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Annual System Evaluation Report
Groundwater Interim Removal Action
LEHR/SCDS Environmental Restoration
Davis, California

AUGUST 1999

PROJECT NO. 00234-263-044

UNIVERSITY OF CALIFORNIA, DAVIS

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Re: Annual System Evaluation Report, Groundwater IRA - LEHR/SCDS Environmental Restoration Site

Dear Ms. Setian, Ms. Timm, Mr. Austin, and Mr. Patel:

Enclosed please find a copy of the Annual System Evaluation Report for the Groundwater Interim Removal Action (IRA) at the LEHR/SCDS Environmental Restoration Site in Davis, California. This Annual System Evaluation Report presents an assessment of the first 12 months of operation of the Groundwater IRA treatment system.

If you have any questions about the enclosed document, please call me at (530) 752-6041, or write me at the following address:

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Attachments: Annual System Evaluation Report for the Groundwater IRA – LEHR/SCDS Environmental Restoration Site

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DAVIS, CALIFORNIA

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1.0 INTRODUCTION

This System Evaluation Report presents an assessment of the first 12 months of operation of the Groundwater Interim Removal Action (IRA) treatment system located at the former Laboratory for Energy-related Health Research/South Campus Disposal Site (LEHR/SCDS, or Site) at the University of California, Davis (UC Davis), California (Figure 1). This report has been prepared in accordance with requirements stated in the Waste Discharge Requirements (WDRs) Order No. 97-223 (CVRWQCB, 1997). The groundwater IRA is being conducted at the Site by UC Davis in accordance with the U.S Environmental Protection Agency Action Memorandum (November 13, 1997) and the Memorandum of Agreement (MOA) between UC Davis and the United States Department of Energy (June 23, 1997). As part of the MOA, UC Davis has agreed to take the lead role for site groundwater investigation and remediation, which included design and implementation of the LEHR/SCDS groundwater IRA. Specific requirements for the operation of the IRA system are defined in the WDRs.

The groundwater IRA approach and recommended components were documented in the Revised Engineering Evaluation/Cost Analysis Report (EE/CA) (Dames & Moore, 1997a). As stated in the EE/CA, the objectives of the groundwater IRA include:

- Prevent, minimize, or mitigate potential threat to public health or the environment;
- Eliminate or substantially decrease potential offsite migration of constituents of concern in the second hydrostratigraphic unit (HSU-2) at the Site through plume containment;
- Substantially reduce the overall mass of constituents of concern in HSU-2 at the Site;
- Over time, decrease the mass of constituents of concern in HSU-1 at the Site;
- Provide information on aquifer response and effects of long-term pumping;
- Provide information on the quality of extracted groundwater; and
- Provide operational data that will aid in assessment of groundwater treatment effectiveness and the need for further groundwater remedial action.

To meet these objectives, the system extracts groundwater from HSU-2 at extraction well EW2-1, located downgradient of Site source areas. The extraction well is screened from 119 to 179 feet below ground surface (bgs). The location of EW2-1 was selected using groundwater chemical data in order to place the extraction well along the axis of the HSU-2 chloroform plume near the 100-ug/L chloroform contour line. The planned maximum extraction rate is 190 gallons per minute (gpm), which was determined in the Removal Action Work Plan (RAWP) to be adequate in order to capture the chloroform plume (Dames & Moore, 1997b). The IRA system treats groundwater for volatile organic compounds (VOCs) by air stripping. Treated water is injected into HSU-2 at well IW2-1, located upgradient of the Site source areas (Figure 2). The IRA is designed to create an extraction-reinjection loop, which will allow for recapture of 60 to 85% of the injected water, as required by the WDRs (CVRWQCB, 1997). A detailed description of the groundwater IRA system was presented in the RAWP and the EE/CA. Specific details concerning the system installation testing are presented in the Treatment Performance Evaluation Report (Dames & Moore, 1998a).

Full-scale operation of the IRA system began on May 11, 1998. Results of the first four months of operation are presented in the Start-up Report (Dames & Moore, 1998b). IRA performance has also been documented in Monthly Operation Reports issued by UC Davis. A copy of the WDRs is attached in Appendix A.

1.1 Purpose and Scope

This report has been prepared in order to meet the requirements of the WDRs, which specify that a system evaluation report will be prepared after 12 months of groundwater IRA operation. The objective of the System Evaluation Report, as specified in the WDRs, is to determine if the performance monitoring well network provides sufficient hydrologic and water quality data to accomplish the following objectives:

- Monitor water levels and water quality within the permeable zone screened by the extraction well(s) and within the overlying and underlying aquifers;
- Monitor hydraulic capture zone of extraction well(s);
- Verify that migration of contaminants is being reduced;
- Determine the hydrogeologic and water quality parameters of the groundwater regime;
- Operate the groundwater extraction and discharge system in the most effective manner; and

- Provide sufficient information to determine whether monitoring frequency, location, and/or constituents could or should be increased or decreased.

To see if these objectives are being achieved, groundwater quality and water elevation monitoring data collected as part of the IRA operation have been compiled and evaluated. The results of this evaluation are outlined and presented in this report.

1.2 Report Organization

This System Evaluation Report is organized into eight chapters, including this introduction. Chapters 2.0 through 6.0 specifically address the individual assessment items identified in the WDRs. Chapter 2.0 reviews the groundwater level and water-quality monitoring program. Chapter 3.0 provides an assessment of the hydraulic capture zone. Chapter 4.0 discusses the reduction of contaminant migration. Chapter 5.0 reviews the available data used to characterize the hydrogeologic and water quality parameters. Chapter 6.0 discusses the operation of the groundwater IRA. Chapter 7.0 presents an assessment of the monitoring program, conclusions and recommendations. References are listed in Chapter 8.0.

Five appendices are attached to this report. Appendix A presents the WDRs for the IRA. Appendix B presents the calculations used to quantify the mass removal of chloroform, and Appendix C presents time/concentration graphs for selected parameters and monitoring wells. Injection well water levels are presented in Appendix D. Statistical calculations for total dissolved solids in effluent samples are presented in Appendix E.

2.0 WATER LEVEL AND WATER QUALITY MONITORING

This section presents water level and water quality data for the first 12 months of full-scale operation of the groundwater treatment system (May 1998 through April 1999). Where noted, data from periods before or after the first 12-month period of operation has been included. The purpose of presenting these data is to determine if the monitoring well network provides sufficient water level and water quality data within the permeable zone screened by extraction well EW2-1 and within the overlying and underlying aquifers. This data have been reported previously in the Monthly Operations Reports for April/May 1998 through April 1999. In addition, data collected in 1998 were also reported in the 1998 Annual Water Monitoring Report (UC Davis, 1999a).

The IRA monitoring network consists of 17 monitoring wells, extraction well EW2-1, and injection well IW2-1. The 17 IRA monitoring wells include one well (UCD1-28) screened in the in first hydrostratigraphic unit (HSU-1), and 16 wells screened in HSU-2 (UCD2-7, UCD2-14, UCD2-15, UCD2-16, UCD2-17, UCD2-26, UCD2-29, UCD2-30, UCD2-31, UCD2-32, UCD2-35, UCD2-36, UCD2-37, UCD2-38, UCD2-39, and UCD2-40). The monitoring schedule and analytical parameters for IRA system monitoring wells are summarized in Tables 1 and 2.

2.1 Water Level Monitoring

Groundwater levels have been measured on a monthly basis in the IRA wells. Monitoring frequency during the first 12 weeks of operation occurred on a daily or weekly basis, and is discussed in the Start-up Monitoring Report (Dames & Moore, 1998b). Exceptions to the monthly monitoring frequency are wells UCD2-32, UCD2-40, EW2-1 and IW2-1, which were measured weekly. UCD2-32 and UCD2-40 were measured weekly as part of the ongoing investigation of the fourth hydrostratigraphic unit (HSU-4). Weekly water level measurements are conducted at EW2-1 and IW2-1 as part of the treatment plant operation.

