MOA GHIR

Appendix B

Historical Investigation Report

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B-1.0 INTRODUCTION

This historical investigation report (HIR) provides a summary of the field investigations and associated environmental data collected to date for Material Disposal Area (MDA) G. The purpose of this HIR is to provide supporting information for the proposed sampling design necessary to complete the MDA G investigation as presented in Section 4 of the investigation work plan (hereafter, the work plan).

B-2.0 MDA G DISPOSAL UNIT INFORMATION (OPERATIONAL HISTORY)

MDA G, Solid Waste Management Unit (SWMU) 54-013(b)-99, consists of SWMUs 54-013(b), 54-014(b), 54-014(c), 54-014(d), 54-015(k), 54-017, 54-018, 54-019, and 54-020. The SWMUs are inactive subsurface disposal units located within Technical Area (TA-) 54, Area G. Area G is a 65-ac fenced site containing both surface and subsurface waste management units, including operating mixed waste storage units and low-level radioactive waste (LLW) disposal units. Portions of MDA G began operations in 1957. The US Department of Energy (DOE) initially authorized MDA G for disposing LLW and certain radioactively contaminated infectious waste, asbestos-contaminated material, and polychlorinated biphenyls (PCBs) and for the temporary placement of transuranic (TRU) waste.[1] Area G is located on Mesita del Buey between Pajarito Canyon to the south and Cañada del Buey to the north. Current disposal activities at Area G include only DOE-authorized disposal of LLW and US Environmental Protection Agency (EPA)-authorized disposal of PCB waste. Resource Conservation and Recovery Act (RCRA) interim-status mixed-TRU waste[2] and DOE-authorized waste are stored in surface structures erected over many of the subsurface SWMUs.

The SWMUs comprising MDA G include 32 pits, 4 trenches, and 194 shafts (Figure B-1). The locations of the disposal units were determined by evaluating data from two global-positioning system (GPS) surveys conducted by Johnson Controls, Inc., and by the Laboratory's Facilities Waste Operations (FWO) group in 1995 and 1998, respectively (LANL 2003, 75908) and by reviewing 30 as-built drawings (LASL, LANL 1977–1989, 76099). The shafts and the corners of the disposal pits and trenches were surveyed, and the shafts are marked with brass caps. The pits, trenches, and shafts were excavated into the overlying tuff in unit 2 (caprock) and unit 1 (subsurface) of the Tshirege Member of the Bandelier Tuff. The dimensions, description of wastes, and periods of operation of the pits, trenches, and shafts are listed in Tables B-1, B-2, and B-3, respectively.

SWMU 54-013(b) was a vehicle monitoring/decontamination area located in the central portion of Area G on the surface of Pit 19. The area was used to decontaminate trucks and TRU waste drums but is no longer in use and is included in Module VIII of the Laboratory's Hazardous Waste Facility Permit.

SWMU 54-014(b) is Pit 9, which is included in Module VIII. It is 30 ft wide by 400 ft long by 20 ft deep. Pit 9 received retrievable TRU and mixed TRU waste from 1974 to 1978. Once filled, the pit was covered with 3.3 ft of crushed and compacted tuff and 4 in. of topsoil and reseeded with native grasses.

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[1] This document contains data on radioactive wastes, including source, special nuclear, and byproduct material. The management of these materials is regulated under the Atomic Energy Act and is specifically excluded from regulation under the Resource Conservation and Recovery Act and the New Mexico Hazardous Waste Act. These data are provided to the New Mexico Environment Department for informational purposes only.

[2] Generally, the terms "mixed TRU waste," "mixed LLW," and "mixed waste" are used in this document to refer to wastes containing both radionuclides and hazardous constituents and are not limited to those wastes containing both radionuclides and hazardous wastes and subject to management under RCRA or the New Mexico Hazardous Waste Act (HWA).

SWMU 54-014(c) consists of TRU waste storage Shafts 200 through 233 and is located in the northeastern quadrant of Area G. SWMU 54-014(c) is included in Module VIII. Each shaft is 1 ft in diameter and 18 ft deep, is lined with concrete, and contains TRU waste. The TRU shafts operated between 1979 and 1987; they remain inactive. The shafts were used for wastes requiring special packaging (primarily tritium), special handling (e.g., highly radioactive metals), or segregating by activity. The disposal shafts were filled with waste to within 3 ft of the ground surface, backfilled with crushed tuff, and covered with a concrete dome.

SWMU 54-014(d), which consists of TRU storage trenches A, B, C, and D, is located in the south-central portion of Area G and is included in Module VIII. These trenches began receiving TRU and mixed LLW in 1974. Trenches A, B, and C vary in size from approximately 219 to 262.5 ft long by 12.75 ft wide by 8 to 10 ft deep. Trench D is 250 ft long by 12.75 ft wide by 10 ft deep. TRU waste placed in trenches was packaged in 30-gal. containers inside concrete casks. The trenches were backfilled with 3.3 ft of crushed tuff, covered with 4 in. of topsoil, and reseeded with native grasses.

SWMU 54-015(k) consists of a layer of retrievable TRU waste in cement-filled sections of corrugated pipe located inside a mound of fill material within the top of Pit 29 in the northwest quadrant of Area G; the site is included in Module VIII.

SWMU 54-017 consists of inactive disposal Pits 1 through 8, 10, 12, 13, 16 through 22, and 24, and SWMU 54-018 consists of disposal Pits 25 through 33 and 35 through 37. Only Pit 29 (although no longer in use) is considered an active regulated unit until RCRA closure is certified and approved by the New Mexico Environment Department (NMED). Both SWMUs 54-017 and 54-018 are included in Module VIII. Most of the pits comprising SWMU 54-017 received radioactive, mixed, and TRU wastes in the form of wing tanks, dry boxes, building debris, sludge drums, laboratory waste, contaminated soil, decontamination and decommissioning (D&D) waste, filter plenums, and uranium. Pits 1 through 8, 10, 12, 13, 16 through 22, and 24 are located in the eastern portion of Area G (Figure B-1) with volumes ranging from 1371 to 56,759 cu yd. Pits 25 through 28 and 30 through 36 received radioactive, mixed, and TRU waste in the form of reactor control rods, D&D waste, contaminated soil, transformers, glove boxes, asbestos, and laboratory waste. They range in volume from 20,957 to 59,930 cu yd. Pit 29 received TRU cement paste. Pit 37 primarily received circuit boards and contaminated soil. Once filled, the pits were covered with 3.3 ft of crushed, compacted tuff, covered with 4 in. of topsoil, and reseeded with native grasses.

SWMU 54-019 consists of 92 disposal shafts: 1 through 20, 24 through 34, 38 through 92, 96, 109 through 112, and 150. These 92 shafts are included in Module VIII and were operational between 1966 and 1980. The shafts received LLW, chemical, and mixed waste. They range in size from 1 to 6 ft in diameter and 25 to 60 ft in depth and are located primarily in the northeast quadrant of Area G (Figure B-1). Disposal shafts were filled with waste to within 3 ft of the ground surface, backfilled with crushed tuff, and covered with a concrete dome.

SWMU 54-020 consists of 68 disposal shafts: C1 through C10, C12, C13, 22, 35 through 37, 93 through 95, 99 through 108, 114, 115, 118 through 136, 138 through 140, 151 through 160, 189 through 192, and 196. The 68 shafts are included in Module VIII and were operational between 1970 and the early 1990s. Only Shaft 124 (although no longer in use) is considered an active regulated unit until RCRA closure is certified and approved by NMED. The shafts contain one or more of the following waste types: PCB residues, LLW, and hazardous and mixed waste. The shafts range from 1 to 8 ft in diameter and 25 to 65 ft in depth, and are located throughout the eastern portion of Area G (Figure B-1). Disposal shafts were filled with waste to within 3 ft of the ground surface, backfilled with crushed tuff, and capped with a concrete dome.

In general, disposal areas were excavated, filled, and capped sequentially from the east end of the site, progressing toward the west end. Temporary sprung-dome structures on asphalt pads have been placed over many of the older disposal areas to support ongoing waste management activities.

B-2.1 Waste Inventory and Disposal History

Waste disposal records for MDA G, found in un-numbered disposal logbooks (LASL, LANL 1966–1996, 76036), were used to record information on the type of waste, date of disposal, location, and volume of waste placed in each disposal unit. The exact identity, activity, and volume of every waste package are not included, and the exact location of disposal within each unit is not always provided.

An estimate of the types, activities, and quantities of waste disposed of in MDA G units was compiled in the Operable Unit (OU) 1148 data report (LANL 1992, 23247) and in the approved RFI work plan for OU 1148 (LANL 1992, 7669). Inventory disposed of before 1971 includes waste defined as mixed TRU waste by current regulations. Inventory disposed of after 1971, but before 1987, included waste defined as mixed LLW by current regulations. The hazardous constituents in these wastes make this inventory subject to RCRA corrective action. Complete records were not kept until 1986 on the types or amounts of hazardous constituents contained in disposed waste or the types or amounts of radioactive constituents contained in TRU waste disposed of before 1971. In this HIR, hazardous and mixed wastes generated before 1986 are assumed to be similar to waste generated after 1986, and TRU waste generated before 1971 is assumed to be similar to waste generated after 1971. These assumptions were used when analyzing existing waste characterization records to estimate the inventory in SWMUs through 1990. It was further assumed that the processes generating the largest volumes of mixed and TRU waste were similar before and after these dates. The processes generating the largest volumes of waste currently and in the past are

- nuclear materials processing, which presently occurs at TA-3 and TA-55 and occurred at TA-21 until 1977, and
- liquid wastewater treatment, which presently occurs at TA-50 and occurred at TA-21 until 1963.

The details of the inventory estimation approach and the estimates are included in Appendix G of this work plan. Tables B-4 and B-5 estimate the total waste and the estimated mass of waste disposed of in the pits, shafts, and trenches. Tables B-1, B-2, and B-3 provide a description of the wastes disposed of in each pit, trench, and shaft. The information in the logbooks and Appendix G is sufficient to estimate the inventory of waste disposed of in the pits, trenches, and shafts comprising MDA G.

B-2.2 Previous Field Investigations

On May 7, 1985, the New Mexico Environmental Improvement Division (NMEID, now NMED) issued the Laboratory a Compliance Order that addressed numerous waste management practices at the Laboratory (NMEID 1985, 75885). The 1985 Order specified six tasks (listed below) that involved site investigation activities in and around Area G. A hydrogeologic assessment of Areas G and L of TA-54 (LANL 1987, 76068) was submitted in 1987 in response to the 1985 Compliance Order/Schedule.

Task 1: Measure the Intrinsic Permeability of the Tuff

In 1986, five boreholes (three at Area L and two at Area G) were advanced to 125 ft below ground surface (bgs) to measure air permeability in units 2 and 1v of the Tshirege Member of the Bandelier Tuff. Field methods included air injection and vacuum testing of the boreholes. Water injection permeability tests conducted in one borehole validated the results of air tests. Intrinsic permeability of four samples

from each borehole was determined in a laboratory using the Klinkenberg and the Dynamic methods (LANL 1987, 76068). Field methods yielded intrinsic permeability in the range of 10^{-8} to 10^{-9} cm^2, and laboratory methods yielded values of 10^{-9} cm^2.

Task 2: Determine the Soil-Moisture Characteristic Curves

Gravimetric moisture content was estimated from core from Bandelier Tuff recovered from 12 boreholes in Areas G and L. The volumetric water content ranged from 2% to 4% with isolated intervals ranging up to 10% to 28%. Soil moisture characteristic curves, which show the relationships between moisture content and matric potential, determined from 20 samples of Bandelier Tuff, showed field moisture conditions generally ranging from 2% to 10% and occasionally up to 28%.

Task 3: Determine the Unsaturated Hydraulic Conductivity of the Bandelier Tuff

Five samples from each of four tuff horizons were used to determine unsaturated hydraulic conductivity using both theoretical and laboratory methods. Theoretical methods yielded an average of 2.64×10^{-4} ft/day and measured values averaged 1.32×10^{-4} ft/day.

Task 4: Analyze the Infiltration and Redistribution of Meteoric Water into the Tuff

Analysis of infiltration and redistribution of meteoric water into the tuff was conducted by neutron-moisture monitoring and by measuring matric potential with thermocouple psychrometers. Neutron moisture monitoring and gravimetric moisture measurements indicated that the volumetric moisture content of the tuff below 10 ft is approximately 2% to 4%. In addition, analysis of daily moisture logs after autumn precipitation indicated that the depth of infiltration of meteoric water is approximately 10 ft. Moisture did not appear to move deeper than 10 ft and was assumed to return to the surface through evapotranspiration. Psychrometers indicate that soil tensions range from slightly less than 1 bar to approximately 15 bars. Vertical hydraulic gradients, as determined by psychrometers, ranged from downward gradient values of 10.2 ft/ft to upward values of 4.12 ft/ft. Calculation of liquid flux rates through porous media using field-derived hydraulic gradients and laboratory-derived unsaturated hydraulic conductivities yielded mean flux rates of 0.036 ft/yr and 0.211 ft/yr for Areas L and G, respectively.

Task 5: Characterize the Core and Pore Gas in the Vadose Zone

In 1985, four boreholes were drilled at Area L and two at Area G; one background borehole was drilled on the western end of Mesita del Buey for core and pore-gas analyses of the Bandelier Tuff. Core samples collected from each 10-ft interval in all seven boreholes were analyzed for extraction procedure (EP) toxicity and volatile organic compounds (VOCs). No EP toxicity metals were detected in core samples below a depth of 20 ft. Part per million (ppm) concentrations of VOCs were detected in core samples from Area L and were detected at Area G at part per billion (ppb) concentrations.

A total of 23 sampling ports were installed in the 7 boreholes to collect pore-gas samples to a depth of 100 ft. Analysis of samples collected by pumping the pore gas through charcoal adsorption tubes showed that VOCs were detected in Area L in ppm concentrations at all depths sampled and in the ppb range at all depths sampled at Area G.

Task 6: Analyze the Potential Presence of Perched Water

Four test holes drilled in Cañada del Buey were converted to monitoring wells. Seven test holes were drilled in Pajarito Canyon, and three were converted to monitoring wells. The wells investigated the

alluvial perched water systems potentially present in these canyons. The alluvium in Cañada del Buey was confined to the canyon, and all four test holes in the alluvium were dry. In Pajarito Canyon, a perched water system was intersected by the boreholes. The top of the perched water was about one to five ft below the surface of the alluvium, and the water level fluctuated significantly over short periods of time. The hydrogeologic analysis concluded that the perched water in Pajarito Canyon was confined to alluvium within the canyon and did not extend vertically or horizontally into the Bandelier Tuff, which forms Mesita del Buey (LANL 1987, 76068, p. 6-7). No perched water was found in Cañada del Buey, and no perched bodies of water that could be hydraulically connected to the regional aquifer were detected beneath Areas G and L.

Between 1996 and 1998, the Laboratory voluntarily drilled and instrumented two boreholes at Area G and 15 boreholes at Area L to begin characterizing the nature and extent of the vapor-phase VOCs. Analytical results from Area G pore-gas monitoring from 1985 to 1990 were reported in Trent (1990, 12557; 1992, 11881) and in a report on the soil-vapor sampling wells and data from Areas G and L of TA-54 (LANL 1991, 11729).

A review of analytical data presented in these reports for Area G indicate

- 1,1,1-trichloroethane (TCA) is the primary VOC pore-gas constituent;
- TCA is present to at least 153 ft below the surface of the mesa; and
- TCA concentrations vary.

B-3.0 MDA G PHASE I RFI FIELD INVESTIGATIONS AND REVIEW OF FIELD-SCREENING, SURVEY, AND LABORATORY RESULTS

Field Investigation Summary

MDA G Phase I RFI fieldwork was conducted from 1993 through 2003. The approved RFI work plan for OU 1148 specified sampling surface sediment, subsurface tuff, surface flux, ambient air, and pore gas. Sediment was analyzed for inorganic chemicals (target analyte list [TAL] metals), cyanide, organic chemicals (pesticides and PCBs), and radionuclides. Core samples were analyzed for the above and additionally for semivolatile organic compounds (SVOCs). Particulate ambient-air samples were analyzed for radionuclides only. Surface flux and pore-gas samples were analyzed for VOCs. Pore-gas samples were collected in 2003 and analyzed for tritium to supplement data required by the OU 1148 work plan (LANL 1992, 7669, pp. 5-211–5-250). Tritium was also analyzed in ambient-air and surface flux samples.

The objectives of the MDA G Phase I RFI were to determine the nature of contaminants released from MDA G, to define the extent of the VOC plume and any other identified contaminant releases, to collect data to support and supplement existing data, and to collect data to be used in a risk assessment. MDA G Phase I RFI fieldwork conducted included

- collecting and analyzing 59 surface channel sediment samples;
- drilling ten vertical boreholes and ten angled boreholes;
- collecting and analyzing 156 core samples;
- collecting and analyzing 142 tritium surface flux samples, 281 (including field duplicates) VOC surface fluxsurface flux samples, 227 ambient-air samples for tritium, and 16 ambient-air samples for VOCs;

- collecting and analyzing 48 subsurface pore-gas samples for VOCs; and
- collecting and analyzing 13 subsurface pore-gas samples for tritium.

A summary of work plan specifications, fieldwork performed, and rationale for deviations from the work plan are provided in Table B-6.

Data Review Summary

The MDA G Phase I RFI data set includes analytical data from 59 surface channel sediment samples, 156 core samples collected from 19 boreholes, 142 surface tritium flux samples, 281 surface VOC EMFLUX® survey samples, including 10 field duplicates for VOCs, 16 ambient-air samples for VOCs, 48 subsurface pore-gas samples for VOCs, and 13 subsurface pore-gas samples for tritium. All data quantitatively used to identify chemicals of potential concern (COPCs) at MDA G were subjected to Risk Reduction and Environmental Stewardship–Remediation Services (RRES-RS) quality assurance and quality control (QA/QC) procedures.

The data review process for identifying COPCs begins with a comparison of site data with

- naturally occurring background concentrations for inorganic chemicals
- naturally occurring background or fallout concentrations for radionuclides, and
- analytical estimated quantitation limits (EQLs) for organic chemicals.

Background comparisons and statistical and graphical methods are used to compare site inorganic chemical and radionuclide data with Laboratory background data (LANL 1998, 59730). Organic chemical data were evaluated for detection status only. For background comparisons, the first step was to compare the site data with a background value (BV). A BV may be an estimated value for the background data set (upper tolerance limit [95, 95] or the 95% upper confidence bound on the 95th quantile), a detection limit (DL), a fallout value (FV), or it may be calculated based on secular equilibrium or a total analysis (LANL 1998, 59730).

If a site-specific datum exceeds its BV, additional evaluation of the datum may be performed by comparing the range of values in the site data set for that chemical with the range of values for that chemical in the background data set. Graphical analyses (e.g., box plots) may be used, or if adequate data are available, statistical tests that evaluate differences in distribution may be used. Nonparametric tests commonly used to assess data distributions include the Gehan, quantile, and slippage tests. Together, these tests assess complete shifts in distributions, shifts of a subset of the data, and the potential for some of the site data to be greater than the maximum background concentration. Observed significance levels (p-values) are obtained; these values indicate whether a difference does or does not exist between the data sets. A p-value of less than 0.05 indicates a difference exists between the distributions (i.e., the site data are different from the background data). A p-value greater than 0.05 indicates that no difference exists between distributions (i.e., site and background data are similar). Statistical tests, graphical analyses, and their results are discussed in Appendix D of this work plan.

Only data relevant for identifying COPCs are discussed in this section, including measurements above applicable thresholds or DLs greater than an applicable threshold.

B-3.1 Surface Investigation

Surface flux measurements were made across MDA G in 1993 and 1994. Surface flux of VOCs was measured during this period by two methods: first, using flux chambers with SUMMA canisters and, second, using the EMFLUX® device. Tritium surface was measured using only the flux chamber. The following sections summarize these measurements.

B-3.1.1 Channel Sediment Sampling

The fifteen drainages from Area G are shown in Figure B-2. In 1994, samples of sediments were collected at 113 locations (Figure B-2). Samples were collected from depths between 0 and 10 in. using stainless steel trowels. Sixteen field-duplicate samples were also collected from the drainages. All samples were field-screened by the Laboratory's mobile radiological analysis laboratory (MRAL). Screening was used to identify 59 samples for off-site laboratory analysis, including at least 4 samples from each drainage channel. These samples were selected based on their potential for having received runoff from Area G were submitted to an off-site contract laboratory for analysis of inorganic chemicals and cyanide; radionuclides (americium-241, isotopic plutonium, strontium-90, thorium, tritium, and uranium); and organic chemicals (PCBs and pesticides) (LANL 1996, 54462). Table B-7 lists the sample identification numbers, sediment sample locations, depths, and requested analyses for samples submitted to the analytical laboratory.

Inorganic Chemical Comparison with BV

Fifty-nine channel sediment samples were collected from drainages around Area G and were analyzed for inorganic chemicals. Many results for inorganic chemicals were qualified as estimated (J) because of evidence of variable efficiency of extraction from the sediment matrix or very low (relative to DLs) reported concentrations. These J-qualified data are usable; however, they have a higher analytical uncertainty than unqualified inorganic chemical data. Overall, the inorganic chemical data for MDA G are of good quality and sufficient for data assessment. Beryllium, cobalt, mercury, selenium, and silver DLs were elevated; beryllium had one DL above BV in one sample. Tables B-8a and B-8b present the frequency of inorganic chemicals above BVs in channel sediments and the samples with concentrations above background. The complete data set is provided in Appendix C, Table C-4. Appendix D provides box plots for comparing selected inorganic chemicals with background data.

The inorganic chemicals that exceeded their BVs were subjected to statistical comparisons (Appendix D; LANL 1998, 59730) to define the final list of inorganic COPCs in channel sediments. Not all of the data sets were large enough to be subjected to a full statistical comparison. The following is a summary of the results of the statistical background comparison.

- Barium was detected above its BV in three samples. Statistical analysis indicated barium was not statistically different from background concentrations ($p > 0.05$). Barium was not retained as a COPC.
- Beryllium was not detected above its BV in any samples, but one DL exceeded BV. Beryllium was retained as a COPC resulting from a single elevated DL.
- Cadmium was detected above BV in one sample and had DLs above BV in 32 samples. The analysis indicated cadmium was statistically different from background concentrations ($p < 0.05$). Cadmium was retained as a COPC.

- Calcium was detected above BV in one sample. The analysis indicated calcium was not statistically different from background concentrations (p >0.05). Calcium was not retained as a COPC.
- Chromium was detected above its BV in one sample. The analysis indicated chromium was not statistically different from background concentrations (p >0.05). Chromium was not retained as a COPC.
- Cobalt was not detected above BV in any sample, but three DLs were above BV. Because there were no detections, statistical analysis could not be performed. Cobalt was retained as a COPC because of elevated DLs.
- Iron was detected above BV in one sample. The analysis indicated iron was not statistically different from background concentrations (p >0.05). Iron was not retained as a COPC.
- Magnesium was detected above BV in one sample. The analysis indicated magnesium was not statistically different from background concentrations (p >0.05). Magnesium was not retained as a COPC.
- Mercury was not detected above BV in any samples, but one DL was above BV. Mercury was retained as a COPC because the DL was elevated.
- Selenium was not detected above BV in any samples, but selenium had DLs above BV in 25 samples. Because there were no detections, statistical analysis could not be performed. Selenium was retained as a COPC because of elevated DLs.
- Silver was not detected above BV in any samples, but silver had DLs above BV in 27 samples. Because there were no detections, statistical analysis could not be performed. Silver was retained as a COPC.

Five inorganic chemicals (beryllium, cobalt, mercury, selenium, and silver) were retained as COPCs as a result of elevated DLs. Cadmium was retained because it was statistically different from background concentrations.

Radionuclide Comparison with BVs

The radionuclide results for sediment samples are not qualified, except for the tritium results, which were qualified J (estimated) because the results from a blind QC sample fell outside the sample recovery limits. The radionuclide data are of good quality and sufficient for use in the data assessment. Tables B-9a and B-9b present the frequency of radionuclides above BV in channel sediments and samples with concentrations above background. The complete data set is provided in Appendix C, Table C-6. Box plots are provided in Appendix D.

The BV and statistical comparisons indicate the following:

- Americium-241 was detected above BV in 12 samples. The analysis indicated it was statistically different from the background data set (p <0.05). Americium-241 was retained as a COPC.
- Cesium-137 was detected above BV in four samples. The analysis indicated it was not statistically different from the background data set(p <0.05). Cesium-137 was not retained as a COPC.
- Cobalt-60 was detected in three samples. Cobalt-60 does not have a BV and therefore was retained as a COPC.

- Plutonium-238 was detected above BV in 39 samples. The analysis indicated it was statistically different from the background data set ($p < 0.05$). Plutonium-238 was retained as a COPC.
- Plutonium-239 was detected above BV in 20 samples. The analysis indicated it was statistically different from the background data set ($p < 0.05$). Plutonium-239 was retained as a COPC.
- Tritium was detected above BV in 7 samples. The analysis indicated it was statistically different from the background data set ($p < 0.05$). Tritium was retained as a COPC.

In summary, four radionuclides, americium-241, plutonium-238, and plutonium-239, and tritium, were detected in channel sediment samples at levels above their associated BVs (LANL 1998, 59730) and were identified as COPCs (Figure B-3). Cobalt-60 was detected in channel sediments but has no associated BV; therefore, cobalt-60 was retained as a COPC.

Evaluation of Organic Chemicals

The sediment in drainages around Area G was analyzed for PCB and pesticides. These data are of good quality and sufficient for data assessment. The complete data set is provided in Appendix C, Table C-5.

Methoxychlor, a synthetic organochlorine insecticide, was the only detected organic chemical in sediment. It was detected in 13 samples (Figure B-4) at concentrations ranging from 0.02 mg/kg to 0.0589 mg/kg. The maximum concentration of methoxychlor was reported in a sample collected from drainage G-13, which drains into Cañada del Buey from the northeast corner of Area G (Figure B-2). Methoxychlor was retained as a COPC in sediment.

B-3.1.2 Ambient-Air Sampling

Ambient-Air Sampling for Particulate Radionuclides

Air-Monitoring Network (AIRNET) ambient-air data for particulate radionuclides from San Ildefonso and Jemez Pueblos and other regional locations (i.e., Española, Pojoaque, Santa Fe, Santa Fe West, and El Rancho) were compared with data collected at Area G. The range of annual average concentrations for Area G and regional and pueblo ambient-air monitoring stations for 2001 are shown in Table B-10. A discussion of the data can be found in an Environmental Surveillance Program report (2002, 73876).

Plutonium-238, plutonium-239, and americium-241 concentrations were elevated with respect to regional and pueblo air stations. At Area G, the highest concentrations of plutonium-238, plutonium-239, and americium-241 were measured at air station 34, located in the northeastern corner of the site (Figure B-5). Uranium isotopes are slightly elevated at Area G relative to regional and pueblo air stations. Uranium concentrations were highest at air station 45 (Figure B-5 and Table B-10), located outside the fenced perimeter of Area G to the east.

Risk Reduction and Environmental Stewardship–Meteorology and Air Quality (RRES-MAQ) routinely monitors ambient air for radionuclides at nine air-sampling stations located around Area G (Figure B-5). Station 38 is a QA/QC station. Between two and four samples are collected each year at each station and analyzed for isotopes of uranium, plutonium, and americium; approximately 25 samples are collected each year and analyzed for tritium. Ambient-air samplers at Area G contain a particulate filter for trapping alpha-emitting radionuclides and a silica gel cartridge for trapping tritium as water vapor. Although samples are typically collected biweekly during the sampling period, the samples for the alpha emitters are composited for quarterly or semiannual analysis to ensure adequate amounts of radionuclides are present to allow quantification of activities in air. Details of the sample collection, analysis protocols, data management, and QA/QC programs are described in the AIRNET project plan (Environmental

Surveillance Program 1998, 59904). The RRES-MAQ AIRNET data were used to identify radionuclide COPCs in the air at MDA G.

Ambient-Air VOC Concentrations

During the summer of 1994, ambient-air samples were collected in SUMMA canisters for VOC analysis on eight days at two sampling locations (locations 1 and 2 in Figure B-6) on the northern perimeter of Area G. Samples were also collected at a background location adjacent to Bandelier National Monument (location 3 in Figure B-6 inset). Sampling dates included June 16, 17, 29, and 30; July 28; and August 1, 2, and 3, 1994. The June samples were collected at the height of the dry season on the Pajarito Plateau, while the July and August samples were collected during the rainy season. Samples were collected over approximately an 8-hr period beginning at 8:00 a.m. Meteorological data (i.e., ambient temperature and wind speed) were also recorded. Samples were analyzed for VOCs using EPA Method TO-14. Ambient-air data from these sampling events were used to identify potential air contamination from Area G. Table B-11 shows average concentrations of VOCs in ambient air at the two Area G sampling locations. A number of VOCs were detected consistently during the sampling period. Acetone and methanol were detected at the highest concentrations at both stations. The background air concentration data collected at the Bandelier National Monument, location 3, are shown in Table B-12. A more detailed discussion of this sampling activity is presented in Mischler and Anderson (1994, 63525).

Ambient-Air Tritium Concentrations

Tritium concentrations for samples collected from Area G AIRNET air stations (Figure B-5) in 2001 are shown in Table B-13. With the exception of station 35 (Figure B-5), median tritium concentrations for the air stations ranged between 12 and 39 pCi/m^3. Station 35 had a median tritium concentration of 598 pCi/m^3. This station is located within the perimeter of tritium hot spot 1 (Figure B-7) near a group of tritium disposal shafts. The maximum tritium concentration at station 35 was 7316 pCi/m^3. The mean tritium concentration for all of the Area G air stations during the 2001 sampling period was 227 pCi/m^3. The mean concentration, excluding station 35 data, was 28 pCi/m^3. These concentrations are elevated relative to 2001 regional, pueblo, and perimeter air stations, which together had a mean tritium concentration of 2.2 pCi/m^3 (Environmental Surveillance Program 2001, 71301).

B-3.2 Surface Flux Measurements

B-3.2.1 Tritium Surface Flux (Chamber) Measurements

Tritium flux was measured using flux chambers during the summer of 1993 at 118 locations within and around Area G. Three suspected tritium high-flux areas, tritium hot spots 1, 2, and 3 (Figure B-7), were sampled at 37, 35, and 18 sampling locations, respectively. The flux chamber sampling apparatus consisted of a 1300 cm^2 Plexiglas flux chamber pressed about 1 in. into the soil through which a sweep gas was fed at a constant rate. Air was pulled through the chamber with a pump at a rate slightly less than the sweep gas rate to avoid dilution with ambient air. Tritium samples were collected on primary and secondary silica gel tubes. Twenty-four surface locations in hot spots 1 and 2 were sampled again in 1994.

Measurement of Emission Fluxes for Tritium

The mesa top (T1–T20) and mesa slope (C11–C30) samples (Figure B-8) collected and analyzed by RRES-RS had calculated tritium flux rates between approximately 2 and 50 pCi/m^2/min. In tritium hot spot 1 (Figure B-7), 32 of the 37 sampling locations had flux rates that measured between single digits and several

thousand pCi/m^2/min. Of the remaining five locations, all associated with tritium disposal Shafts 150, 151, or 154, measured concentrations ranged from approximately 300,000 to 13,000,000 pCi/m^2/min. Approximately 70% of the tritium emissions from MDA G are associated with these three shafts, and over 90% of total tritium emissions originate in tritium hot spot 1 (Eklund 1995, 56033). In tritium hot spot 2, tritium flux was measured at 132,000 and 61,000 pCi/m^2/min at locations 101 and 103, respectively. In suspected tritium hot spot 3 (Figure B-7), tritium was not detected above the report's local background concentrations (Eklund 1995, 56033). These data are used to assess the extent of tritium contamination.

B-3.2.2 VOC Surface Flux (Chamber) Measurements

VOC surface flux data were measured across Area G in two surveys in 1993 and 1994 (Eklund 1995, 56033). Sample locations (Figure B-8) were not specifically targeted to the area where subsurface VOCs are now known to exist. The same type of flux chamber apparatus was used as described in the tritium sampling discussed above. Gas samples were collected in SUMMA canisters attached to a manifold along the gas exit line from the flux chamber.

In 1993, VOC surface flux data were collected from sample locations T1 through T20 (Figure B-8). Two duplicate samples (from locations T9 and T13), a field blank, a system blank, and a control point were also collected. In 1994, surface flux data were collected from three locations on the mesa top (T16, TR3-08, and TR1-24) and four on the mesa slopes (C15, C22, C24, and C27). Three duplicate samples (two at location S3 and one at T1), two field blanks, a system blank, and a background sample at Bandelier National Monument were also collected in 1994. As a QA measure, sampling locations T1 and T4 through T7 were sampled at two different times in 1993. In 1994, locations T1, T2, T16, TR1-24, and S3 were sampled at two different times.

The principal VOCs detected in 1993 and 1994 mesa-top samples at Area G included methylene chloride, TCA, and tetrachloroethene (PCE) (Eklund 1995, 56033). Freon 113 was also detected in many samples. Although many VOCs were detected in the flux chamber samples, analytical and sampling difficulties impacted the sampling results. For example, methylene chloride detections were in part the result of contamination in the sampling system because it was detected at relatively high concentrations in both 1993 and 1994 system blanks.

High levels of methanol, ethanol, and acetone were detected in the 1993 data only. Methanol may be present as a laboratory contaminant when preparing the SUMMA canisters. In the 1994 samples taken from locations T16, TR3-08, and C24 (in the same approximate area) (Figure B-8), these three chemicals were either not detected or were present only at trace levels (µg/m^3). The concentrations of methylene chloride are also generally higher in the 1993 data, including the system blanks.

Given the data quality concerns, these data are used only qualitatively for assessing the extent of VOC contamination.

Surface Adsorbent-Cartridge Measurements of VOCs (EMFLUX®)

VOC data were also collected in 1993 and 1994 using an EMFLUX® device (consisting of 100 mg of adsorbent material suspended on a stainless steel stake beneath a stainless steel shell with an area of 62 cm^2). Details of the EMFLUX® surface flux VOC investigations are presented in two Quadrel Services, Inc., reports (1993, 63868; 1994, 63869). Approximately 174 collection devices were deployed at Area G in late August 1993 and collected after four days. Another 74 devices were deployed at Area G on August 15 and collected on August 19, 1994. A total of 260 samples, including duplicates, were analyzed.

The 1993 and 1994 sampling locations are shown in Figure B-9. Most of the 1993 samples were collected on the mesa top, while most of the 1994 samples were collected from the mesa slopes and drainages.

Two surface flux studies were conducted at Area G using the EMFLUX® method. In 1993, the mesa top of Area G was the focus of investigations, and in 1994 the mesa top and slopes were investigated. Trujillo et al. (1998, 58242) reported that 16 VOCs were measured above DLs in one or more of the Area G flux samples collected in 1993. These VOCs included acetone, benzene, carbon disulfide, carbon tetrachloride, chloroform, chloromethane, 1,1-dichloroethane, 1,1-dichloroethene, methylene chloride, PCE, toluene, TCA, trichloroethene (TCE), trichlorofluoromethane (Freon 11), 1,1,2-trichlorotrifluoroethane (Freon 113), and xylene. Fewer compounds were detected in the 1994 samples from the mesa slopes. In the 1994 samples, detected VOCs were limited to acetone, 1,1-dichloroethane, 1,1-dichloroethene, methylene chloride, PCE, toluene, TCA, TCE, Freon 113, and xylene.

The largest flux rates observed in the 1993 data were for TCA. The next highest flux rates are those of PCE, followed by Freon 113. These VOC concentrations also correlate well to those detected in flux chamber sampling (Eklund 1995, 56033). TCE was observed in many samples but at relatively low flux rates, while 1,1-dichloroethene was observed relatively infrequently but at higher flux rates than TCE. The 1994 flux data from the slopes showed much lower flux rates than those from the 1993 mesa-top data. TCA was again the most prevalent VOC detected, followed by PCE; 1,1-dichloroethene was the only other VOC detected at relatively high flux rates on the slopes. TCA, PCE, and 1,1-dichloroethene were measured at high flux rates primarily on the east end of Area G, while Freon 113 was most prevalent in the western area around Pits 25 through 29, 32, 33, and 35. A plot showing the distribution of TCA surface flux at Area G is shown in Figure 13 of this work plan. The EMFLUX® data are of good quality and sufficient for evaluating the extent of VOC contamination in pore gas near the ground surface.

B-3.3 Subsurface Investigations

MDA G Phase I RFI Core Sampling

From June 1994 to December 1995, a total of 20 boreholes were installed in accordance with the approved OU 1148 work plan (LANL 1992, 7669). In June 1994, two boreholes designated as 54-01110 and 54-01111 were drilled in the southern portion of Area G, and from September 29 to December 20, 1995, 18 additional boreholes were drilled. In December 1995, borehole 54-01107 was extended to a depth of 130 ft to obtain additional characterization data. Borehole 54-01113 was abandoned at 17.5 ft, grouted, and covered with a steel plate because it was inadvertently sited within a subsurface disposal area (Marin 1995, 56694.15). Therefore, the total number of MDA G Phase I RFI boreholes was reduced to 19. The two samples collected and analyzed from borehole 54-01113 were not used in the RFI data review because they represent samples of the disposed waste rather than the surrounding tuff. The remaining 19 boreholes are either instrumented for pore-gas sampling or remain open and sealed at the surface with steel well casing.

The locations of the MDA G Phase I RFI boreholes (including 54-01113) relative to the adjacent disposal units are shown on Figure B-10. Pertinent information on each borehole, including depth, declinations, and adjacent disposal areas are listed in Table B-14. The exterior and ends of each core barrel and each 5-ft interval of core were screened for VOCs using a photoionization detector (PID) for health and safety purposes; hand-held field instruments were used to screen for gross alpha, and beta and gamma radiation for health and safety purposes and to identify sampling intervals. Each 5-ft interval of core was inspected for fractures or stains, and the results were noted in borehole logs (Appendix F).

Fifty-one samples were collected from continuous core from boreholes 54-01110 and 54-01111 at various intervals. From continuous core collected from the 18 other boreholes, 105 samples were collected at 10- to 20-ft intervals. In total, 156 core samples were collected and analyzed for TAL metals, VOCs, SVOCs, pesticides, PCBs, and radionuclides. Table B-15 lists the core sample identification numbers, sample locations, sample depths, media, and requested analyses.

Pore-Gas Sampling for VOCs

Subsurface pore-gas sampling at TA-54 is required by Section C.5 of Module VIII, Unsaturated Zone Monitoring (EPA 1990, 1585; EPA 1994, 44146). The approved sampling and analysis plan (Davis 1993, 38812) requiring pore-gas samples to be collected each quarter from 12 of the 28 available boreholes at Area G (4 boreholes) and Area L (8 boreholes) is described in the Laboratory's response (LANL 1993, 22430) to an EPA notice of deficiency (Driscoll 1992, 3849). Of the four boreholes at Area G listed in Module VIII, two boreholes are to be selected each quarter for pore-gas-sampling (Table B-16 and Figure B-11). Detailed borehole logs, including lithologies and well construction diagrams for the four RFI boreholes, are presented in Appendix F. A summary of MDA G pore-gas monitoring activities from 1988 to present is included in Appendix E.

Since 1997, pore-gas sampling has been aided and directed using soil-gas screening with a Brüel and Kjaer (B&K) Multigas Analyzer, Model 1302. The gas analyzer can analyze for five analytes and is used to screen for TCA, TCE, PCE, Freon 113, carbon dioxide, and water vapor. The gas analyzer is integrated into a gas-sampling train that allows subsurface soil gas purging, screening, and SUMMA canister sampling. Soil gas ports are purged until subsurface carbon dioxide levels have stabilized to representative soil gas levels prior to screening and sampling. Also included in the quarterly screening are eight additional RFI boreholes (Table B-16) that were instrumented with positive-pressure membranes by the Facility Waste Operations (FWO) group.

Following the MDA G Phase I RFI subsurface investigation, the Waste Facility Management (WFM) unit of the FWO, the operational custodian of Area G, assumed ownership of the MDA G Phase I RFI boreholes. With the exception of boreholes 54-01110 and 54-01111, all boreholes were capped with a steel well casing. Subsequently, steel surface casing was emplaced in boreholes 54-01110 and 54-01111, and they have been instrumented with positive-pressure membranes for pore-gas monitoring by FWO-WFM. Boreholes 54-01107, 54-01115, 54-01117, 54-01121, 54-01126, and 54-01128 also have been instrumented with positive-pressure membranes for pore-gas monitoring. The remaining boreholes are sealed at the surface with a segment of well casing. Borehole 54-01113 was abandoned.

Until fiscal year (FY) 2000, the pore-gas procedure called for screening borehole ports using the B&K followed by SUMMA sampling at the highest concentration port of selected boreholes. This procedure provided a good data set for a limited number of ports in a limited number of boreholes. To address data requirements associated with the nature and extent of contamination, the procedure was modified in FY2000 at the request of NMED. All ports in all boreholes are still screened using the B&K to provide data regarding changes in the concentrations of VOCs in the plume; however, the screening results are not used to direct SUMMA sampling. Instead, specific ports are sampled with SUMMA canisters to evaluate changes in the plume stability based on a sampling schedule presented in the July through September RRES-RS quarterly technical reports (LANL 2002, 73712; LANL 2003, 80901).

