



August 22, 1997

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**RE: Building 832 Canyon Operable Unit Characterization Summary  
Lawrence Livermore National Laboratory Site 300**

Dear Mr. Feather, Ms. Setian, and Ms. Timm:

This letter report summarizes the results of environmental investigations at the Building 832 Canyon operable unit (OU) at Lawrence Livermore National Laboratory (LLNL) Site 300, and is organized into nine major sections:

- Introduction.
- Scope of Work.
- Physical Setting.
- Hydrogeology.
- Nature and Extent of Subsurface Contamination.
- Soil Vapor Flux Chamber and Ambient Air Measurements.
- Future Work.
- Schedule.
- References.

Attachments to this letter are:

- A. Data Tables.
- B. VOC Inhalation Risk at the Building 830 and 832 Areas Presentation View Graphs.
- C. Air Sampling and Modeling Protocol for the Building 830 and 832 Areas.

## Introduction

Site 300 is a U.S. Department of Energy (DOE) experimental test facility operated by the University of California, and is located in the Altamont Hills approximately 15 miles west of Tracy, California (Fig. 1). LLNL Site 300 was placed on the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) National Priorities List in 1990. Investigations have been carried out under the oversight of the U.S. Environmental Protection Agency (Region IX), the California Regional Water Quality Control Board (Central Valley Region), and the California Department of Toxic Substances Control (Northern California Coastal Cleanup Operations Branch). The Building 832 Canyon is designated as Operable Unit 7 in the Site 300 Federal Facility Agreement (FFA). This summary is required as a secondary document in the FFA.

The Building 832 Canyon OU is located in the southeastern part of Site 300 (Fig. 2). Facilities in the OU were used to test the stability of weapons and weapons components under various environmental conditions and mechanical stresses. Contaminants were released to the subsurface as a result of these activities, primarily volatile organic compounds (VOCs), although nitrates, tritium, and high explosive compounds were also detected. Releases occurred mainly at Building 830 and at the Building 832 Complex, where trichloroethylene (TCE) was used as a heat exchange fluid. Vadose zone and ground water contamination was identified associated with both release sites. There are no ongoing releases to the environment in this OU.

This Characterization Summary presents an overview of physical characteristics, hydrogeology, contaminant releases, and the nature and extent of environmental contamination, and includes a proposed schedule for future work. A detailed analysis of these topics as related to potential remediation will be provided in the forthcoming Feasibility Study.

The most recent analytical data available is discussed in this summary and was used to prepare the figures presented. In some cases, these data are not yet in the data base and are not contained the data tables. Updated tables will be provided upon request.

## Scope of Work

Environmental investigations began in 1983 in the Building 832 Canyon area, and are ongoing. Table 1 summarizes field work performed in the Building 832 Canyon OU. Much of the information contained in this report has been discussed in previous documents and presentations, as listed in Table 2. Table 3 contains ground monitor well completion data.

## Physical Setting

The Building 832 Canyon trends northwest to southeast, beginning near the Building 832 Complex and extending approximately 4,500 feet. The canyon empties into the Corral Hollow Creek drainage near the Site 300 General Services Area (GSA). Topography, cultural features, and monitor well and borehole locations are shown on Figures 3 through 5. The canyon is deeply incised into bedrock and the walls are very steep. Due to the extremely rugged terrain, safe drilling locations are generally limited to the canyon floor and paved areas.

The climate is classified as semi-arid. Rainfall averages 10 to 11 inches per year, most of which falls during winter storms. Surface water flows in the canyon primarily during and immediately after significant rainfall events, but some flow is present year round. Data suggest that episodic rainfall and associated surface water flow and ground water recharge result in the most significant mobilization of contaminants.

## Hydrogeology

The Building 832 Canyon OU is located on the eastern limb of a gently south-plunging syncline, the axis of which is located in the HE Process Area to the west. Tertiary-age Neroly Formation sedimentary bedrock units form the canyon walls, and Quaternary alluvium occurs in the entrenched stream channels on the canyon floor. Small landslides and local colluvium deposits are also present. The bedrock dips toward the southwest near Building 832, but becomes more south-southeast near the GSA. Dip ranges from 4° to 15°. A geologic map of the OU is presented in Figure 6. Cross sections are included as Figures 7 through 10.

Four primary hydrogeologic units have been defined in the Building 832 Canyon OU. These units are, in order of increasing depth:

- Quaternary Alluvium (Qal)
- Neroly Formation Upper Blue Sandstone (Tnbs<sub>2</sub>)
- Neroly Formation Middle Siltstone/Claystone (Tnsc<sub>1</sub>). The Tnsc<sub>1</sub> contains three sandstone members:

- Tnsc<sub>1c</sub>
- Tnsc<sub>1b</sub>
- Tnsc<sub>1a</sub>

- Neroly Formation Lower Blue Sandstone (Tnbs<sub>1</sub>). The Claystone Marker Bed (CMB) divides the Tnbs<sub>1</sub> into two members:
  - Upper Tnbs<sub>1</sub>
  - Lower Tnbs<sub>1</sub> (regional aquifer)

The abbreviations for bedrock units are derived as follows:

- Tn denotes Tertiary Neroly Formation.
- bs denotes blue sandstone (generally more permeable to ground water flow).
- sc denotes siltstone/claystone (generally less permeable to ground water flow).
- Units with a subscript of 2 refer to stratigraphically higher members of units.

For example, Tnbs<sub>2</sub> stands for Tertiary Neroly Formation Upper Blue Sandstone. More detailed descriptions of these hydrogeologic units are presented in Table 4.

A series of potentiometric surface elevation contour maps (Figs. 11 through 15) show the general southeasterly direction of ground water flow. The extent of saturation is also shown on these figures. Ground water elevation data are included in Table A-1 (Attachment A). In some cases, ground water elevation measurements collected in monitor wells located outside the Building 832 Canyon OU are used in extending potentiometric surface elevation contours; these data are not included in Table A-1.

## Nature and Extent of Subsurface Contamination

Source investigations were focused on Building 830 and the Building 832 Complex, the only facilities in the Building 832 Canyon where potential environmental contaminants were used. The following briefly summarizes facility operations relevant to contaminant releases, and the nature and extent of subsurface contamination. Detailed facility use and source investigation information is contained in Site-Wide Remedial Investigation (SWRI) report Chapters 9 and 10 (Webster-Scholten, 1994).

### Building 830

Building 830 was constructed in 1957 as the first environmental test facility at Site 300. Until 1985, the facility was used to test the stability of weapons and weapons components under various environmental conditions and mechanical stresses, but is currently used only for electrical component storage. In the past,

TCE was used as a heat exchange fluid, and was released through piping leaks and surface spills. The quantity of TCE released is unknown. Uranium-238 (depleted uranium) was also used in experiments. Rinse water containing High Explosive (HE) compounds was disposed in a small lagoon near the facility. Building 830 is the primary source of contamination in the Building 832 Canyon OU.

### **Volatile Organic Compounds (Building 830)**

Data indicate that predominantly TCE was released from activities at Building 830. Trace concentrations of tetrachloroethene (PCE), Freon 11, *cis*-1,2-dichloroethene (DCE), 1,2-dichloroethane (DCA), 1,1,1-trichloroethane (TCA), and chloroform have been reported sporadically in some vadose zone and ground water samples. The concentration and distribution of these secondary contaminants indicates that they were probably impurities in the TCE, rather than a separate release (Vonder Haar et al., 1994).

Both passive and Active Vacuum Induced (AVI) soil vapor survey (SVS) data indicate that VOCs were released near Building 830. The SVSs detected VOC contamination up to a radius of approximately 200 feet from the release site. Passive SVS point locations and results are shown on Figure 16, and data are contained in Table A-24. AVI locations and results are shown on Figure 17, and data are contained in Table A-25. The pattern of TCE detected in the SVSs is generally consistent with the distribution observed in soil, bedrock, and ground water.

Soil and bedrock samples were collected from 31 boreholes in the Building 830 area. The highest TCE concentration reported was 6.3 milligrams per kilogram (mg/kg) at a depth of 26.5 feet, collected immediately southwest of Building 830. Most soil and bedrock contamination within about 50 feet of Building 830, as shown on Figure 18. The maximum depth of VOC contamination in soil and bedrock is about 40 to 60 feet. Low concentrations of VOCs several hundred feet to the southwest of Building 830 are interpreted as resulting from underlying ground water contamination, rather than indicating an additional release of TCE. Analytical results for VOCs in soil and bedrock are presented in Table A-3.

A plume of TCE in ground water exceeding the State and Federal Maximum Contaminant Level (MCL) of 5 µg/L extends from Building 830 southward toward the GSA. TCE was released at the building and migrated downward through unsaturated fill and alluvium. During and after winter storms, increased ground water flow transported the TCE southward through the alluvium, and also into the bedrock underlying the alluvium. The length of the plume is at least 2,800 feet, but the downgradient extent of contamination has not been completely defined. The depth to ground water beneath Building 830 is approximately 115 feet, except for a small perched water-bearing zone encountered at about 25 feet. Depth to water varies widely in response to seasonal infiltration of precipitation. The maximum

TCE concentration detected in ground water was 15,000 micrograms per liter ( $\mu\text{g/L}$ ) in samples from well W-830-30, completed in the alluvium adjacent to Building 830. In the underlying Tnsc<sub>1b</sub> bedrock unit, the maximum TCE concentration in ground water is 6,000 to 8,000  $\mu\text{g/L}$  (well W-830-19). TCE is present in the upper Tnbs<sub>1</sub> at concentrations up to 68  $\mu\text{g/L}$  (well W-830-28), but has not impacted the lower Tnbs<sub>1</sub> regional aquifer. In the extreme southern end of the canyon, where the alluvium overlies the Tnbs<sub>2</sub> sandstone, TCE has migrated into the bedrock at a maximum concentration of 11 to 18  $\mu\text{g/L}$  (well W-830-13). TCE at 0.94  $\mu\text{g/L}$  has been detected in Tnbs<sub>2</sub> unit well W-870-02, located at the southern boundary of Site 300. Also at the southern Site 300 boundary, trace concentrations ( $<1$   $\mu\text{g/L}$ ) of TCE have been detected in alluvial well W-870-01. This well is currently dry, but these data indicate that TCE may be migrating offsite at low concentrations in the alluvium and Tnbs<sub>2</sub> aquifers. As with most contaminant transport in the Building 832 Canyon, data suggest that offsite migration of contamination is intermittent, and fluctuates seasonally in response to precipitation. The distribution of TCE in ground water in the alluvium and bedrock units using data collected during the second quarter of 1997 is shown on Figures 19 through 22.

Although TCE has been detected in samples of intermittent surface water (i.e., spring 3), no VOCs were detected in any surface water runoff sample collected during winter storms.

Analytical results for VOCs in ground and surface water are included in Table A-2.

### **Nitrate (Building 830)**

Nitrate at concentrations above the State MCL of 45 milligrams per liter (mg/L) (as NO<sub>3</sub>) has been detected in several ground water monitor wells near Building 830. The highest nitrate concentration detected was 250 mg/L in well W-830-19, located about 250 feet southwest of Building 830. Nitrate contamination is probably the result of infiltration of effluent from the septic tank leach field south of Building 830 and/or the near-surface degradation of high explosive rinse water by ultraviolet light. Tables A-14 and A-15 contain analytical results for nitrogenous compounds in ground water and soil/bedrock, respectively.

### **High Explosive Compounds (Building 830)**

Although rinse water containing high explosives was discharged to a small disposal lagoon southwest of Building 830, no HE compounds were detected in any soil, bedrock, or ground water samples (Tables A-4 and A-5). HE compounds released may have degraded and migrated downward as nitrogenous compounds.

### **Tritium (Building 830)**

Tritium was detected above the current background activity of 200 picocuries per liter (pCi/L) in several soil moisture samples collected in the Building 830 area. The maximum tritium activity was  $6,970 \pm 150$  pCi/L at a depth of 0.2 feet in a sample from the borehole for well W-830-12, located immediately southwest of Building 830. Also in that borehole, tritium at activities of  $5,370 \pm 123$  and  $2,750 \pm 100$  pCi/L was detected in samples from 5.0 and 14.5 feet, respectively. Tritium at  $280 \pm 63$  pCi/L was also reported in a soil moisture sample from 31.6 feet in the borehole for well W-830-13, located about 1,000 feet south of Building 830. No tritium above background has been detected in any other soil moisture or ground water sample in the Building 830 area.

There is no record of any tritium use at Building 830. The source of the tritium detected is unknown.

Analytical results for tritium in ground water, soil and rock, and soil moisture are contained in Tables A-6, A-7, and A-8, respectively.

### **Uranium, Gross Alpha and Beta (Building 830)**

Uranium was reported in ground water samples above the State MCL for total uranium (20 pCi/L) from several monitor wells in the Building 830 area, and sporadically from spring 3. The maximum activity reported was approximately 37 pCi/L from a sample collected at spring 3 in 1995. Isotopic mass ratios are indicative of naturally occurring uranium (Ridley, 1997). Uranium analytical data are included in Tables A-11 and A-12.

Gross alpha was detected above the State MCL (15 pCi/L) in ground water samples from three wells near Building 830, and consistently in spring 3. The maximum activity of gross alpha reported was  $61.3 \pm 4.4$  pCi/L in a 1995 sample from spring 3. Elevated alpha activity is related to naturally occurring uranium.

Gross beta was detected above the State MCL (50 pCi/L) in a sample from well W-830-22 and once from spring 3. The maximum activity of gross beta was  $135 \pm 18$  pCi/L in the sample from well W-830-22, and is correlated to the presence of naturally occurring potassium ( $K^{40}$ ).

Gross alpha and gross beta analytical data are included in Tables A-9 and A-10.

### **Other Analytes (Building 830)**

Analyses were performed for a number of other analytes. These data do not indicate releases of any other contaminants. Analytical results are included in Attachment A as follows:

- Thorium isotopes (Table A-13).

- Total metals (Tables A-16 and A-17).
- Aromatic hydrocarbons (Tables A-18 and A-19).
- Fuel hydrocarbons (Table A-20).
- Anions, TDS, specific conductivity, and pH (Table A-21).
- Cations (Table A-22).
- Surfactants (Table A-23).

## **Building 832 Complex**

The Building 832 Complex (Buildings 832A, B, C, D, E and F) operated from the late 1950s through early 1970s. Similar to Building 830, a TCE heat exchange system was used at the Complex. The quantity of TCE released is unknown, but is probably less than at Building 830. HE rinsewater was disposed via floor drains leading to surface discharges. The Building 832 Complex is currently vacant after being used for several years for records storage.

### **Volatile Organic Compounds (Building 832 Complex)**

Like Building 830, data indicate that primarily TCE was released from activities at the Building 832 Complex, although subsurface contamination is less concentrated and widespread than that resulting from releases at Building 830. Trace concentrations of *cis*-1,2-DCE were reported in some vadose zone and ground water samples, but is probably an impurity in the heat exchange fluid.

Both passive and Active Vacuum Induced (AVI) SVS data indicate that VOCs were released near the Building 832 Complex. The SVSs detected VOC contamination up to a radius of approximately 400 feet from the release site. Passive SVS point locations and results are shown on Figure 23, and data are contained in Table A-24. AVI locations and results are shown on Figure 24, and data are contained in Table A-25. The pattern of TCE detected in the SVSs is generally consistent with the distribution observed in soil, bedrock, and ground water.

Soil and bedrock samples were collected from 19 boreholes in the Building 832 area. The highest TCE concentration reported was 0.0459 mg/kg at a depth of 18 feet, collected from borehole 832-22, located within the Complex. Most soil and bedrock contamination over 0.1 mg/kg occurs within about 150 feet of Building 832, as shown on Figure 25. The maximum depth of VOC contamination in soil and bedrock is at least 55 feet. Analytical results for VOCs in soil and bedrock are presented in Table A-3.

A plume of TCE in ground water exceeding the State and Federal Maximum Contaminant Level (MCL) of 5 µg/L extends from the Building 832 Complex



southward, primarily in the alluvial channel fill and Tnsc<sub>1b</sub> bedrock. Data indicate TCE from pipe leaks and spills infiltrated downward through the alluvium and was transported by ground water, mainly during winter storms. The length of the plume is at least 400 feet in the Tnsc<sub>1b</sub>, but the downgradient extent of contamination has not been completely defined. It has not been determined whether the TCE ground water plume emanating from Building 832 commingles with the plume from Building 830 to the south. The depth to ground water beneath Building 832 is approximately 100 feet, but varies widely in response to seasonal infiltration of precipitation. The maximum TCE concentration in ground water was 820 µg/L in a sample from well W-832-05, completed in the alluvium. In the underlying Tnsc<sub>1b</sub> unit, TCE has been detected at concentrations of up to 440 µg/L (well W-832-01). The upper Tnbs<sub>1</sub> is unsaturated near Building 832, and TCE has not affected the lower Tnbs<sub>1</sub> regional aquifer. The distribution of TCE in ground water in the alluvium and bedrock units using data collected during the second quarter of 1997 is shown on Figures 19 through 22. Analytical data for VOCs in ground water are included in Table A-2.

#### **Nitrate (Building 832 Complex)**

Nitrate at concentrations above the State MCL of 45 mg/L (as NO<sub>3</sub>) has been detected in monitor wells near Building 832. The highest nitrate concentration detected was 140 mg/L in well W-832-05. Nitrate contamination is probably the result of infiltration of effluent from the septic tank leach field northwest of that well and/or the near-surface degradation of HE rinse water by ultraviolet light. Tables A-14 and A-15 contain analytical results for nitrogenous compounds in ground water and soil/bedrock, respectively.

#### **High Explosive Compounds (Building 832 Complex)**

The high explosive compound HMX was detected in soil or bedrock samples from four boreholes, all located adjacent to the south side of the Building 832 Complex. HMX was reported at a maximum concentration of 0.18 mg/kg (Table A-5). No HE compounds were detected in any ground water sample (Table A-4). The HE contamination is probably associated with rinse water disposal.

#### **Tritium (Building 832 Complex)**

Tritium was detected above the background activity of 200 pCi/L in several soil moisture samples collected in the Building 832 area. In a sample from borehole 832-08 at a depth of 31 feet, tritium was reported at 768±71 pCi/L. Tritium was detected at lower activities in two shallower samples from this borehole. Tritium was also detected at 539±71 pCi/L at 5 feet in borehole 832-02. No tritium above background has been detected in any other soil moisture or ground water sample in the area.

There is no record of any tritium use at the Building 832 Complex. The source of the tritium is unknown.

Analytical results for tritium in ground water, soil and rock, and soil moisture are contained in Tables A-6, A-7, and A-8, respectively.

### **Uranium, Gross Alpha and Beta (Building 832 Complex)**

No analyses for uranium isotopes were performed in the Building 832 area.

Gross alpha was detected above the State MCL (15 pCi/L) in three wells near the Building 832 Complex. The maximum activity of gross alpha reported was  $28 \pm 5.3$  pCi/L in a sample from well W-832-05.

No gross beta was reported over the State MCL (50 pCi/L).

Gross alpha and gross beta analytical data are included in Tables A-9 and A-10.

### **Other Analytes (Building 832 Complex)**

Analyses were performed for a number of other analytes. These data do not indicate releases of any other contaminants. Analytical results are included in Appendix A as follows:

- Thorium isotopes (Table A-13).
- Total metals (Tables A-16 and A-17).
- Aromatic hydrocarbons (Tables A-18 and A-19).
- Fuel hydrocarbons (Table A-20).
- Anions, TDS, specific conductivity, and pH (Table A-21).
- Cations (Table A-22).
- Surfactants (Table A-23).

## **Soil Vapor Flux Chamber and Ambient Air Measurements**

Measurements of VOCs were made at Buildings 830 and 832 by collecting samples of soil vapor flux and ambient air. Both types of air samples were collected in SUMMA™ canisters. Where appropriate, excess cancer risk was calculated. Methodology, data tables, and results are presented in Attachments B and C. Figures 26 and 27 show sampling points and soil vapor flux rates.

## Results of Soil Vapor Flux Chamber Measurements

For soil vapor, exposure-point concentrations were calculated using the maximum measured flux rate. Because all exposure-point concentrations at both Buildings 830 and 832 were below U.S. EPA Region IX Preliminary Remediation Goals (PRGs), cancer risks were not estimated. Flux chamber sample points were located over the areas of highest subsurface VOC concentrations.

## Results of Ambient Air Measurements

For indoor and outdoor ambient air samples, an excess cancer risk was calculated where any analyte was detected at a concentration exceeding the PRG for that VOC, using the adult onsite exposure scenario presented in the SWRI (Webster-Scholten, 1994).

The maximum excess cancer risk at Building 830 was estimated to be approximately  $4.5 \times 10^{-6}$ , resulting from potential exposure to chloroform in outdoor ambient air. Maximum estimated excess cancer risk from indoor ambient air at Building 830 was  $2.5 \times 10^{-6}$  from vinyl chloride. The source of the chloroform and vinyl chloride is unknown; neither is present in significant concentrations in the subsurface. Estimated risk from TCE in ambient air at Building 830 was  $3.3 \times 10^{-7}$ .

At the Building 832 Complex, the maximum excess cancer risk was estimated to be  $2.8 \times 10^{-6}$ , resulting from 1,2-dichloropropane in indoor ambient air. This contaminant has not been detected in any subsurface sample. No exposure-point concentrations exceeding PRGs were detected in outdoor ambient air. Exposure-point concentrations of TCE did not exceed the PRG in any ambient air sample collected at Building 832.

## Future Work

The following tasks may be considered to obtain additional information relevant to the evaluation and selection of future remedial actions for this OU.

- Perform a pilot-scale Treatability Study to evaluate the application of ground water and/or soil vapor extraction at Buildings 830 and 832. A Treatability Study Work Plan will be submitted by November 17, 1997. The Treatability Study may include hydraulic tests, soil vapor extraction tests, and evaluating Portable Treatment Units (PTUs) and Solar Water Activated-carbon Treatment units (SWATs) to treat extracted ground water. The results of the Treatability Study will be reported in the Feasibility Study for this OU. If successful, the pilot-scale remediation equipment will continue operation and serve as the basis for a full-scale system.

- Install 2 to 3 additional ground water monitor wells at Buildings 830 and 832. In the Treatability Study, these wells will be evaluated for potential use as extraction wells.

## Schedule

Table 5 presents a proposed schedule for future tasks and deliverables in the Building 832 Canyon OU.

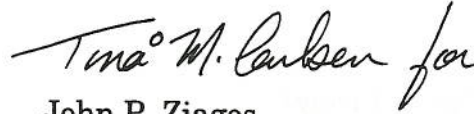
## References

- Ridley, M. (1997), Personal communication.
- Vonder Haar, S. P., Ferry, R. A., Berry, T. R., Lamarre, A. L. (1994), "Impurities and Additives May Complicate Site Characterization," *The National Environmental Journal*, 4(1), 52-55.
- Webster-Scholten, C. P., Ed. (1994), *Final Site-Wide Remedial Investigation Report, Lawrence Livermore National Laboratory Site 300*, Lawrence Livermore National Laboratory, Livermore, Calif. (UCRL-AR-108131).

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Should you have any questions concerning this report, please contact John Ziagos at (510) 422-5479 or Paul Ko at (510) 422-1075.

Sincerely,



John P. Ziagos  
Site 300 Project Leader  
Environmental Restoration Program and Division  
UC/LLNL



Paul Ko  
Acting Site 300 Remedial Project Manager  
Environmental Restoration Division  
U.S. Department of Energy  
DOE/OAK

JPZ:PK:RAF

Attachments

cc: K. Angleberger, DOE/HQ  
L. Cleland (w/o att)  
H. Galles (w/o att)  
A. Lamarre (w/o att)

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bcc w/attachments:

Administrative Record (2 copies for repository)

L. Berg

R. Blake

T. Carlsen

R. Depue (original plus 1 copy)

R. Ferry

B. Heffner (2 copies)

R. Landgraf

S. Vonder Haar

bcc w/o attachments:

A. Blohm, DOE legal (electronic only)

M. Brown, DOE

M. Grissom

B. Heffner

D. Knight

E. Raber

K. Rauhut

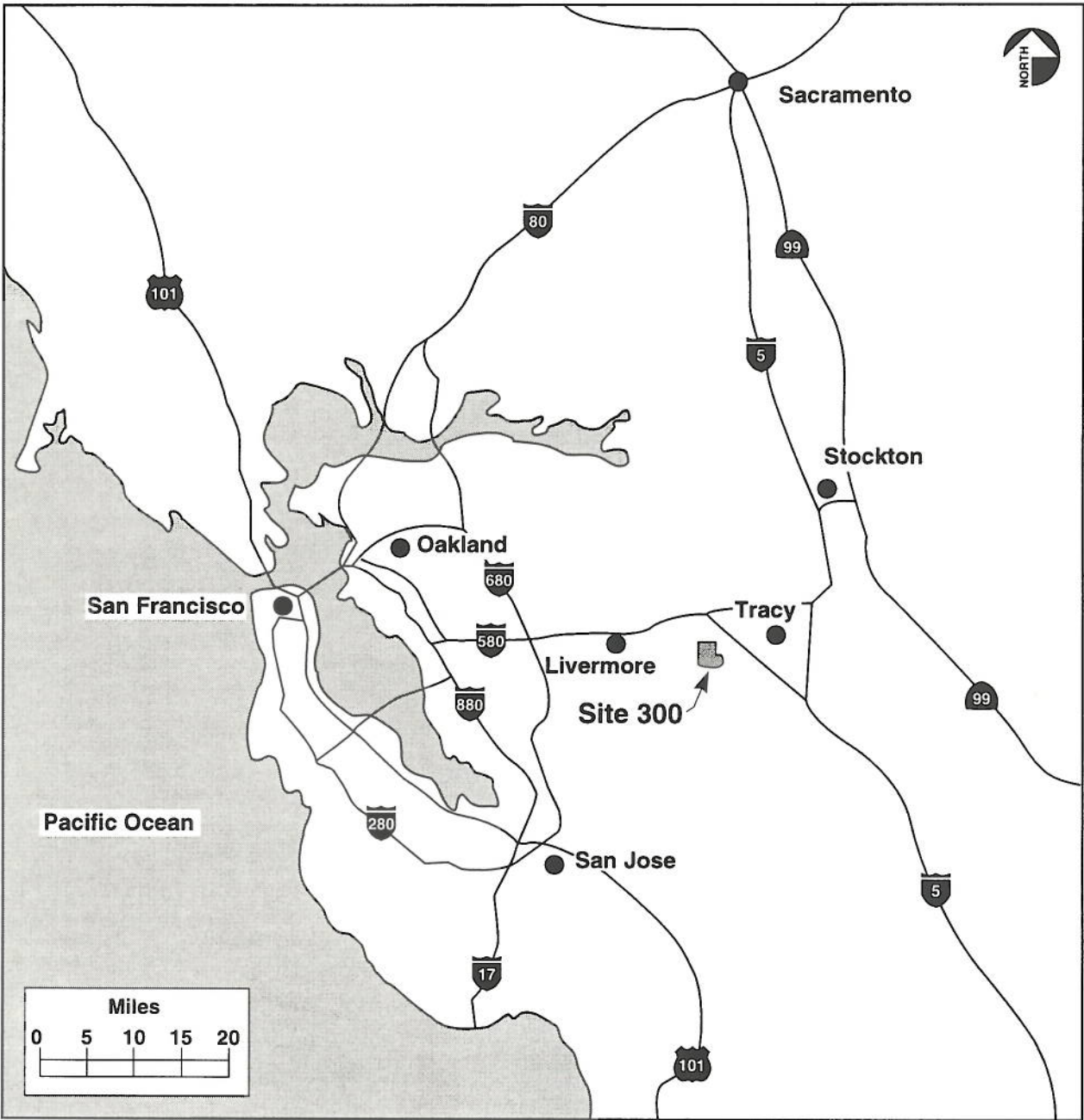
J. Steenhoven

## Figures

## List Figures

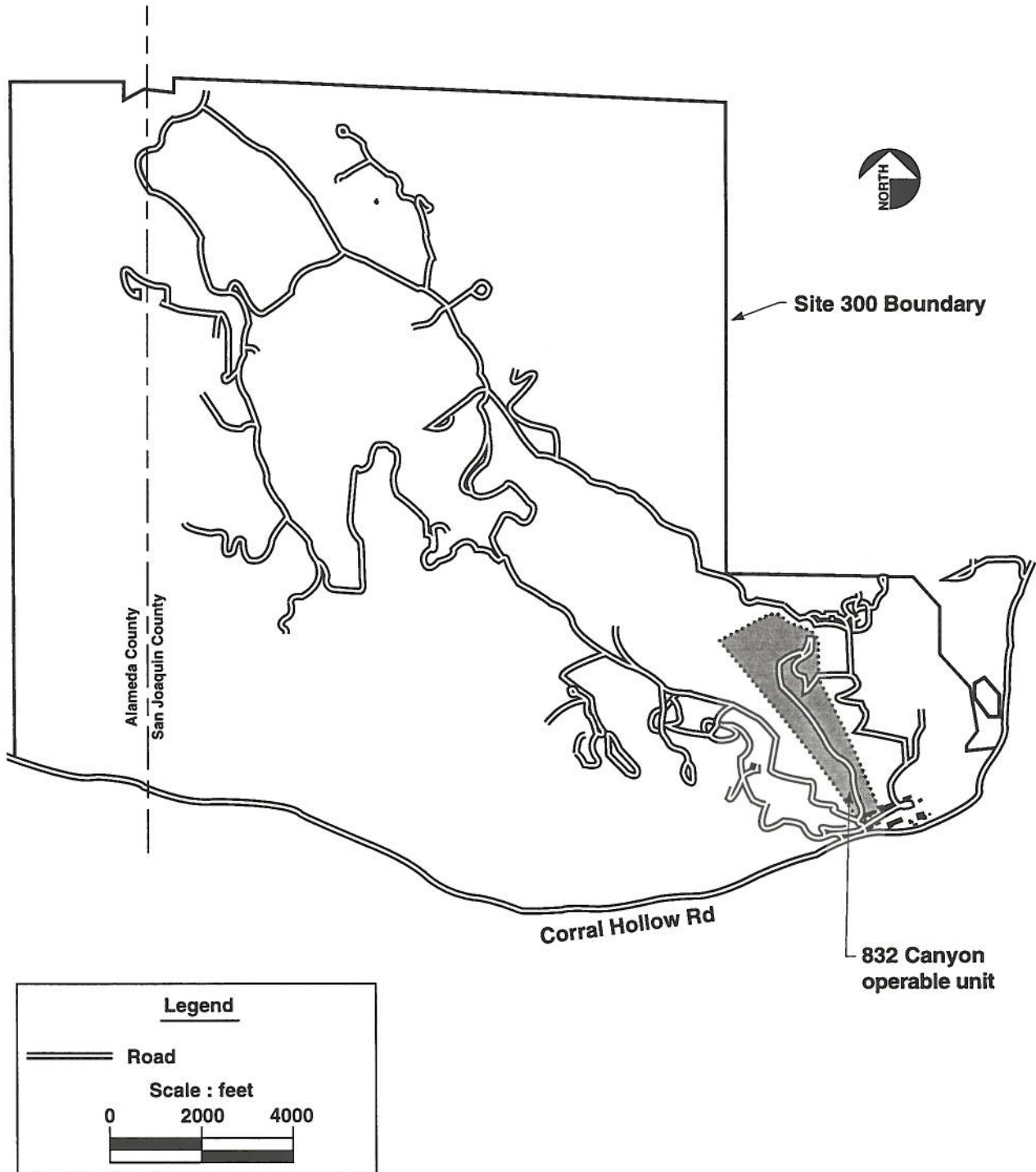
- Figure 1. Location of LLNL Site 300.
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- Figure 21. Distribution of TCE in ground water - Tnsc<sub>1</sub> unit, second quarter 1997.
- Figure 22. Distribution of TCE in ground water - Tnbs<sub>1</sub> unit, second quarter 1997.
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- Figure 26. Soil vapor flux and ambient air sampling locations, Building 832 Complex.
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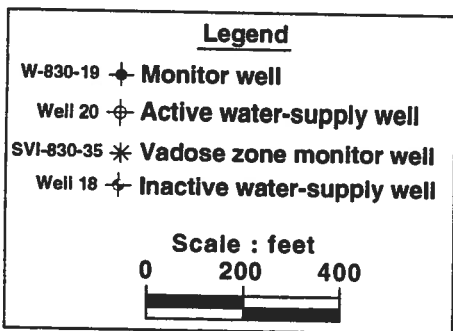
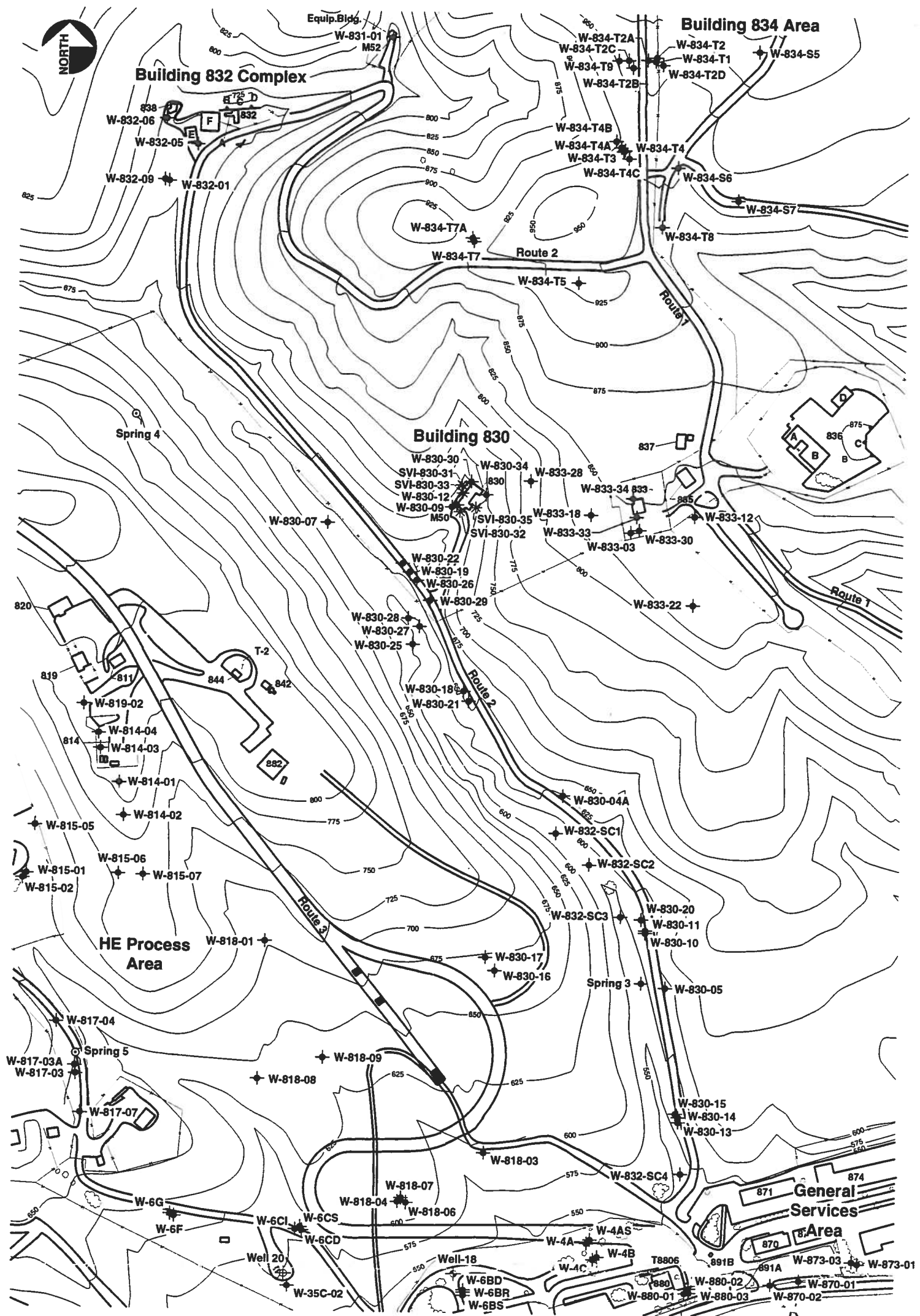
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Figure 1. Location of LLNL Site 300.



ERD-S3R-97-0161

Figure 2. Map of Site 300 showing location of the Building 832 Canyon operable unit.



ERD-S3R-97-2000base

Figure 3. Building 832 Canyon operable unit base map.

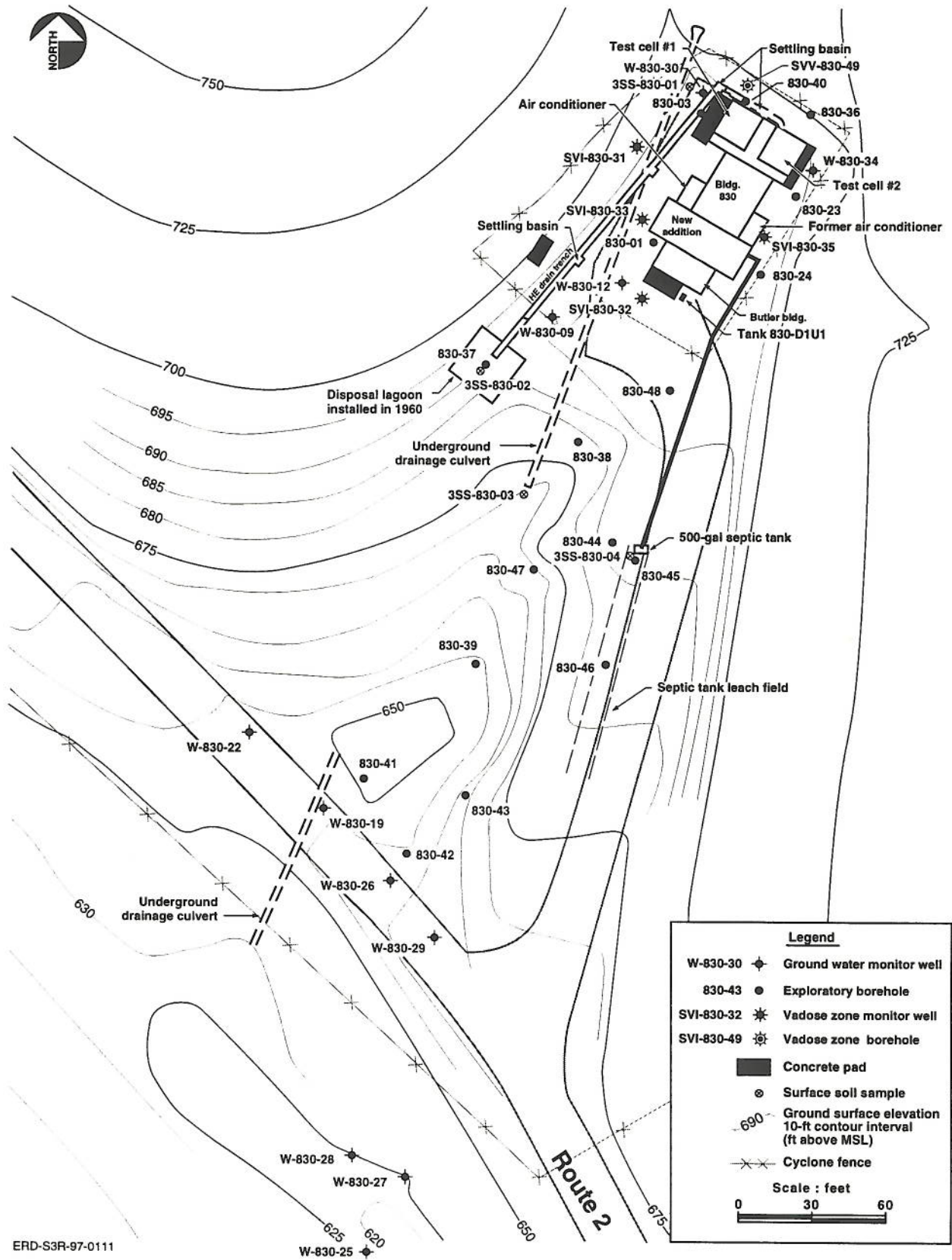
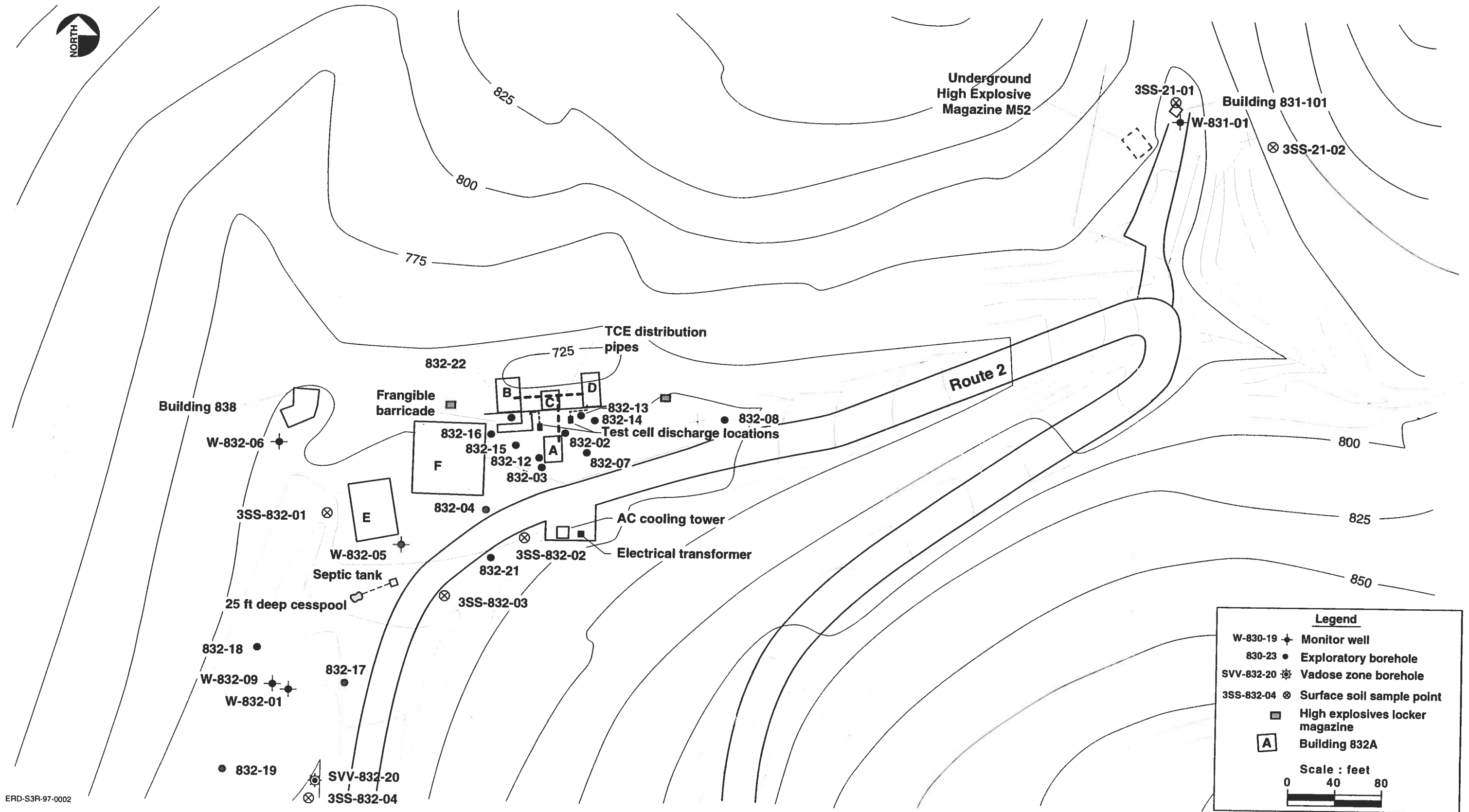


Figure 4. Building 830 base map.



ERD-S3R-97-0002

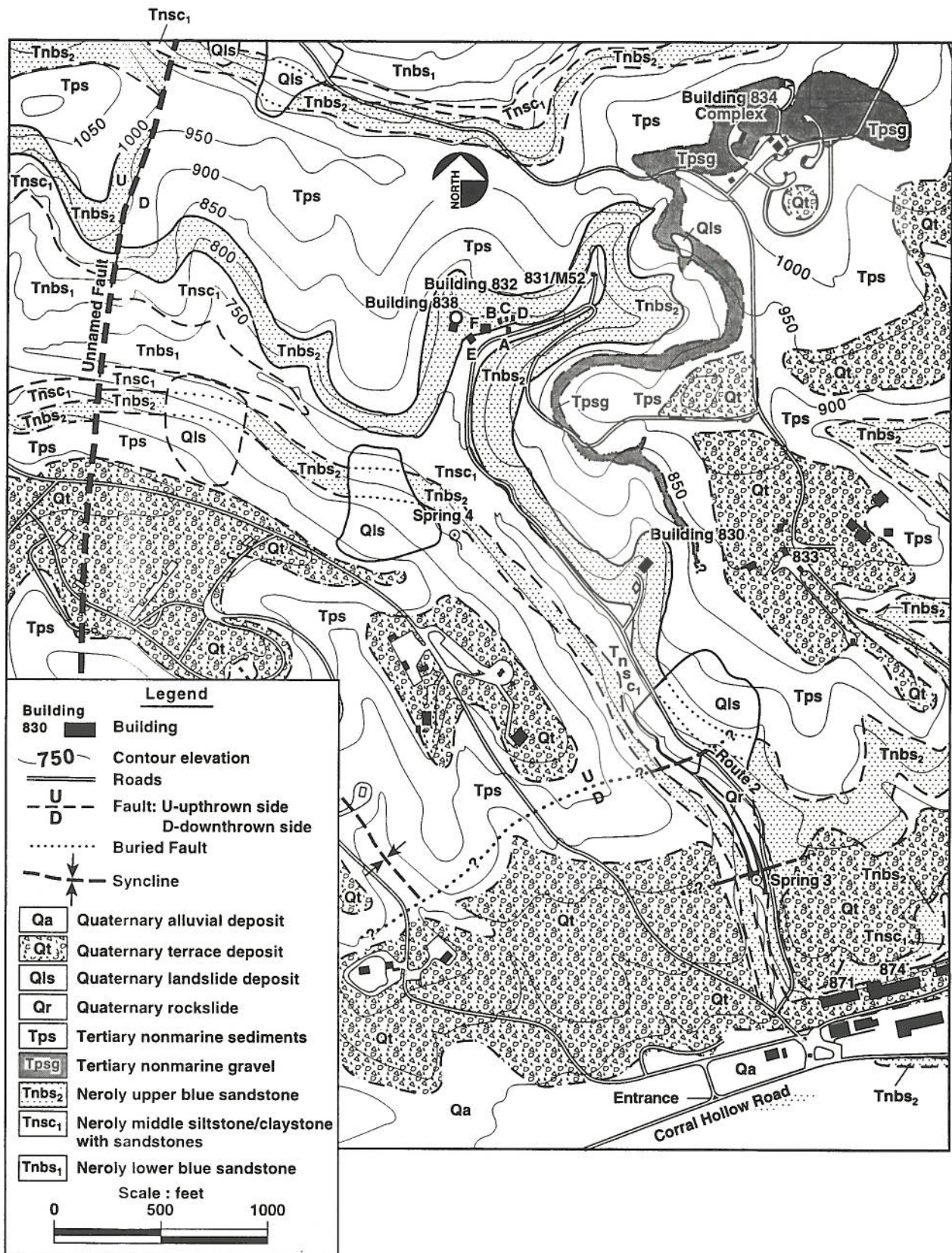
**Legend**

- W-830-19 + Monitor well
- 830-23 • Exploratory borehole
- SVV-832-20 ⊕ Vadose zone borehole
- 3SS-832-04 ⊗ Surface soil sample point
- High explosives locker magazine
- A Building 832A

Scale : feet

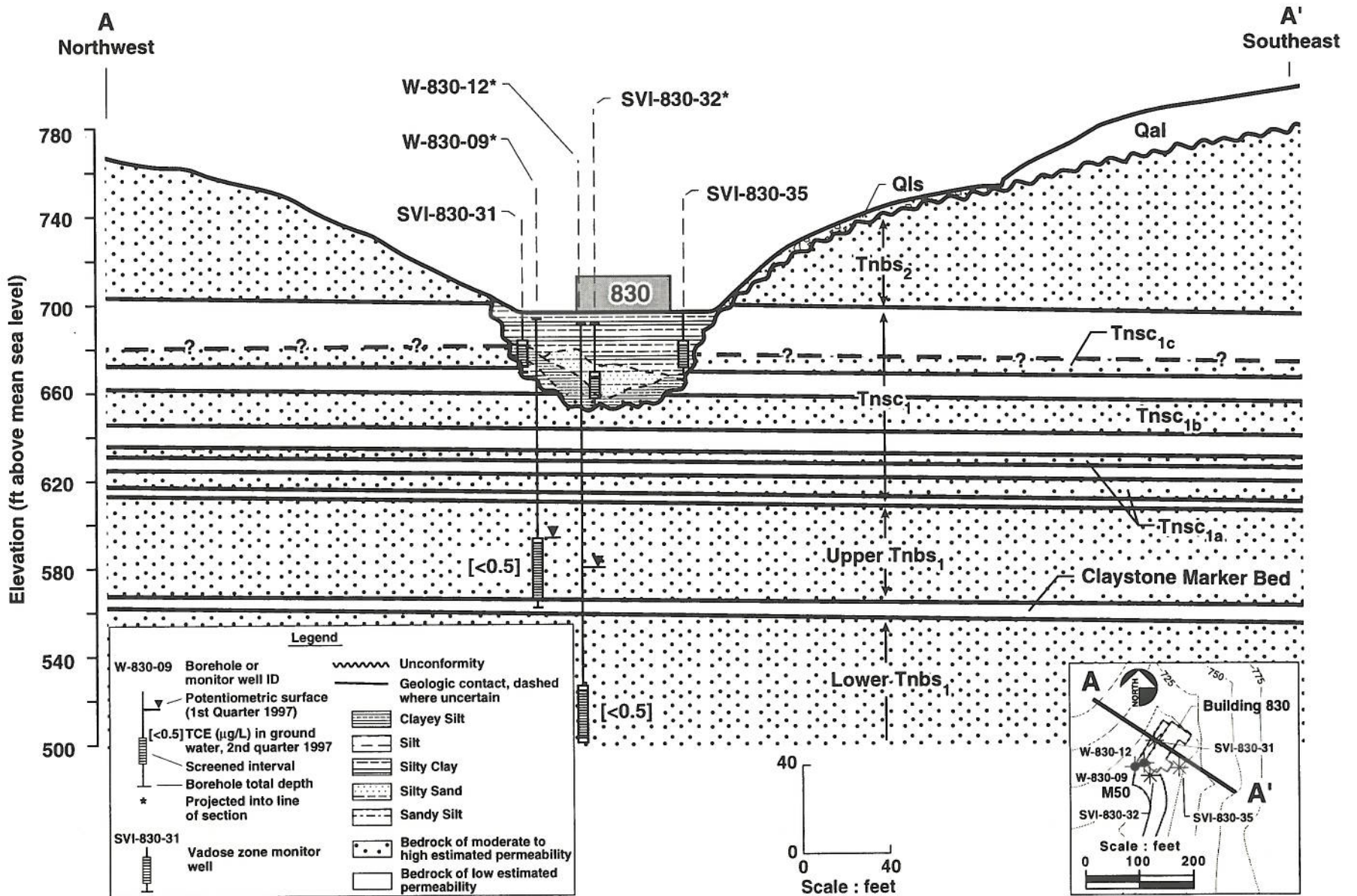
0 40 80

Figure 5. Building 832 Complex base map.



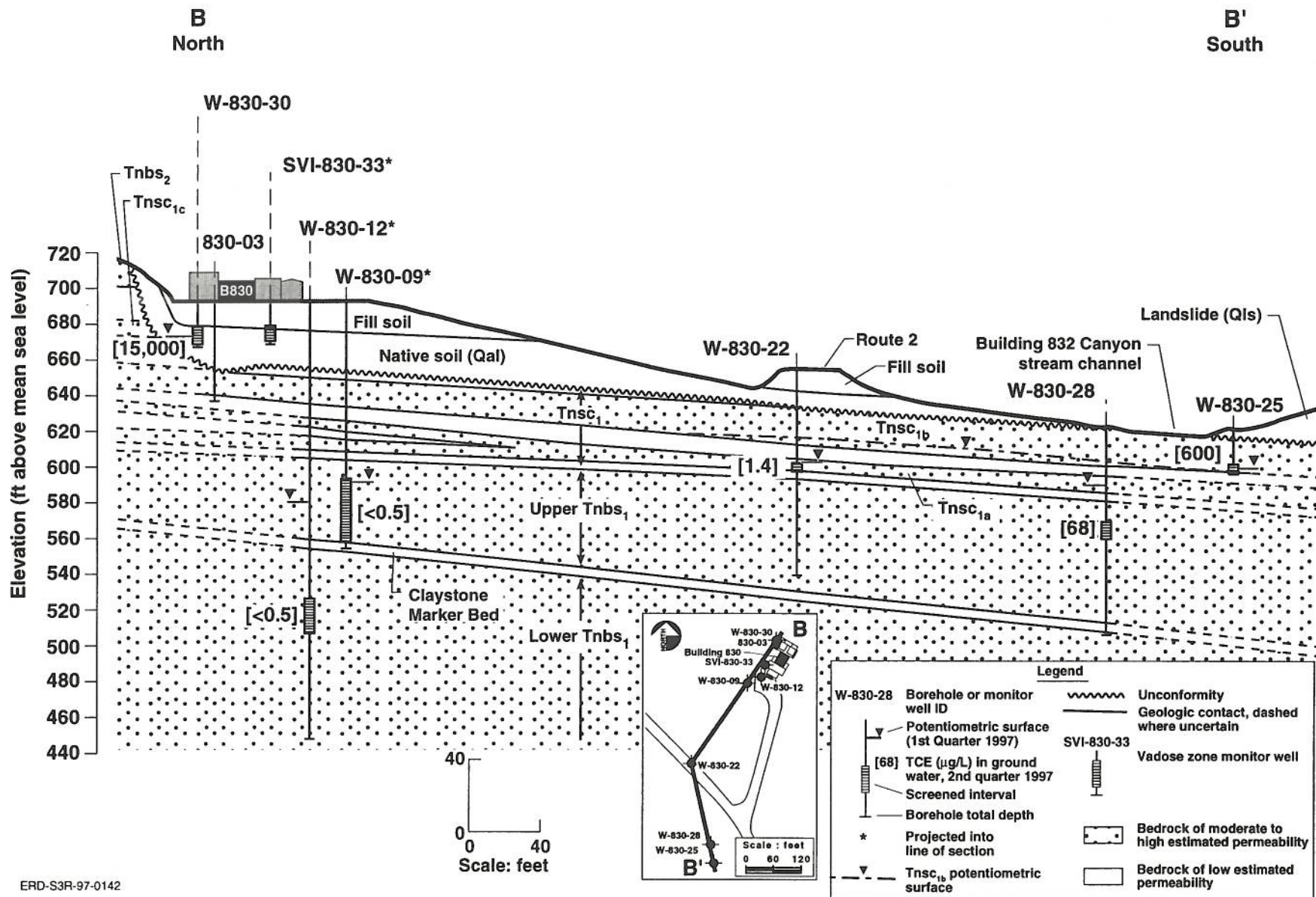
ERD-S3R-97-0166

Figure 6. Geologic map of Building 832 Canyon operable unit and vicinity, Site 300.



ERD-S3R-97-0149

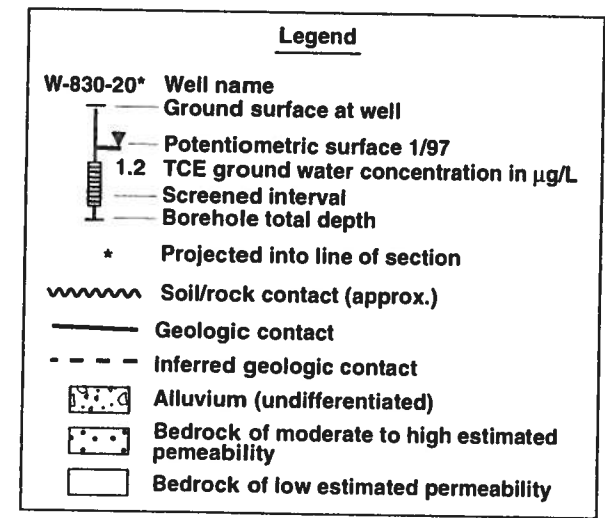
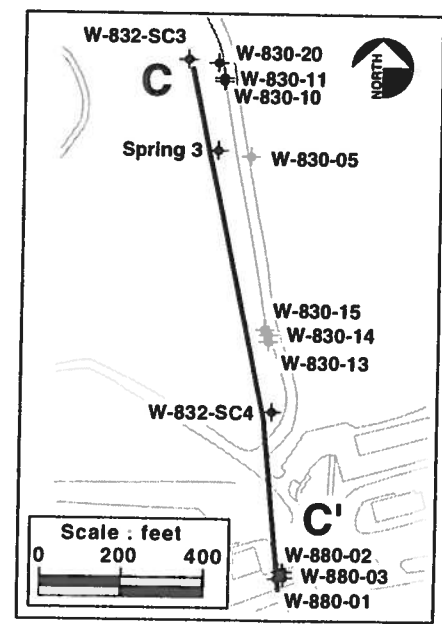
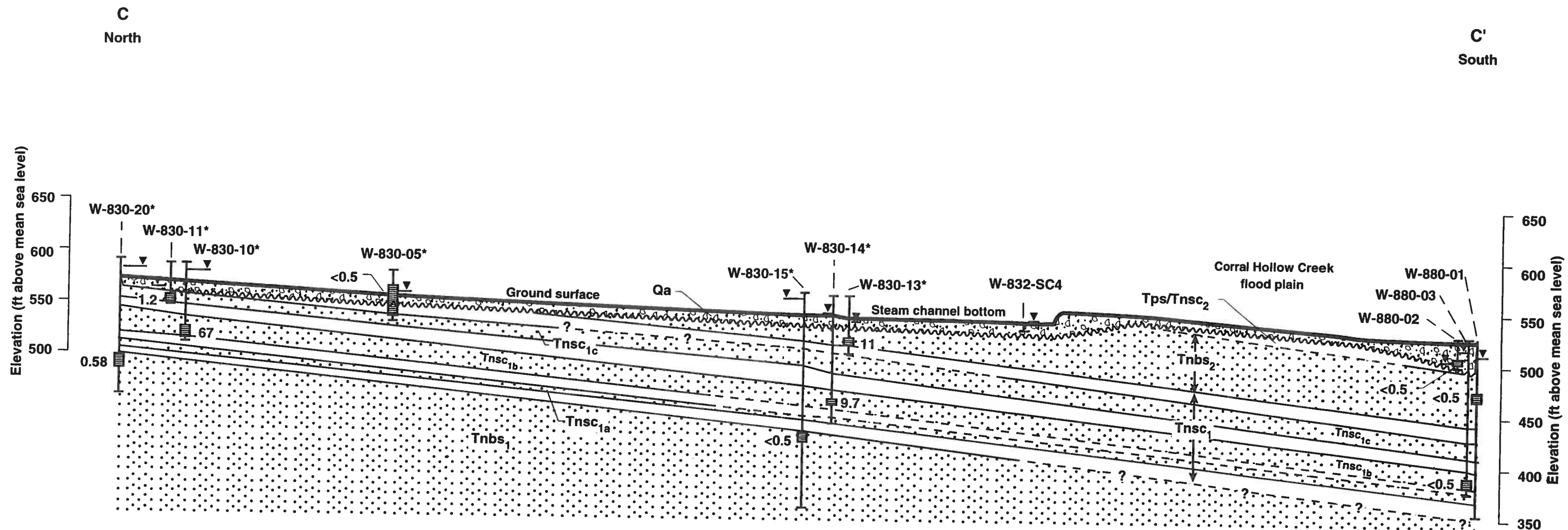
Figure 7. Cross section A – A', Building 830.



ERD-S3R-97-0142

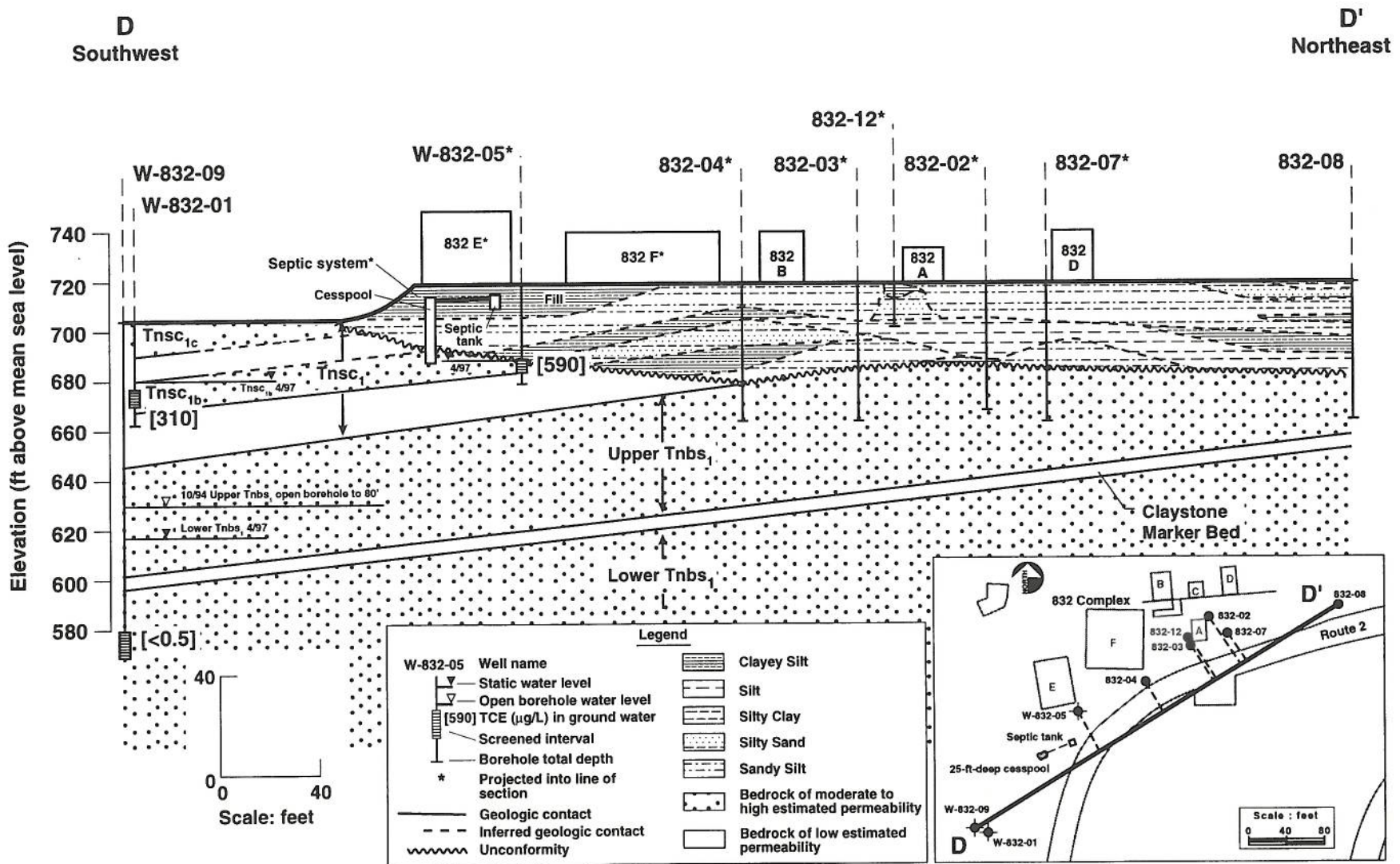
Figure 8. Cross section B – B', Building 830.





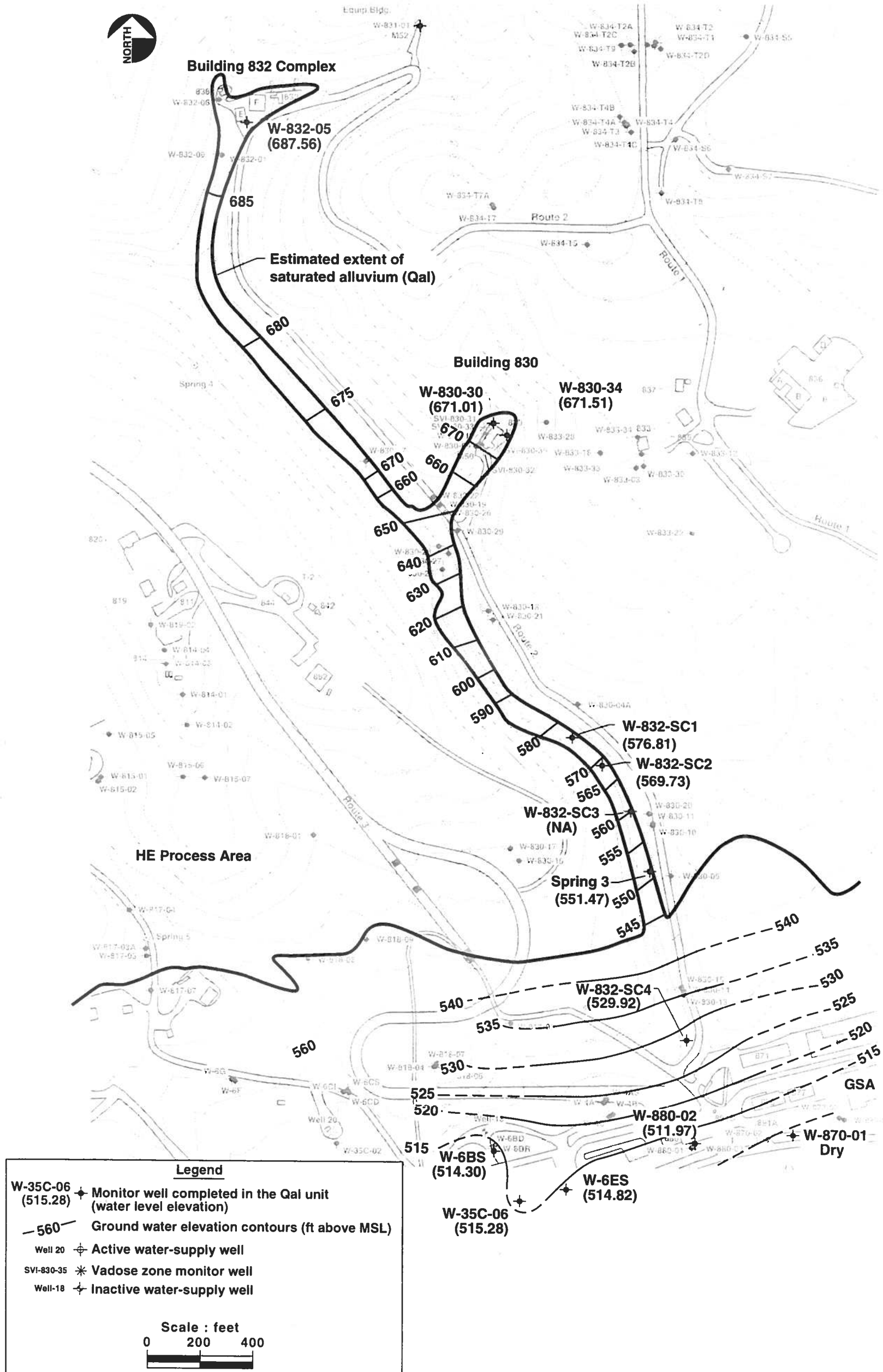
ERD-S3R-97-0169

Figure 9. Cross section C - C', Building 830.



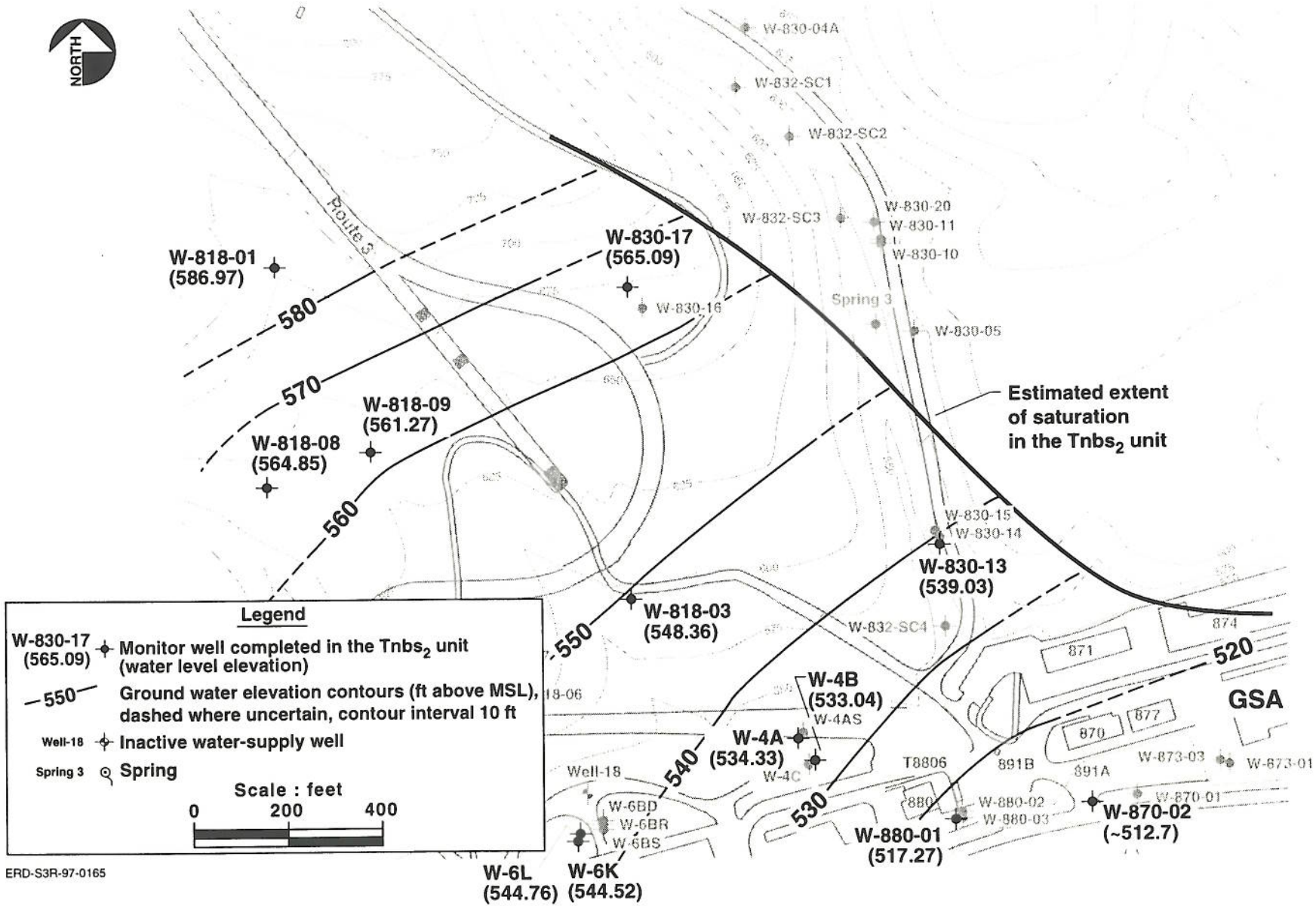
ERD-S3R-97-0148

Figure 10. Cross section D – D', Building 832 Complex.



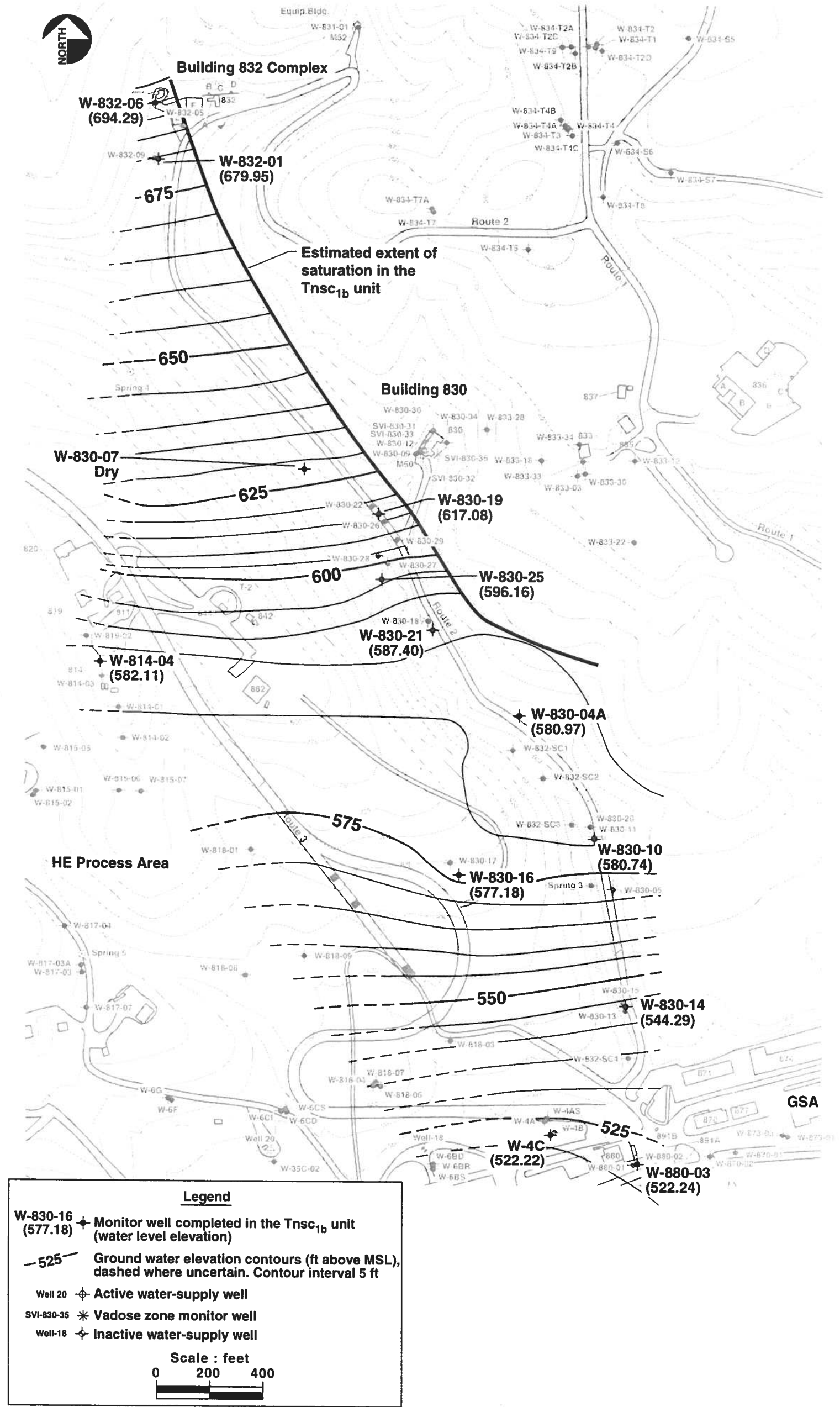
ERD-53R-97-0164

Figure 11. Potentiometric surface elevation contour map - Qal unit, second quarter 1997.



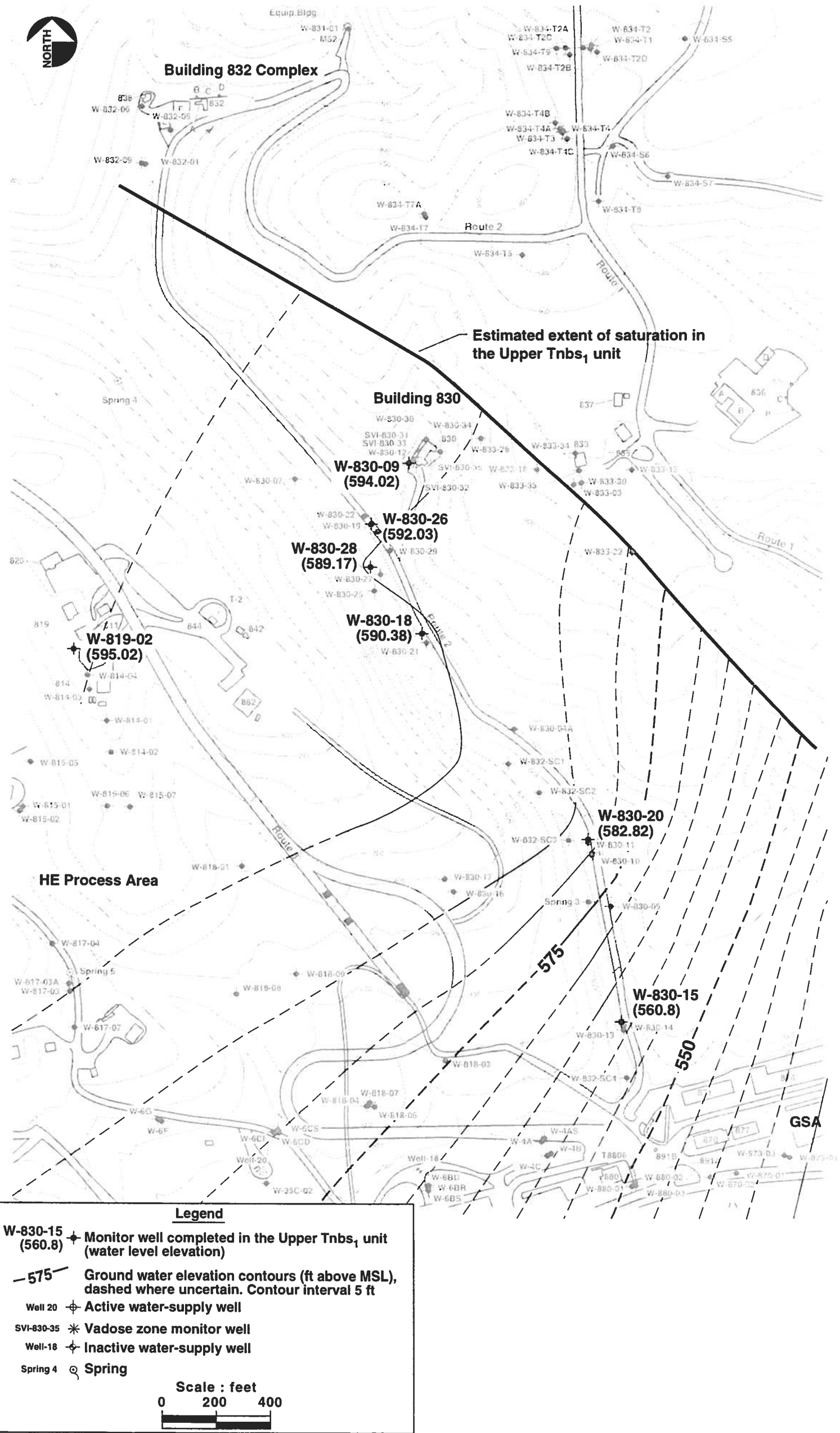
ERD-S3R-97-0165

Figure 12. Potentiometric surface elevation contour map – Tnbs<sub>2</sub> unit, second quarter 1997.



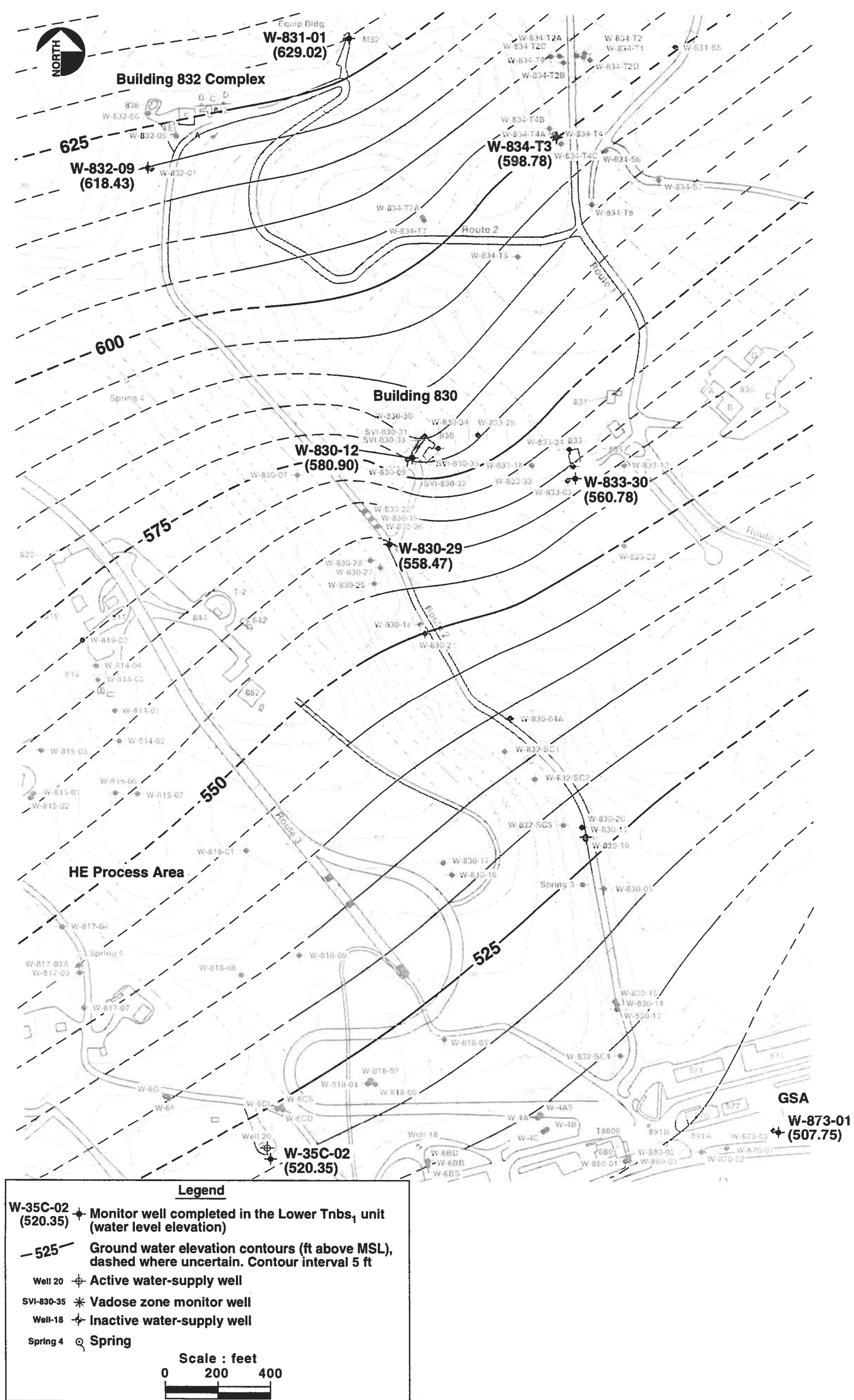
ERD-S3R-97-0162

Figure 13. Potentiometric surface elevation contour map - Tnsc<sub>1b</sub> unit, second quarter 1997.



ERD-S3R-97-0163

Figure 14. Potentiometric surface elevation contour map - Upper Tnbs<sub>1</sub> unit, second quarter 1997.



**Legend**

W-35C-02 (520.35) + Monitor well completed in the Lower Tnbs<sub>1</sub> unit (water level elevation)

- 525 - Ground water elevation contours (ft above MSL), dashed where uncertain. Contour interval 5 ft

Well 20 ⊕ Active water-supply well

SVI-830-35 \* Vadose zone monitor well

Well-18 ⊕ Inactive water-supply well

Spring 4 ○ Spring

Scale : feet

0      200      400

ERD-S3R-97-0160

Figure 15. Potentiometric surface elevation contour map - Lower Tnbs<sub>1</sub> unit, second quarter 1997.

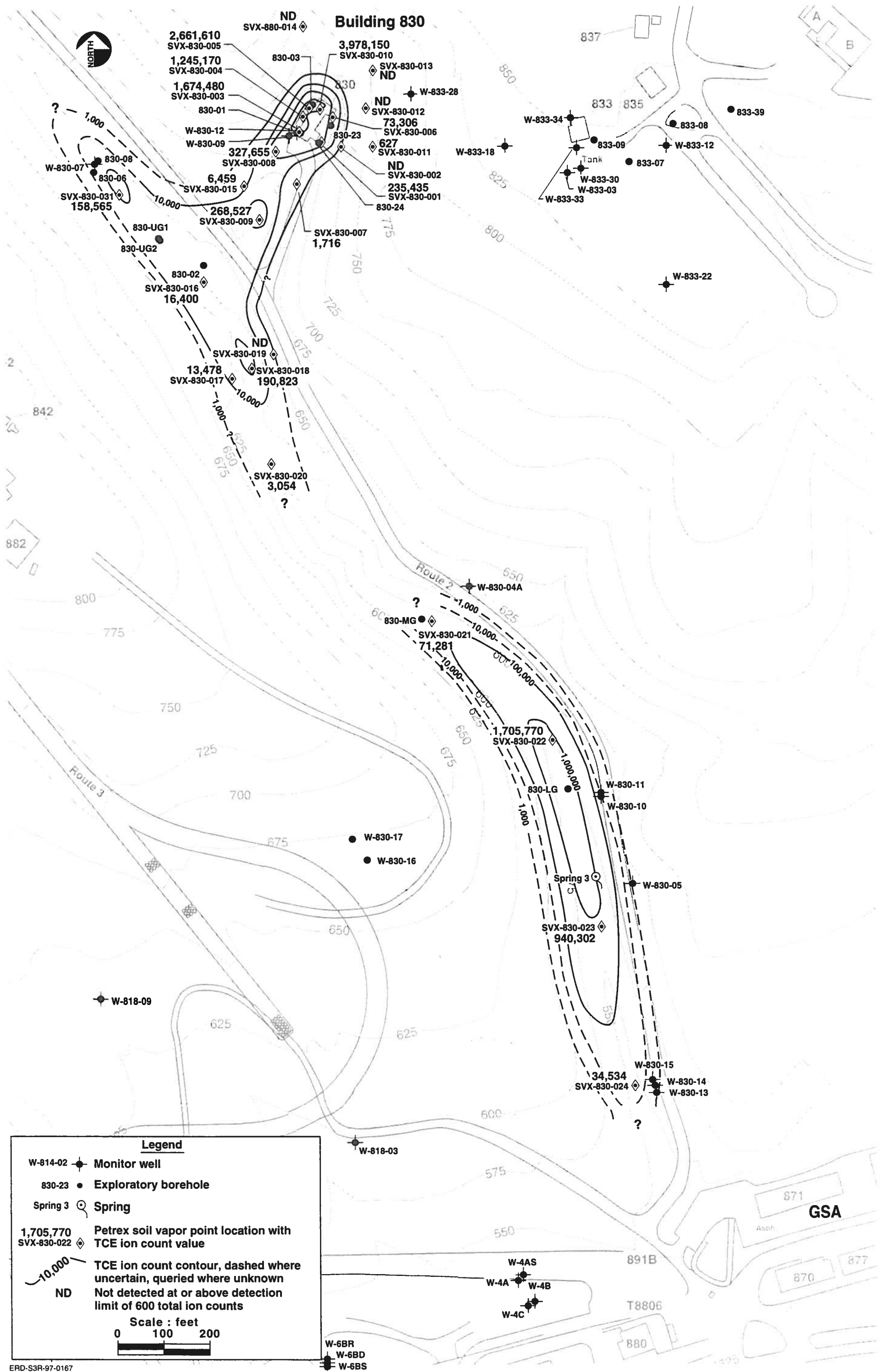
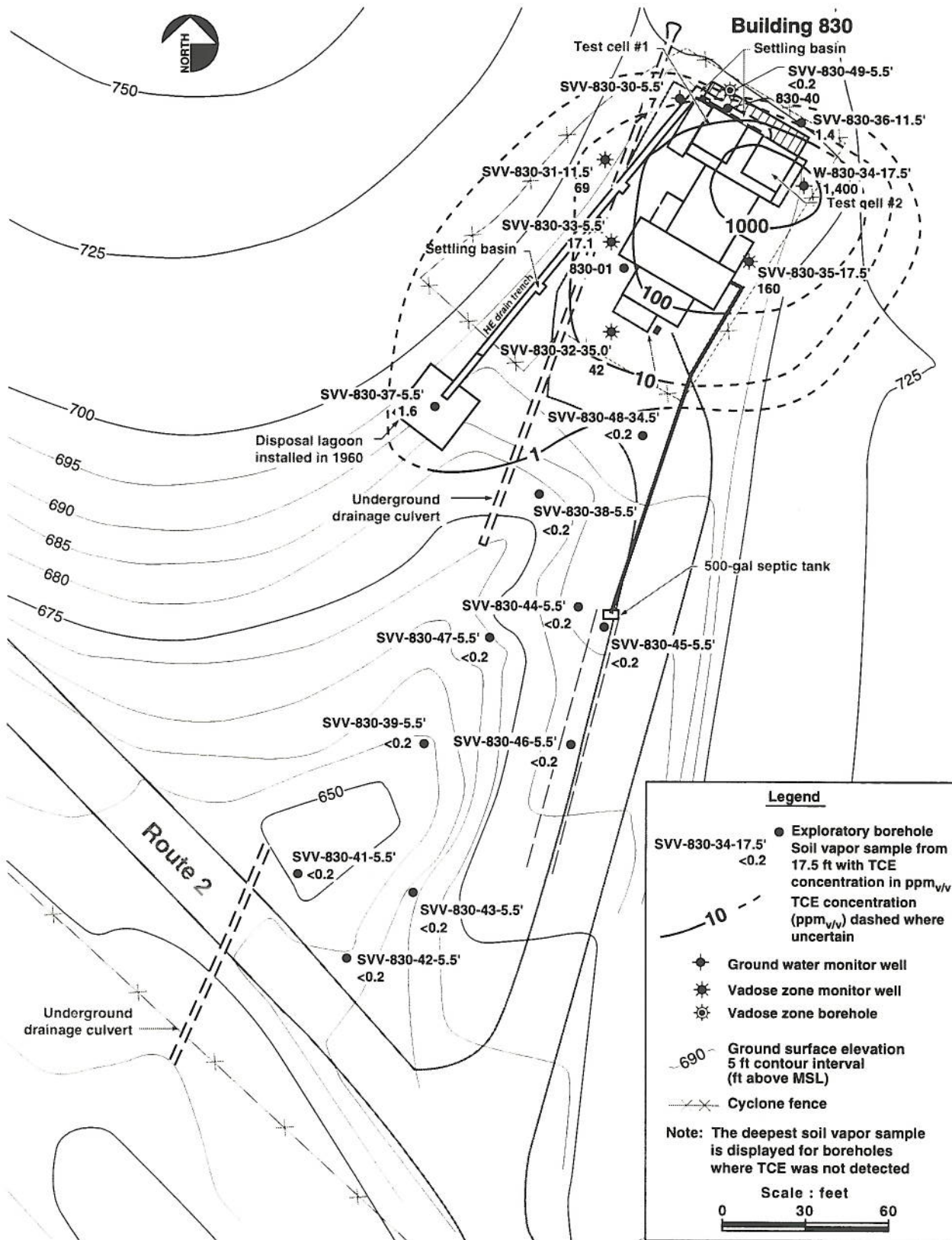


Figure 16. Passive soil vapor survey results, Building 830.





