University of California, Davis

FINAL

2003 Comprehensive Annual Water Monitoring Report

LEHR/SCDS Environmental Restoration

BROWN AND CALDWELL

March 2005

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LEHR/SCDS
ENVIRONMENTAL RESTORATION

FINAL 2003 COMPREHENSIVE ANNUAL WATER MONITORING REPORT

University of California, Davis

March 2005

Prepared by:

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LIST OF ACRONYMS AND ABBREVIATIONS

ADR	automated data review
AMA	action memorandum amendment
AOC	Administrative Order on Consent
bgs	below ground surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COC	constituent of concern
CPT	cone penetrometer test
CRDL	contract-required detection limit
CVRWQCB	Central Valley Regional Water Quality Control Board
DDC	density-driven convection
DOE	United States Department of Energy
DWR	California Department of Water Resources
EDD	electronic data deliverable
Eh	oxidation potential
EPA	United States Environmental Protection Agency
FS	feasibility study
FSP	Field Sampling Plan
ft/s	feet per second
GEL	General Engineering Laboratories
gpm	gallons per minute
HHRA	human health risk assessment
HSU	hydrostratigraphic unit
IRA	Interim Removal Action
K	hydraulic conductivity
LEHR/SCDS	Laboratory for Energy-related Health Research/South Campus Disposal Site
LCS	laboratory control samples
LCSD	laboratory control sample duplicate
LF-1	landfill No. 1 stormwater runoff monitoring point
LF-3	landfill No. 3 stormwater runoff monitoring point
LS-1	lift station No. 1 stormwater runoff monitoring point
LTPS	land treatment pilot study
MDL	method detection limit
mg/L	milligrams per liter
MOA	Memorandum of Agreement
MS	matrix spike
MSD	matrix spike duplicate
msl	mean sea level
NITRATE	nitrate as nitrogen
NPDES	National Pollutant Discharge Elimination System
PCB	polychlorinated biphenyl
PCD	Putah Creek downstream sampling location
pCi/L	picoCuries per liter
PCU	Putah Creek upstream sampling location
QAPP	Quality Assurance Project Plan

LIST OF ACRONYMS AND ABBREVIATIONS (continued)

QC	quality control
RI	remedial investigation
RPD	relative percent difference
RPM	remedial project manager
RWQCB	Regional Water Quality Control Board
SOW	Statement of Work for Removal Actions and Mitigation/Repair
STPO	UC Davis sewage treatment plant outfall sampling location
TDS	total dissolved solids
TEM	transient electromagnetic
TOC	total organic carbon
TSS	total suspended solids
UC Davis	University of California at Davis
UCL	upper confidence limit
VOC	volatile organic compound
WDR	Waste Discharge Requirement
μg/L	micrograms per liter

SECTION 0
EXECUTIVE SUMMARY

This report presents the results of the 2003 comprehensive water monitoring programs conducted at the former Laboratory for Energy-related Health Research facility and South Campus Disposal Site (LEHR/SCDS) (Site). The Site is located at the University of California, Davis (UC Davis) campus

Water monitoring programs discussed in this report include:

- The density-driven convection (DDC) expanded pilot system test;
- Water monitoring conducted in support of the Remedial investigation (RI);
- Groundwater, influent, and effluent monitoring conducted for assessment of the groundwater interim remedial action (IRA) treatment system; and
- Water monitoring associated with the land treatment pilot study (LTPS).

0.1. DDC System Pilot Test

The expanded DDC system was described in the USEPA approved January 31, 2002 Work Plan prepared by Brown and Caldwell. The DDC system was expanded between August and December 2002. This expanded system consists of five new DDC wells (DDC-2 through DDC-6), three new HSU-1 wells (UCD1-49 through UCD1-51) and one new HSU-2 well (UCD2-48). The expanded system monitoring consisted of baseline sampling, weekly sampling for the first four weeks, monthly sampling from month 2 to 4 after startup, and quarterly sampling thereafter for one year. Six sampling rounds for the monthly and quarterly sampling were conducted during 2003. The expanded DDC system is discussed further in the System Summary Report included as Appendix A.

0.2. Remedial Investigation Water Monitoring

In the 2002 Comprehensive Annual Water Monitoring Report (Brown & Caldwell, 2003), UC Davis recommended minor changes. These changes were approved by the USEPA during the October 2003 remedial project manager (RPM) meetings following the fourth quarter sampling round. Those changes to the groundwater monitoring program were not implemented in 2003, so monitoring followed the program outlined in the 2001 annual water monitoring report (URS, 2002). Of the 35 wells used in this program, 11 are completed within HSU-1, 19 are completed within HSU-2, and 5 are completed within HSU-4.

0.3. Groundwater Elevations

Groundwater levels are collected monthly from 45 wells at the Site including the IRA extraction well EW2-1 and injection well IW2-1. Groundwater elevations were used to calculate gradients and estimate groundwater flow conditions.

0.4. Groundwater IRA Treatment System

The groundwater IRA is designed to reduce the offsite migration of volatile organic compounds (VOCs), primarily chloroform, in the interim prior to institution of final remedial actions. The IRA operated 88 percent of the time in 2003. The system was down due to reduction in injection well capacity, injection well rehabilitation performed in March, replacement of the motor driven three-way valve, and routine maintenance.

Mass removal of chloroform during 2003 amounted to 9.5 pounds, utilizing both injection and irrigation through the LTPS. The concentration of TDS in the effluent slightly exceeded the discharge standard for injection from March to August. Acetone and Methylene Chloride were reported on four and two occasions respectively. These compounds are common laboratory contaminants and should be removed by the air stripper, therefore the detections are suspect.

The IRA extraction rates during 2003 were slightly lower than the rates for 2002. The Berryessa Mixing System was not used in 2003 because of the presence of algae in the Berryessa water documented previously in 2001 and 2002.

The LTPS system began full-scale operation in July 2002 and the pastures were seeded on July 17, 2002. During application, monthly irrigation volume ranged from 16,170 gallons per month (0.3 gpm) to 890,655 gallons per month (20.6 gpm) from July to December 2003, with the maximum irrigation taking place in July.

0.5. Data Validation

Based on requests to produce the routine monitoring data in a timelier manner, the data validation process was modified for groundwater samples collected for the on-going programs. The data validation process for these reports outlined in the QAPP was modified to a more streamlined data verification process.

0.6. Assessment of Water Monitoring Programs and Recommendations

Assessment and recommendations for the monitoring programs are made with respect to satisfaction of the goals of the water monitoring programs.

0.6.1. Expanded DDC System Monitoring

The primary objectives of the DDC monitoring program are to reduce the mass of chloroform in the source area and to prevent the downward migration of chloroform from hydrostratigraphic unit HSU-1 to the underlying more permeable HSU-2. The current DDC program is evaluated in the System Summary Report included as Appendix A.

0.6.2. Combined Water Monitoring Programs

The primary objective of groundwater monitoring is to assess if unexpected changes to the system occur that warrant additional monitoring. The current monitoring program accomplishes this goal.

Based on the information presented in this 2003 Comprehensive Annual Water Monitoring Report, no changes to the IRA and Water Monitoring Programs are recommended for 2004.

0.6.3. IRA Monitoring Program

IRA. The IRA utilizes both injection and irrigation for discharge of treated groundwater. The system has operated at extraction rates below the original 120 to 180 gpm design extraction rate in 2001, 2002, and 2003. This lower extraction rate is capable of capturing the chloroform plume while reducing the amount of water required by the Berryessa mixing system and apparently lowering the TDS and nitrate concentrations. Average annual effluent TDS concentration was approximately 481 mg/L, below the injection discharge standard (485 mg/L), despite months where effluent TDS concentrations slightly exceeded the TDS injection standard. Effluent did not exceed the injection discharge standard for nitrate-N in 2003, an improvement compared to 2002, where effluent exceeded the standard on several occasions. A more detailed assessment of the capture zone for the IRA system is presented in Appendix B.

LTPS. The LTPS met all discharge standards for all constituents with the exception of one reported concentration of boron a constituent observed in background wells. Based on an evaluation of groundwater conditions beneath the LTPS and soil data collected from the LTPS soils in 2000 (before LTPS operations began) compared to 2003, metal concentrations did not increase within or below the LTPS. Based on almost two years of LTPS operation and monitoring, the LTPS is a practical method of managing IRA effluent, while avoiding groundwater injection and providing a beneficial re-use of the treated groundwater, for irrigation of horse pastures.

0.6.4. Remedial Investigation Ground Water Monitoring

Semiannual and annual samples are submitted for analyses of the six constituents of concern (COCs); volatile organic compounds (VOCs), chromium, nitrate, total dissolved solids (TDS), carbon-14, and tritium. More frequent samples are collected from wells monitored for the LTPS and DDC.

As in past years, the primary VOC detected in groundwater samples during 2003 is chloroform. Chloroform was detected in 31 of the 46 wells monitored from the RI and IRA groundwater monitoring programs. In these wells, chloroform concentrations ranged from 0.52 μg/L to 2,720 μg/L. Higher concentrations of VOCs were reported in the VOC source area wells sampled as part of the expanded DDC pilot test system, but these results will be discussed in the DDC System Summary Report provided as Appendix A. In addition to chloroform, nine other VOCs were reported at concentrations above the CRDL during 2003. These included acetone, 1,1-

dichloroethane (1,1-DCA), 1,1-dichloroethene (1,1-DCE), 1,2-dichoroethane (1,2-DCA), 1,2-dichloropropane (1,2-DCP), tetrachloroethene (PCE), toluene, 1,1,2-trichloroethane (1,1,2-TCA), and trichloroethylene (TCE).

0.6.5. Stormwater and Surface Water and Monitoring

Stormwater was collected from LF-1 on February 12 and December 23, 2002 and from LS-1 on April 12 and 25, 2003 and November 15, 2003. Monitoring point LF-1 is located in the southeast portion of Landfill Unit No. 1 and monitoring point LS-1 is located at the lift station located between the Strontium-90 Imhoff tanks and the southwest disposal trenches. All stormwater sampling locations were observed during numerous storms throughout the winter and fall rainy season however LF-1 and LS-1 were the only locations that produced a discharge during these events. LF-1 was sampled by UC Davis and LS-1 was sampled by the DOE. Analytical results for stormwater during 2003 indicated the following:

Summary of Detected Constituents from LF-1:

- Concentrations of acetone, total chromium, and TDS were reported above CRDLs within historical ranges.
- Neither tritium nor carbon-14 was detected above CRDLs.
- Nitrate was detected at 2.21 milligrams per liter (mg/L) and 2.26 mg/L in the duplicate sample for the February sample. These detections were just above the historical maximum of 2.15 mg/L.

Summary of Detected Constituents from LS-1:

- Acetone and toluene were detected at 6 μg/L and 56.6 μg/L respectively in the April sample.
- Total chromium was not detected above CRDL during either sampling event.
- Nitrate was detected above the CRDL, within historical ranges in the November sample.
- TDS was above historical ranges with a detection of 91 mg/L in April, and 117 mg/L in November.
- The total chromium, tritium, and carbon-14 were not detected above CRDLs.

Since the only way the site could affect surface water is via storm water discharges, the storm water and surface water sampling events have been linked in the water monitoring plan since 1998. The surface water samples are collected the same day or as soon as possible after a storm water sampling event.

Surface water was collected from three locations on February 13 and December 23, 2002. Analytical results for surface water collected indicated the following:

- VOCs, total chromium, tritium, and carbon-14 were not reported above the CRDL in any surface water samples.

- Results for TDS and nitrate were within historical average.

0.7. Reporting

Current reporting for the monitoring program includes quarterly and annual reports. There are no proposed changes to the reporting format.

Quarterly reports include data collected for each of the programs described in this section. The updates include an assessment of the progress of each system, summary of unexpected changes, and additional data collected if any, that was not included in the programs.

The 2004 Comprehensive Annual Water Monitoring Report will include a detailed assessment of each monitoring program and will include a summary of changes to the programs and recommendations for future monitoring. The assessments will include detailed analysis of historical monitoring, including graphical and statistical analysis. This Report will be submitted to the EPA by May 1, 2005.

The proposed submittal dates for the quarterly and annual reports are as follows:

- Winter 2004 Quarterly to be submitted by October 1, 2004
- Spring 2004 Quarterly to be submitted by October 29, 2004
- Summer 2004 Quarterly to be submitted by January 5, 2004
- 2004 Annual Report to be submitted by May 1, 2005

0.8. Site Information Sources

For more information about the Site restoration program, you may contact:

Brian Oatman - UC Davis Project Manager	(530) 752-6041
Jay Tomlin - DOE Project Manager	(530) 637-1637

Documents relating to the Site investigation and restoration may be found at the following location:

Yolo County Public Library, Davis Branch
Reference Desk
Davis, California
(530) 756-2332

Additional information is also available on the Internet at:

http://ehs.ucdavis.edu/enviro/lehr.html

SECTION 1
INTRODUCTION

This report presents the results for the 2003 water monitoring programs conducted at the former Laboratory for Energy-related Health Research facility and South Campus Disposal Site (LEHR/SCDS) (Site). The Site is located at the University of California, Davis (UC Davis) campus (Figure 1). Water-Monitoring has been conducted at the Site under various programs as described in previous Water-Monitoring Reports that have been prepared since 1993. The most recent programs as described in the 2002 Comprehensive Annual Water Monitoring Report (Brown and Caldwell, 2003), included monitoring of the following.

- A groundwater treatment system installed as an Interim Remedial Action (IRA) at the Site in March 1998 to minimize the offsite migration of volatile organic compounds (VOCs), primarily chloroform. Monitoring for this program followed the requirements listed in the Waste Discharge Requirements [WDRs; California Regional Water Quality Control Board (RWQCB), 1997] and later in the Addendum to Statement of Work for Removal Actions and Mitigation/Repair (SOW), by the United States Environmental Protection Agency (USEPA, 2000).

- An overall water monitoring program conducted in support of the Remedial Investigation/Feasibility Study (RI/FS) for the Site that followed the requirements issued in the USEPA's (1999) Administrative Order on Consent (AOC) No. 99-16.

During 2001, two additional water-monitoring programs were initiated for a land treatment pilot study (LTPS) and a density-driven convection (DDC) system pilot test. The LTPS was installed to address exceedence of waste discharge requirements for the groundwater IRA. Monitoring for this program is detailed in the LTPS Work Plan (Montgomery Watson, 2000) and follows the requirements issued in the USEPA's SOW (USEPA, 2000). The DDC pilot system was installed to assess the effectiveness of this technology in removing the source of VOCs, primarily chloroform, in the shallow groundwater at the Site. A detailed discussion of the monitoring program for this system is presented in the DDC System Summary Report provided as Appendix A.

In the 2001 Annual Groundwater Treatment System and Water Monitoring Report (URS, 2002c), UC Davis recommended several changes to the overall water monitoring program which were approved by the USEPA during the July 2002 remedial project manager (RPM) meeting. Three programs were identified for continued monitoring:

- The expanded DDC pilot test system;
- The LTPS; and
- A combined program for the IRA and Water Monitoring Programs.

Only minor changes were recommended to this program in the 2002 Comprehensive Annual Water Monitoring Report (Brown and Caldwell, 2003). These changes were approved by the USEPA

during the October 2003 remedial project manager (RPM) meetings following the fourth quarter sampling round. The changes are described below:

- To further assess the reduction of chloroform mass within hydrostratigraphic unit 2 (HSU-2; see Section 2 for discussion of HSUs) reaching the area of the IRA extraction system, sampling of VOCs in monitoring well UCD2-29 was changed from semi-annual monitoring to quarterly monitoring.

- As requested by the RWQCB, monitoring wells UCD1-1, UCD1-4, UCD1-10, UCD1-12, UCD1-13, UCD1-18, UCD1-19, UCD1-20, UCD1-22, UCD1-23, UCD1-24, and UCD1-25 were added to the semi-annual water monitoring program for analysis of the six Site constituents of concern (VOCs [primarily chloroform]; total chromium; nitrate; total dissolved solids [TDS]; and the radionuclides tritium and carbon-14) to establish present water quality conditions and seasonal variations in HSU-1 prior to initiating the Feasibility Study.

- The data validation process for groundwater and surface water/stormwater samples collected on an on-going basis was modified to a more streamlined data verification process (see Section 4 for detailed discussion of change).

Since the changes mentioned above were not approved by the USEPA until October 2003, all sampling during 2003 was conducted following the previous monitoring program outlined in the 2001 Annual Groundwater Treatment System and Water Monitoring Report (URS, 2002c). This 2003 Comprehensive Annual Water Monitoring Report (Annual Report) is intended to meet the requirements of the monitoring programs outlined in the 2001 Annual Groundwater Treatment System and Water Monitoring Report (URS, 2002c). The sampling programs are also intended to meet the requirements of the monitoring programs outlined in the 1999 AOC.

With the exception of the data validation process discussed above, sampling and analytical procedures for all elements are performed in accordance with the Final Revised Field Sampling Plan (FSP) (Dames & Moore, 1998a) and the Final Revised Quality Assurance Project Plan (QAPP) (Dames & Moore, 1998b).

1.1. Project Overview

The Site is located in Solano County, California, approximately 1.5 miles south of the main UC Davis campus and the City of Davis (Figure 1). The Site encompasses approximately 15 acres and is bounded by UC Davis research and agricultural facilities, private farmland, and the South Fork of Putah Creek. The Site includes active research facilities and offices. It also includes former landfills, subsurface disposal areas, and waste treatment systems, which are the focus of the LEHR/SCDS investigative and remediation programs.

Responsibility for investigation and remediation of the Site is divided between the US Department of Energy (DOE) and UC Davis by investigation area (Figure 2). As documented in the June 1997

Memorandum of Agreement (MOA), UC Davis has taken the lead role in groundwater investigation and remediation. UC Davis operates and monitors the Groundwater IRA-treatment system, which began full-scale operation on May 11, 1998. UC Davis is also responsible for the quarterly-groundwater monitoring and seasonal assessment of surface water and stormwater being conducted as part of the remedial investigation for the Site. DOE is responsible for monitoring stormwater discharges from its areas of the Site. As discussed in the SOW, there are six primary groundwater constituents of concern (COCs) for the Site: VOCs (primarily chloroform); hexavalent chromium; nitrate; total dissolved solids (TDS); and the radionuclides tritium and carbon-14.

1.2. Purpose and Objectives

The purpose of this 2003 Annual Report is to present a detailed assessment of the three monitoring programs identified above, including a summary of changes to the programs, if any. This report also presents recommendations for future monitoring. The goals for monitoring of each of these programs were outlined in the 2002 Comprehensive Annual Water Monitoring Report (Brown and Caldwell, 2003). The monitoring system developed for the combined IRA and Water Monitoring Programs was designed to answer the following questions:

- Is the IRA system continuing to minimize the offsite migration of VOCs?
- During injection, does injected water comply with stated WDRs?
- Have unexpected changes in Site groundwater, surface water, or stormwater occurred that warrant changes to the program?

The primary objectives of monitoring for the LTPS are to assess compliance with WDRs outlined in amended AOC Order No. 99-16 and to assess potential impacts to the underlying shallow groundwater system. The objectives of monitoring for the expanded DDC pilot system are to assess the mass removal of chloroform, limits of the circulation cell developed by the DDC wells, and the affects of the system on the mass transfer of chloroform from the shallow groundwater to deeper units.

1.3. Organization of Report

This report is organized as follows:

- Section 0 of this report is the Executive Summary.
- Section 1 is the Introduction, including a project overview and descriptions of the purposes and approach to the 2003 Annual Report.
- Section 2 presents the hydrogeological setting of the Site.
- Section 3 provides a discussion of treatment systems and water monitoring programs conducted during 2003.
- Section 4 contains presents the data collected during 2003.
- Section 5 includes a discussion of the results and assessment of the monitoring programs.
- Section 6 provides recommendations for 2004.

- Section 7 includes references.

As specified in the Work Plan (Brown and Caldwell, 2002) for the expanded DDC pilot system, a system summary report will be prepared summarizing the results of the expanded system and providing recommendations for modifications to system, as necessary. This report is presented as Appendix A to this 2003 Annual Report. In addition, Appendix B presents the summary report of data collected to assess the width of the HSU-2 chloroform plume between the source area (near UCD1-12) and the extraction well EW2-1 to assess potential revisions to IRA extraction rates. Note, that both the DDC System Summary Report and Additional Characterization of Chloroform Report contain data collected during the 2004 year.

SECTION 2
HYDROGEOLOGY

The hydrogeology in the vicinity of the LEHR Site was updated in the 2002 Comprehensive Annual Water Monitoring Report (Brown and Caldwell, 2003) and included information from recently completed monitoring activities as well as previous Site data. Other than continued collection of groundwater elevation data, no additional activities have been completed to further assess the hydrogeology. Therefore, this section reproduces the summary of the hydrogeology at the LEHR Site as presented in the 2002 Comprehensive Annual Water Monitoring Report (Brown and Caldwell, 2003). Gradient and groundwater flow conditions from 2003 are discussed in Section 4.4.

2.1. Regional Setting

The LEHR Site and surrounding area are located on the geomorphic unit termed "low-alluvial plains and fans" (California Department of Water Resources (DWR), 1978), specifically the Putah Plain. This surface represents distal portions of alluvial fan deposits associated with Putah Creek that are referred to as the Putah Creek Fan (Mann, 1992). Sediments that form these alluvial fan deposits consist primarily of silts and clays with coarse-grained sediments occurring locally. The Putah Creek Fan was formed by a creek that changed course many times throughout this area. The sands and gravels were deposited during high velocity flows at times of floods. Outside the ribbon-like strips of coarse channel deposits, lower velocity waters deposited silts and clays. The age of these deposits range from late Pleistocene to Recent. The thickness of the alluvial fan deposits is reported to be between 140 feet (Mann, 1992) and 180 feet (DWR, 1978).

Underlying the Putah Creek Fan is the Plio-Pleistocene Tehama Formation that was eroded prior to the deposition of the overlying alluvial material (Mann, 1992). The Tehama Formation consists of fine-grained sands and silts with discontinuous lenses of coarse sand and gravels. This unit is thought to be coeval with the Laguna Formation located on the east-side of the Sacramento Valley.

2.2. Site Stratigraphy

The subsurface stratigraphy for the LEHR Site is described from the geologic well logs, cone penetrometer test (CPT) logs, and the transient electromagnetic (TEM) survey performed at the Site in 1995 (Dames & Moore, 1995a). Copies of the geologic boring and CPT logs have been presented in several reports, most of which are in the Phase II Site Characterization Report (Dames & Moore, 1993). The maximum depth penetrated during the drilling of soil borings is 265 feet below mean sea level (msl) (310 feet below ground surface [bgs]) in the soil boring drilled for monitoring well UCD4-33. The maximum depth resolved during the TEM survey was approximately 350 feet below msl at several sounding points.

Figure 3 represents a hydrostratigraphic cross section constructed using the geologic well logs and TEM sounding points. A summary of the stratigraphy is presented in the following paragraphs.

Both the Putah Creek Fan and Tehama Formations were observed within soil borings and the TEM points completed at the Site. Table 1 summarizes the thickness of these units (as well as designated hydrostratigraphic units, see Section 2.3) as observed during drilling and completion of the TEM survey. The surface unit identified at all soil boring and TEM points is the Putah Creek Fan. Thirteen soil borings and 35 TEM points fully penetrated this unit. At these locations, the Putah Creek Fan ranges in thickness from 67 feet (TEM-17) to 205 feet (TEM-29) and is composed of two units:

- an upper unit consisting of interbedded silts, clays, fine sands, and some coarse sand and gravel deposits; and,
- a lower unit consisting predominantly of coarse sands and gravels.

Where fully penetrated, the upper unit ranged in thickness from 47 feet (TEM-17) to 124 feet (TEM-29) and the lower unit ranged in thickness from 20 feet (UCD4-47, TEM-14, TEM-17) to 81 feet (TEM-29).

Directly underlying the Putah Creek Fan is the Tehama Formation. As shown on the hydrostratigraphic cross section (Figure 3), the depth to the contact between these two formations varies across the site (see Table 1) consistent with the erosion of the Tehama formation from stream channels during the depositional period of the Putah Creek Fan.

The Tehama Formation was only partially penetrated by 13 soil borings and 35 TEM points. Depth of penetration ranged from 0.5 feet (UCD2-40) to 279 feet (TEM-17). The maximum thickness penetrated during drilling of soil borings was 196 feet (310 bgs) for the soil boring completed at UCD4-33. Three units were recognized within the Tehama Formation:

- an upper unit consisting of clays and silts with some small lenses of sand and gravel;
- an intermediate unit consisting of sands and gravel with silt and clay; and
- a lower unit consisting of clay and silt.

Where fully penetrated, the upper unit ranges in thickness from 47 feet (TEM-21) to 236 feet (TEM-17) and the intermediate unit ranges in thickness from 27 feet (UCD4-41) to 106 feet (TEM-18). Of the five soil borings that penetrated these two units, the upper unit ranges in thickness from 119 feet (UCD4-44) to 147 feet (UCD4-41) and the intermediate unit ranges in thickness from 27 feet (UCD4-41) to greater than 52 feet (UCD4-33). The lower unit has only been partially penetrated ranging in depth from 5 feet (UCD4-47) to 49 feet (TEM-25).

2.3. Site Hydrogeology

Five hydrostratigraphic units have been defined at the Site based on drilling and geophysical surveys completed since 1987. In descending order, the units are HSU-1, HSU-2, HSU-3, HSU-4, and an unnamed aquitard. For the purposes of this report, the unsaturated material (vadose zone) from the surface to first encountered groundwater is included in HSU-1.

Figure 3 represents a generalized hydrostratigraphic cross section. As seen on this figure, HSU-1 and HSU-2 form the upper and lower units, respectively; of the Putah Creek Fan and HSU-3, HSU-4, and the unnamed aquitard form the upper, intermediate, and lower units, respectively, of the Tehama Formation. Sub-units within each of these units were distinguished based on relative permeabilities. These sub-units, from lower to higher permeabilities, are as follows:

- clayey silts to silty clays;
- silt with some sand and clay;
- fine grained silty sand;
- fine to coarse grained sand; and
- coarse grained sandy gravel.

As shown on the cross section, HSU-2 and HSU-4 are composed of the coarser gravel deposits and represent aquifers that are used as a source of water in the vicinity of the LEHR site. As reported by Mann (1992), the lower unit of the Putah Creek Fan (HSU-2) is very permeable whereby wells completed in this unit have high specific capacities. The average hydraulic conductivity (K) value calculated for this unit from the constant rate pumping test conducted prior to startup of the IRA (Dames & Moore, 1997b) is 1.2×10^{-2} feet per second (ft/s), consistent with a coarse sand to gravel unit. Mann (1992) also reported that wells in the area completed within the gravel unit of the Tehama Formation (HSU-4) have lower specific capacities than those completed within HSU-2.

In contrast with the HSU-2 and HSU-4 coarse material, HSU-1, HSU-3, and the unnamed aquitard are composed predominantly of fined grained silts and clays. Several wells have been completed within HSU-1, all of which indicate low permeabilities as demonstrated by low flow rates during purging. The results of a constant rate pumping test within this unit (Dames & Moore, 1999a) calculated a K value between 3.25×10^{-5} ft/s to 3.81×10^{-5} ft/s. These K values are consistent with a silt to sandy silt unit. Using these K values, the average gradient value for HSU-1 (0.006 feet/feet) and assuming an effective porosity of 0.25, the average seepage velocity for HSU-1 ranges from 0.078 feet per day (28 feet per year) to 0.091 feet per day (33 feet per year).

HSU-3 directly underlies HSU-2 and represents a thick sequence of silts and clays within the Tehama Formation separating the HSU-2 aquifer from the HSU-4 aquifer. Samples of these materials collected during the drilling of soil borings at the Site indicated that the moisture content of these materials was lower than the plastic limit. This condition supports a very low permeability of this unit and strongly suggests that HSU-2 and HSU-4 are not hydraulically connected. It is also important to emphasize that the contact between HSU-2 and HSU-3 is an erosional contact between the Putah Creek Fan and Tehama Formation. As such, the gravel unit of HSU-2 does not interfinger with units of the underlying HSU-3 material that, if present, could create potential migration pathways. Although HSU-3 does contain small zones of sand and gravel, as shown on Figure 3, these materials are highly localized and discontinuous. The lack of hydraulic connection between HSU-2 and HSU-4 is discussed in Section 4.4.2. As seen in this figure, the response to pumping within the HSU-4 well is significantly different than the response in the HSU-2 well. A more detailed discussion of vertical gradients is presented in Section 4.4.2. The clays and silt of the unnamed aquitard below HSU-4 are similar in appearance to those in HSU-3.

SECTION 3
YEAR 2003 WATER MONITORING PROGRAMS

This section describes monitoring activities conducted during 2003. Changes to the monitoring programs were not approved by the USEPA until October 2003 following the fourth quarter sampling and, as such, monitoring during 2003 followed the previous program (Table 2). Table 3 presents the changes as approved by the USEPA. Table 4 lists the analytical parameters and associated methods used for all groundwater monitoring. Results of the 2003 monitoring programs are provided in Section 4.0.

Groundwater samples were shipped by overnight delivery to General Engineering Laboratories (GEL) in Charleston, South Carolina. Immediately upon receipt of the sample shipment, the laboratory documented the condition of the sample containers on the chain-of-custody forms and acknowledged receipt by faxing a copy of the chain-of-custody form to the task manager.

3.1. Expanded DDC Pilot Test Program

A detailed discussion of the proposed monitoring program for the expanded phase of the DDC pilot test is presented in the USEPA approved January 31, 2002 Work Plan (Brown and Caldwell, 2002). A summary of this program is presented in Table 5. The monitoring program developed for this system is designed to assess the following:

- Does the expanded pilot test system maximize the mass removal of chloroform from the source area in HSU-1?
- What are the limits of the circulation cell developed by each well individually and in combination?
- How does the system affect the mass transfer of chloroform from HSU-1 to the underlying more permeable HSU-2?

Prior to construction of the expanded system, the DDC system consisted of one DDC well (DDC-1), five nested piezometers consisting of three wells each (TP-1A, B, and C through TP-5A, B, and C) and existing HSU-1 monitoring well UCD1-12. The expanded system was installed between August and December 2002 and included the installation of five new DDC wells (DDC-2 through DDC-6), three new HSU-1 wells (UCD1-49 through UCD1-51) and one new HSU-2 well (UCD2-48). The well construction and geologic well logs for the newly installed wells were presented in the Quarterly Water Monitoring Report for Summer 2002 (URS, 2003). Table 6 presents well construction details and Figure 4 shows the location of the monitoring points for the DDC expanded pilot test system.

The monitoring program for the expanded system includes collection and analyses of water samples as follows:

- Baseline sampling round prior to startup of the expanded system;
- Weekly sampling from week 1 to week 4 after startup of the expanded system;

- Monthly sampling from month 2 to month 4 after startup of the expanded system; and
- Quarterly sampling (3 quarters) until 1 year after start-up.

The expanded system began operation on December 5, 2002. The baseline sampling round was conducted between November 15, 2002 and November 18, 2002. Also collected during the 2002 calendar year were the 4 weekly sampling events described above to be conducted after startup of the system. Monthly sampling for months 2 through 4 were conducted during January, February, and March 2003. Sampling was then conducted quarterly for the second, third, and fourth quarter of 2003. Samples were collected from the DDC wells, UCD1-12, UCD2-48, UCD1-49, UCD1-50 and UCD1-51 and each of the saturated piezometers from TP-1 through TP-5 (A-zone piezometers were not saturated during these rounds) and submitted for analyses of VOCs during each of these rounds.

From January 2003 to July 2003, the expanded DDC pilot test system continued operation. The system stopped operating on July 25, 2003 due to a failure of the DDC blower. The original blower for the DDC-1 only system was started back up on August 6, 2003 while repair of the expanded system blower was attempted. It was determined in October that the blower could not be repaired and a replacement compressor was acquired. The DDC-1 blower was shut down on November 10, 2003 in preparation for the installation of the new air compressor to replace the previous expanded DDC system blower. The expanded DDC system was restarted using the new compressor on November 26, 2003. Due to this shutdown, an additional quarterly sampling round was added to the program for assessment of the expanded DDC system. This quarterly sampling round was conducted during the 2004 calendar year as discussed in the DDC System Summary Report presented in Appendix A.

3.2. Remedial Investigation Water Monitoring Program

Water monitoring activities conducted in 2003 related to remedial investigation activities included groundwater, surface water, and stormwater monitoring programs. Each of these programs is described below.

3.2.1. Remedial Investigation Groundwater Monitoring

The specific objective of groundwater monitoring for the RI is to assess if unexpected changes in groundwater occurred that warrant changes to the program. The RPMs approved the proposed changes to the Groundwater Monitoring program specified in the 2001 Annual Groundwater Treatment System and Water Monitoring Report (URS, 2002c) in an RPM meeting in July 2002. Those changes to the groundwater monitoring program were implemented in August 2002, and were followed through 2003 (Table 2). Of the 35 wells used in this program, 11 are completed within HSU-1, 19 are completed within HSU-2, and 5 are completed within HSU-4. Groundwater levels are collected monthly from 45 wells at the Site including the IRA extraction well EW2-1 and injection well IW2-1. Groundwater elevations are used to calculate gradients and estimate groundwater flow conditions. Table 6 presents monitoring well construction details and Figure 4 shows the well locations.

3.2.2. Stormwater Monitoring

The 2003 stormwater monitoring program consisted of three monitoring locations designated LF-1, LF-3, and LS-1. Locations LF-1 and LF-3 represent discharges from UC Davis areas and are monitored by UC Davis, while the LS-1 location is monitored by DOE. Figure 5 shows the locations of these sampling points and Table 2 presents the specific analytes tested from each location.

The three sampling locations represent different portions of the Site and drain areas of varying sizes and surface conditions. For example, most of the area that drains to LS-1 is paved with asphalt, while LF-1 and LF-3 represent dirt areas. Thus, a discharge can occur at each area at different times in the rainy season or during different storm events. Stormwater sampling for the 2003 consisted of:

- On February 12 and December 23, 2003 samples were collected from location LF-1, however, there was no discharge from LF-3 on either date.

- Between January and May 2003, UC Davis observed conditions at LF-1 and LF-3 on at least 8 different days during storm events. Discharge from LF-1 was observed on February 12 and was sampled. However, there was no discharge from LF-3 on this date, or from LF-1 or LF-3 on any of the other 7 days, therefore, no samples were collected.

- Between October and December 2003, UC Davis observed conditions at LF-1 and LF-3 on at least 19 different days during storm events. Discharge from LF-1 was observed on December 23 and was sampled. However, there was no discharge from LF-3 on this date, or from LF-1 or LF-3 on any of the other 18 days, therefore, no samples were collected.

- The discharge location at LF-3 drains a much smaller area than LF-1 and observations over time have shown that under most storm conditions, rainfall in this area tends to pond and infiltrate into the soil rather than produce a discharge.

- On April 12, 2003, DOE collected samples at LS-1 and on April 25, 2003 collected samples at LS-1 for nitrate and hexavalent chromium due to issues with holding times for the April 12, 2003 sample.

- On November 15, 2003, DOE collected samples at LS-1.

3.2.3. Surface Water Monitoring

The 2003 surface water monitoring program consisted of collecting samples from three locations along the South Fork of Putah Creek which flows west to east just south of the Site. These locations are shown on Figure 5 and are designated PCU, PCD, and STPO. In 1998, the surface water monitoring program was changed to semi-annual coordinated monitoring for both stormwater

and surface water. Since the only way the Site could affect surface water is through discharge of stormwater, the semi-annual sampling events for storm and surface water were tied together in 1998. The current program is intended to collect surface water samples on the same day or as soon as possible after stormwater samples are collected to assess the affects of the same precipitation event. Since there were two stormwater discharge events sampled in 2003, surface water was also sampled two times. Table 2 presents the specific analytes tested for each surface water location.

3.3. IRA Monitoring Program

As outlined in the 2002 Comprehensive Annual Water Monitoring Report (Brown and Caldwell, 2003), the IRA monitoring program for 2003 consisted of assessing treatment system operations and performance of the LTPS installed to comply with discharge requirements for the IRA system. A description of each of these programs for 2003 is provided in the following sections.

3.3.1. IRA Monitoring

The IRA treatment system monitoring program is designed to confirm that extracted groundwater is treated to remove VOCs and that effluent meets discharge standards for injection to groundwater and discharge standards for irrigation. The treatment standard for VOCs removal is that all VOCs are non-detectable in the effluent. There are two sets of effluent treatment standards depending on whether effluent is injected into groundwater or applied to the LTPS as irrigation water. Both effluent treatment standards are presented in Table 7.

During 2003, IRA treatment plant influent and effluent was sampled monthly. Based on the requirements listed in Table 7, influent samples and effluent samples must be tested for VOCs, and effluent samples must be tested for TDS, nitrate-N, radionuclides (tritium and carbon-14), metals and general chemical parameters (nitrate-N, TDS).

3.3.2. LTPS Monitoring

The primary monitoring objectives for the LTPS are to:

1. Assess compliance with effluent water quality standards summarized in Table 7;
2. To assess potential impacts from effluent on soil quality in the LTSP soils; and
3. To evaluate potential impacts to groundwater from using IRA effluent as irrigation water.

These objectives were first described in the Land Treatment Pilot Study Work Plan (Montgomery Watson, 2000), and the effluent discharge standards (LTPS Monitoring Objective 1, shown above) were adopted as part of amended SOW (USEPA, 2000). The results of the effluent water quality monitoring (LTPS Objective 1), soil quality monitoring (LTPS Monitoring Objective 2) and the evaluation of potential groundwater impacts (LTPS Monitoring Objective 3) are discussed in Section 4.

SECTION 4
RESULTS

This section presents the analytical results of sampling and operational data collected for the 2003 water monitoring programs discussed in Section 3.0. Complete tables of the analytical data collected during 2003 are provided in Appendix C and Appendix D. Appendix C includes results for the IRA Treatment System monitoring and Appendix D includes the combined groundwater data from each of the programs, the DDC system, surface water, and stormwater data. The analytical laboratory reports are maintained in the UC Davis project files.

The format of this section has been developed to be consistent with the various programs conducted at the site. Section 4.1 presents a discussion of data verification. Section 4.2 presents the results of groundwater data collected in 2003 for the Expanded DDC pilot test system. Section 4.3 discusses IRA treatment system results including results associated with the LTPS monitoring program. A summary of groundwater elevation data results including calculated gradients and groundwater flow directions are presented in Section 4.4. Section 4.5 discusses the results of the combined groundwater RI and IRA monitoring programs. Stormwater and surface water results are discussed in Sections 4.6 and 4.7, respectively.

4.1. Data Validation Process

Quality control (QC) samples consisting of duplicates and blanks were collected in the field at a minimum frequency of 10 percent of the total amount of samples collected for each sampling round according to procedures discussed in the QAPP (Dames & Moore, 1998b). Travel blanks were included with each shipment containing samples for VOC analyses. Duplicate samples were submitted for the same analysis as the primary samples. Travel blanks are only analyzed for VOCs. The assessment of trip blanks, equipment blanks, and field duplicates is as specified in the final revised QAPP prepared for the Site (Dames & Moore, 1998b).

The quality assurance/quality control procedures conducted by the analytical laboratory for sample analysis are discussed in the QAPP. The laboratory is required to submit laboratory reports in both electronic and hardcopy formats. The electronic format is consistent with the project's electronic data deliverable (EDD) format. The electronic data is then loaded into a Microsoft SQL Server database. Database verification reports are generated and compared to the laboratory hardcopy reports to confirm that results in the database match the laboratory hardcopy report.

Analytical performance is assessed on a "batch QC" basis, that is, by evaluating the QC sample results for groups of samples that were prepared and analyzed together. The assessment steps include the following:

- Reviewing chain-of-custody documentation.
- Checking holding time compliance.

- Determining whether adequate or required batch QC samples were analyzed and reported according to method and project specifications (i.e., method blanks, laboratory control samples [LCSs], and matrix spikes [MSs]).
- Assessing LCS and laboratory control sample duplicate (LCSD) recoveries and relative percent differences (RPDs).
- Evaluating surrogate spike recoveries (for organic methods).
- Evaluating method blank contamination.
- Assessing MS recoveries and matrix spike duplicate (MSD) recoveries and RPDs.

Influences from field conditions, cross-contamination, and assessment of matrix heterogeneity are evaluated using field QC samples, including:

- Trip blanks
- Equipment blanks
- Field duplicates.

These QC samples are associated to the field samples by sampling date, shipment cooler, sampling equipment, location, matrix, or other conditions related to sample collection and handling, as appropriate. As a final process, the reported concentrations of the six COCs were compared to the historical results of these constituents to assess potential discrepancies in the data.

One effluent sample TPEF0307 collected on October 16, 2003 was rejected. TPEF0307 reported 807 mg/L TDS and 336 mg/L nitrate-N respectively, concentrations that are approximately double previous maximum TDS (570 mg/L) and 30 times higher than previous maximum nitrate-N 11 mg/L nitrate-N) in effluent respectively. Sample TPEF0307 was rejected because TDS and nitrate-N results were outliers and because effluent sample ASDP0307 collected on the same day (10/16/03) in a different location in the effluent treatment stream, reported TDS and nitrate-N concentrations that were consistent with other effluent data. Sample ASDP0307 reported concentrations of 485 mg/L TDS and 7.67 mg/L nitrate-N respectively. Sample TPEF0307 may have been contaminated by inadvertently using a sample container that included HNO3 (a preservative), but this possibility was not confirmed with the laboratory.

The results of this validation indicate that the data, except as stated above, are valid for their intended purpose.

4.2. Expanded DDC Pilot Test Program

During 2003, a total of six sampling rounds were conducted for the expanded DDC pilot test program. These sampling rounds included monthly groundwater monitoring conducted in January, February, and March, with subsequent quarterly groundwater monitoring in June, August, and October 2003.

A detailed discussion of these results is presented in the DDC System Summary Report (Appendix A). A summary of the chloroform results for each of the sampling rounds is presented in Table 8. Complete analytical results for the DDC system are included in Appendix D.

4.3. IRA Treatment System Operations

Data collected for the groundwater IRA system includes 2003 operation data, IRA influent and effluent water quality monitoring results, LTPS operation data, and LTPS monitoring (including effluent, soil, and groundwater monitoring). Each of these data sets are described below.

4.3.1. IRA Operations

The IRA Operations Summary for 2003 is presented in Table 9. The influent and effluent monitoring results and Figure C-1 of the IRA, which shows influent and effluent sampling locations, are presented in Appendix C. Details of the monthly 2003 IRA extraction rate and effluent chloroform concentrations are presented in Table 10. The detailed IRA Operations Log is presented in Appendix E.

As shown in Table 9, the IRA continued to operate 88% of the time during 2003, removing approximately 9.5 pounds of chloroform, utilizing both injection and irrigation through the LTPS for discharge of treated groundwater. The Berryessa Mixing system was not used at all in 2003 because of the presence of algae in Berryessa water documented previously in 2001 and 2002.

The following events contributed to IRA system downtime during the year:

- Reduction in injection well capacity. When injection capacity decreases, water level rises, triggering an alarm and plant shutdown. The IRA system is manually restarted and the extraction rate adjusted if necessary. The injection well was rehabilitated in March 2003, and the injection well capacity increased from approximately 30 gpm to 80 gpm;

- Replacement of the motor-driven three-way valve. This three-way valve directs treated effluent to either the LTPS for irrigation water or to the injection well for groundwater injection. In May 2003, when LTPS irrigation water was needed, it was discovered that this valve was frozen because it was inactive from December 2002 to May 2003. For five months during winter and spring no irrigation of the LTPS was required and the valve directed all effluent to the injection well. To prevent recurrence of this problem, the routine maintenance program now activates this valve once per month; and

- Routine operation and maintenance.

Decreasing injection well capacity was observed in late 2002 and early 2003. Injection well capacity limited groundwater extraction because the LTPS discharge can only use 10 to 15% of the total

extracted groundwater. The reduced injection well capacity may be caused by mineral precipitation and microbial growth on the well screen and possibly in the sand pack surrounding the well, which clogs pore space and well screen openings, reducing flow.

The injection well was rehabilitated in December 2000, again in January 2002 and recently in March 2003 to remove scale and biological growth primarily from the interior of the injection well. During well rehabilitation, all piping is removed, the injection well is surged, swabbed (well interior is mechanically scrubbed) and acid is added to the well. After 24 hours, the injection well is pumped to remove the acid and then the piping is replaced.

4.3.2. IRA Influent/Effluent Monitoring

This section presents the results of influent and effluent monitoring of the IRA system, including a discussion of chloroform mass removal and compliance with discharge requirements. The complete analytical results of influent and effluent water quality monitoring are presented in Appendix C.

Treatment of Extracted Groundwater for VOCs. The volume of groundwater extracted and chloroform mass removed by the groundwater IRA system in 2003 was similar to 2002 (Tables 9 and 10). The total mass of chloroform removed during 2003 was 9.5 pounds, similar to the 9.6 pounds of chloroform removed in 2002.

IRA Effluent Compliance with Discharge Requirements for Injection. All IRA influent and effluent analytical monitoring data for 2003 are presented in Appendix C. Aside from one rejected sample (for detailed discussion, see Section 4.1) , effluent discharged via injection met discharge standards during 2003 with the following exceptions summarized in Table 11:

- **TDS** – Between March and August 2003, the TDS concentration in the effluent slightly exceeded the discharge standard for injection (485 milligrams per liter [mg/L] monthly average and 500 mg/L daily maximum) as shown in Table 9. The maximum concentration detected during this period was 493 mg/L in March 2003. Despite slightly exceeding the TDS effluent discharge standard for TDS on 5 occasions, the 2003 annual average IRA effluent concentration of 481 mg/L was below the 485 mg/L discharge standard.

- **Acetone –** On four occasions, acetone was reported in the IRA effluent from 1 to 4.1 micrograms per liter (μg/L). Acetone is a common laboratory contaminant that has been reported in previous treatment plant effluent samples and for some of the sampling rounds was detected in travel blanks (see 2002 Annual Water Monitoring Report). Acetone was also reported in influent samples but this volatile compound should have been removed by the air stripper, therefore reported concentrations in the effluent are suspect.

- **Methylene Chloride** – On two occasions, methylene chloride was reported in IRA effluent at 0.45 and 0.52 μg/L. As with acetone, methylene chloride has been reported in effluent samples

and travel blanks in previous years and often appears as a laboratory contaminant, therefore reported concentrations in the effluent are suspect.

As shown in Appendix C, chloroform was not reported in effluent samples, indicating that the stripper malfunctions observed in 2002 were corrected. The reported detections of methylene chloride and acetone in the effluent are probably the result of laboratory contamination as documented during previous sampling rounds.

4.3.3. LTPS Operations

As discussed in Section 3, there are three objectives in the LTPS monitoring program including:

1) assess compliance with effluent water quality standards summarized in Table 7;
2) assess potential impacts from effluent on soil quality in the LTSP soils;
3) evaluate potential impacts to groundwater from using IRA effluent as irrigation water.

The LTPS irrigation system began full-scale operation in July 2002 and the pastures were seeded on July 17, 2002. Monthly irrigation volume varied from 16,170 to 890,655 gallons per month from July to December 2003, with the maximum irrigation rate taking place in July. This application rate is equivalent to approximately 1 to 3 inches per acre per week throughout May to September 2003.

4.3.4. LTPS Irrigation Water Effluent Monitoring

Effluent water quality standards for LTPS irrigation water are summarized in Table 7. Complete results of the 2003 LTPS effluent monitoring program are presented in Appendix C. The results presented in Appendix C show that effluent used to irrigate LTPS pastures achieved all effluent standards except for boron on one occasion, in July 2003. The effluent concentration measured in July 2003 was 1,170 mg/L, exceeding the discharge standard of 791 mg/L for boron. Boron is a naturally occurring constituent in groundwater as evidenced by its occurrence in the Davis, Dixon, and Woodland area (west of the Sacramento River). Seasonal fluctuation of boron concentrations have been observed in background wells with highest concentrations observed in summer as well.

4.3.5. LTPS Soil Analytical Results

As proposed in the Land Treatment Pilot Study Work Plan (Montgomery Watson, 2000), six composite soil samples were collected from 1, 3 and 5 feet below ground surface (bgs) and analyzed in October 2000 in the locations shown in Figure 6. Following the application of treated IRA effluent in half of 2002 and throughout 2003, composite soil samples were collected again in November 2003 and analyzed for metals, pH salts and TOC. The results for these soil analytical results are summarized in Table 11A, with complete analytical results provided in Appendix D. Table 11A also presents the upper 95% confidence limit (UCL) concentrations from samples collected before LTPS irrigation in 2000 compared to 2003 data. Parametric and non-parametric

statistical tests were performed on the data to evaluate whether IRA effluent used as irrigation water resulted in a statistically significant change in metal, pH, salts and TOC concentration.

Table 11A shows that there was no significant change in most constituents including arsenic, cadmium, copper, lead, mercury, nickel, phosphate, selenium and TOC. Several immobile constituent concentrations in LTPS soil increased between 2000 and 2003, including pH, total nitrogen (primarily organic nitrogen), sulfate and zinc. Total nitrogen is composed of organic nitrogen (considered immobile because it is adsorbed to soil particles), nitrate (readily mobile in soils) and ammonia (also considered mobile because it can be adsorbed and desorbed from soil particles). Table 11A shows that the mobile constituents in soil decreased between 2000 and 2003, including barium, chloride, nitrate-N and ammonia-N.

These soil results support the conclusion that the use of treated IRA effluent had little if any deleterious effects on soil quality between 2000 and 2003. The increased concentration of total nitrogen, sulfate and zinc are all plant nutrients and will not degrade LTPS soil quality. The decreased concentration of chloride, nitrate and ammonia are easily explained by irrigation causing leaching of these soluble salts. Barium is considered a metal but is also slightly soluble and can be mobilized in the soil profile by leaching with irrigation water.

4.3.6. Groundwater Monitoring Beneath the LTPS

HSU-1 groundwater beneath the LTPS was monitored for metals and inorganic salts. Complete analytical results are presented in Appendix D. Table 11B shows the concentrations of metals in HSU-1 within LTPS, wells UCD1-25, UCD1-28 and the multiple-screen well UCD2-27Z1, UCD2-27Z2 and UCD2-27Z3. Tables 11B also provides site background well UCD1-18 and the closest HSU-1 well upgradient of the LTPS, UCD1-11.

These groundwater data show that no discernable increase in metal constituent concentration occurred in 2003. Table 11B also shows that nitrate, sulfate and chloride concentrations in wells beneath the LTPS have stabilized or decreased in concentration since irrigation of the LTPS began in 2003.

4.4. Groundwater Elevation Results

Groundwater elevations were measured monthly for HSU-1, HSU-2, and HSU-4 wells, and weekly for extraction well EW2-1 and injection well IW2-1. Monthly groundwater elevations for 2003 are presented in Table 12, and quarterly groundwater elevation graphs and contour maps are presented on Figures 7 through 10. In general, groundwater elevations and trends were consistent with historical data.

4.4.1. Horizontal Groundwater Flow and Gradients

Horizontal groundwater gradients during 2003 ranged from 0.0023 to 0.01 feet/foot for HSU-1, 0.00031 to 0.0023 feet/foot for HSU-2, and 0.0010 to 0.01 feet/foot for HSU-4. Gradients were generally the greatest in HSU-1 and the least in HSU-2. Gradients were greatest during the summer and the least during the winter for all three HSUs. Groundwater flow was generally to the north-northeast in HSU-1. Groundwater flow in HSU-4 was to the northwest in the first half of 2003, changing to the south in the second half of the year. These changes are consistent with historical data. However, groundwater flow in HSU-2 was to the east-northeast in the winter and spring, but turned south-southeast in the summer and fall. These changes are not consistent with historical data; there is no known reason for these changes and could be due to measurement errors.

4.4.2. Vertical Groundwater Gradients

Vertical groundwater gradients were evaluated using data from well pairs between HSU-1/HSU-2 and HSU-2/HSU-4. In general, vertical gradients between HSU-1/HSU-2 were downward during the agricultural season (April to September) and relatively flat during the rainy season (October to April). Vertical gradients between HSU-2/HSU-4 were downward during the entire year with the largest vertical gradients observed beginning in April and continuing to December.

Vertical groundwater gradients for 2003 based on well pairs between HSU-1/HSU-2 and HSU-2/HSU-4 are shown in Table 13. The gradient between HSU-1 and HSU-2 ranged between a downward gradient of 0.1551 and an upward gradient of 0.0522 feet/foot. The gradient between HSU-2 and HSU-4 was downward the entire year and ranged between 0.0007 to 0.1274 feet/foot. Upward vertical gradients occurred between HSU-1 and HSU-2 in the vicinity of the DDC system as illustrated by wells UCD1-51 and UCD2-48, and ranged between 0.0042 and 0.0162 feet/foot. The downward vertical gradient that occurred during August of 2003 corresponded with the temporary shutdown of the DDC system.

Figure 7 illustrates that changes in water levels during the pumping season were distinctly greater between HSU-2 and HSU-4 than between HSU-1 and HSU-2. This pattern has been seen every years since HSU-4 well pairs were installed in 1997. This distinct difference in response to pumping changes between the two HSUs, combined with the hydrogeologic interpretation presented in Section 2.3, suggests that HSU-2 and HSU-4 are not hydraulically connected. As an example, in June 2003, the difference in water levels between HSU-1 and HSU-2 wells UCD1-13 and UCD2-14 was approximately 1.97 feet (downward gradient of 0.0868 feet/foot), and the water level difference between HSU-2 and HSU-4 wells UCD2-32 and UCD4-42 was approximately 13.79 feet (downward gradient of 0.0843 feet/foot).

4.5. Groundwater Monitoring Results

This section presents a summary of analytical results of the six primary COCs for groundwater samples collected for the RI and IRA. Groundwater analytical data for 2003 are presented in

Appendix D. The yearly average lateral distribution of the six primary COCs for the last four years in HSU-1 and HSU-2 are shown in Figures 11 through 22. Selected time versus concentration graphs for HSU-1 and HSU-2 are presented in Figures 23 through 28, and Figure 29 includes time versus concentration graphs for HSU-4.

4.5.1. Volatile Organic Compounds

Appendix D presents the results of VOCs in groundwater during 2003. As seen on these tables, as with previous monitoring results, the primary VOC detected in groundwater samples during 2003 is chloroform. Chloroform was detected above the contract-required detection limit (CRDL) in 31 of the 46 wells monitored from the RI and IRA groundwater monitoring programs ranging in concentration from 0.52 μg/L (UCD1-25) to 2,720 μg/L (UCD1-50). In addition to chloroform, nine other VOCs were reported at concentrations above the CRDL during 2003, including acetone, 1,1-DCA, 1,1-DCE, 1,2-DCE, 1,2-DCP, PCE, toluene, 1,1,2-TCA, and TCE.

It should be noted that higher chloroform concentrations were detected in the DDC wells as part of the DDC monitoring system. A detailed discussion of the results from the monitoring program for this system is presented in the DDC System Summary Report provided as Appendix A.

A summary of VOC results within each of the HSUs is presented in the following paragraphs.

HSU-1 - During the RI and IRA 2003 groundwater monitoring programs, ten VOCs were reported above the CRDL in groundwater samples collected from HSU-1 wells: chloroform, 1,1,2-TCA, 1,1-DCA, 1,1-DCE, 1,2-DCA, 1,2-DCP, acetone, PCE, toluene, and TCE. Chloroform was detected above the CRDL in seven of the ten HSU-1 wells; UCD1-11, UCD1-12, UCD1-13, UCD1-25, UCD1-49, UCD1-50, and UCD1-51 had concentrations ranging from 0.52 μg/L (UCD1-25 on February 4, 2003) to 2,720 μg/L (UCD1-50 on October 14, 2003). Chloroform isoconcentration contours in HSU-1 for 2003 are presented on Figure 11. Toluene was only detected in a single sample slightly above the CRDL during 2003 (0.54 μg/L in UCD1-27Z3 on October 16, 2003).

HSU-2 – During the RI and IRA 2003 groundwater monitoring programs, three VOCs were reported above the CRDL in groundwater samples collected from HSU-2 wells: chloroform, 1,2-DCA, and 1,2-DCP. Chloroform was detected above the CRDL in eleven of the nineteen HSU-2 wells: UCD2-14, UCD2-26, UCD2-29, UCD2-30, UCD2-31, UCD2-32, UCD2-39, UCD2-40, UCD2-45, UCD2-46, and UCD2-48 at concentrations ranging from 0.76 μg/L (UCD2-14 on April 8, 2003) to 96.7 μg/L (UCD2-29 on October 13, 2003). Chloroform isoconcentration contours in HSU-2 for 2003 are presented on Figure 17.

HSU-4 - During the RI and IRA 2003 groundwater monitoring programs, chloroform was the only VOC reported above the CRDL in groundwater samples collected from HSU-4 wells. Chloroform was detected above the CRDL in three of the five HSU-4 wells: UCD4-42, UCD4-43, and UCD4-47 at concentrations ranging from 2.5 μg/L (UCD4-42 on April 8, 2003) to 4.2 μg/L (UCD4-47 on April 9, 2003).

4.5.2. Chromium, Nitrate, and Total Dissolved Solids

Figures 12 through 14 and 18 through 20 show isoconcentrations for chromium, nitrate, and TDS. Figures 24 through 26 show graphs of these constituents over time in selected wells. As seen on these figures and in Appendix D, the 2003 results for these three constituents are consistent with previous results.

4.5.3. Carbon-14 and Tritium

Carbon-14 and tritium have been detected during historical monitoring activities on Site. In 1999, the Waste Burial Hole Removal Action removed waste buried on the Site that was indicated to be the source of carbon-14 and tritium found in groundwater. At the end of 2001, results for radiological constituents in the HSU-2 (UCD2-14) well downgradient of this source area indicated decreased concentrations. Overall, carbon-14 and tritium concentrations have continued to decrease through 2003.

Carbon-14. Although the distribution of carbon-14 on the Site is similar to that of tritium (particularly in HSU-1), the concentrations of carbon-14 have historically been significantly lower than concentrations of tritium.

HSU-1 - Carbon-14 was detected in five of the ten HSU-1 wells sampled during 2003. These detections are consistent with results from 2002, and ranged from 16.9 +/- 4.96 picoCuries per liter (pCi/L) in UCD1-49 (October 14, 2003) to 913 +/-18.8 pCi/L in UCD1-13 (April 8, 2003). See Figure 15 for carbon-14 isoconcentration contours in HSU-1 for 2003 and Figure 27 for graphs of carbon-14 over time in selected wells.

HSU-2 – Since Site groundwater monitoring began, carbon-14 has been consistently detected in UCD2-14 (near the Waste Burial Holes), at concentrations averaging 500 pCi/L. During 2003 detections of carbon-14 in this well ranged from 158 +/- 8.7 pCi/L in October 2003 to a high of 205 +/- 9.27 pCi/L in April 2003. Four other wells (UCD2-30, UCD2-31, UCD2-39, and UCD2-45) in HSU-2 had detections of carbon-14 in 2003 ranging from 17.5 +/- 4.73 pCi/L (UCD2-45 in October 2003) to 102 +/- 7.38 pCi/L (UCD2-30 in October 2003).

HSU-4 – In 2003, carbon-14 was not detected in HSU-4 wells at concentrations above the CRDL.

Tritium. As in previous years, consistent detections of tritium have been reported in only two wells, UCD1-13 and UCD2-14, while low sporadic results have been historically reported in other Site wells.

HSU-1 – Of the nine HSU-1 wells monitored in 2003, tritium was only detected above the CRDL in UCD1-13. UCD1-13 concentrations ranged from 11,600 +/- 500 pCi/L in April 2003 to 7,680 +/- 352 pCi/L in October 2003. The detections are consistent with results from 2002. See Figure

16 for tritium isoconcentration contours in HSU-1 for 2003, and Figure 28 for graphs of tritium over time in selected wells.

HSU-2 – Of the eighteen HSU-2 wells monitored in 2003, tritium was only detected above the CDRL in UCD2-14. UCD2-14 concentrations ranged from 1,120 +/- 217 pCi/L in April 2003 to 605 +/- 154 pCi/L in October 2003. See Figure 22 for tritium isoconcentration contours in HSU-2 for 2003. Figure 28 shows a graph of tritium over time in UCD2-14, and reported results appear lower than most results from 2002.

HSU-4 – In 2002, tritium was not detected in HSU-4 wells at concentrations above the CRDL.

4.6. Stormwater Monitoring

Landfill Areas: Stormwater samples were collected from location LF-1 on February 12, 2003 and December 23, 2003 (see Figure 5). As discussed in Section 3.2.2, both stormwater sampling locations were observed during numerous storms throughout the rainy season however LF-1 was the only UC Davis location which produced a discharge. LF-1 samples were analyzed for field parameters, acute aquatic toxicity, metals, nitrate, oil and grease, pesticides and polychlorinated biphenyls (PCBs), radionuclides, TDS, TOC, total suspended solids (TSS), and VOCs. Of the compounds analyzed, LF-1 had detections above the CRDL for acetone, metals, nitrate, TOC and TDS as shown in Appendix D. All of the compounds, except for nitrate which was slightly above the historical high, were within the historical ranges. The watershed area that feeds into the revised LF-3 sample location is relatively small and contains a large amount of unpaved soil surface, so rain falling on this area appears to infiltrate and only rarely produces sufficient runoff to cause discharge.

Lift Station: Stormwater sample location LS-1 was sampled by the DOE contractor in April and November. The samples in April were collected on April 12, 2003 and on April 25, 2003. The sample collected on April 25, 2003 was for nitrate and hexavalent chromium due to holding time issues from the April 12, 2003 sample. The November sample was collected on November 15, 2003. At this location chloroform was not detected and acetone and toluene were detected at 56.6 μg/L and 6 μg/L respectively in April (Appendix D). The concentrations of total chromium and nitrate were within historical ranges. TDS concentrations were above historical ranges with a detection of 91 mg/L in April and 117 mg/L in November. Neither tritium nor carbon-14 was detected above CRDLs.

4.7. Surface Water Monitoring

Surface water samples were collected from three locations (PCU, PCD, and STPO) during 2003 (see Figure 5) during the two storm events at which run off from the Site was sampled.

Each surface water sampling location was sampled for field parameters, chronic aquatic toxicity, metals, nitrate, pesticides and PCBs, radionuclides, TDS, and VOCs. Of these compounds, only metals, nitrate, and TDS were detected above the CRDLs. Nitrate was detected ranging from 1.63

mg/L at PCU to 9.45 mg/L at STPO. TDS was detected ranging from 243 mg/L at PCU to 656 at STPO. The metals detected were arsenic, barium, boron, copper, iron, manganese, vanadium, and zinc. The results are presented in Appendix D.

SECTION 5
ASSESSMENT OF MONITORING PROGRAMS

As discussed in Section 1, specific goals and objectives have been established for the various water monitoring programs conducted at the Site as reported in the 2001 Annual Water Monitoring Report. The primary objective of this section is to assess the data obtained from each of these programs with respect to meeting these objectives. This assessment is presented in the following sections.

5.1. Expanded DDC Pilot Test System

The objectives of the monitoring program for the expanded DDC pilot test system are as follows (Brown and Caldwell, 2002):

- Does the expanded pilot test system maximize the mass removal of chloroform from the source area in HSU-1?
- What are the limits of the circulation cell developed by each well individually and in combination?
- How does the system affect the mass transfer of chloroform from HSU-1 to the underlying more permeable HSU-2?

Startup of the expanded DDC pilot test system began on December 5, 2002 followed by weekly, monthly, and quarterly monitoring as discussed in Section 3.1. A detailed assessment of the accomplishment of these objectives is presented in the DDC System Summary Report for the expanded DDC pilot test system included as Appendix A.

5.2. Water Monitoring Program

Three objectives for the combined IRA and RI Water Monitoring programs were listed in the 2001 Annual Groundwater Treatment System and Water Monitoring Report (URS, 2002c) as summarized in Section 1.0. Two of these objectives are associated with performance of the IRA and are discussed in Section 5.3. The third objective of the combined monitoring program is to assess the following question: Have unexpected changes in Site groundwater, surface water, or stormwater occurred that warrant changes to the program?

The monitoring programs designed to accomplish this objective during 2003 are outlined in Section 3.2. This section presents an assessment of the groundwater, stormwater, and surface water monitoring programs in meeting this objective.

5.2.1. Groundwater Monitoring

The results of the 2003 groundwater monitoring program are discussed in Section 4.5. As shown in this section and illustrated on the isoconcentration maps, the spatial distribution of the six COCs have remained stable during the past year. Based on this stability, no unexpected changes occurred during 2003 that would warrant changes to the groundwater monitoring.

5.2.2. Stormwater Monitoring

The results of the 2003 stormwater monitoring program are discussed in Section 4.6. The Site COCs do not apply to stormwater. The detections for acetone, total chromium, nitrate, and TDS were between the historical average and the historical maximum. Based on this stability, no unexpected changes occurred during 2003 that would warrant changes to the stormwater monitoring program.

5.2.3. Surface Water Monitoring

The results of the 2003 surface water monitoring program are discussed in Section 4.7. The Site COCs do not apply to surface water. The detections for TDS and nitrate were between the historical average and the historical maximum. Based on this stability, no unexpected changes occurred during 2003 that would warrant changes to the surface water monitoring program.

5.3. IRA and LTPS PERFORMANCE

This section discusses the performance of the groundwater IRA and LTPS systems. This section also provides technical assessment of the efficiency of the groundwater IRA in meeting original design objectives.

5.3.1. Background – Groundwater IRA/LTPS

The groundwater IRA system was originally designed as an interim action prior to development of final remedial actions for Site groundwater. As discussed in the original design documents (Dames & Moore, 1997a), the groundwater IRA system was designed to treat VOCs, primarily chloroform. The original design of the groundwater IRA system was to prevent off-site migration of chloroform in HSU-2, by extracting and treating impacted groundwater prior to injection upgradient of the extraction well.

The original design of the IRA specified extraction at 180 gpm in the summer months (May to September) and 120 gpm in the remaining months. This extraction rate resulted in good VOC mass removal rate (18 to 25 pounds of chloroform per year) and virtually eliminated off-site migration of VOCs, but also resulted in downward migration of salts (TDS and nitrate-N) from HSU-1 that contributed to the exceedance of TDS and nitrate-N concentrations in the effluent. UC Davis

implemented short term (reduce extraction rates) and longer term corrective action (implementation of the LTPS) to bring the effluent back into compliance with the discharge standards. Those corrective actions have succeeded in the reduction of salts while still maintaining VOC mass removal at a rate of approximately 9.5 pounds of chloroform per year in 2002 and 2003.

The groundwater IRA system has been operating nearly six years, since May 1998. Since the startup of the IRA in May 1998, nearly 90 pounds of chloroform in HSU-2 have been treated and prevented from migrating off-site (Table 10). Also since 2000, VOC source treatment in HSU-1 (DDC Pilot Study) has been implemented and recently expanded in late 2002. Given this history and the changes in concentrations within the HSU-2 plume since the IRA has been implemented (see Figure 30), the RWQCB has requested that operation of the IRA be re-evaluated. Appendix B provides a detailed optimization study for the operation of the IRA.

5.3.2. Groundwater IRA Performance in 2003.

The performance of the groundwater IRA in 2003 may be evaluated in several ways including:

- Percentage of the time the IRA system was operating – 88% uptime;
- Chloroform mass removal – 9.5 pounds of chloroform removed;
- Containment of off-site VOC migration in HSU-2 – see Figure 30; and
- Attainment of effluent discharge standards.

In regards to items 1) and 2) cited above, the IRA operated reliably in 2003, similar to its performance in 2002. The groundwater IRA system is currently extracting groundwater at 70 to 90 gpm. Even at the reduced extraction rate, performance is limited seasonally by reduction in the injection well capacity during the months of December, January and February. Due to the seasonal reduction in injection well capacity, the injection well required rehabilitation in 2002 and 2003.

If the UC Davis Feasibility Study recommends continued operation of the IRA, the LTPS area should be expanded and/or, the injection well should be replaced. Replacement of the injection well would allow continued treatment during December through February when HSU-2 groundwater levels are at their seasonal highs and LTPS irrigation water is not needed. As the DDC system continues to reduce the source of VOCs to HSU-2, some seasonal reduction in the operation of the IRA should be tested to assess the need for continued operation of the IRA.

Attainment of effluent discharge standards (item 3) and reduction of off-site migration (item 4) are linked. During 1998 to 2000, when the IRA extraction rate was 120 to 180 gpm, off-site migration of chloroform was virtually eliminated, but the downward migration of salts was a problem. When extraction rates were reduced to the current 70 to 90 gpm in 2002 and 2003, effluent nitrate and TDS have decline to their current state, at or below discharge standards. This improvement in effluent water quality (for TDS and nitrate) occurred without the operation of the Berryessa mixing system in 2003. However, chloroform concentrations in wells UCD2-30 and UCD2-40 located just downgradient of the extraction well have slightly increased above chloroform levels observed in 1998 to 2000. These optimum extraction rates of the IRA are more fully evaluated in Appendix B.

5.3.3. LTPS Operations

A total of 2.5 million gallons or 8.8% of the groundwater treated by the IRA in 2002 was re-used for LTPS irrigation during 2003. The use of treated IRA effluent as irrigation water is limited by the small area (2.6 acres of pasture) currently included in the LTPS. If the land treatment option is accepted and expanded, approximately 24 to 30 acres would be required to utilize all IRA effluent for pasture production during the irrigation season, April to October. More IRA effluent could have been used for irrigation in 2003, but the three-way valve controlling the flow to the LTPS malfunctioned, resulting in over two weeks of LTPS system down-time in May 2003.

Based on the LTPS effluent standards, the LTPS soil monitoring program and the LTPS groundwater evaluation described above in Section 4, no adverse effects have been observed reusing extracted HSU-2 groundwater after treatment for VOCs in the LTPS. The LTPS has been operating successfully for nearly two years and this discharge alternative should be carefully considered in the upcoming UC Davis Feasibility Study. If the LTPS continues to function without problems in 2004, UC Davis will propose to reduce the soil and groundwater monitoring frequency associated with this Pilot Study. The advantages of the LTPS include a practical treatment alternative to reverse osmosis for water with slight increases of TDS and nitrate-N. Another advantage of the LTPS is that this system reuses the groundwater resource and avoids the difficulties associated with groundwater injection.

SECTION 6
RECOMMENDATIONS

Based on the information presented in this 2003 Annual Report, no changes are recommended for the monitoring programs described in the 2002 Comprehensive Annual Water Monitoring Report (Brown and Caldwell, 2003). The programs for 2004 are combined in Table 3 and include continued monitoring for the following:

1. The expanded DDC pilot test system;
2. The LTPS; and
3. The combined program for the IRA and RI Water Monitoring Programs.

Current reporting for the monitoring programs includes quarterly reports and an annual report. No changes are recommended for this reporting scheme during 2004. A summary of the content of the reports to be issued for 2004 is presented below.

Quarterly Reports: Quarterly reports will include updates for all of the programs described in this Report. These updates will include an assessment of the progress of each system, summary of unexpected changes, and additional data collected, if any, that was not included in the program descriptions. Monthly data collected during the quarter will also be included in this report and discussed separately. The quarterly reports will be submitted to the USEPA as follows:

- Winter 2004 Quarterly to be submitted by October 1, 2004
- Spring 2004 Quarterly to be submitted by October 29, 2004
- Summer 2004 Quarterly to be submitted by January 5, 2004

Annual Report: An annual report will present the detailed assessment of each monitoring program and will include a summary of changes to the programs and recommendations for future monitoring. The assessments will include detailed analysis of historical monitoring, including graphical and statistical analysis. The 2004 Comprehensive Annual Water Monitoring Report will be submitted to the USEPA by May 1, 2005.

SECTION 7
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TABLES

Table 1
Formation Thickness, Soil Borings, and TEM Points
2003 Comprehensive Annual Water Monitoring Report
LEHR/SCDS Environmental Restoration
Davis, California

Boring/TEM I.D.	Total Depth (feet bgs)	Formation Thickness				
		Putah Creek Fan		Tehama Formation		
		HSU-1	HSU-2	HSU-3	HSU-4	Unnamed Aquitard
UCD1-1	56.5	56.5+	-	-	-	-
UCD1-2	60	60.0+	-	-	-	-
UCD1-3	61.5	61.5+	-	-	-	-
UCD1-4	56.5	56.5+	-	-	-	-
UCD1-5	48.5	48.5+	-	-	-	-
UCD1-6	52.5	52.5+	-	-	-	-
UCD2-7	90	78	12.0+	-	-	-
UCD1-8	56	56.0+	-	-	-	-
UCD1-9	51.5	51.5+	-	-	-	-
UCD1-10	70	70.0+	-	-	-	-
UCD1-11	66.5	66.5+	-	-	-	-
UCD1-12	66.5	66.5+	-	-	-	-
UCD1-13	66.5	66.5+	-	-	-	-
UCD2-14	86	80	6.0+	-	-	-
UCD2-15	120.5	85	33	2.5+	-	-
UCD2-16	122	88	31	3.0+	-	-
UCD2-17	143	84.5	53	5.5+	-	-
UCD1-18	70	70.0+	-	-	-	-
UCD1-19	74.5	74.5+	-	-	-	-
UCD1-20	71.5	71.5+	-	-	-	-
UCD1-21	73.5	73.5+	-	-	-	-
UCD1-22	71.5	71.5+	-	-	-	-
UCD1-23	76.5	76.5+	-	-	-	-
UCD1-24	71.5	71.5+	-	-	-	-
UCD1-25	75	75.0+	-	-	-	-
UCD2-26	102	88	14.0+	-	-	-
UCD2-27	136	81.5	44.5	10.0+	-	-
UCD1-28	70	70.0+	-	-	-	-
UCD2-29	96	75	21.0+	-	-	-
UCD2-30	110	75	35.0+	-	-	-
UCD2-31	110	75	35.0+	-	-	-
UCD2-32	105	81.5	23.5+	-	-	-
UCD4-33	310	86.5	27.5	144	52.0+	-
UCD1-34	80	76	4.0+	-	-	-
UCD2-35	130	76	54.0+	-	-	-
UCD2-36	105	80	25.0+	-	-	-
UCD2-37	123.5	85.5	33	5.0+	-	-
UCD2-38	119	89.5	29.5+	-	-	-
UCD2-39	112	86	26.0+	-	-	-
UCD2-40	108.5	81.5	26.5	0.5+	-	-
UCD4-41	295	81.5	26.5	147	27	13.0+
UCD4-43	295	81	44	125	30	15.0+
UCD4-44	295	80	51	119	30	15.0+
UCD2-45	116	94	25.0+	-	-	-
UCD2-46	105	85	20.0+	-	-	-

Table 1
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LEHR/SCDS Environmental Restoration
Davis, California

Boring/TEM I.D.	Total Depth (feet bgs)	Formation Thickness				
		Putah Creek Fan		Tehama Formation		
		HSU-1	HSU-2	HSU-3	HSU-4	Unnamed Aquitard
UCD4-47	295	95	20	139	36	5.0+
UCD2-48	100	85	15	-	-	-
UCD1-49	71.5	71.5+	-	-	-	-
UCD1-50	71.5	71.5+	-	-	-	-
UCD1-51	71.5	71.5+	-	-	-	-
EW2-1	125.5	77	37	11.5+	-	-
IW2-1	126.5	87.5	32.5	6.5+	-	-
TEM-1	339	64	40	204	31+	-
TEM-2	299	74	66	126	33+	-
TEM-3	314	74	50	144	46+	-
TEM-4	325	72	39	166	48+	-
TEM-5	325	67	37	174	47+	-
TEM-6	330	64	38	185	43+	-
TEM-7	330	69	37	187	37+	-
TEM-8	329	69	34	189	37+	-
TEM-9	324	69	41	180	34+	-
TEM-10	325	69	55	157	44+	-
TEM-11	340	61	45	188	46+	-
TEM-12	327	70	25	197	35+	-
TEM-13	329	65	17	207	40+	-
TEM-14	335	57	20	220	38+	-
TEM-15	347	57	25	227	38+	-
TEM-16	349	55	23	229	42+	-
TEM-17	346	47	20	236	43+	-
TEM-18	345	84	25	91	106	39+
TEM-19	340	76	43	100	88	33+
TEM-20	320	75	42	73	92	38+
TEM-21	297	77	58	47	73	42+
TEM-22	286	73	55	54	63	41+
TEM-23	297	76	50	56	79	36+
TEM-24	296	76	53	53	77	37+
TEM-25	321	83	53	50	86	49+
TEM-26	311	79	50	53	83	46+
TEM-27	297	74	43	53	79	48+
TEM-28	256	69	52	61	53	21+
TEM-29	350	124	81	73	72+	-
TEM-30	231	110	78	43+	-	-
TEM-31	287	115	74	98+	-	-
TEM-33	143	99	44+	-	-	-
TEM-34	208	107	61	40+	-	-
TEM-35	208	93	69	46+	-	-
TEM-36	208	94	67	47+	-	-
TEM-37	148	112	36+	-	-	-
TEM-38	273	96	43	99	35+	-

Table 2
2003 Combined Groundwater IRA Treatment System, RI Groundwater, Surface Water, and Stormwater Monitoring
2003 Comprehensive Annual Water Monitoring Report
LEHR/SCDS Environmental Restoration
Davis, California

	Wells	Groundwater Level	Radiological Analytes				Chemical Analytes												Bioassay	
			Tritium	C-14	Sr-90	Ra-226	VOC	Pesticides & PCBs	Metals	TOC	Nitrates (as N)	Total Chromium	TDS	Alkalinity	TSS	Oil and Grease	Anions	Cations	Acute Aquatic Toxicity	Chronic Aquatic Toxicity
HSU-1	UCD1-001	M	S	S			S				S	S	S							
	UCD1-004	M	S	S			S				S	S	S							
	UCD1-010	M					S				S		S							
	UCD1-011	M	Q[1]	Q[1]			Q[1]		Q[1]	Q[1]	Q[1]	Q[1]	Q[1]	Q[1]			Q[1]			
	UCD1-012	M	S	S			Q[2]				S	S	S							
	UCD1-013	M	S	S			S				S	S	S							
	UCD1-018	M	Q[1]	Q[1]			Q[1]		Q[1]	Q[1]	Q[1]	Q[1]	Q[1]	Q[1]			Q[1]			
	UCD1-019	M	S	S			S				S	S	S							
	UCD1-020	M	S	S			S				S	S	S							
	UCD1-021	M	S	S			S				S	S	S							
	UCD1-022	M	S	S			S				S	S	S							
	UCD1-023	M	S	S			S				S	S	S							
	UCD1-024	M	S	S			S				S	S	S							
	UCD1-025	M	Q[1]	Q[1]			Q[1]		Q[1]	Q[1]	Q[1]	Q[1]	Q[1]	Q[1]			Q[1]			
	UCD1-027 Z1, Z2, and Z3	M	Q[1]	Q[1]			Q[1]		Q[1]	Q[1]	Q[1]	Q[1]	Q[1]	Q[1]			Q[1]			
	UCD1-028	M	Q[1]	Q[1]			Q[1]		Q[1]	Q[1]	Q[1]	Q[1]	Q[1]	Q[1]			Q[1]			
	UCD1-049	M	S	S			Q[2]				S	S	S							
	UCD1-050	M	S	S			Q[2]				S	S	S							
	UCD1-051	M	S	S			Q[2]				S	S	S							
	TP-1-A,B,C	Q[2]					Q[2]													
	TP-2-A,B,C	Q[2]	Q	Q			Q[2]				Q	Q	Q							
	TP-3-A,B,C	Q[2]					Q[2]													
	TP-4-A,B,C	Q[2]					Q[2]													
	TP-5-A,B,C	Q[2]	Q	Q			Q[2]				Q	Q	Q							
	DDC-1-A, B, and C	Q[2]					Q[2]													
	DDC-2-A, B, and C	Q[2]					Q[2]													
	DDC-3-A, B, and C	Q[2]					Q[2]													
	DDC-4-A, B, and C	Q[2]					Q[2]													
	DDC-5-A, B, and C	Q[2]					Q[2]													
	DDC-6-A, B, and C	Q[2]					Q[2]													
HSU-2	UCD2-007	M	S	S			S				S	S	S							
	UCD2-014	M	S	S			S				S	S	S							
	UCD2-015	M	S	S			S				S	S	S							
	UCD2-016	M	S	S			S				S	S	S							
	UCD2-017	M	S	S			S				S	S	S							
	UCD2-026	M	S	S			S				S	S	S							
	UCD2-029	M	S	S			Q				S	S	S							
	UCD2-030	M	S	S			M				S	S	S							

Table 2
2003 Combined Groundwater IRA Treatment System, RI Groundwater, Surface Water, and Stormwater Monitoring
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			Radiological Analytes				Chemical Analytes												Bioassay	
	Wells	Groundwater Level	Tritium	C-14	Sr-90	Ra-226	VOC	Pesticides & PCBs	Metals	TOC	Nitrates (as N)	Total Chromium	TDS	Alkalinity	TSS	Oil and Grease	Anions	Cations	Acute Aquatic Toxicity	Chronic Aquatic Toxicity
	UCD2-031	M	S	S			S				S	S	S							
	UCD2-032	M	S	S			S				S	S	S							
	UCD2-035	M	S	S			S				S	S	S							
	UCD2-036	M	S	S			S				S	S	S							
	UCD2-037	M	S	S			S				S	S	S							
	UCD2-038	M	S	S			S				S	S	S							
	UCD2-039	M	S	S			S				S	S	S							
	UCD2-040	M	S	S			Q				S	S	S							
	UCD2-045	M	S	S			S				S	S	S							
	UCD2-046	M	S	S			S				S	S	S							
	UCD2-048	M	S	S			Q[2]				S	S	S							
HSU-4	UCD4-041	M	S	S			S				S	S	S							
	UCD4-042	M	S	S			S				S	S	S							
	UCD4-043	M	S	S			S				S	S	S							
	UCD4-044	M	S	S			S				S	S	S							
	UCD4-047	M	S	S			S				S	S	S							
	LF-1		WF	WF	WF	WF	WF	WF	WF	WF	WF	WF	WF		WF	WF			WF	
Storm-	LF-3		WF	WF	WF	WF	WF	WF	WF	WF	WF	WF	WF		WF	WF			WF	
water	LS-1		WF	WF	WF	WF	WF	WF	WF		WF	WF			WF	WF		WF	WF	
	STO		WF	WF	WF	WF	WF	WF	WF		WF	WF	WF							WF
Surface	PCU		WF	WF	WF	WF	WF	WF	WF		WF	WF	WF							WF
Water	PCD		WF	WF	WF	WF	WF	WF	WF		WF	WF	WF							WF
Treatment	Influent	M	M	M			M			M										
System	Effluent	M					M*		M*		M*	M*	M*	M*			M*	M*		

Notes:

A = Sampled annually in spring Quarter
S = Sampled semiannually during spring and fall quarters
F = Sampled fall quarter
M = Sampled Monthly
W = Sampled winter quarter
Q = Sampled quarterly
1 = Quarterly sampling conducted as part of LTPS monitoring
2 = Quarterly sampling conducted as part of DDC monitoring
* = During periods when the effluent is mixed with Berryessa water, effluent samples will include pre- and post-mixing

Monthly groundwater elevations for wells UCD1-1, UCD1-3, UCD1-4, UCD1-5, UCD1-6, UCD1-8, UCD1-9, UCD1-19, UCD1-20, UCD1-21, UCD1-23, UCD1-24, and UCD1-34 will be collected

Table 3
2004 Combined Groundwater IRA Treatment System, RI Groundwater, Surface Water, and Stormwater Monitoring Program
2003 Comprehensive Annual Water Monitoring Report
LEHR/SCDS Environmental Restoration
Davis, California

	Wells	Groundwater Level	Radiological Analytes				Chemical Analytes												Bioassay	
			Tritium	C-14	Sr-90	Ra-226	VOC	Pesticides & PCBs	Metals	TOC	Nitrates (as N)	Total Chromium	TDS	Alkalinity	TSS	Oil and Grease	Anions	Cations	Acute Aquatic Toxicity	Chronic Aquatic Toxicity
HSU-1	UCD1-001	M	S	S			S				S	S	S							
	UCD1-004	M	S	S			S				S	S	S							
	UCD1-010	M	S	S			S				S	S	S							
	UCD1-011	M	Q[1]	Q[1]			Q[1]		Q[1]	Q[1]	Q[1]	Q[1]	Q[1]	Q[1]			Q[1]			
	UCD1-012	M	S	S			Q[2]				S	S	S							
	UCD1-013	M	S	S			S				S	S	S							
	UCD1-018	M	Q[1]	Q[1]			Q[1]		Q[1]	Q[1]	Q[1]	Q[1]	Q[1]	Q[1]			Q[1]			
	UCD1-019	M	S	S			S				S	S	S							
	UCD1-020	M	S	S			S				S	S	S							
	UCD1-021	M	S	S			S				S	S	S							
	UCD1-022	M	S	S			S				S	S	S							
	UCD1-023	M	S	S			S				S	S	S							
	UCD1-024	M	S	S			S				S	S	S							
	UCD1-025	M	Q[1]	Q[1]			Q[1]		Q[1]	Q[1]	Q[1]	Q[1]	Q[1]	Q[1]			Q[1]			
	UCD1-027 Z1, Z2, and Z3	M	Q[1]	Q[1]			Q[1]		Q[1]	Q[1]	Q[1]	Q[1]	Q[1]	Q[1]			Q[1]			
	UCD1-028	M	Q[1]	Q[1]			Q[1]		Q[1]	Q[1]	Q[1]	Q[1]	Q[1]	Q[1]			Q[1]			
	UCD1-049	M	S	S			Q[2]				S	S	S							
	UCD1-050	M	S	S			Q[2]				S	S	S							
	UCD1-051	M	S	S			Q[2]				S	S	S							
	TP-1-A,B,C	Q[2]					Q[2]													
	TP-2-A,B,C	Q[2]	Q	Q			Q[2]				Q	Q	Q							
	TP-3-A,B,C	Q[2]					Q[2]													
	TP-4-A,B,C	Q[2]					Q[2]													
	TP-5-A,B,C	Q[2]	Q	Q			Q[2]				Q	Q	Q							
	DDC-1-A, B, and C	Q[2]					Q[2]													
	DDC-2-A, B, and C	Q[2]					Q[2]													
	DDC-3-A, B, and C	Q[2]					Q[2]													
	DDC-4-A, B, and C	Q[2]					Q[2]													
	DDC-5-A, B, and C	Q[2]					Q[2]													
	DDC-6-A, B, and C	Q[2]					Q[2]													

Table 3
2004 Combined Groundwater IRA Treatment System, RI Groundwater, Surface Water, and Stormwater Monitoring Program
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Davis, California

	Wells	Groundwater Level	Radiological Analytes				Chemical Analytes												Bioassay	
			Tritium	C-14	Sr-90	Ra-226	VOC	Pesticides & PCBs	Metals	TOC	Nitrates (as N)	Total Chromium	TDS	Alkalinity	TSS	Oil and Grease	Anions	Cations	Acute Aquatic Toxicity	Chronic Aquatic Toxicity
HSU-2	UCD2-007	M	S	S			S				S	S	S							
	UCD2-014	M	S	S			S				S	S	S							
	UCD2-015	M	S	S			S				S	S	S							
	UCD2-016	M	S	S			S				S	S	S							
	UCD2-017	M	S	S			S				S	S	S							
	UCD2-026	M	S	S			S				S	S	S							
	UCD2-029	M	S	S			Q				S	S	S							
	UCD2-030	M	S	S			M				S	S	S							
	UCD2-031	M	S	S			S				S	S	S							
	UCD2-032	M	S	S			S				S	S	S							
	UCD2-035	M	S	S			S				S	S	S							
	UCD2-036	M	S	S			S				S	S	S							
	UCD2-037	M	S	S			S				S	S	S							
	UCD2-038	M	S	S			S				S	S	S							
	UCD2-039	M	S	S			S				S	S	S							
	UCD2-040	M	S	S			Q				S	S	S							
	UCD2-045	M	S	S			S				S	S	S							
	UCD2-046	M	S	S			S				S	S	S							
	UCD2-048	M	S	S			Q[2]				S	S	S							
HSU-4	UCD4-041	M	S	S			S				S	S	S							
	UCD4-042	M	S	S			S				S	S	S							
	UCD4-043	M	S	S			S				S	S	S							
	UCD4-044	M	S	S			S				S	S	S							
	UCD4-047	M	S	S			S				S	S	S							
Storm-water	LF-1		WF	WF	WF	WF	WF	WF	WF	WF	WF	WF	WF		WF	WF			WF	
	LF-3		WF	WF	WF	WF	WF	WF	WF	WF	WF	WF	WF		WF	WF			WF	
	LS-1		WF	WF	WF	WF	WF	WF	WF		WF	WF			WF	WF		WF	WF	
Surface Water	STO		WF	WF	WF	WF	WF	WF	WF		WF	WF	WF							WF
	PCU		WF	WF	WF	WF	WF	WF	WF		WF	WF	WF							WF
	PCD		WF	WF	WF	WF	WF	WF	WF		WF	WF	WF							WF
Treatment System	Influent	M	M	M			M			M										
	Effluent	M					M*		M*		M*	M*	M*	M*			M*	M*		

Notes:

A = Sampled annually in spring Quarter
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F = Sampled fall quarter
M = Sampled Monthly
W = Sampled winter quarter
Q = Sampled quarterly
1 = Quarterly sampling conducted as part of LTPS monitoring
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* = During periods when the effluent is mixed with Berryessa water, effluent samples will include pre- and post-mixing

Monthly groundwater elevations for wells UCD1-1, UCD1-3, UCD1-4, UCD1-5, UCD1-6, UCD1-8, UCD1-9, UCD1-19, UCD1-20, UCD1-21, UCD1-23, UCD1-24, and UCD1-34 will be collected

Table 4
Analytical Parameters and Methods
2003 Comprehensive Annual Water Monitoring Report
LEHR/SCDS Environmental Restoration
Davis, California

SAMPLE PARAMETERS		
Constituent	Units	Method(s)
Field Parameters		
Field		
pH	pH units	Field, SOP
EC	µmhos/cm	Field, SOP
Eh	Mvolts	Field, SOP
Temperature	°C	Field, SOP
Turbidity	ntu	Field, SOP
Laboratory Parameters		
Organic		
Volatile Organic Compounds	µg/L	EPA SW8260B
Semivolatile Organic Compounds	µg/L	EPA SW8260B
Organochlorine Pesticides/PCBs	µg/L	EPA SW8081A/8082
Radiologic		
Gross Alpha	pCi/L	EPA 9310
Gross Beta	pCi/L	EPA 9310
Titanium	pCi/L	EPA 906.0 (M)
Carbon-14	pCi/L	EPA-R4-73-014
Strontium –90	pCi/L	EPA 905.0 (M)
Radium-226	pCi/L	EPA 903.1 (M)
Americium-241	pCi/L	EPA 907.0 (M)
Plutonium-241	pCi/L	EPA 907.0 (M)
Th-234	pCi/L	EPA 901.1 (M)
Pb-214	pCi/L	EPA 901.1 (M)
Bi-214	pCi/L	EPA 901.1 (M)
Pb-210	pCi/L	EPA 901.1 (M)
U-235	pCi/L	EPA 901.1 (M)
U-238	pCi/L	EPA 901.1 (M)
Na-22	pCi/L	EPA 901.1 (M)
Ac-228	pCi/L	EPA 901.1 (M)
Pb-212	pCi/L	EPA 901.1 (M)
Bi-212	pCi/L	EPA 901.1 (M)
Tl-208	pCi/L	EPA 901.1 (M)
K-40	pCi/L	EPA 901.1 (M)
Co-60	pCi/L	EPA 901.1 (M)
Cs-137	pCi/L	EPA 901.1 (M)
Metals		
Hexavalent Chromium		EPA SW7196
Total Chromium	µg/L	EPA SW6010B/EPA SW 6020
Anitmony	µg/L	EPA SW6020
Arsenic	µg/L	EPA SW6020
Barium	µg/L	EPA SW6020
Beryllium	µg/L	EPA SW6020
Cadmium	µg/L	EPA SW6020
Cobalt	µg/L	EPA SW6020
Copper	µg/L	EPA SW6020
Iron	µg/L	EPA SW6020
Lead	µg/L	EPA SW6020
Mercury	µg/L	EPA SW747OA
Molybdenum	µg/L	EPA SW6020
Nickel	µg/L	EPA SW6020
Selenium	µg/L	EPA SW6020
Silver	µg/L	EPA SW6020
Thallium	µg/L	EPA SW6020
Vanadium	µg/L	EPA SW6020

Table 4
Analytical Parameters and Methods
2003 Comprehensive Annual Water Monitoring Report
LEHR/SCDS Environmental Restoration
Davis, California

SAMPLE PARAMETERS		
Constituent	Units	Method(s)
Zinc	µg/L	EPA SW6020
General Chemicals		
Alkalinity	mg/L	EPA 310.1
Sodium	mg/L	EPA 6010B
Potassium	mg/L	EPA 6010B
Calcium	mg/L	EPA 6010B
Magnesium	mg/L	EPA 6010B
Chloride	mg/L	EPA 300.0
Sulfate	mg/L	EPA 300.0
Phosphorus, dissolved	mg/L	EPA 365A
Nitrate (as Nitrogen)	mg/L	EPA 300.0
Total Dissolved Solids	mg/L	EPA 160.1
Total Suspended Solids	mg/L	EPA 415.2
Total Organic Carbon	mg/L	EPA 9060M
Hardness	mg/L	EPA 130.2
Oil and Grease	mg/L	EPA 9070
Acute Aquatic Toxicity	%	EPA/600/4-90-027F
Chronic Aquatic Toxicity	%	EPA 600/4-91/002

Table 5
Expanded DDC System Monitoring Requirements
2003 Comprehensive Annual Water Monitoring Report
LEHR/SCDS Environmental Restoration
Davis, California

Wells		VOC
HSU-1	UCD1-012	B, W-M-Q
	UCD1-049	B, W-M-Q
	UCD1-050	B, W-M-Q
	UCD1-051	B, W-M-Q
	TP-1-A,B and C	B, Q
	TP-2-A,B and C	B, Q
	TP-3-A,B and C	B, Q
	TP-4-A,B and C	B, Q
	TP-5-A,B, and C	B, Q
	DDC-1-A, B and C	B, W-M-Q
	DDC-2-A, B and C	B, W-M-Q
	DDC-3-A, B and C	B, W-M-Q
	DDC-4-A, B and C	B, W-M-Q
	DDC-5-A, B and C	B, W-M-Q
	DDC-6-A, B and C	B, W-M-Q
HSU-2	UCD2-048	B, W-M-Q

W-M-Q = Sampled weekly for the first through fourth week following start up of the expanded DDC system, monthly for the 2nd through 4th month, then quarterly during the 5th through 12th month after start-up

B = Baseline

Q = Quarterly

All sample locations to include: Dissolved oxygen, oxidation potential, pH, temperature, and electrical condutivity

Table 6
Summary of Well Construction Details
2003 Comprehensive Annual Water Monitoring Report
LEHR/SCDS Environmental Restoration
Davis, California

Wells	Date Installed	Total Boring Depth (ft bgs)	PVC Well Diameter (inches)	Screen Interval (ft bgs)	Filter Pack (ft bgs)	Bentonite (ft bgs)	Cement (ft bgs)	Measuring Point Elevation (ft msl)	Elevation Ground Surface (ft msl)
Groundwater Monitoring Wells									
UCD1-001	10/09/87	56.5	2	46.5-56.5	41-56.5	38-41	0-38	50.09	48.0
UCD1-002	Abandoned								
UCD1-003	10/23/87	51.5	2	39-49	34-51.5	a	0-34	50.10	48.2
UCD1-004	10/14/87	56.5	2	45-55	40-56.5	37-40a	0-37	51.83	49.4
UCD1-005	10/22/87	48.5	2	38-48	33-48	a	0-33	50.72	48.5
UCD1-006	10/21/87	52.5	2	40-50	35-50	a	0-35	50.99	49.1
UCD2-007	11/05/87	90	2	80-90	75-90	a	0-75	51.68	49.4
UCD1-008	11/03/87	56	2	43.5-53.5	39-53.5	a	0-39	51.50	49.3
UCD1-009	11/04/87	51.5	2	40-50	35-50	a	0-35	51.42	49.0
UCD1-010	10/11/89	70	4	54-69	52-70	49-52	0-49	49.89	47.5
UCD1-011	10/17/89	66.5	4	50-65	47-66.5	44-47	0-44	50.69	48.7
UCD1-012	10/19/89	65	4	49.5-64.5	47-65	44-47	0-44	51.79	48.9
UCD1-013	10/26/89	65	4	50-65	47-65	44.5-47	0-44.5	52.14	49.2
UCD2-014	11/15/89	86	4	75-85	69-86	64-69	0-64	51.67	48.9
UCD2-015	03/28/90	120.5	4b	91-116	86-120.5	65-86	0-65	51.53	49.8
UCD2-016	04/04/90	122	4b	92-117	86-122	71-86	0-71	49.93	48.5
UCD2-017	04/10/90	143	4b	88-113	81-113	78-81	0-78	51.91	49.9
UCD1-018	10/04/90	70	4b	54-69	51-70	48-51	0-48	48.61	46.7
UCD1-019	10/01/90	74.5	4b	56.5-71.5	53.5-72.5	50.5-53.5	0-50.5	51.35	49.9
UCD1-020	10/09/90	73.5	4b	57-72	54-73.5	51-54	0-51	49.81	48.0
UCD1-021	10/11/90	73.5	4b	57-72	54-73.5	51-54	0-51	48.77	48.7
UCD1-022	10/25/90	73	4b	57-72	54-73	51-54	0-51	49.09	49.0
UCD1-023	10/17/90	76.5	4b	56.5-71.5	53.5-73	50.5-53.5	0-50.5	49.34	49.2
UCD1-024	10/22/90	73	4b	57-72	54-73	51-54	0-51	48.88	48.8
UCD1-025	10/06/95	75	4c	60-75	56.9-75	52-56.9	0-52	47.90	-
UCD2-026	10/06/95	102	4c	87-102	54-102	79-84	0-79	47.89	-

