



U.S. Department of Energy

Livermore Site Office, Livermore, California 94550

Lawrence Livermore National Laboratory



University of California, Livermore, California 94550

UCRL-AR-201835

**Interim Remedial Design
for the
Building 850 Subarea at
Lawrence Livermore National Laboratory
Site 300**

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August 2004

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Environmental Protection Department

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This work was performed under the auspices of the U.S. Department of Energy by the University of California, Lawrence Livermore National Laboratory under Contract W-7405-Eng-48.

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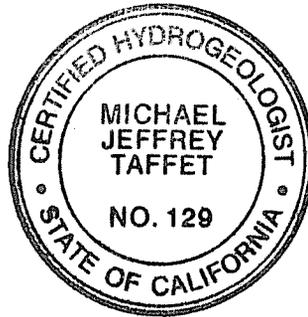
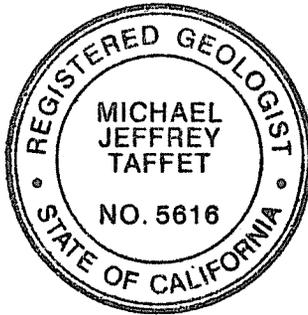
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Certification

I certify that the work presented in this report was performed under my supervision. To the best of my knowledge, the data contained herein are true and accurate, and the work was performed in accordance with professional standards.



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Acknowledgments

The Site 300 Environmental Restoration Project is supported by a number of people who contribute significantly to this effort. The authors and technical editors are pleased to recognize the efforts of the following people and services:

S. Baker, H. Barnes, BC Laboratories, Inc., M. Buscheck, D. Burruss, Caltest Analytical Laboratory, S. Chamberlain, L. Cohan, R. Davis, K. Ehman, Eberline Laboratories, General Engineering Laboratories, B. Goodrich, D. Graves, L. Graves, L. Griffith, J. Johnson, R. Kearns, S. Lambaren, LLNL CES, W. McConihe, G. Metzger, N. Montez, S. Orloff, J. Poulter, G. Santucci, Sequoia Analytical, S. Szechenyi, E. Walter, and C. Wells.

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Executive Summary

The U.S. Department of Energy (DOE) and Lawrence Livermore National Laboratory (LLNL) have prepared this Remedial Design report for the Building 850 subarea of the Building 850/Pits 3 and 5 Operable Unit at Site 300. LLNL Site 300 is a DOE-owned experimental test facility operated by the University of California.

A remedial action for the Building 850 subarea was selected in the Interim Site-Wide Record of Decision for LLNL Site 300 (DOE, 2001). This Remedial Design report summarizes the site history, geology, hydrogeology, nature and extent of contamination, human health and ecological risk assessment, and previous remediation activities, and presents the planned remedial design for the Building 850 area. In addition, it presents a Remedial Action Work Plan for the selected remedy. All necessary institutional controls for the planned remedial designs are described in the Risk and Hazard Management Program, included in the Compliance Monitoring Plan for Interim Remedies (Ferry et al., 2002).

From 1960 to the present, explosives tests at the Building 850 firing table released hazardous chemicals and radionuclides to the environment. Contaminants of concern include:

- Surface soil: Polychlorinated biphenyls (PCBs), dioxins, furans, depleted uranium, beryllium, HMX, and metals.
- Subsurface soil: Tritium and uranium.
- Surface water: Tritium and possibly depleted uranium.
- Ground water: Tritium, depleted uranium, nitrate, and possibly perchlorate.

The selected interim remedy for ground water cleanup in the Building 850 subarea consists of Monitored Natural Attenuation (MNA) for tritium in ground water and continued monitoring for other contaminants of concern in ground water. An MNA remedy for tritium was accepted because the following criteria have been met: (1) tritium is not posing an unacceptable risk to human health or the environment, (2) tritium activity data indicate that the firing table source is no longer releasing tritium to ground water, and (3) the areal extent of tritium in ground water defined by the drinking water Maximum Contaminant Level (MCL) isoconcentration contour is decreasing. An evaluation of the effectiveness of MNA in reducing tritium activity in ground water, as well as the results of additional ground water monitoring for the Building 850 subarea will be reported bi-annually in accordance with Compliance Monitoring Plan requirements. Final cleanup standards for tritium in ground water will be selected in the final Record of Decision scheduled for 2007.

The selected final remedy for soil cleanup in the Building 850 subarea consists of: (1) excavation and disposal of the soil near Building 850 that is contaminated with PCBs, dioxins, and furans, and (2) removal of a tritium-contaminated sand pile adjacent to the firing table.

Since this remedy was codified in an interim Record of Decision, this remedy will be reviewed in an Evaluation Summary document and modified, if necessary, in the Final Record of Decision.

1. Introduction

This report describes the remedial design for the Building 850 subarea of the Building 850/Pits 3 and 5 Operable Unit (OU) at Lawrence Livermore National Laboratory (LLNL), Site 300. Site 300 is a U.S. Department of Energy (DOE)-owned experimental test facility operated by the University of California. The site is located in the southeastern Altamont Hills of the Diablo Range, about 17 miles east-southeast of Livermore and 8.5 miles southwest of Tracy, California (Figure 1).

In 2001, an Interim Site-Wide Record of Decision (ROD) for LLNL Site 300 (U.S. DOE, 2001) was signed by DOE and the regulatory agencies. In the Interim ROD, interim and final remedial actions were selected for a majority of the Site 300 OUs, including the Building 850 subarea. The selected remedies for the Building 850 subarea are: (1) excavation and disposal of soil containing polychlorinated biphenyls (PCBs), dioxins, furans, and tritium (a final remedy for the subarea), (2) Monitored Natural Attenuation (MNA) of tritium in ground water, (3) compliance monitoring, and (4) institutional controls (e.g., risk and hazard management). The main components of the remedy for contaminants of concern in each environmental medium are shown in Table 1-1. A Remedial Design Work Plan for Interim Remedies (Ferry et al., 2001) presents the strategic approach and schedule to implement the remedies selected in the Interim ROD.

DOE is the lead agency for cleanup at Site 300 with regulatory oversight by the U.S. Environmental Protection Agency (EPA) Region IX, the California Department of Toxic Substances Control (DTSC) Region 2, and the Regional Water Quality Control Board (RWQCB)—Central Valley Region.

The scope and format of this Remedial Design (RD) report are consistent with EPA guidance documents (EPA, 1989; 1990). This report contains a description of the scope of work for the remedial action and cost estimates. It also includes Quality Assurance/Quality Control (QA/QC) and Health and Safety Plans for excavation, and the requirements for project closeout.

Section 1 of this RD report describes the location of the Building 850 subarea, the operational history of the subarea, previous investigations and remedial actions, and regulatory history. Section 2 presents a summary of the geology and hydrogeology. Section 3 is a summary of contaminant distribution. Section 4 is a summary of previous human health and ecological risk and hazard analyses. Section 5 presents the remedial design. Section 6 contains the Remedial Action Work Plan. The following appendices are also included:

- Appendix A: Ground Water Elevation and Analytical Chemistry Data Tables
- Appendix B: Quality Assurance/Quality Plan (including Post-Excavation Verification Sampling Plan)
- Appendix C: Excavation Health and Safety Plan
- Appendix D: Cost Tables
- Appendix E: Total Toxicity Equivalent Concentration Calculations

1.1. Location

The Building 850 subarea covers approximately 1 square mile in the northwestern portion of Site 300 and includes the firing table contaminant release site and areas of associated soil and ground water contamination (Figure 2). Topography, springs, monitor well locations, and cultural features in the Building 850 subarea are shown on Figure 3. In addition to the firing table and underlying bunker, there are two outdoor storage areas (the upper and lower Corporation Yards). Immediately northeast of the firing table is a mound of contaminated sand and gravel designated the Building 850 sand pile. This sand pile consists of material previously used in firing table operations. The Building 850 firing table is situated at the bottom of a steep, east-facing topographic depression. Doall Ravine, immediately east of the Building 850 area, is an incised valley that contains an ephemeral stream channel that runs southeast and then trends east-northeast. Further to the east, Doall Ravine joins Elk Ravine, a broad northwest-southeast trending valley.

1.2. Site History

The Building 850 firing table was completed in 1960 and was the first concrete-reinforced bunker at Site 300. The firing table was used to test and develop detonators for prototypical nuclear weapons and armor-piercing projectiles. Diagnostic operations included high-speed photography. No experiments were conducted with fissile materials such as enriched uranium or plutonium. The Building 850 bunker is located directly adjacent to the firing table and the rear of the building abuts the elevated firing table. The front of Building 850 is at normal ground surface. As a measure of additional protection during experiments, gravel that is placed on the firing table to absorb shock is also placed on the roof of Building 850.

Over 95% of the approximately 22,670 curies (Ci) of tritium shipped to Site 300 were used in hydrodynamic experiments at Building 850 (Buddemeier, 1985). These experiments were conducted on the 6,750 square feet (ft²) firing table, located above the bunker. The vast majority of tritium was used between 1963 and 1978, primarily in gaseous form (³H₂), although some solid lithium tritide was also used. In addition to tritium, the test assemblies contained high explosives and occasionally, depleted uranium. Some of the explosives and test assemblies contained small quantities of barium, beryllium, copper, lead, and vanadium and utilized a variety of materials including wood-frame structures, tent poles, aluminum, plastic, burlap bags, metal cable, 10-ton rebar-reinforced concrete blocks, lead bricks, copper cylinders, metal silos, and capacitors containing PCBs. An estimated 1,000 capacitors were destroyed on the firing table, resulting in the contamination of soil on the slopes and flat areas around the immediate firing table area with PCBs, dioxins, and furans.

The firing table was covered with up to 5 feet (ft) of pea gravel used to absorb shot blasts and minimize impact to bunker occupants. The Building 850 firing table was routinely rinsed down with 1 to 2 inches of water after each experiment to reduce dust and prevent hazardous material from being re-suspended in the air. Rinse water, as well as surface and shallow subsurface water from rain, percolated through the firing table gravel to underlying soil and rock, mobilizing tritium and depleted uranium downward to ground water.

Several other contaminants of concern, including PCBs dioxins and furans, and trace amounts of metals, beryllium, and the high explosives compound HMX have been identified in surface soil. In portions of the subarea, tritium activities in ground water exceed the Maximum

Contaminant Level (MCL) while total uranium activities in ground water are well below the MCL. Nitrate and perchlorate have been detected in subarea ground water at concentrations exceeding the MCL and State Action Level, respectively.

From 1962 to 1972, a large volume of sand, the Building 850 sand pile, was stockpiled near Building 850 and was periodically used during large experiments. This sand was reused and as a result, gradually became contaminated with tritium. In 1988, 1,790 yd³ of gravel were removed from the firing table, replaced with clean gravel, and disposed of in landfill Pit 7. This activity was performed by the LLNL Program that operates the firing table as the gravels lose their ability to absorb shock over time. The LLNL Environmental Restoration Division collected and analyzed gravel samples during this time. Details of the removal and chemical concentrations in gravel and soil are documented in *Firing Table Gravel Removal at LLNL Site 300* (Lamarre and Taffet, 1989). Since 1988, Building 850 has been relatively inactive except for very occasional explosives tests. An estimated 460 cubic yards (yd³) of sand remains in the Building 850 sand pile. The material was covered with plastic sheeting in 1990 to minimize the infiltration of rainwater.

1.3. Site Characterization

This RD report addresses chemical and radionuclide releases from the Building 850 firing table area. The Pit 2 Landfill release site is located near the Building 850 subarea (Figure 3) but is not addressed in this report. The Pit 2 Landfill is included in the Site 300 OU, although the ground water tritium plume originating at Building 850 migrates beneath the landfill.

As the remedy selected for the Pit 2 Landfill is monitoring-only, the monitoring plan for this area is contained in the Site-Wide Compliance Monitoring Plan (Ferry et al., 2001). The Pit 7 Complex, shown on Figure 3, is also part of the Building 850/Pit 7 Complex OU but is not included in this report. As of May 2004, the Pit 7 Complex portion of the OU is undergoing the Remedial Investigation/Feasibility Study process (Taffet et al., Draft Final July 2004). The Remedial Design for the Pit 7 Complex will be presented in a separate report scheduled for 2007 after a cleanup remedy is selected for this area.

Site characterization at Building 850 began in the mid-1980s. Early site characterization work in this subarea was summarized in Buddemeier et al., 1985; Buddemeier et al., 1987; and Taffet et al., 1990. The results of these and later characterization activities are summarized in the Final Site-Wide Remedial Investigation report (Webster-Scholten, 1994). Subsequent characterization work was summarized in an Addendum to the Site-Wide Remedial Investigation (Taffet et al., 1996), an Engineering Evaluation/Cost Assessment for the Building 850/Pits 3 and 5 Operable Unit (Taffet et al., 1997), and the Building 850/Pits 3 and 5 Tritium Plume Characterization Summary report (Ziagos and Reber-Cox, 1998).

Recent characterization work completed in support of this Remedial Design report also included additional soil sampling to determine the current extent of PCB contamination. The PCB soil characterization results are summarized in Section 3.1. These data were used to better estimate the volume and location of PCB-bearing soil to be removed.

The nature and extent of contamination in the Building 850 subarea are discussed in Section 3.

1.4. Previous Remediation and Treatability Studies

The following remediation work and treatability studies were completed in the Building 850 subarea prior to the Interim Site-Wide ROD:

- In 1988, firing table gravel containing maximum tritium and uranium-238 (^{238}U) activities of 15,000,000 picocuries per liter in soil moisture (pCi/L_{sm}) and 8.50 picocuries per gram (pCi/g), respectively, was disposed in landfill Pit 7 and replaced with clean gravel (Lamarre and Taffet, 1989).
- From 1988 to 1994, five former water-supply wells were sealed and abandoned in the Building 850 subarea (Wells 1, 3, 8, 15, 16, and 17). The wells were sealed to prevent contaminants from migrating into other aquifers.
- In 1989, a pilot test of a 20-ft atomizing tower successfully evaporated tritium-bearing ground water from Well 8 Spring at a maximum rate of 40 gallons per hour (gph) (Taffet and Oberdorfer, 1991). The San Joaquin Valley Unified Air Pollution Control District issued a permit for operation; however, the system was never operated at full scale.
- In 1990, soil contaminated with fuel hydrocarbons from a leaking underground storage tank at Building 850 (850-D1-U1) was excavated and treated using enhanced soil bioremediation. The tank site was closed in accordance with all environmental regulations (Copland and Lamarre, 1990).
- In 1990, workers removed and disposed visible fragments of metallic debris from the slopes above the firing table area that might contain PCBs and depleted uranium.

These actions represent the initial phase of environmental cleanup at the Building 850 subarea. The interim remedial actions presented in this RD report reflect the long-term cleanup strategy.

1.5. Regulatory History

Prior to 1990, characterization and remediation activities at Building 850 were conducted under the joint oversight of the RWQCB and DTSC under an interim agreement. In 1990, Site 300 was placed on the EPA's National Priorities List. In June 1992, DOE, EPA, DTSC, and the RWQCB signed a Federal Facility Agreement to facilitate compliance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA). As part of the CERCLA process, DOE/LLNL prepared a series of reports for the Building 850/Pit 7 Complex (of which the Building 850 subarea is a part):

- The Site-Wide Remedial Investigation report, Chapter 11 (Webster-Scholten, 1994) provided information on site operations, hydrogeology, contaminant distribution and fate and transport, and risk and hazard calculations.
- The Addendum to the Site-Wide Remedial Investigation report, Site 300 Building 850/Pit 7 Complex Operable Unit (Taffet et al., 1996) provided additional information on the site hydrogeology, contaminant distribution and fate and transport, and potential risks and hazard indices.

- The Building 850/Pits 3 and 5 OU Engineering Evaluation/Cost Assessment (Taffet et al., 1997) provided a preliminary scoping and costing of potential removal actions for the subarea.
- The Ground Water Tritium Plume Characterization Summary Report for the Building 850/Pits 3 and 5 Operable Unit (Ziagos and Reber-Cox, 1998) further characterized the site hydrogeology, contaminant distribution in ground water, and fate and transport.
- The Site-Wide Feasibility Study (Ferry et al., 1999) screened and evaluated remedial alternatives for most OUs at Site 300.
- The Interim Site-Wide Record of Decision (ROD) for LLNL Site 300 (U.S. DOE, 2001) specified MNA for tritium in ground water, PCB and tritium-bearing soil excavation and disposal, ground water monitoring, and institutional controls (e.g., risk and hazard management) as components of the remedy for the Building 850 subarea. The Interim Site-Wide ROD did not establish site-wide ground water cleanup standards. It is assumed that the ground water cleanup standards that will be set in the Final Site-Wide ROD (scheduled for completion in Fiscal Year [FY] 2007) will be no higher than MCLs.
- The Remedial Design Work Plan for Interim Remedies (Ferry et al., 2001) described the strategic approach and schedule for implementing cleanup as established in the Interim Site-Wide Record of Decision.
- The Compliance Monitoring Plan/Contingency Plan for Interim Remedies (Ferry et al., 2002) describes monitoring activities and procedures to be followed during the implementation of the interim remedies and procedures to be implemented if cleanup does not proceed as planned.

2. Geology and Hydrogeology

The geology and hydrogeology of the Building 850 area are discussed in Chapter 11 of the Site-Wide Remedial Investigation report (Webster-Scholten, 1994), an Addendum to the Site-Wide Remedial Investigation report (Taffet et al., 1996), and the Tritium Plume Characterization Summary Report (Ziagos and Reber-Cox, 1998). The following section briefly describes the main aspects of the Building 850 subarea hydrogeology relevant to remedial design. The hydrostratigraphic unit designations and hydrogeologic conceptual model have been updated from previous reports.

As shown on the geologic cross-sections presented in Figure 4, the Building 850 subarea is largely underlain by decomposed, fractured, and unfractured sedimentary rocks of the Neroly Formation, and deeper, relatively unfractured Cierbo Formation (Tmss) strata. Quaternary alluvium (Qal) occupies valley bottoms and stream channels and a veneer of colluvium variably covers east-facing slopes. The main geologic structures in the area are the northwest-southeast-trending shear zones within the Elk Ravine Fault Zone.

For the purposes of this RD report, saturated stratigraphic units are grouped into hydrostratigraphic units (HSUs). A HSU is a water-bearing zone that exhibits similar hydraulic and chemical properties within particular stratigraphic units. Figure 4 depicts the two HSUs that have been delineated in the Building 850 subarea:

- Quaternary alluvium/Neroly Formation Lower Blue Sandstone (Qal/Tnbs₁) HSU.
- Cierbo (Tmss) regional aquifer HSU.

The Qal/Tnbs₁ HSU is generally unconfined and contains the principal strata conveying contaminants in the subarea. It consists of saturated alluvial channel fill (Qal) and underlying sandstone strata (Tnbs₁ and deeper Tnbs₀). It is the principal water-bearing zone in western Doall Ravine, where the bedrock and alluvium are both saturated and comprise a single water-bearing unit. In eastern Doall Ravine and across the western portion of the Elk Ravine Fault and south, the Qal is unsaturated and the Tnbs₁ appears to be the only significant water-bearing strata within the HSU. The underlying Tnsc₀ is the confining layer above the underlying Tmss HSU and is generally unsaturated, except in the fractured zones in the upper portion of Tnsc₀. The average thickness of Tnsc₀ strata is about 25 ft. Saturation within the Qal/Tnbs₁ HSU extends northward into the pit 7 Complex, but is limited south of Doall Ravine. Saturation also extends eastward across the Elk Ravine Fault and south within Elk Ravine. Rocks comprising the HSU are eroded away in northeastern Site 300 and thus the HSU does not extend into this area. The saturated thickness of the HSU varies from less than 10 ft in the western portion of the subarea to over 100 ft beneath Elk Ravine in the east. Depth to water varies from less than 25 ft in western Doall Ravine to over 50 ft in Elk Ravine.

Rocks comprising the Qal/Tnbs₁ HSU in the Building 850 and western Doall Ravine areas strike an average of N18W and generally dip north-northeast at 5 to 10 degrees. Strata in eastern Doall ravine have a similar strike, but dip from 10 to 15 degrees. Immediately south of Doall Ravine, within Elk Ravine, Qal/Tnbs₁ HSU rocks have an average strike of N40E and dip 5 to 10 degrees to the southeast (Taffet et al., 1990). Ground water flow in the Qal/Tnbs₁ HSU is controlled by stratigraphic bedding, i.e., ground water flow often follows dip in porous rocks and the inclined axes of alluvial channel fill deposits. Flow is also heavily influenced by geological structure. For example, ground water flow oblique to fault zones may be retarded where saturated strata are juxtaposed against strata of lower permeability, or shear zones may convey water along fault axes. Fractures may also convey water in otherwise low primary permeability strata.

Figure 5 is a water-elevation contour map for the Qal/Tnbs₁ HSU in the Building 850 subarea. Ground water elevation data are tabulated in Appendix A, Table A-1. The hydraulic gradient is about 0.11 beneath Building 850 and 0.13 beneath western Doall Ravine. However, this gradient flattens to an average of 0.09 in eastern Doall Ravine. The gradient is less on the east side of the West Branch of the Elk Ravine Fault: 0.05 in northern Elk Ravine, and 0.01 in southern Elk Ravine where the saturated thickness increases.

Ground water flow within the Qal/Tnbs₁ HSU beneath Building 850 is predominantly to the east-northeast. A great proportion of this flow is captured by discharge into Doall Ravine stream channel alluvium and follows the geometry of the stream channel southeast and then northeast towards the Elk Ravine Fault. Across the western branch of the Elk Ravine Fault in eastern Doall Ravine, depth to ground water drops by over 40 ft. As can be seen on Figure 5, the general direction of ground water flow is to the southeast on the upgradient (west) side of the fault zone. Within and west of the fault zone, flow is northeast. Within Elk Ravine, flow is predominantly southeast beneath Route 3.

Hydraulic conductivities, as calculated from hydraulic tests in wells screened in the Qal/Tnbs₁ HSU in the Building 850 and Doall Ravine areas, range from 10⁻³ to 10⁻² centimeters

per second (cm/sec) in alluvium to 10^{-5} to 10^{-4} cm/sec in bedrock. In the Elk Ravine area, bedrock hydraulic conductivities vary from 10^{-4} to 10^{-2} cm/sec. Assuming an average porosity of 0.3, calculated velocities range from 15 to over 100 meters per year (m/yr).

Seasonal ground water recharge has a profound effect on ground water flow and contaminant transport within the Qal/Tnbs₁ HSU. During the rainy season, the saturated thickness and hydraulic gradient in the alluvium increase, causing high velocities that lead to significant advective transport and dispersion. During the dry seasons, water levels in alluvium decline, flow velocity is reduced, and contaminant transport west of the Elk Ravine Fault occurs within HSU bedrock predominantly by diffusion with some advection. In Elk Ravine, the bedrock aquifer is thicker and more transmissive and transport occurs by advection and dispersion within bedrock, although some transport may also locally occur within overlying HSU alluvium during the wet season.

The Tmss HSU is a regional aquifer and is confined by overlying Tnsc₀ strata. This aquifer appears to be continuous from Building 850 into Elk Ravine. Monitoring has yielded no evidence of contamination in this aquifer. The lack of contamination in the Tmss is likely due to the strong upward gradient between it and the overlying water-bearing zones. The HSU extends north into the Pit 7 Complex and east into the Elk Ravine Area. The saturated thickness of the Tmss HSU varies from 30 to over 100 ft. Depth to water varies from 150 ft in Building 850 to over 200 ft beneath Elk Ravine. Water is under artesian pressure at Well NC7-69, in the Building 850 area. Ground water in the Tmss HSU presumably flows eastward. The gradient, hydraulic conductivity, and flow velocity are not known. Recharge to the Tmss HSU presumably occurs in the extensive valley west of Building 850. There are no known discharge areas to surface water from this HSU.

3. Contaminant Concentrations and Distribution

Details of the nature and extent of contamination in the Building 850 subarea are discussed in Chapter 11, Section 11-4 of the Site-Wide Remedial Investigation report (Webster-Scholten, 1994), Chapter 2 of the Site-Wide Remedial Investigation Addendum (Taffet et al., 1996), the Ground Water Tritium Plume Characterization Summary report (Ziagos and Reber-Cox, 1998), Chapter 1 of the Site-Wide Feasibility Study (Ferry et al., 1999), and are summarized below by environmental media.

Contaminants of concern (COCs) have been identified for impacted environmental media in the Building 850 subarea:

- Surface soil: Polychlorinated biphenyls (PCBs), HMX, dioxins, furans, depleted uranium, beryllium, cadmium, and copper.
- Subsurface soil: Tritium and uranium.
- Surface water: Tritium and possibly depleted uranium.
- Ground water: Tritium, depleted uranium, nitrate, and possibly perchlorate.

The remedial design presented in this RD document addresses all COCs present in each medium.

3.1. Surface Soil

Contaminants in surface soil at Building 850 include uranium-238 from depleted uranium, beryllium, cadmium, copper, HMX, PCBs, dioxins, and furans. These compounds have been detected at maximum concentrations of 24.8 pCi/g and 15, 8.6, 1000, 2.4, 180 (Aroclor 1254), 4.3×10^{-6} , and 1.5×10^{-2} milligrams per kilogram (mg/kg), respectively.

A total of 60 surface soil samples from the slopes above the Building 850 firing table (Figure 6) were collected in 1994 and 2003 and analyzed for PCB compounds (Aroclors) by EPA Methods 8080 or 8082C. All analytical data for PCBs in surface soil collected in the Building 850 subarea are tabulated in Table A-2 (Appendix A). Where detected, the concentrations of PCBs in samples that were analyzed by EPA Methods 8080 or 8082C ranged from 0.09 mg/kg (sampling location 3SS-850-131a) to 180 mg/kg (3SS-850-142). Twenty-one of these samples contained PCBs at concentrations in excess of the EPA industrial Preliminary Remediation Goal (PRG) of 0.74 mg/kg. Additionally, forty-six samples were collected in 1994 and analyzed for total PCBs with field test kits utilizing immunoassay methods. These latter samples provided semi-quantitative information on where total PCBs exceeded the 0.5 mg/kg detection limit. The lateral extent of PCBs in surface soil exceeding the industrial PRG of 0.74 mg/kg (Figure 6) is confined to a 100 to 500 ft radius around the firing table. In addition to the 0.74 mg/kg contour for the PCB PRG, the 50 mg/kg contour is shown because concentrations in excess of 50 mg/kg may require additional costs or treatment prior to disposal. Additional samples were collected in subsurface soil (see discussion below) to define the vertical extent of PCBs.

Samples of soil from beneath asphalt surface covers, concrete, and roads (hatched areas on Figure 6) were not collected and analyzed for PCBs. The surface covers and roads were built at the same time as the firing table and thus there is no mechanism for contamination of the underlying soil.

The sand pile material was not sampled and analyzed for PCBs. Although it is possible that PCB oils could exist in the sand pile, such contamination is anticipated to be minor. The explosives work that resulted in PCB contamination was conducted separately from the experiments that gave rise to the sand pile and thus these waste streams are largely separate. Currently, the sand pile is covered with plastic sheeting. DOE/LLNL did not wish to breach the integrity of the covered material until the sand pile is excavated and is awaiting disposal. Some sampling and analysis of the sand pile will be performed prior to disposal of the sand pile wastes to be certain that the wastes is disposed of appropriately.

Ten surface soil samples were collected in 1994 and analyzed for 11 dioxin compounds and 14 furan compounds by EPA Method 8290. Where detected, concentrations of tetrachloro-dibenzodioxin (TCDD) (total) ranged from 0.7 picograms per gram (pg/g) (parts per trillion) to 4.3 pg/g at locations 3SS-850-142 and 3SS-850-140, respectively. Tetrachloro-di-benzofuran (TCDF) (total) concentrations ranged from 29 pg/g to 15,000 pg/g at locations 3SS-850-126, 3SS-850-154, and 3SS-850-142, respectively. As reported in the Addendum to the Site-Wide Remedial Investigation Report LLNL Site 300 Building 850/Pit 7 Complex Operable Unit (Taffet et al., 1996) a total toxicity equivalent concentration (TEC) of the dioxin/furan compounds was calculated for each sample. This concentration was calculated by multiplying the measured dioxin/furan compound concentration by the Toxicity Equivalence Factors (TEFs) presented in U.S. EPA 1989. The total TECs for these 10 samples were recalculated using the

World Health Organization Toxicity Equivalence Factors (Van den Burg, 1998). This approach related the toxicity of the other 209 CDD and CDF compounds to that of the CDD 2,3,7,8-tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD). Six samples (3SS-850-140 (0 ft), 3SS-850-142 [0.0 and 0.5 ft], 3SS-850-139 (0 ft), and 3SS-850-107 [0.0 and 0.5 ft]) yielded total TCDD equivalent concentrations that exceed the PRG of 1.6×10^{-5} mg/kg. The maximum calculated total TCDD equivalent concentration was 6.19×10^{-3} mg/kg. Figure 7 shows the distribution of these compounds and TCDD equivalents in surface soil at Building 850. The highest concentrations were found near the firing table. Dioxin and furan data are tabulated in Appendix A, Table A-3. The revised total equivalent concentrations calculations are presented in Appendix E.

In 1989, twelve surface soil samples were collected from the slopes above the firing table and analyzed by alpha spectroscopy for uranium isotopes. The maximum uranium-235 (^{235}U) and ^{238}U activities in the samples were 0.06 and 7.7 pCi/g, respectively. In 1994, 37 surface soil samples from the area surrounding the Building 850 firing table were collected and analyzed for uranium isotopes by inductively-coupled mass spectrometry (Taffet et al., 1996). The maximum ^{238}U activity was 24.8 pCi/g (total uranium activity was 25.1 pCi/g) and yielded a $^{235}\text{U}/^{238}\text{U}$ mass ratio of 0.00189. Mass ratios below 0.0072 +/- 0.00005 indicate some addition of depleted uranium to the natural background uranium. All samples except one (3SS-850-128) indicated some added depleted uranium. The PRGs for ^{235}U and ^{238}U for soil and outdoor workers are 0.413 and 37.5 pCi/g, respectively. None of the uranium samples collected contained ^{235}U or ^{238}U in excess of these PRGs. Uranium activity data are presented in Appendix A, Table A-4.

In 1989, twelve surface soil samples that were collected and analyzed for metals indicated maximum total beryllium, cadmium, and copper concentrations in surface soil of 15, 8.6, and 1,000 mg/kg, respectively. The industrial site PRGs for these metals are 1.9×10^3 , 4.4×10^2 , and 4.1×10^4 mg/kg, respectively. These PRGs were not exceeded by any soil metals concentration. Metals data for surface soil samples are listed in Appendix A, Tables A-5 and A-6.

Thirty-two surface soil samples were collected and analyzed for high explosive (HE) compounds (HMX, RDX, and TNT) by EPA Method 8330. HMX (2.4 mg/kg) was detected at one location about 20 ft west of the firing table (3SS-850-107); neither RDX nor TNT was detected in any of these samples. The industrial site PRG for HMX in soil is 16 mg/kg; this PRG was not exceeded by the one detected HMX soil concentration. The analytical data for HE compounds in surface soil are tabulated in Appendix A, Table A-7.

3.2. Subsurface Soil and Bedrock

Subsurface soil and bedrock samples from the Building 850 subarea have been analyzed for a variety of constituents including tritium, uranium isotopes, metals, high explosive compounds, and PCB compounds.

In 1994 and 2003, a total of five subsurface soil samples were collected from the slopes above the firing table at a depth of 1 ft and analyzed for PCBs by EPA Methods 8080 or 8082C. A maximum PCB concentration of 96 mg/kg was detected in the sample from location 3SS-850-142 at a depth of 1 ft. Three of the five subsurface samples yielded total PCB concentrations above the 0.74 mg/kg industrial PRG. These samples were collected from locations proximal to the firing table (Figure 8). In 1994, fourteen subsurface samples were collected for semi-quantitative PCB immunoassay analysis. Total PCB concentrations in these samples ranged from 0.95 mg/kg at location 3SS-850-139 (1.3 ft depth) to 32.5 mg/kg at 3SS-850-142 (2 ft).

PCBs were identified at a maximum depth of 2.7 ft at sample location 3SS-850-142. Analytical data for PCBs in soil and bedrock are included in Appendix A, Table A-8.

In 1988, subsurface soil samples were collected from 5 boreholes drilled through the Building 850 firing table. Tritium and ^{238}U were detected at maximum concentrations of 7,300,000 pCi/L_{sm} or 1124.2 pCi/g (5.5 ft depth) and 2.3 pCi/g (25 ft depth), respectively. The outdoor worker PRGs for these two constituents in soil are 2.7×10^3 and 37.5 pCi/g, respectively. PRGs were not exceeded in any of these samples. Tritium and uranium data are tabulated in Appendix A, Tables A-9 and A-10, respectively.

In 1984, 1985, 1989, and 1990, a total of 45 subsurface soil and rock samples were collected to a maximum depth of 25.3 ft within and beneath the Building 850 sand pile and analyzed for tritium. These samples were collected from fill material, alluvium, and Tnbs₁ bedrock. The maximum activity beneath the sand pile was found in bedrock at 20.3 ft (254,000 pCi/L_{sm} or 58.2 pCi/g). Several samples were also collected from locations southeast of the sand pile. The maximum tritium activity detected southeast of the sand pile was 137,500 pCi/L_{sm} or 24.6 pCi/g (at a depth of 5.9 ft). The PRG for outdoor workers was not exceeded in any of these samples.

Additionally, 18 samples were collected from these boreholes and analyzed for uranium isotopes. A maximum total uranium activity of 32.4 pCi/g was detected at a depth of 1.8 ft. The individual uranium isotope PRGs were not exceeded in any of these samples.

In 1989 and 1990, twelve soil and rock samples were collected from boreholes within the sand pile and analyzed for metals. Metals analytical results for subsurface soil and rock samples are tabulated in Appendix A, Table A-11. Metals PRGs were not exceeded in any of these samples.

3.3. Surface Water

Tritium in Well 8 Spring is the only COC identified for surface water in the Building 850 area. A maximum historical activity of 770,000 pCi/L was detected in Well 8 Spring water in 1972. A sample of water collected from this spring during the second quarter of 2003 contained 29,300 picocuries per liter (pCi/L) of tritium, indicating a decreasing trend for tritium concentrations in this spring over time (Appendix A, Table A-12). The 20,000 pCi/L MCL for tritium in drinking water was exceeded in this 2003 water sample. Although it was not identified as a COC for surface water, total uranium was detected in water collected from this spring at an activity of 3.08 pCi/L during the second quarter of 2003. The $^{235}\text{U}/^{238}\text{U}$ atom ratio 0.00676 indicated that 4.5% of the uranium activity was a result of depleted uranium (Appendix A, Table A-13). The uranium activity detected in Well 8 Spring is well below the MCL for total uranium.

3.4. Ground Water

Tritium, depleted uranium, and nitrate have been identified as COCs in ground water in the Building 850 firing table area. Although it was not identified as a COC, perchlorate has recently been detected in ground water in the Building 850 area at concentrations exceeding the State Action Level of 4 micrograms per liter ($\mu\text{g/L}$).

The historical maximum tritium activity in ground water near Building 850 was 566,000 pCi/L in 1984. Tritium activities in ground water monitor wells have shown a steadily

decreasing trend over time with a maximum activity in the second quarter of 2003 of 81,400 pCi/L. The distribution of tritium in ground water during the second quarter of 2003 is presented in Figure 9. In addition, the extent of the 20,000 pCi/L tritium activity contour continues to diminish, as indicated by the reduction in the areal extent of the 20,000 pCi/L contour from 1985 to 2003 (Figure 10).

During the second quarter of 2003, the maximum detected tritium activity in Tnbs₁ bedrock-hosted ground water within the subarea was 81,400 pCi/L in a sample from well NC7-70. The maximum alluvial tritium activity detected in the OU was 29,700 pCi/L in a ground water sample from well NC7-54, located adjacent to Well 8 Spring. These highest tritium activities in ground water in the subarea are located immediately downgradient of the Building 850 firing table. The decreasing trend for tritium detected in these source area wells indicates a diminishing source. As shown in Figure 11, decreasing tritium activity trends are observed in water samples from wells completed immediately downgradient of the tritium sources despite significant rainfall events. These data also suggest that the source term is becoming exhausted.

Ground water samples collected in recent years from wells further south in Elk Ravine have shown very gradual increases in tritium activities over time that could be attributed to migration of the distal, low activity portion of the tritium plume. These increases have recently been leveling off. The maximum tritium activity in ground water in southern Elk Ravine in 2003 was 8,550 pCi/L in a ground water sample from well NC2-12D, decreasing from a maximum tritium activity of 8,880 pCi/L in a sample collected from this well in 2002.

To date, tritium has not been detected above background activities in the Tmss aquifer. Tritium activity data for water are tabulated in Appendix A, Table A-12.

Uranium activities in ground water in the Building 850 area have also continued to decline from a historical maximum of 18.4 pCi/L in 1996 to 5.14 pCi/L in the second quarter of 2003. Uranium activities in ground water remain well below the Federal MCL of 30 pCi/L. Figure 12 is a map of total uranium activity in ground water in the Building 850 subarea for the second quarter of 2003. The map denotes wells where mass spectrometric isotopic analyses indicate the addition of some depleted uranium to the natural background ground water uranium. This addition is shown as a percentage of the total uranium activity due to the added depleted uranium. The atom ratio of $^{235}\text{U}/^{238}\text{U}$ in samples collected from twelve wells indicated the addition of some depleted uranium. Nine of these wells are downgradient of Building 850 and define the plume of depleted uranium emanating from Building 850. The maximum total uranium in ground water affected by depleted uranium from Building 850 was 4.17 pCi/L of which 1.1% was due to depleted uranium. The percentage of depleted uranium added was calculated by using an isotopic composition of depleted uranium and comparing this to the isotopic composition of the water sample. The natural atom ratio of $^{235}\text{U}/^{238}\text{U}$ is about 0.0072 +/- 0.00005. Atom ratios below this range indicate some addition of depleted uranium to the naturally-occurring uranium activity in the water. Uranium activity and atom ratio data for water are tabulated in Appendix A, Tables A-13 and 14.

A total uranium activity of 17.9 pCi/L was detected in a ground water sample from upgradient well NC7-76; the $^{235}\text{U}/^{238}\text{U}$ ratio indicated that the uranium in the sample was entirely natural in origin.

Nitrate has been detected in ground water in the Building 850 area at concentrations exceeding the 45 milligrams per liter (mg/L) drinking water MCL. The maximum concentration

of nitrate (140 mg/L) during the second quarter of 2003 was detected in a ground water sample collected from well NC2-10. Nitrate was also detected above 45 mg/L MCL in ground water samples from wells NC7-29, NC7-44, NC7-70, and NC7-61, at concentrations of 120 mg/L, 72 mg/L, 67 mg/L, and 63 mg/L, respectively. The nitrate detected in these wells may be partly related to leachate from the Building 850 septic system. Ground water samples from the vast majority of wells in the subarea contained nitrate at concentrations in the tens of mg/L. Nitrate data from Building 850 ground water wells are tabulated in Appendix A, Table A-15.

Perchlorate was detected at a maximum concentration of 39 $\mu\text{g/L}$ in ground water samples from several wells downgradient of Building 850. Perchlorate was not identified as a contaminant of concern at the time of completion of the Interim ROD. These perchlorate data have been collected since the completion of the Interim ROD. Additional sampling and analysis of ground water at Building 850 is being conducted to define the nature and extent of perchlorate in Building 850 ground water and to determine if it constitutes a contaminant of concern for ground water in this area. Available analytical data for perchlorate are tabulated in Appendix A, Table A-16. Additional perchlorate data will be provided in the Site-Wide Compliance Monitoring reports as they become available.

Analytical data for other contaminants (high explosives compound, PCBs, metals and cations, volatile organic compounds, fuel hydrocarbons, and ions, specific conductance, and pH in ground and surface water samples are tabulated in Appendix A, Tables A-17 through A-22.

4. Summary of Human Health and Ecological Risks

4.1. Human Health and Exposure Assessment

DOE/LLNL evaluated the risk and hazards associated with contaminants present in environmental media at the Building 850 subarea. The baseline risk assessment (Ferry et al. 1999) estimated an excess cancer risk of 5×10^{-4} (five in ten thousand) to onsite workers resulting from the potential inhalation/ingestion of resuspended particulates and direct dermal exposure to surface soil contaminated with PCBs at the Building 850 firing table. In addition, a risk of 1×10^{-4} (one in ten thousand) was calculated for potential inhalation/ingestion of resuspended particulates and direct dermal exposure to surface soil contaminated with CDDs and CDFs. No unacceptable risk or hazard was identified for depleted uranium, tritium, HMX, or metals in surface soil.

No unacceptable risk or hazard associated with tritium and uranium in subsurface soil/rock in the Building 850 area has been identified. However, tritium in the sand pile could pose a potential threat to ground water. Although ground water in the Building 850 area contains high activities of tritium, there is no current exposure or unacceptable risk to human health and the environment. Potential receptors downgradient of the plume are offsite residential users of ground water. There are significant geologic and hydrogeologic constraints inhibiting the offsite migration of the tritium plume in ground water. The Building 850 subarea tritium plume primarily exists in the Qal/Tnbs₁ HSU. There are no direct ground water pathways from these strata northeastward to the current City of Tracy water-supply wells. The extent of saturation of the bedrock units is limited to Site 300, i.e., these strata are eroded away in the northeastern

portion of Site 300 and do not exist in Tracy. Additionally, there is significant faulting in the area that inhibits northeastward ground water flow. The only ground water pathway that could potentially allow flow of tritium-bearing ground water to migrate offsite is southeastward within the bedrock beneath Elk Ravine. Tritium in ground water emanating from Building 850 flows northeastward with Doall ravine and then bends southeast within Elk Ravine. This pathway is significantly longer than the path northeastward (8,000 ft vs. 22,000 ft), providing time for radioactive decay and other attenuation processes to continue to reduce tritium mass. Radioactive decay alone will reduce tritium mass by 50% every 12.3 years. Fate and transport modeling results indicate that tritium activity in a hypothetical water supply well at the southeastern Site 300 boundary would be below background levels once the plume reached that point (Taffet et al., 1996). Additionally, Figure 10 shows that since 1985, the areal extent of the 20,000 pCi/L MCL contour has decreased and that tritium activities above the MCL will always be restricted to west of Elk Ravine as the volume of water containing tritium in excess of the MCL continues to shrink.

4.2. Ecological Assessment

The Building 850 area baseline assessment prepared as part of the Site-Wide Remedial Investigation (Webster-Scholten, 1994) and an Addendum to the Site-Wide Remedial Investigation Addendum (Taffet et al., 1996) determined a risk from copper, zinc, cadmium, PCBs, dioxins, and furans existed for ground squirrels, deer, and kit fox at Building 850. Individual adult ground squirrels and individual juvenile and adult deer are at risk from ingestion of cadmium. The combined oral and inhalation pathway hazard quotient exceed 1 for these species, which was driven by the oral pathway. Individual ground squirrels, deer and kit fox were determined to be at risk from PCBs, dioxins, and furans due to the capacity of these compounds to bioaccumulate in the environment. However, site-wide population surveys found no impact to deer and ground squirrel populations. Risk to special-status fossorial species to heavy metals, PCBs, dioxins and furans are being addressed as part of ecological risk and hazard management program (ERHMP), as part of the Compliance Monitoring Plan (Ferry et al., 1999). Under the ERHMP, the Building 850 firing table is surveyed twice a year for the presence of special-status species. Exposure models are being updated for the likely special-status species, and to further evaluate the risk associated with PCBs, dioxins, and furans. Should both: (1) the presence of special-status species be confirmed, and (2) exposure models indicate the likelihood of hazard, additional remedial action measures will be evaluated as outlined in the Compliance Monitoring Plan. In addition, the ERHMP requires site-wide re-evaluation of deer and ground squirrel populations every five years.

The baseline ecological risk assessment showed Toxicity Quotients using the California Applied Action Levels to exceed 1 for zinc and to exceed 1 for copper using the Federal Ambient Water Quality criteria in Spring 6. Subsequent bioassays on samples from Spring 6 found no unacceptable ecological impacts (Ferry et al., 1999).

5. Remedial Design

This section presents the remedial design for the Building 850 subarea, and includes the following major components:

- Excavate and dispose of PCB-, dioxin-, and furan-contaminated soil around the Building 850 firing table, and excavate and dispose of the tritium-contaminated Building 850 sand pile. Depleted uranium, HMX, metals, and tritium in surface soil around the firing table pose no unacceptable risks to health or ground water quality but will be removed incidentally during PCB-driven soil excavation.
- Monitor ground water tritium activities to verify that MNA of tritium in ground water emanating from Building 850 continues.
- Monitor ground water chemistry for other constituents, including uranium isotopes, nitrate, and perchlorate.
- Implement institutional controls to prevent exposure to contamination (hazard and risk management).

5.1. Remedial Strategy

The planned remedial strategy for the Building 850 subarea is consistent with the objectives for ground water MNA and soil cleanup presented in the Interim Site-Wide ROD and the Remedial Design Work Plan.

The overall objective of this project is to: (1) reduce tritium activities in ground water to levels protective of human health and the environment, and (2) mitigate PCB/dioxin/furan inhalation, ingestion, and dermal risk near Building 850. The remedial strategy for the Building 850 subarea utilizes a risk-based approach with the following priorities:

1. Mitigate risk to onsite workers around Building 850.
2. Cost-effective contaminant mass removal.
3. Confirm continued reduction in contaminant mass in ground water.
4. Monitor and, if necessary, mitigate ecological risk from pollutants in surface soil and surface water as part of the ecological risk and hazard management program.

This remedial strategy, which is based on hydrogeologic and engineering analysis, relies primarily on MNA and excavation to remove contaminants from environmental media. These selected remedies for the Building 850 subarea provide the best balance of trade-offs among the EPA and National Contingency Plan balancing and modifying criteria. The strategy provides long-term effectiveness by removing contaminant sources to lessen future releases to ground water and permanently mitigating exposure risk by removing contaminated soils.

The natural attenuation of tritium in ground water reduces the toxicity, mobility, and volume of this contaminant through irreversible radioactive decay. Tritium naturally undergoes radioactive decay to stable, non-toxic, non-radioactive helium-3. Because tritium has a half-life of 12.3 years, natural attenuation provides a mechanism for achieving cleanup standards in a reasonable timeframe. The radioactive decay of tritium is irreversible and hence effective in the long term and permanent. There are no adverse effects on the community, onsite workers, or ecological receptors from allowing these processes to occur. This remedial strategy includes the monitoring of ground water contaminants to verify that natural attenuation continues to reduce contaminate concentrations to meet cleanup standards, which will be selected and codified in the Final Site-Wide ROD.

The selected remedies for contaminants of concern in environmental media at the Building 850 subarea are shown on Table 1-1.

5.2. Soil and Sand Pile Excavation and Disposal

Surface soil excavation and disposal at Building 850 is being performed to reduce PCB, dioxin, and furan concentrations to acceptable levels below industrial Preliminary Remediation Goal (PRG) and risk thresholds. The sand pile at Building 850 is being removed to eliminate a potential source for vertical migration of tritium to ground water. The following sections present the scope of work for these two excavation and disposal activities.

The design of the excavation procedure is based on five objectives: (1) ensure worker safety, (2) prevent contaminant movement (dust migration, etc.), (3) remove all material containing chemical in excess of cleanup standards, (4) minimize the volume of material removed that contains concentrations below cleanup standards, and (5) ensure full compliance with all regulatory requirements.

5.2.1. Excavation and Removal of Shallow Soils

The objective of excavation and disposal of PCB-, dioxin-, and furan-contaminated soil at Building 850 is to remove and dispose of soils that contain PCB concentrations in excess of the 0.74 mg/kg industrial PRG and dioxin and furan compounds in excess of the industrial PRG of 1.6×10^{-5} mg/kg for 2,3,7,8-TDCC. This action will remove the potential for the ingestion or dermal contact with health-sensitive concentrations of PCBs, dioxins, and furans by occasional workers at Building 850.

Although metals, depleted uranium, and tritium are also present in surface soil around the firing table, the concentrations of these COCs are such that there is no unacceptable risk to humans or to ground water quality. These COCs will be removed incidentally during the PCB-driven excavation.

Soil samples were collected from the firing table area to define the area and volume of material that would require removal. Based on the results of chemical analyses, DOE/LLNL constructed a 0.74 mg/kg contour for PCBs that defines the excavation area for surface soils (Figure 6). The areal extent of surface soil contamination is estimated to be about 318,000 ft². The 0.74 ppm PCB contour was constructed using the analytical data and kriging software. Kriging software uses an algorithm to extrapolate the concentration between three known data points. This method provides for an objective PCB contour location. The current strategy is to remove the first 12 inches of soil within the 0.74 mg/kg contour, where possible. In some areas, the soil cover is less than 12-inches thick, which may result in some reduction in excavation volume. Removing a 12-inch thickness of material covering this area yields a volume of approximately 12,000 yd³ of soil to be excavated. Additionally, PCBs in excess of the 0.74 mg/kg PRG were detected in subsurface soil samples collected to a maximum depth of 32.4 inches (2.7 ft). Soil will be excavated to a depth of 24 inches in this area proximal to the firing table to remove known volumes of subsurface soil between 12 and 24 inches below grade containing PCBs in excess of PRGs. Soil will also be excavated to a depth of 36 inches adjacent to location 3SS-850-142 and -136 where PCB concentrations exceeded the PRG to depth of 2 ft or more. The extent of this area of deeper removal of subsurface soil is about 76,282ft² (Figure 7), resulting in an anticipated excavation from 12 to 24 and 12 to 36 inches below grade of 3,184

yd³. Of the total 14,977 yd³ of soil to be excavated, approximately 287 yd³ has PCB contamination levels of >50 mg/kg and 14,690 yd³ of <50 mg/kg.

Because the volume of characterized soil that contains TCDD equivalent concentration in excess of the PRGs is constrained within the volume of soil that contains PCBs above PRG concentrations, the planned removal and disposal will also remove soils containing the excessive TCDD equivalent concentrations (Figure 8).

The activities associated with the excavation include the surveying and ground definition of the excavation boundaries and initial depth. Soil will be removed with heavy earth-moving equipment, including backhoes, tracked loaders and bulldozers. Portions of the area are difficult to access due to steep topography. It is anticipated that traditional shallow surface soil excavators (scrapers) will not be adequate for this application due to the terrain. Wheeled loaders, which are more maneuverable, can be used on the flatter surfaces to pile and load soils into Envirocare Lift-Liners™ for stockpiling. A water truck will be used as needed to control dust during the excavation.

The excavated soil will be placed into Lift-Liners™ and staged/stored in a location approximately 100 yards from Building 850 until shipped. Lift-Liners™ are 96 cubic foot sacks used for packing, storage, and shipping of waste material. Because the soil is anticipated to contain both radioactive and PCB constituents, it will be handled, transported, and disposed as mixed waste. Each Lift-Liner™ will be managed separately with Quality Assurance documentation, DOE-approved manifests, and certification by the Waste Certification Official. Each Lift-Liner™ will be weighed prior to shipping.

Once excavation is complete, verification sampling and analysis of exposed soil will be performed as outlined in the verification sampling plan (Appendix B). If analyses of the verification samples indicate that PCB, dioxin, or furan concentrations exceed industrial PRGs, then a second excavation and disposal effort would be performed. A 10% contingency (of the initial volume of excavated soil) is assumed and will comprise any additional soil removal. Because of the limited sampling of subsurface soil for PCBs, the areal extent of PCBs in subsurface soil that exceed PRGs may be underestimated (or overestimated) and could drive up costs if additional excavation and disposal are required (beyond the 10% contingency estimate), based on verification sampling and analysis. Once analytical data confirm that the concentrations in the surface soils meet cleanup standards, the excavated area will be compacted and treated to prevent erosion.

Because there are regulatory thresholds (concentrations) for the acceptance of PCB-bearing waste and concentrations at which such waste requires treatment prior to disposal, soil from selected excavation areas may be sequestered according to measured and anticipated PCB concentrations. Each region would then have a waste profile based on concentrations of PCBs (as well as furans, dioxins, uranium, and metals).

The excavation work will be conducted in accordance with substantive provisions of the National Pollutant Elimination System requirements for storm water discharges from construction activities.

The general Excavation Health and Safety Plan is presented in Appendix C. A more detailed Site Safety Plan will be prepared prior to field activities.

5.2.2. Excavation and Removal of Sand Pile

The Building 850 sand pile (460 yd³) will also be excavated to reduce the activity of tritium and uranium available for leaching to underlying ground water. The newly exposed surface soil will be sampled as part of the excavation verification sampling. Previous investigations have characterized tritium distribution within the sand pile. Samples of the sand pile will be collected and analyzed for PCBs before shipment to the disposal facility. A wheeled front-end loader will be used to transfer the sand into Lift-Liners™ that will be staged/stored in a location approximately 100 yards from Building 850 until approved for shipping. Each Lift-Liner™ will be managed separately with Quality Assurance documentation, DOE-approved manifests, and certification by the Waste Certification Official. Each Lift-Liner™ will be weighed prior to shipping.

5.2.3. Hazardous Waste Disposal

The LLNL Radioactive and Hazardous Waste Management Division (RHWM) will direct the onsite staging and disposal of all materials collected as part of the excavation and sand pile removal including all waste characterization sampling, transportation, and documentation.

Some additional sampling and analysis of the excavated material will be performed to confirm anticipated concentrations, facilitate waste handling and segregation, and to determine waste disposition requirements. Regulatory standards and disposal concentration limits have changed since the initial cost estimates for waste disposal were made in the Site-Wide Feasibility Study (Ferry et al., 1999). Material containing PCB concentrations in excess of 50 mg/kg now require treatment prior to disposal resulting in higher costs than were originally estimated.

It is anticipated that the excavated material will be comprised of three categories of waste: (1) soil contaminated with PCBs at concentrations exceeding 50 mg/kg, (2) soil with PCBs at concentrations below 50 mg/kg, and (3) tritium-contaminated sand. It is assumed that all PCB-contaminated soil removed from the firing table will also contain the radioactive constituents tritium and uranium and therefore will need to be handled and disposed as mixed waste. In addition, soil with PCB concentrations greater than 50 mg/kg is regulated under the Toxic Substances Control Act (TSCA) and is subject to different treatment and/or disposal requirements than soil with PCB concentrations between 5 and 50 mg/kg that is categorized as California combined waste. It is also assumed for the purposes of costing that the sand pile material does not contain PCBs and therefore will be handled and disposed as low-level radioactive waste. However, as mentioned previously, the sand pile material will be sampled and analyzed for PCBs to determine its waste classification as mixed waste (PCB and tritium) or low-level radioactive waste (tritium only).

The soil contaminated with PCBs at concentrations exceeding 50 mg/kg will be excavated, packaged, labeled, and placed in the staging area first. Verification sampling will be conducted to ensure that all soil with PCB concentrations above 50 mg/kg has been removed from the firing table. Then the soil with PCB concentrations below 50 mg/kg will be excavated, packaged, labeled, and placed in the staging area. Verification sampling will be conducted to ensure that all soil with PCB concentrations above the 0.74 mg/kg cleanup standard has been removed from the firing table. Finally, the tritiated sandpile will be placed in the Lift-Liners™, packaged, labeled, and placed in the staging area. These three types of waste material will be segregated in the storage area and managed separately. If analytical results indicate that PCBs are also present in

sand pile material, this material will be placed with the PCB-mixed waste appropriate to the PCB concentrations.

The excavated soil from the Building 850 firing table containing PCBs, tritium, and uranium will be sent to Envirocare of Utah. Based on the analytical data generated from the characterization of the soil at the Building 850 firing table, the waste will meet the Envirocare waste acceptance criteria. Prior to commencing soil excavation, RHW will prepare a detailed waste profile for the soil that will be evaluated against Envirocare's "Bulk Waste Disposal Facilities Waste Acceptance Criteria, Revision 4" (Envirocare, 2003). RHW will address any data gaps in the waste profile through additional waste characterization sampling and analysis. In addition, pre-shipment samples will be sent to Envirocare for analysis to verify the waste profile.

If analytical results indicate that the sand pile material contains PCBs in addition to tritium, the sand will be handled and disposed in the same manner as the firing table soil, depending on the PCB concentrations. If the sand does not contain PCBs above 5 mg/kg, it will be shipped to the Nevada Test Site for disposal as low-level radioactive waste.

5.2.4. Verification Sampling

After excavation and removal of soils adjacent to the firing table, samples of freshly-exposed surface soils will be collected and analyzed for PCBs, dioxins, and furans. If analytical results indicate that PCBs occur in the soil at concentrations in excess of their cleanup standard (industrial PRGs), additional soil will be excavated and disposed. The industrial PRGs for PCBs are 0.74 mg/kg. This process will continue until all material exceeding PRG criteria is removed.

The dioxin/furan samples will be composited and the composite TEC will be compared to the PRG for 2,3,7,8-TCDD (1.6×10^{-5} mg/kg). Additional soil will be excavated and disposed until the cleanup levels are met.

Upon excavation of the sand pile, samples of freshly-exposed surface soil will be collected for soil moisture tritium analyses. If samples containing tritium activities in excess of the 5,000,000 pCi/L cleanup standard are found, additional soil will be excavated. This process will continue until all material exceeding the cleanup standard is removed. Verification sampling procedures and scope are documented in Appendix B.

5.3. Performance Monitoring and Evaluation of the MNA Remedy Component

The remedy selected for the Building 850 subarea in the Interim Site-Wide ROD included MNA for tritium in ground water. As part of the remedy, performance monitoring will be conducted to evaluate the effectiveness of natural attenuation in reducing tritium to meet cleanup standards and to ensure protection of human health and the environment.

In accordance with EPA guidance (EPA, 1999), performance monitoring of the natural attenuation of the tritium plume will be conducted in order to:

- Demonstrate that natural attenuation is occurring at a rate meeting expectations.
- Determine if the tritium plume is expanding either laterally, vertically, or downgradient.
- Ensure no impact to downgradient receptors.

- Detect new contaminant releases to the environment that could alter the effectiveness of the MNA remedy.
- Detect changes in hydrogeologic conditions that could reduce the effectiveness of the natural attenuation process.
- Verify attainment of cleanup standards.

Because tritium decays to non-toxic, non-radioactive helium-3, monitoring for toxic decay products is not necessary. The ground water monitoring plan for the Building 850 subarea is described in the Compliance Monitoring Plan/Contingency Plan (Ferry et al., 2002).

Ground water samples for tritium analysis will be collected regularly from monitor wells located in the at Building 850 subarea. The analytical results will be used to verify that the tritium source is continuing to diminish, to detect new releases of tritium to the environment that could alter the effectiveness of the MNA remedy, to verify that natural attenuation continues to decrease tritium activities in ground water to meet cleanup standards, and to detect any changes in the lateral and vertical extent of the tritium plume. Monitor wells located downgradient of the tritium plume and upgradient of any potential receptor (water-supply) wells, will be sampled quarterly. Analytical results from ground water samples from these downgradient monitor wells will be used to provide a timely indication of movement of the tritium plume that could impact water-supply wells, contaminate unimpacted portions of the water-supply aquifer, or result in migration across the site boundary. Ground water analytical data from all the Building 850 wells will be used to detect changes in hydrogeologic conditions that could affect any of the MNA criteria and to verify attainment of cleanup standards.

Monitoring will continue until tritium activities reach the cleanup standards and for 2 years after cleanup standards are attained to verify that the rebound of tritium does not occur. The requirements for completion of ground water cleanup are discussed in Section 6.5.2. Cleanup standards will be included in the Final ROD for LLNL Site 300, scheduled for completion in 2007.

5.4. Risk and Hazard Management

As part of the selected remedy, risk and hazard management is prescribed for areas where risk at any exposure point exceeds 1×10^{-6} or the HI is greater than 1, exclusive of ingestion of contaminated ground water. The goals of the Risk and Hazard Management Program for the Building 850 subarea, as described in the Compliance Monitoring Plan, are to control exposure to contaminants and to ensure the selected interim remedies for the Building 850 subarea protect human health and the environment while the Remedial Objectives are being achieved.

The risk and hazard management components of the selected interim remedies for the Building 850 subarea include:

- Maintaining site use restrictions at the Building 850 firing table as necessary to prevent exposure until the contaminated soil removal is complete.
- Collecting and analyzing remaining surface soil for PCBs, dioxins, and furans following removal of contaminated soil and sand to verify attainment of health-protective levels (verification sampling).

- Conducting annual wildlife surveys to evaluate the presence of any important (i.e., special status) species while PCBs, dioxins, and furans remain at hazardous concentrations.
- Notifying appropriate resource agencies and determining actual exposure through additional chemical analysis and species monitoring if the presence of important species is confirmed.
- Developing an appropriate response plan if actual exposure of ecologically sensitive species is determined to be significant.

Additional information on the Risk and Hazard Management Plan, including institutional controls, is provided in Section 6.1.6. of the Compliance Monitoring Plan (Ferry et al., 2002). Warning signs will be posted in access areas to the firing table indicating that full-time activity on the firing table must be approved by Hazards Control and to contact the Environmental Safety and Health Team 1 if this level of activity is anticipated. The results of sampling and surveys conducted as part of the Risk and Hazard Management Plan will be reported in the semi-annual Compliance Monitoring Reports.

5.5. Contingency Planning

The Site 300 Compliance Monitoring Plan/Contingency Plan (Ferry et al., 2002) describes how DOE and the regulatory agencies plan to address foreseeable problems that may arise during the remediation and monitoring of contaminants conducted under the Interim Site-Wide ROD at the Building 850 subarea. It also describes the approaches for modifying the remedial approach as cleanup progresses and additional information is collected.

The Compliance Monitoring Plan/Contingency Plan addresses routine and long-term contingencies and uncontrollable natural events that could impact the effectiveness of the remedial actions at the Building 850 subarea.

For the PCB, dioxin, and furans in soil at the Building 850 firing table, the results of verification sampling will be used to determine when cleanup of the soil is complete. However, if additional PCB, dioxin, and furan sources are found after excavation, the extent of contamination will be delineated to determine the remedial strategy.

If performance standards for MNA of the tritium ground water plume are not met, the source and ground water tritium data will be reviewed and an engineered remedy may be designed and implemented if human health or ecological risk thresholds are exceeded.

5.6. Performance Standards and Monitoring

Performance standards for soil excavation are that all soil with concentrations of PCBs, dioxins, furans, and tritium above cleanup standards are removed. Final soil cleanup standards for these contaminants in surface soil at the Building 850 subarea were selected in the Interim Site-Wide ROD and are discussed in Section 6.5.1. Attainment of these standards will be confirmed through verification sampling to be conducted following soil removal.

The performance standards that shall be met to confirm the effectiveness of the MNA remedy for tritium in ground water at Building 850 are that: (1) tritium is not posing an unacceptable risk, (2) source control measures have been implemented and the tritium activity data indicate that the firing table source is no longer releasing contaminants to ground water, and (3) the areal

extent of tritium in ground water enclosed by the drinking water MCL (20,000 pCi/L) contour decreasing to meet cleanup standards. As discussed in Section 5.2, monitoring data will be collected per the requirements of the Compliance Monitoring Plan and the performance of the MNA remedy will be reviewed semi-annually. The requirements to achieve cleanup of tritium in ground water are discussed in Section 6.5.2.

5.7. Controls and Safeguards

Proper procedures, safeguards, and controls will be developed and implemented during the excavation and disposal of the tritium-contaminated sand pile in the vicinity of Building 850 and the PCB-contaminated soil from the hillside around the Building 850 firing table to prevent dust generation and to mitigate risk to on-site workers. The excavated soil will be isolated and covered to ensure that any co-contaminants, such as depleted uranium in surface soil or tritium in the sand pile, cannot leach out of the waste prior to disposal. In addition, safety procedures as defined by Excavation Health and Safety Plan, Standard Operating Procedures (SOPs), and Integration Work Sheets will be followed for surface soil and ground water sampling.

5.8. Excavation and Document Schedule

The excavation of the tritium-contaminated sand pile in the vicinity of Building 850 and the PCB-, dioxin-, and furan-contaminated soil from the hillside around the Building 850 firing table are planned to occur during Fiscal Year 2005 (Table 1-2). Table 1-2 also shows the submittal dates for the Draft, Draft Final and Final Building 850 subarea Five-Year Reviews.

5.9. Cost Estimates

Detailed cost estimates for the planned remedial actions outlined in this RD report are presented in Appendix D. The total cost for soil excavation and disposal activities to be conducted in FY06 is \$4,846,321.21. The cost estimates for excavation, handling, transportation, and disposal of contaminated soil adjacent to the Building 850 firing table area and verification sampling are shown in Appendix D, Table D-1. For costing purposes, it was assumed that removal of a 10% contingency volume of additional soil may be required for both the soil and sand pile excavation projects. The costs for soil excavation were based on estimates provided by a contractor that routinely performs excavation work of this nature. The costs for handling, transportation, treatment, and disposal of excavated soil are based on estimates provided by the LLNL Radioactive and Hazardous Waste Management Division. Soil sample analytical costs are based on existing analytical laboratory contract costs.

Annual cost (in FY05 dollars) for ground water monitoring, MNA for tritium in ground water, and administrative controls is \$99,448. These costs over 30 years are \$1,528,759. The costs for ground water sampling and analysis, well maintenance, and reporting are provided in Appendix D, Table D-2. Sample analytical costs are based on existing analytical laboratory contract costs and adjusted for inflation. Ground water sampling, well maintenance, and reporting costs were developed from actual costs for performing these activities during prior years with escalation adjustments for outyears.

Costs estimates for risk and hazard management activities are provided in Appendix D, Table D-3. These costs were developed from actual costs for performing these activities during prior years with escalation adjustments for outyears.

6. Remedial Action Work Plan

The Remedial Action Work Plan for the Building 850 subarea includes the excavation and disposal of soil as described in Section 5.2, ground water monitoring, and the performance monitoring of the natural attenuation of the tritium plume as discussed in Section 5.3. QA/QC Plans and Health and Safety Plans for soil excavation are attached as Appendices B and C. Monitoring and reporting requirements for the ground water monitor wells are included in the Compliance Monitoring Plan (Ferry et al., 2002). In addition, requirements for onsite storage and offsite shipment of hazardous waste, remediation completion/closure criteria, and procedures for well closure are discussed in this section.

This document provides the overall strategy for implementing the selected remedial action. LLNL will procure the services of a subcontractor to perform the excavation activities. The subcontractor will be responsible for generating a detailed scope of work, including procedures for excavation, soil handling, equipment decontamination, and waste packaging. The subcontractor will be required to generate a detailed, activity-specific Health and Safety Plan. The LLNL RHWMD Division will be responsible for conducting verification sampling and for the shipment and disposal of the excavated soil. The LLNL Environmental Restoration Division will manage the soil excavation and disposal activity and the overall remediation and monitoring of the Building 850 subarea.

6.1. Quality Assurance/Quality Control and Health and Safety Plans

The QA/QC and the Health and Safety Plans for excavation are presented as Appendices B and C of this document. The QA/QC Plan for excavation is presented in Appendix B. This plan describes the organizational structure, responsibilities, and authority for excavation QA/QC and the objectives, quality goals, and QA elements for excavation and disposal. Appendix C contains the Health and Safety Plan for the Building 850 excavation. This plan presents: (1) organizational structure and responsibilities, (2) hazard analyses and control measures, (3) training requirements for the Building 850 excavation personnel, and (4) emergency safety procedures. A more detailed Site Safety Plan will be prepared prior to implementation of soil excavation activities.

6.2. Monitoring and Reporting Programs

The general monitoring and reporting requirements for the Building 850 area (i.e., COC sampling frequency, media to be sampled, and analysis that will be performed on the samples) are included in the Compliance Monitoring Plan. Based on agreements with the EPA, DTSC, and RWQCB, the well sampling plan that indicates well sampling frequency, well type, well sample analysis, and the geologic units in which the wells are screened is provided in the Semi-Annual Compliance Monitoring Reports. Additional information regarding well construction (i.e., well bore and casing diameter, well casing material, etc.) is provided to the regulatory agencies in the Site-Wide Remedial Investigation Report (Webster-Scholten, 1994).

Ground water concentrations will be determined by analyzing samples collected from monitor wells to track changes in plume concentration and extent that result from natural processes such as dispersion, adsorption, advection, and radioactive decay. Monitoring for tritium, ^{238}U , perchlorate, and nitrate will be conducted in Building 850 subarea ground water

monitor wells, as well as in spring 6 and Well 8 spring in accordance with the Compliance Monitoring Plan. Chemical analyses will be performed according to EPA Methods or analytical methods contained in the LLNL Environmental Restoration Division SOPs (Goodrich and Depue, 2003). Results will be evaluated according to QA/QC procedures contained in the Quality Assurance Project Plan (Dibley, 1999). Measured ground water concentrations will be used to prepare contaminant isoconcentration contour maps to assess the progress of MNA for tritium and the concentrations of other contaminants of concern in ground water. Ground water elevations in Building 850 monitor wells will be measured quarterly. The results of the ground water monitoring will be reported in the semi-annual Compliance Monitoring report.

6.3. Hazardous Waste Handling

The firing table soil will be excavated by a subcontractor. LLNL's RHWI will direct the onsite staging, packaging, and shipment of the waste to the disposal facility. As discussed in Section 5.2.3, the excavated soil will be handled as TSCA-regulated mixed waste or California combined mixed waste, depending on the PCB concentrations. The sandpile material will be handled as low-level radioactive waste unless PCBs are detected, in which case it will be handled as either TSCA-regulated mixed waste or California combined mixed waste, depending on the PCB concentrations. The shipment and disposal of waste material will be performed in accordance with the requirements of Department of Transportation 49 Code of Federal Regulations (CFR), EPA 40 CFR, and California Code of Regulations (CCR) Title 22. Once packaged and characterized to meet the disposal facility's waste disposal criteria, the soil will be shipped to Envirocare facility in Utah for treatment and/or disposal. Assuming the sand pile material does not contain PCBs, it will be shipped to the Nevada Test Site for disposal as low-level radioactive waste. DOE/LLNL will comply with the Offsite Rule (40 CFR 300.440) for the offsite shipment of CERCLA waste.

6.4. Performance Assessment of MNA for Tritium

The performance of the MNA remedy for the Building 850 tritium plume in ground water will be assessed by: (1) monitoring the tritium activity trends in the monitor wells, (2) contaminant plume maps showing the extent of the tritium plume in the subsurface, (3) estimating the total activity in ground water and comparing to previous years, and (4) comparing the measured tritium activities from wells to predicted results.

Total tritium activities in ground water recorded from January 1985 through the second quarter of 2003 were plotted to evaluate the observed decreases in total tritium activities over time compared to the theoretical tritium decay curve (Figure 13). The curve indicates that the observed reduction in total tritium activity over this time period generally occurred more rapidly than would be expected based on the theoretical tritium decay curve. This could be due the combined effects of natural dispersion and decay working to reduce the total tritium activity within the plume.

In addition, the maximum annual tritium activities from 1985 through the second quarter of 2003 were plotted and the trend was projected into future years to estimate the rate at which tritium activities could be expected to decrease over time and when cleanup standards might be achieved (Figure 14). This curve indicated that the observed reduction in maximum tritium activity occurred more rapidly than expected theoretically. Based on the trend in decreasing total

activity as well as the decrease in maximum activity level, the Building 850 area tritium plume is expected to decay to MCLs or lower within 40 years.

These curves can be used to compare observed total and maximum tritium activity to projected decreases to evaluate the effectiveness of natural radioactive decay in reducing tritium activities in ground water to meet cleanup standards.

6.5. Requirements for Closure

This section specifies requirements for determining when the cleanup of soil through excavation and removal and of tritium in ground water through MNA has been completed.

6.5.1. Soil Cleanup

Soil cleanup will be complete when contaminated surface soil has been excavated from the Building 850 firing table area depicted on Figure 7 and verification sampling indicates that all soil with concentrations of PCBs, dioxins, and furan exceeding final cleanup standards has been removed. The sand pile excavation will be completed when all material with tritium activities exceeding final cleanup standards has been removed from the sand pile area.

The final cleanup standards for soil and the sand pile in the Building 850 subarea were established in the Interim Site-Wide ROD and are:

1. PCBs: 0.74 mg/kg, the U.S. EPA Region IX industrial PRG.
2. 2,3,7,8-TCDD: 1.6×10^{-5} mg/kg, the U.S. EPA Region IX industrial PRG. All related dioxin and furan compound concentrations will be converted to an equivalent concentration of 2,3,7,8-TCDD using the Dioxin Toxicity Equivalence Factors and compared to the PRG for 2,3,7,8-TCDD.
3. Tritium: 5,000,000 pCi/L_{sm} in the Building 850 sand pile and contiguous surface soil to protect ground water. This can also be expressed as 277 pCi/g assuming a 10% soil moisture content and a bulk density of 1.8 grams per cubic centimeter (g/cm³). If native soil beneath the sand pile exceeds the surface soil cleanup standards, subsurface soil will be excavated and the cleanup standards will be re-calculated to account for the reduction in vadose zone thickness.

The soil cleanup standards apply to: (1) PCBs, dioxins, and furans in surface soil adjacent to the Building 850 firing table, and (2) tritium in the Building 850 sand pile and any contiguous soil. Soil removal and excavation is scheduled to be completed by the end of 2005 and are considered the final remedy for this medium.

6.5.2. Ground Water Cleanup

Ground water cleanup in the Building 850 subarea will be complete when ground water samples demonstrate that cleanup standards, which will be selected and codified in the Final Site-Wide ROD, are achieved. This will be achieved when tritium concentrations in samples collected from all monitor wells within the subarea are below the cleanup standards. Ground water post-closure monitoring will be performed for two years after reduction of concentrations to cleanup standards throughout the plume is verified. Should contaminant concentrations in ground water rebound above cleanup standards, further monitoring will be discussed with the regulatory agencies.

Cleanup will be considered complete when contaminant concentrations in ground water remain below the to-be-agreed-upon cleanup standards for at least two years. After concurrence with the regulatory agencies that cleanup is complete, the monitor wells in the Building 850 subarea will be decommissioned. Wells will be closed by *in situ* casing perforation and pressure grouting, or by well removal as appropriate, consistent with the approved LLNL Livermore Site and Site 300 Environmental Restoration Project SOPs (Goodrich and Depue, 2003). Wellhead abandonment will include removal of any protective covers, instruments, and concrete pads. The upper 2 to 3 ft will be filled with low-permeability soil to restore grade.

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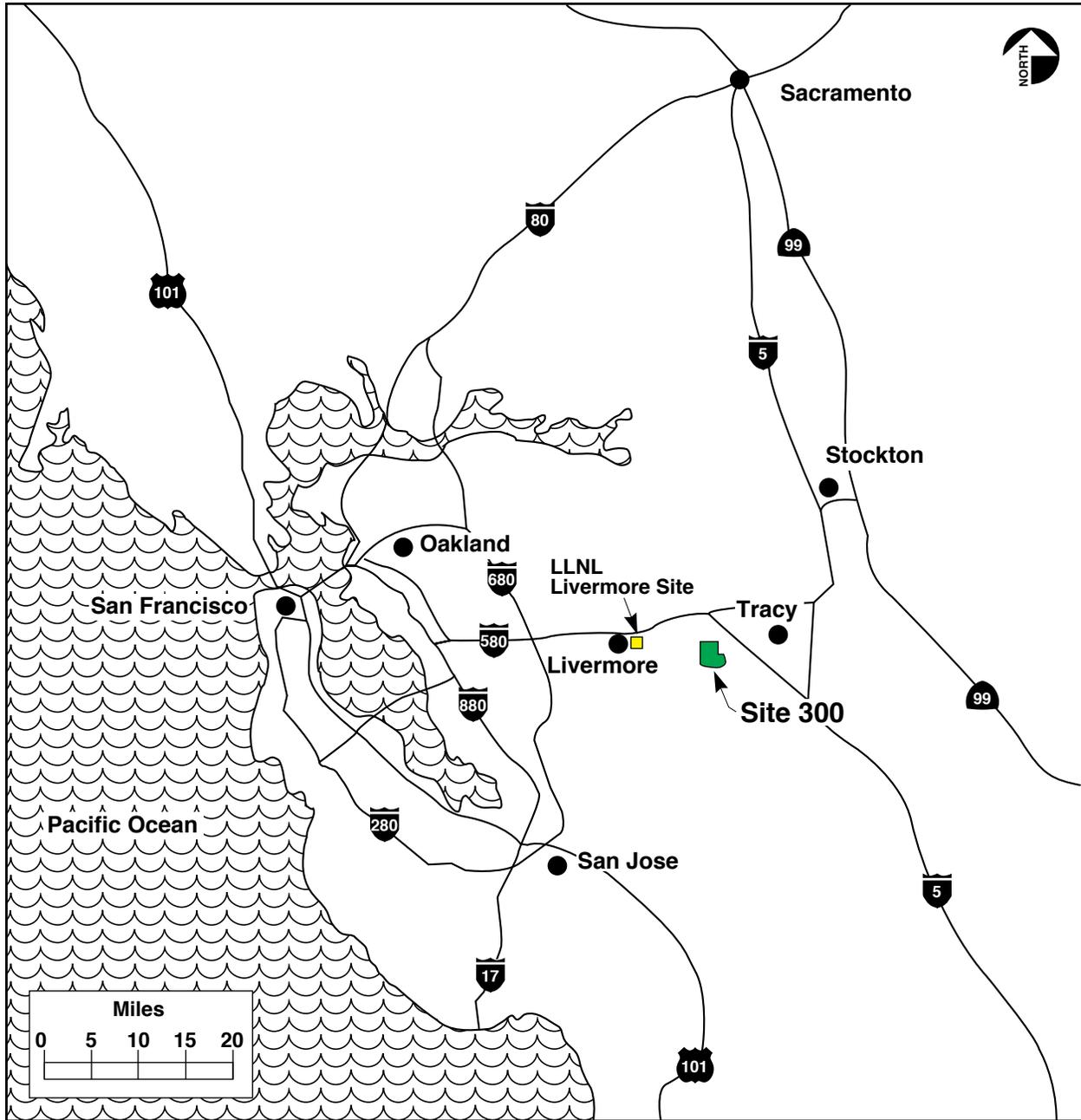
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8. Acronyms and Abbreviations

$^3\text{H}_2$	Tritium in gaseous form
CCR	California Code of Regulations
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
cm/sec	centimeters per second
CFR	Code of Federal Regulations
Ci	Curies
COC	Contaminants of Concern
CoC	Chain of Custody
DOE	Department of Energy
DTSC	(California) Department of Toxic Substances Control
EPA	Environmental Protection Agency
EPD	Environmental Protection Department
ERHMP	Ecological risk and hazard management program
ERD	Environmental Restoration Division
ES&H	Environmental Safety and Health
ft	feet
ft ²	square feet
g/cm ³	grams per cubic centimeters
gph	gallons per hour
HE	High explosives
HMX	High melting explosive (cyclotetramethylene tetranitramine)
HSU	Hydrostratigraphic unit
IWS	Integrated Work Sheet
LLNL	Lawrence Livermore National Laboratory
MCL	Maximum Contaminant Level
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
MNA	Monitored Natural Attenuation
MSL	Mean sea level
m/yr	meters per year
OU	Operable Unit
PCBs	Polychlorinated biphenyls
PCDD	Polychlorinated dibenzodioxin

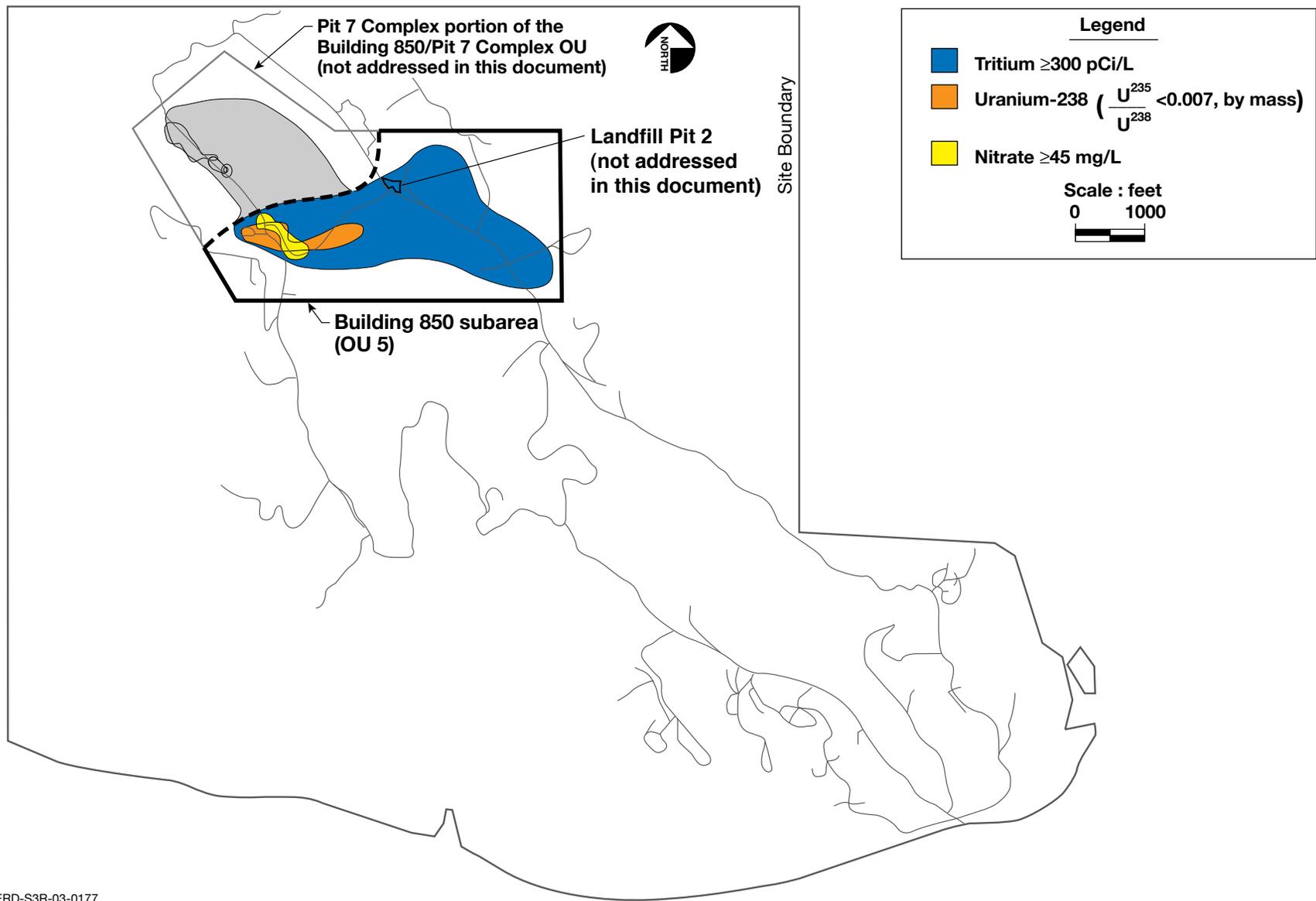
pCi/g	Picocuries per gram
pCi/L	Picocuries per liter
pCi/L _{sm}	Picocuries per liter in soil moisture
PEPM	Plant engineering project manager
pg/g	Picograms per gram
ppt	parts per thousand
PRG	Preliminary Remediation Goal (EPA Region IX)
QA	Quality assurance
Qal	Quaternary alluvium
QAMP	Quality Assurance Management Plan
QAPP	Quality Assurance Project Plan
QC	Quality control
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
RDX	Research Department Explosive (cyclo-1,3,5-trimethylene-2-, 4-, 6-trinitramine)
ROD	Record of Decision
RPM	Remedial Project Manager
RHWM	Radioactive and hazardous waste management
RWQCB	(California) Regional Water Quality Control Board
SARA	Superfund Amendments and Reauthorization Act
SOPs	Standard Operating Procedures
TCDD	Tetrachloro-di-benzodioxin
TCDF	Tetrachloro-di-benzofuran
TEC	Toxicity Equivalence Concentration
TEF	Toxicity Equivalence Factor
Tmss	Tertiary Cierbo Formation
Tnbs ₀	Tertiary Neroly basal sandstone
Tnbs ₁	Tertiary Neroly lower blue sandstone
Tnsc ₀	Tertiary Neroly basal siltstone/claystone
TNT	Tritnitrotoluene
TSCA	Toxic Substances Control Act
UCRL	University of California Radiation Laboratory
yd ³	cubic yards
μg/L	Micrograms per liter

Figures



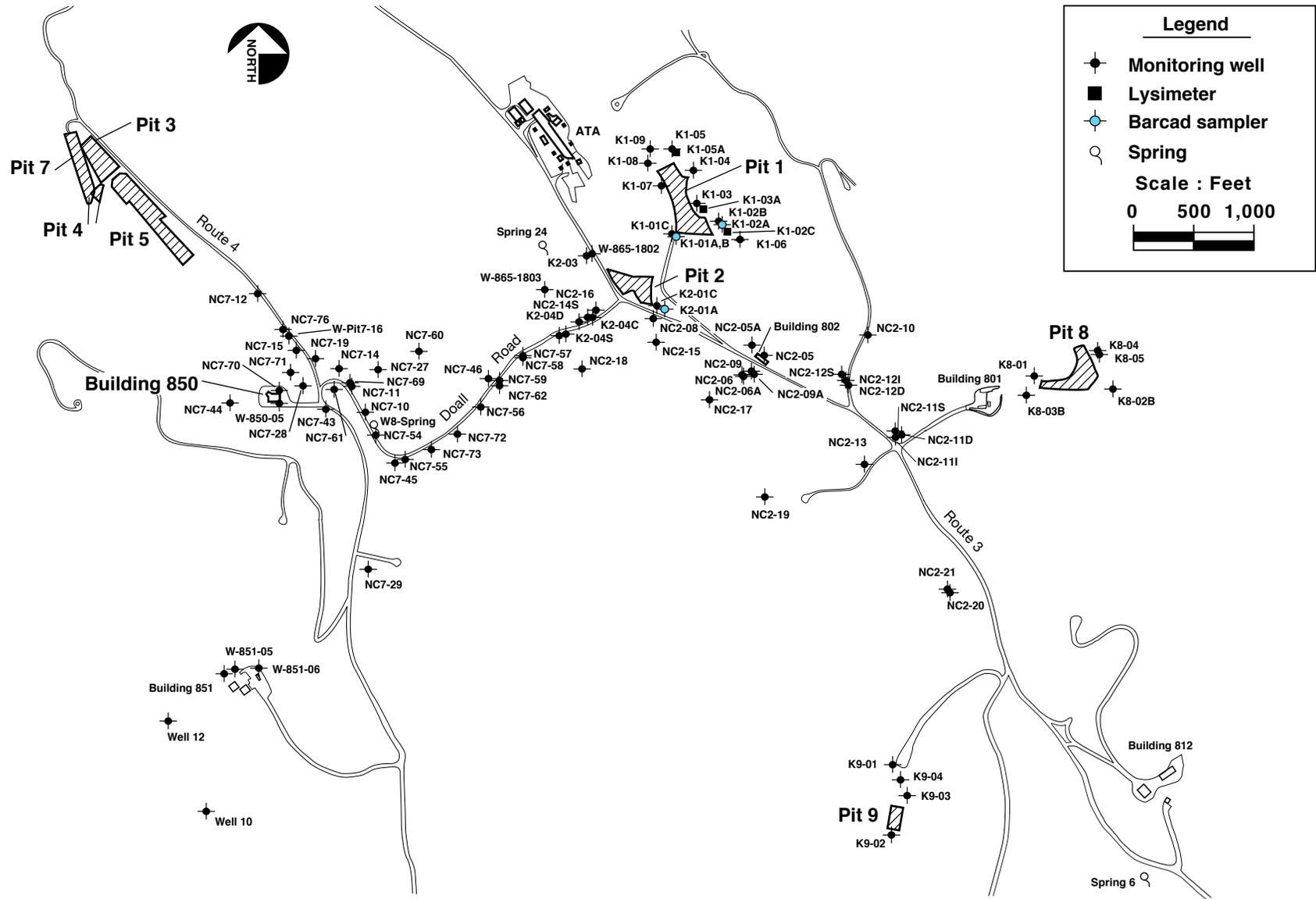
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Figure 1. Location of Site 300 and LLNL Livermore Site.



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Figure 2. Site 300 map showing location of the Building 850 subarea and ground water plumes emanating from Building 850.



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Figure 3. Building 850 subarea site map showing monitor wells, springs, roads, and buildings.

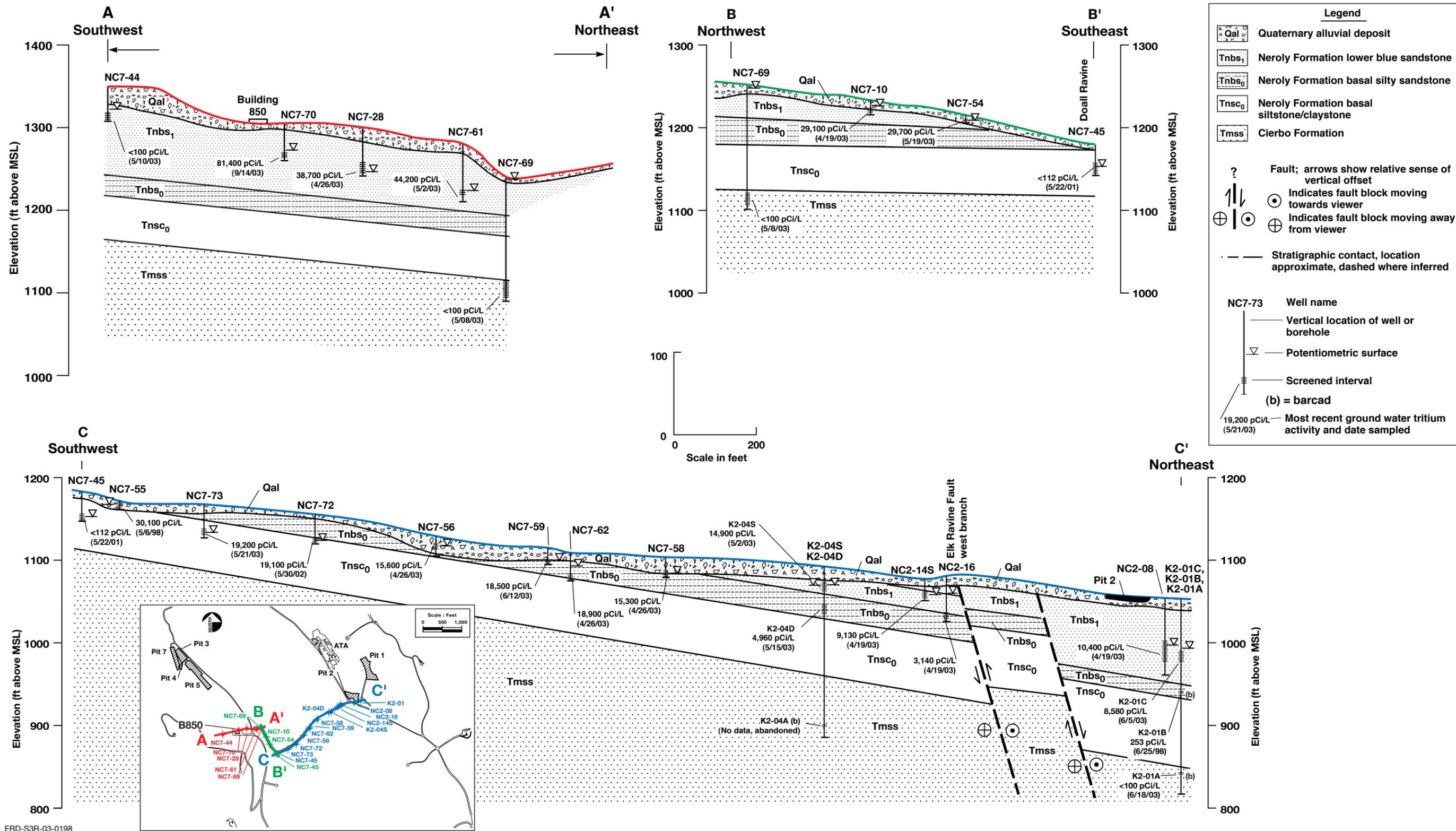
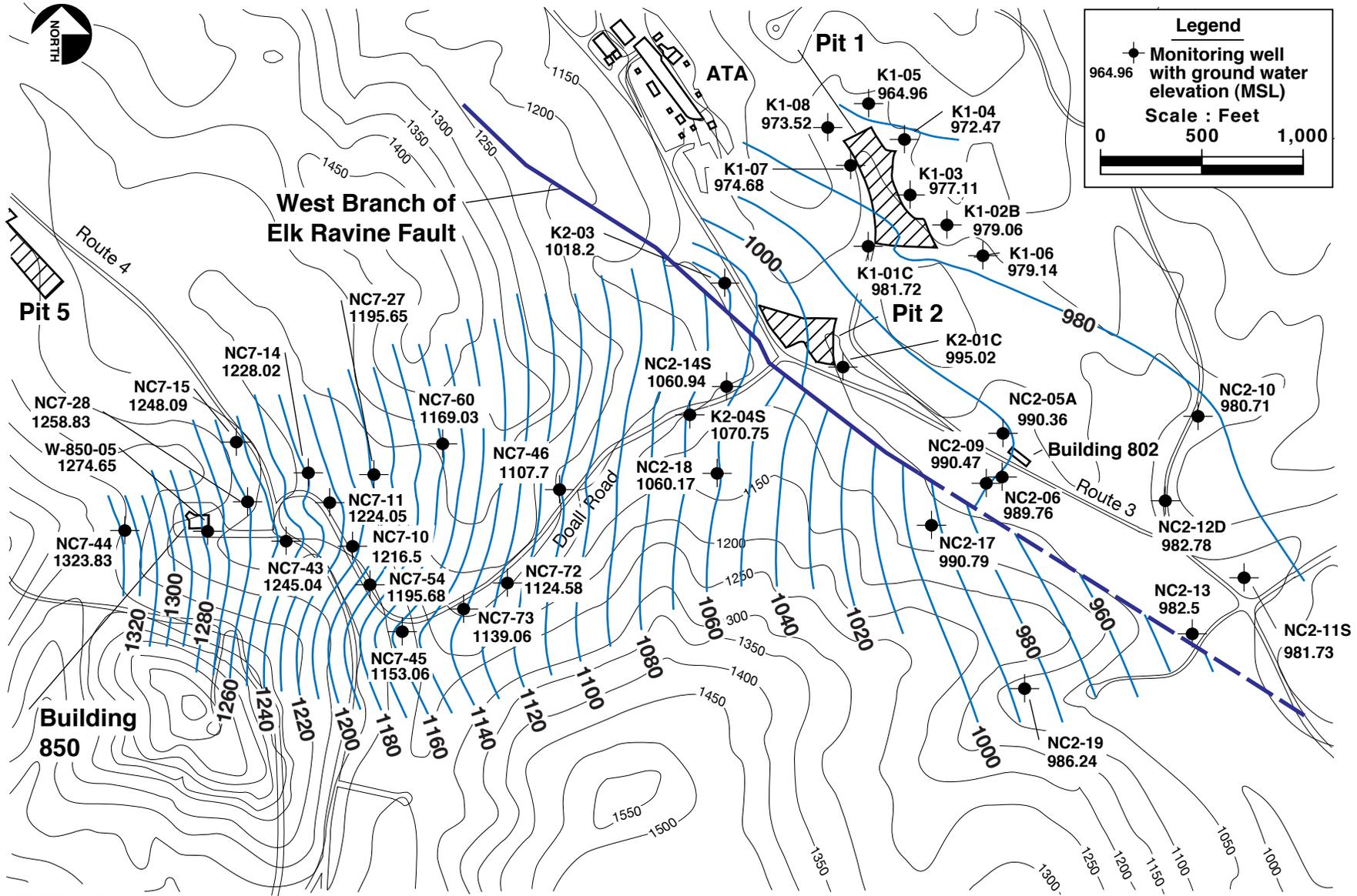


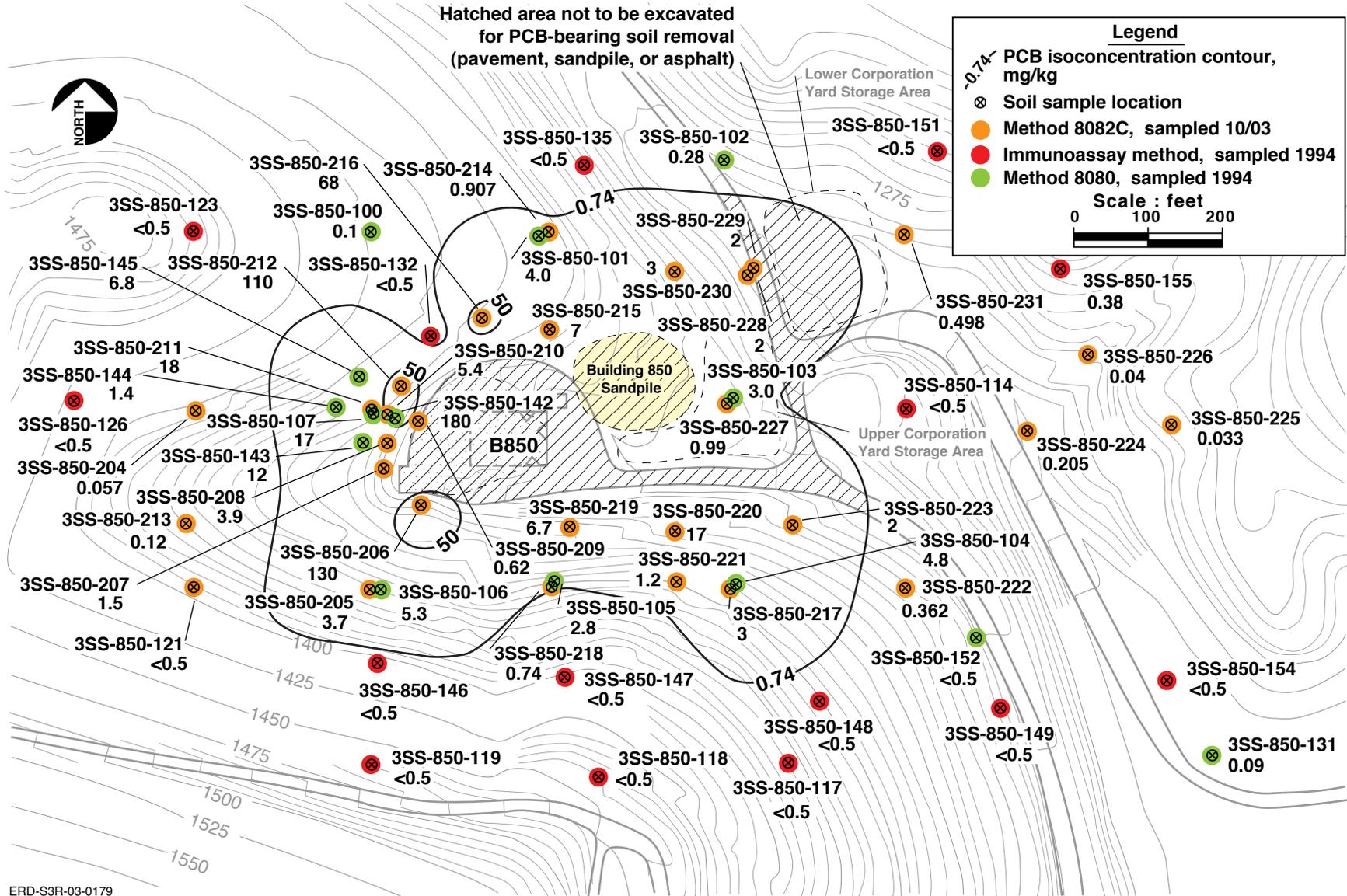
Figure 4. Hydrogeologic cross-sections from Building 850 firing table to Elk Ravine and Pit 2.

ERD-S3R-03-0198



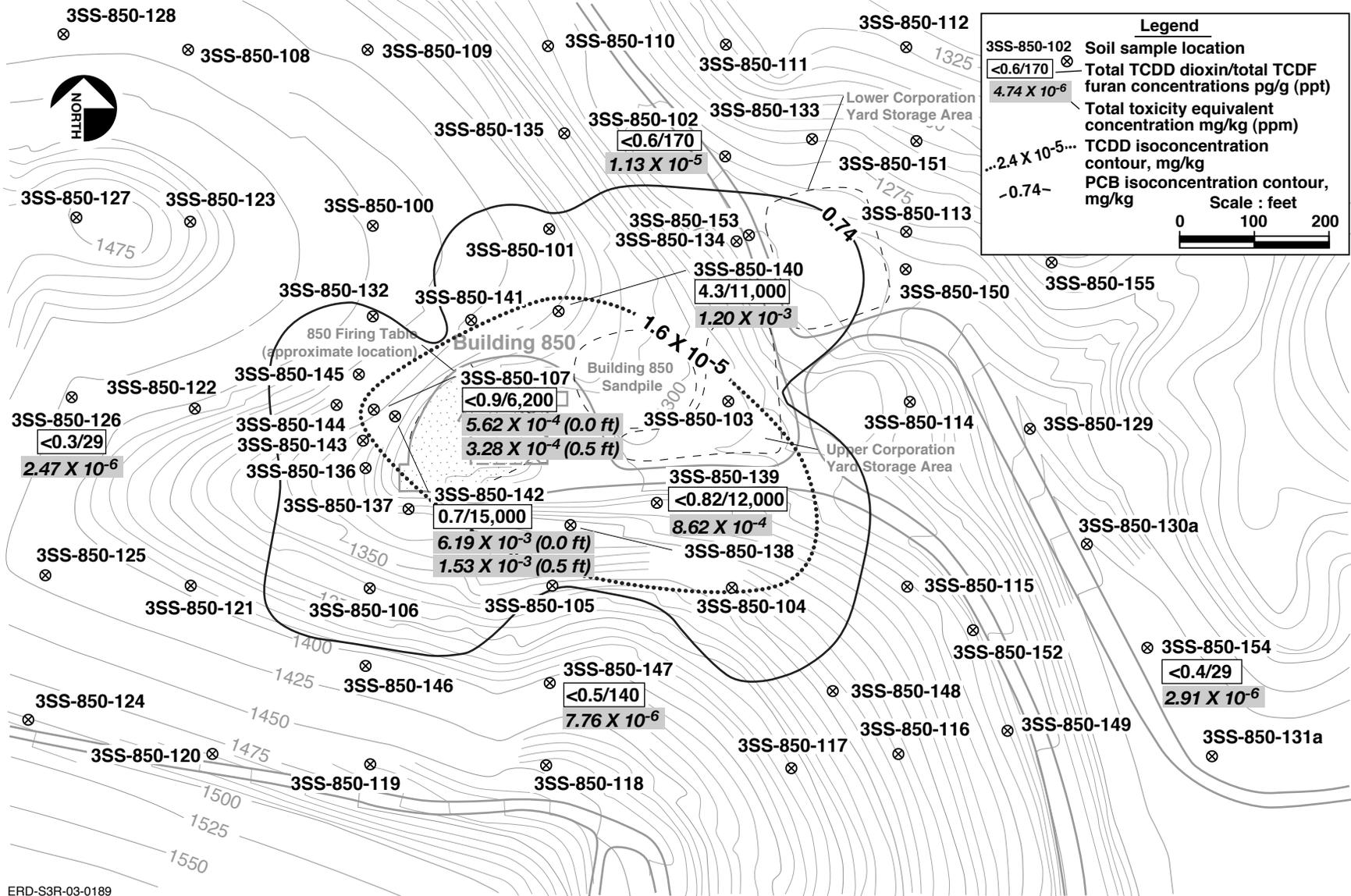
ERD-S3R-03-0199

Figure 5. Ground water elevation map of the Building 850 subarea (2nd quarter 2003).



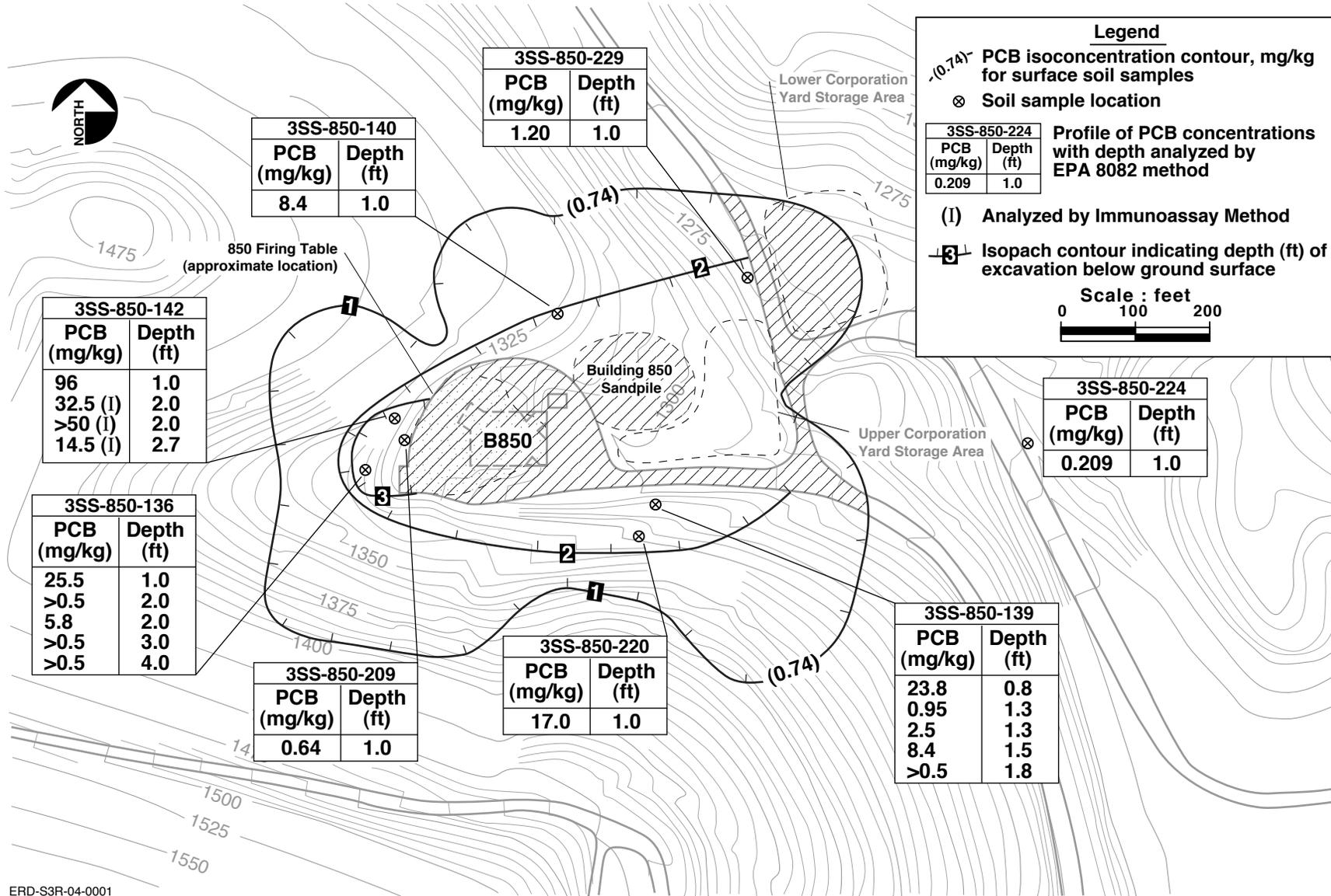
ERD-S3R-03-0179

Figure 6. Map of the Building 850 firing table and sand pile area delineating areas of surface soil containing PCBs above 0.74 mg/kg (PRG) and 50 mg/kg.



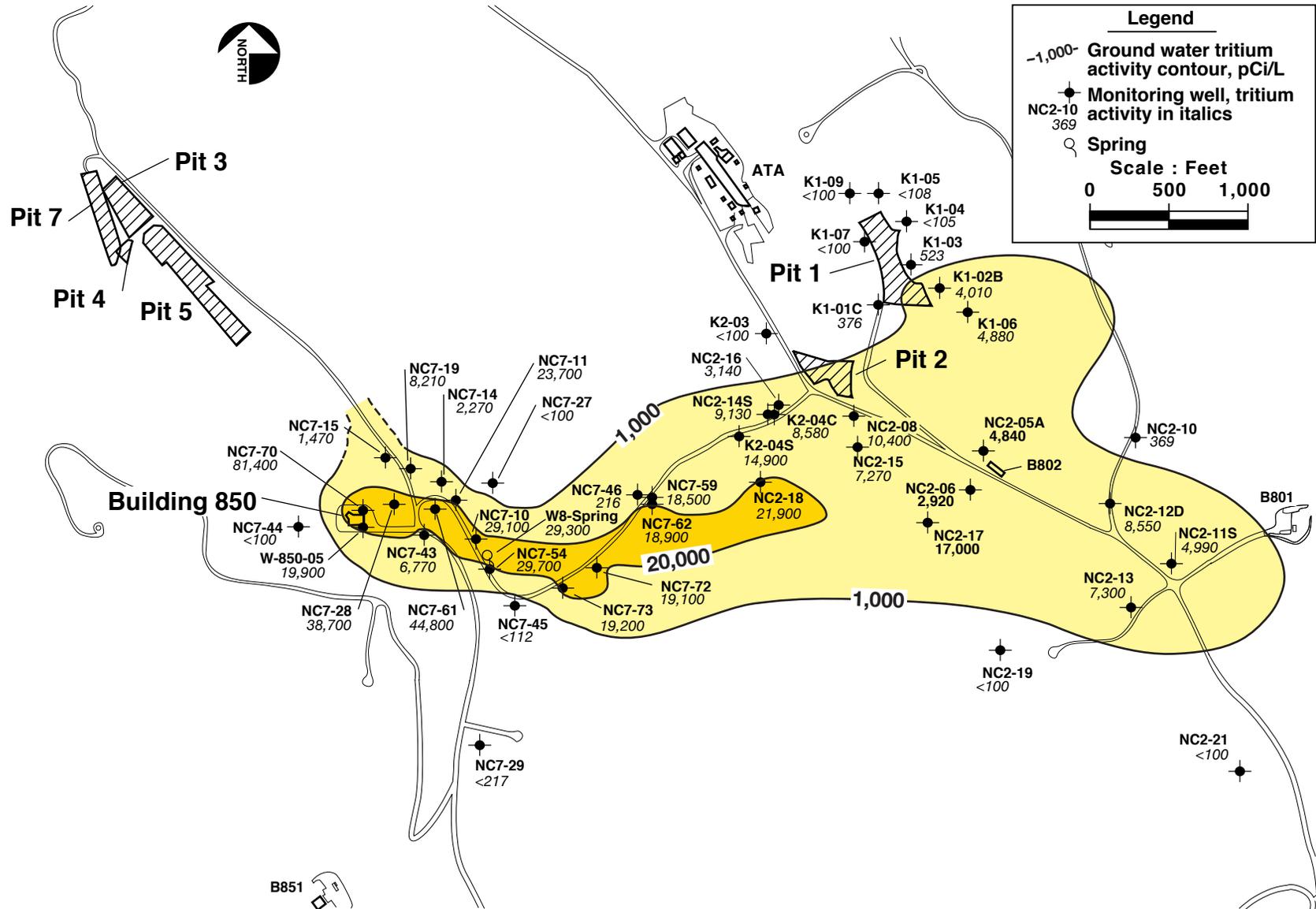
ERD-S3R-03-0189

Figure 7. Total TCDD dioxin, total TCDF furan, and total toxicity equivalent factor concentrations in surface soil (0.0 – 0.5 ft) in the Building 850 firing table area [showing PRG (preliminary remediation goal) contours for PCBs and TCDD].



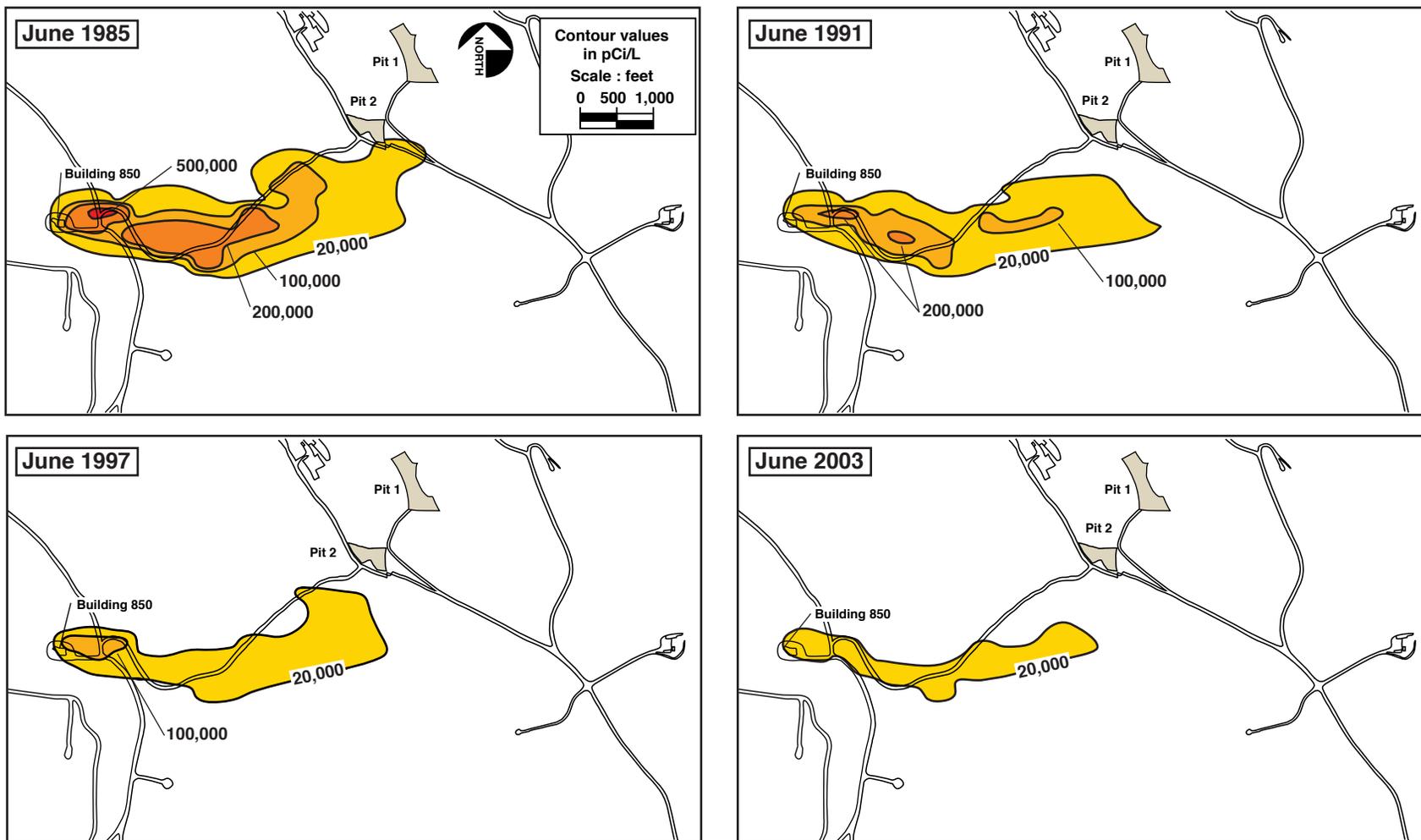
ERD-S3R-04-0001

Figure 8. Map of the Building 850 firing table and sand pile area delineating areas of surface and subsurface soil containing PCBs above the 0.74 mg/kg (PRG).



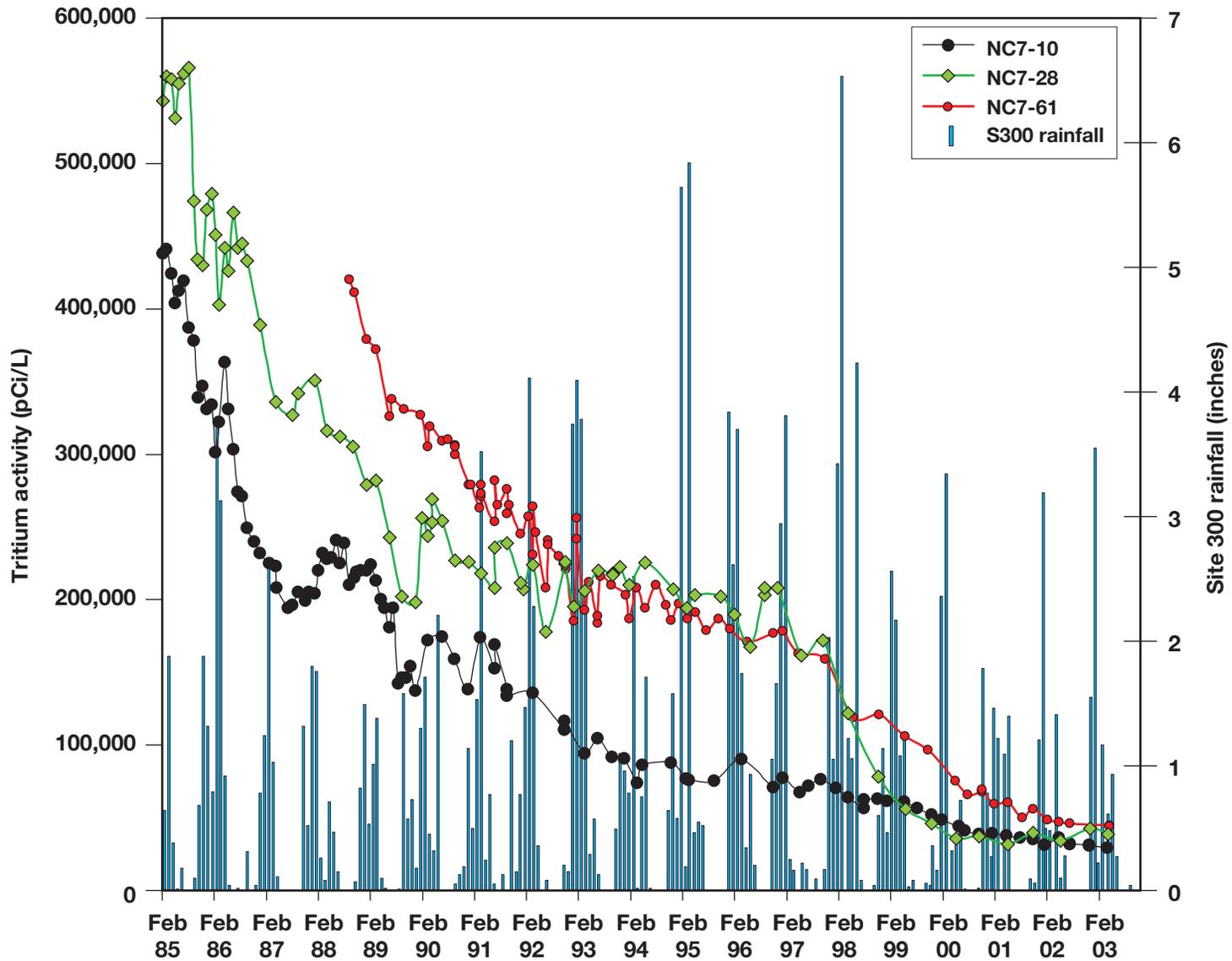
ERD-S3R-03-0182

Figure 9. Ground water tritium plume in the Building 850 subarea (most recent data).



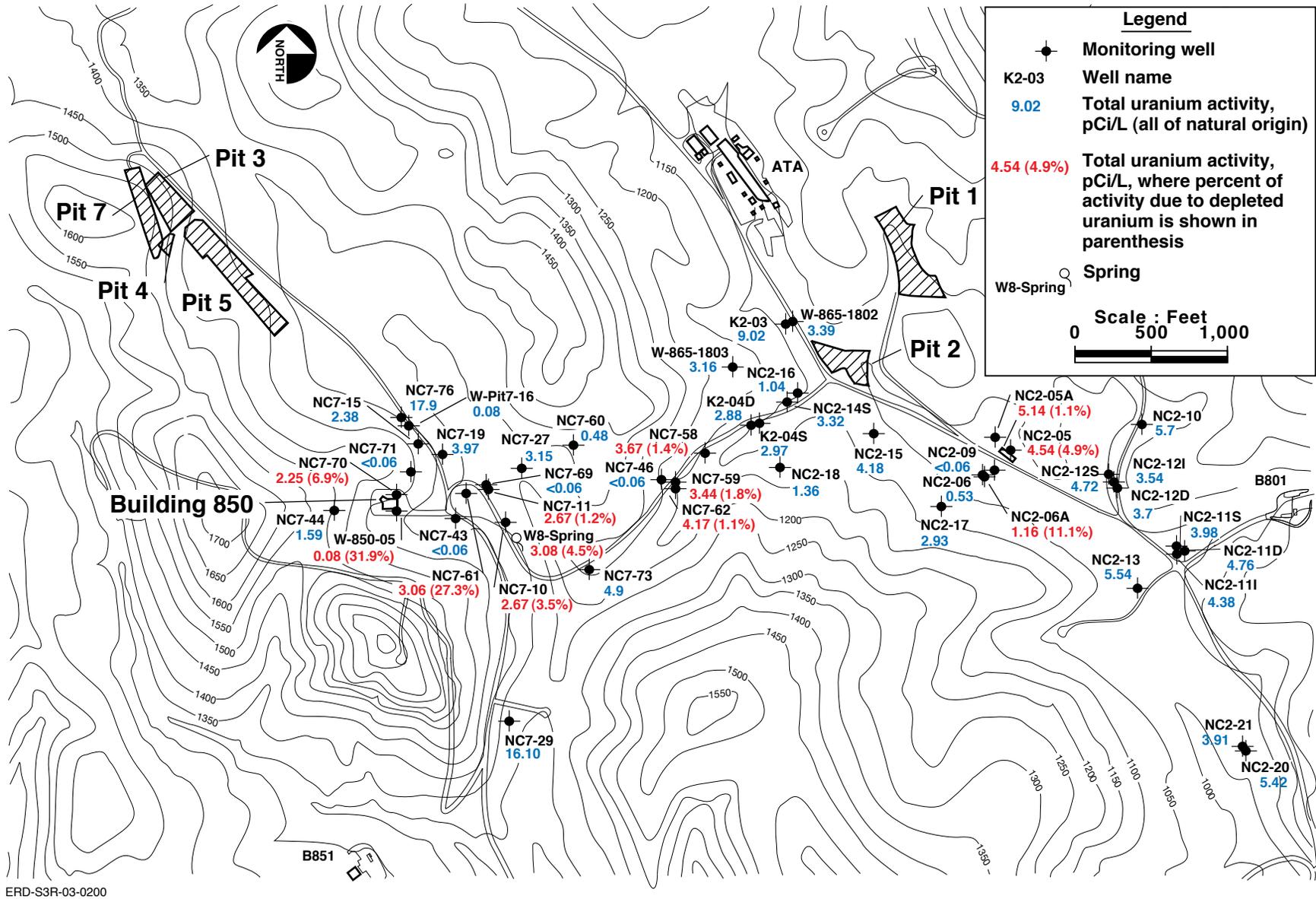
ERD-S3R-03-0183

Figure 10. Extent of ground water tritium plume (activities >20,000 pCi/L) in the Building 850 subarea from 1985 to 2003.



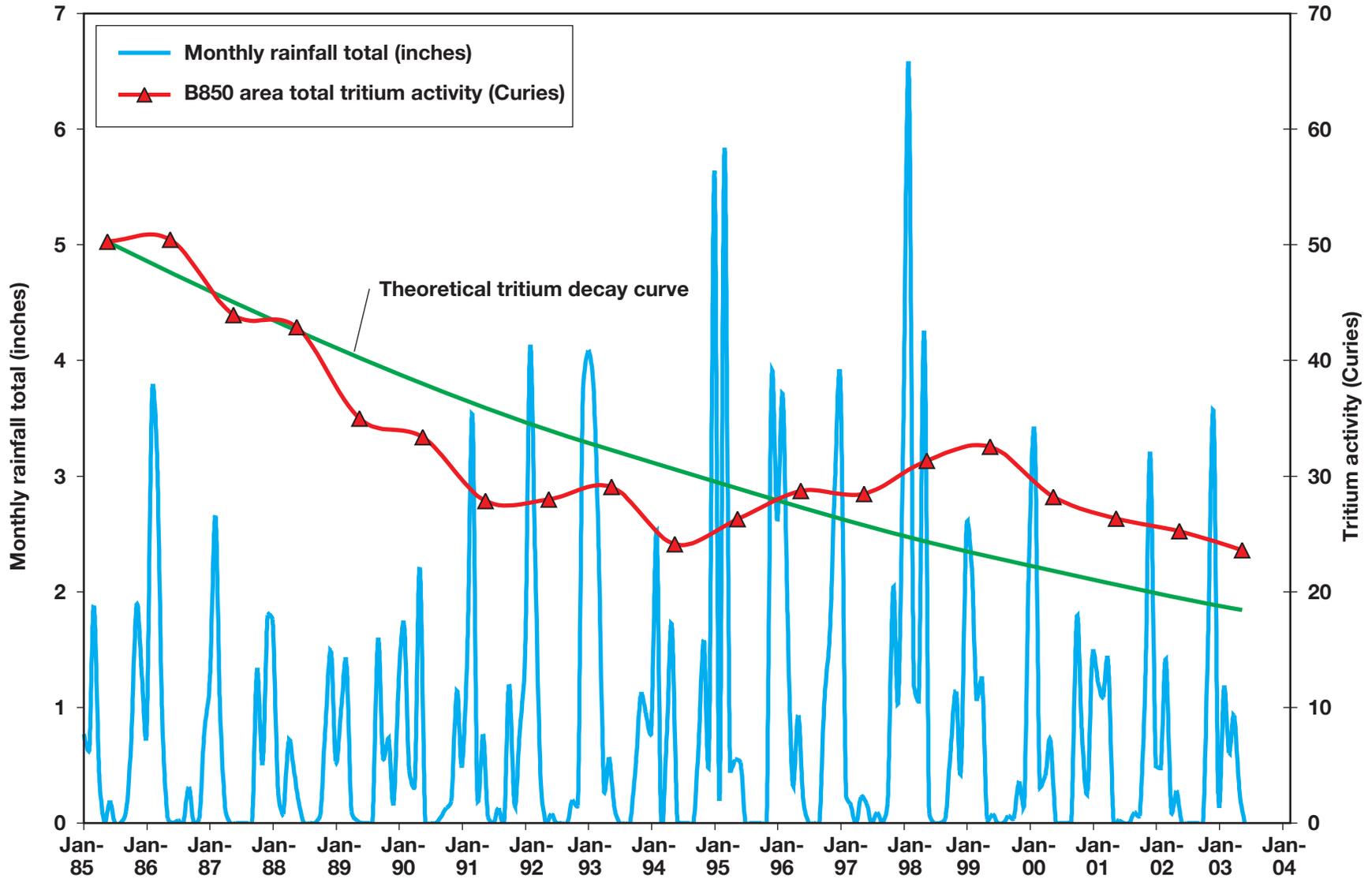
ERD-S3R-03-0184

Figure 11. Time-series plot of tritium activities in ground water samples from wells NC7-10, NC7-28, and NC7-61.



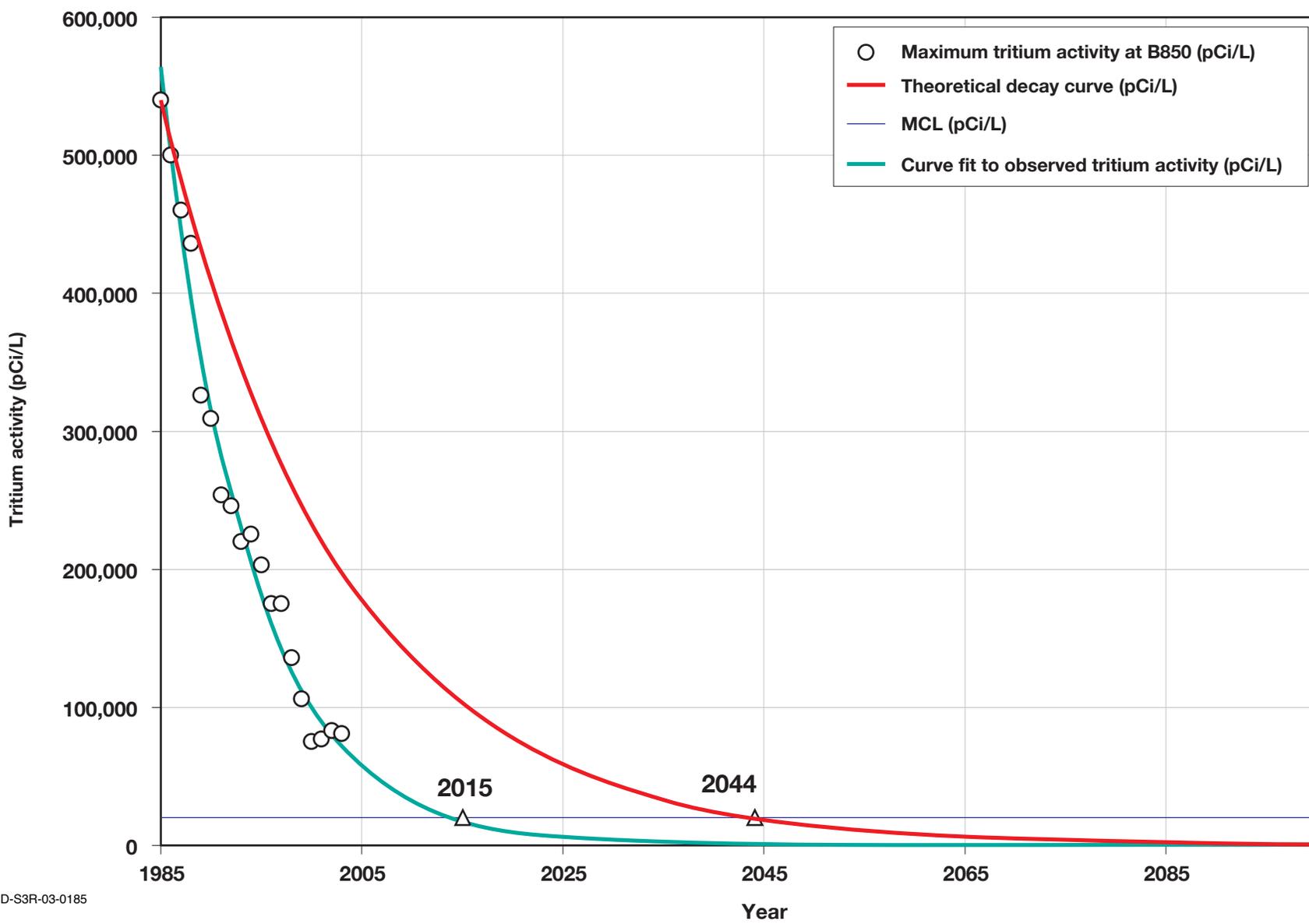
ERD-S3R-03-0200

Figure 12. Building 850 subarea showing total uranium activity in ground water and percent of activity due to addition of depleted uranium.



ERD-S3R-03-0186

Figure 13. Total ground water tritium activity time-series plot for the Building 850 subarea.



ERD-S3R-03-0185

Figure 14. Time-series plot of maximum tritium activities in ground water.

Tables

Table 1-1. Selected remedies for contaminants of concern in environmental media in the Building 850 subarea.

Contaminant of concern	Environmental media			
	Surface soil	Subsurface soil	Surface water	Ground water
Tritium	No Further Action for soil adjacent to firing table. ^a Excavation and disposal of sand pile.	No Further Action ^b Excavation and disposal of sand pile.	Monitored Natural Attenuation	Monitored Natural Attenuation
Depleted uranium	No Further Action for soil adjacent to firing table ^a	No Further Action ^b	Monitoring ^c	Monitoring
PCBs, dioxins, furans	Excavation and disposal	Not a contaminant of concern Excavation and disposal	Not a contaminant of concern	Not a contaminant of concern
HMX	Excavation and disposal ^a	Not a contaminant of concern	Not a contaminant of concern	Not a contaminant of concern
Metals	Excavation and disposal ^a	Not a contaminant of concern	Not a contaminant of concern	Not a contaminant of concern
Nitrate	Not a contaminant of concern	Not a contaminant of concern	Not a contaminant of concern	Monitoring
Perchlorate	Not a contaminant of concern	Not a contaminant of concern	Not a contaminant of concern	Monitoring ^d

^a Contaminant of concern not present in surface soil at concentrations exceeding health-based standards or that pose a threat to ground water quality. Incidental removal during PCB-driven soil excavation.

^b Tritium and depleted uranium are not present in concentrations beneath firing table exceeding health-based standards or that pose a threat to ground water quality.

^c Depleted uranium not currently established as a contaminant of concern in surface water.

^d Perchlorate not currently established as a contaminant of concern in ground water.

Table 1-2. Building 850 subarea remedial action and document schedule.

Activity	Completion date
Surface soil sampling and analysis	September 30, 2006
Excavate soil from sand pile/hillside	September 30, 2006
Building 850 Draft Five-Year Review	June 30, 2009
Building 850 Draft Final Five-Year Review	November 14, 2009
Building 850 Final Five-Year Review	December 13, 2009

Appendix A
Analytical Data Tables

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- A-3. Surface soil analyses for dioxin and furan compounds (mg/kg) in samples collected from the Building 850 subarea between January 1, 1988 and October 31, 2003.
- A-4. Surface soil analyses for uranium isotopes (pCi/g) and $^{235}\text{U}/^{238}\text{U}$ atom ratio in samples collected from the Building 850 subarea between January 1, 1988 and October 31, 2003.
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- A-20. Ground and surface water analyses for volatile organic compounds ($\mu\text{g/L}$) in samples collected from the Building 850 subarea between July 1, 1995 and June 30, 2003.
- A-21. Ground and surface water analyses for aromatic (fuel) hydrocarbons ($\mu\text{g/L}$) in samples collected from the Building 850 subarea between July 1, 1995 and June 30, 2003.
- A-22. Ground and surface water analyses for anions, TDS, specific conductivity, and pH in samples collected from the Building 850 subarea between July 1, 1995 and June 30, 2003.

Table A-1. Ground Water Elevations measured in the Building 850 subarea
Current Date: November 5, 2003
Current Time: 15:45:38

Table A-1. Ground Water Elevations for Monitor Wells in the Building 850 subarea, measured between July 1, 1995, and June 30, 2003.

