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-12970	NI29	5–10	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-12957	NI34	0–5	SOIL	NA	—	—	—	—	—	—	—
MDAB_04_08-09-12958	NI34	5–10	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-10313	NI38	0–3	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-10310	NI43	5–7	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-10301	NI48	0–5	SOIL	—	0.042 (J)	—	—	—	—	—	—
MDAB_00_04-09-10389	NI85	0–4	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-10293	NJ30	0–5	SOIL	—	0.04 (J)	—	—	—	—	—	—
MDAB_04_08-09-10294	NJ30	5–9.5	SOIL	—	0.06 (J)	—	—	—	—	—	—
MDAB_00_04-09-10297	NJ35	0–4.5	SOIL	—	0.049 (J)	—	—	—	—	—	—
MDAB_00_04-10-462	WST-600902	0–0	FILL	—	—	—	—	—	—	—	—
MDAB_00_04-10-463	WST-600902	0–0	FILL	—	—	—	—	—	—	—	—
MDAB_00_04-10-464	WST-600902	0–0	FILL	—	—	—	—	—	—	—	—

Table B-5 (continued)

Sample ID	Location ID	Depth (ft)	Media	Fluorene	Heptachlor Epoxide	Hexanone[2-]	Indeno(1,2,3-cd)pyrene	Isopropyltoluene[4-]	Methoxychlor[4,4'-]	Methyl-2-pentanone[4-]
Residential SSL[a]				**2290**	**0.53**[f]	**210**[f]	**1.48**	**3130**[i]	**310**[f]	**5820**
MDAB_00_04-09-13063	AF153	0–2.5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13045	AF155	0–3	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13104	AG168	0–2.5	FILL	—	—	—	—	—	—	—
MDAB_00_04-09-10209	AH167	0–4	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10245	AH215	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10246	AH215	5–7	SOIL	—	—	0.71 (J)	—	—	—	0.12 (J+)
MDAB_00_04-09-10193	AI155	0–5	FILL	—	—	—	—	—	—	—
MDAB_04_08-09-10194	AI155	5–9	SOIL	0.0233 (J)	—	—	—	—	—	—
MDAB_00_04-09-10197	AI157	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10198	AI157	5–9	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13049	AI160	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-13050	AI160	5–11	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-13054	AI164	5–10	QBT3	—	—	—	—	—	—	—
MDAB_00_04-09-13041	AI167	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-13042	AI167	5–10	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13097	AI171	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-13098	AI171	5–10	SOIL	—	—	NA	—	NA	—	NA
MDAB_04_08-09-10214	AI176	5–9	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13115	AI179	0–5	SOIL	—	—	NA	—	NA	—	NA
MDAB_00_04-09-10221	AI180	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10222	AI180	5–10	SOIL	—	—	—	—	—	—	—

Table B-5 (continued)

Sample ID	Location ID	Depth (ft)	Media	Fluorene	Heptachlor Epoxide	Hexanone[2-]	Indeno(1,2,3-cd)pyrene	Isopropyltoluene[4-]	Methoxychlor[4,4'-]	Methyl-2-pentanone[4-]
Residential SSL[a]				**2290**	**0.53[f]**	**210[f]**	**1.48**	**3130[i]**	**310[f]**	**5820**
MDAB_00_04-09-13038	AI183	0–5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10225	AI185	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10226	AI185	5–6	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13031	AI186	0–6	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10229	AI191	0–4.5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-13027	AI193	5–7	SOIL	—	—	NA	—	NA	—	NA
MDAB_00_04-09-13021	AI199	0–5	SOIL	—	—	NA	—	NA	—	NA
MDAB_00_04-09-10233	AI200	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10234	AI200	5–11	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13020	AI201	0–5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13013	AI207	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-13014	AI207	5–10	SOIL	—	—	—	—	—	—	—
MDAB_08_12-09-13015	AI207	10–15	SOIL	—	—	NA	—	NA	—	NA
MDAB_00_04-09-10237	AI209	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10238	AI209	5–10	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13012	AI211	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-13011	AI211	5–10	SOIL	—	—	NA	—	NA	—	NA
MDAB_00_04-09-10241	AI213	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10242	AI213	5–11	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10249	AI217	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10250	AI217	5–8	SOIL	—	—	—	—	—	—	—

Table B-5 (continued)

Sample ID	Location ID	Depth (ft)	Media	Fluorene	Heptachlor Epoxide	Hexanone[2-]	Indeno(1,2,3-cd)pyrene	Isopropyltoluene[4-]	Methoxychlor[4,4'-]	Methyl-2-pentanone[4-]
Residential SSL[a]				**2290**	**0.53[f]**	**210[f]**	**1.48**	**3130[i]**	**310[f]**	**5820**
MDAB_00_04-09-10253	AI224	0–2	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10398	AI229	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10399	AI229	5–10	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10258	AI234	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10257	AI234	5–10	SOIL	—	—	—	—	—	—	—
MDAB_08_12-09-10259	AI234	10–13	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-12998	AI239	5–10	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-12995	AI244	0–3	SOIL	—	—	NA	—	NA	—	NA
MDAB_00_04-09-10261	AI245	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10262	AI245	5–12	SOIL	—	0.00017 (J)	—	—	—	—	—
MDAB_00_04-09-12991	AI246	0–5	SOIL	—	—	NA	—	NA	—	NA
MDAB_04_08-09-12990	AI246	5–12	SOIL	—	—	NA	—	NA	—	NA
MDAB_00_04-09-12986	AI250	0–5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10265	AI251	0–5	SOIL	—	—	—	0.81	—	—	—
MDAB_04_08-09-10266	AI251	5–9	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-12981	AI252	0–5	SOIL	—	—	NA	—	NA	—	NA
MDAB_00_04-09-10201	AJ158	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10202	AJ158	5–9	SOIL	—	—	—	0.11 (J)	—	—	—
MDAB_04_08-09-13124	AJ181	5–10	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10217	AJ183	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10218	AJ183	5–9	SOIL	—	—	—	—	—	—	—

Table B-5 (continued)

Sample ID	Location ID	Depth (ft)	Media	Fluorene	Heptachlor Epoxide	Hexanone[2-]	Indeno(1,2,3-cd)pyrene	Isopropyltoluene[4-]	Methoxychlor[4,4'-]	Methyl-2-pentanone[4-]
Residential SSL[a]				**2290**	**0.53**[f]	**210**[f]	**1.48**	**3130**[i]	**310**[f]	**5820**
MDAB_00_04-09-13034	AJ185	0–7.5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13057	AK155	0–4	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13004	AL225	0–2.5	SOIL	—	—	NA	—	NA	—	NA
MDAB_00_04-09-12973	AL258	0–4	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13118	AM153	0–4	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13088	AM155	0–4	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10281	AM228	0–4	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10285	AM232	0–4	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13065	AN152	0–5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13008	AN223	0–4.5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10277	AN226	0–3	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-12979	AN256	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-12978	AN256	5–7	SOIL	—	—	NA	—	NA	—	NA
MDAB_00_04-09-13075	AS151	0–4.5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10173	AS153	0–5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13079	AU150	0–5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10178	AU152	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10177	AU152	5–6	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10181	AU154	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-13082	AW150	5–7.5	SOIL	—	—	NA	—	NA	—	NA
MDAB_00_04-09-10185	AW152	0–5	SOIL	—	—	—	—	—	—	—

Table B-5 (continued)

Sample ID	Location ID	Depth (ft)	Media	Fluorene	Heptachlor Epoxide	Hexanone[2-]	Indeno(1,2,3-cd)pyrene	Isopropyltoluene[4-]	Methoxychlor[4,4'-]	Methyl-2-pentanone[4-]
Residential SSL[a]				**2290**	**0.53[f]**	**210[f]**	**1.48**	**3130[i]**	**310[f]**	**5820**
MDAB_04_08-09-10186	AW152	5–6.5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13096	AY153	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-13095	AY153	5–7.5	SOIL	—	—	NA	—	NA	—	NA
MDAB_00_04-09-10189	BB153	0–5	FILL	—	—	—	—	—	—	—
MDAB_00_04-09-10390	NF95	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10391	NF95	5–8	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10394	NG103	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10395	NG103	5–10	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10317	NG56	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10318	NG56	5–10	SOIL	—	—	—	—	—	—	—
MDAB_08_12-09-10319	NG56	10–15	SOIL	—	—	—	—	—	—	—
MDAB_12_16-09-10320	NG56	15–20	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10325	NG61	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10326	NG61	5–10	SOIL	—	—	—	—	—	0.00062 (J)	—
MDAB_08_12-09-10327	NG61	10–15	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10329	NG75	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10330	NG75	5–10	SOIL	—	—	—	—	—	—	—
MDAB_08_12-09-10331	NG75	10–15.5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10382	NG77	0–5	SOIL	—	—	—	—	0.00055 (J)	—	—
MDAB_04_08-09-10383	NG77	5–10	SOIL	—	—	—	—	—	—	—
MDAB_08_12-09-10385	NG77	10–15	SOIL	—	—	—	—	—	—	—

Table B-5 (continued)

Sample ID	Location ID	Depth (ft)	Media	Fluorene	Heptachlor Epoxide	Hexanone[2-]	Indeno(1,2,3-cd)pyrene	Isopropyltoluene[4-]	Methoxychlor[4,4'-]	Methyl-2-pentanone[4-]
Residential SSL[a]				**2290**	**0.53[f]**	**210[f]**	**1.48**	**3130[i]**	**310[f]**	**5820**
MDAB_00_04-09-10289	NH27	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10290	NH27	5–10	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-12961	NH40	0–5	SOIL	—	—	NA	—	NA	—	NA
MDAB_04_08-09-12962	NH40	5–10	SOIL	—	—	—	—	—	—	—
MDAB_08_12-09-12964	NH40	10–15	SOIL	—	—	—	—	—	—	—
MDAB_12_16-09-12963	NH40	15–18	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10321	NH59	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10322	NH59	5–10	SOIL	—	—	—	—	—	—	—
MDAB_08_12-09-10323	NH59	10–15	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-12969	NI29	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-12970	NI29	5–10	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-12957	NI34	0–5	SOIL	—	—	NA	—	NA	—	NA
MDAB_04_08-09-12958	NI34	5–10	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10313	NI38	0–3	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10310	NI43	5–7	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10301	NI48	0–5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10389	NI85	0–4	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10293	NJ30	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10294	NJ30	5–9.5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10297	NJ35	0–4.5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-10-462	WST-600902	0–0	FILL	—	—	—	—	—	—	—

Table B-5 (continued)

Sample ID	Location ID	Depth (ft)	Media	Fluorene	Heptachlor Epoxide	Hexanone[2-]	Indeno(1,2,3-cd)pyrene	Isopropyltoluene[4-]	Methoxychlor[4,4'-]	Methyl-2-pentanone[4-]
Residential SSL[a]				**2290**	**0.53**[f]	**210**[f]	**1.48**	**3130**[i]	**310**[f]	**5820**
MDAB_00_04-10-463	WST-600902	0–0	FILL	—	—	—	—	—	—	—
MDAB_00_04-10-464	WST-600902	0–0	FILL	—	—	—	—	—	—	—

Table B-5 (continued)

Sample ID	Location ID	Depth (ft)	Media	Methylene Chloride	Methylnaphthalene[2-]	Naphthalene	Phenanthrene	Phenol	Pyrene	Styrene	Trichlorophenoxyacetic acid [2,4,5-]
Residential SSL				**409**	**310**[f]	**43**	**1830**	**18,300**	**1720**	**7280**	**610**[f]
MDAB_00_04-09-13063	AF153	0–2.5	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-13045	AF155	0–3	SOIL	—	—	—	0.3 (J)	—	0.48	—	—
MDAB_00_04-09-13104	AG168	0–2.5	FILL	—	—	—	—	—	—	—	—
MDAB_00_04-09-10209	AH167	0–4	SOIL	0.016 (J+)	—	—	—	0.14 (J)	—	—	—
MDAB_00_04-09-10245	AH215	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-10246	AH215	5–7	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-10193	AI155	0–5	FILL	—	0.013 (J)	—	—	—	0.0124 (J)	—	—
MDAB_04_08-09-10194	AI155	5–9	SOIL	—	0.0292 (J)	—	0.0278 (J)	—	0.0248 (J)	—	—
MDAB_00_04-09-10197	AI157	0–5	SOIL	0.0034 (J)	0.1 (J)	0.078 (J)	0.054 (J)	—	—	—	—
MDAB_04_08-09-10198	AI157	5–9	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-13049	AI160	0–5	SOIL	0.0039 (J)	—	—	—	—	—	—	—
MDAB_04_08-09-13050	AI160	5–11	SOIL	0.0029 (J)	—	—	—	—	—	—	—
MDAB_04_08-09-13054	AI164	5–10	QBT3	—	—	—	—	—	—	—	—
MDAB_00_04-09-13041	AI167	0–5	SOIL	0.0036 (J)	—	—	—	—	—	—	—
MDAB_04_08-09-13042	AI167	5–10	SOIL	0.0057	—	—	—	—	—	—	—
MDAB_00_04-09-13097	AI171	0–5	SOIL	—	0.00818 (J)	—	—	—	—	—	—
MDAB_04_08-09-13098	AI171	5–10	SOIL	NA	—	—	—	—	—	NA	—
MDAB_04_08-09-10214	AI176	5–9	SOIL	—	0.049 (J)	—	—	0.96	—	—	—
MDAB_00_04-09-13115	AI179	0–5	SOIL	NA	—	—	—	—	—	NA	—
MDAB_00_04-09-10221	AI180	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-10222	AI180	5–10	SOIL	—	0.34 (J)	0.22 (J)	0.15 (J)	—	0.041 (J)	—	—

Table B-5 (continued)

Sample ID	Location ID	Depth (ft)	Media	Methylene Chloride	Methylnaphthalene[2-]	Naphthalene	Phenanthrene	Phenol	Pyrene	Styrene	Trichlorophenoxyacetic acid [2,4,5-]
Residential SSL				**409**	**310**[f]	**43**	**1830**	**18,300**	**1720**	**7280**	**610**[f]
MDAB_00_04-09-13038	AI183	0–5	SOIL	0.00661	—	—	—	—	—	—	—
MDAB_00_04-09-10225	AI185	0–5	SOIL	—	—	—	—	—	—	0.0083	—
MDAB_04_08-09-10226	AI185	5–6	SOIL	—	0.63	0.45	0.2 (J)	—	0.045 (J)	—	—
MDAB_00_04-09-13031	AI186	0–6	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-10229	AI191	0–4.5	SOIL	—	—	—	—	—	—	0.00049 (J)	—
MDAB_04_08-09-13027	AI193	5–7	SOIL	NA	0.0224 (J)	—	—	—	—	NA	—
MDAB_00_04-09-13021	AI199	0–5	SOIL	NA	—	—	0.0131 (J)	—	0.0245 (J)	NA	—
MDAB_00_04-09-10233	AI200	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-10234	AI200	5–11	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-13020	AI201	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-13013	AI207	0–5	SOIL	—	0.0292 (J)	0.0138 (J)	—	—	—	—	—
MDAB_04_08-09-13014	AI207	5–10	SOIL	—	0.0259 (J)	0.0139 (J)	—	—	—	—	—
MDAB_08_12-09-13015	AI207	10–15	SOIL	NA	0.142	0.071 (J)	0.0838 (J)	—	0.0344 (J)	NA	—
MDAB_00_04-09-10237	AI209	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-10238	AI209	5–10	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-13012	AI211	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-13011	AI211	5–10	SOIL	NA	—	—	—	—	—	NA	—
MDAB_00_04-09-10241	AI213	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-10242	AI213	5–11	SOIL	—	—	—	—	—	—	0.00034 (J)	—
MDAB_00_04-09-10249	AI217	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-10250	AI217	5–8	SOIL	0.0051 (J)	—	—	—	—	—	—	—

Table B-5 (continued)

Sample ID	Location ID	Depth (ft)	Media	Methylene Chloride	Methylnaphthalene[2-]	Naphthalene	Phenanthrene	Phenol	Pyrene	Styrene	Trichlorophenoxyacetic acid [2,4,5-]
Residential SSL				**409**	**310**[f]	**43**	**1830**	**18,300**	**1720**	**7280**	**610**[f]
MDAB_00_04-09-10253	AI224	0–2	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-10398	AI229	0–5	SOIL	0.0051 (J)	—	—	—	—	—	—	—
MDAB_04_08-09-10399	AI229	5–10	SOIL	0.0035 (J)	—	—	—	—	—	—	—
MDAB_00_04-09-10258	AI234	0–5	SOIL	0.011	—	—	—	—	—	—	—
MDAB_04_08-09-10257	AI234	5–10	SOIL	0.014	—	—	—	—	—	—	—
MDAB_08_12-09-10259	AI234	10–13	SOIL	0.016	—	—	—	—	—	—	—
MDAB_04_08-09-12998	AI239	5–10	SOIL	0.0093 (J)	—	—	—	—	—	—	—
MDAB_00_04-09-12995	AI244	0–3	SOIL	NA	—	—	—	—	—	NA	—
MDAB_00_04-09-10261	AI245	0–5	SOIL	0.0078	—	—	—	—	—	—	—
MDAB_04_08-09-10262	AI245	5–12	SOIL	0.0049 (J)	—	—	—	—	—	—	—
MDAB_00_04-09-12991	AI246	0–5	SOIL	NA	—	—	—	—	—	NA	—
MDAB_04_08-09-12990	AI246	5–12	SOIL	NA	—	—	—	—	—	NA	—
MDAB_00_04-09-12986	AI250	0–5	SOIL	0.003 (J)	—	—	—	—	—	—	—
MDAB_00_04-09-10265	AI251	0–5	SOIL	0.016	—	0.12 (J)	0.91	—	2.1	—	—
MDAB_04_08-09-10266	AI251	5–9	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-12981	AI252	0–5	SOIL	NA	—	—	—	—	—	NA	—
MDAB_00_04-09-10201	AJ158	0–5	SOIL	0.0064	—	—	—	0.094 (J)	—	—	—
MDAB_04_08-09-10202	AJ158	5–9	SOIL	0.0046 (J)	—	—	0.13 (J)	0.084 (J)	0.25 (J)	—	—
MDAB_04_08-09-13124	AJ181	5–10	SOIL	—	0.0385 (J)	0.0219 (J)	0.0229 (J)	—	—	—	—
MDAB_00_04-09-10217	AJ183	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-10218	AJ183	5–9	SOIL	—	0.12 (J)	0.066 (J)	0.093 (J)	—	—	—	—

Table B-5 (continued)

Sample ID	Location ID	Depth (ft)	Media	Methylene Chloride	Methylnaphthalene[2-]	Naphthalene	Phenanthrene	Phenol	Pyrene	Styrene	Trichlorophenoxyacetic acid [2,4,5-]
Residential SSL				**409**	**310**[f]	**43**	**1830**	**18,300**	**1720**	**7280**	**610**[f]
MDAB_00_04-09-13034	AJ185	0–7.5	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-13057	AK155	0–4	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-13004	AL225	0–2.5	SOIL	NA	—	—	—	—	—	NA	—
MDAB_00_04-09-12973	AL258	0–4	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-13118	AM153	0–4	SOIL	0.0039 (J)	—	—	—	—	—	—	—
MDAB_00_04-09-13088	AM155	0–4	SOIL	0.0056 (J)	—	—	—	—	—	—	—
MDAB_00_04-09-10281	AM228	0–4	SOIL	0.0051 (J)	—	—	—	—	—	—	—
MDAB_00_04-09-10285	AM232	0–4	SOIL	0.0037 (J)	—	—	—	—	—	—	—
MDAB_00_04-09-13065	AN152	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-13008	AN223	0–4.5	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-10277	AN226	0–3	SOIL	0.0049 (J)	—	—	—	—	—	—	—
MDAB_00_04-09-12979	AN256	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-12978	AN256	5–7	SOIL	NA	—	—	—	—	—	NA	—
MDAB_00_04-09-13075	AS151	0–4.5	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-10173	AS153	0–5	SOIL	0.0045 (J)	—	—	—	—	—	—	—
MDAB_00_04-09-13079	AU150	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-10178	AU152	0–5	SOIL	0.0044 (J)	—	—	—	—	—	—	—
MDAB_04_08-09-10177	AU152	5–6	SOIL	0.0052 (J)	—	—	—	—	—	—	—
MDAB_00_04-09-10181	AU154	0–5	SOIL	0.0058	—	—	—	—	—	0.00027 (J)	—
MDAB_04_08-09-13082	AW150	5–7.5	SOIL	NA	—	—	—	—	—	NA	—
MDAB_00_04-09-10185	AW152	0–5	SOIL	0.0064	0.072 (J)	—	—	—	—	0.00024 (J)	—

Table B-5 (continued)

Sample ID	Location ID	Depth (ft)	Media	Methylene Chloride	Methylnaphthalene[2-]	Naphthalene	Phenanthrene	Phenol	Pyrene	Styrene	Trichlorophenoxyacetic acid [2,4,5-]
Residential SSL				**409**	**310**[f]	**43**	**1830**	**18,300**	**1720**	**7280**	**610**[f]
MDAB_04_08-09-10186	AW152	5–6.5	SOIL	0.005 (J)	—	—	—	—	—	—	—
MDAB_00_04-09-13096	AY153	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-13095	AY153	5–7.5	SOIL	NA	—	—	—	—	—	NA	—
MDAB_00_04-09-10189	BB153	0–5	FILL	—	—	—	—	—	—	—	—
MDAB_00_04-09-10390	NF95	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-10391	NF95	5–8	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-10394	NG103	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-10395	NG103	5–10	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-10317	NG56	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-10318	NG56	5–10	SOIL	—	—	—	—	—	—	—	—
MDAB_08_12-09-10319	NG56	10–15	SOIL	—	—	—	—	—	—	—	—
MDAB_12_16-09-10320	NG56	15–20	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-10325	NG61	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-10326	NG61	5–10	SOIL	—	—	—	—	—	—	—	—
MDAB_08_12-09-10327	NG61	10–15	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-10329	NG75	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-10330	NG75	5–10	SOIL	—	—	—	—	—	—	—	—
MDAB_08_12-09-10331	NG75	10–15.5	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-10382	NG77	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-10383	NG77	5–10	SOIL	—	—	—	—	—	—	—	—
MDAB_08_12-09-10385	NG77	10–15	SOIL	—	—	—	—	—	—	—	—

Table B-5 (continued)

Sample ID	Location ID	Depth (ft)	Media	Methylene Chloride	Methylnaphthalene[2-]	Naphthalene	Phenanthrene	Phenol	Pyrene	Styrene	Trichlorophenoxyacetic acid [2,4,5-]
Residential SSL				**409**	**310**[f]	**43**	**1830**	**18,300**	**1720**	**7280**	**610**[f]
MDAB_00_04-09-10289	NH27	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-10290	NH27	5–10	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-12961	NH40	0–5	SOIL	NA	—	—	—	—	—	NA	—
MDAB_04_08-09-12962	NH40	5–10	SOIL	0.011 (J)	—	—	—	—	—	—	—
MDAB_08_12-09-12964	NH40	10–15	SOIL	0.0084 (J)	—	—	—	—	—	—	—
MDAB_12_16-09-12963	NH40	15–18	SOIL	0.0056 (J)	—	—	—	—	—	—	—
MDAB_00_04-09-10321	NH59	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-10322	NH59	5–10	SOIL	—	—	—	—	—	—	0.00027 (J)	—
MDAB_08_12-09-10323	NH59	10–15	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-12969	NI29	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-12970	NI29	5–10	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-12957	NI34	0–5	SOIL	NA	—	—	—	—	—	NA	—
MDAB_04_08-09-12958	NI34	5–10	SOIL	0.0036 (J)	—	—	—	—	—	—	—
MDAB_00_04-09-10313	NI38	0–3	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-10310	NI43	5–7	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-10301	NI48	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-10389	NI85	0–4	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-10293	NJ30	0–5	SOIL	—	—	—	—	—	—	—	—
MDAB_04_08-09-10294	NJ30	5–9.5	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-09-10297	NJ35	0–4.5	SOIL	—	—	—	—	—	—	—	—
MDAB_00_04-10-462	WST-600902	0–0	FILL	0.018	—	—	—	—	—	—	0.012

Table B-5 (continued)

Sample ID	Location ID	Depth (ft)	Media	Methylene Chloride	Methylnaphthalene[2-]	Naphthalene	Phenanthrene	Phenol	Pyrene	Styrene	Trichlorophenoxyacetic acid [2,4,5-]
Residential SSL				**409**	**310**[f]	**43**	**1830**	**18,300**	**1720**	**7280**	**610**[f]
MDAB_00_04-10-463	WST-600902	0–0	FILL	0.008	—	—	—	—	—	—	0.022
MDAB_00_04-10-464	WST-600902	0–0	FILL	—	—	—	—	—	—	—	—

Table B-5 (continued)

Sample ID	Location ID	Depth (ft)	Media	Tetrachloroethene	Toluene	Trichloroethene	Trichlorofluoromethane	Trimethylbenzene[1,2,4-]	Trimethylbenzene[1,3,5-]	Xylene (Total)
Residential SSL[a]				**702**	**5570**	**8.77**	**1410**	**62**[f]	**780**[f]	**814**
MDAB_00_04-09-13063	AF153	0–2.5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13045	AF155	0–3	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13104	AG168	0–2.5	FILL	—	—	—	—	—	—	—
MDAB_00_04-09-10209	AH167	0–4	SOIL	—	0.03 (J)	0.00066 (J+)	0.0012 (J+)	—	—	—
MDAB_00_04-09-10245	AH215	0–5	SOIL	—	—	0.015	—	—	—	—
MDAB_04_08-09-10246	AH215	5–7	SOIL	—	—	0.011 (J+)	—	—	—	0.00098 (J)
MDAB_00_04-09-10193	AI155	0–5	FILL	—	—	—	—	—	—	NA
MDAB_04_08-09-10194	AI155	5–9	SOIL	—	—	—	—	—	—	NA
MDAB_00_04-09-10197	AI157	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10198	AI157	5–9	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13049	AI160	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-13050	AI160	5–11	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-13054	AI164	5–10	QBT3	—	—	—	—	—	—	—
MDAB_00_04-09-13041	AI167	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-13042	AI167	5–10	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13097	AI171	0–5	SOIL	—	—	—	—	—	—	NA
MDAB_04_08-09-13098	AI171	5–10	SOIL	NA	NA	NA	NA	NA	NA	NA
MDAB_04_08-09-10214	AI176	5–9	SOIL	—	—	—	—	0.001 (J)	—	0.00083 (J)
MDAB_00_04-09-13115	AI179	0–5	SOIL	NA	NA	NA	NA	NA	NA	NA
MDAB_00_04-09-10221	AI180	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10222	AI180	5–10	SOIL	—	0.067 (J)	—	0.002 (J)	—	0.0031 (J)	0.023 (J)

Table B-5 (continued)

Sample ID	Location ID	Depth (ft)	Media	Tetrachloroethene	Toluene	Trichloroethene	Trichlorofluoromethane	Trimethylbenzene[1,2,4-]	Trimethylbenzene[1,3,5-]	Xylene (Total)
Residential SSL[a]				**702**	**5570**	**8.77**	**1410**	**62**[f]	**780**[f]	**814**
MDAB_00_04-09-13038	AI183	0–5	SOIL	—	0.00042 (J)	—	—	—	—	NA
MDAB_00_04-09-10225	AI185	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10226	AI185	5–6	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13031	AI186	0–6	SOIL	—	—	—	—	—	—	NA
MDAB_00_04-09-10229	AI191	0–4.5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-13027	AI193	5–7	SOIL	NA	NA	NA	NA	NA	NA	NA
MDAB_00_04-09-13021	AI199	0–5	SOIL	NA	NA	NA	NA	NA	NA	NA
MDAB_00_04-09-10233	AI200	0–5	SOIL	—	—	0.0012 (J)	—	—	—	—
MDAB_04_08-09-10234	AI200	5–11	SOIL	0.0045 (J+)	—	0.12 (J+)	0.00033 (J+)	0.00071 (J)	—	—
MDAB_00_04-09-13020	AI201	0–5	SOIL	—	—	0.000596 (J)	—	—	—	NA
MDAB_00_04-09-13013	AI207	0–5	SOIL	0.000412 (J)	—	0.00745	—	—	—	NA
MDAB_04_08-09-13014	AI207	5–10	SOIL	0.000635 (J)	—	0.0175	—	—	—	NA
MDAB_08_12-09-13015	AI207	10–15	SOIL	NA	NA	NA	NA	NA	NA	NA
MDAB_00_04-09-10237	AI209	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10238	AI209	5–10	SOIL	—	—	0.098	—	—	—	—
MDAB_00_04-09-13012	AI211	0–5	SOIL	—	—	0.000711 (J)	—	—	—	NA
MDAB_04_08-09-13011	AI211	5–10	SOIL	NA	NA	NA	NA	NA	NA	NA
MDAB_00_04-09-10241	AI213	0–5	SOIL	—	—	0.0019 (J)	—	—	—	—
MDAB_04_08-09-10242	AI213	5–11	SOIL	—	—	0.0053 (J)	—	—	—	—
MDAB_00_04-09-10249	AI217	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10250	AI217	5–8	SOIL	—	—	—	—	—	—	—

Table B-5 (continued)

Sample ID	Location ID	Depth (ft)	Media	Tetrachloroethene	Toluene	Trichloroethene	Trichlorofluoromethane	Trimethylbenzene[1,2,4-]	Trimethylbenzene[1,3,5-]	Xylene (Total)
Residential SSL[a]				**702**	**5570**	**8.77**	**1410**	**62**[f]	**780**[f]	**814**
MDAB_00_04-09-10253	AI224	0–2	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10398	AI229	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10399	AI229	5–10	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10258	AI234	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10257	AI234	5–10	SOIL	—	—	—	—	—	—	—
MDAB_08_12-09-10259	AI234	10–13	SOIL	—	—	0.0052 (J)	—	—	—	0.0011 (J)
MDAB_04_08-09-12998	AI239	5–10	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-12995	AI244	0–3	SOIL	NA	NA	NA	NA	NA	NA	NA
MDAB_00_04-09-10261	AI245	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10262	AI245	5–12	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-12991	AI246	0–5	SOIL	NA	NA	NA	NA	NA	NA	NA
MDAB_04_08-09-12990	AI246	5–12	SOIL	NA	NA	NA	NA	NA	NA	NA
MDAB_00_04-09-12986	AI250	0–5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10265	AI251	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10266	AI251	5–9	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-12981	AI252	0–5	SOIL	NA	NA	NA	NA	NA	NA	NA
MDAB_00_04-09-10201	AJ158	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10202	AJ158	5–9	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-13124	AJ181	5–10	SOIL	—	0.000497 (J)	—	—	—	—	NA
MDAB_00_04-09-10217	AJ183	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10218	AJ183	5–9	SOIL	—	—	—	—	0.00068 (J)	—	—

Table B-5 (continued)

Sample ID	Location ID	Depth (ft)	Media	Tetrachloroethene	Toluene	Trichloroethene	Trichlorofluoromethane	Trimethylbenzene[1,2,4-]	Trimethylbenzene[1,3,5-]	Xylene (Total)
Residential SSL[a]				**702**	**5570**	**8.77**	**1410**	**62**[f]	**780**[f]	**814**
MDAB_00_04-09-13034	AJ185	0–7.5	SOIL	—	—	—	—	—	—	NA
MDAB_00_04-09-13057	AK155	0–4	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13004	AL225	0–2.5	SOIL	NA	NA	NA	NA	NA	NA	NA
MDAB_00_04-09-12973	AL258	0–4	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13118	AM153	0–4	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13088	AM155	0–4	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10281	AM228	0–4	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10285	AM232	0–4	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13065	AN152	0–5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13008	AN223	0–4.5	SOIL	—	0.000446 (J)	—	—	—	—	NA
MDAB_00_04-09-10277	AN226	0–3	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-12979	AN256	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-12978	AN256	5–7	SOIL	NA	NA	NA	NA	NA	NA	NA
MDAB_00_04-09-13075	AS151	0–4.5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10173	AS153	0–5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13079	AU150	0–5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10178	AU152	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10177	AU152	5–6	SOIL	—	—	—	—	0.00045 (J)	—	—
MDAB_00_04-09-10181	AU154	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-13082	AW150	5–7.5	SOIL	NA	NA	NA	NA	NA	NA	NA
MDAB_00_04-09-10185	AW152	0–5	SOIL	—	—	—	—	—	—	—

Table B-5 (continued)

Sample ID	Location ID	Depth (ft)	Media	Tetrachloroethene	Toluene	Trichloroethene	Trichlorofluoromethane	Trimethylbenzene[1,2,4-]	Trimethylbenzene[1,3,5-]	Xylene (Total)
Residential SSL[a]				**702**	**5570**	**8.77**	**1410**	**62**[f]	**780**[f]	**814**
MDAB_04_08-09-10186	AW152	5–6.5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-13096	AY153	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-13095	AY153	5–7.5	SOIL	NA	NA	NA	NA	NA	NA	NA
MDAB_00_04-09-10189	BB153	0–5	FILL	—	—	—	—	0.00053 (J)	—	—
MDAB_00_04-09-10390	NF95	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10391	NF95	5–8	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10394	NG103	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10395	NG103	5–10	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10317	NG56	0–5	SOIL	—	—	—	—	0.0012 (J)	—	—
MDAB_04_08-09-10318	NG56	5–10	SOIL	—	—	—	—	0.00084 (J)	—	—
MDAB_08_12-09-10319	NG56	10–15	SOIL	—	—	—	—	0.00082 (J)	—	—
MDAB_12_16-09-10320	NG56	15–20	SOIL	—	—	—	—	0.00081 (J)	—	—
MDAB_00_04-09-10325	NG61	0–5	SOIL	—	—	—	—	0.00074 (J)	—	—
MDAB_04_08-09-10326	NG61	5–10	SOIL	—	—	—	—	0.00067 (J)	—	—
MDAB_08_12-09-10327	NG61	10–15	SOIL	—	—	—	—	0.00057 (J)	0.00061 (J)	—
MDAB_00_04-09-10329	NG75	0–5	SOIL	—	—	—	—	0.0007 (J)	—	—
MDAB_04_08-09-10330	NG75	5–10	SOIL	—	—	—	—	—	—	—
MDAB_08_12-09-10331	NG75	10–15.5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10382	NG77	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10383	NG77	5–10	SOIL	—	—	—	—	—	—	—
MDAB_08_12-09-10385	NG77	10–15	SOIL	—	—	—	—	—	—	—

Table B-5 (continued)

Sample ID	Location ID	Depth (ft)	Media	Tetrachloroethene	Toluene	Trichloroethene	Trichlorofluoromethane	Trimethylbenzene[1,2,4-]	Trimethylbenzene[1,3,5-]	Xylene (Total)
Residential SSL[a]				**702**	**5570**	**8.77**	**1410**	**62[f]**	**780[f]**	**814**
MDAB_00_04-09-10289	NH27	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10290	NH27	5–10	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-12961	NH40	0–5	SOIL	NA	NA	NA	NA	NA	NA	NA
MDAB_04_08-09-12962	NH40	5–10	SOIL	—	—	—	—	—	—	—
MDAB_08_12-09-12964	NH40	10–15	SOIL	—	—	—	—	—	—	—
MDAB_12_16-09-12963	NH40	15–18	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10321	NH59	0–5	SOIL	—	—	—	—	0.00059 (J)	—	—
MDAB_04_08-09-10322	NH59	5–10	SOIL	—	—	—	—	0.00067 (J)	—	—
MDAB_08_12-09-10323	NH59	10–15	SOIL	—	—	—	—	0.00077 (J)	—	—
MDAB_00_04-09-12969	NI29	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-12970	NI29	5–10	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-12957	NI34	0–5	SOIL	NA	NA	NA	NA	NA	NA	NA
MDAB_04_08-09-12958	NI34	5–10	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10313	NI38	0–3	SOIL	—	—	—	—	0.0013 (J)	—	—
MDAB_04_08-09-10310	NI43	5–7	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10301	NI48	0–5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10389	NI85	0–4	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10293	NJ30	0–5	SOIL	—	—	—	—	—	—	—
MDAB_04_08-09-10294	NJ30	5–9.5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-09-10297	NJ35	0–4.5	SOIL	—	—	—	—	—	—	—
MDAB_00_04-10-462	WST-600902	0–0	FILL	—	0.01	—	—	—	—	—

Table B-5 (continued)

Sample ID	Location ID	Depth (ft)	Media	Tetrachloroethene	Toluene	Trichloroethene	Trichlorofluoromethane	Trimethylbenzene[1,2,4-]	Trimethylbenzene[1,3,5-]	Xylene (Total)
Residential SSL[a]				**702**	**5570**	**8.77**	**1410**	**62[f]**	**780[f]**	**814**
MDAB_00_04-10-463	WST-600902	0–0	FILL	—	0.0036 (J)	—	—	—	—	—
MDAB_00_04-10-464	WST-600902	0–0	FILL	—	0.0012 (J)	—	—	—	—	—

Notes: Units in mg/kg. See Appendix A for data qualifier definitions.

[a] SSLs are from NMED (2012, 219971), unless otherwise noted.

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

[c] — = Not detected.

[d] NA = Not analyzed.

[e] Sample from location WST-600902 is a composite waste sample.

[f] SSL from www.epa.gov/region06/6pd/rcra_c/pc-h/screen.htm..

[g] Di-n-butylphthalate used as surrogate based on structural similarity.

[h] Endrin used as surrogate based on structural similarity.

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

Table B-6
Maximum Radionuclide Activities
Detected in Direct-Push Technology Core Samples

Analyte	Residential SAL[a]	Maximum Detected Activity	Above Residential SALs?
Americium-241	30	83.7	Yes[b]
Cesium-137	5.6	1869.3	Yes
Plutonium-238	37	235	Yes
Plutonium-239/240	33	53,752.3	Yes
Strontium-90	5.7	2980.3	Yes
Thorium-228	2.3	7.09	Yes
Thorium-230	5	14.95	Yes
Thorium-232	5	1.66	No[c]
Tritium	750	68.0	No
Uranium-234	170	90.3	No
Uranium-235/236	17	5.92	No
Uranium-238	86	92.2	Yes

Note: Units in pCi/g.

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

[b] Yes = Exceeds SAL.

[c] No = Does not exceed SAL.

Table B-7
Radionuclides Detected or Detected above BVs/FVs in DPT Samples

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-137	Plutonium-238	Plutonium-239/240	Strontium-90	Thorium-228
Soil BV/FV[a]				**0.013**	**1.65**	**0.023**	**0.054**	**1.31**	**2.28**
Qbt 2,3,4 BV[a]				**na[b]**	**na**	**na**	**na**	**na**	**2.52**
Residential SAL[c]				**30**	**5.6**	**37**	**33**	**5.7**	**2.3**
MDAB_00_04-09-13045	AF155	0–3	SOIL	—[d]	—	—	0.3927 (J)	—	—
MDAB_00_04-09-13105	AG165	0–2.5	QBT3	—	—	—	—	—	—
MDAB_00_04-09-10205	AG167	0–4	SOIL	—	—	—	50.2221	—	—
MDAB_00_04-09-10209	AH167	0–4	SOIL	—	—	—	0.83	—	—
MDAB_00_04-09-10245	AH215	0–5	SOIL	—	—	0.6206	142.508	—	—
MDAB_04_08-09-10246	AH215	5–7	SOIL	—	—	—	2.2225	—	—
MDAB_00_04-09-13092	AI153	0–4.5	SOIL	—	—	—	0.4977 (J)	—	—
MDAB_04_08-09-10194	AI155	5–9	SOIL	—	—	—	28.4296	—	—
MDAB_00_04-09-10197	AI157	0–5	SOIL	—	0.3201	—	4.8563	—	—
MDAB_04_08-09-10198	AI157	5–9	SOIL	—	—	0.882	345.212	—	—
MDAB_00_04-09-13049	AI160	0–5	SOIL	—	—	—	7.4869 (J)	—	—
MDAB_04_08-09-13050	AI160	5–11	SOIL	2.1204 (J+)	—	4.0795 (J)	1258.09 (J)	1.146 (J)	—
MDAB_00_04-09-13053	AI164	0–5	SOIL	—	0.3102 (J)	—	3.9656 (J)	—	—
MDAB_04_08-09-13054	AI164	5–10	QBT3	—	1869.3 (J)	0.4698 (J)	140.701 (J)	—	—
MDAB_08_12-09-13056	AI164	10–12	QBT3	—	—	24.788 (J)	6231.84 (J)	2980.3 (J)	—
MDAB_00_04-09-13041	AI167	0–5	SOIL	—	—	—	40.3018 (J)	—	—
MDAB_04_08-09-13042	AI167	5–10	SOIL	—	—	—	2.5744 (J)	1.366 (J)	—
MDAB_08_12-09-13043	AI167	10–11	SOIL	—	0.395 (J)	—	9.865 (J)	—	—

Table B-7 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-137	Plutonium-238	Plutonium-239/240	Strontium-90	Thorium-228
Soil BV/FV[a]				**0.013**	**1.65**	**0.023**	**0.054**	**1.31**	**2.28**
Qbt 2,3,4 BV[a]				**na[b]**	**na**	**na**	**na**	**na**	**2.52**
Residential SAL[c]				**30**	**5.6**	**37**	**33**	**5.7**	**2.3**
MDAB_00_04-09-13097	AI171	0–5	SOIL	0.511	—	—	15.4 (J)	—	—
MDAB_04_08-09-13098	AI171	5–10	SOIL	7.6557 (J+)	—	2.0475 (J)	400.792 (J)	4.127 (J)	—
MDAB_00_04-09-13112	AI175	0–5	SOIL	2.03	—	—	13.1 (J)	—	—
MDAB_04_08-09-13111	AI175	5–9	SOIL	—	—	—	6.9732	—	—
MDAB_00_04-09-10213	AI176	0–5	SOIL	—	—	—	22.8771	—	—
MDAB_04_08-09-10214	AI176	5–9	SOIL	—	—	—	165.507	—	—
MDAB_00_04-09-13115	AI179	0–5	SOIL	0.162	—	—	9.25 (J)	—	—
MDAB_04_08-09-13116	AI179	5–10	SOIL	21.5	—	—	1090	—	—
MDAB_00_04-09-10221	AI180	0–5	SOIL	—	—	—	2.9065	—	—
MDAB_04_08-09-10222	AI180	5–10	SOIL	—	—	0.9818	243.155	—	—
MDAB_00_04-09-13038	AI183	0–5	SOIL	—	—	1.5225 (J)	326.088 (J)	—	7.0878 (J+)
MDAB_00_04-09-10225	AI185	0–5	SOIL	—	—	15.513	2586.66	2.024	—
MDAB_04_08-09-10226	AI185	5–6	SOIL	—	—	—	66.3571	—	—
MDAB_00_04-09-13031	AI186	0–6	SOIL	0.12	—	—	4.42 (J)	—	—
MDAB_00_04-09-10229	AI191	0–4.5	SOIL	—	—	—	9.8424	—	—
MDAB_00_04-09-13028	AI193	0–5	SOIL	0.0634	—	—	2.91 (J)	—	—
MDAB_04_08-09-13027	AI193	5–7	SOIL	10.7	—	—	796	—	—
MDAB_00_04-09-13021	AI199	0–5	SOIL	0.428	—	—	13.6	—	—
MDAB_04_08-09-13023	AI199	5–8	SOIL	0.457	—	—	17.7	—	—

Table B-7 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-137	Plutonium-238	Plutonium-239/240	Strontium-90	Thorium-228
Soil BV/FV[a]				**0.013**	**1.65**	**0.023**	**0.054**	**1.31**	**2.28**
Qbt 2,3,4 BV[a]				**na**[b]	**na**	**na**	**na**	**na**	**2.52**
Residential SAL[c]				**30**	**5.6**	**37**	**33**	**5.7**	**2.3**
MDAB_00_04-09-10233	AI200	0–5	SOIL	—	—	—	8.9939	—	—
MDAB_04_08-09-10234	AI200	5–11	SOIL	—	—	0.8089	152.745	—	—
MDAB_00_04-09-13020	AI201	0–5	SOIL	0.244 (J+)	—	—	11.5	—	—
MDAB_04_08-09-13017	AI201	5–8	SOIL	8.12	—	—	1090	—	—
MDAB_00_04-09-13013	AI207	0–5	SOIL	0.123	0.0768	—	4.61	—	—
MDAB_04_08-09-13014	AI207	5–10	SOIL	0.725	—	—	22.9	—	—
MDAB_08_12-09-13015	AI207	10–15	SOIL	8.9603 (J+)	—	9.8991 (J)	2193.94 (J)	0.592 (J)	—
MDAB_00_04-09-10237	AI209	0–5	SOIL	—	—	—	3.5931	—	—
MDAB_04_08-09-10238	AI209	5–10	SOIL	—	—	—	18.4621	—	—
MDAB_12_16-09-10240	AI209	10–10.2	SOIL	28.1957	—	234.666	53752.3	702.742	—
MDAB_00_04-09-13012	AI211	0–5	SOIL	—	—	—	3.02	—	—
MDAB_04_08-09-13011	AI211	5–10	SOIL	—	—	—	0.719 (J)	—	—
MDAB_08_12-09-13010	AI211	10–12.5	SOIL	83.7 (J-)	0.294	32.2 (J-)	4800 (J-)	1.13	—
MDAB_00_04-09-10241	AI213	0–5	SOIL	—	—	—	2.5286	—	—
MDAB_04_08-09-10242	AI213	5–11	SOIL	—	0.2351	—	57.129	—	—
MDAB_00_04-09-10249	AI217	0–5	SOIL	—	—	—	5.0036	—	—
MDAB_04_08-09-10250	AI217	5–8	SOIL	—	—	—	11.7434	—	—
MDAB_00_04-09-10253	AI224	0–2	SOIL	—	—	0.5378	111.375	—	—
MDAB_00_04-09-10398	AI229	0–5	SOIL	—	—	—	5.7757	—	—
MDAB_04_08-09-10399	AI229	5–10	SOIL	—	—	—	2.3867	—	—

Table B-7 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-137	Plutonium-238	Plutonium-239/240	Strontium-90	Thorium-228
Soil BV/FV[a]				**0.013**	**1.65**	**0.023**	**0.054**	**1.31**	**2.28**
Qbt 2,3,4 BV[a]				**na**[b]	**na**	**na**	**na**	**na**	**2.52**
Residential SAL[c]				**30**	**5.6**	**37**	**33**	**5.7**	**2.3**
MDAB_00_04-09-10258	AI234	0–5	SOIL	—	—	0.9886	101.228	—	—
MDAB_04_08-09-10257	AI234	5–10	SOIL	—	—	—	2.1439	—	—
MDAB_08_12-09-10259	AI234	10–13	SOIL	—	—	0.9944	193.748	—	—
MDAB_00_04-09-12997	AI239	0–5	SOIL	—	—	0.9932	123.375	—	—
MDAB_04_08-09-12998	AI239	5–10	SOIL	—	—	—	2.4	—	—
MDAB_08_12-09-12999	AI239	10–12.5	SOIL	—	—	—	1.4522	—	—
MDAB_00_04-09-12995	AI244	0–3	SOIL	—	—	3.8246	329.355	—	—
MDAB_00_04-09-10261	AI245	0–5	SOIL	—	—	1.1938	111.672	0.84	—
MDAB_04_08-09-10262	AI245	5–12	SOIL	—	1.5134	0.8339	161.145	—	—
MDAB_00_04-09-12991	AI246	0–5	SOIL	—	—	—	63.7895	—	—
MDAB_04_08-09-12990	AI246	5–12	SOIL	—	—	—	10.6234	—	—
MDAB_00_04-09-12986	AI250	0–5	SOIL	—	—	—	13.3117	—	—
MDAB_04_08-09-12988	AI250	5–10	SOIL	—	5.3204	2.171	607.482	1.396	—
MDAB_08_12-09-12987	AI250	10–13	SOIL	—	—	—	23.3258	—	—
MDAB_00_04-09-10265	AI251	0–5	SOIL	—	—	—	1.724	—	—
MDAB_04_08-09-10266	AI251	5–9	SOIL	—	—	—	13.075	—	—
MDAB_00_04-09-12981	AI252	0–5	SOIL	—	—	—	7.5235	—	—
MDAB_00_04-09-10269	AI256	0–5	SOIL	—	—	—	12.1782	—	—
MDAB_04_08-09-10270	AI256	5–9	SOIL	—	—	—	172.713	—	—
MDAB_00_04-09-10201	AJ158	0–5	SOIL	0.062	—	—	1.16	0.397	—