ERD-S3R-97-0115

Figure 17. Active Vacuum Induced (AVI) soil vapor survey results, Building 830.

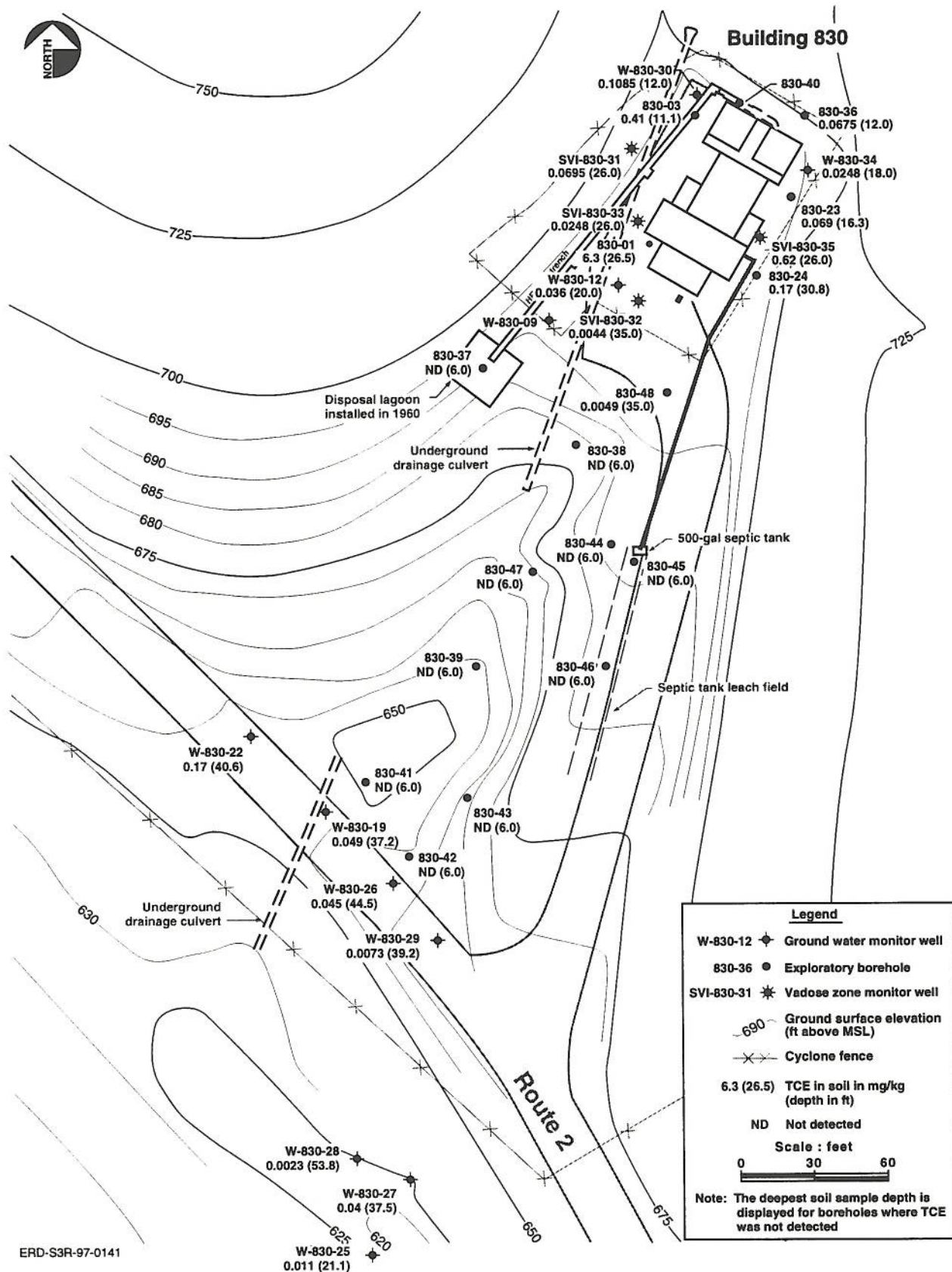
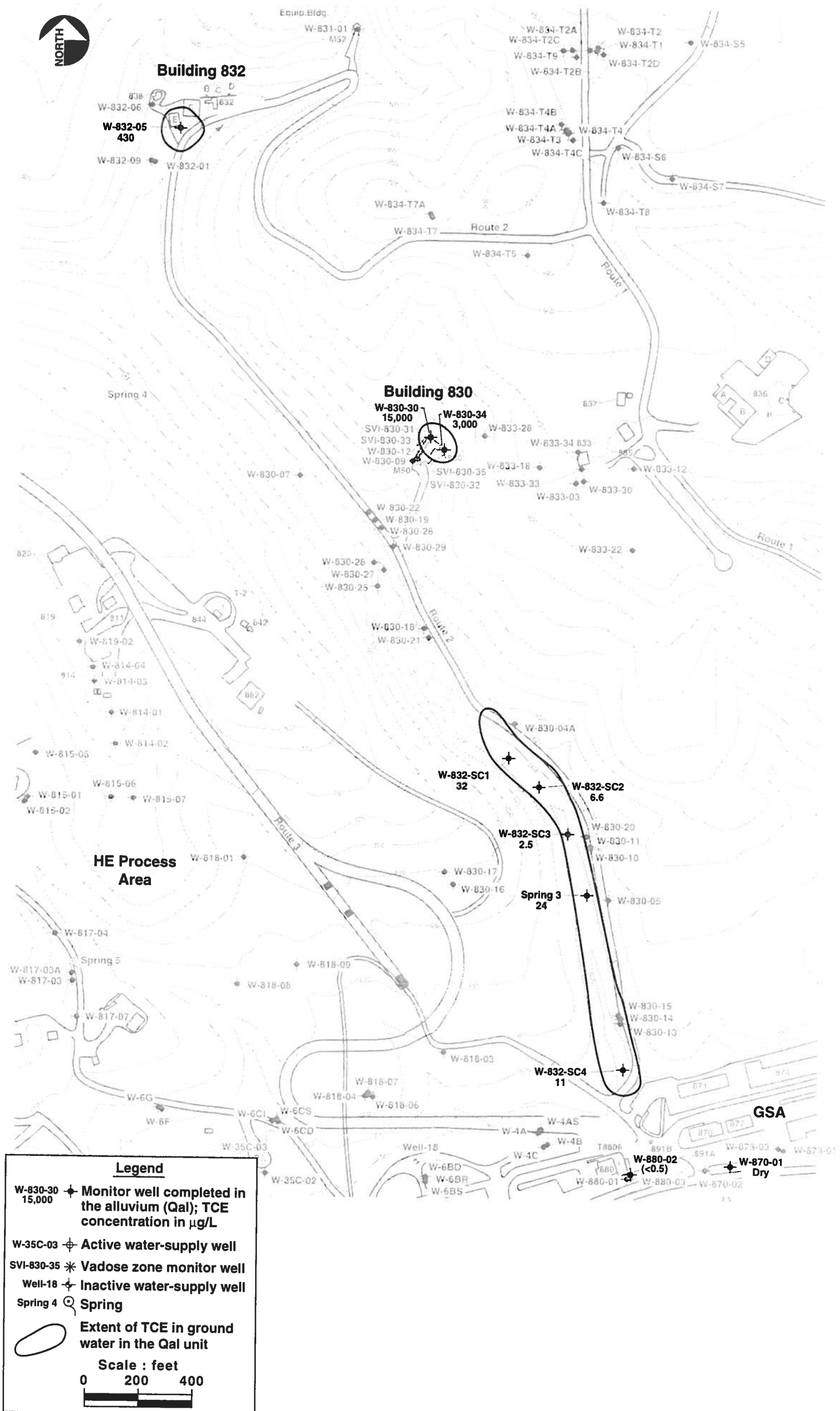
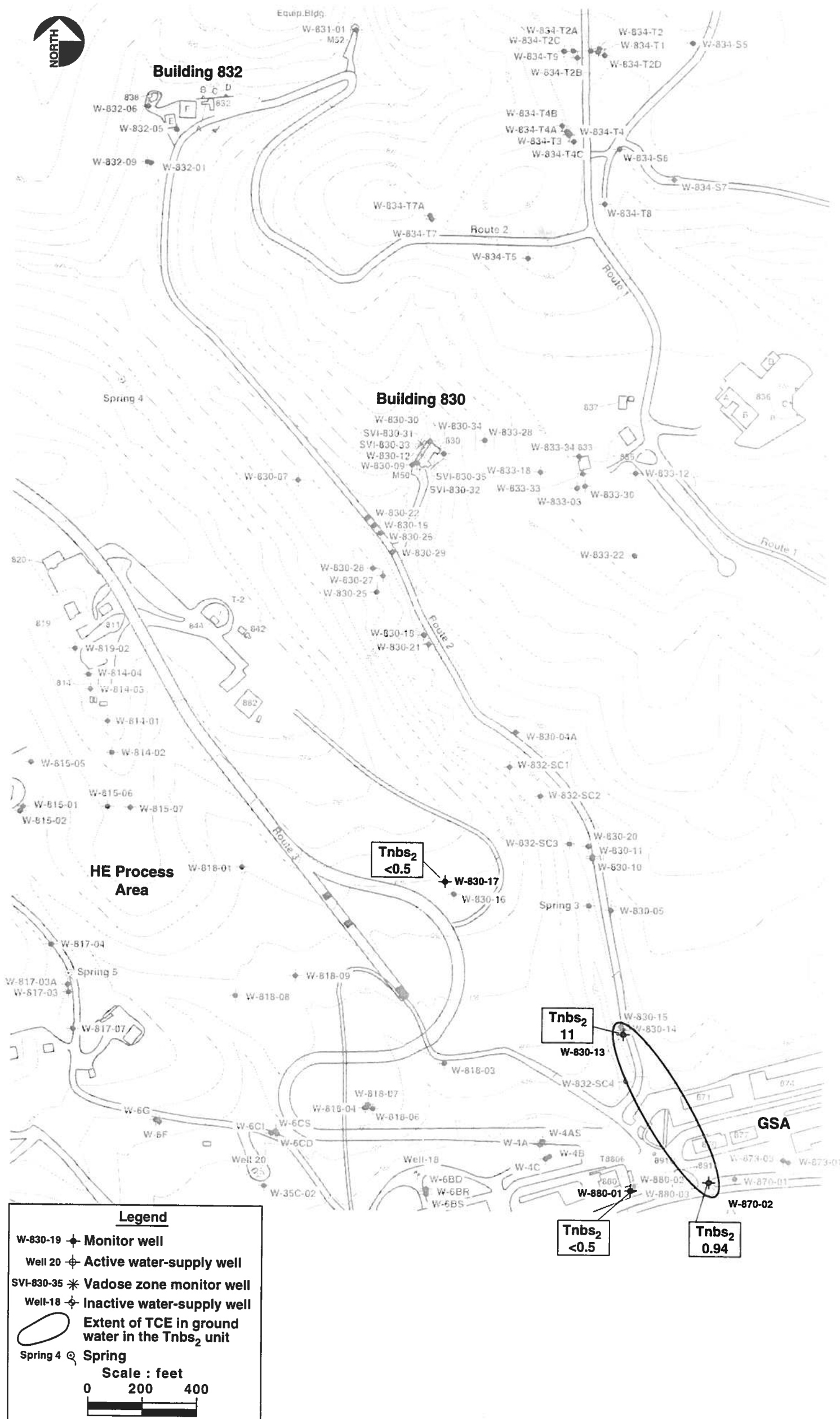


Figure 18. Maximum TCE concentration in soil and bedrock, Building 830.



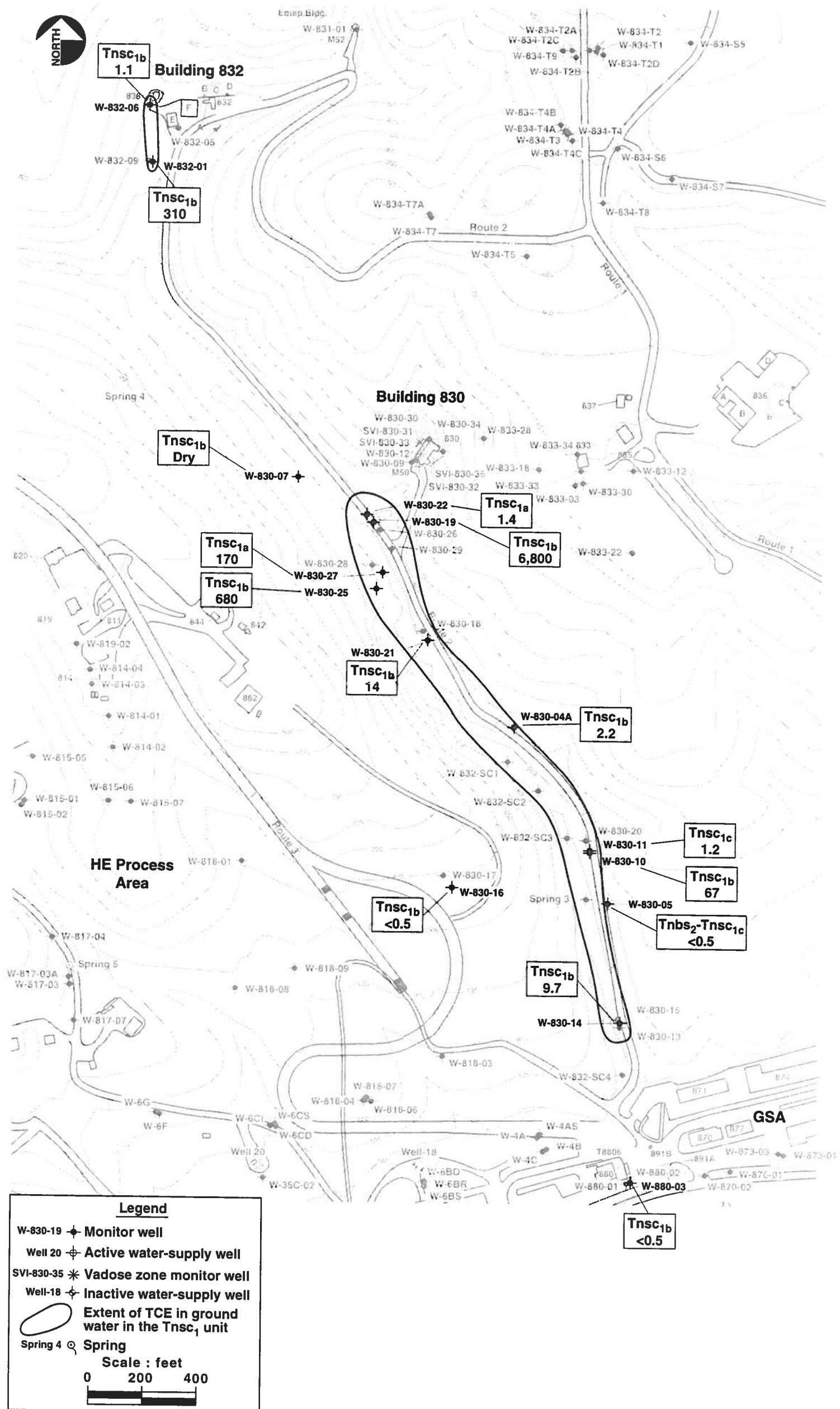
ERD-S3R-97-2001

Figure 19. Distribution of TCE in ground water - Qal unit, second quarter 1997.



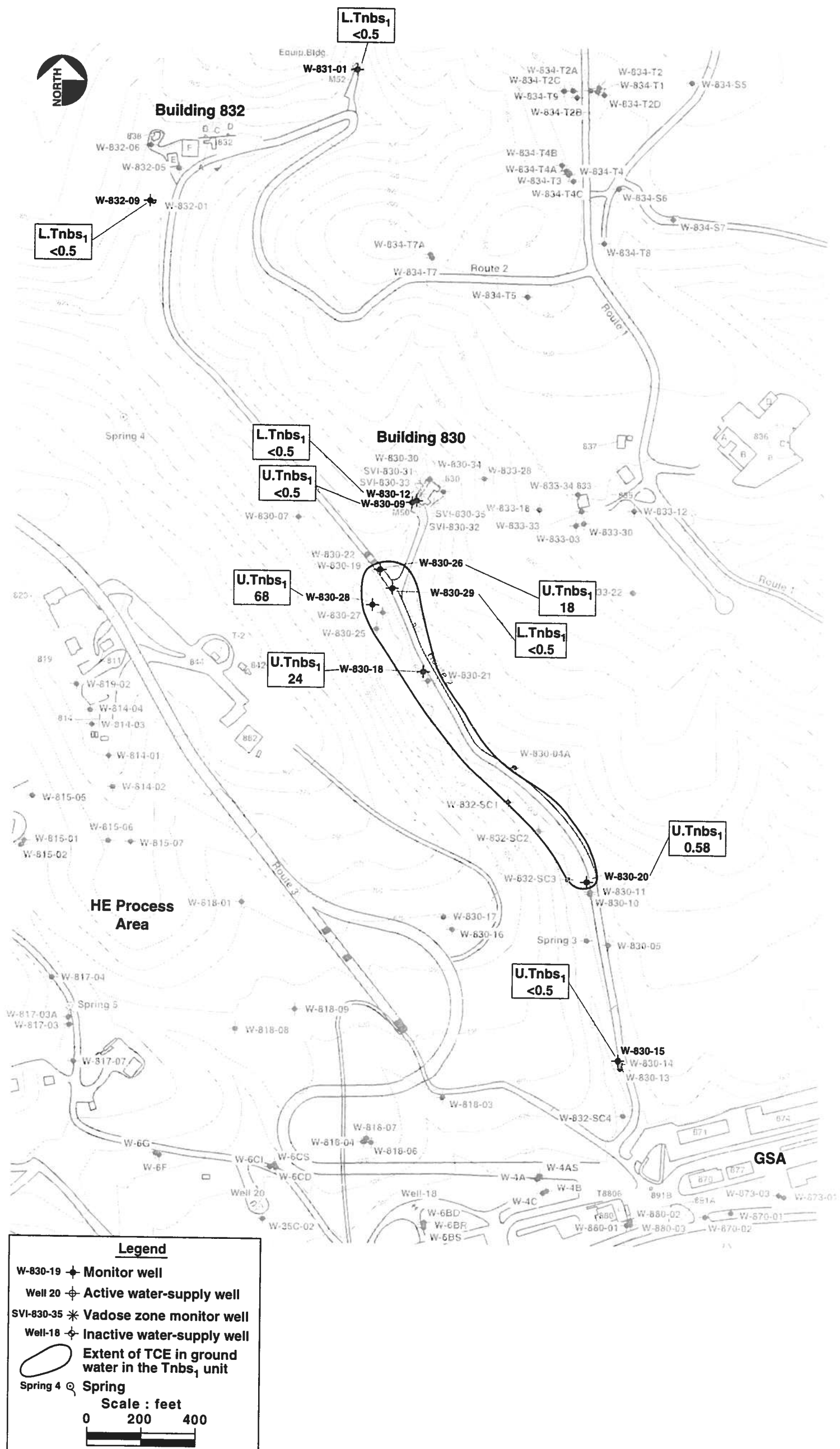
ERD-S3R-97-2002

Figure 20. Distribution of TCE in ground water- Tnbs<sub>2</sub> unit, second quarter 1997.



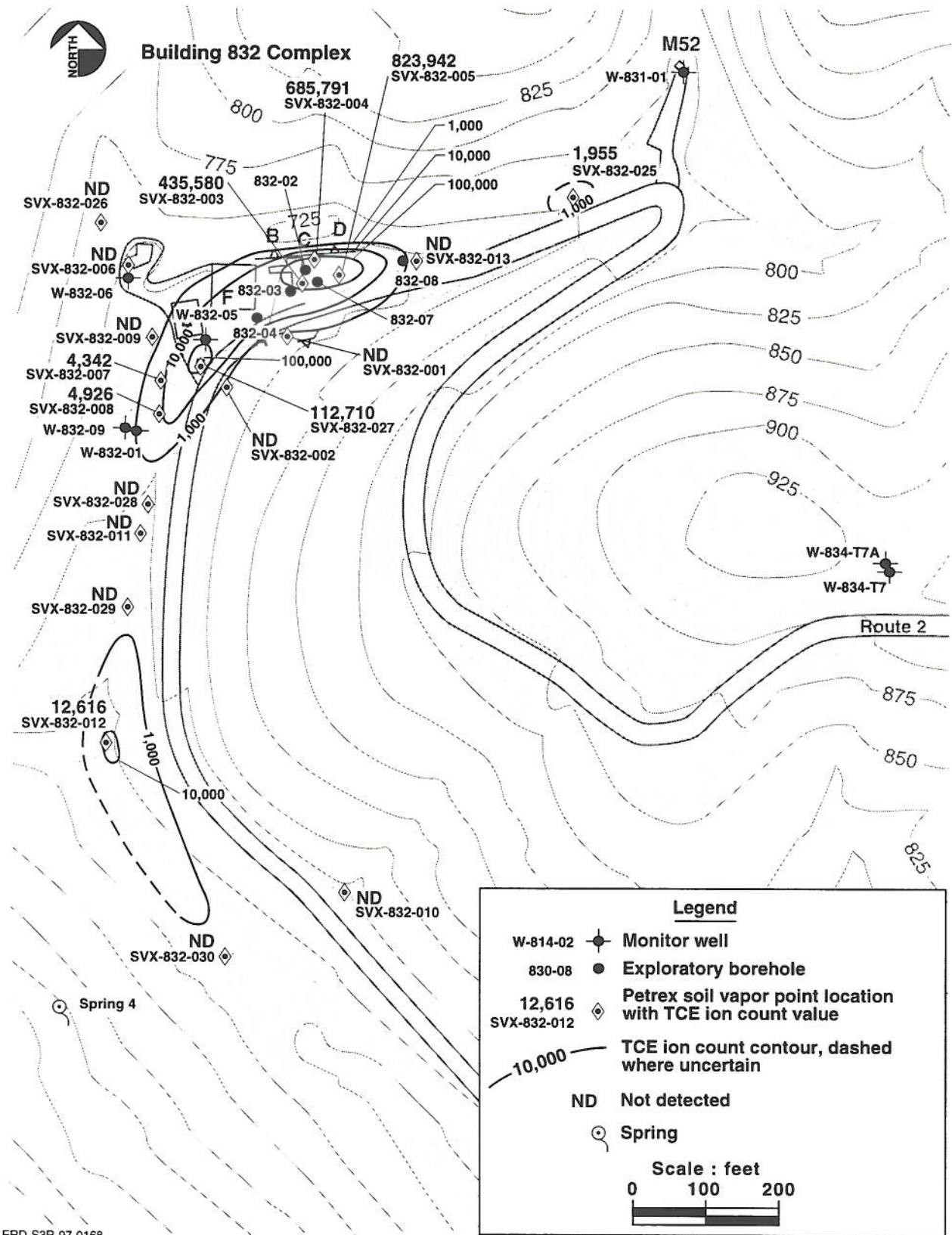
ERD-S3R-97-2003

Figure 21. Distribution of TCE in ground water - Tnsc<sub>1</sub> unit, second quarter 1997.



ERD-S3R-97-2004

Figure 22. Distribution of TCE in ground water - Tnbs<sub>1</sub> unit, second quarter 1997.



ERD-S3R-97-0168

Figure 23. Passive soil vapor survey results, Building 832 Complex.

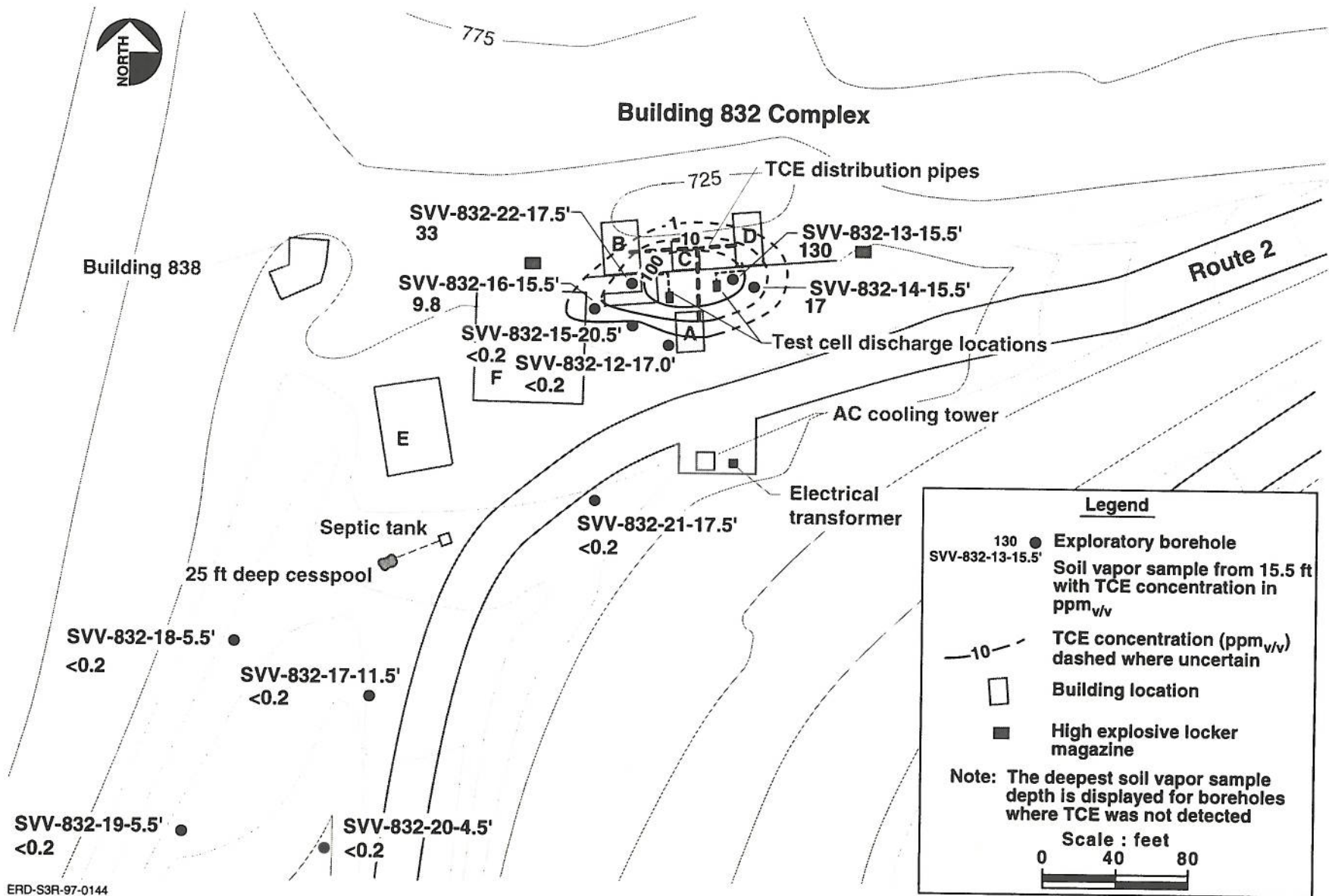
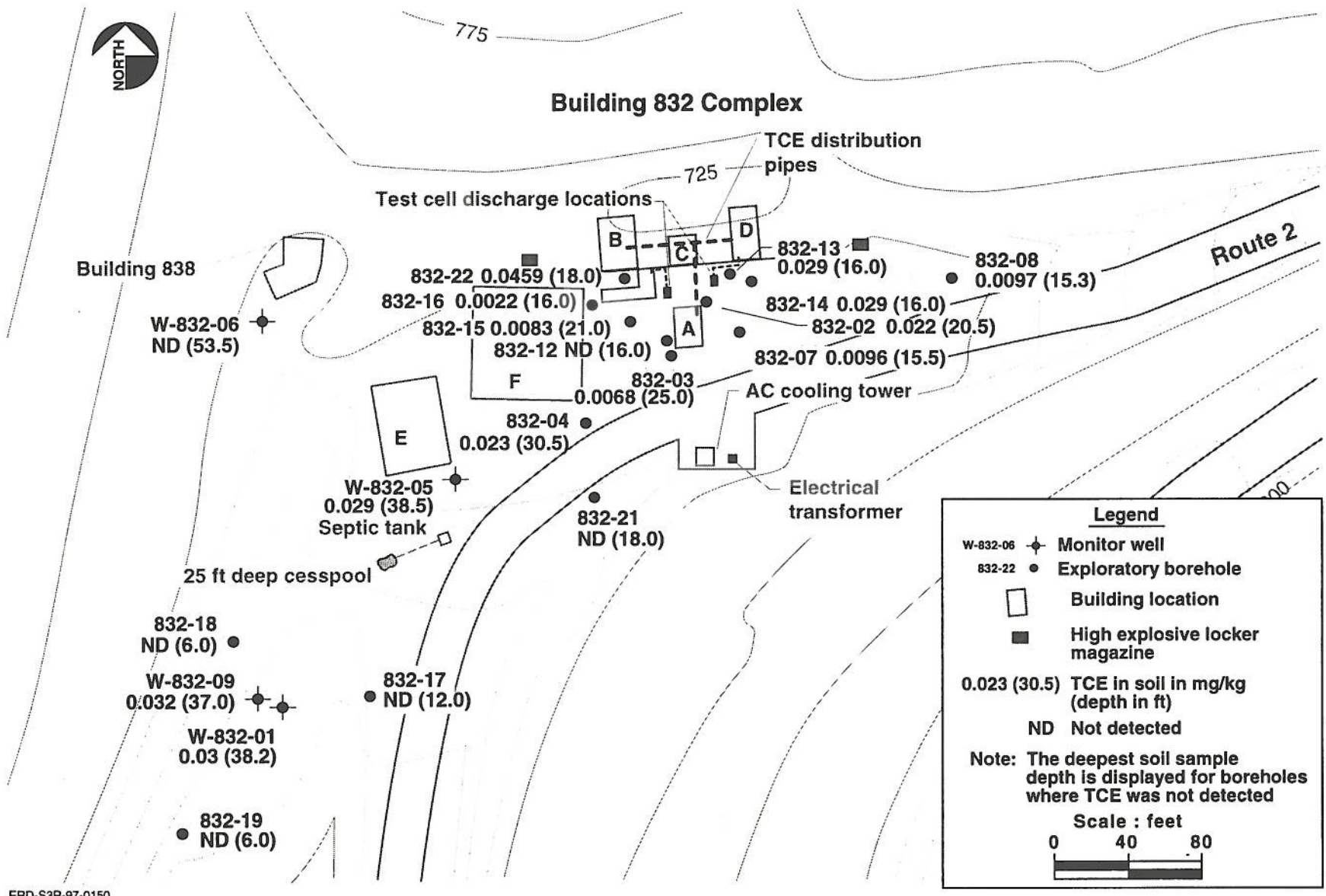


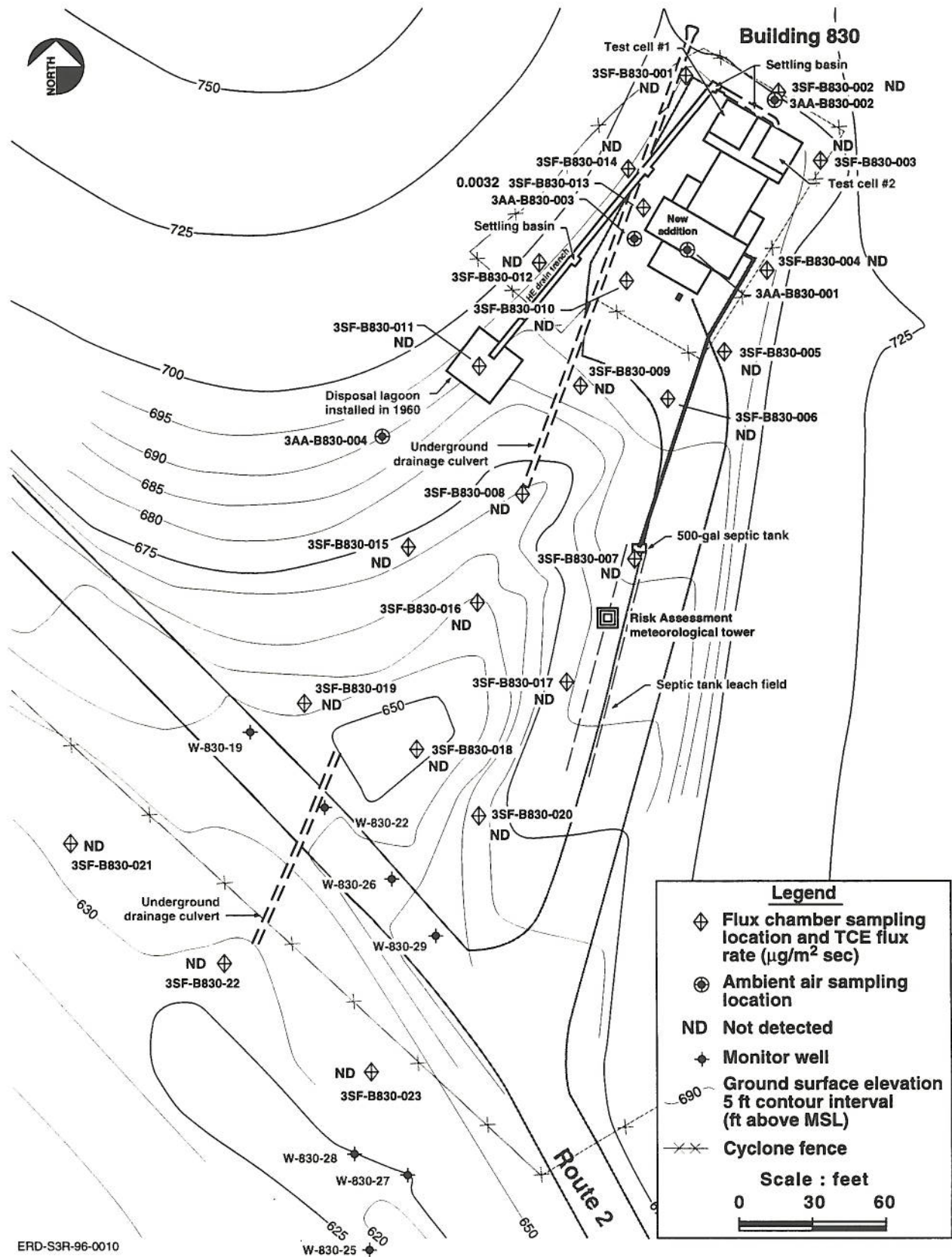
Figure 24. Active Vacuum Induced (AVI) soil vapor survey results, Building 832 Complex.





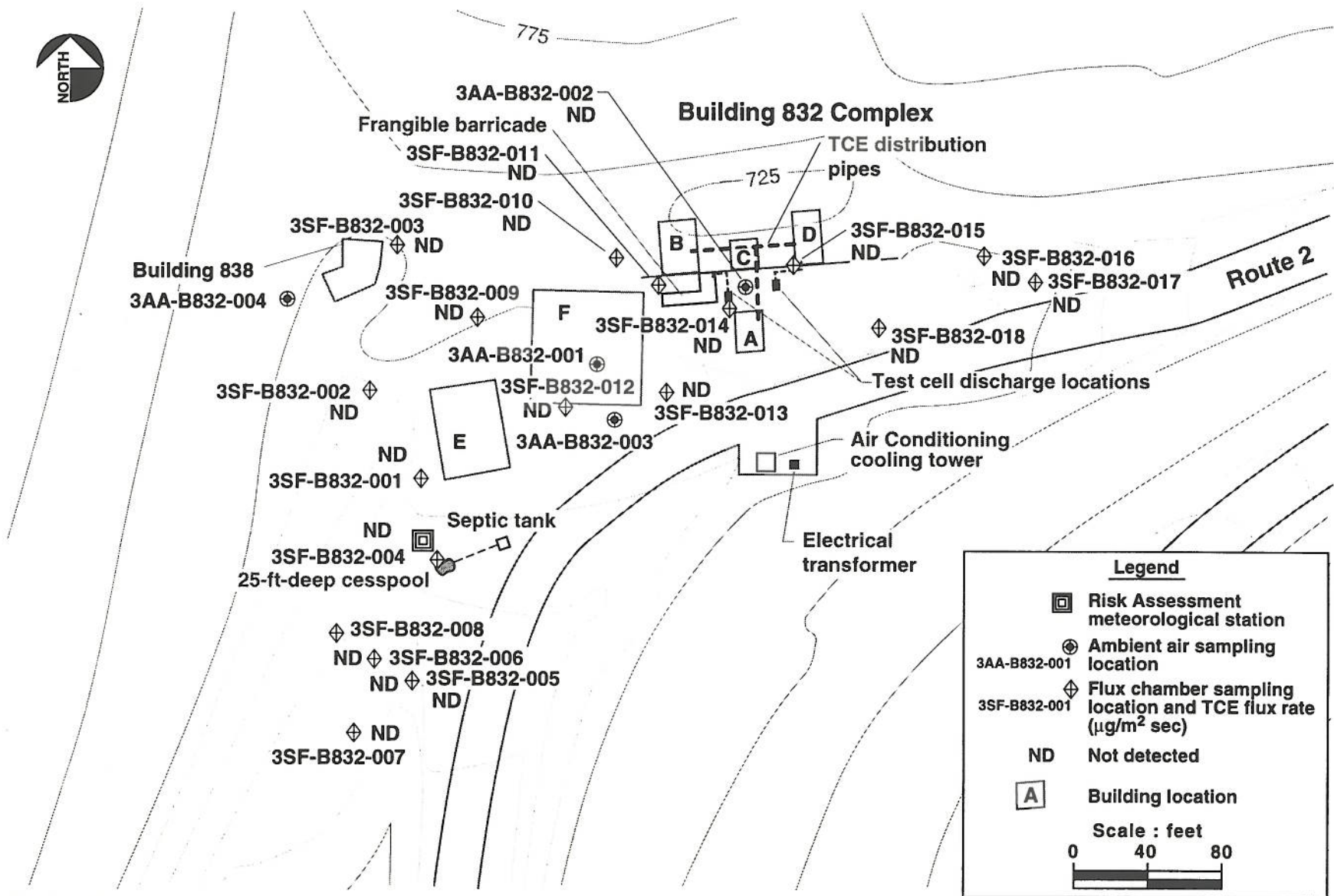
ERD-S3R-97-0150

Figure 25. Maximum TCE concentration in soil and bedrock, Building 832 Complex.



ERD-S3R-96-0010

Figure 26. Soil vapor flux and ambient air sampling locations, Building 832 Complex.



ERD-S3R-97-0002B

Figure 27. Soil vapor flux and ambient air sampling results, Building 830.

## **Tables**

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- Table 4. Hydrostratigraphic units in the Building 832 Canyon OU.
- Table 5. Proposed schedule for the Building 832 Canyon OU.

**Table 1. Summary of field work performed.**

Activity	Comments
Ground water monitor wells	31 wells were completed, which could potentially be used for ground water extraction.
Ground water samples	Samples are currently collected quarterly or annually.
Ground water elevation measurements	Elevations are currently measured quarterly.
Soil borings	60 boreholes were drilled and sampled.
Geologic mapping	The Building 832 Canyon was included in site-wide mapping activities.
Surface water samples	Samples collected from intermittent flow in stream channel and springs.
Surface soil samples	Samples were collected for use in risk assessment.
Passive soil vapor survey (SVS)	Surveys were conducted as part of source investigations.
Active Vacuum Induced (AVI) soil vapor survey	AVI SVS was conducted for quantitative measurements. Some samples were collected at depth.
Vadose zone wells	Four wells were completed in conjunction with AVI soil vapor surveys that potentially could be used for soil vapor extraction.
Flux chamber measurements	Measurements of VOC flux in soil vapor were collected at areas of highest subsurface VOC contamination.
Ambient air measurements	Indoor and outdoor air samples were collected at Buildings 830 and 832.

**Table 2. Previous documents, submittals, and presentations.**

Date	Activity
May 1994	Site-Wide Remedial Investigation (SWRI) (Webster-Scholten, 1994) report is finalized. Information relevant to the Building 832 Canyon OU is contained in Chapter 9 (Building 833 Study Area) and Chapter 10 (Building 834 Study Area).
June 8, 1995	DOE/LLNL submits revised schedule for Building 832 Canyon to regulatory agencies.
July 20, 1995	Presentation is given to the regulatory agencies on the status of site characterization and the conceptual hydrogeologic model.
August 24, 1995	Revised schedule of deliverables is approved.
October 31, 1995	Presentation is given to the regulatory agencies on the status of site characterization and conceptual hydrogeologic model.
April 10, 1996	DOE/LLNL issues the Building 832 Canyon Study Area Fact Sheet.
June 26, 1996	Presentation is given to the regulatory agencies on drilling activities in the OU.
August 21, 1996	Ground water, soil, and soil vapor analytical data is provided to regulatory agencies.
November 1, 1996	Presentation is given to the regulatory agencies on the status of site characterization and conceptual hydrogeologic model.
January 10, 1997	Letter report defining and prioritizing site characterization issues is submitted to regulatory agencies.
March 20, 1997	Presentation is given to the regulatory agencies on soil flux chamber and ambient air sampling as used to calculate excess cancer risk.
June 9, 1997	Presentation given to the regulatory agencies on the results of source investigations in the Building 832 Canyon OU.

Table 3. Well completion data for the Building 832 Canyon OU.

Well	Hydrogeologic unit of completion <sup>a</sup>	Point of measurement elevation (feet amsl)	Depth of screened interval <sup>b</sup> (feet bgs)	Approximate well yield <sup>c</sup> (gpm)	Well inside diameter (in.)
W-830-04A	Tnsc <sub>1b</sub>	624.10	36.3–61.3	2	4.5
W-830-05	Tnbs <sub>2</sub> -Tnsc <sub>1c</sub>	584.37	22.3–37.3	0.24	3.0
W-830-07	Tnsc <sub>1b</sub>	634.80	6.3–11.8	NA	3.0
W-830-09	Upper Tnbs <sub>1</sub>	697.10	106.3–136.3	1.50	4.5
W-830-10	Tnsc <sub>1b</sub>	596.70	60.9–70.9	5.00	4.5
W-830-11	Tnsc <sub>1c</sub>	596.19	36.3–41.3	NA	4.5
W-830-12	Lower Tnbs <sub>1</sub>	692.62	168.5–188.0	14.20	4.5
W-830-13	Tnbs <sub>2</sub>	564.51	42.3–49.3	0.69	4.5
W-830-14	Tnsc <sub>1b</sub>	565.50	96.3–106.3	4.00	4.5
W-830-15	Upper Tnbs <sub>1</sub>	565.10	139.5–149.5	1.25	4.5
W-830-16	Tnsc <sub>1b</sub>	670.88	161.7–171.7	1.50	4.5
W-830-17	Tnbs <sub>2</sub>	673.22	93.4–113.4	0.23	4.5
W-830-18	Upper Tnbs <sub>1</sub>	654.49	96.6–105.3	3.50	5.0
W-830-19	Tnsc <sub>1b</sub>	655.82	36.5–46.5	1.00	5.0
W-830-20	Upper Tnbs <sub>1</sub>	596.96	95.5–105.5	NA	5.0
W-830-21	Tnsc <sub>1b</sub>	653.94	57.5–67.5	NA	5.0
W-830-22	Tnsc <sub>1a</sub>	655.02	52.0–58.0	NA	5.0
W-830-25	Tnsc <sub>1b</sub>	620.34	19.0–24.0	NA	2.0
W-830-26	Upper Tnbs <sub>1</sub>	658.53	74.0–84.0	1.00	5.0
W-830-27	Tnsc <sub>1a</sub>	620.56	28.0–38.0	NA	2.0
W-830-28	Upper Tnbs <sub>1</sub>	622.16	54.0–64.0	NA	2.0
W-830-29	Lower Tnbs <sub>1</sub>	661.03	155.0–165.0	NA	2.0
W-830-30	Qal	692.81	14.5–24.5	NA	2.0
W-830-34	Qal	692.65	15.5–25.5	NA	2.0
W-831-01	Lower Tnbs <sub>1</sub>	773.49	139.0–158.8	2.00	4.5
W-832-01	Tnsc <sub>1b</sub>	706.35	29.8–39.8	0.65	4.5
W-832-05	Qal	718.97	30.0–35.0	NA	4.5
W-832-06	Tnsc <sub>1b</sub>	720.85	38.0–48.0	NA	4.5
W-832-09	Lower Tnbs <sub>1</sub>	707.22	127.8–137.8	3.75	4.5
W-832-SC1	Qal	581.78	1.5–3.0*	NA	2.0
W-832-SC2	Qal	574.87	1.5–3.0*	NA	2.0
W-832-SC3	Qal	563.69	1.5–3.0*	NA	2.0
W-832-SC4	Qal	537.30	2.0–5.5*	NA	2.0
SPRING3	Qal	556.72	1.5–3.0*	NA	2.0



Table 3. (Continued)

Well	Hydrogeologic unit of completion <sup>a</sup>	Point of measurement elevation (feet amsl)	Depth of screened interval <sup>b</sup> (feet bgs)	Approximate well yield <sup>c</sup> (gpm)	Well inside diameter (in.)
W-870-01	Qal	523.79	8.5–13.5	NA	2.0
W-870-02	Tnbs <sub>2</sub>	523.89	22.0–32.0	NA	5.0
W-880-01	Tnbs <sub>2</sub>	526.05	49.0–59.0	0.70	4.5
W-880-02	Qal	525.80	13.0–18.0	0.01	4.5
W-880-03	Tnsc <sub>1b</sub>	526.05	134.0–144.0	0.80	4.5

Notes:

amsl = Above mean sea level.

bgs = Below ground surface.

gpm = Gallons per minute.

in. = Inches.

<sup>a</sup> Hydrogeologic units:

Qal = Quaternary alluvium.

Tnbs<sub>2</sub> = Neroly upper blue sandstone.

Tnsc<sub>1a</sub>, Tnsc<sub>1b</sub>, Tnsc<sub>1c</sub> = Sandstone bodies within the Tnsc<sub>1</sub> Neroly middle siltstone/claystone (1a = deepest).

Upper Tnbs<sub>1</sub> = Upper member of the Neroly lower blue sandstone, above claystone marker bed.

Lower Tnbs<sub>1</sub> = Lower member of the Neroly lower blue sandstone, below claystone marker bed (regional aquifer).

<sup>b</sup> Measurements referenced to top of stovepipe, except those noted \* are referenced to ground surface.

<sup>c</sup> Well yields estimated from well development or sampling data. NA = Not available or reliable.

Table 4. Hydrogeologic units in the Building 832 Canyon OU.

Unit <sup>a</sup>	Description
Alluvium (Qal)	<p>Quaternary alluvium is present as valley fill throughout the Building 832 Canyon. Maximum thickness of the Qal unit is about 40 feet. The alluvium ranges from low -permeability clay to high-permeability silty sand and gravel. The extent of saturation and depth to water is variable, depending on location and recharge. Most recharge and subsequent ground water flow occurs during and immediately after winter storms. Ground water in this unit is unconfined, and locally perched on low-permeability silt and clay strata. Intermittently, ground water from the alluvium reaches the surface and appears as shallow pools or springs. Wells completed in the Qal unit generally yield &lt;1 gallon per minute (gpm). A potentiometric surface elevation contour map for wells completed in the Qal is presented in Figure 11. Along most of the canyon, the alluvial deposits directly overlie the Tnsc<sub>1</sub> unit, providing a pathway for contaminants into the bedrock. In the extreme southern end of the canyon the Qal overlies the Tnbs<sub>2</sub> sandstone.</p>
Neroly Formation Upper Blue Sandstone (Tnbs <sub>2</sub> )	<p>The Tnbs<sub>2</sub> is the uppermost bedrock unit present in the OU. This unit consists primarily of moderately to highly permeable sandstone, varying in thickness from 50 to 60 feet. In most of the canyon, the Tnbs<sub>2</sub> unit occurs on the canyon walls, but in the southern part of the OU, near the GSA, the Tnbs<sub>2</sub> subcrops below the alluvium and is saturated. Ground water in this unit is locally confined. Ground water recharge to the Tnbs<sub>2</sub> and Tnsc<sub>1</sub> bedrock units occurs predominantly through subcrops or outcrops in the canyon floor. Wells completed in the Tnbs<sub>2</sub> unit generally yield &lt;1 gpm. A potentiometric surface elevation contour map for wells completed in the Tnbs<sub>2</sub> unit is presented in Figure 12.</p>
Neroly Formation Middle Siltstone/Claystone (Tnsc <sub>1</sub> )	<p>The Tnsc<sub>1</sub> unit underlies the Tnbs<sub>2</sub>, and is approximately 90 feet thick. Typically, the Tnsc<sub>1</sub> acts as a low conductivity confining unit, but three higher conductivity sandstone interbeds occur within the unit. These subunits are designated Tnsc<sub>1c</sub>, Tnsc<sub>1b</sub>, and Tnsc<sub>1a</sub>, in order of increasing depth. The Tnsc<sub>1b</sub> subunit is particularly important because it subcrops beneath the alluvium at the Building 830 and 832 contaminant release sites and intercepts the downward migration of TCE through the alluvium. The Tnsc<sub>1b</sub> subunit is locally relatively transmissive where fractured; well yields range from &lt;1 gpm to about 5 gpm. The Tnsc<sub>1b</sub> is unsaturated between Buildings 830 and 832, but a continuous hydraulic pathway may exist as a response to winter precipitation. Ground water in this subunit is partially confined, depending on location and the conductivity of the overlying alluvium. Additional recharge to the Tnsc<sub>1b</sub> subunit results from discharge of septic system effluent at both Buildings 830 and 832. A potentiometric surface elevation contour map for wells completed in the Tnsc<sub>1b</sub> is presented in Figure 13. The Tnsc<sub>1c</sub> is a moderately permeable silty sandstone that is unsaturated at the both the Building 830 and 832 source areas, but becomes saturated farther to the south. The Tnsc<sub>1a</sub> does not occur at the Building 832 Complex but is saturated at Building 830.</p>

Table 4. (Continued)

Unit <sup>a</sup>	Description
Neroly Formation Lower Blue Sandstone (Tnbs <sub>1</sub> )	<p>The Tnbs<sub>1</sub> unit consists predominately of moderately to highly permeable sandstone with discontinuous siltstone and claystone interbeds. The Claystone Marker Bed (CMB) confining unit separates the upper and lower Tnbs<sub>1</sub>. The widespread occurrence of the CMB makes this feature valuable for correlating between wells. The upper Tnbs<sub>1</sub> is saturated only in the southern part of the OU, but the lower Tnbs<sub>1</sub> serves as an important regional water-supply aquifer for Site 300 and offsite property owners. Ground water in the upper Tnbs<sub>1</sub> is partially confined; the lower Tnbs<sub>1</sub> is fully confined and locally flowing artesian. In many areas, an upward vertical hydraulic gradient protects the regional aquifer from downward migration of contaminants. Wells completed in the lower Tnbs<sub>1</sub> can yield several hundred gpm. Recharge to the lower Tnbs<sub>1</sub> regional aquifer occurs primarily in Elk Ravine to the north. Potentiometric surface elevation contour maps for wells completed in the upper and lower Tnbs<sub>1</sub> are presented in Figures 14 and 15, respectively.</p>

<sup>a</sup> Presented in order of increasing age and depth.

**Table 5. Proposed schedule for the Building 832 Canyon OU.**

<b>Task</b>	<b>Completion Date<sup>a</sup></b>
Treatability Study Work Plan	11/17/97
Begin implementing Pilot-Scale Treatability Study	04/01/98
Draft Feasibility Study	05/17/99
Draft Final Feasibility Study	09/15/99
Final Feasibility Study	10/15/99
Draft Proposed Plan	02/03/00
Draft Final Proposed Plan	03/30/00
Public Meeting	04/12/00
Final Proposed Plan	05/02/00
Draft Record of Decision	11/06/00
Draft Final Record of Decision	03/05/01
Final Record of Decision	04/05/01
Draft Remedial Design	12/03/01
Draft Final Remedial Design	04/01/02
Final Remedial Design	05/01/02
Begin implementing selected remedial action	Fiscal Year 2002

<sup>a</sup> Dates based on Site 300 Schedule, Revision 3.0.

**Attachment A**  
**Data Tables**

## Data Tables

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- Table A-2. VOCs in ground water and surface water ( $\mu\text{g/L}$ ), Building 832 Canyon OU.
- Table A-3. VOCs in soil and rock ( $\text{mg/kg}$ ), Building 832 Canyon OU.
- Table A-4. High Explosives in ground water and surface water ( $\mu\text{g/L}$ ), Building 832 Canyon OU.
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- Table A-6. Tritium in ground water and surface water ( $\text{pCi/L}$ ), Building 832 Canyon OU.
- Table A-7. Tritium in soil and rock ( $\text{pCi/g}$ ), Building 832 Canyon OU.
- Table A-8. Tritium in soil moisture ( $\text{pCi/L}$ ), Building 832 Canyon OU.
- Table A-9. Gross alpha/gross beta in ground water and surface water ( $\text{pCi/L}$ ), Building 832 Canyon OU.
- Table A-10. Gross alpha/gross beta in soil and rock, ( $\text{pCi/g}$ ), Building 832 Canyon OU.
- Table A-11. Uranium isotopes in ground water and surface water ( $\text{pCi/L}$ ), Building 832 Canyon OU.
- Table A-12. Uranium isotopes in soil and rock ( $\text{pCi/g}$ ), Building 832 Canyon OU.
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- Table A-18. Aromatic hydrocarbons in ground water and surface water ( $\mu\text{g/L}$ ), Building 832 Canyon OU.
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- Table A-20. Fuel hydrocarbons in ground water and surface water ( $\mu\text{g/L}$ ), Building 832 Canyon OU.
- Table A-21. Anions, TDS, specific conductivity, and pH in ground water and surface water, Building 832 Canyon OU.
- Table A-22. Cations in ground water and surface water, Building 832 Canyon OU.
- Table A-23. Surfactants in ground water and surface water ( $\text{mg/L}$ ), Building 832 Canyon OU.
- Table A-24. VOCs in soil vapor (Petrex™) (ion counts), Building 832 Canyon OU.
- Table A-25. VOCs in soil vapor (active vacuum induced) ( $\text{ppm}_{\text{v/v}}$ ), Building 832 Canyon OU.

Table A-1. Ground water elevations, Building 832 Canyon OU. Results recorded by July 16, 1997.  
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832 GWELEVATION SITE 300.RPT  
16-jul-1997  
epdbs::epddata

Table A-1. Ground water elevations, Building 832 Canyon OU. Results recorded by July 16, 1997.

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-830-04A				W-830-04A (continued)			
06/01/88	43.99	580.11		10/13/93	44.52	579.58	
07/06/88	44.17	579.93		11/02/93	44.52	579.58	
08/04/88	44.49	581.61		12/03/93	44.45	579.65	
08/30/88	44.45	579.65		01/06/94	44.37	579.73	
10/04/88	44.66	579.44		02/04/94	44.18	579.92	
11/04/88	44.51	579.59		03/04/94	44.31	579.79	
12/02/88	44.30	579.80		04/08/94	44.43	579.67	
01/12/89	44.21	579.89		05/06/94	44.64	579.46	
02/09/89	44.13	579.97		06/03/94	44.91	579.19	
03/02/89	43.91	580.19		07/06/94	45.13	578.97	
04/12/89	44.17	579.93		08/03/94	45.08	579.02	
05/09/89	44.44	579.66		10/12/94	45.43	578.67	
06/07/89	44.78	579.32		11/02/94	45.62	578.48	
07/10/89	45.14	578.96		01/09/95	44.76	579.34	
08/09/89	45.50	578.60		03/08/95	44.42	579.68	
09/07/89	45.56	578.54		04/06/95	43.64	580.46	
10/09/89	45.50	578.60		05/04/95	43.66	580.44	
11/09/89	45.93	578.17		05/12/95	43.63	580.47	PS
12/08/89	45.97	578.13		06/02/95	43.74	580.36	
01/11/90	45.91	578.19		07/06/95	43.90	580.20	
01/30/90	45.80	578.30		08/01/95	43.86	580.24	
03/08/90	45.59	578.51		09/05/95	43.90	580.20	
04/05/90	45.55	578.55		10/06/95	43.81	580.29	
05/03/90	45.64	578.46		11/02/95	43.84	580.26	
06/07/90	45.85	578.25		12/04/95	43.89	580.21	
07/05/90	48.03	576.07		01/10/96	43.78	580.32	
08/07/90	46.50	577.60		02/02/96	43.61	580.49	
09/12/90	46.65	577.45		03/04/96	43.44	580.66	
10/15/90	46.52	577.58		04/02/96	43.55	580.55	
11/15/90	46.26	577.84		05/01/96	43.45	580.65	
12/07/90	46.18	577.92		06/03/96	43.58	580.52	
01/25/91	45.86	578.24		07/09/96	43.80	580.30	
02/11/91	45.81	578.29		08/06/96	44.05	580.05	
03/11/91	45.53	578.57		09/09/96	44.03	580.07	
04/05/91	45.31	578.79		10/10/96	44.06	580.04	
05/08/91	45.46	578.64		11/05/96	43.95	580.15	
06/17/91	45.75	578.35		12/04/96	43.80	580.30	
07/11/91	45.91	578.19		01/03/97	43.62	580.48	
08/08/91	46.29	577.81		02/03/97	43.41	580.69	
09/11/91	46.24	577.86		03/03/97	43.47	580.63	
10/08/91	46.21	577.89		04/03/97	43.13	580.97	
11/12/91	45.87	578.23		05/01/97	43.54	580.56	
12/06/91	45.67	578.43		06/02/97	43.61	580.49	
01/16/92	45.51	578.59					
02/06/92	45.23	578.87		W-830-05			
03/04/92	45.11	578.99		06/01/88	24.51	559.86	
04/02/92	45.04	579.06		07/06/88	24.64	559.73	
05/06/92	45.31	578.79		08/04/88	24.68	560.62	
06/03/92	45.44	578.66		08/30/88	24.64	559.73	
07/07/92	45.75	578.35		10/04/88	24.75	559.62	
08/14/92	45.96	578.14		11/04/88	24.88	559.49	
09/01/92	46.17	577.93		12/02/88	24.83	559.54	
10/08/92	46.27	577.83		01/12/89	24.91	559.46	
11/04/92	46.25	577.85		02/09/89	24.87	559.50	
12/04/92	45.88	578.22		03/02/89	24.68	559.69	
01/08/93	45.19	578.91		04/12/89	24.91	559.46	
02/05/93	44.98	579.12		05/09/89	24.89	559.48	
03/04/93	44.74	579.36		06/07/89	25.03	559.34	
04/09/93	44.21	579.89		07/10/89	25.11	559.26	
05/12/93	44.10	580.00		08/09/89	26.38	557.99	
06/10/93	44.23	579.87		09/07/89	26.39	557.98	
07/20/93	44.59	579.51		10/09/89	25.00	559.37	
08/11/93	44.70	579.40		11/09/89	26.17	558.20	
09/14/93	44.66	579.44		12/08/89	25.97	558.40	
				01/11/90	25.88	558.49	



Table A-1. Ground water elevations, Building 832 Canyon OU. Results recorded by July 16, 1997.

Location				Location			
Date	Depth	Water	Notes	Date	Depth	Water	Notes
of	to Water	Elevation		of	to Water	Elevation	
Measurement	(ft)	(ft/MSL)		Measurement	(ft)	(ft/MSL)	
W-830-05 (continued)				W-830-05 (continued)			
01/30/90	26.00	558.40		08/01/95	24.78	559.59	
03/08/90	25.87	558.50		09/05/95	24.74	559.63	
04/05/90	25.96	558.41		10/06/95	24.65	559.72	
05/03/90	26.20	558.17		11/02/95	24.68	559.69	
06/07/90	26.21	558.16		12/04/95	24.68	559.69	
07/05/90	27.04	557.33		01/10/96	24.75	559.62	
08/07/90	27.54	556.83		02/02/96	24.73	559.64	
09/12/90	27.41	556.96		03/04/96	24.67	559.70	
10/15/90	27.02	557.35		04/02/96	24.68	559.69	
11/15/90	26.35	558.02		05/01/96	24.68	559.69	
12/07/90	26.34	558.03		06/03/96	24.75	559.62	
01/25/91	26.02	558.35		07/09/96	24.58	559.79	
02/11/91	25.81	558.56		08/06/96	24.74	559.63	
03/11/91	25.74	558.63		09/09/96	24.61	559.76	
04/05/91	25.79	558.58		10/10/96	24.70	559.67	
05/08/91	25.90	558.47		11/05/96	24.72	559.65	
06/17/91	26.52	557.85		12/04/96	24.68	559.69	
07/11/91	26.79	557.58		01/03/97	24.91	559.46	
08/08/91	27.07	557.30		02/03/97	24.87	559.50	
09/11/91	27.12	557.25		03/03/97	24.93	559.44	
10/08/91	27.00	557.37		04/03/97	24.80	559.57	
11/12/91	26.34	558.03		05/01/97	24.89	559.48	
12/06/91	26.11	558.26		06/02/97	24.80	559.57	
01/16/92	25.97	558.40					
02/06/92	25.91	558.46					
03/04/92	25.74	558.63		W-830-07			
04/02/92	25.64	558.73		11/08/96			DRY
05/06/92	25.96	558.41		12/04/96			DRY
06/03/92	26.20	558.17		01/07/97			DRY
07/07/92	26.39	557.98		02/04/97			DRY
08/14/92	26.60	557.77		03/05/97			DRY
09/03/92	26.63	557.74		04/09/97			DRY
10/08/92	26.56	557.81		05/05/97			DRY
11/04/92	26.40	557.97		06/04/97			DRY
12/04/92	26.14	558.23					
01/08/93	25.53	558.84					
02/05/93	25.50	558.87		W-830-09			
03/04/93	25.56	558.81		06/02/88	99.53	597.57	
04/09/93	25.55	558.82		07/06/88	99.60	597.50	
05/12/93	25.28	559.09		08/05/88	99.70	597.40	
06/10/93	25.53	558.84		08/30/88	99.70	597.40	
07/20/93	26.00	558.37		10/04/88	100.07	597.03	
08/11/93	25.95	558.42		11/04/88	100.37	596.73	
09/14/93	25.72	558.65		12/02/88	100.30	596.80	
10/13/93	25.57	558.80		01/12/89	100.56	596.54	
11/02/93	25.59	558.78		02/09/89	100.45	596.65	
12/03/93	25.52	558.85		03/02/89	99.91	597.19	
01/06/94	25.54	558.83		04/12/89	100.08	597.02	
02/04/94	25.48	558.89		05/09/89	100.39	596.71	
03/04/94	25.49	558.88		06/07/89	100.55	596.55	
04/08/94	25.57	558.80		07/10/89	100.64	596.46	
05/06/94	25.71	558.66		08/09/89	100.87	596.23	
06/03/94	25.81	558.56		09/07/89	101.10	596.00	
07/06/94	26.12	558.25		10/09/89	101.46	595.64	
08/03/94	26.24	558.13		11/09/89	102.53	594.57	
10/12/94	26.15	558.22		12/08/89	102.72	594.38	
11/02/94	26.25	558.12		01/11/90	102.61	594.49	
01/09/95	25.59	558.78		01/30/90	102.50	594.60	
03/08/95	25.60	558.77		03/08/90	102.70	594.40	
04/06/95	25.26	559.11		04/05/90	102.86	594.24	
05/04/95	25.35	559.02		05/03/90	103.06	594.04	
05/11/95	25.37	559.00		06/07/90	103.36	593.74	
06/02/95	25.51	558.86	PS	07/09/90	103.23	593.87	
07/06/95	24.93	559.44		08/07/90	103.47	593.63	

Table A-1. Ground water elevations, Building 832 Canyon OU. Results recorded by July 16, 1997.

Location	Date	Depth	Water	Notes	Location	Date	Depth	Water	Notes
	of	to Water	Elevation			of	to Water	Elevation	
	Measurement	(ft)	(ft/MSL)			Measurement	(ft)	(ft/MSL)	
W-830-09 (continued)					W-830-09 (continued)				
	09/12/90	103.71	593.39			03/05/96	103.70	593.40	
	10/15/90	103.81	593.29			04/04/96	103.83	593.27	
	11/15/90	104.07	593.03			05/02/96	103.41	593.69	
	12/07/90	104.05	593.05			06/05/96	103.22	593.88	
	01/25/91	103.96	593.14			07/11/96	103.42	593.68	
	02/11/91	103.97	593.13			08/07/96	103.40	593.70	
	03/11/91	104.09	593.01			09/06/96	103.40	593.70	
	04/05/91	104.01	593.09			10/11/96	103.60	593.50	
	05/08/91	103.81	593.29			11/07/96	103.77	593.33	
	06/17/91	103.98	593.12			12/04/96	103.48	593.62	
	07/11/91	104.04	593.06			01/07/97	103.72	593.38	
	08/08/91	103.65	593.45			02/04/97	103.41	593.69	
	09/11/91	104.51	592.59			03/05/97	103.49	593.61	
	10/08/91	104.48	592.62			04/09/97	103.08	594.02	
	11/27/91	104.45	592.65			05/05/97	103.25	593.85	
	12/06/91	104.69	592.41			06/04/97	103.09	594.01	
	01/16/92	104.60	592.50		W-830-10				
	02/06/92	104.15	592.95			04/02/92	17.69	579.01	
	03/04/92	104.46	592.64			07/07/92	18.38	578.32	
	04/02/92	104.39	592.71			10/08/92	18.95	577.75	
	05/06/92	104.51	592.59			01/08/93	17.85	578.85	
	06/03/92	104.29	592.81			04/09/93	16.91	579.79	
	07/07/92	104.61	592.49			07/20/93	17.29	579.41	
	08/14/92	104.75	592.35			10/13/93	17.20	579.50	
	09/02/92	104.75	592.35			01/06/94	17.04	579.66	
	10/08/92	104.86	592.24			04/08/94	17.14	579.56	
	11/04/92	105.10	592.00			07/06/94	17.82	578.88	
	12/04/92	104.81	592.29			10/12/94	18.11	578.59	
	01/08/93	104.72	592.38			01/09/95	17.40	579.30	
	02/05/93	104.86	592.24			04/06/95	16.37	580.33	
	03/04/93	105.06	592.04			05/12/95	16.32	580.38	PS
	04/09/93	104.73	592.37			07/06/95	16.59	580.11	
	05/12/93	104.40	592.70			10/06/95	16.50	580.20	
	06/10/93	104.33	592.77			01/10/96	16.45	580.25	
	07/20/93	104.20	592.90			02/02/96	16.30	580.40	
	08/11/93	104.38	592.72			03/04/96	16.11	580.59	
	09/14/93	104.38	592.72			04/02/96	16.23	580.47	
	10/13/93	104.23	592.87			05/01/96	16.13	580.57	
	11/02/93	104.65	592.45			06/03/96	16.25	580.45	
	12/03/93	104.30	592.80			07/09/96	16.42	580.28	
	01/06/94	104.12	592.98			08/06/96	16.68	580.02	
	02/03/94	103.74	593.36			09/09/96	16.69	580.01	
	03/04/94	103.86	593.24			10/10/96	16.74	579.96	
	04/12/94	103.94	593.16			11/05/96	16.62	580.08	
	05/06/94	103.82	593.28			12/04/96	16.41	580.29	
	06/03/94	103.90	593.20			01/03/97	16.25	580.45	
	07/06/94	104.01	593.09			02/03/97	16.07	580.63	
	08/03/94	104.00	593.10			03/03/97	16.15	580.55	
	10/12/94	104.54	592.56			04/03/97	15.96	580.74	
	11/02/94	104.62	592.48			05/01/97	16.19	580.51	
	01/12/95	104.65	592.45			06/02/97	16.26	580.44	
	03/08/95	104.18	592.92		W-830-11				
	04/06/95	104.05	593.05			04/02/92	31.95	564.24	
	05/04/95	103.96	593.14			07/07/92	34.05	562.14	
	05/16/95	103.99	593.11	PS		10/08/92	34.72	561.47	
	06/02/95	103.89	593.21			01/08/93	33.14	563.05	
	07/07/95			NM		04/09/93	32.97	563.22	
	08/02/95			TR		07/20/93	34.30	561.89	
	09/06/95			NM		10/13/93	33.56	562.63	
	10/05/95	103.79	593.31			01/06/94	33.28	562.91	
	11/02/95	104.00	593.10						
	12/05/95	103.97	593.13						
	01/11/96	103.99	593.11						
	02/02/96	103.79	593.31						

Table A-1. Ground water elevations, Building 832 Canyon OU. Results recorded by July 16, 1997.

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-830-11 (continued)				W-830-13 (continued)			
04/08/94	33.68	562.51		11/02/95	27.15	537.36	
07/06/94	34.22	561.97		12/04/95	26.66	537.85	
10/12/94	34.22	561.97		01/10/96	25.58	538.93	
01/09/95	33.21	562.98		02/02/96	24.78	539.73	
04/06/95	33.08	563.11		03/04/96	24.69	539.82	
05/12/95	33.47	562.72	PS	04/02/96	25.21	539.30	
07/06/95	34.33	561.86		05/01/96	25.59	538.92	
10/06/95	33.73	562.46		06/03/96	26.16	538.35	
01/10/96	33.19	563.00		07/09/96	26.71	537.80	
04/02/96	33.23	562.96		08/06/96	27.21	537.30	
07/09/96	33.05	563.14		09/09/96	27.45	537.06	
10/10/96	33.58	562.61		10/16/96	27.39	537.12	
01/03/97	32.85	563.34		11/05/96	26.86	537.65	
04/03/97	33.07	563.12		12/04/96	25.95	538.56	
W-830-12				W-830-14			
03/08/95	111.60	581.02		03/08/95	21.48	544.02	
03/31/95	111.08	581.54		03/31/95	20.82	544.68	
04/07/95	111.05	581.57		04/07/95	20.96	544.54	
04/19/95	111.00	581.62		04/19/95	21.24	544.26	
04/28/95	111.16	581.46		04/28/95	21.33	544.17	
05/08/95	111.17	581.45		05/08/95	21.35	544.15	
05/16/95	110.79	581.83	PS	05/18/95	21.41	544.09	PS
06/02/95	111.63	580.99		06/02/95	21.45	544.05	
07/07/95			TR	07/06/95	21.39	544.11	
08/02/95			TR	08/01/95	21.42	544.08	
09/06/95			NM	09/05/95	21.49	544.01	
10/05/95	114.95	577.67		10/06/95	21.40	544.10	
11/02/95	114.55	578.07		11/02/95	21.50	544.00	
12/05/95	113.52	579.10		12/04/95	21.61	543.89	
01/11/96	112.71	579.91		01/10/96	21.61	543.89	
02/02/96	112.06	580.56		02/02/96	21.60	543.90	
03/05/96	111.69	580.93		03/04/96	20.83	544.67	
04/04/96	111.51	581.11		04/02/96	21.14	544.36	
05/02/96	111.32	581.30		05/01/96	21.26	544.24	
06/05/96	111.22	581.40		06/03/96	21.38	544.12	
07/11/96	112.79	579.83		07/09/96	21.47	544.03	
08/07/96	113.76	578.86		08/06/96	21.55	543.95	
09/06/96	114.31	578.31		09/09/96	21.61	543.89	
10/11/96	114.49	578.13		10/10/96	21.67	543.83	
11/22/96	113.60	579.02		11/05/96	21.73	543.77	
12/04/96	113.30	579.32		12/04/96	21.67	543.83	
01/07/97	112.57	580.05		01/03/97	21.61	543.89	
02/04/97	111.72	580.90		02/03/97	21.24	544.26	
03/05/97	111.33	581.29		03/03/97	21.36	544.14	
04/09/97	111.72	580.90		04/03/97	21.21	544.29	
05/05/97	112.29	580.33		05/01/97	21.23	544.27	
06/02/97	113.21	579.41		06/02/97	21.25	544.25	
W-830-13				W-830-15			
03/08/95			NM	03/08/95	3.83	561.27	
03/31/95	25.05	539.46		03/31/95	3.44	561.66	
04/07/95	25.15	539.36		04/07/95	3.49	561.61	
04/19/95	25.50	539.01		04/19/95	4.17	560.93	
04/28/95	25.74	538.77		04/28/95	4.55	560.55	
05/08/95	25.88	538.63		05/08/95	4.27	560.83	
05/12/95	25.93	538.58	PS				
06/02/95	26.60	537.91					
07/06/95	27.32	537.19					
08/01/95	27.72	536.79					
09/05/95	28.00	536.51					
10/06/95	27.58	536.93					

Table A-1. Ground water elevations, Building 832 Canyon OU. Results recorded by July 16, 1997.

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-830-15 (continued)				W-830-17 (continued)			
05/16/95	4.22	560.88	PS	01/06/97	108.62	564.60	
06/02/95	5.56	559.54		02/03/97	108.41	564.81	
07/06/95	7.39	557.71		03/03/97	108.40	564.82	
08/01/95	9.04	556.06		04/03/97	108.13	565.09	
09/05/95	10.70	554.40		05/05/97	108.35	564.87	
10/06/95	9.65	555.45		06/04/97	108.30	564.92	
11/02/95	8.71	556.39		W-830-19			
12/04/95	7.37	557.73		06/01/96			
01/10/96	5.67	559.43		08/07/96	39.33	616.51	
02/02/96	5.08	560.02		09/06/96	39.47	616.37	
03/04/96	4.67	560.43		10/11/96	39.68	616.16	
04/02/96	5.35	559.75		11/07/96	39.88	615.96	
05/01/96	5.16	559.94		12/04/96	39.70	616.14	
06/03/96	5.77	559.33		01/07/97	39.41	616.43	
07/09/96	7.50	557.60		02/04/97	38.23	617.61	
08/06/96	10.22	554.88		03/05/97	38.53	617.31	
09/09/96	10.36	554.73		04/09/97	38.76	617.08	
10/10/96	9.66	555.43		05/05/97	39.18	616.66	
11/05/96	8.78	556.31		06/04/97	39.31	616.53	
12/04/96	6.28	558.81		W-830-21			
01/03/97	4.20	560.89		06/01/96			
02/03/97	3.22	561.87		08/06/96	66.77	587.17	
03/03/97	2.87	562.22		09/09/96	66.77	587.17	
04/03/97	4.29	560.80		10/10/96	66.95	586.99	
05/01/97	5.79	559.30		11/05/96	67.02	586.92	
06/02/97	7.44	557.65		12/04/96	67.07	586.87	
W-830-16				01/03/97	67.14	586.80	
10/03/95	84.00			02/03/97	67.14	586.80	
01/10/96	94.42			03/03/97	67.01	586.93	
02/01/96	94.06			04/03/97	66.54	587.40	
03/01/96	94.17			05/01/97	66.68	587.26	
04/03/96	94.17			06/02/97	66.67	587.27	
05/01/96	94.18			W-830-22			
06/03/96	94.30			10/11/96	52.33	602.69	
07/10/96	94.26	576.62		11/07/96	53.27	601.75	
08/06/96	94.93	575.95		12/04/96	53.69	601.33	
09/09/96	95.06	575.82		01/07/97	54.07	600.95	
10/04/96	94.95	575.93		02/04/97	54.05	600.97	
11/05/96	94.73	576.15		03/05/97	53.55	601.47	
12/05/96	94.21	576.67		04/09/97	52.62	602.40	
01/06/97	94.15	576.73		05/05/97	52.52	602.50	
02/03/97	93.40	577.48		06/04/97	52.02	603.00	
03/03/97	93.83	577.05		W-830-25			
04/03/97	93.70	577.18		10/11/96			DRY
05/05/97	94.28	576.60		11/07/96			DRY
06/04/97	94.34	576.54		12/04/96			DRY
W-830-17				01/07/97			DRY
10/04/95	104.00			02/04/97			DRY
01/10/96	108.73			03/05/97	24.93	595.41	
02/01/96	108.55			04/09/97	24.18	596.16	
03/01/96	108.67			05/05/97	24.83	595.51	
04/03/96	108.58			06/04/97	25.18	595.16	
05/01/96	108.47			W-830-26			
06/03/96	108.31			10/11/96	66.97	591.56	
07/10/96	108.43	564.79					
08/06/96	108.44	564.78					
09/09/96	108.35	564.87					
10/04/96	108.40	564.82					
11/05/96	108.42	564.80					
12/05/96	108.23	564.99					

Table A-1. Ground water elevations, Building 832 Canyon OU. Results recorded by July 16, 1997.

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-830-26 (continued)				W-831-01			
11/08/96	67.07	591.46		03/02/88	135.07	638.42	
12/04/96	66.84	591.69		04/04/88	134.93	638.56	
01/07/97	67.08	591.45		05/03/88	134.97	638.52	
02/04/97	66.70	591.83		06/01/88	135.18	638.31	
03/05/97	66.76	591.77		07/06/88	134.85	638.64	
04/09/97	66.50	592.03		08/05/88	135.13	637.44	
05/05/97	66.58	591.95		08/30/88	135.17	638.32	
06/04/97	66.50	592.03		10/04/88	135.54	637.95	
				11/04/88	135.57	637.92	
				12/02/88	135.63	637.86	
W-830-27				01/12/89	135.95	637.54	
11/07/96	29.86	590.70		02/09/89	135.74	637.75	
12/04/96	29.93	590.63		03/02/89	135.40	638.09	
01/07/97	30.18	590.38		04/12/89	135.73	637.76	
02/04/97	28.75	591.81		05/09/89	135.84	637.65	
03/05/97	26.24	594.32		06/07/89	136.08	637.41	
04/09/97	25.86	594.70		07/10/89	136.07	637.42	
05/05/97	26.51	594.05		08/09/89	136.20	637.29	
06/04/97	26.85	593.71		09/07/89	136.45	637.04	
				10/09/89	136.71	636.78	
				11/09/89	137.58	635.91	
W-830-28				12/08/89	138.45	635.04	
10/11/96	33.60	588.56	NOM	01/11/90	139.05	634.44	
11/07/96	33.65	588.51		01/30/90	139.20	634.30	
12/04/96	33.49	588.67		03/08/90	139.93	633.56	
01/07/97	33.90	588.26		04/05/90	140.26	633.23	
02/04/97	33.27	588.89		05/04/90	140.46	633.03	
03/05/97	33.24	588.92		06/07/90	140.49	633.00	
04/09/97	32.99	589.17		07/09/90	140.55	632.94	
05/05/97	33.07	589.09		08/07/90	140.66	632.83	
06/04/97	32.97	589.19		09/12/90	140.79	632.70	
				10/15/90	140.89	632.60	
				11/15/90	140.96	632.53	
W-830-29				12/07/90	140.93	632.56	
11/07/96				01/25/91	141.02	632.47	
12/04/96	104.73	556.30		02/11/91	141.21	632.28	
01/07/97	102.51	558.52		03/11/91	141.42	632.07	
02/04/97			DRY	04/05/91	141.28	632.21	
03/05/97	100.72	560.31		05/08/91	141.33	632.16	
04/09/97	102.56	558.47		06/17/91	141.44	632.05	
05/05/97	103.94	557.09		07/11/91	141.51	631.98	
06/04/97	106.71	554.32		08/08/91	141.67	631.82	
				09/11/91	141.70	631.79	
				10/08/91	141.73	631.76	
W-830-30				11/12/91	141.91	631.58	
11/22/96	22.51	670.30		12/06/91	141.78	631.71	
12/04/96	22.59	670.22		01/16/92	142.06	631.43	
01/07/97	19.86	672.95		04/02/92	142.11	631.38	
02/04/97	16.50	676.31		07/07/92	142.28	631.21	
03/05/97	19.66	673.15		10/08/92	142.68	630.81	
04/09/97	20.86	671.95		01/08/93	142.85	630.64	
05/05/97	21.49	671.32		04/09/93	142.30	631.19	
06/04/97	21.80	671.01		07/20/93	143.24	630.25	
				10/13/93	143.16	630.33	
				01/06/94	143.15	630.34	
W-830-34				04/12/94	142.87	630.62	
02/04/97	17.82	674.83		07/06/94	143.03	630.46	
03/05/97	19.72	672.93		10/12/94	142.96	630.53	
04/09/97	20.67	671.98		01/12/95	143.33	630.16	
05/05/97	21.10	671.55		04/06/95	143.15	630.34	
06/04/97	21.14	671.51		07/07/95	143.21	630.28	
				10/05/95	143.05	630.44	
				01/11/96	143.10	630.39	
				04/04/96	142.89	630.60	

Table A-1. Ground water elevations, Building 832 Canyon OU. Results recorded by July 16, 1997.

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-831-01 (continued)				W-832-05 (continued)			
07/11/96	142.46	631.03		09/06/96	31.44	687.53	
10/11/96	142.19	631.30		10/11/96	29.69	689.28	NOM
01/07/97	142.08	631.41		11/07/96	28.66	690.31	
04/09/97	144.47	629.02		12/04/96	31.27	687.70	
W-832-01				W-832-06			
03/10/95	26.55	679.80		03/08/95	27.37	693.48	
03/31/95	25.00	681.35		03/31/95	25.44	695.41	
04/07/95	24.54	681.81		04/07/95	25.40	695.45	
04/19/95	24.39	681.96		04/19/95	25.67	695.18	
04/28/95	24.42	681.93		04/28/95	25.90	694.95	
05/08/95	24.63	681.72		05/08/95	26.15	694.70	
05/19/95	24.90	681.45	PS	05/25/95	26.48	694.37	PS
06/02/95	25.39	680.96		06/02/95	26.74	694.11	
07/07/95	26.59	679.76		07/07/95	27.56	693.29	
08/02/95	27.46	678.89		08/02/95	28.07	692.78	
09/06/95	28.78	677.57		09/06/95	28.78	692.07	
10/05/95	29.63	676.72		10/05/95	28.92	691.93	
11/02/95	30.10	676.25		11/02/95	29.38	691.47	
12/05/95	29.96	676.39		12/05/95	29.62	691.23	
01/11/96	30.81	675.54		01/11/96	29.92	690.93	
02/02/96	27.57	678.78		02/02/96	29.49	691.36	
03/05/96	23.71	682.64		03/05/96	25.80	695.05	
04/04/96	23.99	682.36		04/04/96	25.87	694.98	
05/02/96	24.79	681.56		05/02/96	26.43	694.42	
06/05/96	25.90	680.45		06/05/96	27.05	693.80	
07/11/96	27.17	679.18		07/11/96	26.99	693.86	
08/07/96	28.19	678.16		08/07/96	28.18	692.67	
09/06/96	26.64	679.72		09/06/96	28.12	692.73	
10/11/96	26.59	679.77	NOM	10/11/96	28.86	691.99	NOM
11/07/96	22.50	683.86		11/07/96	27.30	693.55	
12/04/96	25.26	681.10		12/04/96	28.08	692.77	
01/07/97	27.10	679.26		01/07/97	27.54	693.31	
02/04/97	25.40	680.96		02/04/97	24.98	695.87	
03/05/97	25.41	680.95		03/05/97	25.83	695.02	
04/09/97	26.41	679.95		04/09/97	26.56	694.29	
05/05/97	27.31	679.05		05/05/97	27.26	693.59	
06/04/97	28.33	678.03		06/04/97	27.60	693.25	
W-832-05				W-832-09			
03/08/95	29.96	689.01		03/10/95	89.50	617.72	
03/31/95	27.76	691.21		03/31/95	89.84	617.38	
04/07/95	27.64	691.33		04/07/95	89.78	617.44	
04/19/95	27.56	691.41		04/19/95	89.84	617.38	
04/28/95	28.10	690.87		04/28/95	89.90	617.32	
05/08/95	28.49	690.48		05/08/95	89.88	617.34	
05/19/95	27.79	691.18	PS	05/19/95	89.88	617.34	PS
06/02/95	29.30	689.67		06/02/95	89.93	617.29	
07/07/95	30.42	688.55		07/07/95	90.14	617.08	
08/02/95	31.01	687.96		08/02/95	90.18	617.04	
09/06/95	31.78	687.19		09/06/95	90.50	616.72	
10/05/95	32.28	686.69		10/05/95	90.45	616.77	
11/02/95	32.88	686.09		11/02/95	90.57	616.65	
12/05/95	33.22	685.75		12/05/95	90.39	616.83	
01/11/96	33.54	685.43		01/11/96	90.40	616.82	
02/02/96	29.27	689.70		02/02/96	90.25	616.97	
03/05/96	27.46	691.51					
04/04/96	28.12	690.85					
05/02/96	29.13	689.84					
06/05/96	30.24	688.73					
07/11/96	30.33	688.64					
08/07/96	31.67	687.30					



Table A-1. Ground water elevations, Building 832 Canyon OU. Results recorded by July 16, 1997.

Location				Location			
Date	Depth	Water	Notes	Date	Depth	Water	Notes
of	to Water	Elevation		of	to Water	Elevation	
Measurement	(ft)	(ft/MSL)		Measurement	(ft)	(ft/MSL)	

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 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. VOCs in ground water and surface water (ug/L), Building 832 Canyon OU.  
Results recorded by July 15, 1997.

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VOCs in Ground Water, Site 300  
July 16, 1997  
gemin1

s300vocL.16jul97  
s300vocR.16jul97

Table A-2. VOCs in ground water and surface water (ug/L), Building 832 Canyon OU.