Location				Location			
Date of Measurement	Depth to Water (ft)	Water Elevation (ft/MSL)	Notes	Date of Measurement	Depth to Water (ft)	Water Elevation (ft/MSL)	Notes
K1-07 (continued)				K1-07 (continued)			
10/07/97	135.18	974.45		10/23/01	132.50	977.13	PS
11/04/97	135.06	974.57		11/07/01	132.75	976.88	
12/02/97	135.09	974.54		12/05/01	132.93	976.70	
01/12/98	134.80	974.83		01/10/02	133.11	976.52	
01/12/98	134.80	974.83	PS	01/22/02	133.00	976.63	PS
02/09/98	135.12	974.51		02/04/02	132.96	976.67	
03/05/98	134.31	975.32		03/06/02	132.75	976.88	
04/06/98	133.52	976.11		04/12/02	133.10	976.53	
04/15/98	133.30	976.33	PS	04/18/02	133.15	976.48	PS
05/06/98	132.73	976.90		05/01/02			NM
06/03/98	131.87	977.76		06/01/02	133.15	976.48	
07/13/98	130.82	978.81		07/09/02	133.27	976.36	
07/16/98	130.68	978.95	PS	07/30/02	133.60	976.03	PS
08/11/98	130.17	979.46		08/03/02	133.62	976.01	
09/01/98	129.52	980.11		09/07/02	133.88	975.75	
10/15/98	128.30	981.33	PS	10/03/02	133.90	975.73	
10/26/98	128.01	981.62		12/06/02	134.32	975.31	PS
11/17/98	127.86	981.77		01/08/03	134.55	975.08	
12/01/98	127.76	981.87		01/30/03	134.85	974.78	PS
01/05/99	127.18	982.45		02/01/03	134.83	974.80	
01/14/99	127.00	982.63	PS	03/01/03	134.87	974.76	
02/05/99	126.51	983.12		04/05/03	135.00	974.63	
03/03/99	126.39	983.24	PS	05/01/03	134.95	974.68	PS
03/09/99	126.43	983.20		06/06/03	135.15		PS
03/10/99	125.50	984.13	PS				
04/12/99	126.46	983.17	PS				
04/15/99	125.92	983.71		K1-08			
05/04/99	126.20	983.43		07/14/95	155.04	967.70	
06/02/99	125.91	983.72		07/31/95	155.00	967.74	PS
07/06/99	126.30	983.33	PS	01/18/96	154.80	967.94	
07/22/99	126.18	983.45		04/12/96	152.80	969.94	PS
08/18/99	126.41	983.22		05/01/96	152.15	970.59	
09/13/99	126.64	982.99		06/06/96	151.78	970.96	
10/04/99	127.17	982.46	PS	07/16/96	151.72	971.02	
10/12/99	126.98	982.65		07/31/96	151.65	971.09	PS
12/03/99	127.47	982.16		08/08/96	151.64	971.10	
01/12/00	127.53	982.10		09/04/96	151.61	971.13	
02/08/00	128.45	981.18	PS	10/09/96	151.56	971.18	
02/16/00	128.22	981.41		10/11/96	151.90	970.84	PS
03/16/00	128.58	981.05		11/06/96	151.71	971.03	
04/03/00	128.47	981.16		12/10/96	151.31	971.43	
04/19/00	131.72	977.91	PS	01/13/97	151.30	971.44	
05/02/00	128.62	981.01		02/05/97	151.07	971.67	
06/05/00	128.72	980.91		03/04/97	150.13	972.61	
07/07/00	128.74	980.89		04/10/97	149.40	973.34	
07/20/00	128.68	980.95	PS	05/10/97	149.10	973.64	
08/07/00	129.04	980.59		06/05/97	148.84	973.90	
09/06/00	129.31	980.32		07/10/97	148.72	974.02	
10/03/00	129.34	980.29		08/04/97	148.79	973.95	
10/25/00	129.57	980.06	PS	09/04/97	148.67	974.07	
11/01/00	129.73	979.90		10/07/97	148.67	974.07	
12/04/00	130.19	979.44		11/04/97	148.68	974.06	
01/04/01	130.38	979.25		12/02/97	148.68	974.06	
01/22/01	131.75	977.88	PS	01/12/98	148.60	974.14	PS
02/01/01	130.64	978.99		01/12/98	148.60	974.14	
03/08/01	130.88	978.75		02/09/98	148.84	973.90	
04/10/01	130.95	978.68		03/05/98	147.30	975.44	
04/23/01	133.15	976.48	PS	04/06/98	145.83	976.91	
05/03/01	133.15	976.48		04/15/98	145.80	976.94	PS
06/01/01	131.33	978.30		05/06/98	145.30	977.44	
07/10/01	131.70	977.93	ps	06/03/98	144.78	977.96	
07/10/01	131.70	977.93		07/13/98	144.16	978.58	
08/02/01	131.94	977.69		07/16/98	144.20	978.54	PS
09/07/01	132.19	977.44		08/11/98	143.79	978.95	
10/04/01	132.34	977.29		09/01/98	143.31	979.43	

Table A-1. Ground Water Elevations for Monitor Wells in the Building 850 subarea, measured between July 1, 1995, and June 30, 2003.

Location				Location			
Date of Measurement	Depth to Water (ft)	Water Elevation (ft/MSL)	Notes	Date of Measurement	Depth to Water (ft)	Water Elevation (ft/MSL)	Notes
K1-08 (continued)				K1-08 (continued)			
10/15/98	142.54	980.20	PS	08/03/02	148.15	974.59	
10/26/98	142.35	980.39		09/07/02	148.29	974.45	
11/17/98	142.47	980.27		10/03/02	148.52	974.22	
12/01/98	142.16	980.58		12/13/02	148.92	973.82	PS
12/04/98	142.10	980.64	PS	01/08/03	149.14	973.60	
12/11/98	142.13	980.61	PS	01/31/03	149.15	973.59	PS
01/05/99	141.97	980.77		02/01/03	149.15	973.59	
01/14/99	141.98	980.76	PS	02/07/03	149.05	973.69	PS
02/05/99	141.50	981.24		03/01/03	149.15	973.59	
03/03/99	141.60	981.14	PS	04/05/03	149.25	973.49	
03/09/99	141.54	981.20		05/02/03	149.22	973.52	PS
03/10/99	141.72	981.02	PS	06/06/03	149.53		PS
04/12/99	141.54	981.20	PS				
04/15/99	141.25	981.49		K1-09			
05/04/99	141.55	981.19		07/14/95	161.43	965.25	
06/02/99	141.36	981.38		07/31/95	161.45	965.23	PS
07/07/99	141.65	981.09	PS	01/18/96	161.50	965.18	
07/22/99	141.51	981.23		04/12/96	159.50	967.18	PS
08/18/99	141.43	981.31		05/01/96	158.97	967.71	
09/13/99	141.90	980.84		06/06/96	158.51	968.17	
10/04/99	142.28	980.46	PS	07/16/96	158.41	968.27	
10/12/99	142.18	980.56		07/31/96	158.38	968.30	PS
12/03/99	142.60	980.14		08/08/96	158.40	968.28	
01/10/00	142.93	979.81		09/04/96	158.35	968.33	
02/09/00	143.33	979.41	PS	10/09/96	158.32	968.36	
02/16/00	143.37	979.37		10/11/96	158.50	968.18	PS
03/16/00	143.60	979.14		11/06/96	158.52	968.16	
04/03/00	143.36	979.38		12/10/96	158.08	968.60	
04/19/00	143.65	979.09	PS	01/15/97	158.40	968.28	
05/02/00	143.50	979.24		02/05/97	158.00	968.68	
06/05/00	143.82	978.92		03/04/97	157.19	969.49	
07/07/00	143.71	979.03		04/10/97	156.35	970.33	
07/20/00	143.75	978.99	PS	05/10/97	156.11	970.57	
08/07/00	144.01	978.73		06/05/97	155.88	970.80	
09/06/00	144.30	978.44		07/10/97	155.79	970.89	
10/03/00	144.24	978.50		08/04/97	155.86	970.82	
10/24/00	144.62	978.12	PS	09/04/97	155.81	970.87	
11/01/00	144.88	977.86		10/07/97	155.78	970.90	
12/04/00	145.03	977.71		11/04/97	155.79	970.89	
01/04/01	145.03	977.71		12/02/97	155.80	970.88	
01/22/01	145.15	977.59	PS	01/20/98	155.74	970.94	
02/01/01	145.65	977.09		02/09/98	156.05	970.63	
03/08/01	145.62	977.12		03/05/98	154.45	972.23	
04/10/01	145.87	976.87		03/17/98	155.75	970.93	PS
04/23/01	146.05	976.69	PS	04/06/98	153.14	973.54	
05/03/01	146.05	976.69		04/15/98	153.00	973.68	PS
06/01/01	146.12	976.62		05/06/98	152.70	973.98	
07/11/01	146.40	976.34	ps	06/03/98	152.16	974.52	
07/11/01	146.40	976.34		07/13/98	151.81	974.87	
08/02/01	146.69	976.05		07/16/98	151.45	975.23	PS
09/07/01	146.83	975.91		08/11/98	151.36	975.32	
10/04/01	146.94	975.80		09/01/98	151.02	975.66	
10/23/01	147.00	975.74	PS	10/15/98	150.35	976.33	PS
11/07/01	147.23	975.51		10/26/98	150.18	976.50	
12/05/01	147.36	975.38		11/17/98	150.18	976.50	
01/10/02	147.40	975.34		12/01/98	150.01	976.67	
01/22/02	147.40	975.34	PS	01/05/99	149.87	976.81	
02/04/02	147.25	975.49		01/13/99	149.65	977.03	PS
03/06/02	147.01	975.73		02/05/99	149.48	977.20	
04/12/02	147.46	975.28		03/09/99	149.58	977.10	
04/18/02	147.50	975.24	PS	04/13/99	149.56	977.12	PS
05/01/02			NM	04/15/99	149.02	977.66	
06/01/02	147.63	975.11		05/04/99	149.54	977.14	
07/09/02	146.90	975.84		06/02/99	148.82	977.86	
07/30/02	148.15	974.59	PS				

Table A-1. Ground Water Elevations for Monitor Wells in the Building 850 subarea, measured between July 1, 1995, and June 30, 2003.

Location				Location			
Date of Measurement	Depth to Water (ft)	Water Elevation (ft/MSL)	Notes	Date of Measurement	Depth to Water (ft)	Water Elevation (ft/MSL)	Notes
K1-09 (continued)				K2-01C (continued)			
07/07/99	149.41	977.27	PS	01/08/96	61.39	989.80	
07/22/99	149.07	977.61		04/09/96	57.34	993.85	
08/18/99	149.43	977.25		05/21/96	55.70	995.49	PS
09/13/99	149.64	977.04		07/16/96	54.33	996.86	
10/04/99	149.87	976.81	PS	09/13/96	53.76	997.43	PS
10/12/99	149.87	976.81		10/09/96	53.74	997.45	
12/03/99	150.00	976.68		11/20/96	53.70	997.49	PS
01/10/00	150.20	976.48		01/13/97	53.61	997.58	
02/09/00	150.59	976.09	PS	04/10/97	50.71	1000.48	
02/16/00	150.76	975.92		07/10/97	49.59	1001.60	
03/16/00	150.92	975.76		10/07/97	50.50	1000.69	
04/03/00	150.94	975.74		01/13/98	51.48	999.71	
04/19/00	151.02	975.66	PS	04/06/98	45.00	1006.19	
05/02/00	150.82	975.86		07/13/98	40.41	1010.78	
06/05/00	150.99	975.69		10/23/98	39.32	1011.87	
07/07/00	150.74	975.94		12/14/98	39.40	1011.79	PS
07/20/00	151.55	975.13	PS	01/05/99	39.62	1011.57	
08/07/00	151.40	975.28		04/15/99	39.63	1011.00	POM=1.43
09/06/00	151.55	975.13		05/26/99	40.97	1009.66	PS
10/03/00	151.48	975.20		07/22/99	42.25	1008.38	
10/24/00	151.81	974.87	PS	10/12/99	43.83	1006.80	NO STOVE PIP
11/01/00	152.10	974.58		11/08/99	44.75	1005.88	PS
12/04/00	152.18	974.50		01/10/00	45.93	1004.70	NO STOVE PIP
01/04/01	152.18	974.50	PS	04/03/00	45.31	1005.32	NO STOVE PIP
01/22/01	152.25	974.43	PS	05/17/00	45.49	1005.14	PS
02/01/01	152.56	974.12		06/14/00	45.53	1005.10	PS
03/08/01	152.77	973.91		06/22/00	46.75	1003.88	PS
04/10/01	152.84	973.84		07/07/00	47.21	1003.42	NO STOVE PIP
04/20/01	152.92	973.76	PS	10/03/00	49.00	1001.63	NO STOVE PIP
05/03/01	152.92	973.76		11/21/00	50.02	1000.61	PS
06/01/01	152.87	973.81		01/04/01	50.71	999.92	
07/11/01	153.40	973.28	PS	04/10/01	51.96	998.67	
07/11/01	153.40	973.28		05/16/01	52.65	997.98	PS
08/02/01	153.53	973.15		07/11/01	53.04	997.59	
09/07/01	153.62	973.06		10/04/01	53.66	996.97	
10/04/01	153.97	972.71		11/14/01	53.75	996.88	PS
10/23/01	154.00	972.68	PS	01/09/02	53.43	997.20	
11/07/01	154.23	972.45		04/12/02	53.10	997.53	
12/05/01	154.37	972.31		07/23/02	53.09	997.54	
01/10/02	154.63	972.05		10/03/02	55.63	995.00	
01/22/02	154.40	972.28	PS	01/10/03	55.30	995.33	
02/04/02	154.33	972.35		04/17/03	55.61	995.02	
03/06/02	154.07	972.61		06/05/03	56.03		PS
04/12/02	154.40	972.28					
04/18/02	154.50	972.18	PS				
05/01/02			NM	K2-03			
06/01/02	154.67	972.01	OILY RESIDUE	07/14/95	50.77	1015.87	
07/09/02	154.87	971.81		10/03/95	50.43	1016.21	
07/30/02	155.00	971.68	PS	01/08/96	50.85	1015.79	
08/03/02	155.00	971.68		04/09/96	48.16	1018.48	
09/07/02	155.45	971.23		07/16/96	47.06	1019.58	
10/09/02	155.43	971.25		10/08/96	47.40	1019.24	
12/06/02	155.72	970.96	PS	01/13/97	47.34	1019.30	
01/08/03	156.01	970.67		04/03/97			NM
01/31/03	155.92	970.76	PS	07/10/97	45.26	1021.38	
02/01/03	155.92	970.76		10/07/97	46.03	1020.61	
03/01/03	156.08	970.60		01/13/98	46.20	1020.44	
04/05/03	156.10	970.58		04/06/98	40.10	1026.54	
05/02/03	156.15	970.53	PS	07/13/98	38.21	1028.43	
06/06/03	156.46		PS	10/23/98	37.23	1029.41	
				01/05/99	38.32	1028.32	
				04/02/99	39.51	1027.13	
K2-01C				07/22/99	41.22	1025.42	
07/14/95	62.25	988.94		10/12/99	43.17	1023.47	
10/04/95	61.59	989.60		01/10/00	44.50	1022.14	

Table A-1. Ground Water Elevations for Monitor Wells in the Building 850 subarea, measured between July 1, 1995, and June 30, 2003.

Location				Location			
Date of Measurement	Depth to Water (ft)	Water Elevation (ft/MSL)	Notes	Date of Measurement	Depth to Water (ft)	Water Elevation (ft/MSL)	Notes
K2-03 (continued)				K2-04S			
04/03/00	43.78	1022.86		07/14/95	19.20	1072.75	
07/07/00	45.54	1021.10		10/04/95	21.99	1069.96	
10/02/00	46.23	1020.41		01/08/96	22.56	1069.39	
01/04/01	46.93	1019.71		04/09/96	14.89	1077.06	
04/10/01	46.98	1019.66		04/23/96	14.70	1077.25	PS
07/11/01	47.98	1018.66		05/21/96	14.38	1077.57	PS
10/04/01	48.56	1018.08		07/18/96	16.01	1075.94	
01/08/02	48.23	1018.41		09/13/96	18.92	1073.03	PS
02/04/02	47.75	1018.89		10/04/96	18.21	1073.74	
04/12/02	48.29	1018.35		11/19/96	18.70	1073.25	PS
07/22/02	48.26	1018.38		01/15/97	17.04	1074.91	
10/04/02	48.78	1017.86		04/10/97	13.59	1078.36	
01/10/03	48.55	1018.09		07/11/97	16.87	1075.08	
04/12/03	48.44	1018.20		10/07/97	17.93	1074.02	
				01/13/98	18.18	1073.77	
				04/06/98	10.11	1081.84	
K2-04D				06/22/98	9.35	1082.60	PS
07/14/95	20.76	1071.76		07/14/98	6.28	1085.67	
10/04/95	23.36	1069.16		10/22/98	11.79	1080.16	
01/08/96	24.05	1068.47		11/30/98	12.80	1079.15	PS
04/09/96	16.79	1075.73		01/05/99	14.10	1077.85	
04/23/96	15.30	1077.22	PS	04/02/99	13.88	1078.07	
05/21/96	15.75	1076.77	PS	06/02/99	15.42	1076.53	PS
07/18/96	17.49	1075.03		07/22/99	16.31	1075.64	
09/13/96	19.10	1073.42	PS	10/13/99	17.38	1074.57	
10/04/96	19.52	1073.00		11/09/99	17.85	1074.10	PS
11/20/96	20.00	1072.52	PS	01/07/00	17.98	1073.97	
01/15/97	18.61	1073.91		04/05/00	16.12	1075.83	
04/10/97	15.04	1077.48		05/18/00	17.50	1074.45	PS
07/11/97	17.98	1074.54		07/10/00	18.73	1073.22	
10/07/97	19.13	1073.39		10/11/00	16.69	1075.26	
01/13/98	19.51	1073.01		11/27/00	19.85	1072.10	PS
04/06/98	11.44	1081.08		01/09/01	20.22	1071.73	PS
06/22/98	10.50	1082.02	PS	04/10/01	19.82	1072.13	PS
07/14/98	10.28	1082.24		05/16/01	20.25	1071.70	PS
10/22/98	12.63	1079.89		07/16/01	21.06	1070.89	
12/07/98	14.15	1078.37	PS	10/04/01	21.57	1070.38	
01/04/99	14.81	1077.71		11/14/01	22.10	1069.85	PS
04/02/99	14.98	1077.54		01/09/02	19.94	1072.01	
05/26/99	16.35	1076.17	PS	04/11/02	20.35	1071.60	
07/22/99	17.39	1075.13		07/12/02	22.07	1069.88	
10/13/99	18.35	1074.17		10/03/02	22.78	1069.17	
11/08/99	19.13	1073.39	PS	12/27/02	21.36	1070.59	PS
01/07/00	19.26	1073.26		01/04/03	20.98	1070.97	
04/05/00	17.68	1074.84		04/05/03	21.20	1070.75	
05/17/00	19.49	1073.03	PS	05/02/03	21.78	1070.17	PS
07/10/00	20.16	1072.36					
10/11/00	20.83	1071.69					
11/21/00	20.95	1071.57	PS	NC2-05			
01/09/01	21.46	1071.06	PS	07/14/95	55.07	979.83	
04/10/01	20.86	1071.66	PS	10/02/95	54.65	980.25	
06/06/01	21.95	1070.57	PS	01/09/96	54.16	980.74	
07/16/01	22.37	1070.15		04/10/96	47.71	987.19	
10/04/01	22.87	1069.65		07/15/96	50.71	984.19	
11/14/01	23.20	1069.32	PS	10/04/96	49.79	985.12	
01/09/02	21.42	1071.10		01/08/97	47.13	987.78	
04/11/02	21.79	1070.73		04/10/97	44.64	990.27	
07/12/02	23.39	1069.13		07/10/97	44.82	990.09	
10/03/02	24.00	1068.52		10/10/97	45.22	989.69	
12/26/02	22.89	1069.63	PS	01/12/98	44.10	990.81	
01/04/03	22.45	1070.07		04/06/98	39.31	995.60	
04/05/03	22.65	1069.87		07/13/98	36.72	998.19	
05/15/03	23.49	1069.03	PS	10/23/98	36.45	998.46	
				01/05/99	35.96	998.95	
				04/15/99	35.18	999.73	

Table A-1. Ground Water Elevations for Monitor Wells in the Building 850 subarea, measured between July 1, 1995, and June 30, 2003.

Location				Location			
Date of Measurement	Depth to Water (ft)	Water Elevation (ft/MSL)	Notes	Date of Measurement	Depth to Water (ft)	Water Elevation (ft/MSL)	Notes
NC2-05 (continued)				NC2-06 (continued)			
07/22/99	36.03	998.88		04/06/98	41.45	992.09	
10/12/99	37.01	997.90		07/13/98	38.31	995.23	
01/07/00	37.93	996.98		10/23/98	36.58	996.96	
04/05/00	37.01	997.90		01/05/99	35.84	997.70	
07/05/00	38.35	996.56		04/15/99	35.01	998.53	
10/03/00	39.90	995.01		07/22/99	35.27	998.27	
01/04/01	40.64	994.27		10/12/99	36.13	997.41	
04/05/01	41.60	993.31		01/20/00	36.99	996.55	
07/16/01	42.74	992.17		04/05/00	36.62	996.92	
10/04/01	43.44	991.47		07/05/00	37.65	995.89	
01/07/02	43.77	991.14		10/03/00	38.36	995.18	
04/15/02	42.58	992.33		01/03/01	39.14	994.40	
07/22/02	43.81	991.10		04/05/01	39.92	993.62	
10/04/02	44.73	990.18		07/17/01	40.79	992.75	
01/08/03	43.95	990.96		10/05/01	41.41	992.13	
04/12/03	44.03	990.88		01/09/02	41.79	991.75	
				04/15/02	41.51	992.03	
				07/16/02	42.14	991.40	
				10/03/02	42.76	990.78	
				01/10/03	43.00	990.54	
				04/05/03	43.78	989.76	
NC2-05A				NC2-06A			
07/14/95	55.51	979.95		07/14/95	54.17	980.10	
10/02/95	55.00	980.46		10/02/95	53.65	980.62	
01/09/96	54.66	980.80		01/09/96	53.43	980.84	
04/10/96	52.89	982.57		04/11/96	52.20	982.07	
07/15/96	51.18	984.28		07/16/96	50.35	983.92	
10/04/96	50.17	985.26		10/04/96	49.44	984.79	
01/08/97	49.42	986.01		01/15/97	48.72	985.51	
04/10/97	47.48	987.95		04/10/97	47.02	987.21	
07/10/97	46.43	989.00		07/10/97	45.85	988.38	
10/10/97	46.22	989.21		10/07/97	45.52	988.71	
01/12/98	45.83	989.60		01/12/98	45.24	988.99	
04/06/98	42.58	992.85		04/06/98	42.54	991.69	
07/13/98	39.19	996.24		07/13/98	39.31	994.92	
10/23/98	37.92	997.51		10/23/98	37.56	996.67	
01/05/99	37.29	998.14		01/05/99	36.82	997.41	
04/15/99	36.70	998.73		04/15/99	36.07	998.16	
07/22/99	37.16	998.27		07/22/99	36.22	998.01	
10/12/99	38.04	997.39		10/12/99	36.95	997.28	
01/07/00	37.23	998.20		01/20/00	37.77	996.46	
04/05/00	38.35	997.08		04/12/00	37.49	996.74	
07/05/00	39.38	996.05		07/05/00	38.39	995.84	
10/03/00	40.64	994.79		10/03/00	39.16	995.07	
01/04/01	41.55	993.88		01/03/01	41.12	993.11	
04/05/01	42.27	993.16		04/05/01	40.78	993.45	
07/16/01	42.96	992.47		07/17/01	41.60	992.63	
10/04/01	43.95	991.48		10/05/01	42.27	991.96	
01/07/02	44.24	991.19		01/09/02	42.66	991.57	
04/15/02	43.70	991.73		04/15/02	42.35	991.88	
07/22/02	44.16	991.27		07/16/02	42.84	991.39	
10/04/02	44.88	990.55		10/04/02	43.57	990.66	
01/08/03	44.76	990.67		01/10/03	43.88	990.35	
04/12/03	45.07	990.36		04/05/03	42.95	991.28	
NC2-06				NC2-07			
07/14/95	53.30	980.21		10/05/95	91.04	677.03	
10/02/95	52.73	980.78		01/11/96	92.34	675.73	
01/09/96	52.52	980.99		04/05/96	88.93	679.14	
04/11/96	51.11	982.40		05/08/96	87.40	680.67	PS
07/16/96	49.41	984.10		07/12/96	86.30	681.77	
10/04/96	48.49	985.05		10/11/96	87.50	680.57	
01/15/97	47.77	985.77					
04/10/97	46.01	987.53					
07/10/97	44.88	988.66					
10/07/97	44.59	988.95					
01/12/98	44.23	989.31					

Table A-1. Ground Water Elevations for Monitor Wells in the Building 850 subarea, measured between July 1, 1995, and June 30, 2003.

Location				Location			
Date of Measurement	Depth to Water (ft)	Water Elevation (ft/MSL)	Notes	Date of Measurement	Depth to Water (ft)	Water Elevation (ft/MSL)	Notes
NC2-11S (continued)				NC2-12I (continued)			
04/12/03	46.79	981.73		04/15/99	44.66	984.09	
NC2-12D				07/23/99	44.23	984.52	
07/14/95	54.08	974.36		10/12/99	44.17	984.58	
10/04/95	54.00	974.44		01/10/00	44.24	984.51	
01/09/96	54.03	974.41		04/03/00	43.75	985.00	
04/05/96	52.64	975.80		07/05/00	44.12	984.63	
05/07/96	52.53	975.91	PS	10/03/00	44.32	984.43	
07/15/96	52.36	976.08		01/03/01	44.84	983.91	
10/04/96	52.18	976.26		04/05/01	44.86	983.89	
12/17/96	52.30		PS	07/16/01	45.18	983.57	
01/08/97	51.63	976.81		10/04/01	45.56	983.19	
04/10/97	50.49	977.95		01/02/02	45.65	983.10	
07/10/97	50.23	978.21		04/12/02	45.68	983.07	
10/10/97	50.11	978.33		07/16/02	45.89	982.86	
01/12/98	49.87	978.57		10/03/02	46.23	982.52	
04/06/98	46.94	981.50		01/03/03	46.13	982.62	
06/22/98	46.20	982.24	PS	NC2-12S			
07/13/98	46.14	982.30		07/14/95	54.22	974.30	
10/23/98	45.62	982.82		10/02/95	54.21	974.31	
12/03/98	45.40	983.04	PS	01/09/96	54.13	974.39	
01/05/99	45.27	983.17		04/10/96	52.63	975.89	
04/15/99	44.34	984.10		07/15/96	52.46	976.06	
05/24/99	44.18	984.26	PS	10/04/96	52.30	976.22	
07/23/99	43.96	984.48		01/08/97	51.75	976.77	
10/12/99	43.86	984.58		04/10/97	50.61	977.91	
11/10/99	44.17	984.27	PS	07/10/97	50.37	978.15	
01/10/00	43.92	984.52		10/10/97	50.20	978.32	
04/03/00	43.39	985.05		01/12/98	49.96	978.56	
05/17/00	43.61	984.83	PS	04/06/98	47.10	981.42	
07/05/00	43.97	984.47		07/13/98	46.27	982.25	
10/02/00	43.75	984.69		10/23/98	45.79	982.73	
11/27/00	42.50	985.94	PS	01/05/99	45.48	983.04	
01/03/01	44.58	983.86	PS	04/15/99	44.50	984.02	
04/05/01	44.52	983.92	PS	07/23/99	43.98	984.54	
05/17/01	44.60	983.84	PS	10/12/99	44.00	984.52	
07/16/01	44.84	983.60		01/10/00	43.94	984.58	
10/04/01	45.08			04/03/00	43.54	984.98	
11/14/01	45.45	45.45	PS	07/05/00	43.87	984.65	
01/02/02	45.23			10/03/00	44.01	984.51	
04/12/02	45.33	983.11		01/03/01	44.55	983.97	
07/16/02	45.53	982.91		04/05/01	44.55	983.97	
10/03/02	45.86	982.58		07/16/01	44.91	983.61	
12/26/02	45.94	982.50	PS	10/04/01	45.23	983.29	
01/03/03	45.76	982.68		01/02/02	45.23	983.29	
05/08/03	45.66	982.78	PS	04/12/02	45.40	983.12	
NC2-12I				07/16/02	45.59	982.93	
07/14/95	54.44	974.31		10/03/02	45.65	982.87	
10/02/95	54.36	974.39		01/03/03	45.83	982.69	
01/09/96	54.37	974.38		04/05/03	45.80	982.72	
04/10/96	52.85	975.90		NC2-13			
07/15/96	52.71	976.04		07/14/95	47.28	974.22	
10/04/96	52.53	976.22		10/02/95	47.35	974.15	
01/08/97	51.99	976.76		01/09/96	47.34	974.16	
04/10/97	50.84	977.91		04/11/96	45.54	975.96	
07/10/97	50.63	978.12		07/16/96	45.89	975.61	
10/10/97	50.44	978.31		10/04/96	45.93	975.57	
01/12/98	50.19	978.56		01/15/97	45.07	976.43	
04/06/98	47.34	981.41		04/10/97	44.15	977.35	
07/13/98	46.58	982.17		07/10/97	44.16	977.34	
10/23/98	46.03	982.72		10/07/97	44.03	977.47	
01/05/99	45.55	983.20		01/12/98	43.83	977.67	

Table A-1. Ground Water Elevations for Monitor Wells in the Building 850 subarea, measured between July 1, 1995, and June 30, 2003.

Location				Location			
Date of Measurement	Depth to Water (ft)	Water Elevation (ft/MSL)	Notes	Date of Measurement	Depth to Water (ft)	Water Elevation (ft/MSL)	Notes
NC2-13 (continued)				NC2-15 (continued)			
04/06/98	40.33	981.17		01/15/97	70.60	1002.86	
07/13/98	40.04	981.46		04/10/97	68.21	1005.25	
10/23/98	39.92	981.58		07/10/97	67.89	1005.57	
01/05/99	39.44	982.06		10/07/97	68.74	1004.72	
04/15/99	38.32	983.18		01/12/98	69.31	1004.15	
07/23/99	37.96	983.54		04/06/98	64.83	1008.63	
10/12/99	37.95	983.55		07/13/98	61.14	1012.32	
01/20/00	37.99	983.51		10/23/98	60.30	1013.16	
04/03/00	36.99	984.51		01/05/99	60.90	1012.56	
07/05/00	37.46	984.04		04/15/99	61.44	1012.02	
10/03/00	37.82	983.68		07/22/99	63.09	1010.37	
01/03/01	38.32	983.18		10/12/99	64.80	1008.66	
04/10/01	38.29	983.21		01/20/00	66.40	1007.06	
07/16/01	38.60	982.90		04/05/00	65.75	1007.71	
10/04/01	38.88	982.62		07/07/00	67.21	1006.25	
01/09/02	38.34	983.16		10/11/00	68.67	1004.79	
04/12/02	38.82	982.68		01/03/01	69.46	1004.00	
07/22/02	38.91	982.59		04/10/01	70.38	1003.08	
10/03/02	39.50	982.00		07/17/01	71.31	1002.15	
01/03/03	38.95	982.55		10/05/01	72.13	1001.33	
04/05/03	39.00	982.50		01/09/02	72.25	1001.21	
				02/05/02	71.84	1001.62	
				04/15/02	71.70	1001.76	
				07/16/02	72.74	1000.72	
				10/03/02	73.66	999.80	
				01/10/03	73.80	999.66	
				04/05/03	73.65	999.81	
NC2-14S				NC2-16			
07/12/95	15.00	1059.94		07/12/95	20.65	1061.81	
10/03/95	17.01	1057.93		10/03/95	22.25	1060.21	
01/08/96	17.75	1057.19		01/08/96	22.87	1059.59	
04/11/96	13.17	1061.77		04/11/96	18.98	1063.48	
07/18/96	12.70	1062.24		07/18/96	18.52	1063.94	
10/04/96	13.98	1060.96		10/04/96	19.55	1062.91	
01/15/97	13.04	1061.90		01/15/97	18.92	1063.54	
04/10/97	11.02	1063.92		04/10/97	17.13	1065.33	
07/11/97	12.90	1062.04		07/11/97	18.53	1063.93	
10/07/97	13.75	1061.19		10/07/97	19.29	1063.17	
01/13/98	13.62	1061.32		01/13/98	19.33	1063.13	
04/06/98	9.18	1065.76		04/06/98	15.43	1067.03	
07/14/98	7.85	1067.09		07/13/98	13.82	1068.64	
10/23/98	9.26	1065.68		10/23/98	15.09	1067.37	
01/04/99	10.65	1064.29		01/04/99	16.37	1066.09	
04/02/99	10.57	1064.37		04/02/99	16.35	1066.11	
07/22/99	12.55	1062.39		07/22/99	17.98	1064.48	
10/13/99	13.15	1061.79		10/13/99	18.48	1063.98	
01/07/00	13.62	1061.32		01/07/00	18.97	1063.49	
04/05/00	12.46	1062.48		04/03/00	18.12	1064.34	
07/10/00	14.01	1060.93		07/10/00	19.39	1063.07	
10/11/00	14.80	1060.14		10/11/00	19.91	1062.55	
01/09/01	15.02	1059.92		01/09/01	20.28	1062.18	
04/10/01	14.73	1060.21		04/10/01	20.20	1062.26	
07/16/01	15.68	1059.26		07/16/01	20.76	1061.70	
10/04/01	16.19	1058.75		10/04/01	21.28	1061.18	
01/08/02	14.85	1060.09		01/08/02	20.25	1062.21	
04/11/02	14.00	1059.90		02/05/02	20.61	1061.85	
07/22/02	13.18	1060.72		04/11/02	20.66	1061.80	
10/03/02	13.82	1060.08		07/12/02	21.66	1060.80	
01/04/03	12.41	1061.49		10/03/02	22.21	1060.25	
04/10/03	12.96	1060.94		01/04/03	21.03	1061.43	
				04/10/03	21.50	1060.96	
NC2-15							
07/14/95	77.94	995.52					
10/02/95	77.45	996.01					
01/09/96	78.75	994.71					
04/11/96	74.88	998.58					
07/16/96	70.46	1003.00					
10/07/96	70.57	1002.89					

Table A-1. Ground Water Elevations for Monitor Wells in the Building 850 subarea, measured between July 1, 1995, and June 30, 2003.

Location				Location			
Date of Measurement	Depth to Water (ft)	Water Elevation (ft/MSL)	Notes	Date of Measurement	Depth to Water (ft)	Water Elevation (ft/MSL)	Notes
NC2-17				NC2-18 (continued)			
07/14/95	108.55	980.94		01/10/03	71.00	1060.17	
10/02/95	108.02	981.47		04/05/03	71.00	1060.17	
01/09/96	107.89	981.60		NC2-19			
04/11/96	106.89	982.60		07/14/95	114.81	977.58	
07/16/96	104.99	984.50		10/02/95	114.75	977.64	
10/07/96	104.15	985.34		01/09/96	114.89	977.50	
01/15/97	103.51	985.98		04/11/96	114.65	977.74	
04/10/97	101.83	987.66		07/16/96	113.87	978.52	
07/10/97	100.65	988.84		10/04/96	113.55	978.84	
10/07/97	100.33	989.16		01/15/97	113.22	979.17	
01/12/98	100.06	989.43		04/10/97	112.26	980.13	
04/06/98	97.73	991.76		07/10/97	111.76	980.63	
07/13/98	94.50	994.99		10/07/97	111.39	981.00	
10/23/98	92.56	996.93		01/12/98	110.99	981.40	
01/05/99	91.89	997.60		04/06/98	110.20	982.19	
04/02/99	90.93	998.56		07/13/98	108.13	984.26	
07/22/99	91.10	998.39		10/23/98	106.33	986.06	
10/12/99	91.76	997.73		01/05/99	105.58	986.81	
01/20/00	92.82	996.67		04/15/99	104.43	987.96	
04/05/00	92.07	997.42		07/23/99	103.82	988.57	
07/05/00	93.23	996.26		10/12/99	103.52	988.87	
10/03/00	94.00	995.49		01/20/00	102.89	989.50	
01/03/01	94.94	994.55		04/03/00	103.38	989.01	
04/10/01	95.62	993.87		07/10/00	104.18	988.21	
07/17/01	96.60	992.89		10/03/00	104.01	988.38	
10/05/01	97.02	992.47		01/03/01	104.23	988.16	
01/09/02	97.45	992.04		04/10/01	104.34	988.05	
04/11/02	97.29	992.20		07/16/01	104.65	987.74	
07/16/02	97.81	991.68		10/05/01	105.05	987.34	
10/03/02	98.37	991.12		01/09/02	105.24	987.15	
01/10/03	98.80	990.69		04/12/02	105.45	986.94	
04/05/03	98.70	990.79		07/22/02	105.64	986.75	
NC2-18				10/03/02	105.78	986.61	
07/14/95	70.12	1061.05		01/10/03	106.15	986.24	
10/03/95	71.67	1059.50		04/05/03	106.15	986.24	
01/08/96	72.43	1058.74		NC2-20			
04/11/96	68.08	1063.09		07/14/95	35.82	966.45	
07/18/96	67.73	1063.44		10/02/95		1002.27	NM
10/04/96	68.98	1062.19		01/09/96	37.12	965.15	
01/15/97	68.81	1062.36		04/11/96	33.77	968.50	
04/10/97	65.86	1065.31		07/16/96	35.89	966.38	
07/11/97	67.76	1063.41		10/04/96	36.62	965.65	
10/07/97	68.62	1062.55		01/15/97	34.24	968.03	
01/13/98	69.08	1062.09		04/10/97	34.35	967.92	
04/06/98	62.73	1068.44		07/10/97	35.81	966.46	
07/14/98	60.83	1070.34		10/07/97	36.10	966.17	
10/23/98	63.02	1068.15		01/12/98	36.13	966.14	
01/04/99	64.56	1066.61		04/06/98	30.82	971.45	
04/02/99	64.85	1066.32		07/13/98	32.16	970.11	
07/22/99	66.74	1064.43		10/23/98	33.54	968.73	
10/13/99	67.64	1063.53		01/05/99	33.79	968.48	
01/20/00	68.31	1062.86		04/15/99	32.45	969.82	
04/05/00	67.09	1064.08		07/23/99	32.98	969.29	
07/10/00	65.94	1065.23		10/12/99	33.00	969.27	
10/11/00	69.73	1061.44		01/20/00	33.02	969.25	
01/09/01	69.98	1061.19		04/05/00	31.57	970.70	
04/10/01	69.84	1061.33		07/10/00	32.60	969.67	
07/16/01	70.59	1060.58		10/03/00	32.87	969.40	
10/05/01	71.02	1060.15		01/03/01	33.13	969.14	
01/09/02			NM/UC	04/10/01	32.84	969.43	
04/11/02	70.25	1060.92		07/17/01	33.11	969.16	
07/22/02	70.56	1060.61					
10/03/02	71.79	1059.38					

Table A-1. Ground Water Elevations for Monitor Wells in the Building 850 subarea, measured between July 1, 1995, and June 30, 2003.

Location				Location			
Date of Measurement	Depth to Water (ft)	Water Elevation (ft/MSL)	Notes	Date of Measurement	Depth to Water (ft)	Water Elevation (ft/MSL)	Notes
NC7-11 (continued)				NC7-11 (continued)			
02/27/98	11.07	1233.32		02/01/03	20.00	1224.39	
03/06/98	11.30	1233.09		03/01/03	20.27	1224.12	
03/13/98	12.03	1232.36		04/17/03	20.34	1224.05	
03/20/98	12.77	1231.62		NC7-14			
03/26/98	13.22	1231.17		07/12/95	28.03	1228.96	
04/07/98	13.97	1230.42		10/03/95	28.69	1228.30	
04/16/98	14.32	1230.07		01/05/96	28.79	1228.20	
05/07/98	14.30	1230.09		04/10/96	25.13	1231.86	
05/12/98	14.03	1230.36		07/18/96	26.55	1230.44	
05/22/98	14.40	1229.99		10/07/96	27.22	1229.77	
06/02/98	14.71	1229.68		01/10/97	25.98	1231.01	
06/12/98	14.95	1229.44		04/08/97	25.40	1231.59	
07/07/98	15.35	1229.04		07/11/97	26.31	1230.68	
07/14/98	15.49	1228.90		10/06/97	27.10	1229.89	
08/11/98	15.66	1228.73		01/13/98	27.49	1229.50	
09/01/98	15.72	1228.67		04/03/98	22.36	1234.63	
10/24/98	16.52	1227.87		07/14/98	23.61	1233.38	
11/16/98	16.98	1227.41		10/23/98	24.83	1232.16	
12/01/98	17.38	1227.01		01/04/99	26.08	1230.91	
01/04/99	17.85	1226.54		04/02/99	25.68	1231.31	
02/01/99	17.48	1226.91		07/22/99	26.95	1230.04	
03/09/99	16.79	1227.60		10/13/99	27.41	1229.58	
04/02/99	17.31	1227.08		01/06/00	27.72	1229.27	
05/04/99	17.82	1226.57		04/04/00	26.97	1230.02	
06/01/99	18.28	1226.11		07/03/00	27.97	1229.02	
07/22/99	18.78	1225.61		10/02/00	28.39	1228.60	
08/12/99	19.05	1225.34		01/05/01	28.86	1228.13	
09/12/99			NM	04/04/01	28.64	1228.35	
10/13/99	18.33	1226.06		07/12/01	28.99	1228.00	
12/02/99	19.82	1224.57		10/03/01			DRY
01/06/00	19.43	1224.96		01/09/02	28.38	1228.61	
02/22/00	18.41	1225.98		04/04/02	28.84	1228.15	
03/09/00	18.02	1226.37		07/16/02			DRY
04/04/00	18.57	1225.82		10/03/02			DRY
05/01/00	19.21	1225.18		01/04/03	28.97	1228.02	
06/01/00	19.71	1224.68		04/17/03			DRY
07/03/00	19.86	1224.53		NC7-15			
08/01/00	20.19	1224.20		07/07/95	19.30	1250.11	
09/05/00	19.96	1224.43		07/21/95	19.61	1249.80	
10/09/00	20.11	1224.28		07/28/95	19.72	1249.69	
11/01/00	20.04	1224.35		08/18/95	20.00	1249.41	
12/05/00	20.35	1224.04		08/25/95	20.05	1249.36	
01/05/01	20.28	1224.11		09/01/95	20.12	1249.29	
02/05/01	20.27	1224.12		09/08/95	20.19	1249.22	
03/07/01	18.06	1226.33		10/03/95	20.42	1248.99	
04/04/01	20.15	1224.24		11/01/95	20.51	1248.90	
05/04/01	20.10	1224.29		01/05/96	20.08	1249.33	
06/05/01	20.19	1224.20		01/26/96	19.69	1249.72	
07/12/01	20.31	1224.08		02/02/96	18.93	1250.48	
08/07/01	20.35	1224.04		02/09/96	17.10	1252.31	
09/05/01	20.35	1224.04		02/16/96	17.52	1251.89	
10/05/01	20.42	1223.97		02/23/96	16.03	1253.38	
11/05/01	20.39	1224.00		03/01/96	15.04	1254.37	
12/06/01	19.97	1224.42		03/18/96	13.80	1255.61	
01/09/02	18.83	1225.56		03/25/96	13.48	1255.93	
02/05/02	19.87	1224.52		04/02/96	13.57	1255.84	
03/05/02	20.11	1224.28		04/11/96	13.95	1255.46	
04/04/02	20.11	1224.28		04/19/96	14.35	1255.06	
05/01/02			NM	05/03/96	15.00	1254.41	
06/01/02	20.29	1224.10		06/04/96	16.29	1253.12	
07/16/02	20.30	1224.09		07/18/96	17.45	1251.96	
08/07/02	20.34	1224.05					
09/07/02	20.33	1224.06					
10/03/02	20.37	1224.02					
01/04/03	19.49	1224.90					

Table A-1. Ground Water Elevations for Monitor Wells in the Building 850 subarea, measured between July 1, 1995, and June 30, 2003.

Location				Location			
Date of Measurement	Depth to Water (ft)	Water Elevation (ft/MSL)	Notes	Date of Measurement	Depth to Water (ft)	Water Elevation (ft/MSL)	Notes
NC7-15 (continued)				NC7-15 (continued)			
08/08/96	17.89	1251.52		09/07/00	20.48	1248.93	
09/05/96	18.37	1251.04		10/02/00	20.47	1248.94	
10/07/96	18.79	1250.62		11/01/00	20.71	1248.70	
11/08/96	19.11	1250.30		12/04/00	20.76	1248.65	
11/18/96	19.13	1250.28		01/05/01	20.84	1248.57	
11/25/96	18.97	1250.44		02/05/01	20.95	1248.46	
12/05/96	19.11	1250.30		03/06/01	20.70	1248.71	
01/10/97	16.74	1252.67		04/03/01	20.69	1248.72	
02/05/97	14.32	1255.09		05/01/01	20.86	1248.55	
03/04/97	14.47	1254.94		06/01/01	20.94	1248.47	
04/08/97	15.91	1253.50		07/12/01	21.10	1248.31	
05/08/97	16.63	1252.78		08/03/01	21.15	1248.26	
06/03/97	17.34	1252.07		09/05/01	21.27	1248.14	
07/11/97	18.03	1251.38		10/02/01	21.24	1248.17	
08/07/97	18.42	1250.99		11/05/01	21.29	1248.12	
09/03/97	18.72	1250.69		12/04/01	21.31	1248.10	
10/06/97	19.04	1250.37		01/09/02	20.65	1248.76	
11/04/97	19.32	1250.09		02/04/02	20.72	1248.69	
12/02/97	19.43	1249.98		03/05/02	20.97	1248.44	
01/14/98	19.44	1249.97		04/03/02	21.00	1248.41	
01/16/98	19.32	1250.09		05/01/02			NM
01/23/98	18.45	1250.96		06/01/02	21.32	1248.09	
01/30/98	18.15	1251.26		07/10/02	21.45	1247.96	
02/09/98	15.74	1253.67	2.41 FT RISE	08/06/02	21.49	1247.92	
02/13/98	14.22	1255.19		09/07/02	21.54	1247.87	
02/20/98	12.62	1256.79		10/09/02	21.59	1247.82	
02/27/98	10.63	1258.78		01/04/03	21.20	1248.21	
03/06/98	9.87	1259.54		02/01/03	21.15	1248.26	
03/13/98	9.78	1259.63		03/01/03	21.22	1248.19	
03/20/98	10.18	1259.23		04/10/03	21.32	1248.09	
03/26/98	10.40	1259.01					
04/07/98	11.10	1258.31					
04/16/98	11.57	1257.84					
05/07/98	11.96	1257.45		NC7-19			
05/14/98	11.86	1257.55		07/07/95	19.98	1243.00	
05/22/98	12.03	1257.38		07/21/95	20.29	1242.69	
06/02/98	12.37	1257.04		07/28/95	20.40	1242.58	
06/12/98	12.63	1256.78		08/18/95	20.60	1242.38	
07/07/98	13.34	1256.07		08/25/95	20.66	1242.32	
07/14/98	13.60	1255.81		09/01/95	20.70	1242.28	
08/11/98	14.40	1255.01		09/08/95	20.74	1242.24	
09/01/98	15.12	1254.29		10/04/95	20.85	1242.13	
10/23/98	17.12	1252.29		11/01/95	20.96	1242.02	
11/16/98	17.80	1251.61		01/05/96	20.53	1242.45	
12/01/98	18.05	1251.36		01/26/96	19.85	1243.13	
01/04/99	18.42	1250.99		02/02/96	19.04	1243.94	
02/01/99	18.39	1251.02		02/09/96	17.52	1245.46	
03/09/99	17.60	1251.81		02/16/96	17.70	1245.28	
04/02/99	18.10	1251.31		02/23/96	17.00	1245.98	
05/04/99	18.44	1250.97		03/01/96	16.15	1246.83	
06/01/99	18.68	1250.73		03/18/96	14.98	1248.00	
07/22/99	19.11	1250.30		03/25/96	14.68	1248.30	
08/12/99	19.18	1250.23		04/02/96	14.63	1248.35	
09/13/99	18.34	1251.07		04/11/96	14.82	1248.16	
10/13/99	19.52	1249.89		04/19/96	15.11	1247.87	
12/02/99	20.10	1249.31		05/03/96	15.64	1247.34	
01/20/00	19.67	1249.74		06/04/96	16.89	1246.09	
02/23/00	18.15	1251.26		07/18/96	18.17	1244.81	
03/09/00	18.89	1250.52		08/08/96	18.59	1244.39	
04/04/00	18.99	1250.42		09/05/96	19.05	1243.93	
05/01/00	19.62	1249.79		10/08/96	19.42	1243.56	
06/01/00	19.82	1249.59		11/06/96	19.63	1243.35	
07/03/00	20.01	1249.40		11/18/96	19.56	1243.42	
08/01/00	20.36	1249.05		11/25/96	19.49	1243.49	
09/07/00	20.48	1248.93		12/05/96	19.61	1243.37	
				01/10/97	17.51	1245.47	

Table A-1. Ground Water Elevations for Monitor Wells in the Building 850 subarea, measured between July 1, 1995, and June 30, 2003.

Location				Location			
Date of Measurement	Depth to Water (ft)	Water Elevation (ft/MSL)	Notes	Date of Measurement	Depth to Water (ft)	Water Elevation (ft/MSL)	Notes
NC7-19 (continued)				NC7-19 (continued)			
02/05/97	15.01	1247.97		05/01/01	21.01	1241.97	
03/04/97	15.10	1247.88		06/01/01	21.10	1241.88	
04/08/97	16.34	1246.64		07/12/01	21.19	1241.79	
05/08/97	17.08	1245.90		08/07/01	21.28	1241.70	
06/03/97	17.76	1245.22		09/05/01	21.34	1241.64	
07/11/97	18.46	1244.52		10/02/01	21.42	1241.56	
08/07/97	18.84	1244.14		11/05/01	21.39	1241.59	
09/03/97	19.18	1243.80		12/04/01	21.32	1241.66	
10/06/97	19.49	1243.49		01/09/02	20.42	1242.56	
11/04/97	19.73	1243.25		02/05/02	20.82	1242.16	
12/02/97	19.65	1243.33		03/05/02	21.09	1241.89	
01/14/98	19.75	1243.23		04/04/02	21.11	1241.87	
01/16/98	19.65	1243.33		05/01/02			NM
01/23/98	18.77	1244.21		06/01/02	21.38	1241.60	
01/30/98	18.63	1244.35		07/16/02	21.55	1241.43	
02/09/98	15.93	1247.05	2.7 FT RISE	08/03/02	21.59	1241.39	
02/13/98	14.75	1248.23		09/07/02	21.66	1241.32	
02/20/98	13.26	1249.72		10/03/02	21.66	1241.32	
02/27/98	11.57	1251.41		01/04/03	20.89	1242.09	
03/06/98	10.74	1252.24		02/01/03	21.10	1241.88	
03/13/98	10.74	1252.24		03/01/03	21.30	1241.68	
03/20/98	11.23	1251.75		04/10/03	21.38	1241.60	
03/26/98	11.55	1251.43					
04/07/98	12.10	1250.88		NC7-27			
04/16/98	12.49	1250.49		07/12/95	87.93	1194.47	
05/07/98	12.65	1250.33		10/04/95	87.43	1194.97	
05/14/98	12.60	1250.38		01/04/96	87.50	1194.90	
05/22/98	12.72	1250.26		04/05/96	84.55	1197.85	
06/02/98	13.00	1249.98		07/18/96	86.11	1196.29	
06/12/98	13.21	1249.77		10/07/96	86.30	1196.10	
07/07/98	13.79	1249.19		01/10/97	84.86	1197.54	
07/14/98	13.98	1249.00		04/10/97	85.20	1197.20	
08/11/98	15.53	1247.45		07/11/97	85.80	1196.60	
09/01/98	15.70	1247.28		10/06/97	85.91	1196.49	
10/24/98	17.04	1245.94		01/13/98	86.18	1196.22	
11/16/98	17.79	1245.19		04/03/98	81.74	1200.66	
12/01/98	18.06	1244.92		07/14/98	84.98	1197.42	
01/04/99	18.61	1244.37		10/23/98	85.90	1196.50	
02/01/99	18.57	1244.41		01/04/99	86.05	1196.35	
03/09/99	17.66	1245.32		04/02/99	85.48	1196.92	
04/02/99	18.08	1244.90		05/04/99	85.90	1196.50	
05/04/99	18.57	1244.41		06/01/99	85.87	1196.53	
06/01/99	18.91	1244.07		07/22/99	85.95	1196.45	
07/22/99	19.37	1243.61		08/12/99	86.00	1196.40	
08/12/99	19.49	1243.49		09/12/99			NM
09/12/99			NM	10/13/99	85.96	1196.44	
10/13/99	19.72	1243.26		12/02/99	86.20	1196.20	
12/02/99	20.24	1242.74		01/07/00	86.17	1196.23	
01/07/00	20.09	1242.89		02/22/00	85.71	1196.69	
02/22/00	19.59	1243.39		03/09/00	85.60	1196.80	
03/09/00	19.09	1243.89		04/04/00	85.76	1196.64	
04/04/00	19.14	1243.84		05/02/00	86.00	1196.40	
05/01/00	19.85	1243.13		06/05/00	86.31	1196.09	
06/01/00	20.22	1242.76		07/10/00	86.21	1196.19	
07/03/00	20.44	1242.54		08/01/00	86.43	1195.97	
08/01/00	20.42	1242.56		09/07/00	86.30	1196.10	
09/07/00	20.68	1242.30		09/07/00	86.30	1196.10	
09/07/00	20.68	1242.30		10/09/00	86.38	1196.02	
10/09/00	20.81	1242.17		11/02/00	86.44	1195.96	
11/02/00	20.88	1242.10		12/05/00	86.62	1195.78	
12/05/00	20.88	1242.10		01/05/01	86.44	1195.96	
01/05/01	21.14	1241.84		02/05/01	86.36	1196.04	
02/05/01	21.04	1241.94		03/07/01	86.22	1196.18	
03/07/01	20.57	1242.41		04/10/01	86.41	1195.99	
04/03/01	20.75	1242.23					

Table A-1. Ground Water Elevations for Monitor Wells in the Building 850 subarea, measured between July 1, 1995, and June 30, 2003.

Location				Location			
Date of Measurement	Depth to Water (ft)	Water Elevation (ft/MSL)	Notes	Date of Measurement	Depth to Water (ft)	Water Elevation (ft/MSL)	Notes
NC7-27 (continued)				NC7-28 (continued)			
05/01/01	86.53	1195.87		10/06/97	39.83	1259.70	
06/01/01	86.45	1195.95		11/04/97	40.16	1259.37	
07/12/01	86.75	1195.65		12/02/97	40.23	1259.30	
08/07/01	86.81	1195.59		01/13/98	39.88	1259.65	
09/05/01	86.61	1195.79		01/16/98	39.83	1259.70	
10/03/01	86.69	1195.71		01/23/98	39.36	1260.17	
11/07/01	86.74	1195.66		01/30/98	38.75	1260.78	
12/05/01			NM/NO ACCESS	02/09/98	37.16	1262.37	1.59 FT RISE
01/11/02	85.95	1196.45		02/13/98	36.62	1262.91	
02/05/02	86.02	1196.38		02/20/98	36.50	1263.03	
03/05/02	86.28	1196.12		02/27/98	36.45	1263.08	
04/04/02	86.44	1195.96		03/06/98	36.58	1262.95	
05/01/02			NM	03/13/98	36.80	1262.73	
06/02/02	86.77	1195.63		03/20/98	36.90	1262.63	
07/12/02	86.82	1195.58		03/26/98	37.07	1262.46	
08/07/02	86.89	1195.51		04/07/98	37.45	1262.08	
09/07/02	86.91	1195.49		04/16/98	37.70	1261.83	
10/03/02	86.88	1195.52		05/07/98	37.85	1261.68	
01/10/03	86.60	1195.80		05/14/98	37.08	1262.45	
02/01/03	86.26	1196.14		05/22/98	37.07	1262.46	
03/01/03	86.54	1195.86		06/02/98	37.50	1262.03	
04/16/03	86.75	1195.65		06/12/98	37.89	1261.64	
				07/07/98	38.50	1261.03	
				07/14/98	38.68	1260.85	
				08/11/98	38.86	1260.67	
				09/01/98	38.93	1260.60	
				10/23/98	39.26	1260.27	
				11/16/98	39.32	1260.21	
				12/01/98	39.38	1260.15	
				01/04/99	39.56	1259.97	
				02/01/99	39.36	1260.17	
				03/09/99	38.14	1261.39	
				04/02/99	39.05	1260.48	
				05/04/99	39.22	1260.31	
				06/01/99	39.36	1260.17	
				07/22/99	39.63	1259.90	
				08/12/99	39.63	1259.90	
				09/12/99			NM
				10/13/99	39.81	1259.72	
				12/03/99	40.00	1259.53	
				01/20/00	39.86	1259.67	
				02/23/00	39.51	1260.02	
				03/09/00	38.67	1260.86	
				04/07/00	39.17	1260.36	
				05/02/00	39.73	1259.80	
				06/02/00	39.73	1259.80	
				07/03/00	40.21	1259.32	
				08/01/00	40.36	1259.17	
				09/05/00	40.28	1259.25	
				10/11/00	40.42	1259.11	
				11/01/00	40.52	1259.01	
				12/05/00	40.67	1258.86	
				01/08/01	40.57	1258.96	
				02/05/01	40.50	1259.03	
				03/06/01	40.31	1259.22	
				04/04/01	40.10	1259.43	
				05/04/01	40.17	1259.36	
				06/01/01	40.20	1259.33	
				07/13/01	40.48	1259.05	
				08/07/01	40.58	1258.95	
				09/05/01	40.64	1258.89	
				10/02/01	40.71	1258.82	
				11/07/01	40.64	1258.89	
				12/04/01	40.64	1258.89	
				01/09/02	39.71	1259.82	

Table A-1. Ground Water Elevations for Monitor Wells in the Building 850 subarea, measured between July 1, 1995, and June 30, 2003.

Location				Location			
Date of Measurement	Depth to Water (ft)	Water Elevation (ft/MSL)	Notes	Date of Measurement	Depth to Water (ft)	Water Elevation (ft/MSL)	Notes
NC7-43 (continued)				NC7-44 (continued)			
12/03/99	43.62	1246.56		06/04/96	31.28	1324.85	
01/06/00	43.67	1246.51		07/18/96	31.47	1324.66	
02/23/00	43.50	1246.68		08/08/96	31.49	1324.64	
03/09/00	42.92	1247.26		09/05/96	31.50	1324.63	
04/07/00	43.00	1247.18		10/08/96	31.56	1324.57	
05/01/00	43.68	1246.50		11/06/96	31.92	1324.21	
06/02/00	43.94	1246.24		11/18/96	31.70	1324.43	
07/03/00	43.99	1246.19		11/25/96	31.94	1324.19	
08/01/00	44.37	1245.81		12/05/96	31.81	1324.32	
09/07/00	44.35	1245.83		01/13/97	31.66	1324.47	
09/07/00	44.35	1245.83		02/05/97	30.88	1325.25	
10/11/00	44.54	1245.64		03/04/97	31.28	1324.85	
11/01/00	44.58	1245.60		04/10/97	31.24	1324.89	
12/04/00	44.60	1245.58		05/10/97	31.26	1324.87	
01/08/01	44.83	1245.35		06/03/97	31.31	1324.82	
02/05/01	44.52	1245.66		07/08/97	31.34	1324.79	
03/06/01	44.24	1245.94		08/07/97	31.34	1324.79	
04/04/01	43.59	1246.59		09/03/97	31.38	1324.75	
05/04/01	44.02	1246.16		10/06/97	31.34	1324.79	
06/01/01	44.33	1245.85		11/04/97	31.40	1324.73	
07/13/01	44.58	1245.60		12/02/97	31.41	1324.72	
08/07/01	44.82	1245.36		01/13/98	31.51	1324.62	
09/07/01	44.74	1245.44		01/16/98	31.47	1324.66	
10/05/01	45.00	1245.18		01/23/98	31.38	1324.75	
11/07/01	45.10	1245.08		01/30/98	31.39	1324.74	
12/04/01	45.10	1245.08		02/09/98	29.23	1326.90	2.16 FT RISE
01/09/02	44.19	1245.99		02/13/98	27.99	1328.14	
02/05/02	44.14	1246.04		02/20/98	27.58	1328.55	
03/05/02	44.64	1245.54		02/27/98	26.40	1329.73	
04/04/02	44.80	1245.38		03/06/98	26.74	1329.39	
05/01/02			NM	03/13/98	27.07	1329.06	
06/02/02	44.93	1245.25		03/20/98	27.25	1328.88	
07/16/02	44.99	1245.19		03/26/98	27.37	1328.76	
08/07/02	45.20	1244.98		04/07/98	27.60	1328.53	
09/07/02	45.18	1245.00		04/16/98	27.90	1328.23	
10/03/02	45.29	1244.89		05/07/98	28.63	1327.50	
01/04/03	45.17	1245.01		05/14/98	28.97	1327.16	
02/01/03	44.65	1245.53		05/22/98	29.27	1326.86	
03/01/03	45.11	1245.07		06/02/98	29.71	1326.42	
04/12/03	45.14	1245.04		06/12/98	30.07	1326.06	
				07/07/98	30.79	1325.34	
				07/14/98	30.98	1325.15	
				08/11/98	31.36	1324.77	
				09/01/98	31.42	1324.71	
				10/23/98	31.47	1324.66	
				11/16/98	31.37	1324.76	
				12/01/98	31.60	1324.53	
				01/04/99	31.54	1324.59	
				02/01/99	31.74	1324.39	
				03/09/99			TOO WET
				04/02/99	31.38	1324.75	
				05/04/99	31.41	1324.72	
				06/01/99	31.28	1324.85	
				07/22/99	31.38	1324.75	
				08/12/99	31.30	1324.83	
				09/12/99			NM
				10/13/99	31.32	1324.81	
				12/03/99	31.35	1324.78	
				01/07/00	31.26	1324.87	
				02/23/00	31.38	1324.75	
				03/09/00	31.47	1324.66	
				04/07/00	31.25	1324.88	
				05/02/00	31.45	1324.68	
				06/02/00	31.48	1324.65	
				07/07/00	31.67	1324.46	

Table A-1. Ground Water Elevations for Monitor Wells in the Building 850 subarea, measured between July 1, 1995, and June 30, 2003.

Location				Location			
Date of Measurement	Depth to Water (ft)	Water Elevation (ft/MSL)	Notes	Date of Measurement	Depth to Water (ft)	Water Elevation (ft/MSL)	Notes
NC7-44 (continued)				NC7-45 (continued)			
08/01/00	31.47	1324.66		04/17/03	35.63	1153.06	
09/05/00	31.41	1324.72					
10/02/00	31.48	1324.65					
11/02/00	31.62	1324.51					
12/05/00	31.69	1324.44					
01/09/01	31.73	1324.40					
02/05/01	31.42	1324.71					
03/07/01	31.60	1324.53					
04/04/01	31.52	1324.61					
05/04/01	31.57	1324.56					
06/05/01	31.58	1324.55					
07/13/01	31.52	1324.61					
08/07/01	31.58	1324.55					
09/05/01	31.62	1324.51					
10/05/01	31.64	1324.49					
11/07/01	31.80	1324.33					
12/04/01	31.62	1324.51					
01/11/02	31.44	1324.69					
02/05/02	31.78	1324.35					
03/05/02	31.87	1324.26					
04/15/02	31.77	1324.36					
05/01/02			NM				
06/02/02	31.96	1324.17					
07/22/02	31.95	1324.18					
08/07/02	32.01	1324.12					
09/07/02	32.04	1324.09					
10/03/02	32.03	1324.10					
01/11/03	32.30	1323.83					
02/01/03	32.25	1323.88					
03/01/03	32.31	1323.82					
04/12/03	32.30	1323.83					
NC7-45				NC7-46			
07/12/95	36.13	1155.23		07/12/95	22.67	1108.76	
10/04/95	36.91	1154.45		10/04/95	23.15	1108.28	
01/05/96	35.64	1155.72		01/08/96	21.85	1109.58	
04/05/96	28.12	1163.24		04/05/96	21.43	1110.00	
07/18/96	34.57	1156.79		07/18/96	22.62	1108.81	
10/07/96	35.29	1156.07		10/08/96	23.09	1108.34	
01/10/97	30.71	1160.65		01/13/97	21.69	1109.74	
04/08/97	32.87	1158.49		04/10/97	21.94	1109.49	
07/11/97	34.54	1156.82		07/11/97	22.57	1108.86	
10/06/97	34.89	1156.47		10/07/97	22.90	1108.53	
01/13/98	34.62	1156.74		01/13/98	22.52	1108.91	
04/03/98	19.51	1171.85		04/06/98	17.94	1113.49	
07/14/98	30.71	1160.65		07/14/98	20.52	1110.91	
10/24/98	32.57	1158.79		10/24/98	22.35	1109.08	
01/04/99	33.41	1157.95		01/04/99	22.66	1108.77	
04/02/99	32.48	1158.88		04/02/99	22.52	1108.91	
07/22/99	34.29	1157.07		07/22/99	22.98	1108.45	
10/13/99	34.62	1156.74		10/13/99	22.64	1108.79	
01/06/00	35.00	1156.36		01/07/00	22.56	1108.87	
04/04/00	33.66	1157.70		04/05/00	22.43	1109.00	
07/03/00	35.37	1155.99		07/03/00	23.34	1108.09	
10/09/00	35.71	1155.65		10/11/00	23.54	1107.89	
01/05/01	36.12	1155.24		01/09/01	23.55	1107.88	
04/04/01	35.40	1155.96		04/10/01	23.49	1107.94	
07/12/01	36.25	1155.11		07/16/01	23.76	1107.67	
10/05/01	36.48	1154.88		10/05/01	23.70	1107.73	
01/09/02	32.45	1158.91		01/09/02	23.30	1108.13	
04/04/02	35.62	1155.74		04/11/02	23.41	1108.02	
07/16/02	35.70	1155.66		07/22/02	23.73	1107.70	
10/04/02	35.93	1155.43		10/03/02	23.87	1107.56	
01/04/03	32.92	1158.44		01/04/03	23.53	1107.90	
				04/10/03	23.73	1107.70	
				NC7-54			
				07/07/95	9.89	1197.36	
				07/21/95	10.00	1197.25	
				07/28/95			NM
				08/01/95	10.25	1197.00	
				08/18/95			NM
				08/25/95			NM
				09/01/95			NM
				09/06/95	10.55	1196.70	
				09/08/95			NM
				10/03/95		1207.25	NM
				11/01/95	10.73	1196.52	
				01/05/96	10.61	1196.64	
				01/26/96	9.95	1197.30	
				02/02/96	7.08	1200.17	
				02/09/96	7.70	1199.55	
				02/16/96	8.16	1199.09	
				02/23/96	6.83	1200.42	
				03/01/96	7.53	1199.72	
				03/18/96	8.27	1198.98	
				03/25/96	8.60	1198.65	
				04/02/96	8.78	1198.47	
				04/11/96	8.81	1198.44	
				04/19/96	8.92	1198.33	
				05/03/96	9.15	1198.10	
				06/06/96	9.60	1197.65	
				07/18/96	9.82	1197.43	

Table A-1. Ground Water Elevations for Monitor Wells in the Building 850 subarea, measured between July 1, 1995, and June 30, 2003.

Location				Location			
Date of Measurement	Depth to Water (ft)	Water Elevation (ft/MSL)	Notes	Date of Measurement	Depth to Water (ft)	Water Elevation (ft/MSL)	Notes
NC7-56				NC7-57 (continued)			
07/12/95	21.27	1107.77		01/04/03			DRY
10/03/95	19.80	1109.24		04/10/03			DRY
01/08/96	18.61	1110.43		NC7-58			
04/10/96	14.62	1114.42		07/12/95	21.56	1085.17	
07/18/96	17.95	1111.09		10/03/95	23.39	1083.34	
10/07/96	18.58	1113.59		01/08/96	22.40	1084.33	
01/13/97	16.42	1115.75		04/09/96	14.50	1092.23	
04/10/97	21.90	1110.27		07/18/96	20.06	1086.67	
07/11/97	18.06	1114.11		10/04/96	21.36	1085.37	
10/07/97	18.37	1113.80		01/13/97	18.25	1088.48	
01/13/98	18.11	1114.06		04/10/97	16.13	1090.60	
04/06/98	10.37	1121.80		07/11/97	20.52	1086.21	
07/14/98	14.09	1118.08		10/07/97	21.08	1085.65	
10/22/98	16.35	1115.82		01/13/98	20.67	1086.06	
01/05/99	17.15	1115.02		04/06/98	9.96	1096.77	
04/02/99	16.34	1115.83		07/14/98	11.79	1094.94	
07/22/99	17.89	1114.28		10/22/98	16.99	1089.74	
10/13/99	18.20	1113.97		01/04/99	18.66	1088.07	
01/07/00	18.41	1113.76		04/02/99	17.48	1089.25	
04/05/00	17.25	1114.92		07/22/99	20.08	1086.65	
07/10/00	19.01	1113.16		10/13/99	20.62	1086.11	
10/02/00	18.77	1113.40		01/07/00	21.17	1085.56	
01/09/01	19.11	1113.06		04/05/00	18.66	1088.07	
04/10/01	18.57	1113.60		07/10/00	21.48	1085.25	
07/16/01	19.42	1112.75		10/11/00	22.12	1084.61	
10/05/01	19.45	1112.72		01/09/01	22.38	1084.35	
01/09/02	17.66	1114.51		04/10/01	21.39	1085.34	
04/11/02			NM	07/16/01	22.77	1083.96	
07/22/02	19.51	1112.66		10/05/01	23.11	1083.62	
10/04/02	19.67	1112.50		01/09/02	20.22	1086.51	
01/11/03	18.57	1113.60		04/11/02	19.99	1086.74	
04/17/03	19.30	1112.87		07/22/02	23.23	1083.50	
NC7-57				10/03/02	22.45	1084.28	
07/12/95			DRY	01/04/03	20.80	1085.93	
10/03/95		1106.50	DRY	04/10/03	22.57	1084.16	
01/08/96			DRY	NC7-59			
04/09/96	14.39	1092.11		07/12/95	12.57	1103.19	
07/18/96	20.01	1086.49		10/04/95	13.31	1102.45	
10/04/96			DRY	01/08/96	12.70	1103.06	
01/13/97	18.34	1088.16		04/05/96	9.75	1106.01	
04/10/97	15.95	1090.55		07/18/96	12.05	1103.71	
07/11/97			DRY	10/04/96	12.47	1103.29	
10/07/97			DRY	01/13/97	11.31	1104.45	
01/13/98			DRY	04/10/97	11.13	1104.63	
04/06/98	9.85	1096.65	DRY	07/11/97	12.30	1103.46	
07/14/98	11.64	1094.86		10/07/97	12.48	1103.28	
10/22/98	16.73	1089.77		01/13/98	12.29	1103.47	
01/04/99				04/06/98	5.85	1109.91	
04/02/99	17.38	1089.12		07/14/98	9.09	1106.67	
07/22/99			DRY	10/22/98	11.26	1104.50	
10/13/99			DRY	01/04/99	11.75	1104.01	
01/07/00			DRY	04/02/99	11.25	1104.51	
04/05/00			DRY	07/22/99	12.14	1103.62	
07/10/00			DRY	10/13/99	12.32	1103.44	
10/11/00			DRY	01/07/00	12.37	1103.39	
01/09/01			DRY	04/05/00	11.73	1104.03	
04/10/01			DRY	07/10/00	12.77	1102.99	
07/16/01			DRY	10/02/00	12.64	1103.12	
10/05/01			DRY	01/09/01	13.02	1102.74	
01/09/02			DRY	04/10/01	12.60	1103.16	
04/11/02			DRY	07/16/01	13.01	1102.75	
07/22/02			DRY				
10/03/02			DRY				

Table A-1. Ground Water Elevations for Monitor Wells in the Building 850 subarea, measured between July 1, 1995, and June 30, 2003.

Location				Location			
Date of Measurement	Depth to Water (ft)	Water Elevation (ft/MSL)	Notes	Date of Measurement	Depth to Water (ft)	Water Elevation (ft/MSL)	Notes
NC7-59 (continued)				NC7-61 (continued)			
10/05/01	13.13	1102.63		04/11/96	47.83	1231.54	
01/09/02	12.09	1103.67		04/19/96	47.85	1231.52	
04/11/02	12.67	1103.09		05/03/96	47.87	1231.50	
07/22/02	13.05	1102.71		05/20/96	47.95	1231.42	PS
10/09/02	13.22	1102.54		06/06/96	47.93	1231.44	
01/04/03	12.32	1103.44		07/18/96	47.99	1231.38	
04/10/03	12.86	1102.90		08/08/96	48.01	1231.36	
				09/05/96	48.03	1231.34	
				09/13/96	48.07	1231.30	PS
				10/07/96	48.08	1231.29	
				11/06/96	48.12	1231.25	
				11/18/96	48.08	1231.29	
				11/21/96	48.25	1231.12	PS
				11/25/96	48.13	1231.24	
				12/05/96	48.14	1231.23	
				01/10/97	47.97	1231.40	
				02/05/97	47.65	1231.72	
				03/04/97	47.83	1231.54	
				04/08/97	47.84	1231.53	
				05/08/97	47.84	1231.53	
				06/03/97	47.88	1231.49	
				07/11/97	47.89	1231.48	
				08/07/97	47.94	1231.43	
				09/03/97	47.92	1231.45	
				10/06/97	47.95	1231.42	
				11/04/97	48.03	1231.34	
				12/02/97	48.08	1231.29	
				01/13/98	48.11	1231.26	
				01/16/98	48.09	1231.28	
				01/23/98	48.02	1231.35	
				01/30/98	47.98	1231.39	
				02/09/98	46.35	1233.02	1.63 FT RISE
				02/13/98	45.71	1233.66	
				02/20/98	44.80	1234.57	
				02/27/98	43.78	1235.59	
				03/06/98	44.02	1235.35	
				03/13/98	44.74	1234.63	
				03/20/98	45.58	1233.79	
				03/26/98	46.15	1233.22	
				04/07/98	46.92	1232.45	
				04/16/98	47.32	1232.05	
				05/07/98	47.32	1232.05	
				05/14/98	46.89	1232.48	
				05/22/98	47.05	1232.32	
				06/02/98	47.38	1231.99	PS
				06/02/98	47.37	1232.00	
				06/12/98	47.54	1231.83	
				07/07/98	47.78	1231.59	
				07/14/98	47.85	1231.52	
				08/11/98	47.91	1231.46	
				09/01/98	47.90	1231.47	
				10/23/98	47.95	1231.42	
				11/16/98	47.98	1231.39	
				12/01/98	47.99	1231.38	
				01/04/99	48.04	1231.33	
				02/01/99	48.14	1231.23	
				03/09/99	47.82	1231.55	
				04/02/99	47.77	1231.60	
				05/04/99	47.89	1231.48	
				06/01/99	47.89	1231.48	
				06/01/99	48.00	1231.37	PS
				07/22/99	47.85	1231.52	
				08/12/99	47.91	1231.46	
				09/12/99			NM
				10/13/99	47.92	1231.45	
NC7-60							
07/12/95	155.54	1172.08					
10/03/95	156.54	1171.08					
01/04/96	157.23	1170.39					
04/10/96	156.16	1171.46					
07/18/96	156.72	1170.90					
10/07/96	157.05	1170.57					
01/10/97	157.11	1170.51					
04/10/97	155.94	1171.68					
07/11/97	156.75	1170.87					
10/06/97	155.94	1171.68					
01/13/98	156.76	1170.86					
04/03/98	155.59	1172.03					
07/14/98	144.76	1182.86					
10/23/98	156.08	1171.54					
01/04/99	156.46	1171.16					
04/02/99	156.04	1171.58					
07/22/99	156.68	1170.94					
10/13/99	156.62	1171.00					
01/07/00	156.95	1170.67					
04/04/00	158.32	1169.30					
07/10/00	158.82	1168.80					
10/09/00	158.11	1169.51					
01/05/01	158.29	1169.33					
04/10/01	158.40	1169.22					
07/12/01	158.75	1168.87					
10/03/01	158.31	1169.31					
01/11/02	158.42	1169.20					
02/05/02	158.95	1168.67					
04/04/02	158.24	1169.38					
07/12/02	158.68	1168.94					
10/03/02	158.37	1169.25					
01/11/03	158.45	1169.17					
04/16/03	158.59	1169.03					
NC7-61							
07/07/95	48.15	1231.22					
07/21/95	48.19	1231.18					
07/28/95	48.18	1231.19					
08/18/95	48.20	1231.17					
08/25/95	48.21	1231.16					
09/01/95	48.23	1231.14					
09/08/95	48.23	1231.14					
10/04/95	48.26	1231.11					
11/01/95	48.28	1231.09					
01/08/96	48.24	1231.13					
01/26/96	48.22	1231.15					
02/02/96	48.19	1231.18					
02/09/96	48.15	1231.22					
02/16/96	48.05	1231.32					
02/23/96	47.92	1231.45					
03/01/96	47.75	1231.62					
03/18/96	47.74	1231.63					
03/25/96	47.77	1231.60					
04/02/96	47.80	1231.57					

Table A-1. Ground Water Elevations for Monitor Wells in the Building 850 subarea, measured between July 1, 1995, and June 30, 2003.

Location				Location			
Date of Measurement	Depth to Water (ft)	Water Elevation (ft/MSL)	Notes	Date of Measurement	Depth to Water (ft)	Water Elevation (ft/MSL)	Notes
W-850-05 (continued)							
01/07/00	27.85	1275.54					
02/23/00	27.27	1276.12					
03/09/00	26.88	1276.51					
04/07/00	27.22	1276.17					
05/02/00	27.59	1275.80					
06/01/00	28.10	1275.29					
07/03/00	28.01	1275.38					
08/02/00	28.11	1275.28					
09/05/00	28.23	1275.16					
10/11/00	28.62	1274.77					
11/01/00	28.65	1274.74					
12/04/00	28.61	1274.78					
01/08/01	28.52	1274.87					
02/05/01	28.47	1274.92					
03/06/01	28.16	1275.23					
04/04/01	28.12	1275.27					
05/04/01	28.26	1275.13					
06/05/01	28.31	1275.08					
07/16/01	28.43	1274.96					
08/07/01	28.62	1274.77					
09/05/01	28.72	1274.67					
10/05/01	28.76	1274.63					
11/07/01	28.86	1274.53					
12/04/01	28.72	1274.67					
01/09/02	27.84	1275.55					
02/04/02	27.93	1275.46					
03/05/02	28.32	1275.07					
04/15/02			NM				
05/01/02			NM				
06/04/02	28.82	1274.57					
07/16/02	28.85	1274.54					
08/07/02	28.94	1274.45					
09/07/02	29.00	1274.39					
10/03/02	28.99	1274.40					
01/11/03	27.80	1275.59					
02/01/03	28.13	1275.26					
03/01/03	28.46	1274.93					
04/14/03	28.74	1274.65					
W-865-1802							
04/12/03	48.04	1019.01					

Notes:

- ABD Abandoned well.
- AD Drilling of adjacent new wells disturbed water level.
- BS Water detected below bottom of screened interval.
- DRY Well dry at time of measurement.
- ME Measuring error suspected.
- NM Not measured.
- PD Predevelopment measurement.
- PS Measurement taken just before sampling.
- PT Pump test interfered with measurement.
- WE Well equilibrium suspect.
- WR Well recovery.

Table A-2. Subsurface soil and rock analyses for PCB compounds (mg/kg) in samples collected from the Building 850 subarea between January 1, 1988 and October 31, 2003. Results recorded by January 6, 2004.

PCBs in Soil, Site 300 in 850 Subarea

epdbs::epddata

s3pcbsoL.06dec2004
s3pcbsoR.06dec2004

Min Sample Date
January 1, 1988
Max Sample Date
October 31, 2003

Table A-2. Subsurface soil and rock analyses for PCB compounds (mg/kg) in samples collected from

Location Date	Lab	Val.		Depth (ft)	PCB 1016	PCB 1221	PCB 1232	PCB 1242	PCB 1248
		Note							
3SS-850-100									
26-jul-1994	CS a	V	0.0		<0.02 U				
3SS-850-101									
26-jul-1994	CS a	V	0.0		<0.2 DU				
3SS-850-102									
26-jul-1994	CS a	V	0.0		<0.02 U				
3SS-850-103									
26-jul-1994	CS a	V	0.0		<0.2 DU				
3SS-850-104									
26-jul-1994	CS aeh	V	0.0		<0.2 DU				
26-jul-1994	CS ah	V	0.0		<0.2 DU				
3SS-850-105									
26-jul-1994	CS a	V	0.0		<0.2 DU				
3SS-850-106									
26-jul-1994	CS a	V	0.0		<0.2 DU				
3SS-850-107									
26-jul-1994	CS a	V	0.0		<1 DU				
20-oct-1994	EF ah	N	0.5		-	-	-	-	-
20-oct-1994	EF ah	N	0.5		-	-	-	-	-
3SS-850-113									
20-oct-1994	EF ah	N	0.0		-	-	-	-	-
3SS-850-114									
02-nov-1994	CS a	V	0.0		<1 U				
02-nov-1994	EF a	N	0.0		-	-	-	-	-
3SS-850-115									
19-oct-1994	EF ah	N	0.0		-	-	-	-	-
19-oct-1994	EF ah	N	0.0		-	-	-	-	-
19-oct-1994	EF ah	N	0.0		-	-	-	-	-
19-oct-1994	EF ah	N	0.0		-	-	-	-	-
3SS-850-117									
19-oct-1994	EF ah	N	0.0		-	-	-	-	-
19-oct-1994	EF ah	N	0.0		-	-	-	-	-
3SS-850-118									
19-oct-1994	EF ah	N	0.0		-	-	-	-	-
19-oct-1994	EF ah	N	0.0		-	-	-	-	-
3SS-850-119									
19-oct-1994	EF ah	N	0.0		-	-	-	-	-
19-oct-1994	EF ah	N	0.0		-	-	-	-	-
3SS-850-121									
19-oct-1994	EF ah	N	0.0		-	-	-	-	-
19-oct-1994	EF ah	N	0.0		-	-	-	-	-
3SS-850-122									
19-oct-1994	EF ah	N	0.0		-	-	-	-	-
19-oct-1994	EF ah	N	0.0		-	-	-	-	-
19-oct-1994	EF ah	N	0.0		-	-	-	-	-
19-oct-1994	EF ah	N	0.0		-	-	-	-	-
3SS-850-123									
02-dec-1994	EF a	N	0.5		-	-	-	-	-
3SS-850-126									
02-dec-1994	EF a	N	0.5		-	-	-	-	-

the Building 850 subarea between January 1, 1988 and October 31, 2003. Results recorded by January 6, 2004.

PCB 1254	PCB 1260	PCB 1262	PCB 1268	Total PCBs	Location Date
0.1	<0.02 U	-	-	-	3SS-850-100 26-jul-1994
4 D	<0.2 DU	-	-	-	3SS-850-101 26-jul-1994
0.28	<0.02 U	-	-	-	3SS-850-102 26-jul-1994
3 D	<0.2 DU	-	-	-	3SS-850-103 26-jul-1994
4.8 D	<0.2 DU	-	-	-	3SS-850-104 26-jul-1994
2.8 D	<0.2 DU	-	-	-	26-jul-1994
2.8 D	<0.2 DU	-	-	-	3SS-850-105 26-jul-1994
5.3 D	<0.2 DU	-	-	-	3SS-850-106 26-jul-1994
17 D	<1 DU	-	-	-	3SS-850-107 26-jul-1994
-	-	-	-	41	20-oct-1994
-	-	-	-	40	20-oct-1994
-	-	-	-	1.6	3SS-850-113 20-oct-1994
<1 U	<1 U	-	-	-	3SS-850-114 02-nov-1994
-	-	-	-	<0.5 U	02-nov-1994
-	-	-	-	0.5	3SS-850-115 19-oct-1994
-	-	-	-	<0.5 U	19-oct-1994
-	-	-	-	1.75	19-oct-1994
-	-	-	-	2.5	19-oct-1994
-	-	-	-	<0.5 U	3SS-850-117 19-oct-1994
-	-	-	-	<0.5 U	19-oct-1994
-	-	-	-	<0.5 U	3SS-850-118 19-oct-1994
-	-	-	-	<0.5 U	19-oct-1994
-	-	-	-	<0.5 U	3SS-850-119 19-oct-1994
-	-	-	-	<0.5 U	19-oct-1994
-	-	-	-	<0.5 U	3SS-850-121 19-oct-1994
-	-	-	-	<0.5 U	19-oct-1994
-	-	-	-	<0.5 U	3SS-850-122 19-oct-1994
-	-	-	-	<0.5 U	19-oct-1994
-	-	-	-	0.8	19-oct-1994
-	-	-	-	3.25	19-oct-1994
-	-	-	-	<0.5 U	3SS-850-123 02-dec-1994
-	-	-	-	<0.5 U	3SS-850-126 02-dec-1994

Table A-2. Subsurface soil and rock analyses for PCB compounds (mg/kg) in samples collected from

Location Date	Lab	Val.		Depth (ft)	PCB 1016	PCB 1221	PCB 1232	PCB 1242	PCB 1248
		Note							
3SS-850-129									
20-oct-1994	EF ah	N	0.0	-	-	-	-	-	-
02-dec-1994	CS a	V	0.0	<2 DHU	<2 DHU	<2 DHU	<2 DHU	<2 DHU	<2 DHU
20-oct-1994	EF ah	N	0.5	-	-	-	-	-	-
20-oct-1994	EF ah	N	0.5	-	-	-	-	-	-
3SS-850-130									
02-nov-1994	EF a	N	0.0	-	-	-	-	-	-
3SS-850-131									
02-dec-1994	CS a	V	0.0	<0.02 HU	<0.02 HU	<0.02 HU	<0.02 HU	<0.02 HU	<0.02 HU
3SS-850-132									
19-oct-1994	EF ah	N	0.0	-	-	-	-	-	-
19-oct-1994	EF ah	N	0.0	-	-	-	-	-	-
3SS-850-133									
20-oct-1994	EF a	N	0.0	-	-	-	-	-	-
3SS-850-134									
20-oct-1994	CS a	V	0.0	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U
20-oct-1994	EF a	N	0.0	-	-	-	-	-	-
3SS-850-135									
20-oct-1994	CS a	V	0.0	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U
20-oct-1994	EF a	N	0.0	-	-	-	-	-	-
3SS-850-136									
20-oct-1994	EF a	N	0.0	-	-	-	-	-	-
02-dec-1994	CS a	V	0.0	<2 DHU	<2 DHU	<2 DHU	<2 DHU	<2 DHU	<2 DHU
3SS-850-137									
20-oct-1994	EF a	N	0.0	-	-	-	-	-	-
3SS-850-138									
20-oct-1994	EF a	N	0.0	-	-	-	-	-	-
3SS-850-139									
20-oct-1994	EF a	N	0.0	-	-	-	-	-	-
05-dec-1994	CS a	V	0.0	<2 DU	<2 DU	<2 DU	<2 DU	<2 DU	<2 DU
3SS-850-140									
21-oct-1994	EF a	N	0.0	-	-	-	-	-	-
30-jan-1995	EF a	N	0.5	-	-	-	-	-	-
3SS-850-141									
21-oct-1994	EF a	N	0.0	-	-	-	-	-	-
3SS-850-142									
21-oct-1994	EF a	N	0.0	-	-	-	-	-	-
02-dec-1994	CS a	V	0.0	<20 DHU	<20 DHU	<20 DHU	<20 DHU	<20 DHU	<20 DHU
21-oct-1994	EF a	N	0.5	-	-	-	-	-	-
02-dec-1994	CS a	V	0.5	<20 DHU	<20 DHU	<20 DHU	<20 DHU	<20 DHU	<20 DHU
3SS-850-143									
02-nov-1994	CS a	V	0.0	<2 DU	<2 DU	<2 DU	<2 DU	<2 DU	<2 DU
3SS-850-144									
02-nov-1994	CS a	V	0.0	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U
3SS-850-145									
02-nov-1994	CS a	V	0.0	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U
3SS-850-146									
21-oct-1994	EF a	N	0.0	-	-	-	-	-	-
02-nov-1994	CS a	V	0.0	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U
02-nov-1994	EF ah	N	0.0	-	-	-	-	-	-

the Building 850 subarea between January 1, 1988 and October 31, 2003. Results recorded by January 6, 2004.

PCB 1254	PCB 1260	PCB 1262	PCB 1268	Total PCBs	Location Date
-	-	-	-	23.75	3SS-850-129
5.9 DH	<2 DHU	-	-	-	20-oct-1994
-	-	-	-	1.15	02-dec-1994
-	-	-	-	0.75	20-oct-1994
-	-	-	-	0.7	3SS-850-130
-	-	-	-	-	02-nov-1994
0.09 H	<0.02 HU	-	-	-	3SS-850-131
-	-	-	-	-	02-dec-1994
-	-	-	-	<0.5 U	3SS-850-132
-	-	-	-	0.55	19-oct-1994
-	-	-	-	0.5	19-oct-1994
-	-	-	-	0.5	3SS-850-133
-	-	-	-	-	20-oct-1994
<1 U	<1 U	-	-	-	3SS-850-134
-	-	-	-	1.6	20-oct-1994
-	-	-	-	-	20-oct-1994
<1 U	<1 U	-	-	-	3SS-850-135
-	-	-	-	<0.5 U	20-oct-1994
-	-	-	-	-	20-oct-1994
-	-	-	-	2.8	3SS-850-136
20 DH	<2 DHU	-	-	-	20-oct-1994
-	-	-	-	-	02-dec-1994
-	-	-	-	4	3SS-850-137
-	-	-	-	-	20-oct-1994
-	-	-	-	3.25	3SS-850-138
-	-	-	-	-	20-oct-1994
-	-	-	-	29	3SS-850-139
13 D	<2 DU	-	-	-	20-oct-1994
-	-	-	-	-	05-dec-1994
-	-	-	-	7.85	3SS-850-140
-	-	-	-	6.75	21-oct-1994
-	-	-	-	-	30-jan-1995
-	-	-	-	1.3	3SS-850-141
-	-	-	-	-	21-oct-1994
-	-	-	-	37.75	3SS-850-142
180 DH	<20 DHU	-	-	-	21-oct-1994
-	-	-	-	-	02-dec-1994
120 DH	<20 DHU	-	-	6.6	21-oct-1994
-	-	-	-	-	02-dec-1994
12 D	<2 DU	-	-	-	3SS-850-143
-	-	-	-	-	02-nov-1994
1.4	<1 U	-	-	-	3SS-850-144
-	-	-	-	-	02-nov-1994
6.8	<1 U	-	-	-	3SS-850-145
-	-	-	-	-	02-nov-1994
-	-	-	-	<0.5 U	3SS-850-146
<1 U	<1 U	-	-	-	21-oct-1994
-	-	-	-	-	02-nov-1994
-	-	-	-	<0.5 U	02-nov-1994

Table A-2. Subsurface soil and rock analyses for PCB compounds (mg/kg) in samples collected from

Location Date	Lab	Val.		Depth (ft)	PCB 1016	PCB 1221	PCB 1232	PCB 1242	PCB 1248
		Note							
3SS-850-147									
02-nov-1994	CS a	V	0.0		<1 U				
02-nov-1994	EF a	N	0.0		-	-	-	-	-
3SS-850-148									
02-nov-1994	CS a	V	0.0		<1 U				
02-nov-1994	EF a	N	0.0		-	-	-	-	-
3SS-850-149									
02-nov-1994	EF a	N	0.0		-	-	-	-	-
3SS-850-150									
02-nov-1994	EF a	N	0.0		-	-	-	-	-
3SS-850-151									
02-nov-1994	CS a	V	0.0		<1 U				
02-nov-1994	EF a	N	0.0		-	-	-	-	-
3SS-850-152									
02-nov-1994	CS a	V	0.0		<1 U				
3SS-850-153									
02-nov-1994	CS ah	V	0.0		<2 DU				
02-nov-1994	CS ah	V	0.0		<1 U				
02-nov-1994	EF ag	N	0.0		-	-	-	-	-
3SS-850-154									
02-nov-1994	CS ah	V	0.0		<2 DU				
02-nov-1994	CS ah	V	0.0		<1 U				
02-nov-1994	EF ag	N	0.0		-	-	-	-	-
3SS-850-155									
02-dec-1994	CS ah	V	0.0		<0.02 HU				
02-dec-1994	CS ah	V	0.0		<0.02 HU				
3SS-850-204									
24-oct-2003	SE a	V	0.0		<0.02 ILU	<0.08 ILU	<0.02 ILU	<0.02 LIU	<0.02 ILU
3SS-850-205									
24-oct-2003	SE af	V	0.0		<1 ILUD	<4 ILUD	<1 ILUD	<1 ILUD	<1 ILUD
3SS-850-206									
24-oct-2003	SE af	V	0.0		<20 ILUD	<80 ILUD	<20 ILUD	<20 ILUD	<20 ILUD
3SS-850-207									
24-oct-2003	SE af	V	0.0		<0.2 ILUD	<0.8 ILUD	<0.2 ILUD	<0.2 ILUD	<0.2 ILUD
3SS-850-208									
24-oct-2003	SE af	V	0.0		<0.8 ILUD	<3.2 ILUD	<0.8 ILUD	<0.8 ILUD	<0.8 ILUD
3SS-850-209									
24-oct-2003	SE af	V	0.0		<0.1 ILUD	<0.4 ILUD	<0.1 ILUD	<0.1 ILUD	<0.1 ILUD
3SS-850-210									
24-oct-2003	SE af	V	0.0		<1 ILUD	<4 ILUD	<1 ILUD	<1 ILUD	<1 ILUD
3SS-850-211									
24-oct-2003	SE af	V	0.0		<4 ILUD	<16 ILUD	<4 ILUD	<4 ILUD	<4 ILUD
3SS-850-212									
24-oct-2003	SE af	V	0.0		<20 ILUD	<80 ILUD	<20 ILUD	<20 ILUD	<20 ILUD
3SS-850-213									
24-oct-2003	SE a	V	0.0		<0.02 ILU	<0.08 ILU	<0.02 ILU	<0.02 ILU	<0.02 ILU
3SS-850-214									
27-oct-2003	CN a	V	0.0		<0.004 DU				

the Building 850 subarea between January 1, 1988 and October 31, 2003. Results recorded by January 6, 2004.

PCB 1254	PCB 1260	PCB 1262	PCB 1268	Total PCBs	Location Date
<1 U	<1 U	-	-	-	3SS-850-147
-	-	-	-	<0.5 U	02-nov-1994
<1 U	<1 U	-	-	-	3SS-850-148
-	-	-	-	<0.5 U	02-nov-1994
-	-	-	-	<0.5 U	02-nov-1994
-	-	-	-	0.7	3SS-850-150
<1 U	<1 U	-	-	-	02-nov-1994
-	-	-	-	<0.5 U	02-nov-1994
<1 U	<1 U	-	-	-	3SS-850-152
-	-	-	-	-	02-nov-1994
13 D	<2 DU	-	-	-	3SS-850-153
11	<1 U	-	-	-	02-nov-1994
-	-	-	-	37.75	02-nov-1994
<2 DU	<2 DU	-	-	-	3SS-850-154
<1 U	<1 U	-	-	-	02-nov-1994
-	-	-	-	<0.5 U	02-nov-1994
0.33 H	<0.02 HU	-	-	-	3SS-850-155
0.38 H	<0.02 HU	-	-	-	02-dec-1994
0.057 JIL	<0.02 IUL	-	<0.02 ILU	-	02-dec-1994
3.7 JILD	<1 IU DL	-	<1 ILUD	-	3SS-850-204
130 JILD	<20 IU DL	-	<20 ILUD	-	24-oct-2003
1.5 JILD	<0.2 IU DL	-	<0.2 ILUD	-	3SS-850-205
3.9 JILD	<0.8 ILUD	-	<0.8 ILUD	-	24-oct-2003
0.62 JILD	<0.1 ILUD	-	<0.1 ILUD	-	3SS-850-206
5.4 JILD	<1 IU DL	-	<1 ILUD	-	24-oct-2003
18 JILD	<4 IU DL	-	<4 ILUD	-	3SS-850-207
110 JILD	<20 IU DL	-	<20 ILUD	-	24-oct-2003
0.12 JIL	<0.02 IUL	-	<0.02 ILU	-	3SS-850-208
0.907 D	0.243 D	-	-	-	24-oct-2003
					3SS-850-209
					24-oct-2003
					3SS-850-210
					24-oct-2003
					3SS-850-211
					24-oct-2003
					3SS-850-212
					24-oct-2003
					3SS-850-213
					24-oct-2003
					3SS-850-214
					27-oct-2003

Table A-2. Subsurface soil and rock analyses for PCB compounds (mg/kg) in samples collected from

Location Date	Lab	Val. Note	Depth (ft)	PCB 1016	PCB 1221	PCB 1232	PCB 1242	PCB 1248
3SS-850-215 27-oct-2003	CN a	V	0.0	<0.8 DIJU				
3SS-850-216 27-oct-2003	CN a	V	0.0	<4 DIJU				
3SS-850-217 24-oct-2003	SE af	V	0.0	<0.2 ILUD	<0.8 ILUD	<0.2 ILUD	<0.2 ILUD	<0.2 ILUD
3SS-850-218 24-oct-2003	SE af	V	0.0	<0.1 ILUD	<0.4 ILUD	<0.1 ILUD	<0.1 ILUD	<0.1 ILUD
3SS-850-219 24-oct-2003	SE af	V	0.0	<0.2 ILUD	<0.8 ILUD	<0.2 ILUD	<0.2 ILUD	<0.2 ILUD
3SS-850-220 24-oct-2003	SE af	V	0.0	<1 ILUD	<4 ILUD	<1 ILUD	<1 ILUD	<1 ILUD
3SS-850-221 24-oct-2003	SE af	V	0.0	<0.2 ILUD	<0.8 ILUD	<0.2 ILUD	<0.2 ILUD	<0.2 ILUD
3SS-850-222 27-oct-2003	CN a	V	0.0	<0.08 DU				
3SS-850-223 27-oct-2003	CN a	V	0.0	<0.2 DIJU				
3SS-850-224 27-oct-2003	CN a	V	0.0	<0.04 DU				
3SS-850-225 27-oct-2003	CN a	V	0.0	<0.008 DU				
3SS-850-226 27-oct-2003	CN a	V	0.0	<0.008 DU				
3SS-850-227 27-oct-2003	CN a	V	0.0	<0.08 DU				
3SS-850-228 27-oct-2003	CN a	V	0.0	<0.2 DIJU				
3SS-850-229 27-oct-2003	CN a	V	0.0	<0.2 DIJU				
3SS-850-230 27-oct-2003	CN a	V	0.0	<0.4 DIJU				
3SS-850-231 27-oct-2003	CN a	V	0.0	<0.04 DU				
3SS-850-232 24-oct-2003	SE af	V	0.0	<0.2 ILUD	<0.8 ILUD	<0.2 ILUD	<0.2 ILUD	<0.2 ILUD
3SS-850-233 27-oct-2003	CN a	V	0.0	<0.08 DU				
3SS-850-234 27-oct-2003	CN a	V	0.0	<0.04 DU				

the Building 850 subarea between January 1, 1988 and October 31, 2003. Results recorded by January 6, 2004.

PCB 1254	PCB 1260	PCB 1262	PCB 1268	Total PCBs	Location Date
7 DIJ	0.7 DIJ	-	-	-	3SS-850-215 27-oct-2003
68 DIJ	4 DIJ	-	-	-	3SS-850-216 27-oct-2003
3 JILD	<0.2 IU DL	-	<0.2 ILUD	-	3SS-850-217 24-oct-2003
0.74 JILD	<0.1 IU DL	-	<0.1 ILUD	-	3SS-850-218 24-oct-2003
4 JILD	<0.2 IU DL	-	<0.2 ILUD	-	3SS-850-219 24-oct-2003
11 JILD	<1 IU DL	-	<1 ILUD	-	3SS-850-220 24-oct-2003
1.2 JILD	<0.2 IU DL	-	<0.2 ILUD	-	3SS-850-221 24-oct-2003
0.362 D	0.035 D	-	-	-	3SS-850-222 27-oct-2003
2 DIJ	0.123 DIJ	-	-	-	3SS-850-223 27-oct-2003
0.205 D	0.0528 D	-	-	-	3SS-850-224 27-oct-2003
0.0326 D	<0.008 DU	-	-	-	3SS-850-225 27-oct-2003
0.0398 D	<0.008 DU	-	-	-	3SS-850-226 27-oct-2003
0.46 D	0.1 D	-	-	-	3SS-850-227 27-oct-2003
2 DIJ	0.483 DIJ	-	-	-	3SS-850-228 27-oct-2003
2 DIJ	0.398 DIJ	-	-	-	3SS-850-229 27-oct-2003
3 DIJ	0.671 DIJ	-	-	-	3SS-850-230 27-oct-2003
0.45 D	0.0452 D	-	-	-	3SS-850-231 27-oct-2003
6.7 JILD	<0.2 ILUDL	-	<0.2 ILUD	-	3SS-850-232 24-oct-2003
0.99 D	0.154 D	-	-	-	3SS-850-233 27-oct-2003
0.498 D	0.0601 D	-	-	-	3SS-850-234 27-oct-2003

See following page for notes

Table A-2. Subsurface soil and rock analyses for PCB compounds (mg/kg) in samples collected from the Building 850 subarea between January 1, 1988 and October 31, 2003. Results recorded by January 6, 2004.

Notes:

- Indicates no analysis performed for this compound
- Val. = Validation code

Footnotes:

- a ERD data
- b ORAD WGMG data
- c Analytical results for this sample are suspect
- d Sample collected during hydraulic testing
- e Blind sample, sent to lab without location identity
- f Sample dilution necessary for analysis; detection limits increased
- g Interlaboratory collocated sample
- h Intralaboratory collocated sample
- i Sample collected as part of pilot study
- j Note field may contain important information regarding this sample
- k Pre-development sample
- l Norm month, norm quarter or norm year inconsistent with sample date
- m Confirmation sample
- n Sample analyzed after standard holding time
- o Sample comprised of partial composite
- p Alpha spectroscopy analysis of uranium isotopes
- q Gamma spectroscopy analysis of uranium isotopes
- r Tritium data represents non-detect with activity calc'd for 100 percent error.

Lab Codes:

CN	Caltest Analytical Laboratory	1885 N. Kelly Rd, Napa, CA 94558
CS	California Laboratory Services	3249 Fitzgerald Rd. Rancho Cordova, CA 95742
EF	ERD Field Sampling	Weiss
SE	Sequoia Analytical	1551 Industrial Road, San Carlos, CA 94070

Validation Codes:

- V Validated
- N Not validated (default value)
- U Undeclared
- H Historical comparison only

CLP flags: (follow result)

- B Analyte found in method blank
- D Analysis performed at a secondary dilution or concentration (i.e., vapor samples)
- E The analyte was detected below the LLNL reporting limit, but above the analytical laboratory minimum detection limit.
- F Analyte found in field blank, trip blank, or equipment blank
- G Quantitated using fuel calibration, but does not match typical fuel fingerprint (fuel maybe gasoline, diesel, motor oil etc.).
- H Sample analyzed outside of holding time, sample results should be evaluated
- J Analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
- L Spike accuracy not within control limits
- O Duplicate spike or sample precision not within control limits
- P Indicates that the absence of a data qualifier flag does not mean that the data does not need qualification, but that the implementation of electronic data qualifier flags was not yet established
- R Sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet QC criteria. The presence or absence of the analyte cannot be verified
- S Analytical results for this sample are suspect
- T Analyte is tentatively identified compound; result is approximate
- U Compound was analyzed for, but not detected above detection limit

Table A-3. Surface soil analyses for dioxin and furan compounds (mg/kg) in samples collected from the Building 850 subarea between January 1, 1988 and June 30, 2003.

Location 3SS-850-102
 Sampled date 12/16/94
 Depth (ft.) 0.0
 Validation V

Description	Result	Units	Flag
Moisture by weight	21.000	Percent	
1,2,3,4,6,7,8-HpCDD	0.000018	mg/kg	
1,2,3,4,7,8-HxCDD	< 0.0000006	mg/kg	U
1,2,3,6,7,8-HxCDD	0.0000017	mg/kg	
1,2,3,7,8,9-HxCDD	0.0000024	mg/kg	
1,2,3,7,8-PeCDD	< 0.0000003	mg/kg	U
2,3,7,8-TCDD	< 0.0000006	mg/kg	U
1,2,3,4,6,7,8-HpCDF	0.0000046	mg/kg	
1,2,3,4,7,8,9-HpCDF	0.0000006	mg/kg	
1,2,3,4,7,8-HxCDF	0.0000042	mg/kg	
1,2,3,6,7,8-HxCDF	0.0000024	mg/kg	
1,2,3,7,8,9-HxCDF	0.0000026	mg/kg	
2,3,4,6,7,8-HxCDF	0.000002	mg/kg	
1,2,3,7,8-PeCDF	0.0000063	mg/kg	
2,3,4,7,8-PeCDF	0.000014	mg/kg	
2,3,7,8-TCDF	0.000022	mg/kg	
Totals of Dioxin Compounds			
Heptachlorinated dibenzo-p-dioxins	0.000031	mg/kg	
Hexachlorinated dibenzo-p-dioxins	0.0000073	mg/kg	
Octachlorinated dibenzo-p-dioxin	0.00016	mg/kg	
Pentachlorinated dibenzo-p-dioxins	< 0.0000014	mg/kg	U
Tetrachlorinated dibenzo-p-dioxins	< 0.0000006	mg/kg	U
Total Dioxins	< 0.0002003	mg/kg	
Totals of Furan Compounds			
Heptachlorinated dibenzo-furans	0.000013	mg/kg	
Hexachlorinated dibenzo-furans	0.000022	mg/kg	
Octachlorinated dibenzo-furan	0.000011	mg/kg	
Pentachlorinated dibenzo-furans	0.000084	mg/kg	
Tetrachlorinated dibenzo-furans	0.00017	mg/kg	
Total Furans	0.0003	mg/kg	

Location 3SS-850-107
 Sampled date 12/16/94
 Depth (ft.) 0.0
 Validation V

Description	Result	Units	Flag
Moisture by weight	9.000	Percent	
1,2,3,4,6,7,8-HpCDD	0.000048	mg/kg	
1,2,3,4,7,8-HxCDD	0.0000009	mg/kg	
1,2,3,6,7,8-HxCDD	0.0000025	mg/kg	
1,2,3,7,8,9-HxCDD	0.0000016	mg/kg	
1,2,3,7,8-PeCDD	< 0.0000011	mg/kg	U
2,3,7,8-TCDD	< 0.0000009	mg/kg	U

Table A-3. Surface soil analyses for dioxin and furan compounds (mg/kg) in samples collected from the Building 850 subarea between January 1, 1988 and June 30, 2003.

	1,2,3,4,6,7,8-HpCDF	0.000079	mg/kg	
	1,2,3,4,7,8,9-HpCDF	0.000016	mg/kg	
	1,2,3,4,7,8-HxCDF	0.00024	mg/kg	
	1,2,3,6,7,8-HxCDF	0.0002	mg/kg	
	1,2,3,7,8,9-HxCDF	0.000028	mg/kg	
	2,3,4,6,7,8-HxCDF	0.000066	mg/kg	
	1,2,3,7,8-PeCDF	0.00033	mg/kg	
	2,3,4,7,8-PeCDF	0.00078	mg/kg	
	2,3,7,8-TCDF	0.001	mg/kg	
Totals of Dioxin Compounds	Heptachlorinated dibenzo-p-dioxins	0.000085	mg/kg	
	Hexachlorinated dibenzo-p-dioxins	0.000015	mg/kg	
	Octachlorinated dibenzo-p-dioxin	0.00041	mg/kg	
	Pentachlorinated dibenzo-p-dioxins	< 0.0000011	mg/kg	U
	Tetrachlorinated dibenzo-p-dioxins	< 0.0000009	mg/kg	U
	Total Dioxins	< 0.000512	mg/kg	
Totals of Furan Compounds	Heptachlorinated dibenzo-furans	0.00014	mg/kg	
	Hexachlorinated dibenzo-furans	0.0012	mg/kg	
	Octachlorinated dibenzo-furan	0.00002	mg/kg	
	Pentachlorinated dibenzo-furans	0.0043	mg/kg	
	Tetrachlorinated dibenzo-furans	0.0062	mg/kg	
	Total Furans	0.01186	mg/kg	

Location **3SS-850-107**
 Sampled date **12/16/94**
 Depth (ft.) **0.5**
 Validation **V**

Description	Result	Units	Flag
Moisture by weight	9.000	Percent	
1,2,3,4,6,7,8-HpCDD	0.000019	mg/kg	
1,2,3,4,7,8-HxCDD	< 0.0000005	mg/kg	U
1,2,3,6,7,8-HxCDD	0.0000015	mg/kg	
1,2,3,7,8,9-HxCDD	0.0000013	mg/kg	
1,2,3,7,8-PeCDD	< 0.0000008	mg/kg	U
2,3,7,8-TCDD	0.0000007	mg/kg	
1,2,3,4,6,7,8-HpCDF	0.000045	mg/kg	
1,2,3,4,7,8,9-HpCDF	0.000012	mg/kg	
1,2,3,4,7,8-HxCDF	0.00014	mg/kg	
1,2,3,6,7,8-HxCDF	0.00012	mg/kg	
1,2,3,7,8,9-HxCDF	0.000018	mg/kg	
2,3,4,6,7,8-HxCDF	0.000043	mg/kg	
1,2,3,7,8-PeCDF	0.00021	mg/kg	
2,3,4,7,8-PeCDF	0.00045	mg/kg	
2,3,7,8-TCDF	0.00059	mg/kg	
Totals of Dioxin Compounds	Heptachlorinated dibenzo-p-dioxins	0.000034	mg/kg
	Hexachlorinated dibenzo-p-dioxins	0.0000066	mg/kg
	Octachlorinated dibenzo-p-dioxin	0.00017	mg/kg
	Pentachlorinated dibenzo-p-dioxins	< 0.0000012	mg/kg U

Table A-3. Surface soil analyses for dioxin and furan compounds (mg/kg) in samples collected from the Building 850 subarea between January 1, 1988 and June 30, 2003.

	Tetrachlorinated dibenzo-p-dioxins	0.000002	mg/kg
	Total Dioxins	< 0.0002138	mg/kg
Totals of Furan Compounds	Heptachlorinated dibenzo-furans	0.000083	mg/kg
	Hexachlorinated dibenzo-furans	0.00074	mg/kg
	Octachlorinated dibenzo-furan	0.000081	mg/kg
	Pentachlorinated dibenzo-furans	0.0027	mg/kg
	Tetrachlorinated dibenzo-furans	0.0036	mg/kg
	Total Furans	0.007204	mg/kg

Location **3SS-850-126**
 Sampled date **12/16/94**
 Depth (ft.) **0.0**
 Validation **V**

Description	Result	Units	Flag
Moisture by weight	25.000	Percent	
1,2,3,4,6,7,8-HpCDD	0.000011	mg/kg	
1,2,3,4,7,8-HxCDD	< 0.0000005	mg/kg	U
1,2,3,6,7,8-HxCDD	< 0.0000011	mg/kg	U
1,2,3,7,8-HxCDD	< 0.0000011	mg/kg	U
1,2,3,7,8-PeCDD	< 0.0000011	mg/kg	U
2,3,7,8-TCDD	< 0.0000003	mg/kg	U
1,2,3,4,6,7,8-HpCDF	0.0000039	mg/kg	
1,2,3,4,7,8,9-HpCDF	< 0.0000003	mg/kg	U
1,2,3,4,7,8-HxCDF	0.000001	mg/kg	
1,2,3,6,7,8-HxCDF	0.0000007	mg/kg	
1,2,3,7,8,9-HxCDF	0.0000024	mg/kg	
2,3,4,6,7,8-HxCDF	0.0000007	mg/kg	
1,2,3,7,8-PeCDF	0.0000015	mg/kg	
2,3,4,7,8-PeCDF	0.0000027	mg/kg	
2,3,7,8-TCDF	0.0000041	mg/kg	
Totals of Dioxin Compounds			
Heptachlorinated dibenzo-p-dioxins	0.000018	mg/kg	
Hexachlorinated dibenzo-p-dioxins	< 0.0000011	mg/kg	U
Octachlorinated dibenzo-p-dioxin	0.000088	mg/kg	
Pentachlorinated dibenzo-p-dioxins	< 0.0000011	mg/kg	U
Tetrachlorinated dibenzo-p-dioxins	< 0.0000003	mg/kg	U
Total Dioxins	< 0.0001085	mg/kg	
Totals of Furan Compounds			
Heptachlorinated dibenzo-furans	0.000016	mg/kg	
Hexachlorinated dibenzo-furans	0.0000093	mg/kg	
Octachlorinated dibenzo-furan	0.000019	mg/kg	
Pentachlorinated dibenzo-furans	0.000015	mg/kg	
Tetrachlorinated dibenzo-furans	0.000029	mg/kg	
Total Furans	0.0000883	mg/kg	

Table A-3. Surface soil analyses for dioxin and furan compounds (mg/kg) in samples collected from the Building 850 subarea between January 1, 1988 and June 30, 2003.

Location 3SS-850-139					
Sampled date	12/16/94				
Depth (ft.)	0.0				
Validation	V				
		Description	Result	Units	Flag
		Moisture by weight	24.000	Percent	
		1,2,3,4,6,7,8-HpCDD	0.000057	mg/kg	
		1,2,3,4,7,8-HxCDD	< 0.000001	mg/kg	U
		1,2,3,6,7,8-HxCDD	0.0000037	mg/kg	
		1,2,3,7,8,9-HxCDD	0.0000022	mg/kg	
		1,2,3,7,8-PeCDD	< 0.0000012	mg/kg	U
		2,3,7,8-TCDD	< 0.0000008	mg/kg	U
		1,2,3,4,6,7,8-HpCDF	0.000077	mg/kg	
		1,2,3,4,7,8,9-HpCDF	0.000028	mg/kg	
		1,2,3,4,7,8-HxCDF	0.00031	mg/kg	
		1,2,3,6,7,8-HxCDF	0.00017	mg/kg	
		1,2,3,7,8,9-HxCDF	0.000041	mg/kg	
		2,3,4,6,7,8-HxCDF	0.000097	mg/kg	
		1,2,3,7,8-PeCDF	0.00036	mg/kg	
		2,3,4,7,8-PeCDF	0.0012	mg/kg	
		2,3,7,8-TCDF	0.0018	mg/kg	
Totals of Dioxin Compounds		Heptachlorinated dibenzo-p-dioxins	0.000097	mg/kg	
		Hexachlorinated dibenzo-p-dioxins	0.000016	mg/kg	
		Octachlorinated dibenzo-p-dioxin	0.00048	mg/kg	
		Pentachlorinated dibenzo-p-dioxins	< 0.0000012	mg/kg	U
		Tetrachlorinated dibenzo-p-dioxins	< 0.0000008	mg/kg	U
		Total Dioxins	< 0.000595	mg/kg	
Totals of Furan Compounds		Heptachlorinated dibenzo-furans	0.00017	mg/kg	
		Hexachlorinated dibenzo-furans	0.0012	mg/kg	
		Octachlorinated dibenzo-furan	0.000017	mg/kg	
		Pentachlorinated dibenzo-furans	0.0066	mg/kg	
		Tetrachlorinated dibenzo-furans	0.012	mg/kg	
		Total Furans	0.019987	mg/kg	

Location **3SS-850-140**
 Sampled date 12/16/94
 Depth (ft.) 0.0
 Validation V

Description	Result	Units	Flag
Moisture by weight	6.000	Percent	
1,2,3,4,6,7,8-HpCDD	0.000023	mg/kg	
1,2,3,4,7,8-HxCDD	< 0.0000007	mg/kg	U
1,2,3,6,7,8-HxCDD	0.0000011	mg/kg	
1,2,3,7,8,9-HxCDD	< 0.0000007	mg/kg	U
1,2,3,7,8-PeCDD	< 0.0000011	mg/kg	U
2,3,7,8-TCDD	0.0000014	mg/kg	
1,2,3,4,6,7,8-HpCDF	0.00015	mg/kg	

Table A-3. Surface soil analyses for dioxin and furan compounds (mg/kg) in samples collected from the Building 850 subarea between January 1, 1988 and June 30, 2003.

	1,2,3,4,7,8,9-HpCDF	0.000056	mg/kg	
	1,2,3,4,7,8-HxCDF	0.000054	mg/kg	
	1,2,3,6,7,8-HxCDF	0.000043	mg/kg	
	1,2,3,7,8,9-HxCDF	0.000097	mg/kg	
	2,3,4,6,7,8-HxCDF	0.000015	mg/kg	
	1,2,3,7,8-PeCDF	0.000061	mg/kg	
	2,3,4,7,8-PeCDF	0.0017	mg/kg	
	2,3,7,8-TCDF	0.0019	mg/kg	
Totals of Dioxin Compounds	Heptachlorinated dibenzo-p-dioxins	0.000037	mg/kg	
	Hexachlorinated dibenzo-p-dioxins	0.0000059	mg/kg	
	Octachlorinated dibenzo-p-dioxin	0.000016	mg/kg	
	Pentachlorinated dibenzo-p-dioxins	< 0.0000011	mg/kg	U
	Tetrachlorinated dibenzo-p-dioxins	0.0000043	mg/kg	
	Total Dioxins	< 0.0002083	mg/kg	
Totals of Furan Compounds	Heptachlorinated dibenzo-furans	0.0003	mg/kg	
	Hexachlorinated dibenzo-furans	0.0027	mg/kg	
	Octachlorinated dibenzo-furan	0.000025	mg/kg	
	Pentachlorinated dibenzo-furans	0.0086	mg/kg	
	Tetrachlorinated dibenzo-furans	0.011	mg/kg	
	Total Furans	0.022625	mg/kg	

Location **3SS-850-142**
 Sampled date 12/16/94
 Depth (ft.) 0.0
 Validation V

Description	Result	Units	Flag	
Moisture by weight	7.000	Percent		
1,2,3,4,6,7,8-HpCDD	0.000031	mg/kg		
1,2,3,4,7,8-HxCDD	< 0.0000018	mg/kg	U	
1,2,3,6,7,8-HxCDD	< 0.0000019	mg/kg	U	
1,2,3,7,8,9-HxCDD	< 0.0000018	mg/kg	U	
1,2,3,7,8-PeCDD	< 0.0000019	mg/kg	U	
2,3,7,8-TCDD	0.0000008	mg/kg		
1,2,3,4,6,7,8-HpCDF	0.000064	mg/kg		
1,2,3,4,7,8,9-HpCDF	0.0002	mg/kg		
1,2,3,4,7,8-HxCDF	0.0023	mg/kg		
1,2,3,6,7,8-HxCDF	0.0021	mg/kg		
1,2,3,7,8,9-HxCDF	0.00025	mg/kg		
2,3,4,6,7,8-HxCDF	0.00075	mg/kg		
1,2,3,7,8-PeCDF	0.0026	mg/kg		
2,3,4,7,8-PeCDF	0.0091	mg/kg		
2,3,7,8-TCDF	0.0096	mg/kg		
Totals of Dioxin Compounds	Heptachlorinated dibenzo-p-dioxins	0.000057	mg/kg	
	Hexachlorinated dibenzo-p-dioxins	< 0.0000087	mg/kg	U
	Octachlorinated dibenzo-p-dioxin	0.00024	mg/kg	
	Pentachlorinated dibenzo-p-dioxins	< 0.0000032	mg/kg	U
	Tetrachlorinated dibenzo-p-dioxins	0.0000038	mg/kg	

Table A-3. Surface soil analyses for dioxin and furan compounds (mg/kg) in samples collected from the Building 850 subarea between January 1, 1988 and June 30, 2003.

	Total Dioxins	< 0.0003127	mg/kg	
Totals of Furan Compounds	Heptachlorinated dibenzo-furans	0.0013	mg/kg	
	Hexachlorinated dibenzo-furans	0.011	mg/kg	
	Octachlorinated dibenzo-furan	0.00011	mg/kg	
	Pentachlorinated dibenzo-furans	0.057	mg/kg	
	Tetrachlorinated dibenzo-furans	0.048	mg/kg	
	Total Furans	0.11741	mg/kg	
Location	3SS-850-142			
Sampled date	12/16/94			
Depth (ft.)	0.5			
Validation	V			
	Description	Result	Units	Flag
	Moisture by weight	6.000	Percent	
	1,2,3,4,6,7,8-HpCDD	0.000052	mg/kg	
	1,2,3,4,7,8-HxCDD	< 0.000001	mg/kg	U
	1,2,3,6,7,8-HxCDD	0.0000033	mg/kg	
	1,2,3,7,8,9-HxCDD	< 0.000001	mg/kg	U
	1,2,3,7,8-PeCDD	< 0.0000011	mg/kg	U
	2,3,7,8-TCDD	< 0.0000005	mg/kg	U
	1,2,3,4,6,7,8-HpCDF	0.00017	mg/kg	
	1,2,3,4,7,8,9-HpCDF	0.000046	mg/kg	
	1,2,3,4,7,8-HxCDF	0.00055	mg/kg	
	1,2,3,6,7,8-HxCDF	0.00051	mg/kg	
	1,2,3,7,8,9-HxCDF	0.000063	mg/kg	
	2,3,4,6,7,8-HxCDF	0.00018	mg/kg	
	1,2,3,7,8-PeCDF	0.00067	mg/kg	
	2,3,4,7,8-PeCDF	0.0022	mg/kg	
	2,3,7,8-TCDF	0.0026	mg/kg	
Totals of Dioxin Compounds	Heptachlorinated dibenzo-p-dioxins	0.000093	mg/kg	
	Hexachlorinated dibenzo-p-dioxins	0.0000033	mg/kg	
	Octachlorinated dibenzo-p-dioxin	0.00055	mg/kg	
	Pentachlorinated dibenzo-p-dioxins	< 0.0000024	mg/kg	U
	Tetrachlorinated dibenzo-p-dioxins	0.0000007	mg/kg	
	Total Dioxins	< 0.0006494	mg/kg	
Totals of Furan Compounds	Heptachlorinated dibenzo-furans	0.00034	mg/kg	
	Hexachlorinated dibenzo-furans	0.0031	mg/kg	
	Octachlorinated dibenzo-furan	0.000026	mg/kg	
	Pentachlorinated dibenzo-furans	0.010	mg/kg	
	Tetrachlorinated dibenzo-furans	0.015	mg/kg	
	Total Furans	0.028466	mg/kg	

Table A-3. Surface soil analyses for dioxin and furan compounds (mg/kg) in samples collected from the Building 850 subarea between January 1, 1988 and June 30, 2003.

Location				
Location	<u>3SS-850-147</u>			
Sampled date	12/16/94			
Depth (ft.)	0.0			
Validation	V			
Description	Result	Units	Flag	
Moisture by weight	20.000	Percent		
1,2,3,4,6,7,8-HpCDD	0.0000037	mg/kg		
1,2,3,4,7,8-HxCDD	< 0.0000005	mg/kg	U	
1,2,3,6,7,8-HxCDD	0.0000009	mg/kg		
1,2,3,7,8,9-HxCDD	0.0000011	mg/kg		
1,2,3,7,8-PeCDD	< 0.0000005	mg/kg	U	
2,3,7,8-TCDD	< 0.0000004	mg/kg	U	
1,2,3,4,6,7,8-HpCDF	0.0000017	mg/kg		
1,2,3,4,7,8,9-HpCDF	< 0.0000005	mg/kg	U	
1,2,3,4,7,8-HxCDF	0.0000021	mg/kg		
1,2,3,6,7,8-HxCDF	0.0000014	mg/kg		
1,2,3,7,8,9-HxCDF	0.0000007	mg/kg		
2,3,4,6,7,8-HxCDF	0.0000001	mg/kg		
1,2,3,7,8-PeCDF	0.0000046	mg/kg		
2,3,4,7,8-PeCDF	0.0000097	mg/kg		
2,3,7,8-TCDF	0.000019	mg/kg		
Totals of Dioxin Compounds				
Heptachlorinated dibenzo-p-dioxins	0.0000064	mg/kg		
Hexachlorinated dibenzo-p-dioxins	0.0000036	mg/kg		
Octachlorinated dibenzo-p-dioxin	0.000022	mg/kg		
Pentachlorinated dibenzo-p-dioxins	< 0.0000005	mg/kg	U	
Tetrachlorinated dibenzo-p-dioxins	< 0.0000005	mg/kg	U	
Total Dioxins	< 0.000033	mg/kg		
Totals of Furan Compounds				
Heptachlorinated dibenzo-furans	0.0000032	mg/kg		
Hexachlorinated dibenzo-furans	0.000011	mg/kg		
Octachlorinated dibenzo-furan	0.0000015	mg/kg		
Pentachlorinated dibenzo-furans	0.000061	mg/kg		
Tetrachlorinated dibenzo-furans	0.00014	mg/kg		
Total Furans	0.0002167	mg/kg		
Location				
Location	<u>3SS-850-154</u>			
Sampled date	12/16/94			
Depth (ft.)	0.0			
Validation	V			
Description	Result	Units	Flag	
Moisture by weight	20.000	Percent		
1,2,3,4,6,7,8-HpCDD	0.000021	mg/kg		
1,2,3,4,7,8-HxCDD	< 0.0000007	mg/kg	U	
1,2,3,6,7,8-HxCDD	0.0000002	mg/kg		
1,2,3,7,8,9-HxCDD	0.0000013	mg/kg		
1,2,3,7,8-PeCDD	< 0.0000009	mg/kg	U	
2,3,7,8-TCDD	< 0.0000004	mg/kg	U	
1,2,3,4,6,7,8-HpCDF	0.000004	mg/kg		

Table A-3. Surface soil analyses for dioxin and furan compounds (mg/kg) in samples collected from the Building 850 subarea between January 1, 1988 and June 30, 2003.

	1,2,3,4,7,8,9-HpCDF	< 0.0000003	mg/kg	U
	1,2,3,4,7,8-HxCDF	0.0000018	mg/kg	
	1,2,3,6,7,8-HxCDF	< 0.0000003	mg/kg	U
	1,2,3,7,8,9-HxCDF	< 0.0000002	mg/kg	U
	2,3,4,6,7,8-HxCDF	0.0000009	mg/kg	
	1,2,3,7,8-PeCDF	0.0000012	mg/kg	
	2,3,4,7,8-PeCDF	0.0000031	mg/kg	
	2,3,7,8-TCDF	0.0000043	mg/kg	
Totals of Dioxin Compounds	Heptachlorinated dibenzo-p-dioxins	0.000034	mg/kg	
	Hexachlorinated dibenzo-p-dioxins	0.000009	mg/kg	
	Octachlorinated dibenzo-p-dioxin	0.00014	mg/kg	
	Pentachlorinated dibenzo-p-dioxins	< 0.0000009	mg/kg	U
	Tetrachlorinated dibenzo-p-dioxins	< 0.0000004	mg/kg	U
	Total Dioxins	< 0.0001843	mg/kg	
Totals of Furan Compounds	Heptachlorinated dibenzo-furans	0.00001	mg/kg	
	Hexachlorinated dibenzo-furans	0.0000091	mg/kg	
	Octachlorinated dibenzo-furan	0.000007	mg/kg	
	Pentachlorinated dibenzo-furans	0.000018	mg/kg	
	Tetrachlorinated dibenzo-furans	0.000029	mg/kg	
	Total Furans	0.0000731	mg/kg	

Notes:

CLP flags: (follow result)

U Compound was analyzed for, but not detected above detection limit

Table A-4. Surface soil analyses for uranium isotopes (pCi/g) and U235/U238 atom ratio in samples collected from Building 850 subarea between between January 1, 1988 and October 31, 2003. Results recorded by October 30, 2003.

Uranium Isotopes in Soil, Site 300
November 4, 2003
gemin2

s3uraniumsoL.04nov2003
s3uraniumsoR.04nov2003

Min Sample Date
January 1, 1988
Max Sample Date
June 30, 2003

Table A-4. Surface soil analyses for uranium isotopes (pCi/g) and U235/U238 atom ratio in samples

Location Date	Lab Note	Val.		Uranium 233+234	Uranium 235+236	Uranium 238	Uranium 235/238
		Depth (ft)					
FT850-1							
01-dec-1989	GL a	U	0.0	-	0.008669 P	0.6419 P	-
01-dec-1989	GL a	U	0.0	-	0.006958 P	0.5072 P	-
01-dec-1989	GL a	U	0.0	-	0.01046 P	0.6764 P	-
01-dec-1989	GL a	U	0.0	-	0.01616 P	0.9949 P	-
01-dec-1989	GL a	U	0.0	-	0.008871 P	0.3767 P	-
01-dec-1989	GL a	U	0.0	-	0.005944 P	0.1867 P	-
FT850-7							
01-dec-1989	GL a	U	0.0	-	0.009705 P	0.4483 P	-
01-dec-1989	GL a	U	0.0	-	0.003749 P	0.1167 P	-
01-dec-1989	GL a	U	0.0	-	0.004783 P	0.1802 P	-
01-dec-1989	GL a	U	0.0	-	0.01133 P	0.6452 P	-
01-dec-1989	GL a	U	0.0	-	0.009086 P	0.5344 P	-
01-dec-1989	GL a	U	0.0	-	0.0637 P	7.657 P	-
850-18							
20-mar-1990	TM ap	U	0.4	0.7 +/- 0.1P	<0.1 P	0.8 +/- 0.1P	-
3SS-850-100							
26-jul-1994	IC ah	V	0.0	-	-	-	0.00227 +/- 5e-05
26-jul-1994	IC ah	V	0.0	-	-	-	0.00353 +/- 6e-05
3SS-850-101							
26-jul-1994	IC a	V	0.0	-	-	-	0.00238 +/- 5e-05
3SS-850-102							
26-jul-1994	IC a	V	0.0	-	-	-	0.0027 +/- 7e-05
3SS-850-103							
26-jul-1994	IC a	V	0.0	-	-	-	0.0022 +/- 0.00026
3SS-850-104							
26-jul-1994	IC ah	V	0.0	-	-	-	0.0034 +/- 0.00011
26-jul-1994	IC aeh	V	0.0	-	-	-	0.00331 +/- 0.00011
3SS-850-105							
26-jul-1994	IC a	V	0.0	-	-	-	0.00245 +/- 5e-05
3SS-850-106							
26-jul-1994	IC a	V	0.0	-	-	-	0.00252 +/- 5e-05
3SS-850-107							
26-jul-1994	IC a	V	0.0	-	-	-	0.00189 +/- 3e-05
3SS-850-108							
26-jul-1994	IC a	V	0.0	-	-	-	0.00624 +/- 0.0002
3SS-850-109							
26-jul-1994	IC a	V	0.0	-	-	-	0.00656 +/- 0.00024
3SS-850-110							
26-jul-1994	IC ah	V	0.0	-	-	-	0.00549 +/- 0.00026
26-jul-1994	IC ah	V	0.0	-	-	-	0.00546 +/- 0.00024
3SS-850-111							
26-jul-1994	IC a	V	0.0	-	-	-	0.00371 +/- 0.00012
3SS-850-112							
26-jul-1994	IC a	V	0.0	-	-	-	0.00382 +/- 9e-05
3SS-850-113							
26-jul-1994	IC a	V	0.0	-	-	-	0.00234 +/- 7e-05
3SS-850-114							
26-jul-1994	IC a	V	0.0	-	-	-	0.00277 +/- 0.00023

samples collected from Building 850 subarea between between January 1, 1988 and October 31, 2003.
 Results recorded by October 30, 2003.

Uranium 233 by mass measurement	Uranium 234 by mass measurement	Uranium 235 by mass measurement	Uranium 236 by mass measurement	Uranium 238 by mass measurement	Location Date
-	-	-	-	-	FT850-1
-	-	-	-	-	01-dec-1989
-	-	-	-	-	01-dec-1989
-	-	-	-	-	01-dec-1989
-	-	-	-	-	01-dec-1989
-	-	-	-	-	01-dec-1989
-	-	-	-	-	01-dec-1989
-	-	-	-	-	FT850-7
-	-	-	-	-	01-dec-1989
-	-	-	-	-	01-dec-1989
-	-	-	-	-	01-dec-1989
-	-	-	-	-	01-dec-1989
-	-	-	-	-	01-dec-1989
-	-	-	-	-	850-18
-	-	-	-	-	20-mar-1990
-	-	0.044 H	-	3.04	3SS-850-100
-	-	0.021 H	-	0.91	26-jul-1994
-	-	0.033 H	-	2.18	3SS-850-101
-	-	0.027 H	-	1.54	26-jul-1994
-	-	0.046 H	-	3.27	3SS-850-102
-	-	0.014 H	-	0.65	26-jul-1994
-	-	0.018 H	-	0.83	26-jul-1994
-	-	0.041 H	-	2.63	3SS-850-103
-	-	0.029 H	-	1.79	26-jul-1994
-	-	0.301 H	-	24.75	3SS-850-104
-	-	0.016 H	-	0.41	26-jul-1994
-	-	0.015 H	-	0.37	3SS-850-105
-	-	0.013 H	-	0.37	26-jul-1994
-	-	0.013 H	-	0.36	26-jul-1994
-	-	0.027 H	-	1.12	3SS-850-106
-	-	0.013 H	-	0.52	26-jul-1994
-	-	0.039 H	-	2.62	3SS-850-107
-	-	0.012 H	-	0.68	26-jul-1994
-	-		-		3SS-850-108
-	-		-		26-jul-1994
-	-		-		3SS-850-109
-	-		-		26-jul-1994
-	-		-		3SS-850-110
-	-		-		26-jul-1994
-	-		-		3SS-850-111
-	-		-		26-jul-1994
-	-		-		3SS-850-112
-	-		-		26-jul-1994
-	-		-		3SS-850-113
-	-		-		26-jul-1994
-	-		-		3SS-850-114
-	-		-		26-jul-1994

Table A-4. Surface soil analyses for uranium isotopes (pCi/g) and U235/U238 atom ratio in samples

Location Date	Lab Note	Val. Depth (ft)	Uranium	Uranium	Uranium	Uranium
			233+234	235+236	238	235/238
3SS-850-115						
26-jul-1994	IC a	V 0.0	-	-	-	0.00464 +/- 0.00021
26-jul-1994	IT ap	V 0.0	3.42 +/- 0.32	0.35 +/- 0.12	2.65 +/- 0.29	-
3SS-850-116						
26-jul-1994	IC a	V 0.0	-	-	-	0.00516 +/- 0.00032
26-jul-1994	IT ap	V 0.0	2.13 +/- 0.26	0.53 +/- 0.15	1.67 +/- 0.24	-
3SS-850-117						
26-jul-1994	IC a	V 0.0	-	-	-	0.00287 +/- 0.00015
3SS-850-118						
26-jul-1994	IC a	V 0.0	-	-	-	0.00361 +/- 0.0002
3SS-850-119						
26-jul-1994	IC a	V 0.0	-	-	-	0.00436 +/- 0.0002
3SS-850-120						
26-jul-1994	IC ah	V 0.0	-	-	-	0.00293 +/- 8e-05
26-jul-1994	IC ah	V 0.0	-	-	-	0.00271 +/- 0.0001
3SS-850-121						
26-jul-1994	IC a	V 0.0	-	-	-	0.00294 +/- 0.0001
3SS-850-122						
26-jul-1994	IC a	V 0.0	-	-	-	0.00355 +/- 0.0002
3SS-850-123						
26-jul-1994	IC a	V 0.0	-	-	-	0.00639 +/- 0.00038
3SS-850-124						
26-jul-1994	IC a	V 0.0	-	-	-	0.00491 +/- 0.00039
3SS-850-125						
26-jul-1994	IC a	V 0.0	-	-	-	0.00574 +/- 0.00026
3SS-850-126						
26-jul-1994	IC a	V 0.0	-	-	-	0.00288 +/- 0.00025
3SS-850-127						
26-jul-1994	IC a	V 0.0	-	-	-	0.0037 +/- 0.00018
3SS-850-128						
26-jul-1994	IC a	V 0.0	-	-	-	0.00729 +/- 0.00012
3SS-850-129						
26-jul-1994	IC a	V 0.0	-	-	-	0.00322 +/- 0.00027
3SS-850-130A						
26-jul-1994	IC ah	V 0.0	-	-	-	0.00314 +/- 0.00016
26-jul-1994	IC aeh	V 0.0	-	-	-	0.0026 +/- 0.00029
3SS-850-131A						
26-jul-1994	IC a	V 0.0	-	-	-	0.00382 +/- 0.00025

samples collected from Building 850 subarea between between January 1, 1988 and October 31, 2003.
 Results recorded by October 30, 2003.