Pore-gas monitoring methods have evolved over time. Appendix E provides a history of the monitoring methodologies, including the current monitoring program used at Area G. In general, the methods and resulting data quality have improved. In this HIR, the pore-gas monitoring data collected prior to and during 1996 are used semiquantitatively to assess the history of MDA G's subsurface vapor-phase VOC

plume (Appendix E). The data collected from 1997 to present have been subjected to rigorous QA/QC procedures, both in field collection and laboratory analysis. During each round of quarterly sampling, an equipment blank is collected to determine whether laboratory contamination has affected the analytical results, a field duplicate is collected to determine if the analytical instrument is within precision limits, and a performance-evaluation sample of calibration gases is collected to determine if the calibration gases used for the B&K screening instrument are at the concentrations listed on the gas cylinder.

The pore-gas monitoring data for MDA G indicate that VOCs are COPCs in pore gas. TCA is the dominant VOC detected. The highest VOC concentration measured was 167 parts per million by volume (ppmv) for TCA. Table B-17 summarizes the detected organic chemicals in MDA G pore-gas samples from 1999 to 2002.

Pore-gas screening with the B&K gas analyzer is used in addition to the analytical sampling with SUMMA canisters. Through FY1999, the B&K gas analyzer was used to identify the port in each scheduled monitoring well with the highest VOC concentrations for collecting SUMMA canister samples and laboratory analysis using EPA Method TO-14. This data set represented the maximum concentrations in the boreholes. Table B-18 presents maximum detected concentrations for each VOC from the fourth quarter of FY1999 SUMMA canister sampling results, and the locations and depths of the boreholes. This data set is representative of the results from the sampling protocol in place prior to FY2000 when the purpose of sampling was to determine the nature and extent of VOCs in the subsurface.

Table B-19 presents the first quarter FY2002 SUMMA canister sampling results, which are representative of the post-FY2000 pore-gas sampling protocol when the purpose of the sampling was to determine trends in plume concentration in the source area and at the boundaries of the plume.

The field-screening results obtained from the B&K gas analyzer correlate well to the SUMMA results for the four primary VOCs (TCA, TCE, PCE, and Freon 113). Linear regression analysis of the SUMMA sample results versus the B&K screening results shows the B&K readings to within 70% of TCA (Figure B-12) and 60% of TCE (Figure B-13) analytical results. The correlation coefficients (r^2) are 0.87 and 0.91, respectively. Based on this analysis, the B&K screening is a good indicator of actual pore-gas concentrations in the ppmv range, allowing these data to augment the extent of contamination discussed in Section B-3.3 of this report.

Pore-Gas Tritium

Boreholes 54-01110 and 54-01111 are located adjacent to the tritium disposal shafts and are in the region of the highest subsurface levels of tritium contamination. Moisture levels of a few percent or less in soil and tuff samples make it difficult to measure tritium concentrations accurately, and its occurrence in the tuff is not necessarily correlated with the infiltration of water but instead may be related to diffusion and advection in a gaseous state. Subsurface tuff data collected from boreholes 54-01110 and 54-01111 were not adequate to define the boundaries of tritium in the subsurface; therefore, these boreholes have been instrumented for pore-gas monitoring. Pore gas (vapor) was sampled for tritium from multiple ports in the boreholes in January 2003. The pore-gas samples were collected following standard operating procedure (SOP) LANL-ER-SOP 6.31, Revision 1, Sampling of Subatmospheric Air. A pump pulls air from borehole ports through a column filled with silica. Water vapor from the air is adsorbed onto the silica surface. After an appropriate amount of water has been collected in the column, it is sealed at each end, and sent to a laboratory for analysis. The borehole sample port depths are shown in Table B-20. A total of 13 samples were collected in 2003. In addition, two QA/QC samples were collected, including one field duplicate and one trip blank. Table B-21 presents the results from this sampling.

B-3.4 Subsurface Tuff Samples

A total of 156 subsurface tuff samples were collected from 20 Phase I MDA G RFI boreholes borehole locations (Figure B-10), including borehole 54-01113, which was abandoned. These samples were analyzed for inorganic chemicals (TAL metals and cyanide), organic chemicals (VOCs, SVOCs, PCBs, and pesticides), and radionuclides (americium-241, gamma-emitting radionuclides, isotopic plutonium, strontium-90, thorium, tritium, and uranium,).

Inorganic Chemical Comparison with BVs

A total of 125 subsurface tuff samples collected from 19 MDA G Phase I RFI boreholes (ranging in depth from about 38.5 ft to 150 ft bgs) were analyzed for inorganic chemicals. Borehole 54-01113 was inadvertently advanced into a disposal unit and was abandoned at 17.5 ft bgs. The two samples collected and analyzed from this borehole were not used in the following data review.

Some data for antimony, cyanide, selenium, silver, and vanadium are qualified as UJ because matrix spike recoveries were below recovery limits. Some copper, magnesium, and mercury data are qualified as J+ because matrix spike recoveries were above the recovery limits. Some data for antimony, copper, cyanide, magnesium, mercury, nickel, and selenium are qualified J because results were below the estimated DL but above the instrument DL. These data are usable; however, they are potentially biased and have a higher analytical uncertainty than unqualified inorganic chemical data.

Some or all of the data for antimony, boron, cadmium, chromium, cobalt, copper, cyanide, mercury, molybdenum, nickel, selenium, silver, and thallium are qualified as not detected (U) because the results are less than five times the result for these inorganic chemicals in the preparation blank. Overall, data are of good quality and sufficient for data assessment. Tables B-22a and B-22b present the frequency of inorganic chemicals above BVs for subsurface core samples and the samples with concentrations above background. The complete data set is provided in Appendix C, Table C-1.

The inorganic chemicals were compared with BVs and the background data sets to determine the COPCs in tuff. Appendix D provides box plots for the background comparisons. The following is a summary of the results, and Figure B-14 shows concentrations detected above background in subsurface tuff.

- Antimony had 72 DLs exceeding BV, and two detected concentrations greater than the BV in borehole 54-01112 at depths of 9 and 55 ft. Borehole 54-01112 is adjacent to Pit 6. Antimony concentrations were statistically different from background concentrations ($p < 0.05$), and it was retained as a COPC.
- Arsenic had three detected concentrations greater than BV (one each in boreholes 54-01110, 54-01111, and 54-01117). Arsenic concentrations were not statistically different from background concentrations ($p > 0.05$), and it was not retained as a COPC.
- Barium, beryllium, chromium, cobalt, copper, magnesium, nickel, and zinc were detected in tuff at one or more concentrations exceeding corresponding BVs. Following statistical analysis, they were determined not to be statistically different from background concentrations ($p > 0.05$). They were not retained as COPCs.
- Boron was not detected in tuff samples. It was not retained as a COPC.
- Cadmium had 14 DLs exceeding BV. Statistical analysis could not be performed on the cadmium data set. Cadmium was retained as a COPC.

- Cyanide had nine detected concentrations in boreholes 54-01102 (angled below the southeast corner of Pit 32), 54-01114 (angled beneath the northeast edge of Pit 17), and 54-01126 (angled below the east edge of Pit 3) at depths from 12.5 to 48 ft bgs. There is no BV for cyanide; thus, it was retained as a COPC.
- Mercury had three detections exceeding BV and 17 DLs exceeding BV. It was not evaluated statistically because there is no background data set. Thus, it was retained as a COPC.
- Molybdenum had three detected concentrations in borehole 54-01110 at depths of 75, 88, and 101 ft. Borehole 54-01110 is located adjacent to Shafts 152 through 160. There is no BV for molybdenum; thus, it was retained as a COPC.
- Selenium had 117 DLs exceeding BV (not shown in Figure B-14). Two detected concentrations were greater than the BV in borehole 54-01117 at depths of 36 ft and 46 ft (Figure B-14). Borehole 54-01117 is located adjacent to a large shaft field (Shafts 1 through 135) and the northwest corner of Pit 2. Selenium was retained as a COPC based on elevated DLs and detections exceeding BV.
- Silver had 23 DLs exceeding BV. Statistical analysis could not be performed on the silver data set. Silver was retained as a COPC.
- Thallium had six DLs exceeding BV. Statistical analysis could not be performed on the thallium data set, and it was retained as a COPC.
- Vanadium had three detected concentrations greater than BV (one each in boreholes 54-01106, 54-01115, and 54-01123 at depths of 13 ft, 94.5 ft, and 92.5 ft, respectively). Borehole 54-01106 angles beneath the southeast side of Pit 25; 54-01115 is located at the southeast corner of Pit 20 and angles beneath Pit 18; 54-01123 is located on the northeast corner of Pit 2. Vanadium concentrations were found not to be statistically different from background concentration ($p < 0.05$), but it was retained as a COPC because of detected concentrations several times greater than the BV (Appendix D, Figure D-3).

In summary, antimony, cadmium, cyanide, mercury, molybdenum, selenium, silver, thallium, and vanadium were retained as COPCs (Figure B-14).

Radionuclide Comparison with BVs

A total of 125 tuff samples were collected and analyzed for those radionuclides, listed in Table B-15, from the 19 MDA G Phase I RFI boreholes drilled. Borehole 54-01113 was inadvertently advanced into a disposal unit and was abandoned at 17.5 ft bgs. The two samples collected and analyzed from this borehole were not used in the following data review.

Some subsurface analytical data for tritium and isotopic uranium were rejected for boreholes 54-01110 and 54-01111 because of inadequate documentation. These data are not reported in Figure B-15, nor were they used for contaminant assessment. Although rejected, the isotopic uranium data are useful and will be used qualitatively to help assess the extent of subsurface contamination from MDA G discussed in Section B-3.3. With the exception of the rejected isotopic uranium and tritium data, the historical data are of good quality and sufficient for data assessment.

Tables B-23a and B-23b present the frequency of radionuclides above BVs in subsurface tuff and samples with detected concentrations above background. The complete data set, including the rejected tritium and isotopic uranium data, is provided in Appendix C, Table C-3.

The radionuclides were compared with BVs and the background data sets for naturally occurring radionuclides to determine COPCs in tuff samples. Fallout radionuclides are retained as COPCs whenever they are detected in the subsurface. In this report, all radionuclide COPCs except the thorium and uranium isotopes are fallout radionuclides. The results of the background comparison are summarized below and shown in Figure B-15.

- Americium-241 was detected 25 times in tuff samples from 13 boreholes (54-01102, 54-01105, 54-01107, 54-01108, 54-01112, 54-01114, 54-01115, 54-01116, 54-01117, 54-01124, 54-01125, 54-01126, and 54-01128). Figure B-15 shows the relationship between detected americium-241 concentrations to the disposal units. Americium-241 was retained as a COPC.
- Cesium-137 was detected two times in borehole 54-01111 (at 4 and 89 ft bgs) at activities ≤1.0 pCi/g. Borehole 54-01111 is located adjacent to Shafts 150 and 151. Cesium-137 was retained as a COPC.
- Cobalt-60 was detected four times in borehole 54-01111 (14.5, 28, 38, and 89 ft bgs) at activities <1.0 pCi/g. Borehole 54-01111 is located adjacent to Shafts 150 and 151. Cobalt-60 was retained as a COPC.
- Europium-152 was detected four times: twice in borehole 54-01112 (13.5 and 48.5 ft bgs), once in borehole 54-01121 (58.5 ft bgs), and once in borehole 54-01123 (36 ft bgs) at activities <2.0 pCi/g. Borehole 54-01112 is located on the north side of Pit 6; borehole 54-01121 is located on the northwest corner of Pit 1 near Shafts 200 through 233; borehole 54-01123 is located on the northeast corner of Pit 2. Europium-152 was retained as a COPC.
- Plutonium-238 was detected two times: once in borehole 54-01107 (86 ft bgs) and once in borehole 54-01117 (9 ft bgs) at activities <0.03 pCi/g. Borehole 54-01107 is located between Pit 16 and Shafts 136 through 149, and 54-01117 is located near the northwest corner of Pit 2 and adjacent to Shafts 1 through 135. Plutonium-238 was retained as a COPC.
- Plutonium-239 was detected four times: once each in boreholes 54-01110 (75 ft bgs), 54-01117 (9 ft bgs), 54-01121 (9 ft bgs), and 54-01125 (9 ft bgs) at activities ≤0.1 pCi/g. Borehole 54-01110 is adjacent to Shafts 152 through 160; 54-01117 is located near the northwest corner of Pit 2 and adjacent to Shafts 1 through 135; 54-01121 is located on the northwest corner of Pit 1 near Shafts 200 through 233; and 54-01125 is located on the east edge of Pit 3 and south edge of Pit 5. Plutonium-239 was retained as a COPC.
- Strontium-90 was detected two times: once in borehole 54-01107 (86 ft bgs) and once in 54-01111 (50 ft bgs) at activities <0.63 pCi/g. Borehole 54-01107 is located between Pit 16 and Shafts 136 through 149, and 54-01111 is located adjacent to Shafts 150 and 151. Strontium-90 was retained as a COPC.
- Thorium-230 was detected twice above BV: once in borehole 54-01111 (38 ft bgs) and once in 54-01115 (113.5 ft bgs). Borehole 54-01111 is located adjacent to Shafts 150 and 151. Borehole 54-01115 is located at the south edge of Pits 18 and 20. Thorium-230 was retained as a COPC.
- Tritium was ubiquitous in the MDA G subsurface, having been detected in 97 of 104 core samples. Tritium was detected near and/or beneath most of the MDA G disposal units. Activities ranged between 0.03 and 14,000 pCi/g. Tritium was retained as a COPC.
- Uranium-234 was detected in multiple boreholes. Uranium-234 was retained as a COPC.
- Uranium-235 was detected in multiple boreholes. Uranium-235 was retained as a COPC.
- Uranium-238 was detected in multiple boreholes. Uranium-238 was retained as a COPC.

In summary, americium-241, cesium-137, cobalt-60, europium-152, plutonium-238, plutonium-239, strontium-90, thorium-230, tritium, uranium-234, uranium-235, and uranium-238 were retained as COPCs.

Evaluation of Organic Chemicals

A total of 124 core samples were submitted for VOC analysis, 123 were submitted for SVOC analysis, 33 for PCB analysis, 33 for pesticide analysis, and 94 for pesticide/PCB analysis. Laboratory contamination with common laboratory solvents of the samples and spiking reagents was a data quality issue. Evidence of laboratory contamination was found in the results for laboratory method blanks. Detected results below the laboratory's quantitation limit were qualified as estimated (J). Overall, the data are of good quality and sufficient for data assessment. Tables B-24a and B-24b and Figure B-16 present the frequency of detected organic chemical concentrations and the samples with detected concentrations in subsurface core. The complete data set is provided in Appendix C, Table C-2. The extent of all detected SVOCs, PCBs, and pesticides has been defined (see Section 2.6.3.3 of the work plan).

Table B-25 presents a summary of the results of the data review and lists all COPCs for MDA G channel sediments, ambient-air, subsurface tuff, and pore-gas samples.

B-4.0 REFERENCES

The following list includes all documents cited in this appendix. Parenthetical information following each reference provides the author, publication date, and ER ID number. This information is also included in text citations. ER ID numbers are assigned by the RRES-RS Records Processing Facility (RPF) and are used to locate the document at the RPF and, where applicable, in the RRES-RS project reference set entitled "Reference Set for Material Disposal Areas, Technical Area 54."

Copies of the reference sets are maintained at the NMED Hazardous Waste Bureau; the DOE Los Alamos Site Office; US Environmental Protection Agency, Region 6; and RRES–RS project. The sets were developed to ensure that the administrative authority has all material needed to review this document, and they are updated periodically as needed. Documents previously submitted to the administrative authority are not included.

Davis, A., December 14, 1993. "RFI Work Plan for OU 1148 Approval, Los Alamos National Laboratory NM0890010515," US Environmental Protection Agency memorandum to J. Vozella, Dallas, Texas, from A. J. Davis, EPA, Region 6, Los Alamos, New Mexico. (Davis 1993, 38812)

Driscoll, B., November 30, 1992. "Overall Comments Regarding Notice of Deficiency," US Environmental Protection Agency memorandum to C. Rofer from B. Driscoll, Los Alamos, New Mexico. (Driscoll 1992, 3849)

Eklund, B., March 15, 1995. "Measurement of Emission Fluxes from Technical Area 54, Areas G and L," prepared under DOE Subcontract No. 63545L0014-31 by Radian Corporation, Austin, Texas. (Eklund 1995, 56033)

Environmental Surveillance Program, September 1998. "Environmental Surveillance at Los Alamos During 1994," Los Alamos National Laboratory report LA-13487-ENV, Los Alamos, New Mexico. (Environmental Surveillance Program 1998, 59904)

Environmental Surveillance Program, 2001. "Environmental Surveillance at Los Alamos During 2000," Los Alamos National Laboratory report LA-13861-ENV, Los Alamos, New Mexico. (Environmental Surveillance Program 2001, 71301)

Environmental Surveillance Program, 2002. "Environmental Surveillance at Los Alamos During 2001," Los Alamos National Laboratory report LA-13979-ENV, Los Alamos, New Mexico. (Environmental Surveillance Program 2002, 73876)

EPA (US Environmental Protection Agency), April 10, 1990. Module VIII of RCRA Permit No. NM0890010515, EPA Region VI, issued to Los Alamos National Laboratory, Los Alamos, New Mexico, effective May 23, 1990, EPA Region VI, Hazardous Waste Management Division, Dallas, Texas. (EPA 1990, 1585)

EPA (US Environmental Protection Agency), May 23, 1994. "Transmittal of Hazardous Waste Permit to the Los Alamos National Laboratory (NM0890010515), Los Alamos, New Mexico. (EPA 1994, 44146)

LANL (Los Alamos National Laboratory), 1987. "Hydrogeologic Assessment of Technical Area 54, Areas G and L, Los Alamos National Laboratory," Docket Number NMHWA 001007, Los Alamos, New Mexico. (LANL 1987, 76068)

LANL (Los Alamos National Laboratory), July 1991. "Review of Soil Vapor Sampling Wells and Data from TA-54 Area G and L, Los Alamos National Laboratory," IT Corporation report prepared for Los Alamos National Laboratory, Los Alamos, New Mexico. (LANL 1991, 11729)

LANL (Los Alamos National Laboratory), May 1992. "RFI Work Plan for Operable Unit 1148," Los Alamos National Laboratory document LA-UR-92-855, Los Alamos, New Mexico. (LANL 1992, 7669)

LANL (Los Alamos National Laboratory), September 1992. "Operable Unit 1148 Data Report," prepared by IT Corporation for Los Alamos National Laboratory, Los Alamos, New Mexico. (LANL 1992, 23247)

LANL (Los Alamos National Laboratory), July 1993. "Pilot Extraction Study Plan for the Organic Vapor Plume at MDA L," Appendix A of Los Alamos National Laboratory document LA-UR-92-855, Los Alamos, New Mexico. (LANL 1993, 22430)

LANL (Los Alamos National Laboratory), February 1996. "RFI Report for Channel Sediment Pathways from MDAs G, H, J, and L, TA-54, Located in Former Operable Unit 1148, Field Unit 5," Los Alamos National Laboratory document LA-UR-96-110, Los Alamos, New Mexico. (LANL 1996, 54462)

LANL (Los Alamos National Laboratory), September 1998. "Inorganic and Radionuclide Background Data for Soils, Sediments, and Bandelier Tuff at Los Alamos National Laboratory," Los Alamos National Laboratory document LA-UR-98-4847, Los Alamos, New Mexico. (LANL 1998, 59730)

LANL (Los Alamos National Laboratory), November 2002. "Quarterly Technical Report: July–September 2002," Los Alamos National Laboratory document LA-UR-02-6976, Los Alamos, New Mexico. (LANL 2002, 73712).

LANL (Los Alamos National Laboratory), March 2003. "Metadata Record for Waste Storage Features," prepared by GIS Laboratory, Los Alamos National Laboratory, Los Alamos, New Mexico. (LANL 2003, 75908)

LANL (Los Alamos National Laboratory), September 2003. "Quarterly Technical Report, July–September 2003," Los Alamos National Laboratory document LA-UR-03-8200, Los Alamos, New Mexico. (LANL 2003, 80901)

LASL, LANL (Los Alamos Scientific Laboratory, now Los Alamos National Laboratory), 1966 to 1996. TA-54, Area G, Los Alamos National Laboratory Logbooks from January 1966 to January 1996, RRES Record Package 661, Los Alamos, New Mexico. (LASL, LANL 1966–1996, 76036)

LASL, LANL (Los Alamos Scientific Laboratory, now Los Alamos National Laboratory), 1977 to 1989. Thirty Engineering Drawings of Materials Disposal Area G, Pit Sections, prepared for Los Alamos Scientific Laboratory by the Engineering Department of Los Alamos Scientific Laboratory and for Los Alamos National Laboratory by the Facilities Engineering Division, Los Alamos, New Mexico. (LASL, LANL 1977–1989, 76099)

Marin, J., December 21, 1995. "Borehole Findings, 54-1112 and 54-1113," Los Alamos National Laboratory memorandum to D. Krier, ER Project FU-5, from J. Marin, ER Project FU-5, Los Alamos, New Mexico. (Marin 1995, 56694.15)

Mischler, S., and E. Anderson, March 15, 1994. "Ambient Monitoring of Volatile Organic Compounds at Los Alamos National Laboratory in Technical Area 54, Areas G & L," prepared under DOE Subcontract No. 63545L0014-31 by Radian Corporation, Austin, Texas. (Mischler and Anderson 1994, 63525)

NMEID (New Mexico Environmental Improvement Department), May 1985. "Environmental Improvement Division in the Matter of LANL EPA ID#NM0890010515, Docket Number NMHWA 001007, Compliance Order/Schedule," Santa Fe, New Mexico. (NMEID 1985, 75885)

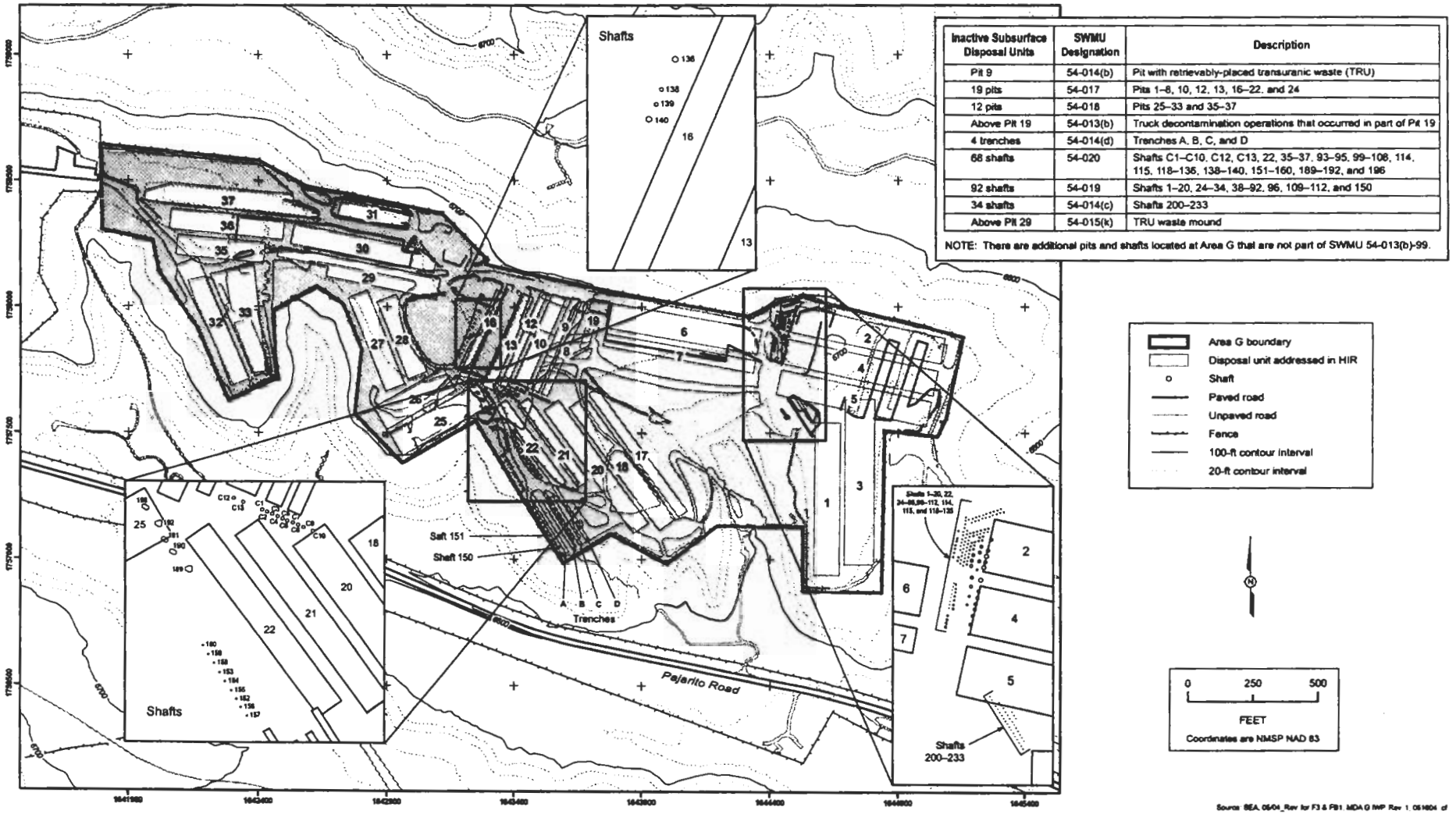
Quadrel (Quadrel Services, Inc.), September 1993. "EMFLUX Soil-Gas Survey of Technical Area 54 (MDA G) Los Alamos National Laboratory," Quadrel Report Number QS1135, Maryland Spectral Services, Inc., Forest Hill, Maryland. (Quadrel 1993, 63868)

Quadrel (Quadrel Services, Inc.), September 1994. "EMFLUX Soil-Gas Survey of Technical Area 54, Los Alamos National Laboratory," Quadrel Report Number QS1190, Maryland Spectral Services, Inc., Forest Hill, Maryland. (Quadrel 1994, 63869)

Trent, B., November 1, 1990. "Update on Analysis of Area L," Los Alamos National Laboratory memorandum EES-5:90-718 to A. R. Barr, HSE-8, from B. Trent, EES-5, Los Alamos, New Mexico. (Trent 1990, 12557)

Trent, B., May 15, 1992. "Analysis of the Pore Gas Monitoring at Area L, TA-54 Los Alamos National Laboratory," Los Alamos National Laboratory document, Los Alamos, New Mexico. (Trent 1992, 11881)

Trujillo, V., R. Gilkeson, M. Morgenstern, and D. Krier, June 1998. "Measurement of Surface Flux Rates for Volatile Organic Compounds at Technical Area 54," Los Alamos National Laboratory report LA-13329, Los Alamos, New Mexico. (Trujillo et al. 1998, 58242)



Inactive Subsurface Disposal Units	SWMU Designation	Description
Pit 9	54-014(b)	Pit with retrievably-placed transuranic waste (TRU)
19 pits	54-017	Pits 1–8, 10, 12, 13, 16–22, and 24
12 pits	54-018	Pits 25–33 and 35–37
Above Pit 19	54-013(b)	Truck decontamination operations that occurred in part of Pit 19
4 trenches	54-014(d)	Trenches A, B, C, and D
68 shafts	54-020	Shafts C1–C10, C12, C13, 22, 35–37, 93–95, 99–108, 114, 115, 118–136, 138–140, 151–160, 189–192, and 196
92 shafts	54-019	Shafts 1–20, 24–34, 38–92, 96, 109–112, and 150
34 shafts	54-014(c)	Shafts 200–233
Above Pit 29	54-015(k)	TRU waste mound

NOTE: There are additional pits and shafts located at Area G that are not part of SWMU 54-013(b)-99.

Figure B-1. Locations of Area G subsurface disposal units

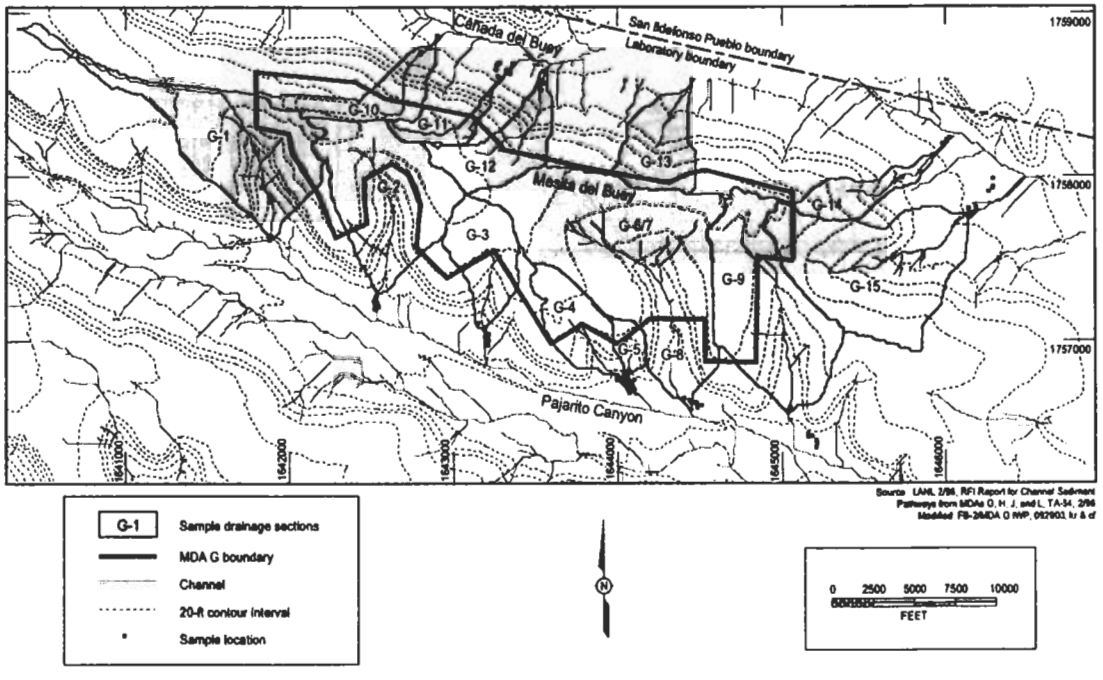


Figure B-2. Locations and designations of Mesita del Buey drainage sections

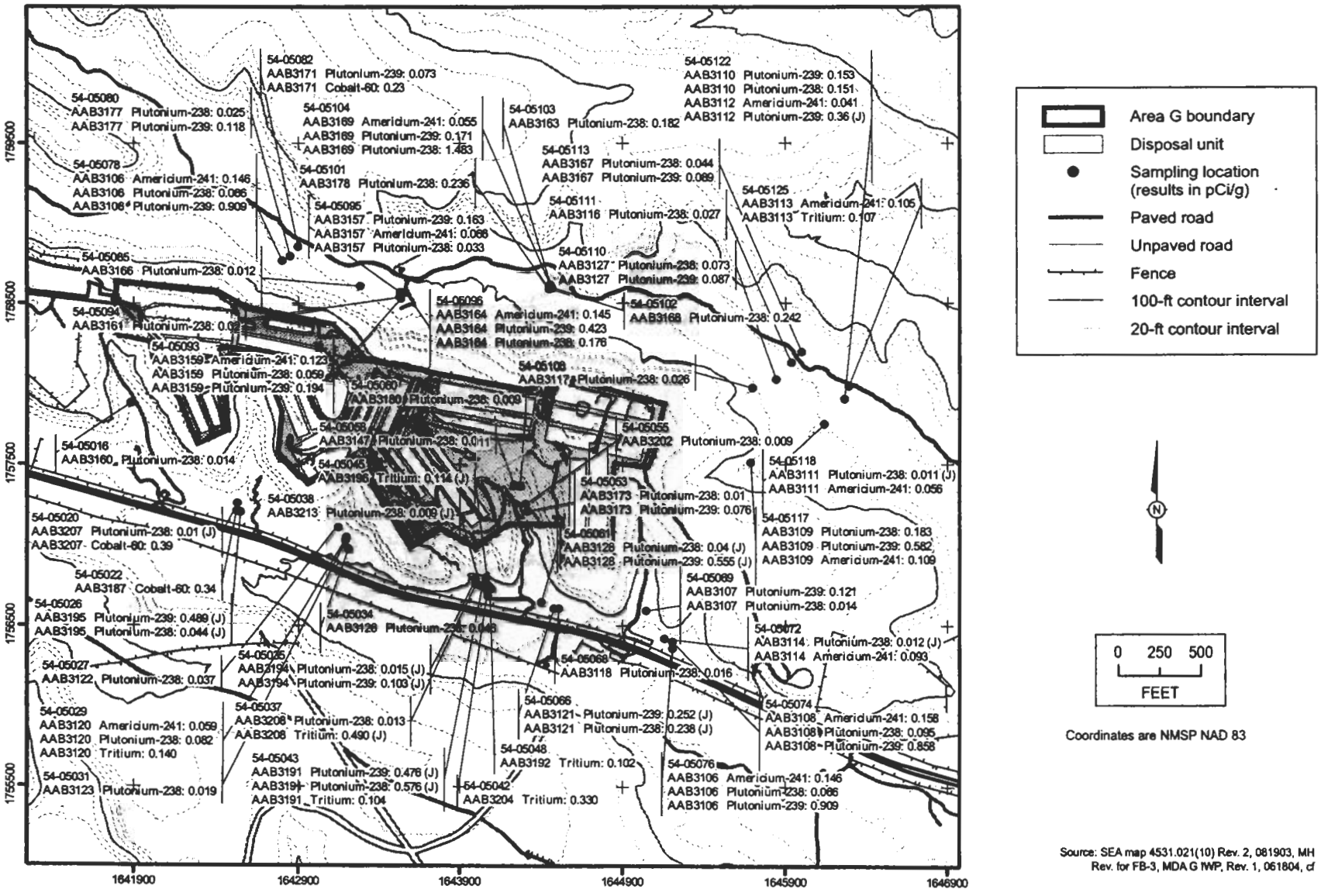
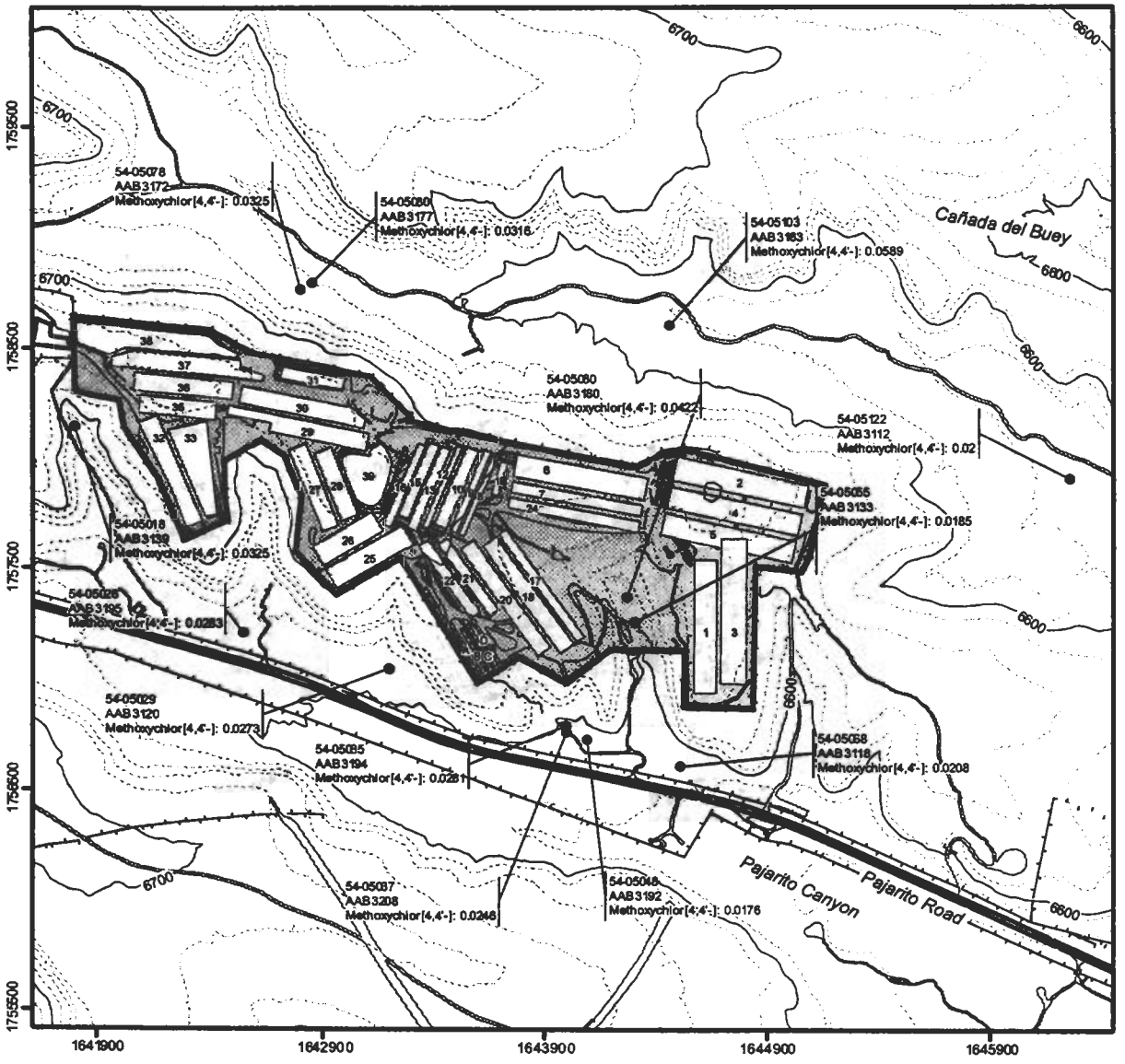
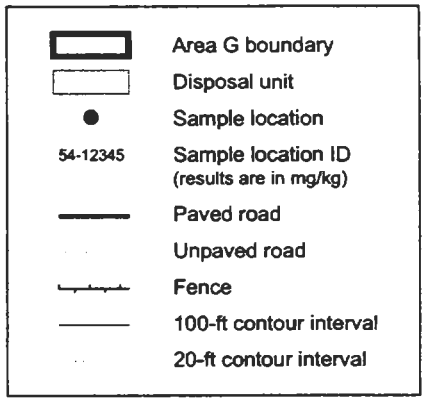
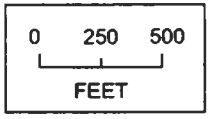


Figure B-3. Radionuclides detected above background in MDA G channel sediments







Coordinates are NMSP NAD 83

Source: SEA map 4531.021(9) Rev. 2, 082503, MH
Modified: FB-4, MDA G IWP Rev. 1, 052404, ptm
Rev. for FB-4, MDA G HIR, Rev. 1, 061704, cf