Table B-7 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-137	Plutonium-238	Plutonium-239/240	Strontium-90	Thorium-228
Soil BV/FV[a]				**0.013**	**1.65**	**0.023**	**0.054**	**1.31**	**2.28**
Qbt 2,3,4 BV[a]				**na**[b]	**na**	**na**	**na**	**na**	**2.52**
Residential SAL[c]				**30**	**5.6**	**37**	**33**	**5.7**	**2.3**
MDAB_04_08-09-10202	AJ158	5–9	SOIL	0.07	—	—	2.77	0.63	—
MDAB_00_04-09-13122	AJ181	0–5	SOIL	0.824 (J+)	—	—	24.8 (J)	—	—
MDAB_04_08-09-13124	AJ181	5–10	SOIL	30.2	—	—	1640	—	—
MDAB_00_04-09-10217	AJ183	0–5	SOIL	—	—	—	20.9599	—	—
MDAB_00_04-09-13034	AJ185	0–7.5	SOIL	0.39	—	—	14.3 (J)	—	—
MDAB_00_04-09-13057	AK155	0–4	SOIL	—	—	—	2.23 (J)	—	—
MDAB_00_04-09-13004	AL225	0–2.5	SOIL	19.4	0.174	1.45 (J-)	143 (J-)	0.27	—
MDAB_00_04-09-10273	AL256	0–5	SOIL	—	—	—	5.2004	—	—
MDAB_00_04-09-12973	AL258	0–4	SOIL	—	—	—	8.1144	—	—
MDAB_00_04-09-13118	AM153	0–4	SOIL	—	—	—	3.3446 (J)	—	—
MDAB_00_04-09-13088	AM155	0–4	SOIL	—	—	—	0.5309 (J)	—	—
MDAB_00_04-09-10281	AM228	0–4	SOIL	—	—	4.5799	415.699	—	—
MDAB_00_04-09-10285	AM232	0–4	SOIL	—	—	—	51.0375	—	—
MDAB_00_04-09-13065	AN152	0–5	SOIL	—	—	—	2.8002 (J)	—	—
MDAB_00_04-09-13008	AN223	0–4.5	SOIL	7.18	0.126	0.848	95	—	—
MDAB_00_04-09-10277	AN226	0–3	SOIL	—	—	0.8888	97.4464	—	—
MDAB_00_04-09-12979	AN256	0–5	SOIL	—	—	—	1.6723	—	—
MDAB_04_08-09-12978	AN256	5–7	SOIL	—	—	—	1.9442	—	—
MDAB_00_04-09-13070	AQ151	0–4.5	SOIL	—	—	—	2.7344 (J)	—	—
MDAB_00_04-09-13075	AS151	0–4.5	SOIL	—	—	—	8.1788 (J)	—	—

Table B-7 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-137	Plutonium-238	Plutonium-239/240	Strontium-90	Thorium-228
Soil BV/FV[a]				**0.013**	**1.65**	**0.023**	**0.054**	**1.31**	**2.28**
Qbt 2,3,4 BV[a]				**na[b]**	**na**	**na**	**na**	**na**	**2.52**
Residential SAL[c]				**30**	**5.6**	**37**	**33**	**5.7**	**2.3**
MDAB_00_04-09-10173	AS153	0–5	SOIL	—	—	—	0.547489	—	—
MDAB_00_04-09-13079	AU150	0–5	SOIL	—	—	—	0.7563 (J)	—	—
MDAB_00_04-09-10178	AU152	0–5	SOIL	—	—	—	—	—	—
MDAB_04_08-09-10177	AU152	5–6	SOIL	—	—	—	—	—	—
MDAB_00_04-09-10181	AU154	0–5	SOIL	—	0.14545	—	0.135814	—	—
MDAB_00_04-09-13081	AW150	0–5	SOIL	—	—	—	0.1976 (J)	0.996 (J)	—
MDAB_04_08-09-13082	AW150	5–7.5	SOIL	—	—	—	0.3921 (J)	—	—
MDAB_00_04-09-10185	AW152	0–5	SOIL	—	0.060471	—	0.207773	—	—
MDAB_04_08-09-10186	AW152	5–6.5	SOIL	—	—	—	—	—	—
MDAB_00_04-09-13096	AY153	0–5	SOIL	—	—	—	0.2807 (J)	—	—
MDAB_04_08-09-13095	AY153	5–7.5	SOIL	—	—	—	2.1182 (J)	—	—
MDAB_00_04-09-10189	BB153	0–5	FILL	—	—	—	0.104 (J—)	—	—
MDAB_00_04-09-10390	NF95	0–5	SOIL	—	—	0.1748	20.2179	—	—
MDAB_04_08-09-10391	NF95	5–8	SOIL	—	—	—	11.2911	—	—
MDAB_00_04-09-10394	NG103	0–5	SOIL	—	—	—	0.9473	—	—
MDAB_04_08-09-10395	NG103	5–10	SOIL	—	—	1.0961	249.749	—	—
MDAB_08_12-09-10396	NG103	10–11	SOIL	—	—	0.2552	55.459	—	—
MDAB_00_04-09-10317	NG56	0–5	SOIL	—	—	—	34.3335	1.106	—
MDAB_04_08-09-10318	NG56	5–10	SOIL	—	—	0.713	162.508	0.623	—
MDAB_08_12-09-10319	NG56	10–15	SOIL	—	—	—	1.7033	—	—

Table B-7 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-137	Plutonium-238	Plutonium-239/240	Strontium-90	Thorium-228
Soil BV/FV[a]				**0.013**	**1.65**	**0.023**	**0.054**	**1.31**	**2.28**
Qbt 2,3,4 BV[a]				**na**[b]	**na**	**na**	**na**	**na**	**2.52**
Residential SAL[c]				**30**	**5.6**	**37**	**33**	**5.7**	**2.3**
MDAB_12_16-09-10320	NG56	15–20	SOIL	—	—	—	1.8626	1.165	—
MDAB_00_04-09-10325	NG61	0–5	SOIL	—	—	—	5.499	—	—
MDAB_04_08-09-10326	NG61	5–10	SOIL	—	—	—	5.0535	—	—
MDAB_08_12-09-10327	NG61	10–15	SOIL	—	—	—	5.6021	2.261	—
MDAB_12_16-09-10328	NG61	15–16	SOIL	—	—	0.2145	52.777	2.424	—
MDAB_00_04-09-10329	NG75	0–5	SOIL	—	—	—	4.3411	—	—
MDAB_04_08-09-10330	NG75	5–10	SOIL	—	—	—	4.3523	—	—
MDAB_08_12-09-10331	NG75	10–15.5	SOIL	—	—	—	2.1906	—	—
MDAB_00_04-09-10382	NG77	0–5	SOIL	—	—	—	1.9059	—	—
MDAB_04_08-09-10383	NG77	5–10	SOIL	—	—	0.4416	92.5522	—	—
MDAB_08_12-09-10385	NG77	10–15	SOIL	—	—	0.4496	108.507	—	—
MDAB_12_16-09-10384	NG77	15–16	SOIL	12.5744	—	2.4345	531.35	2.453	—
MDAB_00_04-09-10289	NH27	0–5	SOIL	0.9505	—	—	13.4402	—	—
MDAB_04_08-09-10290	NH27	5–10	SOIL	—	—	—	1.6361	—	—
MDAB_00_04-09-10305	NH33	0–2.5	SOIL	—	—	—	4.0353	—	—
MDAB_00_04-09-12961	NH40	0–5	SOIL	0.5169 (J-)	—	—	6.2053	—	—
MDAB_04_08-09-12962	NH40	5–10	SOIL	—	—	—	11.2995	—	—
MDAB_08_12-09-12964	NH40	10–15	SOIL	—	—	72.4624 (J+)	9348.46 (J+)	—	—
MDAB_12_16-09-12963	NH40	15–18	SOIL	—	—	1.4068	335.866	—	—
MDAB_00_04-09-12965	NH45	0–2	SOIL	—	—	0.2346	35.756	—	—

Table B-7 (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-137	Plutonium-238	Plutonium-239/240	Strontium-90	Thorium-228
Soil BV/FV[a]				**0.013**	**1.65**	**0.023**	**0.054**	**1.31**	**2.28**
Qbt 2,3,4 BV[a]				**na[b]**	**na**	**na**	**na**	**na**	**2.52**
Residential SAL[c]				**30**	**5.6**	**37**	**33**	**5.7**	**2.3**
MDAB_00_04-09-10321	NH59	0–5	SOIL	—	—	—	5.6481	1.341	—
MDAB_04_08-09-10322	NH59	5–10	SOIL	—	—	0.8757	185.214	—	—
MDAB_08_12-09-10323	NH59	10–15	SOIL	—	—	—	1.6044	1.508	—
MDAB_12_16-09-10324	NH59	15–16	SOIL	—	—	0.6355	152.641	—	—
MDAB_00_04-09-12969	NI29	0–5	SOIL	—	—	1.2682	108.599	—	—
MDAB_04_08-09-12970	NI29	5–10	SOIL	—	—	1.2496	43.6534	—	—
MDAB_00_04-09-12957	NI34	0–5	SOIL	2.4464 (J-)	—	—	3.9773	—	—
MDAB_04_08-09-12958	NI34	5–10	SOIL	—	—	—	3.9946	—	—
MDAB_00_04-09-10313	NI38	0–3	SOIL	—	—	—	1.1432	—	—
MDAB_00_04-09-10309	NI43	0–5	SOIL	—	—	—	1.1192	—	—
MDAB_04_08-09-10310	NI43	5–7	SOIL	—	—	—	3.7325	—	—
MDAB_00_04-09-10301	NI48	0–5	SOIL	—	—	—	9.6545	—	—
MDAB_00_04-09-10389	NI85	0–4	SOIL	—	—	—	0.4154	6.674	—
MDAB_00_04-09-10293	NJ30	0–5	SOIL	—	—	—	0.9621	—	—
MDAB_04_08-09-10294	NJ30	5–9.5	SOIL	—	—	—	—	—	—
MDAB_00_04-09-10297	NJ35	0–4.5	SOIL	—	—	—	4.4825	—	—
MDAB_00_04-10-462	WST-600902[e]	0–0	FILL	—	—	1.308	159.984	—	—
MDAB_00_04-10-463	WST-600902[e]	0–0	FILL	—	—	0.2571	36.9119	—	—
MDAB_00_04-10-464	WST-600902[e]	0–0	FILL	—	—	—	9.8392	—	—

Table B-7 (continued)

Sample ID	Location ID	Depth (ft)	Media	Thorium-230	Tritium	Uranium-234	Uranium-235/236	Uranium-238
Soil BV/FV[a]				**2.29**	**na**	**2.59**	**0.20**	**2.29**
Qbt 2,3,4 BV[a]				**1.98**	**na**	**1.98**	**0.09**	**1.93**
Residential SAL[c]				**5**	**750**	**170**	**17**	**86**
MDAB_00_04-09-13045	AF155	0–3	SOIL	—	—	—	—	—
MDAB_00_04-09-13105	AG165	0–2.5	QBT3	—	6.7408 (J)	—	—	—
MDAB_00_04-09-10205	AG167	0–4	SOIL	—	—	—	—	—
MDAB_00_04-09-10209	AH167	0–4	SOIL	—	—	—	—	—
MDAB_00_04-09-10245	AH215	0–5	SOIL	—	—	18.8396	0.7316	18.6713
MDAB_04_08-09-10246	AH215	5–7	SOIL	—	—	6.7486	—	6.5593
MDAB_00_04-09-13092	AI153	0–4.5	SOIL	—	—	—	—	—
MDAB_04_08-09-10194	AI155	5–9	SOIL	—	—	11.5213	0.4743	10.9779
MDAB_00_04-09-10197	AI157	0–5	SOIL	—	—	—	—	—
MDAB_04_08-09-10198	AI157	5–9	SOIL	—	19.4775 (J)	—	—	—
MDAB_00_04-09-13049	AI160	0–5	SOIL	3.9891 (J)	1.8858 (J)	—	—	—
MDAB_04_08-09-13050	AI160	5–11	SOIL	—	—	—	—	—
MDAB_00_04-09-13053	AI164	0–5	SOIL	—	—	—	—	—
MDAB_04_08-09-13054	AI164	5–10	QBT3	—	—	8.8827 (J)	0.4387 (J)	7.8551 (J)
MDAB_08_12-09-13056	AI164	10–12	QBT3	—	—	10.8848 (J)	0.9985 (J)	6.4131 (J)
MDAB_00_04-09-13041	AI167	0–5	SOIL	—	2.1766 (J)	—	—	—
MDAB_04_08-09-13042	AI167	5–10	SOIL	—	4.2643 (J)	—	—	—
MDAB_08_12-09-13043	AI167	10–11	SOIL	—	16.234 (J)	—	—	—
MDAB_00_04-09-13097	AI171	0–5	SOIL	—	—	—	—	—
MDAB_04_08-09-13098	AI171	5–10	SOIL	—	—	10.2152 (J)	0.3859 (J)	9.2367 (J)

Table B-7 (continued)

Sample ID	Location ID	Depth (ft)	Media	Thorium-230	Tritium	Uranium-234	Uranium-235/236	Uranium-238
Soil BV/FV[a]				**2.29**	**na**	**2.59**	**0.20**	**2.29**
Qbt 2,3,4 BV[a]				**1.98**	**na**	**1.98**	**0.09**	**1.93**
Residential SAL[c]				**5**	**750**	**170**	**17**	**86**
MDAB_00_04-09-13112	AI175	0–5	SOIL	—	—	—	—	—
MDAB_04_08-09-13111	AI175	5–9	SOIL	—	52.644	2.618	—	2.3276
MDAB_00_04-09-10213	AI176	0–5	SOIL	—	—	—	—	—
MDAB_04_08-09-10214	AI176	5–9	SOIL	—	—	8.9061	—	8.8977
MDAB_00_04-09-13115	AI179	0–5	SOIL	—	—	—	—	—
MDAB_04_08-09-13116	AI179	5–10	SOIL	—	—	10.6	0.906	10.4
MDAB_00_04-09-10221	AI180	0–5	SOIL	—	—	—	—	—
MDAB_04_08-09-10222	AI180	5–10	SOIL	—	—	—	—	—
MDAB_00_04-09-13038	AI183	0–5	SOIL	14.953 (J+)	—	—	—	—
MDAB_00_04-09-10225	AI185	0–5	SOIL	—	—	—	—	—
MDAB_04_08-09-10226	AI185	5–6	SOIL	—	—	—	—	—
MDAB_00_04-09-13031	AI186	0–6	SOIL	—	—	90.3	5.92	92.2
MDAB_00_04-09-10229	AI191	0–4.5	SOIL	—	—	—	—	—
MDAB_00_04-09-13028	AI193	0–5	SOIL	—	—	3.36	—	—
MDAB_04_08-09-13027	AI193	5–7	SOIL	—	—	9.35	0.642	4.08
MDAB_00_04-09-13021	AI199	0–5	SOIL	—	0.0178137	—	—	—
MDAB_04_08-09-13023	AI199	5–8	SOIL	—	0.0267534	—	—	—
MDAB_00_04-09-10233	AI200	0–5	SOIL	—	—	—	—	—
MDAB_04_08-09-10234	AI200	5–11	SOIL	—	—	—	—	—
MDAB_00_04-09-13020	AI201	0–5	SOIL	—	—	—	—	—
MDAB_04_08-09-13017	AI201	5–8	SOIL	—	0.0217449	—	—	—

Table B-7 (continued)

Sample ID	Location ID	Depth (ft)	Media	Thorium-230	Tritium	Uranium-234	Uranium-235/236	Uranium-238
Soil BV/FV[a]				**2.29**	**na**	**2.59**	**0.20**	**2.29**
Qbt 2,3,4 BV[a]				**1.98**	**na**	**1.98**	**0.09**	**1.93**
Residential SAL[c]				**5**	**750**	**170**	**17**	**86**
MDAB_00_04-09-13013	AI207	0–5	SOIL	—	—	—	—	—
MDAB_04_08-09-13014	AI207	5–10	SOIL	—	0.0222628	—	—	—
MDAB_08_12-09-13015	AI207	10–15	SOIL	13.9906 (J+)	—	12.2416 (J)	0.6267 (J)	9.4203 (J)
MDAB_00_04-09-10237	AI209	0–5	SOIL	—	—	—	—	—
MDAB_04_08-09-10238	AI209	5–10	SOIL	—	—	—	—	—
MDAB_12_16-09-10240	AI209	10–10.2	SOIL	NA[f]	11.171	16.4943	—	14.7428
MDAB_00_04-09-13012	AI211	0–5	SOIL	—	0.0189918	—	—	—
MDAB_04_08-09-13011	AI211	5–10	SOIL	—	—	—	—	—
MDAB_08_12-09-13010	AI211	10–12.5	SOIL	—	0.027653	4.46	0.257	3.2
MDAB_00_04-09-10241	AI213	0–5	SOIL	—	—	—	—	—
MDAB_04_08-09-10242	AI213	5–11	SOIL	—	—	—	—	—
MDAB_00_04-09-10249	AI217	0–5	SOIL	—	—	—	—	—
MDAB_04_08-09-10250	AI217	5–8	SOIL	—	—	—	—	—
MDAB_00_04-09-10253	AI224	0–2	SOIL	—	1.0679	—	—	—
MDAB_00_04-09-10398	AI229	0–5	SOIL	—	—	—	—	—
MDAB_04_08-09-10399	AI229	5–10	SOIL	—	—	—	—	—
MDAB_00_04-09-10258	AI234	0–5	SOIL	—	—	—	—	—
MDAB_04_08-09-10257	AI234	5–10	SOIL	—	—	—	—	—
MDAB_08_12-09-10259	AI234	10–13	SOIL	—	—	3.4219	—	2.7509
MDAB_00_04-09-12997	AI239	0–5	SOIL	—	1.2036	—	—	—
MDAB_04_08-09-12998	AI239	5–10	SOIL	—	1.4949	—	—	—

Table B-7 (continued)

Sample ID	Location ID	Depth (ft)	Media	Thorium-230	Tritium	Uranium-234	Uranium-235/236	Uranium-238
Soil BV/FV[a]				**2.29**	**na**	**2.59**	**0.20**	**2.29**
Qbt 2,3,4 BV[a]				**1.98**	**na**	**1.98**	**0.09**	**1.93**
Residential SAL[c]				**5**	**750**	**170**	**17**	**86**
MDAB_08_12-09-12999	AI239	10–12.5	SOIL	—	1.7011	—	—	—
MDAB_00_04-09-12995	AI244	0–3	SOIL	—	2.456	—	—	—
MDAB_00_04-09-10261	AI245	0–5	SOIL	—	—	—	—	—
MDAB_04_08-09-10262	AI245	5–12	SOIL	—	—	—	—	—
MDAB_00_04-09-12991	AI246	0–5	SOIL	—	3.9773	—	—	—
MDAB_04_08-09-12990	AI246	5–12	SOIL	—	1.3307	—	—	—
MDAB_00_04-09-12986	AI250	0–5	SOIL	—	1.4719	—	—	—
MDAB_04_08-09-12988	AI250	5–10	SOIL	—	1.3332	—	—	—
MDAB_08_12-09-12987	AI250	10–13	SOIL	—	—	—	—	—
MDAB_00_04-09-10265	AI251	0–5	SOIL	—	—	—	—	—
MDAB_04_08-09-10266	AI251	5–9	SOIL	NA	1.42608	—	—	—
MDAB_00_04-09-12981	AI252	0–5	SOIL	—	1.7918	—	—	—
MDAB_00_04-09-10269	AI256	0–5	SOIL	NA	1.22063	—	—	—
MDAB_04_08-09-10270	AI256	5–9	SOIL	NA	2.32038	—	—	—
MDAB_00_04-09-10201	AJ158	0–5	SOIL	—	—	—	—	—
MDAB_04_08-09-10202	AJ158	5–9	SOIL	—	—	—	—	—
MDAB_00_04-09-13122	AJ181	0–5	SOIL	—	—	—	—	—
MDAB_04_08-09-13124	AJ181	5–10	SOIL	—	—	—	—	—
MDAB_00_04-09-10217	AJ183	0–5	SOIL	—	—	—	—	—
MDAB_00_04-09-13034	AJ185	0–7.5	SOIL	—	—	—	—	—
MDAB_00_04-09-13057	AK155	0–4	SOIL	—	—	—	—	—

Table B-7 (continued)

Sample ID	Location ID	Depth (ft)	Media	Thorium-230	Tritium	Uranium-234	Uranium-235/236	Uranium-238
Soil BV/FV[a]				**2.29**	**na**	**2.59**	**0.20**	**2.29**
Qbt 2,3,4 BV[a]				**1.98**	**na**	**1.98**	**0.09**	**1.93**
Residential SAL[c]				**5**	**750**	**170**	**17**	**86**
MDAB_00_04-09-13004	AL225	0–2.5	SOIL	—	0.0291395	—	—	—
MDAB_00_04-09-10273	AL256	0–5	SOIL	NA	2.6435	—	—	—
MDAB_00_04-09-12973	AL258	0–4	SOIL	—	—	—	—	—
MDAB_00_04-09-13118	AM153	0–4	SOIL	—	3.3108 (J)	—	—	—
MDAB_00_04-09-13088	AM155	0–4	SOIL	—	—	—	—	—
MDAB_00_04-09-10281	AM228	0–4	SOIL	—	—	—	—	—
MDAB_00_04-09-10285	AM232	0–4	SOIL	—	—	—	—	—
MDAB_00_04-09-13065	AN152	0–5	SOIL	—	—	—	—	—
MDAB_00_04-09-13008	AN223	0–4.5	SOIL	—	0.0208029	—	—	—
MDAB_00_04-09-10277	AN226	0–3	SOIL	—	—	—	—	—
MDAB_00_04-09-12979	AN256	0–5	SOIL	—	1.9134	—	—	—
MDAB_04_08-09-12978	AN256	5–7	SOIL	—	1.1718	—	—	—
MDAB_00_04-09-13070	AQ151	0–4.5	SOIL	—	—	—	—	—
MDAB_00_04-09-13075	AS151	0–4.5	SOIL	—	—	—	—	—
MDAB_00_04-09-10173	AS153	0–5	SOIL	—	3.94829	—	—	—
MDAB_00_04-09-13079	AU150	0–5	SOIL	—	—	—	—	—
MDAB_00_04-09-10178	AU152	0–5	SOIL	—	3.24549	—	—	—
MDAB_04_08-09-10177	AU152	5–6	SOIL	—	5.8165	—	—	—
MDAB_00_04-09-10181	AU154	0–5	SOIL	—	8.57941	—	—	—
MDAB_00_04-09-13081	AW150	0–5	SOIL	—	—	—	—	—
MDAB_04_08-09-13082	AW150	5–7.5	SOIL	—	—	—	—	—

Table B-7 (continued)

Sample ID	Location ID	Depth (ft)	Media	Thorium-230	Tritium	Uranium-234	Uranium-235/236	Uranium-238
Soil BV/FV[a]				**2.29**	**na**	**2.59**	**0.20**	**2.29**
Qbt 2,3,4 BV[a]				**1.98**	**na**	**1.98**	**0.09**	**1.93**
Residential SAL[c]				**5**	**750**	**170**	**17**	**86**
MDAB_00_04-09-10185	AW152	0–5	SOIL	—	9.72641	—	—	—
MDAB_04_08-09-10186	AW152	5–6.5	SOIL	—	8.89503	—	—	—
MDAB_00_04-09-13096	AY153	0–5	SOIL	—	—	—	—	—
MDAB_04_08-09-13095	AY153	5–7.5	SOIL	—	—	—	—	—
MDAB_00_04-09-10189	BB153	0–5	FILL	—	—	—	—	—
MDAB_00_04-09-10390	NF95	0–5	SOIL	NA	—	—	—	—
MDAB_04_08-09-10391	NF95	5–8	SOIL	NA	—	—	—	—
MDAB_00_04-09-10394	NG103	0–5	SOIL	NA	—	—	—	—
MDAB_04_08-09-10395	NG103	5–10	SOIL	NA	—	—	—	—
MDAB_08_12-09-10396	NG103	10–11	SOIL	NA	—	—	—	—
MDAB_00_04-09-10317	NG56	0–5	SOIL	NA	1.20555	—	—	—
MDAB_04_08-09-10318	NG56	5–10	SOIL	NA	1.34009	—	—	—
MDAB_08_12-09-10319	NG56	10–15	SOIL	NA	—	—	—	—
MDAB_12_16-09-10320	NG56	15–20	SOIL	NA	—	—	—	—
MDAB_00_04-09-10325	NG61	0–5	SOIL	NA	—	—	—	—
MDAB_04_08-09-10326	NG61	5–10	SOIL	NA	—	—	—	—
MDAB_08_12-09-10327	NG61	10–15	SOIL	NA	—	—	—	—
MDAB_12_16-09-10328	NG61	15–16	SOIL	NA	—	3.8837	—	—
MDAB_00_04-09-10329	NG75	0–5	SOIL	NA	14.0361	—	—	—
MDAB_04_08-09-10330	NG75	5–10	SOIL	NA	68.0132	—	—	—
MDAB_08_12-09-10331	NG75	10–15.5	SOIL	NA	39.6182	—	—	—

Table B-7 (continued)

Sample ID	Location ID	Depth (ft)	Media	Thorium-230	Tritium	Uranium-234	Uranium-235/236	Uranium-238
Soil BV/FV[a]				**2.29**	**na**	**2.59**	**0.20**	**2.29**
Qbt 2,3,4 BV[a]				**1.98**	**na**	**1.98**	**0.09**	**1.93**
Residential SAL[c]				**5**	**750**	**170**	**17**	**86**
MDAB_00_04-09-10382	NG77	0–5	SOIL	NA	—	—	—	—
MDAB_04_08-09-10383	NG77	5–10	SOIL	NA	—	—	—	—
MDAB_08_12-09-10385	NG77	10–15	SOIL	NA	0.702606	—	—	—
MDAB_12_16-09-10384	NG77	15–16	SOIL	NA	—	4.613	—	3.0162
MDAB_00_04-09-10289	NH27	0–5	SOIL	NA	5.48631	—	—	—
MDAB_04_08-09-10290	NH27	5–10	SOIL	NA	2.22131	—	—	—
MDAB_00_04-09-10305	NH33	0–2.5	SOIL	NA	1.1507	—	—	—
MDAB_00_04-09-12961	NH40	0–5	SOIL	—	3.231	—	—	—
MDAB_04_08-09-12962	NH40	5–10	SOIL	—	2.4623	—	—	—
MDAB_08_12-09-12964	NH40	10–15	SOIL	—	2.6435	—	—	—
MDAB_12_16-09-12963	NH40	15–18	SOIL	—	2.3154	—	—	—
MDAB_00_04-09-12965	NH45	0–2	SOIL	—	5.2561	—	—	—
MDAB_00_04-09-10321	NH59	0–5	SOIL	NA	—	—	—	—
MDAB_04_08-09-10322	NH59	5–10	SOIL	NA	—	—	—	—
MDAB_08_12-09-10323	NH59	10–15	SOIL	NA	—	—	—	—
MDAB_12_16-09-10324	NH59	15–16	SOIL	NA	—	—	—	—
MDAB_00_04-09-12969	NI29	0–5	SOIL	—	3.7264	—	—	—
MDAB_04_08-09-12970	NI29	5–10	SOIL	—	1.0817	—	—	—
MDAB_00_04-09-12957	NI34	0–5	SOIL	—	1.5126	—	—	—
MDAB_04_08-09-12958	NI34	5–10	SOIL	—	2.3146	—	—	—
MDAB_00_04-09-10313	NI38	0–3	SOIL	NA	2.48163	—	—	—

Table B-7 (continued)

Sample ID	Location ID	Depth (ft)	Media	Thorium-230	Tritium	Uranium-234	Uranium-235/236	Uranium-238
Soil BV/FV[a]				**2.29**	**na**	**2.59**	**0.20**	**2.29**
Qbt 2,3,4 BV[a]				**1.98**	**na**	**1.98**	**0.09**	**1.93**
Residential SAL[c]				**5**	**750**	**170**	**17**	**86**
MDAB_00_04-09-10309	NI43	0–5	SOIL	NA	1.74318	—	—	—
MDAB_04_08-09-10310	NI43	5–7	SOIL	NA	2.55464	—	—	—
MDAB_00_04-09-10301	NI48	0–5	SOIL	NA	0.876509	—	—	—
MDAB_00_04-09-10389	NI85	0–4	SOIL	NA	—	—	—	—
MDAB_00_04-09-10293	NJ30	0–5	SOIL	NA	1.44941	—	—	—
MDAB_04_08-09-10294	NJ30	5–9.5	SOIL	NA	2.04824	4.0671	—	5.0235
MDAB_00_04-09-10297	NJ35	0–4.5	SOIL	NA	1.79731	—	—	—
MDAB_00_04-10-462	WST-600902	0–0	FILL	—	6.0291	—	—	—
MDAB_00_04-10-463	WST-600902	0–0	FILL	—	10.6685	—	—	—
MDAB_00_04-10-464	WST-600902	0–0	FILL	—	17.5286	—	—	—

Notes: Units in pCi/g. See Appendix A for data qualifier definitions.

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

[b] na = Not available.

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

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

[e] Sample from location WST-600902 is a composite waste sample.

[f] NA = Not analyzed.

REFERENCES

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

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

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

LANL (Los Alamos National Laboratory), December 2009. "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)

NMED (New Mexico Environment Department), February 2012 (updated June 2012). "Risk Assessment Guidance for Site Investigations and Remediation," Hazardous Waste Bureau and Ground Water Quality Bureau Voluntary Remediation Program, Santa Fe, New Mexico. (NMED 2012, 219971)

Appendix C

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

Appendix C contains analytical data tables for samples from the sampling events described in this report. The tables are organized by specific sampling event as follows:

- confirmation sampling (Tables C-1 through C-5)
- post-remediation borehole sampling (Tables C-6 through C-10)
- overburden sampling (Tables C-11 through C-17)
- direct-push technology sampling (Tables C-18 through C-23)
- repack sampling (Tables C-24 and C-25)
- 1998 angled borehole sampling (Tables C-26 through C-30)

Within each group of tables, separate tables are provided for inorganic chemical analysis, organic chemical analysis, and radionuclide analysis of investigation samples. If inorganic and/or organic analysis was performed using the toxicity characteristic leaching procedure, these results are reported in separate tables and are not included with the total inorganic and organic chemical analyses. Separate tables are also provided for quality assurance samples (inorganic, organic, and radionuclide results are included in a single table). All inorganic, organic, and radionuclide data that were rejected during the data validation process are also included in a separate table.

An “allanalyses” table is also provided in Appendix C. This table provides all the analytical database information for each of the samples referenced in the Material Disposal Area B investigation/remediation report.

The tables present all analytical results, regardless of detection status. Data validation flags, which are defined in Appendix A, are included with the analytical results. Nondetected results are indicated by the flags “U” or “UJ” and the value reported is the practical quantitation limit for inorganic and organic chemicals and minimum detectable activity for radionuclides. If a sample was not analyzed for a particular constituent, the table column contains “NA.”

Media codes represent the environmental media sampled. The media code “NA” for environmental samples indicates the medium was not specified on the sample collection log and the media code is not available.

Appendix D

Quality Assurance and Quality Control Program

D-1.0 INTRODUCTION

Before excavation, 136 core samples were collected from Material Disposal Area (MDA) B via direct-push technology (DPT) in 2009 to provide preliminary characterization of the waste. Overburden and lay-back samples were collected from MDA B to determine if the material could be reused as backfill in the excavated trenches following site remediation activities. Results from 84 overburden soil and fill samples are included in the data for this report. A total of 182 confirmation samples were also collected to determine if uncontaminated tuff had been reached. Results from 7 soil borehole samples from 3 boreholes drilled in 2011, along with 58 borehole samples from 7 boreholes drilled in 1998, are also presented in this report. This appendix presents the analytical methods used and data quality review for these samples.

Quality assurance (QA), quality control (QC), and data validation procedures were implemented in accordance with the Los Alamos National Laboratory (LANL or the Laboratory) Quality Assurance Plan for the Environmental Programs Directorate (EP-DIR-QAP-0001), the MDA B investigation/remediation work plan, the MDA B sampling and analysis plan ([SAP] revision 0, 1, and 2) (LANL 2006, 095499; LANL 2010, 110411; LANL 2010, 110398; LANL 2010, 111195), and the post-remediation SAP (LANL 2010, 109266). 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 SAP and revisions. 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. Analytical data are provided in Appendix C (on DVDs included with this document).

The SOPs listed in Table D-1.0-1, which are available at http://www.lanl.gov/environment/all/qa/adep.shtml, were used for data validation.

Analytical data were reviewed and evaluated based on U.S. Environmental Protection Agency (EPA) National Functional Guidelines, where applicable (EPA 1994, 048639; EPA 1999, 066649). 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.

D-2.0 LABORATORY ANALYSIS SUMMARY

DPT, overburden, confirmation, and borehole samples collected from MDA B are presented in Appendix C (on DVDs included with this document). Overburden samples were collected from the stockpile in the west laydown yard and from the containerized overburden. This report includes results from a total of 53 overburden field trip blanks collected along with 27 field duplicates and 28 field rinsate samples. Results from a total of 187 confirmation samples collected, along with 34 field trip blanks, 12 field duplicates, and 8 field rinsates, are also included in this report. Finally, the report also includes results from 7 soil-boring samples with 5 field trip blanks, 1 field rinsate, and 1 field duplicate from boreholes drilled in 2011, along with 58 soil-boring samples and 1 field duplicate from boreholes drilled in 1998.

Samples were submitted to accredited analytical laboratories for numerous analyses, including volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), high explosives (HE), herbicides, pesticides, total petroleum hydrocarbon (TPH) diesel-range organics, TPH gasoline-range organics, dioxins and furans, perchlorate, nitrate, total cyanide, polychlorinated biphenyls (PCBs), target analyte list (TAL) metals, americium-241, gamma spectroscopy, isotopic plutonium, isotopic uranium, tritium, and strontium-90. Table D-2.0-1 shows the analytical methods used. Excavation grid locations and confirmatory sampling locations are presented on Plates 1 through 8 of the investigation/remediation report. Validated analytical results are presented in Appendix C (on DVDs included with this document).

Inorganic chemical, organic chemical, 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 2008, 109962).

D-3.0 ORGANIC CHEMICAL ANALYSES

Organic chemical analyses include identification and quantitation of dioxins/furans, pesticides, herbicides, PCBs, HE, VOCs, and SVOCs. Identification of some organic compounds requires additional testing, the toxicity characteristic leaching procedure (TCLP), to determine the toxicity leaching characteristics.

D-3.1 Maintenance of Chain of Custody

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

D-3.2 Sample Documentation

All samples were properly documented in the field.

D-3.3 Sample Preservation

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

D-3.4 Holding Times

Holding times were met for all confirmation samples and soil-boring samples. A total of 63 pesticide results for DPT samples and 137 SVOC results, 63 pesticide results, 120 VOC results, and 32 herbicide-TCLP results for overburden samples were qualified as estimated not detected (UJ), and 6 VOC results and 1 SVOC result for overburden samples were qualified as estimated low (J-), because the holding time between sample extraction and analysis was exceeded by less than 2 times the holding time required by the analysis method. A total of 68 SVOC results from overburden were qualified as rejected (R) because the holding time between sample extraction and analysis was exceeded by greater than 2 times the holding time required by the analysis method.

D-3.5 Initial and Continuing Calibration Verification

A total of 2 PCB results, 105 herbicide results, 166 pesticide results, 126 SVOC results, and 156 VOC results from DPT samples; 8 VOC results from pore-gas samples; 72 herbicide results, 20 herbicide-TCLP results, 566 pesticide results, 370 pesticide-TCLP results, 358 SVOC results, 35 SVOC-TCLP results, 608 VOC results, and 67 VOC-TCLP results from overburden samples; and 3 VOC results and

3 SVOC results from confirmation samples were qualified as estimated not detected (UJ), and 1 herbicide result, 2 PCB results, 13 pesticide results, and 6 VOC results for DPT samples; 1 herbicide result, 1 VOC result, and 28 PEST results for overburden samples; and 3 VOC results and 3 SVOC results for confirmation samples 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.

A total of 25 HE results from overburden samples were qualified as estimated not detected (UJ), 1 VOC result from a DPT sample and 2 VOC results from overburden samples were qualified as estimated (J), and 5 HE results, 75 VOC results, and 65 VOC-TCLP results from overburden samples were qualified as rejected (R), because the affected analytes were analyzed with relative response factors of less than 0.05 outside method-required limits for their initial and/or continuing calibration verification results. Five PCB results for DPT samples were qualified as estimated (J) because the continuing calibration standard was not run within the method-specified time window.

D-3.6 Analyte Identification

Twelve SVOC results and eight VOC results from DPT samples and one SVOC result from an overburden sample were qualified as estimated not detected (UJ) because the mass spectra of the analyte did not meet method-specified criteria.

Spectral reviews were within acceptable limits for all organic analyses of confirmation and soil-boring sample results.

D-3.7 Analyte Quantitation

Two VOC results from pore-gas samples and 11 pesticide results, 11 pesticide-TCLP results, 26 SVOC results, and 7 VOC results from overburden samples were qualified as estimated, not detected (UJ) because the initial calibration exceeded percent risk-specific dose criteria from the method or the correlation coefficient for the curve was less than 0.995.

D-3.8 Method Blank, Instrument Blank, and Continuing Calibration Blank

A total of 89 VOC results and 41 SVOC results from DPT samples; 123 dioxin/furan results, 110 VOC results, and 8 VOC-TCLP results from overburden samples; 23 dioxin/furan results and 7 VOC results from confirmation samples; and six dioxin/furan results from soil-boring samples 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 dioxin/furan results from soil-boring samples; 29 dioxin/furan results from overburden samples; and 6 dioxin/furan results from confirmation samples were qualified as estimated (J) because the analyte was present in the sample at a concentration greater than 5 times the concentration of the same analyte in the method blank.

D-3.9 Field Trip Blanks

Field trip blanks are analyzed only for VOCs. No field trip blanks were collected for DPT samples, since those results are preliminary. A total of 36 VOC results from overburden samples and 4 VOC results from confirmation samples were qualified 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.

D-3.10 Matrix Spikes

One HE result from an overburden sample was qualified as estimated not detected (UJ) because the matrix spike or matrix spike duplicate percent recovery was greater than 10% but less than the lower acceptance limit (LAL).

Five HE results from overburden samples and two dioxin/furan results from confirmation samples were qualified as estimated high (J+) because the matrix spike or matrix spike duplicate percent recovery was greater than the upper acceptance limit (UAL).

D-3.11 Matrix Spikes and Matrix Spike Duplicates

Eleven HE results from overburden samples, three HE results from confirmation samples, and one HE result from a soil-boring sample were qualified as estimated not detected (UJ) because the relative percent difference (RPD) between the matrix spike and matrix spike duplicate was greater than 30%.

D-3.12 Surrogate Recoveries

A total of 8 herbicide results and 21 pesticide results from DPT samples; and 33 pesticide results, 7 pesticide-TCLP results, and 150 SVOC results from overburden samples were qualified as estimated not detected (UJ), and 3 SVOC results from overburden samples were qualified as estimated low (J-), because surrogate recoveries for associated analytes were less than the LAL but greater than or equal to 10%. One PCB result and ten VOC results from DPT samples; and three VOC results from confirmation samples were qualified as estimated biased high (J+) because surrogate recoveries were above the UAL. A total of 136 SVOC results from borehole samples were qualified as estimated not detected (UJ) because at least one surrogate recovery was greater than the UAL and one surrogate recovery was less than the LAL.

D-3.13 Internal Standard Responses

A total of 349 VOC results and 2 SVOC results from DPT samples were qualified as estimated not detected (UJ), and 89 SVOC results and 12 VOC results from DPT samples were qualified as estimated (J), because internal standard counts were greater than 10% and less than 50% of the value specified by the analytical method. Internal standard responses were within method-specified limits for all confirmation sample, overburden, and soil-boring organic analysis results.

D-3.14 Laboratory Control Spike Recoveries

A total of 2 SVOC results from DPT samples; 59 herbicide results and 268 pesticide results from overburden samples; 9 SVOC results from confirmation samples; and 1 SVOC result from a pore-gas sample were qualified as estimated not detected (UJ), and 1 herbicide result and 5 pesticide results from overburden samples were qualified as estimated low (J-), because the laboratory control spike was less than the LAL but greater than 10% recovery.

Eight pesticide results, five dioxin/furan results, and one SVOC result from overburden samples were qualified as estimated biased high (J+) because the laboratory control spike percent recovery was greater than the UAL.

A total of 20 SVOC results and 3 pesticide results from overburden samples were rejected (R) because the laboratory control spike recovery was less than 10%.

D-3.15 Laboratory Duplicates Precision

Laboratory duplicates indicated acceptable precision for all organic analysis results.

D-4.0 INORGANIC CHEMICAL ANALYSES

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

D-4.1 Maintenance of Chain of Custody

COC was properly maintained for all inorganic DPT, overburden, confirmation, and soil-boring samples.

D-4.2 Sample Documentation

All samples were properly documented in the field.

D-4.3 Sample Preservation

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

D-4.4 Holding Times

Four total cyanide results for overburden samples were qualified as estimated low (J-) because the holding time between sample extraction and analysis was exceeded by less than 2 times the method holding time.

Holding times were met for all inorganic analyses of DPT, overburden, confirmation, and soil-boring samples.

D-4.5 Initial and Continuing Calibration Verification

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

Two metals results for DPT samples were qualified as estimated (J) because the initial calibration verification or continuing calibration verification was recovered outside acceptable limits.

D-4.6 Analyte Quantitation

A total of 344 metals results and 13 anion results from overburden samples; and 168 metals results and 9 anion results from confirmation samples 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.

Four metals-TCLP results from overburden samples were qualified as estimated (J), and 108 metals-TCLP results from overburden samples were qualified as estimated not detected (UJ), because the affected results were not analyzed with a valid calibration curve and/or a calibration standard at the reporting limit.

Seven metals results from overburden samples were qualified as estimated (J) because the results were between the instrumental detection limit and the estimated detection limit.

D-4.7 Method Blank, Instrument Blank, and Continuing Calibration Blank

A total of 14 metals results from DPT samples; 220 metals results and 59 metals-TCLP results from overburden samples; 42 metals results from confirmation samples; and 11 metals results from soil-boring samples were qualified as estimated (J) because the analyte was detected at more than 5 times the concentration of the same analyte in the method blank. A total of 60 metals results from DPT samples; 58 metals results and 182 metals-TCLP results from overburden samples; 18 metals results from confirmation samples; and 2 metals results and 1 cyanide result from soil-boring samples 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.

A total of 25 metals results from DPT samples, and 3 metals-TCLP results and 46 metals results from overburden samples, were qualified as not detected (U) because the concentration of the analyte in the sample was less than or equal to 5 times the concentration of the same analyte in the continuing calibration blank.

D-4.8 Internal Standard Responses

A total of 75 metals results from DPT samples were qualified as estimated (J), and 1 metals result from a DPT sample was qualified as estimated not detected (UJ), because internal standard counts were greater than 125% of those in the initial calibration blank.

D-4.9 Laboratory Control Spike Recoveries

Laboratory control spike recoveries were within method acceptance limits for all DPT, overburden, confirmation sample, and soil-boring sample inorganic chemical analysis results.

D-4.10 Matrix Spikes and Matrix Spike Duplicates

A total of 14 metals results from overburden samples and 3 metals results from confirmation samples were qualified as rejected (R) because the matrix spike recoveries were less than 10%.

A total of 186 metals results from DPT samples; 388 metals results and 4 total cyanide results from overburden samples; 135 metals results from confirmation samples; and 16 metals results from soil-boring samples were qualified as estimated biased high (J+), and 2 metals results from DPT samples were qualified as estimated not detected (UJ), because the matrix spike or matrix spike duplicate percent recovery was greater than the UAL. One metals result from a DPT sample; 69 metals results and 15 metals-TCLP results from overburden samples; 6 metals results from confirmation samples; and 1 anion result and 1 metals result from soil-boring samples were qualified as estimated not detected (UJ), and 48 metals results from DPT samples; 92 metals results from overburden samples; 15 anion results and 40 metals results from confirmation samples; and 2 anion results from soil-boring samples were qualified as estimated low (J-), because the matrix spike or matrix spike duplicate percent recovery was greater than 10% but less than the LAL. Three DPT results, 4 confirmation sample results, and 14 metals results from soil-boring samples were qualified as rejected (R) because the matrix spike or matrix spike duplicate percent recovery was less than 10%.

D-4.11 Laboratory Duplicate Precision

A total of 37 metals results from DPT samples; 90 metals results from overburden samples; and 37 metals results from confirmation samples were qualified as estimated (J) because the sample and the laboratory duplicate results were greater than or equal to 5 times the reporting limit and the RPD was greater than the UAL.

Ten metals results from DPT samples were qualified as estimated (J) because the difference between the sample serial dilution and sample result was greater than 10%.

D-5.0 RADIOCHEMICAL ANALYSES

Confirmation, DPT, 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.

D-5.1 Maintenance of Chain of Custody

COC was properly maintained for all radionuclide DPT, overburden, confirmation, and soil-boring samples.

D-5.2 Sample Documentation

Samples were properly documented in the field.

D-5.3 Sample Preservation

No sample preservation is required for radionuclides.

D-5.4 Holding Times

Holding times were met for all radionuclide analyses.

D-5.5 Analyte Quantitation (Including Spectral Interferences)

A total of 9 gamma spectroscopy results from overburden samples, 67 gamma spectroscopy results from confirmation samples, and 7 gamma spectroscopy results from soil-boring samples were qualified as rejected (R), and 37 gamma spectroscopy results from overburden samples were qualified as not detected (U), because spectral interferences prevented the positive identification of the analyte.

D-5.6 Method Blanks

One tritium result, one isotopic plutonium result, and six isotopic uranium results from DPT samples; three isotopic plutonium results and one isotopic uranium result from overburden samples; three isotopic plutonium results from confirmation samples; and one tritium result from a pore-gas sample were qualified as estimated (J) because the related analyte was detected in the method blank but the result in the sample was greater than 5 times the concentration in the method blank.

A total of 54 tritium results, 10 isotopic plutonium results, and 4 strontium-90 results from DPT samples were qualified as not detected (U) because the sample result was less than or equal to 5 times the analyte result in the method blank.