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UCD1-027Z1	10/06/95	136	5c	53-55	51.5-57.5	49-51.5	0-49	47.98	-
UCD1-027Z2	10/06/95	136	5c	63-65	61.5-66.5	57.5-61.5	0-49	47.98	-
UCD1-027Z3	10/06/95	136	5c	73-75	71.5-76.5	66.5-71.5	0-49	47.98	-
UCD1-027Z4	10/06/95	136	5c	86-88	84.9-90	76.5-84.9	0-49	47.98	-
UCD1-027Z5	10/06/95	136	5c	96-98	94.5-100	90-94.5	0-49	47.98	-
UCD1-027Z6	10/06/95	136	5c	106-108	104.5-109.5	100-104.5	0-49	47.98	-
UCD1-027Z7	10/06/95	136	5c	116-118	114.5-119	109.5-114.5	0-49	47.98	-
UCD1-028	09/05/96	70	2b	53-68	51-70	47-51	0-47	47.93	-
UCD2-029	09/04/96	97	2b	80-95	76.7-97	72-76.7	0-72	48.01	-
UCD2-030	09/10/96	110	2b	95-110	91-110	89.5-91	0-89.5	47.64	-
UCD2-031	09/11/96	110	2b	94-109	91-110	87-91	0-87	47.61	-
UCD2-032	04/03/97	105	2b	83-103	81-105	77-81	0-77	45.08	45.1
UCD4-033	Abandoned in May 1997 and replaced by UCD4-42								
UCD1-034	10/06/95	80	4c	61-76	57-76	50-57	0-50	55.70	-
UCD2-035	10/06/95	130	4c	107-122	103-122	98-103	0-98	55.71	-
UCD2-036	11/06/97	105	2b	82-102	79-105	73-79	0-73	48.31	-
UCD2-037	10/20/97	118.5	2b	94-114	91-118.5	85-91	0-85	49.63	-
UCD2-038	10/23/97	119	2b	95-115	89-95	83-89	0-83	57.20	-
UCD2-039	10/30/97	112	2b	87-107	84-112	80.5-84	0-81.5	49.63	47.4
UCD2-040	11/07/97	108.5	2b	86-106	83-108.5	78-83	0-78	46.94	-
UCD4-041	10/10/97	295	4b	257-277	253-280	248.5-253	0-248.5	47.00	-
UCD4-042	11/03/97	272	4b	248.5-268.5	245-269	240-245	0-246	47.24	47.0
UCD4-043	10/02/97	295	4b	248-268	242.5-274	233-242.5	0-237	45.00	44.5
UCD4-044	04/07/99	295	4b	246.5-266.5	242-273	237-242	0-237	47.95	-
UCD2-045	11/30/99	114	2b	93-113	89.5-113.5	84.5-89.5	0-84.5	46.58	45.0
UCD2-046	05/05/00	106	2b	84.5-104.5	81.75-106	79-81.75	0-79	44.73	42.6
UCD4-047	05/20/00	299	4b	266-286	263.5-288.9	257-263	0-257	47.38	45.1
UCD2-048	08/28/02	104	4b	90-100	88.3-104	84-88.3	0-84	51.76	-
UCD1-049	08/14/02	69.5	4b	49.5-69.5	47-69.5	43-47	0-43	51.44	-
UCD1-050	08/13/02	69.5	4b	49.5-69.5	47.5-69.5	43.5-47.5	0-43.5	52.47	-
UCD1-051	08/12/02	70	4b	49.7-69.7	48-70	44-48	0-44	52.01	-
UCD1-052								47.46	-
UCD1-053								47.49	-

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DDC Treatment System									
DDC-1	10/27/00	86	4b	20-35 40-55 65-80	19-35.5 40-55.7 60-80.5	17-19 35.7-40 80.5-85	0.5-17	52.82	-
DDC-1A	10/27/00	86	1.25b	32.5-35	19-35.5	17-19	0.5-17	51.42	-
DDC-1B	10/27/00	86	1.25b	50-52.5	40-55.7	35.7-40	0.5-17	51.32	-
DDC-1C	10/27/00	86	1.25b	70-75	60-80.5	80.5-85	0.5-17	51.25	-
DDC-2	09/16/02	80	4b	19.7-34.7 39.7-54.7 64.7-79.7	16-36 38-56.5 62.3-80	14.3-16 36-38 56.5-62.3	0-14.3	51.34	-
DDC-2A	09/16/02	80	1.25b	30-35	16-36	14.3-16	0-14.3	51.50	-
DDC-2B	09/16/02	80	1.25b	50-55	38-56.5	36-38	0-14.3	51.52	-
DDC-2C	09/16/02	80	1.25b	65-70	62.3-80	56.5-62.3	0-14.3	51.47	-
DDC-3	09/18/02	80	4b	19-34 39-54 64-69.7	16-35 37-56.7 62-80	14.3-16 35-37 56.7-62	0-14.3	52.53	-
DDC-3A	09/18/02	80	1.25b	28-34	16-35	14.3-16	0-14.3	51.75	-
DDC-3B	09/18/02	80	1.25b	49-54	37-56.7	35-37	0-14.3	51.68	-
DDC-3C	09/18/02	80	1.25b	64-79.7	62-80	56.7-62	0-14.3	51.74	-
DDC-4	09/19/02	80	4b	19.5-34.5 39.5-54.5 64.5-79.5	16-35.5 37-56.5 62-80	14.3-16 35.5-37 56.5-62	0-14.3	50.86	-
DDC-4A	09/19/02	80	1.25b	29.5-34.5	16-35.5	14.3-16	0-14.3	51.22	-
DDC-4B	09/19/02	80	1.25b	49.5-54.5	37-56.5	35.5-37	0-14.3	51.23	-
DDC-4C	09/19/02	80	1.25b	64.5-69.5	62-80	56.5-62	0-14.3	51.84	-
DDC-5	09/20/02	80	4b	18.5-33.5 38.5-53.5 63.5-78.5	16-34.5 36.5-55.7 61-80	14-16 34.5-36.5 55.7-61	0-14	51.18	-
DDC-5A	09/20/02	80	1.25b	28.5-33.5	16-34.5	14-16	0-14	51.02	-
DDC-5B	09/20/02	80	1.25b	48.5-53.5	36.5-55.7	34.5-36.5	0-14	51.04	-
DDC-5C	09/20/02	80	1.25b	73.5-78.5	61-80	55.7-61	0-14	51.01	-

Table 6
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Wells	Date Installed	Total Boring Depth (ft bgs)	PVC Well Diameter (inches)	Screen Interval (ft bgs)	Filter Pack (ft bgs)	Bentonite (ft bgs)	Cement (ft bgs)	Measuring Point Elevation (ft msl)	Elevation Ground Surface (ft msl)
DDC-6	09/13/02	80.3	4b	20-35 40-55 65-80	16-36 38-56.5 62-80.3	14.3-16 36-38 56.5-62	0-14.3	51.37	-
DDC-6A	09/13/02	80.3	1.25b	30-35	16-36	14.3-16	0-14.3	51.56	-
DDC-6B	09/13/02	80.3	1.25b	50-55	38-56.5	36-38	0-14.3	51.58	-
DDC-6C	09/13/02	80.3	1.25b	65-70	62-80.3	56.5-62	0-14.3	51.51	-
Piezometers									
TP-1A	11/04/00	80	2	30-35	17-35.5	14-17	0.5-14	50.10	-
TP-1B	11/04/00	80	2	47-52	45-55	35.7-45	0.5-14	50.10	-
TP-1C	11/04/00	80	2	70-75	60-80.5	55-60	0.5-14	50.10	-
TP-2A	10/31/00	79	2	28-33	14-33	12-14	0.5-12	51.78	-
TP-2B	10/31/00	79	2	47.5-52.5	45-55	33-45	0.5-12	51.78	-
TP-2C	10/31/00	79	2	70-75	60-79	55-60	0.5-12	51.78	-
TP-3A	11/03/00	80.5	2	30-35	20-33.5	15-20	0.5-15	51.86	-
TP-3B	11/03/00	80.5	2	47.5-52.5	45-55	35.5-45	0.5-15	51.86	-
TP-3C	11/03/00	80.5	2	70-75	60-80.5	55-60	0.5-15	51.86	-
TP-4A	11/02/00	80.5	2	30-35	19-35	12-19	0.5-17	51.50	-
TP-4B	11/02/00	80.5	2	47.5-52.5	45-55	35-45	0.5-17	51.50	-
TP-4C	11/02/00	80.5	2	70-75	60-80.5	55-60	0.5-17	51.50	-
TP-5A	10/26/00	80	2	30-35	20-35.5	15-20	0.5-15	52.97	-
TP-5B	10/26/00	80	2	47.5-52.5	45-55.3	35.5-45	0.5-15	52.97	-
TP-5C	10/26/00	80	2	74.5-79.5	60-80	55.25-60	0.5-15	52.97	-
IRA Treatment System									
EW2-1	09/20/96	125.65	8b	79.4-119.4	74.4-125.65	68.4-74.4	0-68.4	49.17	47.3
IW2-1	10/17/97	126.5	10b	84.5-119.5	80-126.5	75-80	0-75	49.39	-

[a] well constructed with #60 sand seal and no bentonite

[b] stainless steel, wire-wrap screen

[c] stainless steel, blank casing, and wire wrap screen

EW = extraction well

ft bgs = feet below ground surface

ft msl = feet mean sea level datum

IW = injection well

Table 7
IRA Effluent Discharge Standards
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Effluent Discharge Standards for Injection				Effluent Discharge Standards for Irrigation		
Analyte	Units	Monthly Average	Daily Maximum	Analyte	Units	Standard
Chloroform	µg/L	0.5	1.0	Arsenic	µg/L	10
Volatile Organic Compounds	µg/L	0.5	1.0	Barium	µg/L	490
TDS	mg/L	485	500	Boron	µg/L	791
NO_3-N	mg/L	7.7	20	Cadmium	µg/L	1
Chromium (total)	µg/L	32	50	Carbon-14	pCi/L	50
Tritium	pCi/L	200	-	Chloride	mg/L	106
Carbon-14	pCi/L	20	-	Chloroform	µg/L	0.5
				Chromium (total)	µg/L	44.6
				Lead	µg/L	2
				Manganese	µg/L	50
				Mercury	µg/L	1.2
				Nickel	µg/L	100
				NO_3-N	mg/L	27.4
				SO_4-S	mg/L	250
				Tritium	pCi/L	300
				Zinc	µg/L	2,000

Table 8
Expanded DDC Pilot Test System - Chloroform Results
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Location	Sample ID	Date	µg/L
DDC-1B	W03012901	1/29/2003	93.1
	W03022501	2/25/2003	109
	W03032501	3/25/2003	106
	W03032502	3/25/2003	111
	W03061810	6/18/2003	125
	W03081301	8/13/2003	15.3
	DDC-1B	10/14/2003	16.6
	DDC-1BD	10/14/2003	16.2
DDC-1C	W03012902	1/29/2003	161
	W03022506	2/25/2003	541
	W03032513	3/25/2003	1950
	W03061813	6/18/2003	7400
	W03081302	8/13/2003	5190
	DDC-1C	10/14/2003	1730
	DDC-1CD	10/14/2003	3370 J
DDC-2B	W03010301	1/3/2003	34.6
	W03012801	1/28/2003	56
	W03022401	2/24/2003	76.9
	W03032503	3/25/2003	165
	W03061701	6/17/2003	46.6
DDC-2C	W03010302	1/3/2003	39.8
	W03012802	1/28/2003	78.6
	W03022402	2/24/2003	134
	W03032504	3/25/2003	236
	W03061702	6/17/2003	66.7
DDC-3B	W03012903	1/29/2003	31.9
	W03022403	2/24/2003	26.6
	W03032505	3/25/2003	92.1
	W03061811	6/18/2003	115
DDC-3C	W03010303	1/3/2003	5.6
	W03012904	1/29/2003	53.4
	W03022404	2/24/2003	39.3
	W03032506	3/25/2003	124
	W03061812	6/18/2003	156
DDC-4B	W03012905	1/29/2003	62.7
	W03022502	2/25/2003	177
	W03032507	3/25/2003	327
	W03061703	6/17/2003	331
DDC-4C	W03010304	1/3/2003	86.6
	W03012906	1/29/2003	106 J
	W03022503	2/25/2003	284
	W03032508	3/25/2003	566
	W03061704	6/17/2003	422
DDC-5B	W03012907	1/29/2003	5.3
	W03022504	2/25/2003	< 0.5
	W03032509	3/25/2003	2.6
	W03061705	6/17/2003	2.6

Table 8
Expanded DDC Pilot Test System - Chloroform Results
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Location	Sample ID	Date	µg/L
DDC-5C	W03012908	1/29/2003	58.7
	W03022505	2/25/2003	450
	W03032510	3/25/2003	1160
	W03061706	6/17/2003	515
DDC-6B	W03010305	1/3/2003	69.8
	W03012803	1/28/2003	42.1
	W03022405	2/24/2003	65.8
	W03022406	2/24/2003	66.3
	W03032511	3/25/2003	196
	W03061707	6/17/2003	26.9
DDC-6C	W03010306	1/3/2003	104
	W03012804	1/28/2003	148
	W03022407	2/24/2003	155
	W03032512	3/25/2003	218
	W03061708	6/17/2003	90.7

CRDL = 0.50 µg/L

Table 9
2003 IRA Operations Summary
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Month	%IRA Uptime	Groundwater Extracted (gallons)	Chloroform Removed (pounds)	LTPS Irrigation Flow (gal)	Exceedances of Effluent Discharge Limits (sample result)
Jan	90%	1,249,925	0.31	0	None
Feb	89%	1,830,956	0.52	0	None
Mar	78%	961,671	0.26	0	TDS (493 mg/L)
Apr	71%	2,592,823	0.62	0	TDS (489 mg/L)
May	51%	1,507,418	0.48	32,757	None
Jun	96%	2,873,040	0.91	187,509	TDS (487 mg/L)
Jul	99%	3,935,911	1.52	1,196,917	TDS (487 mg/L)
Aug	84%	4,727,962	2.35	251,957	TDS (486 mg/L)
Sep	100%	1,173,818	0.33	528,200	None
Oct	82%	2,558,755	0.79	272,688	TDS*, Nitrate*
Nov	100%	3,008,790	1.07	45,270	None
Dec	97%	1,396,012	0.38	11,170	None
Overall:	88%	27,817,081	9.53	2,526,468	Average TDS sample result = 481.2 mg/L

* Reported results are outliers, data rejected due to laboratory reporting error(see Appendix C)

Table 10
Mass Removal Totals
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Month	AVERAGE CHLOROFORM CONCENTRATION (µg/L)	AVERAGE CHLOROFORM CONCENTRATION (kg/L)	VOLUME OF EXTRACTED GROUNDWATER (gallons)	VOLUME OF EXTRACTED GROUNDWATER (liters)	MASS OF CHLOROFORM REMOVED* (kg)	MASS OF CHLOROFORM REMOVED* (pounds)
Apr-98	29.9	2.99E-08	375,250	1,420,321	0.04	0.09
May-98	35.2	3.52E-08	1,531,590	5,797,068	0.20	0.45
Jun-98	37.3	3.73E-08	3,865,155	14,629,612	0.55	1.20
Jul-98	68.0	6.80E-08	5,968,366	22,590,265	1.54	3.39
Aug-98	80.0	8.00E-08	7,564,438	28,631,398	2.29	5.05
Sep-98	52.0	5.20E-08	8,221,465	31,118,245	1.62	3.57
Oct-98	58.0	5.80E-08	4,261,762	16,130,769	0.94	2.06
Nov-98	34.0	3.40E-08	4,786,293	18,116,119	0.62	1.36
Dec-98	25.3	2.53E-08	5,397,711	20,430,336	0.52	1.14
1998			**41,972,030**	**158,864,134**	**8.31**	**18.31**
Jan-99	23.1	2.31E-08	4,942,820	18,708,574	0.43	0.95
Feb-99	19.7	1.97E-08	4,838,400	18,313,344	0.36	0.80
Mar-99	14.5	1.45E-08	4,645,800	17,584,353	0.25	0.56
Apr-99	15.1	1.51E-08	5,010,000	18,962,850	0.29	0.63
May-99	23.6	2.36E-08	5,683,950	21,513,751	0.51	1.12
Jun-99	59.5	5.95E-08	6,480,000	24,526,800	1.46	3.22
Jul-99	106	1.06E-07	7,073,410	26,772,857	2.84	6.26
Aug-99	61.7	6.17E-08	7,588,800	28,723,608	1.77	3.91
Sep-99	44.1	4.41E-08	4,976,641	18,836,586	0.83	1.83
Oct-99	35.6	3.56E-08	6,453,540	24,426,649	0.87	1.92
Nov-99	2.8	2.80E-09	7,252,200	27,449,577	0.08	0.17
Dec-99	20.1	2.01E-08	5,730,825	21,691,173	0.44	0.96
1999			**70,676,386**	**267,510,121**	**10.12**	**22.32**
Jan-00	23.4	2.34E-08	5,200,800	19,685,028	0.46	1.02
Feb-00	23.8	2.38E-08	4,176,000	15,806,160	0.38	0.83
Mar-00	23.2	2.32E-08	2,394,000	9,061,290	0.21	0.46
Apr-00	29.2	2.92E-08	4,314,000	16,328,490	0.48	1.05
May-00	47.4	4.74E-08	4,741,200	17,945,442	0.85	1.88
Jun-00	67.5	6.75E-08	6,448,200	24,406,437	1.65	3.63
Jul-00	82.2	8.22E-08	7,197,300	27,241,781	2.24	4.94
Aug-00	70.9	7.09E-08	7,029,000	26,604,765	1.89	4.16
Sep-00	54.1	5.41E-08	5,406,000	20,461,710	1.11	2.44
Oct-00	53.7	5.37E-08	6,095,010	23,069,613	1.24	2.73
Nov-00	52.4	5.24E-08	2,226,850	8,428,627	0.44	0.97
Dec-00	38.4	3.84E-08	1,602,900	6,066,977	0.23	0.51
2000			**56,831,260**	**215,106,319**	**11.17**	**24.62**
Jan-01	50.2**	5.02E-08	449,313	1,700,650	0.09	0.19
Feb-01	50.2**	5.02E-08	162,940	616,728	0.03	0.07
Mar-01	50.2**	5.02E-08	62,700	237,320	0.01	0.03
Apr-01	50.2**	5.02E-08	263,634	997,855	0.05	0.11
May-01	50.2**	5.02E-08	797,451	3,018,352	0.15	0.33
Jun-01	50.2**	5.02E-08	709,686	2,686,162	0.13	0.30
Jul-01	50.2**	5.02E-08	40,060	151,627	0.01	0.02
Aug-01	62.0	6.20E-08	2,665,183	10,087,718	0.63	1.38
Sep-01	51.8	5.18E-08	895,401	3,389,093	0.18	0.39
Oct-01	41.6	4.16E-08	3,441,750	13,027,024	0.54	1.19
Nov-01	43.0	4.30E-08	2,750,430	10,410,378	0.45	0.99
Dec-01	44.1***	4.41E-08	294,673	1,115,337	0.05	0.11
2001			**12,533,221**	**47,438,241**	**2.31**	**5.10**

Table 10
Mass Removal Totals
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Davis, CA

Month	AVERAGE CHLOROFORM CONCENTRATION (µg/L)	AVERAGE CHLOROFORM CONCENTRATION (kg/L)	VOLUME OF EXTRACTED GROUNDWATER (gallons)	VOLUME OF EXTRACTED GROUNDWATER (liters)	MASS OF CHLOROFORM REMOVED* (kg)	MASS OF CHLOROFORM REMOVED* (pounds)
Jan-02	45.1	4.51E-08	544,724	2,061,780	0.09	0.20
Feb-02	48.0	4.80E-08	2,516,876	9,526,376	0.46	1.01
Mar-02	29.6	2.96E-08	2,925,660	11,073,623	0.33	0.72
Apr-02	29.9	2.99E-08	3,319,827	12,565,545	0.38	0.83
May-02	41.9	4.19E-08	3,067,445	11,610,279	0.49	1.07
Jun-02	50.4****	5.04E-08	2,809,088	10,632,398	0.54	1.18
Jul-02	37.3****	3.73E-08	3,320,687	12,568,800	0.47	1.03
Aug-02	36.8	3.68E-08	3,145,128	11,904,309	0.44	0.97
Sep-02	32.8	3.28E-08	2,983,863	11,293,921	0.37	0.82
Oct-02	30.0	3.00E-08	2,432,162	9,205,733	0.28	0.61
Nov-02	44.9	4.49E-08	1,478,467	5,595,998	0.25	0.55
Dec-02	31.5	3.15E-08	2,309,269	8,740,583	0.28	0.61
2002			**30,853,196**	**116,779,347**	**4.36**	**9.60**
Jan-03	29.8	2.98E-08	1,249,925	4,730,966	0.14	0.31
Feb-03	34.1	3.41E-08	1,830,956	6,930,168	0.24	0.52
Mar-03	32.0	3.20E-08	961,671	3,639,925	0.12	0.26
Apr-03	28.5	2.85E-08	2,592,823	9,813,835	0.28	0.62
May-03	37.8	3.78E-08	1,507,418	5,705,577	0.22	0.48
Jun-03	37.8	3.78E-08	2,873,040	10,874,456	0.41	0.91
Jul-03	46.4	4.64E-08	3,935,911	14,897,423	0.69	1.52
Aug-03	59.5	5.95E-08	4,727,962	17,895,336	1.06	2.35
Sep-03	34.1	3.41E-08	1,173,818	4,442,901	0.15	0.33
Oct-03	37.1	3.71E-08	2,558,755	9,684,888	0.36	0.79
Nov-03	42.6	4.26E-08	3,008,790	11,388,270	0.49	1.07
Dec-03	32.3	3.23E-08	1,396,012	5,283,905	0.17	0.38
2003			**27,817,081**	**105,287,652**	**4.32**	**9.53**
		GRAND TOTAL	**240,683,174**	**910,985,814**	**40.59**	**89.48**

Notes:

Totals given in **Bold**
* Mass Removed = Average Concentration x Volume of Extracted Groundwater
** Average Concentration calculated from Dec-00 and Aug-01
*** Average Concentration calculated from Nov-01 and Jan-02
**** Concentration represents the difference between the influent and effluent concentrations

Table 11A
Summary of LTPS Soils Analytical Results
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Analyte	Depth (feet bgs)	Average Concentration (mg/kg)		95% Upper Confidence Limits (mg/kg)		Significant Increase?		Significant Decrease?	
		Oct 2000	Nov 2003	Oct 2000	Nov 2003	t-Test(1)	Sign Test (2)	t-Test(1)	Sign Test (2)
Arsenic	1	7.1	7.3	11.0	8.6	no	no	no	no
	3	6.9	6.6	8.9	8.7	no	no	no	no
	5	6.7	6.6	9.1	7.4	no	no	no	no
Barium	1	173.0	172.2	245.0	211.3	no	no	no	no
	3	172.5	139.8	258.2	209.8	no	no	**Yes**	**Yes**
	5	154.3	145.7	309.1	204.5	no	no	no	no
Cadmium	1	ND	0.1	ND	0.2	no	no	no	no
	3	ND	0.1	ND	0.1	no	no	no	no
	5	ND	0.1	ND	0.2	no	no	no	no
Chloride	1	74.9	8.5	105.7	20.9	no	no	**Yes**	**Yes**
	3	75.3	4.2	97.2	13.6	no	no	**Yes**	**Yes**
	5	76.8	3.2	105.5	7.8	no	no	**Yes**	**Yes**
Chromium	1	157.5	147.3	207.3	222.8	no	no	no	no
	3	151.3	172.8	271.0	282.4	no	no	no	no
	5	166.8	154.2	305.4	221.2	no	no	no	no
Copper	1	34.3	38.4	55.5	47.3	no	no	no	no
	3	32.4	30.0	52.1	45.8	no	no	no	no
	5	29.5	31.4	59.4	46.4	no	no	no	no
Lead	1	7.7	8.0	17.1	15.4	no	no	no	no
	3	5.9	6.6	8.9	13.2	no	no	no	no
	5	7.4	8.9	21.9	35.7	no	no	no	no
Mercury	1	1.5	1.2	3.8	4.8	no	no	no	no
	3	1.6	1.0	4.5	3.9	no	no	no	no
	5	1.2	1.4	2.2	3.5	no	no	no	no
Nickel	1	275.7	278.8	335.0	384.5	no	no	no	no
	3	253.2	261.7	412.8	370.0	no	no	no	no
	5	267.7	274.7	454.4	366.2	no	no	no	no
Nitrate-N	1	7.6	0.7	23.9	2.0	no	no	**Yes**	**Yes**
	3	5.5	3.0	14.6	12.8	no	no	**Yes**	**Yes**
	5	9.6	6.6	36.8	40.3	no	no	**Yes**	**Yes**
Ammonia-N	1	10.9	8.7	33.0	31.5	no	no	no	No
	3	9.6	3.1	41.5	12.0	no	no	**Yes**	**Yes**
	5	5.9	3.2	10.4	11.6	no	no	no	no
Total-N	1	476.3	543.3	1038.7	886.6	no	no	no	no
	3	379.7	325.7	1569.4	720.5	no	no	no	no
	5	224.7	313.7	417.1	709.3	**Yes**	**Yes**	no	no
Phosphate	1	6.2	3.7	15.0	13.1	NC	NC	no	no
	3	NC	NC	NC	NC	NC	NC	no	no
	5	NC	NC	NC	NC	NC	NC	no	no
pH	1	7.8	8.0	8.3	8.5	**Yes**	**Yes**	no	no
	3	7.9	8.2	8.7	8.7	**Yes**	no	no	no
	5	8.3	8.6	9.5	9.4	**Yes**	**Yes**	no	no
Selenium	1	2.1	NC	2.9	NC	NC	NC	no	no
	3	2.2	NC	2.9	NC	NC	NC	no	no
	5	2.4	NC	3.5	NC	NC	NC	no	no
Sulfate	1	12.9	24.7	52.5	31.6	**Yes**	no	no	no
	3	12.3	15.4	22.3	52.3	no	no	no	no
	5	13.4	16.6	46.6	33.3	no	no	no	no
Zinc	1	64.4	72.4	88.4	88.0	**Yes**	**Yes**	no	no
	3	61.6	61.0	89.3	92.6	no	no	no	no
	5	57.2	66.0	104.0	116.9	**Yes**	**Yes**	no	no
TOC	1	6126.7	5526.7	20930.9	14471.5	no	no	no	no
	3	3258.3	2393.3	12710.1	6569.3	no	no	no	no
	5	2275.0	2680.0	7720.5	8408.1	no	no	no	no

(1) "student's t" test - a parametric statitistical test, assuming a normal data distribution (Gilbert, 1987).
(2) "Sign Test" a non parametric test for using paired data with small sample sizes (Gilbert, 1987)
(3) Tested using alpha = 0.05

Table 11B
Summary of LTPS HSU-1 Groundwater Analytical Results
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Analyte	Well	Units	Baseline Concentration (include all available data prior to 2003) (ug/L) [3]		2003 Data			
			Low	High	Q1	Q2	Q3	Q4
Arsenic	UCD1-18[1]	ug/L	1.1	8.11	<0.902	3.61	<0.813	7.49
	UCD1-11[2]	ug/L	1.38	7.85	8.91	2.1	<0.813	<6.21
	UCD1-25	ug/L	<0.117	5.1	<0.902	2	<0.813	<7.26
	UCD1-28	ug/L	<0.117	7.7	<0.902	2.58	<0.813	<6.74
	UCD1-27Z1	ug/L	1.11	8.6	NM	NM	NM	3.26
	UCD1-27Z2	ug/L	<0.818	8.4	NM	NM	NM	4.21
	UCD1-27Z3	ug/L	<0.818	5	NM	NM	NM	5.4
Barium	UCD1-18[1]	ug/L	50	226	176	145	128	151
	UCD1-11[2]	ug/L	120	369	315	<0.007	290	323
	UCD1-25	ug/L	124	346	217	261	285	340
	UCD1-28	ug/L	202	329	340	317	299	329
	UCD1-27Z1	ug/L	188	240	NM	NM	NM	218
	UCD1-27Z2	ug/L	194	228	NM	NM	NM	278
	UCD1-27Z3	ug/L	152	190	NM	NM	NM	208
Cadmium	UCD1-18[1]	ug/L	<0.014	<1	<0.015	<0.015	<0.021	0.021
	UCD1-11[2]	ug/L	<0.014	<1	0.019	<0.015	<0.021	<0.016
	UCD1-25	ug/L	<0.014	<1	<0.015	<0.015	<0.021	0.029
	UCD1-28	ug/L	<0.014	<1	<0.015	<0.015	<0.021	<0.016
	UCD1-27Z1	ug/L	0.335	<1000	NM	NM	NM	0.081
	UCD1-27Z2	ug/L	0.026	<1000	NM	NM	NM	0.035
	UCD1-27Z3	ug/L	<0.022	<1000	NM	NM	NM	<0.016
Chloride	UCD1-18[1]	mg/L	17	44	22.3	17.1	17.4	17.3
	UCD1-11[2]	mg/L	36	92	NS	33.2	35.1	40.1
	UCD1-25	mg/L	24	65	17.7	39.6	39.3	40.8
	UCD1-28	mg/L	23.5	58.9	46.6	44.7	46	46.7
	UCD1-27Z1	mg/L	62.5	62.5	NM	NM	NM	52.3
	UCD1-27Z2	mg/L	34.2	34.2	NM	NM	NM	36.8
	UCD1-27Z3	mg/L	23.7	32	NM	NM	NM	29.2
Chromium	UCD1-18[1]	ug/L	13	50	17.1	14	12.4	13.6
	UCD1-11[2]	ug/L	152	450	159	163	158	160
	UCD1-25	ug/L	248	392	16.9	256	209	187
	UCD1-28	ug/L	454	613	554	559	513	520
	UCD1-27Z1	ug/L	<0.082	3.8	NM	NM	NM	<2.08
	UCD1-27Z2	ug/L	<0.082	4.7	NM	NM	NM	2.29
	UCD1-27Z3	ug/L	<0.082	5.1	NM	NM	NM	<2.08

(1) Background HSU-1 groundwater monitoring well, see Figure 4 for location.
(2) Upgradient of LTPS, see Figure 4 for location.
(3) Baseline data includes all groundwater data collected prior to operation of LTPS.

SU - Standard pH units

Table 11B
Summary of LTPS HSU-1 Groundwater Analytical Results
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Analyte	Well	Units	Baseline Concentration (include all available data prior to 2003) (ug/L) [3]		2003 Data			
			Low	High	Q1	Q2	Q3	Q4
Copper	UCD1-18[1]	ug/L	<0.033	1.7	<0.025	<0.025	<0.094	<1.32
	UCD1-11[2]	ug/L	0.885	10	1.47	<0.025	<0.094	<1.18
	UCD1-25	ug/L	<0.039	4.7	<0.025	<0.025	<0.094	<1.59
	UCD1-28	ug/L	0.75	13.7	<0.025	<0.025	<0.094	<1.58
	UCD1-27Z1	ug/L	<0.026	<10000	NM	NM	NM	<1.7
	UCD1-27Z2	ug/L	<0.026	<10000	NM	NM	NM	<1.15
	UCD1-27Z3	ug/L	<0.026	11.9	NM	NM	NM	<1.39
Lead	UCD1-18[1]	ug/L	<0.008	1.3	<0.004	<0.004	<0.003	<0.06
	UCD1-11[2]	ug/L	<0.008	7.4	0.029	0.042	<0.003	<0.032
	UCD1-25	ug/L	<0.008	2.4	<0.004	0.022	<0.003	<0.039
	UCD1-28	ug/L	<0.01	0.24	0.027	0.3	<0.003	0.169
	UCD1-27Z1	ug/L	<2000	0.125	NM	NM	NM	0.41
	UCD1-27Z2	ug/L	<2000	0.076	NM	NM	NM	<0.27
	UCD1-27Z3	ug/L	<2000	0.185	NM	NM	NM	<0.043
Mercury	UCD1-18[1]	ug/L	<0.039	0.38	<0.052	<0.052	<0.095	0.043
	UCD1-11[2]	ug/L	<0.039	0.44	<0.052	<0.052	<0.095	<0.033
	UCD1-25	ug/L	<0.039	<0.2	<0.052	<0.052	<0.095	<0.033
	UCD1-28	ug/L	<0.039	<0.2	<0.052	<0.052	<0.095	<0.033
	UCD1-27Z1	ug/L	<0.039	<200	NM	NM	NM	<0.033
	UCD1-27Z2	ug/L	<0.039	<200	NM	NM	NM	<0.033
	UCD1-27Z3	ug/L	<0.039	<200	NM	NM	NM	<0.033
Nickel	UCD1-18[1]	ug/L	2.57	96	3.34	2.66	2.55	3.03
	UCD1-11[2]	ug/L	0.692	40	2.05	1.28	1.77	1.45
	UCD1-25	ug/L	3.9	233	60.8	126	60	165
	UCD1-28	ug/L	1.6	27.5	2.63	1.74	2.19	1.76
	UCD1-27Z1	ug/L	32.5	1710	NM	NM	NM	1710
	UCD1-27Z2	ug/L	11.6	1170	NM	NM	NM	1450
	UCD1-27Z3	ug/L	6.9	410	NM	NM	NM	382
Nitrate-N	UCD1-18[1]	mg/L	2	27	12 J	5.37	4.18	5.36
	UCD1-11[2]	mg/L	5	30	24.4 J	24.1	23.5	25.9 J
	UCD1-25	mg/L	11	32.7	7.02	29.7	30	26.5 J
	UCD1-28	mg/L	5.4	63.9	60.7 J	57.1	53.3	61.4 J
	UCD1-27Z1	mg/L	<.1	7.6	NM	NM	NM	5.99
	UCD1-27Z2	mg/L	<.1	2.8	NM	NM	NM	7.81
	UCD1-27Z3	mg/L	<.1	4	NM	NM	NM	0.25

(1) Background HSU-1 groundwater monitoring well, see Figure 4 for location.
(2) Upgradient of LTPS, see Figure 4 for location.
(3) Baseline data includes all groundwater data collected prior to operation of LTPS.

SU - Standard pH units

Table 11B
Summary of LTPS HSU-1 Groundwater Analytical Results
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Analyte	Well	Units	Baseline Concentration (include all available data prior to 2003) (ug/L) [3]		2003 Data			
			Low	High	Q1	Q2	Q3	Q4
pH	UCD1-18[1]	SU	7.11	7.89	7.39	NM	NM	7.19
	UCD1-11[2]	SU	6.95	7.85	7.11	NM	NM	7.08
	UCD1-25	SU	6.84	7.95	7.03	NM	NM	7.12
	UCD1-28	SU	6.9	7.59	6.94	NM	NM	6.75
	UCD1-27Z1	SU	6.63	7.9	NM	NM	NM	6.74
	UCD1-27Z2	SU	6.76	7.3	NM	NM	NM	6.86
	UCD1-27Z3	SU	6.68	7.6	NM	NM	NM	6.99
Selenium	UCD1-18[1]	ug/L	<0.431	5.6	3.33	< 0.352	< 0.277	< 1.56
	UCD1-11[2]	ug/L	3.7	31	8.7	7.32	8.82	7.64
	UCD1-25	ug/L	5.5	9.5	3.18	7.24	< 0.277	4.18
	UCD1-28	ug/L	8	15.9	14.3	13.5	15.4	14.8
	UCD1-27Z1	ug/L	<0.49	<3000	NM	NM	NM	< 1.56
	UCD1-27Z2	ug/L	<0.49	<3000	NM	NM	NM	< 1.56
	UCD1-27Z3	ug/L	<0.49	4.8	NM	NM	NM	< 1.56
Sulfate	UCD1-18[1]	mg/L	32	50	40.7	37.8	37.4	38.3
	UCD1-11[2]	mg/L	39	232	34.9	34.8	37.8	36.5
	UCD1-25	mg/L	37	72.2	37.1	35.1	32	36
	UCD1-28	mg/L	37.5	42.4	38.7	37.1	40.6	38
	UCD1-27Z1	mg/L	115	115	NM	NM	NM	60.6
	UCD1-27Z2	mg/L	36.7	36.7	NM	NM	NM	38.6
	UCD1-27Z3	mg/L	19	40.1	NM	NM	NM	38.8
Zinc	UCD1-18[1]	ug/L	<0.059	30	< 0.036	< 0.036	< 0.07	< 2.34
	UCD1-11[2]	ug/L	1.62	30	1.38	< 0.036	< 0.07	< 3.36
	UCD1-25	ug/L	<0.142	65.7	< 0.036	8.16	9.13	7.95 J
	UCD1-28	ug/L	<0.142	58.4	< 0.036	3.21	< 0.07	< 3.21
	UCD1-27Z1	ug/L	559	740	NM	NM	NM	482
	UCD1-27Z2	ug/L	218	286	NM	NM	NM	354
	UCD1-27Z3	ug/L	5.4	97.1	NM	NM	NM	153
Total Organic Carbon (TOC)	UCD1-18[1]	mg/L	<.5	5.2	1.96	1.26	0.871	1.42
	UCD1-11[2]	mg/L	<.5	2	2.29	0.921	1.17	1.38
	UCD1-25	mg/L	0.66	1.3	2.24	1.7	2.08	2.15
	UCD1-28	mg/L	0.33	22.1	2.2	1.98	1.74	2.22
	UCD1-27Z1	mg/L	7.59	7.59	NM	NM	NM	8.42
	UCD1-27Z2	mg/L	4.09	4.09	NM	NM	NM	10.6
	UCD1-27Z3	mg/L	7	10	NM	NM	NM	13.9

(1) Background HSU-1 groundwater monitoring well, see Figure 4 for location.
(2) Upgradient of LTPS, see Figure 4 for location.
(3) Baseline data includes all groundwater data collected prior to operation of LTPS.

SU - Standard pH units

Table 12
2003 Groundwater Elevation Data
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HSU	Well	10-Jan-03	28-Jan-03	21-Feb-03	7-Mar-03	24-Mar-03	15-Apr-03	29-May-03	12-Jun-03	16-Jun-03	22-Jul-03	11-Aug-03	21-Aug-03	15-Sep-03	14-Oct-03	27-Oct-03	24-Nov-03	22-Dec-03
HSU-1	UCD1-001	9.89	NM	12.4	13.02	NM	15	11.29	7.13	NM	1.66	NM	1.11	0.75	NM	4.59	7.23	8.52
	UCD1-003	9.64	NM	12.1	13	NM	15.01	12.64	7.05	NM	1.64	NM	1.99	0.33	NM	4.1	6.84	8.57
	UCD1-004	10.12	NM	12.86	14.88	NM	16.29	13.99	8.98	NM	3.18	NM	0.97	1.19	NM	5.24	7.34	9.18
	UCD1-005	9.54	NM	12.06	13.13	NM	15.02	12.34	1.39	NM	NM	NM	NM	NM	NM	NM	NM	9.72
	UCD1-006	9.77	NM	12.32	13.24	NM	16.29	12.78	7.19	NM	NM	NM	NM	NM	NM	NM	NM	8.52
	UCD1-008	9.36	NM	12.64	12.76	NM	15.19	13.69	7.35	NM	NM	NM	NM	NM	NM	NM	NM	8.71
	UCD1-009	9.27	10.83	11.26	12.66	14.41	14.76	12.65	6.58	8.15	NM	NM	NM	NM	NM	NM	NM	3.17
	UCD1-010	9.15	NM	11.53	12.65	NM	14.25	11.96	4.89	NM	-0.58	NM	1.87	-0.12	NM	4.05	11.24	8.11
	UCD1-011	8.97	NM	11.45	12.37	NM	14.47	11.43	5.62	NM	0.06	NM	-0.33	-0.28	NM	3.94	6.51	8.27
	UCD1-012	9.21	10.73	11.62	12.23	14.36	14.62	12.51	6.6	7.1	0.76	-0.18	-0.04	-0.04	3.18	4.35	6.61	8.51
	UCD1-013	9.37	NM	12.03	12.49	NM	15.17	13.64	7.39	NM	2.01	NM	0.38	0.24	NM	4.14	6.88	8.76
	UCD1-018	10.18	NM	12.91	13.97	NM	16.28	13.83	9.79	NM	3.59	NM	2.14	1.61	NM	5.4	7.78	9.67
	UCD1-019	9.11	NM	14.93	12.68	NM	14.49	11.43	6.34	NM	0.68	NM	0.03	-0.17	NM	3.9	6.66	8.47
	UCD1-020	9.66	NM	12.05	12.47	NM	15	12.63	6.87	NM	1.26	NM	0.12	-0.73	NM	4.26	6.93	8.42
	UCD1-021	9.52	NM	12.17	13.02	NM	15.01	12.46	4.46	NM	1.73	NM	0.71	0.5	NM	3.75	6.96	9.16
	UCD1-022	9.85	NM	12.39	13.27	NM	15.37	12.57	7.55	NM	2.02	NM	0.75	0.55	NM	3.75	7.23	9.19
	UCD1-023	10.04	NM	12.8	13.89	NM	16	14.11	8.73	NM	2.98	NM	1.31	1.11	NM	4.36	7.28	9.42
	UCD1-024	9.65	NM	12.43	13.01	NM	15.21	13.28	7.26	NM	2.38	NM	1.39	1.49	NM	4.74	7.82	8.93
	UCD1-025	8.36	NM	11.07	12.04	NM	13.58	10.34	1.73	NM	-2.42	NM	0.61	0.35	NM	2.95	6.91	7.67
	UCD1-027Z1	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	UCD1-027Z2	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	UCD1-027Z3	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	UCD1-028	8.64	NM	11.26	12.04	NM	13.53	9.74	4.19	NM	1.84	NM	2.14	1.76	NM	6.3	8.5	7.8
	UCD1-034	10.58	NM	14.18	13.73	NM	17.14	13.98	8.66	NM	3.7	NM	0.91	1.19	NM	4.43	7.42	9.47
	UCD1-049	NM	9.89	11.78	NM	13.97	NM	NM	NM	6.73	NM	-0.67	NM	NM	2.66	NM	NM	NM
	UCD1-050	NM	9.98	11.63	NM	13.9	NM	NM	NM	4.57	NM	-0.58	NM	NM	2.66	NM	NM	NM
	UCD1-051	NM	10.2	11.72	NM	13.92	NM	NM	NM	6.44	NM	-0.69	NM	NM	2.64	NM	NM	NM
HSU-2	UCD2-007	9.43	NM	12.16	12.54	NM	14.89	10.24	5.63	NM	1.73	NM	0.6	0.3	NM	4.5	6.95	8.56
	UCD2-014	9.33	NM	11.47	12.8	NM	14.74	10.12	5.42	NM	0.41	NM	0.48	-0.06	NM	4.09	6.83	8.72
	UCD2-015	9.54	NM	12.29	12.98	NM	15.17	10.24	6.09	NM	1.39	NM	1.73	0.78	NM	4.63	6.53	8.33
	UCD2-016	9.58	NM	12.37	12.84	NM	14.87	10.1	6.24	NM	1.1	NM	1.27	0.55	NM	4.79	7.27	8.97
	UCD2-017	9.81	NM	12.68	13.35	NM	15.38	10.64	7.59	NM	2.25	NM	2.04	1.11	NM	5.12	7.69	9.37
	UCD2-026	8.76	NM	11.38	12.25	NM	13.98	9.34	3.97	NM	-0.2	NM	0.73	2.83	NM	4.96	7.33	7.87
	UCD2-029	8.76	NM	11.12	12.03	NM	14.31	9.16	3.53	NM	1.36	NM	2.33	1.75	NM	6.43	8.46	7.88
	UCD2-030	8.69	NM	11.11	12.08	NM	13.83	9.12	3.52	NM	1.1	NM	2.1	1.61	NM	6.48	8.61	7.57
	UCD2-031	9	NM	11.36	11.68	NM	13.87	9.12	3.51	NM	1.2	NM	2.48	1.83	NM	6.33	8.56	7.76
	UCD2-032	8.78	NM	11.57	12.21	NM	14.03	9.18	3.96	NM	8.14	NM	13.7	9.35	NM	13.25	16.32	7.95
	UCD2-035	9.36	NM	12.13	12.37	NM	14.86	10.17	6.1	NM	0.72	NM	1.32	0.39	NM	4.29	6.95	8.72
	UCD2-036	9.43	NM	12.29	12.96	NM	14.85	10.21	5.93	NM	9.27	NM	9.3	8.76	NM	2.68	15.41	9.23
	UCD2-037	9.75	NM	12.61	13.28	NM	15.28	10.53	6.1	NM	1.63	NM	1.58	0.9	NM	-1.63	7.47	8.95
	UCD2-038	9.69	NM	12.8	12.88	NM	15.32	10.49	7.2	NM	1.19	NM	1.16	0.66	NM	4.53	7.04	9.24
	UCD2-039	9.13	NM	11.88	12.63	NM	14.43	9.79	4.78	NM	0.03	NM	0.38	-0.27	NM	4.21	6.61	8.47
	UCD2-040	8.51	NM	10.81	11.71	NM	13.71	8.98	2.94	NM	0.53	NM	1.66	1.51	NM	5.48	12.18	7.67
	UCD2-045	NM	NM	11.06	11.87	NM	13.58	8.58	-3.66	NM	-3.5	NM	-2.46	-2.95	NM	1.02	4.23	7.5
	UCD2-046	5.12	NM	7.29	8.09	NM	9.79	3.4	-2.92	NM	1.61	NM	4.08	3.96	NM	8.47	11.49	4.21
	UCD2-048	NM	10.41	11.98	NM	14.03	NM	NM	NM	6.86	NM	-1.75	NM	NM	2.81	NM	NM	NM
UCD-4	UCD4-041	7.96	NM	10.5	10.84	NM	12.57	-4.11	-9.86	NM	-9.69	NM	-1.85	-4.13	NM	-0.25	7.97	6.98
	UCD4-042	8.24	NM	10.12	11.11	NM	12.82	-3.35	-9.83	NM	-12.7	NM	-4.81	-6.76	NM	1.54	5.24	7.31
	UCD4-043	8.25	NM	10.7	11.2	NM	12.72	-3.14	-11.48	NM	-13.72	NM	-5.05	-8.52	NM	1.18	5.01	6.85
	UCD4-044	8.64	NM	10.67	8.63	NM	12.6	-4.42	-8.91	NM	-14.48	NM	-15	-8.9	NM	-2.89	2.72	6.05
	UCD4-047	8.07	NM	10.2	14.19	NM	11.93	-1.81	-3.7	NM	-10.74	NM	-2.14	-5.4	NM	4.27	8.65	7.02
IRA System	EW2-01	8.95	NM	11.59	12.17	NM	13.98	8.89	3.3	NM	-2.06	NM	3.07	-1.42	NM	3.6	5.74	7.96
	IW2-01	9.71	NM	29.7	29.59	NM	34.98	41.58	44.3	NM	1.78	NM	35.39	37.47	NM	5.07	23.92	9.39

Note: All data shown is in feet mean sea level (ft msl)

NM = Not Measured

Table 13
Vertical Gradient between Select HSU-1/HSU-2 and HSU-2/HSU-4 Wells
2003 Comprehensive Annual Water Monitoring Report
LEHR/SCDS Environmental Restoration
Davis, California

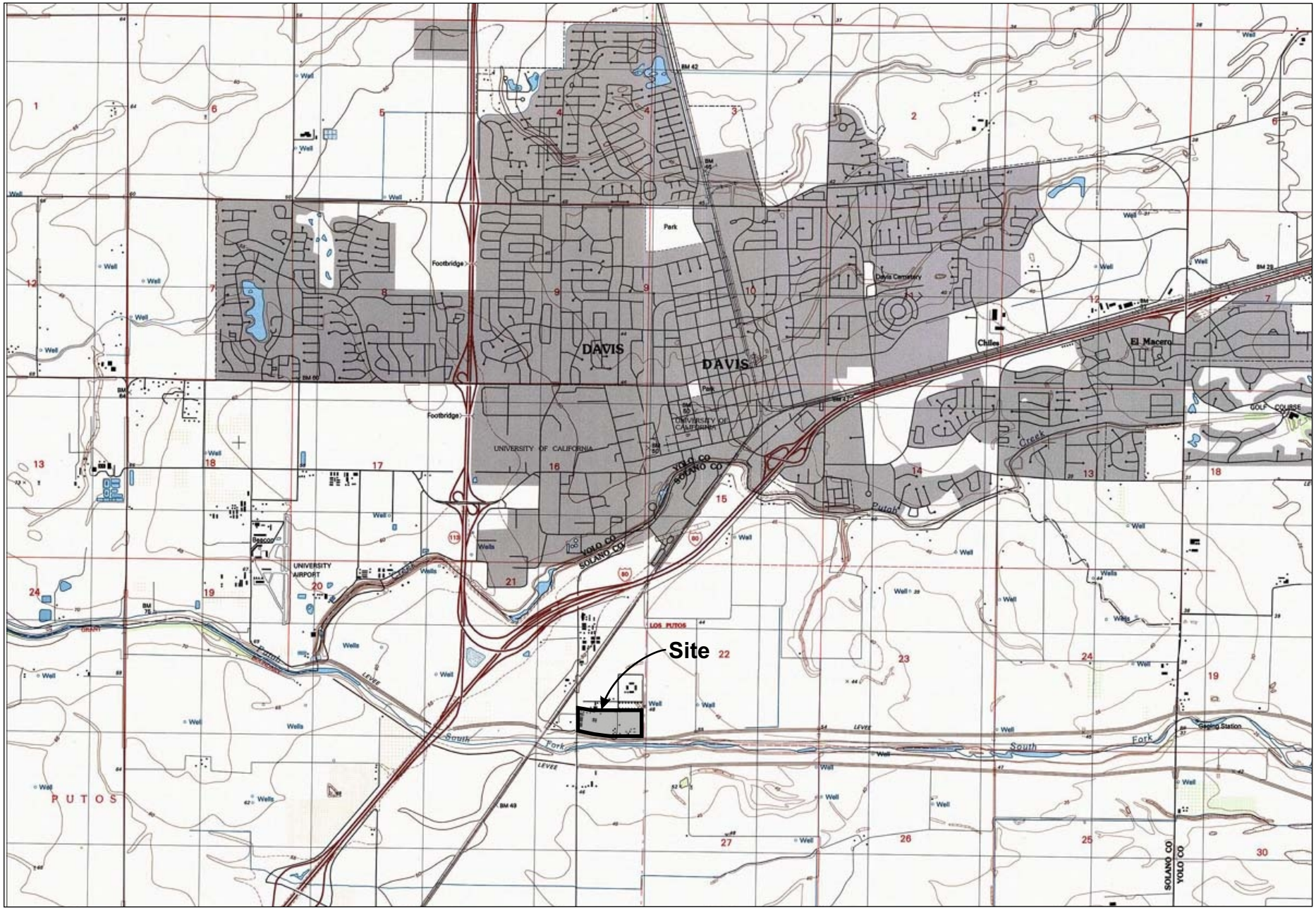
Date Measured	UCD1-021 and UCD2-007	UCD1-028 and UCD2-029	UCD1-013 and UCD2-014	UCD1-051 and UCD2-048	UCD2-029 and UCD4-044	UCD2-040 and UCD4-041	UCD2-032 and UCD4-042
January 10, 2003	0.0040	-0.0044	0.0018	-0.0081	0.0007	0.0032	0.0033
February 21, 2003	0.0004	0.0052	0.0247	-0.0100	0.0027	0.0018	0.0089
March 7, 2003	0.0214	0.0004	-0.0137	-0.0042	0.0201	0.0051	0.0067
April 15, 2003	0.0054	-0.0289	0.0189	NM	0.0101	0.0067	0.0074
May 29, 2003	0.0991	0.0215	0.1551	NM	0.0804	0.0768	0.0766
June 12, 2003	-0.0522	0.0244	0.0868	-0.0162	0.0736	0.0751	0.0843
July 22, 2003	0.0000	0.0178	0.0705	NM	0.0937	0.0599	0.1274
August 21, 2003	0.0049	-0.0070	-0.0044	0.0408	0.1025	0.0206	0.1132
September 15, 2003	0.0089	0.0004	0.0132	NM	0.0630	0.0331	0.0985
October 27, 2003	-0.0335	-0.0048	0.0022	NM	0.0551	0.0336	0.0716
November 24, 2003	0.0004	0.0015	0.0022	NM	0.0340	0.0247	0.0677
December 22, 2003	0.0268	-0.0030	0.0018	-0.0065	0.0108	0.0040	0.0039
Difference of Screens (ft)	22.4	27	22.7	35.3	169	170.5	163.58

Vertical Gradient = feet/foot

NM = Not Measured

Note: A negative value denotes an upward gradient.

FIGURES



NORTH

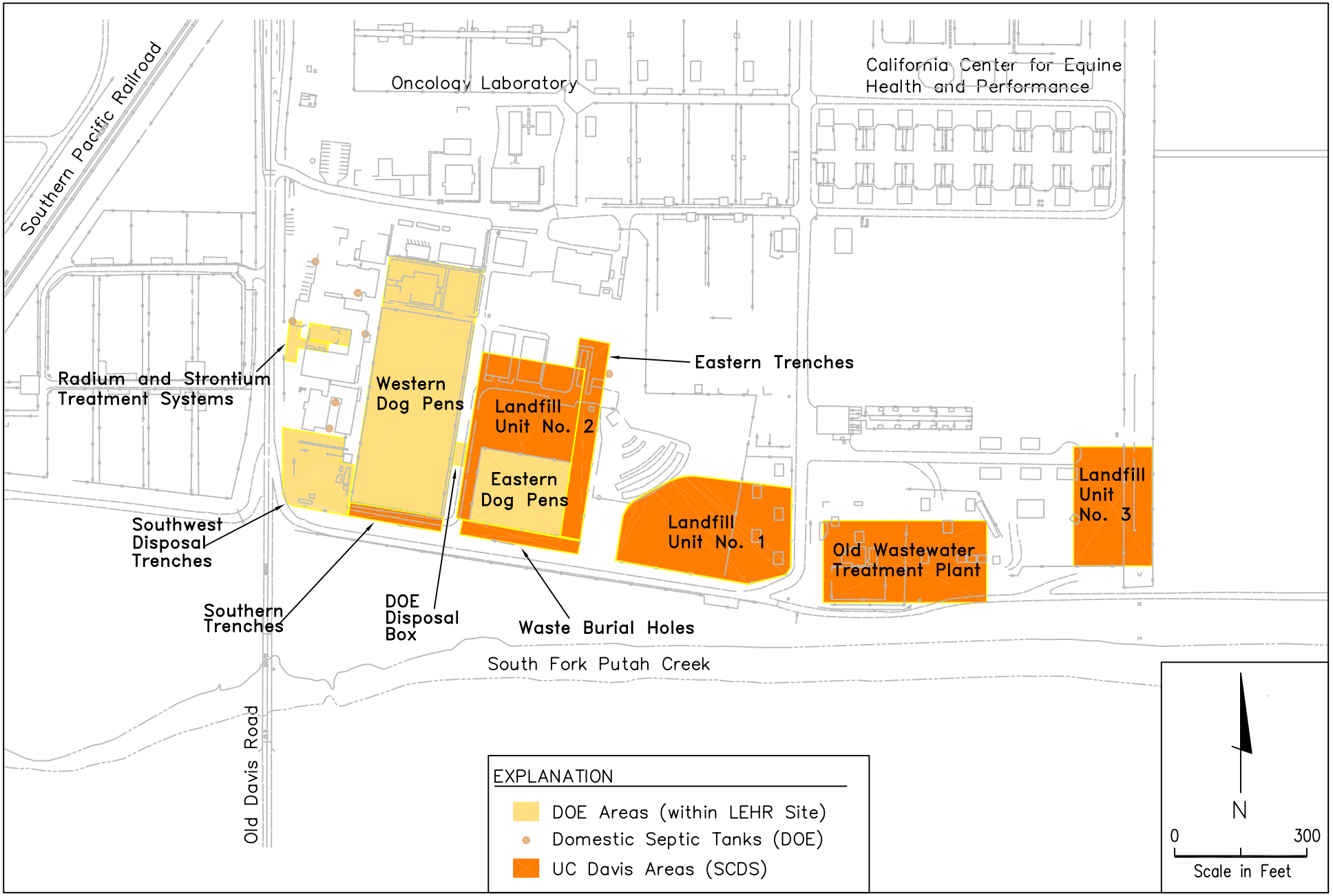
0 2000 4000

Scale in Feet

Source: TOPO! 2001, National Geographic

SITE VICINITY MAP

2003 Comprehensive Annual Water Monitoring Report
LEHR/SCDS
Davis, California



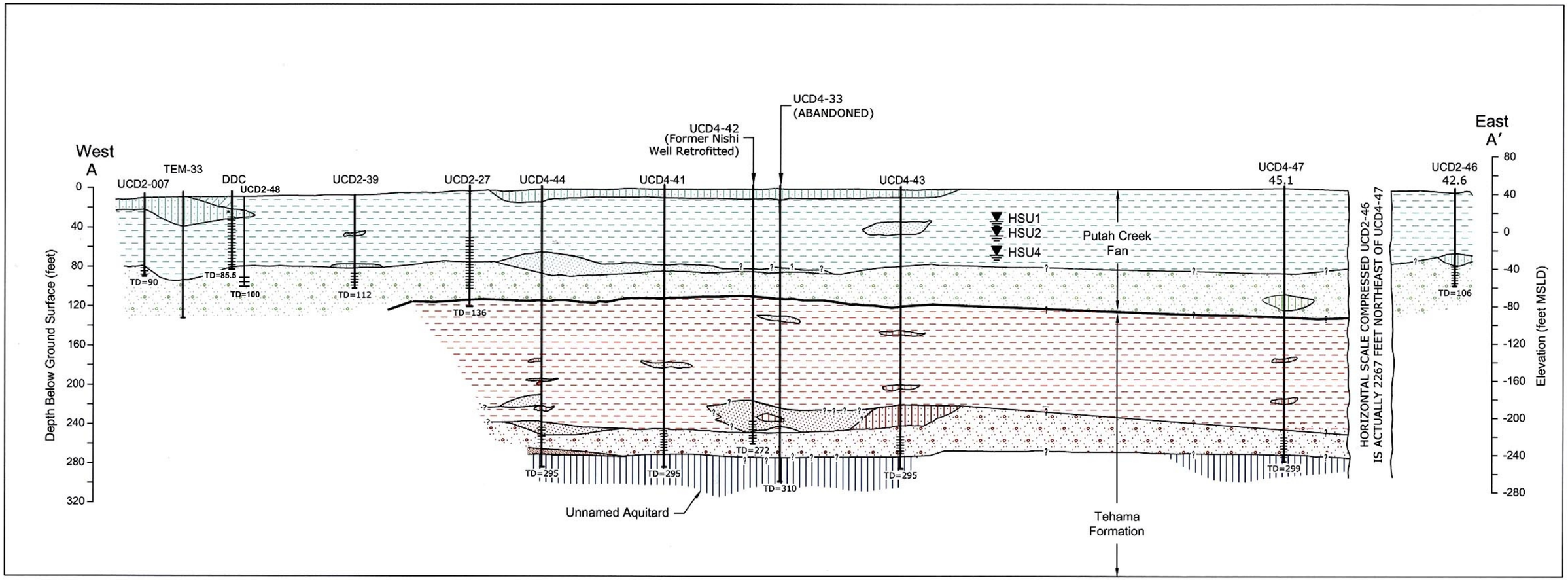
UC DAVIS AND DOE AREAS

2003 Comprehensive Annual Water Monitoring Report
LEHR/SCDS
Davis, California

Source: MWH

P:\25000\25536 - LEHR - Data Validation & Reporting\2003 Annual Report\Ann 03 figures Apr 9, 2004 Fig2-MWH-WasteDisposal.cdr

FIGURE 2



EXPLANATION

UCD4-43 — HSU4 Monitoring Well

TD=295 — Screened Interval

Contact Between Putah Creek Fan and Tehama Formation

Geologic Contact

—?— Geologic Contact Uncertain

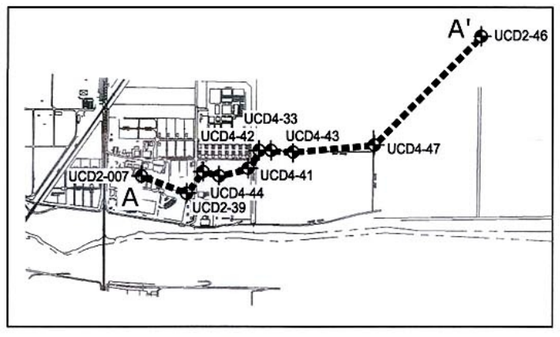
HSU1 — Average August 2000 Water Level in Wells within the Indicated HSU

HSU-1	HSU-2	HSU-3	HSU-4
Fine Grained Silty Sand (SM)	Fine Grained Silty Sand (SM)	Fine Grained Silty Sand (SM)	Fine Grained Silty Sand (SM)
Interbedded Clayey Silt (ML) to Silty Clay (CL)	Interbedded Clayey Silt (ML) to Silty Clay (CL)	Interbedded Clayey Silt (ML) to Silty Clay (CL)	Interbedded Clayey Silt (ML) to Silty Clay (CL)
Fine to Coarse Grained Sand (SP)	Fine to Coarse Grained Sand (SP)	Fine to Coarse Grained Sand (SP)	Fine to Coarse Grained Sand (SP)
Coarse Grained Sandy Gravel (GP)	Coarse Grained Sandy Gravel (GP)	Coarse Grained Sandy Gravel (GP)	Coarse Grained Sandy Gravel (GP)
Silt (ML) With Some Sand and Clay	Silt (ML) With Some Sand and Clay	Silt (ML) With Some Sand and Clay	Silt (ML) With Some Sand and Clay

90 — 300

Scale in Feet

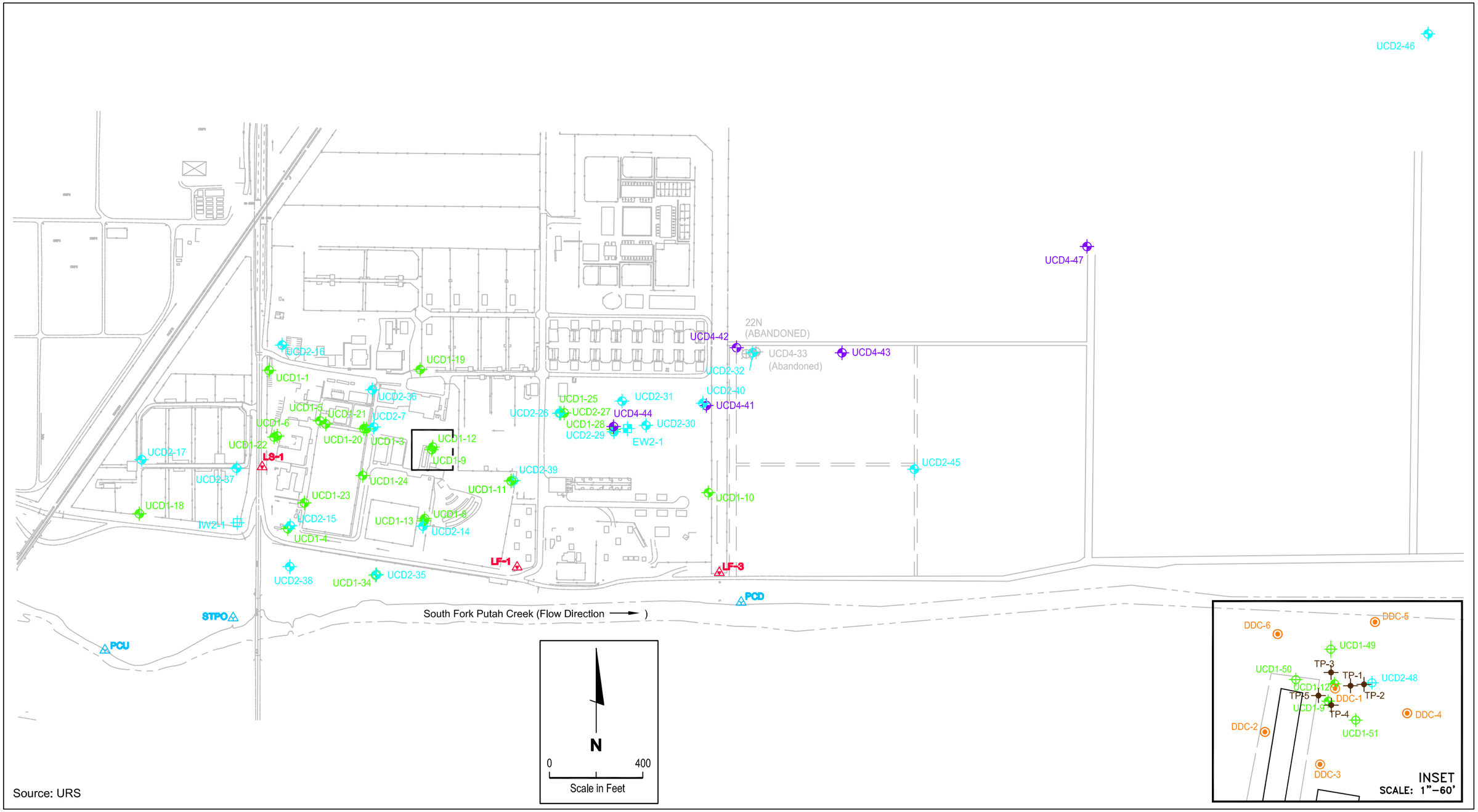
Vertical Exaggeration: 3x



GENERALIZED HYDROSTRATIGRAPHIC CROSS SECTION A-A'

2003 Comprehensive Annual Water Monitoring Report
LEHR/SCDS
Davis, California

Source: URS



Source: URS

EXPLANATION

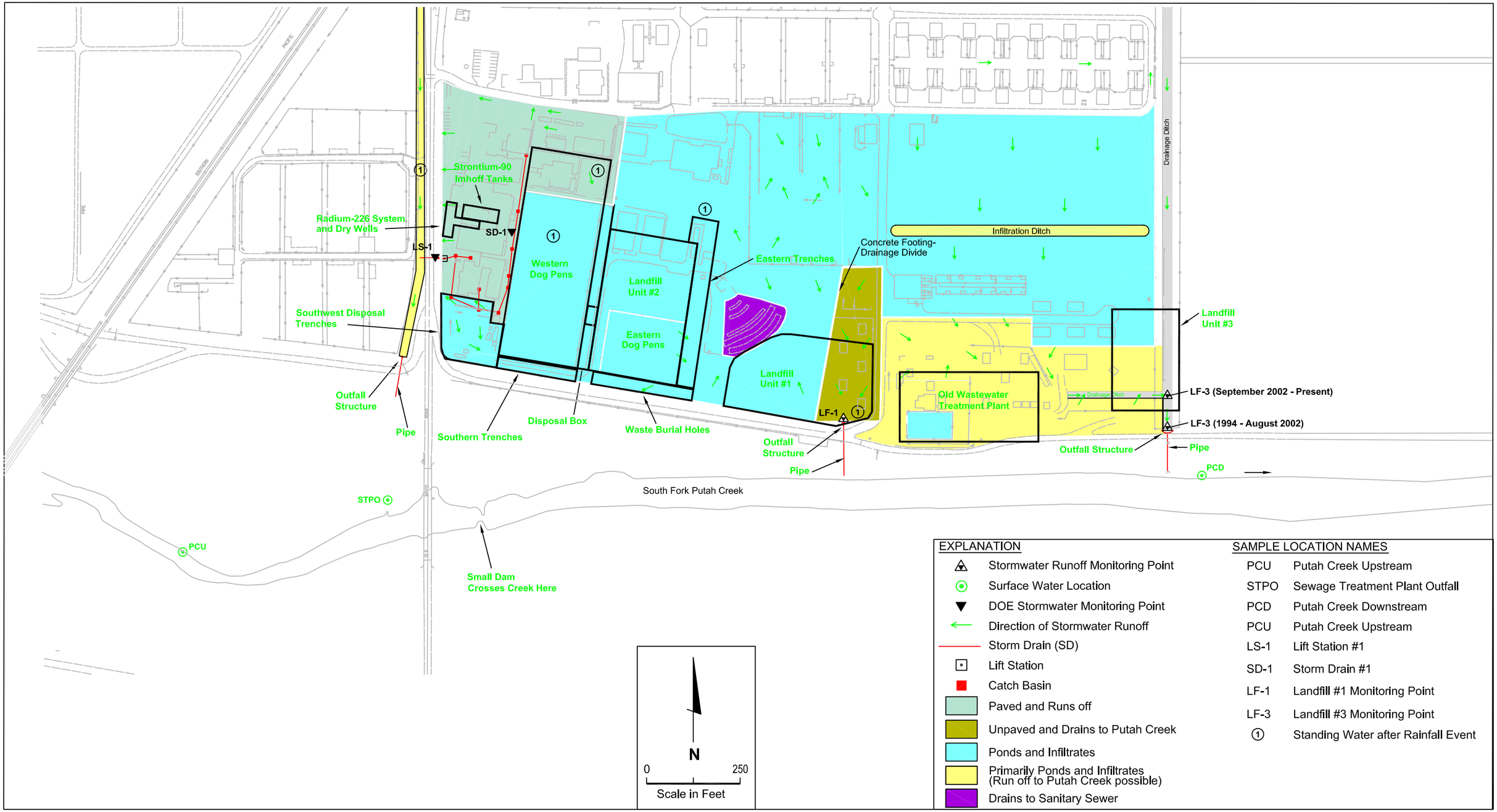
- UCD1-11 HSU-1 Monitoring Well
- UCD2-17 HSU-2 Monitoring Well
- EW2-1 HSU-2 Extraction Well
- IW2-1 HSU-2 Injection Well
- UCD4-33 HSU-4 Monitoring Well
- 22N Former Irrigation Well
- STPO Surface Water Sample Location
- LS-1 Stormwater Sample Location
- DDC-1 DDC Well Location
- TP-1 Nested Piezometer Location

SITE AND WELL LOCATION MAP

2003 Comprehensive Annual Water Monitoring Report
LEHR/SCDS
Davis, California

FIGURE 4

P:\25000\25536 - LEHR - Data Validation & Reporting\2003 Annual Report\Ann 03 figures May 04, 2004 Fig4-SiteWellLocMap.DWG



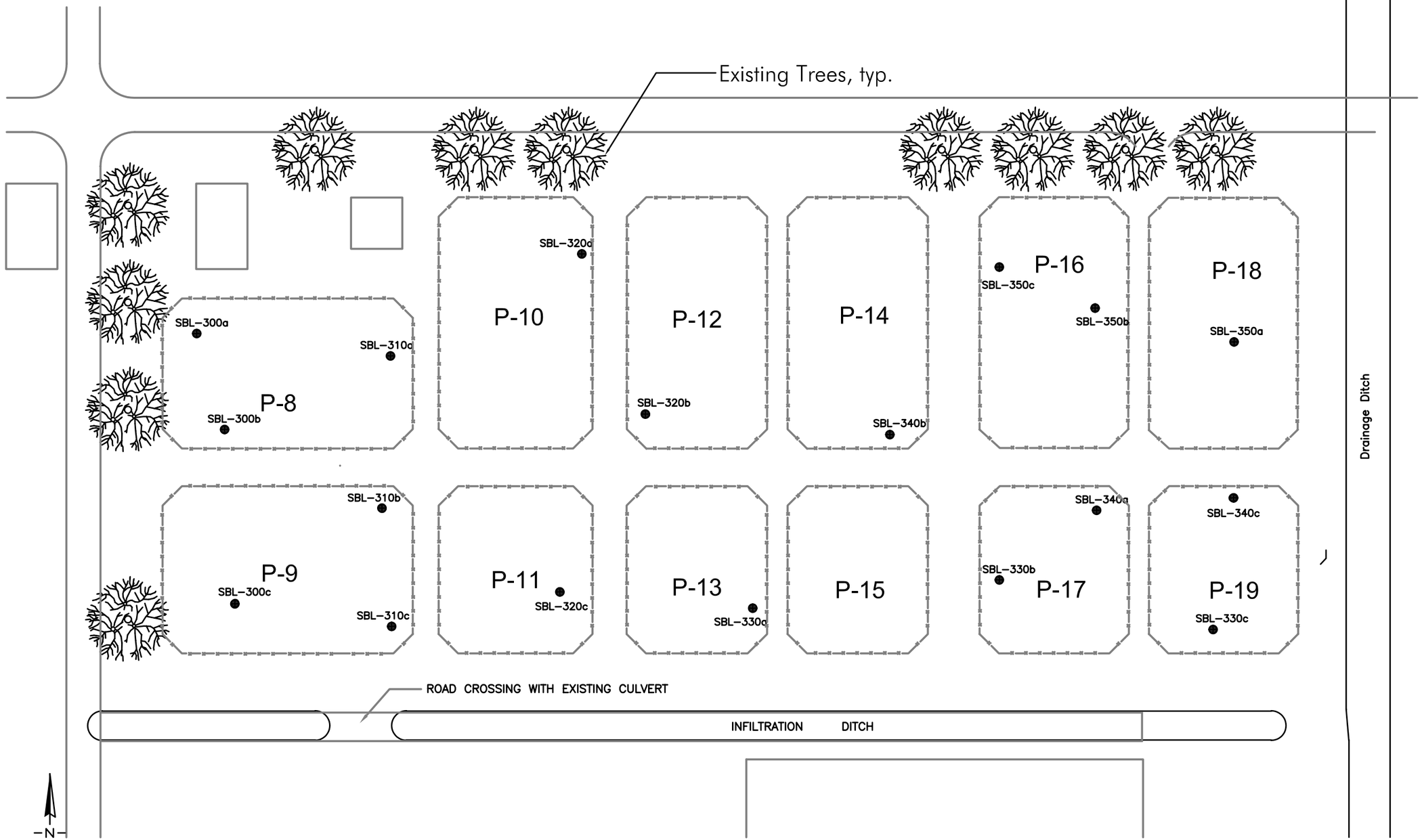
Source: MWH

LOCATION OF STORMWATER AND SURFACE WATER MONITORING POINTS

2003 Comprehensive Annual Water Monitoring Report
LEHR/SCDS
Davis, California

P:\25000\25536 - LEHR - Data Validation & Reporting\2003 Annual Report\Ann 03 figures Apr 22, 2004 Fig5-MWH-StrmSurfWtr.cdr

FIGURE 5



N

APPROXIMATE SCALE IN FEET
0 30 60

0 18 36
APPROXIMATE SCALE IN METERS

Source: MWH

LAND TREATMENT PILOT STUDY SOIL BORING LOCATIONS

LEHR/SCDS ENVIRONMENTAL RESTORATION
DAVIS, CALIFORNIA

GEOMATRIX	Figure By MF	Project No. 25536-200	Figure
	Date 4/23/04	Map No.	6

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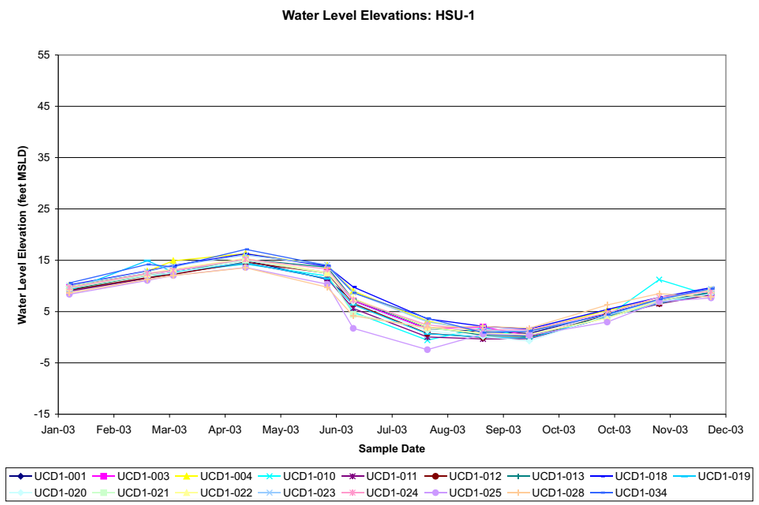
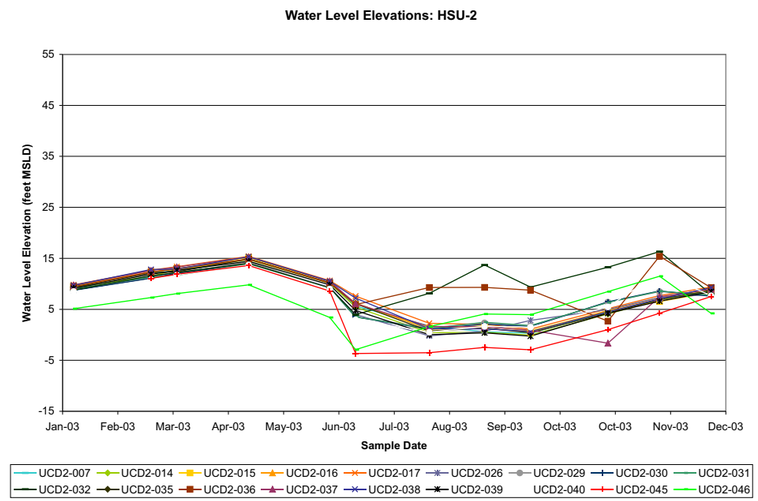
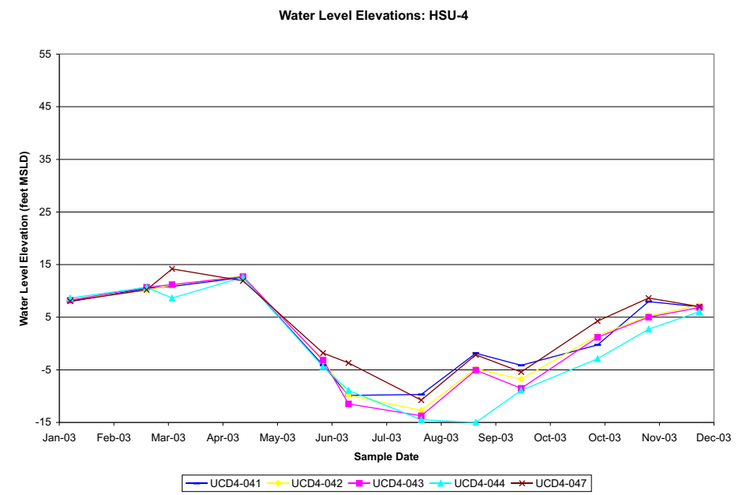
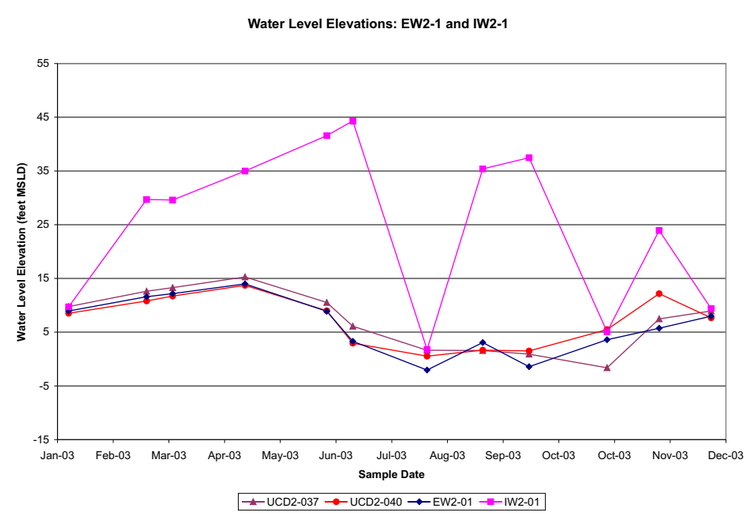
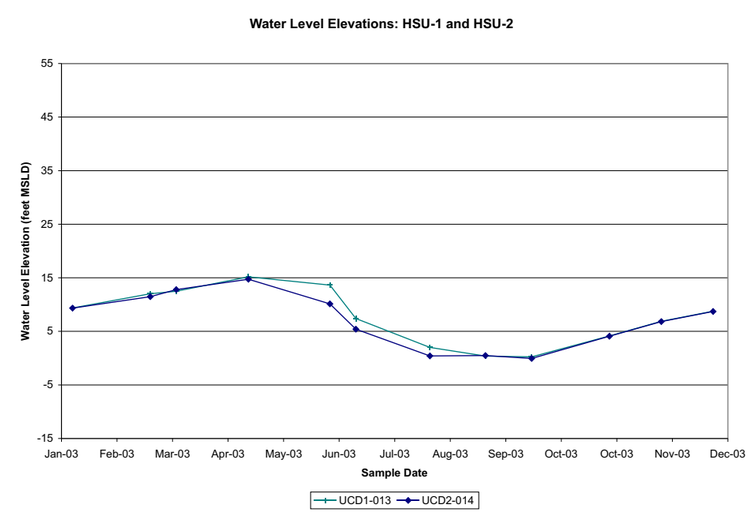
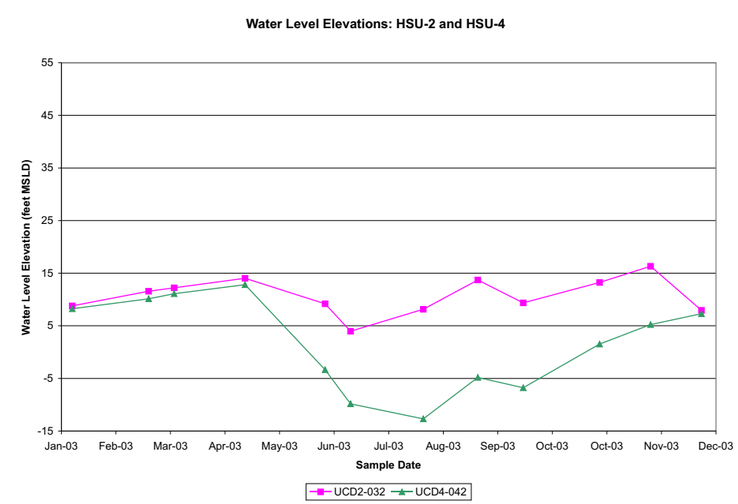






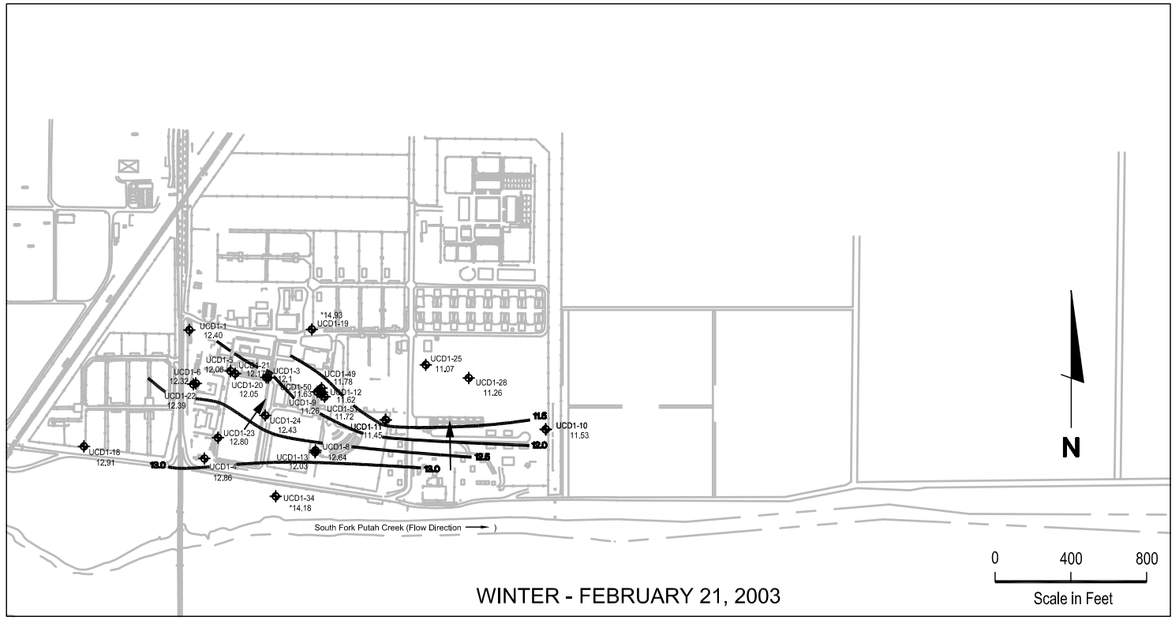




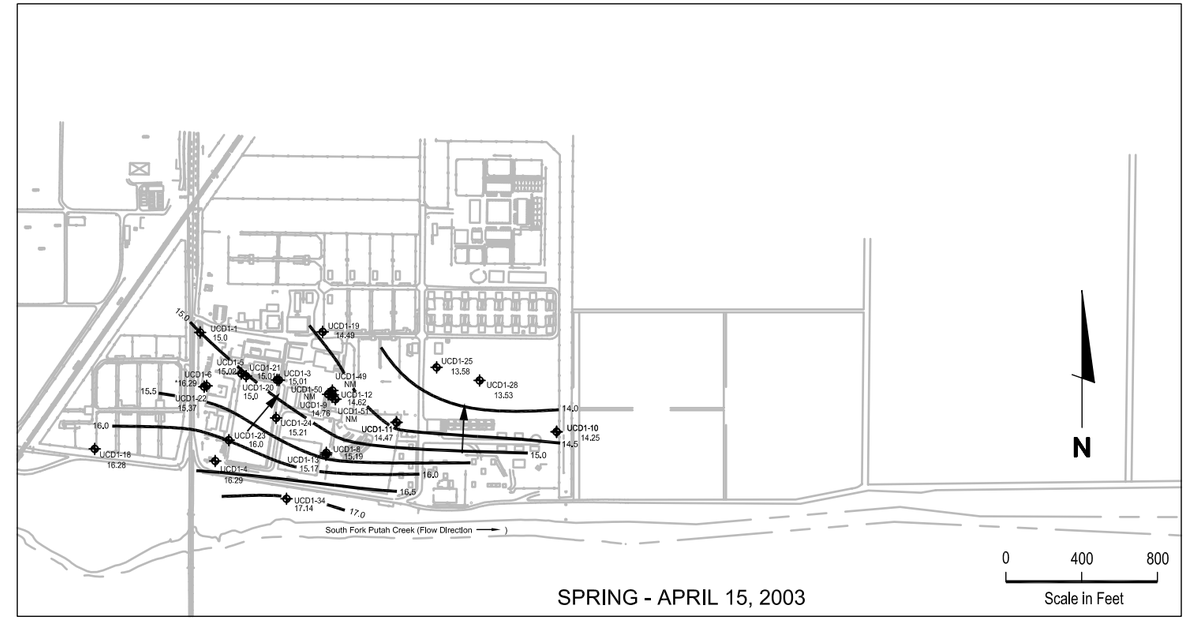


GROUNDWATER ELEVATION GRAPHS

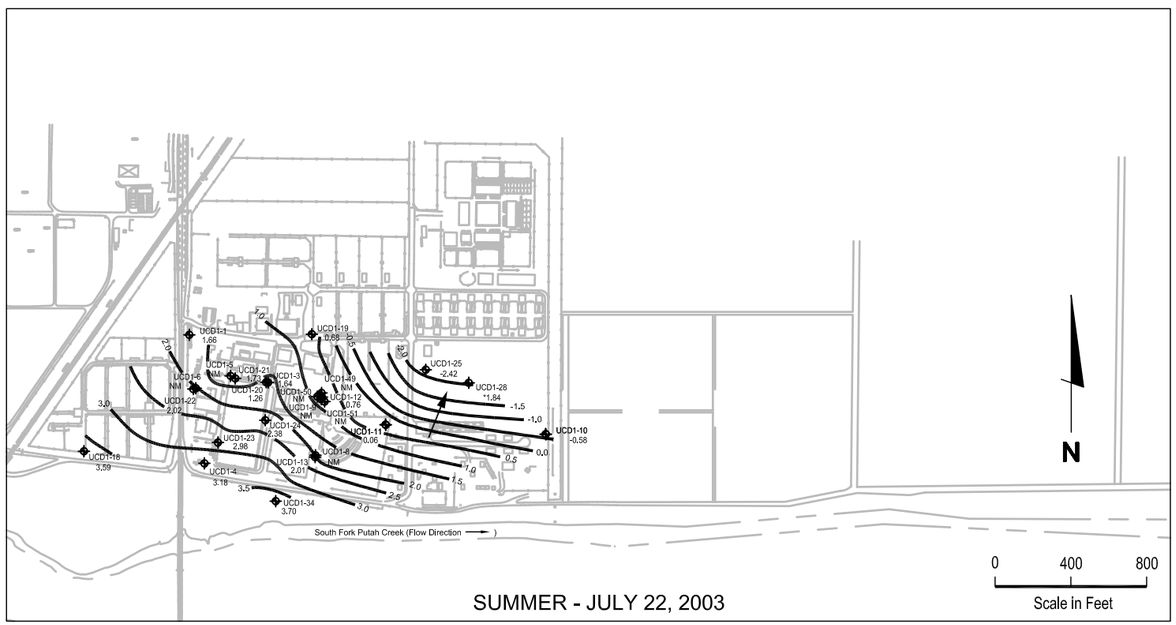
2003 Comprehensive Annual Water Monitoring Report
LEHR/SCDS
Davis, California



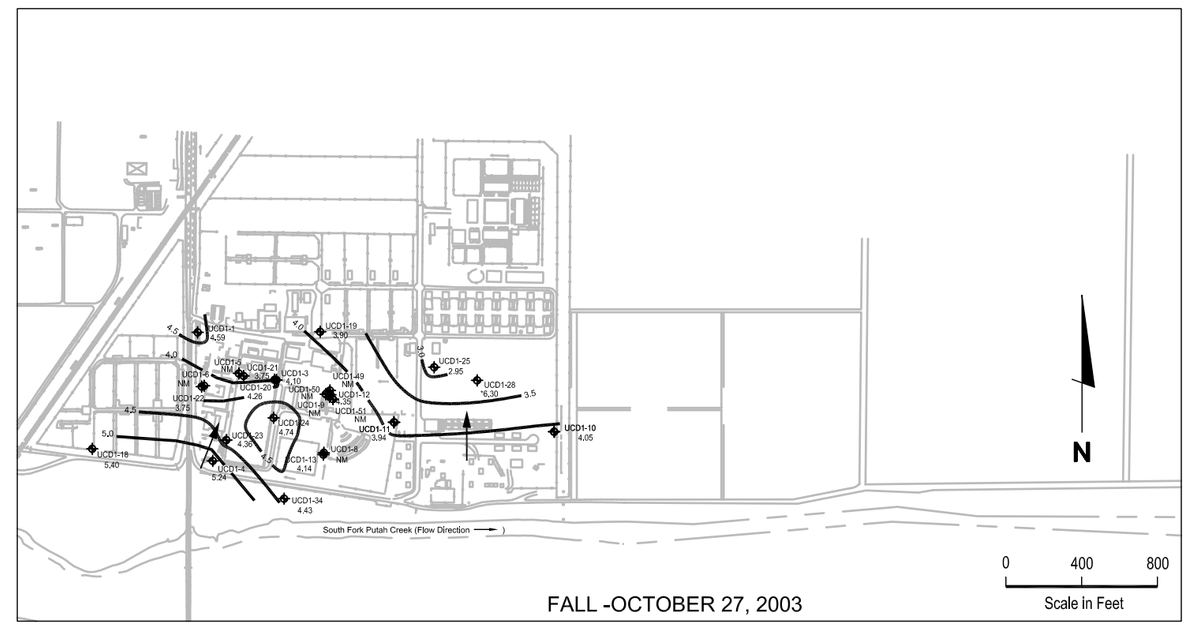
WINTER - FEBRUARY 21, 2003



SPRING - APRIL 15, 2003



SUMMER - JULY 22, 2003



FALL -OCTOBER 27, 2003

EXPLANATION

UCD1-11 HSU-1 Monitoring Well

9.39 Groundwater Elevation Above Mean Sea Level

Groundwater Contour Line, Contour Interval = 0.5

Approximate Groundwater Flow Direction

* Water level appears to be erroneous and was not used to estimate contours.

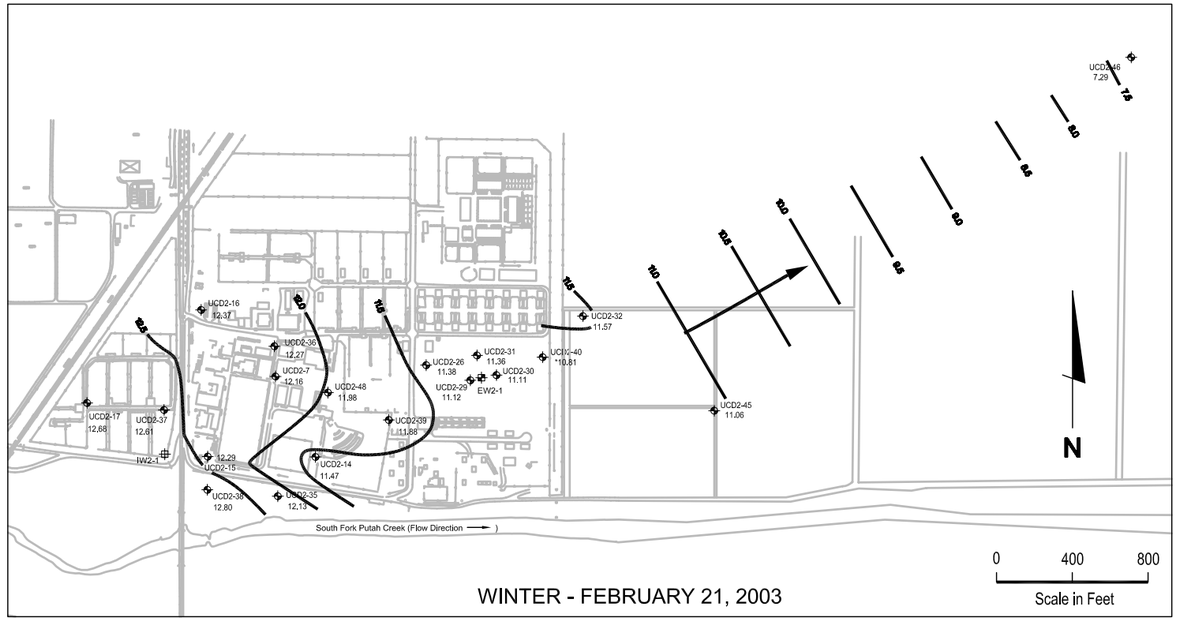
Source: URS

GROUNDWATER ELEVATION CONTOUR MAP - HSU-1

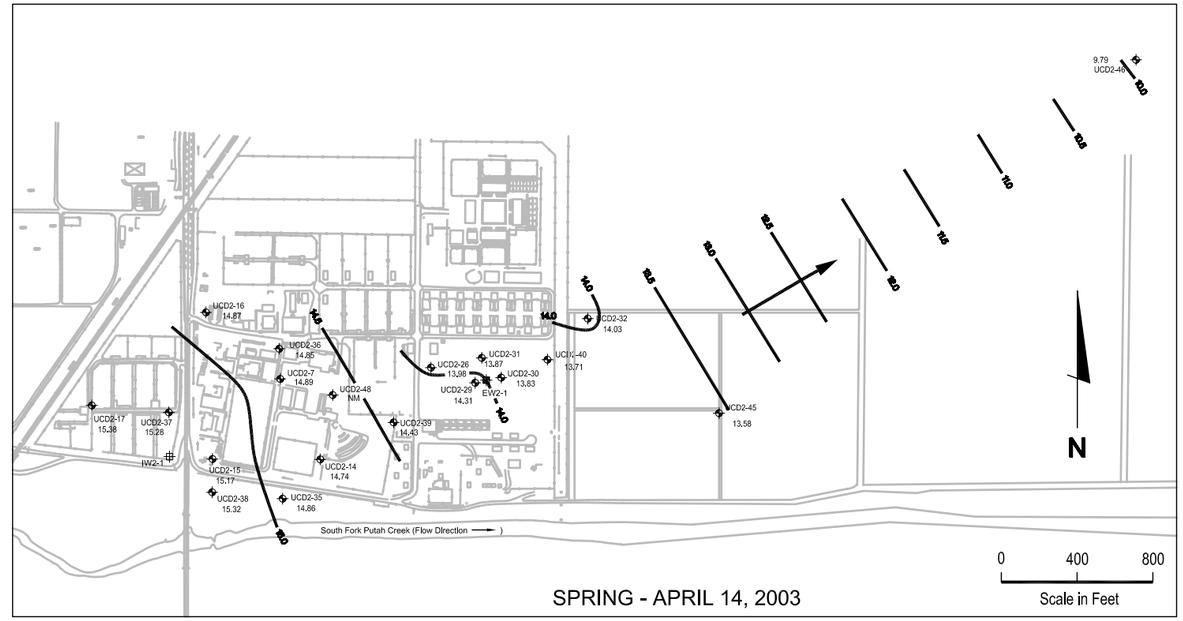
2003 COMPREHENSIVE ANNUAL WATER MONITORING REPORT
LEHR/SCDS
DAVIS, CALIFORNIA

FIGURE 8

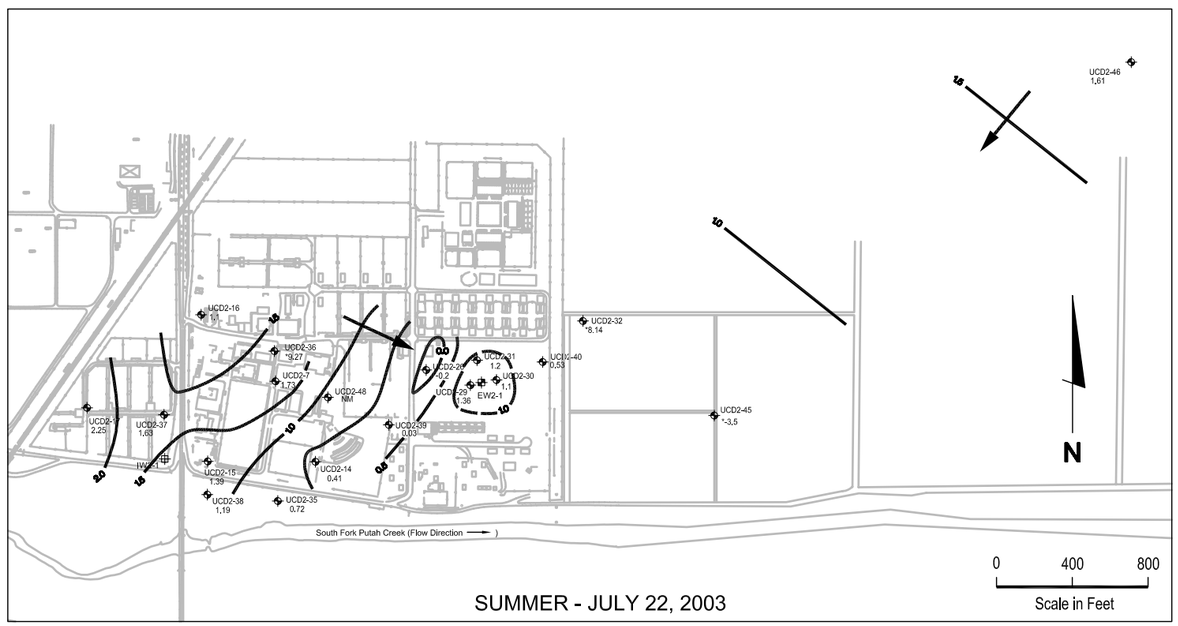
Path: P:\25000\25536 - LEHR - Data Validation & Reporting\2003 Annual Report\Ann 03 figures\ Filename: Fig8-HSU1-GWcontours Plot date: May 04, 2004-11:43:45am CAD User: jrogers



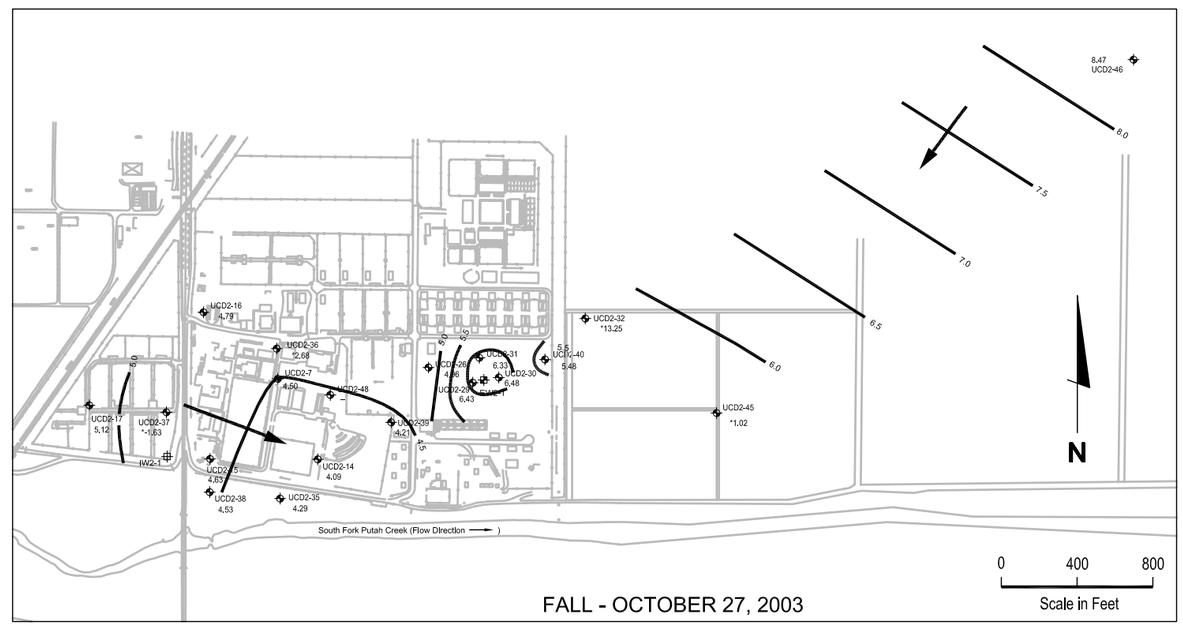
WINTER - FEBRUARY 21, 2003



SPRING - APRIL 14, 2003



SUMMER - JULY 22, 2003



FALL - OCTOBER 27, 2003

EXPLANATION

- UCD2-17 HSU-2 Monitoring Well
- EW2-1 HSU-2 Extraction Well
- IW2-1 HSU-2 Injection Well

Source: URS

- 9.39 Groundwater Elevation Above Mean Sea Level
- Groundwater Contour Line, Contour Interval = 0.5
- Approximate Groundwater Flow Direction

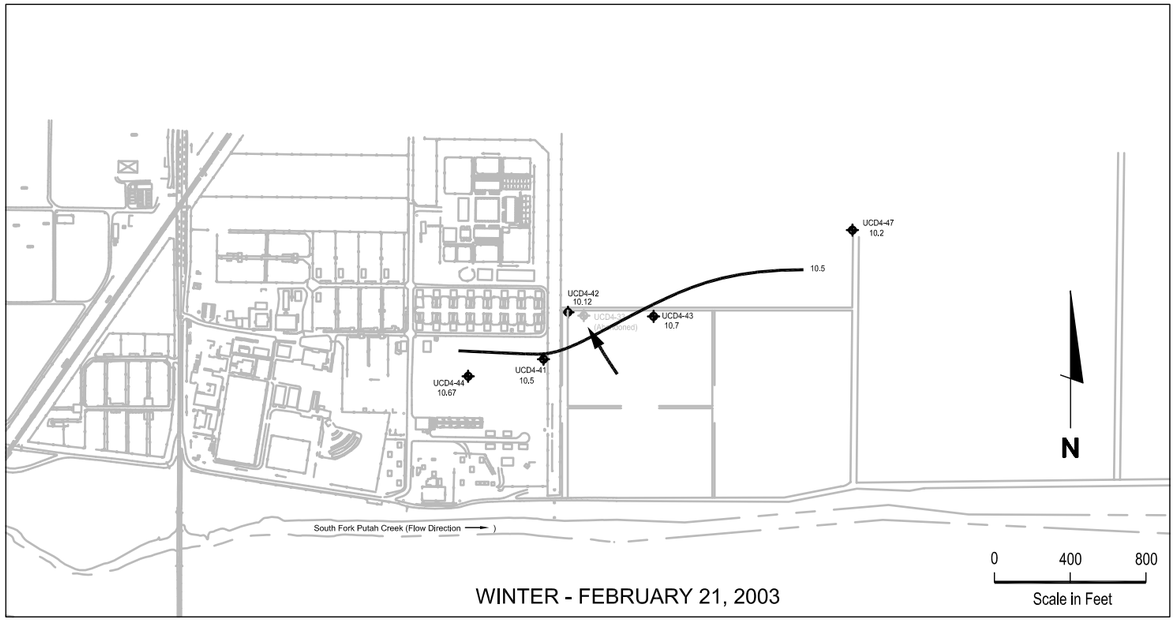
* Water level appears to be erroneous and was not used to estimate contours.