Uranium 233 by mass measurement	Uranium 234 by mass measurement	Uranium 235 by mass measurement	Uranium 236 by mass measurement	Uranium 238 by mass measurement	Location Date
-	-	0.013 H	-	0.45	3SS-850-115 26-jul-1994
-	-	-	-	-	26-jul-1994
-	-	0.014 H	-	0.42	3SS-850-116 26-jul-1994
-	-	-	-	-	26-jul-1994
-	-	0.023 H	-	1.22	3SS-850-117 26-jul-1994
-	-	0.01 H	-	0.44	3SS-850-118 26-jul-1994
-	-	0.01 H	-	0.36	3SS-850-119 26-jul-1994
-	-	0.017 H	-	0.92	3SS-850-120 26-jul-1994
-	-	0.024 H	-	1.37	26-jul-1994
-	-	0.02 H	-	1.05	3SS-850-121 26-jul-1994
-	-	0.011 H	-	0.46	3SS-850-122 26-jul-1994
-	-	0.015 H	-	0.36	3SS-850-123 26-jul-1994
-	-	0.012 H	-	0.37	3SS-850-124 26-jul-1994
-	-	0.012 H	-	0.33	3SS-850-125 26-jul-1994
-	-	0.019 H	-	1.04	3SS-850-126 26-jul-1994
-	-	0.018 H	-	0.77	3SS-850-127 26-jul-1994
-	-	0.013 H	-	0.29	3SS-850-128 26-jul-1994
-	-	0.02 H	-	0.94	3SS-850-129 26-jul-1994
-	-	0.022 H	-	1.07	3SS-850-130A 26-jul-1994
-	-	0.021 H	-	1.24	26-jul-1994
-	-	0.013 H	-	0.52	3SS-850-131A 26-jul-1994

See following page for notes

Table A-4. Surface soil analyses for uranium isotopes (pCi/g) and U235/U238 atom ratio in samples collected from Building 850 subarea between January 1, 1988 and October 31, 2003. Results recorded by October 30, 2003.

Notes:

- Indicates no analysis performed for this compound

Val. = Validation code

Footnotes:

a ERD data
b ORAD WGMG data
c Analytical results for this sample are suspect
d Sample collected during hydraulic testing
e Blind sample, sent to lab without location identity
f Sample dilution necessary for analysis; detection limits increased
g Interlaboratory collocated sample
h Intralaboratory collocated sample
i Sample collected as part of pilot study
j Note field may contain important information regarding this sample
k Pre-development sample
l Norm month, norm quarter or norm year inconsistent with sample date
m Confirmation sample
n Sample analyzed after standard holding time
o Sample comprised of partial composite
p Alpha spectroscopy analysis of uranium isotopes
q Gamma spectroscopy analysis of uranium isotopes
r Tritium data represents non-detect with activity calc'd for 100 percent error.

Lab Codes:

GL EnvSci Low Level GammaSpec Lab
IC ICP MS Facility
IT International Technology Corp. IS was used for short time.
TM Thermo Analytical Inc.

Validation Codes:

V Validated
N Not validated (default value)
U Undeclared
H Historical comparison only

CLP flags: (follow result)

B Analyte found in method blank
D Analysis performed at a secondary dilution or concentration (i.e., vapor samples)
E The analyte was detected below the LLNL reporting limit, but above the analytical laboratory minimum detection limit.
F Analyte found in field blank, trip blank, or equipment blank
G Quantitated using fuel calibration, but does not match typical fuel fingerprint (fuel maybe gasoline, diesel, motor oil etc.).
H Sample analyzed outside of holding time, sample results should be evaluated
J Analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
L Spike accuracy not within control limits
O Duplicate spike or sample precision not within control limits
P Indicates that the absence of a data qualifier flag does not mean that the data does not need qualification, but that the implementation of electronic data qualifier flags was not yet established
R Sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet QC criteria. The presence or absence of the analyte cannot be verified
S Analytical results for this sample are suspect
T Analyte is tentatively identified compound; result is approximate
U Compound was analyzed for, but not detected above detection limit

Table A-5. Surface soil analyses for TTLC metals (mg/kg) in samples collected from the Building 850 subarea between between January 1, 1988 and October 31, 2003. Results recorded by October 30, 2003.

Total Metals in Surface Soil, Site 300
November 3, 2003
geminiz

s3metttlc.sol.03nov2003
s3metttlc.soR.03nov2003

Min Sample Date
January 1, 1988
Max Sample Date
June 30, 2003

Table A-5. Surface soil analyses for TTLC metals (mg/kg) in samples collected from the Building

Location Date	Lab	Val.		Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	
		Note	Depth (ft)									
FT850-1												
01-dec-1989	BC	ajl	U	0.0	<1 P	1.5 P	150 P	<0.2 P	5.3 P	22 P	13 P	220 P
01-dec-1989	BC	ajl	U	0.0	<1 P	2 P	97 P	<0.2 P	4.2 P	22 P	8.7 P	440 P
01-dec-1989	BC	ajl	U	0.0	<1 P	2.2 P	110 P	<0.2 P	5.4 P	23 P	9 P	570 P
01-dec-1989	BC	ajl	U	0.0	<1 P	<0.4 P	140 P	<0.2 P	6.8 P	23 P	15 P	64 P
01-dec-1989	BC	ajl	U	0.0	<1 P	2 P	79 P	15 P	4 P	19 P	9.2 P	1000 P
01-dec-1989	BC	ajl	U	0.0	1 P	<0.8 P	150 P	<0.2 P	7.9 P	27 P	16 P	19 P
FT850-7												
01-dec-1989	BC	ajl	U	0.0	<1 P	1.9 P	55 P	<0.2 P	2.3 P	13 P	4.8 P	16 P
01-dec-1989	BC	ajl	U	0.0	<1 P	1.4 P	130 P	<0.2 P	4.6 P	24 P	9.4 P	36 P
01-dec-1989	BC	ajl	U	0.0	<1 P	<0.4 P	200 P	<0.2 P	7 P	26 P	18 P	46 P
01-dec-1989	BC	ajl	U	0.0	<1 P	<0.4 P	180 P	<0.2 P	7.7 P	27 P	17 P	36 P
01-dec-1989	BC	ajl	U	0.0	<1 P	<0.8 P	160 P	<0.2 P	8.6 P	28 P	16 P	38 P
01-dec-1989	BC	ajl	U	0.0	<1 P	1.2 P	220 P	<0.2 P	4 P	22 P	8.5 P	24 P
850-11Z												
21-mar-1990	BC	a	U	0.5	-	-	-	<0.2 P	-	-	-	-
3SS-850-100												
26-jul-1994	CS	a	V	0.0	<1 U	0.55	130	<0.5 U	0.54	20	11	18
3SS-850-101												
26-jul-1994	CS	a	V	0.0	<1 U	0.98	110	<0.5 U	0.2	15	9.1	56
3SS-850-102												
26-jul-1994	CS	a	V	0.0	<1 U	0.86	140	<0.5 U	0.12	22	12	30
3SS-850-103												
26-jul-1994	CS	a	V	0.0	<1 U	1	110	<0.5 U	0.31	23	9.4	35
3SS-850-104												
26-jul-1994	CS	aeh	V	0.0	<1 U	<1 DU	190	0.6	<0.1 U	25	12	34
26-jul-1994	CS	ah	V	0.0	<1 U	<0.5 U	150	0.55	<0.1 U	14	10	26
3SS-850-105												
26-jul-1994	CS	a	V	0.0	<1 U	0.51	170	0.54	0.13	22	12	43
3SS-850-106												
26-jul-1994	CS	a	V	0.0	<1 U	0.98	200	0.59	0.11	22	13	32
3SS-850-107												
26-jul-1994	CS	a	V	0.0	1	1	110	0.59	0.45	20	7	180
3SS-850-108												
26-jul-1994	CS	a	V	0.0	<1 U	1.2	170	0.51	<0.1 U	17	12	24
3SS-850-109												
26-jul-1994	CS	a	V	0.0	<1 U	0.75	170	0.51	<0.1 U	22	12	22
3SS-850-110												
26-jul-1994	CS	a	V	0.0	<1 U	0.67	210	0.57	0.11	26	12	27
3SS-850-111												
26-jul-1994	CS	a	V	0.0	<1 U	0.87	130	<0.5 U	0.12	18	14	33
3SS-850-112												
26-jul-1994	CS	a	V	0.0	<1 U	<0.5 U	90	<0.5 U	<0.1 U	16	9.3	17
3SS-850-113												
26-jul-1994	CS	a	V	0.0	<1 U	0.75	78	0.55	0.11	12	6.6	30
3SS-850-114												
26-jul-1994	CS	a	V	0.0	<1 U	0.7	160	0.51	<0.1 U	19	10	23
3SS-850-115												
26-jul-1994	CS	ag	V	0.0	<1 U	1.2	180	0.6	<0.1 U	13	8.9	19
26-jul-1994	GT	ag	V	0.0	<5 U	1.9	210	0.9	<0.5 U	19	12	26

850 subarea between between January 1, 1988 and October 31, 2003. Results recorded by October 30, 2003.

Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	Location Date
FT850-1									
16 P	<0.01 P	<2 P	20 P	<0.4 P	<0.4 P	<4 P	79 P	75 P	01-dec-1989
17 P	0.02 P	<2 P	19 P	<0.4 P	<0.4 P	<4 P	56 P	59 P	01-dec-1989
43 P	<0.01 P	<2 P	23 P	<0.4 P	<0.4 P	<4 P	56 P	65 P	01-dec-1989
7 P	<0.01 P	<2 P	17 P	<0.4 P	<0.4 P	<4 P	96 P	67 P	01-dec-1989
13 P	<0.01 P	<2 P	21 P	<0.4 P	4.2 P	<4 P	41 P	53 P	01-dec-1989
<6 P	0.03 P	<2 P	13 P	<0.4 P	<0.4 P	<4 P	130 P	63 P	01-dec-1989
FT850-7									
<6 P	<0.01 P	<2 P	14 P	<0.4 P	<0.4 P	<4 P	20 P	32 P	01-dec-1989
6.4 P	0.02 P	<2 P	22 P	<0.4 P	<0.4 P	<4 P	47 P	57 P	01-dec-1989
<6 P	<0.01 P	<2 P	22 P	<0.4 P	<0.4 P	<4 P	110 P	68 P	01-dec-1989
<6 P	<0.01 P	<2 P	21 P	<0.4 P	<0.4 P	<4 P	100 P	68 P	01-dec-1989
<6 P	0.02 P	<2 P	20 P	<0.4 P	<0.4 P	<4 P	96 P	61 P	01-dec-1989
<6 P	<0.01 P	<2 P	21 P	<0.4 P	<0.4 P	<4 P	53 P	47 P	01-dec-1989
850-11Z									
20 P	-	-	-	-	-	-	-	-	21-mar-1990
3SS-850-100									
<10 U	<0.05 U	<5 U	13	<0.5 U	<2.5 U	<1 U	97	48	26-jul-1994
3SS-850-101									
<10 U	<0.05 U	<5 U	17	<0.5 U	<2.5 U	<1 U	67	45	26-jul-1994
3SS-850-102									
<10 U	<0.05 U	<5 U	19	<0.5 U	<2.5 U	<1 U	92	54	26-jul-1994
3SS-850-103									
<10 U	<0.05 U	<5 U	36	<0.5 U	<2.5 U	<1 U	73	64	26-jul-1994
3SS-850-104									
<10 U	<0.05 U	<5 U	20	<0.5 U	<2.5 U	<1 U	100	65	26-jul-1994
<10 U	<0.05 U	<5 U	14	<0.5 U	<2.5 U	<1 U	64	43	26-jul-1994
3SS-850-105									
<10 U	<0.05 U	<5 U	16	<0.5 U	<2.5 U	<1 U	94	59	26-jul-1994
3SS-850-106									
<10 U	<0.05 U	<5 U	18	0.57	<2.5 U	<1 U	80	55	26-jul-1994
3SS-850-107									
21	<0.05 U	<5 U	20	<0.5 U	<2.5 U	<1 U	54	55	26-jul-1994
3SS-850-108									
<10 U	<0.05 U	<5 U	15	<0.5 U	<2.5 U	<1 U	79	47	26-jul-1994
3SS-850-109									
<10 U	<0.05 U	<5 U	15	<0.5 U	<2.5 U	<1 U	95	56	26-jul-1994
3SS-850-110									
<10 U	<0.05 U	<5 U	22	<0.5 U	<2.5 U	<1 U	86	57	26-jul-1994
3SS-850-111									
<10 U	<0.05 U	<5 U	18	<0.5 U	<2.5 U	<1 U	91	53	26-jul-1994
3SS-850-112									
<10 U	<0.05 U	<5 U	11	<0.5 U	<2.5 U	<1 U	110	47	26-jul-1994
3SS-850-113									
<10 U	<0.05 U	<5 U	10	<0.5 U	<2.5 U	<1 U	59	39	26-jul-1994
3SS-850-114									
<10 U	<0.05 U	7.2	15	<0.5 U	<2.5 U	<1 U	65	46	26-jul-1994
3SS-850-115									
<10 U	<0.05 U	<5 U	14	<0.5 U	<2.5 U	<1 U	54	34	26-jul-1994
6	<0.1 U	<1 U	19	<5 U	<1 U	<5 U	79	53	26-jul-1994

Table A-5. Surface soil analyses for TTLC metals (mg/kg) in samples collected from the Building

Location Date	Lab Note	Val. Depth (ft)	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper
3SS-850-116										
26-jul-1994	CS ag	V 0.0	<1 U	1.2	190	0.76	<0.1 U	18	12	21
26-jul-1994	GT ag	V 0.0	<5 U	1.6	220	1.1	<0.5 U	26	14	26
3SS-850-117										
26-jul-1994	CS a	V 0.0	<1 U	2.3	180	0.6	<0.1 U	22	12	24
3SS-850-118										
26-jul-1994	CS a	V 0.0	<1 U	1.4	200	0.76	0.1	24	14	31
3SS-850-119										
26-jul-1994	CS a	V 0.0	<1 U	1.8	210	0.78	0.1	21	13	27
3SS-850-120										
26-jul-1994	CS a	V 0.0	1	3.2	190	0.68	0.11	20	12	25
3SS-850-121										
26-jul-1994	CS a	V 0.0	<1 U	1.7	170	0.53	<0.1 U	22	10	28
3SS-850-122										
26-jul-1994	CS a	V 0.0	<1 U	2.2	140	<0.5 U	<0.1 U	18	10	35
3SS-850-123										
26-jul-1994	CS a	V 0.0	<1 U	4.3	160	0.55	<0.1 U	15	12	20
3SS-850-124										
26-jul-1994	CS a	V 0.0	<1 U	<1 DU	180	0.66	<0.1 U	18	11	25
3SS-850-125										
26-jul-1994	CS a	V 0.0	<1 U	<1 DU	220	0.71	0.13	28	11	25
3SS-850-126										
26-jul-1994	CS a	V 0.0	<1 U	1.9	180	0.59	<0.1 U	25	11	26
3SS-850-127										
26-jul-1994	CS a	V 0.0	<1 U	<1 DU	100	<0.5 U	<0.1 U	11	7.9	15
3SS-850-128										
26-jul-1994	CS a	V 0.0	<1 U	<1 DU	160	0.61	0.1	12	11	21
3SS-850-129										
26-jul-1994	CS a	V 0.0	<1 U	2	140	<0.5 U	<0.1 U	25	9.9	19
3SS-850-130A										
26-jul-1994	CS ah	V 0.0	<1 U	<1 DU	100	<0.5 U	<0.1 U	17	8.8	27
26-jul-1994	CS aeh	V 0.0	<1 U	<1 DU	140	<0.5 U	0.1	26	10	28
3SS-850-131A										
26-jul-1994	CS a	V 0.0	<1 U	<1 DU	150	<0.5 U	0.14	19	9.8	30

850 subarea between between January 1, 1988 and October 31, 2003. Results recorded by October 30, 2003.

Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	Location Date
<10 U	<0.05 U	<5 U	17	<0.5 U	<2.5 U	<1 U	73	43	3SS-850-116 26-jul-1994
8	<0.1 U	<1 U	26	<5 U	<1 U	<5 U	98	61	26-jul-1994
<10 U	<0.05 U	8.3	15	<0.5 U	<2.5 U	<1 U	100	63	3SS-850-117 26-jul-1994
<10 U	<0.05 U	<5 U	19	<0.5 U	<2.5 U	<1 U	100	63	3SS-850-118 26-jul-1994
<10 U	<0.05 U	<5 U	17	<0.5 U	<2.5 U	<1 U	82	56	3SS-850-119 26-jul-1994
<10 U	<0.05 U	<5 U	16	<0.5 U	<2.5 U	<1 U	77	54	3SS-850-120 26-jul-1994
<10 U	<0.05 U	9	15	<0.5 U	<2.5 U	<1 U	99	54	3SS-850-121 26-jul-1994
<10 U	<0.05 U	<5 U	15	<0.5 U	<2.5 U	<1 U	88	55	3SS-850-122 26-jul-1994
<10 U	<0.05 U	<5 U	15	<0.5 U	<2.5 U	<1 U	92	51	3SS-850-123 26-jul-1994
<10 U	<0.05 U	<5 U	16	<0.5 U	<2.5 U	<1 U	69	49	3SS-850-124 26-jul-1994
<10 U	<0.05 U	<5 U	23	<0.5 U	<2.5 U	<1 U	84	58	3SS-850-125 26-jul-1994
<10 U	<0.05 U	<5 U	20	<0.5 U	<2.5 U	<1 U	92	56	3SS-850-126 26-jul-1994
<10 U	<0.05 U	<5 U	<10 U	<0.5 U	<2.5 U	<1 U	71	43	3SS-850-127 26-jul-1994
<10 U	<0.05 U	6.6	12	<0.5 U	<2.5 U	<1 U	59	37	3SS-850-128 26-jul-1994
<10 U	<0.05 U	<5 U	15	<0.5 U	<2.5 U	<1 U	110	53	3SS-850-129 26-jul-1994
<10 U	<0.05 U	6.4	14	<0.5 U	<2.5 U	<1 U	83	48	3SS-850-130A 26-jul-1994
<10 U	<0.05 U	<5 U	20	<0.5 U	<2.5 U	<1 U	110	64	26-jul-1994
51	<0.05 U	<5 U	18	<0.5 U	<2.5 U	<1 U	77	61	3SS-850-131A 26-jul-1994

See following page for notes

Table A-5. Surface soil analyses for TLLC metals (mg/kg) in samples collected from the Building 850 subarea between between January 1, 1988 and October 31, 2003. Results recorded by October 30, 2003.

Notes:

- Indicates no analysis performed for this compound

Val. = Validation code

Footnotes:

a ERD data
b ORAD WGMG data
c Analytical results for this sample are suspect
d Sample collected during hydraulic testing
e Blind sample, sent to lab without location identity
f Sample dilution necessary for analysis; detection limits increased
g Interlaboratory collocated sample
h Intralaboratory collocated sample
i Sample collected as part of pilot study
j Note field may contain important information regarding this sample
k Pre-development sample
l Norm month, norm quarter or norm year inconsistent with sample date
m Confirmation sample
n Sample analyzed after standard holding time
o Sample comprised of partial composite
p Alpha spectroscopy analysis of uranium isotopes
q Gamma spectroscopy analysis of uranium isotopes
r Tritium data represents non-detect with activity calc'd for 100 percent error.

Lab Codes:

BC Brown & Caldwell Emeryville
CS California Laboratory Services 3249 Fitzgerald Rd. Rancho Cordova, CA 95742
GT Groundwater Tech. Envir. Lab.

Validation Codes:

V Validated
N Not validated (default value)
U Undeclared
H Historical comparison only

CLP flags: (follow result)

B Analyte found in method blank
D Analysis performed at a secondary dilution or concentration (i.e., vapor samples)
E The analyte was detected below the LLNL reporting limit, but above the analytical laboratory minimum detection limit.
F Analyte found in field blank, trip blank, or equipment blank
G Quantitated using fuel calibration, but does not match typical fuel fingerprint (fuel maybe gasoline, diesel, motor oil etc.).
H Sample analyzed outside of holding time, sample results should be evaluated
J Analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
L Spike accuracy not within control limits
O Duplicate spike or sample precision not within control limits
P Indicates that the absence of a data qualifier flag does not mean that the data does not need qualification, but that the implementation of electronic data qualifier flags was not yet established
R Sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet QC criteria. The presence or absence of the analyte cannot be verified
S Analytical results for this sample are suspect
T Analyte is tentatively identified compound; result is approximate
U Compound was analyzed for, but not detected above detection limit

Table A-6. Surface soil analyses for STLC metals (mg/kg) in samples collected from the Building 850 subarea between January 1, 1988 and October 31, 2003. Results recorded by October 30, 2003.

Dissolved Metals in Soil, Site 300
November 3, 2003
geminiz

s3metstlc.sol.03nov2003
s3metstlc.soR.03nov2003

Min Sample Date
January 1, 1988
Max Sample Date
June 30, 2003

Table A-6. Surface soil analyses for STLC metals (mg/kg) in samples collected from

Location Date	Lab	Val.		Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper
		Note	Depth (ft)								
FT850-1											
01-dec-1989	BC aj	U	0.0	<0.06 P	<0.02 P	4 P	0.06 P	<0.04 P	<0.05 P	0.09 P	5.1 P
01-dec-1989	BC aj	U	0.0	<0.06 P	<0.02 P	5.2 P	0.01 P	<0.04 P	<0.05 P	0.14 P	21 P
01-dec-1989	BC aj	U	0.0	<0.06 P	<0.02 P	5 P	0.01 P	<0.04 P	<0.05 P	0.15 P	11 P
01-dec-1989	BC aj	U	0.0	<0.06 P	<0.02 P	7 P	<0.01 P	<0.04 P	<0.05 P	0.11 P	11 P
01-dec-1989	BC aj	U	0.0	<0.06 P	<0.02 P	6.1 P	<0.01 P	<0.04 P	<0.05 P	0.3 P	1.3 P
01-dec-1989	BC aj	U	0.0	<0.06 P	<0.02 P	5.5 P	<0.01 P	<0.04 P	<0.05 P	0.34 P	0.1 P
FT850-7											
01-dec-1989	BC aj	U	0.0	<0.06 P	<0.02 P	5 P	<0.01 P	<0.04 P	<0.05 P	0.1 P	3.9 P
01-dec-1989	BC aj	U	0.0	<0.06 P	<0.02 P	3.2 P	<0.01 P	<0.04 P	<0.05 P	0.1 P	0.12 P
01-dec-1989	BC aj	U	0.0	<0.06 P	<0.02 P	7.2 P	<0.01 P	<0.04 P	<0.05 P	0.47 P	0.61 P
01-dec-1989	BC aj	U	0.0	<0.06 P	<0.02 P	6.9 P	<0.01 P	<0.04 P	<0.05 P	0.39 P	0.49 P
01-dec-1989	BC aj	U	0.0	<0.06 P	<0.02 P	7.8 P	<0.01 P	0.06 P	<0.05 P	0.51 P	0.65 P
3SS-850-100											
26-jul-1994	CS a	V	0.0	<0.3 U	<0.05 U	7.4	<0.05 U	0.017	<0.5 U	<0.5 U	<0.5 U
3SS-850-101											
26-jul-1994	CS a	V	0.0	<0.3 U	<0.05 U	7.1	<0.05 U	<0.01 U	<0.5 U	<0.5 U	1.5
3SS-850-102											
26-jul-1994	CS a	V	0.0	<0.3 U	<0.05 U	7.5	<0.05 U	<0.01 U	<0.5 U	<0.5 U	<0.5 U
3SS-850-103											
26-jul-1994	CS a	V	0.0	<0.3 U	<0.05 U	6.1	<0.05 U	<0.01 U	<0.5 U	<0.5 U	2.1
3SS-850-104											
26-jul-1994	CS aeh	V	0.0	<0.3 U	<0.05 U	8.8	<0.05 U	<0.01 U	<0.5 U	0.51	<0.5 U
26-jul-1994	CS ah	V	0.0	<0.3 U	<0.05 U	7.8	<0.05 U	<0.01 U	<0.5 U	<0.5 U	<0.5 U
3SS-850-105											
26-jul-1994	CS a	V	0.0	<0.3 U	<0.05 U	8.7	<0.05 U	<0.01 U	<0.5 U	0.51	0.79
3SS-850-106											
26-jul-1994	CS a	V	0.0	<0.3 U	<0.05 U	12	<0.05 U	<0.01 U	<0.5 U	0.61	<0.5 U
3SS-850-107											
26-jul-1994	CS a	V	0.0	<0.3 U	<0.05 U	6.3	<0.05 U	0.017	<0.5 U	<0.5 U	34
3SS-850-108											
26-jul-1994	CS a	V	0.0	<0.3 U	<0.05 U	8.4	<0.05 U	<0.01 U	<0.5 U	0.63	<0.5 U
3SS-850-109											
26-jul-1994	CS a	V	0.0	<0.3 U	<0.05 U	9.6	<0.05 U	<0.01 U	<0.5 U	<0.5 U	<0.5 U
3SS-850-110											
26-jul-1994	CS a	V	0.0	<0.3 U	<0.05 U	12	<0.05 U	<0.01 U	<0.5 U	0.54	<0.5 U
3SS-850-111											
26-jul-1994	CS a	V	0.0	<0.3 U	<0.05 U	11	<0.05 U	<0.01 U	<0.5 U	0.6	<0.5 U
3SS-850-112											
26-jul-1994	CS a	V	0.0	<0.3 U	<0.05 U	6.7	<0.05 U	<0.01 U	<0.5 U	<0.5 U	<0.5 U
3SS-850-113											
26-jul-1994	CS a	V	0.0	<0.3 U	<0.05 U	7.5	<0.05 U	<0.01 U	<0.5 U	<0.5 U	1.1
3SS-850-114											
26-jul-1994	CS a	V	0.0	<0.3 U	<0.05 U	12	<0.05 U	<0.01 U	<0.5 U	0.62	<0.5 U
3SS-850-115											
26-jul-1994	CS ag	V	0.0	<0.3 U	<0.05 U	11	<0.05 U	<0.01 U	<0.5 U	0.63	<0.5 U
26-jul-1994	GT ag	V	0.0	<1 U	<0.5 U	12	<0.5 U	<0.5 U	<0.5 U	0.6	<0.5 U
3SS-850-116											
26-jul-1994	CS ag	V	0.0	<0.3 U	<0.05 U	13	<0.05 U	<0.01 U	<0.5 U	0.68	<0.5 U
26-jul-1994	GT ag	V	0.0	<1 U	<0.5 U	16	<0.5 U	<0.5 U	<0.5 U	0.7	<0.5 U

the Building 850 subarea between January 1, 1988 and October 31, 2003. Results recorded by October 30, 2003.

Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	Location Date
FT850-1									
0.5 P	<0.001 P	<0.08 P	0.12 P	<0.02 P	<0.02 P	<0.2 P	0.07 P	0.96 P	01-dec-1989
1.4 P	<0.001 P	<0.08 P	0.13 P	<0.02 P	<0.02 P	<0.2 P	0.16 P	1.1 P	01-dec-1989
0.85 P	<0.001 P	<0.08 P	0.12 P	<0.02 P	<0.02 P	<0.2 P	0.17 P	0.8 P	01-dec-1989
0.8 P	<0.001 P	<0.08 P	0.12 P	<0.02 P	<0.02 P	<0.2 P	0.11 P	0.8 P	01-dec-1989
<0.3 P	<0.001 P	<0.08 P	0.22 P	<0.02 P	<0.02 P	<0.2 P	0.33 P	0.22 P	01-dec-1989
<0.3 P	<0.001 P	<0.08 P	0.21 P	<0.02 P	<0.02 P	<0.2 P	0.38 P	<0.01 P	01-dec-1989
FT850-7									
0.4 P	<0.001 P	<0.08 P	0.14 P	<0.02 P	<0.02 P	<0.2 P	0.07 P	1.4 P	01-dec-1989
<0.3 P	<0.001 P	<0.08 P	0.07 P	<0.02 P	<0.02 P	<0.2 P	0.07 P	0.05 P	01-dec-1989
<0.3 P	<0.001 P	<0.08 P	0.34 P	<0.02 P	<0.02 P	<0.2 P	0.37 P	0.12 P	01-dec-1989
<0.3 P	<0.001 P	<0.08 P	0.29 P	<0.02 P	<0.02 P	<0.2 P	0.33 P	0.44 P	01-dec-1989
<0.3 P	<0.001 P	<0.08 P	0.43 P	<0.02 P	<0.02 P	<0.2 P	0.5 P	<0.01 P	01-dec-1989
3SS-850-100									
<0.5 U	<0.005 U	<0.5 U	<0.5 U	<0.05 U	<0.5 U	<0.05 U	0.52	1.9	26-jul-1994
3SS-850-101									
<0.5 U	<0.005 U	<0.5 U	<0.5 U	<0.05 U	<0.5 U	<0.05 U	<0.5 U	1.7	26-jul-1994
3SS-850-102									
<0.5 U	<0.005 U	<0.5 U	<0.5 U	<0.05 U	<0.5 U	<0.05 U	<0.5 U	2.3	26-jul-1994
3SS-850-103									
0.56	<0.005 U	<0.5 U	0.96	<0.05 U	<0.5 U	<0.05 U	<0.5 U	2.9	26-jul-1994
3SS-850-104									
<0.5 U	<0.005 U	<0.5 U	<0.5 U	<0.05 U	<0.5 U	<0.05 U	0.53	1.8	26-jul-1994
<0.5 U	<0.005 U	<0.5 U	<0.5 U	<0.05 U	<0.5 U	<0.05 U	0.6	1.8	26-jul-1994
3SS-850-105									
<0.5 U	<0.005 U	<0.5 U	<0.5 U	<0.05 U	<0.5 U	<0.05 U	0.63	2.1	26-jul-1994
3SS-850-106									
<0.5 U	<0.005 U	<0.5 U	<0.5 U	<0.05 U	<0.5 U	<0.05 U	0.7	1.6	26-jul-1994
3SS-850-107									
1.2	<0.005 U	<0.5 U	0.64	<0.05 U	<0.5 U	<0.05 U	<0.5 U	5.7	26-jul-1994
3SS-850-108									
<0.5 U	<0.005 U	<0.5 U	<0.5 U	<0.05 U	<0.5 U	<0.05 U	0.78	2.1	26-jul-1994
3SS-850-109									
<0.5 U	<0.005 U	<0.5 U	<0.5 U	<0.05 U	<0.5 U	<0.05 U	0.53	1.8	26-jul-1994
3SS-850-110									
<0.5 U	<0.005 U	<0.5 U	0.5	<0.05 U	<0.5 U	<0.05 U	0.6	1.8	26-jul-1994
3SS-850-111									
<0.5 U	<0.005 U	<0.5 U	<0.5 U	<0.05 U	<0.5 U	<0.05 U	0.56	1.6	26-jul-1994
3SS-850-112									
<0.5 U	<0.005 U	<0.5 U	<0.5 U	<0.05 U	<0.5 U	<0.05 U	<0.5 U	1.9	26-jul-1994
3SS-850-113									
<0.5 U	<0.005 U	<0.5 U	<0.5 U	<0.05 U	<0.5 U	<0.05 U	<0.5 U	1.6	26-jul-1994
3SS-850-114									
0.52	<0.005 U	<0.5 U	<0.5 U	<0.05 U	<0.5 U	<0.05 U	<0.5 U	1.5	26-jul-1994
3SS-850-115									
<0.5 U	<0.005 U	<0.5 U	0.59	<0.05 U	<0.5 U	<0.05 U	0.71	1.9	26-jul-1994
<0.5 U	<0.002 U	<0.5 U	<0.5 U	<0.05 U	<0.5 U	<0.05 U	0.7	1.6	26-jul-1994
3SS-850-116									
<0.5 U	<0.005 U	<0.5 U	0.76	<0.05 U	<0.5 U	<0.05 U	0.87	2.8	26-jul-1994
<0.5 U	<0.002 U	<0.5 U	0.6	<0.05 U	<0.5 U	<0.05 U	0.8	3.7	26-jul-1994

Table A-6. Surface soil analyses for STLC metals (mg/kg) in samples collected from

Location Date	Lab	Val. Note	Depth (ft)	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper
3SS-850-117 26-jul-1994	CS a	V	0.0	<0.3 U	<0.05 U	11	<0.05 U	<0.01 U	<0.5 U	0.61	<0.5 U
3SS-850-118 26-jul-1994	CS a	V	0.0	<0.3 U	<0.05 U	11	<0.05 U	<0.01 U	<0.5 U	0.8	<0.5 U
3SS-850-119 26-jul-1994	CS a	V	0.0	<0.3 U	<0.05 U	12	<0.05 U	<0.01 U	<0.5 U	0.76	<0.5 U
3SS-850-120 26-jul-1994	CS a	V	0.0	<0.3 U	<0.05 U	9.4	<0.05 U	<0.1 U	<0.5 U	0.57	<0.5 U
3SS-850-121 26-jul-1994	CS a	V	0.0	<0.3 U	<0.05 U	9.8	<0.05 U	<0.01 U	<0.5 U	0.51	<0.5 U
3SS-850-122 26-jul-1994	CS a	V	0.0	<0.3 U	<0.05 U	6.5	<0.05 U	<0.01 U	<0.5 U	<0.5 U	<0.5 U
3SS-850-123 26-jul-1994	CS a	V	0.0	<0.3 U	<0.05 U	8.4	<0.05 U	<0.01 U	<0.5 U	0.51	<0.5 U
3SS-850-124 26-jul-1994	CS a	V	0.0	<0.3 U	<0.05 U	11	<0.05 U	<0.01 U	<0.5 U	0.57	<0.5 U
3SS-850-125 26-jul-1994	CS a	V	0.0	<0.3 U	<0.05 U	13	<0.05 U	<0.01 U	<0.5 U	0.67	<0.5 U
3SS-850-126 26-jul-1994	CS a	V	0.0	<0.3 U	<0.05 U	10	<0.05 U	<0.01 U	<0.5 U	<0.5 U	<0.5 U
3SS-850-127 26-jul-1994	CS a	V	0.0	<0.3 U	<0.05 U	8.3	<0.05 U	<0.01 U	<0.5 U	<0.5 U	<0.5 U
3SS-850-128 26-jul-1994	CS a	V	0.0	<0.3 U	<0.05 U	9.4	<0.05 U	<0.01 U	<0.5 U	0.57	<0.5 U
3SS-850-129 26-jul-1994	CS a	V	0.0	<0.3 U	<0.05 U	7.2	<0.05 U	<0.01 U	<0.5 U	<0.5 U	<0.5 U
3SS-850-130A 26-jul-1994	CS ah	V	0.0	<0.3 U	<0.05 U	7.3	<0.05 U	<0.01 U	<0.5 U	0.55	<0.5 U
26-jul-1994	CS aeh	V	0.0	<0.3 U	<0.05 U	6.8	<0.05 U	<0.01 U	<0.5 U	<0.5 U	<0.5 U
3SS-850-131A 26-jul-1994	CS a	V	0.0	<0.3 U	<0.05 U	7.8	<0.05 U	<0.01 U	<0.5 U	<0.5 U	0.72

the Building 850 subarea between January 1, 1988 and October 31, 2003. Results recorded by October 30, 2003.

Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	Location Date
<0.5 U	<0.005 U	<0.5 U	0.95	<0.05 U	<0.5 U	<0.05 U	0.58	2.8	3SS-850-117 26-jul-1994
<0.5 U	<0.005 U	<0.5 U	0.53	<0.05 U	<0.5 U	<0.05 U	0.72	1.9	3SS-850-118 26-jul-1994
<0.5 U	<0.005 U	<0.5 U	0.65	<0.05 U	<0.5 U	<0.05 U	0.89	3.3	3SS-850-119 26-jul-1994
<0.5 U	<0.005 U	<0.5 U	<0.5 U	<0.05 U	<0.5 U	<0.05 U	<0.5 U	1.7	3SS-850-120 26-jul-1994
<0.5 U	<0.005 U	<0.5 U	<0.5 U	<0.05 U	<0.5 U	<0.05 U	0.64	1.8	3SS-850-121 26-jul-1994
<0.5 U	<0.005 U	<0.5 U	<0.5 U	<0.05 U	<0.5 U	<0.05 U	<0.5 U	1.4	3SS-850-122 26-jul-1994
<0.5 U	<0.005 U	<0.5 U	<0.5 U	<0.05 U	<0.5 U	<0.05 U	0.65	1.5	3SS-850-123 26-jul-1994
<0.5 U	<0.005 U	<0.5 U	0.52	<0.05 U	<0.5 U	<0.05 U	0.55	1.5	3SS-850-124 26-jul-1994
<0.5 U	<0.005 U	<0.5 U	0.67	<0.05 U	<0.5 U	<0.05 U	0.79	1.7	3SS-850-125 26-jul-1994
<0.5 U	<0.005 U	<0.5 U	<0.5 U	<0.05 U	<0.5 U	<0.05 U	0.63	1.4	3SS-850-126 26-jul-1994
<0.5 U	<0.005 U	<0.5 U	<0.5 U	<0.05 U	<0.5 U	<0.05 U	0.63	2	3SS-850-127 26-jul-1994
<0.5 U	<0.005 U	<0.5 U	<0.5 U	<0.05 U	<0.5 U	<0.05 U	0.69	1.9	3SS-850-128 26-jul-1994
<0.5 U	<0.005 U	<0.5 U	<0.5 U	<0.05 U	<0.5 U	<0.05 U	0.5	1.5	3SS-850-129 26-jul-1994
<0.5 U	<0.005 U	<0.5 U	<0.5 U	<0.05 U	<0.5 U	<0.05 U	<0.5 U	2	3SS-850-130A 26-jul-1994
0.5	<0.005 U	<0.5 U	<0.5 U	<0.05 U	<0.5 U	<0.05 U	<0.5 U	1.7	26-jul-1994
4	<0.005 U	<0.5 U	<0.5 U	<0.05 U	<0.5 U	<0.05 U	<0.5 U	2.3	3SS-850-131A 26-jul-1994

See following page for notes

Table A-6. Surface soil analyses for STLC metals (mg/kg) in samples collected from the Building 850 subarea between January 1, 1988 and October 31, 2003. Results recorded by October 30, 2003.

Notes:

- Indicates no analysis performed for this compound

Val. = Validation code

Footnotes:

a ERD data
b ORAD WGMG data
c Analytical results for this sample are suspect
d Sample collected during hydraulic testing
e Blind sample, sent to lab without location identity
f Sample dilution necessary for analysis; detection limits increased
g Interlaboratory collocated sample
h Intralaboratory collocated sample
i Sample collected as part of pilot study
j Note field may contain important information regarding this sample
k Pre-development sample
l Norm month, norm quarter or norm year inconsistent with sample date
m Confirmation sample
n Sample analyzed after standard holding time
o Sample comprised of partial composite
p Alpha spectroscopy analysis of uranium isotopes
q Gamma spectroscopy analysis of uranium isotopes
r Tritium data represents non-detect with activity calc'd for 100 percent error.

Lab Codes:

BC Brown & Caldwell Emeryville
CS California Laboratory Services 3249 Fitzgerald Rd. Rancho Cordova, CA 95742
GT Groundwater Tech. Envir. Lab.

Validation Codes:

V Validated
N Not validated (default value)
U Undeclared
H Historical comparison only

CLP flags: (follow result)

B Analyte found in method blank
D Analysis performed at a secondary dilution or concentration (i.e., vapor samples)
E The analyte was detected below the LLNL reporting limit, but above the analytical laboratory minimum detection limit.
F Analyte found in field blank, trip blank, or equipment blank
G Quantitated using fuel calibration, but does not match typical fuel fingerprint (fuel maybe gasoline, diesel, motor oil etc.).
H Sample analyzed outside of holding time, sample results should be evaluated
J Analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
L Spike accuracy not within control limits
O Duplicate spike or sample precision not within control limits
P Indicates that the absence of a data qualifier flag does not mean that the data does not need qualification, but that the implementation of electronic data qualifier flags was not yet established
R Sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet QC criteria. The presence or absence of the analyte cannot be verified
S Analytical results for this sample are suspect
T Analyte is tentatively identified compound; result is approximate
U Compound was analyzed for, but not detected above detection limit

Table A-7. Surface soil analyses for high explosives compounds (mg/kg) in samples collected from the Building 850 subarea between January 1, 1988 and October 31, 2003. Results recorded by October 30, 2003.

Site 300 HMX Compounds in Soil
November 3, 2003
geminiz

s3hmxso.03nov2003

Min Sample Date
January 1, 1988
Max Sample Date
June 30, 2003

Table A-7. Surface soil analyses for high explosives compounds (mg/kg) in samples collected from the Building 850 subarea between January 1, 1988 and October 31, 2003. Results recorded by October 30, 2003.

Location Date	Lab Note	Val.		Depth (ft)	HMX	RDX	TNT
3SS-850-100 26-jul-1994	CS a	V	0.0	0.0	<0.2 U	<0.15 U	<0.1 U
3SS-850-101 26-jul-1994	CS a	V	0.0	0.0	<0.2 U	<0.15 U	<0.1 U
3SS-850-102 26-jul-1994	CS a	V	0.0	0.0	<0.2 U	<0.15 U	<0.1 U
3SS-850-103 26-jul-1994	CS a	V	0.0	0.0	<0.2 U	<0.15 U	<0.1 U
3SS-850-104 26-jul-1994	CS aeh	V	0.0	0.0	<0.2 U	<0.15 U	<0.1 U
26-jul-1994	CS ah	V	0.0	0.0	<0.2 U	<0.15 U	<0.1 U
3SS-850-105 26-jul-1994	CS ag	V	0.0	0.0	<0.2 U	<0.15 U	<0.1 U
3SS-850-106 26-jul-1994	CS ag	V	0.0	0.0	<0.2 U	<0.15 U	<0.1 U
3SS-850-107 26-jul-1994	CS a	V	0.0	2.4	2.4	<0.15 U	<0.1 U
3SS-850-108 26-jul-1994	CS a	V	0.0	0.0	<0.2 U	<0.15 U	<0.1 U
3SS-850-109 26-jul-1994	CS a	V	0.0	0.0	<0.2 U	<0.15 U	<0.1 U
3SS-850-110 26-jul-1994	CS a	V	0.0	0.0	<0.2 U	<0.15 U	<0.1 U
3SS-850-111 26-jul-1994	CS a	V	0.0	0.0	<0.2 U	<0.15 U	<0.1 U
3SS-850-112 26-jul-1994	CS a	V	0.0	0.0	<0.2 U	<0.15 U	<0.1 U
3SS-850-113 26-jul-1994	CS a	V	0.0	0.0	<0.2 U	<0.15 U	<0.1 U
3SS-850-114 26-jul-1994	CS a	V	0.0	0.0	<0.2 U	<0.15 U	<0.1 U
3SS-850-115 26-jul-1994	CS a	V	0.0	0.0	<0.2 U	<0.15 U	<0.1 U
26-jul-1994	MS ag	N	0.0	0.0	<0.005 U	<0.02 U	<0.02 U
3SS-850-116 26-jul-1994	CS a	V	0.0	0.0	<0.2 U	<0.15 U	<0.1 U
26-jul-1994	MS ag	N	0.0	0.0	<0.005 U	<0.02 U	<0.02 U
3SS-850-117 26-jul-1994	CS a	V	0.0	0.0	<0.2 U	<0.15 U	<0.1 U
3SS-850-118 26-jul-1994	CS a	V	0.0	0.0	<0.2 U	<0.15 U	<0.1 U
3SS-850-119 26-jul-1994	CS a	V	0.0	0.0	<0.2 U	<0.15 U	<0.1 U
3SS-850-120 26-jul-1994	CS a	V	0.0	0.0	<0.2 U	<0.15 U	<0.1 U

Table A-7. Surface soil analyses for high explosives compounds (mg/kg) in samples collected from the Building 850 subarea between January 1, 1988 and October 31, 2003. Results recorded by October 30, 2003.

Location Date	Lab Note	Val.		HMX	RDX	TNT
		Depth (ft)				
3SS-850-121 26-jul-1994	CS a	V	0.0	<0.2 U	<0.15 U	<0.1 U
3SS-850-122 26-jul-1994	CS a	V	0.0	<0.2 U	<0.15 U	<0.1 U
3SS-850-123 26-jul-1994	CS a	V	0.0	<0.2 U	<0.15 U	<0.1 U
3SS-850-124 26-jul-1994	CS a	V	0.0	<0.2 U	<0.15 U	<0.1 U
3SS-850-125 26-jul-1994	CS a	V	0.0	<0.2 U	<0.15 U	<0.1 U
3SS-850-126 26-jul-1994	CS a	V	0.0	<0.2 U	<0.15 U	<0.1 U
3SS-850-127 26-jul-1994	CS a	V	0.0	<0.2 U	<0.15 U	<0.1 U
3SS-850-128 26-jul-1994	CS a	V	0.0	<0.2 U	<0.15 U	<0.1 U

See following page for notes

Table A-7. Surface soil analyses for high explosives compounds (mg/kg) in samples collected from the Building 850 subarea between January 1, 1988 and October 31, 2003. Results recorded by October 30, 2003.

Notes:

- Indicates no analysis performed for this compound

Val. = Validation code

Footnotes:

a ERD data
b ORAD WGMG data
c Analytical results for this sample are suspect
d Sample collected during hydraulic testing
e Blind sample, sent to lab without location identity
f Sample dilution necessary for analysis; detection limits increased
g Interlaboratory collocated sample
h Intralaboratory collocated sample
i Sample collected as part of pilot study
j Note field may contain important information regarding this sample
k Pre-development sample
l Norm month, norm quarter or norm year inconsistent with sample date
m Confirmation sample
n Sample analyzed after standard holding time
o Sample comprised of partial composite
p Alpha spectroscopy analysis of uranium isotopes
q Gamma spectroscopy analysis of uranium isotopes
r Tritium data represents non-detect with activity calc'd for 100 percent error.

Lab Codes:

CS California Laboratory Services 3249 Fitzgerald Rd. Rancho Cordova, CA 95742
MS C & MS-Gas Chromatography

Validation Codes:

V Validated
N Not validated (default value)
U Undeclared
H Historical comparison only

CLP flags: (follow result)

B Analyte found in method blank
D Analysis performed at a secondary dilution or concentration (i.e., vapor samples)
E The analyte was detected below the LLNL reporting limit, but above the analytical laboratory minimum detection limit.
F Analyte found in field blank, trip blank, or equipment blank
G Quantitated using fuel calibration, but does not match typical fuel fingerprint (fuel maybe gasoline, diesel, motor oil etc.).
H Sample analyzed outside of holding time, sample results should be evaluated
J Analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
L Spike accuracy not within control limits
O Duplicate spike or sample precision not within control limits
P Indicates that the absence of a data qualifier flag does not mean that the data does not need qualification, but that the implementation of electronic data qualifier flags was not yet established
R Sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet QC criteria. The presence or absence of the analyte cannot be verified
S Analytical results for this sample are suspect
T Analyte is tentatively identified compound; result is approximate
U Compound was analyzed for, but not detected above detection limit

Table A-8. Subsurface soil and rock analyses for PCB compounds (mg/kg) in samples collected from the Building 850 subarea between January 1, 1988 and October 31, 2003. Results recorded by January 6, 2004.

PCBs in Soil, Site 300 in 850 Subarea

epdbs::epddata

s3pcbscL.06jan2004

s3pcbscR.06jan2004

Min Sample Date

January 1, 1988

Max Sample Date

October 31, 2003

Table A-8. Subsurface soil and rock analyses for PCB compounds (mg/kg) in samples collected from

Location Date	Lab	Val.		Depth (ft)	PCB 1016	PCB 1221	PCB 1232	PCB 1242	PCB 1248
		Note							
3SS-850-107									
20-oct-1994	EF ah	N		0.5	-	-	-	-	-
20-oct-1994	EF ah	N		0.5	-	-	-	-	-
3SS-850-123									
02-dec-1994	EF a	N		0.5	-	-	-	-	-
3SS-850-126									
02-dec-1994	EF a	N		0.5	-	-	-	-	-
3SS-850-129									
20-oct-1994	EF ah	N		0.5	-	-	-	-	-
20-oct-1994	EF ah	N		0.5	-	-	-	-	-
3SS-850-136									
30-jan-1995	EF a	N		1.0	-	-	-	-	-
30-jan-1995	EF ah	N		2.0	-	-	-	-	-
30-jan-1995	EF ah	N		2.0	-	-	-	-	-
30-jan-1995	EF a	N		3.0	-	-	-	-	-
30-jan-1995	EF a	N		4.0	-	-	-	-	-
3SS-850-139									
02-dec-1994	EF a	N		0.8	-	-	-	-	-
02-dec-1994	EF ah	N		1.3	-	-	-	-	-
02-dec-1994	EF ah	N		1.3	-	-	-	-	-
30-jan-1995	EF a	N		1.5	-	-	-	-	-
30-jan-1995	EF a	N		1.8	-	-	-	-	-
3SS-850-140									
30-jan-1995	EF a	N		0.5	-	-	-	-	-
30-jan-1995	EF a	N		0.8	-	-	-	-	-
3SS-850-142									
21-oct-1994	EF a	N		0.5	-	-	-	-	-
02-dec-1994	CS a	V		0.5	<20 DHU				
02-dec-1994	CS a	V		1.0	<20 DHU				
30-jan-1995	EF ah	N		2.0	-	-	-	-	-
30-jan-1995	EF ah	N		2.0	-	-	-	-	-
30-jan-1995	EF a	N		2.7	-	-	-	-	-
3SS-850-209									
24-oct-2003	SE af	V		1.0	<0.1 ILUD	<0.4 ILUD	<0.1 ILUD	<0.1 ILUD	<0.1 ILUD
3SS-850-220									
24-oct-2003	SE af	V		1.0	<4 ILUD	<16 ILUD	<4 ILUD	<4 ILUD	<4 ILUD
3SS-850-224									
27-oct-2003	CN a	V		1.0	<0.02 DU				
3SS-850-229									
27-oct-2003	CN a	V		1.0	<0.08 DU				

the Building 850 subarea between January 1, 1988 and October 31, 2003. Results recorded by January 6, 2004.

PCB 1254	PCB 1260	PCB 1262	PCB 1268	Total PCBs	Location Date
-	-	-	-	41	3SS-850-107 20-oct-1994
-	-	-	-	40	20-oct-1994
-	-	-	-	<0.5 U	3SS-850-123 02-dec-1994
-	-	-	-	<0.5 U	3SS-850-126 02-dec-1994
-	-	-	-	1.15	3SS-850-129 20-oct-1994
-	-	-	-	0.75	20-oct-1994
-	-	-	-	25.5	3SS-850-136 30-jan-1995
-	-	-	-	<0.5 U	30-jan-1995
-	-	-	-	5.8	30-jan-1995
-	-	-	-	<0.5 U	30-jan-1995
-	-	-	-	<0.5 U	30-jan-1995
-	-	-	-	23.75	3SS-850-139 02-dec-1994
-	-	-	-	0.95	02-dec-1994
-	-	-	-	2.5	02-dec-1994
-	-	-	-	8.4	30-jan-1995
-	-	-	-	<0.5 U	30-jan-1995
-	-	-	-	6.75	3SS-850-140 30-jan-1995
-	-	-	-	8.4	30-jan-1995
-	-	-	-	6.6	3SS-850-142 21-oct-1994
120 DH	<20 DHU	-	-	-	02-dec-1994
96 DH	<20 DHU	-	-	-	02-dec-1994
-	-	-	-	32.5	30-jan-1995
-	-	-	-	>50	30-jan-1995
-	-	-	-	14.45	30-jan-1995
0.64 JILD	<0.1 IU DL	-	<0.1 ILUD	-	3SS-850-209 24-oct-2003
17 JILD	<4 IU DL	-	<4 ILUD	-	3SS-850-220 24-oct-2003
0.175 D	0.0348 D	-	-	-	3SS-850-224 27-oct-2003
1 D	0.203 D	-	-	-	3SS-850-229 27-oct-2003

See following page for notes

Table A-8. Subsurface soil and rock analyses for PCB compounds (mg/kg) in samples collected from the Building 850 subarea between January 1, 1988 and October 31, 2003. Results recorded by January 6, 2004.

Notes:

- Indicates no analysis performed for this compound

Val. = Validation code

Footnotes:

a ERD data
b ORAD WGMG data
c Analytical results for this sample are suspect
d Sample collected during hydraulic testing
e Blind sample, sent to lab without location identity
f Sample dilution necessary for analysis; detection limits increased
g Interlaboratory collocated sample
h Intralaboratory collocated sample
i Sample collected as part of pilot study
j Note field may contain important information regarding this sample
k Pre-development sample
l Norm month, norm quarter or norm year inconsistent with sample date
m Confirmation sample
n Sample analyzed after standard holding time
o Sample comprised of partial composite
p Alpha spectroscopy analysis of uranium isotopes
q Gamma spectroscopy analysis of uranium isotopes
r Tritium data represents non-detect with activity calc'd for 100 percent error.

Lab Codes:

CN Caltest Analytical Laboratory 1885 N. Kelly Rd, Napa, CA 94558
CS California Laboratory Services 3249 Fitzgerald Rd. Rancho Cordova, CA 95742
EF ERD Field Sampling Weiss
SE Sequoia Analytical 1551 Industrial Road, San Carlos, CA 94070

Validation Codes:

V Validated
N Not validated (default value)
U Undeclared
H Historical comparison only

CLP flags: (follow result)

B Analyte found in method blank
D Analysis performed at a secondary dilution or concentration (i.e., vapor samples)
E The analyte was detected below the LLNL reporting limit, but above the analytical laboratory minimum detection limit.
F Analyte found in field blank, trip blank, or equipment blank
G Quantitated using fuel calibration, but does not match typical fuel fingerprint (fuel maybe gasoline, diesel, motor oil etc.).
H Sample analyzed outside of holding time, sample results should be evaluated
J Analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
L Spike accuracy not within control limits
O Duplicate spike or sample precision not within control limits
P Indicates that the absence of a data qualifier flag does not mean that the data does not need qualification, but that the implementation of electronic data qualifier flags was not yet established
R Sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet QC criteria. The presence or absence of the analyte cannot be verified
S Analytical results for this sample are suspect
T Analyte is tentatively identified compound; result is approximate
U Compound was analyzed for, but not detected above detection limit

Table A-9. Subsurface soil and rock analyses for tritium (pCi/Lsm) in samples collected from the Building 850 subarea between January 1, 1988 and June 30, 2003. Results recorded by October 30, 2003.

Tritium in Soil, Site 300 at 850
November 3, 2003
gemin2

s3tritso854.03nov2003

Min Sample Date
January 1, 1988
Max Sample Date
June 30, 2003

Table A-9. Subsurface soil and rock analyses for tritium (pCi/Lsm) in samples collected from the Building 850 subarea between January 1, 1988 and June 30, 2003. Results recorded by October 30, 2003.

Location Date	Lab Note	Val. Depth (ft)	Tritium (pCi/L)	Moisture by Weight (percent)
NC2-14C				
01-apr-1988	NC a	U 49.5	3130 +/- 230P	22 P
04-apr-1988	NC a	U 59.0	353 +/- 170P	15.4 P
NC2-14S				
18-mar-1988	NC a	U 12.0	76700 +/- 800P	20 P
18-mar-1988	NC a	U 23.3	40500 +/- 590P	24.1 P
NC2-15				
14-apr-1988	NC a	U 5.0	517 +/- 220P	16 P
14-apr-1988	NC a	U 14.0	483 +/- 220P	16.5 P
15-apr-1988	NC a	U 26.2	311 +/- 220P	19.1 P
15-apr-1988	NC a	U 45.7	366 +/- 220P	5.2 P
18-apr-1988	NC a	U 85.0	23300 +/- 490P	18 P
18-apr-1988	NC a	U 100.0	17200 +/- 430P	19.2 P
18-apr-1988	NC a	U 124.3	404 +/- 220P	21 P
18-apr-1988	NC a	U 132.0	441 +/- 220P	20 P
NC2-18				
01-feb-1990	TM a	U 110.5	620 +/- 230P	20.5 P
NC2-19				
01-feb-1990	TM a	U 60.5	<500 P	12.9 P
01-feb-1990	TM a	U 74.0	<500 P	13.3 P
01-feb-1990	TM a	U 79.5	<500 P	14.5 P
15-nov-1989	TM a	U 89.8	<600 P	13.8 P
01-feb-1990	TM a	U 148.5	<500 P	18 P
01-feb-1990	TM a	U 153.8	<500 P	18.3 P
17-nov-1989	TM a	U 162.8	<500 P	24.1 P
NC2-20				
31-jan-1990	TM a	U 38.8	<500 P	21.1 P
31-jan-1990	TM a	U 62.0	<800 P	19.2 P
31-jan-1990	TM a	U 69.8	<500 P	19.4 P
NC7-56				
19-jan-1988	NC a	U 18.0	134000 +/- 1400P	19.6 P
NC7-58				
29-jan-1988	NC a	U 10.2	4270 +/- 250P	13.4 P
26-jan-1988	NC a 1	U 17.0	84200 +/- 870P	14.6 P
26-jan-1988	NC a	U 20.0	101000 +/- 1000P	-
26-jan-1988	NC a 1	U 20.0	98400 +/- 1000P	17.4 P
26-jan-1988	NC a	U 20.5	107000 +/- 1100P	20 P
29-jan-1988	NC a 1	U 20.5	107000 +/- 1100P	-
26-jan-1988	NC a 1	U 23.5	107000 +/- 1100P	18.7 P
NC7-59				
29-jan-1988	NC a	U 6.0	15200 +/- 380P	16 P
29-jan-1988	NC a	U 11.0	71800 +/- 760P	19 P

Table A-9. Subsurface soil and rock analyses for tritium (pCi/Lsm) in samples collected from the Building 850 subarea between January 1, 1988 and June 30, 2003. Results recorded by October 30, 2003.

Location Date	Lab	Val. Note	Depth (ft)	Tritium (pCi/L)	Moisture by Weight (percent)
NC7-59 (continued)					
29-jan-1988	NC a	U	15.3	123000 +/- 1300P	23.3 P
02-feb-1988	NC a	U	21.0	52500 +/- 670P	21 P
29-jan-1988	NC a	U	23.0	126000 +/- 1300P	-
NC7-61					
22-sep-1988	TM a	U	14.0	<1000 P	20.3 P
12-sep-1988	TM a	U	19.0	<1000 P	13 P
22-sep-1988	TM a	U	29.0	<1000 P	13.4 P
22-sep-1988	TM a	U	34.0	<1000 P	20.2 P
22-sep-1988	TM a	U	39.0	<1000 P	17.5 P
22-sep-1988	TM a	U	44.0	270000 +/- 10000P	19.8 P
22-sep-1988	TM a	U	49.0	123000 +/- 6000P	14.8 P
22-sep-1988	TM a	U	54.0	6700 +/- 1000P	20.6 P
NC7-62					
19-oct-1988	TM a	U	5.0	<1000 P	-
19-oct-1988	TM a	U	15.3	28000 +/- 1000P	-
11-oct-1988	TM a	U	25.0	135000 +/- 7000P	-
11-oct-1988	TM a	U	28.3	63000 +/- 3000P	-
NC7-69					
31-jan-1990	TM a	U	13.2	3200 +/- 400P	19 P
31-jan-1990	TM a	U	18.3	8100 +/- 500P	21.7 P
31-jan-1990	TM a	U	26.9	22900 +/- 800P	6.7 P
31-jan-1990	TM a	U	31.8	<500 P	22.2 P
31-jan-1990	TM a	U	34.9	800 +/- 400P	21.1 P
31-jan-1990	TM a	U	51.0	<500 P	29.7 P
31-jan-1990	TM a	U	85.0	<500 P	20 P
31-jan-1990	TM a	U	111.0	<500 P	18.3 P
31-jan-1990	TM a	U	148.4	<500 P	21 P
NC7-70					
31-jan-1990	TM a	U	4.8	13000 +/- 600P	10.2 P
31-jan-1990	TM a	U	14.3	612000 +/- 12000P	16.6 P
31-jan-1990	TM a	U	19.3	2.79e+06 +/- 60000P	10.3 P
31-jan-1990	TM a	U	23.0	2.45e+06 +/- 50000P	22.2 P
31-jan-1990	TM a	U	27.0	1.76e+06 +/- 40000P	23.5 P
21-nov-1989	NC a	U	31.0	218000 +/- 3553P	22.69 P
21-nov-1989	NC a	U	34.5	2790 +/- 276P	23.81 P
21-nov-1989	NC a	U	41.5	4670 +/- 282P	20.91 P
21-nov-1989	NC a	U	45.8	<197 P	18 P
NC7-71					
01-feb-1990	TM a	U	9.3	76700 +/- 1600P	17.1 P
01-feb-1990	TM a	U	12.3	62100 +/- 1300P	10.2 P
01-feb-1990	TM a	U	18.5	12200 +/- 600P	13.6 P
01-feb-1990	TM a	U	23.0	2800 +/- 400P	10.6 P
01-feb-1990	TM a	U	33.3	<500 P	21.5 P
01-feb-1990	TM a	U	39.8	<500 P	20.7 P
28-nov-1989	NC a	U	43.5	974 +/- 242P	21.99 P

Table A-9. Subsurface soil and rock analyses for tritium (pCi/Lsm) in samples collected from the Building 850 subarea between January 1, 1988 and June 30, 2003. Results recorded by October 30, 2003.

Location Date	Lab	Val. Note	Depth (ft)	Tritium (pCi/L)	Moisture by Weight (percent)
NC7-71 (continued)					
28-nov-1989	NC a	U	63.8	<197 P	27.05 P
28-nov-1989	NC a	U	67.8	<197 P	14.01 P
28-nov-1989	NC a	U	79.8	199 +/- 141P	23.41 P
NC7-72					
01-feb-1990	TM a	U	5.3	<500 P	13.4 P
01-feb-1990	TM a	U	10.5	<600 P	10.9 P
01-feb-1990	TM a	U	20.5	12400 +/- 600P	13.3 P
01-feb-1990	TM a	U	20.5	12400 +/- 600P	-
01-feb-1990	TM a	U	20.5	12000 +/- 300P	-
01-feb-1990	TM a	U	25.5	101000 +/- 2000P	17.2 P
01-feb-1990	TM a	U	28.5	98600 +/- 2100P	29.5 P
01-feb-1990	TM a	U	34.5	26100 +/- 800P	23.9 P
NC7-73					
01-feb-1990	TM a	U	5.0	800 +/- 400P	12 P
01-feb-1990	TM a	U	11.5	16300 +/- 700P	18.7 P
01-feb-1990	TM a	U	20.8	82700 +/- 1800P	25 P
01-feb-1990	TM a	U	30.5	57100 +/- 1200P	28.2 P
05-dec-1989	TM a	U	35.3	<280 P	24 P
01-feb-1990	TM a	U	40.6	<500 P	21.9 P
01-feb-1990	TM a	U	40.6	<500 P	-
01-feb-1990	TM a	U	40.6	<500 P	-
NC7-74					
28-aug-1990	TM a	U	454.7	<320 P	22 P
28-aug-1990	TM a	U	459.4	<366 P	14 P
29-aug-1990	TM a	U	470.0	<320 P	18.9 P
29-aug-1990	TM a	U	480.3	<320 P	19.6 P
29-aug-1990	TM a	U	493.0	<320 P	18.7 P
10-sep-1990	TM a	U	510.0	<320 P	18.9 P
11-sep-1990	TM a	U	520.0	<320 P	21.4 P
850-01					
02-may-1988	NC a 1	U	15.5	5.4475e+06 +/- 27000P	14.8 P
850-02					
05-may-1988	NC a 1	U	5.5	7.3e+06 +/- 36000P	15.4 P
05-may-1988	NC a	U	10.5	2.92e+06 +/- 15000P	11.9 P
06-may-1988	NC a 1	U	20.0	921000 +/- 4600P	18.3 P
06-may-1988	NC a	U	25.0	669000 +/- 3300P	27.2 P
06-may-1988	NC a 1	U	29.5	345000 +/- 1700P	18.8 P
850-04					
05-may-1988	NC a	U	9.3	33600 +/- 370P	20.1 P
05-may-1988	NC a 1	U	20.0	2.24e+06 +/- 11090P	20.7 P
05-may-1988	NC a	U	25.0	1.5925e+06 +/- 7960P	14.1 P
05-may-1988	NC a 1	U	30.3	756500 +/- 3780P	21.8 P

Table A-9. Subsurface soil and rock analyses for tritium (pCi/Lsm) in samples collected from the Building 850 subarea between January 1, 1988 and June 30, 2003. Results recorded by October 30, 2003.

Location	Lab	Val.	Depth	Tritium	Moisture
Date	Note	(ft)	(pCi/L)	by Weight	(percent)
850-08Z					
21-mar-1990	TM a	U	10.1	45000 +/- 1300P	19.3 P
21-mar-1990	TM a	U	10.1	43500 +/- 1200P	-
21-mar-1990	TM a	U	15.1	7100 +/- 600P	16.2 P
21-mar-1990	TM a	U	20.0	2300 +/- 500P	19.1 P
850-06					
21-nov-1989	TM a	U	2.3	8100 +/- 600P	17.2 P
21-nov-1989	TM a	U	6.0	74200 +/- 1400P	16.4 P
850-07					
21-nov-1989	TM a	U	2.3	9100 +/- 1200P	1.5 P
21-nov-1989	TM a	U	6.3	24200 +/- 800P	14 P
22-nov-1989	TM a	U	6.8	4100 +/- 600P	16.5 P
850-08					
21-nov-1989	TM a	U	1.3	51200 +/- 1800P	4.7 P
850-09					
21-nov-1989	TM a	U	2.3	6700 +/- 800P	2.1 P
21-nov-1989	TM a	U	6.3	6600 +/- 600P	13.8 P
850-10					
21-nov-1989	TM a	U	2.0	4800 +/- 600P	13.6 P
21-nov-1989	TM a	U	4.3	22600 +/- 800P	13.9 P
21-nov-1989	TM a	U	6.0	30600 +/- 1000P	12 P
850-11					
21-nov-1989	TM a	U	2.3	12600 +/- 800P	14 P
21-nov-1989	TM a	U	4.0	55900 +/- 1200P	21.7 P
21-nov-1989	TM a	U	5.5	42000 +/- 1000P	17.6 P
850-11Z					
21-mar-1990	TM a	U	10.2	204000 +/- 5000P	12.3 P
21-mar-1990	TM a	U	15.2	135000 +/- 3000P	20.2 P
21-mar-1990	TM a	U	20.1	72200 +/- 1800P	17.8 P
850-12					
22-nov-1989	TM a	U	3.3	500 +/- 500P	18.6 P
22-nov-1989	TM a	U	6.3	<500 P	13.9 P
22-nov-1989	TM a	U	7.0	<700 P	17.4 P
850-13					
28-nov-1989	TM a	U	0.8	2500 +/- 600P	14.2 P
850-14					
28-nov-1989	TM a	U	1.8	19800 +/- 800P	7.7 P
28-nov-1989	TM a	U	6.3	74500 +/- 3400P	8.7 P
28-nov-1989	TM a	U	10.0	12900 +/- 800P	9.5 P
28-nov-1989	TM a	U	16.3	8000 +/- 600P	14.4 P

Table A-9. Subsurface soil and rock analyses for tritium (pCi/Lsm) in samples collected from the Building 850 subarea between January 1, 1988 and June 30, 2003. Results recorded by October 30, 2003.

Location	Lab	Val.	Depth	Tritium	Moisture
Date	Note	(ft)	(pCi/L)	by Weight	(percent)
850-15					
29-nov-1989	TM a	U	2.3	27400 +/- 900P	4.5 P
29-nov-1989	TM a	U	6.3	72100 +/- 1300P	16 P
850-16					
29-nov-1989	TM a	U	2.3	2600 +/- 500P	16.2 P
29-nov-1989	TM a	U	6.3	<600 P	13.7 P
29-nov-1989	TM a	U	11.3	800 +/- 500P	11.6 P
29-nov-1989	TM a	U	15.8	700 +/- 500P	12.7 P
850-17					
28-nov-1989	TM a	U	2.3	2600 +/- 600P	9.7 P
28-nov-1989	TM a	U	6.3	14000 +/- 6000P	14 P
28-nov-1989	TM a	U	11.3	1200 +/- 600P	12.9 P
28-nov-1989	TM a	U	15.3	1000 +/- 600P	13.8 P
29-nov-1989	TM a	U	18.3	900 +/- 500P	15 P
29-nov-1989	TM a	U	19.8	900 +/- 500P	22.6 P
29-nov-1989	TM a	U	22.8	8300 +/- 600P	19.5 P
850-18					
20-mar-1990	TM ap	U	5.5	98300 +/- 2200P	14.5 P
20-mar-1990	TM ap	U	10.5	199000 +/- 5000P	19.4 P
20-mar-1990	TM ap	U	15.2	199000 +/- 5000P	17.1 P
20-mar-1990	TM ap	U	20.2	186000 +/- 4000P	14.4 P
20-mar-1990	TM ap	U	25.3	181000 +/- 4000P	3.1 P
20-mar-1990	TM a	U	25.3	174000 +/- 4000P	-
850-19					
15-mar-1990	TM a	U	5.1	3100 +/- 500P	15.7 P
15-mar-1990	TM a	U	10.8	195000 +/- 5000P	17.6 P
15-mar-1990	TM a	U	15.0	195000 +/- 5000P	18.1 P
15-mar-1990	TM a	U	20.3	254000 +/- 6000P	22.9 P
15-mar-1990	TM a	U	25.3	68200 +/- 1700P	16.5 P
W-850-05					
05-may-1988	NC a	U	10.3	5380 +/- 160P	20.6 P
09-may-1988	NC a	U	25.3	29700 +/- 1490P	22.2 P
09-may-1988	NC a 1	U	30.5	6600 +/- 180P	17.6 P
09-may-1988	NC a 1	U	40.5	800 +/- 110P	23.9 P

See following page for notes

Table A-9. Subsurface soil and rock analyses for tritium (pCi/Lsm) in samples collected from the Building 850 subarea between January 1, 1988 and June 30, 2003. Results recorded by October 30, 2003.

Notes:

- Indicates no analysis performed for this compound

Val. = Validation code

Footnotes:

- a ERD data
- b ORAD WGMG data
- c Analytical results for this sample are suspect
- d Sample collected during hydraulic testing
- e Blind sample, sent to lab without location identity
- f Sample dilution necessary for analysis; detection limits increased
- g Interlaboratory collocated sample
- h Intralaboratory collocated sample
- i Sample collected as part of pilot study
- j Note field may contain important information regarding this sample
- k Pre-development sample
- l Norm month, norm quarter or norm year inconsistent with sample date
- m Confirmation sample
- n Sample analyzed after standard holding time
- o Sample comprised of partial composite
- p Alpha spectroscopy analysis of uranium isotopes
- q Gamma spectroscopy analysis of uranium isotopes
- r Tritium data represents non-detect with activity calc'd for 100 percent error.

Lab Codes:

NC Nuclear Chemistry LLNL Lab
TM Thermo Analytical Inc.

Validation Codes:

V Validated
N Not validated (default value)
U Undeclared
H Historical comparison only

CLP flags: (follow result)

- B Analyte found in method blank
- D Analysis performed at a secondary dilution or concentration (i.e., vapor samples)
- E The analyte was detected below the LLNL reporting limit, but above the analytical laboratory minimum detection limit.
- F Analyte found in field blank, trip blank, or equipment blank
- G Quantitated using fuel calibration, but does not match typical fuel fingerprint (fuel maybe gasoline, diesel, motor oil etc.).
- H Sample analyzed outside of holding time, sample results should be evaluated
- J Analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
- L Spike accuracy not within control limits
- O Duplicate spike or sample precision not within control limits
- P Indicates that the absence of a data qualifier flag does not mean that the data does not need qualification, but that the implementation of electronic data qualifier flags was not yet established
- R Sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet QC criteria. The presence or absence of the analyte cannot be verified
- S Analytical results for this sample are suspect
- T Analyte is tentatively identified compound; result is approximate
- U Compound was analyzed for, but not detected above detection limit

Table A-10. Subsurface soil/rock analyses for uranium isotopes (pCi/g) and U235/U238 atom ratio in samples collected from Building 850 subarea between January 1, 1988 and October 31, 2003. Results recorded by October 30, 2003.

Uranium Isotopes in Soil, Site 300
November 4, 2003
gemini2

s3uraniumsoL.04nov2003
s3uraniumsoR.04nov2003

Min Sample Date
January 1, 1988
Max Sample Date
June 30, 2003

Table A-10. Subsurface soil/rock analyses for uranium isotopes (pCi/g) and U235/U238 atom ratio in

Location Date	Lab	Val. Note	Depth (ft)	Uranium 233+234	Uranium 235+236	Uranium 238	Uranium 235/238 (atom ratio)
NC7-44							
06-jul-1994	IC a	V	35.5	-	-	-	0.00743 +/- 0.00013
06-jul-1994	IC a	V	35.5	-	-	-	0.0075 +/- 0.00023
NC7-74							
06-jul-1994	IC a	V	35.5	-	-	-	0.00724 +/- 0.00032
06-jul-1994	IC a	V	35.5	-	-	-	0.00731 +/- 0.00026
06-jul-1994	IC a	V	46.0	-	-	-	0.00727 +/- 0.00034
06-jul-1994	IC a	V	46.0	-	-	-	0.00737 +/- 0.0004
06-jul-1994	IC a	V	87.0	-	-	-	0.00721 +/- 9e-05
06-jul-1994	IC a	V	87.0	-	-	-	0.00724 +/- 0.00038
06-jul-1994	IC a	V	101.5	-	-	-	0.00737 +/- 0.00032
06-jul-1994	IC a	V	101.5	-	-	-	0.00752 +/- 0.00048
06-jul-1994	IC a	V	184.5	-	-	-	0.00714 +/- 0.00037
06-jul-1994	IC a	V	184.5	-	-	-	0.00738 +/- 0.00032
06-jul-1994	IC a	V	271.5	-	-	-	0.00726 +/- 0.00017
06-jul-1994	IC a	V	271.5	-	-	-	0.00719 +/- 0.00025
06-jul-1994	IC a	V	322.5	-	-	-	0.00716 +/- 0.00035
06-jul-1994	IC a	V	322.5	-	-	-	0.00715 +/- 0.00035
06-jul-1994	IC a	V	357.5	-	-	-	0.00719 +/- 0.00042
06-jul-1994	IC a	V	357.5	-	-	-	0.00701 +/- 0.0006
06-jul-1994	IC a	V	457.3	-	-	-	0.00741 +/- 0.00036
06-jul-1994	IC a	V	457.3	-	-	-	0.00713 +/- 0.00038
06-jul-1994	IC a	V	496.5	-	-	-	0.00715 +/- 0.00028
06-jul-1994	IC a	V	496.5	-	-	-	0.00738 +/- 0.00036
06-jul-1994	IC a	V	513.5	-	-	-	0.00713 +/- 0.0003
06-jul-1994	IC a	V	513.5	-	-	-	0.00722 +/- 0.00024
850-06							
21-nov-1989	TM ap	U	1.8	3.7 +/- 0.3P	0.5 +/- 0.1P	28.2 +/- 1.7P	-
21-nov-1989	TM ap	U	5.5	0.4 +/- 0.1P	<0.1 P	0.5 +/- 0.1P	-
850-07							
21-nov-1989	TM ap	U	1.8	0.3 +/- 0.1P	<0.1 P	0.4 +/- 0.1P	-
21-nov-1989	TM ap	U	5.8	2.4 +/- 0.2P	0.4 +/- 0.1P	16.9 +/- 0.1P	-
850-09							
21-nov-1989	TM ap	U	1.8	0.4 +/- 0.1P	<0.1 P	0.4 +/- 0.1P	-
21-nov-1989	TM ap	U	5.8	0.3 +/- 0.1P	<0.1 P	0.9 +/- 0.1P	-
850-10							
21-nov-1989	TM ap	U	2.3	0.5 +/- 0.1P	<0.1 P	0.9 +/- 0.1P	-
21-nov-1989	TM ap	U	4.8	0.9 +/- 0.1P	<0.2 P	3.9 +/- 0.3P	-
850-11							
21-nov-1989	TM ap	U	2.0	2.6 +/- 0.2P	0.4 +/- 0.1P	19.4 +/- 1P	-
21-nov-1989	TM ap	U	4.5	0.2 +/- 0.1P	<0.1 P	0.3 +/- 0.1P	-
21-nov-1989	TM ap	U	4.5	0.2 +/- 0.1P	<0.1 P	0.3 +/- 0.1P	-
21-nov-1989	TM ap	U	4.5	0.3 +/- 0.1P	<0.1 P	0.4 +/- 0.1P	-
850-18							
20-mar-1990	TM ap	U	5.5	0.6 +/- 0.1P	<0.1 P	0.6 +/- 0.1P	-
20-mar-1990	TM ap	U	10.5	0.6 +/- 0.1P	<0.1 P	0.5 +/- 0.1P	-
20-mar-1990	TM ap	U	15.2	0.6 +/- 0.2P	<0.1 P	0.9 +/- 0.2P	-
20-mar-1990	TM ap	U	20.2	0.5 +/- 0.1P	<0.1 P	0.7 +/- 0.1P	-
20-mar-1990	TM ap	U	25.3	0.7 +/- 0.1P	<0.1 P	0.8 +/- 0.1P	-

samples collected from Building 850 subarea between between January 1, 1988 and October 31, 2003.
 Results recorded by October 30, 2003.

Uranium 233 by mass measurement	Uranium 234 by mass measurement	Uranium 235 by mass measurement	Uranium 236 by mass measurement	Uranium 238 by mass measurement	Location Date
-	-	0.047 H	-	0.98	NC7-44 06-jul-1994
-	-	0.035 H	-	0.73	06-jul-1994
-	-	0.008 H	-	0.17	NC7-74 06-jul-1994
-	-	0.015 H	-	0.33	06-jul-1994
-	-	0.009 H	-	0.19	06-jul-1994
-	-	0.017 H	-	0.37	06-jul-1994
-	-	0.073 H	-	1.57	06-jul-1994
-	-	0.031 H	-	0.66	06-jul-1994
-	-	0.007 H	-	0.15	06-jul-1994
-	-	0.015 H	-	0.32	06-jul-1994
-	-	0.013 H	-	0.28	06-jul-1994
-	-	0.016 H	-	0.33	06-jul-1994
-	-	0.013 H	-	0.27	06-jul-1994
-	-	0.017 H	-	0.37	06-jul-1994
-	-	0.014 H	-	0.3	06-jul-1994
-	-	0.027 H	-	0.58	06-jul-1994
-	-	0.024 H	-	0.52	06-jul-1994
-	-	0.026 H	-	0.58	06-jul-1994
-	-	0.008 H	-	0.17	06-jul-1994
-	-	0.018 H	-	0.39	06-jul-1994
-	-	0.059 H	-	1.29	06-jul-1994
-	-	0.03 H	-	0.63	06-jul-1994
-	-	0.042 H	-	0.91	06-jul-1994
-	-	0.049 H	-	1.07	06-jul-1994
-	-	-	-	-	850-06 21-nov-1989
-	-	-	-	-	21-nov-1989
-	-	-	-	-	850-07 21-nov-1989
-	-	-	-	-	21-nov-1989
-	-	-	-	-	850-09 21-nov-1989
-	-	-	-	-	21-nov-1989
-	-	-	-	-	850-10 21-nov-1989
-	-	-	-	-	21-nov-1989
-	-	-	-	-	850-11 21-nov-1989
-	-	-	-	-	21-nov-1989
-	-	-	-	-	21-nov-1989
-	-	-	-	-	21-nov-1989
-	-	-	-	-	850-18 20-mar-1990
-	-	-	-	-	20-mar-1990
-	-	-	-	-	20-mar-1990
-	-	-	-	-	20-mar-1990
-	-	-	-	-	20-mar-1990

See following page for notes

Table A-10. Subsurface soil/rock analyses for uranium isotopes (pCi/g) and U235/U238 atom ratio in samples collected from Building 850 subarea between between January 1, 1988 and October 31, 2003. Results recorded by October 30, 2003.

Notes:

- Indicates no analysis performed for this compound

Val. = Validation code

Footnotes:

a ERD data
b ORAD WGMG data
c Analytical results for this sample are suspect
d Sample collected during hydraulic testing
e Blind sample, sent to lab without location identity
f Sample dilution necessary for analysis; detection limits increased
g Interlaboratory collocated sample
h Intralaboratory collocated sample
i Sample collected as part of pilot study
j Note field may contain important information regarding this sample
k Pre-development sample
l Norm month, norm quarter or norm year inconsistent with sample date
m Confirmation sample
n Sample analyzed after standard holding time
o Sample comprised of partial composite
p Alpha spectroscopy analysis of uranium isotopes
q Gamma spectroscopy analysis of uranium isotopes
r Tritium data represents non-detect with activity calc'd for 100 percent error.

Lab Codes:

IC ICP MS Facility
TM Thermo Analytical Inc.

Validation Codes:

V Validated
N Not validated (default value)
U Undeclared
H Historical comparison only

CLP flags: (follow result)

B Analyte found in method blank
D Analysis performed at a secondary dilution or concentration (i.e., vapor samples)
E The analyte was detected below the LLNL reporting limit, but above the analytical laboratory minimum detection limit.
F Analyte found in field blank, trip blank, or equipment blank
G Quantitated using fuel calibration, but does not match typical fuel fingerprint (fuel maybe gasoline, diesel, motor oil etc.).
H Sample analyzed outside of holding time, sample results should be evaluated
J Analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
L Spike accuracy not within control limits
O Duplicate spike or sample precision not within control limits
P Indicates that the absence of a data qualifier flag does not mean that the data does not need qualification, but that the implementation of electronic data qualifier flags was not yet established
R Sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet QC criteria. The presence or absence of the analyte cannot be verified
S Analytical results for this sample are suspect
T Analyte is tentatively identified compound; result is approximate
U Compound was analyzed for, but not detected above detection limit

Table A-11. Subsurface soil and rock analyses for STLC metals (mg/kg) in samples collected from the Building 850 subarea between January 1, 1988 and October 31, 2003. Results recorded by October 30, 2003.

Dissolved Metals in Soil, Site 300
November 3, 2003
gemin2

s3metstlcsol.03nov2003
s3metstlcsor.03nov2003

Min Sample Date
January 1, 1988
Max Sample Date
June 30, 2003

Table A-11. Subsurface soil and rock analyses for STLC metals (mg/kg) in samples collected from

Location Date	Lab Note	Val. Depth (ft)	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	
850-01											
02-may-1988	BC a	U 10.8	<0.1 P	0.03 P	2.9 P	<0.01 P	<0.01 P	<0.02 P	0.6 P	0.27 P	
02-may-1988	BC a	U 10.8	-	<0.02 P	<0.1 P	<0.01 P	<0.01 P	<0.02 P	-	-	
02-may-1988	BC a	U 15.0	<0.1 P	0.04 P	3.1 P	<0.01 P	<0.01 P	<0.02 P	0.32 P	2.1 P	
02-may-1988	BC a	U 15.0	-	<0.02 P	0.1 P	<0.01 P	<0.01 P	<0.02 P	-	-	
02-may-1988	BC a	U 18.5	-	<0.02 P	<0.1 P	<0.01 P	<0.01 P	<0.02 P	-	-	
02-may-1988	BC a	U 18.5	-	<0.02 P	<0.1 P	<0.01 P	<0.01 P	<0.02 P	-	-	
02-may-1988	BC a	U 20.5	-	<0.02 P	<0.1 P	<0.01 P	<0.01 P	<0.02 P	-	-	
02-may-1988	BC a	U 26.3	-	<0.02 P	<0.1 P	<0.01 P	<0.01 P	<0.02 P	-	-	
02-may-1988	BC a	U 26.3	-	<0.02 P	<0.1 P	<0.01 P	<0.01 P	<0.02 P	-	-	
850-02											
05-may-1988	BC a	U 5.0	-	<0.02 P	0.8 P	<0.01 P	<0.01 P	<0.02 P	-	-	
05-may-1988	BC a	U 5.0	<0.1 P	<0.02 P	7.9 P	0.05 P	0.08 P	<0.02 P	0.15 P	39 P	
05-may-1988	BC a	U 5.0	-	-	-	-	-	-	-	35 P	
05-may-1988	BC a	U 8.8	-	<0.02 P	0.1 P	<0.01 P	<0.01 P	<0.02 P	-	-	
05-may-1988	BC a	U 11.3	<0.1 P	<0.02 P	2.4 P	<0.01 P	<0.01 P	0.07 P	0.72 P	3.4 P	
05-may-1988	BC a	U 11.3	-	<0.02 P	<0.1 P	<0.01 P	<0.01 P	<0.02 P	-	-	
06-may-1988	BC a	U 15.0	-	<0.02 P	<0.1 P	<0.01 P	<0.01 P	<0.02 P	-	-	
06-may-1988	BC a	U 20.8	-	<0.02 P	<0.1 P	<0.01 P	<0.01 P	<0.02 P	-	-	
06-may-1988	BC a	U 25.8	-	<0.02 P	<0.1 P	<0.01 P	<0.01 P	<0.02 P	-	-	
06-may-1988	BC a	U 30.5	-	<0.02 P	<0.1 P	<0.01 P	<0.01 P	<0.02 P	-	-	
06-may-1988	BC a	U 30.5	-	<0.02 P	<0.1 P	<0.01 P	<0.01 P	<0.02 P	-	-	
850-04											
05-may-1988	BC a	U 5.8	<0.1 P	<0.02 P	1.6 P	<0.01 P	<0.01 P	0.06 P	0.1 P	0.86 P	
05-may-1988	BC a	U 6.0	<0.1 P	<0.02 P	6.1 P	<0.01 P	0.03 P	0.02 P	0.3 P	4.7 P	
05-may-1988	BC a	U 6.0	-	<0.02 P	0.4 P	<0.01 P	<0.01 P	<0.02 P	-	-	
05-may-1988	BC a	U 9.0	<0.1 P	<0.02 P	5.8 P	<0.01 P	<0.01 P	0.02 P	0.35 P	1.2 P	
05-may-1988	BC a	U 9.0	-	<0.02 P	0.2 P	<0.01 P	<0.01 P	<0.02 P	-	-	
05-may-1988	BC a	U 11.0	-	<0.02 P	<0.1 P	<0.01 P	<0.01 P	<0.02 P	-	-	
05-may-1988	BC a	U 15.8	-	<0.02 P	<0.1 P	<0.01 P	<0.01 P	<0.02 P	-	-	
05-may-1988	BC a	U 20.8	-	<0.02 P	<0.1 P	<0.01 P	<0.01 P	<0.02 P	-	-	
05-may-1988	BC a	U 25.5	-	<0.02 P	<0.1 P	<0.01 P	<0.01 P	<0.02 P	-	-	
05-may-1988	BC a	U 30.0	-	<0.02 P	<0.1 P	<0.01 P	<0.01 P	<0.02 P	-	-	
850-06											
21-nov-1989	BC a	U 2.0	<0.06 P	<0.02 P	3.5 P	<0.01 P	<0.04 P	<0.05 P	0.23 P	0.8 P	
21-nov-1989	BC a	U 5.8	<0.06 P	<0.02 P	1.9 P	<0.01 P	<0.04 P	<0.05 P	0.34 P	0.14 P	
850-07											
21-nov-1989	BC a	U 2.0	<0.06 P	<0.02 P	3.3 P	<0.01 P	<0.04 P	<0.05 P	0.08 P	0.78 P	
21-nov-1989	BC a	U 6.0	<0.06 P	<0.02 P	4.1 P	<0.01 P	<0.04 P	<0.05 P	0.33 P	0.38 P	
850-08											
21-nov-1989	BC a	U 1.0	<0.06 P	<0.02 P	5 P	<0.01 P	<0.04 P	0.08 P	0.26 P	4.5 P	
850-09											
21-nov-1989	BC a	U 2.0	<0.06 P	<0.02 P	3.1 P	<0.01 P	<0.04 P	<0.05 P	0.07 P	0.28 P	
21-nov-1989	BC a	U 6.0	<0.06 P	<0.02 P	2.7 P	<0.01 P	<0.04 P	<0.05 P	0.33 P	0.14 P	
850-10											
21-nov-1989	BC a	U 1.8	<0.06 P	0.02 P	3.2 P	<0.01 P	<0.04 P	<0.05 P	0.22 P	0.63 P	
21-nov-1989	BC a	U 4.5	<0.06 P	0.06 P	3.1 P	<0.01 P	0.1 P	0.85 P	0.3 P	0.51 P	
850-11											
21-nov-1989	BC a	U 2.5	<0.06 P	0.03 P	2.9 P	<0.01 P	<0.04 P	<0.05 P	0.19 P	0.22 P	
21-nov-1989	BC a	U 4.3	<0.06 P	<0.02 P	4.4 P	<0.01 P	<0.04 P	0.09 P	0.56 P	0.33 P	
W-850-05											
06-may-1988	BC a	U 1.0	-	<0.02 P	1 P	<0.01 P	<0.01 P	<0.02 P	-	-	
06-may-1988	BC a	U 1.0	<0.1 P	<0.02 P	5.8 P	0.05 P	0.05 P	<0.02 P	0.17 P	3.9 P	
06-may-1988	BC a	U 1.0	-	<0.02 P	0.3 P	<0.01 P	<0.01 P	<0.02 P	-	-	
06-may-1988	BC a	U 3.0	-	<0.02 P	<0.1 P	<0.01 P	<0.01 P	<0.02 P	-	-	
06-may-1988	BC a	U 5.8	-	<0.02 P	<0.1 P	<0.01 P	<0.01 P	<0.02 P	-	-	
05-may-1988	BC a	U 10.0	-	<0.02 P	<0.1 P	<0.01 P	<0.01 P	<0.02 P	-	-	
05-may-1988	BC a	U 15.0	-	<0.02 P	<0.1 P	<0.01 P	<0.01 P	<0.02 P	-	-	
09-may-1988	BC a	U 20.0	-	<0.02 P	<0.1 P	<0.01 P	<0.01 P	<0.02 P	-	-	

the Building 850 subarea between January 1, 1988 and October 31, 2003. Results recorded by October 30, 2003.

Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	Location Date
850-01									
0.2 P	<0.001 P	<0.1 P	0.78 P	<0.01 P	<0.01 P	<0.1 P	0.3 P	0.09 P	02-may-1988
<0.1 P	<0.0002 P	-	-	<0.01 P	<0.01 P	-	-	-	02-may-1988
<0.1 P	<0.001 P	<0.1 P	0.31 P	<0.01 P	<0.01 P	<0.1 P	0.3 P	0.24 P	02-may-1988
<0.1 P	<0.0002 P	-	-	<0.01 P	<0.01 P	-	-	-	02-may-1988
<0.1 P	<0.0002 P	-	-	<0.01 P	<0.01 P	-	-	-	02-may-1988
<0.1 P	<0.0002 P	-	-	<0.01 P	<0.01 P	-	-	-	02-may-1988
<0.1 P	<0.0002 P	-	-	<0.01 P	<0.01 P	-	-	-	02-may-1988
<0.1 P	<0.0002 P	-	-	<0.01 P	<0.01 P	-	-	-	02-may-1988
<0.1 P	<0.0002 P	-	-	<0.01 P	<0.01 P	-	-	-	02-may-1988
<0.1 P	<0.0002 P	-	-	<0.01 P	<0.01 P	-	-	-	02-may-1988
850-02									
<0.1 P	<0.0002 P	-	-	<0.01 P	<0.01 P	-	-	-	05-may-1988
1.1 P	<0.001 P	<0.1 P	0.14 P	<0.01 P	<0.01 P	<0.1 P	<0.2 P	0.91 P	05-may-1988
-	-	-	-	-	-	-	-	-	05-may-1988
<0.1 P	0.0002 P	-	-	<0.01 P	<0.01 P	-	-	-	05-may-1988
<0.1 P	<0.001 P	<0.1 P	0.27 P	<0.01 P	<0.01 P	<0.1 P	0.4 P	0.23 P	05-may-1988
<0.1 P	<0.0002 P	-	-	<0.01 P	<0.01 P	-	-	-	05-may-1988
<0.1 P	<0.0002 P	-	-	<0.01 P	<0.01 P	-	-	-	06-may-1988
<0.1 P	<0.0002 P	-	-	<0.01 P	<0.01 P	-	-	-	06-may-1988
<0.1 P	<0.0002 P	-	-	<0.01 P	<0.01 P	-	-	-	06-may-1988
<0.1 P	<0.0002 P	-	-	<0.01 P	<0.01 P	-	-	-	06-may-1988
<0.1 P	<0.0002 P	-	-	<0.01 P	<0.01 P	-	-	-	06-may-1988
850-04									
<0.1 P	<0.001 P	<0.1 P	<0.05 P	<0.01 P	<0.01 P	<0.1 P	0.2 P	0.12 P	05-may-1988
0.2 P	<0.001 P	<0.1 P	0.25 P	<0.01 P	<0.01 P	<0.1 P	<0.2 P	0.49 P	05-may-1988
<0.1 P	<0.0002 P	-	-	<0.01 P	<0.01 P	-	-	-	05-may-1988
<0.1 P	<0.001 P	<0.1 P	0.31 P	<0.01 P	<0.01 P	<0.1 P	<0.2 P	0.67 P	05-may-1988
<0.1 P	0.0002 P	-	-	<0.01 P	<0.01 P	-	-	-	05-may-1988
<0.1 P	<0.0002 P	-	-	<0.01 P	<0.01 P	-	-	-	05-may-1988
<0.1 P	<0.0002 P	-	-	<0.01 P	<0.01 P	-	-	-	05-may-1988
<0.1 P	<0.0002 P	-	-	<0.01 P	<0.01 P	-	-	-	05-may-1988
<0.1 P	0.0004 P	-	-	<0.01 P	<0.01 P	-	-	-	05-may-1988
<0.1 P	<0.0002 P	-	-	<0.01 P	<0.01 P	-	-	-	05-may-1988
850-06									
<0.3 P	<0.001 P	<0.08 P	0.18 P	<0.02 P	<0.02 P	<0.2 P	0.25 P	0.03 P	21-nov-1989
<0.3 P	<0.001 P	<0.08 P	0.2 P	<0.02 P	<0.02 P	<0.2 P	0.17 P	<0.01 P	21-nov-1989
850-07									
<0.3 P	<0.001 P	<0.08 P	0.08 P	<0.02 P	<0.02 P	<0.2 P	0.07 P	0.45 P	21-nov-1989
<0.3 P	<0.001 P	<0.08 P	0.34 P	<0.02 P	<0.02 P	<0.2 P	0.35 P	0.05 P	21-nov-1989
850-08									
<0.3 P	<0.001 P	<0.08 P	0.22 P	<0.02 P	<0.02 P	<0.2 P	0.22 P	0.53 P	21-nov-1989
850-09									
<0.3 P	<0.001 P	<0.08 P	0.09 P	<0.02 P	<0.02 P	<0.2 P	0.05 P	<0.01 P	21-nov-1989
<0.3 P	<0.001 P	<0.08 P	0.24 P	<0.02 P	<0.02 P	<0.2 P	0.29 P	<0.01 P	21-nov-1989
850-10									
<0.3 P	0.001 P	<0.08 P	0.16 P	<0.02 P	<0.02 P	<0.2 P	0.18 P	0.17 P	21-nov-1989
<0.3 P	0.001 P	0.15 P	0.8 P	<0.02 P	<0.02 P	<0.2 P	0.45 P	1.1 P	21-nov-1989
850-11									
<0.3 P	<0.001 P	<0.08 P	0.15 P	<0.02 P	<0.02 P	<0.2 P	0.22 P	0.2 P	21-nov-1989
<0.3 P	0.001 P	<0.08 P	0.33 P	<0.02 P	<0.02 P	<0.2 P	0.28 P	0.12 P	21-nov-1989
W-850-05									
<0.1 P	<0.0002 P	-	-	<0.01 P	<0.01 P	-	-	-	06-may-1988
1.1 P	<0.001 P	<0.1 P	0.23 P	<0.01 P	<0.01 P	<0.1 P	<0.2 P	8.3 P	06-may-1988
<0.1 P	<0.0002 P	-	-	<0.01 P	<0.01 P	-	-	-	06-may-1988
<0.1 P	<0.0002 P	-	-	<0.01 P	<0.01 P	-	-	-	06-may-1988
<0.1 P	<0.0002 P	-	-	<0.01 P	<0.01 P	-	-	-	06-may-1988
<0.1 P	<0.0002 P	-	-	<0.01 P	<0.01 P	-	-	-	05-may-1988
<0.1 P	<0.0002 P	-	-	<0.01 P	<0.01 P	-	-	-	05-may-1988
<0.1 P	<0.0002 P	-	-	<0.01 P	<0.01 P	-	-	-	09-may-1988

Table A-11. Subsurface soil and rock analyses for STLC metals (mg/kg) in samples collected from

Location Date	Lab	Val.		Depth (ft)	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper
			Note									
W-850-05 (continued)												
09-may-1988	BC a	U	25.0	-	<0.02 P	<0.1 P	<0.01 P	<0.01 P	<0.01 P	<0.02 P	-	-
09-may-1988	BC a	U	30.0	-	<0.02 P	<0.1 P	<0.01 P	<0.01 P	<0.01 P	<0.02 P	-	-
09-may-1988	BC a	U	36.0	-	<0.02 P	<0.1 P	<0.01 P	<0.01 P	<0.01 P	<0.02 P	-	-
09-may-1988	BC a	U	40.0	-	<0.02 P	<0.1 P	<0.01 P	<0.01 P	<0.01 P	<0.02 P	-	-
09-may-1988	BC a	U	40.0	-	<0.02 P	<0.1 P	<0.01 P	<0.01 P	<0.01 P	<0.02 P	-	-

the Building 850 subarea between January 1, 1988 and October 31, 2003. Results recorded by October 30, 2003.

Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	Location Date
(continued) W-850-05									
<0.1 P	<0.0002 P	-	-	<0.01 P	<0.01 P	-	-	-	09-may-1988
<0.1 P	<0.0002 P	-	-	<0.01 P	<0.01 P	-	-	-	09-may-1988
<0.1 P	<0.0002 P	-	-	<0.01 P	<0.01 P	-	-	-	09-may-1988
<0.1 P	<0.0002 P	-	-	<0.01 P	<0.01 P	-	-	-	09-may-1988
<0.1 P	<0.0002 P	-	-	<0.01 P	<0.01 P	-	-	-	09-may-1988

See following page for notes

Table A-11. Subsurface soil and rock analyses for STLC metals (mg/kg) in samples collected from the Building 850 subarea between January 1, 1988 and October 31, 2003. Results recorded by October 30, 2003.

Notes:

- Indicates no analysis performed for this compound

Val. = Validation code

Footnotes:

- a ERD data
- b ORAD WGMG data
- c Analytical results for this sample are suspect
- d Sample collected during hydraulic testing
- e Blind sample, sent to lab without location identity
- f Sample dilution necessary for analysis; detection limits increased
- g Interlaboratory collocated sample
- h Intralaboratory collocated sample
- i Sample collected as part of pilot study
- j Note field may contain important information regarding this sample
- k Pre-development sample
- l Norm month, norm quarter or norm year inconsistent with sample date
- m Confirmation sample
- n Sample analyzed after standard holding time
- o Sample comprised of partial composite
- p Alpha spectroscopy analysis of uranium isotopes
- q Gamma spectroscopy analysis of uranium isotopes
- r Tritium data represents non-detect with activity calc'd for 100 percent error.

Lab Codes:

BC Brown & Caldwell Emeryville

Validation Codes:

- V Validated
- N Not validated (default value)
- U Undeclared
- H Historical comparison only

CLP flags: (follow result)

- B Analyte found in method blank
- D Analysis performed at a secondary dilution or concentration (i.e., vapor samples)
- E The analyte was detected below the LLNL reporting limit, but above the analytical laboratory minimum detection limit.
- F Analyte found in field blank, trip blank, or equipment blank
- G Quantitated using fuel calibration, but does not match typical fuel fingerprint (fuel maybe gasoline, diesel, motor oil etc.).
- H Sample analyzed outside of holding time, sample results should be evaluated
- J Analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
- L Spike accuracy not within control limits
- O Duplicate spike or sample precision not within control limits
- P Indicates that the absence of a data qualifier flag does not mean that the data does not need qualification, but that the implementation of electronic data qualifier flags was not yet established
- R Sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet QC criteria. The presence or absence of the analyte cannot be verified
- S Analytical results for this sample are suspect
- T Analyte is tentatively identified compound; result is approximate
- U Compound was analyzed for, but not detected above detection limit

Table A-12. Ground and Surface water analyses for tritium (pCi/L) in samples collected from Building 850 between July 1, 1995 and June 30, 2003. Results recorded by October 30, 2003.

Tritium in Ground Water, Site 300
November 3, 2003
gemini2
s3trit.03nov2003

Min Sample Date
July 1, 1995
Max Sample Date
June 30, 2003

Table A-12. Ground and Surface water analyses for tritium (pCi/L) in samples collected from Building 850 between July 1, 1995 and June 30, 2003. Results recorded by October 30, 2003.

Location Date	Lab Note	Val.	Tritium Activity
K1-01A			
18-aug-1995	ME ah	V	201 +/- 44.4%
18-aug-1995	ME aeh	V	<48.2 +/- 100% U
09-nov-1995	ME a	V	<53.2 +/- 100% U
23-may-1996	ME a	V	<41.7 +/- 100% U
07-nov-1996	ME a	V	<56.6 +/- 100% U
21-may-1997	ME a	V	<29.2 +/- 100% U
K1-01B			
18-aug-1995	ME a	V	<49.3 +/- 100% U
09-nov-1995	ME a	V	<55.7 +/- 100% U
23-may-1996	ME a	V	<42.8 +/- 100% U
07-nov-1996	ME ah	V	<59.2 +/- 100% U
07-nov-1996	ME aeh	V	<58.4 +/- 100% U
22-may-1997	ME a	V	<29.3 +/- 100% U
K1-01C			
31-jul-1995	ME a	V	306 +/- 20.2%
11-oct-1995	ME a	V	332 +/- 17.6%
17-jan-1996	ME a	V	307 +/- 20.4%
10-apr-1996	ME a	V	348 +/- 16.8%
30-jul-1996	ME a	V	499 +/- 13.9% F
09-oct-1996	ME a	V	396 +/- 18.9%
16-jan-1997	ME a	V	379 +/- 11.1%
03-apr-1997	ME a	V	321 +/- 15.2%
01-jul-1997	ME a	V	295 +/- 15.1%
13-oct-1997	ME a	V	287 +/- 14.2%
08-jan-1998	ME a	V	183 +/- 42.6
09-apr-1998	ME a	V	264 +/- 41.7
14-jul-1998	ME a	V	238 +/- 43.6
14-oct-1998	ME a	V	230 +/- 59
12-jan-1999	ME a	N	142 +/- 83.4
12-apr-1999	ME a	N	330 +/- 63.1
06-jul-1999	ME ah	N	239 +/- 81.2
06-jul-1999	ME aeh	N	329 +/- 84
08-oct-1999	ME a	V	237 +/- 67.2
07-feb-2000	ME a	V	318 +/- 53.5
18-apr-2000	ME a	V	328 +/- 67.2
19-jul-2000	ME a	V	308 +/- 73.1
19-oct-2000	TN a	V	327 +/- 68
18-jan-2001	TN ah	V	379 +/- 74
18-jan-2001	TN aeh	V	279 +/- 66
18-apr-2001	TN a	V	300 +/- 69
09-jul-2001	TN a	V	312 +/- 71
22-oct-2001	TN a	V	653 +/- 95
16-jan-2002	TN a	V	373 +/- 72
16-apr-2002	TN aeh	V	376 +/- 73
16-apr-2002	TN ah	V	350 +/- 72
29-jul-2002	TN a	V	355 +/- 76
05-dec-2002	TN aeh	V	421 +/- 67
05-dec-2002	TN ah	V	407 +/- 65
31-jan-2003	TN a	V	376 +/- 76
K1-02A			
18-aug-1995	ME a	V	<49.7 +/- 100% U
07-nov-1995	ME ah	V	<49.1 +/- 100% U
23-may-1996	ME a	V	<40.8 +/- 100% U
07-nov-1996	ME a	V	<59.4 +/- 100% U
21-may-1997	ME a	V	<28.9 +/- 100% U
08-dec-1997	ME a	V	<31.3 U
24-jun-1998	ME a	V	<32.6 +/- 32.6 U
16-dec-1998	ME ah	V	<61.1 +/- 50.2U
16-dec-1998	ME aeh	V	<61 +/- 48.2U
21-may-1999	ME a	N	<50 +/- 39.7 U
02-nov-1999	ME a	V	<76.1 +/- 60.2HU
24-may-2000	ME a	V	121 +/- 63.4
07-dec-2000	TN a	V	16800 +/- 1900

Table A-12. Ground and Surface water analyses for tritium (pCi/L) in samples collected from Building 850 between July 1, 1995 and June 30, 2003. Results recorded by October 30, 2003.

Location Date	Lab Note	Val.	Tritium Activity
K1-02A (continued)			
12-feb-2001	TN	a V	<100 +/- 51U
12-apr-2001	TN	a V	<100 +/- 53U
12-apr-2001	ME	a V	<20.6 +/- 16.6LOU
30-may-2001	TN	a V	<100 +/- 59U
05-jun-2002	TN	ah V	<100 +/- 58U
05-jun-2002	TN	aeH V	<100 +/- 57U
28-oct-2002	TN	ah V	109 +/- 64
28-oct-2002	TN	aeH V	<101 +/- 62U
K1-02B			
31-jul-1995	ME	a V	3430 +/- 3.6%
11-oct-1995	ME	a V	3670 +/- 3.5%
17-jan-1996	ME	a V	4400 +/- 3.3%
10-apr-1996	ME	a V	3170 +/- 3.6%
30-jul-1996	ME	a V	4030 +/- 3.3% F
09-oct-1996	ME	a V	3540 +/- 3.9%
16-jan-1997	ME	a V	3910 +/- 2.6%
03-apr-1997	ME	a V	5270 +/- 2.5%
01-jul-1997	ME	a V	5330 +/- 2.5%
13-oct-1997	ME	a V	5990 +/- 2.2%
08-jan-1998	ME	a V	5480 +/- 126
09-apr-1998	ME	a V	5130 +/- 123
14-jul-1998	ME	a V	5330 +/- 123
13-oct-1998	ME	a V	6600 +/- 191
12-jan-1999	ME	ah N	8770 +/- 237
12-jan-1999	ME	aeH N	8530 +/- 234
15-apr-1999	ME	a N	8490 +/- 221
09-jul-1999	ME	a N	9000 +/- 236
07-oct-1999	ME	a V	8540 +/- 223
07-feb-2000	ME	a V	6560 +/- 174
18-apr-2000	ME	a V	6480 +/- 184
19-jul-2000	ME	a V	6410 +/- 200
19-oct-2000	TN	a V	5730 +/- 590
18-jan-2001	TN	a V	5450 +/- 560
18-apr-2001	TN	a V	5060 +/- 520
09-jul-2001	TN	a V	5050 +/- 520
22-oct-2001	TN	a V	5080 +/- 520
16-jan-2002	TN	a V	4560 +/- 470
16-apr-2002	TN	a V	4440 +/- 460
29-jul-2002	TN	a V	4060 +/- 420
04-dec-2002	TN	a V	4220 +/- 440
30-jan-2003	TN	a V	4100 +/- 420
17-apr-2003	TN	a V	4010 +/- 420
17-apr-2003	TN	aeH V	3910 +/- 410
K1-03			
31-jul-1995	ME	a V	209 +/- 28%
11-oct-1995	ME	ah V	269 +/- 20.9%
11-oct-1995	ME	aeH V	230 +/- 23.9%
18-jan-1996	ME	a V	287 +/- 21.8% F
10-apr-1996	ME	a V	297 +/- 19.1%
30-jul-1996	ME	a V	448 +/- 15.1% F
10-oct-1996	ME	a V	405 +/- 18.7%
16-jan-1997	ME	a V	483 +/- 9.3%
03-apr-1997	ME	a V	474 +/- 11.3%
02-jul-1997	ME	a V	514 +/- 9.9%
14-oct-1997	ME	a V	525 +/- 9.1%
08-jan-1998	ME	a V	547 +/- 51.4
09-apr-1998	ME	ah V	585 +/- 50.9
09-apr-1998	ME	aeH V	578 +/- 50.9
15-jul-1998	ME	a V	556 +/- 52.8
13-oct-1998	ME	a V	679 +/- 76.9
04-dec-1998	ME	a N	759 +/- 80.9
11-dec-1998	ME	a N	694 +/- 79.7
12-jan-1999	ME	a N	553 +/- 95.7
15-apr-1999	ME	a N	689 +/- 77.3
09-jul-1999	ME	a N	704 +/- 94

Table A-12. Ground and Surface water analyses for tritium (pCi/L) in samples collected from Building 850 between July 1, 1995 and June 30, 2003. Results recorded by October 30, 2003.

Location Date	Lab Note	Val.	Tritium Activity
K1-03 (continued)			
06-oct-1999	ME a	V	787 +/- 97.2
07-feb-2000	ME a	V	665 +/- 66.8
18-apr-2000	ME a	V	587 +/- 76.5
19-jul-2000	ME a	V	710 +/- 82.6
23-oct-2000	TN ah	V	645 +/- 100
23-oct-2000	TN aeh	V	723 +/- 110
18-jan-2001	TN a	V	644 +/- 94
18-apr-2001	TN a	V	622 +/- 93
09-jul-2001	TN ah	V	634 +/- 94
09-jul-2001	TN aeh	V	632 +/- 94
22-oct-2001	TN a	V	977 +/- 120
16-jan-2002	TN a	V	654 +/- 92
16-apr-2002	TN a	V	666 +/- 95
29-jul-2002	TN a	V	649 +/- 97
04-dec-2002	TN a	V	668 +/- 100
30-jan-2003	TN a	V	600 +/- 90
17-apr-2003	TN a	V	523 +/- 91
K1-04			
31-jul-1995	ME a	V	<50.3 +/- 100% U
11-oct-1995	ME a	V	<46.2 +/- 100% U
18-jan-1996	ME a	V	<52.8 +/- 100% U
11-apr-1996	ME a	V	<47.1 +/- 100% U
31-jul-1996	ME ah	V	<55.9 +/- 100% U
31-jul-1996	ME aeh	V	<54.5 +/- 100% U
10-oct-1996	ME a	V	<62.9 +/- 100% U
16-jan-1997	ME a	V	<30 +/- 100% U
03-apr-1997	ME a	V	<36.5 +/- 100% U
02-jul-1997	ME a	V	<31.7 +/- 100% U
14-oct-1997	ME a	V	<29.2 +/- 100% U
08-jan-1998	ME a	V	<33.9 +/- 33.9U
09-apr-1998	ME a	V	<32.4 +/- 32.4U
15-sep-1998	ME a	V	<37.2 +/- 37.2U
14-oct-1998	ME a	V	<61.6 +/- 51.2U
13-jan-1999	ME a	N	<96.5 +/- 74.1U
14-apr-1999	ME a	N	<58.9 +/- 48.2U
09-jul-1999	ME a	N	<91.8 +/- 75.2U
06-oct-1999	ME a	V	<89.9 +/- 74.6U
07-feb-2000	ME a	V	54.7 +/- 41.2
18-apr-2000	ME ah	V	<71.7 +/- 58.8U
18-apr-2000	ME aeh	V	<68.1 +/- 54.9U
19-jul-2000	ME a	V	<64.5 +/- 52U
23-oct-2000	TN a	V	<107 +/- 67U
18-jan-2001	TN a	V	<100 +/- 58U
23-apr-2001	TN a	V	<100 +/- 57EU
10-jul-2001	TN a	V	<100 +/- 57U
22-oct-2001	TN a	V	<105 +/- 63U
16-jan-2002	TN aeh	V	229 +/- 61
16-jan-2002	TN ah	V	<100 +/- 59EU
16-apr-2002	TN a	V	141 +/- 61
29-jul-2002	TN ah	V	<102 +/- 62U
29-jul-2002	TN aeh	V	<100 +/- 62U
05-dec-2002	TN a	V	152 +/- 60
29-jan-2003	TN aeh	N	<109 +/- 68U
29-jan-2003	TN ah	N	127 +/- 62
18-apr-2003	TN a	V	<105 +/- 64U
K1-05			
31-jul-1995	ME aeh	V	<50.9 +/- 100% U
31-jul-1995	ME ah	V	<48.9 +/- 100% U
12-oct-1995	ME a	V	<53.1 +/- 100% U
18-jan-1996	ME a	V	<52.7 +/- 100% U
11-apr-1996	ME a	V	<47.9 +/- 100% U
31-jul-1996	ME a	V	<44.9 +/- 100% U
11-oct-1996	ME a	V	<62.7 +/- 100% U
17-jan-1997	ME ah	V	<28.9 +/- 100% U
17-jan-1997	ME aeh	V	<28.6 +/- 100% U

Table A-12. Ground and Surface water analyses for tritium (pCi/L) in samples collected from Building 850 between July 1, 1995 and June 30, 2003. Results recorded by October 30, 2003.

Location Date	Lab Note	Val.	Tritium Activity
K1-05 (continued)			
04-apr-1997	ME a	V	<37.2 +/- 100% U
02-jul-1997	ME a	V	<32.1 +/- 100% U
14-oct-1997	ME a	V	<30 +/- 100% U
12-jan-1998	ME ah	V	<34.3 +/- 34.3U
12-jan-1998	ME aeh	V	<34.3 +/- 34.3U
15-apr-1998	ME a	V	<32.9 +/- 32.9U
16-jul-1998	ME a	V	<34.9 +/- 34.9U
14-oct-1998	ME a	V	<60.8 +/- 49.7U
13-jan-1999	ME a	N	<97.1 +/- 72.8U
14-apr-1999	ME a	N	<58.6 +/- 46.8U
08-jul-1999	ME a	N	<90.4 +/- 76U
06-oct-1999	ME ah	V	<90.1 +/- 72.1U
06-oct-1999	ME aeh	V	<89.2 +/- 70.9U
08-feb-2000	ME a	V	210 +/- 48.8
08-mar-2000	ME a	V	<48.4 +/- 38.2U
16-mar-2000	ME a	V	<49.4 +/- 38.3U
19-apr-2000	ME a	V	<68.3 +/- 56.1U
19-jul-2000	ME a	V	89.6 +/- 55.8
24-oct-2000	TN a	V	<106 +/- 64U
18-jan-2001	TN a	V	<100 +/- 54U
20-apr-2001	TN ah	V	<100 +/- 58U
20-apr-2001	TN aeh	V	<100 +/- 57U
10-jul-2001	TN a	V	<100 +/- 59U
23-oct-2001	TN a	V	532 +/- 87
22-jan-2002	TN a	V	<100 +/- 54U
18-apr-2002	TN a	V	<100 +/- 56U
30-jul-2002	TN a	V	<100 +/- 58U
06-dec-2002	TN a	V	123 +/- 49
29-jan-2003	TN a	N	<100 +/- 59U
18-apr-2003	TN a	V	<108 +/- 66U
K1-06			
19-jun-1996	LH a	V	<82 +/- 48LOU
21-jan-1997	LH a	V	<93 +/- 58LOU
15-may-1997	LH a	V	200 +/- 62B
22-jul-1997	LH a	V	623 +/- 85
16-oct-1997	LH a	V	1050 +/- 110
27-jan-1998	FG a	V	2000 +/- 200
23-apr-1998	QU a	V	1260 +/- 164
17-aug-1998	QU a	V	4050 +/- 425
20-nov-1998	QU a	V	4960 +/- 505
28-jan-1999	QU a	V	3700 +/- 395J
25-may-1999	TN a	V	6510 +/- 660
23-aug-1999	TN a	N	6730 +/- 690
30-nov-1999	TN a	V	7090 +/- 730
09-mar-2000	TN a	V	7100 +/- 720
19-may-2000	TN a	V	7020 +/- 710
21-jul-2000	TN a	V	7510 +/- 770
17-nov-2000	GE a	V	7800 +/- 348
17-nov-2000	TN ag	V	7520 +/- 760
29-jan-2001	TN a	V	7260 +/- 740
21-may-2001	TN a	V	6040 +/- 620
24-aug-2001	TN a	V	4630 +/- 480
16-nov-2001	GE ag	V	4600 +/- 248
16-nov-2001	TN ag	V	5030 +/- 520
06-feb-2002	GE ag	N	4930 +/- 217L
06-feb-2002	TN ag	V	4580 +/- 470
21-may-2002	TN ah	V	4830 +/- 500
21-may-2002	TN aeh	V	4910 +/- 510
27-aug-2002	GE ag	V	5000 +/- 259
27-aug-2002	TN ag	V	4800 +/- 500
03-jun-2003	TN a	V	4880 +/- 500
K1-07			
31-jul-1995	ME a	V	84.1 +/- 69.8%
12-oct-1995	ME a	V	<60.3 +/- 100% U
18-jan-1996	ME a	V	<62.3 +/- 100% U

Table A-12. Ground and Surface water analyses for tritium (pCi/L) in samples collected from Building 850 between July 1, 1995 and June 30, 2003. Results recorded by October 30, 2003.

Location Date	Lab Note	Val.	Tritium Activity
K1-07 (continued)			
12-apr-1996	ME a	V	<41.6 +/- 100% U
31-jul-1996	ME a	V	<43.2 +/- 100% U
11-oct-1996	ME a	V	<61.4 +/- 100% U
17-jan-1997	ME a	V	<28.8 +/- 100% U
04-apr-1997	ME a	V	<36.4 +/- 100% U
03-jul-1997	ME a	V	<32.6 +/- 100% U
16-oct-1997	ME a	V	<34.7 +/- 100% U
12-jan-1998	ME a	V	<35.3 +/- 35.3U
15-apr-1998	ME a	V	<33.1 +/- 33.1U
16-jul-1998	ME ag	V	<34.1 +/- 34.1U
15-oct-1998	ME a	V	<60.7 +/- 48U
14-jan-1999	ME a	N	<96.3 +/- 73U
12-apr-1999	ME a	N	<58.9 +/- 45.5U
06-jul-1999	ME a	N	<91.7 +/- 73.5U
08-oct-1999	ME a	V	<70.9 +/- 55.4U
08-feb-2000	ME ah	V	<48.2 +/- 38.1U
08-feb-2000	ME aeh	V	<48.3 +/- 37.4U
19-apr-2000	ME a	V	<68.1 +/- 54.3U
20-jul-2000	ME a	V	<64.7 +/- 51.2U
25-oct-2000	TN a	V	<108 U
22-jan-2001	TN a	V	<100 +/- 54U
23-apr-2001	TN a	V	<100 +/- 54U
10-jul-2001	TN a	V	<100 +/- 56U
23-oct-2001	TN ah	V	<104 +/- 65U
23-oct-2001	TN aeh	V	252 +/- 72
22-jan-2002	TN a	V	<100 +/- 55U
18-apr-2002	TN a	V	<100 +/- 54U
30-jul-2002	TN a	V	<100 +/- 56U
06-dec-2002	TN a	V	<100 +/- 46U
30-jan-2003	TN a	V	<100 +/- 58U
01-may-2003	TN a	V	<100 +/- 58U
K1-08			
31-jul-1995	ME a	V	61.4 +/- 94.8%
12-oct-1995	ME a	V	<58.1 +/- 100% U
18-jan-1996	ME a	V	<50.9 +/- 100% U
12-apr-1996	ME ah	V	<43 +/- 100% U
12-apr-1996	ME aeh	V	<41.5 +/- 100% U
31-jul-1996	ME a	V	<45.1 +/- 100% U
11-oct-1996	ME ah	V	<60.8 +/- 100% U
11-oct-1996	ME aeh	V	<61.6 +/- 100% U
17-jan-1997	ME a	V	<29.2 +/- 100% U
04-apr-1997	ME a	V	<37.8 +/- 100% U
03-jul-1997	ME ah	V	<31.2 +/- 100% U
03-jul-1997	ME aeh	V	<33.1 +/- 100% U
16-oct-1997	ME a	V	<35.6 +/- 100% U
12-jan-1998	ME a	V	<34.4 +/- 34.4U
15-apr-1998	QU a	V	127 +/- 78
15-apr-1998	ME a	V	<33.2 +/- 33.2U
16-jul-1998	ME ah	V	<39.7 +/- 39.7U
16-jul-1998	ME aeh	V	<34.4 +/- 34.4U
15-oct-1998	ME a	V	<61.3 +/- 49.6U
14-jan-1999	ME a	N	<96.9 +/- 73.3U
12-apr-1999	ME a	N	<59.2 +/- 48.6U
07-jul-1999	ME a	N	<91 +/- 74.2U
08-oct-1999	ME a	V	<70.1 +/- 58.9U
09-feb-2000	ME a	V	<68.8 +/- 53.3U
19-apr-2000	ME a	V	99.9 +/- 59.2
20-jul-2000	ME a	V	145 +/- 58.6
24-oct-2000	TN a	V	171 +/- 69
22-jan-2001	TN a	V	106 +/- 58
23-apr-2001	TN a	V	151 +/- 60
11-jul-2001	TN a	V	136 +/- 62
23-oct-2001	TN a	V	123 +/- 67
22-jan-2002	TN a	V	125 +/- 58
18-apr-2002	TN a	V	287 +/- 67
30-jul-2002	TN a	V	<100 +/- 63U

Table A-12. Ground and Surface water analyses for tritium (pCi/L) in samples collected from Building 850 between July 1, 1995 and June 30, 2003. Results recorded by October 30, 2003.

Location Date	Lab Note	Val.	Tritium Activity
K1-08 (continued)			
13-dec-2002	TN a	V	196 +/- 73
07-feb-2003	TN a	V	155 +/- 64E
02-may-2003	TN a	V	<100 +/- 60U
K1-09			
31-jul-1995	ME ah	V	<50.2 +/- 100% U
12-oct-1995	ME ah	V	<59.5 +/- 100% U
18-jan-1996	ME ah	V	109 +/- 58.8% F
18-jan-1996	ME aeh	V	104 +/- 61.6%
12-apr-1996	ME a	V	<41.5 +/- 100% U
31-jul-1996	ME a	V	<45.7 +/- 100% U
11-oct-1996	ME a	V	<62.1 +/- 100% U
17-jan-1997	ME a	V	<28.8 +/- 100% U
04-apr-1997	ME ah	V	<37.1 +/- 100% U
04-apr-1997	ME aeh	V	<37.4 +/- 100% U
03-jul-1997	ME a	V	<32.9 +/- 100% U
16-oct-1997	ME ah	V	<35.8 +/- 100% U
16-oct-1997	ME aeh	V	<36.6 +/- 100% U
17-mar-1998	ME a	V	<28.3 +/- 28.3U
15-apr-1998	ME a	V	<46 +/- 46U
16-jul-1998	ME a	V	<34.3 +/- 34.3U
15-oct-1998	ME ah	V	<60.9 +/- 47.7U
15-oct-1998	ME aeh	V	<63.7 +/- 49.7U
13-jan-1999	ME a	N	<98.4 +/- 73.2U
13-apr-1999	ME ah	N	<58.9 +/- 47.6U
13-apr-1999	ME aeh	N	<59 +/- 48U
07-jul-1999	ME a	N	<90.4 +/- 70.3U
08-oct-1999	ME a	V	<70.5 +/- 57.1U
09-feb-2000	ME a	V	<68.7 +/- 55.9U
19-apr-2000	ME a	V	<69 +/- 56U
20-jul-2000	ME ah	V	<65.4 +/- 54U
20-jul-2000	ME aeh	V	<64.7 +/- 53.5U
24-oct-2000	TN a	V	<110 +/- 67U
22-jan-2001	TN a	V	<100 +/- 55U
20-apr-2001	TN a	V	<100 +/- 58U
11-jul-2001	TN a	V	<100 +/- 58U
23-oct-2001	TN a	V	<103 +/- 62U
22-jan-2002	TN a	V	<100 +/- 56U
18-apr-2002	TN a	V	<100 +/- 58U
30-jul-2002	TN a	V	<100 +/- 59U
06-dec-2002	TN a	V	128 +/- 62
31-jan-2003	TN a	V	<100 +/- 60U
02-may-2003	TN a	V	<100 +/- 57U
K2-01A			
17-aug-1995	ME a	V	<57 +/- 100% U
07-nov-1995	ME ae	V	<48.6 +/- 100% U
07-nov-1995	ME aeh	V	<47.3 +/- 100% U
22-may-1996	ME a	V	<41.3 +/- 100% U
07-nov-1996	ME a	V	<58.2 +/- 100% U
22-may-1997	ME ah	V	<29.3 +/- 100% U
22-may-1997	ME aeh	V	<28.6 +/- 100% U
09-dec-1997	ME a	V	<31.9 U
25-jun-1998	ME a	V	<32.2 +/- 32.2 U
17-dec-1998	ME a	V	<60.8 +/- 47.8U
21-may-1999	ME ah	N	<46.4 +/- 35.8 U
21-may-1999	ME aeh	N	<46.8 +/- 35.8 U
02-nov-1999	ME a	V	<75.5 +/- 57.6HU
24-may-2000	ME a	V	<72.5 +/- 57U
07-dec-2000	TN ah	V	5630 +/- 640
07-dec-2000	TN aeh	V	16300 +/- 1800
12-feb-2001	TN a	V	<100 +/- 51U
12-apr-2001	TN a	V	<100 +/- 54U
12-apr-2001	ME a	V	<20.9 +/- 16.7LOU
30-may-2001	TN a	V	<100 +/- 57U
17-dec-2001	TN a	V	<100 +/- 56U
29-may-2002	TN a	V	<100 +/- 59U

Table A-12. Ground and Surface water analyses for tritium (pCi/L) in samples collected from Building 850 between July 1, 1995 and June 30, 2003. Results recorded by October 30, 2003.

Location Date	Lab Note	Val.	Tritium Activity
K2-01A (continued)			
28-oct-2002	TN a	V	<100 +/- 59U
18-jun-2003	TN a	V	<100 +/- 51U
K2-01B			
17-aug-1995	ME a	V	115 +/- 53.4%
07-nov-1995	ME a	V	168 +/- 32.6%
22-may-1996	ME ah	V	81 +/- 57.8%
22-may-1996	ME aeh	V	105 +/- 45.5%
07-nov-1996	ME a	V	214 +/- 30.6% F
22-may-1997	ME a	V	201 +/- 18.6%
09-dec-1997	ME ah	V	172 +/- 39.6
09-dec-1997	ME aeh	V	222 +/- 41.1
25-jun-1998	ME a	V	253 +/- 41.8
K2-01C			
08-aug-1995	ME a	V	5750 +/- 2.8%
02-nov-1995	ME ae	V	5410 +/- 2.9%
18-jan-1996	IT ah	V	5200 +/- 65
18-jan-1996	IT aeh	V	5210 +/- 65
21-may-1996	ME a	V	8240 +/- 2.2%
20-nov-1996	ME a	V	12500 +/- 1.4%
19-may-1997	ME ah	V	14900 +/- 1.4%
19-may-1997	ME aeh	V	15000 +/- 1.4%
22-jun-1998	ME a	V	15000 +/- 210
14-dec-1998	ME a	V	15800 +/- 298
26-may-1999	ME a	N	18300 +/- 322
08-nov-1999	ME a	V	19200 +/- 325H
17-may-2000	ME a	V	16700 +/- 276
21-nov-2000	TN a	V	17400 +/- 2000
16-may-2001	TN a	V	14900 +/- 1500
14-nov-2001	TN a	V	10800 +/- 1100
14-may-2002	TN a	V	8730 +/- 890
01-feb-2003	TN a	N	1970 +/- 220
05-jun-2003	TN a	V	8580 +/- 870
K2-02A			
17-aug-1995	ME a	V	<58 +/- 100% U
07-nov-1995	ME a	V	<46.3 +/- 100% U
22-may-1996	ME a	V	<43.4 +/- 100% U
07-nov-1996	ME a	V	<58.2 +/- 100% U
21-may-1997	ME a	V	<29 +/- 100% U
04-dec-1997	ME a	V	<37.3 U
24-jun-1998	ME ah	V	<31.7 +/- 31.7 U
24-jun-1998	ME aeh	V	<31.7 +/- 31.7 U
16-dec-1998	ME a	V	<60.4 +/- 49.9U
17-may-1999	ME a	N	<49.7 +/- 38.2 U
02-nov-1999	ME ah	V	<75.8 +/- 58.4HU
02-nov-1999	ME aeh	V	<77.2 +/- 61.5HU
24-may-2000	ME a	V	<72.5 +/- 56.3U
07-dec-2000	TN a	V	<103 +/- 62U
30-may-2001	TN ah	V	<100 +/- 54U
30-may-2001	TN aeh	V	<100 +/- 57U
17-dec-2001	TN a	V	<100 +/- 57U
29-may-2002	TN a	V	<100 +/- 56U
28-oct-2002	TN a	V	<100 +/- 51U
K2-02B			
17-aug-1995	ME a	V	<59.3 +/- 100% U
07-nov-1995	ME a	V	<47.9 +/- 100% U
22-may-1996	ME a	V	<42 +/- 100% U
07-nov-1996	ME a	V	<59.8 +/- 100% U
21-may-1997	ME a	V	<30.2 +/- 100% U
04-dec-1997	ME a	V	<38.3 U
24-jun-1998	ME a	V	<32.7 +/- 32.7 U
16-dec-1998	ME a	V	<61.2 +/- 47U
17-may-1999	ME a	N	<49.8 +/- 38.3 U
02-nov-1999	ME a	V	<76.7 +/- 59.8HU

Table A-12. Ground and Surface water analyses for tritium (pCi/L) in samples collected from Building 850 between July 1, 1995 and June 30, 2003. Results recorded by October 30, 2003.

Location Date	Lab Note	Val.	Tritium Activity
K2-02B (continued)			
24-may-2000	ME ah	V	<72.7 +/- 56.1U
24-may-2000	ME aeh	V	<72.8 +/- 56.2U
07-dec-2000	TN a	V	<101 +/- 62U
30-may-2001	TN a	V	<100 +/- 56U
17-dec-2001	TN a	V	<100 +/- 56U
29-may-2002	TN a	V	<100 +/- 57U
28-oct-2002	TN a	V	154 +/- 65
K2-03			
03-oct-1995	IT a	V	<88.7 +/- 27.5U
09-apr-1996	LH a	V	<89 +/- 73U
21-nov-1996	LH a	V	<100 +/- 600U
23-apr-1998	QU a	V	<138 +/- 79U
19-may-1999	TN a	V	<200 +/- 41U
18-may-2000	TN a	V	<100 +/- 51U
16-may-2001	TN a	V	<110 +/- 65U
21-may-2002	TN aeh	V	<100 +/- 59U
21-may-2002	TN ag	V	<100 +/- 55U
03-may-2003	TN a	V	<100 +/- 54U
K2-04D			
08-aug-1995	ME a	V	16300 +/- 1.6%
02-nov-1995	ME a	V	9250 +/- 2.2%
19-jan-1996	IT a	V	7050 +/- 83
21-may-1996	ME a	V	10800 +/- 1.9%
20-nov-1996	ME ah	V	4180 +/- 2.6%
20-nov-1996	ME aeh	V	4220 +/- 2.6%
14-may-1997	ME ah	V	3920 +/- 2.8%
24-nov-1997	ME ah	V	3410 +/- 109
24-nov-1997	ME aeh	V	3220 +/- 106
22-jun-1998	ME a	V	3910 +/- 109
07-dec-1998	ME ah	V	3810 +/- 154
07-dec-1998	ME aeh	V	3920 +/- 156
26-may-1999	ME a	N	3830 +/- 155
08-nov-1999	ME a	V	4180 +/- 160H
17-may-2000	ME a	V	3970 +/- 139
21-nov-2000	TN a	V	3810 +/- 440
06-jun-2001	TN a	V	3920 +/- 410
14-nov-2001	TN a	V	4270 +/- 440
16-may-2002	TN aeh	V	4390 +/- 460
16-may-2002	TN ah	V	4400 +/- 460
26-dec-2002	TN a	V	4420 +/- 460
15-may-2003	TN a	V	4960 +/- 510
K2-04S			
08-aug-1995	ME a	V	38100 +/- 1%
02-nov-1995	ME a	V	37100 +/- 1%
23-jan-1996	IT a	V	35100 +/- 364
21-may-1996	ME a	V	32500 +/- 1.1%
19-nov-1996	ME a	V	35400 +/- 0.9% F
22-jan-1997	LH a	V	34900 +/- 2200BL
14-may-1997	ME a	V	29700 +/- 1%
18-nov-1997	ME a	V	27500 +/- 302
22-jun-1998	ME a	V	16700 +/- 217
30-nov-1998	ME a	V	8370 +/- 220
02-jun-1999	ME ah	N	13100 +/- 274
02-jun-1999	ME aeh	N	12700 +/- 271
09-nov-1999	ME a	V	18800 +/- 323H
18-may-2000	ME a	V	21100 +/- 309
27-nov-2000	TN a	V	20600 +/- 2300
16-may-2001	TN ah	V	19500 +/- 2000
16-may-2001	TN aeh	V	19500 +/- 2000
14-nov-2001	TN a	V	19600 +/- 2000
16-may-2002	TN a	V	17000 +/- 1700
27-dec-2002	TN a	V	16100 +/- 1600
02-may-2003	TN ag	V	14900 +/- 1500

Table A-12. Ground and Surface water analyses for tritium (pCi/L) in samples collected from Building 850 between July 1, 1995 and June 30, 2003. Results recorded by October 30, 2003.

Location Date	Lab Note	Val.	Tritium Activity
NC2-05			
02-oct-1995	IT a	V	<85.5 +/- 25.3U
10-apr-1996	LH a	V	<81 +/- 66U
21-nov-1996	LH a	V	<98 +/- 590U
23-apr-1998	QU a	V	<137 +/- 79.6U
19-may-1999	TN a	V	<200 +/- 42U
18-may-2000	TN a	V	<100 +/- 52U
15-may-2001	TN a	V	<109 +/- 68U
10-may-2002	TN a	V	151 +/- 61
03-may-2003	TN a	V	<100 +/- 54U
NC2-05A			
02-oct-1995	IT a	V	1370 +/- 37
10-apr-1996	LH ag	V	1740 +/- 130
10-apr-1996	MA ag	V	1492 +/- 30
22-nov-1996	CX ag	V	2779 +/- 38
22-nov-1996	LH ag	V	2310 +/- 1900
20-may-1997	LH a	V	2400 +/- 190
26-may-1999	GE ag	V	5560 +/- 126
26-may-1999	TN ag	V	5880 +/- 600
19-may-2000	TN a	V	4920 +/- 500
18-may-2001	GE a	V	5400 +/- 276
18-may-2001	TN a	V	5260 +/- 540
10-may-2002	TN a	V	4890 +/- 500
03-may-2003	TN a	V	4840 +/- 500
NC2-06			
02-oct-1995	IT a	V	1220 +/- 36
11-apr-1996	LH a	V	1410 +/- 120
17-dec-1996	LH a	V	1490 +/- 140
23-apr-1997	LH a	V	1670 +/- 150BJO
24-apr-1998	QU a	V	2070 +/- 237
26-may-1999	TN a	V	1690 +/- 180
19-may-2000	GE ag	V	2050 +/- 363
19-may-2000	TN ag	V	2380 +/- 250
11-may-2001	TN a	V	3360 +/- 350
10-may-2003	TN a	V	2920 +/- 310
NC2-06A			
02-oct-1995	IT a	V	<92 +/- 28.1U
11-apr-1996	LH a	V	155 +/- 72
21-nov-1996	LH a	V	208 +/- 720
23-apr-1997	LH a	V	144 +/- 61BJO
23-apr-1998	QU a	V	<139 +/- 84U
19-may-1999	TN a	V	<200 +/- 45U
18-may-2000	TN a	V	170 +/- 58
11-may-2001	TN a	V	<111 +/- 69U
10-may-2002	TN a	V	394 +/- 74
10-may-2003	TN a	V	102 +/- 60
NC2-07			
08-aug-1995	ME a	V	<54.5 +/- 100% U
03-nov-1995	ME a	V	<54.4 +/- 100% U
09-feb-1996	IT ag	V	<83.4 +/- 24.9U
09-feb-1996	LH ag	V	<170 +/- 120U
08-may-1996	ME a	V	<44.5 +/- 100% U
25-nov-1996	ME a	V	<53.1 +/- 100% U
19-may-1997	ME a	V	<35.1 +/- 100% U
01-dec-1997	ME a	V	<38 U
23-jun-1998	ME a	V	<29.6 +/- 29.6U
09-dec-1998	ME a	V	<61.8 +/- 49.6U
03-jun-1999	ME a	N	<72.2 +/- 56 U
15-nov-1999	ME ah	V	<71.7 +/- 57.7HU
15-nov-1999	ME aeh	V	<71.6 +/- 59.2HU
23-mar-2000	WE a	N	10.8 +/- 1.9
22-may-2000	ME a	V	<72 +/- 57.8U
28-nov-2000	TN a	V	<102 +/- 62U
16-may-2001	TN a	V	<100 +/- 53U

Table A-12. Ground and Surface water analyses for tritium (pCi/L) in samples collected from Building 850 between July 1, 1995 and June 30, 2003. Results recorded by October 30, 2003.