During the 12-month period of operation (May 1998 through April 1999), groundwater elevations in well UCD1-28 ranged from 6.94 to 25.14 feet mean sea level datum (MSLD). Groundwater elevations reported for the IRA program wells screened in HSU-2 ranged from 0.91 to 26.98 feet MSLD. Groundwater elevations in EW2-1 ranged from 4.87 to 24.17 feet MSLD, and in IW2-1 ranged from 12.04 to 39.41 feet MSLD. These groundwater elevations are presented in Table 3, and monthly groundwater elevation contour maps for HSU-2 wells are presented in Figure 3 through Figure 5. An additional water level map has been prepared for May 1999 in order to assess the transition between winter and summer flow regimes (Figure 6).

In past years, groundwater elevations measured across the Site in HSU-1 and HSU-2 have typically been highest in March and April, but in 1998 they were highest in February and March. A rapid decline in water levels across the Site occurred from April to August, primarily due to agricultural pumping from HSU-2 and HSU-4. Water levels recovered from September to December, primarily due to the cessation of agricultural pumping, and the beginning of the rainy season. In general, water levels in IRA monitoring wells, as well as extraction well EW2-1 and injection well IW2-1, varied approximately 20 feet between May 1998 and April 1999. Comparisons of groundwater elevations for the Winter, Spring, Summer and Fall quarters of 1998 have been reported previously in the Quarterly Groundwater and Surface Water Monitoring Results (UC Davis, 1998a, 1999b, 1999c) and the 1998 Annual Water Monitoring Report (UC Davis, 1999a).

Between January 1998 and April 1999, the groundwater flow direction in HSU-2 at the Site was interpreted to be east with a northerly component. HSU-2 horizontal hydraulic gradients during this time period ranged from 0.0007 to 0.0024 ft/ft, with shallower gradients occurring in the fall and winter and steeper gradients reported in the spring and summer. This is consistent with gradients and flow directions reported in previous years (PNNL, 1996; Weiss Associates, 1997).

2.2 Water Quality Monitoring

This section presents a summary of water quality data for the first year of full-scale operation (May 1998 to April 1999). During this time period, 150 samples were collected from 17 monitoring wells at the Site. As previously discussed, one monitoring well is screened in HSU-1 and the remaining 16 wells are screened in HSU-2. Ten wells are monitored monthly (UCD1-28, UCD2-29, UCD2-30, UCD2-31, UCD2-35, UCD2-36, UCD2-37, UCD2-38, UCD2-39 and UCD2-40) and seven additional wells are monitored quarterly (UCD2-7, UCD2-14, UCD2-15, UCD2-16, UCD2-17, UCD2-26 and UCD2-32).

The IRA monitoring wells were monitored for the following constituents in accordance with the WDRs: pH; electrical conductivity; temperature; volatile organic compounds (VOCs); hexavalent chromium; total chromium; nitrate (as N); total dissolved solids (TDS); total organic carbon (TOC); tritium and carbon-14. Results are presented within each analytical category along with a brief discussion of the data. Water quality data for monitoring wells are presented in Tables 4 and 5.

2.2.1 Field Parameters (pH, temperature, and electrical conductivity)

Field parameters measured in the groundwater samples collected at the 17 IRA wells included pH, temperature, electrical conductivity and turbidity (Table 4).

During the period between May 1998 and April 1999, pH levels remained relatively consistent. The reported field pH measurements in groundwater wells ranged from 6.37 to 7.90 units.

Temperature results during the period between May 1998 and April 1999 indicated that the water temperature remained relatively consistent over the year, with results within each well fluctuating several degrees centigrade over the year. The range of temperature measurements during the first year of IRA operation was between 9.4 and 22.8 degrees centigrade, with most water measurements remaining between 12.0 and 19.0 degrees centigrade the entire year.

The reported electrical conductivity results measured were consistently higher in samples collected from HSU-1 (UCD1-28) than for the other IRA monitoring wells screened in HSU-2. Conductivity ranged from 1108 to 2470 uS/cm at UCD1-28. Conductivity readings ranged from 368 to 1223 uS/cm in HSU-2 wells. Conductivity measurements tended to be lower during the summer of 1998 than during the rest of the 12-month sampling period.

2.2.2 General Chemicals (Nitrate, TDS, TOC)

General chemicals including nitrate (as N), TDS and TOC were analyzed in water samples collected as part of the IRA monitoring program. In general, reported concentrations for these parameters were higher in samples collected from HSU-1 well UCD1-28 than for samples collected from monitoring wells screened in HSU-2, which is consistent with previous reports (UC Davis, 1999a).

During the period between May 1998 and April 1999, 140 samples were collected and analyzed for nitrate as N (Table 5). Reported nitrate concentrations ranged from 36.8 to 50.0 mg/L in samples collected from well UCD1-28. In wells screened in HSU-2, reported nitrate concentrations ranged from a low of 1.19 mg/L (UCD2-35) to a high of 11.6 mg/L (UCD2-29). Generally, nitrate concentrations reported in 1998 and 1999 were lower than the same wells in 1997.

During the period between May 1998 and April 1999, 147 samples were analyzed for TOC. TOC concentrations reported in samples analyzed from UCD1-28 ranged from 1.13

may sometimes report values that are below the CRDL and considered estimated. These estimated values were not considered significant.

A total of 14 VOCs were reported in samples from the 17 IRA wells during the period between May 1998 and April 1999. Seven of the VOCs occurred sporadically and were below the CRDL. Detections of 7 VOCs are discussed in the bulleted items below.

- Chloroform was the most frequently detected VOC and was reported in samples collected from 9 of the 17 wells. Chloroform was not reported at concentrations above the CRDL in samples from well UCD1-28. In samples collected from wells screened in HSU-2, chloroform concentrations ranged from 1.2 to 329 ug/L. The highest concentration of chloroform was reported for a sample collected at well UCD2-29 in October 1998 (329 ug/L). In samples collected from HSU-2 monitoring wells located downgradient of the extraction well, reported chloroform concentrations have gradually decreased since the treatment system began operation in May of 1998.

During the period since the IRA treatment system began full-scale operation, there has been an apparent affect on the VOC concentrations reported in monitoring wells located near the extraction well. Samples from UCD2-29, located closest to the extraction well, initially demonstrated an increase in chloroform concentrations from May through October 1998. Since November 1998, the chloroform concentrations reported in samples from UCD2-29 have decreased. Chloroform concentrations reported in samples from HSU-2 monitoring wells located downgradient of the extraction well (UCD2-30, UCD2-32 and UCD2-40) have decreased since June/July1998. The spatial distribution of chloroform during the period from February/March 1998 through April 1999 is illustrated in Figures 7, 8, and 9. Chloroform data collected prior to the 12-month period of IRA operation has been mapped in order to assess IRA performance, as discussed in Section 3.0.

Six other volatile organic compounds were reported in samples collected from the IRA monitoring wells during the sampling period between May 1998 and April 1999. These include 1,1 dichloroethane; 1,1 dichloroethene; 1,2 dichloroethane, 1,2 dichloropropane, chloromethane, and trichloroethene.

- 1, 1 dichloroethane was reported in samples from two HSU-2 monitoring wells (UCD2-29, and UCD2-40), and ranged from 0.56 to 0.98 ug/L. The highest concentration was reported in a sample from well UCD2-40 in spring of 1998.