GROUNDWATER ELEVATION CONTOUR MAP - HSU-2

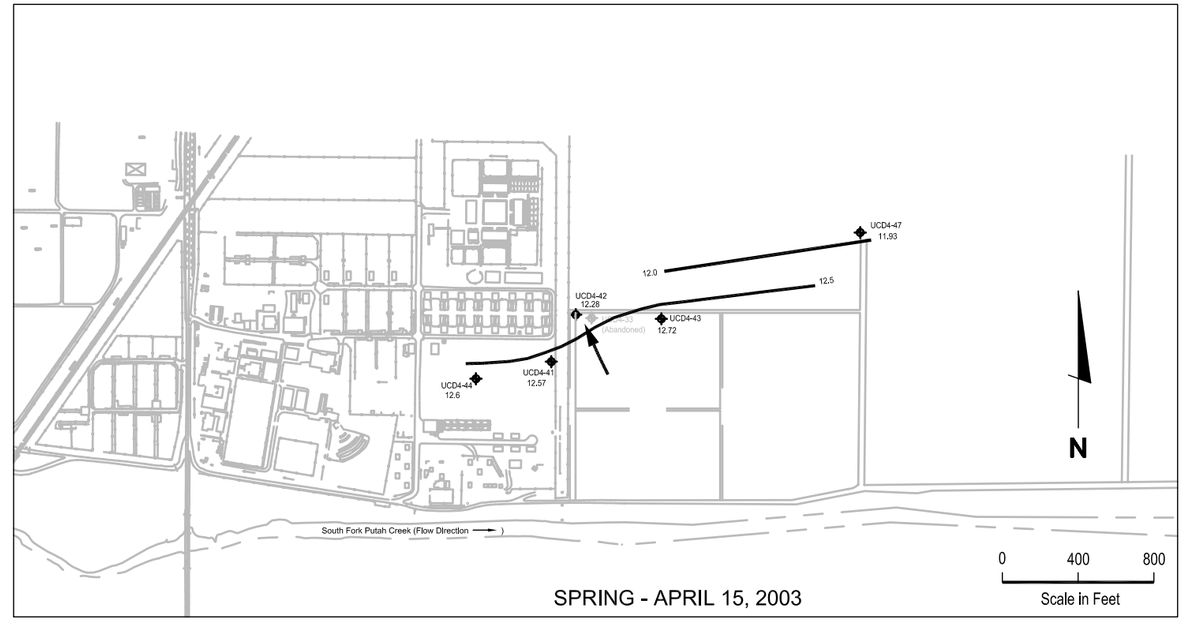
2003 COMPREHENSIVE ANNUAL WATER MONITORING REPORT
LEHR/SCDS
DAVIS, CALIFORNIA

FIGURE 9

Path: P:\25000\25536 - LEHR - Data Validation & Reporting\2003 Annual Report\Ann 03 figures\ Filename: Fig9--HSU2-GWcontours Plot date: May 04, 2004-11:42:01am CAD User: jrogers



WINTER - FEBRUARY 21, 2003



SPRING - APRIL 15, 2003

SUMMER - JULY 22, 2003

FALL - OCTOBER 27, 2003

EXPLANATION

UCD4-44 HSU-4 Monitoring Well

9.39 Groundwater Elevation Above Mean Sea Level

Groundwater Contour Line, Contour Interval = 0.5

Approximate Groundwater Flow Direction

* Water level appears to be erroneous and was not used to estimate contours.

Source: URS

GROUNDWATER ELEVATION CONTOUR MAP - HSU-4

2003 COMPREHENSIVE ANNUAL WATER MONITORING REPORT
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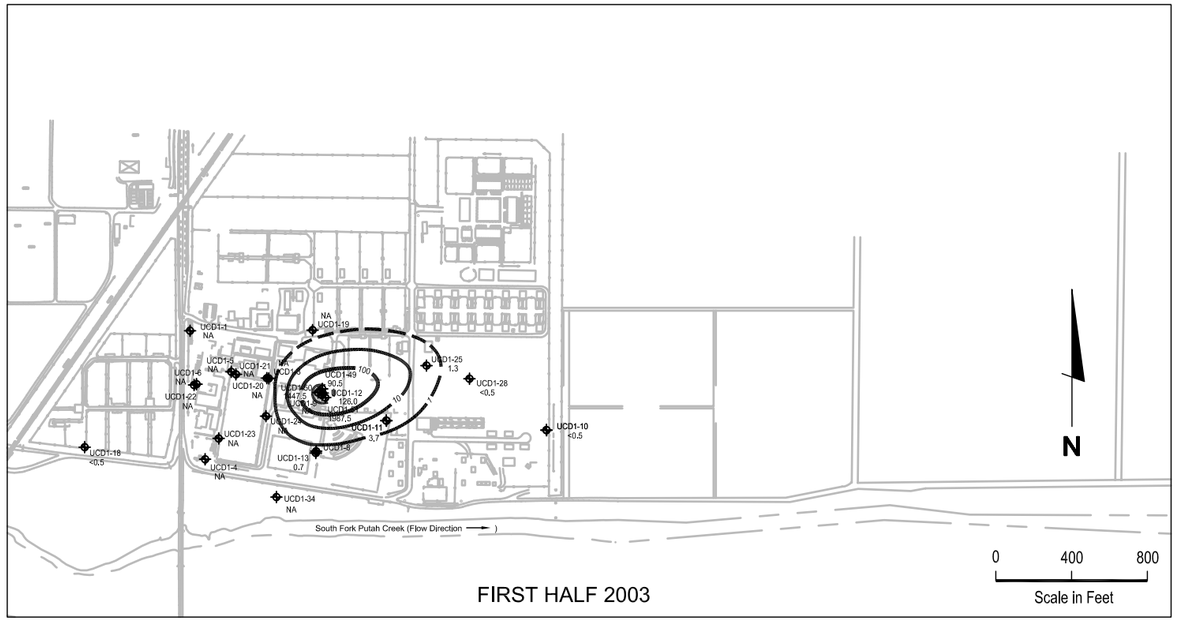
DAVIS, CALIFORNIA

FIGURE 10

Path: P:\25000\25536 - LEHR - Data Validation & Reporting\2003 Annual Report\Ann 03 figures\ Filename: Fig10--HSU4-GWcontours Plot date: May 04, 2004-11:46:30am CAD User: jrogers



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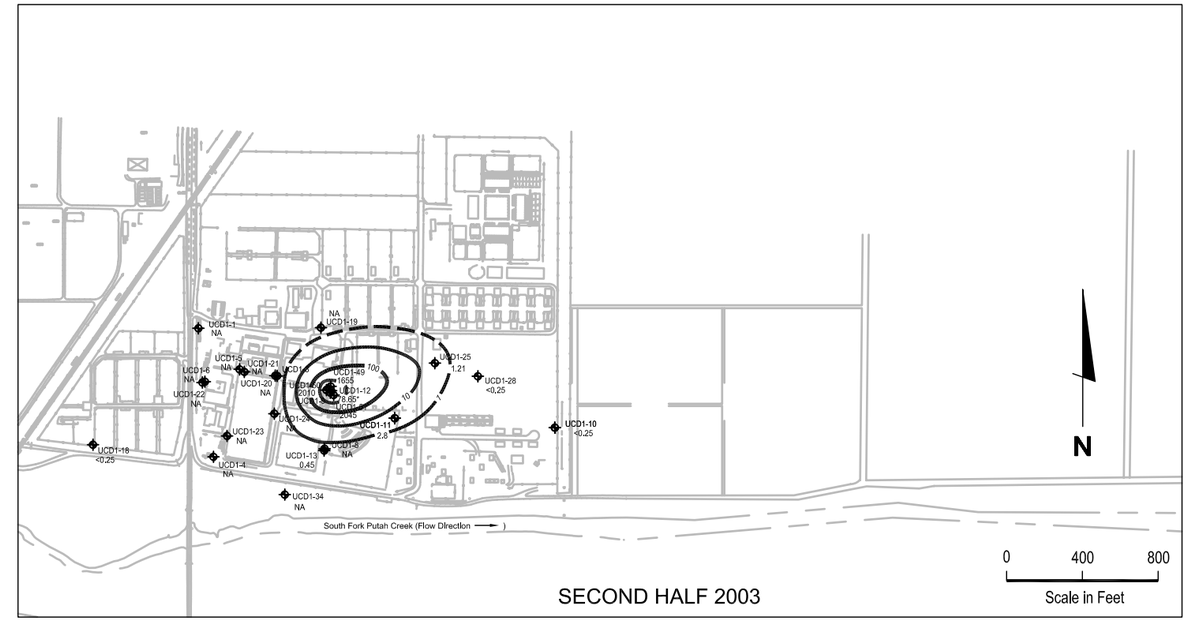


SECOND HALF 2003

EXPLANATION

UCD1-11 HSU-1 Monitoring Well

<0.5 Result is less than the CRDL

NA Not Analyzed

Source: URS

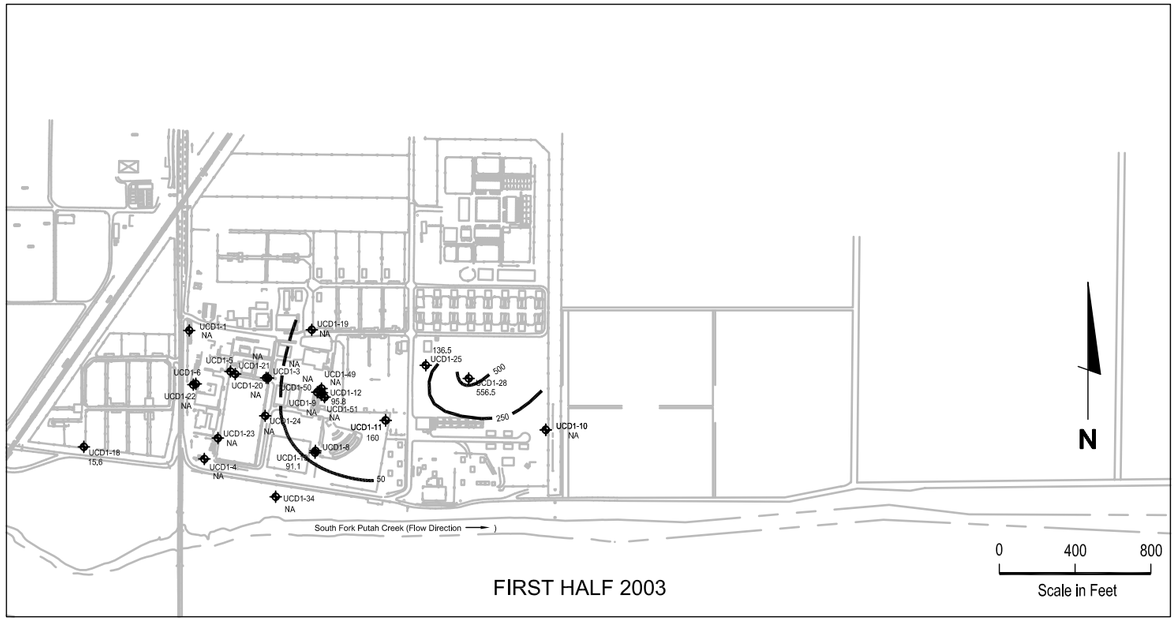
Isoconcentration Contour
All Results Reported in ug/L
Results represent Average of Quarterly Data

Not Used in Contouring

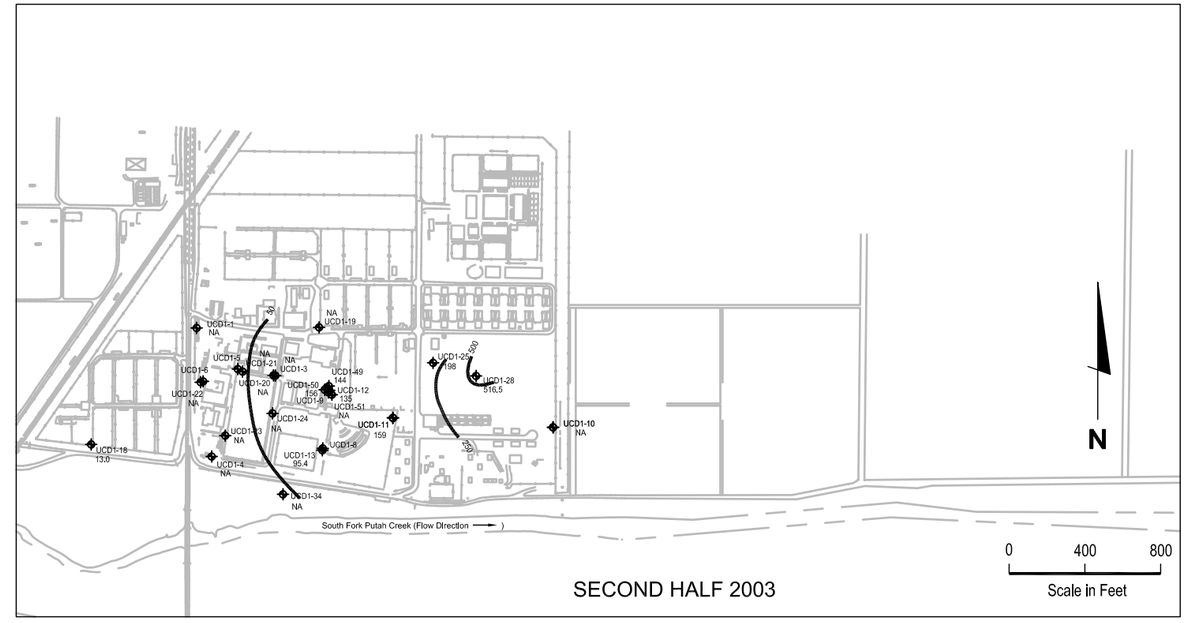
CHLOROFORM ISOCONCENTRATION CONTOURS IN HSU-1

2003 Comprehensive Annual Water Monitoring Report
LEHR/SCDS
Davis, California

FIGURE 11



FIRST HALF 2003



SECOND HALF 2003

EXPLANATION

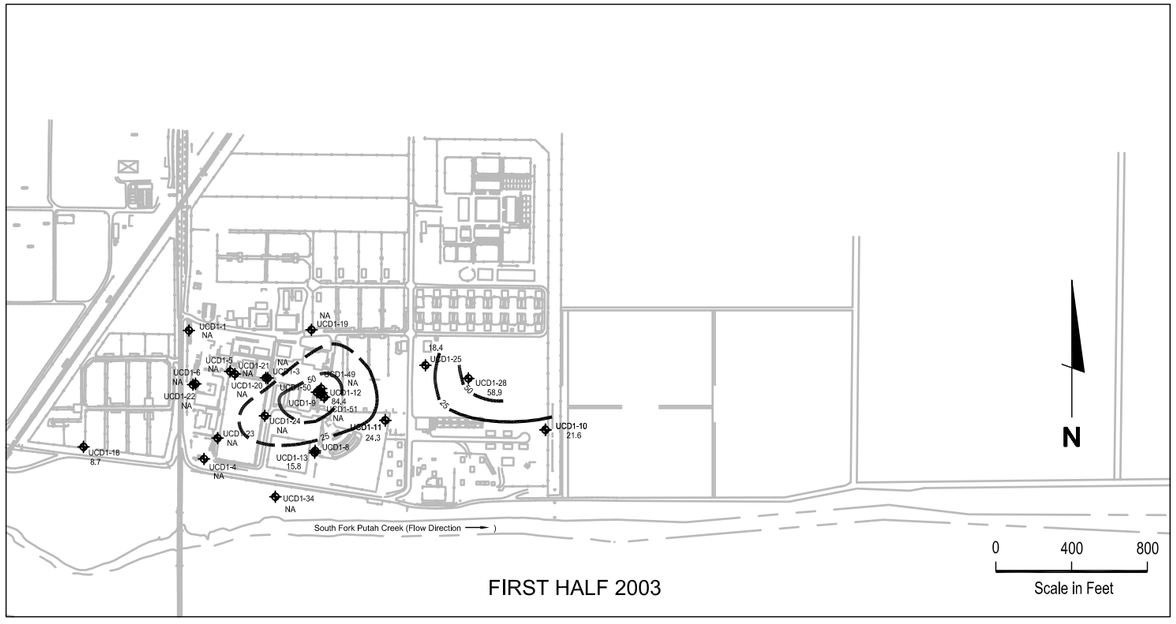
- UCD1-11 HSU-1 Monitoring Well
- <300 Result is Less Than CRDL
- NA Not Analyzed
- Isoconcentration Contour
  All Results Reported in ug/L
  Results represent Average of Quarterly Data
- Not Used in Contouring

Source: URS

CHROMIUM ISOCONCENTRATION CONTOURS IN HSU-1

2003 Comprehensive Annual Water Monitoring Report
LEHR/SCDS
Davis, California

FIGURE 12



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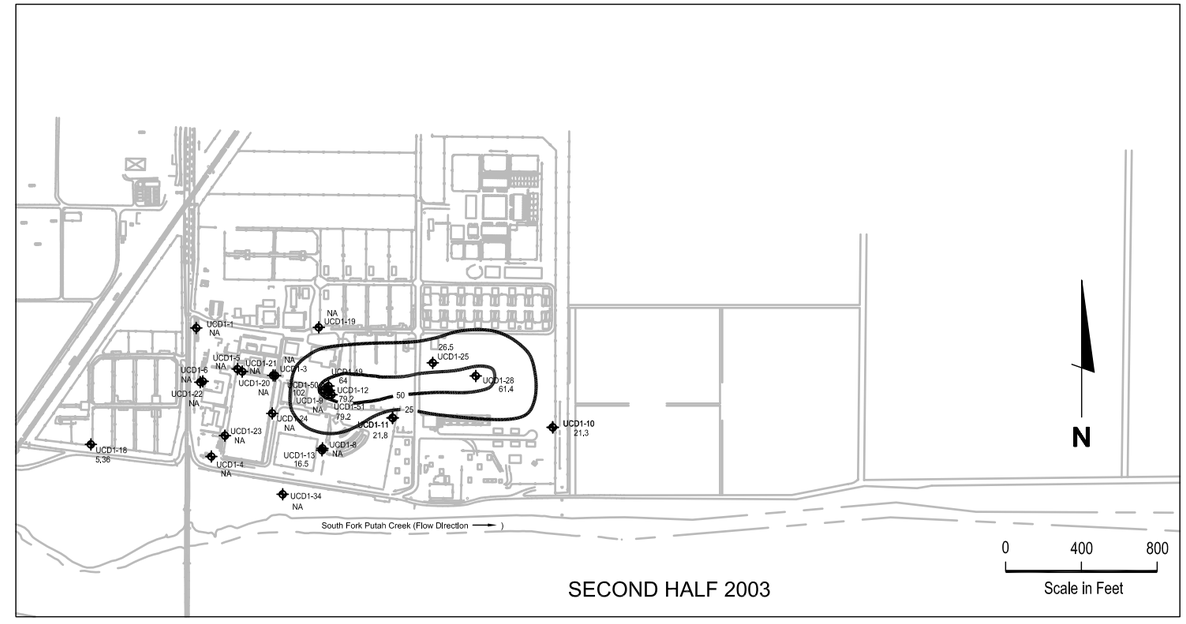

SECOND HALF 2003

EXPLANATION

- UCD1-11 HSU-1 Monitoring Well
- <300 Result is Less Than CRDL
- NA Not Analyzed
- Isoconcentration Contour
  All Results Reported in mg/L
  Results represent Average of Quarterly Data
- Not Used in Contouring

Source: URS

NITRATE AS N ISOCONCENTRATION CONTOURS IN HSU-1

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LEHR/SCDS
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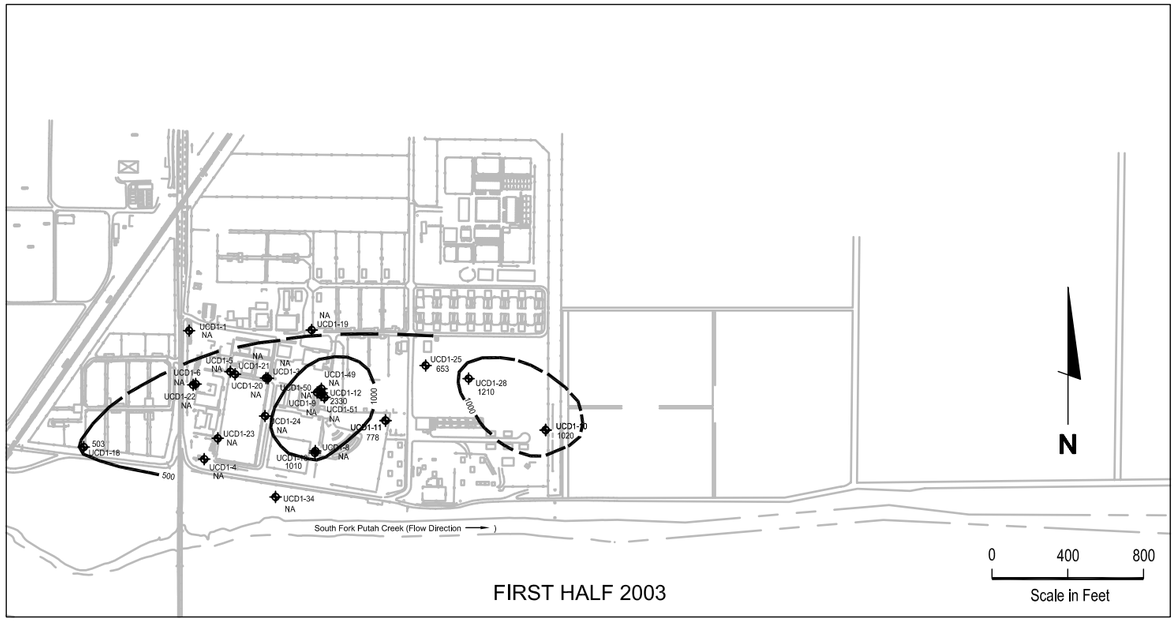
FIGURE 13



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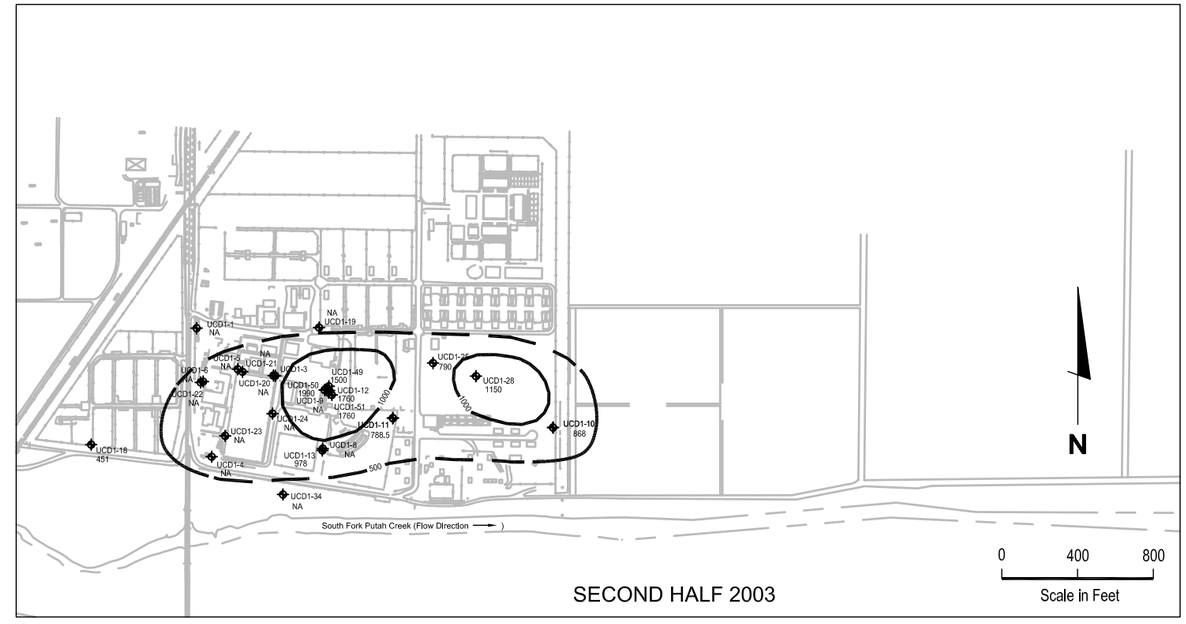

SECOND HALF 2003

EXPLANATION

- UCD1-11 HSU-1 Monitoring Well
- <300 Result is Less Than CRDL
- NA Not Analyzed
- Isoconcentration Contour
  All Results Reported in mg/L
  Results represent Average of Quarterly Data
- Not Used in Contouring

Source: URS

TDS ISOCONCENTRATION CONTOURS IN HSU-1

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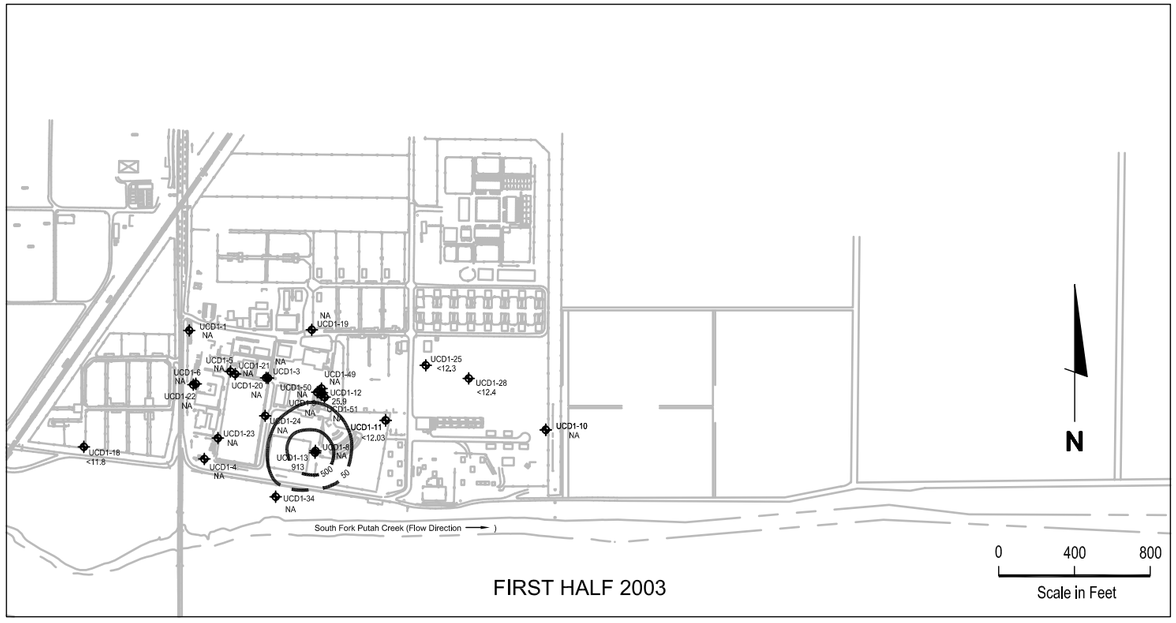
LEHR/SCDS
Davis, California

FIGURE 14



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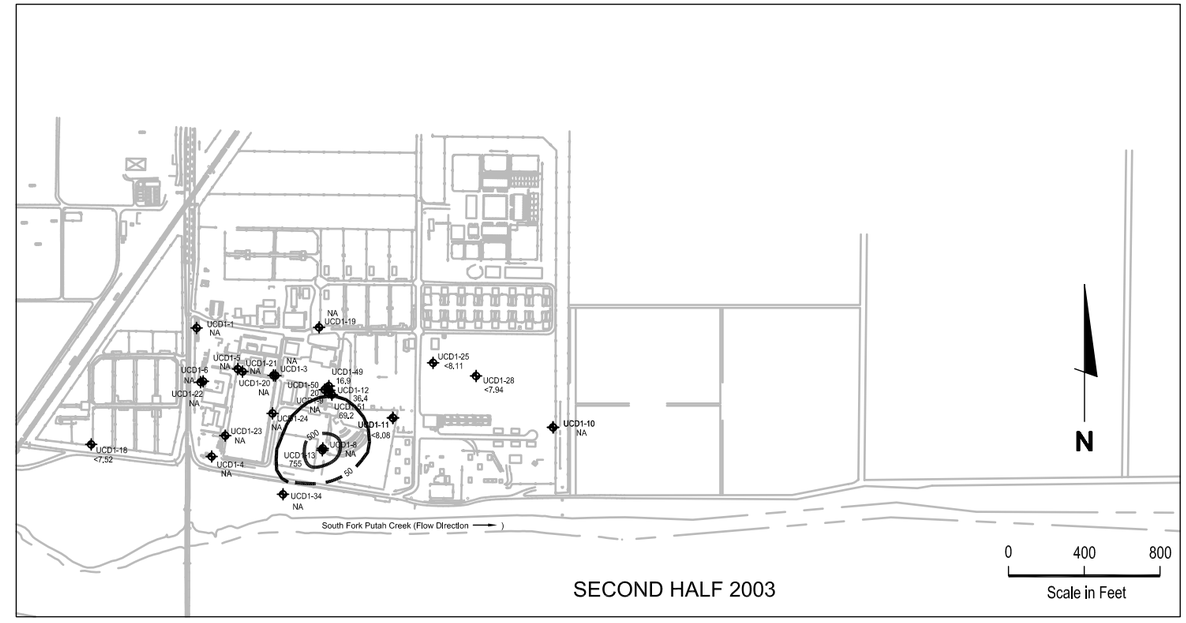

SECOND HALF 2003

EXPLANATION

UCD1-11 HSU-1 Monitoring Well

ND Not Detected

NA Not Analyzed

Source: URS

Isoconcentration Contour
All Results Reported in pCi/L
Results represent Average of Quarterly Data

Not Used in Contouring

CARBON-14 ISOCONCENTRATION CONTOURS IN HSU-1

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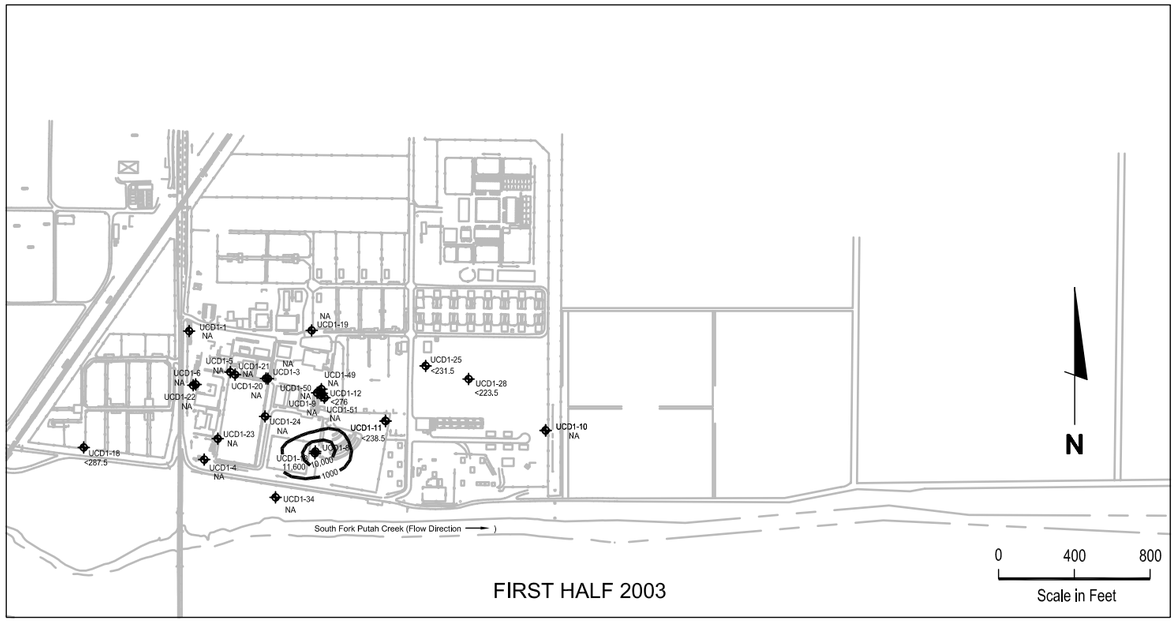
LEHR/SCDS
Davis, California

FIGURE 15



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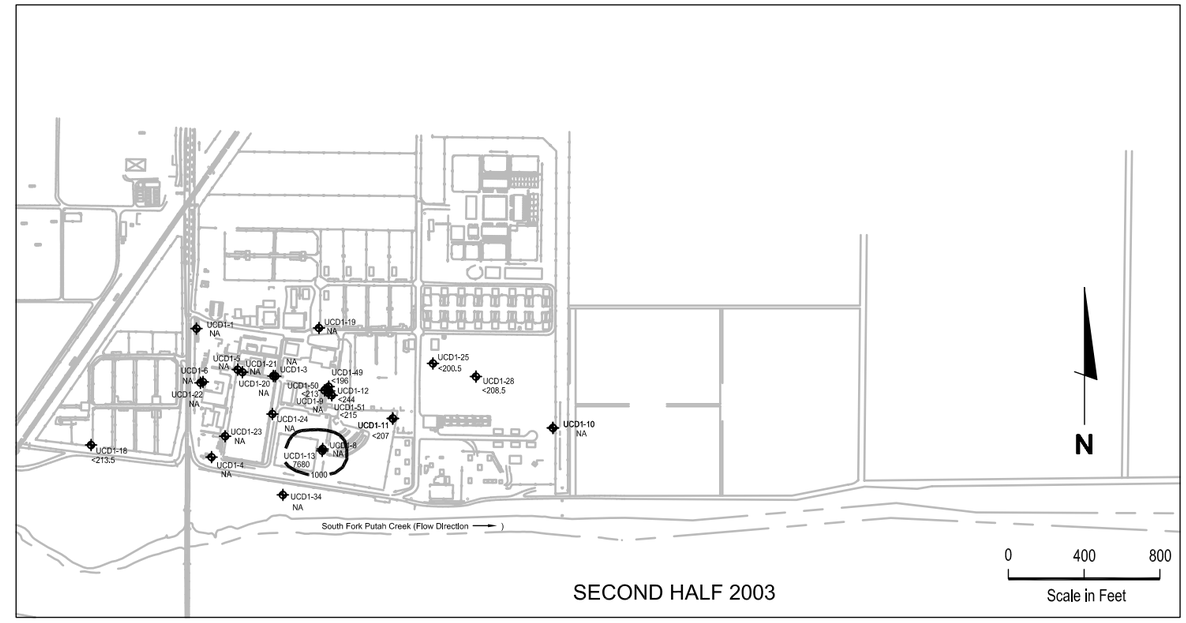

SECOND HALF 2003

EXPLANATION

- UCD1-11 HSU-1 Monitoring Well
- <300 Result is Less Than CRDL
- NA Not Analyzed
- Isoconcentration Contour
  All Results Reported in pCi/L
  Results represent Average of Quarterly Data
- Not Used in Contouring

Source: URS

TRITIUM ISOCONCENTRATION CONTOURS IN HSU-1

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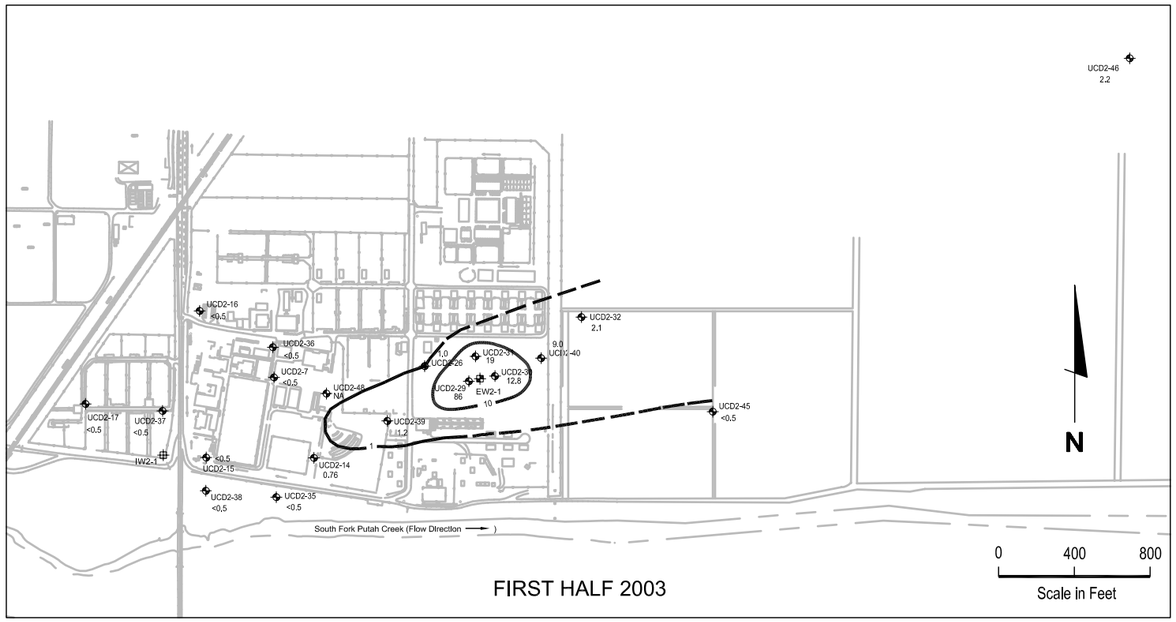
LEHR/SCDS
Davis, California

FIGURE 16



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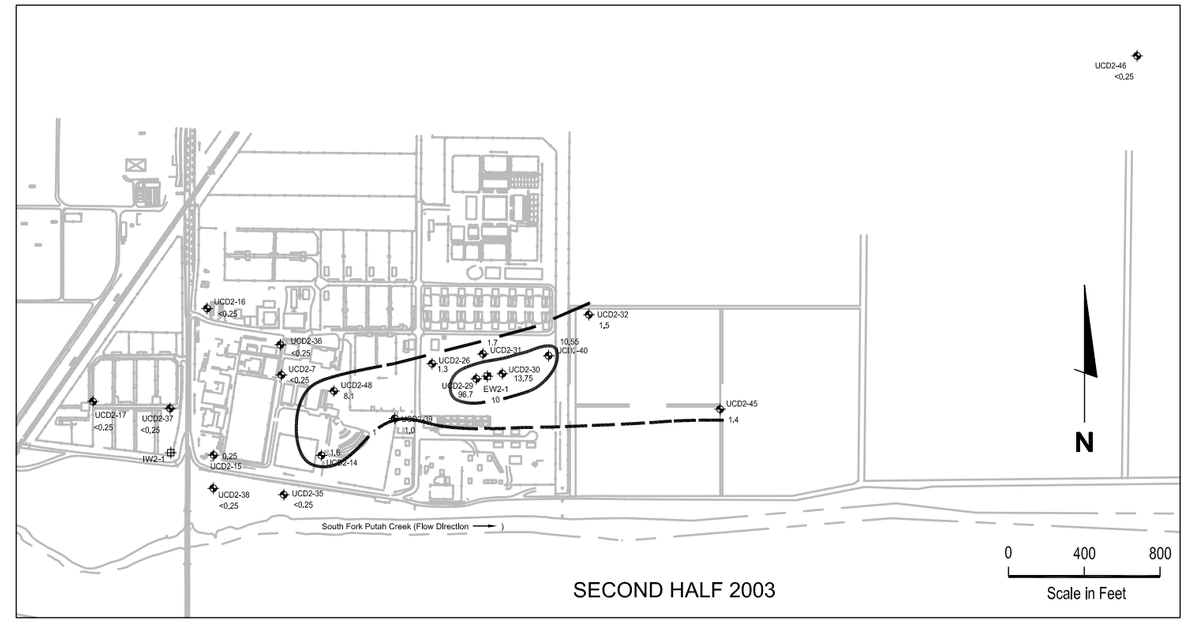

SECOND HALF 2003

EXPLANATION

- UCD2-17 HSU-2 Monitoring Well
- EW2-1 HSU-2 Extraction Well
- IW2-1 HSU-2 Injection Well

Source: URS

- <300 Result is Less Than CRDL
- NA Not Analyzed
- Isoconcentration Contour, All Results Reported in ug/L
  Results represent Average of Quarterly Data
- Not Used in Contouring

CHLOROFORM ISOCONCENTRATION CONTOURS IN HSU-2

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LEHR/SCDS
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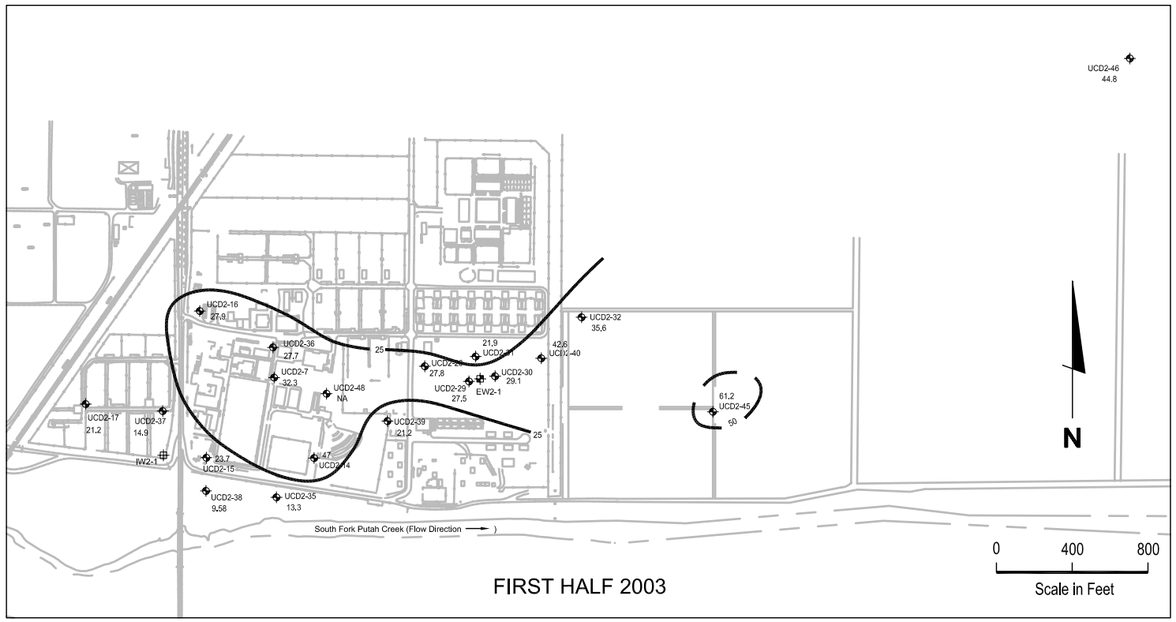
FIGURE 17



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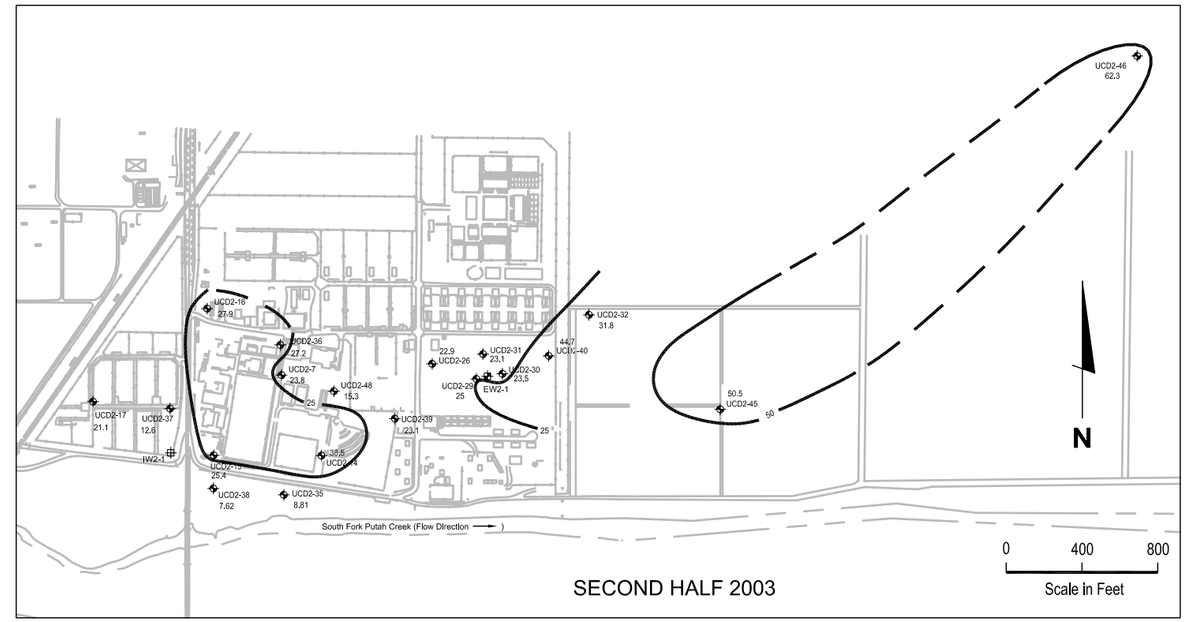


SECOND HALF 2003

EXPLANATION

- UCD2-17 HSU-2 Monitoring Well
- EW2-1 HSU-2 Extraction Well
- IW2-1 HSU-2 Injection Well

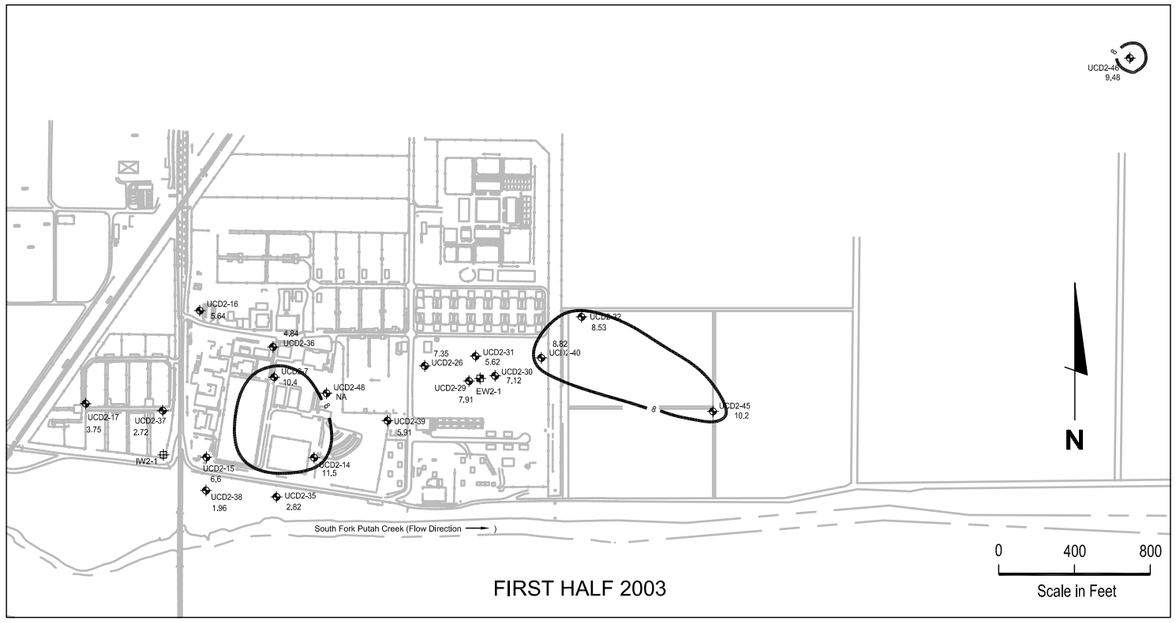
Source: URS

- <300 Result is Less Than CRDL
- NA Not Analyzed
- Isoconcentration Contour, All Results Reported in ug/L
  Results represent Average of Quarterly Data
- · Not Used in Contouring

CHROMIUM ISOCONCENTRATION CONTOURS IN HSU-2

2003 Comprehensive Annual Water Monitoring Report
LEHR/SCDS
Davis, California

FIGURE 18



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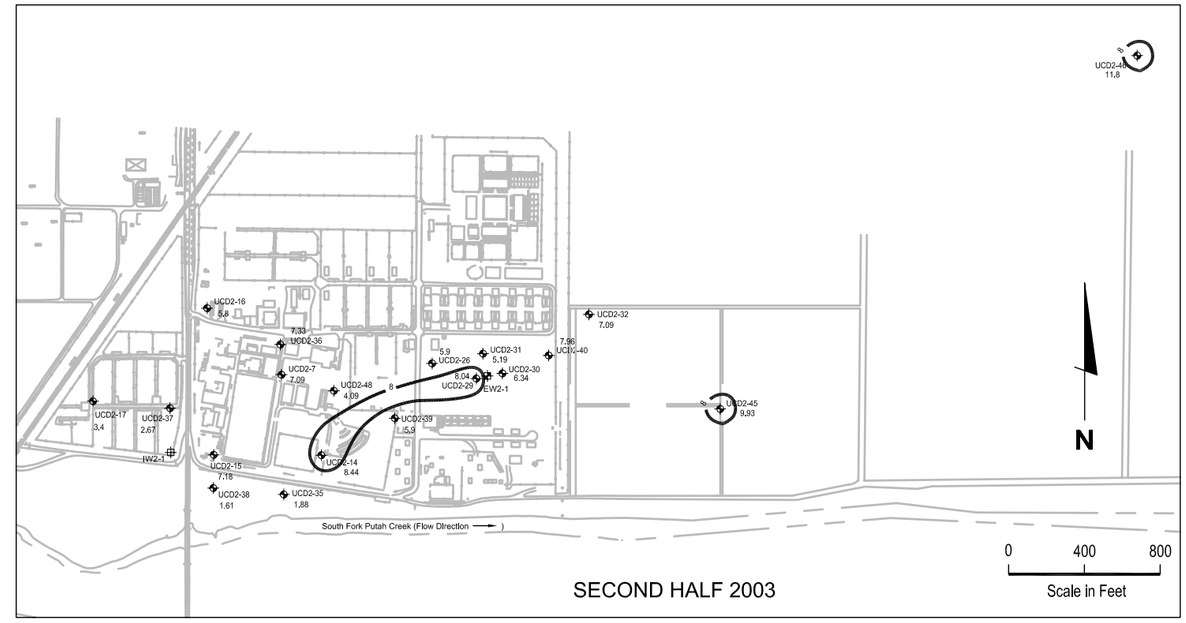

SECOND HALF 2003

EXPLANATION

- UCD2-17 HSU-2 Monitoring Well
- EW2-1 HSU-2 Extraction Well
- IW2-1 HSU-2 Injection Well

Source: URS

- <300 Result is Less Than CRDL
- NA Not Analyzed
- Isoconcentration Contour, All Results Reported in mg/L
  Results represent Average of Quarterly Data
- · Not Used in Contouring

NITRATE AS N ISOCONCENTRATION CONTOURS IN HSU-2

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LEHR/SCDS
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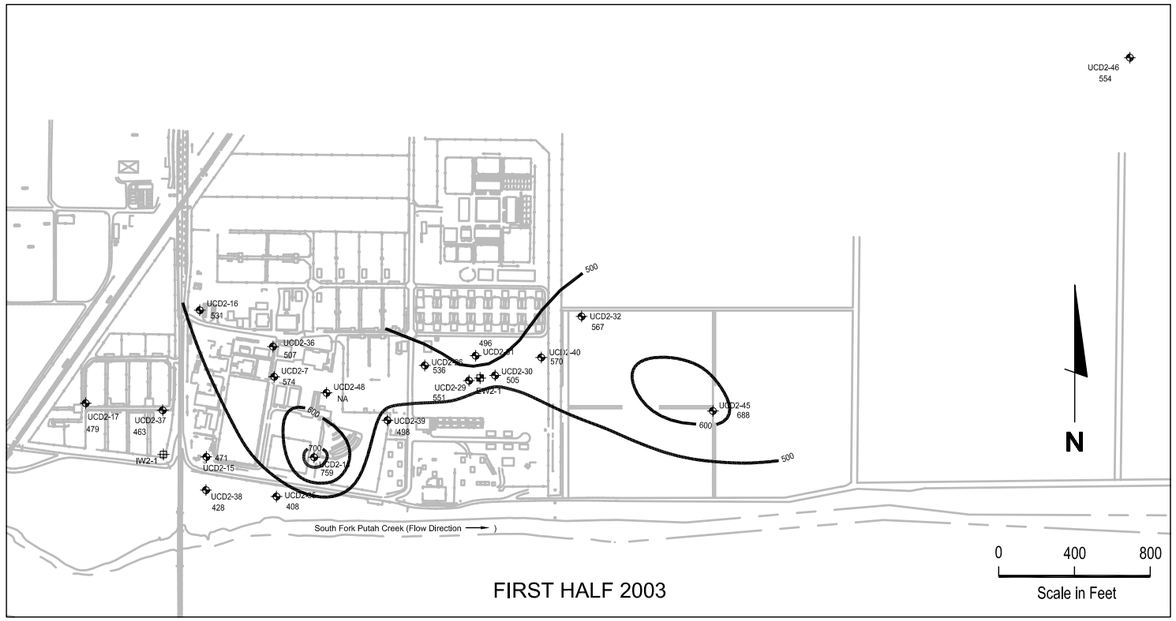
FIGURE 19



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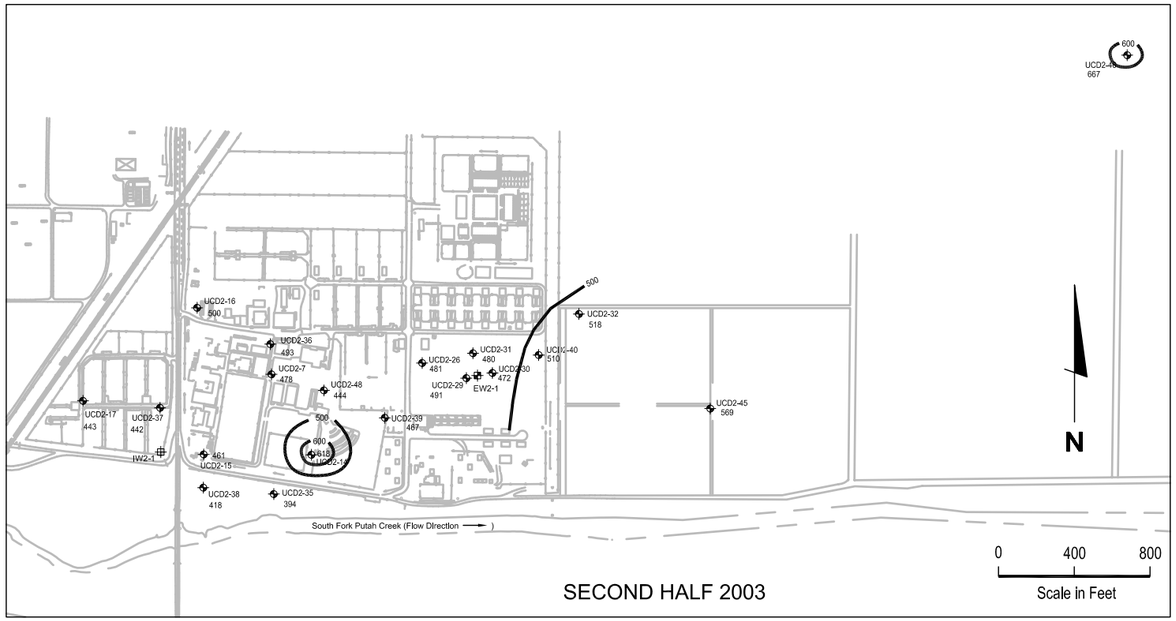

SECOND HALF 2003

EXPLANATION

- UCD2-17 HSU-2 Monitoring Well
- EW2-1 HSU-2 Extraction Well
- IW2-1 HSU-2 Injection Well

Source: URS

<300 Result is Less Than CRDL

NA Not Analyzed

Isoconcentration Contour, All Results Reported in mg/L
Results represent Average of Quarterly Data

Not Used in Contouring

TDS ISOCONCENTRATION CONTOURS IN HSU-2

2003 Comprehensive Annual Water Monitoring Report
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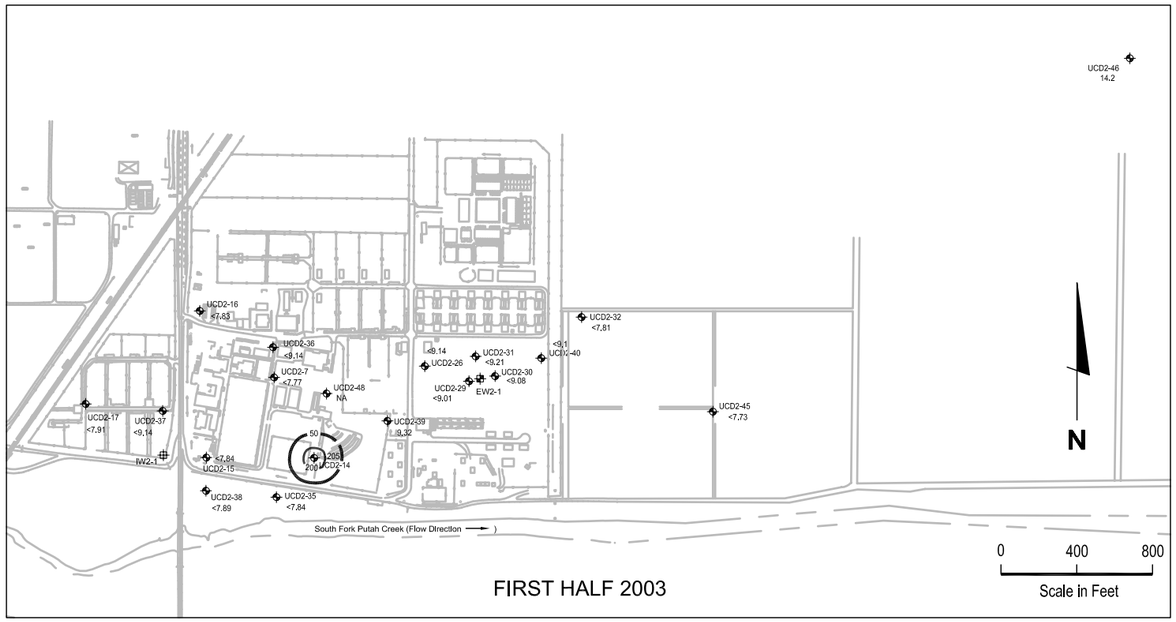
FIGURE 20



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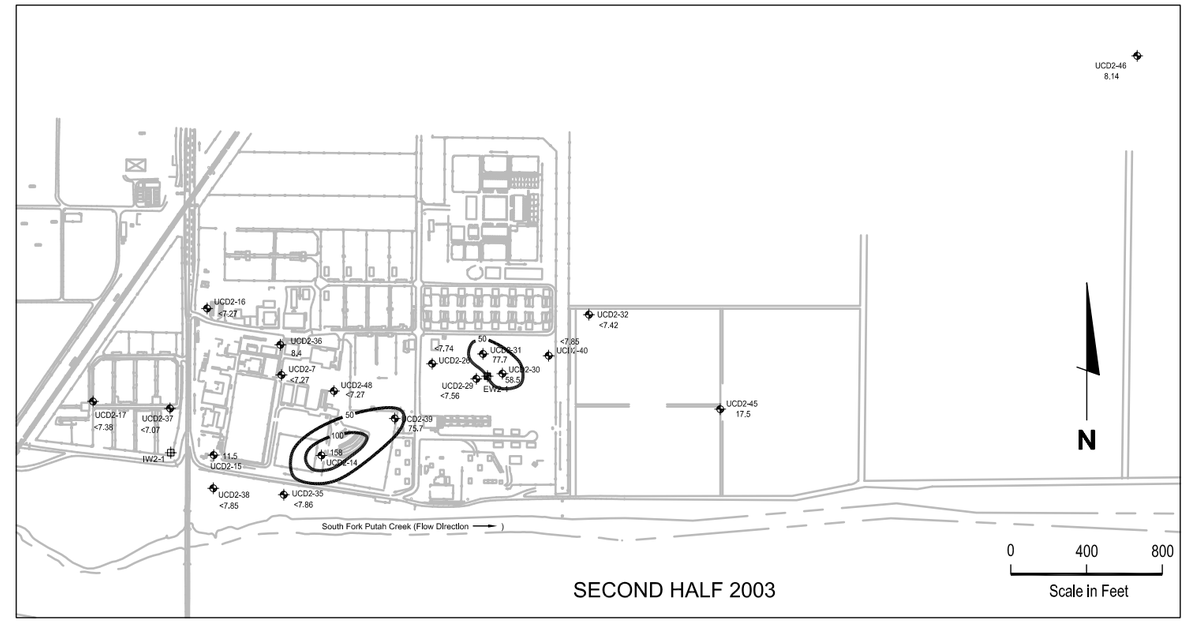

SECOND HALF 2003

EXPLANATION

- UCD2-17 HSU-2 Monitoring Well
- EW2-1 HSU-2 Extraction Well
- IW2-1 HSU-2 Injection Well

Source: URS

- <300 Result is Less Than CRDL
- NA Not Analyzed
- Isoconcentration Contour, All Results Reported in pCi/L
  Results represent Average of Quarterly Data
- · Not Used in Contouring

CARBON-14 ISOCONCENTRATION CONTOURS IN HSU-2

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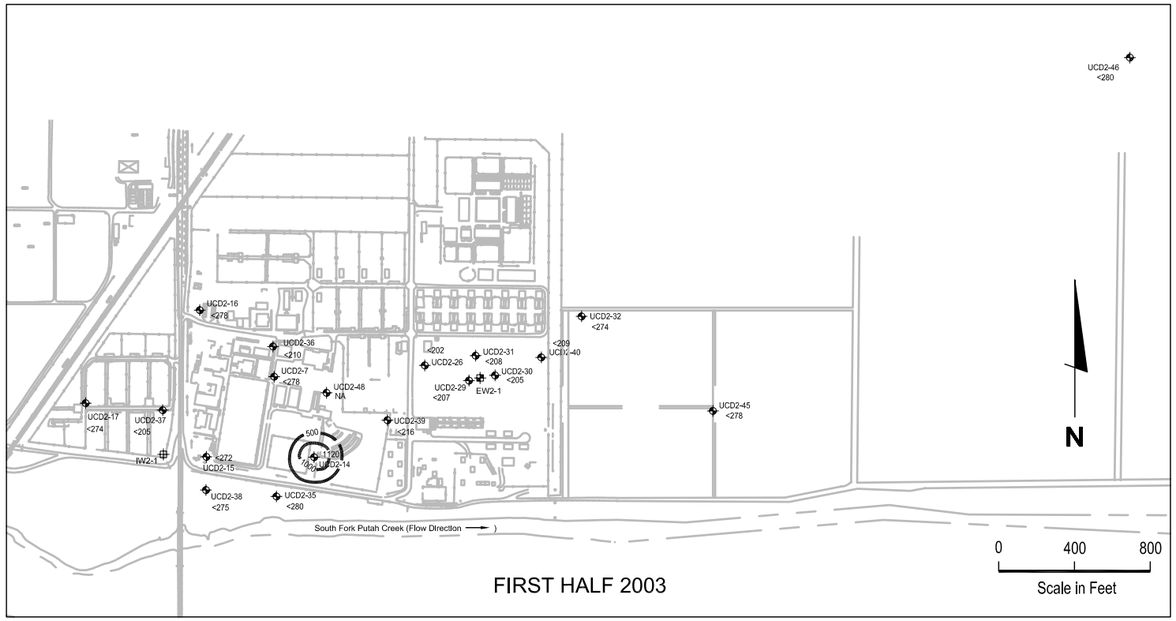
LEHR/SCDS
Davis, California

FIGURE 21



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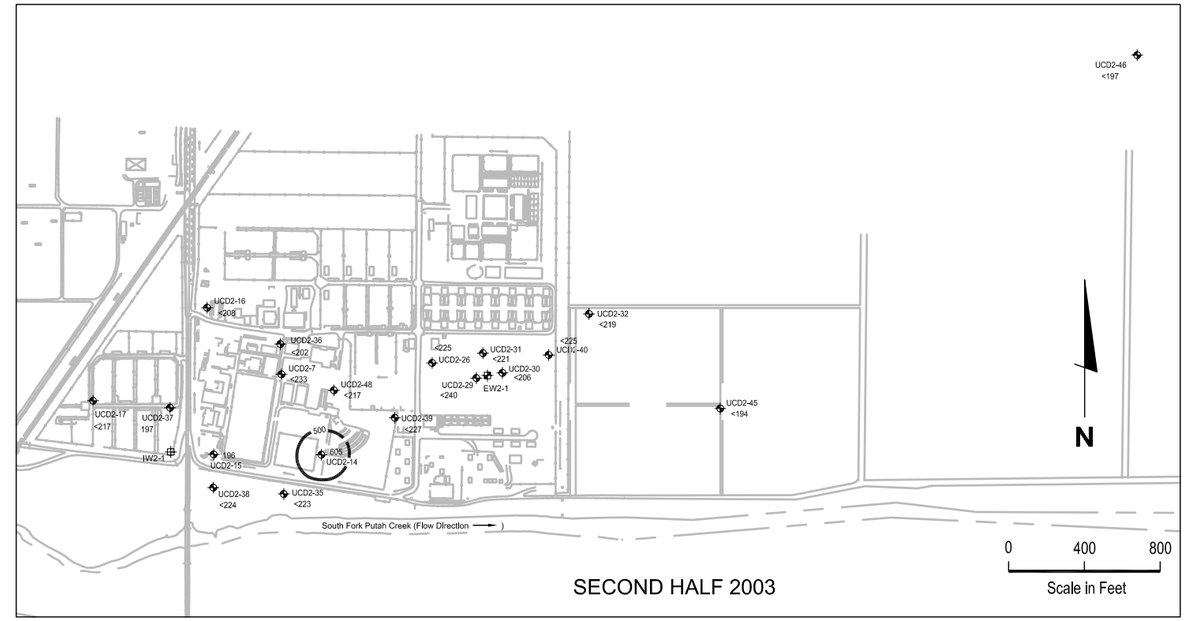

SECOND HALF 2003

EXPLANATION

- UCD2-17 HSU-2 Monitoring Well
- EW2-1 HSU-2 Extraction Well
- IW2-1 HSU-2 Injection Well

Source: URS

- <300 Result is Less Than CRDL
- NA Not Analyzed
- Isoconcentration Contour, All Results Reported in pCi/L Results represent Average of Quarterly Data
- Not Used in Contouring

TRITIUM ISOCONCENTRATION CONTOURS IN HSU-2

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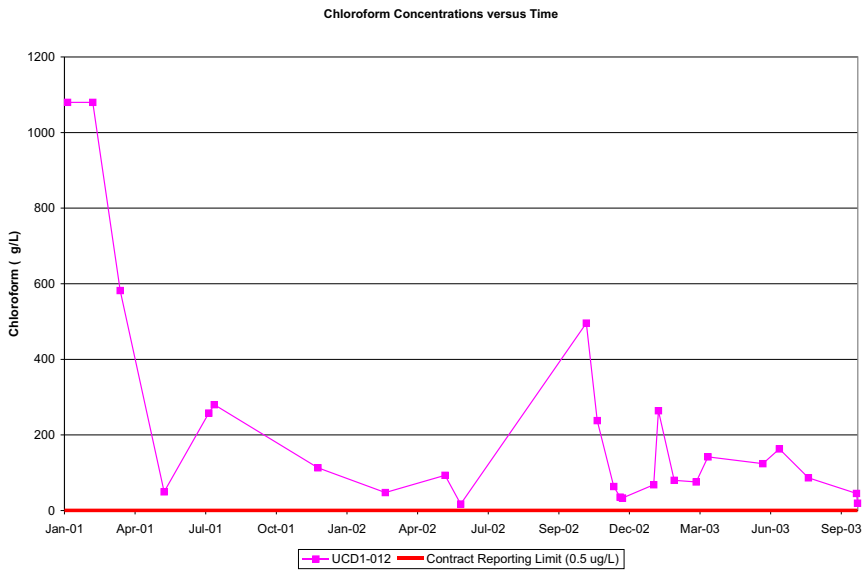
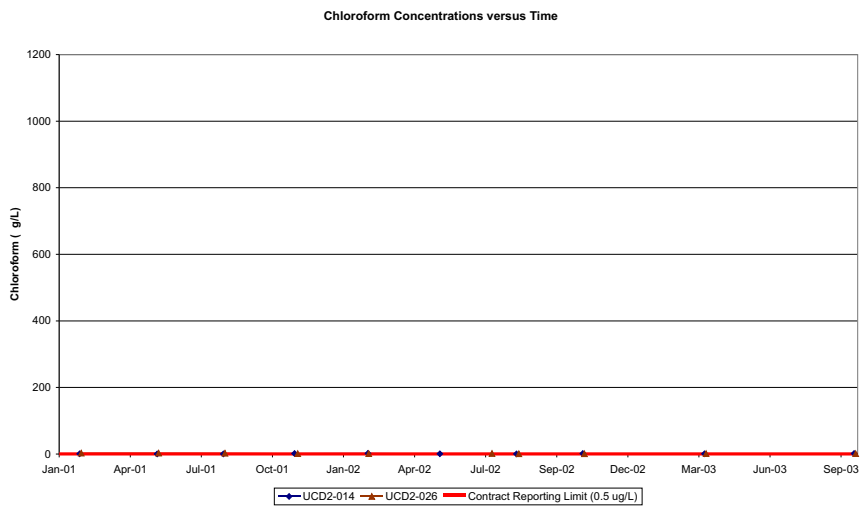
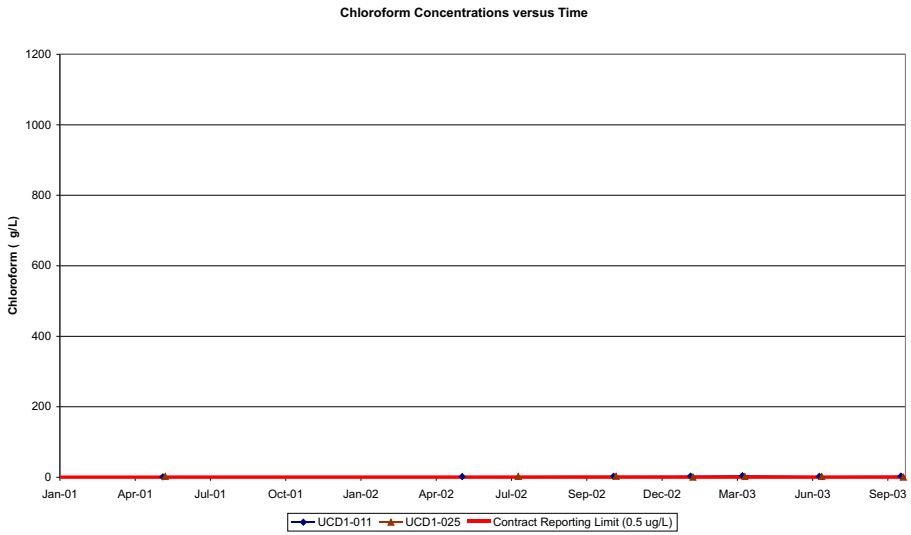
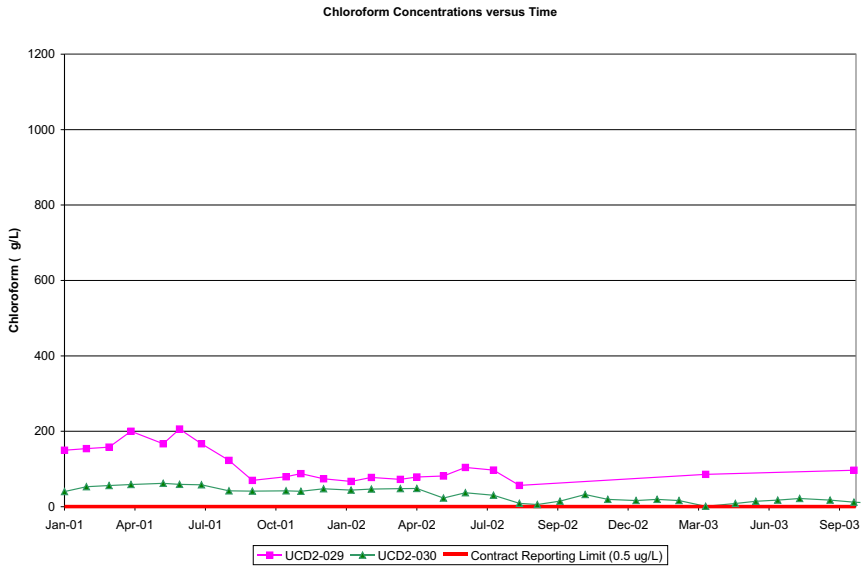
FIGURE 22



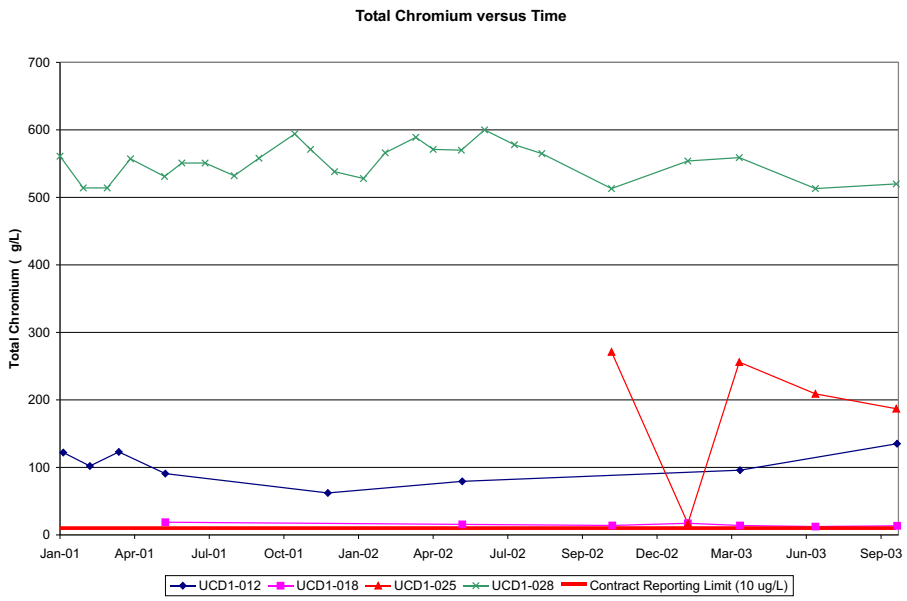


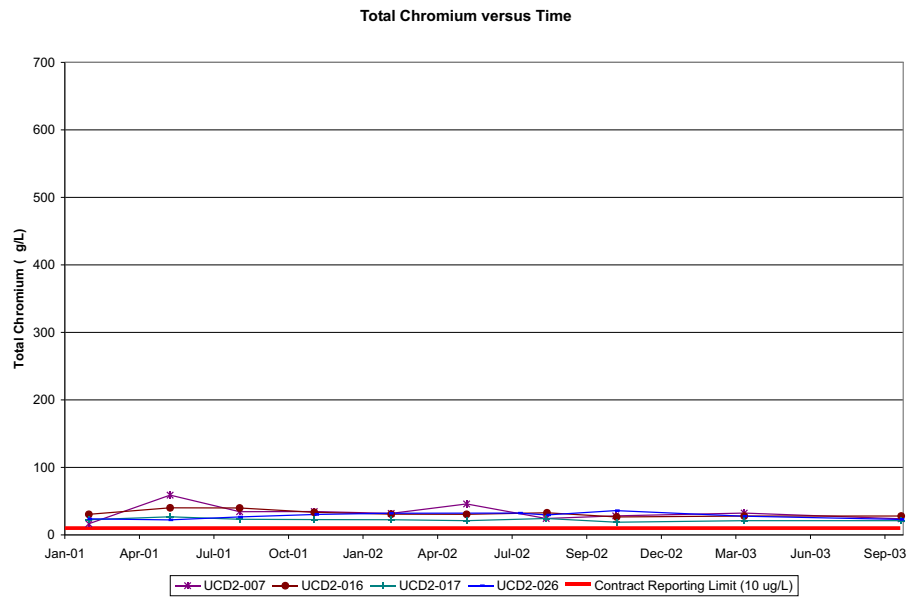




PLOTS OF CHLOROFORM VERSUS TIME IN SELECTED HSU-1 AND HSU-2 WELLS

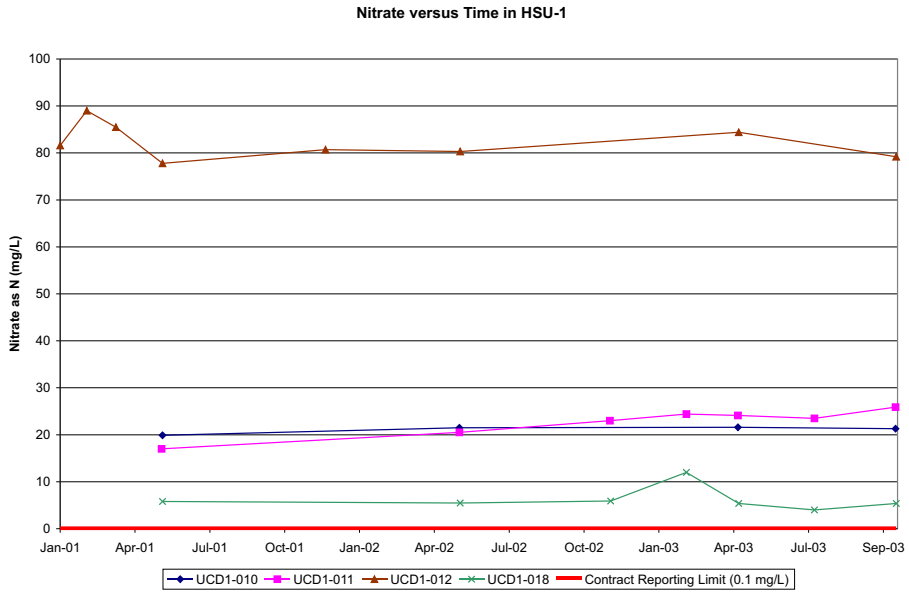
2003 Comprehensive Annual Water Monitoring Report
LEHR/SCDS
Davis, California

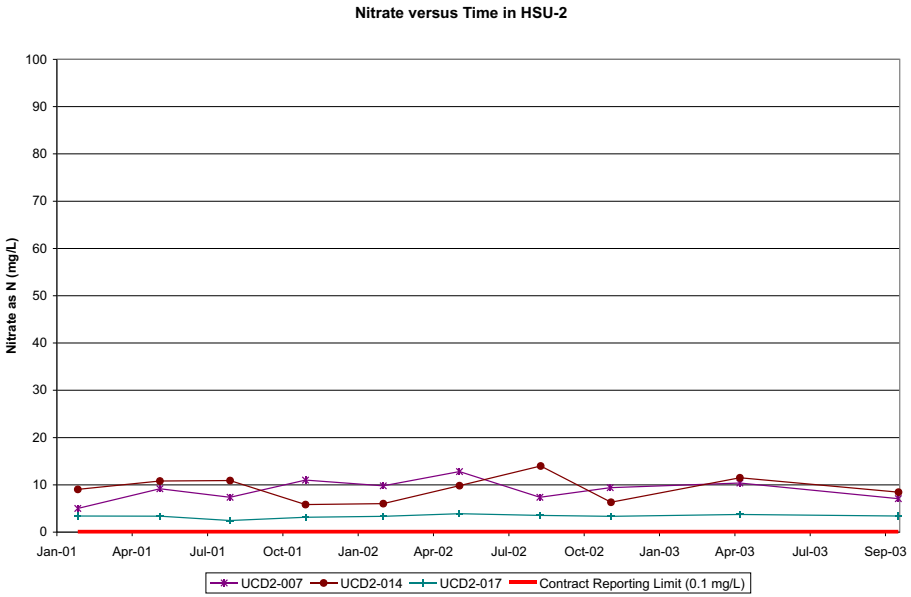




PLOTS OF TOTAL CHROMIUM VERSUS TIME IN SELECTED HSU-1 AND HSU-2 WELLS

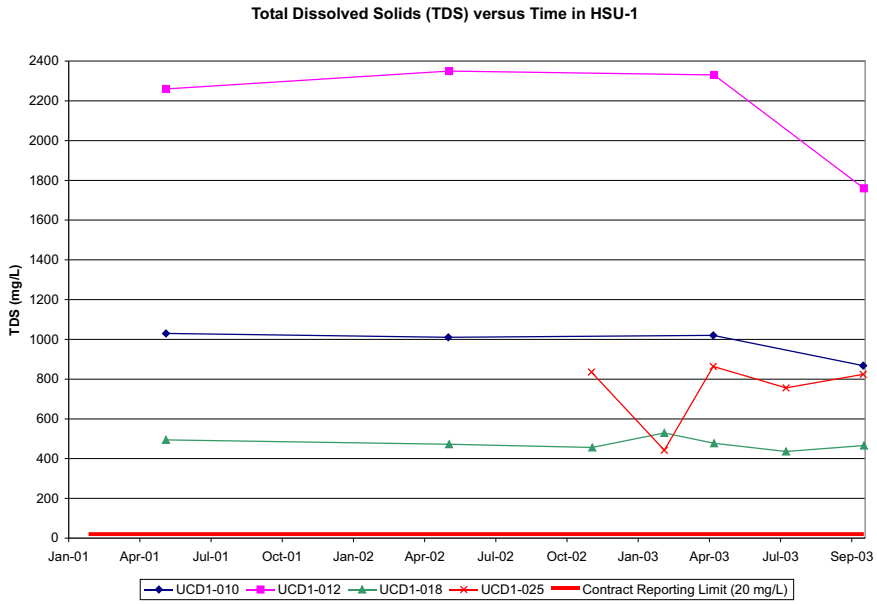
2003 Comprehensive Annual Water Monitoring Report
LEHR/SCDS
Davis, California

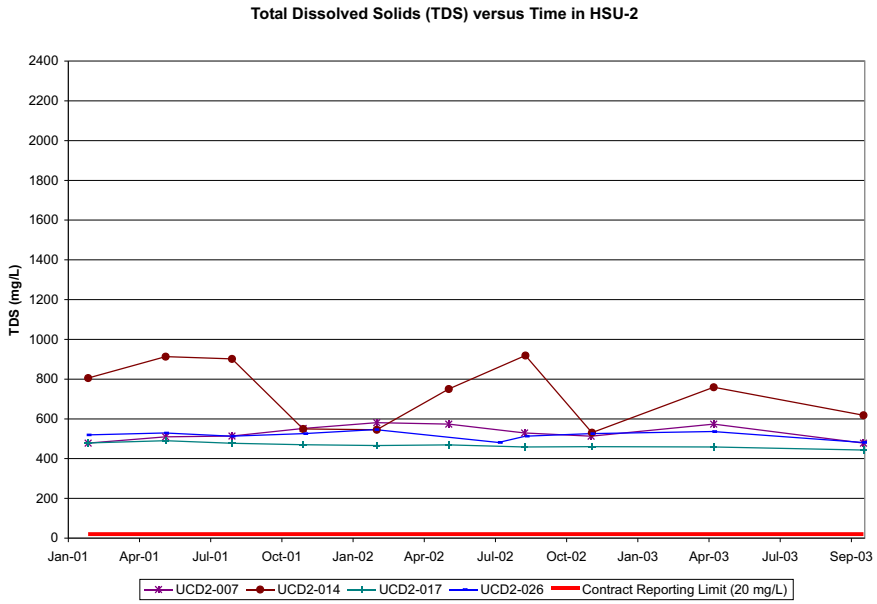




PLOTS OF NITRATE AS N VERSUS TIME IN SELECTED HSU-1 AND HSU-2 WELLS

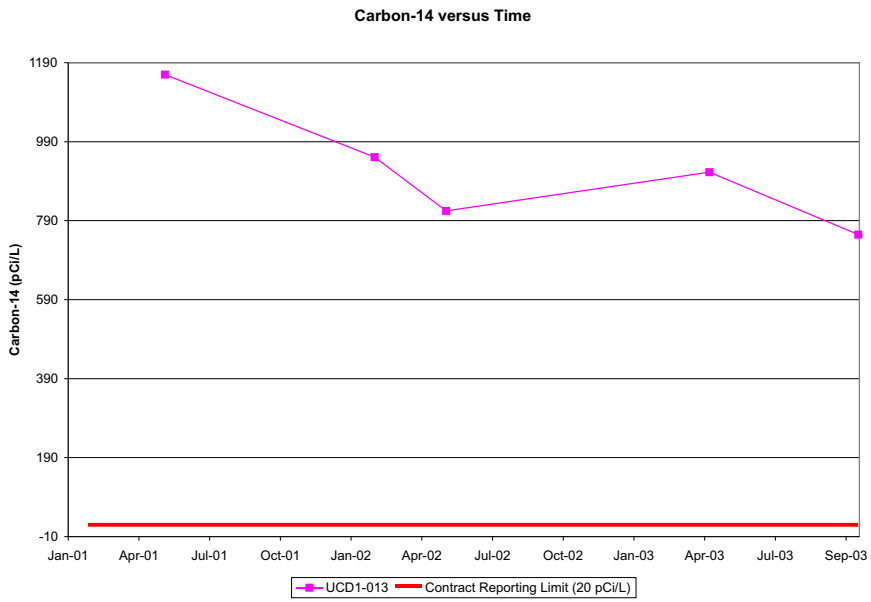
2003 Comprehensive Annual Water Monitoring Report
LEHR/SCDS
Davis, California

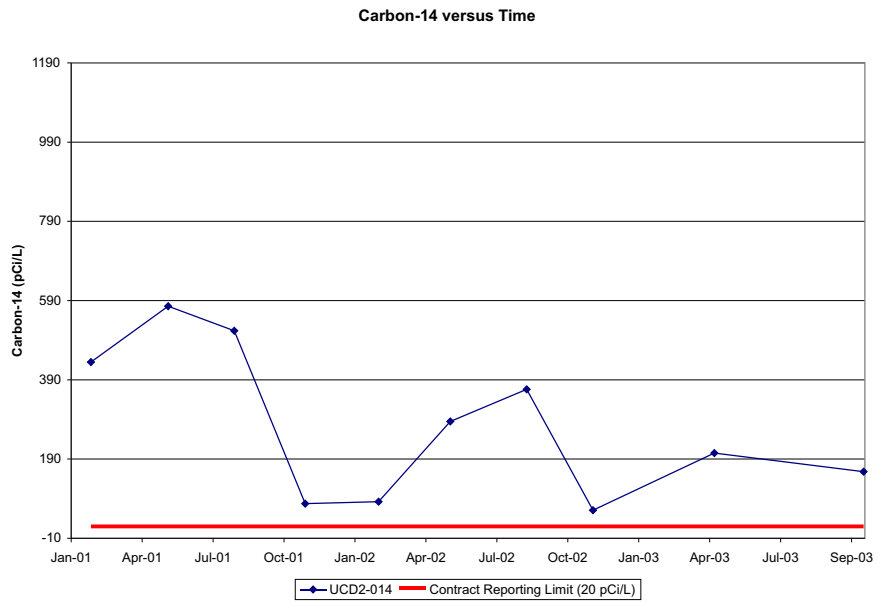


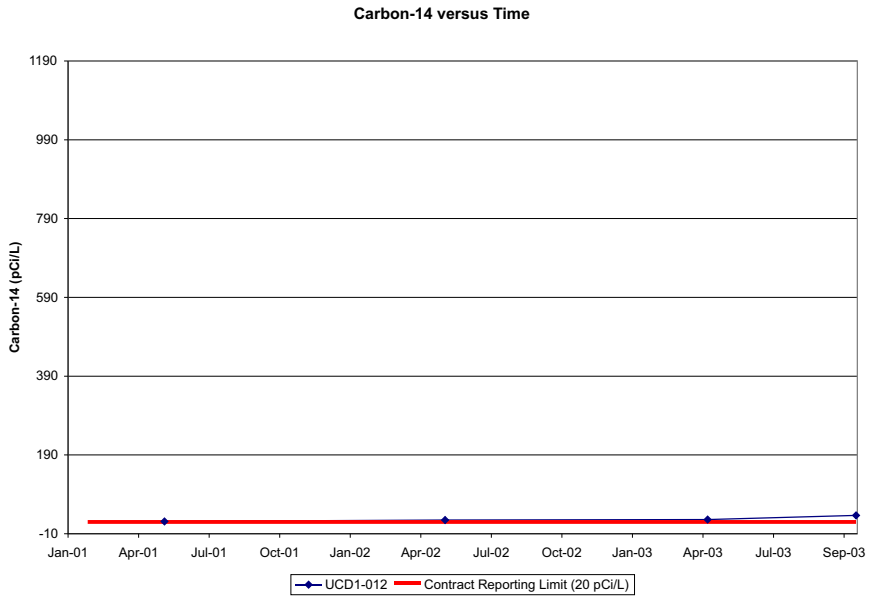


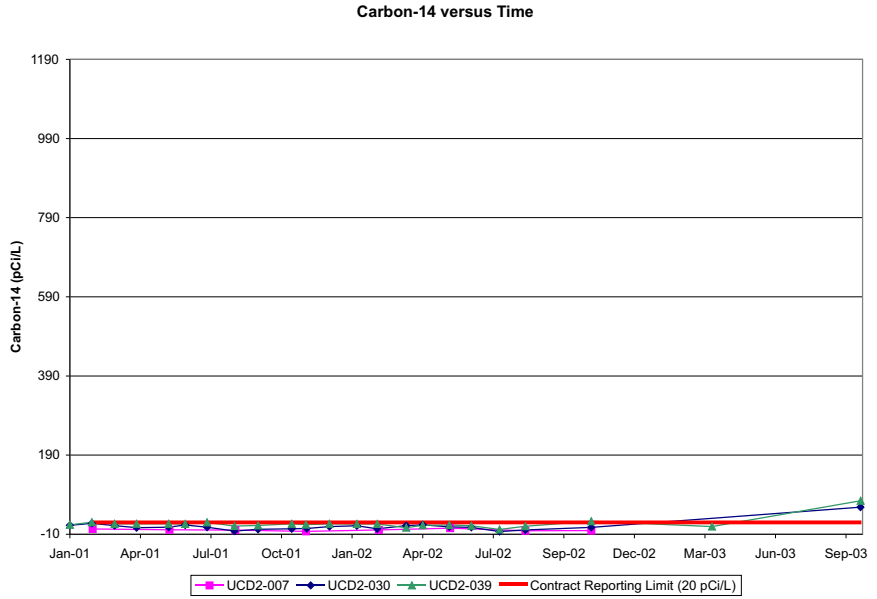
PLOTS OF TDS VERSUS TIME IN SELECTED HSU-1 AND HSU-2 WELLS

2003 Comprehensive Annual Water Monitoring Report
LEHR/SCDS
Davis, California



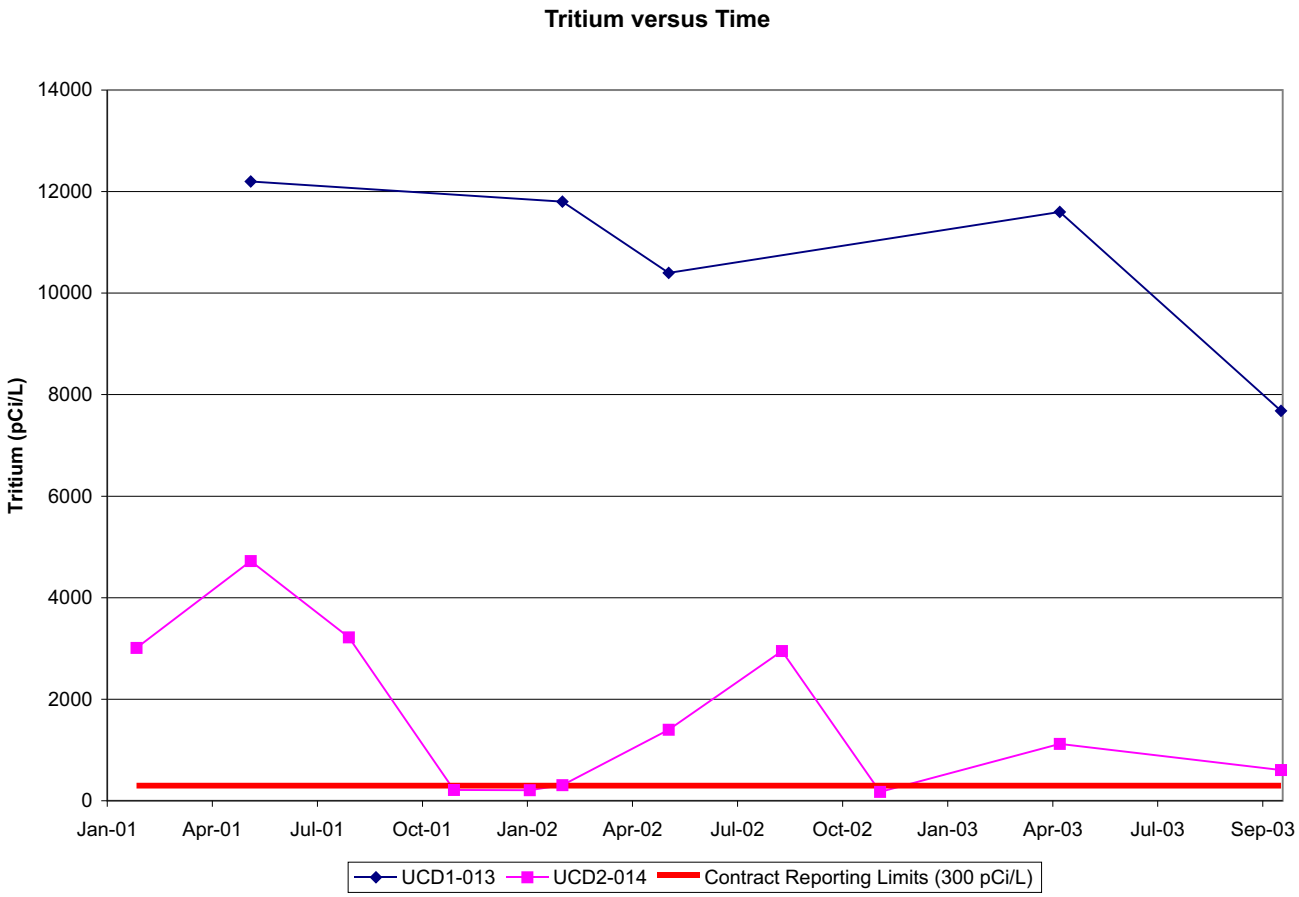






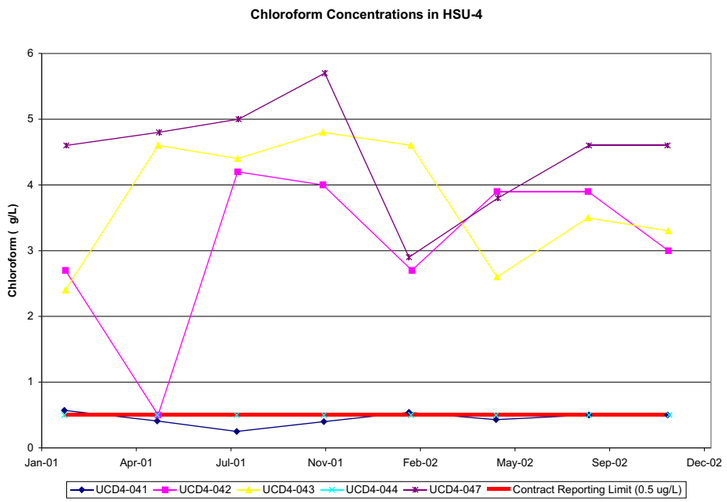
PLOTS OF CARBON-14 VERSUS TIME IN SELECTED HSU-1 AND HSU-2 WELLS

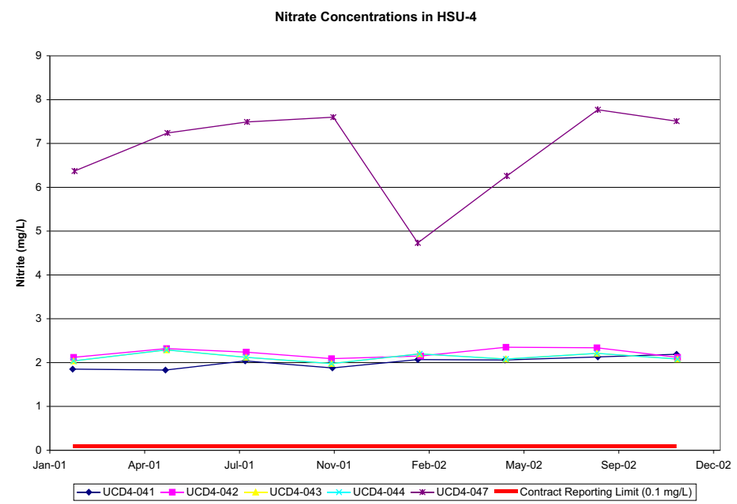
2003 Comprehensive Annual Water Monitoring Report
LEHR/SCDS
Davis, California

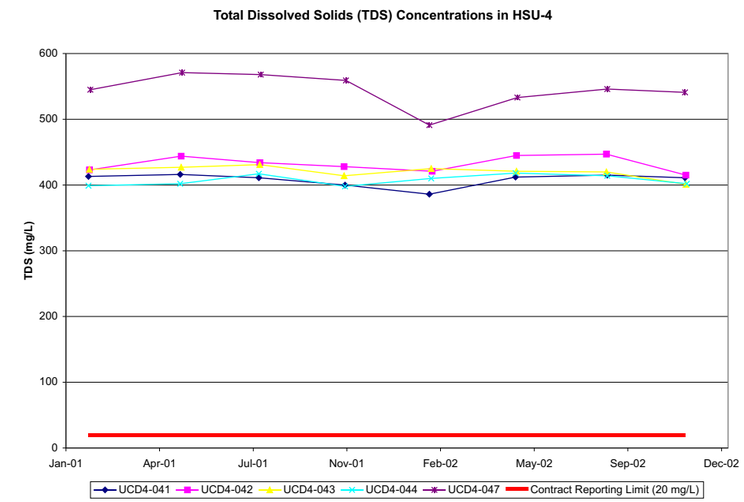


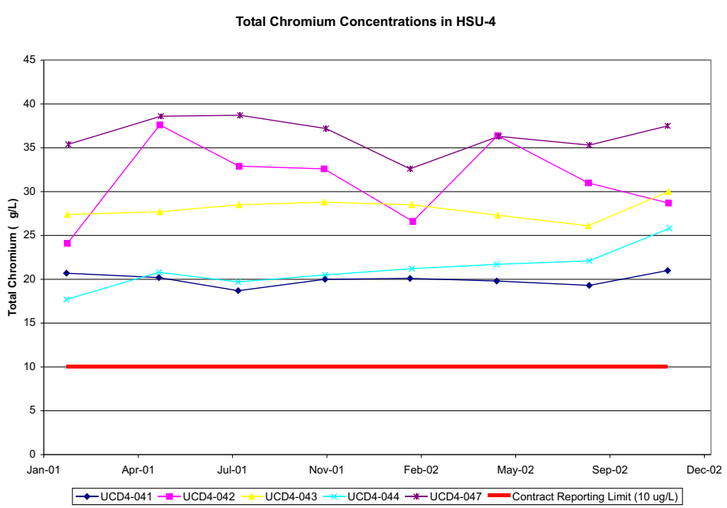
PLOT OF TRITIUM VERSUS TIME IN SELECTED HSU-1 AND HSU-2 WELLS

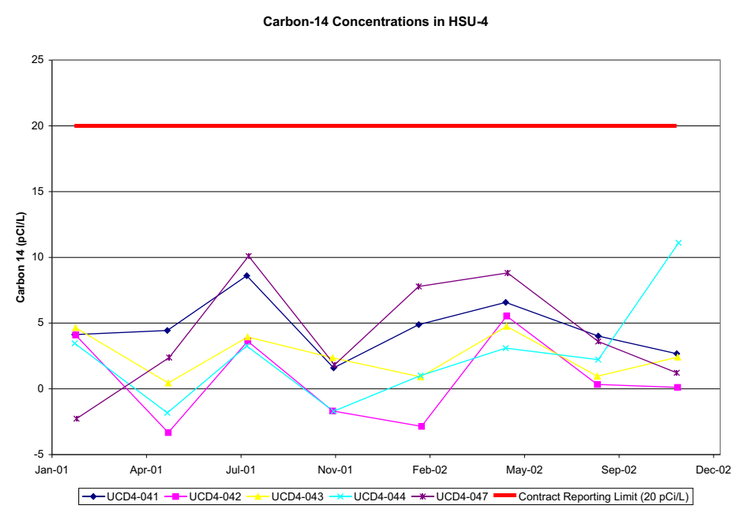
2003 Comprehensive Annual Water Monitoring Report
LEHR/SCDS
Davis, California

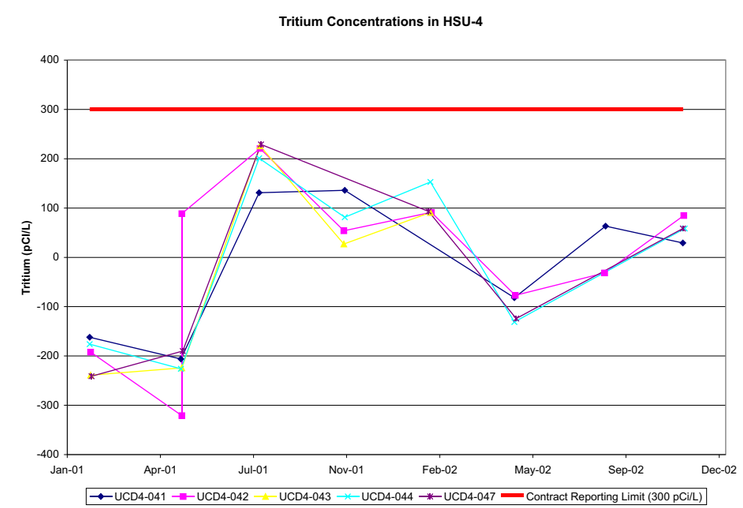






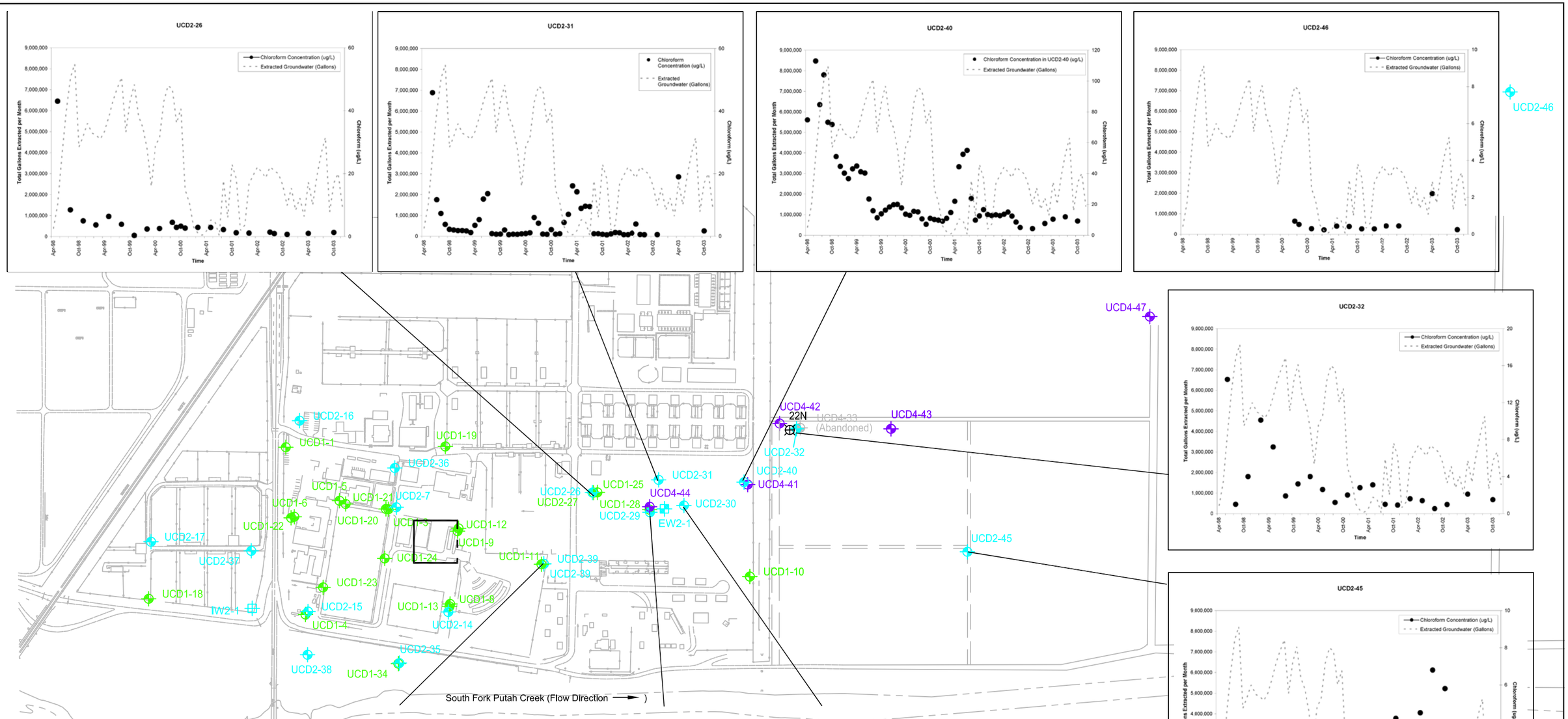


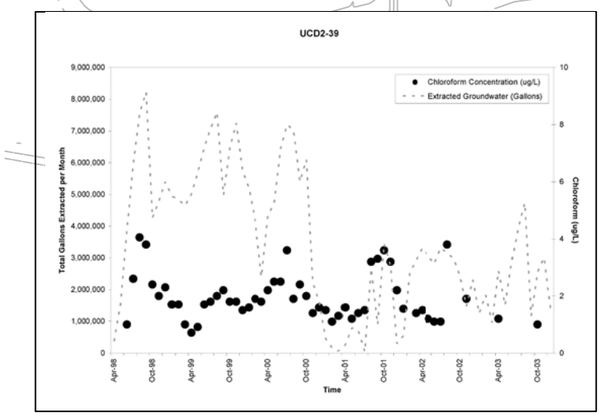


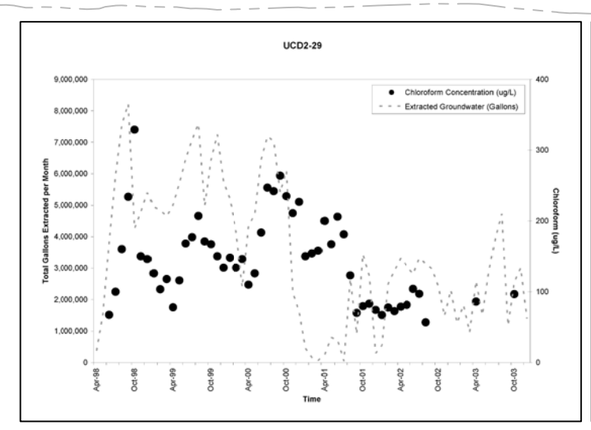


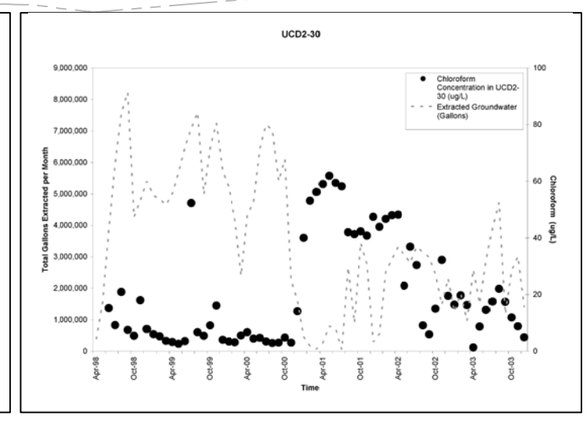
TIME VS. CONCENTRATIONS IN HSU-4 GRAPHS

2002 Comprehensive Annual Water Monitoring Report
LEHR/SCDS
Davis, California









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CHLOROFORM CONCENTRATION HSU-2 VERSUS TIME 1998-2003

LEHR/SCDS Environmental Restoration Davis, California

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APPENDIX A

DDC System Summary Report

APPENDIX A

UNIVERSITY OF CALIFORNIA, DAVIS

EXPANDED GROUNDWATER SOURCE REMOVAL PILOT TEST

System Summary Report

June 28, 2004

Prepared by:

B R O W N A N D C A L D W E LL
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SECTION 1
INTRODUCTION

This report summarizes the results of the expanded phase pilot test for groundwater source removal of chloroform and other volatile organic compounds (VOCs) at the Laboratory of Energy-Related Health Research/South Campus Disposal Site (LEHR/SCDS, or Site; Figure 1). The expanded phase pilot study was conducted in accordance with the United States Environmental Protection Agency (USEPA) approved January 31, 2002 Work Plan prepared by Brown and Caldwell.