D-5.7 Laboratory Control Spike Recoveries

Laboratory control spike percent recoveries were within acceptable limits for all radionuclide analyses for overburden, confirmation, and soil-boring sample results. Five americium-241 results from DPT samples were qualified as estimated not detected (UJ) because the laboratory control spike recovery was greater than 10% but less than the LAL.

D-5.8 Tracer Recoveries

Three americium-241 results and four isotopic plutonium results from DPT samples; three isotopic uranium results and two isotopic plutonium results from overburden samples; and one americium-241 result and two isotopic plutonium results from confirmation samples were qualified as estimated biased low (J-) because the tracer was recovered below the LAL but above 10% recovery. One americium-241 result from a DPT sample; one americium-241 result from an overburden sample; and two isotopic plutonium results and one americium-241 result from confirmation samples 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. Five americium-241 results, two isotopic plutonium results, three isotopic thorium results, and two isotopic uranium results from DPT samples; and five isotopic uranium results and one americium-241 result from confirmatory samples were qualified as estimated biased high (J+) because the tracer recovery percent was greater than the UAL.

D-5.9 Laboratory Duplicates

One isotopic plutonium result from an overburden sample; and one americium-241 result and one isotopic plutonium result from confirmation samples were qualified as rejected (R) 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. A total of 7 isotopic plutonium results from DPT samples; 27 isotopic plutonium results and 14 tritium results from overburden samples; and 10 isotopic plutonium results, 2 americium-241 results, and 10 isotopic uranium results from confirmation samples 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.

A total of 2 americium-241 results, 49 gamma spectroscopy results, 1 tritium result, 7 isotopic plutonium results, 28 isotopic thorium results, 9 isotopic uranium results, and 4 strontium-90 results from DPT samples were qualified as estimated not detected (UJ), and 3 gamma spectroscopy results, 5 tritium results, 17 isotopic plutonium results, 4 isotopic thorium results, 30 isotopic uranium results, and 5 strontium-90 results from DPT samples; and 4 isotopic uranium results from overburden samples were qualified as estimated (J), because a laboratory duplicate sample was either not prepared or not analyzed for unspecified reasons.

D-6.0 FIELD QUALITY CONTROL SUMMARY

D-6.1 Field Trip Blanks

Fifty-three field trip blanks were collected in association with overburden sampling. One field trip blank associated with overburden samples had detected concentrations of methylene chloride; seven had detected concentrations of acetone; one had a detected concentration of xylene[1,3]+xylene[1,4]; one had a detected concentration of butanone [2-]; one had a detected concentration of chloromethane; one had a detected concentration of chlorotoluene[4-]; and two had a detected concentration of toluene. These detections were above the method detection limit (MDL) but below the practical quantitation limit (PQL). One field trip blank had a detected concentration of acetone, one had a detected concentration of chloroform, and three had detected concentrations of methylene chloride above the PQL. From associated overburden samples, 5 acetone and 29 methylene chloride results were qualified as nondetects (U) because they were indistinguishable from associated field trip blank results.

Thirty-four field trip blanks were collected in association with confirmation sampling. Eight of these field trip blanks had detected concentrations of acetone; one had a detected concentration of methylene chloride; one had a detected concentration of butylbenzene [n-]; one had a detected concentration of isopropyltoluene; one had a detected concentration of level of tetrachloroethene; one had a detected concentration of toluene; and two had detected concentrations of trimethylbenzene[1,2,4-]. These results were above the MDL but below the PQL. One field trip blank had a detected concentration of acetone, and one had a detected concentration of trimethylbenzene[1,2,4-] above the PQL. Acetone from three associated confirmation sample results and methylene chloride from one associated confirmation sample result were qualified as nondetects (U) because they were indistinguishable from associated field trip blank results.

Five field trip blanks were collected in association with soil-boring samples. Acetone was detected in two field trip blank results above the MDL but below the PQL and in one field trip blank result at a concentration above the PQL. No soil-boring samples associated with these field trip blanks contained acetone, so none were qualified.

D-6.2 Field Rinsates

Twenty-eight field rinsates were collected in association with overburden sampling. Twenty-three field rinsates collected in association with overburden sampling had detected, usually quantifiable, concentrations of sodium, potassium, and manganese. A total of 22 field rinsates had detected concentrations of aluminum, barium, and iron; 20 had detected concentrations of copper; 17 had detected concentrations of calcium, sodium, and nickel; 16 had detected concentrations of magnesium; 15 had detected concentrations of zinc; 11 had detected concentrations of chromium, magnesium, and lead; 10 had detected concentrations of vanadium; 9 had detected concentrations of uranium; 6 had detected concentrations of nitrate; 4 had detected concentrations of thallium; 3 had detected concentrations of beryllium; 2 had detected concentrations of cobalt and perchlorate; and 1 had detected concentrations of arsenic, antimony, and selenium. From associated overburden samples, 14 arsenic, 55 copper, 5 chromium, 166 sodium, 20 lead, 24 zinc, 3 uranium, 13 nitrate, 27 thallium, and 14 nickel results were qualified as nondetects (U) because they were indistinguishable from associated rinsate results.

Eight field rinsates were collected in association with confirmation sampling. All eight field rinsates had detected concentrations of sodium, calcium, chromium, aluminum, manganese, barium, copper, lead, iron, and zinc. Seven had detected concentrations of uranium and nickel; six had detected concentrations of potassium; four had detected concentrations of cadmium; three had detected concentrations of chromium; two had detected concentrations of cyanide and magnesium; and one had detected concentrations of mercury and selenium. From associated confirmation samples, 3 calcium, 26 copper, 27 chromium, 32 sodium, 25 lead, 1 mercury, 2 zinc, 9 nitrate, 9 potassium, 8 uranium, and 26 nickel results were qualified as nondetects (U) because they were indistinguishable from associated rinsate results.

One field rinsate was collected in association with soil borings. Results for calcium and sodium were above the PQL for this sample. The result for manganese was above the MDL but below the PQL. None of these analytes were detected in corresponding soil-boring samples were detected, so none of the soil-boring samples were qualified.

D-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 New Mexico Environment Department (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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LANL (Los Alamos National Laboratory), October 2006. "Investigation/Remediation Work Plan for Material Disposal Area B, Solid Waste Management Unit 21-015, at Technical Area 21, Revision 1," Los Alamos National Laboratory document LA-UR-06-6918, Los Alamos, New Mexico. (LANL 2006, 095499)

LANL (Los Alamos National Laboratory), June 30, 2008. "Exhibit 'D' Scope of Work and Technical Specifications, Analytical Laboratory Services for General Inorganic, Organic, Radiochemical, Asbestos, Low-Level Tritium, Particle Analysis, Bioassay, Dissolved Organic Carbon Fractionation, and PCB Congeners," Los Alamos National Laboratory document RFP No. 63639-RFP-08, Los Alamos, New Mexico. (LANL 2008, 109962)

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 D-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-5164, Rev. 0	Routine Validation of High Explosive (HE) 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 D-2.0-1
Analytical Methods Used for Sample Analyses

Analytical Method	Analytical Suite	Target Analyte(s)
SW-846:8260B	VOCs	Analytical services SOW Attachment 3, Table VII(a) (LANL 2008, 109962)
SW-846:8270C	SVOCs	Analytical services SOW Attachment 3, Table IX(a) (LANL 2008, 109962)
SW-846:8015M	TPH, including diesel-range organics and gasoline-range organics	Analytical services SOW Attachment 3, Table I (LANL 2008, 109962)
SW-846:9012A	Wet chemistry	Total cyanide, nitrate-nitrite as nitrogen
SW-846:8081A	Pesticides	Analytical services SOW Attachment 3, Table V(a) (LANL 2008, 109962)
SW-846:8151A	Herbicides	Chlorinated herbicides
SW-846:8082	PCBs	Analytical services SOW Attachment 3, Table VI(a) (LANL 2008, 109962)
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 2008, 109962)
SW-846:7471A and SW-846:7470A	Mercury	Elemental mercury

Table D-2.0-1 (continued)

Analytical Method	Analytical Suite	Target Analyte(s)
SW-846:6850	Perchlorate	ClO_4
SW-846:8321A	HE	Analytical services SOW Attachment 3, Table XII (LANL 2008, 109962)
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 E

Overburden Data Summary and Statistics

E-1.0 INTRODUCTION

Overburden was removed from the Material Disposal Area (MDA) B site, stockpiled, and sampled before the waste trenches were excavated. After the contaminated soil and buried waste debris was removed from the waste trenches and confirmation sampling had confirmed that contamination was no longer an unacceptable risk, overburden material characterized as below residential soil screening levels (SSLs) and screening action levels (SALs) was reused to backfill the excavated trenches. Backfilling operations proceeded from September 9, 2010, through September 12, 2011. Plate 1 of the investigation/remediation report (I/R report) shows the excavated and backfilled grid cell and confirmation sample locations.

E-2.0 OVERBURDEN SAMPLE STATISTICS

Two separate overburden stockpiles and 63 overburden containers were sampled. Before the overburden could be used as backfill for the excavated trenches, samples were analyzed for organic chemicals, inorganic chemicals, and radionuclides. Statistical analysis of overburden samples was conducted on 172 samples collected from the first stockpile and on 74 samples from the second stockpile and overburden containers.

Separate statistical analyses were performed for the first stockpile (pre-enclosure overburden) and the second stockpile and containers (post-enclosure overburden). The pre-enclosure stockpile was sampled during April and May 2010, comprising 6292 yd^3 of overburden that was removed before the installation of Enclosures 1 and 2. The post-enclosure stockpile comprised 1970 yd^3 of overburden excavated from the foundations for fixed Enclosures 3, 7, and 12, and removed from inside enclosures before excavation of contaminated soil and waste between July and September 17, 2010. Since September 21, 2010, overburden removed from inside enclosures has been stored primarily in containers. Additional overburden was added to the second stockpile in February and March 2011. Overburden exhibiting analytical results below residential SSLs and SALs was reused as backfill in the excavated trenches.

Basic descriptive statistics were calculated for the overburden results, including the number of samples; the detection rate; and the mean concentrations, standard deviation, minimum concentrations, median concentrations, and maximum concentrations. A two-step statistical process was used to characterize the overburden. The first step assessed whether the maximum detected concentration for a given analyte exceeded residential screening levels. Four sets of screening levels were employed during this step:

- the New Mexico Environment Department (NMED) SSLs,
- the U.S. Environmental Protection Agency (EPA) regional SSLs,
- the Los Alamos National Laboratory (LANL) radionuclide SALs, and
- the toxicity characteristic leaching procedure (TCLP) standards.

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. If the maximum measured value for an analyte did not exceed the relevant screening level, the overburden was considered clean for that analyte and no further statistical analysis was performed on that analyte. If the maximum detected concentration for an analyte exceeded the applicable screening level, then the second step of this statistical analysis was performed. The second step calculated an upper confidence limit (UCL) of the overburden data available for that analyte from each stockpile or storage bin. The 95% UCL is used to compare the site mean concentration with the TCLP standard, residential SSLs, or residential SALs. The SSLs contained in Revision 5.0 of NMED's SSL technical background document

(NMED 2009, 108070) were in effect at the time the overburden screening was performed and were the SSLs used for the screening.

E-2.1 Pre-enclosure Overburden

Statistical results for the pre-enclosure overburden samples collected from the first stockpile are presented in Table E-2.1-1 for inorganic chemicals, Table E-2.1-2 for organic chemicals, and Table E-2.1-3 for radionuclides.

Pre-enclosure overburden results for 282 analytes were evaluated in the first step. For those analytes detected above a screening level, the second statistical step was used to calculate the 95% UCL of the results to determine if the material would be classified as clean or as waste. The EPA software program ProUCL (EPA 2007, 102895) was used to perform these calculations.

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 E-2.1-4. None of the 95% UCLs exceeded the residential SSLs or SALs. Based on this analysis, the overburden stockpiled from April to May 2010 was suitable for use as backfill.

E-2.2 Post-enclosure Overburden

Statistical results for the combined post-enclosure overburden stockpile and containers are presented in Table E-2.2-1 for inorganic chemicals, Table E-2.2-2 for organic chemicals, and Table E-2.2-3 for radionuclides. These results include both overburden stockpiled in July to September 2010 and February and March 2011 and overburden collected in containers since September 21, 2010.

A total of 280 analytes were evaluated in the first step. Only one arsenic result exceeded the residential SSL, so the second step of statistical analysis was performed for the arsenic results collected from the second overburden stockpile. The 95% UCL calculated for arsenic results from the second stockpile is presented in Table E-2.2-4. The arsenic 95% UCL did not exceed the residential SSL. Based on this analysis, the post-enclosure overburden stockpile and overburden stored in containers were suitable for use as backfill.

E-3.0 REFERENCES

The following list includes all documents cited in this appendix. Parenthetical information following each reference provides the author(s), publication date, and ER ID. 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), April 2007. "ProUCL Version 4.00.02 User Guide," EPA/600/R-07/038, Office of Research and Development, Washington, D.C. (EPA 2007, 102895)

LANL (Los Alamos National Laboratory), December 2009. "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)

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

Table E-2.1-1
Inorganic Chemicals Detected in Pre-enclosure Overburden Samples

Total Inorganic Chemical Results										
Analyte	Number of Analyses	Detects	Detection Rate	Mean (mg/kg)	Standard Deviation (mg/kg)	Minimum (mg/kg)	Median (mg/kg)	Maximum (mg/kg)	Residential SSL[a] (mg/kg)	Maximum Concentration above Residential SSLs
Aluminum	172	172	100%	6868.8	1674.2	2810	7210	10,400	78,100	No[b]
Antimony	172	52	30%	0.8	0.9	0.08	0.3	5.3	31.3	No
Arsenic	172	158	92%	2.4	0.7	1.0	2.5	7.3	3.9	Yes[c]
Barium	172	172	100%	99.1	25.8	35.7	102	235	15,600	No
Beryllium	172	172	100%	0.7	0.1	0.3	0.7	0.9	156	No
Cadmium	172	143	83%	0.2	0.2	0.04	0.1	0.7	77.9	No
Calcium	172	172	100%	2292.4	1566.8	759	2065	18,400	na[d]	n/a[e]
Chromium	172	172	100%	6.0	1.5	2.4	6.2	13	113,000	No
Cobalt	172	172	100%	3.8	1.1	1.6	3.8	8.6	23[f]	No
Copper	172	128	74%	7.5	5.3	2.3	6.4	56.5	3130	No
Iron	172	172	100%	9169.4	1697	4540	9000	14,000	54,800	No
Lead	172	172	100%	14.4	4.2	5.5	14.2	33.9	400	No
Magnesium	172	172	100%	1292.4	303.7	534	1330	2100	na	n/a
Manganese	172	158	92%	273.8	79.5	124	260	860	10,700	No
Mercury	172	145	84%	0.03	0.01	0.009	0.03	0.1	7.7[g]	No
Nickel	172	162	94%	5.5	1.1	2.5	5.6	8.6	1560	No
Potassium	172	172	100%	1013.8	246.8	390	1060	1500	na	n/a
Selenium	172	115	67%	1.0	0.3	0.3	1	2.4	391	No
Silver	172	120	70%	0.4	0.5	0.03	0.1	1.2	391	No
Sodium	172	47	27%	124.9	52.4	28	119	240	na	n/a
Thallium	172	64	37%	0.5	0.6	0.09	0.2	6.8	5.2	Yes
Uranium	172	172	100%	0.8	0.2	0.4	0.8	2.1	235	n/a
Vanadium	172	172	100%	15	3.3	6.9	15.2	22	391	No
Zinc	172	163	95%	37.7	13.6	15.7	34.8	158	23,500	No

Table E-2.1-1 (continued)

TCLP Results										
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 TCLP Standards**
Barium	172	172	100%	694.7	123.7	380	677.5	1100	100,000	No
Cadmium	172	15	9%	19.9	18.1	1.1	10	50	1000	No
Chromium	172	5	3%	45.9	37.5	13	20	100	5000	n/a
Lead	172	24	14%	18.2	13.6	2.5	13.8	44.1	5000	No
Mercury	172	26	15%	1.3	0.5	0.2	1	2	200	No
Selenium	172	23	13%	24.6	15.1	6.3	19.2	52	1000	No

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

[b] No = Does not exceed SSLs.

[c] Yes = Exceeds SSLs.

[d] na = Not available.

[e] n/a = Not applicable.

[f] Source: http://www.epa.gov/region06/6pd/rcra_c/pd-n/screen.htm.

[g] SSL is for elemental mercury.

[h] Source: 40 Code of Federal Regulations 261.24.

Table E-2.1-2
Organic Chemicals Detected in Pre-enclosure Overburden Samples

Total Organic Chemical Results										
Analyte	Number of Analyses	Detects	Detection Rate	Mean (mg/kg)	Standard Deviation (mg/kg)	Minimum (mg/kg)	Median (mg/kg)	Maximum (mg/kg)	Residential SSL[a] (mg/kg)	Maximum Concentration above Residential SSLs
Acenaphthene	172	4	2%	0.3	0.1	0.03	0.4	0.9	3440	No[b]
Acetone	172	4	2%	0.02	0.005	0.005	0.02	0.05	67,500	No
Anthracene	172	2	1%	0.3	0.08	0.03	0.4	0.4	17,200	No
Benzo(a)anthracene	172	2	1%	0.3	0.09	0.03	0.4	0.8	6.2	No
Benzo(a)pyrene	172	2	1%	0.3	0.09	0.03	0.4	0.7	0.6	Yes[c]
Benzo(b)fluoranthene	172	5	3%	0.3	0.1	0.01	0.4	1	6.2	No
Benzo(g,h,i)perylene	172	3	2%	0.3	0.09	0.03	0.4	0.4	1720[d]	No
Benzo(k)fluoranthene	172	2	1%	0.3	0.08	0.03	0.4	0.5	62.1	No
Bis(2-ethylhexyl) phthalate	172	21	12%	0.4	0.3	0.06	0.4	3.6	347	No
Butylbenzylphthalate	172	1	1%	0.4	0.3	0.04	0.4	3.6	260[e]	No
Carbazole	46	2	4%	0.4	0.04	0.2	0.4	0.4	na[f]	n/a[g]
Chlordane[alpha-]	172	5	3%	0.006	0.006	0.002	0.004	0.04	16.2[h]	No
Chlordane[gamma-]	172	13	8%	0.006	0.006	0.0003	0.004	0.04	16.2[h]	No
Chrysene	172	3	2%	0.3	0.09	0.03	0.4	0.6	621	No
Dichlorodiphenyldichloroethane [4,4'-]	172	4	2%	0.006	0.006	0.0002	0.004	0.04	20.3	No
Dichlorophenyltrichloroethylene [4,4'-]	172	22	13%	0.006	0.006	0.0006	0.004	0.04	14.3	No
Dichlorodiphenyltrichloroethane [4,4'-]	172	27	16%	0.006	0.006	0.001	0.004	0.04	17.2	No
Dibenz(a,h)anthracene	172	1	1%	0.3	0.08	0.03	0.4	0.4	0.6	No
Dibenzofuran	172	1	1%	0.4	0.3	0.1	0.4	3.6	78[e]	No
Dicamba	172	3	2%	0.03	0.02	0.005	0.04	0.1	1800[e]	No

Table E-2.1-2 (continued)

Total Organic Chemical Results										
Analyte	Number of Analyses	Detects	Detection Rate	Mean (mg/kg)	Standard Deviation (mg/kg)	Minimum (mg/kg)	Median (mg/kg)	Maximum (mg/kg)	Residential SSL[a] (mg/kg)	Maximum Concentration above Residential SSLs
Dieldrin	172	4	2%	0.006	0.006	0.0004	0.004	0.04	0.3	No
Diethylphthalate	172	5	3%	0.4	0.3	0.07	0.4	3.6	48,900	No
Di-n-butylphthalate	172	3	2%	0.4	0.3	0.05	0.4	3.6	6110	No
Fluoranthene	172	13	8%	0.3	0.2	0.01	0.4	1.6	2290	No
Fluorene	172	1	1%	0.3	0.08	0.03	0.4	0.4	2290	No
Heptachlor epoxide	172	1	1%	0.006	0.006	0.002	0.004	0.04	0.053[e]	No
Indeno(1,2,3-cd)pyrene	172	2	1%	0.3	0.08	0.03	0.4	0.4	6.2	No
Isopropyltoluene[4-]	172	2	1%	0.005	0.001	0.0005	0.006	0.006	1860[i]	No
Methyl chlorophenoxy acetic acid	172	6	3%	6.7	3.0	0.7	8.7	9.4	31[e]	No
2- (2-methyl-4-chlorophenoxy) propionic acid	172	6	3%	6.8	2.9	0.4	8.7	9.4	61[e]	No
Methylene chloride	172	42	24%	0.01	0.01	0.002	0.005	0.06	199	No
Naphthalene	172	1	1%	0.3	0.08	0.03	0.4	0.4	45	No
Phenanthrene	172	8	5%	0.3	0.1	0.02	0.4	1.2	1830	No
Pyrene	172	13	8%	0.3	0.2	0.01	0.4	1.9	1720	No
Trichlorophenoxyacetic acid [2,4,5-]	172	2	1%	0.02	0.009	0.004	0.02	0.03	610[e]	No
Toluene	172	1	1%	0.005	0.001	0.0009	0.006	0.006	5570	No
Trichlorofluoromethane	172	2	1%	0.009	0.003	0.0003	0.01	0.01	2010	No
Trimethylbenzene [1,2,4-]	172	7	4%	0.003	0.002	0.0004	0.001	0.006	62[e]	No

Table E-2.1-2 (continued)

TCLP Results										
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[j] (µg/L)	Maximum Concentration above TCLP Standards
Benzene hexachloride [gamma-]	172	1	1%	0.5	0.09	0.07	0.5	0.5	400	No
Dichlorobenzene[1,4-]	172	1	1%	63	22.1	36	50	100	7500	No
Trichloroethene	172	6	3%	124.9	191.1	01.0	50	500	500	No

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

[b] No = Does not exceed SSLs.

[c] Yes = Exceeds SSLs.

[d] SSL for pyrene used based on structural similarity.

[e] Source: http://www.epa.gov/region06/6pd/rcra_c/pd-n/screen.htm.

[f] na = Not available.

[g] n/a = Not applicable.

[h] SSL for chloradane used based on structural similarity.

[i] SSL for isopropylbenzene used based on structural similarity.

[j] Source: 40 Code of Federal Regulations 261.24.

Table E-2.1-3
Radionuclides Detected in Pre-enclosure Overburden Samples

Analyte	Number of Analyses	Detects	Detection Rate	Mean (pCi/g)	Standard Deviation (pCi/g)	Minimum (pCi/g)	Median (pCi/g)	Maximum (pCi/g)	Residential SAL[a] (pCi/g)	Maximum Concentration above Residential SALs
Americium-241	172	97	56%	0.07	0.07	0.0005	0.05	0.6	30	No[b]
Cesium-137	172	3	2%	0.02	0.04	−0.09	0.02	0.2	5.6	No
Plutonium-238	172	36	21%	0.03	0.02	−0.004	0.03	0.1	37	No
Plutonium-239/240	172	172	100%	2.0	3.3	0.04	1.3	33.7	33	Yes[c]
Strontium-90	172	1	1%	0.03	0.1	−0.4	0.03	0.5	5.7	No
Tritium	172	136	79%	8.0	13.5	−0.2	1.7	69.7	750	No
Uranium-234	172	172	100%	0.8	0.4	0.2	0.7	3.4	170	No
Uranium-235	80	7	9%	0.03	0.02	−0.008	0.03	0.07	17	No
Uranium-235/236	92	15	16%	0.04	0.03	0	0.04	0.18	17	No
Uranium-238	172	172	100%	0.7	0.3	0.3	0.7	2.8	87	No

[a] Source: LANL (2009, 107655).
[b] No = Does not exceed SALs.
[c] Yes = Exceeds SALs.

Table E-2.1-4
95% Upper Confidence Limits for Chemicals and Radionuclides Exceeding SSLs and SALs in the Pre-enclosure Overburden Samples

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

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

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

[c] n/a = Not applicable.

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

Table E-2.2-1
Inorganic Chemicals Detected in Post-enclosure Overburden Samples

Analyte	Number of Analyses	Detects	Detection Rate	Mean (mg/kg)	Standard Deviation (mg/kg)	Minimum (mg/kg)	Median (mg/kg)	Maximum (mg/kg)	Residential SSL[a] (mg/kg)	Maximum Concentration above Residential SSLs
Aluminum	74	74	100%	5610.8	1750.8	2450	5590	10,300	78,100	No[b]
Antimony	74	13	18%	1.1	0.5	0.4	1.0	4.9	31.3	No
Arsenic	74	74	100%	1.6	0.7	0.5	1.5	6.6	3.9	Yes[c]
Barium	74	74	100%	96.5	61.9	33.7	80	558	15,600	No
Beryllium	74	74	100%	0.5	0.2	0.2	0.5	1.1	156	No
Cadmium	74	44	59%	0.4	0.5	0.1	0.4	4.3	77.9	No
Calcium	74	74	100%	4309.2	1834.4	1220	3785	8590	na[d]	n/a[e]
Chromium	74	69	93%	7.7	2.1	2.1	7.6	13	219	No
Cobalt	74	74	100%	3.5	0.9	0.8	3.6	5.7	23[f]	No
Copper	74	63	85%	31.8	105.1	1.6	10.1	855	3130	No
Cyanide (total)	67	6	9%	0.3	0.4	0.09	0.3	3.4	1560	No
Iron	74	74	100%	11,133.2	1463.4	6140	10,950	15,000	54,800	No
Lead	74	54	73%	12.8	9.3	5	9.4	50.4	400	No
Magnesium	74	74	100%	1749.9	472.9	498	1675.0	3130	na	n/a
Manganese	74	74	100%	275.5	41.1	172	277.0	395	10,700	No
Mercury	74	68	92%	0.03	0.04	0.007	0.02	0.3	7.7[g]	No
Nickel	74	70	95%	6.3	1.4	1.6	6.2	10.1	1560	No
Nitrate	74	56	76%	3.7	4.9	0.9	1.9	29.6	125,000	No
Perchlorate	67	53	79%	0.007	0.01	0.0005	0.002	0.08	54.8	No
Potassium	74	74	100%	894.1	261.3	409	839.5	1490	na	n/a

Table E-2.2-1 (continued)

Analyte	Number of Analyses	Detects	Detection Rate	Mean (mg/kg)	Standard Deviation (mg/kg)	Minimum (mg/kg)	Median (mg/kg)	Maximum (mg/kg)	Residential SSL[a] (mg/kg)	Maximum Concentration above Residential SSLs
Silver	74	37	50%	0.7	0.7	0.1	0.5	3.6	391	No
Sodium	74	33	45%	220.4	81.8	74.6	227	479	na	n/a
Thallium	74	58	78%	0.2	0.4	0.06	0.2	3.3	5.16	No
Uranium	74	70	95%	0.9	0.4	0.4	0.8	2.4	235	No
Vanadium	74	74	100%	19.3	4.7	4.3	19.4	29.6	391	No
Zinc	74	57	77%	64.2	94.5	24.7	31.2	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.

[f] Source: http://www.epa.gov/region06/6pd/rcra_c/pd-n/screen.htm.

[g] SSL is for elemental mercury.

Table E-2.2-2
Organic Chemicals Detected in Post-enclosure Overburden Samples

Analyte	Number of Analyses	Detects	Detection Rate	Mean (mg/kg)	Standard Deviation (mg/kg)	Minimum (mg/kg)	Median (mg/kg)	Maximum (mg/kg)	Residential SSL[a] (mg/kg)	Maximum Concentration above Residential SSLs
Acenaphthene	74	1	1%	0.06	0.07	0.02	0.04	0.4	3440	No[b]
Aroclor-1232	55	1	2%	0.01	0.02	3.4E-03	0.02	0.08	1.76	No
Aroclor-1254	55	6	11%	0.01	0.02	2.2E-03	0.02	0.08	1.12	No
Aroclor-1260	55	8	15%	0.01	0.01	2.3E-03	0.02	0.08	2.22	No
Benzo(a)anthracene	74	4	5%	0.06	0.07	0.01	0.04	0.4	6.21	No
Benzo(a)pyrene	74	3	4%	0.06	0.07	0.01	0.04	0.4	0.621	No
Benzo(b)fluoranthene	74	5	7%	0.06	0.07	0.01	0.04	0.4	6.21	No
Benzo(g,h,i)perylene	74	3	4%	0.06	0.07	0.02	0.04	0.4	1720[c]	No
Benzo(k)fluoranthene	74	1	1%	0.06	0.07	0.01	0.04	0.4	62.1	No
Chlordane[alpha-]	74	6	8%	2.2E-03	2.6E-03	4.5E-04	7.3E-04	7.3E-03	16.2[d]	No
Chlordane[gamma-]	74	5	7%	2.2E-03	2.6E-03	5.7E-04	7.3E-04	7.3E-03	16.2[d]	No
Chrysene	74	5	7%	0.06	0.07	0.01	0.04	0.4	621	No
2,4-Dichlorophenoxyacetic acid	74	1	1%	7.6E-03	9.6E-03	4.0E-03	5.4E-03	0.05	690[e]	No
4,4'-Dichlorodiphenyldichloroethane	74	5	7%	4.2E-03	5.3E-03	4.1E-04	1.5E-03	0.01	20.3	No
4,4'-Dichlorophenyldichloroethylene	74	10	14%	4.3E-03	5.3E-03	4.7E-04	1.5E-03	0.01	14.3	No
4,4'-Dichlorodiphenyltrichloroethane	74	16	22%	4.8E-03	5.5E-03	4.4E-04	1.5E-03	0.01	17.2	No
Dibenz(a,h)anthracene	74	1	1%	0.06	0.07	0.01	0.04	0.4	0.621	No
Dichlorprop	74	4	5%	7.5E-03	9.6E-03	2.9E-03	5.4E-03	0.05	na[f]	n/a[g]
Dieldrin	74	4	5%	4.2E-03	5.3E-03	3.7E-04	1.5E-03	0.01	0.304	No
Diethylphthalate	74	1	1%	0.59	0.7	0.12	0.36	0.4	48,900	No
Di-n-octylphthalate	74	1	1%	0.60	0.7	0.16	0.36	0.4	na	n/a

Table E-2.2-2 (continued)

Analyte	Number of Analyses	Detects	Detection Rate	Mean (mg/kg)	Standard Deviation (mg/kg)	Minimum (mg/kg)	Median (mg/kg)	Maximum (mg/kg)	Residential SSL[a] (mg/kg)	Maximum Concentration above Residential SSLs
Endosulfan II	74	1	1%	4.3E-03	5.3E-03	4.1E-04	1.5E-03	0.01	367[h]	No
Endrin ketone	74	2	3%	4.3E-03	5.3E-03	5.2E-04	1.5E-03	0.01	18.3[i]	No
Fluoranthene	74	6	8%	0.06	0.07	0.01	0.04	0.4	2290	No
Heptachlorodibenzodioxin[1,2,3,4,6,7,8-]	57	39	68%	6.6E-06	9.9E-06	3.2E-07	1.9E-06	4.3E-05	na	n/a
Heptachlorodibenzodioxins (total)	57	42	74%	1.5E-05	2.4E-05	0	4.3E-06	1.1E-04	na	n/a
Heptachlorodibenzofuran[1,2,3,4,6,7,8-]	57	37	65%	3.9E-06	6.0E-06	2.3E-07	9.1E-07	2.2E-05	na	n/a
Heptachlorodibenzofuran[1,2,3,4,7,8,9-]	57	5	9%	5.5E-07	3.0E-07	2.8E-07	4.7E-07	2.4E-06	na	n/a
Heptachlorodibenzofurans (total)	57	40	70%	8.5E-06	1.4E-05	0	1.8E-06	5.3E-05	na	n/a
Hexachlorodibenzodioxin[1,2,3,4,7,8-]	57	5	9%	5.6E-07	3.3E-07	2.6E-07	4.7E-07	2.6E-06	na	n/a
Hexachlorodibenzodioxin[1,2,3,6,7,8-]	57	14	25%	9.5E-07	1.3E-06	2.6E-07	4.8E-07	8.4E-06	na	n/a
Hexachlorodibenzodioxin[1,2,3,7,8,9-]	57	9	16%	6.6E-07	5.6E-07	2.6E-07	4.8E-07	3.7E-06	na	n/a
Hexachlorodibenzodioxins (total)	57	24	42%	4.8E-06	1.0E-05	0	4.8E-07	5.6E-05	na	n/a
Hexachlorodibenzofuran[1,2,3,4,7,8-]	57	10	18%	8.6E-07	1.2E-06	1.6E-07	4.8E-07	7.3E-06	na	n/a
Hexachlorodibenzofuran[1,2,3,6,7,8-]	57	11	19%	9.2E-07	1.3E-06	1.5E-07	4.8E-07	7.5E-06	na	n/a
Hexachlorodibenzofuran[1,2,3,7,8,9-]	57	8	14%	7.6E-07	9.7E-07	1.8E-07	4.8E-07	6.6E-06	na	n/a
Hexachlorodibenzofuran[2,3,4,6,7,8-]	57	11	19%	1.3E-06	2.2E-06	1.6E-07	4.8E-07	1.1E-05	na	n/a
Hexachlorodibenzofurans (total)	57	28	49%	1.5E-05	3.3E-05	0	5.3E-07	1.6E-04	na	n/a
Indeno(1,2,3-cd)pyrene	74	3	4%	0.06	0.07	0.01	0.04	0.4	6.21	No
Isopropyltoluene[4-]	74	2	3%	1.1E-03	6.6E-05	1.0E-03	1.1E-03	1.6E-03	2430[j]	No
Methyl-4-chlorophenoxypropionic(2-) acid	74	4	5%	1.48	7.9	0.3	1.08	10.8	61[e]	No
Methylnaphthalene[2-]	74	12	16%	0.06	0.08	7.2E-03	0.04	0.4	310[e]	No

Table E-2.2-2 (continued)

Analyte	Number of Analyses	Detects	Detection Rate	Mean (mg/kg)	Standard Deviation (mg/kg)	Minimum (mg/kg)	Median (mg/kg)	Maximum (mg/kg)	Residential SSL[a] (mg/kg)	Maximum Concentration above Residential SSLs
Naphthalene (semivolatile organic compound analysis)	74	6	8%	0.06	0.07	0.02	0.04	0.4	45	No
Naphthalene (volatile organic compound analysis)	16	1	6%	1.0E-03	1.8E-04	3.4E-04	1.1E-03	1.1E-03	45	No
Nitrotoluene[4-]	58	3	5%	0.49	0.07	0.1	0.5	0.5	244	No
Octachlorodibenzodioxin[1,2,3,4,6,7,8,9-]	57	45	79%	4.7E-05	7.2E-05	1.8E-06	1.4E-05	3.1E-04	na	n/a
Octachlorodibenzofuran[1,2,3,4,6,7,8,9-]	57	29	51%	4.4E-06	6.2E-06	6.6E-07	1.4E-06	2.4E-05	na	n/a
Pentachlorodibenzodioxin[1,2,3,7,8-]	57	8	14%	6.6E-07	6.6E-07	2.0E-07	4.7E-07	4.6E-06	na	n/a
Pentachlorodibenzodioxins (total)	57	11	19%	2.0E-06	4.9E-06	0	4.7E-07	3.0E-05	na	n/a
Pentachlorodibenzofuran[1,2,3,7,8-]	57	6	11%	5.0E-07	1.6E-07	1.5E-07	4.7E-07	1.3E-06	na	n/a
Pentachlorodibenzofuran[2,3,4,7,8-]	57	15	26%	1.9E-06	3.7E-06	1.5E-07	4.8E-07	1.9E-05	na	n/a
Pentachlorodibenzofurans (total)	57	37	65%	2.3E-05	5.5E-05	0	6.6E-07	2.6E-04	na	n/a
Phenanthrene	74	6	8%	0.06	0.07	0.01	0.04	0.4	1830	No
Pyrene	74	7	9%	0.06	0.07	0.01	0.04	0.4	1720	No
Triaminotrinitrobenzene	58	5	9%	1	0.02	1	1	1.1	na	n/a
Tetrachlorodibenzodioxin[2,3,7,8-]	57	1	2%	1.3E-07	6.4E-08	8.1E-08	9.7E-08	3.7E-07	0.000045	No
Tetrachlorodibenzodioxins (total)	57	8	14%	2.6E-07	6.1E-07	0	9.6E-08	4.1E-06	na	n/a
Tetrachlorodibenzofuran[2,3,7,8-]	57	15	26%	4.7E-07	3.2E-07	1.5E-07	3.9E-07	1.7E-06	0.000374	No
Tetrachlorodibenzofurans (total)	57	26	46%	9.6E-06	2.1E-05	0	9.9E-07	9.9E-05	na	n/a
Toluene	74	7	9%	1.0E-03	1.3E-04	4.1E-04	1.1E-03	1.1E-03	5570	No

Table E-2.2-2 (continued)

Analyte	Number of Analyses	Detects	Detection Rate	Mean (mg/kg)	Standard Deviation (mg/kg)	Minimum (mg/kg)	Median (mg/kg)	Maximum (mg/kg)	Residential SSL[a] (mg/kg)	Maximum Concentration above Residential SSLs
Trichloroethene	74	1	1%	1.1E-03	8.6E-05	3.9E-04	1.1E-03	1.2E-03	45.7	No
Trimethylbenzene[1,2,4-]	74	2	3%	1.1E-03	1.1E-04	3.6E-04	1.1E-03	1.2E-03	62[e]	No
Xylene[1,3-]+xylene[1,4-]	74	10	14%	2.0E-03	4.8E-04	4.0E-04	2.1E-03	2.3E-03	1090	No

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

[b] No = Does not exceed SSL.

[c] SSL for pyrene used based on structural similarity.

[d] SSL for chlordane used based on structural similarity.

[e] Source: http://www.epa.gov/region06/6pd/rcra_c/pd-n/screen.htm.

[f] na = Not available.

[g] n/a = Not applicable.

[h] SSL for endosulfan used based on structural similarity.

[i] SSL for endrin used based on structural similarity.

[j] SSL for isopropyltoluene used based on structural similarity.

Table E-2.2-3
Radionuclides Detected in Post-enclosure Overburden Samples

Analyte	Number of Analyses	Detects	Detection Rate	Mean (pCi/g)	Standard Deviation (pCi/g)	Minimum (pCi/g)	Median (pCi/g)	Maximum (pCi/g)	Residential SAL[a] (pCi/g)	Maximum Concentration above Residential SALs
Americium-241	74	21	28%	0.12	0.3	−0.05	0.03	1.8	30	No[b]
Cesium-137	74	9	12%	0.02	0.05	−0.05	7.3E-03	0.2	5.6	No
Plutonium-238	74	6	8%	0.02	0.1	−1	9.2E-03	0.4	37	No
Plutonium-239/240	74	59	80%	1.7	3.1	−4.2E-03	0.4	15.9	33	No
Tritium	77	68	88%	14.2	61.3	−1.6E-03	0.2	373.2	750	No
Uranium-234	74	74	100%	1	0.4	0.5	1	3.6	170	No
Uranium-235/236	74	53	72%	0.07	0.02	−7.7E-03	0.06	0.2	17	No
Uranium-238	74	74	100%	1	0.3	0.6	0.9	2.5	87	No

[a] Source: LANL (2009, 107655).
[b] No = Does not exceed SAL.

Table E-2.2-4
95% Upper Confidence Limit for Chemicals
Exceeding SSLs in the Post-enclosure Overburden Sample Set

Analyte	Number of Analyses	Detection Rate	95% Upper Confidence Limit	Residential SSL[a] (mg/kg)	UCL above Residential SSL
Arsenic	74	100%	1.887	3.9	No[b]

[a] Source: NMED (2009, 108070).
[b] No = Does not exceed residential SSLs.

Appendix F

Field Methods

F-1.0 INTRODUCTION

This appendix summarizes the field methods used during the investigation and remediation of Material Disposal Area (MDA) B at Technical Area 21 at Los Alamos National Laboratory (LANL or Laboratory). Table F-1.0-1 presents a summary of the field methods used, and the following sections provide more detailed descriptions of these methods. All activities were conducted in accordance with subcontractor procedures that are technically equivalent to the Laboratory standard operating procedures (SOPs) listed in Table F-1.0-2, which are available at http://www.lanl.gov/environment/all/qa.shtml.

F-2.0 EXPLORATORY DRILLING CHARACTERIZATION

A hollow-stem auger rig, model CME-85, was used to drill the vertical boreholes at MDA B. Continuous core of these boreholes was logged by an on-site geologist. Logging occurred at 5-ft intervals using a 5-ft-long core barrel from the ground surface to total depth in order to characterize the stratigraphy of the geologic units encountered. For complete details of the borehole installation, see Appendix K.

Sampling was conducted to determine the nature and extent of any residual contamination. Sampling intervals and analyses were conducted in accordance with the approved investigation/remediation work plan (IRWP), Revision 1 (LANL 2006, 095499), the MDA B post-remediation sampling and analysis plan (SAP) (LANL 2010, 109266), and the 15-day sampling notice submitted to the New Mexico Environment Department (NMED) on May 20, 2011 (LANL 2011, 203594).

F-3.0 FIELD-SCREENING METHODS

This section summarizes the field-screening methods used during the investigation and remediation activities.

F-3.1 Field Screening for Worker Health and Safety

Air quality within the enclosures was monitored by two systems. The first is an Industrial Scientific iTrans system that monitors for oxygen (O_2), hydrogen sulfide (H_2S), lower explosive limit (LEL), and carbon monoxide (CO). The system consisted of a series of real-time monitoring sensors that are affixed to the enclosure and transmit back to the control room. The indicator panel included a digital readout with preset alarms. The iTrans sensors are placed between the dig face and the air movers (downwind of the excavation/sampling location). The second system is a RAE Systems MultiRAE Plus. The MultiRAE Plus system consists of two separate MultiRAE monitors; one located on the excavator connected to a plastic tube with the end located at the bucket of the excavator and the other adjacent to the excavation. These two MultiRAEs monitor O_2, H_2S, LEL, CO and volatile organic compounds (VOCs) and transmit wirelessly to the control room. Also a high-volume air monitor was used to test the presence of airborne asbestos.

F-3.2 Field Screening for Organic Vapors

Field screening for organic vapors was conducted for all samples at all locations, except when the moisture content of the material exceeded instrument detection limits. Screening was conducted using a MiniRAE 2000 photoionization detector (PID) equipped with an 11.7-electronvolt lamp. Screening was performed in accordance with the manufacturer's specifications and SOP-06.33, Headspace Vapor Screening with a Photoionization Detector. Screening was performed on each sample collected, and screening measurements were recorded on the field sample collection logs (SCLs) and chain-of-custody (COC) forms, provided in Appendix C (on DVDs included with this document).

F-3.3 Field Screening for Radioactivity

All samples collected were field screened for radioactivity before they were submitted to the Sample Management Office (SMO), targeting alpha and beta/gamma emitters. A Laboratory radiation control technician (RCT) conducted radiological screening using an Eberline E-600 radiation meter with an SHP-380AB alpha/beta scintillation detector held within 1 in. of the sample. The Eberline E-600 with attachment SHP-380AB consists of a dual phosphor plate covered by two Mylar windows housed in a light-excluding metal body. The phosphor plate is a plastic scintillator used to detect beta and gamma emissions and is thinly coated with zinc sulfide to detect alpha emissions. The operational range varies from trace emissions to 1 million disintegrations per min. A Ludlum 3030 was used for alpha/beta smear counts; an RO-20 ion chamber and Micro Rem survey meter were used for dose rate measurement; an SPA-3 sodium iodide detector was used to measure gamma radiation; and an Overhoff 394C or Femtotech PTM-1812 was used to detect tritium. Screening measurements were recorded on the SCLs and COC forms and are provided in Appendix C (on DVDs included with this document).

A Field Instrument for Detection of Low-Energy Radiation (FIDLER) was installed on the boom of the excavator bucket to facilitate real-time gamma radiation screening and to assess if radioactivity was still present in each trench following removal of the waste. Also a continuous air monitor was used within the building to measure alpha-emitting particles.

Samples of waste used to characterize material for disposal purposes and confirmation samples collected from the sidewalls and bottom of trenches were analyzed by gamma spectroscopy using a high-purity germanium (HPGe) detector at an on-site laboratory. Because of its lower detectable activity and copresence with plutonium in Technical Area 21 wastes, americium-241 was used to indicate plutonium contamination. This screening-level information was used to characterize the excavated waste and to determine if the activity levels of radionuclides were potentially low enough to allow the confirmation samples to be shipped to the off-site analytical laboratory for full characterization of radionuclides and hazardous constituents. Results of the on-site HPGe gamma spectroscopy screening are provided in Table 5.0-1 of the investigation/remediation report.

F-4.0 FIELD INSTRUMENT CALIBRATION

All instruments were calibrated before use. Calibration of the Eberline E-600 was conducted by the RCT. All calibrations were performed according to the manufacturers' specifications and requirements.

F-4.1 MiniRAE 2000 Instrument Calibration

The MiniRAE 2000 PID was calibrated both to ambient air and a standard reference gas (100 ppm isobutylene). The ambient-air calibration determined the zero point of the instrument sensor calibration curve in ambient air. Calibration with the standard reference gas determined a second point of the sensor calibration curve. Each calibration was within 3% of 100 ppm isobutylene, qualifying the instrument for use.

The following calibration information was recorded daily on operational calibration logs:

- instrument identification number
- final span settings
- date and time
- concentration and type of calibration gas used (isobutylene at 100 ppm)
- name of the person performing the calibration

All daily calibration procedures for the MiniRAE 2000 PID met the manufacturer's specifications for standard reference gas calibration.

F-4.2 Eberline E-600 Instrument Calibration

The Eberline E-600 was calibrated daily by the RCT before local background levels for radioactivity were measured. The instrument was calibrated using plutonium-239 and chloride-36 sources for alpha and beta emissions, respectively. The following five checks were performed as part of the calibration procedures:

- calibration date
- physical damage
- battery
- response to a source of radioactivity
- background

All calibrations performed for the Eberline E-600 met the manufacturer's specifications; the requirements of SOP-5006, Control of Measuring and Test Equipment; and the applicable radiation detection instrument manual. Calibrations were recorded in daily activity logs.

F-5.0 SUBSURFACE SAMPLING

This section summarizes the methods used to collect subsurface samples, including soil, fill, and tuff samples, according to the approved IRWP, Revision 1 (LANL 2006, 095499), the MDA B post-remediation SAP (LANL 2010, 109266), and the 15-day sampling notice submitted to NMED on May 20, 2011 (LANL 2011, 203594).

F-5.1 Confirmation Sampling Methods

Collection of confirmation samples from trench bottoms and sidewalls was performed using an excavator bucket because safety concerns precluded sampling personnel from entering the excavation. To collect material for sampling, the excavator operator removed 1–2 ft of soil/tuff from the trench sampling location using the excavator bucket. The material from the bucket of the excavator was placed on a sheet of clean plastic to allow the sampler to complete sample collection as soon as possible following removal of the material from the trench. The excavated material on the plastic sheet was screened for organic vapors and alpha, beta, and gamma radiation for industrial hygiene purposes before samples were collected. If the sample consisted of broken tuff, the sampler further reduced the size using a decontaminated rock hammer or stainless-steel trowel, only to the extent required to containerize the sample. The material was then passed through a 2-mm sieve into a sample bowl to remove foreign material. The sample material from the bowl was placed in appropriate sampling containers. In an effort to prevent the potential loss of VOCs, the sample container for VOCs was filled first, and then all remaining sample containers were filled. All sample containers were filled to the top to minimize headspace. Following sample collection, all samples were kept at a temperature of 4°C until they were delivered to the SMO, where samples were prepared for shipment to the analytical laboratory.