Location Date	Lab Note	Val.	1,1- DCE	cis- 1,2- DCE	trans- 1,2- DCE	Total 1,2- DCE	TCE	PCE	1,1- DCA
W-830-04A									
26-nov-85	BC	a	U	<0.5 P	-	-	<0.5 P	<0.5 P	<0.5 P
10-feb-86	BC	a	U	<0.5 P	-	-	<0.5 P	<0.5 P	<0.5 P
25-jun-86	BC	a	U	<0.5 P	-	-	<0.5 P	3 P	<0.5 P
20-aug-86	BC	a	U	<0.5 P	-	-	<0.5 P	6.2 P	<0.5 P
23-sep-86	BC	a	U	<0.5 P	-	-	<0.5 P	2.5 P	<0.5 P
21-nov-86	BC	a	U	<0.5 P	-	-	<0.5 P	3.5 P	<0.5 P
18-mar-87	BC	a	U	<0.5 P	-	-	<0.5 P	3.5 P	<0.5 P
29-jun-87	BC	a	U	<0.5 P	-	-	<0.5 P	2.1 P	<0.5 P
21-sep-87	BC	a	U	<0.5 P	-	-	<0.5 P	<0.5 P	<0.5 P
10-dec-87	BC	a	U	<0.5 P	-	-	<0.5 P	4.7 P	<0.5 P
08-mar-88	BC	a	U	<0.5 P	-	-	<0.5 P	3.8 P	<0.5 P
30-jun-88	BC	an	U	<0.5 P	-	-	<0.5 P	2.3 P	<0.5 P
18-oct-88	BC	a	U	<0.5 P	-	-	<0.5 P	3.3 P	<0.5 P
01-feb-89	BC	a	U	<0.5 P	-	-	<0.5 P	3.9 P	<0.5 P
13-apr-89	BC	a	U	<0.5 P	-	-	<0.5 P	3.4 P	<0.5 P
18-jul-89	BC	a	U	<0.5 P	-	-	<0.5 P	3.3 P	<0.5 P
12-oct-89	BC	a	U	<0.5 P	<0.5 P	<0.5 P	<0.5 P	3 P	<0.5 P
17-jan-90	BC	a	U	<0.5 P	<0.5 P	<0.5 P	<0.5 P	2.9 P	<0.5 P
29-may-90	BC	a	U	<0.5 P	<0.5 P	<0.5 P	<0.5 P	2.2 P	<0.5 P
22-aug-90	BC	a	U	<0.5 P	<0.5 P	<0.5 P	<0.5 P	1.9 P	<0.5 P
26-nov-90	BC	ag	U	<0.5 P	<0.5 P	<0.5 P	<0.5 P	4.1 P	<0.5 P
26-nov-90	CL	ag	U	<0.2 P	<0.4 P	<0.4 P	<0.4 P	2.6 P	<0.5 P
05-mar-91	BC	ah	U	<0.5 P	<0.5 P	<0.5 P	<0.5 P	3.7 P	<0.5 P
05-mar-91	BC	aeh	U	<0.5 P	<0.5 P	<0.5 P	<0.5 P	3.4 P	<0.5 P
17-may-91	BC	a	U	<0.5 P	<0.5 P	<0.5 P	<0.5 P	2.6 P	<0.5 P
05-sep-91	BC	a	U	<0.5 P	<0.5 P	<0.5 P	<0.5 P	4.1 P	<0.5 P
05-dec-91	BC	a	U	<0.5 P	<0.5 P	<0.5 P	<0.5 P	4.5 P	<0.5 P
23-jun-92	BC	a	U	<0.5 P	<0.5 P	<0.5 P	<0.5 P	3.7 P	<0.5 P
26-oct-92	BC	a	U	<0.5 P	<0.5 P	<0.5 P	<0.5 P	2.3 P	<0.5 P
10-feb-93	BC	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	4.1	<0.5 U
27-apr-93	BC	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	2.4	<0.5 U
19-aug-93	CS	a	V	<0.5 U	-	-	<0.5 U	2.2	<0.5 U
13-dec-93	CS	a	V	<0.5 U	-	-	<0.5 U	2.7	<0.5 U
16-dec-93	CS	ae	V	<0.5 U	-	-	<0.5 U	2.1	<0.5 U
15-mar-94	CS	a	V	<0.5 U	-	-	<0.5 U	2.8	<0.5 U
12-may-94	CS	a	V	<0.5 U	-	-	<0.5 U	2.4	<0.5 U
10-aug-94	CS	a	V	<0.5 U	-	-	<0.5 U	2.3	<0.5 U
16-dec-94	CS	a	V	<0.5 U	-	-	<0.5 U	2.2	<0.5 U
21-feb-95	CS	a	V	<0.5 U	-	-	<0.5 U	2.8	<0.5 U
12-may-95	CS	a	V	<0.5 U	-	-	<0.5 U	2.1	<0.5 U
21-jul-95	CS	a	V	<0.5 U	-	-	<0.5 U	2.4	<0.5 U
30-nov-95	CS	a	V	<0.5 U	-	-	<0.5 U	2.1	<0.5 U
25-jan-96	CS	a	V	<0.5 U	-	-	<0.5 U	2.2	<0.5 U
12-jun-96	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	5.5	<0.5 U
23-aug-96	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	2.3	<0.5 U
11-dec-96	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	2.6	<0.5 U
25-feb-97	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	1.8	<0.5 U
W-830-05									
16-oct-85	BC	a	U	<0.5 P	-	-	<0.5 P	1.5 P	<0.5 P
26-nov-85	BC	a	U	<0.5 P	-	-	<0.5 P	<0.5 P	<0.5 P
10-feb-86	BC	a	U	<0.5 P	-	-	<0.5 P	<0.5 P	<0.5 P
30-jun-86	BC	a	U	<0.5 P	-	-	<0.5 P	<0.5 P	<0.5 P
23-sep-86	BC	a	U	<0.5 P	-	-	<0.5 P	0.8 P	1.5 P
23-dec-86	BC	a	U	<0.5	-	-	1.3	0.8	<0.5
19-mar-87	BC	ah	U	<0.5 P	-	-	<0.5 P	1.2 P	<0.5 P
19-mar-87	BC	ah	U	<0.5 P	-	-	<0.5 P	0.9 P	<0.5 P
22-jun-87	BC	a	U	<0.5 P	-	-	<0.5 P	<0.5 P	<0.5 P
22-sep-87	BC	a	U	<0.5 P	-	-	<0.5 P	<0.5 P	0.6 P
09-dec-87	BC	a	U	<0.5 P	-	-	<0.5 P	<0.5 P	<0.5 P
10-mar-88	BC	a	U	<0.5 P	-	-	<0.5 P	1.6 P	<0.5 P
28-jun-88	BC	an	U	<0.5 P	-	-	<0.5 P	<0.5 P	<0.5 P
18-oct-88	BC	a	U	<0.5 P	-	-	<0.5 P	<0.5 P	<0.5 P
02-feb-89	BC	a	U	<0.5 P	-	-	<0.5 P	<0.5 P	<0.5 P
14-apr-89	BC	a	U	<0.5 P	-	-	<0.5 P	<0.5 P	<0.5 P
18-jul-89	BC	a	U	<0.5 P	-	-	<0.5 P	<0.5 P	<0.5 P
10-oct-89	BC	a	U	<0.5 P	-	-	<0.5 P	<0.5 P	<0.5 P

1,2-DCA	1,1,1-TCA	Chloroform	Freon 11	Freon 113	Methylene chloride	Location Date
						W-830-04A
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	26-nov-85
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	10-feb-86
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	25-jun-86
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	20-aug-86
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	23-sep-86
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	21-nov-86
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	18-mar-87
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	29-jun-87
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	21-sep-87
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	1.3 P	10-dec-87
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	08-mar-88
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	30-jun-88
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	18-oct-88
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	01-feb-89
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	13-apr-89
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	18-jul-89
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	12-oct-89
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	17-jan-90
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	29-may-90
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	22-aug-90
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	26-nov-90
<0.3 P	<0.5 P	<0.5 P	<0.4 P	<0.6 P	<2 P	26-nov-90
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	05-mar-91
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	05-mar-91
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	17-may-91
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	05-sep-91
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	05-dec-91
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	23-jun-92
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	26-oct-92
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	10-feb-93
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	27-apr-93
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	19-aug-93
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	13-dec-93
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	16-dec-93
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	15-mar-94
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	12-may-94
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	10-aug-94
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	16-dec-94
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	21-feb-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	12-may-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<5 U	21-jul-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	30-nov-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	25-jan-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	12-jun-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	23-aug-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	11-dec-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	25-feb-97
						W-830-05
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	16-oct-85
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	26-nov-85
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	10-feb-86
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	30-jun-86
<0.5 P	<0.5 P	1 P	<0.5 P	<0.5 P	<0.5 P	23-sep-86
<0.5	<0.5	0.9	<0.5	<0.5 B	<0.5	23-dec-86
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	19-mar-87
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	19-mar-87
<0.5 P	<0.5 P	0.6 P	<0.5 P	<0.5 P	<0.5 P	22-jun-87
<0.5 P	<0.5 P	0.5 P	<0.5 P	<0.5 P	<0.5 P	22-sep-87
<0.5 P	<0.5 P	<0.5 P	<0.5 P	2.2 P	6.3 P	09-dec-87
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	10-mar-88
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	28-jun-88
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	18-oct-88
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	02-feb-89
<0.5 P	0.9 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	14-apr-89
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	18-jul-89
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	10-oct-89

Table A-2. VOCs in ground water and surface water (ug/L), Building 832 Canyon OU.

Location Date	Lab Note	Val.	1,1- DCE	cis- 1,2- DCE	trans- 1,2- DCE	Total 1,2- DCE	TCE	PCE	1,1- DCA
W-830-05 (continued)									
18-jan-90	BC	a	U	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P
01-jun-90	BC	a	U	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P
22-aug-90	BC	a	U	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P
27-nov-90	BC	a	U	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P
06-mar-91	BC	a	U	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P
22-may-91	BC	a	U	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P
06-sep-91	BC	a	U	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P
18-dec-91	BC	a	U	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P
24-jun-92	BC	a	U	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P
26-oct-92	BC	a	U	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P
11-feb-93	BC	a	V	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P
11-feb-93	CL	a	V	<0.2 P	<0.4 P	<0.4 P	<0.4 P	<0.3 P	<0.4 P
27-apr-93	BC	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
29-sep-93	CS	a	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U
29-sep-93	CS	aeh	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U
13-dec-93	CS	a	V	<0.5 U	-	-	<0.5 U	1.1	<0.5 U
07-mar-94	CS	a	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U
20-jun-94	CS	ah	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U
20-jun-94	CS	aeh	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U
16-dec-94	CS	a	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U
23-feb-95	CS	a	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U
11-may-95	CS	a	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U
19-jul-95	CS	a	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U
01-dec-95	CS	a	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U
22-jan-96	CS	a	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U
10-jun-96	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
23-aug-96	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
16-dec-96	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
21-feb-97	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U
W-830-07									
01-feb-96	CS	a	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U
W-830-09									
05-feb-86	BC	a	U	<0.5 P	-	-	<0.5 P	<0.5 P	<0.5 P
10-feb-86	BC	a	U	<0.5 P	-	-	<0.5 P	<0.5 P	<0.5 P
27-jun-86	BC	a	U	<0.5 P	-	-	<0.5 P	8.6 P	<0.5 P
20-aug-86	BC	a	U	<0.5 P	-	-	<0.5 P	17 P	<0.5 P
23-sep-86	BC	a	U	<0.5 P	-	-	<0.5 P	1.2 P	<0.5 P
18-mar-87	BC	a	U	<0.5 P	-	-	1 P	5.9 P	<0.5 P
29-jun-87	BC	a	U	<1 P	-	-	<1 P	4 P	<1 P
22-sep-87	BC	a	U	<0.5 P	-	-	<0.5 P	11 P	0.9 P
11-dec-87	BC	a	U	<0.5 P	-	-	0.7 P	22 P	<0.5 P
09-mar-88	BC	aeh	U	<0.5 P	-	-	<0.5 P	9.3 P	<0.5 P
09-mar-88	BC	ah	U	<0.5 P	-	-	<0.5 P	9.3 P	<0.5 P
17-oct-88	BC	a	U	<0.5 P	-	-	0.9 P	7 P	<0.5 P
02-feb-89	BC	a	U	<0.5 P	-	-	1.2 P	11 P	<0.5 P
17-apr-89	BC	a	U	<0.5 P	-	-	0.5 P	8 P	<0.5 P
19-jul-89	BC	a	U	<0.5 P	-	-	0.6 P	11 P	<0.5 P
12-oct-89	BC	a	U	<0.5 P	<0.5 P	<0.5 P	<0.5 P	19 P	<0.5 P
18-jan-90	BC	aeh	U	<0.5 P	<0.5 P	<0.5 P	<0.5 P	12 P	<0.5 P
18-jan-90	BC	ah	U	<0.5 P	<0.5 P	<0.5 P	<0.5 P	9.9 P	<0.5 P
01-jun-90	BC	a	U	<0.5 P	<0.5 P	<0.5 P	<0.5 P	11 P	<0.5 P
24-aug-90	BC	a	U	<0.5 P	<0.5 P	<0.5 P	<0.5 P	7.6 P	<0.5 P
27-nov-90	BC	a	U	<0.5 P	<0.5 P	<0.5 P	<0.5 P	7.7 P	<0.5 P
06-mar-91	BC	a	U	<0.5 P	<0.5 P	<0.5 P	<0.5 P	8.7 P	<0.5 P
22-may-91	BC	a	U	<0.5 P	<0.5 P	<0.5 P	<0.5 P	8.4 P	<0.5 P
06-sep-91	BC	a	U	<0.5 P	<0.5 P	<0.5 P	<0.5 P	4.2 P	<0.5 P
06-dec-91	BC	a	U	<0.5 P	<0.5 P	<0.5 P	<0.5 P	3.9 P	<0.5 P
25-jun-92	BC	a	U	<0.5 P	<0.5 P	<0.5 P	<0.5 P	2.8 P	<0.5 P
26-oct-92	BC	a	U	<0.5 P	<0.5 P	<0.5 P	<0.5 P	0.92 P	<0.5 P
16-feb-93	BC	a	V	<0.5 P	<0.5 P	<0.5 P	<0.5 P	1.9 P	<0.5 P
27-apr-93	BC	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.95	<0.5 U
19-aug-93	CS	a	V	<0.5 U	-	-	<0.5 U	1.6	<0.5 U
17-dec-93	CS	a	V	<0.5 U	-	-	<0.5 U	2.2	<0.5 U
11-mar-94	CS	a	V	<0.5 U	-	-	<0.5 U	0.9	<0.5 U
08-jun-94	CS	a	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U
15-jul-94	CS	ag	V	<0.5 U	-	-	<0.5 U	0.78	<0.5 U

1,2-DCA	1,1,1-TCA	Chloroform	Freon 11	Freon 113	Methylene chloride	Location Date
(continued) W-830-05						
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	18-jan-90
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	01-jun-90
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	22-aug-90
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	27-nov-90
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	06-mar-91
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	22-may-91
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	06-sep-91
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	18-dec-91
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	24-jun-92
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	26-oct-92
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	11-feb-93
<0.3 P	<0.5 P	<0.5 P	<0.4 P	<0.6 P	<2 P	11-feb-93
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	27-apr-93
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	29-sep-93
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	29-sep-93
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	13-dec-93
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	07-mar-94
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	20-jun-94
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	20-jun-94
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	16-dec-94
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	23-feb-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	11-may-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<5 U	19-jul-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	01-dec-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	22-jan-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	10-jun-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	23-aug-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	16-dec-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	21-feb-97
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	W-830-07 01-feb-96
W-830-09						
<0.5 P	<0.5 P	30 P	<0.5 P	<0.5 P	<0.5 P	05-feb-86
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	10-feb-86
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	27-jun-86
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	20-aug-86
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	23-sep-86
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	18-mar-87
<1 P	<1 P	<1 P	<1 P	-	<1 P	29-jun-87
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	22-sep-87
<0.5 P	<0.5 P	0.6 P	<0.5 P	<0.5 P	<0.5 P	11-dec-87
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	09-mar-88
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	09-mar-88
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	17-oct-88
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	02-feb-89
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	17-apr-89
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	19-jul-89
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	12-oct-89
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	18-jan-90
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	18-jan-90
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	01-jun-90
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	24-aug-90
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	27-nov-90
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	06-mar-91
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	22-may-91
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	06-sep-91
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	06-dec-91
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	25-jun-92
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	26-oct-92
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	16-feb-93
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	27-apr-93
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	19-aug-93
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	17-dec-93
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	11-mar-94
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	08-jun-94
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	15-jul-94

Table A-2. VOCs in ground water and surface water (ug/L), Building 832 Canyon OU.

Location Date	Lab Note	Val.	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Total 1,2-DCE	TCE	PCE	1,1-DCA
W-830-09 (continued)									
15-jul-94	GT ag	V	<0.5 U	-	-	<0.5 U	0.57	<0.5 U	<0.5 U
16-dec-94	CS a	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U	<0.5 U
08-mar-95	CS aeh	V	<0.5 U	-	-	<0.5 U	0.68	<0.5 U	<0.5 U
08-mar-95	CS ah	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U	<0.5 U
16-may-95	CS a	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U	<0.5 U
27-jul-95	CS a	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U	<0.5 U
01-dec-95	CS a	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U	<0.5 U
05-feb-96	CS a	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U	<0.5 U
14-may-96	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U	<0.5 U
24-sep-96	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 LOU	<0.5 U	<0.5 U
13-dec-96	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U	<0.5 U
27-feb-97	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U	<0.5 U
W-830-10									
18-mar-92	BC a	U	<0.5 P	<0.5 P	<0.5 P	<0.5 P	66 P	<0.5 P	<0.5 P
24-jun-92	BC a	U	<0.5 P	<0.5 P	<0.5 P	<0.5 P	110 P	<0.5 P	<0.5 P
26-oct-92	BC aeh	U	<0.5 P	<0.5 P	<0.5 P	<0.5 P	98 P	<0.5 P	<0.5 P
26-oct-92	BC ah	U	<0.5 P	<0.5 P	<0.5 P	<0.5 P	72 P	<0.5 P	<0.5 P
16-feb-93	BC a	V	<0.5 P	<0.5 P	<0.5 P	<0.5 P	76 P	<0.5 P	<0.5 P
27-apr-93	BC a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	80	<0.5 U	<0.5 U
19-aug-93	CS a	V	<0.5 U	-	-	<0.5 U	63	<0.5 U	<0.5 U
13-dec-93	CS a	V	<0.5 U	-	-	<0.5 U	84	<0.5 U	<0.5 U
07-mar-94	CS af	V	<0.5 U	-	-	<0.5 U	68 D	<0.5 U	<0.5 U
12-may-94	CS af	V	<0.5 U	-	-	<0.5 U	77 D	<0.5 U	<0.5 U
10-aug-94	CS af	V	<0.5 U	-	-	<0.5 U	76 D	<0.5 U	<0.5 U
21-dec-94	CS af	V	<0.5 U	-	-	<0.5 U	61 D	<0.5 U	<0.5 U
16-mar-95	CS af	V	<0.5 U	-	-	<0.5 U	67 D	<0.5 U	<0.5 U
12-may-95	CS af	V	<0.5 U	-	-	<0.5 U	59 D	<0.5 U	<0.5 U
21-jul-95	CS af	V	<0.5 U	-	-	<0.5 U	82 D	<0.5 U	<0.5 U
06-dec-95	CS af	V	<0.5 U	-	-	<0.5 U	58 D	<0.5 U	<0.5 U
26-jan-96	CS af	V	<0.5 U	-	-	<0.5 U	63 D	<0.5 U	<0.5 U
15-may-96	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	76 D	<0.5 U	<0.5 U
28-aug-96	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	61 D	<0.5 U	<0.5 U
11-dec-96	CS aeh	V	<0.5 U	<0.5 U	<0.5 U	-	78 D	<0.5 U	<0.5 U
11-dec-96	CS ah	V	<0.5 U	<0.5 U	<0.5 U	-	77 D	<0.5 U	<0.5 U
26-feb-97	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	73 D	<0.5 U	<0.5 U
17-jun-97	CS ah	V	<0.5 U	<0.5 U	<0.5 U	-	67 D	<0.5 U	<0.5 U
17-jun-97	CS aeh	V	<0.5 U	<0.5 U	<0.5 U	-	68 D	<0.5 U	<0.5 U
W-830-11									
25-jun-92	CL ag	U	<0.5 P	0.8 P	<0.5 P	0.8 P	9.2 P	1.1 P	<0.5 P
25-jun-92	BC ag	U	<0.5 P	1 P	<0.5 P	1 P	8.4 P	1.2 P	<0.5 P
26-oct-92	BC a	U	<0.5 P	<0.5 P	<0.5 P	<0.5 P	3.5 P	<0.5 P	<0.5 P
16-feb-93	BC a	V	<0.5 P	<0.5 P	<0.5 P	<0.5 P	4 P	<0.5 P	<0.5 P
27-apr-93	BC a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	3	<0.5 U	<0.5 U
19-aug-93	CS a	V	<0.5 U	-	-	<0.5 U	2.2	<0.5 U	<0.5 U
13-dec-93	CS a	V	<0.5 U	-	-	<0.5 U	3.3	<0.5 U	<0.5 U
07-mar-94	CS a	V	<0.5 U	-	-	<0.5 U	3.5	<0.5 U	<0.5 U
11-aug-94	CS a	V	<0.5 U	-	-	<0.5 U	1.3	<0.5 U	<0.5 U
16-dec-94	CS ah	V	<0.5 U	-	-	<0.5 U	2.5	<0.5 U	<0.5 U
16-dec-94	CS aeh	V	<0.5 U	-	-	<0.5 U	2.4	<0.5 U	<0.5 U
22-feb-95	CS a	V	<0.5 U	-	-	<0.5 U	2	<0.5 U	<0.5 U
12-may-95	CS a	V	<0.5 U	-	-	<0.5 U	2.1	<0.5 U	<0.5 U
21-jul-95	CS a	V	<0.5 U	-	-	<0.5 U	2.5	<0.5 U	<0.5 U
30-nov-95	CS a	V	<0.5 U	-	-	<0.5 U	1.3	<0.5 U	<0.5 U
26-jan-96	CS a	V	<0.5 U	-	-	<0.5 U	1.5	<0.5 U	<0.5 U
26-jan-96	FS a	V	<0.5 U	-	<0.5 U	-	2 O	<0.5 U	<0.5 U
12-jun-96	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	4.1	<0.5 U	<0.5 U
28-aug-96	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	2	<0.5 U	<0.5 U
11-dec-96	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	1.5	<0.5 U	<0.5 U
25-feb-97	CS ah	V	<0.5 U	<0.5 U	<0.5 U	-	1.6	<0.5 U	<0.5 U
25-feb-97	CS aeh	V	<0.5 U	<0.5 U	<0.5 U	-	1.5	<0.5 U	<0.5 U
17-jun-97	CS ah	V	<0.5 U	<0.5 U	<0.5 U	-	1.2	<0.5 U	<0.5 U
17-jun-97	CS aeh	V	<0.5 U	<0.5 U	<0.5 U	-	1.3	<0.5 U	<0.5 U
W-830-12									
21-dec-94	CS a	V	<1 U	-	-	<1 U	<0.5 U	<1 U	<1 U
08-mar-95	CS a	V	<1 ULO	-	-	<1 U	<0.5 ULO	<1 U	<1 U

1,2-DCA	1,1,1-TCA	Chloroform	Freon 11	Freon 113	Methylene chloride	Location Date
(continued) W-830-09						
<0.5 U	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	15-jul-94
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	16-dec-94
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	08-mar-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	08-mar-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	16-may-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<5 U	27-jul-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	01-dec-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	05-feb-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	14-may-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	24-sep-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	13-dec-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	27-feb-97
W-830-10						
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<2 P	18-mar-92
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	24-jun-92
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	26-oct-92
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	26-oct-92
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	16-feb-93
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	27-apr-93
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	19-aug-93
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	13-dec-93
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	07-mar-94
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	12-may-94
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	10-aug-94
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	21-dec-94
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	16-mar-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	12-may-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<5 U	21-jul-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	06-dec-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	26-jan-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	15-may-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	28-aug-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	11-dec-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	11-dec-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	26-feb-97
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	17-jun-97
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	17-jun-97
W-830-11						
<0.5 P	<0.5 P	<0.5 P	<0.5 P	-	<0.5 P	25-jun-92
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<2 P	25-jun-92
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	26-oct-92
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	16-feb-93
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	27-apr-93
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	19-aug-93
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	13-dec-93
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	07-mar-94
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	11-aug-94
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	16-dec-94
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	16-dec-94
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	22-feb-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	12-may-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<5 U	21-jul-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	30-nov-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	26-jan-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 OU	26-jan-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	12-jun-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	28-aug-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	11-dec-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	25-feb-97
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	25-feb-97
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	17-jun-97
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	17-jun-97
W-830-12						
<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	21-dec-94
<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	08-mar-95

Table A-2. VOCs in ground water and surface water (ug/L), Building 832 Canyon OU.

Location Date	Lab Note	Val.	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Total 1,2-DCE	TCE	PCE	1,1-DCA
W-830-12 (continued)									
16-may-95	CS a	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U	<0.5 U
27-jul-95	CS a	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U	<0.5 U
08-dec-95	CS a	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U	<0.5 U
05-feb-96	CS a	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U	<0.5 U
19-jun-96	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U	<0.5 U
24-sep-96	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 LOU	<0.5 U	<0.5 U
13-dec-96	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U	<0.5 U
27-feb-97	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U	<0.5 U
W-830-13									
16-mar-95	CS a	V	<1 U	-	-	<1 U	18 LO	<1 U	<1 U
12-may-95	CS a	V	<0.5 U	-	-	<0.5 U	10	<0.5 U	<0.5 U
24-jul-95	CS a	V	<0.5 U	-	-	<0.5 U	11	<0.5 U	<0.5 U
20-dec-95	CS a	V	<0.5 U	-	-	<0.5 U	17	<0.5 U	<0.5 U
26-jan-96	CS a	V	<0.5 U	-	-	<0.5 U	14	<0.5 U	<0.5 U
12-jun-96	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	14	<0.5 U	<0.5 U
11-sep-96	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	12	<0.5 U	<0.5 U
11-dec-96	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	11	<0.5 U	<0.5 U
26-feb-97	CS aeh	V	<0.5 U	<0.5 U	<0.5 U	-	9	<0.5 U	<0.5 U
26-feb-97	CS ah	V	<0.5 U	<0.5 U	<0.5 U	-	10	<0.5 U	<0.5 U
W-830-14									
16-mar-95	CS a	V	<1 U	-	-	<1 U	9.3 LO	<1 U	<1 U
18-may-95	CS ah	V	<0.5 U	-	-	0.67	8.1	<0.5 U	<0.5 U
18-may-95	CS aeh	V	<0.5 U	-	-	<0.5 U	8.2	<0.5 U	<0.5 U
24-jul-95	CS a	V	<0.5 U	-	-	0.66	9.8	<0.5 U	<0.5 U
06-dec-95	CS a	V	<0.5 U	-	-	0.62	7.4	<0.5 U	<0.5 U
06-dec-95	FS a	V	<0.5 U	-	<0.5 U	-	9.4	<0.5 U	<0.5 U
26-jan-96	CS a	V	<0.5 U	-	-	0.53	8.2	<0.5 U	<0.5 U
12-jun-96	CS ah	V	<0.5 U	0.6	<0.5 U	-	10	<0.5 U	<0.5 U
12-jun-96	CS aeh	V	<0.5 U	0.53	<0.5 U	-	9.1	<0.5 U	<0.5 U
11-sep-96	BB ag	V	<0.5 U	0.61	<0.5 U	-	8.4	<0.5 U	<0.5 U
11-sep-96	CS ag	V	<0.5 U	<0.5 U	<0.5 U	-	7.8	<0.5 U	<0.5 U
16-dec-96	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	9	<0.5 U	<0.5 U
28-feb-97	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	8.8	<0.5 U	<0.5 U
W-830-15									
16-mar-95	CS a	V	<1 U	-	-	<1 U	<0.5 LOU	<1 U	<1 U
16-may-95	CS a	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U	<0.5 U
21-jul-95	CS a	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U	<0.5 U
01-dec-95	CS a	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U	<0.5 U
01-dec-95	FS a	V	<0.5 U	-	<0.5 U	-	<0.5 U	<0.5 U	<0.5 U
22-jan-96	CS a	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U	<0.5 U
10-jun-96	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U	<0.5 U
23-aug-96	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U	<0.5 U
16-dec-96	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U	<0.5 U
27-mar-97	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 UO	<0.5 U	<0.5 U
W-830-16									
25-jan-96	CS a	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U	<0.5 U
11-jun-96	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 ULO	<0.5 U	<0.5 U
22-aug-96	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U	<0.5 U
16-dec-96	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U	<0.5 U
20-feb-97	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U	<0.5 U
W-830-17									
25-jan-96	CS a	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U	<0.5 U
11-jun-96	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 ULO	<0.5 U	<0.5 U
22-aug-96	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U	<0.5 U
16-dec-96	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U	<0.5 U
20-feb-97	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U	<0.5 U
W-830-19									
28-jun-96	CS af	V	1.8	-	-	<1 U	6600 D	7.8	<1 U
24-sep-96	CS a	V	<25 DU	<25 DU	<25 DU	-	6100 DLO	<25 DU	<25 DU
13-dec-96	BB aeg	V	<300 DU	-	<300 DU	-	5000 D	<300 DU	<300 DU
13-dec-96	CS ag	V	<25 DU	<25 DU	<25 DU	-	7000 D	<25 DU	<25 DU
06-mar-97	CS a	V	<50 DU	<50 DU	<50 DU	-	7900 D	<50 DU	<50 DU



1,2-DCA	1,1,1-TCA	Chloroform	Freon 11	Freon 113	Methylene chloride	Location Date
(continued) W-830-12						
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	16-may-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<5 U	27-jul-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	08-dec-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	05-feb-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	19-jun-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	24-sep-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	13-dec-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	27-feb-97
W-830-13						
<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	16-mar-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	12-may-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<5 U	24-jul-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	20-dec-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	26-jan-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	12-jun-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	11-sep-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	11-dec-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	26-feb-97
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	26-feb-97
W-830-14						
<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	16-mar-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	18-may-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	18-may-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<5 U	24-jul-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	06-dec-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	06-dec-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	26-jan-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	12-jun-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	12-jun-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	11-sep-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	11-sep-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	16-dec-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	28-feb-97
W-830-15						
<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	16-mar-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	16-may-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<5 U	21-jul-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	01-dec-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	01-dec-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	22-jan-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	10-jun-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	23-aug-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	16-dec-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	27-mar-97
W-830-16						
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	25-jan-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	11-jun-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	22-aug-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	16-dec-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	20-feb-97
W-830-17						
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	25-jan-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	11-jun-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	22-aug-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	16-dec-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	20-feb-97
W-830-19						
2.2	<1 U	1.9	1.1	<1 U	<1 U	28-jun-96
<25 DU	<25 DU	<25 DU	<25 DU	<25 DU	<25 DU	24-sep-96
<300 DU	<300 DU	<300 DU	<300 DU	<300 DU	<500 DU	13-dec-96
<25 DU	<25 DU	<25 DU	<25 DU	<25 DU	<25 DU	13-dec-96
<50 DU	<50 DU	<50 DU	<50 DU	<50 DU	<50 DU	06-mar-97

Table A-2. VOCs in ground water and surface water (ug/L), Building 832 Canyon OU.

Location Date	Lab Note	Val.	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Total 1,2-DCE	TCE	PCE	1,1-DCA	
W-830-21										
19-sep-96	CS	a	V	<1 U	-	-	<1 U	7.3	<1 U	<1 U
19-sep-96	CS	a	V	<1 U	-	-	<1 U	310 D	<1 U	<1 U
11-dec-96	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	14	<0.5 U	<0.5 U
25-feb-97	BB	ag	V	<0.5 U	<0.5 U	<0.5 U	-	15	<0.5 U	<0.5 U
25-feb-97	CS	ag	V	<0.5 U	<0.5 U	<0.5 U	-	19	<0.5 U	<0.5 U
W-830-22										
29-jul-96	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U	<0.5 U
20-sep-96	CS	a	V	<1 U	-	-	<1 U	8.5	<1 U	<1 U
12-dec-96	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	5.9	<0.5 U	<0.5 U
06-mar-97	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	11	<0.5 U	<0.5 U
W-830-25										
12-mar-97	CS	a	V	<5 DU	<5 DU	<5 DU	-	4500 D	<5 DU	<5 DU
W-830-26										
20-sep-96	CS	a	V	<1 U	-	-	<1 U	27	<1 U	<1 U
13-dec-96	CS	ah	V	<0.5 U	<0.5 U	<0.5 U	-	22	<0.5 U	<0.5 U
13-dec-96	CS	aeh	V	<0.5 U	<0.5 U	<0.5 U	-	23	<0.5 U	<0.5 U
11-mar-97	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	28	<0.5 U	<0.5 U
W-830-27										
12-dec-96	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	140 D	<0.5 U	<0.5 U
12-mar-97	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	120 D	<0.5 U	<0.5 U
W-830-28										
28-aug-96	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U	<0.5 U
23-sep-96	CS	a	V	<1 U	-	-	<1 U	60 DO	<1 U	<1 U
12-dec-96	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	64 D	<0.5 U	<0.5 U
12-mar-97	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	66 D	<0.5 U	<0.5 U
W-830-29										
17-mar-97	CS	a	V	<1 U	-	-	<1 U	<0.5 U	<1 U	<1 U
W-830-30										
11-mar-97	CS	a	V	<1 U	-	-	<1 U	8100 D	2.7	<1 U
W-830-34										
01-oct-96	EC	ahj	N	<4 U	<4 U	-	-	257	<4 U	-
11-mar-97	CS	a	V	<1 U	-	-	<1 U	2700 D	<1 U	<1 U
W-831-01										
18-mar-87	BC	a	U	<0.5 P	-	-	<0.5 P	<0.5 P	<0.5 P	<0.5 P
29-jun-87	BC	a	U	<0.5 P	-	-	<0.5 P	3.5 P	<0.5 P	<0.5 P
22-sep-87	BC	ah	U	<0.5 P	-	-	<0.5 P	<0.5 P	0.5 P	<0.5 P
22-sep-87	BC	ah	U	<0.5 P	-	-	<0.5 P	<0.5 P	0.8 P	<0.5 P
11-dec-87	BC	a	U	<0.5 P	-	-	<0.5 P	<0.5 P	<0.5 P	<0.5 P
09-mar-88	BC	a	U	<0.5 P	-	-	<0.5 P	<0.5 P	<0.5 P	<0.5 P
28-jun-88	BC	an	U	<0.5 P	-	-	<0.5 P	<0.5 P	<0.5 P	<0.5 P
17-oct-88	BC	a	U	<0.5 P	-	-	<0.5 P	<0.5 P	<0.5 P	<0.5 P
01-feb-89	BC	a	U	<0.5 P	-	-	<0.5 P	<0.5 P	<0.5 P	<0.5 P
14-apr-89	BC	a	U	<0.5 P	-	-	<0.5 P	<0.5 P	<0.5 P	<0.5 P
19-jul-89	BC	a	U	<0.5 P	-	-	<0.5 P	<0.5 P	<0.5 P	<0.5 P
01-nov-89	BC	a	U	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P
19-jan-90	BC	a	U	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P
29-may-90	BC	a	U	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P
22-aug-90	BC	a	U	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P
07-dec-90	BC	a	U	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P
05-mar-91	BC	a	U	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P
17-may-91	BC	ah	U	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P
17-may-91	BC	aeh	U	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P
06-sep-91	BC	a	U	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P
10-dec-91	BC	ag	U	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P
10-dec-91	CL	ag	U	<0.2 P	<0.4 P	<0.4 P	<0.4 P	<0.3 P	<0.5 P	<0.4 P
18-jun-92	BC	a	U	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P
22-dec-92	BC	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
21-jun-93	BC	a	V	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
11-mar-94	CS	a	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U	<0.5 U

Results recorded by July 15, 1997.

1,2-DCA	1,1,1-TCA	Chloroform	Freon 11	Freon 113	Methylene chloride	Location Date
						W-830-21
<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	19-sep-96
<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	19-sep-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	11-dec-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	25-feb-97
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	25-feb-97
						W-830-22
<0.5 U	<0.5 U	0.64	<0.5 U	<0.5 U	<0.5 U	29-jul-96
<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	20-sep-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	12-dec-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	06-mar-97
						W-830-25
<5 DU	<5 DU	<5 DU	<5 DU	<5 DU	<5 DU	12-mar-97
						W-830-26
<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	20-sep-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	13-dec-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	13-dec-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	11-mar-97
						W-830-27
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	12-dec-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	12-mar-97
						W-830-28
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	28-aug-96
<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	23-sep-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	12-dec-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	12-mar-97
						W-830-29
<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	17-mar-97
						W-830-30
<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	11-mar-97
						W-830-34
<4 U	<4 U	<4 U	-	<4 U	-	01-oct-96
<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	11-mar-97
						W-831-01
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	18-mar-87
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	29-jun-87
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	22-sep-87
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	22-sep-87
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	11-dec-87
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	09-mar-88
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<1 P	28-jun-88
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	17-oct-88
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	01-feb-89
<0.5 P	0.6 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	14-apr-89
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	19-jul-89
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	01-nov-89
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	19-jan-90
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	29-may-90
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	22-aug-90
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	07-dec-90
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	05-mar-91
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	17-may-91
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	17-may-91
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	06-sep-91
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	10-dec-91
<0.3 P	<0.5 P	<0.5 P	<0.4 P	<0.6 P	<2 P	10-dec-91
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	18-jun-92
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	22-dec-92
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	21-jun-93
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	11-mar-94

Table A-2. VOCs in ground water and surface water (ug/L), Building 832 Canyon OU.

Location Date	Lab Note	Val.	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Total 1,2-DCE	TCE	PCE	1,1-DCA	
W-831-01 (continued)										
22-feb-95	CS a	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U	<0.5 U	
19-jun-96	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U	<0.5 U	
W-832-01										
21-nov-94	CS af	V	<10 DU	-	-	<10 DU	160 D	<10 DU	<10 DU	
16-mar-95	CS afh	V	<1 U	-	-	4.8	210 DLO	<1 U	<1 U	
16-mar-95	CS aefh	V	<1 U	-	-	4.7	220 DLO	<1 U	<1 U	
19-may-95	CS af	V	<0.5 U	-	-	2.2	170 D	<0.5 U	<0.5 U	
28-jul-95	CS af	V	<0.5 U	-	-	2.8	240 D	<0.5 U	<0.5 U	
21-dec-95	CS af	V	<2.5 DU	-	-	4 D	260 D	<2.5 DU	<2.5 DU	
07-feb-96	CS af	V	<0.5 U	-	-	6.6	280 D	<0.5 U	<0.5 U	
24-jun-96	CS aefh	V	<0.5 U	5.8	<0.5 U	-	260 D	<0.5 U	<0.5 U	
24-jun-96	CS afh	V	<0.5 U	5.6	<0.5 U	-	260 D	<0.5 U	<0.5 U	
23-sep-96	CS a	V	<2.5 DU	5.5 D	<2.5 DU	-	230 D	<2.5 DU	<2.5 DU	
19-dec-96	CS a	V	<0.5 U	7.2	<0.5 U	-	440 D	<0.5 U	<0.5 U	
06-mar-97	CS a	V	<0.5 U	5.4	<0.5 U	-	310 D	<0.5 U	<0.5 U	
W-832-05										
16-nov-94	CS af	V	<10 DU	-	-	<10 DU	440 D	<10 DU	<10 DU	
06-dec-94	CS af	V	<1 U	-	-	1.2	500 D	<1 U	<1 U	
21-dec-94	CS af	V	<1 U	-	-	1.5	650 D	<1 U	<1 U	
09-mar-95	CS af	V	<1 U	-	-	1.2	490 D	<1 U	<1 U	
19-may-95	CS af	V	<0.5 U	-	-	0.99	410 D	<0.5 U	<0.5 U	
28-jul-95	CS af	V	<5 DU	-	-	<5 DU	560 D	<5 DU	<5 DU	
01-dec-95	CS af	V	<0.5 U	-	-	1.2	360 D	<0.5 U	<0.5 U	
08-feb-96	CS af	V	<2.5 DU	-	-	<2.5 DU	630 DF	<2.5 DU	<2.5 DU	
24-jun-96	CS af	V	<5 DU	<5 DU	<5 DU	-	690 D	<5 DU	<5 DU	
24-sep-96	CS a	V	<5 DU	<5 DU	<5 DU	-	820 DLO	<5 DU	<5 DU	
12-dec-96	CS a	V	<5 DU	<5 DU	<5 DU	-	530 D	<5 DU	<5 DU	
06-mar-97	CS a	V	<5 DU	<5 DU	<5 DU	-	590 D	<5 DU	<5 DU	
W-832-06										
09-mar-95	CS a	V	<1 U	-	-	<1 U	2.6	<1 U	<1 U	
25-may-95	CS a	V	<0.5 U	-	-	<0.5 U	2.1	<0.5 U	<0.5 U	
25-may-95	GT a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U	<0.5 U	
28-jul-95	CS a	V	<0.5 U	-	-	<0.5 U	2.5	<0.5 U	<0.5 U	
12-dec-95	CS a	V	<0.5 U	-	-	<0.5 U	1.6	<0.5 U	<0.5 U	
07-feb-96	CS a	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U	<0.5 U	
24-jun-96	BB a	V	<0.5 U	<0.5 U	<0.5 U	-	1.3	<0.5 U	<0.5 U	
24-jun-96	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	1	<0.5 U	<0.5 U	
24-sep-96	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	2.6 LO	<0.5 U	<0.5 U	
12-dec-96	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	0.81	<0.5 U	<0.5 U	
06-mar-97	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	1.1	<0.5 U	<0.5 U	
W-832-09										
21-nov-94	CS a	V	<1 U	-	-	<1 U	<0.5 U	<1 U	<1 U	
16-mar-95	CS ah	V	<1 U	-	-	<1 U	<0.5 LOU	<1 U	<1 U	
16-mar-95	CS aeh	V	<1 U	-	-	<1 U	<0.5 LOU	<1 U	<1 U	
19-may-95	CS a	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U	<0.5 U	
28-jul-95	CS a	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U	<0.5 U	
28-jul-95	FS a	V	<0.5 U	-	<0.5 U	-	<0.5 U	<0.5 U	<0.5 U	
08-dec-95	CS a	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U	<0.5 U	
06-feb-96	CS a	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U	<0.5 U	
19-jun-96	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U	<0.5 U	
24-sep-96	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 LOU	<0.5 U	<0.5 U	
17-dec-96	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U	<0.5 U	
27-feb-97	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U	<0.5 U	
W-832-SC1										
12-nov-96	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	17	<0.5 U	<0.5 U	
24-feb-97	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	22	<0.5 U	<0.5 U	
10-jun-97	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	32 D	<0.5 U	<0.5 U	
W-832-SC2										
12-nov-96	CS a	V	<0.5 U	0.62	<0.5 U	-	24	<0.5 U	<0.5 U	
24-feb-97	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	5.5	<0.5 U	<0.5 U	
10-jun-97	CS a	V	<0.5 U	1.1	0.5	-	6.6	<0.5 U	<0.5 U	

1,2-DCA	1,1,1-TCA	Chloroform	Freon 11	Freon 113	Methylene chloride	Location Date
(continued) W-831-01						
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	22-feb-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	19-jun-96
W-832-01						
<10 DU	<10 DU	<10 DU	<10 DU	<10 DU	<10 DU	21-nov-94
<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	16-mar-95
<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	16-mar-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	19-may-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	28-jul-95
<2.5 DU	<2.5 DU	<2.5 DU	<2.5 DU	<2.5 DU	<2.5 DU	21-dec-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	07-feb-96
<0.5 U	<0.5 U	0.51	<0.5 U	<0.5 U	<0.5 U	24-jun-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	24-jun-96
<2.5 DU	<2.5 DU	<2.5 DU	<2.5 DU	<2.5 DU	<2.5 DU	23-sep-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	19-dec-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	06-mar-97
W-832-05						
<10 DU	<10 DU	<10 DU	<10 DU	<10 DU	<10 DU	16-nov-94
<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	06-dec-94
<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	21-dec-94
<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	09-mar-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	19-may-95
<5 DU	<5 DU	<5 DU	<5 DU	<5 DU	<5 DU	28-jul-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	01-dec-95
<2.5 DU	<2.5 DU	<2.5 DU	<2.5 DU	<2.5 DU	<2.5 DU	08-feb-96
<5 DU	<5 DU	<5 DU	<5 DU	<5 DU	<5 DU	24-jun-96
<5 DU	<5 DU	<5 DU	<5 DU	<5 DU	<5 DU	24-sep-96
<5 DU	<5 DU	<5 DU	<5 DU	<5 DU	<5 DU	12-dec-96
<5 DU	<5 DU	<5 DU	<5 DU	<5 DU	<5 DU	06-mar-97
W-832-06						
<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	09-mar-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	25-may-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	25-may-95
<0.5 U	<0.5 U	0.73	<0.5 U	<0.5 U	<0.5 U	28-jul-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	12-dec-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	07-feb-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	24-jun-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	24-jun-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	24-sep-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	12-dec-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	06-mar-97
W-832-09						
<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	21-nov-94
<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	16-mar-95
<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	16-mar-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	19-may-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	28-jul-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	28-jul-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	08-dec-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	06-feb-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	19-jun-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	24-sep-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	17-dec-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	27-feb-97
W-832-SC1						
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	12-nov-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	24-feb-97
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	10-jun-97
W-832-SC2						
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	12-nov-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	24-feb-97
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	10-jun-97

Table A-2. VOCs in ground water and surface water (ug/L), Building 832 Canyon OU.

Location	Lab Note	Val.	1,1- DCE	cis- 1,2- DCE	trans- 1,2- DCE	Total 1,2- DCE	TCE	PCE	1,1- DCA	
W-832-SC3										
12-nov-96	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	4.2	<0.5 U	<0.5 U
24-feb-97	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	1.3	<0.5 U	<0.5 U
10-jun-97	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	2.5	<0.5 U	<0.5 U
W-832-SC4										
12-nov-96	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	15	<0.5 U	<0.5 U
10-dec-96	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	13	<0.5 U	<0.5 U
02-jan-97	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	10	<0.5 U	<0.5 U
22-jan-97	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	9.2	<0.5 U	<0.5 U
24-feb-97	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	9.7	<0.5 U	<0.5 U
10-jun-97	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	11	<0.5 U	<0.5 U
W-870-01										
10-mar-97	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	0.69	<0.5 U	<0.5 U
W-880-01										
24-jan-96	CS	a	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U	<0.5 U
11-jun-96	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 ULO	<0.5 U	<0.5 U
22-aug-96	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U	<0.5 U
27-dec-96	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U	<0.5 U
12-feb-97	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U	<0.5 U
16-apr-97	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U	<0.5 U
W-880-02										
26-jan-96	CS	a	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U	<0.5 U
17-jun-96	CS	aeh	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U	<0.5 U
17-jun-96	CS	ah	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U	<0.5 U
12-dec-96	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U	<0.5 U
24-feb-97	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U	<0.5 U
W-880-03										
24-jan-96	CS	ah	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U	<0.5 U
24-jan-96	CS	aeh	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U	<0.5 U
17-jun-96	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U	<0.5 U
22-aug-96	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U	<0.5 U
27-dec-96	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U	<0.5 U
12-feb-97	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U	<0.5 U
16-apr-97	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U	<0.5 U
3SW-832-001										
17-feb-95	CS	af	V	<0.5 U	-	-	7.5	40 D	<0.5 U	<0.5 U
05-apr-95	CS	ah	V	<0.5 U	-	-	12	3.9	<0.5 U	<0.5 U
05-apr-95	CS	ah	V	<0.5 U	-	-	11	3.1	<0.5 U	<0.5 U
3SW-832-004										
16-jan-96	CS	a	V	<0.5 U	-	-	<0.5 U	<0.5 U	<0.5 U	<0.5 U
10-dec-96	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U	<0.5 U
02-jan-97	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U	<0.5 U
22-jan-97	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U	<0.5 U
19-mar-97	CS	a	V	<0.5 U	<0.5 U	<0.5 U	-	<0.5 U	<0.5 U	<0.5 U
SPRING3										
16-dec-82	BC	a	U	-	-	-	-	9.5 P	-	-
04-may-83	BC	a	U	-	-	-	-	4.9 P	-	-
03-aug-83	BC	a	U	-	-	-	-	<0.5 P	-	-
19-sep-83	BC	a	U	-	-	-	-	<0.5 P	-	-
23-aug-84	BC	a	U	-	-	-	-	40 P	-	-
28-jan-85	BC	a	U	-	-	-	-	2.2 P	-	-
17-apr-85	BC	b	N	<0.5 P	-	-	<0.5 P	<0.5 P	<0.5 P	<0.5 P
12-jul-85	BC	b	N	<0.5 P	-	-	<0.5 P	200 P	3.7 P	<0.5 P
16-oct-85	BC	a	U	<0.5 P	-	-	<0.5 P	<0.5 P	<0.5 P	<0.5 P
19-nov-85	BC	b	N	<0.5 P	-	-	<0.5 P	<0.5 P	<0.5 P	<0.5 P
18-mar-86	BC	b	N	<0.5 P	-	-	<0.5 P	<0.5 P	<0.5 P	<0.5 P
06-jun-86	BC	b	N	<0.5 P	-	-	<0.5 P	<0.5 P	<0.5 P	<0.5 P
20-nov-86	BC	a	U	<0.5 P	-	-	<0.5 P	<0.5 P	<0.5 P	<0.5 P
14-nov-91	BC	a	U	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P
03-sep-93	CS	a	V	<0.5 U	-	-	0.9	26	<0.5 U	<0.5 U
20-apr-94	CS	a	V	<0.5 U	-	-	<0.5 U	28	<0.5 U	<0.5 U

Results recorded by July 15, 1997.

1,2-DCA	1,1,1-TCA	Chloroform	Freon 11	Freon 113	Methylene chloride	Location Date
						W-832-SC3
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	12-nov-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	24-feb-97
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	10-jun-97
						W-832-SC4
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	12-nov-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	10-dec-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	02-jan-97
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	22-jan-97
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	24-feb-97
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	10-jun-97
						W-870-01
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	10-mar-97
						W-880-01
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	24-jan-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	11-jun-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	22-aug-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	27-dec-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	12-feb-97
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	16-apr-97
						W-880-02
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	26-jan-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	17-jun-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	17-jun-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	12-dec-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	24-feb-97
						W-880-03
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	24-jan-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	24-jan-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	17-jun-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	22-aug-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	27-dec-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	12-feb-97
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	16-apr-97
						3SW-832-001
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	17-feb-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	05-apr-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	05-apr-95
						3SW-832-004
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	16-jan-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	10-dec-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	02-jan-97
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	22-jan-97
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	19-mar-97
						SPRING3
-	-	-	-	-	-	16-dec-82
-	-	-	-	-	-	04-may-83
-	-	-	-	-	-	03-aug-83
-	-	-	-	-	-	19-sep-83
-	-	-	-	-	-	23-aug-84
-	-	-	-	-	-	28-jan-85
<0.5 P	<0.5 P	<0.5 P	<0.5 P	-	<0.5 P	17-apr-85
<0.5 P	<0.5 P	<0.5 P	<0.5 P	-	<0.5 P	12-jul-85
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	16-oct-85
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	19-nov-85
<0.5 P	<0.5 P	<0.5 P	<0.5 P	-	<0.5 P	18-mar-86
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	06-jun-86
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	20-nov-86
<0.5 P	<0.5 P	<0.5 P	<0.5 P	<0.5 P	<2 P	14-nov-91
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	03-sep-93
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	20-apr-94

Table A-2. VOCs in ground water and surface water (ug/L), Building 832 Canyon OU.

Location Date	Lab Note	Val.	1,1- DCE	cis- 1,2- DCE	trans- 1,2- DCE	Total 1,2- DCE	TCE	PCE	1,1- DCA
SPRING3 (continued)									
24-oct-95	CS a	V	<0.5 U	-	-	<0.5 U	22	<0.5 U	<0.5 U
24-oct-95	FS a	V	<0.5 U	-	<0.5 U	-	20	<0.5 U	<0.5 U
21-jun-96	BB a	V	<0.5 U	<0.5 U	<0.5 U	-	0.72	<0.5 U	<0.5 U
21-jun-96	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	0.85	<0.5 U	<0.5 U
12-nov-96	CS a	V	<0.5 U	2.2	0.53	-	6.9	<0.5 U	<0.5 U
24-feb-97	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	33	<0.5 U	<0.5 U
10-jun-97	CS a	V	<0.5 U	<0.5 U	<0.5 U	-	24	<0.5 U	<0.5 U



Results recorded by July 15, 1997.

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1,2-DCA	1,1,1-TCA	Chloroform	Freon 11	Freon 113	Methylene chloride	Location Date
						(continued) SPRING3
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	24-oct-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	24-oct-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	21-jun-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	21-jun-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	12-nov-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	24-feb-97
<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	10-jun-97

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See following page for notes

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 well 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

Lab Codes:

BB BC Laboratories, Inc., Bakersfield, CA  
BC Brown and Caldwell, Emeryville, CA  
CL Clayton Environmental Consultants, Pleasanton, CA  
CS California Laboratory Services, Rancho Cordova, CA  
EC LLNL Environmental Chemistry Lab  
GT Groundwater Technology Environmental Labs, Concord, CA

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. VOCs in soil and rock (mg/kg), Building 832 Canyon OU.  
Results recorded by July 18, 1997.

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VOCs in Soil  
July 18, 1997  
epdbs::epddata

s3vocSOL.  
s3vocSOR.

Table A-3. VOCs in soil and rock (mg/kg), Building 832 Canyon OU.

Location Date	Lab Note	Val. Depth (ft)	1,1- DCE	cis- 1,2- DCE	trans- 1,2- DCE	Total 1,2- DCE	TCE	PCE	1,1- DCA	
830-01 (in ug/g)										
17-aug-83	MS a	U 3.3	-	-	-	-	2.6 P	-	-	
17-aug-83	MS a	U 15.6	-	-	-	-	<0.03 P	-	-	
17-aug-83	MS a	U 26.5	-	-	-	-	6.3 P	-	-	
17-aug-83	MS a	U 31.5	-	-	-	-	0.3 P	-	-	
17-aug-83	MS a	U 40.8	-	-	-	-	<0.03 P	-	-	
17-aug-83	MS a	U 46.1	-	-	-	-	0.07 P	-	-	
830-02 (in ug/g)										
26-sep-83	MS a	U 1.1	-	-	-	-	<0.06 P	-	-	
23-sep-83	MS a	U 2.5	-	-	-	-	<0.06 P	-	-	
23-sep-83	MS a	U 3.5	-	-	-	-	<0.06 P	-	-	
830-03										
15-oct-85	BC a	U 11.1	<0.0002 P	-	-	<0.0002 P	0.41 P	<0.0002 P	<0.0002 P	
16-oct-85	BC a	U 30.5	<0.0002 P	-	-	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	
23-oct-85	BC a	U 51.0	<0.0002 P	-	-	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	
830-04										
02-oct-85	BC a	U 15.6	<0.0002 P	-	-	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	
03-oct-85	BC a	U 45.2	<0.0002 P	-	-	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	
04-oct-85	BC a	U 55.0	<0.0002 P	-	-	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	
830-06										
28-oct-85	BC a	U 6.0	<0.0002 P	-	-	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	
28-oct-85	BC a	U 10.0	<0.0002 P	-	-	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	
830-08										
28-oct-85	BC a	U 5.0	<0.0002 P	-	-	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	
830-23										
30-nov-94	CS a	V 1.5	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U	
30-nov-94	CS af	V 5.3	<0.0005 U	-	-	<0.0005 U	0.023 D	<0.0005 U	<0.0005 U	
30-nov-94	CS af	V 10.3	<0.0005 U	-	-	<0.0005 U	0.061 D	<0.0005 U	<0.0005 U	
30-nov-94	CS af	V 16.3	<0.0005 U	-	-	<0.0005 U	0.069 D	<0.0005 U	<0.0005 U	
01-dec-94	CS ag	V 25.8	<0.0005 U	-	-	<0.0005 U	0.033	<0.0005 U	<0.0005 U	
01-dec-94	GT ag	V 25.8	<0.005 U	-	-	<0.005 U	-	<0.005 U	<0.005 U	
01-dec-94	CS a	V 31.0	<0.0005 U	-	-	<0.0005 U	0.003	<0.0005 U	<0.0005 U	
01-dec-94	CS ah	V 37.0	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U	
01-dec-94	CS ah	V 37.0	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U	
01-dec-94	CS ah	V 40.5	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U	
01-dec-94	CS ah	V 40.5	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U	
01-dec-94	CS a	V 45.5	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U	
01-dec-94	CS a	V 50.0	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U	
01-dec-94	CS a	V 55.5	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U	
830-24										
05-dec-94	CS a	V 1.5	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U	
05-dec-94	CS a	V 5.8	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U	
05-dec-94	CS a	V 10.3	<0.0005 U	-	-	<0.0005 U	0.0017	<0.0005 U	<0.0005 U	
05-dec-94	CS a	V 15.3	<0.0005 U	-	-	<0.0005 U	0.024	<0.0005 U	<0.0005 U	
06-dec-94	CS agf	V 20.5	<0.0005 U	-	-	<0.0005 U	0.033 D	<0.0005 U	<0.0005 U	
06-dec-94	GT ag	V 20.5	<0.005 U	-	-	<0.005 U	0.11 L	<0.005 U	<0.005 U	
06-dec-94	CS af	V 25.8	<0.0005 U	-	-	<0.0005 U	0.086 D	<0.0005 U	<0.0005 U	
06-dec-94	CS af	V 30.8	<0.0005 U	-	-	<0.0005 U	0.17 D	<0.0005 U	<0.0005 U	
06-dec-94	CS af	V 35.3	<0.0005 U	-	-	<0.0005 U	0.032 D	<0.0005 U	<0.0005 U	
06-dec-94	CS a	V 40.0	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U	
07-dec-94	CS a	V 45.5	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U	
07-dec-94	CS ah	V 50.0	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U	
07-dec-94	CS ahj	V 50.0	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U	
07-dec-94	CS a	V 55.3	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U	
830-36										
24-sep-96	EC a	N 6.0	<0.0004 U	<0.0004 U	-	-	0.0043	<0.0004 U	-	
24-sep-96	EC a	N 12.0	<0.0004 U	<0.0004 U	-	-	0.0675	<0.0004 U	-	



Table A-3. VOCs in soil and rock (mg/kg), Building 832 Canyon OU.

Location Date	Lab Note	Val. Depth (ft)	1,1- DCE	cis- 1,2- DCE	trans- 1,2- DCE	Total 1,2- DCE	TCE	PCE	1,1- DCA
830-37									
24-sep-96	EC a N	6.0	<0.0004 U	<0.0004 U	-	-	<0.0004 U	<0.0004 U	-
830-38									
24-sep-96	EC a N	6.0	<0.0004 U	<0.0004 U	-	-	<0.0004 U	<0.0004 U	-
830-39									
24-sep-96	EC a N	6.0	<0.0004 U	<0.0004 U	-	-	<0.0004 U	<0.0004 U	-
830-41									
25-sep-96	EC a N	6.0	<0.0004 U	<0.0004 U	-	-	<0.0004 U	<0.0004 U	-
830-42									
25-sep-96	EC a N	6.0	<0.0004 U	<0.0004 U	-	-	<0.0004 U	<0.0004 U	-
830-43									
25-sep-96	EC a N	6.0	<0.0004 U	<0.0004 U	-	-	<0.0004 U	<0.0004 U	-
830-44									
01-oct-96	EC a N	6.0	<0.0004 U	<0.0004 U	-	-	<0.0004 U	<0.0004 U	-
830-45									
01-oct-96	EC a N	6.0	<0.0004 U	<0.0004 U	-	-	<0.0004 U	<0.0004 U	-
830-46									
01-oct-96	EC a N	6.0	<0.0004 U	<0.0004 U	-	-	<0.0004 U	<0.0004 U	-
830-47									
01-oct-96	EC a N	6.0	<0.0004 U	<0.0004 U	-	-	<0.0004 U	<0.0004 U	-
830-48									
03-oct-96	EC a N	6.0	<0.0004 U	<0.0004 U	-	-	<0.0004 U	<0.0004 U	-
03-oct-96	CS ahg V	12.0	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
03-oct-96	EC a N	12.0	<0.0004 U	<0.0004 U	-	-	<0.0004 U	<0.0004 U	-
03-oct-96	EC a N	18.0	<0.0004 U	<0.0004 U	-	-	<0.0004 U	<0.0004 U	-
03-oct-96	EC a N	26.0	<0.0004 U	<0.0004 U	-	-	<0.0004 U	<0.0004 U	-
03-oct-96	EC a N	35.0	<0.0004 U	<0.0004 U	-	-	0.0049	<0.0004 U	-
W-830-05									
08-oct-85	BC a U	24.9	<0.0002 P	-	-	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P
10-oct-85	BC a U	40.0	<0.0002 P	-	-	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P
W-830-07									
28-oct-85	BC a U	4.5	<0.0002 P	-	-	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P
28-oct-85	BC a U	10.0	<0.0002 P	-	-	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P
W-830-10									
20-feb-92	BC a U	5.3	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P
20-feb-92	BC a U	11.0	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P
20-feb-92	BC a U	15.5	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P
20-feb-92	BC a U	20.5	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P
20-feb-92	BC a U	25.3	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P
20-feb-92	BC a U	30.5	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P
20-feb-92	BC a U	33.8	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P
20-feb-92	BC a U	36.7	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P
20-feb-92	BC a U	38.8	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P
25-feb-92	BC a U	46.7	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P
25-feb-92	BC a U	51.5	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P
25-feb-92	BC a U	55.3	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	0.0045 P	0.0003 P	<0.0002 P
26-feb-92	BC a U	60.2	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P
26-feb-92	BC a U	68.5	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	0.0021 P	<0.0002 P	<0.0002 P
W-830-12									
30-aug-94	CS a V	1.2	<0.0005 U	-	-	<0.0005 U	0.012	<0.0005 U	<0.0005 U
30-aug-94	CS a V	6.3	<0.0005 U	-	-	<0.0005 U	0.016	<0.0005 U	<0.0005 U
30-aug-94	CS a V	10.5	<0.0005 U	-	-	<0.0005 U	0.014	<0.0005 U	<0.0005 U
30-aug-94	CS a V	15.3	<0.0005 U	-	-	<0.0005 U	0.013	<0.0005 U	<0.0005 U
30-aug-94	GT ahj V	15.3	<0.005 U	-	-	<0.005 U	<0.005 U	<0.005 U	<0.005 U
30-aug-94	CS af V	20.0	<0.0005 U	-	-	<0.0005 U	0.036 D	<0.0005 U	<0.0005 U

Results recorded by July 18, 1997.

1,2-DCA	1,1,1-TCA	Chloroform	Freon 11	Freon 113	Methylene chloride	Location Date
<0.0004 U	<0.0004 U	<0.0004 U	-	<0.0004 U	-	830-37 24-sep-96
<0.0004 U	<0.0004 U	<0.0004 U	-	<0.0004 U	-	830-38 24-sep-96
<0.0004 U	<0.0004 U	<0.0004 U	-	<0.0004 U	-	830-39 24-sep-96
<0.0004 U	<0.0004 U	<0.0004 U	-	<0.0004 U	-	830-41 25-sep-96
<0.0004 U	<0.0004 U	<0.0004 U	-	<0.0004 U	-	830-42 25-sep-96
<0.0004 U	<0.0004 U	<0.0004 U	-	<0.0004 U	-	830-43 25-sep-96
<0.0004 U	<0.0004 U	<0.0004 U	-	<0.0004 U	-	830-44 01-oct-96
<0.0004 U	<0.0004 U	<0.0004 U	-	<0.0004 U	-	830-45 01-oct-96
<0.0004 U	<0.0004 U	<0.0004 U	-	<0.0004 U	-	830-46 01-oct-96
<0.0004 U	<0.0004 U	<0.0004 U	-	<0.0004 U	-	830-47 01-oct-96
<0.0004 U	<0.0004 U	<0.0004 U	-	<0.0004 U	-	830-48 03-oct-96
<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U	03-oct-96
<0.0004 U	<0.0004 U	<0.0004 U	-	<0.0004 U	-	03-oct-96
<0.0004 U	<0.0004 U	<0.0004 U	-	<0.0004 U	-	03-oct-96
<0.0004 U	<0.0004 U	<0.0004 U	-	<0.0004 U	-	03-oct-96
<0.0004 U	<0.0004 U	<0.0004 U	-	<0.0004 U	-	03-oct-96
<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	-	<0.0002 P	W-830-05 08-oct-85
<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	-	<0.0002 P	10-oct-85
<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	-	<0.0002 P	W-830-07 28-oct-85
<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	-	<0.0002 P	28-oct-85
<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	W-830-10 20-feb-92
<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	20-feb-92
<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	20-feb-92
<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	20-feb-92
<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	20-feb-92
<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	20-feb-92
<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	20-feb-92
<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	20-feb-92
<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	20-feb-92
<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	25-feb-92
<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	25-feb-92
<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	0.0002 P	25-feb-92
<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	0.0002 P	26-feb-92
<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	<0.0002 P	0.0002 P	26-feb-92
<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U	W-830-12 30-aug-94
<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U	30-aug-94
<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U	30-aug-94
<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U	30-aug-94
<0.005 U	<0.005 U	<0.005 U	<0.005 U	-	<0.005 U	30-aug-94
<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U	30-aug-94







Table A-3. VOCs in soil and rock (mg/kg), Building 832 Canyon OU.

Location Date	Lab Note	Val. Depth (ft)	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Total 1,2-DCE	TCE	PCE	1,1-DCA
W-830-16									
03-oct-95	CS a	V 1.0	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
03-oct-95	CS a	V 1.3	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
03-oct-95	CS a	V 4.5	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
03-oct-95	CS a	V 10.3	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
03-oct-95	CS a	V 20.0	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
03-oct-95	CS a	V 30.0	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
04-oct-95	CS a	V 40.0	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
04-oct-95	CS a	V 51.7	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
W-830-18									
03-apr-96	CS a	V 0.0	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
03-apr-96	CS a	V 5.5	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
03-apr-96	CS a	V 10.3	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
03-apr-96	CS a	V 17.3	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
04-apr-96	CS a	V 52.2	<0.0005 U	-	-	<0.0005 U	0.00061	<0.0005 U	<0.0005 U
04-apr-96	CS a	V 70.6	<0.0005 U	-	-	<0.0005 U	0.00084	<0.0005 U	<0.0005 U
10-apr-96	CS a	V 101.7	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
10-apr-96	CS a	V 113.8	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
10-apr-96	CS a	V 123.5	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
10-apr-96	BB ag	N 136.5	<0.0004 U	-	-	<0.0009 U	<0.00037 U	<0.0009 U	<0.0006 U
10-apr-96	CS ag	V 136.5	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
11-apr-96	CS a	V 147.0	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
11-apr-96	CS a	V 155.2	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
11-apr-96	CS a	V 165.5	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
W-830-19									
03-jun-96	CS a	V 5.5	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
03-jun-96	CS a	V 10.5	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
03-jun-96	CS a	V 16.8	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
04-jun-96	CS a	V 22.4	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
05-jun-96	CS a	V 27.0	<0.0005 U	<0.0005 U	<0.0005 U	-	0.0016	<0.0005 U	<0.0005 U
05-jun-96	CS a	V 34.0	<0.0005 U	<0.0005 U	<0.0005 U	-	0.0094	<0.0005 U	<0.0005 U
05-jun-96	CS a	V 37.2	<0.0005 U	<0.0005 U	<0.0005 U	-	0.049 D	<0.0005 U	<0.0005 U
06-jun-96	CS ag	V 40.3	<0.0005 U	<0.0005 U	<0.0005 U	-	0.039 D	<0.0005 U	<0.0005 U
06-jun-96	BB ag	V 40.8	<0.0004 U	<0.0005 U	<0.0005 U	-	0.015	<0.0009 U	<0.0006 U
W-830-20									
13-jun-96	CS a	V 0.0	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
13-jun-96	CS a	V 7.5	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
13-jun-96	CS a	V 18.0	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
13-jun-96	CS a	V 24.3	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
17-jun-96	CS a	V 38.0	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
18-jun-96	CS a	V 50.2	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
18-jun-96	CS a	V 58.3	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
18-jun-96	CS a	V 68.1	<0.0005 U	<0.0005 U	<0.0005 U	-	0.00091	<0.0005 U	<0.0005 U
24-jun-96	CS a	V 78.8	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
24-jun-96	CS a	V 83.2	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
26-jun-96	CS a	V 88.8	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
26-jun-96	CS a	V 93.2	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
26-jun-96	CS a	V 99.1	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
26-jun-96	CS a	V 104.3	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
26-jun-96	CS a	V 108.9	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
26-jun-96	CS a	V 113.0	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
26-jun-96	CS a	V 120.8	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
26-jun-96	CS a	V 124.0	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
26-jun-96	CS a	V 128.9	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
26-jun-96	CS a	V 134.0	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
W-830-22									
15-jul-96	CS a	V 36.7	<0.0005 U	<0.0005 U	<0.0005 U	-	0.0031	<0.0005 U	<0.0005 U
15-jul-96	CS a	V 37.0	<0.0005 U	<0.0005 U	<0.0005 U	-	0.01	<0.0005 U	<0.0005 U
15-jul-96	CS af	V 40.6	<0.0005 U	<0.0005 U	<0.0005 U	-	0.17 D	<0.0005 U	<0.0005 U
15-jul-96	CS af	V 40.9	<0.0005 U	<0.0005 U	<0.0005 U	-	0.037 D	<0.0005 U	<0.0005 U
15-jul-96	CS a	V 45.5	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
15-jul-96	CS a	V 45.8	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
15-jul-96	CS a	V 50.6	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
18-jul-96	CS a	V 55.3	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
18-jul-96	CS a	V 60.0	<0.0005 U	<0.0005 U	<0.0005 U	-	0.001	<0.0005 U	<0.0005 U



Table A-3. VOCs in soil and rock (mg/kg), Building 832 Canyon OU.

Location Date	Lab	Val. Note	Depth (ft)	Val.			Total 1,2-DCE	TCE	PCE	1,1-DCA
				1,1-DCE	cis-1,2-DCE	trans-1,2-DCE				
W-830-22 (continued)										
18-jul-96	CS a	V	65.1	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
18-jul-96	CS a	V	71.5	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
22-jul-96	CS a	V	75.2	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
22-jul-96	BB ag	V	80.7	<0.0004 U	<0.0005 U	<0.0005 U	-	<0.00037 U	<0.0009 U	<0.0006 U
22-jul-96	CS ag	V	80.7	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
22-jul-96	CS a	V	85.0	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
22-jul-96	CS a	V	90.3	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
22-jul-96	CS a	V	95.0	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
22-jul-96	CS a	V	99.7	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
22-jul-96	CS a	V	103.3	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
22-jul-96	CS a	V	111.0	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
22-jul-96	CS a	V	117.0	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
W-830-25										
06-aug-96	CS a	V	0.0	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
06-aug-96	CS a	V	5.9	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
06-aug-96	CS a	V	10.0	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
06-aug-96	CS a	V	15.0	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
06-aug-96	CS a	V	21.1	<0.0005 U	<0.0005 U	<0.0005 U	-	0.011 D	<0.0005 U	<0.0005 U
W-830-26										
30-jul-96	CS a	V	5.7	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
30-jul-96	CS a	V	12.3	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
30-jul-96	CS a	V	16.5	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
30-jul-96	CS a	V	19.0	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
30-jul-96	CS a	V	24.3	<0.0005 U	<0.0005 U	<0.0005 U	-	0.00081	<0.0005 U	<0.0005 U
30-jul-96	CS a	V	30.3	<0.0005 U	<0.0005 U	<0.0005 U	-	0.0024	<0.0005 U	<0.0005 U
30-jul-96	CS a	V	34.8	<0.0005 U	<0.0005 U	<0.0005 U	-	0.0062	<0.0005 U	<0.0005 U
31-jul-96	CS a	V	42.0	<0.0005 U	<0.0005 U	<0.0005 U	-	0.018	<0.0005 U	<0.0005 U
31-jul-96	CS a	V	44.5	<0.0005 U	<0.0005 U	<0.0005 U	-	0.045	<0.0005 U	<0.0005 U
31-jul-96	CS a	V	52.5	<0.0005 U	<0.0005 U	<0.0005 U	-	0.0048	<0.0005 U	<0.0005 U
07-aug-96	CS a	V	56.2	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
07-aug-96	CS a	V	61.7	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
07-aug-96	CS a	V	65.7	<0.0005 U	<0.0005 U	<0.0005 U	-	0.0032	<0.0005 U	<0.0005 U
12-aug-96	CS a	V	72.0	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
12-aug-96	CS a	V	75.5	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
12-aug-96	CS a	V	81.5	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
13-aug-96	CS a	V	87.3	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
13-aug-96	CS a	V	91.7	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
13-aug-96	CS a	V	95.0	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
W-830-27										
20-aug-96	CS a	V	21.5	<0.0005 U	<0.0005 U	<0.0005 U	-	0.0012	<0.0005 U	<0.0005 U
20-aug-96	CS ag	V	28.2	<0.0005 U	<0.0005 U	<0.0005 U	-	0.0042	<0.0005 U	<0.0005 U
20-aug-96	BB ag	V	28.5	<0.0004 U	<0.0005 U	<0.0005 U	-	<0.00037 U	<0.0009 U	<0.0006 U
20-aug-96	CS a	V	34.0	<0.0005 U	<0.0005 U	<0.0005 U	-	0.021	<0.0005 U	<0.0005 U
20-aug-96	CS a	V	37.5	<0.0005 U	<0.0005 U	<0.0005 U	-	0.04	<0.0005 U	<0.0005 U
W-830-28										
05-sep-96	CS a	V	45.2	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
05-sep-96	CS a	V	50.3	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
05-sep-96	CS a	V	53.8	<0.0005 U	<0.0005 U	<0.0005 U	-	0.0023	<0.0005 U	<0.0005 U
05-sep-96	CS a	V	59.7	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
05-sep-96	CS a	V	65.0	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
05-sep-96	CS a	V	69.8	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
05-sep-96	CS a	V	73.3	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
05-sep-96	CS a	V	79.6	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
09-sep-96	CS a	V	85.2	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
09-sep-96	CS ag	V	87.2	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
09-sep-96	BB ag	V	87.5	<0.0004 U	<0.0005 U	<0.0005 U	-	<0.00037 U	<0.0009 U	<0.0006 U
09-sep-96	CS a	V	92.8	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
09-sep-96	CS ag	V	97.2	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
09-sep-96	BB ag	V	97.5	<0.0004 U	<0.0005 U	<0.0005 U	-	<0.00037 U	<0.0009 U	<0.0006 U
09-sep-96	CS a	V	104.5	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
09-sep-96	CS a	V	109.5	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
09-sep-96	CS a	V	111.3	-	-	-	-	-	-	-



Table A-3. VOCs in soil and rock (mg/kg), Building 832 Canyon OU.

Location Date	Lab Note	Val. Depth (ft)	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Total 1,2-DCE	TCE	PCE	1,1-DCA	
<b>W-830-29</b>										
20-aug-96	CS a	V	9.7	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
20-aug-96	CS a	V	22.0	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
20-aug-96	CS a	V	26.3	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
20-aug-96	CS a	V	29.7	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
20-aug-96	CS a	V	35.0	<0.0005 U	<0.0005 U	<0.0005 U	-	0.0018	<0.0005 U	<0.0005 U
20-aug-96	CS a	V	39.2	<0.0005 U	<0.0005 U	<0.0005 U	-	0.0073	<0.0005 U	<0.0005 U
20-aug-96	CS a	V	45.5	<0.0005 U	<0.0005 U	<0.0005 U	-	0.001	<0.0005 U	<0.0005 U
20-aug-96	CS a	V	50.5	<0.0005 U	<0.0005 U	<0.0005 U	-	0.0009	<0.0005 U	<0.0005 U
20-aug-96	CS a	V	52.5	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
20-aug-96	CS a	V	54.0	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
30-oct-96	CS a	V	104.9	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
30-oct-96	CS a	V	111.3	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
31-oct-96	CS a	V	116.0	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
31-oct-96	CS a	V	121.1	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
31-oct-96	CS a	V	124.7	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
31-oct-96	CS a	V	130.0	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
31-oct-96	BB ag	V	134.6	<0.0004 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
31-oct-96	CS ag	V	134.6	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.00037 U	<0.0009 U	<0.0006 U
31-oct-96	CS a	V	139.8	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
31-oct-96	CS a	V	145.4	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
31-oct-96	CS a	V	149.4	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
31-oct-96	CS a	V	153.8	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
31-oct-96	CS a	V	164.5	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
<b>W-830-30</b>										
17-sep-96	EC a	N	6.0	<0.0004 U	<0.0004 U	-	-	0.0012	<0.0004 U	-
17-sep-96	EC a	N	12.0	<0.0004 U	<0.0004 U	-	-	0.1085	<0.0004 U	-
17-sep-96	EC a	N	18.0	<0.0004 U	<0.0004 U	-	-	0.1071	<0.0004 U	-
17-sep-96	EC a	N	26.0	<0.0004 U	<0.0004 U	-	-	0.0713	<0.0004 U	-
<b>W-830-34</b>										
19-sep-96	EC a	N	6.0	<0.0004 U	<0.0004 U	-	-	0.0007	<0.0004 U	-
19-sep-96	EC a	N	12.0	<0.0004 U	<0.0004 U	-	-	0.0073	<0.0004 U	-
20-sep-96	EC a	N	18.0	<0.0004 U	<0.0004 U	-	-	0.0248	<0.0004 U	-
20-sep-96	EC a	N	26.0	<0.0004 U	<0.0004 U	-	-	0.0008	<0.0004 U	-
<b>832-02</b>										
26-sep-94	CS a	V	1.5	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
26-sep-94	CS a	V	5.5	<0.0005 U	-	-	<0.0005 U	0.0005	<0.0005 U	<0.0005 U
26-sep-94	CS a	V	10.5	<0.0005 U	-	-	<0.0005 U	0.0047	<0.0005 U	<0.0005 U
27-sep-94	CS af	V	15.8	<0.0005 U	-	-	<0.0005 U	0.019 D	<0.0005 U	<0.0005 U
27-sep-94	CS af	V	20.5	<0.0005 U	-	-	<0.0005 U	0.022 D	<0.0005 U	<0.0005 U
27-sep-94	CS a	V	25.5	<0.0005 U	-	-	<0.0005 U	0.0018	<0.0005 U	<0.0005 U
27-sep-94	CS a	V	30.5	<0.0005 U	-	-	<0.0005 U	0.0011	<0.0005 U	<0.0005 U
27-sep-94	CS ag	V	35.3	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
27-sep-94	GT ag	V	35.3	<0.005 U	-	-	<0.005 U	<0.005 U	<0.005 U	<0.005 U
27-sep-94	CS ah	V	40.0	<0.0005 U	-	-	<0.0005 U	0.0054	<0.0005 U	<0.0005 U
27-sep-94	CS ah	V	40.0	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
28-sep-94	CS a	V	45.5	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
28-sep-94	CS a	V	50.5	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
<b>832-03</b>										
04-oct-94	CS a	V	1.8	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
04-oct-94	CS a	V	5.5	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
04-oct-94	CS a	V	10.5	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
04-oct-94	CS a	V	15.5	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
04-oct-94	CS a	V	20.3	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
05-oct-94	CS a	V	25.0	<0.0005 U	-	-	<0.0005 U	0.0068	<0.0005 U	<0.0005 U
05-oct-94	GT ag	V	30.0	<0.005 U	-	-	<0.005 U	<0.005 U	<0.005 U	<0.005 U
05-oct-94	CS ag	V	30.5	<0.0005 U	-	-	<0.0005 U	0.0021	<0.0005 U	<0.0005 U
05-oct-94	CS a	V	35.0	<0.0005 U	-	-	<0.0005 U	0.0035	<0.0005 U	<0.0005 U
05-oct-94	CS a	V	40.5	<0.0005 U	-	-	<0.0005 U	0.0017	<0.0005 U	<0.0005 U
05-oct-94	CS a	V	46.0	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
05-oct-94	CS a	V	50.5	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
05-oct-94	CS ag	V	55.5	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
05-oct-94	GT ag	V	55.5	<0.005 U	-	-	<0.005 U	<0.005 U	<0.005 U	<0.005 U



Table A-3. VOCs in soil and rock (mg/kg), Building 832 Canyon OU.

Location Date	Lab	Val.		1,1- DCE	cis- 1,2- DCE	trans- 1,2- DCE	Total 1,2- DCE	TCE	PCE	1,1- DCA
		Note	Depth (ft)							
832-04										
06-oct-94	CS a	V	1.5	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
06-oct-94	CS a	V	5.5	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
06-oct-94	CS a	V	10.8	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
06-oct-94	CS a	V	15.5	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
07-oct-94	CS a	V	20.5	<0.0005 U	-	-	<0.0005 U	0.0045	<0.0005 U	<0.0005 U
07-oct-94	CS af	V	25.5	<0.0005 U	-	-	<0.0005 U	0.012 D	<0.0005 U	<0.0005 U
07-oct-94	CS a	V	30.5	<0.0005 U	-	-	<0.0005 U	0.023	<0.0005 U	<0.0005 U
07-oct-94	CS ah	V	35.0	<0.0005 U	-	-	<0.0005 U	0.00094	<0.0005 U	<0.0005 U
07-oct-94	CS ah	V	35.0	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
07-oct-94	CS ah	V	40.0	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
07-oct-94	CS ah	V	40.0	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
07-oct-94	CS a	V	45.5	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
07-oct-94	CS a	V	50.0	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
07-oct-94	CS a	V	55.5	<0.0005 U	-	-	<0.0005 U	0.0028	<0.0005 U	<0.0005 U
832-07										
28-sep-94	CS a	V	1.3	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
28-sep-94	CS a	V	5.8	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
28-sep-94	CS a	V	11.5	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
29-sep-94	CS ah	V	15.5	<0.0005 U	-	-	<0.0005 U	0.0015	<0.0005 U	<0.0005 U
29-sep-94	CS ah	V	15.5	<0.0005 U	-	-	<0.0005 U	0.0096	<0.0005 U	<0.0005 U
29-sep-94	CS a	V	20.5	<0.0005 U	-	-	<0.0005 U	0.0077	<0.0005 U	<0.0005 U
29-sep-94	CS a	V	25.5	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
29-sep-94	CS a	V	30.5	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
29-sep-94	CS a	V	35.0	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
29-sep-94	CS a	V	40.3	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
29-sep-94	CS a	V	45.5	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
29-sep-94	CS a	V	50.0	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
29-sep-94	CS a	V	55.0	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
832-08										
28-nov-94	CS a	V	3.0	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
28-nov-94	CS a	V	5.3	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
28-nov-94	CS a	V	10.3	<0.0005 U	-	-	<0.0005 U	0.00053	<0.0005 U	<0.0005 U
28-nov-94	CS a	V	15.3	<0.0005 U	-	-	<0.0005 U	0.0097	<0.0005 U	<0.0005 U
28-nov-94	CS ag	V	20.0	<0.0005 U	-	-	<0.0005 U	0.0021	<0.0005 U	<0.0005 U
28-nov-94	GT ag	V	20.0	<0.005 U	-	-	<0.005 U	<0.005 OU	<0.005 U	<0.005 U
28-nov-94	CS ah	V	25.0	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
28-nov-94	CS ahj	V	25.0	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
28-nov-94	CS a	V	30.5	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
28-nov-94	CS a	V	35.0	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
28-nov-94	CS ah	V	40.0	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
29-nov-94	CS ahj	V	40.0	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
29-nov-94	CS a	V	45.0	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
29-nov-94	CS a	V	50.0	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
29-nov-94	CS a	V	55.5	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
832-12										
08-aug-96	CS a	V	5.5	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
08-aug-96	MO a	V	5.5	<0.003 U	-	<0.002 U	-	<0.001 U	<0.001 U	<0.001 U
08-aug-96	CS a	V	11.0	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
08-aug-96	MO a	V	11.0	<0.003 U	-	<0.002 U	-	<0.001 U	<0.001 U	<0.001 U
08-aug-96	CS a	V	16.0	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
08-aug-96	MO a	V	16.0	<0.003 U	-	<0.002 U	-	<0.001 U	<0.001 U	<0.001 U
832-13										
09-aug-96	CS a	V	6.0	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
09-aug-96	MO a	V	6.0	<0.003 U	-	<0.002 U	-	<0.001 U	<0.001 U	<0.001 U
09-aug-96	CS a	V	11.0	<0.0005 U	<0.0005 U	<0.0005 U	-	0.011	<0.0005 U	<0.0005 U
09-aug-96	MO a	V	11.0	<0.003 U	-	<0.002 U	-	0.004	<0.001 U	<0.001 U
09-aug-96	CS a	V	16.0	<0.0005 U	<0.0005 U	<0.0005 U	-	0.029	<0.0005 U	<0.0005 U
09-aug-96	MO a	V	16.0	<0.003 U	-	<0.002 U	-	0.029	<0.001 U	<0.001 U
09-aug-96	CS a	V	21.0	<0.0005 U	<0.0005 U	<0.0005 U	-	0.0071	<0.0005 U	<0.0005 U
09-aug-96	MO a	V	21.0	<0.003 U	-	<0.002 U	-	0.009	<0.001 U	<0.001 U
832-14										
09-aug-96	CS a	V	6.0	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
09-aug-96	MO a	V	6.0	<0.003 U	-	<0.002 U	-	<0.001 U	<0.001 U	<0.001 U





Table A-3. VOCs in soil and rock (mg/kg), Building 832 Canyon OU.

Location Date	Lab	Val. Note	Depth (ft)	1,1- DCE	cis- 1,2- DCE	trans- 1,2- DCE	Total 1,2- DCE	TCE	PCE	1,1- DCA
832-14 (continued)										
09-aug-96	CS a	V	11.0	<0.0005 U	<0.0005 U	<0.0005 U	-	0.023	<0.0005 U	<0.0005 U
09-aug-96	MO a	V	11.0	<0.003 U	-	<0.002 U	-	<0.001 U	<0.001 U	<0.001 U
09-aug-96	CS a	V	16.0	<0.0005 U	<0.0005 U	<0.0005 U	-	0.029	<0.0005 U	<0.0005 U
09-aug-96	MO a	V	16.0	<0.003 U	-	<0.002 U	-	0.015	<0.001 U	<0.001 U
09-aug-96	CS a	V	21.0	<0.0005 U	<0.0005 U	<0.0005 U	-	0.0012	<0.0005 U	<0.0005 U
09-aug-96	MO a	V	21.0	<0.003 U	-	<0.002 U	-	0.002	<0.001 U	<0.001 U
832-15										
12-aug-96	CS a	V	6.0	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
12-aug-96	BB ag	V	11.0	<0.0004 U	<0.0005 U	<0.0005 U	-	<0.00037 U	<0.0009 U	<0.0006 U
12-aug-96	CS ag	V	11.0	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
12-aug-96	CS a	V	16.0	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
12-aug-96	CS ah	V	21.0	<0.0005 U	<0.0005 U	<0.0005 U	-	0.0083 O	<0.0005 U	<0.0005 U
832-16										
12-aug-96	CS a	V	6.0	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U
12-aug-96	CS a	V	11.0	<0.0005 U	<0.0005 U	<0.0005 U	-	0.0014 O	<0.0005 U	<0.0005 U
12-aug-96	BB ag	V	16.0	<0.0004 U	<0.0005 U	<0.0005 U	-	<0.00037 U	<0.0009 U	<0.0006 U
12-aug-96	CS ag	V	16.0	<0.0005 U	<0.0005 U	<0.0005 U	-	0.0022 O	<0.0005 U	<0.0005 U
12-aug-96	CS ah	V	21.0	<0.0005 U	<0.0005 U	<0.0005 U	-	0.0015 O	<0.0005 U	<0.0005 U
832-17										
02-oct-96	EC a	N	6.0	<0.0004 U	<0.0004 U	-	-	<0.0004 U	<0.0004 U	-
02-oct-96	EC a	N	12.0	<0.0004 U	<0.0004 U	-	-	<0.0004 U	<0.0004 U	-
832-18										
02-oct-96	EC a	N	6.0	<0.0004 U	<0.0004 U	-	-	<0.0004 U	<0.0004 U	-
832-19										
02-oct-96	EC a	N	6.0	<0.0004 U	<0.0004 U	-	-	<0.0004 U	<0.0004 U	-
832-21										
03-oct-96	EC a	N	6.0	<0.0004 U	<0.0004 U	-	-	<0.0004 U	<0.0004 U	-
03-oct-96	EC a	N	12.0	<0.0004 U	<0.0004 U	-	-	<0.0004 U	<0.0004 U	-
03-oct-96	EC a	N	18.0	<0.0004 U	<0.0004 U	-	-	<0.0004 U	<0.0004 U	-
832-22										
04-oct-96	EC a	N	6.0	<0.0004 U	<0.0004 U	-	-	0.0011	<0.0004 U	-
04-oct-96	CS ah	V	12.0	<0.0005 U	<0.0005 U	<0.0005 U	-	0.0091	<0.0005 U	<0.0005 U
04-oct-96	EC a	N	12.0	<0.0004 U	<0.0004 U	-	-	0.0061	<0.0004 U	-
04-oct-96	EC a	N	18.0	<0.0004 U	<0.0004 U	-	-	0.0459	<0.0004 U	-
04-oct-96	EC a	N	26.0	<0.0004 U	<0.0004 U	-	-	0.0022	<0.0004 U	-
W-832-01										
17-aug-94	CS a	V	0.6	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
17-aug-94	CS a	V	1.3	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
18-aug-94	CS a	V	5.5	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
18-aug-94	CS a	V	16.0	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
18-aug-94	CS ah	V	20.3	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
18-aug-94	CS ahj	V	20.3	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
18-aug-94	CS a	V	24.5	<0.0005 U	-	-	<0.0005 U	0.0075	<0.0005 U	<0.0005 U
18-aug-94	CS a	V	29.5	<0.0005 U	-	-	<0.0005 U	0.0018	<0.0005 U	<0.0005 U
18-aug-94	CS a	V	32.0	<0.0005 U	-	-	<0.0005 U	0.01	<0.0005 U	<0.0005 U
19-aug-94	CS a	V	38.2	<0.0005 U	-	-	0.00083	0.03	<0.0005 U	<0.0005 U
19-aug-94	CS a	V	40.0	0.001	-	-	<0.0005 U	0.0044	<0.0005 U	<0.0005 U
19-aug-94	GT ahj	V	40.0	<0.005 U	-	-	<0.005 U	<0.005 U	<0.005 U	<0.005 U
W-832-05										
10-oct-94	CS a	V	1.3	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
10-oct-94	CS a	V	5.3	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
10-oct-94	CS a	V	10.5	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
10-oct-94	CS a	V	15.5	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
10-oct-94	CS a	V	20.5	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
10-oct-94	CS a	V	25.5	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
10-oct-94	CS a	V	30.5	<0.0005 U	-	-	<0.0005 U	0.005	<0.0005 U	<0.0005 U
11-oct-94	CS ag	V	35.5	<0.0005 U	-	-	<0.0005 U	0.028	<0.0005 U	<0.0005 U
11-oct-94	GT ag	V	35.5	<0.005 U	-	-	<0.005 U	0.018	<0.005 U	<0.005 U
11-oct-94	CS afh	V	37.0	<0.0005 U	-	-	<0.0005 U	0.014 D	<0.0005 U	<0.0005 U



Table A-3. VOCs in soil and rock (mg/kg), Building 832 Canyon OU.