- 1,1 dichloroethene was reported in only samples from two HSU-2 monitoring wells (UCD2-29 and UCD2-40) and ranged from 0.52 to 1.0 ug/L.

- 1,2 dichloroethane was reported in samples from two HSU-2 monitoring wells (UCD2-29 and UCD2-40) and the concentrations ranged from 0.60 to 2.0 ug/L. The highest concentration was reported in a sample from UCD2-29.

- 1,2 dichloropropane was reported in samples from two HSU-2 monitoring wells (UCD2-29 and UCD2-40) and ranged from 0.55 to 2.0 ug/L. The highest concentration was reported in a sample from UCD2-29.

- Chloromethane was reported only in a sample from well UCD2-14 at a concentration of 0.97 ug/L (August 1998).

- Trichloroethene was reported only in a sample from well UCD2-29 at a concentration of 0.56 ug/L during July 1998.

2.2.5 Metals (Total Chromium, Hexavalent Chromium)

During the period between May 1998 and April 1999, 147 samples of groundwater were collected and analyzed for total chromium and hexavalent chromium. Samples for total chromium were analyzed using the EPA Contract Laboratory Program Method for Low Concentration Inorganics (IL 02.0). Hexavalent chromium samples were analyzed accordingly to EPA Method 7196.

The total chromium and hexavalent chromium concentrations reported were generally consistent with previous results. The highest reported concentration for total chromium was in a sample collected at well UCD1-28. Total chromium concentrations reported in samples from this well ranged from 465 to 550 ug/L. Reported total chromium concentrations in samples from monitoring wells screened in HSU-2 were considerably lower than in HSU-1. Total chromium concentrations reported above the CRDL ranged from 10.2 ug/L at UCD2-38 to 53.6 ug/L at UCD2-14.

The highest concentrations of hexavalent chromium were reported in samples from well UCD1-28, and ranged from an apparently anomalous result of 125 to 581 ug/L. Reported hexavalent chromium concentrations ranged from 10 to 54 ug/L in samples collected from HSU-2 monitoring wells. Concentrations were typically higher in UCD2-40 than other wells screened in HSU-2.

3.0 MONITOR HYDRAULIC CAPTURE ZONE

This section presents an evaluation of the ability of the monitoring program to assess the hydraulic capture zone generated by the groundwater IRA. The purpose of this evaluation is to determine if the monitoring program provides sufficient hydrologic data to monitor the hydraulic capture zone. The evaluation has been conducted using groundwater elevation data collected at 18 locations including 16 HSU-2 monitoring wells, injection well IW2-1, and extraction well EW2-1. Water level data have been used to prepare capture zone maps which estimate the dimensions of the extraction/reinjection flow loop, and provide for an assessment of monthly variations in the system capture zone. Results of the capture zone analysis have been compared with criteria established in the WDRs, which require that 60% to 85% of the injected groundwater be recaptured by the extraction well.

3.1 Groundwater Elevation Data

Groundwater elevation data have generally been collected on a monthly basis at the 18 HSU-2 monitoring locations, as discussed in Section 2.1. The monthly HSU-2 water level contour maps for the period from May 1998 through May 1999 are presented in Figures 3, 4, 5 and 6. The water level data are compiled in Table 3. The groundwater elevation data have been used for the preparation of capture zone maps.

3.2 Capture Zone Analysis

In order to assess the ability of the monitoring network to monitor the extent of the hydraulic capture zone, water elevation data collected over the period from June 1998 through May 1999 were evaluated. Criteria used to assess the effectiveness of the monitoring network includes:

1) The ability of the monitoring network to demonstrate hydraulic capture to contain the chloroform plume upgradient of extraction well EW2-1, and

2) The ability of the monitoring network to demonstrate compliance with the WDR requirement that 60% to 85% of the injected groundwater is being recaptured by the IRA system.

Monthly capture zone maps have been prepared for the period of operation from June 1998 through May 1999. A map was not prepared for July 1998 because water levels were collected after a two-day period when groundwater extraction did not occur. A capture zone map has been prepared for May 1999 in order to document the transition from winter to summer hydrologic conditions. The capture zone maps were developed using water levels collected from the 18 HSU-2 wells, and flowlines were constructed perpendicular to the water level contours. The flowlines are then used to estimate the extent of the capture

zone around extraction well EW2-1 and the zone of influence around injection well IW2-1. Chloroform isoconcentration contours have been superimposed on the capture zone maps in order to assess the ability of the IRA to capture the chloroform plume. The capture zone maps are presented in Figures 10, 11, and 12.

Based on review of the capture zone maps, it is apparent that the IRA has effectively captured the chloroform plume upgradient of extraction well EW2-1. Therefore, the capture zone analysis serves to verify that the monitoring program provides sufficient hydrologic data to estimate the dimensions of the hydraulic capture zone, which in turn documents the ability of the IRA system to meet the objective of containing the chloroform plume.

The capture zone analysis has also been used to assess the amount of injected water that is recaptured by the extraction well. As indicated on the capture zone maps, the majority of treated water injected at IW2-1 is recaptured, with the amount captured each month ranging from 48% to 100%, and averaging 82% over the period between June 1998 and May 1999. Seasonal variations appear to influence the amount of water recaptured, with the least amount of recapture occurring from August through November, followed by an increasing amount of recapture from November through April. A variation in the amount of injection water recapture occurred in early May 1999, when estimated recapture was approximately 48%. Based on this estimated recapture rate, the IRA pumping rate was increased from the winter flow rate of 120 gpm to approximately 150 gpm. A recalculation of the capture zone indicated that recapture at the end of May 1999 was 66% (Figure 12). The decrease in recapture observed in early May is interpreted to be the result of seasonal groundwater pumping for irrigation, which lowered water levels and increased the hydraulic gradient.

The effectiveness of the capture zone analysis is limited in part to the spatial distribution of water level data. Based on review of the capture zone variations that occurred during the 12-month period, it appears that the current IRA monitoring network covers a sufficient area to allow for an adequate assessment of the capture zone. However, capture zone analysis also suggests that an additional monitoring well could be useful in the area southeast of EW2-1, in the vicinity of UCD1-10. The majority of injected water that is not recaptured appears to flow past EW2-1 in this area. Therefore, the addition of an HSU-2 monitoring well in the vicinity of UCD1-10 would allow for a more accurate assessment of groundwater level contours and variations of the southern edge of the capture zone in order to monitor the behavior of reinjected water.

For comparison, the mass of the dissolved fraction of chloroform in HSU-2 has been estimated using isoconcentration contours derived from previous hydropunch surveys, which allow for a quantification of the areas contained within contours of different chloroform concentrations. The areas defined by the isoconcentration lines were multiplied by the aquifer thickness, porosity and associated chloroform concentrations in order to estimate the total mass of chloroform dissolved in HSU-2. These calculations are presented in Appendix B, Tables 2 and 3. Appendix B, Table 2 presents a calculation of the entire HSU-2 chloroform plume within a 1 ug/L contour, estimated at 86 pounds. Appendix B, Table 3 presents a calculation of the portion of the plume that is within the HSU-2 capture zone, estimated at 66 pounds. Based on these calculations, the groundwater IRA has extracted an estimated 32% of the dissolved portion of the chloroform upgradient of the capture zone created by EW2-1, and 24% of the dissolved portion of chloroform in the entire HSU-2 plume.

5.0 HYDROGEOLOGIC AND WATER QUALITY PARAMETERS

This section presents an assessment of existing hydrogeologic and water quality parameters at the site. The purpose of this evaluation is to determine if the monitoring program provides sufficient data to determine the hydrogeologic and water quality parameters of the groundwater regime.