Location Date	Lab Note	Val.	Tritium Activity
NC2-07 (continued)			
19-nov-2001	TN a	V	<100 +/- 55U
15-may-2002	TN a	V	417 +/- 77
13-jun-2003	TN a	V	<100 +/- 58U
NC2-08			
17-nov-1995	IT a	V	23200 +/- 244
09-apr-1996	LH aeh	V	24890 +/- 960
09-apr-1996	LH ah	V	26150 +/- 990
22-nov-1996	LH a	V	23800 +/- 15000
24-jan-1997	FG ag	V	19500 +/- 200
24-jan-1997	LH ag	V	23700 +/- 1500B
20-may-1997	LH a	V	17100 +/- 1100
23-jul-1997	LH a	V	17900 +/- 1200
27-oct-1997	LH a	V	19500 +/- 1200
30-jan-1998	FG ah	V	21700 +/- 300
30-jan-1998	FG aeh	V	22400 +/- 300
28-jan-1999	QU a	V	15900 +/- 1600J
26-may-1999	GE ag	V	17600 +/- 211
26-may-1999	TN ag	V	17900 +/- 1800
23-aug-1999	TN a	N	16400 +/- 1700
30-nov-1999	GE ag	V	16.2 +/- 0.285
30-nov-1999	TN ag	V	17100 +/- 1700
24-feb-2000	TN a	V	15800 +/- 1600
24-may-2000	TN a	V	15500 +/- 1600
21-jul-2000	TN a	V	15500 +/- 1600
31-oct-2000	GE ag	V	16600 +/- 291
31-oct-2000	TN ag	V	15200 +/- 1500
29-jan-2001	TN a	V	15200 +/- 1500
11-may-2001	TN a	V	14600 +/- 1500
13-aug-2001	TN a	V	14700 +/- 1500
16-nov-2001	TN a	V	14400 +/- 1500
06-feb-2002	GE ag	N	14600 +/- 365L
06-feb-2002	TN ag	V	14300 +/- 1400
14-may-2002	TN a	V	13200 +/- 1300
08-aug-2002	GE ag	V	10100 +/- 344
08-aug-2002	TN ag	V	12000 +/- 1200
25-jan-2003	TN a	V	12000 +/- 1200
19-apr-2003	TN a	V	10400 +/- 1100
NC2-09			
02-oct-1995	IT a	V	<88 +/- 26U
10-apr-1996	LH a	V	<82 +/- 64U
21-nov-1996	LH a	V	<100 +/- 590U
06-may-1997	LH a	V	<86 +/- 51U
22-apr-1998	QU a	V	<136 +/- 79.9U
19-may-1999	TN a	V	<200 +/- 40U
19-may-2000	TN a	V	439 +/- 74
11-may-2001	TN a	V	<110 +/- 66U
10-may-2002	TN a	V	<100 +/- 56U
03-may-2003	TN a	V	<100 +/- 56U
NC2-10			
02-oct-1995	IT a	V	<92 +/- 27U
11-apr-1996	LH a	V	<81 +/- 65U
06-dec-1996	LH a	V	<100 +/- 600U
06-may-1997	LH a	V	<87 +/- 52U
22-apr-1998	QU a	V	<136 +/- 78.5U
19-may-1999	TN a	V	<200 +/- 42U
18-may-2000	TN a	V	149 +/- 56
16-may-2001	TN a	V	<111 +/- 69U
10-may-2002	TN a	V	311 +/- 70
03-may-2003	TN a	V	369 +/- 71
NC2-11D			
04-aug-1995	ME a	V	2410 +/- 4.5%
31-oct-1995	ME ah	V	2520 +/- 4.5%
31-oct-1995	ME aeh	V	2600 +/- 4.4%

Table A-12. Ground and Surface water analyses for tritium (pCi/L) in samples collected from Building 850 between July 1, 1995 and June 30, 2003. Results recorded by October 30, 2003.

Location Date	Lab Note	Val.	Tritium Activity
NC2-11D (continued)			
19-jan-1996	IT ag	V	1860 +/- 40
19-jan-1996	LH ag	V	1990 +/- 240
07-may-1996	ME ah	V	2530 +/- 4.2%
07-may-1996	ME aeh	V	2410 +/- 4.3%
25-nov-1996	ME a	V	2860 +/- 4.2%
15-may-1997	ME a	V	2940 +/- 3.3%
02-dec-1997	ME a	V	2780 +/- 100
07-dec-1998	ME a	V	3000 +/- 137
25-may-1999	ME a	N	3350 +/- 148
10-nov-1999	ME a	V	3690 +/- 151H
17-may-2000	ME ah	V	3610 +/- 133
17-may-2000	ME aeh	V	3650 +/- 134
27-nov-2000	TN a	V	3910 +/- 450
17-may-2001	TN a	V	4060 +/- 420
14-nov-2001	TN a	V	4310 +/- 450
14-may-2002	TN a	V	4430 +/- 460
27-dec-2002	TN a	V	4460 +/- 460
08-may-2003	TN a	V	4390 +/- 450
NC2-11I			
02-oct-1995	IT a	V	3580 +/- 49
11-apr-1996	LH ah	V	3810 +/- 200
11-apr-1996	LH aeh	V	3810 +/- 200
22-nov-1996	LH a	V	3690 +/- 2600
06-may-1997	LH a	V	3530 +/- 240
07-may-1998	QU a	V	3040 +/- 331
26-may-1999	TN a	V	3350 +/- 350
24-may-2000	TN a	V	3660 +/- 380
11-may-2001	TN a	V	3770 +/- 400
10-may-2002	TN a	V	4230 +/- 440
19-apr-2003	TN a	V	4360 +/- 450
NC2-11S			
02-oct-1995	IT a	V	2870 +/- 43
11-apr-1996	LH a	V	3050 +/- 170
22-nov-1996	LH a	V	2570 +/- 2000
21-may-1997	FG ag	V	3700 +/- 200
21-may-1997	LH ag	V	3470 +/- 240BL
07-may-1998	FG ag	V	3800 +/- 200
07-may-1998	QU ag	V	2910 +/- 317
26-may-1999	TN a	V	3380 +/- 350
24-may-2000	TN a	V	3880 +/- 400
11-may-2001	TN a	V	4250 +/- 440
10-may-2002	TN a	V	4740 +/- 490
19-apr-2003	TN a	V	4990 +/- 520
NC2-12D			
04-aug-1995	ME a	V	4240 +/- 3.2%
31-oct-1995	ME a	V	4700 +/- 3.1%
19-jan-1996	IT a	V	4570 +/- 59
07-may-1996	ME a	V	5390 +/- 2.7%
17-dec-1996	ME a	V	6290 +/- 2.1%
15-may-1997	ME a	V	6960 +/- 2%
25-nov-1997	ME a	V	7200 +/- 151
22-jun-1998	ME a	V	7960 +/- 151
03-dec-1998	ME a	V	8550 +/- 222
24-may-1999	ME a	N	8320 +/- 195
10-nov-1999	ME a	V	9560 +/- 233H
17-may-2000	ME a	V	9730 +/- 214
27-nov-2000	TN a	V	10000 +/- 1100
17-may-2001	TN a	V	8850 +/- 900
14-nov-2001	TN a	V	8630 +/- 880
14-may-2002	TN a	V	8880 +/- 900
26-dec-2002	TN a	V	8740 +/- 890
08-may-2003	TN a	V	8550 +/- 870

Table A-12. Ground and Surface water analyses for tritium (pCi/L) in samples collected from Building 850 between July 1, 1995 and June 30, 2003. Results recorded by October 30, 2003.

Location Date	Lab Note	Val.	Tritium Activity
NC2-12I			
02-oct-1995	IT a	V	1580 +/- 38
10-apr-1996	LH a	V	2280 +/- 150
22-nov-1996	LH a	V	2000 +/- 1700
07-may-1998	FG ag	V	2400 +/- 200
07-may-1998	QU ag	V	1560 +/- 192
19-may-2000	TN a	V	7020 +/- 710
31-oct-2000	TN a	V	7110 +/- 720
11-may-2001	TN a	V	7420 +/- 760
16-nov-2001	TN a	V	7400 +/- 760
14-may-2002	TN a	V	7500 +/- 760
19-apr-2003	TN a	V	7120 +/- 730
NC2-12S			
02-oct-1995	IT ah	V	1340 +/- 36
02-oct-1995	IT aeh	V	1350 +/- 37
10-apr-1996	LH ag	V	1440 +/- 120
10-apr-1996	MA ag	V	932 +/- 19
22-nov-1996	LH a	V	1380 +/- 1400
07-may-1998	QU a	V	1050 +/- 149
20-nov-1998	QU a	V	1450 +/- 169
26-may-1999	TN a	V	2570 +/- 270
19-may-2000	TN a	V	4770 +/- 490
31-oct-2000	TN a	V	4030 +/- 420
11-may-2001	TN a	V	4820 +/- 500
16-nov-2001	TN a	V	3300 +/- 350
14-may-2002	TN a	V	5350 +/- 550
19-apr-2003	TN aeh	V	5310 +/- 550
19-apr-2003	TN ah	V	5070 +/- 520
NC2-13			
02-oct-1995	IT a	V	364 +/- 30
11-apr-1996	LH a	V	538 +/- 87
06-dec-1996	LH a	V	657 +/- 970
29-apr-1997	LH a	V	1220 +/- 120
24-apr-1998	QU a	V	1930 +/- 225
16-jun-1999	TN ah	V	4570 +/- 470
16-jun-1999	TN aeh	V	4580 +/- 470
25-may-2000	TN a	N	5070 +/- 520
14-may-2001	GE ag	V	6020 +/- 288
14-may-2001	TN ag	V	6470 +/- 660
14-may-2002	TN a	V	6060 +/- 620
03-may-2003	TN a	V	7300 +/- 740
NC2-14S			
03-oct-1995	IT a	V	32400 +/- 120
11-apr-1996	LH a	V	34400 +/- 1300
22-nov-1996	LH a	V	30300 +/- 19000
24-jan-1997	LH a	V	32100 +/- 2100B
21-may-1997	LH a	V	27100 +/- 1700BL
23-jul-1997	FG ag	V	23600 +/- 200
23-jul-1997	LH ag	V	26300 +/- 1600
27-oct-1997	LH a	V	28400 +/- 1800
30-jan-1998	FG aeh	V	30700 +/- 400
30-jan-1998	FG ah	V	25300 +/- 400
19-may-1998	QU a	V	17600 +/- 1760
17-aug-1998	QU a	V	17600 +/- 1760
20-nov-1998	GE agj	V	19000 +/- 730B
20-nov-1998	QU ag	V	18600 +/- 1870
17-feb-1999	GE a	V	18100 +/- 217
17-feb-1999	QU a	V	17600 +/- 1770
16-jun-1999	TN a	V	20500 +/- 2100
24-sep-1999	TN ah	V	20100 +/- 2000
24-sep-1999	TN aeh	V	20100 +/- 2000
02-dec-1999	TN a	V	21500 +/- 2200
24-feb-2000	TN a	V	16400 +/- 1700
25-may-2000	TN ag	N	19300 +/- 1900
21-jul-2000	GE ag	V	18800 +/- 218

Table A-12. Ground and Surface water analyses for tritium (pCi/L) in samples collected from Building 850 between July 1, 1995 and June 30, 2003. Results recorded by October 30, 2003.

Location Date	Lab Note	Val.	Tritium Activity
NC2-14S (continued)			
21-jul-2000	TN ag	V	18300 +/- 1800
31-oct-2000	TN a	V	19100 +/- 1900
06-feb-2002	GE ag	N	12500 +/- 336L
06-feb-2002	TN ag	V	12100 +/- 1200
21-may-2002	TN a	V	15000 +/- 1500
16-aug-2002	GE ag	V	5030 +/- 231
16-aug-2002	TN ag	V	6350 +/- 650
19-apr-2003	TN ah	V	9130 +/- 930
NC2-15			
02-oct-1995	IT a	V	6770 +/- 82
11-apr-1996	LH a	V	6800 +/- 310
06-dec-1996	LH a	V	9350 +/- 6000
20-may-1997	LH a	V	9710 +/- 620
19-may-1998	QU a	V	10400 +/- 1040
26-may-1999	GE ag	V	11900 +/- 176
26-may-1999	TN ag	V	11900 +/- 1200
19-may-2000	TN a	V	9760 +/- 990
15-may-2001	TN a	V	8800 +/- 890
21-may-2002	TN aeh	V	7850 +/- 800
21-may-2002	TN ag	V	7760 +/- 790
19-apr-2003	TN a	V	7270 +/- 740
NC2-16			
03-oct-1995	IT a	V	1260 +/- 36
11-apr-1996	LH a	V	5230 +/- 250
22-nov-1996	LH a	V	4310 +/- 2900
20-may-1997	LH a	V	4940 +/- 320
27-oct-1997	LH a	V	7600 +/- 470
19-may-1998	QU a	V	6980 +/- 710
20-nov-1998	QU a	V	6820 +/- 686
26-may-1999	TN a	V	6410 +/- 650
02-dec-1999	TN a	V	6280 +/- 650
25-may-2000	TN a	N	4920 +/- 500
31-oct-2000	TN a	V	4620 +/- 480
18-may-2001	TN a	V	4130 +/- 430
30-nov-2001	TN a	V	3300 +/- 350
21-may-2002	TN a	V	3350 +/- 350
19-apr-2003	TN a	V	3140 +/- 330
NC2-17			
02-oct-1995	IT a	V	13200 +/- 145
11-apr-1996	LH a	V	13540 +/- 550
17-dec-1996	LH a	V	13530 +/- 860
20-may-1997	LH a	V	11720 +/- 750
19-may-1998	QU a	V	12100 +/- 1220
26-may-1999	TN a	V	15200 +/- 1500
24-may-2000	TN a	V	17200 +/- 1700
15-may-2001	TN a	V	17200 +/- 1700
21-may-2002	TN aeh	V	16900 +/- 1700
21-may-2002	TN ag	V	17000 +/- 1700
NC2-18			
03-oct-1995	IT a	V	52700 +/- 162
11-apr-1996	LH a	V	52100 +/- 1900
17-dec-1996	LH a	V	48600 +/- 3100
20-may-1997	LH a	V	41300 +/- 2500
19-may-1998	FG ag	V	37600 +/- 400
19-may-1998	QU ag	V	37300 +/- 3740
16-jun-1999	GE ag	V	39600 +/- 365
16-jun-1999	TN ag	V	34800 +/- 3500
01-jun-2000	TN a	N	27800 +/- 2800
18-may-2001	GE a	V	26400 +/- 569
18-may-2001	TN a	V	26000 +/- 2600
21-may-2002	TN a	V	23700 +/- 2400
19-apr-2003	TN a	V	21900 +/- 2200

Table A-12. Ground and Surface water analyses for tritium (pCi/L) in samples collected from Building 850 between July 1, 1995 and June 30, 2003. Results recorded by October 30, 2003.

Location Date	Lab Note	Val.	Tritium Activity
NC2-19			
02-oct-1995	IT a	V	<88.5 +/- 26.4U
11-apr-1996	LH a	V	<84 +/- 66U
06-dec-1996	LH a	V	<110 +/- 620U
23-apr-1998	QU a	V	<139 +/- 80.4U
19-may-1999	TN a	V	<200 +/- 41U
22-may-2000	TN a	V	<100 +/- 52U
15-may-2001	TN a	V	<108 +/- 65U
21-may-2002	TN a	V	<100 +/- 57U
10-may-2003	TN a	V	<100 +/- 58U
NC2-20			
29-apr-1997	LH a	V	<88 +/- 49U
24-apr-1998	QU a	V	<139 +/- 81.5U
19-may-1999	TN a	V	<200 +/- 42U
22-may-2000	TN a	V	<100 +/- 51U
16-may-2001	TN a	V	<112 +/- 66U
13-may-2002	TN a	V	<100 +/- 56U
10-may-2003	TN a	V	<100 +/- 54U
NC2-21			
02-oct-1995	IT a	V	<88 +/- 26U
11-apr-1996	LH a	V	<85 +/- 66U
17-dec-1996	LH a	V	<88 +/- 54U
23-apr-1998	QU a	V	<139 +/- 80.6U
19-may-1999	TN a	V	<200 +/- 42U
22-may-2000	TN a	V	<100 +/- 52U
16-may-2001	TN a	V	<110 +/- 65U
13-may-2002	TN a	V	<100 +/- 56U
10-may-2003	TN a	V	<100 +/- 58U
NC7-10			
03-oct-1995	IT a	V	75300 +/- 230
10-apr-1996	LH a	V	90400 +/- 3300
20-nov-1996	LH a	V	70900 +/- 3900L
22-jan-1997	LH a	V	77500 +/- 4300BL
22-may-1997	LH a	V	67500 +/- 3800
23-jul-1997	LH a	V	71800 +/- 3900
16-oct-1997	LH a	V	76500 +/- 4200
30-jan-1998	FG a	V	70300 +/- 600
29-apr-1998	QU a	V	64100 +/- 6410
17-aug-1998	GE ag	V	56700 +/- 1320
17-aug-1998	QU ag	V	62300 +/- 6230
23-nov-1998	QU a	V	62700 +/- 6270
26-jan-1999	QU a	V	61600 +/- 6170J
26-may-1999	TN a	V	60800 +/- 6800
26-aug-1999	TN a	V	56400 +/- 5700
02-dec-1999	TN a	V	52100 +/- 5200
11-feb-2000	TN a	V	48600 +/- 4900
13-jun-2000	TN a	V	44000 +/- 4400
25-jul-2000	TN a	V	41200 +/- 4100
30-oct-2000	TN a	V	38800 +/- 3900
29-jan-2001	TN ag	V	39200 +/- 3900
14-may-2001	TN a	V	37500 +/- 3800
15-aug-2001	TN a	V	36300 +/- 3600
15-nov-2001	TN a	V	35200 +/- 3500
06-feb-2002	TN a	V	31200 +/- 3100
16-may-2002	TN a	V	36400 +/- 3700
30-jul-2002	TN ah	V	31700 +/- 3200
30-jul-2002	TN aeh	V	32000 +/- 3200
14-dec-2002	TN ah	V	30900 +/- 3100
14-dec-2002	TN aeh	V	31100 +/- 3100
19-apr-2003	TN a	V	29100 +/- 2900
NC7-11			
03-oct-1995	IT a	V	37300 +/- 128
02-apr-1996	LH a	V	14600 +/- 590
20-nov-1996	CX ag	V	13360 +/- 112

Table A-12. Ground and Surface water analyses for tritium (pCi/L) in samples collected from Building 850 between July 1, 1995 and June 30, 2003. Results recorded by October 30, 2003.

Location Date	Lab Note	Val.	Tritium Activity
NC7-11 (continued)			
20-nov-1996	LH ag	V	14070 +/- 900L
22-jan-1997	LH a	V	5340 +/- 350BL
22-may-1997	LH a	V	4650 +/- 300
23-jul-1997	LH a	V	5750 +/- 370
16-oct-1997	LH a	V	13160 +/- 840
27-jan-1998	FG a	V	2900 +/- 200
12-may-1998	QU a	V	7140 +/- 725
17-aug-1998	QU a	V	6190 +/- 633
23-nov-1998	QU a	V	3680 +/- 380
26-jan-1999	QU a	V	2170 +/- 256J
26-may-1999	TN a	V	6820 +/- 780
26-aug-1999	TN a	V	14400 +/- 1500
07-dec-1999	TN a	V	18100 +/- 1800L
25-feb-2000	TN ah	V	2010 +/- 220
25-feb-2000	TN aeh	V	1630 +/- 180
13-jun-2000	TN a	V	18400 +/- 1800
25-jul-2000	GE ag	V	16200 +/- 217
25-jul-2000	TN ag	V	19200 +/- 1900
30-oct-2000	GE ag	V	24300 +/- 348
30-oct-2000	TN ag	V	21200 +/- 2100
29-jan-2001	TN a	V	18700 +/- 1900
14-may-2001	TN a	V	21700 +/- 2200
15-aug-2001	TN a	V	24600 +/- 2500
15-nov-2001	TN a	V	25600 +/- 2600
06-feb-2002	TN a	V	20400 +/- 2100
16-may-2002	TN a	V	24200 +/- 2400
30-jul-2002	TN a	V	24600 +/- 2500
14-dec-2002	TN a	V	26500 +/- 2700
19-apr-2003	TN a	V	23700 +/- 2400
NC7-14			
03-oct-1995	IT a	V	6230 +/- 59
10-apr-1996	LH aeh	V	14890 +/- 590
10-apr-1996	LH ah	V	14520 +/- 580
20-nov-1996	LH a	V	9400 +/- 600L
20-may-1997	LH a	V	10930 +/- 700
06-may-1998	QU a	V	7350 +/- 747
27-may-1999	TN a	V	2270 +/- 270
05-jun-2000	TN a	N	2270 +/- 240
NC7-15			
03-oct-1995	IT a	V	1200 +/- 36
02-apr-1996	LH a	V	662 +/- 98
20-nov-1996	CX ag	V	1056 +/- 17
20-nov-1996	LH ag	V	441 +/- 82L
30-may-1997	FG a	V	700 +/- 200
30-may-1997	LH a	V	1780 +/- 320
07-nov-1997	LH a	V	583 +/- 87
12-may-1998	FG ag	V	1000 +/- 200
12-may-1998	QU ag	V	564 +/- 107
23-nov-1998	GE agj	V	<100 +/- 266U
23-nov-1998	QU ag	V	223 +/- 76
26-may-1999	TN a	V	549 +/- 81
03-dec-1999	TN a	V	651 +/- 93L
05-jun-2000	TN a	N	572 +/- 83
30-oct-2000	TN a	V	621 +/- 88
22-may-2001	TN a	V	492 +/- 90
15-nov-2001	TN a	V	937 +/- 120
22-may-2002	TN a	V	1010 +/- 130
14-dec-2002	TN a	V	1470 +/- 180
26-apr-2003	GE ah	V	1470 +/- 180
26-apr-2003	GE aeh	V	1400 +/- 175
NC7-19			
20-nov-1995	IT aeh	V	6280 +/- 75
20-nov-1995	IT ah	V	6180 +/- 74
15-may-1996	LH a	V	6150 +/- 500LO

Table A-12. Ground and Surface water analyses for tritium (pCi/L) in samples collected from Building 850 between July 1, 1995 and June 30, 2003. Results recorded by October 30, 2003.

Location Date	Lab Note	Val.	Tritium Activity
NC7-19 (continued)			
19-dec-1996	LH a	V	3480 +/- 2400
20-may-1997	LH a	V	3330 +/- 230
06-may-1998	QU a	V	3860 +/- 408
27-may-1999	TN a	V	3570 +/- 420
13-jun-2000	GE ag	V	5520 +/- 129
13-jun-2000	TN ag	V	5210 +/- 530
31-may-2001	TN a	N	5500 +/- 570
22-may-2002	TN a	V	7090 +/- 720
19-apr-2003	TN a	V	8050 +/- 820
28-may-2003	TN a	V	8210 +/- 830
NC7-27			
17-nov-1995	IT a	V	45100 +/- 464
05-jun-1996	LH a	V	33800 +/- 21000
20-dec-1996	LH a	V	33500 +/- 2100
27-jan-1997	LH a	V	5760 +/- 370B
09-jun-1997	LH a	V	22700 +/- 1400
24-jul-1997	LH a	V	23300 +/- 1500
30-oct-1997	LH a	V	23200 +/- 1400
30-jan-1998	FG a	V	21400 +/- 300
20-may-1998	QU a	V	10800 +/- 1090
17-aug-1998	QU a	V	11800 +/- 1180
24-nov-1998	QU a	V	12100 +/- 1210
29-jan-1999	GE a	V	11800 +/- 183
07-jun-1999	TN a	N	10600 +/- 1100
26-aug-1999	GE ag	V	10600 +/- 191L
26-aug-1999	TN ag	V	10300 +/- 1000
06-dec-1999	TN a	V	10000 +/- 1000
27-mar-2000	TN a	V	10200 +/- 1000
26-may-2000	TN a	N	10000 +/- 1000
25-jul-2000	TN a	V	10500 +/- 1100
14-nov-2000	TN a	V	11200 +/- 1300
15-feb-2001	TN ag	V	11700 +/- 1200
18-may-2001	TN a	V	11600 +/- 1200
15-aug-2001	TN a	V	12800 +/- 1300
15-nov-2001	TN a	V	13500 +/- 1400
14-feb-2002	TN a	V	13200 +/- 1300
22-may-2002	TN a	V	14300 +/- 1400
30-jul-2002	TN a	V	13600 +/- 1400
19-apr-2003	TN a	V	<100 +/- 78U
NC7-28			
16-nov-1995	IT a	V	202000 +/- 2030
21-feb-1996	IT a	V	190000 +/- 557
12-jun-1996	LH a	V	167400 +/- 8800
18-sep-1996	CX ag	V	208077 +/- 499
18-sep-1996	LH ag	V	203000 +/- 130000
19-dec-1996	LH a	V	208000 +/- 110000
05-jun-1997	LH a	V	161600 +/- 8300
31-oct-1997	LH a	V	172100 +/- 9000
30-apr-1998	QU a	V	122000 +/- 12200
24-nov-1998	QU a	V	78300 +/- 7830
07-jun-1999	TN a	N	56100 +/- 5600
03-dec-1999	TN a	V	46200 +/- 4600L
26-may-2000	TN a	N	35700 +/- 3600
31-oct-2000	TN a	V	37400 +/- 3800
22-may-2001	TN a	V	31500 +/- 3200
15-nov-2001	TN a	V	39400 +/- 4000
28-may-2002	TN a	V	34200 +/- 3400
21-dec-2002	TN a	V	42600 +/- 4300
26-apr-2003	GE ah	V	38500 +/- 687
26-apr-2003	GE aeh	V	38700 +/- 694
NC7-29			
18-jul-1995	IT a	V	<85.2 +/- 25.8U
03-oct-1995	IT a	V	<91.5 +/- 27.5U
16-jan-1996	IT a	V	<90.4 +/- 27.2U

Table A-12. Ground and Surface water analyses for tritium (pCi/L) in samples collected from Building 850 between July 1, 1995 and June 30, 2003. Results recorded by October 30, 2003.

Location Date	Lab Note	Val.	Tritium Activity
NC7-29 (continued)			
11-jun-1996	LH a	V	<80 +/- 44U
02-aug-1996	LH a	V	<98 +/- 530U
20-nov-1996	LH a	V	<96 +/- 56LU
29-apr-1997	LH a	V	<93 +/- 52U
18-may-1998	QU a	V	<117 +/- 68.1U
21-may-1999	TN a	V	<200 +/- 41U
22-may-2000	TN a	V	<100 +/- 51U
21-may-2001	TN a	V	<111 +/- 66U
29-may-2002	TN a	V	<100 +/- 59U
26-apr-2003	GE a	V	<217 +/- 127U
NC7-43			
17-nov-1995	IT a	V	67100 +/- 683
05-jun-1996	CX ag	V	76740.4 +/- 383.7
05-jun-1996	LH ag	V	80000 +/- 51000
11-dec-1996	LH a	V	50200 +/- 3200
22-jan-1997	LH a	V	42600 +/- 2700BL
05-jun-1997	LH a	V	53800 +/- 3000
23-jul-1997	LH a	V	37400 +/- 2200
16-oct-1997	LH a	V	32400 +/- 1900
27-jan-1998	FG ah	V	24700 +/- 300
27-jan-1998	FG aeh	V	25100 +/- 300
12-may-1998	QU a	V	45500 +/- 4550
25-aug-1998	QU a	V	18400 +/- 1840
24-nov-1998	QU a	V	12200 +/- 1220
27-jan-1999	GE a	V	10400 +/- 161
27-jan-1999	QU a	V	8820 +/- 898J
07-jun-1999	GE ag	V	9810 +/- 162
07-jun-1999	TN ag	N	9800 +/- 990
26-aug-1999	TN a	V	8600 +/- 870
03-dec-1999	TN a	V	7930 +/- 810L
09-mar-2000	TN a	V	7480 +/- 760
05-jun-2000	TN a	N	7080 +/- 720
25-jul-2000	GE ag	V	16400 +/- 222
25-jul-2000	TN ag	V	6870 +/- 700
31-oct-2000	TN a	V	6760 +/- 690
13-feb-2001	TN a	V	6610 +/- 680
22-may-2001	TN a	V	6860 +/- 700
17-aug-2001	TN a	V	6450 +/- 660
19-nov-2001	GE ag	V	6400 +/- 289
19-nov-2001	TN ag	V	6480 +/- 660
19-feb-2002	TN a	V	6970 +/- 710
16-may-2002	TN a	V	6760 +/- 690
30-jul-2002	TN a	V	6280 +/- 640
14-dec-2002	TN ah	V	6180 +/- 640
14-dec-2002	TN aeh	V	6200 +/- 640
19-apr-2003	TN ah	V	6770 +/- 690
NC7-44			
03-oct-1995	IT ah	V	<90.1 +/- 27.2U
03-oct-1995	IT aeh	V	<90.2 +/- 27.3U
14-mar-1996	FG ag	V	<550 +/- 300U
14-mar-1996	LH ag	V	<96 +/- 74U
14-mar-1996	MA ag	V	188 +/- 3
02-apr-1996	LH a	V	<88 +/- 70U
19-dec-1996	LH a	V	<99 +/- 600U
09-may-1997	LH a	V	<87 +/- 53U
18-may-1998	QU a	V	<117 +/- 67.7U
21-may-1999	TN a	V	<200 +/- 41U
22-may-2000	TN a	V	<100 +/- 50U
16-may-2001	TN a	V	<109 +/- 66U
29-may-2002	TN a	V	<100 +/- 57U
10-may-2003	TN a	V	<100 +/- 57U
NC7-45			
17-nov-1995	IT a	V	566 +/- 29
15-may-1996	LH a	V	219 +/- 85LO

Table A-12. Ground and Surface water analyses for tritium (pCi/L) in samples collected from Building 850 between July 1, 1995 and June 30, 2003. Results recorded by October 30, 2003.

Location Date	Lab	Note	Val.	Tritium Activity
NC7-45 (continued)				
11-dec-1996	LH	a	V	<95 +/- 54U
23-may-1997	LH	a	V	<91 +/- 52U
22-may-2001	TN	a	V	<112 +/- 66U
NC7-46				
17-nov-1995	IT	a	V	125 +/- 28
11-jun-1996	LH	a	V	<75 +/- 46U
16-dec-1996	LH	a	V	104 +/- 62
23-apr-1997	LH	a	V	132 +/- 61BJO
30-apr-1998	QU	a	V	<144 +/- 86.5U
21-may-1999	TN	a	V	<200 +/- 44U
22-may-2000	TN	a	V	<100 +/- 54U
16-may-2001	TN	a	V	<112 +/- 65U
28-may-2002	TN	a	V	<100 +/- 58U
26-apr-2003	GE	ah	V	<212 +/- 123U
26-apr-2003	GE	aeh	V	<216 +/- 121LU
NC7-54				
15-may-1996	LH	a	V	44000 +/- 2300LO
11-dec-1996	LH	a	V	45800 +/- 2900
22-jan-1997	LH	a	V	34700 +/- 2200BL
22-may-1997	LH	a	V	30700 +/- 2000
29-apr-1998	QU	a	V	34600 +/- 3460
09-sep-1998	QU	a	V	28200 +/- 2820
27-jan-1999	QU	a	V	26900 +/- 2700J
10-mar-2000	TN	a	V	31300 +/- 3100
16-jun-2000	TN	a	V	32700 +/- 3300
13-nov-2000	TN	a	V	34900 +/- 3500
29-jan-2001	TN	a	V	36200 +/- 3600
23-may-2001	TN	a	V	32400 +/- 3300
17-aug-2001	TN	a	V	32400 +/- 3300
19-nov-2001	TN	a	V	34800 +/- 3500
19-feb-2002	TN	a	V	28700 +/- 2900
16-may-2002	TN	a	V	30800 +/- 3100
16-aug-2002	TN	a	V	32800 +/- 3300
21-dec-2002	TN	a	V	16100 +/- 1600
19-apr-2003	TN	a	V	29700 +/- 3000
NC7-55				
06-may-1998	QU	a	V	30100 +/- 3010
NC7-56				
03-oct-1995	IT	a	V	46900 +/- 145
10-apr-1996	LH	a	V	28300 +/- 1100
20-nov-1996	LH	a	V	53300 +/- 3000L
21-may-1997	FG	ag	V	35200 +/- 300
21-may-1997	LH	ag	V	39400 +/- 2500BL
27-oct-1997	LH	a	V	45000 +/- 2600
19-may-1998	FG	ag	V	27800 +/- 300
19-may-1998	QU	ag	V	27500 +/- 2750
24-nov-1998	QU	a	V	33400 +/- 3340
09-jun-1999	TN	a	V	30300 +/- 3000
07-dec-1999	TN	a	V	30500 +/- 3100L
02-jun-2000	TN	a	N	27800 +/- 2800
13-nov-2000	TN	a	V	27800 +/- 2800
29-may-2001	TN	a	N	23100 +/- 2300
19-nov-2001	TN	a	V	23400 +/- 2400
28-may-2002	TN	a	V	21100 +/- 2100
21-dec-2002	TN	a	V	9800 +/- 990
26-apr-2003	GE	a	V	15600 +/- 569
NC7-57				
09-apr-1996	LH	a	V	8570 +/- 370
NC7-58				
03-oct-1995	IT	a	V	40200 +/- 135
09-apr-1996	LH	ag	V	34200 +/- 1300

Table A-12. Ground and Surface water analyses for tritium (pCi/L) in samples collected from Building 850 between July 1, 1995 and June 30, 2003. Results recorded by October 30, 2003.

Location Date	Lab	Note	Val.	Tritium Activity
NC7-58 (continued)				
09-apr-1996	MA	ag	V	31797 +/- 636
20-nov-1996	LH	a	V	42700 +/- 2500L
25-oct-2002	TN	a	V	17300 +/- 1700
26-apr-2003	GE	a	V	15300 +/- 445
NC7-59				
13-nov-1995	IT	a	V	49900 +/- 512
12-jun-1996	LH	a	V	37400 +/- 2400
19-dec-1996	LH	a	V	44200 +/- 29000
21-may-1997	LH	a	V	42600 +/- 2700BL
27-oct-1997	LH	a	V	40400 +/- 2300
01-jun-1998	QU	a	V	28900 +/- 2890
24-nov-1998	GE	agj	V	15600 +/- 674B
24-nov-1998	QU	ag	V	14600 +/- 1460
28-jun-1999	TN	a	V	30400 +/- 3100
06-dec-1999	TN	a	V	30100 +/- 3000
01-jun-2000	TN	a	N	26600 +/- 2700
13-nov-2000	TN	a	V	26300 +/- 2600
29-may-2001	TN	a	N	22900 +/- 2300
28-may-2002	TN	a	V	21400 +/- 2200
12-jun-2003	TN	a	V	18500 +/- 1900
NC7-60				
03-oct-1995	IT	a	V	3690 +/- 48
10-apr-1996	LH	a	V	3630 +/- 200
20-dec-1996	LH	a	V	2840 +/- 210
09-jun-1997	LH	a	V	2540 +/- 190
30-oct-1997	LH	a	V	3790 +/- 250
09-sep-1998	QU	a	V	3330 +/- 390
24-nov-1998	QU	a	V	3150 +/- 329
09-jun-1999	TN	a	V	2990 +/- 310
26-aug-1999	TN	a	V	2780 +/- 290
06-dec-1999	TN	a	V	2700 +/- 290
27-mar-2000	QR	ag	N	2400 +/- 169
27-mar-2000	TN	ag	V	2590 +/- 280
05-jun-2000	TN	a	N	2460 +/- 260
10-aug-2000	TN	a	V	2400 +/- 290
14-nov-2000	TN	a	V	2390 +/- 290
15-feb-2001	TN	a	V	2220 +/- 240
23-may-2001	TN	a	V	2220 +/- 240
17-aug-2001	TN	a	V	2050 +/- 220
12-dec-2001	TN	a	V	2110 +/- 230
25-feb-2002	TN	a	V	2080 +/- 230
29-may-2002	TN	a	V	1980 +/- 220
30-jul-2002	TN	a	V	1910 +/- 210
19-apr-2003	TN	a	V	1830 +/- 200
NC7-61				
07-aug-1995	ME	a	V	179000 +/- 0.5%
30-oct-1995	ME	a	V	187000 +/- 0.5%
23-jan-1996	IT	a	V	180000 +/- 1810
20-may-1996	ME	a	V	171000 +/- 0.5%
21-nov-1996	ME	a	V	177000 +/- 0.5%
22-jan-1997	LH	a	V	178200 +/- 9400BL
13-may-1997	ME	a	V	163000 +/- 0.4%
18-nov-1997	ME	a	V	159000 +/- 636
02-jun-1998	ME	a	V	119000 +/- 595
02-dec-1998	ME	a	V	121000 +/- 815
01-jun-1999	ME	a	N	106000 +/- 766
09-nov-1999	ME	a	V	96500 +/- 725H
18-may-2000	ME	a	V	75100 +/- 580
15-aug-2000	TN	a	V	66000 +/- 7400
20-nov-2000	TN	ah	V	67800 +/- 7600
20-nov-2000	TN	aeh	V	69400 +/- 7800
15-feb-2001	TN	ag	V	59300 +/- 6000
21-may-2001	TN	a	V	60400 +/- 6100
29-aug-2001	TN	a	V	49900 +/- 5000

Table A-12. Ground and Surface water analyses for tritium (pCi/L) in samples collected from Building 850 between July 1, 1995 and June 30, 2003. Results recorded by October 30, 2003.

Location Date	Lab Note	Val.	Tritium Activity
NC7-61 (continued)			
15-nov-2001	TN a	V	56100 +/- 5600
25-feb-2002	TN a	V	48500 +/- 4900
16-may-2002	TN a	V	47000 +/- 4700
30-jul-2002	TN a	V	46200 +/- 4600
02-may-2003	TN aeh	V	44800 +/- 4500
02-may-2003	TN ah	V	44200 +/- 4400
NC7-62			
21-nov-1995	IT a	V	42200 +/- 433
11-jun-1996	LH a	V	36800 +/- 2300
19-dec-1996	LH a	V	43700 +/- 28000
21-may-1997	LH a	V	41200 +/- 2600BL
27-oct-1997	LH a	V	42600 +/- 2500
19-may-1998	QU a	V	29800 +/- 2980
30-nov-1998	QU a	V	32100 +/- 3210
11-jun-1999	TN a	V	29800 +/- 3000
06-dec-1999	TN a	V	29500 +/- 3000
01-jun-2000	TN a	N	26300 +/- 2600
13-nov-2000	TN a	V	26400 +/- 2700
29-may-2001	TN a	N	24000 +/- 2400
27-nov-2001	GE ag	V	21600 +/- 500
27-nov-2001	TN ag	V	22400 +/- 2300
28-may-2002	TN a	V	21200 +/- 2100
21-dec-2002	TN a	V	19900 +/- 2000
26-apr-2003	GE a	V	18900 +/- 484
NC7-69			
04-aug-1995	ME a	V	<3.65 +/- 100% U
31-oct-1995	ME a	V	<2.74 +/- 100% U
19-jan-1996	IT a	V	<90.4 +/- 27.2U
20-may-1996	ME a	V	<43.5 +/- 100% U
20-nov-1996	ME a	V	<30.7 +/- 100% U
13-may-1997	ME a	V	<33.3 +/- 100% U
18-nov-1997	ME a	V	<38 U
02-jun-1998	ME a	V	<28.6 +/- 28.6 U
03-dec-1998	ME a	V	<62.2 +/- 48.1U
10-nov-1999	ME a	V	<71.3 +/- 57.1HU
17-may-2000	ME a	V	<48.9 +/- 38.2U
20-nov-2000	TN a	V	<106 +/- 64U
22-may-2001	TN a	V	<106 +/- 63U
15-nov-2001	TN ah	V	<100 +/- 55U
15-nov-2001	TN aeh	V	<100 +/- 56U
16-may-2002	TN a	V	<100 +/- 54U
27-dec-2002	TN ah	V	<107 +/- 65U
27-dec-2002	TN aegh	V	<108 +/- 66U
08-may-2003	TN a	V	<100 +/- 56U
NC7-70			
16-nov-1995	IT a	V	106000 +/- 1070
19-dec-1996	LH a	V	175800 +/- 93000
28-jan-1997	LH a	V	210000 +/- 11000
30-may-1997	FG a	V	165000 +/- 700
30-may-1997	LH a	V	172800 +/- 9100
30-jul-1997	LH a	V	111500 +/- 5900
29-oct-1997	FG a	V	164000 +/- 700
29-oct-1997	LH a	V	150700 +/- 7900
28-jan-1998	FG a	V	206000 +/- 900
30-apr-1998	QU a	V	136000 +/- 13600
09-sep-1998	QU a	V	141000 +/- 14100
09-dec-1998	QU a	V	116000 +/- 11600
27-jan-1999	QU a	V	99400 +/- 9950J
15-jun-1999	TN a	V	97400 +/- 9800
01-sep-1999	TN a	V	89300 +/- 9000
03-dec-1999	TN a	V	85800 +/- 8600L
27-mar-2000	TN a	V	80700 +/- 8100
26-may-2000	TN a	N	74200 +/- 7500
10-aug-2000	TN a	V	70800 +/- 7900

Table A-12. Ground and Surface water analyses for tritium (pCi/L) in samples collected from Building 850 between July 1, 1995 and June 30, 2003. Results recorded by October 30, 2003.

Location Date	Lab	Note	Val.	Tritium Activity
NC7-70 (continued)				
04-jun-2002	TN	a	V	83000 +/- 8300
30-jul-2002	TN	a	V	75900 +/- 7600
21-dec-2002	TN	a	V	81500 +/- 8200
19-apr-2003	TN	a	V	81400 +/- 8200
NC7-71				
09-nov-1995	IT	a	V	1060 +/- 33
12-jun-1996	LH	a	V	1500 +/- 130
19-dec-1996	LH	a	V	1500 +/- 1400
13-may-1997	LH	a	V	1270 +/- 120
14-may-1998	QU	a	V	716 +/- 122
21-may-1999	TN	a	V	211 +/- 50
26-may-2000	TN	a	N	<100 +/- 51U
14-jun-2001	TN	a	V	<100 +/- 58U
01-jul-2002	TN	a	V	<100 +/- 60EU
19-apr-2003	TN	a	V	162 +/- 65
NC7-72				
03-oct-1995	IT	a	V	47500 +/- 146
10-apr-1996	LH	a	V	43900 +/- 1600
11-dec-1996	LH	a	V	40600 +/- 2600
22-may-1997	LH	a	V	35200 +/- 2200
27-oct-1997	LH	a	V	38900 +/- 2300
19-may-1998	QU	a	V	28200 +/- 2830
30-nov-1998	QU	a	V	27800 +/- 2780
15-jun-1999	TN	a	V	27400 +/- 2800
06-dec-1999	TN	a	V	25600 +/- 2600
01-jun-2000	TN	a	N	23300 +/- 2300
17-nov-2000	GE	a	V	24000 +/- 580
17-nov-2000	TN	ag	V	23200 +/- 2300
11-jun-2001	TN	a	V	21100 +/- 2100
27-nov-2001	TN	a	V	20100 +/- 2000
30-may-2002	TN	a	V	19100 +/- 1900
NC7-73				
03-oct-1995	IT	a	V	43900 +/- 453
10-apr-1996	LH	a	V	47200 +/- 1700
11-dec-1996	LH	a	V	37400 +/- 2400
22-may-1997	LH	a	V	29900 +/- 1900
27-oct-1997	LH	a	V	34000 +/- 2100
19-may-1998	QU	a	V	21600 +/- 2170
30-nov-1998	QU	a	V	22100 +/- 2210
15-jun-1999	TN	a	V	24400 +/- 2500
06-dec-1999	TN	a	V	22600 +/- 2300
16-jun-2000	TN	a	V	29200 +/- 2900
17-nov-2000	TN	a	V	30100 +/- 3000
11-jun-2001	TN	a	V	24400 +/- 2500
27-nov-2001	TN	a	V	25100 +/- 2500
30-may-2002	TN	a	V	21600 +/- 2200
21-may-2003	TN	a	V	19200 +/- 1900
W-850-05				
17-nov-1995	IT	aeH	V	17100 +/- 184
17-nov-1995	IT	ah	V	16900 +/- 182
12-jun-1996	LH	a	V	16800 +/- 1100
19-dec-1996	LH	a	V	18200 +/- 12000
30-may-1997	LH	a	V	55000 +/- 3200
07-nov-1997	LH	a	V	259000 +/- 13000
14-may-1998	QU	a	V	30300 +/- 3030
20-nov-1998	QU	a	V	42100 +/- 4210
16-jun-1999	TN	a	V	29100 +/- 2900
26-may-2000	TN	a	N	24000 +/- 2400
16-nov-2000	TN	a	V	23600 +/- 2400
14-jun-2001	TN	a	V	22100 +/- 2200
26-nov-2001	TN	a	V	22200 +/- 2200
28-may-2002	TN	a	V	20600 +/- 2100
19-apr-2003	TN	a	V	19900 +/- 2000

Table A-12. Ground and Surface water analyses for tritium (pCi/L) in samples collected from Building 850 between July 1, 1995 and June 30, 2003. Results recorded by October 30, 2003.

Location Date	Lab	Note	Val.	Tritium Activity
W-865-1802				
01-jul-2002	TN	a	V	<100 +/- 57U
27-jun-2003	TN	a	V	<100 +/- 51U
W-865-1803				
15-jul-2002	TN	a	V	1190 +/- 140
26-jun-2003	TN	a	V	1410 +/- 160
SPRING24				
22-oct-1999	TN	a	V	1190 +/- 140
27-aug-2001	TN	a	V	1910 +/- 210
13-dec-2001	TN	a	V	2180 +/- 240
25-mar-2002	TN	a	V	2380 +/- 260
28-sep-2002	TN	a	V	2340 +/- 250
W8SPRNG				
31-oct-1995	IT	ag	V	70900 +/- 723
31-oct-1995	LH	ag	V	76900 +/- 2900
09-nov-1995	IT	a	V	70400 +/- 717
15-may-1996	LH	a	V	43300 +/- 2300LO
25-jun-1996	LH	a	V	33200 +/- 2100J
17-mar-1997	LH	a	V	37200 +/- 2400JO
29-apr-1998	QU	a	V	44500 +/- 4450
16-sep-1998	QU	a	V	35600 +/- 3560
16-feb-1999	QU	a	V	38500 +/- 3850
10-mar-2000	TN	a	V	40000 +/- 4000
07-mar-2002	TN	a	V	29400 +/- 3000
26-jun-2003	TN	aeh	V	29300 +/- 2900
26-jun-2003	TN	ah	V	29200 +/- 2900

See following page for notes

Table A-12. Ground and Surface water analyses for tritium (pCi/L) in samples collected from Building 850 between July 1, 1995 and June 30, 2003. Results recorded by October 30, 2003.

Notes:

- Indicates no analysis performed for this compound

Val. = Validation code

Footnotes:

a ERD data
b ORAD WGMG data
c Analytical results for this sample are suspect
d Sample collected during hydraulic testing
e Blind sample, sent to lab without location identity
f Sample dilution necessary for analysis; detection limits increased
g Interlaboratory collocated sample
h Intralaboratory collocated sample
i Sample collected as part of pilot study
j Note field may contain important information regarding this sample
k Pre-development sample
l Norm month, norm quarter or norm year inconsistent with sample date
m Confirmation sample
n Sample analyzed after standard holding time
o Sample comprised of partial composite
p Alpha spectroscopy analysis of uranium isotopes
q Gamma spectroscopy analysis of uranium isotopes
r Tritium data represents non-detect with activity calc'd for 100 percent error.

Lab Codes:

CX Ceimic(replaced Maxwell Jul96) 8808 Balboa Avenue, San Diego CA 92123
FG Fruit Growers Laboratory, Inc. 853 Corporation St. Santa Paula, Ca 93061-0272
GE General Engineering Laboratori PO 30712, Charleston, SC 29417
IT International Technology Corp. IS was used for short time.
LH LAS-formerly Lockheed<ljan97 975 Kelly Johnson Las Vegas NV 89119
MA Maxwell Laboratories, Inc. S-Cubed Div., 8808 Balboa Ave. San Diego CA 92123
ME LLNL C&MS Environmental Servic LLNL
QR Quanterra Env. Serv.,Richland 2800 George Washington Way, Richland,WA 99352
QU Quanterra Env. Serv.,St.Louis 13715 Rider Trail North, Earth City, MO 63045
TN Eberline Services 2030 Wright Ave, Richmond, CA 94804
WE Univ/Waterloo EnvirIsotope Lab Univ. of Waterloo, Waterloo, ONT CANADA N2L3G1

Validation Codes:

V Validated
N Not validated (default value)
U Undeclared
H Historical comparison only

CLP flags: (follow result)

B Analyte found in method blank
D Analysis performed at a secondary dilution or concentration (i.e., vapor samples)
E The analyte was detected below the LLNL reporting limit, but above the analytical laboratory minimum detection limit.
F Analyte found in field blank, trip blank, or equipment blank
G Quantitated using fuel calibration, but does not match typical fuel fingerprint (fuel maybe gasoline, diesel, motor oil etc.).
H Sample analyzed outside of holding time, sample results should be evaluated
J Analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
L Spike accuracy not within control limits
O Duplicate spike or sample precision not within control limits
P Indicates that the absence of a data qualifier flag does not mean that the data does not need qualification, but that the implementation of electronic data qualifier flags was not yet established
R Sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet QC criteria. The presence or absence of the analyte cannot be verified
S Analytical results for this sample are suspect
T Analyte is tentatively identified compound; result is approximate
U Compound was analyzed for, but not detected above detection limit

Table A-13. Ground and surface water analyses for uranium isotopes (pCi/L) in samples collected from the Building 850 subarea between July 1, 1995 and June 30, 2003. Results recorded by November 4, 2003.

Uranium in water
November 5, 2003
gemin1

s3uranium.05nov2003

Min Sample Date
July 1, 1995
Max Sample Date
June 30, 2003

Table A-13. Ground and surface water analyses for uranium isotopes (pCi/L) in samples collected from the Building 850 subarea between July 1, 1995 and June 30, 2003. Results recorded by November 4, 2003.

Location Date	Lab Note	Val.	Uranium 233+234	Uranium 235+236	Uranium 238
K1-01A					
21-may-1997	LH a	V	0.338 +/- 0.049BF	0.023 +/- 0.013	0.166 +/- 0.033B
K1-01B					
22-may-1997	LH a	V	0.026 +/- 0.017B	<0.012 +/- 0.0062U	<0.016 +/- 0.01U
K1-01C					
31-jul-1995	LH ap	V	5.69 +/- 0.71	0.4 +/- 0.17	2.97 +/- 0.49
11-oct-1995	LH a	V	3.51 +/- 0.42BF	0.191 +/- 0.094B	2.18 +/- 0.32B
17-jan-1996	LH a	V	3.53 +/- 0.5	0.35 +/- 0.15	2.19 +/- 0.38
10-apr-1996	LH a	V	3.09 +/- 0.27B	0.12 +/- 0.046	1.76 +/- 0.19B
30-jul-1996	LH a	V	3.05 +/- 0.26FB	0.116 +/- 0.0430	1.44 +/- 0.16F
09-oct-1996	LH a	V	2.42 +/- 0.23B	0.133 +/- 0.050	1.36 +/- 0.17
16-jan-1997	LH a	V	2.37 +/- 0.21	0.078 +/- 0.033	1.29 +/- 0.14
03-apr-1997	LH a	V	1.98 +/- 0.34BJO	0.11 +/- 0.0760B	1.03 +/- 0.24BJO
01-jul-1997	LH a	V	1.99 +/- 0.19	0.09 +/- 0.037	1.13 +/- 0.13
13-oct-1997	LH a	V	2.28 +/- 0.24	0.031 +/- 0.025	1.03 +/- 0.15
08-jan-1998	FG a	V	2.04 +/- 0.27B	<0.09 +/- 0.05U	1.15 +/- 0.19
09-apr-1998	QU a	V	2.68 +/- 1B	<0.5 +/- 0.3U	1.3 +/- 0.63
14-jul-1998	QU a	V	1.89 +/- 0.66B	<0.32 +/- 0.092U	1.12 +/- 0.46B
14-oct-1998	QU a	V	2.27 +/- 0.76B	<0.32 +/- 0.091U	0.78 +/- 0.38B
12-jan-1999	QU a	V	2 +/- 0.41B	0.047 +/- 0.026	1.02 +/- 0.22B
12-apr-1999	TN a	V	2.27 +/- 0.16	<0.1 +/- 0.028U	1.12 +/- 0.11
06-jul-1999	TN ah	V	2.34 +/- 0.28	<0.1 +/- 0.028UE	1.09 +/- 0.15
06-jul-1999	TN aeh	V	2.36 +/- 0.29	<0.1 +/- 0.028UE	1.16 +/- 0.16
04-oct-1999	TN a	V	1.9 +/- 0.24	<0.1 +/- 0.021EU	0.921 +/- 0.13
07-feb-2000	TN a	V	1.85 +/- 0.24	<0.1 +/- 0.03EU	0.757 +/- 0.12
18-apr-2000	TN a	V	1.92 +/- 0.26	<0.1 +/- 0.039EU	1.04 +/- 0.16
19-jul-2000	TN a	V	2 +/- 0.24	<0.1 +/- 0.026EU	0.983 +/- 0.140
19-oct-2000	TN a	V	2.09 +/- 0.26	<0.1 +/- 0.028EU	1.01 +/- 0.14
18-jan-2001	TN ah	V	2.01 +/- 0.26	<0.1 +/- 0.031EU	0.959 +/- 0.14
18-jan-2001	TN aeh	V	2.08 +/- 0.26	0.101 +/- 0.038	0.914 +/- 0.14
18-apr-2001	TN a	V	1.91 +/- 0.24	<0.1 +/- 0.026EU	0.925 +/- 0.14
09-jul-2001	TN a	V	1.92 +/- 0.23	<0.1 +/- 0.024EU	0.897 +/- 0.12
22-oct-2001	TN a	V	1.93 +/- 0.24	<0.1 +/- 0.026EU	1.02 +/- 0.14
16-jan-2002	TN a	V	2.1 +/- 0.26	<0.1 +/- 0.029EU	0.996 +/- 0.14
16-apr-2002	TN aeh	V	2.15 +/- 0.27	<0.1 +/- 0.028EU	1.02 +/- 0.14
16-apr-2002	TN ah	V	2.05 +/- 0.25	<0.1 +/- 0.029EU	0.988 +/- 0.14
29-jul-2002	TN a	V	2.09 +/- 0.26	<0.1 +/- 0.026EU	0.92 +/- 0.13
05-dec-2002	TN aeh	V	1.89 +/- 0.24	<0.1 +/- 0.035EU	0.89 +/- 0.13
05-dec-2002	TN ah	V	1.89 +/- 0.24	<0.1 +/- 0.024EU	0.886 +/- 0.13
31-jan-2003	TN a	V	1.9 +/- 0.24	<0.1 +/- 0.026UE	0.743 +/- 0.12
17-apr-2003	TN a	V	1.77 +/- 0.23	<0.1 +/- 0.025UE	0.884 +/- 0.13
K1-02A					
21-may-1997	LH a	V	1.105 +/- 0.099BF	0.061 +/- 0.021	0.822 +/- 0.081B
08-dec-1997	LH a	V	1.13 +/- 0.14	0.041 +/- 0.025B	0.83 +/- 0.11
24-jun-1998	QU a	V	0.96 +/- 0.41B	<0.28 +/- 0.18U	1.12 +/- 0.46B
16-dec-1998	QU ah	V	1.37 +/- 0.3FB	0.089 +/- 0.04B	0.99 +/- 0.22B
16-dec-1998	QU aeh	V	1.78 +/- 0.38FB	0.055 +/- 0.032B	1.34 +/- 0.29B
21-may-1999	TN a	V	1.42 +/- 0.19	<0.1 +/- 0.029U	1.02 +/- 0.15
02-nov-1999	TN a	V	0.507 +/- 0.091	<0.1 +/- 0.019EU	0.356 +/- 0.073
24-may-2000	TN a	V	0.723 +/- 0.16	<0.1 +/- 0.028U	0.66 +/- 0.15
07-dec-2000	TN a	V	2.52 +/- 0.3	<0.1 +/- 0.031EU	2.16 +/- 0.26
30-may-2001	TN a	V	0.411 +/- 0.065	<0.1 +/- 0.014EU	0.259 +/- 0.048
05-jun-2002	TN ah	V	2.2 +/- 0.27	0.11 +/- 0.034	1.67 +/- 0.21
05-jun-2002	TN aeh	V	0.58 +/- 0.098	<0.1 +/- 0.017EU	0.389 +/- 0.074
28-oct-2002	TN ah	V	1.11 +/- 0.16	<0.1 +/- 0.022EU	0.809 +/- 0.14
28-oct-2002	TN aeh	V	1.18 +/- 0.17	<0.1 +/- 0.027EU	0.985 +/- 0.15
K1-02B					
31-jul-1995	LH ap	V	1.53 +/- 0.31	0.149 +/- 0.095	0.74 +/- 0.21
11-oct-1995	LH a	V	1.39 +/- 0.26BF	0.067 +/- 0.058B	0.78 +/- 0.19B
17-jan-1996	LH a	V	2.14 +/- 0.36S	0.39 +/- 0.15S	1.14 +/- 0.25S
17-jan-1996	LH a	V	1.77 +/- 0.15B	0.095 +/- 0.031S	1.03 +/- 0.11S
10-apr-1996	LH a	V	1.56 +/- 0.17B	0.054 +/- 0.033	0.81 +/- 0.12B
30-jul-1996	LH a	V	3.5 +/- 0.33FB	0.364 +/- 0.0920	2.35 +/- 0.26F

Table A-13. Ground and surface water analyses for uranium isotopes (pCi/L) in samples collected from the Building 850 subarea between July 1, 1995 and June 30, 2003. Results recorded by November 4, 2003.

Location Date	Lab Note	Val.	Uranium 233+234	Uranium 235+236	Uranium 238	
K1-02B (continued)						
20-sep-1996	LH	a	V	2.22 +/- 0.21B	0.087 +/- 0.037BJO	1.22 +/- 0.15B
27-sep-1996	LH	a	V	2.31 +/- 0.22B	0.123 +/- 0.045O	1.48 +/- 0.17
09-oct-1996	LH	a	V	1.87 +/- 0.21B	0.12 +/- 0.053O	1.16 +/- 0.16
16-jan-1997	LH	a	V	1.61 +/- 0.17	0.064 +/- 0.032	0.88 +/- 0.12
03-apr-1997	LH	a	V	1.92 +/- 0.35BJO	0.151 +/- 0.096OB	1.16 +/- 0.27BJO
01-jul-1997	LH	a	V	1.85 +/- 0.18	0.078 +/- 0.032	1.3 +/- 0.14
13-oct-1997	LH	a	V	2.14 +/- 0.23	0.092 +/- 0.044	1.18 +/- 0.16
08-jan-1998	FG	a	V	1.8 +/- 0.26B	<0.1 +/- 0.07U	0.77 +/- 0.17
09-apr-1998	QU	a	V	2.5 +/- 0.87B	<0.29 +/- 0.18U	1.12 +/- 0.51
14-jul-1998	QU	a	V	1.61 +/- 0.51B	<0.16 +/- 0.016U	0.73 +/- 0.3B
13-oct-1998	QU	a	V	1.9 +/- 0.7	<0.51 +/- 0.33U	1.16 +/- 0.51
12-jan-1999	QU	ah	V	1.99 +/- 0.42B	0.06 +/- 0.032	1.16 +/- 0.26B
12-jan-1999	QU	aeh	V	1.9 +/- 0.4B	0.053 +/- 0.026	1.16 +/- 0.25B
15-apr-1999	TN	a	V	2.08 +/- 0.16	<0.1 +/- 0.031U	1.13 +/- 0.11
09-jul-1999	TN	a	V	1.99 +/- 0.24	<0.1 +/- 0.033UE	1.12 +/- 0.16
07-oct-1999	TN	a	V	1.9 +/- 0.24	<0.1 +/- 0.022EU	1.05 +/- 0.15
07-feb-2000	TN	a	V	1.37 +/- 0.2	<0.1 +/- 0.028EU	0.77 +/- 0.13
18-apr-2000	TN	a	V	1.71 +/- 0.25	<0.1 +/- 0.05EU	0.914 +/- 0.16
19-jul-2000	TN	a	V	1.52 +/- 0.19	<0.1 +/- 0.027EU	0.852 +/- 0.12O
19-oct-2000	TN	a	V	1.81 +/- 0.26	<0.1 +/- 0.034EU	0.935 +/- 0.15
18-jan-2001	TN	a	V	1.68 +/- 0.22	<0.1 +/- 0.031EU	0.915 +/- 0.13
18-apr-2001	TN	a	V	1.43 +/- 0.21	<0.1 +/- 0.024EU	0.788 +/- 0.14
09-jul-2001	TN	a	V	1.52 +/- 0.19	<0.1 +/- 0.028EU	0.774 +/- 0.11
22-oct-2001	TN	a	V	1.57 +/- 0.2	<0.1 +/- 0.023EU	0.841 +/- 0.12
16-jan-2002	TN	a	V	1.58 +/- 0.22	<0.1 +/- 0.042EU	0.888 +/- 0.14
16-apr-2002	TN	a	V	1.53 +/- 0.2	<0.1 +/- 0.021EU	0.896 +/- 0.13
29-jul-2002	TN	a	V	1.57 +/- 0.2	<0.1 +/- 0.025EU	0.942 +/- 0.13
04-dec-2002	TN	a	V	1.61 +/- 0.18	<0.1 +/- 0.018EU	0.972 +/- 0.12
30-jan-2003	TN	a	V	1.39 +/- 0.18	<0.1 +/- 0.026UE	0.758 +/- 0.11
17-apr-2003	TN	a	V	1.54 +/- 0.21	<0.1 +/- 0.022UE	0.856 +/- 0.13
17-apr-2003	TN	aeh	V	1.45 +/- 0.19	<0.1 +/- 0.02UE	0.788 +/- 0.12
K1-03						
31-jul-1995	LH	ap	V	0.92 +/- 0.23	0.134 +/- 0.09	0.67 +/- 0.2
11-oct-1995	LH	ah	V	0.95 +/- 0.21BF	0.053 +/- 0.047B	0.43 +/- 0.14B
11-oct-1995	LH	aeh	V	1.34 +/- 0.27BF	0.086 +/- 0.068B	0.5 +/- 0.16B
18-jan-1996	LH	a	V	0.96 +/- 0.23	0.074 +/- 0.064	0.46 +/- 0.16
10-apr-1996	LH	a	V	0.83 +/- 0.12B	0.029 +/- 0.02B	0.454 +/- 0.083B
30-jul-1996	LH	a	V	1.24 +/- 0.16FB	0.17 +/- 0.055O	0.65 +/- 0.11F
10-oct-1996	LH	a	V	1.06 +/- 0.14B	0.083 +/- 0.037O	0.511 +/- 0.093
16-jan-1997	LH	a	V	0.95 +/- 0.12	0.058 +/- 0.027	0.525 +/- 0.084B
03-apr-1997	LH	a	V	0.89 +/- 0.22BJO	<0.054 +/- 0.0082UO	0.52 +/- 0.16BJO
02-jul-1997	LH	a	V	0.89 +/- 0.12	0.028 +/- 0.021	0.432 +/- 0.081
14-oct-1997	LH	a	V	0.91 +/- 0.14	0.071 +/- 0.038	0.52 +/- 0.1
08-jan-1998	FG	a	V	0.83 +/- 0.16B	<0.09 +/- 0.06U	0.44 +/- 0.11
09-apr-1998	QU	ah	V	1.42 +/- 0.65B	<0.36 +/- 0.19U	0.94 +/- 0.5
09-apr-1998	QU	aeh	V	1.01 +/- 0.5B	<0.37 +/- 0.12U	0.37 +/- 0.28
15-jul-1998	QU	a	V	0.79 +/- 0.38B	<0.31 +/- 0.107U	0.43 +/- 0.25
13-oct-1998	QU	a	V	0.75 +/- 0.35	<0.22 +/- 0.079U	0.3 +/- 0.21
12-jan-1999	QU	a	V	0.73 +/- 0.17B	<0.03 +/- 0.022U	0.42 +/- 0.11B
15-apr-1999	TN	a	V	0.909 +/- 0.1	<0.1 +/- 0.024U	0.514 +/- 0.072
09-jul-1999	TN	a	V	0.926 +/- 0.13	<0.1 +/- 0.017U	0.477 +/- 0.082
06-oct-1999	TN	a	V	0.845 +/- 0.13	<0.1 +/- 0.025EU	0.446 +/- 0.081
07-feb-2000	TN	a	V	0.765 +/- 0.12	<0.1 +/- 0.032EU	0.343 +/- 0.071
18-apr-2000	TN	a	V	0.941 +/- 0.13	<0.1 +/- 0.022EU	0.416 +/- 0.075
19-jul-2000	TN	a	V	0.772 +/- 0.12	<0.1 +/- 0.02EU	0.53 +/- 0.087O
23-oct-2000	TN	ah	V	0.876 +/- 0.13	<0.1 +/- 0.018EU	0.407 +/- 0.077
23-oct-2000	TN	aeh	V	0.928 +/- 0.14	<0.1 +/- 0.018U	0.468 +/- 0.086
18-jan-2001	TN	a	V	0.91 +/- 0.14	<0.1 +/- 0.024EU	0.451 +/- 0.082
18-apr-2001	TN	a	V	0.867 +/- 0.13	<0.1 +/- 0.025EU	0.423 +/- 0.08
09-jul-2001	TN	ah	V	0.781 +/- 0.11	<0.1 +/- 0.018EU	0.425 +/- 0.071
09-jul-2001	TN	aeh	V	0.859 +/- 0.12	<0.1 +/- 0.018EU	0.453 +/- 0.077
22-oct-2001	TN	a	V	0.953 +/- 0.13	<0.1 +/- 0.023EU	0.401 +/- 0.07
16-jan-2002	TN	a	V	0.958 +/- 0.14	<0.1 +/- 0.019U	0.46 +/- 0.084
16-apr-2002	TN	a	V	1.01 +/- 0.14	<0.1 +/- 0.017EU	0.507 +/- 0.086
29-jul-2002	TN	a	V	0.933 +/- 0.13	<0.1 +/- 0.021EU	0.449 +/- 0.081
04-dec-2002	TN	a	V	1.04 +/- 0.16	<0.1 +/- 0.03U	0.427 +/- 0.087

Table A-13. Ground and surface water analyses for uranium isotopes (pCi/L) in samples collected from the Building 850 subarea between July 1, 1995 and June 30, 2003. Results recorded by November 4, 2003.

Location Date	Lab Note	Val.	Uranium 233+234	Uranium 235+236	Uranium 238	
K1-03 (continued)						
30-jan-2003	TN	a	V	0.868 +/- 0.13	<0.1 +/- 0.019U	0.463 +/- 0.084
17-apr-2003	TN	a	V	0.805 +/- 0.13	<0.1 +/- 0.014U	0.45 +/- 0.087
K1-04						
31-jul-1995	LH	ap	V	1.76 +/- 0.34	0.4 +/- 0.16	0.87 +/- 0.23
11-oct-1995	LH	a	V	1.14 +/- 0.25BF	0.207 +/- 0.1B	0.65 +/- 0.19B
18-jan-1996	LH	a	V	1.24 +/- 0.25	0.085 +/- 0.067	0.6 +/- 0.17
11-apr-1996	LH	a	V	0.87 +/- 0.14B	0.05 +/- 0.035	0.54 +/- 0.11
31-jul-1996	LH	ah	V	1.06 +/- 0.15B	0.107 +/- 0.050	0.64 +/- 0.12
31-jul-1996	LH	aeh	V	1.38 +/- 0.18B	0.072 +/- 0.0380	0.65 +/- 0.12
10-oct-1996	LH	a	V	1.23 +/- 0.15B	0.081 +/- 0.0350	0.485 +/- 0.09
16-jan-1997	LH	a	V	0.9 +/- 0.11	0.024 +/- 0.019	0.568 +/- 0.085
03-apr-1997	LH	a	V	1.41 +/- 0.3BJO	0.081 +/- 0.0750B	0.61 +/- 0.19BJO
02-jul-1997	LH	a	V	0.98 +/- 0.13	0.045 +/- 0.028	0.512 +/- 0.09
14-oct-1997	LH	a	V	1.11 +/- 0.16	0.027 +/- 0.024	0.56 +/- 0.11
08-jan-1998	FG	a	V	0.91 +/- 0.17B	0.06 +/- 0.04F	0.47 +/- 0.11
09-apr-1998	QU	a	V	0.89 +/- 0.46B	0.23 +/- 0.23	0.62 +/- 0.37
15-jul-1998	QU	a	V	0.91 +/- 0.39B	<0.23 +/- 0.077U	0.47 +/- 0.26
14-oct-1998	QU	a	V	0.97 +/- 0.44B	<0.31 +/- 0.21U	0.54 +/- 0.3B
13-jan-1999	QU	a	V	0.88 +/- 0.2B	<0.03 +/- 0.021U	0.48 +/- 0.12B
14-apr-1999	TN	a	V	0.881 +/- 0.1	<0.1 +/- 0.019U	0.514 +/- 0.073
09-jul-1999	TN	a	V	0.95 +/- 0.14	<0.1 +/- 0.022UE	0.469 +/- 0.084
06-oct-1999	TN	a	V	0.842 +/- 0.13	<0.1 +/- 0.024EU	0.45 +/- 0.083
07-feb-2000	TN	a	V	0.748 +/- 0.12	<0.1 +/- 0.025EU	0.372 +/- 0.073
18-apr-2000	TN	ah	V	0.936 +/- 0.13	<0.1 +/- 0.025EU	0.383 +/- 0.07
18-apr-2000	TN	aeh	V	0.761 +/- 0.12	<0.1 +/- 0.022EU	0.384 +/- 0.071
19-jul-2000	TN	a	V	0.974 +/- 0.14	<0.1 +/- 0.021EU	0.487 +/- 0.0810
23-oct-2000	TN	a	V	0.826 +/- 0.13	<0.1 +/- 0.018U	0.35 +/- 0.069
18-jan-2001	TN	a	V	0.559 +/- 0.088	<0.1 +/- 0.022EU	0.272 +/- 0.053
23-apr-2001	TN	a	V	0.497 +/- 0.085	<0.1 +/- 0.016U	0.232 +/- 0.052
10-jul-2001	TN	a	V	0.528 +/- 0.082	<0.1 +/- 0.012U	0.266 +/- 0.052
22-oct-2001	TN	a	V	0.799 +/- 0.11	<0.1 +/- 0.023EU	0.394 +/- 0.07
16-jan-2002	TN	aeh	V	0.708 +/- 0.11	<0.1 +/- 0.023EU	0.35 +/- 0.068
16-jan-2002	TN	ah	V	0.725 +/- 0.11	<0.1 +/- 0.017EU	0.438 +/- 0.079
16-apr-2002	TN	a	V	0.669 +/- 0.11	<0.1 +/- 0.011U	0.339 +/- 0.067
29-jul-2002	TN	ah	V	0.735 +/- 0.11	<0.1 +/- 0.015EU	0.377 +/- 0.07
29-jul-2002	TN	aeh	V	0.807 +/- 0.12	<0.1 +/- 0.016EU	0.393 +/- 0.073
05-dec-2002	TN	a	V	0.987 +/- 0.16	<0.1 +/- 0.026U	0.567 +/- 0.11
29-jan-2003	TN	aeh	N	0.501 +/- 0.087	<0.1 +/- 0.011U	0.28 +/- 0.059
29-jan-2003	TN	ah	N	0.474 +/- 0.082	<0.1 +/- 0.016U	0.277 +/- 0.056
18-apr-2003	TN	a	V	0.865 +/- 0.14	<0.1 +/- 0.016U	0.466 +/- 0.093
K1-05						
31-jul-1995	LH	ahp	V	1.94 +/- 0.35F	0.32 +/- 0.14F	0.73 +/- 0.22F
31-jul-1995	LH	aehp	V	1.39 +/- 0.31F	0.26 +/- 0.13F	0.79 +/- 0.23F
12-oct-1995	LH	a	V	1.39 +/- 0.26B	0.114 +/- 0.074B	0.67 +/- 0.17B
18-jan-1996	LH	a	V	1.28 +/- 0.26	0.115 +/- 0.081	0.64 +/- 0.18
11-apr-1996	LH	a	V	1.39 +/- 0.16B	0.104 +/- 0.04	0.593 +/- 0.099
31-jul-1996	LH	a	V	1.28 +/- 0.14B	0.072 +/- 0.031	0.675 +/- 0.096B
11-oct-1996	LH	a	V	1.42 +/- 0.18	0.2 +/- 0.0640	0.78 +/- 0.13
17-jan-1997	LH	ah	V	1.42 +/- 0.15	0.095 +/- 0.036	0.686 +/- 0.1
17-jan-1997	LH	aeh	V	1.34 +/- 0.14	0.028 +/- 0.02	0.698 +/- 0.097
04-apr-1997	LH	a	V	1.25 +/- 0.28F	0.105 +/- 0.088B	0.51 +/- 0.17B
02-jul-1997	LH	a	V	1.27 +/- 0.15	0.069 +/- 0.031	0.696 +/- 0.1
14-oct-1997	LH	a	V	1.45 +/- 0.18	<0.025 +/- 0.022U	0.57 +/- 0.11
12-jan-1998	FG	ah	V	1.49 +/- 0.22B	<0.09 +/- 0.05U	0.57 +/- 0.13
12-jan-1998	FG	aeh	V	1.32 +/- 0.2B	<0.1 +/- 0.06U	0.73 +/- 0.14
15-apr-1998	QU	a	V	1.48 +/- 0.55	<0.41 +/- 0.12U	0.56 +/- 0.3B
16-jul-1998	QU	a	V	1.37 +/- 0.55	<0.38 +/- 0.18U	0.67 +/- 0.37
14-oct-1998	QU	a	V	1.39 +/- 0.49B	0.13 +/- 0.13	0.98 +/- 0.38B
13-jan-1999	QU	a	V	1.36 +/- 0.29B	0.043 +/- 0.024	0.64 +/- 0.15B
14-apr-1999	TN	a	V	1.46 +/- 0.13	<0.1 +/- 0.031U	0.6 +/- 0.079
08-jul-1999	TN	a	V	1.53 +/- 0.2	<0.1 +/- 0.028UE	0.694 +/- 0.11
06-oct-1999	TN	ah	V	1.25 +/- 0.17	<0.1 +/- 0.023EU	0.557 +/- 0.096
06-oct-1999	TN	aeh	V	1.14 +/- 0.2	<0.1 +/- 0.025U	0.511 +/- 0.11
08-feb-2000	TN	a	V	1.35 +/- 0.17	<0.1 +/- 0.019EU	0.68 +/- 0.1
19-apr-2000	TN	a	V	1.45 +/- 0.22	<0.1 +/- 0.048EU	0.653 +/- 0.12

Table A-13. Ground and surface water analyses for uranium isotopes (pCi/L) in samples collected from the Building 850 subarea between July 1, 1995 and June 30, 2003. Results recorded by November 4, 2003.

Location Date	Lab Note	Val.	Uranium 233+234	Uranium 235+236	Uranium 238
K1-05 (continued)					
19-jul-2000	TN a	V	1.43 +/- 0.19	<0.1 +/- 0.028EU	0.688 +/- 0.110
24-oct-2000	TN a	V	1.41 +/- 0.19	<0.1 +/- 0.023EU	0.641 +/- 0.1
18-jan-2001	TN a	V	1.38 +/- 0.18	<0.1 +/- 0.03EU	0.674 +/- 0.11
20-apr-2001	TN ah	V	1.28 +/- 0.18	<0.1 +/- 0.037EU	0.658 +/- 0.11
20-apr-2001	TN aeh	V	1.4 +/- 0.18	<0.1 +/- 0.023EU	0.635 +/- 0.1
10-jul-2001	TN a	V	1.42 +/- 0.17	<0.1 +/- 0.02EU	0.733 +/- 0.1
23-oct-2001	TN a	V	1.38 +/- 0.15	<0.1 +/- 0.014EU	0.673 +/- 0.081
22-jan-2002	TN a	V	1.48 +/- 0.19	<0.1 +/- 0.027EU	0.67 +/- 0.11
18-apr-2002	TN a	V	1.4 +/- 0.18	<0.1 +/- 0.023U	0.645 +/- 0.1
30-jul-2002	TN a	V	1.4 +/- 0.18	<0.1 +/- 0.022EU	0.646 +/- 0.1
06-dec-2002	TN a	V	1.37 +/- 0.18	<0.1 +/- 0.019EU	0.676 +/- 0.11
29-jan-2003	TN a	N	0.874 +/- 0.13	<0.1 +/- 0.018U	0.495 +/- 0.086
18-apr-2003	TN a	V	1.27 +/- 0.19	<0.1 +/- 0.017U	0.575 +/- 0.11
K1-07					
31-jul-1995	LH ap	V	1.44 +/- 0.3	0.105 +/- 0.085	0.88 +/- 0.24
12-oct-1995	LH a	V	1.37 +/- 0.26B	<0.069 +/- 0.061UB	0.68 +/- 0.18B
18-jan-1996	LH a	V	1.75 +/- 0.33	0.23 +/- 0.12	0.97 +/- 0.24
12-apr-1996	LH a	V	1.3 +/- 0.15B	0.053 +/- 0.029	0.672 +/- 0.1
31-jul-1996	LH a	V	1.47 +/- 0.15B	0.064 +/- 0.029	0.703 +/- 0.1B
11-oct-1996	LH a	V	1.46 +/- 0.17B	0.054 +/- 0.0290	0.66 +/- 0.11
17-jan-1997	LH a	V	1.5 +/- 0.15	0.086 +/- 0.033	0.672 +/- 0.096
04-apr-1997	LH a	V	1.52 +/- 0.3F	0.11 +/- 0.08B	0.79 +/- 0.21B
03-jul-1997	LH a	V	1.23 +/- 0.14	0.044 +/- 0.023	0.575 +/- 0.089
16-oct-1997	LH a	V	1.44 +/- 0.19	0.08 +/- 0.041	0.77 +/- 0.13
12-jan-1998	FG a	V	1.24 +/- 0.2B	<0.1 +/- 0.06U	0.58 +/- 0.13
15-apr-1998	QU a	V	1.48 +/- 0.52	0.22 +/- 0.18	0.28 +/- 0.19B
16-jul-1998	QU a	V	1.27 +/- 0.44B	<0.25 +/- 0.13U	0.37 +/- 0.22
15-oct-1998	QU a	V	1.11 +/- 0.45B	<0.18 +/- 0.14U	0.54 +/- 0.29B
14-jan-1999	QU a	V	1.28 +/- 0.27B	0.037 +/- 0.024	0.61 +/- 0.14B
12-apr-1999	TN a	V	1.31 +/- 0.12	<0.1 +/- 0.024U	0.666 +/- 0.083
06-jul-1999	TN a	V	1.36 +/- 0.19	<0.1 +/- 0.03U	0.636 +/- 0.1
04-oct-1999	TN a	V	1.34 +/- 0.18	<0.1 +/- 0.023EU	0.538 +/- 0.091
08-feb-2000	TN ah	V	1.27 +/- 0.18	<0.1 +/- 0.025EU	0.611 +/- 0.1
08-feb-2000	TN aeh	V	1.17 +/- 0.17	<0.1 +/- 0.026EU	0.639 +/- 0.11
19-apr-2000	TN a	V	1.4 +/- 0.2	<0.1 +/- 0.027EU	0.633 +/- 0.11
20-jul-2000	TN a	V	1.24 +/- 0.17	<0.1 +/- 0.02EU	0.638 +/- 0.099
25-oct-2000	TN a	V	1.37 +/- 0.19LO	<0.1 +/- 0.035UELO	0.629 +/- 0.11LO
22-jan-2001	TN a	V	1.3 +/- 0.16	<0.1 +/- 0.025EU	0.595 +/- 0.089
23-apr-2001	TN a	V	1.5 +/- 0.2	<0.1 +/- 0.033EU	0.707 +/- 0.12
10-jul-2001	TN a	V	1.37 +/- 0.17	<0.1 +/- 0.021EU	0.664 +/- 0.094
23-oct-2001	TN ah	V	1.39 +/- 0.18	<0.1 +/- 0.019U	0.737 +/- 0.11
23-oct-2001	TN aeh	V	1.42 +/- 0.19	<0.1 +/- 0.025EU	0.718 +/- 0.11
22-jan-2002	TN a	V	1.32 +/- 0.18	<0.1 +/- 0.023EU	0.738 +/- 0.11
18-apr-2002	TN a	V	1.36 +/- 0.17	<0.1 +/- 0.022EU	0.752 +/- 0.11
30-jul-2002	TN a	V	1.33 +/- 0.18	<0.1 +/- 0.024EU	0.679 +/- 0.11
06-dec-2002	TN a	V	1.45 +/- 0.19	<0.1 +/- 0.023EU	0.677 +/- 0.11
30-jan-2003	TN a	V	1.19 +/- 0.17	<0.1 +/- 0.025UE	0.612 +/- 0.1
01-may-2003	TN a	V	1.58 +/- 0.2	<0.1 +/- 0.031UE	0.736 +/- 0.11
K1-08					
31-jul-1995	LH ap	V	2.18 +/- 0.39	0.32 +/- 0.15	0.69 +/- 0.22
12-oct-1995	LH a	V	1.14 +/- 0.23B	0.095 +/- 0.065B	0.49 +/- 0.14B
18-jan-1996	LH a	V	1.85 +/- 0.31	0.183 +/- 0.098	0.76 +/- 0.19
12-apr-1996	LH ah	V	1.69 +/- 0.19B	0.081 +/- 0.042	0.75 +/- 0.12
12-apr-1996	LH aeh	V	1.66 +/- 0.17B	0.126 +/- 0.043	0.99 +/- 0.13
31-jul-1996	LH a	V	1.23 +/- 0.14B	0.061 +/- 0.028B	0.613 +/- 0.093B
11-oct-1996	LH ah	V	1.49 +/- 0.18B	0.119 +/- 0.0470	0.83 +/- 0.13
11-oct-1996	LH aeh	V	1.57 +/- 0.19	0.125 +/- 0.0540	0.76 +/- 0.13
17-jan-1997	LH a	V	1.57 +/- 0.17	0.037 +/- 0.025	0.75 +/- 0.11B
04-apr-1997	LH a	V	1.47 +/- 0.3F	0.107 +/- 0.078B	0.85 +/- 0.22B
03-jul-1997	LH ah	V	1.58 +/- 0.17	0.094 +/- 0.037	0.85 +/- 0.12
03-jul-1997	LH aeh	V	1.51 +/- 0.17	0.072 +/- 0.034	0.93 +/- 0.13
16-oct-1997	LH a	V	1.83 +/- 0.23	0.076 +/- 0.043	0.95 +/- 0.16
12-jan-1998	FG a	V	1.56 +/- 0.22B	<0.12 +/- 0.08U	0.55 +/- 0.13
15-apr-1998	QU a	V	1.2 +/- 0.43	<0.2 +/- 0.024U	0.86 +/- 0.34B
16-jul-1998	QU ah	V	1.87 +/- 0.65B	<0.2 +/- 0.12U	0.69 +/- 0.34B

Table A-13. Ground and surface water analyses for uranium isotopes (pCi/L) in samples collected from the Building 850 subarea between July 1, 1995 and June 30, 2003. Results recorded by November 4, 2003.

Location Date	Lab Note	Val.	Uranium 233+234	Uranium 235+236	Uranium 238	
K1-08 (continued)						
16-jul-1998	QU	aeH	V	1.67 +/- 0.57B	<0.32 +/- 0.15U	0.89 +/- 0.39
15-oct-1998	QU	a	V	1.03 +/- 0.46B	0.18 +/- 0.19	0.73 +/- 0.37B
14-jan-1999	QU	a	V	1.53 +/- 0.31B	0.074 +/- 0.028	0.76 +/- 0.16B
12-apr-1999	TN	a	V	1.56 +/- 0.14	<0.1 +/- 0.031U	0.748 +/- 0.091
07-jul-1999	TN	a	V	1.61 +/- 0.21	<0.1 +/- 0.031UE	0.698 +/- 0.11
04-oct-1999	TN	a	V	1.31 +/- 0.17	<0.1 +/- 0.031EU	0.625 +/- 0.098
09-feb-2000	TN	a	V	1.44 +/- 0.19	<0.1 +/- 0.024EU	0.72 +/- 0.11
19-apr-2000	TN	a	V	1.39 +/- 0.2	<0.1 +/- 0.026EU	0.635 +/- 0.12
20-jul-2000	TN	a	V	1.52 +/- 0.19	<0.1 +/- 0.019EU	0.785 +/- 0.110
24-oct-2000	TN	a	V	1.64 +/- 0.22	<0.1 +/- 0.029EU	0.743 +/- 0.12
22-jan-2001	TN	a	V	1.39 +/- 0.18	<0.1 +/- 0.022EU	0.555 +/- 0.085
23-apr-2001	TN	a	V	1.62 +/- 0.21	0.103 +/- 0.041	0.809 +/- 0.13
11-jul-2001	TN	a	V	1.51 +/- 0.19	<0.1 +/- 0.023EU	0.7 +/- 0.1
23-oct-2001	TN	a	V	1.51 +/- 0.19	<0.1 +/- 0.024EU	0.725 +/- 0.11
22-jan-2002	TN	a	V	1.59 +/- 0.21	<0.1 +/- 0.021EU	0.809 +/- 0.12
18-apr-2002	TN	a	V	1.66 +/- 0.21	<0.1 +/- 0.025EU	0.689 +/- 0.1
30-jul-2002	TN	a	V	1.56 +/- 0.21	<0.1 +/- 0.018EU	0.768 +/- 0.12
13-dec-2002	TN	a	V	1.53 +/- 0.19	<0.1 +/- 0.025EU	0.775 +/- 0.11
07-feb-2003	TN	a	V	1.44 +/- 0.21	<0.1 +/- 0.046UE	0.637 +/- 0.12
02-may-2003	TN	a	V	1.54 +/- 0.22	<0.1 +/- 0.026UE	0.78 +/- 0.13
K1-09						
31-jul-1995	LH	ap	V	1.54 +/- 0.35	0.22 +/- 0.13	0.65 +/- 0.22
12-oct-1995	LH	a	V	1.21 +/- 0.24B	0.167 +/- 0.085B	0.52 +/- 0.15B
18-jan-1996	LH	ah	V	1.27 +/- 0.26	0.094 +/- 0.076	0.57 +/- 0.18
18-jan-1996	LH	aeH	V	1.91 +/- 0.33	0.149 +/- 0.094	0.82 +/- 0.21
12-apr-1996	LH	a	V	1.18 +/- 0.13B	0.053 +/- 0.025	0.523 +/- 0.086
31-jul-1996	LH	a	V	1.2 +/- 0.14B	0.081 +/- 0.036	0.62 +/- 0.099B
11-oct-1996	LH	a	V	1.29 +/- 0.17B	0.085 +/- 0.042O	0.62 +/- 0.11
17-jan-1997	LH	a	V	1.45 +/- 0.16	0.114 +/- 0.039	0.71 +/- 0.1
04-apr-1997	LH	ah	V	1.11 +/- 0.28F	0.14 +/- 0.11B	0.65 +/- 0.21B
04-apr-1997	LH	aeH	V	1.64 +/- 0.31F	0.101 +/- 0.077B	0.77 +/- 0.21B
03-jul-1997	LH	a	V	1.23 +/- 0.14	0.063 +/- 0.028	0.606 +/- 0.092
16-oct-1997	LH	ah	V	1.51 +/- 0.19	0.048 +/- 0.032	0.72 +/- 0.13
16-oct-1997	LH	aeH	V	1.5 +/- 0.2	0.048 +/- 0.033	0.72 +/- 0.13
17-mar-1998	QU	a	V	1.32 +/- 0.47	0.17 +/- 0.15	0.72 +/- 0.32
15-apr-1998	QU	a	V	1.48 +/- 0.55	<0.46 +/- 0.13U	0.38 +/- 0.25B
16-jul-1998	QU	a	V	1.72 +/- 0.63	<0.41 +/- 0.18U	0.72 +/- 0.38
15-oct-1998	QU	ah	V	1.76 +/- 0.61B	<0.18 +/- 0.11U	0.82 +/- 0.37B
15-oct-1998	QU	aeH	V	1.14 +/- 0.46B	<0.19 +/- 0.11U	0.57 +/- 0.3B
13-jan-1999	QU	a	V	1.38 +/- 0.32B	<0.054 +/- 0.037U	0.75 +/- 0.19B
13-apr-1999	TN	ah	V	1.54 +/- 0.13	<0.1 +/- 0.017U	0.75 +/- 0.088
13-apr-1999	TN	aeH	V	1.58 +/- 0.14	<0.1 +/- 0.025U	0.849 +/- 0.095
09-jul-1999	TN	a	V	1.75 +/- 0.22	<0.1 +/- 0.027UE	0.853 +/- 0.12
04-oct-1999	TN	a	V	1.51 +/- 0.19	<0.1 +/- 0.03EU	0.702 +/- 0.1
09-feb-2000	TN	a	V	1.35 +/- 0.18	<0.1 +/- 0.03EU	0.687 +/- 0.11
19-apr-2000	TN	a	V	1.59 +/- 0.22	<0.1 +/- 0.031EU	0.758 +/- 0.13
20-jul-2000	TN	ah	V	1.4 +/- 0.18	<0.1 +/- 0.027EU	0.682 +/- 0.110
20-jul-2000	TN	aeH	V	1.47 +/- 0.19	<0.1 +/- 0.025EU	0.774 +/- 0.110
24-oct-2000	TN	a	V	1.58 +/- 0.2	<0.1 +/- 0.033EU	0.732 +/- 0.11
22-jan-2001	TN	a	V	1.38 +/- 0.18	<0.1 +/- 0.021EU	0.672 +/- 0.099
20-apr-2001	TN	a	V	1.57 +/- 0.22	<0.1 +/- 0.035EU	0.601 +/- 0.11
11-jul-2001	TN	a	V	1.33 +/- 0.17	<0.1 +/- 0.015EU	0.722 +/- 0.1
23-oct-2001	TN	a	V	1.44 +/- 0.18	<0.1 +/- 0.023EU	0.667 +/- 0.097
22-jan-2002	TN	a	V	1.45 +/- 0.19	<0.1 +/- 0.023EU	0.757 +/- 0.12
18-apr-2002	TN	a	V	1.42 +/- 0.18	<0.1 +/- 0.022EU	0.695 +/- 0.1
30-jul-2002	TN	a	V	1.4 +/- 0.18	<0.1 +/- 0.027EU	0.692 +/- 0.11
06-dec-2002	TN	a	V	1.26 +/- 0.17	<0.1 +/- 0.024EU	0.67 +/- 0.11
31-jan-2003	TN	a	V	1.22 +/- 0.17	<0.1 +/- 0.013U	0.593 +/- 0.1
02-may-2003	TN	a	V	1.42 +/- 0.21	<0.1 +/- 0.028U	0.783 +/- 0.14
K2-01A						
22-may-1997	LH	ah	V	0.094 +/- 0.025B	<0.0095 +/- 0.0072U	0.054 +/- 0.017B
22-may-1997	LH	aeH	V	0.079 +/- 0.024B	0.0084 +/- 0.0068B	0.044 +/- 0.016B
09-dec-1997	LH	a	V	0.106 +/- 0.043	<0.016 +/- 0.014U	0.048 +/- 0.029
25-jun-1998	QU	a	V	<0.28 +/- 0.24U	<0.44 +/- 0.3U	<0.32 +/- 0.24U
17-dec-1998	QU	a	V	0.099 +/- 0.054B	0.026 +/- 0.026	0.047 +/- 0.033B

Table A-13. Ground and surface water analyses for uranium isotopes (pCi/L) in samples collected from the Building 850 subarea between July 1, 1995 and June 30, 2003. Results recorded by November 4, 2003.

Location Date	Lab Note	Val.	Uranium 233+234	Uranium 235+236	Uranium 238
K2-01A (continued)					
21-may-1999	TN ah	V	<0.1 +/- 0.029U	<0.1 +/- 0.009U	<0.1 +/- 0.016U
21-may-1999	TN aeh	V	<0.1 +/- 0.025U	<0.1 +/- 0.01U	<0.1 +/- 0.02U
02-nov-1999	TN a	V	<0.1 +/- 0.033EU	<0.1 +/- 0.007U	<0.1 +/- 0.016U
24-may-2000	TN a	V	0.1 +/- 0.04	<0.1 +/- 0.016U	<0.1 +/- 0.019U
07-dec-2000	TN ah	V	1.5 +/- 0.2	<0.1 +/- 0.022EU	0.854 +/- 0.13
07-dec-2000	TN aeh	V	2.51 +/- 0.3	0.134 +/- 0.042	2.06 +/- 0.26
30-may-2001	TN a	V	<0.1 +/- 0.026EU	<0.1 +/- 0.01U	<0.1 +/- 0.013U
17-dec-2001	TN a	V	<0.1 +/- 0.026EU	<0.1 +/- 0.013U	<0.1 +/- 0.021EU
29-may-2002	TN a	V	<0.1 +/- 0.035EU	<0.1 +/- 0.012U	<0.1 +/- 0.031EU
28-oct-2002	TN a	V	<0.1 +/- 0.028EU	<0.1 +/- 0.007U	<0.1 +/- 0.023EU
18-jun-2003	TN a	V	<0.1 +/- 0.026UE	<0.1 +/- 0.005U	<0.1 +/- 0.017UE
K2-01B					
22-may-1997	LH a	V	1.76 +/- 0.13B	0.078 +/- 0.021	1.201 +/- 0.098B
09-dec-1997	LH ah	V	2.23 +/- 0.21B	0.136 +/- 0.046B	1.61 +/- 0.17B
09-dec-1997	LH aeh	V	2.41 +/- 0.22	0.104 +/- 0.041	1.64 +/- 0.18
25-jun-1998	QU a	V	1.63 +/- 0.64B	<0.13 +/- 0.14U	0.87 +/- 0.43B
K2-01C					
19-may-1997	LH aeh	V	4.47 +/- 0.27B	0.211 +/- 0.035B	4.16 +/- 0.25B
19-may-1997	LH ah	V	4.44 +/- 0.28B	0.284 +/- 0.044B	3.99 +/- 0.25B
14-dec-1998	QU a	V	2.98 +/- 0.61B	0.13 +/- 0.05B	2.73 +/- 0.56B
26-may-1999	TN a	V	3.06 +/- 0.36	0.119 +/- 0.04	2.6 +/- 0.31
08-nov-1999	TN a	V	2.41 +/- 0.31	0.113 +/- 0.043	1.85 +/- 0.24
17-may-2000	TN a	V	3 +/- 0.36	0.182 +/- 0.051	2.61 +/- 0.32
21-nov-2000	TN a	V	2.49 +/- 0.29	0.138 +/- 0.037	2.09 +/- 0.25
16-may-2001	TN a	V	2.51 +/- 0.31	0.163 +/- 0.051	1.99 +/- 0.26
14-nov-2001	TN a	V	5.07 +/- 0.57	0.187 +/- 0.047	4.6 +/- 0.52
14-may-2002	TN a	V	4.51 +/- 0.51	0.231 +/- 0.059	4.01 +/- 0.46
K2-02A					
21-may-1997	LH a	V	3.29 +/- 0.23BF	0.214 +/- 0.041B	1.043 +/- 0.1
04-dec-1997	LH a	V	3.27 +/- 0.26B	0.089 +/- 0.035B	0.92 +/- 0.12B
24-jun-1998	QU ah	V	2.25 +/- 0.75B	0.26 +/- 0.23	1.17 +/- 0.48B
24-jun-1998	QU aeh	V	2.98 +/- 0.83B	<0.12 +/- 0.012U	0.68 +/- 0.3B
16-dec-1998	QU a	V	3.18 +/- 0.66FB	<0.067 +/- 0.047U	0.84 +/- 0.2B
17-may-1999	TN a	V	2.53 +/- 0.17	<0.1 +/- 0.023UE	0.646 +/- 0.082
02-nov-1999	TN ah	V	1.71 +/- 0.23	<0.1 +/- 0.02EU	0.448 +/- 0.086
02-nov-1999	TN aeh	V	1.96 +/- 0.25	<0.1 +/- 0.025EU	0.568 +/- 0.097
24-may-2000	TN a	V	1.64 +/- 0.24	<0.1 +/- 0.02U	0.482 +/- 0.11
07-dec-2000	TN a	V	1.36 +/- 0.18	<0.1 +/- 0.017U	0.353 +/- 0.07
30-may-2001	TN ah	V	1.96 +/- 0.24	<0.1 +/- 0.015U	0.437 +/- 0.078
30-may-2001	TN aeh	V	1.36 +/- 0.17	<0.1 +/- 0.02EU	0.376 +/- 0.07
17-dec-2001	TN a	V	1.41 +/- 0.19	<0.1 +/- 0.02EU	0.351 +/- 0.065
29-may-2002	TN a	V	1.46 +/- 0.18	<0.1 +/- 0.019EU	0.391 +/- 0.068
28-oct-2002	TN a	V	1.21 +/- 0.12	<0.1 +/- 0.002U	0.323 +/- 0.032
K2-02B					
21-may-1997	LH a	V	0.071 +/- 0.024BF	0.018 +/- 0.011	0.044 +/- 0.017B
04-dec-1997	LH a	V	0.075 +/- 0.036B	<0.022 +/- 0.013U	<0.032 +/- 0.025U
24-jun-1998	QU a	V	0.23 +/- 0.19B	<0.16 +/- 0.11U	0.17 +/- 0.15B
16-dec-1998	QU a	V	<0.03 +/- 0.019U	0.014 +/- 0.014B	0.033 +/- 0.023B
17-may-1999	TN a	V	<0.1 +/- 0.019U	<0.1 +/- 0.012U	<0.1 +/- 0.014U
02-nov-1999	TN a	V	<0.1 +/- 0.023U	<0.1 +/- 0.014U	<0.1 +/- 0.011U
24-may-2000	TN ah	V	<0.1 +/- 0.04U	<0.1 +/- 0.019U	<0.1 +/- 0.016U
24-may-2000	TN aeh	V	<0.1 +/- 0.023U	<0.1 +/- 0.019U	<0.1 +/- 0.016U
07-dec-2000	TN a	V	<0.1 +/- 0.022EU	<0.1 +/- 0.005U	<0.1 +/- 0.017EU
30-may-2001	TN a	V	<0.1 +/- 0.022U	<0.1 +/- 0.011U	<0.1 +/- 0.009U
17-dec-2001	TN a	V	<0.1 +/- 0.018U	<0.1 +/- 0.011U	<0.1 +/- 0.009U
29-may-2002	TN a	V	<0.1 +/- 0.018EU	<0.1 +/- 0.005U	<0.1 +/- 0.009U
28-oct-2002	TN a	V	<0.1 +/- 0.011U	<0.1 +/- 0.014U	<0.1 +/- 0.006U
K2-04D					
14-may-1997	LH a	V	1.58 +/- 0.12B	0.04 +/- 0.016B	1.034 +/- 0.092B
24-nov-1997	LH ah	V	1.68 +/- 0.18	0.087 +/- 0.037	1.08 +/- 0.14
24-nov-1997	LH aeh	V	1.79 +/- 0.19	0.09 +/- 0.04	1.12 +/- 0.14
22-jun-1998	QU a	V	1.57 +/- 0.5B	<0.12 +/- 0.12U	0.86 +/- 0.33

Table A-13. Ground and surface water analyses for uranium isotopes (pCi/L) in samples collected from the Building 850 subarea between July 1, 1995 and June 30, 2003. Results recorded by November 4, 2003.

Location Date	Lab Note	Val.	Uranium 233+234	Uranium 235+236	Uranium 238	
K2-04D (continued)						
07-dec-1998	QU	ah	V	1.52 +/- 0.34B	0.1 +/- 0.05	0.93 +/- 0.23B
07-dec-1998	QU	aeh	V	1.47 +/- 0.32	<0.06 +/- 0.037U	0.99 +/- 0.23
26-may-1999	TN	a	V	1.61 +/- 0.21	<0.1 +/- 0.035U	1.03 +/- 0.15
08-nov-1999	TN	a	V	1.21 +/- 0.17	<0.1 +/- 0.021EU	0.717 +/- 0.12
17-may-2000	TN	a	V	1.28 +/- 0.18	<0.1 +/- 0.031EU	0.775 +/- 0.12
21-nov-2000	TN	a	V	1.58 +/- 0.2	<0.1 +/- 0.035EU	0.793 +/- 0.12
06-jun-2001	TN	a	V	1.49 +/- 0.19	<0.1 +/- 0.027EU	0.909 +/- 0.12
14-nov-2001	TN	a	V	1.55 +/- 0.2	<0.1 +/- 0.028EU	0.895 +/- 0.13
16-may-2002	TN	aeh	V	1.55 +/- 0.19	<0.1 +/- 0.027EU	0.91 +/- 0.13
16-may-2002	TN	ah	V	1.58 +/- 0.19	<0.1 +/- 0.026EU	0.994 +/- 0.13
26-dec-2002	TN	a	V	1.41 +/- 0.21	<0.1 +/- 0.035EU	0.839 +/- 0.14
K2-04S						
14-may-1997	LH	a	V	2.97 +/- 0.28BO	0.126 +/- 0.049	2.41 +/- 0.24
18-nov-1997	LH	a	V	2.64 +/- 0.23	0.178 +/- 0.051	2.33 +/- 0.22
22-jun-1998	QU	a	V	9.38 +/- 2.08B	0.82 +/- 0.35	2.1 +/- 0.61
30-nov-1998	QU	a	V	6.28 +/- 1.29B	<0.11 +/- 0.071U	2.16 +/- 0.47B
02-jun-1999	TN	ah	N	1.59 +/- 0.2	<0.1 +/- 0.025EU	1.15 +/- 0.15
02-jun-1999	TN	aeh	N	1.52 +/- 0.21	<0.1 +/- 0.038EU	1.15 +/- 0.17
09-nov-1999	TN	a	V	1.44 +/- 0.19	<0.1 +/- 0.034EU	1.12 +/- 0.15
18-may-2000	TN	a	V	1.81 +/- 0.24	<0.1 +/- 0.037EU	1.46 +/- 0.2
27-nov-2000	TN	a	V	1.94 +/- 0.24	<0.1 +/- 0.032EU	1.47 +/- 0.19
16-may-2001	TN	ah	V	1.91 +/- 0.25	<0.1 +/- 0.034EU	1.46 +/- 0.2
16-may-2001	TN	aeh	V	1.8 +/- 0.23	0.106 +/- 0.036	1.36 +/- 0.18
14-nov-2001	TN	a	V	1.63 +/- 0.21	<0.1 +/- 0.027EU	1.28 +/- 0.17
16-may-2002	TN	a	V	1.68 +/- 0.21	<0.1 +/- 0.027EU	1.39 +/- 0.18
27-dec-2002	TN	a	V	1.65 +/- 0.23	<0.1 +/- 0.027EU	1.18 +/- 0.18
NC2-05A						
20-may-1997	LH	a	V	6.43 +/- 0.47BO	0.211 +/- 0.063	4.2 +/- 0.35
26-may-1999	GE	ag	V	4.35 +/- 0.622	0.156 +/- 0.0806	2.35 +/- 0.392
26-may-1999	TN	ag	V	4.31 +/- 0.51	0.13 +/- 0.044	2.48 +/- 0.31
19-may-2000	TN	a	V	3.23 +/- 0.37	<0.1 +/- 0.032EU	2 +/- 0.24
18-may-2001	GE	a	V	2.96 +/- 0.34	0.13 +/- 0.043	1.8 +/- 0.227
18-may-2001	TN	a	V	2.86 +/- 0.35	<0.1 +/- 0.041EU	1.85 +/- 0.24
10-may-2002	TN	a	V	3 +/- 0.36	0.15 +/- 0.046	1.92 +/- 0.24
NC2-07						
19-may-1997	LH	a	V	4.18 +/- 0.26B	0.21 +/- 0.036	3.32 +/- 0.21B
01-dec-1997	LH	a	V	4.61 +/- 0.35F	0.172 +/- 0.051F	3.49 +/- 0.29F
23-jun-1998	QU	a	V	4.06 +/- 1.38B	<0.36 +/- 0.25U	2.86 +/- 1.06B
09-dec-1998	QU	a	V	3.63 +/- 0.74B	0.17 +/- 0.06B	2.8 +/- 0.58B
03-jun-1999	TN	a	N	4.13 +/- 0.47	0.205 +/- 0.051	3.18 +/- 0.37
15-nov-1999	TN	ah	V	3.4 +/- 0.4	0.167 +/- 0.05	2.51 +/- 0.3
15-nov-1999	TN	aeh	V	3.34 +/- 0.39	0.24 +/- 0.055	2.6 +/- 0.31
22-may-2000	TN	a	V	3.83 +/- 0.51	0.151 +/- 0.06	3.18 +/- 0.43
28-nov-2000	TN	a	V	3.85 +/- 0.44	0.15 +/- 0.044	2.94 +/- 0.34
16-may-2001	TN	a	V	3.86 +/- 0.47	0.202 +/- 0.061	2.86 +/- 0.37
19-nov-2001	TN	a	V	3.73 +/- 0.42	0.188 +/- 0.048	2.71 +/- 0.31
15-may-2002	TN	a	V	4.03 +/- 0.46	0.189 +/- 0.048	3.2 +/- 0.38
13-jun-2003	TN	a	V	4.39 +/- 0.51	0.242 +/- 0.067	3.43 +/- 0.41
NC2-08						
20-may-1997	LH	a	V	1.55 +/- 0.18BO	0.045 +/- 0.03	0.99 +/- 0.14
26-may-1999	GE	ag	V	1.15 +/- 0.235	<0.1 +/- 0.0406U	0.76 +/- 0.182
26-may-1999	TN	ag	V	1.78 +/- 0.23	<0.1 +/- 0.029U	1.23 +/- 0.16
24-may-2000	TN	a	V	2.64 +/- 0.32	0.106 +/- 0.036	1.55 +/- 0.2
11-may-2001	TN	a	V	2.3 +/- 0.3	0.111 +/- 0.04	1.36 +/- 0.2
14-may-2002	TN	a	V	1.93 +/- 0.24	<0.1 +/- 0.03EU	1.14 +/- 0.15
NC2-11D						
15-may-1997	LH	a	V	3.3 +/- 0.21	0.165 +/- 0.032	2.09 +/- 0.15
02-dec-1997	LH	a	V	3.2 +/- 0.27B	0.125 +/- 0.044B	1.97 +/- 0.2
07-dec-1998	QU	a	V	3.05 +/- 0.64	0.13 +/- 0.06	2.04 +/- 0.44
25-may-1999	TN	a	V	3.24 +/- 0.38	0.148 +/- 0.048	1.91 +/- 0.24
10-nov-1999	TN	a	V	2.44 +/- 0.3	0.102 +/- 0.039	1.47 +/- 0.2
17-may-2000	TN	ah	V	2.82 +/- 0.47	<0.1 +/- 0.087U	1.75 +/- 0.32

Table A-13. Ground and surface water analyses for uranium isotopes (pCi/L) in samples collected from the Building 850 subarea between July 1, 1995 and June 30, 2003. Results recorded by November 4, 2003.

Location Date	Lab Note	Val.	Uranium 233+234	Uranium 235+236	Uranium 238	
NC2-11D (continued)						
17-may-2000	TN	aeH	V	3 +/- 0.36	0.138 +/- 0.039	1.7 +/- 0.21
27-nov-2000	TN	a	V	3 +/- 0.34	0.166 +/- 0.044	1.86 +/- 0.23
17-may-2001	TN	a	V	2.57 +/- 0.35	0.198 +/- 0.068	1.64 +/- 0.25
14-nov-2001	TN	a	V	2.77 +/- 0.33	0.134 +/- 0.039	1.74 +/- 0.22
14-may-2002	TN	a	V	2.57 +/- 0.31	<0.1 +/- 0.022EU	1.71 +/- 0.21
27-dec-2002	TN	a	V	2.55 +/- 0.3	<0.1 +/- 0.032EU	1.64 +/- 0.2
NC2-11S						
21-may-1997	FG	ag	V	3.287 +/- 0.35	0.1047 +/- 0.07	1.806 +/- 0.24
21-may-1997	LH	ag	V	3.51 +/- 0.31BO	0.108 +/- 0.045	2.09 +/- 0.22
07-may-1998	FG	ag	V	3.12 +/- 0.37	<0.13 +/- 0.09U	1.71 +/- 0.26
07-may-1998	QU	ag	V	3.4 +/- 0.89B	0.17 +/- 0.14	1.77 +/- 0.53B
26-may-1999	TN	a	V	3.29 +/- 0.38	0.129 +/- 0.04	1.81 +/- 0.23
24-may-2000	TN	a	V	2.51 +/- 0.3	<0.1 +/- 0.039EU	1.53 +/- 0.2
11-may-2001	TN	a	V	2.8 +/- 0.36	0.124 +/- 0.049	1.54 +/- 0.22
10-may-2002	TN	a	V	2.54 +/- 0.31	<0.1 +/- 0.035EU	1.5 +/- 0.2
NC2-12D						
15-may-1997	LH	a	V	2.05 +/- 0.15	0.1 +/- 0.024	1.35 +/- 0.11
25-nov-1997	LH	a	V	2.32 +/- 0.23	0.132 +/- 0.047	1.47 +/- 0.17
22-jun-1998	QU	a	V	2.18 +/- 0.62B	0.18 +/- 0.15	1.6 +/- 0.5
03-dec-1998	QU	a	V	2.1 +/- 0.45B	0.11 +/- 0.06	1.33 +/- 0.3B
24-may-1999	TN	a	V	2.05 +/- 0.25	<0.1 +/- 0.029U	1.3 +/- 0.17
10-nov-1999	TN	a	V	1.43 +/- 0.19	<0.1 +/- 0.029EU	1.03 +/- 0.14
17-may-2000	TN	a	V	1.8 +/- 0.23	0.111 +/- 0.041	1.15 +/- 0.17
27-nov-2000	TN	a	V	1.92 +/- 0.24	<0.1 +/- 0.033EU	1.13 +/- 0.16
17-may-2001	TN	a	V	1.88 +/- 0.24	<0.1 +/- 0.03EU	1.11 +/- 0.16
14-nov-2001	TN	a	V	1.79 +/- 0.22	<0.1 +/- 0.032EU	1.14 +/- 0.15
14-may-2002	TN	a	V	2.1 +/- 0.26	<0.1 +/- 0.034EU	1.28 +/- 0.18
26-dec-2002	TN	a	V	2.04 +/- 0.27	<0.1 +/- 0.035EU	1.31 +/- 0.19
NC2-13						
29-apr-1997	LH	a	V	3.92 +/- 0.28B	0.203 +/- 0.046	2.69 +/- 0.21
24-apr-1998	QU	a	V	3.58 +/- 1.04B	<0.42 +/- 0.25U	2.43 +/- 0.76B
16-jun-1999	TN	ah	V	2.89 +/- 0.38	0.117 +/- 0.052	1.92 +/- 0.27
16-jun-1999	TN	aeH	V	2.84 +/- 0.34	0.116 +/- 0.037	1.84 +/- 0.23
25-may-2000	TN	a	N	2.85 +/- 0.35	0.147 +/- 0.046	1.75 +/- 0.23
14-may-2001	GE	ag	V	2.8 +/- 0.333	<0.1 +/- 0.0627U	1.81 +/- 0.234
14-may-2001	TN	ag	V	2.76 +/- 0.35	0.132 +/- 0.049	1.82 +/- 0.25
14-may-2002	TN	a	V	2.97 +/- 0.34	0.123 +/- 0.035	1.9 +/- 0.23
NC2-14S						
21-may-1997	LH	a	V	2.88 +/- 0.26BO	0.13 +/- 0.048	2.61 +/- 0.25
19-may-1998	QU	a	V	2.53 +/- 0.78B	<0.29 +/- 0.17U	2.85 +/- 0.85B
16-jun-1999	TN	a	V	1.95 +/- 0.24	<0.1 +/- 0.031UE	1.61 +/- 0.2
25-may-2000	TN	ag	N	1.92 +/- 0.24	0.105 +/- 0.039	1.46 +/- 0.19
21-may-2002	TN	a	V	1.73 +/- 0.24	<0.1 +/- 0.033EU	1.46 +/- 0.21
NC7-10						
22-may-1997	LH	a	V	2.29 +/- 0.16B	0.091 +/- 0.024	1.56 +/- 0.12B
NC7-11						
22-may-1997	LH	a	V	1.63 +/- 0.13B	0.067 +/- 0.021	1.43 +/- 0.12B
12-may-1998	QU	a	V	1.85 +/- 0.56B	<0.23 +/- 0.17U	1.44 +/- 0.47B
13-jun-2000	TN	a	V	1.36 +/- 0.23	<0.1 +/- 0.06EU	1.18 +/- 0.22
14-may-2001	TN	a	V	1.13 +/- 0.17	<0.1 +/- 0.037EU	1.04 +/- 0.16
NC7-15						
30-may-1997	FG	a	V	1.627 +/- 0.2397	<0.17 +/- 0.0896U	1.128 +/- 0.2014
30-may-1997	LH	a	V	1.5 +/- 0.12B	0.071 +/- 0.024B	1.39 +/- 0.12B
07-nov-1997	LH	a	V	1.5 +/- 0.17B	0.127 +/- 0.044B	1.41 +/- 0.16B
12-may-1998	FG	ag	V	1.87 +/- 0.23	0.11 +/- 0.05	1.63 +/- 0.21
12-may-1998	QU	ag	V	1.84 +/- 0.59B	<0.083 U	1.64 +/- 0.54B
23-nov-1998	GE	agj	V	2.14 +/- 0.272	<0.1 +/- 0.0422UE	2.01 +/- 0.258
23-nov-1998	QU	ag	V	3.25 +/- 0.66B	0.24 +/- 0.07B	2.15 +/- 0.44
03-dec-1999	TN	a	V	1.08 +/- 0.15L	<0.1 +/- 0.038EU	0.908 +/- 0.14L
05-jun-2000	TN	a	N	0.692 +/- 0.11	<0.1 +/- 0.018OU	0.587 +/- 0.10

Table A-13. Ground and surface water analyses for uranium isotopes (pCi/L) in samples collected from the Building 850 subarea between July 1, 1995 and June 30, 2003. Results recorded by November 4, 2003.

Location Date	Lab Note	Val.	Uranium 233+234	Uranium 235+236	Uranium 238	
NC7-15 (continued)						
30-oct-2000	TN	a	V	1.08 +/- 0.2	<0.1 +/- 0.029U	0.925 +/- 0.18
NC7-19						
20-nov-1995	IT	aeH	V	2.7 +/- 0.47B	0.3 +/- 0.1B	2.48 +/- 0.44B
20-nov-1995	IT	ah	V	2.8 +/- 0.48B	0.18 +/- 0.07B	2.47 +/- 0.42B
15-may-1996	LH	a	V	3.13 +/- 0.76	<0.25 +/- 0.2UO	2.34 +/- 0.66
NC7-27						
09-jun-1997	LH	a	V	2.09 +/- 0.15B	0.099 +/- 0.025B	1.67 +/- 0.13B
30-oct-1997	LH	a	V	2.28 +/- 0.22O	0.111 +/- 0.043O	1.75 +/- 0.18
20-may-1998	QU	a	V	1.97 +/- 0.67B	<0.4 +/- 0.17U	1.84 +/- 0.64B
24-nov-1998	QU	a	V	1.74 +/- 0.38B	<0.06 +/- 0.046BU	1.36 +/- 0.31
07-jun-1999	TN	a	N	1.91 +/- 0.24	0.12 +/- 0.04	1.44 +/- 0.19
06-dec-1999	TN	a	V	1.46 +/- 0.19L	<0.1 +/- 0.032EU	1.15 +/- 0.15L
26-may-2000	TN	a	N	1.54 +/- 0.21	<0.1 +/- 0.038EU	1.12 +/- 0.16
14-nov-2000	TN	a	V	1.87 +/- 0.23	<0.1 +/- 0.028EU	1.36 +/- 0.17
18-may-2001	TN	a	V	1.86 +/- 0.26	<0.1 +/- 0.042EU	1.42 +/- 0.21
15-nov-2001	TN	a	V	1.3 +/- 0.17	<0.1 +/- 0.028EU	1.04 +/- 0.14
22-may-2002	TN	a	V	1.71 +/- 0.22	<0.1 +/- 0.035EU	1.31 +/- 0.18
NC7-28						
05-jun-1997	LH	a	V	2.07 +/- 0.15B	0.161 +/- 0.031B	5.31 +/- 0.31B
31-oct-1997	LH	a	V	2.33 +/- 0.21B	0.174 +/- 0.049B	6.66 +/- 0.44B
NC7-29						
29-apr-1997	LH	a	V	8.12 +/- 0.5B	0.418 +/- 0.071	7.13 +/- 0.45
18-may-1998	QU	a	V	9.41 +/- 2.17B	0.38 +/- 0.27B	6.05 +/- 1.46B
21-may-1999	TN	a	V	7.53 +/- 0.83	0.385 +/- 0.078	5.93 +/- 0.66
21-may-2001	TN	a	V	6.59 +/- 0.79	0.284 +/- 0.086	5.53 +/- 0.67
29-may-2002	TN	a	V	6.26 +/- 0.69	0.347 +/- 0.068	5.36 +/- 0.6
NC7-43						
05-jun-1997	LH	a	V	1.027 +/- 0.09B	0.05 +/- 0.019B	1.071 +/- 0.092B
12-may-1998	QU	a	V	2.08 +/- 0.82B	<0.33 +/- 0.13U	1.16 +/- 0.56B
07-jun-1999	GE	ag	V	0.163 +/- 0.0975	<0.1 +/- 0.0246U	0.13 +/- 0.0757
07-jun-1999	TN	ag	N	<0.1 +/- 0.024EU	<0.1 +/- 0.006U	<0.1 +/- 0.019EU
05-jun-2000	TN	a	N	<0.1 +/- 0.028U	<0.1 +/- 0.0070U	<0.1 +/- 0.023EUO
22-may-2001	TN	a	V	<0.1 +/- 0.05EU	<0.1 +/- 0.02U	<0.1 +/- 0.024U
16-may-2002	TN	a	V	<0.1 +/- 0.023EU	<0.1 +/- 0.009U	<0.1 +/- 0.015EU
NC7-44						
09-may-1997	LH	a	V	1.8 +/- 0.17B	0.111 +/- 0.036	1.12 +/- 0.13
18-may-1998	QU	a	V	1.62 +/- 0.48B	<0.13 +/- 0.078U	0.99 +/- 0.34B
21-may-1999	TN	a	V	0.971 +/- 0.14	<0.1 +/- 0.029U	0.506 +/- 0.087
22-may-2000	TN	a	V	1.02 +/- 0.14	<0.1 +/- 0.021EU	0.584 +/- 0.096
16-may-2001	TN	a	V	0.988 +/- 0.14	<0.1 +/- 0.024EU	0.455 +/- 0.084
29-may-2002	TN	a	V	0.999 +/- 0.14	<0.1 +/- 0.02EU	0.507 +/- 0.085
NC7-45						
23-may-1997	LH	a	V	3.57 +/- 0.24B	0.215 +/- 0.041B	3.2 +/- 0.22
07-nov-1997	LH	a	V	3.87 +/- 0.31B	0.273 +/- 0.067B	3.57 +/- 0.3B
NC7-54						
22-may-1997	LH	a	V	2.4 +/- 0.16B	0.094 +/- 0.023	2.61 +/- 0.17B
NC7-55						
06-may-1998	QU	a	V	3.3 +/- 0.87B	<0.43 +/- 0.22U	3 +/- 0.81B
NC7-56						
21-may-1997	FG	ag	V	2.764 +/- 0.3271	<0.09 +/- 0.0586 U	2.507 +/- 0.3063
21-may-1997	LH	ag	V	3.03 +/- 0.28BO	0.105 +/- 0.045	2.39 +/- 0.24
27-oct-1997	LH	a	V	3 +/- 0.27H	0.153 +/- 0.052H	2.53 +/- 0.24H
19-may-1998	FG	ag	V	3.2 +/- 0.35	0.1 +/- 0.07	2.92 +/- 0.32
19-may-1998	QU	ag	V	3.05 +/- 0.89B	0.17 +/- 0.16	2.45 +/- 0.75B
24-nov-1998	QU	a	V	8.2 +/- 1.63B	0.28 +/- 0.09B	4.05 +/- 0.82
07-dec-1999	TN	a	V	2.33 +/- 0.28L	0.156 +/- 0.045	1.8 +/- 0.23L

Table A-13. Ground and surface water analyses for uranium isotopes (pCi/L) in samples collected from the Building 850 subarea between July 1, 1995 and June 30, 2003. Results recorded by November 4, 2003.

Location Date	Lab Note	Val.	Uranium 233+234	Uranium 235+236	Uranium 238
NC7-59					
21-may-1997	LH a	V	2.57 +/- 0.24BO	0.151 +/- 0.052	2.12 +/- 0.22
01-jun-1998	QU a	V	4.55 +/- 1.37B	<0.24 +/- 0.15U	2.61 +/- 0.89
NC7-60					
09-jun-1997	LH a	V	1.48 +/- 0.12B	0.105 +/- 0.026B	1.094 +/- 0.099B
30-oct-1997	LH a	V	1.32 +/- 0.150	0.096 +/- 0.0370	0.85 +/- 0.12
24-nov-1998	QU a	V	2.88 +/- 0.59B	0.22 +/- 0.07B	1.44 +/- 0.3
29-jan-1999	QU a	V	1.03 +/- 0.23B	0.048 +/- 0.035	0.69 +/- 0.16B
09-jun-1999	TN a	V	1 +/- 0.15	<0.1 +/- 0.03UE	0.722 +/- 0.11
26-aug-1999	TN a	V	1.03 +/- 0.17	<0.1 +/- 0.032U	0.636 +/- 0.13
06-dec-1999	TN a	V	0.938 +/- 0.13L	<0.1 +/- 0.015EU	0.627 +/- 0.097L
27-mar-2000	QR ag	N	1.25 +/- 0.29	-	1.02 +/- 0.252
27-mar-2000	TN ag	V	1.1 +/- 0.15	<0.1 +/- 0.029EU	0.736 +/- 0.11
NC7-61					
13-may-1997	LH a	V	3.46 +/- 0.27B	0.152 +/- 0.046B	3.53 +/- 0.28B
18-nov-1997	LH a	V	3.39 +/- 0.29	0.21 +/- 0.06	3.26 +/- 0.28
02-jun-1998	QU a	V	3.04 +/- 0.9B	0.21 +/- 0.19	2.81 +/- 0.84
02-dec-1998	QU a	V	5.42 +/- 1.12	0.18 +/- 0.07	2.43 +/- 0.52
01-jun-1999	TN a	V	1.91 +/- 0.23	<0.1 +/- 0.03U	1.84 +/- 0.23
09-nov-1999	TN a	V	1.12 +/- 0.16	<0.1 +/- 0.027EU	0.988 +/- 0.15
18-may-2000	TN a	V	1.21 +/- 0.18	<0.1 +/- 0.035EU	1.15 +/- 0.17
20-nov-2000	TN ah	V	1.09 +/- 0.14	<0.1 +/- 0.027EU	1.11 +/- 0.15
20-nov-2000	TN aeh	V	1.12 +/- 0.15	<0.1 +/- 0.027EU	1.04 +/- 0.14
21-may-2001	TN a	V	1.2 +/- 0.16	<0.1 +/- 0.022EU	1.09 +/- 0.16
15-nov-2001	TN a	V	1.23 +/- 0.16	<0.1 +/- 0.027EU	1.18 +/- 0.16
16-may-2002	TN a	V	1.39 +/- 0.18	<0.1 +/- 0.027EU	1.41 +/- 0.18
NC7-62					
21-nov-1995	IT a	V	4.74 +/- 0.76B	0.36 +/- 0.09B	3.73 +/- 0.6B
21-may-1997	LH a	V	2.88 +/- 0.29BO	0.175 +/- 0.063	2.45 +/- 0.26
27-oct-1997	LH a	V	2.8 +/- 0.24H	0.112 +/- 0.041H	2.31 +/- 0.21H
19-may-1998	QU a	V	2.9 +/- 0.86B	<0.2 +/- 0.18U	2.08 +/- 0.67B
11-jun-1999	TN a	V	1.94 +/- 0.25	0.112 +/- 0.037	1.75 +/- 0.22
NC7-69					
13-may-1997	LH a	V	0.129 +/- 0.03B	<0.02 +/- 0.011U	0.054 +/- 0.02B
18-nov-1997	LH a	V	0.059 +/- 0.033	0.017 +/- 0.015	0.041 +/- 0.024
02-jun-1998	QU a	V	0.42 +/- 0.26B	<0.39 +/- 0.16U	<0.33 +/- 0.17U
03-dec-1998	QU a	V	<0.072 +/- 0.048BU	<0.055 +/- 0.031U	<0.054 +/- 0.029BU
10-nov-1999	TN a	V	<0.1 +/- 0.031EU	<0.1 +/- 0.012U	<0.1 +/- 0.015U
17-may-2000	TN a	V	<0.1 +/- 0.029EU	<0.1 +/- 0.014U	<0.1 +/- 0.023U
20-nov-2000	TN a	V	<0.1 +/- 0.028EU	<0.1 +/- 0.014U	<0.1 +/- 0.015EU
22-may-2001	TN a	V	<0.1 +/- 0.047U	<0.1 +/- 0.016U	<0.1 +/- 0.027U
15-nov-2001	TN ah	V	<0.1 +/- 0.018EU	<0.1 +/- 0.005U	<0.1 +/- 0.018EU
15-nov-2001	TN aeh	V	<0.1 +/- 0.024EU	<0.1 +/- 0.008U	<0.1 +/- 0.021EU
16-may-2002	TN a	V	<0.1 +/- 0.028EU	<0.1 +/- 0.014U	<0.1 +/- 0.019EU
27-dec-2002	TN ah	V	<0.1 +/- 0.028EU	<0.1 +/- 0.008U	<0.1 +/- 0.017EU
27-dec-2002	TN aegh	V	<0.1 +/- 0.026EU	<0.1 +/- 0.008U	<0.1 +/- 0.018EU
NC7-70					
28-jan-1997	LH a	V	1.03 +/- 0.16BLO	0.101 +/- 0.048BLO	0.73 +/- 0.13LO
30-may-1997	FG a	V	0.3265 +/- 0.1053	<0.07 +/- 0.0346U	0.1813 +/- 0.0788
30-may-1997	LH a	V	0.902 +/- 0.09B	0.066 +/- 0.021B	0.441 +/- 0.059B
30-jul-1997	LH a	V	1.2 +/- 0.140	0.071 +/- 0.033	0.654 +/- 0.098
29-oct-1997	FG a	V	0.87 +/- 0.160	<0.08 +/- 0.05U	0.49 +/- 0.1205
29-oct-1997	LH a	V	1.07 +/- 0.140	0.054 +/- 0.0290	0.518 +/- 0.093
28-jan-1998	FG a	V	0.74 +/- 0.14	<0.07 +/- 0.04U	0.46 +/- 0.1
26-may-2000	TN a	N	1.02 +/- 0.14	<0.1 +/- 0.024EU	0.566 +/- 0.096
NC7-71					
13-may-1997	LH a	V	<0.033 +/- 0.024UO	<0.025 +/- 0.018U	<0.028 +/- 0.015U
14-may-1998	QU a	V	0.71 +/- 0.23B	<0.19 +/- 0.087U	<0.14 +/- 0.089U
NC7-72					
22-may-1997	LH a	V	2.13 +/- 0.15B	0.073 +/- 0.021	1.85 +/- 0.14B
19-may-1998	QU a	V	3.85 +/- 1.12B	<0.31 +/- 0.17U	3.02 +/- 0.93B

Table A-13. Ground and surface water analyses for uranium isotopes (pCi/L) in samples collected from the Building 850 subarea between July 1, 1995 and June 30, 2003. Results recorded by November 4, 2003.

Location Date	Lab Note	Val.	Uranium 233+234	Uranium 235+236	Uranium 238	
NC7-72 (continued)						
15-jun-1999	TN	a	V	1.83 +/- 0.24	0.117 +/- 0.037	1.54 +/- 0.2
01-jun-2000	TN	a	N	1.64 +/- 0.22	<0.1 +/- 0.037E0U	1.21 +/- 0.170
11-jun-2001	TN	a	V	1.59 +/- 0.21	<0.1 +/- 0.026EU	1.28 +/- 0.17
30-may-2002	TN	a	V	1.91 +/- 0.24	<0.1 +/- 0.031EU	1.58 +/- 0.2
NC7-73						
22-may-1997	LH	a	V	2.97 +/- 0.2B	0.137 +/- 0.029	2.42 +/- 0.17B
19-may-1998	QU	a	V	4.78 +/- 1.3B	0.22 +/- 0.19	3.96 +/- 1.11B
15-jun-1999	TN	a	V	2 +/- 0.26	<0.1 +/- 0.037UE	1.66 +/- 0.22
16-jun-2000	TN	a	V	1.95 +/- 0.25	<0.1 +/- 0.036EU	1.61 +/- 0.22
11-jun-2001	TN	a	V	1.98 +/- 0.25	<0.1 +/- 0.034EU	1.73 +/- 0.22
30-may-2002	TN	a	V	2.07 +/- 0.26	<0.1 +/- 0.033EU	1.94 +/- 0.24
W-850-05						
30-may-1997	LH	a	V	0.154 +/- 0.032B	0.017 +/- 0.011B	0.115 +/- 0.027B
07-nov-1997	LH	a	V	0.377 +/- 0.082B	0.039 +/- 0.028B	0.17 +/- 0.055B
14-may-1998	QU	a	V	0.3 +/- 0.15B	<0.12 +/- 0.089U	0.31 +/- 0.14B
20-nov-1998	QU	a	V	4.28 +/- 0.87B	0.23 +/- 0.08	3.42 +/- 0.7B
SPRING24						
22-oct-1999	TN	a	V	1.25 +/- 0.19	<0.1 +/- 0.028U	0.535 +/- 0.11
W8SPRNG						
31-oct-1995	IT	ag	V	4.7 +/- 0.98	0.63 +/- 0.22	2.46 +/- 0.56
31-oct-1995	LH	a	V	2.31 +/- 0.33B	0.081 +/- 0.064B	1.73 +/- 0.28B
15-may-1996	LH	a	V	2.34 +/- 0.28	0.111 +/- 0.0580	1.78 +/- 0.23
25-jun-1996	LH	a	V	2.3 +/- 0.250B	0.111 +/- 0.0490B	1.75 +/- 0.21B

See following page for notes

Table A-13. Ground and surface water analyses for uranium isotopes (pCi/L) in samples collected from the Building 850 subarea between July 1, 1995 and June 30, 2003. Results recorded by November 4, 2003.

Notes:

- Indicates no analysis performed for this compound

Val. = Validation code

Footnotes:

- a ERD data
- b ORAD WGMG data
- c Analytical results for this sample are suspect
- d Sample collected during hydraulic testing
- e Blind sample, sent to lab without location identity
- f Sample dilution necessary for analysis; detection limits increased
- g Interlaboratory collocated sample
- h Intralaboratory collocated sample
- i Sample collected as part of pilot study
- j Note field may contain important information regarding this sample
- k Pre-development sample
- l Norm month, norm quarter or norm year inconsistent with sample date
- m Confirmation sample
- n Sample analyzed after standard holding time
- o Sample comprised of partial composite
- p Alpha spectroscopy analysis of uranium isotopes
- q Gamma spectroscopy analysis of uranium isotopes
- r Tritium data represents non-detect with activity calc'd for 100 percent error.

Lab Codes:

- FG Fruit Growers Laboratory, Inc. 853 Corporation St. Santa Paula, Ca 93061-0272
- GE General Engineering Laboratori PO 30712, Charleston, SC 29417
- IT International Technology Corp. IS was used for short time.
- LH LAS-formerly Lockheed<1jan97 975 Kelly Johnson Las Vegas NV 89119
- QR Quanterra Env. Serv.,Richland 2800 George Washington Way, Richland,WA 99352
- QU Quanterra Env. Serv.,St.Louis 13715 Rider Trail North, Earth City, MO 63045
- TN Eberline Services 2030 Wright Ave, Richmond, CA 94804

Validation Codes:

- V Validated
- N Not validated (default value)
- U Undeclared
- H Historical comparison only

CLP flags: (follow result)

- B Analyte found in method blank
- D Analysis performed at a secondary dilution or concentration (i.e., vapor samples)
- E The analyte was detected below the LLNL reporting limit, but above the analytical laboratory minimum detection limit.
- F Analyte found in field blank, trip blank, or equipment blank
- G Quantitated using fuel calibration, but does not match typical fuel fingerprint (fuel maybe gasoline, diesel, motor oil etc.).
- H Sample analyzed outside of holding time, sample results should be evaluated
- J Analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
- L Spike accuracy not within control limits
- O Duplicate spike or sample precision not within control limits
- P Indicates that the absence of a data qualifier flag does not mean that the data does not need qualification, but that the implementation of electronic data qualifier flags was not yet established
- R Sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet QC criteria. The presence or absence of the analyte cannot be verified
- S Analytical results for this sample are suspect
- T Analyte is tentatively identified compound; result is approximate
- U Compound was analyzed for, but not detected above detection limit

Table A-14. Ground and surface water analysis for uranium by mass spec (pCi/L) and U235/U238 atom ratio in samples from Building 850 collected between July 1, 1995 and June 30, 2003. Results recorded by November 4, 2003.