Figure B-4. Organic chemicals detected in channel sediments at Area G

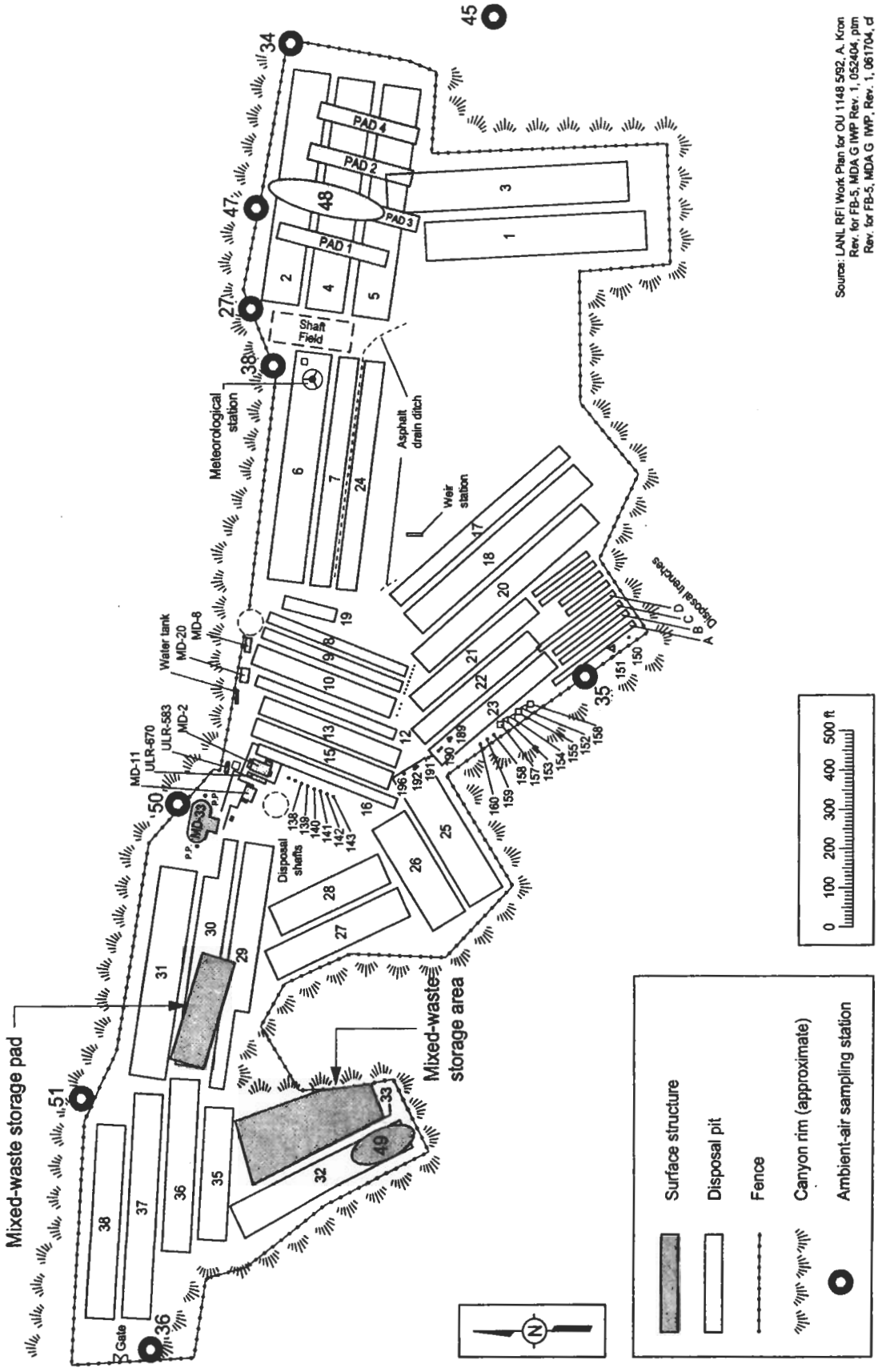


Figure B-5. Locations of ambient-air sampling stations at TA-54, Area G

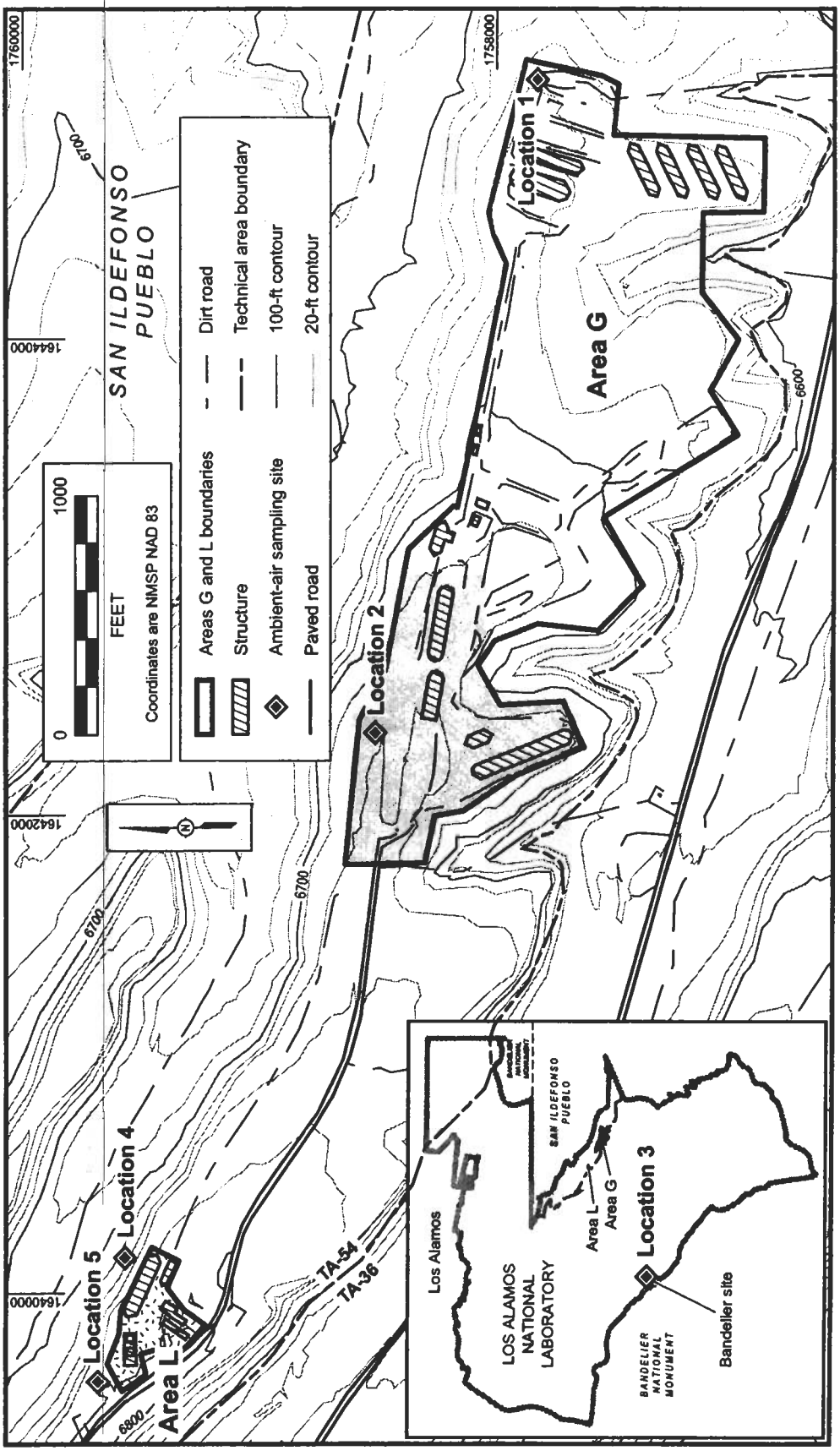


Figure B-6. Locations of ambient-air VOC sampling stations at Areas G and L

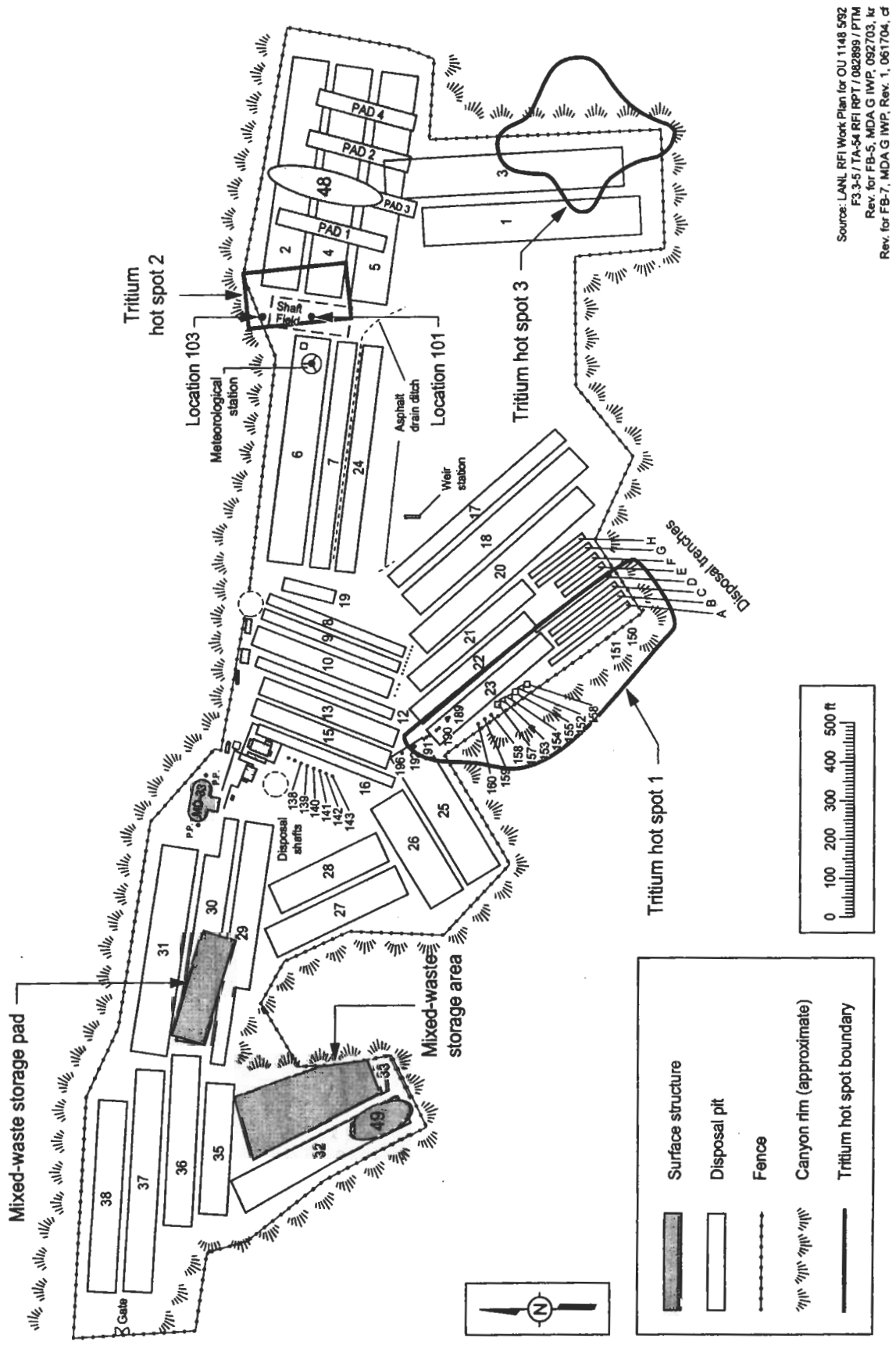
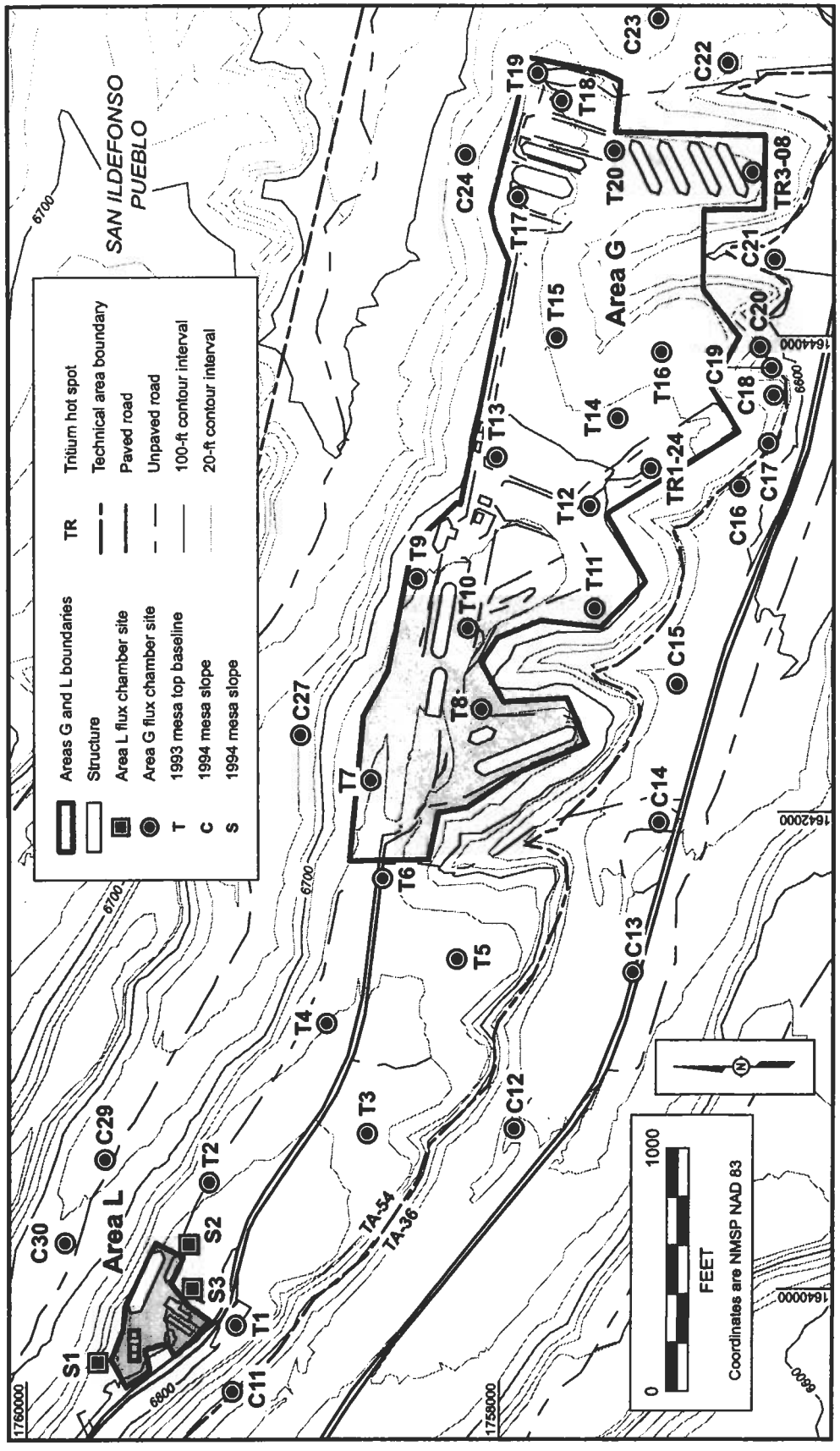


Figure B-7. Locations of tritium high-flux areas at Area G



Source: FIMAD map G107980, 072999
MDA L RFI rpt, 120302, PTM
Rev. for FB-8, MDA G IWP, Rev. 1, 061704, cf

Figure B-8. Locations of tritium and VOC surface flux chamber sampling at Areas G and L

F3.3-7/TA-54 RFI RPT.082799/PTM
Rev. for FB-9, MDA G IWP, Rev.1, 061704, cf

Figure B-9. Locations of VOC EMFLUX® surface flux sampling at Area G

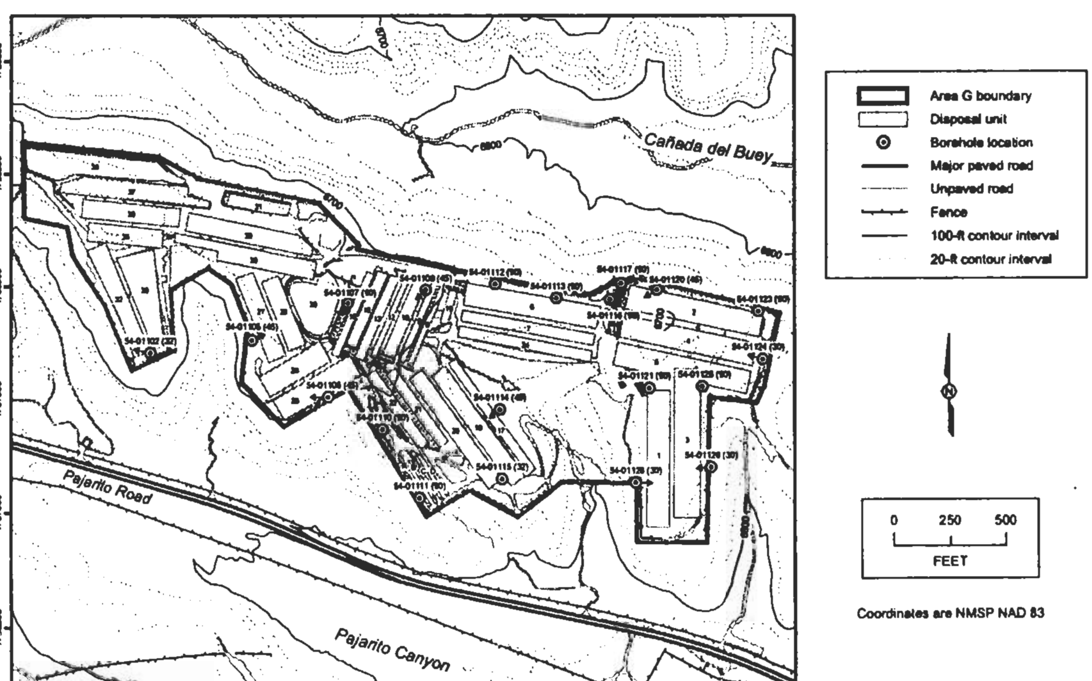


Figure B-10. Locations of MDA G Phase I RFI boreholes

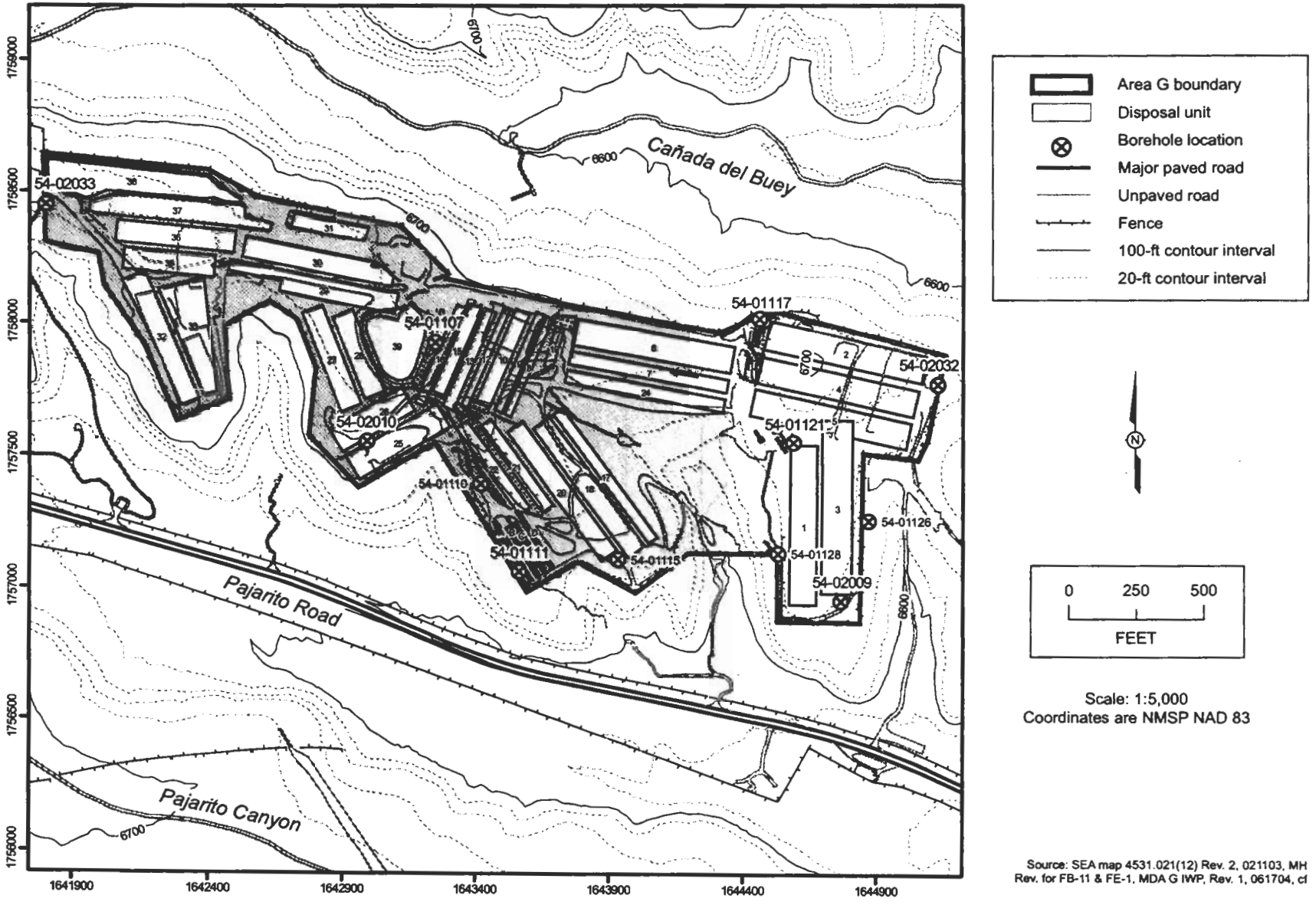


Figure B-11. Locations of MDA G pore-gas monitoring boreholes through 2002

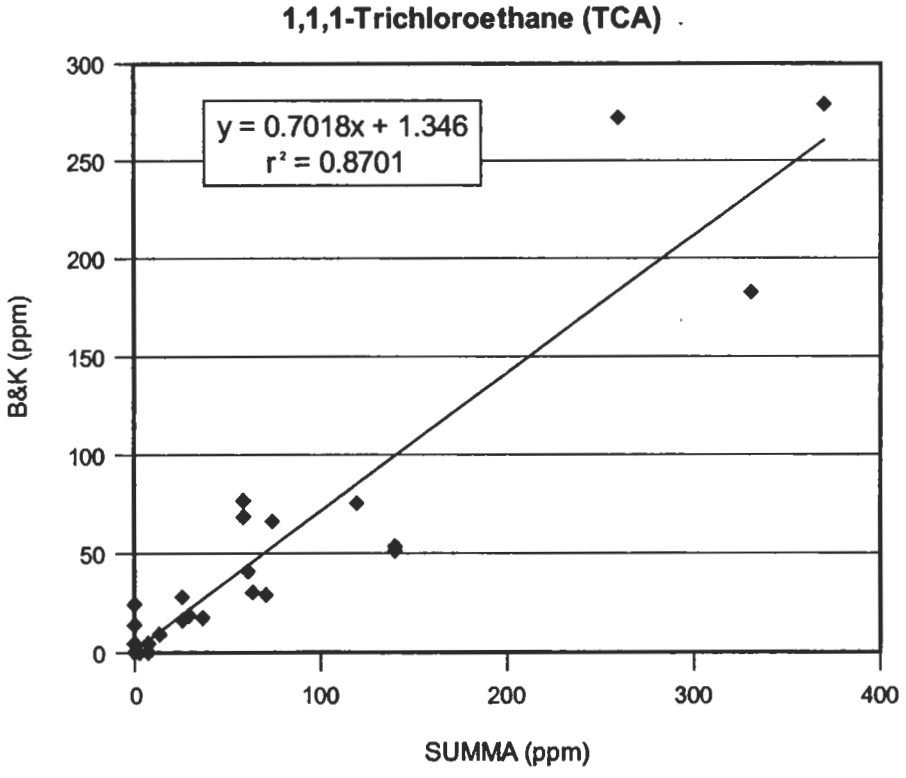


Figure B-12. Correlation of B&K screening data to SUMMA canister analytical results for TCA

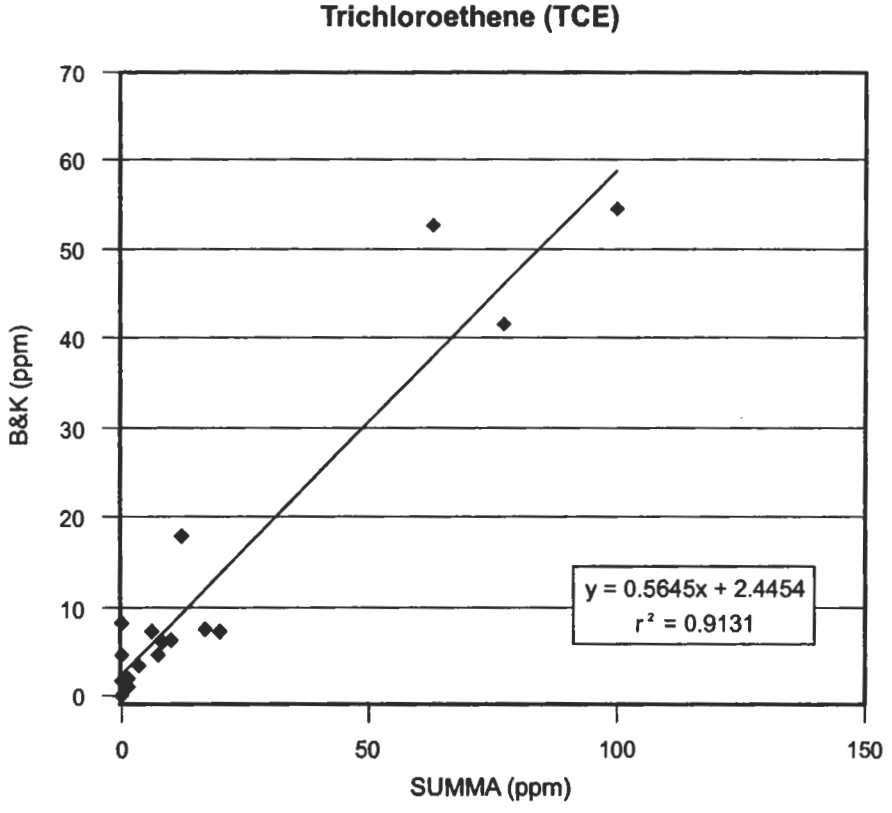


Figure B-13. Correlation of B&K screening data to SUMMA canister analytical results for TCE

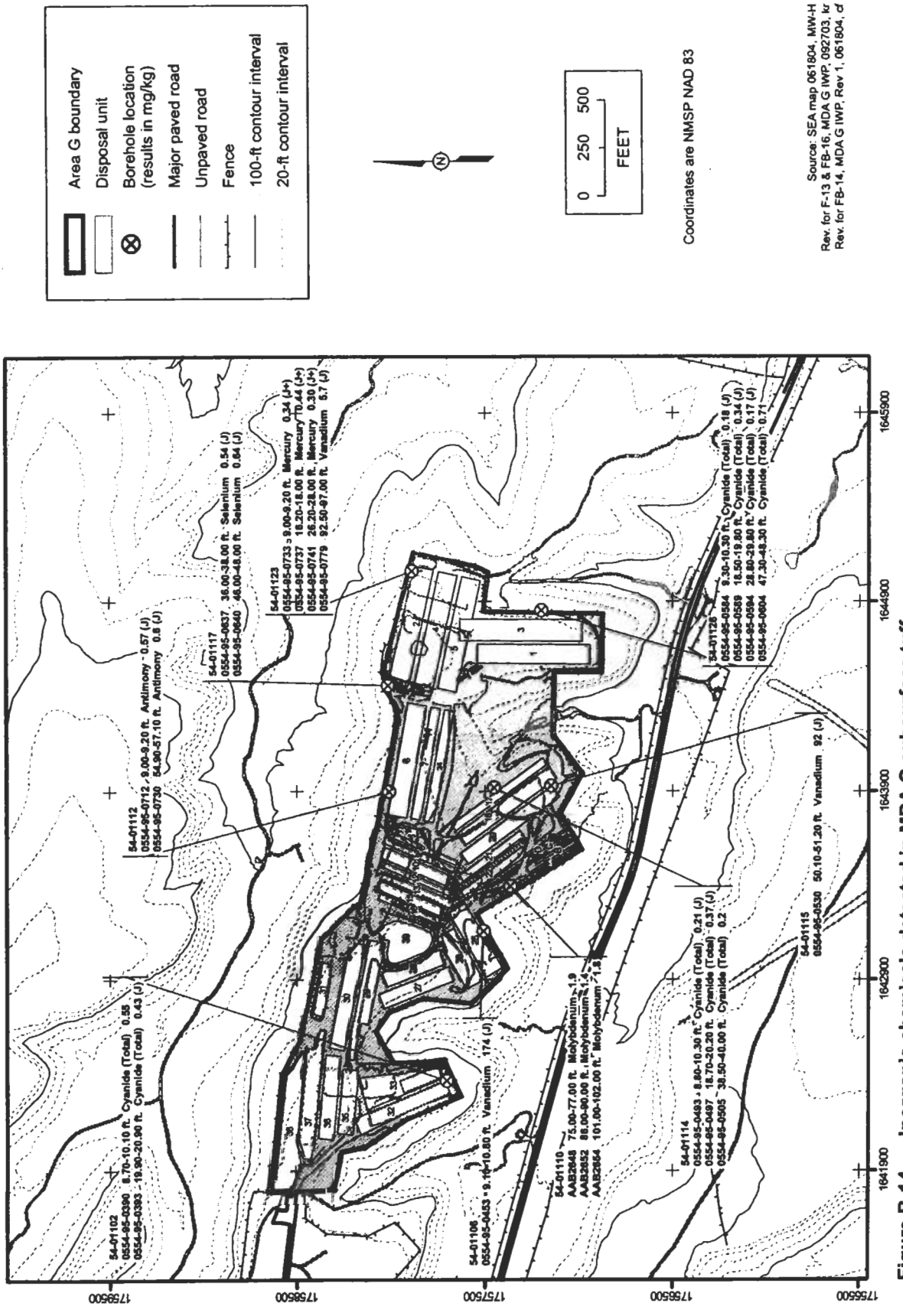
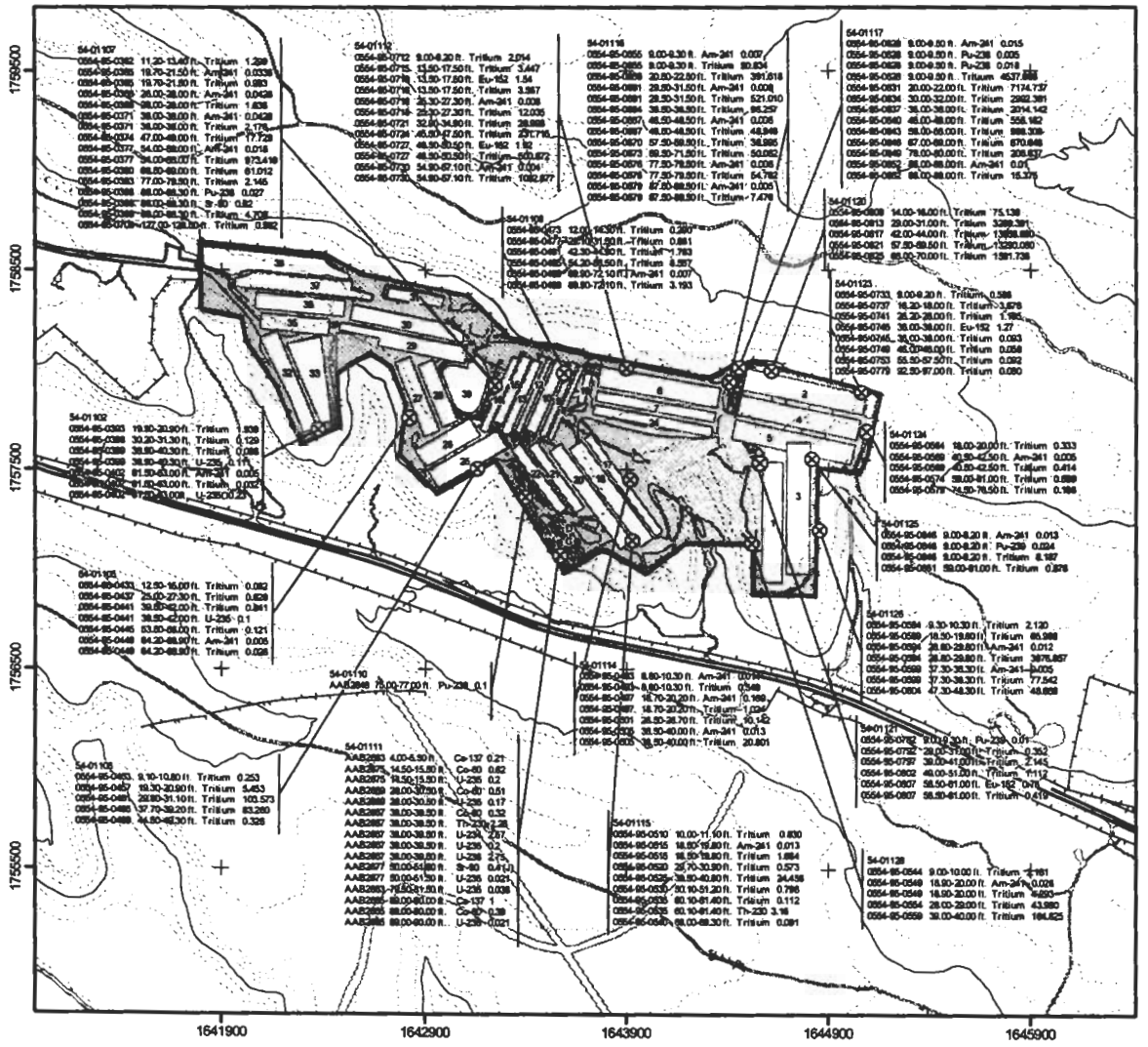


Figure B-14. Inorganic chemicals detected in MDA G subsurface tuff



Source: SEA map 4531.021(6) Rev 3, 080903, MH
Rev for FB-15, MDA G IWP, Rev 1, 082104, cf

Figure B-15.□ Radionuclides detected above background in MDA G subsurface tuff

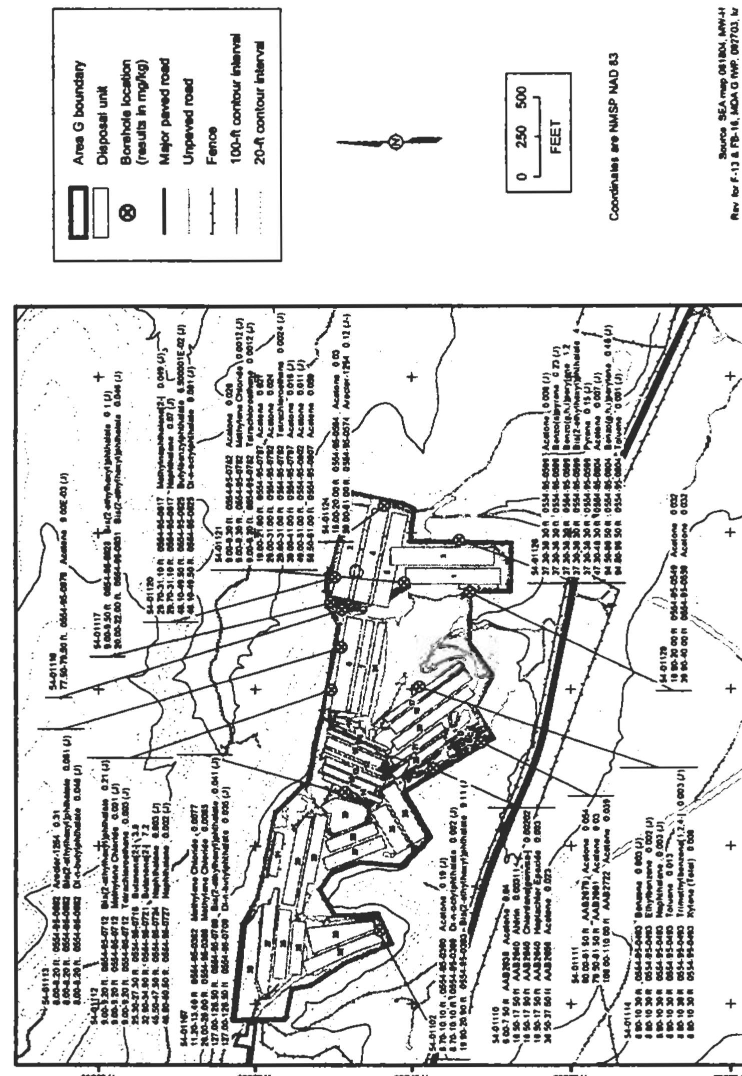


Figure B-16. Organic chemicals detected in MDA G subsurface tuff

Table B-1
MDA G Disposal Unit Information for Pits

Pit No.	Operational Period	Dimensions (length x width x depth)	Field Meas. Pit Vol. (yd^3)	Vol. of Waste in Pit (yd^3)	Waste Description
1	Jan. 1959–April 1961	616 ft x 113 ft x 20 ft	37,080	5,529	Wing tanks from Kirtland AFB, Dry boxes, "normal trash." Pit used to burn combustibles
2	April 1961–July 1963	618 ft x 104 ft x 26 ft	42,911	6,407	Classified Bendix waste, 55-gal. drums, property numbers, D-38, hot dirt
3	June 1963–March 1966	655 ft x 115 ft x 33 ft	56,759	9,473	Misc. material, lumber, pipe, 55-gal. drums, D&D, D-38, Bendix classified waste, soil from TA-10 - Bayo Canyon
4	Jan. 1966–Dec. 1967	600 ft x 110 ft x 34 ft	44,950	8,212	D&D, graphite, wooden boxes, D-38, 55-gal. drums, classified Bendix waste, property numbers. Burning trench along south wall of pit
5	Jan. 1967–March 1974	600 ft x 100 ft x 29 ft	41,258	6,624	Scrap material, D&D, graphite hoppers, sludge drums (possibly aqueous solution from TA-50), property numbers
6	Jan. 1970–Aug. 1972	600 ft x 113 ft x 26 ft	43,933	6,696	Misc. scrap, wood, D&D. Covered with topsoil from TA-1 with up to 20 pCi/g Pu contamination
7	March 1974–Oct. 1975	600 ft x 50 ft x 30 ft	17,101	4,343	Low-level TRU waste. Replaced Pit 17 for LL TRU in 1974. Covered with topsoil from TA-1 with up to 20 pCi/g Pu contamination
8	Sept. 1971–May 1974	400 ft x 25 ft x 25 ft	6,528	2,311	55 gal. drums of sludge from H-7 and nonretrievable TRU waste also drums from TA-50 (aqueous and nonretrievable TRU)
9	Nov. 1974–Nov. 1979	400 ft x 30 ft x 20 ft	9,027	na*	Drums and fiberglassed crates containing retrievable TRU wastes (>10 nCi/g Pu-239 or U-233 or >100 nCi/g Pu-238) bottom of pit is paved
10	May 1979–March 1980	380 ft x 57 ft x 27 ft	15,549	4,016	Building debris, lab wastes, sludge drums (from TA-50 dewatering, possibly aqueous)
12	Sept. 1971–Dec. 1975	400 ft x 25 ft x 25 ft	7,303	2,363	Nonretrievable TRU waste. Originally contained retrievable TRU, but was transferred to Pit 9 (30 55-gal. drums)
13	Nov. 1976–Sept. 1977	400 ft x 42 ft x 28 ft	12,107	1,931	Uranium, mixed fission products, mixed activation products. Uranium fission products and induced activity wastes
16	Sept. 1971–Aug. 1975	400 ft x 25 ft x 25 ft	8,081	2,235	Crates and drums containing uranium contaminated wastes

Table B-1 (continued)

Pit No.	Operational Period	Dimensions (length x width x depth)	Field Meas. Pit Vol. (yd^3)	Vol. of Waste in Pit (yd^3)	Waste Description
17	Aug. 1972–March 1974	600 ft x 46 ft x 24 ft	17,399	4,962	Low-level Pu TRU <10 mCi/g. Misc. scrap wastes, crates, filter plenums
18	Feb. 1978–Aug. 1979	600 ft x 75 ft x 40 ft	46,685	12,358	Contaminated dirt, lab wastes, noncompactible waste, D&D, drums
19	Nov. 1975–Aug. 1979	153 ft x 30 ft x 18 ft	1,371	na	Asbestos and carcinogens, plastic layer placed in bottom
20	Nov. 1975–Oct. 1977	600 ft x 71 ft x 36 ft	37,454	14,899	Lab waste, oil, sludge drums, trash, contaminated dirt
21	Aug. 1972–Dec. 1974	402 ft x 56 ft x 26 ft	13,328	3,607	U, classified material, boxes, drums, scrap metal
22	Sept. 1976–March 1978	413 ft x 56 ft x 33 ft	17,690	3,744	Filter plenum, sludge drums (possibly aqueous from TA-50), lab waste, graphite fuel rods, contaminated dirt
24	July 1975–Nov. 1976	600 ft x 58 ft x 30 ft	23,388	7,327	Graphite, lab wastes, 22 truck loads of soil. Uranium, tritium, mixed fission products, and mixed activation products
25	Jan. 1980–May 1981	395 ft x 103 ft x 39 ft	47,000	6,530	Reactor control rods, D&D, scrap drums, lab wastes, test drums, PCB-contaminated waste forms
26	Feb. 1984–Feb. 1985	310 ft x 100 ft x 36 ft	22,209	4,312	Building debris, TRU culverts, asbestos, alpha box soil, lumber, PCBs
27	May 1981–July 1982	400 ft x 80 ft x 46 ft	26,946	7,441	Lab waste, contaminated soil and pipe, D&D, PCBs, and unknown chemical waste
28	Dec. 1981–April 1983	330 ft x 83 ft x 40 ft	21,381	4,422	Ba nitrate, PCB soil, lab waste, property numbers, transformers, clay pipes, building debris, uranium graphite
29	Oct. 1984–Oct. 1986	658 ft x 80 ft x 50 ft	45,795	9,784	TRU cement paste (recoverable), D&D soil, glove boxes, plywood boxes (4'x4'x8'), asbestos, PCBs, and unknown chemical waste
30	Oct. 1988–June 1990	568 ft x 39 ft x 35 ft	42,843	13,464	Asbestos, PCBs, and unknown chemical waste
31	June 1990–March 2003	280 ft x 52 ft x 25 ft	na	2,702	Asbestos, mixed fission products, and mixed activation products. Currently operational
32	Nov. 1985–Aug. 1987	518 ft x 74 ft x 51 ft	36,364	5,367	PCB asphalt, transformers, contaminated soil, glove boxes, 4'x4'x8' plywood boxes, capacitors, building debris
33	Nov. 1982–July 1984	425 ft x 115 ft x 40 ft	59,930	7,776	Be in stainless steel, lab waste, building debris, asbestos, noncompactible trash, PCBs, and unknown chemical waste

Table B-1 (continued)

Pit No.	Operational Period	Dimensions (length x width x depth)	Field Meas. Pit Vol. (yd^3)	Vol. of Waste in Pit (yd^3)	Waste Description
35	June 1987–Feb. 1988	363 ft x 83 ft x 40 ft	20,957	3,361	CP. Trash, 4'x4'x8' plywood boxes, asbestos, lab waste, PCBs, and unknown chemical waste
36	Jan. 1988–Dec. 1988	435 ft x 83 ft x 43 ft	28,057	4,491	4'x4'x8' plywood boxes, compactable N.N. trash, rubble, building waste, beryllium, and PCB soil (<200 ppm)
37	April 1990–April 1997	731 ft x 83 ft x 61 ft	57,213	24,299	UHTREX reactor vessel and stack, asbestos, PCBs, and unknown chemical waste

*na = No information available.