The expanded system continued the step-wise iterative process starting with the 90-day pilot test to assess the effectiveness of the density driven convection system (DDC) in removing chloroform from groundwater within fine-grained sediments. The 90-day pilot test was conducted between December 12, 2000 and March 21, 2001. The primary purpose of this initial pilot test was to assess whether the DDC technology would be effective in reducing the mass of chloroform present in the shallow groundwater system. If successful, use of the DDC system will accelerate site cleanup, prevent further migration of chloroform to the more permeable underlying hydrostratigraphic unit, and reduce risk to public health and the environment.

The successful application of this technology for chloroform source removal during the 90-day pilot test was documented in the May 7, 2001 Letter Report (URS, 2001) and is summarized in Section 2.2 of this report. Based on this successful operation, it was recommended that the system be expanded to further reduce the lateral and vertical migration of impacted groundwater in the shallow groundwater system and maximize mass removal of chloroform.

The objectives of the expanded phase pilot test focused on assessing the following aspects of the DDC system:

- Assessing the limits of the circulation cell developed by each well individually and in combination;
- Maximizing the mass removal of chloroform; and
- Assessing the affects on mass transfer of chloroform from the shallow groundwater system hydrostratigraphic unit number 1 (HSU-1) to the underlying permeable HSU-2.

The primary objective of the expansion to the DDC system is to reduce the mass of chloroform within HSU-1 to levels whereby impacts to HSU-2 will be below cleanup objectives that will be established in the Record of Decision for the LEHR/SCDS site.

The purpose of this report is to assess the data obtained from one year's operation of the expanded system with respect to the above focus and objectives. Subsequent steps of the expansion to the DDC system, if required, will place additional DDC wells in areas needed to support these objectives and provide a monitoring system that documents the effectiveness of the system in reducing impacts to HSU-2. The need for these additional steps will be part of the analysis presented in the Feasibility Study completed for the LEHR/SCDS site.

SECTION 2
BACKGROUND

In an effort to enhance the development of remedial actions for the removal of chloroform in groundwater, University of California at Davis (UC Davis, or UCD) conducted a groundwater source investigation in late 1998. The results of this investigation, along with an assessment of groundwater extraction from the shallow groundwater (HSU-1, see below for discussion) were presented in the Groundwater Source Investigation and Data Evaluation Report (Dames & Moore, March 1999). The information presented in this report, along with Hydropunch® and cone penetrometer test (CPT) data collected in the vicinity of monitoring well UCD1-12 in 1995 (Battelle, May 1996), were used to develop the design and approach for the pilot test of the DDC system. A summary of the information provided in these reports as well as a summary of the results of the 90-day pilot test of the DDC system are presented in the following sections.

2.1. Site Conditions

Five HSUs have been defined at the site based on drilling, CPT logs, and geophysical surveys that have been completed since 1987. In descending order, the units are the vadose zone, HSU-1, HSU-2, HSU-3 (formerly the "unnamed aquitard"), and HSU-4. Figure 2 presents a schematic cross section of the site hydrostratigraphy. Detailed descriptions of the site hydrogeology have been presented in numerous reports most recently within the 2002 Annual Water Monitoring Report (Brown and Caldwell, 2003).

The pilot test for the DDC system was conducted in HSU-1 in the vicinity of UCD1-12. HSU-1 is lithologically similar to the vadose zone and is comprised primarily of clays and silts interbedded with small zones of silty sand. Directly underlying HSU-1 is the upper unit of HSU-2 comprised predominantly of sands. The contact between HSU-1 and HSU-2 ranges from approximately 76-feet (ft) to 88-ft below ground surface (bgs). In the area of the proposed DDC pilot test, HSU-1 consists predominantly of silts and clays with some interbedded silty sand. During installation of the DDC 90-day pilot test, the contact with HSU-2 in this area was encountered between 83- to 86-ft bgs. As discussed in Section 3, the contact with HSU-2 was encountered at 85 feet bgs, in HSU-2 monitoring well UCD2-48, installed for the expanded DDC pilot test. This well and associated screen interval are illustrated on the schematic cross section presented on Figure 2.

2.1.1. Hydrogeology – HSU-1

The DDC pilot test was designed to operate within HSU-1. As stated above, HSU-1 consists of clays and silts interbedded with thin zones of silty sand. Groundwater flow within both HSU-1 and HSU-2 is toward the northeast. The hydraulic gradient within HSU-1 is variable but averages approximately 0.006 feet per feet (ft/ft). Aquifer tests previously conducted at the site indicate that the hydraulic conductivity within HSU-1 averages approximately 3 ft/day. Assuming an effective porosity of 0.25 to 0.3, the average horizontal groundwater flow velocity within HSU-1 is in the range of approximately 25 feet per year (ft/yr).

Appreciable vertical gradients exist between HSU-1 and HSU-2. In general, during the agricultural pumping season from April to September, the vertical gradient is typically downward from HSU-1 to HSU-2. From October through March, water levels recover due to reduced pumping and winter rainfall and the vertical gradients are typically upward. The variation in vertical gradients measured

in well pair UCD1-20/UCD2-7 over the past ten years is shown on Figure 3. With a few exceptions, upward gradients are typically between 0.01 and 0.02 ft/ft. By comparison, downward vertical gradients typically reach values of at least 0.05 to 0.06 ft/ft.

The hydrogeologic data from HSU-1 indicate that the flow within this unit is a combination of lateral flow to the northeast and net downward flow into HSU-2. The vertical flow is especially dominant during the late winter and early spring when water levels within HSU-1 can rise dramatically due to recharge from precipitation and agricultural pumping beginning in HSU-2. The net effect of this flow regime is that impacted groundwater in HSU-1 experiences some lateral downgradient movement toward the northeast but over time the primary net mass flux of groundwater and chemical constituents is downward into HSU-2.

2.1.2. Extent of Chloroform

The groundwater source investigation conducted by UC Davis in 1998 included the completion of a comprehensive soil gas study to assess sources of chloroform within the vadose zone. Methods used in this assessment included passive soil gas sampling, surface flux measurements, and downhole soil gas flux measurements. The results of this investigation confirm that only a low residual mass of chloroform remains in the vadose zone. These results are consistent with the observed trend of chloroform within UCD1-12 as discussed in the DDC 90-day Pilot Test Work Plan (URS, 2000). As discussed in this report, groundwater chloroform concentrations appear to be higher during periods of low water levels than periods of high water levels. If a significant mass of chloroform was present within the overlying unsaturated soils, then groundwater concentrations would be expected to increase as water levels rose and this chloroform mass was dissolved into the groundwater. The opposite trend of higher groundwater chloroform concentrations during low water levels indicates that the source of the chloroform is primarily within the groundwater and not in the overlying unsaturated soils.

A low residual mass of chloroform within the vadose zone was further supported by the results of a baseline soil-vapor sampling program conducted for the Soil Vapor Extraction (SVE) pilot test (Brown and Caldwell, 2001). This baseline program was conducted to select the appropriate well to conduct an SVE pilot test and included collecting samples from each of the "A–zone" and "B-zone" piezometers installed for the DDC 90-day pilot test. As discussed in Section 2.2, A-zone and B-zone are in reference to the depth of the screen interval for the piezometer where A-zone piezometers are screened between 20- to 35-ft bgs, and B-zone piezometers are screened from 40- to 55-ft bgs. During the SVE pilot test, water levels had just dropped below the base of the B-zone piezometers that were saturated during the DDC pilot test.

The results of this testing indicated that chloroform values from the shallow A-zone piezometers were consistently 1- to 2-orders of magnitude lower than the corresponding B-zone piezometers. These results, combined with the fact that water levels had just dropped below the level of the B-zone piezometers, indicate that the higher levels of chloroform in the B-zone result from the residual mass remaining within the soil-pore water in the recently saturated soils. Conversely, the low levels of chloroform in the A-zone soils that have not been saturated in recent periods indicate that very little mass remains within the vadose zone and may be the result of vapors migrating up from the impacted groundwater.

Prior to the DDC 90-day pilot test, the extent of chloroform within HSU-1 was assessed during the "Ground-Water Characterization Field Activities" conducted in 1995 and 1996 (Battelle, 1996). The results of this investigation using Hydropunch® sampling techniques are summarized on Figure 4. As seen on this figure, the main mass of chloroform covers an area with a radius of approximately 200-ft, with UCD1-12 near the center of the mass. This information also showed that significant levels (greater than 1,000 μg/L) of chloroform are present at the contact between HSU-1 and HSU-2 (approximately 85- to 87-ft bgs) in the area of UCD1-12. During the period 1996 through 1999, chloroform concentrations reported for UCD1-12 ranged between 4,000 μg/L and 8,100 μg/L.

Prior to startup of the DDC 90-day pilot test, similar results were obtained during the baseline groundwater sampling round conducted in the immediate vicinity of UCD1-12. Prior to startup of the DDC 90-day pilot system, chloroform values in this area ranged from 2,940 μg/L to 6,530 μg/L.

2.2. Summary of DDC 90-day Pilot Test

A detailed discussion of the results of the DDC 90-day pilot test was presented in the May 7, 2001 Letter Report (URS, 2001). The pilot test began on December 12, 2000 after installation and an initial baseline sampling round of the DDC well and associated piezometers and was concluded on March 21, 2001 with the final sampling round of the piezometers. Additional samples from the piezometers were collected between the end of the 90-day test, and installation of the expanded pilot test system as follows:

- Samples were collected immediately before (July 11, 2001) and one week after (July 18, 2001) shutdown of the system to conduct the SVE Pilot Test. The purpose of this sampling round was to assess potential rebound effects after shutdown.

- Samples were collected on December 15, 2001 as part of the 2001 Winter Quarterly Monitoring Round.

As stated in Section 1.0, the objective of the 90-day pilot test was to assess whether the DDC technology is effective in reducing the mass of chloroform present in the shallow groundwater (HSU-1) system, thereby reducing potential onsite risks and preventing the migration of chloroform. The 90-day pilot system consisted of the following:

- A single DDC well, designated DDC-1, surface equipment including a blower and acid drip system for management of carbonate precipitation;

- Three nested piezometers within the DDC borehole; and,

- Five additional nested piezometers (three piezometers each), designated TP-1 through TP-5, located around the DDC well.

The approximate locations of these wells are shown on Figure 4.

The DDC well was constructed using four-inch diameter, schedule 40 Polyvinyl Chloride (PVC) with three, 0.010-inch slotted screened intervals separated by blank casing. The screened zones,

from the shallowest to the deepest, are referred to as the "A" (20-ft bgs to 35-ft bgs), "B" (40-ft bgs to 55-ft bgs) and "C" (65-ft bgs to 80-ft bgs) zones.

Three nested piezometers, designated DDC-A, DDC-B, and DDC-C, were installed in the DDC boring corresponding to each of the screened zones of the DDC well. These piezometers served as monitoring points for the inflow and outflow from the DDC well and consisted of 1.5-inch diameter schedule 40 PVC with 0.010-inch slotted screen intervals. The screen length for the deeper piezometer, DDC-C, is 5-ft, whereas the screen length of the upper two piezometers is 2.5-ft.

The five nested piezometers consist of three 2-inch diameter schedule 40 PVC piezometers installed at spacings of 10- to 20-ft around the DDC well (Figure 4). One piezometer per cluster was completed in zones equivalent to the A, B and C zones of the DDC well. Each piezometer was screened over a 5-ft interval with 0.010-inch slot screen.

Evaluation of the performance of the DDC 90-day pilot test was based on the hydraulics of the circulation cells and trends in chemical concentrations. The May 7, 2001 Letter Report depict the circulation cells developed during the pilot test on Figures 6-1 and 6-2 of Attachment A (Wasatch Report). Figure 6-1 in the Wasatch report is a cross section oriented perpendicular to the direction of groundwater flow. The potentiometric contours and flow arrows indicate that operation of the DDC well caused an increase in head near the top of the DDC well due to the outflow of water from the DDC well and a decrease in head at the base of the DDC well. The transition between inflow and outflow occurred in the lower part of the intermediate screen of the DDC well. The head differences and flow arrows also indicate that the circulation cell extends more than 10-ft laterally away from the DDC well; however, the full extent is uncertain since cross-gradient piezometers were not installed at distances greater than 10-ft from the DDC well.

Figure 6-2 in the Wasatch report is a cross section oriented parallel to the direction of groundwater flow. The TP-2 piezometer cluster is located almost 20-ft away from the DDC well (Figure 4). The potentiometric contours and flow arrows on Wasatch's Figure 6-2 demonstrate that the circulation cell extends more than 20-ft from the DDC well. The data from the base of HSU-1 indicate that water levels near the base of HSU-1, especially near the DDC-1, are lower than water levels from nearby HSU-2 wells suggesting an upward vertical flow between the two HSUs throughout the pilot test. The development of this upward flow to the DDC well within the circulation cell is very significant because it suggests that the DDC circulation reduced or eliminated the late winter and early spring component of downward vertical flow from HSU-1 to HSU-2. Thus, within the circulation cell, the DDC system could prevent the downward vertical migration of impacted groundwater from HSU-1 to HSU-2 during the critical late winter/early spring time period when downward vertical gradients are greatest, as discussed above.

The achievement of active circulation is verified by the chemical data collected during the pilot test. Chemical mass removal is demonstrated by the air monitoring data which shows that chloroform was removed from the groundwater by the DDC well. The reduction in the chloroform mass is best illustrated by the concentration vs. time plot shown for well UCD1-12 on Figure 5. This plot includes data collected after completion of the 90-day pilot test but before operation of the expanded DDC pilot test system. As seen on this figure, since startup of the DDC pilot system on December 13, 2000, concentrations in UCD1-12 have declined from an initial value of 5,900 μg/L to 113 μg/L on December 15, 2001. Significant reductions of chloroform also occurred within the B-zone piezometers of the five test piezometers ranging from 40 percent reduction of the baseline

chloroform value (TP-3B) to 96 percent reduction (TP-1B). Subsequent data from the C-level piezometers show chloroform reductions compared to the baseline sampling round up to 70 percent (TP-5C). The higher reduction rates of chloroform in C-level piezometers may indicate that the initial DDC pilot system circulation cell had extended to the limits of the chloroform mass in that direction.

As indicated above, samples were collected immediately before (July 11, 2001) and one week after (July 18, 2001) shutdown of the DDC system to conduct the SVE Pilot Test. The purpose of this sampling round was to assess potential rebound effects after shutdown of the system. No significant increase on chloroform concentrations were noted between samples collected before and after shutdown of the DDC pilot test system.

SECTION 3
IMPLEMENTATION OF EXPANDED DDC PILOT TEST

The expanded system was installed between August and December 2002 and included the installation of five new DDC wells (DDC-2 through DDC-6), three new HSU-1 wells (UCD1-49 through UCD1-51) and one new HSU-2 well (UCD2-48). This section presents that approach that was used to implement the expansion of the DDC pilot system and discusses the methods and procedures used to construct the system.

3.1. Approach

As stated in Section 1, the expansion of the pilot test focused on providing information to assess the following aspects of the DDC system.

- Maximizing the mass removal of chloroform.
- What are the limits of the circulation cell developed by each well individually and in combination?
- What are the effects on mass transfer of chloroform from the shallow groundwater system (HSU-1) to the underlying permeable HSU-2 hydrostratigraphic unit?

This section presents and discusses the location of additional DDC wells, screen intervals, and the monitoring system that was used to evaluate the effectiveness of the expanded system in meeting the stated objectives.

3.1.1. DDC Well Locations

Based on the site conditions described in Section 2.1 and results of the DDC 90-day pilot test summarized in Sections 2.2, the expansion of the DDC system consisted of five additional DDC wells placed radially around the existing DDC-1 well location at an approximate radius of 50-feet. The approximate locations of the additional DDC wells, designated DDC-2 through DDC-6, are shown on Figure 6.

As discussed in Section 2.2, it was our conclusion that the circulation cell for the pilot system extended more than 20 feet from the DDC well. A 50-foot spacing for the expansion was selected to both assess the limits of the circulation cell developed by individual wells and the combined affect of multiple wells working together. The rationale used for the specific location of each individual well is as follows:

- Well DDC-2 is located 50-feet to the southwest of DDC-1 along the line between hydropunch location HPL-208 and DDC-1. The sample collected from HPL-208 in 1995 at a depth of 70 to 76 feet bgs reported a chloroform concentration of 6,366 µg/L.
- Well DDC-3 is located 50-feet due south of DDC-1 towards the expected source area of the chloroform.
- The remaining three DDC wells, DDC-4 through 6 were placed evenly along the 50-foot radius line from DDC-1 as shown on Figure 6.

As seen on Figure 6, the selected spacing and location of the additional DDC wells should cover the majority of the impacted area in HSU-1 as identified during the 1995 hydropunch sampling program.

3.1.2. Screened Intervals

Based on the success of the pilot test system, the screen intervals for the new DDC wells were the same as DDC-1. This well was screened at three separate levels, referred to as the A-level (20 to 35 feet bgs), B-level (40 to 55 feet bgs), and C-level (65 to 80 feet bgs), to account for the high seasonal variation in water levels recorded at the site. As discussed in Section 2.2, intake of groundwater will occur within the C-level screen and possibly the B-level screen depending upon water levels, outflow of treated water will occur within the B-level and A-level (if saturated or within zone of rising water from the DDC process). In addition, three nested piezometers were attached to each new DDC well in a similar manner to the piezometers attached to the DDC-1 well. The piezometers are designated with an "A", "B", and "C", corresponding to each of the screened intervals in the associated DDC well. The screen length of each of these piezometers is 5 feet.

3.1.3. Monitoring Wells

As stated above, the primary objective of the initial phase of the expanded phase DDC system is to: maximize the mass removal of chloroform; assess the limits of the circulation cell developed by each well individually and in combination; and, assess the affects on mass transfer of chloroform from HSU-1 to HSU-2. The monitoring system designed to assess the accomplishment of these objectives included the addition of one new HSU-2 well, designated UCD2-48, and three new HSU-1 wells, designated UCD1-49 through UCD1-51. The approximate location of these new wells is shown on Figure 6.

The primary objective of the new HSU-2 well is to monitor the mass transfer of chloroform from HSU-1 to HSU-2 and the effects of the DDC system on this process. As shown on Figure 6, this well was installed approximately 25 to 30 feet downgradient of DDC-1. The screen interval for this well was approximately 10-feet in length with the top of the screen immediately below the contact between HSU-1 and HSU-2. As discussed in Section 3.2, the seal for this well was placed so that the effective interval for this well was not above this contact.

The primary objective of the three new HSU-1 wells is to monitor the mass removal of chloroform within HSU-1. As shown on Figure 6, these wells have been placed radially approximately 25 to 30 feet around DDC-1 and between DDC-1 and the new DDC wells. Since a primary objective of these wells is to monitor mass removal, these wells were screened over the same interval as UCD1-12, approximately 50 to 65 feet bgs.

3.2. Field Activities

Field activities for the expansion of the DDC system included drilling and installation of the DDC wells and monitoring wells, installation of treatment equipment, and sampling and monitoring of the system during operation. As applicable, all procedures were conducted in accordance with the U.S. EPA approved Final Revised Field Sampling Plan (FSP) (Dames & Moore, 1998a) and the Final

Revised Quality Assurance Project Plan (QAPP) (Dames & Moore, 1998b). Standard operating procedures (SOPs) referenced in the following sections are from Appendix A of the FSP.

3.2.1. Well Installation

Table A-1 provides the well construction details for each of DDC wells and monitoring wells installed as part of the expansion of the pilot system. The DDC wells and HSU-1 monitoring wells (UCD1-49 through UCD1-51) were installed using hollow-stem auger drilling equipment following the procedures outlined in SOP 6.1 and 6.2.2. The HSU-2 well, UCD2-48, was installed using air-rotary casing hammer drilling equipment (SOP 6.2.1) to minimize the potential for chloroform impacts migrating from HSU-1 to HSU-2 during drilling operations. All of the wells were constructed using 4-inch diameter Schedule 40 PVC casing with 0.010-inch slotted screens and installed and developed in accordance with SOP 8.0. As with the existing DDC well, additional construction details for the new DDC wells included:

- Attachment of the three piezometers with screen intervals corresponding to the A-level, B-level, and C-level screen intervals within the DDC well. These wells were constructed using 1.5-inch diameter Schedule 40 PVC casing with 0.010-inch slotted screens.

- Bentonite pellets were used over the blank casing intervals to provide seals between the C-level and B-level and the B-level and A-level screen intervals.

Each soil boring was logged and sampled following SOP 7.0 and soil cuttings and purge water were handled in accordance with SOP 4.0.

3.2.2. Treatment System

The treatment system was installed and tested by Wasatch Environmental, the patent holder for the DDC system. As with the existing system, the pressurized air for the system was initially supplied by rotary vane blowers. However, after approximately 6-months of operation, the blower was damaged due to unexpected pressure build-up in the overall system. The system was refitted with a Kaeser Model SK 26 air compressor rated at 110 pounds per square inch pressure and restarted on November 26, 2003. During most of the down time of, DDC-1 was operated using the blower for the 90-day pilot test.

The system was installed in the same area as the existing system for easy access to the existing power outlet. From this system, the air lines were installed to the DDC wells via buried piping. Each well was fitted with a pressure gauge flow meter to measure air flow to the individual DDC wells. Exhaust air from the DDC wells were discharged to the atmosphere through an exhaust stack. Figure 7 presents a plot plan of the overall system as provided by Wasatch Environmental.

Based on average hardness values for HSU-1 water and operation of the pilot test, an acid drip injection system was also connected to each of the wells to prevent scaling. This system is identical to the system used for DDC-1 and includes a 250 gallon poly-tank to store the acid solution and a metering pump to inject acid into the air supply tube. A 3 percent hydrochloric acid solution is used.

3.2.3. Monitoring Program

Prior to start up the expanded phase system, the 90-day pilot system was shut down. A baseline sampling round was then conducted during the week of November 15, 2002 prior to startup of the expanded pilot test system. The baseline sampling round included collection of samples from the following monitoring points:

- HSU-1 wells UCD1-12, UCD1-49, UCD1-50, and UCD1-51.
- HSU-2 well UCD2-48.
- The saturated piezometers within the five piezometer nests, TP-1 through TP-5. No water was present in the A-zone piezometers during this sampling event.
- The saturated piezometers within the six DDC wells, DDC-1 through DDC-6. As with the TP piezometers, no water was present in the A-zone piezometers during this sampling round.

Samples were collected following the procedures in SOP 1.0 and purge water handled according to SOP 4.0. Prior to purging, a dissolved oxygen reading was collected from each of the wells using a down-hole field instrument. Field measurements collected during purging of the wells included pH, temperature, electrical conductivity, and oxidation potential (Eh). Groundwater samples collected from each of the wells for the baseline sampling round were submitted for analysis of VOCs, including chloroform, using EPA Method 8260.

The results of these analyses served as the baseline data set for comparison with subsequent monitoring rounds conducted during actual operation of the expanded phase system. The system started up on December 5, 2002. During startup, monitoring occurred on a relatively frequent basis for UCD1-12, each of the four newly installed monitoring wells, and the piezometers within the DDC wells. The existing 5 nested piezometers installed for the 90-day pilot system were not sampled during this startup monitoring but were included in the quarterly sampling rounds. The sampling frequency for the startup is presented on Table 2 and summarized below.

- First Month – once during each week:
- Second month through fourth month – once each month; and
- Quarterly for one year.

As discussed in Section 3.2.2, the expanded system was shut down during the period July 25, 2003 to November 26, 2003 due to failure of the blower. However, during most of this period, the blower from the 90-day pilot test was used to operate DDC-1 only. As such, the quarterly sampling rounds conducted during the weeks of August 13, 2003 and October 14, 2003 only reflect operation of this one operating DDC well. During these sampling rounds, no samples were collected from the other DDC wells. Because of this system shutdown, an additional quarterly monitoring round was conducted during the week of January 14, 2004 for use in the assessment of the expanded DDC system.

Groundwater samples collected from this monitoring were field tested and submitted for analyses of the same parameters listed above for the baseline sampling round. In addition to the groundwater

samples, air samples were collected during each round from the exhaust stack for the system. These samples were collected in Tedlar bags and submitted for analysis of VOCs using EPA Method TO-15.

The well construction and geologic well logs for the newly installed wells were presented in the Quarterly Water Monitoring Report for Summer 2002 (URS, 2003). Table A-1 presents well construction details and Figure 6 shows the location of the monitoring points for the DDC expanded pilot test system.

SECTION 4
RESULTS

Summaries of the complete results for the expanded phase DDC pilot test system have been presented in the Draft 2004 Comprehensive Annual Water Monitoring Report (Brown and Caldwell, 2004a) and the Quarterly Monitoring Report, Winter 2004 (Brown and Caldwell, 2004b). This report is Appendix A of the Draft 2004 Comprehensive Annual Water Monitoring Report. As discussed in Section 1 of this appendix, the primary objective of the expanded pilot test is to asses the effectiveness of the DDC technology in addressing the source of chloroform within HSU-1. As such, for groundwater testing, this section only summarizes the results of water level data and chloroform results. The reader is referred to the above reports for a complete summary of the data collected for the expanded DDC pilot test.

A summary of the water level data and chloroform data collected during the expanded DDC system pilot test is presented in Table A-3 and Table A-4, respectively. A detailed discussion of these results as it pertains to the overall performance of the DDC system is presented in Section 5.

SECTION 5
DISCUSSION

As discussed in Section 1, the objectives of the expanded phase pilot test focused on assessing the following aspects of the DDC system:

- Assessing the limits of the circulation cell developed by each well individually and in combination;
- Maximizing the mass removal of chloroform; and
- Assessing the affects on mass transfer of chloroform from the shallow groundwater system (HSU-1) to the underlying permeable HSU-2 hydrostratigraphic unit.

An assessment of each of these objectives is presented in the following sections.

5.1. Limits of Circulation Cell

As discussed in Section 2.2, the initial DDC pilot test indicated that the circulation cell developed by a single DDC well (DDC-1) extended more than 20 feet from the well. To further evaluate the extent of the circulation cell developed by the DDC wells during the expanded pilot test, a detailed assessment of water level changes within DDC wells compared to changes in chloroform concentrations was conducted.

Figure 8 illustrates water level trends within each of the DDC wells for each piezometer (A, B, and C) during operation of the expanded system. A DDC well operates by injecting air through an air-line that extends to the bottom of the well. The air that enters the bottom of the well mixes with the water and creates a lower-density air-water mixture. This mixture rises to the top of the well, resulting in the flow of water into the lower screen of the well, before flowing laterally into the upper part of the aquifer. A large convection or re-circulation cell ultimately forms in the aquifer and the circulated water is eventually pulled back into the DDC well through the lower screen. This type of circulation should cause a distinct water level difference between the lower C-zone piezometer (pumping zone) and the upper B-zone piezometer (and A-zone if saturated) of each individual DDC well. This type of trend is clearly seen during operation of the DDC wells as shown on the graphs presented on Figure 8, whereby the water levels in the C-zone piezometers are usually 5 to 10 feet lower than the water levels in the B-zone piezometers. When the system is not operating, the water levels within the C-zone and B-zone piezometers are at the same level as shown on the Figure 8 graph during the period of shutdown for the expanded DDC system from July 25, 2003 to November 6, 2003 (well DDC-1 was still operating during this period).

Chloroform trends versus time for wells monitored during the expanded DDC pilot test are shown on Figure 9. As seen on this figure, overall, with the exceptions discussed below, reported chloroform concentrations decreased during operation of the expanded pilot test system indicating that circulation cells were affecting areas at least 30 feet from individual DDC wells. This effect is best illustrated by looking at chloroform concentrations versus time in monitoring well UCD1-49 compared to operation of the closest DDC well (DDC-5) as illustrated by changes in water levels within the piezometers. This comparison is shown on Figure 10. Operation of the DDC well on this figure is represented by the shaded area between water levels from the C-zone and B-zone piezometers. As seen on this figure, shortly after start-up of the expanded DDC system, chloroform

concentrations in UCD1-49 significantly dropped from values above 2,000 μg/L to values below 100 μg/L. When the expanded system shut down on July 25, 2003, chloroform values in UCD1-49 increased to above 2,000 μg/L followed by a decrease to around 500 μg/L after the system was turned back on November 26, 2003. This trend in chloroform values clearly shows that the well is responding to operation of the DDC system. Well UCD1-49 is located about 30 feet from DDC-5. To a lesser extent, this same type of trend can be seen in well UCD1-50 (Figure 9).

No apparent trends were observed in well UCD1-51 where chloroform values ranged from 1,610 μg/L to 2,780 μg/L (Figure 9) during the expanded DDC pilot test. These results could be due to: 1) heterogeneities within the aquifer material, 2) the center of the chloroform mass is located in this area requiring more time to see reduced concentrations, or 3) this well is within the limits of the chloroform mass being pushed towards the center of the DDC system as discussed below.

To assess the circulation cell developed by the DDC wells operating in combination, chloroform values vs. time were plotted for DDC-1 and compared to operation of the expanded DDC system as a whole. This plot is shown on Figure 11. As seen on this figure, after startup of the expanded DDC pilot test, reported chloroform values for water samples collected from the C-zone piezometer (pumping zone) started to significantly increase to concentrations above 7,000 μg/L. Reported chloroform values for water samples collected from the B-zone piezometer (outflow) stayed at or below 100 μg/L indicating that the stripping efficiency of the individual well was very good. After shutdown of the expanded DDC system on July 25, 2003, reported chloroform values for water samples collected from the C-zone piezometer begin to decrease followed by another increase when the system was restarted on November 26, 2003. As indicated in Section 3, well DDC-1 continued to operate during the shutdown of the expanded system. This trend indicates that the combined operation of the six DDC wells pushes the chloroform mass towards the center of the system where it can be remediated by the center well.

5.2. Chloroform Mass Removal

Mass removal rates of chloroform during operation of the expanded DDC system were estimated using the following assumptions:

- An inflow rate, or pumping rate, calculated for the DDC wells using the specific capacity calculated during the step drawdown test conducted at UCD1-12 in 1999 (Dames & Moore, 1999).

- Chloroform concentrations calculated by subtracting the concentration reported for the sample collected from the B-zone piezometer from the concentration reported for the C-zone piezometer within each DDC well.

The specific capacity measured during the step drawdown pumping test for UCD1-12 was approximately 1-gallon per minute per foot of drawdown (gpm/ft.). Although actual drawdown values were not measured during the pilot test, at least 2 feet of drawdown occurred within each well resulting in a calculated pumping rate of 2 gpm (2 feet times 1 gpm/ft). Table A-5 shows the results of these calculations. As seen on this table, at least 36 pounds of chloroform were removed during the operational period December 5, 2002 to January 14, 2004. The majority of the mass was removed from the initial DDC well (DDC-1) located in the center of the expanded system. Using

these same assumptions, the calculated mass of chloroform removed from December 2000 to February 2002 from this well prior to startup of the expanded system would be less than 5 pounds. Therefore, the configuration of the expanded system clearly maximizes the mass removal of chloroform. For comparison, the chloroform mass removed from the Interim Remedial Action (IRA) extraction well during 2003 was 9.53 pounds and the maximum yearly removal rate from this system was 24.62 pounds in 2000 (see Table 10 from Comprehensive 2003 Annual Water Monitoring Report).

5.3. Chloroform Mass Transfer from HSU-1 to HSU-2

As discussed in Section 2.2, data collected during the 90-day pilot test indicated that the operation of the DDC system effectively eliminated the downward vertical gradient of water from HSU-1 to HSU-2. If present, this hydraulic control would reduce the mass transfer of chloroform from HSU-1 to the more permeable sands and gravels of HSU-2. To further assess this relationship, an HSU-2 well, UCD2-48, was installed immediately downgradient of DDC-1. Reported concentrations of chloroform for water samples collected from this well, including samples collected before startup of the expanded system, have all been below 15 μg/L, suggesting that operation of just the single DDC-1 well had effectively reduced the mass transfer.

To further assess these conditions, chloroform contours were constructed on cross sections that parallel the trend of the overall plume of the source area to the area of extraction well EW2-1. These contours are shown on Figures 12 and 13. Figure 12 contours chloroform data from 1995 to 1996 using data from hydropunch samples collected by the U.S. Department of Energy (DOE) (PNNL, 1996) and monitoring wells and represents a period before operation of the DDC wells and the IRA extraction well. Figure 13 contours chloroform data collected during 2004, including data from the expanded DDC system, monitoring wells, and hydropunch samples collected for assessment of the IRA system. A detailed discussion of the hydropunch samples collected for the IRA system is presented in Appendix B of the Comprehensive 2003 Annual Water Monitoring Report. Comparison of these figures clearly shows the operation of the DDC system has significantly reduced the chloroform impacts within HSU-1 and reduces the mass transfer of chloroform from HSU-1 to HSU-2. Figure 13 also illustrates two relative hot spots of chloroform within HSU-2 downgradient of the DDC system. This zone possibly represents a portion of the plume that was spread out along HSU-2 after startup of the IRA extraction well in 1998 then cut off after startup of the DDC system in 2000.

SECTION 6
CONCLUSIONS AND RECOMMENDATIONS

Based on the results of the expanded DDC pilot test, UC Davis offers the following conclusions:

- The circulation cell developed by the DDC wells affects areas at least 30 feet from an individual well.
- Operation of the DDC system is effectively removing chloroform from the source area within the fine grained material in HSU-1.
- The designed configuration of the expanded DDC system significantly increases the mass removal of chloroform by pushing the majority of the mass to the center of the system for removal by the center well DDC-1.
- The expanded DDC system is significantly reducing the mass transfer of chloroform from HSU-1 to HSU-2.

Based on the successful operation, it is recommended that the expanded system continue operation with no additional wells and that full scale operation of this system be assessed as part of the Feasibility Study.

SECTION 7
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TABLES

Table A-1
Summary of Well Construction Details
Expanded DDC System Summary Report
LEHR/SCDS Environmental Restoration
Davis, California

Wells	Date Installed	Total Boring Depth (ft bgs)	PVC Well Diameter (inches)	Screen Interval (ft bgs)	Filter Pack (ft bgs)	Bentonite (ft bgs)	Cement (ft bgs)	Measuring Point Elevation (ft msl)
Groundwater Monitoring Wells								
UCD1-012	10/19/89	65	4	49.5-64.5	47-65	44-47	0-44	51.79
UCD2-048	08/28/02	104	4b	90-100	88.3-104	84-88.3	0-84	51.76
UCD1-049	08/14/02	69.5	4b	49.5-69.5	47-69.5	43-47	0-43	51.44
UCD1-050	08/13/02	69.5	4b	49.5-69.5	47.5-69.5	43.5-47.5	0-43.5	52.47
UCD1-051	08/12/02	70	4b	49.7-69.7	48-70	44-48	0-44	52.01
DDC Treatment System								
DDC-1	10/27/00	86	4b	20-35 40-55 65-80	19-35.5 40-55.7 60-80.5	17-19 35.7-40 80.5-85	0.5-17	52.82
DDC-1A	10/27/00	86	1.25b	32.5-35	19-35.5	17-19	0.5-17	51.42
DDC-1B	10/27/00	86	1.25b	50-52.5	40-55.7	35.7-40	0.5-17	51.32
DDC-1C	10/27/00	86	1.25b	70-75	60-80.5	80.5-85	0.5-17	51.25
DDC-2	09/16/02	80	4b	19.7-34.7 39.7-54.7 64.7-79.7	16-36 38-56.5 62.3-80	14.3-16 36-38 56.5-62.3	0-14.3	51.34
DDC-2A	09/16/02	80	1.25b	30-35	16-36	14.3-16	0-14.3	51.50
DDC-2B	09/16/02	80	1.25b	50-55	38-56.5	36-38	0-14.3	51.52
DDC-2C	09/16/02	80	1.25b	65-70	62.3-80	56.5-62.3	0-14.3	51.47
DDC-3	09/18/02	80	4b	19-34 39-54 64-69.7	16-35 37-56.7 62-80	14.3-16 35-37 56.7-62	0-14.3	52.53
DDC-3A	09/18/02	80	1.25b	28-34	16-35	14.3-16	0-14.3	51.75
DDC-3B	09/18/02	80	1.25b	49-54	37-56.7	35-37	0-14.3	51.68
DDC-3C	09/18/02	80	1.25b	64-79.7	62-80	56.7-62	0-14.3	51.74
DDC-4	09/19/02	80	4b	19.5-34.5 39.5-54.5 64.5-79.5	16-35.5 37-56.5 62-80	14.3-16 35.5-37 56.5-62	0-14.3	50.86
DDC-4A	09/19/02	80	1.25b	29.5-34.5	16-35.5	14.3-16	0-14.3	51.22
DDC-4B	09/19/02	80	1.25b	49.5-54.5	37-56.5	35.5-37	0-14.3	51.23
DDC-4C	09/19/02	80	1.25b	64.5-69.5	62-80	56.5-62	0-14.3	51.84
DDC-5	09/20/02	80	4b	18.5-33.5 38.5-53.5 63.5-78.5	16-34.5 36.5-55.7 61-80	14-16 34.5-36.5 55.7-61	0-14	51.18
DDC-5A	09/20/02	80	1.25b	28.5-33.5	16-34.5	14-16	0-14	51.02
DDC-5B	09/20/02	80	1.25b	48.5-53.5	36.5-55.7	34.5-36.5	0-14	51.04
DDC-5C	09/20/02	80	1.25b	73.5-78.5	61-80	55.7-61	0-14	51.01
DDC-6	09/13/02	80.3	4b	20-35 40-55 65-80	16-36 38-56.5 62-80.3	14.3-16 36-38 56.5-62	0-14.3	51.37
DDC-6A	09/13/02	80.3	1.25b	30-35	16-36	14.3-16	0-14.3	51.56
DDC-6B	09/13/02	80.3	1.25b	50-55	38-56.5	36-38	0-14.3	51.58
DDC-6C	09/13/02	80.3	1.25b	65-70	62-80.3	56.5-62	0-14.3	51.51
Piezometers								
TP-1A	11/04/00	80	2	30-35	17-35.5	14-17	0.5-14	49.65
TP-1B	11/04/00	80	2	47-52	45-55	35.7-45	0.5-14	49.90
TP-1C	11/04/00	80	2	70-75	60-80.5	55-60	0.5-14	49.81
TP-2A	10/31/00	79	2	28-33	14-33	12-14	0.5-12	51.43
TP-2B	10/31/00	79	2	47.5-52.5	45-55	33-45	0.5-12	51.15
TP-2C	10/31/00	79	2	70-75	60-79	55-60	0.5-12	51.10
TP-3A	11/03/00	80.5	2	30-35	20-33.5	15-20	0.5-15	51.05
TP-3B	11/03/00	80.5	2	47.5-52.5	45-55	35.5-45	0.5-15	51.10
TP-3C	11/03/00	80.5	2	70-75	60-80.5	55-60	0.5-15	51.08
TP-4A	11/02/00	80.5	2	30-35	19-35	12-19	0.5-17	51.07
TP-4B	11/02/00	80.5	2	47.5-52.5	45-55	35-45	0.5-17	51.06
TP-4C	11/02/00	80.5	2	70-75	60-80.5	55-60	0.5-17	51.17
TP-5A	10/26/00	80	2	30-35	20-35.5	15-20	0.5-15	51.93
TP-5B	10/26/00	80	2	47.5-52.5	45-55.3	35.5-45	0.5-15	51.87
TP-5C	10/26/00	80	2	74.5-79.5	60-80	55.25-60	0.5-15	51.79

[a] well constructed with #60 sand seal and no bentonite

[b] stainless steel, wire-wrap screen

[c] stainless steel, blank casing, and wire wrap screen

EW = extraction well

ft bgs = feet below ground surface

ft msl = feet mean sea level datum

IW = injection well

Table A-2
Sample Frequency
Expanded DDC System Summary Report
LEHR/SCDS Environmental Restoration
Davis, California

Well I.D.	15-Nov-02[1,2]	12-Dec-02	16-Dec-02	23-Dec-02	3-Jan-03	28-Jan-03	24-Feb-03	25-Mar-03	17-Jun-03	8/14/2003[4]	10/14/2003[4]	14-Jan-04
DDC-1A[3]												
DDC-1B	x	x	x	x	x	x	x	x	x	x	x	x
DDC-1C	x	x	x	x	x	x	x	x	x	x	x	x
DDC-2A												
DDC-2B	x	x	x	x	x	x	x	x	x			x
DDC-2C	x	x	x	x	x	x	x	x	x			x
DDC-3A												
DDC-3B	x	x	x	x	x	x	x	x	x			x
DDC-3C	x	x	x	x	x	x	x	x	x			x
DDC-4A												
DDC-4B	x	x	x	x	x	x	x	x	x			x
DDC-4C	x	x	x	x	x	x	x	x	x			x
DDC-5A												
DDC-5B	x	x	x	x	x	x	x	x	x			x
DDC-5C	x	x	x	x	x	x	x	x	x			x
DDC-6A												
DDC-6B	x	x	x	x	x	x	x	x	x			x
DDC-6C	x	x	x	x	x	x	x	x	x			x
UCD1-12	x	x	x	x	x	x	x	x	x	x	x	x
UCD2-48	x	x	x	x	x	x	x	x	x	x	x	x
UCD1-49	x	x	x	x	x	x	x	x	x	x	x	x
UCD1-50	x	x	x	x	x	x	x	x	x	x	x	x
UCD1-51	x	x	x	x	x	x	x	x	x	x	x	x
TP-1A												
TP-1B	x								x	x	x	x
TP-1C	x								x	x	x	x
TP-2A												
TP-2B	x								x	x	x	x
TP-2C	x								x	x	x	x
TP-3A												
TP-3B	x								x	x	x	x
TP-3C	x								x	x	x	x
TP-4A												
TP-4B	x								x	x	x	x
TP-4C	x								x	x	x	x
TP-5A												
TP-5B	x								x	x	x	x
TP-5C	x								x	x	x	x

Notes

1. Baseline Sampling Round
2. Date refers to week sampling round conducted
3. Water Elevations did not rise to level of A-zone piezometers for DDC wells or TP wells.
4. Expanded DDC System shutdown due to blower failure.

Table A-3
Water Level Elevations
Expanded DDC System Summary Report
LEHR/SCDS Environmental Restoration
Davis, California
(Feet above Mean Sea Level)

Well I.D.	15-Nov-02[1]	16-Dec-02	23-Dec-02	3-Jan-03	28-Jan-03	24-Feb-03	25-Mar-03	17-Jun-03	14-Aug-03	14-Oct-03	14-Jan-04
DDC-1A[2]	NW[3]	NW	NW	NW	NW	18.38	NW	NW	NW	NW	NW
DDC-1B	0.97	7.33	8.01	9.52	11.64	12.51	13.98	7.21	0.92	9.65	10.48
DDC-1C	1.17	-2.86	1.43	-0.08	4.41	7.99	14.47	3.92	-7.08	4.06	7.45
DDC-2A	NW	NW	NW	NW	NW	26.37	23.52	15.05	NW	NW	26.11
DDC-2B	0.75	13.93	15.88	16.02	17.40	17.08	16.62	10.87	-0.55	2.68	15.85
DDC-2C	0.76	7.36	7.65	9.47	11.22	11.84	10.29	5.92	-0.50	2.68	13.41
DDC-3A	NW	NW	NW	NW	NW	23.09	17.88	15.11	NW	NW	15.03
DDC-3B	0.81	8.18	8.96	10.18	13.68	12.47	17.69	9.23	-0.63	3.41	12.04
DDC-3C	0.81	4.84	6.06	7.64	8.27	4.91	17.98	1.86	-0.64	3.43	11.92
DDC-4A	NW	NW	NW	NW	NW	23.26	24.28	14.15	NW	NW	21.75
DDC-4B	1.06	14.42	15.31	14.43	16.35	14.25	15.38	7.43	-0.90	2.69	11.46
DDC-4C	1.65	7.99	9.76	10.34	10.53	9.79	10.73	4.63	-0.26	3.27	6.16
DDC-5A	NW	NW	NW	NW	NW	21.47	14.31	NW	NW	NW	NW
DDC-5B	1.13	12.75	13.86	15.44	10.25	14.07	13.94	6.80	-0.86	2.68	10.23
DDC-5C	1.09	0.87	0.50	1.51	9.89	6.15	10.33	2.26	-0.91	2.60	7.25
DDC-6A	NW	NW	NW	NW	NW	25.00	20.41	23.91	NW	NW	16.34
DDC-6B	0.87	11.49	12.89	13.08	13.34	13.45	14.60	9.93	-0.65	2.65	12.14
DDC-6C	0.86	5.23	3.96	6.61	4.54	6.62	11.60	0.46	-0.65	2.65	8.72
UCD1-12	1.37	6.07	7.13	8.55	10.73	12.25	14.36	7.10	-0.18	3.18	10.64
UCD2-48	2.10	6.31	6.89	7.95	10.41	11.98	14.03	6.86	-0.85	2.81	10.19
UCD1-49	0.94	5.61	6.68	8.15	9.89	11.78	13.97	6.73	-0.67	2.66	10.14
UCD1-50	0.85	5.51	6.62	8.06	9.98	11.63	13.90	4.57	-0.58	2.66	10.14
UCD1-51	0.89	5.52	6.67	7.96	10.20	11.72	13.92	6.44	-0.69	2.64	10.12
TP-1A	NW	NW	NW	NW	NW	NM[4]	NW	NW	NW	NW	NW
TP-1B	0.93	5.69	6.84	8.14	10.33	NM	14.00	6.67	-0.71	2.75	10.24
TP-1C	1.10	5.71	6.65	8.13	10.02	NM	14.03	6.64	-0.74	2.78	10.23
TP-2A	NW	NW	NW	NW	NW	NM	NW	NW	NW	NW	NW
TP-2B	1.06	5.65	6.74	8.12	10.30	NM	13.99	6.63	-0.66	2.71	10.22
TP-2C	1.08	5.69	6.76	8.13	10.31	NM	14.02	6.64	-0.66	2.79	10.24
TP-3A	NW	NW	NW	NW	NW	NM	NW	14.41	NW	NW	NW
TP-3B	1.02	5.70	6.80	8.21	10.39	NM	14.07	6.74	-0.52	2.83	10.32
TP-3C	0.95	5.68	6.71	8.05	10.29	NM	14.01	6.66	-0.58	2.77	10.25
TP-4A	NW	NW	NW	NW	NW	NM	NW	NW	NW	NW	NW
TP-4B	0.96	5.67	7.99	7.99	10.39	NM	14.04	6.77	-0.50	2.82	10.29
TP-4C	1.06	5.68	7.24	8.26	10.38	NM	14.07	6.76	-0.51	2.80	10.29
TP-5A	NW	NW	NW	NW	NW	NM	NW	NW	NW	NW	NW
TP-5B	0.90	5.64	6.75	7.99	10.38	NM	14.03	6.76	-0.51	2.80	10.30
TP-5C	0.98	5.59	6.74	8.02	10.32	NM	14.02	6.71	-0.58	2.77	10.16

Notes

1. Baseline Sampling Round
2. Water Levels in A-zone DDC wells represent water pushed up by system.
3. NW - No water in well
4. NM - Water Level Not measured

Table A-4
Summary of Chloroform Results
Expanded DDC System Summary Report
LEHR/SCDS Environmental Restoration
Davis, California
In micrograms per liter (ug/L)

Well I.D.	15-Nov-02[1,2]	13-Dec-02	17-Dec-02	23-Dec-02	28-Jan-03	24-Feb-03	25-Mar-03	17-Jun-03	14-Aug-03	14-Oct-03	14-Jan-04
DDC-1B	355.00	26.20	30.30	35.00	93.10	109.00	111.00	125.00	15.30	16.60	75.80
DDC-1C	623.00	64.80	44.50	54.20	161.00	541.00	1950.00	7400.00	5190.00	1730.00	3030.00
DDC-2B	1450.00	36.90	33.70	32.80	56.00	76.90	165.00	46.60	NS	NS	55.10
DDC-2C	1810.00	55.00	47.30	36.60	78.30	134.00	236.00	66.70	NS	NS	98.80
DDC-3B	1260.00	36.60	36.80	12.40	31.90	26.60	92.10	115.00	NS	NS	144.00
DDC-3C	1180.00	54.00	48.90	53.10	53.40	39.30	124.00	156.00	NS	NS	201.00
DDC-4B	3720.00	137.00	85.40	90.90	62.70	177.00	327.00	331.00	NS	NS	125.00
DDC-4C	5600.00	146.00	141.00	91.10	106.00	284.00	566.00	422.00	NS	NS	175.00
DDC-5B	402	12.5	16.5	26	5.3	<0.5	2.6	2.6	NS	NS	3.8
DDC-5C	382	50.7	64	161	58.7	450	1160	515	NS	NS	47
DDC-6B	556	29.3	49.6	67.4	42.1	66.3	196	26.9	NS	NS	120
DDC-6C	1250	108	69.4	116	148	155	218	90.7	NS	NS	113
UCD1-12	238	63.4	35.5	33.3	68.2	79.9	75.8	124	86.7	45.4	119
UCD2-48	2300	848	474	435	69.2	81.2	64.4	155	1070	2240	515
UCD1-49	2920	2300	2840	2470	1400	1280	1120	1990	1300	2720	2520
UCD1-50	1770	1740	1820	1690	1980	2110	1890	2100	1610	2480	2780
UCD1-51	3.8	3	2.8	2.6	5.7	<0.5	7.8	4.6	13.9	2.3	4.3
TP-1B	53.2	NS	NS	NS	NS	NS	NS	41.7	3	8.6	5.7
TP-1C	2890	NS	NS	NS	NS	NS	NS	1240	1660	1430	647
TP-2B	1000	NS	NS	NS	NS	NS	NS	529	622	497	177
TP-2C	1930	NS	NS	NS	NS	NS	NS	1800	1410	1360	1500
TP-3B	903	NS	NS	NS	NS	NS	NS	265	320	183	105
TP-3C	4010	NS	NS	NS	NS	NS	NS	2340	1560	NS	1730
TP-4B	846	NS	NS	NS	NS	NS	NS	243	476	150	64
TP-4C	2360	NS	NS	NS	NS	NS	NS	805	391	303	10.5
TP-5B	1200	NS	NS	NS	NS	NS	NS	236	360	193	108
TP-5C	3330	NS	NS	NS	NS	NS	NS	822	431	355	172

Notes

1. Baseline Sampling Round
2. Dates represent week sampling round conducted.
3. NS - Not sampled.

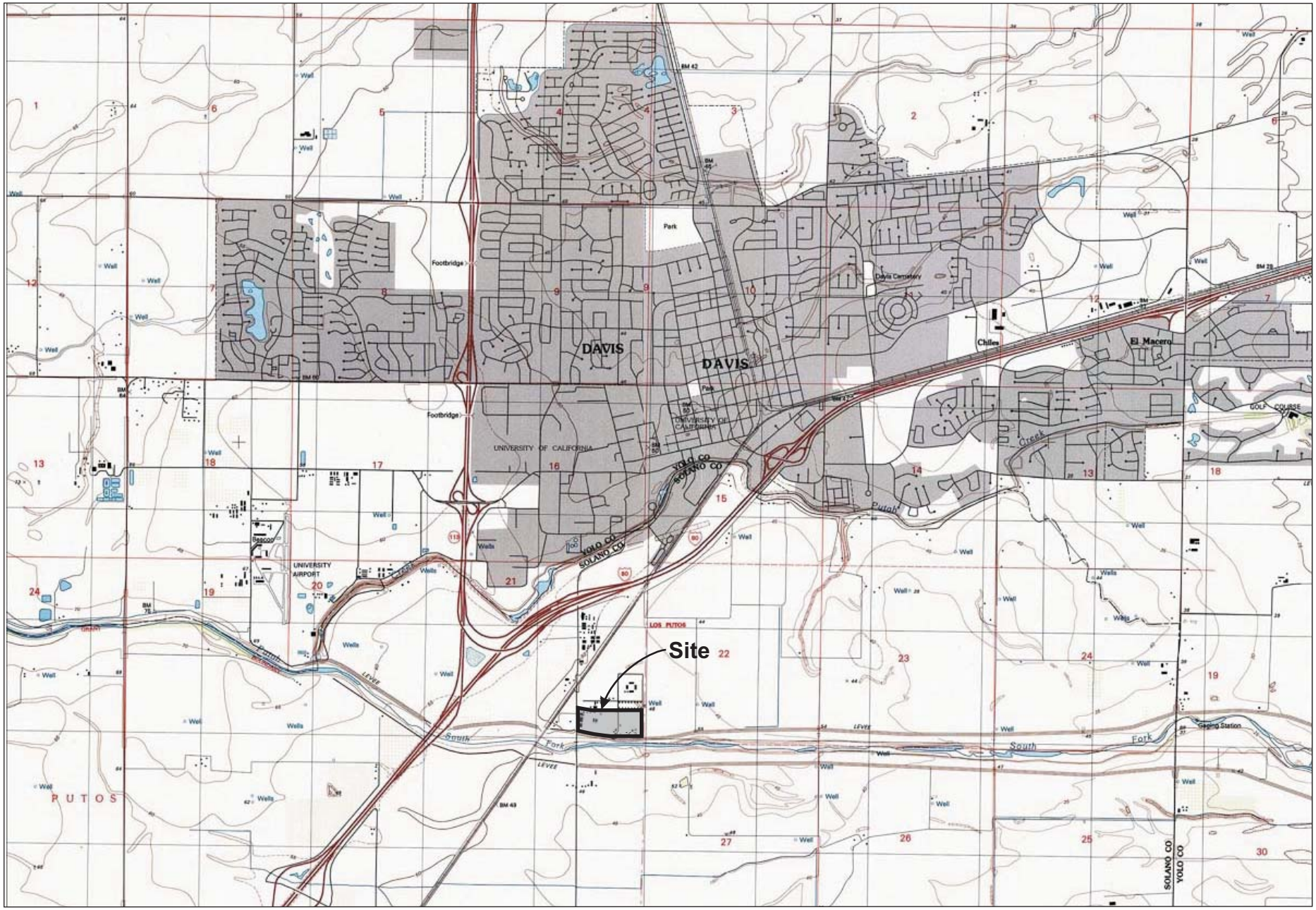
Table A-5
Chloroform Mass Removal
Expanded DDC System Summary Report
LEHR/SCDS Environmental Restoration
Davis, California

Date	DDC Well	C-Well Chloroform Concnetration	B-Well Chloroform Concnetration	Chloroform Concentration Removed	Number of Days Operating	Volume Removed[1]	Mass of Chloform Removed	Mass of Chloform Removed
		(ug/L)	(ug/L)	(ug/L)		(liters)	(ug)	(lbs)
13-Dec-02	DDC-1	64.8	26.2	38.6	8	87206	3366167	0.007
17-Dec-02		44.5	30.3	14.2	4	43603	619165	0.001
23-Dec-02		54.2	35	19.2	6	65405	1255772	0.003
29-Jan-03		161	93.1	67.9	37	403330	27386080	0.060
25-Feb-03		541	109	432	27	294322	127146931	0.280
25-Mar-03		1950	111	1839	28	305222	561303994	1.237
18-Jun-03		7400	125	7275	85	926568	6740782200	14.861
13-Aug-03		5190	15.3	5174.7	56	610445	3158868707	6.964
14-Oct-03		1730	16.6	1713.4	62	675850	1158000705	2.553
14-Jan-04		3030	75.8	2954.2	92	1002874	2962689189	6.532
							Total DDC-1	**32.499**
13-Dec-02	DDC-2	55	36.9	18.1	8	87206	1578436	0.003
17-Dec-02		47.3	33.7	13.6	4	43603	593004	0.001
23-Dec-02		36.6	32.8	3.8	6	65405	248538	0.001
29-Jan-03		78.3	56	22.3	37	403330	8994250	0.020
25-Feb-03		134	76.9	57.1	27	294322	16805763	0.037
25-Mar-03		236	165	71	28	305222	21670790	0.048
18-Jun-03		66.7	46.6	20.1	85	926568	18624017	0.041
14-Jan-04		98.8	55.1	43.7	49	534139	23341883	0.051
							Total DDC-2	**0.203**
13-Dec-02	DDC-3	54	36.6	17.4	8	87206	1517391	0.003
17-Dec-02		48.9	36.8	12.1	4	43603	527599	0.001
23-Dec-02		53.1	12.4	40.7	6	65405	2661975	0.006
29-Jan-03		53.4	31.9	21.5	37	403330	8671586	0.019
25-Feb-03		39.3	26.6	12.7	27	294322	3737884	0.008
25-Mar-03		124	92.1	31.9	28	305222	9736595	0.021
18-Jun-03		156	115	41	85	926568	37989288	0.084
14-Jan-04		201	144	57	49	534139	30445934	0.067
							Total DDC-3	**0.210**
13-Dec-02	DDC-4	146	137	9	8	87206	784858	0.002
17-Dec-02		141	85.4	55.6	4	43603	2424338	0.005
23-Dec-02		91.1	90.9	0.2	6	65405	13081	0.000
29-Jan-03		106	62.7	43.3	37	403330	17464172	0.039
25-Feb-03		284	177	107	27	294322	31492411	0.069
25-Mar-03		566	327	239	28	305222	72948154	0.161
18-Jun-03		422	331	91	85	926568	84317688	0.186
14-Jan-04		175	125	50	49	534139	26706960	0.059
							Total DDC-4	**0.521**
13-Dec-02	DDC-5	50.7	12.5	38.2	8	87206	3331284	0.007
17-Dec-02		64	16.5	47.5	4	43603	2071152	0.005
23-Dec-02		161	26	135	6	65405	8829648	0.019
29-Jan-03		58.7	5.3	53.4	37	403330	21537801	0.047
25-Feb-03		450	0.5	449.5	27	294322	132297559	0.292
25-Mar-03		1160	2.6	1157.4	28	305222	353264406	0.779
18-Jun-03		515	2.6	512.4	85	926568	474773443	1.047
14-Jan-04		47	3.8	43.2	49	534139	23074813	0.051
							Total DDC-5	**2.247**
13-Dec-02	DDC-6	108	29.3	78.7	8	87206	6863144	0.015
17-Dec-02		69.4	49.6	19.8	4	43603	863343	0.002
23-Dec-02		116	67.4	48.6	6	65405	3178673	0.007
29-Jan-03		148	42.1	105.9	37	403330	42712605	0.094
25-Feb-03		155	66.3	88.7	27	294322	26106326	0.058
25-Mar-03		218	196	22	28	305222	6714893	0.015
18-Jun-03		90.7	26.9	63.8	85	926568	59115038	0.130
14-Jan-04		113	120	-	49	-	0	0.000
							Total DDC-5	**0.321**
							Total Expanded Phase DDC System	**36.000**

Notes

1. Assumes a flow rate of 2 gallons per minute.

FIGURES



NORTH

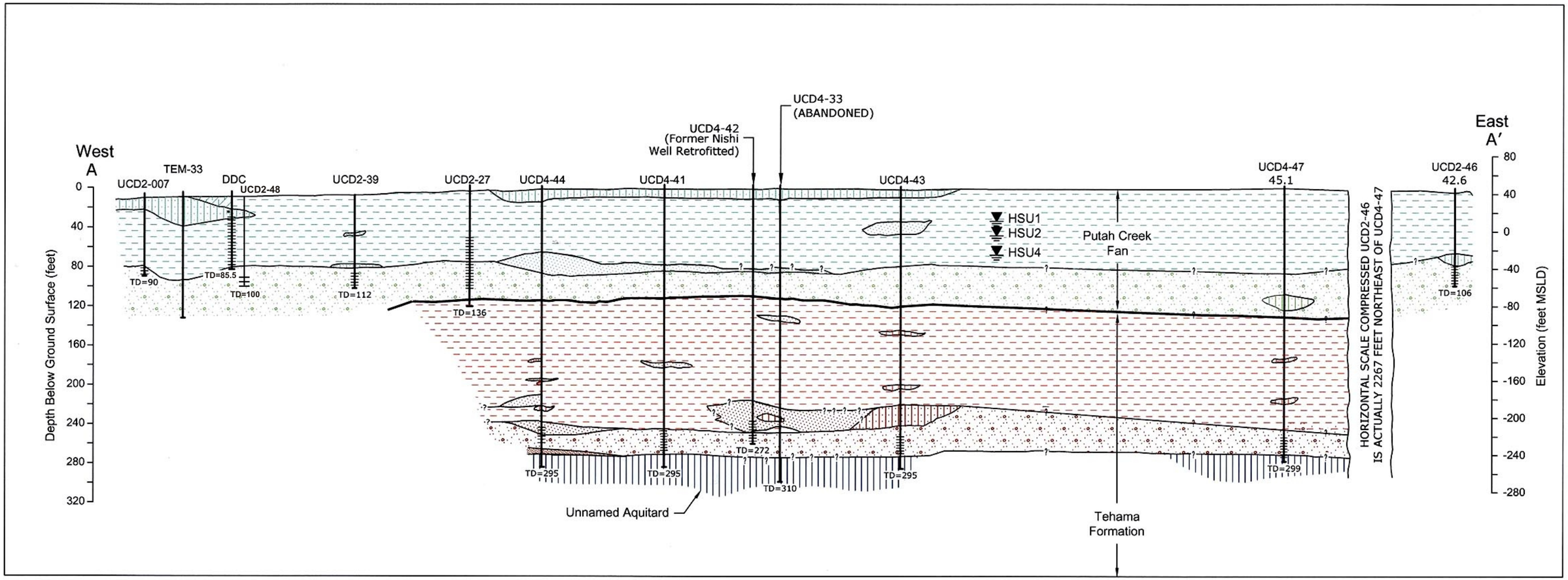
0 2000 4000

Scale in Feet

Source: TOPO! 2001, National Geographic

SITE VICINITY MAP

Expanded DDC System Summary Report
LEHR/SCDS
Davis, California



EXPLANATION

UCD4-43 HSU4 Monitoring Well

TD=295 Screened Interval

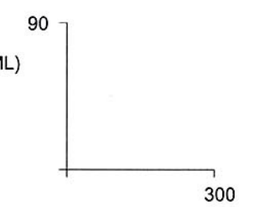
Contact Between Putah Creek Fan and Tehama Formation

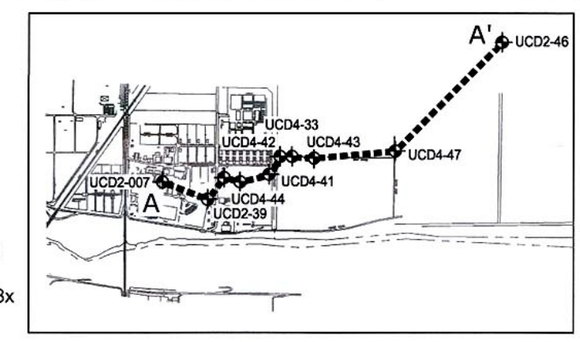
Geologic Contact

—?— Geologic Contact Uncertain

HSU1 Average August 2000 Water Level in Wells within the Indicated HSU

HSU-1	HSU-2	HSU-3	HSU-4
Fine Grained Silty Sand (SM)	Fine Grained Silty Sand (SM)	Fine Grained Silty Sand (SM)	Fine Grained Silty Sand (SM)
Interbedded Clayey Silt (ML) to Silty Clay (CL)	Interbedded Clayey Silt (ML) to Silty Clay (CL)	Interbedded Clayey Silt (ML) to Silty Clay (CL)	Interbedded Clayey Silt (ML) to Silty Clay (CL)
Fine to Coarse Grained Sand (SP)	Fine to Coarse Grained Sand (SP)	Fine to Coarse Grained Sand (SP)	Fine to Coarse Grained Sand (SP)
Coarse Grained Sandy Gravel (GP)	Coarse Grained Sandy Gravel (GP)	Coarse Grained Sandy Gravel (GP)	Coarse Grained Sandy Gravel (GP)
Silt (ML) With Some Sand and Clay	Silt (ML) With Some Sand and Clay	Silt (ML) With Some Sand and Clay	Silt (ML) With Some Sand and Clay

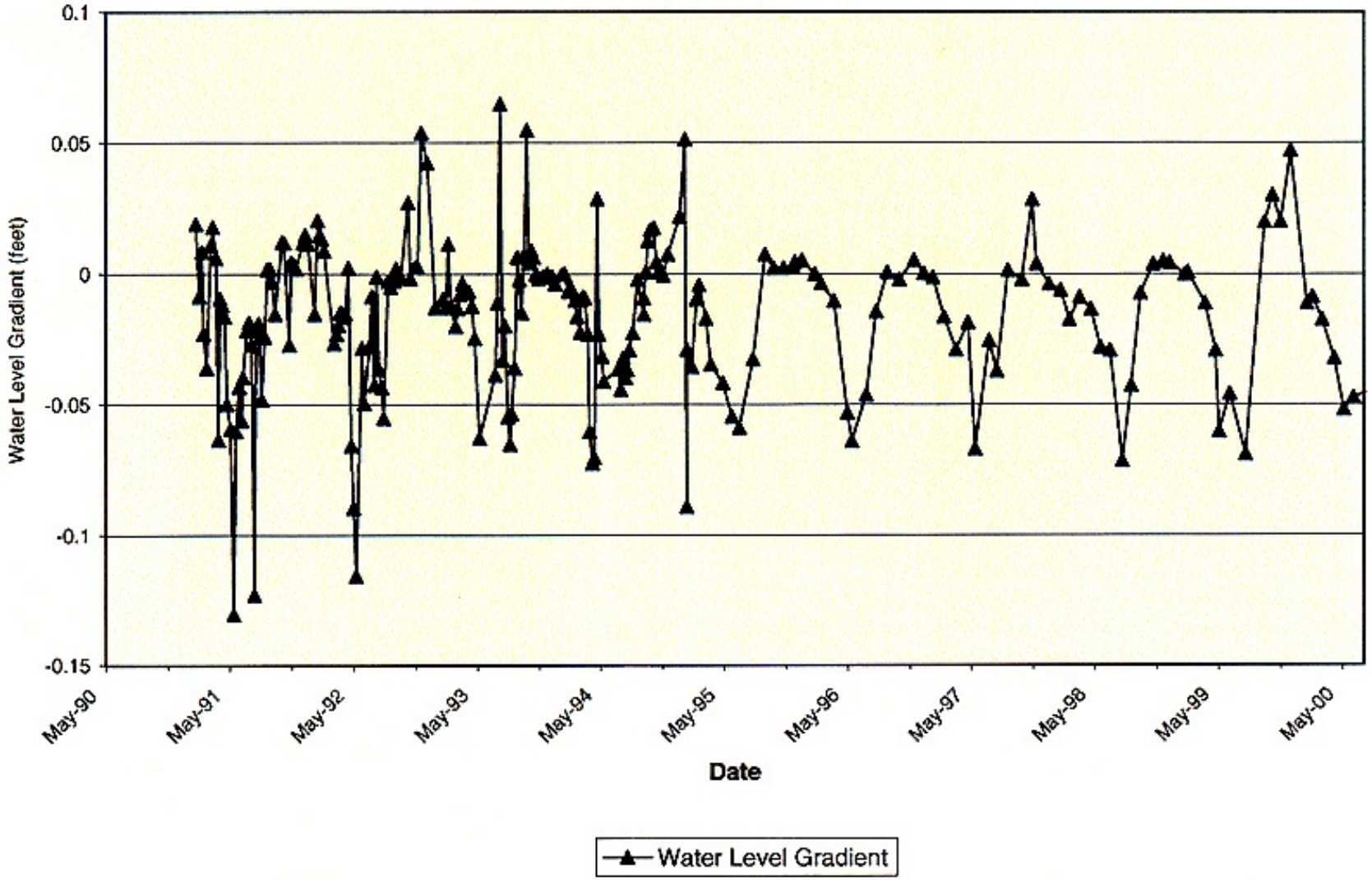




Source: URS

GENERALIZED HYDROSTRATIGRAPHIC CROSS SECTION A-A'

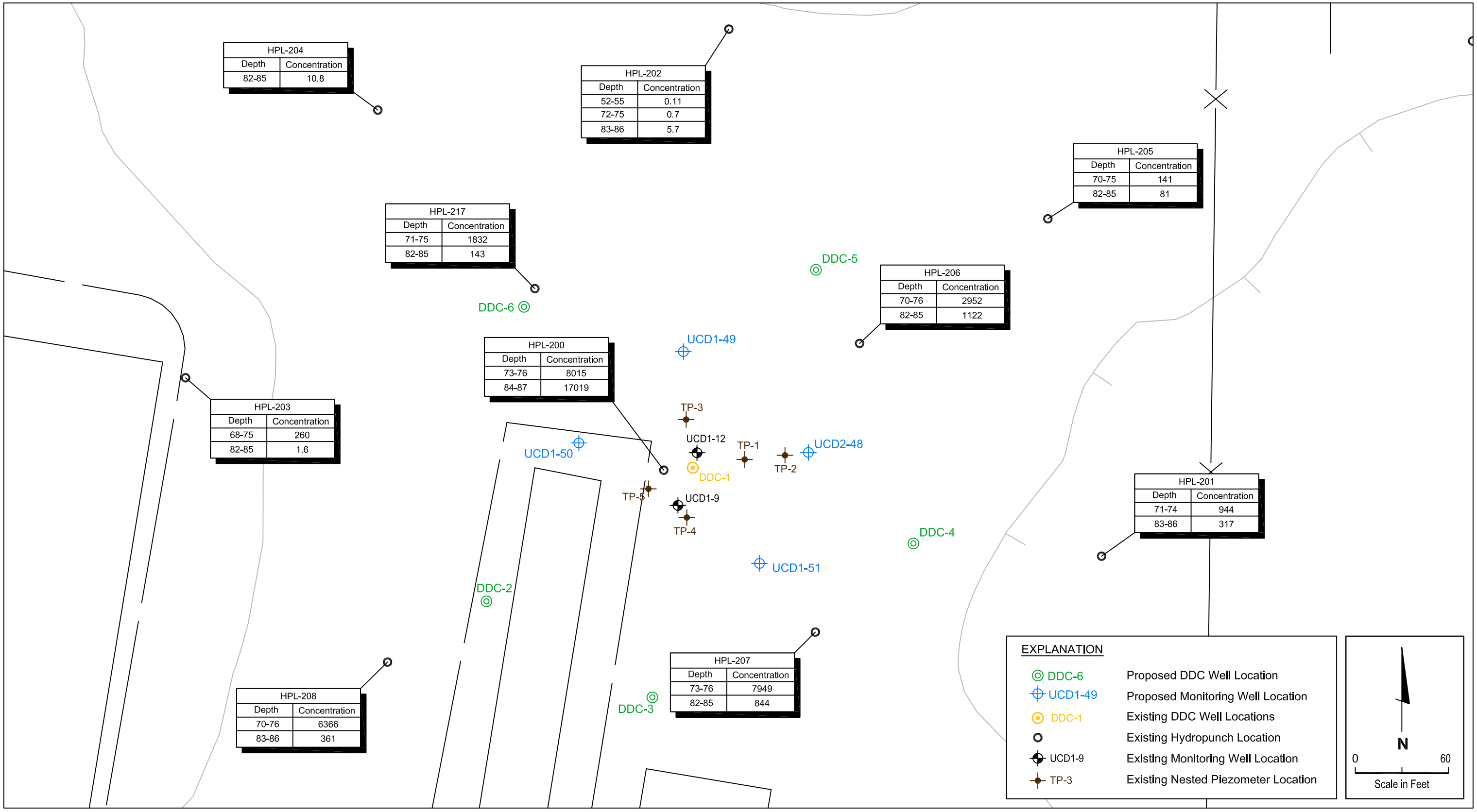
Expanded DDC System Summary Report
LEHR/SCDS
Davis, California



Source: Dames & Moore

VERTICAL GRADIENT PLOT WELL PAIR UCD1-20/UCD2-7

Expanded DDC System Summary Report
LEHR/SCDS
Davis, California



DDC WELLS AND MONITORING WELLS

Expanded DDC System Summary Report
LEHR/SCDS
Davis, California

FIGURE A-4

URS

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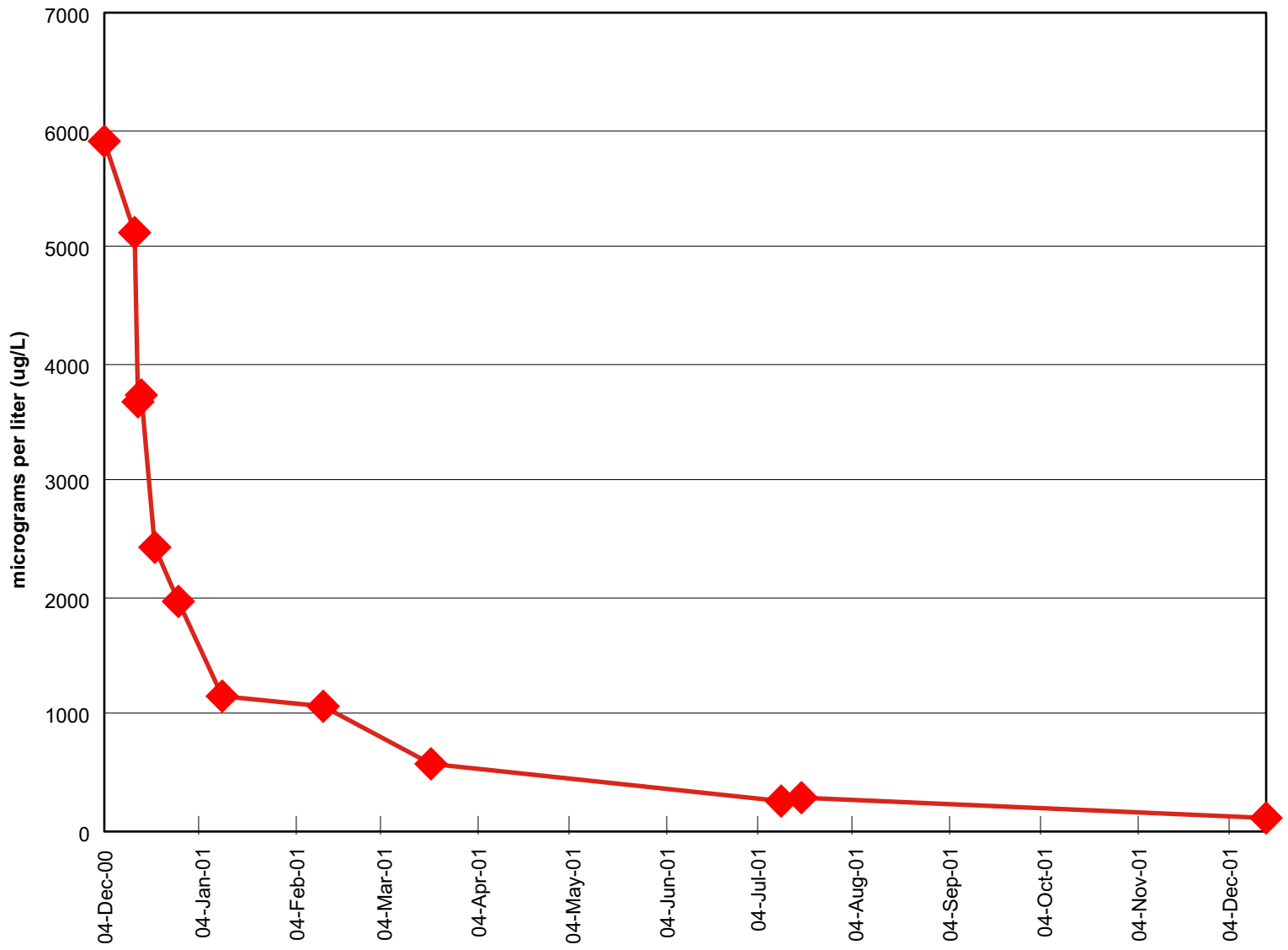
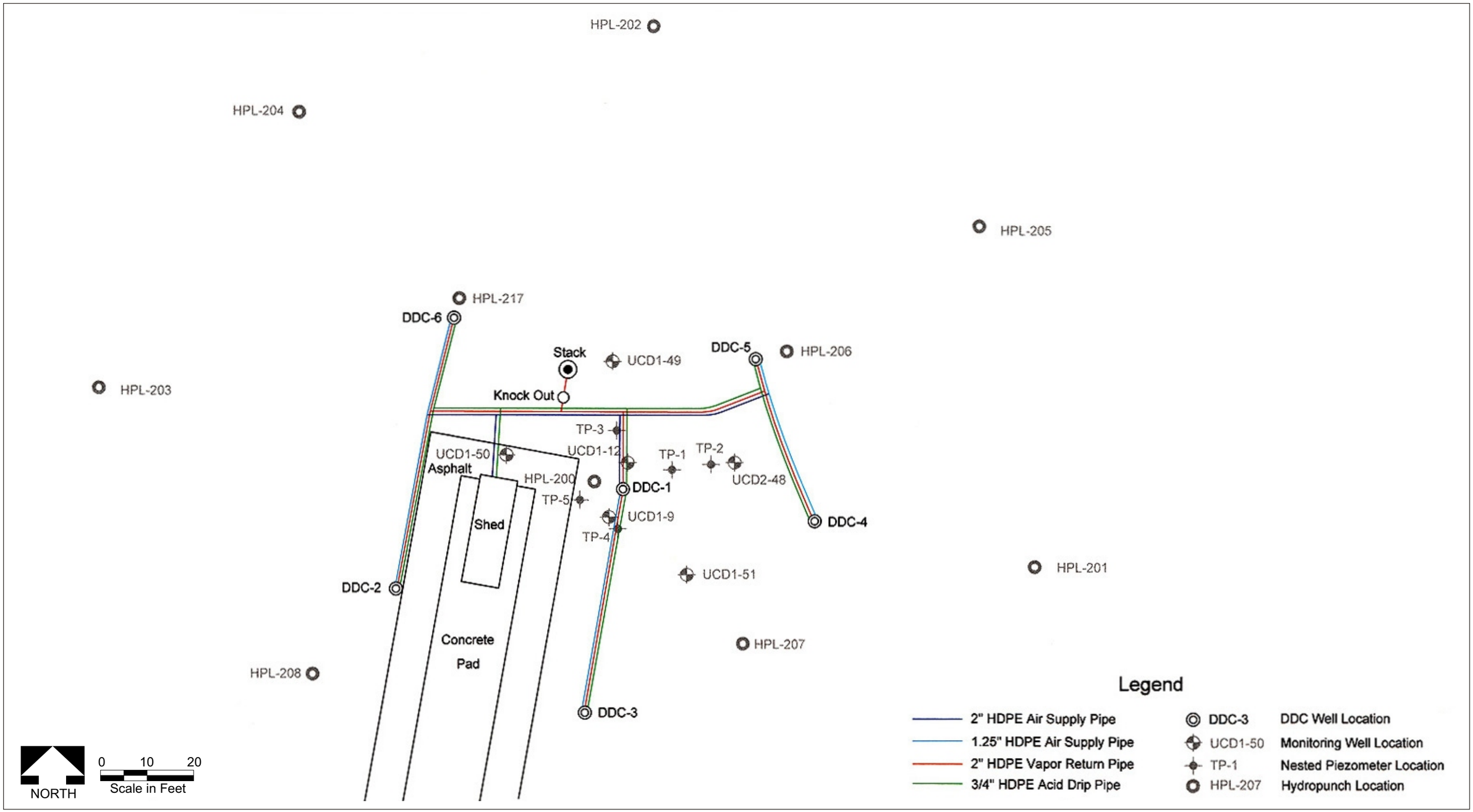


CHLOROFORM CONCENTRATION VS. TIME PLOT - UCD1-12

Expanded DDC System Summary Report
LEHR/SCDS
Davis, California

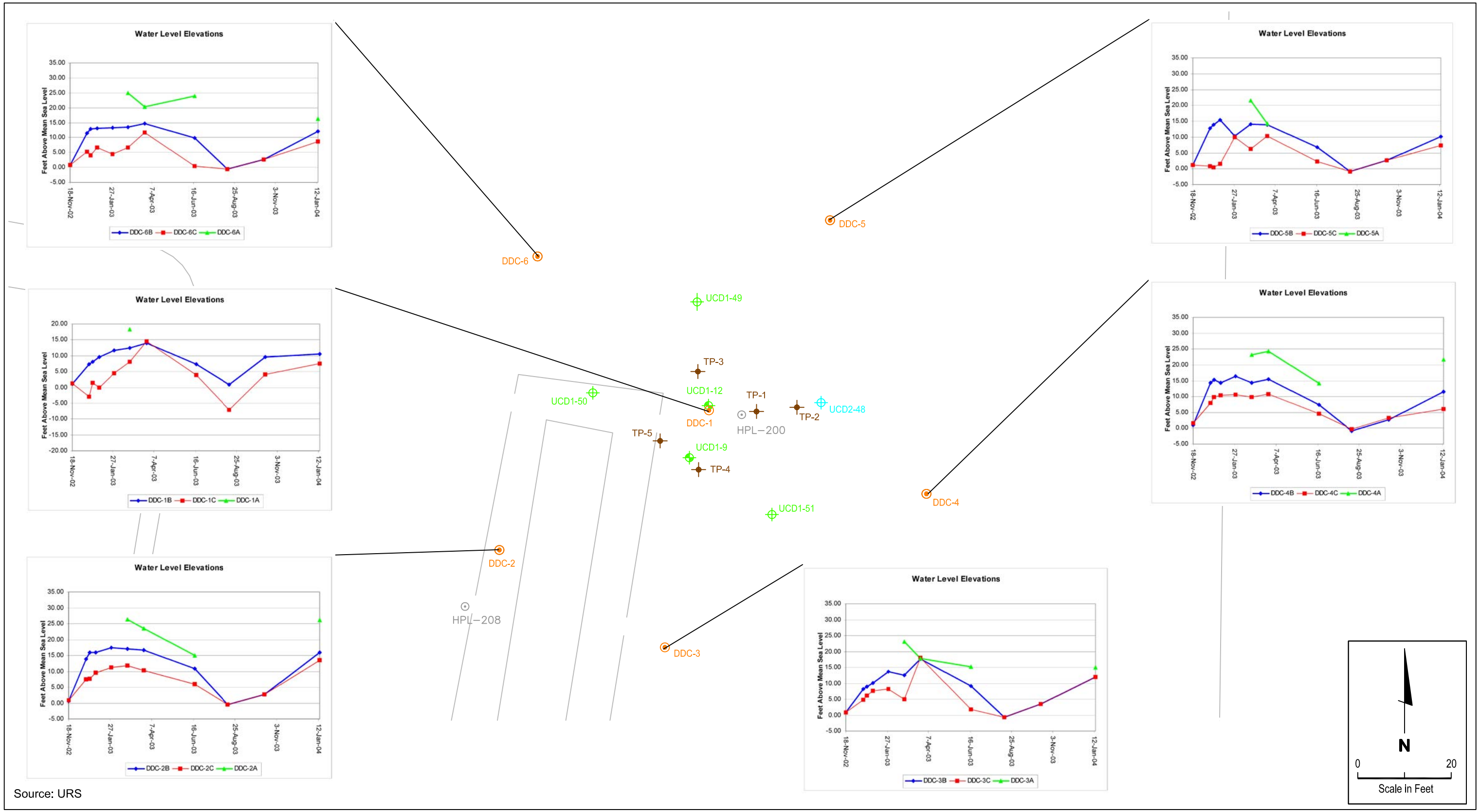


AS BUILT DDC SYSTEM
Expanded DDC System Summary Report
LEHR/SCDS
Davis, California

Source: Wasatch Environmental

P:\25000\25042 LEHR\DDC System Summary Report\Figures Jun 28, 2004 FigA6-DDC-Sys-Asbuilt.cdr

FIGURE A-6



Source: URS

EXPLANATION

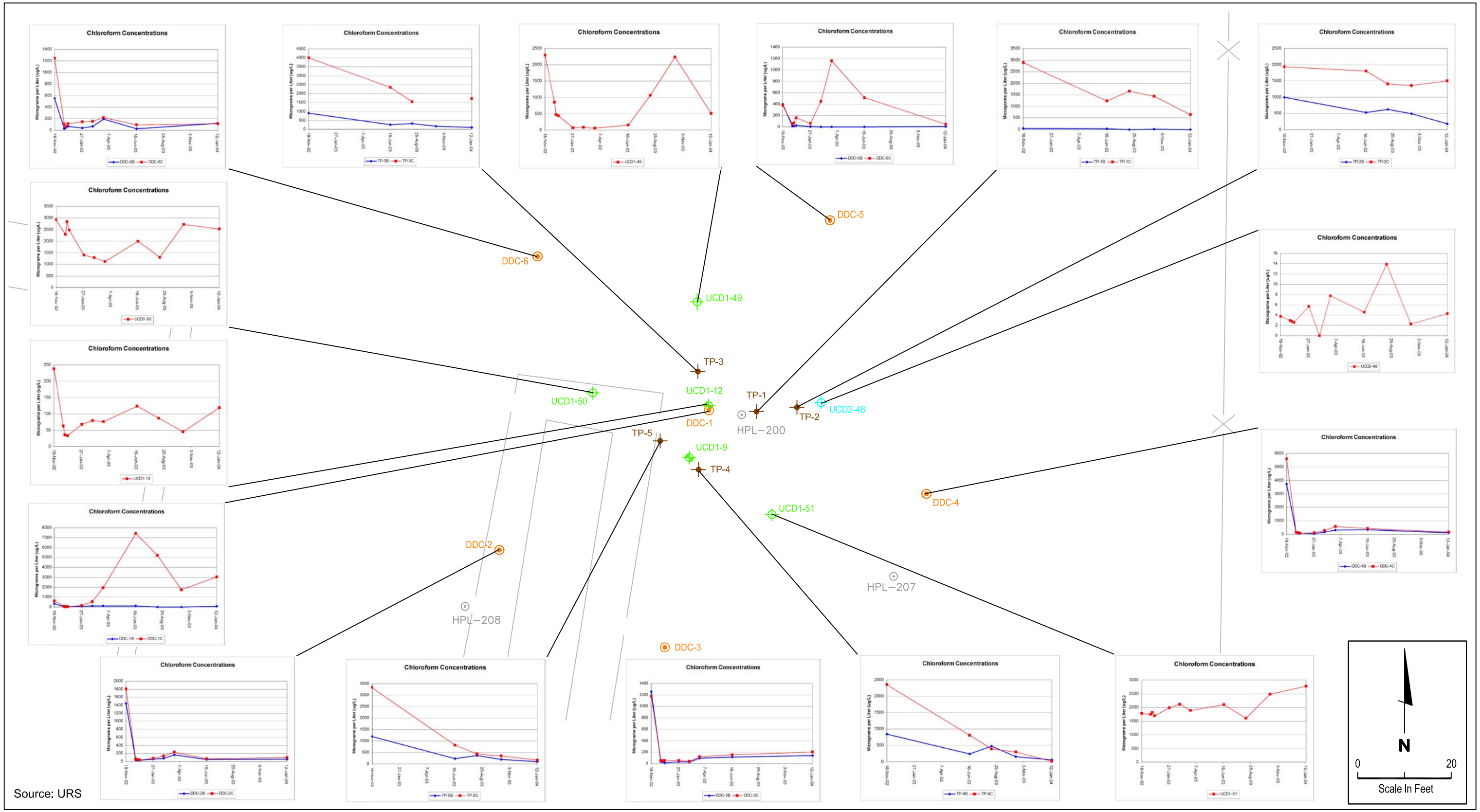
- UCD1-11 HSU-1 Monitoring Well
- UCD2-17 HSU-2 Monitoring Well
- EW2-1 HSU-2 Extraction Well
- IW2-1 HSU-2 Injection Well
- UCD4-33 HSU-4 Monitoring Well
- 22N Former Irrigation Well
- STPO Surface Water Sample Location
- LS-1 Stormwater Sample Location
- DDC-1 DDC Well Location
- TP-1 Nested Piezometer Location
- HPL−210 Hydropuch Location