Uranium by mass spec and U235/U238, in water
November 5, 2003
geminil

s3umsplusratioL.05nov2003
s3umsplusratioR.05nov2003

Min Sample Date
July 1, 1995
Max Sample Date
June 30, 2003

Table A-14. Ground and surface water analyses for uranium by mass spec (pCi/L) and U235/U238 atom

Location Date	Lab Note	Val.		Uranium 233 by mass measurement	Uranium 234 by mass measurement	Uranium 235 by mass measurement
K1-02B 27-sep-1996	LH a	V		<9600 U	<6200 U	<0.22 U
K1-06 19-jun-1996	IC a	V		-	3.55 +/- 0.07	0.082 +/- 0.0006
K2-01C 26-may-1999	IC a	N		-	4.8 +/- 0.2H	0.1319 +/- 0.0011H
14-nov-2001	IC a	N		-	6.676 +/- 0.489	0.2161 +/- 0.00309
K2-02B 17-may-1999	IC a	N		-	<0.062 +/- 0.006HU	0.00038 +/- 2e-05H
K2-03 10-jun-2003	IC a	N		-	5.79 +/- 0.41	0.14402 +/- 0.00209
K2-04D 14-nov-2001	IC a	N		-	2.32 +/- 0.29	0.04548 +/- 0.00071
15-may-2003	IC a	N		-	1.842 +/- 0.122	0.04662 +/- 0.0014
K2-04S 02-may-2003	IC a	N		-	1.677 +/- 0.093	0.05728 +/- 0.00081
NC2-05 12-jun-2003	IC a	N		-	<0.062 +/- 11.38U	0.18686 +/- 0.00312
NC2-05A 05-jun-2003	IC a	N		-	3.3 +/- 0.13	0.0805 +/- 0.00113
NC2-06 05-jun-2003	IC a	N		-	<0.062 +/- 1.35U	0.02354 +/- 0.00071
NC2-06A 20-jun-2003	IC a	N		-	0.55 +/- 0.07	0.01667 +/- 0.00025
NC2-09 05-jun-2003	IC a	N		-	<0.062 +/- 0.21U	0.0023 +/- 9e-05
NC2-10 10-jun-2003	IC a	N		-	3.92 +/- 0.45	0.07919 +/- 0.0015
NC2-11D 08-may-2003	IC a	N		-	2.989 +/- 0.13	0.0797 +/- 0.00115
NC2-11I 23-may-2003	IC a	N		-	2.8 +/- 0.339	0.06974 +/- 0.00128
NC2-11S 23-may-2003	IC a	N		-	2.526 +/- 0.466	0.06425 +/- 0.00123
NC2-12D 14-nov-2001	IC a	N		-	2.237 +/- 0.054	0.06088 +/- 0.00086
08-may-2003	IC a	N		-	2.332 +/- 0.197	0.06147 +/- 0.0011
NC2-12I 23-may-2003	IC a	N		-	2.272 +/- 0.115	0.05712 +/- 0.00081
NC2-12S 23-may-2003	IC a	N		-	3.04 +/- 0.27	0.07435 +/- 0.00136
NC2-13 10-jun-2003	IC a	N		-	3.74 +/- 0.45	0.08025 +/- 0.00157
NC2-14S 18-jun-2003	IC ah	N		-	1.98 +/- 0.12	0.05919 +/- 0.00095
18-jun-2003	IC aeh	N		-	1.99 +/- 0.1	0.05863 +/- 0.00083

ratio in samples from Building 850 collected between July 1, 1995 and June 30, 2003.
 Results recorded by November 4, 2003.

Uranium 236 by mass measurement	Uranium 238 by mass measurement	Uranium 235/238 (atom ratio)	Location Date
<65 U	1.2	-	K1-02B 27-sep-1996
<0.0007 U	1.68 +/- 0.007	0.00759 +/- 5e-05	K1-06 19-jun-1996
<0.0007 +/- 0.04HU <0.0007 +/- 0.007U	2.947 +/- 0.012H 5.214 +/- 0.054	0.00696 +/- 5e-05H 0.006445 +/- 6.4e-05	K2-01C 26-may-1999 14-nov-2001
<0.0007 +/- 0.0005HU	0.0075 +/- 0.0003H	0.00793 +/- 0.00035H	K2-02B 17-may-1999
<0.0007 +/- 0.00652U	3.089 +/- 0.031	0.00725 +/- 7.6e-05	K2-03 10-jun-2003
<0.0007 +/- 0.00503U <0.0007 +/- 0.00171U	0.9713 +/- 0.0097 0.993 +/- 0.028	0.007281 +/- 8.7e-05 0.007303 +/- 7.3e-05	K2-04D 14-nov-2001 15-may-2003
<0.0007 +/- 0.00095U	1.238 +/- 0.012	0.007195 +/- 7.2e-05	K2-04S 02-may-2003
<0.0007 +/- 0.04673U	4.351 +/- 0.054	0.006679 +/- 7.5e-05	NC2-05 12-jun-2003
<0.0007 +/- 0.00169U	1.763 +/- 0.017	0.0071 +/- 7.1e-05	NC2-05A 05-jun-2003
<0.0007 +/- 0.00568U	0.51 +/- 0.014	0.007172 +/- 9e-05	NC2-06 05-jun-2003
0.0016 +/- 0.00057	0.5946 +/- 0.0064	0.004359 +/- 4.4e-05	NC2-06A 20-jun-2003
<0.0007 +/- 0.00223U	0.0509 +/- 0.0012	0.007026 +/- 0.00021	NC2-09 05-jun-2003
<0.0007 +/- 0.00686U	1.704 +/- 0.028	0.007227 +/- 7.2e-05	NC2-10 10-jun-2003
<0.0007 +/- 0.0013U	1.696 +/- 0.018	0.00731 +/- 7.3e-05	NC2-11D 08-may-2003
<0.0007 +/- 0.00492U	1.509 +/- 0.023	0.007188 +/- 7.2e-05	NC2-11I 23-may-2003
<0.0007 +/- 0.00719U	1.389 +/- 0.023	0.007192 +/- 7.3e-05	NC2-11S 23-may-2003
<0.0007 +/- 0.0005U <0.0007 +/- 0.00201U	1.31 +/- 0.013 1.309 +/- 0.019	0.007226 +/- 7.2e-05 0.007301 +/- 7.3e-05	NC2-12D 14-nov-2001 08-may-2003
<0.0007 +/- 0.00093U	1.212 +/- 0.012	0.007328 +/- 7.3e-05	NC2-12I 23-may-2003
<0.0007 +/- 0.00308U	1.606 +/- 0.023	0.007198 +/- 8.4e-05	NC2-12S 23-may-2003
<0.0007 +/- 0.00695U	1.724 +/- 0.025	0.007237 +/- 9.4e-05	NC2-13 10-jun-2003
<0.0007 +/- 0.00098U <0.0007 +/- 0.00122U	1.283 +/- 0.016 1.274 +/- 0.013	0.007174 +/- 7.2e-05 0.007155 +/- 7.2e-05	NC2-14S 18-jun-2003 18-jun-2003

Table A-14. Ground and surface water analyses for uranium by mass spec (pCi/L) and U235/U238 atom

Location Date	Lab Note	Val.	Uranium 233 by mass measurement	Uranium 234 by mass measurement	Uranium 235 by mass measurement
NC2-15 23-jun-2003	IC a	N	-	1.88 +/- 0.11	0.04656 +/- 0.00066
NC2-16 10-jun-2003	IC a	N	-	0.68 +/- 0.15	0.01592 +/- 0.00041
NC2-17 05-jun-2003	IC a	N	-	2.57 +/- 0.23	0.07086 +/- 0.00139
NC2-18 06-jun-2003	IC a	N	-	<0.062 +/- 3.15U	0.06052 +/- 0.00113
NC2-19 23-jun-2003	IC a	N	-	5.499 +/- 0.191	0.15727 +/- 0.0014
NC2-20 17-jun-2003	IC a	N	-	3.23 +/- 0.2	0.09789 +/- 0.00172
NC2-21 23-jun-2003	IC a	N	-	2.38 +/- 0.33	0.0672 +/- 0.00095
NC7-10 29-apr-1998	IC a	N	-	2.11 +/- 0.06H	0.0618 +/- 0.0007H
13-jun-2000	IC a	N	-	1.7265 +/- 0.0640147	0.0488909 +/- 0.000691421
14-may-2001	IC a	N	-	1.68 +/- 0.043	0.0469 +/- 0.00066
16-may-2002	IC a	N	-	1.636 +/- 0.064	0.04841 +/- 0.00069
27-may-2003	IC a	N	-	1.598 +/- 0.173	0.04511 +/- 0.00077
NC7-11 16-may-2002	IC a	N	-	1.569 +/- 0.062	0.04991 +/- 0.0007
27-may-2003	IC a	N	-	1.592 +/- 0.193	0.04723 +/- 0.00081
NC7-15 22-may-2002	IC a	N	-	1.133 +/- 0.053	0.04304 +/- 0.00061
28-may-2003	IC a	N	-	1.333 +/- 0.168	0.04614 +/- 0.00076
NC7-19 19-dec-1996	IC a	V	-	2.3 +/- 0.18	0.078 +/- 0.002
22-may-2002	IC a	N	-	2.118 +/- 0.069	0.08345 +/- 0.00118
28-may-2003	IC a	N	-	2.128 +/- 0.165	0.08208 +/- 0.00123
NC7-27 17-nov-1995	IC a	V	-	1.93 +/- 0.16	0.07 +/- 0.001
05-jun-1996	IC a	V	-	2.13 +/- 0.06	0.0679 +/- 0.0006
30-dec-1996	IC a	V	-	2.07 +/- 0.24	0.065 +/- 0.001
16-jun-2003	IC a	N	-	1.83 +/- 0.07	0.05872 +/- 0.00083
NC7-28 16-nov-1995	IC a	V	-	2.57 +/- 0.26	0.13 +/- 0.004
21-feb-1996	IC a	V	-	3.36 +/- 0.59	0.148 +/- 0.004
12-jun-1996	IC a	V	-	<0.062 U	0.088 +/- 0.002
18-sep-1996	CX ag	V	-	<0.01 U	0.07
18-sep-1996	LH ag	V	<9600 U	<6200 U	<0.22 U
19-dec-1996	IC a	V	-	2.05 +/- 0.42	0.082 +/- 0.003
06-may-1998	IC a	N	-	2.27 +/- 0.07H	0.0885 +/- 0.0006H
09-sep-1998	IC a	N	-	1.97 +/- 0.05H	0.08 H
24-nov-1998	IC a	N	-	2.18 +/- 0.06H	0.0838 +/- 0.0006H
27-jan-1999	IC a	N	-	2.22 +/- 0.1H	0.085 +/- 0.0007H
26-aug-1999	IC a	N	-	3.3 +/- 0.2H	0.092 +/- 0.002H
03-dec-1999	IC a	N	-	3.4 +/- 0.3	0.1162 +/- 0.0016
26-may-2000	IC a	N	-	3.9357 +/- 0.3701	0.10928 +/- 0.00139
10-aug-2000	IC a	N	-	4.25599 +/- 0.448491	0.125827 +/- 0.00177946
31-oct-2000	IC a	N	-	3.87777 +/- 0.496497	0.127771 +/- 0.001811
13-feb-2001	IC a	N	-	3.2332 +/- 0.249	0.13889 +/- 0.00196
22-may-2001	IC a	N	-	3.91017 +/- 0.514667	0.112262 +/- 0.00158762
24-aug-2001	IC a	N	-	3.6683 +/- 0.530729	0.126461 +/- 0.00178842
15-nov-2001	IC a	N	-	3.69502 +/- 0.479054	0.131316 +/- 0.00185709
19-feb-2002	IC a	N	-	3.35113 +/- 0.466786	0.111269 +/- 0.00157358

ratio in samples from Building 850 collected between July 1, 1995 and June 30, 2003.
 Results recorded by November 4, 2003.

Uranium 236 by mass measurement	Uranium 238 by mass measurement	Uranium 235/238 (atom ratio)	Location Date
<0.0007 +/- 0.00116U	1.005 +/- 0.01	0.007206 +/- 7.2e-05	NC2-15 23-jun-2003
<0.0007 +/- 0.0023U	0.3427 +/- 0.0081	0.007224 +/- 7.5e-05	NC2-16 10-jun-2003
<0.0007 +/- 0.00236U	1.539 +/- 0.02	0.007161 +/- 0.000106	NC2-17 05-jun-2003
<0.0007 +/- 0.00896U	1.297 +/- 0.02	0.007255 +/- 7.3e-05	NC2-18 06-jun-2003
<0.007 +/- 0.00065U	3.3678 +/- 0.0233	0.007262 +/- 4.1e-05	NC2-19 23-jun-2003
<0.0007 +/- 0.00282U	2.097 +/- 0.03	0.007259 +/- 7.3e-05	NC2-20 17-jun-2003
<0.0007 +/- 0.00532U	1.459 +/- 0.014	0.007161 +/- 7.2e-05	NC2-21 23-jun-2003
<0.0008 HU	1.429 +/- 0.015H	0.00672 +/- 3e-05	NC7-10 29-apr-1998
0.000752787 +/- 0.000127041	1.12541 +/- 0.0112541	-	13-jun-2000
<0.0007 +/- 0.00165U	1.078 +/- 0.011	0.006765 +/- 6.8e-05	14-may-2001
<0.0007 +/- 0.00085U	1.102 +/- 0.011	0.006829 +/- 6.8e-05	16-may-2002
<0.0007 +/- 0.00197U	1.025 +/- 0.014	0.006842 +/- 6.8e-05	27-may-2003
<0.0007 +/- 0.00062U	1.084 +/- 0.011	0.007159 +/- 7.2e-05	NC7-11 16-may-2002
<0.0007 +/- 0.00218U	1.033 +/- 0.013	0.007107 +/- 8.4e-05	27-may-2003
<0.0007 +/- 0.00071U	0.9249 +/- 0.0094	0.007237 +/- 7.2e-05	NC7-15 22-may-2002
<0.0007 +/- 0.0023U	0.997 +/- 0.013	0.007193 +/- 7.2e-05	28-may-2003
<0.0007 U	1.6 +/- 0.02	0.00754 +/- 0.0001	NC7-19 19-dec-1996
<0.0007 +/- 0.00068U	1.784 +/- 0.018	0.007276 +/- 7.3e-05	22-may-2002
<0.0007 +/- 0.00305U	1.764 +/- 0.02	0.007234 +/- 7.2e-05	28-may-2003
<0.0007 U	1.48 +/- 0.01	0.0073 +/- 6e-05	NC7-27 17-nov-1995
<0.0007 U	1.42 +/- 0.01	0.00745 +/- 4e-05	05-jun-1996
<0.0007 U	1.42 +/- 0.01	0.00711 +/- 8e-05	30-dec-1996
<0.0007 +/- 0.00097U	1.262 +/- 0.013	0.007235 +/- 7.2e-05	16-jun-2003
0.038 +/- 0.004	7.29 +/- 0.07	0.00277 +/- 5e-05	NC7-28 16-nov-1995
0.041 +/- 0.006	7.86 +/- 0.1	0.00292 +/- 4e-05	21-feb-1996
0.024 +/- 0.003	4.92 +/- 0.07	0.00278 +/- 4e-05	12-jun-1996
-	18.4	-	18-sep-1996
<65 U	<0.34 U	-	18-sep-1996
0.0257 +/- 0.0069	4.46 +/- 0.15	0.00286 +/- 4e-05	19-dec-1996
0.0154 +/- 0.0005H	3.629 +/- 0.015H	0.00379 +/- 2e-05	06-may-1998
0.0241 +/- 0.0005H	4.458 +/- 0.01H	0.00278 +/- 1e-05	09-sep-1998
0.0261 +/- 0.0007H	4.85 +/- 0.02H	0.00269 +/- 2e-05	24-nov-1998
0.028 +/- 0.0007H	5.054 +/- 0.016H	0.00261 +/- 2e-05	27-jan-1999
<0.0007 +/- 0.04HU	6.45 +/- 0.04H	0.00223 +/- 5e-05H	26-aug-1999
0.047 +/- 0.002	7.07 +/- 0.05	0.00255 +/- 3e-05	03-dec-1999
0.03694 +/- 0.00302	6.7897 +/- 0.0414396	-	26-may-2000
0.0460836 +/- 0.00384526	7.83775 +/- 0.0783775	-	10-aug-2000
0.0466184 +/- 0.00563748	8.15801 +/- 0.0815801	-	31-oct-2000
0.05638 +/- 0.00252	8.96834 +/- 0.0896834	-	13-feb-2001
0.0455876 +/- 0.00606508	7.15632 +/- 0.0715632	-	22-may-2001
0.0496265 +/- 0.00637246	8.14979 +/- 0.0814978	-	24-aug-2001
0.0489282 +/- 0.00209477	8.43486 +/- 0.0843486	-	15-nov-2001
0.0394023 +/- 0.00477862	7.01442 +/- 0.0701442	-	19-feb-2002

Table A-14. Ground and surface water analyses for uranium by mass spec (pCi/L) and U235/U238 atom

Location Date	Lab Note	Val.		Uranium 233 by mass measurement	Uranium 234 by mass measurement	Uranium 235 by mass measurement
NC7-29						
22-may-2000	IC a	N	-	-	8.2306 +/- 0.4705	0.25806 +/- 0.00172
17-jun-2003	IC a	N	-	-	10.02 +/- 1.08	0.27248 +/- 0.00382
NC7-43						
17-nov-1995	IC a	V	-	-	0.39 +/- 0.11	0.017 +/- 0.001
05-jun-1996	IC ag	V	-	-	0.86 +/- 0.05	0.0278 +/- 0.0003
05-jun-1996	CX ag	V	-	-	<43.5 U	0.04
11-dec-1996	IC a	V	-	-	0.68 +/- 0.05	0.0162 +/- 0.0002
10-jun-2003	IC a	N	-	-	<0.062 +/- 0.23U	<2.2e-05 +/- 0.00117U
NC7-44						
28-may-2003	IC a	N	-	-	1.027 +/- 0.171	0.02508 +/- 0.00061
NC7-45						
17-nov-1995	IC a	V	-	-	4.69 +/- 0.29	0.202 +/- 0.007
15-may-1996	IC a	V	-	-	3.8 +/- 0.6	0.1655 +/- 0.0036
11-dec-1996	IC a	V	-	-	3.63 +/- 0.33	0.135 +/- 0.002
NC7-46						
17-nov-1995	IC a	V	-	-	<0.062 U	<2.2e-05 U
11-jun-1996	IC a	V	-	-	<0.062 U	0.0021 +/- 0.0001
16-dec-1996	IC a	V	-	-	0.19 +/- 0.02	0.0078 +/- 0.0001
12-jun-2003	IC ah	N	-	-	<0.062 +/- 0.53U	<2.2e-05 +/- 0.00215U
12-jun-2003	IC aeh	N	-	-	<0.062 +/- 0.32U	0.002 +/- 0.00011
NC7-54						
15-may-1996	IC a	V	-	-	2.37 +/- 0.15	0.075 +/- 0.0013
12-sep-1996	LH a	V	-	<9600 U	<6200 U	<0.22 U
11-dec-1996	IC a	V	-	-	2.45 +/- 0.13	0.069 +/- 0.001
29-apr-1998	IC a	N	-	-	2.42 +/- 0.05H	0.0977 +/- 0.0009H
16-jun-2000	IC a	N	-	-	<0.062 +/- 1.926U	0.06811 +/- 0.0013
13-nov-2000	IC a	N	-	-	3.036 +/- 0.537	0.08802 +/- 0.00143
23-may-2001	IC a	N	-	-	2.6605 +/- 0.1666	0.07572 +/- 0.00126
21-dec-2002	IC a	N	-	-	1.88 +/- 0.32	0.05177 +/- 0.00121
NC7-56						
02-jun-2000	IC a	N	-	-	<0.062 +/- 4.899U	0.08083 +/- 0.00215
29-may-2001	IC a	N	-	-	2.8978 +/- 0.2236	0.09382 +/- 0.00139
28-may-2002	IC a	N	-	-	3.181 +/- 0.691	0.07426 +/- 0.00114
17-jun-2003	IC a	N	-	-	2.289 +/- 0.117	0.0718 +/- 0.00063
NC7-58						
12-jun-2003	IC a	N	-	-	2.21 +/- 0.24	0.06369 +/- 0.00091
NC7-59						
13-nov-1995	IC a	V	-	-	2.44 +/- 0.28	0.092 +/- 0.003
12-jun-1996	IC a	V	-	-	2.6 +/- 0.1	0.1029 +/- 0.0008
19-dec-1996	IC a	V	-	-	2.38 +/- 0.25	0.081 +/- 0.002
29-may-2002	IC a	N	-	-	2.012 +/- 0.085	0.06844 +/- 0.00097
12-jun-2003	IC a	N	-	-	1.92 +/- 0.08	0.06612 +/- 0.00101
NC7-60						
05-jun-2000	IC a	N	-	-	2.05 +/- 0.17	0.04217 +/- 0.0006
23-may-2001	IC a	N	-	-	1.7786 +/- 0.106	0.0423 +/- 0.00078
29-may-2002	IC a	N	-	-	<0.062 +/- 3.07U	0.02802 +/- 0.00051
16-jun-2003	IC a	N	-	-	<0.062 +/- 1.83U	0.0215 +/- 0.00033
NC7-61						
30-oct-1995	IC a	V	-	-	4.58 +/- 0.42	0.127 +/- 0.002
19-jun-1996	IC a	V	-	-	4 +/- 0.3	0.112 +/- 0.001
19-dec-1996	IC a	V	-	-	3.2 +/- 0.29	0.087 +/- 0.001
18-may-2000	IC a	N	-	-	<0.062 +/- 3.462U	0.03664 +/- 0.00069
21-may-2001	IC a	N	-	-	2.37 +/- 0.42	0.0391 +/- 0.00065
16-may-2002	IC a	N	-	-	1.5 +/- 0.08	0.04243 +/- 0.00085
02-may-2003	IC aeh	N	-	-	1.546 +/- 0.11	0.04403 +/- 0.00071
02-may-2003	IC ah	N	-	-	<0.062 +/- 0.06U	<2.2e-05 +/- 0.00016U

ratio in samples from Building 850 collected between July 1, 1995 and June 30, 2003.
 Results recorded by November 4, 2003.

Uranium 236 by mass measurement	Uranium 238 by mass measurement	Uranium 235/238 (atom ratio)	Location Date
			NC7-29
<0.00253 +/- 0.00253 U	5.54655 +/- 0.028333	-	22-may-2000
<0.0007 +/- 0.02004U	5.805 +/- 0.057	0.007299 +/- 7.3e-05	17-jun-2003
			NC7-43
0.002 +/- 0.001	0.55 +/- 0.01	0.00494 +/- 8e-05	17-nov-1995
0.0025 +/- 0.0003	0.877 +/- 0.004	0.00494 +/- 4e-05	05-jun-1996
-	0.98	-	05-jun-1996
0.0012 +/- 0.0004	0.485 +/- 0.005	0.00519 +/- 6e-05	11-dec-1996
<0.0007 +/- 0.00279U	0.03084 +/- 0.00057	<0.005902 U	10-jun-2003
			NC7-44
<0.0007 +/- 0.00423U	0.538 +/- 0.01	0.007255 +/- 0.000113	28-may-2003
			NC7-45
<0.0007 U	4.35 +/- 0.02	0.00721 +/- 5e-05	17-nov-1995
<0.0007 U	3.54 +/- 0.06	0.00726 +/- 0.0001	15-may-1996
<0.0007 U	2.98 +/- 0.04	0.00705 +/- 8e-05	11-dec-1996
			NC7-46
<0.0007 U	0.089 +/- 0.001	-	17-nov-1995
<0.0007 U	0.0444 +/- 0.0003	0.00738 +/- 0.0002	11-jun-1996
<0.0007 U	0.169 +/- 0.002	0.00713 +/- 0.0001	16-dec-1996
<0.0007 +/- 0.00361U	0.0417 +/- 0.0013	<0.008022 U	12-jun-2003
<0.0007 +/- 0.00347U	0.0429 +/- 0.0015	0.007239 +/- 0.00029	12-jun-2003
			NC7-54
<0.0007 U	2.03 +/- 0.01	0.00576 +/- 9e-05	15-may-1996
<65 U	2	-	12-sep-1996
0.0024 +/- 0.0007	1.77 +/- 0.02	0.00603 +/- 7e-05	11-dec-1996
0.014 +/- 0.0003H	3.81 +/- 0.03H	0.00399 +/- 2e-05	29-apr-1998
<0.0007 +/- 0.01774U	1.887 +/- 0.02	0.005612 +/- 8.9e-05	16-jun-2000
<0.0007 +/- 0.01154U	2.406 +/- 0.024	0.005689 +/- 7.3e-05	13-nov-2000
0.00376 +/- 0.00097	1.99734 +/- 0.0199734	-	23-may-2001
<0.0007 +/- 0.00409U	1.333 +/- 0.027	0.006041 +/- 7.5e-05	21-dec-2002
			NC7-56
<0.0007 +/- 0.01608U	1.784 +/- 0.037	0.007046 +/- 0.000117	02-jun-2000
<0.00182 +/- 0.00182 U	2.03853 +/- 0.0203853	-	29-may-2001
<0.0007 +/- 0.01055U	1.617 +/- 0.016	0.00714 +/- 8.3e-05	28-may-2002
<0.007 +/- 0.0006U	1.56171 +/- 0.00937	0.00715 +/- 4.6e-05	17-jun-2003
			NC7-58
<0.0007 +/- 0.00376U	1.399 +/- 0.014	0.007082 +/- 7.1e-05	12-jun-2003
			NC7-59
<0.0007 U	1.99 +/- 0.02	0.00717 +/- 8e-05	13-nov-1995
<0.0007 U	2.16 +/- 0.01	0.00741 +/- 3e-05	12-jun-1996
<0.0007 U	1.67 +/- 0.03	0.00756 +/- 0.0001	19-dec-1996
<0.0007 +/- 0.00085U	1.485 +/- 0.015	0.007166 +/- 7.2e-05	29-may-2002
<0.0007 +/- 0.0014U	1.456 +/- 0.017	0.00706 +/- 7.1e-05	12-jun-2003
			NC7-60
<0.0007 +/- 0.00243U	0.9041 +/- 0.0091	0.007254 +/- 7.3e-05	05-jun-2000
<0.00122 +/- 0.00122 U	0.911462 +/- 0.00911462	-	23-may-2001
<0.0007 +/- 0.01U	0.5994 +/- 0.006	0.007271 +/- 0.00011	29-may-2002
<0.0007 +/- 0.00609U	0.4603 +/- 0.0047	0.007264 +/- 8.4e-05	16-jun-2003
			NC7-61
0.011 +/- 0.002	3.86 +/- 0.02	0.00514 +/- 3e-05	30-oct-1995
0.011 +/- 0.002	3.51 +/- 0.03	0.00495 +/- 5e-05	19-jun-1996
0.0074 +/- 0.0015	2.59 +/- 0.03	0.00525 +/- 6e-05	19-dec-1996
<0.0007 +/- 0.01283U	1.174 +/- 0.013	0.004856 +/- 7.3e-05	18-may-2000
<0.0007 +/- 0.01091U	1.264 +/- 0.013	0.004812 +/- 6.3e-05	21-may-2001
0.00409 +/- 0.00082	1.422 +/- 0.025	0.00464 +/- 4.6e-05	16-may-2002
0.00448 +/- 0.00084	1.461 +/- 0.018	0.004685 +/- 4.7e-05	02-may-2003
<0.0007 +/- 0.00054U	0.0048 +/- 0.00097	<0.00519 U	02-may-2003

Table A-14. Ground and surface water analyses for uranium by mass spec (pCi/L) and U235/U238 atom

Location Date	Lab Note	Val.	Uranium 233 by mass measurement	Uranium 234 by mass measurement	Uranium 235 by mass measurement
NC7-62					
11-jun-1996	IC a	V	-	3.2 +/- 0.1	0.1197 +/- 0.0015
12-sep-1996	LH a	V	<9600 U	<6200 U	<0.22 U
19-dec-1996	IC a	V	-	3.12 +/- 0.23	0.095 +/- 0.002
29-may-2001	IC a	N	-	2.6232 +/- 0.1719	0.08255 +/- 0.00127
30-may-2002	IC a	N	-	<0.062 +/- 4.333U	0.07115 +/- 0.00108
12-jun-2003	IC a	N	-	2.54 +/- 0.18	0.07116 +/- 0.001
NC7-69					
15-nov-2001	IC ah	N	-	<0.062 +/- 0.176U	0.00069 +/- 3e-05
15-nov-2001	IC aeh	N	-	<0.062 +/- 0.429U	<2.2e-05 +/- 0.39596U
08-may-2003	IC a	N	-	<0.062 +/- 0.344U	<2.2e-05 +/- 4.49267U
NC7-70					
16-nov-1995	IC a	V	-	<0.062 U	0.007 +/- 0.001
16-feb-1996	IC a	V	-	1.12 +/- 0.13	0.025 +/- 0.001
17-sep-1996	LH a	V	<9600 U	<6200 U	<0.22 U
19-dec-1996	IC a	V	-	0.61 +/- 0.05	0.0128 +/- 0.0002
06-may-1998	IC a	N	-	1.134 +/- 0.016H	0.02476 +/- 0.00016H
09-sep-1998	IC a	N	-	<0.62 +/- 0.012HU	0.01 H
09-dec-1998	IC a	N	-	1.52 +/- 0.05H	0.0342 +/- 0.0004H
27-jan-1999	IC a	N	-	1.32 +/- 0.05H	0.0306 +/- 0.0002H
01-sep-1999	IC a	N	-	1.6 +/- 0.04H	0.035 +/- 0.0003H
03-dec-1999	IC a	N	-	1.57 +/- 0.05	0.0338 +/- 0.0003
27-mar-2000	IC a	N	-	1.461 +/- 0.101	0.03197 +/- 0.00048
10-aug-2000	IC a	N	-	1.233 +/- 0.075	0.02728 +/- 0.00039
04-jun-2002	IC a	N	-	1.448 +/- 0.092	0.02841 +/- 0.0004
30-jul-2002	IC a	N	-	1.35 +/- 0.08	0.02821 +/- 0.00048
21-dec-2002	IC a	N	-	1.367 +/- 0.095	0.02942 +/- 0.00042
25-jan-2003	IC a	N	-	1.67 +/- 0.065	0.03444 +/- 0.00048
17-jun-2003	IC a	N	-	1.46 +/- 0.09	0.031 +/- 0.00044
NC7-71					
09-nov-1995	IC a	V	-	<0.062 U	<2.2e-05 U
12-jun-1996	IC a	V	-	<0.062 U	<2.2e-05 U
16-dec-1996	IC a	V	-	<0.062 U	<2.2e-05 U
21-may-1999	IC a	N	-	0.08 +/- 0.08H	<2.2e-05 +/- 3e-05HU
01-jul-2002	IC a	N	-	0.069 +/- 0.015	0.00227 +/- 3e-05
17-jun-2003	IC a	N	-	<0.062 +/- 0.22U	<2.2e-05 +/- 0.00054U
NC7-73					
21-may-2003	IC a	N	-	2.861 +/- 0.402	0.09076 +/- 0.00194
W-850-05					
17-nov-1995	IC aeh	V	-	<0.062 U	0.007 +/- 0.001
17-nov-1995	IC ah	V	-	<0.062 U	0.007 +/- 0.02
12-jun-1996	IC a	V	-	0.29 +/- 0.02	0.0073 +/- 0.0001
19-dec-1996	IC a	V	-	0.26 +/- 0.05	0.0054 +/- 0.0002
14-jun-2001	IC a	N	-	<0.062 +/- 1.1U	0.00474 +/- 0.00027
31-may-2002	IC a	N	-	0.141 +/- 0.02	0.00295 +/- 4e-05
10-jun-2003	IC a	N	-	<0.062 +/- 0.14U	0.00273 +/- 8e-05
W-865-1802					
27-jun-2003	IC a	N	-	2.2 +/- 0.38	0.05384 +/- 0.00148
W-865-1803					
26-jun-2003	IC a	N	-	2.14 +/- 0.37	0.04563 +/- 0.00112
W8SPRNG					
09-nov-1995	IC a	V	-	1.99 +/- 0.17	0.075 +/- 0.002
15-may-1996	IC a	V	-	2.36 +/- 0.18	0.0708 +/- 0.001
26-jun-2003	IC aeh	N	-	1.8 +/- 0.23	0.05181 +/- 0.00129
26-jun-2003	IC ah	N	-	1.75 +/- 0.43	0.05534 +/- 0.00153

ratio in samples from Building 850 collected between July 1, 1995 and June 30, 2003.
Results recorded by November 4, 2003.

Uranium 236 by mass measurement	Uranium 238 by mass measurement	Uranium 235/238 (atom ratio)	Location Date
			NC7-62
<0.0007 U	2.53 +/- 0.01	0.00737 +/- 8e-05	11-jun-1996
<65 U	3.1	-	12-sep-1996
<0.0007 U	2 +/- 0.02	0.00739 +/- 8e-05	19-dec-1996
<0.00167 +/- 0.00167 U	1.7671 +/- 0.017671	-	29-may-2001
<0.0007 +/- 0.01171U	1.526 +/- 0.015	0.007249 +/- 8.3e-05	30-may-2002
<0.0007 +/- 0.00358U	1.558 +/- 0.015	0.007105 +/- 7.1e-05	12-jun-2003
			NC7-69
<0.0007 +/- 0.00056U	0.01488 +/- 0.0004	0.007205 +/- 0.000251	15-nov-2001
<0.0007 +/- 0.00399U	0.0003 +/- 0.00015	<0.071366 U	15-nov-2001
<0.0007 +/- 0.00308U	0.0296 +/- 0.00084	<0.00818 U	08-may-2003
			NC7-70
<0.0007 U	0.187 +/- 0.001	0.00602 +/- 0.00012	16-nov-1995
<0.0007 U	0.568 +/- 0.007	0.00685 +/- 0.00014	16-feb-1996
<65 U	0.62	-	17-sep-1996
<0.0007 U	0.29 +/- 0.003	0.00687 +/- 8e-05	19-dec-1996
<0.0002 HU	0.574 +/- 0.003H	0.00671 +/- 3e-05	06-may-1998
<0.0006 HU	0.2461 +/- 0.0009H	0.00659 +/- 3e-05	09-sep-1998
<0.003 HU	0.816 +/- 0.007H	0.00652 +/- 4e-05	09-dec-1998
<0.002 HU	0.73 +/- 0.003H	0.00653 +/- 4e-05	27-jan-1999
<0.0007 +/- 0.0018HU	0.842 +/- 0.002H	0.00646 +/- 6e-05H	01-sep-1999
<0.0007 +/- 0.0002U	0.814 +/- 0.003	0.00645 +/- 4e-05	03-dec-1999
<0.0007 +/- 0.00163U	0.772 +/- 0.0077	0.00644 +/- 7.2e-05	27-mar-2000
<0.0007 +/- 0.00102U	0.6645 +/- 0.0067	0.006385 +/- 6.4e-05	10-aug-2000
<0.0007 +/- 0.00202U	0.7032 +/- 0.0071	0.006284 +/- 6.3e-05	04-jun-2002
<0.0007 +/- 0.00189U	0.7045 +/- 0.0097	0.006226 +/- 6.2e-05	30-jul-2002
<0.0007 +/- 0.00111U	0.722 +/- 0.0071	0.006336 +/- 6.7e-05	21-dec-2002
0.00147 +/- 0.00033	0.849 +/- 0.0084	0.006309 +/- 6.3e-05	25-jan-2003
<0.0007 +/- 0.00117U	0.762 +/- 0.0077	0.006326 +/- 6.3e-05	17-jun-2003
			NC7-71
<0.0007 U	0.005 +/- 0.0003	-	09-nov-1995
<0.0007 U	0.00769 +/- 6e-05	-	12-jun-1996
<0.0007 U	0.0047 +/- 0.0001	-	16-dec-1996
<0.0007 +/- 0.0011HU	0.00545 +/- 0.00015H	<0.00725 HU	21-may-1999
<0.0007 +/- 0.00026U	0.07915 +/- 0.00081	0.004457 +/- 4.5e-05	01-jul-2002
<0.0007 +/- 0.00305U	0.0105 +/- 0.0011	<0.007934 U	17-jun-2003
			NC7-73
<0.0007 +/- 0.00524U	1.952 +/- 0.037	0.007231 +/- 7.2e-05	21-may-2003
			W-850-05
<0.0007 U	0.155 +/- 0.001	0.00674 +/- 0.00024	17-nov-1995
<0.0007 U	0.167 +/- 0.002	0.00687 +/- 0.00025	17-nov-1995
<0.0007 U	0.1617 +/- 0.0008	0.00706 +/- 0.00011	12-jun-1996
<0.0007 U	0.12 +/- 0.002	0.00703 +/- 0.00019	19-dec-1996
<0.0007 +/- 0.00561U	0.1142 +/- 0.005	0.006448 +/- 0.000233	14-jun-2001
<0.0007 +/- 0.00038U	0.07845 +/- 0.00077	0.005852 +/- 5.9e-05	31-may-2002
<0.0007 +/- 0.00158U	0.0736 +/- 0.0011	0.005772 +/- 0.000139	10-jun-2003
			W-865-1802
<0.0007 +/- 0.00547U	1.14 +/- 0.025	0.007343 +/- 0.00012	27-jun-2003
			W-865-1803
<0.0007 +/- 0.00543U	0.977 +/- 0.022	0.007266 +/- 7.3e-05	26-jun-2003
			W8SPRNG
<0.0007 U	1.62 +/- 0.02	0.00715 +/- 0.00011	09-nov-1995
<0.0007 U	1.61 +/- 0.008	0.00684 +/- 9e-05	15-may-1996
<0.0007 +/- 0.00321U	1.195 +/- 0.026	0.006744 +/- 8e-05	26-jun-2003
<0.0007 +/- 0.00806U	1.273 +/- 0.03	0.00676 +/- 9.6e-05	26-jun-2003

See following page for notes

Table A-14. Ground and surface water analyses for uranium by mass spec (pCi/L) and U235/U238 atom ratio in samples from Building 850 collected between July 1, 1995 and June 30, 2003. Results recorded by November 4, 2003.

Notes:

- Indicates no analyses performed for this compound

Val. = Validation code

Footnotes:

a ERD data
b ORAD WGMG data
c Analytical results for this sample are suspect
d Sample collected during hydraulic testing
e Blind sample, sent to lab without location identity
f Sample dilution necessary for analyses; detection limits increased
g Interlaboratory collocated sample
h Intralaboratory collocated sample
i Sample collected as part of pilot study
j Note field may contain important information regarding this sample
k Pre-development sample
l Norm month, norm quarter or norm year inconsistent with sample date
m Confirmation sample
n Sample analyzed after standard holding time
o Sample comprised of partial composite
p Alpha spectroscopy analyses of uranium isotopes
q Gamma spectroscopy analyses of uranium isotopes
r Tritium data represents non-detect with activity calc'd for 100 percent error.

Lab Codes:

CX Ceimic(replaced Maxwell Jul96) 8808 Balboa Avenue, San Diego CA 92123
IC ICP MS Facility
LH LAS-formerly Lockheed<1jan97 975 Kelly Johnson Las Vegas NV 89119

Validation Codes:

V Validated
N Not validated (default value)
U Undeclared
H Historical comparison only

CLP flags: (follow result)

B Analyte found in method blank
D Analysis performed at a secondary dilution or concentration (i.e., vapor samples)
E The analyte was detected below the LLNL reporting limit, but above the analytical laboratory minimum detection limit.
F Analyte found in field blank, trip blank, or equipment blank
G Quantitated using fuel calibration, but does not match typical fuel fingerprint (fuel maybe gasoline, diesel, motor oil etc.).
H Sample analyzed outside of holding time, sample results should be evaluated
J Analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
L Spike accuracy not within control limits
O Duplicate spike or sample precision not within control limits
P Indicates that the absence of a data qualifier flag does not mean that the data does not need qualification, but that the implementation of electronic data qualifier flags was not yet established
R Sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet QC criteria. The presence or absence of the analyte cannot be verified
S Analytical results for this sample are suspect
T Analyte is tentatively identified compound; result is approximate
U Compound was analyzed for, but not detected above detection limit

Table A-15. Ground and surface water analyses for nitrogenous compounds (mg/L) in samples collected from the Building 850 subarea between July 1, 1995 and June 30, 2003. Results recorded by November 4, 2003.

Nitrates, Nitrites, and Nitrogen in Ground Water,
November 5, 2003
gemin11

s3NL.05nov2003
s3NR.05nov2003

Min Sample Date
July 1, 1995
Max Sample Date
June 30, 2003

Table A-15. Ground and surface water analyses for nitrogenous compounds (mg/L) in samples collected

Location				Ammonia Nitrogen as N	Nitrate and Nitrite as N	Nitrate and Nitrite as NO3	Nitrate as N
Date	Lab	Note	Val.				
K1-01A							
21-may-1997	CS	a	V	-	-	-	-
K1-01B							
22-may-1997	CS	a	V	-	-	-	-
K1-01C							
31-jul-1995	CS	a	V	-	-	-	-
11-oct-1995	CS	a	V	-	-	-	-
17-jan-1996	CS	a	V	-	-	-	-
10-apr-1996	CS	a	V	<0.1 U	-	-	7.6
30-jul-1996	CS	a	V	35	-	-	7.9
09-oct-1996	CS	a	V	-	-	-	6.9 D
16-jan-1997	CS	a	V	-	-	-	-
03-apr-1997	CS	a	V	-	-	-	-
01-jul-1997	CS	a	V	-	-	-	-
13-oct-1997	BB	a	V	-	-	-	-
08-jan-1998	BB	a	V	-	-	-	-
09-apr-1998	BB	a	V	-	-	-	-
14-jul-1998	BB	a	V	-	-	-	-
14-oct-1998	BB	a	V	-	-	-	-
12-jan-1999	BB	a	V	-	-	-	-
12-apr-1999	CN	a	V	-	-	-	-
06-jul-1999	CN	ah	V	-	-	-	-
06-jul-1999	CN	aeh	V	-	-	-	-
04-oct-1999	CN	aj	V	-	-	-	-
07-feb-2000	CN	a	V	-	-	-	-
18-apr-2000	CN	af	V	-	-	-	-
19-jul-2000	CN	af	V	-	-	-	-
18-jan-2001	CN	ahf	V	-	-	-	-
18-jan-2001	CN	aehf	V	-	-	-	-
18-apr-2001	CN	af	V	-	-	-	-
09-jul-2001	CN	af	V	-	-	-	-
16-apr-2002	CN	aeh	V	-	-	-	-
16-apr-2002	CN	ah	V	-	-	-	-
29-jul-2002	CN	af	V	-	-	-	-
31-jan-2003	CN	af	V	-	-	-	-
17-apr-2003	CN	af	V	-	-	-	-
K1-02A							
21-may-1997	CS	a	V	-	-	-	-
08-dec-1997	BB	a	V	-	-	-	-
24-jun-1998	BB	a	V	-	-	-	-
16-dec-1998	BB	ah	V	-	-	-	-
16-dec-1998	BB	aeh	V	-	-	-	-
21-may-1999	CN	aeh	V	-	-	-	-
21-may-1999	CN	ah	V	-	-	-	-
02-nov-1999	CN	a	N	-	-	-	-
24-may-2000	CN	a	V	-	-	-	-
07-dec-2000	CN	af	V	-	-	-	-
30-may-2001	CN	a	V	-	-	-	-
05-jun-2002	CN	ah	V	-	-	-	-
05-jun-2002	CN	aeh	V	-	-	-	-
K1-02B							
31-jul-1995	CS	a	V	-	-	-	-
11-oct-1995	CS	a	V	-	-	-	-
17-jan-1996	CS	a	V	-	-	-	-
10-apr-1996	CS	a	V	<0.1 U	-	-	7
30-jul-1996	CS	a	V	0.35	-	-	6.5
09-oct-1996	CS	a	V	-	-	-	6.3 D
28-oct-1996	CS	a	V	-	-	-	6.5 D
16-jan-1997	CS	a	V	-	-	-	-
03-apr-1997	CS	a	V	-	-	-	-
01-jul-1997	CS	a	V	-	-	-	-
13-oct-1997	BB	a	V	-	-	-	-
08-jan-1998	BB	a	V	-	-	-	-
09-apr-1998	BB	a	V	-	-	-	-

from the Building 850 subarea between July 1, 1995 and June 30, 2003. Results recorded by November 4, 2003.

Nitrite as N	Nitrite as NO2	Nitrate as NO3	Total Kjeldahl Nitrogen	Location Date
-	-	<0.5 U	-	K1-01A 21-may-1997
-	-	<0.5 U	-	K1-01B 22-may-1997
-	-	32	-	K1-01C 31-jul-1995
-	-	33	-	11-oct-1995
-	-	27	-	17-jan-1996
<0.5 U	<2.5 DHU	34	<0.5 U	10-apr-1996
<0.5 U	<0.5 LOU	35 LO	<0.5 U	30-jul-1996
<0.5 U	<0.5 U	31 D	-	09-oct-1996
-	-	33 D	-	16-jan-1997
-	-	35 D	-	03-apr-1997
-	-	35 D	-	01-jul-1997
-	-	36	-	13-oct-1997
-	-	37	-	08-jan-1998
-	-	37	-	09-apr-1998
-	-	37	-	14-jul-1998
-	-	37	-	14-oct-1998
-	-	37	-	12-jan-1999
-	-	11 S	-	12-apr-1999
-	-	<0.5 SU	-	06-jul-1999
-	-	<0.5 SU	-	06-jul-1999
-	-	34 LS	-	04-oct-1999
-	-	36	-	07-feb-2000
-	-	31 D	-	18-apr-2000
-	-	31 D	-	19-jul-2000
-	-	26 D	-	18-jan-2001
-	-	26 D	-	18-jan-2001
-	-	8 DH	-	18-apr-2001
-	-	21 D	-	09-jul-2001
-	-	38	-	16-apr-2002
-	-	37	-	16-apr-2002
-	-	41	-	29-jul-2002
-	-	42 D	-	31-jan-2003
-	-	35	-	17-apr-2003
-	-	<0.5 U	-	K1-02A 21-may-1997
-	-	<0.4 U	-	08-dec-1997
-	-	<0.4 U	-	24-jun-1998
-	-	<0.4 U	-	16-dec-1998
-	-	<0.4 U	-	16-dec-1998
-	-	<0.5 SU	-	21-may-1999
-	-	<0.5 SU	-	21-may-1999
-	-	33 S	-	02-nov-1999
-	-	7.7	-	24-may-2000
-	-	31 D	-	07-dec-2000
-	-	Q0.4 U	-	30-may-2001
-	-	<0.1 U	-	05-jun-2002
-	-	<0.1 U	-	05-jun-2002
-	-	36	-	K1-02B 31-jul-1995
-	-	32	-	11-oct-1995
-	-	28 D	-	17-jan-1996
<0.5 U	<2.5 DHU	31	<0.5 U	10-apr-1996
<0.5 U	<0.5 LOU	29 LO	<0.5 U	30-jul-1996
<0.5 U	<0.5 U	28 D	-	09-oct-1996
<5 DU	-	29 D	-	28-oct-1996
-	-	31 D	-	16-jan-1997
-	-	29 D	-	03-apr-1997
-	-	30 D	-	01-jul-1997
-	-	31	-	13-oct-1997
-	-	31	-	08-jan-1998
-	-	29	-	09-apr-1998

Table A-15. Ground and surface water analyses for nitrogenous compounds (mg/L) in samples collected

Location Date	Lab Note	Val.	Ammonia Nitrogen as N	Nitrate and Nitrite as N	Nitrate and Nitrite as NO3	Nitrate as N
K1-02B (continued)						
14-jul-1998	BB a	V	-	-	-	-
13-oct-1998	BB a	V	-	-	-	-
12-jan-1999	BB ah	V	-	-	-	-
12-jan-1999	BB aeh	V	-	-	-	-
15-apr-1999	CN a	V	-	-	-	-
09-jul-1999	CN a	V	-	-	-	-
07-oct-1999	CN af	V	-	-	-	-
07-feb-2000	CN a	V	-	-	-	-
18-apr-2000	CN af	V	-	-	-	-
19-jul-2000	CN af	V	-	-	-	-
18-jan-2001	CN af	V	-	-	-	-
18-apr-2001	CN af	V	-	-	-	-
09-jul-2001	CN af	V	-	-	-	-
16-apr-2002	CN a	V	-	-	-	-
29-jul-2002	CN af	V	-	-	-	-
30-jan-2003	CN af	V	-	-	-	-
17-apr-2003	CN afh	V	-	-	-	-
17-apr-2003	CN aefh	V	-	-	-	-
K1-03						
31-jul-1995	CS a	V	-	-	-	-
11-oct-1995	CS ah	V	-	-	-	-
11-oct-1995	CS aeh	V	-	-	-	-
18-jan-1996	CS a	V	-	-	-	-
10-apr-1996	CS a	V	<0.1 U	-	-	6.1
30-jul-1996	CS a	V	0.25	-	-	6.2
10-oct-1996	CS a	V	-	-	-	5.4 D
16-jan-1997	CS a	V	-	-	-	-
03-apr-1997	CS a	V	-	-	-	-
02-jul-1997	CS a	V	-	-	-	-
14-oct-1997	BB a	V	-	-	-	-
08-jan-1998	BB a	V	-	-	-	-
09-apr-1998	BB ah	V	-	-	-	-
09-apr-1998	BB aeh	V	-	-	-	-
15-jul-1998	BB a	V	-	-	-	-
13-oct-1998	BB a	V	-	-	-	-
12-jan-1999	BB a	V	-	-	-	-
15-apr-1999	CN a	V	-	-	-	-
09-jul-1999	CN a	V	-	-	-	-
06-oct-1999	CN af	V	-	-	-	-
07-feb-2000	CN a	V	-	-	-	-
18-apr-2000	CN af	V	-	-	-	-
19-jul-2000	CN af	V	-	-	-	-
23-oct-2000	CN afh	V	-	-	-	-
23-oct-2000	CN aefh	V	-	-	-	-
18-jan-2001	CN af	V	-	-	-	-
18-apr-2001	CN af	V	-	-	-	-
09-jul-2001	CN afh	V	-	-	-	-
09-jul-2001	CN aefh	V	-	-	-	-
16-apr-2002	CN a	V	-	-	-	-
29-jul-2002	CN af	V	-	-	-	-
30-jan-2003	CN af	V	-	-	-	-
17-apr-2003	CN af	V	-	-	-	-
K1-04						
31-jul-1995	CS a	V	-	-	-	-
11-oct-1995	CS ah	V	-	-	-	-
18-jan-1996	CS a	V	-	-	-	-
11-apr-1996	CS a	V	<0.1 U	-	-	4.1
31-jul-1996	CS ah	V	0.13	-	-	4.6
31-jul-1996	CS aeh	V	0.29	-	-	5
10-oct-1996	CS a	V	-	-	-	<5 DU
16-jan-1997	CS a	V	-	-	-	-
03-apr-1997	CS a	V	-	-	-	-
02-jul-1997	CS a	V	-	-	-	-
14-oct-1997	BB a	V	-	-	-	-
08-jan-1998	BB a	V	-	-	-	-
09-apr-1998	BB a	V	-	-	-	-

from the Building 850 subarea between July 1, 1995 and June 30, 2003. Results recorded by November 4, 2003.

Nitrite as N	Nitrite as NO2	Nitrate as NO3	Total Kjeldahl Nitrogen	Location Date
-	-	31	-	(continued) K1-02B 14-jul-1998
-	-	33	-	13-oct-1998
-	-	33	-	12-jan-1999
-	-	33	-	12-jan-1999
-	-	4.6 S	-	15-apr-1999
-	-	<0.5 LSU	-	09-jul-1999
-	-	70 DS	-	07-oct-1999
-	-	34	-	07-feb-2000
-	-	28 D	-	18-apr-2000
-	-	31 D	-	19-jul-2000
-	-	24 D	-	18-jan-2001
-	-	8 DH	-	18-apr-2001
-	-	19 D	-	09-jul-2001
-	-	35	-	16-apr-2002
-	-	39	-	29-jul-2002
-	-	38	-	30-jan-2003
-	-	37 D	-	17-apr-2003
-	-	39 D	-	17-apr-2003
-	-	30	-	K1-03 31-jul-1995
-	-	27	-	11-oct-1995
-	-	27	-	11-oct-1995
-	-	29 LO	-	18-jan-1996
<0.5 U	<2.5 DHU	27	<0.5 U	10-apr-1996
<0.5 U	<0.5 LOU	27 LO	<0.5 U	30-jul-1996
<0.5 U	<0.5 U	24 D	-	10-oct-1996
-	-	26 D	-	16-jan-1997
-	-	25 D	-	03-apr-1997
-	-	27 D	-	02-jul-1997
-	-	29	-	14-oct-1997
-	-	29	-	08-jan-1998
-	-	29	-	09-apr-1998
-	-	30	-	09-apr-1998
-	-	30	-	15-jul-1998
-	-	31	-	13-oct-1998
-	-	33	-	12-jan-1999
-	-	<0.5 SU	-	15-apr-1999
-	-	<0.5 LSU	-	09-jul-1999
-	-	10 DS	-	06-oct-1999
-	-	7.6	-	07-feb-2000
-	-	28 D	-	18-apr-2000
-	-	29 D	-	19-jul-2000
-	-	29 D	-	23-oct-2000
-	-	29 D	-	23-oct-2000
-	-	24 D	-	18-jan-2001
-	-	8 DH	-	18-apr-2001
-	-	19 D	-	09-jul-2001
-	-	19 D	-	09-jul-2001
-	-	34	-	16-apr-2002
-	-	36	-	29-jul-2002
-	-	35 D	-	30-jan-2003
-	-	35 D	-	17-apr-2003
-	-	22	-	K1-04 31-jul-1995
-	-	21	-	11-oct-1995
-	-	24 LO	-	18-jan-1996
<0.5 U	<0.5 HULO	18	<0.5 U	11-apr-1996
<0.5 U	<0.5 LOU	20 LO	<0.5 U	31-jul-1996
<0.5 U	<0.5 LOU	22 LO	<0.5 U	31-jul-1996
<0.5 U	<0.5 U	20 D	-	10-oct-1996
-	-	22 D	-	16-jan-1997
-	-	20 D	-	03-apr-1997
-	-	22 D	-	02-jul-1997
-	-	24	-	14-oct-1997
-	-	23	-	08-jan-1998
-	-	22	-	09-apr-1998

Table A-15. Ground and surface water analyses for nitrogenous compounds (mg/L) in samples collected

Location	Ammonia	Nitrate and	Nitrate and	Nitrate
Date	Nitrogen	Nitrite	Nitrite	as N
Date	Lab Note	Val.	as N	as NO3
K1-04 (continued)				
15-jul-1998	BB a	V	-	-
14-oct-1998	BB a	V	-	-
13-jan-1999	BB a	V	-	-
14-apr-1999	CN a	V	-	-
06-oct-1999	CN af	V	-	-
07-feb-2000	CN a	V	-	-
18-apr-2000	CN ah	V	-	-
18-apr-2000	CN aeh	V	-	-
19-jul-2000	CN af	V	-	-
23-oct-2000	CN af	V	-	-
18-jan-2001	CN a	V	-	-
23-apr-2001	CN af	V	-	-
10-jul-2001	CN a	V	-	-
16-apr-2002	CN ag	V	-	-
29-jul-2002	CN afh	V	-	-
29-jul-2002	CN aefh	V	-	-
29-jan-2003	CN aefh	V	-	-
29-jan-2003	CN afh	V	-	-
18-apr-2003	SE af	N	-	-
K1-05				
31-jul-1995	CS ah	V	-	-
31-jul-1995	CS aeh	V	-	-
12-oct-1995	CS ah	V	-	-
18-jan-1996	CS a	V	-	-
11-apr-1996	CS a	V	<0.1 U	7.8
31-jul-1996	CS a	V	<0.1 U	8
11-oct-1996	CS a	V	-	6.9 DLOH
17-jan-1997	CS ah	V	-	-
17-jan-1997	CS aeh	V	-	-
04-apr-1997	CS a	V	-	-
02-jul-1997	CS a	V	-	-
14-oct-1997	BB a	V	-	-
12-jan-1998	BB ah	V	-	-
12-jan-1998	BB aeh	V	-	-
15-apr-1998	BB a	V	-	-
16-jul-1998	BB a	V	-	-
14-oct-1998	BB a	V	-	-
13-jan-1999	BB a	V	-	-
14-apr-1999	CN a	V	-	-
08-jul-1999	CN a	V	-	-
06-oct-1999	CN afh	V	-	-
06-oct-1999	CN aefh	V	-	-
08-feb-2000	CN a	V	-	-
19-jul-2000	CN af	V	-	-
24-oct-2000	CN af	V	-	-
18-jan-2001	CN af	V	-	-
20-apr-2001	CN afh	V	-	-
20-apr-2001	CN aefh	V	-	-
12-jul-2001	CN a	V	-	-
18-apr-2002	CN a	V	-	-
30-jul-2002	CN af	V	-	-
29-jan-2003	CN af	V	-	-
18-apr-2003	SE af	N	-	-
K1-06				
03-jun-2003	CN a	V	-	-
K1-07				
31-jul-1995	CS a	V	-	-
12-oct-1995	CS ah	V	-	-
18-jan-1996	CS a	V	-	-
12-apr-1996	CS a	V	<0.1 ULO	6.2
31-jul-1996	CS a	V	<0.1 U	6.9
11-oct-1996	CS a	V	-	6.3 DLOH
17-jan-1997	CS a	V	-	-
04-apr-1997	CS a	V	-	-
03-jul-1997	CS a	V	-	-

from the Building 850 subarea between July 1, 1995 and June 30, 2003. Results recorded by November 4, 2003.

Nitrite as N	Nitrite as NO2	Nitrate as NO3	Total Kjeldahl Nitrogen	Location Date
-	-	24	-	(continued) K1-04 15-jul-1998
-	-	28	-	14-oct-1998
-	-	27	-	13-jan-1999
-	-	<0.5 SU	-	14-apr-1999
-	-	41 DS	-	06-oct-1999
-	-	5.9	-	07-feb-2000
-	-	25 D	-	18-apr-2000
-	-	25 D	-	18-apr-2000
-	-	26 D	-	19-jul-2000
-	-	24 D	-	23-oct-2000
-	-	8	-	18-jan-2001
-	-	14 D	-	23-apr-2001
-	-	2.4 L	-	10-jul-2001
-	-	25	-	16-apr-2002
-	-	37	-	29-jul-2002
-	-	33	-	29-jul-2002
-	-	44 D	-	29-jan-2003
-	-	43 D	-	29-jan-2003
-	-	30 D	-	18-apr-2003
-	-	39	-	K1-05 31-jul-1995
-	-	40	-	31-jul-1995
-	-	36	-	12-oct-1995
-	-	29 LO	-	18-jan-1996
<0.5 U	<2.5 DHUL	35	<0.5 U	11-apr-1996
<0.5 U	<0.5 ULO	35 LO	<0.5 U	31-jul-1996
<0.5 ULOH	<0.5 ULOH	31 DLOH	-	11-oct-1996
-	-	35 D	-	17-jan-1997
-	-	34 D	-	17-jan-1997
-	-	30 D	-	04-apr-1997
-	-	33 D	-	02-jul-1997
-	-	35	-	14-oct-1997
-	-	35	-	12-jan-1998
-	-	35	-	12-jan-1998
-	-	35	-	15-apr-1998
-	-	35	-	16-jul-1998
-	-	37	-	14-oct-1998
-	-	33	-	13-jan-1999
-	-	<0.5 SU	-	14-apr-1999
-	-	<0.5 LSU	-	08-jul-1999
-	-	24 DS	-	06-oct-1999
-	-	52 DS	-	06-oct-1999
-	-	37	-	08-feb-2000
-	-	33 D	-	19-jul-2000
-	-	31 D	-	24-oct-2000
-	-	28 D	-	18-jan-2001
-	-	9.4 DH	-	20-apr-2001
-	-	8.8 DH	-	20-apr-2001
-	-	35	-	12-jul-2001
-	-	33 L	-	18-apr-2002
-	-	42	-	30-jul-2002
-	-	46 D	-	29-jan-2003
-	-	35 D	-	18-apr-2003
-	-	10	-	K1-06 03-jun-2003
-	-	35	-	K1-07 31-jul-1995
-	-	32	-	12-oct-1995
-	-	32 LO	-	18-jan-1996
<0.5 U	<0.5 HU	28	<0.5 U	12-apr-1996
<0.5 U	<0.5 ULO	30 LO	<0.5 U	31-jul-1996
<0.5 ULOH	<0.5 ULOH	28 DLOH	-	11-oct-1996
-	-	31 D	-	17-jan-1997
-	-	25 D	-	04-apr-1997
-	-	31 D	-	03-jul-1997

Table A-15. Ground and surface water analyses for nitrogenous compounds (mg/L) in samples collected

Location Date	Lab Note	Val.	Ammonia Nitrogen as N	Nitrate and Nitrite as N	Nitrate and Nitrite as NO3	Nitrate as N
K1-07 (continued)						
16-oct-1997	BB a	V	-	-	-	-
12-jan-1998	BB a	V	-	-	-	-
15-apr-1998	BB a	V	-	-	-	-
16-jul-1998	BB a	V	-	-	-	-
15-oct-1998	BB a	N	-	-	-	-
14-jan-1999	BB a	V	-	-	-	-
12-apr-1999	CN a	V	-	-	-	-
06-jul-1999	CN a	V	-	-	-	-
04-oct-1999	CN aj	V	-	-	-	-
08-feb-2000	CN ah	V	-	-	-	-
08-feb-2000	CN aeh	V	-	-	-	-
20-jul-2000	CN af	V	-	-	-	-
25-oct-2000	CN a	V	-	-	-	-
22-jan-2001	CN a	V	-	-	-	-
23-apr-2001	CN af	V	-	-	-	-
10-jul-2001	CN af	V	-	-	-	-
18-apr-2002	CN a	V	-	-	-	-
30-jul-2002	CN af	V	-	-	-	-
30-jan-2003	CN af	V	-	-	-	-
01-may-2003	CN af	V	-	-	-	-
K1-08						
31-jul-1995	CS a	V	-	-	-	-
12-oct-1995	CS a	V	-	-	-	-
18-jan-1996	CS a	V	-	-	-	-
12-apr-1996	CS ah	V	0.5 LO	-	-	7.3
12-apr-1996	CS aeh	V	0.27 LO	-	-	7.2
31-jul-1996	CS a	V	0.18	-	-	8.2
11-oct-1996	CS ah	V	-	-	-	6.4 DLOH
11-oct-1996	CS aeh	V	-	-	-	6.6 DLOH
17-jan-1997	CS a	V	-	-	-	-
04-apr-1997	CS a	V	-	-	-	-
03-jul-1997	CS ah	V	-	-	-	-
03-jul-1997	CS aeh	V	-	-	-	-
16-oct-1997	BB a	V	-	-	-	-
12-jan-1998	BB a	V	-	-	-	-
15-apr-1998	BB a	V	-	-	-	-
16-jul-1998	BB ah	V	-	-	-	-
16-jul-1998	BB aeh	V	-	-	-	-
15-oct-1998	BB a	N	-	-	-	-
14-jan-1999	BB a	V	-	-	-	-
12-apr-1999	CN a	V	-	-	-	-
07-jul-1999	CN a	V	-	-	-	-
04-oct-1999	CN afj	V	-	-	-	-
09-feb-2000	CN a	V	-	-	-	-
20-jul-2000	CN af	V	-	-	-	-
24-oct-2000	CN af	V	-	-	-	-
22-jan-2001	CN af	V	-	-	-	-
23-apr-2001	CN af	V	-	-	-	-
11-jul-2001	CN af	V	-	-	-	-
18-apr-2002	CN a	V	-	-	-	-
30-jul-2002	CN af	V	-	-	-	-
07-feb-2003	CN af	V	-	-	-	-
02-may-2003	CN af	V	-	-	-	-
K1-09						
31-jul-1995	CS a	V	-	-	-	-
12-oct-1995	CS ah	V	-	-	-	-
18-jan-1996	CS ah	V	-	-	-	-
18-jan-1996	CS aeh	V	-	-	-	-
12-apr-1996	CS a	V	<0.1 ULO	-	-	7.8
31-jul-1996	CS a	V	0.27	-	-	7.8
11-oct-1996	CS a	V	-	-	-	6.7 DLOH
17-jan-1997	CS a	V	-	-	-	-
04-apr-1997	CS ah	V	-	-	-	-
04-apr-1997	CS aeh	V	-	-	-	-
03-jul-1997	CS a	V	-	-	-	-
16-oct-1997	BB ah	V	-	-	-	-

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Nitrite as N	Nitrite as NO2	Nitrate as NO3	Total Kjeldahl Nitrogen	Location Date
				(continued) K1-07
-	-	34	-	16-oct-1997
-	-	33	-	12-jan-1998
-	-	32	-	15-apr-1998
-	-	33	-	16-jul-1998
-	-	34	-	15-oct-1998
-	-	30	-	14-jan-1999
-	-	5.5 S	-	12-apr-1999
-	-	<0.5 SU	-	06-jul-1999
-	-	29 LS	-	04-oct-1999
-	-	30	-	08-feb-2000
-	-	30	-	08-feb-2000
-	-	27 D	-	20-jul-2000
-	-	19	-	25-oct-2000
-	-	12 L	-	22-jan-2001
-	-	22 D	-	23-apr-2001
-	-	12 DL	-	10-jul-2001
-	-	25 L	-	18-apr-2002
-	-	33	-	30-jul-2002
-	-	36 D	-	30-jan-2003
-	-	37 D	-	01-may-2003
				K1-08
-	-	39	-	31-jul-1995
-	-	35	-	12-oct-1995
-	-	28 LO	-	18-jan-1996
<0.5 U	<2.5 DHU	32	<0.5 U	12-apr-1996
<0.5 U	<2.5 DHU	32	<0.5 U	12-apr-1996
<0.5 U	<0.5 ULO	36 LO	<0.5 U	31-jul-1996
<0.5 ULOH	<0.5 ULOH	28 DLOH	-	11-oct-1996
<0.5 ULOH	<0.5 ULOH	29 DLOH	-	11-oct-1996
-	-	35 D	-	17-jan-1997
-	-	26 D	-	04-apr-1997
-	-	35 D	-	03-jul-1997
-	-	34 D	-	03-jul-1997
-	-	37	-	16-oct-1997
-	-	36	-	12-jan-1998
-	-	36	-	15-apr-1998
-	-	37	-	16-jul-1998
-	-	38	-	16-jul-1998
-	-	37	-	15-oct-1998
-	-	35	-	14-jan-1999
-	-	5.5 S	-	12-apr-1999
-	-	<0.5 SU	-	07-jul-1999
-	-	28 DLS	-	04-oct-1999
-	-	42	-	09-feb-2000
-	-	34 D	-	20-jul-2000
-	-	32 D	-	24-oct-2000
-	-	35 DHL	-	22-jan-2001
-	-	32 D	-	23-apr-2001
-	-	31 D	-	11-jul-2001
-	-	34 L	-	18-apr-2002
-	-	43	-	30-jul-2002
-	-	43	-	07-feb-2003
-	-	40 D	-	02-may-2003
				K1-09
-	-	38	-	31-jul-1995
-	-	35	-	12-oct-1995
-	-	12 LO	-	18-jan-1996
-	-	12 LO	-	18-jan-1996
<0.5 U	<2.5 DHU	34	<0.5 U	12-apr-1996
<0.5 U	<0.5 ULO	35 LO	<0.5 U	31-jul-1996
<0.5 ULOH	<0.5 ULOH	30 DLOH	-	11-oct-1996
-	-	35 D	-	17-jan-1997
-	-	29 D	-	04-apr-1997
-	-	29 D	-	04-apr-1997
-	-	34 D	-	03-jul-1997
-	-	36	-	16-oct-1997

Table A-15. Ground and surface water analyses for nitrogenous compounds (mg/L) in samples collected

Location Date	Lab Note	Val.	Ammonia Nitrogen as N	Nitrite and Nitrite as N	Nitrate and Nitrite as NO3	Nitrate as N
K1-09 (continued)						
16-oct-1997	BB aeh	V	-	-	-	-
17-mar-1998	BB a	V	-	-	-	-
15-apr-1998	BB a	V	-	-	-	-
16-jul-1998	BB a	V	-	-	-	-
15-oct-1998	BB ah	N	-	-	-	-
15-oct-1998	BB aeh	N	-	-	-	-
13-jan-1999	BB a	V	-	-	-	-
13-apr-1999	CN ah	V	-	-	-	-
13-apr-1999	CN aeh	V	-	-	-	-
07-jul-1999	CN a	V	-	-	-	-
04-oct-1999	CN afj	V	-	-	-	-
09-feb-2000	CN a	V	-	-	-	-
20-jul-2000	CN afh	V	-	-	-	-
20-jul-2000	CN aefh	V	-	-	-	-
24-oct-2000	CN af	V	-	-	-	-
22-jan-2001	CN af	V	-	-	-	-
20-apr-2001	CN af	V	-	-	-	-
11-jul-2001	CN af	V	-	-	-	-
18-apr-2002	CN a	V	-	-	-	-
30-jul-2002	CN af	V	-	-	-	-
31-jan-2003	CN af	V	-	-	-	-
02-may-2003	CN af	V	-	-	-	-
K2-01A						
22-may-1997	CS ah	V	-	-	-	-
22-may-1997	CS aeh	V	-	-	-	-
09-dec-1997	BB a	V	-	-	-	-
25-jun-1998	BB a	V	-	-	-	-
17-dec-1998	BB a	V	-	-	-	-
21-may-1999	CN a	V	-	-	-	-
02-nov-1999	CN a	N	-	-	-	-
24-may-2000	CN a	V	-	-	-	-
07-dec-2000	CN afh	V	-	-	-	-
07-dec-2000	CN aefh	V	-	-	-	-
30-may-2001	CN a	V	-	-	-	-
29-may-2002	CN a	V	-	-	-	-
K2-01B						
22-may-1997	CS a	V	-	-	-	-
09-dec-1997	BB ah	V	-	-	-	-
09-dec-1997	BB aeh	V	-	-	-	-
25-jun-1998	BB a	V	-	-	-	-
K2-01C						
08-aug-1995	CS a	V	-	-	-	-
02-nov-1995	CS a	V	-	-	-	-
14-dec-1998	BB a	V	-	-	-	-
26-may-1999	CN af	V	-	-	-	-
08-nov-1999	CN af	N	-	-	-	-
17-may-2000	CN af	V	-	-	-	-
21-nov-2000	CN af	V	-	-	-	-
16-may-2001	CN af	V	-	-	-	-
14-may-2002	CN a	V	-	-	-	-
05-jun-2003	CN af	V	-	-	-	-
K2-02A						
21-may-1997	CS a	V	-	-	-	-
04-dec-1997	BB a	V	-	-	-	-
24-jun-1998	BB ah	V	-	-	-	-
24-jun-1998	BB aeh	V	-	-	-	-
16-dec-1998	BB a	V	-	-	-	-
17-may-1999	CN a	V	-	-	-	-
02-nov-1999	CN ah	N	-	-	-	-
02-nov-1999	CN aeh	N	-	-	-	-
24-may-2000	CN a	V	-	-	-	-
07-dec-2000	CN a	V	-	-	-	-
30-may-2001	CN ah	V	-	-	-	-
30-may-2001	CN aeh	V	-	-	-	-

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Nitrite as N	Nitrite as NO2	Nitrate as NO3	Total Kjeldahl Nitrogen	Location Date
-	-	37	-	(continued) K1-09 16-oct-1997
-	-	36	-	17-mar-1998
-	-	36	-	15-apr-1998
-	-	37	-	16-jul-1998
-	-	37	-	15-oct-1998
-	-	36	-	15-oct-1998
-	-	36	-	13-jan-1999
-	-	11 S	-	13-apr-1999
-	-	11 S	-	13-apr-1999
-	-	<0.5 SU	-	07-jul-1999
-	-	28 DLS	-	04-oct-1999
-	-	9.4	-	09-feb-2000
-	-	34 D	-	20-jul-2000
-	-	34 D	-	20-jul-2000
-	-	32 D	-	24-oct-2000
-	-	18 DL	-	22-jan-2001
-	-	9.3 DH	-	20-apr-2001
-	-	31 D	-	11-jul-2001
-	-	34 L	-	18-apr-2002
-	-	46	-	30-jul-2002
-	-	42 D	-	31-jan-2003
-	-	43 D	-	02-may-2003
-	-			K2-01A
-	-	<0.5 U	-	22-may-1997
-	-	<0.5 U	-	22-may-1997
-	-	<0.4 U	-	09-dec-1997
-	-	<0.4 U	-	25-jun-1998
-	-	<0.4 U	-	17-dec-1998
-	-	<0.5 SU	-	21-may-1999
-	-	27 S	-	02-nov-1999
-	-	0.2	-	24-may-2000
-	-	30 D	-	07-dec-2000
-	-	38 D	-	07-dec-2000
-	-	<0.4 U	-	30-may-2001
-	-	3.4	-	29-may-2002
-	-			K2-01B
-	-	<0.5 U	-	22-may-1997
-	-	<0.4 U	-	09-dec-1997
-	-	<0.4 U	-	09-dec-1997
-	-	<0.4 U	-	25-jun-1998
-	-			K2-01C
-	-	32	-	08-aug-1995
-	-	28	-	02-nov-1995
-	-	48	-	14-dec-1998
-	-	44 DS	-	26-may-1999
-	-	40 DS	-	08-nov-1999
-	-	38 D	-	17-may-2000
-	-	22 D	-	21-nov-2000
-	-	37.4 D	-	16-may-2001
-	-	35	-	14-may-2002
-	-	35 D	-	05-jun-2003
-	-			K2-02A
-	-	<0.5 U	-	21-may-1997
-	-	<0.4 U	-	04-dec-1997
-	-	<0.4 U	-	24-jun-1998
-	-	<0.4 U	-	24-jun-1998
-	-	<0.4 U	-	16-dec-1998
-	-	<0.5 LOSU	-	17-may-1999
-	-	16 S	-	02-nov-1999
-	-	23 S	-	02-nov-1999
-	-	<0.1 U	-	24-may-2000
-	-	<0.1 U	-	07-dec-2000
-	-	<0.4 U	-	30-may-2001
-	-	<0.4 U	-	30-may-2001

Table A-15. Ground and surface water analyses for nitrogenous compounds (mg/L) in samples collected

Location Date	Lab Note	Val.	Ammonia Nitrogen as N	Nitrate and Nitrite as N	Nitrate and Nitrite as NO3	Nitrate as N
K2-02A (continued)						
29-may-2002	CN a	V	-	-	-	-
K2-02B						
21-may-1997	CS a	V	-	-	-	-
04-dec-1997	BB a	V	-	-	-	-
24-jun-1998	BB a	V	-	-	-	-
16-dec-1998	BB a	V	-	-	-	-
17-may-1999	CN a	V	-	-	-	-
02-nov-1999	CN a	N	-	-	-	-
24-may-2000	CN ah	V	-	-	-	-
24-may-2000	CN aeh	V	-	-	-	-
07-dec-2000	CN a	V	-	-	-	-
30-may-2001	CN a	V	-	-	-	-
29-may-2002	CN a	V	-	-	-	-
K2-03						
05-jun-2003	CN a	V	-	-	-	-
K2-04D						
08-aug-1995	CS a	V	-	-	-	-
02-nov-1995	CS a	V	-	-	-	-
24-nov-1997	BB ah	V	-	-	-	-
24-nov-1997	BB aeh	V	-	-	-	-
22-jun-1998	BB a	V	-	-	-	-
07-dec-1998	BB ah	V	-	-	-	-
07-dec-1998	BB aeh	V	-	-	-	-
26-may-1999	CN a	V	-	-	-	-
08-nov-1999	CN a	N	-	-	-	-
17-may-2000	CN af	V	-	-	-	-
21-nov-2000	CN af	V	-	-	-	-
06-jun-2001	CN a	V	-	-	-	-
16-may-2002	CN aefh	V	-	-	-	-
16-may-2002	CN afh	V	-	-	-	-
15-may-2003	CN afg	V	-	-	-	-
K2-04S						
08-aug-1995	CS a	V	-	-	-	-
02-nov-1995	CS a	V	-	-	-	-
18-nov-1997	BB a	V	-	-	-	-
22-jun-1998	BB a	V	-	-	-	-
30-nov-1998	BB a	V	-	-	-	-
02-jun-1999	CN afh	V	-	-	-	-
02-jun-1999	CN aefh	V	-	-	-	-
09-nov-1999	CN af	V	-	-	-	-
18-may-2000	CN a	V	-	-	-	-
27-nov-2000	CN af	V	-	-	-	-
16-may-2001	CN afh	V	-	-	-	-
16-may-2001	CN aefh	V	-	-	-	-
16-may-2002	CN af	V	-	-	-	-
02-may-2003	CN afg	V	-	-	-	-
NC2-05						
12-jun-2003	CN af	V	-	-	-	-
NC2-05A						
05-jun-2003	CN af	V	-	-	-	-
NC2-06						
05-jun-2003	CN a	V	-	-	-	-
NC2-06A						
20-jun-2003	CN a	V	-	-	-	-
NC2-07						
08-aug-1995	CS a	V	-	-	-	-
03-nov-1995	CS a	V	-	-	-	-
01-dec-1997	BB a	V	-	-	-	-
23-jun-1998	BB a	V	-	-	-	-

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Nitrite as N	Nitrite as NO2	Nitrate as NO3	Total Kjeldahl Nitrogen	Location Date
-	-	<0.1 U	-	(continued) K2-02A 29-may-2002
-	-	<0.5 U	-	K2-02B 21-may-1997
-	-	<0.4 U	-	04-dec-1997
-	-	<0.4 U	-	24-jun-1998
-	-	<0.4 U	-	16-dec-1998
-	-	<0.5 LOSU	-	17-may-1999
-	-	6 S	-	02-nov-1999
-	-	0.2	-	24-may-2000
-	-	<0.1 U	-	24-may-2000
-	-	<0.1 U	-	07-dec-2000
-	-	<0.4 U	-	30-may-2001
-	-	<0.1 U	-	29-may-2002
-	-	10	-	K2-03 05-jun-2003
-	-	32 D	-	K2-04D 08-aug-1995
-	-	27 D	-	02-nov-1995
-	-	33	-	24-nov-1997
-	-	33	-	24-nov-1997
-	-	35	-	22-jun-1998
-	-	37	-	07-dec-1998
-	-	37	-	07-dec-1998
-	-	32 S	-	26-may-1999
-	-	38 S	-	08-nov-1999
-	-	32 D	-	17-may-2000
-	-	22 D	-	21-nov-2000
-	-	29 D	-	06-jun-2001
-	-	41 D	-	16-may-2002
-	-	40 D	-	16-may-2002
-	-	40 D	-	15-may-2003
-	-	40 D	-	K2-04S 08-aug-1995
-	-	38 D	-	02-nov-1995
-	-	53	-	18-nov-1997
-	-	58	-	22-jun-1998
-	-	51	-	30-nov-1998
-	-	49 DS	-	02-jun-1999
-	-	36 DS	-	02-jun-1999
-	-	61 DS	-	09-nov-1999
-	-	42	-	18-may-2000
-	-	39 D	-	27-nov-2000
-	-	35 D	-	16-may-2001
-	-	34.5 D	-	16-may-2001
-	-	42 D	-	16-may-2002
-	-	43 D	-	02-may-2003
-	-	39 D	-	NC2-05 12-jun-2003
-	-	41 D	-	NC2-05A 05-jun-2003
-	-	15	-	NC2-06 05-jun-2003
-	-	4.6	-	NC2-06A 20-jun-2003
-	-	22	-	NC2-07 08-aug-1995
-	-	20	-	03-nov-1995
-	-	17	-	01-dec-1997
-	-	25	-	23-jun-1998

Table A-15. Ground and surface water analyses for nitrogenous compounds (mg/L) in samples collected

Location Date	Lab Note	Val.	Ammonia Nitrogen as N	Nitrate and Nitrite as N	Nitrate and Nitrite as NO3	Nitrate as N
NC2-07 (continued)						
09-dec-1998	BB a	V	-	-	-	-
03-jun-1999	CN af	V	-	-	-	-
15-nov-1999	CN afh	V	-	-	-	-
15-nov-1999	CN aefh	V	-	-	-	-
23-mar-2000	WE a	N	-	-	11.2	-
22-may-2000	CN a	V	-	-	-	-
28-nov-2000	CN af	V	-	-	-	-
16-may-2001	CN af	V	-	-	-	-
19-nov-2001	CN a	N	-	-	-	-
19-nov-2001	CN a	N	<0.1 U	-	-	-
15-may-2002	CN a	V	-	-	-	-
15-may-2002	CN a	V	<0.1 U	-	-	-
13-jun-2003	BB af	V	-	-	-	-
13-jun-2003	BB af	V	<0.02 U	-	-	-
NC2-08						
30-may-2003	CN af	V	-	-	-	-
NC2-09						
05-jun-2003	CN a	V	-	-	-	-
NC2-10						
10-jun-2003	CN af	V	-	-	-	-
NC2-11D						
04-aug-1995	CS a	V	-	-	-	-
31-oct-1995	CS ah	V	-	-	-	-
31-oct-1995	CS aeh	V	-	-	-	-
02-dec-1997	BB a	V	-	-	-	-
07-dec-1998	BB a	V	-	-	-	-
25-may-1999	CN a	V	-	-	-	-
10-nov-1999	CN af	V	-	-	-	-
17-may-2000	CN ah	V	-	-	-	-
17-may-2000	CN aeh	V	-	-	-	-
27-nov-2000	CN af	V	-	-	-	-
17-may-2001	CN a	V	-	-	-	-
14-may-2002	CN a	V	-	-	-	-
08-may-2003	BB a	V	-	-	-	-
NC2-11I						
23-may-2003	CN af	V	-	-	-	-
NC2-11S						
23-may-2003	CN af	V	-	-	-	-
NC2-12D						
04-aug-1995	CS a	V	-	-	-	-
31-oct-1995	CS a	V	-	-	-	-
25-nov-1997	BB a	V	-	-	-	-
22-jun-1998	BB a	V	-	-	-	-
03-dec-1998	BB a	V	-	-	-	-
24-may-1999	CN a	V	-	-	-	-
10-nov-1999	CN af	V	-	-	-	-
17-may-2000	CN af	V	-	-	-	-
27-nov-2000	CN af	V	-	-	-	-
17-may-2001	CN a	V	-	-	-	-
14-may-2002	CN a	V	-	-	-	-
08-may-2003	BB a	V	-	-	-	-
NC2-12I						
23-may-2003	CN af	V	-	-	-	-
NC2-12S						
23-may-2003	CN af	V	-	-	-	-
NC2-13						
10-jun-2003	CN af	V	-	-	-	-

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Nitrite as N	Nitrite as NO2	Nitrate as NO3	Total Kjeldahl Nitrogen	Location Date
				(continued) NC2-07
-	-	23	-	09-dec-1998
-	-	8 DS	-	03-jun-1999
-	-	19 DOS	-	15-nov-1999
-	-	85 DOS	-	15-nov-1999
-	-	-	-	23-mar-2000
-	-	17	-	22-may-2000
-	-	20 DH	-	28-nov-2000
-	-	17.4 D	-	16-may-2001
-	<0.1 U	-	-	19-nov-2001
-	-	-	-	19-nov-2001
<0.1 U	-	-	-	15-may-2002
-	-	-	-	15-may-2002
-	<0.065 U	-	-	13-jun-2003
-	-	-	-	13-jun-2003
				NC2-08
-	-	44 D	-	30-may-2003
				NC2-09
-	-	<0.1 U	-	05-jun-2003
				NC2-10
-	-	140 D	-	10-jun-2003
				NC2-11D
-	-	22 DH	-	04-aug-1995
-	-	26	-	31-oct-1995
-	-	26	-	31-oct-1995
-	-	27	-	02-dec-1997
-	-	31	-	07-dec-1998
-	-	32 S	-	25-may-1999
-	-	4 DS	-	10-nov-1999
-	-	27 D	-	17-may-2000
-	-	26 D	-	17-may-2000
-	-	28 D	-	27-nov-2000
-	-	28.9	-	17-may-2001
-	-	39	-	14-may-2002
-	-	31.2	-	08-may-2003
				NC2-11I
-	-	40 D	-	23-may-2003
				NC2-11S
-	-	42 D	-	23-may-2003
				NC2-12D
-	-	18 DH	-	04-aug-1995
-	-	23	-	31-oct-1995
-	-	26	-	25-nov-1997
-	-	27	-	22-jun-1998
-	-	25	-	03-dec-1998
-	-	16 S	-	24-may-1999
-	-	44 DS	-	10-nov-1999
-	-	25 D	-	17-may-2000
-	-	28 D	-	27-nov-2000
-	-	27.7	-	17-may-2001
-	-	37	-	14-may-2002
-	-	28.9	-	08-may-2003
				NC2-12I
-	-	35 D	-	23-may-2003
				NC2-12S
-	-	52 D	-	23-may-2003
				NC2-13
-	-	52 D	-	10-jun-2003

Table A-15. Ground and surface water analyses for nitrogenous compounds (mg/L) in samples collected

Location Date	Lab Note	Val.	Ammonia Nitrogen as N	Nitrate and Nitrite as N	Nitrate and Nitrite as NO3	Nitrate as N
NC2-14S 18-jun-2003	CN ag	V	-	-	-	-
NC2-15 23-jun-2003	CN a	V	-	-	-	-
NC2-16 10-jun-2003	CN a	V	-	-	-	-
NC2-17 05-jun-2003	CN af	V	-	-	-	-
NC2-18 06-jun-2003	CN af	V	-	-	-	-
NC2-19 23-jun-2003	CN a	V	-	-	-	-
NC2-20 17-jun-2003	CN af	V	-	-	-	-
NC2-21 23-jun-2003	CN a	V	-	-	-	-
NC7-10 26-may-1999	CN af	V	-	-	-	-
27-may-2003	CN af	V	-	-	-	-
NC7-11 26-may-1999	CN af	V	-	-	-	-
27-may-2003	CN af	V	-	-	-	-
NC7-14 27-may-1999	CN a	V	-	-	-	-
NC7-15 26-may-1999	CN a	V	-	-	-	-
NC7-19 28-may-2003	CN af	V	-	-	-	-
NC7-27 07-jun-1999	CN af	V	-	-	-	-
16-jun-2003	CN af	V	-	-	-	-
NC7-28 07-jun-1999	CN af	V	-	-	-	-
28-may-2003	CN af	V	-	-	-	-
NC7-29 21-may-1999	CN a	V	-	-	-	-
17-jun-2003	CN af	V	-	-	-	-
NC7-43 07-jun-1999	BB ag	V	-	-	-	-
07-jun-1999	CN ag	V	-	-	-	-
10-jun-2003	CN ag	V	-	-	-	-
NC7-44 21-may-1999	CN af	V	-	-	-	-
28-may-2003	CN af	V	-	-	-	-
NC7-46 21-may-1999	CN a	V	-	-	-	-
12-jun-2003	CN a	V	-	-	-	-
NC7-56 09-jun-1999	CN af	V	-	-	-	-
17-jun-2003	CN a	V	-	-	-	-

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Nitrite as N	Nitrite as NO2	Nitrate as NO3	Total Kjeldahl Nitrogen	Location Date
-	-	42 D	-	NC2-14S 18-jun-2003
-	-	43 D	-	NC2-15 23-jun-2003
-	-	9	-	NC2-16 10-jun-2003
-	-	47 D	-	NC2-17 05-jun-2003
-	-	56 D	-	NC2-18 06-jun-2003
-	-	83 D	-	NC2-19 23-jun-2003
-	-	45 D	-	NC2-20 17-jun-2003
-	-	40 D	-	NC2-21 23-jun-2003
-	-	56 DS	-	NC7-10 26-may-1999
-	-	60 D	-	27-may-2003
-	-	46 DS	-	NC7-11 26-may-1999
-	-	65 D	-	27-may-2003
-	-	40 S	-	NC7-14 27-may-1999
-	-	43 S	-	NC7-15 26-may-1999
-	-	39 D	-	NC7-19 28-may-2003
-	-	42 DS	-	NC7-27 07-jun-1999
-	-	56 D	-	16-jun-2003
-	-	54 DS	-	NC7-28 07-jun-1999
-	-	69 D	-	28-may-2003
-	-	<0.5 SU	-	NC7-29 21-may-1999
-	-	120 D	-	17-jun-2003
-	-	<0.4 U	-	NC7-43 07-jun-1999
-	-	<0.5 SU	-	07-jun-1999
-	-	<0.1 U	-	10-jun-2003
-	-	48 DS	-	NC7-44 21-may-1999
-	-	72 D	-	28-may-2003
-	-	<0.5 SU	-	NC7-46 21-may-1999
-	-	<0.1 U	-	12-jun-2003
-	-	88 DJLS	-	NC7-56 09-jun-1999
-	-	48 D	-	17-jun-2003

Table A-15. Ground and surface water analyses for nitrogenous compounds (mg/L) in samples collected

Location Date	Lab Note	Val.	Ammonia Nitrogen as N	Nitrate and Nitrite as N	Nitrate and Nitrite as NO3	Nitrate as N
NC7-58						
12-jun-2003	CN a	V	-	-	-	-
NC7-59						
28-jun-1999	CN a	V	-	-	-	-
12-jun-2003	CN a	V	-	-	-	-
NC7-60						
09-jun-1999	CN af	V	-	-	-	-
16-jun-2003	CN a	V	-	-	-	-
NC7-61						
07-aug-1995	CS a	V	-	-	-	-
30-oct-1995	CS a	V	-	-	-	-
18-nov-1997	BB a	V	-	-	-	-
02-jun-1998	BB af	N	-	-	-	-
02-dec-1998	BB a	V	-	-	-	-
01-jun-1999	CN af	V	-	-	-	-
09-nov-1999	CN af	V	-	-	-	-
21-apr-2000	WE a	N	-	-	13.5	-
18-may-2000	CN af	V	-	-	-	-
21-jul-2000	WE a	N	-	-	18.1	-
20-nov-2000	CN afh	V	-	-	-	-
20-nov-2000	CN aefh	V	-	-	-	-
21-may-2001	CN a	V	-	-	-	-
16-may-2002	CN af	V	-	-	-	-
02-may-2003	CN aefh	V	-	-	-	-
02-may-2003	CN afh	V	-	-	-	-
NC7-62						
11-jun-1999	CN af	V	-	-	-	-
12-jun-2003	CN a	V	-	-	-	-
NC7-69						
04-aug-1995	CS a	V	-	-	-	-
31-oct-1995	CS a	V	-	-	-	-
18-nov-1997	BB a	V	-	-	-	-
02-jun-1998	BB a	N	-	-	-	-
03-dec-1998	BB a	V	-	-	-	-
10-nov-1999	CN a	V	-	-	-	-
17-may-2000	CN a	V	-	-	-	-
20-nov-2000	CN a	V	-	-	-	-
22-may-2001	CN a	V	-	-	-	-
15-nov-2001	CN ah	V	-	-	-	-
15-nov-2001	CN aeh	V	-	-	-	-
15-nov-2001	CN ah	V	0.6	-	-	-
15-nov-2001	CN aeh	V	0.5	-	-	-
16-may-2002	CN a	V	-	-	-	-
16-may-2002	CN a	V	0.6	-	-	-
27-dec-2002	SE ah	V	-	-	-	-
27-dec-2002	SE aeh	V	-	-	-	-
27-dec-2002	SE ah	V	0.43 H	-	-	-
27-dec-2002	SE aeh	V	0.43 H	-	-	-
08-may-2003	BB a	V	-	-	-	-
08-may-2003	BB af	V	-	-	-	-
08-may-2003	BB af	V	0.52 D	-	-	-
NC7-70						
15-jun-1999	CN a	V	-	-	-	-
17-jun-2003	CN af	V	-	-	-	-
NC7-71						
21-may-1999	CN a	V	-	-	-	-
17-jun-2003	CN a	V	-	-	-	-
NC7-72						
15-jun-1999	CN a	V	-	-	-	-

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Nitrite as N	Nitrite as NO2	Nitrate as NO3	Total Kjeldahl Nitrogen	Location Date
-	-	51 D	-	NC7-58 12-jun-2003
-	-	<0.5 SU	-	NC7-59 28-jun-1999
-	-	45 D	-	12-jun-2003
-	-	25 DJLS	-	NC7-60 09-jun-1999
-	-	5.2	-	16-jun-2003
-	-	140 D	-	NC7-61 07-aug-1995
-	-	120 D	-	30-oct-1995
-	-	75	-	18-nov-1997
-	-	97 D	-	02-jun-1998
-	-	66	-	02-dec-1998
-	-	62 DS	-	01-jun-1999
-	-	72 DS	-	09-nov-1999
-	-	-	-	21-apr-2000
-	-	42 D	-	18-may-2000
-	-	-	-	21-jul-2000
-	-	15 DL	-	20-nov-2000
-	-	28 DL	-	20-nov-2000
-	-	27 D	-	21-may-2001
-	-	48 D	-	16-may-2002
-	-	63 D	-	02-may-2003
-	-	62 D	-	02-may-2003
-	-	8 DS	-	NC7-62 11-jun-1999
-	-	51 D	-	12-jun-2003
-	-	<0.5 DUH	-	NC7-69 04-aug-1995
-	-	<5 DU	-	31-oct-1995
-	-	<0.4 U	-	18-nov-1997
-	-	<0.4 U	-	02-jun-1998
-	-	<0.4 U	-	03-dec-1998
-	-	2.7 S	-	10-nov-1999
-	-	<0.1 U	-	17-may-2000
-	-	<0.1 LU	-	20-nov-2000
-	-	<0.4 LU	-	22-may-2001
-	<0.1 U	-	-	15-nov-2001
-	<0.1 U	-	-	15-nov-2001
-	-	-	-	15-nov-2001
<0.1 U	-	-	-	15-nov-2001
-	-	-	-	16-may-2002
-	<0.5 HU	-	-	16-may-2002
-	<0.5 HU	-	-	27-dec-2002
-	-	-	-	27-dec-2002
-	-	-	-	27-dec-2002
-	-	-	-	27-dec-2002
-	-	<0.44 U	-	08-may-2003
-	<0.065 U	-	-	08-may-2003
-	-	-	-	08-may-2003
-	-	14 S	-	NC7-70 15-jun-1999
-	-	67 D	-	17-jun-2003
-	-	<0.5 SU	-	NC7-71 21-may-1999
-	-	<0.1 U	-	17-jun-2003
-	-	28 S	-	NC7-72 15-jun-1999

Table A-15. Ground and surface water analyses for nitrogenous compounds (mg/L) in samples collected

Location Date	Lab Note	Val.	Ammonia Nitrogen as N	Nitrate and Nitrite as N	Nitrate and Nitrite as NO3	Nitrate as N
NC7-73						
15-jun-1999	CN a	V	-	-	-	-
21-may-2003	CN a	V	-	-	-	-
W-850-05						
10-jun-2003	CN a	V	-	-	-	-
W-865-1802						
27-jun-2003	SE af	V	-	-	-	6.1 DH
W-865-1803						
26-jun-2003	CN a	V	-	-	-	7.2 H
SPRING24						
22-oct-1999	BB af	V	-	-	-	12 D
27-aug-2001	CN af	V	-	-	-	1.5
13-dec-2001	CN af	V	-	-	-	10
W8SPRNG						
31-oct-1995	CS a	V	-	-	-	-
31-oct-1995	FS ag	V	-	-	-	-
15-may-1996	CS a	V	-	-	-	20
26-jun-2003	CN aeh	V	-	-	-	-
26-jun-2003	CN ah	V	-	-	-	-

from the Building 850 subarea between July 1, 1995 and June 30, 2003. Results recorded by November 4, 2003.

Nitrite as N	Nitrite as NO2	Nitrate as NO3	Total Kjeldahl Nitrogen	Location Date
-	-	30 S	-	NC7-73
-	-	4	-	15-jun-1999
-	-	<0.1 U	-	21-may-2003
-	-	<0.1 U	-	W-850-05
<0.1 HU	-	27 DH	-	10-jun-2003
<0.1 HU	-	32 H	-	W-865-1802
<0.02 U	-	55 D	-	27-jun-2003
<0.1 U	-	28	-	W-865-1803
<0.1 U	-	44	-	26-jun-2003
-	-	57 D	-	SPRING24
<0.1 HU	-	69	-	22-oct-1999
<0.5 ULO	-	90 O	-	31-oct-1995
-	-	53 D	-	15-may-1996
-	-	54 D	-	26-jun-2003
-	-		-	26-jun-2003

See following page for notes

Table A-15. Ground and surface water analyses for nitrogenous compounds (mg/L) in samples collected from the Building 850 subarea between July 1, 1995 and June 30, 2003. Results recorded by November 4, 2003.

Notes:

- Indicates no analysis performed for this compound

Val. = Validation code

Footnotes:

a ERD data
b ORAD WGMG data
c Analytical results for this sample are suspect
d Sample collected during hydraulic testing
e Blind sample, sent to lab without location identity
f Sample dilution necessary for analysis; detection limits increased
g Interlaboratory collocated sample
h Intralaboratory collocated sample
i Sample collected as part of pilot study
j Note field may contain important information regarding this sample
k Pre-development sample
l Norm month, norm quarter or norm year inconsistent with sample date
m Confirmation sample
n Sample analyzed after standard holding time
o Sample comprised of partial composite
p Alpha spectroscopy analysis of uranium isotopes
q Gamma spectroscopy analysis of uranium isotopes
r Tritium data represents non-detect with activity calc'd for 100 percent error.

Lab Codes:

BB BC Laboratories, Inc. Bakersfield, CA
CN Caltest Analytical Laboratory 1885 N. Kelly Rd, Napa, CA 94558
CS California Laboratory Services 3249 Fitzgerald Rd. Rancho Cordova, CA 95742
FS FruitGrowers Environmental Lab 2500 Stagecoach Rd., Stockton, CA 95215
SE Sequoia Analytical 1551 Industrial Road, San Carlos, CA 94070
WE Univ/Waterloo EnvirIsotope Lab Univ. of Waterloo, Waterloo, ONT CANADA N2L3G1

Validation Codes:

V Validated
N Not validated (default value)
U Undeclared
H Historical comparison only

CLP flags: (follow result)

B Analyte found in method blank
D Analysis performed at a secondary dilution or concentration (i.e., vapor samples)
E The analyte was detected below the LLNL reporting limit, but above the analytical laboratory minimum detection limit.
F Analyte found in field blank, trip blank, or equipment blank
G Quantitated using fuel calibration, but does not match typical fuel fingerprint (fuel maybe gasoline, diesel, motor oil etc.).
H Sample analyzed outside of holding time, sample results should be evaluated
J Analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
L Spike accuracy not within control limits
O Duplicate spike or sample precision not within control limits
P Indicates that the absence of a data qualifier flag does not mean that the data does not need qualification, but that the implementation of electronic data qualifier flags was not yet established
R Sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet QC criteria. The presence or absence of the analyte cannot be verified
S Analytical results for this sample are suspect
T Analyte is tentatively identified compound; result is approximate
U Compound was analyzed for, but not detected above detection limit

Table A-16. Ground and surface water analyses for perchlorate (mg/L) in samples collected from the Building 850 subarea between July 1, 1995 and June 30, 2003. Results recorded by November 4, 2003.

Site 300 Perchlorate in Ground Water
November 5, 2003
gemin1
gwperc.05nov2003

Min Sample Date
July 1, 1995
Max Sample Date
June 30, 2003

Table A-16. Ground and surface water analyses for perchlorate (mg/L) in samples collected from the Building 850 subarea between July 1, 1995 and June 30, 2003. Results recorded by November 4, 2003.

Location					Perchlorate
Date	Lab	Note	Val.		(ug/L)
K1-01C					
14-jul-1998	CS	ag	V	<4	U
16-apr-2002	CN	aeh	V	<4	U
16-apr-2002	CN	ah	V	<4	U
29-jul-2002	CN	af	V	<4	U
31-jan-2003	CN	af	V	<4	U
17-apr-2003	CN	af	V	<4	U
K1-02A					
05-jun-2002	CN	ah	V	<4	U
05-jun-2002	CN	aeh	V	<4	U
K1-02B					
14-jul-1998	CS	ag	V	6.4	
16-apr-2002	CN	a	V	5.2	
29-jul-2002	CN	af	V	<4	U
30-jan-2003	CN	af	V	<4	U
17-apr-2003	CN	afh	V	<4	U
17-apr-2003	CN	aefh	V	<4	U
K1-03					
15-jul-1998	CS	ag	V	<4	U
16-apr-2002	CN	a	V	<4	U
29-jul-2002	CN	af	V	<4	U
30-jan-2003	CN	af	V	<4	U
17-apr-2003	CN	af	V	<4	U
K1-04					
15-jul-1998	CS	ag	V	<4	U
16-apr-2002	CN	ag	V	<4	U
29-jul-2002	CN	afh	V	<4	U
29-jul-2002	CN	aefh	V	<4	U
29-jan-2003	CN	aefh	V	<4	U
29-jan-2003	CN	afh	V	<4	U
18-apr-2003	SE	af	N	<4	U
K1-05					
16-jul-1998	CS	ag	V	<4	U
18-apr-2002	CN	a	V	<4	U
30-jul-2002	CN	af	V	<4	U
29-jan-2003	CN	af	V	<4	U
18-apr-2003	SE	af	N	<4	U
K1-07					
16-jul-1998	CS	ag	V	<4	U
18-apr-2002	CN	a	V	<4	U
30-jul-2002	CN	af	V	<4	U
30-jan-2003	CN	af	V	<4	U
01-may-2003	CN	af	V	<4	U
K1-08					
16-jul-1998	CS	agh	V	<4	U
16-jul-1998	CS	aegh	V	<4	U
18-apr-2002	CN	a	V	<4	U
30-jul-2002	CN	af	V	<4	U
07-feb-2003	CN	af	V	<4	U
02-may-2003	CN	af	V	<4	U
K1-09					
16-jul-1998	CS	ag	V	<4	U
18-apr-2002	CN	a	V	<4	U
30-jul-2002	CN	af	V	<4	U
31-jan-2003	CN	af	V	<4	U
02-may-2003	CN	af	V	<4	U

Table A-16. Ground and surface water analyses for perchlorate (mg/L) in samples collected from the Building 850 subarea between July 1, 1995 and June 30, 2003. Results recorded by November 4, 2003.

Location Date	Lab Note	Val.	Perchlorate (ug/L)
K2-01A			
29-may-2002	CN a	V	<4 U
K2-01C			
14-may-2002	CN a	V	<4 U
05-jun-2003	CN af	V	4
K2-02A			
29-may-2002	CN a	V	<4 U
K2-02B			
29-may-2002	CN a	V	<4 U
K2-04D			
16-may-2002	CN aefh	V	<4 U
16-may-2002	CN afh	V	<4 U
15-may-2003	BB ag	V	<4 U
K2-04S			
16-may-2002	CN af	V	8
02-may-2003	BB ag	V	8.1
NC2-07			
19-nov-2001	CN a	N	<4 U
15-may-2002	CN a	V	<4 U
13-jun-2003	BB a	V	<4 U
NC2-08			
30-may-2003	CN af	V	6
NC2-11D			
14-may-2002	CN a	V	<4 U
08-may-2003	BB a	V	<4 U
NC2-12D			
14-may-2002	CN a	V	<4 U
08-may-2003	BB a	V	<4 U
NC7-61			
16-may-2002	CN af	V	44
02-may-2003	CN aeh	V	38
02-may-2003	CN ah	V	39
NC7-69			
15-nov-2001	CN ah	V	<4 U
15-nov-2001	CN aeh	V	<4 U
16-may-2002	CN a	V	<4 U
27-dec-2002	SE ah	V	<4 U
27-dec-2002	SE aeh	V	<4 U
08-may-2003	BB a	V	<4 U
W-865-1802			
27-jun-2003	CN a	V	<4 U
W-865-1803			
26-jun-2003	CN a	V	<4 U
SPRING24			
22-oct-1999	BB af	V	<4 U
27-aug-2001	CN af	V	<4 U

See following page for notes

Table A-16. Ground and surface water analyses for perchlorate (mg/L) in samples collected from the Building 850 subarea between July 1, 1995 and June 30, 2003. Results recorded by November 4, 2003.

Notes:

- Indicates no analysis performed for this compound
- Val. = Validation code

Footnotes:

- a ERD data
- b ORAD WGMG data
- c Analytical results for this sample are suspect
- d Sample collected during hydraulic testing
- e Blind sample, sent to lab without location identity
- f Sample dilution necessary for analysis; detection limits increased
- g Interlaboratory collocated sample
- h Intralaboratory collocated sample
- i Sample collected as part of pilot study
- j Note field may contain important information regarding this sample
- k Pre-development sample
- l Norm month, norm quarter or norm year inconsistent with sample date
- m Confirmation sample
- n Sample analyzed after standard holding time
- o Sample comprised of partial composite
- p Alpha spectroscopy analysis of uranium isotopes
- q Gamma spectroscopy analysis of uranium isotopes
- r Tritium data represents non-detect with activity calc'd for 100 percent error.

Lab Codes:

- | | | |
|----|--------------------------------|--|
| BB | BC Laboratories, Inc. | Bakersfield, CA |
| CN | Caltest Analytical Laboratory | 1885 N. Kelly Rd, Napa, CA 94558 |
| CS | California Laboratory Services | 3249 Fitzgerald Rd. Rancho Cordova, CA 95742 |
| SE | Sequoia Analytical | 1551 Industrial Road, San Carlos, CA 94070 |

Validation Codes:

- V Validated
- N Not validated (default value)
- U Undeclared
- H Historical comparison only

CLP flags: (follow result)

- B Analyte found in method blank
- D Analysis performed at a secondary dilution or concentration (i.e., vapor samples)
- E The analyte was detected below the LLNL reporting limit, but above the analytical laboratory minimum detection limit.
- F Analyte found in field blank, trip blank, or equipment blank
- G Quantitated using fuel calibration, but does not match typical fuel fingerprint (fuel maybe gasoline, diesel, motor oil etc.).
- H Sample analyzed outside of holding time, sample results should be evaluated
- J Analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
- L Spike accuracy not within control limits
- O Duplicate spike or sample precision not within control limits
- P Indicates that the absence of a data qualifier flag does not mean that the data does not need qualification, but that the implementation of electronic data qualifier flags was not yet established
- R Sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet QC criteria. The presence or absence of the analyte cannot be verified
- S Analytical results for this sample are suspect
- T Analyte is tentatively identified compound; result is approximate
- U Compound was analyzed for, but not detected above detection limit

Table A-17. Ground and surface water analyses for high explosives compounds (ug/L)
at Building 850 in samples collected between July 1, 1995 and June 30, 2003. Results recorded by
November 4, 2003.

HE Compounds in Water, Site 300
November 5, 2003
geminii
s3hmx.05nov2003

Min Sample Date
July 1, 1995
Max Sample Date
June 30, 2003

Table A-17. Ground and surface water analyses for high explosives compounds (ug/L) at Building 850 in samples collected between July 1, 1995 and June 30, 2003. Results recorded by November 4, 2003.

Location	Date	Lab Note	Val.	HMX	RDX	TNT
K1-01A						
	23-may-1996	CS a	V	<5 U	<5 U	-
	21-may-1997	CS a	V	<5 U	<5 U	-
K1-01B						
	23-may-1996	CS a	V	<5 U	<5 U	-
	22-may-1997	CS a	V	<5 U	<5 U	-
K1-01C						
	31-jul-1995	CS a	V	<5 U	<5 U	<5 U
	11-oct-1995	CS a	V	<5 U	<5 U	<5 U
	17-jan-1996	CS a	V	<5 U	<5 U	-
	10-apr-1996	CS a	V	<5 U	<5 U	-
	30-jul-1996	CS a	V	<5 U	<5 U	-
	09-oct-1996	CS a	V	<5 U	<5 U	-
	16-jan-1997	CS a	V	<5 U	<5 U	-
	03-apr-1997	CS a	V	<5 UO	<5 UO	-
	01-jul-1997	CS a	V	<5 U	<5 U	-
	13-oct-1997	CS a	V	<5 U	<5 U	-
	08-jan-1998	CS a	V	<5 U	<5 U	-
	09-apr-1998	CS a	V	<5 U	<5 U	-
	14-jul-1998	CS a	V	<5 U	<5 U	-
	14-oct-1998	CS a	V	<5 U	<5 U	-
	12-jan-1999	CS a	V	<5 U	<5 U	-
	12-apr-1999	CN a	V	<1 U	<1 U	-
	06-jul-1999	CN ah	V	<1 U	<1 U	-
	06-jul-1999	CN aeh	V	<1 U	<1 U	-
	04-oct-1999	CN aj	V	<1 U	-	-
	07-feb-2000	CN a	V	<1.1 U	<1.1 U	-
	18-apr-2000	CN af	V	<1 LOU	<1 LOU	-
	19-jul-2000	CN af	V	<1 LOU	<1 LOU	-
	19-oct-2000	CN af	V	<2 LOU	<2 LOU	-
	18-jan-2001	CN ahf	V	<1 U	<1 U	-
	18-jan-2001	CN aehf	V	<1 U	<1 U	-
	18-apr-2001	CN af	V	<1 LU	<1 LU	-
	09-jul-2001	CN af	V	<1 U	<1 U	-
	22-oct-2001	CN a	V	<1 U	<1 U	-
	16-jan-2002	CN a	V	<1 U	<1 U	-
	16-apr-2002	CN aeh	V	<1 LOU	<1 LOU	-
	16-apr-2002	CN ah	V	<1 LOU	<1 LOU	-
	29-jul-2002	CN af	V	<1 LOU	<1 LOU	-
	05-dec-2002	CN aefh	V	<1 OU	<1 OU	-
	05-dec-2002	CN afh	V	<1 OU	<1 OU	-
	31-jan-2003	CN af	V	<5 U	<5 U	<5 U
	17-apr-2003	CN af	V	<1 U	<1 U	-
K1-02A						
	23-may-1996	CS a	V	<5 U	<5 U	-
	21-may-1997	CS a	V	<5 U	<5 U	-
	08-dec-1997	CS a	V	<5 U	<5 U	-
	24-jun-1998	CS a	V	<5 U	<5 U	-
	16-dec-1998	CS agh	V	<5 U	<5 U	-
	16-dec-1998	CS aeh	V	<5 U	<5 U	-
	21-may-1999	CN aeh	V	<1 U	<1 U	-
	21-may-1999	CN ah	V	<1 U	<1 U	-
	02-nov-1999	CN a	N	<1 U	<1 U	-
	24-may-2000	CN a	V	<1 U	<1 U	-
	07-dec-2000	CN af	V	<1 LOU	<1 LOU	-
	30-may-2001	CN a	V	<5 U	<5 U	<5 U
	05-jun-2002	CN ah	V	<1 LOU	<1 LOU	-
	05-jun-2002	CN aeh	V	<1 LOU	<1 LOU	-
	28-oct-2002	SE ah	V	<2.1 U	<2.1 U	-
	28-oct-2002	SE aeh	V	<2.1 U	<2.1 U	-
K1-02B						
	31-jul-1995	CS a	V	<5 U	<5 U	<5 U
	11-oct-1995	CS a	V	<5 U	<5 U	<5 U

Table A-17. Ground and surface water analyses for high explosives compounds (ug/L) at Building 850 in samples collected between July 1, 1995 and June 30, 2003. Results recorded by November 4, 2003.

Location	Date	Lab Note	Val.	HMX	RDX	TNT
K1-02B (continued)						
	17-jan-1996	CS a	V	<5 U	<5 U	-
	10-apr-1996	CS a	V	<5 U	<5 U	-
	30-jul-1996	CS a	V	<5 U	<5 U	-
	09-oct-1996	CS a	V	<5 U	<5 U	-
	16-jan-1997	CS a	V	<5 U	<5 U	-
	03-apr-1997	CS a	V	<5 UO	<5 UO	-
	01-jul-1997	CS a	V	<5 U	<5 U	-
	13-oct-1997	CS a	V	<5 U	<5 U	-
	08-jan-1998	CS a	V	<5 U	<5 U	-
	09-apr-1998	CS a	V	<5 U	<5 U	-
	14-jul-1998	CS a	V	<5 U	<5 U	-
	13-oct-1998	CS a	V	<5 U	<5 U	-
	12-jan-1999	CS ah	V	<5 U	<5 U	-
	12-jan-1999	CS aeh	V	<5 U	<5 U	-
	15-apr-1999	CN a	V	<1 U	<1 U	-
	09-jul-1999	CN a	V	<1 U	<1 U	-
	07-oct-1999	CN af	V	<1 U	<1 U	-
	07-feb-2000	CN a	V	<1 U	<1 U	-
	18-apr-2000	CN af	V	<1 LOU	<1 LOU	-
	19-jul-2000	CN af	V	<1 LOU	<1 LOU	-
	19-oct-2000	CN af	V	<1 LOU	<1 LOU	-
	18-jan-2001	CN af	V	<1 U	<1 U	-
	18-apr-2001	CN af	V	<1 LU	<1 LU	-
	09-jul-2001	CN af	V	<1 U	<1 U	-
	22-oct-2001	CN a	V	<1 U	<1 U	-
	16-jan-2002	CN a	V	<1 U	<1 U	-
	16-apr-2002	CN a	V	<1 LOU	<1 LOU	-
	29-jul-2002	CN af	V	<1 LOU	<1 LOU	-
	04-dec-2002	CN af	V	<1 OU	<1 OU	-
	30-jan-2003	CN af	V	<5 U	<5 U	<5 U
	17-apr-2003	CN afh	V	<1 U	<1 U	-
	17-apr-2003	CN aefh	V	<1 U	<1 U	-
K1-03						
	31-jul-1995	CS a	V	<5 U	<5 U	<5 U
	11-oct-1995	CS ah	V	<5 U	<5 U	<5 U
	11-oct-1995	CS aeh	V	<5 U	<5 U	<5 U
	18-jan-1996	CS a	V	<5 U	<5 U	-
	10-apr-1996	CS a	V	<5 U	<5 U	-
	30-jul-1996	CS a	V	<5 U	<5 U	-
	10-oct-1996	CS a	V	<5 U	<5 U	-
	16-jan-1997	CS a	V	<5 U	<5 U	-
	03-apr-1997	CS a	V	<5 UO	<5 UO	-
	02-jul-1997	CS a	V	<5 U	<5 U	-
	14-oct-1997	CS a	V	<5 U	<5 U	-
	08-jan-1998	CS a	V	<5 U	<5 U	-
	09-apr-1998	CS ah	V	<5 U	<5 U	-
	09-apr-1998	CS aeh	V	<5 U	<5 U	-
	15-jul-1998	CS a	V	<5 U	<5 U	-
	13-oct-1998	CS a	V	<5 U	<5 U	-
	12-jan-1999	CS a	V	<5 U	<5 U	-
	15-apr-1999	CN a	V	<1 U	<1 U	-
	09-jul-1999	CN a	V	<1 U	<1 U	-
	06-oct-1999	CN af	V	<1 U	<1 U	-
	07-feb-2000	CN a	V	<1 U	<1 U	-
	18-apr-2000	CN af	V	<1 LOU	<1 LOU	-
	19-jul-2000	CN af	V	<1 LOU	<1 LOU	-
	23-oct-2000	CN afh	V	<5 LOU	<5 LOU	<5 LOU
	23-oct-2000	CN aefh	V	<5 LOU	<5 LOU	<5 LOU
	18-jan-2001	CN af	V	<1 U	<1 U	-
	18-apr-2001	CN af	V	<1 LU	<1 LU	-
	09-jul-2001	CN afh	V	<2 U	<2 U	-
	09-jul-2001	CN aefh	V	<1 U	<1 U	-
	22-oct-2001	CN a	V	<1 U	<1 U	-
	16-jan-2002	CN a	V	<1 U	<1 U	-
	16-apr-2002	CN a	V	<1 LOU	<1 LOU	-
	29-jul-2002	CN af	V	<1 LOU	<1 LOU	-

Table A-17. Ground and surface water analyses for high explosives compounds (ug/L) at Building 850 in samples collected between July 1, 1995 and June 30, 2003. Results recorded by November 4, 2003.

Location Date	Lab Note	Val.	HMX	RDY	TNT
K1-03 (continued)					
04-dec-2002	CN af	V	<1 OU	<1 OU	-
30-jan-2003	CN af	V	<5 U	<5 U	<5 U
17-apr-2003	CN af	V	<1 U	<1 U	-
K1-04					
31-jul-1995	CS a	V	<5 U	<5 U	<5 U
11-oct-1995	CS ah	V	<5 U	<5 U	<5 U
18-jan-1996	CS a	V	<5 U	<5 U	-
11-apr-1996	CS a	V	<5 U	<5 U	-
31-jul-1996	CS ah	V	<5 U	<5 U	-
31-jul-1996	CS aeh	V	<5 U	<5 U	-
10-oct-1996	CS a	V	<5 U	<5 U	-
16-jan-1997	CS a	V	<5 U	<5 U	-
03-apr-1997	CS a	V	<5 UO	<5 UO	-
02-jul-1997	CS a	V	<5 U	<5 U	-
14-oct-1997	CS a	V	<5 U	<5 U	-
08-jan-1998	CS a	V	<5 U	<5 U	-
09-apr-1998	CS a	V	<5 U	<5 U	-
15-jul-1998	CS a	V	<5 U	<5 U	-
14-oct-1998	CS a	V	<5 U	<5 U	-
13-jan-1999	CS a	V	<5 U	<5 U	-
14-apr-1999	CN a	V	<1 U	<1 U	-
09-jul-1999	CN a	V	<1 U	<1 U	-
06-oct-1999	CN af	V	<1 U	<1 U	-
07-feb-2000	CN a	V	<1 U	<1 U	-
18-apr-2000	CN ah	V	<1 LOU	<1 LOU	-
18-apr-2000	CN aeh	V	<1 LOU	<1 LOU	-
19-jul-2000	CN af	V	<1 LOU	<1 LOU	-
23-oct-2000	CN af	V	<5 LOU	<5 LOU	<5 LOU
18-jan-2001	CN a	V	<1 U	<1 U	-
23-apr-2001	CN af	V	<1 U	<1 U	-
10-jul-2001	CN a	V	<1 U	<1 U	-
22-oct-2001	CN a	V	<1 U	<1 U	-
16-jan-2002	CN aeh	V	<1 U	<1 U	-
16-jan-2002	CN ah	V	<1 U	<1 U	-
16-apr-2002	CN ag	V	<1 LOU	<1 LOU	-
29-jul-2002	CN afh	V	<1 LOU	<1 LOU	-
29-jul-2002	CN aefh	V	<1 LOU	<1 LOU	-
05-dec-2002	CN af	V	<1 OU	<1 OU	-
29-jan-2003	CN aefh	V	<1 U	<1 U	-
29-jan-2003	CN afh	V	<1 U	<1 U	-
18-apr-2003	SE af	N	<2.2 U	<2.2 U	-
K1-05					
31-jul-1995	CS ah	V	<5 U	<5 U	<5 U
31-jul-1995	CS aeh	V	<5 U	<5 U	<5 U
12-oct-1995	CS ah	V	<5 U	<5 U	<5 U
18-jan-1996	CS a	V	<5 U	<5 U	-
11-apr-1996	CS a	V	<5 U	<5 U	-
31-jul-1996	CS a	V	<5 U	<5 U	-
11-oct-1996	CS a	V	<5 U	<5 U	-
17-jan-1997	CS ah	V	<5 U	<5 U	-
17-jan-1997	CS aeh	V	<5 U	<5 U	-
04-apr-1997	CS a	V	<5 U	<5 U	-
02-jul-1997	CS a	V	<5 U	<5 U	-
14-oct-1997	CS a	V	<5 U	<5 U	-
12-jan-1998	CS ahg	V	<5 U	<5 U	-
12-jan-1998	CS aeh	V	<5 U	<5 U	-
15-apr-1998	CS a	V	<5 U	<5 U	-
16-jul-1998	CS a	V	<5 U	<5 U	-
14-oct-1998	CS a	V	<5 U	<5 U	-
13-jan-1999	CS a	V	<5 U	<5 U	-
14-apr-1999	CN a	V	<1 U	<1 U	-
08-jul-1999	CN a	V	<1 U	<1 U	-
06-oct-1999	CN afh	V	<1 U	<1 U	-
06-oct-1999	CN aefh	V	<1 U	<1 U	-
08-feb-2000	CN a	V	<1 LOU	<1 LOU	-

Table A-17. Ground and surface water analyses for high explosives compounds (ug/L) at Building 850 in samples collected between July 1, 1995 and June 30, 2003. Results recorded by November 4, 2003.

Location	Date	Lab Note	Val.	HMX	RDY	TNT
K1-05 (continued)						
	19-apr-2000	CN a	V	<1 U	<1 U	-
	19-jul-2000	CN af	V	<1 LOU	<1 LOU	-
	24-oct-2000	CN af	V	<1 LOU	<1 LOU	-
	18-jan-2001	CN af	V	<1 U	<1 U	-
	20-apr-2001	CN afh	V	<1 LU	<1 LU	-
	20-apr-2001	CN aefh	V	<1 LU	<1 LU	-
	12-jul-2001	CN a	V	<1 U	<1 U	-
	23-oct-2001	CN a	V	<1 U	<1 U	-
	22-jan-2002	CN a	V	<1 U	<1 U	-
	18-apr-2002	CN a	V	<1 LOU	<1 LOU	-
	30-jul-2002	CN af	V	<1 LOU	<1 LOU	-
	06-dec-2002	CN af	V	<1 OU	<1 OU	-
	29-jan-2003	CN af	V	<1 U	<1 U	-
	18-apr-2003	SE af	N	<2.2 U	<2.2 U	-
K1-07						
	31-jul-1995	CS a	V	<5 U	<5 U	<5 U
	12-oct-1995	CS ah	V	<5 U	<5 U	<5 U
	18-jan-1996	CS a	V	<5 U	<5 U	-
	12-apr-1996	CS a	V	<5 U	<5 U	-
	31-jul-1996	CS a	V	<5 U	<5 U	-
	11-oct-1996	CS a	V	<5 U	<5 U	-
	17-jan-1997	CS a	V	<5 U	<5 U	-
	04-apr-1997	CS a	V	<5 U	<5 U	-
	03-jul-1997	CS a	V	<5 U	<5 U	-
	16-oct-1997	CS a	V	<5 U	<5 U	-
	12-jan-1998	CS a	V	<5 U	<5 U	-
	15-apr-1998	CS a	V	<5 U	<5 U	-
	16-jul-1998	CS a	V	<5 U	<5 U	-
	15-oct-1998	CS a	V	<5 U	<5 U	-
	14-jan-1999	CS a	V	<5 U	<5 U	-
	12-apr-1999	CN a	V	<1 U	<1 U	-
	06-jul-1999	CN a	V	<1 U	<1 U	-
	04-oct-1999	CN aj	V	<1.4 U	-	-
	08-feb-2000	CN ah	V	<1.2 LOU	<1.2 LOU	-
	08-feb-2000	CN aeh	V	<1.1 LOU	<1.1 LOU	-
	19-apr-2000	CN a	V	<1 U	<1 U	-
	20-jul-2000	CN af	V	<1 LOU	<1 LOU	-
	25-oct-2000	CN a	V	<1 LU	<1 U	-
	22-jan-2001	CN a	V	<1 U	<1 U	-
	23-apr-2001	CN af	V	<1 U	<1 U	-
	10-jul-2001	CN af	V	<1 U	<1 U	-
	23-oct-2001	CN ah	V	<1 U	<1 U	-
	23-oct-2001	CN aeh	V	<1 U	<1 U	-
	22-jan-2002	CN a	V	<1 U	<1 U	-
	18-apr-2002	CN a	V	<1 LOU	<1 LOU	-
	30-jul-2002	CN af	V	<1 LOU	<1 LOU	-
	06-dec-2002	CN af	V	<1 OU	<1 OU	-
	30-jan-2003	CN af	V	<5 U	<5 U	<5 U
	01-may-2003	CN af	V	<1 U	<1 U	-
K1-08						
	31-jul-1995	CS a	V	<5 U	<5 U	<5 U
	12-oct-1995	CS a	V	<5 U	<5 U	<5 U
	18-jan-1996	CS a	V	<5 U	<5 U	-
	12-apr-1996	CS ah	V	<5 U	<5 U	-
	12-apr-1996	CS aeh	V	<5 U	<5 U	-
	31-jul-1996	CS a	V	<5 U	<5 U	-
	11-oct-1996	CS ah	V	<5 U	<5 U	-
	11-oct-1996	CS aeh	V	<5 U	<5 U	-
	17-jan-1997	CS a	V	<5 U	<5 U	-
	04-apr-1997	CS a	V	<5 U	<5 U	-
	03-jul-1997	CS ah	V	<5 U	<5 U	-
	03-jul-1997	CS aeh	V	<5 U	<5 U	-
	16-oct-1997	CS a	V	<5 U	<5 U	-
	12-jan-1998	CS a	V	<5 U	<5 U	-
	15-apr-1998	CS a	V	<5 U	<5 U	-

Table A-17. Ground and surface water analyses for high explosives compounds (ug/L) at Building 850 in samples collected between July 1, 1995 and June 30, 2003. Results recorded by November 4, 2003.

Location	Date	Lab Note	Val.	HMX	RDX	TNT
K1-08 (continued)						
	16-jul-1998	CS ah	V	<5 U	<5 U	-
	16-jul-1998	CS aeh	V	<5 U	<5 U	-
	15-oct-1998	CS a	V	<5 U	<5 U	-
	14-jan-1999	CS a	V	<5 U	<5 U	-
	12-apr-1999	CN a	V	<1 U	<1 U	-
	07-jul-1999	CN a	V	<1 U	<1 U	-
	04-oct-1999	CN afj	V	<1 U	-	-
	09-feb-2000	CN a	V	<1 U	<1 U	-
	19-apr-2000	CN a	V	<1 U	<1 U	-
	20-jul-2000	CN af	V	<1 LOU	<1 LOU	-
	24-oct-2000	CN af	V	<1 LOU	<1 LOU	-
	22-jan-2001	CN af	V	<1 U	<1 U	-
	23-apr-2001	CN af	V	<1 U	<1 U	-
	11-jul-2001	CN af	V	<1 U	<1 U	-
	23-oct-2001	CN a	V	<1 U	<1 U	-
	22-jan-2002	CN a	V	<1 U	<1 U	-
	18-apr-2002	CN a	V	<1 LOU	<1 LOU	-
	30-jul-2002	CN af	V	<1 LOU	<1 LOU	-
	13-dec-2002	CN af	V	<1 U	<1 U	-
	07-feb-2003	CN af	V	<1 U	<1 U	-
	02-may-2003	CN af	V	<1 U	<1 U	-
K1-09						
	31-jul-1995	CS a	V	<5 U	<5 U	<5 U
	12-oct-1995	CS ah	V	<5 U	<5 U	<5 U
	18-jan-1996	CS ah	V	<5 U	<5 U	-
	18-jan-1996	CS aeh	V	<5 U	<5 U	-
	12-apr-1996	CS a	V	<5 U	<5 U	-
	31-jul-1996	CS a	V	<5 U	<5 U	-
	11-oct-1996	CS a	V	<5 U	<5 U	-
	17-jan-1997	CS a	V	<5 U	<5 U	-
	04-apr-1997	CS ah	V	<5 U	<5 U	-
	04-apr-1997	CS aeh	V	<5 U	<5 U	-
	03-jul-1997	CS a	V	<5 U	<5 U	-
	16-oct-1997	CS ah	V	<5 U	<5 U	-
	16-oct-1997	CS aeh	V	<5 U	<5 U	-
	17-mar-1998	CS a	V	<5 U	<5 U	-
	15-apr-1998	CS a	V	<5 U	<5 U	-
	16-jul-1998	CS a	V	<5 U	<5 U	-
	15-oct-1998	CS ah	V	<5 U	<5 U	-
	15-oct-1998	CS aeh	V	<5 U	<5 U	-
	13-jan-1999	CS a	V	<5 U	<5 U	-
	13-apr-1999	CN ah	V	<1 U	<1 U	-
	13-apr-1999	CN aeh	V	<1 LOU	<1 LOU	-
	07-jul-1999	CN a	V	<1 U	<1 U	-
	04-oct-1999	CN afj	V	<1 U	-	-
	09-feb-2000	CN a	V	<1 U	<1 U	-
	19-apr-2000	CN a	V	<1 U	<1 U	-
	20-jul-2000	CN afh	V	<1 LOU	<1 LOU	-
	20-jul-2000	CN aefh	V	<1 LOU	<1 LOU	-
	24-oct-2000	CN af	V	<2 LOU	<2 LOU	-
	22-jan-2001	CN af	V	<1 U	<1 U	-
	20-apr-2001	CN af	V	<1 LU	<1 LU	-
	11-jul-2001	CN af	V	<1 U	<1 U	-
	23-oct-2001	CN a	V	<1 U	<1 U	-
	22-jan-2002	CN a	V	<1 U	<1 U	-
	18-apr-2002	CN a	V	<1 LOU	<1 LOU	-
	30-jul-2002	CN af	V	<1 LOU	<1 LOU	-
	06-dec-2002	CN af	V	<1 OU	<1 OU	-
	31-jan-2003	CN af	V	<5 U	<5 U	<5 U
	02-may-2003	CN af	V	<1 U	<1 U	-
K2-01A						
	22-may-1996	CS a	V	<5 U	<5 U	-
	22-may-1997	CS ah	V	<5 U	<5 U	-
	22-may-1997	CS aeh	V	<5 U	<5 U	-
	09-dec-1997	CS a	V	<5 U	<5 U	-

Table A-17. Ground and surface water analyses for high explosives compounds (ug/L) at Building 850 in samples collected between July 1, 1995 and June 30, 2003. Results recorded by November 4, 2003.

Location	Date	Lab Note	Val.	HMX	RDX	TNT
K2-01A (continued)						
	25-jun-1998	CS a	V	<5 U	<5 U	-
	17-dec-1998	CS a	V	<5 U	<5 U	-
	21-may-1999	CN a	V	<1 U	<1 U	-
	02-nov-1999	CN a	N	<1 U	<1 U	-
	24-may-2000	CN a	V	<1 U	<1 U	-
	07-dec-2000	CN afh	V	<1 LOU	<1 LOU	-
	07-dec-2000	CN aefh	V	<1 LOU	<1 LOU	-
	30-may-2001	CN a	V	<5 U	<5 U	<5 U
	17-dec-2001	BB af	V	<5 U	<5 U	-
	29-may-2002	CN a	V	<1 LOU	<1 LOU	-
	28-oct-2002	SE a	V	<2.1 U	<2.1 U	-
	18-jun-2003	BB a	V	<5 U	<5 U	-
K2-01B						
	22-may-1996	CS ah	V	<5 U	<5 U	-
	22-may-1996	CS aeh	V	<5 U	<5 U	-
	22-may-1997	CS a	V	<5 U	<5 U	-
	09-dec-1997	CS ah	V	<5 U	<5 U	-
	09-dec-1997	CS aeh	V	<5 U	<5 U	-
	25-jun-1998	CS a	V	<5 U	<5 U	-
K2-01C						
	08-aug-1995	CS a	V	<5 U	<5 U	<5 U
	02-nov-1995	CS a	V	<5 U	<5 U	<5 U
	21-may-1996	CS a	V	<5 U	<5 U	-
	20-nov-1996	CS a	V	<5 U	<5 U	-
	19-may-1997	CS ah	V	<5 U	<5 U	-
	19-may-1997	CS aeh	V	<5 U	<5 U	-
	14-dec-1998	CS a	V	<5 U	<5 U	-
	26-may-1999	CN af	V	<1 U	<1 U	-
	08-nov-1999	CN af	N	<1 U	<1 U	-
	17-may-2000	CN af	V	<1 LOU	<1 LOU	-
	21-nov-2000	CN af	V	<1 LOU	<1 LOU	-
	16-may-2001	CN af	V	<1 LOU	<1 LOU	-
	14-nov-2001	CN a	V	<1 LOU	<1 LOU	-
	14-may-2002	CN a	V	<1 LOU	<1 LOU	-
	05-jun-2003	CN af	V	<1 U	<1 U	-
K2-02A						
	22-may-1996	CS a	V	<5 U	<5 U	-
	21-may-1997	CS a	V	<5 U	<5 U	-
	04-dec-1997	CS a	V	<5 U	<5 U	-
	24-jun-1998	CS ah	V	<5 U	<5 U	-
	24-jun-1998	CS aeh	V	<5 U	<5 U	-
	16-dec-1998	CS a	V	<5 U	<5 U	-
	17-may-1999	CN a	V	<1 U	<1 U	-
	02-nov-1999	CN ah	N	<1 U	<1 U	-
	02-nov-1999	CN aeh	N	<1 U	<1 U	-
	24-may-2000	CN a	V	<1 U	<1 U	-
	07-dec-2000	CN a	V	<1 LOU	<1 LOU	-
	30-may-2001	CN ah	V	<5 U	<5 U	<5 U
	30-may-2001	CN aeh	V	<5 U	<5 U	<5 U
	17-dec-2001	BB af	V	<5 U	<5 U	-
	29-may-2002	CN a	V	<2 LOU	<2 LOU	-
	28-oct-2002	SE a	V	<2.1 U	<2.1 U	-
K2-02B						
	22-may-1996	CS a	V	<5 U	<5 U	-
	21-may-1997	CS a	V	<5 U	<5 U	-
	04-dec-1997	CS a	V	<5 U	<5 U	-
	24-jun-1998	CS a	V	<5 U	<5 U	-
	16-dec-1998	CS a	V	<5 U	<5 U	-
	17-may-1999	CN a	V	<1 U	<1 U	-
	02-nov-1999	CN a	N	<1 U	<1 U	-
	24-may-2000	CN ah	V	<1 U	<1 U	-
	24-may-2000	CN aeh	V	<1 U	<1 U	-
	07-dec-2000	CN a	V	<1 LOU	<1 LOU	-

Table A-17. Ground and surface water analyses for high explosives compounds (ug/L) at Building 850 in samples collected between July 1, 1995 and June 30, 2003. Results recorded by November 4, 2003.

Location Date	Lab Note	Val.	HMX	RDX	TNT
K2-02B (continued)					
30-may-2001	CN a	V	<5 U	<5 U	<5 U
17-dec-2001	BB af	V	<5 U	<5 U	-
29-may-2002	CN a	V	<1 LOU	<1 LOU	-
28-oct-2002	SE a	V	<2.1 U	<2.1 U	-
K2-04D					
08-aug-1995	CS a	V	<5 U	<5 U	<5 U
02-nov-1995	CS a	V	<5 U	<5 U	<5 U
21-may-1996	CS a	V	<5 U	<5 U	-
20-nov-1996	CS ah	V	<5 U	<5 U	-
20-nov-1996	CS aeh	V	<5 U	<5 U	-
14-may-1997	CS a	V	<5 U	<5 U	-
24-nov-1997	CS ah	V	<5 U	<5 U	-
24-nov-1997	CS aeh	V	<5 U	<5 U	-
22-jun-1998	CS a	V	<5 U	<5 U	-
07-dec-1998	CS ah	V	<5 U	<5 U	-
07-dec-1998	CS aeh	V	<5 U	<5 U	-
26-may-1999	CN a	V	<1 U	<1 U	-
08-nov-1999	CN a	N	<1 U	<1 U	-
17-may-2000	CN af	V	<1 LOU	<1 LOU	-
21-nov-2000	CN af	V	<1 LOU	<1 LOU	-
06-jun-2001	CN a	V	<1 U	<1 U	-
14-nov-2001	CN a	V	<1 LOU	<1 LOU	-
16-may-2002	CN aefh	V	<1 LOU	<1 LOU	-
16-may-2002	CN afh	V	<1 LOU	<1 LOU	-
26-dec-2002	SE a	V	<2.1 U	<2.1 U	-
15-may-2003	BB ag	V	<5 U	<5 U	-
K2-04S					
08-aug-1995	CS a	V	<5 U	<5 U	<5 U
02-nov-1995	CS a	V	<5 U	<5 U	<5 U
21-may-1996	CS a	V	<5 U	<5 U	-
19-nov-1996	CS a	V	<5 U	<5 U	-
14-may-1997	CS a	V	<5 U	<5 U	-
18-nov-1997	CS a	V	<5 U	<5 U	-
22-jun-1998	CS a	V	<5 U	<5 U	-
30-nov-1998	CS a	V	<5 U	<5 U	-
02-jun-1999	CN afh	V	<1 U	<1 U	-
02-jun-1999	CN aefh	V	<1 U	<1 U	-
09-nov-1999	CN af	V	<1 U	<1 U	-
18-may-2000	CN a	V	<1 U	<1 U	-
27-nov-2000	CN af	V	<1 U	<1 U	-
16-may-2001	CN afh	V	<1 LOU	<1 LU	-
16-may-2001	CN aefh	V	<1 LOU	<1 LU	-
14-nov-2001	CN a	V	<1 LOU	<1 LOU	-
16-may-2002	CN af	V	<1 LOU	<1 LOU	-
27-dec-2002	SE a	V	<2 U	<2 U	-
02-may-2003	BB a	V	<5 U	<5 U	-
NC2-07					
08-aug-1995	CS a	V	<5 U	<5 U	<5 U
03-nov-1995	CS a	V	<5 U	<5 U	<5 U
08-may-1996	CS a	V	<5 U	<5 U	-
25-nov-1996	CS a	V	<5 U	<5 U	-
19-may-1997	CS a	V	<5 U	<5 U	-
01-dec-1997	CS a	V	<5 U	<5 U	-
23-jun-1998	CS a	V	<5 U	<5 U	-
09-dec-1998	CS a	V	<5 U	<5 U	-
03-jun-1999	CN af	V	<1 U	<1 U	-
15-nov-1999	CN afh	V	<1 U	<1 U	-
15-nov-1999	CN aefh	V	<1 U	<1 U	-
22-may-2000	CN a	V	<1 U	<1 U	-
28-nov-2000	CN af	V	<1 LOU	<1 LOU	-
16-may-2001	CN af	V	<1 LOU	<1 LU	-
19-nov-2001	CN a	V	<1 LOU	<1 LOU	-
15-may-2002	CN a	V	<2 LOU	<2 LOU	-
13-jun-2003	BB a	V	<5 U	<5 U	-

Table A-17. Ground and surface water analyses for high explosives compounds (ug/L) at Building 850 in samples collected between July 1, 1995 and June 30, 2003. Results recorded by November 4, 2003.