Table B-2
MDA G Disposal Unit Information for Trenches

Trench No.	Operational Period	Dimensions (length x width x depth)	Waste Description
A	1974	262.5 ft x 12.75 ft x 8 ft	Heat source Pu-238 (80% Pu-238, 16% Pu-239, 3% Pu-239, 1% other) in casks from (1) radiolytic heating, (2) radiolytic gas formation, and (3) radiation emitting from waste. Average of 18 g Pu-238 per cask, with max 40 g Pu-238.
B	1974–1976	218.75 ft x 12.75 ft x 8 ft	
C	na*	218.75 ft x 12.75 ft x 10 ft (est.)	
D	na	250 ft x 12.75 ft x 10 ft (est.)	

*na = No information available.

Table B-3
MDA G Disposal Unit Information for Shafts

Shaft No.	Operational Period	Diameter/ Depth (ft)	Lining	Shaft Volume (ft^3)	Waste Volume (ft^3)	Waste Description
1	1966–1967	2/25	N[a]	78.4	63	Cell trash, irradiated metal, animal tissue
2	1966–1967	2/25	N	78.4	42	DU[b] chips, animal tissue, irradiated Pu cell waste
3	1966–1967	2/25	N	78.4	35	Pu-contaminated Na and metal, neutron generators
4	1967–1968	2/25	N	78.4	44	U-contaminated metal, U-238 samples, DU
5	1967–1968	2/25	N	78.4	29	DU, tritium-contaminated materials, U-238 contaminated metal
6	1967–1968	2/25	N	78.4	21	Tritium-contaminated materials, U-235
7	1967–1968	2/25	N	78.4	52	Animal tissue, PTC waste, tritium DU
8	1968–1969	2/25	N	78.4	na[c]	Pu cell waste, animal tissue, end boxes
9	1968–1969	2/25	N	78.4	70	Hot cell waste, Pu cell waste, EBR-II waste, fuel elements
10	1969	2/25	N	78.4	54	Animal tissue, Pu-239 waste, U-contaminated chemicals
11	1967–1969	3/25	N	176.5	72	Pee Wee waste & trash, U-235 cell waste, graphite
12	1966–1970	3/25	N	176.5	83	Cell waste, rover waste, tritium
13	1966–1970	3/25	N	176.5	122	Animal tissue, EBR hardware, reactor parts
14	1966–1969	1/25	CMP[d]	19.7	na	U-235 vermiculite, neutralized solution HCL+U-235
15	1969–1970	1/25	CMP	19.7	8	Tritium in H_3PO_4, hot cell waste
16	1969	1/25	CMP	19.7	4	Tritium
17	1970–1974	1/25	CMP	19.7	1	Tritium pump, U-235 in Na
18	1970–1973	1/25	CMP	19.7	13	Neutralized NA, Cs-137 + Ba-140
19	1971–1974	1/25	CMP	19.7	3	Pu-239 solution, reacted Pu-239
20	1974–1975	1/25	CMP	19.7	8	Sorbed Pu-239 solution
22	1980–1993	1/25	CMP	19.7	7	Radioactive sources
24	1969–1970	2/25	N	78.4	44	Animal tissue, DU, unloaded fuel elements
25	1969–1971	2/25	N	78.4	45	DU, U-238 residue, U-238 contaminated metal
26	1969–1970	2/25	N	78.4	56	Hot cell trash, fuel elements, DU-contaminated metal
27	1970	2/25	N	78.4	13	Irradiated material, DU-contaminated material
28	1970	2/25	N	78.4	14	LA notebooks, U-235 residues
29	1970–1971	2/25	N	78.4	24	Thermocouple waste, U-235 residue
30	1970–1971	2/25	N	78.4	11	Animal tissue, Pu-239 hot cell waste
31	1970–1971	2/25	N	78.4	47	DU
32	1970–1971	2/25	N	78.4	33	LAMPRE-II lines and valves, animal tissue, irradiated stainless steel

Table B-3 (continued)

Shaft No.	Operational Period	Diameter/ Depth (ft)	Lining	Shaft Volume (ft^3)	Waste Volume (ft^3)	Waste Description
33	1970–1971	2/25	N	78.4	15	Pu-239 hot cell waste
34	1970–1972	6/60	N	1709.2	932	U-contaminated oil
35	1971–1985	3/40	N	282.9	125	Hot cell wastes, animal tissues, herbicide containers, fission products
36	1970–1985	3/40	N	282.9	198	Hot cell wastes, spalation products
37	1970–1985	3/40	N	282.9	198	Animal and chemical wastes
38	1970–1974	3/40	N	282.9	69	Rover reactor parts, LAMPRE-II tank
39	1970–1973	6/60	N	1709.2	537	Tritium contaminated equipment
40	1971	2/25	N	78.4	28	Animal tissue
41	1971–1972	2/25	N	78.4	71	Animal tissue, graphite
42	1972	2/25	N	78.4	56	Animal tissue, U-contaminated metal
43	1971–1972	2/25	N	78.4	43	U-contaminated metal, DU
44	1971–1972	2/25	N	78.4	61	Animal tissue, Pu-239-contaminated vermiculite, DU with graphite
45	1971–1972	2/25	N	78.4	70	Pu-contaminated steel, U-235 residues
46	1972	2/25	N	78.4	38	Animal tissue, Pu-239-contaminated steel
47	1972	2/25	N	78.4	32	Animal tissue, contaminated metal, fuel waste (no vol.)
48	1972	2/25	N	78.4	19	Hot cell trash, fuel waste (no vol.)
49	1972	2/25	N	78.4	21	Animal tissue
50	1974–1976	6/60	N	1709.2	581	Tritium (1,110 Ci)
51	1975	2/25	N	78.4	52	Hot cell waste
52	1975–1976	2/25	N	78.4	6	Pu, U, mixed fission products, mixed activation products, hot cell wastes
53	1975–1976	2/25	N	78.4	3	Mixed fission products, cell wastes, Pu-239, U-235
54	1976	2/25	N	78.4	6	Mixed fission products, cell trash
55	1976–1977	2/25	N	78.4	20	Hot cell trash
56	1977	2/25	N	78.4	11	Cell waste, contaminated parts from Size Reduction Lab
57	1977	2/25	N	78.4	8	Hot cell waste
58	1972–1973	3/25	N	176.5	88	Hot cell waste, DU
59	1973–1974	6/60	N	1709.2	120	Tritium contaminated steel, tools, and waste
60	1972–1974	3/25	N	176.5	128	Oil contaminated with U-235, Pu-239
61	1973–1974	3/25	N	176.5	143	Be waste, U-238 contaminated metal, animal tissue
62	1976	3/25	N	176.5	141	Animal tissue, Pu-238, P-32
63	1976	3/25	N	176.5	28	DU, residues
64	1976–1977	3/25	N	176.5	32	Animal wastes, U-235
65	1976–1977	3/25	N	176.5	123	Classified U wastes, targets, animal tissue

Table B-3 (continued)

Shaft No.	Operational Period	Diameter/ Depth (ft)	Lining	Shaft Volume (ft^3)	Waste Volume (ft^3)	Waste Description
66	1976–1979	3/25	N	176.5	25	Animal tissue
67	1977	2/25	N	78.4	48	Targets, cell trash
68	1977	2/25	N	78.4	23	Cell trash, classified notebooks
69	1977	2/25	N	78.4	20	AC parts from recovery
70	1975–1976	6/60	N	1709.2	917	Contaminated oil
71	1978	2/25	N	78.4	31	No description
72	1972–1973	2/25	N	78.4	61	Irradiated stainless steel, hot cell waste trash
73	1973	2/25	N	78.4	43	Hot cell trash
74	1973	2/25	N	78.4	69	Pu-239 waste
75	1973	2/25	N	78.4	61	Pu-238 waste, cell trash
76	1973–1974	2/25	N	78.4	75	Hot cell trash
77	1973–1974	2/25	N	78.4	33	Hot cell trash, Pu-239 hot cell trash
78	1974–1975	2/25	N	78.4	46	Cell wastes, reactor wastes, irradiated box ends
79	1974–1975	2/25	N	78.4	46	Hot cell waste, irradiated metal
80	1975–1976	2/25	N	78.4	25	Sodalime, Ta-182 chips, animal tissue
81	1976	2/25	N	78.4	na	Animal tissue (12 boxes)
82	1978	3/25	N	176.5	1	Trash, chemical wastes
83	1978	3/25	N	176.5	44	Animal tissue, DU
84	1978	3/25	N	176.5	17.3	Trash from Size Reduction Lab, cell trash
85	1978	3/25	N	176.5	12	Neutralized Na Dowanol, cell trash
86	1977	3/25	N	176.5	22	Spalation products, classified materials
87	1977	2/25	N	78.4	23	Cell wastes
88	1977	2/25	N	78.4	18	Cell wastes
89	1977–1978	2/25	N	78.4	12	Animal tissue (5 boxes), cell waste
90	1978	2/25	N	78.4	25	DU, hot cell trash
91	1977–1978	3/50	N	353.4	54	Spalation products, animal waste, cell trash, trash cans
92	1977–1978	3/50	N	353.4	60	Spalation products, uranyl-nitrate in HNO_3
93	1978–1984	3/50	N	353.4	139	Spalation products, fuel elements, cell waste, animal tissues
94	1978–1984	3/50	N	353.4	29	Hot cell waste, DU, control rods
95	1984	3/50	N	353.4	142	Cell wastes, animal tissues
96	1977–1979	6/50	N	1413.6	438	U-contaminated oil, nibbium, zirconium, chlorides, aluminum shell
99	1983–1984	3/60	N	424.1	189	Hot cell wastes, animal tissue, machine parts
100	1983	3/60	N	424.1	3	Hot cell waste, target and stinger
101	1980–1981	3/60	N	424.1	75	Spalation products, hot cell waste
102	1982–1983	3/60	N	424.1	184	No description

Table B-3 (continued)

Shaft No.	Operational Period	Diameter/ Depth (ft)	Lining	Shaft Volume (ft^3)	Waste Volume (ft^3)	Waste Description
103	1981–1982	3/60	N	424.1	118	Hot cell waste, spent fuel elements
104	1982	3/60	N	424.1	10	U chips, scrap metal
105	1982–1983	3/60	N	424.1	2	Animal tissue
106	1980–1981	3/60	N	424.1	69	Spalation products, hot cell waste
107	1978–1981	3/60	N	424.1	27	Hot trash, animal tissue, chemical waste
108	1980–1982	3/60	N	424.1	230	Spalation products, solvent, animal tissue
109	1980	2/60	N	188.5	83	Spalation products, trash cans
110	1979	3/60	N	424.1	128	Spalation products, animal tissue, mixed combustible trash
111	1979–1980	2/60	N	188.5	134	Cell waste, spalation products, niobium and tantalum perchloride
112	1978–1979	3/60	N	424.1	149	Classified pieces, animal waste, cell waste, spalation products
114	1979–1982	6/60	N	1696.5	981	Shielding blocks, graphite design assembly
115	1979–1982	6/60	N	1696.5	539	Hot trash, tritium scrap
118	1983–1984	8/62	N	3267.3	461	Vials
119	1983	8/62	N	3116.5	549	DU chips, hydrocarbons, HF leach solids
120	1983–1984	8/63	N	3116.6	531	Shielding blocks, graphite design assembly
121	1984–1985	4/60	N	753.9	245	Animal tissue, cell trash
122	1984–1985	4/60	N	753.9	258	Hot cell waste, waste cans
123	1984	6/60	N	1696.5	516	DU chips and turnings, firing residue
124	1984–1991	6/65	N	1837.7	491	Vials, organics
125	1984	6/65	N	1837.7	597	DU chips and turnings
126	1985–1987	6/65	N	1837.7	781	Meson and hot cell waste
127	1985	6/65	N	1837.7	484	DU chips and turnings, U3 08 oil and wax
128	1985–1986	6/65	N	1837.7	417	Animal tissue, mustargem
129	1986	3/65	N	459.4	136	Mixed spalation products
130	1986–1987	6/65	N	1837.7	1110	DU chips, metal trash
131	1987–1995	6/65	N	1837.7	438	Activated shielding
132	1987–1993	6/65	N	1837.7	634	Classified material
133	1986–1987	4/65	N	816.8	96	Spalation products, hot cell waste
134	1986	3/65	N	459.4	239	Animal tissue
135	1986–1987	3/65	N	459.4	219	Animal tissue
136	1986–1995	6/65	N	1837.7	50	Low-level tritium
138	1987–1989	4/60	N	753.9	191	Animal tissue
139	1987–1988	4/60	N	753.9	308	Hot cell waste
140	1987–1991	6/61	N	1724.7	869	Animal tissue
150	1976–1979	6/60	CMPAC[e]	1696.5	86	Low-level tritium

Table B-3 (continued)

Shaft No.	Operational Period	Diameter/ Depth (ft)	Lining	Shaft Volume (ft^3)	Waste Volume (ft^3)	Waste Description
151	1979–1986	3/60	CMPAC	424.1	131	Low-level tritium
152	1980–1983	3/60	CMPAC	424.1	147	Tritium scrap, tubing, hardware
153	1983–1984	3/60	CMPAC	424.1	12	Contaminated pump, property numbers
154	1984–1986	3/65	CMPAC	459.4	135	High-level tritium, molecular sieves
155	1988–1989	3/65	CMPAC	459.4	137	High-level tritium
156	1986–1987	3/45	CMPAC	318.2	59	Dry box trash, molecular sieves
157	1987–1988	3/45	CMPAC	318.2	88	Tritium
158	1989–1998	2/45	CMPAC	141.2	78	High-level tritium
159	1989	2/45	CMPAC	141.2	12	High-level tritium
160	1990–1993	2/45	CMPAC	141.2	89	High-level tritium
189	1987–1988	8/65	N	3267.3	1743	LAMPF activated shielding (triple shaft)
190	1983–1984	8/65	N	3267.3	1077	Scrap metal
191	1984–1986	8/65	N	3267.3	1470	LAMPF scrap metal, graphite target (double shaft)
192	1987–1989	8/65	N	3267.3	1537	LAMPF scrap metal (triple shaft)
196	1989–1993	6/53	N	2997.5	2050	LAMPF inerts
200	1980–1981	1/18	SPI[1]	56.5	44	Hot cell wastes
201	1978–1979	1/18	SPI	56.5	39	Hot cell wastes
202	1980	1/18	SPI	56.5	43	Hot cell wastes
203	1980	1/18	SPI	56.5	43	Hot cell wastes
204	1978–1979	1/18	SPI	56.5	38	Hot cell wastes, fuel cans
205	1980	1/18	SPI	56.5	45	Hot cell wastes, trash, fuel cans
206	1980–1981	1/18	SPI	56.5	67	Cell trash and fuel sample
207	1981	1/18	SPI	56.5	48	Cell trash, fuel cells
208	1981	1/18	SPI	56.5	48	Hot cell trash, waste
209	1981	1/18	SPI	56.5	48	Hot cell paint, trash
210	1981	1/18	SPI	56.5	48	Hot cell trash
211	1981	1/18	SPI	56.5	48	Hot cell trash
212	1980	1/18	SPI	56.5	75	LAMPF fuel vessel
213	1981	1/18	SPI	56.5	30	Hot cell wastes, trash
214	1982	1/18	SPI	56.5	30	Hot cell wastes
215	1982	1/18	SPI	56.5	30	Hot cell trash
216	1982	1/18	SPI	56.5	30	Hot cell wastes
217	1982	1/18	SPI	56.5	30	Hot cell wastes
218	1982	1/18	SPI	56.5	30	Hot cell wastes
219	1983	1/18	SPI	56.5	30	Hot cell wastes
220	1983	1/18	SPI	56.5	30	Hot cell wastes
221	1983	1/18	SPI	56.5	30	Hot cell wastes

Table B-3 (continued)

Shaft No.	Operational Period	Diameter/ Depth (ft)	Lining	Shaft Volume (ft^3)	Waste Volume (ft^3)	Waste Description
222	1983	1/18	SPI	56.5	30	Hot cell wastes
223	1983	1/18	SPI	56.5	30	Hot cell wastes
224	1985	1/18	SPI	56.5	4	Hot cell wastes
225	1984	1/18	SPI	56.5	4	Hot cell wastes
226	1984	1/18	SPI	56.5	4	Hot cell wastes
227	1984	1/18	SPI	56.5	4	Hot cell wastes
228	1987	1/18	SPI	56.5	1	Hot cell wastes
229	1984	1/18	SPI	56.5	5	Hot cell wastes
230	1984	1/18	SPI	56.5	4	Hot cell wastes
231	1985	1/18	SPI	56.5	4	Hot cell wastes
232	1987	1/18	SPI	56.5	1	Hot cell wastes
233	na	1/18	SPI	56.5	na	Hot cell wastes
C1	na	6/60	N	1696.5	221	PCBs (no liquids)
C2	na	6/60	N	1696.5	357	PCBs (no liquids)
C3	na	6/60	N	1696.5	339	PCBs (no liquids)
C4	na	6/60	N	1696.5	385	PCBs (no liquids)
C5	na	6/60	N	1696.5	258	PCBs (no liquids)
C6	na	6/60	N	1696.5	449	PCBs (no liquids)
C7	na	6/60	N	1696.5	512	PCBs (no liquids)
C8	na	6/60	N	1696.5	498	PCBs (no liquids)
C9	na	6/60	N	1696.5	406	PCBs (no liquids)
C10	1984–1985	6/60	N	1696.5	534	PCBs (no liquids)
C12	1986–1990	6/65	N	1696.5	588	PCBs (no liquids)
C13	1987–1995	6/65	N	1696.5	1060	PCBs (no liquids)

[a] N = No.

[b] DU = Depleted uranium.

[c] na = No information available.

[d] CMP = Corrugated metal pipe.

[e] CMPAC = Corrugated metal pipe asphalt coated.

[f] SPI = Steel pipe insert.

Table B-4
Estimated Volumes and Activities of
Radioactive Waste Disposed and/or Potentially Retrievably Placed at MDA G

Disposal Areas	Pre-1971 Waste		1971–1990 Waste		Retrievably Placed TRU Waste	
	Volume (m^3)	Activity (Ci)	Volume (m^3)	Activity (Ci)	Volume (m^3)	Activity (Ci)
Pits	4.4E+05	1.9E+04	4.1E+05	4.1E+04	2.1E+03	1.4E+05
Shafts and trenches	1.5E+02	3.6E+04	8.5E+02	8.8E+05	2.7E+01	3.5E+03

Table B-5
Estimated MDA G Hazardous Chemical Inventories

Hazardous Constituent	Pre-1971 Waste (kg)	1971–1990 Waste (kg)
Aluminum	0	4.8E+05
Arsenic	2.2E+00	3.8E+02
Barium	5.2E+02	4.3E+02
Beryllium	0	1.9E+04
Cadmium	1.2E+01	1.9E+03
Chromium	9.6E+01	1.9E+03
Lead	1.6E+01	2.3E+05
Mercury	1.3E+00	3.8E+02
Nickel	8.5E+02	6.9E+02
Selenium	3.6E+00	3.0E+00
Silver	2.2E+01	1.8E+01
Aroclor-1260	0	2.0E+02

Table B-6
Summary of Work Plan Specifications, Fieldwork, and Rationale for Deviations

Media	Work Plan Specification		Actual RFI Field Work Performed		Rationale for Deviation
	Number Samples Proposed	Analytes (Method)	Completed Sampling	Analytes (Method)	
Soil and sediment (drainages)	81 (9 samples collected from each of 9 major drainages)	VOCs, SVOCs, metals, pesticides, PCBs, cyanide (SW-846), radionuclides	113 (screened at Mobile Radiological Analysis Laboratory) 59 samples from 15 drainages(submitted for laboratory analysis)	Inorganic chemicals, pesticides, PCBs, radionuclides, cyanide	None were analyzed for SVOCs or VOCs. Surface flux sampling bounds VOC extent
Air (surface flux)	324 (Soil gas samples, 162 in the spring and 162 in the summer)	VOCs	260 (VOCs) two field deployments of EMFLUX® 142 (tritium–flux chamber) 21 VOC flux chamber (14 locations in 1993, 7 locations in 1994)	VOCs (EMFLUX® method) Tritium (liquid scintillation) VOCs (SUMMA) TO-14	EMFLUX® samples were taken during season of peak VOC flux in two deployments during late summer. Tritium surface flux measurements were used to define lateral extent. VOC flux chamber augments EMFLUX® data set.
Air (high-volume air)	192 (96 samples from PUF/XAD filters and cartridges, 96 samples from glass-fiber paper air filters)	SVOCs, metals, pesticides (cartridges SW-846), PCBs, cyanide, radionuclides (cartridges SW-846), total suspended particulates (filter paper SW-846)	16 VOC (2 locations, 8 sampling days AIRNET data for radionuclides	VOCs (SUMMA) EPA Method TO-14 Particulate filter for alpha emitters Silica gel cartridge for tritium	COPCs were defined for VOCs in air; lateral extent of VOCs was defined using surface flux sampling. Particulate radionuclide sampling was used to aid in extent definition and identification of COPCs.

Table B-6 (continued)

Media	Work Plan Specification		Actual RFI Field Work Performed		Rationale for Deviation
	Number Samples Proposed	Analytes (Method)	Completed Sampling	Analytes (Method)	
Air (tritium)	96 1 sample, 8 locations, 12 months)	Absorbed tritium (liquid scintillation)	227 Approximately 25 bi-weekly samples/yr at 9 air-sampling locations from calendar year 2001	Tritium (liquid scintillation)	RRES-MAQ data were used; the results were reported in an Environmental Surveillance Program report for 2001 (LANL 2002, 73876)
Pore gas (monitoring ports)	7 (2 boreholes)	VOCs (SUMMA/SW-846)	48 (SUMMA) (2 to 4 samples per quarter from 8 monitoring boreholes)	VOCs (SUMMA) EPA TO-14	More data were collected than prescribed for VOCs. Quarterly pore gas monitoring samples were taken from 1997–2002.
			13 (silica gel columns for tritium)	Tritium (liquid scintillation)	Tritium pore gas samples were collected from 54-01110 and 54-01111 to address data needs in subsurface core data for tritium.
Pore gas (open boreholes)	30 (5 boreholes)	VOCs (SUMMA/SW-846)	None	None	Quarterly sampling was conducted at multiport monitoring wells to meet data needs.
Core	30 (5 boreholes)	VOCs, SVOCs, metals, pesticides, PCBs, cyanide, radionuclides	156 (19 boreholes, with 4 to 32 samples per borehole)	VOCs, SVOCs, metals, pesticides, PCBs, cyanide, radionuclides	Not all core samples were tested for each analytical suite, some samples were tested only for tritium/percent moisture/gross radiation.

Table B-7
MDAG Phase I RFI Sediment Samples

Sample ID	Location ID	Depth (ft)	Media	Am-241	Gamma Spectroscopy	Tritium	Isotopic Plutonium	Isotopic Thorium	Isotopic Uranium	Strontium-90	Cyanide	Metals	PCBs	Pesticides
AAB3143	54-05015	0–0.5	Sediment	19010	19010	19010	19010	19010	19010	19010	18645	18645	18133	18133
AAB3160	54-05016	0–0.5	Sediment	19010	19010	19010	19010	19010	19010	19010	18645	18645	18133	18133
AAB3150	54-05017	0–0.5	Sediment	19010	19010	19010	19010	19010	19010	19010	18645	18645	18133	18133
AAB3139	54-05018	0–0.5	Sediment	19010	19010	19010	19010	19010	19010	19010	18645	18645	18133	18133
AAB3190	54-05019	0–0.5	Sediment	18973	18973	18973	18973	18973	18973	18973	—*	18931	18049	18049
AAB3207	54-05020	0–0.5	Sediment	18973	18973	18973	18973	18973	18973	18973	—	18931	18049	18049
AAB3187	54-05022	0–0.5	Sediment	18973	18973	18973	18973	18973	18973	18973	—	18931	18049	18049
AAB3195	54-05026	0–0.5	Sediment	18973	18973	18973	18973	18973	18973	18973	—	18931	18049	18049
AAB3122	54-05027	0–0.5	Sediment	19010	19010	19010	19010	19010	19010	19010	18645	18645	18133	18133
AAB3120	54-05029	0–0.5	Sediment	19010	19010	19010	19010	19010	19010	19010	18645	18645	18133	18133
AAB3123	54-05031	0–0.5	Sediment	19010	19010	19010	19010	19010	19010	19010	18645	18645	18133	18133
AAB3126	54-05034	0–0.5	Sediment	19010	19010	19010	19010	19010	19010	19010	18645	18645	18133	18133
AAB3194	54-05035	0–0.83	Sediment	18973	18973	18973	18973	18973	18973	18973	—	18931	18049	18049
AAB3208	54-05037	0–0.83	Sediment	18973	18973	18973	18973	18973	18973	18973	—	18931	18049	18049
AAB3213	54-05038	0–0.83	Sediment	18973	18973	18973	18973	18973	18973	18973	—	18931	18049	18049
AAB3204	54-05042	0–0.83	Sediment	18973	18973	18973	18973	18973	18973	18973	—	18931	18049	18049
AAB3191	54-05043	0–0.83	Sediment	18973	18973	18973	18973	18973	18973	18973	—	18931	18049	18049
AAB3196	54-05045	0–0.83	Sediment	18973	18973	18973	18973	18973	18973	18973	—	18931	18049	18049
AAB3192	54-05048	0–0.83	Sediment	18973	18973	18973	18973	18973	18973	18973	—	18931	18049	18049
AAB3132	54-05050	0–0.5	Sediment	18973	18973	18973	18973	18973	18973	18973	—	18931	18049	18049
AAB3173	54-05053	0–0.5	Sediment	19010	19010	19010	19010	19010	19010	19010	18645	18645	18133	18133
AAB3133	54-05055	0–0.83	Sediment	19010	19010	19010	19010	19010	19010	19010	18645	18645	18133	18133

Table B-7 (continued)

Sample ID	Location ID	Depth (ft)	Media	Am-241	Gamma Spectroscopy	Tritium	Isotopic Plutonium	Isotopic Thorium	Isotopic Uranium	Strontium-90	Cyanide	Metals	PCBs	Pesticides
AAB3202	54-05055	0–0.83	Sediment	19010	19010	19010	19010	19010	19010	19010	18645	18645	18133	18133
AAB3147	54-05058	0–0.5	Sediment	19010	19010	19010	19010	19010	19010	19010	18645	18645	18133	18133
AAB3180	54-05060	0–0.5	Sediment	19010	19010	19010	19010	19010	19010	19010	18645	18645	18133	18133
AAB3128	54-05061	0–0.5	Sediment	18973	18973	18973	18973	18973	18973	18973	—	18931	18049	18049
AAB3124	54-05063	0–0.5	Sediment	18973	18973	18973	18973	18973	18973	18973	—	18931	18049	18049
AAB3121	54-05066	0–0.5	Sediment	18973	18973	18973	18973	18973	18973	18973	—	18931	18049	18049
AAB3118	54-05068	0–0.5	Sediment	18973	18973	18973	18973	18973	18973	18973	—	18931	18049	18049
AAB3107	54-05069	0–0.5	Sediment	18973	18973	18973	18973	18973	18973	18973	—	18931	18049	18049
AAB3114	54-05072	0–0.5	Sediment	18973	18973	18973	18973	18973	18973	18973	—	18931	18049	18049
AAB3108	54-05074	0–0.7	Sediment	18973	18973	18973	18973	18973	18973	18973	—	18931	18049	18049
AAB3106	54-05076	0–0.5	Sediment	18973	18973	18973	18973	18973	18973	18973	—	18931	18049	18049
AAB3170	54-05077	0–0.5	Sediment	18794	18794	18794	18794	18794	18794	18794	18640	18640	18095	18095
AAB3172	54-05078	0–0.25	Sediment	18794	18794	18794	18794	18794	18794	18794	18640	18640	18095	18095
AAB3177	54-05080	0–0.33	Sediment	18794	18794	18794	18794	18794	18794	18794	18640	18640	18095	18095
AAB3171	54-05082	0–0.5	Sediment	18794	18794	18794	18794	18794	18794	18794	18640	18640	18095	18095
AAB3158	54-05085	0–0.5	Sediment	18794	18794	18794	18794	18794	18794	18794	18640	18640	18095	18095
AAB3166	54-05085	0–0.5	Sediment	18794	18794	18794	18794	18794	18794	18794	18640	18640	18095	18095
AAB3155	54-05086	0–0.5	Sediment	18794	18794	18794	18794	18794	18794	18794	18640	18640	18095	18095
AAB3156	54-05088	0–0.33	Sediment	18794	18794	18794	18794	18794	18794	18794	18640	18640	18095	18095
AAB3154	54-05090	0–0.5	Sediment	18794	18794	18794	18794	18794	18794	18794	18640	18640	18095	18095
AAB3159	54-05093	0–0.7	Sediment	18794	18794	18794	18794	18794	18794	18794	18640	18640	18095	18095
AAB3161	54-05094	0–0.5	Sediment	18794	18794	18794	18794	18794	18794	18794	18640	18640	18095	18095
AAB3157	54-05095	0–0.7	Sediment	18794	18794	18794	18794	18794	18794	18794	18640	18640	18095	18095
AAB3164	54-05096	0–0.5	Sediment	18794	18794	18794	18794	18794	18794	18794	18640	18640	18095	18095

Table B-7 (continued)

Sample ID	Location ID	Depth (ft)	Media	Am-241	Gamma Spectroscopy	Tritium	Isotopic Plutonium	Isotopic Thorium	Isotopic Uranium	Strontium-90	Cyanide	Metals	PCBs	Pesticides
AAB3178	54-05101	0–0.5	Sediment	18794	18794	18794	18794	18794	18794	18794	18640	18640	18095	18095
AAB3168	54-05102	0–0.42	Sediment	18794	18794	18794	18794	18794	18794	18794	18640	18640	18095	18095
AAB3163	54-05103	0–0.42	Sediment	18794	18794	18794	18794	18794	18794	18794	18640	18640	18095	18095
AAB3169	54-05104	0–0.42	Sediment	18794	18794	18794	18794	18794	18794	18794	18640	18640	18095	18095
AAB3117	54-05108	0–0.5	Sediment	18794	18794	18794	18794	18794	18794	18794	18640	18640	18095	18095
AAB3127	54-05110	0–0.4	Sediment	18794	18794	18794	18794	18794	18794	18794	18640	18640	18095	18095
AAB3116	54-05111	0–0.3	Sediment	18794	18794	18794	18794	18794	18794	18794	18640	18640	18095	18095
AAB3167	54-05113	0–0.5	Sediment	18794	18794	18794	18794	18794	18794	18794	18640	18640	18095	18095
AAB3109	54-05117	0–0.5	Sediment	18973	18973	18973	18973	18973	18973	18973	—	18931	18049	18049
AAB3111	54-05118	0–0.5	Sediment	18973	18973	18973	18973	18973	18973	18973	—	18931	18049	18049
AAB3110	54-05122	0–0.5	Sediment	18973	18973	18973	18973	18973	18973	18973	—	18931	18049	18049
AAB3112	54-05122	0–0.5	Sediment	18973	18973	18973	18973	18973	18973	18973	—	18931	18049	18049
AAB3113	54-05125	0–0.5	Sediment	18973	18973	18973	18973	18973	18973	18973	—	18931	18049	18049

* — = Not analyzed.

Table B-8a
Frequency of Inorganic Chemicals Above BVs
from MDA G Phase I RFI Channel Sediment Samples

Analyte	Number of Analyses	Number of Detects	Concentration Range[a] (mg/kg)	Sediment BV[b] (mg/kg)	Frequency of Detects Above BV	Frequency of Nondetects Above BV
Aluminum	59	59	1080–14600	15400	0/59	0/59
Antimony	59	0	[0.2–0.22]	0.83	0/59	0/59
Arsenic	59	3	[0.74]–3.5	3.98	0/59	0/59
Barium	59	44	[16]–180	127	3/59	0/59
Beryllium	59	2	[0.2–71]	1.31	0/59	1/59
Boron	34	0	[1.6–1.8]	na[c]	na	na
Cadmium	59	1	[0.2]–1.2	0.4	1/59	32/59
Calcium	59	44	[419]–6370	4420	1/59	0/59
Chromium	59	45	[0.6]–17.9	10.5	1/59	0/59
Cobalt	59	0	[0.8]–[5.6]	4.73	0/59	3/59
Copper	59	16	[0.76]–10.3	11.2	0/59	0/59
Cyanide (total)	34	0	[0.2–0.31]	0.82	0/34	0/34
Iron	59	59	1270–39000	13800	1/59	0/59
Lead	59	59	2.7–14.6	19.7	0/59	0/59
Magnesium	59	27	[246]–2660	2370	1/59	0/59
Manganese	59	58	81.3–403	543	0/59	0/59
Mercury	59	1	[0.02–0.2]	0.1	0/59	1/59
Molybdenum	34	0	[5.2–5.7]	na	na	na
Nickel	59	2	[1.2]–8.8	9.38	0/59	0/59
Potassium	59	19	[194]–2350	2690	0/59	0/59
Selenium	25	0	[0.6]–[0.64]	0.3	0/25	25/25
Silver	59	0	[0.6]–[2.1]	1.0	0/59	27/59
Sodium	59	0	[16.1–100]	1470	0/59	0/59
Thallium	59	0	[0.2–0.24]	0.73	0/59	0/59
Vanadium	59	15	[2.2]–19.7	19.7	0/59	0/59
Zinc	59	59	9.9–44.1	60.2	0/59	0/59

[a] Square brackets indicate detection limits for nondetected results.

[b] Source of BVs: LANL 1998, 59730.

[c] na = Background data not available.

Table B-8b
Inorganic Chemicals Above BVs in MDA G Phase I RFI Channel Sediment Samples

Sample ID	Location ID	Depth (ft)	Media	Barium	Beryllium	Boron	Cadmium	Calcium	Chromium	Cobalt	Iron	Magnesium	Mercury	Molybdenum	Selenium	Silver
Sediment Background Value				127	1.31	na[a]	0.4	4420	10.5	4.73	13800	2370	0.1	na	0.3	1
Industrial Soil Screening Level (mg/kg)				7.83E+04	2.25E+03	6.16E+04	8.60E+03	[b]	3.40E+03	2.05E+04	1.00E+05	[b]	3.41E+02	5.68E+03	5.68E+03	5.68E+03
AAB3143	54-05015	0–0.5	Sediment	—[c]	—	1.6 (U)	—	—	—	—	—	—	—	5.2 (U)	—	—
AAB3160	54-05016	0–0.5	Sediment	—	—	1.6 (U)	—	—	—	—	—	—	—	5.2 (U)	—	—
AAB3150	54-05017	0–0.5	Sediment	—	—	1.6 (U)	0.61 (U)	—	—	—	—	—	—	5.3 (U)	—	—
AAB3139	54-05018	0–0.5	Sediment	—	—	1.8 (U)	0.49 (U)	—	—	—	—	—	—	5.7 (U)	—	—
AAB3190	54-05019	0–0.5	Sediment	—	—	—	—	—	—	—	—	—	—	—	0.6 (U)	2 (U)
AAB3207	54-05020	0–0.5	Sediment	—	—	—	—	—	—	—	—	—	—	—	0.6 (U)	2 (U)
AAB3187	54-05022	0–0.5	Sediment	—	—	—	0.46 (U)	—	—	—	—	—	—	—	0.6 (U)	2 (U)
AAB3195	54-05026	0–0.5	Sediment	—	—	—	—	—	—	—	—	—	—	—	0.61 (U)	2 (U)
AAB3122	54-05027	0–0.5	Sediment	—	—	1.6 (U)	—	—	—	—	—	—	—	5.2 (U)	—	—
AAB3120	54-05029	0–0.5	Sediment	—	—	1.6 (U)	0.63 (U)	—	—	—	—	—	—	5.3 (U)	—	1.5 (U)
AAB3123	54-05031	0–0.5	Sediment	—	—	1.6 (U)	—	—	—	—	—	—	—	5.2 (U)	—	—
AAB3126	54-05034	0–0.5	Sediment	—	—	1.6 (U)	0.41 (U)	—	—	—	—	—	—	5.3 (U)	—	1.4 (U)
AAB3194	54-05035	0–0.83	Sediment	—	—	—	—	6370	—	—	—	—	—	—	0.6 (U)	2 (U)
AAB3208	54-05037	0–0.83	Sediment	—	—	—	0.41 (U)	—	—	—	—	—	—	—	0.61 (U)	2 (U)
AAB3213	54-05038	0–0.83	Sediment	—	—	—	—	—	—	—	—	—	—	—	0.61 (U)	2 (U)
AAB3204	54-05042	0–0.83	Sediment	—	71 (U)	—	—	—	—	—	—	—	—	—	0.6 (U)	2 (U)
AAB3191	54-05043	0–0.83	Sediment	—	—	—	—	—	—	—	—	—	—	—	0.61 (U)	2 (U)
AAB3196	54-05045	0–0.83	Sediment	—	—	—	—	—	—	—	—	—	—	—	0.6 (U)	2 (U)
AAB3192	54-05048	0–0.83	Sediment	—	—	—	0.41 (U)	—	—	—	—	—	—	—	0.61 (U)	2 (U)
AAB3132	54-05050	0–0.5	Sediment	—	—	—	0.56 (U)	—	—	—	—	—	—	—	0.6 (U)	2 (U)
AAB3173	54-05053	0–0.5	Sediment	—	—	1.6 (U)	—	—	—	—	—	—	—	5.2 (U)	—	—
AAB3133	54-05055	0–0.83	Sediment	—	—	1.6 (U)	—	—	—	—	—	—	—	5.2 (U)	—	—
AAB3202	54-05055	0–0.83	Sediment	—	—	1.6 (U)	—	—	—	—	—	—	—	5.3 (U)	—	—

Table B-8b (continued)

Sample ID	Location ID	Depth (ft)	Media	Barium	Beryllium	Boron	Cadmium	Calcium	Chromium	Cobalt	Iron	Magnesium	Mercury	Molybdenum	Selenium	Silver
Sediment Background Value				127	1.31	na[a]	0.4	4420	10.5	4.73	13800	2370	0.1	na	0.3	1
Industrial Soil Screening Level (mg/kg)				7.83E+04	2.25E+03	6.16E+04	8.60E+03	[b]	3.40E+03	2.05E+04	1.00E+05	[b]	3.41E+02	5.68E+03	5.68E+03	5.68E+03
AAB3147	54-05058	0–0.5	Sediment	—	—	1.6 (U)	0.53 (U)	—	—	—	—	—	—	5.2 (U)	—	—
AAB3180	54-05060	0–0.5	Sediment	—	—	1.6 (U)	—	—	—	—	—	—	—	5.3 (U)	—	—
AAB3128	54-05061	0–0.5	Sediment	—	—	—	—	—	—	—	—	—	—	—	0.6 (U)	2 (U)
AAB3124	54-05063	0–0.5	Sediment	—	—	—	0.47 (U)	—	—	—	—	—	—	—	0.6 (U)	2 (U)
AAB3121	54-05066	0–0.5	Sediment	—	—	—	0.57 (U)	—	—	—	—	—	—	—	0.61 (U)	2 (U)
AAB3118	54-05068	0–0.5	Sediment	—	—	—	—	—	—	—	—	—	—	—	0.61 (U)	2 (U)
AAB3107	54-05069	0–0.5	Sediment	—	—	—	—	—	—	—	—	—	—	—	0.6 (U)	2 (U)
AAB3114	54-05072	0–0.5	Sediment	—	—	—	—	—	—	—	—	—	—	—	0.61 (U)	2 (U)
AAB3108	54-05074	0–0.7	Sediment	—	—	—	0.48 (U)	—	—	—	—	—	—	—	0.61 (U)	2 (U)
AAB3106	54-05076	0–0.5	Sediment	—	—	—	0.41 (U)	—	—	—	—	—	—	—	0.61 (U)	2 (U)
AAB3170	54-05077	0–0.5	Sediment	—	—	1.6 (U)	—	—	—	—	—	—	—	5.2 (U)	—	—
AAB3172	54-05078	0–0.25	Sediment	—	—	1.6 (U)	0.58 (U)	—	—	—	—	—	0.2 (U)	5.2 (U)	—	—
AAB3177	54-05080	0–0.33	Sediment	—	—	1.6 (U)	0.81 (U)	—	—	—	—	—	—	5.2 (U)	—	—
AAB3171	54-05082	0–0.5	Sediment	—	—	1.6 (U)	0.55 (U)	—	—	—	—	—	—	5.3 (U)	—	—
AAB3158	54-05085	0–0.5	Sediment	—	—	1.6 (U)	—	—	—	—	—	—	—	5.3 (U)	—	—
AAB3166	54-05085	0–0.5	Sediment	—	—	1.6 (U)	0.69 (U)	—	—	—	—	—	—	5.2 (U)	—	—
AAB3155	54-05086	0–0.5	Sediment	—	—	1.6 (U)	0.58 (U)	—	—	—	—	—	—	5.3 (U)	—	—
AAB3156	54-05088	0–0.33	Sediment	—	—	1.6 (U)	—	—	—	—	—	—	—	5.2 (U)	—	—
AAB3154	54-05090	0–0.5	Sediment	—	—	1.6 (U)	—	—	—	—	—	—	—	5.3 (U)	—	—
AAB3159	54-05093	0–0.7	Sediment	—	—	1.6 (U)	—	—	17.9 (J)	—	—	—	—	5.3 (U)	—	—
AAB3161	54-05094	0–0.5	Sediment	—	—	1.6 (U)	0.61 (U)	—	—	—	—	—	—	5.2 (U)	—	—
AAB3157	54-05095	0–0.7	Sediment	—	—	1.6 (U)	0.52 (U)	—	—	—	—	—	—	5.2 (U)	—	—
AAB3164	54-05096	0–0.5	Sediment	—	—	1.6 (U)	0.88 (U)	—	—	—	—	—	—	5.3 (U)	—	—
AAB3178	54-05101	0–0.5	Sediment	—	—	1.6 (U)	0.67 (U)	—	—	—	—	—	—	5.2 (U)	—	—
AAB3168	54-05102	0–0.42	Sediment	—	—	1.6 (U)	0.55 (U)	—	—	—	—	—	—	5.2 (U)	—	—

Table B-8b (continued)

Sample ID	Location ID	Depth (ft)	Media	Barium	Beryllium	Boron	Cadmium	Calcium	Chromium	Cobalt	Iron	Magnesium	Mercury	Molybdenum	Selenium	Silver
Sediment Background Value				**127**	**1.31**	**na[a]**	**0.4**	**4420**	**10.5**	**4.73**	**13800**	**2370**	**0.1**	**na**	**0.3**	**1**
Industrial Soil Screening Level (mg/kg)				**7.83E+04**	**2.25E+03**	**6.16E+04**	**8.60E+03**	**[b]**	**3.40E+03**	**2.05E+04**	**1.00E+05**	**[b]**	**3.41E+02**	**5.68E+03**	**5.68E+03**	**5.68E+03**
AAB3163	54-05103	0–0.42	Sediment	—	—	1.6 (U)	0.53 (U)	—	—	—	—	—	—	5.3 (U)	—	—
AAB3169	54-05104	0–0.42	Sediment	—	—	1.6 (U)	0.52 (U)	—	—	—	—	—	—	5.2 (U)	—	—
AAB3117	54-05108	0–0.5	Sediment	—	—	1.6 (U)	0.69 (U)	—	—	—	—	—	—	5.3 (U)	—	—
AAB3127	54-05110	0–0.4	Sediment	—	—	1.6 (U)	0.63 (U)	—	—	—	—	—	—	5.3 (U)	—	—
AAB3116	54-05111	0–0.3	Sediment	—	—	1.6 (U)	1.2	—	—	—	—	—	—	5.2 (U)	—	—
AAB3167	54-05113	0–0.5	Sediment	—	—	1.6 (U)	0.55 (U)	—	—	—	—	—	—	5.2 (U)	—	—
AAB3109	54-05117	0–0.5	Sediment	—	—	—	—	—	—	—	39000	—	—	—	0.6 (U)	2 (U)
AAB3111	54-05118	0–0.5	Sediment	—	—	—	0.65 (U)	—	—	—	—	—	—	—	0.61 (U)	2 (U)
AAB3110	54-05122	0–0.5	Sediment	141	—	—	0.52 (U)	—	—	5.6 (U)	—	—	—	—	0.62 (U)	2.1 (U)
AAB3112	54-05122	0–0.5	Sediment	144	—	—	0.65 (U)	—	—	5.1 (U)	—	—	—	—	0.62 (U)	2.1 (U)
AAB3113	54-05125	0–0.5	Sediment	180	—	—	1 (U)	—	—	5.5 (U)	—	2660	—	—	0.64 (U)	2.1 (U)

[a] na = No BV available.