F-5.2 Borehole Logging

Borehole logging was performed as described in SOP-12.01, Field Logging, Handling, and Documentation of Borehole Materials. Continuous boring logs of these boreholes were completed by an on-site geologist and the borehole logs are presented as attachments to Appendix K.

During drilling, all boreholes were continuously cored and logged in 5-ft intervals. Information recorded in field boring logs included footage and percent recovery, lithology and depths of lithologic contacts, depth of samples collected, core descriptions, and other relevant observations.

F-5.3 Borehole Sampling Methods

Borehole samples were collected in accordance with a subcontractor procedure technically equivalent to SOP-06.26, Core Barrel Sampling for Subsurface Earth Materials.

Samples for VOC analysis were collected immediately upon retrieval of the split-spoon core barrel to minimize the loss of VOCs during the sample-collection process. The remaining material was then field screened for radioactivity and visually inspected. After the VOC samples were collected and field screened, the remaining sample material was placed in a stainless-steel bowl, and the material was broken, if necessary, with a decontaminated rock hammer or stainless-steel spoon to fit the material into the sample containers.

A stainless-steel scoop and bowl were used to transfer samples to sterile sample collection jars or bags for transport to the SMO. The sample collection tools were decontaminated immediately before each sample was collected (see section F-5.7) in accordance with a subcontractor procedure technically equivalent to SOP-5061, Field Decontamination of Equipment.

F-5.4 Quality Control Samples

Quality control (QC) samples were collected in accordance with a subcontractor procedure technically equivalent to SOP-5059, Field Quality Control Samples. The QC samples included field duplicates, field rinsate blanks, and field trip blanks. Field duplicate samples were collected from the same material as the regular investigation samples and submitted for the same analyses. Field duplicate samples were collected at a frequency of at least 1 duplicate sample for every 10 samples.

Field rinsate blanks were collected to evaluate field decontamination procedures. Rinsate blanks were collected by rinsing sampling equipment (i.e., sampling bowls and spoons) after decontamination with deionized water. The rinsate water was collected in a sample container and submitted to the SMO. Field rinsate blank samples were analyzed for target analyte list metals and were collected from sampling equipment at a frequency of at least 1 rinsate sample for every 10 solid samples.

Field trip blanks were also collected at a frequency of 1 per d when samples were being collected for VOC analysis. Trip blanks consisted of containers of certified clean sand opened and kept with the other sample containers during the sampling process. Trip blanks were analyzed for VOCs only.

F-5.5 Sample Documentation and Handling

Field personnel completed an SCL and COC form for each sample. Sample containers were sealed with signed custody seals and placed in coolers at approximately 4°C. Samples were handled in accordance with approved subcontractor procedures technically equivalent to SOP-5057, Handling, Packaging, and Transporting Field Samples, and SOP-5056, Sample Containers and Preservation. Swipe samples were collected from the exterior of sample containers and analyzed by the RCT before the sample containers were removed from the site. Samples were transported to the SMO for processing and shipment to off-site contract analytical laboratories. The SMO personnel reviewed and approved the SCLs and COC forms and accepted custody of the samples. The SCLs and COC forms are provided in Appendix C (on DVDs included with this document).

F-5.6 Borehole Abandonment

All boreholes were abandoned in accordance with a subcontractor procedure technically equivalent to SOP-5034, Monitoring Well and Borehole Abandonment, by filling the boreholes with bentonite chips up to 2.0–3.0 ft below the ground surface. The chips were hydrated, and clean soil was placed on top. Pavement was patched as necessary depending on existing site conditions. All cuttings were managed as investigation-derived waste (IDW).

F-5.7 Decontamination of Sampling Equipment

The split-spoon core barrels and all other sampling equipment that came (or could have come) in contact with sample material were decontaminated after each core was retrieved and logged and each sample was collected. Decontamination included wiping the equipment with Fantastik and paper towels. Residual material adhering to equipment was removed using dry decontamination methods such as the use of wire brushes and scrapers. Decontamination activities were performed in accordance with a subcontractor procedure technically equivalent to SOP-5061, Field Decontamination of Equipment. Decontaminated equipment was surveyed by an RCT before it was released from the site. Field rinsate blank samples were collected in accordance with a subcontractor procedure technically equivalent to SOP-5059, Field Quality Control Samples.

F-6.0 GEODETIC SURVEYING

Geodetic surveys of all sampling locations were performed using a Trimble RTK 5700 differential global-positioning system (DGPS) referenced from published and monumented external Laboratory survey control points in the vicinity. All sampling locations were surveyed in accordance with a subcontractor procedure technically equivalent to SOP-5028, Coordinating and Evaluating Geodetic Surveys. Horizontal accuracy of the monumented control points is within 0.1 ft. The DGPS instrument referenced from Laboratory control points is accurate within 0.2 ft. The surveyed coordinates are presented in Table 5.0-2 of the investigation/remediation report.

F-7.0 IDW STORAGE AND DISPOSAL

All IDW generated during the field investigation was managed in accordance with an approved subcontractor procedure technically equivalent to SOP-5238, Characterization and Management of Environmental Program Waste. This procedure incorporates the requirements of all applicable U.S. Environmental Protection Agency (EPA) and NMED regulations, U.S. Department of Energy orders, and Laboratory implementation requirements. IDW was also managed in accordance with the approved waste characterization strategy forms (WCSFs) and amendment (LANL 2010, 108538; LANL 2010, 108853; LANL 2010, 109754; LANL 2010, 109769; LANL 2010, 108458) and the MDA B SAP, Revision 2 (LANL 2010, 111195). Details of waste management for the investigation and remediation of MDA B are presented in Appendix H.

F-8.0 REFERENCES

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

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

LANL (Los Alamos National Laboratory), October 2006. "Investigation/Remediation Work Plan for Material Disposal Area B, Solid Waste Management Unit 21-015, at Technical Area 21, Revision 1," Los Alamos National Laboratory document LA-UR-06-6918, Los Alamos, New Mexico. (LANL 2006, 095499)

LANL (Los Alamos National Laboratory), January 26, 2010. "Waste Characterization Strategy Form for MDA-B Site Preparation, Asphalt Removal, Grading, Site Preparation, Installation of Piers and Electrical Infrastructure," Los Alamos National Laboratory, Los Alamos, New Mexico. (LANL 2010, 108538)

LANL (Los Alamos National Laboratory), February 18, 2010. "Waste Characterization Strategy Form for MDA-B Area 9 and 10 Trenching," Los Alamos National Laboratory, Los Alamos, New Mexico. (LANL 2010, 108458)

LANL (Los Alamos National Laboratory), March 2010. "Amendment #1, Waste Characterization Strategy Form for MDA-B Site Preparation, Asphalt Removal, Grading, Site Preparation, Installation of Piers and Electrical Infrastructure," Los Alamos National Laboratory, Los Alamos, New Mexico. (LANL 2010, 108853)

LANL (Los Alamos National Laboratory), April 2010. "Sampling and Analysis Plan for Post-Remediation Borehole Drilling at Material Disposal Area B, Solid Waste Management Unit 21-015, Technical Area 21," Los Alamos National Laboratory document LA-UR-10-2377, Los Alamos, New Mexico. (LANL 2010, 109266)

LANL (Los Alamos National Laboratory), May 30, 2010. "Waste Characterization Strategy Form for TA-21 MDA-B, 21-015 Excavation," Los Alamos National Laboratory, Los Alamos, New Mexico. (LANL 2010, 109754)

LANL (Los Alamos National Laboratory), June 10, 2010. "Waste Characterization Strategy Form for MDA-B, Anomalies, Unknowns, and Chemicals, TA-21, 21-015, Characterization of Anomalies, Unknowns, and Chemicals at the MDA-B Definitive Identification Facility (DIF)," Los Alamos National Laboratory, Los Alamos, New Mexico. (LANL 2010, 109769)

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)

LANL (Los Alamos National Laboratory), May 20, 2011. "15-Day Sampling Notification for Material Disposal Area B, at Technical Area 21 and Sampling and Analysis Plan Addendum for Borehole Drilling Task, Solid Waste Management Unit 21-015, Material Disposal Area B, at Technical Area 21," Los Alamos National Laboratory letter (EP2011-0191) to J. Kieling (NMED-HWB) from A. Chaloupka (LANL), Los Alamos, New Mexico. (LANL 2011, 203594)

Table F-1.0-1
Summary of Field Investigation Methods

Method	Summary
Collection of Confirmation Samples from Excavation	This method was used to collect confirmation samples from the walls and bottom of excavations. Material for sampling was removed from the bottom or wall of the excavation using an excavator bucket and placed on a clean plastic sheet outside the excavation. If the sample material consisted of broken tuff, the sampler further reduced the size using a decontaminated rock hammer or stainless-steel trowel, only to the extent required to containerize the sample. The material was then passed through a 2-mm sieve into a sample bowl to remove foreign material. The sample material from the bowl was then placed in appropriate sampling containers. The samples for VOC analysis were collected first to minimize potential loss of VOCs. All sample containers were filled to the top to minimize headspace. Following sample collection, all samples were kept at a temperature of 4°C until they were delivered to the SMO.
Split-Spoon Core-Barrel Sampling	Continuous lithologic logging and tuff sample collection was accomplished using a 5-ft long, 3-in.-diameter core barrel that was advanced into the undisturbed tuff ahead of the drill augers. Following the removal of the core barrel from the borehole, the barrel was opened; screened for organic vapors (using a PID) and alpha, beta, and gamma radiation; and the lithology was logged. If a particular interval was selected for analytical sampling, samples of the broken tuff were removed from the core barrel and placed into the sampling bowl. The sampler further reduced the sample size using a decontaminated rock hammer or stainless-steel trowel, only to the extent required to containerize the sample. Samples for VOCs were collected first, after which all remaining sample containers were filled to the top to minimize headspace. Following sample collection, all samples were kept at a temperature of 4°C until they were delivered to the SMO.
Handling, Packaging, and Shipping of Samples	Field team members sealed and labeled samples before packing to ensure the sample and the transport containers were free of external contamination. Field team members packaged all samples to minimize the possibility of breakage during transport. After all environmental samples were collected, packaged, and preserved, a field team member transported them to the SMO. The SMO arranged to ship the samples to the analytical laboratories.
Sample Control and Field Documentation	The collection, screening, and transport of samples were documented on standard forms generated by the SMO. These included SCLs, COC forms, and sample container labels. SCLs were completed at the time of sample collection, and the logs were signed by the sampler and a reviewer who verified the logs for completeness and accuracy. Corresponding labels were initialed and applied to each sample container, and custody seals were placed around each sample container. COC forms were completed and signed to verify that the samples were not left unattended.
Field Quality Control Samples	Field QC samples were collected as follows: *Field Duplicates*: At a frequency of 10%; collected at the same time as a regular sample and submitted for the same analyses. *Equipment Rinsate Blank*: At a frequency of 10%; collected by rinsing sampling equipment with deionized water. Rinsate water was collected in a sample container and submitted for laboratory analysis. *Trip Blanks*: Required for all field events that include the collection of samples for VOC analysis. Trip blank containers of certified clean sand were opened and kept with the other sample containers during the sampling process.
Field Decontamination of Drilling and Sampling Equipment	Dry decontamination was used to minimize the generation of liquid waste. Dry decontamination included the use of a wire brush or other tool to remove soil or other material adhering to the sampling equipment, followed by use of a commercial cleaning agent (nonacid, waxless cleaners) and paper wipes.

Table F-1.0-1 (continued)

Method	Summary
Containers and Preservation of Samples	Specific requirements/processes for sample containers, preservation techniques, and holding times are based on EPA guidance for environmental sampling, preservation, and quality assurance. Specific requirements for each sample were printed on the SCL provided by the SMO (size and type of container [e.g., glass, amber glass, or polyethylene]). All samples were preserved by placing them in insulated containers with ice to maintain a temperature of 4°C.
Coordinating and Evaluating Geodetic Surveys	Geodetic surveys focused on obtaining survey data of acceptable quality to use during project investigations. Geodetic surveys were conducted with a Trimble 5700 DGPS. The survey data conformed to Laboratory Information Architecture project standards IA-CB02, GIS Spatial Reference System, and IA-D802, Geospatial Positioning Accuracy Standards for A/E/C and Facility Management. All coordinates were expressed as State Plane Coordinate System 83, NM Central, U.S. feet. All elevation data were reported relative to the National Geodetic Vertical Datum of 1983.

Table F-1.0-2
LANL SOPs Technically Equivalent to
Subcontractor SOPs Used for Investigation Activities Conducted at MDA B

SOP-5006, Control of Measuring and Test Equipment
SOP-5018, Integrated Fieldwork Planning and Authorization
SOP-5028, Coordinating and Evaluating Geodetic Surveys
SOP-5034, Monitor Well and Borehole Abandonment
SOP-5238, Characterization and Management of Environmental Program Waste
SOP-5055, General Instructions for Field Investigations
SOP-5056, Sample Containers and Preservation
SOP-5057, Handling, Packaging, and Transporting Field Samples
SOP-5058, Sample Control and Field Documentation
SOP-5059, Field Quality Control Samples
SOP-5061, Field Decontamination of Equipment
SOP-5181, Notebook and Logbook Documentation for Environmental Directorate Technical and Field Activities
SOP-01.12, Field Site Closeout Checklist
SOP-06.26, Core Barrel Sampling for Subsurface Earth Materials
SOP-06.33, Headspace Vapor Screening with a Photoionization Detector
SOP-12.01, Field Logging, Handling, and Documentation of Borehole Materials
EP-DIR-QAP-0001, Quality Assurance Plan for the Environmental Programs Directorate

Note: Procedures used were approved subcontractor procedures technically equivalent to the procedures listed.