Location	Date	Lab Note	Val.	HMX	RDX	TNT
NC2-08	30-may-2003	CN af	V	<1 U	<1 U	-
NC2-11D	04-aug-1995	CS a	V	<5 U	<5 U	-
	31-oct-1995	CS ah	V	<5 U	<5 U	<5 U
	31-oct-1995	CS aeh	V	<5 U	<5 U	<5 U
	07-may-1996	CS ah	V	<5 U	<5 U	-
	07-may-1996	CS aeh	V	<5 U	<5 U	-
	25-nov-1996	CS a	V	<5 U	<5 U	-
	15-may-1997	CS a	V	<5 U	<5 U	-
	02-dec-1997	CS a	V	<5 U	<5 U	-
	07-dec-1998	CS a	V	<5 U	<5 U	-
	25-may-1999	CN a	V	<1 U	<1 U	-
	10-nov-1999	CN af	V	<1 U	<1 U	-
	17-may-2000	CN ah	V	<1 LOU	<1 LOU	-
	17-may-2000	CN aeh	V	<1 LOU	<1 LOU	-
	27-nov-2000	CN af	V	<1 U	<1 U	-
	17-may-2001	CN a	V	<1 LOU	<1 U	-
	14-nov-2001	CN a	V	<1 LOU	<1 LOU	-
	14-may-2002	CN a	V	<1 LOU	<1 LOU	-
	27-dec-2002	SE a	V	<2 U	<2 U	-
	08-may-2003	BB a	V	<5 IJU	<5 IJU	-
NC2-12D	04-aug-1995	CS a	V	<5 U	<5 U	-
	31-oct-1995	CS a	V	<5 U	<5 U	<5 U
	07-may-1996	CS a	V	<5 U	<5 U	-
	17-dec-1996	CS a	V	<5 U	<5 U	-
	15-may-1997	CS a	V	<5 U	<5 U	-
	25-nov-1997	CS a	V	<5 U	<5 U	-
	22-jun-1998	CS a	V	<5 U	<5 U	-
	03-dec-1998	CS a	V	<5 U	<5 U	-
	24-may-1999	CN a	V	<1 U	<1 U	-
	10-nov-1999	CN af	V	<1 U	<1 U	-
	17-may-2000	CN af	V	<1 LOU	<1 LOU	-
	27-nov-2000	CN af	V	<1 U	<1 U	-
	17-may-2001	CN a	V	<1 LOU	<1 U	-
	14-nov-2001	CN a	V	<1 LOU	<1 LOU	-
	14-may-2002	CN a	V	<1 LOU	<1 LOU	-
	26-dec-2002	SE a	V	<2.1 U	<2.1 U	-
	08-may-2003	BB a	V	<5 IJU	<5 IJU	-
NC2-14S	21-may-1997	CS a	V	<5 U	<5 U	-
	19-may-1998	CS a	V	<5 U	<5 U	-
	16-jun-1999	CN a	V	<1 U	<1 U	-
	25-may-2000	CN ag	V	<1 U	<1 U	-
	21-may-2002	CN a	V	<1 U	<1 U	-
	18-jun-2003	CN ag	V	<1 U	<1 U	-
NC7-29	29-apr-1997	CS a	V	<5 U	<5 U	-
	18-may-1998	CS a	V	<5 U	<5 U	-
	21-may-1999	CN a	V	<1 U	<1 U	-
	22-may-2000	CN a	V	<2 U	<2 U	-
	21-may-2001	CN a	V	<1 U	<1 U	-
	29-may-2002	CN a	V	<1 LOU	<1 LOU	-
	17-jun-2003	CN a	V	<1 U	<1 U	-
NC7-54	22-may-1997	CS a	V	<5 U	<5 U	-
	29-apr-1998	CS a	V	<5 U	<5 U	-
	16-jun-2000	CN af	V	<2 U	<2 U	-
NC7-59	01-jun-2000	CN a	V	<2 U	<2 U	-

Table A-17. Ground and surface water analyses for high explosives compounds (ug/L) at Building 850 in samples collected between July 1, 1995 and June 30, 2003. Results recorded by November 4, 2003.

Location Date	Lab Note	Val.	HMX	RDX	TNT
NC7-60					
05-jun-2000	CN a	V	<2 U	<2 U	-
NC7-61					
07-aug-1995	CS a	V	<5 U	<5 U	<5 U
30-oct-1995	CS a	V	<5 U	<5 U	<5 U
20-may-1996	CS a	V	<5 U	<5 U	-
21-nov-1996	CS a	V	<5 U	<5 U	-
13-may-1997	CS a	V	<5 U	<5 U	-
18-nov-1997	CS a	V	<5 U	<5 U	-
02-jun-1998	CS a	V	<5 U	6	-
02-dec-1998	CS a	V	<5 U	<5 U	-
01-jun-1999	CN af	V	5	7	-
09-nov-1999	CN af	V	4	6	-
18-may-2000	CN af	V	4	6	-
20-nov-2000	CN afh	V	<1 U	<1 U	-
20-nov-2000	CN aefh	V	<1 U	<1 U	-
21-may-2001	CN a	V	<1 U	<1 U	-
15-nov-2001	CN a	V	4 L	6 L	-
16-may-2002	CN af	V	3 LO	5 LO	-
25-sep-2002	CN a	V	<1 U	<1 U	-
02-may-2003	BB aeh	V	<5 U	<5 U	-
02-may-2003	BB ah	V	<5 U	<5 U	-
NC7-69					
04-aug-1995	CS a	V	<5 U	<5 U	-
31-oct-1995	CS a	V	<5 U	<5 U	<5 U
20-may-1996	CS a	V	<5 U	<5 U	-
20-nov-1996	CS a	V	<5 U	<5 U	-
13-may-1997	CS a	V	<5 U	<5 U	-
18-nov-1997	CS a	V	<5 U	<5 U	-
02-jun-1998	CS a	V	<5 U	<5 U	-
03-dec-1998	CS a	V	<5 U	<5 U	-
10-nov-1999	CN a	V	<1 U	<1 U	-
17-may-2000	CN a	V	<1 LOU	<1 LOU	-
20-nov-2000	CN a	V	<1 U	<1 U	-
22-may-2001	CN a	V	<1 U	<1 U	-
15-nov-2001	CN ah	V	<1 LU	<1 LU	-
15-nov-2001	CN aeh	V	<1 LU	<1 LU	-
16-may-2002	CN a	V	<1 LOU	<1 LOU	-
27-dec-2002	SE ah	V	<2 U	<2 U	-
27-dec-2002	SE aeh	V	<2 U	<2 U	-
08-may-2003	BB a	V	<5 IJU	<5 IJU	-
NC7-70					
30-may-1997	BB a	V	<0.47 DU	<0.27 DU	-
30-may-1997	CS a	V	<5 U	<5 U	-
30-apr-1998	CS a	V	<5 U	<5 U	-
15-jun-1999	CN a	V	<1 U	<1 U	-
26-may-2000	CN a	V	<2 U	<2 U	-
04-jun-2002	CN a	V	<1 LOU	<1 LOU	-
20-jun-2003	CN a	V	<1 U	<1 U	-
NC7-71					
12-jun-1996	CS a	V	<5 U	<5 U	-
13-may-1997	CS a	V	<5 U	<5 U	-
14-may-1998	CS a	V	<5 U	<5 U	-
21-may-1999	CN a	V	<1 U	<1 U	-
26-may-2000	CN a	V	<1 U	<1 U	-
14-jun-2001	CN a	V	<1 U	<1 U	-
01-jul-2002	CN a	V	<1 LOU	<1 LOU	-
W-850-05					
12-jun-1996	CS a	V	<5 U	<5 U	-
30-may-1997	CS a	V	<5 U	<5 U	-
14-may-1998	CS a	V	<5 U	<5 U	-
16-jun-1999	CN a	V	<1 U	<1 U	-
26-may-2000	CN a	V	<2 U	<2 U	-

Table A-17. Ground and surface water analyses for high explosives compounds (ug/L) at Building 850 in samples collected between July 1, 1995 and June 30, 2003. Results recorded by November 4, 2003.

Location Date	Lab Note	Val.	HMX	RDX	TNT
W-850-05 (continued)					
14-jun-2001	CN a	V	<1 U	<1 U	-
28-may-2002	CN a	V	<1 LOU	<1 LOU	-
10-jun-2003	CN a	V	<1 U	<1 U	-
W-865-1802					
27-jun-2003	CN a	V	<1 U	<1 U	-
W-865-1803					
26-jun-2003	CN a	V	<1 U	<1 U	-
SPRING24					
22-oct-1999	CN a	V	<1 U	<1 U	-
W8SPRNG					
31-oct-1995	CS ag	V	<5 U	<5 U	-
31-oct-1995	FS ag	V	<13 U	<14 U	-
15-may-1996	CS a	V	<5 U	<5 U	-

See following page for notes

Table A-17. Ground and surface water analyses for high explosives compounds (ug/L) at Building 850 in samples collected between July 1, 1995 and June 30, 2003. Results recorded by November 4, 2003.

Notes:

- Indicates no analysis performed for this compound

Val. = Validation code

Footnotes:

a ERD data
b ORAD WGMG data
c Analytical results for this sample are suspect
d Sample collected during hydraulic testing
e Blind sample, sent to lab without location identity
f Sample dilution necessary for analysis; detection limits increased
g Interlaboratory collocated sample
h Intralaboratory collocated sample
i Sample collected as part of pilot study
j Note field may contain important information regarding this sample
k Pre-development sample
l Noxm month, norm quarter or norm year inconsistent with sample date
m Confirmation sample
n Sample analyzed after standard holding time
o Sample comprised of partial composite
p Alpha spectroscopy analysis of uranium isotopes
q Gamma spectroscopy analysis of uranium isotopes
r Tritium data represents non-detect with activity calc'd for 100 percent error.

Lab Codes:

BB	BC Laboratories, Inc.	Bakersfield, CA
CN	Caltest Analytical Laboratory	1885 N. Kelly Rd, Napa, CA 94558
CS	California Laboratory Services	3249 Fitzgerald Rd. Rancho Cordova, CA 95742
FS	FruitGrowers Environmental Lab	2500 Stagecoach Rd., Stockton, CA 95215
SE	Sequoia Analytical	1551 Industrial Road, San Carlos, CA 94070

Validation Codes:

V Validated
N Not validated (default value)
U Undeclared
H Historical comparison only

CLP flags: (follow result)

B Analyte found in method blank
D Analysis performed at a secondary dilution or concentration (i.e., vapor samples)
E The analyte was detected below the LLNL reporting limit, but above the analytical laboratory minimum detection limit.
F Analyte found in field blank, trip blank, or equipment blank
G Quantitated using fuel calibration, but does not match typical fuel fingerprint (fuel maybe gasoline, diesel, motor oil etc.).
H Sample analyzed outside of holding time, sample results should be evaluated
J Analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
L Spike accuracy not within control limits
O Duplicate spike or sample precision not within control limits
P Indicates that the absence of a data qualifier flag does not mean that the data does not need qualification, but that the implementation of electronic data qualifier flags was not yet established
R Sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet QC criteria. The presence or absence of the analyte cannot be verified
S Analytical results for this sample are suspect
T Analyte is tentatively identified compound; result is approximate
U Compound was analyzed for, but not detected above detection limit

Table A-18. Ground and surface water analyses for PCBs (ug/L) in samples collected from the Building 850 subarea between July 1, 1995 and June 30, 2003. Results recorded by November 4, 2003.

PCBs in Ground Water, Site 300
November 5, 2003
gemin11

s3pcbL.05nov2003
s3pcbR.05nov2003

Min Sample Date
July 1, 1995
Max Sample Date
June 30, 2003

Table A-18. Ground and surface water analyses for PCBs (ug/L) in samples collected

Location	PCB 1016			PCB 1221	PCB 1232	PCB 1242	PCB 1248
Date	Lab	Note	Val.				
K1-01C							
09-oct-1996	CS	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U
13-dec-1996	CS	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U
13-oct-1997	CS	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U
14-oct-1998	CS	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U
19-oct-2000	CN	af	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U
22-oct-2001	CN	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U
05-dec-2002	CN	aefh	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U
05-dec-2002	CN	afh	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U
K1-02B							
09-oct-1996	CS	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U
13-oct-1997	CS	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U
13-oct-1998	CS	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U
19-oct-2000	CN	af	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U
22-oct-2001	CN	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U
04-dec-2002	CN	af	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U
K1-03							
10-oct-1996	CS	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U
14-oct-1997	CS	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U
12-nov-1997	CS	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U
19-nov-1997	CS	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U
13-oct-1998	CS	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U
23-oct-2000	CN	afh	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U
23-oct-2000	CN	aefh	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U
22-oct-2001	CN	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U
04-dec-2002	CN	af	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U
K1-04							
10-oct-1996	CS	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U
14-oct-1997	CS	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U
12-nov-1997	CS	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U
19-nov-1997	CS	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U
14-oct-1998	CS	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U
23-oct-2000	CN	af	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U
22-oct-2001	CN	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U
05-dec-2002	CN	af	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U
K1-05							
11-oct-1996	CS	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U
14-oct-1997	CS	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U
14-oct-1998	CS	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U
24-oct-2000	CN	af	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U
23-oct-2001	CN	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U
06-dec-2002	CN	af	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U
K1-07							
11-oct-1996	CS	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U
16-oct-1997	CS	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U
15-oct-1998	CS	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U
25-oct-2000	CN	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U
23-oct-2001	CN	ah	V	<0.6 U	<0.5 U	<0.5 U	<0.5 U
23-oct-2001	CN	aeh	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U
06-dec-2002	CN	af	V	<0.6 U	<0.5 U	<0.5 U	<0.5 U
K1-08							
11-oct-1996	CS	ah	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U
11-oct-1996	CS	aeh	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U
16-oct-1997	CS	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U
15-oct-1998	CS	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U
24-oct-2000	CN	af	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U
23-oct-2001	CN	a	V	<0.6 U	<0.5 U	<0.5 U	<0.5 U
13-dec-2002	CN	af	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U
K1-09							
11-oct-1996	CS	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U
16-oct-1997	CS	ah	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U

from the Building 850 subarea between July 1, 1995 and June 30, 2003. Results recorded by November 4, 2003.

PCB 1254	PCB 1260	PCB 1262	PCB 1268	Total PCBs	Location Date
					K1-01C
<0.5 LOU	<0.5 U	-	-	-	09-oct-1996
<0.5 U	<0.5 U	-	-	-	13-dec-1996
<0.5 U	<0.5 U	-	-	-	13-oct-1997
<0.5 U	<0.5 U	-	-	-	14-oct-1998
<0.5 U	<0.5 U	-	-	-	19-oct-2000
<0.5 U	<0.5 U	-	-	-	22-oct-2001
<0.5 U	<0.5 U	-	-	-	05-dec-2002
<0.5 U	<0.5 U	-	-	-	05-dec-2002
					K1-02B
<0.5 LOU	<0.5 U	-	-	-	09-oct-1996
<0.5 U	<0.5 U	-	-	-	13-oct-1997
<0.5 U	<0.5 U	-	-	-	13-oct-1998
<0.5 U	<0.5 U	-	-	-	19-oct-2000
<0.5 U	<0.5 U	-	-	-	22-oct-2001
<0.5 U	<0.5 U	-	-	-	04-dec-2002
					K1-03
<0.5 U	<0.5 U	-	-	-	10-oct-1996
<0.5 U	1.4	-	-	-	14-oct-1997
<0.5 U	<0.5 U	-	-	-	12-nov-1997
<0.5 U	<0.5 U	-	-	-	19-nov-1997
<0.5 U	<0.5 U	-	-	-	13-oct-1998
<0.5 U	<0.5 U	-	-	-	23-oct-2000
<0.5 U	<0.5 U	-	-	-	23-oct-2000
<0.5 U	<0.5 U	-	-	-	22-oct-2001
<0.5 U	<0.5 U	-	-	-	04-dec-2002
					K1-04
<0.5 U	<0.5 U	-	-	-	10-oct-1996
<0.5 U	1	-	-	-	14-oct-1997
<0.5 U	<0.5 U	-	-	-	12-nov-1997
<0.5 U	<0.5 U	-	-	-	19-nov-1997
<0.5 U	<0.5 U	-	-	-	14-oct-1998
<0.5 U	<0.5 U	-	-	-	23-oct-2000
<0.5 U	<0.5 U	-	-	-	22-oct-2001
<0.5 U	<0.5 U	-	-	-	05-dec-2002
					K1-05
<0.5 U	<0.5 U	-	-	-	11-oct-1996
<0.5 U	<0.5 U	-	-	-	14-oct-1997
<0.5 U	<0.5 U	-	-	-	14-oct-1998
<0.5 U	<0.5 U	-	-	-	24-oct-2000
<0.5 U	<0.5 U	-	-	-	23-oct-2001
<0.5 U	<0.5 U	-	-	-	06-dec-2002
					K1-07
<0.5 U	<0.5 U	-	-	-	11-oct-1996
<0.5 U	<0.5 U	-	-	-	16-oct-1997
<0.5 U	<0.5 U	-	-	-	15-oct-1998
<0.5 U	<0.5 U	-	-	-	25-oct-2000
<0.5 U	<0.6 U	-	-	-	23-oct-2001
<0.5 U	<0.5 U	-	-	-	23-oct-2001
<0.5 U	<0.6 U	-	-	-	06-dec-2002
					K1-08
<0.5 U	<0.5 U	-	-	-	11-oct-1996
<0.5 U	<0.5 U	-	-	-	11-oct-1996
<0.5 U	<0.5 U	-	-	-	16-oct-1997
<0.5 U	<0.5 U	-	-	-	15-oct-1998
<0.5 U	<0.5 U	-	-	-	24-oct-2000
<0.5 U	<0.6 U	-	-	-	23-oct-2001
<0.5 U	<0.5 U	-	-	-	13-dec-2002
					K1-09
<0.5 U	<0.5 U	-	-	-	11-oct-1996
<0.5 U	<0.5 U	-	-	-	16-oct-1997

Table A-18. Ground and surface water analyses for PCBs (ug/L) in samples collected

Location Date	Lab Note	Val.	PCB 1016	PCB 1221	PCB 1232	PCB 1242	PCB 1248
K1-09 (continued)							
16-oct-1997	CS	aeH	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U
15-oct-1998	CS	ah	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U
15-oct-1998	CS	aeH	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U
24-oct-2000	CN	af	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U
23-oct-2001	CN	a	V	<0.6 U	<0.5 U	<0.5 U	<0.5 U
06-dec-2002	CN	af	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U
NC7-70							
30-may-1997	BB	a	V	<0.2 U	<0.2 U	<0.2 U	<0.2 U
30-may-1997	CS	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U
30-apr-1998	CS	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U
15-jun-1999	CN	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U
26-may-2000	CN	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U
04-jun-2002	CN	a	V	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU
20-jun-2003	CN	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U
NC7-71							
12-jun-1996	CS	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U
W-850-05							
12-jun-1996	CS	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U
30-may-1997	CS	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U
14-may-1998	CS	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U
16-jun-1999	CN	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U
26-may-2000	CN	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U
14-jun-2001	CN	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U
28-may-2002	CN	a	V	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU
10-jun-2003	CN	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U

from the Building 850 subarea between July 1, 1995 and June 30, 2003. Results recorded by November 4, 2003.

PCB 1254	PCB 1260	PCB 1262	PCB 1268	Total PCBs	Location Date
(continued) K1-09					
<0.5 U	<0.5 U	-	-	-	16-oct-1997
<0.5 U	<0.5 U	-	-	-	15-oct-1998
<0.5 U	<0.5 U	-	-	-	15-oct-1998
<0.5 U	<0.5 U	-	-	-	24-oct-2000
<0.5 U	<0.6 U	-	-	-	23-oct-2001
<0.5 U	<0.5 U	-	-	-	06-dec-2002
NC7-70					
<0.2 U	<0.2 U	-	-	<0.2 U	30-may-1997
<0.5 ULO	<0.5 U	-	-	-	30-may-1997
<0.5 U	<0.5 U	-	-	-	30-apr-1998
<0.5 U	<0.5 U	-	-	-	15-jun-1999
<0.5 U	<0.5 U	-	-	-	26-may-2000
<0.5 LOU	<0.5 LOU	-	-	-	04-jun-2002
<0.5 U	<0.5 U	-	-	-	20-jun-2003
NC7-71					
<0.5 U	<0.5 U	-	-	-	12-jun-1996
W-850-05					
<0.5 U	<0.5 U	-	-	-	12-jun-1996
<0.5 ULO	<0.5 U	-	-	-	30-may-1997
<0.5 U	<0.5 U	-	-	-	14-may-1998
<0.5 U	<0.5 UO	-	-	-	16-jun-1999
<0.5 U	<0.5 U	-	-	-	26-may-2000
<0.5 U	<0.5 U	-	-	-	14-jun-2001
<0.5 LOU	<0.5 LOU	-	-	-	28-may-2002
<0.5 U	<0.5 LU	-	-	-	10-jun-2003

See following page for notes

Table A-18. Ground and surface water analyses for PCBs (ug/L) in samples collected from the Building 850 subarea between July 1, 1995 and June 30, 2003. Results recorded by November 4, 2003.

Notes:

- Indicates no analysis performed for this compound

Val. = Validation code

Footnotes:

- a ERD data
- b ORAD WGMG data
- c Analytical results for this sample are suspect
- d Sample collected during hydraulic testing
- e Blind sample, sent to lab without location identity
- f Sample dilution necessary for analysis; detection limits increased
- g Interlaboratory collocated sample
- h Intralaboratory collocated sample
- i Sample collected as part of pilot study
- j Note field may contain important information regarding this sample
- k Pre-development sample
- l Norm month, norm quarter or norm year inconsistent with sample date
- m Confirmation sample
- n Sample analyzed after standard holding time
- o Sample comprised of partial composite
- p Alpha spectroscopy analysis of uranium isotopes
- q Gamma spectroscopy analysis of uranium isotopes
- r Tritium data represents non-detect with activity calc'd for 100 percent error.

Lab Codes:

BB	BC Laboratories, Inc.	Bakersfield, CA
CN	Caltest Analytical Laboratory	1885 N. Kelly Rd, Napa, CA 94558
CS	California Laboratory Services	3249 Fitzgerald Rd. Rancho Cordova, CA 95742

Validation Codes:

- V Validated
- N Not validated (default value)
- U Undeclared
- H Historical comparison only

CLP flags: (follow result)

- B Analyte found in method blank
- D Analysis performed at a secondary dilution or concentration (i.e., vapor samples)
- E The analyte was detected below the LLNL reporting limit, but above the analytical laboratory minimum detection limit.
- F Analyte found in field blank, trip blank, or equipment blank
- G Quantitated using fuel calibration, but does not match typical fuel fingerprint (fuel maybe gasoline, diesel, motor oil etc.).
- H Sample analyzed outside of holding time, sample results should be evaluated
- J Analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
- L Spike accuracy not within control limits
- O Duplicate spike or sample precision not within control limits
- P Indicates that the absence of a data qualifier flag does not mean that the data does not need qualification, but that the implementation of electronic data qualifier flags was not yet established
- R Sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet QC criteria. The presence or absence of the analyte cannot be verified
- S Analytical results for this sample are suspect
- T Analyte is tentatively identified compound; result is approximate
- U Compound was analyzed for, but not detected above detection limit

Table A-19. Ground and surface water analyses for metals and cations (mg/L) in samples collected from the Building 850 subarea between July 1, 1995 and June 30, 2003. Results recorded by April 15, 2004.

Site 300 Cations Report
April 16, 2004
gemin2

s3cationL.16apr2004 *
s3cationR.16apr2004

Min Sample Date
July 1, 1995
Max Sample Date
June 30, 2003

Table A-19. Ground and surface water analyses for metals and cations (mg/L) in samples collected

Location Date	Lab Note	Val.	Sodium	Potassium	Calcium	Magnesium	Iron	Manganese
K1-01A								
18-aug-1995	CS ah	V	-	-	-	-	-	-
09-nov-1995	CS a	V	-	-	-	-	-	-
23-may-1996	CS a	V	-	-	-	-	-	-
07-nov-1996	CS a	V	-	-	-	-	-	-
21-may-1997	CS a	V	-	-	-	-	-	-
K1-01B								
18-aug-1995	CS a	V	-	-	-	-	-	-
09-nov-1995	CS a	V	-	-	-	-	-	-
23-may-1996	CS a	V	-	-	-	-	-	-
07-nov-1996	CS ah	V	-	-	-	-	-	-
07-nov-1996	CS aeh	V	-	-	-	-	-	-
22-may-1997	CS a	V	-	-	-	-	-	-
K1-01C								
31-jul-1995	CS a	V	-	-	-	-	-	-
31-jul-1995	CS a	V	34	3.4	49	18	<0.1 U	<0.03 U
11-oct-1995	CS a	V	-	-	-	-	-	-
11-oct-1995	CS a	V	32	2.6	48	17	<0.1 U	<0.03 U
17-jan-1996	CS a	V	34 O	3.5	50	19	<0.1 U	<0.03 U
17-jan-1996	CS a	V	-	-	-	-	-	-
10-apr-1996	CS a	V	-	-	-	-	<0.1 U	<0.03 U
10-apr-1996	CS a	V	-	-	-	-	-	-
30-jul-1996	CS a	V	30	-	-	-	<0.1 U	<0.03 U
30-jul-1996	CS a	V	-	-	-	-	-	-
30-jul-1996	CS a	V	-	-	-	-	-	-
09-oct-1996	CS a	V	-	-	-	-	-	-
16-jan-1997	CS a	V	-	-	-	-	-	-
03-apr-1997	CS a	V	-	-	-	-	-	-
03-apr-1997	CS a	V	31 LO	-	-	-	<0.1 U	<0.1 U
01-jul-1997	CS a	V	-	-	-	-	-	-
13-oct-1997	CS a	V	-	-	-	-	-	-
13-oct-1997	CS a	V	28	-	-	-	<0.1 U	<0.1 U
08-jan-1998	CS a	V	-	-	-	-	-	-
09-apr-1998	CS a	V	-	2.7 H	-	-	-	-
09-apr-1998	CS a	V	-	-	-	-	-	-
09-apr-1998	CS a	V	31	-	-	-	<0.1 U	<0.1 U
14-jul-1998	CS a	V	-	3.3	-	-	-	-
14-jul-1998	CS a	V	-	-	-	-	-	-
14-oct-1998	CS a	V	-	2.9	-	-	-	-
14-oct-1998	CS a	V	-	-	-	-	-	-
14-oct-1998	CS a	V	32	-	-	-	<0.1 U	<0.1 U
12-jan-1999	CS a	V	-	2.8	-	-	-	-
12-jan-1999	CS a	V	-	-	-	-	-	-
12-apr-1999	CN a	V	-	2.6	-	-	-	-
12-apr-1999	CN a	V	-	-	-	-	-	-
12-apr-1999	CN a	V	32	-	-	-	<0.1 U	<0.1 U
06-jul-1999	CN ah	V	-	2.5	-	-	-	-
06-jul-1999	CN aeh	V	-	2.6	-	-	-	-
06-jul-1999	CN ah	V	-	-	-	-	-	-
06-jul-1999	CN aeh	V	-	-	-	-	-	-
04-oct-1999	CN aj	V	-	2.6	-	-	-	-
04-oct-1999	CN aj	V	-	-	-	-	-	-
04-oct-1999	CN aj	V	32	-	-	-	<0.1 U	<0.1 U
07-feb-2000	CN a	V	-	3.9	-	-	-	-
07-feb-2000	CN a	V	-	-	-	-	-	-
18-apr-2000	CN af	V	-	3.8	-	-	-	-
18-apr-2000	CN af	V	-	-	-	-	-	-
18-apr-2000	CN af	V	33	-	-	-	<0.1 U	<0.1 U
19-jul-2000	CN af	V	-	4	-	-	-	-
19-jul-2000	CN af	V	-	-	-	-	-	-
19-oct-2000	CN af	V	-	-	-	-	-	-
19-oct-2000	CN af	V	36 L	-	-	-	<0.1 U	<0.1 U
18-jan-2001	CN ahf	V	-	4	-	-	-	-
18-jan-2001	CN aehf	V	-	4	-	-	-	-
18-jan-2001	CN ahf	V	-	-	-	-	-	-
18-jan-2001	CN aehf	V	-	-	-	-	-	-

from the Building 850 subarea between July 1, 1995 and June 30, 2003. Results recorded by April 15, 2004.

Cadmium	Copper	Zinc	Boron	Strontium	Aluminum	Location Date
						K1-01A
<0.0005 U	-	-	-	-	-	18-aug-1995
<0.0005 U	-	-	-	-	-	09-nov-1995
<0.0005 U	-	-	-	-	-	23-may-1996
<0.0005 U	<0.01 U	<0.02 U	-	-	-	07-nov-1996
<0.0005 UL	<0.01 U	0.021 F	-	-	-	21-may-1997
						K1-01B
<0.0005 U	-	-	-	-	-	18-aug-1995
<0.0005 U	-	-	-	-	-	09-nov-1995
0.0013	-	-	-	-	-	23-may-1996
<0.0005 U	<0.01 U	<0.02 U	-	-	-	07-nov-1996
<0.0005 U	<0.01 U	<0.02 U	-	-	-	07-nov-1996
<0.0005 U	<0.01 U	<0.02 U	-	-	-	22-may-1997
						K1-01C
<0.0005 U	-	-	-	-	-	31-jul-1995
-	0.13 L	0.059	-	-	<0.2 U	31-jul-1995
<0.0005 U	-	-	-	-	-	11-oct-1995
-	0.065	<0.05 U	-	-	<0.2 U	11-oct-1995
-	<0.05 U	<0.05 U	-	-	<0.2 U	17-jan-1996
<0.0005 ULO	-	-	-	-	-	17-jan-1996
-	0.025	0.02	-	-	-	10-apr-1996
<0.0005 U	-	-	-	-	-	10-apr-1996
-	0.016	<0.02 U	-	-	-	30-jul-1996
<0.0005 U	-	-	-	-	-	30-jul-1996
<0.0005 U	0.023	0.03	-	-	-	09-oct-1996
<0.0005 LU	0.025	0.03	-	-	-	16-jan-1997
<0.0005 LU	0.018	0.026	-	-	-	03-apr-1997
-	-	-	-	-	-	03-apr-1997
<0.0005 U	0.019	<0.02 U	-	-	-	01-jul-1997
<0.0005 U	0.029	<0.02 U	-	-	-	13-oct-1997
-	-	-	-	-	-	13-oct-1997
<0.0005 U	0.032	0.036	-	-	-	08-jan-1998
-	-	-	-	-	-	09-apr-1998
<0.0005 U	0.022	0.027	-	-	-	09-apr-1998
-	-	-	-	-	-	09-apr-1998
-	-	-	-	-	-	14-jul-1998
<0.0005 U	0.012	0.024	-	-	-	14-jul-1998
-	-	-	-	-	-	14-oct-1998
<0.0005 U	0.02	0.027	-	-	-	14-oct-1998
-	-	-	-	-	-	14-oct-1998
-	-	-	-	-	-	12-jan-1999
<0.0005 U	0.037	0.037	-	-	-	12-jan-1999
-	-	-	-	-	-	12-apr-1999
<0.0005 U	0.02	0.05 L	-	-	-	12-apr-1999
-	-	-	-	-	-	12-apr-1999
-	-	-	-	-	-	06-jul-1999
-	-	-	-	-	-	06-jul-1999
<0.0005 LU	0.01	<0.02 U	-	-	-	06-jul-1999
<0.0005 LU	0.01	0.02	-	-	-	06-jul-1999
-	-	-	-	-	-	04-oct-1999
<0.0005 LU	0.02	0.02	-	-	-	04-oct-1999
-	-	-	-	-	-	04-oct-1999
-	-	-	-	-	-	07-feb-2000
<0.0005 U	0.03	0.03	-	-	-	07-feb-2000
-	-	-	-	-	-	18-apr-2000
<0.0005 LU	0.03	0.03	-	-	-	18-apr-2000
-	-	-	-	-	-	18-apr-2000
-	-	-	-	-	-	19-jul-2000
<0.0005 U	0.03	0.03	-	-	-	19-jul-2000
<0.0005 U	0.02 L	<0.02 U	-	-	-	19-oct-2000
-	-	-	-	-	-	19-oct-2000
-	-	-	-	-	-	18-jan-2001
-	-	-	-	-	-	18-jan-2001
<0.0005 U	0.05	0.03	-	-	-	18-jan-2001
<0.0005 U	0.06	0.02	-	-	-	18-jan-2001

Table A-19. Ground and surface water analyses for metals and cations (mg/L) in samples collected

Location Date	Lab Note	Val.	Sodium	Potassium	Calcium	Magnesium	Iron	Manganese
K1-01C (continued)								
18-apr-2001	CN	af	V	-	5 L	-	-	-
18-apr-2001	CN	af	V	-	-	-	-	-
18-apr-2001	CN	af	V	39 L	-	-	<0.1 U	<0.1 U
09-jul-2001	CN	af	V	-	4 L	-	-	-
09-jul-2001	CN	af	V	-	-	-	-	-
22-oct-2001	CN	a	V	-	4	-	-	-
22-oct-2001	CN	a	V	-	-	-	-	-
22-oct-2001	CN	a	V	33	-	-	<0.1 U	<0.1 U
16-jan-2002	CN	a	V	-	4	-	-	-
16-jan-2002	CN	a	V	-	-	-	-	-
16-apr-2002	CN	aeh	V	-	4 LO	-	-	-
16-apr-2002	CN	ah	V	-	5 LO	-	-	-
16-apr-2002	CN	aeh	V	-	-	-	-	-
16-apr-2002	CN	ah	V	-	-	-	-	-
16-apr-2002	CN	aeh	V	36 LO	-	-	<0.1 LOU	-
16-apr-2002	CN	ah	V	37 LO	-	-	<0.1 LOU	-
29-jul-2002	CN	af	V	-	4	-	-	-
29-jul-2002	CN	af	V	-	-	-	-	-
05-dec-2002	CN	aefh	V	-	5 L	-	-	-
05-dec-2002	CN	afh	V	-	5 L	-	-	-
05-dec-2002	CN	aefh	V	-	-	-	-	-
05-dec-2002	CN	afh	V	-	-	-	-	-
05-dec-2002	CN	aefh	V	37 L	-	-	<0.1 U	-
05-dec-2002	CN	afh	V	36 L	-	-	<0.1 U	-
31-jan-2003	CN	af	V	-	4	-	-	-
31-jan-2003	CN	af	V	-	-	-	-	-
17-apr-2003	CN	af	V	-	5	-	-	-
17-apr-2003	CN	af	V	-	-	-	-	-
17-apr-2003	CN	af	V	38	-	-	<0.1 U	-
K1-02A								
18-aug-1995	CS	a	V	-	-	-	-	-
18-aug-1995	CS	aeh	V	-	-	-	-	-
07-nov-1995	CS	a	V	-	-	-	-	-
23-may-1996	CS	a	V	-	-	-	-	-
07-nov-1996	CS	a	V	-	-	-	-	-
21-may-1997	CS	a	V	-	-	-	-	-
08-dec-1997	CS	a	V	-	-	-	-	-
24-jun-1998	CS	a	V	-	3.3	-	-	-
24-jun-1998	CS	a	V	-	-	-	-	-
16-dec-1998	CS	agh	V	-	3.2	-	-	-
16-dec-1998	CS	aeh	V	-	3.3	-	-	-
16-dec-1998	CS	agh	V	-	-	-	-	-
16-dec-1998	CS	aeh	V	-	-	-	-	-
21-may-1999	CN	aeh	V	-	4.4	-	-	-
21-may-1999	CN	ah	V	-	3	-	-	-
21-may-1999	CN	aeh	V	-	-	-	-	-
21-may-1999	CN	ah	V	-	-	-	-	-
02-nov-1999	CN	a	N	-	3.3	-	-	-
02-nov-1999	CN	a	N	-	-	-	-	-
24-may-2000	CN	a	V	-	5	-	-	-
24-may-2000	CN	a	V	-	-	-	-	-
07-dec-2000	CN	af	V	-	5	-	-	-
07-dec-2000	CN	af	V	-	-	-	-	-
30-may-2001	CN	a	V	-	5 L	-	-	-
30-may-2001	CN	a	V	-	-	-	-	-
05-jun-2002	CN	ah	V	-	5	-	-	-
05-jun-2002	CN	aeh	V	-	5	-	-	-
05-jun-2002	CN	ah	V	-	-	-	-	-
05-jun-2002	CN	aeh	V	-	-	-	-	-
28-oct-2002	SE	ah	V	-	4.3	-	-	-
28-oct-2002	SE	aeh	V	-	4.1	-	-	-
K1-02B								
31-jul-1995	CS	a	V	-	-	-	-	-
31-jul-1995	CS	a	V	42	3.2	57	24	<0.1 U
11-oct-1995	CS	a	V	-	-	-	-	<0.03 U
11-oct-1995	CS	a	V	39	2.6	55	22	<0.1 U

from the Building 850 subarea between July 1, 1995 and June 30, 2003. Results recorded by April 15, 2004.

Cadmium	Copper	Zinc	Boron	Strontium	Aluminum	Location Date
						(continued) K1-01C
-	-	-	-	-	-	18-apr-2001
<0.0005 U	0.02	0.03	-	-	-	18-apr-2001
-	-	-	-	-	-	18-apr-2001
-	-	-	-	-	-	09-jul-2001
<0.0005 LU	0.01	0.02	-	-	-	09-jul-2001
-	-	<0.02 U	-	-	-	22-oct-2001
<0.0005 U	<0.01 U	-	-	-	-	22-oct-2001
-	-	-	-	-	-	22-oct-2001
-	-	-	-	-	-	16-jan-2002
<0.0005 U	0.01	0.02	-	-	-	16-jan-2002
-	-	-	-	-	-	16-apr-2002
-	-	-	-	-	-	16-apr-2002
<0.0005 U	0.01	<0.02 U	-	-	-	16-apr-2002
<0.0005 U	0.01	0.02	-	-	-	16-apr-2002
-	-	-	-	-	-	16-apr-2002
-	-	-	-	-	-	16-apr-2002
<0.0005 U	0.01	0.02	-	-	-	29-jul-2002
-	-	-	-	-	-	29-jul-2002
-	-	-	-	-	-	05-dec-2002
-	-	-	-	-	-	05-dec-2002
<0.0005 U	<0.01 U	<0.02 U	-	-	-	05-dec-2002
<0.0005 U	<0.01 U	<0.02 U	-	-	-	05-dec-2002
-	-	-	-	-	-	05-dec-2002
-	-	-	-	-	-	05-dec-2002
-	-	-	-	-	-	31-jan-2003
<0.0005 U	0.02	0.03	-	-	-	31-jan-2003
-	-	-	-	-	-	17-apr-2003
-	0.02	0.03	-	-	-	17-apr-2003
-	-	-	-	-	-	17-apr-2003
						K1-02A
<0.0005 U	-	-	-	-	-	18-aug-1995
<0.0005 U	-	-	-	-	-	18-aug-1995
0.0008	-	-	-	-	-	07-nov-1995
<0.0005 U	-	-	-	-	-	23-may-1996
<0.0005 U	<0.01 U	<0.02 U	-	-	-	07-nov-1996
<0.0005 UL	<0.01 U	<0.02 U	-	-	-	21-may-1997
<0.0005 U	<0.01 U	<0.02 U	-	-	-	08-dec-1997
-	-	-	-	-	-	24-jun-1998
<0.0005 U	<0.01 U	<0.02 UL	-	-	-	24-jun-1998
-	-	-	-	-	-	16-dec-1998
-	-	-	-	-	-	16-dec-1998
<0.0005 U	<0.01 U	<0.02 U	-	-	-	16-dec-1998
<0.0005 U	<0.01 U	<0.02 U	-	-	-	16-dec-1998
-	-	-	-	-	-	21-may-1999
-	-	-	-	-	-	21-may-1999
<0.0005 UL	<0.01 U	<0.02 U	-	-	-	21-may-1999
<0.0005 UL	<0.01 U	<0.02 U	-	-	-	21-may-1999
-	-	-	-	-	-	02-nov-1999
<0.0005 U	<0.01 U	<0.02 U	-	-	-	02-nov-1999
-	-	-	-	-	-	24-may-2000
<0.0005 U	<0.01 U	<0.02 U	-	-	-	24-may-2000
-	-	-	-	-	-	07-dec-2000
<0.0005 U	0.04	<0.02 U	-	-	-	07-dec-2000
-	-	-	-	-	-	30-may-2001
<0.0005 U	<0.01 U	<0.02 U	-	-	-	30-may-2001
-	-	-	-	-	-	05-jun-2002
-	-	-	-	-	-	05-jun-2002
<0.0005 U	<0.01 U	<0.02 U	-	-	-	05-jun-2002
<0.0005 U	<0.01 U	<0.02 U	-	-	-	05-jun-2002
-	<0.01 U	<0.05 U	-	-	-	28-oct-2002
-	<0.01 U	<0.05 U	-	-	-	28-oct-2002
						K1-02B
<0.0005 U	-	-	-	-	-	31-jul-1995
-	<0.05 U	<0.05 U	-	-	<0.2 U	31-jul-1995
<0.0005 U	-	-	-	-	-	11-oct-1995
-	<0.05 U	<0.05 U	-	-	<0.2 U	11-oct-1995

Table A-19. Ground and surface water analyses for metals and cations (mg/L) in samples collected

Location Date	Lab Note	Val.	Sodium	Potassium	Calcium	Magnesium	Iron	Manganese
K1-02B (continued)								
17-jan-1996	CS a	V	41 O	3.4	55	25	<0.1 U	<0.03 U
17-jan-1996	CS a	V	-	-	-	-	-	-
10-apr-1996	CS a	V	-	-	-	-	<0.1 U	<0.03 U
10-apr-1996	CS a	V	-	-	-	-	-	-
30-jul-1996	CS a	V	38	-	-	-	<0.1 U	<0.03 U
30-jul-1996	CS a	V	-	-	-	-	-	-
30-jul-1996	CS a	V	-	-	-	-	-	-
09-oct-1996	CS a	V	-	-	-	-	-	-
28-oct-1996	CS a	V	39 LO	2.9	53	<0.5 U	<0.1 U	<0.03 U
16-jan-1997	CS a	V	-	-	-	-	-	-
03-apr-1997	CS a	V	-	-	-	-	-	-
03-apr-1997	CS a	V	38 LO	-	-	-	<0.1 U	<0.1 U
01-jul-1997	CS a	V	-	-	-	-	-	-
13-oct-1997	CS a	V	-	-	-	-	-	-
13-oct-1997	CS a	V	37	-	-	-	<0.1 U	<0.1 U
08-jan-1998	CS a	V	-	-	-	-	-	-
09-apr-1998	CS a	V	-	2.7 H	-	-	-	-
09-apr-1998	CS a	V	-	-	-	-	-	-
09-apr-1998	CS a	V	37	-	-	-	<0.1 U	<0.1 U
14-jul-1998	CS a	V	-	3.5	-	-	-	-
14-jul-1998	CS a	V	-	-	-	-	-	-
13-oct-1998	CS a	V	-	2.9	-	-	-	-
13-oct-1998	CS a	V	-	-	-	-	-	-
13-oct-1998	CS a	V	39	-	-	-	<0.1 U	<0.1 U
12-jan-1999	CS ah	V	-	3	-	-	-	-
12-jan-1999	CS aeh	V	-	2.9	-	-	-	-
12-jan-1999	CS ah	V	-	-	-	-	-	-
12-jan-1999	CS aeh	V	-	-	-	-	-	-
15-apr-1999	CN a	V	-	2.9	-	-	-	-
15-apr-1999	CN a	V	-	-	-	-	-	-
15-apr-1999	CN a	V	42	-	-	-	<0.1 U	<0.1 U
09-jul-1999	CN a	V	-	3	-	-	-	-
09-jul-1999	CN a	V	-	-	-	-	-	-
07-oct-1999	CN af	V	-	2.7	-	-	-	-
07-oct-1999	CN af	V	-	-	-	-	-	-
07-oct-1999	CN af	V	38	-	-	-	0.2	<0.1 U
07-feb-2000	CN a	V	-	4.1	-	-	-	-
07-feb-2000	CN a	V	-	-	-	-	-	-
18-apr-2000	CN af	V	-	3.9	-	-	-	-
18-apr-2000	CN af	V	-	-	-	-	-	-
18-apr-2000	CN af	V	39	-	-	-	<0.1 U	<0.1 U
19-jul-2000	CN af	V	-	4	-	-	-	-
19-jul-2000	CN af	V	-	-	-	-	-	-
19-oct-2000	CN af	V	-	-	-	-	-	-
19-oct-2000	CN af	V	42 L	-	-	-	<0.1 U	<0.1 U
14-dec-2000	CN af	V	-	-	-	-	-	-
21-dec-2000	CN af	V	-	-	-	-	-	-
18-jan-2001	CN af	V	-	4	-	-	-	-
18-jan-2001	CN af	V	-	-	-	-	-	-
18-apr-2001	CN af	V	-	5 L	-	-	-	-
18-apr-2001	CN af	V	-	-	-	-	-	-
18-apr-2001	CN af	V	43 L	-	-	-	<0.1 U	<0.1 U
09-jul-2001	CN af	V	-	4 L	-	-	-	-
09-jul-2001	CN af	V	-	-	-	-	-	-
22-oct-2001	CN a	V	-	4	-	-	-	-
22-oct-2001	CN a	V	-	-	-	-	-	-
22-oct-2001	CN a	V	39	-	-	-	<0.1 U	<0.1 U
16-jan-2002	CN a	V	-	4	-	-	-	-
16-jan-2002	CN a	V	-	-	-	-	-	-
16-apr-2002	CN a	V	-	4 LO	-	-	-	-
16-apr-2002	CN a	V	-	-	-	-	-	-
16-apr-2002	CN a	V	41 LO	-	-	-	<0.1 LOU	-
29-jul-2002	CN af	V	-	4	-	-	-	-
29-jul-2002	CN af	V	-	-	-	-	-	-
04-dec-2002	CN af	V	-	4 L	-	-	-	-
04-dec-2002	CN af	V	-	-	-	-	-	-
04-dec-2002	CN af	V	40	-	-	-	<0.1 U	-
30-jan-2003	CN af	V	-	4	-	-	-	-

from the Building 850 subarea between July 1, 1995 and June 30, 2003. Results recorded by April 15, 2004.

Cadmium	Copper	Zinc	Boron	Strontium	Aluminum	Location Date
						(continued) K1-02B
-	<0.05 U	<0.05 U	-	-	<0.2 U	17-jan-1996
<0.0005 ULO	-	-	-	-	-	17-jan-1996
-	0.018	0.03	-	-	-	10-apr-1996
<0.0005 U	-	-	-	-	-	10-apr-1996
-	-	<0.02 U	-	-	-	30-jul-1996
-	0.0083	-	-	-	-	30-jul-1996
<0.0005 U	-	-	-	-	-	30-jul-1996
<0.0005 U	0.025	0.033	-	-	-	09-oct-1996
-	<0.05 U	<0.05 U	-	-	<0.2 U	28-oct-1996
<0.0005 LU	0.014	0.033	-	-	-	16-jan-1997
<0.0005 LU	0.011	0.028	-	-	-	03-apr-1997
-	-	-	-	-	-	03-apr-1997
<0.0005 U	<0.01 U	<0.02 U	-	-	-	01-jul-1997
<0.0005 U	0.014	0.054	-	-	-	13-oct-1997
-	-	-	-	-	-	13-oct-1997
<0.0005 U	<0.01 U	0.022	-	-	-	08-jan-1998
-	-	-	-	-	-	09-apr-1998
<0.0005 U	0.011	0.026	-	-	-	09-apr-1998
-	-	-	-	-	-	09-apr-1998
-	-	-	-	-	-	14-jul-1998
<0.0005 U	0.012	0.038	-	-	-	14-jul-1998
-	-	-	-	-	-	13-oct-1998
<0.0005 U	0.017	0.034	-	-	-	13-oct-1998
-	-	-	-	-	-	13-oct-1998
-	-	-	-	-	-	12-jan-1999
-	-	-	-	-	-	12-jan-1999
<0.0005 U	0.02	0.023	-	-	-	12-jan-1999
<0.0005 U	0.013	<0.02 U	-	-	-	12-jan-1999
-	-	-	-	-	-	15-apr-1999
<0.0005 U	<0.01 U	<0.02 U	-	-	-	15-apr-1999
-	-	-	-	-	-	15-apr-1999
<0.0005 U	0.01	0.02	-	-	-	09-jul-1999
-	-	-	-	-	-	07-oct-1999
<0.0005 LU	<0.01 U	<0.02 U	-	-	-	07-oct-1999
-	-	-	-	-	-	07-oct-1999
<0.0005 U	0.03	0.08	-	-	-	07-feb-2000
-	-	-	-	-	-	18-apr-2000
<0.0005 LU	0.01	0.03	-	-	-	18-apr-2000
-	-	-	-	-	-	18-apr-2000
-	-	-	-	-	-	19-jul-2000
<0.0005 U	0.02	0.03	-	-	-	19-jul-2000
<0.0005 U	0.27 L	<0.02 U	-	-	-	19-oct-2000
-	-	-	-	-	-	19-oct-2000
-	0.046 D	-	-	-	-	14-dec-2000
-	0.031 D	-	-	-	-	21-dec-2000
-	-	-	-	-	-	18-jan-2001
<0.0005 U	0.01	<0.02 U	-	-	-	18-jan-2001
-	-	-	-	-	-	18-apr-2001
<0.0005 U	0.04	0.05	-	-	-	18-apr-2001
-	-	-	-	-	-	18-apr-2001
-	-	-	-	-	-	09-jul-2001
<0.0005 LU	0.02	0.04	-	-	-	09-jul-2001
-	-	<0.02 U	-	-	-	22-oct-2001
<0.0005 U	<0.01 U	-	-	-	-	22-oct-2001
-	-	-	-	-	-	22-oct-2001
-	-	-	-	-	-	16-jan-2002
<0.0005 U	0.03	0.04	-	-	-	16-jan-2002
-	-	-	-	-	-	16-apr-2002
<0.0005 U	0.02	0.02	-	-	-	16-apr-2002
-	-	-	-	-	-	16-apr-2002
-	-	-	-	-	-	29-jul-2002
<0.0005 U	0.02	0.03	-	-	-	29-jul-2002
-	-	-	-	-	-	04-dec-2002
<0.0005 U	0.01	<0.02 U	-	-	-	04-dec-2002
-	-	-	-	-	-	04-dec-2002
-	-	-	-	-	-	30-jan-2003

Table A-19. Ground and surface water analyses for metals and cations (mg/L) in samples collected

Location Date	Lab Note	Val.	Sodium	Potassium	Calcium	Magnesium	Iron	Manganese
K1-02B (continued)								
30-jan-2003	CN	af	V	-	-	-	-	-
17-apr-2003	CN	afh	V	-	4	-	-	-
17-apr-2003	CN	aefh	V	-	4	-	-	-
17-apr-2003	CN	afh	V	-	-	-	-	-
17-apr-2003	CN	aefh	V	-	-	-	-	-
17-apr-2003	CN	afh	V	41	-	-	<0.1 U	-
17-apr-2003	CN	aefh	V	42	-	-	<0.1 U	-
K1-03								
31-jul-1995	CS	a	V	-	-	-	-	-
31-jul-1995	CS	a	V	35	3	47	18	<0.1 U <0.03 U
11-oct-1995	CS	ah	V	-	-	-	-	-
11-oct-1995	CS	aeh	V	-	-	-	-	-
11-oct-1995	CS	ah	V	33	2.4	46	16	<0.1 U <0.03 U
11-oct-1995	CS	aeh	V	32	2.4	47	16	<0.1 U <0.03 U
18-jan-1996	CS	a	V	40	3	47	18	<0.1 U <0.03 U
18-jan-1996	CS	a	V	-	-	-	-	-
10-apr-1996	CS	a	V	-	-	-	<0.1 U	<0.03 U
10-apr-1996	CS	a	V	-	-	-	-	-
30-jul-1996	CS	a	V	32	-	-	<0.1 U	<0.03 U
30-jul-1996	CS	a	V	-	-	-	-	-
30-jul-1996	CS	a	V	-	-	-	-	-
10-oct-1996	CS	a	V	-	-	-	-	-
16-jan-1997	CS	a	V	-	-	-	-	-
03-apr-1997	CS	a	V	-	-	-	-	-
03-apr-1997	CS	a	V	30 LO	-	-	0.17	<0.1 U
02-jul-1997	CS	a	V	-	-	-	-	-
14-oct-1997	CS	a	V	-	-	-	-	-
14-oct-1997	CS	a	V	29	-	-	<0.1 U	<0.1 U
08-jan-1998	CS	a	V	-	-	-	-	-
09-apr-1998	CS	ah	V	-	2.7 H	-	-	-
09-apr-1998	CS	aeh	V	-	2.9 H	-	-	-
09-apr-1998	CS	ah	V	-	-	-	-	-
09-apr-1998	CS	aeh	V	-	-	-	-	-
09-apr-1998	CS	ah	V	31	-	-	<0.1 U	<0.1 U
09-apr-1998	CS	aeh	V	33	-	-	<0.1 U	<0.1 U
15-jul-1998	CS	a	V	-	3.3	-	-	-
15-jul-1998	CS	a	V	-	-	-	-	-
13-oct-1998	CS	a	V	-	2.8	-	-	-
13-oct-1998	CS	a	V	-	-	-	-	-
13-oct-1998	CS	a	V	33	-	-	<0.1 U	<0.1 U
12-jan-1999	CS	a	V	-	2.7	-	-	-
12-jan-1999	CS	a	V	-	-	-	-	-
15-apr-1999	CN	a	V	-	2.9	-	-	-
15-apr-1999	CN	a	V	-	-	-	-	-
15-apr-1999	CN	a	V	33	-	-	<0.1 U	<0.1 U
09-jul-1999	CN	a	V	-	2.8	-	-	-
09-jul-1999	CN	a	V	-	-	-	-	-
06-oct-1999	CN	af	V	-	2.4	-	-	-
06-oct-1999	CN	af	V	-	-	-	-	-
06-oct-1999	CN	af	V	33	-	-	<0.1 U	<0.1 U
07-feb-2000	CN	a	V	-	3.7	-	-	-
07-feb-2000	CN	a	V	-	-	-	-	-
18-apr-2000	CN	af	V	-	3.6	-	-	-
18-apr-2000	CN	af	V	-	-	-	-	-
18-apr-2000	CN	af	V	32	-	-	<0.1 U	<0.1 U
19-jul-2000	CN	af	V	-	4	-	-	-
19-jul-2000	CN	af	V	-	-	-	-	-
23-oct-2000	CN	afh	V	-	4	-	-	-
23-oct-2000	CN	aefh	V	-	4	-	-	-
23-oct-2000	CN	afh	V	-	-	-	-	-
23-oct-2000	CN	aefh	V	-	-	-	-	-
23-oct-2000	CN	afh	V	33	-	-	<0.1 U	<0.1 U
23-oct-2000	CN	aefh	V	32	-	-	<0.1 U	<0.1 U
18-jan-2001	CN	af	V	-	4	-	-	-
18-jan-2001	CN	af	V	-	-	-	-	-
18-apr-2001	CN	af	V	-	5 L	-	-	-
18-apr-2001	CN	af	V	-	-	-	-	-

from the Building 850 subarea between July 1, 1995 and June 30, 2003. Results recorded by April 15, 2004.

Cadmium	Copper	Zinc	Boron	Strontium	Aluminum	Location Date
						(continued) K1-02B
<0.0005 U	<0.01 U	<0.02 U	-	-	-	30-jan-2003
-	-	-	-	-	-	17-apr-2003
-	-	-	-	-	-	17-apr-2003
-	0.01	<0.02 U	-	-	-	17-apr-2003
-	0.02	0.02	-	-	-	17-apr-2003
-	-	-	-	-	-	17-apr-2003
-	-	-	-	-	-	17-apr-2003
						K1-03
<0.0005 U	-	-	-	-	-	31-jul-1995
-	<0.05 U	<0.05 U	-	-	<0.2 U	31-jul-1995
<0.0005 U	-	-	-	-	-	11-oct-1995
<0.0005 U	-	-	-	-	-	11-oct-1995
-	<0.05 U	<0.05 U	-	-	<0.2 U	11-oct-1995
-	<0.05 U	<0.05 U	-	-	<0.2 U	11-oct-1995
-	<0.05 U	<0.05 U	-	-	<0.2 U	18-jan-1996
<0.0005 ULO	-	-	-	-	-	18-jan-1996
-	<0.01 U	<0.02 U	-	-	-	10-apr-1996
<0.0005 U	-	-	-	-	-	10-apr-1996
-	-	<0.02 U	-	-	-	30-jul-1996
-	0.0019	-	-	-	-	30-jul-1996
<0.0005 U	-	-	-	-	-	30-jul-1996
<0.0005 U	<0.01 U	<0.02 U	-	-	-	10-oct-1996
<0.0005 LU	<0.01 U	0.026	-	-	-	16-jan-1997
<0.0005 LU	<0.01 U	0.024	-	-	-	03-apr-1997
-	-	-	-	-	-	03-apr-1997
<0.0005 U	<0.01 U	0.027	-	-	-	02-jul-1997
<0.0005 U	<0.01 U	<0.02 U	-	-	-	14-oct-1997
-	-	-	-	-	-	14-oct-1997
<0.0005 U	<0.01 U	<0.02 U	-	-	-	08-jan-1998
-	-	-	-	-	-	09-apr-1998
-	-	-	-	-	-	09-apr-1998
<0.0005 U	<0.01 U	0.026	-	-	-	09-apr-1998
<0.0005 U	<0.01 U	<0.02 U	-	-	-	09-apr-1998
-	-	-	-	-	-	09-apr-1998
-	-	-	-	-	-	09-apr-1998
-	-	-	-	-	-	15-jul-1998
<0.0005 U	<0.01 U	0.024	-	-	-	15-jul-1998
-	-	-	-	-	-	13-oct-1998
<0.0005 U	<0.01 U	0.034	-	-	-	13-oct-1998
-	-	-	-	-	-	13-oct-1998
-	-	-	-	-	-	12-jan-1999
<0.0005 U	<0.01 U	<0.02 U	-	-	-	12-jan-1999
-	-	-	-	-	-	15-apr-1999
<0.0005 U	<0.01 U	<0.02 U	-	-	-	15-apr-1999
-	-	-	-	-	-	15-apr-1999
-	-	-	-	-	-	09-jul-1999
<0.0005 U	<0.01 U	<0.02 U	-	-	-	09-jul-1999
-	-	-	-	-	-	06-oct-1999
<0.0005 LU	<0.01 U	<0.02 U	-	-	-	06-oct-1999
-	-	-	-	-	-	06-oct-1999
-	-	-	-	-	-	07-feb-2000
<0.0005 U	<0.01 U	<0.02 U	-	-	-	07-feb-2000
-	-	-	-	-	-	18-apr-2000
<0.0005 LU	<0.01 U	<0.02 U	-	-	-	18-apr-2000
-	-	-	-	-	-	18-apr-2000
-	-	-	-	-	-	19-jul-2000
<0.0005 U	<0.01 U	0.02	-	-	-	19-jul-2000
-	-	-	-	-	-	23-oct-2000
-	-	-	-	-	-	23-oct-2000
<0.0005 U	<0.01 U	<0.02 U	-	-	-	23-oct-2000
<0.0005 U	<0.01 U	<0.02 U	-	-	-	23-oct-2000
-	-	-	-	-	-	23-oct-2000
-	-	-	-	-	-	23-oct-2000
<0.0005 U	<0.01 U	0.07	-	-	-	18-jan-2001
-	-	-	-	-	-	18-jan-2001
-	-	-	-	-	-	18-apr-2001
<0.0005 U	<0.01 U	0.04	-	-	-	18-apr-2001

Table A-19. Ground and surface water analyses for metals and cations (mg/L) in samples collected

Location Date	Lab Note	Val.	Sodium	Potassium	Calcium	Magnesium	Iron	Manganese	
K1-03 (continued)									
18-apr-2001	CN	af	V	38 L	-	-	<0.1 U	<0.1 U	
09-jul-2001	CN	afh	V	-	4 L	-	-	-	
09-jul-2001	CN	aefh	V	-	4 L	-	-	-	
09-jul-2001	CN	afh	V	-	-	-	-	-	
09-jul-2001	CN	aefh	V	-	-	-	-	-	
22-oct-2001	CN	a	V	-	4	-	-	-	
22-oct-2001	CN	a	V	-	-	-	-	-	
22-oct-2001	CN	a	V	33	-	-	<0.1 U	<0.1 U	
16-jan-2002	CN	a	V	-	4	-	-	-	
16-jan-2002	CN	a	V	-	-	-	-	-	
16-apr-2002	CN	a	V	-	4 LO	-	-	-	
16-apr-2002	CN	a	V	-	-	-	-	-	
16-apr-2002	CN	a	V	36 LO	-	-	<0.1 LOU	-	
29-jul-2002	CN	af	V	-	4	-	-	-	
29-jul-2002	CN	af	V	-	-	-	-	-	
04-dec-2002	CN	af	V	-	4 L	-	-	-	
04-dec-2002	CN	af	V	-	-	-	-	-	
04-dec-2002	CN	af	V	35	-	-	<0.1 U	-	
30-jan-2003	CN	af	V	-	4	-	-	-	
30-jan-2003	CN	af	V	-	-	-	-	-	
17-apr-2003	CN	af	V	-	4	-	-	-	
17-apr-2003	CN	af	V	-	-	-	-	-	
17-apr-2003	CN	af	V	36	-	-	<0.1 U	-	
K1-04									
31-jul-1995	CS	a	V	-	-	-	-	-	
31-jul-1995	CS	a	V	39	3.3	47	17	<0.1 U	<0.03 U
11-oct-1995	CS	ah	V	-	-	-	-	-	
11-oct-1995	CS	ah	V	37	2.7	46	16	<0.1 U	<0.03 U
18-jan-1996	CS	a	V	47	3.5	47	17	<0.1 U	<0.03 U
18-jan-1996	CS	a	V	-	-	-	-	-	
11-apr-1996	CS	a	V	-	-	-	0.66 LO	<0.03 U	
11-apr-1996	CS	a	V	-	-	-	-	-	
31-jul-1996	CS	ah	V	35	-	-	<0.1 U	<0.03 U	
31-jul-1996	CS	aeh	V	35	-	-	<0.1 U	<0.03 U	
31-jul-1996	CS	ah	V	-	-	-	-	-	
31-jul-1996	CS	aeh	V	-	-	-	-	-	
31-jul-1996	CS	ah	V	-	-	-	-	-	
31-jul-1996	CS	aeh	V	-	-	-	-	-	
10-oct-1996	CS	a	V	-	-	-	-	-	
16-jan-1997	CS	a	V	-	-	-	-	-	
03-apr-1997	CS	a	V	-	-	-	-	-	
03-apr-1997	CS	a	V	36 LO	-	-	0.14	<0.1 U	
02-jul-1997	CS	a	V	-	-	-	-	-	
14-oct-1997	CS	a	V	-	-	-	-	-	
14-oct-1997	CS	a	V	33	-	-	<0.1 U	<0.1 U	
08-jan-1998	CS	a	V	-	-	-	-	-	
09-apr-1998	CS	a	V	-	2.9 H	-	-	-	
09-apr-1998	CS	a	V	-	-	-	-	-	
09-apr-1998	CS	a	V	34	-	-	<0.1 U	<0.1 U	
15-jul-1998	CS	a	V	-	3.6	-	-	-	
15-jul-1998	CS	a	V	-	-	-	-	-	
14-oct-1998	CS	a	V	-	3.2	-	-	-	
14-oct-1998	CS	a	V	-	-	-	-	-	
14-oct-1998	CS	a	V	36	-	-	<0.1 U	<0.1 U	
13-jan-1999	CS	a	V	-	3.1	-	-	-	
13-jan-1999	CS	a	V	-	-	-	-	-	
14-apr-1999	CN	a	V	-	3.2	-	-	-	
14-apr-1999	CN	a	V	-	-	-	-	-	
14-apr-1999	CN	a	V	37	-	-	<0.1 U	<0.1 U	
09-jul-1999	CN	a	V	-	3.3	-	-	-	
09-jul-1999	CN	a	V	-	-	-	-	-	
06-oct-1999	CN	af	V	-	2.8	-	-	-	
06-oct-1999	CN	af	V	-	-	-	-	-	
06-oct-1999	CN	af	V	37	-	-	<0.1 U	<0.1 U	
07-feb-2000	CN	a	V	-	4	-	-	-	
07-feb-2000	CN	a	V	-	-	-	-	-	
18-apr-2000	CN	ah	V	-	4	-	-	-	

from the Building 850 subarea between July 1, 1995 and June 30, 2003. Results recorded by April 15, 2004.

Cadmium	Copper	Zinc	Boron	Strontium	Aluminum	Location Date
						(continued) K1-03
-	-	-	-	-	-	18-apr-2001
-	-	-	-	-	-	09-jul-2001
-	-	-	-	-	-	09-jul-2001
<0.0005 LU	<0.01 U	<0.02 U	-	-	-	09-jul-2001
<0.0005 LU	<0.01 U	<0.02 U	-	-	-	09-jul-2001
-	-	<0.02 U	-	-	-	22-oct-2001
<0.0005 U	<0.01 U	-	-	-	-	22-oct-2001
-	-	-	-	-	-	22-oct-2001
-	-	-	-	-	-	16-jan-2002
<0.0005 U	<0.01 U	0.04	-	-	-	16-jan-2002
-	-	-	-	-	-	16-apr-2002
<0.0005 U	<0.01 U	0.06	-	-	-	16-apr-2002
-	-	-	-	-	-	16-apr-2002
-	-	-	-	-	-	29-jul-2002
<0.0005 U	<0.01 U	0.04	-	-	-	29-jul-2002
-	-	-	-	-	-	04-dec-2002
<0.0005 U	<0.01 U	0.05	-	-	-	04-dec-2002
-	-	-	-	-	-	04-dec-2002
-	-	-	-	-	-	30-jan-2003
<0.0005 U	<0.01 U	0.04	-	-	-	30-jan-2003
-	-	-	-	-	-	17-apr-2003
-	<0.01 U	<0.02 U	-	-	-	17-apr-2003
-	-	-	-	-	-	17-apr-2003
						K1-04
<0.0005 U	-	-	-	-	-	31-jul-1995
-	<0.05 U	<0.05 U	-	-	<0.2 U	31-jul-1995
<0.0005 U	-	-	-	-	-	11-oct-1995
-	<0.05 U	<0.05 U	-	-	<0.2 U	11-oct-1995
-	<0.05 U	<0.05 U	-	-	<0.2 U	18-jan-1996
<0.0005 ULO	-	-	-	-	-	18-jan-1996
-	<0.01 U	0.021	-	-	-	11-apr-1996
<0.0005 U	-	-	-	-	-	11-apr-1996
-	-	<0.02 U	-	-	-	31-jul-1996
-	-	<0.02 U	-	-	-	31-jul-1996
-	<0.001 LOU	-	-	-	-	31-jul-1996
-	0.0019 LO	-	-	-	-	31-jul-1996
<0.0005 U	-	-	-	-	-	31-jul-1996
<0.0005 U	-	-	-	-	-	31-jul-1996
<0.0005 U	<0.01 U	<0.02 U	-	-	-	10-oct-1996
<0.0005 LU	<0.01 U	<0.02 U	-	-	-	16-jan-1997
<0.0005 LU	<0.01 U	0.025	-	-	-	03-apr-1997
-	-	-	-	-	-	03-apr-1997
<0.0005 U	<0.01 U	<0.02 U	-	-	-	02-jul-1997
<0.0005 U	<0.01 U	<0.02 U	-	-	-	14-oct-1997
-	-	-	-	-	-	14-oct-1997
<0.0005 U	<0.01 U	<0.02 U	-	-	-	08-jan-1998
-	-	-	-	-	-	09-apr-1998
<0.0005 U	<0.01 U	<0.02 U	-	-	-	09-apr-1998
-	-	-	-	-	-	09-apr-1998
-	-	-	-	-	-	15-jul-1998
<0.0005 U	<0.01 U	<0.02 U	-	-	-	15-jul-1998
-	-	-	-	-	-	14-oct-1998
<0.0005 U	<0.01 U	<0.02 U	-	-	-	14-oct-1998
-	-	-	-	-	-	14-oct-1998
-	-	-	-	-	-	13-jan-1999
<0.0005 U	0.019	<0.02 U	-	-	-	13-jan-1999
-	-	-	-	-	-	14-apr-1999
<0.0005 U	<0.01 U	<0.02 U	-	-	-	14-apr-1999
-	-	-	-	-	-	14-apr-1999
-	-	-	-	-	-	09-jul-1999
<0.0005 U	<0.01 U	<0.02 U	-	-	-	09-jul-1999
-	-	-	-	-	-	06-oct-1999
<0.0005 LU	<0.01 U	<0.02 U	-	-	-	06-oct-1999
-	-	-	-	-	-	06-oct-1999
-	-	-	-	-	-	06-oct-1999
<0.0005 U	<0.01 U	<0.02 U	-	-	-	07-feb-2000
-	-	-	-	-	-	07-feb-2000
<0.0005 U	<0.01 U	<0.02 U	-	-	-	07-feb-2000
-	-	-	-	-	-	18-apr-2000

Table A-19. Ground and surface water analyses for metals and cations (mg/L) in samples collected

Location Date	Lab Note	Val.	Sodium	Potassium	Calcium	Magnesium	Iron	Manganese
K1-04 (continued)								
18-apr-2000	CN aeh	V	-	4	-	-	-	-
18-apr-2000	CN ah	V	-	-	-	-	-	-
18-apr-2000	CN aeh	V	-	-	-	-	-	-
18-apr-2000	CN ah	V	35	-	-	-	0.2	<0.1 U
18-apr-2000	CN aeh	V	35	-	-	-	<0.1 U	<0.1 U
19-jul-2000	CN af	V	-	5	-	-	-	-
19-jul-2000	CN af	V	-	-	-	-	-	-
23-oct-2000	CN af	V	-	4	-	-	-	-
23-oct-2000	CN af	V	-	-	-	-	-	-
23-oct-2000	CN af	V	37	-	-	-	<0.1 U	<0.1 U
18-jan-2001	CN a	V	-	4	-	-	-	-
18-jan-2001	CN a	V	-	-	-	-	-	-
23-apr-2001	CN af	V	-	4	-	-	-	-
23-apr-2001	CN af	V	-	-	-	-	-	-
23-apr-2001	CN af	V	32	-	-	-	<0.1 U	<0.1 U
10-jul-2001	CN a	V	-	5 L	-	-	-	-
10-jul-2001	CN a	V	-	-	-	-	-	-
22-oct-2001	CN a	V	-	4	-	-	-	-
22-oct-2001	CN a	V	-	-	-	-	-	-
22-oct-2001	CN a	V	35	-	-	-	<0.1 U	<0.1 U
16-jan-2002	CN aeh	V	-	4	-	-	-	-
16-jan-2002	CN ah	V	-	4	-	-	-	-
16-jan-2002	CN aeh	V	-	-	-	-	-	-
16-jan-2002	CN ah	V	-	-	-	-	-	-
16-apr-2002	CN ag	V	-	5 LO	-	-	-	-
16-apr-2002	CN ag	V	-	-	-	-	-	-
16-apr-2002	CN ag	V	38 LO	-	-	-	<0.1 LOU	-
29-jul-2002	CN afh	V	-	4	-	-	-	-
29-jul-2002	CN aefh	V	-	4	-	-	-	-
29-jul-2002	CN afh	V	-	-	-	-	-	-
29-jul-2002	CN aefh	V	-	-	-	-	-	-
05-dec-2002	CN af	V	-	5 L	-	-	-	-
05-dec-2002	CN af	V	-	-	-	-	-	-
05-dec-2002	CN af	V	39 L	-	-	-	<0.1 U	-
29-jan-2003	CN aefh	V	-	4	-	-	-	-
29-jan-2003	CN afh	V	-	5	-	-	-	-
29-jan-2003	CN aefh	V	-	-	-	-	-	-
29-jan-2003	CN afh	V	-	-	-	-	-	-
18-apr-2003	SE af	N	-	4.1 J	-	-	-	-
18-apr-2003	SE af	N	-	-	-	-	-	-
18-apr-2003	SE af	N	-	-	-	-	-	-
24-jun-2003	CN a	V	-	-	-	-	-	-
24-jun-2003	CN a	V	38	-	-	-	<0.1 U	<0.1 U
K1-05								
31-jul-1995	CS ah	V	-	-	-	-	-	-
31-jul-1995	CS aeh	V	-	-	-	-	-	-
31-jul-1995	CS ah	V	41	2.9	39	18	<0.1 U	<0.03 U
31-jul-1995	CS aeh	V	41	2.8	39	17	<0.1 U	<0.03 U
12-oct-1995	CS ah	V	-	-	-	-	-	-
12-oct-1995	CS ah	V	44	3.5	42	20	<0.1 U	<0.03 U
18-jan-1996	CS a	V	49	3.1	40	19	<0.1 U	<0.03 U
18-jan-1996	CS a	V	-	-	-	-	-	-
11-apr-1996	CS a	V	-	-	-	-	0.12 LO	<0.03 U
11-apr-1996	CS a	V	-	-	-	-	-	-
31-jul-1996	CS a	V	40	-	-	-	<0.1 U	<0.03 U
31-jul-1996	CS a	V	-	-	-	-	-	-
31-jul-1996	CS a	V	-	-	-	-	-	-
11-oct-1996	CS a	V	-	-	-	-	-	-
17-jan-1997	CS ah	V	-	-	-	-	-	-
17-jan-1997	CS aeh	V	-	-	-	-	-	-
04-apr-1997	CS a	V	-	-	-	-	-	-
04-apr-1997	CS a	V	36 O	-	-	-	<0.1 U	<0.1 U
02-jul-1997	CS a	V	-	-	-	-	-	-
14-oct-1997	CS a	V	-	-	-	-	-	-
14-oct-1997	CS a	V	36	-	-	-	<0.1 U	<0.1 U
12-jan-1998	CS ahg	V	-	-	-	-	-	-
12-jan-1998	CS aeh	V	-	-	-	-	-	-

from the Building 850 subarea between July 1, 1995 and June 30, 2003. Results recorded by April 15, 2004.

Cadmium	Copper	Zinc	Boron	Strontium	Aluminum	Location Date
						(continued) K1-04
-	-	-	-	-	-	18-apr-2000
<0.0005 LU	<0.01 U	<0.02 U	-	-	-	18-apr-2000
<0.0005 LU	<0.01 U	<0.02 U	-	-	-	18-apr-2000
-	-	-	-	-	-	18-apr-2000
-	-	-	-	-	-	18-apr-2000
-	-	-	-	-	-	19-jul-2000
<0.0005 U	<0.01 U	<0.02 U	-	-	-	19-jul-2000
-	-	-	-	-	-	23-oct-2000
<0.0005 U	<0.01 U	<0.02 U	-	-	-	23-oct-2000
-	-	-	-	-	-	23-oct-2000
-	-	-	-	-	-	18-jan-2001
<0.0005 U	<0.01 U	<0.02 U	-	-	-	18-jan-2001
-	-	-	-	-	-	23-apr-2001
<0.0005 LU	<0.01 U	<0.02 U	-	-	-	23-apr-2001
-	-	-	-	-	-	23-apr-2001
-	-	-	-	-	-	10-jul-2001
<0.0005 LU	<0.01 U	<0.02 U	-	-	-	10-jul-2001
-	-	<0.02 U	-	-	-	22-oct-2001
<0.0005 U	<0.01 U	-	-	-	-	22-oct-2001
-	-	-	-	-	-	22-oct-2001
-	-	-	-	-	-	16-jan-2002
-	-	-	-	-	-	16-jan-2002
<0.0005 U	<0.01 U	<0.02 U	-	-	-	16-jan-2002
<0.0005 U	<0.01 U	<0.02 U	-	-	-	16-jan-2002
-	-	-	-	-	-	16-apr-2002
<0.0005 U	<0.01 U	<0.02 U	-	-	-	16-apr-2002
-	-	-	-	-	-	16-apr-2002
-	-	-	-	-	-	29-jul-2002
-	-	-	-	-	-	29-jul-2002
<0.0005 U	<0.01 U	0.08	-	-	-	29-jul-2002
<0.0005 U	<0.01 U	0.05	-	-	-	29-jul-2002
-	-	-	-	-	-	05-dec-2002
<0.0005 U	<0.01 U	<0.02 U	-	-	-	05-dec-2002
-	-	-	-	-	-	05-dec-2002
-	-	-	-	-	-	29-jan-2003
-	-	-	-	-	-	29-jan-2003
<0.0005 U	<0.01 U	<0.02 U	-	-	-	29-jan-2003
<0.0005 U	<0.01 U	<0.02 U	-	-	-	29-jan-2003
-	-	-	-	-	-	18-apr-2003
-	<0.01 U	<0.05 U	-	-	-	18-apr-2003
<0.0005 OU	-	-	-	-	-	18-apr-2003
<0.0005 U	<0.01 U	<0.02 U	-	-	-	24-jun-2003
-	-	-	-	-	-	24-jun-2003
						K1-05
<0.0005 U	-	-	-	-	-	31-jul-1995
<0.0005 U	-	-	-	-	-	31-jul-1995
-	<0.05 U	<0.05 U	-	-	<0.2 U	31-jul-1995
-	<0.05 U	<0.05 U	-	-	<0.2 U	31-jul-1995
<0.0005 U	-	-	-	-	-	12-oct-1995
-	<0.05 U	<0.05 U	-	-	<0.2 U	12-oct-1995
-	<0.05 U	<0.05 U	-	-	<0.2 U	18-jan-1996
<0.0005 ULO	-	-	-	-	-	18-jan-1996
-	0.011	0.023	-	-	-	11-apr-1996
<0.0005 U	-	-	-	-	-	11-apr-1996
-	-	<0.02 U	-	-	-	31-jul-1996
-	0.0067 LO	-	-	-	-	31-jul-1996
<0.0005 U	-	-	-	-	-	31-jul-1996
<0.0005 U	<0.01 U	<0.02 U	-	-	-	11-oct-1996
<0.0005 UL	0.013	<0.02 U	-	-	-	17-jan-1997
<0.0005 UL	<0.01 U	<0.02 U	-	-	-	17-jan-1997
<0.0005 U	<0.01 U	<0.02 U	-	-	-	04-apr-1997
-	-	-	-	-	-	04-apr-1997
<0.0005 U	<0.01 U	<0.02 U	-	-	-	02-jul-1997
<0.0005 U	0.014	<0.02 U	-	-	-	14-oct-1997
-	-	-	-	-	-	14-oct-1997
<0.0005 U	<0.01 U	<0.02 U	-	-	-	12-jan-1998
<0.0005 U	<0.01 U	<0.02 U	-	-	-	12-jan-1998

Table A-19. Ground and surface water analyses for metals and cations (mg/L) in samples collected

Location Date	Lab Note	Val.	Sodium	Potassium	Calcium	Magnesium	Iron	Manganese
K1-05 (continued)								
15-apr-1998	CS a	V	-	2.8	-	-	-	-
15-apr-1998	CS a	V	-	-	-	-	-	-
15-apr-1998	CS a	V	38 LO	-	-	-	<0.1 U	<0.1 U
16-jul-1998	CS a	V	-	4	-	-	-	-
16-jul-1998	CS a	V	-	-	-	-	-	-
14-oct-1998	CS a	V	-	3.4	-	-	-	-
14-oct-1998	CS a	V	-	-	-	-	-	-
14-oct-1998	CS a	V	41	-	-	-	<0.1 U	<0.1 U
13-jan-1999	CS a	V	-	2.8	-	-	-	-
13-jan-1999	CS a	V	-	-	-	-	-	-
14-apr-1999	CN a	V	-	3.3	-	-	-	-
14-apr-1999	CN a	V	-	-	-	-	-	-
14-apr-1999	CN a	V	43	-	-	-	<0.1 U	<0.1 U
08-jul-1999	CN a	V	-	2.6	-	-	-	-
08-jul-1999	CN a	V	-	-	-	-	-	-
06-oct-1999	CN afh	V	-	2.3	-	-	-	-
06-oct-1999	CN aefh	V	-	2.2	-	-	-	-
06-oct-1999	CN afh	V	-	-	-	-	-	-
06-oct-1999	CN aefh	V	-	-	-	-	-	-
06-oct-1999	CN afh	V	42	-	-	-	<0.1 U	<0.1 U
06-oct-1999	CN aefh	V	41	-	-	-	<0.1 U	<0.1 U
08-feb-2000	CN a	V	-	3.7	-	-	-	-
08-feb-2000	CN a	V	-	-	-	-	-	-
19-apr-2000	CN a	V	-	4.1	-	-	-	-
19-apr-2000	CN a	V	-	-	-	-	-	-
19-apr-2000	CN a	V	40	-	-	-	<0.1 U	<0.1 U
19-jul-2000	CN af	V	-	4	-	-	-	-
19-jul-2000	CN af	V	-	-	-	-	-	-
24-oct-2000	CN af	V	-	4	-	-	-	-
24-oct-2000	CN af	V	-	-	-	-	-	-
24-oct-2000	CN af	V	43	-	-	-	<0.1 U	<0.1 U
18-jan-2001	CN af	V	-	4	-	-	-	-
18-jan-2001	CN af	V	-	-	-	-	-	-
20-apr-2001	CN afh	V	-	5 L	-	-	-	-
20-apr-2001	CN aefh	V	-	5 L	-	-	-	-
20-apr-2001	CN afh	V	-	-	-	-	-	-
20-apr-2001	CN aefh	V	-	-	-	-	-	-
20-apr-2001	CN afh	V	45 L	-	-	-	<0.1 U	<0.1 U
20-apr-2001	CN aefh	V	46 L	-	-	-	<0.1 U	<0.1 U
12-jul-2001	CN a	V	-	4	-	-	-	-
12-jul-2001	CN a	V	-	-	-	-	-	-
23-oct-2001	CN a	V	-	4	-	-	-	-
23-oct-2001	CN a	V	-	-	-	-	-	-
23-oct-2001	CN a	V	41	-	-	-	<0.1 U	<0.1 U
22-jan-2002	CN a	V	-	4	-	-	-	-
22-jan-2002	CN a	V	-	-	-	-	-	-
18-apr-2002	CN a	V	-	5	-	-	-	-
18-apr-2002	CN a	V	-	-	-	-	-	-
18-apr-2002	CN a	V	41	-	-	-	<0.1 U	-
30-jul-2002	CN af	V	-	4	-	-	-	-
30-jul-2002	CN af	V	-	-	-	-	-	-
06-dec-2002	CN af	V	-	5 L	-	-	-	-
06-dec-2002	CN af	V	-	-	-	-	-	-
06-dec-2002	CN af	V	44 L	-	-	-	<0.1 U	-
29-jan-2003	CN af	V	-	4	-	-	-	-
29-jan-2003	CN af	V	-	-	-	-	-	-
18-apr-2003	SE af	N	-	4.5 J	-	-	-	-
18-apr-2003	SE af	N	-	-	-	-	0.1	<0.01 U
18-apr-2003	SE af	N	41 L	-	-	-	-	-
24-jun-2003	CN a	V	-	-	-	-	-	-
24-jun-2003	CN a	V	44	-	-	-	<0.1 U	<0.1 U
K1-06								
19-jun-1996	CS a	V	-	-	-	-	-	-
26-aug-1996	CS a	V	-	-	-	-	-	-
10-dec-1996	CS a	V	-	-	-	-	-	-

from the Building 850 subarea between July 1, 1995 and June 30, 2003. Results recorded by April 15, 2004.

Cadmium	Copper	Zinc	Boron	Strontium	Aluminum	Location Date
						(continued) K1-05
-	-	-	-	-	-	15-apr-1998
<0.0005 U	<0.01 U	<0.02 U	-	-	-	15-apr-1998
-	-	-	-	-	-	15-apr-1998
-	-	-	-	-	-	16-jul-1998
<0.0005 U	<0.01 U	0.02	-	-	-	16-jul-1998
-	-	-	-	-	-	14-oct-1998
<0.0005 U	0.017	<0.02 U	-	-	-	14-oct-1998
-	-	-	-	-	-	14-oct-1998
<0.0005 U	0.022	<0.02 U	-	-	-	13-jan-1999
-	-	-	-	-	-	13-jan-1999
<0.0005 U	<0.01 U	<0.02 U	-	-	-	14-apr-1999
-	-	-	-	-	-	14-apr-1999
-	-	-	-	-	-	08-jul-1999
<0.0005 LU	<0.01 U	<0.02 U	-	-	-	08-jul-1999
-	-	-	-	-	-	06-oct-1999
-	-	-	-	-	-	06-oct-1999
<0.0005 LU	<0.01 U	<0.02 U	-	-	-	06-oct-1999
<0.0005 LU	<0.01 U	<0.02 U	-	-	-	06-oct-1999
-	-	-	-	-	-	06-oct-1999
-	-	-	-	-	-	06-oct-1999
-	-	-	-	-	-	08-feb-2000
<0.0005 U	<0.01 U	<0.02 U	-	-	-	08-feb-2000
<0.0005 U	<0.01 U	<0.02 U	-	-	-	19-apr-2000
-	-	-	-	-	-	19-apr-2000
-	-	-	-	-	-	19-apr-2000
<0.0005 U	<0.01 U	<0.02 U	-	-	-	19-jul-2000
-	-	-	-	-	-	19-jul-2000
-	-	-	-	-	-	24-oct-2000
<0.0005 U	<0.01 U	<0.02 U	-	-	-	24-oct-2000
-	-	-	-	-	-	24-oct-2000
-	-	-	-	-	-	18-jan-2001
<0.0005 U	0.01	<0.02 U	-	-	-	18-jan-2001
-	-	-	-	-	-	20-apr-2001
-	-	-	-	-	-	20-apr-2001
<0.0005 U	<0.01 U	<0.02 U	-	-	-	20-apr-2001
<0.0005 U	<0.01 U	<0.02 U	-	-	-	20-apr-2001
-	-	-	-	-	-	20-apr-2001
-	-	-	-	-	-	20-apr-2001
-	-	-	-	-	-	12-jul-2001
<0.0005 U	<0.01 U	<0.02 U	-	-	-	12-jul-2001
-	-	<0.02 U	-	-	-	23-oct-2001
<0.0005 U	<0.01 U	-	-	-	-	23-oct-2001
-	-	-	-	-	-	23-oct-2001
-	-	-	-	-	-	22-jan-2002
<0.0005 U	<0.01 U	<0.02 U	-	-	-	22-jan-2002
-	-	-	-	-	-	18-apr-2002
<0.0005 U	0.05	<0.02 FLU	-	-	-	18-apr-2002
-	-	-	-	-	-	18-apr-2002
-	-	-	-	-	-	30-jul-2002
<0.0005 U	0.03	0.02	-	-	-	30-jul-2002
-	-	-	-	-	-	06-dec-2002
<0.0005 U	0.01	<0.02 U	-	-	-	06-dec-2002
-	-	-	-	-	-	06-dec-2002
-	-	-	-	-	-	29-jan-2003
<0.0005 U	<0.01 U	<0.02 U	-	-	-	29-jan-2003
-	-	-	-	-	-	18-apr-2003
-	<0.01 U	<0.05 U	-	-	-	18-apr-2003
<0.0005 OU	-	-	-	-	-	18-apr-2003
<0.0005 U	<0.01 U	<0.02 U	-	-	-	24-jun-2003
-	-	-	-	-	-	24-jun-2003
						K1-06
0.0037	-	-	-	-	-	19-jun-1996
<0.0005 U	-	-	-	-	-	26-aug-1996
<0.0005 UL	-	-	-	-	-	10-dec-1996

Table A-19. Ground and surface water analyses for metals and cations (mg/L) in samples collected

Location Date	Lab Note	Val.	Sodium	Potassium	Calcium	Magnesium	Iron	Manganese
K1-07								
31-jul-1995	CS a	V	-	-	-	-	-	-
31-jul-1995	CS a	V	41	2.9	40	17	<0.1 U	<0.03 U
12-oct-1995	CS ah	V	-	-	-	-	-	-
12-oct-1995	CS ah	V	42	3.5	42	19	<0.1 U	<0.03 U
18-jan-1996	CS a	V	48	3.1	40	18	<0.1 U	<0.03 U
18-jan-1996	CS a	V	-	-	-	-	-	-
12-apr-1996	CS a	V	-	-	-	-	<0.1 UL	<0.03 U
12-apr-1996	CS a	V	-	-	-	-	-	-
31-jul-1996	CS a	V	39	-	-	-	<0.1 U	<0.03 U
31-jul-1996	CS a	V	-	-	-	-	-	-
31-jul-1996	CS a	V	-	-	-	-	-	-
11-oct-1996	CS a	V	-	-	-	-	-	-
17-jan-1997	CS a	V	-	-	-	-	-	-
04-apr-1997	CS a	V	-	-	-	-	-	-
04-apr-1997	CS a	V	37 O	-	-	-	<0.1 U	<0.1 U
03-jul-1997	CS a	V	-	-	-	-	-	-
16-oct-1997	CS a	V	-	-	-	-	-	-
16-oct-1997	CS a	V	35	-	-	-	<0.1 U	<0.1 U
12-jan-1998	CS a	V	-	-	-	-	-	-
15-apr-1998	CS a	V	-	2.5	-	-	-	-
15-apr-1998	CS a	V	-	-	-	-	-	-
15-apr-1998	CS a	V	36 LO	-	-	-	<0.1 U	<0.1 U
16-jul-1998	CS a	V	-	3	-	-	-	-
16-jul-1998	CS a	V	-	-	-	-	-	-
15-oct-1998	CS a	V	-	2.8	-	-	-	-
15-oct-1998	CS a	V	-	-	-	-	-	-
15-oct-1998	CS a	V	37	-	-	-	<0.1 U	<0.1 U
14-jan-1999	CS a	V	-	2.6	-	-	-	-
14-jan-1999	CS a	V	-	-	-	-	-	-
12-apr-1999	CN a	V	-	2.4	-	-	-	-
12-apr-1999	CN a	V	-	-	-	-	-	-
12-apr-1999	CN a	V	37	-	-	-	<0.1 U	<0.1 U
06-jul-1999	CN a	V	-	2.4	-	-	-	-
06-jul-1999	CN a	V	-	-	-	-	-	-
04-oct-1999	CN aj	V	-	2.6	-	-	-	-
04-oct-1999	CN aj	V	-	-	-	-	-	-
04-oct-1999	CN aj	V	37	-	-	-	<0.1 U	<0.1 U
08-feb-2000	CN ah	V	-	3.6	-	-	-	-
08-feb-2000	CN aeh	V	-	3.6	-	-	-	-
08-feb-2000	CN ah	V	-	-	-	-	-	-
08-feb-2000	CN aeh	V	-	-	-	-	-	-
19-apr-2000	CN a	V	-	3.9	-	-	-	-
19-apr-2000	CN a	V	-	-	-	-	-	-
19-apr-2000	CN a	V	38	-	-	-	<0.1 U	<0.1 U
20-jul-2000	CN af	V	-	4	-	-	-	-
20-jul-2000	CN af	V	-	-	-	-	-	-
25-oct-2000	CN a	V	-	4	-	-	-	-
25-oct-2000	CN a	V	-	-	-	-	-	-
25-oct-2000	CN a	V	41	-	-	-	<0.1 U	<0.1 U
22-jan-2001	CN a	V	-	4	-	-	-	-
22-jan-2001	CN a	V	-	-	-	-	-	-
23-apr-2001	CN af	V	-	4	-	-	-	-
23-apr-2001	CN af	V	-	-	-	-	-	-
23-apr-2001	CN af	V	37	-	-	-	<0.1 U	<0.1 U
10-jul-2001	CN af	V	-	4 L	-	-	-	-
10-jul-2001	CN af	V	-	-	-	-	-	-
23-oct-2001	CN ah	V	-	4	-	-	-	-
23-oct-2001	CN aeh	V	-	4	-	-	-	-
23-oct-2001	CN ah	V	-	-	-	-	-	-
23-oct-2001	CN aeh	V	-	-	-	-	-	-
23-oct-2001	CN ah	V	38	-	-	-	<0.1 U	<0.1 U
23-oct-2001	CN aeh	V	39	-	-	-	<0.1 U	<0.1 U
22-jan-2002	CN a	V	-	4	-	-	-	-
22-jan-2002	CN a	V	-	-	-	-	-	-
18-apr-2002	CN a	V	-	4	-	-	-	-
18-apr-2002	CN a	V	-	-	-	-	-	-
18-apr-2002	CN a	V	39	-	-	-	<0.1 U	-
30-jul-2002	CN af	V	-	4	-	-	-	-

from the Building 850 subarea between July 1, 1995 and June 30, 2003. Results recorded by April 15, 2004.

Cadmium	Copper	Zinc	Boron	Strontium	Aluminum	Location Date
						K1-07
0.0014	-	-	-	-	-	31-jul-1995
-	<0.05 U	<0.05 U	-	-	<0.2 U	31-jul-1995
<0.0005 U	-	-	-	-	-	12-oct-1995
-	<0.05 U	<0.05 U	-	-	<0.2 U	12-oct-1995
-	<0.05 U	<0.05 U	-	-	<0.2 U	18-jan-1996
<0.0005 ULO	-	-	-	-	-	18-jan-1996
-	<0.01 U	0.023	-	-	-	12-apr-1996
<0.0005 U	-	-	-	-	-	12-apr-1996
-	-	<0.02 U	-	-	-	31-jul-1996
-	0.0027 LO	-	-	-	-	31-jul-1996
<0.0005 U	-	-	-	-	-	31-jul-1996
<0.0005 U	<0.01 U	<0.02 U	-	-	-	11-oct-1996
<0.0005 UL	<0.01 U	<0.02 U	-	-	-	17-jan-1997
<0.0005 U	<0.01 U	<0.02 U	-	-	-	04-apr-1997
-	-	-	-	-	-	04-apr-1997
<0.0005 U	<0.01 U	<0.02 U	-	-	-	03-jul-1997
<0.0005 UL	<0.01 U	<0.02 U	-	-	-	16-oct-1997
-	-	-	-	-	-	16-oct-1997
<0.0005 U	<0.01 U	<0.02 U	-	-	-	12-jan-1998
-	-	-	-	-	-	15-apr-1998
<0.0005 U	<0.01 U	<0.02 U	-	-	-	15-apr-1998
-	-	-	-	-	-	15-apr-1998
-	-	-	-	-	-	16-jul-1998
<0.0005 U	<0.01 U	0.02	-	-	-	16-jul-1998
-	-	-	-	-	-	15-oct-1998
<0.0005 U	<0.01 U	<0.02 U	-	-	-	15-oct-1998
-	-	-	-	-	-	15-oct-1998
-	-	-	-	-	-	14-jan-1999
<0.0005 U	0.011	<0.02 U	-	-	-	14-jan-1999
-	-	-	-	-	-	12-apr-1999
<0.0005 U	<0.01 U	<0.02 LU	-	-	-	12-apr-1999
-	-	-	-	-	-	12-apr-1999
-	-	-	-	-	-	06-jul-1999
<0.0005 LU	<0.01 U	<0.02 U	-	-	-	06-jul-1999
-	-	-	-	-	-	04-oct-1999
<0.0005 LU	<0.01 U	<0.02 U	-	-	-	04-oct-1999
-	-	-	-	-	-	04-oct-1999
-	-	-	-	-	-	08-feb-2000
-	-	-	-	-	-	08-feb-2000
<0.0005 U	<0.01 U	<0.02 U	-	-	-	08-feb-2000
<0.0005 U	<0.01 U	<0.02 U	-	-	-	08-feb-2000
-	-	-	-	-	-	19-apr-2000
<0.0005 U	<0.01 U	<0.02 U	-	-	-	19-apr-2000
-	-	-	-	-	-	19-apr-2000
-	-	-	-	-	-	20-jul-2000
<0.0005 U	<0.01 U	<0.02 U	-	-	-	20-jul-2000
-	-	-	-	-	-	25-oct-2000
0.0021	<0.01 U	<0.02 U	-	-	-	25-oct-2000
-	-	-	-	-	-	25-oct-2000
-	-	-	-	-	-	22-jan-2001
<0.0005 U	<0.01 U	<0.02 U	-	-	-	22-jan-2001
-	-	-	-	-	-	23-apr-2001
<0.0005 LU	<0.01 U	<0.02 U	-	-	-	23-apr-2001
-	-	-	-	-	-	23-apr-2001
-	-	-	-	-	-	10-jul-2001
<0.0005 LU	<0.01 U	<0.02 U	-	-	-	10-jul-2001
-	-	<0.02 U	-	-	-	23-oct-2001
-	-	<0.02 U	-	-	-	23-oct-2001
<0.0005 U	<0.01 U	-	-	-	-	23-oct-2001
<0.0005 U	<0.01 U	-	-	-	-	23-oct-2001
-	-	-	-	-	-	23-oct-2001
-	-	-	-	-	-	23-oct-2001
<0.0005 U	<0.01 U	<0.02 U	-	-	-	22-jan-2002
-	-	-	-	-	-	22-jan-2002
-	-	-	-	-	-	18-apr-2002
<0.0005 U	<0.01 U	0.02 FL	-	-	-	18-apr-2002
-	-	-	-	-	-	18-apr-2002
-	-	-	-	-	-	30-jul-2002

Table A-19. Ground and surface water analyses for metals and cations (mg/L) in samples collected

Location Date	Lab Note	Val.	Sodium	Potassium	Calcium	Magnesium	Iron	Manganese
K1-07 (continued)								
30-jul-2002	CN af	V	-	-	-	-	-	-
06-dec-2002	CN af	V	-	5 L	-	-	-	-
06-dec-2002	CN af	V	-	-	-	-	-	-
06-dec-2002	CN af	V	43 L	-	-	-	<0.1 U	-
30-jan-2003	CN af	V	-	4	-	-	-	-
30-jan-2003	CN af	V	-	-	-	-	-	-
01-may-2003	CN af	V	-	4	-	-	-	-
01-may-2003	CN af	V	-	-	-	-	-	-
06-jun-2003	CN a	V	42	-	-	-	<0.1 U	0.00064
K1-08								
31-jul-1995	CS a	V	-	-	-	-	-	-
31-jul-1995	CS a	V	42	3.1	42	18	<0.1 U	<0.03 U
12-oct-1995	CS a	V	-	-	-	-	-	-
12-oct-1995	CS a	V	43	3.8	45	20	<0.1 U	<0.03 U
18-jan-1996	CS a	V	50	3.3	44	19	<0.1 U	<0.03 U
18-jan-1996	CS a	V	-	-	-	-	-	-
12-apr-1996	CS ah	V	-	-	-	-	<0.1 UL	<0.03 U
12-apr-1996	CS aeh	V	-	-	-	-	<0.1 UL	<0.03 U
12-apr-1996	CS ah	V	-	-	-	-	-	-
12-apr-1996	CS aeh	V	-	-	-	-	-	-
31-jul-1996	CS a	V	42	-	-	-	<0.1 U	<0.03 U
31-jul-1996	CS a	V	-	-	-	-	-	-
31-jul-1996	CS a	V	-	-	-	-	-	-
11-oct-1996	CS ah	V	-	-	-	-	-	-
11-oct-1996	CS aeh	V	-	-	-	-	-	-
17-jan-1997	CS a	V	-	-	-	-	-	-
04-apr-1997	CS a	V	-	-	-	-	-	-
04-apr-1997	CS a	V	38 O	-	-	-	<0.1 U	<0.1 U
03-jul-1997	CS ah	V	-	-	-	-	-	-
03-jul-1997	CS aeh	V	-	-	-	-	-	-
16-oct-1997	CS a	V	-	-	-	-	-	-
16-oct-1997	CS a	V	37	-	-	-	<0.1 U	<0.1 U
12-jan-1998	CS a	V	-	-	-	-	-	-
15-apr-1998	CS a	V	-	2.8	-	-	-	-
15-apr-1998	CS a	V	-	-	-	-	-	-
15-apr-1998	CS a	V	41 LO	-	-	-	<0.1 U	<0.1 U
16-jul-1998	CS ah	V	-	3.3	-	-	-	-
16-jul-1998	CS ah	V	-	3.5	-	-	-	-
16-jul-1998	CS ah	V	-	-	-	-	-	-
16-jul-1998	CS ah	V	-	-	-	-	-	-
15-oct-1998	CS a	V	-	3	-	-	-	-
15-oct-1998	CS a	V	-	-	-	-	-	-
15-oct-1998	CS a	V	43	-	-	-	<0.1 U	<0.1 U
14-jan-1999	CS a	V	-	3	-	-	-	-
14-jan-1999	CS a	V	-	-	-	-	-	-
12-apr-1999	CN a	V	-	2.7	-	-	-	-
12-apr-1999	CN a	V	-	-	-	-	-	-
12-apr-1999	CN a	V	42	-	-	-	<0.1 U	<0.1 U
07-jul-1999	CN a	V	-	3	-	-	-	-
07-jul-1999	CN a	V	-	-	-	-	-	-
04-oct-1999	CN afj	V	-	2.5	-	-	-	-
04-oct-1999	CN afj	V	-	-	-	-	-	-
04-oct-1999	CN afj	V	40	-	-	-	<0.1 U	<0.1 U
09-feb-2000	CN a	V	-	4	-	-	-	-
09-feb-2000	CN a	V	-	-	-	-	-	-
19-apr-2000	CN a	V	-	4.3	-	-	-	-
19-apr-2000	CN a	V	-	-	-	-	-	-
19-apr-2000	CN a	V	42	-	-	-	<0.1 U	<0.1 U
20-jul-2000	CN af	V	-	5	-	-	-	-
20-jul-2000	CN af	V	-	-	-	-	-	-
24-oct-2000	CN af	V	-	4	-	-	-	-
24-oct-2000	CN af	V	-	-	-	-	-	-
24-oct-2000	CN af	V	45	-	-	-	<0.1 U	<0.1 U
22-jan-2001	CN af	V	-	4	-	-	-	-
22-jan-2001	CN af	V	-	-	-	-	-	-
23-apr-2001	CN af	V	-	4	-	-	-	-
23-apr-2001	CN af	V	-	-	-	-	-	-

from the Building 850 subarea between July 1, 1995 and June 30, 2003. Results recorded by April 15, 2004.

Cadmium	Copper	Zinc	Boron	Strontium	Aluminum	Location Date
						(continued) K1-07
<0.0005 U	<0.01 U	<0.02 U	-	-	-	30-jul-2002
-	-	-	-	-	-	06-dec-2002
<0.0005 U	<0.01 U	<0.02 U	-	-	-	06-dec-2002
-	-	-	-	-	-	06-dec-2002
-	-	-	-	-	-	30-jan-2003
<0.0005 U	<0.01 U	<0.02 U	-	-	-	30-jan-2003
-	-	-	-	-	-	01-may-2003
<0.0005 U	<0.01 U	<0.02 U	-	-	-	01-may-2003
-	-	-	-	-	-	06-jun-2003
						K1-08
<0.0005 U	-	-	-	-	-	31-jul-1995
-	<0.05 U	<0.05 U	-	-	<0.2 U	31-jul-1995
<0.0005 U	-	-	-	-	-	12-oct-1995
-	<0.05 U	<0.05 U	-	-	<0.2 U	12-oct-1995
-	<0.05 U	<0.05 U	-	-	<0.2 U	18-jan-1996
<0.0005 ULO	-	-	-	-	-	18-jan-1996
-	<0.01 U	0.027	-	-	-	12-apr-1996
-	<0.01 U	0.031	-	-	-	12-apr-1996
<0.0005 U	-	-	-	-	-	12-apr-1996
<0.0005 U	-	-	-	-	-	12-apr-1996
-	-	<0.02 U	-	-	-	31-jul-1996
-	0.0027 LO	-	-	-	-	31-jul-1996
<0.0005 U	-	-	-	-	-	31-jul-1996
<0.0005 U	<0.01 U	<0.02 U	-	-	-	11-oct-1996
<0.0005 U	<0.01 U	<0.02 U	-	-	-	11-oct-1996
<0.0005 UL	<0.01 U	<0.02 U	-	-	-	17-jan-1997
<0.0005 U	<0.01 U	<0.02 U	-	-	-	04-apr-1997
-	-	-	-	-	-	04-apr-1997
<0.0005 U	<0.01 U	<0.02 U	-	-	-	03-jul-1997
<0.0005 U	<0.01 U	<0.02 U	-	-	-	03-jul-1997
<0.0005 UL	<0.01 U	<0.02 U	-	-	-	16-oct-1997
-	-	-	-	-	-	16-oct-1997
<0.0005 U	<0.01 U	<0.02 U	-	-	-	12-jan-1998
-	-	-	-	-	-	15-apr-1998
<0.0005 U	<0.01 U	<0.02 U	-	-	-	15-apr-1998
-	-	-	-	-	-	15-apr-1998
-	-	-	-	-	-	16-jul-1998
-	-	-	-	-	-	16-jul-1998
<0.0005 U	<0.01 U	<0.02 U	-	-	-	16-jul-1998
<0.0005 U	<0.01 U	<0.02 U	-	-	-	16-jul-1998
-	-	-	-	-	-	15-oct-1998
<0.0005 U	<0.01 U	<0.02 U	-	-	-	15-oct-1998
-	-	-	-	-	-	15-oct-1998
-	-	-	-	-	-	14-jan-1999
<0.0005 U	<0.01 U	<0.02 U	-	-	-	14-jan-1999
-	-	-	-	-	-	12-apr-1999
<0.0005 U	<0.01 U	<0.02 LU	-	-	-	12-apr-1999
-	-	-	-	-	-	12-apr-1999
-	-	-	-	-	-	07-jul-1999
<0.0005 LU	<0.01 U	<0.02 U	-	-	-	07-jul-1999
-	-	-	-	-	-	04-oct-1999
<0.0005 LU	<0.01 U	<0.02 U	-	-	-	04-oct-1999
-	-	-	-	-	-	04-oct-1999
-	-	-	-	-	-	09-feb-2000
<0.0005 U	<0.01 U	<0.02 U	-	-	-	09-feb-2000
-	-	-	-	-	-	19-apr-2000
<0.0005 U	<0.01 U	<0.02 U	-	-	-	19-apr-2000
-	-	-	-	-	-	19-apr-2000
-	-	-	-	-	-	20-jul-2000
<0.0005 U	<0.01 U	<0.02 U	-	-	-	20-jul-2000
-	-	-	-	-	-	24-oct-2000
<0.0005 U	<0.01 U	<0.02 U	-	-	-	24-oct-2000
-	-	-	-	-	-	24-oct-2000
-	-	-	-	-	-	22-jan-2001
<0.0005 U	<0.01 U	<0.02 U	-	-	-	22-jan-2001
-	-	-	-	-	-	23-apr-2001
<0.0005 LU	<0.01 U	<0.02 U	-	-	-	23-apr-2001

Table A-19. Ground and surface water analyses for metals and cations (mg/L) in samples collected

Location Date	Lab Note	Val.	Sodium	Potassium	Calcium	Magnesium	Iron	Manganese
K1-08 (continued)								
23-apr-2001	CN	af	V	40	-	-	<0.1 U	<0.1 U
11-jul-2001	CN	af	V	-	4	-	-	-
11-jul-2001	CN	af	V	-	-	-	-	-
23-oct-2001	CN	a	V	-	4	-	-	-
23-oct-2001	CN	a	V	-	-	-	-	-
23-oct-2001	CN	a	V	41	-	-	<0.1 U	<0.1 U
22-jan-2002	CN	a	V	-	4	-	-	-
22-jan-2002	CN	a	V	-	-	-	-	-
18-apr-2002	CN	a	V	-	5	-	-	-
18-apr-2002	CN	a	V	-	-	-	-	-
18-apr-2002	CN	a	V	41	-	-	<0.1 U	-
30-jul-2002	CN	af	V	-	4	-	-	-
30-jul-2002	CN	af	V	-	-	-	-	-
13-dec-2002	CN	af	V	-	5 L	-	-	-
13-dec-2002	CN	af	V	-	-	-	-	-
13-dec-2002	CN	af	V	46	-	-	<0.1 U	-
07-feb-2003	CN	af	V	-	5	-	-	-
07-feb-2003	CN	af	V	-	-	-	-	-
02-may-2003	CN	af	V	-	5	-	-	-
02-may-2003	CN	af	V	-	-	-	-	-
06-jun-2003	CN	a	V	44	-	-	<0.1 U	<0.1 U
K1-09								
31-jul-1995	CS	a	V	-	-	-	-	-
31-jul-1995	CS	a	V	42	2.9	42	18	<0.1 U
12-oct-1995	CS	ah	V	-	-	-	-	<0.03 U
12-oct-1995	CS	ah	V	43	3.5	43	20	<0.1 U
18-jan-1996	CS	ah	V	50	3.2	42	19	0.11
18-jan-1996	CS	aeh	V	50	3.3	42	19	0.12
18-jan-1996	CS	ah	V	-	-	-	-	<0.03 U
18-jan-1996	CS	aeh	V	-	-	-	-	<0.03 U
12-apr-1996	CS	a	V	-	-	-	<0.1 UL	<0.03 U
12-apr-1996	CS	a	V	-	-	-	-	-
31-jul-1996	CS	a	V	41	-	-	<0.1 U	<0.03 U
31-jul-1996	CS	a	V	-	-	-	-	-
31-jul-1996	CS	a	V	-	-	-	-	-
11-oct-1996	CS	a	V	-	-	-	-	-
17-jan-1997	CS	a	V	-	-	-	-	-
04-apr-1997	CS	ah	V	-	-	-	-	-
04-apr-1997	CS	aeh	V	-	-	-	-	-
04-apr-1997	CS	ah	V	36 O	-	-	<0.1 U	<0.1 U
04-apr-1997	CS	aeh	V	36 O	-	-	<0.1 U	<0.1 U
03-jul-1997	CS	a	V	-	-	-	-	-
16-oct-1997	CS	ah	V	-	-	-	-	-
16-oct-1997	CS	aeh	V	-	-	-	-	-
16-oct-1997	CS	ah	V	38	-	-	<0.1 U	<0.1 U
16-oct-1997	CS	aeh	V	39	-	-	<0.1 U	<0.1 U
17-mar-1998	CS	a	V	-	-	-	-	-
15-apr-1998	CS	a	V	-	2.9	-	-	-
15-apr-1998	CS	a	V	-	-	-	-	-
15-apr-1998	CS	a	V	40 LO	-	-	<0.1 U	<0.1 U
16-jul-1998	CS	a	V	-	3.7	-	-	-
16-jul-1998	CS	a	V	-	-	-	-	-
15-oct-1998	CS	ah	V	-	3.2	-	-	-
15-oct-1998	CS	aeh	V	-	3.2	-	-	-
15-oct-1998	CS	ah	V	-	-	-	-	-
15-oct-1998	CS	aeh	V	-	-	-	-	-
15-oct-1998	CS	ah	V	42	-	-	<0.1 U	<0.1 U
15-oct-1998	CS	aeh	V	42	-	-	0.18	<0.1 U
13-jan-1999	CS	a	V	-	3.1	-	-	-
13-jan-1999	CS	a	V	-	-	-	-	-
13-apr-1999	CN	ah	V	-	2.8	-	-	-
13-apr-1999	CN	aeh	V	-	2.7	-	-	-
13-apr-1999	CN	ah	V	-	-	-	-	-
13-apr-1999	CN	aeh	V	-	-	-	-	-
13-apr-1999	CN	ah	V	41	-	-	<0.1 U	<0.1 U
13-apr-1999	CN	aeh	V	42	-	-	<0.1 U	<0.1 U
07-jul-1999	CN	a	V	-	2.7	-	-	-

from the Building 850 subarea between July 1, 1995 and June 30, 2003. Results recorded by April 15, 2004.

Cadmium	Copper	Zinc	Boron	Strontium	Aluminum	Location Date
						(continued) K1-08
-	-	-	-	-	-	23-apr-2001
-	-	-	-	-	-	11-jul-2001
<0.0005 U	<0.01 U	<0.02 U	-	-	-	11-jul-2001
-	-	<0.02 U	-	-	-	23-oct-2001
<0.0005 U	<0.01 U	-	-	-	-	23-oct-2001
-	-	-	-	-	-	23-oct-2001
-	-	-	-	-	-	22-jan-2002
<0.0005 U	<0.01 U	<0.02 U	-	-	-	22-jan-2002
-	-	-	-	-	-	18-apr-2002
<0.0005 U	<0.01 U	<0.02 FLU	-	-	-	18-apr-2002
-	-	-	-	-	-	18-apr-2002
-	-	-	-	-	-	30-jul-2002
<0.0005 U	<0.01 U	<0.02 U	-	-	-	30-jul-2002
-	-	-	-	-	-	13-dec-2002
<0.0005 U	<0.01 U	<0.02 U	-	-	-	13-dec-2002
-	-	-	-	-	-	13-dec-2002
-	-	-	-	-	-	07-feb-2003
<0.0005 U	<0.01 U	<0.02 U	-	-	-	07-feb-2003
-	-	-	-	-	-	02-may-2003
-	<0.01 U	<0.02 U	-	-	-	02-may-2003
-	-	-	-	-	-	06-jun-2003
						K1-09
<0.0005 U	-	-	-	-	-	31-jul-1995
-	<0.05 U	<0.05 U	-	-	<0.2 U	31-jul-1995
<0.0005 U	-	-	-	-	-	12-oct-1995
-	<0.05 U	<0.05 U	-	-	<0.2 U	12-oct-1995
-	<0.05 U	<0.05 U	-	-	<0.2 U	18-jan-1996
-	<0.05 U	<0.05 U	-	-	<0.2 U	18-jan-1996
<0.0005 ULO	-	-	-	-	-	18-jan-1996
<0.0005 ULO	-	-	-	-	-	18-jan-1996
-	<0.01 U	0.02	-	-	-	12-apr-1996
<0.0005 U	-	-	-	-	-	12-apr-1996
-	-	<0.02 U	-	-	-	31-jul-1996
-	0.0028 LO	-	-	-	-	31-jul-1996
<0.0005 U	-	-	-	-	-	31-jul-1996
<0.0005 U	<0.01 U	<0.02 U	-	-	-	11-oct-1996
<0.0005 UL	<0.01 U	<0.02 U	-	-	-	17-jan-1997
<0.0005 U	<0.01 U	<0.02 U	-	-	-	04-apr-1997
<0.0005 U	<0.01 U	<0.02 U	-	-	-	04-apr-1997
-	-	-	-	-	-	04-apr-1997
-	-	-	-	-	-	04-apr-1997
<0.0005 U	<0.01 U	<0.02 U	-	-	-	03-jul-1997
<0.0005 UL	<0.01 U	<0.02 U	-	-	-	16-oct-1997
<0.0005 UL	<0.01 U	<0.02 U	-	-	-	16-oct-1997
-	-	-	-	-	-	16-oct-1997
-	-	-	-	-	-	16-oct-1997
<0.0005 UL	<0.01 U	<0.02 U	-	-	-	17-mar-1998
-	-	-	-	-	-	15-apr-1998
<0.0005 U	<0.01 U	<0.02 U	-	-	-	15-apr-1998
-	-	-	-	-	-	15-apr-1998
-	-	-	-	-	-	16-jul-1998
<0.0005 U	<0.01 U	<0.02 U	-	-	-	16-jul-1998
-	-	-	-	-	-	15-oct-1998
-	-	-	-	-	-	15-oct-1998
<0.0005 U	<0.01 U	<0.02 U	-	-	-	15-oct-1998
<0.0005 U	<0.01 U	<0.02 U	-	-	-	15-oct-1998
-	-	-	-	-	-	15-oct-1998
-	-	-	-	-	-	15-oct-1998
-	-	-	-	-	-	13-jan-1999
<0.0005 U	0.012	<0.02 U	-	-	-	13-jan-1999
-	-	-	-	-	-	13-apr-1999
-	-	-	-	-	-	13-apr-1999
<0.0005 U	<0.01 U	<0.02 UL	-	-	-	13-apr-1999
<0.0005 U	<0.01 U	<0.02 UL	-	-	-	13-apr-1999
-	-	-	-	-	-	13-apr-1999
-	-	-	-	-	-	13-apr-1999
-	-	-	-	-	-	07-jul-1999

Table A-19. Ground and surface water analyses for metals and cations (mg/L) in samples collected

Location Date	Lab Note	Val.	Sodium	Potassium	Calcium	Magnesium	Iron	Manganese
K1-09 (continued)								
07-jul-1999	CN	a	V	-	-	-	-	-
04-oct-1999	CN	afj	V	-	2.8	-	-	-
04-oct-1999	CN	afj	V	-	-	-	-	-
04-oct-1999	CN	afj	V	39	-	-	<0.1 U	<0.1 U
09-feb-2000	CN	a	V	-	4	-	-	-
09-feb-2000	CN	a	V	-	-	-	-	-
19-apr-2000	CN	a	V	-	4.3	-	-	-
19-apr-2000	CN	a	V	-	-	-	-	-
19-apr-2000	CN	a	V	42	-	-	<0.1 U	<0.1 U
20-jul-2000	CN	afh	V	-	5	-	-	-
20-jul-2000	CN	aefh	V	-	5	-	-	-
20-jul-2000	CN	afh	V	-	-	-	-	-
20-jul-2000	CN	aefh	V	-	-	-	-	-
24-oct-2000	CN	af	V	-	4	-	-	-
24-oct-2000	CN	af	V	-	-	-	-	-
24-oct-2000	CN	af	V	43	-	-	<0.1 U	<0.1 U
22-jan-2001	CN	af	V	-	4	-	-	-
22-jan-2001	CN	af	V	-	-	-	-	-
20-apr-2001	CN	af	V	-	5 L	-	-	-
20-apr-2001	CN	af	V	-	-	-	-	-
20-apr-2001	CN	af	V	46 L	-	-	<0.1 U	<0.1 U
11-jul-2001	CN	af	V	-	5	-	-	-
11-jul-2001	CN	af	V	-	-	-	-	-
23-oct-2001	CN	a	V	-	5	-	-	-
23-oct-2001	CN	a	V	-	-	-	-	-
23-oct-2001	CN	a	V	42	-	-	<0.1 U	<0.1 U
22-jan-2002	CN	a	V	-	4	-	-	-
22-jan-2002	CN	a	V	-	-	-	-	-
18-apr-2002	CN	a	V	-	5	-	-	-
18-apr-2002	CN	a	V	-	-	-	-	-
18-apr-2002	CN	a	V	42	-	-	<0.1 U	-
30-jul-2002	CN	af	V	-	4	-	-	-
30-jul-2002	CN	af	V	-	-	-	-	-
06-dec-2002	CN	af	V	-	5 L	-	-	-
06-dec-2002	CN	af	V	-	-	-	-	-
06-dec-2002	CN	af	V	45 L	-	-	<0.1 U	-
31-jan-2003	CN	af	V	-	5	-	-	-
31-jan-2003	CN	af	V	-	-	-	-	-
02-may-2003	CN	af	V	-	5	-	-	-
02-may-2003	CN	af	V	-	-	-	-	-
06-jun-2003	CN	a	V	44	-	-	<0.1 U	<0.1 U
K2-01A								
17-aug-1995	CS	a	V	-	-	-	-	-
07-nov-1995	CS	ah	V	-	-	-	-	-
07-nov-1995	CS	aeh	V	-	-	-	-	-
22-may-1996	CS	a	V	-	-	-	-	-
07-nov-1996	CS	a	V	-	-	-	-	-
22-may-1997	CS	ah	V	-	-	-	-	-
22-may-1997	CS	aeh	V	-	-	-	-	-
09-dec-1997	BB	a	V	-	-	-	-	-
25-jun-1998	CS	a	V	-	3.7	-	-	-
25-jun-1998	CS	a	V	-	-	-	-	-
17-dec-1998	CS	a	V	-	3.9	-	-	-
17-dec-1998	CS	a	V	-	-	-	-	-
21-may-1999	CN	a	V	-	3.7	-	-	-
21-may-1999	CN	a	V	-	-	-	-	-
02-nov-1999	CN	a	N	-	3.8	-	-	-
02-nov-1999	CN	a	N	-	-	-	-	-
24-may-2000	CN	a	V	-	7	-	-	-
24-may-2000	CN	a	V	-	-	-	-	-
07-dec-2000	CN	afh	V	-	4	-	-	-
07-dec-2000	CN	aefh	V	-	4	-	-	-
07-dec-2000	CN	afh	V	-	-	-	-	-
07-dec-2000	CN	aefh	V	-	-	-	-	-
30-may-2001	CN	a	V	-	7 L	-	-	-
30-may-2001	CN	a	V	-	-	-	-	-
17-dec-2001	BB	af	V	-	4.6	-	-	-

from the Building 850 subarea between July 1, 1995 and June 30, 2003. Results recorded by April 15, 2004.

Cadmium	Copper	Zinc	Boron	Strontium	Aluminum	Location Date
						(continued) K1-09
<0.0005 LU	<0.01 U	<0.02 U	-	-	-	07-jul-1999
-	-	-	-	-	-	04-oct-1999
<0.0005 LU	<0.01 U	<0.02 U	-	-	-	04-oct-1999
-	-	-	-	-	-	04-oct-1999
-	-	-	-	-	-	09-feb-2000
<0.0005 U	<0.01 U	<0.02 U	-	-	-	09-feb-2000
-	-	-	-	-	-	19-apr-2000
<0.0005 U	<0.01 U	<0.02 U	-	-	-	19-apr-2000
-	-	-	-	-	-	19-apr-2000
-	-	-	-	-	-	20-jul-2000
-	-	-	-	-	-	20-jul-2000
<0.0005 U	<0.01 U	<0.02 U	-	-	-	20-jul-2000
<0.0005 U	<0.01 U	<0.02 U	-	-	-	20-jul-2000
-	-	-	-	-	-	24-oct-2000
<0.0005 U	<0.01 U	<0.02 U	-	-	-	24-oct-2000
-	-	-	-	-	-	24-oct-2000
-	-	-	-	-	-	22-jan-2001
<0.0005 U	<0.01 U	<0.02 U	-	-	-	22-jan-2001
-	-	-	-	-	-	20-apr-2001
<0.0005 U	<0.01 U	<0.02 U	-	-	-	20-apr-2001
-	-	-	-	-	-	20-apr-2001
-	-	-	-	-	-	11-jul-2001
<0.0005 U	<0.01 U	<0.02 U	-	-	-	11-jul-2001
-	-	<0.02 U	-	-	-	23-oct-2001
<0.0005 U	<0.01 U	-	-	-	-	23-oct-2001
-	-	-	-	-	-	23-oct-2001
-	-	-	-	-	-	22-jan-2002
<0.0005 U	<0.01 U	<0.02 U	-	-	-	22-jan-2002
-	-	-	-	-	-	18-apr-2002
<0.0005 U	<0.01 U	<0.02 FLU	-	-	-	18-apr-2002
-	-	-	-	-	-	18-apr-2002
-	-	-	-	-	-	30-jul-2002
<0.0005 U	<0.01 U	<0.02 U	-	-	-	30-jul-2002
-	-	-	-	-	-	06-dec-2002
<0.0005 U	<0.01 U	<0.02 U	-	-	-	06-dec-2002
-	-	-	-	-	-	06-dec-2002
-	-	-	-	-	-	31-jan-2003
<0.0005 U	<0.01 U	<0.02 U	-	-	-	31-jan-2003
-	-	-	-	-	-	02-may-2003
-	<0.01 U	<0.02 U	-	-	-	02-may-2003
-	-	-	-	-	-	06-jun-2003
						K2-01A
<0.0005 U	-	-	-	-	-	17-aug-1995
<0.0005 U	-	-	-	-	-	07-nov-1995
0.0007	-	-	-	-	-	07-nov-1995
<0.0005 U	-	-	-	-	-	22-may-1996
<0.0005 U	<0.01 U	<0.02 U	-	-	-	07-nov-1996
<0.0005 U	<0.01 U	<0.02 U	-	-	-	22-may-1997
<0.0005 U	<0.01 U	<0.02 U	-	-	-	22-may-1997
<0.0006 U	<0.01 U	<0.02 U	-	-	-	09-dec-1997
-	-	-	-	-	-	25-jun-1998
<0.0005 U	<0.01 U	<0.02 U	-	-	-	25-jun-1998
-	-	-	-	-	-	17-dec-1998
<0.0005 U	<0.01 U	<0.02 U	-	-	-	17-dec-1998
-	-	-	-	-	-	21-may-1999
<0.0005 UL	<0.01 U	<0.02 U	-	-	-	21-may-1999
-	-	-	-	-	-	02-nov-1999
<0.0005 U	<0.01 U	<0.02 U	-	-	-	02-nov-1999
-	-	-	-	-	-	24-may-2000
<0.0005 U	<0.01 U	<0.02 U	-	-	-	24-may-2000
-	-	-	-	-	-	07-dec-2000
-	-	-	-	-	-	07-dec-2000
<0.0005 U	0.06	0.07	-	-	-	07-dec-2000
<0.0005 U	0.01	<0.02 U	-	-	-	07-dec-2000
-	-	-	-	-	-	30-may-2001
<0.0005 U	<0.01 U	<0.02 U	-	-	-	30-may-2001
-	-	-	-	-	-	17-dec-2001

Table A-19. Ground and surface water analyses for metals and cations (mg/L) in samples collected

Location Date	Lab Note	Val.	Sodium	Potassium	Calcium	Magnesium	Iron	Manganese
K2-01A (continued)								
17-dec-2001	BB af	V	-	-	-	-	-	-
29-may-2002	CN a	V	-	7	-	-	-	-
29-may-2002	CN a	V	-	-	-	-	-	-
28-oct-2002	SE a	V	-	4.3	-	-	-	-
18-jun-2003	BB a	V	-	4.4	-	-	-	-
18-jun-2003	BB a	V	-	-	-	-	-	-
K2-01B								
17-aug-1995	CS a	V	-	-	-	-	-	-
07-nov-1995	CS a	V	-	-	-	-	-	-
22-may-1996	CS ah	V	-	-	-	-	-	-
22-may-1996	CS aeh	V	-	-	-	-	-	-
07-nov-1996	CS a	V	-	-	-	-	-	-
22-may-1997	CS a	V	-	-	-	-	-	-
09-dec-1997	BB ah	V	-	-	-	-	-	-
09-dec-1997	BB aeh	V	-	-	-	-	-	-
25-jun-1998	CS a	V	-	<1 U	-	-	-	-
25-jun-1998	CS a	V	-	-	-	-	-	-
K2-01C								
08-aug-1995	CS a	V	52	5.5	110	54	<0.1 U	<0.03 U
08-aug-1995	CS a	V	-	-	-	-	-	-
02-nov-1995	CS a	V	-	-	-	-	-	-
02-nov-1995	CS a	V	54	5.7	120	54	<0.1 U	<0.03 U
21-may-1996	CS a	V	-	-	-	-	-	-
20-nov-1996	CS a	V	-	-	-	-	-	-
19-may-1997	CS ah	V	-	-	-	-	-	-
19-may-1997	CS aeh	V	-	-	-	-	-	-
14-dec-1998	CS a	V	-	3.3	-	-	-	-
14-dec-1998	CS a	V	-	-	-	-	-	-
26-may-1999	CN af	V	-	3.5	-	-	-	-
26-may-1999	CN af	V	-	-	-	-	-	-
08-nov-1999	CN af	N	-	3.4	-	-	-	-
08-nov-1999	CN af	N	-	-	-	-	-	-
17-may-2000	CN af	V	-	6	-	-	-	-
17-may-2000	CN af	V	-	-	-	-	-	-
14-jun-2000	CN a	V	-	-	-	-	-	-
22-jun-2000	CN a	V	-	-	-	-	-	-
21-nov-2000	CN af	V	-	4 L	-	-	-	-
21-nov-2000	CN af	V	-	-	-	-	-	-
16-may-2001	CN af	V	-	5	-	-	-	-
16-may-2001	CN af	V	-	-	-	-	-	-
14-nov-2001	CN a	V	-	7	-	-	-	-
14-nov-2001	CN a	V	-	-	-	-	-	-
14-may-2002	CN a	V	-	6 L	-	-	-	-
14-may-2002	CN a	V	-	-	-	-	-	-
05-jun-2003	CN af	V	-	6	-	-	-	-
05-jun-2003	CN af	V	-	-	-	-	-	-
05-jun-2003	CN af	V	-	-	-	-	-	-
K2-02A								
17-aug-1995	CS a	V	-	-	-	-	-	-
07-nov-1995	CS a	V	-	-	-	-	-	-
22-may-1996	CS a	V	-	-	-	-	-	-
07-nov-1996	CS a	V	-	-	-	-	-	-
21-may-1997	CS a	V	-	-	-	-	-	-
04-dec-1997	CS a	V	-	-	-	-	-	-
24-jun-1998	CS ah	V	-	4.1	-	-	-	-
24-jun-1998	CS aeh	V	-	4.3	-	-	-	-
24-jun-1998	CS ah	V	-	-	-	-	-	-
24-jun-1998	CS aeh	V	-	-	-	-	-	-
16-dec-1998	CS a	V	-	4.3	-	-	-	-
16-dec-1998	CS a	V	-	-	-	-	-	-
17-may-1999	CN a	V	-	4	-	-	-	-
17-may-1999	CN a	V	-	-	-	-	-	-
02-nov-1999	CN ah	N	-	3.8	-	-	-	-
02-nov-1999	CN aeh	N	-	3.6	-	-	-	-
02-nov-1999	CN ah	N	-	-	-	-	-	-

from the Building 850 subarea between July 1, 1995 and June 30, 2003. Results recorded by April 15, 2004.

Cadmium	Copper	Zinc	Boron	Strontium	Aluminum	Location Date
						(continued) K2-01A
<0.0005 U	<0.01 U	<0.02 U	-	-	-	17-dec-2001
-	-	-	-	-	-	29-may-2002
<0.0005 U	<0.01 U	<0.02 U	-	-	-	29-may-2002
-	<0.01 U	<0.05 U	-	-	-	28-oct-2002
-	-	-	-	-	-	18-jun-2003
<0.0005 U	<0.01 U	<0.02 U	-	-	-	18-jun-2003
						K2-01B
<0.0005 U	-	-	-	-	-	17-aug-1995
0.0007	-	-	-	-	-	07-nov-1995
<0.0005 U	-	-	-	-	-	22-may-1996
<0.0005 U	-	-	-	-	-	22-may-1996
<0.0005 U	<0.01 U	<0.02 U	-	-	-	07-nov-1996
<0.0005 U	<0.01 U	<0.02 U	-	-	-	22-may-1997
<0.0006 U	<0.01 U	<0.02 U	-	-	-	09-dec-1997
<0.0006 U	<0.01 U	<0.025 U	-	-	-	09-dec-1997
-	-	-	-	-	-	25-jun-1998
<0.0005 U	<0.01 U	<0.02 U	-	-	-	25-jun-1998
						K2-01C
-	<0.05 U	<0.05 U	-	-	<0.2 U	08-aug-1995
<0.0005 U	-	-	-	-	-	08-aug-1995
<0.0005 U	-	-	-	-	-	02-nov-1995
-	<0.05 U	<0.05 U	-	-	<0.2 U	02-nov-1995
<0.0005 U	-	-	-	-	-	21-may-1996
<0.0005 U	<0.01 U	<0.02 U	-	-	-	20-nov-1996
<0.0005 LU	<0.01 U	<0.02 U	-	-	-	19-may-1997
<0.0005 LU	<0.01 U	0.021	-	-	-	19-may-1997
-	-	-	-	-	-	14-dec-1998
<0.0005 U	<0.01 U	0.02	-	-	-	14-dec-1998
-	-	-	-	-	-	26-may-1999
<0.0005 UL	<0.01 U	<0.02 U	-	-	-	26-may-1999
-	-	-	-	-	-	08-nov-1999
<0.0005 U	0.04	0.2	-	-	-	08-nov-1999
-	-	-	-	-	-	17-may-2000
<0.0005 U	0.05	0.24	-	-	-	17-may-2000
<0.0005 U	0.04	<0.02 U	-	-	-	14-jun-2000
<0.0005 U	0.02 L	<0.02 U	-	-	-	22-jun-2000
-	-	-	-	-	-	21-nov-2000
<0.0005 U	0.03	<0.02 U	-	-	-	21-nov-2000
-	-	-	-	-	-	16-may-2001
<0.0005 U	0.02	<0.02 U	-	-	-	16-may-2001
-	-	-	-	-	-	14-nov-2001
<0.0005 U	0.03	<0.02 U	-	-	-	14-nov-2001
-	-	-	-	-	-	14-may-2002
<0.0005 LU	0.04	0.02 L	-	-	-	14-may-2002
-	-	-	-	-	-	05-jun-2003
<0.005 U	0.11	0.12	-	-	-	05-jun-2003
<0.0005 U	0.03	<0.02 U	-	-	-	05-jun-2003
						K2-02A
<0.0005 U	-	-	-	-	-	17-aug-1995
<0.0005 U	-	-	-	-	-	07-nov-1995
<0.0005 U	-	-	-	-	-	22-may-1996
<0.0005 U	<0.01 U	<0.02 U	-	-	-	07-nov-1996
<0.0005 UL	<0.01 U	<0.02 U	-	-	-	21-may-1997
<0.0005 U	<0.01 U	<0.02 U	-	-	-	04-dec-1997
-	-	-	-	-	-	24-jun-1998
-	-	-	-	-	-	24-jun-1998
<0.0005 U	<0.01 U	<0.02 UL	-	-	-	24-jun-1998
<0.0005 U	<0.01 U	<0.02 UL	-	-	-	24-jun-1998
-	-	-	-	-	-	16-dec-1998
<0.0005 U	<0.01 U	<0.02 U	-	-	-	16-dec-1998
-	-	-	-	-	-	17-may-1999
<0.0005 U	<0.01 U	<0.02 U	-	-	-	17-may-1999
-	-	-	-	-	-	02-nov-1999
-	-	-	-	-	-	02-nov-1999
<0.0005 U	<0.01 U	<0.02 U	-	-	-	02-nov-1999

Table A-19. Ground and surface water analyses for metals and cations (mg/L) in samples collected

Location Date	Lab Note	Val.	Sodium	Potassium	Calcium	Magnesium	Iron	Manganese	
K2-02A (continued)									
02-nov-1999	CN	aeH	N	-	-	-	-	-	
24-may-2000	CN	a	V	-	6	-	-	-	
24-may-2000	CN	a	V	-	-	-	-	-	
07-dec-2000	CN	a	V	-	6	-	-	-	
07-dec-2000	CN	a	V	-	-	-	-	-	
30-may-2001	CN	ah	V	-	7 L	-	-	-	
30-may-2001	CN	aeH	V	-	7 L	-	-	-	
30-may-2001	CN	ah	V	-	-	-	-	-	
30-may-2001	CN	aeH	V	-	-	-	-	-	
17-dec-2001	BB	af	V	-	4.5	-	-	-	
17-dec-2001	BB	af	V	-	-	-	-	-	
29-may-2002	CN	a	V	-	7	-	-	-	
29-may-2002	CN	a	V	-	-	-	-	-	
28-oct-2002	SE	a	V	-	5.2	-	-	-	
K2-02B									
17-aug-1995	CS	a	V	-	-	-	-	-	
07-nov-1995	CS	a	V	-	-	-	-	-	
22-may-1996	CS	a	V	-	-	-	-	-	
07-nov-1996	CS	a	V	-	-	-	-	-	
21-may-1997	CS	a	V	-	-	-	-	-	
04-dec-1997	CS	a	V	-	-	-	-	-	
24-jun-1998	CS	a	V	-	4	-	-	-	
24-jun-1998	CS	a	V	-	-	-	-	-	
16-dec-1998	CS	a	V	-	3.8	-	-	-	
16-dec-1998	CS	a	V	-	-	-	-	-	
17-may-1999	CN	a	V	-	3.5	-	-	-	
17-may-1999	CN	a	V	-	-	-	-	-	
02-nov-1999	CN	a	N	-	3.7	-	-	-	
02-nov-1999	CN	a	N	-	-	-	-	-	
24-may-2000	CN	ah	V	-	6	-	-	-	
24-may-2000	CN	aeH	V	-	6	-	-	-	
24-may-2000	CN	ah	V	-	-	-	-	-	
24-may-2000	CN	aeH	V	-	-	-	-	-	
07-dec-2000	CN	a	V	-	6	-	-	-	
07-dec-2000	CN	a	V	-	-	-	-	-	
30-may-2001	CN	a	V	-	6 L	-	-	-	
30-may-2001	CN	a	V	-	-	-	-	-	
17-dec-2001	BB	af	V	-	4.2	-	-	-	
17-dec-2001	BB	af	V	-	-	-	-	-	
29-may-2002	CN	a	V	-	6	-	-	-	
29-may-2002	CN	a	V	-	-	-	-	-	
28-oct-2002	SE	a	V	-	4.8	-	-	-	
K2-04D									
08-aug-1995	CS	a	V	48	3.1	50	21	<0.1 U	<0.03 U
08-aug-1995	CS	a	V	-	-	-	-	-	-
02-nov-1995	CS	a	V	-	-	-	-	-	-
02-nov-1995	CS	a	V	46	3.1	51	21	<0.1 U	<0.03 U
21-may-1996	CS	a	V	-	-	-	-	-	-
20-nov-1996	CS	ah	V	-	-	-	-	-	-
20-nov-1996	CS	aeH	V	-	-	-	-	-	-
14-may-1997	CS	a	V	-	-	-	-	-	-
24-nov-1997	CS	ah	V	-	-	-	-	-	-
24-nov-1997	CS	aeH	V	-	-	-	-	-	-
22-jun-1998	CS	a	V	-	2.7	-	-	-	-
22-jun-1998	CS	a	V	-	-	-	-	-	-
07-dec-1998	CS	ah	V	-	2.8	-	-	-	-
07-dec-1998	CS	aeH	V	-	2.2	-	-	-	-
07-dec-1998	CS	ah	V	-	-	-	-	-	-
07-dec-1998	CS	aeH	V	-	-	-	-	-	-
26-may-1999	CN	a	V	-	2.8	-	-	-	-
26-may-1999	CN	a	V	-	-	-	-	-	-
08-nov-1999	CN	a	N	-	3	-	-	-	-
08-nov-1999	CN	a	N	-	-	-	-	-	-
17-may-2000	CN	af	V	-	4	-	-	-	-
17-may-2000	CN	af	V	-	-	-	-	-	-
21-nov-2000	CN	af	V	-	4 L	-	-	-	-

from the Building 850 subarea between July 1, 1995 and June 30, 2003. Results recorded by April 15, 2004.