The monitoring well network used for water level and water quality monitoring was developed in order to predict seasonal variations in the zone of influence for the injection and extraction wells, as documented in the Removal Action Work Plan (Dames & Moore, 1997b). The predicted behavior of the capture zone was used to design the current monitoring well network and monitoring program. Comparison of the actual zone of influence with the predicted behavior indicates that the aerial distribution of the monitoring well network is generally adequate to assess water levels and water quality data, as discussed in the following sections.

5.1 Hydrogeologic Parameters

This section presents a discussion on the current understanding of the physical aspects of HSU-2 that influence the operation of the IRA, including geology, and the hydrologic parameters such as hydraulic conductivity, transmissivity, storativity, and water levels.

The geology of HSU-2 and the surrounding units has been well documented from the installation of monitoring wells during previous investigations. In summary, HSU-2 extends from the base of HSU-1 (approximately 76 to 88 feet bgs), to a depth of approximately 114 to 130 feet bgs. The thickness of HSU-2 ranges from 28 to 54 feet. The unit is composed primarily of sand in the upper portion, and gravel in the middle to lower sections of the unit.

In addition to geologic data, hydrologic parameters of HSU-2 have been evaluated in previous investigations using slug tests and pumping tests, as described in the Removal Action Work Plan (Dames & Moore, 1997b). The hydraulic conductivity is reported at 1,024 ft/d, transmissivity is reported at 43,420 ft^2/d, and storativity is reported at 0.0016. A description of the Site hydrogeology has been has presented in previous reports including the 1995 Annual Water Monitoring Report (PNNL, 1996) and the Off-Site Monitoring Well Installation Data Transmittal for the Fourth Hydrostratigraphic Unit (Dames & Moore, 1998c). Existing data are summarized in the 1997 Water Monitoring Report (UC Davis, 1998b).

6.0 OPERATION OF GROUNDWATER IRA

This section presents an evaluation of the performance of the IRA during the first 12 months of operation. The objective of the evaluation is to determine if the monitoring program provides sufficient hydrogeologic and water quality data to operate the groundwater extraction and discharge system in the most effective manner. In order to assess the effectiveness of the operation, system performance has been compared with the planned performance and remediation objectives.

6.1 IRA Performance

The IRA has been in continuous operation since May 11, 1998, with brief pauses for system maintenance. The system operation log listing operation data since April 20, 1998 is presented in Table 6. The monitoring program for the treatment system is presented in Table 7. Sample results for influent and effluent water are presented in Tables 8, 9, and 10.

During the 12-month period from May 11, 1998 through April 26, 1999, the treatment plant operated approximately 88% of the time, for a cumulative total of 7,538 hours. The majority of down time occurred during the months of July and October 1998. During the remainder of this period, the system was performing as planned, indicating efficient operation. Detailed information concerning the operation of the IRA has been presented in the Monthly Operation Reports, issued each month starting in June 1998.

Including the treatment plant evaluation period in April 1998, the IRA has extracted approximately 61.4 million gallons of groundwater. Groundwater extraction rates have generally been maintained at the design rates of 120 gpm during winter months, and 190 gpm during summer months. Continued extraction at the planned pumping rates indicates that the IRA is performing as designed.

6.2 IRA Operation and Water Quality

As discussed in Sections 2 and 3, groundwater quality data indicate that the IRA is achieving the intended objective of containing the chloroform plume and reducing the overall mass of chloroform in HSU-2. Influent chloroform concentrations of 100 ug/L were anticipated in the design, as stated in the Removal Action Work Plan (Dames & Moore, 1997b). System influent data indicate that chloroform concentrations were initially 32 ug/L in May 1998, and peaked at 88 ug/L in July 1998. Influent chloroform has decreased to a low of 15 ug/L in April 1999.

As discussed in Section 4.2, chloroform mass removal calculations indicate that the IRA has successfully removed over 21 pounds of chloroform, or approximately 32% of the dissolved portion of chloroform estimated to be within the IRA capture zone. Although the chloroform concentrations in the extracted water were lower than anticipated, the ability of the IRA to remove almost 32% of the chloroform mass indicates that the IRA is operating effectively. A graph of monthly mass removal calculations presented on Figure B-1 in Appendix B, suggest that continued operation will remove approximately 0.5 pounds of chloroform per month.

Effluent water quality data indicate that the treatment system is removing chloroform and other volatile constituents from the groundwater prior to reinjection. Therefore, the IRA is operating effectively as designed by preventing increases in upgradient chloroform concentrations.

Effluent water quality data indicate that TDS concentrations exceeded the daily limit of 500 mg/L in 16% of the samples collected between April 1998 and April 1999. Statistical calculations presented in Appendix E indicate that TDS concentrations have an approximately normal distribution, with 80% of the reported detections consistently ranging between 450 mg/L and 508 mg/L. The average concentration during this period was 479 mg/L. As stated under Page 3, Item 14 of the findings in the WDRs, the expected effluent TDS concentration is 470 mg/L, indicating that the groundwater quality is consistent with the design parameters. Although the effluent limit of 500 mg/L has been exceeded, TDS concentrations have not exceeded the local average of 600 mg/L, as defined by the WDRs (Page 3, Item 14). Furthermore, the 95% upper tolerance level (UTL) for TDS concentrations in background well UCD2-17 is 520 mg/L, as defined by the WDRs. This UTL has been exceeded in 4% of the effluent samples.

6.3 Injection Well Efficiency

Monitoring of the IRA system indicates a steady decrease in the efficiency of injection well IW2-1 during the period from April 1998 through May 1999. The decrease in efficiency is illustrated in Figure D-1 of Appendix D, which presents water level data for IW2-1 and nearby monitoring well UCD2-37. Water levels from UCD2-37 are used to monitor normal seasonal fluctuations in the aquifer. Water levels from IW2-1 have been subtracted from UCD2-37 water levels in order to quantify the water level increases at IW2-1 resulting from decreasing well efficiency, as opposed to seasonal increases in water levels. A decrease in efficiency could require a reduction of reinjected water, which could in turn necessitate a reduction in the amount of groundwater extracted.

Figure D-1 in Appendix D illustrates that water levels in May 1999 are beginning to decline in response to increased agricultural pumping. The resulting decline in water levels allows for an increase in the IRA injection rates, but a continued decrease in injection well efficiency is anticipated. Recommendations to address the decrease in injection well efficiency are presented in Section 7.0.

7.0 MONITORING PROGRAM ASSESSMENT

This section presents an assessment of the current monitoring program. The objective of this assessment is to determine if the monitoring program provides sufficient hydrologic and water quality data to determine whether the monitoring frequency, location, and/or constituents should be revised. This section also presents conclusions concerning the IRA operation, and recommendations for possible modifications to the IRA monitoring program.

7.1 Monitoring Frequency

This section presents an assessment of the current monitoring frequency. During the 12-month period of full-scale operation, groundwater quality monitoring to assess IRA operation has been conducted on a monthly basis at 10 monitoring wells (UCD1-28, UCD2-29, UCD2-30, UCD2-31, UCD2-35, UCD2-36, UCD2-37, UCD2-38, UCD2-39, and UCD2-40), the influent from extraction well EW2-1, and the treated effluent routed to injection well IW2-1. In addition, quarterly groundwater monitoring has been conducted at these 12 locations and 7 additional monitoring wells.

Groundwater quality data collected over the 12-month period do not indicate unanticipated variations on a monthly basis. Concentration trends related to IRA operation and seasonal variations appear to be sufficiently delineated using quarterly data, as illustrated in chloroform isoconcentration contour maps (Figures 7, 8, and 9), and in the time/concentration graphs presented in Appendix C. Therefore, it appears that groundwater quality monitoring could be reduced to a quarterly basis without impairing the ability to monitor trends in water quality. The proposed groundwater monitoring frequency is presented in Table 1.