WATER LEVEL DATA

Expanded DDC System Summary Report
LEHR/SCDS
Davis, California

FIGURE A-7

P:\25000\25042 LEHR\Graphics Mar 29, 2005 FigA7-Map-wHydrographs.DWG



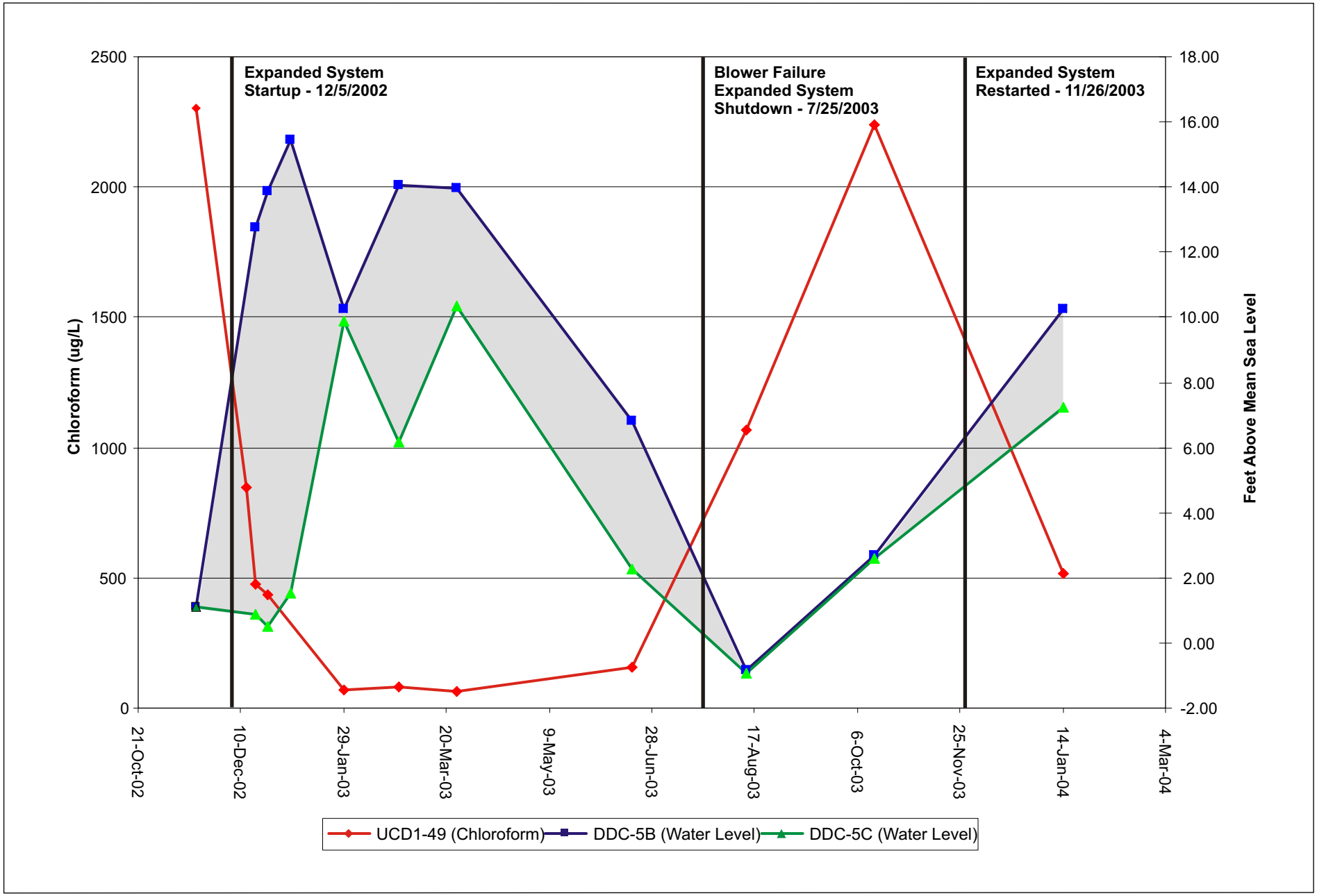
EXPLANATION

- UCD1-11 HSU-1 Monitoring Well
- UCD2-17 HSU-2 Monitoring Well
- EW2-1 HSU-2 Extraction Well
- IW2-1 HSU-2 Injection Well
- UCD4-33 HSU-4 Monitoring Well
- 22N Former Irrigation Well
- STPO Surface Water Sample Location
- LS-1 Stormwater Sample Location
- DDC-1 DDC Well Location
- TP-1 Nested Piezometer Location
- HPL−210 Hydropuch Location

CHLOROFORM CONCENTRATION VS. TIME PLOTS

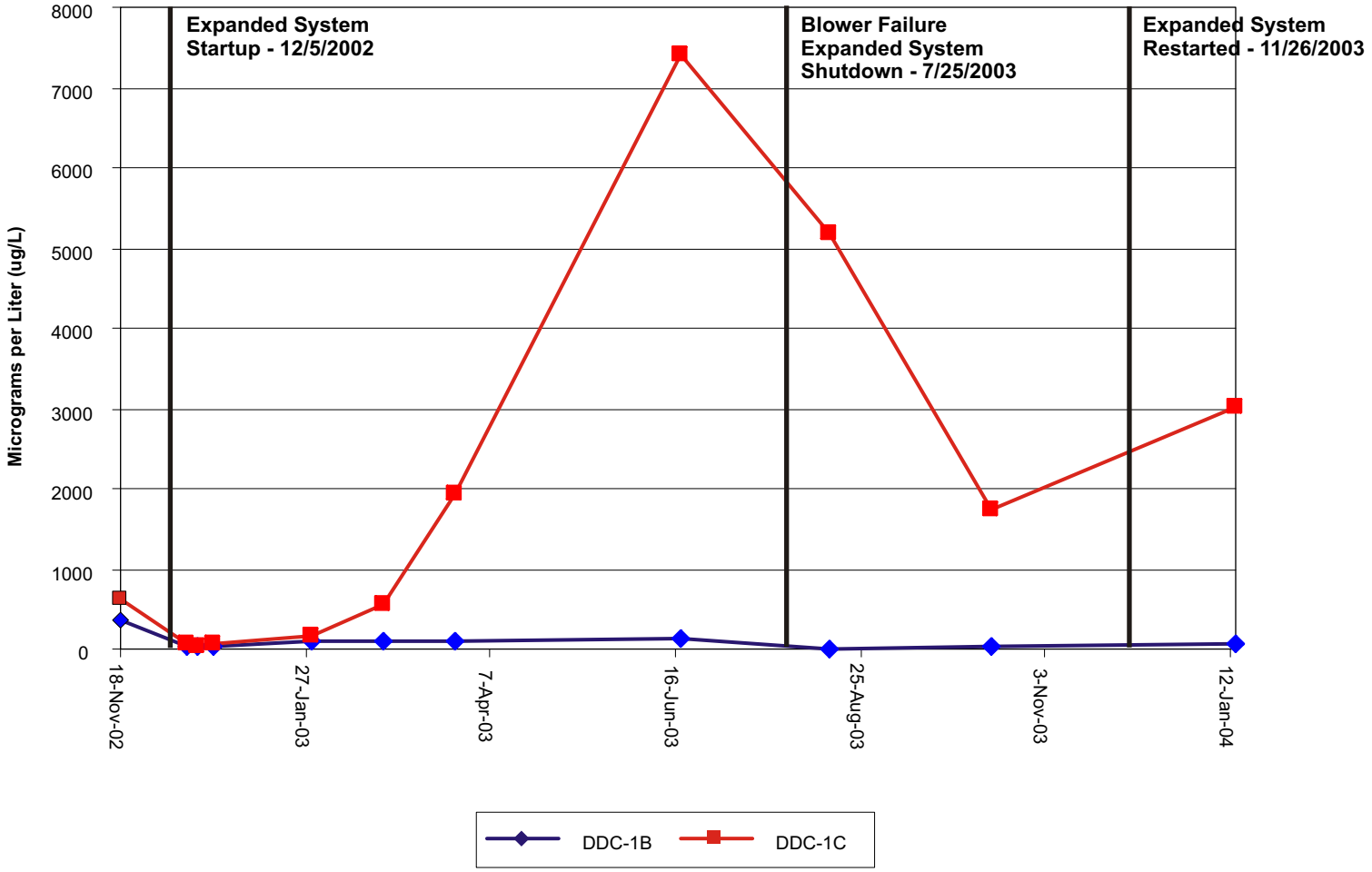
Expanded DDC System Summary Report
LEHR/SCDS
Davis, California

FIGURE A-8



UCD1-49 CHLOROFORM TRENDS VS. OPERATION OF DDC-5

Expanded DDC System Summary Report
LEHR/SCDS
Davis, California



CHLOROFORM CONCENTRATION VS. TIME, WELL DDC-1

Expanded DDC System Summary Report
LEHR/SCDS
Davis, California

Feet bgs

HPL-208 | DDC-2 | UCD1-12 | HPL-200 | HPL-207 | HPL-210 | HPL-218 | HPL-231 | HPL-221 | UCD1-27 (Zones 1 through 7) | HPL-222 | UCD1-28 | UCD2-29 *1997 | EW2-1

0
20
40
60
80
100
120
140

HSU-1

6,000
6,366
8,015
7,949
926
128
361
17,015
644
2,328
309
29
209
283
124
156
6.4
9.5
12
17
69
<1
1
<1
76
139
135*

HSU-2

HSU-3

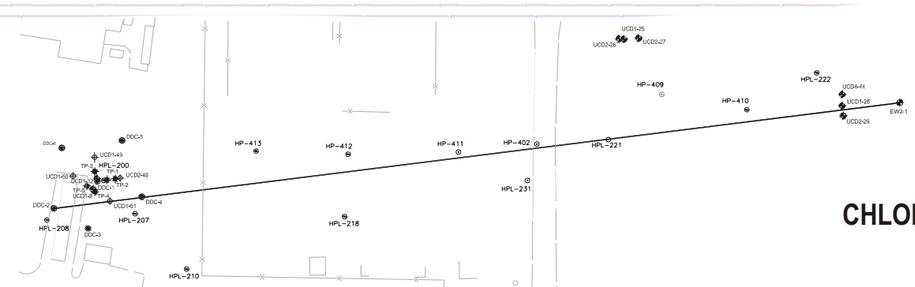
0 30 60
Scale in Feet

Legend

- HSU Contact
- Permeable - sands and gravels
- Low Permeability - clayey sands, silts and clays
- Average Groundwater Level
- Hydropunch Sample Location
- Monitoring Well Screened Interval
- 29 Chloroform, ug/L

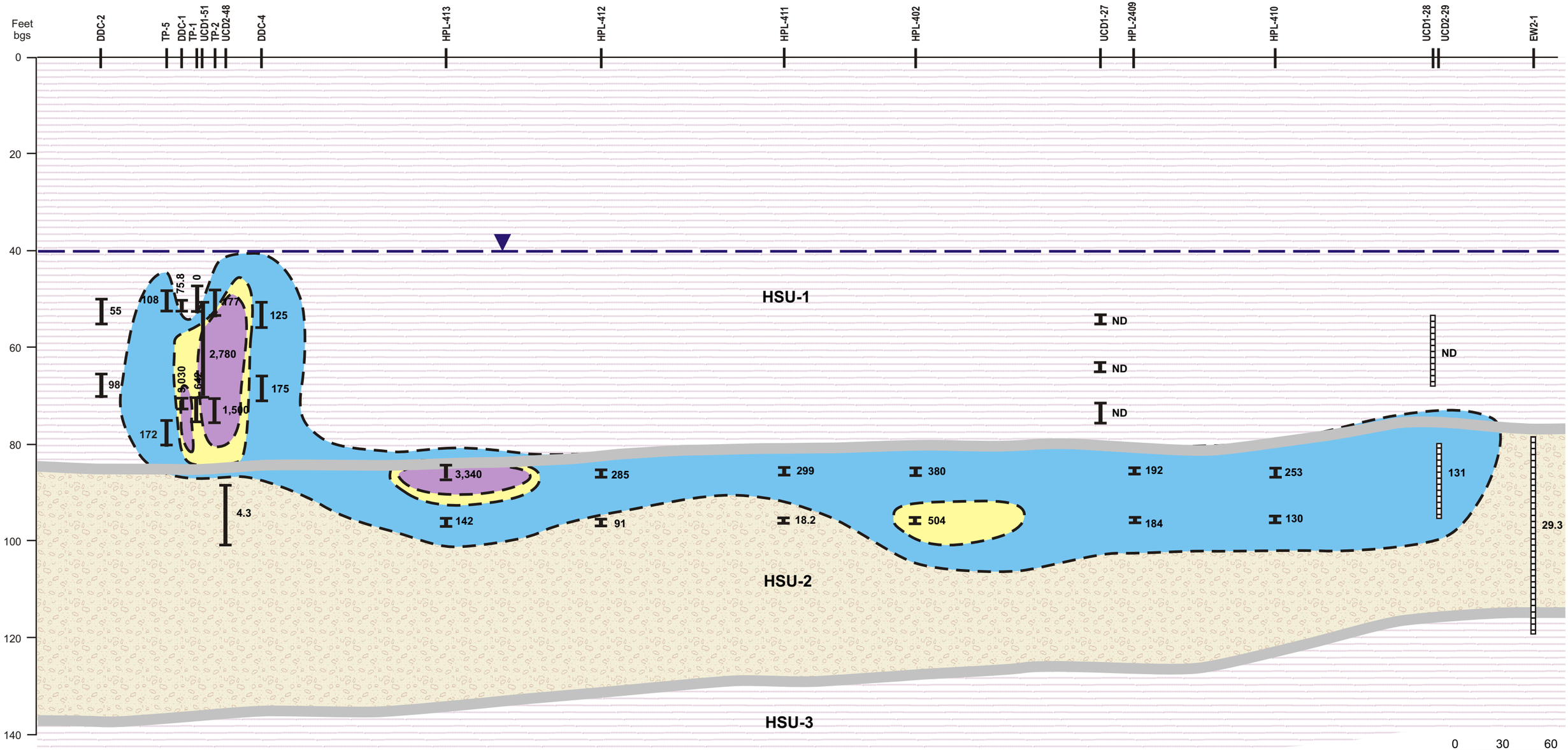
Chloroform Contours

- >100 to <500
- >500 to <1,000
- >1,000 to <5,000
- >5,000 to <10,000
- >10,000 to <15,000
- >15,000



SCHEMATIC CROSS SECTION CHLOROFORM CONTOUR 1995-1996

Expanded DDC System Summary Report
LEHR/SCDS
Davis, California



SCHEMATIC CROSS SECTION CHLOROFORM CONTOUR 2004

Expanded DDC System Summary Report
LEHR/SCDS
Davis, California

APPENDIX B

Additional Characterization of Chloroform Report

APPENDIX B

CHARACTERIZATION OF CHLOROFORM IN GROUNDWATER/ IRA CAPTUURE ZONE ANALYSIS

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B.3 FIELD PROGRAM

B.4 DISCUSSION OF RESULTS

B.5 CAPTURE ZONE ANALYSIS

B.6 RECOMMENDED OPERATION OF IRA

B.7 REFERENCES

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Figure B-2 Chloroform Concentrations at 85 Feet bgs

Figure B-3 Chloroform Concentrations at 95 Feet bgs

Figure B-4 Chloroform Concentration in HSU-2 versus Time, 1998-2003

List of Attachments

Attachment B-1 Chloroform Isoconcentration Contours – HSU-2, 1997

Attachment B-2 Predicted Capture Zone, January to December

B.1 INTRODUCTION

This appendix presents additional evaluation of the distribution, remediation and containment of chloroform in groundwater at the UC Davis LEHR/SCDS. Chloroform and other site constituents are being remediated by an Interim Removal Action (IRA) at LEHR/SCDS implemented in 1998. More recently, UC Davis prepared a Work Plan, Evaluation of Groundwater Chloroform Conditions (Work Plan; MWH, 2003) in response to comments on the Draft 2002 Annual Groundwater Monitoring Report (2002 Annual, Brown & Caldwell, 2003). Based on comments from the California Regional Water Quality Control Board (RWQCB) to the 2002 Annual, the operating conditions of the IRA need to be optimized through an evaluation of the IRA extraction rate, the Berryessa Mixing System and injection well operation. The RWQCB requested UC Davis to provide additional support for the IRA extraction rate during the remaining operational time period or until the Feasibility Study recommends alternatives or enhancements to the IRA, if necessary.

The groundwater IRA was constructed in 1997 and began operation in May 1998 in order to prevent off-site migration of chloroform and other volatile organic compounds (VOCs) in groundwater. The original design of this system focused on extracting and treating chloroform and other VOCs from HSU-2 (Dames & Moore, 1997). The groundwater IRA is an extraction and treatment system that uses air stripping to remove VOCs from groundwater. Treated effluent is discharged back into HSU-2 upgradient of the Site in well IW2-1 (Figure B-1), or used seasonally to irrigate selected pastures near the treatment system. This IRA has been operating since 1998 and has removed approximately 90 lbs of chloroform from HSU-2 during its period of operation from 1998 to 2003.

B.1.1 OBJECTIVE

The objective of the this work is to collect additional groundwater samples from HSU-2 to assess the current distribution of chloroform in groundwater at LEHR/SCDS and to use this data to evaluate IRA extraction performance and develop efficient extraction rates for ongoing operation. The original IRA extraction rates were developed based on chloroform in groundwater data collected in 1995 and 1996 (Dames & Moore, 1997) prior to operation of the IRA. HSU-2 physical characteristics (hydraulic conductivity, gradient, storativity, yield, etc.) were determined during an aquifer pumping test performed on HSU-2 using EW2-1 as the pumping well and other Site wells as observation wells. Original extraction rates, 120 to 190 gallons per minute (gpm), were successful in removing a large mass of chloroform from HSU-2, but also resulted in excess downward migration of salts and nitrates from HSU-1 to HSU-2. UC Davis will use the current chloroform characterization data to recalculate extraction rates for the most efficient capture scenario. If possible, the optimum extraction rates will also avoid excessive drawdown of salts and nitrate. In addition, optimizing extraction rates will assist in evaluating current and long-term effluent discharge options.

B.2 BACKGROUND

B.2.1 Development of Initial IRA Extraction Rates

Initial HSU-2 groundwater extraction rates considered the lateral extent of chloroform (the indicator VOC) and the physical characteristics of HSU-2 (Dames & Moore, 1997). The lateral and vertical extent of chloroform in HSU-2 at the time was determined by a series of Hydropunch insitu groundwater samples collected in the onsite chloroform plume area (PNNL, 1996, Dames & Moore, 1997). The distribution of chloroform in HSU-2 groundwater in 1997 is shown in Attachment B-1. In 1997, the plume was assumed to be approximately 440 feet wide and to extend 850 feet upgradient of extraction well EW2-1 (Figure B-1, Attachment B-1). IRA extraction rates were designed based on aquifer parameters developed from the pumping test combined with seasonal gradient information.

Based on the model and aquifer pumping test data, capture of the chloroform plume was originally designed based on operating the IRA at two extraction rates: a higher extraction rate in the summer (180 gpm), when regional irrigation wells increased HSU-2 gradients; and a lower rate in the winter (120 gpm), when irrigation wells did not operate. These extraction rates have been successful in reducing off-site migration and chloroform concentrations within the plume since initiating the IRA in 1998. However, effluent monitoring data showed that, by late 1999, TDS and nitrate concentrations were increasing to unacceptable levels in HSU-2 due to effluent discharge/injection.

B.2.2 Modifications to IRA Extraction Rates

In late 1999, at the request of the RWQCB, UC Davis modified operation of the IRA to meet effluent discharge standards for TDS (485 mg/L) and nitrate-N (7.7 mg/L; RWQCB, 1999). The modification included a short- and a long-term plan to manage effluent. The short-term plan included reducing extraction rates to limit transport of excess TDS and other constituents from HSU-1 into HSU-2. The long-term plan included an analysis of treatment/discharge options (Dames & Moore, 2000), which included recommending use of treated IRA effluent as irrigation water for livestock forage and/or mixing with low TDS water obtained from upstream of the Site (Berryessa water). Consistent with these plans, the Land Treatment Pilot Study (LTPS) Work Plan (MWH, 2000) was approved in Fall 2000, and the LTPS Pilot Study began in early 2001.

Initiating use of the Berryessa Mixing system allowed compliance with the effluent injection standards, but resulted in plugging of the injection well with carbonates and bacterial growth. The Berryessa Mixing system was suspended in Fall 2002, when the LTPS irrigation system came on-line. The reduced extraction rates combined with use of the LTPS irrigation system without the biofouling associated with the Berryessa Mixing system has improved the reliability of the IRA while meeting the effluent injection standards for 2003. With additional HSU-2

chloroform data, UC Davis will be able to provide a technical basis to operate the IRA to capture chloroform, while minimizing the excessive drawdown of salts and nitrate.

Build up of calcium carbonate scale still occurs, reducing the injection well capacity, and requires periodic (annual) maintenance to avoid reduction in performance. UC Davis has discussed options for treating the build up of calcium carbonate scale on the IRA system and injection well, but no cost effective alternative to mechanical removal of scale has been identified.

B.3 FIELD PROGRAM

Following Work Plan approval, the chloroform characterization field program was initiated in February 2004 and completed in April 2004. In addition to the planned scope of work in the Work Plan, two additional sample locations were added to support the Expanded Groundwater Source Removal Pilot Test presented in Appendix A (Brown & Caldwell, 2004). Hydropunch samples were collected from the sample locations shown on Figure B-2 and B-3.

B.4 DISCUSSION OF RESULTS

Results of the Hydropunch sample collection are summarized in Table B-1 and Figures B-2 and B-3. Complete results for all VOCs detected in groundwater samples will be presented in the 2004 Annual Report.

For the purposes of this assessment, HSU-2 was divided into three zones consistent with the original capture zone analysis (Dames & Moore, 1997). These three zones included:

- Upper zone – 80 to 95 feet bgs;
- Middle zone – 95 to 105 feet bgs; and
- Deep zone – 105 to 120 feet bgs.

As described in the Groundwater IRA Work Plan, the Upper zone is a transition between HSU-1 and HSU-2 and is comprised of fine sand that becomes progressively more coarse grain with depth (Dames & Moore, 1997). The Middle zone is comprised of relatively uniform gravels and is the zone with the highest conductivity and was used to design the IRA extraction rates. Overall, HSU-2 has a hydraulic conductivity of approximately 1500 feet/year (Dames & Moore, 1997). The Deep zone of HSU-2 is the formation boundary between the Putah Creek Fan and the Tehama formation, with medium to fine sands and a hydraulic conductivity similar to the Upper zone.

The IRA extraction well EW2-1 is screened from 80 to 120 feet bgs, to extract water throughout HSU-2. Monitoring wells in the vicinity (UCD2-26, UCD2-39) have 15-feet screened intervals between 85 to 100 feet bgs, focusing on the upper and middle zones.

The Deep zone was not sampled in 2004 as outlined in the Work Plan. The data from the 1995 Annual showed that chloroform was rarely detected in the Deep zone and when detected concentrations did not exceed 2 ug/L.

As shown in Table B-1 and Figures B-2 and B-3, Upper zone chloroform concentrations were higher than Middle zone concentrations with the exception of HP-401 and 402, where Middle zone concentrations were higher than Upper zone. Upper zone chloroform concentrations decline sharply along the west to east transect formed by HP-413 (to the west, near the source) and HP-410 (to the east near the extraction well IW2-1). The Upper zone concentration in western-most sample (HP-413, Figure B-2) is 3,340 ug/L, while the remaining samples range from 192 to 380 ug/L. Middle zone concentrations of chloroform did not vary as much from west to east, varying from 18 to 504 ug/L, with most samples ranging from 130 to 180 ug/L.

The chloroform concentrations trends from the Upper and Middle zones were similar along the north-south transect formed by HP-406 (to the north) and HP-405 (to the south). Chloroform concentrations were at or below detection limits at HP-406, peaked in the center of the area sampled, HP-402, and declined again to the south at HP 405. The north/south width of the Middle zone chloroform plume (1.0 ug/L) is approximately 230 feet as shown on Figure B-3. These results indicate a more narrow chloroform plume than was observed in the 1997 Capture Zone Analysis. This current width of the chloroform plume in the Middle zone will be used to calculate the extraction rate required by the IRA to achieve capture of the chloroform plume.

B.6 CAPTURE ZONE ANALYSIS

A capture zone analysis was performed using the same approach as used for the original design of the IRA (Dames & Moore, 1997). Assumptions for this analysis were based on the following:

- Confined aquifer steady state conditions;
- Aquifer thickness of 41 feet;
- Average hydraulic conductivity (1024 feet/day) applied to the entire 41 feet interval;
- Middle zone plume width of 230 feet; and
- Horizontal HSU-2 gradient measured outside the capture zone (wells UCD2-17 and UCD2-07).

As calculated in the original design, two simple equations based on HSU-2 dimensions and conductivity, along with the horizontal gradient, determine the pumping rate required to capture a portion of the HSU-2 plume. The following capture zone model was comprised of the following equations (Todd, 1980, Grubb, 1993):

$$y_{max} = +/- Q/(2Ti)$$

Where:

Y_{max} = the half width of the capture zone as the capture zone approaches infinity (feet);
T = the transmissivity of the aquifer ($feet^2$/day);
i = the hydraulic gradient (feet/feet); and
Q = the extraction pumping rate ($feet^3$/day).

The estimated extraction rate is evaluated to insure that the capture zone will be at least 250 feet wide. This is accomplished by using the following formula:

$$x = -y/(\tan(2\pi Tiy/Q))$$

Where:

x = the direction up and downgradient of the well (feet);
y = the direction from the centerline of the capture zone to the edge (feet);
T = the transmissivity of the aquifer (feet/day);
i = the hydraulic gradient (feet/feet);and
Q = the extraction pumping rate ($feet^3$/day).

These equations show that given constant plume width and aquifer properties, the only variable that effects capture is the horizontal gradient (for a given plume width). To calculate the required extraction rate to achieve capture, gradient information was compiled and input to the model.

The average observed groundwater gradients outside of the IRA capture zone (wells UCD2-07 and UCD2-17) were put into the model. The extraction and pumping rate was adjusted until the half-width of the capture zone (y) equals or exceeds 125 feet for a total width of at least 250 feet to capture the observed chloroform plume (Figure B-3). Average monthly extraction rates were calculated based on water levels and gradient measured monthly in monitoring wells UCD2-17 and UCD2-07, between 2000 to 2003. Since gradient conditions change gradually through the seasons, average monthly gradients were preferred over the original design that modeled capture for summer and winter condition only.

Results of 2004 extraction rates and the capture zone analysis described above are shown on Table B-2. Monthly output from the model is presented in Attachment B-2. Table B-2 presents average monthly required pumping rates to achieve capture of a plume 250 feet wide. 2004 IRA extraction rates varied from approximately 40 to 80 gpm based on average gradient.

Table B-2 also provides the actual monthly extraction rates for 2002 and 2003 for comparison. This demonstrates that the range of extraction rates in 2002 and 2003 were adequate to maintain capture, as shown in Figure B-4. Figure B-4 provides the chloroform concentrations within the IRA capture zone and downgradient of the capture zone. Figure B-4 shows that despite significant IRA down-time in 2001, reduced IRA extraction rates in 2002 and 2003 resulted in overall reduction in chloroform concentrations in HSU-2.

B.7 RECOMMENDED OPERATION OF IRA

The chloroform hydropunch data suggests that the Middle zone chloroform plume is 230 feet wide. Based on average HSU-2 groundwater gradients, the recommended extraction rates presented in Table B-2 are considered adequate to maintain capture of the HSU-2 chloroform plume. These recommended IRA extraction rates (similar to actual 2002 and 2003 rates) will be sufficient to both maintain capture of chloroform and avoid excessive drawdown of salts and nitrate. As shown in Table B-2, the recommended extraction rates are slightly higher than the required extraction rates (based on average gradients), to provide a safety factor and to allow for seasonal variation in groundwater conditions.

The calculated capture zone is conservative because the hydraulic conductivity (1,024 feet/day) is dominated by the Middle zone conductivity. This conductivity was applied throughout the entire 40 feet thickness of HSU-2.

This capture zone analysis tool along with the 2004 hydropunch data allows more accurate operation of the IRA. Should IRA extraction rates temporarily exceed injection well capacity, the following options may be initiated to maintain operation of the IRA:

- Increase discharge to the LTPS;
- Rehabilitate the uinjection well;
- Replace the injection well; and
- Temporarily discharge to the sanitary sewer.

Pumping at higher levels would probably result in higher chloroform removal rates, but would also result in an increase in the downward migration of salts and nitrate. The recommended IRA extraction rates presented in Table B-2 are compatible with the source treatment occurring with the DDC system reducing chloroform transport from HSU-1 to HSU-2. If the lower IRA extraction rates are used, the effluent discharge standards can be attained without the Berryessa Mixing system.

B.8 REFERENCES

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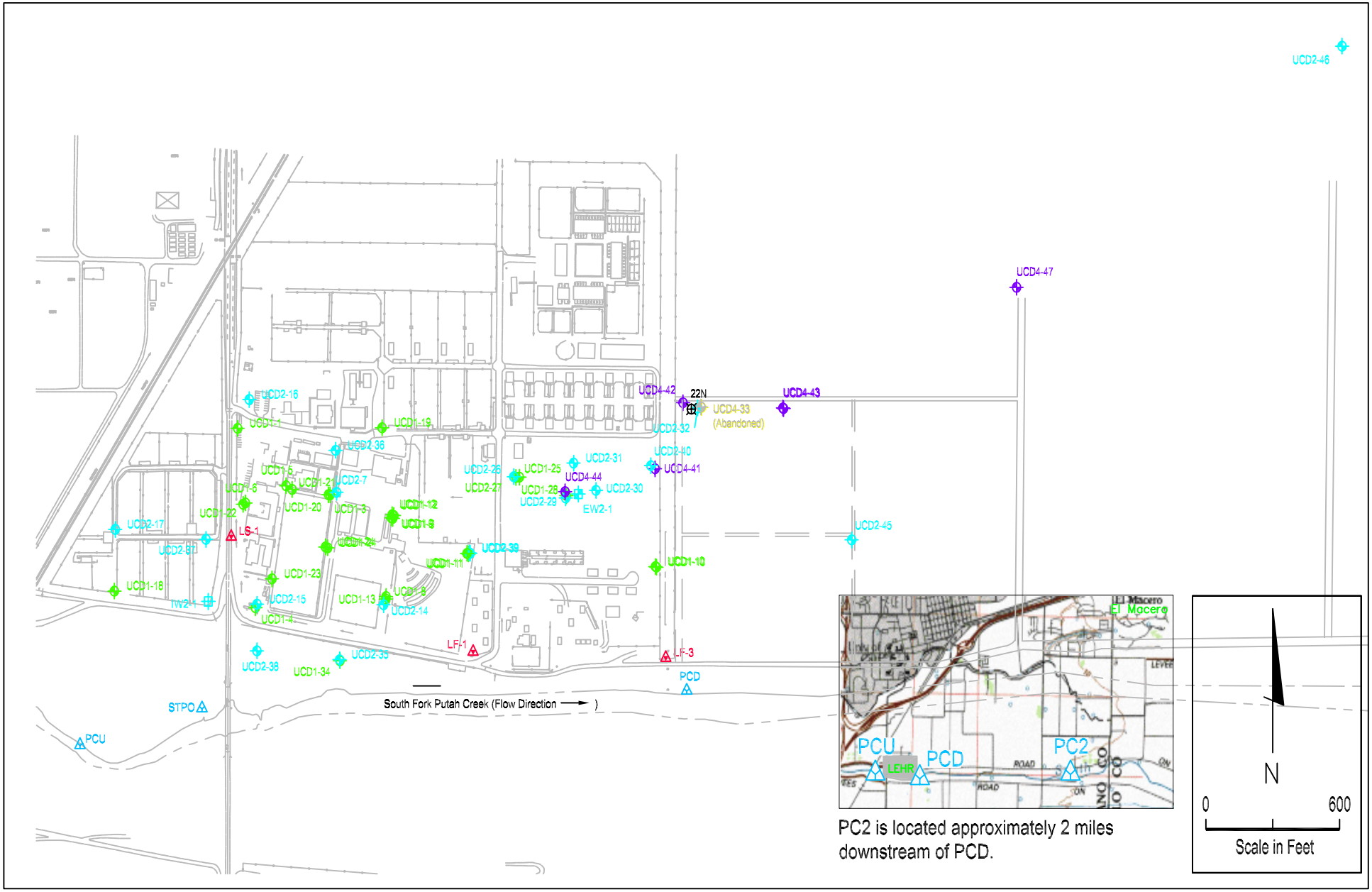
Table B-1
Results of Chloroform Concentrations in 2004 Hydropunch Investigation

Sample ID	Location(1)	Depth (feet bgs)	Date	Chloroform Concentration (ug/L)
HPGW0401	HP 400	85	2/4/04	1.2
HPGW0402	HP 400	95	2/4/04	71.4
HPGW0403	HP 401	85	2/4/04	9.9
HPGW0404	HP 401	95	2/4/04	21.8
HPGW0405	HP 402	85	2/5/04	380
HPGW0406	HP 402	95	2/5/04	504
HPGW0407	HP 403	85	2/5/04	349
HPGW0408	HP 403	95	2/5/04	17
HPGW0409	HP 404	85	2/5/04	12
HPGW0410	HP 404	95	2/5/04	2.0
HPGW0412	HP 405	85	2/5/04	3.0
HPGW0413	HP 405	95	2/5/04	0.87
HPGW0414	HP 406	92	2/6/04	0.51
HPGW0415	HP 406	102	2/6/04	0.50
HPGW0416	HP 407	90	2/6/04	9.2
HPGW0417	HP 407	100	2/6/04	1.2
HPGW0418	HP 408	88	2/6/04	3.9
HPGW0419	HP 408	98	2/6/04	1.3
HPGW0420	HP 409	85	2/16/04	192
HPGW0421	HP 409	95	2/16/04	184
HPGW0422	HP 410	85	2/16/04	253
HPGW0423	HP 410	95	2/16/04	135
HPGW0424	HP 411	85	4/12/04	299
HPGW0425	HP 411	95	4/12/04	18.2
HPGW0426	HP 412	85	4/12/04	285
HPGW0426D(2)	HP 412	85	4/12/04	279
HPGW0427	HP 412	95	4/12/04	91.4
HPGW0427D(2)	HP 412	95	4/12/04	90.8
HPGW0428	HP 413	85	4/12/04	3340
HPGW0429	HP 413	95	4/12/04	142

(1) Please refer to Figures B-2 and B-3 for Locations
(2) Duplicate sample

TABLE B-2
Average Gradient, Range of IRA Extraction Rates
LEHR/SCDS Environmental Restoration

Month	Average Gradient (ft/ft)	Extraction Rate for Capture - Ave Gradient (gpm)	Range of Actual Extraction Rates 2002, 2003 (gpm)	Recommended IRA Extraction Rate (gpm)
January	0.0004773	30	40-50	40
February	0.0005000	31	35-110	40
March	0.0004955	31	30-80	40
April	0.0011477	72	72-80	80
May	0.0006523	41	70-80	50
June	0.0013159	82	85-125	90
July	0.0008545	53	65-115	60
August	0.0009432	59	75-85	70
September	0.0009295	58	65-90	70
October	0.0007205	45	50-65	50
November	0.0006727	42	60-70	50
December	0.0006227	39	47-60	45



PC2 is located approximately 2 miles downstream of PCD.

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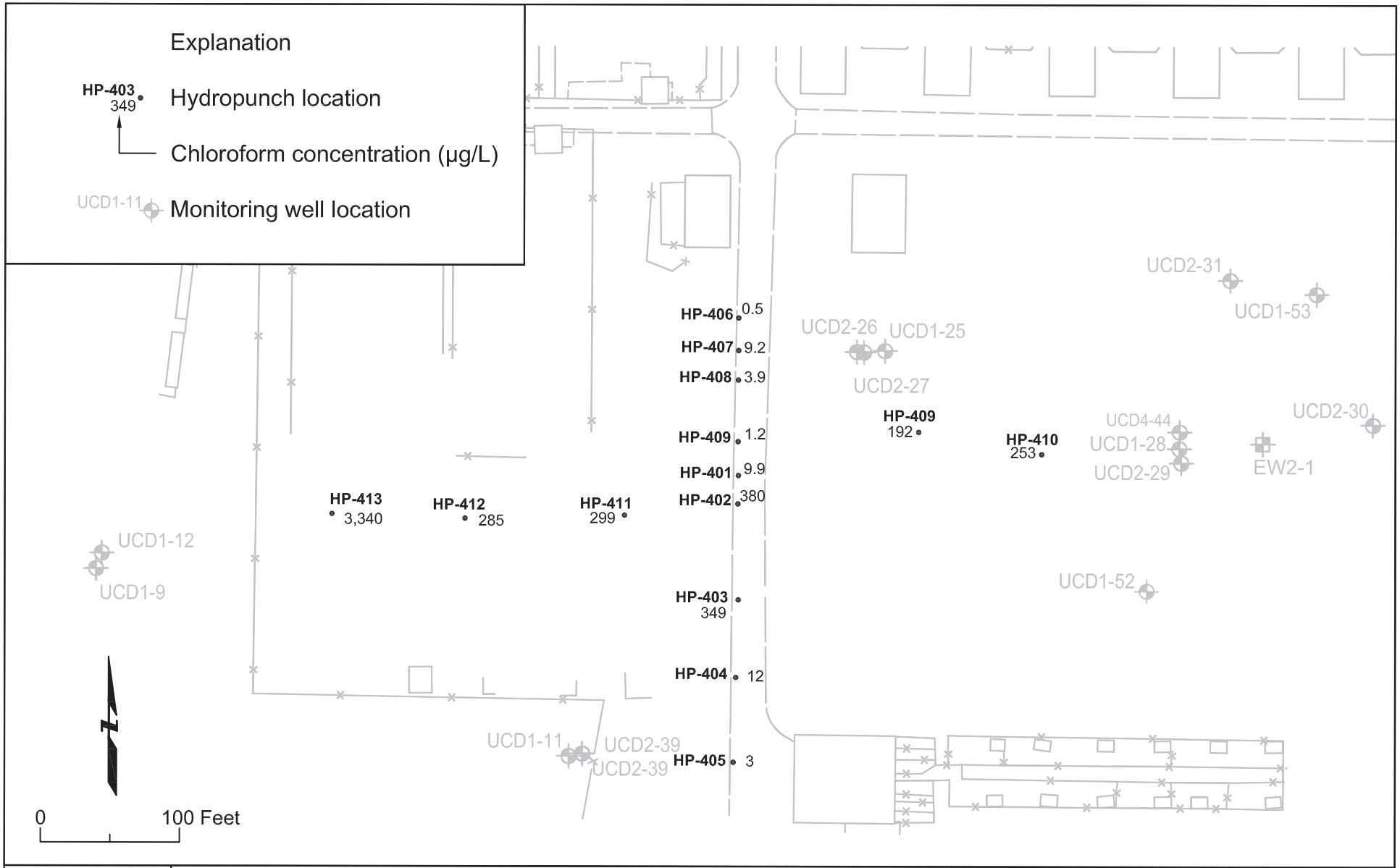

GEOMATRIX

RESULTS OF HSU-2 HYDROPUNCH INVESTIGATION
MIDDLE ZONE CHLOROFORM CONCENTRATIONS
LEHR/SCDS Environmental Restoration
Davis, California

Project No.
9704

Figure
B-2

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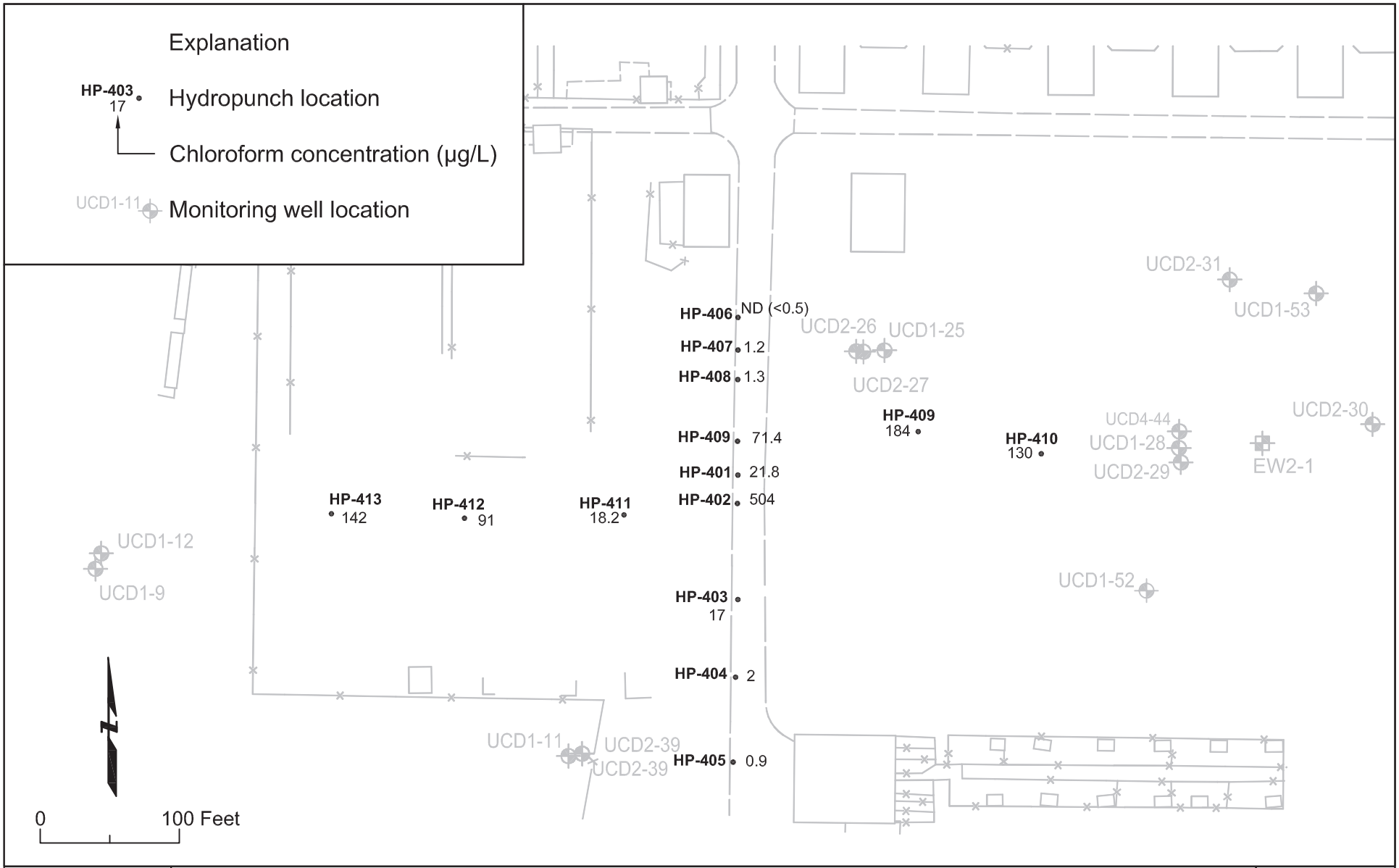
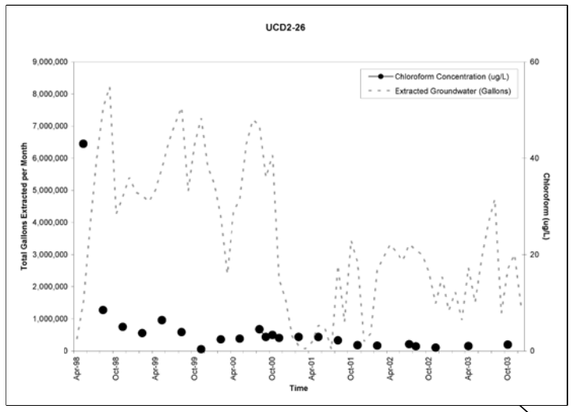


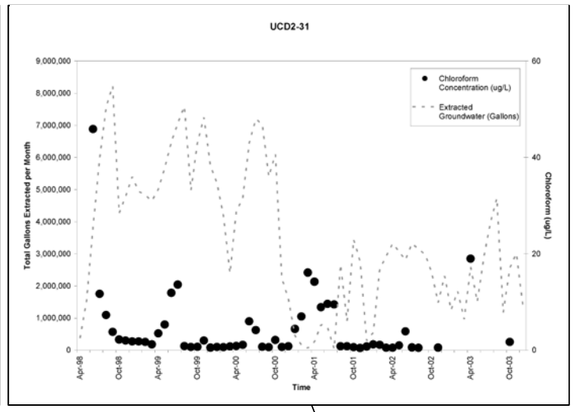
GEOMATRIX

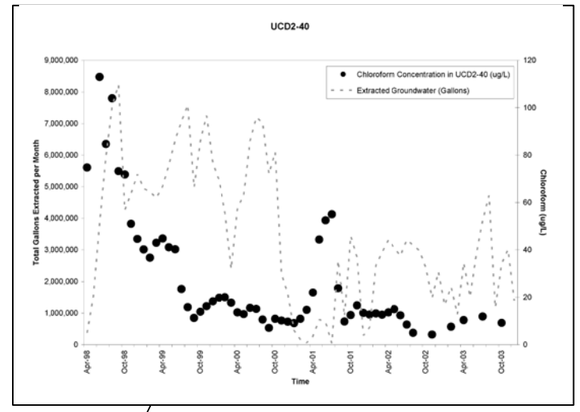
RESULTS OF HSU-2 HYDROPUNCH INVESTIGATION
MIDDLE ZONE CHLOROFORM CONCENTRATIONS
LEHR/SCDS Environmental Restoration
Davis, California

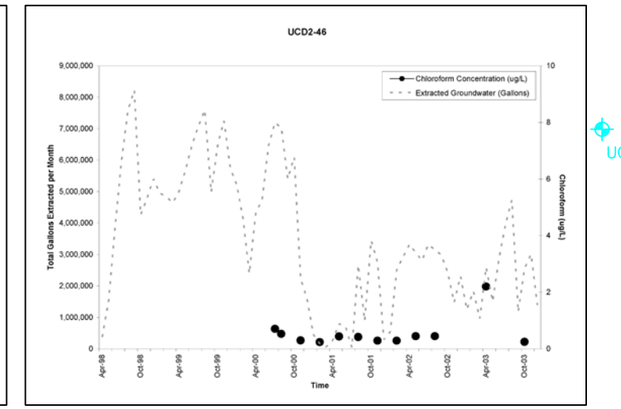
Project No.
9704

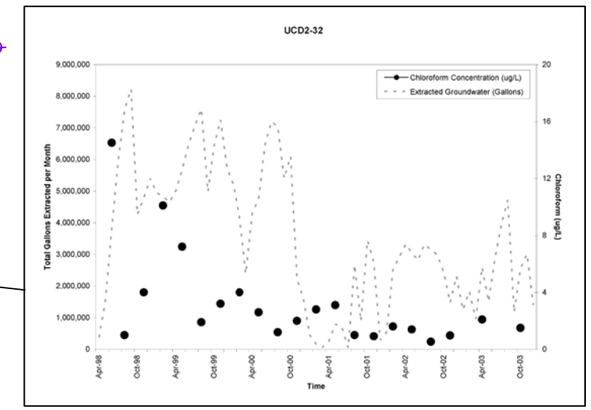
Figure
B-3

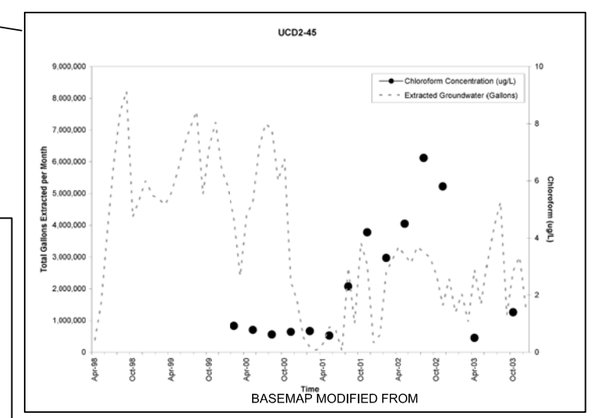


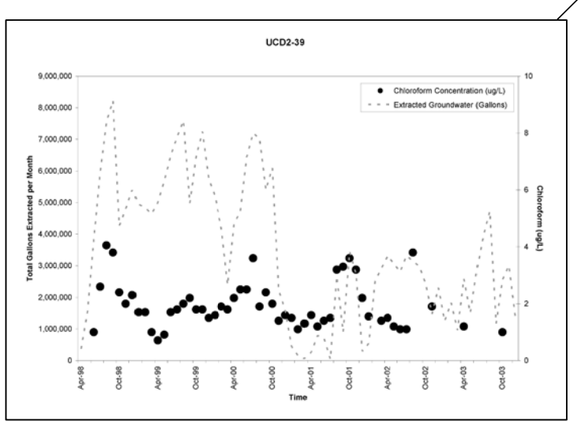


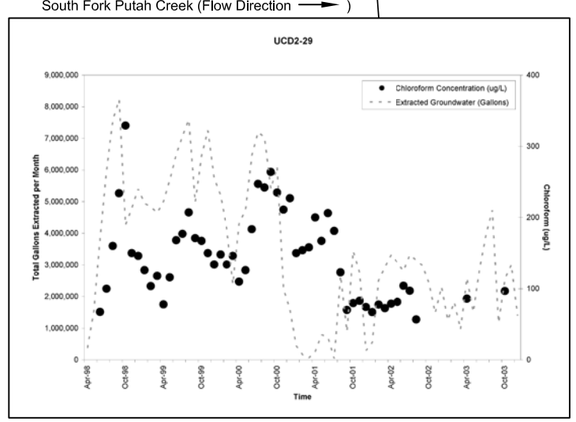


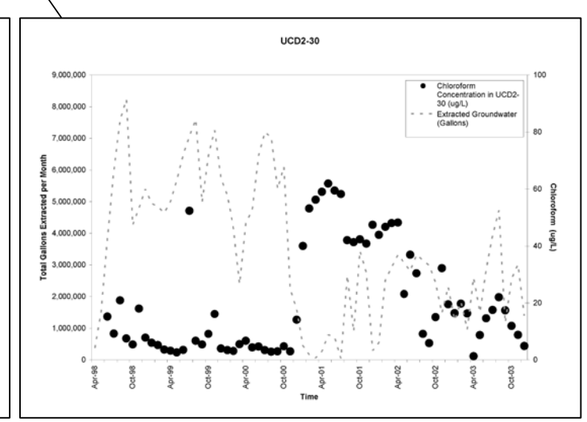


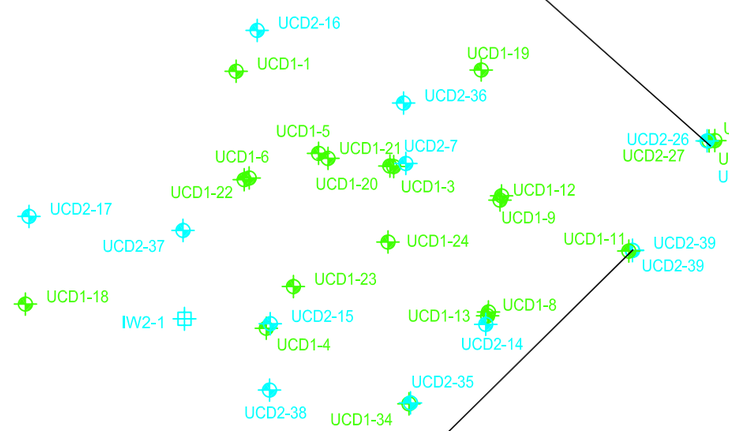


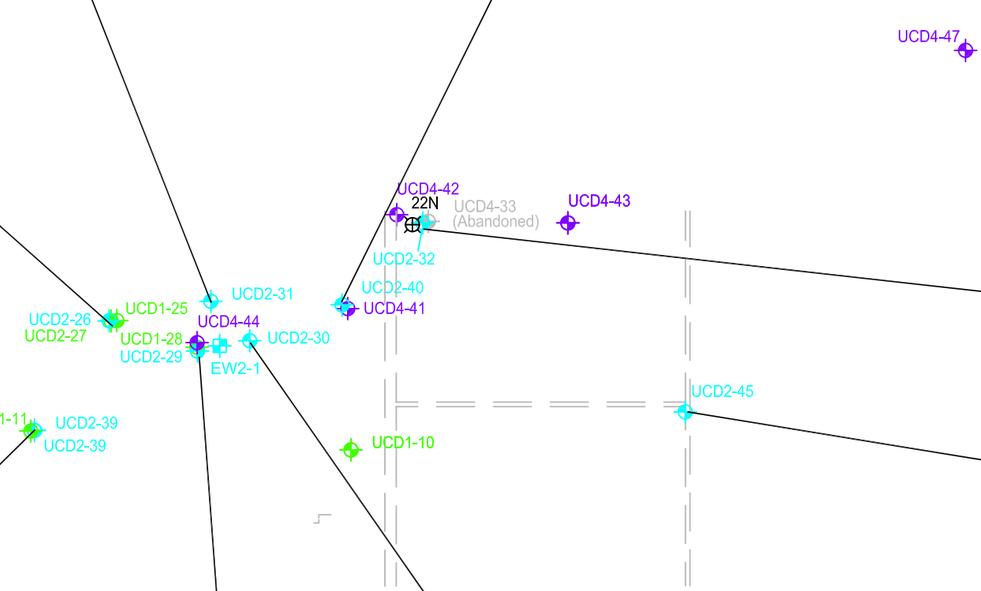












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CHLOROFORM CONCENTRATION HSU-2 VERSUS TIME 1998-2003

LEHR/SCDS Environmental Restoration Davis, California

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	Date 4/23/04	Map No.	B-4

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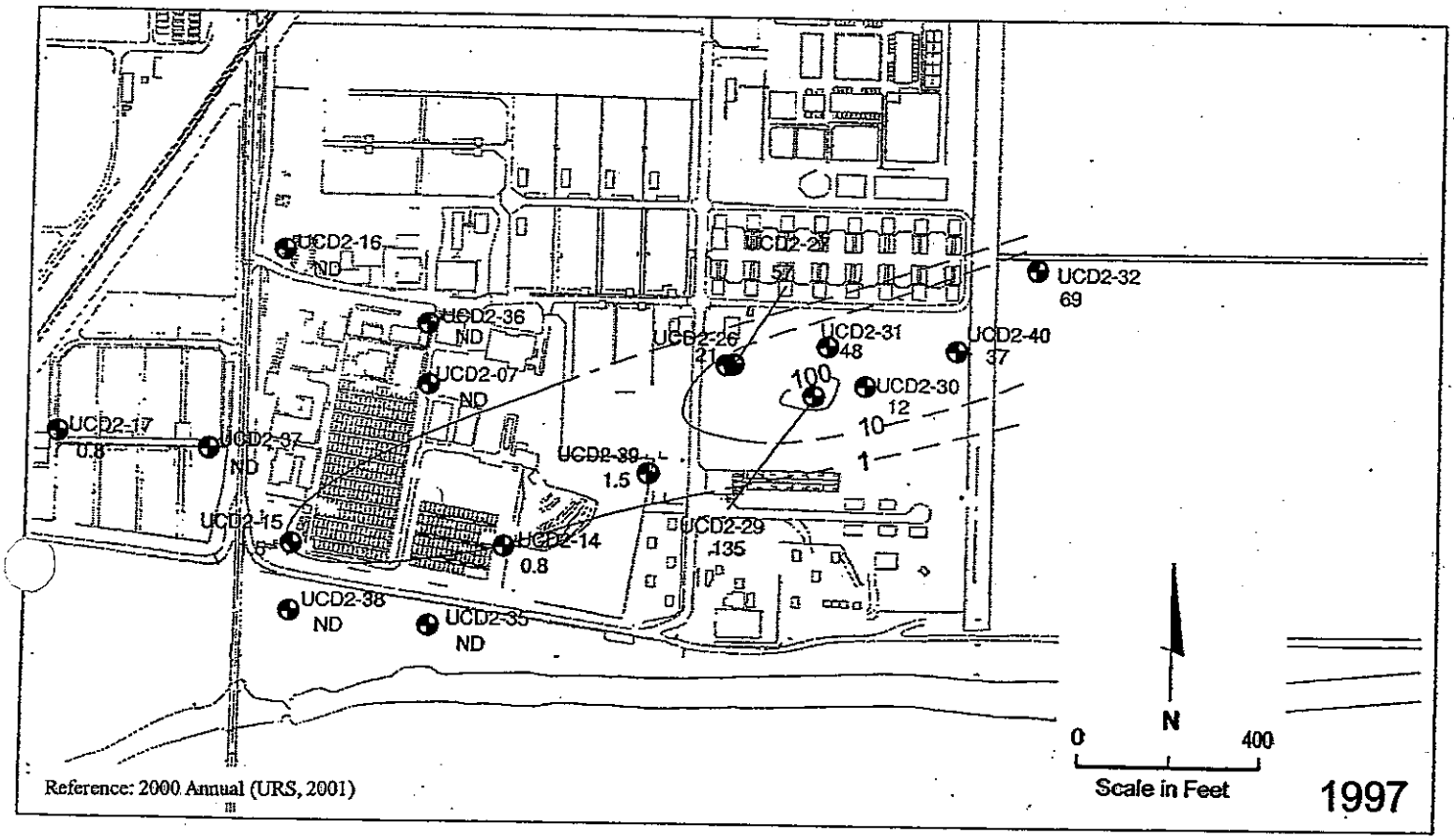
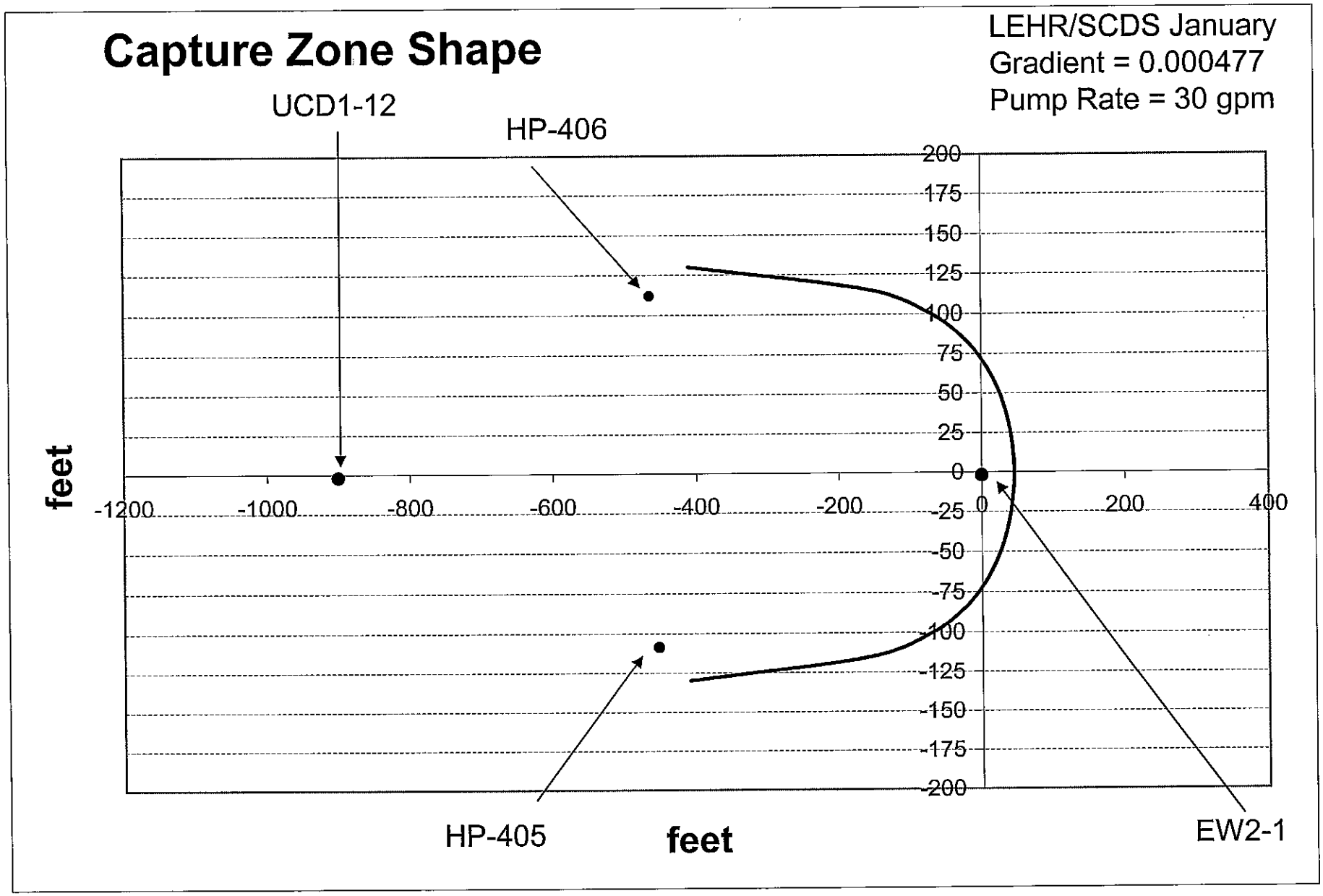


Chloroform Isoconcentration Contours – HSU-2, 1997

Attachment B-1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HP-406
HP-405
EW2-1
feet
feet
200
175
150
125
100
75
50
25
0
-25
-50
-75
-100
-125
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-200
-1200
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-200
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200
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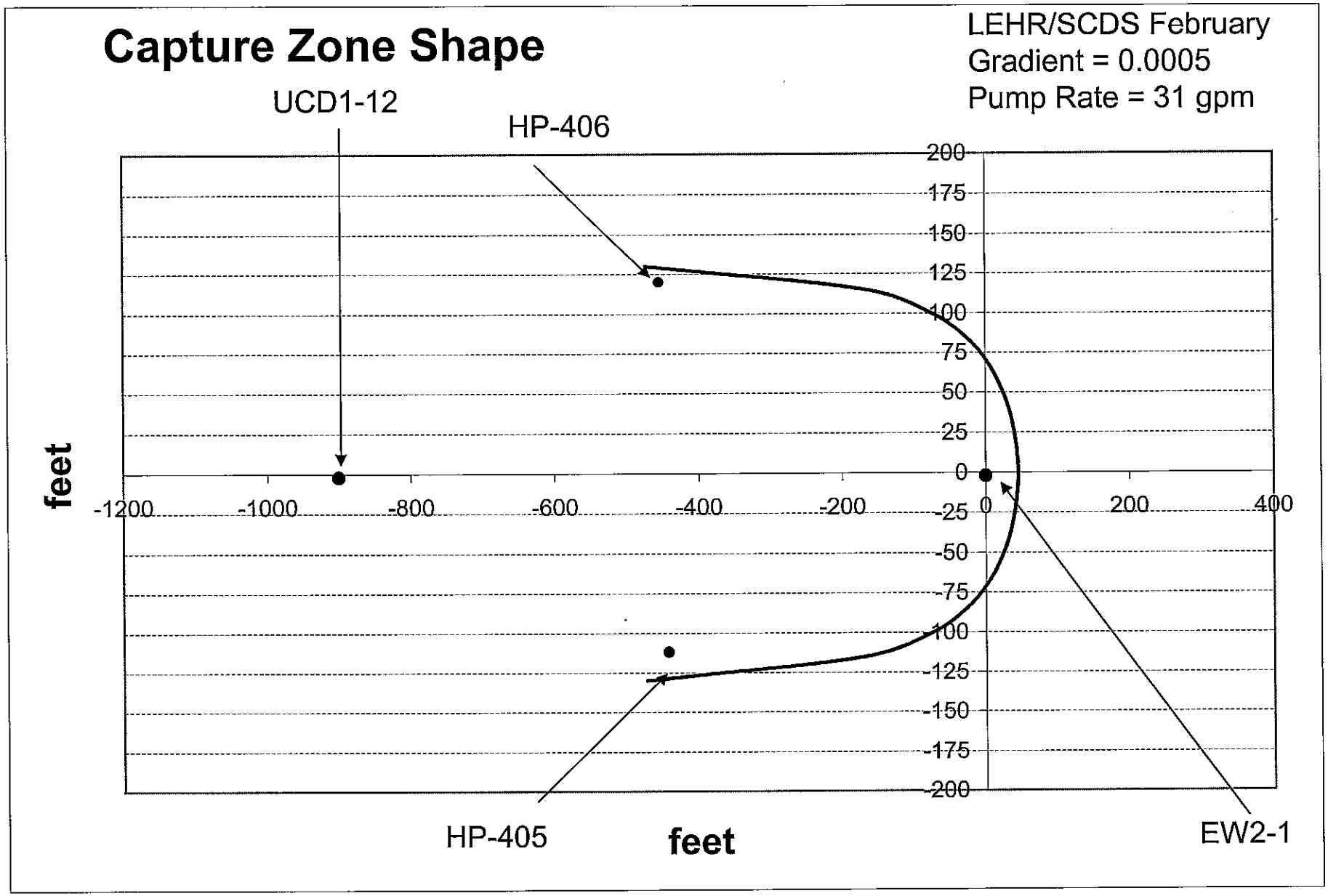
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HP-406
HP-405
EW2-1
feet
feet
-1200
-1000
-800
-600
-400
-200
0
200
400
200
175
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50
25
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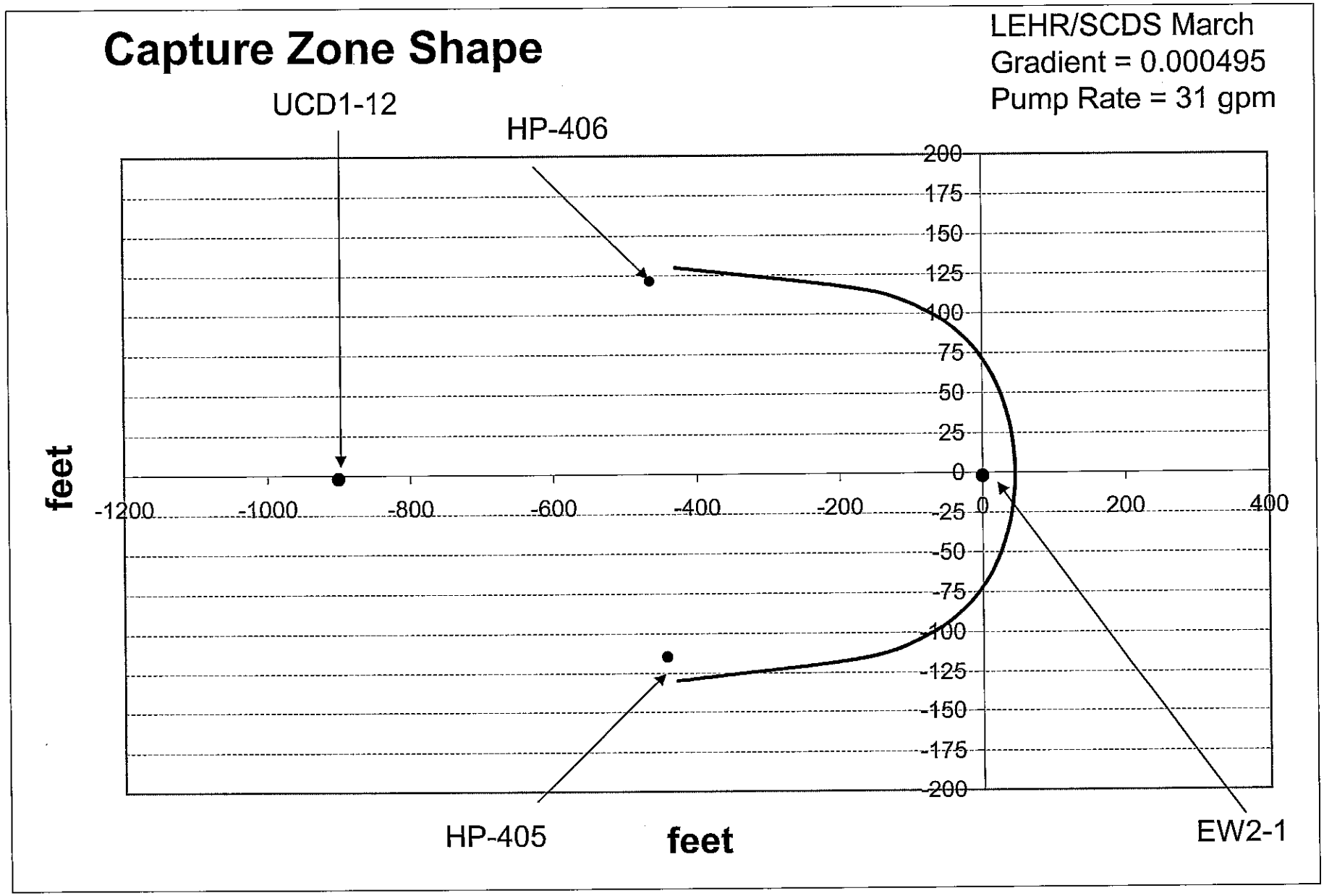
-200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HP-405
EW2-1
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feet
-1200
-1000
-800
-600
-400
-200
0
200
400
200
175
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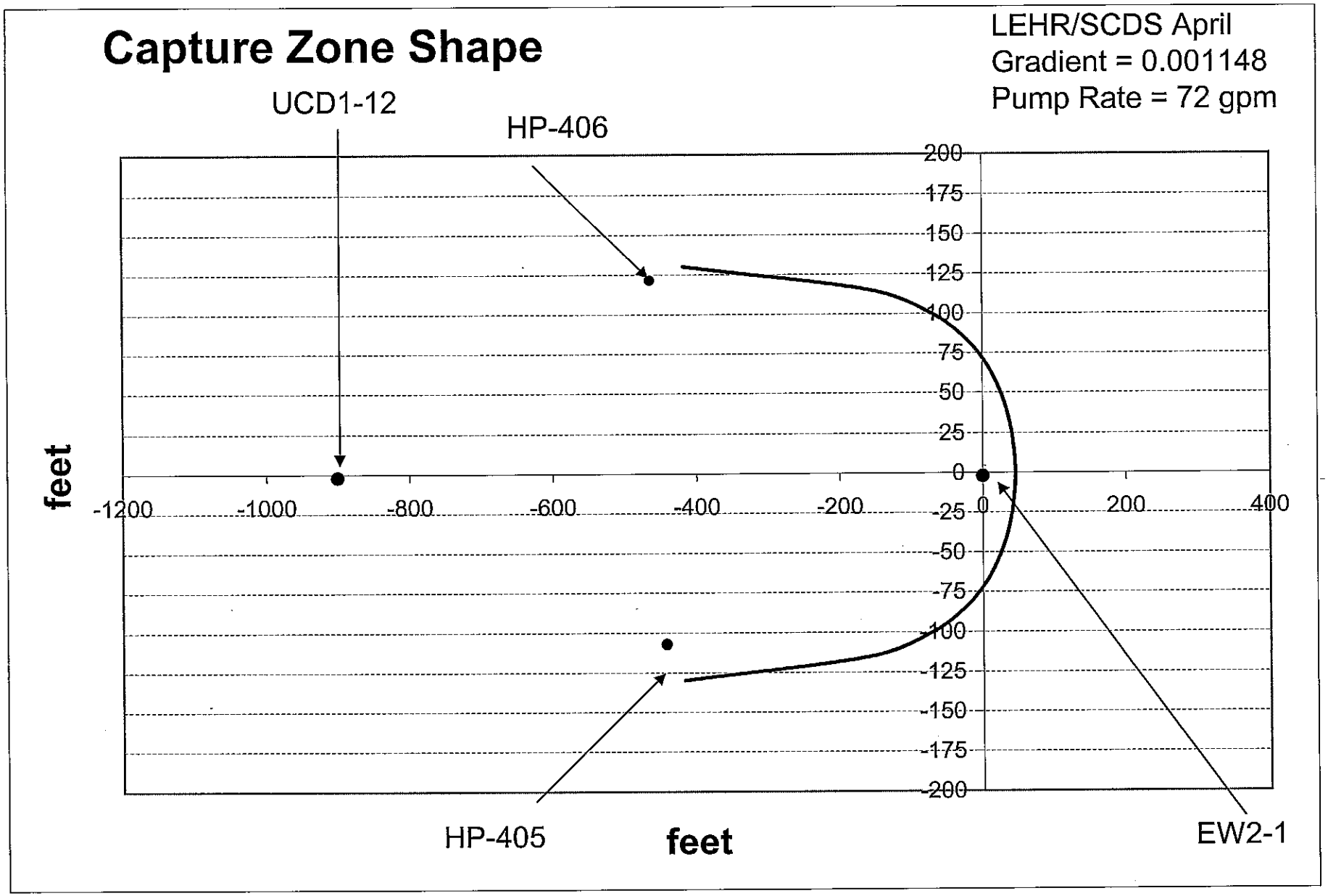
-200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HP-405
EW2-1
feet
feet
200
175
150
125
100
75
50
25
0
-25
-50
-75
-100
-125
-150
-175
-200
-1200
-1000
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0
200
400

Capture Zone Shape

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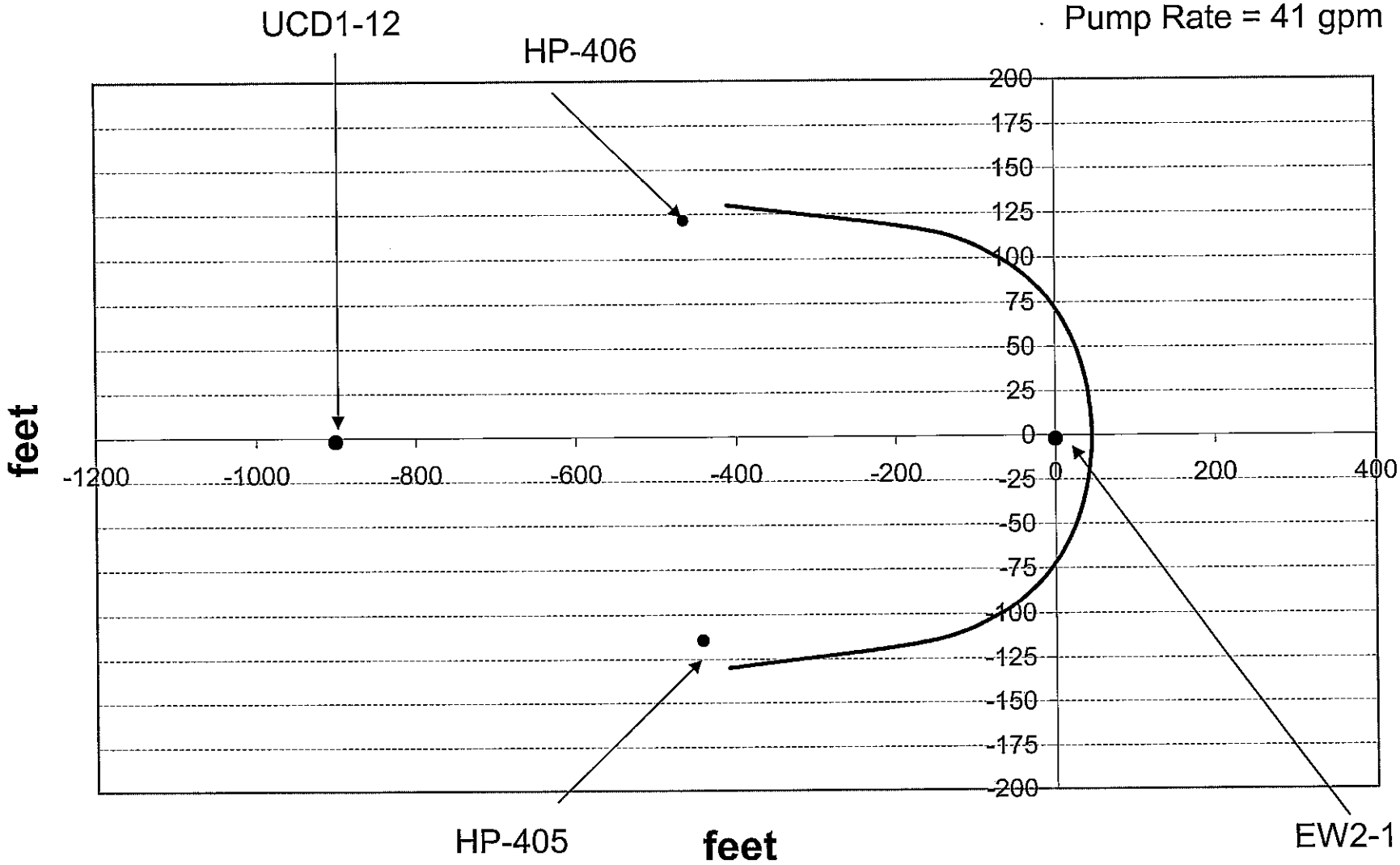
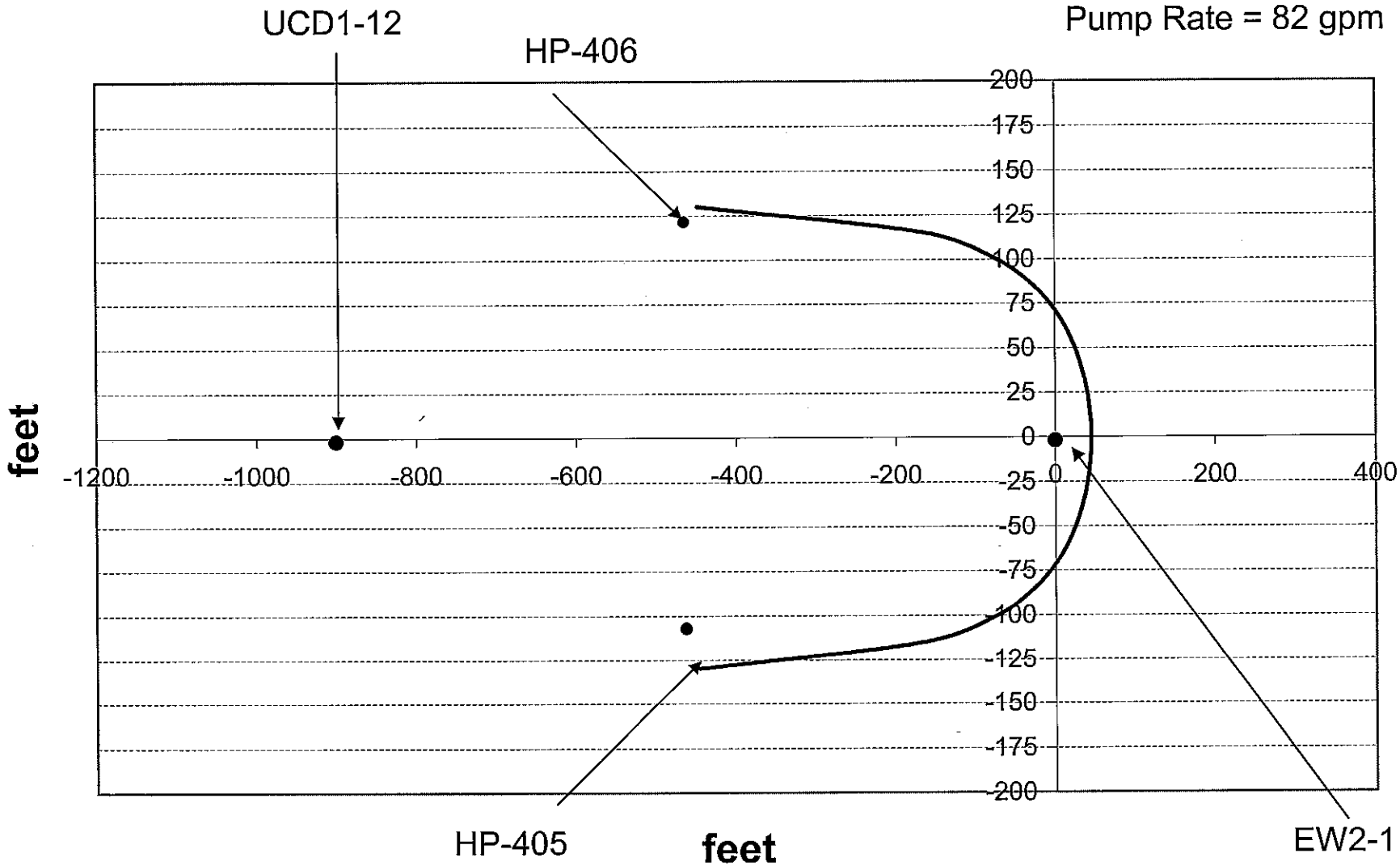
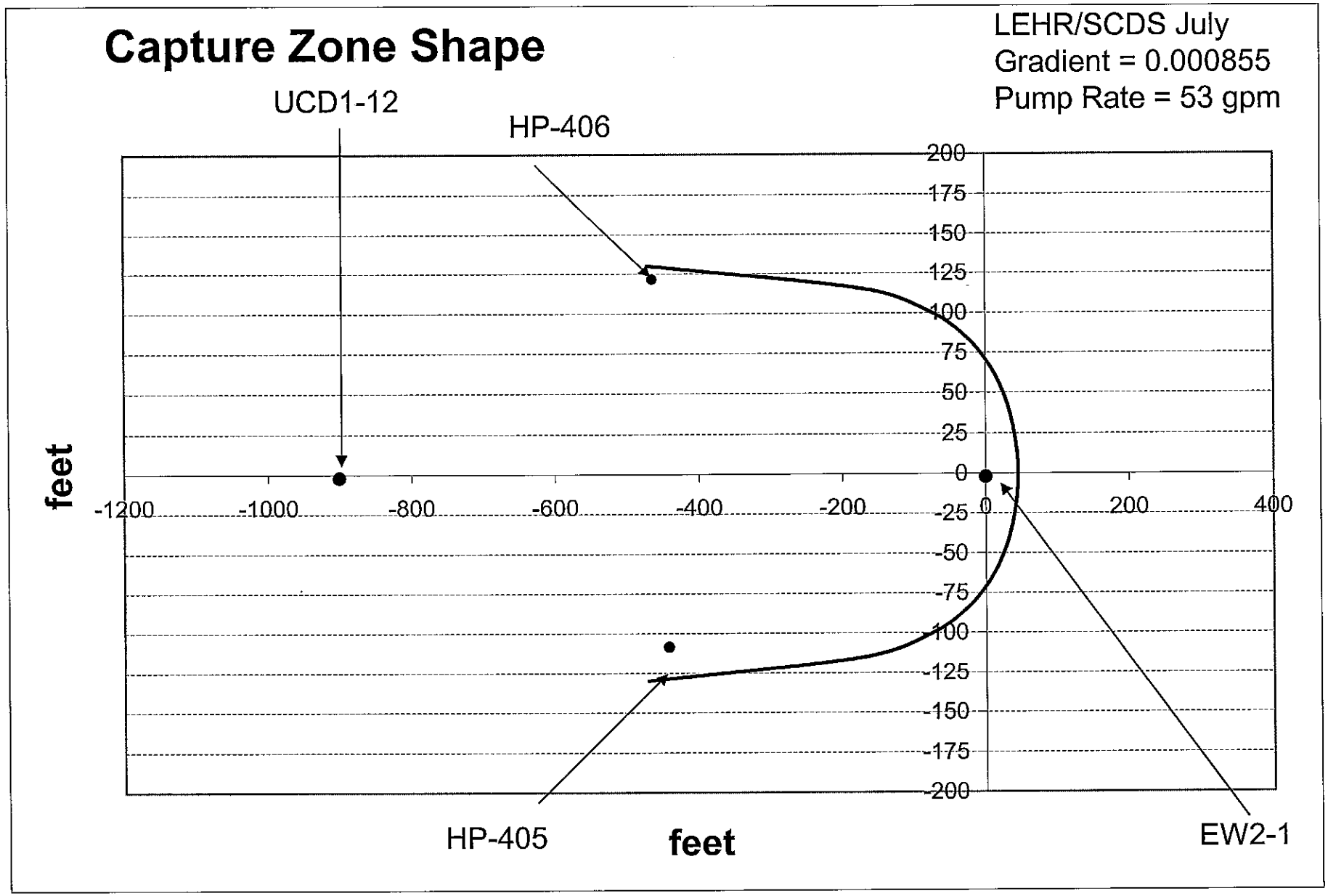
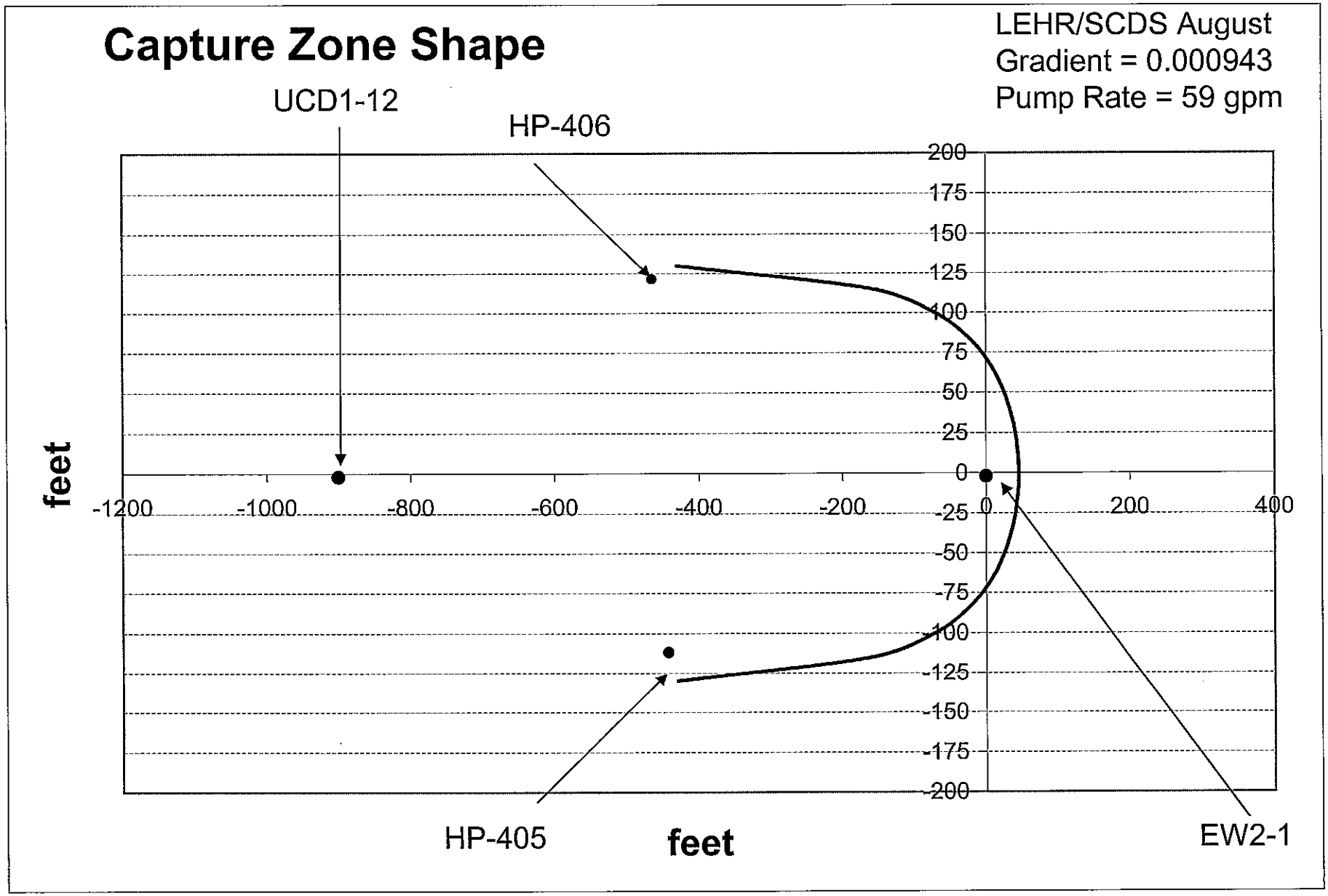


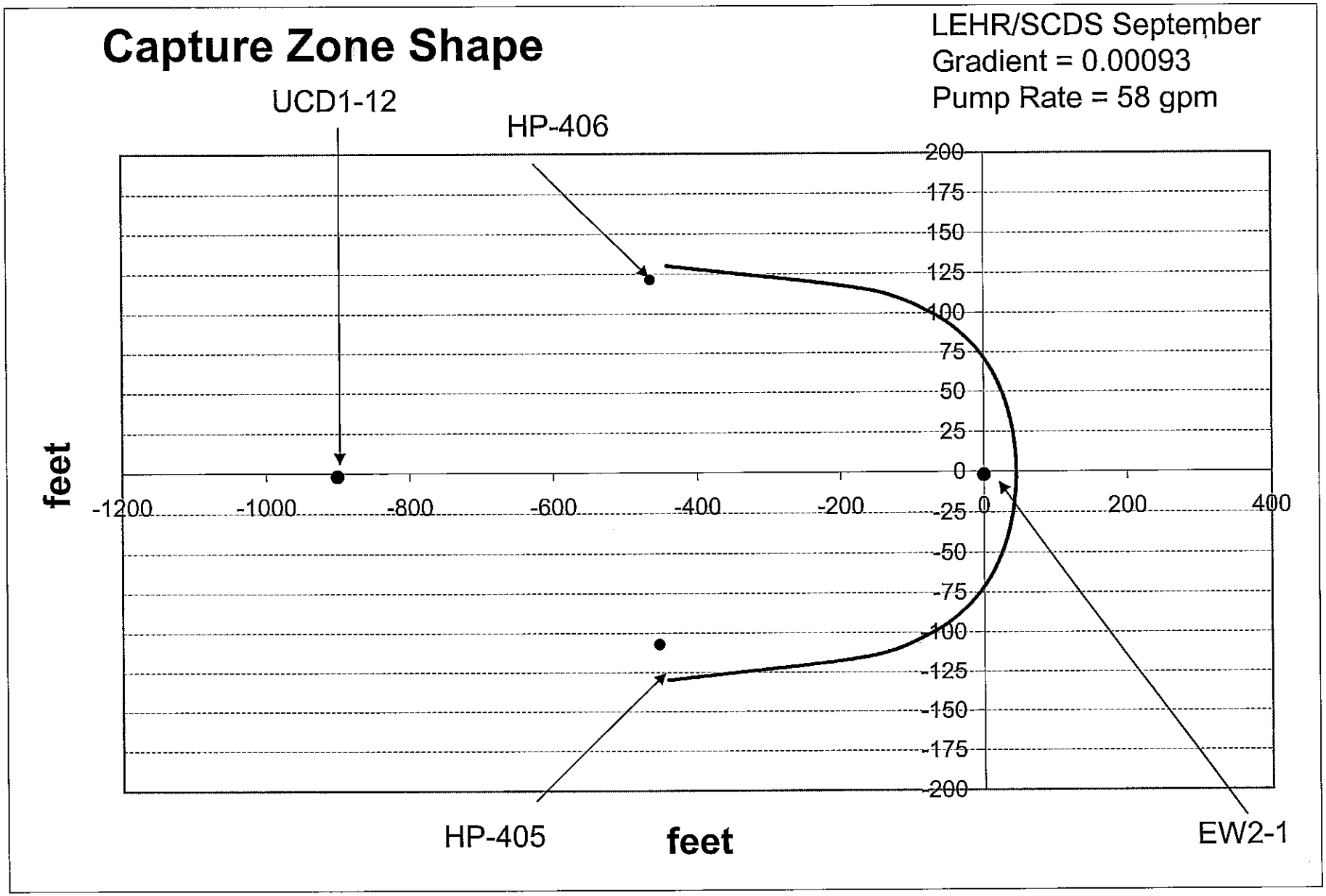
Capture Zone Shape

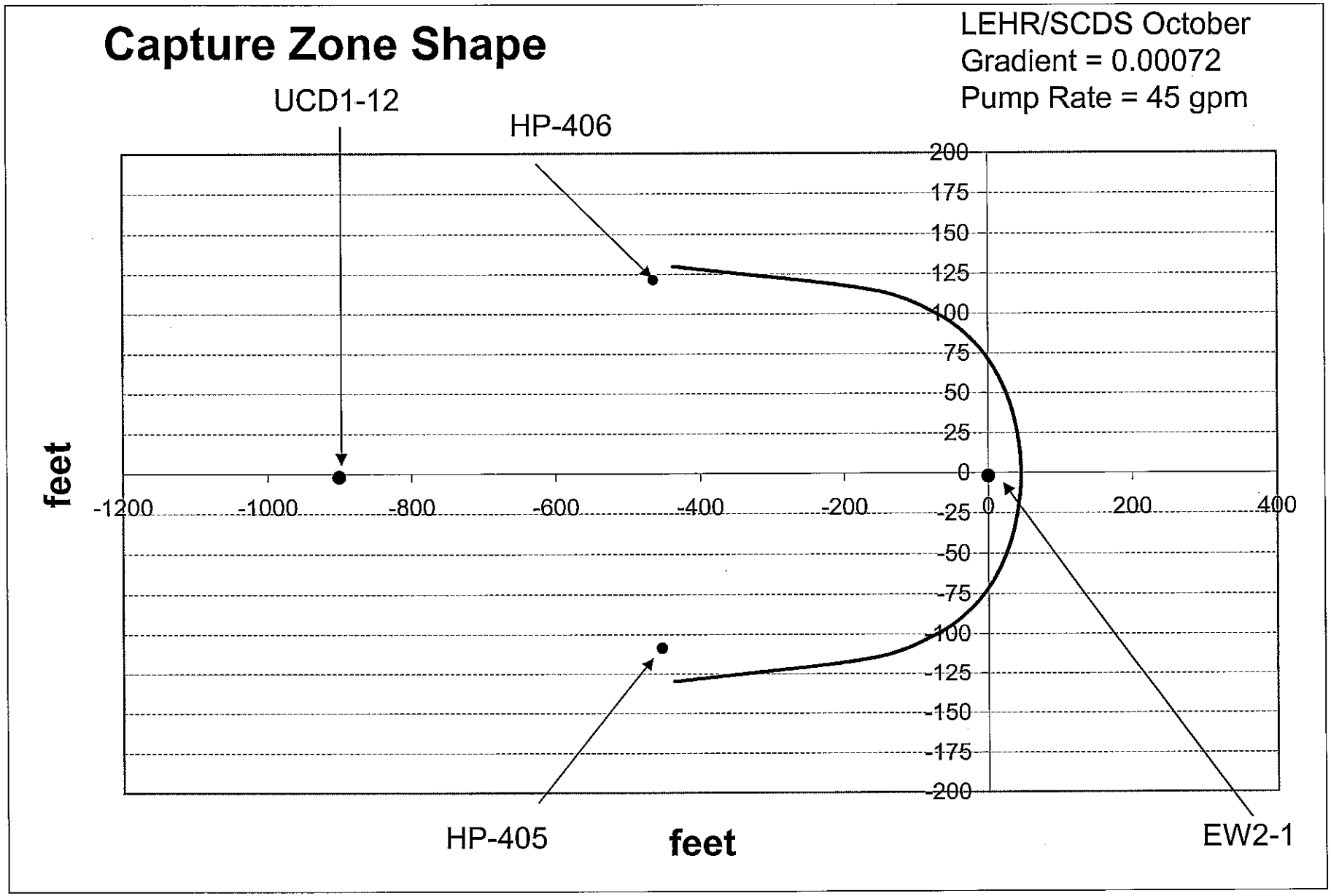
LEHR/SCDS June
Gradient = 0.00132
Pump Rate = 82 gpm