[b] Essential nutrient.

[c] — = Not detected above BV.

Table B-9a
Frequency of Radionuclides Detected Above BVs
from MDA G Phase I RFI Channel Sediment Samples

Analyte	Number of Analyses	Number of Detects	Concentration Range[a] (pCi/g)	BV (pCi/g)[b]	Frequency of Detects Above BV
Americium-241	59	51	[0.005]–0.158	0.04	12/59
Cesium-137	59	31	[0.03]–1.3	0.9	4/59
Cobalt-60	59	3	[0.01]–0.39	na[c]	3/59
Plutonium-238	59	39	[0.001]–1.483	0.006	39/59
Plutonium-239	59	54	[0.004]–0.909	0.068	20/59
Strontium-90	59	8	[-0.09]–0.38	1.04	0/59
Thorium-228	59	59	0.64–1.85	2.28	0/59
Thorium-230	59	59	0.56–1.64	2.29	0/59
Thorium-232	59	59	0.61–1.78	2.33	0/59
Tritium	59	59	0.0032–0.49	0.093	7/59
Uranium-234	59	58	[0.32]–1.99	2.59	0/59
Uranium-235	59	1	[0.02]–0.14	0.2	0/59
Uranium-238	59	59	0.8–1.9	2.29	0/59

[a] Square brackets indicate minimum detectable activity (i.e., detection limit) for nondetected results.

[b] Source of BVs: LANL 1998, 59730.

[c] na = Fallout value not available.

Table B-9b
Radionuclides Detected Above BVs In MDA G Phase I RFI Channel Sediment Samples

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-137	Cobalt-60	Plutonium-238	Plutonium-239	Tritium
Sediment Background Value				**0.04**	**0.9**	**na**[a]	**0.006**	**0.068**	**0.093**
Industrial SAL (pCi/g)				**1.403E+02**	**1.968E+01**	**4.378E+00**	**1.764E+02**	**1.589E+02**	**1.514E+04**
AAB3143	54-05015	0–0.5	Sediment	—[b]	—	—	—	—	—
AAB3160	54-05016	0–0.5	Sediment	—	—	—	0.014	—	—
AAB3150	54-05017	0–0.5	Sediment	—	—	—	—	—	—
AAB3139	54-05018	0–0.5	Sediment	—	0.99	—	—	—	—
AAB3190	54-05019	0–0.5	Sediment	—	—	—	—	—	—
AAB3207	54-05020	0–0.5	Sediment	—	—	0.39	0.01 (J)	—	—
AAB3187	54-05022	0–0.5	Sediment	—	—	0.34	—	—	—
AAB3195	54-05026	0–0.5	Sediment	—	—	—	0.044 (J)	0.489 (J)	—
AAB3122	54-05027	0–0.5	Sediment	—	—	—	0.037	—	—
AAB3120	54-05029	0–0.5	Sediment	0.059	—	—	0.082	—	0.1402735
AAB3123	54-05031	0–0.5	Sediment	—	—	—	0.019	—	—
AAB3126	54-05034	0–0.5	Sediment	—	—	—	0.046	—	—
AAB3194	54-05035	0–0.83	Sediment	—	—	—	0.015 (J)	0.103 (J)	—
AAB3208	54-05037	0–0.83	Sediment	—	—	—	0.013	—	0.4900508 (J)
AAB3213	54-05038	0–0.83	Sediment	—	—	—	0.009 (J)	—	—
AAB3204	54-05042	0–0.83	Sediment	—	—	—	—	—	0.3298158
AAB3191	54-05043	0–0.83	Sediment	—	—	—	0.576 (J)	0.476 (J)	0.1041099
AAB3196	54-05045	0–0.83	Sediment	—	—	—	—	—	0.1135484 (J)
AAB3192	54-05048	0–0.83	Sediment	—	—	—	—	—	0.1020202
AAB3132	54-05050	0–0.5	Sediment	—	—	—	—	—	—
AAB3173	54-05053	0–0.5	Sediment	—	—	—	0.01	0.076	—
AAB3133	54-05055	0–0.83	Sediment	—	—	—	—	—	—
AAB3202	54-05055	0–0.83	Sediment	—	—	—	0.009	—	—
AAB3147	54-05058	0–0.5	Sediment	—	—	—	0.011	—	—
AAB3180	54-05060	0–0.5	Sediment	—	—	—	0.009	—	—
AAB3128	54-05061	0–0.5	Sediment	—	—	—	0.04 (J)	0.555 (J)	—
AAB3124	54-05063	0–0.5	Sediment	—	—	—	—	—	—
AAB3121	54-05066	0–0.5	Sediment	—	—	—	0.238 (J)	0.252 (J)	—
AAB3118	54-05068	0–0.5	Sediment	—	—	—	0.016	—	—
AAB3107	54-05069	0–0.5	Sediment	—	—	—	0.014	0.121	—
AAB3114	54-05072	0–0.5	Sediment	0.093	—	—	0.012 (J)	—	—
AAB3108	54-05074	0–0.7	Sediment	0.158	—	—	0.095	0.858	—
AAB3106	54-05076	0–0.5	Sediment	0.146	—	—	0.066	0.909	—
AAB3170	54-05077	0–0.5	Sediment	—	—	—	—	—	—

Table B-9b (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-137	Cobalt-60	Plutonium-238	Plutonium-239	Tritium
Sediment Background Value				**0.04**	**0.9**	**na[a]**	**0.006**	**0.068**	**0.093**
Industrial SAL (pCi/g)				**1.403E+02**	**1.968E+01**	**4.378E+00**	**1.764E+02**	**1.589E+02**	**1.514E+04**
AAB3172	54-05078	0–0.25	Sediment	—	—	—	—	—	—
AAB3177	54-05080	0–0.33	Sediment	—	—	—	0.025	0.118	—
AAB3171	54-05082	0–0.5	Sediment	—	1.24	0.23	—	0.073	—
AAB3158	54-05085	0–0.5	Sediment	—	—	—	—	—	—
AAB3166	54-05085	0–0.5	Sediment	—	—	—	0.012	—	—
AAB3155	54-05086	0–0.5	Sediment	—	—	—	—	—	—
AAB3156	54-05088	0–0.33	Sediment	—	—	—	—	—	—
AAB3154	54-05090	0–0.5	Sediment	—	—	—	—	—	—
AAB3159	54-05093	0–0.7	Sediment	0.123	—	—	0.059	0.194	—
AAB3161	54-05094	0–0.5	Sediment	—	—	—	0.02	—	—
AAB3157	54-05095	0–0.7	Sediment	0.066	—	—	0.033	0.163	—
AAB3164	54-05096	0–0.5	Sediment	0.145	—	—	0.176	0.423	—
AAB3178	54-05101	0–0.5	Sediment	—	—	—	0.236	—	—
AAB3168	54-05102	0–0.42	Sediment	—	—	—	0.242	—	—
AAB3163	54-05103	0–0.42	Sediment	—	—	—	0.182	—	—
AAB3169	54-05104	0–0.42	Sediment	0.055	—	—	1.483	0.171	—
AAB3117	54-05108	0–0.5	Sediment	—	—	—	0.026	—	—
AAB3127	54-05110	0–0.4	Sediment	—	—	—	0.073	0.087	—
AAB3116	54-05111	0–0.3	Sediment	—	—	—	0.027	—	—
AAB3167	54-05113	0–0.5	Sediment	—	1.12	—	0.044	0.089	—
AAB3109	54-05117	0–0.5	Sediment	0.109	—	—	0.183	0.582	—
AAB3111	54-05118	0–0.5	Sediment	0.056	—	—	0.011 (J)	—	—
AAB3110	54-05122	0–0.5	Sediment	—	—	—	0.151	0.153	—
AAB3112	54-05122	0–0.5	Sediment	0.041	—	—	—	0.36 (J)	—
AAB3113	54-05125	0–0.5	Sediment	0.105	1.3	—	—	—	0.1069729

[a] na = No BV available.

[b] — = Not detected above BV.

Table B-10
Range of 2001 Ambient-Air Concentrations Measured at Area G and at Regional Air Stations

Analyte	Area G Air Stations		Regional Air Stations	
	Lowest Annual Average (Station Number)	Highest Annual Average (Station Number)	Lowest Annual Average	Highest Annual Average
Plutonium-238	0.0 aCi/m^3 (35)	3.2 aCi/m^3 (34)	0.0 aCi/m^3	0.1 aCi/m^3
Plutonium-239	0.1 aCi/m^3 (36)	25.1 aCi/m^3 (34)	0.0 aCi/m^3	0.6 aCi/m^3
Americium-241	0.0 aCi/m^3 (35,36)	66.6 aCi/m^3 (34)	0.0 aCi/m^3	0.1 aCi/m^3
Uranium-234	10.6 aCi/m^3 (36)	48.0 aCi/m^3 (45)	10.0 aCi/m^3	31.8 aCi/m^3
Uranium-235	0.2 aCi/m^3 (36)	3.1 aCi/m^3 (45)	0.1 aCi/m^3	2.9 aCi/m^3
Uranium-238	16.4 aCi/m^3 (36)	50.7 aCi/m^3 (45)	7.4 aCi/m^3	31.2 aCi/m^3

Note: The abbreviation aCi indicates attocuries (10^{-18} curie). The station numbers are given in parentheses.

Table B-11
Average Concentrations of VOCs in Ambient Air from SUMMA Canisters at Area G

Analyte	Area G Location 1 Average Concentration		Area G Location 2 Average Concentration	
	ppb	mg/m^3	ppb	mg/m^3
Acetone	0.75	0.0018	0.56	0.0013
Benzaldehyde	—*	—	0.045	0.00020
Benzene	0.079	0.00025	0.12	0.00038
Carbon tetrachloride	0.019	0.00012	0.017	0.00011
Chlorodifluoromethane	0.20	0.00072	—	—
Chloromethane	0.13	0.00028	0.11	0.00024
Dichlorodifluoromethane	0.12	0.00058	0.085	0.00042
Freon 113	0.024	0.00018	0.017	0.00013
Methanol	8.1	0.011	0.48	0.00063
Toluene	0.19	0.00071	0.20	0.00076
TCA	0.20	0.0011	0.029	0.00016
Trichlorofluoromethane	0.084	0.00047	0.04	0.00023
Xylene	0.075	0.00033	0.13	0.00055

Note: Data corrected for seasonal variability.

*A dash indicates that the VOC was detected in fewer than four samples.

Table B-12
Air Concentrations of Selected VOCs at Bandelier National Monument, Location 3 (Background)

VOC	Background Ambient Concentration (ppbv)							
	6/16/94	6/17/94	6/29/94	6/30/94	7/28/94	8/01/94	8/02/94	8/03/94
Chlorodifluoromethane	ND*	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ND	0.4	ND	0.6	ND	ND	ND	ND
Dichlorodifluoromethane	0.3	0.3	0.3	0.4	0.2	0.3	ND	ND
n-hexane	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	0.1	0.1	0.1	0.05	0.07	0.09	0.03	ND
Methylene chloride	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ND	ND	ND	0.04	ND	ND	0.03	ND
TCA	0.1	0.1	0.08	ND	0.04	0.03	ND	ND
Benzene	ND	0.2	ND	0.02	ND	0.1	0.1	0.2
Carbon tetrachloride	ND	0.05	0.04	ND	0.04	0.03	ND	ND
Trichloroethene	ND	0.05	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	0.1	ND	0.1	0.1	0.2	0.1
Xylene	ND	ND	ND	ND	ND	0.1	ND	ND

*ND = Not detected.

Table B-13
Range of 2001 Tritium Ambient-Air Concentrations Measured at Area G AIRNET Air Stations

Air Station ID	Concentration Ranges	Tritium Concentration (pCi/m^3)	Sampling Start Date	Sampling End Date
27	Minimum	1.77	1/15/2001	1/29/2001
	Median	17.24	5/7/2001	5/21/2001
	Maximum	104.65	7/16/2001	7/30/2001
34	Minimum	2.28	1/15/2001	1/29/2001
	Median	22.46	10/22/2001	11/5/2001
	Maximum	55.96	7/16/2001	7/30/2001
35	Minimum	12.53	1/15/2001	1/29/2001
	Median	598.55	11/5/2001	11/19/2001
	Maximum	7316.05	7/16/2001	7/30/2001
36	Minimum	5.21	1/15/2001	1/29/2001
	Median	38.53	11/19/2001	12/3/2001
	Maximum	82.71	10/8/2001	10/22/2001
38	Minimum	2.86	1/15/2001	1/29/2001
	Median	17.44	5/7/2001	5/21/2001
	Maximum	100.77	7/16/2001	7/30/2001
45	Minimum	2.00	1/15/2001	1/29/2001
	Median	16.11	10/22/2001	11/5/2001
	Maximum	54.97	7/16/2001	7/30/2001
47	Minimum	1.16	1/15/2001	1/29/2001
	Median	16.00	11/5/2001	11/19/2001
	Maximum	61.14	7/16/2001	7/30/2001
50	Minimum	2.32	1/15/2001	1/29/2001
	Median	12.22	4/23/2001	5/7/2001
	Maximum	47.85	7/16/2001	7/30/2001
51	Minimum	2.65	1/29/2001	2/12/2001
	Median	17.23	11/19/2001	12/3/2001
	Maximum	49.79	9/24/2001	10/8/2001

Table B-14
MDA G Phase I RFI Boreholes Drilled

Borehole ID	Borehole Declination from Horizontal (degrees)	Date Drilled	Borehole Length (ft)	Borehole Depth bgs (ft)	Geologic Unit at Total Depth	Nearest Disposal Unit and Depth	Screening Interval (No.)	No. of Samples for Fixed Laboratory Analysis	Analytical Suite
54-01121	90	December 13–18, 1995	148	148	Qbo	Pit 1 (20 ft)	Variable	6	Radionuclides, TAL metals, pesticides, PCBs, SVOCs, and VOCs
54-01128	30	October 31–November 02, 1995	82.5	41.3	Qbt 1v	Pit 1 (20 ft)	Variable	4	Radionuclides, TAL metals, pesticides, PCBs, SVOCs, and VOCs
54-01120	45	November 14–16, 1995	70	49.5	Qbt 1v	Pit 2 (26 ft)	Variable	5	Radionuclides, TAL metals, pesticides, PCBs, SVOCs, and VOCs
54-01123	90	December 08–12, 1995	100	100	Qct	Pit 2 (26 ft)	Variable	7	Radionuclides, TAL metals, pesticides, PCBs, SVOCs, and VOCs
54-01126	30	November 08–13, 1995	102	51	Qbt 1v	Pit 3 (33 ft)	Variable	5	Radionuclides, TAL metals, pesticides, PCBs, SVOCs, and VOCs
54-01125	90	December 18–20, 1995	63.5	63.5	Qbt 1v	Pit 33 (33 ft)	Variable	6	Radionuclides, TAL metals, pesticides, PCBs, SVOCs, and VOCs
54-01112	90	December 06–07, 1995	60.5	60.5	Qbt 1v	Pit 6 (26 ft)	Variable	8	Radionuclides, TAL Metals, Pest., PCBs, SVOCs, and VOCs
54-01113	90	December 01–04, 1995 (Abandoned)	17.5	17.5	Fill	Pit 6 (26 ft)	Variable	2	Radionuclides, TAL metals, pesticides, PCBs, SVOCs, and VOCs
54-01108	45	October 19–24, 1995	63.5	44.9	Qbt 1v	Pit 10 (27 ft)	Variable	5	Radionuclides, TAL metals, pesticides, PCBs, SVOCs, and VOCs
54-01107 (Extended)	90	September 29–October 3, 1995 and December 05, 1995	130	130	Qbt 1g	Pit 16 (25 ft)	Variable	9	Radionuclides, TAL metals, pesticides, PCBs, SVOCs, and VOCs

Table B-14 (continued)

Borehole ID	Borehole Declination from Horizontal (degrees)	Date Drilled	Borehole Length (ft)	Borehole Depth bgs (ft)	Geologic Unit at Total Depth	Nearest Disposal Unit and Depth	Screening Interval (No.)	No. of Samples for Fixed Laboratory Analysis	Analytical Suite
54-01114	45	October 25–26, 1995	59	41.7	Qbt 1v	Pit 17 (24 ft)	Variable	4	Radionuclides, TAL metals, pesticides, PCBs, SVOCs, and VOCs
54-01115	32	October 26–31, 1995	135	71.5	Qbt 1v	Pit 18 (40 ft)	Variable	7	Radionuclides, TAL metals, pesticides, PCBs, SVOCs, and VOCs
54-01106	45	October 16, 1995	73.5	52	Qbt 1v	Pit 25 (39 ft)	Variable	5	Radionuclides, TAL metals, pesticides, PCBs, SVOCs, and VOCs
54-01105	45	October 12, 1995	68	48.1	Qbt 2	Pit 27 (46 ft)	Variable	5	Radionuclides, TAL metals, pesticides, PCBs, SVOCs, and VOCs
54-01102	32	October 04, 1995	121.5	64.4	Qbt 1v	Pit 32 (51 ft)	Variable	5	Radionuclides, TAL metals, pesticides, PCBs, SVOCs, and VOCs
54-01111	90	June 1994	153	153	Qct	Trench A (8 ft)	Variable	30	Radionuclides, TAL metals, pesticides, PCBs, SVOCs, and VOCs
54-01110	90	June 1994	102	102	Qbt 1g	Shaft 163 (60 ft)	Variable	21	Radionuclides, TAL metals, pesticides, PCBs, SVOCs, and VOCs
54-01117	90	November 17–27, 1995	90	90	Qbt 1g	Shaft 26 (25 ft)	Variable	9	Radionuclides, TAL metals, pesticides, PCBs, SVOCs, and VOCs
54-01116	90	October 18–19, 1995	89.5	89.5	Qbt 1g	Shaft 65 (25 ft)	Variable	9	Radionuclides, TAL metals, pesticides, PCBs, SVOCs, and VOCs
54-01124	30	November 03–07, 1995	77	38.5	Qbt 1v	None	Variable	4	Radionuclides, TAL metals, pesticides, PCBs, SVOCs, and VOCs

Table B-15
MDA G Phase I RFI Core Samples

Sample ID	Location ID	Depth (ft)	Media	Am-241	Gamma Spectroscopy	Tritium	Isotopic Plutonium	Isotopic Thorium	Isotopic Uranium	Strontium-90	Cyanide	Metals	PCBs	Pesticides	Pesticides/ PCBs	SVOCs	VOCs
0554-95-0390	54-01102	8.7–10.1	Qbt 2	1296	1296	1296	1296	1296	1296	1296	1295	1295	—*	—	1294	1294	1294
0554-95-0393	54-01102	19.9–20.9	Qbt 2	1296	1296	1296	1296	1296	1296	1296	1295	1295	—	—	1294	1294	1294
0554-95-0396	54-01102	30.2–31.3	Qbt 2	1323	1323	1323	1323	1323	1323	1323	1322	1322	—	—	1321	1321	1321
0554-95-0399	54-01102	38.9–40.3	Qbt 2	1323	1323	1323	1323	1323	1323	1323	1322	1322	—	—	1321	1321	1321
0554-95-0402	54-01102	61.5–63.0	Qbt 1v	1323	1323	1323	1323	1323	1323	1323	1322	1322	—	—	1321	1321	1321
0554-95-0433	54-01105	8.8–10.6	Qbt 2	1396	1396	1396	1396	1396	1396	1396	1395	1395	—	—	1394	1394	1394
0554-95-0437	54-01105	17.7–19.3	Qbt 2	1396	1396	1396	1396	1396	1396	1396	1395	1395	—	—	1394	1394	1394
0554-95-0441	54-01105	27.9–29.7	Qbt 2	1396	1396	1396	1396	1396	1396	1396	1395	1395	—	—	1394	1394	1394
0554-95-0445	54-01105	37.8–39.6	Qbt 2	1396	1396	1396	1396	1396	1396	1396	1395	1395	—	—	1394	1394	1394
0554-95-0449	54-01105	45.4–47.3	Qbt 2	1396	1396	1396	1396	1396	1396	1396	1395	1395	—	—	1394	1394	1394
0554-95-0453	54-01106	9.1–10.8	Qbt 2	1433	1433	1433	1433	1433	1433	1433	1432	1432	—	—	1431	1431	1431
0554-95-0457	54-01106	19.3–20.9	Qbt 2	1433	1433	1433	1433	1433	1433	1433	1432	1432	—	—	1431	1431	1431
0554-95-0461	54-01106	29.6–31.1	Qbt 2	1433	1433	1433	1433	1433	1433	1433	1432	1432	—	—	1431	1431	1431
0554-95-0465	54-01106	37.7–39.2	Qbt 2	1433	1433	1433	1433	1433	1433	1433	1432	1432	—	—	1431	1431	1431
0554-95-0469	54-01106	44.5–49.3	Qbt 1v	1433	1433	1433	1433	1433	1433	1433	1432	1432	—	—	1431	1431	1431
0554-95-0362	54-01107	11.2–13.4	Qbt 2	1259	1259	1259	1259	1259	1259	1259	1258	1258	—	—	1257	1257	1257
0554-95-0365	54-01107	19.7–21.5	Qbt 2	1259	1259	1259	1259	1259	1259	1259	1258	1258	—	—	1257	1257	1257
0554-95-0368	54-01107	26–28	Qbt 2	1259	1259	1259	1259	1259	1259	1259	1258	1258	—	—	1257	1257	1257
0554-95-0371	54-01107	36–38	Qbt 2	1259	1259	1259	1259	1259	1259	1259	1258	1258	—	—	1257	1257	1257
0554-95-0374	54-01107	47–49	Qbt 2	1259	1259	1259	1259	1259	1259	1259	1258	1258	—	—	1257	1257	1257
0554-95-0377	54-01107	54–56	Qbt 2	1259	1259	1259	1259	1259	1259	1259	1258	1258	—	—	1257	1257	1257
0554-95-0380	54-01107	66.5–69	Qbt 1v	1259	1259	1259	1259	1259	1259	1259	1258	1258	—	—	1257	1257	1257
0554-95-0383	54-01107	77–79.5	Qbt 1v	1259	1259	1259	1259	1259	1259	1259	1258	1258	—	—	1257	1257	1257
0554-95-0386	54-01107	86–88.3	Qbt 1v	1259	1259	1259	1259	1259	1259	1259	1258	1258	—	—	1257	1257	1257
0554-95-0709	54-01107	127–128.5	Qbt 1g	1662	1662	1662	1662	1662	1662	1662	1661	1661	—	—	1660	1660	1660

Table B-15 (continued)

Sample ID	Location ID	Depth (ft)	Media	Am-241	Gamma Spectroscopy	Tritium	Isotopic Plutonium	Isotopic Thorium	Isotopic Uranium	Strontium-90	Cyanide	Metals	PCBs	Pesticides	Pesticides/ PCBs	SVOCs	VOCs
0554-95-0473	54-01108	8.5–10.1	Qbt 2	1414	1414	1414	1414	1414	1414	1414	1413	1413	—	—	1412	1412	1412
0554-95-0477	54-01108	20.6–22.3	Qbt 2	1414	1414	1414	1414	1414	1414	1414	1413	1413	—	—	1412	1412	1412
0554-95-0481	54-01108	29.9–31.7	Qbt 2	1414	1414	1414	1414	1414	1414	1414	1413	1413	—	—	1412	1412	1412
0554-95-0485	54-01108	38.3–40.0	Qbt 2	1414	1414	1414	1414	1414	1414	1414	1413	1413	—	—	1412	1412	1412
0554-95-0489	54-01108	49.4–51.0	Qbt 1v	1414	1414	1414	1414	1414	1414	1414	1413	1413	—	—	1412	1412	1412
AAB2633	54-01110	3.5–4	Qbt 2	—	—	17754	—	—	—	—	—	—	—	—	—	—	—
AAB2638	54-01110	6–7.5	Qbt 2	—	20379	17754	20379	20379	20379	20379	20378	20378	17553	17553	—	17553	17553
AAB2635	54-01110	12.3–13	Qbt 2	—	—	17754	—	—	—	—	—	—	—	—	—	—	—
AAB2640	54-01110	16.5–17.5	Qbt 2	—	20379	17754	20379	20379	20379	20379	20378	20378	17553	17553	—	—	—
AAB2639	54-01110	22–22.5	Qbt 2	—	—	17754	—	—	—	—	—	—	—	—	—	—	—
AAB2634	54-01110	26–28	Qbt 2	—	20379	17754	20379	20379	20379	20379	20378	20378	17553	17553	—	17553	17553
AAB2644	54-01110	26–28	Qbt 2	—	—	17754	—	—	—	—	—	—	—	—	—	—	—
AAB2641	54-01110	32.5–33	Qbt 2	—	—	17754	—	—	—	—	—	—	—	—	—	—	—
AAB2656	54-01110	36.5–37.5	Qbt 2	—	20379	17754	20379	20379	20379	20379	20378	20378	17553	17553	—	17553	17553
AAB2643	54-01110	38–39	Qbt 2	—	—	17754	—	—	—	—	—	—	—	—	—	—	—
AAB2642	54-01110	46–48	Qbt 2	—	20377	17754	20377	20377	20377	20377	17604	17604	17532	17532	—	17532	17532
AAB2637	54-01110	51–52	Qbt 1v	—	—	17754	—	—	—	—	—	—	—	—	—	—	—
AAB2636	54-01110	56–57	Qbt 1v	—	20377	17754	20377	20377	20377	20377	17604	17604	17532	17532	—	17532	17532
AAB2649	54-01110	61–61.5	Qbt 1v	—	—	17754	—	—	—	—	—	—	—	—	—	—	—
AAB2651	54-01110	69–69.5	Qbt 1v	—	—	17754	—	—	—	—	—	—	—	—	—	—	—
AAB2648	54-01110	75–77	Qbt 1v	—	20377	17754	20377	20377	20377	20377	17604	17604	17532	17532	—	17532	17532
AAB2659	54-01110	78–79	Qbt 1g	—	—	17754	—	—	—	—	—	—	—	—	—	—	—
AAB2652	54-01110	88–90	Qbt 1g	—	20377	17754	20377	20377	20377	20377	17604	17604	17532	17532	—	17532	17532
AAB2657	54-01110	91–92	Qbt 1g	—	—	17754	—	—	—	—	—	—	—	—	—	—	—
AAB2655	54-01110	95–96	Qbt 1g	—	—	17754	—	—	—	—	—	—	—	—	—	—	—
AAB2654	54-01110	101–102	Qbt 1g	—	20377	17754	20377	20377	20377	20377	17604	17604	17532	17532	—	17532	17532
AAB2683	54-01111	4–5.5	Qbt 2	20340	20340	17757	20340	20340	20340	20340	19966	19966	17726	17726	—	17726	17726

Table B-15 (continued)

Sample ID	Location ID	Depth (ft)	Media	Am-241	Gamma Spectroscopy	Tritium	Isotopic Plutonium	Isotopic Thorium	Isotopic Uranium	Strontium-90	Cyanide	Metals	PCBs	Pesticides	Pesticides/ PCBs	SVOCs	VOCs
AAB2670	54-01111	9–9.5	Qbt 2	—	—	17757	—	—	—	—	—	—	—	—	—	—	—
AAB2675	54-01111	14.5–15.5	Qbt 2	20340	20340	—	20340	20340	20340	20340	19966	19966	17726	17726	—	17726	17726
AAB2685	54-01111	18.5–21	Qbt 2	20340	20340	—	20340	20340	20340	20340	19966	19966	17726	17726	—	17726	17726
AAB2669	54-01111	28–30.5	Qbt 2	20340	20340	17757	20340	20340	20340	20340	19966	19966	17726	17726	—	17726	17726
AAB2680	54-01111	35–36	Qbt 2	—	—	17757	—	—	—	—	—	—	—	—	—	—	—
AAB2667	54-01111	38–39.5	Qbt 2	20340	20340	—	20340	20340	20340	20340	19966	19966	—	—	—	17726	17726
AAB2677	54-01111	50–51.5	Qbt 1v	20335	20335	17755	20335	20335	20335	20335	19952	19952	17679	17679	—	17679	17679
AAB2682	54-01111	55–56	Qbt 1v	—	—	17755	—	—	—	—	—	—	—	—	—	—	—
AAB2679	54-01111	60–61.5	Qbt 1v	20335	20335	17755	20335	20335	20335	20335	19952	19952	17679	17679	—	17679	17679
AAB2686	54-01111	66–67	Qbt 1v	—	—	17755	—	—	—	—	—	—	—	—	—	—	—
AAB2671	54-01111	70.5–72.5	Qbt 1v	20335	20335	17755	20335	20335	20335	20335	19952	19952	17679	17679	—	17679	17679
AAB2666	54-01111	74–74.5	Qbt 1v	—	—	17755	—	—	—	—	—	—	—	—	—	—	—
AAB2661	54-01111	79.5–81.5	Qbt 1v	20335	20335	17755	20335	20335	20335	20335	19952	19952	17679	17679	—	17679	17679
AAB2663	54-01111	79.5–81.5	Qbt 1v	20335	20335	17755	20335	20335	20335	20335	19952	19952	17679	17679	—	17679	17679
AAB2668	54-01111	83–84	Qbt 1g	—	—	17755	—	—	—	—	—	—	—	—	—	—	—
AAB2665	54-01111	89–90	Qbt 1g	20335	20335	17755	20335	20335	20335	20335	19952	19952	17679	17679	—	17679	17679
AAB2676	54-01111	95–95.5	Qbt 1g	—	—	17755	—	—	—	—	—	—	—	—	—	—	—
AAB2678	54-01111	98–99.5	Qbt 1g	—	—	17756	—	—	—	—	—	—	—	—	—	—	—
AAB2660	54-01111	103–104.5	Qbt 1g	—	—	17756	—	—	—	—	—	—	—	—	—	—	—
AAB2674	54-01111	103–104.5	Qbt 1g	—	—	17756	—	—	—	—	—	—	—	—	—	—	—
AAB2722	54-01111	108–110	Qbt 1g	—	20376	17756	20376	20376	20376	20376	19973	19973	17720	17720	—	17720	17720
AAB2662	54-01111	113–114.5	Qbt 1g	—	—	17756	—	—	—	—	—	—	—	—	—	—	—
AAB2720	54-01111	118–119	Qbt 1g	—	—	17756	—	—	—	—	—	—	—	—	—	—	—
AAB2717	54-01111	128–129	Qbt 1g	—	—	17756	—	—	—	—	—	—	—	—	—	—	—
AAB2719	54-01111	128–129	Qbt 1g	—	—	17756	—	—	—	—	—	—	—	—	—	—	—
AAB2721	54-01111	133–134	Qbt 1g	—	—	17756	—	—	—	—	—	—	—	—	—	—	—
AAB2718	54-01111	138–139	Qbt 1g	—	—	17756	—	—	—	—	—	—	—	—	—	—	—

Table B-15 (continued)

Sample ID	Location ID	Depth (ft)	Media	Am-241	Gamma Spectroscopy	Tritium	Isotopic Plutonium	Isotopic Thorium	Isotopic Uranium	Strontium-90	Cyanide	Metals	PCBs	Pesticides	Pesticides/ PCBs	SVOCs	VOCs
AAB2716	54-01111	147–148	Qct	—	—	17756	—	—	—	—	—	—	—	—	—	—	—
AAB2715	54-01111	152–153	Qct	—	—	17756	—	—	—	—	—	—	—	—	—	—	—
0554-95-0712	54-01112	9–9.2	Qbt 2	1675	1675	1675	1675	1675	1675	1675	1674	1674	—	—	1673	1673	1673
0554-95-0715	54-01112	13.5–17.5	Qbt 2	1675	1675	1675	1675	1675	1675	1675	1674	1674	—	—	1673	1673	1673
0554-95-0716	54-01112	13.5–17.5	Qbt 2	1675	1675	1675	1675	1675	1675	1675	1674	1674	—	—	1673	1673	1673
0554-95-0718	54-01112	25.3–27.3	Qbt 2	1675	1675	1675	1675	1675	1675	1675	1674	1674	—	—	1673	1673	1673
0554-95-0721	54-01112	32.9–34.9	Qbt 2	1675	1675	1675	1675	1675	1675	1675	1674	1674	—	—	1673	1673	1673
0554-95-0724	54-01112	45.5–47.5	Qbt 1v	1675	1675	1675	1675	1675	1675	1675	1674	1674	—	—	1673	1673	1673
0554-95-0727	54-01112	48.5–50.5	Qbt 1v	1675	1675	1675	1675	1675	1675	1675	1674	1674	—	—	1673	1673	1673
0554-95-0730	54-01112	54.9–57.1	Qbt 1v	1675	1675	1675	1675	1675	1675	1675	1674	1674	—	—	1673	1673	1673
0554-95-0682	54-01113	8–8.2	Fill	1656	1656	1656	1656	1656	1656	1656	1655	1655	—	—	1654	1654	1654
0554-95-0684	54-01113	14.5–15	Fill	1677	1677	—	1677	1677	1677	1677	—	—	—	—	—	—	—
0554-95-0493	54-01114	8.8–10.3	Qbt 2	1474	1474	1474	1474	1474	1474	1474	1472	1472	—	—	1454	1454	1454
0554-95-0497	54-01114	18.7–20.2	Qbt 2	1474	1474	1474	1474	1474	1474	1474	1472	1472	—	—	1454	1454	1454
0554-95-0501	54-01114	26.5–28.7	Qbt 2	1474	1474	1474	1474	1474	1474	1474	1472	1472	—	—	1454	1454	1454
0554-95-0505	54-01114	38.5–40.0	Qbt 1v	1474	1474	1474	1474	1474	1474	1474	1472	1472	—	—	1454	1454	1454
0554-95-0510	54-01115	10.0–11.1	Qbt 2	1483	1483	1483	1483	1483	1483	1483	1482	1482	—	—	1480	1480	1480
0554-95-0515	54-01115	18.5–19.8	Qbt 2	1483	1483	1483	1483	1483	1483	1483	1482	1482	—	—	1480	1480	1480
0554-95-0520	54-01115	29.7–30.9	Qbt 2	1483	1483	1483	1483	1483	1483	1483	1482	1482	—	—	1480	1480	1480
0554-95-0525	54-01115	39.5–40.8	Qbt 1v	1483	1483	1483	1483	1483	1483	1483	1482	1482	—	—	1480	1480	1480
0554-95-0530	54-01115	50.1–51.2	Qbt 1v	1483	1483	1483	1483	1483	1483	1483	1482	1482	—	—	1480	1480	1480
0554-95-0535	54-01115	60.1–61.4	Qbt 1v	1483	1483	1483	1483	1483	1483	1483	1482	1482	—	—	1480	1480	1480
0554-95-0540	54-01115	68.0–69.3	Qbt 1v	1483	1483	1483	1483	1483	1483	1483	1482	1482	—	—	1480	1480	1480
0554-95-0655	54-01116	9–9.3	Qbt 2	1646	1646	1646	1646	1646	1646	1646	1648	1648	—	—	1647	1647	1647
0554-95-0658	54-01116	20.5–22.5	Qbt 2	1646	1646	1646	1646	1646	1646	1646	1648	1648	—	—	1647	1647	1647
0554-95-0661	54-01116	29.5–31.5	Qbt 2	1646	1646	1646	1646	1646	1646	1646	1648	1648	—	—	1647	1647	1647
0554-95-0664	54-01116	36.5–38.5	Qbt 2	1646	1646	1646	1646	1646	1646	1646	1648	1648	—	—	1647	1647	1647

Table B-15 (continued)