Appendix G

Air Monitoring Results

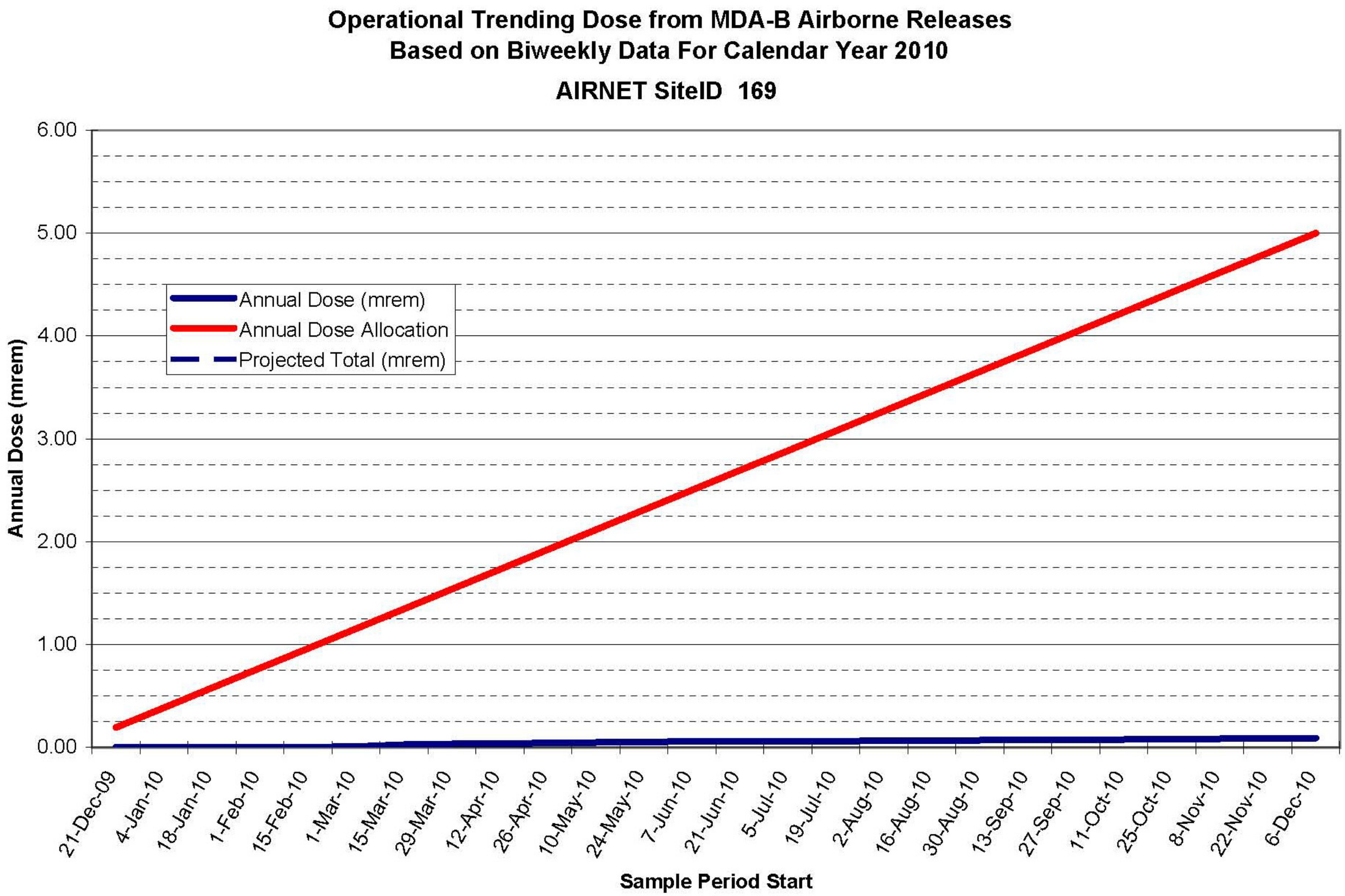

Figure G-1 AIRNET Site ID 169 from 2010

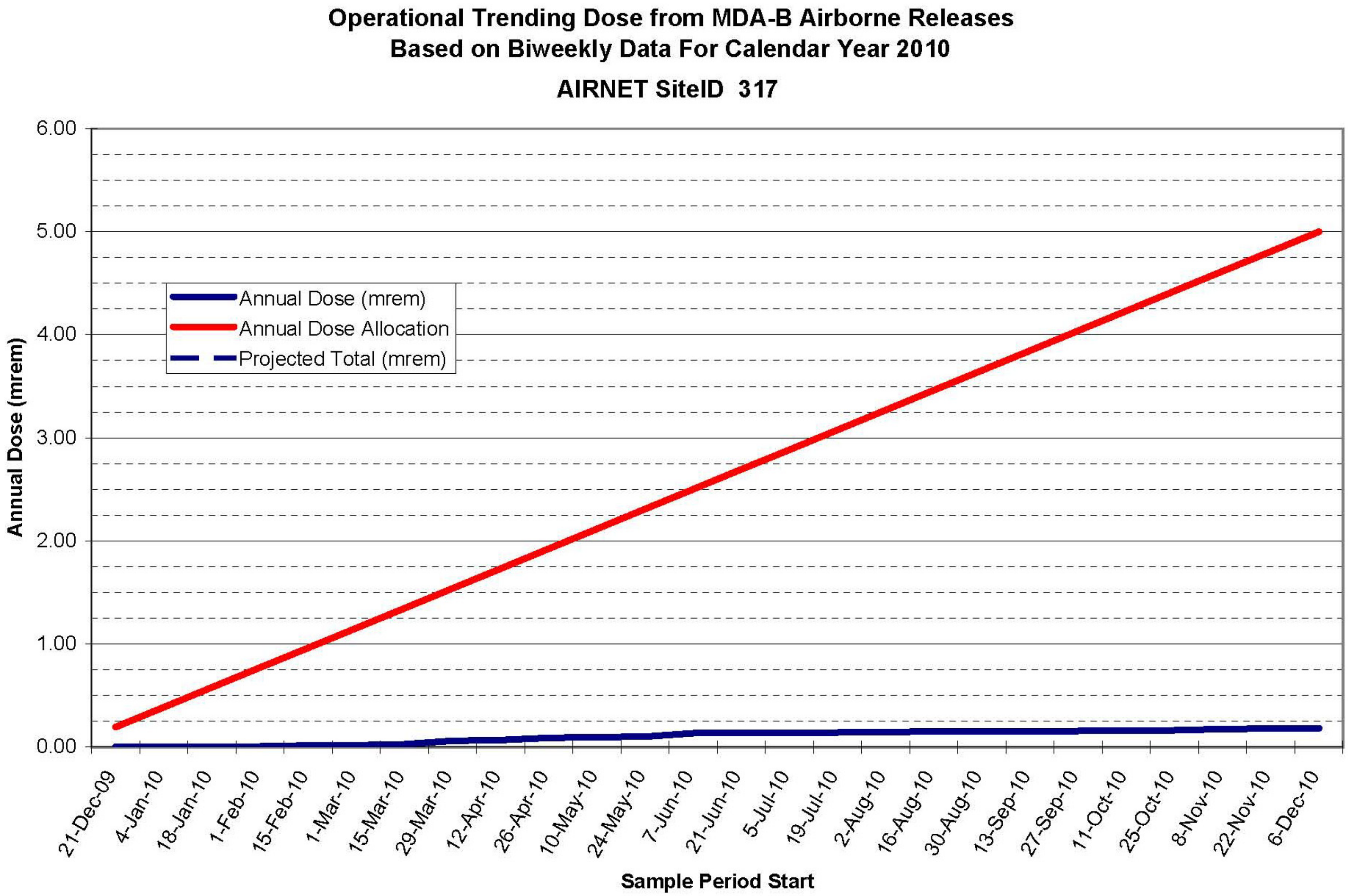

Figure G-2 AIRNET Site ID 317 from 2010

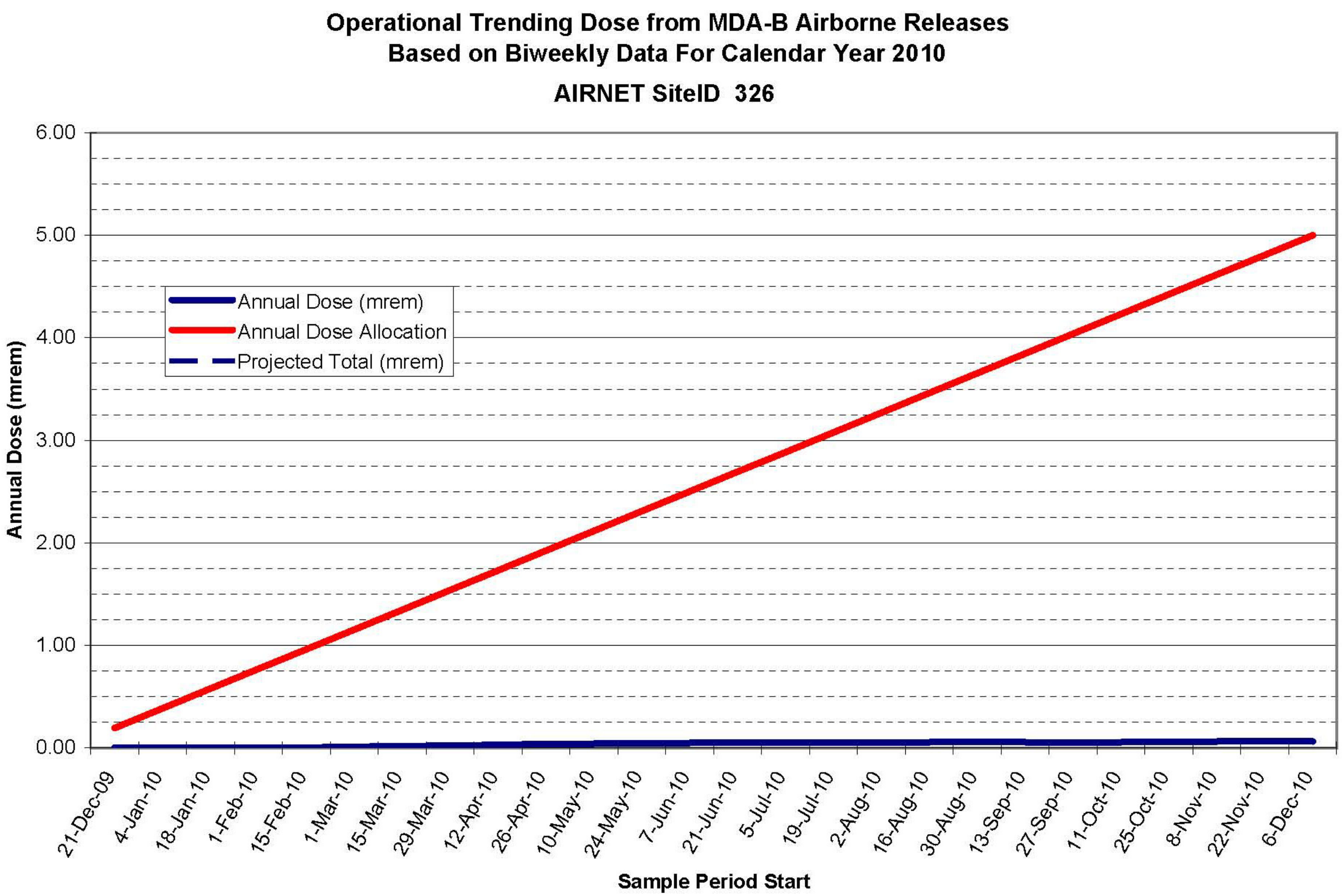

Figure G-3 AIRNET Site ID 326 from 2010

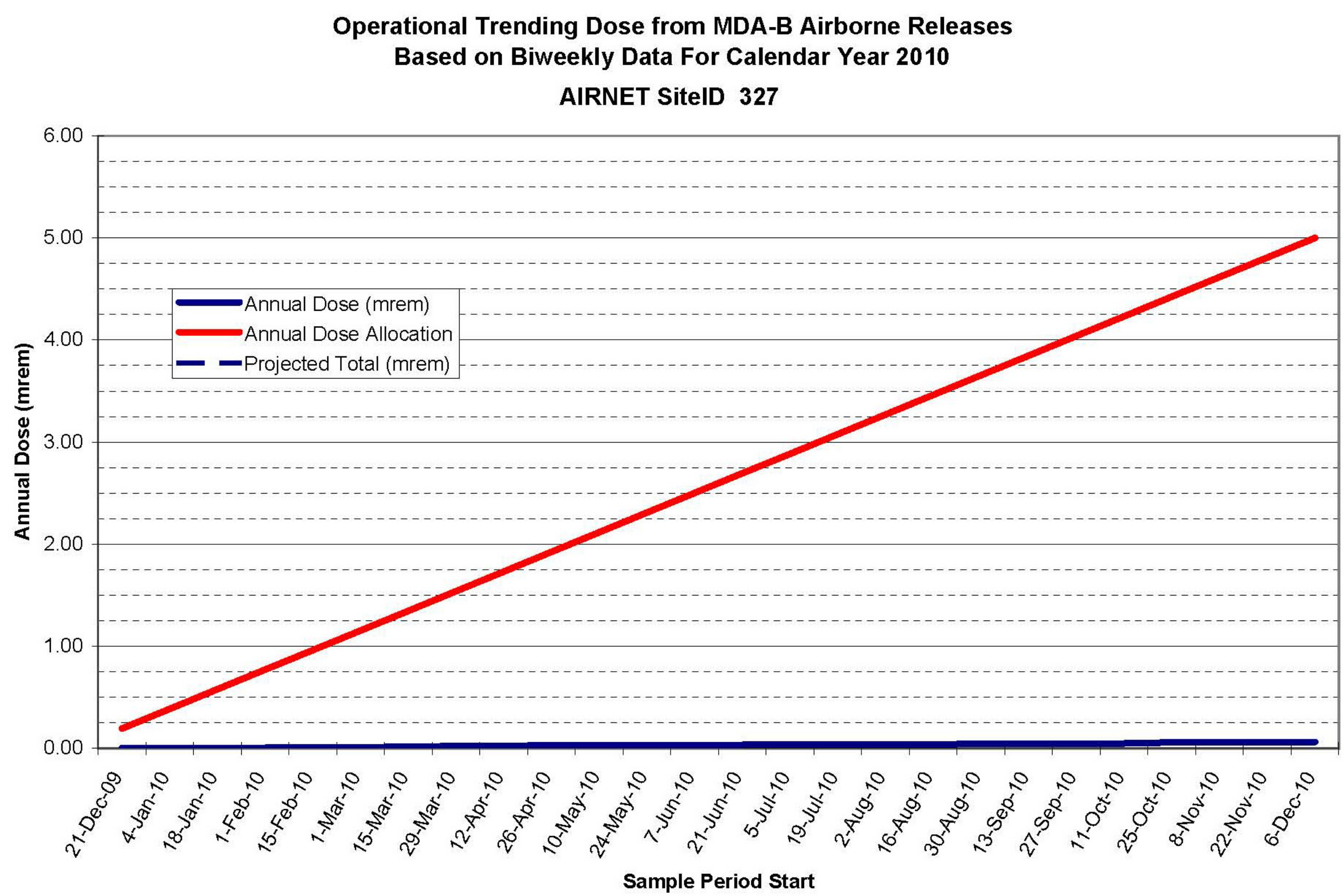

Figure G-4 AIRNET Site ID 327 from 2010

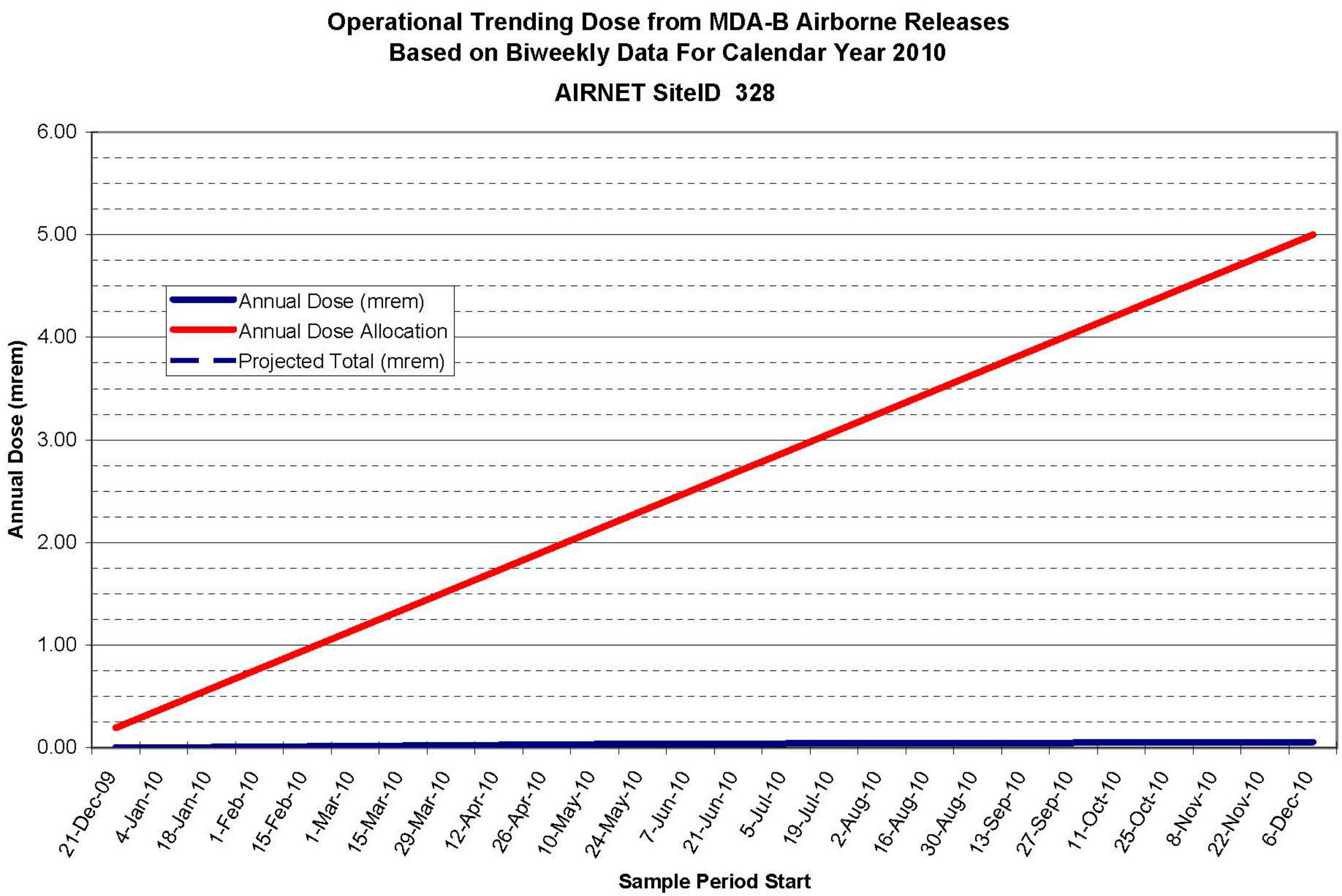

Figure G-5 AIRNET Site ID 328 from 2010

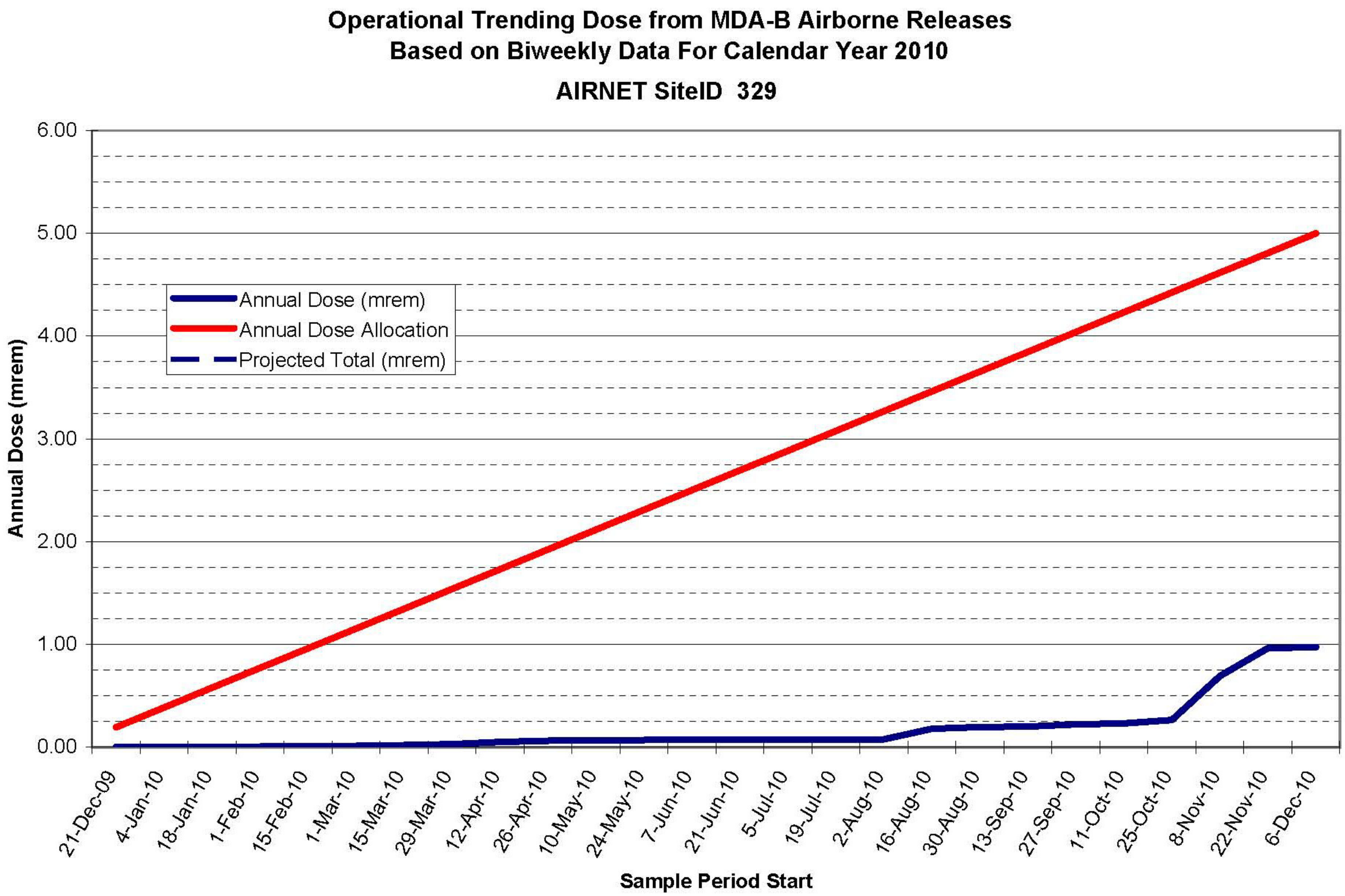

Figure G-6 AIRNET Site ID 329 from 2010

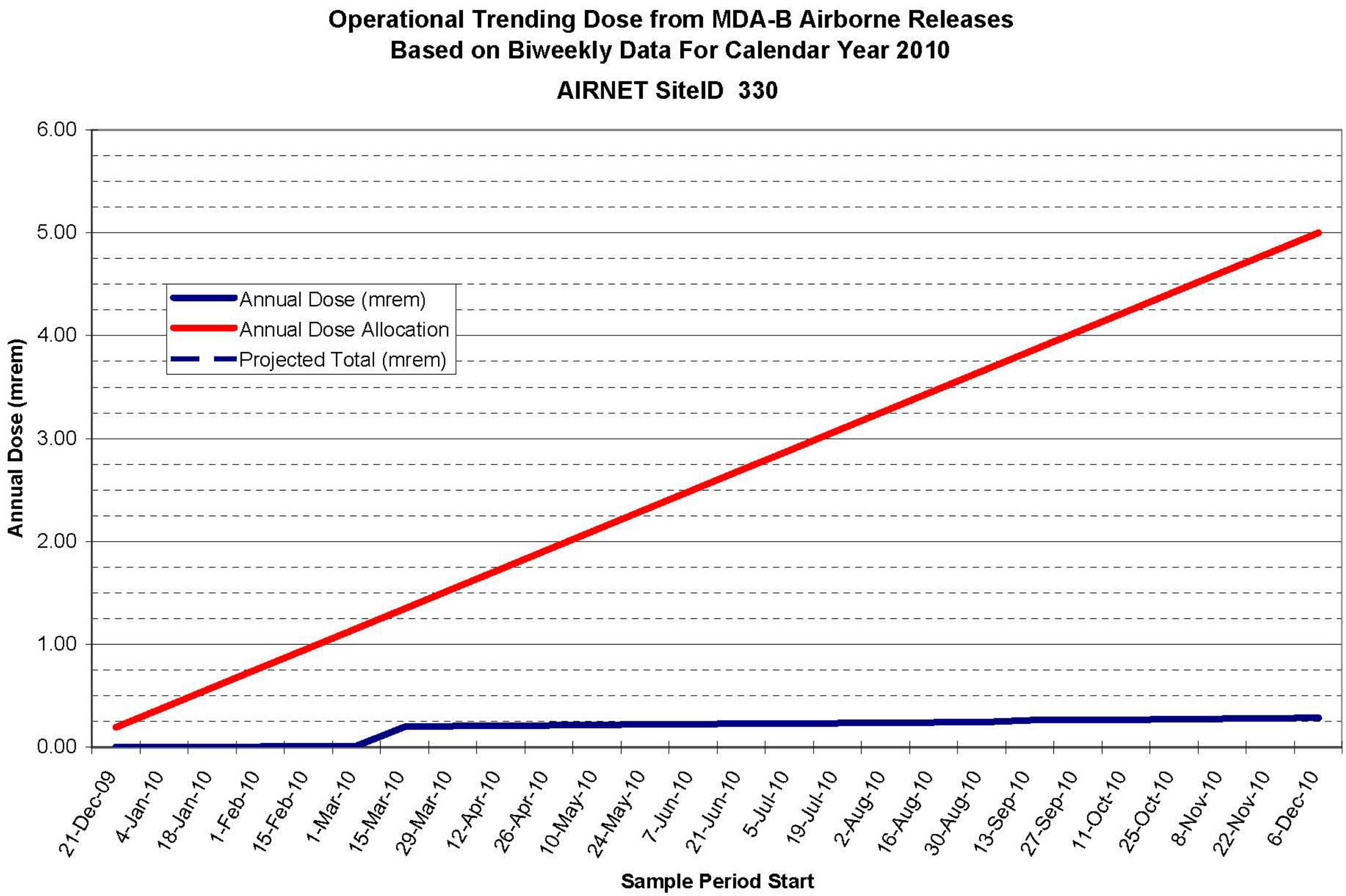

Figure G-7 AIRNET Site ID 330 from 2010

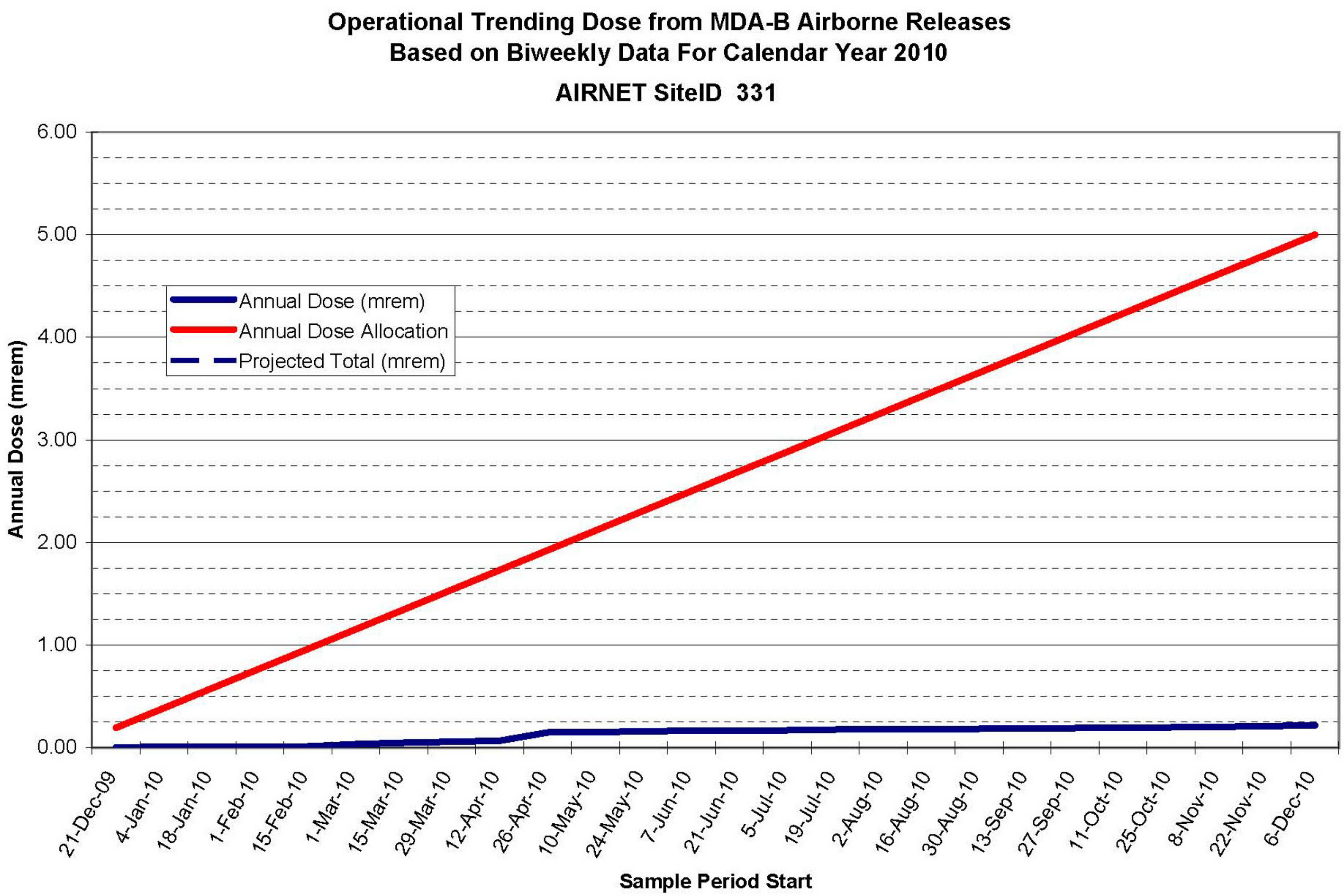

Figure G-8 AIRNET Site ID 331 from 2010

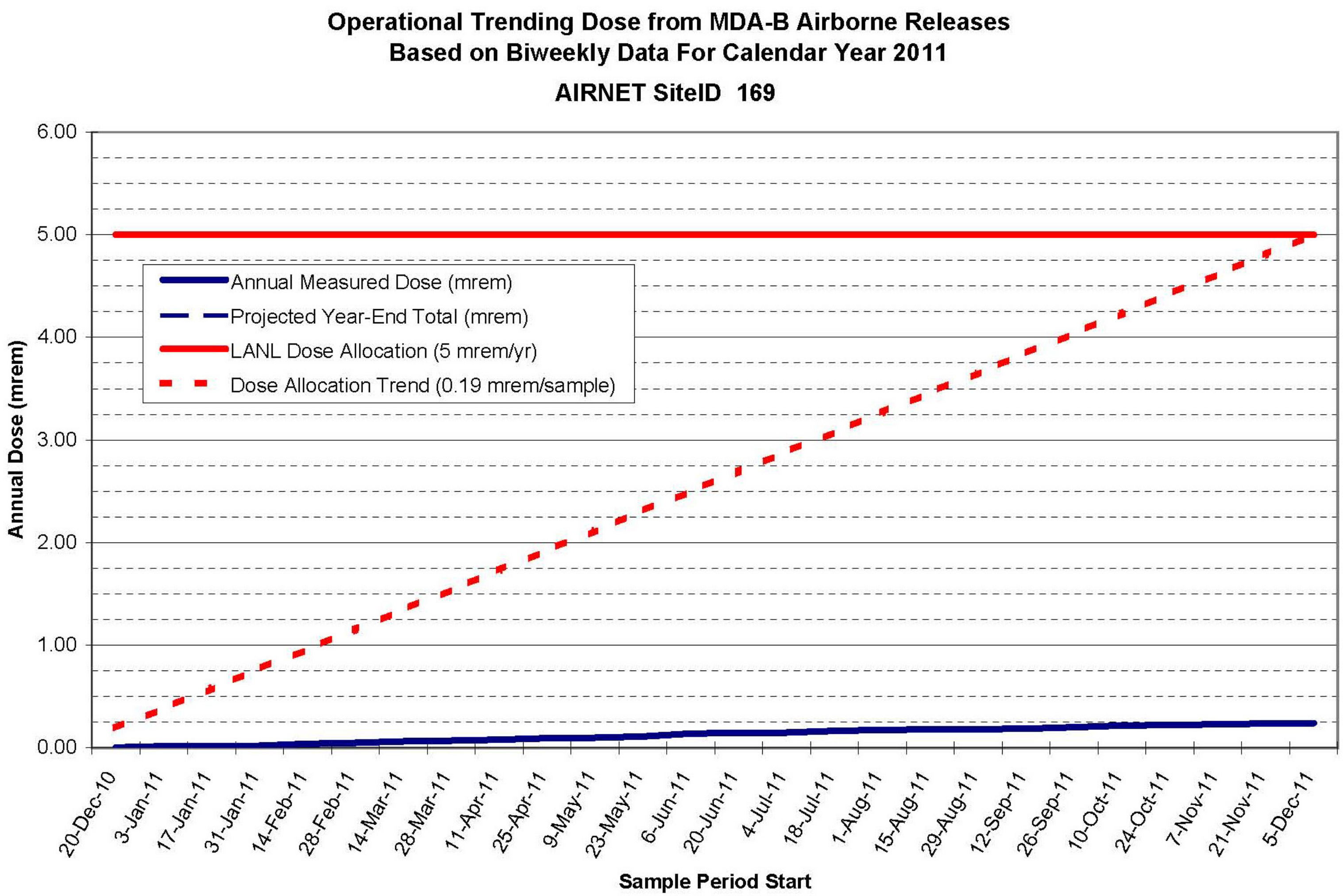

Figure G-9 AIRNET Site ID 169 from 2011

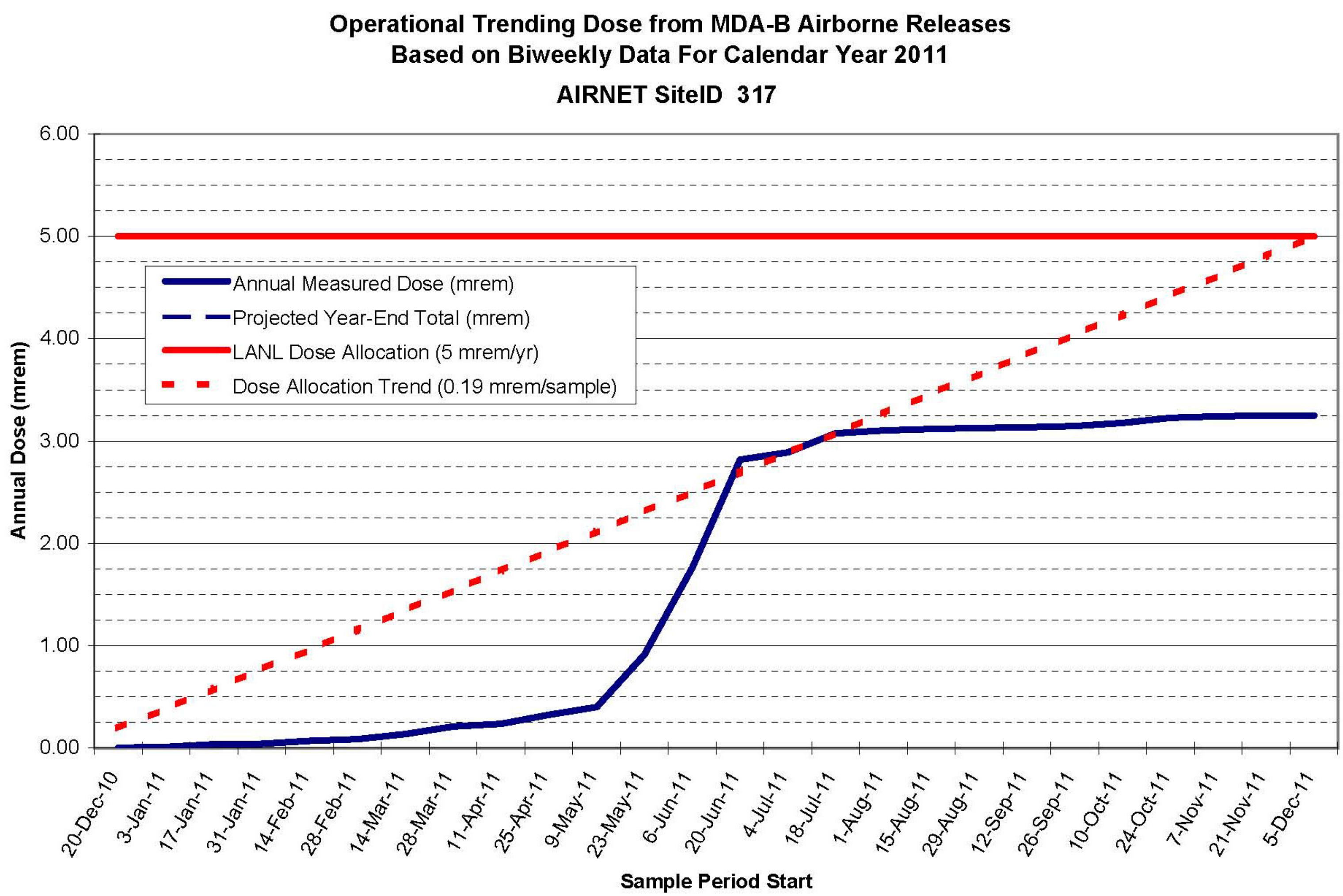

Figure G-10 AIRNET Site ID 317 from 2011

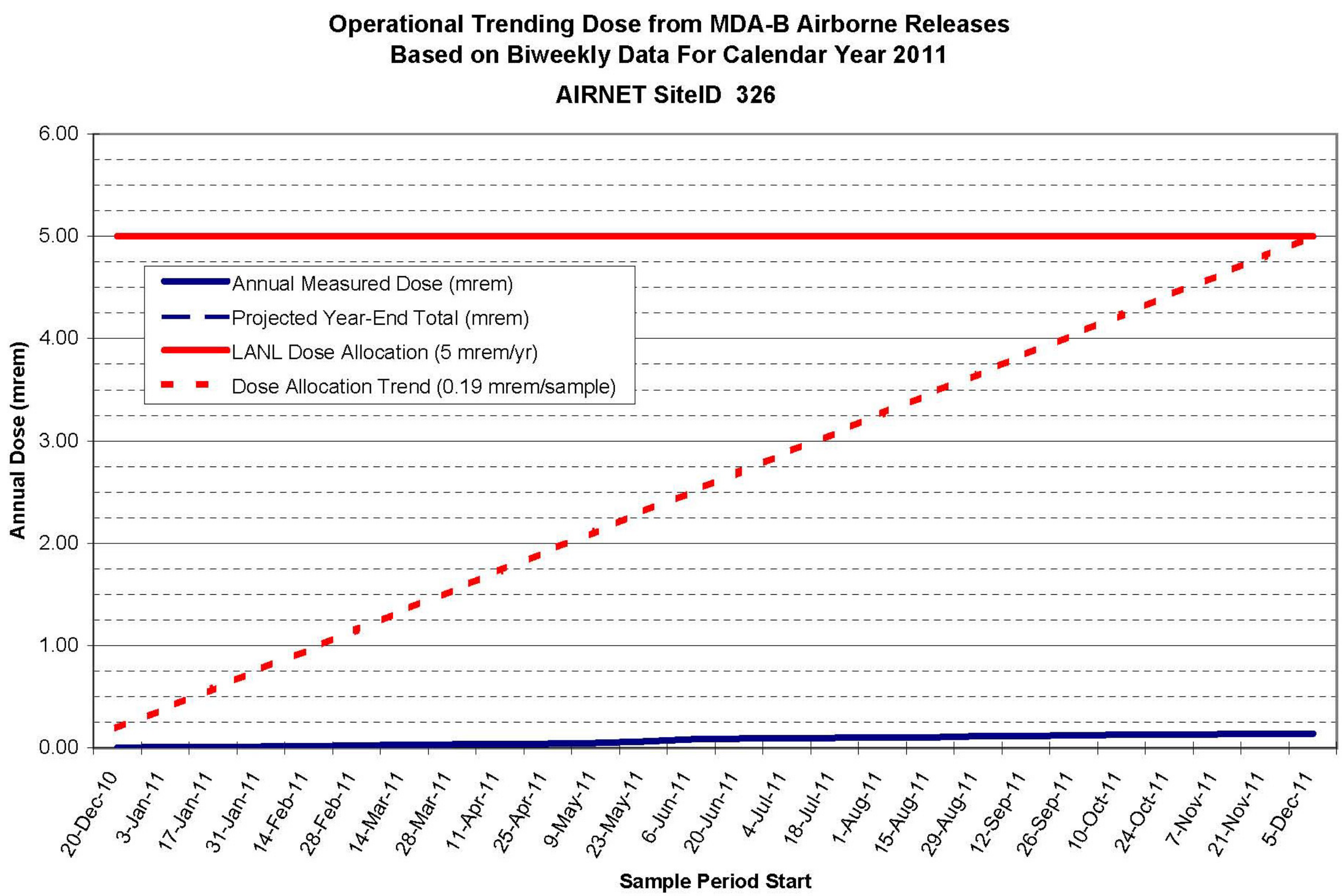

Figure G-11 AIRNET Site ID 326 from 2011

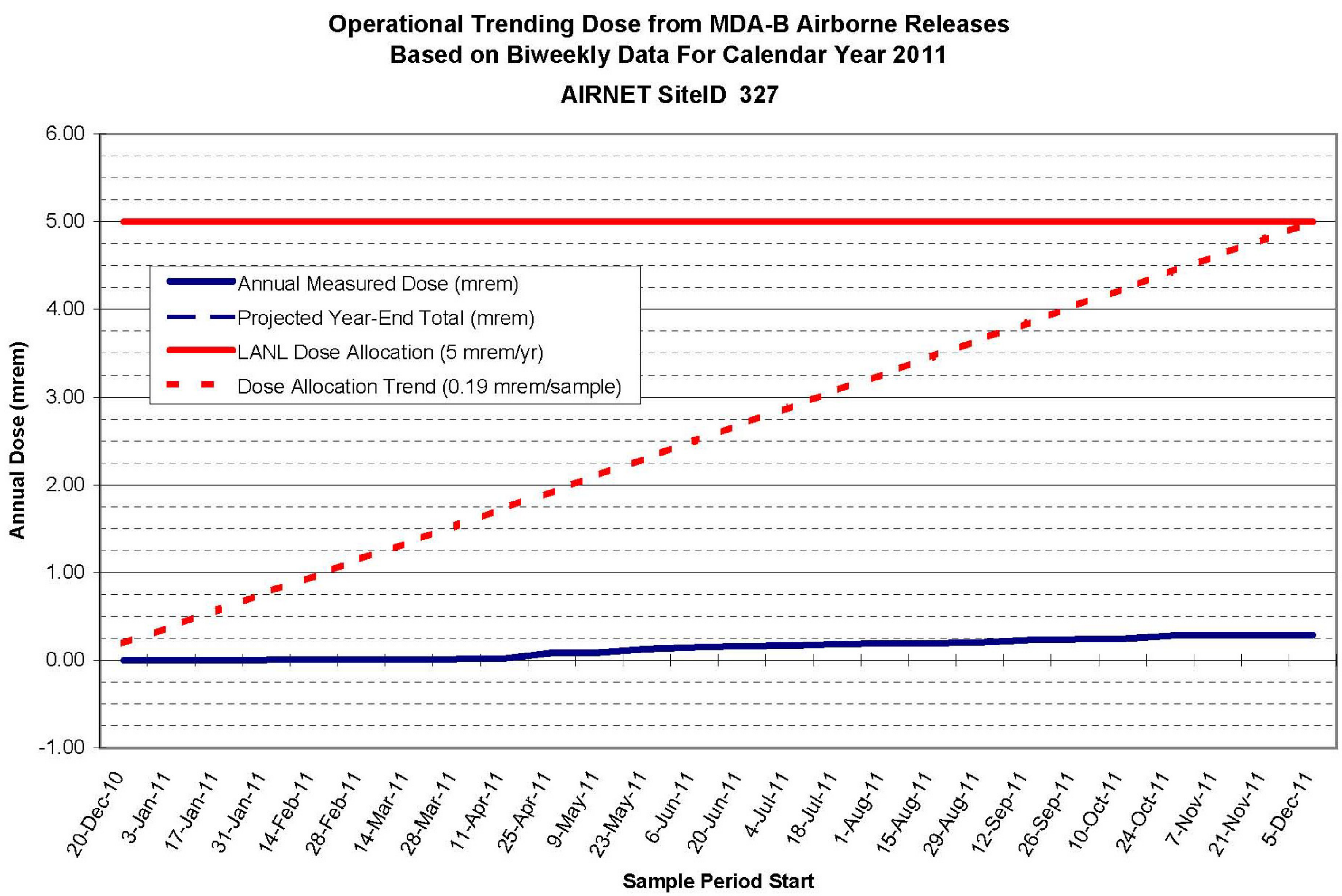

Figure G-12 AIRNET Site ID 327 from 2011

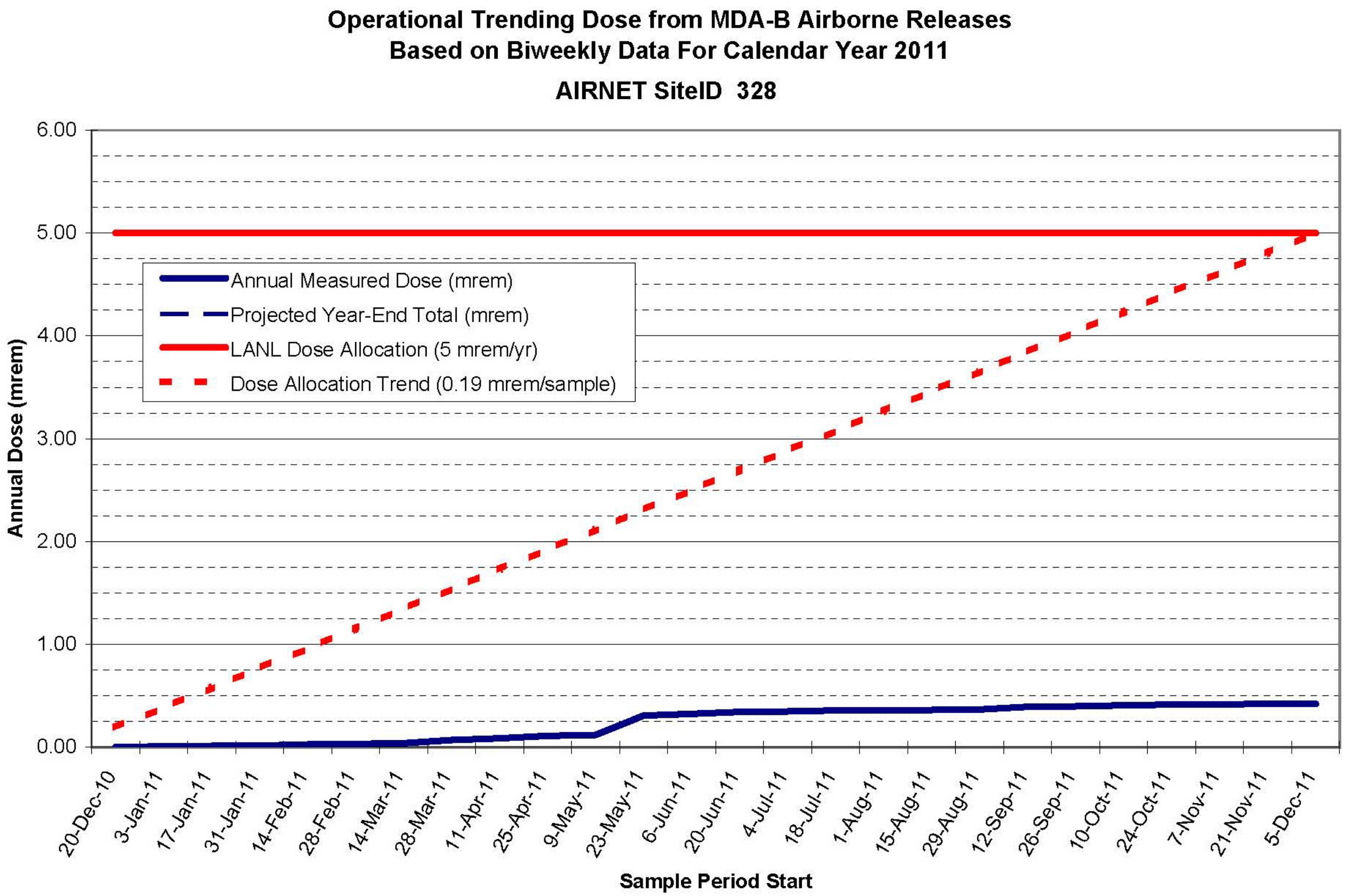

Figure G-13 AIRNET Site ID 328 from 2011

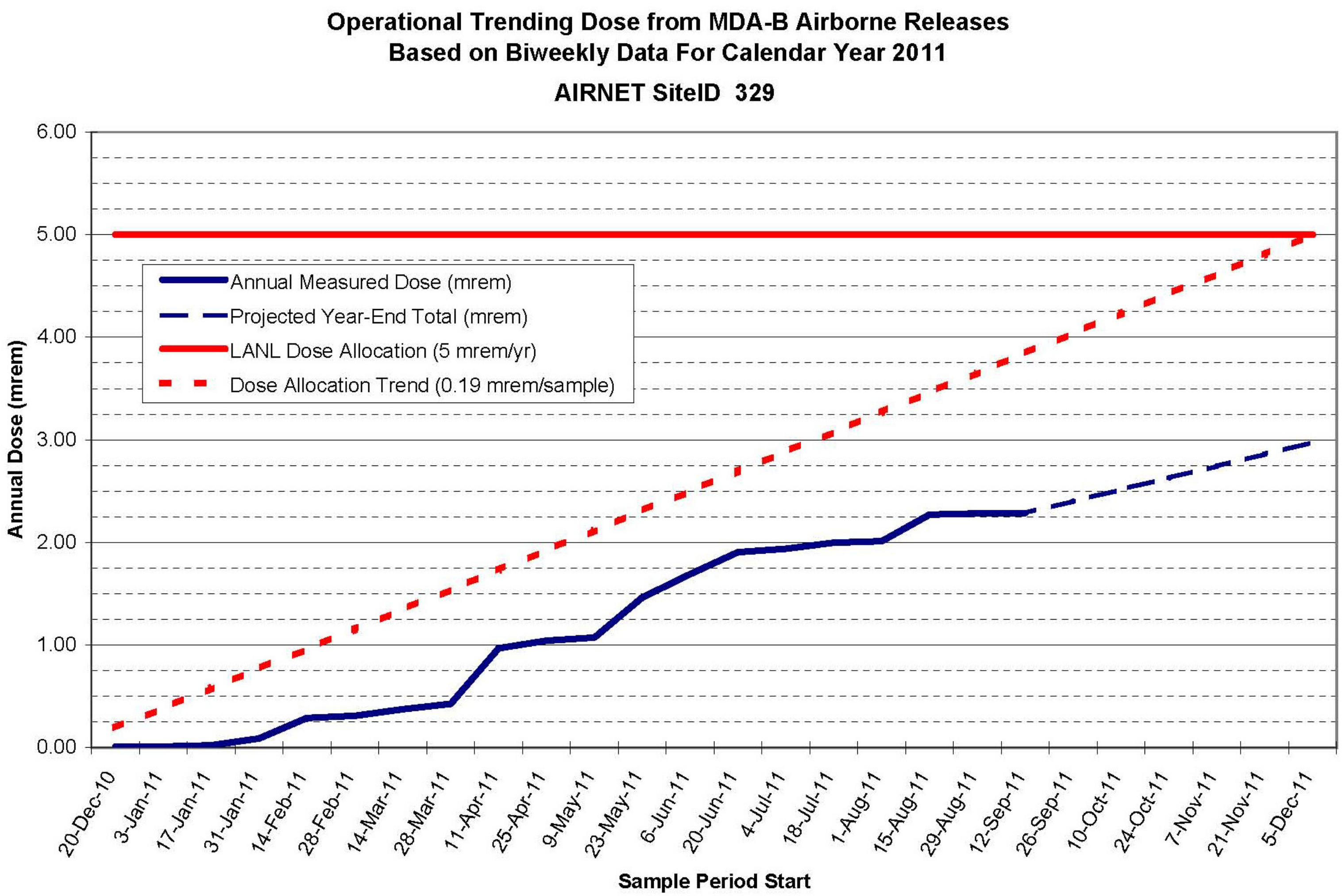

Figure G-14 AIRNET Site ID 329 from 2011

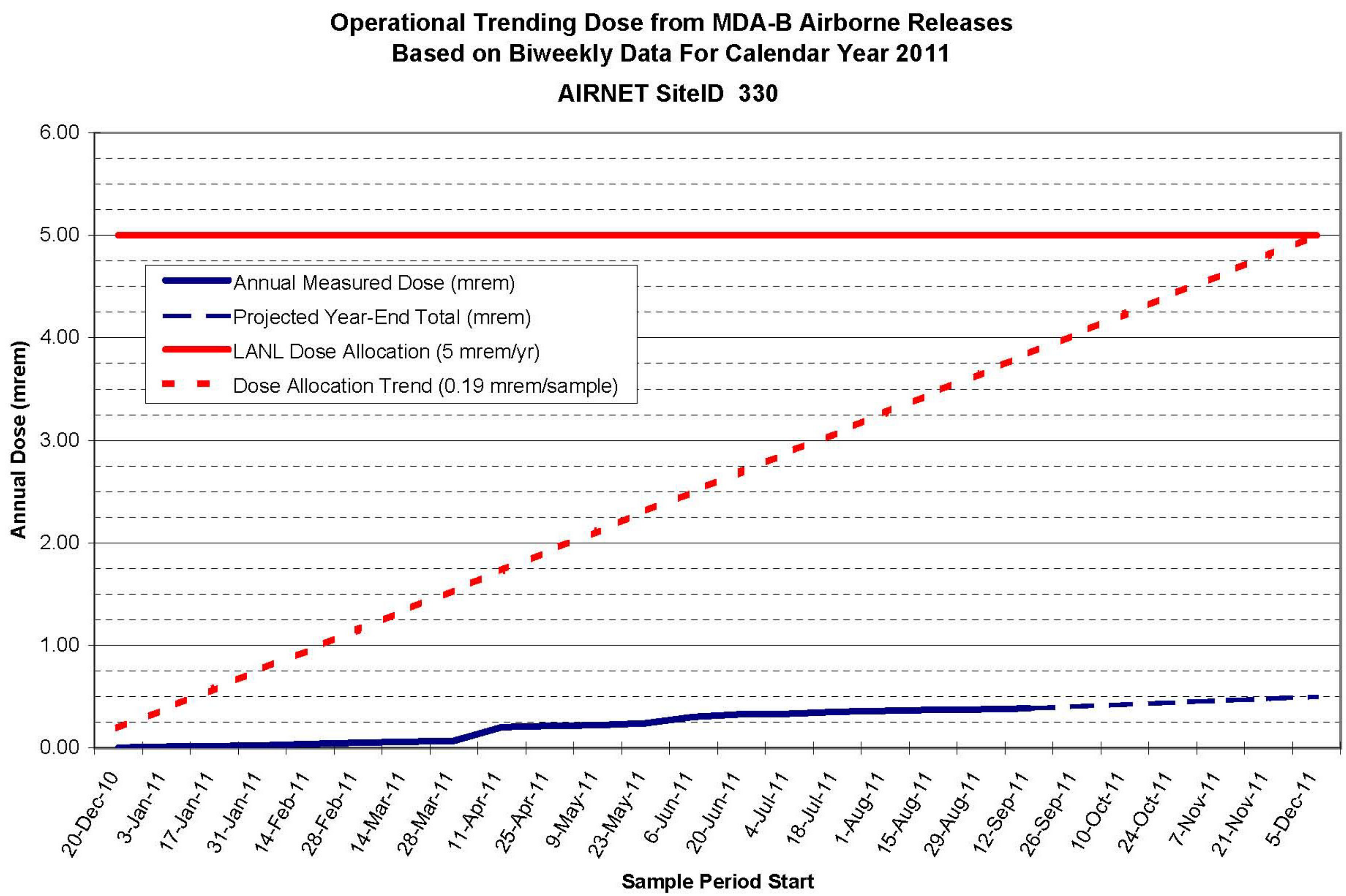

Figure G-15 AIRNET Site ID 330 from 2011

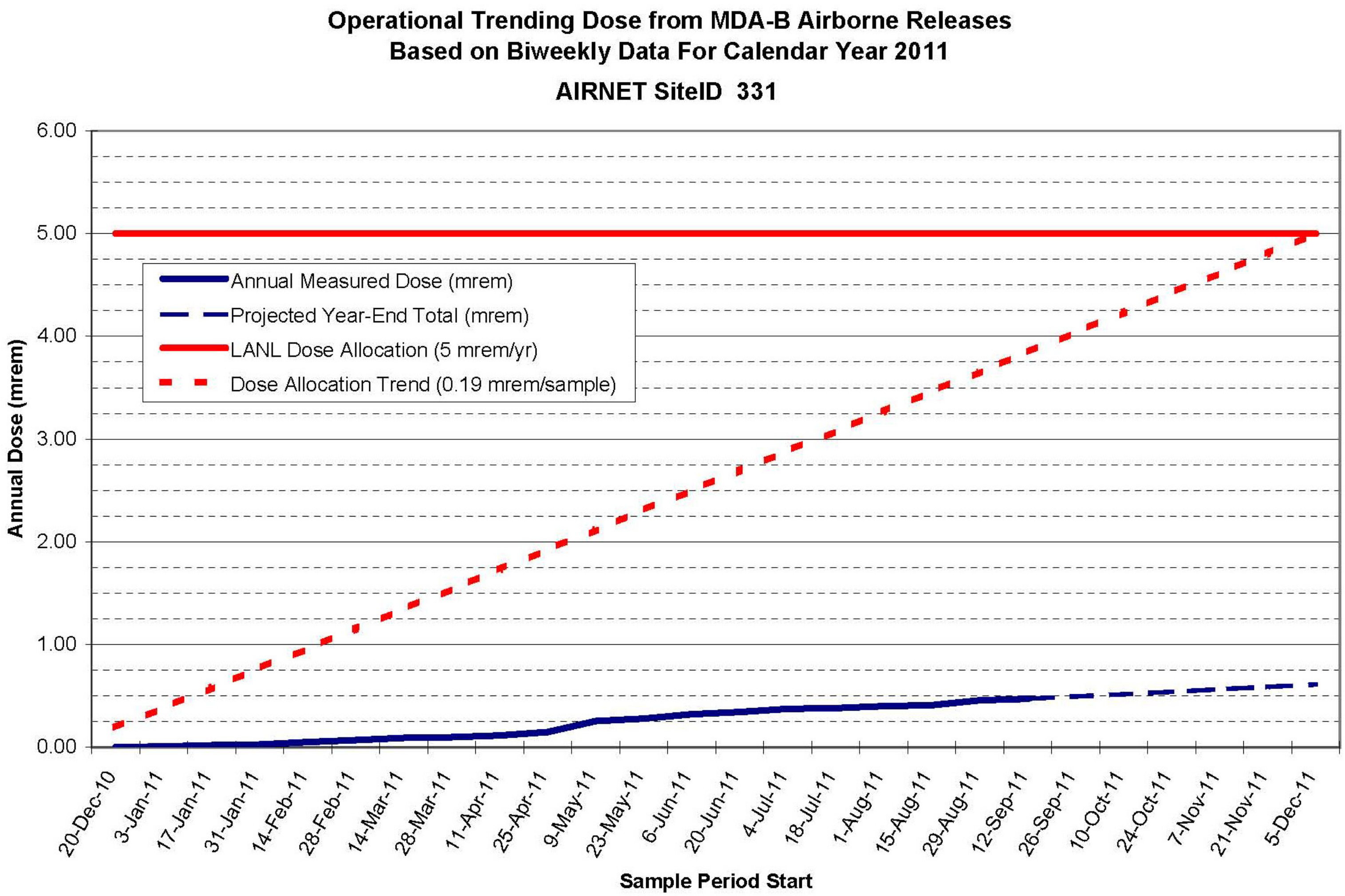

Figure G-16 AIRNET Site ID 331 from 2011

Attachment G-1

AIRNET Dose Tables

Operational Trending
Air Concentrations Dose from MDA-B Operations
Based on Biweekly Data For Calendar Year 2010

Two Approaches for trending air sampling data

1-Calculate Annual average concentration; Annual Avg must be < limit

2-trend dose per sample period towards allocated amount

Sample Information	
AIRNET Site ID	169
Sample Flow Rate	4 ft3/min
Sampling Periods	26 per year
Days per year	365.24

Dose Conversion Information	
Dose Allocation from ENV-EAQ R-N	5 mrem/yr
Dose coversion for 1 mrem/yr	200 aCi/m3 average value
Annual Avg Conc to meet allocation	1000 aCi/m3 average value

To meet annual allocation
Per-Period Dose Allocation
0.19 mrem

Avg Air Concentration
17.9 aCi/m3 avg
0.09 mrem proj.

Avgs re-calculated each period! ⟷

Avg Dose per sample period
0.003 mrem

Projection uses average sample period concentration for future values

Period	Start	End	time (d)	air vol (m3)	Pu-239 Air Conc aCi/m3	Dose Allocation Threshold	Current Average Air Conc aCi/m3	Actual dose this period (mrem)	Dose Alloc this period (mrem)	Annual Total (mrem)	Annual Allocation Trend (mrem)	Projected Total (mrem)
1	12/21/2009	01/04/2010	14	1208	0.000	1000	17.9	0.000	0.19	0.000	0.19	0.000
2	01/04/2010	01/18/2010	14	1088	10.111	1000	17.9	0.002	0.19	0.002	0.38	0.002
3	01/18/2010	02/01/2010	14	1135	1.586	1000	17.9	0.000	0.19	0.002	0.58	0.002
4	02/01/2010	02/15/2010	14	1152	1.389	1000	17.9	0.000	0.19	0.003	0.77	0.003
5	02/15/2010	03/01/2010	14	1132	1.502	1000	17.9	0.000	0.19	0.003	0.96	0.003
6	03/01/2010	03/15/2010	14	1138	21.083	1000	17.9	0.004	0.19	0.007	1.15	0.007
7	03/15/2010	03/29/2010	14	1025	97.592	1000	17.9	0.019	0.19	0.026	1.35	0.026
8	03/29/2010	04/12/2010	14	997	35.101	1000	17.9	0.007	0.19	0.032	1.54	0.032
9	04/12/2010	04/26/2010	14	1100	15.455	1000	17.9	0.003	0.19	0.035	1.73	0.035
10	04/26/2010	05/10/2010	14	925	35.679	1000	17.9	0.007	0.19	0.042	1.92	0.042
11	05/10/2010	05/24/2010	14	1022	30.346	1000	17.9	0.006	0.19	0.048	2.12	0.048
12	05/24/2010	06/07/2010	14	1053	18.994	1000	17.9	0.004	0.19	0.052	2.31	0.052
13	06/07/2010	06/21/2010	14	925	29.192	1000	17.9	0.006	0.19	0.057	2.50	0.057
14	06/21/2010	07/05/2010	14	1102	1.905	1000	17.9	0.000	0.19	0.058	2.69	0.058
15	07/05/2010	07/19/2010	14	1107	4.880	1000	17.9	0.001	0.19	0.059	2.88	0.059
16	07/19/2010	08/02/2010	14	1124	7.028	1000	17.9	0.001	0.19	0.060	3.08	0.060
17	08/02/2010	08/16/2010	14	1100	20.910	1000	17.9	0.004	0.19	0.064	3.27	0.064
18	08/16/2010	08/30/2010	14	1113	1.617	1000	17.9	0.000	0.19	0.064	3.46	0.064
19	08/30/2010	09/13/2010	14	1096	20.992	1000	17.9	0.004	0.19	0.068	3.65	0.068
20	09/13/2010	09/27/2010	14	1067	9.370	1000	17.9	0.002	0.19	0.070	3.85	0.070
21	09/27/2010	10/11/2010	14	1014	8.285	1000	17.9	0.002	0.19	0.072	4.04	0.072
22	10/11/2010	10/25/2010	14	981	19.364	1000	17.9	0.004	0.19	0.075	4.23	0.075
23	10/25/2010	11/08/2010	14	872	13.764	1000	17.9	0.003	0.19	0.078	4.42	0.078
24	11/08/2010	11/22/2010	14	1091	24.745	1000	17.9	0.005	0.19	0.083	4.62	0.083
25	11/22/2010	12/06/2010	14	1080	13.893	1000	17.9	0.003	0.19	0.086	4.81	0.086
26	12/06/2010	12/20/2010	14	1034	20.316	1000	17.9	0.004	0.19	0.089	5.00	0.089

Operational Trending
Air Concentrations Dose from MDA-B Operations
Based on Biweekly Data For Calendar Year 2010

Two Approaches for trending air sampling data

1-Calculate Annual average concentration; Annual Avg must be < limit

2-trend dose per sample period towards allocated amount

Sample Information	
AIRNET Site ID	317
Sample Flow Rate	4 ft3/min
Sampling Periods	26 per year
Days per year	365.24

Dose Conversion Information	
Dose Allocation from ENV-EAQ R-N	5 mrem/yr
Dose coversion for 1 mrem/yr	200 aCi/m3 average value
Annual Avg Conc to meet allocation	1000 aCi/m3 average value

To meet annual allocation	
Per-Period Dose Allocation	0.19 mrem

Avg Air Concentration	
36.0	aCi/m3 avg
0.18	mrem proj.

Avgs re-calculated each period! ↔

Avg Dose per sample period	
0.007	mrem

Projection uses average sample period concentration for future values

Period	Start	End	time (d)	air vol (m3)	Pu-239 Air Conc aCi/m3	Dose Allocation Threshold	Current Average Air Conc aCi/m3	Actual dose this period (mrem)	Dose Alloc this period (mrem)	Annual Total (mrem)	Annual Allocation Trend (mrem)	Projected Total (mrem)
1	12/21/2009	01/04/2010	14	1147	3.052	1000	36.0	0.001	0.19	0.001	0.19	0.001
2	01/04/2010	01/18/2010	14	1031	9.218	1000	36.0	0.002	0.19	0.002	0.38	0.002
3	01/18/2010	02/01/2010	14	1132	1.591	1000	36.0	0.000	0.19	0.003	0.58	0.003
4	02/01/2010	02/15/2010	14	1080	14.816	1000	36.0	0.003	0.19	0.006	0.77	0.006
5	02/15/2010	03/01/2010	14	1018	43.205	1000	36.0	0.008	0.19	0.014	0.96	0.014
6	03/01/2010	03/15/2010	14	1138	11.420	1000	36.0	0.002	0.19	0.016	1.15	0.016
7	03/15/2010	03/29/2010	14	1019	56.929	1000	36.0	0.011	0.19	0.027	1.35	0.027
8	03/29/2010	04/12/2010	14	944	169.503	1000	36.0	0.033	0.19	0.060	1.54	0.060
9	04/12/2010	04/26/2010	14	1124	37.363	1000	36.0	0.007	0.19	0.067	1.73	0.067
10	04/26/2010	05/10/2010	14	896	111.552	1000	36.0	0.021	0.19	0.088	1.92	0.088
11	05/10/2010	05/24/2010	14	1096	40.159	1000	36.0	0.008	0.19	0.096	2.12	0.096
12	05/24/2010	06/07/2010	14	1110	18.921	1000	36.0	0.004	0.19	0.100	2.31	0.100
13	06/07/2010	06/21/2010	14	942	180.471	1000	36.0	0.035	0.19	0.134	2.50	0.134
14	06/21/2010	07/05/2010	14	1088	17.465	1000	36.0	0.003	0.19	0.138	2.69	0.138
15	07/05/2010	07/19/2010	14	1135	10.573	1000	36.0	0.002	0.19	0.140	2.88	0.140
16	07/19/2010	08/02/2010	14	1138	8.785	1000	36.0	0.002	0.19	0.141	3.08	0.141
17	08/02/2010	08/16/2010	14	1121	19.630	1000	36.0	0.004	0.19	0.145	3.27	0.145
18	08/16/2010	08/30/2010	14	1156	19.031	1000	36.0	0.004	0.19	0.149	3.46	0.149
19	08/30/2010	09/13/2010	14	1138	21.083	1000	36.0	0.004	0.19	0.153	3.65	0.153
20	09/13/2010	09/27/2010	14	1138	6.501	1000	36.0	0.001	0.19	0.154	3.85	0.154
21	09/27/2010	10/11/2010	14	1113	8.264	1000	36.0	0.002	0.19	0.156	4.04	0.156
22	10/11/2010	10/25/2010	14	1021	7.049	1000	36.0	0.001	0.19	0.157	4.23	0.157
23	10/25/2010	11/08/2010	14	1030	21.352	1000	36.0	0.004	0.19	0.161	4.42	0.161
24	11/08/2010	11/22/2010	14	1102	62.602	1000	36.0	0.012	0.19	0.173	4.62	0.173
25	11/22/2010	12/06/2010	14	1140	28.059	1000	36.0	0.005	0.19	0.179	4.81	0.179
26	12/06/2010	12/20/2010	14	1060	6.225	1000	36.0	0.001	0.19	0.180	5.00	0.180

Operational Trending
Air Concentrations Dose from MDA-B Operations
Based on Biweekly Data For Calendar Year 2010

Two Approaches for trending air sampling data

1-Calculate Annual average concentration; Annual Avg must be < limit

2-trend dose per sample period towards allocated amount

Sample Information	
AIRNET Site ID	326
Sample Flow Rate	4 ft3/min
Sampling Periods	26 per year
Days per year	365.24

Dose Conversion Information	
Dose Allocation from ENV-EAQ R-N	5 mrem/yr
Dose coversion for 1 mrem/yr	200 aCi/m3 average value
Annual Avg Conc to meet allocation	1000 aCi/m3 average value

To meet annual allocation
Per-Period Dose Allocation
0.19 mrem

Avg Air Concentration
12.4 aCi/m3 avg
0.06 mrem proj.

Avgs re-calculated each period! ⟷

Avg Dose per sample period
0.002 mrem

Projection uses average sample period concentration for future values

Period	Start	End	time (d)	air vol (m3)	Pu-239 Air Conc aCi/m3	Dose Allocation Threshold	Current Average Air Conc aCi/m3	Actual dose this period (mrem)	Dose Alloc this period (mrem)	Annual Total (mrem)	Annual Allocation Trend (mrem)	Projected Total (mrem)
1	12/21/2009	01/04/2010	14	1147	6.017	1000	12.4	0.001	0.19	0.001	0.19	0.001
2	01/04/2010	01/18/2010	14	1031	3.493	1000	12.4	0.001	0.19	0.002	0.38	0.002
3	01/18/2010	02/01/2010	14	1135	0.000	1000	12.4	0.000	0.19	0.002	0.58	0.002
4	02/01/2010	02/15/2010	14	1094	1.736	1000	12.4	0.000	0.19	0.002	0.77	0.002
5	02/15/2010	03/01/2010	14	1033	7.070	1000	12.4	0.001	0.19	0.004	0.96	0.004
6	03/01/2010	03/15/2010	14	1039	29.844	1000	12.4	0.006	0.19	0.009	1.15	0.009
7	03/15/2010	03/29/2010	14	1004	35.870	1000	12.4	0.007	0.19	0.016	1.35	0.016
8	03/29/2010	04/12/2010	14	1010	25.732	1000	12.4	0.005	0.19	0.021	1.54	0.021
9	04/12/2010	04/26/2010	14	1039	40.434	1000	12.4	0.008	0.19	0.029	1.73	0.029
10	04/26/2010	05/10/2010	14	882	45.340	1000	12.4	0.009	0.19	0.038	1.92	0.038
11	05/10/2010	05/24/2010	14	953	10.489	1000	12.4	0.002	0.19	0.040	2.12	0.040
12	05/24/2010	06/07/2010	14	1025	24.402	1000	12.4	0.005	0.19	0.044	2.31	0.044
13	06/07/2010	06/21/2010	14	968	11.368	1000	12.4	0.002	0.19	0.046	2.50	0.046
14	06/21/2010	07/05/2010	14	1059	12.273	1000	12.4	0.002	0.19	0.049	2.69	0.049
15	07/05/2010	07/19/2010	14	1064	16.917	1000	12.4	0.003	0.19	0.052	2.88	0.052
16	07/19/2010	08/02/2010	14	1124	13.344	1000	12.4	0.003	0.19	0.055	3.08	0.055
17	08/02/2010	08/16/2010	14	1070	-1.682	1000	12.4	0.000	0.19	0.054	3.27	0.054
18	08/16/2010	08/30/2010	14	1127	1.685	1000	12.4	0.000	0.19	0.055	3.46	0.055
19	08/30/2010	09/13/2010	14	1036	6.759	1000	12.4	0.001	0.19	0.056	3.65	0.056
20	09/13/2010	09/27/2010	14	1070	-4.204	1000	12.4	-0.001	0.19	0.055	3.85	0.055
21	09/27/2010	10/11/2010	14	1145	3.318	1000	12.4	0.001	0.19	0.056	4.04	0.056
22	10/11/2010	10/25/2010	14	1015	0.000	1000	12.4	0.000	0.19	0.056	4.23	0.056
23	10/25/2010	11/08/2010	14	928	10.780	1000	12.4	0.002	0.19	0.058	4.42	0.058
24	11/08/2010	11/22/2010	14	1002	17.964	1000	12.4	0.003	0.19	0.061	4.62	0.061
25	11/22/2010	12/06/2010	14	1205	9.961	1000	12.4	0.002	0.19	0.063	4.81	0.063
26	12/06/2010	12/20/2010	14	994	-5.332	1000	12.4	-0.001	0.19	0.062	5.00	0.062

Operational Trending
Air Concentrations Dose from MDA-B Operations
Based on Biweekly Data For Calendar Year 2010

Two Approaches for trending air sampling data

1-Calculate Annual average concentration; Annual Avg must be < limit

2-trend dose per sample period towards allocated amount

Sample Information

AIRNET Site ID	327
Sample Flow Rate	4 ft3/min
Sampling Periods	26 per year
Days per year	365.24

Dose Conversion Information

Dose Allocation from ENV-EAQ R-N	5 mrem/yr
Dose coversion for 1 mrem/yr	200 aCi/m3 average value
Annual Avg Conc to meet allocation	1000 aCi/m3 average value

To meet annual allocation
Per-Period Dose Allocation
0.19 mrem

Avg Air Concentration
12.2 aCi/m3 avg
0.06 mrem proj.

Avgs re-calculated each period! ⟷

Avg Dose per sample period
0.002 mrem

Projection uses average sample period concentration for future values

Period	Start	End	time (d)	air vol (m3)	Pu-239 Air Conc aCi/m3	Dose Allocation Threshold	Current Average Air Conc aCi/m3	Actual dose this period (mrem)	Dose Alloc this period (mrem)	Annual Total (mrem)	Annual Allocation Trend (mrem)	Projected Total (mrem)
1	12/21/2009	01/04/2010	14	1132	4.772	1000	12.2	0.001	0.19	0.001	0.19	0.001
2	01/04/2010	01/18/2010	14	1059	17.937	1000	12.2	0.003	0.19	0.004	0.38	0.004
3	01/18/2010	02/01/2010	14	1103	1.632	1000	12.2	0.000	0.19	0.005	0.58	0.005
4	02/01/2010	02/15/2010	14	1138	4.044	1000	12.2	0.001	0.19	0.005	0.77	0.005
5	02/15/2010	03/01/2010	14	1069	21.525	1000	12.2	0.004	0.19	0.010	0.96	0.010
6	03/01/2010	03/15/2010	14	1138	3.338	1000	12.2	0.001	0.19	0.010	1.15	0.010
7	03/15/2010	03/29/2010	14	1110	20.720	1000	12.2	0.004	0.19	0.014	1.35	0.014
8	03/29/2010	04/12/2010	14	1007	36.736	1000	12.2	0.007	0.19	0.021	1.54	0.021
9	04/12/2010	04/26/2010	14	1064	8.553	1000	12.2	0.002	0.19	0.023	1.73	0.023
10	04/26/2010	05/10/2010	14	1053	28.491	1000	12.2	0.005	0.19	0.028	1.92	0.028
11	05/10/2010	05/24/2010	14	1064	-4.887	1000	12.2	-0.001	0.19	0.027	2.12	0.027
12	05/24/2010	06/07/2010	14	1124	12.454	1000	12.2	0.002	0.19	0.030	2.31	0.030
13	06/07/2010	06/21/2010	14	1025	23.426	1000	12.2	0.005	0.19	0.034	2.50	0.034
14	06/21/2010	07/05/2010	14	1102	0.000	1000	12.2	0.000	0.19	0.034	2.69	0.034
15	07/05/2010	07/19/2010	14	1135	3.084	1000	12.2	0.001	0.19	0.035	2.88	0.035
16	07/19/2010	08/02/2010	14	1081	12.946	1000	12.2	0.002	0.19	0.037	3.08	0.037
17	08/02/2010	08/16/2010	14	1099	0.282	1000	12.2	0.000	0.19	0.038	3.27	0.038
18	08/16/2010	08/30/2010	14	1127	4.523	1000	12.2	0.001	0.19	0.038	3.46	0.038
19	08/30/2010	09/13/2010	14	1110	25.228	1000	12.2	0.005	0.19	0.043	3.65	0.043
20	09/13/2010	09/27/2010	14	1138	6.237	1000	12.2	0.001	0.19	0.044	3.85	0.044
21	09/27/2010	10/11/2010	14	1145	4.628	1000	12.2	0.001	0.19	0.045	4.04	0.045
22	10/11/2010	10/25/2010	14	1061	6.599	1000	12.2	0.001	0.19	0.047	4.23	0.047
23	10/25/2010	11/08/2010	14	991	49.458	1000	12.2	0.010	0.19	0.056	4.42	0.056
24	11/08/2010	11/22/2010	14	1088	10.111	1000	12.2	0.002	0.19	0.058	4.62	0.058
25	11/22/2010	12/06/2010	14	1125	10.664	1000	12.2	0.002	0.19	0.060	4.81	0.060
26	12/06/2010	12/20/2010	14	1007	3.475	1000	12.2	0.001	0.19	0.061	5.00	0.061

Operational Trending
Air Concentrations Dose from MDA-B Operations
Based on Biweekly Data For Calendar Year 2010

Two Approaches for trending air sampling data

1-Calculate Annual average concentration; Annual Avg must be < limit

2-trend dose per sample period towards allocated amount

Sample Information	
AIRNET Site ID	328
Sample Flow Rate	4 ft3/min
Sampling Periods	26 per year
Days per year	365.24

Dose Conversion Information	
Dose Allocation from ENV-EAQ R-N	5 mrem/yr
Dose coversion for 1 mrem/yr	200 aCi/m3 average value
Annual Avg Conc to meet allocation	1000 aCi/m3 average value

To meet annual allocation	
Per-Period Dose Allocation	0.19 mrem

Avg Air Concentration	
11.2	aCi/m3 avg
0.06	mrem proj.