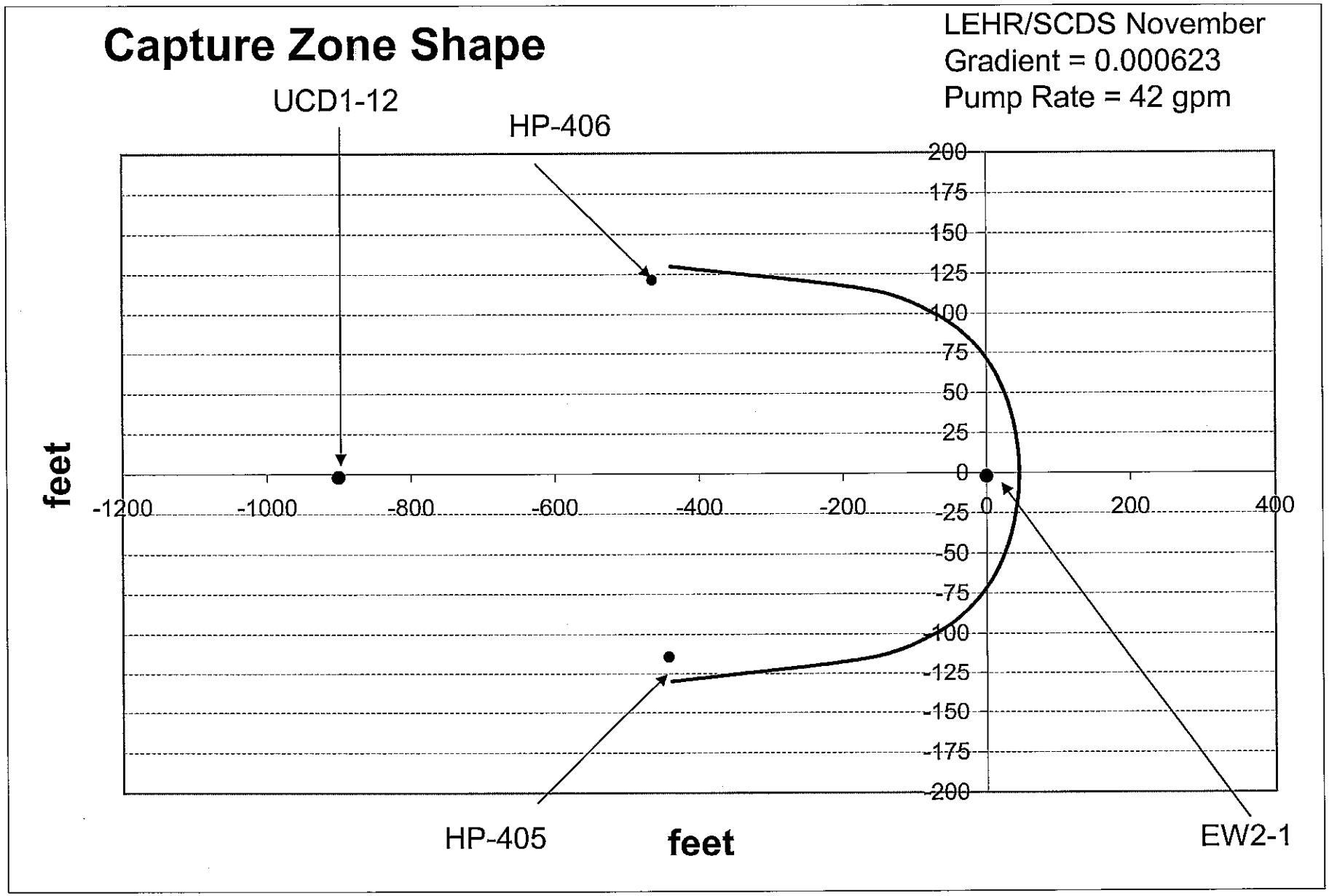


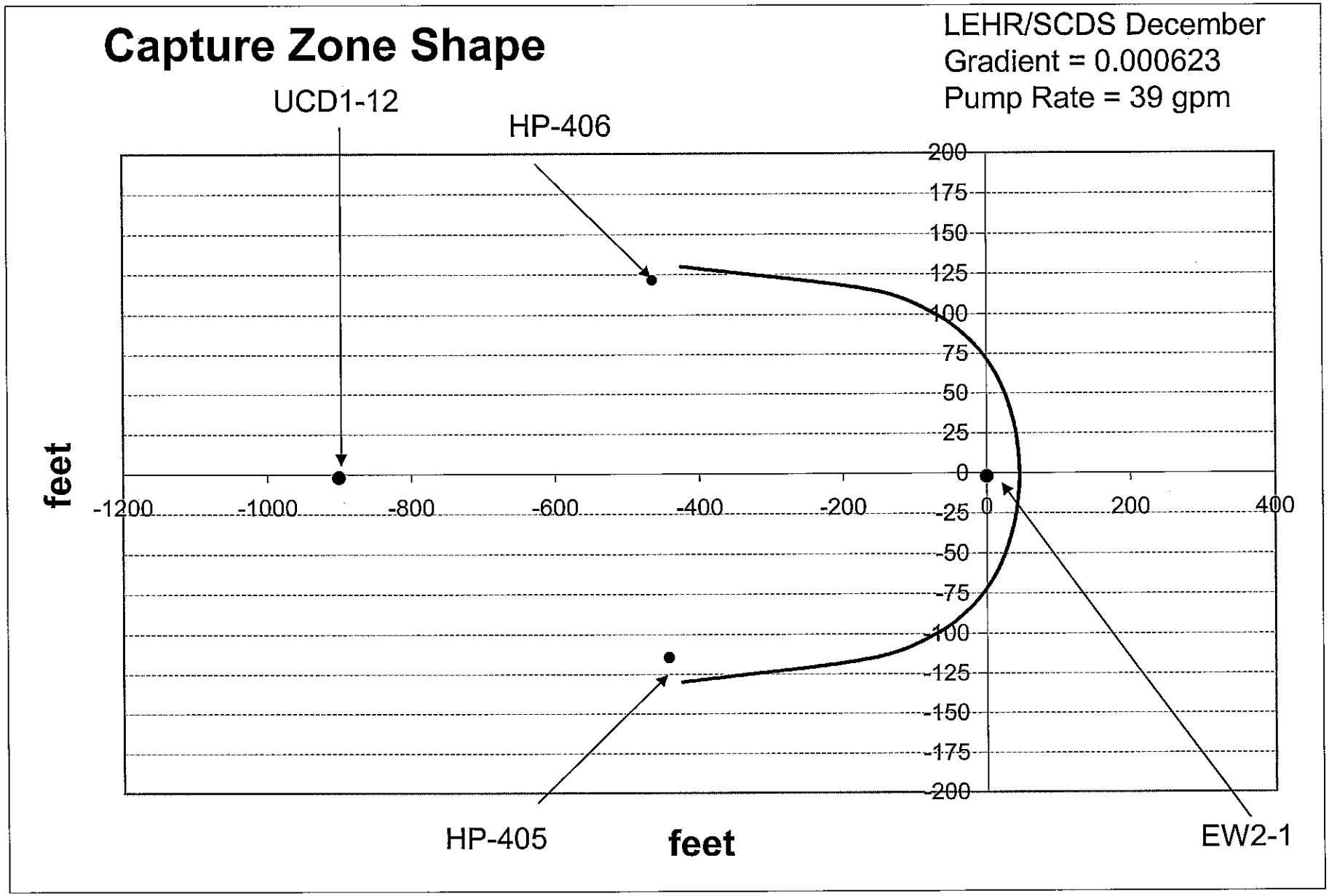

Capture Zone Shape
LEHR/SCDS July
Gradient = 0.000855
Pump Rate = 53 gpm
UCD1-12
HP-406
HP-405
EW2-1
feet
feet
200
175
150
125
100
75
50
25
0
-25
-50
-75
-100
-125
-150
-175
-200
-1200
-1000
-800
-600
-400
-200
0
200
400


Capture Zone Shape
LEHR/SCDS August
Gradient = 0.000943
Pump Rate = 59 gpm
UCD1-12
HP-406
HP-405
EW2-1
feet
feet
200
175
150
125
100
75
50
25
0
-25
-50
-75
-100
-125
-150
-175
-200
-1200
-1000
-800
-600
-400
-200
0
200
400


Capture Zone Shape
LEHR/SCDS September
Gradient = 0.00093
Pump Rate = 58 gpm
UCD1-12
HP-406
HP-405
EW2-1
feet
feet
-1200
-1000
-800
-600
-400
-200
0
200
400
200
175
150
125
100
75
50
25
0
-25
-50
-75
-100
-125
-150
-175
-200


Capture Zone Shape
LEHR/SCDS October
Gradient = 0.00072
Pump Rate = 45 gpm
UCD1-12
HP-406
HP-405
EW2-1
feet
feet
200
175
150
125
100
75
50
25
0
-25
-50
-75
-100
-125
-150
-175
-200
-1200
-1000
-800
-600
-400
-200
0
200
400


Capture Zone Shape
LEHR/SCDS November
Gradient = 0.000623
Pump Rate = 42 gpm
UCD1-12
HP-406
HP-405
EW2-1
feet
feet
-1200
-1000
-800
-600
-400
-200
0
200
400
200
175
150
125
100
75
50
25
0
-25
-50
-75
-100
-125
-150
-175
-200


Capture Zone Shape
LEHR/SCDS December
Gradient = 0.000623
Pump Rate = 39 gpm
UCD1-12
HP-406
HP-405
EW2-1
feet
feet
200
175
150
125
100
75
50
25
0
-25
-50
-75
-100
-125
-150
-175
-200
-1200
-1000
-800
-600
-400
-200
0
200
400

APPENDIX C

Complete Analytical Results for 2003 Groundwater Treatment System

APPENDIX C
VOLATILE ORGANIC COMPOUNDS - TREATMENT PLANT
2003 Annual Groundwater Treatment System and Water Monitoring Report
LEHR/SCDS Environmental Restoration
Davis, California

			INFLUENT								
		Location	SP-2	SP-2	SP-2	SP-2	SP-2	SP-2	SP-2	SP-2	SP-2
		Sample ID	TPIN0298	TPIN0299	TPIN0300	TPIN0301	TPIN0302	TPIN0303	TPIN0304	TPIN0305	TPIN0306
		Date	1/8/2003	2/4/2003	3/4/2003	4/10/2003	5/29/2003	6/17/2003	7/8/2003	8/5/2003	9/22/2003
AnalyteNameShort	CRDL	UnitsID									
1,1,1-TRICHLOROETHANE	0.5	UG/L	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,1,2,2-TETRACHLOROETHANE	0.5	UG/L	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,1,2-TRICHLOROETHANE	1	UG/L	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,1-DICHLOROETHANE	0.5	UG/L	0.26 J	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	0.28 J	0.26 J	< 0.5 U	0.3 J
1,1-DICHLOROETHENE	0.5	UG/L	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2-DIBROMO-3-CHLOROPROPANE	0.5	UG/L	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	0.5	UG/L	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2-DICHLOROBENZENE	0.5	UG/L	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2-DICHLOROETHANE	0.5	UG/L	0.46 J	0.48 J	0.46 J	0.45 J	0.49 J	0.46 J	0.482 J	**0.51**	0.42 J
1,2-DICHLOROPROPANE	0.5	UG/L	0.35 J	0.37 J	0.37 J	0.33 J	0.41 J	0.41 J	0.452 J	**0.55**	0.48 J
1,3-DICHLOROBENZENE	0.5	UG/L	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,4-DICHLOROBENZENE	0.5	UG/L	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
2-HEXANONE	1	UG/L	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
ACETONE	5	UG/L	< 5 U	< 5 U	< 5 U	< 5 U	1.2 J	0.98 J	< 5 JUJcly	< 5 JUy	< 5 U
BENZENE	0.5	UG/L	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
BROMOCHLOROMETHANE	1	UG/L	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
BROMODICHLOROMETHANE	0.5	UG/L	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
BROMOFORM	0.5	UG/L	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
BROMOMETHANE	1	UG/L	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
CARBON DISULFIDE	1	UG/L	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
CARBON TETRACHLORIDE	0.5	UG/L	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
CHLOROBENZENE	0.5	UG/L	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
CHLOROETHANE	0.5	UG/L	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
CHLOROFORM	0.5	UG/L	**29.8**	**34.1**	**32**	**28.5**	**37.8**	**37.8**	**46.4**	**59.5**	**34.1**
CHLOROMETHANE	0.5	UG/L	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
cis-1,2-DICHLOROETHYLENE	0.5	UG/L	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 UJc	< 0.5 U	< 0.5 U
cis-1,3-DICHLOROPROPENE	0.5	UG/L	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
DIBROMOCHLOROMETHANE	0.5	UG/L	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
ETHYLBENZENE	0.5	UG/L	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
METHYL ETHYL KETONE (2-BUTANONE)	1	UG/L	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	1	UG/L	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
METHYLENE CHLORIDE	1	UG/L	< 1 U	< 1 U	0.47 J	< 1 U	< 1 U	< 1 JBUyz	< 1 U	< 1 U	< 1 U
STYRENE	0.5	UG/L	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
TETRACHLOROETHYLENE(PCE)	0.5	UG/L	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
TOLUENE	0.5	UG/L	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
trans-1,2-DICHLOROETHENE	0.5	UG/L	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
trans-1,3-DICHLOROPROPENE	0.5	UG/L	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
TRICHLOROETHYLENE (TCE)	0.5	UG/L	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
VINYL CHLORIDE	0.5	UG/L	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
XYLENES, TOTAL	1	UG/L	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U

NOTES:
Results in **BOLD** text indicate detections above the CRDL.
NS - Not Sampled
J - Validation qualifier for estimated value; Sample exceeds quantitation range

APPENDIX C
VOLATILE ORGANIC COMPOUNDS - TREATMENT PLANT
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LEHR/SCDS Environmental Restoration
Davis, California

			INFLUENT			EFFLUENT				
		Location	SP-2	SP-2	SP-2	SP-5	SP-5	SP-5	SP-5	SP-5
		Sample ID	TPIN0307	TPIN0308	TPIN0309	TPEF0298	TPEF0299	TPEF0300	TPEF0301	TPEF0302
		Date	10/16/2003	11/13/2003	12/15/2003	1/8/2003	2/4/2003	3/4/2003	4/10/2003	5/29/2003
AnalyteNameShort	CRDL	UnitsID								
1,1,1-TRICHLOROETHANE	0.5	UG/L	< 0.25 U	< 0.25 U	< 0.25 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,1,2,2-TETRACHLOROETHANE	0.5	UG/L	< 0.25 U	< 0.25 U	< 0.25 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,1,2-TRICHLOROETHANE	1	UG/L	< 0.25 U	< 0.25 U	< 0.25 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,1-DICHLOROETHANE	0.5	UG/L	0.31 JT	0.29 JT	< 0.25 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,1-DICHLOROETHENE	0.5	UG/L	< 0.25 U	< 0.25 U	< 0.25 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2-DIBROMO-3-CHLOROPROPANE	0.5	UG/L	< 0.25 U	< 0.25 U	< 0.25 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	0.5	UG/L	< 0.25 U	< 0.25 U	< 0.25 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2-DICHLOROBENZENE	0.5	UG/L	< 0.25 U	< 0.25 U	< 0.25 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2-DICHLOROETHANE	0.5	UG/L	0.49 JT	**0.54**	0.44 JT	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2-DICHLOROPROPANE	0.5	UG/L	**0.5**	**0.59**	0.46 JT	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,3-DICHLOROBENZENE	0.5	UG/L	< 0.25 U	< 0.25 U	< 0.25 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,4-DICHLOROBENZENE	0.5	UG/L	< 0.25 U	< 0.25 U	< 0.25 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
2-HEXANONE	1	UG/L	< 0.25 U	< 0.25 U	< 0.25 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
ACETONE	5	UG/L	< 3.6 JBUJ2,7	3.4 JT	< 34.9 BUJ7	< 5 U	< 5 U	< 5 U	1 J	2.4 J
BENZENE	0.5	UG/L	< 0.25 U	< 0.25 U	< 0.25 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
BROMOCHLOROMETHANE	1	UG/L	< 0.25 U	< 0.25 U	< 0.25 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
BROMODICHLOROMETHANE	0.5	UG/L	< 0.25 U	< 0.25 U	< 0.25 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
BROMOFORM	0.5	UG/L	< 0.25 U	< 0.25 U	< 0.25 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
BROMOMETHANE	1	UG/L	< 0.25 U	< 0.25 U	< 0.25 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
CARBON DISULFIDE	1	UG/L	< 0.25 U	< 0.25 U	< 0.25 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
CARBON TETRACHLORIDE	0.5	UG/L	< 0.25 U	< 0.25 U	< 0.25 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
CHLOROBENZENE	0.5	UG/L	< 0.25 U	< 0.25 U	< 0.25 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
CHLOROETHANE	0.5	UG/L	< 0.25 U	< 0.25 U	< 0.25 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
CHLOROFORM	0.5	UG/L	**37.1**	**42.6**	**32.3**	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
CHLOROMETHANE	0.5	UG/L	< 0.25 U	< 0.25 U	< 0.25 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
cis-1,2-DICHLOROETHYLENE	0.5	UG/L	< 0.25 U	< 0.25 U	< 0.25 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
cis-1,3-DICHLOROPROPENE	0.5	UG/L	< 0.25 U	< 0.25 U	< 0.25 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
DIBROMOCHLOROMETHANE	0.5	UG/L	< 0.25 U	< 0.25 U	< 0.25 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
ETHYLBENZENE	0.5	UG/L	< 0.25 U	< 0.25 U	< 0.25 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
METHYL ETHYL KETONE (2-BUTANONE)	1	UG/L	< 0.27 U	< 0.27 U	< 0.27 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	1	UG/L	< 0.25 U	< 0.25 U	< 0.25 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
METHYLENE CHLORIDE	1	UG/L	< 0.25 U	< 0.38 JBUJ2	< 0.26 JBUJ2,7	< 1 U	< 1 U	0.45 J	< 1 U	< 1 U
STYRENE	0.5	UG/L	< 0.25 U	< 0.25 U	< 0.25 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
TETRACHLOROETHYLENE(PCE)	0.5	UG/L	< 0.25 U	< 0.25 U	< 0.25 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
TOLUENE	0.5	UG/L	< 0.25 U	< 0.25 U	< 0.25 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
trans-1,2-DICHLOROETHENE	0.5	UG/L	< 0.25 U	< 0.25 U	< 0.25 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
trans-1,3-DICHLOROPROPENE	0.5	UG/L	< 0.25 U	< 0.25 U	< 0.25 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
TRICHLOROETHYLENE (TCE)	0.5	UG/L	< 0.25 U	< 0.25 U	< 0.25 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
VINYL CHLORIDE	0.5	UG/L	< 0.25 U	< 0.25 U	< 0.25 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
XYLENES, TOTAL	1	UG/L	< 0.25 U	< 0.25 U	< 0.25 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U

NOTES:
Results in **BOLD** text indicate detections above the CRDL.
NS - Not Sampled
J - Validation qualifier for estimated value; Sample exceeds quantitation range

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				EFFLUENT					
		Location	SP-5	SP-5	SP-5	SP-5	SP-5	SP-5	SP-5
		Sample ID	TPEF0303	TPEF0304	TPEF0305	TPEF0306	TPEF0307	TPEF0308	TPEF0309
		Date	6/17/2003	7/8/2003	8/5/2003	9/22/2003	10/16/2003	11/13/2003	12/15/2003
AnalyteNameShort	CRDL	UnitsID							
1,1,1-TRICHLOROETHANE	0.5	UG/L	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.25 U	< 0.25 U	< 0.25 U
1,1,2,2-TETRACHLOROETHANE	0.5	UG/L	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.25 U	< 0.25 U	< 0.25 U
1,1,2-TRICHLOROETHANE	1	UG/L	< 1 U	< 1 U	< 1 U	< 1 U	< 0.25 U	< 0.25 U	< 0.25 U
1,1-DICHLOROETHANE	0.5	UG/L	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.25 U	< 0.25 U	< 0.25 U
1,1-DICHLOROETHENE	0.5	UG/L	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.25 U	< 0.25 U	< 0.25 U
1,2-DIBROMO-3-CHLOROPROPANE	0.5	UG/L	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.25 U	< 0.25 U	< 0.25 U
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	0.5	UG/L	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.25 U	< 0.25 U	< 0.25 U
1,2-DICHLOROBENZENE	0.5	UG/L	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.25 U	< 0.25 U	< 0.25 U
1,2-DICHLOROETHANE	0.5	UG/L	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.25 U	< 0.25 U	< 0.25 U
1,2-DICHLOROPROPANE	0.5	UG/L	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.25 U	< 0.25 U	< 0.25 U
1,3-DICHLOROBENZENE	0.5	UG/L	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.25 U	< 0.25 U	< 0.25 U
1,4-DICHLOROBENZENE	0.5	UG/L	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.25 U	< 0.25 U	< 0.25 U
2-HEXANONE	1	UG/L	< 1 U	< 1 U	< 1 U	< 1 U	< 0.25 U	< 0.25 U	< 0.25 U
ACETONE	5	UG/L	1.3 J	< 5 JUJcly	< 5 JBUy	< 5 U	< 4.3 JBUJ2,7	4.1 JT	< 38 BUJ7
BENZENE	0.5	UG/L	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.25 U	< 0.25 U	< 0.25 U
BROMOCHLOROMETHANE	1	UG/L	< 1 U	< 1 U	< 1 U	< 1 U	< 0.25 U	< 0.25 U	< 0.25 U
BROMODICHLOROMETHANE	0.5	UG/L	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.25 U	< 0.25 U	< 0.25 U
BROMOFORM	0.5	UG/L	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.25 U	< 0.25 U	< 0.25 U
BROMOMETHANE	1	UG/L	< 1 U	< 1 U	< 1 U	< 1 U	< 0.25 U	< 0.25 U	< 0.25 U
CARBON DISULFIDE	1	UG/L	< 1 U	< 1 U	< 1 U	< 1 U	< 0.25 U	< 0.25 U	< 0.25 U
CARBON TETRACHLORIDE	0.5	UG/L	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.25 U	< 0.25 U	< 0.25 U
CHLOROBENZENE	0.5	UG/L	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.25 U	< 0.25 U	< 0.25 U
CHLOROETHANE	0.5	UG/L	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.25 U	< 0.25 U	< 0.25 U
CHLOROFORM	0.5	UG/L	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.25 U	< 0.25 U	< 0.25 U
CHLOROMETHANE	0.5	UG/L	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.25 U	< 0.25 U	< 0.25 U
cis-1,2-DICHLOROETHYLENE	0.5	UG/L	< 0.5 U	< 0.5 UJc	< 0.5 U	< 0.5 U	< 0.25 U	< 0.25 U	< 0.25 U
cis-1,3-DICHLOROPROPENE	0.5	UG/L	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.25 U	< 0.25 U	< 0.25 U
DIBROMOCHLOROMETHANE	0.5	UG/L	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.25 U	< 0.25 U	< 0.25 U
ETHYLBENZENE	0.5	UG/L	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.25 U	< 0.25 U	< 0.25 U
METHYL ETHYL KETONE (2-BUTANONE)	1	UG/L	< 1 U	< 1 U	< 1 U	< 1 U	< 0.27 U	< 0.27 U	< 0.27 U
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	1	UG/L	< 1 U	< 1 U	< 1 U	< 1 U	< 0.25 U	< 0.25 U	< 0.25 U
METHYLENE CHLORIDE	1	UG/L	< 1 JBUyz	< 1 U	0.52 J	< 1 U	< 0.25 U	< 0.3 JBUJ2	< 0.25 U
STYRENE	0.5	UG/L	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.25 U	< 0.25 U	< 0.25 U
TETRACHLOROETHYLENE(PCE)	0.5	UG/L	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.25 U	< 0.25 U	< 0.25 U
TOLUENE	0.5	UG/L	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.25 U	< 0.25 U	< 0.25 U
trans-1,2-DICHLOROETHENE	0.5	UG/L	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.25 U	< 0.25 U	< 0.25 U
trans-1,3-DICHLOROPROPENE	0.5	UG/L	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.25 U	< 0.25 U	< 0.25 U
TRICHLOROETHYLENE (TCE)	0.5	UG/L	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.25 U	< 0.25 U	< 0.25 U
VINYL CHLORIDE	0.5	UG/L	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.25 U	< 0.25 U	< 0.25 U
XYLENES, TOTAL	1	UG/L	< 1 U	< 1 U	< 1 U	< 1 U	< 0.25 U	< 0.25 U	< 0.25 U

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METALS - TREATMENT PLANT
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LEHR/SCDS Environmental Restoration
Davis, California

			EFFLUENT								
		Location	SP-5	SP-5	SP-5	SP-5	SP-5	SP-5	SP-5	SP-5	SP-5
		Sample ID	TPEF0298	TPEF0299	TPEF0300	TPEF0301	TPEF0302	TPEF0303	TPEF0304	TPEF0305	TPEF0306
		Date	1/8/2003	2/4/2003	3/4/2003	4/10/2003	5/29/2003	6/17/2003	7/8/2003	8/5/2003	9/22/2003
AnalyteNameShort	CRDL	UnitsID									
ANTIMONY	5	UG/L	< 0.035 BUop	< 0.056 BUo	< 0.026 BUop	< 0.056 U	< 0.064 BUo	0.172 B	< 0.064 BUo	< 0.085 U	< 0.102 U
ARSENIC	3	UG/L	< 0.626 Uop	< 0.902 Up	< 0.902 BUp	**3.06**	< 0.813 BUp	2.67 B	< 0.813 Up	< 1.03 Up	< 1.03 BUp
BARIUM	20	UG/L	**178**	**187**	**171**	**169 EJk**	**158 EJk**	**184**	**154**	**161**	**170**
BERYLLIUM	1	UG/L	< 0.04 U	< 0.015 U	< 0.021 U	< 0.021 U	< 0.022 U	< 0.015 U	< 0.022 U	< 0.024 U	< 0.025 U
BORON	50	UG/L	< 2.31 EJk	**497 EJk**	**582**	**610 EJk**	**644**	**558 E**	**1170**	**555**	**514**
CADMIUM	1	UG/L	< 0.014 U	< 0.015 U	< 0.008 U	< 0.015 U	< 0.021 U	< 0.015 U	< 0.021 U	< 0.016 U	< 0.016 U
CALCIUM	2000	UG/L	**42400**	**41000**	**42300**	**39900**	**42200**	**41600**	NS	**41400**	NS
CHROMIUM, TOTAL	10	UG/L	**25.8**	**25.9**	**25.7**	**23.3**	NS	**26.3**	**23.2**	**23**	**25.4**
COBALT	10	UG/L	0.179 B	0.39 BEJk	0.254 B	< 0.003 BEUJok	0.27 B	0.264 B	0.331 B	0.188 B	0.246 B
COPPER	10	UG/L	< 0.033 BUp	< 0.025 BUp	< 0.041 BUJkp	< 0.025 BUp	< 0.094 BUp	2.85 BE	< 0.094 BUp	< 0.016 BEUp	< 0.048 BUp
IRON	100	UG/L	**54.7 B**	< 3.74 BUp	< 4.93 Jk	**166**	**179**	85.9 B	**196**	< 3.39 BUp	**103**
LEAD	3	UG/L	< 0.008 BUp	< 0.004 BUp	< 0.002 BUp	0.007 B	< 0.003 U	1.21 BE	< 0.003 BUp	< 0.016 BUp	< 0.016 U
MAGNESIUM	2000	UG/L	**74600**	**74200**	**75700**	**71300**	**66400**	**74200**	NS	**74700**	NS
MANGANESE	10	UG/L	< 0.028 BUp	< 0.013 BUp	0.18 B	< 0.013 BEUJomk	< 0.019 BUop	0.286 B	< 0.019 BUp	< 0.021 BEUp	< 0.021 BUp
MERCURY	0.2	UG/L	NS	< 0.052 U	< 0.052 U	< 0.052 UN	< 0.095 U	< 0.095 UN	< 0.095 U	< 0.033 U	< 0.033 U
MOLYBDENUM	10	UG/L	1.74 B	1.78 B	1.68 B	1.64 B	1.7 B	1.83 B	1.72 B	1.61 B	1.8 B
NICKEL	20	UG/L	1.24 B	1.74 BEJk	1.38 B	2.25 BEJk	1.46 B	1.55 B	1.71 BJk	1.14 B	1.38 B
POTASSIUM	2000	UG/L	785 B	780 B	828 B	839 B	787 B	785 B	NS	777 B	NS
SELENIUM	3	UG/L	< 0.431 Up	**3.46**	< 0.296 BUJokp	**3.74**	2.22 B	2.57 B	< 0.277 BUp	2.18 B	2.86 B
SILVER	10	UG/L	< 0.008 U	< 0.006 BUop	< 0.003 U	< 0.006 U	**0.004 B**	**0.018 B**	< 0.004 U	< 0.008 U	< 0.008 U
SODIUM	2000	UG/L	**41200**	**40900**	**42600**	**42300**	**38700**	**41700**	NS	**40800**	NS
THALLIUM	10	UG/L	< 0.004 BUo	< 0.005 BUo	< 0.006 BUo	< 0.005 BUo	< 0.005 BUo	0.261 B	< 0.005 BUJko	< 0.005 U	< 0.008 BUo
VANADIUM	10	UG/L	7.05 B	**16.5**	**10.4**	**11**	**11.3**	**10.4**	**11.3**	7.11 B	6.57 B
ZINC	20	UG/L	< 0.059 BUp	< 0.036 BUp	4.38 B	< 0.036 BEUJmkp	6.6 B	3.96 BE	< 0.07 BUp	< 0.035 BUp	< 0.051 BEUp

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			EFFLUENT		
		Location	SP-5	SP-5	SP-5
		Sample ID	TPEF0307	TPEF0308	TPEF0309
		Date	10/16/2003	11/13/2003	12/15/2003
AnalyteNameShort	CRDL	UnitsID			
ANTIMONY	5	UG/L	< 0.158 BUJ2	< 0.102 U	0.139 BJT
ARSENIC	3	UG/L	**8.65**	**3.51**	< 4.66 UJ2
BARIUM	20	UG/L	**198**	**179**	**172**
BERYLLIUM	1	UG/L	< 0.025 U	< 0.025 U	< 0.025 U
BORON	50	UG/L	**567 EJG**	**538 EJG**	**589**
CADMIUM	1	UG/L	< 0.016 U	< 0.016 U	< 0.016 U
CALCIUM	2000	UG/L	**43100**	**42500**	**42500**
CHROMIUM, TOTAL	10	UG/L	**28.1**	**23.9**	**25.3**
COBALT	10	UG/L	0.318 BJT	0.302 BJT	0.151 BJT
COPPER	10	UG/L	< 2.14 BUJ2	1.83 BJT	< 2.05 BUJ2
IRON	100	UG/L	< 182 NUJ2	**137**	**170**
LEAD	3	UG/L	< 0.061 BUJ2	0.043 BJT	< 0.016 U
MAGNESIUM	2000	UG/L	**72400**	**74800**	**71100**
MANGANESE	10	UG/L	< 0.889 BUJ2	0.3 BJT	< 0.121 BUJ2
MERCURY	0.2	UG/L	< 0.033 U	< 0.095 U	< 0.033 U
MOLYBDENUM	10	UG/L	2.12 BJT	1.73 BJT	1.68 BJT
NICKEL	20	UG/L	1.83 BJT	1.65 BJT	1.39 BJT
POTASSIUM	2000	UG/L	842 BJT	795 BJT	644 BEJG,T
SELENIUM	3	UG/L	2.93 BJT	< 1.56 U	1.66 BJT
SILVER	10	UG/L	< 0.008 UNU	< 0.008 U	< 0.013 BUJ2
SODIUM	2000	UG/L	**42400**	**41400**	**38700**
THALLIUM	10	UG/L	0.029 BJT	< 0.008 U	0.263 BJT
VANADIUM	10	UG/L	**16.3**	6.68 BJT	< 9.84 BUJ2
ZINC	20	UG/L	< 9.58 BUJ2	16.7 BEJG,T	< 1.93 BUJ2

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APPENDIX C
RADs - TREATMENT PLANT
2003 Annual Groundwater Treatment System and Water Monitoring Report
LEHR/SCDS Environmental Restoration
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			INFLUENT								
		Location	SP-2	SP-2	SP-2	SP-2	SP-2	SP-2	SP-2	SP-2	SP-2
		Sample ID	TPIN0298	TPIN0299	TPIN0300	TPIN0301	TPIN0302	TPIN0303	TPIN0304	TPIN0305	TPIN0306
		Date	1/8/2003	2/4/2003	3/4/2003	4/10/2003	5/29/2003	6/17/2003	7/8/2003	8/5/2003	9/22/2003
AnalyteNameShort	CRDL	UnitsID									
CARBON-14	20	PCI/L	13.2 +/- 6.6 Jv	< 15.6 U	< 9.8 U	10 +/- 5.6	< 17.1 UJv	< 8.19 U	< 16.4 U	< 9.67 UJv	< 14.6 U
TRITIUM (HYDROGEN-3)	300	PCI/L	< 184 U	< 188 U	< 211 U	< 202 U	< 181 U	< 213 U	< 178 U	< 204 U	< 171 U

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APPENDIX C
RADs - TREATMENT PLANT
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			INFLUENT		
		Location	SP-2	SP-2	SP-2
		Sample ID	TPIN0307	TPIN0308	TPIN0309
		Date	10/16/2003	11/13/2003	12/15/2003
AnalyteNameShort	CRDL	UnitsID			
CARBON-14	20	PCI/L	12 +/- 4.48 JT	< 15.8 U	8.92 +/- 4.71 JT
TRITIUM (HYDROGEN-3)	300	PCI/L	191 +/- 114 JT	< 211 U	< 201 U

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APPENDIX C
WET CHEMISTRY - TREATMENT PLANT
2003 Annual Groundwater Treatment System and Water Monitoring Report
LEHR/SCDS Environmental Restoration
Davis, California

			ASDP								
		Location	ASDP	ASDP	ASDP	ASDP	ASDP	ASDP	ASDP	ASDP	ASDP
		Sample ID	ASDP0298	ASDP0299	ASDP0300	ASDP0301	ASDP0302	ASDP0303	ASDP0304	ASDP0305	ASDP0306
		Date	1/8/2003	2/4/2003	3/4/2003	4/10/2003	5/29/2003	6/17/2003	7/8/2003	8/5/2003	9/22/2003
AnalyteNameShort	CRDL	UnitsID									
ALKALINITY, TOTAL (AS CaCO3)	10	MG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS
CHLORIDE (AS CL)	1	MG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS
NITRATE AS NITROGEN	0.01	MG/L	**6.79**	**7.22**	**7.11**	**6.83**	**6.64**	**6.96**	**6.9**	**7.31**	**7.05**
SULFATE (AS SO4)	1	MG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS
TOTAL DISSOLVED SOLIDS (RESIDUE, FILTERABLE)	20	MG/L	**479**	**475**	**501**	**484**	**491**	**484**	**470**	**505**	**481**
TOTAL ORGANIC CARBON	1	MG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS

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APPENDIX C
WET CHEMISTRY - TREATMENT PLANT
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LEHR/SCDS Environmental Restoration
Davis, California

			ASDP			INFLUENT					
		Location	ASDP	ASDP	ASDP	SP-2	SP-2	SP-2	SP-2	SP-2	SP-2
		Sample ID	ASDP0307	ASDP0308	ASDP0309	TPIN0298	TPIN0299	TPIN0300	TPIN0301	TPIN0302	TPIN0303
		Date	10/16/2003	11/13/2003	12/15/2003	1/8/2003	2/4/2003	3/4/2003	4/10/2003	5/29/2003	6/17/2003
AnalyteNameShort	CRDL	UnitsID									
ALKALINITY, TOTAL (AS CaCO3)	10	MG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS
CHLORIDE (AS CL)	1	MG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS
NITRATE AS NITROGEN	0.01	MG/L	**7.67**	**7.07**	**6.98**	NS	NS	NS	NS	NS	NS
SULFATE (AS SO4)	1	MG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS
TOTAL DISSOLVED SOLIDS (RESIDUE, FILTERABLE)	20	MG/L	**485**	**476**	**450**	NS	NS	NS	NS	NS	NS
TOTAL ORGANIC CARBON	1	MG/L	NS	NS	NS	**1**	**1.76**	0.502 J	0.931 J	0.718 J	0.834 J

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APPENDIX C
WET CHEMISTRY - TREATMENT PLANT
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LEHR/SCDS Environmental Restoration
Davis, California

			INFLUENT						EFFLUENT		
		Location	SP-2	SP-2	SP-2	SP-2	SP-2	SP-2	SP-5	SP-5	SP-5
		Sample ID	TPIN0304	TPIN0305	TPIN0306	TPIN0307	TPIN0308	TPIN0309	TPEF0298	TPEF0299	TPEF0300
		Date	7/8/2003	8/5/2003	9/22/2003	10/16/2003	11/13/2003	12/15/2003	1/8/2003	2/4/2003	3/4/2003
AnalyteNameShort	CRDL	UnitsID									
ALKALINITY, TOTAL (AS CaCO3)	10	MG/L	NS	NS	NS	NS	NS	NS	**366**	**367**	**366**
CHLORIDE (AS CL)	1	MG/L	NS	NS	NS	NS	NS	NS	**20.1**	**21.1**	**22.8**
NITRATE AS NITROGEN	0.01	MG/L	NS	NS	NS	NS	NS	NS	**6.75**	**7.59**	**7.11**
SULFATE (AS SO4)	1	MG/L	NS	NS	NS	NS	NS	NS	**38.9**	**40.2**	**41.6**
TOTAL DISSOLVED SOLIDS (RESIDUE, FILTERABLE)	20	MG/L	NS	NS	NS	NS	NS	NS	**478**	**479**	**493**
TOTAL ORGANIC CARBON	1	MG/L	0.708 J	**1.1**	**1.04**	**1.34**	**1.12**	0.738 JT	NS	NS	NS

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APPENDIX C
WET CHEMISTRY - TREATMENT PLANT
2003 Annual Groundwater Treatment System and Water Monitoring Report
LEHR/SCDS Environmental Restoration
Davis, California

			EFFLUENT								
		Location	SP-5	SP-5	SP-5	SP-5	SP-5	SP-5	SP-5	SP-5	SP-5
		Sample ID	TPEF0301	TPEF0302	TPEF0303	TPEF0304	TPEF0305	TPEF0306	TPEF0307	TPEF0308	TPEF0309
		Date	4/10/2003	5/29/2003	6/17/2003	7/8/2003	8/5/2003	9/22/2003	10/16/2003	11/13/2003	12/15/2003
AnalyteNameShort	CRDL	UnitsID									
ALKALINITY, TOTAL (AS CaCO3)	10	MG/L	**392**	**359**	**383**	**322**	**205**	**369**	**380**	**397**	**333**
CHLORIDE (AS CL)	1	MG/L	**20.7**	**20.7**	**21**	**21.3**	**22.4**	**21.4**	**20.7**	**20.9**	**22.1**
NITRATE AS NITROGEN	0.01	MG/L	**6.77**	**6.56**	**6.93**	**7.01**	**7.24**	**7.03**	***366 HJ1**	**6.99**	**6.93**
SULFATE (AS SO4)	1	MG/L	**40.6**	**38.5**	**38.9**	**38.8**	**40.1**	**40.5**	**41.3**	**39.7**	**41.6**
TOTAL DISSOLVED SOLIDS (RESIDUE, FILTERABLE)	20	MG/L	**489**	**481**	**487**	**487**	**486**	**483**	***807**	**469**	**461**
TOTAL ORGANIC CARBON	1	MG/L	NS	NS	NS	0.806 J	NS	**1.34**	NS	NS	NS

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APPENDIX C
FIELD PARAMETERS - TREATMENT PLANT
2003 ANNUAL REPORT
LEHR/SCDS ENVIRONMENTAL RESTORATION
DAVIS, CALIFORNIA

Sample	Analyte Units Date	EC-F umhos/cm	PH-F pH units	TEMPERATURE degree C	TURBIDITY-F ntu
TPIN0298	1/8/2003	835	7.14	17.4	0.16
TPIN0299	2/4/2003	813	7.07	17	0.09
TPIN0300	3/4/2003	850	7.17	18.8	0.1
TPIN0307	10/16/2003	768	7.6	18.3	NS
TPIN0308	11/13/2003	775	7.47	17.4	NS
TPIN0309	12/15/2003	761	7.69	18	NS
TPEF0298	1/8/2003	808	7.4	16.8	0.14
TPEF0299	2/4/2003	785	8.06	15.5	0.1
TPEF0300	3/4/2003	801	8.09	17.5	0.13
TPEF0307	10/16/2003	750	8.26	17.7	NS
TPEF0308	11/13/2003	753	8.07	16.5	NS
TPEF0309	12/15/2003	742	8.41	17	NS

NS - Not Sampled

APPENDIX D

Complete Analytical Results for
2003 Groundwater, DDC, Surface Water, Stormwater, and Soils

APPENDIX D
VOLATILE ORGANIC COMPOUNDS - DDC System
2003 Annual Groundwater Treatment System and Water Monitoring Report
LEHR/SCDS Environmental Restoration
Davis, California

		Location	DDC-1B	DDC-1B	DDC-1B	DDC-1B	DDC-1B	DDC-1B	DDC-1B	DDC-1B
		Sample ID	W03012901	W03022501	W03032501	W03032502	W03061810	W03081301	DDC-1B	DDC-1BD
		Date	1/29/2003	2/25/2003	3/25/2003	3/25/2003	6/18/2003	8/13/2003	10/14/2003	10/14/2003
AnalyteNameShort	CRDL	UnitsID								
1,1,1-TRICHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 1	< 0.5	< 0.25	< 0.25
1,1,2,2-TETRACHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 1	< 0.5	< 0.25	< 0.25
1,1,2-TRICHLOROETHANE	1	UG/L	**2.8**	**3**	**3**	**3.1**	**3.9**	0.49	0.7 J	0.56 J
1,1-DICHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 1	< 0.5	< 0.25	< 0.25
1,1-DICHLOROETHENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 1	< 0.5	< 0.25	< 0.25
1,2-DIBROMO-3-CHLOROPROPANE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 1	< 0.5	< 0.25	< 0.25
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 1	< 0.5	< 0.25	< 0.25
1,2-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 1	< 0.5	< 0.25	< 0.25
1,2-DICHLOROETHANE	0.5	UG/L	0.31	0.37	0.36	< 0.5	**0.57**	< 0.5	< 0.25	< 0.25
1,2-DICHLOROPROPANE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 1	< 0.5	< 0.25	< 0.25
1,3-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 1	< 0.5	< 0.25	< 0.25
1,4-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 1	< 0.5	< 0.25	< 0.25
2-HEXANONE	1	UG/L	< 1	< 1	< 1	< 1	< 2	< 1	< 0.25	< 0.25
ACETONE	5	UG/L	< 5	< 5	< 5	< 5	< 10	< 5	3.7 J	4 J
BENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 1	< 0.5	< 0.25	< 0.25
BROMOCHLOROMETHANE	1	UG/L	< 1	< 1	< 1	< 1	< 2	< 1	< 0.25	< 0.25
BROMODICHLOROMETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 1	< 0.5	< 0.25	< 0.25
BROMOFORM	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 1	< 0.5	< 0.25	< 0.25
BROMOMETHANE	1	UG/L	< 1	< 1	< 1	< 1	< 2	< 1	< 0.25	< 0.25
CARBON DISULFIDE	1	UG/L	< 1	< 1	< 1	< 1	< 2	< 1	< 0.25	< 0.25
CARBON TETRACHLORIDE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 1	< 0.5	< 0.25	< 0.25
CHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 1	< 0.5	< 0.25	< 0.25
CHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 1	< 0.5	< 0.25	< 0.25
CHLOROFORM	0.5	UG/L	**93.1**	**109**	**106**	**111**	**125**	**15.3**	**16.6**	**16.2**
CHLOROMETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 1	< 0.5	< 0.25	< 0.25
cis-1,2-DICHLOROETHYLENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 1	< 0.5	< 0.25	< 0.25
cis-1,3-DICHLOROPROPENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 1	< 0.5	< 0.25	< 0.25
DIBROMOCHLOROMETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 1	< 0.5	< 0.25	< 0.25
ETHYLBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 1	< 0.5	< 0.25	< 0.25
METHYL ETHYL KETONE (2-BUTANONE)	1	UG/L	< 1	< 1	< 1	< 1	< 2	< 1	< 0.27	< 0.27
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	1	UG/L	< 1	< 1	< 1	< 1	< 2	< 1	< 0.25	< 0.25
METHYLENE CHLORIDE	1	UG/L	< 1	< 1	< 1	< 1	< 2	< 1	0.33 J	0.3 J
STYRENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 1	< 0.5	< 0.25	< 0.25
TETRACHLOROETHYLENE(PCE)	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 1	< 0.5	< 0.25	< 0.25
TOLUENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 1	< 0.5	< 0.25	< 0.25
trans-1,2-DICHLOROETHENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 1	< 0.5	< 0.25	< 0.25
trans-1,3-DICHLOROPROPENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 1	< 0.5	< 0.25	< 0.25
TRICHLOROETHYLENE (TCE)	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 1	< 0.5	< 0.25	< 0.25
VINYL CHLORIDE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 1	< 0.5	< 0.25	< 0.25
XYLENES, TOTAL	1	UG/L	< 1	< 1	< 1	< 1	< 2	< 1	< 0.25	< 0.25
XYLENES, TOTAL	1	UG/L	< 1	< 1	< 1	< 1	< 2	< 1	< 0.25	< 0.25

NS - Not Sampled
Results in **BOLD** text indicate detections above the CRDL.
J - Validation qualifier for estimated value; Sample exceeds quantitation range

APPENDIX D
VOLATILE ORGANIC COMPOUNDS - DDC System
2003 Annual Groundwater Treatment System and Water Monitoring Report
LEHR/SCDS Environmental Restoration
Davis, California

		Location	DDC-1C	DDC-1C	DDC-1C	DDC-1C	DDC-1C	DDC-1C	DDC-1C	DDC-2B
		Sample ID	W03012902	W03022506	W03032513	W03061813	W03081302	DDC-1C	DDC-1CD	W03010301
		Date	1/29/2003	2/25/2003	3/25/2003	6/18/2003	8/13/2003	10/14/2003	10/14/2003	1/3/2003
AnalyteNameShort	CRDL	UnitsID								
1,1,1-TRICHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 5	< 50	< 0.5	< 5	< 2.5	< 0.5
1,1,2,2-TETRACHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 5	< 50	< 0.5	< 5	< 2.5	< 0.5
1,1,2-TRICHLOROETHANE	1	UG/L	**3.9**	**6.5**	**11.7**	< 100	**23.2**	**24.8**	**25.2**	**3.1**
1,1-DICHLOROETHANE	0.5	UG/L	0.3	**1.2**	**3.3**	< 50	**9.6**	**5.6 J**	**5.5**	< 0.5
1,1-DICHLOROETHENE	0.5	UG/L	< 0.5	< 0.5	< 5	< 50	**10.4**	< 5	**2.9 J**	< 0.5
1,2-DIBROMO-3-CHLOROPROPANE	0.5	UG/L	< 0.5	< 0.5	< 5	< 50	< 0.5	< 5	< 2.5	< 0.5
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	0.5	UG/L	< 0.5	< 0.5	< 5	< 50	< 0.5	< 5	< 2.5	< 0.5
1,2-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 5	< 50	< 0.5	< 5	< 2.5	< 0.5
1,2-DICHLOROETHANE	0.5	UG/L	< 0.5	**0.85**	< 5	< 50	**7.1**	**5.9 J**	**5.9**	< 0.5
1,2-DICHLOROPROPANE	0.5	UG/L	< 0.5	< 0.5	< 5	< 50	**1.1**	< 5	< 2.5	< 0.5
1,3-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 5	< 50	< 0.5	< 5	< 2.5	< 0.5
1,4-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 5	< 50	< 0.5	< 5	< 2.5	< 0.5
2-HEXANONE	1	UG/L	< 1	< 1	< 10	< 100	< 1	< 5	< 2.5	< 1
ACETONE	5	UG/L	< 5	< 5	< 50	**39.3**	< 5	**61 J**	**31.3 J**	< 5
BENZENE	0.5	UG/L	< 0.5	< 0.5	< 5	< 50	< 0.5	< 5	< 2.5	< 0.5
BROMOCHLOROMETHANE	1	UG/L	< 1	< 1	< 10	< 100	< 1	< 5	< 2.5	< 1
BROMODICHLOROMETHANE	0.5	UG/L	< 0.5	**0.39**	< 5	< 50	**0.31**	< 5	< 2.5	< 0.5
BROMOFORM	0.5	UG/L	< 0.5	**4.2**	< 5	< 50	**1.6**	< 5	< 2.5	< 0.5
BROMOMETHANE	1	UG/L	< 1	**1.7**	**3.1**	< 100	< 1	< 5	< 2.5	< 1
CARBON DISULFIDE	1	UG/L	< 1	< 1	< 10	< 100	< 1	< 5	< 2.5	< 1
CARBON TETRACHLORIDE	0.5	UG/L	**16.1**	0.35	< 5	< 50	< 0.5	< 5	< 2.5	< 0.5
CHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 5	< 50	< 0.5	< 5	< 2.5	< 0.5
CHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 5	< 50	< 0.5	< 5	< 2.5	< 0.5
CHLOROFORM	0.5	UG/L	**161**	**541**	**1950**	**7400**	**5190**	**1730**	**3370 J**	**34.6**
CHLOROMETHANE	0.5	UG/L	< 0.5	**0.96**	**3.9**	< 50	0.3	< 5	< 2.5	< 0.5
cis-1,2-DICHLOROETHYLENE	0.5	UG/L	< 0.5	< 0.5	< 5	< 50	< 0.5	< 5	< 2.5	< 0.5
cis-1,3-DICHLOROPROPENE	0.5	UG/L	< 0.5	< 0.5	< 5	< 50	< 0.5	< 5	< 2.5	< 0.5
DIBROMOCHLOROMETHANE	0.5	UG/L	< 0.5	**0.66**	< 5	< 50	< 0.5	< 5	< 2.5	< 0.5
ETHYLBENZENE	0.5	UG/L	< 0.5	< 0.5	< 5	< 50	< 0.5	< 5	< 2.5	< 0.5
METHYL ETHYL KETONE (2-BUTANONE)	1	UG/L	< 1	< 1	< 10	< 100	< 1	< 5.4	< 2.7	< 1
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	1	UG/L	< 1	< 1	< 10	< 100	< 1	< 5	< 2.5	< 1
METHYLENE CHLORIDE	1	UG/L	< 1	< 1	< 10	**47.6**	**7.3**	**6.8 J**	**4.9 J**	< 1
STYRENE	0.5	UG/L	< 0.5	< 0.5	< 5	< 50	< 0.5	< 5	< 2.5	< 0.5
TETRACHLOROETHYLENE(PCE)	0.5	UG/L	< 0.5	< 0.5	< 5	< 50	0.35	< 5	< 2.5	< 0.5
TOLUENE	0.5	UG/L	< 0.5	< 0.5	< 5	< 50	< 0.5	< 5	< 2.5	< 0.5
trans-1,2-DICHLOROETHENE	0.5	UG/L	< 0.5	< 0.5	< 5	< 50	< 0.5	< 5	< 2.5	< 0.5
trans-1,3-DICHLOROPROPENE	0.5	UG/L	< 0.5	< 0.5	< 5	< 50	< 0.5	< 5	< 2.5	< 0.5
TRICHLOROETHYLENE (TCE)	0.5	UG/L	< 0.5	0.35	< 5	< 50	**1.4**	< 5	< 2.5	< 0.5
VINYL CHLORIDE	0.5	UG/L	< 0.5	< 0.5	< 5	< 50	< 0.5	< 5	< 2.5	< 0.5
XYLENES, TOTAL	1	UG/L	< 1	< 1	< 10	< 100	< 1	< 5	< 2.5	< 1
XYLENES, TOTAL	1	UG/L	< 1	< 1	< 10	< 100	< 1	< 5	< 2.5	< 1

NS - Not Sampled
Results in **BOLD** text indicate detections above the CRDL.
J - Validation qualifier for estimated value; Sample exceeds quantitation range

APPENDIX D
VOLATILE ORGANIC COMPOUNDS - DDC System
2003 Annual Groundwater Treatment System and Water Monitoring Report
LEHR/SCDS Environmental Restoration
Davis, California

		Location	DDC-2B	DDC-2B	DDC-2B	DDC-2B	DDC-2C	DDC-2C	DDC-2C	DDC-2C
		Sample ID	W03012801	W03022401	W03032503	W03061701	W03010302	W03012802	W03022402	W03032504
		Date	1/28/2003	2/24/2003	3/25/2003	6/17/2003	1/3/2003	1/28/2003	2/24/2003	3/25/2003
AnalyteNameShort	CRDL	UnitsID								
1,1,1-TRICHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.2
1,1,2,2-TETRACHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.2
1,1,2-TRICHLOROETHANE	1	UG/L	**4.7**	**6.2**	**9.9**	**4**	**3.6**	**6.4**	**8**	**12.8**
1,1-DICHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	0.31	< 0.5	< 0.5	< 0.5	< 0.5	< 1.2
1,1-DICHLOROETHENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.2
1,2-DIBROMO-3-CHLOROPROPANE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.2
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.2
1,2-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.2
1,2-DICHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.2
1,2-DICHLOROPROPANE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.2
1,3-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.2
1,4-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.2
2-HEXANONE	1	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 2.5
ACETONE	5	UG/L	< 5	< 5	< 5	< 5	< 5	< 5	**90.5**	< 12.5
BENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.2
BROMOCHLOROMETHANE	1	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 2.5
BROMODICHLOROMETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.2
BROMOFORM	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.2
BROMOMETHANE	1	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 2.5
CARBON DISULFIDE	1	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 2.5
CARBON TETRACHLORIDE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.2
CHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.2
CHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.2
CHLOROFORM	0.5	UG/L	**56**	**76.9**	**165**	**46.6**	**39.8**	**78.6**	**134**	**236**
CHLOROMETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.2
cis-1,2-DICHLOROETHYLENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.2
cis-1,3-DICHLOROPROPENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.2
DIBROMOCHLOROMETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.2
ETHYLBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.2
METHYL ETHYL KETONE (2-BUTANONE)	1	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 2.5
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	1	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 2.5
METHYLENE CHLORIDE	1	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 2.5
STYRENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.2
TETRACHLOROETHYLENE(PCE)	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.2
TOLUENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.2
trans-1,2-DICHLOROETHENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.2
trans-1,3-DICHLOROPROPENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.2
TRICHLOROETHYLENE (TCE)	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.2
VINYL CHLORIDE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.2
XYLENES, TOTAL	1	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 2.5
XYLENES, TOTAL	1	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 2.5

NS - Not Sampled
Results in **BOLD** text indicate detections above the CRDL.
J - Validation qualifier for estimated value; Sample exceeds quantitation range

APPENDIX D
VOLATILE ORGANIC COMPOUNDS - DDC System
2003 Annual Groundwater Treatment System and Water Monitoring Report
LEHR/SCDS Environmental Restoration
Davis, California

		Location	DDC-2C	DDC-3B	DDC-3B	DDC-3B	DDC-3B	DDC-3C	DDC-3C	DDC-3C
		Sample ID	W03061702	W03012903	W03022403	W03032505	W03061811	W03010303	W03012904	W03022404
		Date	6/17/2003	1/29/2003	2/24/2003	3/25/2003	6/18/2003	1/3/2003	1/29/2003	2/24/2003
AnalyteNameShort	CRDL	UnitsID								
1,1,1-TRICHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 1	< 0.5	< 0.5	< 0.5
1,1,2,2-TETRACHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 1	< 0.5	< 0.5	< 0.5
1,1,2-TRICHLOROETHANE	1	UG/L	**5.1**	0.65	0.45	**1.6**	**1.5**	< 1	**0.94**	**0.59**
1,1-DICHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5	**0.74**	**0.99**	< 0.5	0.29	< 0.5
1,1-DICHLOROETHENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 1	< 0.5	< 0.5	< 0.5
1,2-DIBROMO-3-CHLOROPROPANE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 1	< 0.5	< 0.5	< 0.5
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 1	< 0.5	< 0.5	< 0.5
1,2-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 1	< 0.5	< 0.5	< 0.5
1,2-DICHLOROETHANE	0.5	UG/L	< 0.5	**0.59**	**0.56**	**2.4**	**3.9**	< 0.5	**0.91**	**0.76**
1,2-DICHLOROPROPANE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 1	< 0.5	< 0.5	< 0.5
1,3-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 1	< 0.5	< 0.5	< 0.5
1,4-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 1	< 0.5	< 0.5	< 0.5
2-HEXANONE	1	UG/L	< 1	< 1	< 1	< 1	< 2	< 1	< 1	< 1
ACETONE	5	UG/L	< 5	**33.6**	< 5	< 5	< 10	**85.1 J**	**572**	< 5
BENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 1	< 0.5	< 0.5	< 0.5
BROMOCHLOROMETHANE	1	UG/L	< 1	< 1	< 1	< 1	< 2	< 1	< 1	< 1
BROMODICHLOROMETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 1	< 0.5	< 0.5	< 0.5
BROMOFORM	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 1	< 0.5	< 0.5	< 0.5
BROMOMETHANE	1	UG/L	< 1	< 1	< 1	< 1	< 2	< 1	< 1	< 1
CARBON DISULFIDE	1	UG/L	< 1	< 1	< 1	< 1	< 2	< 1	< 1	< 1
CARBON TETRACHLORIDE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 1	< 0.5	**1.6**	< 0.5
CHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 1	< 0.5	< 0.5	< 0.5
CHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 1	< 0.5	< 0.5	< 0.5
CHLOROFORM	0.5	UG/L	**66.7**	**31.9**	**26.6**	**92.1**	**115**	**5.6**	**53.4**	**39.3**
CHLOROMETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 1	< 0.5	< 0.5	< 0.5
cis-1,2-DICHLOROETHYLENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 1	< 0.5	< 0.5	< 0.5
cis-1,3-DICHLOROPROPENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 1	< 0.5	< 0.5	< 0.5
DIBROMOCHLOROMETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 1	< 0.5	< 0.5	< 0.5
ETHYLBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 1	< 0.5	< 0.5	< 0.5
METHYL ETHYL KETONE (2-BUTANONE)	1	UG/L	< 1	< 1	< 1	< 1	< 2	**2.8**	< 1	< 1
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	1	UG/L	< 1	< 1	< 1	< 1	< 2	< 1	< 1	< 1
METHYLENE CHLORIDE	1	UG/L	< 1	< 1	< 1	< 1	< 2	< 1	< 1	< 1
STYRENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 1	< 0.5	< 0.5	< 0.5
TETRACHLOROETHYLENE(PCE)	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 1	< 0.5	< 0.5	< 0.5
TOLUENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 1	< 0.5	< 0.5	< 0.5
trans-1,2-DICHLOROETHENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 1	< 0.5	< 0.5	< 0.5
trans-1,3-DICHLOROPROPENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 1	< 0.5	< 0.5	< 0.5
TRICHLOROETHYLENE (TCE)	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 1	< 0.5	< 0.5	< 0.5
VINYL CHLORIDE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 1	< 0.5	< 0.5	< 0.5
XYLENES, TOTAL	1	UG/L	< 1	< 1	< 1	< 1	< 2	< 1	< 1	< 1
XYLENES, TOTAL	1	UG/L	< 1	< 1	< 1	< 1	< 2	< 1	< 1	< 1

NS - Not Sampled
Results in **BOLD** text indicate detections above the CRDL.
J - Validation qualifier for estimated value; Sample exceeds quantitation range

APPENDIX D
VOLATILE ORGANIC COMPOUNDS - DDC System
2003 Annual Groundwater Treatment System and Water Monitoring Report
LEHR/SCDS Environmental Restoration
Davis, California

		Location	DDC-3C	DDC-3C	DDC-4B	DDC-4B	DDC-4B	DDC-4B	DDC-4C	DDC-4C
		Sample ID	W03032506	W03061812	W03012905	W03022502	W03032507	W03061703	W03010304	W03012906
		Date	3/25/2003	6/18/2003	1/29/2003	2/25/2003	3/25/2003	6/17/2003	1/3/2003	1/29/2003
AnalyteNameShort	CRDL	UnitsID								
1,1,1-TRICHLOROETHANE	0.5	UG/L	< 0.5	< 1	< 0.5	< 1	< 1	< 2.5	< 0.5	< 0.5
1,1,2,2-TETRACHLOROETHANE	0.5	UG/L	< 0.5	< 1	< 0.5	< 1	< 1	< 2.5	< 0.5	< 0.5
1,1,2-TRICHLOROETHANE	1	UG/L	**2**	**1.8**	**0.41**	**1**		**2.4**	**0.55**	**0.55**
1,1-DICHLOROETHANE	0.5	UG/L	**0.96**	**1.5**	< 0.5	< 1		< 2.5	< 0.5	0.32
1,1-DICHLOROETHENE	0.5	UG/L	< 0.5	< 1	< 0.5	< 1	< 1	< 2.5	< 0.5	< 0.5
1,2-DIBROMO-3-CHLOROPROPANE	0.5	UG/L	< 0.5	< 1	< 0.5	< 1	< 1	< 2.5	< 0.5	< 0.5
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	0.5	UG/L	< 0.5	< 1	< 0.5	< 1	< 1	< 2.5	< 0.5	< 0.5
1,2-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 1	< 0.5	< 1	< 1	< 2.5	< 0.5	< 0.5
1,2-DICHLOROETHANE	0.5	UG/L	**2.8**	**4.7**	**1.3**	**3.5**		**8**	**1.7**	**1.8**
1,2-DICHLOROPROPANE	0.5	UG/L	< 0.5	< 1	< 0.5	< 1	**0.54**	< 2.5	< 0.5	< 0.5
1,3-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 1	< 0.5	< 1	< 1	< 2.5	< 0.5	< 0.5
1,4-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 1	< 0.5	< 1	< 1	< 2.5	< 0.5	< 0.5
2-HEXANONE	1	UG/L	< 1	< 2	< 1	< 2	< 2	< 5	< 1	< 1
ACETONE	5	UG/L	< 5	< 10	**1.2**	< 10	< 10	< 25	< 5	**5.3**
BENZENE	0.5	UG/L	< 0.5	< 1	< 0.5	< 1	< 1	< 2.5	< 0.5	< 0.5
BROMOCHLOROMETHANE	1	UG/L	< 1	< 2	< 1	< 2	< 2	< 5	< 1	< 1
BROMODICHLOROMETHANE	0.5	UG/L	< 0.5	< 1	< 0.5	< 1	< 1	< 2.5	< 0.5	< 0.5
BROMOFORM	0.5	UG/L	< 0.5	< 1	< 0.5	< 1	< 1	< 2.5	< 0.5	< 0.5
BROMOMETHANE	1	UG/L	< 1	< 2	< 1	< 2	< 2	< 5	< 1	< 1
CARBON DISULFIDE	1	UG/L	< 1	< 2	< 1	< 2	< 2	< 5	< 1	< 1
CARBON TETRACHLORIDE	0.5	UG/L	< 0.5	< 1	< 0.5	< 1	< 1	< 2.5	< 0.5	< 0.5
CHLOROBENZENE	0.5	UG/L	< 0.5	< 1	< 0.5	< 1	< 1	< 2.5	< 0.5	< 0.5
CHLOROETHANE	0.5	UG/L	< 0.5	< 1	< 0.5	< 1	< 1	< 2.5	< 0.5	< 0.5
CHLOROFORM	0.5	UG/L	**124**	**156**	**62.7**	**177**	**327**	**331**	**86.6**	**106 J**
CHLOROMETHANE	0.5	UG/L	< 0.5	< 1	< 0.5	< 1	< 1	< 2.5	< 0.5	< 0.5
cis-1,2-DICHLOROETHYLENE	0.5	UG/L	< 0.5	< 1	< 0.5	< 1	< 1	< 2.5	< 0.5	< 0.5
cis-1,3-DICHLOROPROPENE	0.5	UG/L	< 0.5	< 1	< 0.5	< 1	< 1	< 2.5	< 0.5	< 0.5
DIBROMOCHLOROMETHANE	0.5	UG/L	< 0.5	< 1	< 0.5	< 1	< 1	< 2.5	< 0.5	< 0.5
ETHYLBENZENE	0.5	UG/L	< 0.5	< 1	< 0.5	< 1	< 1	< 2.5	< 0.5	< 0.5
METHYL ETHYL KETONE (2-BUTANONE)	1	UG/L	< 1	< 2	< 1	< 2	< 2	< 5	< 1	**1.4**
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	1	UG/L	< 1	< 2	< 1	< 2	< 2	< 5	< 1	< 1
METHYLENE CHLORIDE	1	UG/L	< 1	< 2	< 1	< 2	< 2	< 5	< 1	< 1
STYRENE	0.5	UG/L	< 0.5	< 1	< 0.5	< 1	< 1	< 2.5	< 0.5	< 0.5
TETRACHLOROETHYLENE(PCE)	0.5	UG/L	< 0.5	< 1	< 0.5	< 1	< 1	< 2.5	< 0.5	< 0.5
TOLUENE	0.5	UG/L	< 0.5	< 1	< 0.5	< 1	< 1	< 2.5	< 0.5	< 0.5
trans-1,2-DICHLOROETHENE	0.5	UG/L	< 0.5	< 1	< 0.5	< 1	< 1	< 2.5	< 0.5	< 0.5
trans-1,3-DICHLOROPROPENE	0.5	UG/L	< 0.5	< 1	< 0.5	< 1	< 1	< 2.5	< 0.5	< 0.5
TRICHLOROETHYLENE (TCE)	0.5	UG/L	< 0.5	< 1	< 0.5	< 1	< 1	< 2.5	< 0.5	< 0.5
VINYL CHLORIDE	0.5	UG/L	< 0.5	< 1	< 0.5	< 1	< 1	< 2.5	< 0.5	< 0.5
XYLENES, TOTAL	1	UG/L	< 1	< 2	< 1	< 2	< 2	< 5	< 1	< 1
XYLENES, TOTAL	1	UG/L	< 1	< 2	< 1	< 2	< 2	< 5	< 1	< 1

NS - Not Sampled
Results in **BOLD** text indicate detections above the CRDL.
J - Validation qualifier for estimated value; Sample exceeds quantitation range

APPENDIX D
VOLATILE ORGANIC COMPOUNDS - DDC System
2003 Annual Groundwater Treatment System and Water Monitoring Report
LEHR/SCDS Environmental Restoration
Davis, California

		Location	DDC-4C	DDC-4C	DDC-4C	DDC-5B	DDC-5B	DDC-5B	DDC-5B	DDC-5C
		Sample ID	W03022503	W03032508	W03061704	W03012907	W03022504	W03032509	W03061705	W03012908
		Date	2/25/2003	3/25/2003	6/17/2003	1/29/2003	2/25/2003	3/25/2003	6/17/2003	1/29/2003
AnalyteNameShort	CRDL	UnitsID								
1,1,1-TRICHLOROETHANE	0.5	UG/L	< 1.2	< 2.5	< 5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1,2,2-TETRACHLOROETHANE	0.5	UG/L	< 1.2	< 2.5	< 5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1,2-TRICHLOROETHANE	1	UG/L	0.97	**2.3**	< 10	< 1	< 1	< 1	< 1	< 1
1,1-DICHLOROETHANE	0.5	UG/L	**1**	**3.2**	**2.6**	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1-DICHLOROETHENE	0.5	UG/L	< 1.2	< 2.5	< 5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,2-DIBROMO-3-CHLOROPROPANE	0.5	UG/L	< 1.2	< 2.5	< 5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	0.5	UG/L	< 1.2	< 2.5	< 5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,2-DICHLOROBENZENE	0.5	UG/L	< 1.2	< 2.5	< 5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,2-DICHLOROETHANE	0.5	UG/L	**4.3**	**11.5**	**8.1**	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,2-DICHLOROPROPANE	0.5	UG/L	< 1.2	< 2.5	< 5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,3-DICHLOROBENZENE	0.5	UG/L	< 1.2	< 2.5	< 5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,4-DICHLOROBENZENE	0.5	UG/L	< 1.2	< 2.5	< 5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
2-HEXANONE	1	UG/L	< 2.5	< 5	< 10	< 1	< 1	< 1	< 1	< 1
ACETONE	5	UG/L	< 12.5	< 25	< 50	< 5	< 5	< 5	< 5	< 5
BENZENE	0.5	UG/L	< 1.2	< 2.5	< 5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
BROMOCHLOROMETHANE	1	UG/L	< 2.5	< 5	< 10	< 1	< 1	< 1	< 1	< 1
BROMODICHLOROMETHANE	0.5	UG/L	< 1.2	< 2.5	< 5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
BROMOFORM	0.5	UG/L	< 1.2	< 2.5	< 5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
BROMOMETHANE	1	UG/L	< 2.5	< 5	< 10	< 1	< 1	< 1	< 1	< 1
CARBON DISULFIDE	1	UG/L	< 2.5	< 5	< 10	< 1	< 1	< 1	< 1	< 1
CARBON TETRACHLORIDE	0.5	UG/L	< 1.2	< 2.5	< 5	< 0.5	< 0.5	< 0.5	< 0.5	**45.3**
CHLOROBENZENE	0.5	UG/L	< 1.2	< 2.5	< 5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
CHLOROETHANE	0.5	UG/L	< 1.2	< 2.5	< 5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
CHLOROFORM	0.5	UG/L	**284**	**566**	**422**	**5.3**	< 0.5	**2.6**	**2.6**	**58.7**
CHLOROMETHANE	0.5	UG/L	< 1.2	< 2.5	< 5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
cis-1,2-DICHLOROETHYLENE	0.5	UG/L	< 1.2	< 2.5	< 5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
cis-1,3-DICHLOROPROPENE	0.5	UG/L	< 1.2	< 2.5	< 5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
DIBROMOCHLOROMETHANE	0.5	UG/L	< 1.2	< 2.5	< 5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
ETHYLBENZENE	0.5	UG/L	< 1.2	< 2.5	< 5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
METHYL ETHYL KETONE (2-BUTANONE)	1	UG/L	< 2.5	< 5	< 10	< 1	< 1	< 1	< 1	< 1
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	1	UG/L	< 2.5	< 5	< 10	< 1	< 1	< 1	< 1	**1.3**
METHYLENE CHLORIDE	1	UG/L	< 2.5	< 5	< 10	< 1	**1**	< 1	0.29	< 1
STYRENE	0.5	UG/L	< 1.2	< 2.5	< 5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
TETRACHLOROETHYLENE(PCE)	0.5	UG/L	< 1.2	< 2.5	< 5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
TOLUENE	0.5	UG/L	< 1.2	< 2.5	< 5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
trans-1,2-DICHLOROETHENE	0.5	UG/L	< 1.2	< 2.5	< 5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
trans-1,3-DICHLOROPROPENE	0.5	UG/L	< 1.2	< 2.5	< 5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
TRICHLOROETHYLENE (TCE)	0.5	UG/L	< 1.2	< 2.5	< 5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
VINYL CHLORIDE	0.5	UG/L	< 1.2	< 2.5	< 5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
XYLENES, TOTAL	1	UG/L	< 2.5	< 5	< 10	< 1	< 1	< 1	< 1	0.38
XYLENES, TOTAL	1	UG/L	< 2.5	< 5	< 10	< 1	< 1	< 1	< 1	0.38

NS - Not Sampled
Results in **BOLD** text indicate detections above the CRDL.
J - Validation qualifier for estimated value; Sample exceeds quantitation range

APPENDIX D
VOLATILE ORGANIC COMPOUNDS - DDC System
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LEHR/SCDS Environmental Restoration
Davis, California

		Location	DDC-5C	DDC-5C	DDC-5C	DDC-6B	DDC-6B	DDC-6B	DDC-6B	DDC-6B
		Sample ID	W03022505	W03032510	W03061706	W03010305	W03012803	W03022405	W03022406	W03032511
		Date	2/25/2003	3/25/2003	6/17/2003	1/3/2003	1/28/2003	2/24/2003	2/24/2003	3/25/2003
AnalyteNameShort	CRDL	UnitsID								
1,1,1-TRICHLOROETHANE	0.5	UG/L	< 1.2	< 2.5	< 5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1,2,2-TETRACHLOROETHANE	0.5	UG/L	< 1.2	< 2.5	< 5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1,2-TRICHLOROETHANE	1	UG/L	**2.6**	**6.3**	**2.9**	**2.9**	**1.8**	**2.5**	**2.2**	**5.9**
1,1-DICHLOROETHANE	0.5	UG/L	**0.77**	**2.3**	< 5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1-DICHLOROETHENE	0.5	UG/L	**0.66**	**2.5**	< 5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,2-DIBROMO-3-CHLOROPROPANE	0.5	UG/L	< 1.2	< 2.5	< 5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	0.5	UG/L	< 1.2	< 2.5	< 5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,2-DICHLOROBENZENE	0.5	UG/L	< 1.2	< 2.5	< 5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,2-DICHLOROETHANE	0.5	UG/L	< 1.2	< 2.5	< 5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,2-DICHLOROPROPANE	0.5	UG/L	< 1.2	< 2.5	< 5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,3-DICHLOROBENZENE	0.5	UG/L	< 1.2	< 2.5	< 5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,4-DICHLOROBENZENE	0.5	UG/L	< 1.2	< 2.5	< 5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
2-HEXANONE	1	UG/L	< 2.5	< 5	< 10	< 1	< 1	< 1	< 1	< 1
ACETONE	5	UG/L	< 12.5	< 25	< 50	< 5	< 5	< 5	< 5	< 5
BENZENE	0.5	UG/L	< 1.2	< 2.5	< 5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
BROMOCHLOROMETHANE	1	UG/L	< 2.5	< 5	< 10	< 1	< 1	< 1	< 1	< 1
BROMODICHLOROMETHANE	0.5	UG/L	< 1.2	< 2.5	< 5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
BROMOFORM	0.5	UG/L	< 1.2	< 2.5	< 5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
BROMOMETHANE	1	UG/L	**1.4**	**2.8**	< 10	< 1	< 1	< 1	< 1	< 1
CARBON DISULFIDE	1	UG/L	< 2.5	< 5	< 10	< 1	< 1	< 1	< 1	< 1
CARBON TETRACHLORIDE	0.5	UG/L	**1.2**	< 2.5	< 5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
CHLOROBENZENE	0.5	UG/L	< 1.2	< 2.5	< 5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
CHLOROETHANE	0.5	UG/L	< 1.2	< 2.5	< 5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
CHLOROFORM	0.5	UG/L	**450**	**1160**	**515**	**69.8**	**42.1**	**65.8**	**66.3**	**196**
CHLOROMETHANE	0.5	UG/L	**2.3**	**3.6**	< 5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
cis-1,2-DICHLOROETHYLENE	0.5	UG/L	< 1.2	< 2.5	< 5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
cis-1,3-DICHLOROPROPENE	0.5	UG/L	< 1.2	< 2.5	< 5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
DIBROMOCHLOROMETHANE	0.5	UG/L	< 1.2	< 2.5	< 5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
ETHYLBENZENE	0.5	UG/L	< 1.2	< 2.5	< 5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
METHYL ETHYL KETONE (2-BUTANONE)	1	UG/L	< 2.5	< 5	< 10	< 1	< 1	< 1	< 1	< 1
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	1	UG/L	**1.8**	**2.6**	< 10	< 1	< 1	< 1	< 1	< 1
METHYLENE CHLORIDE	1	UG/L	< 2.5	**1.7**	< 10	< 1	< 1	< 1	< 1	< 1
STYRENE	0.5	UG/L	< 1.2	< 2.5	< 5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
TETRACHLOROETHYLENE(PCE)	0.5	UG/L	< 1.2	< 2.5	< 5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
TOLUENE	0.5	UG/L	< 1.2	< 2.5	< 5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
trans-1,2-DICHLOROETHENE	0.5	UG/L	< 1.2	< 2.5	< 5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
trans-1,3-DICHLOROPROPENE	0.5	UG/L	< 1.2	< 2.5	< 5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
TRICHLOROETHYLENE (TCE)	0.5	UG/L	< 1.2	< 2.5	< 5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
VINYL CHLORIDE	0.5	UG/L	< 1.2	< 2.5	< 5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
XYLENES, TOTAL	1	UG/L	< 2.5	< 5	< 10	< 1	< 1	< 1	< 1	< 1
XYLENES, TOTAL	1	UG/L	< 2.5	< 5	< 10	< 1	< 1	< 1	< 1	< 1

NS - Not Sampled
Results in **BOLD** text indicate detections above the CRDL.
J - Validation qualifier for estimated value; Sample exceeds quantitation range

APPENDIX D
VOLATILE ORGANIC COMPOUNDS - DDC System
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		Location	DDC-6B	DDC-6C	DDC-6C	DDC-6C	DDC-6C	DDC-6C
		Sample ID	W03061707	W03010306	W03012804	W03022407	W03032512	W03061708
		Date	6/17/2003	1/3/2003	1/28/2003	2/24/2003	3/25/2003	6/17/2003
AnalyteNameShort	CRDL	UnitsID						
1,1,1-TRICHLOROETHANE	0.5	UG/L	< 0.5	< 1	< 0.5	< 0.5	< 1	< 0.5
1,1,2,2-TETRACHLOROETHANE	0.5	UG/L	< 0.5	< 1	< 0.5	< 0.5	< 1	< 0.5
1,1,2-TRICHLOROETHANE	1	UG/L	**1.4**	**3.4**	**3.2**	**3.2**	**5**	**2.7**
1,1-DICHLOROETHANE	0.5	UG/L	< 0.5	< 1	< 0.5	< 0.5	< 1	< 0.5
1,1-DICHLOROETHENE	0.5	UG/L	< 0.5	< 1	< 0.5	< 0.5	< 1	< 0.5
1,2-DIBROMO-3-CHLOROPROPANE	0.5	UG/L	< 0.5	< 1	< 0.5	< 0.5	< 1	< 0.5
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	0.5	UG/L	< 0.5	< 1	< 0.5	< 0.5	< 1	< 0.5
1,2-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 1	< 0.5	< 0.5	< 1	< 0.5
1,2-DICHLOROETHANE	0.5	UG/L	< 0.5	< 1	< 0.5	< 0.5	< 1	< 0.5
1,2-DICHLOROPROPANE	0.5	UG/L	< 0.5	< 1	< 0.5	< 0.5	< 1	< 0.5
1,3-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 1	< 0.5	< 0.5	< 1	< 0.5
1,4-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 1	< 0.5	< 0.5	< 1	< 0.5
2-HEXANONE	1	UG/L	< 1	< 2	< 1	< 1	< 2	< 1
ACETONE	5	UG/L	< 5	< 10	3.1	< 5	< 10	< 5
BENZENE	0.5	UG/L	< 0.5	< 1	< 0.5	< 0.5	< 1	< 0.5
BROMOCHLOROMETHANE	1	UG/L	< 1	< 2	< 1	< 1	< 2	< 1
BROMODICHLOROMETHANE	0.5	UG/L	< 0.5	< 1	< 0.5	< 0.5	**0.53**	< 0.5
BROMOFORM	0.5	UG/L	< 0.5	< 1	< 0.5	< 0.5	**4.4**	< 0.5
BROMOMETHANE	1	UG/L	< 1	< 2	< 1	0.68	**5.8**	< 1
CARBON DISULFIDE	1	UG/L	< 1	< 2	< 1	< 1	< 2	< 1
CARBON TETRACHLORIDE	0.5	UG/L	< 0.5	< 1	< 0.5	< 0.5	< 1	< 0.5
CHLOROBENZENE	0.5	UG/L	< 0.5	< 1	< 0.5	< 0.5	< 1	< 0.5
CHLOROETHANE	0.5	UG/L	< 0.5	< 1	< 0.5	< 0.5	< 1	< 0.5
CHLOROFORM	0.5	UG/L	**26.9**	**104**	**148**	**155**	**218**	**90.7**
CHLOROMETHANE	0.5	UG/L	< 0.5	< 1	< 0.5	< 0.5	**0.9**	< 0.5
cis-1,2-DICHLOROETHYLENE	0.5	UG/L	< 0.5	< 1	< 0.5	< 0.5	< 1	< 0.5
cis-1,3-DICHLOROPROPENE	0.5	UG/L	< 0.5	< 1	< 0.5	< 0.5	< 1	< 0.5
DIBROMOCHLOROMETHANE	0.5	UG/L	< 0.5	< 1	< 0.5	< 0.5	**0.95**	< 0.5
ETHYLBENZENE	0.5	UG/L	< 0.5	< 1	< 0.5	< 0.5	< 1	< 0.5
METHYL ETHYL KETONE (2-BUTANONE)	1	UG/L	< 1	< 2	< 1	< 1	< 2	< 1
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	1	UG/L	< 1	< 2	< 1	< 1	< 2	< 1
METHYLENE CHLORIDE	1	UG/L	< 1	< 2	< 1	< 1	< 2	< 1
STYRENE	0.5	UG/L	< 0.5	< 1	< 0.5	< 0.5	< 1	< 0.5
TETRACHLOROETHYLENE(PCE)	0.5	UG/L	< 0.5	< 1	< 0.5	< 0.5	< 1	< 0.5
TOLUENE	0.5	UG/L	< 0.5	< 1	< 0.5	< 0.5	< 1	< 0.5
trans-1,2-DICHLOROETHENE	0.5	UG/L	< 0.5	< 1	< 0.5	< 0.5	< 1	< 0.5
trans-1,3-DICHLOROPROPENE	0.5	UG/L	< 0.5	< 1	< 0.5	< 0.5	< 1	< 0.5
TRICHLOROETHYLENE (TCE)	0.5	UG/L	< 0.5	< 1	< 0.5	< 0.5	< 1	< 0.5
VINYL CHLORIDE	0.5	UG/L	< 0.5	< 1	< 0.5	< 0.5	< 1	< 0.5
XYLENES, TOTAL	1	UG/L	< 1	< 2	< 1	< 1	< 2	< 1
XYLENES, TOTAL	1	UG/L	< 1	< 2	< 1	< 1	< 2	< 1

NS - Not Sampled
Results in **BOLD** text indicate detections above the CRDL.
J - Validation qualifier for estimated value; Sample exceeds quantitation range

APPENDIX D
VOLATILE ORGANIC COMPOUNDS IN AIR- DDC System
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		Location	DDC-1	DDC-1	DDC-1	DDC-1	DDC-1	DDC-1	DDC-2	DDC-2
		Sample ID	A02121701	A02122301	A02123101	A03012901	A03081501	A03081502	A02121702	A02122302
		Date	12/17/2002	12/23/2002	12/31/2002	1/29/2003	8/15/2003	8/15/2003	12/17/2002	12/23/2002
AnalyteNameShort	CRDL	UnitsID								
1,1,1-TRICHLOROETHANE	0.5	UG/L	< 2	< 2	< 4	< 5	< 2	< 2	< 2	< 2
1,1,2,2-TETRACHLOROETHANE	0.5	UG/L	< 2	< 2	< 4	< 5	< 2	< 2	< 2	< 2
1,1,2-TRICHLOROETHANE	1	UG/L	**3**	**3.6**	**4.3**	**9.1**	< 2	< 2	**7.8**	**8.7**
1,1-DICHLOROETHANE	0.5	UG/L	< 2	**2**	< 4	**5.2**	< 2	< 2	< 2	< 2
1,1-DICHLOROETHENE	0.5	UG/L	< 2	**2.2**	< 4	**6.2**	< 2	< 2	< 2	< 2
1,2,4-TRICHLOROBENZENE	10	UG/L	< 8	< 8	< 16	< 20	< 8	< 8	< 8	< 8
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	0.5	UG/L	< 2	< 2	< 4	< 5	< 2	< 2	< 2	< 2
1,2-DICHLOROBENZENE	0.5	UG/L	< 2	< 2	< 4	< 5	< 2	< 2	< 2	< 2
1,2-DICHLOROETHANE	0.5	UG/L	< 2	< 2	< 4	< 5	< 2	< 2	< 2	< 2
1,2-DICHLOROPROPANE	0.5	UG/L	< 2	< 2	< 4	< 5	< 2	< 2	< 2	< 2
1,3-DICHLOROBENZENE	0.5	UG/L	< 2	< 2	< 4	< 5	< 2	< 2	< 2	< 2
1,4-DICHLOROBENZENE	0.5	UG/L	< 2	< 2	< 4	< 5	< 2	< 2	< 2	< 2
2-HEXANONE	1	UG/L	< 8	< 8	< 16	< 20	< 8	< 8	< 8	< 8
BENZENE	0.5	UG/L	< 2	< 2	< 4	< 5	< 2	< 2	< 2	< 2
BROMODICHLOROMETHANE	0.5	UG/L	< 8	< 8	< 16	< 20	< 2	< 2	< 8	< 8
BROMOFORM	0.5	UG/L	< 8	< 8	< 16	< 20	< 8	< 8	< 8	< 8
BROMOMETHANE	1	UG/L	< 2	< 2	< 4	< 5	< 2	< 2	< 2	< 2
CARBON DISULFIDE	1	UG/L	< 8	< 8	< 16	< 20	< 8	< 8	< 8	< 8
CARBON TETRACHLORIDE	0.5	UG/L	< 2	< 2	< 4	< 5	< 2	< 2	< 2	< 2
CHLOROBENZENE	0.5	UG/L	< 2	< 2	< 4	< 5	< 2	< 2	< 2	< 2
CHLOROETHANE	0.5	UG/L	< 2	< 2	< 4	< 5	< 2	< 2	< 2	< 2
CHLOROFORM	0.5	UG/L	**540**	**600**	**730**	**1900**	**21**	**20**	**510**	**560**
CHLOROMETHANE	0.5	UG/L	< 2	< 2	< 4	< 5	< 8	< 8	< 2	< 2
cis-1,2-DICHLOROETHYLENE	0.5	UG/L	< 2	< 2	< 4	< 5	< 2	< 2	< 2	< 2
cis-1,3-DICHLOROPROPENE	0.5	UG/L	< 2	< 2	< 4	< 5	< 2	< 2	< 2	< 2
DIBROMOCHLOROMETHANE	0.5	UG/L	< 8	< 8	< 16	< 20	< 2	< 2	< 8	< 8
ETHYLBENZENE	0.5	UG/L	< 2	< 2	< 4	< 5	**2.7**	**2.6**	< 2	< 2
HEXACHLOROBUTADIENE	10	UG/L	< 8	< 8	< 16	< 20	< 8	< 8	< 8	< 8
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	1	UG/L	< 8	< 8	< 16	< 20	< 8	< 8	< 8	< 8
METHYLENE CHLORIDE	1	UG/L	< 2	< 2	< 4	< 5	**7.8**	**7.7**	< 2	< 2
STYRENE	0.5	UG/L	< 2	< 2	< 4	< 5	< 2	< 2	< 2	< 2
TETRACHLOROETHYLENE(PCE)	0.5	UG/L	< 2	< 2	< 4	< 5	< 2	< 2	< 2	< 2
TOLUENE	0.5	UG/L	**2**	**2.8**	**6.7**	< 5	**6.4**	**6.1**	< 2	**3.1**
trans-1,2-DICHLOROETHENE	0.5	UG/L	< 8	< 8	< 16	< 20	< 8	< 8	< 8	< 8
trans-1,3-DICHLOROPROPENE	0.5	UG/L	< 2	< 2	< 4	< 5	< 2	< 2	< 2	< 2
TRICHLOROETHYLENE (TCE)	0.5	UG/L	< 2	< 2	< 4	< 5	< 2	< 2	< 2	< 2
VINYL CHLORIDE	0.5	UG/L	< 2	< 2	< 4	< 5	< 2	< 2	< 2	< 2

NS - Not Sampled

APPENDIX D
VOLATILE ORGANIC COMPOUNDS IN AIR- DDC System
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		Location	DDC-2	DDC-2	DDC-3	DDC-3	DDC-3	DDC-3	DDC-4	DDC-4
		Sample ID	A02123102	A03012902	A02121703	A02122303	A02123103	A03012903	A02121704	A02122304
		Date	12/31/2002	1/29/2003	12/17/2002	12/23/2002	12/31/2002	1/29/2003	12/17/2002	12/23/2002
AnalyteNameShort	CRDL	UnitsID								
1,1,1-TRICHLOROETHANE	0.5	UG/L	< 2	< 4	< 2	< 2	< 2.5	< 1	< 5	< 6.6
1,1,2,2-TETRACHLOROETHANE	0.5	UG/L	< 2	< 4	< 2	< 2	< 2.5	< 1	< 5	< 6.6
1,1,2-TRICHLOROETHANE	1	UG/L	**6.8**	**7.4**	< 2	**4.2**	**4**	< 1	< 5	< 6.6
1,1-DICHLOROETHANE	0.5	UG/L	< 2	< 4	**4.4**	**2.5**	< 2.5	**1.8**	**5.9**	< 6.6
1,1-DICHLOROETHENE	0.5	UG/L	< 2	< 4	**2.1**	**2.5**	**2.8**	< 1	**5.6**	< 6.6
1,2,4-TRICHLOROBENZENE	10	UG/L	< 8	< 16	< 8	< 8	< 10	< 4	< 20	< 27
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	0.5	UG/L	< 2	< 4	< 2	< 2	< 2.5	< 1	< 5	< 6.6
1,2-DICHLOROBENZENE	0.5	UG/L	< 2	< 4	< 2	< 2	< 2.5	< 1	< 5	< 6.6
1,2-DICHLOROETHANE	0.5	UG/L	< 2	< 4	< 2	< 2	< 2.5	**1.5**	**8.1**	**8.4**
1,2-DICHLOROPROPANE	0.5	UG/L	< 2	< 4	< 2	< 2	< 2.5	< 1	< 5	< 6.6
1,3-DICHLOROBENZENE	0.5	UG/L	< 2	< 4	< 2	< 2	< 2.5	< 1	< 5	< 6.6
1,4-DICHLOROBENZENE	0.5	UG/L	< 2	< 4	< 2	< 2	< 2.5	< 1	< 5	< 6.6
2-HEXANONE	1	UG/L	< 8	< 16	< 8	< 8	< 10	< 4	< 20	< 27
BENZENE	0.5	UG/L	< 2	< 4	< 2	< 2	< 2.5	< 1	< 5	< 6.6
BROMODICHLOROMETHANE	0.5	UG/L	< 8	< 16	< 8	< 8	< 10	< 4	< 20	< 27
BROMOFORM	0.5	UG/L	< 8	< 16	< 8	< 8	< 10	< 4	< 20	< 27
BROMOMETHANE	1	UG/L	< 2	< 4	< 2	< 2	< 2.5	< 1	< 5	< 6.6
CARBON DISULFIDE	1	UG/L	< 8	< 16	< 8	< 8	< 10	< 4	< 20	< 27
CARBON TETRACHLORIDE	0.5	UG/L	< 2	< 4	< 2	< 2	< 2.5	< 1	< 5	< 6.6
CHLOROBENZENE	0.5	UG/L	< 2	< 4	< 2	< 2	< 2.5	< 1	< 5	< 6.6
CHLOROETHANE	0.5	UG/L	< 2	< 4	< 2	< 2	< 2.5	< 1	< 5	< 6.6
CHLOROFORM	0.5	UG/L	**450**	**860**	**570**	**710**	**740**	**230**	**1400**	**1400**
CHLOROMETHANE	0.5	UG/L	< 2	< 4	< 2	< 2	< 2.5	< 1	< 5	< 6.6
cis-1,2-DICHLOROETHYLENE	0.5	UG/L	< 2	< 4	< 2	< 2	< 2.5	< 1	< 5	< 6.6
cis-1,3-DICHLOROPROPENE	0.5	UG/L	< 2	< 4	< 2	< 2	< 2.5	< 1	< 5	< 6.6
DIBROMOCHLOROMETHANE	0.5	UG/L	< 8	< 16	< 8	< 8	< 10	< 4	< 20	< 27
ETHYLBENZENE	0.5	UG/L	**2.3**	< 4	< 2	< 2	< 2.5	< 1	< 5	< 6.6
HEXACHLOROBUTADIENE	10	UG/L	< 8	< 16	< 8	< 8	< 10	< 4	< 20	< 27
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	1	UG/L	< 8	< 16	< 8	< 8	< 10	< 4	< 20	< 27
METHYLENE CHLORIDE	1	UG/L	< 2	< 4	< 2	< 2	< 2.5	**14**	< 5	< 6.6
STYRENE	0.5	UG/L	< 2	< 4	< 2	< 2	< 2.5	< 1	< 5	< 6.6
TETRACHLOROETHYLENE(PCE)	0.5	UG/L	< 2	< 4	< 2	< 2	< 2.5	< 1	< 5	< 6.6
TOLUENE	0.5	UG/L	**11**	< 4	**4.3**	< 2	**5.3**	**3.3**	< 5	< 6.6
trans-1,2-DICHLOROETHENE	0.5	UG/L	< 8	< 16	< 8	< 8	< 10	< 4	< 20	< 27
trans-1,3-DICHLOROPROPENE	0.5	UG/L	< 2	< 4	< 2	< 2	< 2.5	< 1	< 5	< 6.6
TRICHLOROETHYLENE (TCE)	0.5	UG/L	< 2	< 4	< 2	< 2	< 2.5	< 1	< 5	< 6.6
VINYL CHLORIDE	0.5	UG/L	< 2	< 4	< 2	< 2	< 2.5	< 1	< 5	< 6.6

NS - Not Sampled

APPENDIX D
VOLATILE ORGANIC COMPOUNDS IN AIR- DDC System
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		Location	DDC-4	DDC-4	DDC-5	DDC-5	DDC-5	DDC-5	DDC-6	DDC-6
		Sample ID	A02123104	A03012904	A02121705	A02122305	A02123105	A03012905	A02121706	A02122306
		Date	12/31/2002	1/29/2003	12/17/2002	12/23/2002	12/31/2002	1/29/2003	12/17/2002	12/23/2002
AnalyteNameShort	CRDL	UnitsID								
1,1,1-TRICHLOROETHANE	0.5	UG/L	< 4	< 4	< 1.3	< 1	< 2	< 0.5	< 2.5	< 2
1,1,2,2-TETRACHLOROETHANE	0.5	UG/L	< 4	< 4	< 1.3	< 1	< 2	< 0.5	< 2.5	< 2
1,1,2-TRICHLOROETHANE	1	UG/L	< 4	< 4	< 1.3	< 1	< 2	< 0.5	**3.1**	**3.9**
1,1-DICHLOROETHANE	0.5	UG/L	**7**	**4.5**	< 1.3	< 1	< 2	< 0.5	< 2.5	**2.4**
1,1-DICHLOROETHENE	0.5	UG/L	**6.2**	< 4	**1.4**	**2.2**	< 2	< 0.5	< 2.5	**3**
1,2,4-TRICHLOROBENZENE	10	UG/L	< 16	< 16	< 5.3	< 4	< 8	< 2	< 10	< 8
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	0.5	UG/L	< 4	< 4	< 1.3	< 1	< 2	< 0.5	< 2.5	< 2
1,2-DICHLOROBENZENE	0.5	UG/L	< 4	< 4	< 1.3	< 1	< 2	< 0.5	< 2.5	< 2
1,2-DICHLOROETHANE	0.5	UG/L	**11**	**6.7**	< 1.3	< 1	< 2	< 0.5	< 2.5	**2.6**
1,2-DICHLOROPROPANE	0.5	UG/L	< 4	< 4	< 1.3	< 1	< 2	< 0.5	< 2.5	< 2
1,3-DICHLOROBENZENE	0.5	UG/L	< 4	< 4	< 1.3	< 1	< 2	< 0.5	< 2.5	< 2
1,4-DICHLOROBENZENE	0.5	UG/L	< 4	< 4	< 1.3	< 1	< 2	< 0.5	< 2.5	< 2
2-HEXANONE	1	UG/L	< 16	< 16	< 5.3	< 4	< 8	< 2	< 10	< 8
BENZENE	0.5	UG/L	< 4	< 4	< 1.3	< 1	< 2	< 0.5	< 2.5	< 2
BROMODICHLOROMETHANE	0.5	UG/L	< 16	< 16	< 5.3	< 4	< 8	< 2	< 10	< 8
BROMOFORM	0.5	UG/L	< 16	< 16	< 5.3	< 4	< 8	< 2	< 10	< 8
BROMOMETHANE	1	UG/L	< 4	< 4	< 1.3	< 1	< 2	< 0.5	< 2.5	< 2
CARBON DISULFIDE	1	UG/L	< 16	< 16	< 5.3	< 4	< 8	< 2	< 10	< 8
CARBON TETRACHLORIDE	0.5	UG/L	< 4	< 4	< 1.3	< 1	< 2	< 0.5	< 2.5	< 2
CHLOROBENZENE	0.5	UG/L	< 4	< 4	< 1.3	< 1	< 2	< 0.5	< 2.5	< 2
CHLOROETHANE	0.5	UG/L	< 4	< 4	< 1.3	< 1	< 2	< 0.5	< 2.5	< 2
CHLOROFORM	0.5	UG/L	**1500**	**1100**	**290**	**390**	**360**	**76**	**640**	**720**
CHLOROMETHANE	0.5	UG/L	< 4	< 4	< 1.3	< 1	< 2	< 0.5	< 2.5	< 2
cis-1,2-DICHLOROETHYLENE	0.5	UG/L	< 4	< 4	< 1.3	< 1	< 2	< 0.5	< 2.5	< 2
cis-1,3-DICHLOROPROPENE	0.5	UG/L	< 4	< 4	< 1.3	< 1	< 2	< 0.5	< 2.5	< 2
DIBROMOCHLOROMETHANE	0.5	UG/L	< 16	< 16	< 5.3	< 4	< 8	< 2	< 10	< 8
ETHYLBENZENE	0.5	UG/L	< 4	< 4	**1.6**	< 1	**2.4**	**1.3**	< 2.5	< 2
HEXACHLOROBUTADIENE	10	UG/L	< 16	< 16	< 5.3	< 4	< 8	< 2	< 10	< 8
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	1	UG/L	< 16	< 16	< 5.3	< 4	< 8	< 2	< 10	< 8
METHYLENE CHLORIDE	1	UG/L	< 4	< 4	< 1.3	1	< 2	0.98	< 2.5	< 2
STYRENE	0.5	UG/L	< 4	< 4	< 1.3	< 1	< 2	< 0.5	< 2.5	< 2
TETRACHLOROETHYLENE(PCE)	0.5	UG/L	< 4	< 4	< 1.3	< 1	< 2	< 0.5	< 2.5	< 2
TOLUENE	0.5	UG/L	**5.9**	< 4	**1.9**	**2.7**	**15**	**4**	**2.9**	**3.4**
trans-1,2-DICHLOROETHENE	0.5	UG/L	< 16	< 16	< 5.3	< 4	< 8	< 2	< 10	< 8
trans-1,3-DICHLOROPROPENE	0.5	UG/L	< 4	< 4	< 1.3	< 1	< 2	< 0.5	< 2.5	< 2
TRICHLOROETHYLENE (TCE)	0.5	UG/L	< 4	< 4	< 1.3	< 1	< 2	< 0.5	< 2.5	< 2
VINYL CHLORIDE	0.5	UG/L	< 4	< 4	< 1.3	< 1	< 2	< 0.5	< 2.5	< 2

NS - Not Sampled

APPENDIX D
VOLATILE ORGANIC COMPOUNDS IN AIR- DDC System
November 2002 to Present
Groundwater Treatment System and Water Monitoring Report
LEHR/SCDS Environmental Restoration
Davis, California

		Location	DDC-6	DDC-6	DDC-OUTLET	DDC-OUTLET	DDC-Stack	DDC-Stack
		Sample ID	A02123106	A03012906	A03061801	A03061802	A03022501	A03041701
		Date	12/31/2002	1/29/2003	6/18/2003	6/18/2003	2/25/2003	4/17/2003
AnalyteNameShort	CRDL	UnitsID						
1,1,1-TRICHLOROETHANE	0.5	UG/L	< 4	< 3.3	< 2	< 2	< 4	< 6.6
1,1,2,2-TETRACHLOROETHANE	0.5	UG/L	< 4	< 3.3	< 2	< 2	< 4	< 6.6
1,1,2-TRICHLOROETHANE	1	UG/L	< 4	**5.3**	< 2	< 2	< 4	< 6.6
1,1-DICHLOROETHANE	0.5	UG/L	< 4	< 3.3	< 2	< 2	**4.9**	**14**
1,1-DICHLOROETHENE	0.5	UG/L	< 4	< 3.3	< 2	< 2	< 4	< 6.6
1,2,4-TRICHLOROBENZENE	10	UG/L	< 16	< 13	< 8	< 8	< 16	< 27
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	0.5	UG/L	< 4	< 3.3	< 2	< 2	< 4	< 6.6
1,2-DICHLOROBENZENE	0.5	UG/L	< 4	< 3.3	< 2	< 2	< 4	< 6.6
1,2-DICHLOROETHANE	0.5	UG/L	< 4	< 3.3	< 2	< 2	**4.8**	**19**
1,2-DICHLOROPROPANE	0.5	UG/L	< 4	< 3.3	< 2	< 2	< 4	< 6.6
1,3-DICHLOROBENZENE	0.5	UG/L	< 4	< 3.3	< 2	< 2	< 4	< 6.6
1,4-DICHLOROBENZENE	0.5	UG/L	< 4	< 3.3	< 2	< 2	< 4	< 6.6
2-HEXANONE	1	UG/L	< 16	< 13	< 8	< 8	< 16	< 27
BENZENE	0.5	UG/L	< 4	< 3.3	< 2	< 2	< 4	< 6.6
BROMODICHLOROMETHANE	0.5	UG/L	< 16	< 13	< 2	< 2	< 16	< 27
BROMOFORM	0.5	UG/L	< 16	< 13	< 8	< 8	< 16	< 27
BROMOMETHANE	1	UG/L	< 4	< 3.3	< 2	< 2	< 4	< 6.6
CARBON DISULFIDE	1	UG/L	< 16	< 13	< 8	< 8	< 16	< 27
CARBON TETRACHLORIDE	0.5	UG/L	< 4	< 3.3	< 2	< 2	< 4	< 6.6
CHLOROBENZENE	0.5	UG/L	< 4	< 3.3	< 2	< 2	< 4	< 6.6
CHLOROETHANE	0.5	UG/L	< 4	< 3.3	< 2	< 2	< 4	< 6.6
CHLOROFORM	0.5	UG/L	**750**	**800**	**5.4**	**5**	**840**	**1500**
CHLOROMETHANE	0.5	UG/L	< 4	< 3.3	< 8	< 8	< 4	< 6.6
cis-1,2-DICHLOROETHYLENE	0.5	UG/L	< 4	< 3.3	< 2	< 2	< 4	< 6.6
cis-1,3-DICHLOROPROPENE	0.5	UG/L	< 4	< 3.3	< 2	< 2	< 4	< 6.6
DIBROMOCHLOROMETHANE	0.5	UG/L	< 16	< 13	< 2	< 2	< 16	< 27
ETHYLBENZENE	0.5	UG/L	< 4	< 3.3	**3.6**	**3.1**	< 4	< 6.6
HEXACHLOROBUTADIENE	10	UG/L	< 16	< 13	< 8	< 8	< 16	< 27
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	1	UG/L	< 16	< 13	< 8	< 8	< 16	< 27
METHYLENE CHLORIDE	1	UG/L	< 4	< 3.3	< 2	< 2	< 4	< 6.6
STYRENE	0.5	UG/L	< 4	< 3.3	**3.4**	**3.2**	< 4	< 6.6
TETRACHLOROETHYLENE(PCE)	0.5	UG/L	< 4	< 3.3	< 2	< 2	< 4	< 6.6
TOLUENE	0.5	UG/L	**17**	< 3.3	**16**	**14**	< 4	< 6.6
trans-1,2-DICHLOROETHENE	0.5	UG/L	< 16	< 13	< 8	< 8	< 16	< 27
trans-1,3-DICHLOROPROPENE	0.5	UG/L	< 4	< 3.3	< 2	< 2	< 4	< 6.6
TRICHLOROETHYLENE (TCE)	0.5	UG/L	< 4	< 3.3	< 2	< 2	< 4	< 6.6
VINYL CHLORIDE	0.5	UG/L	< 4	< 3.3	< 2	< 2	< 4	< 6.6