Cadmium	Copper	Zinc	Boron	Strontium	Aluminum	Location Date
						(continued) K2-02A
<0.0005 U	<0.01 U	<0.02 U	-	-	-	02-nov-1999
-	-	-	-	-	-	24-may-2000
<0.0005 U	<0.01 U	<0.02 U	-	-	-	24-may-2000
-	-	-	-	-	-	07-dec-2000
<0.0005 U	<0.01 U	<0.02 U	-	-	-	07-dec-2000
-	-	-	-	-	-	30-may-2001
-	-	-	-	-	-	30-may-2001
<0.0005 U	<0.01 U	<0.02 U	-	-	-	30-may-2001
<0.0005 U	<0.01 U	<0.02 U	-	-	-	30-may-2001
-	-	-	-	-	-	17-dec-2001
<0.0005 U	<0.01 U	<0.02 U	-	-	-	17-dec-2001
-	-	-	-	-	-	29-may-2002
<0.0005 U	<0.01 U	<0.02 U	-	-	-	29-may-2002
-	<0.01 U	<0.05 U	-	-	-	28-oct-2002
						K2-02B
<0.0005 U	-	-	-	-	-	17-aug-1995
<0.0005 U	-	-	-	-	-	07-nov-1995
<0.0005 U	-	-	-	-	-	22-may-1996
<0.0005 U	<0.01 U	<0.02 U	-	-	-	07-nov-1996
<0.0005 UL	<0.01 U	0.064 F	-	-	-	21-may-1997
<0.0005 U	<0.01 U	<0.02 U	-	-	-	04-dec-1997
-	-	-	-	-	-	24-jun-1998
<0.0005 U	<0.01 U	<0.02 UL	-	-	-	24-jun-1998
-	-	-	-	-	-	16-dec-1998
<0.0005 U	<0.01 U	<0.02 U	-	-	-	16-dec-1998
-	-	-	-	-	-	17-may-1999
<0.0005 U	<0.01 U	<0.02 U	-	-	-	17-may-1999
-	-	-	-	-	-	02-nov-1999
<0.0005 U	<0.01 U	<0.02 U	-	-	-	02-nov-1999
-	-	-	-	-	-	24-may-2000
-	-	-	-	-	-	24-may-2000
<0.0005 U	<0.01 U	<0.02 U	-	-	-	24-may-2000
<0.0005 U	<0.01 U	<0.02 U	-	-	-	24-may-2000
-	-	-	-	-	-	07-dec-2000
<0.0005 U	<0.01 U	<0.02 U	-	-	-	07-dec-2000
-	-	-	-	-	-	30-may-2001
<0.0005 U	<0.01 U	<0.02 U	-	-	-	30-may-2001
-	-	-	-	-	-	17-dec-2001
<0.0005 U	<0.01 U	<0.02 U	-	-	-	17-dec-2001
-	-	-	-	-	-	29-may-2002
<0.0005 U	<0.01 U	<0.02 U	-	-	-	29-may-2002
-	<0.01 U	<0.05 U	-	-	-	28-oct-2002
						K2-04D
-	<0.05 U	<0.05 U	-	-	<0.2 U	08-aug-1995
<0.0005 U	-	-	-	-	-	08-aug-1995
<0.0005 U	-	-	-	-	-	02-nov-1995
-	<0.05 U	<0.05 U	-	-	<0.2 U	02-nov-1995
<0.0005 U	-	-	-	-	-	21-may-1996
<0.0005 U	<0.01 U	<0.02 U	-	-	-	20-nov-1996
<0.0005 U	<0.01 U	<0.02 U	-	-	-	20-nov-1996
<0.0005 U	<0.01 U	<0.02 LOU	-	-	-	14-may-1997
<0.0005 U	<0.01 U	<0.02 U	-	-	-	24-nov-1997
<0.0005 U	<0.01 U	<0.02 U	-	-	-	24-nov-1997
-	-	-	-	-	-	22-jun-1998
<0.0005 U	<0.01 U	0.25 L	-	-	-	22-jun-1998
-	-	-	-	-	-	07-dec-1998
-	-	-	-	-	-	07-dec-1998
<0.0005 U	<0.01 U	0.029	-	-	-	07-dec-1998
<0.0005 U	<0.01 U	0.024	-	-	-	07-dec-1998
-	-	-	-	-	-	26-may-1999
<0.0005 UL	<0.01 U	<0.02 U	-	-	-	26-may-1999
-	-	-	-	-	-	08-nov-1999
<0.0005 U	<0.01 U	<0.02 U	-	-	-	08-nov-1999
-	-	-	-	-	-	17-may-2000
<0.0005 U	<0.01 U	<0.02 U	-	-	-	17-may-2000
-	-	-	-	-	-	21-nov-2000

Table A-19. Ground and surface water analyses for metals and cations (mg/L) in samples collected

Location Date	Lab Note	Val.	Sodium	Potassium	Calcium	Magnesium	Iron	Manganese
K2-04D (continued)								
21-nov-2000	CN	af	V	-	-	-	-	-
06-jun-2001	CN	a	V	-	4 L	-	-	-
06-jun-2001	CN	a	V	-	-	-	-	-
14-nov-2001	CN	a	V	-	4	-	-	-
14-nov-2001	CN	a	V	-	-	-	-	-
16-may-2002	CN	aefh	V	-	4	-	-	-
16-may-2002	CN	afh	V	-	4	-	-	-
16-may-2002	CN	aefh	V	-	-	-	-	-
16-may-2002	CN	afh	V	-	-	-	-	-
26-dec-2002	SE	a	V	-	3	-	-	-
26-dec-2002	SE	a	V	-	-	-	-	-
15-may-2003	BB	ag	V	-	2.7	-	-	-
15-may-2003	BB	ag	V	-	-	-	-	-
K2-04S								
08-aug-1995	CS	a	V	72	3.6	66	27	<0.1 U
08-aug-1995	CS	a	V	-	-	-	-	<0.03 U
02-nov-1995	CS	a	V	-	-	-	-	-
02-nov-1995	CS	a	V	73	3.8	70	28	<0.1 U
21-may-1996	CS	a	V	-	-	-	-	<0.03 U
19-nov-1996	CS	a	V	-	-	-	-	-
14-may-1997	CS	a	V	-	-	-	-	-
18-nov-1997	CS	a	V	-	-	-	-	-
22-jun-1998	CS	a	V	-	3.1	-	-	-
22-jun-1998	CS	a	V	-	-	-	-	-
30-nov-1998	CS	a	V	-	3	-	-	-
30-nov-1998	CS	a	V	-	-	-	-	-
02-jun-1999	CN	afh	V	-	2.7	-	-	-
02-jun-1999	CN	aefh	V	-	2.9	-	-	-
02-jun-1999	CN	afh	V	-	-	-	-	-
02-jun-1999	CN	aefh	V	-	-	-	-	-
09-nov-1999	CN	af	V	-	2.7	-	-	-
09-nov-1999	CN	af	V	-	-	-	-	-
18-may-2000	CN	a	V	-	4 L	-	-	-
18-may-2000	CN	a	V	-	-	-	-	-
27-nov-2000	CN	af	V	-	4	-	-	-
27-nov-2000	CN	af	V	-	-	-	-	-
16-may-2001	CN	afh	V	-	5	-	-	-
16-may-2001	CN	aefh	V	-	5	-	-	-
16-may-2001	CN	afh	V	-	-	-	-	-
16-may-2001	CN	aefh	V	-	-	-	-	-
14-nov-2001	CN	a	V	-	5	-	-	-
14-nov-2001	CN	a	V	-	-	-	-	-
16-may-2002	CN	af	V	-	5	-	-	-
16-may-2002	CN	af	V	-	-	-	-	-
27-dec-2002	SE	a	V	-	3.6	-	-	-
27-dec-2002	SE	a	V	-	-	-	-	-
02-may-2003	BB	ag	V	-	2.9	-	-	-
02-may-2003	BB	ag	V	-	-	-	-	-
NC2-07								
08-aug-1995	CS	a	V	89	5.3	55	30	<0.1 U
08-aug-1995	CS	a	V	-	-	-	-	<0.03 U
03-nov-1995	CS	a	V	-	-	-	-	-
03-nov-1995	CS	a	V	91	5.6	59	31	<0.1 U
08-may-1996	CS	a	V	-	-	-	-	-
25-nov-1996	CS	a	V	-	-	-	-	-
19-may-1997	CS	a	V	-	-	-	-	-
01-dec-1997	CS	a	V	-	-	-	-	-
23-jun-1998	CS	a	V	-	4.3	-	-	-
23-jun-1998	CS	a	V	-	-	-	-	-
09-dec-1998	CS	a	V	-	4.7	-	-	-
09-dec-1998	CS	a	V	-	-	-	-	-
03-jun-1999	CN	af	V	-	4	-	-	-
03-jun-1999	CN	af	V	-	-	-	-	-
15-nov-1999	CN	afh	V	-	4.6	-	-	-
15-nov-1999	CN	aefh	V	-	4.3	-	-	-
15-nov-1999	CN	afh	V	-	-	-	-	-

from the Building 850 subarea between July 1, 1995 and June 30, 2003. Results recorded by April 15, 2004.

Cadmium	Copper	Zinc	Boron	Strontium	Aluminum	Location Date
						(continued) K2-04D
<0.0005 U	<0.01 U	<0.02 U	-	-	-	21-nov-2000
-	-	-	-	-	-	06-jun-2001
<0.0005 U	<0.01 U	<0.02 LU	-	-	-	06-jun-2001
-	-	-	-	-	-	14-nov-2001
<0.0005 U	<0.01 U	<0.02 U	-	-	-	14-nov-2001
-	-	-	-	-	-	16-may-2002
-	-	-	-	-	-	16-may-2002
<0.0005 U	<0.01 U	<0.02 U	-	-	-	16-may-2002
<0.0005 U	<0.01 U	<0.02 U	-	-	-	16-may-2002
-	-	-	-	-	-	26-dec-2002
-	<0.01 U	<0.05 U	-	-	-	26-dec-2002
-	-	-	-	-	-	15-may-2003
<0.0005 U	<0.01 U	<0.02 U	-	-	-	15-may-2003
						K2-04S
-	<0.05 U	<0.05 U	-	-	<0.2 U	08-aug-1995
<0.0005 U	-	-	-	-	-	08-aug-1995
<0.0005 U	-	-	-	-	-	02-nov-1995
-	<0.05 U	<0.05 U	-	-	<0.2 U	02-nov-1995
<0.0005 U	-	-	-	-	-	21-may-1996
<0.0005 U	<0.01 U	<0.02 U	-	-	-	19-nov-1996
<0.0005 U	<0.01 U	0.027 LO	-	-	-	14-may-1997
<0.0005 U	<0.01 U	<0.02 U	-	-	-	18-nov-1997
-	-	-	-	-	-	22-jun-1998
<0.0005 U	<0.01 U	<0.02 UL	-	-	-	22-jun-1998
-	-	-	-	-	-	30-nov-1998
<0.0005 U	<0.01 U	<0.02 U	-	-	-	30-nov-1998
-	-	-	-	-	-	02-jun-1999
-	-	-	-	-	-	02-jun-1999
<0.0005 UL	<0.01 U	<0.02 U	-	-	-	02-jun-1999
<0.0005 UL	<0.01 U	<0.02 U	-	-	-	02-jun-1999
-	-	-	-	-	-	09-nov-1999
<0.0005 U	<0.01 LU	0.02 L	-	-	-	09-nov-1999
-	-	-	-	-	-	18-may-2000
<0.0005 U	<0.01 U	<0.02 U	-	-	-	18-may-2000
-	-	-	-	-	-	27-nov-2000
<0.0005 U	0.13	0.04	-	-	-	27-nov-2000
-	-	-	-	-	-	16-may-2001
-	-	-	-	-	-	16-may-2001
<0.0005 U	<0.01 U	<0.02 U	-	-	-	16-may-2001
<0.0005 U	<0.01 U	<0.02 U	-	-	-	16-may-2001
-	-	-	-	-	-	14-nov-2001
<0.0005 U	<0.01 U	<0.02 U	-	-	-	14-nov-2001
-	-	-	-	-	-	16-may-2002
<0.0005 U	<0.01 U	<0.02 U	-	-	-	16-may-2002
-	-	-	-	-	-	27-dec-2002
-	<0.01 U	<0.05 U	-	-	-	27-dec-2002
-	-	-	-	-	-	02-may-2003
<0.0005 U	<0.01 U	<0.02 U	-	-	-	02-may-2003
						NC2-07
-	<0.05 U	<0.05 U	-	-	<0.2 U	08-aug-1995
<0.0005 U	-	-	-	-	-	08-aug-1995
<0.0005 ULO	-	-	-	-	-	03-nov-1995
-	<0.05 U	<0.05 U	-	-	<0.2 U	03-nov-1995
<0.0005 U	-	-	-	-	-	08-may-1996
<0.0005 U	<0.01 U	<0.02 U	-	-	-	25-nov-1996
<0.0005 LU	<0.01 U	<0.02 U	-	-	-	19-may-1997
<0.0005 U	<0.01 U	<0.02 U	-	-	-	01-dec-1997
-	-	-	-	-	-	23-jun-1998
<0.0005 U	<0.01 U	<0.02 UL	-	-	-	23-jun-1998
-	-	-	-	-	-	09-dec-1998
<0.0005 U	<0.01 U	0.022	-	-	-	09-dec-1998
-	-	-	-	-	-	03-jun-1999
<0.0005 U	<0.01 U	<0.02 U	-	-	-	03-jun-1999
-	-	-	-	-	-	15-nov-1999
-	-	-	-	-	-	15-nov-1999
<0.0005 U	<0.01 LU	<0.02 LU	-	-	-	15-nov-1999

Table A-19. Ground and surface water analyses for metals and cations (mg/L) in samples collected

Location Date	Lab Note	Val.	Sodium	Potassium	Calcium	Magnesium	Iron	Manganese
NC2-07 (continued)								
15-nov-1999	CN	aefh	V	-	-	-	-	-
22-may-2000	CN	a	V	-	7	-	-	-
22-may-2000	CN	a	V	-	-	-	-	-
28-nov-2000	CN	af	V	-	7	-	-	-
28-nov-2000	CN	af	V	-	-	-	-	-
16-may-2001	CN	af	V	-	8	-	-	-
16-may-2001	CN	af	V	-	-	-	-	-
19-nov-2001	CN	a	V	-	7	-	-	-
19-nov-2001	CN	a	V	-	-	-	-	-
15-may-2002	CN	a	V	-	8 L	-	-	-
15-may-2002	CN	a	V	-	-	-	-	-
13-jun-2003	BB	a	V	-	5.6	-	-	-
13-jun-2003	BB	a	V	-	-	-	-	-
NC2-08								
30-may-2003	CN	af	V	-	-	-	-	-
NC2-11D								
04-aug-1995	CS	a	V	-	-	-	-	-
04-aug-1995	CS	a	V	54 H	4.4 H	63 H	29 H	<0.1 UH
31-oct-1995	CS	ah	V	-	-	-	-	<0.03 UH
31-oct-1995	CS	aeh	V	-	-	-	-	-
31-oct-1995	CS	ah	V	57	4.8	62	29	<0.1 U
31-oct-1995	CS	aeh	V	57	4.7	61	29	<0.1 U
07-may-1996	CS	ah	V	-	-	-	-	-
07-may-1996	CS	aeh	V	-	-	-	-	-
25-nov-1996	CS	a	V	-	-	-	-	-
15-may-1997	CS	a	V	-	-	-	-	-
02-dec-1997	CS	a	V	-	-	-	-	-
07-dec-1998	CS	af	V	-	3.8	-	-	-
07-dec-1998	CS	af	V	-	-	-	-	-
25-may-1999	CN	a	V	-	4.5	-	-	-
25-may-1999	CN	a	V	-	-	-	-	-
10-nov-1999	CN	af	V	-	4.1	-	-	-
10-nov-1999	CN	af	V	-	-	-	-	-
17-may-2000	CN	ah	V	-	6	-	-	-
17-may-2000	CN	aeh	V	-	6	-	-	-
17-may-2000	CN	ah	V	-	-	-	-	-
17-may-2000	CN	aeh	V	-	-	-	-	-
27-nov-2000	CN	af	V	-	5	-	-	-
27-nov-2000	CN	af	V	-	-	-	-	-
17-may-2001	CN	a	V	-	6	-	-	-
17-may-2001	CN	a	V	-	-	-	-	-
14-nov-2001	CN	a	V	-	6	-	-	-
14-nov-2001	CN	a	V	-	-	-	-	-
14-may-2002	CN	a	V	-	6 L	-	-	-
14-may-2002	CN	a	V	-	-	-	-	-
27-dec-2002	SE	a	V	-	4.7	-	-	-
27-dec-2002	SE	a	V	-	-	-	-	-
08-may-2003	BB	a	V	-	4.1	-	-	-
08-may-2003	BB	a	V	-	-	-	-	-
NC2-12D								
04-aug-1995	CS	a	V	-	-	-	-	-
04-aug-1995	CS	a	V	47 H	3.4 H	59 H	23 H	<0.1 UH
31-oct-1995	CS	a	V	-	-	-	-	<0.03 UH
31-oct-1995	CS	a	V	51	3.9	60	24	<0.1 U
07-may-1996	CS	a	V	-	-	-	-	<0.03 U
17-dec-1996	CS	a	V	-	-	-	-	-
15-may-1997	CS	a	V	-	-	-	-	-
25-nov-1997	CS	a	V	-	-	-	-	-
22-jun-1998	CS	a	V	-	3.3	-	-	-
22-jun-1998	CS	a	V	-	-	-	-	-
03-dec-1998	CS	a	V	-	3.4	-	-	-
03-dec-1998	CS	a	V	-	-	-	-	-
24-may-1999	CN	a	V	-	3.4	-	-	-
24-may-1999	CN	a	V	-	-	-	-	-
10-nov-1999	CN	af	V	-	3.7	-	-	-

from the Building 850 subarea between July 1, 1995 and June 30, 2003. Results recorded by April 15, 2004.

Cadmium	Copper	Zinc	Boron	Strontium	Aluminum	Location Date
						(continued) NC2-07
<0.0005 U	<0.01 LU	<0.02 LU	-	-	-	15-nov-1999
-	-	-	-	-	-	22-may-2000
<0.0005 U	<0.01 U	<0.02 U	-	-	-	22-may-2000
-	-	-	-	-	-	28-nov-2000
<0.0005 U	<0.01 U	<0.02 U	-	-	-	28-nov-2000
-	-	-	-	-	-	16-may-2001
<0.0005 U	<0.01 U	<0.02 U	-	-	-	16-may-2001
-	-	-	-	-	-	19-nov-2001
<0.0005 U	<0.01 U	<0.02 U	-	-	-	19-nov-2001
-	-	-	-	-	-	15-may-2002
<0.0005 LU	<0.01 U	<0.02 LU	-	-	-	15-may-2002
-	-	-	-	-	-	13-jun-2003
<0.0005 U	<0.01 U	<0.02 U	-	-	-	13-jun-2003
						NC2-08
<0.005 U	0.01	<0.02 U	-	-	-	30-may-2003
						NC2-11D
<0.0005 U	-	-	-	-	-	04-aug-1995
-	<0.05 UH	<0.05 UH	-	-	<0.2 UH	04-aug-1995
<0.0005 U	-	-	-	-	-	31-oct-1995
<0.0005 U	-	-	-	-	-	31-oct-1995
-	<0.05 U	<0.05 U	-	-	<0.2 U	31-oct-1995
-	<0.05 U	<0.05 U	-	-	<0.2 U	31-oct-1995
<0.0005 U	-	-	-	-	-	07-may-1996
<0.0005 U	-	-	-	-	-	07-may-1996
<0.0005 U	<0.01 U	<0.02 U	-	-	-	25-nov-1996
<0.0005 U	<0.01 U	0.028 LO	-	-	-	15-may-1997
<0.0005 U	<0.01 U	<0.02 U	-	-	-	02-dec-1997
-	-	-	-	-	-	07-dec-1998
0.00054	<0.01 U	0.02	-	-	-	07-dec-1998
-	-	-	-	-	-	25-may-1999
<0.0005 UL	<0.01 U	<0.02 U	-	-	-	25-may-1999
-	-	-	-	-	-	10-nov-1999
<0.0005 U	<0.01 U	<0.02 U	-	-	-	10-nov-1999
-	-	-	-	-	-	17-may-2000
-	-	-	-	-	-	17-may-2000
<0.0005 U	<0.01 U	<0.02 U	-	-	-	17-may-2000
<0.0005 U	<0.01 U	<0.02 U	-	-	-	17-may-2000
-	-	-	-	-	-	27-nov-2000
<0.0005 U	<0.01 U	<0.02 U	-	-	-	27-nov-2000
-	-	-	-	-	-	17-may-2001
<0.0005 U	<0.01 U	<0.02 U	-	-	-	17-may-2001
-	-	-	-	-	-	14-nov-2001
<0.0005 U	<0.01 U	<0.02 U	-	-	-	14-nov-2001
-	-	-	-	-	-	14-may-2002
<0.0005 LU	<0.01 U	<0.02 LU	-	-	-	14-may-2002
-	-	-	-	-	-	27-dec-2002
-	<0.01 U	<0.05 U	-	-	-	27-dec-2002
-	-	-	-	-	-	08-may-2003
<0.0005 U	<0.01 U	<0.02 U	-	-	-	08-may-2003
						NC2-12D
<0.0005 U	-	-	-	-	-	04-aug-1995
-	<0.05 UH	<0.05 UH	-	-	<0.2 UH	04-aug-1995
<0.0005 U	-	-	-	-	-	31-oct-1995
-	<0.05 U	<0.05 U	-	-	<0.2 U	31-oct-1995
<0.0005 U	-	-	-	-	-	07-may-1996
<0.0005 U	<0.01 U	0.034	-	-	-	17-dec-1996
<0.0005 U	<0.01 U	<0.02 ULO	-	-	-	15-may-1997
<0.0005 U	<0.01 U	<0.02 U	-	-	-	25-nov-1997
-	-	-	-	-	-	22-jun-1998
<0.0005 U	<0.01 U	<0.02 UL	-	-	-	22-jun-1998
-	-	-	-	-	-	03-dec-1998
<0.0005 U	<0.01 U	<0.02 U	-	-	-	03-dec-1998
-	-	-	-	-	-	24-may-1999
<0.0005 UL	<0.01 U	<0.02 U	-	-	-	24-may-1999
-	-	-	-	-	-	10-nov-1999

Table A-19. Ground and surface water analyses for metals and cations (mg/L) in samples collected

Location Date	Lab Note	Val.	Sodium	Potassium	Calcium	Magnesium	Iron	Manganese
NC2-12D (continued)								
10-nov-1999	CN	af	V	-	-	-	-	-
17-may-2000	CN	af	V	-	5	-	-	-
17-may-2000	CN	af	V	-	-	-	-	-
27-nov-2000	CN	af	V	-	5	-	-	-
27-nov-2000	CN	af	V	-	-	-	-	-
17-may-2001	CN	a	V	-	5	-	-	-
17-may-2001	CN	a	V	-	-	-	-	-
14-nov-2001	CN	a	V	-	5	-	-	-
14-nov-2001	CN	a	V	-	-	-	-	-
14-may-2002	CN	a	V	-	5 L	-	-	-
14-may-2002	CN	a	V	-	-	-	-	-
26-dec-2002	SE	a	V	-	3.9	-	-	-
26-dec-2002	SE	a	V	-	-	-	-	-
08-may-2003	BB	a	V	-	3.6	-	-	-
08-may-2003	BB	a	V	-	-	-	-	-
NC2-13								
29-apr-1997	CS	a	V	-	-	-	-	-
24-apr-1998	CS	a	V	-	-	-	-	-
16-jun-1999	CN	ah	V	-	-	-	-	-
16-jun-1999	CN	aeh	V	-	-	-	-	-
25-may-2000	CN	a	V	-	-	-	-	-
14-may-2001	BB	ag	V	-	-	-	-	-
14-may-2001	CN	a	V	-	-	-	-	-
14-may-2002	CN	a	V	-	-	-	-	-
10-jun-2003	CN	af	V	-	-	-	-	-
NC2-14S								
21-may-1997	CS	a	V	-	-	-	-	-
19-may-1998	CS	a	V	-	-	-	-	-
16-jun-1999	CN	a	V	-	-	-	-	-
25-may-2000	BB	ag	V	-	-	-	-	-
25-may-2000	CN	ag	V	-	-	-	-	-
21-may-2002	CN	a	V	-	-	-	-	-
18-jun-2003	CN	ag	V	-	-	-	-	-
NC7-10								
22-may-1997	CS	a	V	-	-	-	-	-
29-apr-1998	CS	a	V	-	-	-	-	-
26-may-1999	CN	af	V	-	-	-	-	-
13-jun-2000	CN	a	V	-	-	-	-	-
14-may-2001	CN	a	V	-	-	-	-	-
16-may-2002	CN	a	V	-	-	-	-	-
NC7-11								
22-may-1997	CS	a	V	-	-	-	-	-
12-may-1998	CS	a	V	-	-	-	-	-
26-may-1999	CN	af	V	-	-	-	-	-
13-jun-2000	CN	a	V	-	-	-	-	-
14-may-2001	CN	a	V	-	-	-	-	-
16-may-2002	CN	a	V	-	-	-	-	-
NC7-15								
30-may-1997	BB	a	V	-	-	-	-	-
30-may-1997	CS	a	V	-	-	-	-	-
12-may-1998	BB	ag	V	-	-	-	-	-
12-may-1998	CS	ag	V	-	-	-	-	-
26-may-1999	CN	a	V	-	-	-	-	-
05-jun-2000	CN	af	V	-	-	-	-	-
22-may-2001	CN	a	V	-	-	-	-	-
22-may-2002	CN	a	V	-	-	-	-	-
28-may-2003	CN	a	V	-	-	-	-	-
NC7-28								
05-jun-1997	CS	a	V	-	-	-	-	-
30-apr-1998	CS	a	V	-	-	-	-	-
07-jun-1999	CN	af	V	-	-	-	-	-
26-may-2000	CN	a	V	-	-	-	-	-

from the Building 850 subarea between July 1, 1995 and June 30, 2003. Results recorded by April 15, 2004.

Cadmium	Copper	Zinc	Boron	Strontium	Aluminum	Location Date
(continued) NC2-12D						
<0.0005 U	<0.01 U	<0.02 U	-	-	-	10-nov-1999
-	-	-	-	-	-	17-may-2000
<0.0005 U	<0.01 U	<0.02 U	-	-	-	17-may-2000
-	-	-	-	-	-	27-nov-2000
<0.0005 U	<0.01 U	<0.02 U	-	-	-	27-nov-2000
-	-	-	-	-	-	17-may-2001
<0.0005 U	<0.01 U	<0.02 U	-	-	-	17-may-2001
-	-	-	-	-	-	14-nov-2001
<0.0005 U	<0.01 U	0.02	-	-	-	14-nov-2001
-	-	-	-	-	-	14-may-2002
<0.0005 LU	<0.01 U	<0.02 LU	-	-	-	14-may-2002
-	-	-	-	-	-	26-dec-2002
-	0.023	0.052	-	-	-	26-dec-2002
-	-	-	-	-	-	08-may-2003
<0.0005 U	<0.01 U	<0.02 U	-	-	-	08-may-2003
NC2-13						
<0.0005 U	-	-	-	-	-	29-apr-1997
<0.0005 U	-	-	-	-	-	24-apr-1998
<0.0005 U	-	-	-	-	-	16-jun-1999
<0.0005 U	-	-	-	-	-	16-jun-1999
<0.0005 U	-	-	-	-	-	25-may-2000
<0.0005 U	-	-	-	-	-	14-may-2001
<0.0005 U	-	-	-	-	-	14-may-2001
<0.0005 LU	-	-	-	-	-	14-may-2002
<0.0005 U	-	-	-	-	-	10-jun-2003
NC2-14S						
<0.0005 U	-	-	-	-	-	21-may-1997
<0.0005 UO	-	-	-	-	-	19-may-1998
<0.0005 U	-	-	-	-	-	16-jun-1999
<0.0005 U	-	-	-	-	-	25-may-2000
<0.0005 U	-	-	-	-	-	25-may-2000
<0.0005 U	-	-	-	-	-	21-may-2002
<0.0005 U	-	-	-	-	-	18-jun-2003
NC7-10						
<0.0005 U	-	-	-	-	-	22-may-1997
<0.0005 U	-	-	-	-	-	29-apr-1998
<0.0005 UL	-	-	-	-	-	26-may-1999
<0.0005 U	-	-	-	-	-	13-jun-2000
<0.0005 U	-	-	-	-	-	14-may-2001
<0.0005 U	-	-	-	-	-	16-may-2002
NC7-11						
<0.0005 U	-	-	-	-	-	22-may-1997
<0.0005 UO	-	-	-	-	-	12-may-1998
<0.0005 UL	-	-	-	-	-	26-may-1999
<0.0005 U	-	-	-	-	-	13-jun-2000
<0.0005 U	-	-	-	-	-	14-may-2001
<0.0005 U	-	-	-	-	-	16-may-2002
NC7-15						
<0.0005 U	-	-	-	-	-	30-may-1997
<0.0005 U	-	-	-	-	-	30-may-1997
<0.0005 U	-	-	-	-	-	12-may-1998
<0.0005 UO	-	-	-	-	-	12-may-1998
<0.0005 UL	-	-	-	-	-	26-may-1999
<0.0005 U	-	-	-	-	-	05-jun-2000
0.0007	-	-	-	-	-	22-may-2001
0.001	-	-	-	-	-	22-may-2002
<0.0005 U	-	-	-	-	-	28-may-2003
NC7-28						
<0.0005 U	-	-	-	-	-	05-jun-1997
<0.0005 U	-	-	-	-	-	30-apr-1998
<0.0005 UO	-	-	-	-	-	07-jun-1999
<0.0005 LU	-	-	-	-	-	26-may-2000

Table A-19. Ground and surface water analyses for metals and cations (mg/L) in samples collected

Location Date	Lab Note	Val.	Sodium	Potassium	Calcium	Magnesium	Iron	Manganese
NC7-28 (continued)								
22-may-2001	CN	a	V	-	-	-	-	-
28-may-2002	CN	a	V	-	-	-	-	-
NC7-29								
29-apr-1997	CS	a	V	-	-	-	-	-
18-may-1998	CS	a	V	-	-	-	-	-
21-may-1999	CN	a	V	-	-	-	-	-
22-may-2000	CN	a	V	-	-	-	-	-
21-may-2001	CN	a	V	-	-	-	-	-
29-may-2002	CN	a	V	-	-	-	-	-
17-jun-2003	CN	a	V	-	-	-	-	-
NC7-43								
05-jun-1997	CS	a	V	-	-	-	-	-
12-may-1998	CS	a	V	-	-	-	-	-
07-jun-1999	BB	ag	V	-	-	-	-	-
07-jun-1999	CN	ag	V	-	-	-	-	-
05-jun-2000	CN	a	V	-	-	-	-	-
22-may-2001	CN	a	V	-	-	-	-	-
16-may-2002	CN	a	V	-	-	-	-	-
NC7-44								
09-may-1997	CS	a	V	-	-	-	-	-
18-may-1998	CS	a	V	-	-	-	-	-
21-may-1999	CN	af	V	-	-	-	-	-
22-may-2000	CN	a	V	-	-	-	-	-
16-may-2001	CN	a	V	-	-	-	-	-
29-may-2002	CN	a	V	-	-	-	-	-
28-may-2003	CN	a	V	-	-	-	-	-
NC7-45								
23-may-1997	CS	a	V	-	-	-	-	-
NC7-54								
22-may-1997	CS	a	V	-	-	-	-	-
29-apr-1998	CS	a	V	-	-	-	-	-
16-jun-2000	CN	af	V	-	-	-	-	-
13-nov-2000	CN	a	V	-	-	-	-	-
19-nov-2001	CN	a	V	-	-	-	-	-
16-may-2002	CN	a	V	-	-	-	-	-
21-dec-2002	CN	a	V	-	-	-	-	-
NC7-56								
21-may-1997	BB	ag	V	-	-	-	-	-
21-may-1997	CS	ag	V	-	-	-	-	-
27-oct-1997	CS	a	V	-	-	-	-	-
19-may-1998	BB	afg	N	-	-	-	-	-
19-may-1998	CS	ag	V	-	-	-	-	-
24-nov-1998	CS	a	V	-	-	-	-	-
09-jun-1999	CN	af	V	-	-	-	-	-
07-dec-1999	CN	af	V	-	-	-	-	-
02-jun-2000	CN	af	V	-	-	-	-	-
13-nov-2000	CN	a	V	-	-	-	-	-
29-may-2001	CN	aj	V	-	-	-	-	-
19-nov-2001	CN	a	V	-	-	-	-	-
28-may-2002	CN	a	V	-	-	-	-	-
21-dec-2002	BB	ag	V	-	-	-	-	-
21-dec-2002	CN	ag	V	-	-	-	-	-
17-jun-2003	CN	a	V	-	-	-	-	-
NC7-58								
12-jun-2003	CN	a	V	-	-	-	-	-
NC7-59								
21-may-1997	CS	a	V	-	-	-	-	-
01-jun-1998	CS	a	V	-	-	-	-	-
28-jun-1999	CN	a	V	-	-	-	-	-
01-jun-2000	CN	a	V	-	-	-	-	-

from the Building 850 subarea between July 1, 1995 and June 30, 2003. Results recorded by April 15, 2004.

Cadmium	Copper	Zinc	Boron	Strontium	Aluminum	Location Date
						(continued) NC7-28
<0.0005 U	-	-	-	-	-	22-may-2001
<0.0005 U	-	-	-	-	-	28-may-2002
						NC7-29
<0.0005 U	-	-	-	-	-	29-apr-1997
<0.0005 U	-	-	-	-	-	18-may-1998
<0.0005 LOU	-	-	-	-	-	21-may-1999
<0.0005 U	-	-	-	-	-	22-may-2000
<0.0005 U	-	-	-	-	-	21-may-2001
<0.0005 U	-	-	-	-	-	29-may-2002
<0.0005 U	-	-	-	-	-	17-jun-2003
						NC7-43
0.0014	-	-	-	-	-	05-jun-1997
<0.0005 UO	-	-	-	-	-	12-may-1998
<0.0005 U	-	-	-	-	-	07-jun-1999
<0.0005 OU	-	-	-	-	-	07-jun-1999
0.0008	-	-	-	-	-	05-jun-2000
0.0014	-	-	-	-	-	22-may-2001
<0.0005 U	-	-	-	-	-	16-may-2002
						NC7-44
0.0021	-	-	-	-	-	09-may-1997
<0.0005 U	-	-	-	-	-	18-may-1998
0.0007 LO	-	-	-	-	-	21-may-1999
<0.0005 U	-	-	-	-	-	22-may-2000
<0.0005 U	-	-	-	-	-	16-may-2001
<0.0005 U	-	-	-	-	-	29-may-2002
<0.0005 U	-	-	-	-	-	28-may-2003
						NC7-45
<0.0005 U	-	-	-	-	-	23-may-1997
						NC7-54
<0.0005 U	-	-	-	-	-	22-may-1997
<0.0005 U	-	-	-	-	-	29-apr-1998
0.0006 L	-	-	-	-	-	16-jun-2000
<0.0005 U	-	-	-	-	-	13-nov-2000
<0.0005 U	-	-	-	-	-	19-nov-2001
<0.0005 U	-	-	-	-	-	16-may-2002
<0.0005 U	-	-	-	-	-	21-dec-2002
						NC7-56
<0.0005 U	-	-	-	-	-	21-may-1997
<0.0005 U	-	-	-	-	-	21-may-1997
<0.0005 U	-	-	-	-	-	27-oct-1997
<0.0005 U	-	-	-	-	-	19-may-1998
<0.0005 U	-	-	-	-	-	19-may-1998
<0.0005 U	-	-	-	-	-	24-nov-1998
<0.0005 U	-	-	-	-	-	09-jun-1999
<0.0005 LU	-	-	-	-	-	07-dec-1999
<0.0005 U	-	-	-	-	-	02-jun-2000
<0.0005 U	-	-	-	-	-	13-nov-2000
<0.0005 U	-	-	-	-	-	29-may-2001
<0.0005 U	-	-	-	-	-	19-nov-2001
<0.0005 U	-	-	-	-	-	28-may-2002
<0.0005 U	-	-	-	-	-	21-dec-2002
0.0028	-	-	-	-	-	21-dec-2002
<0.0005 U	-	-	-	-	-	17-jun-2003
						NC7-58
0.0011	-	-	-	-	-	12-jun-2003
						NC7-59
<0.0005 U	-	-	-	-	-	21-may-1997
<0.0005 U	-	-	-	-	-	01-jun-1998
<0.0005 U	-	-	-	-	-	28-jun-1999
<0.0005 U	-	-	-	-	-	01-jun-2000

Table A-19. Ground and surface water analyses for metals and cations (mg/L) in samples collected

Location Date	Lab Note	Val.	Sodium	Potassium	Calcium	Magnesium	Iron	Manganese
NC7-59 (continued)								
29-may-2001	CN	a	V	-	-	-	-	-
28-may-2002	CN	a	V	-	-	-	-	-
12-jun-2003	CN	a	V	-	-	-	-	-
NC7-60								
09-jun-1997	CS	a	V	-	-	-	-	-
09-jun-1999	CN	af	V	-	-	-	-	-
05-jun-2000	CN	a	V	-	-	-	-	-
23-may-2001	CN	a	V	-	-	-	-	-
29-may-2002	CN	a	V	-	-	-	-	-
16-jun-2003	CN	a	V	-	-	-	-	-
NC7-61								
07-aug-1995	CS	a	V	-	-	-	-	-
07-aug-1995	CS	a	V	72	4.6	98	43	<0.1 U
30-oct-1995	CS	a	V	-	-	-	-	<0.03 U
30-oct-1995	CS	a	V	84	5	71	40	<0.1 U
20-may-1996	CS	a	V	-	-	-	-	-
21-nov-1996	CS	a	V	-	-	-	-	-
13-may-1997	CS	a	V	-	-	-	-	-
18-nov-1997	CS	a	V	-	-	-	-	-
02-jun-1998	CS	a	V	-	4	-	-	-
02-jun-1998	CS	a	V	-	-	-	-	-
02-dec-1998	CS	a	V	-	4.1	-	-	-
02-dec-1998	CS	a	V	-	-	-	-	-
01-jun-1999	CN	af	V	-	4.4	-	-	-
01-jun-1999	CN	af	V	-	-	-	-	-
09-nov-1999	CN	af	V	-	3.3	-	-	-
09-nov-1999	CN	af	V	-	-	-	-	-
18-may-2000	CN	af	V	-	5 L	-	-	-
18-may-2000	CN	af	V	-	-	-	-	-
20-nov-2000	CN	afh	V	-	6	-	-	-
20-nov-2000	CN	aefh	V	-	5	-	-	-
20-nov-2000	CN	afh	V	-	-	-	-	-
20-nov-2000	CN	aefh	V	-	-	-	-	-
21-may-2001	CN	a	V	-	5	-	-	-
21-may-2001	CN	a	V	-	-	-	-	-
15-nov-2001	CN	a	V	-	5	-	-	-
15-nov-2001	CN	a	V	-	-	-	-	-
16-may-2002	CN	af	V	-	5	-	-	-
16-may-2002	CN	af	V	-	-	-	-	-
02-may-2003	CN	aeh	V	-	-	-	-	-
02-may-2003	CN	ah	V	-	-	-	-	-
02-may-2003	BB	aeh	V	-	3.9	-	-	-
02-may-2003	BB	ah	V	-	3.9	-	-	-
02-may-2003	BB	aeh	V	-	-	-	-	-
02-may-2003	BB	ah	V	-	-	-	-	-
NC7-62								
21-may-1997	CS	a	V	-	-	-	-	-
19-may-1998	CS	a	V	-	-	-	-	-
11-jun-1999	CN	af	V	-	-	-	-	-
01-jun-2000	CN	a	V	-	-	-	-	-
29-may-2001	CN	a	V	-	-	-	-	-
28-may-2002	CN	a	V	-	-	-	-	-
12-jun-2003	CN	a	V	-	-	-	-	-
NC7-69								
04-aug-1995	CS	a	V	-	-	-	-	-
04-aug-1995	CS	a	V	50 H	4.5 H	73 H	21 H	<0.1 UH
31-oct-1995	CS	a	V	-	-	-	-	0.068 H
31-oct-1995	CS	a	V	51	4.3	63	18	<0.1 U
20-may-1996	CS	a	V	-	-	-	-	-
20-nov-1996	CS	a	V	-	-	-	-	-
13-may-1997	CS	a	V	-	-	-	-	-
18-nov-1997	CS	a	V	-	-	-	-	-
02-jun-1998	CS	a	V	-	4.3	-	-	-
02-jun-1998	CS	a	V	-	-	-	-	-

from the Building 850 subarea between July 1, 1995 and June 30, 2003. Results recorded by April 15, 2004.

Cadmium	Copper	Zinc	Boron	Strontium	Aluminum	Location Date
						(continued) NC7-59
<0.0005 U	-	-	-	-	-	29-may-2001
<0.0005 U	-	-	-	-	-	28-may-2002
<0.0005 U	-	-	-	-	-	12-jun-2003
						NC7-60
<0.0005 U	-	-	-	-	-	09-jun-1997
<0.0005 U	-	-	-	-	-	09-jun-1999
<0.0005 U	-	-	-	-	-	05-jun-2000
0.0006	-	-	-	-	-	23-may-2001
<0.0005 U	-	-	-	-	-	29-may-2002
0.0008	-	-	-	-	-	16-jun-2003
						NC7-61
<0.0005 U	-	-	-	-	-	07-aug-1995
-	<0.05 U	<0.05 U	-	-	<0.2 U	07-aug-1995
<0.0005 U	-	-	-	-	-	30-oct-1995
-	<0.05 U	<0.05 U	-	-	<0.2 U	30-oct-1995
<0.0005 U	-	-	-	-	-	20-may-1996
<0.0005 U	<0.01 U	<0.02 U	-	-	-	21-nov-1996
<0.0005 U	<0.01 U	0.022	-	-	-	13-may-1997
<0.0005 U	<0.01 U	<0.02 U	-	-	-	18-nov-1997
-	-	-	-	-	-	02-jun-1998
<0.0005 U	<0.01 U	<0.02 U	-	-	-	02-jun-1998
-	-	-	-	-	-	02-dec-1998
<0.0005 U	<0.01 U	<0.02 U	-	-	-	02-dec-1998
-	-	-	-	-	-	01-jun-1999
<0.0005 U	<0.01 U	<0.02 U	-	-	-	01-jun-1999
-	-	-	-	-	-	09-nov-1999
<0.0005 U	<0.01 LU	<0.02 LU	-	-	-	09-nov-1999
-	-	-	-	-	-	18-may-2000
<0.0005 U	<0.01 U	<0.02 U	-	-	-	18-may-2000
-	-	-	-	-	-	20-nov-2000
-	-	-	-	-	-	20-nov-2000
<0.0005 U	<0.01 U	0.03	-	-	-	20-nov-2000
<0.0005 U	<0.01 U	<0.02 U	-	-	-	20-nov-2000
-	-	-	-	-	-	21-may-2001
<0.0005 U	<0.01 U	0.02 J	-	-	-	21-may-2001
-	-	-	-	-	-	15-nov-2001
<0.0005 U	<0.01 U	<0.02 U	-	-	-	15-nov-2001
-	-	-	-	-	-	16-may-2002
<0.0005 U	<0.01 U	<0.02 U	-	-	-	16-may-2002
0.0005	-	-	-	-	-	02-may-2003
0.0006	-	-	-	-	-	02-may-2003
-	-	-	-	-	-	02-may-2003
0.00059	<0.01 U	<0.02 U	-	-	-	02-may-2003
0.00051	<0.01 U	<0.02 U	-	-	-	02-may-2003
						NC7-62
<0.0005 U	-	-	-	-	-	21-may-1997
<0.0005 U	-	-	-	-	-	19-may-1998
<0.0005 UL	-	-	-	-	-	11-jun-1999
<0.0005 U	-	-	-	-	-	01-jun-2000
<0.0005 U	-	-	-	-	-	29-may-2001
0.0005	-	-	-	-	-	28-may-2002
0.0061	-	-	-	-	-	12-jun-2003
						NC7-69
<0.0005 U	-	-	-	-	-	04-aug-1995
-	<0.05 UH	<0.05 UH	-	-	<0.2 UH	04-aug-1995
<0.0005 ULO	-	-	-	-	-	31-oct-1995
-	<0.05 U	<0.05 U	-	-	<0.2 U	31-oct-1995
<0.0005 U	-	-	-	-	-	20-may-1996
<0.0005 U	<0.01 U	<0.02 U	-	-	-	20-nov-1996
<0.0005 U	<0.01 U	<0.02 U	-	-	-	13-may-1997
<0.0005 U	<0.01 U	<0.02 U	-	-	-	18-nov-1997
-	-	-	-	-	-	02-jun-1998
<0.0005 U	<0.01 U	<0.02 U	-	-	-	02-jun-1998

Table A-19. Ground and surface water analyses for metals and cations (mg/L) in samples collected

Location Date	Lab Note	Val.	Sodium	Potassium	Calcium	Magnesium	Iron	Manganese
NC7-69 (continued)								
03-dec-1998	CS a	V	-	4.4	-	-	-	-
03-dec-1998	CS a	V	-	-	-	-	-	-
10-nov-1999	CN a	V	-	4.4	-	-	-	-
10-nov-1999	CN a	V	-	-	-	-	-	-
17-may-2000	CN a	V	-	6	-	-	-	-
17-may-2000	CN a	V	-	-	-	-	-	-
20-nov-2000	CN a	V	-	6	-	-	-	-
20-nov-2000	CN a	V	-	-	-	-	-	-
22-may-2001	CN a	V	-	6	-	-	-	-
22-may-2001	CN a	V	-	-	-	-	-	-
15-nov-2001	CN ah	V	-	6	-	-	-	-
15-nov-2001	CN aeh	V	-	6	-	-	-	-
15-nov-2001	CN ah	V	-	-	-	-	-	-
15-nov-2001	CN aeh	V	-	-	-	-	-	-
16-may-2002	CN a	V	-	7	-	-	-	-
16-may-2002	CN a	V	-	-	-	-	-	-
27-dec-2002	SE ah	V	-	5.6	-	-	-	-
27-dec-2002	SE aeh	V	-	5.1	-	-	-	-
27-dec-2002	SE ah	V	-	-	-	-	-	-
27-dec-2002	SE aeh	V	-	-	-	-	-	-
08-may-2003	BB a	V	-	4.6	-	-	-	-
08-may-2003	BB a	V	-	-	-	-	-	-
NC7-70								
28-jan-1997	CS a	V	-	-	-	-	-	-
30-may-1997	BB a	V	-	-	-	-	-	-
30-may-1997	CS a	V	-	-	-	-	-	-
30-jul-1997	CS a	V	-	-	-	-	-	-
29-oct-1997	BB af	V	-	-	-	-	-	-
29-oct-1997	CS a	V	-	-	-	-	-	-
28-jan-1998	CS a	V	-	-	-	-	-	-
30-apr-1998	CS a	V	-	-	-	-	-	-
09-sep-1998	CS a	V	-	-	-	-	-	-
09-dec-1998	CS a	V	-	-	-	-	-	-
27-jan-1999	CS a	V	-	-	-	-	-	-
15-jun-1999	CN a	V	-	-	-	-	-	-
01-sep-1999	CN a	V	-	-	-	-	-	-
03-dec-1999	CN a	V	-	-	-	-	-	-
27-mar-2000	CN a	V	-	-	-	-	-	-
26-may-2000	CN a	V	-	-	-	-	-	-
10-aug-2000	CN a	V	-	-	-	-	-	-
04-jun-2002	CN a	V	-	-	-	-	-	-
30-jul-2002	CN af	V	-	-	-	-	-	-
21-dec-2002	CN a	V	-	-	-	-	-	-
20-jun-2003	CN a	V	-	-	-	-	-	-
NC7-71								
13-may-1997	CS a	V	-	-	-	-	-	-
14-may-1998	CS a	V	-	-	-	-	-	-
21-may-1999	CN a	V	-	-	-	-	-	-
26-may-2000	CN a	V	-	-	-	-	-	-
14-jun-2001	CN a	V	-	-	-	-	-	-
01-jul-2002	CN a	V	-	-	-	-	-	-
NC7-73								
22-may-1997	CS a	V	-	-	-	-	-	-
19-may-1998	CS a	V	-	-	-	-	-	-
15-jun-1999	CN a	V	-	-	-	-	-	-
16-jun-2000	CN a	V	-	-	-	-	-	-
11-jun-2001	CN af	V	-	-	-	-	-	-
21-may-2003	CN a	V	-	-	-	-	-	-
W-850-05								
30-may-1997	CS a	V	-	-	-	-	-	-
07-nov-1997	CS a	V	-	-	-	-	-	-
14-may-1998	CS a	V	-	-	-	-	-	-
20-nov-1998	CS a	V	-	-	-	-	-	-
16-jun-1999	CN a	V	-	-	-	-	-	-

from the Building 850 subarea between July 1, 1995 and June 30, 2003. Results recorded by April 15, 2004.

Cadmium	Copper	Zinc	Boron	Strontium	Aluminum	Location Date
						(continued) NC7-69
-	-	-	-	-	-	03-dec-1998
<0.0005 U	<0.01 U	<0.02 U	-	-	-	03-dec-1998
-	-	-	-	-	-	10-nov-1999
<0.0005 U	<0.01 U	<0.02 U	-	-	-	10-nov-1999
-	-	-	-	-	-	17-may-2000
<0.0005 U	<0.01 U	<0.02 U	-	-	-	17-may-2000
-	-	-	-	-	-	20-nov-2000
<0.0005 U	<0.01 U	<0.02 U	-	-	-	20-nov-2000
-	-	-	-	-	-	22-may-2001
<0.0005 U	<0.01 U	<0.02 U	-	-	-	22-may-2001
-	-	-	-	-	-	15-nov-2001
-	-	-	-	-	-	15-nov-2001
<0.0005 U	<0.01 U	<0.02 U	-	-	-	15-nov-2001
<0.0005 U	<0.01 U	<0.02 U	-	-	-	15-nov-2001
-	-	-	-	-	-	16-may-2002
<0.0005 U	<0.01 U	<0.02 U	-	-	-	16-may-2002
-	-	-	-	-	-	27-dec-2002
-	-	-	-	-	-	27-dec-2002
-	<0.01 U	<0.05 U	-	-	-	27-dec-2002
-	<0.01 U	<0.05 U	-	-	-	27-dec-2002
-	-	-	-	-	-	08-may-2003
<0.0005 U	<0.01 U	<0.02 U	-	-	-	08-may-2003
						NC7-70
<0.0005 U	-	-	-	-	-	28-jan-1997
<0.0005 U	-	-	-	-	-	30-may-1997
<0.0005 U	-	-	-	-	-	30-may-1997
<0.0005 U	-	-	-	-	-	30-jul-1997
<0.0005 U	-	-	-	-	-	29-oct-1997
<0.0005 U	-	-	-	-	-	29-oct-1997
<0.0005 U	-	-	-	-	-	28-jan-1998
<0.0005 U	-	-	-	-	-	30-apr-1998
<0.0005 U	-	-	-	-	-	09-sep-1998
<0.0005 U	-	-	-	-	-	09-dec-1998
<0.0005 U	-	-	-	-	-	27-jan-1999
<0.0005 LU	-	-	-	-	-	15-jun-1999
<0.0005 U	-	-	-	-	-	01-sep-1999
<0.0005 U	-	-	-	-	-	03-dec-1999
<0.0005 U	-	-	-	-	-	27-mar-2000
<0.0005 LU	-	-	-	-	-	26-may-2000
<0.0005 U	-	-	-	-	-	10-aug-2000
<0.0005 U	-	-	-	-	-	04-jun-2002
<0.0005 U	-	-	-	-	-	30-jul-2002
<0.0005 U	-	-	-	-	-	21-dec-2002
<0.0005 U	-	-	-	-	-	20-jun-2003
						NC7-71
<0.0005 U	-	-	-	-	-	13-may-1997
<0.0005 U	-	-	-	-	-	14-may-1998
<0.0005 LOU	-	-	-	-	-	21-may-1999
<0.0005 LU	-	-	-	-	-	26-may-2000
<0.0005 U	-	-	-	-	-	14-jun-2001
<0.0005 U	-	-	-	-	-	01-jul-2002
						NC7-73
<0.0005 U	-	-	-	-	-	22-may-1997
<0.0005 U	-	-	-	-	-	19-may-1998
<0.0005 LU	-	-	-	-	-	15-jun-1999
0.0019 L	-	-	-	-	-	16-jun-2000
0.003 D	-	-	-	-	-	11-jun-2001
0.0005	-	-	-	-	-	21-may-2003
						W-850-05
<0.0005 U	-	-	-	-	-	30-may-1997
<0.0005 U	-	-	-	-	-	07-nov-1997
<0.0005 U	-	-	-	-	-	14-may-1998
<0.0005 U	-	-	-	-	-	20-nov-1998
<0.0005 U	-	-	-	-	-	16-jun-1999

Table A-19. Ground and surface water analyses for metals and cations (mg/L) in samples collected

Location Date	Lab Note	Val.	Sodium	Potassium	Calcium	Magnesium	Iron	Manganese
W-850-05 (continued)								
26-may-2000	CN a	V	-	-	-	-	-	-
16-nov-2000	CN a	V	-	-	-	-	-	-
14-jun-2001	CN a	V	-	-	-	-	-	-
26-nov-2001	CN a	V	-	-	-	-	-	-
28-may-2002	CN a	V	-	-	-	-	-	-
10-jun-2003	CN a	V	-	-	-	-	-	-
W-865-1802								
27-jun-2003	CN a	V	-	-	-	-	-	-
27-jun-2003	SE af	V	58 H	3.2	35 H	16 H	<0.1 HU	<0.01 HU
W-865-1803								
26-jun-2003	CN a	V	-	-	-	-	-	-
26-jun-2003	CN a	V	48 H	5 H	47 H	21 H	<0.1 HU	<0.03 HU
SPRING24								
22-oct-1999	CN a	V	-	-	-	-	-	-
22-oct-1999	BB af	V	45 L	2.8	43	23	<0.05 U	<0.01 U
27-aug-2001	CN af	V	41	5	39	19	<0.1 U	0.04
13-dec-2001	CN af	V	43 HL	8 HL	58 H	19 H	44 H	0.89 H
W8SPRNG								
31-oct-1995	CS a	V	-	-	-	-	-	-
31-oct-1995	FS ag	V	-	-	62	-	-	-
31-oct-1995	CS a	V	73	2.8	68	27	<0.1 U	<0.03 U
31-oct-1995	FS ag	V	70	<1 U	60	27	<0.05 U	<0.03 U
15-may-1996	CS a	V	62	2.6	65	28	<0.1 U	<0.03 U
29-apr-1998	CS a	V	-	-	-	-	-	-
26-jun-2003	CN aeh	V	-	-	-	-	-	-
26-jun-2003	CN ah	V	-	-	-	-	-	-

from the Building 850 subarea between July 1, 1995 and June 30, 2003. Results recorded by April 15, 2004.

Cadmium	Copper	Zinc	Boron	Strontium	Aluminum	Location Date
						(continued) W-850-05
<0.0005 LU	-	-	-	-	-	26-may-2000
<0.0005 U	-	-	-	-	-	16-nov-2000
<0.0005 U	-	-	-	-	-	14-jun-2001
<0.0005 U	-	-	-	-	-	26-nov-2001
<0.0005 U	-	-	-	-	-	28-may-2002
<0.0005 U	-	-	-	-	-	10-jun-2003
						W-865-1802
<0.0005 U	-	-	-	-	-	27-jun-2003
-	<0.01 HU	<0.05 HU	-	-	<0.1 HU	27-jun-2003
						W-865-1803
<0.0005 U	-	-	-	-	-	26-jun-2003
-	<0.05 HU	<0.05 HU	-	-	<0.2 HU	26-jun-2003
						SPRING24
<0.0005 U	-	-	-	-	-	22-oct-1999
-	<0.01 U	0.018	-	-	<0.05 U	22-oct-1999
-	<0.05 U	<0.05 U	-	-	<0.2 U	27-aug-2001
-	0.16 H	0.16 H	-	-	33 H	13-dec-2001
						W8SPRNG
<0.0005 U	-	-	-	-	-	31-oct-1995
-	-	-	-	-	-	31-oct-1995
-	<0.05 U	<0.05 U	-	-	<0.2 U	31-oct-1995
-	<0.05 U	<0.05 U	0.3	-	-	31-oct-1995
-	<0.05 U	<0.05 U	-	-	<0.2 U	15-may-1996
<0.0005 U	-	-	-	-	-	29-apr-1998
<0.0005 U	-	-	-	-	-	26-jun-2003
<0.0005 U	-	-	-	-	-	26-jun-2003

See following page for notes

Table A-19. Ground and surface water analyses for metals and cations (mg/L) in samples collected from the Building 850 subarea between July 1, 1995 and June 30, 2003. Results recorded by April 15, 2004.

Notes:

- Indicates no analysis performed for this compound

Val. = Validation

Footnotes:

a ERD data
b ORAD WGMG data
c Analytical results for this sample are suspect
d Sample collected during hydraulic testing
e Blind sample, sent to lab without location identity
f Sample dilution necessary for analysis; detection limits increased
g Interlaboratory collocated sample
h Intralaboratory collocated sample
i Sample collected as part of pilot study
j Note field may contain important information regarding this sample
k Pre-development sample
l Norm month, norm quarter or norm year inconsistent with sample date
m Confirmation sample
n Sample analyzed after standard holding time
o Sample comprised of partial composite
p Alpha spectroscopy analysis of uranium isotopes
q Gamma spectroscopy analysis of uranium isotopes
r Tritium data represents non-detect with activity calc'd for 100 percent error.

Lab Codes:

BB	BC Laboratories, Inc.	Bakersfield, CA
CN	Caltest Analytical Laboratory	1885 N. Kelly Rd, Napa, CA 94558
CS	California Laboratory Services	3249 Fitzgerald Rd. Rancho Cordova, CA 95742
FS	FruitGrowers Environmental Lab	2500 Stagecoach Rd., Stockton, CA 95215
SE	Sequoia Analytical	1551 Industrial Road, San Carlos, CA 94070

Validation Codes:

V Validated
N Not validated (default value)
U Undeclared
H Historical comparison only

CLP flags: (follow result)

B Analyte found in method blank
D Analysis performed at a secondary dilution or concentration (i.e., vapor samples)
E The analyte was detected below the LLNL reporting limit, but above the analytical laboratory minimum detection limit.
F Analyte found in field blank, trip blank, or equipment blank
G Quantitated using fuel calibration, but does not match typical fuel fingerprint (fuel maybe gasoline, diesel, motor oil etc.).
H Sample analyzed outside of holding time, sample results should be evaluated
J Analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
L Spike accuracy not within control limits
O Duplicate spike or sample precision not within control limits
P Indicates that the absence of a data qualifier flag does not mean that the data does not need qualification, but that the implementation of electronic data qualifier flags was not yet established.
R Sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet QC criteria. The presence or absence of the analyte cannot be verified
S Analytical results for this sample are suspect
T Analyte is tentatively identified compound; result is approximate
U Compound was analyzed for, but not detected above detection limit

Table A-20. Ground and surface water analyses for volatile organic compounds (ug/L) in samples collected from the Building 850 subarea between July 1, 1995 and June 30, 2003. Results recorded by November 4, 2003.

VOCs in Ground Water, Site 300
November 5, 2003
geminil

s300vocsl.05nov2003
s300vocsr.05nov2003

Min Sample Date
July 1, 1995
Max Sample Date
June 30, 2003

Table A-20. Ground and surface water analyses for volatile organic compounds (ug/L) in samples

Location Date	Lab Note	Val.	1,1- DCE	cis- 1,2- DCE	trans- 1,2- DCE	Total 1,2- DCE	TCE	PCE
K1-01A								
23-may-1996	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 UO	<0.5 U
21-may-1997	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
K1-01B								
23-may-1996	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 UO	<0.5 U
22-may-1997	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
K1-01C								
11-oct-1995	CS a	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U
11-oct-1995	CS a	V	<1 U	-	-	<1 U	<0.5 U	<1 U
17-jan-1996	CS a	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U
10-apr-1996	CS a	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U
30-jul-1996	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
09-oct-1996	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
09-oct-1996	CS a	V	<1 U	-	-	<1 U	<0.5 U	<1 U
03-apr-1997	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
13-oct-1997	CS a	V	<1 U	-	-	<1 U	<0.5 U	<1 U
09-apr-1998	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
14-oct-1998	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
12-apr-1999	CN a	V	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU
04-oct-1999	CN aj	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
18-apr-2000	CN a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
19-oct-2000	CN af	V	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U
18-apr-2001	CN a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
22-oct-2001	CN a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
16-apr-2002	CN a	V	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU
05-dec-2002	CN aefh	V	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U
05-dec-2002	CN afh	V	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U
31-jan-2003	CN a	V	<1 LU	<1 LU	<1 LU	<1 LU	<1 LU	<1 LU
17-apr-2003	CN a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
K1-02A								
23-may-1996	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 UO	<0.5 U
21-may-1997	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
K1-02B								
11-oct-1995	CS a	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U
11-oct-1995	CS a	V	<1 U	-	-	<1 U	<0.5 U	<1 U
17-jan-1996	CS a	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U
10-apr-1996	CS a	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U
30-jul-1996	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
09-oct-1996	CS a	V	<1 U	-	-	<1 U	<0.5 U	<1 U
03-apr-1997	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
13-oct-1997	CS a	V	<1 U	-	-	<1 U	<0.5 U	<1 U
09-apr-1998	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
13-oct-1998	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
15-apr-1999	CN a	V	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU
07-oct-1999	CN af	V	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU
18-apr-2000	CN a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
19-oct-2000	CN af	V	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U
18-apr-2001	CN a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
22-oct-2001	CN a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
16-apr-2002	CN a	V	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU
04-dec-2002	CN af	V	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U
30-jan-2003	CN a	V	<1 LU	<1 LU	<1 LU	<1 LU	<1 LU	<1 LU
17-apr-2003	CN ah	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
17-apr-2003	CN aeh	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
K1-03								
11-oct-1995	CS ah	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U
11-oct-1995	CS aeh	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U
11-oct-1995	CS ah	V	<1 U	-	-	<1 U	<0.5 U	<1 U
11-oct-1995	CS aeh	V	<1 U	-	-	<1 U	<0.5 U	<1 U
18-jan-1996	CS a	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U
30-jul-1996	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
10-oct-1996	CS a	V	<1 U	-	-	<1 U	<0.5 U	<1 U
03-apr-1997	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U

collected from the Building 850 subarea between July 1, 1995 and June 30, 2003. Results recorded by November 4, 2003.

1,1-DCA	1,2-DCA	1,1,1-TCA	Chloroform	Freon 11	Freon 113	Methylene chloride	Location Date
							K1-01A
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	23-may-1996
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	21-may-1997
							K1-01B
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	23-may-1996
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	22-may-1997
							K1-01C
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	11-oct-1995
<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	11-oct-1995
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	17-jan-1996
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	10-apr-1996
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	30-jul-1996
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	09-oct-1996
<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	09-oct-1996
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	03-apr-1997
<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	13-oct-1997
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	09-apr-1998
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	14-oct-1998
<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	12-apr-1999
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	04-oct-1999
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	18-apr-2000
<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<3 U	19-oct-2000
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	18-apr-2001
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	22-oct-2001
<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	16-apr-2002
<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<3 U	05-dec-2002
<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<3 U	05-dec-2002
<1 LU	<1 LU	<1 LU	<1 LU	<1 LU	<1 LU	<3 LU	31-jan-2003
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<3 U	17-apr-2003
							K1-02A
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	23-may-1996
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	21-may-1997
							K1-02B
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	11-oct-1995
<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	11-oct-1995
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	17-jan-1996
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	10-apr-1996
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	30-jul-1996
<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	09-oct-1996
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	03-apr-1997
<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	13-oct-1997
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	09-apr-1998
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	13-oct-1998
<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	15-apr-1999
<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	07-oct-1999
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	18-apr-2000
<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<3 U	19-oct-2000
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	18-apr-2001
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	22-oct-2001
<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	16-apr-2002
<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<3 U	04-dec-2002
<1 LU	<1 LU	<1 LU	<1 LU	<1 LU	<1 LU	<3 LU	30-jan-2003
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<3 U	17-apr-2003
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<3 U	17-apr-2003
							K1-03
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	11-oct-1995
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	11-oct-1995
<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	11-oct-1995
<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	11-oct-1995
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	18-jan-1996
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	30-jul-1996
<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	10-oct-1996
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	03-apr-1997

Table A-20. Ground and surface water analyses for volatile organic compounds (ug/L) in samples

Location Date	Lab Note	Val.	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Total 1,2-DCE	TCE	PCE
K1-03 (continued)								
14-oct-1997	CS a	V	<1 U	-	-	<1 U	<0.5 U	<1 U
09-apr-1998	CS ah	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
09-apr-1998	CS aeh	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
13-oct-1998	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
15-apr-1999	CN a	V	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU
06-oct-1999	CN af	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
18-apr-2000	CN a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
23-oct-2000	CN afh	V	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U
23-oct-2000	CN aefh	V	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U
18-apr-2001	CN a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
22-oct-2001	CN a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
16-apr-2002	CN a	V	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU
04-dec-2002	CN af	V	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U
30-jan-2003	CN a	V	<1 LU	<1 LU	<1 LU	<1 LU	<1 LU	<1 LU
17-apr-2003	CN a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
K1-04								
31-jul-1995	CS a	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U
11-oct-1995	CS ah	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U
11-oct-1995	CS ah	V	<1 U	-	-	<1 U	<0.5 U	<1 U
18-jan-1996	CS a	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U
11-apr-1996	CS a	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U
31-jul-1996	CS ah	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
31-jul-1996	CS aeh	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
10-oct-1996	CS a	V	<1 U	-	-	<1 U	<0.5 U	<1 U
03-apr-1997	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
14-oct-1997	CS a	V	<1 U	-	-	<1 U	<0.5 U	<1 U
09-apr-1998	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
14-oct-1998	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
14-apr-1999	CN a	V	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU
06-oct-1999	CN af	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
18-apr-2000	CN ah	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
18-apr-2000	CN aeh	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
23-oct-2000	CN af	V	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U
23-apr-2001	CN a	V	<0.5 LU	<0.5 LU	<0.5 LU	<0.5 LU	<0.5 LU	<0.5 LU
22-oct-2001	CN a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
16-apr-2002	CN ah	V	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU
16-apr-2002	CN aeh	V	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU
05-dec-2002	CN af	V	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U
29-jan-2003	CN aeh	V	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U
29-jan-2003	CN ah	V	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U
18-apr-2003	SE a	V	<0.5 U	<0.5 OU	<0.5 U	<0.5 U	<0.5 U	<0.5 OU
K1-05								
31-jul-1995	CS ah	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U
31-jul-1995	CS aeh	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U
12-oct-1995	CS ah	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U
12-oct-1995	CS ah	V	<1 U	-	-	<1 U	<0.5 U	<1 U
18-jan-1996	CS a	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U
11-apr-1996	CS a	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U
31-jul-1996	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
11-oct-1996	CS a	V	<1 UH	-	-	<1 UH	<0.5 UH	<1 UH
04-apr-1997	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
14-oct-1997	CS a	V	<1 U	-	-	<1 U	<0.5 U	<1 U
15-apr-1998	CS af	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
14-oct-1998	CS af	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
14-apr-1999	CN a	V	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU
06-oct-1999	CN afh	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
06-oct-1999	CN aefh	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
19-apr-2000	CN a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 LU	<0.5 U
24-oct-2000	CN af	V	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U
20-apr-2001	CN ah	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
20-apr-2001	CN aeh	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
23-oct-2001	CN a	V	<1 HLOU	<1 HLOU	<1 HLOU	<1 HLOU	<1 HLOU	<1 HLOU
18-apr-2002	CN a	V	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU
06-dec-2002	CN af	V	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U
29-jan-2003	CN a	V	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U
18-apr-2003	SE a	V	<0.5 U	<0.5 OU	<0.5 U	<0.5 U	<0.5 U	<0.5 OU

collected from the Building 850 subarea between July 1, 1995 and June 30, 2003. Results recorded by November 4, 2003.

1,1-DCA	1,2-DCA	1,1,1-TCA	Chloroform	Freon 11	Freon 113	Methylene chloride	Location Date
							(continued) K1-03
<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	14-oct-1997
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	09-apr-1998
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	09-apr-1998
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	13-oct-1998
<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	15-apr-1999
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	06-oct-1999
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	18-apr-2000
<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<3 U	23-oct-2000
<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<3 U	23-oct-2000
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	18-apr-2001
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	22-oct-2001
<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	16-apr-2002
<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<3 U	04-dec-2002
<1 LU	<1 LU	<1 LU	<1 LU	<1 LU	<1 LU	<3 LU	30-jan-2003
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<3 U	17-apr-2003
							K1-04
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	31-jul-1995
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	11-oct-1995
<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	11-oct-1995
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	18-jan-1996
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	11-apr-1996
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	31-jul-1996
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	31-jul-1996
<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	10-oct-1996
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	03-apr-1997
<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	14-oct-1997
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	09-apr-1998
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	14-oct-1998
<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	14-apr-1999
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	06-oct-1999
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	18-apr-2000
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	18-apr-2000
<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<3 U	23-oct-2000
<0.5 LU	<0.5 LU	<0.5 LU	<0.5 LU	<0.5 LU	<0.5 LU	<0.5 LU	23-apr-2001
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	22-oct-2001
<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	16-apr-2002
<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	16-apr-2002
<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<3 U	05-dec-2002
<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<3 U	29-jan-2003
<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<3 U	29-jan-2003
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	18-apr-2003
							K1-05
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	20	<0.5 U	31-jul-1995
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	31-jul-1995
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	18	<0.5 U	12-oct-1995
<1 U	<1 U	<1 U	<1 U	<1 U	20	<1 U	12-oct-1995
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	24	<0.5 U	18-jan-1996
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	11-apr-1996
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	17	<0.5 U	31-jul-1996
<1 UH	<1 UH	<1 UH	<1 UH	<1 UH	41 UH	<1 UH	11-oct-1996
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	57 D	<0.5 U	04-apr-1997
<1 U	<1 U	<1 U	<1 U	<1 U	45 D	<1 U	14-oct-1997
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	45 D	<0.5 U	15-apr-1998
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	40 D	<0.5 U	14-oct-1998
<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	33 LO	<0.5 LOU	14-apr-1999
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	20 D	<0.5 U	06-oct-1999
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	21 D	<0.5 U	06-oct-1999
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	33	<0.5 U	19-apr-2000
<1 U	<1 U	<1 U	<1 U	<1 U	25	<3 U	24-oct-2000
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	15	<0.5 U	20-apr-2001
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	14	<0.5 U	20-apr-2001
<1 HLOU	<1 HLOU	<1 HLOU	<1 HLOU	23 HLOU	<1 HLOU	<3 HLOU	23-oct-2001
<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	16 LO	<0.5 LOU	18-apr-2002
<1 U	<1 U	<1 U	<1 U	<1 U	17	<3 U	06-dec-2002
<1 U	<1 U	<1 U	<1 U	<1 U	22	<3 U	29-jan-2003
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	15	<0.5 U	18-apr-2003

Table A-20. Ground and surface water analyses for volatile organic compounds (ug/L) in samples

Location Date	Lab Note	Val.	1,1- DCE	cis- 1,2- DCE	trans- 1,2- DCE	Total 1,2- DCE	TCE	PCE	
K1-06									
15-may-1997	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
23-apr-1998	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
25-may-1999	CN	a	V	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 ULLO	<0.5 LOU
19-may-2000	CN	a	V	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU
21-may-2001	CN	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
21-may-2002	CN	ah	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
21-may-2002	CN	aeh	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
K1-07									
31-jul-1995	CS	a	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U
12-oct-1995	CS	ah	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U
12-oct-1995	CS	ah	V	<1 U	-	-	<1 U	<0.5 U	<1 U
18-jan-1996	CS	a	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U
12-apr-1996	CS	a	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U
31-jul-1996	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
11-oct-1996	CS	a	V	<1 UH	-	-	<1 UH	<0.5 UH	<1 UH
04-apr-1997	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
16-oct-1997	CS	a	V	<1 U	-	-	<1 U	<0.5 U	<1 U
15-apr-1998	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
15-oct-1998	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
12-apr-1999	CN	a	V	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU
04-oct-1999	CN	aj	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
19-apr-2000	CN	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 LU	<0.5 U
25-oct-2000	CN	a	V	<1 HU	<1 HU	<1 HU	-	<1 HU	<1 HU
23-apr-2001	CN	a	V	<0.5 LU	<0.5 LU	<0.5 LU	<0.5 LU	<0.5 LU	<0.5 LU
23-oct-2001	CN	ah	V	<1 HLOU	<1 HLOU	<1 HLOU	<1 HLOU	<1 HLOU	<1 HLOU
23-oct-2001	CN	aeh	V	<1 HLOU	<1 HLOU	<1 HLOU	<1 HLOU	<1 HLOU	<1 HLOU
18-apr-2002	CN	a	V	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU
06-dec-2002	CN	af	V	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U
30-jan-2003	CN	a	V	<1 LU	<1 LU	<1 LU	<1 LU	<1 LU	<1 LU
01-may-2003	CN	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
K1-08									
31-jul-1995	CS	af	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U
12-oct-1995	CS	a	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U
12-oct-1995	CS	af	V	<1 U	-	-	<1 U	<0.5 U	<1 U
18-jan-1996	CS	af	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U
12-apr-1996	CS	ah	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U
12-apr-1996	CS	aeh	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U
31-jul-1996	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
11-oct-1996	CS	ah	V	<1 UH	-	-	<1 UH	<0.5 UH	<1 UH
11-oct-1996	CS	aeh	V	<1 UH	-	-	<1 UH	<0.5 UH	<1 UH
04-apr-1997	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
16-oct-1997	CS	a	V	<1 U	-	-	<1 U	<0.5 U	<1 U
15-apr-1998	CS	af	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
15-oct-1998	CS	af	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
12-apr-1999	CN	af	V	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU
04-oct-1999	CN	afj	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
19-apr-2000	CN	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 LU	<0.5 U
24-oct-2000	CN	af	V	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U
23-apr-2001	CN	a	V	<0.5 LU	<0.5 LU	<0.5 LU	<0.5 LU	<0.5 LU	<0.5 LU
23-oct-2001	CN	a	V	<1 HLOU	<1 HLOU	<1 HLOU	<1 HLOU	<1 HLOU	<1 HLOU
18-apr-2002	CN	a	V	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU
13-dec-2002	CN	af	V	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U
07-feb-2003	CN	af	V	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U
02-may-2003	CN	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
K1-09									
31-jul-1995	CS	af	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U
12-oct-1995	CS	afh	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U
12-oct-1995	CS	afh	V	<1 U	-	-	<1 U	<0.5 U	<1 U
18-jan-1996	CS	afh	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U
18-jan-1996	CS	afeh	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U
12-apr-1996	CS	a	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U
31-jul-1996	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
11-oct-1996	CS	a	V	<1 UH	-	-	<1 UH	<0.5 UH	<1 UH
04-apr-1997	CS	ah	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
04-apr-1997	CS	aeh	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U

collected from the Building 850 subarea between July 1, 1995 and June 30, 2003. Results recorded by November 4, 2003.

1,1-DCA	1,2-DCA	1,1,1-TCA	Chloroform	Freon 11	Freon 113	Methylene chloride	Location Date
							K1-06
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	15-may-1997
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	23-apr-1998
<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	25-may-1999
<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	19-may-2000
<0.5 U	<0.5 OU	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	21-may-2001
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	21-may-2002
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	21-may-2002
							K1-07
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	31-jul-1995
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	12-oct-1995
<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	12-oct-1995
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	18-jan-1996
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	12-apr-1996
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	31-jul-1996
<1 UH	<1 UH	<1 UH	<1 UH	<1 UH	<1 UH	<1 UH	11-oct-1996
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	04-apr-1997
<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	16-oct-1997
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	15-apr-1998
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	15-oct-1998
<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	12-apr-1999
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	04-oct-1999
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	19-apr-2000
<1 HU	<1 HU	<1 HU	<1 HU	<1 HU	<1 HU	<3 HU	25-oct-2000
<0.5 LU	<0.5 LU	<0.5 LU	<0.5 LU	<0.5 LU	<0.5 LU	<0.5 LU	23-apr-2001
<1 HLOU	<1 HLOU	<1 HLOU	<1 HLOU	<1 HLOU	<1 HLOU	<3 HLOU	23-oct-2001
<1 HLOU	<1 HLOU	<1 HLOU	<1 HLOU	<1 HLOU	<1 HLOU	<3 HLOU	23-oct-2001
<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	18-apr-2002
<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<3 U	06-dec-2002
<1 LU	<1 LU	<1 LU	<1 LU	<1 LU	<1 LU	<3 LU	30-jan-2003
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<3 U	01-may-2003
							K1-08
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	38 D	<0.5 U	31-jul-1995
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	46	<0.5 U	12-oct-1995
<1 U	<1 U	<1 U	<1 U	<1 U	54 D	<1 U	12-oct-1995
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	48 D	<0.5 U	18-jan-1996
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	59 D	<0.5 U	12-apr-1996
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	70 D	<0.5 U	12-apr-1996
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	43	<0.5 U	31-jul-1996
<1 UH	<1 UH	<1 UH	<1 UH	<1 UH	98 UH	<1 UH	11-oct-1996
<1 UH	<1 UH	<1 UH	<1 UH	<1 UH	95 UH	<1 UH	11-oct-1996
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	99 D	<0.5 U	04-apr-1997
<1 U	<1 U	<1 U	<1 U	<1 U	63 D	<1 U	16-oct-1997
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	72 D	<0.5 U	15-apr-1998
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	65 D	<0.5 U	15-oct-1998
<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	42 DLO	<0.5 LOU	12-apr-1999
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	22 D	<0.5 U	04-oct-1999
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	27	<0.5 U	19-apr-2000
<1 U	<1 U	<1 U	<1 U	<1 U	20	<3 U	24-oct-2000
<0.5 LU	<0.5 LU	<0.5 LU	<0.5 LU	<0.5 LU	14 L	<0.5 LU	23-apr-2001
<1 HLOU	<1 HLOU	<1 HLOU	<1 HLOU	23 HLOU	<1 HLOU	<3 HLOU	23-oct-2001
<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	17 LD	<0.5 LOU	18-apr-2002
<1 U	<1 U	<1 U	<1 U	<1 U	19	<3 U	13-dec-2002
<1 U	<1 U	<1 U	<1 U	<1 U	21	<3 U	07-feb-2003
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	18	<3 U	02-may-2003
							K1-09
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	64 D	<0.5 U	31-jul-1995
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	93 D	<0.5 U	12-oct-1995
<1 U	<1 U	<1 U	<1 U	<1 U	72 D	<1 U	12-oct-1995
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	97 D	<0.5 U	18-jan-1996
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	87 D	<0.5 U	18-jan-1996
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	130 D	<0.5 U	12-apr-1996
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	120 D	<0.5 U	31-jul-1996
<1 UH	<1 UH	<1 UH	<1 UH	<1 UH	150 H	<1 UH	11-oct-1996
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	99 D	<0.5 U	04-apr-1997
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	100 D	<0.5 U	04-apr-1997

Table A-20. Ground and surface water analyses for volatile organic compounds (ug/L) in samples

Location Date	Lab Note	Val.	1,1- DCE	cis- 1,2- DCE	trans- 1,2- DCE	Total 1,2- DCE	TCE	PCE	
K1-09 (continued)									
16-oct-1997	CS	ah	V	<1 U	-	-	<1 U	<0.5 U	<1 U
16-oct-1997	CS	aeh	V	<1 U	-	-	<1 U	<0.5 U	<1 U
15-apr-1998	CS	af	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
15-oct-1998	CS	afh	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
15-oct-1998	CS	aefh	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
13-apr-1999	CN	afh	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
13-apr-1999	CN	aefh	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
04-oct-1999	CN	afj	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
19-apr-2000	CN	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 LU	<0.5 U
24-oct-2000	CN	af	V	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U
20-apr-2001	CN	af	V	<0.5 LU	<0.5 LU	<0.5 LU	<0.5 LU	<0.5 LU	<0.5 LU
23-oct-2001	CN	a	V	<1 HLOU	<1 HLOU	<1 HLOU	<1 HLOU	<1 HLOU	<1 HLOU
18-apr-2002	CN	a	V	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU
06-dec-2002	CN	af	V	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U
31-jan-2003	CN	a	V	<1 LU	<1 LU	<1 LU	<1 LU	<1 LU	<1 LU
02-may-2003	CN	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
K2-01A									
22-may-1996	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
22-may-1997	CS	ah	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
22-may-1997	CS	aeh	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
K2-01B									
22-may-1996	CS	ah	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
22-may-1996	CS	aeh	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
22-may-1997	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
K2-01C									
08-aug-1995	CS	a	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U
02-nov-1995	CS	a	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U
21-may-1996	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
20-nov-1996	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
19-may-1997	CS	ah	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
19-may-1997	CS	aeh	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
14-dec-1998	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
26-may-1999	CN	af	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 UL	<0.5 U
08-nov-1999	CN	af	N	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
21-nov-2000	CN	af	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
16-may-2001	CN	af	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
14-nov-2001	CN	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
14-may-2002	CN	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
05-jun-2003	CN	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
K2-02A									
22-may-1996	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
21-may-1997	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
K2-02B									
22-may-1996	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
21-may-1997	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
K2-04D									
08-aug-1995	CS	a	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U
02-nov-1995	CS	a	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U
21-may-1996	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
20-nov-1996	CS	ah	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
20-nov-1996	CS	aeh	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
14-may-1997	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
24-nov-1997	CS	ah	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
24-nov-1997	CS	aeh	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
22-jun-1998	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
07-dec-1998	CS	ah	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
07-dec-1998	CS	aeh	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
26-may-1999	CN	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 UL	<0.5 U
08-nov-1999	CN	a	N	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
21-nov-2000	CN	af	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
06-jun-2001	CN	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
14-nov-2001	CN	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U

collected from the Building 850 subarea between July 1, 1995 and June 30, 2003. Results recorded by November 4, 2003.

1,1-DCA	1,2-DCA	1,1,1-TCA	Chloroform	Freon 11	Freon 113	Methylene chloride	Location Date
							(continued) K1-09
<1 U	<1 U	<1 U	<1 U	<1 U	120 D	<1 U	16-oct-1997
<1 U	<1 U	<1 U	<1 U	<1 U	100 D	<1 U	16-oct-1997
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	130 D	<0.5 U	15-apr-1998
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	140 D	<0.5 U	15-oct-1998
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	130 D	<0.5 U	15-oct-1998
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	140 D	<0.5 U	13-apr-1999
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	130 D	<0.5 U	13-apr-1999
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	82 D	<0.5 U	04-oct-1999
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	63 DH	<0.5 U	19-apr-2000
<1 U	<1 U	<1 U	<1 U	<1 U	80	<3 U	24-oct-2000
<0.5 LU	<0.5 LU	<0.5 LU	<0.5 LU	<0.5 LU	30 D	<0.5 LU	20-apr-2001
<1 HLOU	<1 HLOU	<1 HLOU	<1 HLOU	64 HLOU	<1 HLOU	<3 HLOU	23-oct-2001
<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	45 LO	<0.5 LOU	18-apr-2002
<1 U	<1 U	<1 U	<1 U	<1 U	57	<3 U	06-dec-2002
<1 LU	<1 LU	<1 LU	<1 LU	<1 LU	56 L	<3 LU	31-jan-2003
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	42	<3 U	02-may-2003
							K2-01A
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	22-may-1996
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	22-may-1997
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	22-may-1997
							K2-01B
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	22-may-1996
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	22-may-1996
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	22-may-1997
							K2-01C
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	08-aug-1995
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	02-nov-1995
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	21-may-1996
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	20-nov-1996
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	19-may-1997
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	19-may-1997
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	14-dec-1998
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	26-may-1999
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	08-nov-1999
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	21-nov-2000
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	1.2 B	<0.5 U	16-may-2001
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	14-nov-2001
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	14-may-2002
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<3 U	05-jun-2003
							K2-02A
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	22-may-1996
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	21-may-1997
							K2-02B
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	22-may-1996
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	21-may-1997
							K2-04D
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	08-aug-1995
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	02-nov-1995
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	21-may-1996
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	20-nov-1996
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	20-nov-1996
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	14-may-1997
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	24-nov-1997
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	24-nov-1997
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	22-jun-1998
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	07-dec-1998
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	07-dec-1998
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	26-may-1999
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	08-nov-1999
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	21-nov-2000
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	06-jun-2001
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	14-nov-2001

Table A-20. Ground and surface water analyses for volatile organic compounds (ug/L) in samples

Location Date	Lab Note	Val.	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Total 1,2-DCE	TCE	PCE
K2-04D (continued)								
16-may-2002	CN	aeh	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
16-may-2002	CN	ah	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
26-dec-2002	SE	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
15-may-2003	BB	a	V	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U
K2-04S								
08-aug-1995	CS	a	V	<0.5 U	-	-	<0.5 U	<0.5 U
02-nov-1995	CS	a	V	<0.5 U	-	-	<0.5 U	<0.5 U
21-may-1996	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U
19-nov-1996	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U
14-may-1997	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U
18-nov-1997	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U
22-jun-1998	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	1.2
30-nov-1998	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U
02-jun-1999	CN	afh	V	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU
02-jun-1999	CN	aefh	V	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU
09-nov-1999	CN	af	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
27-nov-2000	CN	af	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
16-may-2001	CN	afh	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
16-may-2001	CN	aefh	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
14-nov-2001	CN	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
16-may-2002	CN	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
27-dec-2002	SE	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
02-may-2003	BB	a	V	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U
NC2-07								
08-aug-1995	CS	a	V	<0.5 U	-	-	<0.5 U	<0.5 U
03-nov-1995	CS	a	V	<0.5 U	-	-	<0.5 U	<0.5 U
08-may-1996	CS	a	V	<0.5 U	-	-	<0.5 U	<0.5 U
25-nov-1996	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U
19-may-1997	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U
01-dec-1997	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U
23-jun-1998	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U
09-dec-1998	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U
03-jun-1999	CN	af	V	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU
15-nov-1999	CN	afh	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
15-nov-1999	CN	aefh	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
28-nov-2000	CN	af	V	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU
16-may-2001	CN	af	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
19-nov-2001	CN	a	V	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU
15-may-2002	CN	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
13-jun-2003	BB	af	V	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U
NC2-08								
30-may-2003	CN	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
NC2-11D								
04-aug-1995	CS	a	V	<0.5 U	-	-	<0.5 U	<0.5 U
31-oct-1995	CS	ah	V	<0.5 U	-	-	<0.5 U	<0.5 U
31-oct-1995	CS	aeh	V	<0.5 U	-	-	<0.5 U	<0.5 U
07-may-1996	CS	ah	V	<0.5 U	-	-	<0.5 U	<0.5 U
07-may-1996	CS	aeh	V	<0.5 U	-	-	<0.5 U	<0.5 U
25-nov-1996	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U
15-may-1997	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U
02-dec-1997	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U
07-dec-1998	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U
25-may-1999	CN	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
10-nov-1999	CN	af	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
27-nov-2000	CN	af	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
17-may-2001	CN	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
14-nov-2001	CN	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
14-may-2002	CN	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
27-dec-2002	SE	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
08-may-2003	BB	a	V	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U
NC2-12D								
04-aug-1995	CS	a	V	<0.5 U	-	-	<0.5 U	<0.5 U
31-oct-1995	CS	a	V	<0.5 U	-	-	<0.5 U	<0.5 U

collected from the Building 850 subarea between July 1, 1995 and June 30, 2003. Results recorded by November 4, 2003.

1,1-DCA	1,2-DCA	1,1,1-TCA	Chloroform	Freon 11	Freon 113	Methylene chloride	Location Date
							(continued) K2-04D
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	16-may-2002
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	16-may-2002
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	26-dec-2002
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	15-may-2003
							K2-04S
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	08-aug-1995
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	02-nov-1995
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	21-may-1996
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	19-nov-1996
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	14-may-1997
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	18-nov-1997
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	22-jun-1998
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	30-nov-1998
<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	02-jun-1999
<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	02-jun-1999
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	09-nov-1999
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	27-nov-2000
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	1.6 B	16-may-2001
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	1.4 B	16-may-2001
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	14-nov-2001
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	16-may-2002
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	27-dec-2002
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	02-may-2003
							NC2-07
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	08-aug-1995
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	03-nov-1995
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	08-may-1996
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	25-nov-1996
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	19-may-1997
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	01-dec-1997
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	23-jun-1998
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	09-dec-1998
<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	03-jun-1999
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	15-nov-1999
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	15-nov-1999
<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	28-nov-2000
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	1.5 B	16-may-2001
<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	19-nov-2001
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	15-may-2002
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	13-jun-2003
							NC2-08
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<3 U	30-may-2003
							NC2-11D
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	04-aug-1995
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	31-oct-1995
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	31-oct-1995
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	07-may-1996
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	07-may-1996
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	25-nov-1996
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	15-may-1997
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	02-dec-1997
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	07-dec-1998
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	25-may-1999
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	10-nov-1999
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	27-nov-2000
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	1.2 B	17-may-2001
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	14-nov-2001
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	14-may-2002
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	27-dec-2002
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	08-may-2003
							NC2-12D
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	04-aug-1995
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	31-oct-1995

Table A-20. Ground and surface water analyses for volatile organic compounds (ug/L) in samples

Location Date	Lab Note	Val.	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Total 1,2-DCE	TCE	PCE
NC2-12D (continued)								
07-may-1996	CS a	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U
17-dec-1996	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
15-may-1997	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
25-nov-1997	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
22-jun-1998	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
03-dec-1998	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
24-may-1999	CN a	V	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU
10-nov-1999	CN af	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
27-nov-2000	CN af	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
17-may-2001	CN a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
14-nov-2001	CN a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
14-may-2002	CN a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
26-dec-2002	SE a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
08-may-2003	BB a	V	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U
NC2-13								
29-apr-1997	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
24-apr-1998	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	0.67	<0.5 U
16-jun-1999	CN ah	V	<0.5 OU	<0.5 OU	<0.5 OU	<0.5 OU	<0.5 OU	<0.5 OU
16-jun-1999	CN aeh	V	<0.5 OU	<0.5 OU	<0.5 OU	<0.5 OU	<0.5 OU	<0.5 OU
25-may-2000	CN a	V	<0.5 U	<0.5 LU	<0.5 U	<0.5 U	<0.5 U	<0.5 U
14-may-2001	BB ag	V	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U
14-may-2001	CN a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
14-may-2002	CN a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
03-may-2003	CN a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
NC2-14S								
21-may-1997	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
19-may-1998	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
16-jun-1999	CN a	V	<0.5 OU	<0.5 OU	<0.5 OU	<0.5 OU	<0.5 OU	<0.5 OU
25-may-2000	BB ag	V	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U
25-may-2000	CN ag	V	<0.5 U	<0.5 LU	<0.5 U	<0.5 U	<0.5 U	<0.5 U
21-may-2002	CN a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
18-jun-2003	CN ag	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
NC7-19								
20-nov-1995	CS aeh	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U
20-nov-1995	CS ah	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U
15-may-1996	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
19-dec-1996	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
NC7-28								
16-nov-1995	CS a	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U
12-jun-1996	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
19-dec-1996	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
NC7-29								
29-apr-1997	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
18-may-1998	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
21-may-1999	CN a	V	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU
22-may-2000	CN a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
21-may-2001	CN a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
29-may-2002	CN a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
17-jun-2003	CN a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
NC7-54								
22-may-1997	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
29-apr-1998	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
16-jun-2000	CN af	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
23-may-2001	CN a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
16-may-2002	CN a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
27-may-2003	CN a	V	<0.5 LU	<0.5 LU	<0.5 LU	<0.5 LU	<0.5 LU	<0.5 LU
NC7-61								
07-aug-1995	CS a	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U
30-oct-1995	CS a	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U
20-may-1996	CS a	V	<0.5 UO	<0.5 U	<0.5 U	-	<0.5 UO	<0.5 U
21-nov-1996	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U

collected from the Building 850 subarea between July 1, 1995 and June 30, 2003. Results recorded by November 4, 2003.

1,1-DCA	1,2-DCA	1,1,1-TCA	Chloroform	Freon 11	Freon 113	Methylene chloride	Location Date
							(continued) NC2-12D
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	07-may-1996
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	17-dec-1996
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	15-may-1997
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	25-nov-1997
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	22-jun-1998
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	03-dec-1998
<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	24-may-1999
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	10-nov-1999
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	27-nov-2000
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	1.5 B	<0.5 U	17-may-2001
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	14-nov-2001
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	14-may-2002
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	26-dec-2002
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	08-may-2003
							NC2-13
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	29-apr-1997
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	24-apr-1998
<0.5 OU	<0.5 OU	<0.5 OU	<0.5 OU	<0.5 OU	<0.5 OU	<0.5 OU	16-jun-1999
<0.5 OU	<0.5 OU	<0.5 OU	<0.5 OU	<0.5 OU	<0.5 OU	<0.5 OU	16-jun-1999
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	25-may-2000
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	14-may-2001
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	1.3 B	<0.5 U	14-may-2001
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	14-may-2002
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<3 U	03-may-2003
							NC2-14S
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	21-may-1997
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	19-may-1998
<0.5 OU	<0.5 OU	<0.5 OU	<0.5 OU	<0.5 OU	<0.5 OU	<0.5 OU	16-jun-1999
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	25-may-2000
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	25-may-2000
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	21-may-2002
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<3 U	18-jun-2003
							NC7-19
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	20-nov-1995
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	20-nov-1995
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	15-may-1996
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	19-dec-1996
							NC7-28
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	16-nov-1995
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	12-jun-1996
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	19-dec-1996
							NC7-29
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	29-apr-1997
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	18-may-1998
<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	21-may-1999
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	22-may-2000
<0.5 U	<0.5 OU	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	21-may-2001
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	29-may-2002
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<3 U	17-jun-2003
							NC7-54
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	22-may-1997
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	29-apr-1998
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	16-jun-2000
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	23-may-2001
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	16-may-2002
<0.5 LU	<0.5 LU	<0.5 LU	<0.5 LU	<0.5 LU	<0.5 LU	<3 LU	27-may-2003
							NC7-61
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	07-aug-1995
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	30-oct-1995
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	20-may-1996
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	21-nov-1996

Table A-20. Ground and surface water analyses for volatile organic compounds (ug/L) in samples

Location Date	Lab Note	Val.	1,1- DCE	cis- 1,2- DCE	trans- 1,2- DCE	Total 1,2- DCE	TCE	PCE	
NC7-61 (continued)									
13-may-1997	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
18-nov-1997	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
02-jun-1998	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
02-dec-1998	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
01-jun-1999	CN	af	V	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU
09-nov-1999	CN	af	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
20-nov-2000	CN	afh	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
20-nov-2000	CN	aefh	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
21-may-2001	CN	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
15-nov-2001	CN	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
16-may-2002	CN	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
02-may-2003	BB	aeh	V	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U
02-may-2003	BB	ah	V	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U
NC7-69									
04-aug-1995	CS	a	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U
31-oct-1995	CS	a	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U
20-may-1996	CS	a	V	<0.5 UO	<0.5 U	<0.5 U	-	<0.5 UO	<0.5 U
20-nov-1996	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
13-may-1997	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
18-nov-1997	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
02-jun-1998	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
03-dec-1998	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
10-nov-1999	CN	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
20-nov-2000	CN	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
22-may-2001	CN	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
15-nov-2001	CN	ah	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
15-nov-2001	CN	aeh	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
16-may-2002	CN	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
27-dec-2002	SE	ah	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
27-dec-2002	SE	aeh	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
08-may-2003	BB	af	V	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U
NC7-70									
16-nov-1995	CS	a	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U
19-dec-1996	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
30-may-1997	BB	a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
30-may-1997	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
30-apr-1998	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
15-jun-1999	CN	a	V	<0.5 OU	<0.5 OU	<0.5 OU	<0.5 OU	<0.5 OU	<0.5 OU
26-may-2000	CN	a	V	<0.5 U	<0.5 LU	<0.5 U	<0.5 U	<0.5 U	<0.5 U
04-jun-2002	CN	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
20-jun-2003	CN	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
NC7-71									
12-jun-1996	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
W-850-05									
17-nov-1995	CS	aeh	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U
17-nov-1995	CS	ah	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U
12-jun-1996	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
19-dec-1996	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
W-865-1802									
27-jun-2003	CN	a	V	<1 HU	<1 HU	<1 HU	<1 HU	<1 HU	<1 HU
W-865-1803									
26-jun-2003	CN	a	V	<1 HU	<1 HU	<1 HU	<1 HU	<1 HU	<1 HU
SPRING24									
22-oct-1999	CN	a	V	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U
W8SPRNG									
31-oct-1995	CS	a	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U
31-oct-1995	FS	ag	V	<0.5 U	-	<0.5 U	-	<0.5 U	<0.5 U
15-may-1996	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U

collected from the Building 850 subarea between July 1, 1995 and June 30, 2003. Results recorded by November 4, 2003.

1,1-DCA	1,2-DCA	1,1,1-TCA	Chloroform	Freon 11	Freon 113	Methylene chloride	Location Date
							(continued) NC7-61
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	13-may-1997
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	18-nov-1997
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	02-jun-1998
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	02-dec-1998
<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	<0.5 LOU	01-jun-1999
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	09-nov-1999
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	20-nov-2000
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	20-nov-2000
<0.5 U	<0.5 OU	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	21-may-2001
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	15-nov-2001
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	16-may-2002
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	02-may-2003
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	02-may-2003
							NC7-69
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	04-aug-1995
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	31-oct-1995
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	20-may-1996
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	20-nov-1996
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	13-may-1997
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	18-nov-1997
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	02-jun-1998
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	03-dec-1998
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	10-nov-1999
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	20-nov-2000
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	1.5 B	<0.5 U	22-may-2001
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	15-nov-2001
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	15-nov-2001
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	16-may-2002
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	27-dec-2002
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	27-dec-2002
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	08-may-2003
							NC7-70
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	16-nov-1995
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	19-dec-1996
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	30-may-1997
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	30-may-1997
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	30-apr-1998
<0.5 OU	<0.5 OU	<0.5 OU	<0.5 OU	<0.5 OU	<0.5 OU	<0.5 OU	15-jun-1999
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	26-may-2000
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	04-jun-2002
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<3 U	20-jun-2003
							NC7-71
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	12-jun-1996
							W-850-05
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	17-nov-1995
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	17-nov-1995
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	12-jun-1996
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	19-dec-1996
							W-865-1802
<1 HU	<1 HU	<1 HU	<1 HU	<1 HU	<1 HU	<3 HU	27-jun-2003
							W-865-1803
<1 HU	<1 HU	<1 HU	<1 HU	<1 HU	<1 HU	<3 HU	26-jun-2003
							SPRING24
<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<3 U	22-oct-1999
							W8SPRNG
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	31-oct-1995
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	31-oct-1995
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	15-may-1996

See following page for notes

Table A-20. Ground and surface water analyses for volatile organic compounds (ug/L) in samples collected from the Building 850 subarea between July 1, 1995 and June 30, 2003. Results recorded by November 4, 2003.

Notes:

- Indicates no analysis performed for this compound
- Val. = Validation code

Footnotes:

- a ERD data
- b ORAD WGMG data
- c Analytical results for this sample are suspect
- d Sample collected during hydraulic testing
- e Blind sample, sent to lab without location identity
- f Sample dilution necessary for analysis; detection limits increased
- g Interlaboratory collocated sample
- h Intralaboratory collocated sample
- i Sample collected as part of pilot study
- j Note field may contain important information regarding this sample
- k Pre-development sample
- l Norm month, norm quarter or norm year inconsistent with sample date
- m Confirmation sample
- n Sample analyzed after standard holding time
- o Sample comprised of partial composite
- p Alpha spectroscopy analysis of uranium isotopes
- q Gamma spectroscopy analysis of uranium isotopes
- r Tritium data represents non-detect with activity calc'd for 100 percent error.

Lab Codes:

BB	BC Laboratories, Inc.	Bakersfield, CA
CN	Caltest Analytical Laboratory	1885 N. Kelly Rd, Napa, CA 94558
CS	California Laboratory Services	3249 Fitzgerald Rd. Rancho Cordova, CA 95742
FS	FruitGrowers Environmental Lab	2500 Stagecoach Rd., Stockton, CA 95215
SE	Sequoia Analytical	1551 Industrial Road, San Carlos, CA 94070

Validation Codes:

- V Validated
- N Not validated (default value)
- U Undeclared
- H Historical comparison only

CLP flags: (follow result)

- B Analyte found in method blank
- D Analysis performed at a secondary dilution or concentration (i.e., vapor samples)
- E The analyte was detected below the LLNL reporting limit, but above the analytical laboratory minimum detection limit.
- F Analyte found in field blank, trip blank, or equipment blank
- G Quantitated using fuel calibration, but does not match typical fuel fingerprint (fuel maybe gasoline, diesel, motor oil etc.).
- H Sample analyzed outside of holding time, sample results should be evaluated
- J Analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
- L Spike accuracy not within control limits
- O Duplicate spike or sample precision not within control limits
- P Indicates that the absence of a data qualifier flag does not mean that the data does not need qualification, but that the implementation of electronic data qualifier flags was not yet established
- R Sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet QC criteria. The presence or absence of the analyte cannot be verified
- S Analytical results for this sample are suspect
- T Analyte is tentatively identified compound; result is approximate
- U Compound was analyzed for, but not detected above detection limit

Table A-21. Ground and surface water analyses for aromatic (fuel) hydrocarbons (ug/L) in samples collected from the Building 850 subarea between July 1, 1995 and June 30, 2003. Results recorded November 4, 2003.

BTEX compounds in Ground Water, Site 300
November 5, 2003
geminil
s3btex.05nov2003

Min Sample Date
July 1, 1995
Max Sample Date
June 30, 2003

Table A-21. Ground and surface water analyses for aromatic (fuel) hydrocarbons (ug/L) in samples collected from the Building 850 subarea between July 1, 1995 and June 30, 2003. Results recorded November 4, 2003.

Location Date	Lab Note	Val.	Benzene	Toluene	Ethyl- benzene	Total Xylenes
K1-01C						
11-oct-1995	CS a	V	<1 U	<1 U	<1 U	<2 U
09-oct-1996	CS a	V	<1 U	<1 U	<1 U	<2 U
13-oct-1997	CS a	V	<1 U	<1 U	<1 U	<2 U
19-oct-2000	CN af	V	<1 U	<1 U	<1 U	<1 U
22-oct-2001	CN a	V	<0.5 HU	<0.5 HU	<0.5 HU	<0.5 HU
05-dec-2002	CN aefh	V	<1 U	<1 U	<1 U	<1 U
05-dec-2002	CN afh	V	<1 U	<1 U	<1 U	<1 U
K1-02B						
11-oct-1995	CS a	V	<1 U	<1 U	<1 U	<2 U
09-oct-1996	CS a	V	<1 U	<1 U	<1 U	<2 U
13-oct-1997	CS a	V	<1 U	<1 U	<1 U	<2 U
19-oct-2000	CN af	V	<1 U	<1 U	<1 U	<1 U
22-oct-2001	CN a	V	<0.5 HU	<0.5 HU	<0.5 HU	<0.5 HU
04-dec-2002	CN af	V	<1 U	<1 U	<1 U	<1 U
K1-03						
11-oct-1995	CS ah	V	<1 U	<1 U	<1 U	<2 U
11-oct-1995	CS aeh	V	<1 U	<1 U	<1 U	<2 U
10-oct-1996	CS a	V	<1 U	<1 U	<1 U	<2 U
14-oct-1997	CS a	V	<1 U	<1 U	<1 U	<2 U
23-oct-2000	CN afh	V	<1 U	<1 U	<1 U	<1 U
23-oct-2000	CN aefh	V	<1 U	<1 U	<1 U	<1 U
22-oct-2001	CN a	V	<0.5 HU	<0.5 HU	<0.5 HU	<0.5 HU
04-dec-2002	CN af	V	<1 U	<1 U	<1 U	<1 U
K1-04						
11-oct-1995	CS ah	V	<1 U	<1 U	<1 U	<2 U
10-oct-1996	CS a	V	<1 U	<1 U	<1 U	<2 U
14-oct-1997	CS a	V	<1 U	<1 U	<1 U	<2 U
23-oct-2000	CN af	V	<1 U	<1 U	<1 U	<1 U
22-oct-2001	CN a	V	<0.5 HU	<0.5 HU	<0.5 HU	<0.5 HU
05-dec-2002	CN af	V	<1 U	<1 U	<1 U	<1 U
K1-05						
12-oct-1995	CS ah	V	<1 U	<1 U	<1 U	<2 U
11-oct-1996	CS a	V	<1 UH	<1 UH	<1 UH	<2 UH
14-oct-1997	CS a	V	<1 U	<1 U	<1 U	<2 U
24-oct-2000	CN af	V	<1 U	<1 U	<1 U	<1 U
23-oct-2001	CN a	V	<1 HLOU	<1 HLOU	<1 HLOU	<1 HLOU
06-dec-2002	CN af	V	<1 U	<1 U	<1 U	<1 U
K1-06						
25-may-1999	CN a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U
K1-07						
12-oct-1995	CS ah	V	<1 U	<1 U	<1 U	<2 U
11-oct-1996	CS a	V	<1 UH	<1 UH	<1 UH	<2 UH
16-oct-1997	CS a	V	<1 U	<1 U	<1 U	<2 U
25-oct-2000	CN a	V	<1 HU	<1 HU	<1 HU	<1 HU
23-oct-2001	CN ah	V	<1 HLOU	<1 HLOU	<1 HLOU	<1 HLOU
23-oct-2001	CN aeh	V	<1 HLOU	<1 HLOU	<1 HLOU	<1 HLOU
06-dec-2002	CN af	V	<1 U	<1 U	<1 U	<1 U
K1-08						
12-oct-1995	CS af	V	<1 U	<1 U	<1 U	<2 U
11-oct-1996	CS ah	V	<1 UH	<1 UH	<1 UH	<2 UH
11-oct-1996	CS aeh	V	<1 UH	<1 UH	<1 UH	<2 UH
16-oct-1997	CS a	V	<1 U	<1 U	<1 U	<2 U
24-oct-2000	CN af	V	<1 U	<1 U	<1 U	<1 U
23-oct-2001	CN a	V	<1 HLOU	<1 HLOU	<1 HLOU	<1 HLOU
13-dec-2002	CN af	V	<1 U	<1 U	<1 U	<1 U
K1-09						
12-oct-1995	CS afh	V	<1 U	<1 U	<1 U	<2 U
11-oct-1996	CS a	V	<1 UH	<1 UH	<1 UH	<2 UH

Table A-21. Ground and surface water analyses for aromatic (fuel) hydrocarbons (ug/L) in samples collected from the Building 850 subarea between July 1, 1995 and June 30, 2003. Results recorded November 4, 2003.

Location Date	Lab Note	Val.	Benzene	Toluene	Ethyl- benzene	Total Xylenes
K1-09 (continued)						
16-oct-1997	CS ah	V	<1 U	<1 U	<1 U	<2 U
16-oct-1997	CS aeh	V	<1 U	<1 U	<1 U	<2 U
24-oct-2000	CN af	V	<1 U	<1 U	<1 U	<1 U
23-oct-2001	CN a	V	<1 HLOU	<1 HLOU	<1 HLOU	<1 HLOU
06-dec-2002	CN af	V	<1 U	<1 U	<1 U	<1 U
NC7-28						
16-nov-1995	CS a	V	<0.3 U	<0.3 U	<0.3 U	<0.6 U
12-jun-1996	CS a	V	<0.3 U	<0.3 U	<0.3 U	<0.5 U
19-dec-1996	CS a	V	<0.3 U	<0.3 U	<0.3 U	<0.5 U
NC7-61						
01-jun-1999	CN af	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U
NC7-70						
16-nov-1995	CS a	V	<0.3 U	<0.3 U	<0.3 U	<0.6 U
19-dec-1996	CS a	V	<0.3 U	<0.3 U	<0.3 U	<0.5 U
NC7-71						
12-jun-1996	CS a	V	<0.3 U	<0.3 U	<0.3 U	<0.5 U
W-850-05						
17-nov-1995	CS aeh	V	<0.3 U	<0.3 U	<0.3 U	<0.6 U
17-nov-1995	CS ah	V	<0.3 U	<0.3 U	<0.3 U	<0.6 U
12-jun-1996	CS a	V	<0.3 U	<0.3 U	<0.3 U	<0.5 U
19-dec-1996	CS a	V	<0.3 U	<0.3 U	<0.3 U	<0.5 U
W-865-1802						
27-jun-2003	CN a	V	<1 HU	<1 HU	<1 HU	<1 HU
W-865-1803						
26-jun-2003	CN a	V	<1 HU	<1 HU	<1 HU	<1 HU
SPRING24						
22-oct-1999	CN a	V	<1 U	<1 U	<1 U	<1 U

See following page for notes

Table A-21. Ground and surface water analyses for aromatic (fuel) hydrocarbons (ug/L) in samples collected from the Building 850 subarea between July 1, 1995 and June 30, 2003. Results recorded November 4, 2003.

Notes:

- Indicates no analysis performed for this compound

Val. = Validation code

Footnotes:

a ERD data
b ORAD WGMG data
c Analytical results for this sample are suspect
d Sample collected during hydraulic testing
e Blind sample, sent to lab without location identity
f Sample dilution necessary for analysis; detection limits increased
g Interlaboratory collocated sample
h Intralaboratory collocated sample
i Sample collected as part of pilot study
j Note field may contain important information regarding this sample
k Pre-development sample
l Norm month, norm quarter or norm year inconsistent with sample date
m Confirmation sample
n Sample analyzed after standard holding time
o Sample comprised of partial composite
p Alpha spectroscopy analysis of uranium isotopes
q Gamma spectroscopy analysis of uranium isotopes
r Tritium data represents non-detect with activity calc'd for 100 percent error.

Lab Codes:

CN Caltest Analytical Laboratory 1885 N. Kelly Rd, Napa, CA 94558
CS California Laboratory Services 3249 Fitzgerald Rd. Rancho Cordova, CA 95742

Validation Codes:

V Validated
N Not validated (default value)
U Undeclared
H Historical comparison only

CLP flags: (follow result)

B Analyte found in method blank
D Analysis performed at a secondary dilution or concentration (i.e., vapor samples)
E The analyte was detected below the LLNL reporting limit, but above the analytical laboratory minimum detection limit.
F Analyte found in field blank, trip blank, or equipment blank
G Quantitated using fuel calibration, but does not match typical fuel fingerprint (fuel maybe gasoline, diesel, motor oil etc.).
H Sample analyzed outside of holding time, sample results should be evaluated
J Analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
L Spike accuracy not within control limits
O Duplicate spike or sample precision not within control limits
P Indicates that the absence of a data qualifier flag does not mean that the data does not need qualification, but that the implementation of electronic data qualifier flags was not yet established
R Sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet QC criteria. The presence or absence of the analyte cannot be verified
S Analytical results for this sample are suspect
T Analyte is tentatively identified compound; result is approximate
U Compound was analyzed for, but not detected above detection limit

Table A-22. Ground and surface water analyses for anions, TDS, specific conductivity, and pH in samples collected from the Building 850 subarea between July 1, 1995 and June 30, 2003. Results November 4, 2003.

Anions in Ground Water, Site 300
November 5, 2003
gemin11

s3anionsL.05nov2003
s3anionsR.05nov2003

Min Sample Date
July 1, 1995
Max Sample Date
June 30, 2003

Table A-22. Ground and surface water analyses for anions, TDS, specific conductivity, and pH in

Location Date	Lab Note	Val.	Fluoride (mg/L)	Silica (mg/L)	Nitrate as (NO3) (mg/L)	Chloride (mg/L)	Sulfate (mg/L)
K1-01A							
21-may-1997	CS a	V	-	-	<0.5 U	-	-
K1-01B							
22-may-1997	CS a	V	-	-	<0.5 U	-	-
K1-01C							
31-jul-1995	CS a	V	0.37	-	32	35	43
11-oct-1995	CS a	V	0.31	-	33	35 D	38 D
17-jan-1996	CS a	V	0.33 D	-	27	34	29
10-apr-1996	CS a	V	-	-	34	-	-
30-jul-1996	CS a	V	-	-	-	-	-
30-jul-1996	CS a	V	-	-	35 LO	-	-
09-oct-1996	CS a	V	0.41 F	-	31 D	37 D	34 D
16-jan-1997	CS a	V	-	-	33 D	-	-
03-apr-1997	CS a	V	-	-	35 D	-	-
01-jul-1997	CS a	V	-	-	35 D	-	-
13-oct-1997	BB a	V	-	-	36	-	-
08-jan-1998	BB a	V	-	-	37	-	-
09-apr-1998	BB a	V	-	-	37	-	-
14-jul-1998	BB a	V	-	-	37	-	-
14-oct-1998	BB a	V	-	-	37	-	-
12-jan-1999	BB a	V	-	-	37	-	-
12-apr-1999	CN a	V	-	-	11 S	-	-
06-jul-1999	CN ah	V	-	-	<0.5 SU	-	-
06-jul-1999	CN aeh	V	-	-	<0.5 SU	-	-
04-oct-1999	CN aj	V	-	-	34 LS	-	-
07-feb-2000	CN a	V	-	-	36	-	-
18-apr-2000	CN af	V	-	-	31 D	-	-
19-jul-2000	CN af	V	-	-	31 D	-	-
18-jan-2001	CN ahf	V	-	-	26 D	-	-
18-jan-2001	CN aehf	V	-	-	26 D	-	-
18-apr-2001	CN af	V	-	-	8 DH	-	-
09-jul-2001	CN af	V	-	-	21 D	-	-
16-apr-2002	CN aeh	V	-	-	38	-	-
16-apr-2002	CN ah	V	-	-	37	-	-
29-jul-2002	CN af	V	-	-	41	-	-
31-jan-2003	CN af	V	-	-	42 D	-	-
17-apr-2003	CN af	V	-	-	35	-	-
K1-02A							
21-may-1997	CS a	V	-	-	<0.5 U	-	-
08-dec-1997	BB a	V	-	-	<0.4 U	-	-
24-jun-1998	BB a	V	-	-	<0.4 U	-	-
16-dec-1998	BB ah	V	-	-	<0.4 U	-	-
16-dec-1998	BB aeh	V	-	-	<0.4 U	-	-
21-may-1999	CN aeh	V	-	-	<0.5 SU	-	-
21-may-1999	CN ah	V	-	-	<0.5 SU	-	-
02-nov-1999	CN a	N	-	-	33 S	-	-
24-may-2000	CN a	V	-	-	7.7	-	-
07-dec-2000	CN af	V	-	-	31 D	-	-
30-may-2001	CN a	V	-	-	0.4 U	-	-
05-jun-2002	CN ah	V	-	-	<0.1 U	-	-
05-jun-2002	CN aeh	V	-	-	<0.1 U	-	-
K1-02B							
31-jul-1995	CS a	V	0.33	-	36	55	65
11-oct-1995	CS a	V	0.29	-	32	53 D	58 D
17-jan-1996	CS a	V	0.29	-	28 D	59 D	59 D
10-apr-1996	CS a	V	-	-	31	-	-
30-jul-1996	CS a	V	-	-	-	-	-
30-jul-1996	CS a	V	-	-	29 LO	-	-
09-oct-1996	CS a	V	0.35 F	-	28 D	55 D	62 D
28-oct-1996	CS a	V	0.32	-	29 D	59 D	64 D
16-jan-1997	CS a	V	-	-	31 D	-	-

samples collected from the Building 850 subarea between July 1, 1995 and June 30, 2003. Results November 4, 2003.

Carbonate (mg/L)	Bicar- bonate** (mg/L)	TDS (mg/L)	Spec Cond (umhos/cm)	pH	Location Date
-	-	-	-	-	K1-01A 21-may-1997
-	-	-	-	-	K1-01B 22-may-1997
<1 U	140	360	510	6.8	K1-01C 31-jul-1995
<1 U	140	370	480	7.1	11-oct-1995
<1 U	160	350	630	7.3	17-jan-1996
-	-	-	-	-	10-apr-1996
-	-	-	520	-	30-jul-1996
-	-	-	-	-	30-jul-1996
-	-	-	-	-	09-oct-1996
-	-	-	-	-	16-jan-1997
-	-	-	-	-	03-apr-1997
-	-	-	-	-	01-jul-1997
-	-	-	-	-	13-oct-1997
-	-	-	-	-	08-jan-1998
-	-	-	-	-	09-apr-1998
-	-	-	-	-	14-jul-1998
-	-	-	-	-	14-oct-1998
-	-	-	-	-	12-jan-1999
-	-	-	-	-	12-apr-1999
-	-	-	-	-	06-jul-1999
-	-	-	-	-	06-jul-1999
-	-	-	-	-	04-oct-1999
-	-	-	-	-	07-feb-2000
-	-	-	-	-	18-apr-2000
-	-	-	-	-	19-jul-2000
-	-	-	-	-	18-jan-2001
-	-	-	-	-	18-jan-2001
-	-	-	-	-	18-apr-2001
-	-	-	-	-	09-jul-2001
-	-	-	-	-	16-apr-2002
-	-	-	-	-	16-apr-2002
-	-	-	-	-	29-jul-2002
-	-	-	-	-	31-jan-2003
-	-	-	-	-	17-apr-2003
-	-	-	-	-	K1-02A 21-may-1997
-	-	-	-	-	08-dec-1997
-	-	-	-	-	24-jun-1998
-	-	-	-	-	16-dec-1998
-	-	-	-	-	16-dec-1998
-	-	-	-	-	21-may-1999
-	-	-	-	-	21-may-1999
-	-	-	-	-	02-nov-1999
-	-	-	-	-	24-may-2000
-	-	-	-	-	07-dec-2000
-	-	-	-	-	30-may-2001
-	-	-	-	-	05-jun-2002
-	-	-	-	-	05-jun-2002
<1 U	150	430	590	7.3	K1-02B 31-jul-1995
<1 U	140	430	600	7.2	11-oct-1995
<1 U	140	440	490	7.5	17-jan-1996
-	-	-	-	-	10-apr-1996
-	-	-	640	-	30-jul-1996
-	-	-	-	-	30-jul-1996
-	-	-	-	-	09-oct-1996
<1 U	150	440	640	7.2	28-oct-1996
-	-	-	-	-	16-jan-1997

Table A-22. Ground and surface water analyses for anions, TDS, specific conductivity, and pH in

Location Date	Lab Note	Val.	Fluoride (mg/L)	Silica (mg/L)	Nitrate as (NO3) (mg/L)	Chloride (mg/L)	Sulfate (mg/L)
K1-02B (continued)							
03-apr-1997	CS	a V	-	-	29 D	-	-
01-jul-1997	CS	a V	-	-	30 D	-	-
13-oct-1997	BB	a V	-	-	31	-	-
08-jan-1998	BB	a V	-	-	31	-	-
09-apr-1998	BB	a V	-	-	29	-	-
14-jul-1998	BB	a V	-	-	31	-	-
13-oct-1998	BB	a V	-	-	33	-	-
12-jan-1999	BB	ah V	-	-	33	-	-
12-jan-1999	BB	aeh V	-	-	33	-	-
15-apr-1999	CN	a V	-	-	4.6 S	-	-
09-jul-1999	CN	a V	-	-	<0.5 LSU	-	-
07-oct-1999	CN	af V	-	-	70 DS	-	-
07-feb-2000	CN	a V	-	-	34	-	-
18-apr-2000	CN	af V	-	-	28 D	-	-
19-jul-2000	CN	af V	-	-	31 D	-	-
18-jan-2001	CN	af V	-	-	24 D	-	-
18-apr-2001	CN	af V	-	-	8 DH	-	-
09-jul-2001	CN	af V	-	-	19 D	-	-
16-apr-2002	CN	a V	-	-	35	-	-
29-jul-2002	CN	af V	-	-	39	-	-
30-jan-2003	CN	af V	-	-	38	-	-
17-apr-2003	CN	afh V	-	-	37 D	-	-
17-apr-2003	CN	aefh V	-	-	39 D	-	-
K1-03							
31-jul-1995	CS	a V	0.32	-	30	34	51
11-oct-1995	CS	ah V	0.28	-	27	34 D	35 D
11-oct-1995	CS	aeh V	0.28	-	27	34 D	35 D
18-jan-1996	CS	a V	0.3 F	-	29 LO	34	31
10-apr-1996	CS	a V	-	-	27	-	-
30-jul-1996	CS	a V	-	-	-	-	-
30-jul-1996	CS	a V	-	-	27 LO	-	-
10-oct-1996	CS	a V	0.34	-	24 D	36 D	34 D
16-jan-1997	CS	a V	-	-	26 D	-	-
03-apr-1997	CS	a V	-	-	25 D	-	-
02-jul-1997	CS	a V	-	-	27 D	-	-
14-oct-1997	BB	a V	-	-	29	-	-
08-jan-1998	BB	a V	-	-	29	-	-
09-apr-1998	BB	ah V	-	-	29	-	-
09-apr-1998	BB	aeh V	-	-	30	-	-
15-jul-1998	BB	a V	-	-	30	-	-
13-oct-1998	BB	a V	-	-	31	-	-
12-jan-1999	BB	a V	-	-	33	-	-
15-apr-1999	CN	a V	-	-	<0.5 SU	-	-
09-jul-1999	CN	a V	-	-	<0.5 LSU	-	-
06-oct-1999	CN	af V	-	-	10 DS	-	-
07-feb-2000	CN	a V	-	-	7.6	-	-
18-apr-2000	CN	af V	-	-	28 D	-	-
19-jul-2000	CN	af V	-	-	29 D	-	-
23-oct-2000	CN	afh V	-	-	29 D	-	-
23-oct-2000	CN	aefh V	-	-	29 D	-	-
18-jan-2001	CN	af V	-	-	24 D	-	-
18-apr-2001	CN	af V	-	-	8 DH	-	-
09-jul-2001	CN	afh V	-	-	19 D	-	-
09-jul-2001	CN	aefh V	-	-	19 D	-	-
16-apr-2002	CN	a V	-	-	34	-	-
29-jul-2002	CN	af V	-	-	36	-	-
30-jan-2003	CN	af V	-	-	35 D	-	-
17-apr-2003	CN	af V	-	-	35 D	-	-
K1-04							
31-jul-1995	CS	a V	0.42	-	22	32	47
11-oct-1995	CS	ah V	0.37	-	21	31 D	42 D
18-jan-1996	CS	a V	0.4 F	-	24 LO	31	37
11-apr-1996	CS	a V	-	-	18	-	-

samples collected from the Building 850 subarea between July 1, 1995 and June 30, 2003. Results November 4, 2003.

Carbonate (mg/L)	Bicar- bonate** (mg/L)	TDS (mg/L)	Spec Cond (umhos/cm)	pH	Location Date
-	-	-	-	-	(continued) K1-02B
-	-	-	-	-	03-apr-1997
-	-	-	-	-	01-jul-1997
-	-	-	-	-	13-oct-1997
-	-	-	-	-	08-jan-1998
-	-	-	-	-	09-apr-1998
-	-	-	-	-	14-jul-1998
-	-	-	-	-	13-oct-1998
-	-	-	-	-	12-jan-1999
-	-	-	-	-	12-jan-1999
-	-	-	-	-	15-apr-1999
-	-	-	-	-	09-jul-1999
-	-	-	-	-	07-oct-1999
-	-	-	-	-	07-feb-2000
-	-	-	-	-	18-apr-2000
-	-	-	-	-	19-jul-2000
-	-	-	-	-	18-jan-2001
-	-	-	-	-	18-apr-2001
-	-	-	-	-	09-jul-2001
-	-	-	-	-	16-apr-2002
-	-	-	-	-	29-jul-2002
-	-	-	-	-	30-jan-2003
-	-	-	-	-	17-apr-2003
-	-	-	-	-	17-apr-2003
<1 U	140	360	480	7.3	K1-03
<1 U	140	340	470	7.4	31-jul-1995
<1 U	140	340	500	7.4	11-oct-1995
<1 U	140	380	440	7.4	11-oct-1995
-	-	-	-	-	18-jan-1996
-	-	-	520	-	10-apr-1996
-	-	-	-	-	30-jul-1996
-	-	-	-	-	30-jul-1996
-	-	-	-	-	10-oct-1996
-	-	-	-	-	16-jan-1997
-	-	-	-	-	03-apr-1997
-	-	-	-	-	02-jul-1997
-	-	-	-	-	14-oct-1997
-	-	-	-	-	08-jan-1998
-	-	-	-	-	09-apr-1998
-	-	-	-	-	09-apr-1998
-	-	-	-	-	15-jul-1998
-	-	-	-	-	13-oct-1998
-	-	-	-	-	12-jan-1999
-	-	-	-	-	15-apr-1999
-	-	-	-	-	09-jul-1999
-	-	-	-	-	06-oct-1999
-	-	-	-	-	07-feb-2000
-	-	-	-	-	18-apr-2000
-	-	-	-	-	19-jul-2000
-	-	-	-	-	23-oct-2000
-	-	-	-	-	23-oct-2000
-	-	-	-	-	18-jan-2001
-	-	-	-	-	18-apr-2001
-	-	-	-	-	09-jul-2001
-	-	-	-	-	09-jul-2001
-	-	-	-	-	16-apr-2002
-	-	-	-	-	29-jul-2002
-	-	-	-	-	30-jan-2003
-	-	-	-	-	17-apr-2003
<1 U	140	360	500	7.4	K1-04
<1 U	150	360	510	7.4	31-jul-1995
<1 U	150	370	480	7.5	11-oct-1995
-	-	-	-	-	18-jan-1996
-	-	-	-	-	11-apr-1996

Table A-22. Ground and surface water analyses for anions, TDS, specific conductivity, and pH in

Location Date	Lab Note	Val.	Fluoride (mg/L)	Silica (mg/L)	Nitrate as (NO3) (mg/L)	Chloride (mg/L)	Sulfate (mg/L)				
K1-04 (continued)											
31-jul-1996	CS	ah	V	-	-	-	-				
31-jul-1996	CS	ae	h	V	-	-	-				
31-jul-1996	CS	ah	V	-	20	LO	-				
31-jul-1996	CS	ae	h	V	-	-	-				
10-oct-1996	CS	a	V	0.42	20	D	40	D			
16-jan-1997	CS	a	V	-	22	D	-				
03-apr-1997	CS	a	V	-	20	D	-				
02-jul-1997	CS	a	V	-	22	D	-				
14-oct-1997	BB	a	V	-	24	-	-				
08-jan-1998	BB	a	V	-	23	-	-				
09-apr-1998	BB	a	V	-	22	-	-				
15-jul-1998	BB	a	V	-	24	-	-				
14-oct-1998	BB	a	V	-	28	-	-				
13-jan-1999	BB	a	V	-	27	-	-				
14-apr-1999	CN	a	V	-	<0.5	SU	-				
06-oct-1999	CN	af	V	-	41	DS	-				
07-feb-2000	CN	a	V	-	5.9	-	-				
18-apr-2000	CN	ah	V	-	25	D	-				
18-apr-2000	CN	ae	h	V	25	D	-				
19-jul-2000	CN	af	V	-	26	D	-				
23-oct-2000	CN	af	V	-	24	D	-				
18-jan-2001	CN	a	V	-	8	-	-				
23-apr-2001	CN	af	V	-	14	D	-				
10-jul-2001	CN	a	V	-	2.4	L	-				
16-apr-2002	CN	ag	V	-	25	-	-				
29-jul-2002	CN	af	h	V	37	-	-				
29-jul-2002	CN	ae	f	h	V	33	-				
29-jan-2003	CN	ae	f	h	V	44	D				
29-jan-2003	CN	af	h	V	43	D	-				
18-apr-2003	SE	af	N	-	30	D	-				
K1-05											
31-jul-1995	CS	ah	V	0.52	39	35	43				
31-jul-1995	CS	ae	h	V	0.53	36	44				
12-oct-1995	CS	ah	V	0.44	36	35	D	39	D		
18-jan-1996	CS	a	V	0.5	F	29	LO	35			
11-apr-1996	CS	a	V	-	35	-	-	-			
31-jul-1996	CS	a	V	-	-	-	-	-			
31-jul-1996	CS	a	V	-	35	LO	-	-			
11-oct-1996	CS	a	V	0.49	LO	31	DLOH	40	DLO	39	DLO
17-jan-1997	CS	ah	V	-	35	D	-	-	-		
17-jan-1997	CS	ae	h	V	34	D	-	-	-		
04-apr-1997	CS	a	V	-	30	D	-	-	-		
02-jul-1997	CS	a	V	-	33	D	-	-	-		
14-oct-1997	BB	a	V	-	35	-	-	-	-		
12-jan-1998	BB	ah	V	-	35	-	-	-	-		
12-jan-1998	BB	ae	h	V	35	-	-	-	-		
15-apr-1998	BB	a	V	-	35	-	-	-	-		
16-jul-1998	BB	a	V	-	35	-	-	-	-		
14-oct-1998	BB	a	V	-	37	-	-	-	-		
13-jan-1999	BB	a	V	-	33	-	-	-	-		
14-apr-1999	CN	a	V	-	<0.5	SU	-	-	-		
08-jul-1999	CN	a	V	-	<0.5	LSU	-	-	-		
06-oct-1999	CN	af	h	V	24	DS	-	-	-		
06-oct-1999	CN	ae	f	h	V	52	DS	-	-		
08-feb-2000	CN	a	V	-	37	-	-	-	-		
19-jul-2000	CN	af	V	-	33	D	-	-	-		
24-oct-2000	CN	af	V	-	31	D	-	-	-		
18-jan-2001	CN	af	V	-	28	D	-	-	-		
20-apr-2001	CN	af	h	V	9.4	DH	-	-	-		
20-apr-2001	CN	ae	f	h	V	8.8	DH	-	-		
12-jul-2001	CN	a	V	-	35	-	-	-	-		
18-apr-2002	CN	a	V	-	33	L	-	-	-		
30-jul-2002	CN	af	V	-	42	-	-	-	-		
29-jan-2003	CN	af	V	-	46	D	-	-	-		

samples collected from the Building 850 subarea between July 1, 1995 and June 30, 2003. Results November 4, 2003.