Groundwater levels at the site appear to show seasonal variation caused by natural trends and regional groundwater pumping. As illustrated in the capture zone analysis, variations in water levels can impact the extent of the capture zone, and the amount of injected water recaptured by the IRA. Therefore, monthly monitoring of water levels is recommended in order to assess variations in groundwater flow direction and the IRA capture zone.

Review of effluent and influent monitoring data indicates that the current program provides sufficient data to assess IRA performance. Treatment plant influent should be monitored on a monthly basis for VOCs, TOC, C-14, and tritium. Effluent should be monitored monthly for VOC, total chromium, and nitrate (as N). Review of field parameter data does not indicate large variations in the reported values. Therefore, field measurements for pH,

electrical conductivity, temperature, and turbidity should continue to be collected at influent and effluent locations on a monthly basis.

7.2 Monitoring Locations

The current monitoring network is presented in Figure 2. Objectives of the monitoring network include the assessment of variations in water quality and groundwater flow. Water quality variations that are monitored include changes in the size and concentrations of the chloroform plume, potential migration of the plume outside of the capture zone, potential impacts to the aquifer caused by reinjection of treated water, and potential capture of HSU-1 contamination, including tritium.

An assessment of the monitoring locations was presented in Section 3.0. As discussed, the current monitoring network appears to be adequate, with the exception of a potential data gap in the area of UCD1-10. The installation of new monitoring well in this area and the inclusion of the well into the monthly water level sampling program should be considered.

7.3 Monitoring Parameters

The current suite of monitoring parameters is presented in Tables 1 and 7. The parameter list was developed in order to monitor for chloroform and other COCs that may be influenced by the IRA. Review of the data for the 12-month period of operation indicates that, with the exception of hexavalent chromium and TDS, the current list of monitoring parameters is appropriate to monitor the effectiveness of the groundwater IRA system.

Elimination of hexavalent chromium analysis has been proposed for groundwater and treatment system monitoring, as indicated in Tables 1 and 7. Total dissolved chromium is proposed as the monitoring parameter. Reduced chromium (Cr III) is virtually insoluble within the pH range of 6 to 8, which matches the pH range of Site groundwater (Dames & Moore, 1999). Therefore, all chromium in Site groundwater may be assumed to be hexavalent chromium (Cr VI). Comparison of results for total chromium and hexavalent chromium has indicated that hexavalent chromium is the dominant species reported as total chromium.

Substitution of electrical conductivity (EC) for TDS during monthly effluent monitoring and quarterly groundwater monitoring is proposed. Chemically, EC and TDS share an inverse relationship. Monitoring only for EC, and not TDS, is cost effective and provides a passive evaluation of dissolved solids. Historically, significant changes in the groundwater chemistry impacting TDS and EC values have not occurred.

Effluent limits for EC have not been defined in the WDRs. In order to assess EC data, a monthly average effluent limit of 873 uS/cm and a daily effluent limit of 900 uS/cm are proposed, based on the following evaluation.

The proposed EC effluent limits are based on the secondary MCL value of 900 μS/cm. The TDS daily limit in the WDRs is 500 mg/L, which is equivalent to the secondary MCL. The equivalent secondary MCL for EC is 900 μS/cm. Therefore, 900 μS/cm is proposed for the daily limit. Applying the ratio of the monthly average limit over the daily limit for TDS (485 mg/l over 500 mg/l) to 900 μS/cm results in a monthly average for EC of 873 μS/cm.

7.4 IRA Operation Summary

The groundwater IRA has been effective at reducing the mass of chloroform in HSU-2, as indicated by mass removal calculations. More than 21 pounds of chloroform has been extracted, which corresponds to approximately 32% of the dissolved fraction of chloroform mass estimated to be present in the IRA capture zone.

As indicated in the monthly capture zone maps, the IRA has effectively captured the chloroform plume upgradient of extraction well EW2-1 during the first 12 months of operation. The configuration of the extraction well has resulted in creation of a hydraulic barrier, reducing the off-site migration of chloroform. These data suggest that additional extraction wells in HSU-2 is not warranted, that the IRA is operating as planned, and that the IRA is meeting the objectives outlined in Section 1.0.

The majority of treated water injected at IW2-1 is recaptured. Monthly variations in the percentage of water recaptured ranges from 66% to 100%, and averages 82%. Seasonal variations appear to influence the amount of water recaptured, with a decreasing trend of recapture from August through November, followed by an increasing amount of recapture from November through April.

Water quality data indicate that the overall chloroform concentrations in the downgradient zone are declining, and that the downgradient zone is not migrating laterally. Lateral spreading of the chloroform plume as a result of the IRA is not apparent, based on review of chemical data.

Injection well IW2-1 has shown a steady decrease in efficiency, which could limit the amount of water that could be extracted, treated, and reinjected. Rehabilitation of the injection well is recommended. Specific rehabilitation tasks would include:

- Collecting a sample of scale from the screen;
- Conduct a dissolution analysis of the scale;
- Design a rehabilitation program based on results of the dissolution analysis;
- Implement the rehabilitation program; and
- Develop a program to maintain well efficiency.

Modifications to IRA system operation could be considered in order to increase the recapture of injected groundwater. Scenarios could include the changes in extraction well pumping rates, reinjection rates, possible discharge outside of the current system (such as irrigation), and the addition of a second extraction well. The existing numerical model could be utilized for modeling variations in the IRA operation.

7.5 Recommendations

This section has been prepared to summarize specific recommendations to improve the IRA monitoring program.

1. Treatment plant influent and effluent should be monitored on a monthly basis (see Section 7.1).

2. Monitoring well sampling should be conducted on a quarterly basis, instead of monthly (see Section 7.1).

3. The reporting frequency should be changed from monthly to quarterly.

4. An additional HSU-2 monitoring well should be considered in the vicinity of UCD1-10, located southeast of extraction well EW2-1 (see Section 7.2). The well would be sampled on a quarterly basis in conjunction with the other IRA monitoring wells.

5. Monitoring for hexavalent chromium should be eliminated, and substituted with total chromium (see Section 7.3).

6. Monthly effluent monitoring and quarterly groundwater monitoring for TDS should be replaced with electrical conductivity measurements. The proposed effluent limits for electrical conductivity are 873 uS/cm for the monthly average, and 900 uS/cm for the daily maximum limit (see Section 7.3).

7. An additional HSU-2 extraction well to increase chloroform mass removal does not appear to be warranted, and should not be added to the IRA system at this time (see Section 7.4).