Location Date	Lab Note	Val. Depth (ft)	1,1- DCE	cis- 1,2- DCE	trans- 1,2- DCE	Total 1,2- DCE	TCE	PCE	1,1- DCA	
W-832-05 (continued)										
11-oct-94	CS ah	V	37.0	<0.0005 U	-	-	<0.0005 U	0.028	<0.0005 U	<0.0005 U
12-oct-94	CS ah	V	38.5	<0.0005 U	-	-	<0.0005 U	0.029	<0.0005 U	<0.0005 U
12-oct-94	CS afh	V	38.5	<0.0005 U	-	-	<0.0005 U	0.018 D	<0.0005 U	<0.0005 U
W-832-06										
21-nov-94	CS a	V	1.8	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
21-nov-94	CS a	V	5.8	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
21-nov-94	CS a	V	10.2	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
21-nov-94	CS a	V	15.0	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
21-nov-94	CS a	V	20.5	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
21-nov-94	GT a	V	20.8	<0.005 U	-	-	<0.005 U	<0.005 U	<0.005 U	<0.005 U
21-nov-94	CS a	V	26.0	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
21-nov-94	CS a	V	31.0	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
21-nov-94	CS a	V	35.8	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
21-nov-94	CS a	V	40.0	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
21-nov-94	CS a	V	45.2	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
22-nov-94	CS a	V	50.0	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
22-nov-94	CS a	V	53.5	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
W-832-09										
29-aug-94	CS a	V	37.0	<0.0005 U	-	-	<0.0005 U	0.032	<0.0005 U	<0.0005 U
12-oct-94	CS a	V	45.5	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
12-oct-94	CS a	V	50.3	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
12-oct-94	CS a	V	55.5	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
12-oct-94	CS a	V	63.6	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
12-oct-94	CS a	V	65.3	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
12-oct-94	CS a	V	73.7	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
12-oct-94	CS a	V	76.5	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
24-oct-94	CS a	V	85.0	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
24-oct-94	CS a	V	95.0	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
24-oct-94	CS a	V	100.0	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
25-oct-94	CS a	V	105.8	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
25-oct-94	CS a	V	116.5	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
25-oct-94	CS a	V	122.3	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
25-oct-94	CS a	V	125.0	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
25-oct-94	CS a	V	171.7	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
27-oct-94	CS a	V	179.5	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
27-oct-94	CS a	V	187.5	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
W-880-01										
25-oct-95	CS a	V	2.0	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
25-oct-95	CS a	V	13.5	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
25-oct-95	CS a	V	20.0	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
26-oct-95	CS a	V	30.0	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
26-oct-95	CS a	V	32.0	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
01-nov-95	CS a	V	40.0	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
01-nov-95	FS ag	V	40.5	<0.005 U	<0.005 U	<0.005 U	-	<0.005 U	<0.005 U	<0.005 U
01-nov-95	CS a	V	50.0	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
01-nov-95	CS a	V	60.0	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
01-nov-95	CS a	V	70.0	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
01-nov-95	CS a	V	80.0	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
02-nov-95	CS a	V	90.0	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
02-nov-95	FS ag	V	90.5	<0.005 U	<0.005 U	<0.005 U	-	<0.005 U	<0.005 U	<0.005 U
02-nov-95	CS a	V	101.0	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
02-nov-95	CS a	V	112.5	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
02-nov-95	CS a	V	120.0	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
02-nov-95	CS a	V	130.0	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
02-nov-95	CS a	V	140.0	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
02-nov-95	FS ag	V	140.6	<0.005 U	<0.005 U	<0.005 U	-	<0.005 U	<0.005 U	<0.005 U
06-nov-95	CS a	V	152.5	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
06-nov-95	CS a	V	162.6	<0.0005 U	-	-	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U
SVI-830-031										
17-sep-96	EC a	N	6.0	<0.0004 U	<0.0004 U	-	-	0.0183	<0.0004 U	-
19-sep-96	EC a	N	12.0	<0.0004 U	<0.0004 U	-	-	0.0139	<0.0004 U	-
19-sep-96	EC a	N	18.0	<0.0004 U	<0.0004 U	-	-	0.0473	<0.0004 U	-
19-sep-96	EC a	N	26.0	<0.0004 U	<0.0004 U	-	-	0.0695	<0.0004 U	-



Table A-3. VOCs in soil and rock (mg/kg), Building 832 Canyon OU.

Location Date	Lab Note	Val. Depth (ft)	1,1- DCE	cis- 1,2- DCE	trans- 1,2- DCE	Total 1,2- DCE	TCE	PCE	1,1- DCA	
SVI-830-032										
18-sep-96	EC a	N 6.0	<0.0004 U	<0.0004 U	-	-	<0.0004 U	<0.0004 U	-	
18-sep-96	CS ag	V 12.0	<0.0005 U	<0.0005 U	<0.0005 U	-	<0.0005 U	<0.0005 U	<0.0005 U	
18-sep-96	EC ag	N 12.0	<0.0004 U	<0.0004 U	-	-	<0.0004 U	<0.0004 U	-	
18-sep-96	EC a	N 18.0	<0.0004 U	<0.0004 U	-	-	<0.0004 U	<0.0004 U	-	
18-sep-96	EC a	N 26.0	<0.0004 U	<0.0004 U	-	-	0.0008	<0.0004 U	-	
18-sep-96	EC a	N 35.0	<0.0004 U	<0.0004 U	-	-	0.0044	<0.0004 U	-	
SVI-830-033										
18-sep-96	CS ag	V 6.0	<0.0005 U	<0.0005 U	<0.0005 U	-	0.013	<0.0005 U	<0.0005 U	
18-sep-96	EC ag	N 6.0	<0.0004 U	<0.0004 U	-	-	0.0076	<0.0004 U	-	
19-sep-96	EC a	N 12.0	<0.0004 U	<0.0004 U	-	-	0.0008	<0.0004 U	-	
19-sep-96	EC a	N 18.0	<0.0004 U	<0.0004 U	-	-	0.0101	<0.0004 U	-	
19-sep-96	EC a	N 26.0	<0.0004 U	<0.0004 U	-	-	0.0248	<0.0004 U	-	
SVI-830-035										
20-sep-96	CS ag	V 6.0	<0.0005 U	<0.0005 U	<0.0005 U	-	0.0014	<0.0005 U	<0.0005 U	
20-sep-96	EC ag	N 6.0	<0.0004 U	<0.0004 U	-	-	<0.0004 U	<0.0004 U	-	
20-sep-96	EC a	N 12.0	<0.0004 U	<0.0004 U	-	-	0.0041	<0.0004 U	-	
20-sep-96	EC a	N 18.0	<0.0004 U	<0.0004 U	-	-	0.0814	<0.0004 U	-	
20-sep-96	CS ag	V 26.0	<0.0005 U	<0.0005 U	<0.0005 U	-	0.62 D	<0.0005 U	<0.0005 U	
20-sep-96	EC ag	N 26.0	<0.0004 U	<0.0004 U	-	-	0.1532	<0.0004 U	-	
830-LG (in ug/g)										
31-aug-83	MS a	U 0.9	-	-	-	-	0.004 P	-	-	
31-aug-83	MS a	U 2.8	-	-	-	-	0.003 P	-	-	
31-aug-83	MS a	U 2.8	-	-	-	-	0.002 P	-	-	
31-aug-83	MS a	U 4.0	-	-	-	-	0.003 P	-	-	
830-MG (in ug/g)										
31-aug-83	MS a	U 1.5	-	-	-	-	0.003 P	-	-	
31-aug-83	MS a	U 2.0	-	-	-	-	0.018 P	-	-	
31-aug-83	MS a	U 3.3	-	-	-	-	0.019 P	-	-	
830-UG1 (in ug/g)										
31-aug-83	MS a	U 1.3	-	-	-	-	<0.001 P	-	-	
830-UG2 (in ug/g)										
26-sep-83	MS a	U 3.1	-	-	-	-	<0.06 P	-	-	
23-sep-83	MS a	U 4.2	-	-	-	-	<0.06 P	-	-	

Results recorded by July 18, 1997.

1,2-DCA	1,1,1-TCA	Chloroform	Freon 11	Freon 113	Methylene chloride	Location Date
						SVI-830-032
<0.0004 U	<0.0004 U	<0.0004 U	-	<0.0004 U	-	18-sep-96
<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U	0.00078 S	18-sep-96
<0.0004 U	<0.0004 U	<0.0004 U	-	<0.0004 U	-	18-sep-96
<0.0004 U	<0.0004 U	<0.0004 U	-	<0.0004 U	-	18-sep-96
<0.0004 U	<0.0004 U	<0.0004 U	-	<0.0004 U	-	18-sep-96
<0.0004 U	<0.0004 U	<0.0004 U	-	<0.0004 U	-	18-sep-96
						SVI-830-033
<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U	18-sep-96
<0.0004 U	<0.0004 U	<0.0004 U	-	<0.0004 U	-	18-sep-96
<0.0004 U	<0.0004 U	<0.0004 U	-	<0.0004 U	-	19-sep-96
<0.0004 U	<0.0004 U	<0.0004 U	-	<0.0004 U	-	19-sep-96
<0.0004 U	<0.0004 U	<0.0004 U	-	<0.0004 U	-	19-sep-96
						SVI-830-035
<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U	20-sep-96
<0.0004 U	<0.0004 U	<0.0004 U	-	<0.0004 U	-	20-sep-96
<0.0004 U	<0.0004 U	<0.0004 U	-	<0.0004 U	-	20-sep-96
<0.0004 U	<0.0004 U	<0.0004 U	-	<0.0004 U	-	20-sep-96
<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U	20-sep-96
<0.0004 U	<0.0004 U	<0.0004 U	-	<0.0004 U	-	20-sep-96
						830-LG
-	-	-	-	-	-	31-aug-83
-	-	-	-	-	-	31-aug-83
-	-	-	-	-	-	31-aug-83
-	-	-	-	-	-	31-aug-83
						830-MG
-	-	-	-	-	-	31-aug-83
-	-	-	-	-	-	31-aug-83
-	-	-	-	-	-	31-aug-83
						830-UG1
-	-	-	-	-	-	31-aug-83
						830-UG2
-	-	-	-	-	-	26-sep-83
-	-	-	-	-	-	23-sep-83

See following page for notes

Table A-3. VOCs in soil and rock (mg/kg), Building 832 Canyon OU.  
Results recorded by July 18, 1997.

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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 well 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

Lab Codes:

- BB BC Laboratories, Inc., Bakersfield, CA
- BC Brown and Caldwell, Emeryville, CA
- CS California Laboratory Services, Rancho Cordova, CA
- EC LLNL Environmental Chemistry Lab
- GT Groundwater Technology Environmental Labs, Concord, CA
- MS C & MS-Gas Chromatography, LLNL, Livermore, CA

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-4. High Explosives in ground water and surface water (ug/L), Building 832  
Canyon OU. Results recorded by July 15, 1997.

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HE Compounds in Water, Site 300

July 16, 1997

geminil

s3hmx.16jul97

Table A-4. High Explosives in ground water and surface water (ug/L), Building 832 Canyon OU. Results recorded by July 15, 1997.

Location	Date	Lab Note	Val.	HMX	RDX	TNT
W-830-04A						
	05-dec-91	EE a	U	<0.83	<0.731	<0.469
	05-dec-91	MS a	U	<20 P	<30 P	<30 P
	21-feb-95	CS a	V	<5 U	<5 U	<5 U
	12-may-95	CS a	V	<5 U	<5 U	-
W-830-05						
	18-dec-91	MS a	U	<20 P	<30 P	<30 P
	07-mar-94	CS a	V	<10 U	<10 U	<5 U
	23-feb-95	CS a	V	<5 U	<5 U	<5 U
	11-may-95	CS a	V	<5 U	<5 U	-
W-830-09						
	06-dec-91	MS a	U	<20 P	<30 P	<30 P
	08-mar-95	CS aeh	V	<5 U	<5 U	<5 U
	08-mar-95	CS ah	V	<5 U	<5 U	<5 U
	16-may-95	CS a	V	<5 U	<5 U	-
W-830-10						
	24-jun-92	MS a	U	<20 P	<30 P	<30 P
	26-oct-92	MS a	U	<20 P	<30 P	<30 P
	16-feb-93	MS a	U	<20 U	<30 U	<30 U
	27-apr-93	MS a	U	<20 U	<30 U	<30 U
	19-aug-93	MS a	N	<20 U	<30 U	<30 U
	13-dec-93	CS a	V	<10 U	<10 U	<5 U
	13-dec-93	MS a	H	<20 U	<30 U	<30 U
	07-mar-94	CS a	V	<10 U	<10 U	<5 U
	12-may-94	CS a	V	<10 U	<10 U	<5 U
	10-aug-94	CS a	V	<10 U	<10 U	<5 U
	21-dec-94	CS a	V	<5 U	<5 U	<5 U
	16-mar-95	CS a	V	<5 U	<5 U	<5 U
	12-may-95	CS a	V	<5 U	<5 U	-
W-830-11						
	25-jun-92	MS a	U	<20 P	<30 P	<30 P
	26-oct-92	MS a	U	<20 P	<30 P	<30 P
	16-feb-93	MS a	U	<20 U	<30 U	<30 U
	27-apr-93	MS a	U	<20 U	<30 U	<30 U
	19-aug-93	MS a	N	<20 U	<30 U	<30 U
	13-dec-93	CS a	V	<10 U	<10 U	<5 U
	13-dec-93	MS a	H	<20 U	<30 U	<30 U
	07-mar-94	CS a	V	<10 U	<10 U	<5 U
	11-aug-94	CS a	V	<10 U	<10 U	<5 U
	16-dec-94	CS ah	V	<5 U	<5 U	<5 U
	16-dec-94	CS aeh	V	<5 U	<5 U	<5 U
	22-feb-95	CS a	V	<5 U	<5 U	<5 U
	12-may-95	CS a	V	<5 U	<5 U	-
W-830-12						
	21-dec-94	CS a	V	<5 U	<5 U	<5 U
	08-mar-95	CS a	V	<5 U	<5 U	<5 U
	16-may-95	CS a	V	<5 U	<5 U	-
W-830-13						
	16-mar-95	CS a	V	<5 U	<5 U	<5 U
	12-may-95	CS a	V	<5 U	<5 U	-
W-830-14						
	16-mar-95	CS a	V	<5 U	<5 U	<5 U
	18-may-95	CS ah	V	<5 U	<5 U	-
	18-may-95	CS aeh	V	<5 U	<5 U	-
W-830-15						
	16-mar-95	CS a	V	<5 U	<5 U	<5 U
	16-may-95	CS a	V	<5 U	<5 U	-

Table A-4. High Explosives in ground water and surface water (ug/L), Building 832 Canyon OU. Results recorded by July 15, 1997.

Location Date	Lab Note	Val.	HMX	RDX	TNT
W-830-16 25-jan-96	CS a	V	<5 U	<5 U	-
W-830-17 25-jan-96	CS a	V	<5 U	<5 U	-
W-830-19 28-jun-96	CS a	V	<5 U	<5 U	-
W-830-21 19-sep-96	CS a	V	<5 U	<5 U	-
W-830-22 20-sep-96	CS a	V	<5 U	<5 U	-
W-830-26 20-sep-96	CS a	V	<5 U	<5 U	-
W-830-27 19-sep-96	CS a	V	<5 U	<5 U	-
W-830-28 23-sep-96	CS a	V	<5 U	<5 U	-
W-830-29 17-mar-97	CS a	V	<5 U	<5 U	-
W-830-30 11-mar-97	CS a	V	<5 U	<5 U	-
W-830-34 11-mar-97	CS a	V	<5 U	<5 U	-
W-831-01 10-dec-91	MS a	U	<20 P	<30 P	<30 P
W-832-01 21-nov-94	CS a	V	<5 U	<5 U	<5 U
16-mar-95	CS ah	V	<5 U	<5 U	<5 U
16-mar-95	CS aeh	V	<5 U	<5 U	<5 U
19-may-95	CS a	V	<5 U	<5 U	-
W-832-05 16-nov-94	CS a	V	<5 U	<5 U	<5 U
06-dec-94	CS a	V	<5 U	<5 U	<5 U
21-dec-94	CS a	V	<5 U	<5 U	<5 U
09-mar-95	CS a	V	<5 U	<5 U	<5 U
19-may-95	CS a	V	<5 U	<5 U	-
W-832-06 09-mar-95	CS a	V	<5 U	<5 U	<5 U
25-may-95	CS a	V	<5 U	<5 U	-
25-may-95	MS a	V	<10 U	<15 U	-
W-832-09 21-nov-94	CS a	V	<5 U	<5 U	<5 U
16-mar-95	CS ah	V	<5 U	<5 U	<5 U
16-mar-95	CS aeh	V	<5 U	<5 U	<5 U
19-may-95	CS a	V	<5 U	<5 U	-
W-880-01 24-jan-96	CS a	V	<5 U	<5 U	-
W-880-02 29-jan-96	CS a	V	<5 U	<5 U	-

Table A-4. High Explosives in ground water and surface water (ug/L), Building 832 Canyon OU. Results recorded by July 15, 1997.

Location	Date	Lab Note	Val.	HMX	RDX	TNT
W-880-03	24-jan-96	CS ah	V	<5 U	<5 U	-
	24-jan-96	CS aeh	V	<5 U	<5 U	-
SPRING3	14-nov-91	MS a	U	<20 P	<30 P	<30 P
	03-sep-93	MS a	N	<20 U	<30 U	<30 U
	20-apr-94	CS a	V	<10 U	<10 U	<5 U
	24-oct-95	CS a	V	<5 U	<5 U	<5 U
	24-oct-95	FS a	V	<13 U	<14 U	-
	21-jun-96	BB a	V	<5 U	<5 U	-
	21-jun-96	CS a	V	<5 U	<5 U	-

See following page for notes

Table A-4. High Explosives in ground water and surface water (ug/L), Building 832 Canyon OU. Results recorded by July 15, 1997.

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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 well 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

Lab Codes:

BB BC Laboratories, Inc., Bakersfield, CA  
CS California Laboratory Services, Rancho Cordova, CA  
EE Environmental Science and Engineering, Inc., Gainesville, FL  
MS C & MS-Gas Chromatography, LLNL, Livermore, CA

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. High Explosives in soil and rock (mg/kg), Building 832 Canyon OU.  
Results recorded by July 18, 1997.

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Site 300 HMX Compounds in Soil  
July 18, 1997  
epdbs::epddata

s3hmxso.

Table A-5. High Explosives in soil and rock (mg/kg), Building 832 Canyon OU.  
Results recorded by July 18, 1997.

Location Date	Lab Note	Val.		HMX	RDX	TNT
		Depth (ft)				
830-23						
30-nov-94	CS a	V	2.3	<0.2 U	<0.15 U	<0.1 U
30-nov-94	CS a	V	6.0	<0.2 U	<0.15 U	<0.1 U
30-nov-94	CS a	V	10.5	<0.2 U	<0.15 U	<0.1 U
30-nov-94	CS a	V	15.3	<0.2 U	<0.15 U	<0.1 U
01-dec-94	CS ah	V	27.3	<0.2 U	<0.15 U	<0.1 U
01-dec-94	CS ah	V	27.3	<0.2 U	<0.15 U	<0.1 U
01-dec-94	CS a	V	31.3	<0.2 U	<0.15 U	<0.1 U
830-24						
05-dec-94	CS a	V	1.3	<0.2 U	<0.15 U	<0.1 U
05-dec-94	CS a	V	6.3	<0.2 U	<0.15 U	<0.1 U
05-dec-94	CS a	V	11.5	<0.2 U	<0.15 U	<0.1 U
05-dec-94	CS ah	V	17.0	<0.2 U	<0.15 U	<0.1 U
05-dec-94	CS ah	V	17.0	<0.2 U	<0.15 U	<0.1 U
06-dec-94	CS a	V	21.0	<0.2 U	<0.15 U	<0.1 U
06-dec-94	CS a	V	26.3	<0.2 U	<0.15 U	<0.1 U
06-dec-94	CS a	V	31.3	<0.2 U	<0.15 U	<0.1 U
W-830-12						
30-aug-94	MS a	N	1.5	<0.005 UH	<0.02 UH	<0.02 UH
30-aug-94	MS a	N	7.0	<0.005 UH	<0.02 UH	<0.02 UH
30-aug-94	MS a	N	16.2	<0.005 UH	<0.02 UH	<0.02 UH
30-aug-94	CS ahj	V	16.3	<0.2 U	<0.15 U	<0.1 U
30-aug-94	MS a	N	20.4	<0.005 UH	<0.02 UH	<0.02 UH
31-aug-94	CS a	V	43.3	<0.2 U	<0.15 U	<0.1 U
31-aug-94	CS a	V	47.0	<0.2 U	<0.15 U	<0.1 U
W-830-13						
08-nov-94	CS ah	V	0.0	<0.2 HU	<0.15 HU	<0.1 HU
08-nov-94	CS ah	V	0.0	<0.2 HU	<0.15 HU	<0.1 HU
08-nov-94	MS ah	N	0.0	0.2 H	<0.1 UH	<0.1 UH
08-nov-94	MS ah	N	0.0	0.07 H	<0.1 UH	<0.1 UH
08-nov-94	CS a	V	13.7	<0.2 HU	<0.15 HU	<0.1 HU
09-nov-94	CS ag	V	18.5	<0.2 HU	<0.15 HU	<0.1 HU
09-nov-94	MS ag	N	18.5	0.1 H	<0.1 UH	<0.1 UH
09-nov-94	CS a	V	20.3	<0.2 HU	<0.15 HU	<0.1 HU
09-nov-94	MS a	N	20.5	0.04 H	<0.1 UH	<0.1 UH
09-nov-94	MS a	N	25.3	<0.03 UH	<0.1 UH	<0.1 UH
09-nov-94	MS a	N	30.8	<0.03 UH	<0.1 UH	<0.1 UH
09-nov-94	MS a	N	38.0	0.05 H	<0.1 UH	<0.1 UH
10-nov-94	CS a	V	41.5	<0.2 HU	<0.15 HU	<0.1 HU
10-nov-94	MS a	N	42.9	0.04 H	<0.1 UH	<0.1 UH
10-nov-94	MS a	N	45.1	0.04 H	<0.1 UH	<0.1 UH
10-nov-94	CS a	V	51.9	<0.2 HU	<0.15 HU	<0.1 HU
10-nov-94	CS ag	V	53.1	<0.2 HU	<0.15 HU	<0.1 HU
10-nov-94	MS ag	N	53.1	0.06 H	<0.1 UH	<0.1 UH
W-830-14						
28-nov-94	CS ag	V	60.1	<0.2 HU	<0.15 HU	<0.1 HU
29-nov-94	CS a	V	72.6	<0.2 HU	<0.15 HU	<0.1 HU
01-dec-94	CS a	V	80.2	<0.2 U	<0.15 U	<0.1 U
01-dec-94	CS a	V	89.6	<0.2 U	<0.15 U	<0.1 U
01-dec-94	CS a	V	101.4	<0.2 U	<0.15 U	<0.1 U
W-830-15						
08-dec-94	CS a	V	1.5	<0.2 U	<0.15 U	<0.1 U
08-dec-94	CS a	V	5.3	<0.2 U	<0.15 U	<0.1 U
08-dec-94	CS a	V	10.5	<0.2 U	<0.15 U	<0.1 U
14-dec-94	CS ah	V	108.7	<0.2 U	<0.15 U	<0.1 U
14-dec-94	CS ah	V	108.7	<0.2 U	<0.15 U	<0.1 U
14-dec-94	CS a	V	116.7	<0.2 U	<0.15 U	<0.1 U
14-dec-94	CS a	V	126.2	<0.2 U	<0.15 U	<0.1 U
14-dec-94	CS a	V	146.3	<0.2 U	<0.15 U	<0.1 U

Table A-5. High Explosives in soil and rock (mg/kg), Building 832 Canyon OU.  
Results recorded by July 18, 1997.

Location Date	Lab Note	Val. Depth (ft)	Val.		
			HMX	RDX	TNT
W-830-16					
03-oct-95	CS a	V 0.0	<0.2 U	<0.15 U	-
03-oct-95	CS a	V 4.3	<0.2 U	<0.15 U	<0.1 U
W-830-18					
03-apr-96	CS a	V 19.0	<0.2 U	<0.15 ULO	-
04-apr-96	CS a	V 51.9	<0.2 U	<0.15 U	-
W-830-19					
03-jun-96	CS a	V 16.3	<0.2 U	<0.15 U	-
04-jun-96	CS a	V 21.9	<0.2 U	<0.15 U	-
05-jun-96	CS a	V 26.3	<0.2 U	<0.15 U	-
05-jun-96	CS a	V 32.5	<0.2 U	<0.15 U	-
05-jun-96	CS a	V 36.4	<0.2 U	<0.15 U	-
06-jun-96	CS ag	V 41.5	<0.2 U	<0.15 U	-
06-jun-96	BB ag	V 41.8	<0.1 U	<0.1 U	-
W-830-20					
13-jun-96	CS a	V 0.0	<0.2 U	<0.15 U	-
13-jun-96	CS a	V 7.8	<0.2 U	<0.15 U	-
W-830-25					
06-aug-96	CS a	V 0.0	<0.2 U	<0.15 U	-
06-aug-96	CS a	V 6.3	<0.2 U	<0.15 U	-
06-aug-96	CS a	V 11.7	<0.2 U	<0.15 U	-
832-02					
26-sep-94	MS a	N 1.8	0.13 H	<0.2 UH	<0.2 UH
26-sep-94	MS a	N 6.0	0.18 H	<0.2 UH	<0.2 UH
26-sep-94	MS a	N 11.0	0.14 H	<0.2 UH	<0.2 UH
26-sep-94	MS a	N 11.3	0.18 H	<0.2 UH	<0.2 UH
27-sep-94	MS a	N 16.3	0.1 H	<0.2 UH	<0.2 UH
27-sep-94	MS a	N 21.0	<0.1 UH	<0.2 UH	<0.2 UH
27-sep-94	MS a	N 26.0	<0.1 UH	<0.2 UH	<0.2 UH
27-sep-94	MS a	N 31.0	<0.1 UH	<0.2 UH	<0.2 UH
832-03					
04-oct-94	MS a	N 2.0	0.06 H	<0.1 UH	<0.1 UH
04-oct-94	MS a	N 2.3	0.05 H	<0.1 UH	<0.1 UH
04-oct-94	MS a	N 6.0	0.08 H	<0.1 UH	<0.1 UH
04-oct-94	MS a	N 11.0	0.08 H	<0.1 UH	<0.1 UH
04-oct-94	MS a	N 16.0	0.08 H	<0.1 UH	<0.1 UH
04-oct-94	MS a	N 20.8	0.04 H	<0.1 UH	<0.1 UH
05-oct-94	MS a	N 26.0	0.04 H	<0.1 UH	<0.1 UH
05-oct-94	MS a	N 31.0	0.04 H	<0.1 UH	<0.1 UH
832-04					
06-oct-94	MS a	N 1.8	0.04 H	<0.1 UH	<0.1 UH
06-oct-94	MS a	N 6.0	<0.04 UH	<0.1 UH	<0.1 UH
06-oct-94	MS a	N 11.3	0.04 H	<0.1 UH	<0.1 UH
06-oct-94	MS a	N 16.3	0.04 H	<0.1 UH	<0.1 UH
07-oct-94	MS a	N 21.0	<0.04 UH	<0.1 UH	<0.1 UH
07-oct-94	MS a	N 26.0	<0.04 UH	<0.1 UH	<0.1 UH
07-oct-94	MS a	N 31.0	<0.04 UH	<0.1 UH	<0.1 UH
832-07					
28-sep-94	MS a	N 5.5	0.2 H	<0.2 UH	<0.2 UH
28-sep-94	MS a	N 10.8	0.11 H	<0.2 UH	<0.2 UH
29-sep-94	MS a	N 16.8	0.18 H	<0.1 UH	<0.1 UH
29-sep-94	MS a	N 21.0	0.06 H	<0.1 UH	<0.1 UH
29-sep-94	MS a	N 26.0	0.07 H	<0.1 UH	<0.1 UH
29-sep-94	MS a	N 31.0	0.05 H	<0.1 UH	<0.1 UH
832-08					
28-nov-94	CS a	V 1.5	<0.2 U	<0.15 U	<0.1 U
28-nov-94	CS a	V 5.0	<0.2 U	<0.15 U	<0.1 U
28-nov-94	CS a	V 10.0	<0.2 U	<0.15 U	<0.1 U
28-nov-94	CS a	V 15.0	<0.2 U	<0.15 U	<0.1 U



Table A-5. High Explosives in soil and rock (mg/kg), Building 832 Canyon OU.  
Results recorded by July 18, 1997.

Location Date	Lab	Val. Note	Depth (ft)			
				HMX	RDX	TNT
832-08 (continued)						
28-nov-94	CS ag	V	20.5	<0.2 U	<0.15 U	<0.1 U
28-nov-94	CS ah	V	25.5	<0.2 U	<0.15 U	<0.1 U
28-nov-94	CS a	V	30.0	<0.2 U	<0.15 U	<0.1 U
28-nov-94	CS a	V	40.0	<0.2 HU	<0.15 HU	<0.1 HU
29-nov-94	CS a	V	45.0	<0.2 HU	<0.15 HU	<0.1 HU
29-nov-94	CS a	V	50.0	<0.2 HU	<0.15 HU	<0.1 HU
29-nov-94	CS a	V	55.5	<0.2 HU	<0.15 HU	<0.1 HU
W-832-01						
17-aug-94	MS a	N	1.3	<0.005 UH	<0.02 UH	<0.02 UH
18-aug-94	MS a	N	6.0	<0.005 UH	<0.02 UH	<0.02 UH
18-aug-94	MS a	N	16.5	<0.005 UH	<0.02 UH	<0.02 UH
W-832-05						
10-oct-94	CS a	V	1.3	<0.2 HU	<0.15 HU	<0.1 HU
10-oct-94	MS a	N	1.5	<0.04 UH	<0.1 UH	<0.1 UH
10-oct-94	MS a	N	5.8	<0.04 UH	<0.1 UH	<0.1 UH
10-oct-94	MS a	N	10.8	<0.04 UH	<0.1 UH	<0.1 UH
10-oct-94	CS a	V	15.3	<0.2 HU	<0.15 HU	<0.1 HU
10-oct-94	MS a	N	16.0	<0.04 UH	<0.1 UH	<0.1 UH
10-oct-94	MS a	N	21.0	<0.04 UH	<0.1 UH	<0.1 UH
10-oct-94	CS a	V	25.5	<0.2 HU	<0.15 HU	<0.1 HU
10-oct-94	MS a	N	26.0	<0.04 UH	<0.1 UH	<0.1 UH
11-oct-94	CS a	V	35.5	<0.2 HU	<0.15 HU	<0.1 HU
W-832-06						
21-nov-94	CS a	V	2.0	<0.2 U	<0.15 U	<0.1 U
21-nov-94	CS a	V	6.0	<0.2 U	<0.15 U	<0.1 U
21-nov-94	CS a	V	10.5	<0.2 U	<0.15 U	<0.1 U
21-nov-94	CS a	V	21.0	<0.2 U	<0.15 U	<0.1 U
21-nov-94	CS a	V	26.2	<0.2 U	<0.15 U	<0.1 U
21-nov-94	CS a	V	31.2	<0.2 U	<0.15 U	<0.1 U
21-nov-94	CS a	V	35.8	<0.2 HU	<0.15 HU	<0.1 HU
21-nov-94	CS a	V	40.0	<0.2 HU	<0.15 HU	<0.1 HU
21-nov-94	CS a	V	45.2	<0.2 HU	<0.15 HU	<0.1 HU
W-880-01						
25-oct-95	CS a	V	2.0	<0.2 U	<0.15 U	<0.1 U

See following page for notes

Table A-5. High Explosives in soil and rock (mg/kg), Building 832 Canyon OU.  
Results recorded by July 18, 1997.

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 well 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

Lab Codes:

BB BC Laboratories, Inc., Bakersfield, CA  
CS California Laboratory Services, Rancho Cordova, CA  
MS C & MS-Gas Chromatography, LLNL, Livermore, CA

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. Tritium in ground water and surface water (pCi/L), Building 832  
Canyon OU. Results recorded by July 15, 1997.

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Tritium in Ground Water, Site 300  
July 18, 1997  
geminil

s3trit.18jul97

Table A-6. Tritium in ground water and surface water (pCi/L), Building 832 Canyon OU. Results recorded by July 15, 1997.

Location Date	Lab	Note	Val.	Tritium Activity
W-830-04A				
24-mar-95	IT	a	V	<82.4 +/- 24.3U
12-may-95	IT	a	V	<90 +/- 26.8U
W-830-05				
24-mar-95	IT	a	V	<92 +/- 27.7U
12-may-95	IT	a	V	<90 +/- 27.2U
W-830-09				
24-mar-95	IT	a	V	<92 +/- 27.2U
16-may-95	IT	a	V	<90 +/- 27.1U
W-830-10				
24-mar-95	IT	a	V	<95.6 +/- 28.5U
12-may-95	IT	a	V	<90 +/- 27.2U
W-830-11				
24-mar-95	IT	a	V	<92 +/- 27.6U
12-may-95	IT	a	V	<90 +/- 26.9U
W-830-12				
08-mar-95	IT	a	V	<90.7 +/- 26.9U
16-may-95	IT	a	V	<90 +/- 26.8U
W-830-13				
16-mar-95	IT	a	V	<91 +/- 27U
12-may-95	IT	a	V	<90 +/- 26.9U
W-830-14				
16-mar-95	IT	a	V	<90.7 +/- 27U
18-may-95	IT	ah	V	<82.3 +/- 24.7U
18-may-95	IT	aeH	V	<79.5 +/- 24.2U
W-830-15				
16-mar-95	IT	a	V	<90.7 +/- 27U
16-may-95	IT	a	V	<90 +/- 27U
W-830-16				
25-jan-96	IT	a	V	<90.4 +/- 27.3U
W-830-17				
25-jan-96	IT	a	V	<90.4 +/- 27.1U
W-830-20				
24-sep-96	LH	a	V	<100 +/- 58U
W-830-21				
19-sep-96	LH	a	V	<110 +/- 61UO
W-830-22				
20-sep-96	LH	a	V	<99 +/- 55U

Table A-6. Tritium in ground water and surface water (pCi/L), Building 832 Canyon OU. Results recorded by July 15, 1997.

Location Date	Lab Note	Val.	Tritium Activity
W-830-26 20-sep-96	LH a	V	<100 +/- 60U
W-830-27 19-sep-96	LH a	V	<110 +/- 58UO
W-830-28 23-sep-96	LH a	V	<100 +/- 59UO
W-830-30 11-mar-97	LH a	N	131 +/- 63
W-830-34 11-mar-97	LH a	N	<100 +/- 60U
W-832-01 16-mar-95	IT a	V	<90.7 +/- 26.8U
17-may-95	IT a	V	<82.3 +/- 25.1U
W-832-05 09-mar-95	IT a	V	<85 +/- 25.7U
17-may-95	IT a	V	<82.3 +/- 25U
W-832-06 09-mar-95	IT a	V	<85 +/- 25.5U
25-may-95	LH ah	V	<250 +/- 200LU
25-may-95	LH ah	V	<260 +/- 210UL
W-832-09 16-mar-95	IT ag	V	<92 +/- 27.4U
17-may-95	IT a	V	<82.3 +/- 24.7U
W-880-01 24-jan-96	IT a	V	<90.4 +/- 26.8U
W-880-02 26-jan-96	IT a	V	<90.4 +/- 26.7U
W-880-03 24-jan-96	IT ah	V	<90.4 +/- 27.3U
24-jan-96	IT aeh	V	<90.4 +/- 27.3U
SPRING3 03-sep-93	IT ap	V	<96 +/- 28U
20-apr-94	IT ap	V	<93.5 +/- 27.9U
24-oct-95	IT a	V	<91 +/- 27U
24-oct-95	LH a	V	<160 +/- 120U
21-jun-96	CX a	V	<129 U

See following page for notes

Table A-6. Tritium in ground water and surface water (pCi/L), Building 832 Canyon OU. Results recorded by July 15, 1997.

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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 well 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

Lab Codes:

IT International Technology Corp.  
LH Lockheed Analytical Services, Las Vegas, NV

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. Tritium in soil and rock (pCi/g), Building 832 Canyon OU.  
Results recorded by July 15, 1997.

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Tritium in Soil, Site 300  
July 18, 1997  
geminil

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Table A-7. Tritium in soil and rock (pCi/g), Building 832 Canyon OU.  
 Results recorded by July 15, 1997.

Location Date	Lab Note	Val. Depth (ft)	Tritium (pCi/g)
W-830-18			
03-apr-96	ES a	N 17.5	<1 +/- 1U
04-apr-96	ES a	N 52.5	<1 +/- 1U
10-apr-96	ES a	N 101.5	<1 +/- 1U
W-830-19			
03-jun-96	ES a	N 16.6	<1 +/- 1U
04-jun-96	ES a	N 22.2	<1 +/- 1U
05-jun-96	ES a	N 26.6	<1 +/- 1U
05-jun-96	ES a	N 32.8	<1 +/- 1U
05-jun-96	ES a	N 36.7	<1 +/- 1U
06-jun-96	ES a	N 40.0	<1 +/- 1U
W-832-01			
17-aug-94	LH a	V 0.0	<0.53 +/- 0.27 U
18-aug-94	LH a	V 5.0	<0.54 +/- 0.27 U
18-aug-94	LH a	V 15.0	<0.49 +/- 0.27 U

See following page for notes



Table A-7. Tritium in soil and rock (pCi/g), Building 832 Canyon OU.  
Results recorded by July 15, 1997.

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 well 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

Lab Codes:

ES Environmental Science Scanning Facility, LLNL, Livermore, CA  
LH Lockheed Analytical Services, Las Vegas, NV

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. Tritium in soil moisture (pCi/L), Building 832 Canyon OU.  
Results recorded by July 18, 1997.

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Tritium in Soil, Site 300

July 18, 1997

epdbs::epddata

s3tritso.

Table A-8. Tritium in soil moisture (pCi/L), Building 832 Canyon OU.  
Results recorded by July 18, 1997.

Location Date	Lab Note	Val.		Tritium (pCi/L)	Moisture by Weight (percent)
		Depth (ft)			
830-23					
30-nov-94	IT a	V	2.0	<193 +/- 59U	21
30-nov-94	IT a	V	6.5	<193 +/- 59U	19
30-nov-94	IT a	V	11.1	<200 +/- 61U	13
30-nov-94	IT a	V	17.3	<182 +/- 54U	22
01-dec-94	IT ah	V	26.3	<137 +/- 41U	25
01-dec-94	IT a	V	30.0	<141 +/- 43U	25
01-dec-94	IT ah	V	36.0	<141 +/- 43U	24
01-dec-94	IT ah	V	36.0	<146 +/- 44U	25
830-24					
05-dec-94	IT a	V	1.8	<146 +/- 44U	12
05-dec-94	IT a	V	5.3	<128 +/- 39U	22
05-dec-94	IT a	V	11.0	<151 +/- 46U	30
05-dec-94	IT ah	V	16.0	<141 +/- 43U	19
06-dec-94	IT a	V	21.3	<151 +/- 46U	28
06-dec-94	IT a	V	25.5	<146 +/- 44U	25
06-dec-94	IT a	V	30.5	<151 +/- 46U	29
W-830-12					
30-aug-94	IT a	V	0.2	6970 +/- 150	24.12
30-aug-94	IT a	V	5.0	5370 +/- 123	25.33
30-aug-94	IT a	V	14.5	2750 +/- 100	14.91
W-830-13					
08-nov-94	IT a	V	0.0	<193 +/- 59U	11
09-nov-94	IT a	V	19.0	<200 +/- 63U	10
09-nov-94	IT a	V	20.7	<161 +/- 50U	6
09-nov-94	IT a	V	28.7	201 +/- 64	13
09-nov-94	IT a	V	31.6	280 +/- 63	13
09-nov-94	IT a	V	37.5	<193 +/- 61U	17
10-nov-94	IT a	V	42.4	<200 +/- 64U	18
10-nov-94	IT a	V	46.2	<193 +/- 61U	17
10-nov-94	IT a	V	52.6	209 +/- 62	13
W-830-15					
08-dec-94	IT a	V	6.1	<151 +/- 46U	18
W-830-16					
03-oct-95	IT a	V	0.0	<193 +/- 58U	-
03-oct-95	IT a	V	4.8	<163 +/- 48U	-
03-oct-95	IT a	V	10.0	<135 +/- 40U	-
W-830-18					
03-apr-96	LH a	V	5.2	<160 +/- 120UO	16
03-apr-96	LH a	V	10.0	<180 +/- 120UO	18
03-apr-96	LH a	V	17.0	<170 +/- 130UO	25
04-apr-96	LH a	V	51.5	<170 +/- 130UO	17
04-apr-96	ES a	N	52.5	-	10
10-apr-96	LH a	V	101.2	<170 +/- 130UO	17

Table A-8. Tritium in soil moisture (pCi/L), Building 832 Canyon OU.  
Results recorded by July 18, 1997.

Location Date	Lab Note	Val. Depth (ft)	Tritium (pCi/L)	Moisture by Weight (percent)
W-830-19				
03-jun-96	LH a	V 15.4	<80 +/- 49UO	18
04-jun-96	LH a	V 21.0	<84 +/- 51UO	21
05-jun-96	LH a	V 25.2	<81 +/- 47U	19
05-jun-96	LH a	V 30.6	<79 +/- 50U	17
05-jun-96	LH a	V 35.0	<79 +/- 49UO	17
06-jun-96	LH ah	V 42.1	<80 +/- 44UO	20
06-jun-96	CX ah	V 43.0	<150 U	20.68
W-830-25				
06-aug-96	LH a	V 0.0	<170 +/- 92UO	5.7
06-aug-96	LH a	V 5.0	<170 +/- 94UO	15
06-aug-96	LH a	V 10.7	<180 +/- 100UO	16
832-02				
26-sep-94	IT a	V 1.0	<204 +/- 64U	16
26-sep-94	IT a	V 5.0	539 +/- 71B	21
26-sep-94	IT a	V 10.0	<210 +/- 62U	23
27-sep-94	IT a	V 15.0	<233 +/- 69U	20
27-sep-94	IT a	V 20.0	<225 +/- 68U	26
27-sep-94	IT a	V 25.0	<217 +/- 65U	20
27-sep-94	IT a	V 30.0	<210 +/- 63U	18
832-03				
04-oct-94	IT ah	V 1.3	<190 +/- 58 U	16
04-oct-94	IT ah	V 1.3	<209 +/- 63 U	15
04-oct-94	IT a	V 5.0	<202 +/- 61 U	12
04-oct-94	IT a	V 10.0	<209 +/- 63 U	15
04-oct-94	IT a	V 15.0	<202 +/- 61 U	22
04-oct-94	IT a	V 20.0	<216 +/- 65 U	18
05-oct-94	IT a	V 25.5	<209 +/- 63 U	34
05-oct-94	IT ag	V 30.0	<209 +/- 64 U	21
832-04				
06-oct-94	IT a	V 1.0	<191 +/- 60 U	15
06-oct-94	IT a	V 5.0	<191 +/- 60 U	15
06-oct-94	IT ag	V 10.0	<185 +/- 58 U	19
06-oct-94	IT a	V 15.0	<185 +/- 57 U	20
07-oct-94	IT a	V 20.0	<209 +/- 65 U	21
07-oct-94	IT a	V 25.0	<196 +/- 61 U	25
07-oct-94	IT a	V 30.0	<209 +/- 65 U	27
832-07				
28-sep-94	IT a	V 1.0	<210.6 +/- 64U	17
28-sep-94	IT a	V 5.0	<196 +/- 60U	14
28-sep-94	IT a	V 10.0	<196 +/- 61U	16

Table A-8. Tritium in soil moisture (pCi/L), Building 832 Canyon OU.  
Results recorded by July 18, 1997.

Location Date	Lab	Val.		Tritium (pCi/L)	Moisture by Weight (percent)
		Note	Depth (ft)		
832-07 (continued)					
29-sep-94	IT ag	V	15.0	<185 +/- 58 U	21
29-sep-94	IT a	V	20.0	<247 +/- 74 U	18
29-sep-94	IT a	V	25.0	<224 +/- 67 U	25
29-sep-94	IT a	V	30.0	<224 +/- 69 U	19
832-08					
28-nov-94	IT a	V	1.0	<98.2 +/- 30.5U	14
28-nov-94	IT a	V	6.0	<101 +/- 31U	14
28-nov-94	IT a	V	11.0	282 +/- 65B	12
28-nov-94	IT a	V	16.0	606 +/- 69B	17
28-nov-94	IT a	V	21.0	<199 +/- 60U	14
28-nov-94	IT a	V	26.0	146 +/- 33B	15
28-nov-94	IT a	V	31.0	768 +/- 71B	16
W-832-05					
10-oct-94	IT a	V	1.0	<202 +/- 62 U	20
10-oct-94	IT a	V	10.0	<224 +/- 70 U	17
10-oct-94	IT a	V	15.0	<209 +/- 65 U	16
10-oct-94	IT a	V	20.0	<209 +/- 65 U	20
10-oct-94	IT a	V	25.0	<216 +/- 66 U	23
10-oct-94	IT a	V	30.0	<224 +/- 69 U	20
W-832-06					
21-nov-94	IT a	V	1.2	<193 +/- 60U	19
21-nov-94	IT a	V	5.2	<200 +/- 64U	25
21-nov-94	IT a	V	20.2	<200 +/- 61U	22
21-nov-94	IT a	V	25.8	<193 +/- 58U	23
21-nov-94	IT a	V	30.8	<193 +/- 59U	22
W-880-01					
25-oct-95	IT a	V	2.3	<190 +/- 55U	10
3SS-21-02					
18-sep-91	TM ap	U	0.0	144 +/- 261P	4.4 P
3SS-830-01					
16-oct-96	LH ah	V	0.0	-	4.3
16-oct-96	LH ah	V	0.0	-	5
16-oct-96	LH a	V	1.0	-	19
16-oct-96	LH ah	V	1.0	<110 +/- 64UO	-
16-oct-96	LH ah	V	1.0	<110 +/- 64UO	-
3SS-830-02					
16-oct-96	LH a	V	0.0	-	17
16-oct-96	LH a	V	1.0	-	19
16-oct-96	LH a	V	1.0	<110 +/- 68UO	-
3SS-830-03					
16-oct-96	LH a	V	0.0	-	6.2
16-oct-96	LH a	V	1.0	-	13

Table A-8. Tritium in soil moisture (pCi/L), Building 832 Canyon OU.  
 Results recorded by July 18, 1997.

Location Date	Lab Note	Val. Depth (ft)	Tritium (pCi/L)	Moisture by Weight (percent)
3SS-830-03 (continued)				
16-oct-96	LH a	V 1.0	116 +/- 72 O	-
3SS-830-04				
16-oct-96	LH a	V 0.0	-	5.8
16-oct-96	LH a	V 1.0	-	13
16-oct-96	LH a	V 1.0	<110 +/- 68UO	-
3SS-832-01				
16-oct-96	LH a	V 0.0	-	5.5
16-oct-96	LH a	V 1.0	-	18
16-oct-96	LH a	V 1.0	<110 +/- 65UO	-
3SS-832-02				
16-oct-96	LH a	V 0.0	-	3
16-oct-96	LH a	V 1.0	-	5.3
16-oct-96	LH a	V 1.0	<110 +/- 69UO	-
3SS-832-03				
16-oct-96	LH a	V 0.0	-	3
16-oct-96	LH a	V 1.0	-	11
16-oct-96	LH a	V 1.0	<110 +/- 68UO	-
3SS-832-04				
16-oct-96	LH a	V 0.0	-	6.4
16-oct-96	LH a	V 1.0	-	7.3
16-oct-96	LH a	V 1.0	<110 +/- 68UO	-

See following page for notes

Table A-8. Tritium in soil moisture (pCi/L), Building 832 Canyon OU.  
Results recorded by July 18, 1997.

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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 well 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

Lab Codes:

- DS Daniel B. Stevens & Associates
- ES Environmental Science Scanning Facility, LLNL, Livermore, CA
- IT International Technology Corp.
- LH Lockheed Analytical Services, Las Vegas, NV
- TM Thermo Analytical Inc., Richmond, CA

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. Gross alpha/gross beta in ground water and surface water (pCi/L), Building  
832 Canyon OU. Results recorded by July 15, 1997.

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Gross Alpha and Gross Beta, Site 300  
July 17, 1997  
geminil

s3rads.17jul97



Table A-9. Gross alpha/gross beta in ground water and surface water (pCi/L), Building 832 Canyon OU. Results recorded by July 15, 1997.

Location Date	Lab Note	Val.	Gross Alpha	Gross Beta
Building 833 Study Area				
W-830-12 08-mar-95	IT a	V	<1.24 +/- 0.34U	4.02 +/- 0.31
W-830-13 16-mar-95	IT a	V	6.15 +/- 1.21	10.3 +/- 0.7
W-830-14 16-mar-95	IT a	V	2.72 +/- 0.86	13.9 +/- 0.75
W-830-15 16-mar-95	IT a	V	<2.14 +/- 0.62U	8.06 +/- 0.59
W-830-16 25-jan-96	IT a	V	<2.41 +/- 0.79U	13.3 +/- 0.6
W-830-17 25-jan-96	IT a	V	46.7 +/- 2B	17.1 +/- 1.1
W-830-18 28-jun-96	LH a	V	<8.8 +/- 5.4UO	19.8 +/- 4.8
W-830-19 28-jun-96	LH a	V	36 +/- 11 O	27.2 +/- 7.6
W-830-20 24-sep-96	LH a	V	<12 +/- 7U	19.1 +/- 7
W-830-21 19-sep-96	LH a	V	<21 +/- 10U	34 +/- 13 O
W-830-22 20-sep-96	LH a	V	<26 +/- 15U	135 +/- 18 O
W-830-26 20-sep-96	LH a	V	<14 +/- 6.2U	40.9 +/- 9.5 O
W-830-27 19-sep-96	LH a	V	<14 +/- 8.2U	21 +/- 8.4 O
W-830-28 23-sep-96	LH a	V	<12 +/- 5.8U	22.2 +/- 6.4 O
W-830-29 17-mar-97	LH a	V	-	8 +/- 2.9J
W-830-30 11-mar-97	LH a	V	41.2 +/- 5.3L	9.6 +/- 2.1
W-830-34 11-mar-97	LH a	V	5.4 +/- 2.7L	13.3 +/- 2.4
W-832-01 16-mar-95	IT ag	V	19 +/- 4.1	26.8 +/- 2.8
W-832-05 09-mar-95	IT a	V	28 +/- 5.3	27.7 +/- 3.9
W-832-06 09-mar-95	IT a	V	<14.1 +/- 4.5UJB	35.3 +/- 3.8
	09-mar-95	IT a	14.3 +/- 1.3JB	-
W-832-09 16-mar-95	IT ag	V	20.8 +/- 2	12.1 +/- 1
W-880-01 24-jan-96	IT a	V	4.37 +/- 1.11B	8.05 +/- 1.05

Table A-9. Gross alpha/gross beta in ground water and surface water (pCi/L), Building 832 Canyon OU. Results recorded by July 15, 1997.

Location Date	Lab Note	Val.		Gross Alpha	Gross Beta
Building 833 Study Area (continued)					
W-880-02					
26-jan-96	IT	a	V	10.3 +/- 1.5B	8.94 +/- 1.08
W-880-03					
24-jan-96	IT	ah	V	<2.43 +/- 0.81U	6.24 +/- 0.55
24-jan-96	IT	aeh	V	3.94 +/- 1.26B	6.04 +/- 1.04
SPRING3					
03-sep-93	IT	ap	V	20.02 +/- 2.61	15.32 +/- 0.98
20-apr-94	IT	ap	V	3.82 +/- 0.24	12.7 +/- 0.6
24-oct-95	IT	a	V	61.3 +/- 4.4	33.5 +/- 2.4
24-oct-95	LH	a	V	53 +/- 19	60 +/- 12 O
21-jun-96	CX	a	V	19.95 +/- 4.25	19.1 +/- 2.54
21-jun-96	LH	a	V	42 +/- 11 O	<9.4 +/- 5.8U
12-nov-96	LH	a	V	23 +/- 12	<15 +/- 9.2U

See following page for notes

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 well 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

Lab Codes:

- IT International Technology Corp.
- LH Lockheed Analytical Services, Las Vegas, NV

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. Gross alpha/gross beta in soil and rock (pCi/g), Building 832 Canyon OU.  
Results recorded by July 15, 1997.

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Rads in soil, Site 300  
July 17, 1997  
geminil

s3-stdrads-SO.17jul97

Table A-10. Gross alpha/gross beta in soil and rock (pCi/g), Building 832 Canyon OU. Results recorded by July 15, 1997.

Location	Lab	Val.		Gross Alpha	Gross Beta
		Depth (ft)	Note		
830-23					
30-nov-94	IT a	V	1.8	28.9 +/- 1.3	36.6 +/- 1.2
30-nov-94	IT a	V	6.5	19 +/- 1	30 +/- 1.1
30-nov-94	IT a	V	10.8	30.4 +/- 1.2	33.6 +/- 1.2
30-nov-94	IT a	V	17.0	14.8 +/- 1.1	27.2 +/- 1.1
01-dec-94	IT ah	V	26.3	<2.69 +/- 0.38U	16.9 +/- 2.1
01-dec-94	IT a	V	30.0	25 +/- 3.6	31.1 +/- 3.3
01-dec-94	IT ah	V	36.0	14.3 +/- 2.5	22.2 +/- 2.5
01-dec-94	IT ah	V	36.0	23.5 +/- 3.4	29.3 +/- 3.2
830-24					
05-dec-94	IT a	V	2.0	8.29 +/- 1.91	21.6 +/- 2.4
05-dec-94	IT a	V	5.3	<3.12 +/- 1.02U	13.7 +/- 1.8
05-dec-94	IT a	V	11.3	6.63 +/- 1.89	17.6 +/- 2.1
05-dec-94	IT ah	V	16.5	6.5 +/- 1.72	24 +/- 2.7
06-dec-94	IT a	V	21.3	9.21 +/- 2.24	11.8 +/- 1.6
06-dec-94	IT a	V	25.5	7.44 +/- 1.66	17.5 +/- 2.1
06-dec-94	IT a	V	30.5	6.78 +/- 2.29	21.8 +/- 2.5
W-830-12					
30-aug-94	IT a	V	0.2	11.6 +/- 0.1	14.2 +/- 0.2
30-aug-94	IT a	V	5.0	11.7 +/- 0.1	17.5 +/- 0.2
30-aug-94	IT a	V	14.5	11.9 +/- 0.1	15.3 +/- 0.2
W-830-13					
08-nov-94	IT a	V	0.0	9.83 +/- 0.99	28.9 +/- 1.3
09-nov-94	IT a	V	19.0	11.2 +/- 1	16.9 +/- 1.1
09-nov-94	IT a	V	20.7	9.19 +/- 0.96	24.3 +/- 1.3
09-nov-94	IT a	V	28.7	<2.13 +/- 0.66U	5.81 +/- 0.62
09-nov-94	IT a	V	31.6	<2.21 +/- 0.74U	12.2 +/- 1.1
09-nov-94	IT a	V	37.5	<2.98 +/- 0.95U	14.2 +/- 1.2
10-nov-94	IT a	V	42.4	4.36 +/- 1.26	21.2 +/- 1.4
10-nov-94	IT a	V	46.2	3.77 +/- 0.83	14.6 +/- 1.1
10-nov-94	IT a	V	52.6	8.21 +/- 0.98	25.3 +/- 1.3
W-830-15					
08-dec-94	IT a	V	6.1	9.11 +/- 2.11	11.2 +/- 1.5
W-830-16					
03-oct-95	IT a	V	0.0	7.27 +/- 1	17.3 +/- 0.9
03-oct-95	IT a	V	4.8	4.09 +/- 0.82	15.6 +/- 0.9
03-oct-95	IT a	V	10.0	2.66 +/- 0.72	13.4 +/- 0.9
W-830-18					
03-apr-96	LH a	V	17.0	14 +/- 2.3L	9.4 +/- 1.1L
04-apr-96	LH a	V	51.5	12.3 +/- 1.5L	5.75 +/- 0.62L
W-830-19					
03-jun-96	LH a	V	15.4	4.8 +/- 1	3.35 +/- 0.63
04-jun-96	LH a	V	21.0	11 +/- 1.6	4.83 +/- 0.73
05-jun-96	LH a	V	25.2	15.3 +/- 1.9	6.76 +/- 0.84
05-jun-96	LH a	V	30.6	8.7 +/- 1.3	4.03 +/- 0.67
05-jun-96	LH a	V	35.0	11.3 +/- 1.5	5.43 +/- 0.76
06-jun-96	LH a	V	42.1	<0.76 +/- 0.28U	<0.71 +/- 0.42U
06-jun-96	CX ah	V	43.0	7.36 +/- 0.83	3.89 +/- 0.4
W-830-25					
06-aug-96	LH a	V	0.0	3.7 +/- 1.3	4.63 +/- 0.81
06-aug-96	LH a	V	5.0	11.7 +/- 2	6.71 +/- 0.94
06-aug-96	LH a	V	10.7	7.9 +/- 1.3	4.35 +/- 0.77
832-02					
26-sep-94	IT a	V	1.0	6.56 +/- 0.11	15.4 +/- 0.2
26-sep-94	IT a	V	5.0	14.3 +/- 0.1	18.8 +/- 0.3
26-sep-94	IT a	V	10.0	8.99 +/- 0.12	17.9 +/- 0.2
27-sep-94	IT a	V	15.0	13 +/- 0.1	22.2 +/- 0.3
27-sep-94	IT a	V	20.0	5.48 +/- 0.11	15.2 +/- 0.3

Table A-10. Gross alpha/gross beta in soil and rock (pCi/g), Building 832 Canyon OU.  
Results recorded by July 15, 1997.

Location	Lab	Val.	Depth	Gross	Gross
Date	Note		(ft)	Alpha	Beta
832-02 (continued)					
27-sep-94	IT a	V	25.0	7.39 +/- 0.1	17.9 +/- 0.2
27-sep-94	IT a	V	30.0	7.01 +/- 0.11	18.4 +/- 0.3
832-03					
04-oct-94	IT ah	V	1.3	10.4 +/- 1	17.6 +/- 1.4
04-oct-94	IT ah	V	1.3	12 +/- 0.9	16.5 +/- 1.1
04-oct-94	IT a	V	5.0	10.9 +/- 0.9	16.9 +/- 1
04-oct-94	IT a	V	10.0	16.9 +/- 1	18.9 +/- 1
04-oct-94	IT a	V	15.0	14.8 +/- 1	16.9 +/- 1.1
04-oct-94	IT a	V	20.0	14.4 +/- 1	15.5 +/- 1.1
05-oct-94	IT a	V	25.5	14.1 +/- 1	20.7 +/- 1.1
05-oct-94	IT ag	V	30.0	9.6 +/- 0.93	20.5 +/- 1.2
832-04					
06-oct-94	IT a	V	1.0	8.57 +/- 0.79	22.5 +/- 1
06-oct-94	IT a	V	5.0	13.7 +/- 1	18.5 +/- 1.2
06-oct-94	IT ag	V	10.0	14.5 +/- 1	19.7 +/- 1.1
06-oct-94	IT a	V	15.0	16.5 +/- 1	21.4 +/- 1
07-oct-94	IT a	V	20.0	17.1 +/- 1.1	23.4 +/- 1.2
07-oct-94	IT a	V	25.0	10.3 +/- 0.9	16 +/- 1.1
07-oct-94	IT a	V	30.0	10.6 +/- 1	19 +/- 1.2
832-07					
28-sep-94	IT a	V	1.0	10.3 +/- 0.13	15.6 +/- 0.2
28-sep-94	IT a	V	5.0	6.61 +/- 0.09	16.6 +/- 0.2
28-sep-94	IT a	V	10.0	5.01 +/- 0.1	17.2 +/- 0.2
29-sep-94	IT ag	V	15.0	13.3 +/- 1	20.1 +/- 1.2
29-sep-94	IT a	V	20.0	18 +/- 1.1	21.8 +/- 1.1
29-sep-94	IT a	V	25.0	16.5 +/- 1	22.9 +/- 1.2
29-sep-94	IT a	V	30.0	13.1 +/- 0.9	22.2 +/- 1.1
832-08					
28-nov-94	IT a	V	1.0	10.8 +/- 0.9	16.6 +/- 0.9
28-nov-94	IT a	V	6.0	16.7 +/- 1	23 +/- 1
28-nov-94	IT a	V	11.0	13.5 +/- 0.9	21.3 +/- 1
28-nov-94	IT a	V	16.0	9.49 +/- 0.86	16.9 +/- 0.9
28-nov-94	IT a	V	21.0	8.12 +/- 0.76	18.5 +/- 0.9
28-nov-94	IT a	V	26.0	7.36 +/- 0.78	13.2 +/- 0.9
28-nov-94	IT a	V	31.0	7.11 +/- 0.99	13 +/- 0.9
W-832-01					
17-aug-94	LH a	V	0.0	18.7 +/- 6.6L	20.2 +/- 4.5
18-aug-94	LH a	V	5.0	17.5 +/- 6.6L	23.7 +/- 4.6
18-aug-94	LH a	V	15.0	12.8 +/- 5.7L	15.3 +/- 4
W-832-05					
10-oct-94	IT a	V	1.0	15.1 +/- 1	20.6 +/- 1.1
10-oct-94	IT a	V	10.0	13.4 +/- 1	19.7 +/- 1.2
10-oct-94	IT a	V	15.0	15.5 +/- 1	18 +/- 0.9
10-oct-94	IT a	V	20.0	11 +/- 0.9	19.7 +/- 0.9
10-oct-94	IT a	V	25.0	13.8 +/- 1	21 +/- 1.2
10-oct-94	IT a	V	30.0	12 +/- 0.9	16 +/- 0.9
W-832-06					
21-nov-94	IT a	V	1.2	13.7 +/- 1	17.8 +/- 1
21-nov-94	IT a	V	5.2	26.9 +/- 1.2	25.1 +/- 1.1
21-nov-94	IT a	V	20.2	10.2 +/- 0.9	19.2 +/- 0.9
21-nov-94	IT a	V	25.8	17.4 +/- 1.1	22.4 +/- 1.1
21-nov-94	IT a	V	30.8	16.3 +/- 0.9	20.4 +/- 1
W-880-01					
25-oct-95	IT a	V	2.3	13.4 +/- 1.2	19.7 +/- 0.7
3SS-21-02					
18-sep-91	TM ap	U	0.0	13 +/- 6P	18 +/- 4P

Table A-10. Gross alpha/gross beta in soil and rock (pCi/g), Building 832 Canyon OU. Results recorded by July 15, 1997.

Location Date	Lab Note	Val. Depth (ft)	Gross Alpha	Gross Beta
3SS-830-01				
16-oct-96	LH ah	V 0.0	3.6 +/- 1.7 O	3.2 +/- 1.9
16-oct-96	LH ah	V 0.0	4.1 +/- 1.2 O	2.98 +/- 0.68
16-oct-96	LH a	V 1.0	5.2 +/- 1.4 O	3.28 +/- 0.72
3SS-830-02				
16-oct-96	LH a	V 0.0	5.7 +/- 1.4 O	2.94 +/- 0.75
16-oct-96	LH a	V 1.0	4.3 +/- 1.2 O	4.41 +/- 0.77
3SS-830-03				
16-oct-96	LH a	V 0.0	3.03 +/- 0.93 O	2.56 +/- 0.68
16-oct-96	LH a	V 1.0	2.85 +/- 0.99 O	2.94 +/- 0.78
3SS-830-04				
16-oct-96	LH a	V 0.0	3.9 +/- 1.2 O	2.38 +/- 0.71
16-oct-96	LH a	V 1.0	3.08 +/- 0.98 O	2.39 +/- 0.67
3SS-832-01				
16-oct-96	LH a	V 0.0	5.7 +/- 1.5 O	3.39 +/- 0.8
16-oct-96	LH a	V 1.0	4.6 +/- 1.2 O	2.89 +/- 0.73
3SS-832-02				
16-oct-96	LH a	V 0.0	4.1 +/- 1.1 O	2.09 +/- 0.63
16-oct-96	LH a	V 1.0	3.8 +/- 1.1 O	2.62 +/- 0.64
3SS-832-03				
16-oct-96	LH a	V 0.0	3.7 +/- 1 O	2.7 +/- 0.64
16-oct-96	LH a	V 1.0	4.9 +/- 1.3 O	2.99 +/- 0.73
3SS-832-04				
16-oct-96	LH a	V 0.0	5.7 +/- 1.4 O	4.15 +/- 0.77
16-oct-96	LH a	V 1.0	5 +/- 1.2 O	2.84 +/- 0.7

See following page for notes

Table A-10. Gross alpha/gross beta in soil and rock (pCi/g), Building 832 Canyon OU.  
Results recorded by July 15, 1997.

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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 well 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

Lab Codes:

IT International Technology Corp.  
LH Lockheed Analytical Services, Las Vegas, NV  
TM Thermo Analytical Inc., Richmond, CA

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. Uranium isotopes in ground water and surface water (pCi/L), Building 832 Canyon OU.  
Results recorded by July 21, 1997.

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Uranium Isotopes in Ground Water, Site 300  
July 21, 1997  
epdbs::epddata

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s3uraniumR.

Table A-11. Uranium isotopes in ground water and surface water (pCi/L), Building 832 Canyon OU.

Location Date	Lab Note	Val.	Uranium 233+234	Uranium 235+236	Uranium 238	Uranium 233 by mass measurement	
W-830-17 11-jun-96	IC	a	V	-	-	-	-
W-830-18 28-jun-96	LH	a	V	2.2 +/- 0.27B	0.128 +/- 0.061 O	2.1 +/- 0.26B	-
W-830-19 28-jun-96	LH	a	V	11.88 +/- 0.79 OB	0.59 +/- 0.12 OB	9.78 +/- 0.68B	-
W-830-20 24-sep-96	LH	a	V	0.33 +/- 0.083	0.066 +/- 0.035 OB	0.202 +/- 0.063	-
W-830-21 19-sep-96	LH	a	V	-	-	-	<9600 U
W-830-30 11-mar-97	LH	a	V	17.5 +/- 1	0.631 +/- 0.1	13.56 +/- 0.81	-
W-830-34 11-mar-97	LH	a	V	2.56 +/- 0.21	0.104 +/- 0.035	1.95 +/- 0.17	-
SPRING3							
03-sep-93	IT	ap	V	6.51 +/- 0.36	0.26 +/- 0.08B	6.25 +/- 0.36	-
20-apr-94	IT	ap	V	7.24 +/- 0.21	0.47 +/- 0.06	6.75 +/- 0.2	-
24-oct-95	IT	a	V	15.4 +/- 4.8	5.44 +/- 1.92	16.5 +/- 5.1	-
24-oct-95	LH	a	V	13.6 +/- 1B	1.08 +/- 0.23B	12.01 +/- 0.95B	-
21-jun-96	CX	a	V	10.24 +/- 0.47B	<0.02 U	7.87 +/- 0.39B	-
21-jun-96	LH	a	V	10.12 +/- 0.7 OB	0.5 +/- 0.11OB	8.27 +/- 0.6B	-
17-oct-96	LH	a	V	-	-	-	<9600 U
12-nov-96	IC	a	V	-	-	-	-

Results recorded by July 21, 1997.

Uranium 234 by mass measurement	Uranium 235 by mass measurement	Uranium 236 by mass measurement	Uranium 238 by mass measurement	Location Date
Building 833 Study Area				
2.4 +/- 0.2	0.094 +/- 0.002	<0.0007 U	1.98 +/- 0.03	W-830-17 11-jun-96
-	-	-	-	W-830-18 28-jun-96
-	-	-	-	W-830-19 28-jun-96
-	-	-	-	W-830-20 24-sep-96
<6200 U	<0.22 U	<65 U	<0.34 U	W-830-21 19-sep-96
-	-	-	-	W-830-30 11-mar-97
-	-	-	-	W-830-34 11-mar-97
-	-	-	-	SPRING3 03-sep-93
-	-	-	-	20-apr-94
-	-	-	-	24-oct-95
-	-	-	-	24-oct-95
-	-	-	-	21-jun-96
-	-	-	-	21-jun-96
<6200 U	0.51	<65 U	11	17-oct-96
6.33 +/- 0.55	0.271 +/- 0.007	<0.0007 U	5.77 +/- 0.13	12-nov-96

See following page for notes

Table A-11. Uranium isotopes in ground water and surface water (pCi/L), Building 832 Canyon OU.  
Results recorded by July 21, 1997.

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 well 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

Lab Codes:

IC ICP MS Facility, LLNL, Livermore, CA  
IT International Technology Corp.  
LH Lockheed Analytical Services, Las Vegas, NV

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. Uranium isotopes in soil, rock and soil moisture (pCi/L), Building 832 Canyon OU.  
Results recorded by July 15, 1997.

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Uranium Isotopes in Soil, Site 300  
July 18, 1997  
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s3uraniumsoR.18jul97

Table A-12. Uranium isotopes in soil, rock and soil moisture (pCi/L), Building 832 Canyon OU.

Location	Lab	Val.		Uranium 233+234	Uranium 235+236	Uranium 238	Uranium 233 by mass measurement
		Note	Depth (ft)				
W-830-19							
03-jun-96	LH a	V	16.0	-	-	-	<2100 U
04-jun-96	LH a	V	21.0	-	-	-	<2400 U
05-jun-96	LH a	V	25.2	-	-	-	<2300 U
05-jun-96	LH a	V	30.6	-	-	-	<2300 U
05-jun-96	LH a	V	35.0	-	-	-	<2000 U
06-jun-96	LH a	V	42.1	-	-	-	<2400 U
06-jun-96	CX ah	V	43.0	-	-	-	-
3SS-21-02							
18-sep-91	TM ap	U	0.0	1.2 +/- 0.2P	0.06 +/- 0.04P	0.12 +/- 0.02P	-

Results recorded by July 15, 1997.

Uranium 234 by mass measurement	Uranium 235 by mass measurement	Uranium 236 by mass measurement	Uranium 238 by mass measurement	Location Date
<1300 U	<0.047 U	<14 U	0.62	W-830-19 03-jun-96
<1600 U	0.094	<16 U	1.9	04-jun-96
<1500 U	0.067	<15 U	1.5	05-jun-96
<1500 U	<0.051 U	<15 U	0.84	05-jun-96
<1300 U	<0.044 U	<13 U	1	05-jun-96
<1500 U	<0.053 U	<16 U	0.47	06-jun-96
<6.21 U	0.02	-	0.38	06-jun-96
-	-	-	-	3SS-21-02 18-sep-91

See following page for notes

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 well 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

Lab Codes:

LH Lockheed Analytical Services, Las Vegas, NV  
TM Thermo Analytical Inc., Richmond, CA

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. Thorium isotopes in ground water and surface water (pCi/L), Building 832 Canyon OU.  
Results recorded by July 15, 1997.

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Thorium Isotopes in Ground Water, Site 300

July 21, 1997

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s3thorium.21jul97

Table A-13. Thorium isotopes in ground water and surface water (pCi/L), Building 832 Canyon OU. Results recorded by July 15, 1997.

Location	Date	Lab Note	Val.	Thorium 232 by mass measurement
W-830-17	11-jun-96	IC a	V	0.00264 +/- 5e-05
SPRING3	12-nov-96	IC a	V	0.001111 +/- 7.2e-05

See following page for notes

Table A-13. Thorium isotopes in ground water and surface water (pCi/L), Building 832 Canyon OU. Results recorded by July 15, 1997.

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 well 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

Lab Codes:

- ES Environmental Science Scanning Facility, LLNL, Livermore, CA
- LH Lockheed Analytical Services, Las Vegas, NV

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. Nitrogenous compounds in ground water and surface water (mg/L), Building 832 Canyon OU.  
Results recorded by July 21, 1997.

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Nitrates, Nitrites, and Nitrogen in Ground Water,  
July 21, 1997  
epdbs::epddata

s3NL.  
s3NR.

Table A-14. Nitrogenous compounds in ground water and surface water (mg/L), Building 832 Canyon OU.

Location Date	Lab Note	Val.	Ammonia Nitrogen as N	Nitrate and Nitrite as N	Nitrate and Nitrite as NO3	Nitrate as N
W-830-04A						
18-oct-88	BC a	U	-	-	1.4 P	-
21-feb-95	CS a	V	<0.1 U	-	-	18 DL
12-may-95	CS a	V	<0.1 U	-	-	-
21-jul-95	CS a	V	<0.1 ULO	-	-	-
30-nov-95	CS a	V	<0.1 U	-	-	-
25-jan-96	CS a	V	<0.1 U	-	-	-
12-jun-96	CS a	V	<0.1 LOU	-	-	19
23-aug-96	CS a	V	<0.1 U	-	-	18
11-dec-96	CS a	V	<0.1 U	-	-	14 D
25-feb-97	CS a	V	0.19	-	-	17 D
W-830-05						
18-oct-88	BC a	U	-	-	1 P	-
23-feb-95	CS a	V	<0.1 U	-	-	11 D
11-may-95	CS a	V	<0.1 U	-	-	-
19-jul-95	CS a	V	<0.1 LOU	-	-	-
01-dec-95	CS a	V	<0.1 U	-	-	-
22-jan-96	CS a	V	<0.1 U	-	-	-
10-jun-96	CS a	V	<0.1 U	-	-	17 D
23-aug-96	CS a	V	<0.1 U	-	-	15
16-dec-96	CS a	V	<0.1 U	-	-	13 D
21-feb-97	CS a	V	<0.1 U	-	-	15 DL
W-830-07						
01-feb-96	CS a	V	<0.1 U	-	-	-
W-830-09						
17-oct-88	BC a	U	-	-	0.4 P	-
03-nov-94	CS a	V	-	-	-	<0.5 U
08-mar-95	CS aeh	V	0.13	-	-	-
08-mar-95	CS ah	V	0.13	-	-	-
16-may-95	CS a	V	<0.1 U	-	-	-
27-jul-95	CS a	V	0.72	-	-	-
05-feb-96	CS a	V	0.92	-	-	-
05-feb-96	CS a	V	-	-	-	-
14-may-96	CS a	V	0.83 LO	-	-	<0.5 U
24-sep-96	CS a	V	0.39	-	-	<0.5 U
13-dec-96	CS a	V	0.72	-	-	<0.5 U
W-830-10						
18-mar-92	BC a	U	-	12 P	55 P	-
16-mar-95	CS a	V	<0.1 U	-	-	-
12-may-95	CS a	V	<0.1 U	-	-	-
21-jul-95	CS a	V	<0.1 ULO	-	-	-
06-dec-95	CS a	V	<0.1 U	-	-	-
26-jan-96	CS a	V	<0.1 U	-	-	-
15-may-96	CS a	V	<0.1 ULO	-	-	14
28-aug-96	CS a	V	<0.1 U	-	-	13
11-dec-96	CS aeh	V	<0.1 U	-	-	13 D
11-dec-96	CS ah	V	<0.1 U	-	-	13 D
26-feb-97	CS a	V	<0.1 UF	-	-	13 DF
17-jun-97	CS ah	V	<0.1 U	-	-	14 D
17-jun-97	CS aeh	V	<0.1 U	-	-	13 D
W-830-11						
25-jun-92	BC ag	U	-	<0.1 P	<0.4 P	-
22-feb-95	CS a	V	<0.1 U	-	-	<0.5 U
12-may-95	CS a	V	<0.1 U	-	-	-
21-jul-95	CS a	V	<0.1 ULO	-	-	-
30-nov-95	CS a	V	<0.1 U	-	-	-
26-jan-96	CS a	V	<0.1 U	-	-	-
26-jan-96	FS a	V	<1 U	-	-	-
12-jun-96	CS a	V	<0.1 ULO	-	-	1.1
28-aug-96	CS a	V	<0.1 U	-	-	<0.5 U
11-dec-96	CS a	V	<0.1 U	-	-	0.9
17-jun-97	CS ah	V	<0.1 U	-	-	1.1
17-jun-97	CS aeh	V	<0.1 U	-	-	1.2

Results recorded by July 21, 1997.

Nitrite as N	Nitrite as NO2	Nitrate as NO3	Total Kjeldahl Nitrogen	Location Date
-	-	-	-	W-830-04A
<0.5 U	-	79.74 DL	0.21	18-oct-88
-	<0.5 U	78 D	<0.5 U	21-feb-95
-	<2.5 DHU	83 D	<0.5 U	12-may-95
-	<5 DHU	68 D	<0.5 U	21-jul-95
-	<5 DULO	74 D	0.2	30-nov-95
<2.5 DU	<2.5 DHULO	86 LO	<0.5 UO	25-jan-96
<5 DU	<5 DULO	82 O	<0.5 U	12-jun-96
<0.5 U	<0.5 U	62 D	0.3	23-aug-96
<0.5 U	<0.5 U	75 D	0.2	11-dec-96
				25-feb-97
				W-830-05
-	-	-	-	18-oct-88
<0.5 U	-	48.73 D	<0.2 U	23-feb-95
-	<0.5 U	33 D	<0.5 U	11-may-95
-	<0.5 U	70	<0.5 U	19-jul-95
-	<5 DHU	65 D	<0.5 U	01-dec-95
-	<5 DHU	62 D	0.23	22-jan-96
<2.5 DU	<2.5 DHULO	74 D	1.1	10-jun-96
<5 DU	<5 DULO	67 O	<0.5 U	23-aug-96
<0.5 U	<0.5 U	58 D	<0.2 U	16-dec-96
<0.5 LU	<0.5 U	66 D	-	21-feb-97
				W-830-07
-	<0.5 LOU	9.1	1.6	01-feb-96
				W-830-09
-	-	-	-	17-oct-88
-	-	<2.215 U	-	03-nov-94
-	<0.5 HU	<0.5 U	<0.2 U	08-mar-95
-	<0.5 HU	<0.5 U	0.23	08-mar-95
-	<0.5 U	<0.5 U	<0.5 U	16-may-95
-	<0.5 U	<0.5 U	0.62	27-jul-95
-	-	-	0.89	05-feb-96
-	<0.5 ULO	<0.5 U	-	05-feb-96
<5 DU	<5 DHULO	<0.5 U	1	14-may-96
<0.5 U	<0.5 HU	<0.5 U	0.82 LO	24-sep-96
<0.5 U	<0.5 U	<0.5 U	0.91	13-dec-96
				W-830-10
-	-	-	-	18-mar-92
-	<0.5 HU	54 D	<0.2 U	16-mar-95
-	<0.5 U	57 D	<0.5 U	12-may-95
-	<2.5 DHU	65 D	<0.5 U	21-jul-95
-	<5 DHU	66 D	7.7 D	06-dec-95
-	<5 DULO	57	0.32	26-jan-96
<2.5 DU	<2.5 DHULO	63 O	<0.5 U	15-may-96
<5 DU	<5 DULO	59	<0.5 U	28-aug-96
<0.5 U	<0.5 U	58 D	0.32	11-dec-96
<0.5 U	<0.5 U	58 D	0.23	11-dec-96
<0.5 U	<0.5 U	58 DF	0.4	26-feb-97
<0.5 U	<0.5 U	60 D	0.47 L	17-jun-97
<0.5 U	<0.5 U	58 D	<0.2 UL	17-jun-97
				W-830-11
-	-	-	-	25-jun-92
<0.5 U	-	<2.215 U	0.25	22-feb-95
-	<0.5 U	3.9	<0.5 U	12-may-95
-	<2.5 DHU	6.1	<0.5 U	21-jul-95
-	<5 DHU	<5 DU	<0.5 U	30-nov-95
-	<5 DULO	5.6	0.24	26-jan-96
-	-	5.9	<1 U	26-jan-96
<2.5 DU	<2.5 DHULO	4.9 LO	<0.5 U	12-jun-96
<5 DU	<5 DULO	1.7	<0.5 U	28-aug-96
<0.5 U	<0.5 U	4	0.51	11-dec-96
<0.5 U	<0.5 U	4.9	0.2 L	17-jun-97
<0.5 U	<0.5 U	5.3	<0.2 UL	17-jun-97

Table A-14. Nitrogenous compounds in ground water and surface water (mg/L), Building 832 Canyon OU.

Location Date	Lab Note	Val.	Ammonia Nitrogen as N	Nitrate and Nitrite as N	Nitrate and Nitrite as NO3	Nitrate as N
W-830-12						
21-dec-94	CS a	V	-	-	-	<0.5 U
21-dec-94	CS a	V	<0.1 U	-	-	-
08-mar-95	CS a	V	-	-	-	-
08-mar-95	CS a	V	0.13	-	-	-
16-may-95	CS a	V	<0.1 U	-	-	-
27-jul-95	CS a	V	<0.1 U	-	-	-
08-dec-95	CS a	V	<0.1 U	-	-	-
05-feb-96	CS a	V	0.15	-	-	-
05-feb-96	CS a	V	-	-	-	-
19-jun-96	CS a	V	0.28 S	-	-	<0.5 U
24-sep-96	CS a	V	<0.1 U	-	-	<0.5 U
13-dec-96	CS a	V	<0.1 U	-	-	<0.5 U
W-830-13						
16-mar-95	CS a	V	-	-	-	-
16-mar-95	CS a	V	<0.1 U	-	-	-
12-may-95	CS a	V	<0.1 U	-	-	-
24-jul-95	CS a	V	<0.1 ULO	-	-	-
20-dec-95	CS a	V	<0.1 U	-	-	-
26-jan-96	CS a	V	<0.1 U	-	-	-
12-jun-96	CS a	V	<0.1 ULO	-	-	14
11-sep-96	CS a	V	0.15 LOF	-	-	15
11-dec-96	CS a	V	<0.1 U	-	-	13 D
26-feb-97	CS aeh	V	<0.1 UF	-	-	12 DF
26-feb-97	CS ah	V	<0.1 UF	-	-	12 DF
W-830-14						
16-mar-95	CS a	V	-	-	-	-
16-mar-95	CS a	V	0.14	-	-	-
18-may-95	CS ah	V	0.58	-	-	-
18-may-95	CS aeh	V	0.48	-	-	-
24-jul-95	CS a	V	1.1 LO	-	-	-
06-dec-95	CS a	V	0.65	-	-	-
26-jan-96	CS a	V	0.71	-	-	-
12-jun-96	CS ah	V	1.3 LO	-	-	<0.5 U
12-jun-96	CS aeh	V	1.3 LO	-	-	<0.5 U
11-sep-96	BB ag	V	0.71	-	-	<0.1 U
11-sep-96	CS ag	V	0.84 LOF	-	-	<0.5 U
16-dec-96	CS a	V	0.95	-	-	<0.5 U
W-830-15						
16-mar-95	CS a	V	-	-	-	-
16-mar-95	CS a	V	1.5	-	-	-
16-may-95	CS a	V	0.86	-	-	-
21-jul-95	CS a	V	0.78 LO	-	-	-
01-dec-95	CS a	V	0.8	-	-	-
01-dec-95	FS a	V	1	-	-	-
22-jan-96	CS a	V	0.52	-	-	-
10-jun-96	CS a	V	1.4	-	-	<0.5 U
23-aug-96	CS a	V	<0.1 U	-	-	<0.5 U
16-dec-96	CS a	V	1	-	-	<0.5 U
W-830-16						
25-jan-96	CS a	V	-	-	-	-
11-jun-96	CS a	V	1.8	-	-	<0.5 U
22-aug-96	CS a	V	1.1	-	-	<0.5 U
16-dec-96	CS a	V	1.6 D	-	-	<0.5 U
W-830-17						
25-jan-96	CS a	V	-	-	-	-
11-jun-96	CS a	V	0.18	-	-	11 D
22-aug-96	CS a	V	<0.1 U	-	-	13
16-dec-96	CS a	V	0.2	-	-	13 D
20-feb-97	CS a	V	<0.1 U	-	-	16
W-830-18						
28-jun-96	CS a	V	-	-	-	1.2
28-jun-96	CS a	V	<0.1 ULO	-	-	1.2

Results recorded by July 21, 1997.

Nitrite as N	Nitrite as NO2	Nitrate as NO3	Total Kjeldahl Nitrogen	Location Date
				W-830-12
<0.5 HU	-	<2.215 U	-	21-dec-94
-	-	-	<0.2 U	21-dec-94
-	<0.5 U	<0.5 U	-	08-mar-95
-	-	-	<0.2 U	08-mar-95
-	<0.5 U	<0.5 U	<0.5 U	16-may-95
-	<0.5 U	<0.5 U	<0.5 U	27-jul-95
-	<5 DHU	<5 DU	3.3	08-dec-95
-	-	-	<0.5 U	05-feb-96
-	<0.5 LOU	<0.5 U	-	05-feb-96
<0.5 U	<0.5 HUS	<0.5 U	<0.5 U	19-jun-96
<0.5 U	<0.5 HU	<0.5 U	<0.5 LOU	24-sep-96
<0.5 U	<0.5 U	<0.5 U	0.23	13-dec-96
				W-830-13
-	<0.5 U	52	-	16-mar-95
-	-	-	<0.2 U	16-mar-95
-	<0.5 U	56 D	<0.5 U	12-may-95
-	<5 DU	63 D	<0.5 U	24-jul-95
-	<5 DULO	42 D	<0.5 U	20-dec-95
-	<5 DULO	51 D	0.3	26-jan-96
<2.5 DU	<2.5 DHULO	62 LO	<0.5 U	12-jun-96
<5 DU	<5 DULO	68 LO	0.94 F	11-sep-96
<0.5 U	<0.5 U	58 D	0.29	11-dec-96
<0.5 U	<0.5 U	54 DF	0.27	26-feb-97
<0.5 U	<0.5 U	54 DF	0.21	26-feb-97
				W-830-14
-	<0.5 U	<0.5 U	-	16-mar-95
-	-	-	0.51	16-mar-95
-	<5 U	<0.5 U	0.61	18-may-95
-	<5 U	<0.5 U	0.82	18-may-95
-	<0.5 U	<0.5 U	0.65	24-jul-95
-	<5 DHULO	<5 DULO	0.7	06-dec-95
-	<5 DULO	<0.5 U	0.95	26-jan-96
<2.5 DU	<2.5 DHULO	<0.5 ULO	1.1	12-jun-96
<2.5 DU	<2.5 DHULO	<0.5 ULO	<0.5 U	12-jun-96
<0.1 U	<0.2 U	<0.4 U	1 L	11-sep-96
<5 DU	<5 DULO	<0.5 LOU	1.4 F	11-sep-96
<0.5 U	<0.5 U	<0.5 U	0.65	16-dec-96
				W-830-15
-	<0.5 U	<0.5 U	-	16-mar-95
-	-	-	0.72	16-mar-95
-	<0.5 U	<0.5 U	0.75	16-may-95
-	<2.5 DHU	<0.5 U	0.5	21-jul-95
-	<5 DHULO	<5 DULO	0.72	01-dec-95
-	<0.3 HU	<0.4 U	<1 U	01-dec-95
-	<5 DHU	<0.5 U	0.71	22-jan-96
<2.5 DU	<2.5 DHULO	<0.5 U	1.2	10-jun-96
<5 DU	<5 DULO	<0.5 UO	<0.5 U	23-aug-96
<0.5 U	<0.5 U	<0.5 U	0.93	16-dec-96
				W-830-16
-	-	<0.5 U	-	25-jan-96
<2.5 DU	<2.5 DHULO	<0.5 U	2.2	11-jun-96
<5 DU	<5 DULO	<0.5 UO	1.3 L	22-aug-96
<0.5 U	<0.5 U	<0.5 U	1.5	16-dec-96
				W-830-17
-	-	78 D	-	25-jan-96
<2.5 DU	<2.5 DHULO	48 D	0.74	11-jun-96
<5 DU	<5 DULO	59 O	0.58 L	22-aug-96
<0.5 U	<0.5 U	58 D	0.27	16-dec-96
<0.5 U	<0.5 U	71	0.4	20-feb-97
				W-830-18
<5 DU	-	5.5	-	28-jun-96
<5 DU	<5 DHULO	5.5	<0.5 U	28-jun-96



Table A-14. Nitrogenous compounds in ground water and surface water (mg/L), Building 832 Canyon OU.