Sample ID	Location ID	Depth (ft)	Media	Am-241	Gamma Spectroscopy	Tritium	Isotopic Plutonium	Isotopic Thorium	Isotopic Uranium	Strontium-90	Cyanide	Metals	PCBs	Pesticides	Pesticides/ PCBs	SVOCs	VOCs
0554-95-0667	54-01116	46.5–48.5	Qbt 1v	1646	1646	1646	1646	1646	1646	1646	1648	1648	—	—	1647	1647	1647
0554-95-0670	54-01116	57.5–59.5	Qbt 1v	1646	1646	1646	1646	1646	1646	1646	1648	1648	—	—	1647	1647	1647
0554-95-0673	54-01116	69.5–71.5	Qbt 1v	1646	1646	1646	1646	1646	1646	1646	1648	1648	—	—	1647	1647	1647
0554-95-0676	54-01116	77.5–79.5	Qbt 1v	1646	1646	1646	1646	1646	1646	1646	1648	1648	—	—	1647	1647	1647
0554-95-0679	54-01116	87.5–89.5	Qbt 1g	1646	1646	1646	1646	1646	1646	1646	1648	1648	—	—	1647	1647	1647
0554-95-0628	54-01117	9–9.5	Qbt 2	1615	1615	1615	1615	1615	1615	1615	1614	1614	—	—	1613	1613	1613
0554-95-0631	54-01117	20–22	Qbt 2	1615	1615	1615	1615	1615	1615	1615	1614	1614	—	—	1613	1613	1613
0554-95-0634	54-01117	30–32	Qbt 2	1637	1637	1637	1637	1637	1637	1637	1636	1636	—	—	1635	1635	1635
0554-95-0637	54-01117	36–38	Qbt 1v	1637	1637	1637	1637	1637	1637	1637	1636	1636	—	—	1635	1635	1635
0554-95-0640	54-01117	46–48	Qbt 1v	1637	1637	1637	1637	1637	1637	1637	1636	1636	—	—	1635	1635	1635
0554-95-0643	54-01117	56–58	Qbt 1v	1637	1637	1637	1637	1637	1637	1637	1636	1636	—	—	1635	1635	1635
0554-95-0646	54-01117	67–69	Qbt 1v	1637	1637	1637	1637	1637	1637	1637	1636	1636	—	—	1635	1635	1635
0554-95-0649	54-01117	78–80	Qbt 1v	1637	1637	1637	1637	1637	1637	1637	1636	1636	—	—	1635	1635	1635
0554-95-0652	54-01117	86–88	Qbt 1g	1637	1637	1637	1637	1637	1637	1637	1636	1636	—	—	1635	1635	1635
0554-95-0609	54-01120	9.9–11.3	Qbt 2	1553	1553	1553	1553	1553	1553	1553	1552	1552	—	—	1551	1551	1551
0554-95-0613	54-01120	20.5–21.9	Qbt 2	1553	1553	1553	1553	1553	1553	1553	1552	1552	—	—	1551	1551	1551
0554-95-0617	54-01120	29.7–31.1	Qbt 2	1553	1553	1553	1553	1553	1553	1553	1552	1552	—	—	1551	1551	1551
0554-95-0621	54-01120	40.7–42.1	Qbt 1v	1576	1576	1576	1576	1576	1576	1576	1575	1575	—	—	1574	1574	1574
0554-95-0625	54-01120	48.1–49.5	Qbt 1v	1576	1576	1576	1576	1576	1576	1576	1575	1575	—	—	1574	1574	1574
0554-95-0782	54-01121	9–9.3	Qbt 2	1695	1695	1695	1695	1695	1695	1695	1694	1694	—	—	1693	1693	1693
0554-95-0787	54-01121	19–21	Qbt 2	1695	1695	1695	1695	1695	1695	1695	1694	1694	—	—	1693	1693	1693
0554-95-0792	54-01121	29–31	Qbt 1v	1695	1695	1695	1695	1695	1695	1695	1694	1694	—	—	1693	1693	1693
0554-95-0797	54-01121	39–41	Qbt 1v	1695	1695	1695	1695	1695	1695	1695	1694	1694	—	—	1693	1693	1693
0554-95-0802	54-01121	49–51	Qbt 1v	1695	1695	1695	1695	1695	1695	1695	1694	1694	—	—	1693	1693	1693
0554-95-0807	54-01121	58.5–61	Qbt 1v	1695	1695	1695	1695	1695	1695	1695	1694	1694	—	—	1693	1693	1693
0554-95-0733	54-01123	9–9.2	Qbt 2	1682	1682	1682	1682	1682	1682	1682	1681	1681	—	—	1680	1680	1680
0554-95-0737	54-01123	16.2–18	Qbt 2	1682	1682	1682	1682	1682	1682	1682	1681	1681	—	—	1680	1680	1680

Table B-15 (continued)

Sample ID	Location ID	Depth (ft)	Media	Am-241	Gamma Spectroscopy	Tritium	Isotopic Plutonium	Isotopic Thorium	Isotopic Uranium	Strontium-90	Cyanide	Metals	PCBs	Pesticides	Pesticides/ PCBs	SVOCs	VOCs
0554-95-0741	54-01123	26.2–28	Qbt 2	1682	1682	1682	1682	1682	1682	1682	1681	1681	—	—	1680	1680	1680
0554-95-0745	54-01123	36–38	Qbt 1v	1682	1682	1682	1682	1682	1682	1682	1681	1681	—	—	1680	1680	1680
0554-95-0749	54-01123	46–48	Qbt 1v	1682	1682	1682	1682	1682	1682	1682	1681	1681	—	—	1680	1680	1680
0554-95-0753	54-01123	55.5–57.5	Qbt 1v	1682	1682	1682	1682	1682	1682	1682	1681	1681	—	—	1680	1680	1680
0554-95-0779	54-01123	92.5–97	Qbt 1v	1682	1682	1682	1682	1682	1682	1682	1681	1681	—	—	1680	1680	1680
0554-95-0564	54-01124	9.0–10.0	Qbt 2	1510	1510	1510	1510	1510	1510	1510	1509	1509	1508	1508	—	1508	1508
0554-95-0569	54-01124	20.3–21.3	Qbt 2	1510	1510	1510	1510	1510	1510	1510	1509	1509	1508	1508	—	1508	1508
0554-95-0574	54-01124	29.5–30.5	Qbt 1v	1510	1510	1510	1510	1510	1510	1510	1509	1509	1508	1508	—	1508	1508
0554-95-0579	54-01124	37.3–38.3	Qbt 1v	1510	1510	1510	1510	1510	1510	1510	1509	1509	1508	1508	—	1508	1508
0554-95-0846	54-01125	9–9.2	Qbt 2	1717	1717	1717	1717	1717	1717	1717	1716	1716	1715	1715	—	1715	1715
0554-95-0849	54-01125	16–18	Qbt 2	1717	1717	1717	1717	1717	1717	1717	1716	1716	1715	1715	—	1715	1715
0554-95-0852	54-01125	26–28	Qbt 2	1717	1717	1717	1717	1717	1717	1717	1716	1716	1715	1715	—	1715	1715
0554-95-0855	54-01125	36–38	Qbt 2	1717	1717	1717	1717	1717	1717	1717	1716	1716	1715	1715	—	1715	1715
0554-95-0858	54-01125	46–48	Qbt 1v	1717	1717	1717	1717	1717	1717	1717	1716	1716	1715	1715	—	—	1715
0554-95-0861	54-01125	59–61	Qbt 1v	1717	1717	1717	1717	1717	1717	1717	1716	1716	1715	1715	—	1715	1715
0554-95-0584	54-01126	9.3–10.3	Qbt 2	1513	1513	1513	1513	1513	1513	1513	1512	1512	—	—	1511	1511	1511
0554-95-0589	54-01126	18.5–19.8	Qbt 2	1513	1513	1513	1513	1513	1513	1513	1512	1512	—	—	1511	1511	1511
0554-95-0594	54-01126	28.8–29.8	Qbt 1v	1513	1513	1513	1513	1513	1513	1513	1512	1512	—	—	1511	1511	1511
0554-95-0599	54-01126	37.3–38.3	Qbt 1v	1519	1519	1519	1519	1519	1519	1519	1518	1518	—	—	1517	1517	1517
0554-95-0604	54-01126	47.3–48.3	Qbt 1v	1519	1519	1519	1519	1519	1519	1519	1518	1518	—	—	1517	1517	1517
0554-95-0544	54-01128	9.0–10.0	Qbt 2	1475	1475	1475	1475	1475	1475	1475	1471	1471	—	—	—	1453	1453
0554-95-0549	54-01128	18.9–20.0	Qbt 2	1475	1475	1475	1475	1475	1475	1475	1471	1471	1453	1453	—	1453	1453
0554-95-0554	54-01128	28.0–29.0	Qbt 1v	1475	1475	1475	1475	1475	1475	1475	1471	1471	1453	1453	—	1453	1453
0554-95-0559	54-01128	39.0–40.0	Qbt 1v	1475	1475	1475	1475	1475	1475	1475	1471	1471	1453	1453	—	1453	1453

* — = Not analyzed.

Table B-16
MDA G Pore-Gas Monitoring Boreholes and Sampling Port Depths

Borehole Number	Sample Port Depth (ft bgs)
54-01107[a]	20, 45, 57, 74, 91, 100
54-01111[a]	20, 40, 50, 70, 78, 100, 139
54-01117[a]	20, 32, 55, 73, 82, 85
54-01121[a]	20, 26, 62, 70, 76, 98, 121
54-02009[a,b]	37, 62, 79, 92
54-02010[a,b]	30, 53, 95
54-02032[a,b]	20, 60,100, 130, 156
54-02033[a,b]	20, 60, 100, 160, 200, 220, 260, 277
54-01110	20, 48, 60, 70, 85, 90
54-01115	15, 50, 77, 100, 120, 130
54-01126	7.5, 17.5, 28.5, 35, 42.5, 49.5
54-01128	7.5, 15, 20, 30, 39

Note: Phase I RFI boreholes 54-01110, 54-01115, 54-01126, and 54-01128 are instrumented but have not been sampled using SUMMA canisters.

[a] Boreholes sampled for VOCs in HIR.

[b] Boreholes listed in Section C.5 of Module VIII.

Table B-17
Frequency of Detected Organic Chemicals in MDA G Pore Gas Samples from 1999 to 2002

Analyte	Number of Analyses	Number of Detects	Concentration Range[a] (ppbv[b])	Frequency of Detects
Acetone	46	7	[1]–[57000]	7/46
Acetonitrile	32	1	0.6–[11000]	1/32
Acetophenone	13	0	[50]–[500]	0/13
Acrolein	32	1	[1.2]–[5700]	1/32
Acrylonitrile	32	0	[1.2]–[5700]	0/32
Benzene	48	6	[0.48]–[2300]	6/48
Benzonitrile	13	0	[50]–[500]	0/13
Benzyl Chloride	39	0	[0.48]–[2300]	0/39
Bromodichloromethane	46	1	[0.48]–[2300]	1/46
Bromoform	46	0	[0.48]–[2300]	0/46
Bromomethane	48	0	[0.48]–[2300]	0/48
Butadiene[1,3-]	46	0	[0.48]–[2300]	0/46
Butane[n-]	32	10	[0.49]–[2300]	10/32
Butanol[1-]	46	2	[1]–[5700]	2/46
Butanone[2-]	46	3	[1.2]–[5700]	3/46
Butene[1-]	13	2	[3.7]–[102]	2/13
Butene[cis-2-]	13	6	0.8–[50]	6/13

Table B-17 (continued)

Analyte	Number of Analyses	Number of Detects	Concentration Range[a] (ppbv[b])	Frequency of Detects
Butene[trans-2-]	13	3	4.4–[50]	3/13
Carbon Disulfide	46	1	[0.48]–[2300]	1/46
Carbon Tetrachloride	48	6	[0.48]–[2300]	6/48
Chloro-1,3-butadiene[2-]	13	0	[5]–[50]	0/13
Chloro-1-propene[3-]	32	0	[0.48]–[2300]	0/32
Chlorobenzene	48	0	[0.48]–[2300]	0/48
Chlorodibromomethane	46	1	[0.48]–[2300]	1/46
Chlorodifluoromethane	41	8	[0.4]–[2300]	8/41
Chloroethane	48	6	[0.48]–[2300]	6/48
Chloroform	48	13	[0.5]–[2300]	13/48
Chloromethane	48	1	[0.84]–[5700]	1/48
Cyclohexane	46	6	[0.5]–[5700]	6/46
Cyclohexanone	13	0	[50]–[500]	0/13
Cyclopentane	13	1	1.4–[50]	1/13
Cyclopentene	12	0	[5]–[50]	0/12
Decane[n-]	19	0	[0.48]–[2300]	0/19
Dibromoethane[1,2-]	39	1	[0.48]–[2300]	1/39
Dibromomethane	19	1	[0.48]–[2300]	1/19
Dichloro-1,1,2,2-tetrafluoroethane[1,2-]	39	2	[0.48]–[2300]	2/39
Dichlorobenzene[1,2-]	48	0	[0.48]–[2300]	0/48
Dichlorobenzene[1,3-]	48	0	[0.48]–[2300]	0/48
Dichlorobenzene[1,4-]	48	0	[0.4]–[2300]	0/48
Dichlorodifluoromethane	39	28	6–[2300]	28/39
Dichloroethane[1,1-]	48	44	0.26–6100	44/48
Dichloroethane[1,2-]	48	7	[0.48]–[2300]	7/48
Dichloroethene[1,1-]	48	43	[0.49]–14000	43/48
Dichloroethene[cis-1,2-]	48	8	0.4–[2300]	8/48
Dichloroethene[trans-1,2-]	46	2	[0.48]–[2300]	2/46
Dichloropropane[1,2-]	48	2	[0.48]–[2300]	2/48
Dichloropropane[1,3-]	1	0	[10]–[10]	0/1
Dichloropropene[cis-1,3-]	48	0	[0.48]–[2300]	0/48
Dichloropropene[trans-1,3-]	48	0	[0.48]–[2300]	0/48
Diethyl Ether	32	0	[1.2]–[5700]	0/32
Dimethylbutane[2,2-]	13	4	1.8–[50]	4/13
Dimethylbutane[2,3-]	13	0	[5]–[50]	0/13
Dimethylpentane[2,3-]	13	2	0.2–[50]	2/13
Dioxane[1,4-]	27	0	[3.4]–[1400]	0/27
Dodecane[n-]	19	0	[0.48]–[2300]	0/19

Table B-17 (continued)

Analyte	Number of Analyses	Number of Detects	Concentration Range[a] (ppbv[b])	Frequency of Detects
Ethanol	27	5	[3.4]–18000	5/27
Ethyl Acrylate	13	0	[50]–[500]	0/13
Ethyl tert-Butyl Ether	13	0	[50]–[500]	0/13
Ethylbenzene	48	0	[0.48]–[2300]	0/48
Ethyltoluene[4-]	5	0	[29]–[1300]	0/5
Hexachlorobutadiene	48	4	[0.48]–[2300]	4/48
Hexane	46	4	0.4–[2300]	4/46
Hexanone[2-]	46	0	[1.2]–[5700]	0/46
Hexene[cis-3-]	13	0	[5]–[50]	0/13
Hexene[trans-2-]	13	0	[5]–[50]	0/13
Isobutane	13	7	2.4–297	7/13
Isooctane	13	1	0.2–[50]	1/13
Isopentane	13	8	[5]–[50]	8/13
Isoprene	13	0	[5]–[50]	0/13
Isopropylbenzene	32	0	[0.48]–[2300]	0/32
Methacrylonitrile	13	0	[50]–[500]	0/13
Methanol	46	6	[6.3]–[110000]	6/46
Methyl Methacrylate	13	0	[50]–[500]	0/13
Methyl tert-Butyl Ether	46	0	[1.2]–[5700]	0/46
Methyl-1-butene[3-]	13	1	0.4–[50]	1/13
Methyl-1-pentene[2-]	13	0	[5]–[50]	0/13
Methyl-1-pentene[4-]	13	0	[5]–[50]	0/13
Methyl-2-butene[2-]	13	2	[0.6]–[50]	2/13
Methyl-2-pentanone[4-]	46	0	[1.2]–[5700]	0/46
Methylcyclohexane	13	4	0.9–[50]	4/13
Methylcyclopentane	13	7	1.4–[50]	7/13
Methylene Chloride	48	20	[0.49]–48000	20/48
Methylheptane[2-]	13	0	[5]–[50]	0/13
Methylheptane[3-]	13	0	[5]–[50]	0/13
Methylhexane[2-]	13	0	[5]–[50]	0/13
Methylhexane[3-]	13	0	[0.4]–[50]	0/13
Methylpentane[2-]	13	5	0.5–[50]	5/13
Methylpentane[3-]	13	5	1.9–[50]	5/13
Methylstyrene[alpha-]	32	0	[0.48]–[2300]	0/32
Naphthalene	19	1	[0.48]–2700	1/19
n-Heptane	46	1	[0.48]–[2300]	1/46
Nitrobenzene	13	0	[50]–[500]	0/13
Nitropropane[2-]	13	1	0.5–[500]	1/13

Table B-17 (continued)

Analyte	Number of Analyses	Number of Detects	Concentration Range[a] (ppbv[b])	Frequency of Detects
Nonane[1-]	32	0	[0.48]–[2300]	0/32
Octane[n-]	32	0	[0.48]–[2300]	0/32
Pentane	32	7	[0.1]–[5700]	7/32
Pentene[1-]	13	0	[1]–[50]	0/13
Pentene[cis-2-]	13	0	[5]–[50]	0/13
Pentene[trans-2-]	13	0	[5]–[50]	0/13
Pinene[alpha-]	13	0	[5]–[50]	0/13
Pinene[beta-]	13	1	[5]–120	1/13
Propanol[2-]	27	4	0.4–4500	4/27
Propionitrile	13	0	[50]–[500]	0/13
Propylbenzene[1-]	32	0	[0.48]–[2300]	0/32
Propylene	27	6	[3.4]–[1400]	6/27
Styrene	48	2	[0.48]–[2300]	2/48
Tetrachloroethane[1,1,2,2-]	48	0	[0.48]–[2300]	0/48
Tetrachloroethene	48	43	0.41–[2300]	43/48
Tetrahydrofuran	27	0	[3.4]–[1400]	0/27
Toluene	48	10	0.1–[2300]	10/48
Trichloro-1,2,2-trifluoroethane[1,1,2-]	48	33	2.1–15000	33/48
Trichlorobenzene[1,2,4-]	48	3	[0.48]–[2300]	3/48
Trichloroethane[1,1,1-]	48	48	7.5–167000	48/48
Trichloroethane[1,1,2-]	48	5	[0.48]–[2300]	5/48
Trichloroethene	48	39	0.37–3600	39/48
Trichlorofluoromethane	39	25	11–[2300]	25/39
Trimethylbenzene[1,2,4-]	48	0	[0.1]–[2300]	0/48
Trimethylbenzene[1,3,5-]	48	0	[0.48]–[2300]	0/48
Trimethylpentane[2,3,4-]	13	0	[5]–[50]	0/13
Undecane[n-]	19	0	[0.48]–[2300]	0/19
Vinyl acetate	46	1	0.81–[5700]	1/46
Vinyl Chloride	48	0	[0.48]–[2300]	0/48
Xylene (Total)	21	0	[0.48]–[2000]	0/21
Xylene[1,2-]	48	1	[0.48]–[2300]	1/48
Xylene[1,3-]	13	0	[5]–[50]	0/13
Xylene[1,3-]+Xylene[1,4-]	14	0	[0.49]–[2300]	0/14

[a] Square brackets indicate detection limits for nondetected results.

[b] ppbv = Parts per billion by volume.

Table B-18
Maximum MDA G Pore-Gas VOC Concentrations,
Fourth Quarter of FY1999 (EPA TO-14 Method)

Compound	Well Number	Depth (ft)	Concentration (ppmv)
Methylene Chloride	54-02032	156	48
Methanol	54-02010	95	20
TCA	54-02010	95	17
Acetone	54-02010	95	9.8
Dichloroethene[1,1-]	54-02032	156	2.3
Acetonitrile	54-02010	95	2
Freon 113	54-02010	95	1.6
Dichloroethane[1,1-]	54-02030	156	1
PCE	54-02032	156	0.97
Freon 11	54-02010	95	0.79

Table B-19
Maximum MDA G Pore-Gas VOC Concentrations,
First Quarter of Fiscal Year 2002 (EPA TO-14 Method)

Compound	Well Number	Depth (ft)	Concentration (ppmv)
TCA	54-02009	62	97
Methanol	54-02009	62	35
Propanol[2-]	54-01117	55	4.5
Dichloroethene[1,1-]	54-02009	62	4.4
Dichloroethane[1,1-]	54-02009	62	3.9
Butanol[1-]	54-02009	62	3.4
Ethanol	54-02009	62	2.3
TCE	54-01117	55	1.6
Freon 113	54-01117	55	1.4
PCE	54-02009	62	0.84
Freon 11	54-02010	53	0.59
Methylene Chloride	54-00117	55	0.49

Table B-20
MDA G Tritium Pore-Gas Sampling Boreholes and Sampling Ports

Borehole Number	Sample Port Depth (ft bgs)
54-01110	20, 48, 60, 70, 85, 90
54-01111	20, 40, 50, 70, 78, 100, 139

Table B-21
2003 Pore-Gas Tritium Results for
MDA G Boreholes 54-01110 and 54-01111

Borehole	Sample ID	Depth (ft bgs)	Tritium (pCi/L)	Qualifier
54-01110	MD54-03-50390	20	5.85E+06	J+
54-01110	MD54-03-50391	48	6.83E+06	J+
54-01110	MD54-03-50392	60	1.63E+05	J+
54-01110	MD54-03-50393	70	2.67E+05	J+
54-01110	MD54-03-50394	85	3.38E+07	J+
54-01110	MD54-03-50395	90	5.27E+07	J+
54-01111	MD54-03-50396	20	8.82E+07	J+
54-01111	MD54-03-50397	39.5	1.24E+07	J+
54-01111	MD54-03-50398	50	3.01E+07	J+
54-01111	MD54-03-50399	70	1.50E+09	J+
54-01111	MD54-03-50403	70	1.43E+08	J+
54-01111	MD54-03-50400	78	3.83E+09	J+
54-01111	MD54-03-50402	100	1.65E+09	J+
54-01111	MD54-03-50401	139	1.58E+08	J+

Table B-22a
Frequency of Inorganic Chemicals Above BVs in MDA G Subsurface Core Samples

Analyte	Geologic Unit	Number of Analyses	Number of Detects	Concentration Range[a] (mg/kg)	BV[b] (mg/kg)	Frequency of Detects Above BV	Frequency of Nondetects Above BV
Aluminum	Qbt 1g	7	6	[359]–720	3560	0/7	0/7
Aluminum	Qbt 1v	49	48	186–5610	8170	0/49	0/49
Aluminum	Qbt 2	69	65	116–3510	7340	0/69	0/69
Antimony	Qbt 1g	7	0	[0.2–8.4]	0.5	0/7	2/7
Antimony	Qbt 1v	49	1	[0.1–11]	0.5	1/49	24/49
Antimony	Qbt 2	69	1	[0.1–11]	0.5	1/69	46/69
Arsenic	Qbt 1g	7	2	[0.3]–0.8	0.56	1/7	0/7
Arsenic	Qbt 1v	49	15	0.3–2.2	1.81	2/49	0/49
Arsenic	Qbt 2	69	13	[0.29–2.1]	2.79	0/69	0/69
Barium	Qbt 1g	7	5	8.3–26.5	25.7	1/7	0/7
Barium	Qbt 1v	49	43	2.2–71.6	26.5	1/49	0/49
Barium	Qbt 2	69	59	[1.4]–41	46	0/69	0/69
Beryllium	Qbt 1g	7	5	0.28–0.54	1.44	0/7	0/7
Beryllium	Qbt 1v	49	22	[0.05]–1.7	1.7	0/49	0/49
Beryllium	Qbt 2	69	20	[0.04]–1.6	1.21	1/69	0/69
Boron	Qbt 1g	2	0	[1]	n/a[c]	0/2	n/a
Boron	Qbt 1v	2	0	[1]	n/a	0/2	n/a
Cadmium	Qbt 1g	7	0	[0.04–0.66]	0.4	0/7	1/7
Cadmium	Qbt 1v	49	0	[0.04–0.68]	0.4	0/49	13/49
Cadmium	Qbt 2	69	0	[0.04–0.72]	1.63	0/69	0/69
Calcium	Qbt 1g	7	0	653–1100	1900	0/7	0/7
Calcium	Qbt 1v	49	0	590–2460	3700	0/49	0/49
Calcium	Qbt 2	69	2	187–5580	2200	2/69	0/69
Chromium	Qbt 1g	7	1	[0.39]–4.2	2.6	1/7	0/7
Chromium	Qbt 1v	49	2	[0.12]–5.6	2.24	2/49	1/49
Chromium	Qbt 2	69	0	[0.12–6.2]	7.14	0/69	0/69
Cobalt	Qbt 1g	7	0	[0.08]–3.2	8.89	0/7	0/7
Cobalt	Qbt 1v	49	1	[0.15]–3.3	1.78	1/49	0/49
Cobalt	Qbt 2	69	0	[0.1]–2.6	3.14	0/69	0/69
Copper	Qbt 1g	7	0	[0.5]–3.7	3.96	0/7	0/7
Copper	Qbt 1v	49	3	[0.39]–5.9	3.26	3/49	0/49
Copper	Qbt 2	69	2	[0.24]–8.7	4.66	2/69	1/69
Cyanide (Total)	Qbt 1g	5	0	[0.05]	n/a	0/5	n/a
Cyanide (Total)	Qbt 1v	43	3	[0.05–0.97]	n/a	3/43	n/a
Cyanide (Total)	Qbt 2	56	6	[0.05–0.56]	n/a	6/56	n/a
Iron	Qbt 1g	7	7	2200–3650	3700	0/7	0/7
Iron	Qbt 1v	49	49	1350–7600	9900	0/49	0/49
Iron	Qbt 2	69	69	529–5840	14500	0/69	0/69
Lead	Qbt 1g	7	6	2.7–10	13.5	0/7	0/7

Table B-22a (continued)

Analyte	Geologic Unit	Number of Analyses	Number of Detects	Concentration Range[a] (mg/kg)	BV[b] (mg/kg)	Frequency of Detects Above BV	Frequency of Nondetects Above BV
Lead	Qbt 1v	49	45	0.81–13	18.4	0/49	0/49
Lead	Qbt 2	69	63	[0.45]–10.4	11.2	0/69	0/69
Magnesium	Qbt 1g	7	5	74.8–150	739	0/7	0/7
Magnesium	Qbt 1v	49	39	[25]–1930	780	2/49	0/49
Magnesium	Qbt 2	69	51	[26]–965	1690	0/69	0/69
Manganese	Qbt 1g	7	7	76.9–154	189	0/7	0/7
Manganese	Qbt 1v	49	49	92–340	408	0/49	0/49
Manganese	Qbt 2	69	69	56.7–251	482	0/69	0/69
Mercury	Qbt 1g	5	0	[0.02–0.1]	0.1	0/5	0/5
Mercury	Qbt 1v	44	0	[0.02–0.11]	0.1	0/44	7/44
Mercury	Qbt 2	60	3	[0.02]–0.44	0.1	3/60	10/60
Molybdenum	Qbt 1g	2	2	1.4–1.8	n/a	2/2	n/a
Molybdenum	Qbt 1v	6	1	[0.14]–1.9	n/a	1/6	n/a
Molybdenum	Qbt 2	4	0	[0.14–0.9]	n/a	0/4	n/a
Nickel	Qbt 1g	7	2	[0.26]–4.4	2	1/7	1/7
Nickel	Qbt 1v	49	11	[0.1]–4.9	2	2/49	9/49
Nickel	Qbt 2	69	14	[0.13–3.2]	6.58	0/69	0/69
Potassium	Qbt 1g	7	5	[198]–1300	2390	0/7	0/7
Potassium	Qbt 1v	49	40	110–1170	6670	0/49	0/49
Potassium	Qbt 2	69	49	[78]–1220	3500	0/69	0/69
Selenium	Qbt 1g	7	0	[0.3–0.6]	0.3	0/7	5/7
Selenium	Qbt 1v	49	2	[0.3–1.1]	0.3	2/49	44/49
Selenium	Qbt 2	69	0	[0.3–1.1]	0.3	0/69	68/69
Silver	Qbt 1g	7	1	[0.06–1]	1	0/7	0/7
Silver	Qbt 1v	49	1	[0.06–2.3]	1	0/49	9/49
Silver	Qbt 2	69	1	[0.06–2.2]	1	0/69	14/69
Sodium	Qbt 1g	7	5	219–2420	4350	0/7	0/7
Sodium	Qbt 1v	49	44	86.2–690	6330	0/49	0/49
Sodium	Qbt 2	69	55	78.8–525	2770	0/69	0/69
Thallium	Qbt 1g	7	0	[0.1–0.58]	1.22	0/7	0/7
Thallium	Qbt 1v	45	0	[0.1–1.4]	1.24	0/45	2/45
Thallium	Qbt 2	65	0	[0.1–1.4]	1.1	0/65	4/65
Vanadium	Qbt 1g	7	4	[0.5]–1.2	4.59	0/7	0/7
Vanadium	Qbt 1v	49	37	0.31–92	4.48	2/49	0/49
Vanadium	Qbt 2	69	52	0.57–174	17	1/69	0/69
Zinc	Qbt 1g	7	7	9.4–42	40	1/7	0/7
Zinc	Qbt 1v	49	49	15.7–64	84.6	0/49	0/49
Zinc	Qbt 2	69	69	9.5–58	63.5	0/69	0/69

[a] Square brackets indicate detection limits for nondetected results.

[b] Source of BVs: LANL 1998, 59730.

[c] n/a = Not applicable.

Table B-22b
Inorganic Chemicals Above BVs in MDA G Phase I RFI Subsurface Core Samples

Sample ID	Location ID	Depth (ft)	Media	Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Calcium	Chromium	Cobalt	Copper
Qbt 2,3,4 Background Value				**0.5**	**2.79**	**46**	**1.21**	**na**[a]	**1.63**	**2200**	**7.14**	**3.14**	**4.66**
Qbt 1v Background Value				**0.5**	**1.81**	**26.5**	**1.7**	**na**	**0.4**	**3700**	**2.24**	**1.78**	**3.26**
Qbt 1g, Qct, Qbo Background Value				**0.5**	**0.56**	**25.7**	**1.44**	**na**	**0.4**	**1900**	**2.6**	**8.89**	**3.96**
Industrial Soil Screening Level (mg/kg)				**4.54E+02**	**1.77E+01**	**7.83E+04**	**2.25E+03**	**6.16E+04**	**8.60E+03**	[b]	**3.40E+03**	**2.05E+04**	**4.54E+04**
0554-95-0390	54-01102	8.7–10.1	Qbt 2	0.53 (U)	—[c]	—	—	—	—	—	—	—	—
0554-95-0393	54-01102	19.9–20.9	Qbt 2	0.52 (U)	—	—	—	—	—	—	—	—	—
0554-95-0396	54-01102	30.2–31.3	Qbt 2	3.3 (U)	—	—	—	—	—	—	—	—	—
0554-95-0399	54-01102	38.9–40.3	Qbt 2	3.2 (U)	—	—	—	—	—	—	—	—	—
0554-95-0402	54-01102	61.5–63	Qbt 1v	3.2 (U)	—	—	—	—	—	—	—	—	—
0554-95-0433	54-01105	8.8–10.6	Qbt 2	3.3 (U)	—	—	—	—	—	—	—	—	—
0554-95-0437	54-01105	17.7–19.3	Qbt 2	3.1 (U)	—	—	—	—	—	—	—	—	—
0554-95-0441	54-01105	27.9–29.7	Qbt 2	3.3 (U)	—	—	—	—	—	—	—	—	—
0554-95-0445	54-01105	37.8–39.6	Qbt 2	3.3 (U)	—	—	—	—	—	—	—	—	—
0554-95-0449	54-01105	45.4–47.3	Qbt 2	3.2 (U)	—	—	—	—	—	—	—	—	—
0554-95-0453	54-01106	9.1–10.8	Qbt 2	—	—	—	—	—	—	—	—	—	—
0554-95-0457	54-01106	19.3–20.9	Qbt 2	—	—	—	—	—	—	—	—	—	—
0554-95-0461	54-01106	29.6–31.1	Qbt 2	—	—	—	—	—	—	—	—	—	—
0554-95-0465	54-01106	37.7–39.2	Qbt 2	—	—	—	—	—	—	—	—	—	—
0554-95-0469	54-01106	44.5–49.3	Qbt 1v	—	—	—	—	—	—	—	—	—	—
0554-95-0362	54-01107	11.2–13.4	Qbt 2	5.3 (U)	—	—	—	—	—	—	—	—	—
0554-95-0365	54-01107	19.7–21.5	Qbt 2	5.1 (U)	—	—	—	—	—	—	—	—	—
0554-95-0368	54-01107	26–28	Qbt 2	5.3 (U)	—	—	—	—	—	—	—	—	—
0554-95-0371	54-01107	36–38	Qbt 2	5.2 (U)	—	—	—	—	—	—	—	—	—
0554-95-0374	54-01107	47–49	Qbt 2	5.2 (U)	—	—	—	—	—	—	—	—	—
0554-95-0377	54-01107	54–56	Qbt 2	5.3 (U)	—	—	1.6	—	—	—	—	—	6.8 (U)
0554-95-0380	54-01107	66.5–69	Qbt 1v	5 (U)	—	—	—	—	0.63 (U)	—	—	—	—
0554-95-0383	54-01107	77–79.5	Qbt 1v	5.1 (U)	—	—	—	—	0.64 (U)	—	—	—	—
0554-95-0386	54-01107	86–88.3	Qbt 1v	5.2 (U)	—	—	—	—	0.65 (U)	—	—	—	—

Table B-22b (continued)

Sample ID	Location ID	Depth (ft)	Media	Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Calcium	Chromium	Cobalt	Copper
Qbt 2,3,4 Background Value				**0.5**	**2.79**	**46**	**1.21**	**na**[a]	**1.63**	**2200**	**7.14**	**3.14**	**4.66**
Qbt 1v Background Value				**0.5**	**1.81**	**26.5**	**1.7**	**na**	**0.4**	**3700**	**2.24**	**1.78**	**3.26**
Qbt 1g, Qct, Qbo Background Value				**0.5**	**0.56**	**25.7**	**1.44**	**na**	**0.4**	**1900**	**2.6**	**8.89**	**3.96**
Industrial Soil Screening Level (mg/kg)				**4.54E+02**	**1.77E+01**	**7.83E+04**	**2.25E+03**	**6.16E+04**	**8.60E+03**	[b]	**3.40E+03**	**2.05E+04**	**4.54E+04**
0554-95-0709	54-01107	127–128.5	Qbt 1g	2.9 (UJ)	—	26.5	—	—	—	—	—	—	—
0554-95-0473	54-01108	8.5–10.1	Qbt 2	—	—	—	—	—	—	—	—	—	—
0554-95-0477	54-01108	20.6–22.3	Qbt 2	—	—	—	—	—	—	—	—	—	—
0554-95-0481	54-01108	29.9–31.7	Qbt 2	—	—	—	—	—	—	—	—	—	—
0554-95-0485	54-01108	38.3–40	Qbt 2	—	—	—	—	—	—	—	—	—	—
0554-95-0489	54-01108	49.4–51	Qbt 1v	—	—	—	—	—	—	—	—	—	—
AAB2638	54-01110	6–7.5	Qbt 2	—	—	—	—	—	—	—	—	—	—
AAB2640	54-01110	16.5–17.5	Qbt 2	—	—	—	—	—	—	—	—	—	—
AAB2634	54-01110	26–28	Qbt 2	—	—	—	—	—	—	—	—	—	—
AAB2656	54-01110	36.5–37.5	Qbt 2	—	—	—	—	—	—	—	—	—	—
AAB2642	54-01110	46–48	Qbt 2	—	—	—	—	1 (U)	—	—	—	—	—
AAB2636	54-01110	56–57	Qbt 1v	—	—	—	—	1 (U)	—	—	—	—	—
AAB2648	54-01110	75–77	Qbt 1v	—	—	—	—	1 (U)	—	—	2.6	3.3	—
AAB2652	54-01110	88–90	Qbt 1g	—	0.8	—	—	1 (U)	—	—	—	—	—
AAB2654	54-01110	101–102	Qbt 1g	—	—	—	—	1 (U)	—	—	4.2	—	—
AAB2683	54-01111	4–5.5	Qbt 2	4.3 (U)	—	—	—	—	—	2420	—	—	—
AAB2675	54-01111	14.5–15.5	Qbt 2	4.2 (U)	—	—	—	—	—	—	—	—	—
AAB2685	54-01111	18.5–21	Qbt 2	4.2 (U)	—	—	—	—	—	—	—	—	—
AAB2669	54-01111	28–30.5	Qbt 2	4.2 (U)	—	—	—	—	—	—	—	—	—
AAB2667	54-01111	38–39.5	Qbt 2	4.2 (U)	—	—	—	—	—	—	—	—	—
AAB2677	54-01111	50–51.5	Qbt 1v	—	—	—	—	—	—	—	—	—	—
AAB2679	54-01111	60–61.5	Qbt 1v	—	—	—	—	—	—	—	—	—	—
AAB2671	54-01111	70.5–72.5	Qbt 1v	—	—	—	—	—	—	—	—	—	—
AAB2661	54-01111	79.5–81.5	Qbt 1v	—	—	—	—	—	—	—	—	—	—
AAB2663	54-01111	79.5–81.5	Qbt 1v	—	2.2	—	—	—	—	—	—	—	—
AAB2665	54-01111	89–90	Qbt 1g	—	—	—	—	—	—	—	—	—	—

Table B-22b (continued)

Sample ID	Location ID	Depth (ft)	Media	Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Calcium	Chromium	Cobalt	Copper
Qbt 2,3,4 Background Value				**0.5**	**2.79**	**46**	**1.21**	**na[a]**	**1.63**	**2200**	**7.14**	**3.14**	**4.66**
Qbt 1v Background Value				**0.5**	**1.81**	**26.5**	**1.7**	**na**	**0.4**	**3700**	**2.24**	**1.78**	**3.26**
Qbt 1g, Qct, Qbo Background Value				**0.5**	**0.56**	**25.7**	**1.44**	**na**	**0.4**	**1900**	**2.6**	**8.89**	**3.96**
Industrial Soil Screening Level (mg/kg)				**4.54E+02**	**1.77E+01**	**7.83E+04**	**2.25E+03**	**6.16E+04**	**8.60E+03**	**[b]**	**3.40E+03**	**2.05E+04**	**4.54E+04**
AAB2722	54-01111	108–110	Qbt 1g	—	—	—	—	—	—	—	—	—	—
0554-95-0712	54-01112	9–9.2	Qbt 2	0.57 (J)	—	—	—	—	—	—	—	—	5 (J)
0554-95-0715	54-01112	13.5–17.5	Qbt 2	0.51 (U)	—	—	—	—	—	—	—	—	—
0554-95-0716	54-01112	13.5–17.5	Qbt 2	0.51 (U)	—	—	—	—	—	—	—	—	—
0554-95-0718	54-01112	25.3–27.3	Qbt 2	0.51 (U)	—	—	—	—	—	—	—	—	—
0554-95-0721	54-01112	32.9–34.9	Qbt 2	0.51 (U)	—	—	—	—	—	—	—	—	—
0554-95-0724	54-01112	45.5–47.5	Qbt 1v	0.52 (U)	—	—	—	—	—	—	—	—	—
0554-95-0727	54-01112	48.5–50.5	Qbt 1v	0.52 (U)	—	—	—	—	—	—	—	—	5.9
0554-95-0730	54-01112	54.9–57.1	Qbt 1v	0.6 (J)	—	—	—	—	—	—	—	—	—
0554-95-0493	54-01114	8.8–10.3	Qbt 2	—	—	—	—	—	—	—	—	—	—
0554-95-0497	54-01114	18.7–20.2	Qbt 2	—	—	—	—	—	—	—	—	—	—
0554-95-0501	54-01114	26.5–28.7	Qbt 2	0.51 (U)	—	—	—	—	—	—	—	—	—
0554-95-0505	54-01114	38.5–40	Qbt 1v	0.51 (U)	—	—	—	—	—	—	—	—	—
0554-95-0510	54-01115	10–11.1	Qbt 2	—	—	—	—	—	—	—	—	—	—
0554-95-0515	54-01115	18.5–19.8	Qbt 2	—	—	—	—	—	—	—	—	—	—
0554-95-0520	54-01115	29.7–30.9	Qbt 2	—	—	—	—	—	—	—	—	—	—
0554-95-0525	54-01115	39.5–40.8	Qbt 1v	—	—	—	—	—	—	—	—	—	—
0554-95-0530	54-01115	50.1–51.2	Qbt 1v	—	—	—	—	—	—	—	—	—	—
0554-95-0535	54-01115	60.1–61.4	Qbt 1v	—	—	—	—	—	—	—	—	—	—
0554-95-0540	54-01115	68.0–69.3	Qbt 1v	—	—	—	—	—	—	—	—	—	—
0554-95-0655	54-01116	9–9.3	Qbt 2	9.1 (U)	—	—	—	—	—	—	—	—	—
0554-95-0658	54-01116	20.5–22.5	Qbt 2	9 (U)	—	—	—	—	—	—	—	—	—
0554-95-0661	54-01116	29.5–31.5	Qbt 2	8.8 (U)	—	—	—	—	—	—	—	—	—
0554-95-0664	54-01116	36.5–38.5	Qbt 2	8.6 (U)	—	—	—	—	—	—	—	—	—
0554-95-0667	54-01116	46.5–48.5	Qbt 1v	8.3 (U)	—	—	—	—	0.66 (U)	—	—	—	—
0554-95-0670	54-01116	57.5–59.5	Qbt 1v	8.7 (U)	—	—	—	—	0.68 (U)	—	—	—	—

Table B-22b (continued)