8. A rehabilitation and maintenance program should be conducted for injection well IW2-1 (see Section 7.4).

8.0 REFERENCES

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TABLE 1
GROUNDWATER MONITORING PARAMETERS AND SCHEDULE
LEHR/SCDS ENVIRONMENTAL RESTORATION
DAVIS, CALIFORNIA

	Analyte/Analysis																							
	Chemical Analytes												Radiological				Field Parameters							
	VOC		Total Cr		Cr VI		Nitrate		TDS		TOC		Tritium		C-14		pH		EC		T		Water Level	
Well	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
UCD1-28	m	Q	m	Q	m	R	m	Q	m	R	m	Q	m	Q	m	Q	m	Q	m	Q	m	Q	m	m
UCD2-07	Q	Q	Q	Q	Q	R	Q	Q	Q	R	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	m	m
UCD2-14	Q	Q	Q	Q	Q	R	Q	Q	Q	R	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	m	m
UCD2-15	Q	Q	Q	Q	Q	R	Q	Q	Q	R	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	m	m
UCD2-16	Q	Q	Q	Q	Q	R	Q	Q	Q	R	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	m	m
UCD2-17	Q	Q	Q	Q	Q	R	Q	Q	Q	R	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	m	m
UCD2-26	Q	Q	Q	Q	Q	R	Q	Q	Q	R	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	m	m
UCD2-29	m	Q	m	Q	m	R	m	Q	m	R	m	Q	m	Q	m	Q	m	Q	m	Q	m	Q	m	m
UCD2-30	m	Q	m	Q	m	R	m	Q	m	R	m	Q	m	Q	m	Q	m	Q	m	Q	m	Q	m	m
UCD2-31	m	Q	m	Q	m	R	m	Q	m	R	m	Q	m	Q	m	Q	m	Q	m	Q	m	Q	m	m
UCD2-32	Q	Q	Q	Q	Q	R	Q	Q	Q	R	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	m	m
UCD2-35	m	Q	m	Q	m	R	m	Q	m	R	m	Q	m	Q	m	Q	m	Q	m	Q	m	Q	m	m
UCD2-36	m	Q	m	Q	m	R	m	Q	m	R	m	Q	m	Q	m	Q	m	Q	m	Q	m	Q	m	m
UCD2-37	m	Q	m	Q	m	R	m	Q	m	R	m	Q	m	Q	m	Q	m	Q	m	Q	m	Q	m	m
UCD2-38	m	Q	m	Q	m	R	m	Q	m	R	m	Q	m	Q	m	Q	m	Q	m	Q	m	Q	m	m
UCD2-39	m	Q	m	Q	m	R	m	Q	m	R	m	Q	m	Q	m	Q	m	Q	m	Q	m	Q	m	m
UCD2-40	m	Q	m	Q	m	R	m	Q	m	R	m	Q	m	Q	m	Q	m	Q	m	Q	m	Q	m	m

Proposed changes are highlighted
R = Removed from sampling program
C= Current Schedule; P = Proposed Schedule
Q, = quarterly sampling ; m = Monthly Sampling
VOC = Volatile Organic Compounds (including chloroform)
Total Cr = Total Dissolved Chromium (all valent states)

Nitrate = Nitrate as Nitrogen
TDS = Total Dissolved Solids
TOC = Total Organic Carbon
C-14 = Carbon -14
EC = Electrical Conductivity
T = Temperature

TABLE 3
GROUNDWATER ELEVATION DATA
LEHR/SCDS ENVIRONMENTAL RESTORATION - DAVIS, CALIFORNIA

Well	Date	Well Elevation (MSLD)	Depth to Water	Groundwater Elevation (MSLD)
HSU-1				
UCD1-28	05/19/98	50.45	25.31	25.14
	06/16/98	50.45	27.25	23.20
	07/22/98	50.34	40.97	9.37
	08/18/98	50.34	43.40	6.94
	09/15/98	50.34	42.35	7.99
	10/21/98	50.34	36.72	13.62
	11/20/98	50.34	33.74	16.60
	12/09/98	50.34	32.24	18.10
	01/22/99	50.34	30.12	20.22
	02/01/99	50.34	29.93	20.41
	03/24/99	50.34	26.64	23.70
	04/23/99	50.34	27.55	22.79
	05/03/99	50.34	32.58	17.76
HSU-2				
EW2-1	05/19/98	49.17	25.00	24.17
	06/16/98	49.17	27.02	22.15
	07/22/98	49.17	41.19	7.98
	08/18/98	49.17	44.30	4.87
	09/15/98	49.17	42.07	7.10
	10/21/98	49.17	36.16	13.01
	11/20/98	49.17	33.07	16.10
	12/09/98	49.17	31.56	17.61
	01/22/99	49.17	29.42	19.75
	02/01/99	49.17	29.25	19.92
	02/19/99	49.17	27.81	21.36
	03/24/99	49.17	25.97	23.20
	04/23/99	49.17	27.37	21.80
	05/03/99	49.17	32.38	16.79
	05/28/99	49.17	43.03	6.14
IW2-1	05/19/98	49.39	19.52	29.87
	06/16/98	49.39	24.35	25.04
	07/22/98	49.39	37.35	12.04
	08/18/98	49.39	27.0	22.39

MSLD Mean Sea Level Datum.
NR Not recorded.

TABLE 3
GROUNDWATER ELEVATION DATA
LEHR/SCDS ENVIRONMENTAL RESTORATION - DAVIS, CALIFORNIA

Well	Date	Well Elevation (MSLD)	Depth to Water	Groundwater Elevation (MSLD)
HSU-2				
IW2-1	09/15/98	49.39	18.50	30.89
	10/21/98	49.39	16.78	32.61
	11/20/98	49.39	29.71	19.68
	12/09/98	49.39	15.60	33.79
	01/22/99	49.39	17.35	32.04
	02/01/99	49.39	27.58	21.81
	02/19/99	49.39	9.98	39.41
	03/24/99	49.39	12.45	36.94
	04/23/99	49.39	12.20	37.19
	05/03/99	49.39	12.04	37.35
	05/28/99	49.39	14.25	35.14
UCD2-07	05/19/98	51.65	25.71	25.94
	06/16/98	51.65	27.31	24.34
	07/22/98	51.65	41.43	10.22
	08/18/98	51.65	43.78	7.87
	09/15/98	51.65	41.86	9.79
	10/21/98	51.65	36.84	14.81
	11/20/98	51.65	33.92	17.73
	12/09/98	51.65	32.45	19.20
	01/22/99	51.65	30.48	21.17
	02/01/99	51.65	30.24	21.41
	02/19/99	51.65	28.83	22.82
	03/24/99	51.65	27.07	24.58
	04/23/99	51.65	27.88	23.77
	05/03/99	51.65	33.41	18.24
	05/28/99	51.65	42.16	9.49
UCD2-14	05/19/98	51.72	26.03	25.69
	06/16/98	51.72	27.43	24.29
	07/22/98	51.72	41.94	9.78
	08/18/98	51.72	44.28	7.44
	09/15/98	51.72	42.18	9.54
	10/21/98	51.72	37.05	14.67
	11/20/98	51.72	34.21	17.51

MSLD Mean Sea Level Datum.
NR Not recorded.

TABLE 3
GROUNDWATER ELEVATION DATA
LEHR/SCDS ENVIRONMENTAL RESTORATION - DAVIS, CALIFORNIA

Well	Date	Well Elevation (MSLD)	Depth to Water	Groundwater Elevation (MSLD)
HSU-2				
UCD2-14	12/09/98	51.72	32.75	18.97
	01/22/99	51.72	30.67	21.05
	02/01/99	51.72	30.49	21.23
	02/19/99	51.72	29.05	22.67
	03/24/99	51.72	27.22	24.50
	04/23/99	51.72	28.16	23.56
	05/03/99	51.72	33.58	18.14
	05/28/99	51.72	42.61	9.11
UCD2-15	05/19/98	51.49	24.95	26.54
	06/16/98	51.49	26.80	24.69
	07/22/98	51.49	39.83	11.66
	08/18/98	51.49	42.28	9.21
	09/15/98	51.49	40.96	10.53
	10/21/98	51.49	36.01	15.48
	11/20/98	51.49	33.52	17.97
	12/09/98	51.49	31.90	19.59
	01/22/99	51.49	30.09	21.40
	02/01/99	51.49	29.72	21.77
	03/24/99	51.49	26.36	25.13
	04/23/99	51.49	27.15	24.34
	05/03/99	51.49	33.03	18.46
UCD2-16	05/19/98	49.95	23.64	26.31
	06/16/98	49.95	25.26	24.69
	07/22/98	49.95	38.45	11.50
	08/18/98	49.95	41.26	8.69
	09/15/98	49.95	39.81	10.14
	10/21/98	49.95	34.78	15.17
	11/20/98	49.95	32.06	17.89
	12/09/98	49.95	30.57	19.38
	01/22/99	49.95	28.59	21.36
	02/01/99	49.95	28.33	21.62
	02/19/99	49.95	26.95	23.00
	03/24/99	49.95	25.12	24.83

MSLD Mean Sea Level Datum.
NR Not recorded.