Carbonate (mg/L)	Bicar- bonate** (mg/L)	TDS (mg/L)	Spec Cond (umhos/cm)	pH	Location Date
-	-	-	490	-	(continued) K1-04 31-jul-1996
-	-	-	490	-	31-jul-1996
-	-	-	-	-	31-jul-1996
-	-	-	-	-	31-jul-1996
-	-	-	-	-	10-oct-1996
-	-	-	-	-	16-jan-1997
-	-	-	-	-	03-apr-1997
-	-	-	-	-	02-jul-1997
-	-	-	-	-	14-oct-1997
-	-	-	-	-	08-jan-1998
-	-	-	-	-	09-apr-1998
-	-	-	-	-	15-jul-1998
-	-	-	-	-	14-oct-1998
-	-	-	-	-	13-jan-1999
-	-	-	-	-	14-apr-1999
-	-	-	-	-	06-oct-1999
-	-	-	-	-	07-feb-2000
-	-	-	-	-	18-apr-2000
-	-	-	-	-	18-apr-2000
-	-	-	-	-	19-jul-2000
-	-	-	-	-	23-oct-2000
-	-	-	-	-	18-jan-2001
-	-	-	-	-	23-apr-2001
-	-	-	-	-	10-jul-2001
-	-	-	-	-	16-apr-2002
-	-	-	-	-	29-jul-2002
-	-	-	-	-	29-jul-2002
-	-	-	-	-	29-jan-2003
-	-	-	-	-	29-jan-2003
-	-	-	570	-	18-apr-2003
					K1-05
<1 U	120	360	480	7.4	31-jul-1995
<1 U	130	300	500	7.5	31-jul-1995
<1 U	120	350	500	7.4	12-oct-1995
<1 U	120	370	490	7.5	18-jan-1996
-	-	-	-	-	11-apr-1996
-	-	-	500	-	31-jul-1996
-	-	-	-	-	31-jul-1996
-	-	-	-	-	11-oct-1996
-	-	-	-	-	17-jan-1997
-	-	-	-	-	17-jan-1997
-	-	-	-	-	04-apr-1997
-	-	-	-	-	02-jul-1997
-	-	-	-	-	14-oct-1997
-	-	-	-	-	12-jan-1998
-	-	-	-	-	12-jan-1998
-	-	-	-	-	15-apr-1998
-	-	-	-	-	16-jul-1998
-	-	-	-	-	14-oct-1998
-	-	-	-	-	13-jan-1999
-	-	-	-	-	14-apr-1999
-	-	-	-	-	08-jul-1999
-	-	-	-	-	06-oct-1999
-	-	-	-	-	06-oct-1999
-	-	-	-	-	08-feb-2000
-	-	-	-	-	19-jul-2000
-	-	-	-	-	24-oct-2000
-	-	-	-	-	18-jan-2001
-	-	-	-	-	20-apr-2001
-	-	-	-	-	20-apr-2001
-	-	-	-	-	12-jul-2001
-	-	-	-	-	18-apr-2002
-	-	-	-	-	30-jul-2002
-	-	-	-	-	29-jan-2003

Table A-22. Ground and surface water analyses for anions, TDS, specific conductivity, and pH in

Location Date	Lab Note	Val.	Fluoride (mg/L)	Silica (mg/L)	Nitrate as (NO3) (mg/L)	Chloride (mg/L)	Sulfate (mg/L)
K1-05 (continued)							
18-apr-2003	SE	af N	-	-	35 D	-	-
K1-06							
03-jun-2003	CN	a V	-	-	10	-	-
K1-07							
31-jul-1995	CS	a V	0.49	-	35	33	41
12-oct-1995	CS	ah V	0.44	-	32	32 D	36 D
18-jan-1996	CS	a V	0.48 F	-	32 LO	31	33
12-apr-1996	CS	a V	-	-	28	-	-
31-jul-1996	CS	a V	-	-	-	-	-
31-jul-1996	CS	a V	-	-	30 LO	-	-
11-oct-1996	CS	a V	0.47 LO	-	28 DLOH	34 DLO	46 LO
17-jan-1997	CS	a V	-	-	31 D	-	-
04-apr-1997	CS	a V	-	-	25 D	-	-
03-jul-1997	CS	a V	-	-	31 D	-	-
16-oct-1997	BB	a V	-	-	34	-	-
12-jan-1998	BB	a V	-	-	33	-	-
15-apr-1998	BB	a V	-	-	32	-	-
16-jul-1998	BB	a V	-	-	33	-	-
15-oct-1998	BB	a N	-	-	34	-	-
14-jan-1999	BB	a V	-	-	30	-	-
12-apr-1999	CN	a V	-	-	5.5 S	-	-
06-jul-1999	CN	a V	-	-	<0.5 SU	-	-
04-oct-1999	CN	aj V	-	-	29 LS	-	-
08-feb-2000	CN	ah V	-	-	30	-	-
08-feb-2000	CN	aeh V	-	-	30	-	-
20-jul-2000	CN	af V	-	-	27 D	-	-
25-oct-2000	CN	a V	-	-	19	-	-
22-jan-2001	CN	a V	-	-	12 L	-	-
23-apr-2001	CN	af V	-	-	22 D	-	-
10-jul-2001	CN	af V	-	-	12 DL	-	-
18-apr-2002	CN	a V	-	-	25 L	-	-
30-jul-2002	CN	af V	-	-	33	-	-
30-jan-2003	CN	af V	-	-	36 D	-	-
01-may-2003	CN	af V	-	-	37 D	-	-
K1-08							
31-jul-1995	CS	a V	0.51	-	39	38	48
12-oct-1995	CS	a V	0.45	-	35	38 D	45 D
18-jan-1996	CS	a V	0.48 F	-	28 LO	37	40
12-apr-1996	CS	ah V	-	-	32	-	-
12-apr-1996	CS	aeh V	-	-	32	-	-
31-jul-1996	CS	a V	-	-	-	-	-
31-jul-1996	CS	a V	-	-	36 LO	-	-
11-oct-1996	CS	ah V	0.46 LO	-	28 DLOH	42 DLO	46 LO
11-oct-1996	CS	aeh V	0.46 LO	-	29 DLOH	43 DLO	45 DLO
17-jan-1997	CS	a V	-	-	35 D	-	-
04-apr-1997	CS	a V	-	-	26 D	-	-
03-jul-1997	CS	ah V	-	-	35 D	-	-
03-jul-1997	CS	aeh V	-	-	34 D	-	-
16-oct-1997	BB	a V	-	-	37	-	-
12-jan-1998	BB	a V	-	-	36	-	-
15-apr-1998	BB	a V	-	-	36	-	-
16-jul-1998	BB	ah V	-	-	37	-	-
16-jul-1998	BB	aeh V	-	-	38	-	-
15-oct-1998	BB	a N	-	-	37	-	-
14-jan-1999	BB	a V	-	-	35	-	-
12-apr-1999	CN	a V	-	-	5.5 S	-	-
07-jul-1999	CN	a V	-	-	<0.5 SU	-	-
04-oct-1999	CN	afj V	-	-	28 DLS	-	-
09-feb-2000	CN	a V	-	-	42	-	-
20-jul-2000	CN	af V	-	-	34 D	-	-
24-oct-2000	CN	af V	-	-	32 D	-	-
22-jan-2001	CN	af V	-	-	35 DHL	-	-

samples collected from the Building 850 subarea between July 1, 1995 and June 30, 2003. Results November 4, 2003.

Carbonate (mg/L)	Bicar- bonate** (mg/L)	TDS (mg/L)	Spec Cond (umhos/cm)	pH	Location Date
-	-	-	600	-	(continued) K1-05 18-apr-2003
-	-	-	-	-	K1-06 03-jun-2003
<1 U	130	360	480	7.5	K1-07 31-jul-1995
<1 U	140	430	510	7.4	12-oct-1995
<1 U	140	360	480	7.5	18-jan-1996
-	-	-	-	-	12-apr-1996
-	-	-	480	-	31-jul-1996
-	-	-	-	-	31-jul-1996
-	-	-	-	-	11-oct-1996
-	-	-	-	-	17-jan-1997
-	-	-	-	-	04-apr-1997
-	-	-	-	-	03-jul-1997
-	-	-	-	-	16-oct-1997
-	-	-	-	-	12-jan-1998
-	-	-	-	-	15-apr-1998
-	-	-	-	-	16-jul-1998
-	-	-	-	-	15-oct-1998
-	-	-	-	-	14-jan-1999
-	-	-	-	-	12-apr-1999
-	-	-	-	-	06-jul-1999
-	-	-	-	-	04-oct-1999
-	-	-	-	-	08-feb-2000
-	-	-	-	-	08-feb-2000
-	-	-	-	-	20-jul-2000
-	-	-	-	-	25-oct-2000
-	-	-	-	-	22-jan-2001
-	-	-	-	-	23-apr-2001
-	-	-	-	-	10-jul-2001
-	-	-	-	-	18-apr-2002
-	-	-	-	-	30-jul-2002
-	-	-	-	-	30-jan-2003
-	-	-	-	-	01-may-2003
<1 U	130	390	520	7.5	K1-08 31-jul-1995
<1 U	130	360	540	7.5	12-oct-1995
<1 U	81	390	500	7.5	18-jan-1996
-	-	-	-	-	12-apr-1996
-	-	-	-	-	12-apr-1996
-	-	-	530	-	31-jul-1996
-	-	-	-	-	31-jul-1996
-	-	-	-	-	11-oct-1996
-	-	-	-	-	11-oct-1996
-	-	-	-	-	17-jan-1997
-	-	-	-	-	04-apr-1997
-	-	-	-	-	03-jul-1997
-	-	-	-	-	03-jul-1997
-	-	-	-	-	16-oct-1997
-	-	-	-	-	12-jan-1998
-	-	-	-	-	15-apr-1998
-	-	-	-	-	16-jul-1998
-	-	-	-	-	16-jul-1998
-	-	-	-	-	15-oct-1998
-	-	-	-	-	14-jan-1999
-	-	-	-	-	12-apr-1999
-	-	-	-	-	07-jul-1999
-	-	-	-	-	04-oct-1999
-	-	-	-	-	09-feb-2000
-	-	-	-	-	20-jul-2000
-	-	-	-	-	24-oct-2000
-	-	-	-	-	22-jan-2001

Table A-22. Ground and surface water analyses for anions, TDS, specific conductivity, and pH in

Location Date	Lab Note	Val.	Fluoride (mg/L)	Silica (mg/L)	Nitrate as (NO ₃) (mg/L)	Chloride (mg/L)	Sulfate (mg/L)
K1-08 (continued)							
23-apr-2001	CN	af	V	-	-	32 D	-
11-jul-2001	CN	af	V	-	-	31 D	-
18-apr-2002	CN	a	V	-	-	34 L	-
30-jul-2002	CN	af	V	-	-	43	-
07-feb-2003	CN	af	V	-	-	43	-
02-may-2003	CN	af	V	-	-	40 D	-
K1-09							
31-jul-1995	CS	a	V	0.51	-	38	37
12-oct-1995	CS	ah	V	0.44	-	35	37 D
18-jan-1996	CS	ah	V	0.5 F	-	12 LO	36
18-jan-1996	CS	aeH	V	0.5 F	-	12 LO	37
12-apr-1996	CS	a	V	-	-	34	-
31-jul-1996	CS	a	V	-	-	-	-
31-jul-1996	CS	a	V	-	-	35 LO	-
11-oct-1996	CS	a	V	0.47 LO	-	30 DLOH	40 DLO
17-jan-1997	CS	a	V	-	-	35 D	-
04-apr-1997	CS	ah	V	-	-	29 D	-
04-apr-1997	CS	aeH	V	-	-	29 D	-
03-jul-1997	CS	a	V	-	-	34 D	-
16-oct-1997	BB	ah	V	-	-	36	-
16-oct-1997	BB	aeH	V	-	-	37	-
17-mar-1998	BB	a	V	-	-	36	-
15-apr-1998	BB	a	V	-	-	36	-
16-jul-1998	BB	a	V	-	-	37	-
15-oct-1998	BB	ah	N	-	-	37	-
15-oct-1998	BB	aeH	N	-	-	36	-
13-jan-1999	BB	a	V	-	-	36	-
13-apr-1999	CN	ah	V	-	-	11 S	-
13-apr-1999	CN	aeH	V	-	-	11 S	-
07-jul-1999	CN	a	V	-	-	<0.5 SU	-
04-oct-1999	CN	afj	V	-	-	28 DLS	-
09-feb-2000	CN	a	V	-	-	9.4	-
20-jul-2000	CN	afh	V	-	-	34 D	-
20-jul-2000	CN	aeH	V	-	-	34 D	-
24-oct-2000	CN	af	V	-	-	32 D	-
22-jan-2001	CN	af	V	-	-	18 DL	-
20-apr-2001	CN	af	V	-	-	9.3 DH	-
11-jul-2001	CN	af	V	-	-	31 D	-
18-apr-2002	CN	a	V	-	-	34 L	-
30-jul-2002	CN	af	V	-	-	46	-
31-jan-2003	CN	af	V	-	-	42 D	-
02-may-2003	CN	af	V	-	-	43 D	-
K2-01A							
22-may-1997	CS	ah	V	-	-	<0.5 U	-
22-may-1997	CS	aeH	V	-	-	<0.5 U	-
09-Dec-1997	BB	a	V	-	-	<0.4 U	-
25-jun-1998	BB	a	V	-	-	<0.4 U	-
17-Dec-1998	BB	a	V	-	-	<0.4 U	-
21-may-1999	CN	a	V	-	-	<0.5 SU	-
02-nov-1999	CN	a	N	-	-	27 S	-
24-may-2000	CN	a	V	-	-	0.2	-
07-dec-2000	CN	afh	V	-	-	30 D	-
07-dec-2000	CN	aeH	V	-	-	38 D	-
30-may-2001	CN	a	V	-	-	<0.4 U	-
29-may-2002	CN	a	V	-	-	3.4	-
K2-01B							
22-may-1997	CS	a	V	-	-	<0.5 U	-
09-dec-1997	BB	ah	V	-	-	<0.4 U	-
09-dec-1997	BB	aeH	V	-	-	<0.4 U	-
25-jun-1998	BB	a	V	-	-	<0.4 U	-

samples collected from the Building 850 subarea between July 1, 1995 and June 30, 2003. Results November 4, 2003.

Carbonate (mg/L)	Bicar- bonate** (mg/L)	TDS (mg/L)	Spec Cond (umhos/cm)	pH	Location Date
-	-	-	-	-	(continued) K1-08
-	-	-	-	-	23-apr-2001
-	-	-	-	-	11-jul-2001
-	-	-	-	-	18-apr-2002
-	-	-	-	-	30-jul-2002
-	-	-	-	-	07-feb-2003
-	-	-	-	-	02-may-2003
					K1-09
<1 U	120	370	520	7.5	31-jul-1995
<1 U	130	370	540	7.5	12-oct-1995
<1 U	180	390	520	7.5	18-jan-1996
<1 U	130	380	520	7.5	18-jan-1996
-	-	-	-	-	12-apr-1996
-	-	-	510	-	31-jul-1996
-	-	-	-	-	31-jul-1996
-	-	-	-	-	11-oct-1996
-	-	-	-	-	17-jan-1997
-	-	-	-	-	04-apr-1997
-	-	-	-	-	04-apr-1997
-	-	-	-	-	03-jul-1997
-	-	-	-	-	16-oct-1997
-	-	-	-	-	16-oct-1997
-	-	-	-	-	17-mar-1998
-	-	-	-	-	15-apr-1998
-	-	-	-	-	16-jul-1998
-	-	-	-	-	15-oct-1998
-	-	-	-	-	15-oct-1998
-	-	-	-	-	15-oct-1998
-	-	-	-	-	13-jan-1999
-	-	-	-	-	13-apr-1999
-	-	-	-	-	13-apr-1999
-	-	-	-	-	07-jul-1999
-	-	-	-	-	04-oct-1999
-	-	-	-	-	09-feb-2000
-	-	-	-	-	20-jul-2000
-	-	-	-	-	20-jul-2000
-	-	-	-	-	24-oct-2000
-	-	-	-	-	22-jan-2001
-	-	-	-	-	20-apr-2001
-	-	-	-	-	11-jul-2001
-	-	-	-	-	18-apr-2002
-	-	-	-	-	30-jul-2002
-	-	-	-	-	31-jan-2003
-	-	-	-	-	02-may-2003
					K2-01A
-	-	-	-	-	22-may-1997
-	-	-	-	-	22-may-1997
-	-	-	-	-	09-dec-1997
-	-	-	-	-	25-jun-1998
-	-	-	-	-	17-dec-1998
-	-	-	-	-	21-may-1999
-	-	-	-	-	02-nov-1999
-	-	-	-	-	24-may-2000
-	-	-	-	-	07-dec-2000
-	-	-	-	-	07-dec-2000
-	-	-	-	-	30-may-2001
-	-	-	-	-	29-may-2002
					K2-01B
-	-	-	-	-	22-may-1997
-	-	-	-	-	09-dec-1997
-	-	-	-	-	09-dec-1997
-	-	-	-	-	25-jun-1998

Table A-22. Ground and surface water analyses for anions, TDS, specific conductivity, and pH in

Location Date	Lab Note	Val.	Fluoride (mg/L)	Silica (mg/L)	Nitrate as (NO ₃) (mg/L)	Chloride (mg/L)	Sulfate (mg/L)
K2-01C							
08-aug-1995	CS a	V	0.47	-	32	100 D	190 D
02-nov-1995	CS a	V	0.2	-	28	96 D	170 D
14-dec-1998	BB a	V	-	-	48	-	-
26-may-1999	CN af	V	-	-	44 DS	-	-
08-nov-1999	CN af	N	-	-	40 DS	-	-
17-may-2000	CN af	V	-	-	38 D	-	-
21-nov-2000	CN af	V	-	-	22 D	-	-
16-may-2001	CN af	V	-	-	37.4 D	-	-
14-may-2002	CN a	V	-	-	35	-	-
05-jun-2003	CN af	V	-	-	35 D	-	-
05-jun-2003	CN af	V	0.72 D	-	-	-	-
K2-02A							
21-may-1997	CS a	V	-	-	<0.5 U	-	-
04-dec-1997	BB a	V	-	-	<0.4 U	-	-
24-jun-1998	BB ah	V	-	-	<0.4 U	-	-
24-jun-1998	BB aeh	V	-	-	<0.4 U	-	-
16-dec-1998	BB a	V	-	-	<0.4 U	-	-
17-may-1999	CN a	V	-	-	<0.5 LOSU	-	-
02-nov-1999	CN ah	N	-	-	16 S	-	-
02-nov-1999	CN aeh	N	-	-	23 S	-	-
24-may-2000	CN a	V	-	-	<0.1 U	-	-
07-dec-2000	CN a	V	-	-	<0.1 U	-	-
30-may-2001	CN ah	V	-	-	<0.4 U	-	-
30-may-2001	CN aeh	V	-	-	<0.4 U	-	-
29-may-2002	CN a	V	-	-	<0.1 U	-	-
K2-02B							
21-may-1997	CS a	V	-	-	<0.5 U	-	-
04-dec-1997	BB a	V	-	-	<0.4 U	-	-
24-jun-1998	BB a	V	-	-	<0.4 U	-	-
16-dec-1998	BB a	V	-	-	<0.4 U	-	-
17-may-1999	CN a	V	-	-	<0.5 LOSU	-	-
02-nov-1999	CN a	N	-	-	6 S	-	-
24-may-2000	CN ah	V	-	-	0.2	-	-
24-may-2000	CN aeh	V	-	-	<0.1 U	-	-
07-dec-2000	CN a	V	-	-	<0.1 U	-	-
30-may-2001	CN a	V	-	-	<0.4 U	-	-
29-may-2002	CN a	V	-	-	<0.1 U	-	-
K2-03							
05-jun-2003	CN a	V	-	-	10	-	-
K2-04D							
08-aug-1995	CS a	V	0.48	-	32 D	38 D	46 D
02-nov-1995	CS a	V	0.51 LO	-	27 D	33 D	34 D
24-nov-1997	BB ah	V	-	-	33	-	-
24-nov-1997	BB aeh	V	-	-	33	-	-
22-jun-1998	BB a	V	-	-	35	-	-
07-dec-1998	BB ah	V	-	-	37	-	-
07-dec-1998	BB aeh	V	-	-	37	-	-
26-may-1999	CN a	V	-	-	32 S	-	-
08-nov-1999	CN a	N	-	-	38 S	-	-
17-may-2000	CN af	V	-	-	32 D	-	-
21-nov-2000	CN af	V	-	-	22 D	-	-
06-jun-2001	CN a	V	-	-	29 D	-	-
16-may-2002	CN aefh	V	-	-	41 D	-	-
16-may-2002	CN afh	V	-	-	40 D	-	-
15-may-2003	CN afg	V	-	-	40 D	-	-
K2-04S							
08-aug-1995	CS a	V	0.38	-	40 D	51 D	100 D
02-nov-1995	CS a	V	0.5	-	38 D	49 D	89 D
18-nov-1997	BB a	V	-	-	53	-	-
22-jun-1998	BB a	V	-	-	58	-	-

samples collected from the Building 850 subarea between July 1, 1995 and June 30, 2003. Results November 4, 2003.

Carbonate (mg/L)	Bicar- bonate** (mg/L)	TDS (mg/L)	Spec Cond (umhos/cm)	pH	Location Date
					K2-01C
<1 U	250	710	1100	7.1	08-aug-1995
<1 U	240	760	1100	7.3	02-nov-1995
-	-	-	-	-	14-dec-1998
-	-	-	-	-	26-may-1999
-	-	-	-	-	08-nov-1999
-	-	-	-	-	17-may-2000
-	-	-	-	-	21-nov-2000
-	-	-	-	-	16-may-2001
-	-	-	-	-	14-may-2002
-	-	-	-	-	05-jun-2003
-	-	-	-	-	05-jun-2003
					K2-02A
-	-	-	-	-	21-may-1997
-	-	-	-	-	04-dec-1997
-	-	-	-	-	24-jun-1998
-	-	-	-	-	24-jun-1998
-	-	-	-	-	16-dec-1998
-	-	-	-	-	17-may-1999
-	-	-	-	-	02-nov-1999
-	-	-	-	-	02-nov-1999
-	-	-	-	-	24-may-2000
-	-	-	-	-	07-dec-2000
-	-	-	-	-	30-may-2001
-	-	-	-	-	30-may-2001
-	-	-	-	-	29-may-2002
					K2-02B
-	-	-	-	-	21-may-1997
-	-	-	-	-	04-dec-1997
-	-	-	-	-	24-jun-1998
-	-	-	-	-	16-dec-1998
-	-	-	-	-	17-may-1999
-	-	-	-	-	02-nov-1999
-	-	-	-	-	24-may-2000
-	-	-	-	-	24-may-2000
-	-	-	-	-	07-dec-2000
-	-	-	-	-	30-may-2001
-	-	-	-	-	29-may-2002
					K2-03
-	-	-	-	-	05-jun-2003
					K2-04D
<1 U	140	400	600	7.5	08-aug-1995
<1 U	170	400	530	7.4	02-nov-1995
-	-	-	-	-	24-nov-1997
-	-	-	-	-	24-nov-1997
-	-	-	-	-	22-jun-1998
-	-	-	-	-	07-dec-1998
-	-	-	-	-	07-dec-1998
-	-	-	-	-	26-may-1999
-	-	-	-	-	08-nov-1999
-	-	-	-	-	17-may-2000
-	-	-	-	-	21-nov-2000
-	-	-	-	-	06-jun-2001
-	-	-	-	-	16-may-2002
-	-	-	-	-	16-may-2002
-	-	-	-	-	15-may-2003
					K2-04S
<1 U	250	560	830	7.7	08-aug-1995
<1 U	190	570	730	7.7	02-nov-1995
-	-	-	-	-	18-nov-1997
-	-	-	-	-	22-jun-1998

Table A-22. Ground and surface water analyses for anions, TDS, specific conductivity, and pH in

Location Date	Lab Note	Val.	Fluoride (mg/L)	Silica (mg/L)	Nitrate as (NO3) (mg/L)	Chloride (mg/L)	Sulfate (mg/L)
K2-04S (continued)							
30-nov-1998	BB	a	V	-	-	51	-
02-jun-1999	CN	afh	V	-	-	49 DS	-
02-jun-1999	CN	aefh	V	-	-	36 DS	-
09-nov-1999	CN	af	V	-	-	61 DS	-
18-may-2000	CN	a	V	-	-	42	-
27-nov-2000	CN	af	V	-	-	39 D	-
16-may-2001	CN	afh	V	-	-	35 D	-
16-may-2001	CN	aefh	V	-	-	34.5 D	-
16-may-2002	CN	af	V	-	-	42 D	-
02-may-2003	CN	afg	V	-	-	43 D	-
NC2-05							
12-jun-2003	CN	af	V	-	-	39 D	-
NC2-05A							
05-jun-2003	CN	af	V	-	-	41 D	-
NC2-06							
05-jun-2003	CN	a	V	-	-	15	-
NC2-06A							
20-jun-2003	CN	a	V	-	-	4.6	-
NC2-07							
08-aug-1995	CS	a	V	0.47	-	22	69 D
03-nov-1995	CS	a	V	0.4 LO	-	20	64 D
01-dec-1997	BB	a	V	-	-	17	-
23-jun-1998	BB	a	V	-	-	25	-
09-dec-1998	BB	a	V	-	-	23	-
03-jun-1999	CN	af	V	-	-	8 DS	-
15-nov-1999	CN	afh	V	-	-	19 DOS	-
15-nov-1999	CN	aefh	V	-	-	85 DOS	-
22-may-2000	CN	a	V	-	-	17	-
28-nov-2000	CN	af	V	-	-	20 DH	-
16-may-2001	CN	af	V	-	-	17.4 D	-
NC2-08							
30-may-2003	CN	af	V	-	-	44 D	-
30-may-2003	CN	af	V	0.58	-	-	-
NC2-09							
05-jun-2003	CN	a	V	-	-	<0.1 U	-
NC2-10							
10-jun-2003	CN	af	V	-	-	140 D	-
NC2-11D							
04-aug-1995	CS	a	V	0.47 H	-	22 DH	57 DH
31-oct-1995	CS	ah	V	0.56	-	26	57 D
31-oct-1995	CS	aeh	V	0.48	-	26	53 D
02-dec-1997	BB	a	V	-	-	27	-
07-dec-1998	BB	a	V	-	-	31	-
25-may-1999	CN	a	V	-	-	32 S	-
10-nov-1999	CN	af	V	-	-	4 DS	-
17-may-2000	CN	ah	V	-	-	27 D	-
17-may-2000	CN	aeh	V	-	-	26 D	-
27-nov-2000	CN	af	V	-	-	28 D	-
17-may-2001	CN	a	V	-	-	28.9	-
14-may-2002	CN	a	V	-	-	39	-
08-may-2003	BB	a	V	-	-	31.2	-
NC2-11I							
23-may-2003	CN	af	V	-	-	40 D	-

samples collected from the Building 850 subarea between July 1, 1995 and June 30, 2003. Results November 4, 2003.

Carbonate (mg/L)	Bicar- bonate** (mg/L)	TDS (mg/L)	Spec Cond (umhos/cm)	pH	Location Date
-	-	-	-	-	(continued) K2-04S
-	-	-	-	-	30-nov-1998
-	-	-	-	-	02-jun-1999
-	-	-	-	-	02-jun-1999
-	-	-	-	-	09-nov-1999
-	-	-	-	-	18-may-2000
-	-	-	-	-	27-nov-2000
-	-	-	-	-	16-may-2001
-	-	-	-	-	16-may-2001
-	-	-	-	-	16-may-2002
-	-	-	-	-	02-may-2003
-	-	-	-	-	NC2-05
-	-	-	-	-	12-jun-2003
-	-	-	-	-	NC2-05A
-	-	-	-	-	05-jun-2003
-	-	-	-	-	NC2-06
-	-	-	-	-	05-jun-2003
-	-	-	-	-	NC2-06A
-	-	-	-	-	20-jun-2003
-	-	-	-	-	NC2-07
<1 U	210	570	900	7.6	08-aug-1995
<1 U	230	560	890	7.3	03-nov-1995
-	-	-	-	-	01-dec-1997
-	-	-	-	-	23-jun-1998
-	-	-	-	-	09-dec-1998
-	-	-	-	-	03-jun-1999
-	-	-	-	-	15-nov-1999
-	-	-	-	-	15-nov-1999
-	-	-	-	-	22-may-2000
-	-	-	-	-	28-nov-2000
-	-	-	-	-	16-may-2001
-	-	-	-	-	NC2-08
-	-	-	-	-	30-may-2003
-	-	-	-	-	30-may-2003
-	-	-	-	-	NC2-09
-	-	-	-	-	05-jun-2003
-	-	-	-	-	NC2-10
-	-	-	-	-	10-jun-2003
-	-	-	-	-	NC2-11D
<1 UH	200 H	490 H	640 H	7.9 H	04-aug-1995
<1 U	180	440	630	7.5	31-oct-1995
<1 U	180	450	520	7.5	31-oct-1995
-	-	-	-	-	02-dec-1997
-	-	-	-	-	07-dec-1998
-	-	-	-	-	25-may-1999
-	-	-	-	-	10-nov-1999
-	-	-	-	-	17-may-2000
-	-	-	-	-	17-may-2000
-	-	-	-	-	27-nov-2000
-	-	-	-	-	17-may-2001
-	-	-	-	-	14-may-2002
-	-	-	-	-	08-may-2003
-	-	-	-	-	NC2-11I
-	-	-	-	-	23-may-2003

Table A-22. Ground and surface water analyses for anions, TDS, specific conductivity, and pH in

Location Date	Lab Note	Val.	Fluoride (mg/L)	Silica (mg/L)	Nitrate as (NO3) (mg/L)	Chloride (mg/L)	Sulfate (mg/L)
NC2-11S 23-may-2003	CN af	V	-	-	42 D	-	-
NC2-12D 04-aug-1995	CS a	V	0.5 H	-	18 DH	47 DH	72 DH
31-oct-1995	CS a	V	0.58	-	23	47 D	66
25-nov-1997	BB a	V	-	-	26	-	-
22-jun-1998	BB a	V	-	-	27	-	-
03-dec-1998	BB a	V	-	-	25	-	-
24-may-1999	CN a	V	-	-	16 S	-	-
10-nov-1999	CN af	V	-	-	44 DS	-	-
17-may-2000	CN af	V	-	-	25 D	-	-
27-nov-2000	CN af	V	-	-	28 D	-	-
17-may-2001	CN a	V	-	-	27.7	-	-
14-may-2002	CN a	V	-	-	37	-	-
08-may-2003	BB a	V	-	-	28.9	-	-
NC2-12I 23-may-2003	CN af	V	-	-	35 D	-	-
NC2-12S 23-may-2003	CN af	V	-	-	52 D	-	-
NC2-13 10-jun-2003	CN af	V	-	-	52 D	-	-
NC2-14S 18-jun-2003	CN ag	V	-	-	42 D	-	-
NC2-15 23-jun-2003	CN a	V	-	-	43 D	-	-
NC2-16 10-jun-2003	CN a	V	-	-	9	-	-
NC2-17 05-jun-2003	CN af	V	-	-	47 D	-	-
NC2-18 06-jun-2003	CN af	V	-	-	56 D	-	-
NC2-19 23-jun-2003	CN a	V	-	-	83 D	-	-
NC2-20 17-jun-2003	CN af	V	-	-	45 D	-	-
NC2-21 23-jun-2003	CN a	V	-	-	40 D	-	-
NC7-10 26-may-1999	CN af	V	-	-	56 DS	-	-
27-may-2003	CN af	V	-	-	60 D	-	-
NC7-11 26-may-1999	CN af	V	-	-	46 DS	-	-
27-may-2003	CN af	V	-	-	65 D	-	-
NC7-14 27-may-1999	CN a	V	-	-	40 S	-	-
NC7-15 26-may-1999	CN a	V	-	-	43 S	-	-

samples collected from the Building 850 subarea between July 1, 1995 and June 30, 2003. Results November 4, 2003.

Carbonate (mg/L)	Bicar- bonate** (mg/L)	TDS (mg/L)	Spec Cond (umhos/cm)	pH	Location Date
-	-	-	-	-	NC2-11S 23-may-2003
<1 UH	140 H	430 H	560 H	7.5 H	NC2-12D 04-aug-1995
<1 U	170	420	600	7.5	31-oct-1995
-	-	-	-	-	25-nov-1997
-	-	-	-	-	22-jun-1998
-	-	-	-	-	03-dec-1998
-	-	-	-	-	24-may-1999
-	-	-	-	-	10-nov-1999
-	-	-	-	-	17-may-2000
-	-	-	-	-	27-nov-2000
-	-	-	-	-	17-may-2001
-	-	-	-	-	14-may-2002
-	-	-	-	-	08-may-2003
-	-	-	-	-	NC2-12I 23-may-2003
-	-	-	-	-	NC2-12S 23-may-2003
-	-	-	-	-	NC2-13 10-jun-2003
-	-	-	-	-	NC2-14S 18-jun-2003
-	-	-	-	-	NC2-15 23-jun-2003
-	-	-	-	-	NC2-16 10-jun-2003
-	-	-	-	-	NC2-17 05-jun-2003
-	-	-	-	-	NC2-18 06-jun-2003
-	-	-	-	-	NC2-19 23-jun-2003
-	-	-	-	-	NC2-20 17-jun-2003
-	-	-	-	-	NC2-21 23-jun-2003
-	-	-	-	-	NC7-10 26-may-1999
-	-	-	-	-	27-may-2003
-	-	-	-	-	NC7-11 26-may-1999
-	-	-	-	-	27-may-2003
-	-	-	-	-	NC7-14 27-may-1999
-	-	-	-	-	NC7-15 26-may-1999

Table A-22. Ground and surface water analyses for anions, TDS, specific conductivity, and pH in

Location Date	Lab Note	Val.	Fluoride (mg/L)	Silica (mg/L)	Nitrate as (NO3) (mg/L)	Chloride (mg/L)	Sulfate (mg/L)
NC7-19 28-may-2003	CN af	V	-	-	39 D	-	-
NC7-27 07-jun-1999	CN af	V	-	-	42 DS	-	-
16-jun-2003	CN af	V	-	-	56 D	-	-
NC7-28 07-jun-1999	CN af	V	-	-	54 DS	-	-
28-may-2003	CN af	V	-	-	69 D	-	-
NC7-29 21-may-1999	CN a	V	-	-	<0.5 SU	-	-
17-jun-2003	CN af	V	-	-	120 D	-	-
NC7-43 07-jun-1999	BB ag	V	-	-	<0.4 U	-	-
07-jun-1999	CN ag	V	-	-	<0.5 SU	-	-
10-jun-2003	CN ag	V	-	-	<0.1 U	-	-
NC7-44 21-may-1999	CN af	V	-	-	48 DS	-	-
28-may-2003	CN af	V	-	-	72 D	-	-
NC7-46 21-may-1999	CN a	V	-	-	<0.5 SU	-	-
12-jun-2003	CN a	V	-	-	<0.1 U	-	-
NC7-56 09-jun-1999	CN af	V	-	-	88 DJLS	-	-
17-jun-2003	CN a	V	-	-	48 D	-	-
NC7-58 12-jun-2003	CN a	V	-	-	51 D	-	-
NC7-59 28-jun-1999	CN a	V	-	-	<0.5 SU	-	-
12-jun-2003	CN a	V	-	-	45 D	-	-
NC7-60 09-jun-1999	CN af	V	-	-	25 DJLS	-	-
16-jun-2003	CN a	V	-	-	5.2	-	-
NC7-61 07-aug-1995	CS a	V	0.38	-	140 D	63 D	52 D
30-oct-1995	CS a	V	0.43	-	120 D	68 D	49 D
18-nov-1997	BB a	V	-	-	75	-	-
02-jun-1998	BB af	N	-	-	97 D	-	-
02-dec-1998	BB a	V	-	-	66	-	-
01-jun-1999	CN af	V	-	-	62 DS	-	-
09-nov-1999	CN af	V	-	-	72 DS	-	-
18-may-2000	CN af	V	-	-	42 D	-	-
20-nov-2000	CN afh	V	-	-	15 DL	-	-
20-nov-2000	CN aefh	V	-	-	28 DL	-	-
21-may-2001	CN a	V	-	-	27 D	-	-
16-may-2002	CN af	V	-	-	48 D	-	-
02-may-2003	CN aefh	V	-	-	63 D	-	-
02-may-2003	CN afh	V	-	-	62 D	-	-
NC7-62 11-jun-1999	CN af	V	-	-	8 DS	-	-
12-jun-2003	CN a	V	-	-	51 D	-	-
NC7-69 04-aug-1995	CS a	V	0.53 H	-	<0.5 DUH	24 DH	120 DH
31-oct-1995	CS a	V	0.66	-	<5 DU	34	120

samples collected from the Building 850 subarea between July 1, 1995 and June 30, 2003. Results November 4, 2003.

Carbonate (mg/L)	Bicar- bonate** (mg/L)	TDS (mg/L)	Spec Cond (umhos/cm)	pH	Location Date
-	-	-	-	-	NC7-19 28-may-2003
-	-	-	-	-	NC7-27 07-jun-1999
-	-	-	-	-	16-jun-2003
-	-	-	-	-	NC7-28 07-jun-1999
-	-	-	-	-	28-may-2003
-	-	-	-	-	NC7-29 21-may-1999
-	-	-	-	-	17-jun-2003
-	-	-	-	-	NC7-43 07-jun-1999
-	-	-	-	-	07-jun-1999
-	-	-	-	-	10-jun-2003
-	-	-	-	-	NC7-44 21-may-1999
-	-	-	-	-	28-may-2003
-	-	-	-	-	NC7-46 21-may-1999
-	-	-	-	-	12-jun-2003
-	-	-	-	-	NC7-56 09-jun-1999
-	-	-	-	-	17-jun-2003
-	-	-	-	-	NC7-58 12-jun-2003
-	-	-	-	-	NC7-59 28-jun-1999
-	-	-	-	-	12-jun-2003
-	-	-	-	-	NC7-60 09-jun-1999
-	-	-	-	-	16-jun-2003
<1 U	280	690	800	7.2	NC7-61 07-aug-1995
<1 U	260	620	960	7.2	30-oct-1995
-	-	-	-	-	18-nov-1997
-	-	-	-	-	02-jun-1998
-	-	-	-	-	02-dec-1998
-	-	-	-	-	01-jun-1999
-	-	-	-	-	09-nov-1999
-	-	-	-	-	18-may-2000
-	-	-	-	-	20-nov-2000
-	-	-	-	-	20-nov-2000
-	-	-	-	-	21-may-2001
-	-	-	-	-	16-may-2002
-	-	-	-	-	02-may-2003
-	-	-	-	-	02-may-2003
-	-	-	-	-	NC7-62 11-jun-1999
-	-	-	-	-	12-jun-2003
<1 UH	170 H	420 H	600 H	7.4 H	NC7-69 04-aug-1995
<1 U	170	540	590	7.5	31-oct-1995

Table A-22. Ground and surface water analyses for anions, TDS, specific conductivity, and pH in

Location Date	Lab Note	Val.	Fluoride (mg/L)	Silica (mg/L)	Nitrate as (NO3) (mg/L)	Chloride (mg/L)	Sulfate (mg/L)
NC7-69 (continued)							
18-nov-1997	BB a	V	-	-	<0.4 U	-	-
02-jun-1998	BB a	N	-	-	<0.4 U	-	-
03-dec-1998	BB a	V	-	-	<0.4 U	-	-
10-nov-1999	CN a	V	-	-	2.7 S	-	-
17-may-2000	CN a	V	-	-	<0.1 U	-	-
20-nov-2000	CN a	V	-	-	<0.1 LU	-	-
22-may-2001	CN a	V	-	-	<0.4 LU	-	-
27-dec-2002	SE ah	V	-	-	-	-	-
27-dec-2002	SE aeh	V	-	-	-	-	-
08-may-2003	BB a	V	-	-	<0.44 U	-	-
NC7-70							
15-jun-1999	CN a	V	-	-	14 S	-	-
17-jun-2003	CN af	V	-	-	67 D	-	-
NC7-71							
21-may-1999	CN a	V	-	-	<0.5 SU	-	-
17-jun-2003	CN a	V	-	-	<0.1 U	-	-
NC7-72							
15-jun-1999	CN a	V	-	-	28 S	-	-
NC7-73							
15-jun-1999	CN a	V	-	-	30 S	-	-
21-may-2003	CN a	V	-	-	4	-	-
W-850-05							
10-jun-2003	CN a	V	-	-	<0.1 U	-	-
W-865-1802							
27-jun-2003	SE af	V	0.59 H	-	27 DH	40 D	61 D
W-865-1803							
26-jun-2003	CN a	V	0.54 H	-	32 H	39 DH	50 DH
SPRING24							
22-oct-1999	BB af	V	0.49	-	55 D	47	28
27-aug-2001	CN af	V	0.33	-	28	48 D	27
13-dec-2001	CN af	V	0.44	-	44	49 D	30 D
W8SPRNG							
31-oct-1995	CS a	V	0.42	-	57 D	42 D	44 D
31-oct-1995	FS ag	V	0.2	-	69	50	61
15-may-1996	CS a	V	0.39	-	90 O	65 LO	59
26-jun-2003	CN aeh	V	-	-	53 D	-	-
26-jun-2003	CN ah	V	-	-	54 D	-	-

samples collected from the Building 850 subarea between July 1, 1995 and June 30, 2003. Results November 4, 2003.

Carbonate (mg/L)	Bicar- bonate** (mg/L)	TDS (mg/L)	Spec Cond (umhos/cm)	pH	Location Date
-	-	-	-	-	(continued) NC7-69
-	-	-	-	-	18-nov-1997
-	-	-	-	-	02-jun-1998
-	-	-	-	-	03-dec-1998
-	-	-	-	-	10-nov-1999
-	-	-	-	-	17-may-2000
-	-	-	-	-	20-nov-2000
-	-	-	-	-	22-may-2001
-	-	-	650	-	27-dec-2002
-	-	-	650	-	27-dec-2002
-	-	-	-	-	08-may-2003
-	-	-	-	-	NC7-70
-	-	-	-	-	15-jun-1999
-	-	-	-	-	17-jun-2003
-	-	-	-	-	NC7-71
-	-	-	-	-	21-may-1999
-	-	-	-	-	17-jun-2003
-	-	-	-	-	NC7-72
-	-	-	-	-	15-jun-1999
-	-	-	-	-	NC7-73
-	-	-	-	-	15-jun-1999
-	-	-	-	-	21-may-2003
-	-	-	-	-	W-850-05
-	-	-	-	-	10-jun-2003
<5 HU	130 H	-	550	7.66	W-865-1802 27-jun-2003
<1 HU	150 H	410 H	610 H	7.7 H	W-865-1803 26-jun-2003
<5 U	136	378	551	8.02	SPRING24 22-oct-1999
<1 HU	160 H	-	560 H	7.6	27-aug-2001
-	-	310 DH	580 H	7.8	13-dec-2001
<1 U	220	520	750	7.6	W8SPRNG 31-oct-1995
-	-	530	780	7.6	31-oct-1995
<1 U	230	550	780	7.2	15-may-1996
-	-	-	-	-	26-jun-2003
-	-	-	-	-	26-jun-2003

See following page for notes

Table A-22. Ground and surface water analyses for anions, TDS, specific conductivity, and pH in samples collected from the Building 850 subarea between July 1, 1995 and June 30, 2003. Results recorded by N

Notes:

- Indicates no analysis performed for this compound

Val. = Validation code

Footnotes:

a ERD data
b ORAD WGMG data
c Analytical results for this sample are suspect
d Sample collected during hydraulic testing
e Blind sample, sent to lab without location identity
f Sample dilution necessary for analysis; detection limits increased
g Interlaboratory collocated sample
h Intralaboratory collocated sample
i Sample collected as part of pilot study
j Note field may contain important information regarding this sample
k Pre-development sample
l Norm month, norm quarter or norm year inconsistent with sample date
m Confirmation sample
n Sample analyzed after standard holding time
o Sample comprised of partial composite
p Alpha spectroscopy analysis of uranium isotopes
q Gamma spectroscopy analysis of uranium isotopes
r Tritium data represents non-detect with activity calc'd for 100 percent error.

Lab Codes:

BB	BC Laboratories, Inc.	Bakersfield, CA
CN	Caltest Analytical Laboratory	1885 N. Kelly Rd, Napa, CA 94558
CS	California Laboratory Services	3249 Fitzgerald Rd. Rancho Cordova, CA 95742
FS	FruitGrowers Environmental Lab	2500 Stagecoach Rd., Stockton, CA 95215
SE	Sequoia Analytical	1551 Industrial Road, San Carlos, CA 94070

Validation Codes:

V Validated
N Not validated (default value)
U Undeclared
H Historical comparison only

CLP flags: (follow result)

B Analyte found in method blank
D Analysis performed at a secondary dilution or concentration (i.e., vapor samples)
E The analyte was detected below the LLNL reporting limit, but above the analytical laboratory minimum detection limit.
F Analyte found in field blank, trip blank, or equipment blank
G Quantitated using fuel calibration, but does not match typical fuel fingerprint (fuel maybe gasoline, diesel, motor oil etc.).
H Sample analyzed outside of holding time, sample results should be evaluated
J Analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
L Spike accuracy not within control limits
O Duplicate spike or sample precision not within control limits
P Indicates that the absence of a data qualifier flag does not mean that the data does not need qualification, but that the implementation of electronic data qualifier flags was not yet established
R Sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet QC criteria. The presence or absence of the analyte cannot be verified
S Analytical results for this sample are suspect
T Analyte is tentatively identified compound; result is approximate
U Compound was analyzed for, but not detected above detection limit

Appendix B

**Excavation Quality Assurance/
Quality Control Plan**

Appendix B

Excavation Quality Assurance/ Quality Control Plan

B-1. Introduction

This Quality Assurance/Quality Control (QA/QC) Plan has been developed in support of the excavation component of the Building 850 subarea remedial action. Soil removal and excavation to remove the contaminated sand pile adjacent to the Building 850 firing table and the surface soil contaminated with ejecta from explosive tests at the Building 850 firing table will be considered the final remedy for this medium.

The purpose of this plan is to define quality objectives and areas of responsibility in accordance with the requirements for the removal of contaminated soil and verification of cleanup in the Building 850 subarea. This plan has been developed to comply with Lawrence Livermore National Laboratory (LLNL) QA policy and to address the applicable elements of U.S. Department of Energy (DOE) Order 414.1A. (DOE, 1999). A matrix comparing the elements of this plan to the U.S. Environmental Protection Agency (EPA) requirements for Quality Assurance Project Plans (U.S. EPA, 1997) is provided in Table B-1.

The QA/QC objectives are to:

- Assure contaminated soil is adequately removed and disposed to prevent releases to ground water and mitigate risk to on-site workers.
- Provide the QA/QC requirements to meet all programmatic and institutional needs.

The QA/QC Plan provides confidence that these objectives will be achieved and that achievement will include due consideration for health, safety, property, and the environment.

B-2. Quality Assurance Program

The LLNL Site 300 Environmental Restoration Project's QA program is based on the following QA documents:

- U.S. DOE Order 414.1A, Quality Assurance Program (DOE, 1999).
- LLNL Environmental Protection Department (EPD) Quality Assurance Management Plan (QAMP) (LLNL, 2001).
- LLNL Environmental Restoration Project Quality Assurance Project Plan (QAPP) (Dibley, 1999).
- LLNL Livermore Site and Site 300 Environmental Restoration Project Standard Operating Procedures (SOPs) (Goodrich and Depue, 2003).

The Environmental Restoration Project QAPP and SOPs contain detailed procedures for routine environment restoration activities. The LLNL Radioactive and Hazardous Waste Management Division will conduct waste management activities per SOPs approved by the applicable agencies. Those procedures specific to the excavation will be developed in conjunction with the contractor once a contract is awarded for the excavation work.

B-2.1. Organization

This section documents the organizational structure, functional responsibilities, and lines of communication for those aspects of the excavation activities for the Building 850 subarea that affect quality.

Figure B-1 shows the organizational structure for the excavation QA/QC activities. The descriptions below generally describe the QA/QC responsibilities of those involved in carrying out the QA/QC program for the excavation at the Building 850 subarea. Project personnel as shown in Figure B-1 have the following responsibilities:

- The U.S. DOE is the Principal Responsible Party for Comprehensive, Environmental Response, Compensation and Liability Act (CERCLA) related activities at the LLNL Site 300. Environmental restoration activities at Site 300 are conducted by University of California staff in the LLNL Environmental Restoration Division (ERD), hereafter referred to as LLNL, under the direction of the DOE Site 300 Remedial Project Manager (RPM). The DOE RPM coordinates these activities through the U.S. EPA, and California Department of Toxic Substances Control and the Regional Water Quality Control Board RPMs.
- The LLNL EPD Quality Assurance Manager provides oversight and monitors QA related activities of divisions within the EPD, including ERD. The Quality Assurance Manager reports the results of quality verification to the EPD Department Head who, in turn, relays this information to DOE.
- The LLNL ERD Division Leader is responsible for implementing the EPD and ERD QA programs as it relates to activities in the division and ensuring that nonconforming conditions are promptly addressed and documented. The ERD Division Leader reports to both the EPD Department Head and to DOE.
- The LLNL ERD Site 300 Project Leader is responsible for ensuring that approved procedures related to QA are used during activities in the project and division and ensuring that nonconforming conditions are promptly addressed and documented. The Site 300 Project Leader issues the QA/QC plan and periodically reviews its implementation. The Site 300 Project Leader reports to the ERD Division Leader on QA conformance and other QA-related issues.
- The LLNL ERD Quality Assurance Implementation Coordinator is responsible for the development and implementation for the QA/QC plan, establishment and control of the applicable QA/QC requirements, coordination with appropriate project personnel to assure compliance within groups over which the quality organization has no administrative control, and development of tracking and reporting systems to provide management visibility of implementation activities and results. The Quality Assurance Implementation Coordinator maintains direct communication and liaison with the EPD

Quality Assurance Manager and has line authority through the ERD Division Leader for the implementation of the QA Program within the division.

- The LLNL Quality Assurance Engineer is responsible for providing direction to the Subproject Leader, Remediation Engineer, and Technician Supervisor. The Quality Assurance Engineer reports directly to the Quality Assurance Implementation Coordinator on QA/QC related activities.

The Quality Assurance Implementation Coordinator and Quality Assurance Engineer constitute the independent quality assurance reviewers as defined in the EPD Quality Assurance Management Plan.

- The LLNL Subproject Leader is responsible for determining the volumes of soil to be removed and sampling necessary to verify cleanup. The Subproject Leader also coordinates the proper disposal of excavated waste with the LLNL Radiological and Hazardous Waste Division. The Subproject Leader reports directly to the Site 300 Project Leader.
- The LLNL Remediation Engineer is responsible for providing oversight for excavation activities. The Remediation Engineer is the equivalent to the Remedial Design Engineer. The Remediation Engineer reports to the Subproject Leader.
- The LLNL Plant Engineering Project Manager (PEPM) is responsible for coordinating Plant Engineering activities. The PEPM reports functionally during excavation activities to the ERD Site 300 Project Leader and the Subproject Leader. The PEPM is Plant Engineering's primary contact with ERD for the assigned project. He/she is responsible for coordinating and executing the project assigned to him/her.
- The LLNL ERD Technician Supervisor is responsible for the supervision and oversight of excavation activities. The Technician Supervisor is the equivalent to the Remedial Action Constructor. The Technician Supervisor reports to the Subproject Leader regarding excavation-related activities.

B-3. Training and Qualifications

Personnel supporting Environmental Restoration Projects are trained to ensure that they have the skills and knowledge necessary to perform their work assignments in a safe, competent, uniform, and environmentally sound manner. LLNL Personnel performing excavation, sampling, and disposal activities comply with the LLNL Training Program Manual.

B-4. Quality Improvement

ERD personnel integrate quality improvement into all quality-affecting activities by communicating to management, per the requirements of SOP 4.12, "Quality Improvement Forms," any unsafe practice or nonconforming item or process (e.g., faulty material, malfunctioning equipment, process defects, data irregularities, and deviations from standard operating procedures) that could potentially compromise worker safety or the activity's deliverable.

B-5. Documents and Records

Documents and records have been developed and controlled in a manner that ensures availability to EPD managers and workers so that they can perform their assigned responsibilities safely and properly per the requirements of SOP 4.18, “ERD Document Control” (Goodrich and Depue, 2003). Records are retained so that the basis of technical and regulatory decisions can be adequately defended.

B-6. Work Processes

All work must be authorized before commencing and work activities be conducted under conditions and controls that ensure worker safety and provide assurance that quality is achieved. Work processes including data management and validation sampling and analysis and calibration will be performed per approved procedures (Goodrich and Depue, 2003).

B-6.1. Identification and Control of Items

Samples, such as analytical or field samples, generated as part of the excavation activities will be assigned unique identifiers. Documented traceability of sample identifiers is maintained throughout the handling of samples. Such documented traceability is referred to as the chain-of-custody (CoC) process for samples and is described in SOP 4.2, “Sample Control and Documentation” (Goodrich and Depue, 2003).

B-6.2. Identification and Control of Waste Products

Waste products generated by the excavation activities will be received and managed per the LLNL Radioactive and Hazardous Waste Management Division (RHWMD) SOPs. Waste will be assigned unique identifiers. Documented traceability of identifiers is maintained throughout the handling of a product (the CoC process) and for the data generated from characterization of a product.

B-6.3. Handling, Storing, and Shipping of Items

Procedures have been developed to ensure that items (i.e., samples or waste) associated with the excavation activities are handled, stored, and shipped to prevent damage, loss, or deterioration.

LLNL RHWMD SOPs will be followed for waste characterization, waste sampling, waste shipping, and waste storage.

Environmental samples will be handled, stored, and shipped per the requirements of SOP 4.3, Sample Containers and Preservation and SOP 4.4, “Guide to the Handling, Packaging and Shipping of Samples” (Goodrich and Depue, 2003).

B-6.4. Fill Quality

Clean fill material will be used to cover excavated areas, level depressions created by removal of contaminated soil, and to stabilize the slopes to prevent erosion. This unconsolidated material will be collected from nearby portions of Site 300 that have not been impacted by

programmatic activities. This determination will be made based on data collected during CERCLA and routine monitoring of programmatic activities, as well as on input from Site 300 Program Leads. Thus, fill material should be free of contaminants and will not be analyzed prior to use. Fill material will be compacted by a minimum of several bulldozer passes. Compaction criteria will be determined by B Division, the Site 300 program responsible for the Building 850 area.

B-7. Design Changes

If during the course of excavation, design changes are necessary, these changes will be subjected to formal design process controls and verification to ensure that the design is based on sound engineering judgement, scientific principles, and/or applicable codes or standards.

B-8. Inspection and Acceptance Testing

The Technician Supervisor and Remediation Engineer shall maintain cognizance of incoming and stored materials and items and inspect or test them for conformance to requirements, as necessary. They shall tag rejected items to ensure that they are not inadvertently used.

Lockout tags shall be tied on electrical equipment, lifts and hoists, valves, etc. where such items (1) are unsafe to use, (2) are uncertified, or (3) may pose a risk to personnel working on the system per the requirements of SOP 4.16, "ERD Lockout/Tag Program."

B-9. Assessment/Verification

Activities will be assessed as necessary to ensure work is conducted under conditions and controls that ensure quality and worker safety. The success of the excavation will be verified by sampling and analysis upon completion of the excavation as described below.

B-9.1. Polychlorinated Biphenyl (PCB) and Dioxin/Furan Verification Sampling

The PCB and dioxin/furan verification sampling plan was developed using the method described in Chapter 7, Section 7.4 of the EPA guidance, "Methods for Evaluating the Attainment of Cleanup Standards, Volume 1: Soils and Solid Media" (EPA 230/02-89-042, February 1989; for risk-based standards).

The methods given in Section 7.4 base the statistical test on the estimated proportion of the site that remains above the cleanup standard after remediation. The assumption (statistical null hypothesis) is that the site has *not* attained the standard; the decision that the site *has* attained the cleanup standard occurs if and when the statistical test rejects its null hypothesis. Section 7.4 is a simplified test, in which the null hypothesis is rejected if and only if all of the sample results are below the cleanup standard.

The required number of samples, N , depends on the choice of P_0 , P_1 , alpha (α), and beta (β). Alpha is the "false clean" (false positive) rate, that is, the probability that the statistical procedure will incorrectly decide the site has met the standard. Beta is the "false dirty" (false negative) rate, that is, the probability that the statistical procedure will incorrectly decide the site has not

met the standard, if in fact the site has met the standard (that is, the true proportion of the site above the standard is some value P_1 , smaller than P_0).

The EPA guidance document (Volume 1) provides for a sample size of fifty-nine (N) for this procedure for the selected values of alpha and P_0 , but does not provide associated values for beta and P_1 :

Method	P_0	P_1	α	β	N
Simple (7.4)	5%	(na)	5%	(na)	59

Chapter 7 of Volume 1 indicates that these methods may be used with simple random sampling but not with systematic (grid-based) sampling. Therefore, the fifty-nine sample locations were selected using a random number generator to select the X and Y coordinates (Table B-2). Coordinates were selected until all fifty-nine samples fell into the excavation area. In addition, the EPA requested 3 discretionary samples be collected outside the contour line. The sampling locations are presented in Figure B-2. Samples will be collected using ERD SOP 1.12, "Surface Soil Sampling" (Goodrich and Depue, 2003). The samples will be analyzed for PCBs at an off-site analytical laboratory by EPA Method 8082 with a reporting limit of 0.005 milligrams per kilogram (mg/kg).

The Interim Site-Wide Record of Decision (DOE, 2001) set the PCB cleanup level to be the industrial soil Preliminary Remediation Goal (PRG). The PCB industrial soil PRG is currently 0.74 mg/kg. Additional excavation and verification sampling will occur if any of the fifty-nine samples contain PCBs above this PRG.

Dioxin and furan verification sampling will begin upon completion of the PCB verification sampling and conclusion by the regulatory agencies that the PCBs have been successfully remediated. The same 59 locations that were sampled for PCBs will also be sampled for dioxins/furans. These dioxin/furan samples will be composited into 5 samples where the average concentration is less than or equal to the current industrial PRG of 1.6×10^{-5} mg/kg (1×10^{-6} risk), while no single sample is contaminated above 5×10^{-6} risk.

The composite samples will be analyzed at an off-site analytical laboratory by EPA Method 8290. Reporting limits will vary depending on the analyte and range from 10 to 50 parts per trillion. To evaluate the results, the toxic equivalent concentration (TEC) for the composite sample will be calculated by multiplying the individual dioxin/furan compound concentration by the associated Toxicity Equivalence Factor (TEF). The TEF is defined as an order of magnitude estimate of the toxicity of the various dioxin and furan compounds relative to the toxicity of 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD). The sum of the resultant TECs is the total TEC for the sample. Additional excavation and verification sampling will be required if the composite TEC is above the PRG.

B-9.2. Tritium Verification Sampling

The tritium verification sampling plan was developed using the same methods as described in Section 9-1. Fifty-nine sample locations were selected using a random number generator to select the X and Y coordinates (Table B-3). Coordinates were selected until all fifty-nine samples fell into the sand pile excavation area. The sampling locations are presented in Figure B-3. Samples will be collected using ERD SOP 1.12, "Surface Soil Sampling" (Goodrich

and Depue, 2003). The samples will be analyzed for EPA Method 906 with a reporting limit of 200 picocuries per liter (pCi/L).

The Interim Site-Wide Record of Decision (DOE, 2001) set the tritium cleanup level to be 5,000,000 pCi/L as soil moisture. Additional excavation and verification sampling will occur if this standard is not met.

B-10. References

- Dibley, V. (March 1999), *Environmental Restoration Division, Quality Assurance Project Plan, Livermore Site and Site 300 Environmental Restoration Projects*, Lawrence Livermore National Laboratory, Livermore, Calif. (UCRL-AR-103160 Rev. 2).
- Goodrich, R., and R. Depue (Eds.) (2003), *LLNL Livermore Site and Site 300 Environmental Restoration Project Standard Operating Procedures (SOPs)*, Lawrence Livermore National Laboratory, Livermore Calif. (UCRL-MA-109115 Rev. 11).
- Lawrence Livermore National Laboratory (2001), *Environmental Protection Department Quality Assurance Management Plan, Rev. 4*, Lawrence Livermore National Laboratory, Livermore Calif.
- U.S. DOE (1999), Quality Assurance Program, Office of Nuclear Safety Policy and Standards, U.S. Department of Energy, Washington D.C. (DOE Order 414.1A).
- U.S. DOE (2001), *Interim Site-Wide Record of Decision for Lawrence Livermore National Laboratory Site 300*, Lawrence Livermore National Laboratory, Livermore, Calif. (UCRL-AR-138470).
- U.S. EPA (1989a), *Interim Procedures for Estimating Risks Associated with Exposures to Mixtures of Chlorinated Dibenzo-p-dioxins and Dibenzofurans (CDDs and CDFs) and 1989 Update*, Risk Assessment Forum, Office of Research and Development, U.S. Environmental Protection Agency, Washington, D.C. (PB90-145756).
- U.S. EPA (1989b), *Methods for Evaluating the Attainment of Cleanup Standards, Volume 1: Soils and Solid Media*, Office of Policy, Planning, and Evaluation, U.S. Environmental Protection Agency, Washington D.C. (EPA 230/02-89-042).
- U.S. EPA (1997), *EPA Guidance for Quality Assurance Project Plans*, Office of Research and Development, U.S. Environmental Protection Agency, Washington, D.C. (EPA QA/R-5).

Table B-1. Matrix of EPA requirements for Quality Assurance Project Plans (QAPPs) compared to the elements of the Excavation Quality Assurance/Quality Control Plan.

		Excavation Quality Assurance/Quality Control Plan								
		Introduction	Quality Assurance Program	Training and Qualifications	Quality Improvement	Documents and Records	Work Processes	Design Control	Inspection and Acceptance Testing	Assessment/ Verification
EPA Requirements for QAPPs QA/G-5	Project Organization		√							
	Problem Definition	√								
	Quality Objectives and Criteria		√							
	Training Requirements			√						
	Documents and Records					√				
	Sampling Process Design/Methods									√
	Sample Handling and Custody						√			
	Analytical Methods									√
	Quality Control									√
	Instrument/ Equipment Testing, Inspection, and Maintenance								√	
	Instrument/ Equipment Calibration and Frequency						√			
	Data Management						√			
	Assessments and Response Actions									√
	Data Review, Verification, and Validation						√			
	Verification and Validation Methods									√
Reconciliation with Data Quality Objectives						√				

Table B-2. Randomly selected PCB and dioxin/furan sample coordinates.

Set	X (ft)	Y (ft)
1	40	100
2	40	520
3	60	360
4	100	60
5	120	300
6	140	160
7	140	520
8	160	320
9	180	420
10	200	500
11	220	420
12	220	560
13	280	180
14	280	520
15	320	580
16	320	700
17	340	600
18	360	600
19	400	280
20	400	640
21	420	180
22	420	200
23	420	580
24	440	160
25	440	540
26	440	560
27	440	640
28	460	580
29	500	280
30	500	780
31	540	180
32	540	560
33	540	600
34	580	420
35	580	820

Table B-2. (Continued)

Set	X (ft)	Y (ft)
36	600	200
37	620	700
38	640	140
39	640	360
40	640	740
41	680	220
42	680	360
43	720	300
44	720	660
45	740	20
46	740	140
47	740	440
48	760	40
49	760	160
50	760	620
51	800	560
52	800	680
53	840	320
54	900	40
55	900	80
56	920	60
57	920	400
58	980	360
59	1,000	200
DIS 1	280	580
DIS 2	500	120
DIS 3	920	480

PCB = Polychlorinated Biphenyl.

DIS = Discretionary sample requested by EPA.

Table B-3. Randomly selected tritium sample coordinates.

Set	X (ft)	Y (ft)
1	5	95
2	5	105
3	10	65
4	15	50
5	15	100
6	30	50
7	30	80
8	35	60
9	35	75
10	35	105
11	35	110
12	40	5
13	40	65
14	40	95
15	40	130
16	45	45
17	50	35
18	50	50
19	55	60
20	55	65
21	55	115
22	60	10
23	60	55
24	65	60
25	70	100
26	70	105
27	75	50
28	85	20
29	85	80
30	95	15
31	95	55
32	95	115
33	100	30
34	100	100
35	105	110

Table B-3. (Continued)

Set	X (ft)	Y (ft)
36	110	55
37	110	100
38	110	105
39	115	70
40	120	65
41	125	105
42	135	30
43	135	75
44	140	25
45	140	50
46	140	55
47	140	65
48	140	80
49	140	130
50	145	100
51	150	25
52	150	35
53	150	55
54	150	135
55	155	70
56	155	90
57	155	95
58	160	85
59	165	75

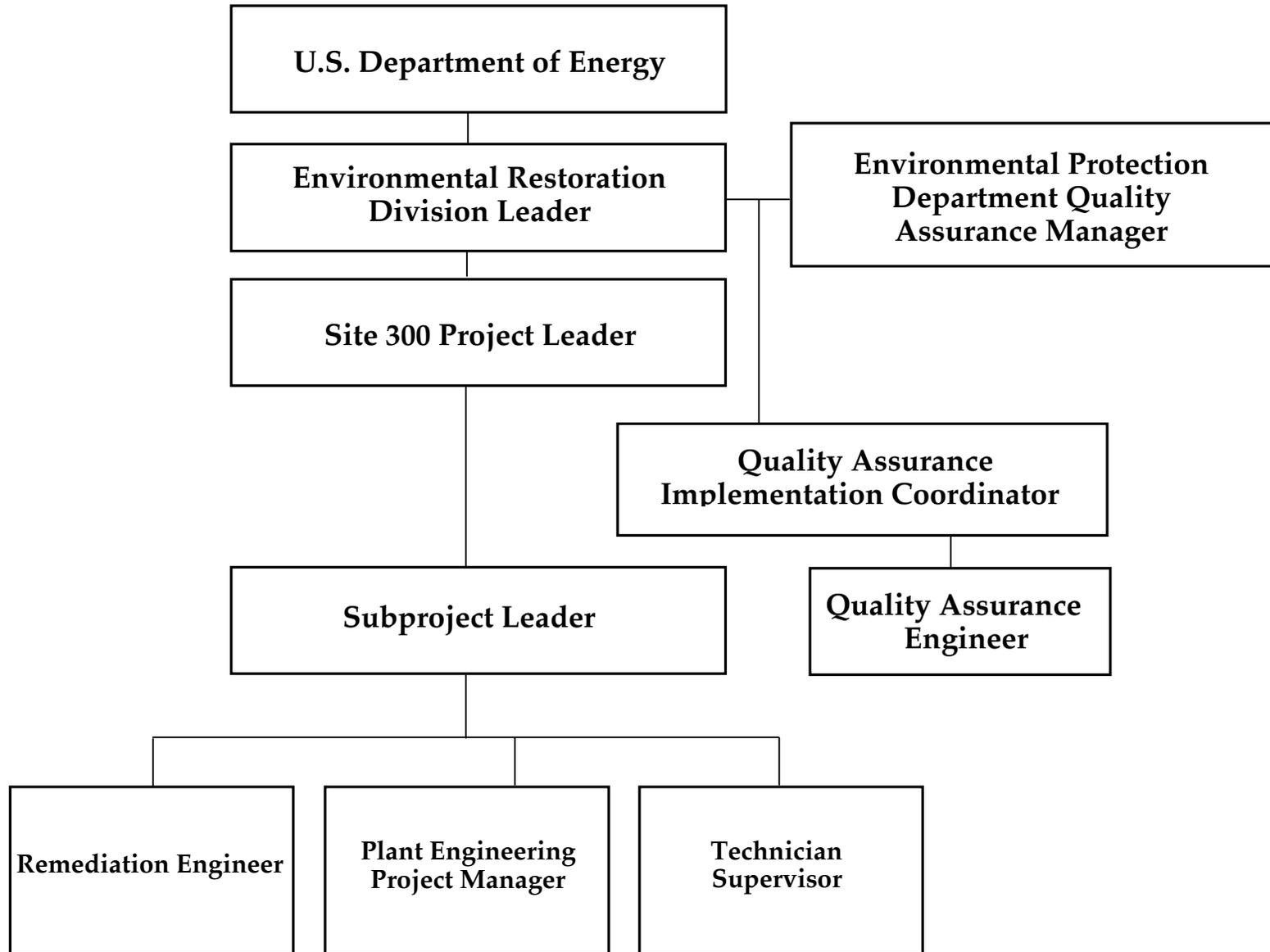
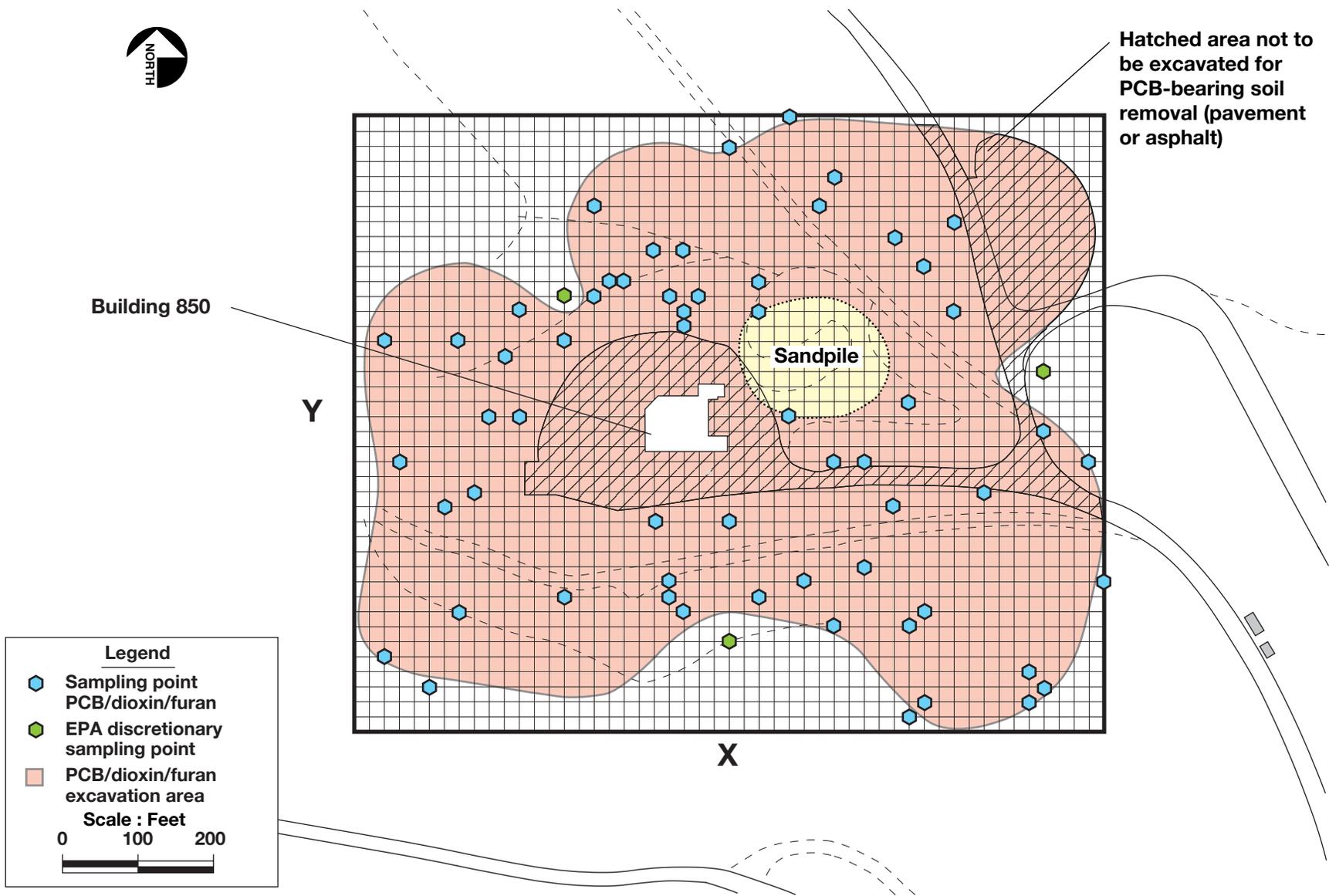
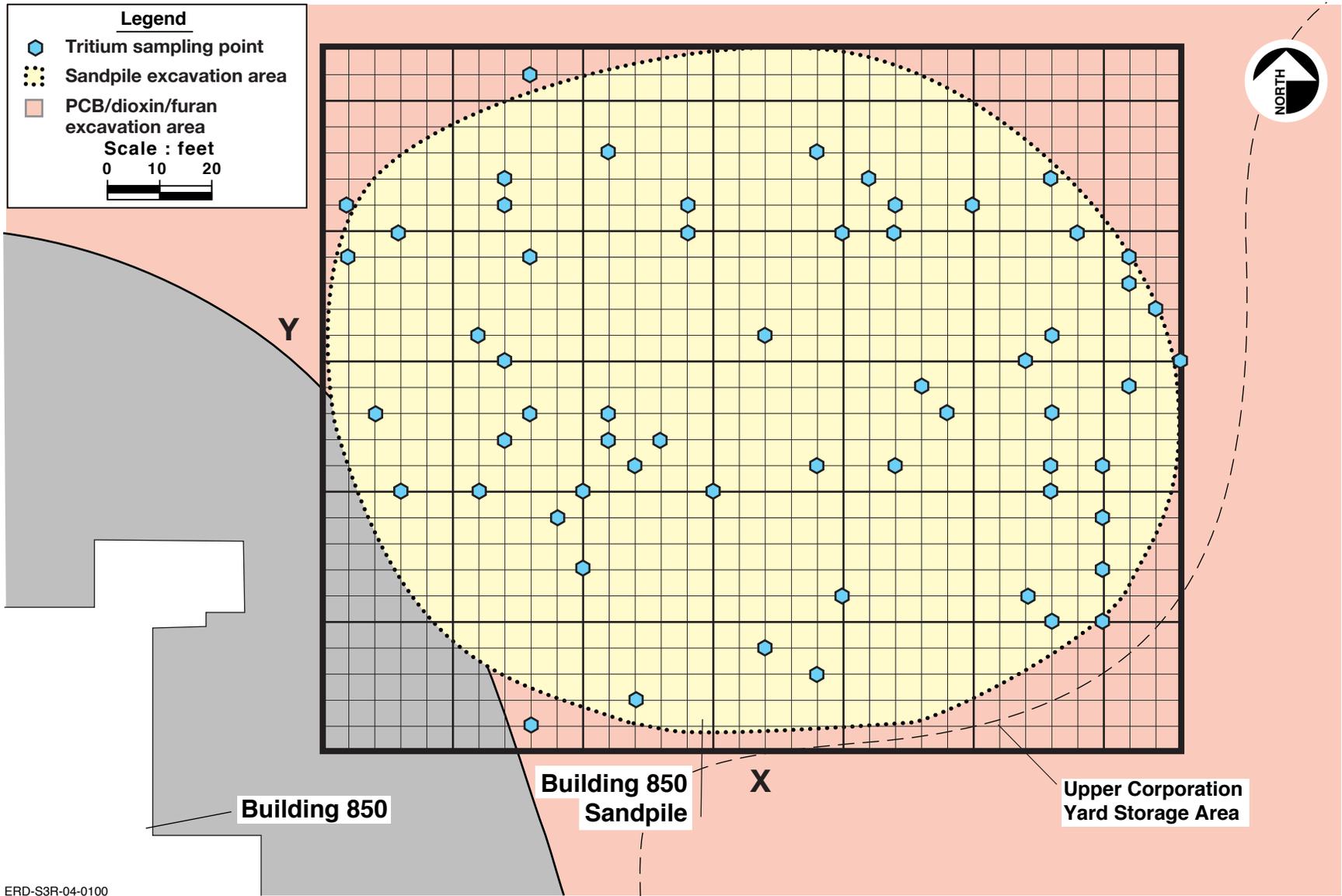


Figure B-1. Organizational structure for excavation QA activities.



ERD-S3R-03-0197

Figure B-2. PCB and dioxin/furan excavation verification sample locations at the Building 850 firing table area.



ERD-S3R-04-0100

Figure B-3. Tritium excavation verification sample locations at the Building 850 firing table sand pits area.

Appendix C
Excavation Health and Safety Plan

Appendix C

Excavation Health and Safety Plan

This Appendix contains the Excavation Health and Safety Plan for the Building 850 subarea remedial action. This plan presents: (1) organizational structure and responsibilities, (2) hazard analyses and control measures, (3) training requirements for Building 850 excavation personnel, and (4) general emergency safety procedures. A more detailed Site Safety Plan will be prepared prior to implementation of soil excavation activities. This Site Safety Plan will include details on emergency procedures, contacts, safety monitoring, work zones, and decontamination procedures.

C-1. Reason for Issue

There is no construction planned for the Building 850 subarea however, safety procedures are required during the excavation component of the Building 850 subarea remedial action. This Health and Safety Plan serves as an administrative tool to summarize the requirements that are pertinent to the Building 850 subarea excavation. Any potential health and safety hazards and the control of such hazards during excavation are addressed in one or more of the following documents:

- Lawrence Livermore National Laboratory (LLNL) Environment, Safety, and Health Manual (LLNL, 2003).
- LLNL Environment, Safety, and Health Manual, Document 2.5 – Procured Services Subcontractor Environment, Safety, and Health Program (LLNL, 2003).
- LLNL Environmental Restoration Division (ERD) Site Safety Plan for Lawrence Livermore National Laboratory Comprehensive, Environmental Response, Compensation and Liability Act (CERCLA) Investigations at Site 300 (LLNL, 2000).

The requirements of the LLNL Environmental Safety and Health (ES&H) Manual are based on DOE's Integrated Safety Management System Principles and Work Smart Standards.

C-2. Work to be Performed and Location of Activity

Figure B-2 shows the location of the planned excavation in the of the tritium contaminated sand pile in the vicinity of Building 850 and the polychlorinated biphenyl (PCBs) contaminated soil from the hillside around the Building 850 firing table. The sand pile is approximately 10 feet (ft) high. The estimated areal extent of removal is 1,250 square feet (ft²) and the total estimated volume of material to be removed is 460 cubic yards (yd³). The estimated areal extent of removal of the contaminated soil from the hillside around the Building 850 firing table is 318,414 ft². The total estimated volume of material to be removed is 11,793 yd³.

C-3. Responsibilities

Ed Folsom, phone number (925) 422-0389, LLNL pager number 02892, and home phone number (925) 455-2715, is responsible for the safety of this operation and for assuring that all work is performed in conformance with this Health and Safety Plan. In the absence of the responsible individual, Greg Santucci, phone number (925) 422-3089, LLNL pager number 06502, shall assume these responsibilities.

The responsible individual(s) listed above, and the LLNL Environmental Safety & Health (ES&H) team leader may approve any changes in excavation activities that improve or do not significantly affect safety and environmental controls. The responsible individual will ensure that this action is documented in a memorandum. Any changes in the operation that increase the hazard level, introduce additional hazards, or decrease safety shall not be made until a revision to this Health and Safety Plan has been reviewed and approved, consistent with the LLNL Environmental Restoration Division review and approval process.

Before starting excavation activities, the responsible individual shall verify and document that the operating personnel have read and understand the Health and Safety Plan, Site Safety Plan, relevant Integration Work Sheets (IWSs), and associated LLNL ES&H Manual sections referenced in Section C-8.2.

C-4. Hazard Analysis

C-4.1. Noise Hazard

Irreversible hearing loss can occur due to long-term exposure to noise from operating heavy equipment and other construction activities. Noise can also aggravate pre-existing hypertension. The American Conference of Industrial Hygienists has established a standard of 85 dBA over an 8-hour day. Exposure to noise louder than 85 dBA is permitted as long as the average exposure for the entire day is less than 85 dBA.

C-4.2. Chemical Hazard

The soil to be excavated is contaminated with tritium, PCBs, and dioxin/furans. The maximum PCB and total dioxin/furan concentrations were measured in 1994 at 180 mg/kg and 15,000 pg/g, respectively. The maximum tritium activity was measured in 1985 at 208,873 pCi/L.

There is evidence from experiments with animals and cell cultures that exposure to very high levels of radiation from tritium results in mutations and cell disruptions that can lead to health effects associated with radiation, including cancer.

PCBs accumulate in the fatty tissues of humans and other animals and have caused toxic effects in both, particularly if repeated exposure occurs. The skin and liver are the major sites of pathology, but the gastrointestinal tract, the immune system, and the nervous system are also targets. Polychlorinated dibenzofurans (PCDFs), which are contaminants in commercial PCB mixtures, contribute significantly to their toxicity. The results of studies on rodents suggest that some PCB congeners may be carcinogenic and that they can promote the carcinogenicity of other chemicals.

Dioxins and furans are highly toxic chemical substances. All dioxins and furans have the same basic chemical “skeleton”, and they all have chlorine atoms as part of their make-up. There are 210 different dioxins and furans. The one considered most toxic is a dioxin called 2,3,7,8-Tetrachloro-di-benzodioxin (TCDD). Potential health effects include weight loss, skin disorders, liver problems, birth defects and cancer.

C-4.3. Working Alone Hazard

Working alone means performing any activity out of sight or communication for more than a few minutes at a time. For work on exposed energized electrical equipment, an individual is considered to be working alone if not within sight of someone else. The major danger in working alone is sustaining an illness or injury that precludes self-rescue.

C-4.4. Physical and Biological Hazards

Physical hazards associated with working at Site 300 include extreme temperatures with temperatures often exceeding 100° F in the summer. High air temperatures coupled with use of semi-permeable or impermeable protective clothing and/or strenuous physical activities have a high potential for inducing heat stress in workers. In addition, hazardous conditions may exist during lightning storms at Site 300. Biological hazards include rattlesnakes and insects (i.e., tarantulas, black widow spiders, scorpions, etc.).

C-4.5. Slip/Trip/Fall Hazards

The surfaces that field personnel stand or work on can be hazardous if not properly designed or maintained. Injuries can result from slips, trips, or falls on work surfaces. Work at heights or at elevated locations can also pose a fall hazard.

C-4.6. Material Handling Hazards

The hazards associated with improper material handling include being struck by a load, losing control of a load, physical overexertion, and exceeding equipment capacities. Such accidents can lead to injuries.

C-4.7. Mechanical Motion Hazards

A wide variety of mechanical motions and actions may present hazards to personnel. These can include the movement of rotating members, reciprocating arms, moving belts, meshing gears, cutting teeth, and any part that may cause impact or shear. These different types of hazardous mechanical motions and actions are basic in varying combinations to nearly all machines.

C-4.8. Hazards to Eyes

During construction activities, flying particles or objects can present a hazard to worker's eyes. The use of soldering or welding equipment also poses an eye hazard.

C-4.9. Fire Hazards

Hot engine and vehicle exhaust components may present a fire hazard when contacting high, dry grass or vegetation.

C-4.10. Ground Penetration Hazards

Soil excavation may present a hazard when contacting live electrical conductors or other significant hazards (e.g., natural gas lines, water lines, air lines, and other like hazards). Such contract may cause injury or death to personnel, prevent disruption of essential services, and to protect sensitive species and cultural resources.

C-5. Hazard Control

Controls for the hazards identified in Section C-4 are based on selected sections of LLNL ES&H Manual, and the Site Safety Plan for LLNL CERCLA Investigations at Site 300 (2000).

C-5.1. Noise Hazard Control

Based on previous experience, it is not anticipated that the noise level will be of concern during excavation activities. However, sound levels will be monitored during any operation that may generate hazardous noise levels. Personnel will be required to wear noise protection when working within the noise hazard area, if required by LLNL Industrial Hygiene personnel. Engineered and/or administrative controls should also be implemented, as necessary, to limit noise and protect worker's hearing. The work supervisor shall provide workers affected by noise with earplugs or earmuffs as needed.

C-5.2. Chemical Hazard Control

Personnel should take precautions, such as use of personal protective equipment or clothing (i.e., gloves, safety glasses) to prevent exposure when potential contact with contaminated soil is possible per the requirements of LLNL ES&H Manual, Document 11.1, "Personal Protective Equipment". In addition, to prevent the ingestion of hazardous materials, workers should wash their hands prior to eating, drinking, smoking, or using restroom facilities. Additional information on the safe handling of chemicals can be found in the LLNL ES&H Manual, Document 14.1, "Chemicals".

C-5.3. Working Alone Hazard Control

When working alone on a non-hazardous activity, personnel will advise a co-worker or supervisor that they will be working alone and when they expect to return. For potentially hazardous activities, personnel will: (1) exercise prudent judgement whether or not to perform the activity alone, and (2) obtain prior authorization from work supervisor before beginning planned hazardous-work-alone operations to ensure that all hazards have been thoroughly evaluated from the perspective of working alone. Work supervisors are responsible for ensuring an IWS is prepared for activities classified as hazardous for working alone. Personnel are responsible for following the work safety standards outlined in LLNL ES&H Manual, Document 11.2, "Hazards—General and Miscellaneous" Chapter 12.0, *Working Alone* and the

Environmental Restoration Division Working Alone Guidelines (in ERD O&M Manual, Appendix L) for all work-alone activities.

C-5.4. Physical and Biological Hazard Control

During late spring and summer months, personnel should ingest fluids and evaluate their physical conditions regularly and break when necessary to avoid overheating. Work should be conducted in accordance with the LLNL ES&H Manual, Document 11.2, “Hazards—General and Miscellaneous” Chapters 16.0, *Heat Stress* and 19.0 *Working Outdoors*. All personnel should follow procedures outlined in the Site 300 Lightning Procedures (S300 MGM-T-7) during a lightning alert at Site 300. A lightning alert means the weather conditions are potentially conducive to lightning. Lightning alerts are announced through the Site 300 communications systems. Employees and visitors must evacuate and remain outside explosives hazard zones until a lightning alert is cleared.

Personnel should inspect work areas for snakes and other biological hazards before commencing work. The use of high top work boots is recommended. Avoid biological hazards when possible; do not harass wildlife. Anyone who is bitten should be moved to a safe area and kept calm. Notify the Emergency Dispatch by calling 911 or 925-447-6880 from a cellular phone immediately.

C-5.5. Slip/Trip/Fall Hazard Control

Personnel must be diligent when working in the field where there is uneven ground or burrows to prevent slips, trips, and falls. Any access to elevated locations or work at heights requires guardrails, an administrative control system, or fall protection devices. Personnel are responsible for following the work safety standards outlined in LLNL ES&H Manual, Document 11.1, “Personal Protective Equipment” and Document 11.2, Chapters 2.0, *Housekeeping* and 17.0, *Walking and Working Surfaces*.

C-5.6. Material Handling Hazard Control

Operators should use methods that ensure personal safety and safety of the material being handled when lifting or handling materials manually. Objects that are too heavy or bulky to handle safely should be moved using more than one person or mechanical lifting device. All material lifting or handling should be performed in accordance with the safety standards and procedures for lifting contained in the LLNL ES&H Manual, Document 15.2, “Manual and Mechanical Material Handling”.

C-5.7. Mechanical Motion Hazard Control

Any machine part, function, or process, which may cause injury shall either be guarded (physical barriers which prevent access to danger areas) or safeguarded (provided with devices which inhibit machine operation, to mitigate or eliminate danger areas).

Machine operators shall be trained in the proper use of equipment and associated guards/safeguards to protect themselves and others from machine-related hazards. Machine operators shall wear protective clothing or personal protective equipment as necessary whenever engineering controls are not available or are not fully capable of protecting personnel. At a

minimum, all personnel operating or working within close proximity of heavy machinery or equipment shall wear safety shoes and safety glasses. When there is a potential for head injury, hard hats shall be worn. Additional details for personal protective equipment are contained in the LLNL ES&H Manual, Document 11.1.

C-5.8. Eye Hazard Control

Eye protection shall be provided and worn by personnel where flying particles or objects present a hazard. The minimum type of eye protection is a pair of safety glasses. Increased protection against flying particles is provided when safety glasses have side shields; side shields should be used in most cases. Special eye protection is required when operations such as welding or metal cutting with a torch or arc are performed. Additional details for eye protection are contained in the LLNL ES&H Manual, Document 11.1.

C-5.9. Fire Hazard Control

Excavation areas shall be maintained in a fire-safe condition, including ensuring that the site is accessible to the Fire Department. In addition, personnel must obtain approval to access any work site that requires off-pavement travel as defined by the LLNL "Restricted Off-Pavement Travel at Site 300" policy manual. Personnel planning to travel off-pavement must receive prior permission from the Site 300 Manager, the Functional Area Supervisor, and the CAS Operator and carry a trunked radio for communications. Personnel engaging in off-road travel at Site 300 must be trained and familiar with "Restricted Off-Pavement Travel at Site 300" manual (LLNL, 2001) and must be listed as 'qualified personnel' on IWS #1960 "Site 300 Restricted Travel to Perform ERD Activities."

In case of fire, contact the LLNL Fire Department by dialing 911 or 925-447-6880 from a cellular phone.

C-5.10. Ground Penetration Hazard Control

Operations involving the penetration of concrete slabs or concrete structures and the excavation of soil are controlled by Plant Engineering procedures MOP-03001 and MOP-02003, respectively. These procedures cover the institutional requirements, including the permit process that shall be completed prior to beginning any excavation or penetration action in concrete floors, slabs, walls, or ceilings in LLNL buildings or other concrete areas or soil throughout the Laboratory. The soil excavation at Building 850 will be performed according to Plant Engineering permit requirements for excavation. These permits require utility clearance and approval by the LLNL Utility Organization prior to starting any ground penetrating activity. The permit process also includes a review by the LLNL wildlife biologist and the archaeologist, as required.

C-6. Stop Work Procedures

LLNL's stop-work procedure applies to all work done at the Laboratory. Activities that are imminently dangerous to workers, the public, or the environment shall be stopped immediately by any Laboratory employee, supplemental labor employee, or contractor. Each worker is empowered to stop work if there is a perceived unsafe or unapproved condition. "Stopping

work” includes stabilizing an imminent danger situation to the extent that it can be left unattended for a prolonged period of time until the issue is resolved. The person requesting the work stoppage shall notify manager responsible for the work. The manager shall notify the area ES&H Team and the Directorate ES&H Assurance Manager as soon as possible of this action. Informal stop work interventions to correct minor conditions (e.g., to remind workers to put on their hard hats, safety glasses etc.) do not require formal notification. Details of the Stop Work Process are included in the LLNL ES&H Manual, Document 2.1, “Laboratory and ES&H Policies, General Worker Responsibilities, and Integrated Safety Management”.

C-7. Emergency Response Procedures

In the event of an emergency, personnel will first dial 911 or 925-447-6880 from a cellular phone to report to the Emergency Dispatcher, then administer first aid, if necessary and if trained appropriately, to injured personnel. The Emergency Dispatcher uses reserved telephone lines to promptly relay the emergency call to the following members of the LLNL Emergency Response Team:

- Fire Department.
- Security Department.
- Hazards Control Safety Teams.
- Plant Engineering.
- Health Services.

The Emergency Response Team will go to the scene of the emergency immediately. The LLNL ES&H Manual describes the emergency response procedures in Document 22.1, “Emergency Management” and Document 22.2, “Environmental Emergency Response.” Additional emergency procedures will be included in the Site Safety Plan to be prepared prior to soil excavation.

C-8. Applicable Documents

The following documents and/or sections thereof apply to safely performing excavation activities at the Building 850 subarea and are incorporated into this Health and Safety Plan by reference.

C-8.1. Integration Work Sheet Safety Procedures

#1960 Site 300 Restricted Travel to Perform ERD Activities

C-8.2. LLNL Environment, Safety, and Health Manual Sections

Document 2.1 Laboratory and ES&H Policies, General Worker Responsibilities, and Integrated Safety Management

Document 2.5 Procured Services Subcontractor Environment, Safety, and Health Program

- Document 11.1 Personal Protective Equipment
- Document 11.2 Hazards—General and Miscellaneous
 - Chapters 2.0 Housekeeping
 - Chapter 5.0 Hand and Portable Power Tools
 - Chapter 12.0 Working Alone
 - Chapter 16.0 Heat Stress
 - Chapter 17.0 Walking and Working Surfaces
 - Chapter 18.0 Concrete Penetration and Soil Excavation
 - Chapter 19.0 Working Outdoors
- Document 12.6 LLNL Lockout/Tagout Program
- Document 14.1 Chemicals
- Document 15.2 Manual and Mechanical Material Handling
- Document 18.6 Hearing Conservation
- Document 22.1 Emergency Management
- Document 22.2 Environmental Emergency Response
- Document 22.5 Fire

C-8.3. Site Safety Plan for LLNL CERCLA Investigations at Site 300, November 2000

C-9. References

- LLNL (2000), *Site Safety Plan for Lawrence Livermore National Laboratory CERCLA Investigations at Site 300*, Lawrence Livermore National Laboratory, Livermore, Calif. (UCRL-21172 Rev. 3).
- LLNL (latest edition), *Fire Protection Program Manual*, Lawrence Livermore National Laboratory, Livermore, Calif. (UCRL-MA-116646).
- LLNL (2001) *Restricted Off-Pavement Travel at Site 300*, Lawrence Livermore National Laboratory, Livermore, Calif. (UCRL-MI-144038).
- LLNL (2003), *LLNL Environment, Safety, and Health Manual*.

Appendix D
Cost Tables

Table D-1. Costs for excavation and disposal of soils and fill at Building 850 subarea.

Activity	Parameter	Quantity	hrs for activity	Cost	Unit	Direct capital (\$)	Indirect capital (\$)	Annual O&M (\$)
<i>Soil and fill excavation</i>								
Dozer, water truck, backhoe and Labor Shop technicians to excavate, load dirt into sacks, and perform erosion control activities	Labor	4	967	\$89.71	hr	\$346,998.28		
Riggers moving sacks to staging area	Labor	3	967	\$103.00	hr	\$298,803.00		
Riggers loading sacks onto trucks	Labor	3	1,452	\$103.00	hr	\$448,668.00		
Lift Liner System	Procurement	1			\$	\$10,000.00		
RHWM Technicians to assist with loading and Haztrack paperwork	Labor	1	967	\$46.00	hr	\$44,482.00		
RHWM Technicians to assist with loading and truck surveying	Labor	2	1,936	\$46.00	hr	\$178,112.00		
RHWM Shipping Coordinator	Labor	1	1,936	\$46.00	hr	\$89,056.00		
Waste Certification Official	Labor	1	726	\$89.00	hr	\$64,614.00		
ERD Support	Labor	1	242	\$57.11	hr	\$13,820.62		
Hazards Control Technician to survey excavation	Labor	1	242	\$60	hr	\$14,520.00		
Subtotal costs						\$1,509,073.90	0	0
<i>Disposal costs for 287 cubic yards of soil contaminated with greater than 50 parts per million PCBs</i>								
Shipping Cost	Procurement	5		\$2,250.00	truck	\$11,250.00		
Super Sacks	Procurement	18		\$425	sack	\$7,650.00		
Envirocare	Procurement	287		\$532.71	yd3	\$152,887.77		
Subtotal Costs						\$171,787.77	0	0
<i>Disposal costs for 14,690 cubic yards of soil contaminated with less than 50 parts per million PCBs</i>								
Shipping Cost	Procurement	230		\$2,500.00	truck	\$575,000.00		
Super Sacks	Procurement	920		\$425	sack	\$391,000.00		
Envirocare	Procurement	14,690		\$141.55	yd3	\$2,079,369.50		
Subtotal Costs						\$3,045,369.50	0	0
<i>Disposal costs for 460 cubic yards of sand contaminated with Tritium</i>								
Shipping Cost	Procurement	7		\$2,589.29	truck	\$18,125.00		
Super Sacks	Procurement	29		\$425	sack	\$12,325.00		
Envirocare	Procurement	460		\$141.55	yd3	\$65,113.00		
Subtotal Costs						\$95,563.00	0	0
<i>Verification Sampling and Analysis</i>								
Sampling Technicians	Labor	4	16	\$57.11	hr	\$3,655.04		
Analytical Cost	Procurement			123	samples	\$20,123.00		
Sampling purchases	Procurement			\$749.00	\$	\$749.00		
Subtotal Costs						\$24,527.04	0	0
Total costs						\$4,846,321.21	0	0

Note:

Shipping activity duration of 65 days, assumes 4 trucks a day (242 trucks) , 4 sacks per truck (967 sacks).

Table D-2. Ground water monitoring (including verification of the natural attenuation of tritium).

Activity	Parameter	Quantity	Unit	Direct capital (\$)	Indirect capital (\$)	Annual O&M (\$)
<i>Monitoring</i>						
Water levels	Wells measured quarterly	35	ea			941
Water quality sampling/analysis	Wells sampled quarterly	35	ea			49,361
Data management	Labor	127	hr			9,283
Data analysis & representation	Labor	200	hr			19,931
Subtotal costs				0	0	79,516
<i>MNA for Tritium Effectiveness Evaluation</i>						
Data evaluation and reporting	Labor	100	hr			9,966
Modeling	Labor	100	hr			9,966
				0	0	19,932
Total costs				0	0	99,448
Cost summary						
Capital costs						\$0
Present worth of O&M costs ^a						\$1,528,759
Total present worth costs						\$1,528,759

^aO&M assumes 30 years of monitoring.

Table D-3. Costs for Risk and Hazard Management at the Building 850 subarea.

Activity	Parameter	Quantity	Unit	Direct capital (\$)	Indirect capital (\$)	Annual O&M (\$)
<i>Institutional Controls</i>						
Exposure Assessment	Assessment	1	ea	19,902		
Install warning signs	Signs	2	ea	1,204		
Subtotal costs				21,106	0	0
<i>Risk and Hazard Monitoring</i>						
Conduct wildlife survey	Survey	1	ea			4,384
Prepare Risk and Hazard and RAO Compliance Report	Report	1	ea			7,834
Subtotal costs				0	0	12,218
<i>Occupational Safety Procedures</i>						
Prepare Occupational Safety Procedures	Plan	1	ea			2,381
Subtotal costs				0	0	2,381
Total costs				21,106	0	14,599
Cost summary						
Capital costs				\$21,106		
Present worth of O&M costs ^a						\$224,417
Total present worth costs				\$245,523		

^aO&M assumes 30 years of monitoring.

Appendix E

**Total Toxicity Equivalent Concentration
Calculations**

Table E-1. Toxicity equivalent concentrations of chlorinated dibenzodioxins and chlorinated dibenzofurans at location 3SS-850-102 (0.0 feet).

Compound	TEF ^a	Measured concentration mg/kg or ppm	Toxicity equivalent concentration
2,3,7,8-TCDD	1.00E+00	ND	
Total TCDD	0.00E+00	ND	
Other TCDD	0.00E+00	ND	
1,2,3,7,8-PeCDD	1.00E+00	ND	
Total PeCDD	0.00E+00	ND	
Other PeCDD	0.00E+00	ND	
1,2,3,4,7,8-HxCDD	1.00E-01	ND	
1,2,3,6,7,8-HxCDD	1.00E-01	1.70E-06	1.70E-07
1,2,3,7,8,9-HxCDD	1.00E-01	2.40E-06	2.40E-07
Total HxCDD	0.00E+00	7.30E-06	0.00E+00
Other HxCDD	0.00E+00	7.30E+06	0.00E+00
1,2,3,4,6,7,8-HpCDD	1.00E-02	1.80E-05	1.80E-07
Total HpCDD	0.00E+00	3.10E-05	0.00E+00
Other HpCDD	0.00E+00	1.30E-05	0.00E+00
OCDD	1.00E-04	1.60E-04	1.60E-08
2,3,7,8-TCDF	1.00E-01	2.20E-05	2.20E-06
Total TCDF	0.00E+00	1.70E-04	0.00E+00
Other TCDF	0.00E+00	1.48E-04	0.00E+00
1,2,3,7,8-PeCDF	5.00E-02	6.30E-06	3.15E-07
2,3,4,7,8-PeCDF	5.00E-01	1.40E-05	7.00E-06
Total PeCDF	0.00E+00	8.40E-05	0.00E+00
Other PeCDF	0.00E+00	6.37E-05	0.00E+00
1,2,3,4,7,8-HxCDF	1.00E-01	4.20E-06	4.20E-07
1,2,3,6,7,8-HxCDF	1.00E-01	2.40E-06	2.40E-07
2,3,4,6,7,8-HxCDF	1.00E-01	2.00E-06	2.00E-07
1,2,3,7,8,9-HxCDF	1.00E-01	2.60E-06	2.60E-07
Total HxCDF	0.00E+00	2.20E-05	0.00E+00
Other HxCDF	0.00E+00	1.08E-05	0.00E+00
1,2,3,4,6,7,8-HpCDF	1.00E-02	4.60E-06	4.60E-08
1,2,3,4,7,8,9-HpCDF	1.00E-02	5.90E-07	5.90E-09
Total HpCDF	0.00E+00	1.30E-05	0.00E+00
Other HpCDF	0.00E+00	7.81E-06	0.00E+00
OCDF	1.00E-04	1.10E-05	1.10E-09
<i>Total toxicity equivalent concentration</i>			1.13E-05

Notes and footnotes appear on the following page.

Notes:

CDD = Chlorinated dibenzo-p-dioxin.

CDF = Chlorinated dibenzofuran.

HpCDD = Heptachlorinated dibenzo-p-dioxin.

HpCDF = Heptachlorinated dibenzofuran.

HxCDD = Hexachlorinated dibenzo-p-dioxin.

HxCDF = Hexachlorinated dibenzofuran.

mg/kg = Milligram per kilogram.

ND = Non detectable.

OCDD = Octachlorodibenzo-p-dioxin.

OCDF = Octachlorodibenzofuran.

OU = Operable Unit.

PeCDD = Pentachlorinated dibenzo-p-dioxin.

PeCDF = Pentachlorinated dibenzofuran.

pg/g = picogram per gram.

ppm = Parts per million.

PRG = Preliminary Remediation Goal.

TCDD = Tetrachlorodibenzo-p-dioxin.

TCDF = Tetrachlorodibenzofuran.

TEF = Toxicity Equivalency Factor.

^a TEQ_{DEF} - WHO₉₈.

Table E-2. Toxicity equivalent concentrations of chlorinated dibenzodioxins and chlorinated dibenzofurans at location 3SS-850-107 (0.0 feet).

Compound	TEF ^a	Measured Conc. mg/kg or ppm	Toxicity Equivalent Concentration
2,3,7,8-TCDD	1.00E+00	ND	
Total TCDD	0.00E+00	ND	
Other TCDD	0.00E+00	ND	
1,2,3,7,8-PeCDD	1.00E+00	ND	
Total PeCDD	0.00E+00	ND	
Other PeCDD	0.00E+00	ND	
1,2,3,4,7,8-HxCDD	1.00E-01	8.60E-07	8.60E-08
1,2,3,6,7,8-HxCDD	1.00E-01	2.50E-06	2.50E-07
1,2,3,7,8,9-HxCDD	1.00E-01	1.60E-06	1.60E-07
Total HxCDD	0.00E+00	1.50E-05	0.00E+00
Other HxCDD	0.00E+00	1.00E-05	0.00E+00
1,2,3,4,6,7,8-HpCDD	1.00E-02	4.80E-05	4.80E-07
Total HpCDD	0.00E+00	8.50E-05	0.00E+00
Other HpCDD	0.00E+00	3.70E-05	0.00E+00
OCDD	1.00E-04	4.10E-04	4.10E-08
2,3,7,8-TCDF	1.00E-01	1.00E-03	1.00E-04
Total TCDF	0.00E+00	6.20E-03	0.00E+00
Other TCDF	0.00E+00	5.20E-03	0.00E+00
1,2,3,7,8-PeCDF	5.00E-02	3.30E-04	1.65E-05
2,3,4,7,8-PeCDF	5.00E-01	7.80E-04	3.90E-04
Total PeCDF	0.00E+00	4.30E-03	0.00E+00
Other PeCDF	0.00E+00	3.19E-03	0.00E+00
1,2,3,4,7,8-HxCDF	1.00E-01	2.40E-04	2.40E-05
1,2,3,6,7,8-HxCDF	1.00E-01	2.00E-04	2.00E-05
2,3,4,6,7,8-HxCDF	1.00E-01	6.60E-05	6.60E-06
1,2,3,7,8,9-HxCDF	1.00E-01	2.80E-05	2.80E-06
Total HxCDF	0.00E+00	1.20E-03	0.00E+00
Other HxCDF	0.00E+00	6.66E-04	0.00E+00
1,2,3,4,6,7,8-HpCDF	1.00E-02	7.90E-05	7.90E-07
1,2,3,4,7,8,9-HpCDF	1.00E-02	1.60E-05	1.60E-07
Total HpCDF	0.00E+00	1.40E-04	0.00E+00
Other HpCDF	0.00E+00	4.50E-05	0.00E+00
OCDF	1.00E-04	2.00E-05	2.00E-09
<i>Total toxicity equivalent concentration</i>			5.62E-04

Notes and footnotes appear on the following page.

Notes:

CDD = Chlorinated dibenzo-p-dioxin.

CDF = Chlorinated dibenzofuran.

HpCDD = Heptachlorinated dibenzo-p-dioxin.

HpCDF = Heptachlorinated dibenzofuran.

HxCDD = Hexachlorinated dibenzo-p-dioxin.

HxCDF = Hexachlorinated dibenzofuran.

mg/kg = Milligram per kilogram.

ND = Non detectable.

OCDD = Octachlorodibenzo-p-dioxin.

OCDF = Octachlorodibenzofuran.

OU = Operable Unit.

PeCDD = Pentachlorinated dibenzo-p-dioxin.

PeCDF = Pentachlorinated dibenzofuran.

pg/g = picogram per gram.

ppm = Parts per million.

PRG = Preliminary Remediation Goal.

TCDD = Tetrachlorodibenzo-p-dioxin.

TCDF = Tetrachlorodibenzofuran.

TEF = Toxicity Equivalency Factor.

^a TEQ_{DEF} - WHO₉₈.

Table E-3. Toxicity equivalent concentrations of chlorinated dibenzodioxins and chlorinated dibenzofurans at location 3SS-850-107 (0.5 feet).

Compound	TEF ^a	Measured Conc. mg/kg or ppm	Toxicity Equivalent Concentration
2,3,7,8-TCDD	1.00E+00	7.20E-07	7.20E-07
Total TCDD	0.00E+00	2.00E-06	0.00E+00
Other TCDD	0.00E+00	1.28E-06	0.00E+00
1,2,3,7,8-PeCDD	1.00E+00	ND	
Total PeCDD	0.00E+00	ND	
Other PeCDD	0.00E+00	ND	
1,2,3,4,7,8-HxCDD	1.00E-01	ND	
1,2,3,6,7,8-HxCDD	1.00E-01	1.50E-06	1.50E-07
1,2,3,7,8,9-HxCDD	1.00E-01	1.30E-06	1.30E-07
Total HxCDD	0.00E+00	6.60E-06	0.00E+00
Other HxCDD	0.00E+00	3.80E-06	0.00E+00
1,2,3,4,6,7,8-HpCDD	1.00E-02	1.90E-05	1.90E-07
Total HpCDD	0.00E+00	3.40E-05	0.00E+00
Other HpCDD	0.00E+00	1.50E-05	0.00E+00
OCDD	1.00E-04	1.70E-04	1.70E-08
2,3,7,8-TCDF	1.00E-01	5.90E-04	5.90E-05
Total TCDF	0.00E+00	3.60E-03	0.00E+00
Other TCDF	0.00E+00	3.01E-03	0.00E+00
1,2,3,7,8-PeCDF	5.00E-02	2.10E-04	1.05E-05
2,3,4,7,8-PeCDF	5.00E-01	4.50E-04	2.25E-04
Total PeCDF	0.00E+00	2.70E-03	0.00E+00
Other PeCDF	0.00E+00	2.04E-03	0.00E+00
1,2,3,4,7,8-HxCDF	1.00E-01	1.40E-04	1.40E-05
1,2,3,6,7,8-HxCDF	1.00E-01	1.20E-04	1.20E-05
2,3,4,6,7,8-HxCDF	1.00E-01	4.30E-05	4.30E-06
1,2,3,7,8,9-HxCDF	1.00E-01	1.80E-05	1.80E-06
Total HxCDF	0.00E+00	7.40E-04	0.00E+00
Other HxCDF	0.00E+00	4.19E-04	0.00E+00
1,2,3,4,6,7,8-HpCDF	1.00E-02	4.50E-05	4.50E-07
1,2,3,4,7,8,9-HpCDF	1.00E-02	1.20E-05	1.20E-07
Total HpCDF	0.00E+00	8.30E-05	0.00E+00
Other HpCDF	0.00E+00	2.60E-05	0.00E+00
OCDF	1.00E-04	8.10E-06	8.10E-10
<i>Total toxicity equivalent concentration</i>			3.28E-04

Notes and footnote appear on the following page.

Notes:

CDD = Chlorinated dibenzo-p-dioxin.

CDF = Chlorinated dibenzofuran.

HpCDD = Heptachlorinated dibenzo-p-dioxin.

HpCDF = Heptachlorinated dibenzofuran.

HxCDD = Hexachlorinated dibenzo-p-dioxin.

HxCDF = Hexachlorinated dibenzofuran.

mg/kg = Milligram per kilogram.

ND = Non detectable.

OCDD = Octachlorodibenzo-p-dioxin.

OCDF = Octachlorodibenzofuran.

OU = Operable Unit.

PeCDD = Pentachlorinated dibenzo-p-dioxin.

PeCDF = Pentachlorinated dibenzofuran.

pg/g = picogram per gram.

ppm = Parts per million.

PRG = Preliminary Remediation Goal.

TCDD = Tetrachlorodibenzo-p-dioxin.

TCDF = Tetrachlorodibenzofuran.

TEF = Toxicity Equivalency Factor.

^a TEQ_{DEF} - WHO₉₈.

Table E-4. Toxicity equivalent concentrations of chlorinated dibenzodioxins and chlorinated dibenzofurans at location 3SS-850-107 (0.5 feet).

Compound	TEF ^a	Measured concentration mg/kg or ppm	Toxicity equivalent concentration
2,3,7,8-TCDD	1.00E+00	ND	
Total TCDD	0.00E+00	ND	
Other TCDD	0.00E+00	ND	
1,2,3,7,8-PeCDD	1.00E+00	ND	
Total PeCDD	0.00E+00	ND	
Other PeCDD	0.00E+00	ND	
1,2,3,4,7,8-HxCDD	1.00E-01	ND	
1,2,3,6,7,8-HxCDD	1.00E-01	ND	
1,2,3,7,8,9-HxCDD	1.00E-01	ND	
Total HxCDD	0.00E+00	ND	
Other HxCDD	0.00E+00	ND	
1,2,3,4,6,7,8-HpCDD	1.00E-02	1.10E-05	1.10E-07
Total HpCDD	0.00E+00	1.80E-05	0.00E+00
Other HpCDD	0.00E+00	7.00E-06	0.00E+00
OCDD	1.00E-04	8.80E-05	8.80E-09
2,3,7,8-TCDF	1.00E-01	4.10E-06	4.10E-07
Total TCDF	0.00E+00	2.90E-05	0.00E+00
Other TCDF	0.00E+00	2.49E-05	0.00E+00
1,2,3,7,8-PeCDF	5.00E-02	1.50E-06	7.50E-08
2,3,4,7,8-PeCDF	5.00E-01	2.70E-06	1.35E-06
Total PeCDF	0.00E+00	1.50E-05	0.00E+00
Other PeCDF	0.00E+00	1.08E-05	0.00E+00
1,2,3,4,7,8-HxCDF	1.00E-01	1.00E-06	1.00E-07
1,2,3,6,7,8-HxCDF	1.00E-01	6.90E-07	6.90E-08
2,3,4,6,7,8-HxCDF	1.00E-01	6.80E-07	6.80E-08
1,2,3,7,8,9-HxCDF	1.00E-01	2.40E-06	2.40E-07
Total HxCDF	0.00E+00	9.30E-06	0.00E+00
Other HxCDF	0.00E+00	4.53E-06	0.00E+00
1,2,3,4,6,7,8-HpCDF	1.00E-02	3.90E-06	3.90E-08
1,2,3,4,7,8,9-HpCDF	1.00E-02	ND	
Total HpCDF	0.00E+00	1.60E-05	0.00E+00
Other HpCDF	0.00E+00	1.21E-05	0.00E+00
OCDF	1.00E-04	1.90E-05	1.90E-09
<i>Total toxicity equivalent concentration</i>			2.47E-06

Notes and footnote appear on the following page.

Notes:

CDD = Chlorinated dibenzo-p-dioxin.

CDF = Chlorinated dibenzofuran.

HpCDD = Heptachlorinated dibenzo-p-dioxin.

HpCDF = Heptachlorinated dibenzofuran.

HxCDD = Hexachlorinated dibenzo-p-dioxin.

HxCDF = Hexachlorinated dibenzofuran.

mg/kg = Milligram per kilogram.

ND = Non detectable.

OCDD = Octachlorodibenzo-p-dioxin.

OCDF = Octachlorodibenzofuran.

OU = Operable Unit.

PeCDD = Pentachlorinated dibenzo-p-dioxin.

PeCDF = Pentachlorinated dibenzofuran.

pg/g = picogram per gram.

ppm = Parts per million.

PRG = Preliminary Remediation Goal.

TCDD = Tetrachlorodibenzo-p-dioxin.

TCDF = Tetrachlorodibenzofuran.

TEF = Toxicity Equivalency Factor.

^a TEQ_{DEF} - WHO₉₈.

Table E-5. Toxicity equivalent concentrations of chlorinated dibenzodioxins and chlorinated dibenzofurans at location 3SS-850-139 (0.0 feet).

Compound	TEF ^a	Measured concentration mg/kg or ppm	Toxicity equivalent concentration
2,3,7,8-TCDD	1.00E+00	ND	
Total TCDD	0.00E+00	ND	
Other TCDD	0.00E+00	ND	
1,2,3,7,8-PeCDD	1.00E+00	ND	
Total PeCDD	0.00E+00	ND	
Other PeCDD	0.00E+00	ND	
1,2,3,4,7,8-HxCDD	1.00E-01	ND	
1,2,3,6,7,8-HxCDD	1.00E-01	3.70E-06	3.70E-07
1,2,3,7,8,9-HxCDD	1.00E-01	2.20E-06	2.20E-07
Total HxCDD	0.00E+00	1.60E-05	0.00E+00
Other HxCDD	0.00E+00	1.01E-05	0.00E+00
1,2,3,4,6,7,8-HpCDD	1.00E-02	5.70E-05	5.70E-07
Total HpCDD	0.00E+00	9.70E-05	0.00E+00
Other HpCDD	0.00E+00	4.00E-05	0.00E+00
OCDD	1.00E-04	4.80E-04	4.80E-08
2,3,7,8-TCDF	1.00E-01	1.80E-03	1.80E-04
Total TCDF	0.00E+00	1.20E-02	0.00E+00
Other TCDF	0.00E+00	1.02E-02	0.00E+00
1,2,3,7,8-PeCDF	5.00E-02	3.60E-04	1.80E-05
2,3,4,7,8-PeCDF	5.00E-01	1.20E-03	6.00E-04
Total PeCDF	0.00E+00	6.60E-03	0.00E+00
Other PeCDF	0.00E+00	5.04E-03	0.00E+00
1,2,3,4,7,8-HxCDF	1.00E-01	3.10E-04	3.10E-05
1,2,3,6,7,8-HxCDF	1.00E-01	1.70E-04	1.70E-05
2,3,4,6,7,8-HxCDF	1.00E-01	9.70E-05	9.70E-06
1,2,3,7,8,9-HxCDF	1.00E-01	4.10E-05	4.10E-06
Total HxCDF	0.00E+00	1.20E-03	0.00E+00
Other HxCDF	0.00E+00	5.82E-04	0.00E+00
1,2,3,4,6,7,8-HpCDF	1.00E-02	7.70E-05	7.70E-07
1,2,3,4,7,8,9-HpCDF	1.00E-02	2.80E-05	2.80E-07
Total HpCDF	0.00E+00	1.70E-04	0.00E+00
Other HpCDF	0.00E+00	6.50E-05	0.00E+00
OCDF	1.00E-04	1.70E-05	1.70E-09
Total toxicity equivalent concentration			8.62E-04

Notes and footnote appear on the following page.

Notes:

CDD = Chlorinated dibenzo-p-dioxin.

CDF = Chlorinated dibenzofuran.

HpCDD = Heptachlorinated dibenzo-p-dioxin.

HpCDF = Heptachlorinated dibenzofuran.

HxCDD = Hexachlorinated dibenzo-p-dioxin.

HxCDF = Hexachlorinated dibenzofuran.

mg/kg = Milligram per kilogram.

ND = Non detectable.

OCDD = Octachlorodibenzo-p-dioxin.

OCDF = Octachlorodibenzofuran.

OU = Operable Unit.

PeCDD = Pentachlorinated dibenzo-p-dioxin.

PeCDF = Pentachlorinated dibenzofuran.

pg/g = picogram per gram.

ppm = Parts per million.

PRG = Preliminary Remediation Goal.

TCDD = Tetrachlorodibenzo-p-dioxin.

TCDF = Tetrachlorodibenzofuran.

TEF = Toxicity Equivalency Factor.

^a TEQ_{DEF} - WHO₉₈.

Table E-6. Toxicity equivalent concentrations of chlorinated dibenzodioxins and chlorinated dibenzofurans at location 3SS-850-140 (0.0 feet).

Compound	TEF ^a	Measured concentration mg/kg or ppm	Toxicity equivalent concentration
2,3,7,8-TCDD	1.00E+00	1.40E-06	1.40E-06
Total TCDD	0.00E+00	4.30E-06	0.00E+00
Other TCDD	0.00E+00	2.90E-06	0.00E+00
1,2,3,7,8-PeCDD	1.00E+00	ND	
Total PeCDD	0.00E+00	ND	
Other PeCDD	0.00E+00	ND	
1,2,3,4,7,8-HxCDD	1.00E-01	ND	
1,2,3,6,7,8-HxCDD	1.00E-01	1.10E-06	1.10E-07
1,2,3,7,8,9-HxCDD	1.00E-01	ND	
Total HxCDD	0.00E+00	5.90E-06	0.00E+00
Other HxCDD	0.00E+00	4.80E-06	0.00E+00
1,2,3,4,6,7,8-HpCDD	1.00E-02	2.30E-05	2.30E-07
Total HpCDD	0.00E+00	3.70E-05	0.00E+00
Other HpCDD	0.00E+00	1.40E-05	0.00E+00
OCDD	1.00E-04	1.60E-04	1.60E-08
2,3,7,8-TCDF	1.00E-01	1.90E-03	1.90E-04
Total TCDF	0.00E+00	1.10E-02	0.00E+00
Other TCDF	0.00E+00	9.10E-03	0.00E+00
1,2,3,7,8-PeCDF	5.00E-02	6.10E-04	3.05E-05
2,3,4,7,8-PeCDF	5.00E-01	1.70E-03	8.50E-04
Total PeCDF	0.00E+00	8.60E-03	0.00E+00
Other PeCDF	0.00E+00	6.29E-03	0.00E+00
1,2,3,4,7,8-HxCDF	1.00E-01	5.40E-04	5.40E-05
1,2,3,6,7,8-HxCDF	1.00E-01	4.30E-04	4.30E-05
2,3,4,6,7,8-HxCDF	1.00E-01	1.50E-04	1.50E-05
1,2,3,7,8,9-HxCDF	1.00E-01	9.70E-05	9.70E-06
Total HxCDF	0.00E+00	2.70E-03	0.00E+00
Other HxCDF	0.00E+00	1.48E-03	0.00E+00
1,2,3,4,6,7,8-HpCDF	1.00E-02	1.50E-04	1.50E-06
1,2,3,4,7,8,9-HpCDF	1.00E-02	5.60E-05	5.60E-07
Total HpCDF	0.00E+00	3.00E-04	0.00E+00
Other HpCDF	0.00E+00	9.40E-05	0.00E+00
OCDF	1.00E-04	2.50E-05	2.50E-09
<i>Total toxicity equivalent concentration</i>			1.20E-03

Notes and footnote appear on the following page.

Notes:

CDD = Chlorinated dibenzo-p-dioxin.

CDF = Chlorinated dibenzofuran.

HpCDD = Heptachlorinated dibenzo-p-dioxin.

HpCDF = Heptachlorinated dibenzofuran.

HxCDD = Hexachlorinated dibenzo-p-dioxin.

HxCDF = Hexachlorinated dibenzofuran.

mg/kg = Milligram per kilogram.

ND = Non detectable.

OCDD = Octachlorodibenzo-p-dioxin.

OCDF = Octachlorodibenzofuran.

OU = Operable Unit.

PeCDD = Pentachlorinated dibenzo-p-dioxin.

PeCDF = Pentachlorinated dibenzofuran.

pg/g = picogram per gram.

ppm = Parts per million.

PRG = Preliminary Remediation Goal.

TCDD = Tetrachlorodibenzo-p-dioxin.

TCDF = Tetrachlorodibenzofuran.

TEF = Toxicity Equivalency Factor.

^a TEQ_{DEF} - WHO₉₈.

Table E-7. Toxicity equivalent concentrations of chlorinated dibenzodioxins and chlorinated dibenzofurans at location 3SS-850-142 (0.0 feet).

Compound	TEF ^a	Measured concentration mg/kg or ppm	Toxicity equivalent concentration
2,3,7,8-TCDD	1.00E+00	8.10E-07	8.10E-07
Total TCDD	0.00E+00	3.80E-06	0.00E+00
Other TCDD	0.00E+00	2.99E-06	0.00E+00
1,2,3,7,8-PeCDD	1.00E+00	ND	
Total PeCDD	0.00E+00	ND	
Other PeCDD	0.00E+00	ND	
1,2,3,4,7,8-HxCDD	1.00E-01	ND	
1,2,3,6,7,8-HxCDD	1.00E-01	ND	
1,2,3,7,8,9-HxCDD	1.00E-01	ND	
Total HxCDD	0.00E+00	ND	
Other HxCDD	0.00E+00	ND	
1,2,3,4,6,7,8-HpCDD	1.00E-02	3.10E-05	3.10E-07
Total HpCDD	0.00E+00	5.70E-05	0.00E+00
Other HpCDD	0.00E+00	2.60E-05	0.00E+00
OCDD	1.00E-04	2.40E-04	2.40E-08
2,3,7,8-TCDF	1.00E-01	9.60E-03	9.60E-04
Total TCDF	0.00E+00	4.80E-02	0.00E+00
Other TCDF	0.00E+00	3.84E-02	0.00E+00
1,2,3,7,8-PeCDF	5.00E-02	2.60E-03	1.30E-04
2,3,4,7,8-PeCDF	5.00E-01	9.10E-03	4.55E-03
Total PeCDF	0.00E+00	5.70E-02	0.00E+00
Other PeCDF	0.00E+00	4.53E-02	0.00E+00
1,2,3,4,7,8-HxCDF	1.00E-01	2.30E-03	2.30E-04
1,2,3,6,7,8-HxCDF	1.00E-01	2.10E-03	2.10E-04
2,3,4,6,7,8-HxCDF	1.00E-01	7.50E-04	7.50E-05
1,2,3,7,8,9-HxCDF	1.00E-01	2.50E-04	2.50E-05
Total HxCDF	0.00E+00	1.10E-02	0.00E+00
Other HxCDF	0.00E+00	5.60E-03	0.00E+00
1,2,3,4,6,7,8-HpCDF	1.00E-02	6.40E-04	6.40E-06
1,2,3,4,7,8,9-HpCDF	1.00E-02	2.00E-04	2.00E-06
Total HpCDF	0.00E+00	1.30E-03	0.00E+00
Other HpCDF	0.00E+00	4.60E-04	0.00E+00
OCDF	1.00E-04	1.10E-04	1.10E-08
<i>Total toxicity equivalent concentration</i>			6.19E-03

Notes and footnote appear on the following page.

Notes:

CDD = Chlorinated dibenzo-p-dioxin.

CDF = Chlorinated dibenzofuran.

HpCDD = Heptachlorinated dibenzo-p-dioxin.

HpCDF = Heptachlorinated dibenzofuran.

HxCDD = Hexachlorinated dibenzo-p-dioxin.

HxCDF = Hexachlorinated dibenzofuran.

mg/kg = Milligram per kilogram.

ND = Non detectable.

OCDD = Octachlorodibenzo-p-dioxin.

OCDF = Octachlorodibenzofuran.

OU = Operable Unit.

PeCDD = Pentachlorinated dibenzo-p-dioxin.

PeCDF = Pentachlorinated dibenzofuran.

pg/g = picogram per gram.

ppm = Parts per million.

PRG = Preliminary Remediation Goal.

TCDD = Tetrachlorodibenzo-p-dioxin.

TCDF = Tetrachlorodibenzofuran.

TEF = Toxicity Equivalency Factor.

^a TEQ_{DEF} - WHO₉₈.

Table E-8. Toxicity equivalent concentrations of chlorinated dibenzodioxins and chlorinated dibenzofurans at location 3SS-850-142 (0.5 feet).

Compound	TEF ^a	Measured concentration mg/kg or ppm	Toxicity equivalent concentration
2,3,7,8-TCDD	1.00E+00	ND	
Total TCDD	0.00E+00	7.40E-07	0.00E+00
Other TCDD	0.00E+00	7.40E-07	0.00E+00
1,2,3,7,8-PeCDD	1.00E+00	ND	
Total PeCDD	0.00E+00	ND	
Other PeCDD	0.00E+00	ND	
1,2,3,4,7,8-HxCDD	1.00E-01	ND	
1,2,3,6,7,8-HxCDD	1.00E-01	3.30E-06	3.30E-07
1,2,3,7,8,9-HxCDD	1.00E-01	ND	
Total HxCDD	0.00E+00	3.30E-06	0.00E+00
Other HxCDD	0.00E+00	ND	
1,2,3,4,6,7,8-HpCDD	1.00E-02	5.20E-05	5.20E-07
Total HpCDD	0.00E+00	9.30E-05	0.00E+00
Other HpCDD	0.00E+00	4.10E-05	0.00E+00
OCDD	1.00E-04	5.50E-04	5.50E-08
2,3,7,8-TCDF	1.00E-01	2.60E-03	2.60E-04
Total TCDF	0.00E+00	1.50E-02	0.00E+00
Other TCDF	0.00E+00	1.24E-02	0.00E+00
1,2,3,7,8-PeCDF	5.00E-02	6.70E-04	3.35E-05
2,3,4,7,8-PeCDF	5.00E-01	2.20E-03	1.10E-03
Total PeCDF	0.00E+00	1.00E-02	0.00E+00
Other PeCDF	0.00E+00	7.13E-03	0.00E+00
1,2,3,4,7,8-HxCDF	1.00E-01	5.50E-04	5.50E-05
1,2,3,6,7,8-HxCDF	1.00E-01	5.10E-04	5.10E-05
2,3,4,6,7,8-HxCDF	1.00E-01	1.80E-04	1.80E-05
1,2,3,7,8,9-HxCDF	1.00E-01	6.30E-05	6.30E-06
Total HxCDF	0.00E+00	3.10E-03	0.00E+00
Other HxCDF	0.00E+00	1.80E-03	0.00E+00
1,2,3,4,6,7,8-HpCDF	1.00E-02	1.70E-04	1.70E-06
1,2,3,4,7,8,9-HpCDF	1.00E-02	4.60E-05	4.60E-07
Total HpCDF	0.00E+00	3.40E-04	0.00E+00
Other HpCDF	0.00E+00	1.24E-04	0.00E+00
OCDF	1.00E-04	2.60E-05	2.60E-09
<i>Total toxicity equivalent concentration</i>			1.53E-03

Notes and footnote appear on the following page.

Notes:

CDD = Chlorinated dibenzo-p-dioxin.

CDF = Chlorinated dibenzofuran.

HpCDD = Heptachlorinated dibenzo-p-dioxin.

HpCDF = Heptachlorinated dibenzofuran.

HxCDD = Hexachlorinated dibenzo-p-dioxin.

HxCDF = Hexachlorinated dibenzofuran.

mg/kg = Milligram per kilogram.

ND = Non detectable.

OCDD = Octachlorodibenzo-p-dioxin.

OCDF = Octachlorodibenzofuran.

OU = Operable Unit.

PeCDD = Pentachlorinated dibenzo-p-dioxin.

PeCDF = Pentachlorinated dibenzofuran.

pg/g = picogram per gram.

ppm = Parts per million.

PRG = Preliminary Remediation Goal.

TCDD = Tetrachlorodibenzo-p-dioxin.

TCDF = Tetrachlorodibenzofuran.

TEF = Toxicity Equivalency Factor.

^a TEQ_{DEF} - WHO₉₈.

Table E-9. Toxicity equivalent concentrations of chlorinated dibenzodioxins and chlorinated dibenzofurans at location 3SS-850-147 (0.0 feet).

Compound	TEF ^a	Measured concentration mg/kg or ppm	Toxicity equivalent concentration
2,3,7,8-TCDD	1.00E+00	ND	
Total TCDD	0.00E+00	ND	
Other TCDD	0.00E+00	ND	
1,2,3,7,8-PeCDD	1.00E+00	ND	
Total PeCDD	0.00E+00	ND	
Other PeCDD	0.00E+00	ND	
1,2,3,4,7,8-HxCDD	1.00E-01	ND	
1,2,3,6,7,8-HxCDD	1.00E-01	9.30E-07	9.30E-08
1,2,3,7,8,9-HxCDD	1.00E-01	1.10E-06	1.10E-07
Total HxCDD	0.00E+00	3.60E-06	0.00E+00
Other HxCDD	0.00E+00	1.57E-06	0.00E+00
1,2,3,4,6,7,8-HpCDD	1.00E-02	3.70E-06	3.70E-08
Total HpCDD	0.00E+00	6.40E-06	0.00E+00
Other HpCDD	0.00E+00	2.70E-06	0.00E+00
OCDD	1.00E-04	2.20E-05	2.20E-09
2,3,7,8-TCDF	1.00E-01	1.90E-05	1.90E-06
Total TCDF	0.00E+00	1.40E-04	0.00E+00
Other TCDF	0.00E+00	1.21E-04	0.00E+00
1,2,3,7,8-PeCDF	5.00E-02	4.60E-06	2.30E-07
2,3,4,7,8-PeCDF	5.00E-01	9.70E-06	4.85E-06
Total PeCDF	0.00E+00	6.10E-05	0.00E+00
Other PeCDF	0.00E+00	4.67E-05	0.00E+00
1,2,3,4,7,8-HxCDF	1.00E-01	2.10E-06	2.10E-07
1,2,3,6,7,8-HxCDF	1.00E-01	1.40E-06	1.40E-07
2,3,4,6,7,8-HxCDF	1.00E-01	1.00E-06	1.00E-07
1,2,3,7,8,9-HxCDF	1.00E-01	7.40E-07	7.40E-08
Total HxCDF	0.00E+00	1.10E-05	0.00E+00
Other HxCDF	0.00E+00	5.76E-06	0.00E+00
1,2,3,4,6,7,8-HpCDF	1.00E-02	1.70E-06	1.70E-08
1,2,3,4,7,8,9-HpCDF	1.00E-02	ND	
Total HpCDF	0.00E+00	3.20E-06	0.00E+00
Other HpCDF	0.00E+00	1.50E-06	0.00E+00
OCDF	1.00E-04	1.50E-06	1.50E-10
<i>Total toxicity equivalent concentration</i>			7.76E-06

Notes and footnote appear on the following page.

Notes:

CDD = Chlorinated dibenzo-p-dioxin.

CDF = Chlorinated dibenzofuran.

HpCDD = Heptachlorinated dibenzo-p-dioxin.

HpCDF = Heptachlorinated dibenzofuran.

HxCDD = Hexachlorinated dibenzo-p-dioxin.

HxCDF = Hexachlorinated dibenzofuran.

mg/kg = Milligram per kilogram.

ND = Non detectable.

OCDD = Octachlorodibenzo-p-dioxin.

OCDF = Octachlorodibenzofuran.

OU = Operable Unit.

PeCDD = Pentachlorinated dibenzo-p-dioxin.

PeCDF = Pentachlorinated dibenzofuran.

pg/g = picogram per gram.

ppm = Parts per million.

PRG = Preliminary Remediation Goal.

TCDD = Tetrachlorodibenzo-p-dioxin.

TCDF = Tetrachlorodibenzofuran.

TEF = Toxicity Equivalency Factor.

^a TEQ_{DEF} - WHO₉₈.

Table E-10. Toxicity equivalent concentrations of chlorinated dibenzodioxins and chlorinated dibenzofurans at location 3SS-850-147 (0.0 feet).

Compound	TEF ^a	Measured concentration mg/kg or ppm	Toxicity equivalent concentration
2,3,7,8-TCDD	1.00E+00	ND	
Total TCDD	0.00E+00	ND	
Other TCDD	0.00E+00	ND	
1,2,3,7,8-PeCDD	1.00E+00	ND	
Total PeCDD	0.00E+00	ND	
Other PeCDD	0.00E+00	ND	
1,2,3,4,7,8-HxCDD	1.00E-01	ND	
1,2,3,6,7,8-HxCDD	1.00E-01	2.00E-06	2.00E-07
1,2,3,7,8,9-HxCDD	1.00E-01	1.30E-06	1.30E-07
Total HxCDD	0.00E+00	9.00E-06	0.00E+00
Other HxCDD	0.00E+00	5.70E-06	0.00E+00
1,2,3,4,6,7,8-HpCDD	1.00E-02	2.10E-05	2.10E-07
Total HpCDD	0.00E+00	3.40E-05	0.00E+00
Other HpCDD	0.00E+00	1.30E-05	0.00E+00
OCDD	1.00E-04	1.40E-04	1.40E-08
2,3,7,8-TCDF	1.00E-01	4.30E-06	4.30E-07
Total TCDF	0.00E+00	2.90E-05	0.00E+00
Other TCDF	0.00E+00	2.47E-05	0.00E+00
1,2,3,7,8-PeCDF	5.00E-02	1.20E-06	6.00E-08
2,3,4,7,8-PeCDF	5.00E-01	3.10E-06	1.55E-06
Total PeCDF	0.00E+00	1.80E-05	0.00E+00
Other PeCDF	0.00E+00	1.37E-05	0.00E+00
1,2,3,4,7,8-HxCDF	1.00E-01	1.80E-06	1.80E-07
1,2,3,6,7,8-HxCDF	1.00E-01	ND	
2,3,4,6,7,8-HxCDF	1.00E-01	9.30E-07	9.30E-08
1,2,3,7,8,9-HxCDF	1.00E-01	ND	
Total HxCDF	0.00E+00	9.10E-06	0.00E+00
Other HxCDF	0.00E+00	6.37E-06	0.00E+00
1,2,3,4,6,7,8-HpCDF	1.00E-02	4.00E-06	4.00E-08
1,2,3,4,7,8,9-HpCDF	1.00E-02	0.00E+00	0.00E+00
Total HpCDF	0.00E+00	1.00E-05	0.00E+00
Other HpCDF	0.00E+00	6.00E-06	0.00E+00
OCDF	1.00E-04	7.00E-06	7.00E-10
<i>Total toxicity equivalent concentration</i>			2.91E-06

Notes and footnote appear on the following page.

Notes:

CDD = Chlorinated dibenzo-p-dioxin.

CDF = Chlorinated dibenzofuran.

HpCDD = Heptachlorinated dibenzo-p-dioxin.

HpCDF = Heptachlorinated dibenzofuran.

HxCDD = Hexachlorinated dibenzo-p-dioxin.

HxCDF = Hexachlorinated dibenzofuran.

mg/kg = Milligram per kilogram.

ND = Non detectable.

OCDD = Octachlorodibenzo-p-dioxin.

OCDF = Octachlorodibenzofuran.

OU = Operable Unit.

PeCDD = Pentachlorinated dibenzo-p-dioxin.

PeCDF = Pentachlorinated dibenzofuran.

pg/g = picogram per gram.

ppm = Parts per million.

PRG = Preliminary Remediation Goal.

TCDD = Tetrachlorodibenzo-p-dioxin.

TCDF = Tetrachlorodibenzofuran.

TEF = Toxicity Equivalency Factor.

^a TEQ_{DEF} - WHO₉₈.

E-11. Total toxicity equivalent concentrations for surface soil sample locations in the Building 850 Operable Unit.

Sample location	Toxicity equivalent concentration
3SS-850-102-0.0F	1.13E-05
3SS-850-107-0.0F	5.62E-04 ^a
3SS-850-107-0.5F	3.28E-04 ^a
3SS-850-126-0.0F	2.47E-06
3SS-850-139-0.0F	8.62E-04 ^a
3SS-850-140-0.0F	1.20E-03 ^a
3SS-850-142-0.0F	6.19E-03 ^a
3SS-850-142-0.5F	1.53E-03 ^a
3SS-850-147-0.0F	7.76E-06
3SS-850-154-0.0F	2.91E-06

^a Value exceeds the PRG of 1.6×10^{-5} .