Avgs re-calculated each period! ⟷

Avg Dose per sample period	
0.002	mrem

Projection uses average sample period concentration for future values

Period	Start	End	time (d)	air vol (m3)	Pu-239 Air Conc aCi/m3	Dose Allocation Threshold	Current Average Air Conc aCi/m3	Actual dose this period (mrem)	Dose Alloc this period (mrem)	Annual Total (mrem)	Annual Allocation Trend (mrem)	Projected Total (mrem)
1	12/21/2009	01/04/2010	14	1147	9.592	1000	11.2	0.002	0.19	0.002	0.19	0.002
2	01/04/2010	01/18/2010	14	1045	10.527	1000	11.2	0.002	0.19	0.004	0.38	0.004
3	01/18/2010	02/01/2010	14	1103	9.970	1000	11.2	0.002	0.19	0.006	0.58	0.006
4	02/01/2010	02/15/2010	14	1138	2.989	1000	11.2	0.001	0.19	0.006	0.77	0.006
5	02/15/2010	03/01/2010	14	1061	32.993	1000	11.2	0.006	0.19	0.013	0.96	0.013
6	03/01/2010	03/15/2010	14	1124	10.675	1000	11.2	0.002	0.19	0.015	1.15	0.015
7	03/15/2010	03/29/2010	14	1049	20.015	1000	11.2	0.004	0.19	0.019	1.35	0.019
8	03/29/2010	04/12/2010	14	997	21.061	1000	11.2	0.004	0.19	0.023	1.54	0.023
9	04/12/2010	04/26/2010	14	1081	12.021	1000	11.2	0.002	0.19	0.025	1.73	0.025
10	04/26/2010	05/10/2010	14	1067	29.048	1000	11.2	0.006	0.19	0.031	1.92	0.031
11	05/10/2010	05/24/2010	14	1067	13.118	1000	11.2	0.003	0.19	0.033	2.12	0.033
12	05/24/2010	06/07/2010	14	1124	13.344	1000	11.2	0.003	0.19	0.036	2.31	0.036
13	06/07/2010	06/21/2010	14	928	11.854	1000	11.2	0.002	0.19	0.038	2.50	0.038
14	06/21/2010	07/05/2010	14	1131	9.727	1000	11.2	0.002	0.19	0.040	2.69	0.040
15	07/05/2010	07/19/2010	14	1121	7.406	1000	11.2	0.001	0.19	0.041	2.88	0.041
16	07/19/2010	08/02/2010	14	1096	9.127	1000	11.2	0.002	0.19	0.043	3.08	0.043
17	08/02/2010	08/16/2010	14	1107	1.988	1000	11.2	0.000	0.19	0.043	3.27	0.043
18	08/16/2010	08/30/2010	14	1142	3.153	1000	11.2	0.001	0.19	0.044	3.46	0.044
19	08/30/2010	09/13/2010	14	1096	5.385	1000	11.2	0.001	0.19	0.045	3.65	0.045
20	09/13/2010	09/27/2010	14	1138	5.095	1000	11.2	0.001	0.19	0.046	3.85	0.046
21	09/27/2010	10/11/2010	14	1131	8.843	1000	11.2	0.002	0.19	0.048	4.04	0.048
22	10/11/2010	10/25/2010	14	1121	6.157	1000	11.2	0.001	0.19	0.049	4.23	0.049
23	10/25/2010	11/08/2010	14	978	0.000	1000	11.2	0.000	0.19	0.049	4.42	0.049
24	11/08/2010	11/22/2010	14	1131	12.380	1000	11.2	0.002	0.19	0.051	4.62	0.051
25	11/22/2010	12/06/2010	14	1095	5.298	1000	11.2	0.001	0.19	0.052	4.81	0.052
26	12/06/2010	12/20/2010	14	1020	18.620	1000	11.2	0.004	0.19	0.056	5.00	0.056

Operational Trending
Air Concentrations Dose from MDA-B Operations
Based on Biweekly Data For Calendar Year 2010

Two Approaches for trending air sampling data

1-Calculate Annual average concentration; Annual Avg must be < limit

2-trend dose per sample period towards allocated amount

Sample Information

AIRNET Site ID	329
Sample Flow Rate	4 ft3/min
Sampling Periods	26 per year
Days per year	365.24

Dose Conversion Information

Dose Allocation from ENV-EAQ R-N	5 mrem/yr
Dose coversion for 1 mrem/yr	200 aCi/m3 average value
Annual Avg Conc to meet allocation	1000 aCi/m3 average value

To meet annual allocation
Per-Period Dose Allocation
0.19 mrem

Avg Air Concentration
194.5 aCi/m3 avg
0.97 mrem proj.

Avgs re-calculated each period! ⟷

Avg Dose per sample period
0.037 mrem

Projection uses average sample period concentration for future values

Period	Start	End	time (d)	air vol (m3)	Pu-239 Air Conc aCi/m3	Dose Allocation Threshold	Current Average Air Conc aCi/m3	Actual dose this period (mrem)	Dose Alloc this period (mrem)	Annual Total (mrem)	Annual Allocation Trend (mrem)	Projected Total (mrem)
1	12/21/2009	01/04/2010	14	1147	7.760	1000	194.5	0.001	0.19	0.001	0.19	0.001
2	01/04/2010	01/18/2010	14	1003	5.784	1000	194.5	0.001	0.19	0.003	0.38	0.003
3	01/18/2010	02/01/2010	14	962	0.000	1000	194.5	0.000	0.19	0.003	0.58	0.003
4	02/01/2010	02/15/2010	14	1080	15.742	1000	194.5	0.003	0.19	0.006	0.77	0.006
5	02/15/2010	03/01/2010	14	1075	15.814	1000	194.5	0.003	0.19	0.009	0.96	0.009
6	03/01/2010	03/15/2010	14	1138	11.420	1000	194.5	0.002	0.19	0.011	1.15	0.011
7	03/15/2010	03/29/2010	14	1064	41.336	1000	194.5	0.008	0.19	0.019	1.35	0.019
8	03/29/2010	04/12/2010	14	971	47.397	1000	194.5	0.009	0.19	0.028	1.54	0.028
9	04/12/2010	04/26/2010	14	1096	109.523	1000	194.5	0.021	0.19	0.049	1.73	0.049
10	04/26/2010	05/10/2010	14	1025	66.373	1000	194.5	0.013	0.19	0.062	1.92	0.062
11	05/10/2010	05/24/2010	14	996	17.067	1000	194.5	0.003	0.19	0.065	2.12	0.065
12	05/24/2010	06/07/2010	14	1067	14.993	1000	194.5	0.003	0.19	0.068	2.31	0.068
13	06/07/2010	06/21/2010	14	972	21.599	1000	194.5	0.004	0.19	0.072	2.50	0.072
14	06/21/2010	07/05/2010	14	1074	8.849	1000	194.5	0.002	0.19	0.074	2.69	0.074
15	07/05/2010	07/19/2010	14	1092	8.697	1000	194.5	0.002	0.19	0.075	2.88	0.075
16	07/19/2010	08/02/2010	14	982	5.296	1000	194.5	0.001	0.19	0.076	3.08	0.076
17	08/02/2010	08/16/2010	14	1092	2.289	1000	194.5	0.000	0.19	0.077	3.27	0.077
18	08/16/2010	08/30/2010	14	1085	525.513	1000	194.5	0.101	0.19	0.178	3.46	0.178
19	08/30/2010	09/13/2010	14	1096	91.270	1000	194.5	0.018	0.19	0.196	3.65	0.196
20	09/13/2010	09/27/2010	14	996	21.083	1000	194.5	0.004	0.19	0.200	3.85	0.200
21	09/27/2010	10/11/2010	14	1120	116.090	1000	194.5	0.022	0.19	0.222	4.04	0.222
22	10/11/2010	10/25/2010	14	1044	40.248	1000	194.5	0.008	0.19	0.230	4.23	0.230
23	10/25/2010	11/08/2010	14	951	178.738	1000	194.5	0.034	0.19	0.264	4.42	0.264
24	11/08/2010	11/22/2010	14	1077	2228.922	1000	194.5	0.429	0.19	0.693	4.62	0.693
25	11/22/2010	12/06/2010	14	1064	1409.197	1000	194.5	0.271	0.19	0.964	4.81	0.964
26	12/06/2010	12/20/2010	14	994	47.287	1000	194.5	0.009	0.19	0.973	5.00	0.973

Operational Trending
Air Concentrations Dose from MDA-B Operations
Based on Biweekly Data For Calendar Year 2010

Two Approaches for trending air sampling data

1-Calculate Annual average concentration; Annual Avg must be < limit

2-trend dose per sample period towards allocated amount

Sample Information	
AIRNET Site ID	330
Sample Flow Rate	4 ft3/min
Sampling Periods	26 per year
Days per year	365.24

Dose Conversion Information	
Dose Allocation from ENV-EAQ R-N	5 mrem/yr
Dose coversion for 1 mrem/yr	200 aCi/m3 average value
Annual Avg Conc to meet allocation	1000 aCi/m3 average value

To meet annual allocation
Per-Period Dose Allocation
0.19 mrem

Avg Air Concentration
56.9 aCi/m3 avg
0.28 mrem proj.

Avgs re-calculated each period! ⟷

Avg Dose per sample period
0.011 mrem

Projection uses average sample period concentration for future values

Period	Start	End	time (d)	air vol (m3)	Pu-239 Air Conc aCi/m3	Dose Allocation Threshold	Current Average Air Conc aCi/m3	Actual dose this period (mrem)	Dose Alloc this period (mrem)	Annual Total (mrem)	Annual Allocation Trend (mrem)	Projected Total (mrem)
1	12/21/2009	01/04/2010	14	1208	8.195	1000	56.9	0.002	0.19	0.002	0.19	0.002
2	01/04/2010	01/18/2010	14	1188	10.942	1000	56.9	0.002	0.19	0.004	0.38	0.004
3	01/18/2010	02/01/2010	14	1132	4.330	1000	56.9	0.001	0.19	0.005	0.58	0.005
4	02/01/2010	02/15/2010	14	1080	3.241	1000	56.9	0.001	0.19	0.005	0.77	0.005
5	02/15/2010	03/01/2010	14	1061	8.295	1000	56.9	0.002	0.19	0.007	0.96	0.007
6	03/01/2010	03/15/2010	14	1067	25.300	1000	56.9	0.005	0.19	0.012	1.15	0.012
7	03/15/2010	03/29/2010	14	1004	966.510	1000	56.9	0.186	0.19	0.197	1.35	0.197
8	03/29/2010	04/12/2010	14	931	35.460	1000	56.9	0.007	0.19	0.204	1.54	0.204
9	04/12/2010	04/26/2010	14	1067	14.993	1000	56.9	0.003	0.19	0.207	1.73	0.207
10	04/26/2010	05/10/2010	14	982	20.370	1000	56.9	0.004	0.19	0.211	1.92	0.211
11	05/10/2010	05/24/2010	14	1053	23.742	1000	56.9	0.005	0.19	0.216	2.12	0.216
12	05/24/2010	06/07/2010	14	996	28.111	1000	56.9	0.005	0.19	0.221	2.31	0.221
13	06/07/2010	06/21/2010	14	862	12.757	1000	56.9	0.002	0.19	0.224	2.50	0.224
14	06/21/2010	07/05/2010	14	1117	20.600	1000	56.9	0.004	0.19	0.227	2.69	0.227
15	07/05/2010	07/19/2010	14	1078	20.404	1000	56.9	0.004	0.19	0.231	2.88	0.231
16	07/19/2010	08/02/2010	14	1060	14.157	1000	56.9	0.003	0.19	0.234	3.08	0.234
17	08/02/2010	08/16/2010	14	1135	11.454	1000	56.9	0.002	0.19	0.236	3.27	0.236
18	08/16/2010	08/30/2010	14	1028	18.490	1000	56.9	0.004	0.19	0.240	3.46	0.240
19	08/30/2010	09/13/2010	14	1053	15.195	1000	56.9	0.003	0.19	0.243	3.65	0.243
20	09/13/2010	09/27/2010	14	968	91.981	1000	56.9	0.018	0.19	0.260	3.85	0.260
21	09/27/2010	10/11/2010	14	1105	11.760	1000	56.9	0.002	0.19	0.263	4.04	0.263
22	10/11/2010	10/25/2010	14	1058	14.183	1000	56.9	0.003	0.19	0.265	4.23	0.265
23	10/25/2010	11/08/2010	14	951	29.439	1000	56.9	0.006	0.19	0.271	4.42	0.271
24	11/08/2010	11/22/2010	14	1077	23.218	1000	56.9	0.004	0.19	0.276	4.62	0.276
25	11/22/2010	12/06/2010	14	1064	31.002	1000	56.9	0.006	0.19	0.282	4.81	0.282
26	12/06/2010	12/20/2010	14	994	16.098	1000	56.9	0.003	0.19	0.285	5.00	0.285

Operational Trending
Air Concentrations Dose from MDA-B Operations
Based on Biweekly Data For Calendar Year 2010

Two Approaches for trending air sampling data

1-Calculate Annual average concentration; Annual Avg must be < limit

2-trend dose per sample period towards allocated amount

Sample Information

AIRNET Site ID	331
Sample Flow Rate	4 ft3/min
Sampling Periods	26 per year
Days per year	365.24

Dose Conversion Information

Dose Allocation from ENV-EAQ R-N	5 mrem/yr
Dose coversion for 1 mrem/yr	200 aCi/m3 average value
Annual Avg Conc to meet allocation	1000 aCi/m3 average value

To meet annual allocation
Per-Period Dose Allocation
0.19 mrem

Avg Air Concentration
43.2 aCi/m3 avg
0.22 mrem proj.

Avgs re-calculated each period! ⟷

Avg Dose per sample period
0.008 mrem

Projection uses average sample period concentration for future values

Period	Start	End	time (d)	air vol (m3)	Pu-239 Air Conc aCi/m3	Dose Allocation Threshold	Current Average Air Conc aCi/m3	Actual dose this period (mrem)	Dose Alloc this period (mrem)	Annual Total (mrem)	Annual Allocation Trend (mrem)	Projected Total (mrem)
1	12/21/2009	01/04/2010	14	1147	10.464	1000	43.2	0.002	0.19	0.002	0.19	0.002
2	01/04/2010	01/18/2010	14	1159	26.737	1000	43.2	0.005	0.19	0.007	0.38	0.007
3	01/18/2010	02/01/2010	14	1107	3.434	1000	43.2	0.001	0.19	0.008	0.58	0.008
4	02/01/2010	02/15/2010	14	1152	6.337	1000	43.2	0.001	0.19	0.009	0.77	0.009
5	02/15/2010	03/01/2010	14	1132	12.372	1000	43.2	0.002	0.19	0.011	0.96	0.011
6	03/01/2010	03/15/2010	14	1138	114.201	1000	43.2	0.022	0.19	0.033	1.15	0.033
7	03/15/2010	03/29/2010	14	1140	77.161	1000	43.2	0.015	0.19	0.048	1.35	0.048
8	03/29/2010	04/12/2010	14	997	47.136	1000	43.2	0.009	0.19	0.057	1.54	0.057
9	04/12/2010	04/26/2010	14	1096	52.936	1000	43.2	0.010	0.19	0.067	1.73	0.067
10	04/26/2010	05/10/2010	14	1081	416.117	1000	43.2	0.080	0.19	0.147	1.92	0.147
11	05/10/2010	05/24/2010	14	1153	16.485	1000	43.2	0.003	0.19	0.151	2.12	0.151
12	05/24/2010	06/07/2010	14	1067	41.229	1000	43.2	0.008	0.19	0.159	2.31	0.159
13	06/07/2010	06/21/2010	14	914	32.828	1000	43.2	0.006	0.19	0.165	2.50	0.165
14	06/21/2010	07/05/2010	14	1145	12.226	1000	43.2	0.002	0.19	0.167	2.69	0.167
15	07/05/2010	07/19/2010	14	1107	4.247	1000	43.2	0.001	0.19	0.168	2.88	0.168
16	07/19/2010	08/02/2010	14	1124	45.369	1000	43.2	0.009	0.19	0.177	3.08	0.177
17	08/02/2010	08/16/2010	14	1064	8.459	1000	43.2	0.002	0.19	0.178	3.27	0.178
18	08/16/2010	08/30/2010	14	1127	3.903	1000	43.2	0.001	0.19	0.179	3.46	0.179
19	08/30/2010	09/13/2010	14	1153	19.955	1000	43.2	0.004	0.19	0.183	3.65	0.183
20	09/13/2010	09/27/2010	14	1067	21.552	1000	43.2	0.004	0.19	0.187	3.85	0.187
21	09/27/2010	10/11/2010	14	1149	16.543	1000	43.2	0.003	0.19	0.190	4.04	0.190
22	10/11/2010	10/25/2010	14	1100	15.455	1000	43.2	0.003	0.19	0.193	4.23	0.193
23	10/25/2010	11/08/2010	14	911	18.651	1000	43.2	0.004	0.19	0.197	4.42	0.197
24	11/08/2010	11/22/2010	14	1149	28.732	1000	43.2	0.006	0.19	0.202	4.62	0.202
25	11/22/2010	12/06/2010	14	1125	34.659	1000	43.2	0.007	0.19	0.209	4.81	0.209
26	12/06/2010	12/20/2010	14	1034	35.794	1000	43.2	0.007	0.19	0.216	5.00	0.216

Operational Trending
Air Concentrations Dose from MDA-B Operations
Based on Biweekly Data For Calendar Year 2011

Two Approaches for trending air sampling data

1-Calculate Annual average concentration; Annual Avg must be < limit

2-trend dose per sample period towards allocated amount

Sample Information	
AIRNET Site ID	169
Sample Flow Rate	4 ft3/min
Sampling Periods	26 per year
Days per year	365.24

Dose Conversion Information	
Dose Allocation from ENV-EAQ R-N	5 mrem/yr
Dose coversion for 1 mrem/yr	200 aCi/m3 average value
Annual Avg Conc to meet allocation	1000 aCi/m3 average value

To meet annual allocation	
Per-Period Dose Allocation	0.19 mrem

Avg Air Concentration
48.0 aCi/m3 avg
0.24 mrem proj.

Avgs re-calculated each period! ⟷

Avg Dose per sample period
0.009 mrem

Projection uses average sample period concentration for future values

Period	Start	End	time (d)	air vol (m3)	Pu-239 Air Conc aCi/m3	Dose Allocation Threshold	Current Average Air Conc aCi/m3	Actual dose this period (mrem)	Dose Alloc this period (mrem)	Annual Total (mrem)	Annual Allocation Trend (mrem)	Projected Total (mrem)
1	12/20/2010	01/03/2011	14	1128	11.521	1000	48.0	0.002	0.19	0.002	0.19	0.002
2	01/03/2011	01/17/2011	14	1013	60.200	1000	48.0	0.012	0.19	0.014	0.38	0.014
3	01/17/2011	01/31/2011	14	984	17.280	1000	48.0	0.003	0.19	0.017	0.58	0.017
4	01/31/2011	02/14/2011	14	1140	14.029	1000	48.0	0.003	0.19	0.020	0.77	0.020
5	02/14/2011	02/28/2011	14	968	89.914	1000	48.0	0.017	0.19	0.037	0.96	0.037
6	02/28/2011	03/14/2011	14	1025	54.660	1000	48.0	0.011	0.19	0.048	1.15	0.048
7	03/14/2011	03/28/2011	14	993	68.474	1000	48.0	0.013	0.19	0.061	1.35	0.061
8	03/28/2011	04/11/2011	14	999	43.042	1000	48.0	0.008	0.19	0.069	1.54	0.069
9	04/11/2011	04/25/2011	14	939	51.111	1000	48.0	0.010	0.19	0.079	1.73	0.079
10	04/25/2011	05/09/2011	14	982	76.389	1000	48.0	0.015	0.19	0.094	1.92	0.094
11	05/09/2011	05/23/2011	14	1070	15.882	1000	48.0	0.003	0.19	0.097	2.12	0.097
12	05/23/2011	06/06/2011	14	842	66.506	1000	48.0	0.013	0.19	0.109	2.31	0.109
13	06/06/2011	06/20/2011	14	1060	150.965	1000	48.0	0.029	0.19	0.138	2.50	0.138
14	06/20/2011	07/04/2011	14	693	28.857	1000	48.0	0.006	0.19	0.144	2.69	0.144
15	07/04/2011	07/18/2011	14	835	22.768	1000	48.0	0.004	0.19	0.148	2.88	0.148
16	07/18/2011	08/01/2011	14	1131	78.704	1000	48.0	0.015	0.19	0.164	3.08	0.164
17	08/01/2011	08/15/2011	14	1081	48.085	1000	48.0	0.009	0.19	0.173	3.27	0.173
18	08/15/2011	08/29/2011	14	1113	25.153	1000	48.0	0.005	0.19	0.178	3.46	0.178
19	08/29/2011	09/12/2011	14	1107	19.881	1000	48.0	0.004	0.19	0.181	3.65	0.181
20	09/12/2011	09/26/2011	14	1102	24.497	1000	48.0	0.005	0.19	0.186	3.85	0.186
21	09/26/2011	10/10/2011	14	1121	70.488	1000	48.0	0.014	0.19	0.200	4.04	0.200
22	10/10/2011	10/24/2011	14	1031	87.297	1000	48.0	0.017	0.19	0.216	4.23	0.216
23	10/24/2011	11/07/2011	14	997	24.069	1000	48.0	0.005	0.19	0.221	4.42	0.221
24	11/07/2011	11/21/2011	14	1064	34.788	1000	48.0	0.007	0.19	0.228	4.62	0.228
25	11/21/2011	12/05/2011	14	1301	43.029	1000	48.0	0.008	0.19	0.236	4.81	0.236
26	12/05/2011	12/19/2011	14	1135	20.265	1000	48.0	0.004	0.19	0.240	5.00	0.240

Operational Trending
Air Concentrations Dose from MDA-B Operations
Based on Biweekly Data For Calendar Year 2011

Two Approaches for trending air sampling data

1-Calculate Annual average concentration; Annual Avg must be < limit

2-trend dose per sample period towards allocated amount

Sample Information	
AIRNET Site ID	317
Sample Flow Rate	4 ft3/min
Sampling Periods	26 per year
Days per year	365.24

Dose Conversion Information	
Dose Allocation from ENV-EAQ R-N	5 mrem/yr
Dose coversion for 1 mrem/yr	200 aCi/m3 average value
Annual Avg Conc to meet allocation	1000 aCi/m3 average value

To meet annual allocation
Per-Period Dose Allocation
0.19 mrem

Avg Air Concentration
649.6 aCi/m3 avg
3.25 mrem proj.

Avgs re-calculated each period! ⟷

Avg Dose per sample period
0.125 mrem

Projection uses average sample period concentration for future values

Period	Start	End	time (d)	air vol (m3)	Pu-239 Air Conc aCi/m3	Dose Allocation Threshold	Current Average Air Conc aCi/m3	Actual dose this period (mrem)	Dose Alloc this period (mrem)	Annual Total (mrem)	Annual Allocation Trend (mrem)	Projected Total (mrem)
1	12/20/2010	01/03/2011	14	1205	14.112	1000	649.6	0.003	0.19	0.003	0.19	0.003
2	01/03/2011	01/17/2011	14	999	38.037	1000	649.6	0.007	0.19	0.010	0.38	0.010
3	01/17/2011	01/31/2011	14	1024	136.758	1000	649.6	0.026	0.19	0.036	0.58	0.036
4	01/31/2011	02/14/2011	14	1140	24.551	1000	649.6	0.005	0.19	0.041	0.77	0.041
5	02/14/2011	02/28/2011	14	996	140.555	1000	649.6	0.027	0.19	0.068	0.96	0.068
6	02/28/2011	03/14/2011	14	1039	96.271	1000	649.6	0.019	0.19	0.087	1.15	0.087
7	03/14/2011	03/28/2011	14	999	260.254	1000	649.6	0.050	0.19	0.137	1.35	0.137
8	03/28/2011	04/11/2011	14	985	375.729	1000	649.6	0.072	0.19	0.209	1.54	0.209
9	04/11/2011	04/25/2011	14	1067	140.555	1000	649.6	0.027	0.19	0.236	1.73	0.236
10	04/25/2011	05/09/2011	14	968	454.737	1000	649.6	0.087	0.19	0.323	1.92	0.323
11	05/09/2011	05/23/2011	14	1070	392.383	1000	649.6	0.075	0.19	0.399	2.12	0.399
12	05/23/2011	06/06/2011	14	828	2657.767	1000	649.6	0.511	0.19	0.910	2.31	0.910
13	06/06/2011	06/20/2011	14	1038	4429.898	1000	649.6	0.852	0.19	1.762	2.50	1.762
14	06/20/2011	07/04/2011	14	583	5485.078	1000	649.6	1.055	0.19	2.817	2.69	2.817
15	07/04/2011	07/18/2011	14	840	369.255	1000	649.6	0.071	0.19	2.888	2.88	2.888
16	07/18/2011	08/01/2011	14	1131	972.741	1000	649.6	0.187	0.19	3.075	3.08	3.075
17	08/01/2011	08/15/2011	14	985	142.168	1000	649.6	0.027	0.19	3.102	3.27	3.102
18	08/15/2011	08/29/2011	14	1124	70.278	1000	649.6	0.014	0.19	3.116	3.46	3.116
19	08/29/2011	09/12/2011	14	1149	50.473	1000	649.6	0.010	0.19	3.125	3.65	3.125
20	09/12/2011	09/26/2011	14	1131	38.910	1000	649.6	0.007	0.19	3.133	3.85	3.133
21	09/26/2011	10/10/2011	14	1149	64.396	1000	649.6	0.012	0.19	3.145	4.04	3.145
22	10/10/2011	10/24/2011	14	999	160.156	1000	649.6	0.031	0.19	3.176	4.23	3.176
23	10/24/2011	11/07/2011	14	957	261.171	1000	649.6	0.050	0.19	3.226	4.42	3.226
24	11/07/2011	11/21/2011	14	944	74.158	1000	649.6	0.014	0.19	3.240	4.62	3.240
25	11/21/2011	12/05/2011	14	1301	29.198	1000	649.6	0.006	0.19	3.246	4.81	3.246
26	12/05/2011	12/19/2011	14	1132	9.721	1000	649.6	0.002	0.19	3.248	5.00	3.248

Operational Trending
Air Concentrations Dose from MDA-B Operations
Based on Biweekly Data For Calendar Year 2011

Two Approaches for trending air sampling data

1-Calculate Annual average concentration; Annual Avg must be < limit

2-trend dose per sample period towards allocated amount

Sample Information

AIRNET Site ID	326
Sample Flow Rate	4 ft3/min
Sampling Periods	26 per year
Days per year	365.24

Dose Conversion Information

Dose Allocation from ENV-EAQ R-N	5 mrem/yr
Dose coversion for 1 mrem/yr	200 aCi/m3 average value
Annual Avg Conc to meet allocation	1000 aCi/m3 average value

To meet annual allocation
Per-Period Dose Allocation
0.19 mrem

Avg Air Concentration
27.6 aCi/m3 avg
0.14 mrem proj.

Avgs re-calculated each period! ⟷

Avg Dose per sample period
0.005 mrem

Projection uses average sample period concentration for future values

Period	Start	End	time (d)	air vol (m3)	Pu-239 Air Conc aCi/m3	Dose Allocation Threshold	Current Average Air Conc aCi/m3	Actual dose this period (mrem)	Dose Alloc this period (mrem)	Annual Total (mrem)	Annual Allocation Trend (mrem)	Projected Total (mrem)
1	12/20/2010	01/03/2011	14	1144	12.241	1000	27.6	0.002	0.19	0.002	0.19	0.002
2	01/03/2011	01/17/2011	14	942	22.294	1000	27.6	0.004	0.19	0.007	0.38	0.007
3	01/17/2011	01/31/2011	14	990	9.191	1000	27.6	0.002	0.19	0.008	0.58	0.008
4	01/31/2011	02/14/2011	14	1064	13.153	1000	27.6	0.003	0.19	0.011	0.77	0.011
5	02/14/2011	02/28/2011	14	996	27.107	1000	27.6	0.005	0.19	0.016	0.96	0.016
6	02/28/2011	03/14/2011	14	1067	31.859	1000	27.6	0.006	0.19	0.022	1.15	0.022
7	03/14/2011	03/28/2011	14	928	44.197	1000	27.6	0.008	0.19	0.031	1.35	0.031
8	03/28/2011	04/11/2011	14	999	12.012	1000	27.6	0.002	0.19	0.033	1.54	0.033
9	04/11/2011	04/25/2011	14	922	18.435	1000	27.6	0.004	0.19	0.037	1.73	0.037
10	04/25/2011	05/09/2011	14	996	24.095	1000	27.6	0.005	0.19	0.041	1.92	0.041
11	05/09/2011	05/23/2011	14	1028	32.115	1000	27.6	0.006	0.19	0.047	2.12	0.047
12	05/23/2011	06/06/2011	14	842	74.819	1000	27.6	0.014	0.19	0.062	2.31	0.062
13	06/06/2011	06/20/2011	14	989	111.228	1000	27.6	0.021	0.19	0.083	2.50	0.083
14	06/20/2011	07/04/2011	14	590	33.870	1000	27.6	0.007	0.19	0.090	2.69	0.090
15	07/04/2011	07/18/2011	14	868	20.738	1000	27.6	0.004	0.19	0.094	2.88	0.094
16	07/18/2011	08/01/2011	14	1085	20.283	1000	27.6	0.004	0.19	0.098	3.08	0.098
17	08/01/2011	08/15/2011	14	1081	16.645	1000	27.6	0.003	0.19	0.101	3.27	0.101
18	08/15/2011	08/29/2011	14	1113	6.737	1000	27.6	0.001	0.19	0.102	3.46	0.102
19	08/29/2011	09/12/2011	14	1138	59.736	1000	27.6	0.011	0.19	0.114	3.65	0.114
20	09/12/2011	09/26/2011	14	1131	18.571	1000	27.6	0.004	0.19	0.117	3.85	0.117
21	09/26/2011	10/10/2011	14	1078	15.767	1000	27.6	0.003	0.19	0.120	4.04	0.120
22	10/10/2011	10/24/2011	14	1070	42.041	1000	27.6	0.008	0.19	0.128	4.23	0.128
23	10/24/2011	11/07/2011	14	971	9.582	1000	27.6	0.002	0.19	0.130	4.42	0.130
24	11/07/2011	11/21/2011	14	1010	19.794	1000	27.6	0.004	0.19	0.134	4.62	0.134
25	11/21/2011	12/05/2011	14	1220	4.754	1000	27.6	0.001	0.19	0.135	4.81	0.135
26	12/05/2011	12/19/2011	14	1078	17.622	1000	27.6	0.003	0.19	0.138	5.00	0.138

Operational Trending
Air Concentrations Dose from MDA-B Operations
Based on Biweekly Data For Calendar Year 2011

Two Approaches for trending air sampling data

1-Calculate Annual average concentration; Annual Avg must be < limit

2-trend dose per sample period towards allocated amount

Sample Information	
AIRNET Site ID	327
Sample Flow Rate	4 ft3/min
Sampling Periods	26 per year
Days per year	365.24

Dose Conversion Information	
Dose Allocation from ENV-EAQ R-N	5 mrem/yr
Dose coversion for 1 mrem/yr	200 aCi/m3 average value
Annual Avg Conc to meet allocation	1000 aCi/m3 average value

To meet annual allocation	
Per-Period Dose Allocation	0.19 mrem

Avg Air Concentration
57.6 aCi/m3 avg
0.29 mrem proj.

Avgs re-calculated each period! ⟷

Avg Dose per sample period
0.011 mrem

Projection uses average sample period concentration for future values

Period	Start	End	time (d)	air vol (m3)	Pu-239 Air Conc aCi/m3	Dose Allocation Threshold	Current Average Air Conc aCi/m3	Actual dose this period (mrem)	Dose Alloc this period (mrem)	Annual Total (mrem)	Annual Allocation Trend (mrem)	Projected Total (mrem)
1	12/20/2010	01/03/2011	14	1189	-2.943	1000	57.6	-0.001	0.19	-0.001	0.19	-0.001
2	01/03/2011	01/17/2011	14	1070	8.128	1000	57.6	0.002	0.19	0.001	0.38	0.001
3	01/17/2011	01/31/2011	14	997	6.920	1000	57.6	0.001	0.19	0.002	0.58	0.002
4	01/31/2011	02/14/2011	14	1156	3.115	1000	57.6	0.001	0.19	0.003	0.77	0.003
5	02/14/2011	02/28/2011	14	1096	23.730	1000	57.6	0.005	0.19	0.007	0.96	0.007
6	02/28/2011	03/14/2011	14	1096	5.111	1000	57.6	0.001	0.19	0.008	1.15	0.008
7	03/14/2011	03/28/2011	14	1056	4.924	1000	57.6	0.001	0.19	0.009	1.35	0.009
8	03/28/2011	04/11/2011	14	1099	16.380	1000	57.6	0.003	0.19	0.013	1.54	0.013
9	04/11/2011	04/25/2011	14	1064	21.616	1000	57.6	0.004	0.19	0.017	1.73	0.017
10	04/25/2011	05/09/2011	14	1081	332.894	1000	57.6	0.064	0.19	0.081	1.92	0.081
11	05/09/2011	05/23/2011	14	1099	34.579	1000	57.6	0.007	0.19	0.087	2.12	0.087
12	05/23/2011	06/06/2011	14	928	194.036	1000	57.6	0.037	0.19	0.125	2.31	0.125
13	06/06/2011	06/20/2011	14	1081	110.982	1000	57.6	0.021	0.19	0.146	2.50	0.146
14	06/20/2011	07/04/2011	14	717	62.759	1000	57.6	0.012	0.19	0.158	2.69	0.158
15	07/04/2011	07/18/2011	14	882	39.673	1000	57.6	0.008	0.19	0.166	2.88	0.166
16	07/18/2011	08/01/2011	14	1145	96.058	1000	57.6	0.018	0.19	0.184	3.08	0.184
17	08/01/2011	08/15/2011	14	1124	28.467	1000	57.6	0.005	0.19	0.190	3.27	0.190
18	08/15/2011	08/29/2011	14	1127	17.739	1000	57.6	0.003	0.19	0.193	3.46	0.193
19	08/29/2011	09/12/2011	14	1138	43.045	1000	57.6	0.008	0.19	0.201	3.65	0.201
20	09/12/2011	09/26/2011	14	1117	143.304	1000	57.6	0.028	0.19	0.229	3.85	0.229
21	09/26/2011	10/10/2011	14	1149	34.809	1000	57.6	0.007	0.19	0.236	4.04	0.236
22	10/10/2011	10/24/2011	14	1142	38.538	1000	57.6	0.007	0.19	0.243	4.23	0.243
23	10/24/2011	11/07/2011	14	1064	188.043	1000	57.6	0.036	0.19	0.279	4.42	0.279
24	11/07/2011	11/21/2011	14	1064	33.848	1000	57.6	0.007	0.19	0.286	4.62	0.286
25	11/21/2011	12/05/2011	14	1301	8.452	1000	57.6	0.002	0.19	0.287	4.81	0.287
26	12/05/2011	12/19/2011	14	1135	3.348	1000	57.6	0.001	0.19	0.288	5.00	0.288

Operational Trending
Air Concentrations Dose from MDA-B Operations
Based on Biweekly Data For Calendar Year 2011

Two Approaches for trending air sampling data

1-Calculate Annual average concentration; Annual Avg must be < limit

2-trend dose per sample period towards allocated amount

Sample Information	
AIRNET Site ID	328
Sample Flow Rate	4 ft3/min
Sampling Periods	26 per year
Days per year	365.24

Dose Conversion Information	
Dose Allocation from ENV-EAQ R-N	5 mrem/yr
Dose coversion for 1 mrem/yr	200 aCi/m3 average value
Annual Avg Conc to meet allocation	1000 aCi/m3 average value

To meet annual allocation	
Per-Period Dose Allocation	0.19 mrem

Avg Air Concentration	
84.4	aCi/m3 avg
0.42	mrem proj.

Avgs re-calculated each period! ⟷

Avg Dose per sample period	
0.016	mrem

Projection uses average sample period concentration for future values

Period	Start	End	time (d)	air vol (m3)	Pu-239 Air Conc aCi/m3	Dose Allocation Threshold	Current Average Air Conc aCi/m3	Actual dose this period (mrem)	Dose Alloc this period (mrem)	Annual Total (mrem)	Annual Allocation Trend (mrem)	Projected Total (mrem)
1	12/20/2010	01/03/2011	14	1220	5.902	1000	84.4	0.001	0.19	0.001	0.19	0.001
2	01/03/2011	01/17/2011	14	1028	27.249	1000	84.4	0.005	0.19	0.006	0.38	0.006
3	01/17/2011	01/31/2011	14	1064	24.446	1000	84.4	0.005	0.19	0.011	0.58	0.011
4	01/31/2011	02/14/2011	14	1186	21.921	1000	84.4	0.004	0.19	0.015	0.77	0.015
5	02/14/2011	02/28/2011	14	1010	58.400	1000	84.4	0.011	0.19	0.027	0.96	0.027
6	02/28/2011	03/14/2011	14	1124	21.350	1000	84.4	0.004	0.19	0.031	1.15	0.031
7	03/14/2011	03/28/2011	14	1039	41.396	1000	84.4	0.008	0.19	0.039	1.35	0.039
8	03/28/2011	04/11/2011	14	1085	156.732	1000	84.4	0.030	0.19	0.069	1.54	0.069
9	04/11/2011	04/25/2011	14	1036	88.834	1000	84.4	0.017	0.19	0.086	1.73	0.086
10	04/25/2011	05/09/2011	14	1110	117.129	1000	84.4	0.023	0.19	0.108	1.92	0.108
11	05/09/2011	05/23/2011	14	1127	48.782	1000	84.4	0.009	0.19	0.118	2.12	0.118
12	05/23/2011	06/06/2011	14	942	976.711	1000	84.4	0.188	0.19	0.306	2.31	0.306
13	06/06/2011	06/20/2011	14	1067	92.777	1000	84.4	0.018	0.19	0.323	2.50	0.323
14	06/20/2011	07/04/2011	14	886	103.868	1000	84.4	0.020	0.19	0.343	2.69	0.343
15	07/04/2011	07/18/2011	14	868	18.433	1000	84.4	0.004	0.19	0.347	2.88	0.347
16	07/18/2011	08/01/2011	14	1085	47.942	1000	84.4	0.009	0.19	0.356	3.08	0.356
17	08/01/2011	08/15/2011	14	1067	18.741	1000	84.4	0.004	0.19	0.360	3.27	0.360
18	08/15/2011	08/29/2011	14	1028	7.007	1000	84.4	0.001	0.19	0.361	3.46	0.361
19	08/29/2011	09/12/2011	14	1067	25.300	1000	84.4	0.005	0.19	0.366	3.65	0.366
20	09/12/2011	09/26/2011	14	1117	134.347	1000	84.4	0.026	0.19	0.392	3.85	0.392
21	09/26/2011	10/10/2011	14	1135	28.195	1000	84.4	0.005	0.19	0.397	4.04	0.397
22	10/10/2011	10/24/2011	14	1142	42.917	1000	84.4	0.008	0.19	0.405	4.23	0.405
23	10/24/2011	11/07/2011	14	1037	42.430	1000	84.4	0.008	0.19	0.414	4.42	0.414
24	11/07/2011	11/21/2011	14	1037	16.393	1000	84.4	0.003	0.19	0.417	4.62	0.417
25	11/21/2011	12/05/2011	14	1285	17.118	1000	84.4	0.003	0.19	0.420	4.81	0.420
26	12/05/2011	12/19/2011	14	1135	9.692	1000	84.4	0.002	0.19	0.422	5.00	0.422

Operational Trending
Air Concentrations Dose from MDA-B Operations
Based on Biweekly Data For Calendar Year 2011

Two Approaches for trending air sampling data

1-Calculate Annual average concentration; Annual Avg must be < limit

2-trend dose per sample period towards allocated amount

Sample Information	
AIRNET Site ID	329
Sample Flow Rate	4 ft3/min
Sampling Periods	26 per year
Days per year	365.24

Dose Conversion Information	
Dose Allocation from ENV-EAQ R-N	5 mrem/yr
Dose coversion for 1 mrem/yr	200 aCi/m3 average value
Annual Avg Conc to meet allocation	1000 aCi/m3 average value

To meet annual allocation	
Per-Period Dose Allocation	0.19 mrem

Avg Air Concentration	
594.6	aCi/m3 avg
2.97	mrem proj.

Avgs re-calculated each period! ⟷

Avg Dose per sample period	
0.114	mrem

Projection uses average sample period concentration for future values

Period	Start	End	time (d)	air vol (m3)	Pu-239 Air Conc aCi/m3	Dose Allocation Threshold	Current Average Air Conc aCi/m3	Actual dose this period (mrem)	Dose Alloc this period (mrem)	Annual Total (mrem)	Annual Allocation Trend (mrem)	Projected Total (mrem)
1	12/20/2010	01/03/2011	14	1220	34.429	1000	594.6	0.007	0.19	0.007	0.19	0.007
2	01/03/2011	01/17/2011	14	1028	14.598	1000	594.6	0.003	0.19	0.009	0.38	0.009
3	01/17/2011	01/31/2011	14	971	56.628	1000	594.6	0.011	0.19	0.020	0.58	0.020
4	01/31/2011	02/14/2011	14	1080	351.968	1000	594.6	0.068	0.19	0.088	0.77	0.088
5	02/14/2011	02/28/2011	14	968	1033.494	1000	594.6	0.199	0.19	0.287	0.96	0.287
6	02/28/2011	03/14/2011	14	1053	113.964	1000	594.6	0.022	0.19	0.309	1.15	0.309
7	03/14/2011	03/28/2011	14	985	335.110	1000	594.6	0.064	0.19	0.373	1.35	0.373
8	03/28/2011	04/11/2011	14	1056	274.592	1000	594.6	0.053	0.19	0.426	1.54	0.426
9	04/11/2011	04/25/2011	14	922	2819.519	1000	594.6	0.542	0.19	0.968	1.73	0.968
10	04/25/2011	05/09/2011	14	1067	374.814	1000	594.6	0.072	0.19	1.040	1.92	1.040
11	05/09/2011	05/23/2011	14	1070	168.164	1000	594.6	0.032	0.19	1.073	2.12	1.073
12	05/23/2011	06/06/2011	14	842	2018.920	1000	594.6	0.388	0.19	1.461	2.31	1.461
13	06/06/2011	06/20/2011	14	1010	1187.990	1000	594.6	0.228	0.19	1.689	2.50	1.689
14	06/20/2011	07/04/2011	14	575	1113.637	1000	594.6	0.214	0.19	1.903	2.69	1.903
15	07/04/2011	07/18/2011	14	840	178.672	1000	594.6	0.034	0.19	1.938	2.88	1.938
16	07/18/2011	08/01/2011	14	1047	305.753	1000	594.6	0.059	0.19	1.997	3.08	1.997
17	08/01/2011	08/15/2011	14	1056	78.590	1000	594.6	0.015	0.19	2.012	3.27	2.012
18	08/15/2011	08/29/2011	14	1113	1347.469	1000	594.6	0.259	0.19	2.271	3.46	2.271
19	08/29/2011	09/12/2011	14	1135	52.866	1000	594.6	0.010	0.19	2.281	3.65	2.281
20	09/12/2011	09/26/2011	14	1117	30.452	1000	594.6	0.006	0.19	2.287	3.85	2.287
21	09/26/2011	10/10/2011	14			1000	594.6		0.19		4.04	2.401
22	10/10/2011	10/24/2011	14			1000	594.6		0.19		4.23	2.516
23	10/24/2011	11/07/2011	14			1000	594.6		0.19		4.42	2.630
24	11/07/2011	11/21/2011	14			1000	594.6		0.19		4.62	2.744
25	11/21/2011	12/05/2011	14			1000	594.6		0.19		4.81	2.859
26	12/05/2011	12/19/2011	14			1000	594.6		0.19		5.00	2.973

Operational Trending
Air Concentrations Dose from MDA-B Operations
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Sample Information	
AIRNET Site ID	330
Sample Flow Rate	4 ft3/min
Sampling Periods	26 per year
Days per year	365.24

Dose Conversion Information	
Dose Allocation from ENV-EAQ R-N	5 mrem/yr
Dose coversion for 1 mrem/yr	200 aCi/m3 average value
Annual Avg Conc to meet allocation	1000 aCi/m3 average value

To meet annual allocation Per-Period Dose Allocation	
0.19	mrem

Avg Air Concentration	
99.8	aCi/m3 avg
0.50	mrem proj.

Avgs re-calculated each period! ⟷

Avg Dose per sample period	
0.019	mrem

Projection uses average sample period concentration for future values

Period	Start	End	time (d)	air vol (m3)	Pu-239 Air Conc aCi/m3	Dose Allocation Threshold	Current Average Air Conc aCi/m3	Actual dose this period (mrem)	Dose Alloc this period (mrem)	Annual Total (mrem)	Annual Allocation Trend (mrem)	Projected Total (mrem)
1	12/20/2010	01/03/2011	14	1205	8.301	1000	99.8	0.002	0.19	0.002	0.19	0.002
2	01/03/2011	01/17/2011	14	928	51.743	1000	99.8	0.010	0.19	0.012	0.38	0.012
3	01/17/2011	01/31/2011	14	962	28.064	1000	99.8	0.005	0.19	0.017	0.58	0.017
4	01/31/2011	02/14/2011	14	1049	32.405	1000	99.8	0.006	0.19	0.023	0.77	0.023
5	02/14/2011	02/28/2011	14	982	71.296	1000	99.8	0.014	0.19	0.037	0.96	0.037
6	02/28/2011	03/14/2011	14	996	68.270	1000	99.8	0.013	0.19	0.050	1.15	0.050
7	03/14/2011	03/28/2011	14	1085	46.098	1000	99.8	0.009	0.19	0.059	1.35	0.059
8	03/28/2011	04/11/2011	14	999	48.047	1000	99.8	0.009	0.19	0.068	1.54	0.068
9	04/11/2011	04/25/2011	14	996	692.736	1000	99.8	0.133	0.19	0.201	1.73	0.201
10	04/25/2011	05/09/2011	14	982	70.278	1000	99.8	0.014	0.19	0.215	1.92	0.215
11	05/09/2011	05/23/2011	14	1042	31.675	1000	99.8	0.006	0.19	0.221	2.12	0.221
12	05/23/2011	06/06/2011	14	828	100.270	1000	99.8	0.019	0.19	0.240	2.31	0.240
13	06/06/2011	06/20/2011	14	1010	316.810	1000	99.8	0.061	0.19	0.301	2.50	0.301
14	06/20/2011	07/04/2011	14	626	142.152	1000	99.8	0.027	0.19	0.328	2.69	0.328
15	07/04/2011	07/18/2011	14	1138	18.448	1000	99.8	0.004	0.19	0.332	2.88	0.332
16	07/18/2011	08/01/2011	14	1117	98.521	1000	99.8	0.019	0.19	0.351	3.08	0.351
17	08/01/2011	08/15/2011	14	1070	49.515	1000	99.8	0.010	0.19	0.361	3.27	0.361
18	08/15/2011	08/29/2011	14	1053	54.133	1000	99.8	0.010	0.19	0.371	3.46	0.371
19	08/29/2011	09/12/2011	14	1135	22.909	1000	99.8	0.004	0.19	0.375	3.65	0.375
20	09/12/2011	09/26/2011	14	1059	45.315	1000	99.8	0.009	0.19	0.384	3.85	0.384
21	09/26/2011	10/10/2011	14			1000	99.8		0.19		4.04	0.403
22	10/10/2011	10/24/2011	14			1000	99.8		0.19		4.23	0.422
23	10/24/2011	11/07/2011	14			1000	99.8		0.19		4.42	0.442
24	11/07/2011	11/21/2011	14			1000	99.8		0.19		4.62	0.461
25	11/21/2011	12/05/2011	14			1000	99.8		0.19		4.81	0.480
26	12/05/2011	12/19/2011	14			1000	99.8		0.19		5.00	0.499

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1-Calculate Annual average concentration; Annual Avg must be < limit

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Sample Information	
AIRNET Site ID	331
Sample Flow Rate	4 ft3/min
Sampling Periods	26 per year
Days per year	365.24

Dose Conversion Information	
Dose Allocation from ENV-EAQ R-N	5 mrem/yr
Dose coversion for 1 mrem/yr	200 aCi/m3 average value
Annual Avg Conc to meet allocation	1000 aCi/m3 average value

To meet annual allocation
Per-Period Dose Allocation
0.19 mrem

Avg Air Concentration
122.2 aCi/m3 avg
0.61 mrem proj.