Location Date	Lab Note	Val.	Ammonia Nitrogen as N	Nitrate and Nitrite as N	Nitrate and Nitrite as NO3	Nitrate as N
W-830-18 (continued)						
23-aug-96	CS a	V	<0.1 U	-	-	1.3
13-dec-96	CS a	V	<0.1 U	-	-	1.1
W-830-19						
28-jun-96	CS a	V	-	-	-	55 D
28-jun-96	CS a	V	<0.1 LOU	-	-	55 D
24-sep-96	CS a	V	<0.1 U	-	-	43 D
13-dec-96	BB aeg	V	0.02	-	-	46 D
13-dec-96	CS ag	V	0.36	-	-	39 D
06-mar-97	CS a	V	<0.1 U	-	-	47 D
W-830-20						
24-sep-96	CS a	V	-	-	-	<10 DHU
24-sep-96	CS a	V	-	-	-	<0.5 U
24-sep-96	CS a	V	0.2	-	-	<10 DU
18-dec-96	CS a	V	0.33	-	-	<0.5 U
28-feb-97	CS a	V	0.44	-	-	<0.5 U
W-830-21						
19-sep-96	CS a	V	-	-	-	<0.5 U
19-sep-96	CS a	V	0.59	-	-	<0.5 U
11-dec-96	CS a	V	0.24	-	-	<0.5 U
25-feb-97	BB ag	V	0.02	-	-	0.2
25-feb-97	CS ag	V	0.23	-	-	<0.5 U
W-830-22						
20-sep-96	CS a	V	-	-	-	<0.5 U
20-sep-96	CS a	V	0.65	-	-	<0.5 U
12-dec-96	CS a	V	1.2	-	-	-
06-mar-97	CS a	V	0.88	-	-	<0.5 U
W-830-25						
12-mar-97	CS a	V	0.12	-	-	19 D
W-830-26						
20-sep-96	CS a	V	-	-	-	1.5
20-sep-96	CS a	V	<0.1 U	-	-	1.5
13-dec-96	CS ah	V	<0.1 U	-	-	1.4
13-dec-96	CS aeh	V	<0.1 U	-	-	1.4
11-mar-97	CS a	V	0.12	-	-	1.1
W-830-27						
19-sep-96	CS a	V	-	-	-	30 D
19-sep-96	CS a	V	<0.1 U	-	-	30 D
12-dec-96	CS a	V	<0.1 U	-	-	-
12-mar-97	CS a	V	0.2	-	-	7.9 D
W-830-28						
23-sep-96	CS a	V	0.19	-	-	-
12-dec-96	CS a	V	0.25	-	-	-
12-mar-97	CS a	V	0.1	-	-	4.6 D
W-830-29						
17-mar-97	CS a	V	-	-	-	<0.5 U
17-mar-97	CS a	V	<0.1 U	-	-	<0.5 U
W-830-30						
11-mar-97	CS a	V	-	-	-	7.1 D
11-mar-97	CS a	V	-	-	-	7.1 D
11-mar-97	CS a	V	<0.1 U	-	-	7.1 D
W-830-34						
11-mar-97	CS a	V	-	-	-	23 D
11-mar-97	CS a	V	-	-	-	23 D
11-mar-97	CS a	V	<0.1 U	-	-	23 D

Results recorded by July 21, 1997.

Nitrite as N	Nitrite as NO2	Nitrate as NO3	Total Kjeldahl Nitrogen	Location Date
				(continued) W-830-18
<5 DU	<5 DULO	5.7 O	<0.5 U	23-aug-96
<0.5 U	<0.5 U	4.9	<0.2 U	13-dec-96
				W-830-19
<5 DULO	-	250 D	-	28-jun-96
<5 DU	<5 DHULO	250 D	<0.5 U	28-jun-96
<0.5 U	<0.5 HU	190 D	<0.5 LOU	24-sep-96
<0.1 U	<0.2 U	204 D	1.4	13-dec-96
<0.5 U	<0.5 U	170 D	0.6	13-dec-96
<0.5 U	<0.5 U	210 D	0.57	06-mar-97
				W-830-20
<10 DU	<10 DU	<10 DU	-	24-sep-96
<0.5 U	-	<0.5 U	-	24-sep-96
<10 DU	<10 DHU	<10 DU	0.8 LO	24-sep-96
<0.5 U	<0.5 U	<0.5 U	0.47	18-dec-96
<0.5 U	<0.5 U	<0.5 U	0.5	28-feb-97
				W-830-21
<5 DULO	-	<0.5 LU	-	19-sep-96
<5 DU	<5 DULO	<0.5 UL	0.67	19-sep-96
<0.5 U	<0.5 U	<0.5 U	0.84	11-dec-96
<0.1 U	<0.2 U	0.9	0.7	25-feb-97
0.8	<0.5 U	<0.5 U	0.32	25-feb-97
				W-830-22
<5 DLOU	-	<0.5 LU	-	20-sep-96
<5 DU	<5 DLOU	<0.5 UL	1.1	20-sep-96
-	-	-	1.6	12-dec-96
<0.5 U	<0.5 U	<0.5 U	1.8	06-mar-97
				W-830-25
<0.5 U	<0.5 U	85 D	0.48	12-mar-97
				W-830-26
<5 DLOU	-	6.6 L	-	20-sep-96
<5 DU	<5 DLOU	6.6 L	<0.5 U	20-sep-96
<0.5 U	<0.5 U	6.2	0.22	13-dec-96
<0.5 U	<0.5 U	6.2	0.21	13-dec-96
<0.5 U	<0.5 U	4.8	0.7	11-mar-97
				W-830-27
<10 DULO	-	130 DL	-	19-sep-96
<5 DU	<5 DULO	130 DL	<0.5 U	19-sep-96
-	-	-	0.28	12-dec-96
<0.5 U	<0.5 U	35 D	0.69	12-mar-97
				W-830-28
-	-	-	<0.5 LOU	23-sep-96
-	-	-	0.47	12-dec-96
<0.5 U	<0.5 U	20 D	0.56	12-mar-97
				W-830-29
<0.5 U	-	<0.5 U	-	17-mar-97
<0.5 U	<0.5 U	<0.5 U	0.58	17-mar-97
				W-830-30
<0.5 U	<0.5 U	31 D	-	11-mar-97
<0.5 U	-	31 D	-	11-mar-97
<0.5 U	<0.5 U	31 D	0.67	11-mar-97
				W-830-34
<0.5 U	<0.5 U	100 D	-	11-mar-97
<0.5 U	-	100 D	-	11-mar-97
<0.5 U	<0.5 U	100 D	0.51	11-mar-97

Table A-14. Nitrogenous compounds in ground water and surface water (mg/L), Building 832 Canyon OU.

Location Date	Lab Note	Val.	Ammonia Nitrogen as N	Nitrate and Nitrite as N	Nitrate and Nitrite as NO3	Nitrate as N
W-831-01						
17-oct-88	BC a	U	-	-	<0.4 P	-
10-dec-91	BC ag	U	-	0.3 P	1.4 P	-
W-832-01						
21-nov-94	CS a	V	-	-	-	21 D
16-mar-95	CS ah	V	-	-	-	-
16-mar-95	CS aeh	V	-	-	-	-
16-mar-95	CS ah	V	<0.1 U	-	-	-
16-mar-95	CS aeh	V	<0.1 U	-	-	-
28-jul-95	CS a	V	<0.1 U	-	-	-
21-dec-95	CS a	V	<0.1 U	-	-	-
07-feb-96	CS a	V	<0.1 U	-	-	-
24-jun-96	CS aeh	V	<0.1 LU	-	-	24 D
24-jun-96	CS ah	V	<0.1 UL	-	-	24 D
23-sep-96	CS a	V	<0.1 U	-	-	-
19-dec-96	CS a	V	<0.1 U	-	-	<50 DU
06-mar-97	CS a	V	<0.1 U	-	-	18 D
W-832-05						
16-nov-94	CS a	V	-	-	-	28
06-dec-94	CS a	V	-	-	-	28 D
21-dec-94	CS a	V	-	-	-	30 D
21-dec-94	CS a	V	0.16	-	-	-
09-mar-95	CS a	V	-	-	-	-
09-mar-95	CS a	V	<0.1 LOU	-	-	-
28-jul-95	CS a	V	<0.1 U	-	-	-
08-feb-96	CS a	V	<0.1 U	-	-	-
24-jun-96	CS a	V	<0.1 UL	-	-	27 D
24-sep-96	CS a	V	<0.1 U	-	-	24 D
12-dec-96	CS a	V	0.12	-	-	-
06-mar-97	CS a	V	<0.1 U	-	-	22 D
W-832-06						
09-mar-95	CS a	V	-	-	-	-
09-mar-95	CS a	V	<0.1 LOU	-	-	-
25-may-95	CS a	V	<0.1 U	-	-	-
25-may-95	GT a	V	0.78	4.6	-	-
28-jul-95	CS a	V	<0.1 U	-	-	-
12-dec-95	CS a	V	0.11	-	-	-
07-feb-96	CS a	V	0.49	-	-	-
24-jun-96	BB a	V	0.42	-	-	3.7
24-jun-96	CS a	V	0.45 L	-	-	3.3
24-sep-96	CS a	V	<0.1 U	-	-	3.5
12-dec-96	CS a	V	0.12	-	-	-
06-mar-97	CS a	V	0.12	-	-	3.7
W-832-09						
21-nov-94	CS a	V	-	-	-	<10 DU
16-mar-95	CS ah	V	-	-	-	-
16-mar-95	CS aeh	V	-	-	-	-
16-mar-95	CS ah	V	<0.1 U	-	-	-
16-mar-95	CS aeh	V	<0.1 U	-	-	-
28-jul-95	CS a	V	<0.1 U	-	-	-
28-jul-95	FS a	V	<1 LU	-	-	-
08-dec-95	CS a	V	<0.1 U	-	-	-
06-feb-96	CS a	V	<0.1 U	-	-	-
19-jun-96	CS a	V	<0.1 US	-	-	<0.5 U
24-sep-96	CS a	V	<0.1 U	-	-	<0.5 U
17-dec-96	CS a	V	<0.1 U	-	-	<0.5 U
W-880-01						
24-jan-96	CS a	V	-	-	-	-
11-jun-96	CS a	V	0.48	-	-	<0.5 U
22-aug-96	CS a	V	0.11	-	-	<0.5 U
27-dec-96	CS a	V	0.2	-	-	<0.5 U
16-apr-97	CS a	V	0.27	-	-	<2.5 DU

Results recorded by July 21, 1997.

Nitrite as N	Nitrite as NO2	Nitrate as NO3	Total Kjeldahl Nitrogen	Location Date
-	-	-	-	W-831-01
-	-	-	-	17-oct-88
-	-	-	-	10-dec-91
-	-	93.03 D	-	W-832-01
-	<0.5 U	94	-	21-nov-94
-	<0.5 U	94	-	16-mar-95
-	-	-	-	16-mar-95
-	-	-	<0.2 U	16-mar-95
-	-	-	<0.2 U	16-mar-95
-	<5 DU	120 D	<0.5 U	28-jul-95
-	<5 DULO	110 D	<0.5 U	21-dec-95
-	<2.5 DU	96 D	<0.5 U	07-feb-96
<5 DU	<5 DHULO	110 D	<0.5 U	24-jun-96
<5 DU	<5 DHULO	110 D	<0.5 U	24-jun-96
-	-	-	<0.5 LOU	23-sep-96
<0.5 U	<0.5 U	84 D	1	19-dec-96
<0.5 U	<0.5 U	79 D	<0.2 U	06-mar-97
-	-	124.04	-	W-832-05
-	-	124.04 D	-	16-nov-94
<0.5 HU	-	132.9 D	-	06-dec-94
-	-	-	-	21-dec-94
-	-	-	0.22	21-dec-94
-	<5 DU	140 D	-	09-mar-95
-	-	-	<0.2 U	09-mar-95
-	<5 DU	130 D	<0.5 U	28-jul-95
-	<5 DU	100 D	<0.5 U	08-feb-96
<5 DU	<5 DHULO	120 D	2.4	24-jun-96
<0.5 U	<0.5 HU	110 D	0.8 LO	24-sep-96
-	-	-	0.45	12-dec-96
<0.5 U	<0.5 U	98 D	0.21	06-mar-97
-	<5 DU	22 D	-	W-832-06
-	-	-	<0.2 U	09-mar-95
-	<5 HU	22	<0.5 U	09-mar-95
-	-	-	0.27	25-may-95
-	<5 DU	20	<0.5 U	25-may-95
-	<5 DHU	<10 DU	<0.5 U	28-jul-95
-	<2.5 DU	<0.5 U	<0.5 U	12-dec-95
<0.1 U	<0.2 U	16.4	0.67	07-feb-96
<5 DU	<5 DHULO	15	1.1 LO	24-jun-96
<0.5 U	<0.5 HU	15	0.66	24-jun-96
-	-	-	<0.5 LOU	24-sep-96
<0.5 U	<0.5 U	16	0.44	12-dec-96
-	-	-	<0.2 U	06-mar-97
-	-	<44.3 DU	-	W-832-09
-	<0.5 U	<0.5 U	-	21-nov-94
-	<0.5 U	<0.5 U	-	16-mar-95
-	-	-	-	16-mar-95
-	-	-	<0.2 U	16-mar-95
-	<0.5 U	<0.5 U	<0.2 U	16-mar-95
-	<0.5 U	<0.5 U	<0.5 U	28-jul-95
-	<0.3 HUL	<0.4 UL	1 L	28-jul-95
-	<5 DHU	<5 DU	<0.5 U	08-dec-95
-	<0.5 U	<0.5 U	0.98	06-feb-96
<0.5 U	<0.5 HUS	<0.5 U	<0.5 U	19-jun-96
<0.5 U	<0.5 HU	<0.5 U	<0.5 LOU	24-sep-96
<0.5 U	<0.5 U	<0.5 U	1.7	17-dec-96
-	-	<0.5 U	-	W-880-01
<2.5 DU	<2.5 DHULO	<0.5 U	-	24-jan-96
<5 DU	<5 DULO	<0.5 UO	0.62	11-jun-96
<2.5 DU	<2.5 DU	<0.5 U	<0.5 LU	22-aug-96
<2.5 DU	<2.5 DU	<0.5 U	<0.2 LU	27-dec-96
<2.5 DU	<2.5 DU	<2.5 DU	0.51	16-apr-97

Table A-14. Nitrogenous compounds in ground water and surface water (mg/L), Building 832 Canyon OU.

Location Date	Lab Note	Val.	Ammonia Nitrogen as N	Nitrate and Nitrite as N	Nitrate and Nitrite as NO3	Nitrate as N
W-880-02						
26-jan-96	CS a	V	-	-	-	-
17-jun-96	CS aeh	V	0.54 LO	-	-	1.6
17-jun-96	CS ah	V	0.61 LO	-	-	1.6
W-880-03						
24-jan-96	CS ah	V	-	-	-	-
24-jan-96	CS aeh	V	-	-	-	-
17-jun-96	CS a	V	1.1 LO	-	-	<0.5 U
22-aug-96	CS a	V	0.32	-	-	<0.5 U
27-dec-96	CS a	V	0.49	-	-	<0.5 U
16-apr-97	CS a	V	0.55	-	-	<0.5 U
SPRING3						
03-sep-93	CS a	V	-	-	-	9.8
20-apr-94	CS a	V	-	-	-	12 D
24-oct-95	CS a	V	-	-	-	-
24-oct-95	FS a	V	-	-	-	-
21-jun-96	BB a	V	-	-	-	7.7 D
21-jun-96	CS a	V	-	-	-	8.2

Results recorded by July 21, 1997.

Nitrite as N	Nitrite as NO2	Nitrate as NO3	Total Kjeldahl Nitrogen	Location Date
-	-	3.9	-	W-880-02
<2.5 DU	<2.5 DHULO	7.2 LO	<0.5 U	26-jan-96
<2.5 DU	<2.5 DHULO	6.9 LO	<0.5 U	17-jun-96
-	-	<0.5 U	-	W-880-03
-	-	<0.5 U	-	24-jan-96
<2.5 DU	<2.5 DHULO	<0.5 ULO	0.57	24-jan-96
<5 DU	<5 DULO	<0.5 UO	0.71 L	17-jun-96
<0.5 U	<0.5 U	<0.5 U	0.55 L	22-aug-96
<0.5 U	<0.5 U	<0.5 U	0.7	27-dec-96
-	-	43.414	-	16-apr-97
-	-	53.16 D	-	SPRING3
-	-	30 D	-	03-sep-93
<0.1 HU	-	37	-	20-apr-94
<0.1 U	-	34.1 D	-	24-oct-95
<5 DULO	-	36	-	24-oct-95
				21-jun-96
				21-jun-96

See following page for notes

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 well 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

Lab Codes:

BB BC Laboratories, Inc., Bakersfield, CA  
BC Brown and Caldwell, Emeryville, CA  
CS California Laboratory Services, Rancho Cordova, CA  
GT Groundwater Technology Environmental Labs, Concord, CA

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. Nitrogenous compounds in soil and rock (mg/kg), Building 832 Canyon OU.  
Results recorded by July 15, 1997.

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Nitrates, Nitrites, and Nitrogen in Soil, Site 300  
July 21, 1997  
geminil

s3Nso.21jul97



Table A-15. Nitrogenous compounds in soil and rock (mg/kg), Building 832 Canyon OU.  
Results recorded by July 15, 1997.

Location Date	Lab Note	Val. Depth (ft)	Ammonia Nitrogen (as N)	Nitrate (as N)	Nitrate (as NO3)	Nitrite (as N)	Total Kjeldahl Nitrogen
830-23							
30-nov-94	CS a	V 1.0	<1 U	<5 U	<22.15 U	<5 U	-
30-nov-94	CS a	V 1.0	-	-	-	-	47
30-nov-94	CS a	V 5.5	<1 U	<5 U	<22.15 U	<5 U	-
30-nov-94	CS a	V 5.5	-	-	-	-	36
30-nov-94	CS a	V 15.5	<1 U	<5 U	<22.15 U	<5 U	-
30-nov-94	CS a	V 15.5	-	-	-	-	7.9
01-dec-94	CS a	V 25.3	1.5	<5 U	<22.15 U	<5 U	19 H
01-dec-94	CS a	V 30.5	<1 U	<5 U	<22.15 U	<5 U	26 H
830-24							
05-dec-94	CS a	V 1.0	<1 U	<5 U	<22.15 U	<5 U	75 H
05-dec-94	CS a	V 5.5	<1 U	<5 U	<22.15 U	<5 U	32 H
05-dec-94	CS a	V 10.8	<1 U	<5 U	<22.15 U	<5 U	9.8 H
05-dec-94	CS a	V 15.8	<1 U	<5 U	<22.15 U	<5 U	7 H
06-dec-94	CS ag	V 20.3	<1 U	<5 U	<22.15 U	<5 U	<5 U
06-dec-94	CS a	V 26.0	<0.1 U	<5 U	<22.15 U	<5 U	20
06-dec-94	CS a	V 31.0	<0.1 U	<5 U	<22.15 U	<5 U	12
W-830-13							
08-nov-94	CS ah	V 0.0	<1 U	64 D	284 D	7.4 D	-
08-nov-94	CS ah	V 0.0	-	-	-	-	1000 H
08-nov-94	CS ah	V 0.0	1.3	48 D	213 D	3.9 D	-
08-nov-94	CS ah	V 0.0	-	-	-	-	1500 H
09-nov-94	CS a	V 17.7	<1 U	<5 U	13.5	<1 U	-
09-nov-94	CS a	V 17.7	-	-	-	-	96 H
09-nov-94	CS a	V 20.3	<1 U	<5 U	6.2	<1 U	-
09-nov-94	CS a	V 20.3	-	-	-	-	87 H
09-nov-94	CS a	V 28.0	<1 U	<5 U	10.4	<1 U	-
09-nov-94	CS a	V 28.0	-	-	-	-	<50 HU
09-nov-94	CS a	V 32.4	<1 U	<5 U	8	<1 U	-
09-nov-94	CS a	V 32.4	-	-	-	-	81 H
09-nov-94	CS a	V 35.9	<1 U	<5 U	5.9	<1 U	-
09-nov-94	CS a	V 35.9	-	-	-	-	83 H
W-830-15							
08-dec-94	CS a	V 5.3	<1 U	<5 U	<22.15 U	<5 U	48
08-dec-94	CS a	V 5.6	<0.1 U	<5 U	<22.15 U	<5 U	15

See following page for notes

Table A-15. Nitrogenous compounds in soil and rock (mg/kg), Building 832 Canyon OU.  
Results recorded by July 15, 1997.

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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 well 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

Lab Codes:

CS California Laboratory Services, Rancho Cordova, CA

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. Metals in ground water and surface water (mg/L), Building 832 Canyon OU.  
Results recorded by July 15, 1997.

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Ground Water Metals Report, Site 300  
July 22, 1997  
geminil

s3metsL.22jul97  
s3metsR.22jul97

Table A-16. Metals in ground water and surface water (mg/L), Building 832 Canyon OU.

Location Date	Lab Note	Val.	Arsenic	Barium	Beryllium	Cadmium	Chromium	Copper	Iron
W-830-04A									
18-oct-88	BC	a U	-	-	-	-	-	<0.08 P	<0.04 P
W-830-05									
18-oct-88	BC	a U	-	-	-	-	-	<0.08 P	<0.04 P
W-830-09									
17-oct-88	BC	a U	-	-	-	-	-	<0.02 P	13 P
03-nov-94	CS	a V	-	-	-	-	-	<0.05 U	<0.1 U
W-830-10									
18-mar-92	BC	a U	-	-	-	-	-	<0.05 P	<0.1 P
18-mar-92	BC	a U	0.043 P	<0.05 P	-	<0.0005 P	<0.005 P	-	-
W-830-11									
25-jun-92	BC	ag U	0.006 P	<0.05 P	-	<0.0005 P	0.006 P	-	-
25-jun-92	BC	ag U	-	-	-	-	-	<0.05 P	<0.1 P
W-830-12									
21-dec-94	CS	a V	0.034	0.034	-	<0.0005 U	<0.01 U	-	-
21-dec-94	CS	a V	-	-	-	-	-	<0.05 U	<0.1 U
08-mar-95	CS	a V	0.037	<0.025 U	-	<0.0005 U	<0.01 U	-	-
08-mar-95	CS	a V	-	-	-	-	-	<0.05 U	<0.1 U
W-830-13									
16-mar-95	CS	a V	0.028	<0.025 U	-	<0.0005 U	<0.01 U	-	-
16-mar-95	CS	a V	-	-	-	-	-	<0.05 U	<0.1 U
W-830-14									
16-mar-95	CS	a V	0.032	<0.025 U	-	<0.0005 U	<0.01 U	-	-
16-mar-95	CS	a V	-	-	-	-	-	<0.05 U	<0.1 U
W-830-15									
16-mar-95	CS	a V	0.0022	<0.025 U	-	<0.0005 U	<0.01 U	-	-
16-mar-95	CS	a V	-	-	-	-	-	<0.05 U	<0.1 U
W-830-16									
25-jan-96	CS	a V	0.033 LO	0.025 LO	-	<0.0005 ULO	<0.01 ULO	-	-
25-jan-96	CS	a V	-	-	-	-	-	<0.05 U	<0.1 U
W-830-17									
25-jan-96	CS	a V	0.06 LO	<0.025 ULO	-	<0.0005 ULO	<0.01 ULO	-	-
25-jan-96	CS	a V	-	-	-	-	-	<0.05 U	<0.1 U
W-830-18									
28-jun-96	CS	a V	0.017	<0.025 U	-	<0.0005 U	<0.001 U	-	-
28-jun-96	CS	a V	-	-	-	-	-	<0.05 U	<0.1 U
W-830-19									
28-jun-96	CS	a V	0.028	0.041	-	0.0015	0.0022	-	-
28-jun-96	CS	a V	-	-	-	-	-	<0.05 U	<0.1 U
W-830-20									
24-sep-96	CS	a V	0.013	<0.025 U	-	<0.0005 U	<0.001 U	-	-
24-sep-96	CS	a V	-	-	-	-	-	<0.05 U	<0.1 U
W-830-21									
19-sep-96	CS	a V	0.0085	<0.025 U	-	<0.0005 U	<0.001 U	-	-
19-sep-96	CS	a V	-	-	-	-	-	<0.05 U	<0.1 U
W-830-22									
20-sep-96	CS	a V	<0.002 U	0.079	-	<0.0005 U	0.0018	-	-
20-sep-96	CS	a V	-	-	-	-	-	<0.05 U	<0.1 U
W-830-26									
20-sep-96	CS	a V	0.016	0.044	-	0.00072	<0.001 U	-	-
20-sep-96	CS	a V	-	-	-	-	-	<0.05 U	<0.1 U

## Results recorded by July 15, 1997.

Lead	Manganese	Mercury	Nickel	Selenium	Silver	Zinc	Location Date
-	0.06 P	-	-	-	-	<0.01 P	W-830-04A 18-oct-88
-	<0.04 P	-	-	-	-	0.03 P	W-830-05 18-oct-88
-	0.98 P	-	-	-	-	<0.01 P	W-830-09 17-oct-88
-	0.061	-	<0.1 U	-	-	<0.05 U	03-nov-94
-	<0.05 P	-	-	-	-	<0.05 P	W-830-10 18-mar-92
<0.002 P	-	<0.0002 P	-	0.027 P	<0.0005 P	-	18-mar-92
0.002 P	-	<0.0002 P	-	<0.002 P	<0.05 P	-	W-830-11 25-jun-92
-	<0.05 P	-	-	-	-	<0.05 P	25-jun-92
<0.002 U	-	<0.0002 U	-	<0.002 U	<0.001 U	-	W-830-12 21-dec-94
-	0.13	-	<0.1 U	-	-	<0.05 U	21-dec-94
<0.002 U	-	<0.0002 U	-	<0.002 U	<0.001 U	-	08-mar-95
-	0.12	-	<0.1 U	-	-	<0.05 U	08-mar-95
<0.002 U	-	<0.0002 U	-	0.016	<0.001 U	-	W-830-13 16-mar-95
-	<0.03 U	-	<0.1 U	-	-	<0.05 U	16-mar-95
<0.002 U	-	<0.0002 U	-	<0.002 U	<0.001 U	-	W-830-14 16-mar-95
-	<0.03 U	-	<0.1 U	-	-	<0.05 U	16-mar-95
<0.002 U	-	<0.0002 U	-	<0.002 U	<0.001 U	-	W-830-15 16-mar-95
-	<0.03 U	-	<0.1 U	-	-	<0.05 U	16-mar-95
<0.002 ULO	-	<0.0002 ULO	-	<0.002 ULO	<0.001 ULO	-	W-830-16 25-jan-96
-	<0.03 U	-	<0.1 U	-	-	<0.05 U	25-jan-96
<0.002 ULO	-	<0.0002 ULO	-	0.0032 LO	<0.001 ULO	-	W-830-17 25-jan-96
-	<0.03 U	-	<0.1 U	-	-	<0.05 U	25-jan-96
<0.002 U	-	<0.0002 U	-	0.004 LO	<0.001 U	-	W-830-18 28-jun-96
-	<0.03 U	-	<0.1 U	-	-	<0.05 U	28-jun-96
<0.002 U	-	<0.0002 U	-	0.011 LO	<0.001 U	-	W-830-19 28-jun-96
-	<0.03 U	-	<0.1 U	-	-	<0.05 U	28-jun-96
<0.002 U	-	<0.0002 U	-	0.0026 L	<0.001 U	-	W-830-20 24-sep-96
-	<0.03 U	-	<0.1 U	-	-	<0.05 U	24-sep-96
<0.002 U	-	0.00026	-	0.0033	<0.001 U	-	W-830-21 19-sep-96
-	0.14	-	<0.1 U	-	-	<0.05 U	19-sep-96
<0.002 U	-	<0.0002 U	-	0.0035 L	<0.001 U	-	W-830-22 20-sep-96
-	<0.03 U	-	<0.1 U	-	-	<0.05 U	20-sep-96
<0.002 U	-	<0.0002 U	-	0.014 L	<0.001 U	-	W-830-26 20-sep-96
-	<0.03 U	-	<0.1 U	-	-	<0.05 U	20-sep-96

Table A-16. Metals in ground water and surface water (mg/L), Building 832 Canyon OU.

Location Date	Lab Note	Val.	Arsenic	Barium	Beryllium	Cadmium	Chromium	Copper	Iron	
W-830-27										
19-sep-96	CS	a	V	0.025	<0.025 U	-	<0.0005 U	<0.001 U	-	-
19-sep-96	CS	a	V	-	-	-	-	<0.05 U	<0.1 U	
W-830-28										
23-sep-96	CS	a	V	0.0059	0.13	-	<0.0005 U	0.0096	-	-
23-sep-96	CS	a	V	-	-	-	-	<0.05 U	<0.1 U	
W-830-29										
17-mar-97	CS	a	V	0.02	0.041	-	<0.0005 U	<0.001 U	-	-
17-mar-97	CS	a	V	-	-	-	-	<0.05 U	<0.1 U	
W-830-30										
11-mar-97	CS	a	V	0.013	<0.025 U	-	0.0011	0.0054	-	-
11-mar-97	CS	a	V	-	-	-	-	<0.05 U	2.3	
W-830-34										
11-mar-97	CS	a	V	0.0057	<0.025 U	-	<0.0005 U	0.0024	-	-
11-mar-97	CS	a	V	-	-	-	-	<0.05 U	1.6	
W-831-01										
17-oct-88	BC	a	U	-	-	-	-	<0.02 P	0.08 P	
10-dec-91	BC	ag	U	-	-	-	-	<0.05 P	<0.1 P	
W-832-01										
21-nov-94	CS	a	V	0.0052	<0.025 U	-	<0.0005 U	<0.01 U	-	-
21-nov-94	CS	a	V	-	-	-	-	<0.05 U	<0.1 U	
16-mar-95	CS	ah	V	0.0056	<0.025 U	-	<0.0005 U	<0.01 U	-	-
16-mar-95	CS	ah	V	0.0063	<0.025 U	-	<0.0005 U	<0.01 U	-	-
16-mar-95	CS	ah	V	-	-	-	-	<0.05 U	<0.1 U	
16-mar-95	CS	ah	V	-	-	-	-	<0.05 U	<0.1 U	
W-832-05										
16-nov-94	CS	a	V	0.0039	0.044	-	<0.0005 U	<0.01 U	-	-
16-nov-94	CS	a	V	-	-	-	-	<0.05 U	<0.1 U	
06-dec-94	CS	a	V	<0.002 U	0.031	-	<0.0005 U	<0.01 U	-	-
06-dec-94	CS	a	V	-	-	-	-	<0.05 U	<0.1 U	
21-dec-94	CS	a	V	0.0062	0.032	-	<0.0005 U	<0.01 U	-	-
21-dec-94	CS	a	V	-	-	-	-	<0.05 U	<0.1 U	
09-mar-95	CS	a	V	0.0039	<0.025 U	-	<0.0005 U	<0.01 U	-	-
09-mar-95	CS	a	V	-	-	-	-	<0.05 U	<0.1 U	
W-832-06										
09-mar-95	CS	a	V	<0.002 U	<0.025 U	-	<0.0005 U	<0.01 U	-	-
09-mar-95	CS	a	V	-	-	-	-	<0.05 U	<0.1 U	
W-832-09										
21-nov-94	CS	a	V	0.037	<0.025 U	-	<0.0005 U	<0.01 U	-	-
21-nov-94	CS	a	V	-	-	-	-	<0.05 U	<0.1 U	
16-mar-95	CS	ah	V	0.032	<0.025 U	-	<0.0005 U	<0.01 U	-	-
16-mar-95	CS	ah	V	0.033	<0.025 U	-	<0.0005 U	<0.01 U	-	-
16-mar-95	CS	ah	V	-	-	-	-	<0.05 U	<0.1 U	
16-mar-95	CS	ah	V	-	-	-	-	<0.05 U	<0.1 U	
W-880-01										
24-jan-96	CS	a	V	0.072	<0.025 U	-	<0.0005 U	<0.01 U	-	-
24-jan-96	CS	a	V	-	-	-	-	<0.05 U	0.26	
W-880-02										
26-jan-96	CS	a	V	<0.002 ULO	0.047 LO	-	<0.0005 ULO	<0.01 ULO	-	-
26-jan-96	CS	a	V	-	-	-	-	<0.05 U	<0.1 U	
W-880-03										
24-jan-96	CS	ah	V	0.0042	<0.025 U	-	<0.0005 U	<0.01 U	-	-
24-jan-96	CS	ah	V	0.0034	<0.025 U	-	<0.0005 U	<0.01 U	-	-
24-jan-96	CS	ah	V	-	-	-	-	<0.05 U	<0.1 U	
24-jan-96	CS	ah	V	-	-	-	-	<0.05 U	<0.1 U	

Results recorded by July 15, 1997.

Lead	Manganese	Mercury	Nickel	Selenium	Silver	Zinc	Location Date
<0.002 U	-	<0.0002 U	-	0.018	<0.001 U	-	W-830-27
-	<0.03 U	-	<0.1 U	-	-	<0.05 U	19-sep-96
							19-sep-96
0.0032	-	<0.0002 U	-	0.014 L	<0.001 U	-	W-830-28
-	<0.03 U	-	<0.1 U	-	-	<0.05 U	23-sep-96
							23-sep-96
<0.002 U	-	<0.0002 U	-	<0.002 U	<0.001 U	-	W-830-29
-	<0.03 U	-	<0.1 U	-	-	<0.05 U	17-mar-97
							17-mar-97
<0.002 U	-	<0.0002 U	-	<0.002 LU	<0.001 U	-	W-830-30
-	<0.03 U	-	<0.1 U	-	-	<0.05 U	11-mar-97
							11-mar-97
<0.002 U	-	<0.0002 U	-	0.023 L	<0.001 U	-	W-830-34
-	<0.03 U	-	<0.1 U	-	-	<0.05 U	11-mar-97
							11-mar-97
-	0.12 P	-	-	-	-	<0.01 P	W-831-01
-	<0.05 P	-	-	-	-	<0.05 P	17-oct-88
							10-dec-91
<0.002 U	-	<0.0002 U	-	0.029	<0.001 U	-	W-832-01
-	<0.03 U	-	<0.1 U	-	-	<0.05 U	21-nov-94
<0.002 U	-	<0.0002 U	-	0.024	<0.001 U	-	21-nov-94
<0.002 U	-	<0.0002 U	-	0.023	<0.001 U	-	16-mar-95
-	<0.03 U	-	<0.1 U	-	-	<0.05 U	16-mar-95
-	<0.03 U	-	<0.1 U	-	-	<0.05 U	16-mar-95
							16-mar-95
<0.002 U	-	<0.0002 U	-	0.057	<0.001 U	-	W-832-05
-	<0.03 U	-	<0.1 U	-	-	<0.05 U	16-nov-94
<0.002 U	-	<0.0002 U	-	0.062	<0.001 U	-	16-nov-94
-	<0.03 U	-	<0.1 U	-	-	<0.05 U	06-dec-94
<0.002 U	-	<0.0002 U	-	0.079	<0.001 U	-	06-dec-94
-	<0.03 U	-	<0.1 U	-	-	<0.05 U	21-dec-94
<0.002 U	-	<0.0002 U	-	0.011	<0.001 U	-	21-dec-94
-	<0.03 U	-	<0.1 U	-	-	<0.05 U	09-mar-95
							09-mar-95
<0.002 U	-	<0.0002 U	-	0.0089	<0.001 U	-	W-832-06
-	<0.03 U	-	<0.1 U	-	-	<0.05 U	09-mar-95
							09-mar-95
<0.002 U	-	<0.0002 U	-	<0.002 U	<0.001 U	-	W-832-09
-	0.068	-	<0.1 U	-	-	<0.05 U	21-nov-94
<0.002 U	-	<0.0002 U	-	<0.002 U	<0.001 U	-	21-nov-94
<0.002 U	-	<0.0002 U	-	<0.002 U	<0.001 U	-	16-mar-95
-	0.084	-	<0.1 U	-	-	<0.05 U	16-mar-95
-	0.084	-	<0.1 U	-	-	<0.05 U	16-mar-95
							16-mar-95
<0.002 U	-	<0.0002 U	-	<0.002 U	<0.001 U	-	W-880-01
-	<0.03 U	-	<0.1 U	-	-	<0.05 U	24-jan-96
							24-jan-96
<0.002 ULO	-	0.00036 LO	-	0.0037 LO	<0.001 ULO	-	W-880-02
-	0.07	-	<0.1 U	-	-	<0.05 U	26-jan-96
							26-jan-96
<0.002 U	-	<0.0002 U	-	<0.002 U	<0.001 U	-	W-880-03
<0.002 U	-	<0.0002 U	-	<0.002 U	<0.001 U	-	24-jan-96
-	<0.03 U	-	<0.1 U	-	-	<0.05 U	24-jan-96
-	<0.03 U	-	<0.1 U	-	-	<0.05 U	24-jan-96
							24-jan-96

Table A-16. Metals in ground water and surface water (mg/L), Building 832 Canyon OU.

Location Date	Lab Note	Val.	Arsenic	Barium	Beryllium	Cadmium	Chromium	Copper	Iron	
SPRING3										
03-sep-93	CS	a	V	0.055	0.1	-	<0.001 U	<0.01 U	-	-
03-sep-93	CS	a	V	-	-	<0.0005 U	-	-	-	-
03-sep-93	CS	a	V	-	-	-	-	<0.05 U	<0.1 U	-
20-apr-94	CS	a	V	0.061	0.081	<0.0005 U	<0.0005 U	<0.01 U	-	-
20-apr-94	CS	a	V	-	-	-	-	<0.05 U	<0.1 U	-
24-oct-95	CS	a	V	0.041	0.061	<0.0005 U	<0.0005 U	<0.01 U	-	-
24-oct-95	FS	a	V	0.01 L	0.08	<0.001 U	-	<0.01 U	-	-
24-oct-95	CS	a	V	-	-	-	-	<0.05 U	<0.1 U	-
24-oct-95	FS	a	V	-	-	-	-	<0.05 U	<0.05 U	-
21-jun-96	BB	a	V	0.041	0.105	-	<0.0005 U	<0.001 U	-	-
21-jun-96	CS	a	V	0.039	0.087	-	<0.0005 U	<0.001 U	-	-
21-jun-96	BB	a	V	-	-	<0.0005 U	-	-	-	-
21-jun-96	CS	a	V	-	-	<0.0005 U	-	-	-	-
21-jun-96	BB	a	V	-	-	-	-	<0.05 U	<0.1 U	-
21-jun-96	CS	a	V	-	-	-	-	<0.05 U	<0.1 U	-



Results recorded by July 15, 1997.

Lead	Manganese	Mercury	Nickel	Selenium	Silver	Zinc	Location Date
							SPRING3
<0.005 U	-	<0.0005 U	-	<0.005 U	<0.001 U	-	03-sep-93
-	-	-	-	-	-	-	03-sep-93
-	<0.03 U	-	<0.1 U	-	-	<0.05 U	03-sep-93
<0.002 U	-	<0.0002 U	-	0.011	<0.001 U	-	20-apr-94
-	0.1	-	<0.1 U	-	-	<0.05 U	20-apr-94
<0.002 U	-	<0.0002 U	-	0.011	<0.001 U	-	24-oct-95
<0.01 U	-	<0.0002 U	-	<0.01 U	<0.01 U	-	24-oct-95
-	0.24	-	<0.1 U	-	-	<0.05 U	24-oct-95
-	0.29	-	-	-	-	<0.05 U	24-oct-95
<0.005 U	-	<0.0002 DU	-	0.016	<0.001 U	-	21-jun-96
<0.002 ULO	-	<0.0002 U	-	0.01 LO	<0.001 ULO	-	21-jun-96
-	-	-	-	-	-	-	21-jun-96
-	-	-	-	-	-	-	21-jun-96
-	0.396	-	<0.1 U	-	-	<0.05 U	21-jun-96
-	0.48	-	<0.1 U	-	-	<0.05 U	21-jun-96

See following page for notes

Table A-16. Metals in ground water and surface water (mg/L), Building 832 Canyon OU.  
Results recorded by July 15, 1997.

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 well 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

Lab Codes:

- BB BC Laboratories, Inc., Bakersfield, CA
- BC Brown and Caldwell, Emeryville, CA
- CS California Laboratory Services, Rancho Cordova, CA

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. Total metals in soil and rock (mg/kg), Building 832 Canyon OU.  
Results recorded by July 15, 1997.

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Metals in Surface Soil, Site 300  
July 22, 1997  
gemin1

s3metttlc.soL.22jul97  
s3metttlc.soR.22jul97

Table A-17. Total metals in soil and rock (mg/kg), Building 832 Canyon OU.

Location Date	Lab Note	Val. Depth (ft)	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	
830-23											
30-nov-94	CS a	V	2.5	<1 U	5.9	460	0.68	<0.1 LOU	17	13	31
30-nov-94	CS a	V	2.5	-	-	260	-	-	-	-	-
30-nov-94	CS a	V	7.0	<1 U	2.7	85	0.93	<0.1 LOU	48	29	27
30-nov-94	CS a	V	7.0	-	-	-	-	-	-	-	-
30-nov-94	CS a	V	11.4	<1 U	3.1	77	0.63	<0.1 LOU	40	15	26
30-nov-94	CS a	V	15.0	<1 U	1.7	54	<0.5 U	<0.1 LOU	78	13	22
30-nov-94	CS a	V	15.0	-	-	-	-	-	-	-	-
830-24											
05-dec-94	CS a	V	2.3	<1 U	3.3	95	<0.5 U	<0.1 ULO	30	8.2	23
05-dec-94	CS a	V	5.0	<1 U	1.5	99	0.55	<0.1 LOU	31	11	21
05-dec-94	CS a	V	11.8	<1 U	37	160	1.3	<0.1 LOU	23	14	29
05-dec-94	CS a	V	15.0	<1 U	2.3	58	0.72	<0.1 LOU	54	15	19
W-830-12											
30-aug-94	CS a	V	0.7	<1 U	1.3	93	<0.5 U	<0.1 U	23	8.1	17
30-aug-94	CS a	V	5.5	<1 U	1.5	130	<0.5 U	<0.1 U	26	10	21
30-aug-94	CS a	V	14.8	<1 U	0.63	96	<0.5 U	<0.1 U	16	8	15
W-830-13											
08-nov-94	CS ah	V	0.0	<1 U	1.3	130	<0.5 U	<0.1 U	15	9.7	15
08-nov-94	CS ah	V	0.0	<1 U	1.1	180	0.6	<0.1 U	26	13	17
09-nov-94	CS a	V	17.7	<1 LOU	1.1 LO	37	<0.5 U	<0.1 U	8.3	6.2	8.3 O
09-nov-94	CS a	V	20.3	<1 LOU	1.1 LO	43	<0.5 U	<0.1 U	13	7.6	9.2 O
09-nov-94	CS a	V	28.0	<1 LOU	0.71 LO	46	<0.5 U	<0.1 U	14	7.1	8.4 O
09-nov-94	CS a	V	32.4	<1 LOU	0.8 LO	41	<0.5 U	<0.1 U	14	7.3	7.3 O
09-nov-94	CS a	V	35.9	<1 LOU	0.75 LO	45	<0.5 U	<0.1 U	20	6.1	9.1 O
10-nov-94	CS a	V	42.7	<1 ULO	<2.5 DU	44	<0.5 U	<0.1 U	23	6.4	9.2
10-nov-94	CS a	V	45.7	<1 ULO	<2.5 DU	52	0.56	<0.1 U	11	7.3	13
10-nov-94	CS a	V	51.7	<1 ULO	<2.5 DU	60	<0.5 U	<0.1 U	19	6.4	14
W-830-15											
08-dec-94	CS a	V	5.3	<1 ULO	4.1 DLO	150	0.59	<0.1 U	23	10	18
08-dec-94	CS a	V	5.6	<1 ULO	<2.5 DULO	52	<0.5 U	<0.1 U	7.9	7.2	11
08-dec-94	CS a	V	5.9	<1 ULO	2.8 DLO	98	<0.5 U	<0.1 U	14	8.5	16
W-830-16											
03-oct-95	CS a	V	0.0	<1 U	0.61	190	0.69	<1 U	7.4	<5 U	<5 U
03-oct-95	CS a	V	4.0	<1 U	1	120	0.78	<1 U	15	<5 U	7
W-830-18											
03-apr-96	CS a	V	19.3	<1 ULO	3.9 LO	41	<0.5 U	<1 UO	19 O	<5 UO	42 O
W-830-20											
13-jun-96	CS a	V	0.0	<1 ULO	<5 DU	180	<0.5 U	<0.1 U	47	14	39
13-jun-96	CS a	V	9.0	<1 ULO	<5 DU	61	<0.5 U	<0.1 U	14	10	20
W-830-25											
06-aug-96	CS a	V	0.0	<1 LOU	3.2	240	0.55	<1 LOU	61	18	37
06-aug-96	CS a	V	6.6	<1 LOU	2.8	150	0.61	<1 LOU	25	8.6	15
06-aug-96	CS a	V	12.3	<1 LUO	1.1 L	130	<0.5 U	<1 U	69 LO	10	48
832-02											
26-sep-94	CS a	V	1.3	<1 U	1.1	84	<0.5 U	1	15	6.5	13
26-sep-94	CS a	V	5.3	<1 U	4.6	96	0.76	2.5	27	12	37
26-sep-94	CS a	V	10.3	<1 U	<5 DU	220	0.69	2	37	14	66
27-sep-94	CS ag	V	15.3	<1 U	<5 DU	140	<0.5 U	1.9	54	13	29
27-sep-94	GT ag	V	15.3	<5 U	<0.5 U	97	0.8	<0.5 U	56	14	38
832-03											
04-oct-94	CS a	V	1.0	<1 U	1.6	130	<0.5 U	<0.1 U	14	7.4	16
04-oct-94	CS a	V	5.3	<1 U	1.9	120	<0.5 U	<0.1 U	12	7.7	15
04-oct-94	CS a	V	10.3	<1 U	2.9	120	<0.5 U	<0.1 U	14	8.2	15
832-04											
06-oct-94	CS a	V	1.3	<1 U	1.9	120	0.53	<0.1 U	8.5	8.7	15
06-oct-94	CS a	V	5.3	<1 U	<0.5 UL	120	0.59	<0.1 U	26 L	11	19

Results recorded by July 15, 1997.

Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	Location
									Date
									830-23
<10 U	<0.05 U	<5 U	19	<0.5 LOU	<2.5 U	<1 LOU	71	44	30-nov-94
-	-	-	-	-	-	-	-	-	30-nov-94
<10 U	<0.05 U	<5 U	48	<0.5 LOU	<2.5 U	<1 LOU	110	75	30-nov-94
-	-	-	-	-	-	-	66	-	30-nov-94
<10 U	<0.05 U	<5 U	29	<0.5 LOU	<2.5 U	<1 LOU	82	50	30-nov-94
<10 U	<0.05 U	<5 U	27	<0.5 LOU	<2.5 U	<1 LOU	130	69	30-nov-94
-	-	-	-	-	-	-	110	-	30-nov-94
									830-24
<10 LOU	<0.05 U	<5 U	35	<0.5 ULO	<2.5 U	<1 LOU	36	41	05-dec-94
<10 LOU	<0.05 U	<5 U	25	<0.5 LOU	<2.5 U	<1 LOU	86	50	05-dec-94
<10 LOU	<0.05 U	<5 U	34	<0.5 LOU	<2.5 U	<1 LOU	97	60	05-dec-94
<10 LOU	<0.05 U	<5 U	31	<0.5 LOU	<2.5 U	<1 LOU	81	68	05-dec-94
									W-830-12
18	<0.05 U	<5 U	25	<0.5 U	<2.5 U	<1 U	43	37	30-aug-94
22	<0.05 U	<5 U	34	<0.5 U	<2.5 U	<1 U	43	39	30-aug-94
17	<0.05 U	<5 U	15	<0.5 U	<2.5 U	<1 U	60	39	30-aug-94
									W-830-13
12	<0.05 U	<5 U	17	<0.5 U	<2.5 U	<1 U	48	51	08-nov-94
13	<0.05 U	<5 U	22	<0.5 U	<2.5 U	<1 U	77	64	08-nov-94
<10 U	<0.05 U	<5 U	<10 U	<0.5 LOU	<2.5 LOU	<1 U	68	29	09-nov-94
<10 U	<0.05 U	<5 U	<10 U	<0.5 LOU	<2.5 LOU	<1 U	88	35	09-nov-94
<10 U	<0.05 U	<5 U	<10 U	<0.5 LOU	<2.5 LOU	<1 U	80	33	09-nov-94
<10 U	<0.05 U	<5 U	<10 U	<0.5 LOU	<2.5 LOU	<1 U	89	35	09-nov-94
<10 U	<0.05 U	<5 U	11	<0.5 LOU	<2.5 LOU	<1 U	63	28	09-nov-94
<10 U	<0.05 U	<5 U	12	<0.5 U	<2.5 ULO	<1 U	86	37	10-nov-94
<10 U	<0.05 U	<5 U	<10 U	<0.5 U	<2.5 ULO	<1 U	95	35	10-nov-94
<10 U	0.1	<5 U	11	<0.5 U	<2.5 ULO	<1 U	81	55	10-nov-94
									W-830-15
<10 U	<0.05 U	<5 U	24	<0.5 ULO	<2.5 U	<1 U	51	43	08-dec-94
<10 U	<0.05 U	<5 U	<10 U	<0.5 ULO	<2.5 U	<1 U	40	36	08-dec-94
<10 U	<0.05 U	<5 U	16	<0.5 ULO	<2.5 U	<1 U	45	39	08-dec-94
									W-830-16
25	<0.05 U	<5 U	14	<0.5 U	<2.5 U	<1 U	48	34	03-oct-95
42	<0.05 U	<5 U	16	<0.5 U	<2.5 U	<1 U	43	34	03-oct-95
									W-830-18
17	<0.05 U	<2.5 UL	20 O	<0.4 ULO	<2.5 U	<0.5 U	56 O	60	03-apr-96
									W-830-20
12	<0.05 U	<2.5 U	31	1 LO	<2.5 U	<0.5 U	110	67	13-jun-96
<10 U	<0.05 U	<2.5 U	14	<0.4 ULO	<2.5 U	<0.5 U	69	51	13-jun-96
									W-830-25
31 LO	<0.05 U	<5 U	45	<2.5 LOU	<2.5 U	<25 U	110	73	06-aug-96
<10 LOU	<0.05 U	<5 U	27	<2.5 LOU	<2.5 U	<25 U	39	36	06-aug-96
11	<0.05 U	<5 U	35	<2.5 LU	<2.5 U	<25 U	86	50	06-aug-96
									832-02
11	<0.05 U	<5 U	11	<0.5 U	<2.5 U	<1 U	40	28	26-sep-94
32	<0.05 U	<5 U	32	<0.5 U	<2.5 U	<1 U	110	65	26-sep-94
34	<0.05 U	<5 U	33	<0.5 U	<2.5 U	<1 U	130	66	26-sep-94
24	<0.05 U	<5 U	26	<0.5 U	<2.5 U	<1 U	99	65	27-sep-94
10	<0.1 U	<1 U	21	<5 U	<1 U	<5 U	110	82	27-sep-94
									832-03
<10 U	<0.05 U	<5 U	20	<0.5 U	<2.5 U	<1 U	32	30	04-oct-94
<10 U	<0.05 U	<5 U	12	<0.5 U	<2.5 U	<1 U	53	32	04-oct-94
<10 U	<0.05 U	<5 U	14	<0.5 U	<2.5 U	<1 U	54	37	04-oct-94
									832-04
<10 U	<0.05 U	<5 U	12	<0.5 U	<2.5 U	<1 U	32	24	06-oct-94
11	<0.05 U	<5 U	21	<0.5 U	<2.5 UL	<1 U	80	48	06-oct-94

Table A-17. Total metals in soil and rock (mg/kg), Building 832 Canyon OU.

Location Date	Lab Note	Val. Depth (ft)	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper
832-04 (continued)										
06-oct-94	CS ag	V 10.3	<1 U	2.9	160	0.61	<0.1 U	14	8.9	30
06-oct-94	GT ag	N 10.3	<5 U	3.4	270	0.73	<0.5 U	16	10	26
06-oct-94	CS a	V 15.3	<1 U	2.3	160	0.61	<0.1 U	13	8.7	29
832-07										
28-sep-94	CS a	V 1.5	<1 U	1.6	140	<0.5 U	<0.1 U	19	7.9	18
28-sep-94	CS a	V 5.3	<1 U	1.5	89	<0.5 U	<0.1 U	13	8.1	17
28-sep-94	CS ag	V 10.3	<1 U	1.6	84	<0.5 U	<0.1 U	12	7.2	14
28-sep-94	GT ag	V 10.3	<5 LU	2 L	120 L	0.6 L	<0.5 LU	24 L	11 L	21 L
29-sep-94	CS ah	V 15.3	<1 U	7.2	200	<0.5 U	<0.1 U	19	8.9	23
832-08										
28-nov-94	CS a	V 2.5	<1 ULO	8.3 LO	71	0.66	<0.1 U	23	8.8	32
28-nov-94	CS a	V 5.5	<1 ULO	1.3 LO	95	0.62	<0.1 U	59	10	29
28-nov-94	CS a	V 10.5	<1 ULO	2.7 LO	150	0.73	<0.1 U	25	15	22
28-nov-94	CS a	V 15.5	<1 ULO	0.87 LO	22	0.62	<0.1 U	15	7.2	20
W-832-01										
17-aug-94	CS a	V 0.3	<1 U	2.8	140	0.58	<0.1 U	18	10	25
17-aug-94	CS a	V 1.0	<1 U	3.4	180	0.66	<0.1 U	34	11	29
18-aug-94	CS a	V 5.3	<1 U	1.8	130	<0.5 U	<0.1 U	21	11	19
18-aug-94	CS a	V 10.0	<1 U	3.8 D	150	<0.5 U	<0.1 U	28	11	25
18-aug-94	CS a	V 15.5	<1 U	2.1	120	<0.5 U	<0.1 U	23	9.4	18
W-832-05										
10-oct-94	CS a	V 5.0	<1 U	2	140	0.65	0.11	33	11	24
10-oct-94	CS a	V 10.3	<1 U	1.9	150	0.64	0.11	31	11	21
10-oct-94	CS a	V 15.3	<1 U	2.1	130	0.54	<0.1 U	25	10	20
W-832-06										
21-nov-94	CS a	V 1.5	<1 ULO	3.4 D	200	0.62	<0.1 U	29	12	20
21-nov-94	CS a	V 5.5	<1 ULO	18 D	150	0.96	<0.1 U	46	24	32
21-nov-94	CS a	V 10.0	<1 ULO	4.3 D	140	1	0.36	26	9.2	39
W-880-01										
25-oct-95	CS a	V 0.5	<1 U	6.1	150	0.62	<0.05 U	22	9.4	16

Results recorded by July 15, 1997.

Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	Location Date
(continued) 832-04									
<10 U	<0.05 U	<5 U	16	<0.5 U	<2.5 U	<1 U	54	36	06-oct-94
6.4	<0.1 U	<1 U	17	<5 U	<1 U	<5 U	61	44	06-oct-94
14	<0.05 U	<5 U	16	<0.5 U	<2.5 U	<1 U	49	34	06-oct-94
832-07									
30	<0.05 U	<5 U	20	<0.5 U	<2.5 U	<1 U	45	38	28-sep-94
<10 U	<0.05 U	15	<10 U	<0.5 U	<2.5 U	<1 U	45	36	28-sep-94
<10 U	<0.05 U	<5 U	12	<0.5 U	<2.5 U	<1 U	45	31	28-sep-94
7 L	<0.1 LU	<1 LU	25 L	<5 LU	<1 LU	<5 LU	68 L	48 L	28-sep-94
<10 U	<0.05 U	<5 U	12	<0.5 U	<2.5 U	<1 U	55	47	29-sep-94
832-08									
<10 U	<0.05 U	<5 U	19	<0.5 ULO	<2.5 ULO	<1 ULO	46	44	28-nov-94
<10 U	<0.05 U	<5 U	23	<0.5 ULO	<2.5 ULO	<1 ULO	94	64	28-nov-94
<10 U	<0.05 U	27	<10 U	<0.5 ULO	<2.5 ULO	<1 ULO	67	42	28-nov-94
<10 U	<0.05 U	<5 U	13	<0.5 ULO	<2.5 ULO	<1 ULO	65	50	28-nov-94
W-832-01									
<10 U	<0.05 U	<5 U	20	<0.5 U	<2.5 U	<1 U	56	41	17-aug-94
<10 U	<0.05 U	<5 U	22	<0.5 U	<2.5 U	<1 U	92	50	17-aug-94
15	<0.05 HU	<5 U	17	<0.5 U	<2.5 U	<1 U	70	43	18-aug-94
17	<0.05 HU	<5 U	22	<0.5 U	<2.5 U	<1 U	79	47	18-aug-94
15	<0.05 HU	5.3	18	<0.5 U	<2.5 U	<1 U	87	43	18-aug-94
W-832-05									
<10 U	<0.05 U	<5 U	32	<0.5 U	<2.5 U	<1 U	68	48	10-oct-94
<10 U	<0.05 U	<5 U	27	<0.5 U	<2.5 U	<1 U	74	48	10-oct-94
<10 U	<0.05 U	<5 U	23	<0.5 U	<2.5 U	<1 U	69	44	10-oct-94
W-832-06									
<10 U	<0.05 U	<5 U	22	<0.5 U	<2.5 ULO	<1 U	87	48	21-nov-94
12	<0.05 U	<5 U	48	<0.5 U	<2.5 ULO	<1 U	93	50	21-nov-94
<10 U	0.15	<5 U	19	<0.5 U	<2.5 ULO	<1 U	81	45	21-nov-94
W-880-01									
<10 U	<0.05 U	<5 U	20	<0.5 U	<2.5 U	<1 U	63	70	25-oct-95

See following page for notes

Table A-17. Total metals in soil and rock (mg/kg), Building 832 Canyon OU.  
Results recorded by July 15, 1997.

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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 well 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

Lab Codes:

CS California Laboratory Services, Rancho Cordova, CA  
GT Groundwater Technology Environmental Labs, Concord, CA

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. Aromatic hydrocarbons in ground water and surface water (ug/L), Building 832 Canyon OU.  
Results recorded by July 15, 1997.

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BTEX compounds in Ground Water, Site 300

July 22, 1997

gemin1

s3btexL.22jul97

s3btexR.22jul97

Table A-18. Aromatic hydrocarbons in ground water and surface water (ug/L), Building 832 Canyon OU.

Location Date	Lab Note	Val.	Benzene	Toluene	Ethyl- benzene	Total xylenes
W-830-04A						
26-nov-85	BC	a	U	-	-	-
10-feb-86	BC	a	U	-	-	-
25-jun-86	BC	a	U	-	-	-
20-aug-86	BC	a	U	-	-	-
23-sep-86	BC	a	U	-	-	-
21-nov-86	BC	a	U	-	-	-
18-mar-87	BC	a	U	-	-	-
29-jun-87	BC	a	U	-	-	-
21-sep-87	BC	a	U	-	-	-
10-dec-87	BC	a	U	-	-	-
08-mar-88	BC	a	U	-	-	-
30-jun-88	BC	an	U	-	-	-
18-oct-88	BC	a	U	-	-	-
01-feb-89	BC	a	U	-	-	-
13-apr-89	BC	a	U	-	-	-
18-jul-89	BC	a	U	-	-	-
12-oct-89	BC	a	U	-	-	-
17-jan-90	BC	a	U	-	-	-
29-may-90	BC	a	U	-	-	-
22-aug-90	BC	a	U	-	-	-
26-nov-90	BC	ag	U	-	-	-
26-nov-90	CL	ag	U	-	-	-
05-mar-91	BC	ah	U	-	-	-
05-mar-91	BC	aeh	U	-	-	-
17-may-91	BC	a	U	-	-	-
05-sep-91	BC	a	U	-	-	-
05-dec-91	BC	a	U	-	-	-
23-jun-92	BC	a	U	-	-	-
26-oct-92	BC	a	U	-	-	-
10-feb-93	BC	a	V	-	-	-
27-apr-93	BC	a	V	-	-	-
19-aug-93	CS	a	V	-	-	-
13-dec-93	CS	a	V	-	-	-
16-dec-93	CS	ae	V	-	-	-
15-mar-94	CS	a	V	-	-	-
12-may-94	CS	a	V	-	-	-
10-aug-94	CS	a	V	-	-	-
16-dec-94	CS	a	V	-	-	-
21-feb-95	CS	a	V	-	-	-
12-may-95	CS	a	V	-	-	-
21-jul-95	CS	a	V	-	-	-
30-nov-95	CS	a	V	-	-	-
25-jan-96	CS	a	V	-	-	-
12-jun-96	CS	a	V	-	-	-
23-aug-96	CS	a	V	-	-	-
11-dec-96	CS	a	V	-	-	-
25-feb-97	CS	a	V	-	-	-
W-830-05						
16-oct-85	BC	a	U	-	-	-
26-nov-85	BC	a	U	-	-	-
10-feb-86	BC	a	U	-	-	-
30-jun-86	BC	a	U	-	-	-
23-sep-86	BC	a	U	-	-	-
23-dec-86	BC	a	U	-	-	-
19-mar-87	BC	ah	U	-	-	-
19-mar-87	BC	ah	U	-	-	-
22-jun-87	BC	a	U	-	-	-
22-sep-87	BC	a	U	-	-	-
09-dec-87	BC	a	U	-	-	-
10-mar-88	BC	a	U	-	-	-
28-jun-88	BC	an	U	-	-	-
18-oct-88	BC	a	U	-	-	-
02-feb-89	BC	a	U	-	-	-
14-apr-89	BC	a	U	-	-	-
18-jul-89	BC	a	U	-	-	-

Results recorded by July 15, 1997.

1,2 Dichloro- benzene	1,3 Dichloro- benzene	1,4 Dichloro- benzene	Chloro- benzene	Location Date
				W-830-04A
<0.5 P	<0.5 P	<0.5 P	<0.5 P	26-nov-85
<0.5 P	<0.5 P	<0.5 P	<0.5 P	10-feb-86
<0.5 P	<0.5 P	<0.5 P	<0.5 P	25-jun-86
<0.5 P	<0.5 P	<0.5 P	<0.5 P	20-aug-86
<0.5 P	<0.5 P	<0.5 P	<0.5 P	23-sep-86
<0.5 P	<0.5 P	<0.5 P	<0.5 P	21-nov-86
<0.5 P	<0.5 P	<0.5 P	<0.5 P	18-mar-87
<0.5 P	<0.5 P	<0.5 P	<0.5 P	29-jun-87
<0.5 P	<0.5 P	<0.5 P	<0.5 P	21-sep-87
<0.5 P	<0.5 P	<0.5 P	<0.5 P	10-dec-87
<0.5 P	<0.5 P	<0.5 P	<0.5 P	08-mar-88
<0.5 P	<0.5 P	<0.5 P	<0.5 P	30-jun-88
<0.5 P	<0.5 P	<0.5 P	<0.5 P	18-oct-88
<0.5 P	<0.5 P	<0.5 P	<0.5 P	01-feb-89
<0.5 P	<0.5 P	<0.5 P	<0.5 P	13-apr-89
<0.5 P	<0.5 P	<0.5 P	<0.5 P	18-jul-89
<0.5 P	<0.5 P	<0.5 P	<0.5 P	12-oct-89
<0.5 P	<0.5 P	<0.5 P	<0.5 P	17-jan-90
<0.5 P	<0.5 P	<0.5 P	<0.5 P	29-may-90
<0.5 P	<0.5 P	<0.5 P	<0.5 P	22-aug-90
<0.5 P	<0.5 P	<0.5 P	<0.5 P	26-nov-90
<4 P	<2 P	<4 P	<0.7 P	26-nov-90
<0.5 P	<0.5 P	<0.5 P	<0.5 P	05-mar-91
<0.5 P	<0.5 P	<0.5 P	<0.5 P	05-mar-91
<0.5 P	<0.5 P	<0.5 P	<0.5 P	17-may-91
<0.5 P	<0.5 P	<0.5 P	<0.5 P	05-sep-91
<0.5 P	<0.5 P	<0.5 P	<0.5 P	05-dec-91
<0.5 P	<0.5 P	<0.5 P	<0.5 P	23-jun-92
<0.5 P	<0.5 P	<0.5 P	<0.5 P	26-oct-92
<0.5 U	<0.5 U	<0.5 U	<0.5 U	10-feb-93
<0.5 U	<0.5 U	<0.5 U	<0.5 U	27-apr-93
<0.5 U	<0.5 U	<0.5 U	<0.5 U	19-aug-93
<0.5 U	<0.5 U	<0.5 U	<0.5 U	13-dec-93
<0.5 U	<0.5 U	<0.5 U	<0.5 U	16-dec-93
<0.5 U	<0.5 U	<0.5 U	<0.5 U	15-mar-94
<0.5 U	<0.5 U	<0.5 U	<0.5 U	12-may-94
<0.5 U	<0.5 U	<0.5 U	<0.5 U	10-aug-94
<0.5 U	<0.5 U	<0.5 U	<0.5 U	16-dec-94
<0.5 U	<0.5 U	<0.5 U	<0.5 U	21-feb-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	12-may-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	21-jul-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	30-nov-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	25-jan-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	12-jun-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	23-aug-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	11-dec-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	25-feb-97
				W-830-05
<0.5 P	<0.5 P	<0.5 P	<0.5 P	16-oct-85
<0.5 P	<0.5 P	<0.5 P	<0.5 P	26-nov-85
<0.5 P	<0.5 P	<0.5 P	<0.5 P	10-feb-86
<0.5 P	<0.5 P	<0.5 P	<0.5 P	30-jun-86
<0.5 P	<0.5 P	<0.5 P	<0.5 P	23-sep-86
<0.5 P	<0.5 P	<0.5 P	<0.5 P	23-dec-86
<0.5 P	<0.5 P	<0.5 P	<0.5 P	19-mar-87
<0.5 P	<0.5 P	<0.5 P	<0.5 P	19-mar-87
<0.5 P	<0.5 P	<0.5 P	<0.5 P	22-jun-87
<0.5 P	<0.5 P	<0.5 P	<0.5 P	22-sep-87
<0.5 P	<0.5 P	<0.5 P	<0.5 P	09-dec-87
<0.5 P	<0.5 P	<0.5 P	<0.5 P	10-mar-88
<0.5 P	<0.5 P	<0.5 P	<0.5 P	28-jun-88
<0.5 P	<0.5 P	<0.5 P	<0.5 P	18-oct-88
<0.5 P	<0.5 P	<0.5 P	<0.5 P	02-feb-89
<0.5 P	<0.5 P	<0.5 P	<0.5 P	14-apr-89
<0.5 P	<0.5 P	<0.5 P	<0.5 P	18-jul-89

Table A-18. Aromatic hydrocarbons in ground water and surface water (ug/L), Building 832 Canyon OU.

Location Date	Lab Note	Val.	Benzene	Toluene	Ethyl- benzene	Total xylenes
W-830-05 (continued)						
10-oct-89	BC a	U	-	-	-	-
18-jan-90	BC a	U	-	-	-	-
01-jun-90	BC a	U	-	-	-	-
22-aug-90	BC a	U	-	-	-	-
27-nov-90	BC a	U	-	-	-	-
06-mar-91	BC a	U	-	-	-	-
22-may-91	BC a	U	-	-	-	-
06-sep-91	BC a	U	-	-	-	-
18-dec-91	BC a	U	-	-	-	-
24-jun-92	BC a	U	-	-	-	-
26-oct-92	BC a	U	-	-	-	-
11-feb-93	BC a	V	-	-	-	-
11-feb-93	CL a	V	-	-	-	-
27-apr-93	BC a	V	-	-	-	-
29-sep-93	CS a	V	-	-	-	-
29-sep-93	CS aeh	V	-	-	-	-
13-dec-93	CS a	V	-	-	-	-
07-mar-94	CS a	V	-	-	-	-
20-jun-94	CS ah	V	-	-	-	-
20-jun-94	CS aeh	V	-	-	-	-
16-dec-94	CS a	V	-	-	-	-
23-feb-95	CS a	V	-	-	-	-
11-may-95	CS a	V	-	-	-	-
19-jul-95	CS a	V	-	-	-	-
01-dec-95	CS a	V	-	-	-	-
22-jan-96	CS a	V	-	-	-	-
10-jun-96	CS a	V	-	-	-	-
23-aug-96	CS a	V	-	-	-	-
16-dec-96	CS a	V	-	-	-	-
21-feb-97	CS a	V	-	-	-	-
W-830-07						
01-feb-96	CS a	V	-	-	-	-
W-830-09						
05-feb-86	BC a	U	-	-	-	-
10-feb-86	BC a	U	-	-	-	-
27-jun-86	BC a	U	-	-	-	-
20-aug-86	BC a	U	-	-	-	-
23-sep-86	BC a	U	-	-	-	-
18-mar-87	BC a	U	-	-	-	-
29-jun-87	BC a	U	<1 P	<1 P	<1 P	-
29-jun-87	BC a	U	-	-	-	-
22-sep-87	BC a	U	-	-	-	-
11-dec-87	BC a	U	-	-	-	-
09-mar-88	BC aeh	U	-	-	-	-
09-mar-88	BC ah	U	-	-	-	-
17-oct-88	BC a	U	-	-	-	-
02-feb-89	BC a	U	-	-	-	-
17-apr-89	BC a	U	-	-	-	-
19-jul-89	BC a	U	-	-	-	-
12-oct-89	BC a	U	-	-	-	-
18-jan-90	BC aeh	U	-	-	-	-
18-jan-90	BC ah	U	-	-	-	-
01-jun-90	BC a	U	-	-	-	-
24-aug-90	BC a	U	-	-	-	-
27-nov-90	BC a	U	-	-	-	-
06-mar-91	BC a	U	-	-	-	-
22-may-91	BC a	U	-	-	-	-
06-sep-91	BC a	U	-	-	-	-
06-dec-91	BC a	U	-	-	-	-
25-jun-92	BC a	U	-	-	-	-
26-oct-92	BC a	U	-	-	-	-
16-feb-93	BC a	V	-	-	-	-
27-apr-93	BC a	V	-	-	-	-
19-aug-93	CS a	V	-	-	-	-
17-dec-93	CS a	V	-	-	-	-

Results recorded by July 15, 1997.

1,2 Dichloro- benzene	1,3 Dichloro- benzene	1,4 Dichloro- benzene	Chloro- benzene	Location Date
				(continued) W-830-05
<0.5 P	<0.5 P	<0.5 P	<0.5 P	10-oct-89
<0.5 P	<0.5 P	<0.5 P	<0.5 P	18-jan-90
<0.5 P	<0.5 P	<0.5 P	<0.5 P	01-jun-90
<0.5 P	<0.5 P	<0.5 P	<0.5 P	22-aug-90
<0.5 P	<0.5 P	<0.5 P	<0.5 P	27-nov-90
<0.5 P	<0.5 P	<0.5 P	<0.5 P	06-mar-91
<0.5 P	<0.5 P	<0.5 P	<0.5 P	22-may-91
<0.5 P	<0.5 P	<0.5 P	<0.5 P	06-sep-91
<0.5 P	<0.5 P	<0.5 P	<0.5 P	18-dec-91
<0.5 P	<0.5 P	<0.5 P	<0.5 P	24-jun-92
<0.5 P	<0.5 P	<0.5 P	<0.5 P	26-oct-92
<0.5 P	<0.5 P	<0.5 P	<0.5 P	11-feb-93
<4 P	<2 P	<4 P	<0.7 P	11-feb-93
<0.5 U	<0.5 U	<0.5 U	<0.5 U	27-apr-93
<0.5 U	<0.5 U	<0.5 U	<0.5 U	29-sep-93
<0.5 U	<0.5 U	<0.5 U	<0.5 U	29-sep-93
<0.5 U	<0.5 U	<0.5 U	<0.5 U	13-dec-93
<0.5 U	<0.5 U	<0.5 U	<0.5 U	07-mar-94
<0.5 U	<0.5 U	<0.5 U	<0.5 U	20-jun-94
<0.5 U	<0.5 U	<0.5 U	<0.5 U	20-jun-94
<0.5 U	<0.5 U	<0.5 U	<0.5 U	16-dec-94
<0.5 U	<0.5 U	<0.5 U	<0.5 U	23-feb-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	11-may-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	19-jul-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	01-dec-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	22-jan-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	10-jun-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	23-aug-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	16-dec-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	21-feb-97
				W-830-07
<0.5 U	<0.5 U	<0.5 U	<0.5 U	01-feb-96
				W-830-09
<0.5 P	<0.5 P	<0.5 P	<0.5 P	05-feb-86
<0.5 P	<0.5 P	<0.5 P	<0.5 P	10-feb-86
<0.5 P	<0.5 P	<0.5 P	<0.5 P	27-jun-86
<0.5 P	<0.5 P	<0.5 P	<0.5 P	20-aug-86
<0.5 P	<0.5 P	<0.5 P	<0.5 P	23-sep-86
<0.5 P	<0.5 P	<0.5 P	<0.5 P	18-mar-87
-	-	-	<1 P	29-jun-87
<1 P	<1 P	<1 P	-	29-jun-87
<0.5 P	<0.5 P	<0.5 P	<0.5 P	22-sep-87
<0.5 P	<0.5 P	<0.5 P	<0.5 P	11-dec-87
<0.5 P	<0.5 P	<0.5 P	<0.5 P	09-mar-88
<0.5 P	<0.5 P	<0.5 P	<0.5 P	09-mar-88
<0.5 P	<0.5 P	<0.5 P	<0.5 P	17-oct-88
<0.5 P	<0.5 P	<0.5 P	<0.5 P	02-feb-89
<0.5 P	<0.5 P	<0.5 P	<0.5 P	17-apr-89
<0.5 P	<0.5 P	<0.5 P	<0.5 P	19-jul-89
<0.5 P	<0.5 P	<0.5 P	<0.5 P	12-oct-89
<0.5 P	<0.5 P	<0.5 P	<0.5 P	18-jan-90
<0.5 P	<0.5 P	<0.5 P	<0.5 P	18-jan-90
<0.5 P	<0.5 P	<0.5 P	<0.5 P	01-jun-90
<0.5 P	<0.5 P	<0.5 P	<0.5 P	24-aug-90
<0.5 P	<0.5 P	<0.5 P	<0.5 P	27-nov-90
<0.5 P	<0.5 P	<0.5 P	<0.5 P	06-mar-91
<0.5 P	<0.5 P	<0.5 P	<0.5 P	22-may-91
<0.5 P	<0.5 P	<0.5 P	<0.5 P	06-sep-91
<0.5 P	<0.5 P	<0.5 P	<0.5 P	06-dec-91
<0.5 P	<0.5 P	<0.5 P	<0.5 P	25-jun-92
<0.5 P	<0.5 P	<0.5 P	<0.5 P	26-oct-92
<0.5 P	<0.5 P	<0.5 P	<0.5 P	16-feb-93
<0.5 U	<0.5 U	<0.5 U	<0.5 U	27-apr-93
<0.5 U	<0.5 U	<0.5 U	<0.5 U	19-aug-93
<0.5 U	<0.5 U	<0.5 U	<0.5 U	17-dec-93

Table A-18. Aromatic hydrocarbons in ground water and surface water (ug/L), Building 832 Canyon OU.

Location Date	Lab Note	Val.	Benzene	Toluene	Ethyl- benzene	Total xylenes
W-830-09 (continued)						
11-mar-94	CS a	V	-	-	-	-
08-jun-94	CS a	V	-	-	-	-
15-jul-94	CS ag	V	-	-	-	-
15-jul-94	GT ag	V	-	-	-	-
16-dec-94	CS a	V	-	-	-	-
08-mar-95	CS aeh	V	-	-	-	-
08-mar-95	CS ah	V	-	-	-	-
16-may-95	CS a	V	-	-	-	-
27-jul-95	CS a	V	-	-	-	-
01-dec-95	CS a	V	-	-	-	-
05-feb-96	CS a	V	-	-	-	-
14-may-96	CS a	V	-	-	-	-
24-sep-96	CS a	V	-	-	-	-
13-dec-96	CS a	V	-	-	-	-
27-feb-97	CS a	V	-	-	-	-
W-830-10						
18-mar-92	BC a	U	<0.5 P	<0.5 P	<0.5 P	<0.5 P
24-jun-92	BC a	U	-	-	-	-
26-oct-92	BC aeh	U	-	-	-	-
26-oct-92	BC ah	U	-	-	-	-
16-feb-93	BC a	V	-	-	-	-
27-apr-93	BC a	V	-	-	-	-
19-aug-93	CS a	V	-	-	-	-
13-dec-93	CS a	V	-	-	-	-
07-mar-94	CS af	V	-	-	-	-
12-may-94	CS af	V	-	-	-	-
10-aug-94	CS af	V	-	-	-	-
21-dec-94	CS af	V	-	-	-	-
16-mar-95	CS af	V	-	-	-	-
12-may-95	CS af	V	-	-	-	-
21-jul-95	CS af	V	-	-	-	-
06-dec-95	CS af	V	-	-	-	-
26-jan-96	CS af	V	-	-	-	-
15-may-96	CS a	V	-	-	-	-
28-aug-96	CS a	V	-	-	-	-
11-dec-96	CS aeh	V	-	-	-	-
11-dec-96	CS ah	V	-	-	-	-
26-feb-97	CS a	V	-	-	-	-
17-jun-97	CS ah	V	-	-	-	-
17-jun-97	CS aeh	V	-	-	-	-
W-830-11						
25-jun-92	CL ag	U	<0.5 P	4.2 P	<0.5 P	-
25-jun-92	BC ag	U	<0.5 P	4.8 P	<0.5 P	<0.5 P
26-oct-92	BC a	U	-	-	-	-
16-feb-93	BC a	V	-	-	-	-
27-apr-93	BC a	V	-	-	-	-
19-aug-93	CS a	V	-	-	-	-
13-dec-93	CS a	V	-	-	-	-
07-mar-94	CS a	V	-	-	-	-
11-aug-94	CS a	V	-	-	-	-
16-dec-94	CS ah	V	-	-	-	-
16-dec-94	CS aeh	V	-	-	-	-
22-feb-95	CS a	V	-	-	-	-
12-may-95	CS a	V	-	-	-	-
21-jul-95	CS a	V	-	-	-	-
30-nov-95	CS a	V	-	-	-	-
26-jan-96	CS a	V	-	-	-	-
26-jan-96	FS a	V	-	-	-	-
12-jun-96	CS a	V	-	-	-	-
12-jun-96	CS a	V	<0.3 U	<0.3 U	<0.3 U	<0.5 U
28-aug-96	CS a	V	-	-	-	-
11-dec-96	CS a	V	-	-	-	-
11-dec-96	CS a	V	<0.3 U	<0.3 U	<0.3 U	<0.5 U
25-feb-97	CS ah	V	-	-	-	-
25-feb-97	CS aeh	V	-	-	-	-

Results recorded by July 15, 1997.

1,2 Dichloro- benzene	1,3 Dichloro- benzene	1,4 Dichloro- benzene	Chloro- benzene	Location Date
				(continued) W-830-09
<0.5 U	<0.5 U	<0.5 U	<0.5 U	11-mar-94
<0.5 U	<0.5 U	<0.5 U	<0.5 U	08-jun-94
<0.5 U	<0.5 U	<0.5 U	<0.5 U	15-jul-94
<0.5 U	<0.5 U	<0.5 U	<0.5 U	15-jul-94
<0.5 U	<0.5 U	<0.5 U	<0.5 U	16-dec-94
<0.5 U	<0.5 U	<0.5 U	<0.5 U	08-mar-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	08-mar-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	16-may-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	27-jul-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	01-dec-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	05-feb-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	14-may-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	24-sep-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	13-dec-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	27-feb-97
				W-830-10
<0.5 P	<0.5 P	<0.5 P	<0.5 P	18-mar-92
<0.5 P	<0.5 P	<0.5 P	<0.5 P	24-jun-92
<0.5 P	<0.5 P	<0.5 P	<0.5 P	26-oct-92
<0.5 P	<0.5 P	<0.5 P	<0.5 P	26-oct-92
<0.5 P	<0.5 P	<0.5 P	<0.5 P	16-feb-93
<0.5 U	<0.5 U	<0.5 U	<0.5 U	27-apr-93
<0.5 U	<0.5 U	<0.5 U	<0.5 U	19-aug-93
<0.5 U	<0.5 U	<0.5 U	<0.5 U	13-dec-93
<0.5 U	<0.5 U	<0.5 U	<0.5 U	07-mar-94
<0.5 U	<0.5 U	<0.5 U	<0.5 U	12-may-94
<0.5 U	<0.5 U	<0.5 U	<0.5 U	10-aug-94
<0.5 U	<0.5 U	<0.5 U	<0.5 U	21-dec-94
<0.5 U	<0.5 U	<0.5 U	<0.5 U	16-mar-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	12-may-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	21-jul-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	06-dec-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	26-jan-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	15-may-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	28-aug-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	11-dec-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	11-dec-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	26-feb-97
<0.5 U	<0.5 U	<0.5 U	<0.5 U	17-jun-97
<0.5 U	<0.5 U	<0.5 U	<0.5 U	17-jun-97
				W-830-11
<0.5 P	<0.5 P	<0.5 P	<0.5 P	25-jun-92
<0.5 P	<0.5 P	<0.5 P	<0.5 P	25-jun-92
<0.5 P	<0.5 P	<0.5 P	<0.5 P	26-oct-92
<0.5 P	<0.5 P	<0.5 P	<0.5 P	16-feb-93
<0.5 U	<0.5 U	<0.5 U	<0.5 U	27-apr-93
<0.5 U	<0.5 U	<0.5 U	<0.5 U	19-aug-93
<0.5 U	<0.5 U	<0.5 U	<0.5 U	13-dec-93
<0.5 U	<0.5 U	<0.5 U	<0.5 U	07-mar-94
<0.5 U	<0.5 U	<0.5 U	<0.5 U	11-aug-94
<0.5 U	<0.5 U	<0.5 U	<0.5 U	16-dec-94
<0.5 U	<0.5 U	<0.5 U	<0.5 U	16-dec-94
<0.5 U	<0.5 U	<0.5 U	<0.5 U	22-feb-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	12-may-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	21-jul-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	30-nov-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	26-jan-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	26-jan-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	12-jun-96
<0.3 U	<0.3 U	<0.3 U	<0.3 U	12-jun-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	28-aug-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	11-dec-96
<0.3 U	<0.3 U	<0.3 U	<0.3 U	11-dec-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	25-feb-97
<0.5 U	<0.5 U	<0.5 U	<0.5 U	25-feb-97

Table A-18. Aromatic hydrocarbons in ground water and surface water (ug/L), Building 832 Canyon OU.

Location Date	Lab Note	Val.	Benzene	Toluene	Ethyl- benzene	Total xylenes
W-830-11 (continued)						
17-jun-97	CS ah	V	-	-	-	-
17-jun-97	CS aeh	V	-	-	-	-
17-jun-97	CS ah	V	<0.3 U	<0.3 U	<0.3 U	<0.5 U
17-jun-97	CS aeh	V	<0.3 U	<0.3 U	<0.3 U	<0.5 U
W-830-12						
21-dec-94	CS a	V	<1 U	<1 U	<1 U	<2 U
08-mar-95	CS a	V	<1 ULO	<1 ULO	<1 U	<2 U
16-may-95	CS a	V	-	-	-	-
27-jul-95	CS a	V	-	-	-	-
08-dec-95	CS a	V	-	-	-	-
05-feb-96	CS a	V	-	-	-	-
19-jun-96	CS a	V	-	-	-	-
24-sep-96	CS a	V	-	-	-	-
13-dec-96	CS a	V	-	-	-	-
27-feb-97	CS a	V	-	-	-	-
W-830-13						
16-mar-95	CS a	V	<1 U	<1 U	<1 U	<2 U
12-may-95	CS a	V	-	-	-	-
24-jul-95	CS a	V	-	-	-	-
20-dec-95	CS a	V	-	-	-	-
26-jan-96	CS a	V	-	-	-	-
12-jun-96	CS a	V	-	-	-	-
11-sep-96	CS a	V	-	-	-	-
11-dec-96	CS a	V	-	-	-	-
26-feb-97	CS aeh	V	-	-	-	-
26-feb-97	CS ah	V	-	-	-	-
W-830-14						
16-mar-95	CS a	V	<1 U	<1 U	<1 U	<2 U
18-may-95	CS ah	V	-	-	-	-
18-may-95	CS aeh	V	-	-	-	-
24-jul-95	CS a	V	-	-	-	-
06-dec-95	CS a	V	-	-	-	-
06-dec-95	FS a	V	-	-	-	-
26-jan-96	CS a	V	-	-	-	-
12-jun-96	CS ah	V	-	-	-	-
12-jun-96	CS aeh	V	-	-	-	-
11-sep-96	BB ag	V	-	-	-	-
11-sep-96	CS ag	V	-	-	-	-
16-dec-96	CS a	V	-	-	-	-
28-feb-97	CS a	V	-	-	-	-
W-830-15						
16-mar-95	CS a	V	<1 U	<1 U	<1 U	<2 U
16-may-95	CS a	V	-	-	-	-
21-jul-95	CS a	V	-	-	-	-
01-dec-95	CS a	V	-	-	-	-
01-dec-95	FS a	V	-	-	-	-
22-jan-96	CS a	V	-	-	-	-
10-jun-96	CS a	V	-	-	-	-
23-aug-96	CS a	V	-	-	-	-
16-dec-96	CS a	V	-	-	-	-
27-mar-97	CS a	V	-	-	-	-
W-830-16						
25-jan-96	CS a	V	-	-	-	-
11-jun-96	CS a	V	-	-	-	-
22-aug-96	CS a	V	-	-	-	-
16-dec-96	CS a	V	-	-	-	-
20-feb-97	CS a	V	-	-	-	-
W-830-17						
25-jan-96	CS a	V	-	-	-	-
11-jun-96	CS a	V	-	-	-	-
22-aug-96	CS a	V	-	-	-	-



Results recorded by July 15, 1997.

1,2 Dichloro- benzene	1,3 Dichloro- benzene	1,4 Dichloro- benzene	Chloro- benzene	Location Date
				(continued) W-830-11
<0.5 U	<0.5 U	<0.5 U	<0.5 U	17-jun-97
<0.5 U	<0.5 U	<0.5 U	<0.5 U	17-jun-97
<0.3 U	<0.3 U	<0.3 U	<0.3 U	17-jun-97
<0.3 U	<0.3 U	<0.3 U	<0.3 U	17-jun-97
				W-830-12
<1 U	<1 U	<1 U	<1 U	21-dec-94
<1 U	<1 U	<1 U	<1 ULO	08-mar-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	16-may-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	27-jul-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	08-dec-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	05-feb-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	19-jun-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	24-sep-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	13-dec-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	27-feb-97
				W-830-13
<1 U	<1 U	<1 U	<1 U	16-mar-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	12-may-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	24-jul-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	20-dec-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	26-jan-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	12-jun-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	11-sep-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	11-dec-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	26-feb-97
<0.5 U	<0.5 U	<0.5 U	<0.5 U	26-feb-97
				W-830-14
<1 U	<1 U	<1 U	<1 U	16-mar-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	18-may-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	18-may-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	24-jul-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	06-dec-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	06-dec-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	26-jan-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	12-jun-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	12-jun-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	11-sep-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	11-sep-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	16-dec-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	28-feb-97
				W-830-15
<1 U	<1 U	<1 U	<1 U	16-mar-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	16-may-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	21-jul-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	01-dec-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	01-dec-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	22-jan-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	10-jun-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	23-aug-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	16-dec-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	27-mar-97
				W-830-16
<0.5 U	<0.5 U	<0.5 U	<0.5 U	25-jan-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	11-jun-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	22-aug-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	16-dec-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	20-feb-97
				W-830-17
<0.5 U	<0.5 U	<0.5 U	<0.5 U	25-jan-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	11-jun-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	22-aug-96

Table A-18. Aromatic hydrocarbons in ground water and surface water (ug/L), Building 832 Canyon OU.

Location Date	Lab Note	Val.	Benzene	Toluene	Ethyl- benzene	Total xylenes
W-830-17 (continued)						
16-dec-96	CS a	V	-	-	-	-
20-feb-97	CS a	V	-	-	-	-
W-830-18						
28-jun-96	CS a	V	<1 U	<1 U	<1 U	<2 U
23-aug-96	CS a	V	-	-	-	-
23-aug-96	CS a	V	<0.3 U	<0.3 U	<0.3 U	<0.5 U
13-dec-96	CS a	V	-	-	-	-
13-dec-96	CS a	V	<0.3 U	<0.3 U	<0.3 U	<0.5 U
25-feb-97	CS a	V	-	-	-	-
17-jun-97	CS a	V	-	-	-	-
W-830-19						
28-jun-96	CS af	V	<1 U	<1 U	<1 U	<2 U
24-sep-96	CS a	V	-	-	-	-
24-sep-96	CS a	V	<15 DU	<15 DU	<15 DU	<25 DU
13-dec-96	BB aeg	V	-	-	-	-
13-dec-96	CS ag	V	-	-	-	-
13-dec-96	BB aeg	V	<300 DU	<300 DU	<300 DU	<500 DU
13-dec-96	CS ag	V	<15 DU	<15 DU	<15 DU	<25 DU
06-mar-97	CS a	V	-	-	-	-
06-mar-97	CS a	V	<30 DU	<30 DU	<30 DU	<50 DU
W-830-20						
24-sep-96	CS a	V	<1 U	<1 U	<1 U	<2 U
18-dec-96	CS a	V	-	-	-	-
28-feb-97	CS a	V	-	-	-	-
W-830-21						
19-sep-96	CS a	V	<1 U	<1 U	<1 U	<2 U
19-sep-96	CS a	V	<1 U	<1 U	<1 U	<2 U
11-dec-96	CS a	V	-	-	-	-
25-feb-97	BB ag	V	-	-	-	-
25-feb-97	CS ag	V	-	-	-	-
W-830-22						
20-sep-96	CS a	V	<1 UO	<1 U	<1 U	<2 U
12-dec-96	CS a	V	-	-	-	-
06-mar-97	CS a	V	-	-	-	-
W-830-25						
12-mar-97	CS a	V	-	-	-	-
W-830-26						
20-sep-96	CS a	V	<1 UO	<1 U	<1 U	<2 U
13-dec-96	CS ah	V	-	-	-	-
13-dec-96	CS aeh	V	-	-	-	-
11-mar-97	CS a	V	-	-	-	-
W-830-27						
12-dec-96	CS a	V	-	-	-	-
12-mar-97	CS a	V	-	-	-	-
W-830-28						
23-sep-96	CS a	V	<1 U	<1 U	<1 U	<2 U
12-dec-96	CS a	V	-	-	-	-
12-mar-97	CS a	V	-	-	-	-
W-830-29						
17-mar-97	CS a	V	<1 U	<1 U	<1 U	<2 U
W-830-30						
11-mar-97	CS a	V	<1 U	<1 U	<1 U	<2 U
W-830-34						
11-mar-97	CS a	V	<1 U	<1 U	<1 U	<2 U

Results recorded by July 15, 1997.