Sample ID	Location ID	Depth (ft)	Media	Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Calcium	Chromium	Cobalt	Copper
Qbt 2,3,4 Background Value				**0.5**	**2.79**	**46**	**1.21**	**na**[a]	**1.63**	**2200**	**7.14**	**3.14**	**4.66**
Qbt 1v Background Value				**0.5**	**1.81**	**26.5**	**1.7**	**na**	**0.4**	**3700**	**2.24**	**1.78**	**3.26**
Qbt 1g, Qct, Qbo Background Value				**0.5**	**0.56**	**25.7**	**1.44**	**na**	**0.4**	**1900**	**2.6**	**8.89**	**3.96**
Industrial Soil Screening Level (mg/kg)				**4.54E+02**	**1.77E+01**	**7.83E+04**	**2.25E+03**	**6.16E+04**	**8.60E+03**	[b]	**3.40E+03**	**2.05E+04**	**4.54E+04**
0554-95-0673	54-01116	69.5–71.5	Qbt 1v	8.6 (U)	—	—	—	—	0.68 (U)	—	—	—	—
0554-95-0676	54-01116	77.5–79.5	Qbt 1v	8.6 (U)	—	—	—	—	0.68 (U)	—	—	—	—
0554-95-0679	54-01116	87.5–89.5	Qbt 1g	8.4 (U)	—	—	—	—	0.66 (U)	—	—	—	—
0554-95-0628	54-01117	9–9.5	Qbt 2	8.8 (U)	—	—	—	—	—	—	—	—	—
0554-95-0631	54-01117	20–22	Qbt 2	8.7 (U)	—	—	—	—	—	—	—	—	—
0554-95-0634	54-01117	30–32	Qbt 2	—	—	—	—	—	—	—	—	—	—
0554-95-0637	54-01117	36–38	Qbt 1v	—	—	—	—	—	—	—	—	—	—
0554-95-0640	54-01117	46–48	Qbt 1v	—	—	—	—	—	—	—	—	—	—
0554-95-0643	54-01117	56–58	Qbt 1v	—	—	—	—	—	—	—	—	—	—
0554-95-0646	54-01117	67–69	Qbt 1v	—	—	—	—	—	—	—	—	—	—
0554-95-0649	54-01117	78–80	Qbt 1v	0.51 (U)	2.2	—	—	—	—	—	—	—	—
0554-95-0652	54-01117	86–88	Qbt 1g	—	—	—	—	—	—	—	—	—	—
0554-95-0609	54-01120	9.9–11.3	Qbt 2	3.2 (UJ)	—	—	—	—	—	—	—	—	—
0554-95-0613	54-01120	20.5–21.9	Qbt 2	3.1 (UJ)	—	—	—	—	—	—	—	—	—
0554-95-0617	54-01120	29.7–31.1	Qbt 2	3.1 (UJ)	—	—	—	—	—	—	—	—	—
0554-95-0621	54-01120	40.7–42.1	Qbt 1v	3.1 (UJ)	—	—	—	—	—	—	—	—	5.8
0554-95-0625	54-01120	48.1–49.5	Qbt 1v	3.1 (UJ)	—	—	—	—	—	—	—	—	—
0554-95-0782	54-01121	9–9.3	Qbt 2	0.53 (U)	—	—	—	—	—	5580	—	—	—
0554-95-0787	54-01121	19–21	Qbt 2	0.51 (U)	—	—	—	—	—	—	—	—	—
0554-95-0792	54-01121	29–31	Qbt 1v	0.51 (U)	—	—	—	—	—	—	—	—	—
0554-95-0797	54-01121	39–41	Qbt 1v	0.51 (U)	—	—	—	—	—	—	—	—	—
0554-95-0802	54-01121	49–51	Qbt 1v	0.51 (U)	—	—	—	—	—	—	—	—	—
0554-95-0807	54-01121	58.5–61	Qbt 1v	—	—	—	—	—	—	—	—	—	—
0554-95-0733	54-01123	9–9.2	Qbt 2	—	—	—	—	—	—	—	—	—	—
0554-95-0737	54-01123	16.2–18	Qbt 2	—	—	—	—	—	—	—	—	—	—
0554-95-0741	54-01123	26.2–28	Qbt 2	—	—	—	—	—	—	—	—	—	—

Table B-22b (continued)

Sample ID	Location ID	Depth (ft)	Media	Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Calcium	Chromium	Cobalt	Copper
Qbt 2,3,4 Background Value				**0.5**	**2.79**	**46**	**1.21**	**na**[a]	**1.63**	**2200**	**7.14**	**3.14**	**4.66**
Qbt 1v Background Value				**0.5**	**1.81**	**26.5**	**1.7**	**na**	**0.4**	**3700**	**2.24**	**1.78**	**3.26**
Qbt 1g, Qct, Qbo Background Value				**0.5**	**0.56**	**25.7**	**1.44**	**na**	**0.4**	**1900**	**2.6**	**8.89**	**3.96**
Industrial Soil Screening Level (mg/kg)				**4.54E+02**	**1.77E+01**	**7.83E+04**	**2.25E+03**	**6.16E+04**	**8.60E+03**	[b]	**3.40E+03**	**2.05E+04**	**4.54E+04**
0554-95-0745	54-01123	36–38	Qbt 1v	—	—	—	—	—	—	—	—	—	—
0554-95-0749	54-01123	46–48	Qbt 1v	—	—	—	—	—	—	—	—	—	—
0554-95-0753	54-01123	55.5–57.5	Qbt 1v	—	—	—	—	—	—	—	—	—	—
0554-95-0779	54-01123	92.5–97	Qbt 1v	—	—	71.6	—	—	—	—	2.3 (U)	—	—
0554-95-0564	54-01124	9–10	Qbt 2	11 (U)	—	—	—	—	—	—	—	—	—
0554-95-0569	54-01124	20.3–21.3	Qbt 2	10 (U)	—	—	—	—	—	—	—	—	—
0554-95-0574	54-01124	29.5–30.5	Qbt 1v	11 (U)	—	—	—	—	0.56 (U)	—	5.6	—	—
0554-95-0579	54-01124	37.3–38.3	Qbt 1v	10 (U)	—	—	—	—	0.51 (U)	—	—	—	—
0554-95-0846	54-01125	9–9.2	Qbt 2	11 (UJ)	—	—	—	—	—	—	—	—	8.7 (J—)
0554-95-0849	54-01125	16–18	Qbt 2	11 (UJ)	—	—	—	—	—	—	—	—	—
0554-95-0852	54-01125	26–28	Qbt 2	11 (UJ)	—	—	—	—	—	—	—	—	—
0554-95-0855	54-01125	36–38	Qbt 2	11 (UJ)	—	—	—	—	—	—	—	—	—
0554-95-0858	54-01125	46–48	Qbt 1v	11 (UJ)	—	—	—	—	0.55 (U)	—	—	—	—
0554-95-0861	54-01125	59–61	Qbt 1v	11 (UJ)	—	—	—	—	0.57 (U)	—	—	—	—
0554-95-0584	54-01126	9.3–10.3	Qbt 2	3.2 (UJ)	—	—	—	—	—	—	—	—	—
0554-95-0589	54-01126	18.5–19.8	Qbt 2	3.1 (UJ)	—	—	—	—	—	—	—	—	—
0554-95-0594	54-01126	28.8–29.8	Qbt 1v	3.2 (UJ)	—	—	—	—	—	—	—	—	—
0554-95-0599	54-01126	37.3–38.3	Qbt 1v	—	—	—	—	—	—	—	—	—	—
0554-95-0604	54-01126	47.3–48.3	Qbt 1v	—	—	—	—	—	—	—	—	—	—
0554-95-0544	54-01128	9–10	Qbt 2	10 (U)	—	—	—	—	—	—	—	—	—
0554-95-0549	54-01128	18.9–20	Qbt 2	10 (U)	—	—	—	—	—	—	—	—	—
0554-95-0554	54-01128	28–29	Qbt 1v	11 (U)	—	—	—	—	0.53 (U)	—	—	—	4.3 (J+)
0554-95-0559	54-01128	39–40	Qbt 1v	11 (U)	—	—	—	—	0.53 (U)	—	—	—	—

Table B-22b (continued)

Sample ID	Location ID	Depth (ft)	Media	Cyanide (Total)	Magnesium	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
Qbt 2,3,4 Background Value				0.5	1690	0.1	na	6.58	0.3	1	1.1	17	63.5
Qbt 1v Background Value				0.5	780	0.1	na	2	0.3	1	1.24	4.48	87.6
Qbt 1g, Qct, Qbo Background Value				0.5	739	0.1	na	2	0.3	1	1.22	4.59	40
Industrial Soil Screening Level (mg/kg)				2.27E+04	b	3.41E+02	5.68E+03	2.25E+04	5.68E+03	5.68E+03	7.49E+01	7.95E+03	1.00E+05
0554-95-0390	54-01102	8.7–10.1	Qbt 2	0.55	—	—	—	—	0.51 (U)	—	—	—	—
0554-95-0393	54-01102	19.9–20.9	Qbt 2	0.43 (J)	—	—	—	—	0.5 (U)	—	—	—	—
0554-95-0396	54-01102	30.2–31.3	Qbt 2	0.102 (U)	—	—	—	—	0.61 (UJ)	—	—	—	—
0554-95-0399	54-01102	38.9–40.3	Qbt 2	0.103 (U)	—	—	—	—	0.61 (UJ)	—	—	—	—
0554-95-0402	54-01102	61.5–63	Qbt 1v	0.101 (U)	—	—	—	—	0.6 (UJ)	—	—	—	—
0554-95-0433	54-01105	8.8–10.6	Qbt 2	0.1 (U)	—	—	—	—	0.62 (UJ)	—	—	—	—
0554-95-0437	54-01105	17.7–19.3	Qbt 2	0.102 (U)	—	—	—	—	0.59 (UJ)	—	—	—	—
0554-95-0441	54-01105	27.9–29.7	Qbt 2	0.102 (U)	—	—	—	—	0.63 (UJ)	—	—	—	—
0554-95-0445	54-01105	37.8–39.6	Qbt 2	0.101 (U)	—	—	—	—	0.62 (UJ)	—	—	—	—
0554-95-0449	54-01105	45.4–47.3	Qbt 2	0.101 (U)	—	—	—	—	0.6 (UJ)	—	—	—	—
0554-95-0453	54-01106	9.1–10.8	Qbt 2	0.15 (UJ)	—	—	—	—	0.31 (U)	—	—	174 (J)	—
0554-95-0457	54-01106	19.3–20.9	Qbt 2	0.16 (UJ)	—	—	—	—	0.31 (U)	—	—	—	—
0554-95-0461	54-01106	29.6–31.1	Qbt 2	0.15 (UJ)	—	—	—	—	0.31 (U)	—	—	—	—
0554-95-0465	54-01106	37.7–39.2	Qbt 2	0.16 (UJ)	—	—	—	—	0.31 (U)	—	—	—	—
0554-95-0469	54-01106	44.5–49.3	Qbt 1v	0.15 (UJ)	—	—	—	—	—	—	—	—	—
0554-95-0362	54-01107	11.2–13.4	Qbt 2	0.54 (U)	—	—	—	—	0.35 (U)	1.4 (U)	—	—	—
0554-95-0365	54-01107	19.7–21.5	Qbt 2	0.52 (U)	—	—	—	—	0.33 (U)	1.1 (U)	—	—	—
0554-95-0368	54-01107	26–28	Qbt 2	0.54 (U)	—	—	—	—	0.34 (U)	1.3 (U)	—	—	—
0554-95-0371	54-01107	36–38	Qbt 2	0.53 (U)	—	—	—	—	0.34 (U)	1.2 (U)	—	—	—
0554-95-0374	54-01107	47–49	Qbt 2	0.53 (U)	—	—	—	—	0.34 (U)	1.2 (U)	—	—	—
0554-95-0377	54-01107	54–56	Qbt 2	0.54 (U)	—	—	—	—	0.35 (U)	1.2 (U)	—	—	—
0554-95-0380	54-01107	66.5–69	Qbt 1v	0.51 (U)	—	—	—	—	0.33 (U)	1.1 (U)	—	—	—
0554-95-0383	54-01107	77–79.5	Qbt 1v	0.52 (U)	—	—	—	—	0.33 (U)	1.1 (U)	—	—	—
0554-95-0386	54-01107	86–88.3	Qbt 1v	0.53 (U)	—	—	—	—	0.34 (U)	1.2 (U)	—	—	—
0554-95-0709	54-01107	127–128.5	Qbt 1g	0.16 (U)	—	—	—	4.4	0.31 (U)	—	—	—	—
0554-95-0473	54-01108	8.5–10.1	Qbt 2	—	—	0.11 (U)	—	—	0.66 (U)	—	—	—	—

Table B-22b (continued)

Sample ID	Location ID	Depth (ft)	Media	Cyanide (Total)	Magnesium	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
Qbt 2,3,4 Background Value				**0.5**	**1690**	**0.1**	**na**	**6.58**	**0.3**	**1**	**1.1**	**17**	**63.5**
Qbt 1v Background Value				**0.5**	**780**	**0.1**	**na**	**2**	**0.3**	**1**	**1.24**	**4.48**	**87.6**
Qbt 1g, Qct, Qbo Background Value				**0.5**	**739**	**0.1**	**na**	**2**	**0.3**	**1**	**1.22**	**4.59**	**40**
Industrial Soil Screening Level (mg/kg)				**2.27E+04**	[b]	**3.41E+02**	**5.68E+03**	**2.25E+04**	**5.68E+03**	**5.68E+03**	**7.49E+01**	**7.95E+03**	**1.00E+05**
0554-95-0477	54-01108	20.6–22.3	Qbt 2	—	—	0.11 (U)	—	—	0.66 (U)	—	—	—	—
0554-95-0481	54-01108	29.9–31.7	Qbt 2	—	—	—	—	—	0.65 (U)	—	—	—	—
0554-95-0485	54-01108	38.3–40	Qbt 2	—	—	0.11 (U)	—	—	0.64 (U)	—	—	—	—
0554-95-0489	54-01108	49.4–51	Qbt 1v	—	—	—	—	—	0.62 (U)	—	—	—	—
AAB2638	54-01110	6–7.5	Qbt 2	—	—	—	—	—	0.6 (U)	—	—	—	—
AAB2640	54-01110	16.5–17.5	Qbt 2	—	—	—	—	—	0.61 (U)	—	—	—	—
AAB2634	54-01110	26–28	Qbt 2	—	—	—	—	—	0.6 (U)	—	—	—	—
AAB2656	54-01110	36.5–37.5	Qbt 2	—	—	—	—	—	0.58 (U)	—	—	—	—
AAB2642	54-01110	46–48	Qbt 2	0.05 (U)	—	—	0.9 (U)	—	—	—	—	—	—
AAB2636	54-01110	56–57	Qbt 1v	0.05 (U)	—	—	0.9 (U)	—	—	—	—	—	—
AAB2648	54-01110	75–77	Qbt 1v	0.05 (U)	—	—	1.9	—	—	—	—	—	—
AAB2652	54-01110	88–90	Qbt 1g	0.05 (U)	—	—	1.4	—	—	—	—	—	—
AAB2654	54-01110	101–102	Qbt 1g	0.05 (U)	—	—	1.8	—	—	—	—	—	42
AAB2683	54-01111	4–5.5	Qbt 2	—	—	—	—	—	0.52 (U)	—	—	—	—
AAB2675	54-01111	14.5–15.5	Qbt 2	—	—	—	—	—	0.5 (U)	—	—	—	—
AAB2685	54-01111	18.5–21	Qbt 2	—	—	—	—	—	0.5 (U)	—	—	—	—
AAB2669	54-01111	28–30.5	Qbt 2	—	—	—	—	—	0.5 (U)	—	—	—	—
AAB2667	54-01111	38–39.5	Qbt 2	—	—	—	—	—	0.5 (U)	—	—	—	—
AAB2677	54-01111	50–51.5	Qbt 1v	—	—	—	—	—	0.58 (U)	—	—	—	—
AAB2679	54-01111	60–61.5	Qbt 1v	—	—	—	—	—	0.58 (U)	—	—	—	—
AAB2671	54-01111	70.5–72.5	Qbt 1v	—	—	—	—	—	0.58 (U)	—	—	—	—
AAB2661	54-01111	79.5–81.5	Qbt 1v	—	—	—	—	—	0.6 (U)	—	—	—	—
AAB2663	54-01111	79.5–81.5	Qbt 1v	—	—	—	—	—	0.6 (U)	—	—	—	—
AAB2665	54-01111	89–90	Qbt 1g	—	—	—	—	—	0.58 (U)	—	—	—	—
AAB2722	54-01111	108–110	Qbt 1g	—	—	—	—	—	0.6 (UJ)	—	—	—	—
0554-95-0712	54-01112	9–9.2	Qbt 2	0.2 (U)	—	—	—	—	0.49 (U)	—	—	—	—

Table B-22b (continued)

Sample ID	Location ID	Depth (ft)	Media	Cyanide (Total)	Magnesium	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
Qbt 2,3,4 Background Value				**0.5**	**1690**	**0.1**	**na**	**6.58**	**0.3**	**1**	**1.1**	**17**	**63.5**
Qbt 1v Background Value				**0.5**	**780**	**0.1**	**na**	**2**	**0.3**	**1**	**1.24**	**4.48**	**87.6**
Qbt 1g, Qct, Qbo Background Value				**0.5**	**739**	**0.1**	**na**	**2**	**0.3**	**1**	**1.22**	**4.59**	**40**
Industrial Soil Screening Level (mg/kg)				**2.27E+04**	b	**3.41E+02**	**5.68E+03**	**2.25E+04**	**5.68E+03**	**5.68E+03**	**7.49E+01**	**7.95E+03**	**1.00E+05**
0554-95-0715	54-01112	13.5–17.5	Qbt 2	0.2 (U)	—	—	—	—	0.49 (U)	—	—	—	—
0554-95-0716	54-01112	13.5–17.5	Qbt 2	0.2 (U)	—	—	—	—	0.49 (U)	—	—	—	—
0554-95-0718	54-01112	25.3–27.3	Qbt 2	0.2 (U)	—	—	—	—	0.49 (U)	—	—	—	—
0554-95-0721	54-01112	32.9–34.9	Qbt 2	0.2 (U)	—	—	—	—	0.49 (U)	—	—	—	—
0554-95-0724	54-01112	45.5–47.5	Qbt 1v	0.21 (U)	—	—	—	—	0.5 (U)	—	—	—	—
0554-95-0727	54-01112	48.5–50.5	Qbt 1v	0.21 (U)	1040 (J)	—	—	2.3 (J)	0.5 (U)	—	—	—	—
0554-95-0730	54-01112	54.9–57.1	Qbt 1v	0.2 (U)	—	—	—	—	0.5 (U)	—	—	—	—
0554-95-0493	54-01114	8.8–10.3	Qbt 2	0.21 (J)	—	—	—	—	0.7 (U)	—	—	—	—
0554-95-0497	54-01114	18.7–20.2	Qbt 2	0.37 (J)	—	—	—	—	0.79 (U)	—	—	—	—
0554-95-0501	54-01114	26.5–28.7	Qbt 2	0.2 (U)	—	—	—	—	0.49 (U)	—	—	—	—
0554-95-0505	54-01114	38.5–40	Qbt 1v	0.2	—	—	—	—	0.49 (U)	—	—	—	—
0554-95-0510	54-01115	10–11.1	Qbt 2	0.108 (U)	—	—	—	—	0.66 (UJ)	—	—	—	—
0554-95-0515	54-01115	18.5–19.8	Qbt 2	0.106 (U)	—	0.11 (U)	—	—	0.64 (UJ)	—	—	—	—
0554-95-0520	54-01115	29.7–30.9	Qbt 2	0.105 (U)	—	0.11 (U)	—	—	0.65 (UJ)	—	—	—	—
0554-95-0525	54-01115	39.5–40.8	Qbt 1v	0.105 (U)	—	0.11 (U)	—	—	0.63 (UJ)	—	—	—	—
0554-95-0530	54-01115	50.1–51.2	Qbt 1v	0.103 (U)	—	—	—	—	0.64 (UJ)	—	—	92 (J)	—
0554-95-0535	54-01115	60.1–61.4	Qbt 1v	0.1 (U)	—	—	—	—	0.59 (UJ)	—	—	—	—
0554-95-0540	54-01115	68.0–69.3	Qbt 1v	0.101 (U)	—	—	—	—	0.6 (UJ)	—	—	—	—
0554-95-0655	54-01116	9–9.3	Qbt 2	0.53 (U)	—	—	—	—	0.34 (UJ)	—	—	—	—
0554-95-0658	54-01116	20.5–22.5	Qbt 2	0.52 (U)	—	—	—	—	0.34 (UJ)	—	—	—	—
0554-95-0661	54-01116	29.5–31.5	Qbt 2	0.52 (U)	—	—	—	—	0.33 (UJ)	—	—	—	—
0554-95-0664	54-01116	36.5–38.5	Qbt 2	0.5 (U)	—	—	—	—	0.31 (UJ)	—	—	—	—
0554-95-0667	54-01116	46.5–48.5	Qbt 1v	0.5 (U)	—	—	—	2.9 (U)	0.32 (UJ)	—	—	—	—
0554-95-0670	54-01116	57.5–59.5	Qbt 1v	0.5 (U)	—	—	—	3 (U)	0.32 (UJ)	—	—	—	—
0554-95-0673	54-01116	69.5–71.5	Qbt 1v	0.5 (U)	—	—	—	3 (U)	0.32 (UJ)	—	—	—	—
0554-95-0676	54-01116	77.5–79.5	Qbt 1v	0.51 (U)	—	—	—	3 (U)	0.32 (UJ)	—	—	—	—

Table B-22b (continued)

Sample ID	Location ID	Depth (ft)	Media	Cyanide (Total)	Magnesium	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
Qbt 2,3,4 Background Value				**0.5**	**1690**	**0.1**	**na**	**6.58**	**0.3**	**1**	**1.1**	**17**	**63.5**
Qbt 1v Background Value				**0.5**	**780**	**0.1**	**na**	**2**	**0.3**	**1**	**1.24**	**4.48**	**87.6**
Qbt 1g, Qct, Qbo Background Value				**0.5**	**739**	**0.1**	**na**	**2**	**0.3**	**1**	**1.22**	**4.59**	**40**
Industrial Soil Screening Level (mg/kg)				**2.27E+04**	[b]	**3.41E+02**	**5.68E+03**	**2.25E+04**	**5.68E+03**	**5.68E+03**	**7.49E+01**	**7.95E+03**	**1.00E+05**
0554-95-0679	54-01116	87.5–89.5	Qbt 1g	0.5 (U)	—	—	—	2.9 (U)	0.32 (UJ)	—	—	—	—
0554-95-0628	54-01117	9–9.5	Qbt 2	0.51 (U)	—	—	—	—	0.33 (UJ)	—	—	—	—
0554-95-0631	54-01117	20–22	Qbt 2	0.51 (U)	—	—	—	—	0.33 (UJ)	—	—	—	—
0554-95-0634	54-01117	30–32	Qbt 2	0.19 (U)	—	—	—	—	0.47 (U)	—	—	—	—
0554-95-0637	54-01117	36–38	Qbt 1v	0.19 (U)	—	—	—	—	0.54 (J)	—	—	—	—
0554-95-0640	54-01117	46–48	Qbt 1v	0.19 (U)	—	—	—	—	0.64 (J)	—	—	—	—
0554-95-0643	54-01117	56–58	Qbt 1v	0.19 (U)	—	—	—	—	0.46 (U)	—	—	—	—
0554-95-0646	54-01117	67–69	Qbt 1v	0.97 (U)	—	—	—	—	0.47 (U)	—	—	—	—
0554-95-0649	54-01117	78–80	Qbt 1v	0.2 (U)	—	—	—	—	0.49 (U)	—	—	—	—
0554-95-0652	54-01117	86–88	Qbt 1g	0.19 (U)	—	—	—	—	0.47 (U)	—	—	—	—
0554-95-0609	54-01120	9.9–11.3	Qbt 2	0.39 (U)	—	—	—	—	0.42 (U)	—	—	—	—
0554-95-0613	54-01120	20.5–21.9	Qbt 2	0.35 (U)	—	—	—	—	0.41 (U)	—	—	—	—
0554-95-0617	54-01120	29.7–31.1	Qbt 2	0.15 (U)	—	—	—	—	0.41 (U)	—	—	—	—
0554-95-0621	54-01120	40.7–42.1	Qbt 1v	0.2 (U)	—	—	—	4.9	0.41 (U)	—	—	—	—
0554-95-0625	54-01120	48.1–49.5	Qbt 1v	0.16 (U)	—	—	—	—	0.42 (U)	—	—	—	—
0554-95-0782	54-01121	9–9.3	Qbt 2	0.21 (U)	—	—	—	—	0.51 (U)	—	—	—	—
0554-95-0787	54-01121	19–21	Qbt 2	0.2 (U)	—	—	—	—	0.49 (U)	—	—	—	—
0554-95-0792	54-01121	29–31	Qbt 1v	0.2 (U)	—	—	—	—	0.49 (U)	—	—	—	—
0554-95-0797	54-01121	39–41	Qbt 1v	0.2 (U)	—	—	—	—	0.48 (U)	—	—	—	—
0554-95-0802	54-01121	49–51	Qbt 1v	0.2 (U)	—	—	—	—	0.49 (U)	—	—	—	—
0554-95-0807	54-01121	58.5–61	Qbt 1v	0.2 (U)	—	—	—	—	0.48 (U)	—	—	—	—
0554-95-0733	54-01123	9–9.2	Qbt 2	0.525 (U)	—	0.34 (J+)	0.14 (U)	—	0.61 (U)	—	—	—	—
0554-95-0737	54-01123	16.2–18	Qbt 2	0.517 (U)	—	0.44 (J+)	0.27 (U)	—	0.64 (U)	—	—	—	—
0554-95-0741	54-01123	26.2–28	Qbt 2	0.512 (U)	—	0.3 (J+)	0.38 (U)	—	0.63 (U)	—	—	—	—
0554-95-0745	54-01123	36–38	Qbt 1v	0.505 (U)	—	—	0.18 (U)	—	0.62 (U)	—	—	—	—
0554-95-0749	54-01123	46–48	Qbt 1v	0.509 (U)	—	—	0.14 (U)	—	0.62 (U)	—	—	—	—

Table B-22b (continued)

Sample ID	Location ID	Depth (ft)	Media	Cyanide (Total)	Magnesium	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
Qbt 2,3,4 Background Value				0.5	1690	0.1	na	6.58	0.3	1	1.1	17	63.5
Qbt 1v Background Value				0.5	780	0.1	na	2	0.3	1	1.24	4.48	87.6
Qbt 1g, Qct, Qbo Background Value				0.5	739	0.1	na	2	0.3	1	1.22	4.59	40
Industrial Soil Screening Level (mg/kg)				2.27E+04	b	3.41E+02	5.68E+03	2.25E+04	5.68E+03	5.68E+03	7.49E+01	7.95E+03	1.00E+05
0554-95-0753	54-01123	55.5–57.5	Qbt 1v	0.521 (U)	—	—	0.55 (U)	—	0.62 (U)	—	—	—	—
0554-95-0779	54-01123	92.5–97	Qbt 1v	0.554 (U)	1930 (J+)	0.11 (U)	0.15 (U)	—	0.65 (U)	—	—	5.7 (J)	—
0554-95-0564	54-01124	9–10	Qbt 2	0.55 (U)	—	0.11 (U)	—	—	1.1 (U)	2.2 (UJ)	—	—	—
0554-95-0569	54-01124	20.3–21.3	Qbt 2	0.52 (U)	—	—	—	—	1 (U)	2.1 (UJ)	—	—	—
0554-95-0574	54-01124	29.5–30.5	Qbt 1v	0.56 (U)	—	0.11 (U)	—	2.2 (U)	1.1 (U)	2.2 (UJ)	—	—	—
0554-95-0579	54-01124	37.3–38.3	Qbt 1v	0.51 (U)	—	—	—	—	1 (U)	2 (UJ)	—	—	—
0554-95-0846	54-01125	9–9.2	Qbt 2	0.54 (U)	—	0.11 (U)	—	—	1.1 (U)	2.2 (U)	1.4 (U)	—	—
0554-95-0849	54-01125	16–18	Qbt 2	0.56 (U)	—	0.11 (U)	—	—	1.1 (U)	2.2 (U)	1.4 (U)	—	—
0554-95-0852	54-01125	26–28	Qbt 2	0.54 (U)	—	0.11 (U)	—	—	1.1 (U)	2.2 (U)	1.4 (U)	—	—
0554-95-0855	54-01125	36–38	Qbt 2	0.54 (U)	—	0.11 (U)	—	—	1.1 (U)	2.2 (U)	1.3 (U)	—	—
0554-95-0858	54-01125	46–48	Qbt 1v	0.55 (U)	—	0.11 (U)	—	2.2 (U)	1.1 (U)	2.2 (U)	1.4 (U)	—	—
0554-95-0861	54-01125	59–61	Qbt 1v	0.57 (U)	—	0.11 (U)	—	2.3 (U)	1.1 (U)	2.3 (U)	1.4 (U)	—	—
0554-95-0584	54-01126	9.3–10.3	Qbt 2	0.18 (J)	—	—	—	—	0.43 (U)	—	—	—	—
0554-95-0589	54-01126	18.5–19.8	Qbt 2	0.34 (J)	—	—	—	—	0.41 (U)	—	—	—	—
0554-95-0594	54-01126	28.8–29.8	Qbt 1v	0.17 (J)	—	—	—	—	0.42 (U)	—	—	—	—
0554-95-0599	54-01126	37.3–38.3	Qbt 1v	0.2 (U)	—	—	—	—	0.48 (U)	—	—	—	—
0554-95-0604	54-01126	47.3–48.3	Qbt 1v	0.71	—	—	—	—	0.47 (U)	—	—	—	—
0554-95-0544	54-01128	9–10	Qbt 2	0.51 (U)	—	—	—	—	1 (U)	2 (UJ)	—	—	—
0554-95-0549	54-01128	18.9–20	Qbt 2	0.51 (U)	—	—	—	—	1 (U)	2 (UJ)	—	—	—
0554-95-0554	54-01128	28–29	Qbt 1v	0.53 (U)	—	0.11 (U)	—	2.1 (U)	1.1 (U)	2.1 (UJ)	—	—	—
0554-95-0559	54-01128	39–40	Qbt 1v	0.53 (U)	—	0.11 (U)	—	2.1 (U)	1.1 (U)	2.1 (UJ)	—	—	—

[a] na = No BV available.

[b] Essential nutrient.

[c] — = Not detected above BV.

Table B-23a
Frequency of Radionuclides Above BVs or Detects
(for Fallout Radionuclides) in MDA G Subsurface Tuff Samples

Analyte	Geologic Unit	Number of Analyses	Number of Detects	Concentration Range[a] (pCi/g)	BV[b] (pCi/g)	Frequency of Detects Above BV
Americium-241	Qbt 1g	7	2	[-0.073–0.027]	n/a[c]	2/7
Americium-241	Qbt 1v	49	8	[-0.023–0.0248]	n/a	8/49
Americium-241	Qbt 2	69	15	[-0.085]–0.169	n/a	15/69
Cesium-134	Qbt 1g	3	0	[0.07–0.23]	n/a	0/3
Cesium-134	Qbt 1v	42	0	[-0.014–0.43]	n/a	0/42
Cesium-134	Qbt 2	59	0	[-0.034–0.12]	n/a	0/59
Cesium-137	Qbt 1g	7	1	[-0.014]–1	n/a	1/7
Cesium-137	Qbt 1v	49	0	[-0.028–0.38]	n/a	0/49
Cesium-137	Qbt 2	69	1	[-0.031]–0.21	n/a	1/69
Cobalt-60	Qbt 1g	7	1	[-0.011]–0.39	n/a	1/7
Cobalt-60	Qbt 1v	49	0	[-0.006–0.28]	n/a	0/49
Cobalt-60	Qbt 2	69	3	[-0.009]–0.62	n/a	3/69
Europium-152	Qbt 1g	3	0	[0.27–0.73]	n/a	0/3
Europium-152	Qbt 1v	41	3	[-0.0823]–1.92	n/a	3/41
Europium-152	Qbt 2	50	1	[-0.033]–1.54	n/a	1/50
Plutonium-238	Qbt 1g	7	0	[0–0.01]	n/a	0/7
Plutonium-238	Qbt 1v	49	1	[-0.007]–0.027	n/a	1/49
Plutonium-238	Qbt 2	69	1	[-0.02–0.014]	n/a	1/69
Plutonium-239	Qbt 1g	7	0	[0–0.001]	n/a	0/7
Plutonium-239	Qbt 1v	49	1	[0]–0.1	n/a	1/49
Plutonium-239	Qbt 2	69	3	[-0.002]–0.024	n/a	3/69
Ruthenium-106	Qbt 1g	3	0	[0.45–0.86]	n/a	0/3
Ruthenium-106	Qbt 1v	42	0	[0.059–1.33]	n/a	0/42
Ruthenium-106	Qbt 2	59	0	[-0.272–1.21]	n/a	0/59
Sodium-22	Qbt 1g	3	0	[0.06–0.14]	n/a	0/3
Sodium-22	Qbt 1v	42	0	[-0.0062–0.15]	n/a	0/42
Sodium-22	Qbt 2	59	0	[-0.034–0.18]	n/a	0/59
Strontium-90	Qbt 1g	7	0	[-0.59–0.26]	n/a	0/7
Strontium-90	Qbt 1v	49	2	[-0.34]–0.62	n/a	2/49
Strontium-90	Qbt 2	69	0	[-0.29–0.38]	n/a	0/69
Thorium-228	Qbt 1g	7	7	1.83–3.14	4.9	0/7
Thorium-228	Qbt 1v	49	49	1.58–3.25	3.75	0/49
Thorium-228	Qbt 2	69	69	1.23–2.32	2.52	0/69

Table B-23a (continued)

Analyte	Geologic Unit	Number of Analyses	Number of Detects	Concentration Range[a] (pCi/g)	BV[b] (pCi/g)	Frequency of Detects Above BV
Thorium-230	Qbt 1g	7	7	1.8–3.17	4	0/7
Thorium-230	Qbt 1v	49	46	1.48–3.16	3.12	1/49
Thorium-230	Qbt 2	69	57	1.11–2.26	1.98	1/69
Thorium-232	Qbt 1g	7	7	1.71–3.19	4.9	0/7
Thorium-232	Qbt 1v	49	49	1.64–3.23	3.75	0/49
Thorium-232	Qbt 2	69	69	1.33–2.31	2.52	0/69
Tritium	Qbt 1g	3	3	0.96–15.4	n/a	3/3
Tritium	Qbt 1v	42	41	3.24E-02–13290	n/a	41/42
Tritium	Qbt 2	59	53	2.56E-02–13958	n/a	53/59
Uranium-234	Qbt 1g	4	4	2.04–3.02	4	0/4
Uranium-234	Qbt 1v	11	11	1.61–2.74	3.12	0/11
Uranium-234	Qbt 2	25	25	0.92–2.57	1.98	1/25
Uranium-235	Qbt 1g	6	4	0.07–0.21	0.18	1/6
Uranium-235	Qbt 1v	49	10	0.0541–[0.82]	0.14	3/49
Uranium-235	Qbt 2	69	15	0.02–[0.66]	0.09	5/69
Uranium-238	Qbt 1g	4	4	2.35–2.99	3.9	0/4
Uranium-238	Qbt 1v	11	11	1.51–2.89	3.05	0/11
Uranium-238	Qbt 2	25	25	0.84–2.75	1.93	1/25

[a] Square brackets indicate minimum detectable activity (i.e., detection limits) for nondetected results.

[b] Source of BVs: LANL 1998, 59730.

[c] n/a = Not applicable.

Table B-23b
Radionuclides Detected or Detected Above BVs
In MDA G Phase I RFI Subsurface Core Samples

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-137	Cobalt-60	Europium-152	Plutonium-238	Plutonium-239
Qbt 2,3,4 Background Value				**na**[a]	**na**	**na**	**na**	**na**	**na**
Qbt 1v Background Value				**na**	**na**	**na**	**na**	**na**	**na**
Qbt 1g, Qct, Qbo Background Value				**na**	**na**	**na**	**na**	**na**	**na**
Industrial SAL (pCi/g)				**1.403E+02**	**1.968E+01**	**4.378E+00**	**9.720E+00**	**1.764E+02**	**1.589E+02**
0554-95-0393	54-01102	19.9–20.9	Qbt 2	—[b]	—	—	—	—	—
0554-95-0396	54-01102	30.2–31.3	Qbt 2	—	—	—	—	—	—
0554-95-0399	54-01102	38.9–40.3	Qbt 2	—	—	—	—	—	—
0554-95-0402	54-01102	61.5–63	Qbt 1v	0.005	—	—	—	—	—
0554-95-0433	54-01105	8.8–10.6	Qbt 2	—	—	—	—	—	—
0554-95-0437	54-01105	17.7–19.3	Qbt 2	—	—	—	—	—	—
0554-95-0441	54-01105	27.9–29.7	Qbt 2	—	—	—	—	—	—
0554-95-0445	54-01105	37.8–39.6	Qbt 2	—	—	—	—	—	—
0554-95-0449	54-01105	45.4–47.3	Qbt 2	0.005	—	—	—	—	—
0554-95-0453	54-01106	9.1–10.8	Qbt 2	—	—	—	—	—	—
0554-95-0457	54-01106	19.3–20.9	Qbt 2	—	—	—	—	—	—
0554-95-0461	54-01106	29.6–31.1	Qbt 2	—	—	—	—	—	—
0554-95-0465	54-01106	37.7–39.2	Qbt 2	—	—	—	—	—	—
0554-95-0469	54-01106	44.5–49.3	Qbt 1v	—	—	—	—	—	—
0554-95-0362	54-01107	11.2–13.4	Qbt 2	—	—	—	—	—	—
0554-95-0365	54-01107	19.7–21.5	Qbt 2	0.0338	—	—	—	—	—
0554-95-0368	54-01107	26–28	Qbt 2	0.0428	—	—	—	—	—
0554-95-0371	54-01107	36–38	Qbt 2	0.0428	—	—	—	—	—
0554-95-0374	54-01107	47–49	Qbt 2	—	—	—	—	—	—
0554-95-0377	54-01107	54–56	Qbt 2	0.018	—	—	—	—	—
0554-95-0380	54-01107	66.5–69	Qbt 1v	—	—	—	—	—	—
0554-95-0383	54-01107	77–79.5	Qbt 1v	—	—	—	—	—	—
0554-95-0386	54-01107	86–88.3	Qbt 1v	—	—	—	—	0.027	—
0554-95-0709	54-01107	127–128.5	Qbt 1g	—	—	—	—	—	—
0554-95-0473	54-01108	8.5–10.1	Qbt 2	—	—	—	—	—	—
0554-95-0477	54-01108	20.6–22.3	Qbt 2	—	—	—	—	—	—
0554-95-0481	54-01108	29.9–31.7	Qbt 2	—	—	—	—	—	—
0554-95-0485	54-01108	38.3–40	Qbt 2	—	—	—	—	—	—
0554-95-0489	54-01108	49.4–51	Qbt 1v	0.007	—	—	—	—	—
AAB2648	54-01110	75–77	Qbt 1v	—	—	—	—	—	0.1
AAB2683	54-01111	4–5.5	Qbt 2	—	0.21	—	—	—	—
AAB2675	54-01111	14.5–15.5	Qbt 2	—	—	0.62	—	—	—
AAB2685	54-01111	18.5–21	Qbt 2	—	—	—	—	—	—
AAB2669	54-01111	28–30.5	Qbt 2	—	—	0.51	—	—	—
AAB2667	54-01111	38–39.5	Qbt 2	—	—	0.32	—	—	—
AAB2677	54-01111	50–51.5	Qbt 1v	—	—	—	—	—	—