Avgs re-calculated each period! ⟷

Avg Dose per sample period
0.023 mrem

Projection uses average sample period concentration for future values

Period	Start	End	time (d)	air vol (m3)	Pu-239 Air Conc aCi/m3	Dose Allocation Threshold	Current Average Air Conc aCi/m3	Actual dose this period (mrem)	Dose Alloc this period (mrem)	Annual Total (mrem)	Annual Allocation Trend (mrem)	Projected Total (mrem)
1	12/20/2010	01/03/2011	14	1205	4.234	1000	122.2	0.001	0.19	0.001	0.19	0.001
2	01/03/2011	01/17/2011	14	1042	28.795	1000	122.2	0.006	0.19	0.006	0.38	0.006
3	01/17/2011	01/31/2011	14	949	61.085	1000	122.2	0.012	0.19	0.018	0.58	0.018
4	01/31/2011	02/14/2011	14	1171	38.433	1000	122.2	0.007	0.19	0.025	0.77	0.025
5	02/14/2011	02/28/2011	14	1067	131.185	1000	122.2	0.025	0.19	0.051	0.96	0.051
6	02/28/2011	03/14/2011	14	1039	93.383	1000	122.2	0.018	0.19	0.069	1.15	0.069
7	03/14/2011	03/28/2011	14	1025	107.368	1000	122.2	0.021	0.19	0.089	1.35	0.089
8	03/28/2011	04/11/2011	14	999	45.044	1000	122.2	0.009	0.19	0.098	1.54	0.098
9	04/11/2011	04/25/2011	14	951	77.852	1000	122.2	0.015	0.19	0.113	1.73	0.113
10	04/25/2011	05/09/2011	14	783	178.888	1000	122.2	0.034	0.19	0.147	1.92	0.147
11	05/09/2011	05/23/2011	14	914	557.813	1000	122.2	0.107	0.19	0.255	2.12	0.255
12	05/23/2011	06/06/2011	14	856	116.781	1000	122.2	0.022	0.19	0.277	2.31	0.277
13	06/06/2011	06/20/2011	14	1088	229.688	1000	122.2	0.044	0.19	0.321	2.50	0.321
14	06/20/2011	07/04/2011	14	659	110.808	1000	122.2	0.021	0.19	0.343	2.69	0.343
15	07/04/2011	07/18/2011	14	882	158.691	1000	122.2	0.031	0.19	0.373	2.88	0.373
16	07/18/2011	08/01/2011	14	1117	38.513	1000	122.2	0.007	0.19	0.380	3.08	0.380
17	08/01/2011	08/15/2011	14	1056	104.156	1000	122.2	0.020	0.19	0.401	3.27	0.401
18	08/15/2011	08/29/2011	14	1081	44.386	1000	122.2	0.009	0.19	0.409	3.46	0.409
19	08/29/2011	09/12/2011	14	1121	249.831	1000	122.2	0.048	0.19	0.457	3.65	0.457
20	09/12/2011	09/26/2011	14	1074	67.066	1000	122.2	0.013	0.19	0.470	3.85	0.470
21	09/26/2011	10/10/2011	14			1000	122.2		0.19		4.04	0.493
22	10/10/2011	10/24/2011	14			1000	122.2		0.19		4.23	0.517
23	10/24/2011	11/07/2011	14			1000	122.2		0.19		4.42	0.540
24	11/07/2011	11/21/2011	14			1000	122.2		0.19		4.62	0.564
25	11/21/2011	12/05/2011	14			1000	122.2		0.19		4.81	0.587
26	12/05/2011	12/19/2011	14			1000	122.2		0.19		5.00	0.611

Appendix H

Waste Management

H-1.0 INTRODUCTION

This appendix summarizes management and disposition of the waste generated during the implementation of the approved investigation/remediation work plan (IRWP) for Material Disposal Area (MDA) B (2006, 095499; NMED 2007, 095475) at Los Alamos National Laboratory (LANL or the Laboratory). In general, waste generated during the investigation and remediation of MDA B was managed in accordance with Standard Operating Procedure (SOP) 5238, Characterization and Management of Environmental Program Waste. This procedure incorporates the requirements of applicable U.S. Environmental Protection Agency and New Mexico Environment Department (NMED) regulations, U.S. Department of Energy orders, and Laboratory policies and procedures.

Investigation and remediation activities were conducted in a manner that minimized the generation of waste. For example, overburden material and soil characterized and found to meet NMED-approved criteria were used on-site as backfill rather than being disposed of as waste. Waste minimization was accomplished by implementing the most recent version of the “Los Alamos National Laboratory Hazardous Waste Minimization Report.”

H-2.0 WASTE CHARACTERIZATION

Consistent with Laboratory procedures, waste characterization strategy forms (WCSFs) were prepared to address characterization approaches, on-site management, and final disposition options for all anticipated wastes before the start of remediation activities at MDA B. Initially, a WCSF was prepared to address site preparation activities, including removal of the asphalt cover from a portion of a site (LANL 2010, 108538). This WCSF was amended to address changed conditions encountered once site preparation activities began (LANL 2010, 108853). A second WCSF was prepared to address trenching activities at Areas 9 and 10 (LANL 2010, 108458). A third WCSF was prepared to address characterization of the wastes to be generated during excavation of the trenches (LANL 2010, 109754). Because this WSCF did not include a number of the unknown and anomalous wastes encountered after excavation began, a separate WCSF was prepared to address these wastes (LANL 2010, 109769). Specific waste sampling and analysis procedures are presented in the MDA B Sampling and Analysis Plan (SAP), Revision 2 (LANL 2010, 111195). The MDA B WCSFs, WCSF amendment, and the MDA B SAP, Revision 2, are included in this appendix as Attachment H-1 (on CD included with this document).

H-3.0 WASTE HANDLING

All remediation waste was placed in containers before staging and transport from the site. The selection of waste containers was based on appropriate U.S. Department of Transportation requirements, waste types, and estimated volumes of wastes to be generated. Immediately following containerization, each waste container was individually labeled with a unique identification number and with information regarding waste classification, contents, and radioactivity, if applicable.

Wastes were staged in clearly marked, appropriately constructed, waste accumulation areas or an NMED-approved area of contamination. Waste accumulation area postings, regulated storage duration, and inspection requirements were based on the type of waste and its classification. Container and storage requirements were detailed in the WCSFs and approved in accordance with SOP 5238 before waste was generated.

H-4.0 WASTE DISPOSITION

The wastes generated during the excavation activities performed in each of the enclosures are described in section 4.4 of the investigation/remediation (I/R) report. Each category of waste generated during remediation and the disposition of these wastes is described in section 4.6 of the I/R report. Most of these wastes were shipped to off-site facilities for disposal. The remaining wastes were transported from MDA B to the Laboratory's Technical Area 54 (TA-54), Area G for storage pending final disposition. Most of these wastes will be shipped off-site from Area G for disposal, and the remainder will be disposed of at Area G. Table 4.4-1 in the I/R report summarizes the volumes of wastes shipped from MDA B by waste type and destination. As described in section 4.6 of the I/R report, all remediation wastes have been removed from the MDA B area of contamination and the only remediation waste remaining at TA-21 is the naval munitions, which are pending shipment to an off-site treatment/disposal facility.

H-5.0 REFERENCES

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

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

LANL (Los Alamos National Laboratory), October 2006. "Investigation/Remediation Work Plan for Material Disposal Area B, Solid Waste Management Unit 21-015, at Technical Area 21, Revision 1," Los Alamos National Laboratory document LA-UR-06-6918, Los Alamos, New Mexico. (LANL 2006, 095499)

LANL (Los Alamos National Laboratory), January 26, 2010. "Waste Characterization Strategy Form for MDA-B Site Preparation, Asphalt Removal, Grading, Site Preparation, Installation of Piers and Electrical Infrastructure," Los Alamos National Laboratory, Los Alamos, New Mexico. (LANL 2010, 108538)

LANL (Los Alamos National Laboratory), February 18, 2010. "Waste Characterization Strategy Form for MDA-B Area 9 and 10 Trenching," Los Alamos National Laboratory, Los Alamos, New Mexico. (LANL 2010, 108458)

LANL (Los Alamos National Laboratory), March 2010. "Amendment #1, Waste Characterization Strategy Form for MDA-B Site Preparation, Asphalt Removal, Grading, Site Preparation, Installation of Piers and Electrical Infrastructure," Los Alamos National Laboratory, Los Alamos, New Mexico. (LANL 2010, 108853)

LANL (Los Alamos National Laboratory), May 30, 2010. "Waste Characterization Strategy Form for TA-21 MDA-B, 21-015 Excavation," Los Alamos National Laboratory, Los Alamos, New Mexico. (LANL 2010, 109754)

LANL (Los Alamos National Laboratory), June 10, 2010. "Waste Characterization Strategy Form for MDA-B, Anomalies, Unknowns, and Chemicals, TA-21, 21-015, Characterization of Anomalies, Unknowns, and Chemicals at the MDA-B Definitive Identification Facility (DIF)," Los Alamos National Laboratory, Los Alamos, New Mexico. (LANL 2010, 109769)

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)

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

Attachment H-1

Waste Characterization Documentation
(on CD included with this document)

Appendix I

Radionuclide Sampling Summary and Statistics

I-1.0 INTRODUCTION

An analysis was conducted using confirmation samples collected and data from the Material Disposal Area (MDA) B trenches to determine whether the site has been appropriately sampled and adequately characterized based on the investigation/remediation work plan proposed sampling frequency of every 50 ft within the trenches (LANL 2006, 095499). Samples were collected at the proposed intervals from the walls and floor of the excavation to determine if the cleanup levels were met. This assessment included statistical tools contained in the "Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM)" (NRC et al. 1997, 063128). The analysis was done for the 0–10 ft depth interval and for all depths. Plutonium-239/240 is the primary radionuclide contaminant and is the limiting radionuclide in terms of the number of samples required, because of the larger sampling variability and the number of samples collected. Tables I-1.0-1 through I-1.0-9 summarize the results of the analysis and indicate that the number of samples collected for each radionuclide detected from 0–10 ft and from all depths exceeds the number of samples needed to illustrate that the site is appropriately sampled. Therefore, there is a 95% confidence that the site is adequately characterized at 0–10 ft and all depths.

One result for plutonium-239/240 (40.2 pCi/g) for a sample collected within the 0–10 ft depth interval exceeded the 33 pCi/g residential screening action level (SAL) (LANL 2009, 107655). The 95% upper confidence limit (UCL) for plutonium-239/240 for samples collected in the 0–10 ft depth interval was therefore calculated to verify that it was below the residential SAL. The UCL was calculated using the U.S. Environmental Protection Agency ProUCL software, version 4.1 (available at http://www.epa.gov/osp/hstl/tsc/software.htm). The ProUCL input data are presented in Table I-1.0-10, and the ProUCL output is presented in Figure I-1.0-1. The ProUCL results show that the 95% UCL for plutonium-239/240 is less than the residential SAL.

I-2.0 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.

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LANL (Los Alamos National Laboratory), December 2009. "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)

NRC, EPA, DOE, and DOD (Nuclear Regulatory Commission, U.S. Environmental Protection Agency, U.S. Department of Energy, U.S. Department of Defense), December 1997. "Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM)," Final, NUREG 1575, EPA 402-R-97-016. (NRC et al. 1997, 063128)

	General UCL Statistics for Data Sets with Non-Detects		
User Selected Options			
From File	Sheet1.wst		
Full Precision	OFF		
Confidence Coefficient	95%		
Number of Bootstrap Operations	2000		
Plutonium-239/240			
	General Statistics		
Number of Valid Data	81	Number of Detected Data	71
Number of Distinct Detected Data	70	Number of Non-Detect Data	10
		Percent Non-Detects	12.35%
Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.134	Minimum Detected	-2.01
Maximum Detected	40.2	Maximum Detected	3.694
Mean of Detected	6.487	Mean of Detected	0.91
SD of Detected	8.867	SD of Detected	1.493
Minimum Non-Detect	0.0413	Minimum Non-Detect	-3.187
Maximum Non-Detect	0.24	Maximum Non-Detect	-1.427
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	15
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	66
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	18.52%
	UCL Statistics		
Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Lilliefors Test Statistic	0.246	Lilliefors Test Statistic	0.0837
5% Lilliefors Critical Value	0.105	5% Lilliefors Critical Value	0.105
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	5.694	Mean	0.435
SD	8.563	SD	1.899
95% DL/2 (t) UCL	7.277	95% H-Stat (DL/2) UCL	18.63
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	4.52	Mean in Log Scale	0.509
SD	9.829	SD in Log Scale	1.764
95% MLE (t) UCL	6.337	Mean in Original Scale	5.699
95% MLE (Tiku) UCL	6.302	SD in Original Scale	8.56
		95% t UCL	7.281
		95% Percentile Bootstrap UCL	7.162
		95% BCA Bootstrap UCL	7.674
		95% H UCL	14.45
Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.621	**Data appear Lognormal at 5% Significance Level**	
Theta Star	10.45		
nu star	88.12		

Figure I-1.0-1 ProUCL output for plutonium 239-240 UCL calculation

A-D Test Statistic	1.665	**Nonparametric Statistics**	
5% A-D Critical Value	0.804	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.804	Mean	5.704
5% K-S Critical Value	0.111	SD	8.504
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.952
		95% KM (t) UCL	7.287
Assuming Gamma Distribution		95% KM (z) UCL	7.269
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	7.28
Minimum	0.000001	95% KM (bootstrap t) UCL	7.625
Maximum	40.2	95% KM (BCA) UCL	7.44
Mean	5.686	95% KM (Percentile Bootstrap) UCL	7.306
Median	2.01	95% KM (Chebyshev) UCL	9.851
SD	8.568	97.5% KM (Chebyshev) UCL	11.65
k star	0.264	99% KM (Chebyshev) UCL	15.17
Theta star	21.52		
Nu star	42.8	**Potential UCLs to Use**	
AppChi2	28.8	95% KM (Chebyshev) UCL	9.851
95% Gamma Approximate UCL	8.451		
95% Adjusted Gamma UCL	8.512		
Note: DL/2 is not a recommended method.			
Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.			
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
For additional insight, the user may want to consult a statistician.			

Figure I-1.0-1 (continued) ProUCL output for plutonium 239-240 UCL calculation

Table I-1.0-1
MARSSIM Analysis of Plutonium-239/240 Data

Metric	0–10 ft	All Depths
Mean ±Std (pCi/g)	6.5 ± 9.8	25.8 ± 93.4
Number of samples to date	81	145
Estimated number of samples needed for desired confidence	26	55
Area (m^2)	3716	13,000

Table I-1.0-2
MARSSIM Analysis of Plutonium-238 Data

Metric	0–10 ft	All Depths
Mean ±Std (pCi/g)	0.3 ± 0.6	0.4 ± 0.8
Number of samples to date	81	145
Estimated number of samples needed for desired confidence	11	15
Area (m^2)	3716	13,000

Table I-1.0-3
MARSSIM Analysis of Americium-241 Data

Metric	0–10 ft	All Depths
Mean ±Std (pCi/g)	0.2 ± 0.1	0.6 ± 1.1
Number of samples to date	49	107
Estimated number of samples needed for desired confidence	15	15
Area (m^2)	3716	13,000

Table I-1.0-4
MARSSIM Analysis of Cesium-137 Data

Metric	0–10 ft	All Depths
Mean ±Std (pCi/g)	0.2 ± 0.7	0.3 ± 1.1
Number of samples to date	47	105
Estimated number of samples needed for desired confidence	14	15
Area (m^2)	3716	13,000

Table I-1.0-5
MARSSIM Analysis of Strontium-90 Data

Metric	0–10 ft	All Depths
Mean ±Std (pCi/g)	0.5 ± 0.2	0.5 ±0.2
Number of samples to date	47	95
Estimated number of samples needed for desired confidence	11	15
Area (m^2)	3716	13,000

Table I-1.0-6
MARSSIM Analysis of Tritium Data

Metric	0–10 ft	All Depths
Mean ±Std (pCi/g)	2.3 ± 3.9	4.8 ± 36.9
Number of samples to date	47	93
Estimated number of samples needed for desired confidence	11	15
Area (m^2)	3716	13,000

Table I-1.0-7
MARSSIM Analysis of Uranium-234 Data

Metric	0–10 ft	All Depths
Mean ±Std (pCi/g)	1.2 ±0.8	1.6 ± 1.5
Number of samples to date	49	103
Estimated number of samples needed for desired confidence	11	15
Area (m^2)	3716	13,000

Table I-1.0-8
MARSSIM Analysis of Uranium-235 Data

Metric	0–10 ft	All Depths
Mean ±Std (pCi/g)	0.09 ± 0.05	0.1 ± 0.08
Number of samples to date	49	103
Estimated number of samples needed for desired confidence	11	15
Area (m^2)	3716	13,000

Table I-1.0-9
MARSSIM Analysis of Uranium-238 Data

Metric	0–10 ft	All Depths
Mean ±Std (pCi/g)	1.1 ± 0.6	1.5 ± 1.2
Number of samples to date	49	103
Estimated number of samples needed for desired confidence	11	15
Area (m^2)	3716	13,000

Table I-1.0-10
ProUCL Input for Plutonium 239-240 UCL Calculation

Plutonium-239/240	D_Plutonium-239/240*
0.11	0
0.11	0
0.13	0
0.134	1
0.189	1
0.228	1
0.23	0
0.24	0
0.36	1
0.361	1
0.418	1
0.423	1
0.541	1
0.591	1
0.597	1
0.653	1
0.653	1
0.686	1
0.754	1
0.798	1
0.802	1
0.844	1
0.867	1
0.93	1
1.18	1
1.22	1
1.4	1
1.5	1

Table I-10 (continued)

Plutonium-239/240	D_Plutonium-239/240
1.51	1
1.76	1
2.01	1
2.04	1
2.09	1
2.33	1
2.37	1
2.52	1
2.74	1
2.89	1
2.96	1
3.74	1
4.47	1
4.53	1
4.99	1
5.38	1
5.6	1
7.81	1
7.89	1
8.09	1
8.79	1
9.39	1
9.9	1
11	1
15	1
17.3	1
18.3	1
19.1	1
19.9	1
20.7	1
21	1
27.5	1
31.7	1
31.8	1
2.22	1
2.24	1
11.2	1
0.218	1
0.439	1

Table I-10 (continued)

Plutonium-239/240	D_Plutonium-239/240
40.2	1
16.3	1
0.234	1
0.542	1
4.52	1
0.0629	0
0.115	0
0.0633	0
0.404	1
0.0413	0
19.3	1
0.109	0
2.41	1
5.15	1

* 0 = Nondetected value. 1 = Detected value.

Appendix J

Logbooks for Field Sampling Activities
(on DVD included with this document)

Index of MDA B Field Log Books

Document Number	Contents	Start Date	End Date
ERID-111257	Sample Collection Log, Enclosure 1, Volume 1	8/10/2010	11/12/2010
ERID-202133	Sample Collection Log, Enclosure 1, Volume 2	11/15/2010	4/4/2011
ERID-206509	Sample Collection Log, Enclosure 1, Volume 3	4/5/2011	8/26/2011
ERID-207379	Sample Collection Log, Enclosure 1, Volume 4	8/29/2011	9/29/2011
ERID-111476	Sample Collection Log, Enclosure 2, Volume 1	8/10/2010	11/24/2010
ERID-202134	Sample Collection Log, Enclosure 2, Volume 2	11/24/2010	4/11/2011
ERID-206510	Sample Collection Log, Enclosure 2, Volume 3	4/18/2011	7/30/2011
ERID-111702	Sample Collection Log, Enclosure 3, Volume 1	9/20/2010	1/10/2011
ERID-206511	Sample Collection Log, Enclosure 3, Volume 2	1/11/2011	1/27/2011
ERID-207380	Sample Collection Log, Enclosure 5, Volume 1	3/15/2011	9/29/2011
ERID-206512	Sample Collection Log, Enclosure 7	9/22/2010	1/10/2011
ERID-206513	Sample Collection Log, Enclosure 9, Volume 1	12/14/2010	9/7/2011
ERID-207378	Sample Collection Log, Enclosure 9, Volume 2	9/8/2011	10/3/2011
ERID-202135	Sample Collection Log, Enclosure 12, Volume 1	9/30/2010	3/3/2011
ERID-207382	Sample Collection Log, Enclosure 12, Volume 2	3/4/2011	9/29/2011
EP2011-0228	MDA B Drilling Health and Safety Log	6/14/2011	7/15/2011
EP2011-0229	MDA B Drilling Log	6/14/2011	7/15/2011

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Appendix K

Borehole Completion Report

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Attachments

K-1.0 INTRODUCTION

This completion report documents the 2011 drilling, sampling, and abandonment of four vertical boreholes located at Technical Area 21 (TA-21), Material Disposal Area (MDA) B, at Los Alamos National Laboratory (LANL or the Laboratory). Figure K-1.0-1 shows the location of MDA B within the Laboratory.

MDA B is designated Solid Waste Management Unit 21-015, an inactive subsurface disposal site, which contained both chemical and radioactive waste from 1944 until the completion of excavation activities in 2011. The site occupies approximately 6 acres that had previously been divided into multiple disposal trenches. During the 2010 and 2011 investigation and remediation project, waste and contaminated soil were removed from these disposal trenches, and the trenches were then backfilled with clean soil. Subsurface characterization was addressed by the installation and sampling of confirmation boreholes within the excavated and backfilled disposal trenches. Borehole locations were chosen to measure nature and extent of any residual contamination (Plate 1 of the investigation/remediation report). These vertical boreholes constitute the completion of a soil-boring program that includes seven angled boreholes completed in 1998 (LANL 1998, 059506) and a deep borehole completed at the adjacent MDA V in 2009 (LANL 2009, 106760).

Soil, vapor, and geotechnical samples were collected in accordance with the Compliance Order on Consent (Consent Order), the approved investigation/remediation work plan (IRWP), the sampling and analysis plan (SAP), and the 15-d notification to the New Mexico Environment Department (NMED) (LANL 2006, 095499; LANL 2010, 109266; LANL 2011, 203594). Analytical soil and vapor samples were collected from borehole locations at the base of the trench and at total depth (TD).

K-2.0 DRILLING LOCATION STRATEGY

Section IV.C.2.d.iii of the Consent Order recommended installing up to eight boreholes, two of which would be advanced into the Cerro Toledo interval. Confirmation sampling results and observations of the excavation revealed that limited organic and inorganic chemical contamination was present in the native substrate. Based on this evaluation alongside data collected from the angled boreholes and the borehole drilled at MDA V, two additional vertical boreholes were installed: one deep borehole into the Cerro Toledo interval and one shallow borehole 25 ft below the base of the disposal trench.

Drill bit refusal, due to cobbles placed in the fill material at the shallow borehole location, resulted in an additional offset borehole being drilled in order to reach the desired sample depth.

K-2.1 Cerro Toledo Interval Borehole Location

In 1998, an angled borehole was drilled near the center of the MDA B site extending beneath the disposal trenches. Analysis from this angled borehole detected several inorganic chemicals and tritium with results below residential soil screening levels (SSLs) and screening action levels (SALs) (LANL 1998, 059506). In 2009, another borehole was drilled into the Cerro Toledo interval at MDA V. This borehole is directly adjacent to MDA B, and data from this borehole can be used to characterize constituents seen at this depth interval.

For these reasons, one additional deep borehole was advanced into the Cerro Toledo interval near the center of MDA B in row 250. This location also corresponds to confirmatory sample location MDAB-612802 where plutonium-239/240 was detected at 81.3 pCi/g at a depth of 13.6 ft below ground surface (bgs).

K-2.2 Shallow Borehole Location

Row 51 was chosen as the location for the shallow borehole based on residual contaminants in confirmation sample results collected during 2011. This borehole was drilled to 25 ft below the base of the disposal trench.

Two supplemental shallow boreholes were also drilled near this location.

K-3.0 DRILLING ACTIVITIES

A hollow-stem auger rig, model CME-85, was used to drill the vertical boreholes at MDA B. Continuous core of these boreholes was logged by an on-site geologist. Boreholes were logged in accordance with Section IX.B2.c of the Consent Order. Logging occurred at 5-ft intervals using a 5-ft-long core barrel from the ground surface to TD in order to characterize the stratigraphy of the geologic units encountered.

Locations for the four vertical boreholes are presented in Plate 1 of the investigation/remediation report. Table K-3.0-1 presents the borehole location coordinates for each borehole. The following subsections outline drilling activities, TD, and sample location for these boreholes.

K-3.1 Drilling Borehole MDAB-612802

Location MDAB-612802 is a confirmation sample location in the center of row 250 in Enclosure 1. Mobilization of drilling equipment to this site occurred on June 15, 2011. Drilling began on June 16, 2011, and reached a TD of 325 ft bgs on July 7, 2011. A vapor sample was collected at the base of the trench on June 20, 2011, and at TD on July 8, 2011. The borehole was advanced 12.5 ft into the Cerro Toledo interval. Attachment K-1 presents the borehole log for MDAB-612802.

The borehole was abandoned on July 12, 2011.

K-3.2 Drilling Boreholes MDAB-612898, MDAB-614478, and MDAB-614483

Location MDAB-612898 is a confirmation sample location in the center of row 51 in Enclosure 2. Mobilization of drilling equipment to this site occurred on July 12, 2011. Shortly after drilling began on July 12, 2011, the drill bit broke (12 ft bgs). The drill rig was moved 5 ft west of the original borehole to the new location, MDAB-614478.

From the base of the trench to 27 ft, there was no recovery of core while drilling at this location. However, previous knowledge of the trench depth and the visual observation of drill cuttings showed that the base of the trench had been reached so that a vapor sample could be collected. As drilling continued after collection of the vapor sample, it was believed that a cobble was stuck in the bottom of the auger because three lifts of large cobbles had been placed in the disposal trench during backfilling operations. An AWJ rod was used to try to break up the cobble. Drilling continued with no recovery until a large quartzite cobble was pulled up on the 35–40-ft run. The quartzite cobble was removed from the end of the core barrel, and the subsequent 40–45-ft run contained core recovery. Attachment K-2 presents the borehole log for MDAB-614478.

TD was reached at 50 ft bgs, and the soil and vapor samples were collected on July 14, 2011. The drill rig was then moved approximately 5 ft to the west of MDAB-614478 on July 14, 2011, and began drilling the third location at MDAB-614483 on July 15, 2011. The third boring was drilled so that a sample could be collected at the base of the trench. This borehole reached a TD of 25 ft bgs on July 15, 2011. Attachment K-3 presents the borehole log for MDAB-614483.

Boreholes MDAB-612898 and MDAB-614478 were abandoned on July 14, 2011, and borehole MDAB-614483 was abandoned on July 15, 2011.

K-4.0 GEOLOGY

Visual logging of the continuous core was conducted for boreholes MDAB-612802, MDAB-614478, and MDAB-614483. The site geologist examined core to determine geologic contacts while drilling.

MDAB-612802 was an 8-in.-diameter borehole drilled to a TD of 325 ft bgs. Figure K-4.0-1 presents a sketch of the borehole log. Subsurface units that were drilled through in the completion of this borehole included

- clean fill from the surface to 19 ft bgs,
- Qbt 3 from 19 to 95 ft bgs,
- Qbt 2 from 95 to 171 ft bgs,
- Qbt 1v–u from 171 to 237.5 ft bgs,
- vapor phase notch from 237.5 to 240 ft bgs,
- Qbt 1g from 240 to 284 ft bgs,
- Qbtt from 284 to 312.5 ft bgs, and
- Qct from 312.5 to 325 ft bgs.

MDAB-614478 was an 8-in.-diameter borehole drilled to a TD of 50 ft bgs. Figure K-4.0-2 presents a sketch of the borehole log. Subsurface units that were drilled through in the completion of this borehole included

- clean fill from the surface to approximately 25 ft bgs and
- Qbt 3 from approximately 25 to 50 ft bgs.

Recovery was limited (<20%) in this borehole until 40 ft bgs. Contact depth between fill and Qbt 3 is approximate.

MDAB-614483 was an 8-in.-diameter borehole drilled to a TD of 25 ft bgs. Figure K-4.0-3 presents a sketch of the borehole log. Subsurface units that were drilled through in the completion of this borehole included

- clean fill from the surface to 21.5 ft bgs and
- Qbt 3 from 21.5 to 25 ft bgs.

MDAB-612898 was not visually logged as the drill bit was damaged at about 12 ft bgs while drilling through a large cobble (i.e., clean fill). A portion of the drill bit could not be retrieved, so the hole was abandoned and an offset borehole (MDAB-614478) was drilled. Samples from the offset borehole were visually logged and a borehole log was prepared.

K-5.0 SAMPLING

Sampling was conducted to measure nature and extent of any residual contaminants. Sampling intervals and analyses were conducted per the approved IRWP, the SAP, and the 15-d notice submitted to NMED (LANL 2006, 095499; LANL 2010, 109266; LANL 2011, 203594). Table K-5.0-1 lists the samples collected along with location IDs, sample types, and depth intervals.

K-5.1 Soil

A minimum of four soil samples were required by the SAP for the Cerro Toledo interval borehole (MDAB-612802), and two each for the shallow boreholes (MDAB-614478 and MDAB-614483). Soil samples were analyzed for radionuclides (gamma spectroscopy), tritium, isotopic uranium, isotopic plutonium, strontium-90, volatile organic compounds (VOCs), semivolatile organic compounds, explosive compounds, pH, polychlorinated biphenyls, dioxins/furans, nitrates, perchlorate, target analyte list metals, and cyanide (LANL 2010, 109266).

Full-suite analysis soil samples from MDAB-612802 were collected at the base of the trench (20 to 25 ft bgs), 14 ft below the base of the trench (33 to 37 ft bgs), the pumice interval (287 to 290 ft bgs), and at TD (320 to 325 ft bgs). A clay sample was also collected from a fracture (144 to 146 ft bgs) and analyzed for isotopic radionuclides.

One full-suite analysis soil sample was collected from MDAB-614483 at the base of the trench (21.5 to 24 ft bgs) and another from MDAB-614478 at TD (45 to 50 ft bgs).

K-5.2 Geotechnical

A minimum of four geotechnical samples was required by the SAP (LANL 2010, 109266) for the Cerro Toledo borehole (MDAB-612802), and an additional four samples for the shallow borehole (MDAB-614478 and MDAB-614483). Four geotechnical samples were collected while drilling MDAB-612802 at

- 5 ft below the base of the trench,
- the two intervals above the Cerro Toledo interval, and
- 7.5 ft into the Cerro Toledo interval.

Geotechnical samples were collected in Lexan tubes and analyzed for saturated and unsaturated hydraulic conductivity, porosity, bulk density, matric potential, chloride-ion concentration, and moisture content (LANL 2010, 109266).

Because of the problems encountered with core retrieval, no geotechnical samples were collected while drilling the shallow boreholes. Data from MDAB-612802 will be used to characterize the hydrogeology of the shallow locations.

K-5.3 Vapor

Vapor samples were collected from MDAB-612802 and MDAB-614478 per Standard Operating Procedure (SOP) 5074, Sampling Subsurface Vapor, for VOC (TO-15) and tritium analysis. An inflatable packer was lowered through the augers once the interval at the base of the disposal trench and TD had been reached. The packer was then inflated inside the augers to seal off the interval, and the sample was collected from the base of the packer unit to the bottom of the borehole.

K-6.0 POSTINSTALLATION ACTIVITIES

After all samples were collected, the boreholes were abandoned, geodetic surveys were conducted of new borings, and waste was removed from the drill sites.

K-6.1 Abandonment

Abandonment was conducted per SOP-5034, Monitoring Well and Borehole Abandonment. Augers were removed from the boreholes in 20- to 30-ft intervals. Once an interval of augers had been removed, bentonite hole-plug (3/8-in. uncoated chips) and water were tremied through the hollow-stem auger to the bottom of the borehole. This procedure continued until the hydrated bentonite hole-plug was within about 2 ft of the ground surface. QUIKRETE and water were then added into the hole until the fill material was level with the ground surface.

K-6.2 Geodetic Survey

A geodetic survey was completed at the four borehole locations (MDAB-612802, MDAB-612898, MDAB-614478, and MDAB-614483) in accordance with SOP-5028, Coordinating and Evaluating Geodetic Surveys. Results were uploaded to the Environmental Programs geospatial database. A geodetic survey of MDAB-612802 and MDAB-612898 was conducted before drilling because these locations had been previously sampled for confirmation samples.

K-6.3 Waste Management

Wastes generated during the drilling of the boreholes at MDA B were managed in accordance with SOP-5238, Characterization and Management of Environmental Program Waste. Wastes consisted of drill cuttings and contact waste. Characterization of contact waste was based upon analyses of the analytical samples collected. Drill cuttings produced during drilling operations were staged at the site in Super Sacks pending characterization. Drill cuttings were characterized as low-level waste and disposed of off-site.

K-7.0 REFERENCES AND MAP DATA SOURCES

K-7.1 References

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

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

LANL (Los Alamos National Laboratory), September 1998. "Sampling and Analysis Plan for Potential Release Site 21-015," Los Alamos National Laboratory document LA-UR-98-2901, Los Alamos, New Mexico. (LANL 1998, 059506)

LANL (Los Alamos National Laboratory), October 2006. "Investigation/Remediation Work Plan for Material Disposal Area B, Solid Waste Management Unit 21-015, at Technical Area 21, Revision 1," Los Alamos National Laboratory document LA-UR-06-6918, Los Alamos, New Mexico. (LANL 2006, 095499)

LANL (Los Alamos National Laboratory), August 2009. "Vadose Zone Subsurface Characterization and Vapor-Monitoring Well Installation Work Plan for Material Disposal Area V, Consolidated Unit 21-018(a)-99, Revision 1," Los Alamos National Laboratory document LA-UR-09-5021, Los Alamos, New Mexico. (LANL 2009, 106760)

LANL (Los Alamos National Laboratory), April 2010. "Sampling and Analysis Plan for Post-Remediation Borehole Drilling at Material Disposal Area B, Solid Waste Management Unit 21-015, Technical Area 21," Los Alamos National Laboratory document LA-UR-10-2377, Los Alamos, New Mexico. (LANL 2010, 109266)

LANL (Los Alamos National Laboratory), May 30, 2010. "Waste Characterization Strategy Form for TA-21 MDA-B, 21-015 Excavation," Los Alamos National Laboratory, Los Alamos, New Mexico. (LANL 2010, 109754)

LANL (Los Alamos National Laboratory), May 20, 2011. "15-Day Sampling Notification for Material Disposal Area B, at Technical Area 21 and Sampling and Analysis Plan Addendum for Borehole Drilling Task, Solid Waste Management Unit 21-015, Material Disposal Area B, at Technical Area 21," Los Alamos National Laboratory letter (EP2011-0191) to J. Kieling (NMED-HWB) from A. Chaloupka (LANL), Los Alamos, New Mexico. (LANL 2011, 203594)

K-7.2 Map Data Sources

Legend Item	Data Source
10-ft by 10-ft Project Reference Grid	10' by 10' Project Reference Grid, Material Disposal Area B, Unpublished Data; Portage, Inc.; January 01, 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; September19, 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	MDAB 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.

Legend Item	Data Source
Structure	Los Alamos County Structures; County of Los Alamos; Original data from Los Alamos National Laboratory, Environmental Restoration (ER) Project; After 32003 fly over 1400 new structure polygons added by Bohannan Houston Inc. as published August, 2003.
Technical Area Boundary	LANL Technical Areas of Department of Energy Property in and around the Los Alamos National Laboratory Area. Los Alamos National Laboratory, Site and Project Planning (PM-1), as published September 2007.
Trench Area	Trench Boundaries per Direct Push Technology, Material Disposal Area B, Unpublished Data; Portage, Inc; January 12, 2010
Unpaved road	Dirt Road Arcs; Los Alamos National Laboratory, KSL Site Support Services, Planning, Locating and Mapping Section; January 6, 2004; as published October 15, 2008.

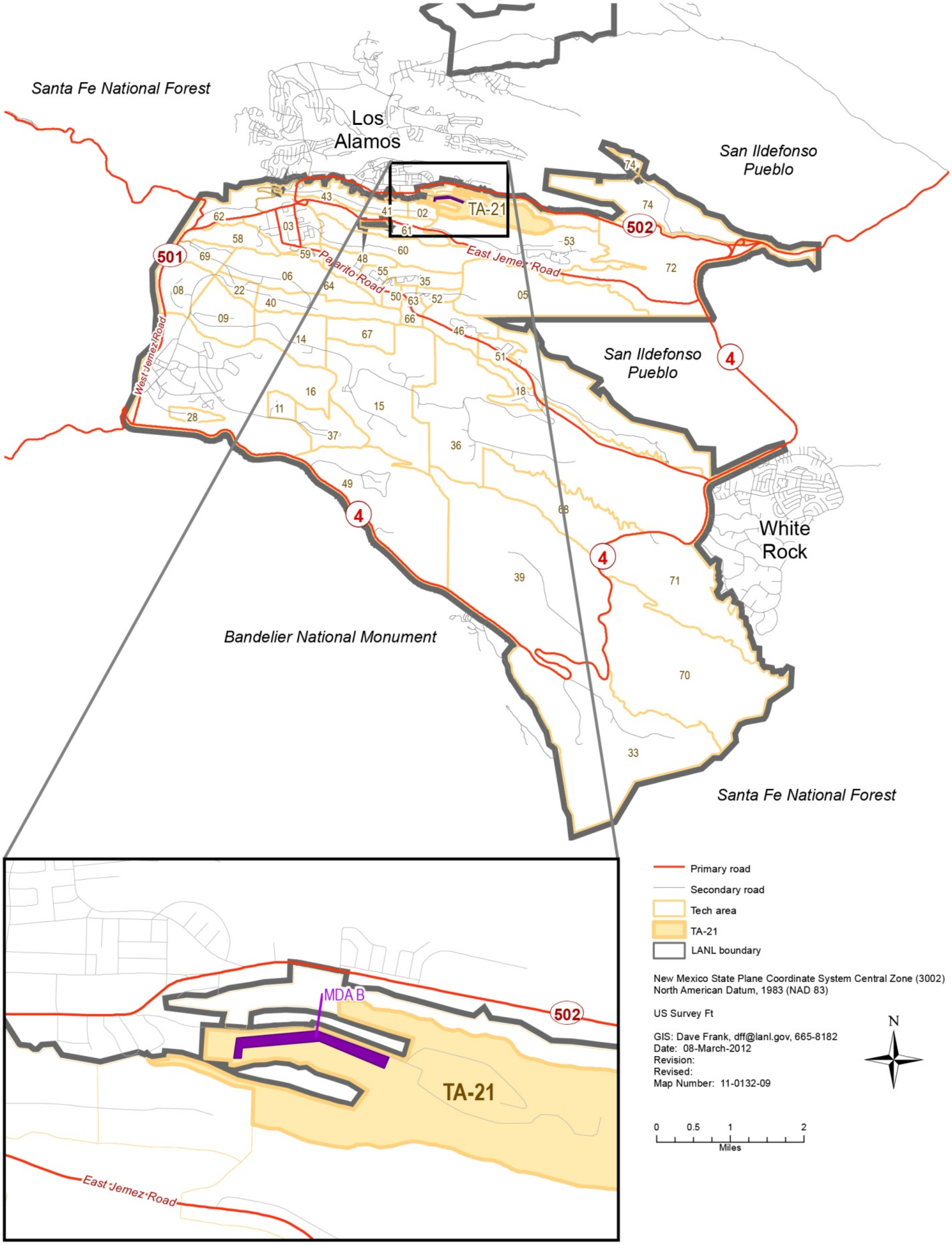

Figure K-1.0-1 MDA B in TA-21 with respect to Laboratory TAs and surrounding landholdings

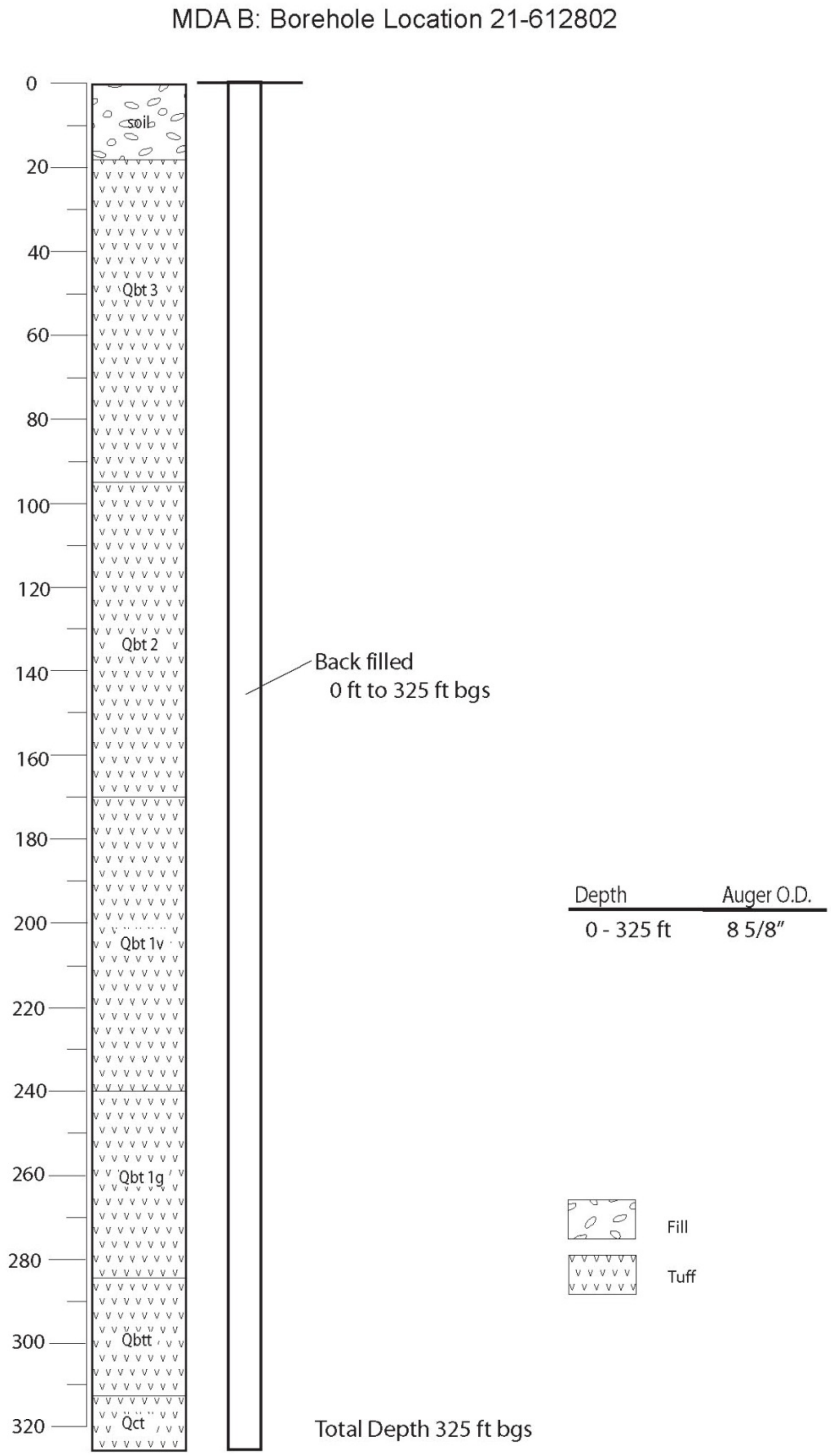

Figure K-4.0-1 Borehole log sketch of MDAB-612802

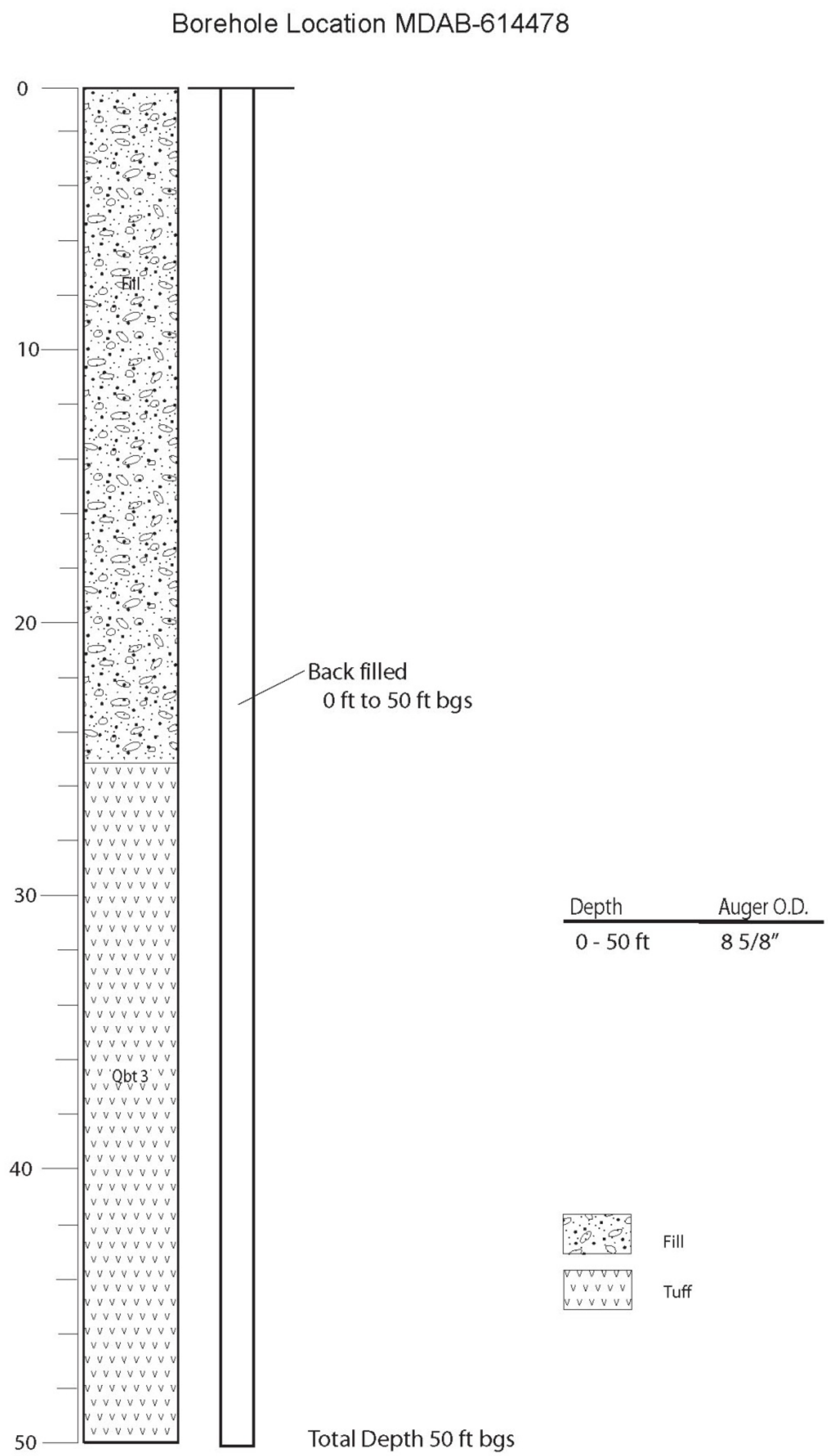

Figure K-4.0-2 Borehole log sketch of MDAB-614478

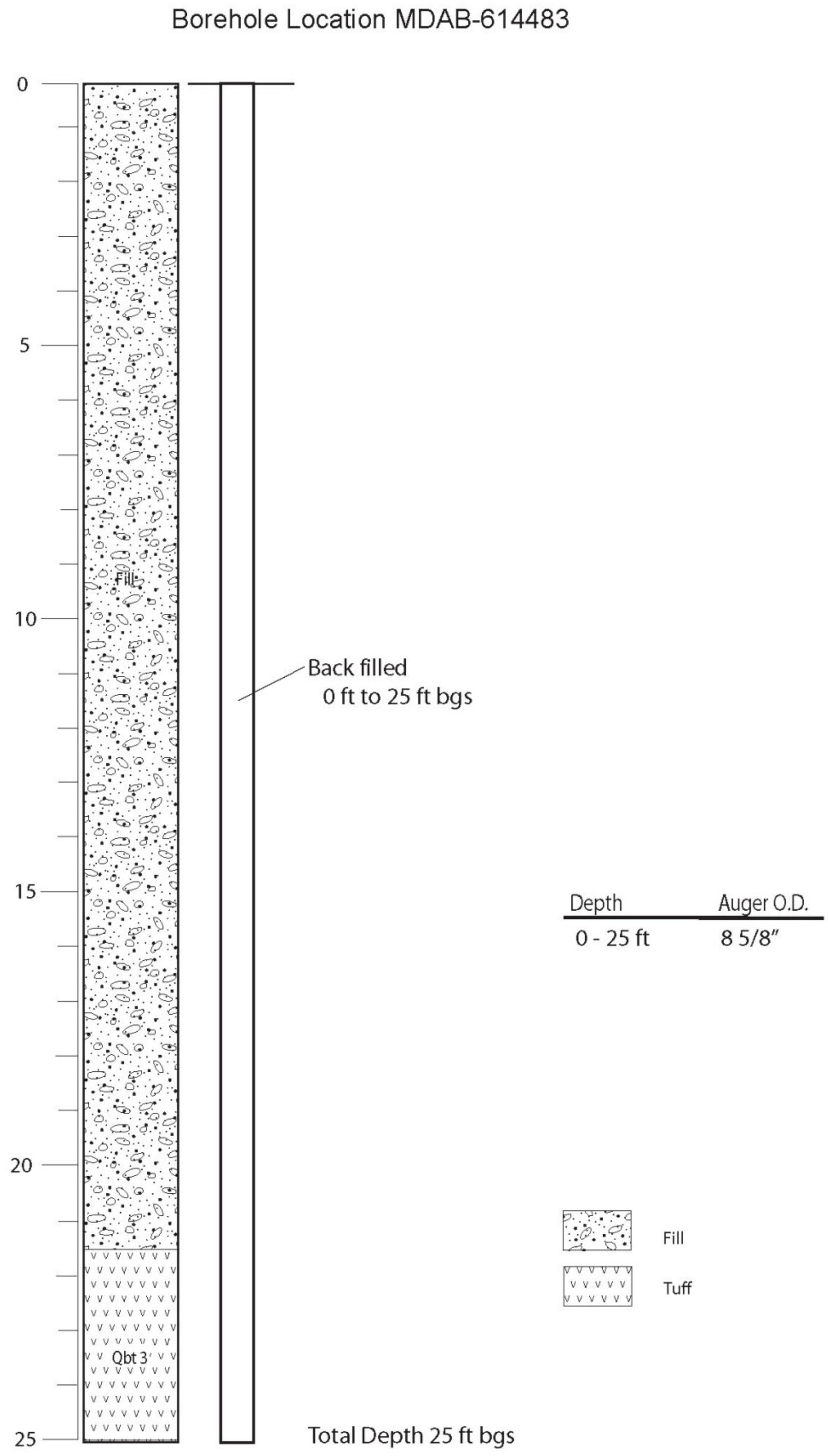

Figure K-4.0-3 Borehole log sketch of MDAB-614483

Table K-3.0-1
Borehole Location Coordinates

Location ID	Northing	Easting	Elevation
MDAB-612802	1775187.38	1630113.27	7188.59
MDAB-612898	1775057.23	1630636.26	7180.5
MDAB-614478	1775058.38	1630631.92	7180.7
MDAB-614483	1775060.63	1630624.82	7180.68