1,2 Dichloro- benzene	1,3 Dichloro- benzene	1,4 Dichloro- benzene	Chloro- benzene	Location Date
				(continued) W-830-17
<0.5 U	<0.5 U	<0.5 U	<0.5 U	16-dec-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	20-feb-97
				W-830-18
<1 U	<1 U	<1 U	<1 U	28-jun-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	23-aug-96
<0.3 U	<0.3 U	<0.3 U	<0.3 U	23-aug-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	13-dec-96
<0.3 U	<0.3 U	<0.3 U	<0.3 U	13-dec-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	25-feb-97
<0.5 U	<0.5 U	<0.5 U	<0.5 U	17-jun-97
				W-830-19
<1 U	<1 U	<1 U	<1 U	28-jun-96
<25 DU	<25 DU	<25 DU	<25 DU	24-sep-96
<15 DU	<15 DU	<15 DU	<15 DU	24-sep-96
<300 DU	<300 DU	<300 DU	<300 DU	13-dec-96
<25 DU	<25 DU	<25 DU	<25 DU	13-dec-96
<300 DU	<300 DU	<300 DU	<300 DU	13-dec-96
<15 DU	<15 DU	<15 DU	<15 DU	13-dec-96
<50 DU	<50 DU	<50 DU	<50 DU	06-mar-97
<30 DU	<30 DU	<30 DU	<30 DU	06-mar-97
				W-830-20
<1 U	<1 U	<1 U	<1 U	24-sep-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	18-dec-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	28-feb-97
				W-830-21
<1 U	<1 U	<1 U	<1 U	19-sep-96
<1 U	<1 U	<1 U	<1 U	19-sep-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	11-dec-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	25-feb-97
<0.5 U	<0.5 U	<0.5 U	<0.5 U	25-feb-97
				W-830-22
<1 U	<1 U	<1 U	<1 U	20-sep-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	12-dec-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	06-mar-97
				W-830-25
<5 DU	<5 DU	<5 DU	<5 DU	12-mar-97
				W-830-26
<1 U	<1 U	<1 U	<1 U	20-sep-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	13-dec-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	13-dec-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	11-mar-97
				W-830-27
<0.5 U	<0.5 U	<0.5 U	<0.5 U	12-dec-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	12-mar-97
				W-830-28
<1 U	<1 U	<1 U	<1 U	23-sep-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	12-dec-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	12-mar-97
				W-830-29
<1 U	<1 U	<1 U	<1 U	17-mar-97
				W-830-30
<1 U	<1 U	<1 U	<1 U	11-mar-97
				W-830-34
<1 U	<1 U	<1 U	<1 U	11-mar-97

Table A-18. Aromatic hydrocarbons in ground water and surface water (ug/L), Building 832 Canyon OU.

Location Date	Lab Note	Val.	Benzene	Toluene	Ethyl- benzene	Total xylenes
W-831-01						
18-mar-87	BC a	U	-	-	-	-
29-jun-87	BC a	U	-	-	-	-
22-sep-87	BC ah	U	-	-	-	-
22-sep-87	BC ah	U	-	-	-	-
11-dec-87	BC a	U	-	-	-	-
09-mar-88	BC a	U	-	-	-	-
28-jun-88	BC an	U	-	-	-	-
17-oct-88	BC a	U	-	-	-	-
01-feb-89	BC a	U	-	-	-	-
14-apr-89	BC a	U	-	-	-	-
19-jul-89	BC a	U	-	-	-	-
01-nov-89	BC a	U	-	-	-	-
19-jan-90	BC a	U	-	-	-	-
29-may-90	BC a	U	-	-	-	-
22-aug-90	BC a	U	-	-	-	-
07-dec-90	BC a	U	-	-	-	-
05-mar-91	BC a	U	-	-	-	-
17-may-91	BC ah	U	-	-	-	-
17-may-91	BC aeh	U	-	-	-	-
06-sep-91	BC a	U	-	-	-	-
10-dec-91	BC ag	U	-	-	-	-
10-dec-91	CL ag	U	-	-	-	-
18-jun-92	BC a	U	-	-	-	-
22-dec-92	BC a	V	-	-	-	-
21-jun-93	BC a	V	-	-	-	-
11-mar-94	CS a	V	-	-	-	-
22-feb-95	CS a	V	-	-	-	-
19-jun-96	CS a	V	-	-	-	-
W-832-01						
21-nov-94	CS af	V	<10 DU	<10 DU	<10 DU	<20 DU
16-mar-95	CS afh	V	<1 U	<1 U	<1 U	<2 U
16-mar-95	CS aefh	V	<1 U	<1 U	<1 U	<2 U
19-may-95	CS af	V	-	-	-	-
28-jul-95	CS af	V	-	-	-	-
21-dec-95	CS af	V	-	-	-	-
07-feb-96	CS af	V	-	-	-	-
24-jun-96	CS aefh	V	-	-	-	-
24-jun-96	CS afh	V	-	-	-	-
23-sep-96	CS a	V	-	-	-	-
19-dec-96	CS a	V	-	-	-	-
06-mar-97	CS a	V	-	-	-	-
W-832-05						
16-nov-94	CS af	V	<10 DU	<10 DU	<10 DU	<20 DU
06-dec-94	CS af	V	<1 U	<1 U	<1 U	<2 U
21-dec-94	CS af	V	<1 U	<1 U	<1 U	<2 U
09-mar-95	CS af	V	<1 U	<1 U	<1 U	<2 U
19-may-95	CS af	V	-	-	-	-
28-jul-95	CS af	V	-	-	-	-
01-dec-95	CS af	V	-	-	-	-
08-feb-96	CS af	V	-	-	-	-
24-jun-96	CS af	V	-	-	-	-
24-sep-96	CS a	V	-	-	-	-
12-dec-96	CS a	V	-	-	-	-
06-mar-97	CS a	V	-	-	-	-
W-832-06						
09-mar-95	CS a	V	<1 U	<1 U	<1 U	<2 U
25-may-95	CS a	V	-	-	-	-
25-may-95	GT a	V	-	-	-	-
28-jul-95	CS a	V	-	-	-	-
12-dec-95	CS a	V	-	-	-	-
07-feb-96	CS a	V	-	-	-	-
24-jun-96	BB a	V	-	-	-	-
24-jun-96	CS a	V	-	-	-	-
24-sep-96	CS a	V	-	-	-	-

Results recorded by July 15, 1997.

1,2 Dichloro- benzene	1,3 Dichloro- benzene	1,4 Dichloro- benzene	Chloro- benzene	Location Date
				W-831-01
<0.5 P	<0.5 P	<0.5 P	<0.5 P	18-mar-87
<0.5 P	<0.5 P	<0.5 P	<0.5 P	29-jun-87
<0.5 P	<0.5 P	<0.5 P	<0.5 P	22-sep-87
<0.5 P	<0.5 P	<0.5 P	<0.5 P	22-sep-87
<0.5 P	<0.5 P	<0.5 P	<0.5 P	11-dec-87
<0.5 P	<0.5 P	<0.5 P	<0.5 P	09-mar-88
<0.5 P	<0.5 P	<0.5 P	<0.5 P	28-jun-88
<0.5 P	<0.5 P	<0.5 P	<0.5 P	17-oct-88
<0.5 P	<0.5 P	<0.5 P	<0.5 P	01-feb-89
<0.5 P	<0.5 P	<0.5 P	<0.5 P	14-apr-89
<0.5 P	<0.5 P	<0.5 P	<0.5 P	19-jul-89
<0.5 P	<0.5 P	<0.5 P	<0.5 P	01-nov-89
<0.5 P	<0.5 P	<0.5 P	<0.5 P	19-jan-90
<0.5 P	<0.5 P	<0.5 P	<0.5 P	29-may-90
<0.5 P	<0.5 P	<0.5 P	<0.5 P	22-aug-90
<0.5 P	<0.5 P	<0.5 P	<0.5 P	07-dec-90
<0.5 P	<0.5 P	<0.5 P	<0.5 P	05-mar-91
<0.5 P	<0.5 P	<0.5 P	<0.5 P	17-may-91
<0.5 P	<0.5 P	<0.5 P	<0.5 P	17-may-91
<0.5 P	<0.5 P	<0.5 P	<0.5 P	06-sep-91
<0.5 P	<0.5 P	<0.5 P	<0.5 P	10-dec-91
<4 P	<2 P	<4 P	<0.7 P	10-dec-91
<0.5 P	<0.5 P	<0.5 P	<0.5 P	18-jun-92
<0.5 U	<0.5 U	<0.5 U	<0.5 U	22-dec-92
<0.5 U	<0.5 U	<0.5 U	<0.5 U	21-jun-93
<0.5 U	<0.5 U	<0.5 U	<0.5 U	11-mar-94
<0.5 U	<0.5 U	<0.5 U	<0.5 U	22-feb-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	19-jun-96
				W-832-01
<10 DU	<10 DU	<10 DU	<10 DU	21-nov-94
<1 U	<1 U	<1 U	<1 U	16-mar-95
<1 U	<1 U	<1 U	<1 U	16-mar-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	19-may-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	28-jul-95
<2.5 DU	<2.5 DU	<2.5 DU	<2.5 DU	21-dec-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	07-feb-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	24-jun-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	24-jun-96
<2.5 DU	<2.5 DU	<2.5 DU	<2.5 DU	23-sep-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	19-dec-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	06-mar-97
				W-832-05
<10 DU	<10 DU	<10 DU	<10 DU	16-nov-94
<1 U	<1 U	<1 U	<1 U	06-dec-94
<1 U	<1 U	<1 U	<1 U	21-dec-94
<1 U	<1 U	<1 U	<1 U	09-mar-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	19-may-95
<5 DU	<5 DU	<5 DU	<5 DU	28-jul-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	01-dec-95
<2.5 DU	<2.5 DU	<2.5 DU	<2.5 DU	08-feb-96
<5 DU	<5 DU	<5 DU	<5 DU	24-jun-96
<5 DU	<5 DU	<5 DU	<5 DU	24-sep-96
<5 DU	<5 DU	<5 DU	<5 DU	12-dec-96
<5 DU	<5 DU	<5 DU	<5 DU	06-mar-97
				W-832-06
<1 U	<1 U	<1 U	<1 U	09-mar-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	25-may-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	25-may-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	28-jul-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	12-dec-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	07-feb-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	24-jun-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	24-jun-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	24-sep-96

Table A-18. Aromatic hydrocarbons in ground water and surface water (ug/L), Building 832 Canyon OU.

Location Date	Lab Note	Val.	Benzene	Toluene	Ethyl- benzene	Total xylenes
W-832-06 (continued)						
12-dec-96	CS a	V	-	-	-	-
06-mar-97	CS a	V	-	-	-	-
W-832-09						
21-nov-94	CS a	V	<1 U	<1 U	<1 U	<2 U
16-mar-95	CS ah	V	<1 U	<1 U	<1 U	<2 U
16-mar-95	CS aeh	V	<1 U	<1 U	<1 U	<2 U
19-may-95	CS a	V	-	-	-	-
28-jul-95	CS a	V	-	-	-	-
28-jul-95	FS a	V	-	-	-	-
08-dec-95	CS a	V	-	-	-	-
06-feb-96	CS a	V	-	-	-	-
19-jun-96	CS a	V	-	-	-	-
24-sep-96	CS a	V	-	-	-	-
17-dec-96	CS a	V	-	-	-	-
27-feb-97	CS a	V	-	-	-	-
W-832-SC1						
12-nov-96	CS a	V	-	-	-	-
24-feb-97	CS a	V	-	-	-	-
10-jun-97	CS a	V	-	-	-	-
W-832-SC2						
12-nov-96	CS a	V	-	-	-	-
24-feb-97	CS a	V	-	-	-	-
10-jun-97	CS a	V	-	-	-	-
W-832-SC3						
12-nov-96	CS a	V	-	-	-	-
24-feb-97	CS a	V	-	-	-	-
10-jun-97	CS a	V	-	-	-	-
W-832-SC4						
12-nov-96	CS a	V	-	-	-	-
10-dec-96	CS a	V	-	-	-	-
02-jan-97	CS a	V	-	-	-	-
22-jan-97	CS a	V	-	-	-	-
24-feb-97	CS a	V	-	-	-	-
10-jun-97	CS a	V	-	-	-	-
W-880-01						
24-jan-96	CS a	V	-	-	-	-
11-jun-96	CS a	V	-	-	-	-
22-aug-96	CS a	V	-	-	-	-
27-dec-96	CS a	V	-	-	-	-
12-feb-97	CS a	V	-	-	-	-
16-apr-97	CS a	V	-	-	-	-
W-880-02						
26-jan-96	CS a	V	-	-	-	-
17-jun-96	CS aeh	V	-	-	-	-
17-jun-96	CS ah	V	-	-	-	-
12-dec-96	CS a	V	-	-	-	-
24-feb-97	CS a	V	-	-	-	-
W-880-03						
24-jan-96	CS ah	V	-	-	-	-
24-jan-96	CS aeh	V	-	-	-	-
17-jun-96	CS a	V	-	-	-	-
22-aug-96	CS a	V	-	-	-	-
27-dec-96	CS a	V	-	-	-	-
12-feb-97	CS a	V	-	-	-	-
16-apr-97	CS a	V	-	-	-	-
SPRING3						
12-jul-85	BC b	N	-	-	-	-
16-oct-85	BC a	U	-	-	-	-

Results recorded by July 15, 1997.

1,2 Dichloro- benzene	1,3 Dichloro- benzene	1,4 Dichloro- benzene	Chloro- benzene	Location Date
<0.5 U	<0.5 U	<0.5 U	<0.5 U	(continued) W-832-06
<0.5 U	<0.5 U	<0.5 U	<0.5 U	12-dec-96
				06-mar-97
				W-832-09
<1 U	<1 U	<1 U	<1 U	21-nov-94
<1 U	<1 U	<1 U	<1 U	16-mar-95
<1 U	<1 U	<1 U	<1 U	16-mar-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	19-may-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	28-jul-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	28-jul-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	08-dec-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	06-feb-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	19-jun-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	24-sep-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	17-dec-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	27-feb-97
				W-832-SC1
<0.5 U	<0.5 U	<0.5 U	<0.5 U	12-nov-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	24-feb-97
<0.5 U	<0.5 U	<0.5 U	<0.5 U	10-jun-97
				W-832-SC2
<0.5 U	<0.5 U	<0.5 U	<0.5 U	12-nov-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	24-feb-97
<0.5 U	<0.5 U	<0.5 U	<0.5 U	10-jun-97
				W-832-SC3
<0.5 U	<0.5 U	<0.5 U	<0.5 U	12-nov-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	24-feb-97
<0.5 U	<0.5 U	<0.5 U	<0.5 U	10-jun-97
				W-832-SC4
<0.5 U	<0.5 U	<0.5 U	<0.5 U	12-nov-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	10-dec-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	02-jan-97
<0.5 U	<0.5 U	<0.5 U	<0.5 U	22-jan-97
<0.5 U	<0.5 U	<0.5 U	<0.5 U	24-feb-97
<0.5 U	<0.5 U	<0.5 U	<0.5 U	10-jun-97
				W-880-01
<0.5 U	<0.5 U	<0.5 U	<0.5 U	24-jan-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	11-jun-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	22-aug-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	27-dec-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	12-feb-97
<0.5 U	<0.5 U	<0.5 U	<0.5 U	16-apr-97
				W-880-02
<0.5 U	<0.5 U	<0.5 U	<0.5 U	26-jan-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	17-jun-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	17-jun-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	12-dec-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	24-feb-97
				W-880-03
<0.5 U	<0.5 U	<0.5 U	<0.5 U	24-jan-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	24-jan-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	17-jun-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	22-aug-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	27-dec-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	12-feb-97
<0.5 U	<0.5 U	<0.5 U	<0.5 U	16-apr-97
				SPRING3
<0.5 P	<0.5 P	<0.5 P	<0.5 P	12-jul-85
<0.5 P	<0.5 P	<0.5 P	<0.5 P	16-oct-85

Table A-18. Aromatic hydrocarbons in ground water and surface water (ug/L), Building 832 Canyon OU.

Location Date	Lab Note	Val.	Benzene	Toluene	Ethyl- benzene	Total xylenes
SPRING3 (continued)						
19-nov-85	BC b	N	-	-	-	-
18-mar-86	BC b	N	-	-	-	-
06-jun-86	BC b	N	-	-	-	-
20-nov-86	BC a	U	-	-	-	-
14-nov-91	BC a	U	<0.5 P	<0.5 P	<0.5 P	<0.5 P
03-sep-93	CS a	V	-	-	-	-
20-apr-94	CS a	V	-	-	-	-
24-oct-95	CS a	V	-	-	-	-
24-oct-95	FS a	V	-	-	-	-
21-jun-96	BB a	V	-	-	-	-
21-jun-96	CS a	V	-	-	-	-
12-nov-96	CS a	V	-	-	-	-
24-feb-97	CS a	V	-	-	-	-
10-jun-97	CS a	V	-	-	-	-



Results recorded by July 15, 1997.

1,2 Dichloro- benzene	1,3 Dichloro- benzene	1,4 Dichloro- benzene	Chloro- benzene	Location Date
<0.5 P	<0.5 P	<0.5 P	<0.5 P	(continued) SPRING3 19-nov-85
<0.5 P	<0.5 P	<0.5 P	<0.5 P	18-mar-86
<0.5 P	<0.5 P	<0.5 P	<0.5 P	06-jun-86
<0.5 P	<0.5 P	<0.5 P	<0.5 P	20-nov-86
<0.5 P	<0.5 P	<0.5 P	<0.5 P	14-nov-91
<0.5 U	<0.5 U	<0.5 U	<0.5 U	03-sep-93
<0.5 U	<0.5 U	<0.5 U	<0.5 U	20-apr-94
<0.5 U	<0.5 U	<0.5 U	<0.5 U	24-oct-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	24-oct-95
<0.5 U	<0.5 U	<0.5 U	<0.5 U	21-jun-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	21-jun-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	12-nov-96
<0.5 U	<0.5 U	<0.5 U	<0.5 U	24-feb-97
<0.5 U	<0.5 U	<0.5 U	<0.5 U	10-jun-97

See following page for notes

Table A-18. Aromatic hydrocarbons in ground water and surface water (ug/L), Building 832 Canyon OU. Results recorded by July 15, 1997.

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 well 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

Lab Codes:

- BB BC Laboratories, Inc., Bakersfield, CA
- BC Brown and Caldwell, Emeryville, CA
- CL Clayton Environmental Consultants, Pleasanton, CA
- CS California Laboratory Services, Rancho Cordova, CA
- GT Groundwater Technology Environmental Labs, Concord, CA

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. Aromatic hydrocarbons in soil and rock (mg/kg), Building 832  
Canyon OU. Results recorded by July 15, 1997.

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BTEX compounds in soil, Site 300  
July 22, 1997  
geminil

s3btexSOL.22jul97  
s3btexSOR.22jul97

Table A-19. Aromatic hydrocarbons in soil and rock (mg/kg), Building 832

Location	Lab	Val.		Benzene	Toluene	Ethyl- benzene	Total xylenes
		Note	Depth (ft)				
830-03							
	15-oct-85	BC a	U	11.1	-	-	-
	16-oct-85	BC a	U	30.5	-	-	-
	23-oct-85	BC a	U	51.0	-	-	-
830-06							
	28-oct-85	BC a	U	6.0	-	-	-
	28-oct-85	BC a	U	10.0	-	-	-
830-08							
	28-oct-85	BC a	U	5.0	-	-	-
830-23							
	30-nov-94	CS a	V	1.5	-	-	-
	30-nov-94	CS a	V	5.0	<0.0005 U	<0.0005 U	<0.001 U
	30-nov-94	CS af	V	5.3	-	-	-
	30-nov-94	CS a	V	10.0	<0.0005 U	<0.0005 U	<0.001 U
	30-nov-94	CS af	V	10.3	-	-	-
	30-nov-94	CS a	V	16.0	<0.0005 U	<0.0005 U	<0.001 U
	30-nov-94	CS af	V	16.3	-	-	-
	01-dec-94	CS ag	V	25.8	-	-	-
	01-dec-94	GT ag	V	25.8	-	-	-
	01-dec-94	CS a	V	31.0	-	-	-
	01-dec-94	CS ah	V	37.0	-	-	-
	01-dec-94	CS ah	V	37.0	-	-	-
	01-dec-94	CS ah	V	40.5	-	-	-
	01-dec-94	CS ah	V	40.5	-	-	-
	01-dec-94	CS a	V	45.5	-	-	-
	01-dec-94	CS a	V	50.0	-	-	-
	01-dec-94	CS a	V	55.5	-	-	-
830-24							
	05-dec-94	CS a	V	1.5	-	-	-
	05-dec-94	CS a	V	5.8	-	-	-
	05-dec-94	CS a	V	6.0	<0.0005 U	<0.0005 U	<0.001 U
	05-dec-94	CS a	V	10.3	-	-	-
	05-dec-94	CS a	V	10.5	<0.0005 U	<0.0005 U	<0.001 U
	05-dec-94	CS a	V	15.3	-	-	-
	05-dec-94	CS a	V	15.5	<0.0005 U	<0.0005 U	<0.001 U
	06-dec-94	CS agf	V	20.5	-	-	-
	06-dec-94	GT ag	V	20.5	-	-	-
	06-dec-94	CS af	V	25.8	-	-	-
	06-dec-94	CS af	V	30.8	-	-	-
	06-dec-94	CS af	V	35.3	-	-	-
	06-dec-94	CS a	V	40.0	-	-	-
	07-dec-94	CS a	V	45.5	-	-	-
	07-dec-94	CS ah	V	50.0	-	-	-
	07-dec-94	CS ahj	V	50.0	-	-	-
	07-dec-94	CS a	V	55.3	-	-	-
830-48							
	03-oct-96	CS ahg	V	12.0	-	-	-
W-830-05							
	08-oct-85	BC a	U	24.9	-	-	-
	10-oct-85	BC a	U	40.0	-	-	-
W-830-07							
	28-oct-85	BC a	U	4.5	-	-	-
	28-oct-85	BC a	U	10.0	-	-	-
W-830-10							
	20-feb-92	BC a	U	5.3	-	-	-
	20-feb-92	BC a	U	11.0	-	-	-
	20-feb-92	BC a	U	15.5	-	-	-
	20-feb-92	BC a	U	20.5	-	-	-
	20-feb-92	BC a	U	25.3	-	-	-



Table A-19. Aromatic hydrocarbons in soil and rock (mg/kg), Building 832

Location Date	Lab Note	Val. Depth (ft)	Aromatic Hydrocarbons (mg/kg)			
			Benzene	Toluene	Ethyl- benzene	Total xylenes
W-830-10 (continued)						
20-feb-92	BC a	U 30.5	-	-	-	-
20-feb-92	BC a	U 33.8	-	-	-	-
20-feb-92	BC a	U 36.7	-	-	-	-
20-feb-92	BC a	U 38.8	-	-	-	-
25-feb-92	BC a	U 46.7	-	-	-	-
25-feb-92	BC a	U 51.5	-	-	-	-
25-feb-92	BC a	U 55.3	-	-	-	-
26-feb-92	BC a	U 60.2	-	-	-	-
26-feb-92	BC a	U 68.5	-	-	-	-
W-830-12						
30-aug-94	CS a	V 1.2	-	-	-	-
30-aug-94	CS a	V 6.3	-	-	-	-
30-aug-94	CS a	V 6.5	<0.0005 U	<0.0005 U	<0.0005 U	<0.001 U
30-aug-94	CS a	V 10.5	-	-	-	-
30-aug-94	CS a	V 15.3	-	-	-	-
30-aug-94	GT ahj	V 15.3	-	-	-	-
30-aug-94	CS ah	V 15.9	<0.0005 U	<0.0005 U	<0.0005 U	<0.001 U
30-aug-94	CS af	V 20.0	-	-	-	-
31-aug-94	CS a	V 43.0	-	-	-	-
31-aug-94	CS a	V 46.7	-	-	-	-
31-aug-94	CS a	V 49.0	-	-	-	-
31-aug-94	CS a	V 55.0	-	-	-	-
01-sep-94	CS a	V 63.6	-	-	-	-
01-sep-94	CS a	V 70.1	-	-	-	-
01-sep-94	CS a	V 72.2	-	-	-	-
01-sep-94	CS a	V 81.0	-	-	-	-
01-sep-94	CS a	V 89.6	-	-	-	-
01-sep-94	CS a	V 93.4	-	-	-	-
06-sep-94	CS ah	V 97.5	-	-	-	-
06-sep-94	CS ah	V 97.5	-	-	-	-
06-sep-94	CS a	V 104.0	-	-	-	-
06-sep-94	CS a	V 106.6	-	-	-	-
06-sep-94	CS a	V 114.2	-	-	-	-
06-sep-94	CS a	V 124.2	-	-	-	-
06-sep-94	CS a	V 128.0	-	-	-	-
06-sep-94	CS a	V 133.2	-	-	-	-
27-sep-94	CS a	V 145.0	-	-	-	-
27-sep-94	CS a	V 151.0	-	-	-	-
27-sep-94	CS a	V 161.0	-	-	-	-
27-sep-94	CS a	V 171.0	-	-	-	-
28-sep-94	CS a	V 181.0	-	-	-	-
28-sep-94	CS a	V 191.0	-	-	-	-
28-sep-94	CS a	V 201.0	-	-	-	-
W-830-13						
08-nov-94	CS ah	V 0.0	-	-	-	-
08-nov-94	CS ah	V 0.0	-	-	-	-
08-nov-94	CS ah	V 0.0	<0.0005 U	<0.0005 U	<0.0005 U	<0.001 U
08-nov-94	CS ah	V 0.0	<0.0005 U	<0.0005 U	<0.0005 U	<0.001 U
08-nov-94	CS a	V 13.7	-	-	-	-
08-nov-94	CS a	V 13.7	<0.0005 U	<0.0005 U	<0.0005 U	<0.001 U
08-nov-94	CS a	V 16.6	-	-	-	-
08-nov-94	CS a	V 16.6	<0.0005 U	<0.0005 U	<0.0005 U	<0.001 U
08-nov-94	CS a	V 21.3	-	-	-	-
08-nov-94	CS a	V 21.3	<0.0005 U	<0.0005 U	<0.0005 U	<0.001 U
09-nov-94	CS a	V 26.6	-	-	-	-
09-nov-94	CS a	V 26.6	<0.0005 U	<0.0005 U	<0.0005 U	<0.001 U
09-nov-94	CS a	V 32.0	-	-	-	-
09-nov-94	CS a	V 32.0	<0.0005 U	<0.0005 U	<0.0005 U	<0.001 U
09-nov-94	CS a	V 37.2	-	-	-	-
09-nov-94	CS a	V 37.2	<0.0005 U	<0.0005 U	<0.0005 U	<0.001 U
10-nov-94	CS a	V 41.5	-	-	-	-
10-nov-94	CS a	V 41.5	<0.0005 U	<0.0005 U	<0.0005 U	<0.001 U
10-nov-94	CS a	V 47.3	-	-	-	-
10-nov-94	CS a	V 47.3	<0.0005 U	<0.0005 U	<0.0005 U	<0.001 U
10-nov-94	CS a	V 51.9	-	-	-	-



Table A-19. Aromatic hydrocarbons in soil and rock (mg/kg), Building 832

Location Date	Lab Note	Val.		Benzene	Toluene	Ethyl- benzene	Total xylenes
		Depth (ft)					
W-830-13 (continued)							
10-nov-94	CS a	V	51.9	<0.0005 U	<0.0005 U	<0.0005 U	<0.001 U
W-830-14							
28-nov-94	CS ah	V	55.8	-	-	-	-
28-nov-94	CS ah	V	55.8	-	-	-	-
28-nov-94	CS ag	V	60.1	-	-	-	-
28-nov-94	GT ag	V	60.1	-	-	-	-
28-nov-94	CS a	V	64.5	-	-	-	-
29-nov-94	CS a	V	72.6	-	-	-	-
29-nov-94	CS a	V	74.6	-	-	-	-
01-dec-94	CS a	V	80.2	-	-	-	-
01-dec-94	CS a	V	85.6	-	-	-	-
01-dec-94	CS a	V	89.6	-	-	-	-
01-dec-94	CS a	V	95.2	-	-	-	-
01-dec-94	CS a	V	101.4	-	-	-	-
01-dec-94	CS a	V	105.4	-	-	-	-
01-dec-94	CS a	V	111.8	-	-	-	-
05-dec-94	CS a	V	115.4	-	-	-	-
05-dec-94	CS a	V	120.0	-	-	-	-
W-830-15							
08-dec-94	CS a	V	5.9	-	-	-	-
14-dec-94	CS a	V	126.7	-	-	-	-
14-dec-94	CS a	V	135.8	-	-	-	-
14-dec-94	CS a	V	146.5	-	-	-	-
15-dec-94	CS a	V	156.0	-	-	-	-
15-dec-94	CS a	V	167.9	-	-	-	-
14-dec-94	GT ag	V	177.5	-	-	-	-
15-dec-94	CS a	V	177.5	-	-	-	-
15-dec-94	CS a	V	185.0	-	-	-	-
15-dec-94	CS a	V	203.0	-	-	-	-
W-830-16							
03-oct-95	CS a	V	1.0	<0.0005 U	<0.0005 U	<0.0005 U	<0.001 U
03-oct-95	CS a	V	1.3	<0.0005 U	<0.0005 U	<0.0005 U	<0.001 U
03-oct-95	CS a	V	4.5	<0.0005 U	<0.0005 U	<0.0005 U	<0.001 U
03-oct-95	CS a	V	10.3	<0.0005 U	<0.0005 U	<0.0005 U	<0.001 U
03-oct-95	CS a	V	20.0	<0.0005 U	<0.0005 U	<0.0005 U	<0.001 U
03-oct-95	CS a	V	30.0	<0.0005 U	<0.0005 U	<0.0005 U	<0.001 U
04-oct-95	CS a	V	40.0	<0.0005 U	<0.0005 U	<0.0005 U	<0.001 U
04-oct-95	CS a	V	51.7	<0.0005 U	<0.0005 U	<0.0005 U	<0.001 U
04-oct-95	CS a	V	69.6	<0.0005 U	<0.0005 U	<0.0005 U	<0.001 U
04-oct-95	CS a	V	79.5	<0.0005 U	<0.0005 U	<0.0005 U	<0.001 U
05-oct-95	CS a	V	97.9	-	-	-	-
05-oct-95	CS ah	V	109.0	-	-	-	-
05-oct-95	CS ah	V	109.0	-	-	-	-
09-oct-95	CS a	V	126.3	-	-	-	-
09-oct-95	CS a	V	132.9	-	-	-	-
09-oct-95	CS a	V	158.2	-	-	-	-
09-oct-95	CS a	V	169.9	-	-	-	-
10-oct-95	CS a	V	177.9	-	-	-	-
10-oct-95	CS a	V	187.4	-	-	-	-
10-oct-95	CS a	V	199.2	-	-	-	-
10-oct-95	CS a	V	209.6	-	-	-	-
10-oct-95	CS a	V	213.2	-	-	-	-
10-oct-95	CS a	V	226.7	-	-	-	-
10-oct-95	CS a	V	233.8	-	-	-	-
10-oct-95	CS a	V	243.8	-	-	-	-
11-oct-95	CS a	V	253.4	-	-	-	-
11-oct-95	CS a	V	265.6	-	-	-	-
W-830-18							
03-apr-96	CS a	V	0.0	-	-	-	-
03-apr-96	CS a	V	5.5	-	-	-	-
03-apr-96	CS a	V	10.3	-	-	-	-
03-apr-96	CS a	V	17.3	-	-	-	-
03-apr-96	CS a	V	17.3	<0.0005 U	<0.0005 U	<0.0005 U	<0.001 U





Table A-19. Aromatic hydrocarbons in soil and rock (mg/kg), Building 832

Location Date	Lab Note	Val.		Benzene	Toluene	Ethyl- benzene	Total xylenes
		Depth (ft)					
W-830-18 (continued)							
04-apr-96	CS a	V	52.2	-	-	-	-
04-apr-96	CS a	V	70.6	-	-	-	-
10-apr-96	CS a	V	101.7	-	-	-	-
10-apr-96	CS a	V	113.8	-	-	-	-
10-apr-96	CS a	V	123.5	-	-	-	-
10-apr-96	BB ag	N	136.5	-	-	-	-
10-apr-96	CS ag	V	136.5	-	-	-	-
11-apr-96	CS a	V	147.0	-	-	-	-
11-apr-96	CS a	V	155.2	-	-	-	-
11-apr-96	CS a	V	165.5	-	-	-	-
W-830-19							
03-jun-96	CS a	V	5.5	-	-	-	-
03-jun-96	CS a	V	10.5	-	-	-	-
03-jun-96	CS a	V	16.8	-	-	-	-
03-jun-96	CS a	V	16.8	<0.0005 U	<0.0005 U	<0.0005 U	<0.001 U
04-jun-96	CS a	V	22.4	-	-	-	-
04-jun-96	CS a	V	22.4	<0.0005 UO	<0.0005 UO	<0.0005 U	<0.001 U
05-jun-96	CS a	V	27.0	-	-	-	-
05-jun-96	CS a	V	27.0	<0.0005 U	<0.0005 U	<0.0005 U	<0.001 U
05-jun-96	CS a	V	34.0	-	-	-	-
05-jun-96	CS a	V	34.0	<0.0005 U	<0.0005 U	<0.0005 U	<0.001 U
05-jun-96	CS a	V	37.2	-	-	-	-
05-jun-96	CS a	V	37.2	<0.0005 U	<0.0005 U	<0.0005 U	<0.001 U
06-jun-96	CS ag	V	40.3	-	-	-	-
06-jun-96	CS ag	V	40.3	<0.0005 U	<0.0005 U	<0.0005 U	<0.001 U
06-jun-96	BB ag	V	40.8	<0.0005 U	<0.0005 U	<0.001 U	<0.0021 U
W-830-20							
13-jun-96	CS a	V	0.0	-	-	-	-
13-jun-96	CS a	V	0.0	<0.0005 U	<0.0005 U	<0.0005 U	<0.001 U
13-jun-96	CS a	V	7.5	-	-	-	-
13-jun-96	CS a	V	7.5	<0.0005 U	<0.0005 U	<0.0005 U	<0.001 U
13-jun-96	CS a	V	18.0	-	-	-	-
13-jun-96	CS a	V	18.0	<0.0005 U	<0.0005 U	<0.0005 U	<0.001 U
13-jun-96	CS a	V	24.3	-	-	-	-
13-jun-96	CS a	V	24.3	<0.0005 U	<0.0005 U	<0.0005 U	<0.001 U
17-jun-96	CS a	V	38.0	-	-	-	-
18-jun-96	CS a	V	50.2	-	-	-	-
18-jun-96	CS a	V	54.9	<0.0005 U	<0.0005 U	<0.0005 U	<0.001 U
18-jun-96	CS a	V	58.3	-	-	-	-
18-jun-96	CS a	V	68.1	-	-	-	-
24-jun-96	CS a	V	78.8	-	-	-	-
24-jun-96	CS a	V	83.2	-	-	-	-
26-jun-96	CS a	V	88.8	-	-	-	-
26-jun-96	CS a	V	93.2	-	-	-	-
26-jun-96	CS a	V	99.1	-	-	-	-
26-jun-96	CS a	V	104.3	-	-	-	-
26-jun-96	CS a	V	108.9	-	-	-	-
26-jun-96	CS a	V	113.0	-	-	-	-
26-jun-96	CS a	V	120.8	-	-	-	-
26-jun-96	CS a	V	124.0	-	-	-	-
26-jun-96	CS a	V	128.9	-	-	-	-
26-jun-96	CS a	V	134.0	-	-	-	-
W-830-22							
15-jul-96	CS a	V	36.7	-	-	-	-
15-jul-96	CS a	V	37.0	-	-	-	-
15-jul-96	CS af	V	40.6	-	-	-	-
15-jul-96	CS af	V	40.9	-	-	-	-
15-jul-96	CS a	V	45.5	-	-	-	-
15-jul-96	CS a	V	45.8	-	-	-	-
15-jul-96	CS a	V	50.6	-	-	-	-
18-jul-96	CS a	V	55.3	-	-	-	-
18-jul-96	CS a	V	60.0	-	-	-	-
18-jul-96	CS a	V	65.1	-	-	-	-
18-jul-96	CS a	V	71.5	-	-	-	-



Table A-19. Aromatic hydrocarbons in soil and rock (mg/kg), Building 832

Location Date	Lab Note	Val.		Benzene	Toluene	Ethyl- benzene	Total xylenes
		Depth (ft)					
W-830-22 (continued)							
22-jul-96	CS a	V	75.2	-	-	-	-
22-jul-96	BB ag	V	80.7	-	-	-	-
22-jul-96	CS ag	V	80.7	-	-	-	-
22-jul-96	CS a	V	85.0	-	-	-	-
22-jul-96	CS a	V	90.3	-	-	-	-
22-jul-96	CS a	V	95.0	-	-	-	-
22-jul-96	CS a	V	99.7	-	-	-	-
22-jul-96	CS a	V	103.3	-	-	-	-
22-jul-96	CS a	V	111.0	-	-	-	-
22-jul-96	CS a	V	117.0	-	-	-	-
W-830-25							
06-aug-96	CS a	V	0.0	-	-	-	-
06-aug-96	CS a	V	0.0	<0.0005 UJ	<0.0005 UJ	<0.0005 UJ	<0.001 UJ
06-aug-96	CS a	V	5.9	-	-	-	-
06-aug-96	CS a	V	5.9	<0.0005 U	<0.0005 U	<0.0005 U	<0.001 U
06-aug-96	CS a	V	10.0	-	-	-	-
06-aug-96	CS a	V	10.0	<0.0005 U	<0.0005 U	<0.0005 U	<0.001 U
06-aug-96	CS a	V	15.0	-	-	-	-
06-aug-96	CS a	V	21.1	-	-	-	-
W-830-26							
30-jul-96	CS a	V	5.7	-	-	-	-
30-jul-96	CS a	V	12.3	-	-	-	-
30-jul-96	CS a	V	16.5	-	-	-	-
30-jul-96	CS a	V	19.0	-	-	-	-
30-jul-96	CS a	V	24.3	-	-	-	-
30-jul-96	CS a	V	30.3	-	-	-	-
30-jul-96	CS a	V	34.8	-	-	-	-
31-jul-96	CS a	V	42.0	-	-	-	-
31-jul-96	CS a	V	44.5	-	-	-	-
31-jul-96	CS a	V	52.5	-	-	-	-
07-aug-96	CS a	V	56.2	-	-	-	-
07-aug-96	CS a	V	61.7	-	-	-	-
07-aug-96	CS a	V	65.7	-	-	-	-
12-aug-96	CS a	V	72.0	-	-	-	-
12-aug-96	CS a	V	75.5	-	-	-	-
12-aug-96	CS a	V	81.5	-	-	-	-
13-aug-96	CS a	V	87.3	-	-	-	-
13-aug-96	CS a	V	91.7	-	-	-	-
13-aug-96	CS a	V	95.0	-	-	-	-
W-830-27							
20-aug-96	CS a	V	21.5	-	-	-	-
20-aug-96	CS ag	V	28.2	-	-	-	-
20-aug-96	BB ag	V	28.5	-	-	-	-
20-aug-96	CS a	V	34.0	-	-	-	-
20-aug-96	CS a	V	37.5	-	-	-	-
W-830-28							
05-sep-96	CS a	V	45.2	-	-	-	-
05-sep-96	CS a	V	50.3	-	-	-	-
05-sep-96	CS a	V	53.8	-	-	-	-
05-sep-96	CS a	V	59.7	-	-	-	-
05-sep-96	CS a	V	65.0	-	-	-	-
05-sep-96	CS a	V	69.8	-	-	-	-
05-sep-96	CS a	V	73.3	-	-	-	-
05-sep-96	CS a	V	79.6	-	-	-	-
09-sep-96	CS a	V	85.2	-	-	-	-
09-sep-96	CS ag	V	87.2	-	-	-	-
09-sep-96	BB ag	V	87.5	-	-	-	-
09-sep-96	CS a	V	92.8	-	-	-	-
09-sep-96	CS ag	V	97.2	-	-	-	-
09-sep-96	BB ag	V	97.5	-	-	-	-
09-sep-96	CS a	V	104.5	-	-	-	-
09-sep-96	CS a	V	109.5	-	-	-	-
W-830-29							
20-aug-96	CS a	V	9.7	-	-	-	-



Table A-19. Aromatic hydrocarbons in soil and rock (mg/kg), Building 832

Location Date	Lab Note	Val.		Benzene	Toluene	Ethyl- benzene	Total xylenes
		Depth (ft)					
W-830-29 (continued)							
20-aug-96	CS a	V	22.0	-	-	-	-
20-aug-96	CS a	V	26.3	-	-	-	-
20-aug-96	CS a	V	29.7	-	-	-	-
20-aug-96	CS a	V	35.0	-	-	-	-
20-aug-96	CS a	V	39.2	-	-	-	-
20-aug-96	CS a	V	45.5	-	-	-	-
20-aug-96	CS a	V	50.5	-	-	-	-
20-aug-96	CS a	V	52.5	-	-	-	-
20-aug-96	CS a	V	54.0	-	-	-	-
30-oct-96	CS a	V	104.9	-	-	-	-
30-oct-96	CS a	V	111.3	-	-	-	-
31-oct-96	CS a	V	116.0	-	-	-	-
31-oct-96	CS a	V	121.1	-	-	-	-
31-oct-96	CS a	V	124.7	-	-	-	-
31-oct-96	CS a	V	130.0	-	-	-	-
31-oct-96	BB ag	V	134.6	-	-	-	-
31-oct-96	CS ag	V	134.6	-	-	-	-
31-oct-96	CS a	V	139.8	-	-	-	-
31-oct-96	CS a	V	145.4	-	-	-	-
31-oct-96	CS a	V	149.4	-	-	-	-
31-oct-96	CS a	V	153.8	-	-	-	-
31-oct-96	CS a	V	164.5	-	-	-	-
W-830-30							
17-sep-96	EC a	N	26.0	-	<0.0004 U	-	-
832-02							
26-sep-94	CS a	V	1.5	-	-	-	-
26-sep-94	CS a	V	5.5	-	-	-	-
26-sep-94	CS a	V	5.8	<0.0005 U	<0.0005 U	<0.0005 U	<0.001 U
26-sep-94	CS a	V	10.5	-	-	-	-
26-sep-94	CS a	V	10.8	<0.0005 U	<0.0005 U	<0.0005 U	<0.001 U
27-sep-94	CS af	V	15.8	-	-	-	-
27-sep-94	CS a	V	16.0	<0.0005 U	<0.0005 U	<0.0005 U	<0.001 U
27-sep-94	CS af	V	20.5	-	-	-	-
27-sep-94	CS a	V	25.5	-	-	-	-
27-sep-94	CS a	V	30.5	-	-	-	-
27-sep-94	CS ag	V	35.3	-	-	-	-
27-sep-94	GT ag	V	35.3	-	-	-	-
27-sep-94	CS ah	V	40.0	-	-	-	-
27-sep-94	CS ah	V	40.0	-	-	-	-
28-sep-94	CS a	V	45.5	-	-	-	-
28-sep-94	CS a	V	50.5	-	-	-	-
832-03							
04-oct-94	CS a	V	1.8	-	-	-	-
04-oct-94	CS a	V	5.5	-	-	-	-
04-oct-94	CS a	V	5.8	<0.0005 U	<0.0005 U	<0.0005 U	<0.001 U
04-oct-94	CS a	V	10.5	-	-	-	-
04-oct-94	CS a	V	10.8	<0.0005 U	<0.0005 U	<0.0005 U	<0.001 U
04-oct-94	CS a	V	15.5	-	-	-	-
04-oct-94	CS a	V	15.5	<0.0005 U	<0.0005 U	<0.0005 U	<0.001 U
04-oct-94	CS a	V	20.3	-	-	-	-
05-oct-94	CS a	V	25.0	-	-	-	-
05-oct-94	GT ag	V	30.0	-	-	-	-
05-oct-94	CS ag	V	30.5	-	-	-	-
05-oct-94	CS a	V	35.0	-	-	-	-
05-oct-94	CS a	V	40.5	-	-	-	-
05-oct-94	CS a	V	46.0	-	-	-	-
05-oct-94	CS a	V	50.5	-	-	-	-
05-oct-94	CS ag	V	55.5	-	-	-	-
05-oct-94	GT ag	V	55.5	-	-	-	-
832-04							
06-oct-94	CS a	V	1.5	-	-	-	-
06-oct-94	CS a	V	5.3	<0.0005 U	<0.0005 U	<0.0005 U	<0.001 U
06-oct-94	CS a	V	5.5	-	-	-	-



Table A-19. Aromatic hydrocarbons in soil and rock (mg/kg), Building 832

Location Date	Lab Note	Val.		Benzene	Toluene	Ethyl- benzene	Total xylenes
		Depth (ft)					
832-04 (continued)							
06-oct-94	CS a	V	5.8	<0.0005 U	<0.0005 U	<0.0005 U	<0.001 U
06-oct-94	CS a	V	10.8	-	-	-	-
06-oct-94	CS ag	V	11.0	<0.0005 U	<0.0005 U	<0.0005 U	<0.001 U
06-oct-94	CS a	V	15.5	-	-	-	-
06-oct-94	CS ag	V	15.8	<0.0005 U	<0.0005 U	<0.0005 U	<0.001 U
06-oct-94	GT ag	N	15.8	<0.005 U	<0.005 U	<0.005 U	<0.015 U
07-oct-94	CS a	V	20.5	-	-	-	-
07-oct-94	CS af	V	25.5	-	-	-	-
07-oct-94	CS a	V	30.5	-	-	-	-
07-oct-94	CS ah	V	35.0	-	-	-	-
07-oct-94	CS ah	V	35.0	-	-	-	-
07-oct-94	CS ah	V	40.0	-	-	-	-
07-oct-94	CS ah	V	40.0	-	-	-	-
07-oct-94	CS a	V	45.5	-	-	-	-
07-oct-94	CS a	V	50.0	-	-	-	-
07-oct-94	CS a	V	55.5	-	-	-	-
832-07							
28-sep-94	CS a	V	1.3	-	-	-	-
28-sep-94	CS a	V	5.8	-	-	-	-
28-sep-94	CS a	V	6.0	<0.0005 U	<0.0005 U	<0.0005 U	<0.001 U
28-sep-94	CS ag	V	11.0	<0.0005 U	<0.0005 U	<0.0005 U	<0.001 U
28-sep-94	GT ag	V	11.0	<0.005 U	<0.005 U	<0.005 U	<0.015 U
28-sep-94	CS a	V	11.5	-	-	-	-
29-sep-94	CS ah	V	15.5	-	-	-	-
29-sep-94	CS ah	V	15.5	-	-	-	-
29-sep-94	CS ah	V	16.0	<0.0005 U	<0.0005 U	<0.0005 U	<0.001 U
29-sep-94	CS ah	V	16.0	<0.0005 U	<0.0005 U	<0.0005 U	<0.001 U
29-sep-94	CS a	V	20.5	-	-	-	-
29-sep-94	CS a	V	25.5	-	-	-	-
29-sep-94	CS a	V	30.5	-	-	-	-
29-sep-94	CS a	V	35.0	-	-	-	-
29-sep-94	CS a	V	40.3	-	-	-	-
29-sep-94	CS a	V	45.5	-	-	-	-
29-sep-94	CS a	V	50.0	-	-	-	-
29-sep-94	CS a	V	55.0	-	-	-	-
832-08							
28-nov-94	CS a	V	3.0	-	-	-	-
28-nov-94	CS a	V	5.3	-	-	-	-
28-nov-94	CS a	V	5.3	<0.0005 U	<0.0005 U	<0.0005 U	<0.001 U
28-nov-94	CS a	V	10.3	-	-	-	-
28-nov-94	CS a	V	10.3	<0.0005 U	<0.0005 U	<0.0005 U	<0.001 U
28-nov-94	CS a	V	15.3	-	-	-	-
28-nov-94	CS a	V	15.3	<0.0005 U	<0.0005 U	<0.0005 U	<0.001 U
28-nov-94	CS ag	V	20.0	-	-	-	-
28-nov-94	GT ag	V	20.0	-	-	-	-
28-nov-94	CS ah	V	25.0	-	-	-	-
28-nov-94	CS ahj	V	25.0	-	-	-	-
28-nov-94	CS a	V	30.5	-	-	-	-
28-nov-94	CS a	V	35.0	-	-	-	-
28-nov-94	CS ah	V	40.0	-	-	-	-
29-nov-94	CS ahj	V	40.0	-	-	-	-
29-nov-94	CS a	V	45.0	-	-	-	-
29-nov-94	CS a	V	50.0	-	-	-	-
29-nov-94	CS a	V	55.5	-	-	-	-
832-12							
08-aug-96	CS a	V	5.5	-	-	-	-
08-aug-96	MO a	V	5.5	-	-	-	-
08-aug-96	CS a	V	11.0	-	-	-	-
08-aug-96	MO a	V	11.0	-	-	-	-
08-aug-96	CS a	V	16.0	-	-	-	-
08-aug-96	MO a	V	16.0	-	-	-	-





Table A-19. Aromatic hydrocarbons in soil and rock (mg/kg), Building 832

Location Date	Lab Note	Val. Depth (ft)	Benzene	Toluene	Ethyl- benzene	Total xylenes
832-13						
09-aug-96	CS a	V 6.0	-	-	-	-
09-aug-96	MO a	V 6.0	-	-	-	-
09-aug-96	CS a	V 11.0	-	-	-	-
09-aug-96	MO a	V 11.0	-	-	-	-
09-aug-96	CS a	V 16.0	-	-	-	-
09-aug-96	MO a	V 16.0	-	-	-	-
09-aug-96	CS a	V 21.0	-	-	-	-
09-aug-96	MO a	V 21.0	-	-	-	-
832-14						
09-aug-96	CS a	V 6.0	-	-	-	-
09-aug-96	MO a	V 6.0	-	-	-	-
09-aug-96	CS a	V 11.0	-	-	-	-
09-aug-96	MO a	V 11.0	-	-	-	-
09-aug-96	CS a	V 16.0	-	-	-	-
09-aug-96	MO a	V 16.0	-	-	-	-
09-aug-96	CS a	V 21.0	-	-	-	-
09-aug-96	MO a	V 21.0	-	-	-	-
832-15						
12-aug-96	CS a	V 6.0	-	-	-	-
12-aug-96	BB ag	V 11.0	-	-	-	-
12-aug-96	CS ag	V 11.0	-	-	-	-
12-aug-96	CS a	V 16.0	-	-	-	-
12-aug-96	CS ah	V 21.0	-	-	-	-
832-16						
12-aug-96	CS a	V 6.0	-	-	-	-
12-aug-96	CS a	V 11.0	-	-	-	-
12-aug-96	BB ag	V 16.0	-	-	-	-
12-aug-96	CS ag	V 16.0	-	-	-	-
12-aug-96	CS ah	V 21.0	-	-	-	-
832-22						
04-oct-96	CS ah	V 12.0	-	-	-	-
W-832-01						
17-aug-94	CS a	V 0.6	-	-	-	-
17-aug-94	CS a	V 0.6	<0.0005 U	<0.0005 U	<0.0005 U	<0.001 U
17-aug-94	CS a	V 1.3	-	-	-	-
17-aug-94	CS a	V 1.6	<0.0005 U	<0.0005 U	<0.0005 U	<0.001 U
18-aug-94	CS a	V 5.5	-	-	-	-
18-aug-94	CS a	V 5.7	<0.0005 U	<0.0005 U	<0.0005 U	<0.001 U
18-aug-94	CS a	V 16.0	-	-	-	-
18-aug-94	CS a	V 16.3	<0.0005 U	<0.0005 U	<0.0005 U	<0.001 U
18-aug-94	CS ah	V 20.3	-	-	-	-
18-aug-94	CS ahj	V 20.3	-	-	-	-
18-aug-94	CS a	V 24.5	-	-	-	-
18-aug-94	CS a	V 29.5	-	-	-	-
18-aug-94	CS a	V 32.0	-	-	-	-
19-aug-94	CS a	V 38.2	-	-	-	-
19-aug-94	CS a	V 40.0	-	-	-	-
19-aug-94	GT ahj	V 40.0	-	-	-	-
W-832-05						
10-oct-94	CS a	V 1.3	-	-	-	-
10-oct-94	CS a	V 5.3	-	-	-	-
10-oct-94	CS a	V 5.5	<0.0005 U	<0.0005 U	<0.0005 U	<0.001 U
10-oct-94	CS a	V 10.5	-	-	-	-
10-oct-94	CS a	V 10.5	<0.0005 U	<0.0005 U	<0.0005 U	<0.001 U
10-oct-94	CS a	V 15.5	-	-	-	-
10-oct-94	CS a	V 15.8	<0.0005 U	<0.0005 U	<0.0005 U	<0.001 U
10-oct-94	CS a	V 20.5	-	-	-	-
10-oct-94	CS a	V 25.5	-	-	-	-
10-oct-94	CS a	V 30.5	-	-	-	-
11-oct-94	CS ag	V 35.5	-	-	-	-
11-oct-94	GT ag	V 35.5	-	-	-	-



Table A-19. Aromatic hydrocarbons in soil and rock (mg/kg), Building 832

Location Date	Lab	Val.		Benzene	Toluene	Ethyl- benzene	Total xylenes
		Note	Depth (ft)				
W-832-05 (continued)							
11-oct-94	CS	afh	V	37.0	-	-	-
11-oct-94	CS	ah	V	37.0	-	-	-
12-oct-94	CS	ah	V	38.5	-	-	-
12-oct-94	CS	afh	V	38.5	-	-	-
W-832-06							
21-nov-94	CS	a	V	1.8	-	-	-
21-nov-94	CS	a	V	5.8	-	-	-
21-nov-94	CS	a	V	5.8	<0.0005 U	<0.0005 U	<0.001 U
21-nov-94	CS	a	V	10.2	-	-	-
21-nov-94	CS	a	V	10.2	<0.0005 U	<0.0005 U	<0.001 U
21-nov-94	CS	a	V	15.0	-	-	-
21-nov-94	CS	a	V	15.0	<0.0005 U	<0.0005 U	<0.001 U
21-nov-94	CS	a	V	20.5	-	-	-
21-nov-94	GT	a	V	20.8	-	-	-
21-nov-94	CS	a	V	26.0	-	-	-
21-nov-94	CS	a	V	31.0	-	-	-
21-nov-94	CS	a	V	35.8	-	-	-
21-nov-94	CS	a	V	40.0	-	-	-
21-nov-94	CS	a	V	45.2	-	-	-
22-nov-94	CS	a	V	50.0	-	-	-
22-nov-94	CS	a	V	53.5	-	-	-
W-832-09							
29-aug-94	CS	a	V	37.0	-	-	-
12-oct-94	CS	a	V	45.5	-	-	-
12-oct-94	CS	a	V	50.3	-	-	-
12-oct-94	CS	a	V	55.5	-	-	-
12-oct-94	CS	a	V	63.6	-	-	-
12-oct-94	CS	a	V	65.3	-	-	-
12-oct-94	CS	a	V	73.7	-	-	-
12-oct-94	CS	a	V	76.5	-	-	-
24-oct-94	CS	a	V	85.0	-	-	-
24-oct-94	CS	a	V	95.0	-	-	-
24-oct-94	CS	a	V	100.0	-	-	-
25-oct-94	CS	a	V	105.8	-	-	-
25-oct-94	CS	a	V	116.5	-	-	-
25-oct-94	CS	a	V	122.3	-	-	-
25-oct-94	CS	a	V	125.0	-	-	-
25-oct-94	CS	a	V	171.7	-	-	-
27-oct-94	CS	a	V	179.5	-	-	-
27-oct-94	CS	a	V	187.5	-	-	-
W-880-01							
25-oct-95	CS	a	V	2.0	-	-	-
25-oct-95	CS	a	V	2.0	<0.0005 U	<0.0005 U	<0.001 U
25-oct-95	CS	a	V	13.5	-	-	-
25-oct-95	CS	a	V	20.0	-	-	-
26-oct-95	CS	a	V	30.0	-	-	-
26-oct-95	CS	a	V	32.0	-	-	-
01-nov-95	CS	a	V	40.0	-	-	-
01-nov-95	FS	ag	V	40.5	-	-	-
01-nov-95	CS	a	V	50.0	-	-	-
01-nov-95	CS	a	V	60.0	-	-	-
01-nov-95	CS	a	V	70.0	-	-	-
01-nov-95	CS	a	V	80.0	-	-	-
02-nov-95	CS	a	V	90.0	-	-	-
02-nov-95	FS	ag	V	90.5	-	-	-
02-nov-95	CS	a	V	101.0	-	-	-
02-nov-95	CS	a	V	112.5	-	-	-
02-nov-95	CS	a	V	120.0	-	-	-
02-nov-95	CS	a	V	130.0	-	-	-
02-nov-95	CS	a	V	140.0	-	-	-
02-nov-95	FS	ag	V	140.6	-	-	-
06-nov-95	CS	a	V	152.5	-	-	-
06-nov-95	CS	a	V	162.6	-	-	-



Table A-19. Aromatic hydrocarbons in soil and rock (mg/kg), Building 832

Location Date	Lab Note	Val.		Benzene	Toluene	Ethyl- benzene	Total xylenes
		Depth (ft)					
SVI-830-032 18-sep-96	CS ag V	12.0		-	-	-	-
SVI-830-033 18-sep-96	CS ag V	6.0		-	-	-	-
SVI-830-035 20-sep-96	CS ag V	6.0		-	-	-	-
	20-sep-96	26.0		-	-	-	-
3SS-21-01 18-sep-91	BC a U	0.0		<0.005 P	<0.005 P	<0.005 P	<0.005 P
3SS-33-02 27-sep-91	BC a U	0.0		<0.005 P	<0.005 P	<0.005 P	<0.005 P

Canyon OU. Results recorded by July 15, 1997.

1,2 Dichloro- benzene	1,3 Dichloro- benzene	1,4 Dichloro- benzene	Chloro- benzene	Location Date
<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U	SVI-830-032 18-sep-96
<0.0005 U	<0.0005 U	<0.0005 U	<0.0005 U	SVI-830-033 18-sep-96
<0.0005 U <0.0005 U	<0.0005 U <0.0005 U	<0.0005 U <0.0005 U	<0.0005 U <0.0005 U	SVI-830-035 20-sep-96 20-sep-96
<0.005 P	<0.005 P	<0.005 P	<0.005 P	3SS-21-01 18-sep-91
<0.005 P	<0.005 P	<0.005 P	<0.005 P	3SS-33-02 27-sep-91

See following page for notes

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 well 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

Lab Codes:

BB BC Laboratories, Inc., Bakersfield, CA  
BC Brown and Caldwell, Emeryville, CA  
CS California Laboratory Services, Rancho Cordova, CA  
EC LLNL Environmental Chemistry Lab  
GT Groundwater Technology Environmental Labs, Concord, CA

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. Fuel hydrocarbons in ground water and surface water (ug/L), Building 832 Canyon OU.  
Results recorded by July 15, 1997.

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O&G, Gas Fingerprint, TPH-Diesel in ground water  
July 23, 1997  
geminil

gas-oil-dsl.23jul97

Table A-20. Fuel hydrocarbons in ground water and surface water (ug/L), Building 832 Canyon OU. Results recorded by July 15, 1997.

Location Date	Lab Note	Val.	Oil and Grease	Gasoline Fingerprint	TPH as Diesel	C12 to C25 Hydrocarbons	C25 to C35 Hydrocarbons
W-830-19 06-mar-97	CS a	V	-	-	<50 U	-	-
W-880-01 24-jan-96	CS a	V	-	-	<50 U	-	-
W-880-02 29-jan-96	CS a	V	-	-	<50 U	-	-
W-880-03 24-jan-96	CS ah	V	-	-	<50 U	-	-
24-jan-96	CS aeh	V	-	-	<50 U	-	-

See following page for notes

Table A-20. Fuel hydrocarbons in ground water and surface water (ug/L), Building 832 Canyon OU. Results recorded by July 15, 1997.

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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 well 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

Lab Codes:

CS California Laboratory Services, Rancho Cordova, CA

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

Results recorded by July 15, 1997.

Carbonate (mg/L)	Bicar- bonate** (mg/L)	TDS (mg/L)	Spec Cond (umhos/cm)	pH	Location Date
-	-	780 P	1440 P	8 P	W-830-04A
8 P	162 P	-	-	-	18-oct-88
-	-	-	-	-	18-oct-88
-	-	-	-	-	21-feb-95
-	-	-	-	-	12-may-95
-	-	-	-	-	21-jul-95
-	-	-	-	-	30-nov-95
-	-	-	-	-	25-jan-96
-	-	-	-	-	12-jun-96
-	-	-	-	-	23-aug-96
-	-	-	-	-	11-dec-96
-	-	-	-	-	25-feb-97
-	-	620 P	1160 P	8.3 P	W-830-05
10 P	170 P	-	-	-	18-oct-88
-	-	-	-	-	18-oct-88
-	-	-	-	-	23-feb-95
-	-	-	-	-	11-may-95
-	-	-	-	-	19-jul-95
-	-	-	-	-	01-dec-95
-	-	-	-	-	22-jan-96
-	-	-	-	-	10-jun-96
-	-	-	-	-	23-aug-96
-	-	-	-	-	16-dec-96
-	-	-	-	-	21-feb-97
-	-	-	-	-	W-830-07
-	-	-	-	-	01-feb-96
-	-	1400 P	2180 P	7.21 P	W-830-09
<1 P	160 P	-	-	-	17-oct-88
<1 U	160	1500	2300	7.6	17-oct-88
-	-	-	-	-	03-nov-94
-	-	-	-	-	08-mar-95
-	-	-	-	-	08-mar-95
-	-	-	-	-	16-may-95
-	-	-	-	-	27-jul-95
-	-	-	-	-	05-feb-96
-	-	-	-	-	14-may-96
-	-	-	-	-	24-sep-96
-	-	-	-	-	13-dec-96
<1 P	170 P	1100 P	1650 P	7.7 P	W-830-10
-	-	-	-	-	18-mar-92
-	-	-	-	-	18-mar-92
-	-	-	-	-	16-mar-95
-	-	-	-	-	12-may-95
-	-	-	-	-	21-jul-95
-	-	-	-	-	06-dec-95
-	-	-	-	-	26-jan-96
-	-	-	-	-	15-may-96
-	-	-	-	-	28-aug-96
-	-	-	-	-	11-dec-96
-	-	-	-	-	11-dec-96
-	-	-	-	-	26-feb-97
-	-	-	-	-	17-jun-97
-	-	-	-	-	17-jun-97
40 P	40 P	1100 P	1560 P	8.8 P	W-830-11
-	-	-	-	-	25-jun-92
-	-	-	-	-	25-jun-92
-	-	-	-	-	22-feb-95
-	-	-	-	-	12-may-95
-	-	-	-	-	21-jul-95
-	-	-	-	-	30-nov-95

Table A-21. Anions in ground water and surface water, Building 832 Canyon OU.

Location Date	Lab Note	Val.	Fluoride (mg/L)	Silica (mg/L)	Nitrate as (NO3) (mg/L)	Chloride (mg/L)	Sulfate (mg/L)
W-830-11 (continued)							
26-jan-96	CS a	V	-	-	5.6	-	-
26-jan-96	FS a	N	-	-	5.9	-	-
12-jun-96	CS a	V	-	-	4.9 LO	-	-
28-aug-96	CS a	V	-	-	1.7	-	-
11-dec-96	CS a	V	-	-	4	-	-
17-jun-97	CS ah	V	-	-	4.9	-	-
17-jun-97	CS aeh	V	-	-	5.3	-	-
W-830-12							
21-dec-94	CS a	V	0.51	-	<2.215 U	89 D	97 D
08-mar-95	CS a	V	0.56	-	<0.5 U	50	110
16-may-95	CS a	V	-	-	<0.5 U	-	-
27-jul-95	CS a	V	-	-	<0.5 U	-	-
08-dec-95	CS a	V	-	-	<5 DU	-	-
05-feb-96	CS a	V	-	-	<0.5 U	-	-
19-jun-96	CS a	V	-	-	<0.5 U	-	-
24-sep-96	CS a	V	-	-	<0.5 U	-	-
13-dec-96	CS a	V	-	-	<0.5 U	-	-
W-830-13							
16-mar-95	CS a	V	0.87	-	52	290	180
12-may-95	CS a	V	-	-	56 D	-	-
24-jul-95	CS a	V	-	-	63 D	-	-
20-dec-95	CS a	N	-	-	42 D	-	-
26-jan-96	CS a	V	-	-	51 D	-	-
12-jun-96	CS a	V	-	-	62 LO	-	-
11-sep-96	CS a	V	-	-	68 LO	-	-
11-dec-96	CS a	V	-	-	58 D	-	-
26-feb-97	CS aeh	V	-	-	54 DF	-	-
26-feb-97	CS ah	V	-	-	54 DF	-	-
W-830-14							
16-mar-95	CS a	V	0.44	-	<0.5 U	280	270
18-may-95	CS ah	V	-	-	<0.5 U	-	-
18-may-95	CS aeh	V	-	-	<0.5 U	-	-
24-jul-95	CS a	V	-	-	<0.5 U	-	-
06-dec-95	CS a	V	-	-	<5 DULO	-	-
26-jan-96	CS a	V	-	-	<0.5 U	-	-
12-jun-96	CS ah	V	-	-	<0.5 ULO	-	-
12-jun-96	CS aeh	V	-	-	<0.5 ULO	-	-
11-sep-96	BB ag	V	-	-	<0.4 U	-	-
11-sep-96	CS ag	V	-	-	<0.5 LOU	-	-
16-dec-96	CS a	V	-	-	<0.5 U	-	-
W-830-15							
16-mar-95	CS a	V	0.31	-	<0.5 U	190	340
16-may-95	CS a	V	-	-	<0.5 U	-	-
21-jul-95	CS a	V	-	-	<0.5 U	-	-
01-dec-95	CS a	N	-	-	<5 DULO	-	-
01-dec-95	FS a	V	-	-	<0.4 U	-	-
22-jan-96	CS a	N	-	-	<0.5 U	-	-
10-jun-96	CS a	V	-	-	<0.5 U	-	-
23-aug-96	CS a	V	-	-	<0.5 UO	-	-
16-dec-96	CS a	V	-	-	<0.5 U	-	-
W-830-16							
25-jan-96	CS a	V	0.43	-	<0.5 U	250 D	370 D
11-jun-96	CS a	V	-	-	<0.5 U	-	-
22-aug-96	CS a	V	-	-	<0.5 UO	-	-
16-dec-96	CS a	V	-	-	<0.5 U	-	-
W-830-17							
25-jan-96	CS a	V	0.97 D	-	78 D	220 D	67 D
11-jun-96	CS a	V	-	-	48 D	-	-
22-aug-96	CS a	V	-	-	59 O	-	-

Results recorded by July 15, 1997.

Carbonate (mg/L)	Bicar- bonate** (mg/L)	TDS (mg/L)	Spec Cond (umhos/cm)	pH	Location Date
-	-	-	-	-	(continued) W-830-11
-	-	-	-	-	26-jan-96
-	-	-	-	-	26-jan-96
-	-	-	-	-	12-jun-96
-	-	-	-	-	28-aug-96
-	-	-	-	-	11-dec-96
-	-	-	-	-	17-jun-97
-	-	-	-	-	17-jun-97
<1 U	180	470	600	7.3	W-830-12
<1 U	180	510	650	7.5	21-dec-94
-	-	-	-	-	08-mar-95
-	-	-	-	-	16-may-95
-	-	-	-	-	27-jul-95
-	-	-	-	-	08-dec-95
-	-	-	-	-	05-feb-96
-	-	-	-	-	19-jun-96
-	-	-	-	-	24-sep-96
-	-	-	-	-	13-dec-96
<1 U	250	1100	1600	7.7	W-830-13
-	-	-	-	-	16-mar-95
-	-	-	-	-	12-may-95
-	-	-	-	-	24-jul-95
-	-	-	-	-	20-dec-95
-	-	-	-	-	26-jan-96
-	-	-	-	-	12-jun-96
-	-	-	-	-	11-sep-96
-	-	-	-	-	11-dec-96
-	-	-	-	-	26-feb-97
-	-	-	-	-	26-feb-97
<1 U	160	1100	1600	8.1	W-830-14
-	-	-	-	-	16-mar-95
-	-	-	-	-	18-may-95
-	-	-	-	-	18-may-95
-	-	-	-	-	24-jul-95
-	-	-	-	-	06-dec-95
-	-	-	-	-	26-jan-96
-	-	-	-	-	12-jun-96
-	-	-	-	-	12-jun-96
-	-	-	-	-	11-sep-96
-	-	-	-	-	11-sep-96
-	-	-	-	-	16-dec-96
<1 U	230	1100	1500	8.3	W-830-15
-	-	-	-	-	16-mar-95
-	-	-	-	-	16-may-95
-	-	-	-	-	21-jul-95
-	-	-	-	-	01-dec-95
-	-	-	-	-	01-dec-95
-	-	-	-	-	22-jan-96
-	-	-	-	-	10-jun-96
-	-	-	-	-	23-aug-96
-	-	-	-	-	16-dec-96
140	16	1100	1700	9.4	W-830-16
-	-	-	-	-	25-jan-96
-	-	-	-	-	11-jun-96
-	-	-	-	-	22-aug-96
-	-	-	-	-	16-dec-96
20	250	920	1400	8.4	W-830-17
-	-	-	-	-	25-jan-96
-	-	-	-	-	11-jun-96
-	-	-	-	-	22-aug-96

Table A-21. Anions in ground water and surface water, Building 832 Canyon OU.

Location Date	Lab Note	Val.	Fluoride (mg/L)	Silica (mg/L)	Nitrate as (NO3) (mg/L)	Chloride (mg/L)	Sulfate (mg/L)
W-830-17 (continued)							
16-dec-96	CS a	V	-	-	58 D	-	-
20-feb-97	CS a	V	-	-	71	-	-
W-830-18							
28-jun-96	CS a	V	0.33 LO	-	5.5	-	420 D
28-jun-96	CS a	V	-	-	5.5	-	-
23-aug-96	CS a	V	-	-	5.7 O	-	-
13-dec-96	CS a	V	-	-	4.9	-	-
W-830-19							
28-jun-96	CS a	V	0.8 JLO	-	250 D	-	230 DJ
28-jun-96	CS a	V	-	-	250 D	-	-
24-sep-96	CS a	V	-	-	190 D	-	-
13-dec-96	BB aeg	V	-	-	204 D	-	-
13-dec-96	CS ag	V	-	-	170 D	-	-
06-mar-97	CS a	V	-	-	210 D	-	-
W-830-20							
24-sep-96	CS a	V	-	-	<10 DU	240 D	390 DO
24-sep-96	CS a	V	0.26	-	<0.5 U	240 D	390 DO
24-sep-96	CS a	V	-	-	<10 DU	-	-
18-dec-96	CS a	V	-	-	<0.5 U	-	-
28-feb-97	CS a	V	-	-	<0.5 U	-	-
W-830-21							
19-sep-96	CS a	V	0.83 L	-	<0.5 LU	920 DLO	390 DLO
19-sep-96	CS a	V	-	-	<0.5 UL	-	-
11-dec-96	CS a	V	-	-	<0.5 U	-	-
25-feb-97	BB ag	V	-	-	0.9	-	-
25-feb-97	CS ag	V	-	-	<0.5 U	-	-
W-830-22							
20-sep-96	CS a	V	0.12	-	<0.5 LU	290 DLO	160 DLO
20-sep-96	CS a	V	-	-	<0.5 UL	-	-
06-mar-97	CS a	V	-	-	<0.5 U	-	-
W-830-25							
12-mar-97	CS a	V	-	-	85 D	-	-
W-830-26							
20-sep-96	CS a	V	0.24	-	6.6 L	450 DLO	380 DLO
20-sep-96	CS a	V	-	-	6.6 L	-	-
13-dec-96	CS ah	V	-	-	6.2	-	-
13-dec-96	CS aeh	V	-	-	6.2	-	-
11-mar-97	CS a	V	-	-	4.8	-	-
W-830-27							
19-sep-96	CS a	V	0.56 L	-	130 DL	660 DLO	190 DLO
19-sep-96	CS a	V	-	-	130 DL	-	-
12-mar-97	CS a	V	-	-	35 D	-	-
W-830-28							
23-sep-96	CS a	V	0.18	-	-	-	-
12-mar-97	CS a	V	-	-	20 D	-	-
W-830-29							
17-mar-97	CS a	V	0.46	-	<0.5 U	54 D	110 D
17-mar-97	CS a	V	-	-	<0.5 U	-	-
W-830-30							
11-mar-97	CS a	V	1.6 D	-	31 D	57 D	31 D
11-mar-97	CS a	V	1.6 D	-	31 D	57 D	31 D
11-mar-97	CS a	V	-	-	31 D	-	-

Results recorded by July 15, 1997.

Carbonate (mg/L)	Bicar- bonate** (mg/L)	TDS (mg/L)	Spec Cond (umhos/cm)	pH	Location Date
-	-	-	-	-	(continued) W-830-17
-	-	-	-	-	16-dec-96
-	-	-	-	-	20-feb-97
<1 U	150	1200	1700	7.8	W-830-18
-	-	-	-	-	28-jun-96
-	-	-	-	-	28-jun-96
-	-	-	-	-	23-aug-96
-	-	-	-	-	13-dec-96
<1 U	200	1700	2600	7.7	W-830-19
-	-	-	-	-	28-jun-96
-	-	-	-	-	28-jun-96
-	-	-	-	-	24-sep-96
-	-	-	-	-	13-dec-96
-	-	-	-	-	13-dec-96
-	-	-	-	-	06-mar-97
<1 U	130	1300	1500	8.4	W-830-20
-	-	-	-	-	24-sep-96
-	-	-	-	-	24-sep-96
-	-	-	-	-	24-sep-96
-	-	-	-	-	18-dec-96
-	-	-	-	-	28-feb-97
<1 U	160	1900	2500	7.4	W-830-21
-	-	-	-	-	19-sep-96
-	-	-	-	-	19-sep-96
-	-	-	-	-	11-dec-96
-	-	-	-	-	25-feb-97
-	-	-	-	-	25-feb-97
77	<1 U	1600	3900	12	W-830-22
-	-	-	-	-	20-sep-96
-	-	-	-	-	20-sep-96
-	-	-	-	-	06-mar-97
-	-	-	-	-	W-830-25
-	-	-	-	-	12-mar-97
39	39	1300	1800	8.7	W-830-26
-	-	-	-	-	20-sep-96
-	-	-	-	-	20-sep-96
-	-	-	-	-	13-dec-96
-	-	-	-	-	13-dec-96
-	-	-	-	-	11-mar-97
<1 U	170	1300	1800	7.5	W-830-27
-	-	-	-	-	19-sep-96
-	-	-	-	-	19-sep-96
-	-	-	-	-	12-mar-97
160	27	1200	1400	11	W-830-28
-	-	-	-	-	23-sep-96
-	-	-	-	-	12-mar-97
8	170	480	730	8.6	W-830-29
-	-	-	-	-	17-mar-97
-	-	-	-	-	17-mar-97
<1 U	430	680	1100	8.1	W-830-30
-	-	-	-	-	11-mar-97
-	-	-	-	-	11-mar-97
-	-	-	-	-	11-mar-97



Table A-21. Anions in ground water and surface water, Building 832 Canyon OU.

Location Date	Lab Note	Val.	Fluoride (mg/L)	Silica (mg/L)	Nitrate as (NO3) (mg/L)	Chloride (mg/L)	Sulfate (mg/L)
W-830-34							
11-mar-97	CS a	V	0.92	-	100 D	240 D	90 D
11-mar-97	CS a	V	0.92	-	100 D	240 D	90 D
11-mar-97	CS a	V	-	-	100 D	-	-
W-831-01							
17-oct-88	BC a	U	-	-	-	47 P	110 P
17-oct-88	BC a	U	-	-	-	-	-
10-dec-91	BC ag	U	-	-	-	50 P	120 P
10-dec-91	BC ag	U	-	72 P	-	-	-
W-832-01							
21-nov-94	CS a	V	0.58	-	93.03 D	440 D	380 D
16-mar-95	CS ah	V	0.61	-	94	500 D	380
16-mar-95	CS aeh	V	0.62	-	94	490 D	390
28-jul-95	CS a	V	-	-	120 D	-	-
21-dec-95	CS a	N	-	-	110 D	-	-
07-feb-96	CS a	V	-	-	96 D	-	-
24-jun-96	CS aeh	V	-	-	110 D	-	-
24-jun-96	CS ah	V	-	-	110 D	-	-
19-dec-96	CS a	V	-	-	84 D	-	-
06-mar-97	CS a	V	-	-	79 D	-	-
W-832-05							
16-nov-94	CS a	V	0.68	-	124.04	810 D	550 D
06-dec-94	CS a	V	0.66 J	-	124.04 D	1200 D	400 D
21-dec-94	CS a	V	0.59	-	132.9 D	750 D	550 D
09-mar-95	CS a	V	0.67	-	140 D	630 D	780 D
28-jul-95	CS a	V	-	-	130 D	-	-
08-feb-96	CS a	V	-	-	100 D	-	-
24-jun-96	CS a	V	-	-	120 D	-	-
24-sep-96	CS a	V	-	-	110 D	-	-
06-mar-97	CS a	V	-	-	98 D	-	-
W-832-06							
09-mar-95	CS a	V	0.39	-	22 D	810 D	750 D
25-may-95	CS a	V	-	-	22	-	-
28-jul-95	CS a	V	-	-	20	-	-
12-dec-95	CS a	V	-	-	<10 DU	-	-
07-feb-96	CS a	V	-	-	<0.5 U	-	-
24-jun-96	BB a	V	-	-	16.4	-	-
24-jun-96	CS a	V	-	-	15	-	-
24-sep-96	CS a	V	-	-	15	-	-
06-mar-97	CS a	V	-	-	16	-	-
W-832-09							
21-nov-94	CS a	V	0.36	-	<44.3 DU	74 D	130 D
16-mar-95	CS ah	V	0.42	-	<0.5 U	62	120
16-mar-95	CS aeh	V	0.42	-	<0.5 U	63	120
28-jul-95	CS a	V	-	-	<0.5 U	-	-
28-jul-95	FS a	V	-	-	<0.4 UL	-	-
08-dec-95	CS a	V	-	-	<5 DU	-	-
06-feb-96	CS a	V	-	-	<0.5 U	-	-
19-jun-96	CS a	V	-	-	<0.5 U	-	-
24-sep-96	CS a	V	-	-	<0.5 U	-	-
17-dec-96	CS a	V	-	-	<0.5 U	-	-
W-880-01							
24-jan-96	CS a	V	0.76 D	-	<0.5 U	260 D	210 D
11-jun-96	CS a	V	-	-	<0.5 U	-	-
22-aug-96	CS a	V	-	-	<0.5 UO	-	-
27-dec-96	CS a	V	-	-	<0.5 U	-	-
16-apr-97	CS a	V	-	-	<2.5 DU	-	-

Results recorded by July 15, 1997.

Carbonate (mg/L)	Bicar- bonate** (mg/L)	TDS (mg/L)	Spec Cond (umhos/cm)	pH	Location Date
-	-	-	-	-	W-830-34
<1 U	200	920	1000	8	11-mar-97
-	-	-	-	-	11-mar-97
-	-	-	-	-	11-mar-97
-	-	430 P	670 P	7.9 P	W-831-01
<1 P	160 P	-	-	-	17-oct-88
<1 P	160 P	460 P	680 P	8 P	17-oct-88
-	-	-	-	-	10-dec-91
-	-	-	-	-	10-dec-91
<1 U	290	1600	2600	7.5	W-832-01
<1 U	280	1800	2500	7.6	21-nov-94
<1 U	270	1800	2100	7.6	16-mar-95
-	-	-	-	-	16-mar-95
-	-	-	-	-	28-jul-95
-	-	-	-	-	21-dec-95
-	-	-	-	-	07-feb-96
-	-	-	-	-	24-jun-96
-	-	-	-	-	24-jun-96
-	-	-	-	-	19-dec-96
-	-	-	-	-	06-mar-97
<1 U	230	2400	3900	7.7	W-832-05
<1 U	200	2500	8300	7.4	16-nov-94
<1 U	200	2500	3500	7.4	06-dec-94
<1 U	210	2400	3200	7.7	21-dec-94
-	-	-	-	-	09-mar-95
-	-	-	-	-	28-jul-95
-	-	-	-	-	08-feb-96
-	-	-	-	-	24-jun-96
-	-	-	-	-	24-sep-96
-	-	-	-	-	06-mar-97
<1 U	93	2400	3400	8	W-832-06
-	-	-	-	-	09-mar-95
-	-	-	-	-	25-may-95
-	-	-	-	-	28-jul-95
-	-	-	-	-	12-dec-95
-	-	-	-	-	07-feb-96
-	-	-	-	-	24-jun-96
-	-	-	-	-	24-jun-96
-	-	-	-	-	24-sep-96
-	-	-	-	-	06-mar-97
<1 U	190	480	780	7.4	W-832-09
<1 U	190	530	710	7.4	21-nov-94
<1 U	200	530	710	7.4	16-mar-95
-	-	-	-	-	16-mar-95
-	-	-	-	-	28-jul-95
-	-	-	-	-	28-jul-95
-	-	-	-	-	08-dec-95
-	-	-	-	-	06-feb-96
-	-	-	-	-	19-jun-96
-	-	-	-	-	24-sep-96
-	-	-	-	-	17-dec-96
<1 U	220	980	1400	8.1	W-880-01
-	-	-	-	-	24-jan-96
-	-	-	-	-	11-jun-96
-	-	-	-	-	22-aug-96
-	-	-	-	-	27-dec-96
-	-	-	-	-	16-apr-97

Table A-21. Anions in ground water and surface water, Building 832 Canyon OU.

Location Date	Lab Note	Val.	Fluoride (mg/L)	Silica (mg/L)	Nitrate as (NO3) (mg/L)	Chloride (mg/L)	Sulfate (mg/L)
W-880-02							
26-jan-96	CS a	V	0.44	-	3.9	220 D	180 D
17-jun-96	CS aeh	V	-	-	7.2 LO	-	-
17-jun-96	CS ah	V	-	-	6.9 LO	-	-
W-880-03							
24-jan-96	CS ah	V	0.91 D	-	<0.5 U	270 D	310 D
24-jan-96	CS aeh	V	0.93 D	-	<0.5 U	270 D	300 D
17-jun-96	CS a	V	-	-	<0.5 ULO	-	-
22-aug-96	CS a	V	-	-	<0.5 UO	-	-
27-dec-96	CS a	V	-	-	<0.5 U	-	-
16-apr-97	CS a	V	-	-	<0.5 U	-	-
SPRING3							
03-sep-93	CS a	V	-	63	-	-	-
03-sep-93	CS a	V	1.3	-	43.414	250	140
20-apr-94	CS a	V	1 D	-	53.16 D	280 D	150 D
24-oct-95	CS a	V	1.1 D	-	30 D	420 D	220 D
24-oct-95	FS a	V	1.4 D	-	37	370 D	240 D
21-jun-96	BB a	V	0.96	-	34.1 D	372 D	218 D
21-jun-96	CS a	V	1.1 LO	-	36	450 LO	240

Results recorded by July 15, 1997.

Carbonate (mg/L)	Bicar- bonate** (mg/L)	TDS (mg/L)	Spec Cond (umhos/cm)	pH	Location Date
					W-880-02
<1 U	340	130	1500	7.3	26-jan-96
-	-	-	-	-	17-jun-96
-	-	-	-	-	17-jun-96
					W-880-03
20	150	1100	1600	8.3	24-jan-96
20	160	1100	1600	8.4	24-jan-96
-	-	-	-	-	17-jun-96
-	-	-	-	-	22-aug-96
-	-	-	-	-	27-dec-96
-	-	-	-	-	16-apr-97
					SPRING3
-	-	-	-	-	03-sep-93
<1 U	400	1100	1700	7.5	03-sep-93
<1 U	250	1000	1700	7.2	20-apr-94
<1 U	390	1300	2200	7.3	24-oct-95
-	-	1400	2300	7.5	24-oct-95
17	350	1390	2340	8.8	21-jun-96
<1 U	350	1400	2100	7.6	21-jun-96

See following page for notes

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 well 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

Lab Codes:

BB BC Laboratories, Inc., Bakersfield, CA  
BC Brown and Caldwell, Emeryville, CA  
CS California Laboratory Services, Rancho Cordova, CA

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. Cations in ground water and surface water (mg/L), Building 832 Canyon OU.  
Results recorded by July 15, 1997.

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Site 300 Cations Report  
July 23, 1997  
geminil

s3cationL.23jul97  
s3cationR.23jul97

Table A-22. Cations in ground water and surface water (mg/L), Building 832 Canyon OU.

Location Date	Lab Note	Val.	Sodium	Potassium	Calcium	Magnesium	Iron
W-830-04A 18-oct-88	BC a	U	250 P	12 P	30 P	14 P	<0.04 P
W-830-05 18-oct-88	BC a	U	200 P	9.3 P	25 P	8 P	<0.04 P
W-830-09 17-oct-88	BC a	U	240 P	21 P	140 P	53 P	13 P
03-nov-94	CS a	V	300	32	140	40	<0.1 U
W-830-10 18-mar-92	BC a	U	310 P	16 P	45 P	18 P	<0.1 P
18-mar-92	BC a	U	-	-	-	-	-
W-830-11 25-jun-92	BC ag	U	280 P	16 P	54 P	12 P	<0.1 P
W-830-12 21-dec-94	CS a	V	89	6.2	43	22	<0.1 U
08-mar-95	CS a	V	83	5.9	40	21	<0.1 U
W-830-13 16-mar-95	CS a	V	330	12	41	17	<0.1 U
W-830-14 16-mar-95	CS a	V	350	13	27	4.4	<0.1 U
W-830-15 16-mar-95	CS a	V	370	9.8	15	2	<0.1 U
W-830-16 25-jan-96	CS a	V	350 LO	14	15	0.53	<0.1 U
W-830-17 25-jan-96	CS a	V	290 LO	11	12	4.5	<0.1 U
W-830-18 28-jun-96	CS a	V	300	20	83	36	<0.1 U
W-830-19 28-jun-96	CS a	V	520	22	66	32	<0.1 U
W-830-20 24-sep-96	CS a	V	250	20	69	25	<0.1 U
W-830-21 19-sep-96	CS a	V	480 L	27	95	52	<0.1 U
W-830-22 20-sep-96	CS a	V	540 L	130	52	<0.5 U	<0.1 U
W-830-26 20-sep-96	CS a	V	310 L	41	46	35	<0.1 U
W-830-27 19-sep-96	CS a	V	320 L	20	66	39	<0.1 U
W-830-28 23-sep-96	CS a	V	290 L	23	99	2.7	<0.1 U
W-830-29 17-mar-97	CS a	V	120 LO	9.8	34	12	<0.1 U
W-830-30 11-mar-97	CS a	V	250 LO	8.5	15	8.6	2.3

Results recorded by July 15, 1997.

Manganese	Copper	Zinc	Boron	Strontium	Aluminum	Location Date
0.06 P	<0.08 P	<0.01 P	-	-	-	W-830-04A 18-oct-88
<0.04 P	<0.08 P	0.03 P	-	-	-	W-830-05 18-oct-88
0.98 P 0.061	<0.02 P <0.05 U	<0.01 P <0.05 U	- -	- -	- <0.2 U	W-830-09 17-oct-88 03-nov-94
<0.05 P -	<0.05 P -	<0.05 P -	- -	- -	- <0.2 P	W-830-10 18-mar-92 18-mar-92
<0.05 P	<0.05 P	<0.05 P	-	-	-	W-830-11 25-jun-92
0.13 0.12	<0.05 U <0.05 U	<0.05 U <0.05 U	- -	- -	<0.2 U <0.2 U	W-830-12 21-dec-94 08-mar-95
<0.03 U	<0.05 U	<0.05 U	-	-	<0.2 U	W-830-13 16-mar-95
<0.03 U	<0.05 U	<0.05 U	-	-	<0.2 U	W-830-14 16-mar-95
<0.03 U	<0.05 U	<0.05 U	-	-	<0.2 U	W-830-15 16-mar-95
<0.03 U	<0.05 U	<0.05 U	-	-	<0.2 U	W-830-16 25-jan-96
<0.03 U	<0.05 U	<0.05 U	-	-	<0.2 U	W-830-17 25-jan-96
<0.03 U	<0.05 U	<0.05 U	-	-	<0.2 U	W-830-18 28-jun-96
<0.03 U	<0.05 U	<0.05 U	-	-	<0.2 U	W-830-19 28-jun-96
<0.03 U	<0.05 U	<0.05 U	-	-	<0.2 U	W-830-20 24-sep-96
0.14	<0.05 U	<0.05 U	-	-	<0.2 U	W-830-21 19-sep-96
<0.03 U	<0.05 U	<0.05 U	-	-	1.2	W-830-22 20-sep-96
<0.03 U	<0.05 U	<0.05 U	-	-	<0.2 U	W-830-26 20-sep-96
<0.03 U	<0.05 U	<0.05 U	-	-	<0.2 U	W-830-27 19-sep-96
<0.03 U	<0.05 U	<0.05 U	-	-	<0.2 U	W-830-28 23-sep-96
<0.03 U	<0.05 U	<0.05 U	-	-	<0.2 U	W-830-29 17-mar-97
<0.03 U	<0.05 U	<0.05 U	-	-	6.1	W-830-30 11-mar-97



Table A-22. Cations in ground water and surface water (mg/L), Building 832 Canyon OU.