TABLE 3
GROUNDWATER ELEVATION DATA
LEHR/SCDS ENVIRONMENTAL RESTORATION - DAVIS, CALIFORNIA

Well	Date	Well Elevation (MSLD)	Depth to Water	Groundwater Elevation (MSLD)
HSU-2				
UCD2-16	04/23/99	49.95	25.92	24.03
	05/03/99	49.95	31.73	18.22
	05/28/99	49.95	40.14	9.81
UCD2-17	05/19/98	51.83	24.85	26.98
	06/16/98	51.83	26.43	25.40
	07/22/98	51.83	39.35	12.48
	08/18/98	51.83	41.90	9.93
	09/15/98	51.83	40.67	11.16
	10/21/98	51.83	36.11	15.72
	11/20/98	51.83	33.37	18.46
	12/09/98	51.83	31.94	19.89
	01/22/99	51.83	30.01	21.82
	02/01/99	51.83	29.82	22.01
	02/19/99	51.83	28.28	23.55
	03/24/99	51.83	26.47	25.36
	04/23/99	51.83	27.05	24.78
	05/03/99	51.83	33.26	18.57
	05/28/99	51.83	40.77	11.06
UCD2-26	05/19/98	48.79	23.77	25.02
	06/16/98	48.79	25.43	23.36
	07/22/98	48.79	40.27	8.52
	08/18/98	48.79	42.42	6.37
	09/15/98	48.79	40.36	8.43
	10/21/98	48.79	34.87	13.92
	11/20/98	48.79	31.87	16.92
	12/09/98	48.79	30.38	18.41
	01/01/99	48.79	28.09	20.70
	01/22/99	48.79	28.31	20.48
	02/19/99	48.80	26.92	21.88
	03/24/99	48.80	24.86	23.94
	04/23/99	48.80	26.19	22.61
	05/03/99	48.80	31.38	17.42
	05/28/99	48.80	41.35	7.45

MSLD Mean Sea Level Datum.
NR Not recorded.

TABLE 3
GROUNDWATER ELEVATION DATA
LEHR/SCDS ENVIRONMENTAL RESTORATION - DAVIS, CALIFORNIA

Well	Date	Well Elevation (MSLD)	Depth to Water	Groundwater Elevation (MSLD)
HSU-2				
UCD2-29	05/19/98	50.43	25.67	24.76
	06/16/98	50.43	27.76	22.67
	07/22/98	50.32	42.27	8.05
	08/18/98	50.32	44.56	5.76
	09/15/98	50.32	42.37	7.95
	10/21/98	50.32	36.71	13.61
	11/20/98	50.32	33.69	16.63
	12/09/98	50.32	32.16	18.16
	01/22/99	50.32	30.08	20.24
	02/01/99	50.32	29.90	20.42
	02/19/99	50.32	28.51	21.81
	03/24/99	50.32	26.66	23.66
	04/23/99	50.32	28.02	22.30
	04/30/99	50.32	32.71	17.61
	05/03/99	50.32	33.05	17.27
	05/14/99	50.32	40.8	9.52
	05/20/99	50.32	41.48	8.84
	05/27/99	50.32	41.44	8.88
	05/28/99	50.32	43.42	6.90
UCD2-30	05/19/98	49.94	25.26	24.68
	06/16/98	49.94	26.97	22.97
	07/22/98	49.83	42.09	7.74
	08/18/98	49.83	44.33	5.50
	09/15/98	49.83	42.05	7.78
	10/21/98	49.83	36.36	13.47
	11/20/98	49.83	33.27	16.56
	12/09/98	49.83	31.78	18.05
	01/22/99	49.83	29.68	20.15
	02/01/99	49.83	29.47	20.36
	02/19/99	49.83	28.11	21.72
	03/24/99	49.83	26.26	23.57
	04/23/99	49.83	27.34	22.49
	05/03/99	49.83	32.79	17.04

MSLD Mean Sea Level Datum.
NR Not recorded.

TABLE 3
GROUNDWATER ELEVATION DATA
LEHR/SCDS ENVIRONMENTAL RESTORATION - DAVIS, CALIFORNIA

Well	Date	Well Elevation (MSLD)	Depth to Water	Groundwater Elevation (MSLD)
HSU-2				
UCD2-30	05/28/99	49.83	43.27	6.56
UCD2-31	05/19/98	49.98	25.15	24.83
	06/16/98	49.98	26.86	23.12
	07/22/98	49.86	41.89	7.97
	08/18/98	49.86	44.52	5.34
	09/15/98	49.86	41.93	7.93
	10/21/98	49.86	36.24	13.62
	11/20/98	49.86	33.20	16.66
	12/09/98	49.86	31.69	18.17
	01/01/99	49.86	29.41	20.45
	01/22/99	49.86	29.59	20.27
	02/19/99	49.86	28.06	21.80
	03/24/99	49.86	26.21	23.65
	05/03/99	49.86	32.63	17.23
	05/28/99	49.86	43.01	6.85
UCD2-32	05/04/98	45.42	18.67	26.75
	05/11/98	45.42	20.07	25.35
	05/19/98	45.42	21.38	24.04
	06/01/98	45.42	18.98	26.44
	06/08/98	45.42	22.71	22.71
	06/16/98	45.42	23.28	22.14
	06/23/98	45.42	27.55	17.87
	06/29/98	45.42	30.21	15.21
	07/07/98	45.41	35.81	9.60
	07/14/98	45.41	36.66	8.75
	07/22/98	45.41	37.58	7.83
	07/29/98	45.41	41.98	3.43
	08/05/98	45.41	41.01	4.40
	08/11/98	45.41	38.75	6.66
	08/18/98	45.41	44.50	0.91
	08/25/98	45.41	39.11	6.30
	09/03/98	45.41	39.56	5.85
	09/09/98	45.41	39.18	6.23

MSLD Mean Sea Level Datum.
NR Not recorded.

TABLE 3
GROUNDWATER ELEVATION DATA
LEHR/SCDS ENVIRONMENTAL RESTORATION - DAVIS, CALIFORNIA

Well	Date	Well Elevation (MSLD)	Depth to Water	Groundwater Elevation (MSLD)
HSU-2				
UCD2-32	09/14/98	45.41	38.11	7.30
	09/22/98	45.41	37.16	8.25
	09/28/98	45.41	35.3	10.11
	10/07/98	45.41	33.61	11.80
	10/13/98	45.41	33.18	12.23
	10/21/98	45.41	32.10	13.31
	10/26/98	45.41	31.49	13.92
	11/02/98	45.41	30.62	14.79
	11/10/98	45.41	29.73	15.68
	11/16/98	45.41	29.05	16.36
	11/20/98	45.41	28.93	16.48
	11/23/98	45.41	28.56	16.85
	12/02/98	45.41	27.81	17.60
	12/09/98	45.41	27.35	18.06
	12/15/98	45.41	27.04	18.37
	12/22/98	45.41	26.78	18.63
	12/28/98	45.41	26.45	18.96
	01/08/99	45.41	25.79	19.62
	01/14/99	45.41	25.72	19.69
	01/22/99	45.41	25.37	20.04
	01/28/99	45.41	25.18	20.23
	02/01/99	45.41	25.07	20.34
	02/12/99	45.41	24.23	21.18
	02/19/99	45.41	23.69	21.72
	02/26/99	45.41	23.31	22.10
	03/02/99	45.41	22.93	22.48
	03/10/99	45.41	22.58	22.83
	03/15/99	45.41	22.14	23.27
	03/24/99	45.41	21.98	23.43
	03/30/99	45.41	21.48	23.93
	04/07/99	45.41	21.71	23.70
	04/13/99	45.41	21.43	23.98
	04/23/99	45.41	23.50	21.91

MSLD Mean Sea Level Datum.
NR Not recorded.