Table B-23b (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-137	Cobalt-60	Europium-152	Plutonium-238	Plutonium-239
Qbt 2,3,4 Background Value				**na**[a]	**na**	**na**	**na**	**na**	**na**
Qbt 1v Background Value				**na**	**na**	**na**	**na**	**na**	**na**
Qbt 1g, Qct, Qbo Background Value				**na**	**na**	**na**	**na**	**na**	**na**
Industrial SAL (pCi/g)				**1.403E+02**	**1.968E+01**	**4.378E+00**	**9.720E+00**	**1.764E+02**	**1.589E+02**
AAB2679	54-01111	60–61.5	Qbt 1v	—	—	—	—	—	—
AAB2671	54-01111	70.5–72.5	Qbt 1v	—	—	—	—	—	—
AAB2661	54-01111	79.5–81.5	Qbt 1v	—	—	—	—	—	—
AAB2663	54-01111	79.5–81.5	Qbt 1v	—	—	—	—	—	—
AAB2665	54-01111	89–90	Qbt 1g	—	1	0.39	—	—	—
0554-95-0712	54-01112	9–9.2	Qbt 2	—	—	—	—	—	—
0554-95-0715	54-01112	13.5–17.5	Qbt 2	—	—	—	—	—	—
0554-95-0716	54-01112	13.5–17.5	Qbt 2	—	—	—	1.54	—	—
0554-95-0718	54-01112	25.3–27.3	Qbt 2	0.006	—	—	—	—	—
0554-95-0721	54-01112	32.9–34.9	Qbt 2	—	—	—	—	—	—
0554-95-0724	54-01112	45.5–47.5	Qbt 1v	—	—	—	—	—	—
0554-95-0727	54-01112	48.5–50.5	Qbt 1v	—	—	—	1.92	—	—
0554-95-0730	54-01112	54.9–57.1	Qbt 1v	0.004	—	—	—	—	—
0554-95-0493	54-01114	8.8–10.3	Qbt 2	0.014	—	—	—	—	—
0554-95-0497	54-01114	18.7–20.2	Qbt 2	0.169	—	—	—	—	—
0554-95-0501	54-01114	26.5–28.7	Qbt 2	—	—	—	—	—	—
0554-95-0505	54-01114	38.5–40	Qbt 1v	0.013	—	—	—	—	—
0554-95-0510	54-01115	10–11.1	Qbt 2	—	—	—	—	—	—
0554-95-0515	54-01115	18.5–19.8	Qbt 2	0.013	—	—	—	—	—
0554-95-0520	54-01115	29.7–30.9	Qbt 2	—	—	—	—	—	—
0554-95-0525	54-01115	39.5–40.8	Qbt 1v	—	—	—	—	—	—
0554-95-0530	54-01115	50.1–51.2	Qbt 1v	—	—	—	—	—	—
0554-95-0535	54-01115	60.1–61.4	Qbt 1v	—	—	—	—	—	—
0554-95-0540	54-01115	68.0–69.3	Qbt 1v	—	—	—	—	—	—
0554-95-0655	54-01116	9–9.3	Qbt 2	0.007	—	—	—	—	—
0554-95-0658	54-01116	20.5–22.5	Qbt 2	—	—	—	—	—	—
0554-95-0661	54-01116	29.5–31.5	Qbt 2	0.009	—	—	—	—	—
0554-95-0664	54-01116	36.5–38.5	Qbt 2	—	—	—	—	—	—
0554-95-0667	54-01116	46.5–48.5	Qbt 1v	0.006	—	—	—	—	—
0554-95-0670	54-01116	57.5–59.5	Qbt 1v	—	—	—	—	—	—
0554-95-0673	54-01116	69.5–71.5	Qbt 1v	—	—	—	—	—	—
0554-95-0676	54-01116	77.5–79.5	Qbt 1v	0.006	—	—	—	—	—
0554-95-0679	54-01116	87.5–89.5	Qbt 1g	0.005	—	—	—	—	—
0554-95-0628	54-01117	9–9.5	Qbt 2	0.015	—	—	—	0.005	0.018
0554-95-0631	54-01117	20–22	Qbt 2	—	—	—	—	—	—
0554-95-0634	54-01117	30–32	Qbt 2	—	—	—	—	—	—
0554-95-0637	54-01117	36–38	Qbt 1v	—	—	—	—	—	—
0554-95-0640	54-01117	46–48	Qbt 1v	—	—	—	—	—	—
0554-95-0643	54-01117	56–58	Qbt 1v	—	—	—	—	—	—

Table B-23b (continued)

Sample ID	Location ID	Depth (ft)	Media	Americium-241	Cesium-137	Cobalt-60	Europium-152	Plutonium-238	Plutonium-239
Qbt 2,3,4 Background Value				**na**[a]	**na**	**na**	**na**	**na**	**na**
Qbt 1v Background Value				**na**	**na**	**na**	**na**	**na**	**na**
Qbt 1g, Qct, Qbo Background Value				**na**	**na**	**na**	**na**	**na**	**na**
Industrial SAL (pCi/g)				**1.403E+02**	**1.968E+01**	**4.378E+00**	**9.720E+00**	**1.764E+02**	**1.589E+02**
0554-95-0646	54-01117	67–69	Qbt 1v	—	—	—	—	—	—
0554-95-0649	54-01117	78–80	Qbt 1v	—	—	—	—	—	—
0554-95-0652	54-01117	86–88	Qbt 1g	0.01	—	—	—	—	—
0554-95-0609	54-01120	9.9–11.3	Qbt 2	—	—	—	—	—	—
0554-95-0613	54-01120	20.5–21.9	Qbt 2	—	—	—	—	—	—
0554-95-0617	54-01120	29.7–31.1	Qbt 2	—	—	—	—	—	—
0554-95-0621	54-01120	40.7–42.1	Qbt 1v	—	—	—	—	—	—
0554-95-0625	54-01120	48.1–49.5	Qbt 1v	—	—	—	—	—	—
0554-95-0782	54-01121	9–9.3	Qbt 2	—	—	—	—	—	0.01
0554-95-0792	54-01121	29–31	Qbt 1v	—	—	—	—	—	—
0554-95-0797	54-01121	39–41	Qbt 1v	—	—	—	—	—	—
0554-95-0802	54-01121	49–51	Qbt 1v	—	—	—	—	—	—
0554-95-0807	54-01121	58.5–61	Qbt 1v	—	—	—	0.78	—	—
0554-95-0733	54-01123	9–9.2	Qbt 2	—	—	—	—	—	—
0554-95-0737	54-01123	16.2–18	Qbt 2	—	—	—	—	—	—
0554-95-0741	54-01123	26.2–28	Qbt 2	—	—	—	—	—	—
0554-95-0745	54-01123	36–38	Qbt 1v	—	—	—	1.27	—	—
0554-95-0749	54-01123	46–48	Qbt 1v	—	—	—	—	—	—
0554-95-0753	54-01123	55.5–57.5	Qbt 1v	—	—	—	—	—	—
0554-95-0779	54-01123	92.5–97	Qbt 1v	—	—	—	—	—	—
0554-95-0564	54-01124	9–10	Qbt 2	—	—	—	—	—	—
0554-95-0569	54-01124	20.3–21.3	Qbt 2	0.005	—	—	—	—	—
0554-95-0574	54-01124	29.5–30.5	Qbt 1v	—	—	—	—	—	—
0554-95-0579	54-01124	37.3–38.3	Qbt 1v	—	—	—	—	—	—
0554-95-0846	54-01125	9–9.2	Qbt 2	0.013	—	—	—	—	0.024
0554-95-0861	54-01125	59–61	Qbt 1v	—	—	—	—	—	—
0554-95-0584	54-01126	9.3–10.3	Qbt 2	—	—	—	—	—	—
0554-95-0589	54-01126	18.5–19.8	Qbt 2	—	—	—	—	—	—
0554-95-0594	54-01126	28.8–29.8	Qbt 1v	0.012	—	—	—	—	—
0554-95-0599	54-01126	37.3–38.3	Qbt 1v	0.005	—	—	—	—	—
0554-95-0604	54-01126	47.3–48.3	Qbt 1v	—	—	—	—	—	—
0554-95-0544	54-01128	9–10	Qbt 2	—	—	—	—	—	—
0554-95-0549	54-01128	18.9–20	Qbt 2	0.026	—	—	—	—	—
0554-95-0554	54-01128	28–29	Qbt 1v	—	—	—	—	—	—
0554-95-0559	54-01128	39–40	Qbt 1v	—	—	—	—	—	—

Table B-23b (continued)

Sample ID	Location ID	Depth (ft)	Media	Strontium-90	Thorium-230	Tritium	Uranium-234	Uranium-235	Uranium-238
Qbt 2,3,4 Background Value				**na**	**1.98**	**na**	**1.98**	**0.09**	**1.93**
Qbt 1v Background Value				**na**	**3.12**	**na**	**3.12**	**0.14**	**3.05**
Qbt 1g, Qct, Qbo Background Value				**na**	**4**	**na**	**4**	**0.18**	**3.9**
Industrial SAL (pCi/g)				**1.615E+03**	**1.507E+01**	**1.514E+04**	**1.087E+03**	**7.309E+01**	**3.511E+02**
0554-95-0393	54-01102	19.9–20.9	Qbt 2	—	—	1.938743	—	—	—
0554-95-0396	54-01102	30.2–31.3	Qbt 2	—	—	0.1294589	—	—	—
0554-95-0399	54-01102	38.9–40.3	Qbt 2	—	—	8.606438E-02	—	0.11	—
0554-95-0402	54-01102	61.5–63	Qbt 1v	—	—	3.236603E-02	—	0.23	—
0554-95-0433	54-01105	8.8–10.6	Qbt 2	—	—	6.203144E-02	—	—	—
0554-95-0437	54-01105	17.7–19.3	Qbt 2	—	—	0.628291	—	—	—
0554-95-0441	54-01105	27.9–29.7	Qbt 2	—	—	0.8405954	—	0.1	—
0554-95-0445	54-01105	37.8–39.6	Qbt 2	—	—	0.1209776	—	—	—
0554-95-0449	54-01105	45.4–47.3	Qbt 2	—	—	2.558376E-02	—	—	—
0554-95-0453	54-01106	9.1–10.8	Qbt 2	—	—	0.253097	—	—	—
0554-95-0457	54-01106	19.3–20.9	Qbt 2	—	—	5.452775	—	—	—
0554-95-0461	54-01106	29.6–31.1	Qbt 2	—	—	103.5729	—	—	—
0554-95-0465	54-01106	37.7–39.2	Qbt 2	—	—	83.26047	—	—	—
0554-95-0469	54-01106	44.5–49.3	Qbt 1v	—	—	0.325773	—	—	—
0554-95-0362	54-01107	11.2–13.4	Qbt 2	—	—	1.298701	—	—	—
0554-95-0365	54-01107	19.7–21.5	Qbt 2	—	—	0.9832879	—	—	—
0554-95-0368	54-01107	26–28	Qbt 2	—	—	1.637998	—	—	—
0554-95-0371	54-01107	36–38	Qbt 2	—	—	2.175816	—	—	—
0554-95-0374	54-01107	47–49	Qbt 2	—	—	17.72893	—	—	—
0554-95-0377	54-01107	54–56	Qbt 2	—	—	973.416	—	—	—
0554-95-0380	54-01107	66.5–69	Qbt 1v	—	—	61.01235	—	—	—
0554-95-0383	54-01107	77–79.5	Qbt 1v	—	—	2.145473	—	—	—
0554-95-0386	54-01107	86–88.3	Qbt 1v	0.62	—	4.709307	—	—	—
0554-95-0709	54-01107	127–128.5	Qbt 1g	—	—	0.962199	—	—	—
0554-95-0473	54-01108	8.5–10.1	Qbt 2	—	—	0.2901379	—	—	—
0554-95-0477	54-01108	20.6–22.3	Qbt 2	—	—	0.8613467	—	—	—
0554-95-0481	54-01108	29.9–31.7	Qbt 2	—	—	1.763495	—	—	—
0554-95-0485	54-01108	38.3–40	Qbt 2	—	—	8.566834	—	—	—
0554-95-0489	54-01108	49.4–51	Qbt 1v	—	—	3.192516	—	—	—
AAB2648	54-01110	75–77	Qbt 1v	—	—	—	—	—	—
AAB2683	54-01111	4–5.5	Qbt 2	—	—	—	—	—	—
AAB2675	54-01111	14.5–15.5	Qbt 2	—	—	—	—	0.2	—
AAB2685	54-01111	18.5–21	Qbt 2	—	—	—	—	—	—
AAB2669	54-01111	28–30.5	Qbt 2	—	—	—	—	0.17	—
AAB2667	54-01111	38–39.5	Qbt 2	—	2.26	—	2.57	0.2	2.75
AAB2677	54-01111	50–51.5	Qbt 1v	0.4 (J)	—	—	—	0.21	—
AAB2679	54-01111	60–61.5	Qbt 1v	—	—	—	—	—	—
AAB2671	54-01111	70.5–72.5	Qbt 1v	—	—	—	—	—	—
AAB2661	54-01111	79.5–81.5	Qbt 1v	—	—	—	—	—	—

Table B-23b (continued)

Sample ID	Location ID	Depth (ft)	Media	Strontium-90	Thorium-230	Tritium	Uranium-234	Uranium-235	Uranium-238
Qbt 2,3,4 Background Value				**na**	**1.98**	**na**	**1.98**	**0.09**	**1.93**
Qbt 1v Background Value				**na**	**3.12**	**na**	**3.12**	**0.14**	**3.05**
Qbt 1g, Qct, Qbo Background Value				**na**	**4**	**na**	**4**	**0.18**	**3.9**
Industrial SAL (pCi/g)				**1.615E+03**	**1.507E+01**	**1.514E+04**	**1.087E+03**	**7.309E+01**	**3.511E+02**
AAB2663	54-01111	79.5–81.5	Qbt 1v	—	—	—	—	0.36	—
AAB2665	54-01111	89–90	Qbt 1g	—	—	—	—	0.21	—
0554-95-0712	54-01112	9–9.2	Qbt 2	—	—	2.013757	—	—	—
0554-95-0715	54-01112	13.5–17.5	Qbt 2	—	—	3.447367	—	—	—
0554-95-0716	54-01112	13.5–17.5	Qbt 2	—	—	3.566815	—	—	—
0554-95-0718	54-01112	25.3–27.3	Qbt 2	—	—	12.03517	—	—	—
0554-95-0721	54-01112	32.9–34.9	Qbt 2	—	—	26.99579	—	—	—
0554-95-0724	54-01112	45.5–47.5	Qbt 1v	—	—	231.7149	—	—	—
0554-95-0727	54-01112	48.5–50.5	Qbt 1v	—	—	500.8719	—	—	—
0554-95-0730	54-01112	54.9–57.1	Qbt 1v	—	—	1082.877	—	—	—
0554-95-0493	54-01114	8.8–10.3	Qbt 2	—	—	0.5493319	—	—	—
0554-95-0497	54-01114	18.7–20.2	Qbt 2	—	—	1.024093	—	—	—
0554-95-0501	54-01114	26.5–28.7	Qbt 2	—	—	10.14241	—	—	—
0554-95-0505	54-01114	38.5–40	Qbt 1v	—	—	20.80119	—	—	—
0554-95-0510	54-01115	10–11.1	Qbt 2	—	—	0.830065	—	—	—
0554-95-0515	54-01115	18.5–19.8	Qbt 2	—	—	1.663689	—	—	—
0554-95-0520	54-01115	29.7–30.9	Qbt 2	—	—	0.572884	—	—	—
0554-95-0525	54-01115	39.5–40.8	Qbt 1v	—	—	24.4561	—	—	—
0554-95-0530	54-01115	50.1–51.2	Qbt 1v	—	—	0.7955704	—	—	—
0554-95-0535	54-01115	60.1–61.4	Qbt 1v	—	3.16	0.1120686	—	—	—
0554-95-0540	54-01115	68.0–69.3	Qbt 1v	—	—	0.0914083	—	—	—
0554-95-0655	54-01116	9–9.3	Qbt 2	—	—	90.63394	—	—	—
0554-95-0658	54-01116	20.5–22.5	Qbt 2	—	—	391.6178	—	—	—
0554-95-0661	54-01116	29.5–31.5	Qbt 2	—	—	521.0103	—	—	—
0554-95-0664	54-01116	36.5–38.5	Qbt 2	—	—	96.25675	—	—	—
0554-95-0667	54-01116	46.5–48.5	Qbt 1v	—	—	48.94558	—	—	—
0554-95-0670	54-01116	57.5–59.5	Qbt 1v	—	—	38.99498	—	—	—
0554-95-0673	54-01116	69.5–71.5	Qbt 1v	—	—	50.06168	—	—	—
0554-95-0676	54-01116	77.5–79.5	Qbt 1v	—	—	54.7623	—	—	—
0554-95-0679	54-01116	87.5–89.5	Qbt 1g	—	—	7.475635	—	—	—
0554-95-0628	54-01117	9–9.5	Qbt 2	—	—	4537.668	—	—	—
0554-95-0631	54-01117	20–22	Qbt 2	—	—	7174.737	—	—	—
0554-95-0634	54-01117	30–32	Qbt 2	—	—	2992.381	—	—	—
0554-95-0637	54-01117	36–38	Qbt 1v	—	—	2014.142	—	—	—
0554-95-0640	54-01117	46–48	Qbt 1v	—	—	558.1818	—	—	—
0554-95-0643	54-01117	56–58	Qbt 1v	—	—	968.309	—	—	—
0554-95-0646	54-01117	67–69	Qbt 1v	—	—	670.6476	—	—	—
0554-95-0649	54-01117	78–80	Qbt 1v	—	—	206.6366	—	—	—
0554-95-0652	54-01117	86–88	Qbt 1g	—	—	15.37481	—	—	—

Table B-23b (continued)

Sample ID	Location ID	Depth (ft)	Media	Strontium-90	Thorium-230	Tritium	Uranium-234	Uranium-235	Uranium-238
Qbt 2,3,4 Background Value				**na**	**1.98**	**na**	**1.98**	**0.09**	**1.93**
Qbt 1v Background Value				**na**	**3.12**	**na**	**3.12**	**0.14**	**3.05**
Qbt 1g, Qct, Qbo Background Value				**na**	**4**	**na**	**4**	**0.18**	**3.9**
Industrial SAL (pCi/g)				**1.615E+03**	**1.507E+01**	**1.514E+04**	**1.087E+03**	**7.309E+01**	**3.511E+02**
0554-95-0609	54-01120	9.9–11.3	Qbt 2	—	—	75.13757	—	—	—
0554-95-0613	54-01120	20.5–21.9	Qbt 2	—	—	3289.391	—	—	—
0554-95-0617	54-01120	29.7–31.1	Qbt 2	—	—	13958.69	—	—	—
0554-95-0621	54-01120	40.7–42.1	Qbt 1v	—	—	13290.06	—	—	—
0554-95-0625	54-01120	48.1–49.5	Qbt 1v	—	—	1581.736	—	—	—
0554-95-0782	54-01121	9–9.3	Qbt 2	—	—	—	—	—	—
0554-95-0792	54-01121	29–31	Qbt 1v	—	—	0.3517428	—	—	—
0554-95-0797	54-01121	39–41	Qbt 1v	—	—	2.144709	—	—	—
0554-95-0802	54-01121	49–51	Qbt 1v	—	—	1.111591	—	—	—
0554-95-0807	54-01121	58.5–61	Qbt 1v	—	—	0.4186273	—	—	—
0554-95-0733	54-01123	9–9.2	Qbt 2	—	—	0.5863512	—	—	—
0554-95-0737	54-01123	16.2–18	Qbt 2	—	—	3.676294	—	—	—
0554-95-0741	54-01123	26.2–28	Qbt 2	—	—	1.165195	—	—	—
0554-95-0745	54-01123	36–38	Qbt 1v	—	—	0.0933876	—	—	—
0554-95-0749	54-01123	46–48	Qbt 1v	—	—	5.771662E-02	—	—	—
0554-95-0753	54-01123	55.5–57.5	Qbt 1v	—	—	0.0921519	—	—	—
0554-95-0779	54-01123	92.5–97	Qbt 1v	—	—	6.021882E-02	—	—	—
0554-95-0564	54-01124	9–10	Qbt 2	—	—	0.3332415	—	—	—
0554-95-0569	54-01124	20.3–21.3	Qbt 2	—	—	0.4135135	—	—	—
0554-95-0574	54-01124	29.5–30.5	Qbt 1v	—	—	0.5989743	—	—	—
0554-95-0579	54-01124	37.3–38.3	Qbt 1v	—	—	0.1858207	—	—	—
0554-95-0846	54-01125	9–9.2	Qbt 2	—	—	8.187273	—	—	—
0554-95-0861	54-01125	59–61	Qbt 1v	—	—	0.8776417	—	—	—
0554-95-0584	54-01126	9.3–10.3	Qbt 2	—	—	2.11982	—	—	—
0554-95-0589	54-01126	18.5–19.8	Qbt 2	—	—	65.99837	—	—	—
0554-95-0594	54-01126	28.8–29.8	Qbt 1v	—	—	3876.857	—	—	—
0554-95-0599	54-01126	37.3–38.3	Qbt 1v	—	—	77.54217	—	—	—
0554-95-0604	54-01126	47.3–48.3	Qbt 1v	—	—	48.65787	—	—	—
0554-95-0544	54-01128	9–10	Qbt 2	—	—	2.160635	—	—	—
0554-95-0549	54-01128	18.9–20	Qbt 2	—	—	4.293469	—	—	—
0554-95-0554	54-01128	28–29	Qbt 1v	—	—	43.98966	—	—	—
0554-95-0559	54-01128	39–40	Qbt 1v	—	—	164.8245	—	—	—

[a] na = No BV available.

[b] — = Not detected above BV.

Table B-24a
Frequency of Detected Organic Chemicals in MDA G Phase I RFI Subsurface Core Samples

Analyte	Geologic Unit	Number of Analyses	Number of Detects	Concentration Range* (mg/kg)	EQLs (mg/kg)	Frequency of Detects
Acetone	Qbt 2	68	6	[0.005 to 1.3]	0.01	6/68
Acetone	Qbt 1g	7	1	[0.008] to 0.039	0.01	1/7
Acetone	Qbt 1v	49	10	[0.003] to 0.059	0.01	10/49
Aldrin	Qbt 2	63	1	[0.0017 to 0.0036]	0.0017	1/63
Aroclor-1254	Qbt 1v	49	1	[0.031] to 0.12	0.033	1/49
Benzene	Qbt 2	68	1	0.003 to [0.007]	0.005	1/68
Benzo(a)pyrene	Qbt 1v	48	1	[0.16 to 0.67]	0.33	1/48
Benzo(g,h,i)perylene	Qbt 1v	48	2	[0.16] to 1.2	0.33	2/48
Bis(2-ethylhexyl)phthalate	Qbt 2	68	5	0.046 to [1.9]	0.33	5/68
Bis(2-ethylhexyl)phthalate	Qbt 1g	7	1	0.041 to [0.35]	0.33	1/7
Bis(2-ethylhexyl)phthalate	Qbt 1v	48	1	[0.079] to 4	0.33	1/48
Butanone[2-]	Qbt 2	68	2	[0.003] to 7.2	0.33	2/68
Butylbenzylphthalate	Qbt 1v	48	1	6.5E-02 to [0.69]	0.33	1/48
Chlordane[gamma-]	Qbt 2	63	1	[0.0017 to 0.0036]	0.0017	1/63
Di-n-butylphthalate	Qbt 1g	7	1	0.035 to [0.35]	0.33	1/7
Di-n-octylphthalate	Qbt 1v	48	1	0.081 to [0.69]	0.33	1/48
Ethylbenzene	Qbt 2	68	1	0.002 to [0.007]	0.005	1/68
Heptachlor Epoxide	Qbt 2	63	1	[0.0017 to 0.0036]	0.0017	1/63
Methylene Chloride	Qbt 2	68	4	0.001 to [0.011]	0.01	4/68
Methylnaphthalene[2-]	Qbt 2	68	1	0.049 to [0.46]	0.33	1/68
Naphthalene	Qbt 2	80	3	0.002 to [0.46]	0.33	3/80
Naphthalene	Qbt 1v	63	2	0.002 to [0.69]	0.33	2/63
Pyrene	Qbt 1v	48	1	0.15 to [0.67]	0.33	1/48
Tetrachloroethene	Qbt 2	68	2	0.0012 to [0.007]	0.005	2/68
Tetrachloroethene	Qbt 1v	49	1	0.0024 to [0.006]	0.005	1/49
Toluene	Qbt 2	68	1	[0.005] to 0.013	0.005	1/68
Toluene	Qbt 1v	49	1	0.001 to [0.006]	0.005	1/49
Trimethylbenzene[1,2,4-]	Qbt 2	68	1	0.003 to [0.007]	0.005	1/68
Xylene (Total)	Qbt 2	64	1	[0.005] to 0.008	0.005	1/64

*Square brackets indicate detection limits for nondetects.

Table B-24b
Organic Chemicals Detected in MDA G Phase I RFI Subsurface Core Samples

Sample ID	Location ID	Depth (ft)	Media	Acetone	Aldrin	Aroclor-1254	Benzene	Benzo(a)pyrene
Industrial Soil Screening Level (mg/kg)				**1.00E+05**	**1.12E+00**	**8.26E+00**	**7.36E+01**	**2.34E+00**
0554-95-0390	54-01102	8.7–10.1	Qbt 2	—*	—	—	—	—
0554-95-0393	54-01102	19.9–20.9	Qbt 2	—	—	—	—	—
0554-95-0362	54-01107	11.2–13.4	Qbt 2	—	—	—	—	—
0554-95-0368	54-01107	26–28	Qbt 2	—	—	—	—	—
0554-95-0709	54-01107	127–128.5	Qbt 1g	—	—	—	—	—
AAB2638	54-01110	6–7.5	Qbt 2	0.04	—	—	—	—
AAB2640	54-01110	16.5–17.5	Qbt 2	—	0.00311	—	—	—
AAB2656	54-01110	36.5–37.5	Qbt 2	0.023	—	—	—	—
AAB2679	54-01111	60–61.5	Qbt 1v	0.054	—	—	—	—
AAB2661	54-01111	79.5–81.5	Qbt 1v	0.03	—	—	—	—
AAB2722	54-01111	108–110	Qbt 1g	0.039	—	—	—	—
0554-95-0712	54-01112	9–9.2	Qbt 2	—	—	—	—	—
0554-95-0718	54-01112	25.3–27.3	Qbt 2	—	—	—	—	—
0554-95-0721	54-01112	32.9–34.9	Qbt 2	—	—	—	—	—
0554-95-0724	54-01112	45.5–47.5	Qbt 1v	—	—	—	—	—
0554-95-0727	54-01112	48.5–50.5	Qbt 1v	—	—	—	—	—
0554-95-0493	54-01114	8.8–10.3	Qbt 2	—	—	—	0.003 (J)	—
0554-95-0676	54-01116	77.5–79.5	Qbt 1v	9.0E-03 (J)	—	—	—	—
0554-95-0628	54-01117	9–9.5	Qbt 2	—	—	—	—	—
0554-95-0631	54-01117	20–22	Qbt 2	—	—	—	—	—
0554-95-0617	54-01120	29.7–31.1	Qbt 2	—	—	—	—	—
0554-95-0625	54-01120	48.1–49.5	Qbt 1v	—	—	—	—	—
0554-95-0782	54-01121	9–9.3	Qbt 2	0.028	—	—	—	—
0554-95-0787	54-01121	19–21	Qbt 2	0.027	—	—	—	—
0554-95-0792	54-01121	29–31	Qbt 1v	0.024	—	—	—	—
0554-95-0797	54-01121	39–41	Qbt 1v	0.016 (J)	—	—	—	—
0554-95-0802	54-01121	49–51	Qbt 1v	0.011 (J)	—	—	—	—
0554-95-0807	54-01121	58.5–61	Qbt 1v	0.059	—	—	—	—
0554-95-0564	54-01124	9–10	Qbt 2	0.03	—	—	—	—
0554-95-0574	54-01124	29.5–30.5	Qbt 1v	—	—	0.12 (J-)	—	—
0554-95-0599	54-01126	37.3–38.3	Qbt 1v	0.006 (J)	—	—	—	0.23 (J)
0554-95-0604	54-01126	47.3–48.3	Qbt 1v	0.007 (J)	—	—	—	—
0554-95-0549	54-01128	18.9–20	Qbt 2	0.032	—	—	—	—
0554-95-0559	54-01128	39–40	Qbt 1v	0.032	—	—	—	—

Table B-24b (continued)

Sample ID	Location ID	Depth (ft)	Media	Benzo(g,h,i)perylene	Bis(2-ethylhexyl)phthalate	2-Butanone	Butylbenzylphthalate	gamma-Chlordane
Industrial Soil Screening Level (mg/kg)				**3.13E+04**	**1.37E+03**	**2.10E+03**	**2.4E+02**	**7.19E+01**
0554-95-0390	54-01102	8.7–10.1	Qbt 2	—	0.19 (J)	—	—	—
0554-95-0393	54-01102	19.9–20.9	Qbt 2	—	0.11 (J)	—	—	—
0554-95-0362	54-01107	11.2–13.4	Qbt 2	—	—	—	—	—
0554-95-0368	54-01107	26–28	Qbt 2	—	—	—	—	—
0554-95-0709	54-01107	127–128.5	Qbt 1g	—	0.041 (J)	—	—	—
AAB2638	54-01110	6–7.5	Qbt 2	—	—	—	—	—
AAB2640	54-01110	16.5–17.5	Qbt 2	—	—	—	—	0.00202
AAB2656	54-01110	36.5–37.5	Qbt 2	—	—	—	—	—
AAB2679	54-01111	60–61.5	Qbt 1v	—	—	—	—	—
AAB2661	54-01111	79.5–81.5	Qbt 1v	—	—	—	—	—
AAB2722	54-01111	108–110	Qbt 1g	—	—	—	—	—
0554-95-0712	54-01112	9–9.2	Qbt 2	—	0.21 (J)	—	—	—
0554-95-0718	54-01112	25.3–27.3	Qbt 2	—	—	3.8	—	—
0554-95-0721	54-01112	32.9–34.9	Qbt 2	—	—	7.2	—	—
0554-95-0724	54-01112	45.5–47.5	Qbt 1v	—	—	—	—	—
0554-95-0727	54-01112	48.5–50.5	Qbt 1v	—	—	—	—	—
0554-95-0493	54-01114	8.8–10.3	Qbt 2	—	—	—	—	—
0554-95-0676	54-01116	77.5–79.5	Qbt 1v	—	—	—	—	—
0554-95-0628	54-01117	9–9.5	Qbt 2	—	0.1 (J)	—	—	—
0554-95-0631	54-01117	20–22	Qbt 2	—	0.046 (J)	—	—	—
0554-95-0617	54-01120	29.7–31.1	Qbt 2	—	—	—	—	—
0554-95-0625	54-01120	48.1–49.5	Qbt 1v	—	—	—	6.50E-02 (J)	—
0554-95-0782	54-01121	9–9.3	Qbt 2	—	—	—	—	—
0554-95-0787	54-01121	19–21	Qbt 2	—	—	—	—	—
0554-95-0792	54-01121	29–31	Qbt 1v	—	—	—	—	—
0554-95-0797	54-01121	39–41	Qbt 1v	—	—	—	—	—
0554-95-0802	54-01121	49–51	Qbt 1v	—	—	—	—	—
0554-95-0807	54-01121	58.5–61	Qbt 1v	—	—	—	—	—
0554-95-0564	54-01124	9–10	Qbt 2	—	—	—	—	—
0554-95-0574	54-01124	29.5–30.5	Qbt 1v	—	—	—	—	—
0554-95-0599	54-01126	37.3–38.3	Qbt 1v	1.2	4	—	—	—
0554-95-0604	54-01126	47.3–48.3	Qbt 1v	0.48 (J)	—	—	—	—
0554-95-0549	54-01128	18.9–20	Qbt 2	—	—	—	—	—
0554-95-0559	54-01128	39–40	Qbt 1v	—	—	—	—	—

Table B-24b (continued)

Sample ID	Location ID	Depth (ft)	Media	Di-n-butylphthalate	Di-n-octylphthalate	Ethylbenzene	Heptachlor Epoxide	Methylene Chloride	2-Methylnaphthalene
Industrial Soil Screening Level (mg/kg)				**6.84E+04**	**2.7E+04**	**2.54E+04**	**2.1E-01**	**4.40E+02**	**9.83E+01**
0554-95-0390	54-01102	8.7–10.1	Qbt 2	—	—	—	—	—	—
0554-95-0393	54-01102	19.9–20.9	Qbt 2	—	—	—	—	—	—
0554-95-0362	54-01107	11.2–13.4	Qbt 2	—	—	—	—	0.0077	—
0554-95-0368	54-01107	26–28	Qbt 2	—	—	—	—	0.0065	—
0554-95-0709	54-01107	127–128.5	Qbt 1g	0.035 (J)	—	—	—	—	—
AAB2638	54-01110	6–7.5	Qbt 2	—	—	—	—	—	—
AAB2640	54-01110	16.5–17.5	Qbt 2	—	—	—	0.003	—	—
AAB2656	54-01110	36.5–37.5	Qbt 2	—	—	—	—	—	—
AAB2679	54-01111	60–61.5	Qbt 1v	—	—	—	—	—	—
AAB2661	54-01111	79.5–81.5	Qbt 1v	—	—	—	—	—	—
AAB2722	54-01111	108–110	Qbt 1g	—	—	—	—	—	—
0554-95-0712	54-01112	9–9.2	Qbt 2	—	—	—	—	0.001 (J)	—
0554-95-0718	54-01112	25.3–27.3	Qbt 2	—	—	—	—	—	—
0554-95-0721	54-01112	32.9–34.9	Qbt 2	—	—	—	—	—	—
0554-95-0724	54-01112	45.5–47.5	Qbt 1v	—	—	—	—	—	—
0554-95-0727	54-01112	48.5–50.5	Qbt 1v	—	—	—	—	—	—
0554-95-0493	54-01114	8.8–10.3	Qbt 2	—	—	0.002 (J)	—	—	—
0554-95-0676	54-01116	77.5–79.5	Qbt 1v	—	—	—	—	—	—
0554-95-0628	54-01117	9–9.5	Qbt 2	—	—	—	—	—	—
0554-95-0631	54-01117	20–22	Qbt 2	—	—	—	—	—	—
0554-95-0617	54-01120	29.7–31.1	Qbt 2	—	—	—	—	—	0.049 (J)
0554-95-0625	54-01120	48.1–49.5	Qbt 1v	—	0.081 (J)	—	—	—	—
0554-95-0782	54-01121	9–9.3	Qbt 2	—	—	—	—	0.0012 (J)	—
0554-95-0787	54-01121	19–21	Qbt 2	—	—	—	—	—	—
0554-95-0792	54-01121	29–31	Qbt 1v	—	—	—	—	—	—
0554-95-0797	54-01121	39–41	Qbt 1v	—	—	—	—	—	—
0554-95-0802	54-01121	49–51	Qbt 1v	—	—	—	—	—	—
0554-95-0807	54-01121	58.5–61	Qbt 1v	—	—	—	—	—	—
0554-95-0564	54-01124	9–10	Qbt 2	—	—	—	—	—	—
0554-95-0574	54-01124	29.5–30.5	Qbt 1v	—	—	—	—	—	—
0554-95-0599	54-01126	37.3–38.3	Qbt 1v	—	—	—	—	—	—
0554-95-0604	54-01126	47.3–48.3	Qbt 1v	—	—	—	—	—	—
0554-95-0549	54-01128	18.9–20	Qbt 2	—	—	—	—	—	—
0554-95-0559	54-01128	39–40	Qbt 1v	—	—	—	—	—	—

Table B-24b (continued)

Sample ID	Location ID	Depth (ft)	Media	Naphthalene	Pyrene	Tetrachloroethene	Toluene	1,2,4-Trimethylbenzene	Xylene (Total)
Industrial Soil Screening Level (mg/kg)				**9.83E+01**	**3.13E+04**	**2.46E+01**	**2.48E+02**	**1.91E+02**	**1.32E+02**
0554-95-0390	54-01102	8.7–10.1	Qbt 2	0.002 (J)	—	—	—	—	—
0554-95-0393	54-01102	19.9–20.9	Qbt 2	—	—	—	—	—	—
0554-95-0362	54-01107	11.2–13.4	Qbt 2	—	—	—	—	—	—
0554-95-0368	54-01107	26–28	Qbt 2	—	—	—	—	—	—
0554-95-0709	54-01107	127–128.5	Qbt 1g	—	—	—	—	—	—
AAB2638	54-01110	6–7.5	Qbt 2	—	—	—	—	—	—
AAB2640	54-01110	16.5–17.5	Qbt 2	—	—	—	—	—	—
AAB2656	54-01110	36.5–37.5	Qbt 2	—	—	—	—	—	—
AAB2679	54-01111	60–61.5	Qbt 1v	—	—	—	—	—	—
AAB2661	54-01111	79.5–81.5	Qbt 1v	—	—	—	—	—	—
AAB2722	54-01111	108–110	Qbt 1g	—	—	—	—	—	—
0554-95-0712	54-01112	9–9.2	Qbt 2	—	—	0.003 (J)	—	—	—
0554-95-0718	54-01112	25.3–27.3	Qbt 2	—	—	—	—	—	—
0554-95-0721	54-01112	32.9–34.9	Qbt 2	—	—	—	—	—	—
0554-95-0724	54-01112	45.5–47.5	Qbt 1v	0.003 (J)	—	—	—	—	—
0554-95-0727	54-01112	48.5–50.5	Qbt 1v	0.002 (J)	—	—	—	—	—
0554-95-0493	54-01114	8.8–10.3	Qbt 2	0.003 (J)	—	—	0.013	0.003 (J)	0.008
0554-95-0676	54-01116	77.5–79.5	Qbt 1v	—	—	—	—	—	—
0554-95-0628	54-01117	9–9.5	Qbt 2	—	—	—	—	—	—
0554-95-0631	54-01117	20–22	Qbt 2	—	—	—	—	—	—
0554-95-0617	54-01120	29.7–31.1	Qbt 2	0.07 (J)	—	—	—	—	—
0554-95-0625	54-01120	48.1–49.5	Qbt 1v	—	—	—	—	—	—
0554-95-0782	54-01121	9–9.3	Qbt 2	—	—	0.0012 (J)	—	—	—
0554-95-0787	54-01121	19–21	Qbt 2	—	—	—	—	—	—
0554-95-0792	54-01121	29–31	Qbt 1v	—	—	0.0024 (J)	—	—	—
0554-95-0797	54-01121	39–41	Qbt 1v	—	—	—	—	—	—
0554-95-0802	54-01121	49–51	Qbt 1v	—	—	—	—	—	—
0554-95-0807	54-01121	58.5–61	Qbt 1v	—	—	—	—	—	—
0554-95-0564	54-01124	9–10	Qbt 2	—	—	—	—	—	—
0554-95-0574	54-01124	29.5–30.5	Qbt 1v	—	—	—	—	—	—
0554-95-0599	54-01126	37.3–38.3	Qbt 1v	—	0.15 (J)	—	—	—	—
0554-95-0604	54-01126	47.3–48.3	Qbt 1v	—	—	—	0.001 (J)	—	—
0554-95-0549	54-01128	18.9–20	Qbt 2	—	—	—	—	—	—
0554-95-0559	54-01128	39–40	Qbt 1v	—	—	—	—	—	—

*— = Not detected.

Table B-25
Summary of Data Review

Analyte	Medium	Retained as COPC?	Rationale	Appendix Tables
Inorganic chemicals (except for the following)	Sediment	No	Inorganic chemical data either less than the BVs or not different from background data sets	C-4
Beryllium	Sediment	Yes	Elevated DLs > BV	
Cadmium	Sediment	Yes	Statistically different from background data set	
Cobalt	Sediment	Yes	Elevated DLs > BV	
Mercury	Sediment	Yes	Elevated DLs > BV	
Selenium	Sediment	Yes	Elevated DLs > BV	
Silver	Sediment	Yes	Elevated DLs > BV	
Inorganic chemicals (except for the following)	Tuff	No	Inorganic chemical data either less than the BVs or not different from background data sets	C-1
Antimony	Tuff	Yes	Statistically different from background data set	
Cadmium	Tuff	Yes	Elevated DLs>BV	
Cyanide	Tuff	Yes	Detected in 9 samples; no BV available	
Mercury	Tuff	Yes	Detected above BV	
Molybdenum	Tuff	Yes	Detected in 3 samples; no BV available	
Selenium	Tuff	Yes	Elevated DLs > BV	
Silver	Tuff	Yes	Elevated DLs > BV	
Thallium	Tuff	Yes	Elevated DLs> BV	
Vanadium	Tuff	Yes	Graphical analysis indicates different from background data set	
Radionuclides (except for the following)	Sediment	No	Radiological data either less than the BVs, not detected, or not statistically different from background data set	B-12, B-13 C-6
Tritium	Ambient air	Yes	Tritium was detected in ambient air	
	Sediment	Yes	Statistically different from BV	
	Pore gas	Yes	Tritium was detected in pore gas	
Americium-241	Sediment	Yes	Statistically different from BV	
Cobalt-60	Sediment	Yes	Detected in 3 samples; no background data available	
Plutonium-238	Sediment	Yes	Statistically different from BV	
Plutonium-239	Sediment	Yes	Statistically different from BV	

Table B-25 (continued)

Analyte	Medium	Retained as COPC?	Rationale	Appendix Tables
Radionuclides (except for the following)	Tuff	No	Not detected in tuff	C-3
Americium-241	Tuff	Yes	Detected in 25 samples; no applicable BV	
Cesium-137	Tuff	Yes	Detected in 2 samples; no applicable BV	
Cobalt-60	Tuff	Yes	Detected in 4 samples; no applicable BV	
Europium-152	Tuff	Yes	Detected in 4 samples; no applicable BV	
Plutonium-238	Tuff	Yes	Detected in 2 samples; no applicable BV	
Plutonium-239	Tuff	Yes	Detected in 4 samples; no applicable BV	
Strontium-90	Tuff	Yes	Detected in 2 samples; no applicable BV	
Thorium-230	Tuff	Yes	Detected in 2 samples above BV	
Tritium	Tuff	Yes	Detected in 97 samples; no applicable BV	
Uranium-234	Tuff	Yes	Detected in 1 sample above BV	
Uranium-235	Tuff	Yes	Detected in 9 samples above BV	
Uranium-238	Tuff	Yes	Detected in 1 sample above BV	
Organic chemicals	All media			C-2 C-7 B-10, B-11
VOCs	Tuff	Yes	Detected in the medium	
	Ambient air	Yes	Detected in the medium	
	Pore gas	Yes	Detected in the medium	
SVOCs	Tuff	Yes	Detected and extent defined	
Pesticides (except for the following)	Tuff	No	Not detected	C-2 C-5
Aldrin	Tuff	Yes	Detected in 1 tuff sample	
Chlordane gamma	Tuff	Yes	Detected in 1 tuff sample	
Heptachlor epoxide	Tuff	Yes	Detected in 1 tuff sample	
Methoxychlor	Tuff	No	Not detected	
	Sediment	Yes	Detected in 13 sediment samples	
PCBs				
Aroclor-1254	Tuff	Yes	Detected and extent defined	C-2