NS - Not Sampled

APPENDIX D
VOLATILE ORGANIC COMPOUNDS - GROUNDWATER
2003 Annual Groundwater Treatment System and Water Monitoring Report
LEHR/SCDS Environmental Restoration
Davis, California

		Location	TP-1B	TP-1B	TP-1B	TP-1C	TP-1C	TP-1C	TP-2B	TP-2B
		Sample ID	W03061801	W03081401	TP-1B	W03061802	W03081402	TP-1C	W03061815	W03081403
		Date	6/18/2003	8/14/2003	10/15/2003	6/18/2003	8/14/2003	10/15/2003	6/18/2003	8/14/2003
AnalyteNameShort	CRDL	UnitsID								
1,1,1-TRICHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 12.5	< 0.5	< 6.25	< 5	< 2.5
1,1,2,2-TETRACHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 12.5	< 0.5	< 6.25	< 5	< 2.5
1,1,2-TRICHLOROETHANE	1	UG/L	0.45	< 1	< 0.25	**6.9**	**10.4**	**10 J**	< 10	< 5
1,1-DICHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 12.5	**6.8**	< 6.25	**2.5**	**3**
1,1-DICHLOROETHENE	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 12.5	**4.1**	< 6.25	< 5	**2.3**
1,2-DIBROMO-3-CHLOROPROPANE	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 12.5	< 0.5	< 6.25	< 5	< 2.5
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 12.5	< 0.5	< 6.25	< 5	< 2.5
1,2-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 12.5	< 0.5	< 6.25	< 5	< 2.5
1,2-DICHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 12.5	**3.3**	< 6.25	< 5	**1.6**
1,2-DICHLOROPROPANE	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 12.5	0.31	< 6.25	< 5	< 2.5
1,3-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 12.5	< 0.5	< 6.25	< 5	< 2.5
1,4-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 12.5	< 0.5	< 6.25	< 5	< 2.5
2-HEXANONE	1	UG/L	< 1	< 1	< 0.25	< 25	< 1	< 6.25	< 10	< 5
ACETONE	5	UG/L	< 5	< 5	4.3 J	< 125	< 5	< 6.25	**16.8**	< 25
BENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 12.5	< 0.5	< 6.25	< 5	< 2.5
BROMOCHLOROMETHANE	1	UG/L	< 1	< 1	< 0.25	< 25	< 1	< 6.25	< 10	< 5
BROMODICHLOROMETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 12.5	< 0.5	< 6.25	< 5	< 2.5
BROMOFORM	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 12.5	< 0.5	< 6.25	< 5	< 2.5
BROMOMETHANE	1	UG/L	< 1	< 1	< 0.25	< 25	< 1	< 6.25	< 10	< 5
CARBON DISULFIDE	1	UG/L	< 1	< 1	< 0.25	< 25	< 1	< 6.25	< 10	< 5
CARBON TETRACHLORIDE	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 12.5	< 0.5	< 6.25	< 5	< 2.5
CHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 12.5	< 0.5	< 6.25	< 5	< 2.5
CHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 12.5	< 0.5	< 6.25	< 5	< 2.5
CHLOROFORM	0.5	UG/L	**41.7**	**3**	**8.6**	**1240**	**1660**	**1430**	**529**	**622**
CHLOROMETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 12.5	< 0.5	< 6.25	< 5	< 2.5
cis-1,2-DICHLOROETHYLENE	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 12.5	< 0.5	< 6.25	< 5	< 2.5
cis-1,3-DICHLOROPROPENE	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 12.5	< 0.5	< 6.25	< 5	< 2.5
DIBROMOCHLOROMETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 12.5	< 0.5	< 6.25	< 5	< 2.5
ETHYLBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 12.5	< 0.5	< 6.25	< 5	< 2.5
METHYL ETHYL KETONE (2-BUTANONE)	1	UG/L	< 1	< 1	< 0.27	< 25	< 1	< 6.75	< 10	< 5
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	1	UG/L	< 1	< 1	< 0.25	< 25	< 1	< 6.25	< 10	< 5
METHYLENE CHLORIDE	1	UG/L	< 1	< 1	0.36 J	< 25	< 1	< 6.25	< 10	< 5
STYRENE	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 12.5	< 0.5	< 6.25	< 5	< 2.5
TETRACHLOROETHYLENE(PCE)	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 12.5	0.44	< 6.25	< 5	< 2.5
TOLUENE	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 12.5	< 0.5	< 6.25	< 5	< 2.5
trans-1,2-DICHLOROETHENE	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 12.5	< 0.5	< 6.25	< 5	< 2.5
trans-1,3-DICHLOROPROPENE	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 12.5	< 0.5	< 6.25	< 5	< 2.5
TRICHLOROETHYLENE (TCE)	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 12.5	**0.96**	< 6.25	< 5	< 2.5
VINYL CHLORIDE	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 12.5	< 0.5	< 6.25	< 5	< 2.5
XYLENES, TOTAL	1	UG/L	< 1	< 1	< 0.25	< 25	< 1	< 6.25	< 10	< 5

NS - Not Sampled
Results in **BOLD** text indicate detections above the CRDL.
J - Validation qualifier for estimated value; Sample exceeds quantitation range

APPENDIX D
VOLATILE ORGANIC COMPOUNDS - GROUNDWATER
2003 Annual Groundwater Treatment System and Water Monitoring Report
LEHR/SCDS Environmental Restoration
Davis, California

		Location	TP-2B	TP-2C	TP-2C	TP-2C	TP-3B	TP-3B	TP-3B	TP-3B
		Sample ID	TP-2B	W03061816	W03081501	TP-2C	W03061803	W03081502	TP-3B	TP-3BD
		Date	10/15/2003	6/18/2003	8/15/2003	10/15/2003	6/18/2003	8/15/2003	10/15/2003	10/15/2003
AnalyteNameShort	CRDL	UnitsID								
1,1,1-TRICHLOROETHANE	0.5	UG/L	< 1.25	< 12.5	< 5	< 6.25	< 2.5	< 2.5	< 0.5	< 1.25
1,1,2,2-TETRACHLOROETHANE	0.5	UG/L	< 1.25	< 12.5	< 5	< 6.25	< 2.5	< 2.5	< 0.5	< 1.25
1,1,2-TRICHLOROETHANE	1	UG/L	< 1.25	**7.6**	**6.6**	**8.4 J**	**1.7**	**1.4**	**1.8 J**	**13.6**
1,1-DICHLOROETHANE	0.5	UG/L	**3**	< 12.5	**5**	< 6.25	< 2.5	< 2.5	< 0.5	**3.3**
1,1-DICHLOROETHENE	0.5	UG/L	**2.1 J**	< 12.5	**3.3**	< 6.25	< 2.5	< 2.5	< 0.5	**3.2**
1,2-DIBROMO-3-CHLOROPROPANE	0.5	UG/L	< 1.25	< 12.5	< 5	< 6.25	< 2.5	< 2.5	< 0.5	< 1.25
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	0.5	UG/L	< 1.25	< 12.5	< 5	< 6.25	< 2.5	< 2.5	< 0.5	< 1.25
1,2-DICHLOROBENZENE	0.5	UG/L	< 1.25	< 12.5	< 5	< 6.25	< 2.5	< 2.5	< 0.5	< 1.25
1,2-DICHLOROETHANE	0.5	UG/L	**1.5 J**	< 12.5	**3**	< 6.25	< 2.5	< 2.5	< 0.5	**1.5 J**
1,2-DICHLOROPROPANE	0.5	UG/L	< 1.25	< 12.5	< 5	< 6.25	< 2.5	< 2.5	< 0.5	< 1.25
1,3-DICHLOROBENZENE	0.5	UG/L	< 1.25	< 12.5	< 5	< 6.25	< 2.5	< 2.5	< 0.5	< 1.25
1,4-DICHLOROBENZENE	0.5	UG/L	< 1.25	< 12.5	< 5	< 6.25	< 2.5	< 2.5	< 0.5	< 1.25
2-HEXANONE	1	UG/L	< 1.25	< 25	< 10	< 6.25	< 5	< 5	< 0.5	< 1.25
ACETONE	5	UG/L	**20.1 J**	< 125	< 50	**80.3 J**	< 25	< 25	< 8.2	**18.4 J**
BENZENE	0.5	UG/L	< 1.25	< 12.5	< 5	< 6.25	< 2.5	< 2.5	< 0.5	< 1.25
BROMOCHLOROMETHANE	1	UG/L	< 1.25	< 25	< 10	< 6.25	< 5	< 5	< 0.5	< 1.25
BROMODICHLOROMETHANE	0.5	UG/L	< 1.25	< 12.5	< 5	< 6.25	< 2.5	< 2.5	< 0.5	< 1.25
BROMOFORM	0.5	UG/L	< 1.25	< 12.5	< 5	< 6.25	< 2.5	< 2.5	< 0.5	< 1.25
BROMOMETHANE	1	UG/L	< 1.25	< 25	< 10	< 6.25	< 5	< 5	< 0.5	< 1.25
CARBON DISULFIDE	1	UG/L	< 1.25	< 25	< 10	< 6.25	< 5	< 5	< 0.5	< 1.25
CARBON TETRACHLORIDE	0.5	UG/L	< 1.25	< 12.5	< 5	< 6.25	< 2.5	< 2.5	< 0.5	< 1.25
CHLOROBENZENE	0.5	UG/L	< 1.25	< 12.5	< 5	< 6.25	< 2.5	< 2.5	< 0.5	< 1.25
CHLOROETHANE	0.5	UG/L	< 1.25	< 12.5	< 5	< 6.25	< 2.5	< 2.5	< 0.5	< 1.25
CHLOROFORM	0.5	UG/L	**497**	**1800**	**1410**	**1360**	**265**	**320**	**183**	**1460**
CHLOROMETHANE	0.5	UG/L	< 1.25	< 12.5	< 5	< 6.25	< 2.5	< 2.5	< 0.5	< 1.25
cis-1,2-DICHLOROETHYLENE	0.5	UG/L	< 1.25	< 12.5	< 5	< 6.25	< 2.5	< 2.5	< 0.5	< 1.25
cis-1,3-DICHLOROPROPENE	0.5	UG/L	< 1.25	< 12.5	< 5	< 6.25	< 2.5	< 2.5	< 0.5	< 1.25
DIBROMOCHLOROMETHANE	0.5	UG/L	< 1.25	< 12.5	< 5	< 6.25	< 2.5	< 2.5	< 0.5	< 1.25
ETHYLBENZENE	0.5	UG/L	< 1.25	< 12.5	< 5	< 6.25	< 2.5	< 2.5	< 0.5	< 1.25
METHYL ETHYL KETONE (2-BUTANONE)	1	UG/L	**2.3 J**	< 25	< 10	< 6.75	< 5	< 5	< 0.54	< 1.35
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	1	UG/L	< 1.25	< 25	< 10	< 6.25	< 5	< 5	< 0.5	< 1.25
METHYLENE CHLORIDE	1	UG/L	**2 J**	< 25	< 10	**6.8 J**	< 5	< 5	< 0.5	**2.1 J**
STYRENE	0.5	UG/L	< 1.25	< 12.5	< 5	< 6.25	< 2.5	< 2.5	< 0.5	< 1.25
TETRACHLOROETHYLENE(PCE)	0.5	UG/L	< 1.25	< 12.5	< 5	< 6.25	< 2.5	< 2.5	< 0.5	< 1.25
TOLUENE	0.5	UG/L	< 1.25	< 12.5	< 5	< 6.25	< 2.5	< 2.5	< 0.5	< 1.25
trans-1,2-DICHLOROETHENE	0.5	UG/L	< 1.25	< 12.5	< 5	< 6.25	< 2.5	< 2.5	< 0.5	< 1.25
trans-1,3-DICHLOROPROPENE	0.5	UG/L	< 1.25	< 12.5	< 5	< 6.25	< 2.5	< 2.5	< 0.5	< 1.25
TRICHLOROETHYLENE (TCE)	0.5	UG/L	< 1.25	< 12.5	< 5	< 6.25	< 2.5	< 2.5	< 0.5	< 1.25
VINYL CHLORIDE	0.5	UG/L	< 1.25	< 12.5	< 5	< 6.25	< 2.5	< 2.5	< 0.5	< 1.25
XYLENES, TOTAL	1	UG/L	< 1.25	< 25	< 10	< 6.25	< 5	< 5	< 0.5	< 1.25

NS - Not Sampled
Results in **BOLD** text indicate detections above the CRDL.
J - Validation qualifier for estimated value; Sample exceeds quantitation range

APPENDIX D
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		Location	TP-3C	TP-3C	TP-4B	TP-4B	TP-4B	TP-4C	TP-4C	TP-4C
		Sample ID	W03061804	W03081503	W03061805	W03081504	TP-4B	W03061806	W03081505	TP-4C
		Date	6/18/2003	8/15/2003	6/18/2003	8/15/2003	10/15/2003	6/18/2003	8/15/2003	10/15/2003
AnalyteNameShort	CRDL	UnitsID								
1,1,1-TRICHLOROETHANE	0.5	UG/L	< 25	< 5	< 2.5	< 2.5	< 0.5	< 5	< 2.5	< 1.25
1,1,2,2-TETRACHLOROETHANE	0.5	UG/L	< 25	< 5	< 2.5	< 2.5	< 0.5	< 5	< 2.5	< 1.25
1,1,2-TRICHLOROETHANE	1	UG/L	**13.7**	**12.7**	**1.4**	**1.3**	**1.3 J**	**7.2**	**3.6**	**3.5 J**
1,1-DICHLOROETHANE	0.5	UG/L	< 25	**2.9**	< 2.5	**2.6**	**0.97 J**	**4.2**	**2.4**	**1.7 J**
1,1-DICHLOROETHENE	0.5	UG/L	< 25	**3.1**	< 2.5	**1.4**	**0.68 J**	< 5	< 2.5	< 1.25
1,2-DIBROMO-3-CHLOROPROPANE	0.5	UG/L	< 25	< 5	< 2.5	< 2.5	< 0.5	< 5	< 2.5	< 1.25
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	0.5	UG/L	< 25	< 5	< 2.5	< 2.5	< 0.5	< 5	< 2.5	< 1.25
1,2-DICHLOROBENZENE	0.5	UG/L	< 25	< 5	< 2.5	< 2.5	< 0.5	< 5	< 2.5	< 1.25
1,2-DICHLOROETHANE	0.5	UG/L	< 25	< 5	< 2.5	< 2.5	**0.53 J**	**2.6**	< 2.5	< 1.25
1,2-DICHLOROPROPANE	0.5	UG/L	< 25	< 5	< 2.5	< 2.5	< 0.5	< 5	< 2.5	< 1.25
1,3-DICHLOROBENZENE	0.5	UG/L	< 25	< 5	< 2.5	< 2.5	< 0.5	< 5	< 2.5	< 1.25
1,4-DICHLOROBENZENE	0.5	UG/L	< 25	< 5	< 2.5	< 2.5	< 0.5	< 5	< 2.5	< 1.25
2-HEXANONE	1	UG/L	< 50	< 10	< 5	< 5	< 0.5	< 10	< 5	< 1.25
ACETONE	5	UG/L	< 250	< 50	< 25	< 25	< 7.4	< 50	< 25	**18.6 J**
BENZENE	0.5	UG/L	< 25	< 5	< 2.5	< 2.5	< 0.5	< 5	< 2.5	< 1.25
BROMOCHLOROMETHANE	1	UG/L	< 50	< 10	< 5	< 5	< 0.5	< 10	< 5	< 1.25
BROMODICHLOROMETHANE	0.5	UG/L	< 25	< 5	< 2.5	< 2.5	< 0.5	< 5	< 2.5	< 1.25
BROMOFORM	0.5	UG/L	< 25	< 5	< 2.5	< 2.5	< 0.5	< 5	< 2.5	< 1.25
BROMOMETHANE	1	UG/L	< 50	< 10	< 5	< 5	< 0.5	< 10	< 5	< 1.25
CARBON DISULFIDE	1	UG/L	< 50	< 10	< 5	< 5	< 0.5	< 10	< 5	< 1.25
CARBON TETRACHLORIDE	0.5	UG/L	< 25	< 5	< 2.5	< 2.5	< 0.5	< 5	< 2.5	< 1.25
CHLOROBENZENE	0.5	UG/L	< 25	< 5	< 2.5	< 2.5	< 0.5	< 5	< 2.5	< 1.25
CHLOROETHANE	0.5	UG/L	< 25	< 5	< 2.5	< 2.5	< 0.5	< 5	< 2.5	< 1.25
CHLOROFORM	0.5	UG/L	**2340**	**1560**	**243**	**476**	**150**	**805**	**391**	**303**
CHLOROMETHANE	0.5	UG/L	< 25	< 5	< 2.5	< 2.5	< 0.5	< 5	< 2.5	< 1.25
cis-1,2-DICHLOROETHYLENE	0.5	UG/L	< 25	< 5	< 2.5	< 2.5	< 0.5	< 5	< 2.5	< 1.25
cis-1,3-DICHLOROPROPENE	0.5	UG/L	< 25	< 5	< 2.5	< 2.5	< 0.5	< 5	< 2.5	< 1.25
DIBROMOCHLOROMETHANE	0.5	UG/L	< 25	< 5	< 2.5	< 2.5	< 0.5	< 5	< 2.5	< 1.25
ETHYLBENZENE	0.5	UG/L	< 25	< 5	< 2.5	< 2.5	< 0.5	< 5	< 2.5	< 1.25
METHYL ETHYL KETONE (2-BUTANONE)	1	UG/L	< 50	< 10	< 5	< 5	< 0.54	< 10	< 5	< 1.35
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	1	UG/L	< 50	< 10	< 5	< 5	< 0.5	< 10	< 5	< 1.25
METHYLENE CHLORIDE	1	UG/L	< 50	< 10	< 5	< 5	< 0.5	< 10	< 5	**3.2 J**
STYRENE	0.5	UG/L	< 25	< 5	< 2.5	< 2.5	< 0.5	< 5	< 2.5	< 1.25
TETRACHLOROETHYLENE(PCE)	0.5	UG/L	< 25	< 5	< 2.5	< 2.5	< 0.5	< 5	< 2.5	< 1.25
TOLUENE	0.5	UG/L	< 25	< 5	< 2.5	< 2.5	< 0.5	< 5	< 2.5	< 1.25
trans-1,2-DICHLOROETHENE	0.5	UG/L	< 25	< 5	< 2.5	< 2.5	< 0.5	< 5	< 2.5	< 1.25
trans-1,3-DICHLOROPROPENE	0.5	UG/L	< 25	< 5	< 2.5	< 2.5	< 0.5	< 5	< 2.5	< 1.25
TRICHLOROETHYLENE (TCE)	0.5	UG/L	< 25	< 5	< 2.5	< 2.5	< 0.5	< 5	< 2.5	< 1.25
VINYL CHLORIDE	0.5	UG/L	< 25	< 5	< 2.5	< 2.5	< 0.5	< 5	< 2.5	< 1.25
XYLENES, TOTAL	1	UG/L	< 50	< 10	< 5	< 5	< 0.5	< 10	< 5	< 1.25

NS - Not Sampled
Results in **BOLD** text indicate detections above the CRDL.
J - Validation qualifier for estimated value; Sample exceeds quantitation range

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		Location	TP-5B	TP-5B	TP-5B	TP-5B	TP-5C	TP-5C	TP-5C	UCD1-010
		Sample ID	W03061807	W03061808	W03081506	TP-5B	W03061809	W03081507	TP-5C	GWGW1596
		Date	6/18/2003	6/18/2003	8/15/2003	10/15/2003	6/18/2003	8/15/2003	10/15/2003	4/7/2003
AnalyteNameShort	CRDL	UnitsID								
1,1,1-TRICHLOROETHANE	0.5	UG/L	< 2.5	< 2.5	< 2.5	< 0.5	< 5	< 2.5	< 1.25	< 0.5
1,1,2,2-TETRACHLOROETHANE	0.5	UG/L	< 2.5	< 2.5	< 2.5	< 0.5	< 5	< 2.5	< 1.25	< 0.5
1,1,2-TRICHLOROETHANE	1	UG/L	**1.4**	< 5	**1.4**	**1.4 J**	**6.8**	**3.5**	**2.7 J**	< 1
1,1-DICHLOROETHANE	0.5	UG/L	< 2.5	< 2.5	**1.4**	**0.81 J**	< 5	**1.3**	< 1.25	< 0.5
1,1-DICHLOROETHENE	0.5	UG/L	< 2.5	< 2.5	< 2.5	**0.66 J**	< 5	< 2.5	< 1.25	< 0.5
1,2-DIBROMO-3-CHLOROPROPANE	0.5	UG/L	< 2.5	< 2.5	< 2.5	< 0.5	< 5	< 2.5	< 1.25	< 0.5
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	0.5	UG/L	< 2.5	< 2.5	< 2.5	< 0.5	< 5	< 2.5	< 1.25	< 0.5
1,2-DICHLOROBENZENE	0.5	UG/L	< 2.5	< 2.5	< 2.5	< 0.5	< 5	< 2.5	< 1.25	< 0.5
1,2-DICHLOROETHANE	0.5	UG/L	< 2.5	< 2.5	< 2.5	< 0.5	< 5	< 2.5	< 1.25	< 0.5
1,2-DICHLOROPROPANE	0.5	UG/L	< 2.5	< 2.5	< 2.5	< 0.5	< 5	< 2.5	< 1.25	< 0.5
1,3-DICHLOROBENZENE	0.5	UG/L	< 2.5	< 2.5	< 2.5	< 0.5	< 5	< 2.5	< 1.25	< 0.5
1,4-DICHLOROBENZENE	0.5	UG/L	< 2.5	< 2.5	< 2.5	< 0.5	< 5	< 2.5	< 1.25	< 0.5
2-HEXANONE	1	UG/L	< 5	< 5	< 5	< 0.5	< 10	< 5	< 1.25	< 1
ACETONE	5	UG/L	< 25	< 25	< 25	**7.8 J**	< 50	< 25	< 16.7	0.33
BENZENE	0.5	UG/L	< 2.5	< 2.5	< 2.5	< 0.5	< 5	< 2.5	< 1.25	< 0.5
BROMOCHLOROMETHANE	1	UG/L	< 5	< 5	< 5	< 0.5	< 10	< 5	< 1.25	< 1
BROMODICHLOROMETHANE	0.5	UG/L	< 2.5	< 2.5	< 2.5	< 0.5	< 5	< 2.5	< 1.25	< 0.5
BROMOFORM	0.5	UG/L	< 2.5	< 2.5	< 2.5	< 0.5	< 5	< 2.5	< 1.25	< 0.5
BROMOMETHANE	1	UG/L	< 5	< 5	< 5	< 0.5	< 10	< 5	< 1.25	< 1
CARBON DISULFIDE	1	UG/L	< 5	< 5	< 5	< 0.5	< 10	< 5	< 1.25	< 1
CARBON TETRACHLORIDE	0.5	UG/L	< 2.5	< 2.5	< 2.5	< 0.5	< 5	< 2.5	< 1.25	< 0.5
CHLOROBENZENE	0.5	UG/L	< 2.5	< 2.5	< 2.5	< 0.5	< 5	< 2.5	< 1.25	< 0.5
CHLOROETHANE	0.5	UG/L	< 2.5	< 2.5	< 2.5	< 0.5	< 5	< 2.5	< 1.25	< 0.5
CHLOROFORM	0.5	UG/L	**236**	**216**	**360**	**193**	**822**	**431**	**355**	< 0.5
CHLOROMETHANE	0.5	UG/L	< 2.5	< 2.5	< 2.5	< 0.5	< 5	< 2.5	< 1.25	< 0.5
cis-1,2-DICHLOROETHYLENE	0.5	UG/L	< 2.5	< 2.5	< 2.5	< 0.5	< 5	< 2.5	< 1.25	< 0.5
cis-1,3-DICHLOROPROPENE	0.5	UG/L	< 2.5	< 2.5	< 2.5	< 0.5	< 5	< 2.5	< 1.25	< 0.5
DIBROMOCHLOROMETHANE	0.5	UG/L	< 2.5	< 2.5	< 2.5	< 0.5	< 5	< 2.5	< 1.25	< 0.5
ETHYLBENZENE	0.5	UG/L	< 2.5	< 2.5	< 2.5	< 0.5	< 5	< 2.5	< 1.25	< 0.5
METHYL ETHYL KETONE (2-BUTANONE)	1	UG/L	< 5	< 5	< 5	< 0.54	< 10	< 5	< 1.35	< 1
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	1	UG/L	< 5	< 5	< 5	< 0.5	< 10	< 5	< 1.25	< 1
METHYLENE CHLORIDE	1	UG/L	< 5	< 5	< 5	0.68 J	< 10	< 5	< 1.25	< 1
STYRENE	0.5	UG/L	< 2.5	< 2.5	< 2.5	< 0.5	< 5	< 2.5	< 1.25	< 0.5
TETRACHLOROETHYLENE(PCE)	0.5	UG/L	< 2.5	< 2.5	< 2.5	< 0.5	< 5	< 2.5	< 1.25	< 0.5
TOLUENE	0.5	UG/L	< 2.5	< 2.5	< 2.5	< 0.5	< 5	< 2.5	< 1.25	< 0.5
trans-1,2-DICHLOROETHENE	0.5	UG/L	< 2.5	< 2.5	< 2.5	< 0.5	< 5	< 2.5	< 1.25	< 0.5
trans-1,3-DICHLOROPROPENE	0.5	UG/L	< 2.5	< 2.5	< 2.5	< 0.5	< 5	< 2.5	< 1.25	< 0.5
TRICHLOROETHYLENE (TCE)	0.5	UG/L	< 2.5	< 2.5	< 2.5	< 0.5	< 5	< 2.5	< 1.25	< 0.5
VINYL CHLORIDE	0.5	UG/L	< 2.5	< 2.5	< 2.5	< 0.5	< 5	< 2.5	< 1.25	< 0.5
XYLENES, TOTAL	1	UG/L	< 5	< 5	< 5	< 0.5	< 10	< 5	< 1.25	< 1

NS - Not Sampled
Results in **BOLD** text indicate detections above the CRDL.
J - Validation qualifier for estimated value; Sample exceeds quantitation range

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		Location	UCD1-010	UCD1-011	UCD1-011	UCD1-011	UCD1-011	UCD1-011	UCD1-012	UCD1-012
		Sample ID	GWGW1655	GWGW1580	GWGW1581	GWGW1597	GWGW1638	GWGW1656	W03012909	GWGW1582
		Date	10/13/2003	2/4/2003	2/4/2003	4/7/2003	7/8/2003	10/13/2003	1/29/2003	2/4/2003
AnalyteNameShort	CRDL	UnitsID								
1,1,1-TRICHLOROETHANE	0.5	UG/L	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.5
1,1,2,2-TETRACHLOROETHANE	0.5	UG/L	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.5
1,1,2-TRICHLOROETHANE	1	UG/L	< 0.25	< 1	< 1	< 1	< 1	< 0.25	**1.7**	**2.9**
1,1-DICHLOROETHANE	0.5	UG/L	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	0.43
1,1-DICHLOROETHENE	0.5	UG/L	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	0.44
1,2-DIBROMO-3-CHLOROPROPANE	0.5	UG/L	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.5
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	0.5	UG/L	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.5
1,2-DICHLOROBENZENE	0.5	UG/L	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.5
1,2-DICHLOROETHANE	0.5	UG/L	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	0.37
1,2-DICHLOROPROPANE	0.5	UG/L	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.5
1,3-DICHLOROBENZENE	0.5	UG/L	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.5
1,4-DICHLOROBENZENE	0.5	UG/L	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.5
2-HEXANONE	1	UG/L	< 0.25	< 1	< 1	< 1	< 1	< 0.25	< 1	< 1
ACETONE	5	UG/L	< 0.25	< 5	< 5	< 5	< 5	< 0.25	< 5	< 5
BENZENE	0.5	UG/L	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.5
BROMOCHLOROMETHANE	1	UG/L	< 0.25	< 1	< 1	< 1	< 1	< 0.25	< 1	< 1
BROMODICHLOROMETHANE	0.5	UG/L	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.5
BROMOFORM	0.5	UG/L	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.5
BROMOMETHANE	1	UG/L	< 0.25	< 1	< 1	< 1	< 1	< 0.25	< 1	< 1
CARBON DISULFIDE	1	UG/L	< 0.25	< 1	< 1	< 1	< 1	< 0.25	< 1	< 1
CARBON TETRACHLORIDE	0.5	UG/L	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.5
CHLOROBENZENE	0.5	UG/L	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.5
CHLOROETHANE	0.5	UG/L	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.5
CHLOROFORM	0.5	UG/L	< 0.25	**3.1**	**3.5**	**4.2**	**2.5**	**3.1**	**68.2**	**264**
CHLOROMETHANE	0.5	UG/L	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.5
cis-1,2-DICHLOROETHYLENE	0.5	UG/L	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.5
cis-1,3-DICHLOROPROPENE	0.5	UG/L	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.5
DIBROMOCHLOROMETHANE	0.5	UG/L	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.5
ETHYLBENZENE	0.5	UG/L	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.5
METHYL ETHYL KETONE (2-BUTANONE)	1	UG/L	< 0.27	< 1	< 1	< 1	< 1	< 0.27	< 1	< 1
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	1	UG/L	< 0.25	< 1	< 1	< 1	< 1	< 0.25	< 1	< 1
METHYLENE CHLORIDE	1	UG/L	< 0.25	< 1	< 1	< 1	< 1	< 0.25	< 1	< 1
STYRENE	0.5	UG/L	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.5
TETRACHLOROETHYLENE(PCE)	0.5	UG/L	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.5
TOLUENE	0.5	UG/L	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.5
trans-1,2-DICHLOROETHENE	0.5	UG/L	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.5
trans-1,3-DICHLOROPROPENE	0.5	UG/L	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.5
TRICHLOROETHYLENE (TCE)	0.5	UG/L	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.5
VINYL CHLORIDE	0.5	UG/L	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.5
XYLENES, TOTAL	1	UG/L	< 0.25	< 1	< 1	< 1	< 1	< 0.25	< 1	< 1

NS - Not Sampled
Results in **BOLD** text indicate detections above the CRDL.
J - Validation qualifier for estimated value; Sample exceeds quantitation range

APPENDIX D
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		Location	UCD1-012	UCD1-012	UCD1-012	UCD1-012	UCD1-012	UCD1-012	UCD1-012	UCD1-012
		Sample ID	W03022409	W03032401	GWGW1598	W03061713	W03061714	GWGW1639	W03081404	GWGW1657
		Date	2/24/2003	3/24/2003	4/8/2003	6/17/2003	6/17/2003	7/8/2003	8/14/2003	10/14/2003
AnalyteNameShort	CRDL	UnitsID								
1,1,1-TRICHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 1	< 1	< 0.5	< 0.5	< 0.25
1,1,2,2-TETRACHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 1	< 1	< 0.5	< 0.5	< 0.25
1,1,2-TRICHLOROETHANE	1	UG/L	**1.7**	**1.7**	**2.4**	**3.4**	**2.8**	**3.19**	**1.9**	0.9 J
1,1-DICHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	0.31	< 1	< 1	< 0.5	0.27	< 0.25
1,1-DICHLOROETHENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 1	< 1	< 0.5	< 0.5	< 0.25
1,2-DIBROMO-3-CHLOROPROPANE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 1	< 1	< 0.5	< 0.5	< 0.25
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 1	< 1	< 0.5	< 0.5	< 0.25
1,2-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 1	< 1	< 0.5	< 0.5	< 0.25
1,2-DICHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	0.32	**0.61**	< 1	< 0.5	0.28	< 0.25
1,2-DICHLOROPROPANE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 1	< 1	< 0.5	< 0.5	< 0.25
1,3-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 1	< 1	< 0.5	< 0.5	< 0.25
1,4-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 1	< 1	< 0.5	< 0.5	< 0.25
2-HEXANONE	1	UG/L	< 1	< 1	< 1	< 2	< 2	< 1	< 1	< 0.25
ACETONE	5	UG/L	< 5	< 5	< 5	< 10	< 10	< 5	< 5	< 0.25
BENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 1	< 1	< 0.5	< 0.5	< 0.25
BROMOCHLOROMETHANE	1	UG/L	< 1	< 1	< 1	< 2	< 2	< 1	< 1	< 0.25
BROMODICHLOROMETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 1	< 1	< 0.5	< 0.5	< 0.25
BROMOFORM	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 1	< 1	< 0.5	< 0.5	< 0.25
BROMOMETHANE	1	UG/L	< 1	< 1	< 1	< 2	< 2	< 1	< 1	< 0.25
CARBON DISULFIDE	1	UG/L	< 1	< 1	< 1	< 2	< 2	< 1	< 1	< 0.25
CARBON TETRACHLORIDE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 1	< 1	< 0.5	< 0.5	< 0.25
CHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 1	< 1	< 0.5	< 0.5	< 0.25
CHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 1	< 1	< 0.5	< 0.5	< 0.25
CHLOROFORM	0.5	UG/L	**79.9**	**75.8**	**142**	**124**	**100**	**163**	**86.7**	**45.4**
CHLOROMETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 1	< 1	< 0.5	< 0.5	< 0.25
cis-1,2-DICHLOROETHYLENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 1	< 1	< 0.5	< 0.5	< 0.25
cis-1,3-DICHLOROPROPENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 1	< 1	< 0.5	< 0.5	< 0.25
DIBROMOCHLOROMETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 1	< 1	< 0.5	< 0.5	< 0.25
ETHYLBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 1	< 1	< 0.5	< 0.5	< 0.25
METHYL ETHYL KETONE (2-BUTANONE)	1	UG/L	< 1	< 1	< 1	< 2	< 2	< 1	< 1	< 0.27
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	1	UG/L	< 1	< 1	< 1	< 2	< 2	< 1	< 1	< 0.25
METHYLENE CHLORIDE	1	UG/L	< 1	< 1	< 1	< 2	< 2	< 1	< 1	< 0.25
STYRENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 1	< 1	< 0.5	< 0.5	< 0.25
TETRACHLOROETHYLENE(PCE)	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 1	< 1	< 0.5	< 0.5	< 0.25
TOLUENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 1	< 1	< 0.5	< 0.5	< 0.25
trans-1,2-DICHLOROETHENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 1	< 1	< 0.5	< 0.5	< 0.25
trans-1,3-DICHLOROPROPENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 1	< 1	< 0.5	< 0.5	< 0.25
TRICHLOROETHYLENE (TCE)	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 1	< 1	< 0.5	< 0.5	< 0.25
VINYL CHLORIDE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 1	< 1	< 0.5	< 0.5	< 0.25
XYLENES, TOTAL	1	UG/L	< 1	< 1	< 1	< 2	< 2	< 1	< 1	< 0.25

NS - Not Sampled
Results in **BOLD** text indicate detections above the CRDL.
J - Validation qualifier for estimated value; Sample exceeds quantitation range

APPENDIX D
VOLATILE ORGANIC COMPOUNDS - GROUNDWATER
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LEHR/SCDS Environmental Restoration
Davis, California

		Location	UCD1-012	UCD1-013	UCD1-013	UCD1-018	UCD1-018	UCD1-018	UCD1-018	UCD1-018
		Sample ID	UCD1-12	GWGW1599	GWGW1658	GWGW1583	GWGW1600	GWGW1640	GWGW1641	GWGW1659
		Date	10/15/2003	4/8/2003	10/14/2003	2/4/2003	4/8/2003	7/8/2003	7/8/2003	10/14/2003
AnalyteNameShort	CRDL	UnitsID								
1,1,1-TRICHLOROETHANE	0.5	UG/L	< 0.25	< 0.5	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25
1,1,2,2-TETRACHLOROETHANE	0.5	UG/L	< 0.25	< 0.5	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25
1,1,2-TRICHLOROETHANE	1	UG/L	0.74 J	< 1	< 0.25	< 1	< 1	< 1	< 1	< 0.25
1,1-DICHLOROETHANE	0.5	UG/L	< 0.25	< 0.5	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25
1,1-DICHLOROETHENE	0.5	UG/L	< 0.25	< 0.5	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25
1,2-DIBROMO-3-CHLOROPROPANE	0.5	UG/L	< 0.25	< 0.5	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	0.5	UG/L	< 0.25	< 0.5	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25
1,2-DICHLOROBENZENE	0.5	UG/L	< 0.25	< 0.5	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25
1,2-DICHLOROETHANE	0.5	UG/L	< 0.25	< 0.5	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25
1,2-DICHLOROPROPANE	0.5	UG/L	< 0.25	< 0.5	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25
1,3-DICHLOROBENZENE	0.5	UG/L	< 0.25	< 0.5	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25
1,4-DICHLOROBENZENE	0.5	UG/L	< 0.25	< 0.5	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25
2-HEXANONE	1	UG/L	< 0.25	< 1	< 0.25	< 1	< 1	< 1	< 1	< 0.25
ACETONE	5	UG/L	4.1 J	< 5	< 0.25	< 5	< 5	< 5	< 5	< 0.25
BENZENE	0.5	UG/L	< 0.25	0.47	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25
BROMOCHLOROMETHANE	1	UG/L	< 0.25	< 1	< 0.25	< 1	< 1	< 1	< 1	< 0.25
BROMODICHLOROMETHANE	0.5	UG/L	< 0.25	< 0.5	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25
BROMOFORM	0.5	UG/L	< 0.25	< 0.5	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25
BROMOMETHANE	1	UG/L	< 0.25	< 1	< 0.25	< 1	< 1	< 1	< 1	< 0.25
CARBON DISULFIDE	1	UG/L	< 0.25	< 1	< 0.25	< 1	< 1	< 1	< 1	< 0.25
CARBON TETRACHLORIDE	0.5	UG/L	< 0.25	< 0.5	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25
CHLOROBENZENE	0.5	UG/L	< 0.25	< 0.5	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25
CHLOROETHANE	0.5	UG/L	< 0.25	< 0.5	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25
CHLOROFORM	0.5	UG/L	**19.5**	**0.73**	0.45 J	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25
CHLOROMETHANE	0.5	UG/L	< 0.25	< 0.5	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25
cis-1,2-DICHLOROETHYLENE	0.5	UG/L	< 0.25	< 0.5	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25
cis-1,3-DICHLOROPROPENE	0.5	UG/L	< 0.25	< 0.5	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25
DIBROMOCHLOROMETHANE	0.5	UG/L	< 0.25	< 0.5	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25
ETHYLBENZENE	0.5	UG/L	< 0.25	< 0.5	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25
METHYL ETHYL KETONE (2-BUTANONE)	1	UG/L	< 0.27	< 1	< 0.27	< 1	< 1	< 1	< 1	< 0.27
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	1	UG/L	< 0.25	< 1	< 0.25	< 1	< 1	< 1	< 1	< 0.25
METHYLENE CHLORIDE	1	UG/L	0.34 J	< 1	< 0.25	< 1	< 1	< 1	< 1	< 0.25
STYRENE	0.5	UG/L	< 0.25	< 0.5	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25
TETRACHLOROETHYLENE(PCE)	0.5	UG/L	< 0.25	< 0.5	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25
TOLUENE	0.5	UG/L	< 0.25	< 0.5	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25
trans-1,2-DICHLOROETHENE	0.5	UG/L	< 0.25	< 0.5	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25
trans-1,3-DICHLOROPROPENE	0.5	UG/L	< 0.25	< 0.5	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25
TRICHLOROETHYLENE (TCE)	0.5	UG/L	< 0.25	< 0.5	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25
VINYL CHLORIDE	0.5	UG/L	< 0.25	< 0.5	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25
XYLENES, TOTAL	1	UG/L	< 0.25	< 1	< 0.25	< 1	< 1	< 1	< 1	< 0.25

NS - Not Sampled
Results in **BOLD** text indicate detections above the CRDL.
J - Validation qualifier for estimated value; Sample exceeds quantitation range

APPENDIX D
VOLATILE ORGANIC COMPOUNDS - GROUNDWATER
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		Location	UCD1-025	UCD1-025	UCD1-025	UCD1-025	UCD1-025	UCD1-027Z1	UCD1-027Z2	UCD1-027Z3
		Sample ID	GWGW1584	GWGW1601	GWGW1642	GWGW1643	GWGW1660	GWGW1661	GWGW1662	GWGW1663
		Date	2/4/2003	4/7/2003	7/8/2003	7/8/2003	10/13/2003	10/16/2003	10/16/2003	10/16/2003
AnalyteNameShort	CRDL	UnitsID								
1,1,1-TRICHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.25	< 0.25	< 0.25
1,1,2,2-TETRACHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.25	< 0.25	< 0.25
1,1,2-TRICHLOROETHANE	1	UG/L	< 1	< 1	< 1	< 1	< 0.25	< 0.25	< 0.25	< 0.25
1,1-DICHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.25	< 0.25	< 0.25
1,1-DICHLOROETHENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.25	< 0.25	< 0.25
1,2-DIBROMO-3-CHLOROPROPANE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.25	< 0.25	< 0.25
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.25	< 0.25	< 0.25
1,2-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.25	< 0.25	< 0.25
1,2-DICHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.25	< 0.25	< 0.25
1,2-DICHLOROPROPANE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.25	< 0.25	< 0.25
1,3-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.25	< 0.25	< 0.25
1,4-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.25	< 0.25	< 0.25
2-HEXANONE	1	UG/L	< 1	< 1	< 1	< 1	< 0.25	< 0.25	< 0.25	< 0.25
ACETONE	5	UG/L	< 5	1.1	< 5	< 5	< 0.25	< 3.5	< 3.7	< 4.3
BENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.25	< 0.25	< 0.25
BROMOCHLOROMETHANE	1	UG/L	< 1	< 1	< 1	< 1	< 0.25	< 0.25	< 0.25	< 0.25
BROMODICHLOROMETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.25	< 0.25	< 0.25
BROMOFORM	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.25	< 0.25	< 0.25
BROMOMETHANE	1	UG/L	< 1	< 1	< 1	< 1	< 0.25	< 0.25	< 0.25	< 0.25
CARBON DISULFIDE	1	UG/L	< 1	< 1	< 1	< 1	< 0.25	< 0.25	< 0.25	< 0.25
CARBON TETRACHLORIDE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.25	< 0.25	< 0.25
CHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.25	< 0.25	< 0.25
CHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.25	< 0.25	< 0.25
CHLOROFORM	0.5	UG/L	**0.52**	**2**	**1.87**	**1.83**	**0.55**	< 0.25	< 0.25	< 0.25
CHLOROMETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.25	< 0.25	< 0.25
cis-1,2-DICHLOROETHYLENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.25	< 0.25	< 0.25
cis-1,3-DICHLOROPROPENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.25	< 0.25	< 0.25
DIBROMOCHLOROMETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.25	< 0.25	< 0.25
ETHYLBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.25	< 0.25	< 0.25
METHYL ETHYL KETONE (2-BUTANONE)	1	UG/L	< 1	< 1	< 1	< 1	< 0.27	< 0.27	< 0.27	< 0.27
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	1	UG/L	< 1	< 1	< 1	< 1	< 0.25	< 0.25	< 0.25	< 0.25
METHYLENE CHLORIDE	1	UG/L	< 1	< 1	< 1	< 1	< 0.25	< 0.25	< 0.25	< 0.25
STYRENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.25	< 0.25	< 0.25
TETRACHLOROETHYLENE(PCE)	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.25	< 0.25	< 0.25
TOLUENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.25	< 0.25	**0.54**
trans-1,2-DICHLOROETHENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.25	< 0.25	< 0.25
trans-1,3-DICHLOROPROPENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.25	< 0.25	< 0.25
TRICHLOROETHYLENE (TCE)	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.25	< 0.25	< 0.25
VINYL CHLORIDE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.25	< 0.25	< 0.25
XYLENES, TOTAL	1	UG/L	< 1	< 1	< 1	< 1	< 0.25	< 0.25	< 0.25	< 0.25

NS - Not Sampled
Results in **BOLD** text indicate detections above the CRDL.
J - Validation qualifier for estimated value; Sample exceeds quantitation range

APPENDIX D
VOLATILE ORGANIC COMPOUNDS - GROUNDWATER
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		Location	UCD1-028	UCD1-028	UCD1-028	UCD1-028	UCD1-049	UCD1-049	UCD1-049	UCD1-049
		Sample ID	GWGW1586	GWGW1605	GWGW1647	GWGW1664	W03012805	W03022410	W03032402	W03032403
		Date	2/4/2003	4/7/2003	7/8/2003	10/13/2003	1/28/2003	2/24/2003	3/24/2003	3/24/2003
AnalyteNameShort	CRDL	UnitsID								
1,1,1-TRICHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5
1,1,2,2-TETRACHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5
1,1,2-TRICHLOROETHANE	1	UG/L	< 1	< 1	< 1	< 0.25	< 1	< 1	< 1	< 1
1,1-DICHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5
1,1-DICHLOROETHENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.25	**1.2**	**1.3**	**1.1**	**1.1**
1,2-DIBROMO-3-CHLOROPROPANE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5
1,2-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5
1,2-DICHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5
1,2-DICHLOROPROPANE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5
1,3-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5
1,4-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5
2-HEXANONE	1	UG/L	< 1	< 1	< 1	< 0.25	< 1	< 1	< 1	< 1
ACETONE	5	UG/L	< 5	1.2	< 5	< 0.25	< 5	< 5	< 5	< 5
BENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5
BROMOCHLOROMETHANE	1	UG/L	< 1	< 1	< 1	< 0.25	< 1	< 1	< 1	< 1
BROMODICHLOROMETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5
BROMOFORM	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5
BROMOMETHANE	1	UG/L	< 1	< 1	< 1	< 0.25	< 1	< 1	< 1	< 1
CARBON DISULFIDE	1	UG/L	< 1	< 1	< 1	< 0.25	< 1	< 1	< 1	< 1
CARBON TETRACHLORIDE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5
CHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5
CHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5
CHLOROFORM	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.25	**69.2**	**81.2**	**56.7**	**64.4**
CHLOROMETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5
cis-1,2-DICHLOROETHYLENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5
cis-1,3-DICHLOROPROPENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5
DIBROMOCHLOROMETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5
ETHYLBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5
METHYL ETHYL KETONE (2-BUTANONE)	1	UG/L	< 1	< 1	< 1	< 0.27	< 1	< 1	< 1	< 1
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	1	UG/L	< 1	< 1	< 1	< 0.25	< 1	< 1	< 1	< 1
METHYLENE CHLORIDE	1	UG/L	< 1	< 1	< 1	< 0.25	< 1	< 1	< 1	< 1
STYRENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5
TETRACHLOROETHYLENE(PCE)	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5
TOLUENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5
trans-1,2-DICHLOROETHENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5
trans-1,3-DICHLOROPROPENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5
TRICHLOROETHYLENE (TCE)	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5
VINYL CHLORIDE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5
XYLENES, TOTAL	1	UG/L	< 1	< 1	< 1	< 0.25	< 1	< 1	< 1	< 1

NS - Not Sampled
Results in **BOLD** text indicate detections above the CRDL.
J - Validation qualifier for estimated value; Sample exceeds quantitation range

APPENDIX D
VOLATILE ORGANIC COMPOUNDS - GROUNDWATER
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		Location	UCD1-049	UCD1-049	UCD1-049	UCD1-049	UCD1-050	UCD1-050	UCD1-050	UCD1-050
		Sample ID	W03061709	W03081303	GWGW1665	GWGW1666	W03012910	W03022411	W03032404	W03061710
		Date	6/17/2003	8/13/2003	10/14/2003	10/14/2003	1/29/2003	2/24/2003	3/24/2003	6/17/2003
AnalyteNameShort	CRDL	UnitsID								
1,1,1-TRICHLOROETHANE	0.5	UG/L	< 1	< 1	< 0.25	< 0.25	< 12.5	< 12.5	< 6.2	< 10
1,1,2,2-TETRACHLOROETHANE	0.5	UG/L	< 1	< 1	< 0.25	< 0.25	< 12.5	< 12.5	< 6.2	< 10
1,1,2-TRICHLOROETHANE	1	UG/L	0.52	**5.5**	**14.1**	**14.6**	< 25	< 25	< 12.5	**10.3**
1,1-DICHLOROETHANE	0.5	UG/L	< 1	**0.93**	**1.7**	**1.8**	< 12.5	< 12.5	< 6.2	< 10
1,1-DICHLOROETHENE	0.5	UG/L	**1.3**	**3.6**	**4.4**	**4.4**	< 12.5	< 12.5	**5.1**	< 10
1,2-DIBROMO-3-CHLOROPROPANE	0.5	UG/L	< 1	< 1	< 0.25	< 0.25	< 12.5	< 12.5	< 6.2	< 10
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	0.5	UG/L	< 1	< 1	< 0.25	< 0.25	< 12.5	< 12.5	< 6.2	< 10
1,2-DICHLOROBENZENE	0.5	UG/L	< 1	< 1	< 0.25	< 0.25	< 12.5	< 12.5	< 6.2	< 10
1,2-DICHLOROETHANE	0.5	UG/L	< 1	< 1	**0.5**	0.49 J	< 12.5	< 12.5	< 6.2	< 10
1,2-DICHLOROPROPANE	0.5	UG/L	< 1	< 1	< 0.25	< 0.25	< 12.5	< 12.5	< 6.2	< 10
1,3-DICHLOROBENZENE	0.5	UG/L	< 1	< 1	< 0.25	< 0.25	< 12.5	< 12.5	< 6.2	< 10
1,4-DICHLOROBENZENE	0.5	UG/L	< 1	< 1	< 0.25	< 0.25	< 12.5	< 12.5	< 6.2	< 10
2-HEXANONE	1	UG/L	< 2	< 2	< 0.25	< 0.25	< 25	< 25	< 12.5	< 20
ACETONE	5	UG/L	< 10	< 10	< 0.25	< 0.25	< 125	< 125	< 62.5	< 100
BENZENE	0.5	UG/L	< 1	< 1	< 0.25	< 0.25	< 12.5	< 12.5	< 6.2	< 10
BROMOCHLOROMETHANE	1	UG/L	< 2	< 2	< 0.25	< 0.25	< 25	< 25	< 12.5	< 20
BROMODICHLOROMETHANE	0.5	UG/L	< 1	< 1	< 0.25	< 0.25	< 12.5	< 12.5	< 6.2	< 10
BROMOFORM	0.5	UG/L	< 1	< 1	< 0.25	< 0.25	< 12.5	< 12.5	< 6.2	< 10
BROMOMETHANE	1	UG/L	< 2	< 2	< 0.25	< 0.25	< 25	< 25	< 12.5	< 20
CARBON DISULFIDE	1	UG/L	< 2	< 2	< 0.25	< 0.25	< 25	< 25	< 12.5	< 20
CARBON TETRACHLORIDE	0.5	UG/L	< 1	< 1	< 0.25	< 0.25	< 12.5	< 12.5	< 6.2	< 10
CHLOROBENZENE	0.5	UG/L	< 1	< 1	< 0.25	< 0.25	< 12.5	< 12.5	< 6.2	< 10
CHLOROETHANE	0.5	UG/L	< 1	< 1	< 0.25	< 0.25	< 12.5	< 12.5	< 6.2	< 10
CHLOROFORM	0.5	UG/L	**155**	**1070**	**2240**	**2280**	**1400**	**1280**	**1120**	**1990**
CHLOROMETHANE	0.5	UG/L	< 1	< 1	< 0.25	< 0.25	< 12.5	< 12.5	< 6.2	< 10
cis-1,2-DICHLOROETHYLENE	0.5	UG/L	< 1	< 1	< 0.25	< 0.25	< 12.5	< 12.5	< 6.2	< 10
cis-1,3-DICHLOROPROPENE	0.5	UG/L	< 1	< 1	< 0.25	< 0.25	< 12.5	< 12.5	< 6.2	< 10
DIBROMOCHLOROMETHANE	0.5	UG/L	< 1	< 1	< 0.25	< 0.25	< 12.5	< 12.5	< 6.2	< 10
ETHYLBENZENE	0.5	UG/L	< 1	< 1	< 0.25	< 0.25	< 12.5	< 12.5	< 6.2	< 10
METHYL ETHYL KETONE (2-BUTANONE)	1	UG/L	< 2	< 2	< 0.27	< 0.27	< 25	< 25	< 12.5	< 20
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	1	UG/L	< 2	< 2	< 0.25	< 0.25	< 25	< 25	< 12.5	< 20
METHYLENE CHLORIDE	1	UG/L	< 2	< 2	< 0.25	< 0.25	< 25	< 25	< 12.5	< 20
STYRENE	0.5	UG/L	< 1	< 1	< 0.25	< 0.25	< 12.5	< 12.5	< 6.2	< 10
TETRACHLOROETHYLENE(PCE)	0.5	UG/L	< 1	< 1	< 0.25	< 0.25	< 12.5	< 12.5	< 6.2	< 10
TOLUENE	0.5	UG/L	< 1	< 1	< 0.25	< 0.25	< 12.5	< 12.5	< 6.2	< 10
trans-1,2-DICHLOROETHENE	0.5	UG/L	< 1	< 1	< 0.25	< 0.25	< 12.5	< 12.5	< 6.2	< 10
trans-1,3-DICHLOROPROPENE	0.5	UG/L	< 1	< 1	< 0.25	< 0.25	< 12.5	< 12.5	< 6.2	< 10
TRICHLOROETHYLENE (TCE)	0.5	UG/L	< 1	< 1	**0.93**	**0.9**	< 12.5	< 12.5	< 6.2	< 10
VINYL CHLORIDE	0.5	UG/L	< 1	< 1	< 0.25	< 0.25	< 12.5	< 12.5	< 6.2	< 10
XYLENES, TOTAL	1	UG/L	< 2	< 2	< 0.25	< 0.25	< 25	< 25	< 12.5	< 20

NS - Not Sampled
Results in **BOLD** text indicate detections above the CRDL.
J - Validation qualifier for estimated value; Sample exceeds quantitation range

APPENDIX D
VOLATILE ORGANIC COMPOUNDS - GROUNDWATER
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		Location	UCD1-050	UCD1-050	UCD1-051	UCD1-051	UCD1-051	UCD1-051	UCD1-051	UCD1-051
		Sample ID	W03081304	GWGW1667	W03012911	W03022412	W03022414	W03032406	W03061715	W03061716
		Date	8/13/2003	10/14/2003	1/29/2003	2/24/2003	2/24/2003	3/24/2003	6/17/2003	6/17/2003
AnalyteNameShort	CRDL	UnitsID								
1,1,1-TRICHLOROETHANE	0.5	UG/L	< 5	< 0.25	< 12.5	< 12.5	< 12.5	< 12.5	< 12.5	< 12.5
1,1,2,2-TETRACHLOROETHANE	0.5	UG/L	< 5	< 0.25	< 12.5	< 12.5	< 12.5	< 12.5	< 12.5	< 12.5
1,1,2-TRICHLOROETHANE	1	UG/L	**4**	**43.2**	< 25	< 25	< 25	< 25	< 25	< 25
1,1-DICHLOROETHANE	0.5	UG/L	< 5	**2.9**	**26.2**	**23.8**	**23.8**	**22.8**	**23.9**	**24.6**
1,1-DICHLOROETHENE	0.5	UG/L	**4.5**	**5**	**11.4**	**10.2**	**10**	**9**	**7.2**	**7.4**
1,2-DIBROMO-3-CHLOROPROPANE	0.5	UG/L	< 5	< 0.25	< 12.5	< 12.5	< 12.5	< 12.5	< 12.5	< 12.5
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	0.5	UG/L	< 5	< 0.25	< 12.5	< 12.5	< 12.5	< 12.5	< 12.5	< 12.5
1,2-DICHLOROBENZENE	0.5	UG/L	< 5	< 0.25	< 12.5	< 12.5	< 12.5	< 12.5	< 12.5	< 12.5
1,2-DICHLOROETHANE	0.5	UG/L	< 5	**0.74**	**17.2**	**19.6**	**18.2**	**17.7**	**20.4**	**20.1**
1,2-DICHLOROPROPANE	0.5	UG/L	< 5	< 0.25	< 12.5	< 12.5	< 12.5	< 12.5	< 12.5	< 12.5
1,3-DICHLOROBENZENE	0.5	UG/L	< 5	< 0.25	< 12.5	< 12.5	< 12.5	< 12.5	< 12.5	< 12.5
1,4-DICHLOROBENZENE	0.5	UG/L	< 5	< 0.25	< 12.5	< 12.5	< 12.5	< 12.5	< 12.5	< 12.5
2-HEXANONE	1	UG/L	< 10	< 0.25	< 25	< 25	< 25	< 25	< 25	< 25
ACETONE	5	UG/L	< 50	< 0.25	< 125	< 125	< 125	< 125	< 125	**21**
BENZENE	0.5	UG/L	< 5	< 0.25	< 12.5	< 12.5	< 12.5	< 12.5	< 12.5	< 12.5
BROMOCHLOROMETHANE	1	UG/L	< 10	< 0.25	< 25	< 25	< 25	< 25	< 25	< 25
BROMODICHLOROMETHANE	0.5	UG/L	< 5	< 0.25	< 12.5	< 12.5	< 12.5	< 12.5	< 12.5	< 12.5
BROMOFORM	0.5	UG/L	< 5	< 0.25	< 12.5	< 12.5	< 12.5	< 12.5	< 12.5	< 12.5
BROMOMETHANE	1	UG/L	< 10	< 0.25	< 25	< 25	< 25	< 25	< 25	< 25
CARBON DISULFIDE	1	UG/L	< 10	< 0.25	< 25	< 25	< 25	< 25	< 25	< 25
CARBON TETRACHLORIDE	0.5	UG/L	< 5	< 0.25	< 12.5	< 12.5	< 12.5	< 12.5	< 12.5	< 12.5
CHLOROBENZENE	0.5	UG/L	< 5	< 0.25	< 12.5	< 12.5	< 12.5	< 12.5	< 12.5	< 12.5
CHLOROETHANE	0.5	UG/L	< 5	< 0.25	< 12.5	< 12.5	< 12.5	< 12.5	< 12.5	< 12.5
CHLOROFORM	0.5	UG/L	**1300**	**2720**	**1980**	**2060**	**2110**	**1890**	**2020**	**2100**
CHLOROMETHANE	0.5	UG/L	< 5	< 0.25	< 12.5	< 12.5	< 12.5	< 12.5	< 12.5	< 12.5
cis-1,2-DICHLOROETHYLENE	0.5	UG/L	< 5	< 0.25	< 12.5	< 12.5	< 12.5	< 12.5	< 12.5	< 12.5
cis-1,3-DICHLOROPROPENE	0.5	UG/L	< 5	< 0.25	< 12.5	< 12.5	< 12.5	< 12.5	< 12.5	< 12.5
DIBROMOCHLOROMETHANE	0.5	UG/L	< 5	< 0.25	< 12.5	< 12.5	< 12.5	< 12.5	< 12.5	< 12.5
ETHYLBENZENE	0.5	UG/L	< 5	< 0.25	< 12.5	< 12.5	< 12.5	< 12.5	< 12.5	< 12.5
METHYL ETHYL KETONE (2-BUTANONE)	1	UG/L	< 10	< 0.27	< 25	< 25	< 25	< 25	< 25	< 25
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	1	UG/L	< 10	< 0.25	< 25	< 25	< 25	< 25	< 25	< 25
METHYLENE CHLORIDE	1	UG/L	< 10	< 0.25	< 25	< 25	< 25	< 25	< 25	< 25
STYRENE	0.5	UG/L	< 5	< 0.25	< 12.5	< 12.5	< 12.5	< 12.5	< 12.5	< 12.5
TETRACHLOROETHYLENE(PCE)	0.5	UG/L	< 5	**0.54**	< 12.5	< 12.5	< 12.5	< 12.5	< 12.5	< 12.5
TOLUENE	0.5	UG/L	< 5	< 0.25	< 12.5	< 12.5	< 12.5	< 12.5	< 12.5	< 12.5
trans-1,2-DICHLOROETHENE	0.5	UG/L	< 5	< 0.25	< 12.5	< 12.5	< 12.5	< 12.5	< 12.5	< 12.5
trans-1,3-DICHLOROPROPENE	0.5	UG/L	< 5	< 0.25	< 12.5	< 12.5	< 12.5	< 12.5	< 12.5	< 12.5
TRICHLOROETHYLENE (TCE)	0.5	UG/L	< 5	**2.6**	< 12.5	< 12.5	< 12.5	< 12.5	< 12.5	< 12.5
VINYL CHLORIDE	0.5	UG/L	< 5	< 0.25	< 12.5	< 12.5	< 12.5	< 12.5	< 12.5	< 12.5
XYLENES, TOTAL	1	UG/L	< 10	< 0.25	< 25	< 25	< 25	< 25	< 25	< 25

NS - Not Sampled
Results in **BOLD** text indicate detections above the CRDL.
J - Validation qualifier for estimated value; Sample exceeds quantitation range

APPENDIX D
VOLATILE ORGANIC COMPOUNDS - GROUNDWATER
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		Location	UCD1-051	UCD1-051	UCD2-007	UCD2-007	UCD2-014	UCD2-014	UCD2-015	UCD2-015
		Sample ID	W03081305	GWGW1668	GWGW1610	GWGW1669	GWGW1611	GWGW1670	GWGW1612	GWGW1671
		Date	8/13/2003	10/14/2003	4/8/2003	10/14/2003	4/8/2003	10/14/2003	4/8/2003	10/15/2003
AnalyteNameShort	CRDL	UnitsID								
1,1,1-TRICHLOROETHANE	0.5	UG/L	< 10	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
1,1,2,2-TETRACHLOROETHANE	0.5	UG/L	< 10	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
1,1,2-TRICHLOROETHANE	1	UG/L	< 20	**8**	< 1	< 0.25	< 1	< 0.25	< 1	< 0.25
1,1-DICHLOROETHANE	0.5	UG/L	**24.4**	**31.2**	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
1,1-DICHLOROETHENE	0.5	UG/L	**7.1**	**11**	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
1,2-DIBROMO-3-CHLOROPROPANE	0.5	UG/L	< 10	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	0.5	UG/L	< 10	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
1,2-DICHLOROBENZENE	0.5	UG/L	< 10	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
1,2-DICHLOROETHANE	0.5	UG/L	**18.6**	**16.6**	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
1,2-DICHLOROPROPANE	0.5	UG/L	< 10	**0.71**	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
1,3-DICHLOROBENZENE	0.5	UG/L	< 10	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
1,4-DICHLOROBENZENE	0.5	UG/L	< 10	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
2-HEXANONE	1	UG/L	< 20	< 0.25	< 1	< 0.25	< 1	< 0.25	< 1	< 0.25
ACETONE	5	UG/L	< 100	< 0.25	< 5	< 0.25	< 5	< 0.25	< 5	< 3.6
BENZENE	0.5	UG/L	< 10	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
BROMOCHLOROMETHANE	1	UG/L	< 20	< 0.25	< 1	< 0.25	< 1	< 0.25	< 1	< 0.25
BROMODICHLOROMETHANE	0.5	UG/L	< 10	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
BROMOFORM	0.5	UG/L	< 10	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
BROMOMETHANE	1	UG/L	< 20	< 0.25	< 1	< 0.25	< 1	< 0.25	< 1	< 0.25
CARBON DISULFIDE	1	UG/L	< 20	< 0.25	< 1	< 0.25	< 1	< 0.25	< 1	< 0.25
CARBON TETRACHLORIDE	0.5	UG/L	< 10	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
CHLOROBENZENE	0.5	UG/L	< 10	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
CHLOROETHANE	0.5	UG/L	< 10	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
CHLOROFORM	0.5	UG/L	**1610**	**2480**	< 0.5	< 0.25	**0.76**	**1.6**	< 0.5	< 0.25
CHLOROMETHANE	0.5	UG/L	< 10	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
cis-1,2-DICHLOROETHYLENE	0.5	UG/L	< 10	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
cis-1,3-DICHLOROPROPENE	0.5	UG/L	< 10	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
DIBROMOCHLOROMETHANE	0.5	UG/L	< 10	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
ETHYLBENZENE	0.5	UG/L	< 10	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
METHYL ETHYL KETONE (2-BUTANONE)	1	UG/L	< 20	< 0.27	< 1	< 0.27	< 1	< 0.27	< 1	< 0.27
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	1	UG/L	< 20	< 0.25	< 1	< 0.25	< 1	< 0.25	< 1	< 0.25
METHYLENE CHLORIDE	1	UG/L	< 20	< 0.25	< 1	< 0.25	< 1	< 0.25	< 1	< 0.25
STYRENE	0.5	UG/L	< 10	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
TETRACHLOROETHYLENE(PCE)	0.5	UG/L	< 10	**2.9**	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
TOLUENE	0.5	UG/L	< 10	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
trans-1,2-DICHLOROETHENE	0.5	UG/L	< 10	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
trans-1,3-DICHLOROPROPENE	0.5	UG/L	< 10	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
TRICHLOROETHYLENE (TCE)	0.5	UG/L	< 10	**1.9**	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
VINYL CHLORIDE	0.5	UG/L	< 10	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
XYLENES, TOTAL	1	UG/L	< 20	< 0.25	< 1	< 0.25	< 1	< 0.25	< 1	< 0.25

NS - Not Sampled
Results in **BOLD** text indicate detections above the CRDL.
J - Validation qualifier for estimated value; Sample exceeds quantitation range

APPENDIX D
VOLATILE ORGANIC COMPOUNDS - GROUNDWATER
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		Location	UCD2-016	UCD2-016	UCD2-017	UCD2-017	UCD2-026	UCD2-026	UCD2-029	UCD2-029
		Sample ID	GWGW1613	GWGW1672	GWGW1614	GWGW1673	GWGW1615	GWGW1674	GWGW1616	GWGW1675
		Date	4/8/2003	10/14/2003	4/8/2003	10/14/2003	4/7/2003	10/13/2003	4/7/2003	10/13/2003
AnalyteNameShort	CRDL	UnitsID								
1,1,1-TRICHLOROETHANE	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
1,1,2,2-TETRACHLOROETHANE	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
1,1,2-TRICHLOROETHANE	1	UG/L	< 1	< 0.25	< 1	< 0.25	< 1	< 0.25	< 1	< 0.25
1,1-DICHLOROETHANE	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	0.26	0.34 J
1,1-DICHLOROETHENE	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.3
1,2-DIBROMO-3-CHLOROPROPANE	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
1,2-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
1,2-DICHLOROETHANE	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	0.41	0.44 J
1,2-DICHLOROPROPANE	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	0.38	**0.75**
1,3-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
1,4-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
2-HEXANONE	1	UG/L	< 1	< 0.25	< 1	< 0.25	< 1	< 0.25	< 1	< 0.25
ACETONE	5	UG/L	< 5	< 0.25	< 5	< 0.25	< 5	< 0.25	< 5	< 0.25
BENZENE	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
BROMOCHLOROMETHANE	1	UG/L	< 1	< 0.25	< 1	< 0.25	< 1	< 0.25	< 1	< 0.25
BROMODICHLOROMETHANE	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
BROMOFORM	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
BROMOMETHANE	1	UG/L	< 1	< 0.25	< 1	< 0.25	< 1	< 0.25	< 1	< 0.25
CARBON DISULFIDE	1	UG/L	< 1	< 0.25	< 1	< 0.25	< 1	< 0.25	< 1	< 0.25
CARBON TETRACHLORIDE	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
CHLOROBENZENE	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
CHLOROETHANE	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
CHLOROFORM	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	**1**	**1.3**	**86**	**96.7**
CHLOROMETHANE	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
cis-1,2-DICHLOROETHYLENE	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
cis-1,3-DICHLOROPROPENE	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
DIBROMOCHLOROMETHANE	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
ETHYLBENZENE	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
METHYL ETHYL KETONE (2-BUTANONE)	1	UG/L	< 1	< 0.27	< 1	< 0.27	< 1	< 0.27	< 1	< 0.27
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	1	UG/L	< 1	< 0.25	< 1	< 0.25	< 1	< 0.25	< 1	< 0.25
METHYLENE CHLORIDE	1	UG/L	< 1	< 0.25	< 1	< 0.25	< 1	< 0.25	< 1	< 0.25
STYRENE	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
TETRACHLOROETHYLENE(PCE)	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
TOLUENE	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
trans-1,2-DICHLOROETHENE	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
trans-1,3-DICHLOROPROPENE	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
TRICHLOROETHYLENE (TCE)	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
VINYL CHLORIDE	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
XYLENES, TOTAL	1	UG/L	< 1	< 0.25	< 1	< 0.25	< 1	< 0.25	< 1	< 0.25

NS - Not Sampled
Results in **BOLD** text indicate detections above the CRDL.
J - Validation qualifier for estimated value; Sample exceeds quantitation range

APPENDIX D
VOLATILE ORGANIC COMPOUNDS - GROUNDWATER
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LEHR/SCDS Environmental Restoration
Davis, California

		Location	UCD2-030	UCD2-030	UCD2-030	UCD2-030	UCD2-030	UCD2-030	UCD2-030	UCD2-030
		Sample ID	GWGW1579	GWGW1594	GWGW1595	GWGW1617	GWGW1636	GWGW1637	GWGW1651	GWGW1653
		Date	1/8/2003	2/4/2003	3/4/2003	4/7/2003	5/15/2003	6/10/2003	7/8/2003	8/5/2003
AnalyteNameShort	CRDL	UnitsID								
1,1,1-TRICHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1,2,2-TETRACHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1,2-TRICHLOROETHANE	1	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1-DICHLOROETHANE	0.5	UG/L	0.27	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	0.312	0.4
1,1-DICHLOROETHENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	0.284	0.26
1,2-DIBROMO-3-CHLOROPROPANE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,2-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,2-DICHLOROETHANE	0.5	UG/L	0.38	0.41	0.38	< 0.5	< 0.5	0.38	0.42	**0.58**
1,2-DICHLOROPROPANE	0.5	UG/L	0.26	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	0.317	0.38
1,3-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,4-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
2-HEXANONE	1	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
ACETONE	5	UG/L	< 5	< 5	< 5	< 5	< 5	0.75	< 5	< 5
BENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
BROMOCHLOROMETHANE	1	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMODICHLOROMETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
BROMOFORM	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
BROMOMETHANE	1	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CARBON DISULFIDE	1	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CARBON TETRACHLORIDE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
CHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
CHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
CHLOROFORM	0.5	UG/L	**16.4**	**19.7**	**16.3**	**1.3**	**8.7**	**14.6**	**17.5**	**22**
CHLOROMETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
cis-1,2-DICHLOROETHYLENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
cis-1,3-DICHLOROPROPENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
DIBROMOCHLOROMETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
ETHYLBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
METHYL ETHYL KETONE (2-BUTANONE)	1	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	1	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
METHYLENE CHLORIDE	1	UG/L	0.25	< 1	< 1	< 1	< 1	< 1	< 1	< 1
STYRENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
TETRACHLOROETHYLENE(PCE)	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
TOLUENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
trans-1,2-DICHLOROETHENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
trans-1,3-DICHLOROPROPENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
TRICHLOROETHYLENE (TCE)	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
VINYL CHLORIDE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
XYLENES, TOTAL	1	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1

NS - Not Sampled
Results in **BOLD** text indicate detections above the CRDL.
J - Validation qualifier for estimated value; Sample exceeds quantitation range

APPENDIX D
VOLATILE ORGANIC COMPOUNDS - GROUNDWATER
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		Location	UCD2-030	UCD2-030	UCD2-030	UCD2-030	UCD2-030	UCD2-031	UCD2-031	UCD2-032
		Sample ID	GWGW1654	GWGW1676	GWGW1677	GWGW1697	GWGW1698	GWGW1618	GWGW1678	GWGW1619
		Date	9/13/2003	10/13/2003	10/13/2003	11/12/2003	12/15/2003	4/7/2003	10/13/2003	4/8/2003
AnalyteNameShort	CRDL	UnitsID								
1,1,1-TRICHLOROETHANE	0.5	UG/L	< 0.5	< 0.25	< 0.25	< 0.25	< 0.25	< 0.5	< 0.25	< 0.5
1,1,2,2-TETRACHLOROETHANE	0.5	UG/L	< 0.5	< 0.25	< 0.25	< 0.25	< 0.25	< 0.5	< 0.25	< 0.5
1,1,2-TRICHLOROETHANE	1	UG/L	< 1	< 0.25	< 0.25	< 0.25	< 0.25	< 1	< 0.25	< 1
1,1-DICHLOROETHANE	0.5	UG/L	0.28	< 0.25	< 0.25	< 0.25	< 0.25	0.3	< 0.25	< 0.5
1,1-DICHLOROETHENE	0.5	UG/L	< 0.5	< 0.25	< 0.25	< 0.25	< 0.25	< 0.5	< 0.25	< 0.5
1,2-DIBROMO-3-CHLOROPROPANE	0.5	UG/L	< 0.5	< 0.25	< 0.25	< 0.25	< 0.25	< 0.5	< 0.25	< 0.5
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	0.5	UG/L	< 0.5	< 0.25	< 0.25	< 0.25	< 0.25	< 0.5	< 0.25	< 0.5
1,2-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.25	< 0.25	< 0.25	< 0.25	< 0.5	< 0.25	< 0.5
1,2-DICHLOROETHANE	0.5	UG/L	< 0.5	< 0.25	< 0.25	< 0.25	< 0.25	0.42	< 0.25	< 0.5
1,2-DICHLOROPROPANE	0.5	UG/L	0.28	< 0.25	< 0.25	< 0.25	< 0.25	0.29	< 0.25	< 0.5
1,3-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.25	< 0.25	< 0.25	< 0.25	< 0.5	< 0.25	< 0.5
1,4-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.25	< 0.25	< 0.25	< 0.25	< 0.5	< 0.25	< 0.5
2-HEXANONE	1	UG/L	< 1	< 0.25	< 0.25	< 0.25	< 0.25	< 1	< 0.25	< 1
ACETONE	5	UG/L	< 5	< 0.25	< 0.25	3.4 J	< 32.4	0.62	< 0.25	< 5
BENZENE	0.5	UG/L	< 0.5	< 0.25	< 0.25	< 0.25	< 0.25	< 0.5	< 0.25	< 0.5
BROMOCHLOROMETHANE	1	UG/L	< 1	< 0.25	< 0.25	< 0.25	< 0.25	< 1	< 0.25	< 1
BROMODICHLOROMETHANE	0.5	UG/L	< 0.5	< 0.25	< 0.25	< 0.25	< 0.25	< 0.5	< 0.25	< 0.5
BROMOFORM	0.5	UG/L	< 0.5	< 0.25	< 0.25	< 0.25	< 0.25	< 0.5	< 0.25	< 0.5
BROMOMETHANE	1	UG/L	< 1	< 0.25	< 0.25	< 0.25	< 0.25	< 1	< 0.25	< 1
CARBON DISULFIDE	1	UG/L	< 1	< 0.25	< 0.25	< 0.25	< 0.25	< 1	< 0.25	< 1
CARBON TETRACHLORIDE	0.5	UG/L	< 0.5	< 0.25	< 0.25	< 0.25	< 0.25	< 0.5	< 0.25	< 0.5
CHLOROBENZENE	0.5	UG/L	< 0.5	< 0.25	< 0.25	< 0.25	< 0.25	< 0.5	< 0.25	< 0.5
CHLOROETHANE	0.5	UG/L	< 0.5	< 0.25	< 0.25	< 0.25	< 0.25	< 0.5	< 0.25	< 0.5
CHLOROFORM	0.5	UG/L	**17.4**	**11.9**	**11.5**	**8.8**	**4.9**	**19**	**1.7**	**2.1**
CHLOROMETHANE	0.5	UG/L	< 0.5	< 0.25	< 0.25	< 0.25	< 0.25	< 0.5	< 0.25	< 0.5
cis-1,2-DICHLOROETHYLENE	0.5	UG/L	< 0.5	< 0.25	< 0.25	< 0.25	< 0.25	< 0.5	< 0.25	< 0.5
cis-1,3-DICHLOROPROPENE	0.5	UG/L	< 0.5	< 0.25	< 0.25	< 0.25	< 0.25	< 0.5	< 0.25	< 0.5
DIBROMOCHLOROMETHANE	0.5	UG/L	< 0.5	< 0.25	< 0.25	< 0.25	< 0.25	< 0.5	< 0.25	< 0.5
ETHYLBENZENE	0.5	UG/L	< 0.5	< 0.25	< 0.25	< 0.25	< 0.25	< 0.5	< 0.25	< 0.5
METHYL ETHYL KETONE (2-BUTANONE)	1	UG/L	< 1	< 0.27	< 0.27	< 0.27	< 0.27	< 1	< 0.27	< 1
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	1	UG/L	< 1	< 0.25	< 0.25	< 0.25	< 0.25	< 1	< 0.25	< 1
METHYLENE CHLORIDE	1	UG/L	< 1	< 0.25	< 0.25	< 0.3	< 0.25	< 1	< 0.25	< 1
STYRENE	0.5	UG/L	< 0.5	< 0.25	< 0.25	< 0.25	< 0.25	< 0.5	< 0.25	< 0.5
TETRACHLOROETHYLENE(PCE)	0.5	UG/L	< 0.5	< 0.25	< 0.25	< 0.25	< 0.25	< 0.5	< 0.25	< 0.5
TOLUENE	0.5	UG/L	< 0.5	< 0.25	< 0.25	< 0.25	< 0.25	< 0.5	< 0.25	< 0.5
trans-1,2-DICHLOROETHENE	0.5	UG/L	< 0.5	< 0.25	< 0.25	< 0.25	< 0.25	< 0.5	< 0.25	< 0.5
trans-1,3-DICHLOROPROPENE	0.5	UG/L	< 0.5	< 0.25	< 0.25	< 0.25	< 0.25	< 0.5	< 0.25	< 0.5
TRICHLOROETHYLENE (TCE)	0.5	UG/L	< 0.5	< 0.25	< 0.25	< 0.25	< 0.25	< 0.5	< 0.25	< 0.5
VINYL CHLORIDE	0.5	UG/L	< 0.5	< 0.25	< 0.25	< 0.25	< 0.25	< 0.5	< 0.25	< 0.5
XYLENES, TOTAL	1	UG/L	< 1	< 0.25	< 0.25	< 0.25	< 0.25	< 1	< 0.25	< 1

NS - Not Sampled
Results in **BOLD** text indicate detections above the CRDL.
J - Validation qualifier for estimated value; Sample exceeds quantitation range

APPENDIX D
VOLATILE ORGANIC COMPOUNDS - GROUNDWATER
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		Location	UCD2-032	UCD2-035	UCD2-035	UCD2-036	UCD2-036	UCD2-036	UCD2-037	UCD2-037
		Sample ID	GWGW1679	GWGW1620	GWGW1680	GWGW1621	GWGW1681	GWGW1682	GWGW1622	GWGW1623
		Date	10/14/2003	4/9/2003	10/13/2003	4/7/2003	10/14/2003	10/14/2003	4/7/2003	4/7/2003
AnalyteNameShort	CRDL	UnitsID								
1,1,1-TRICHLOROETHANE	0.5	UG/L	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.25	< 0.5	< 0.5
1,1,2,2-TETRACHLOROETHANE	0.5	UG/L	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.25	< 0.5	< 0.5
1,1,2-TRICHLOROETHANE	1	UG/L	< 0.25	< 1	< 0.25	< 1	< 0.25	< 0.25	< 1	< 1
1,1-DICHLOROETHANE	0.5	UG/L	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.25	< 0.5	< 0.5
1,1-DICHLOROETHENE	0.5	UG/L	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.25	< 0.5	< 0.5
1,2-DIBROMO-3-CHLOROPROPANE	0.5	UG/L	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.25	< 0.5	< 0.5
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	0.5	UG/L	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.25	< 0.5	< 0.5
1,2-DICHLOROBENZENE	0.5	UG/L	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.25	< 0.5	< 0.5
1,2-DICHLOROETHANE	0.5	UG/L	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.25	< 0.5	< 0.5
1,2-DICHLOROPROPANE	0.5	UG/L	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.25	< 0.5	< 0.5
1,3-DICHLOROBENZENE	0.5	UG/L	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.25	< 0.5	< 0.5
1,4-DICHLOROBENZENE	0.5	UG/L	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.25	< 0.5	< 0.5
2-HEXANONE	1	UG/L	< 0.25	< 1	< 0.25	< 1	< 0.25	< 0.25	< 1	< 1
ACETONE	5	UG/L	< 0.25	0.83	< 0.25	< 5	< 0.25	< 0.25	< 5	0.62
BENZENE	0.5	UG/L	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.25	< 0.5	< 0.5
BROMOCHLOROMETHANE	1	UG/L	< 0.25	< 1	< 0.25	< 1	< 0.25	< 0.25	< 1	< 1
BROMODICHLOROMETHANE	0.5	UG/L	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.25	< 0.5	< 0.5
BROMOFORM	0.5	UG/L	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.25	< 0.5	< 0.5
BROMOMETHANE	1	UG/L	< 0.25	< 1	< 0.25	< 1	< 0.25	< 0.25	< 1	< 1
CARBON DISULFIDE	1	UG/L	< 0.25	< 1	< 0.25	< 1	< 0.25	< 0.25	< 1	< 1
CARBON TETRACHLORIDE	0.5	UG/L	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.25	< 0.5	< 0.5
CHLOROBENZENE	0.5	UG/L	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.25	< 0.5	< 0.5
CHLOROETHANE	0.5	UG/L	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.25	< 0.5	< 0.5
CHLOROFORM	0.5	UG/L	**1.5**	< 0.5	< 0.25	< 0.5	< 0.25	< 0.25	< 0.5	< 0.5
CHLOROMETHANE	0.5	UG/L	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.25	< 0.5	< 0.5
cis-1,2-DICHLOROETHYLENE	0.5	UG/L	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.25	< 0.5	< 0.5
cis-1,3-DICHLOROPROPENE	0.5	UG/L	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.25	< 0.5	< 0.5
DIBROMOCHLOROMETHANE	0.5	UG/L	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.25	< 0.5	< 0.5
ETHYLBENZENE	0.5	UG/L	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.25	< 0.5	< 0.5
METHYL ETHYL KETONE (2-BUTANONE)	1	UG/L	< 0.27	< 1	< 0.27	< 1	< 0.27	< 0.27	< 1	< 1
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	1	UG/L	< 0.25	< 1	< 0.25	< 1	< 0.25	< 0.25	< 1	< 1
METHYLENE CHLORIDE	1	UG/L	< 0.25	< 1	< 0.25	< 1	< 0.25	< 0.25	< 1	< 1
STYRENE	0.5	UG/L	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.25	< 0.5	< 0.5
TETRACHLOROETHYLENE(PCE)	0.5	UG/L	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.25	< 0.5	< 0.5
TOLUENE	0.5	UG/L	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.25	< 0.5	< 0.5
trans-1,2-DICHLOROETHENE	0.5	UG/L	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.25	< 0.5	< 0.5
trans-1,3-DICHLOROPROPENE	0.5	UG/L	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.25	< 0.5	< 0.5
TRICHLOROETHYLENE (TCE)	0.5	UG/L	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.25	< 0.5	< 0.5
VINYL CHLORIDE	0.5	UG/L	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.25	< 0.5	< 0.5
XYLENES, TOTAL	1	UG/L	< 0.25	< 1	< 0.25	< 1	< 0.25	< 0.25	< 1	< 1

NS - Not Sampled
Results in **BOLD** text indicate detections above the CRDL.
J - Validation qualifier for estimated value; Sample exceeds quantitation range

APPENDIX D
VOLATILE ORGANIC COMPOUNDS - GROUNDWATER
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		Location	UCD2-037	UCD2-037	UCD2-038	UCD2-038	UCD2-038	UCD2-039	UCD2-039	UCD2-040
		Sample ID	GWGW1683	GWGW1684	GWGW1624	GWGW1625	GWGW1685	GWGW1626	GWGW1686	GWGW1590
		Date	10/15/2003	10/15/2003	4/9/2003	4/9/2003	10/13/2003	4/7/2003	10/13/2003	2/4/2003
AnalyteNameShort	CRDL	UnitsID								
1,1,1-TRICHLOROETHANE	0.5	UG/L	< 0.25	< 0.25	< 0.5	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5
1,1,2,2-TETRACHLOROETHANE	0.5	UG/L	< 0.25	< 0.25	< 0.5	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5
1,1,2-TRICHLOROETHANE	1	UG/L	< 0.25	< 0.25	< 1	< 1	< 0.25	< 1	< 0.25	< 1
1,1-DICHLOROETHANE	0.5	UG/L	< 0.25	< 0.25	< 0.5	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5
1,1-DICHLOROETHENE	0.5	UG/L	< 0.25	< 0.25	< 0.5	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5
1,2-DIBROMO-3-CHLOROPROPANE	0.5	UG/L	< 0.25	< 0.25	< 0.5	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	0.5	UG/L	< 0.25	< 0.25	< 0.5	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5
1,2-DICHLOROBENZENE	0.5	UG/L	< 0.25	< 0.25	< 0.5	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5
1,2-DICHLOROETHANE	0.5	UG/L	< 0.25	< 0.25	< 0.5	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5
1,2-DICHLOROPROPANE	0.5	UG/L	< 0.25	< 0.25	< 0.5	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5
1,3-DICHLOROBENZENE	0.5	UG/L	< 0.25	< 0.25	< 0.5	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5
1,4-DICHLOROBENZENE	0.5	UG/L	< 0.25	< 0.25	< 0.5	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5
2-HEXANONE	1	UG/L	< 0.25	< 0.25	< 1	< 1	< 0.25	< 1	< 0.25	< 1
ACETONE	5	UG/L	< 3.7	< 3.7	< 5	0.65	< 0.25	< 5	< 0.25	< 5
BENZENE	0.5	UG/L	< 0.25	< 0.25	< 0.5	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5
BROMOCHLOROMETHANE	1	UG/L	< 0.25	< 0.25	< 1	< 1	< 0.25	< 1	< 0.25	< 1
BROMODICHLOROMETHANE	0.5	UG/L	< 0.25	< 0.25	< 0.5	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5
BROMOFORM	0.5	UG/L	< 0.25	< 0.25	< 0.5	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5
BROMOMETHANE	1	UG/L	< 0.25	< 0.25	< 1	< 1	< 0.25	< 1	< 0.25	< 1
CARBON DISULFIDE	1	UG/L	< 0.25	< 0.25	< 1	< 1	< 0.25	< 1	< 0.25	< 1
CARBON TETRACHLORIDE	0.5	UG/L	< 0.25	< 0.25	< 0.5	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5
CHLOROBENZENE	0.5	UG/L	< 0.25	< 0.25	< 0.5	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5
CHLOROETHANE	0.5	UG/L	< 0.25	< 0.25	< 0.5	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5
CHLOROFORM	0.5	UG/L	< 0.25	< 0.25	< 0.5	< 0.5	< 0.25	**1.2**	**1**	**7.6**
CHLOROMETHANE	0.5	UG/L	< 0.25	< 0.25	< 0.5	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5
cis-1,2-DICHLOROETHYLENE	0.5	UG/L	< 0.25	< 0.25	< 0.5	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5
cis-1,3-DICHLOROPROPENE	0.5	UG/L	< 0.25	< 0.25	< 0.5	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5
DIBROMOCHLOROMETHANE	0.5	UG/L	< 0.25	< 0.25	< 0.5	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5
ETHYLBENZENE	0.5	UG/L	< 0.25	< 0.25	< 0.5	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5
METHYL ETHYL KETONE (2-BUTANONE)	1	UG/L	< 0.27	< 0.27	< 1	< 1	< 0.27	< 1	< 0.27	< 1
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	1	UG/L	< 0.25	< 0.25	< 1	< 1	< 0.25	< 1	< 0.25	< 1
METHYLENE CHLORIDE	1	UG/L	< 0.25	< 0.25	< 1	< 1	< 0.25	< 1	< 0.25	< 1
STYRENE	0.5	UG/L	< 0.25	< 0.25	< 0.5	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5
TETRACHLOROETHYLENE(PCE)	0.5	UG/L	< 0.25	< 0.25	< 0.5	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5
TOLUENE	0.5	UG/L	< 0.25	< 0.25	< 0.5	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5
trans-1,2-DICHLOROETHENE	0.5	UG/L	< 0.25	< 0.25	< 0.5	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5
trans-1,3-DICHLOROPROPENE	0.5	UG/L	< 0.25	< 0.25	< 0.5	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5
TRICHLOROETHYLENE (TCE)	0.5	UG/L	< 0.25	< 0.25	< 0.5	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5
VINYL CHLORIDE	0.5	UG/L	< 0.25	< 0.25	< 0.5	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5
XYLENES, TOTAL	1	UG/L	< 0.25	< 0.25	< 1	< 1	< 0.25	< 1	< 0.25	< 1

NS - Not Sampled
Results in **BOLD** text indicate detections above the CRDL.
J - Validation qualifier for estimated value; Sample exceeds quantitation range

APPENDIX D
VOLATILE ORGANIC COMPOUNDS - GROUNDWATER
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Davis, California

		Location	UCD2-040	UCD2-040	UCD2-040	UCD2-040	UCD2-045	UCD2-045	UCD2-046	UCD2-046
		Sample ID	GWGW1627	GWGW1652	GWGW1687	GWGW1688	GWGW1628	GWGW1689	GWGW1629	GWGW1690
		Date	4/7/2003	7/8/2003	10/13/2003	10/13/2003	4/9/2003	10/15/2003	4/9/2003	10/15/2003
AnalyteNameShort	CRDL	UnitsID								
1,1,1-TRICHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
1,1,2,2-TETRACHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
1,1,2-TRICHLOROETHANE	1	UG/L	< 1	< 1	< 0.25	< 0.25	< 1	< 0.25	< 1	< 0.25
1,1-DICHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
1,1-DICHLOROETHENE	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
1,2-DIBROMO-3-CHLOROPROPANE	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
1,2-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
1,2-DICHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
1,2-DICHLOROPROPANE	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
1,3-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
1,4-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
2-HEXANONE	1	UG/L	< 1	< 1	< 0.25	< 0.25	< 1	< 0.25	< 1	< 0.25
ACETONE	5	UG/L	0.64	< 5	< 0.25	< 0.25	0.91	< 3.8	0.66	< 3.7
BENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
BROMOCHLOROMETHANE	1	UG/L	< 1	< 1	< 0.25	< 0.25	< 1	< 0.25	< 1	< 0.25
BROMODICHLOROMETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
BROMOFORM	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
BROMOMETHANE	1	UG/L	< 1	< 1	< 0.25	< 0.25	< 1	< 0.25	< 1	< 0.25
CARBON DISULFIDE	1	UG/L	< 1	< 1	< 0.25	< 0.25	< 1	< 0.25	< 1	< 0.25
CARBON TETRACHLORIDE	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
CHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
CHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
CHLOROFORM	0.5	UG/L	**10.4**	**11.9**	**9.2**	**9.1**	< 0.5	**1.4**	**2.2**	< 0.25
CHLOROMETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
cis-1,2-DICHLOROETHYLENE	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
cis-1,3-DICHLOROPROPENE	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
DIBROMOCHLOROMETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
ETHYLBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
METHYL ETHYL KETONE (2-BUTANONE)	1	UG/L	< 1	< 1	< 0.27	< 0.27	< 1	< 0.27	< 1	< 0.27
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	1	UG/L	< 1	< 1	< 0.25	< 0.25	< 1	< 0.25	< 1	< 0.25
METHYLENE CHLORIDE	1	UG/L	< 1	< 1	< 0.25	< 0.25	< 1	< 0.25	< 1	< 0.25
STYRENE	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
TETRACHLOROETHYLENE(PCE)	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
TOLUENE	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
trans-1,2-DICHLOROETHENE	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
trans-1,3-DICHLOROPROPENE	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
TRICHLOROETHYLENE (TCE)	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
VINYL CHLORIDE	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
XYLENES, TOTAL	1	UG/L	< 1	< 1	< 0.25	< 0.25	< 1	< 0.25	< 1	< 0.25

NS - Not Sampled
Results in **BOLD** text indicate detections above the CRDL.
J - Validation qualifier for estimated value; Sample exceeds quantitation range

APPENDIX D
VOLATILE ORGANIC COMPOUNDS - GROUNDWATER
2003 Annual Groundwater Treatment System and Water Monitoring Report
LEHR/SCDS Environmental Restoration
Davis, California

		Location	UCD2-048	UCD2-048	UCD2-048	UCD2-048	UCD2-048	UCD2-048	UCD4-041	UCD4-041
		Sample ID	W03012912	W03022415	W03032407	W03061711	W03081306	GWGW1691	GWGW1631	GWGW1692
		Date	1/29/2003	2/24/2003	3/24/2003	6/17/2003	8/13/2003	10/14/2003	4/7/2003	10/13/2003
AnalyteNameShort	CRDL	UnitsID								
1,1,1-TRICHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.25
1,1,2,2-TETRACHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.25
1,1,2-TRICHLOROETHANE	1	UG/L	< 1	< 1	< 1	< 1	< 1	< 0.25	< 1	< 0.25
1,1-DICHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.25
1,1-DICHLOROETHENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.25
1,2-DIBROMO-3-CHLOROPROPANE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.25
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.25
1,2-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.25
1,2-DICHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.25
1,2-DICHLOROPROPANE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.25
1,3-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.25
1,4-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.25
2-HEXANONE	1	UG/L	< 1	< 1	< 1	< 1	< 1	< 0.25	< 1	< 0.25
ACETONE	5	UG/L	< 5	< 5	< 5	< 5	< 5	< 0.25	< 5	< 0.25
BENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.25
BROMOCHLOROMETHANE	1	UG/L	< 1	< 1	< 1	< 1	< 1	< 0.25	< 1	< 0.25
BROMODICHLOROMETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.25
BROMOFORM	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.25
BROMOMETHANE	1	UG/L	< 1	< 1	< 1	< 1	< 1	< 0.25	< 1	< 0.25
CARBON DISULFIDE	1	UG/L	< 1	< 1	< 1	< 1	< 1	< 0.25	< 1	< 0.25
CARBON TETRACHLORIDE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.25
CHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.25
CHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.25
CHLOROFORM	0.5	UG/L	**5.7**	< 0.5	**7.8**	**4.6**	**13.9**	**2.3**	0.45	< 0.25
CHLOROMETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.25
cis-1,2-DICHLOROETHYLENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.25
cis-1,3-DICHLOROPROPENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.25
DIBROMOCHLOROMETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.25
ETHYLBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.25
METHYL ETHYL KETONE (2-BUTANONE)	1	UG/L	< 1	< 1	< 1	< 1	< 1	< 0.27	< 1	< 0.27
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	1	UG/L	< 1	< 1	< 1	< 1	< 1	< 0.25	< 1	< 0.25
METHYLENE CHLORIDE	1	UG/L	< 1	< 1	< 1	< 1	< 1	< 0.25	< 1	< 0.25
STYRENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.25
TETRACHLOROETHYLENE(PCE)	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.25
TOLUENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.25
trans-1,2-DICHLOROETHENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.25
trans-1,3-DICHLOROPROPENE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.25
TRICHLOROETHYLENE (TCE)	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.25
VINYL CHLORIDE	0.5	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.25	< 0.5	< 0.25
XYLENES, TOTAL	1	UG/L	< 1	< 1	< 1	< 1	< 1	< 0.25	< 1	< 0.25

NS - Not Sampled
Results in **BOLD** text indicate detections above the CRDL.
J - Validation qualifier for estimated value; Sample exceeds quantitation range

APPENDIX D
VOLATILE ORGANIC COMPOUNDS - GROUNDWATER
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		Location	UCD4-042	UCD4-042	UCD4-043	UCD4-043	UCD4-044	UCD4-044	UCD4-047	UCD4-047
		Sample ID	GWGW1632	GWGW1693	GWGW1633	GWGW1694	GWGW1634	GWGW1695	GWGW1635	GWGW1696
		Date	4/8/2003	10/14/2003	4/8/2003	10/14/2003	4/7/2003	10/13/2003	4/9/2003	10/15/2003
AnalyteNameShort	CRDL	UnitsID								
1,1,1-TRICHLOROETHANE	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
1,1,2,2-TETRACHLOROETHANE	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
1,1,2-TRICHLOROETHANE	1	UG/L	< 1	< 0.25	< 1	< 0.25	< 1	< 0.25	< 1	< 0.25
1,1-DICHLOROETHANE	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
1,1-DICHLOROETHENE	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
1,2-DIBROMO-3-CHLOROPROPANE	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
1,2-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
1,2-DICHLOROETHANE	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
1,2-DICHLOROPROPANE	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
1,3-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
1,4-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
2-HEXANONE	1	UG/L	< 1	< 0.25	< 1	< 0.25	< 1	< 0.25	< 1	< 0.25
ACETONE	5	UG/L	0.64	< 3.6	< 5	< 3.3	< 5	0.4 J	< 5	< 3.4
BENZENE	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
BROMOCHLOROMETHANE	1	UG/L	< 1	< 0.25	< 1	< 0.25	< 1	< 0.25	< 1	< 0.25
BROMODICHLOROMETHANE	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
BROMOFORM	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
BROMOMETHANE	1	UG/L	< 1	< 0.25	< 1	< 0.25	< 1	< 0.25	< 1	< 0.25
CARBON DISULFIDE	1	UG/L	< 1	< 0.25	< 1	< 0.25	< 1	< 0.25	< 1	< 0.25
CARBON TETRACHLORIDE	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
CHLOROBENZENE	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
CHLOROETHANE	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
CHLOROFORM	0.5	UG/L	**2.5**	**3.4**	**3**	**2.7**	< 0.5	< 0.25	**4.2**	**4.1**
CHLOROMETHANE	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
cis-1,2-DICHLOROETHYLENE	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
cis-1,3-DICHLOROPROPENE	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
DIBROMOCHLOROMETHANE	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
ETHYLBENZENE	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
METHYL ETHYL KETONE (2-BUTANONE)	1	UG/L	< 1	< 0.27	< 1	< 0.27	< 1	< 0.27	< 1	< 0.27
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	1	UG/L	< 1	< 0.25	< 1	< 0.25	< 1	< 0.25	< 1	< 0.25
METHYLENE CHLORIDE	1	UG/L	< 1	0.28 J	< 1	0.28 J	< 1	< 0.25	< 1	< 0.25
STYRENE	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
TETRACHLOROETHYLENE(PCE)	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
TOLUENE	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
trans-1,2-DICHLOROETHENE	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
trans-1,3-DICHLOROPROPENE	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
TRICHLOROETHYLENE (TCE)	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
VINYL CHLORIDE	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
XYLENES, TOTAL	1	UG/L	< 1	< 0.25	< 1	< 0.25	< 1	< 0.25	< 1	< 0.25

NS - Not Sampled
Results in **BOLD** text indicate detections above the CRDL.
J - Validation qualifier for estimated value; Sample exceeds quantitation range