Location Date	Lab Note	Val.	Sodium	Potassium	Calcium	Magnesium	Iron
W-830-34							
11-mar-97	CS a	V	290 LO	14	29	13	1.6
W-831-01							
17-oct-88	BC a	U	77 P	5 P	37 P	19 P	0.08 P
10-dec-91	BC ag	U	83 P	6 P	38 P	19 P	<0.1 P
W-832-01							
21-nov-94	CS a	V	410	21	92	48	<0.1 U
16-mar-95	CS ah	V	430	21	110	53	<0.1 U
16-mar-95	CS aeh	V	430	21	100	52	<0.1 U
W-832-05							
16-nov-94	CS a	V	570	29	160	73	<0.1 U
06-dec-94	CS a	V	630	30	180	80	<0.1 U
21-dec-94	CS a	V	830	29	190	79	<0.1 U
09-mar-95	CS a	V	550	27	150	64	<0.1 U
W-832-06							
09-mar-95	CS a	V	450	30	200	98	<0.1 U
W-832-09							
21-nov-94	CS a	V	100	6.8	50	23	<0.1 U
16-mar-95	CS ah	V	90	5.8	51	23	<0.1 U
16-mar-95	CS aeh	V	89	5.8	51	23	<0.1 U
W-880-01							
24-jan-96	CS a	V	330 LO	9.9	16	5.2	0.26
W-880-02							
26-jan-96	CS a	V	210 LO	7.4	73	33	<0.1 U
W-880-03							
24-jan-96	CS ah	V	350 LO	7	6.3	1.9	<0.1 U
24-jan-96	CS aeh	V	350 LO	7	6.4	1.9	<0.1 U
SPRING3							
03-sep-93	CS a	V	340	11	48	17	<0.1 U
20-apr-94	CS a	V	290	12	46	16	<0.1 U
24-oct-95	FS a	V	-	-	62	-	-
24-oct-95	CS a	V	400	18	67	27	<0.1 U
24-oct-95	FS a	V	410	18	62	26	<0.05 U
21-jun-96	BB a	V	400 D	12.1	58 D	25 D	<0.1 U
21-jun-96	CS a	V	360	11	63	24	<0.1 U

Results recorded by July 15, 1997.

Manganese	Copper	Zinc	Boron	Strontium	Aluminum	Location Date
<0.03 U	<0.05 U	<0.05 U	-	-	2.9	W-830-34 11-mar-97
0.12 P	<0.02 P	<0.01 P	-	-	-	W-831-01 17-oct-88
<0.05 P	<0.05 P	<0.05 P	-	-	-	10-dec-91
<0.03 U	<0.05 U	<0.05 U	-	-	<0.2 U	W-832-01 21-nov-94
<0.03 U	<0.05 U	<0.05 U	-	-	<0.2 U	16-mar-95
<0.03 U	<0.05 U	<0.05 U	-	-	<0.2 U	16-mar-95
<0.03 U	<0.05 U	<0.05 U	-	-	<0.2 U	W-832-05 16-nov-94
<0.03 U	<0.05 U	<0.05 U	-	-	<0.2 U	06-dec-94
<0.03 U	<0.05 U	<0.05 U	-	-	<0.2 U	21-dec-94
<0.03 U	<0.05 U	<0.05 U	-	-	<0.2 U	09-mar-95
<0.03 U	<0.05 U	<0.05 U	-	-	<0.2 U	W-832-06 09-mar-95
0.068	<0.05 U	<0.05 U	-	-	<0.2 U	W-832-09 21-nov-94
0.084	<0.05 U	<0.05 U	-	-	<0.2 U	16-mar-95
0.084	<0.05 U	<0.05 U	-	-	<0.2 U	16-mar-95
<0.03 U	<0.05 U	<0.05 U	-	-	0.49	W-880-01 24-jan-96
0.07	<0.05 U	<0.05 U	-	-	<0.2 U	W-880-02 26-jan-96
<0.03 U	<0.05 U	<0.05 U	-	-	<0.2 U	W-880-03 24-jan-96
<0.03 U	<0.05 U	<0.05 U	-	-	<0.2 U	24-jan-96
<0.03 U	<0.05 U	<0.05 U	-	-	<0.2 U	SPRING3 03-sep-93
0.1	<0.05 U	<0.05 U	-	-	<0.2 U	20-apr-94
-	-	-	-	-	-	24-oct-95
0.24	<0.05 U	<0.05 U	-	-	<0.2 U	24-oct-95
0.29	<0.05 U	<0.05 U	2.8	-	-	24-oct-95
0.396	<0.05 U	<0.05 U	-	-	<0.2 U	21-jun-96
0.48	<0.05 U	<0.05 U	-	-	<0.2 U	21-jun-96

See following page for notes

Table A-22. Cations in ground water and surface water (mg/L), Building 832 Canyon OU.  
Results recorded by July 15, 1997.

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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 well 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

Lab Codes:

- BB BC Laboratories, Inc., Bakersfield, CA
- BC Brown and Caldwell, Emeryville, CA
- CS California Laboratory Services, Rancho Cordova, CA

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-23. Surfactants in ground water and surface water (mg/L), Building 832 Canyon OU.  
Results recorded by July 15, 1997.

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Site 300 Surfactants in Ground Water  
July 23, 1997  
gemin1

s3surfactant.23jul97

Table A-23. Surfactants in ground water and surface water (mg/L), Building 832 Canyon OU. Results recorded by July 15, 1997.

Location Date	Lab Note	Val.	Surfactant (mg/L)	Surfactants (mg/L)
W-830-04A 18-oct-88	BC a	U	-	<0.02 P
W-830-05 18-oct-88	BC a	U	-	<0.02 P
W-830-09 17-oct-88	BC a	U	-	<0.2 P
03-nov-94	CS a	V	<0.5 ULO	-
W-830-12 21-dec-94	CS a	V	<0.5 U	-
08-mar-95	CS a	V	<0.5 U	-
W-830-13 16-mar-95	CS a	V	<0.5 U	-
W-830-14 16-mar-95	CS a	V	<0.5 U	-
W-830-15 16-mar-95	CS a	V	<0.5 U	-
W-830-16 25-jan-96	CS a	V	<0.5 U	-
W-830-17 25-jan-96	CS a	V	<0.5 U	-
W-830-18 28-jun-96	CS a	V	<0.5 U	-
W-830-19 28-jun-96	CS a	V	0.57	-
W-830-20 24-sep-96	CS a	V	<0.5 U	-
W-830-21 19-sep-96	CS a	V	0.53	-
W-830-22 20-sep-96	CS a	V	<0.5 U	-
W-830-26 20-sep-96	CS a	V	<0.5 U	-
W-830-27 19-sep-96	CS a	V	<0.5 U	-
W-830-28 23-sep-96	CS a	V	<0.5 U	-
W-830-29 17-mar-97	CS a	V	<0.5 U	-
W-830-30 11-mar-97	CS a	V	<0.5 U	-
W-830-34 11-mar-97	CS a	V	<0.5 U	-
W-831-01 17-oct-88	BC a	U	-	<0.02 P

Table A-23. Surfactants in ground water and surface water (mg/L), Building 832 Canyon OU.  
Results recorded by July 15, 1997.

Location Date	Lab Note	Val.	Surfactant (mg/L)	Surfactants (mg/L)
W-832-01				
21-nov-94	CS a	V	<0.5 U	-
16-mar-95	CS ah	V	<0.5 U	-
16-mar-95	CS aeh	V	<0.5 U	-
W-832-05				
16-nov-94	CS a	V	0.63	-
06-dec-94	CS a	V	<0.5 U	-
21-dec-94	CS a	V	<0.5 U	-
09-mar-95	CS a	V	<0.5 U	-
W-832-06				
09-mar-95	CS a	V	<0.5 U	-
W-832-09				
21-nov-94	CS a	V	<0.5 U	-
16-mar-95	CS ah	V	<0.5 U	-
16-mar-95	CS aeh	V	<0.5 U	-
W-880-01				
24-jan-96	CS a	V	<0.5 U	-
W-880-02				
26-jan-96	CS a	V	<0.5 U	-
W-880-03				
24-jan-96	CS ah	V	<0.5 U	-
24-jan-96	CS aeh	V	<0.5 U	-
SPRING3				
03-sep-93	CS a	V	<0.5 U	-
20-apr-94	CS a	V	<0.5 U	-
24-oct-95	CS a	V	<0.5 U	-
24-oct-95	FS a	V	-	<0.05 U
21-jun-96	BB a	V	-	0.07
21-jun-96	CS a	V	<0.5 U	-

See following page for notes

Table A-23. Surfactants in ground water and surface water (mg/L), Building 832 Canyon OU. Results recorded by July 15, 1997.

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 well 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

Lab Codes:

- BB BC Laboratories, Inc., Bakersfield, CA
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Validation Codes:

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- 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-24. VOCs in soil vapor (Petrex (TM)) (ion counts), Building 832 Canyon OU.  
Results recorded by July 15, 1997.

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Site 300 Petrex soil vapor analyses  
July 23, 1997  
gemin1

s3petrex.23jul97



Table A-24. VOCs in soil vapor (Petrex (TM)) (ion counts), Building 832 Canyon OU. Results recorded by July 15, 1997.

Location Date	Lab	Val. Note	Depth (ft)	Duration (days)	PCE (total ion count)	TCE (total ion count)	Alkyaromatics plus BTEX C6-C10
SVV-830-049 04-oct-96	MO	a V	5.5	-	<0.2 U	<0.2 U	-
SVV-832-020 02-oct-96	MO	a V	4.5	-	<0.2 U	<0.2 U	-
SVX-830-001 13-jul-94	NE	a N	1.0	21	<200 U	235435	-
SVX-830-002 13-jul-94	NE	a N	1.0	21	<200 U	<200 U	-
SVX-830-003 13-jul-94	NE	a N	1.0	21	564378	1.67448e+06	-
SVX-830-004 13-jul-94	NE	a N	1.0	21	21168	1.24517e+06	-
SVX-830-005 13-jul-94	NE	a N	1.0	21	113724	2.66161e+06	-
SVX-830-006 13-jul-94	NE	a N	1.0	21	<200 U	73306	-
SVX-830-007 13-jul-94	NE	a N	1.0	21	8573	1716	-
SVX-830-008 13-jul-94	NE	a N	1.0	21	2.44391e+06	327655	-
SVX-830-009 13-jul-94	NE	a N	1.0	21	<200 U	268527	-
SVX-830-011 13-sep-94	NE	a N	1.0	21	3617	672	29640
SVX-830-012 13-sep-94	NE	a N	1.0	21	<200 U	<200 U	6282
SVX-830-013 13-sep-94	NE	a N	1.0	21	746	<200 U	23172
SVX-830-014 13-sep-94	NE	a N	1.0	21	<200 U	<200 U	5176
SVX-830-015 13-sep-94	NE	a N	1.0	21	4317	6459	35062
SVX-830-016 13-sep-94	NE	a N	1.0	21	1510	16400	46582
SVX-830-017 13-sep-94	NE	a N	1.0	21	2732	13478	61313
SVX-830-018 13-sep-94	NE	a N	1.0	21	5469	190823	161699
SVX-830-019 13-sep-94	NE	a N	1.0	21	<200 U	<200 U	7927
SVX-830-020 13-sep-94	NE	a N	1.0	21	1709	3054	64334
SVX-830-021 13-sep-94	NE	a N	1.0	21	<200 U	71281	37459

Table A-24. VOCs in soil vapor (Petrex (TM)) (ion counts), Building 832 Canyon OU.  
Results recorded by July 15, 1997.

Location Date	Lab Note	Val. Depth (ft)	Duration (days)	PCE (total ion count)	TCE (total ion count)	Alkylaromatics plus BTEX C6-C10
SVX-830-022 13-sep-94	NE a	N 1.0	21	10408	1.70577e+06	715175
SVX-830-023 13-sep-94	NE a	N 1.0	21	5998	940302	335398
SVX-830-024 13-sep-94	NE a	N 1.0	21	<200 U	34534	33206
SVX-830-025 13-sep-94	NE a	N 1.0	21	4678	1955	67218
SVX-830-026 13-sep-94	NE a	N 1.0	21	814	<200 U	20038
SVX-830-027 13-sep-94	NE a	N 1.0	21	<200 U	112710	77912
SVX-830-028 13-sep-94	NE a	N 1.0	21	<200 U	<200 U	24494
SVX-830-029 13-sep-94	NE a	N 1.0	21	<200 U	<200 U	22028
SVX-830-030 13-sep-94	NE a	N 1.0	21	760	<200 U	7.89323e+06
SVX-830-031 13-sep-94	NE a	N 1.0	21	6604	158565	88419
SVX-830-032 30-dec-95	NE a	N 1.0	26	18107	6872	-
SVX-830-033 30-dec-95	NE a	N 1.0	26	865702	30490	-
SVX-830-034 30-dec-95	NE a	N 1.0	26	900770	75130	-
SVX-830-035 30-dec-95	NE a	N 1.0	26	131676	7093	-
SVX-830-036 30-dec-95	NE a	N 1.0	26	45811	8326	-
SVX-830-037 30-dec-95	NE a	N 1.0	26	20348	1766	-
SVX-830-038 30-dec-95	NE a	N 1.0	26	6870	1510	-
SVX-830-039 30-dec-95	NE a	N 1.0	26	<200 U	11778	-
SVX-830-040 30-dec-95	NE a	N 1.0	26	<200 U	<200 U	-
SVX-830-041 30-dec-95	NE a	N 1.0	26	<200 U	<200 U	-
SVX-830-042 30-dec-95	NE a	N 1.0	26	997144	744214	-
SVX-830-043 30-dec-95	NE a	N 1.0	26	385	36516	-
SVX-830-044 30-dec-95	NE a	N 1.0	26	<200 U	<200 U	-

Table A-24. VOCs in soil vapor (Petrex (TM)) (ion counts), Building 832 Canyon OU.  
Results recorded by July 15, 1997.

Location Date	Lab Note	Val. Depth (ft)	Duration (days)	PCE (total ion count)	TCE (total ion count)	Alkylaromatics plus BTEX C6-C10
SVX-830-045 30-dec-95	NE a	N 1.0	26	<200 U	<200 U	-
SVX-830-046 30-dec-95	NE a	N 1.0	26	<200 U	<200 U	-
SVX-830-047 30-dec-95	NE a	N 1.0	26	<200 U	<200 U	-
SVX-830-048 30-dec-95	NE a	N 1.0	26	<200 U	<200 U	-
SVX-830-049 30-dec-95	NE a	N 1.0	26	<200 U	<200 U	-
SVX-830-050 30-dec-95	NE a	N 1.0	26	<200 U	<200 U	-
SVX-830-051 30-dec-95	NE a	N 1.0	25	<200 U	<200 U	-
SVX-830-052 30-dec-95	NE a	N 1.0	25	20938	<200 U	-
SVX-832-001 13-jul-94	NE a	N 1.0	21	<200 U	<200 U	-
SVX-832-002 13-jul-94	NE a	N 1.0	21	<200 U	<200 U	-
SVX-832-003 13-jul-94	NE a	N 1.0	21	5163	435580	-
SVX-832-004 13-jul-94	NE a	N 1.0	21	74548	685791	-
SVX-832-005 13-jul-94	NE a	N 1.0	21	483652	823942	-
SVX-832-006 13-jul-94	NE a	N 1.0	21	4353	<200 U	-
SVX-832-007 13-jul-94	NE a	N 1.0	21	<200 U	4342	-
SVX-832-008 13-jul-94	NE a	N 1.0	21	<200 U	4926	-
SVX-832-009 13-jul-94	NE a	N 1.0	21	<200 U	<200 U	-
SVX-832-010 13-jul-94	NE a	N 1.0	21	<200 U	<200 U	-
SVX-832-011 13-jul-94	NE a	N 1.0	21	<200 U	<200 U	-
SVX-832-012 13-jul-94	NE a	N 1.0	21	<200 U	12616	-
SVX-832-013 13-jul-94	NE a	N 1.0	21	<200 U	<200 U	-

See following page for notes

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 well 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

Lab Codes:

NE Northeast Research Institute, Farmington, CN

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-25. VOCs in soil vapor (active vacuum induced) (ppm v/v), Building 832 Canyon OU.  
Results recorded by July 15, 1997.

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Site 300 Active Vacuum Soil Vapor Analyses  
July 23, 1997  
geminil

s3vaporL.23jul97  
s3vaporR.23jul97

Table A-25. VOCs in soil vapor (active vacuum induced) (ppm v/v), Building 832 Canyon OU.

Location Date	Lab Note	Val. Depth (ft)	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Total 1,2-DCE	TCE	PCE	1,1-DCA	
830-36										
24-sep-96	MO a	V 5.5	<0.2 U	-	<0.3 U	-	<0.2 U	<0.2 U	<0.2 U	
24-sep-96	MO a	V 11.5	<0.2 U	-	<0.3 U	-	1.4	<0.2 U	<0.2 U	
830-37										
24-sep-96	MO a	V 5.5	<0.2 U	-	<0.3 U	-	1.6 U	<0.2 U	<0.2 U	
830-38										
24-sep-96	MO a	V 5.5	<0.2 U	-	<0.3 U	-	0.2	<0.2 U	<0.2 U	
830-39										
24-sep-96	MO a	V 5.5	<0.2 U	-	<0.3 U	-	0.21	<0.2 U	<0.2 U	
830-41										
25-sep-96	MO a	V 5.5	<0.2 U	-	<0.3 U	-	<0.2 U	<0.2 U	<0.2 U	
830-42										
25-sep-96	MO a	V 5.5	<0.2 U	-	<0.3 U	-	<0.2 U	<0.2 U	<0.2 U	
830-43										
25-sep-96	MO a	V 5.5	<0.2 U	-	<0.3 U	-	<0.2 U	<0.2 U	<0.2 U	
830-44										
01-oct-96	MO a	V 5.5	<0.2 U	-	<0.3 U	-	<0.2 U	<0.2 U	<0.2 U	
830-45										
01-oct-96	MO a	V 5.5	<0.2 U	-	<0.3 U	-	<0.2 U	<0.2 U	<0.2 U	
830-46										
01-oct-96	MO a	V 5.5	<0.2 U	-	<0.3 U	-	<0.2 U	<0.2 U	<0.2 U	
830-47										
01-oct-96	MO a	V 5.5	<0.2 U	-	<0.3 U	-	<0.2 U	<0.2 U	<0.2 U	
830-48										
03-oct-96	MO a	V 5.5	<0.2 U	-	<0.3 U	-	<0.2 U	<0.2 U	<0.2 U	
03-oct-96	MO a	V 11.5	<0.2 U	-	<0.3 U	-	<0.2 U	<0.2 U	<0.2 U	
03-oct-96	MO a	V 17.5	<0.2 U	-	<0.3 U	-	<0.2 U	<0.2 U	<0.2 U	
03-oct-96	MO ag	V 25.5	<0.2 U	-	<0.3 U	-	<0.2 U	<0.2 U	<0.2 U	
03-oct-96	EC ag	N 25.5	-	-	-	-	<1 U	<1 U	-	
03-oct-96	MO a	V 34.5	<0.2 U	-	<0.3 U	-	<0.2 U	<0.2 U	<0.2 U	
W-830-30										
17-sep-96	MO a	V 5.5	<0.2 U	-	<0.3 U	-	7.1	<0.2 U	<0.2 U	
17-sep-96	MO a	V 11.5	<0.2 U	-	<0.3 U	-	<0.2 U	<0.2 U	<0.2 U	
17-sep-96	MO a	V 17.5	<0.2 U	-	<0.3 U	-	<0.2 U	<0.2 U	<0.2 U	
17-sep-96	MO a	V 25.5	<0.2 U	-	<0.3 U	-	<0.2 U	<0.2 U	<0.2 U	
W-830-34										
19-sep-96	MO a	V 5.5	<0.2 U	-	<0.3 U	-	1.1	<0.2 U	<0.2 U	
19-sep-96	MO a	V 11.5	<0.2 U	-	<0.3 U	-	1.5	<0.2 U	<0.2 U	
20-sep-96	MO afg	V 17.5	<5 UD	-	<7.5 UD	-	1400 D	<5 UD	<5 UD	
20-sep-96	EC afg	N 17.5	-	-	-	-	1414 DU	<10 DU	-	
20-sep-96	MO af	V 25.5	<0.5 UD	-	<0.75 UD	-	6.1 D	<0.5 UD	<0.5 UD	
832-12										
08-aug-96	MO a	N 7.0	<0.2 U	-	<0.3 U	-	<0.2 U	<0.2 U	<0.2 U	
08-aug-96	MO a	N 12.0	<0.2 U	-	<0.3 U	-	<0.2 U	<0.2 U	<0.2 U	
08-aug-96	MO a	N 17.0	<0.2 U	-	<0.3 U	-	<0.2 U	<0.2 U	<0.2 U	
832-13										
09-aug-96	MO a	N 5.5	<0.2 U	-	<0.3 U	-	<0.2 U	<0.2 U	<0.2 U	
09-aug-96	MO a	N 10.5	<0.2 U	-	<0.3 U	-	<0.2 U	<0.2 U	<0.2 U	
09-aug-96	MO af	N 15.5	<5 DU	-	<7.5 DU	-	130 D	<5 DU	<5 DU	
09-aug-96	MO af	N 20.5	<5 DU	-	<7.5 DU	-	80 D	<5 DU	<5 DU	

Results recorded by July 15, 1997.

1,2-DCA	1,1,1-TCA	Chloroform	Freon 11	Freon 113	Methylene chloride	Location Date
						830-36
<0.3 U	<0.2 U	<0.2 U	<0.2 U	-	<0.4 U	24-sep-96
<0.3 U	<0.2 U	<0.2 U	<0.2 U	-	<0.4 U	24-sep-96
						830-37
<0.3 U	<0.2 U	<0.2 U	<0.2 U	-	<0.4 U	24-sep-96
						830-38
<0.3 U	<0.2 U	<0.2 U	<0.2 U	-	<0.4 U	24-sep-96
						830-39
<0.3 U	<0.2 U	<0.2 U	<0.2 U	-	<0.4 U	24-sep-96
						830-41
<0.3 U	<0.2 U	<0.2 U	<0.2 U	-	<0.4 U	25-sep-96
						830-42
<0.3 U	<0.2 U	<0.2 U	<0.2 U	-	<0.4 U	25-sep-96
						830-43
<0.3 U	<0.2 U	<0.2 U	<0.2 U	-	<0.4 U	25-sep-96
						830-44
<0.3 U	<0.2 U	<0.2 U	<0.2 U	-	<0.4 U	01-oct-96
						830-45
<0.3 U	<0.2 U	<0.2 U	<0.2 U	-	<0.4 U	01-oct-96
						830-46
<0.3 U	<0.2 U	<0.2 U	<0.2 U	-	<0.4 U	01-oct-96
						830-47
<0.3 U	<0.2 U	<0.2 U	<0.2 U	-	<0.4 U	01-oct-96
						830-48
<0.3 U	<0.2 U	<0.2 U	<0.2 U	-	<0.4 U	03-oct-96
<0.3 U	<0.2 U	<0.2 U	<0.2 U	-	<0.4 U	03-oct-96
<0.3 U	<0.2 U	<0.2 U	<0.2 U	-	<0.4 U	03-oct-96
<0.3 U	<0.2 U	<0.2 U	<0.2 U	-	<0.4 U	03-oct-96
-	-	-	-	-	-	03-oct-96
<0.3 U	<0.2 U	<0.2 U	<0.2 U	-	<0.4 U	03-oct-96
						W-830-30
<0.3 U	<0.2 U	<0.2 U	<0.2 U	-	<0.4 U	17-sep-96
<0.3 U	<0.2 U	<0.2 U	<0.2 U	-	<0.4 U	17-sep-96
<0.3 U	<0.2 U	<0.2 U	<0.2 U	-	<0.4 U	17-sep-96
<0.3 U	<0.2 U	<0.2 U	<0.2 U	-	<0.4 U	17-sep-96
						W-830-34
<0.3 U	<0.2 U	<0.2 U	<0.2 U	-	<0.4 U	19-sep-96
<0.3 U	<0.2 U	<0.2 U	<0.2 U	-	<0.4 U	19-sep-96
<7.5 UD	<5 UD	<5 UD	<5 UD	-	<10 UD	20-sep-96
-	-	-	-	-	-	20-sep-96
<0.75 UD	<0.5 UD	<0.5 UD	<0.5 UD	-	<1 UD	20-sep-96
						832-12
<0.3 U	<0.2 U	<0.2 U	<0.2 U	-	<0.4 U	08-aug-96
<0.3 U	<0.2 U	<0.2 U	<0.2 U	-	<0.4 U	08-aug-96
<0.3 U	<0.2 U	<0.2 U	<0.2 U	-	<0.4 U	08-aug-96
						832-13
<0.3 U	<0.2 U	<0.2 U	<0.2 U	-	<0.4 U	09-aug-96
<0.3 U	<0.2 U	<0.2 U	<0.2 U	-	<0.4 U	09-aug-96
<7.5 DU	<5 DU	<5 DU	<5 DU	-	<10 DU	09-aug-96
<7.5 DU	<5 DU	<5 DU	<5 DU	-	<10 DU	09-aug-96

Table A-25. VOCs in soil vapor (active vacuum induced) (ppm v/v), Building 832 Canyon OU.

Location Date	Lab Note	Val. Depth (ft)	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Total 1,2-DCE	TCE	PCE	1,1-DCA	
832-14										
09-aug-96	MO a	N 5.5	<0.2 U	-	<0.3 U	-	0.85	<0.2 U	<0.2 U	
09-aug-96	MO a	N 10.5	<0.2 U	-	<0.3 U	-	1.3	<0.2 U	<0.2 U	
09-aug-96	MO ag	N 15.5	<0.2 U	-	<0.3 U	-	17	<0.2 U	<0.2 U	
09-aug-96	EC ag	N 15.5	-	-	-	-	11	<1 U	-	
09-aug-96	MO a	N 20.5	<0.2 U	-	<0.3 U	-	0.17	<0.2 U	<0.2 U	
832-15										
12-aug-96	MO a	N 5.5	<0.2 U	-	<0.3 U	-	<0.2 U	<0.2 U	<0.2 U	
12-aug-96	MO a	N 10.5	<0.2 U	-	<0.3 U	-	<0.2 U	<0.2 U	<0.2 U	
12-aug-96	MO a	N 15.5	<0.2 U	-	<0.3 U	-	<0.2 U	<0.2 U	<0.2 U	
12-aug-96	MO a	N 20.5	<0.2 U	-	<0.3 U	-	<0.2 U	<0.2 U	<0.2 U	
832-16										
12-aug-96	MO a	N 5.5	<0.2 U	-	<0.3 U	-	<0.2 U	<0.2 U	<0.2 U	
12-aug-96	MO a	N 10.5	<0.2 U	-	<0.3 U	-	<0.2 U	<0.2 U	<0.2 U	
12-aug-96	MO ag	N 15.5	<0.2 U	-	<0.3 U	-	<0.2 U	<0.2 U	<0.2 U	
12-aug-96	EC ag	N 15.5	-	-	-	-	9.8	<1 U	-	
12-aug-96	MO a	N 20.5	<0.2 U	-	<0.3 U	-	<0.2 U	<0.2 U	<0.2 U	
832-17										
02-oct-96	MO a	V 5.5	<0.2 U	-	<0.3 U	-	<0.2 U	<0.2 U	<0.2 U	
02-oct-96	MO a	V 11.5	<0.2 U	-	<0.3 U	-	<0.2 U	<0.2 U	<0.2 U	
832-18										
02-oct-96	MO a	V 5.5	<0.2 U	-	<0.3 U	-	<0.2 U	<0.2 U	<0.2 U	
832-19										
02-oct-96	MO a	V 5.5	<0.2 U	-	<0.3 U	-	<0.2 U	<0.2 U	<0.2 U	
832-21										
03-oct-96	MO a	V 5.5	<0.2 U	-	<0.3 U	-	<0.2 U	<0.2 U	<0.2 U	
03-oct-96	MO ag	V 11.5	<0.2 U	-	<0.3 U	-	<0.2 U	<0.2 U	<0.2 U	
03-oct-96	EC ag	N 11.5	-	-	-	-	<1 U	<1 U	-	
03-oct-96	MO a	V 17.5	<0.2 U	-	<0.3 U	-	<0.2 U	<0.2 U	<0.2 U	
832-22										
04-oct-96	MO a	V 5.5	0.4	-	<0.3 U	-	0.57	<0.2 U	<0.2 U	
04-oct-96	MO a	V 11.5	7.8	-	<0.3 U	-	30	<0.2 U	<0.2 U	
04-oct-96	MO a	V 17.5	<0.2 U	-	<0.3 U	-	33	<0.2 U	<0.2 U	
04-oct-96	MO a	V 25.5	<0.2 U	-	<0.3 U	-	23	<0.2 U	<0.2 U	
SVI-830-031										
17-sep-96	MO a	V 5.5	<0.2 U	-	<0.3 U	-	6.9	<0.2 U	<0.2 U	
19-sep-96	MO a	V 11.5	<0.2 U	-	<0.3 U	-	69	<0.2 U	<0.2 U	
19-sep-96	MO a	V 17.5	<0.2 U	-	<0.3 U	-	2.4	<0.2 U	<0.2 U	
19-sep-96	MO a	V 25.5	<0.2 U	-	<0.3 U	-	1.8	<0.2 U	<0.2 U	
SVI-830-032										
18-sep-96	MO a	V 5.5	<0.2 U	-	<0.3 U	-	<0.2 U	<0.2 U	<0.2 U	
18-sep-96	MO a	V 11.5	<0.2 U	-	<0.3 U	-	1.5	<0.2 U	<0.2 U	
18-sep-96	MO ag	V 17.5	<0.2 U	-	<0.3 U	-	3.4	<0.2 U	<0.2 U	
18-sep-96	EC ag	N 17.5	-	-	-	-	2.8	<1 U	-	
18-sep-96	MO a	V 25.5	<0.2 U	-	<0.3 U	-	6.5	<0.2 U	<0.2 U	
18-sep-96	MO a	V 35.5	<0.2 U	-	<0.3 U	-	42	<0.2 U	<0.2 U	
SVI-830-033										
18-sep-96	MO ag	V 5.5	<0.2 U	-	<0.3 U	-	17	<0.2 U	<0.2 U	
18-sep-96	EC ag	N 5.5	-	-	-	-	14	<1 U	-	
19-sep-96	MO a	V 11.5	<0.2 U	-	<0.3 U	-	14	<0.2 U	<0.2 U	
19-sep-96	MO a	V 17.5	<0.2 U	-	<0.3 U	-	0.98	<0.2 U	<0.2 U	
19-sep-96	MO a	V 25.5	<0.2 U	-	<0.3 U	-	0.27	<0.2 U	<0.2 U	
SVI-830-035										
20-sep-96	MO a	V 5.5	<0.2 U	-	<0.3 U	-	0.61	<0.2 U	<0.2 U	
20-sep-96	MO a	V 11.5	<0.2 U	-	<0.3 U	-	0.82	<0.2 U	<0.2 U	
20-sep-96	MO afg	V 17.5	<0.5 UD	-	<0.75 UD	-	160 D	<0.5 UD	<0.5 UD	
20-sep-96	EC afg	N 17.5	-	-	-	-	398 DU	<10 DU	-	
20-sep-96	MO af	V 25.5	<0.5 UD	-	<0.75 UD	-	2.8 D	<0.5 UD	<0.5 UD	



Results recorded by July 15, 1997.

1,2-DCA	1,1,1-TCA	Chloroform	Freon 11	Freon 113	Methylene chloride	Location Date
						832-14
<0.3 U	<0.2 U	<0.2 U	<0.2 U	-	<0.4 U	09-aug-96
<0.3 U	<0.2 U	<0.2 U	<0.2 U	-	<0.4 U	09-aug-96
<0.3 U	<0.2 U	<0.2 U	<0.2 U	-	<0.4 U	09-aug-96
-	-	-	-	-	-	09-aug-96
<0.3 U	<0.2 U	<0.2 U	<0.2 U	-	<0.4 U	09-aug-96
						832-15
<0.3 U	<0.2 U	<0.2 U	<0.2 U	-	<0.4 U	12-aug-96
<0.3 U	<0.2 U	<0.2 U	<0.2 U	-	<0.4 U	12-aug-96
<0.3 U	<0.2 U	<0.2 U	<0.2 U	-	<0.4 U	12-aug-96
<0.3 U	<0.2 U	<0.2 U	<0.2 U	-	<0.4 U	12-aug-96
						832-16
<0.3 U	<0.2 U	<0.2 U	<0.2 U	-	<0.4 U	12-aug-96
<0.3 U	<0.2 U	<0.2 U	<0.2 U	-	<0.4 U	12-aug-96
<0.3 U	<0.2 U	<0.2 U	<0.2 U	-	<0.4 U	12-aug-96
-	-	-	-	-	-	12-aug-96
<0.3 U	<0.2 U	<0.2 U	<0.2 U	-	<0.4 U	12-aug-96
						832-17
<0.3 U	<0.2 U	<0.2 U	<0.2 U	-	<0.4 U	02-oct-96
<0.3 U	<0.2 U	<0.2 U	<0.2 U	-	<0.4 U	02-oct-96
						832-18
<0.3 U	<0.2 U	<0.2 U	<0.2 U	-	<0.4 U	02-oct-96
						832-19
<0.3 U	<0.2 U	<0.2 U	<0.2 U	-	<0.4 U	02-oct-96
						832-21
<0.3 U	<0.2 U	<0.2 U	<0.2 U	-	<0.4 U	03-oct-96
<0.3 U	<0.2 U	<0.2 U	<0.2 U	-	<0.4 U	03-oct-96
-	-	-	-	-	-	03-oct-96
<0.3 U	<0.2 U	<0.2 U	<0.2 U	-	<0.4 U	03-oct-96
						832-22
<0.3 U	<0.2 U	<0.2 U	<0.2 U	-	<0.4 U	04-oct-96
<0.3 U	<0.2 U	<0.2 U	<0.2 U	-	<0.4 U	04-oct-96
<0.3 U	<0.2 U	<0.2 U	<0.2 U	-	<0.4 U	04-oct-96
<0.3 U	<0.2 U	<0.2 U	<0.2 U	-	<0.4 U	04-oct-96
						SVI-830-031
<0.3 U	<0.2 U	<0.2 U	<0.2 U	-	<0.4 U	17-sep-96
<0.3 U	<0.2 U	<0.2 U	<0.2 U	-	<0.4 U	19-sep-96
<0.3 U	<0.2 U	<0.2 U	<0.2 U	-	<0.4 U	19-sep-96
<0.3 U	<0.2 U	<0.2 U	<0.2 U	-	<0.4 U	19-sep-96
						SVI-830-032
<0.3 U	<0.2 U	<0.2 U	<0.2 U	-	<0.4 U	18-sep-96
<0.3 U	<0.2 U	<0.2 U	<0.2 U	-	<0.4 U	18-sep-96
<0.3 U	<0.2 U	<0.2 U	<0.2 U	-	<0.4 U	18-sep-96
-	-	-	-	-	-	18-sep-96
<0.3 U	<0.2 U	<0.2 U	<0.2 U	-	<0.4 U	18-sep-96
<0.3 U	<0.2 U	<0.2 U	<0.2 U	-	<0.4 U	18-sep-96
						SVI-830-033
<0.3 U	<0.2 U	<0.2 U	<0.2 U	-	<0.4 U	18-sep-96
-	-	-	-	-	-	18-sep-96
<0.3 U	<0.2 U	<0.2 U	<0.2 U	-	<0.4 U	19-sep-96
<0.3 U	<0.2 U	<0.2 U	<0.2 U	-	<0.4 U	19-sep-96
<0.3 U	<0.2 U	<0.2 U	<0.2 U	-	<0.4 U	19-sep-96
						SVI-830-035
<0.3 U	<0.2 U	<0.2 U	<0.2 U	-	<0.4 U	20-sep-96
<0.3 U	<0.2 U	<0.2 U	<0.2 U	-	<0.4 U	20-sep-96
<0.75 UD	<0.5 UD	<0.5 UD	<0.5 UD	-	<1 UD	20-sep-96
-	-	-	-	-	-	20-sep-96
<0.75 UD	<0.5 UD	<0.5 UD	<0.5 UD	-	<1 UD	20-sep-96

Table A-25. VOCs in soil vapor (active vacuum induced) (ppm v/v), Building 832 Canyon OU.

Location	Lab	Val.	Depth	1,1-	cis-	trans-	Total			
Date	Note	(ft)	DCE	1,2-	1,2-	1,2-	1,2-	TCE	PCE	1,1-
				DCE	DCE	DCE	DCE			DCA
SVV-830-049										
04-oct-96	MO a	V	5.5	<0.2 U	-	<0.3 U	-	<0.2 U	<0.2 U	<0.2 U
SVV-832-020										
02-oct-96	MO a	V	4.5	<0.2 U	-	<0.3 U	-	<0.2 U	<0.2 U	<0.2 U

Results recorded by July 15, 1997.

1,2-DCA	1,1,1-TCA	Chloroform	Freon 11	Freon 113	Methylene chloride	Location Date
<0.3 U	<0.2 U	<0.2 U	<0.2 U	-	<0.4 U	SVV-830-049 04-oct-96
<0.3 U	<0.2 U	<0.2 U	<0.2 U	-	<0.4 U	SVV-832-020 02-oct-96

See following page for notes

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 well 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

Lab Codes:

EC LLNL Environmental Chemistry 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

## **Attachment B**

### **VOC Inhalation Risk at the Building 830 and 832 Areas Presentation View Graphs**

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**VOC Inhalation Risk  
at the  
Building 830 and 832 Areas**

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**Presented to the  
Remedial Program Managers' Meeting  
March 20, 1997  
Environmental Restoration Program and Division**

## Introduction

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- Flux chamber and ambient air samples were collected at the Buildings 830 and 832 areas during July and August, 1996.
- We have provided a short write-up of the methodology used, as well as tables of all analytical and field data.
- Flux chamber methodology was identical to that used at the GSA OU.

## Introduction (cont'd)



- In order to save time and simplify the analysis, to evaluate the resulting data, we compared the exposure point concentrations to PRGs. If PRGs were exceeded, we calculated the expected risk for that single data point using the Adult On-site (AOS) exposure scenario developed in the SWRI.



## Maximum Estimated Exposure-point Concentrations in Outdoor Air for Building 830 based upon Soil Vapor Flux Chamber Measurements



Analyte	Maximum Measured Flux [ $\mu\text{g}/(\text{m}^2 \cdot \text{sec})$ ] <sup>a</sup>	Exposure-Point Concentration (ppb <sub>v/v</sub> ) <sup>b</sup>	EPA Region IX PRGs (ppb <sub>v/v</sub> )
Vinyl chloride	<0.0010	<3.46E-03	8.59E-03
1,1-Dichloroethene	<0.0015	<3.46E-03	9.56E-03
Freon 113	<0.0030	<3.46E-03	4.04E+03
Methylene Chloride	0.0157 <sup>b</sup>	4.02E-02	1.18E+00
<i>cis</i> -1,2-Dichloroethene	<0.0015	<3.46E-03	9.31E+00
Chloroform	<0.0019	<3.46E-03	1.72E-02
1,2-Dichloroethane	<0.0016	<3.46E-03	1.82E-02
Trichloroethene	0.0032 <sup>c</sup>	5.22E-03	2.04E-01
1,2-Dichloropropane	<0.0018	<3.46E-03	2.14E-02
1,1,2-Trichloroethane	<0.0021	<3.46E-03	2.19E-02
Tetrachloroethene	<0.0026	<3.46E-03	4.85E-01
<i>trans</i> -1,2-Dichloroethane	<0.0062	<1.40E-02	1.84E+01

a Maximum calculated flux from isolation flux chamber measurements collected during July and August, 1996.

b Compound detected in chamber blanks.

c Location 3SF-B830-013

## Maximum Estimated Exposure-Point Concentrations in Outdoor Air for Building 832 based upon Soil Vapor Flux Chamber Measurements



Analyte	Maximum Measured Flux [ $\mu\text{g}/(\text{m}^2 \cdot \text{sec})$ ] <sup>a</sup>	Exposure-Point Concentration (ppb <sub>v/v</sub> )	EPA Region IX PRGs (ppb <sub>v/v</sub> )
Vinyl chloride	<0.0010	<6.87E-03	8.59E-03
1,1-Dichloroethene	<0.0015	<6.87E-03	9.56E-03
Freon 113	<0.0030	<6.87E-03	4.04E+03
Methylene Chloride	0.0073 <sup>b</sup>	3.71E-02	1.18E+00
<i>cis</i> -1,2-Dichloroethene	<0.0015	<6.87E-03	9.31E+00
Chloroform	<0.0019	<6.87E-03	1.72E-02
1,2-Dichloroethane	<0.0016	<6.87E-03	1.82E-02
Trichloroethene	<0.0021	<6.87E-03	2.04E-01
1,2-Dichloropropane	<0.0018	<6.87E-03	2.14E-02
1,1,2-Trichloroethane	<0.0021	<6.87E-03	2.19E-02
Tetrachloroethene	<0.0026	<6.87E-03	4.85E-01
<i>trans</i> -1,2-Dichloroethane	<0.0062	<2.77E-02	1.84E+01

a Maximum calculated flux from isolation flux chamber measurements collected during July and August, 1996.

b Compound detected in chamber blank.

# Detection limits (DL) for Ambient Air Samples and PRG comparison in ppb<sub>v/v</sub>



Analyte	DL Range	PRG
<b>Vinyl chloride</b>	<b>0.033 - 0.055</b>	<b>0.009</b>
<b>1,1-Dichloroethene</b>	<b>0.033 - 0.055</b>	<b>0.010</b>
Freon 113	0.033 - 0.055	4036
Methylene chloride	0.033 - 0.055	1.178
<i>cis</i> -1,2-Dichloroethene	0.033 - 0.055	9.312
<b>Chloroform</b>	<b>0.033 - 0.055</b>	<b>0.017</b>
<b>1,2-Dichloroethane</b>	<b>0.082 - 0.14</b>	<b>0.018</b>
Trichloroethene	0.033 - 0.055	0.204
<b>1,2-Dichloropropane</b>	<b>0.082 - 0.14</b>	<b>0.021</b>
<b>1,1,2-Trichloroethane</b>	<b>0.033 - 0.055</b>	<b>0.022</b>
Tetrachloroethene	0.033 - 0.055	0.485
<i>trans</i> -1,2-Dichloroethene	0.033 - 0.055	18.372

Bold text represent compounds with detection limits greater than Preliminary Remediation Goals.

# Building 830 Indoor Ambient Air Results for Location 3AA-B830-001



Analyte	Air Concentration (ppb <sub>v/v</sub> )		PRG (ppb <sub>v/v</sub> )	Risk using CA CPF <sup>b</sup>	Risk using EPA CPF <sup>b</sup>	TLV/PEL <sup>c</sup> (ppb <sub>v/v</sub> )
	8/13/96	8/14/96				
Vinyl chloride	0.14	<0.042	0.009	2.3E-06	2.507E-06	1000 <sup>d</sup>
Freon 113	0.15	0.1	4036	NC	NC	1000000 <sup>de</sup>
Methylene chloride	0.5 <sup>a</sup>	0.48 <sup>a</sup>	1.178	NC	NC	25000 <sup>d</sup>
Trichloroethene	0.21	0.043	0.204	2.60E-07	1.59E-07	50000 <sup>e</sup>

a This analyte was detected in the method blank.

b Risk calculated using SWRI AOS exposure pathway, CPF = Cancer Potency Factor

c The lowest value was reported when different.

d OSHA PEL

e ACGIH TLV

NC Not calculated because the detection was below the PRG.

# Building 832 Indoor Ambient Air Results for Location 3AA-B832-001



Analyte	Air Concentration (ppb <sub>v/v</sub> )		PRG (ppb <sub>v/v</sub> )	Risk using		TLV/PEL <sup>d</sup> (ppb <sub>v/v</sub> )
	8/6/96 <sup>a</sup>	8/7/96		CA CPF <sup>c</sup>	EPA CPF <sup>c</sup>	
Freon 113	0.13 (0.14)	0.16	4036	NC	NC	1000000 <sup>ef</sup>
Methylene chloride	0.29 <sup>b</sup> (0.32 <sup>b</sup> )	0.31 <sup>b</sup>	1.178	NC	NC	25000 <sup>e</sup>
Chloroform	0.042 (0.041 <sup>J</sup> )	0.064	0.017	1.10E-07	4.53E-07	10000 <sup>f</sup>
Trichloroethene	<0.042 (<0.050)	0.048	0.204	NC	NC	50000 <sup>f</sup>
1, 2-Dichloropropane	0.37 (0.36)	0.43	0.021	2.60E-06	2.84E-06	75000 <sup>ef</sup>
Tetrachloroethene	<0.042 (<0.050)	0.037	0.485	NC	NC	25000 <sup>f</sup>

a Laboratory duplicate results in parenthesis.

b This analyte was detected in the method blank.

c Risk calculated using SWRI AOS exposure pathways; CPF = Cancer Potency Factor

d The lowest value was reported when different.

e OSHA PEL

f ACGIH TLV

J The data was qualified with the flag "J" when a compound was positively identified, but the concentration is estimated.

NC Not calculated because the detection was below the PRG.

# Building 832 Outdoor Ambient Air Results



Analyte	Air Concentration <sup>a</sup> (ppb <sub>v/v</sub> )		PRG (ppb <sub>v/v</sub> )
	8/6/96	8/7/96	
Freon 113	0.089	0.096	4036
Methylene chloride	0.24 <sup>b</sup>	0.32 <sup>b</sup>	1.178

Analyte	Air Concentration <sup>c</sup> (ppb <sub>v/v</sub> )		PRG (ppb <sub>v/v</sub> )
	8/6/96	8/7/96	
Freon 113	0.088	0.098	4036
Methylene chloride	0.26 <sup>b</sup>	0.33 <sup>b</sup>	1.178

Analyte	Air Concentration <sup>d</sup> (ppb <sub>v/v</sub> )		PRG (ppb <sub>v/v</sub> )
	8/6/96	8/7/96	
Freon 113	0.1	0.1	4036
Methylene chloride	0.24 <sup>b</sup>	0.74 <sup>b</sup>	1.178

- a Air concentration for location 3AA-B832-002
- b This analyte was detected in the method blank
- c Air concentration for location 3AA-B832-003
- d Air concentration for location 3AA-B832-004

# Building 830 Outdoor Ambient Air Results for Location 3AA-B830-002



Analyte	<u>Air Concentration</u> (ppb <sub>v/v</sub> )		PRG (ppb <sub>v/v</sub> )	Risk using	Risk using
	8/13/96 <sup>a</sup>	8/14/96		CA CPF <sup>c</sup>	EPA CPF <sup>c</sup>
Freon 113	0.11 (0.11)	0.096	4036	NC	NC
Methylene chloride	0.59 <sup>b</sup> (0.62 <sup>b</sup> )	0.038 <sup>b</sup>	1.178	NC	NC
Trichloroethene	0.14 (0.14)	0.26	0.204	3.30E-07	1.97E-07

a Laboratory duplicate results in parenthesis.

b This analyte was detected in the method blank.

c Risk calculated using SWRI AOS exposure pathways; CPF = Cancer Potency Factor.

NC Not calculated because the detection was below the PRG.

# Building 830 Outdoor Ambient Air Results for Location 3AA-B830-003

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Analyte	Air Concentration (ppb <sub>v/v</sub> )		PRG (ppb <sub>v/v</sub> )
	8/13/96	8/14/96	
Freon 113	0.11	0.1	4036
Methylene chloride	0.35 <sup>a</sup>	0.36 <sup>a</sup>	1.178

<sup>a</sup> This analyte was detected in the method blank.



# Building 830 Outdoor Ambient Air Results for location 3AA-B830-004



Analyte	Air Concentration (ppb <sub>v/v</sub> )		PRG (ppb <sub>v/v</sub> )	Risk using CA CPF <sup>b</sup>	Risk using EPA CPF <sup>b</sup>
	8/13/96	8/14/96			
Vinyl chloride	0.091	<0.035	0.009	1.50E-06	1.63E-06
Freon 113	0.1	0.1	4036	NC	NC
Methylene chloride	0.42 <sup>a</sup>	0.23 <sup>a</sup>	1.178	NC	NC
Chloroform	0.49	<0.035	0.017	1.10E-06	4.53E-06
1,2-Dichloroethane	0.41	<0.088	0.018	2.7E-06	3.53E-06
Trichloroethene	0.062	0.066	0.204	NC	NC
Tetrachloroethene	0.072	<0.035	0.485	NC	NC

a This analyte was detected in the method blank.

b Risk calculated using SWRI AOS exposure pathways; CPF = Cancer Potency Factor.

NC Not calculated because the detection was below the PRG.

## VOC Inhalation Risk at the Buildings 830 and 832 Areas Summary

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- Exposure point concentrations calculated from flux data are below PRGs
- Those ambient air concentrations detected above PRGs are between  $1.97E-07$  and  $4.53E-06$  risk using the SWRI AOS scenario
- Ambient air concentrations are probably representative of local background

## **Attachment C**

### **Air Sampling and Modeling Protocol for the Building 830 and 832 Areas**

## Attachment C

# Air Sampling and Modeling Protocol for the Buildings 830 and 832 Areas

Measurements of volatile organic compound (VOC) soil flux were made in the Building 832 operable unit (OU) at Buildings 830 and 832 using the emission isolation flux chamber methodology. Samples were collected in SUMMA™ canisters as recommended by the U.S. Environmental Protection Agency (EPA, 1986). To estimate outdoor exposure-point concentrations of VOCs in air, an exposure model must be applied that utilizes the measured VOC soil flux. The modeled ambient outdoor concentrations may then be used to estimate the potential hazard and risk from inhalation of these compounds. This attachment provides a detailed description of the following:

- Emission isolation flux chamber methodology.
- Field and laboratory quality assurance/quality control (QA/QC) data.
- B832 OU sampling protocol.
- Calculation methods and pertinent field data.
- Values for VOC soil flux measured at individual sample locations.
- Estimation of exposure-point concentrations in ambient air.

### C-1. Emission Isolation Flux Chamber Methodology and Results

The emission isolation flux chamber technique is applicable to the measurement of air emission rates at the ground surface from the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) at waste sites where contaminants have been released to the surface or subsurface (U.S. EPA, 1986). The emission isolation flux chamber technique is listed as the preferred testing technique for the direct measurement of VOC vapor emission by the U.S. EPA in the *Air/Superfund Technical Guidance Series* (U.S. EPA, 1990).

#### C-1.1. Description of VOC Soil Flux Measurement Protocol

The emission isolation flux chamber methodology used at Lawrence Livermore National Laboratory (LLNL) is based on U.S. EPA guidance (U.S. EPA, 1986) and follows the ERD Standard Operating Procedure, SOP 1-11, "Soil Surface Flux Monitoring of Gaseous Emissions" (Dibley and Depue, 1995). The emission isolation flux chamber is placed on the ground surface, and VOC soil flux emissions enter the open bottom of the chamber. Clean dry sweep air is added into the chamber at a metered rate. Within the chamber a fan mixes the sweep air with emitted VOC vapors. When the concentration of the VOC soil flux emissions and the sweep air reaches equilibrium, a sample is collected in a SUMMA™ canister for analysis. VOC flux (emission/area-time) from the soil surface is then calculated from the VOC vapor concentration using the following formula:

$$F = \frac{Q_{\text{sweep}} \cdot C_{\text{SUMMA}}^{\text{TM}}}{A_{\text{chamber}}} \quad (\text{Equation C-1})$$

where

F = VOC soil flux ( $\mu\text{g}/(\text{m}^2 \cdot \text{sec})$ ),

$Q_{\text{sweep}}$  = Sweep flow rate ( $\text{m}^3/\text{sec}$ ),

$C_{\text{SUMMA}}^{\text{TM}}$  = VOC vapor concentration in SUMMA<sup>TM</sup> canister sample ( $\mu\text{g}/\text{m}^3$ ), and

$A_{\text{chamber}}$  = Surface area enclosed by the chamber ( $\text{m}^2$ ).

### **C-1.1.1. Flux Chamber Operation**

The emission isolation flux chamber system is composed of three parts: 1) the chamber, 2) the sweep air controller and data logger, and 3) the sampling system. The flux chamber contains a fan to circulate air and a thermistor to measure the chamber temperature. Three emission isolation flux chambers have been constructed by LLNL (Martins, 1993). Each chamber encloses a surface area of approximately  $0.122 \text{ m}^2$  and a total volume of about 27 liters (L) ( $0.027 \text{ m}^3$ ).

The sweep air controller and data logger contains a metering pump, two rotometers used to measure air flow into and out of the chamber, a battery, and the associated electronics required for chamber control and data acquisition. The metering pump and two rotometers are used to control air flow in and out of the chamber to maintain a negligible pressure differential across the chamber. The chamber controller is connected to an external data logger that acquires temperature and pressure data.

When the flux chamber is in operation, ultra-pure "zero air" is metered into the chamber using a pressure regulator and the first rotometer. At approximately the same rate, air is pulled from the chamber through the second rotometer using the pump in the chamber controller. Both rotometers are adjusted to achieve a net pressure drop of zero ( $\pm 0.1 \text{ in. H}_2\text{O}$ ) between the inside and the outside of the chamber. An air flow rate of about 3 L/minute (min) is used to achieve a chamber air residence time of approximately 10 min. A minimum of 30 min is required for the sweep air to reach a steady-state concentration with the VOC soil flux emissions. At that time, the effluent sweep air pump is turned off and an evacuated SUMMA<sup>TM</sup> canister is used to withdraw a vapor sample at approximately the same air flow rate (3 L/min).

### **C-1.1.2. Equipment Calibration**

The emission isolation flux chamber sampling equipment was calibrated according to the ERD SOP 1-11 (Dibley and Depue, 1995). Calibrations were verified for all flux chambers and associated equipment between November 19, 1996 and December 9, 1996. These calibrations include all Dwyer rotometers on each flux chamber control box (FCCB) as well as the measurement of flux-chamber recovery rates.

**C-1.1.2.1. Rotometer Calibration.** All rotometers were calibrated under field conditions. Zero air was used to calibrate units that control zero air. Units used to control return air flow were calibrated from the FCCB's internal air pump.

The displacement method was used for these calibrations. A one-L graduated cylinder was filled with water, covered, and inverted in a water bath. Once under water, the cover was removed from the cylinder. The desired flow rate for the test was set on the rotometer undergoing the test and flow was started. A 1/4-in. plastic tube connected to the rotometer was placed in the cylinder at the same time a timer was started. After about 15 to 20 sec, the tube was removed from the cylinder and the elapse time was noted. The volume of displaced water was then recorded and the observed flow rate was calculated by dividing this volume by the elapsed time. At least 5 observations were made for each rotometer. When all data were collected, linear regression analysis was performed with data pairs composed of the observed flow rate and the flow-rate set point. These results may be seen in Table C-1.

The constant (b) and the X Coefficient (m) listed in Table C-1 were used to corrected flow rates listed on the field log sheets using the formula:

$$y = mx + b \quad \text{(Equation C-2)}$$

where x is the recorded flow rate, m is the X Coefficient, b is the constant listed in Table C-1, and y is the corrected flow rate.

**C-1.1.2.2. Flux Chamber Calibration.** Each flux chamber was set up on the chamber-blank stainless-steel sheet. In order to eliminate rotometer flow-rate calibration as a variable, only FCCB 3 was used in these tests. A tank of stock gas containing 48 parts per million by volume (ppm<sub>v</sub>) of 1,1,1-trichloroethane (1,1,1-TCA) was obtained for this test. This gas was metered into each flux chamber with a mass-flow meter rated at 0 to 10 SCCM (cm<sup>3</sup>/min at standard temperature and pressure). The mass-flow meter was controlled by an Octagon SBS2300 single board computer.

The mass-flow meter was calibrated during the course of these studies using the displacement method. The observed flow rate was calculated by dividing the volume of water displaced from a 100 mL graduated cylinder by the elapsed time. Linear regression analysis was performed with data pairs composed of the observed flow rate and the flow-rate set point in D/A (digital to analog) units. The D/A units represent the voltage of a signal that is used by the mass flow controller to control gas flow rates.

Flux measurements were made using methods detailed in ERD SOP 1-11 (Dibley and Depue, 1995). A theoretical flux rate was calculated under each condition by multiplying the standard gas flow rate in m<sup>3</sup>/min by the concentration of the standard gas in mg/m<sup>3</sup> and dividing by the base area of the flux chamber. The observed flux rate was calculated using the method detailed in SOP 1-11. The percent recovery was then calculated by dividing the observed flux rate by the theoretical flux rate. These data are listed in Table C-2.

At one point in these tests, the return-air pump was inadvertently left on during sampling. In this case, the sweep-air rate was adjusted with a time-weighted average of the initial sweep rate and the final sweep rate plus the sample flow rate.

### **C-1.1.3. Field and Laboratory QA/QC**

The VOC soil flux measurement protocol we developed for the Building 830 and 832 surveys met or exceeded all data quality objectives recommended by the U.S. EPA (1986).

1. Field blank samples (chamber blanks) were collected at a frequency of one per chamber per day. However, field blanks were not collected from Chamber 2 on August 14, 1996, or Chambers 1 and 3 on August 15, 1996, in the Building 830 area. In addition, no field blanks were collected on August 7, 1996, in the Building 832 area. When field blank data does not exist for a chamber on a particular day of sampling, the data is qualified using the previous day's chamber blank results. Collection of field blank samples for emission isolation flux chambers consisted of placing the chamber over a clean surface and running a test using ultra-pure sweep air under routine operating conditions.
2. Collocated samples (field duplicates) were collected at a frequency of one per day. A collocated samples was not collected on August 7, 1996, in the Building 832 area. The collocated samples were collected consecutively in two separate SUMMA™ canisters using the same flux chamber. The locations for duplicate samples were selected in the field.
3. One control point location was sampled at two different times during the diurnal cycle. These times were chosen near the maximum and minimum diurnal temperatures. The control point samples were also collected from those locations where we expected to measure the highest VOC soil vapor flux.
4. A SUMMA™ canister of the zero air was collected and analyzed with the introduction of each new gas cylinder. The results of the zero air analyses are displayed in Table C-3. Unused SUMMA™ canisters were used as trip blanks and sent to the laboratory for analysis.
5. A field sample log sheet was completed for each sample collected. All relevant parameters were recorded on the sample log sheet: sample location and number, chamber number, sweep flow rate, ambient and chamber air temperature, and sample start and stop time. A daily field log was also completed, noting field conditions of interest.
6. For each sample collected, proper sample labeling was completed using indelible ink. Sample ID, sampler initials, and date were recorded on the sample label. Formal chain-of-custody procedures, as described in our standard operating procedures (Dibley and Depue, 1995), were followed by all field personnel. SUMMA™ canister samples were delivered to a certified analytical laboratory within 48 hr of the time collected, and were analyzed for VOCs using EPA method TO-14. A short list of analytes was requested based on the contaminants of concern for the areas and consisted: vinyl chloride; 1,1-dichloroethene (1,1-DCE); Freon 113; methylene chloride; *cis*-1,2-dichloroethene (*cis*-1,2-DCE); chloroform; 1,2-dichloroethane (1,2-DCA); trichloroethane (TCE), 1,2-dichloropropane (1,2-DCP), 1,1,2-trichloroethane (1,1,2-TCA), tetrachloroethane (PCE); *trans*-1,2-dichloroethene (*trans*-1,2,-DCE). The range of detection limits for individual VOC compounds in field vapor samples was 0.7 to 0.83 ppb<sub>v</sub>. The ambient air samples were analyzed using a modified EPA TO-14 as Selective Ion Monitoring to achieve the lower detection limits of 0.082 to 0.14 ppb<sub>vv</sub> for 1,2-DCA and 1,2-DCPa and detection limits of 0.033 to 0.055 ppb<sub>vv</sub> for all other analytes.
7. The laboratory reported full QA/QC results, including results from lab blanks, spike, and duplicate analyses. The laboratory performed a laboratory blank, laboratory spike, and sample duplicate analyses with each analytical batch.

#### **C-1.1.4. 1996 Sampling Activities**

The primary goal of the air sampling was to collect adequate data to determine the 95% upper confidence limit of the mean surface soil flux emission rates for use in subsequent risk assessment for the Building 830 and 832 areas. The sampling strategies as implemented are outlined below for each of the sampling areas. The areas addressed (Buildings 830 and 832) are located in the same valley and are assumed to share similar meteorological conditions and potential background concentrations. A meteorological tower was erected during sampling activities to record temperature, wind speed, and wind direction data. Site-specific meteorological data was correlated with data from the LLNL Site 300 meteorological tower to address seasonal meteorological variations and assure that final exposure-point calculations are representative of average conditions. Figures C-1 through C-4 show the wind roses for each day of sampling.

**C-1.1.4.1. Building 830 Sampling Activities.** Investigation data and historic accounts collected for the Building 830 complex area indicate that soil in the immediate vicinity of Building 830 complex is contaminated with TCE. The source of the contamination is thought to be leaks from the TCE brine distribution system and from releases to the septic system and the HE drain trench which drained to the former disposal lagoon. Boring logs indicate that TCE is present primarily in shallow soil but is found at over 30 ft below ground surface in the vicinity of Building 830. Residual TCE DNAPL may also be present. Air sampling in the vicinity of Building 830 was designed to collect adequate data to determine the 95% upper confidence limit of the mean surface soil flux emission rates for use in subsequent risk calculations.

Because VOC contamination may be the result from direct surface spills or diffuse releases, exposure-point concentrations in the vicinity of Building 830 may result from both hot spots in the vicinity of past spill area and from diffuse area sources. To address these potential VOC sources, the air sampling was divided into five phases:

1. *Hot spots:* Emissions from the level area surrounding Building 830 complex may result from volatilization of shallow VOCs from past spills or from volatilization of VOCs present in deeper soils. The level area is for the most part paved, and it is hypothesized that in those areas not directly impacted by a surface spill, the highest emissions would be along the unpaved strip surrounding the level area (Fig. C-5). Therefore, soil vapor flux samples were collocated at or near PETREX survey points and soil borings indicating known hot spots (samples 3SF-B830-10 and 13), placed at regular interval along the unpaved strip surrounding the level area (samples 3SF-B830-1, 2, 3, 4, 5, 9, 12, and 14), within the disposal lagoon (sample 3SF-B830-11) and in the area of the septic tank leach field (sample 3SF-B830-07). One soil vapor flux sample was collected over an area of pavement away from known surface spills and assumed to be representative of soil vapor flux through the pavement resulting from volatilization of VOCs present in deeper soils (sample 3SF-B830-06). The total number of soil vapor flux samples collected from the leveled area surrounding Building 830 (10 samples) was calculated based upon the surface area necessary to provide adequate data to determine the 95% upper confidence limit of the mean surface soil flux emission rates as recommended in the Air/Superfund Technical Guidance Series, Volume II (EPA 1990).
2. *Ambient air:* Three integrated air samples were collected using SUMMA canisters to provide additional validation of exposure-point concentrations in the vicinity of Building 830. The duration of each sample collection was approximately 8 hr. One



sample was taken behind Building 830 near the doorway to test cells #1 and 2 (at the building outfall to the HE drain trench) where ambient air concentrations would be expected to be highest as a result of the proximity to known hot spots and where air mixing is expected to be minimized in a covered area between Building 830 and the berm to the immediate north (sample 3AA-B830-002). A second sample was collected west-southwest of the building to represent the most likely outdoor exposure point (sample 3AA-B830-003). This sample also provided validation of VOC exposure point contributions from the disposal lagoon and septic tank leach field. The third sample was collected upwind from all Building 830 sources addressed in this sampling plan to provide a measure of the contribution of source areas not addressed in this sampling plan (sample 3AA-B830-004). The integrated air sample time was concurrent with our other sampling efforts to aid in validating soil vapor flux measurements and exposure-point modeling. Indoor samples were also collected inside Building 830 that is used as a storage area (sample 3AA-830-001).

3. *Disposal lagoon/leachfield/wash*: A stratified random sampling approach was used, in which sampling zones were determined based upon existing data and the number of samples was calculated based upon the area of the zones. A sampling zone from the edge of the pavement at Building 830 down the wash to the culvert under the road was outlined based upon prevailing winds and existing characterization data, and was treated as an area source of VOC emissions. The minimum total number of soil vapor flux samples collected from the Building 830 sampling zone was calculated based upon the sampling zone area to provide adequate data to determine the 95% upper confidence limit of the mean surface soil flux emission rates. This calculated flux rate was then used to calculate the contribution to exposure-point concentrations in the immediate vicinity of Building 830. A total of ten samples were collected in the wash below Building 830 and are shown on Figure C-5 (samples 3SF-B830-7, 8, 9, 11, 15, 16, 17, 18, 19, and 20).
4. Based upon PETREX data, the valley floor to the west of the road may also be a source of soil vapor flux. Since this area is not well characterized, a comprehensive evaluation of soil vapor flux from the valley floor would require gridding a very large sampling area and collecting a number of samples that would be disproportional to the expected contribution to ambient levels of VOCs. Therefore, soil vapor flux sampling on the valley floor was limited to collocating three flux chamber measurements at suspected hot spots (samples 3SF-B830-21, 22, and 23).

**C-1.1.4.2. Building 832 Sampling Plan.** Investigation data and historic accounts collected for the Building 832 area indicate that soil in the immediate vicinity of Building 832 is contaminated with TCE. The source of the contamination is thought to be leaks from the TCE brine distribution system, transfer and handling related spills, and possibly from releases to the septic system. Boring logs indicate that TCE is present in both shallow and deep soil. Residual TCE DNAPL may also be present. Air sampling in the vicinity of Building 832 was designed to collect adequate data to determine the 95% upper confidence limit of the mean surface soil flux emission rates for use in subsequent risk assessment.

Because VOC contamination may be the result from direct surface spills (TCE brine system leaks or storage/transport spills) or diffuse releases (releases to the septic system), exposure-point concentrations in the vicinity of Building 832 may result from both hot spots in the vicinity of past

spill area and from diffuse area sources. To address these potential VOC sources, the air sampling was divided into five phases:

1. *Hot spots:* Emissions from the level area surrounding Building 832 may result from volatilization of shallow VOCs from past spills or from volatilization of VOCs present in deeper soils. The level area is for the most part paved, and it is hypothesized that in those areas not directly impacted by a surface spill, the highest emissions would be along the unpaved strip and bermed areas surrounding the level area. Soil vapor flux samples were collocated at or near: (1) PETREX survey points and soil borings indicating known hot-spots (samples 3SF-832-011, 012, and 013), (2) placed at regular intervals along the unpaved strip surrounding the level area (samples 3SF-832-001, 002, 003, 009, 010, 016, and 017), (3) between the test cell area and the control room where historic spills were documented (samples 3SF-832-014 and 015), and (4) in the area of the septic tank leach field (sample 3SF-832-004). One soil vapor flux sample was collected over an area of pavement away from known surface spills and assumed to be representative of soil vapor flux through the pavement resulting from volatilization of VOCs present in deeper soil (sample 3SF-832-018). The minimum total number of soil vapor flux samples collected from the level area surrounding Building 832 (4 samples) was calculated based upon the surface area necessary to provide adequate data to determine the 95% upper confidence limit of the mean surface soil flux emission rates as recommended in the Air/Superfund Technical Guidance Series, Volume II (EPA 1990).
2. *Ambient air:* Three integrated air samples were collected using SUMMA™ canisters to provide additional validation of exposure-point concentrations in the vicinity of Building 832. The duration of each sample collection was approximately 8 hr. One sample was taken between the test cell area and the control room where ambient air concentrations were expected to be highest as a result of the proximity to known hot spots and where air mixing is expected to be minimized between the two buildings (sample 3AA-832-002). A second sample was collected south of the building currently used most regularly as office space to represent the most common outdoor exposure point (sample 3AA-832-003). This sample provided validation of VOC exposure-point contributions from the septic tank leach field and valley to the south. The third sample was collected on the berm above Building 838 upwind from all Building 832 sources to provide a measure of the contribution of source areas not addressed in this sampling plan (sample 3AA-832-004). The integrated air sample time was concurrent with our other sampling efforts to aid in validating soil vapor flux measurements and exposure-point modeling. Indoor samples were also collected inside Building 832F which is used regularly as offices (sample 3AA-832-001).
3. *Leachfield/valley:* A stratified random sampling approach was used in which sampling zones are determined based upon existing data, and the number of samples is calculated based upon the area of the zones. A sampling zone from the edge of the pavement at Building 832 down the valley to the level area in the vicinity of monitor wells W-832-01 and W-832-09 was outlined based upon prevailing winds and existing characterization data, and treated as an area source of VOC emissions. A total of five samples were collected to characterize the sampling zone (samples 3SF-830-004, 005, 006, 007, and 008).

The locations where flux and ambient air samples were collected are shown in Figure C-6.

### C-1.2. Field Data and VOC Analyses

Ambient air field data and VOC concentrations in ambient air samples are presented in Tables C-4 and C-5, respectively.

Emission isolation flux chamber field data from sample log sheets are presented in Table C-6. Rotometer settings recorded in the field are noted together with their corrected values, based upon rotometer calibrations data described above and presented in Table C-1.

The measured flux chamber effluent concentrations are presented in Table C-7. VOC soil vapor flux calculations for each sample location are presented in Table C-8. VOC soil vapor flux was calculated using Equation C-1, using the following parameters:

$Q_{\text{sweep}}$  = Sample specific, corrected sweep flow rate from Table C-3, converted to units of  $\text{m}^3/\text{sec}$ .

$C_{\text{SUMMA}}^{\text{TM}}$  = Sample specific VOC SUMMA<sup>TM</sup> canister vapor concentration from Table C-7, converted to units of  $\mu\text{g}/\text{m}^3$ .

$A_{\text{chamber}}$  = Surface area enclosed by the chamber,  $0.122 \text{ m}^2$ .

Blank samples provide a measure of contamination that may have been introduced to the data set by the emission isolation flux chamber system. To prevent the inclusion of non site-related contaminants in a risk assessment, U.S. EPA guidance advises that the concentration of chemicals detected in blank samples must be compared with concentrations of the same chemicals detected in site samples (U.S. EPA, 1989). Soil vapor flux measurements from individual VOC analyses should be included in a risk assessment only if the VOC concentration exceed five times the maximum VOC concentration detected in any blank sample. VOC concentrations less than five times the maximum VOC concentration detected in any blank sample normally would be treated as non-detections.

For example, the flux chamber blanks routinely contained methylene chloride. However, all soil vapor flux samples had a methylene chloride concentration less than five times the maximum concentration detected in the emission isolation flux chamber blanks. All ambient air samples also had a methylene chloride concentration less than five times the maximum concentration detected in the laboratory method blanks. Based on these data, we suspect that the emission isolation flux chamber system and the analytical laboratory are the source of this contamination. The U.S. EPA guidance would recommend that these data be treated as nondetections in the calculations of 95% UCLs and emission rates. Soil vapor flux chamber analytical results shown in Table C-7 were flagged with an "F" when the VOC was detected in a chamber blank sample. When a specific VOC was detected in the laboratory method blank for the ultra low detection limit T0-14 analysis used for the ambient air samples, the affected ambient air samples were flagged with a "B."

## C-2. Outdoor Air Exposure-Point Concentration Model and Parameters

To estimate exposure-point concentrations of VOCs in air, an exposure model was applied that uses measured values of VOC soil vapor flux to estimate ambient outdoor air concentrations. To estimate maximum plausible ambient outdoor air concentrations in the vicinity of Buildings 830 and 832, we used calculated maximum measured VOC soil vapor flux from each sampling zone as model inputs. To be conservative, where there were no detections, the emission rate was assumed to be the detection limit.

We applied a simple box model to estimate local exposure-point concentrations. This approach is applicable to the prediction of local short- and long-term exposure-point concentrations resulting from any area source. Because estimated exposure-point concentrations in outdoor air are intended only for receptors in the immediate vicinity of Buildings 830 and 832, standard air dispersion modeling methods cannot be used because these methods are intended to estimate exposure-point concentrations at larger distances from the source.

The box model used to estimate VOC exposure-point concentrations in outdoor air was taken from the recent American Society for Testing and Materials (ASTM) *Emergency Standard Guide for Risk-Based Corrective Action Applied at Petroleum Release Sites* (ASTM, 1995) and recommended by the U.S. EPA (1992).

$$C_{\text{outdoor}} = \frac{F \cdot L}{U_w \cdot H_m}, \quad (\text{Equation C-3})$$

where

$C_{\text{outdoor}}$  = VOC concentration resulting from the Buildings 830 and B832 area vapor source ( $\mu\text{g}/\text{m}^3$ ),

$F$  = Maximum observed VOC soil flux from the area source ( $\mu\text{g}/[\text{m}^2 \cdot \text{sec}]$ ),

$L$  = Maximum downwind length of the VOC emission source (m),

$U_w$  = Average wind speed within the mixing zone (2.25 m/sec) (ASTM default parameter), and

$H_m$  = Ambient air mixing zone height (2 m) (ASTM default parameter).

Although the ASTM box model is simple to apply, it is also very conservative, and is used as a screening method only. Actual air concentrations corresponding to measured VOC soil vapor flux emissions are expected to be lower than those estimated by application of this model. The maximum plausible downwind length of the vapor emission source was estimated based upon the estimated source area boundaries. The downwind length of the vapor emission sources was estimated to be 65 m and 120 m for Buildings 830 and 832, respectively. To be conservative, the wind speed and the mixing height used in the model are the default parameters cited in the ASTM guidance. The annual average wind speed reported for Site 300 is approximately 5.5 m/sec (Gallegos et al., 1993).

Estimated air exposure-point screening concentrations for outdoor air are presented in Table C-9. These exposure-point concentrations were calculated based on the data presented in Table C-8.

### C-3. References

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- U.S. EPA (1989), *Risk Assessment Guidance for Superfund. Vol. I: Human Health Evaluation Manual, Part A, Interim Final*, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency, Washington, D.C. (EPA 44015-86-001).
- U.S. EPA (1990), *Estimation of Baseline Emissions at Superfund Sites*, Air/Superfund Technical Guidance Series, Volume II, U.S. Environmental Protection Agency, Washington, D.C. (EPA-450/1-89-002a).
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- Webster-Scholten, C. P., Ed. (1994), *Final Site-Wide Remedial Investigation Report, Lawrence Livermore National Laboratory Site 300*, Lawrence Livermore National Laboratory, Livermore, Calif. (UCRL-AR-108131).

Table C-1. Flux chamber control box rotometer calibration results.

Parameter	Rotometer	
	Zero air	Return air
<i>Control box 3</i>		
Constant (b)	0.143529	-0.86
X Coefficient (m)	1.039216	1.233333
R Squared	0.861075	0.975071
N	5	5
<i>Control box 2</i>		
Constant (b)	-0.9	-0.3875
X Coefficient (m)	1.366667	1.0625
R Squared	0.915577	0.982993
N	5	5
<i>Control box 1</i>		
Constant (b)	0.5475	-1
X Coefficient (m)	0.904167	1.266667
R Squared	0.787257	0.996549
N	5	5

Table C-2. Flux chamber recovery rates.

Chamber	Date	Requested analysis	Observed flux ( $\mu\text{g}/\text{m}^2/\text{min}$ )	Theoretical flux ( $\mu\text{g}/\text{m}^2/\text{min}$ )	Percent recovery
1	12/09/96	TO-14	13.72	13.66	100%
	12/09/96	TO-14	5.58	6.49	86%
				Average	93%
2	12/09/96 <sup>a</sup>	TO-14	13.70	13.66	100%
	12/09/96 <sup>b</sup>	TO-14	5.61	6.49	86%
				Average	93%
3	12/09/96	TO-14	13.09	13.66	96%
	11/19/96	TO-14	6.85	6.50	105%
				Average	101%

<sup>a</sup> Thirty minutes of purge time instead of the 40 minutes called for in SOP 1-11.

<sup>b</sup> Return pump left on, flow rate adjusted.

Table C-3 Zero air concentrations in ppb<sub>v</sub>/v.

Location	Sample Date	Vinyl chloride	1,1-DCE	Freon 113	Methylene chloride	cis-1,2-DCE	Chloroform	1,2-DCA	TCE	1,2-DCPa	1,1,2-TCA	PCE	trans-1,2-DCE
3SF-ZAIR-01	7/29/96	<0.76	<0.76	<0.76	<0.76	<0.76	<0.76	<0.76	<0.76	<0.76	<0.76	<0.76	<3.0
3SF-ZAIR-02	7/29/96	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0
3SF-ZAIR-03	7/30/96	<0.68	<0.68	<0.68	<0.68	<0.68	<0.68	<0.68	<0.68	<0.68	<0.68	<0.68	<2.7
3SF-ZAIR-04	8/1/96	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71	<2.8
3SF-ZAIR-05	8/6/96	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<2.8
3SF-ZAIR-06	8/13/96	<0.72	<0.72	<0.72	1.7	<0.72	<0.72	<0.72	<0.72	<0.72	<0.72	<0.72	<2.9
3SF-ZAIR-07	8/14/96	<0.72	<0.72	<0.72	<0.72	<0.72	<0.72	<0.72	<0.72	<0.72	<0.72	<0.72	<2.9
3SF-ZAIR-08	8/15/96	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<2.8



Table C-4 Ambient air sampling field data.

Location	Date sampled	Sample start time	Sample stop time	Sample time (hr)	Wind speed <sup>a</sup> (m/s)			Ambient Temperatures <sup>b</sup> (deg C)		
					Start	End	Average	Start	End	Average
<b>Building 830</b>										
3AA-B830-001	8/13/96	8:33:00	15:20:00	6.78	0.4	3.1	1.9	32.2	37.8	35.0
3AA-B830-002	8/13/96	8:40:00	15:23:00	6.72	0.8	2.8	1.9	30.4	40.6	37.2
3AA-B830-002 <sup>a</sup>	8/13/96	8:40:00	15:23:00	6.72	0.8	2.8	1.9	30.4	40.6	37.2
3AA-B830-003	8/13/96	8:49:30	15:30:00	6.68	0.7	2.8	1.9	30.4	40.8	37.2
3AA-B830-004	8/13/96	9:57:00	15:36:00	5.65	0.6	2.5	1.9	32.4	42.2	37.2
3AA-B830-001	8/14/96	8:30:00	15:50:00	7.33	2.2	3.6	2.8	36.3	37.4	36.9
3AA-B830-002	8/14/96	8:43:00	15:59:00	7.27	2.6	3.6	2.8	39.0	39.8	38.6
3AA-B830-003	8/14/96	8:39:00	15:55:00	7.27	2.6	3.6	2.8	39.6	40.4	38.6
3AA-B830-004	8/14/96	8:48:00	15:43:00	6.92	2.6	3.6	2.8	42.2	40.8	38.6
<b>Building 832</b>										
3AA-B832-001	8/6/96	8:43:00	15:30:00	6.78	1.2	2.0	2.4	21.4	24.2	22.8
3AA-B832-001 <sup>a</sup>	8/6/96	8:43:00	15:30:00	6.78	1.2	2.0	2.4	21.4	24.2	22.8
3AA-B832-001	8/7/96	9:10:30	15:35:00	6.41	1.1	2.3	2.7	22.0	24.8	22.9
3AA-B832-002	8/6/96	9:07:00	15:50:00	6.72	1.9	2.2	2.4	21.3	30.0	26.3
3AA-B832-002	8/7/96	9:29:00	15:59:00	6.50	2.1	2.2	2.7	25.6	33.0	30.3
3AA-B832-003	8/6/96	9:17:00	15:57:00	6.67	2.3	2.2	2.4	23.5	33.8	26.3
3AA-B832-003	8/7/96	9:25:00	15:43:00	6.30	2.1	1.8	2.7	28.4	34.0	30.3
3AA-B832-004	8/6/96	9:26:00	15:44:00	6.30	1.5	2.2	2.4	24.8	32.5	26.3
3AA-B832-004	8/7/96	9:37:00	15:49:00	6.20	2.6	2.2	2.7	28.3	35.3	30.3

<sup>a</sup> Wind speed data and averages from onsite meteorological station data.

<sup>b</sup> Temperature data from field data sheets where available, or from onsite meteorological station data.

Table C-5 Ambient air concentrations near Building 830 and Building 832 in ppbv/v.

Location	Sample Date	Vinyl chloride	1,1-DCE	Freon 113	Methylene chloride	cis-1,2-DCE	Chloroform	1,2-DCA	TCE	1,2-DCPa	1,1,2-TCA	PCE	trans-1,2-DCE
<b>Building 830</b>													
3AA-B830-001	8/13/96	0.14	<0.043 <sup>U</sup>	0.15	0.5 <sup>B</sup>	<0.043 <sup>U</sup>	<0.043 <sup>U</sup>	<0.11 <sup>U</sup>	0.21	<0.11 <sup>U</sup>	<0.043 <sup>U</sup>	<0.043 <sup>U</sup>	<0.043 <sup>U</sup>
3AA-B830-002	8/13/96	<0.043 <sup>U</sup>	<0.043 <sup>U</sup>	0.11	0.59 <sup>B</sup>	<0.043 <sup>U</sup>	<0.043 <sup>U</sup>	<0.11 <sup>U</sup>	0.14	<0.11 <sup>U</sup>	<0.043 <sup>U</sup>	<0.043 <sup>U</sup>	<0.043 <sup>U</sup>
3AA-B830-002 <sup>a</sup>	8/13/96	<0.051 <sup>U</sup>	<0.051 <sup>U</sup>	0.11	0.62 <sup>B</sup>	<0.051 <sup>U</sup>	<0.051 <sup>U</sup>	<0.13 <sup>U</sup>	0.14	<0.13 <sup>U</sup>	<0.051 <sup>U</sup>	<0.051 <sup>U</sup>	<0.051 <sup>U</sup>
3AA-B830-003	8/13/96	<0.046 <sup>U</sup>	<0.046 <sup>U</sup>	0.11	0.35 <sup>B</sup>	<0.046 <sup>U</sup>	<0.046 <sup>U</sup>	<0.12 <sup>U</sup>	<0.046 <sup>U</sup>	<0.12 <sup>U</sup>	<0.046 <sup>U</sup>	<0.046 <sup>U</sup>	<0.046 <sup>U</sup>
3AA-B830-004	8/13/96	0.091	<0.045 <sup>U</sup>	0.10	0.42 <sup>B</sup>	<0.045 <sup>U</sup>	0.49	0.41	0.062	<0.11 <sup>U</sup>	<0.045 <sup>U</sup>	0.072	<0.045 <sup>U</sup>
3AA-B830-001	8/14/96	<0.042 <sup>U</sup>	<0.042 <sup>U</sup>	0.10	0.48 <sup>B</sup>	<0.042 <sup>U</sup>	<0.042 <sup>U</sup>	<0.11 <sup>U</sup>	0.043	<0.11 <sup>U</sup>	<0.042 <sup>U</sup>	<0.042 <sup>U</sup>	<0.042 <sup>U</sup>
3AA-B830-002	8/14/96	<0.042 <sup>U</sup>	<0.042 <sup>U</sup>	0.096	0.38 <sup>B</sup>	<0.042 <sup>U</sup>	<0.042 <sup>U</sup>	<0.11 <sup>U</sup>	0.26	<0.11 <sup>U</sup>	<0.042 <sup>U</sup>	<0.042 <sup>U</sup>	<0.042 <sup>U</sup>
3AA-B830-003	8/14/96	<0.043 <sup>U</sup>	<0.043 <sup>U</sup>	0.10	0.36 <sup>B</sup>	<0.043 <sup>U</sup>	<0.043 <sup>U</sup>	<0.11 <sup>U</sup>	<0.043 <sup>U</sup>	<0.11 <sup>U</sup>	<0.043 <sup>U</sup>	<0.043 <sup>U</sup>	<0.043 <sup>U</sup>
3AA-B830-004	8/14/96	<0.035 <sup>U</sup>	<0.035 <sup>U</sup>	0.10	0.23 <sup>B</sup>	<0.035 <sup>U</sup>	<0.035 <sup>U</sup>	<0.088 <sup>U</sup>	0.066	<0.088 <sup>U</sup>	<0.035 <sup>U</sup>	<0.035 <sup>U</sup>	<0.035 <sup>U</sup>
3AA-B830-TB <sup>b</sup>	8/14/96	<0.020	<0.020	<0.020	0.14 <sup>B</sup>	<0.020	<0.020	<0.050	<0.020	<0.050	<0.020	<0.020	<0.020
<b>Building 832</b>													
3AA-B832-001	8/6/96	<0.042 <sup>U</sup>	<0.042 <sup>U</sup>	0.13	0.29 <sup>B</sup>	<0.042 <sup>U</sup>	0.042	<0.11 <sup>U</sup>	<0.042 <sup>U</sup>	0.37	<0.042 <sup>U</sup>	<0.042 <sup>U</sup>	<0.042 <sup>U</sup>
3AA-B832-001 <sup>a</sup>	8/6/96	<0.050 <sup>U</sup>	<0.050 <sup>U</sup>	0.14	0.32 <sup>B</sup>	<0.050 <sup>U</sup>	0.041 <sup>J</sup>	<0.12 <sup>U</sup>	<0.050 <sup>U</sup>	0.36	<0.050 <sup>U</sup>	<0.050 <sup>U</sup>	<0.050 <sup>U</sup>
3AA-B832-001	8/7/96	<0.032 <sup>U</sup>	<0.032 <sup>U</sup>	0.16	0.31 <sup>B</sup>	<0.032 <sup>U</sup>	0.064	<0.081 <sup>U</sup>	0.048	0.43	<0.032 <sup>U</sup>	0.037	<0.032 <sup>U</sup>
3AA-B832-002	8/6/96	<0.041 <sup>U</sup>	<0.041 <sup>U</sup>	0.089	0.24 <sup>B</sup>	<0.041 <sup>U</sup>	<0.041 <sup>U</sup>	<0.10 <sup>U</sup>	<0.041 <sup>U</sup>	<0.10 <sup>U</sup>	<0.041 <sup>U</sup>	<0.041 <sup>U</sup>	<0.041 <sup>U</sup>
3AA-B832-002	8/7/96	<0.042 <sup>U</sup>	<0.042 <sup>U</sup>	0.096	0.32 <sup>B</sup>	<0.042 <sup>U</sup>	<0.042 <sup>U</sup>	<0.11 <sup>U</sup>	<0.042 <sup>U</sup>	<0.11 <sup>U</sup>	<0.042 <sup>U</sup>	<0.042 <sup>U</sup>	<0.042 <sup>U</sup>
3AA-B832-003	8/6/96	<0.043 <sup>U</sup>	<0.043 <sup>U</sup>	0.088	0.26 <sup>B</sup>	<0.043 <sup>U</sup>	<0.043 <sup>U</sup>	<0.11 <sup>U</sup>	<0.043 <sup>U</sup>	<0.11 <sup>U</sup>	<0.043 <sup>U</sup>	<0.043 <sup>U</sup>	<0.043 <sup>U</sup>
3AA-B832-003	8/7/96	<0.045 <sup>U</sup>	<0.045 <sup>U</sup>	0.098	0.33 <sup>B</sup>	<0.045 <sup>U</sup>	<0.045 <sup>U</sup>	<0.11 <sup>U</sup>	<0.045 <sup>U</sup>	<0.11 <sup>U</sup>	<0.045 <sup>U</sup>	<0.045 <sup>U</sup>	<0.045 <sup>U</sup>
3AA-B832-004	8/6/96	<0.035 <sup>U</sup>	<0.035 <sup>U</sup>	0.10	0.24 <sup>B</sup>	<0.035 <sup>U</sup>	<0.035 <sup>U</sup>	<0.088 <sup>U</sup>	<0.035 <sup>U</sup>	<0.088 <sup>U</sup>	<0.035 <sup>U</sup>	<0.035 <sup>U</sup>	<0.035 <sup>U</sup>
3AA-B832-004	8/7/96	<0.045 <sup>U</sup>	<0.045 <sup>U</sup>	0.10	0.74 <sup>B</sup>	<0.045 <sup>U</sup>	<0.045 <sup>U</sup>	<0.11 <sup>U</sup>	<0.045 <sup>U</sup>	<0.11 <sup>U</sup>	<0.045 <sup>U</sup>	<0.045 <sup>U</sup>	<0.045 <sup>U</sup>

<sup>a</sup> Laboratory duplicate.<sup>b</sup> Trip blank.<sup>U</sup> Compound was analyzed for, but not detected above the detection limit.<sup>B</sup> Analyte found in method blank.<sup>J</sup> The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

Table C-6 Emission isolation flux chamber field data.