Table K-5.0-1
Samples Collected

Location ID	Sample ID	Sample Type	Depth Interval (ft bgs)
MDAB-612802	DSMDAB-11-22284	Laboratory Analysis	20–25
MDAB-612802	DSMDAB-11-22285	Laboratory Analysis	33–37
MDAB-612802	DSMDAB-11-22287	Laboratory Analysis	287–290
MDAB-612802	DSMDAB-11-22288	Laboratory Analysis	144–146
MDAB-612802	DSMDAB-11-22289	Laboratory Analysis	320–325
MDAB-612802	DSMDAB-11-23971	Geotechnical	25–27.5
MDAB-612802	DSMDAB-11-23972	Geotechnical	27.5–30
MDAB-612802	DSMDAB-11-23973	Geotechnical	180–182.5
MDAB-612802	DSMDAB-11-23974	Geotechnical	182.5–185
MDAB-612802	DSMDAB-11-23975	Geotechnical	240–242.5
MDAB-612802	DSMDAB-11-23976	Geotechnical	242.5–245
MDAB-612802	DSMDAB-11-23977	Geotechnical	292.5–295
MDAB-612802	DSMDAB-11-23978	Geotechnical	317.5–320
MDAB-612802	DSMDAB-11-22308	VOC Vapor	27–30
MDAB-612802	DSMDAB-11-22309	VOC Vapor	322–325
MDAB-612802	DSMDAB-11-22306	Tritium Vapor	27–30
MDAB-612802	DSMDAB-11-22307	Tritium Vapor	322–325
MDAB-614478	DSMDAB-11-22291	Laboratory Analysis	45–50
MDAB-614478	DSMDAB-11-22312	VOC Vapor	24–27.5
MDAB-614478	DSMDAB-11-22313	VOC Vapor	47–50
MDAB-614478	DSMDAB-11-22310	Tritium Vapor	24–27.5
MDAB-614478	DSMDAB-11-22311	Tritium Vapor	47–50
MDAB-614483	DSMDAB-11-22290	Laboratory Analysis	21.5–24

Attachment K-1

Borehole Log for MDAB-612802

BOREHOLE LOG Field Support Facility								
Borehole ID: MDAB-612802			TA/FU: 21/MDA B		Drill Depth from: **0 ft to 40 ft**			Page1 of 15
Driller: David Starnes - PSI			Start Date: 06/16/11		End Date: 07/07/11			
Drilling Equipment Method: Hollow stem auger (HSA) CME-85								
Sampling Equipment Method: Continuous Core – 5-ft split spoon								
Borehole Coordinates: Northing: 1775187.38 Easting: 1630113.27 Elevation: 7188.59								
Depth (feet)	**Recovery (feet per feet/ %)**	**Field Borehole Analytical Sample #**	**Field Screening Results**	**Top / Bottom of Core in Box**	**Lithology – Petrology – Soil**	**Graphic Log**	**Lithology Unit**	**Notes**
0-15	NA	—	NDA	NA	Backfill material. Some little pieces of plastic debris in backfill at 13 ft.	—	Fill	
15-20	NA	—	NDA	NA	Backfill material. Hit tuff at 19 ft.	—	Fill	
20-25	100%	Soil sample: DSMDAB-11-22284		NA	Gray tuff (ignimbrite) moderately welded 20-24 ft, weakly-to-moderately welded 24-25 ft. Entire interval abundant phenocrysts of sanidine. Up to 2 mm matrix gray friable-pumice. Up to 1 cm phenocrysts of sanidine, pumice, and others.	—	Qbt 3	
25-30	60%	Geotechnical sample: DSMDAB-11-23971 DSMDAB-11-23972	NDA	NA	Same as above.	—	Qbt 3	
30-35	30%	Soil sample: DSMDAB-11-22285	NDA	NA	2-ft recovery. Weakly-welded tuff with moderately-welded clasts up to 3 in. Upper ft gray color crystals of sanidine, quartzite pumice. Vapor-phase alteration visible. Lower ft of welded clasts show distinct color change within clasts. Gray as above to orangey color with more vapor-phase alteration and same mineral assemblages. Damp.	—	Qbt 3	NDA for Rads Voids encountered during drilling.
35-40	100%	Soil sample: DSMDAB-11-22285	NDA	NA	Full recovery. Moderately-welded tuff. Gray color with pumice up to ½ by ¼ in. reddish and gray pumice with different orientations. Small sanidine and lithology up to 1/16 in. Damp.	—	Qbt 3	NDA for Rads. Slight odor: chlorine-like.

BOREHOLE LOG Field Support Facility								
Borehole ID: MDAB-612802			TA/FU: 21/MDA B		Drill Depth from: **40 ft to 90 ft**			Page 2 of 15
Driller: David Starnes - PSI			Start Date: 06/16/11					End Date: 07/07/11
Drilling Equipment Method: Hollow stem auger (HSA) CME-85								
Sampling Equipment Method: Continuous Core – 5-ft split spoon								
Borehole Coordinates:		Northing: 1775187.38			Easting: 1630113.27		Elevation: 7188.59	
Depth (feet)	**Recovery (feet per feet/ %)**	**Field Borehole Analytical Sample #**	**Field Screening Results**	**Top / Bottom of Core in Box**	**Lithology – Petrology – Soil**	**Graphic Log**	**Lithology Unit**	**Notes**
40-45	—	—	—	—	—	—	—	Core was dumped before logging.
45-50	100%	—	NDA	NA	Moderately-welded tuff. Pumice up to 1.5 ft. Crystals of sanidine quartz and lithics up to 2 mm. Chatoyant sanidine present. Areas along fractures less welded and break easily. Color changes seen along fractures as above. Gray to abrupt orangey-brown with same mineral assemblage. Damp.	—	Qbt 3	NDA for Rads.
50-55	100%	—	NDA	NA	Same as above. Damp.	—	Qbt 3	
55-60	100%	—	Not measured.	NA	Weakly- to moderately-welded tuff. Different color: brownish-yellow mixed with small areas of gray tuff. Similar mineral assemblage as previous interval. Damp 2 in. basalt fragment at 57.5 ft. Last half ft abrupt change to weakly to non-welded gray tuff. Similar mineral assemblage. Color change at 59.6 ft.	—	Qbt 3	
60-65	100%	—	NDA	NA	Gray weakly to non-welded tuff. Phenocrysts of sanidine and quartz up to 2mm. Approximately 25% pumice up to 1 in. Crumbles to touch. Damp.	—	Qbt 3	

BOREHOLE LOG **Field Support Facility**								
Borehole ID: MDAB-612802				TA/FU: 21/MDA B	Drill Depth from: **40 ft to 90 ft**			Page 3 of 15
Driller: David Starnes - PSI				Start Date: 06/16/11				End Date: 07/07/11
Drilling Equipment Method: Hollow stem auger (HSA) CME-85								
Sampling Equipment Method: Continuous Core – 5-ft split spoon								
Borehole Coordinates:		Northing: 1775187.38			Easting: 1630113.27		Elevation: 7188.59	
Depth (feet)	**Recovery (feet per feet/ %)**	**Field Borehole Analytical Sample #**	**Field Screening Results**	**Top / Bottom of Core in Box**	**Lithology – Petrology – Soil**	**Graphic Log**	**Lithology Unit**	**Notes**
65-70	100%	—	NDA	NA	Same as above.	—	Qbt 3	
70-75	80%	—	NDA	NA	Same as above.	—	Qbt 3	
75-80	95%	—	NDA	NA	Same as above.	—	Qbt 3	
80-85	80%	—	NDA	NA	Same as above. Non-welded phenocrysts and mineral assemblages the same. Up 3mm, most 2 mm, approximately 25-30%.	—	Qbt 3	
85-90	95%	—	NDA	NA	Moderately-welded gray tuff. Increasingly indurated with depth. Phenocrysts same as above.	—	Qbt 3	

BOREHOLE LOG
Field Support Facility

Borehole ID: MDAB-612802 | TA/FU: 21/MDA B | Drill Depth from: **90 ft to 135 ft** | Page 4 of 15

Driller: David Starnes - PSI | Start Date: 06/16/11 | End Date: 07/07/11

Drilling Equipment Method: Hollow stem auger (HSA) CME-85

Sampling Equipment Method: Continuous Core – 5-ft split spoon

Borehole Coordinates: Northing: 1775187.38 Easting: 1630113.27 Elevation: 7188.59

Depth (feet)	Recovery (feet per feet/ %)	Field Borehole Analytical Sample #	Field Screening Results	Top / Bottom of Core in Box	Lithology – Petrology – Soil	Graphic Log	Lithology Unit	Notes
90-95	98%	—	β 600 dpm/ 100cm^2 on surface in sample core. α NDA.	NA	Same as above. Moderately-welded sanidine up to 2 mm, some with sapphire blue chatoyancy.	—	Qbt 3	
95-100	100%	—	β 800 dpm/ 100cm^2 on surface in sample core. α NDA.	NA	Pinkish matrix. Pumice clasts up to 1.5 in. Soft, phenocrysts up to 1mm. Approximately 10% sanidine, quartz, and possibly muscovite.	—	Qbt 2	
100-105	100%	—	β 800 dpm/ 100cm^2 on surface in sample core. α NDA.	NA	Same as above. Pumice up to 2 in. Soft with phenocrysts in pumice. Phenocrysts in tuff and pumice up to 3 mm. Pumice gray and moderately-welded.	—	Qbt 2	
105-110	100%	—	β 800 dpm/ 100cm^2 on surface in sample core and in center of core. α NDA.	NA	Welded-hard. Pink tuff, squished pumice. Lithics up to ½ in. Phenocrysts up to 3mm. Quartz, sanidine, mica pumice up to 1 in. Clasts of grey tuff up to 2.5 in. Quartz and sanidine phenocrysts up to 3 mm.	—	Qbt 2	Hard drilling.
110-115	30%	—	β and α NDA.	NA	Hard-welded tuff as above, but pumice is squished and less than 1 by ½ in. tuff. Pinkish matrix with gray pumice.	—	Qbt 2	Hard drilling.
115-120	50%	—	β and α NDA.	NA	Same as above with zones in last half of interval of moderately- to weakly-welded tuff.	—	Qbt 2	Hard drilling at first.
120-125	97%	—	β and α NDA for top half. α NDA and β 700 dpm/ 100 cm^2 for lower half.	NA	Same as above. Moderately-welded throughout.	—	Qbt 2	Hard drilling.

BOREHOLE LOG **Field Support Facility**								
Borehole ID: MDAB-612802			TA/FU: 21/MDA B		Drill Depth from: **90 ft to 135 ft**			Page 5 of 15
Driller: David Starnes - PSI			Start Date: 06/16/11					End Date: 07/07/11
Drilling Equipment Method: Hollow stem auger (HSA) CME-85								
Sampling Equipment Method: Continuous Core – 5-ft split spoon								
Borehole Coordinates:	Northing: 1775187.38				Easting: 1630113.27	Elevation: 7188.59		
Depth (feet)	**Recovery (feet per feet/ %)**	**Field Borehole Analytical Sample #**	**Field Screening Results**	**Top / Bottom of Core in Box**	**Lithology – Petrology – Soil**	**Graphic Log**	**Lithology Unit**	**Notes**
125-130	100%	—	β 700 dpm/ 100cm^2. α NDA.	NA	Same as above except well-welded. Hard to break with hammer.	—	Qbt 2	Hard drilling.
130-135	100%	—	β 1000 dpm per 100cm^2. α NDA.	NA	Same as above.	—	Qbt 2	Hard drilling.

BOREHOLE LOG Field Support Facility								
Borehole ID: MDAB-612802		TA/FU: 21/MDA B		Drill Depth from: **135 ft to 170 ft**			Page 6 of 15	
Driller: David Starnes - PSI			Start Date: 06/16/11				End Date: 07/07/11	
Drilling Equipment Method: Hollow stem auger (HSA) CME-85								
Sampling Equipment Method: Continuous Core – 5-ft split spoon								
Borehole Coordinates:	Northing: 1775187.38			Easting: 1630113.27		Elevation: 7188.59		
Depth (feet)	**Recovery (feet per feet/ %)**	**Field Borehole Analytical Sample #**	**Field Screening Results**	**Top / Bottom of Core in Box**	**Lithology – Petrology – Soil**	**Graphic Log**	**Lithology Unit**	**Notes**
135-140	100%	—	β 1100 dpm /100cm^2. α NDA.	NA	Moderately-welded tuff. Pink matrix phenocrysts up to 3mm. Sanidine, quartz, some slightly flattened. Some clasts of gray tuff up to 2 in. Phenocrysts of sanidine and quartz up to 3mm.	—	Qbt 2	
140-145	100%	—	β and α NDA.	NA	Same as above until 43.8 ft, then a vertical fracture ending with interval filled with orangey brown clay. Plastic rolls out to approximately 2 in. Tuff broken to sand around half of fracture. Not enough volume to sample.	—	Qbt 2	
145-150	100%	Soil sample: DSMDAB-11-22288	β 600 dpm/ 100cm^2. α NDA.	NA	Fracture with clay continuous to 146 ft, otherwise same as above with orangey crystals. New fracture for approximately 2 ft. Very little pumice. Color more gray than pinkish.	—	Qbt 2	Took top ft for sample.
150-155	100%	—	β and α NDA.	NA	Gray-welded to pink tuff. Approximately 20% phenocrysts of sanidine. Quartz a tan/orangey mica up to 2 mm. Pumice up to 2.5 by ½ in. Squished hard with crystals (phenocrysts with above) in lower portion of interval. Pumice up to 1½ in. not squished. Soft and crumbles to touch. Surrounding tuff weld.	—	Qbt 2	

BOREHOLE LOG **Field Support Facility**								
Borehole ID: MDAB-612802			TA/FU: 21/MDA B		Drill Depth from: **135 ft to 170 ft**		Page 7 of 15	
Driller: David Starnes - PSI			Start Date: 06/16/11				End Date: 07/07/11	
Drilling Equipment Method: Hollow stem auger (HSA) CME-85								
Sampling Equipment Method: Continuous Core – 5-ft split spoon								
Borehole Coordinates:		Northing: 1775187.38		Easting: 1630113.27		Elevation: 7188.59		
Depth (feet)	**Recovery (feet per feet/ %)**	**Field Borehole Analytical Sample #**	**Field Screening Results**	**Top / Bottom of Core in Box**	**Lithology – Petrology – Soil**	**Graphic Log**	**Lithology Unit**	**Notes**
155-160	100%	—	β 850 dpm/ 100cm^2. α NDA.	NA	Moderately-welded. Less welded interval bottom. Phenocrysts smaller, 1 to 2 mm. More orangey phenocrysts and darker colored ones. Approximately 30% phenocrysts. Ashy, darker gray, slightly pink hued matrix pumice up to 1 in. Flattened 2:1	—	Qbt 2	
160-165	100%	—	β 700 dpm/ 100cm^2. α NDA.	NA	Same as above. Less pumice. Same lithics up to 3mm.	—	Qbt 2	
165-170	100%	—	β 700 dpm/ 100cm^2. α NDA.	NA	Same as above. Same orangey-tan and ¼ in. clay film reaction rim along fractures that are 45 degrees to case barrel orientation. Moderately-welded.	—	Qbt 2	

BOREHOLE LOG Field Support Facility								
Borehole ID: MDAB-612802			TA/FU: 21/MDA B		Drill Depth from: **170 ft to 200 ft**			Page 8 of 15
Driller: David Starnes - PSI				Start Date: 06/16/11				End Date: 07/07/11
Drilling Equipment Method: Hollow stem auger (HSA) CME-85								
Sampling Equipment Method: Continuous Core – 5-ft split spoon								
Borehole Coordinates:		Northing: 1775187.38			Easting: 1630113.27		Elevation: 7188.59	
Depth (feet)	**Recovery (feet per feet/ %)**	**Field Borehole Analytical Sample #**	**Field Screening Results**	**Top / Bottom of Core in Box**	**Lithology – Petrology – Soil**	**Graphic Log**	**Lithology Unit**	**Notes**
170-175	100%	—	β 1200 dpm/ 100cm^2. α NDA.	NA	170 to 171 ft same as above. Weakly-welded, no clay fractions. 171 to 175 ft tan/pink tuff, weakly-welded to moderately-welded, different minerals and white specks (<1 to 2 mm). Small pumice crystals. Muddled appearance pink/tank/maroon/gray. Sanidine, quartz, lithics. Pumice up to 1 in. (2.5 to 1 squished). Lithics up to 4 mm of dacite/ andesite/basalt.	—	Qbt 2/ Qbt 1v	Distinct color change at171 ft. Qbt 2 and Qbt IV contact.
175-180	100%	—	β 900 dpm/ 100cm^2. α NDA.	NA	Same as above with pumice up to 1.5 in. squished slightly. Pumice dark grey to maroon. Lithics and phenocrysts up to 3 mm. Pumice altered.	—	Qbt 1v	
180-185	100%	Geotechnical sample: DSMDAB-11-23973 DSMDAB-11-23974	β and α NDA.	NA	Same as above.	—	Qbt 1v	Softer drilling.
185-190	100%	—	β 1100 dpm/ 100cm^2. α NDA.	NA	Same as above. Pumice with reactor rims and obvious vapor-phase alteration. Weakly-welded to non-welded. Some pumice multicolored and flow-bonded. All pumice soft and crumbles to touch.	—	Qbt 1v	

BOREHOLE LOG Field Support Facility								
Borehole ID: MDAB-612802			TA/FU: 21/MDA B		Drill Depth from: **170 ft to 200 ft**			Page 9 of 15
Driller: David Starnes - PSI			Start Date: 06/16/11					End Date: 07/07/11
Drilling Equipment Method: Hollow stem auger (HSA) CME-85								
Sampling Equipment Method: Continuous Core – 5-ft split spoon								
Borehole Coordinates:		Northing: 1775187.38			Easting: 1630113.27	Elevation: 7188.59		
Depth (feet)	**Recovery (feet per feet/ %)**	**Field Borehole Analytical Sample #**	**Field Screening Results**	**Top / Bottom of Core in Box**	**Lithology – Petrology – Soil**	**Graphic Log**	**Lithology Unit**	**Notes**
190-195	100%	—	β 800 dpm/ 100cm^2. α NDA.	NA	Same as above. Color of ashy matrix is gray. Dark pumice and lithics present with phenocrysts. Non-welded to weakly-welded tuff.	—	Qbt 1v	
195-200	100%	—	β 800 dpm/ 100cm^2. α NDA.	NA	Non-welded pink to maroon tuff. Pumice up to 1.5 in. Dark to black colored. Crumbles to touch. Phenocrysts <1 mm. Lithics up to ¼ in.	—	Qbt 1v	Slight odor: like creosote bush/greasewood in southern New Mexico.

BOREHOLE LOG Field Support Facility								
Borehole ID: MDAB-612802			TA/FU: 21/MDA B		Drill Depth from: **200 ft to 235 ft**			Page 10 of 15
Driller: David Starnes - PSI				Start Date: 06/16/11				End Date: 07/07/11
Drilling Equipment Method: Hollow stem auger (HSA) CME-85								
Sampling Equipment Method: Continuous Core – 5-ft split spoon								
Borehole Coordinates:		Northing: 1775187.38			Easting: 1630113.27		Elevation: 7188.59	
Depth (feet)	**Recovery (feet per feet/ %)**	**Field Borehole Analytical Sample #**	**Field Screening Results**	**Top / Bottom of Core in Box**	**Lithology – Petrology – Soil**	**Graphic Log**	**Lithology Unit**	**Notes**
200-205	100%	—	β 950 dpm/ 100cm^2. α NDA.	NA	Same as above. Color grading from pale pink to light tannish pink. Pumice more abundant up to 1 in. Slightly-squashed. Vapor-phase altered. Some blue chatoyant sanidine seen up to 2 mm. Very soft	—	Qbt 1v	Slight odor: same as above.
205-210	100%	—	β 700 dpm/ 100cm^2. α NDA.	NA	Pinkish-tan tuff. Non-welded, ashy matrix. Small pumice. Approximately ¼ to ½ in. dark brown. Vapor-phase altered Crumbles to touch. Phenocrysts <1 mm.	—	Qbt 1v	Slight odor: same as above.
210-215	97%	—	β 1100 dpm/ 100cm^2. α NDA.	NA	Same as above. Pumice ranging in size from ¼ to 1½ in. Vapor phase altered and 6123/11 shades of brown and maroon brown.	—	Qbt 1v	Slight odor: same as above.
215-220	100%	—	β 1200 dpm/ 100cm^2. α NDA.	NA	Same as above. Pumice fragments more abundant. 6123/11 approximately 40%. Some grey pumice. Slightly harder matrix.	—	Qbt 1v	No odor.
220-225	100%	—	β 800 dpm/ 100cm^2. α NDA.	NA	Same as above. Lithics of dacite or basalt up to ½ in.	—	Qbt 1v	No odor.

BOREHOLE LOG **Field Support Facility**								
Borehole ID: MDAB-612802			TA/FU: 21/MDA B		Drill Depth from: **200 ft to 235 ft**			Page 11 of 15
Driller: David Starnes - PSI			Start Date: 06/16/11					End Date: 07/07/11
Drilling Equipment Method: Hollow stem auger (HSA) CME-85								
Sampling Equipment Method: Continuous Core – 5-ft split spoon								
Borehole Coordinates:		Northing: 1775187.38			Easting: 1630113.27		Elevation: 7188.59	
Depth (feet)	**Recovery (feet per feet/ %)**	**Field Borehole Analytical Sample #**	**Field Screening Results**	**Top / Bottom of Core in Box**	**Lithology – Petrology – Soil**	**Graphic Log**	**Lithology Unit**	**Notes**
225-230	100%	—	β 800 dpm/ 100cm^2. α NDA.	NA	Color change to an orangey-tan with pinkish hue. Noticeable chatovance in phenocrysts. 1 to 4mm sanidine, quartz, dark minerals and lithics. Approximately 15% pumice. From 5 mm to 1 in. pumice not all altered, only a few are. Dark minerals in pumice. More lithics than previously. Light and dark colored lithics. Slightly more welded. Damp.	—	Qbt 1v	Harder drilling. No odor.
230-235	100%	—	β 1100 dpm/ 100cm^2. α NDA.	NA	Same as above to 231.5 ft then transition to less welded and crumbly. More aphanitic texture with increased dark colored phenocrysts up to 3 mm and lithics up to 2 in. Damp.	—	Qbt 1v	

BOREHOLE LOG Field Support Facility								
Borehole ID: MDAB-612802			TA/FU: 21/MDA B		Drill Depth from: **235 ft to 275 ft**			Page 12 of 15
Driller: David Starnes - PSI				Start Date: 06/16/11				End Date: 07/07/11
Drilling Equipment Method: Hollow stem auger (HSA) CME-85								
Sampling Equipment Method: Continuous Core – 5-ft split spoon								
Borehole Coordinates:		Northing: 1775187.38			Easting: 1630113.27		Elevation: 7188.59	
Depth (feet)	**Recovery (feet per feet/ %)**	**Field Borehole Analytical Sample #**	**Field Screening Results**	**Top / Bottom of Core in Box**	**Lithology – Petrology – Soil**	**Graphic Log**	**Lithology Unit**	**Notes**
235-240	100%	—	β 1100 dpm/ 100cm^2. α NDA.	NA	All crumbly, non-welded tuff. Orangey tan, same lithics up to 1 in. Phenocrysts. Crumbly, light, and dark pumice up to 1 in. Damp.	—	Qbt 1v/ VPN	
240-245	100%	Geotechnical sample: DSMDAB-11-23975 DSMDAB-11-23976	β and α NDA.	NA	Non-welded tuff. Few pumice. Tan, uniform, crumbly lithics up to ¼ in. and phenocrysts up to 2mm.	—	Qbt 1g	Hard to see in lexan tubes.
245-250	100%	—	β and α NDA.	NA	Non-welded tan tuff. Few pumice. Lithics <1 to ½ in. Few phenocrysts, all <2 mm. Bright yellow/ orange altered spots. Approximately 2 mm uniform sorting. Crumbles to touch. Damp.	—	Qbt 1g	
250-255	90%	—	β 1200 dpm/ 100cm^2. α NDA.	NA	Same as above. Not at all cohesive, like loose sanidine. One pumice 1 in. and fairly solid. Light tan. Damp.	—	Qbt 1g	
255-260	100%	—	β 1000 dpm/ 100cm^2. α NDA.	NA	Same as above. Last 3 in. distinct color change to a darker tan. Damp. Less and smaller lithics and more pumice up to 4 mm. Gray.	—	Qbt 1g	
260-265	100%	—	β 900 dpm/100cm^2. α NDA.	NA	Same as above. Last 3 in. tan matrix. Non-welded tuff. Not cohesive. Sand-like. Pumice up to 1 in. More pumice this interval. Gray, glassy.	—	Qbt 1g	

BOREHOLE LOG Field Support Facility								
Borehole ID: MDAB-612802			TA/FU: 21/MDA B		Drill Depth from: **235 ft to 275 ft**		Page 13 of 15	
Driller: David Starnes - PSI			Start Date: 06/16/11				End Date: 07/07/11	
Drilling Equipment Method: Hollow stem auger (HSA) CME-85								
Sampling Equipment Method: Continuous Core – 5-ft split spoon								
Borehole Coordinates:		Northing: 1775187.38			Easting: 1630113.27	Elevation: 7188.59		
Depth (feet)	**Recovery (feet per feet/ %)**	**Field Borehole Analytical Sample #**	**Field Screening Results**	**Top / Bottom of Core in Box**	**Lithology – Petrology – Soil**	**Graphic Log**	**Lithology Unit**	**Notes**
265-270	100%	—	β 1200 dpm/ 100cm^2. α NDA.	NA	Same as above.	—	Qbt 1g	
270-275	100%	—	β 600 dpm/ 100cm^2. α NDA.	NA	Same as above. One lithic up to 2 in. Dacite with orange specks and mineralization along fracture. Gray tuff.	—	Qbt 1g	

BOREHOLE LOG Field Support Facility								
Borehole ID: MDAB-612802			TA/FU: 21/MDA B		Drill Depth from: **275 ft to 310 ft**			Page 14 of 15
Driller: David Starnes - PSI			Start Date: 06/16/11					End Date: 07/07/11
Drilling Equipment Method: Hollow stem auger (HSA) CME-85								
Sampling Equipment Method: Continuous Core – 5-ft split spoon								
Borehole Coordinates:		Northing: 1775187.38			Easting: 1630113.27		Elevation: 7188.59	
Depth (feet)	**Recovery (feet per feet/ %)**	**Field Borehole Analytical Sample #**	**Field Screening Results**	**Top / Bottom of Core in Box**	**Lithology – Petrology – Soil**	**Graphic Log**	**Lithology Unit**	**Notes**
275-280	100%	—	β 1300 dpm/ 100cm^2. α NDA.	NA	Same as above. Gray. Less lithics. Pumice clasts smaller. Damp, loose, non-welded.	—	Qbt 1g	
280-285	100%	—	β 1300 dpm/ 100cm^2. α NDA.	NA	Light, tan to gray, ashy matrix. Non-welded, loose vitrified pumice up to 2 in. Few small clear phenocrysts to 284-285. Small flattened white pumice. Same ashy tan loose matrix. Whole interval damp.	—	Qbt 1g	Hard drilling.
285-290	100%	Soil Sample DSMDAB-11-22287	β 1000 dpm/ 100cm^2. α NDA.	NA	Same as above. 1 in. piece of vitrified pumice. More 1 in. white pumice. Sits rounded to slightly flattened. Same 1 in. lithics (welded ignimbrite). Damp.	—	Qbtt	
290-295	50%	Geotechnical sample: DSMDAB-11-23977	β and α NDA.	NA	Same as above. Damp. Gray matrix.	—	Qbtt	Only one Lexan tube collected.
295-300	100%	—	β 800 dpm/ 100cm^2. α NDA.	NA	Same as above. Damp.	—	Qbtt	
300-305	100%	—	β 800 dpm/ 100cm^2. α NDA.	NA	Same as above. 303 ft then pinkish-tan. Non-welded ashy matrix. Small lithics up to 4 mm. Pumice up to 1.5 in. Lithics. Dark gray. Damp.	—	Qbtt	Color change at 303 ft.
305-310	100%	—	β 1100 dpm/100cm^2. α NDA.	NA	Same as above (303 to 306 ft). Color change to gray (309 to 310 ft). Thin oxidized band <½ in. thick. Last 6 in. of interval color change back to tan. At 306 ft a 2 in. pumice piece.	—	Qbtt	

BOREHOLE LOG
Field Support Facility

Borehole ID: MDAB-612802	TA/FU: 21/MDA B	Drill Depth from: **310 ft to 325 ft**	Page 15 of 15
Driller: David Starnes - PSI	Start Date: 06/16/11		End Date: 07/07/11
Drilling Equipment Method: Hollow stem auger (HSA) CME-85			
Sampling Equipment Method: Continuous Core – 5-ft split spoon			
Borehole Coordinates:	Northing: 1775187.38	Easting: 1630113.27	Elevation: 7188.59

Depth (feet)	Recovery (feet per feet/ %)	Field Borehole Analytical Sample #	Field Screening Results	Top / Bottom of Core in Box	Lithology – Petrology – Soil	Graphic Log	Lithology Unit	Notes
310-315	100%	—	β 700 dpm/100cm^2. α NDA.	NA	Coarse gray pumice gravel to 312.5 ft then contact with Cerro Toledo. Tan sand with ashy matrix. Few small pumice and lithics up to 3 mm. Last 4 in. of interval pumice and lithics. Gravel up to ½ in. with tan gray sand. Damp.	—	Qbtt/Qct	
315-320	50%	Geotechnical sample: DSMDAB-11-23978	β 320 dpm/100cm^2. α NDA.	NA	Same as above. Coarse gravel grading to silty sand. Loose, gray, damp.	—	Qct	
320-325	100%	Soil sample: DSMDAB-11-22289	β 700 dpm/100cm^2. α NDA.	NA	Medium-grained sands. Tan and damp. Loose to gray/tan sands. Pumice-rich, coarse grained sands to thin tan and brown fine sand layers at bottom of interval.	—	Qct	

TD = 325 ft bgs

Prepared by: Lane Andress *Signature on file* 06/16/11	Checked by: Shanon Goldberg *Signature on file* 08/29/11
Print Name *Signature* *Date*	*Print Name* *Signature* *Date*

Attachment K-2

Borehole Log for MDAB-614478

BOREHOLE LOG **Field Support Facility**								
Borehole ID: MDAB-614478			TA/FU: 21/MDA B		Drill Depth from: **0 ft to 35 ft**			Page 1 of 2
Driller: David Starnes - PSI			Start Date: 07/12/11					End Date: 07/14/11
Drilling Equipment Method: Hollow stem auger (HSA) CME-85								
Sampling Equipment Method: Continuous Core – 5-ft split spoon								
Borehole Coordinates:	Northing: 1775058.38				Easting: 1630631.92		Elevation: 7180.7	
Depth (feet)	**Recovery (feet per feet/ %)**	**Field Borehole Analytical Sample #**	**Field Screening Results**	**Top / Bottom of Core in Box**	**Lithology – Petrology – Soil**	**Graphic Log**	**Lithology Unit**	**Notes**
0-20	0.5%	—	—	NA	Fill material, gravels, brown soil, cobbles. Only sampled 15 to 20 ft. 2 in. recovery in split spoon.	—	Fill	Hard drilling at several points.
20-25	20%	—	β 0 dpm/ 100cm^2. α NDA. PID = 4.2 ppm.	NA	Fill to 24.5 ft. At approximately 24.5–25 ft gray ground tuff mixed with tan/brown soil at base of trench.	—	Fill	High CO reading downhole. Approximately 900 ppm.
25-27.5	0.25% NR	Vapor sample.	β 0 dpm/ 100cm^2. α NDA. PID = 5.2 ppm.	NA	Gray ground tuff. Few clear phenocrysts, No more than 3 in. recovery.	—	Qbt 3	Hard drilling. Only doing 2.5 ft run.
27.5-30	—	No core collected.	—	NA	Try to clear hole and break/push cobble out of the way.	—	Qbt 3	
30-35	20%	—	β 900 dpm/ 100cm^2. α NDA. PID = 0.0 ppm.	NA	Powdery-gray fine tuff with small tuff nodules up to 1 in. with dark inclusions and sanidine crystals. Inclusions up to 3 mm. Non-consolidated form drilling. Very warm to touch. Dry.	—	Qbt 3	
35-40	15%	—	β 900 dpm/ 100cm^2. α NDA. PID = 0.0 ppm.	NA	Same as above. Large cobble of quartzite was stuck in shoe and blocking recovery.	—	Qbt 3	

BOREHOLE LOG
Field Support Facility

Borehole ID: MDAB-614478	TA/FU: 21/MDA B	Drill Depth from: **0 ft to 35 ft**	Page 2 of 2
Driller: David Starnes - PSI	Start Date: 07/12/11		End Date: 07/14/11
Drilling Equipment Method: Hollow stem auger (HSA) CME-85			
Sampling Equipment Method: Continuous Core – 5-ft split spoon			
Borehole Coordinates:	Northing: 1775058.38	Easting: 1630631.92	Elevation: 7180.7

Depth (feet)	Recovery (feet per feet/ %)	Field Borehole Analytical Sample #	Field Screening Results	Top / Bottom of Core in Box	Lithology – Petrology – Soil	Graphic Log	Lithology Unit	Notes
40-45	80%	—	β 600 dpm/ 100cm^2. α NDA. PID = 0.0 ppm.	NA	Moderately to weakly welded gray tuff with maroon-ish pumice up to 4 mm. Phenocrysts of sanidine and quartzite. Approximately 5% with 1 ft sediment in near vertical fracture.	—	Qbt 3	
45-50	100%	Soil sample: DSMDAB-11-72291. Vapor sample.	β 600 dpm/ 100cm^2. α NDA. PID = 5.3 ppm.	NA	Moderately-welded gray tuff same as above. No fractures.	—	Qbt 3	
TD=50 ft bgs								

Prepared by: Lane Andress *Signature on file*	Checked by: Shanon Goldberg *Signature on file*
Print Name *Signature* *Date*	*Print Name* *Signature* *Date*

Attachment K-3

Borehole Log for MDAB-614483

BOREHOLE LOG
Field Support Facility

Borehole ID: MDAB-614483	TA/FU: 21/MDA B	Drill Depth from: **0 ft to 25 ft**	Page 1 of 1
Driller: David Starnes - PSI	Start Date: 07/15/11		End Date: 07/15/11
Drilling Equipment Method: Hollow stem auger (HSA) CME-85			
Sampling Equipment Method: Continuous Core – 5-ft split spoon			
Borehole Coordinates:	Northing: 1775060.63	Easting: 1630624.82	Elevation: 7180.68

Depth (feet)	Recovery (feet per feet/ %)	Field Borehole Analytical Sample #	Field Screening Results	Top / Bottom of Core in Box	Lithology – Petrology – Soil	Graphic Log	Lithology Unit	Notes
0-17	—	—	—	NA	Fill, brown dirt, and gravel. Fill gravel in cuttings at 10 to15 ft.	—	Fill	Hard drilling and cobbles at approximately 8 ft. Hard drilling and cobbles at approximately 12 ft.
17-20	—	—	β and α NDA. PID = 0.0 ppm.	NA	No cobbles. Put in core barrel. Fill brown dirt. Rounded gravel up to 1.5 in. Black plastic liner. Some chunks of slag up to ½ in. and tuff gravel up to ½ in. Edge of glass bottle lip in cuttings (opening of bottle approximately ½ in.)	—	Fill	
20-25	—	Soil sample: DSMDAB-11-22290.	β and α NDA. PID = 6.7 ppm.	NA	Fill to 21.5 ft then gray welded tuff. Slight purplish hue. Sanadine and quartzite phenocrysts up to 2 mm. Purplish-maroon pumice clasts up to 0.5 cm. Small lugs up to ½ in. Lined with clear crystals.	—	Fill/ Qbt 3	

TD=50 ft bgs

Prepared by: Lane Andress *Signature on file*	Checked by: Shanon Goldberg *Signature on file*
Print Name *Signature* *Date*	*Print Name* *Signature* *Date*

Appendix L

Evaluation of Detectability of Volatile Organic Compound Contamination Using Field Vapor Monitoring

The remediation activities conducted at Material Disposal Area (MDA) B included continuous monitoring of volatile organic compounds (VOCs) in air for industrial hygiene purposes during waste excavation and field screening of samples collected for laboratory analysis. The evaluation presented below was performed to determine whether these screening methods would be sensitive enough to detect VOC concentrations in soil or tuff approaching residential soil screening levels (SSLs), which were the cleanup goals for the MDA B remediation.

Field screening instruments for VOCs typically have detection limits of approximately 1 ppmv, although reliable detection at these levels may be subject to interference by high humidity. Therefore, 10 ppmv was selected as a concentration that should be easily and reliably detected in the field with screening instruments. Equilibrium partitioning relationships were then used to determine the bulk concentration of VOCs in soil or tuff that would be present in equilibrium with a vapor concentration of 10 ppmv. This would represent a bulk VOC concentration that should be detectable in the field (i.e., a clear indication of VOCs greater than background) using a field-screening instrument. If this concentration was less than the SSL, it would indicate field screening would be capable of detecting levels of contamination at or above SSLs.

VOCs in subsurface media will be present in pore gas as vapors, dissolved into pore water, and adsorbed onto solid media. Several equilibrium-partitioning constants describe the relationship between the concentrations of chemicals in these various phases. These constants, along with physical properties of the medium, can be used to develop an expression for the overall concentration of VOC in the bulk medium (i.e., soil or tuff) as a function of the concentration in the vapor phase. The following equation, which shows the relationship between bulk concentration and vapor concentration, was presented in Appendix F of the approved Phase III investigation report for MDA C (LANL 2011, 204370; NMED 2011, 208797):

$$C_{bulk} = \frac{C_{air}\left(\theta_{air} + \theta_{water}/H' + \left(K_{oc}\, f_{oc}\, \rho_{soil}\right)/H'\right)}{\rho_{soil}} \quad . \qquad \textbf{Equation L-1}$$

where C_{bulk} = the bulk concentration of chemical in the bulk medium (M/M),

C_{air} = the mass concentration of contaminant in pore vapor (M/L^3),

θ_{air} = the volumetric air-filled porosity of the bulk medium (L^3/L^3),

θ_{water} = the volumetric water-filled porosity of the bulk medium (L^3/L^3),

ρ_{soil} = the density of bulk medium (M/L^3),

H' = the dimensionless Henry's law constant for the contaminant,

K_{oc} = the organic carbon distribution coefficient (L^3/M), and

f_{oc} = the fraction of organic carbon in the bulk medium (M/M).

Equation L-1 was used to determine the bulk VOC concentration that would be in equilibrium with a pore vapor concentration of 10 ppmv for each of the 20 VOCs detected in the direct-push technology (DPT) samples collected at MDA B. Chemical property data (H' and K_{oc}) were obtained from the New Mexico Environment Department risk-assessment guidance (NMED 2012, 219971). If values were not available from this source, they were obtained from the U.S. Environmental Protection Agency (EPA) regional screening tables (http://www.epa.gov/region06/6pd/rcra_c/pd-n/screen.html). Physical properties of the bulk medium (θ_{air}, θ_{water}, ρ_{soil}, f_{oc}) were obtained from Table F-3.1-1 of the approved Phase III investigation report for MDA C (LANL 2011, 204370, p. F-38; NMED 2011, 208797). Because the MDA B disposal trenches were excavated into cooling unit 3 of the Bandelier Tuff (Qbt 3), the properties for Qbt 3 were used. The moisture content was conservatively adjusted from the value of 2% in Table F-3.1-1 to 5% to account for potentially higher moisture contents near the surface of MDA B.

Vapor concentrations in ppmv were converted to volumetric concentrations using the following expression (http://www.ccohs.ca/oshanswers/chemicals/convert.html):

$$C_{air} = {C_{ppmv}\, MW} \Big/ {24.45} \qquad \textbf{Equation L-2}$$

Where C_{ppmv} = the vapor concentration in ppmv,

MW = the molecular weight of the contaminant (g/mol), and

24.45 = a conversion factor based on a temperature of 25 deg C and pressure of 1 atmosphere.

Table L-1 presents the results of the evaluation. In all cases, the bulk soil concentrations that would be in equilibrium with a pore vapor concentration of 10 ppmv are at least 2 orders of magnitude lower than the residential SSLs. This indicates that field vapor monitoring for VOCs would be capable of detecting soil or tuff VOC contamination at or approaching residential SSLs. It is recognized that VOC screening is typically performed by having the instrument above soil or tuff and that the concentration the instrument detects may be lower than the pore vapor concentration as a result of the dilution of pore vapor into air. Because the equilibrium concentrations presented in Table L-1 are so much lower than SSLs, however, a soil concentration at SSLs would still be easily detectable by the monitoring instrument.

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.

LANL (Los Alamos National Laboratory), June 2011. "Phase III Investigation Report for Material Disposal Area C, Solid Waste Management Unit 50-009, at Technical Area 50," Los Alamos National Laboratory document LA-UR-11-3429, Los Alamos, New Mexico. (LANL 2011, 204370)

NMED (New Mexico Environment Department), December 8, 2011. "Approval, Phase III Investigation Report for Material Disposal Area C, Solid Waste Management Unit 50-009, at Technical Area 50," New Mexico Environment Department letter to G.J. Rael (DOE-LASO) and M.J. Graham (LANL) from J.E. Kieling (NMED-HWB), Santa Fe, New Mexico. (NMED 2011, 208797)

NMED (New Mexico Environment Department), February 2012 (updated June 2012). "Risk Assessment Guidance for Site Investigations and Remediation," Hazardous Waste Bureau and Ground Water Quality Bureau Voluntary Remediation Program, Santa Fe, New Mexico. (NMED 2012, 219971)

Table L-1
Comparison of Bulk Concentrations Detectable by Vapor Monitoring with SSLs

Chemical	Bulk Media Concentration in Equilibrium with 10 ppmv Pore Vapor Concentration	Residential SSL[a]
Acetone	0.61	66600
Benzene	0.023	15.4
Bromobenzene	0.11	300[b]
Bromoform	0.27	620[b]
2-Butanone	0.49	37100
Carbon disulfide	0.011	1530
Carbon tetrachloride	0.019	10.8
1,1-Dichloroethene	0.012	449
2-Hexanone	0.48	210[b]
4-Isopropyltoluene	0.053	2430[c]
Methylene chloride	0.021	409
4-Methyl-2-pentanone	0.31	5820
Styrene	0.11	7280
Tetrachloroethene	0.025	7.02
Toluene	0.031	5570
Trichloroethene	0.023	8.77
Trichlorofluoromethane	0.015	1410
1,2,4-Trimethylbenzene	0.080	62[b]
1,3,5-Trimethylbenzene	0.059	780[b]
Xylenes	0.058	814

Note: Units in mg/kg.

[a] SSLs from NMED (2012, 219971) unless otherwise noted.

[b] SSL from EPA regional screening tables (http://www.epa.gov/region06/6pd/rcra_c/pd-n/screen.html).

[c] Isopropylbenzene used as surrogate based on structural similarity.

Appendix M

Representative Photographs of Confirmatory Sample Collection

Figure 1 Samplers field screening sample material in excavator bucket

Figure 2 Samplers collecting sample material from excavator bucket

Figure 3 Samplers transferring samples into collection jars

Figure 4 Samplers transferring samples into collection jars