APPENDIX D
METALS - GROUNDWATER
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		Location	UCD1-011	UCD1-011	UCD1-011	UCD1-011	UCD1-011	UCD1-012	UCD1-012	UCD1-013	UCD1-013	UCD1-018	UCD1-018
		Sample ID	GWGW1580	GWGW1581	GWGW1597	GWGW1638	GWGW1656	GWGW1598	GWGW1657	GWGW1599	GWGW1658	GWGW1583	GWGW1600
		Date	2/4/2003	2/4/2003	4/7/2003	7/8/2003	10/13/2003	4/8/2003	10/14/2003	4/8/2003	10/14/2003	2/4/2003	4/8/2003
AnalyteNameShort	CRDL	UnitsID											
ANTIMONY	5	UG/L	0.2	< 0.056	< 0.056	< 0.064	< 0.191	NS	NS	NS	NS	< 0.056	< 0.056
ARSENIC	3	UG/L	**8.91**	< 0.902	2.1	< 0.813	< 6.21	NS	NS	NS	NS	< 0.902	**3.61**
BARIUM	20	UG/L	**315**	**310**	< 0.007	**290**	**323**	NS	NS	NS	NS	**176**	**145**
BERYLLIUM	1	UG/L	< 0.015	0.018	< 0.015	< 0.022	< 0.025	NS	NS	NS	NS	< 0.015	< 0.015
BORON	50	UG/L	**743**	**748 J**	**869**	**385**	**837**	NS	NS	NS	NS	**511 J**	**588**
CADMIUM	1	UG/L	0.019	< 0.015	< 0.015	< 0.021	< 0.016	NS	NS	NS	NS	< 0.015	< 0.015
CALCIUM	2000	UG/L	NS	NS	**42400**	NS	NS	NS	NS	NS	NS	NS	**29100**
CHROMIUM, TOTAL	10	UG/L	**158**	**159**	**163**	**158**	**160**	**95.8**	**135**	**91.1**	**95.4**	**17.1**	**14**
COBALT	10	UG/L	0.636	0.631	0.199	0.427	0.398 J	NS	NS	NS	NS	0.488 J	0.243
COPPER	10	UG/L	1.47	1.43	< 0.025	< 0.094	< 1.18	NS	NS	NS	NS	< 0.025	< 0.025
IRON	100	UG/L	**214**	< 3.74	99.6	**217**	**185**	NS	NS	NS	NS	< 3.74	80.1
LEAD	3	UG/L	0.029	< 0.004	0.042	< 0.003	< 0.032	NS	NS	NS	NS	< 0.004	< 0.004
MAGNESIUM	2000	UG/L	NS	NS	**116000**	NS	NS	NS	NS	NS	NS	NS	**79100**
MANGANESE	10	UG/L	0.824	0.376	0.111	< 0.019	< 0.475	NS	NS	NS	NS	< 0.013	< 0.013
MERCURY	0.2	UG/L	< 0.052	< 0.052	< 0.052	< 0.095	< 0.033	NS	NS	NS	NS	< 0.052	< 0.052
MOLYBDENUM	10	UG/L	1.38	1.37	1.42	1.22	1.37 J	NS	NS	NS	NS	1.4	1.48
NICKEL	20	UG/L	1.82	2.05	1.28	1.77 J	1.45 J	NS	NS	NS	NS	3.34 J	2.66 J
POTASSIUM	2000	UG/L	NS	NS	**499**	NS	NS	NS	NS	NS	NS	NS	**352**
SELENIUM	3	UG/L	**8.52**	**8.7**	**7.32**	**8.82**	**7.64**	NS	NS	NS	NS	**3.33**	< 0.352
SILVER	10	UG/L	0.019	< 0.006	0.012	< 0.004	0.01 J	NS	NS	NS	NS	< 0.006	0.017
SODIUM	2000	UG/L	NS	NS	**69100**	NS	NS	NS	NS	NS	NS	NS	**31700**
THALLIUM	10	UG/L	0.395	0.122	< 0.005	< 0.005	0.008 J	NS	NS	NS	NS	< 0.005	0.248
VANADIUM	10	UG/L	**30.7**	**32.6**	**22.9**	**23.5**	< 0.904	NS	NS	NS	NS	**21**	**12.5**
ZINC	20	UG/L	1.38	< 0.036	< 0.036	< 0.07	< 3.36	NS	NS	NS	NS	< 0.036	< 0.036

NS - Not Sampled
Results in **BOLD** text indicate detections above the CRDL.
J - Validation qualifier for estimated value; Sample exceeds quantitation range

APPENDIX D
METALS - GROUNDWATER
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		Location	UCD1-018	UCD1-018	UCD1-018	UCD1-025	UCD1-025	UCD1-025	UCD1-025	UCD1-025	UCD1-027Z1	UCD1-027Z2	UCD1-027Z3
		Sample ID	GWGW1640	GWGW1641	GWGW1659	GWGW1584	GWGW1601	GWGW1642	GWGW1643	GWGW1660	GWGW1661	GWGW1662	GWGW1663
		Date	7/8/2003	7/8/2003	10/14/2003	2/4/2003	4/7/2003	7/8/2003	7/8/2003	10/13/2003	10/16/2003	10/16/2003	10/16/2003
AnalyteNameShort	CRDL	UnitsID											
ANTIMONY	5	UG/L	< 0.064	< 0.064	< 0.198	< 0.056	< 0.056	< 0.064	< 0.064	< 0.132	< 0.497	< 0.352	< 0.332
ARSENIC	3	UG/L	< 0.813	< 0.813	**7.49**	< 0.902	2	< 0.813	< 0.813	< 7.26	**3.26**	**4.21**	**5.4**
BARIUM	20	UG/L	**128**	**127**	**151**	**217**	**261**	**285**	**281**	**340**	**218**	**278**	**208**
BERYLLIUM	1	UG/L	< 0.022	< 0.022	< 0.025	< 0.015	< 0.015	< 0.022	< 0.022	< 0.025	< 0.025	< 0.025	< 0.025
BORON	50	UG/L	**154**	**530**	**570 J**	**394 J**	**917**	**499**	**534**	**817**	**765 J**	**901 J**	**721 J**
CADMIUM	1	UG/L	< 0.021	< 0.021	0.021 J	< 0.015	< 0.015	< 0.021	< 0.021	0.029 J	0.081 J	0.035 J	< 0.016
CALCIUM	2000	UG/L	NS	NS	NS	NS	**41800**	NS	NS	NS	**67100**	NS	NS
CHROMIUM, TOTAL	10	UG/L	**12.4**	**11.7**	**13.6**	**16.9**	**256**	**209**	**208**	**187**	< 2.08	2.29 J	< 2.08
COBALT	10	UG/L	0.25	0.288	0.289 J	1.13 J	2.47	1.22	1.2	1.75	**16.1**	**29.4**	6.75
COPPER	10	UG/L	< 0.094	< 0.094	< 1.32	< 0.025	< 0.025	< 0.094	< 0.094	< 1.59	< 1.7	< 1.15	< 1.39
IRON	100	UG/L	**140**	**141**	< 128	**150**	**103**	**220**	**209**	**191**	< 253	< 210	< 195
LEAD	3	UG/L	< 0.003	< 0.003	< 0.06	< 0.004	0.022	< 0.003	< 0.003	< 0.039	0.406 J	< 0.27	< 0.043
MAGNESIUM	2000	UG/L	NS	NS	NS	NS	**128000**	NS	NS	NS	**110000**	NS	NS
MANGANESE	10	UG/L	< 0.019	< 0.019	< 0.415	**162**	**112**	**37.6**	**37.6**	**86.5**	**2110**	**1860**	**1130**
MERCURY	0.2	UG/L	< 0.095	< 0.095	**0.043 J**	< 0.052	< 0.052	< 0.095	< 0.095	< 0.033	< 0.033	< 0.033	< 0.033
MOLYBDENUM	10	UG/L	1.33	1.4	1.63 J	1.84	< 0.04	0.497	0.497	0.591 J	**387**	3.74 J	8.8 J
NICKEL	20	UG/L	2.5 J	2.55 J	3.03 J	**60.8 J**	**126**	**60 J**	**58.8 J**	**165**	**1710**	**1450**	**382**
POTASSIUM	2000	UG/L	NS	NS	NS	NS	**1740**	NS	NS	NS	**2320**	NS	NS
SELENIUM	3	UG/L	< 0.277	< 0.277	< 1.56	**3.18**	**7.24**	< 0.277	< 0.277	**4.18**	< 1.56	< 1.56	< 1.56
SILVER	10	UG/L	< 0.004	< 0.004	0.011 J	< 0.006	< 0.006	< 0.004	< 0.004	< 0.008	0.012 J	< 0.008	< 0.008
SODIUM	2000	UG/L	NS	NS	NS	NS	**70100**	NS	NS	NS	**121000**	NS	NS
THALLIUM	10	UG/L	< 0.005	< 0.005	0.273 J	< 0.005	< 0.005	< 0.005	< 0.005	< 0.008	0.102 J	0.08 J	0.052 J
VANADIUM	10	UG/L	**11.7**	**11.7**	**19.4**	**15.3**	**24.6**	**25.1**	**25.8**	< 1.81	< 6.65	< 5.38	< 7.42
ZINC	20	UG/L	< 0.07	< 0.07	< 2.34	< 0.036	8.16	9.13	< 0.07	7.95 J	**482**	**354**	**153**

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		Location	UCD1-028	UCD1-028	UCD1-028	UCD1-028	UCD1-049	UCD1-049	UCD1-050	UCD1-051	UCD2-007	UCD2-007	UCD2-014
		Sample ID	GWGW1586	GWGW1605	GWGW1647	GWGW1664	GWGW1665	GWGW1666	GWGW1667	GWGW1668	GWGW1610	GWGW1669	GWGW1611
		Date	2/4/2003	4/7/2003	7/8/2003	10/13/2003	10/14/2003	10/14/2003	10/14/2003	10/14/2003	4/8/2003	10/14/2003	4/8/2003
AnalyteNameShort	CRDL	UnitsID											
ANTIMONY	5	UG/L	< 0.056	< 0.056	< 0.064	< 0.128	NS	NS	NS	NS	NS	NS	NS
ARSENIC	3	UG/L	< 0.902	2.58	< 0.813	< 6.74	NS	NS	NS	NS	NS	NS	NS
BARIUM	20	UG/L	**340**	**317**	**299**	**329**	NS	NS	NS	NS	NS	NS	NS
BERYLLIUM	1	UG/L	< 0.015	< 0.015	< 0.022	< 0.025	NS	NS	NS	NS	NS	NS	NS
BORON	50	UG/L	**990 J**	**1270**	**775**	**1180**	NS	NS	NS	NS	NS	NS	NS
CADMIUM	1	UG/L	< 0.015	< 0.015	< 0.021	< 0.016	NS	NS	NS	NS	NS	NS	NS
CALCIUM	2000	UG/L	NS	**50800**	NS	NS	NS	NS	NS	NS	NS	NS	NS
CHROMIUM, TOTAL	10	UG/L	**554**	**559**	**513**	**520**	**144**	**144**	**156**	**138**	**32.3**	**23.8**	**47**
COBALT	10	UG/L	1.06 J	0.292	0.694	0.531 J	NS	NS	NS	NS	NS	NS	NS
COPPER	10	UG/L	< 0.025	< 0.025	< 0.094	< 1.58	NS	NS	NS	NS	NS	NS	NS
IRON	100	UG/L	< 3.74	**109**	**259**	**187**	NS	NS	NS	NS	NS	NS	NS
LEAD	3	UG/L	0.027	0.3	< 0.003	0.169 J	NS	NS	NS	NS	NS	NS	NS
MAGNESIUM	2000	UG/L	NS	**181000**	NS	NS	NS	NS	NS	NS	NS	NS	NS
MANGANESE	10	UG/L	< 0.013	0.019	< 0.019	< 0.268	NS	NS	NS	NS	NS	NS	NS
MERCURY	0.2	UG/L	< 0.052	< 0.052	< 0.095	< 0.033	NS	NS	NS	NS	NS	NS	NS
MOLYBDENUM	10	UG/L	0.809	0.806	0.767	0.74 J	NS	NS	NS	NS	NS	NS	NS
NICKEL	20	UG/L	2.63 J	1.74	2.19 J	1.76 J	NS	NS	NS	NS	NS	NS	NS
POTASSIUM	2000	UG/L	NS	**866**	NS	NS	NS	NS	NS	NS	NS	NS	NS
SELENIUM	3	UG/L	**14.3**	**13.5**	**15.4**	**14.8**	NS	NS	NS	NS	NS	NS	NS
SILVER	10	UG/L	< 0.006	< 0.006	< 0.004	< 0.008	NS	NS	NS	NS	NS	NS	NS
SODIUM	2000	UG/L	NS	**104000**	NS	NS	NS	NS	NS	NS	NS	NS	NS
THALLIUM	10	UG/L	< 0.005	< 0.005	< 0.005	< 0.008	NS	NS	NS	NS	NS	NS	NS
VANADIUM	10	UG/L	**55.3**	**22.8**	**49.6**	< 4.52	NS	NS	NS	NS	NS	NS	NS
ZINC	20	UG/L	< 0.036	3.21	< 0.07	< 3.21	NS	NS	NS	NS	NS	NS	NS

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		Location	UCD2-014	UCD2-015	UCD2-015	UCD2-016	UCD2-016	UCD2-017	UCD2-017	UCD2-026	UCD2-026	UCD2-029	UCD2-029
		Sample ID	GWGW1670	GWGW1612	GWGW1671	GWGW1613	GWGW1672	GWGW1614	GWGW1673	GWGW1615	GWGW1674	GWGW1616	GWGW1675
		Date	10/14/2003	4/8/2003	10/15/2003	4/8/2003	10/14/2003	4/8/2003	10/14/2003	4/7/2003	10/13/2003	4/7/2003	10/13/2003
AnalyteNameShort	CRDL	UnitsID											
ANTIMONY	5	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
ARSENIC	3	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
BARIUM	20	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
BERYLLIUM	1	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
BORON	50	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
CADMIUM	1	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
CALCIUM	2000	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
CHROMIUM, TOTAL	10	UG/L	**38.5**	**23.7**	**25.4**	**27.9**	**27.9**	**21.2**	**21.1**	**27.8**	**22.9**	**27.5**	**25**
COBALT	10	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
COPPER	10	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
IRON	100	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
LEAD	3	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MAGNESIUM	2000	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MANGANESE	10	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MERCURY	0.2	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MOLYBDENUM	10	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
NICKEL	20	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
POTASSIUM	2000	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
SELENIUM	3	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
SILVER	10	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
SODIUM	2000	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
THALLIUM	10	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
VANADIUM	10	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
ZINC	20	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

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		Location	UCD2-030	UCD2-030	UCD2-030	UCD2-031	UCD2-031	UCD2-032	UCD2-032	UCD2-035	UCD2-035	UCD2-036	UCD2-036
		Sample ID	GWGW1617	GWGW1676	GWGW1677	GWGW1618	GWGW1678	GWGW1619	GWGW1679	GWGW1620	GWGW1680	GWGW1621	GWGW1681
		Date	4/7/2003	10/13/2003	10/13/2003	4/7/2003	10/13/2003	4/8/2003	10/14/2003	4/9/2003	10/13/2003	4/7/2003	10/14/2003
AnalyteNameShort	CRDL	UnitsID											
ANTIMONY	5	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
ARSENIC	3	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
BARIUM	20	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
BERYLLIUM	1	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
BORON	50	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
CADMIUM	1	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
CALCIUM	2000	UG/L	NS	NS	NS	NS	NS	< 0.008	NS	NS	NS	NS	NS
CHROMIUM, TOTAL	10	UG/L	**29.1**	**23.5**	**23.4**	**21.9**	**23.1**	**35.6**	**31.8**	**13.3**	8.81 J	**27.7**	**27.2**
COBALT	10	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
COPPER	10	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
IRON	100	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
LEAD	3	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MAGNESIUM	2000	UG/L	NS	NS	NS	NS	NS	80.2 J	NS	NS	NS	NS	NS
MANGANESE	10	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MERCURY	0.2	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MOLYBDENUM	10	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
NICKEL	20	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
POTASSIUM	2000	UG/L	NS	NS	NS	NS	NS	0.972	NS	NS	NS	NS	NS
SELENIUM	3	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
SILVER	10	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
SODIUM	2000	UG/L	NS	NS	NS	NS	NS	< 0.034	NS	NS	NS	NS	NS
THALLIUM	10	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
VANADIUM	10	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
ZINC	20	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

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		Location	UCD2-036	UCD2-037	UCD2-037	UCD2-037	UCD2-037	UCD2-038	UCD2-038	UCD2-038	UCD2-039	UCD2-039	UCD2-040
		Sample ID	GWGW1682	GWGW1622	GWGW1623	GWGW1683	GWGW1684	GWGW1624	GWGW1625	GWGW1685	GWGW1626	GWGW1686	GWGW1627
		Date	10/14/2003	4/7/2003	4/7/2003	10/15/2003	10/15/2003	4/9/2003	4/9/2003	10/13/2003	4/7/2003	10/13/2003	4/7/2003
AnalyteNameShort	CRDL	UnitsID											
ANTIMONY	5	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
ARSENIC	3	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
BARIUM	20	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
BERYLLIUM	1	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
BORON	50	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
CADMIUM	1	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
CALCIUM	2000	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
CHROMIUM, TOTAL	10	UG/L	**26.2**	**14.9**	**14.8**	**12.6**	**12.5**	9.58	**11.1**	7.62 J	**21.2**	**23.1**	**42.6**
COBALT	10	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
COPPER	10	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
IRON	100	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
LEAD	3	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MAGNESIUM	2000	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MANGANESE	10	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MERCURY	0.2	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MOLYBDENUM	10	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
NICKEL	20	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
POTASSIUM	2000	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
SELENIUM	3	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
SILVER	10	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
SODIUM	2000	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
THALLIUM	10	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
VANADIUM	10	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
ZINC	20	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

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		Location	UCD2-040	UCD2-040	UCD2-045	UCD2-045	UCD2-046	UCD2-046	UCD2-048	UCD4-041	UCD4-041	UCD4-042	UCD4-042
		Sample ID	GWGW1687	GWGW1688	GWGW1628	GWGW1689	GWGW1629	GWGW1690	GWGW1691	GWGW1631	GWGW1692	GWGW1632	GWGW1693
		Date	10/13/2003	10/13/2003	4/9/2003	10/15/2003	4/9/2003	10/15/2003	10/14/2003	4/7/2003	10/13/2003	4/8/2003	10/14/2003
AnalyteNameShort	CRDL	UnitsID											
ANTIMONY	5	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
ARSENIC	3	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
BARIUM	20	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
BERYLLIUM	1	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
BORON	50	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
CADMIUM	1	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
CALCIUM	2000	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
CHROMIUM, TOTAL	10	UG/L	**44.7**	**43.3**	**61.2**	**50.5**	**44.8**	**62.3**	**15.3**	**19.5**	**23**	**29.1**	**31.1**
COBALT	10	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
COPPER	10	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
IRON	100	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
LEAD	3	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MAGNESIUM	2000	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MANGANESE	10	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MERCURY	0.2	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MOLYBDENUM	10	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
NICKEL	20	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
POTASSIUM	2000	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
SELENIUM	3	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
SILVER	10	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
SODIUM	2000	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
THALLIUM	10	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
VANADIUM	10	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
ZINC	20	UG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

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		Location	UCD4-043	UCD4-043	UCD4-044	UCD4-044	UCD4-047	UCD4-047
		Sample ID	GWGW1633	GWGW1694	GWGW1634	GWGW1695	GWGW1635	GWGW1696
		Date	4/8/2003	10/14/2003	4/7/2003	10/13/2003	4/9/2003	10/15/2003
AnalyteNameShort	CRDL	UnitsID						
ANTIMONY	5	UG/L	NS	NS	NS	NS	NS	NS
ARSENIC	3	UG/L	NS	NS	NS	NS	NS	NS
BARIUM	20	UG/L	NS	NS	NS	NS	NS	NS
BERYLLIUM	1	UG/L	NS	NS	NS	NS	NS	NS
BORON	50	UG/L	NS	NS	NS	NS	NS	NS
CADMIUM	1	UG/L	NS	NS	NS	NS	NS	NS
CALCIUM	2000	UG/L	NS	NS	NS	NS	NS	NS
CHROMIUM, TOTAL	10	UG/L	**27.9**	**25.9**	**24.4**	**26.2**	**35.4**	**36.3**
COBALT	10	UG/L	NS	NS	NS	NS	NS	NS
COPPER	10	UG/L	NS	NS	NS	NS	NS	NS
IRON	100	UG/L	NS	NS	NS	NS	NS	NS
LEAD	3	UG/L	NS	NS	NS	NS	NS	NS
MAGNESIUM	2000	UG/L	NS	NS	NS	NS	NS	NS
MANGANESE	10	UG/L	NS	NS	NS	NS	NS	NS
MERCURY	0.2	UG/L	NS	NS	NS	NS	NS	NS
MOLYBDENUM	10	UG/L	NS	NS	NS	NS	NS	NS
NICKEL	20	UG/L	NS	NS	NS	NS	NS	NS
POTASSIUM	2000	UG/L	NS	NS	NS	NS	NS	NS
SELENIUM	3	UG/L	NS	NS	NS	NS	NS	NS
SILVER	10	UG/L	NS	NS	NS	NS	NS	NS
SODIUM	2000	UG/L	NS	NS	NS	NS	NS	NS
THALLIUM	10	UG/L	NS	NS	NS	NS	NS	NS
VANADIUM	10	UG/L	NS	NS	NS	NS	NS	NS
ZINC	20	UG/L	NS	NS	NS	NS	NS	NS

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		Location	UCD1-011	UCD1-011	UCD1-011	UCD1-011	UCD1-011	UCD1-012	UCD1-012	UCD1-013	UCD1-013
		Sample ID	GWGW1580	GWGW1581	GWGW1597	GWGW1638	GWGW1656	GWGW1598	GWGW1657	GWGW1599	GWGW1658
		Date	2/4/2003	2/4/2003	4/7/2003	7/8/2003	10/13/2003	4/8/2003	10/14/2003	4/8/2003	10/14/2003
AnalyteNameShort	CRDL	UnitsID									
CARBON-14	20	PCI/L	< 15.5	< 15.7	< 9.09	< 17.4	< 8.08	**25.9 +/- 5.4**	**36.4 +/- 5.36**	**913 +/- 18.8**	**755 +/- 16.8**
TRITIUM (HYDROGEN-3)	300	PCI/L	< 268	< 277	< 209	< 185	< 229	< 276	< 244	**11600 +/- 500**	**7680 +/- 352**

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Results in **BOLD** text indicate detections above the CRDL.
J - Validation qualifier for estimated value; Sample exceeds quantitation range

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		Location	UCD1-018	UCD1-018	UCD1-018	UCD1-018	UCD1-018	UCD1-025	UCD1-025	UCD1-025	UCD1-025
		Sample ID	GWGW1583	GWGW1600	GWGW1640	GWGW1641	GWGW1659	GWGW1584	GWGW1601	GWGW1642	GWGW1643
		Date	2/4/2003	4/8/2003	7/8/2003	7/8/2003	10/14/2003	2/4/2003	4/7/2003	7/8/2003	7/8/2003
AnalyteNameShort	CRDL	UnitsID									
CARBON-14	20	PCI/L	< 15.7	< 7.87	< 16.5	< 16.4	< 7.52	< 15.5	< 9.12	< 18.2	< 17.2
TRITIUM (HYDROGEN-3)	300	PCI/L	< 276	< 281	< 183	< 181	< 244	< 264	< 199	< 181	< 184

NS - Not Sampled
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		Location	UCD1-025	UCD1-027Z1	UCD1-027Z2	UCD1-027Z3	UCD1-028	UCD1-028	UCD1-028	UCD1-028	UCD1-049
		Sample ID	GWGW1660	GWGW1661	GWGW1662	GWGW1663	GWGW1586	GWGW1605	GWGW1647	GWGW1664	GWGW1665
		Date	10/13/2003	10/16/2003	10/16/2003	10/16/2003	2/4/2003	4/7/2003	7/8/2003	10/13/2003	10/14/2003
AnalyteNameShort	CRDL	UnitsID									
CARBON-14	20	PCI/L	< 8.11	8.41 +/- 4.48 J	8.25 +/- 4.58 J	< 7.2	< 15.7	< 9.13	< 18.5	< 7.94	16.9 +/- 4.96 J
TRITIUM (HYDROGEN-3)	300	PCI/L	< 220	< 189	< 191	< 185	< 247	< 200	< 176	< 241	< 196

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		Location	UCD1-049	UCD1-050	UCD1-051	UCD2-007	UCD2-007	UCD2-014	UCD2-014	UCD2-015	UCD2-015
		Sample ID	GWGW1666	GWGW1667	GWGW1668	GWGW1610	GWGW1669	GWGW1611	GWGW1670	GWGW1612	GWGW1671
		Date	10/14/2003	10/14/2003	10/14/2003	4/8/2003	10/14/2003	4/8/2003	10/14/2003	4/8/2003	10/15/2003
AnalyteNameShort	CRDL	UnitsID									
CARBON-14	20	PCI/L	17.6 +/- 4.89 J	**20 +/- 5.14**	**69.2 +/- 6.36**	< 7.77	< 7.27	**205 +/- 9.27**	**158 +/- 8.7**	< 7.84	11.5 +/- 4.46 J
TRITIUM (HYDROGEN-3)	300	PCI/L	< 217	< 213	< 215	< 278	< 233	**1120 +/- 217**	**605 +/- 154**	< 272	196 +/- 117 J

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		Location	UCD2-016	UCD2-016	UCD2-017	UCD2-017	UCD2-026	UCD2-026	UCD2-029	UCD2-029	UCD2-030
		Sample ID	GWGW1613	GWGW1672	GWGW1614	GWGW1673	GWGW1615	GWGW1674	GWGW1616	GWGW1675	GWGW1617
		Date	4/8/2003	10/14/2003	4/8/2003	10/14/2003	4/7/2003	10/13/2003	4/7/2003	10/13/2003	4/7/2003
AnalyteNameShort	CRDL	UnitsID									
CARBON-14	20	PCI/L	< 7.83	< 7.27	< 7.91	< 7.38	< 9.14	< 7.74	< 9.01	< 7.56	< 9.08
TRITIUM (HYDROGEN-3)	300	PCI/L	< 278	< 208	< 274	< 217	< 202	< 225	< 207	< 240	< 205

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		Location	UCD2-030	UCD2-030	UCD2-031	UCD2-031	UCD2-032	UCD2-032	UCD2-035	UCD2-035	UCD2-036
		Sample ID	GWGW1676	GWGW1677	GWGW1618	GWGW1678	GWGW1619	GWGW1679	GWGW1620	GWGW1680	GWGW1621
		Date	10/13/2003	10/13/2003	4/7/2003	10/13/2003	4/8/2003	10/14/2003	4/9/2003	10/13/2003	4/7/2003
AnalyteNameShort	CRDL	UnitsID									
CARBON-14	20	PCI/L	**58.5 +/- 6.29 J**	**102 +/- 7.38 J**	< 9.21	**77.7 +/- 7.04**	< 7.81	< 7.42	< 7.84	< 7.86	< 9.14
TRITIUM (HYDROGEN-3)	300	PCI/L	< 206	< 210	< 208	< 221	< 274	< 219	< 280	< 223	< 210

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		Location	UCD2-036	UCD2-036	UCD2-037	UCD2-037	UCD2-037	UCD2-037	UCD2-038	UCD2-038	UCD2-038
		Sample ID	GWGW1681	GWGW1682	GWGW1622	GWGW1623	GWGW1683	GWGW1684	GWGW1624	GWGW1625	GWGW1685
		Date	10/14/2003	10/14/2003	4/7/2003	4/7/2003	10/15/2003	10/15/2003	4/9/2003	4/9/2003	10/13/2003
AnalyteNameShort	CRDL	UnitsID									
CARBON-14	20	PCI/L	8.4 +/- 4.66 J	< 7.27	< 9.14	< 9.18	< 7.07	< 7.15	< 7.89	< 7.8	< 7.85
TRITIUM (HYDROGEN-3)	300	PCI/L	< 202	< 198	< 205	< 205	197 +/- 118 J	< 182	< 275	< 277	< 224

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		Location	UCD2-039	UCD2-039	UCD2-040	UCD2-040	UCD2-040	UCD2-045	UCD2-045	UCD2-046	UCD2-046
		Sample ID	GWGW1626	GWGW1686	GWGW1627	GWGW1687	GWGW1688	GWGW1628	GWGW1689	GWGW1629	GWGW1690
		Date	4/7/2003	10/13/2003	4/7/2003	10/13/2003	10/13/2003	4/9/2003	10/15/2003	4/9/2003	10/15/2003
AnalyteNameShort	CRDL	UnitsID									
CARBON-14	20	PCI/L	9.32 +/- 5.6	**74.7 +/- 7.03**	< 9.1	< 7.85	< 8.22	< 7.73	17.5 +/- 4.73 J	14.2 +/- 4.96	8.14 +/- 4.46 J
TRITIUM (HYDROGEN-3)	300	PCI/L	< 216	< 227	< 209	< 225	< 207	< 278	< 194	< 280	< 197

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		Location	UCD2-048	UCD4-041	UCD4-041	UCD4-042	UCD4-042	UCD4-043	UCD4-043	UCD4-044	UCD4-044
		Sample ID	GWGW1691	GWGW1631	GWGW1692	GWGW1632	GWGW1693	GWGW1633	GWGW1694	GWGW1634	GWGW1695
		Date	10/14/2003	4/7/2003	10/13/2003	4/8/2003	10/14/2003	4/8/2003	10/14/2003	4/7/2003	10/13/2003
AnalyteNameShort	CRDL	UnitsID									
CARBON-14	20	PCI/L	< 7.27	< 7.78	< 7.3	< 7.84	< 7.26	< 7.83	< 6.99	< 7.86	7.56 +/- 4.54 J
TRITIUM (HYDROGEN-3)	300	PCI/L	< 217	< 273	< 203	< 274	< 177	< 278	< 194	< 278	< 217

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		Location	UCD4-047	UCD4-047
		Sample ID	GWGW1635	GWGW1696
		Date	4/9/2003	10/15/2003
AnalyteNameShort	CRDL	UnitsID		
CARBON-14	20	PCI/L	< 7.92	11 +/- 4.57 J
TRITIUM (HYDROGEN-3)	300	PCI/L	< 274	< 195

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		Location	UCD1-010	UCD1-010	UCD1-011	UCD1-011	UCD1-011	UCD1-011	UCD1-011	UCD1-012	UCD1-012
		Sample ID	GWGW1596	GWGW1655	GWGW1580	GWGW1581	GWGW1597	GWGW1638	GWGW1656	GWGW1598	GWGW1657
		Date	4/7/2003	10/13/2003	2/4/2003	2/4/2003	4/7/2003	7/8/2003	10/13/2003	4/8/2003	10/14/2003
AnalyteNameShort	CRDL	UnitsID									
ALKALINITY, TOTAL (AS CaCO3)	10	MG/L	NS	NS	**545**	**535**	**555**	**584**	**525**	NS	NS
CHLORIDE (AS CL)	1	MG/L	NS	NS	**36.3**	**36.5**	**33.2**	**35.1**	**40.1**	NS	NS
NITRATE AS NITROGEN	0.01	MG/L	**21.6**	**21.3 J**	**24.4 J**	**24.1 J**	**24.1**	**23.5**	**25.9 J**	**84.4**	**79.2 J**
SULFATE (AS SO4)	1	MG/L	NS	NS	**34.2**	**34.9**	**34.8**	**37.8**	**36.5**	NS	NS
TOTAL DISSOLVED SOLIDS (RESIDUE, FILTERABLE)	20	MG/L	**1020**	**868**	**757**	**743**	**799**	**782**	**795**	**2330**	**1760**
TOTAL ORGANIC CARBON	1	MG/L	NS	NS	**2.11**	**2.29**	**0.921**	**1.17**	**1.38**	NS	NS

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		Location	UCD1-013	UCD1-013	UCD1-018	UCD1-018	UCD1-018	UCD1-018	UCD1-018	UCD1-025	UCD1-025
		Sample ID	GWGW1599	GWGW1658	GWGW1583	GWGW1600	GWGW1640	GWGW1641	GWGW1659	GWGW1584	GWGW1601
		Date	4/8/2003	10/14/2003	2/4/2003	4/8/2003	7/8/2003	7/8/2003	10/14/2003	2/4/2003	4/7/2003
AnalyteNameShort	CRDL	UnitsID									
ALKALINITY, TOTAL (AS CaCO3)	10	MG/L	NS	NS	**382**	**386**	**368**	**373**	**374**	**336**	**636**
CHLORIDE (AS CL)	1	MG/L	NS	NS	**22.3**	**17.1**	**17.4**	**17.4**	**17.3**	**17.7**	**39.6**
NITRATE AS NITROGEN	0.01	MG/L	**15.8**	**16.5 J**	**12 J**	**5.37**	**3.99**	**4.18**	**5.36**	**7.02**	**29.7**
SULFATE (AS SO4)	1	MG/L	NS	NS	**40.7**	**37.8**	**37.3**	**37.4**	**38.3**	**37.1**	**35.1**
TOTAL DISSOLVED SOLIDS (RESIDUE, FILTERABLE)	20	MG/L	**1010**	**978**	**529**	**477**	**436**	**422**	**466**	**442**	**864**
TOTAL ORGANIC CARBON	1	MG/L	NS	NS	**1.96**	**1.26**	0.841	0.871	**1.42**	**2.24**	**1.7**

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		Location	UCD1-025	UCD1-025	UCD1-025	UCD1-027Z1	UCD1-027Z2	UCD1-027Z3	UCD1-028	UCD1-028	UCD1-028
		Sample ID	GWGW1642	GWGW1643	GWGW1660	GWGW1661	GWGW1662	GWGW1663	GWGW1586	GWGW1605	GWGW1647
		Date	7/8/2003	7/8/2003	10/13/2003	10/16/2003	10/16/2003	10/16/2003	2/4/2003	4/7/2003	7/8/2003
AnalyteNameShort	CRDL	UnitsID									
ALKALINITY, TOTAL (AS CaCO3)	10	MG/L	**549**	**438**	**527**	**683**	**575**	**541**	**744**	**756**	**730**
CHLORIDE (AS CL)	1	MG/L	**38.7**	**39.3**	**40.8**	**52.3**	**36.8**	**29.2**	**46.6**	**44.7**	**46**
NITRATE AS NITROGEN	0.01	MG/L	**29.5**	**30**	**26.5 J**	**5.99**	**7.81**	**0.25**	**60.7 J**	**57.1**	**53.3**
SULFATE (AS SO4)	1	MG/L	**31.9**	**32**	**36**	**60.6**	**38.6**	**38.8**	**38.7**	**37.1**	**40.6**
TOTAL DISSOLVED SOLIDS (RESIDUE, FILTERABLE)	20	MG/L	**756**	**760**	**824**	**819**	**669**	**598**	**1150**	**1270**	**1130**
TOTAL ORGANIC CARBON	1	MG/L	**2.08**	**1.77**	**2.15**	**8.42**	**10.6**	**13.9**	**2.2**	**1.98**	**1.74**

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		Location	UCD1-028	UCD1-049	UCD1-049	UCD1-050	UCD1-051	UCD2-007	UCD2-007	UCD2-014	UCD2-014
		Sample ID	GWGW1664	GWGW1665	GWGW1666	GWGW1667	GWGW1668	GWGW1610	GWGW1669	GWGW1611	GWGW1670
		Date	10/13/2003	10/14/2003	10/14/2003	10/14/2003	10/14/2003	4/8/2003	10/14/2003	4/8/2003	10/14/2003
AnalyteNameShort	CRDL	UnitsID									
ALKALINITY, TOTAL (AS CaCO3)	10	MG/L	**701**	NS	NS	NS	NS	NS	NS	NS	NS
CHLORIDE (AS CL)	1	MG/L	**46.7**	NS	NS	NS	NS	NS	NS	NS	NS
NITRATE AS NITROGEN	0.01	MG/L	**61.4 J**	**64 J**	**65 J**	**102 J**	**79.2 J**	**10.4**	**7.09**	**11.5**	**8.44**
SULFATE (AS SO4)	1	MG/L	**38**	NS	NS	NS	NS	NS	NS	NS	NS
TOTAL DISSOLVED SOLIDS (RESIDUE, FILTERABLE)	20	MG/L	**1170**	**1500**	**1470**	**1990**	**1760**	**574**	**478**	**759**	**618**
TOTAL ORGANIC CARBON	1	MG/L	**2.22**	NS	NS	NS	NS	NS	NS	NS	NS

NS - Not Sampled
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		Location	UCD2-015	UCD2-015	UCD2-016	UCD2-016	UCD2-017	UCD2-017	UCD2-026	UCD2-026	UCD2-029
		Sample ID	GWGW1612	GWGW1671	GWGW1613	GWGW1672	GWGW1614	GWGW1673	GWGW1615	GWGW1674	GWGW1616
		Date	4/8/2003	10/15/2003	4/8/2003	10/14/2003	4/8/2003	10/14/2003	4/7/2003	10/13/2003	4/7/2003
AnalyteNameShort	CRDL	UnitsID									
ALKALINITY, TOTAL (AS CaCO3)	10	MG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS
CHLORIDE (AS CL)	1	MG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS
NITRATE AS NITROGEN	0.01	MG/L	**6.69**	**7.18**	**5.64**	**5.8**	**3.75**	**3.4**	**7.35**	**5.9**	**7.91**
SULFATE (AS SO4)	1	MG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS
TOTAL DISSOLVED SOLIDS (RESIDUE, FILTERABLE)	20	MG/L	**471**	**461**	**531**	**500**	**459**	**443**	**536**	**481**	**551**
TOTAL ORGANIC CARBON	1	MG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS

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		Location	UCD2-029	UCD2-030	UCD2-030	UCD2-030	UCD2-031	UCD2-031	UCD2-032	UCD2-032	UCD2-035
		Sample ID	GWGW1675	GWGW1617	GWGW1676	GWGW1677	GWGW1618	GWGW1678	GWGW1619	GWGW1679	GWGW1620
		Date	10/13/2003	4/7/2003	10/13/2003	10/13/2003	4/7/2003	10/13/2003	4/8/2003	10/14/2003	4/9/2003
AnalyteNameShort	CRDL	UnitsID									
ALKALINITY, TOTAL (AS CaCO3)	10	MG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS
CHLORIDE (AS CL)	1	MG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS
NITRATE AS NITROGEN	0.01	MG/L	**8.04**	**7.12**	**6.34**	**6.19**	**5.62**	**5.19**	**8.53**	**7.09**	**2.82**
SULFATE (AS SO4)	1	MG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS
TOTAL DISSOLVED SOLIDS (RESIDUE, FILTERABLE)	20	MG/L	**491**	**505**	**472**	**478**	**496**	**480**	**567**	**518**	**407**
TOTAL ORGANIC CARBON	1	MG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS

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		Location	UCD2-035	UCD2-036	UCD2-036	UCD2-036	UCD2-037	UCD2-037	UCD2-037	UCD2-037	UCD2-038
		Sample ID	GWGW1680	GWGW1621	GWGW1681	GWGW1682	GWGW1622	GWGW1623	GWGW1683	GWGW1684	GWGW1624
		Date	10/13/2003	4/7/2003	10/14/2003	10/14/2003	4/7/2003	4/7/2003	10/15/2003	10/15/2003	4/9/2003
AnalyteNameShort	CRDL	UnitsID									
ALKALINITY, TOTAL (AS CaCO3)	10	MG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS
CHLORIDE (AS CL)	1	MG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS
NITRATE AS NITROGEN	0.01	MG/L	**1.88**	**4.84**	**7.33**	**6.72**	**2.72**	**2.74**	**2.67**	**2.6**	**1.96**
SULFATE (AS SO4)	1	MG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS
TOTAL DISSOLVED SOLIDS (RESIDUE, FILTERABLE)	20	MG/L	**394**	**507**	**493**	**501**	**463**	**460**	**442**	**428**	**428**
TOTAL ORGANIC CARBON	1	MG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS

NS - Not Sampled
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J - Validation qualifier for estimated value; Sample exceeds quantitation range

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		Location	UCD2-046	UCD2-046	UCD2-048	UCD4-041	UCD4-041	UCD4-042	UCD4-042	UCD4-043	UCD4-043
		Sample ID	GWGW1629	GWGW1690	GWGW1691	GWGW1631	GWGW1692	GWGW1632	GWGW1693	GWGW1633	GWGW1694
		Date	4/9/2003	10/15/2003	10/14/2003	4/7/2003	10/13/2003	4/8/2003	10/14/2003	4/8/2003	10/14/2003
AnalyteNameShort	CRDL	UnitsID									
ALKALINITY, TOTAL (AS CaCO3)	10	MG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS
CHLORIDE (AS CL)	1	MG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS
NITRATE AS NITROGEN	0.01	MG/L	**9.48**	**11.8 J**	**4.09**	**2.12**	**2.29 J**	**2.09**	**2.29 J**	**2.13**	**2.19 J**
SULFATE (AS SO4)	1	MG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS
TOTAL DISSOLVED SOLIDS (RESIDUE, FILTERABLE)	20	MG/L	**554**	**667**	**444**	**423**	**411**	**424**	**413**	**424**	**408**
TOTAL ORGANIC CARBON	1	MG/L	NS	NS	NS	NS	NS	NS	NS	NS	NS

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		Location	UCD4-044	UCD4-044	UCD4-047	UCD4-047
		Sample ID	GWGW1634	GWGW1695	GWGW1635	GWGW1696
		Date	4/7/2003	10/13/2003	4/9/2003	10/15/2003
AnalyteNameShort	CRDL	UnitsID				
ALKALINITY, TOTAL (AS CaCO3)	10	MG/L	NS	NS	NS	NS
CHLORIDE (AS CL)	1	MG/L	NS	NS	NS	NS
NITRATE AS NITROGEN	0.01	MG/L	**2.21**	**2.28 J**	**7.25**	**7.98**
SULFATE (AS SO4)	1	MG/L	NS	NS	NS	NS
TOTAL DISSOLVED SOLIDS (RESIDUE, FILTERABLE)	20	MG/L	**441**	**431**	**521**	**519**
TOTAL ORGANIC CARBON	1	MG/L	NS	NS	NS	NS

NS - Not Sampled
Results in **BOLD** text indicate detections above the CRDL.
J - Validation qualifier for estimated value; Sample exceeds quantitation range

APPENDIX D
LTPS SOIL SAMPLING RESULTS
2003 Annual Groundwater Treatment System and Water Monitoring Report
LEHR/SCDS Environmental Restoration
Davis, California

Sample Location:		SBL-300	SBL-300	SBL-310	SBL-310	SBL-320	SBL-320	SBL-330	SBL-330	SBL-340	SBL-340	SBL-350	SBL-350	SBL-300	SBL-300	SBL-310	SBL-310
Date:		10/01/00	11/01/03	10/01/00	11/01/03	10/01/00	11/01/03	10/01/00	11/01/03	10/01/00	11/01/03	10/01/00	11/01/03	10/01/00	11/01/03	10/01/00	11/01/03
Sample Depth (ft bgs):		1	1	1	1	1	1	1	1	1	1	1	1	3	3	3	3
Analyte	Units																
Arsenic	ug/kg	**8.26**	**7.52**	**6.26**	**7.45**	**7.33**	**7.59**	**8.44**	**7.42**	**6.57**	**6.93**	**5.94**	**6.76**	**7.67**	**7.36**	**7.30**	**7.11**
Barium	ug/kg	**190**	**184**	**177**	**158**	**192**	**164**	**181**	**183**	**148**	**168**	**150**	**176**	**217**	**165**	**159**	**134**
Cadmium	ug/kg	<0.099	**0.12**	<0.096	<0.069	<0.180	**0.09**	<0.069	<0.066	<0.186	**0.07**	<0.184	**0.09**	<0.206	<0.069	<0.190	**0.10**
Chloride	mg/kg	**82.50**	**8.95**	**75.70**	**11.80**	**69.50**	**8.32**	**61.50**	**9.55**	**76.60**	**2.12**	**83.60**	**10.20**	**82.70**	**7.89**	**75.60**	**1.58**
Chromium	ug/kg	**167**	**133**	**160**	**173**	**152**	**142**	**136**	**142**	**175**	**171**	**155**	**123**	**158**	**208**	**184**	**185**
Copper	ug/kg	**38.90**	**41.70**	**34.70**	**34.90**	**40.20**	**37.60**	**37.30**	**38.70**	**26.30**	**37.20**	**28.40**	**40.30**	**43.10**	**36.30**	**30.7**	**28.5**
Lead	ug/kg	**8.23**	**11.90**	**6.14**	**7.04**	**7.67**	**7.23**	**12.40**	**6.69**	**5.63**	**6.70**	**5.96**	**8.35**	**7.49**	**10.10**	**5.41**	**5.65**
Mercury	ug/kg	**1.99**	**0.39**	**1.86**	**1.42**	**1.49**	**2.93**	**1.96**	**1.34**	**0.34**	**1.12**	**1.10**	**0.26**	**0.52**	**0.20**	**2.27**	**0.27**
Nickel	ug/kg	**294**	**262**	**292**	**328**	**279**	**286**	**267**	**280**	**270**	**274**	**252**	**243**	**283**	**287**	**288**	**308**
Nitrate	mg/kg	**10.80**	**0.43**	**2.65**	<1.13	**12.20**	**0.92**	**8.55**	<1.16	**1.79**	<1.09	**9.88**	<1.14	**7.78**	**4.85**	**3.24**	<1.08
Nitrogen, Ammonia	mg/kg	**13.40**	**7.20**	**7.73**	**7.03**	**20.20**	**4.63**	<1.09	**4.39**	**7.11**	**8.09**	**5.81**	**20.90**	**26.90**	**7.11**	**5.74**	**1.73**
Nitrogen, Total Kjeldahl	mg/kg	**459**	**592**	**353**	**402**	**761**	**527**	**511**	**476**	**413**	**641**	**361**	**622**	**1030**	**505**	**213**	**259**
Ortho-phosphate	mg/kg	**5.80**	<2.30	<1.10	<2.27	**8.77**	**5.50**	**4.09**	<2.31	<1.15	**1.94**	<1.08	<2.28	<1.22	<2.29	<1.10	<2.16
pH	SU	**7.75**	**8.07**	**7.62**	**7.90**	**7.87**	**8.04**	**7.59**	**7.79**	**7.83**	**8.07**	**7.91**	**8.10**	**7.57**	**8.12**	**7.90**	**8.19**
Selenium	ug/kg	**1.90**	<0.514	**2.24**	<0.517	**2.08**	<0.528	**2.36**	<0.493	<0.578	<0.462	<0.573	<0.503	**2.35**	<0.518	**1.97**	<0.482
Sulfate	mg/kg	**13.20**	**23.90**	**5.56**	**23.00**	**13.60**	**24.20**	**7.86**	**25.20**	**4.07**	**23.70**	**33.20**	**28.20**	**11.50**	**23.20**	**8.88**	**6.91**
Zinc	ug/kg	**72.2**	**77.6**	**61.2**	**67.2**	**71.8**	**71.9**	**65.3**	**70.8**	**57.2**	**69.8**	**58.9**	**77.3**	**75.7**	**75.5**	**58.0**	**58.8**
Total Organic Carbon	mg/kg	**4930**	**5690**	**4090**	**4120**	**12400**	**4640**	**9660**	**4060**	**2240**	**4350**	**3440**	**10300**	**8160**	**4610**	**1470**	**1860**

(1) Soil Samples collected prior to (October 2000) and following irrigation (November 2003) with IRA treated effluent

ft bgs = feet below ground surface

APPENDIX D
LTPS SOIL SAMPLING RESULTS
2003 Annual Groundwater Treatment System and Water Monitoring Report
LEHR/SCDS Environmental Restoration
Davis, California

Sample Location:		SBL-320	SBL-320	SBL-330	SBL-330	SBL-340	SBL-340	SBL-350	SBL-350	SBL-300	SBL-300	SBL-310	SBL-310	SBL-320	SBL-320	SBL-330	SBL-330
Date:		10/01/00	11/01/03	10/01/00	11/01/03	10/01/00	11/01/03	10/01/00	11/01/03	10/01/00	11/01/03	10/01/00	11/01/03	10/01/00	11/01/03	10/01/00	11/01/03
Sample Depth (ft bgs):		3	3	3	3	3	3	3	3	5	5	5	5	5	5	5	5
Analyte	Units																
Arsenic	ug/kg	**6.99**	**6.23**	**6.30**	**5.91**	**6.56**	**6.37**	**6.43**	**6.81**	**6.96**	**6.85**	**6.14**	**6.77**	**7.15**	**6.32**	**6.43**	**6.56**
Barium	ug/kg	**161**	**130**	**164**	**111**	**178**	**150**	**156**	**149**	**224**	**162**	**157**	**152**	**163**	**150**	**154**	**156**
Cadmium	ug/kg	<0.187	<0.067	<0.174	<0.061	<0.194	<0.066	<0.171	**0.11**	<0.204	**0.18**	<0.175	**0.07**	<0.193	**0.07**	<0.207	**0.09**
Chloride	mg/kg	**69.40**	**5.20**	**67.20**	**1.86**	**77.40**	**5.94**	**79.20**	**2.85**	**81.70**	**5.23**	**68.00**	**3.39**	**66.70**	**3.73**	**84.10**	**1.67**
Chromium	ug/kg	**190**	**164**	**126**	**200**	**108**	**138**	**142**	**142**	**131**	**133**	**197**	**171**	**149**	**130**	**139**	**167**
Copper	ug/kg	**28.8**	**28.1**	**30.6**	**23.8**	**31.1**	**31.4**	**29.8**	**32.1**	**43.1**	**37.6**	**28.3**	**33.2**	**32.5**	**31.2**	**28.9**	**32.6**
Lead	ug/kg	**5.37**	**5.94**	**5.54**	**5.18**	**5.64**	**6.05**	**5.68**	**6.56**	**14.10**	**23.60**	**4.77**	**6.56**	**5.33**	**6.61**	**5.36**	**6.19**
Mercury	ug/kg	**1.50**	**1.51**	**2.18**	**0.43**	**2.33**	**2.09**	**0.84**	**1.31**	**1.17**	**2.40**	**0.84**	**1.20**	**1.53**	**1.18**	**1.11**	**1.15**
Nickel	ug/kg	**292**	**251**	**231**	**246**	**182**	**246**	**243**	**232**	**228**	**242**	**285**	**298**	**261**	**254**	**247**	**297**
Nitrate	mg/kg	**3.21**	<1.09	**9.21**	<1.06	**4.70**	**1.12**	**4.71**	<1.07	**19.90**	**17.10**	**6.26**	<1.14	**9.40**	<1.14	**16.80**	<1.11
Nitrogen, Ammonia	mg/kg	**8.52**	**1.09**	**3.66**	**0.85**	**6.04**	**3.99**	**6.78**	**4.09**	**4.83**	**7.06**	**7.23**	**1.38**	**7.10**	<1.14	**5.90**	**2.21**
Nitrogen, Total Kjeldahl	mg/kg	**194**	**241**	**270**	**230**	**279**	**332**	**292**	**387**	**262**	**524**	**246**	**286**	**295**	**315**	**209**	**272**
Ortho-phosphate	mg/kg	<1.12	<2.17	<1.08	<2.11	<1.21	<2.21	<1.09	<2.13	**5.08**	<2.26	<1.06	<2.28	<1.11	<2.28	<1.23	<2.21
pH	SU	**8.17**	**8.13**	**8.02**	**8.31**	**7.98**	**8.44**	**7.83**	**8.21**	**7.73**	**8.23**	**8.32**	**8.67**	**8.20**	**8.45**	**8.23**	**8.52**
Selenium	ug/kg	**2.13**	<0.499	<0.543	<0.458	<0.605	<0.495	<0.532	<0.471	**2.60**	<0.499	**2.18**	<0.522	**2.64**	<0.515	<0.646	<0.471
Sulfate	mg/kg	**13.40**	**11.60**	**14.30**	**5.08**	**9.87**	**30.90**	**15.90**	**14.70**	**23.20**	**22.40**	**4.84**	**11.70**	**15.00**	**17.50**	**24.70**	**21.30**
Zinc	ug/kg	**54.7**	**57.8**	**60.5**	**49.4**	**63.2**	**61.4**	**57.7**	**63.0**	**79.5**	**92.4**	**52.9**	**64.5**	**59.3**	**66.0**	**60.0**	**62.3**
Total Organic Carbon	mg/kg	**1850**	**1660**	**3890**	**1660**	**2380**	**2440**	**1800**	**2130**	**5240**	**5340**	**1610**	**2150**	**1620**	**2650**	**1900**	**3420**

(1) Soil Samples collected prior to (Octobe

ft bgs = feet below ground surface

APPENDIX D
LTPS SOIL SAMPLING RESULTS
2003 Annual Groundwater Treatment System and Water Monitoring Report
LEHR/SCDS Environmental Restoration
Davis, California

Sample Location:		SBL-340	SBL-340	SBL-350	SBL-350
Date:		10/01/00	11/01/03	10/01/00	11/01/03
Sample Depth (ft bgs):		5	5	5	5
Analyte	Units				
Arsenic	ug/kg	**6.05**	**6.66**	**7.68**	**6.27**
Barium	ug/kg	**97.9**	**135**	**130**	**119**
Cadmium	ug/kg	<0.184	**0.08**	<0.074	**0.08**
Chloride	mg/kg	**76.90**	**3.21**	**83.30**	**2.24**
Chromium	ug/kg	**158**	**166**	**227**	**158**
Copper	ug/kg	**19**	**27.2**	**25**	**26.8**
Lead	ug/kg	**4.55**	**5.53**	**10.30**	**5.14**
Mercury	ug/kg	**1.50**	**0.88**	**1.24**	**1.75**
Nickel	ug/kg	**225**	**294**	**360**	**263**
Nitrate	mg/kg	**1.49**	**1.54**	**3.84**	**1.16**
Nitrogen, Ammonia	mg/kg	**4.68**	**2.03**	<1.08	**3.22**
Nitrogen, Total Kjeldahl	mg/kg	**170**	**236**	**166**	**249**
Ortho-phosphate	mg/kg	<1.11	<2.25	<1.08	<2.14
pH	SU	**8.79**	**8.92**	**8.38**	**8.51**
Selenium	ug/kg	<0.574	<0.508	**2.01**	<0.465
Sulfate	mg/kg	**6.15**	**13.10**	**6.40**	**13.60**
Zinc	ug/kg	**43.6**	**56.1**	**48.1**	**54.5**
Total Organic Carbon	mg/kg	**1940**	**1240**	**1340**	**1280**

(1) Soil Samples collected prior to (Octobe

ft bgs = feet below ground surface

APPENDIX D
VOLATILE ORGANIC COMPOUNDS - STORMWATER
2003 Annual Groundwater Treatment System and Water Monitoring Report
LEHR/SCDS Environmental Restoration
Davis, California

		Location	LF-01	LF-01	LF-01	LF-01	LS-01	LS-01
		Sample ID	STMW0126	STMW0127	STMW0125	STMW0128	RWSW0034A	SW03-01NWT
		Date	2/12/2003	2/12/2003	12/23/2003	12/23/2003	4/12/2003	11/15/2003
AnalyteNameShort	CRDL	UnitsID						
1,1,1-TRICHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 0.25	< 1	< 10.0
1,1,2,2-TETRACHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 0.25	< 1	< 10.0
1,1,2-TRICHLOROETHANE	1	UG/L	< 1	< 1	< 0.25	< 0.25	< 1	< 10.0
1,1-DICHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 0.25	< 1	< 10.0
1,1-DICHLOROETHENE	0.5	UG/L	< 0.5	< 0.5	0.39 J	< 0.25	< 1	< 10.0
1,2-DIBROMO-3-CHLOROPROPANE	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 0.25	NS	< 10.0
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 0.25	NS	< 10.0
1,2-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 0.25	NS	< 10.0
1,2-DICHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 0.25	< 1	< 10.0
1,2-DICHLOROPROPANE	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 0.25	< 1	< 10.0
1,3-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 0.25	NS	< 10.0
1,4-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 0.25	NS	< 10.0
2-HEXANONE	1	UG/L	< 1	< 1	< 0.25	< 0.25	< 5	< 10.0
ACETONE	5	UG/L	**6.7**	**7**	< 11.3	< 10.1	**56.6**	3.21
BENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 0.25	< 1	< 10.0
BROMOCHLOROMETHANE	1	UG/L	< 1	< 1	< 0.25	< 0.25	NS	NS
BROMODICHLOROMETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 0.25	< 1	< 10.0
BROMOFORM	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 0.25	< 1	< 10.0
BROMOMETHANE	1	UG/L	< 1	< 1	< 0.25	< 0.25	< 1	< 10.0
CARBON DISULFIDE	1	UG/L	< 1	< 1	< 0.25	< 0.25	< 5	< 10.0
CARBON TETRACHLORIDE	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 0.25	< 1	< 10.0
CHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 0.25	< 1	< 10.0
CHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 0.25	< 1	< 10.0
CHLOROFORM	0.5	UG/L	0.36	0.37	< 0.25	< 0.25	< 1	< 10.0
CHLOROMETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 0.25	< 1	< 10.0
cis-1,2-DICHLOROETHYLENE	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 0.25	< 1	< 10.0
cis-1,3-DICHLOROPROPENE	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 0.25	< 1	< 10.0
DIBROMOCHLOROMETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 0.25	< 1	< 10.0
ETHYLBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 0.25	< 1	< 10.0
METHYL ETHYL KETONE (2-BUTANONE)	1	UG/L	< 1	< 1	< 0.27	0.28 J	< 5	< 10.0
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	1	UG/L	< 1	< 1	< 0.25	< 0.25	< 5	< 10.0
METHYLENE CHLORIDE	1	UG/L	< 1	< 1	< 0.25	< 0.25	< 5	< 10.0
STYRENE	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 0.25	< 1	< 10.0
TETRACHLOROETHYLENE(PCE)	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 0.25	< 1	< 10.0
TOLUENE	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 0.25	**6**	< 10.0
trans-1,2-DICHLOROETHENE	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 0.25	< 1	< 10.0
trans-1,3-DICHLOROPROPENE	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 0.25	< 1	< 10.0
TRICHLOROETHYLENE (TCE)	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 0.25	< 1	< 10.0
VINYL CHLORIDE	0.5	UG/L	< 0.5	< 0.5	< 0.25	< 0.25	< 1	< 10.0
XYLENES, TOTAL	1	UG/L	< 1	< 1	< 0.25	< 0.25	NS	< 10.0

NS - Not Sampled
Results in **BOLD** text indicate detections above the CRDL.
J - Validation qualifier for estimated value; Sample exceeds quantitation range

APPENDIX D
METALS - STORMWATER
2003 Annual Groundwater Treatment System and Water Monitoring Report
LEHR/SCDS Environmental Restoration
Davis, California

		Location	LF-01	LF-01	LF-01	LF-01	LS-01	LS-01
		Sample ID	STMW0126	STMW0127	STMW0125	STMW0128	RWSW0034A	SW03-01NWT
		Date	2/12/2003	2/12/2003	12/23/2003	12/23/2003	4/12/2003	11/15/2003
AnalyteNameShort	CRDL	UnitsID						
ANTIMONY	5	UG/L	< 0.026	< 0.026	< 0.364	< 0.384	**148**	**123**
ARSENIC	3	UG/L	< 0.838	**5.81**	2.5 J	1.82 J	< 4.1	< 2.4
BARIUM	20	UG/L	**90.5**	**79**	**59.3**	**61.1**	**41.3**	**24**
BERYLLIUM	1	UG/L	0.145	0.155	0.107 J	0.116 J	< 0.133	< 0.23
BORON	50	UG/L	**78.1 J**	**69 J**	**105**	**86.2**	NS	NS
CADMIUM	1	UG/L	0.419	0.374	0.224 J	0.292 J	< 0.807	< 0.61
CALCIUM	2000	UG/L	NS	NS	NS	NS	**7570**	**6180**
CHROMIUM, TOTAL	10	UG/L	**33.7**	**36.3**	**19.5**	**21.1**	< 1.37	3.4
COBALT	10	UG/L	9.19	8.5	4.44	4.8	< 1.88	< 1.1
COPPER	10	UG/L	**20.8**	**19.5**	**11.8 J**	**12.6 J**	**20.4**	**14.1**
IRON	100	UG/L	**12500**	**11800**	**6310**	**7070**	**1060**	**1820**
LEAD	3	UG/L	**11.5**	**11.2**	**6.72**	**7.09**	< 2.67	**3.7**
MAGNESIUM	2000	UG/L	NS	NS	NS	NS	**3100**	**2740**
MANGANESE	10	UG/L	**282**	**251**	**136**	**148**	**141**	**64.5**
MERCURY	0.2	UG/L	0.082	0.082	< 0.033	0.046 J	< 0.052	< 0.033
MOLYBDENUM	10	UG/L	0.462	0.473	0.333 J	0.412 J	< 1.7	2.3
NICKEL	20	UG/L	**72**	**67.9**	**38.5**	**40.9**	**9.8**	**9**
POTASSIUM	2000	UG/L	NS	NS	NS	NS	**6050**	**3790**
SELENIUM	3	UG/L	< 0.296	**5.95**	< 1.56	1.59 J	< 4.2	< 4.6
SILVER	10	UG/L	0.117	< 0.003	0.084 J	0.087 J	< 2.5	< 2.0
SODIUM	2000	UG/L	NS	NS	NS	NS	**9630**	**18400**
THALLIUM	10	UG/L	< 0.006	0.065	0.077 J	0.076 J	< 6.27	< 4.1
VANADIUM	10	UG/L	**28.5**	**27.7**	**11.4**	**16.8**	< 3.12	**3.8**
ZINC	20	UG/L	**217 J**	**218 J**	**95.5**	**145**	**98.4**	**64.2**

NS - Not Sampled
Results in **BOLD** text indicate detections above the CRDL.
J - Validation qualifier for estimated value; Sample exceeds quantitation range

APPENDIX D
RADs - STORMWATER
2003 Annual Groundwater Treatment System and Water Monitoring Report
LEHR/SCDS Environmental Restoration
Davis, California

		Location	LF-01	LF-01	LF-01	LF-01	LS-01	LS-01
		Sample ID	STMW0126	STMW0127	STMW0125	STMW0128	RWSW0034A	SW03-01NWT
		Date	2/12/2003	2/12/2003	12/23/2003	12/23/2003	4/12/2003	11/15/2003
AnalyteNameShort	CRDL	UnitsID						
ACTINIUM 228	20	PCI/L	NS	NS	NS	NS	< 7.87	< 6.94
ALPHA, GROSS	2	PCI/L	NS	NS	NS	NS	< 1.52	< 0.458
BETA, GROSS	3	PCI/L	NS	NS	NS	NS	**5.03 +/- 1.01**	2.48 +/- 0.572
BISMUTH-212	70	PCI/L	NS	NS	NS	NS	< 15.6	< 13.3
BISMUTH-214	10	PCI/L	NS	NS	NS	NS	< 3.89	< 4.26
CARBON-14	20	PCI/L	< 15.3	< 15.6	< 7.45	< 7.54	NS	< 15.7
CESIUM-137	10	PCI/L	NS	NS	NS	NS	< 2.01	< 1.74
COBALT-60	10	PCI/L	NS	NS	NS	NS	< 2.25	< 2.11
LEAD-210	150	PCI/L	NS	NS	NS	NS	< 354	< 459
LEAD-212	10	PCI/L	NS	NS	NS	NS	< 4.5	< 4.26
LEAD-214	10	PCI/L	NS	NS	NS	NS	< 4.38	< 4.05
POTASSIUM-40	100	PCI/L	NS	NS	NS	NS	< 19	< 17.8
RADIUM-226	1	PCI/L	< 0.34	< 0.448	0.449 +/- 0.237 J	0.446 +/- 0.257 J	< 0.358	< 0.439
SODIUM-22	10	PCI/L	NS	NS	NS	NS	< 2.35	< 1.92
STRONTIUM-90	1	PCI/L	< 0.724	< 0.478	< 0.487	< 0.431	NS	< 0.529
THALLIUM-208	5	PCI/L	NS	NS	NS	NS	< 2.47	< 2.37
THORIUM-234	200	PCI/L	NS	NS	NS	NS	< 109	< 114
TRITIUM (HYDROGEN-3)	300	PCI/L	< 261	< 248	< 262	< 258	< 0.368	< 282
URANIUM-235	25	PCI/L	NS	NS	NS	NS	< 12.8	< 13.1
URANIUM-238	500	PCI/L	NS	NS	NS	NS	< 91.1	< 114

NS - Not Sampled
Results in **BOLD** text indicate detections above the CRDL.
J - Validation qualifier for estimated value; Sample exceeds quantitation range

APPENDIX D
PESTICIDES/PCBs - STORMWATER
2003 Annual Groundwater Treatment System and Water Monitoring Report
LEHR/SCDS Environmental Restoration
Davis, California

		Location	LF-01	LF-01	LF-01	LF-01	LS-01	LS-01
		Sample ID	STMW0126	STMW0127	STMW0125	STMW0128	RWSW0034A	SW03-01NWT
		Date	2/12/2003	2/12/2003	12/23/2003	12/23/2003	4/12/2003	11/15/2003
AnalyteNameShort	CRDL	UnitsID						
ALDRIN	0.01	UG/L	< 0.0098	< 0.0099	< 0.00109	< 0.00106	< 0.02	< 0.049
ALPHA BHC (ALPHA HEXACHLOROCYCLOHEXANE)	0.01	UG/L	< 0.0098	< 0.0099	< 0.0003	< 0.00029	< 0.02	< 0.049
ALPHA ENDOSULFAN	0.01	UG/L	< 0.0098	< 0.0099	< 0.00128	< 0.00124	< 0.02	< 0.049
ALPHA-CHLORDANE	0.01	UG/L	< 0.0098	< 0.0099	< 0.00052	< 0.00051	NS	< 0.049
BETA BHC (BETA HEXACHLOROCYCLOHEXANE)	0.01	UG/L	< 0.0098	< 0.0099	< 0.00059	< 0.00058	< 0.02	< 0.049
BETA ENDOSULFAN	0.02	UG/L	< 0.02	< 0.02	< 0.00247	< 0.00239	< 0.04	< 0.098
DELTA BHC (DELTA HEXACHLOROCYCLOHEXANE)	0.01	UG/L	< 0.0098	< 0.0099	< 0.00057	< 0.00056	< 0.02	< 0.049
DIELDRIN	0.02	UG/L	0.0062	0.0065	0.00545 J	0.0041 J	< 0.04	< 0.098
ENDOSULFAN SULFATE	0.02	UG/L	0.002 J	0.0022 J	< 0.00097	< 0.00094	< 0.04	< 0.098
ENDRIN	0.02	UG/L	< 0.02	< 0.02	< 0.00079	< 0.00077	< 0.04	< 0.098
ENDRIN ALDEHYDE	0.02	UG/L	< 0.02	< 0.02	< 0.00145	< 0.0014	< 0.04	< 0.098
ENDRIN KETONE	0.02	UG/L	< 0.02	< 0.02	< 0.00096	< 0.00093	< 0.04	< 0.098
GAMMA BHC (LINDANE)	0.01	UG/L	< 0.0098	< 0.0099	< 0.00044	< 0.00042	< 0.02	< 0.049
GAMMA-CHLORDANE	0.01	UG/L	0.0024	0.0018 J	< 0.00076	< 0.00074	NS	< 0.049
HEPTACHLOR	0.01	UG/L	< 0.0098	< 0.0099	< 0.00122	< 0.00118	< 0.02	< 0.049
HEPTACHLOR EPOXIDE	0.01	UG/L	< 0.0098	< 0.0099	< 0.00063	< 0.00061	< 0.02	< 0.049
METHOXYCHLOR	0.1	UG/L	< 0.098	< 0.099	< 0.00578	< 0.00561	< 0.2	< 0.49
p,p'-DDD	0.02	UG/L	< 0.02	< 0.02	< 0.00115	< 0.00111	< 0.04	< 0.098
p,p'-DDE	0.02	UG/L	0.0066 J	< 0.02	< 0.00092	< 0.00089	< 0.04	< 0.098
p,p'-DDT	0.02	UG/L	< 0.02	< 0.02	< 0.00227	< 0.0022	< 0.04	< 0.098
PCB-1016 (AROCHLOR 1016)	0.2	UG/L	< 0.2	< 0.2	< 0.0521	< 0.0505	< 0.5	< 0.98
PCB-1221 (AROCHLOR 1221)	0.4	UG/L	< 0.39	< 0.4	< 0.0868	< 0.0841	< 0.5	< 2.0
PCB-1232 (AROCHLOR 1232)	0.2	UG/L	< 0.2	< 0.2	< 0.0521	< 0.0505	< 0.5	< 0.98
PCB-1242 (AROCHLOR 1242)	0.2	UG/L	< 0.2	< 0.2	< 0.0625	< 0.0606	< 0.5	< 0.98
PCB-1248 (AROCHLOR 1248)	0.2	UG/L	< 0.2	< 0.2	< 0.0521	< 0.0505	< 0.5	< 0.98
PCB-1254 (AROCHLOR 1254)	0.2	UG/L	< 0.2	< 0.2	< 0.0521	< 0.0505	< 0.5	< 0.98
PCB-1260 (AROCHLOR 1260)	0.2	UG/L	< 0.2	< 0.2	< 0.0521	< 0.0505	< 0.5	< 0.98
TOXAPHENE	1	UG/L	< 0.98	< 0.99	< 0.0219	< 0.0212	< 1	< 4.9

NS - Not Sampled
J - Validation qualifier for estimated value; Sample exceeds quantitation range
Results in **BOLD** text indicate detections above the CRDL.

APPENDIX D
WET CHEMISTRY - STORMWATER
2003 Annual Groundwater Treatment System and Water Monitoring Report
LEHR/SCDS Environmental Restoration
Davis, California

		Location	LF-01	LF-01	LF-01	LF-01	LS-01	LS-01	LS-01
		Sample ID	STMW0126	STMW0127	STMW0125	STMW0128	RWSW0034A	RWSW0034B	SW03-01NWT
		Date	2/12/2003	2/12/2003	12/23/2003	12/23/2003	4/12/2003	4/25/2003	11/15/2003
AnalyteNameShort	CRDL	UnitsID							
NITRATE AS NITROGEN	0.01	MG/L	**2.21 J**	**2.26 J**	**0.758**	**0.786**	NS	NS	NS
Nitrite, Nitrate-Nonspecific	0.01	MG/L	NS	NS	NS	NS	NS	< 0.0341	**0.432**
TOTAL DISSOLVED SOLIDS (RESIDUE, FILTERABLE)	20	MG/L	**73**	**85**	**87**	**78**	**91**	NS	**117**
TOTAL ORGANIC CARBON	1	MG/L	**3.95**	**3.85**	**8.43**	**6.96**	**16.7**	NS	**14.5**

NS - Not Sampled
Results in **BOLD** text indicate detections above the CRDL.
J - Validation qualifier for estimated value; Sample exceeds quantitation range

APPENDIX D
VOLATILE ORGANIC COMPOUNDS - SURFACE WATER
2003 Annual Groundwater Treatment System and Water Monitoring Report
LEHR/SCDS Environmental Restoration
Davis, California

		Location	PCD	PCD	PCU	PCU	STPO	STPO
		Sample ID	SWSW0260	SWSW0263	SWSW0259	SWSW0262	SWSW0261	SWSW0264
		Date	2/13/2003	12/23/2003	2/13/2003	12/23/2003	2/13/2003	12/23/2003
AnalyteNameShort	CRDL	UnitsID						
1,1,1-TRICHLOROETHANE	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
1,1,2,2-TETRACHLOROETHANE	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
1,1,2-TRICHLOROETHANE	1	UG/L	< 1	< 0.25	< 1	< 0.25	< 1	< 0.25
1,1-DICHLOROETHANE	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
1,1-DICHLOROETHENE	0.5	UG/L	< 0.5	0.28 J	< 0.5	0.27 J	< 0.5	< 0.25
1,2-DIBROMO-3-CHLOROPROPANE	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
1,2-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
1,2-DICHLOROETHANE	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
1,2-DICHLOROPROPANE	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
1,3-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
1,4-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
2-HEXANONE	1	UG/L	< 1	< 0.25	< 1	< 0.25	< 1	< 0.25
ACETONE	5	UG/L	1.6	< 7.8	0.54	< 8.3	1.1	< 8.2
BENZENE	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
BROMOCHLOROMETHANE	1	UG/L	< 1	< 0.25	< 1	< 0.25	< 1	< 0.25
BROMODICHLOROMETHANE	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
BROMOFORM	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
BROMOMETHANE	1	UG/L	< 1	< 0.25	< 1	< 0.25	< 1	< 0.25
CARBON DISULFIDE	1	UG/L	< 1	< 0.25	< 1	< 0.25	0.78	< 0.25
CARBON TETRACHLORIDE	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
CHLOROBENZENE	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
CHLOROETHANE	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
CHLOROFORM	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
CHLOROMETHANE	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
cis-1,2-DICHLOROETHYLENE	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
cis-1,3-DICHLOROPROPENE	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
DIBROMOCHLOROMETHANE	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
ETHYLBENZENE	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
METHYL ETHYL KETONE (2-BUTANONE)	1	UG/L	< 1	< 0.27	< 1	< 0.27	< 1	< 0.27
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	1	UG/L	< 1	< 0.25	< 1	< 0.25	< 1	< 0.25
METHYLENE CHLORIDE	1	UG/L	< 1	< 0.25	< 1	< 0.25	< 1	< 0.25
STYRENE	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
TETRACHLOROETHYLENE(PCE)	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
TOLUENE	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
trans-1,2-DICHLOROETHENE	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
trans-1,3-DICHLOROPROPENE	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
TRICHLOROETHYLENE (TCE)	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
VINYL CHLORIDE	0.5	UG/L	< 0.5	< 0.25	< 0.5	< 0.25	< 0.5	< 0.25
XYLENES, TOTAL	1	UG/L	< 1	< 0.25	< 1	< 0.25	< 1	< 0.25

NS - Not Sampled
Results in **BOLD** text indicate detections above the CRDL.
J - Validation qualifier for estimated value; Sample exceeds quantitation range

APPENDIX D
METALS - SURFACE WATER
2003 Annual Groundwater Treatment System and Water Monitoring Report
LEHR/SCDS Environmental Restoration
Davis, California

		Location	PCD	PCD	PCU	PCU	STPO	STPO
		Sample ID	SWSW0260	SWSW0263	SWSW0259	SWSW0262	SWSW0261	SWSW0264
		Date	2/13/2003	12/23/2003	2/13/2003	12/23/2003	2/13/2003	12/23/2003
AnalyteNameShort	CRDL	UnitsID						
ANTIMONY	5	UG/L	< 0.026	< 0.201	< 0.026	< 1.05	< 0.026	< 0.308
ARSENIC	3	UG/L	< 0.838	1.1 J	< 0.838	1.9 J	**4.24**	**5.41**
BARIUM	20	UG/L	**123**	**88.5**	**109**	**90.6**	**35**	**48.9**
BERYLLIUM	1	UG/L	< 0.021	< 0.025	0.028	0.034 J	< 0.021	< 0.025
BORON	50	UG/L	**460 J**	**330**	**435 J**	**339**	**734 J**	**917**
CADMIUM	1	UG/L	< 0.008	< 0.016	< 0.008	0.082 J	< 0.008	< 0.016
CHROMIUM, TOTAL	10	UG/L	9.12	5.98 J	9.28	7.42 J	1.48	3.21 J
COBALT	10	UG/L	1.11	0.431 J	0.743	0.862 J	0.461	0.339 J
COPPER	10	UG/L	**5.03**	< 3.33	3.92	< 4.91	8.28	**14.2 J**
IRON	100	UG/L	**2870**	**801**	**1180**	**1160**	83.3	**134**
LEAD	3	UG/L	1.09	< 0.365	0.703	0.748 J	0.268	< 0.208
MANGANESE	10	UG/L	**40.3**	**17.2**	**25.9**	**36.9**	0.97	< 1.13
MERCURY	0.2	UG/L	< 0.052	< 0.033	< 0.052	< 0.033	< 0.052	< 0.033
MOLYBDENUM	10	UG/L	1.25	1.49 J	0.777	1.46 J	3.49	**12.9**
NICKEL	20	UG/L	8.83	3.99 J	6.17	7.42 J	2.42	2.62 J
SELENIUM	3	UG/L	< 0.296	< 1.56	< 0.296	1.82 J	< 0.296	< 1.56
SILVER	10	UG/L	< 0.003	0.016 J	< 0.003	0.022 J	< 0.003	0.023 J
THALLIUM	10	UG/L	< 0.006	0.225 J	0.335	0.49 J	< 0.006	0.137 J
VANADIUM	10	UG/L	6.86	3.96 J	5.05	3.37 J	**10**	**21.6**
ZINC	20	UG/L	13.4 J	< 10.3	9.64 J	15.8 J	**57.5 J**	**64.2**

NS - Not Sampled
Results in **BOLD** text indicate detections above the CRDL.
J - Validation qualifier for estimated value; Sample exceeds quantitation range

APPENDIX D
RADs - SURFACE WATER
2003 Annual Groundwater Treatment System and Water Monitoring Report
LEHR/SCDS Environmental Restoration
Davis, California

		Location	PCD	PCD	PCU	PCU	STPO	STPO
		Sample ID	SWSW0260	SWSW0263	SWSW0259	SWSW0262	SWSW0261	SWSW0264
		Date	2/13/2003	12/23/2003	2/13/2003	12/23/2003	2/13/2003	12/23/2003
AnalyteNameShort	CRDL	UnitsID						
CARBON-14	20	PCI/L	< 15.6	< 7.24	< 15.5	< 7.18	< 15.4	< 7.37
RADIUM-226	1	PCI/L	0.377 +/- 0.242 J	< 0.267	0.35 +/- 0.224 J	< 0.305	< 0.463	0.437 +/- 0.213 J
STRONTIUM-90	1	PCI/L	< 0.203	< 0.423	< 0.235	< 0.429	< 0.332	< 0.598
TRITIUM (HYDROGEN-3)	300	PCI/L	< 272	< 263	< 235	< 257	< 263	< 257

NS - Not Sampled
Results in **BOLD** text indicate detections above the CRDL.
J - Validation qualifier for estimated value; Sample exceeds quantitation range

APPENDIX D
PESTICIDES PCBs - SURFACE WATER
2003 Annual Groundwater Treatment System and Water Monitoring Report
LEHR/SCDS Environmental Restoration
Davis, California

		Location	PCD	PCD	PCU	PCU	STPO	STPO
		Sample ID	SWSW0260	SWSW0263	SWSW0259	SWSW0262	SWSW0261	SWSW0264
		Date	2/13/2003	12/23/2003	2/13/2003	12/23/2003	2/13/2003	12/23/2003
AnalyteNameShort	CRDL	UnitsID						
ALDRIN	0.01	UG/L	< 0.0098	< 0.00115	< 0.01	< 0.00108	< 0.0097	< 0.00111
ALPHA BHC (ALPHA HEXACHLOROCYCLOHEXANE)	0.01	UG/L	< 0.0098	< 0.00032	< 0.01	< 0.0003	< 0.0097	< 0.00031
ALPHA ENDOSULFAN	0.01	UG/L	< 0.0098	< 0.00135	< 0.01	< 0.00127	< 0.0097	< 0.00129
ALPHA-CHLORDANE	0.01	UG/L	< 0.0098	< 0.00055	< 0.01	< 0.00052	< 0.0097	< 0.00053
BETA BHC (BETA HEXACHLOROCYCLOHEXANE)	0.01	UG/L	< 0.0098	< 0.00063	< 0.01	< 0.00059	< 0.0097	< 0.0006
BETA ENDOSULFAN	0.02	UG/L	< 0.02	< 0.0026	< 0.02	< 0.00244	< 0.019	< 0.00249
DELTA BHC (DELTA HEXACHLOROCYCLOHEXANE)	0.01	UG/L	< 0.0098	< 0.0006	< 0.01	< 0.00057	< 0.0097	< 0.00058
DIELDRIN	0.02	UG/L	< 0.02	< 0.00085	< 0.02	< 0.00079	< 0.019	< 0.00081
ENDOSULFAN SULFATE	0.02	UG/L	< 0.02	< 0.00102	< 0.02	< 0.00096	0.0017 J	< 0.00098
ENDRIN	0.02	UG/L	< 0.02	< 0.00084	< 0.02	< 0.00078	< 0.019	< 0.0008
ENDRIN ALDEHYDE	0.02	UG/L	< 0.02	< 0.00153	< 0.02	< 0.00143	< 0.019	< 0.00146
ENDRIN KETONE	0.02	UG/L	< 0.02	< 0.00101	< 0.02	< 0.00095	< 0.019	< 0.00097
GAMMA BHC (LINDANE)	0.01	UG/L	< 0.0098	< 0.00046	< 0.01	< 0.00043	< 0.0097	< 0.00044
GAMMA-CHLORDANE	0.01	UG/L	< 0.0098	< 0.0008	< 0.01	< 0.00075	< 0.0097	< 0.00077
HEPTACHLOR	0.01	UG/L	< 0.0098	< 0.00129	< 0.01	< 0.00121	< 0.0097	< 0.00123
HEPTACHLOR EPOXIDE	0.01	UG/L	< 0.0098	< 0.00066	< 0.01	< 0.00062	< 0.0097	< 0.00063
METHOXYCHLOR	0.1	UG/L	< 0.098	< 0.0061	< 0.1	< 0.00572	< 0.097	< 0.00584
p,p'-DDD	0.02	UG/L	< 0.02	< 0.00121	< 0.02	< 0.00113	< 0.019	< 0.00116
p,p'-DDE	0.02	UG/L	0.0015 J	< 0.00097	0.0026 J	< 0.00091	< 0.019	< 0.00093
p,p'-DDT	0.02	UG/L	< 0.02	< 0.0024	0.0046	< 0.00225	0.0025 J	< 0.00229
PCB-1016 (AROCHLOR 1016)	0.2	UG/L	< 0.2	< 0.0549	< 0.2	< 0.0515	< 0.19	< 0.0526
PCB-1221 (AROCHLOR 1221)	0.4	UG/L	< 0.39	< 0.0915	< 0.4	< 0.0859	< 0.39	< 0.0877
PCB-1232 (AROCHLOR 1232)	0.2	UG/L	< 0.2	< 0.0549	< 0.2	< 0.0515	< 0.19	< 0.0526
PCB-1242 (AROCHLOR 1242)	0.2	UG/L	< 0.2	< 0.0659	< 0.2	< 0.0619	< 0.19	< 0.0632
PCB-1248 (AROCHLOR 1248)	0.2	UG/L	< 0.2	< 0.0549	< 0.2	< 0.0515	< 0.19	< 0.0526
PCB-1254 (AROCHLOR 1254)	0.2	UG/L	< 0.2	< 0.0549	< 0.2	< 0.0515	< 0.19	< 0.0526
PCB-1260 (AROCHLOR 1260)	0.2	UG/L	< 0.2	< 0.0549	< 0.2	< 0.0515	< 0.19	< 0.0526
TOXAPHENE	1	UG/L	< 0.98	< 0.0231	< 1	< 0.0216	< 0.97	< 0.0221

NS - Not Sampled
Results in **BOLD** text indicate detections above the CRDL.
J - Validation qualifier for estimated value; Sample exceeds quantitation range

APPENDIX D
WET CHEMISTRY - SURFACE WATER
2003 Annual Groundwater Treatment System and Water Monitoring Report
LEHR/SCDS Environmental Restoration
Davis, California

		Location	PCD	PCD	PCU	PCU	STPO	STPO
		Sample ID	SWSW0260	SWSW0263	SWSW0259	SWSW0262	SWSW0261	SWSW0264
		Date	2/13/2003	12/23/2003	2/13/2003	12/23/2003	2/13/2003	12/23/2003
AnalyteNameShort	CRDL	UnitsID						
NITRATE AS NITROGEN	0.01	MG/L	**4.16**	**2.35**	**3.81**	**1.63**	**9.45 J**	**7.92**
TOTAL DISSOLVED SOLIDS (RESIDUE, FILTERABLE)	20	MG/L	**375**	**296**	**365**	**243**	**605**	**656**

NS - Not Sampled
Results in **BOLD** text indicate detections above the CRDL.
J - Validation qualifier for estimated value; Sample exceeds quantitation range

APPENDIX E

Groundwater IRA Treatment System Operation Log

APPENDIX E
GROUNDWATER IRA TREATMENT SYSTEM 2003 OPERATION LOG
2003 Annual Groundwater Treatment System and Water Monitoring Report
LEHR/SCDS Environmental Restoration
Davis, California

		EXTRACTION SYSTEM						BERRYESSA MIXING SYSTEM						INJECTION		IRRIGATION	
		System On		System Off		Flow Rate	Totalizer	System On		System Off		Flow Rate	Totalizer	Flow Rate	Totalizer	Totalizer	
DATE	TIME	Note	Hours	Note	Hours	(gpm)	(gallons)	Note	Hours	Note	Hours	(gpm)	(gallons)	(gpm)	(gallons)	(gallons)	Notes
12/27/2002	10:30	R	0:00	--	0	55	51,527,525	--	0.00	M	0:00	0	170,038.0	80	60,898,704	2,315,623	GWT system running. Berryessa system shut down.
01/01/03	0:00	R	0.00	--	0.00	--	--	--	0.00	M	0.00	--	--	--	--	--	GWT system running.
01/08/03	8:30	--	176.50	M	0.00	--	--	--	0.00	M	176.50	--	--	--	--	--	Treatment system shut down for preventative maintenance.
01/09/03	14:30	X	0.00	--	30.00	50	52,403,590	--	0.00	M	30.00	0	170,038.0	80	61,832,797	2,315,623	GWT system restarted.
01/12/03	12:45	--	70.25	A	0.00	--	--	--	0.00	M	70.25	--	--	--	--	--	Automatic GWT system shut down due to high level in the injection well. Extraction rate adjusted.
01/13/03	13:30	X	0.00	--	24.75	50	52,404,761	--	0.00	M	24.75	0	170,038.0	70	61,833,324	2,315,623	GWT system restarted.
01/16/03	8:00	--	66.50	A	0.00	--	--	--	0.00	M	66.50	--	--	--	--	--	Automatic GWT system shut down due to high level in the injection well. Extraction rate adjusted.
01/16/03	10:00	X	0.00	--	2.00	40	52,594,753	--	0.00	M	2.00	0	170,038.0	60	62,031,383	2,315,623	GWT system restarted.
01/28/03	12:55	--	290.92	A	0.00	--	--	--	0.00	M	290.92	--	--	--	--	--	GWT system shut down due to high level in the air stripper sump.
01/29/03	8:30	X	0.00	--	19.58	40	52,777,450	--	0.00	M	19.58	0	170,038.0	65	62,219,346	2,315,623	GWT system restarted.
01/31/03	0:00	R	63.50	--	0.00	--	--	--	0.00	M	63.50	--	--	--	--	--	GWT system running.
02/01/03	0:00	R	0.00	--	0.00	--	--	--	0.00	M	0.00	--	--	--	--	--	GWT system running.
02/16/03	1:15	--	361.25	A	0.00	--	--	--	0.00	M	361.25	--	--	--	--	--	Automatic GWT system shut down due to high level in the injection well. Extraction rate adjusted.
02/17/03	14:00	X	0.00	--	36.75	45	53,829,904	--	0.00	M	36.75	0	170,038	60	62,943,773	2,315,623	GWT system restarted.
02/17/03	18:30	--	4.50	A	0.00	--	--	--	0.00	M	4.50	--	--	--	--	--	Automatic GWT system shut down due to high level in the injection well. Extraction rate adjusted.
02/18/03	10:00	X	0.00	--	15.50	40	53,837,725	--	0.00	M	15.50	0	170,038.0	55	62,943,901	2,315,623	GWT system restarted.
02/18/03	15:00	--	5.00	A	0.00	--	--	--	0.00	M	5.00	--	--	--	--	--	Automatic GWT system shut down due to high level in the injection well. Extraction rate adjusted.
02/19/03	13:00	X	0.00	--	22.00	35	53,844,475	--	0.00	M	22.00	0	170,038.0	50	62,948,760	2,315,623	GWT system restarted.
02/28/03	0:00	R	227.00	--	0.00	--	--	--	0.00	M	227.00	--	--	--	--	--	GWT system running.
03/01/03	0:00	R	0.00	--	0.00	--	--	--	0.00	M	0.00	--	--	--	--	--	
03/05/03	4:00	R	100.00	--	0.00	30	54,608,406	--	0.00	M	100.00	0	170038.3	50	62,882,746	2,315,265	
03/21/03	18:00	--	398.00	A	0.00	--	--	--	0.00	M	398.00	--	--	--	--	--	GWT System shutdown due to high injection well level. Treatment system left shut down for injection well rehabilitation and air air stripper maintenance.
03/28/03	14:00	X	0.00	--	164.00	80	55,570,077	--	0.00	M	164.00	0	170038.3	112	63,588,230	2,315,265	GWT System restarted after injection well rehabilitation and air stripper maintenance completed.
03/31/03	0:00	R	82.00	--	0.00	--	--	--	0.00	--	82.00	--	--	--	--	--	GWTSystem running.

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		EXTRACTION SYSTEM						BERRYESSA MIXING SYSTEM						INJECTION		IRRIGATION	
		System On		System Off		Flow Rate	Totalizer	System On		System Off		Flow Rate	Totalizer	Flow Rate	Totalizer	Totalizer	
DATE	TIME	Note	Hours	Note	Hours	(gpm)	(gallons)	Note	Hours	Note	Hours	(gpm)	(gallons)	(gpm)	(gallons)	(gallons)	Notes
04/01/03	0:00	R	0.00	--	0.00	--	--	--	0.00	M	0.00	--	--	--	--	--	GWT system running.
04/26/03	8:30	--	608.50	A	0.00	--	--	--	0.00	M	608.50	--	--	--	--	--	Influent Tank High Level Alarm.
04/28/03	14:30	X	0.00	--	54.00	72	58,162,900	--	0.00	M	54.00	0	170,038.3	102	66,161,398	2,315,265	GWT system restarted.
04/30/03	0:00	R	57.50	--	0.00	--	--	--	0.00	M	57.50	--	--	--	--	--	GWT system running.
05/01/03	0:00	R	0.00	--	0.00	--	--	--	--	M	--	--	--	--	--	--	GWT system running.
05/13/03	14:00	--	302.00	A	0.00	--	--	--	0.00	M	302.00	--	--	--	--	--	GWT system shut down due to high level in the effluent tank. Three way valve motor malfuntion, replacement on order. Irrigation of LTPS coninues with Berryessa water. Note-use of Berryessa water for LTPS not considered in Operation Log.
05/28/03	15:30	X	0.00	--	361.50	70	59,670,318	--	0.00	M	361.50	0	170,038.3	135	67,641,621	2,348,022	GWT system restarted.
05/31/03	0:00	R	80.50	--	0.00	--	--	--	0.00	M	80.50	0	--	--	--	--	GWT system running.
06/01/03	0:00	R	0.00	--	0.00	--	--	--	0.00	M	0.00	--	--	--	--	--	GWT system running.
06/02/03	14:00	--	38.00	A	0.00	--	--	--	0.00	M	38.00	--	--	--	--	--	GWT system shut down due to high influent tank level.
06/03/03	8:30	X	0.00	--	18.50	86	60,127,358	--	0.00	M	18.50	0	170,038.3	142	68,121,021	23,774,925	GWT system running.
06/12/03	4:30	--	212.00	A	0.00	--	--	--	0.00	M	212.00	--	--	--	--	--	GWT system shut down due to high influent tank level.
06/12/03	14:00	X	0.00	--	9.50	85	61,081,422	--	0.00	M	9.50	0	170,038.3	150	69,140,512	2,497,655	GWT system restarted.
06/25/03	13:30	--	311.50	M	0.00	--	--	--	0.00	M	311.50	--	--	--	--	--	GWT system shut down to install new three-way valve.
06/25/03	14:30	X	0.00	--	1.00	85	62,543,358	--	0.00	M	1.00	0	170,038.3	150	70,701,414	2,523,030	GWT system restared. Treated effluent now used for LTPS irrigation.
06/30/03	0:00	R	129.50	--	0.00	--	--	--	0.00	M	129.50	--	--	--	--	--	GWT system running.
07/01/03	0:00	R	0.00	--	0.00	--	--	--	0.00	M	0.00	--	--	--	--	--	GWT system running.
07/08/03	14:00	R	182.00	--	0.00	88	64,008,407	--	0.00	M	182.00	0	170,038.3	145	72,282,609	2,975,015	GWT system running.
07/29/03	10:00	--	500.00	M	0.00	--	--	--	0.00	M	500.00	--	--	--	--	--	GWT shut down to repair injection well high level alarm and to make programing changes to the system.
07/29/03	14:30	X	0.00	--	4.50	85	66,479,269	--	0.00	M	4.50	0	170,038.3	140	74,944,080	3,721,550	GWT System running.
07/31/03	0:00	R	57.50	--	0.00	--	--	--	0.00	M	57.50	--	--	--	--	--	GWT systm running.
08/01/03	0:00	R	0.00	R	0.00	--	--	--	0.00	M	0.00	--	--	--	--	--	GWT system running.
08/04/03	13:30	--	85.50	M	0.00	--	--	--	0.00	M	85.50	--	--	--	--	--	Treatment system shut down to resolve problem with irrigation tank not filling.

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		System On		System Off		Flow Rate	Totalizer	System On		System Off		Flow Rate	Totalizer	Flow Rate	Totalizer	Totalizer	
DATE	TIME	Note	Hours	Note	Hours	(gpm)	(gallons)	Note	Hours	Note	Hours	(gpm)	(gallons)	(gpm)	(gallons)	(gallons)	Notes
08/04/03	14:00	X	0.00	--	0.50	85	67,223,479	--	0.00	M	0.50	0	170,038.3	145	75,755,931	3,735,593	GWT System running.
08/09/03	12:00	--	118.00	A	0.00	--	--	--	0.00	M	118.00	--	--	--	--	--	GWT system shut down due to three way valve being stuck.
08/11/03	9:30	X	0.00	--	45.50	85	67,729,452	--	0.00	M	45.50	0	170,038.3	145	76,628,871	3,975,926	GWT System running.
08/19/03	7:00	--	189.50	A	0.00	--	--	--	0.00	M	189.50	--	--	--	--	--	GWT system shut down due to blower fail alarm.
08/21/03	8:00	X	0.00	--	49.00	NA	NA	--	0.00	M	49.00	NA	NA	NA	NA	NA	GWT system running.
08/21/03	10:00	--	2.00	A	0.00	--	--	--	0.00	M	2.00	--	--	--	--	--	GWT system shut down due to high level in the air stripper sump.
08/22/03	8:00	X	0.00	--	22.00	NA	NA	--	0.00	M	22.00	NA	NA	NA	NA	NA	GWT system running.
08/31/03	0:00	R	232.00	--	0.00	--	--	--	0.00	M	232.00	--	--	--	--	--	GWT system running.
09/01/03	0:00	R	0.00	--	0.00	--	--	--	0.00	M	0.00	--	--	--	--	--	GWT System running.
09/16/03	13:00	--	373.00	M	0.00	--	--	--	0.00	M	373.00	--	--	--	--	--	GWT system shut down to perfom operation and maintenance.
09/16/03	13:30	X	0.00	--	0.50	90	71,951,441	--	0.00	M	0.50	0	170,038.3	145	80,873,117	4,416,850	GWT System running.
09/25/03	15:30	R	218.00	--	0.00	90	73,125,259	--	0.00	M	218.00	0	170,038.3	145	82,147,068	4,491,310	GWT System running.
09/30/03	0:00	R	128.50	--	0.00	--	--	--	0.00	M	128.50	--	--	--	--	--	GWT System running.
10/01/03	0:00	R	0.00	--	0.00	--	--	--	0.00	M	0.00	--	--	--	--	--	GWT System running.
10/12/03	7:00	--	271.00	A	0.00	--	--	--	0.00	M	271.00	--	--	--	--	--	GWT system shut down due to high level in the injection well
10/13/03	13:00	X	0.00	--	30.00	75	74,733,883	--	0.00	M	30.00	0	170,038.3	140	83,909,724	NA	GWT system restarted.
10/20/03	15:00	--	170.00	A	0.00	--	--	--	0.00	M	170.00	--	--	--	--	--	GWT system shut down due to irrigation valve malfuntion.
10/21/03	9:00	X	0.00	--	18.00	75	75,240,698	--	0.00	M	18.00	0	170,038.3	140	84,460,226	4,688,055	GWT system restarted.
10/21/03	13:30	--	4.50	A	0.00	--	--	--	0.00	M	4.50	--	--	--	--	--	GWT system shut down due to high level in the injection well
10/22/03	12:30	X	0.00	--	23.00	80	75,264,511	--	0.00	M	23.00	0	170,038.3	125	84,485,889	4,697,897	GWT system restarted.
10/25/03	13:30	--	73.00	A	0.00	--	--	--	0.00	M	73.00	--	--	--	--	--	GWT system shut down due to high level in the air stripper sump.
10/27/03	16:00	X	0.00	--	50.50	80	75,555,911	--	0.00	M	50.50	0	170,038.3	125	84,804,634	4,743,680	GWT system restarted.
10/28/03	18:30	--	26.50	A	0.00	--	--	--	0.00	M	26.50	--	--	--	--	--	GWT system shut down due to high level in the injection well.
10/29/03	10:20	X	0.00	--	15.83	65	75,684,014	--	0.00	M	15.83	0	170,038.3	100	84,946,218	4,767,699	GWT system restarted.
10/31/03	0:00	R	61.67	--	0.00	--	--	--	0.00	M	61.67	--	--	--	--	--	

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		EXTRACTION SYSTEM						BERRYESSA MIXING SYSTEM						INJECTION		IRRIGATION	
		System On		System Off		Flow Rate	Totalizer	System On		System Off		Flow Rate	Totalizer	Flow Rate	Totalizer	Totalizer	
DATE	TIME	Note	Hours	Note	Hours	(gpm)	(gallons)	Note	Hours	Note	Hours	(gpm)	(gallons)	(gpm)	(gallons)	(gallons)	Notes
11/01/03	0:00	R	0.00	--	0.00	--	--	--	0.00	M	0.00	--	--	--	--	--	GWT system running.
11/14/03	15:00	R	327.00	--	0.00	65	76,891,689	--	0.00	M	327.00	0	1,700,383.3	110	86,250,906	4,819,285	GWT system running. Monthly O&M Perfomed.
11/30/03	0:00	R	393.00	--	0.00	--	--	--	0.00	M	393.00	--	--	--	--	--	GWT system running.
12/01/03	0:00	R	0:00	--	0:00	--	--	--	0:00	M	0:00	--	--	--	--	--	GWT system running.
12/02/03	13:00	--	37.00	A	0.00	--	--	--	0.00	M	37.00	--	--	--	--	--	GWT system shut down due to power outage.
12/03/03	9:00	X	0.00	--	20.00	47	78,692,804	--	0.00	M	20.00	0	170,038.3	75	88,206,970	4,842,090	GWT system restarted.
12/23/03	9:30	R	480.50	--	0.00	53	80,088,816	--	0.00	M	480.50	0	170,038.3	80	89,726,596	4,842,090	GWT system running.
12/31/03	0:00	R	206.50		0.00		--	--	0.00	M	206.50	--	--	--	--	--	GWT system running.
	Total		7721.58		1038.42		28,561,291		0.00		8760.00		0		28,827,892	2,526,467	

Notes:
A = Automatic Shut-off
M = Manual Shut-off
NA = Totalizer reading not available
R = System Running
X = System Start-up
-- = Not Applicable