Location	Chamber number <sup>e</sup>	Sample Date	Purge time (min)	Sample start time	Sample stop time	Sample time (min)	Temperatures (deg C)			Rotometer Number	Rotometer setting <sup>f</sup>		Corrected flow rates	
							Ambient	Start chamber	End chamber		Sweep in (L/min)	Sweep out (L/min)	Sweep in (L/min)	Sweep out (L/min)
<b>Building 830</b>														
3SF-B830-001	1	8/14/96	53.00	9:43:00	9:46:13	3.22	36.2	32.7	35.7	1	3.00	2.40	3.26	2.04
3SF-B830-001 <sup>a</sup>	2	8/14/96	60.50	14:45:30	14:48:40	3.17	42.9	43.2	43.1	2	2.56	2.40	2.60	2.16
3SF-B830-001 <sup>b</sup>	2	8/14/96	60.50	14:45:30	14:48:40	3.17	42.9	43.2	43.1	2	3.00	2.40	3.20	2.16
3SF-B830-002	3	8/14/96	42.00	10:19:00	10:22:08	3.13	36.2	34.6	36.2	3	3.00	2.40	3.26	2.10
3SF-B830-003	3	8/14/96	45.08	9:31:45	9:35:09	3.40	34.5	32.9	34.5	3	3.00	2.40	3.26	2.10
3SF-B830-004	3	8/14/96	41.68	11:10:41	11:13:30	2.82	36.5	42.8	42.6	3	3.00	2.40	3.26	2.10
3SF-B830-004 <sup>b</sup>	3	8/14/96	41.68	11:10:41	11:13:30	2.82	36.5	42.8	42.6	3	3.00	2.40	3.26	2.10
3SF-B830-005	3	8/14/96	45.00	12:12:00	12:15:35	3.58	41.0	50.4	48.3	3	3.00	1.80	3.26	1.36
3SF-B830-006	2	8/14/96	46.25	11:48:15	11:51:44	3.48	40.7	44.4	42.2	2	3.00	2.40	3.20	2.16
3SF-B830-007	2	8/14/96	41.00	13:04:00	13:07:20	3.33	35.3	46.4	45.7	2	3.00	2.40	3.20	2.16
3SF-B830-008	2	8/15/96	45.58	9:20:35	9:23:58	3.38	35.3	22.8	27.5	2	3.00	2.40	3.20	2.16
3SF-B830-008 <sup>c</sup>	2	8/15/96	50.42	9:25:25	9:28:43	3.30	22.8	22.8	27.5	2	3.00	2.40	3.20	2.16
3SF-B830-008 <sup>b</sup>	2	8/15/96	50.42	9:25:25	9:28:43	3.30	22.8	27.5	-8	2	3.00	2.40	3.20	2.16
3SF-B830-009	1	8/14/96	45.00	11:25:00	11:28:18	3.30	39.3	40.7	43.0	1	2.85	2.20	3.12	1.79
3SF-B830-010	2	8/14/96	41.00	10:53:00	10:56:15	3.25	36.5	43.0	40.5	2	3.00	2.40	3.20	2.16
3SF-B830-011	1	8/14/96	46.50	12:16:30	12:19:45	3.25	41.0	48.8	50.6	1	3.00	2.40	3.26	2.04
3SF-B830-012	2	8/14/96	42.50	10:07:30	10:10:39	3.15	35.9	40.0	39.9	2	3.00	2.40	3.20	2.16
3SF-B830-013	1	8/14/96	47.23	10:35:14	10:38:31	3.28	36.6	35.6	36.3	1	3.00	2.40	3.26	2.04
3SF-B830-014	2	8/14/96	40.50	9:14:30	9:17:50	3.33	35.0	33.3	37.4	2	3.00	2.40	3.20	2.16
3SF-B830-014 <sup>c</sup>	2	8/14/96	45.00	9:19:00	9:22:10	3.17	35.0	33.3	36.8	2	3.00	2.40	3.20	2.16
3SF-B830-015	2	8/15/96	43.50	10:19:30	10:23:44	4.23	34.5	37.5	39.7	2	3.00	2.40	3.20	2.16
3SF-B830-016	3	8/15/96	40.50	10:07:30	10:10:45	3.25	34.2	30.8	31.8	3	3.00	2.40	3.26	2.10
3SF-B830-017	3	8/15/96	44.00	9:18:00	9:21:05	3.08	39.8	24.7	26.4	3	3.00	2.40	3.26	2.10
3SF-B830-018	1	8/15/96	42.50	10:37:30	10:40:40	3.17	38.7	37.2	37.3	1	3.00	2.40	3.26	2.04

Table C-6 (Continued)

Location	Chamber number <sup>e</sup>	Sample Date	Purge time (min)	Sample start time	Sample stop time	Sample time (min)	Temperatures (deg C)			Rotometer Number	Rotometer setting <sup>f</sup>		Corrected flow rates	
							Ambient	Start chamber	End chamber		Sweep in (L/min)	Sweep out (L/min)	Sweep in (L/min)	Sweep out (L/min)
3SF-B830-019	1	8/15/96	56.50	9:48:30	9:51:38	3.13	38.7	32.6	36.3	1	3.00	2.40	3.26	2.04
3SF-B830-019 <sup>a</sup>	2	8/16/96	41.00	9:14	9:17:15	3.25	37.0	27.3	32.9	2	2.80	2.40	2.93	2.16
3SF-B830-020	3	8/15/96	39.17	11:09:10	11:12:40	3.50	36.2	33.4	34.7	3	3.00	2.40	3.26	2.10
3SF-B830-021	1	8/16/96	39.25	10:15:15	10:18:42	3.45	33.6	35.2	34.3	1	3.20	2.40	3.44	2.04
3SF-B830-021 <sup>c</sup>	1	8/16/96	44.33	10:20:20	10:23:35	3.25	33.6	35.2	34.3	1	3.20	2.40	3.44	2.04
3SF-B830-022	3	8/16/96	41.50	9:29:30	9:32:35	3.08	32.0	27.9	29.1	3	3.00	2.40	3.26	2.10
3SF-B830-023	1	8/16/96	45.00	9:29:00	9:32:15	3.25	32.0	25.9	36.8	1	2.80	2.40	3.08	2.04
3SF-B830-CB-01 <sup>d</sup>	1	8/14/96	49.00	14:36:00	14:38:50	2.83	42.2	44.4	40.8	3	3.00	2.40	3.26	2.10
3SF-B830-CB-02 <sup>d</sup>	2	8/15/96	38.00	11:14:00	11:17:00	3.00	36.6	39.3	33.8	2	3.00	2.40	3.20	2.16
3SF-B830-CB-03 <sup>d</sup>	3	8/14/96	43.00	15:28:00	15:31:20	3.33	40.5	40.7	41.4	3	2.80	2.40	3.05	2.10
3SF-B830-CB-01 <sup>d</sup>	1	8/16/96	69.37	12:04:22	12:07:37	3.25	38.0	33.9	37.1	1	3.00	2.20	3.26	1.79
3SF-B830-CB-02 <sup>d</sup>	2	8/16/96	40.63	10:02:38	-g	3.00	32.3	34.8	33.8	2	3.00	2.40	3.20	2.16
3SF-B830-CB-03 <sup>d</sup>	3	8/16/96	41.75	10:48:40	10:52:05	3.42	34.4	35.1	34.0	3	3.00	2.40	3.26	2.10
3SF-B830-CB-03 <sup>db</sup>	3	8/16/96	41.75	10:48:40	10:52:05	3.42	34.4	35.1	34.0	3	3.00	2.40	3.26	2.10
<b>Building 832</b>														
3SF-B832-001	1	8/6/96	45.72	9:34:43	9:37:57	3.23	24.2	24.75	23.25	1	3.00	2.40	3.26	2.04
3SF-B832-001 <sup>a</sup>	2	8/6/96	68.18	13:46:11	13:49:25	3.23	52.5	40.25	35.75	2	3.00	2.40	3.20	2.16
3SF-B832-002	3	8/6/96	48.23	9:58:14	10:01:00	2.77	25.7	22.75	21.25	3	3.00	2.40	3.26	2.10
3SF-B832-003	2	8/6/96	50.28	10:14:17	10:17:17	3.00	26.2	25.5	28.25	2	3.00	2.50	3.20	2.27
3SF-B832-004	1	8/6/96	49.67	10:47:40	10:50:47	3.12	35.5	26.75	42.25	1	3.00	2.40	3.26	2.04
3SF-B832-005	3	8/6/96	41.75	11:19:45	11:22:50	3.08	25.8	34.0	31.75	3	3.00	2.40	3.26	2.10
3SF-B832-006	2	8/6/96	44.00	11:26:00	11:28:50	2.83	28.2	32.75	21.25	2	3.20	2.40	3.47	2.16
3SF-B832-007	2	8/6/96	47.80	12:16:48	12:19:20	2.53	34.7	34.75	36.0	2	2.80	2.40	2.93	2.16
3SF-B832-008	1	8/6/96	50.50	11:45:30	11:48:25	2.92	34.1	36.5	35.5	1	3.00	2.40	3.26	2.04

Table C-6 (Continued)

Location	Chamber number <sup>e</sup>	Sample Date	Purge time (min)	Sample start time	Sample stop time	Sample time (min)	Temperatures (deg C)			Rotometer Number	Rotometer setting <sup>f</sup>		Corrected flow rates	
							Ambient	Start chamber	End chamber		Sweep in (L/min)	Sweep out (L/min)	Sweep in (L/min)	Sweep out (L/min)
3SF-B832-009	1	8/6/96	49.03	12:54:02	12:57:10	3.13	28.0	39.5	39.5	1	3.00	2.80	3.26	2.55
3SF-B832-010	1	8/6/96	55.67	13:57:40	14:01:02	3.37	30.4	44.0	41.25	1	3.00	2.20	3.26	1.79
3SF-B832-010 <sup>c</sup>	1	8/6/96	60.73	14:02:44	14:06:10	3.43	30.4	44.0	41.25	1	3.00	2.20	3.26	1.79
3SF-B832-011	2	8/7/96	68.33	9:45:20	9:48:38	3.30	25.2	20.0	25.75	2	3.00	2.40	3.20	2.16
3SF-B832-012	2	8/13/96	42.00	9:34:00	9:37:20	3.33	36.6	37.25	39.0	2	3.00	2.40	3.20	2.16
3SF-B832-013	1	8/13/96	58.00	9:53:00	9:56:20	3.33	36.0	36.0	36.0	1	3.20	2.40	3.44	2.04
3SF-B832-014	2	8/13/96	50.50	10:55:30	10:59:10	3.67	36.7	41.75	40.5	2	3.20	2.40	3.47	2.16
3SF-B832-014 <sup>c</sup>	2	8/13/96	55.50	11:00:30	11:04:15	3.75	36.7	41.75	40.5	2	3.20	2.40	3.47	2.16
3SF-B832-015	3	8/7/96	63.00	9:28:00	9:31:20	3.33	24.0	24.75	28.25	3	3.00	2.40	3.26	2.10
3SF-B832-016	1	8/7/96	48.12	10:12:25	10:15:40	3.25	25.0	40.0	29.25	1	3.00	2.40	3.26	2.04
3SF-B832-016 <sup>a</sup>	3	8/13/96	55.50	10:40:30	10:43:20	2.83	36.0	42.6	42.5	3	3.00	2.40	3.26	2.10
3SF-B832-017	3	8/13/96	47.20	9:21:12	9:24:12	3.00	36.3	34.5	38.0	3	3.00	2.40	3.26	2.10
3SF-B832-018	1	8/7/96	53.50	9:16:30	9:19:40	3.17	24.0	25.25	26.25	1	3.00	2.40	3.26	2.04
3SF-B832-CB-01 <sup>d</sup>	3	8/6/96	60.17	13:37:10	13:40:24	3.23	29.2	33.1	27.8	3	3.00	2.40	3.26	2.10
3SF-B832-CB-02 <sup>d</sup>	2	8/6/96	41.33	14:32:20	14:35:26	3.10	33.8	33.4	33.3	2	3.00	2.40	3.20	2.16
3SF-B832-CB-02 <sup>db</sup>	2	8/6/96	41.33	14:32:20	14:35:26	3.10	33.8	33.4	33.3	2	3.00	2.40	3.20	2.16
3SF-B832-CB-03 <sup>d</sup>	1	8/6/96	19.43	15:17:26	15:20:27	3.02	31.0	34.4	33.9	1	3.10	2.30	3.35	1.91
3SF-B832-CB-01 <sup>d</sup>	1	8/13/96	41.42	10:38:25	10:41:45	3.33	36.0	37.6	38.0	1	3.00	2.40	3.26	2.04
3SF-B832-CB-02 <sup>d</sup>	2	8/13/96	46.58	12:26:35	12:29:57	3.37	39.9	51.0	53.0	2	2.60	2.40	2.65	2.16
3SF-B832-CB-03 <sup>d</sup>	3	8/13/96	42.50	11:31:30	11:34:25	2.92	40.8	43.5	41.0	3	2.90	2.20	3.16	1.85

<sup>a</sup> Control point sample.

<sup>b</sup> Laboratory duplicate.

<sup>c</sup> Collocated sample.

<sup>d</sup> Chamber blank.

<sup>e</sup> Chamber number (one through three) signifies the chamber with which the individual sample was collected.

<sup>f</sup> Of the sweep in and sweep out reading, the maximum was used in subsequent flux calculations.

<sup>g</sup> Information not recorded on field sheet.

Table C-7 Building 830 and Building 832 emission isolation flux chamber concentrations in ppb<sub>v/v</sub>.

Location	Sample Date	Vinyl chloride	1,1-DCE	Freon 113	Methylene chloride	cis-1,2-DCE	Chloroform	1,2-DCA	TCE	1,2-DCPa	1,1,2-TCA	PCE	trans-1,2-DCE	Chamber number
<b>Building 830</b>														
3SF-B830-001	8/14/96	<0.72U	<0.72U	<0.72U	0.96 <sup>F</sup>	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<2.9U	1
3SF-B830-001 <sup>a</sup>	8/14/96	<0.72U	<0.72U	<0.72U	1.8 <sup>F</sup>	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<2.9U	2
3SF-B830-001 <sup>b</sup>	8/14/96	<0.72U	<0.72U	<0.72U	1.9 <sup>F</sup>	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<2.9U	2
3SF-B830-002	8/14/96	<0.72U	<0.72U	<0.72U	4.2 <sup>F</sup>	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<2.9U	3
3SF-B830-003	8/14/96	<0.71U	<0.71U	<0.71U	1.3 <sup>F</sup>	<0.71U	<0.71U	<0.71U	<0.71U	<0.71U	<0.71U	<0.71U	<2.8U	3
3SF-B830-004	8/14/96	<0.73U	<0.73U	<0.73U	1.6 <sup>F</sup>	<0.73U	<0.73U	<0.73U	<0.73U	<0.73U	<0.73U	<0.73U	<2.9U	3
3SF-B830-004 <sup>b</sup>	8/14/96	<0.86U	<0.86U	<0.86U	1.8 <sup>F</sup>	<0.86U	<0.86U	<0.86U	<0.86U	<0.86U	<0.86U	<0.86U	<3.4U	3
3SF-B830-005	8/14/96	<0.73U	<0.73U	<0.73U	3.5 <sup>F</sup>	<0.73U	<0.73U	<0.73U	<0.73U	<0.73U	<0.73U	<0.73U	<2.9U	3
3SF-B830-006	8/14/96	<0.72U	<0.72U	<0.72U	1.8 <sup>F</sup>	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<2.9U	3
3SF-B830-007	8/14/96	<0.72U	<0.72U	<0.72U	6.0 <sup>F</sup>	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<2.9U	2
3SF-B830-008	8/15/96	<0.74U	<0.74U	<0.74U	1.5 <sup>F</sup>	<0.74U	<0.74U	<0.74U	<0.74U	<0.74U	<0.74U	<0.74U	<2.9U	2
3SF-B830-008 <sup>c</sup>	8/15/96	<0.70U	<0.70U	<0.70U	1.8 <sup>F</sup>	<0.70U	<0.70U	<0.70U	<0.70U	<0.70U	<0.70U	<0.70U	<2.8U	2
3SF-B830-008 <sup>b</sup>	8/15/96	<0.82U	<0.82U	<0.82U	1.5 <sup>F</sup>	<0.82U	<0.82U	<0.82U	<0.82U	<0.82U	<0.82U	<0.82U	<3.3U	2
3SF-B830-009	8/14/96	<0.73U	<0.73U	<0.73U	5.0 <sup>F</sup>	<0.73U	<0.73U	<0.73U	<0.73U	<0.73U	<0.73U	<0.73U	<2.9U	2
3SF-B830-010	8/14/96	<0.73U	<0.73U	<0.73U	1.9 <sup>F</sup>	<0.73U	<0.73U	<0.73U	<0.73U	<0.73U	<0.73U	<0.73U	<2.9U	1
3SF-B830-011	8/14/96	<0.73U	<0.73U	<0.73U	10 <sup>F</sup>	<0.73U	<0.73U	<0.73U	<0.73U	<0.73U	<0.73U	<0.73U	<2.9U	2
3SF-B830-012	8/14/96	<0.72U	<0.72U	<0.72U	1.4 <sup>F</sup>	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<2.9U	1
3SF-B830-013	8/14/96	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	1.3	<0.72U	<0.72U	<0.72U	<2.9U	2
3SF-B830-014	8/14/96	<0.71U	<0.71U	<0.71U	0.91 <sup>F</sup>	<0.71U	<0.71U	<0.71U	<0.71U	<0.71U	<0.71U	<0.71U	<2.8U	1
3SF-B830-014 <sup>c</sup>	8/14/96	<0.72U	<0.72U	<0.72U	1.0 <sup>F</sup>	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<2.9U	2
3SF-B830-015	8/15/96	<0.72U	<0.72U	<0.72U	3.1 <sup>F</sup>	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<2.9U	2
3SF-B830-016	8/15/96	<0.72U	<0.72U	<0.72U	1.6 <sup>F</sup>	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<2.9U	2
3SF-B830-017	8/15/96	<0.72U	<0.72U	<0.72U	1.2 <sup>F</sup>	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<2.9U	3
3SF-B830-018	8/15/96	<0.73U	<0.73U	<0.73U	1.2 <sup>F</sup>	<0.73U	<0.73U	<0.73U	<0.73U	<0.73U	<0.73U	<0.73U	<2.9U	3
													<2.9U	1

Table C-7 (Continued)

Location	Sample Date	Vinyl chloride	1,1-DCE	Freon 113	Methylene chloride	cis-1,2-DCE	Chloroform	1,2-DCA	TCE	1,2-DCPa	1,1,2-TCA	PCE	trans-1,2-DCE	Chamber number
3SF-B830-019	8/15/96	<0.75U	<0.75U	<0.75U	2.6 <sup>F</sup>	<0.75U	<0.75U	<0.75U	<0.75U	<0.75U	<0.75U	<0.75U	<3.0U	1
3SF-B830-019 <sup>a</sup>	8/16/96	<0.73U	<0.73U	<0.73U	2.1 <sup>F</sup>	<0.73U	<0.73U	<0.73U	<0.73U	<0.73U	<0.73U	<0.73U	<2.9U	2
3SF-B830-020	8/15/96	<0.72U	<0.72U	<0.72U	0.72 <sup>F</sup>	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<2.9U	3
3SF-B830-021	8/16/96	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<2.9U	1
3SF-B830-021 <sup>c</sup>	8/16/96	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<2.9U	1
3SF-B830-022	8/16/96	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<2.9U	3
3SF-B830-023	8/16/96	<0.72U	<0.72U	<0.72U	0.97 <sup>F</sup>	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<2.9U	1
3SF-B830-CB-01 <sup>d</sup>	8/14/96	<0.75U	<0.75U	<0.75U	3.9	<0.75U	<0.75U	<0.75U	<0.75U	<0.75U	<0.75U	<0.75U	<3.0U	1
3SF-B830-CB-02 <sup>d</sup>	8/15/96	<0.72U	<0.72U	<0.72U	2.4	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<2.9U	2
3SF-B830-CB-03 <sup>d</sup>	8/14/96	<0.72U	<0.72U	<0.72U	2.9	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<2.9U	3
3SF-B830-CB-01 <sup>d</sup>	8/16/96	<0.71U	<0.71U	<0.71U	1.0	<0.71U	<0.71U	<0.71U	<0.71U	<0.71U	<0.71U	<0.71U	<2.8U	1
3SF-B830-CB-02 <sup>d</sup>	8/16/96	<0.72U	<0.72U	<0.72U	2.0	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<2.9U	2
3SF-B830-CB-03 <sup>d</sup>	8/16/96	<0.72U	<0.72U	<0.72U	2.1	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<2.9U	3
3SF-B830-CB-03 <sup>bd</sup>	8/16/96	<0.72U	<0.72U	<0.72U	2.1	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<2.9U	3
<b>Building 832</b>														
3SF-B832-001	8/6/96	<0.70U	<0.70U	<0.70U	1.1 <sup>F</sup>	<0.70U	<0.70U	<0.70U	<0.70U	<0.70U	<0.70U	<0.70U	<2.8U	1
3SF-B832-001 <sup>a</sup>	8/6/96	<0.73U	<0.73U	<0.73U	3.4 <sup>F</sup>	<0.73U	<0.73U	<0.73U	<0.73U	<0.73U	<0.73U	<0.73U	<2.9U	2
3SF-B832-002	8/6/96	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<2.9U	3
3SF-B832-003	8/6/96	<0.83U	<0.83U	<0.83U	4.7 <sup>F</sup>	<0.83U	<0.83U	<0.83U	<0.83U	<0.83U	<0.83U	<0.83U	<3.3U	2
3SF-B832-004	8/6/96	<0.73U	<0.73U	<0.73U	<0.73U	<0.73U	<0.73U	<0.73U	<0.73U	<0.73U	<0.73U	<0.73U	<2.9U	1
3SF-B832-005	8/6/96	<0.71U	<0.71U	<0.71U	<0.71U	<0.71U	<0.71U	<0.71U	<0.71U	<0.71U	<0.71U	<0.71U	<2.8U	3
3SF-B832-006	8/6/96	<0.72U	<0.72U	<0.72U	1.8 <sup>F</sup>	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<2.9U	2
3SF-B832-007	8/6/96	<0.73U	<0.73U	<0.73U	3.7 <sup>F</sup>	<0.73U	<0.73U	<0.73U	<0.73U	<0.73U	<0.73U	<0.73U	<2.9U	2
3SF-B832-008	8/6/96	<0.73U	<0.73U	<0.73U	0.87 <sup>F</sup>	<0.73U	<0.73U	<0.73U	<0.73U	<0.73U	<0.73U	<0.73U	<2.9U	1
3SF-B832-009	8/6/96	<0.75U	<0.75U	<0.75U	4.3 <sup>F</sup>	<0.75U	<0.75U	<0.75U	<0.75U	<0.75U	<0.75U	<0.75U	<3.0U	1

Table C-7 (Continued)

Location	Sample Date	Vinyl chloride	1,1-DCE	Freon 113	Methylene chloride	cis-1,2-DCE	Chloroform	1,2-DCA	TCE	1,2-DCPa	1,1,2-TCA	PCE	trans-1,2-DCE	Chamber number
3SF-B832-010	8/6/96	<0.73U	<0.73U	<0.73U	3.2 <sup>F</sup>	<0.73U	<0.73U	<0.73U	<0.73U	<0.73U	<0.73U	<0.73U	<2.9U	1
3SF-B832-010 <sup>c</sup>	8/6/96	<0.71U	<0.71U	<0.71U	3.4 <sup>F</sup>	<0.71U	<0.71U	<0.71U	<0.71U	<0.71U	<0.71U	<0.71U	<2.8U	1
3SF-B832-011	8/7/96	<0.71U	<0.71U	<0.71U	4.6 <sup>F</sup>	<0.71U	<0.71U	<0.71U	<0.71U	<0.71U	<0.71U	<0.71U	<2.8U	2
3SF-B832-012	8/13/96	<0.73U	<0.73U	<0.73U	1.4 <sup>F</sup>	<0.73U	<0.73U	<0.73U	<0.73U	<0.73U	<0.73U	<0.73U	<2.9U	2
3SF-B832-013	8/13/96	<0.81U	<0.81U	<0.81U	<0.81U	<0.81U	<0.81U	<0.81U	<0.81U	<0.81U	<0.81U	<0.81U	<3.2U	1
3SF-B832-014	8/13/96	<0.72U	<0.72U	<0.72U	1.8 <sup>F</sup>	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<2.9U	2
3SF-B832-014 <sup>c</sup>	8/13/96	<0.72U	<0.72U	<0.72U	2.0 <sup>F</sup>	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<2.9U	2
3SF-B832-015	8/7/96	<0.72U	<0.72U	<0.72U	0.91 <sup>F</sup>	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<2.9U	2
3SF-B832-016	8/7/96	<0.71U	<0.71U	<0.71U	1.3 <sup>F</sup>	<0.71U	<0.71U	<0.71U	<0.71U	<0.71U	<0.71U	<0.71U	<2.8U	3
3SF-B832-016 <sup>a</sup>	8/13/96	<0.75U	<0.75U	<0.75U	3.4 <sup>F</sup>	<0.75U	<0.75U	<0.75U	<0.75U	<0.75U	<0.75U	<0.75U	<3.0U	1
3SF-B832-017	8/13/96	<0.72U	<0.72U	<0.72U	2.1 <sup>F</sup>	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<2.9U	3
3SF-B832-018	8/7/96	<0.78U	<0.78U	<0.78U	<0.78U	<0.78U	<0.78U	<0.78U	<0.78U	<0.78U	<0.78U	<0.78U	<3.1U	1
3SF-B832-CB-01 <sup>d</sup>	8/6/96	<0.75U	<0.75U	<0.75U	1.5	<0.75U	<0.75U	<0.75U	<0.75U	<0.75U	<0.75U	<0.75U	<3.0U	3
3SF-B832-CB-02 <sup>d</sup>	8/6/96	<0.73U	<0.73U	<0.73U	5.8	<0.73U	<0.73U	<0.73U	<0.73U	<0.73U	<0.73U	<0.73U	<2.9U	2
3SF-B832-CB-02 <sup>bd</sup>	8/6/96	<0.86U	<0.86U	<0.86U	5.7	<0.86U	<0.86U	<0.86U	<0.86U	<0.86U	<0.86U	<0.86U	<3.4U	2
3SF-B832-CB-03 <sup>d</sup>	8/6/96	<0.73U	<0.73U	<0.73U	3.2	<0.73U	<0.73U	<0.73U	<0.73U	<0.73U	<0.73U	<0.73U	<2.9U	1
3SF-B832-CB-01 <sup>d</sup>	8/13/96	<0.72U	<0.72U	<0.72U	3.8	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<2.9U	1
3SF-B832-CB-02 <sup>d</sup>	8/13/96	<0.72U	<0.72U	<0.72U	15	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<2.9U	2
3SF-B832-CB-03 <sup>d</sup>	8/13/96	<0.72U	<0.72U	<0.72U	5.2	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<0.72U	<2.9U	3

<sup>a</sup> Control point sample.

<sup>b</sup> Laboratory duplicate.

<sup>c</sup> Collocated sample.

<sup>d</sup> Chamber blank.

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

F Analyte found in field blank, trip blank, or equipment blank.



Table C-8 Measured soil vapor flux rates [ $\mu\text{g}/(\text{m}^2 \cdot \text{sec})$ ] for VOCs near Building 830 and Building 832<sup>a</sup>.

Location	Sample Date	Vinyl chloride	1,1-DCE	Freon 113	Methylene chloride	cis-1,2-DCE	Chloroform	1,2-DCA	TCE	1,2-DCPa	1,1,2-TCA	PCE	trans-1,2-DCE	Chamber number
<i>Building 830</i>														
3SF-B830-001	8/14/96	<0.0008	<0.0013	<0.0025	0.0015	<0.0013	<0.0016	<0.0013	<0.0018	<0.0015	<0.0018	<0.0022	<0.0053	1
3SF-B830-001 <sup>b</sup>	8/14/96	<0.0007	<0.001	<0.002	0.0023	<0.001	<0.0013	<0.0011	<0.0014	<0.0012	<0.0014	<0.0018	<0.0042	2
3SF-B830-001 <sup>c</sup>	8/14/96	<0.0008	<0.0013	<0.0025	0.0029	<0.0013	<0.0016	<0.0013	<0.0017	<0.0015	<0.0017	<0.0022	<0.0052	2
3SF-B830-002	8/14/96	<0.0008	<0.0013	<0.0025	0.0066	<0.0013	<0.0016	<0.0013	<0.0018	<0.0015	<0.0018	<0.0022	<0.0053	3
3SF-B830-003	8/14/96	<0.0008	<0.0013	<0.0025	0.002	<0.0013	<0.0016	<0.0013	<0.0017	<0.0015	<0.0018	<0.0022	<0.0051	3
3SF-B830-004	8/14/96	<0.0008	<0.0013	<0.0025	0.0025	<0.0013	<0.0016	<0.0013	<0.0018	<0.0015	<0.0018	<0.0022	<0.0053	3
3SF-B830-004 <sup>c</sup>	8/14/96	<0.001	<0.0015	<0.003	0.0028	<0.0015	<0.0019	<0.0016	<0.0021	<0.0018	<0.0021	<0.0026	<0.0062	3
3SF-B830-005	8/14/96	<0.0008	<0.0013	<0.0025	0.0055	<0.0013	<0.0016	<0.0013	<0.0018	<0.0015	<0.0018	<0.0022	<0.0053	3
3SF-B830-006	8/14/96	<0.0008	<0.0013	<0.0025	0.0028	<0.0013	<0.0016	<0.0013	<0.0017	<0.0015	<0.0017	<0.0022	<0.0052	2
3SF-B830-007	8/14/96	<0.0008	<0.0013	<0.0025	0.0093	<0.0013	<0.0016	<0.0013	<0.0017	<0.0015	<0.0017	<0.0022	<0.0052	2
3SF-B830-008	8/15/96	<0.0008	<0.0013	<0.0025	0.0023	<0.0013	<0.0016	<0.0013	<0.0018	<0.0015	<0.0018	<0.0022	<0.0052	2
3SF-B830-008 <sup>d</sup>	8/15/96	<0.0008	<0.0012	<0.0024	0.0028	<0.0012	<0.0015	<0.0013	<0.0017	<0.0014	<0.0017	<0.0021	<0.005	2
3SF-B830-008 <sup>c</sup>	8/15/96	<0.0009	<0.0014	<0.0028	0.0023	<0.0014	<0.0018	<0.0015	<0.002	<0.0017	<0.002	<0.0025	<0.0059	2
3SF-B830-009	8/14/96	<0.0008	<0.0013	<0.0024	0.0075	<0.0013	<0.0015	<0.0013	<0.0017	<0.0015	<0.0017	<0.0022	<0.0051	1
3SF-B830-010	8/14/96	<0.0008	<0.0013	<0.0025	0.0029	<0.0013	<0.0016	<0.0013	<0.0017	<0.0015	<0.0018	<0.0022	<0.0052	2
3SF-B830-011	8/14/96	<0.0008	<0.0013	<0.0025	0.0157	<0.0013	<0.0016	<0.0013	<0.0018	<0.0015	<0.0018	<0.0022	<0.0053	1
3SF-B830-012	8/14/96	<0.0008	<0.0013	<0.0025	0.0022	<0.0013	<0.0016	<0.0013	<0.0017	<0.0015	<0.0017	<0.0022	<0.0052	2
3SF-B830-013	8/14/96	<0.0008	<0.0013	<0.0025	<0.0011	<0.0013	<0.0016	<0.0013	0.0032	<0.0015	<0.0018	<0.0022	<0.0053	1
3SF-B830-014	8/14/96	<0.0008	<0.0013	<0.0024	0.0014	<0.0013	<0.0015	<0.0013	<0.0017	<0.0015	<0.0017	<0.0021	<0.005	2
3SF-B830-014 <sup>d</sup>	8/14/96	<0.0008	<0.0013	<0.0025	0.0015	<0.0013	<0.0016	<0.0013	<0.0017	<0.0015	<0.0017	<0.0022	<0.0052	2
3SF-B830-015	8/15/96	<0.0008	<0.0013	<0.0025	0.0048	<0.0013	<0.0016	<0.0013	<0.0017	<0.0015	<0.0017	<0.0022	<0.0052	2
3SF-B830-016	8/15/96	<0.0008	<0.0013	<0.0025	0.0025	<0.0013	<0.0016	<0.0013	<0.0018	<0.0015	<0.0018	<0.0022	<0.0053	3
3SF-B830-017	8/15/96	<0.0008	<0.0013	<0.0025	0.0019	<0.0013	<0.0016	<0.0013	<0.0018	<0.0015	<0.0018	<0.0022	<0.0053	3
3SF-B830-018	8/15/96	<0.0008	<0.0013	<0.0025	0.0019	<0.0013	<0.0016	<0.0013	<0.0018	<0.0015	<0.0018	<0.0022	<0.0053	1

Table C-8 (Continued)

Location	Sample Date	Vinyl chloride	1,1-DCE	Freon 113	Methylene chloride	cis-1,2-DCE	Chloroform	1,2-DCA	TCE	1,2-DCPa	1,1,2-TCA	PCE	trans-1,2-DCE	Chamber number
3SF-B830-019	8/15/96	<0.0009	<0.0013	<0.0026	0.0041	<0.0013	<0.0017	<0.0014	<0.0018	<0.0016	<0.0019	<0.0023	<0.0055	1
3SF-B830-019 <sup>b</sup>	8/16/96	<0.0008	<0.0012	<0.0023	0.003	<0.0012	<0.0014	<0.0012	<0.0016	<0.0014	<0.0016	<0.002	<0.0048	2
3SF-B830-020	8/15/96	<0.0008	<0.0013	<0.0025	0.0011	<0.0013	<0.0016	<0.0013	<0.0018	<0.0015	<0.0018	<0.0022	<0.0053	3
3SF-B830-021	8/16/96	<0.0009	<0.0014	<0.0026	<0.0012	<0.0014	<0.0017	<0.0014	<0.0019	<0.0016	<0.0019	<0.0023	<0.0056	1
3SF-B830-021 <sup>d</sup>	8/16/96	<0.0009	<0.0014	<0.0026	<0.0012	<0.0014	<0.0017	<0.0014	<0.0019	<0.0016	<0.0019	<0.0023	<0.0056	1
3SF-B830-022	8/16/96	<0.0008	<0.0013	<0.0025	<0.0011	<0.0013	<0.0016	<0.0013	<0.0018	<0.0015	<0.0018	<0.0022	<0.0053	3
3SF-B830-023	8/16/96	<0.0008	<0.0012	<0.0024	0.0014	<0.0012	<0.0015	<0.0012	<0.0017	<0.0014	<0.0017	<0.0021	<0.005	1
3SF-B830-CB-01 <sup>e</sup>	8/14/96	<0.0009	<0.0013	<0.0026	0.0061	<0.0013	<0.0017	<0.0014	<0.0018	<0.0016	<0.0019	<0.0023	<0.0055	1
3SF-B830-CB-02 <sup>e</sup>	8/15/96	<0.0008	<0.0013	<0.0025	0.0037	<0.0013	<0.0016	<0.0013	<0.0017	<0.0015	<0.0017	<0.0022	<0.0052	2
3SF-B830-CB-03 <sup>e</sup>	8/14/96	<0.0008	<0.0012	<0.0023	0.0043	<0.0012	<0.0015	<0.0012	<0.0016	<0.0014	<0.0017	<0.0021	<0.005	3
3SF-B830-CB-01 <sup>e</sup>	8/16/96	<0.0008	<0.0013	<0.0025	0.0016	<0.0013	<0.0016	<0.0013	<0.0017	<0.0015	<0.0018	<0.0022	<0.0051	1
3SF-B830-CB-02 <sup>e</sup>	8/16/96	<0.0008	<0.0013	<0.0025	0.0031	<0.0013	<0.0016	<0.0013	<0.0017	<0.0015	<0.0017	<0.0022	<0.0052	2
3SF-B830-CB-03 <sup>e</sup>	8/16/96	<0.0008	<0.0013	<0.0025	0.0033	<0.0013	<0.0016	<0.0013	<0.0018	<0.0015	<0.0018	<0.0022	<0.0053	3
3SF-B830-CB-03 <sup>ce</sup>	8/16/96	<0.0008	<0.0013	<0.0025	0.0033	<0.0013	<0.0016	<0.0013	<0.0018	<0.0015	<0.0018	<0.0022	<0.0053	3
<b>Building 832</b>														
3SF-B832-001	8/6/96	<0.0008	<0.0013	<0.0024	0.0017	<0.0013	<0.0015	<0.0013	<0.0017	<0.0015	<0.0017	<0.0022	<0.0051	1
3SF-B832-001 <sup>b</sup>	8/6/96	<0.0008	<0.0013	<0.0025	0.0053	<0.0013	<0.0016	<0.0013	<0.0017	<0.0015	<0.0018	<0.0022	<0.0052	2
3SF-B832-002	8/6/96	<0.0008	<0.0013	<0.0025	<0.0011	<0.0013	<0.0016	<0.0013	<0.0018	<0.0015	<0.0018	<0.0022	<0.0053	3
3SF-B832-003	8/6/96	<0.0009	<0.0015	<0.0028	0.0073	<0.0015	<0.0018	<0.0015	<0.002	<0.0017	<0.002	<0.0025	<0.0059	2
3SF-B832-004	8/6/96	<0.0008	<0.0013	<0.0025	<0.0011	<0.0013	<0.0016	<0.0013	<0.0018	<0.0015	<0.0018	<0.0022	<0.0053	1
3SF-B832-005	8/6/96	<0.0008	<0.0013	<0.0025	<0.0011	<0.0013	<0.0016	<0.0013	<0.0017	<0.0015	<0.0018	<0.0022	<0.0051	3
3SF-B832-006	8/6/96	<0.0009	<0.0014	<0.0027	0.003	<0.0014	<0.0017	<0.0014	<0.0019	<0.0016	<0.0019	<0.0024	<0.0057	2
3SF-B832-007	8/6/96	<0.0008	<0.0012	<0.0023	0.0052	<0.0012	<0.0014	<0.0012	<0.0016	<0.0014	<0.0016	<0.002	<0.0048	2
3SF-B832-008	8/6/96	<0.0008	<0.0013	<0.0025	0.0014	<0.0013	<0.0016	<0.0013	<0.0018	<0.0015	<0.0018	<0.0022	<0.0053	1
3SF-B832-009	8/6/96	<0.0009	<0.0013	<0.0026	0.0068	<0.0013	<0.0017	<0.0014	<0.0018	<0.0016	<0.0019	<0.0023	<0.0055	1

Table C-8 (Continued)

Location	Sample Date	Vinyl chloride	1,1-DCE	Freon 113	Methylene chloride	cis-1,2-DCE	Chloroform	1,2-DCA	TCE	1,2-DCPa	1,1,2-TCA	PCE	trans-1,2-DCE	Chamber number
3SF-B832-010	8/6/96	<0.0008	<0.0013	<0.0025	0.005	<0.0013	<0.0016	<0.0013	<0.0018	<0.0015	<0.0018	<0.0022	<0.0053	1
3SF-B832-010 <sup>d</sup>	8/6/96	<0.0008	<0.0013	<0.0025	0.0054	<0.0013	<0.0016	<0.0013	<0.0017	<0.0015	<0.0018	<0.0022	<0.0051	1
3SF-B832-011	8/7/96	<0.0008	<0.0013	<0.0024	0.0071	<0.0013	<0.0015	<0.0013	<0.0017	<0.0015	<0.0017	<0.0021	<0.005	2
3SF-B832-012	8/13/96	<0.0008	<0.0013	<0.0025	0.0022	<0.0013	<0.0016	<0.0013	<0.0017	<0.0015	<0.0018	<0.0022	<0.0052	2
3SF-B832-013	8/13/96	<0.001	<0.0015	<0.003	<0.0013	<0.0015	<0.0019	<0.0016	<0.0021	<0.0018	<0.0021	<0.0026	<0.0062	1
3SF-B832-014	8/13/96	<0.0009	<0.0014	<0.0027	0.003	<0.0014	<0.0017	<0.0014	<0.0019	<0.0016	<0.0019	<0.0024	<0.0057	2
3SF-B832-014 <sup>d</sup>	8/13/96	<0.0009	<0.0014	<0.0027	0.0034	<0.0014	<0.0017	<0.0014	<0.0019	<0.0016	<0.0019	<0.0024	<0.0057	2
3SF-B832-015	8/7/96	<0.0008	<0.0013	<0.0025	0.0014	<0.0013	<0.0016	<0.0013	<0.0018	<0.0015	<0.0018	<0.0022	<0.0053	3
3SF-B832-016	8/7/96	<0.0008	<0.0013	<0.0025	0.002	<0.0013	<0.0016	<0.0013	<0.0017	<0.0015	<0.0018	<0.0022	<0.0051	1
3SF-B832-016 <sup>b</sup>	8/13/96	<0.0009	<0.0013	<0.0026	0.0054	<0.0013	<0.0017	<0.0014	<0.0018	<0.0016	<0.0019	<0.0023	<0.0055	3
3SF-B832-017	8/13/96	<0.0008	<0.0013	<0.0025	0.0033	<0.0013	<0.0016	<0.0013	<0.0018	<0.0015	<0.0018	<0.0022	<0.0053	3
3SF-B832-018	8/7/96	<0.0009	<0.0014	<0.0027	<0.0012	<0.0014	<0.0017	<0.0014	<0.0019	<0.0016	<0.0019	<0.0024	<0.0057	1
3SF-B832-CB-01 <sup>e</sup>	8/6/96	<0.0009	<0.0013	<0.0026	0.0024	<0.0013	<0.0017	<0.0014	<0.0018	<0.0016	<0.0019	<0.0023	<0.0055	3
3SF-B832-CB-02 <sup>e</sup>	8/6/96	<0.0008	<0.0013	<0.0025	0.009	<0.0013	<0.0016	<0.0013	<0.0017	<0.0015	<0.0018	<0.0022	<0.0052	2
3SF-B832-CB-02 <sup>ce</sup>	8/6/96	<0.001	<0.0015	<0.0029	0.0088	<0.0015	<0.0019	<0.0015	<0.0021	<0.0018	<0.0021	<0.0026	<0.0061	2
3SF-B832-CB-03 <sup>e</sup>	8/6/96	<0.0009	<0.0013	<0.0026	0.0052	<0.0013	<0.0017	<0.0014	<0.0018	<0.0016	<0.0019	<0.0023	<0.0055	1
3SF-B832-CB-01 <sup>e</sup>	8/13/96	<0.0008	<0.0013	<0.0025	0.006	<0.0013	<0.0016	<0.0013	<0.0018	<0.0015	<0.0018	<0.0022	<0.0053	1
3SF-B832-CB-02 <sup>e</sup>	8/13/96	<0.0007	<0.0011	<0.002	0.0192	<0.0011	<0.0013	<0.0011	<0.0014	<0.0012	<0.0014	<0.0018	<0.0043	2
3SF-B832-CB-03 <sup>e</sup>	8/13/96	<0.0008	<0.0013	<0.0024	0.0079	<0.0013	<0.0015	<0.0013	<0.0017	<0.0015	<0.0017	<0.0021	<0.0052	3

<sup>a</sup> See Table A-7 for data qualifier flags applied to the data used to calculate the flux rates.

<sup>b</sup> Control point sample.

<sup>c</sup> Laboratory duplicate.

<sup>d</sup> Collocated sample.

<sup>e</sup> Chamber blank.

Table C-9 Building 830 and Building 832 exposure-point concentrations in ppb<sub>v</sub>/v<sup>a</sup>.

Location	Sample Date	Vinyl chloride	1,1-DCE	Freon 113	Methylene chloride	cis-1,2-DCE	Chloroform	1,2-DCA	TCE	1,2-DCP <sub>a</sub>	1,1,2-TCA	PCE	trans-1,2-DCE	Chamber number	
<i>Building 830</i>															
3SF-B830-001	8/14/96	<2.89E-03	<2.89E-03	<2.89E-03	3.86E-03	<2.89E-03	<2.89E-03	<2.89E-03	<2.89E-03	<2.89E-03	<2.89E-03	<2.89E-03	<2.89E-03	<1.19E-02	1
3SF-B830-001 <sup>b</sup>	8/14/96	<2.31E-03	<2.31E-03	<2.31E-03	5.77E-03	<2.31E-03	<2.31E-03	<2.31E-03	<2.31E-03	<2.31E-03	<2.31E-03	<2.31E-03	<2.31E-03	<9.48E-03	2
3SF-B830-001 <sup>c</sup>	8/14/96	<2.84E-03	<2.84E-03	<2.84E-03	7.50E-03	<2.84E-03	<2.84E-03	<2.84E-03	<2.84E-03	<2.84E-03	<2.84E-03	<2.84E-03	<2.84E-03	<1.17E-02	2
3SF-B830-002	8/14/96	<2.89E-03	<2.89E-03	<2.89E-03	1.69E-02	<2.89E-03	<2.89E-03	<2.89E-03	<2.89E-03	<2.89E-03	<2.89E-03	<2.89E-03	<2.89E-03	<1.19E-02	3
3SF-B830-003	8/14/96	<2.85E-03	<2.85E-03	<2.85E-03	5.23E-03	<2.85E-03	<2.85E-03	<2.85E-03	<2.85E-03	<2.85E-03	<2.85E-03	<2.85E-03	<2.85E-03	<1.15E-02	3
3SF-B830-004	8/14/96	<2.93E-03	<2.93E-03	<2.93E-03	6.43E-03	<2.93E-03	<2.93E-03	<2.93E-03	<2.93E-03	<2.93E-03	<2.93E-03	<2.93E-03	<2.93E-03	<1.19E-02	3
3SF-B830-004 <sup>c</sup>	8/14/96	<3.46E-03	<3.46E-03	<3.46E-03	7.24E-03	<3.46E-03	<3.46E-03	<3.46E-03	<3.46E-03	<3.46E-03	<3.46E-03	<3.46E-03	<3.46E-03	<1.40E-02	3
3SF-B830-005	8/14/96	<2.93E-03	<2.93E-03	<2.93E-03	1.41E-02	<2.93E-03	<2.93E-03	<2.93E-03	<2.93E-03	<2.93E-03	<2.93E-03	<2.93E-03	<2.93E-03	<1.19E-02	3
3SF-B830-006	8/14/96	<2.84E-03	<2.84E-03	<2.84E-03	7.10E-03	<2.84E-03	<2.84E-03	<2.84E-03	<2.84E-03	<2.84E-03	<2.84E-03	<2.84E-03	<2.84E-03	<1.17E-02	2
3SF-B830-007	8/14/96	<2.84E-03	<2.84E-03	<2.84E-03	2.37E-02	<2.84E-03	<2.84E-03	<2.84E-03	<2.84E-03	<2.84E-03	<2.84E-03	<2.84E-03	<2.84E-03	<1.17E-02	2
3SF-B830-008	8/15/96	<2.92E-03	<2.92E-03	<2.92E-03	5.92E-03	<2.92E-03	<2.92E-03	<2.92E-03	<2.92E-03	<2.92E-03	<2.92E-03	<2.92E-03	<2.92E-03	<1.17E-02	2
3SF-B830-008 <sup>d</sup>	8/15/96	<2.76E-03	<2.76E-03	<2.76E-03	7.10E-03	<2.76E-03	<2.76E-03	<2.76E-03	<2.76E-03	<2.76E-03	<2.76E-03	<2.76E-03	<2.76E-03	<1.13E-02	2
3SF-B830-008 <sup>c</sup>	8/15/96	<3.23E-03	<3.23E-03	<3.23E-03	5.92E-03	<3.23E-03	<3.23E-03	<3.23E-03	<3.23E-03	<3.23E-03	<3.23E-03	<3.23E-03	<3.23E-03	<1.33E-02	2
3SF-B830-009	8/14/96	<2.81E-03	<2.81E-03	<2.81E-03	1.93E-02	<2.81E-03	<2.81E-03	<2.81E-03	<2.81E-03	<2.81E-03	<2.81E-03	<2.81E-03	<2.81E-03	<1.14E-02	1
3SF-B830-010	8/14/96	<2.88E-03	<2.88E-03	<2.88E-03	7.50E-03	<2.88E-03	<2.88E-03	<2.88E-03	<2.88E-03	<2.88E-03	<2.88E-03	<2.88E-03	<2.88E-03	<1.17E-02	2
3SF-B830-011	8/14/96	<2.93E-03	<2.93E-03	<2.93E-03	4.02E-02	<2.93E-03	<2.93E-03	<2.93E-03	<2.93E-03	<2.93E-03	<2.93E-03	<2.93E-03	<2.93E-03	<1.19E-02	1
3SF-B830-012	8/14/96	<2.84E-03	<2.84E-03	<2.84E-03	5.52E-03	<2.84E-03	<2.84E-03	<2.84E-03	<2.84E-03	<2.84E-03	<2.84E-03	<2.84E-03	<2.84E-03	<1.17E-02	2
3SF-B830-013	8/14/96	<2.89E-03	<2.89E-03	<2.89E-03	<2.89E-03	<2.89E-03	<2.89E-03	<2.89E-03	5.22E-03	<2.89E-03	<2.89E-03	<2.89E-03	<2.89E-03	<1.19E-02	1
3SF-B830-014	8/14/96	<2.80E-03	<2.80E-03	<2.80E-03	3.59E-03	<2.80E-03	<2.80E-03	<2.80E-03	<2.80E-03	<2.80E-03	<2.80E-03	<2.80E-03	<2.80E-03	<1.13E-02	2
3SF-B830-014 <sup>d</sup>	8/14/96	<2.84E-03	<2.84E-03	<2.84E-03	3.94E-03	<2.84E-03	<2.84E-03	<2.84E-03	<2.84E-03	<2.84E-03	<2.84E-03	<2.84E-03	<2.84E-03	<1.17E-02	2
3SF-B830-015	8/15/96	<2.84E-03	<2.84E-03	<2.84E-03	1.22E-02	<2.84E-03	<2.84E-03	<2.84E-03	<2.84E-03	<2.84E-03	<2.84E-03	<2.84E-03	<2.84E-03	<1.17E-02	2
3SF-B830-016	8/15/96	<2.89E-03	<2.89E-03	<2.89E-03	6.43E-03	<2.89E-03	<2.89E-03	<2.89E-03	<2.89E-03	<2.89E-03	<2.89E-03	<2.89E-03	<2.89E-03	<1.19E-02	3
3SF-B830-017	8/15/96	<2.89E-03	<2.89E-03	<2.89E-03	4.82E-03	<2.89E-03	<2.89E-03	<2.89E-03	<2.89E-03	<2.89E-03	<2.89E-03	<2.89E-03	<2.89E-03	<1.19E-02	3
3SF-B830-018	8/15/96	<2.93E-03	<2.93E-03	<2.93E-03	4.82E-03	<2.93E-03	<2.93E-03	<2.93E-03	<2.93E-03	<2.93E-03	<2.93E-03	<2.93E-03	<2.93E-03	<1.19E-02	1

Table C-9 (Continued).

Location	Sample Date	Vinyl chloride	1,1-DCE	Freon 113	Methylene chloride	cis-1,2-DCE	Chloroform	1,2-DCA	TCE	1,2-DCPa	1,1,2-TCA	PCE	trans-1,2-DCE	Chamber number
3SF-B830-019	8/15/96	<3.01E-03	<3.01E-03	<3.01E-03	1.04E-02	<3.01E-03	<3.01E-03	<3.01E-03	<3.01E-03	<3.01E-03	<3.01E-03	<3.01E-03	<1.23E-02	1
3SF-B830-019 <sup>b</sup>	8/16/96	<2.63E-03	<2.63E-03	<2.63E-03	7.58E-03	<2.63E-03	<2.63E-03	<2.63E-03	<2.63E-03	<2.63E-03	<2.63E-03	<2.63E-03	<1.07E-02	2
3SF-B830-020	8/15/96	<2.89E-03	<2.89E-03	<2.89E-03	2.89E-03	<2.89E-03	<2.89E-03	<2.89E-03	<2.89E-03	<2.89E-03	<2.89E-03	<2.89E-03	<1.19E-02	3
3SF-B830-021	8/16/96	<3.05E-03	<3.05E-03	<3.05E-03	<3.05E-03	<3.05E-03	<3.05E-03	<3.05E-03	<3.05E-03	<3.05E-03	<3.05E-03	<3.05E-03	<1.26E-02	1
3SF-B830-021 <sup>d</sup>	8/16/96	<3.05E-03	<3.05E-03	<3.05E-03	<3.05E-03	<3.05E-03	<3.05E-03	<3.05E-03	<3.05E-03	<3.05E-03	<3.05E-03	<3.05E-03	<1.26E-02	1
3SF-B830-022	8/16/96	<2.89E-03	<2.89E-03	<2.89E-03	<2.89E-03	<2.89E-03	<2.89E-03	<2.89E-03	<2.89E-03	<2.89E-03	<2.89E-03	<2.89E-03	<1.19E-02	3
3SF-B830-023	8/16/96	<2.73E-03	<2.73E-03	<2.73E-03	3.68E-03	<2.73E-03	<2.73E-03	<2.73E-03	<2.73E-03	<2.73E-03	<2.73E-03	<2.73E-03	<1.12E-02	1
3SF-B830-CB-01 <sup>e</sup>	8/14/96	<3.02E-03	<3.02E-03	<3.02E-03	1.57E-02	<3.02E-03	<3.02E-03	<3.02E-03	<3.02E-03	<3.02E-03	<3.02E-03	<3.02E-03	<1.23E-02	1
3SF-B830-CB-02 <sup>e</sup>	8/15/96	<2.84E-03	<2.84E-03	<2.84E-03	9.47E-03	<2.84E-03	<2.84E-03	<2.84E-03	<2.84E-03	<2.84E-03	<2.84E-03	<2.84E-03	<1.17E-02	2
3SF-B830-CB-03 <sup>e</sup>	8/14/96	<2.71E-03	<2.71E-03	<2.71E-03	1.09E-02	<2.71E-03	<2.71E-03	<2.71E-03	<2.71E-03	<2.71E-03	<2.71E-03	<2.71E-03	<1.11E-02	3
3SF-B830-CB-01 <sup>e</sup>	8/16/96	<2.85E-03	<2.85E-03	<2.85E-03	4.02E-03	<2.85E-03	<2.85E-03	<2.85E-03	<2.85E-03	<2.85E-03	<2.85E-03	<2.85E-03	<1.15E-02	1
3SF-B830-CB-02 <sup>e</sup>	8/16/96	<2.84E-03	<2.84E-03	<2.84E-03	7.89E-03	<2.84E-03	<2.84E-03	<2.84E-03	<2.84E-03	<2.84E-03	<2.84E-03	<2.84E-03	<1.17E-02	2
3SF-B830-CB-03 <sup>e</sup>	8/16/96	<2.89E-03	<2.89E-03	<2.89E-03	8.44E-03	<2.89E-03	<2.89E-03	<2.89E-03	<2.89E-03	<2.89E-03	<2.89E-03	<2.89E-03	<1.19E-02	3
3SF-B830-CB-03 <sup>ce</sup>	8/16/96	<2.89E-03	<2.89E-03	<2.89E-03	8.44E-03	<2.89E-03	<2.89E-03	<2.89E-03	<2.89E-03	<2.89E-03	<2.89E-03	<2.89E-03	<1.19E-02	3
<b>Building 832</b>														
3SF-B832-001	8/6/96	<5.63E-03	<5.63E-03	<5.63E-03	8.84E-03	<5.63E-03	<5.63E-03	<5.63E-03	<5.63E-03	<5.63E-03	<5.63E-03	<5.63E-03	<2.30E-02	1
3SF-B832-001 <sup>b</sup>	8/6/96	<5.76E-03	<5.76E-03	<5.76E-03	2.68E-02	<5.76E-03	<5.76E-03	<5.76E-03	<5.76E-03	<5.76E-03	<5.76E-03	<5.76E-03	<2.34E-02	2
3SF-B832-002	8/6/96	<5.79E-03	<5.79E-03	<5.79E-03	<5.79E-03	<5.79E-03	<5.79E-03	<5.79E-03	<5.79E-03	<5.79E-03	<5.79E-03	<5.79E-03	<2.38E-02	3
3SF-B832-003	8/6/96	<6.55E-03	<6.55E-03	<6.55E-03	3.71E-02	<6.55E-03	<6.55E-03	<6.55E-03	<6.55E-03	<6.55E-03	<6.55E-03	<6.55E-03	<2.66E-02	2
3SF-B832-004	8/6/96	<5.87E-03	<5.87E-03	<5.87E-03	<5.87E-03	<5.87E-03	<5.87E-03	<5.87E-03	<5.87E-03	<5.87E-03	<5.87E-03	<5.87E-03	<2.38E-02	1
3SF-B832-005	8/6/96	<5.71E-03	<5.71E-03	<5.71E-03	<5.71E-03	<5.71E-03	<5.71E-03	<5.71E-03	<5.71E-03	<5.71E-03	<5.71E-03	<5.71E-03	<2.30E-02	3
3SF-B832-006	8/6/96	<6.17E-03	<6.17E-03	<6.17E-03	1.54E-02	<6.17E-03	<6.17E-03	<6.17E-03	<6.17E-03	<6.17E-03	<6.17E-03	<6.17E-03	<2.54E-02	2
3SF-B832-007	8/6/96	<5.27E-03	<5.27E-03	<5.27E-03	2.67E-02	<5.27E-03	<5.27E-03	<5.27E-03	<5.27E-03	<5.27E-03	<5.27E-03	<5.27E-03	<2.14E-02	2
3SF-B832-008	8/6/96	<5.87E-03	<5.87E-03	<5.87E-03	6.99E-03	<5.87E-03	<5.87E-03	<5.87E-03	<5.87E-03	<5.87E-03	<5.87E-03	<5.87E-03	<2.38E-02	1
3SF-B832-009	8/6/96	<6.03E-03	<6.03E-03	<6.03E-03	3.46E-02	<6.03E-03	<6.03E-03	<6.03E-03	<6.03E-03	<6.03E-03	<6.03E-03	<6.03E-03	<2.46E-02	1

Table C-9. (Continued)

Location	Sample Date	Vinyl chloride	1,1-DCE	Freon 113	Methylene chloride	cis-1,2-DCE	Chloroform	1,2-DCA	TCE	1,2-DCPa	1,1,2-TCA	PCE	trans-1,2-DCE	Chamber number
3SF-B832-010	8/6/96	<5.87E-03	<5.87E-03	<5.87E-03	2.57E-02	<5.87E-03	<5.87E-03	<5.87E-03	<5.87E-03	<5.87E-03	<5.87E-03	<5.87E-03	<2.38E-02	1
3SF-B832-010 <sup>d</sup>	8/6/96	<5.71E-03	<5.71E-03	<5.71E-03	2.73E-02	<5.71E-03	<5.71E-03	<5.71E-03	<5.71E-03	<5.71E-03	<5.71E-03	<5.71E-03	<2.30E-02	1
3SF-B832-011	8/7/96	<5.60E-03	<5.60E-03	<5.60E-03	3.63E-02	<5.60E-03	<5.60E-03	<5.60E-03	<5.60E-03	<5.60E-03	<5.60E-03	<5.60E-03	<2.25E-02	2
3SF-B832-012	8/13/96	<5.76E-03	<5.76E-03	<5.76E-03	1.10E-02	<5.76E-03	<5.76E-03	<5.76E-03	<5.76E-03	<5.76E-03	<5.76E-03	<5.76E-03	<2.34E-02	2
3SF-B832-013	8/13/96	<6.87E-03	<6.87E-03	<6.87E-03	<6.87E-03	<6.87E-03	<6.87E-03	<6.87E-03	<6.87E-03	<6.87E-03	<6.87E-03	<6.87E-03	<2.77E-02	1
3SF-B832-014	8/13/96	<6.17E-03	<6.17E-03	<6.17E-03	1.54E-02	<6.17E-03	<6.17E-03	<6.17E-03	<6.17E-03	<6.17E-03	<6.17E-03	<6.17E-03	<2.54E-02	2
3SF-B832-014 <sup>d</sup>	8/13/96	<6.17E-03	<6.17E-03	<6.17E-03	1.71E-02	<6.17E-03	<6.17E-03	<6.17E-03	<6.17E-03	<6.17E-03	<6.17E-03	<6.17E-03	<2.54E-02	2
3SF-B832-015	8/7/96	<5.79E-03	<5.79E-03	<5.79E-03	7.32E-03	<5.79E-03	<5.79E-03	<5.79E-03	<5.79E-03	<5.79E-03	<5.79E-03	<5.79E-03	<2.38E-02	3
3SF-B832-016	8/7/96	<5.71E-03	<5.71E-03	<5.71E-03	1.04E-02	<5.71E-03	<5.71E-03	<5.71E-03	<5.71E-03	<5.71E-03	<5.71E-03	<5.71E-03	<2.30E-02	1
3SF-B832-016 <sup>b</sup>	8/13/96	<6.03E-03	<6.03E-03	<6.03E-03	2.73E-02	<6.03E-03	<6.03E-03	<6.03E-03	<6.03E-03	<6.03E-03	<6.03E-03	<6.03E-03	<2.46E-02	3
3SF-B832-017	8/13/96	<5.79E-03	<5.79E-03	<5.79E-03	1.69E-02	<5.79E-03	<5.79E-03	<5.79E-03	<5.79E-03	<5.79E-03	<5.79E-03	<5.79E-03	<2.38E-02	3
3SF-B832-018	8/7/96	<6.27E-03	<6.27E-03	<6.27E-03	<6.27E-03	<6.27E-03	<6.27E-03	<6.27E-03	<6.27E-03	<6.27E-03	<6.27E-03	<6.27E-03	<2.54E-02	1
3SF-B832-CB-01 <sup>e</sup>	8/6/96	<6.03E-03	<6.03E-03	<6.03E-03	1.21E-02	<6.03E-03	<6.03E-03	<6.03E-03	<6.03E-03	<6.03E-03	<6.03E-03	<6.03E-03	<2.46E-02	3
3SF-B832-CB-02 <sup>e</sup>	8/6/96	<5.76E-03	<5.76E-03	<5.76E-03	4.58E-02	<5.76E-03	<5.76E-03	<5.76E-03	<5.76E-03	<5.76E-03	<5.76E-03	<5.76E-03	<2.34E-02	2
3SF-B832-CB-02 <sup>ce</sup>	8/6/96	<6.79E-03	<6.79E-03	<6.79E-03	4.50E-02	<6.79E-03	<6.79E-03	<6.79E-03	<6.79E-03	<6.79E-03	<6.79E-03	<6.79E-03	<2.74E-02	2
3SF-B832-CB-03 <sup>e</sup>	8/6/96	<6.03E-03	<6.03E-03	<6.03E-03	2.64E-02	<6.03E-03	<6.03E-03	<6.03E-03	<6.03E-03	<6.03E-03	<6.03E-03	<6.03E-03	<2.45E-02	1
3SF-B832-CB-01 <sup>e</sup>	8/13/96	<5.79E-03	<5.79E-03	<5.79E-03	3.05E-02	<5.79E-03	<5.79E-03	<5.79E-03	<5.79E-03	<5.79E-03	<5.79E-03	<5.79E-03	<2.38E-02	1
3SF-B832-CB-02 <sup>e</sup>	8/13/96	<4.71E-03	<4.71E-03	<4.71E-03	9.81E-02	<4.71E-03	<4.71E-03	<4.71E-03	<4.71E-03	<4.71E-03	<4.71E-03	<4.71E-03	<1.94E-02	2
3SF-B832-CB-03 <sup>e</sup>	8/13/96	<5.60E-03	<5.60E-03	<5.60E-03	4.05E-02	<5.60E-03	<5.60E-03	<5.60E-03	<5.60E-03	<5.60E-03	<5.60E-03	<5.60E-03	<2.30E-02	3

<sup>a</sup> See Table A-7 for data qualifier flags applied to the data used to calculate the exposure-point concentrations.

<sup>b</sup> Control point sample.

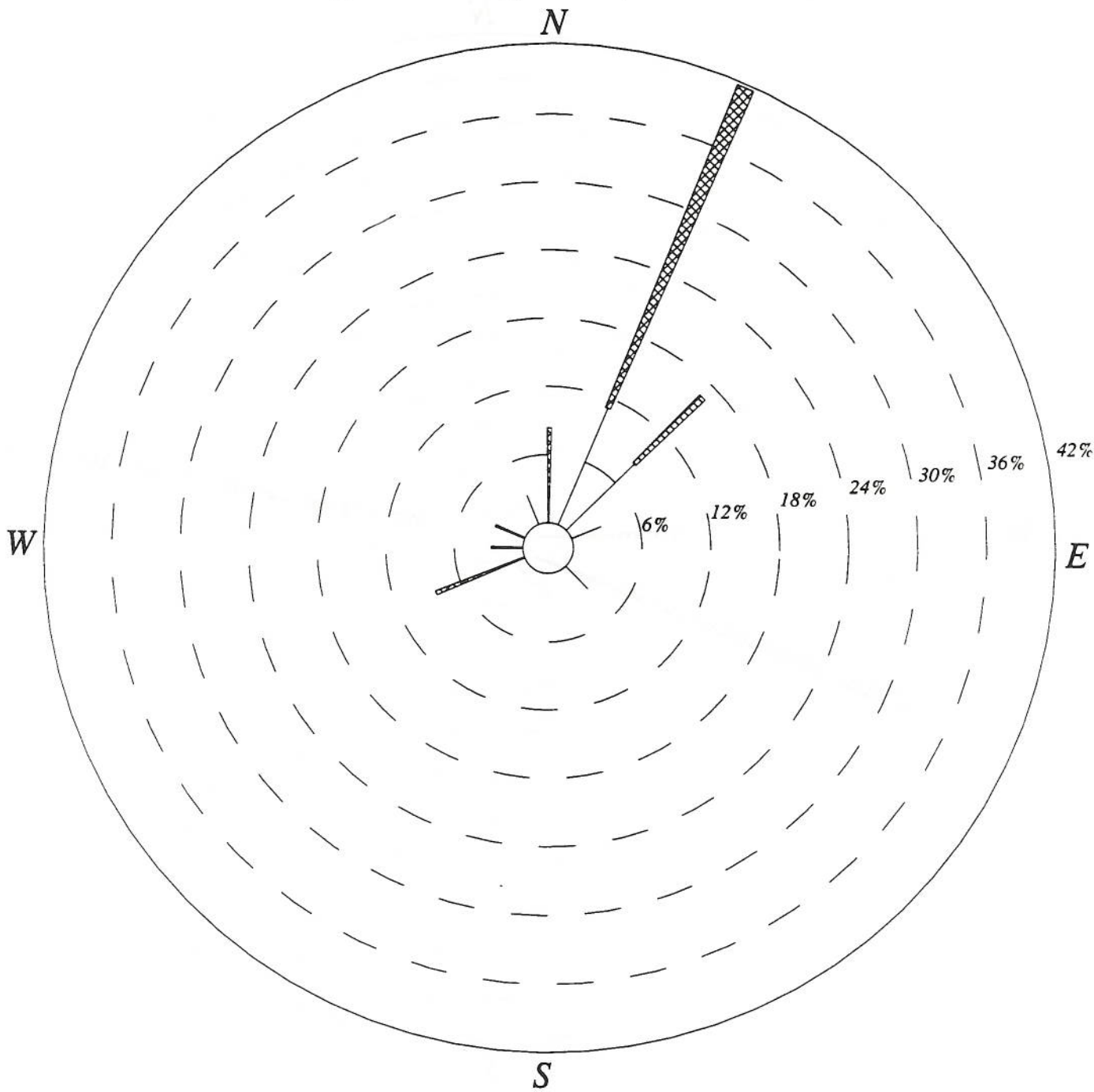
<sup>c</sup> Laboratory duplicate.

<sup>d</sup> Collocated sample.

<sup>e</sup> Chamber blank.

*B830 Air Sampling Day 1*

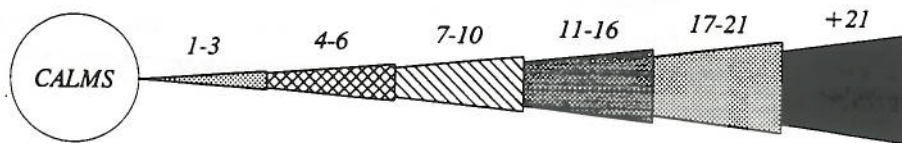
*August 13-August 13; 8 AM-4 PM*



**CALM WINDS 11.11%**

**WIND SPEED (KNOTS)**

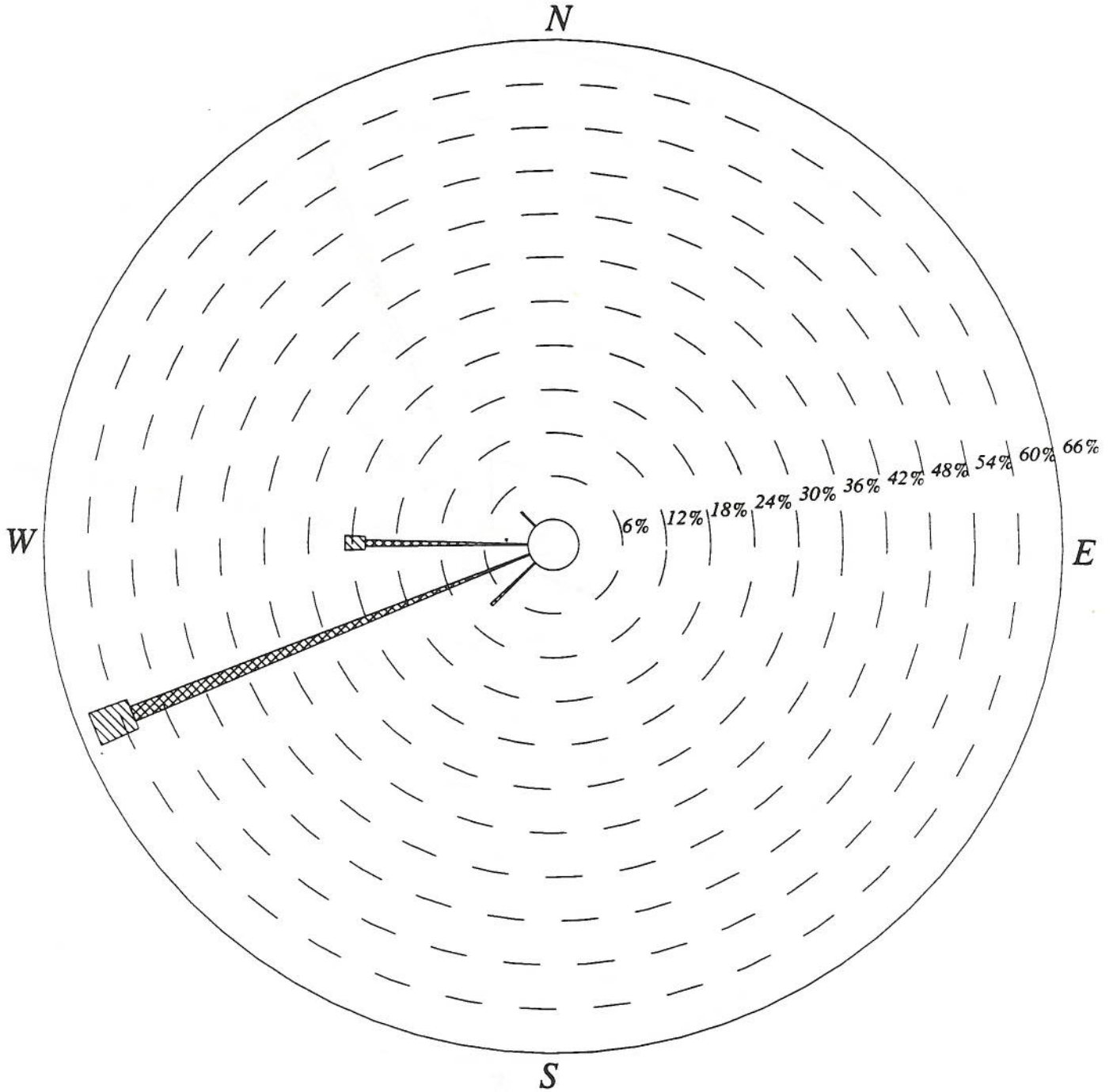
*NOTE: Frequencies indicate direction from which the wind is blowing.*



**Figure C-1. August 13, 1996, wind rose for Building 830 sampling.**

*B830 Air Sampling Day 2*

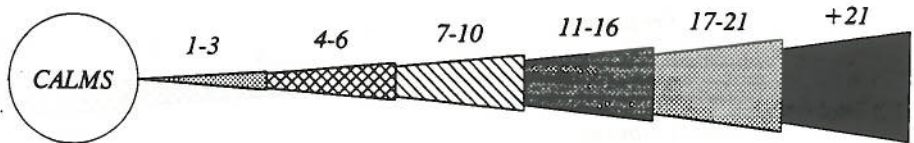
*August 14-August 14; 8 AM-4 PM*



*CALM WINDS 0.00%*

*WIND SPEED (KNOTS)*

*NOTE: Frequencies indicate direction from which the wind is blowing.*

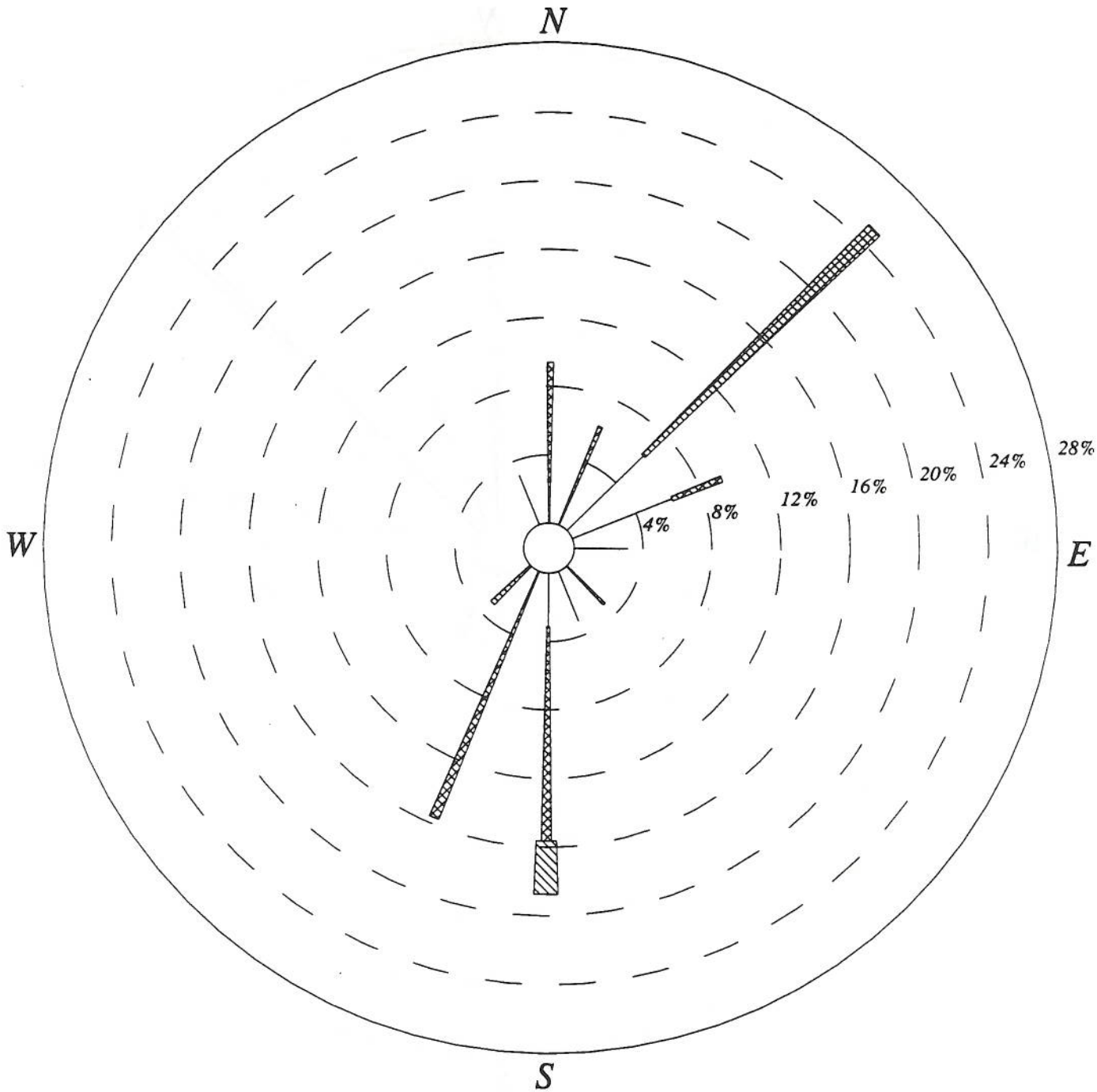


**Figure C-2. August 14, 1996, wind rose for Building 830 sampling.**



*B832 Air Sampling Day 1*

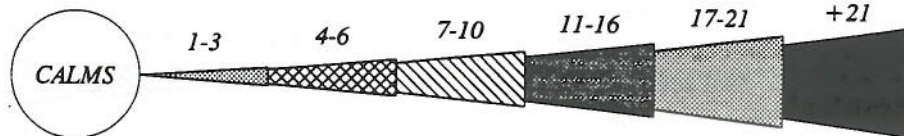
*August 6-August 6; 9 AM-4 PM*



*CALM WINDS 0.00%*

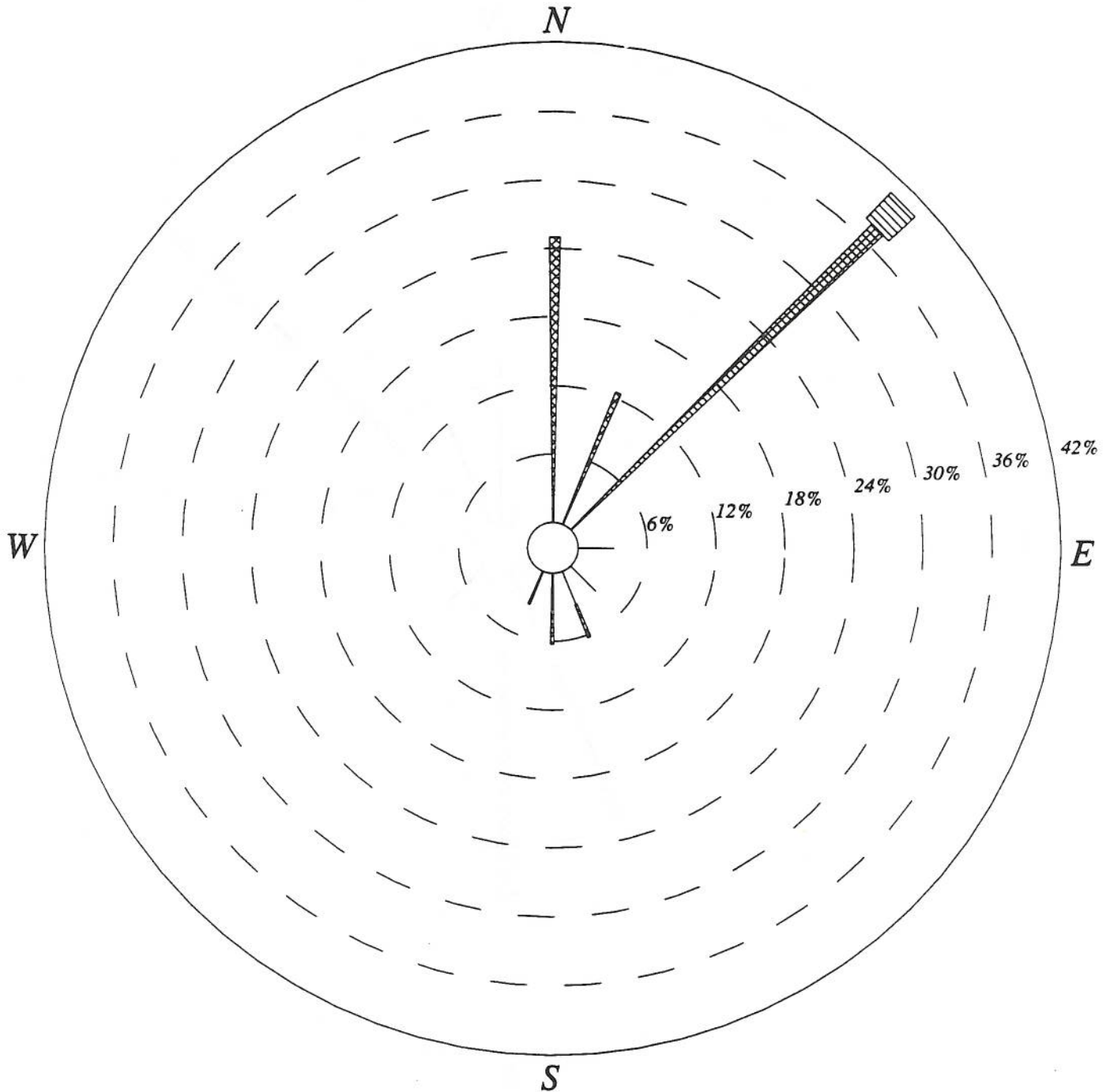
*WIND SPEED (KNOTS)*

*NOTE: Frequencies indicate direction from which the wind is blowing.*



**Figure C-3. August 6, 1996, wind rose for Building 832 sampling**

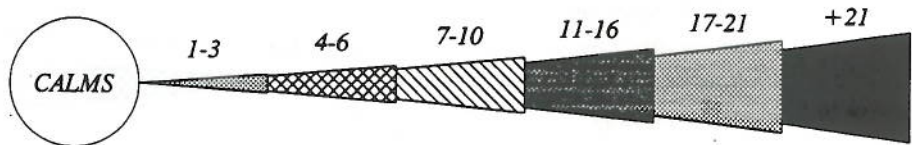
**B832 Air Sampling Day 2**  
**August 7-August 7; 9 AM-4 PM**



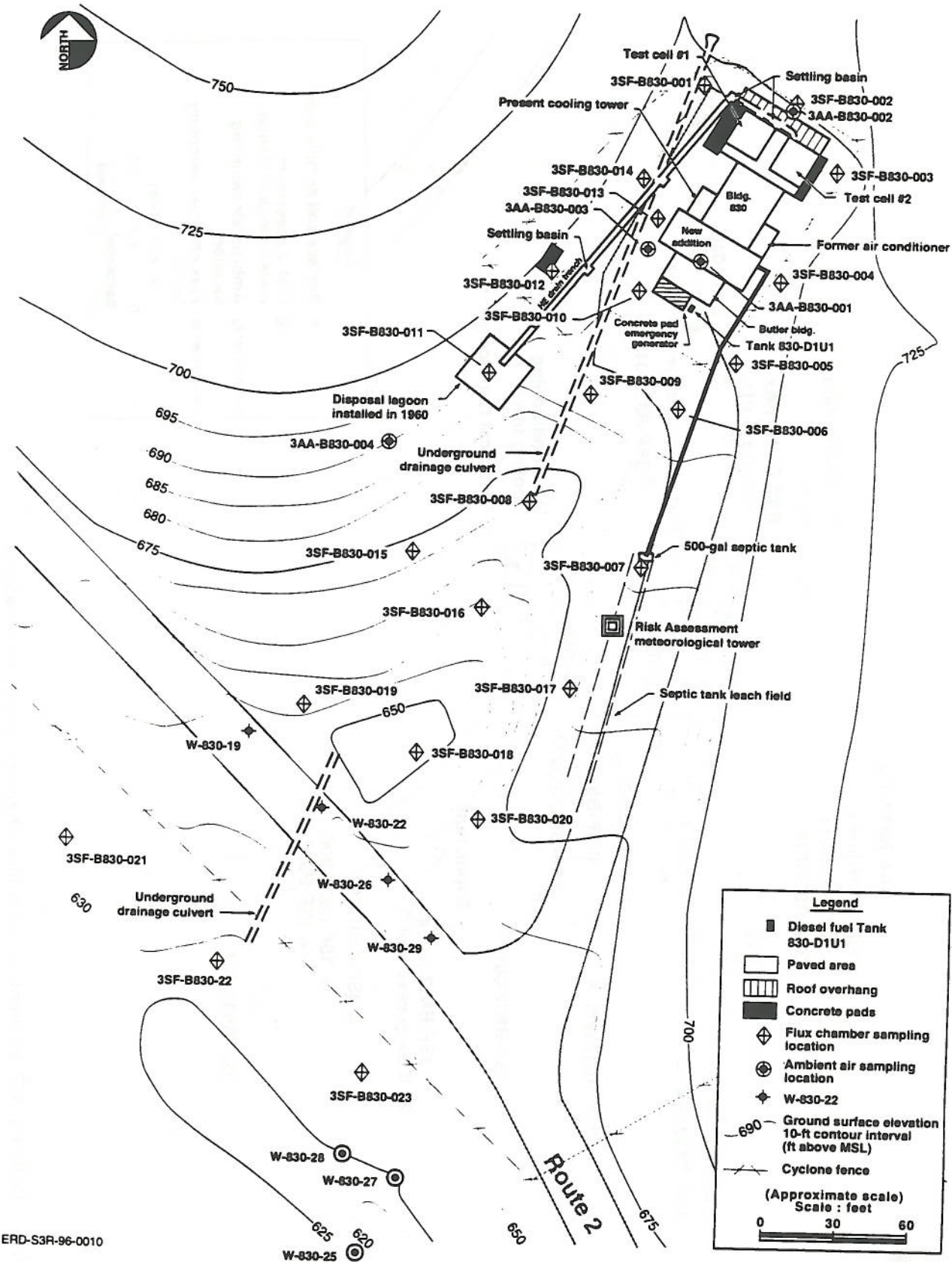
**CALM WINDS 0.00%**

**WIND SPEED (KNOTS)**

*NOTE: Frequencies indicate direction from which the wind is blowing.*

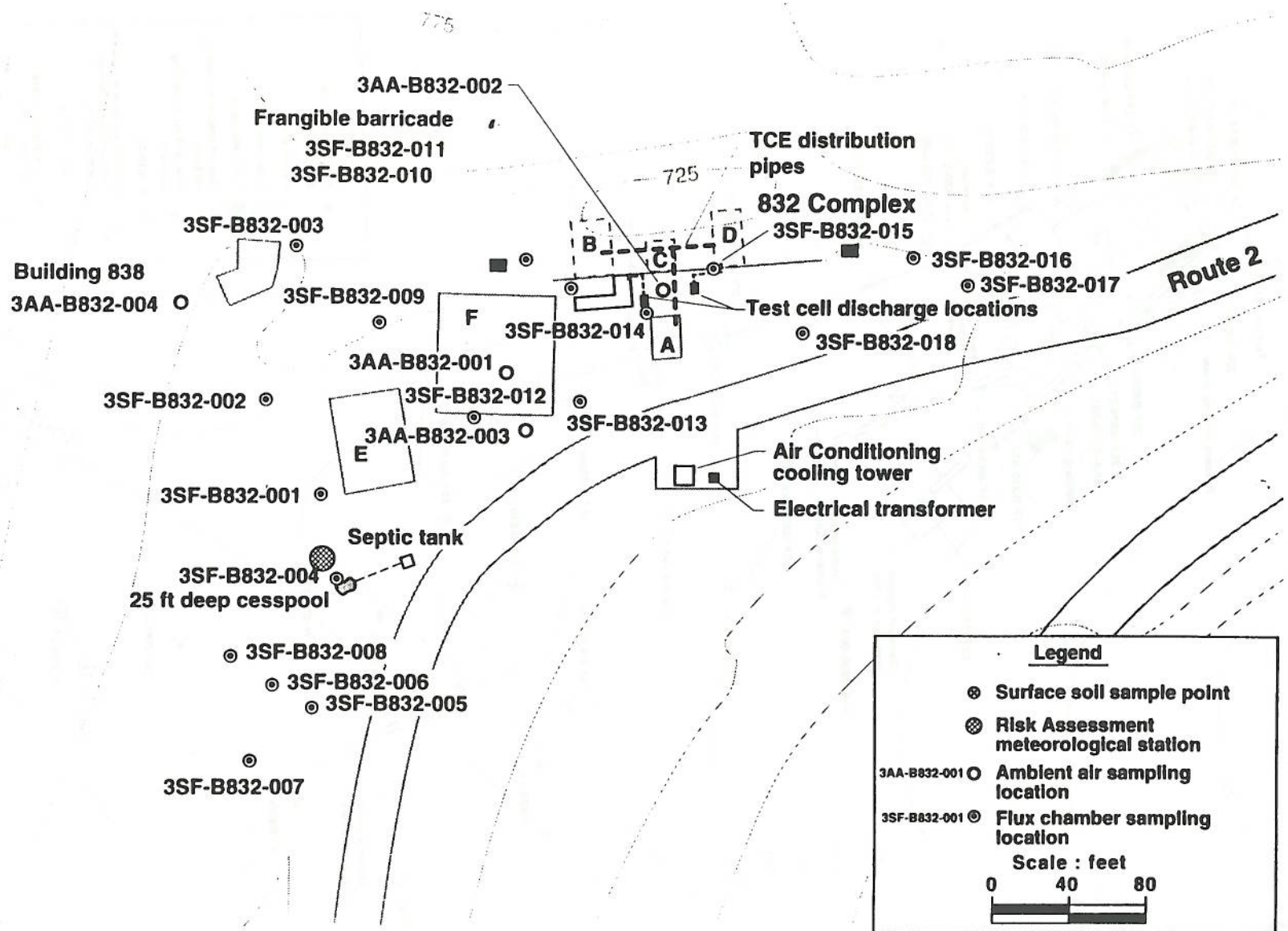


**Figure C-4. August 7, 1996, wind rose for Building 832 sampling**



ERD-S3R-96-0010

Figure C-5. Building 830 ambient air and flux chamber sampling locations.



ERD-S3R-97-0002B

Figure C-6. Building 832 ambient air and flux chamber sampling locations.