TABLE 3
GROUNDWATER ELEVATION DATA
LEHR/SCDS ENVIRONMENTAL RESTORATION - DAVIS, CALIFORNIA

Well	Date	Well Elevation (MSLD)	Depth to Water	Groundwater Elevation (MSLD)
HSU-2				
UCD2-32	04/30/99	45.41	28.52	16.89
	05/03/99	45.41	29.40	16.01
	05/14/99	45.41	38.69	6.72
	05/20/99	45.41	37.96	7.45
	05/27/99	45.41	37.46	7.95
	05/28/99	45.41	39.95	5.46
UCD2-35	05/19/98	55.71	29.63	26.08
	06/16/98	55.71	31.15	24.56
	07/22/98	55.71	44.70	11.01
	08/18/98	55.71	47.56	8.15
	09/15/98	55.71	45.82	9.89
	10/21/98	55.71	40.92	14.79
	11/20/98	55.71	NR	NR
	12/09/98	55.71	36.61	19.10
	01/22/99	55.71	34.61	21.10
	02/01/99	55.71	34.36	21.35
	02/19/99	55.71	32.88	22.83
	03/24/99	55.71	NR	NR
	05/03/99	55.71	37.75	17.96
	05/28/99	55.71	46.34	9.37
UCD2-36	05/19/98	48.31	22.32	25.99
	06/16/98	48.31	24.02	24.29
	07/22/98	48.31	38.18	10.13
	08/18/98	48.31	40.21	8.10
	09/15/98	48.31	38.55	9.76
	10/21/98	48.31	35.42	12.89
	11/20/98	48.31	30.58	17.73
	12/09/98	48.31	29.11	19.20
	01/22/99	48.31	27.16	21.15
	02/01/99	48.31	26.92	21.39
	02/19/99	48.31	25.45	22.86
	03/24/99	48.31	23.65	24.66
	05/03/99	48.31	30.10	18.21

MSLD Mean Sea Level Datum.
NR Not recorded.

TABLE 3
GROUNDWATER ELEVATION DATA
LEHR/SCDS ENVIRONMENTAL RESTORATION - DAVIS, CALIFORNIA

Well	Date	Well Elevation (MSLD)	Depth to Water	Groundwater Elevation (MSLD)
HSU-2				
UCD2-36	05/28/99	48.31	39.06	9.25
UCD2-37	05/19/98	49.63	22.83	26.80
	06/16/98	49.63	24.62	25.01
	07/22/98	49.63	37.61	12.02
	08/18/98	49.63	40.11	9.52
	09/15/98	49.63	38.76	10.87
	10/21/98	49.63	34.17	15.46
	11/20/98	49.63	31.41	18.22
	12/09/98	49.63	29.88	19.75
	01/22/99	49.63	27.93	21.70
	02/01/99	49.63	27.62	22.01
	02/19/99	49.63	26.17	23.46
	03/24/99	49.63	24.36	25.27
	05/03/99	49.63	31.14	18.49
	05/28/99	49.63	39.00	10.63
UCD2-38	05/19/98	57.20	30.29	26.91
	06/16/98	57.20	32.0	25.20
	07/22/98	57.20	45.32	11.88
	08/18/98	57.20	48.00	9.20
	09/15/98	57.20	46.41	10.79
	10/21/98	57.20	41.65	15.55
	11/20/98	57.20	38.98	18.22
	12/09/98	57.20	37.51	19.69
	01/22/99	57.20	35.57	21.63
	02/01/99	57.20	35.44	21.76
	02/19/99	57.20	33.82	23.38
	03/24/99	57.20	31.95	25.25
	04/23/99	57.20	32.63	24.57
	05/03/99	57.20	38.71	18.49
	05/28/99	57.20	46.71	10.49
UCD2-39	05/19/98	49.63	24.32	25.31
	06/16/98	49.63	26.30	23.33
	07/22/98	49.63	39.66	9.97

MSLD Mean Sea Level Datum.
NR Not recorded.

TABLE 3
GROUNDWATER ELEVATION DATA
LEHR/SCDS ENVIRONMENTAL RESTORATION - DAVIS, CALIFORNIA

Well	Date	Well Elevation (MSLD)	Depth to Water	Groundwater Elevation (MSLD)
HSU-2				
UCD2-39	08/18/98	49.63	42.81	6.82
	09/15/98	49.63	40.83	8.80
	10/21/98	49.63	35.48	14.15
	11/20/98	49.63	32.55	17.08
	12/09/98	49.63	31.02	18.61
	01/22/99	49.63	29.04	20.59
	02/01/99	49.63	28.76	20.87
	02/19/99	49.63	27.37	22.26
	03/24/99	49.63	25.47	24.16
	04/23/99	49.63	26.48	23.15
	05/03/99	49.63	31.98	17.65
	05/28/99	49.63	41.54	8.09
UCD2-40	05/04/98	48.96	NR	NR
	05/11/98	48.96	23.26	25.70
	05/19/98	48.96	24.49	24.47
	06/01/98	48.96	22.34	26.62
	06/08/98	48.96	25.89	23.07
	06/16/98	48.96	27.10	21.86
	06/23/98	48.96	30.66	18.30
	06/29/98	48.96	33.12	15.84
	07/07/98	48.98	38.75	10.23
	07/14/98	48.98	39.47	9.51
	07/22/98	48.98	41.73	7.25
	07/29/98	48.98	44.7	4.28
	08/05/98	48.98	44.05	4.93
	08/11/98	48.98	41.85	7.13
	08/18/98	48.98	43.67	5.31
	08/25/98	48.98	44.18	4.80
	09/03/98	48.98	42.59	6.39
	09/09/98	48.98	42.21	6.77
	09/14/98	48.98	41.27	7.71
	09/22/98	48.98	40.43	8.55
	09/28/98	48.98	38.61	10.37

MSLD Mean Sea Level Datum.
NR Not recorded.

TABLE 3
GROUNDWATER ELEVATION DATA
LEHR/SCDS ENVIRONMENTAL RESTORATION - DAVIS, CALIFORNIA

Well	Date	Well Elevation (MSLD)	Depth to Water	Groundwater Elevation (MSLD)
HSU-2				
UCD2-40	10/07/98	48.98	36.99	11.99
	10/13/98	48.98	36.44	12.54
	10/21/98	48.98	35.47	13.51
	10/26/98	48.98	34.86	14.12
	11/02/98	48.98	34.04	14.94
	11/10/98	48.98	33.15	15.83
	11/16/98	48.98	32.52	16.46
	11/20/98	48.98	32.35	16.63
	11/23/98	48.98	32.04	16.94
	12/02/98	48.98	31.30	17.68
	12/09/98	48.98	30.84	18.14
	12/15/98	48.98	30.54	18.44
	12/22/98	48.98	30.31	18.67
	12/28/98	48.98	29.92	19.06
	01/08/99	48.98	29.24	19.74
	01/14/99	48.98	29.19	19.79
	01/22/99	48.98	28.84	20.14
	01/28/99	48.98	28.65	20.33
	02/01/99	48.98	28.59	20.39
	02/12/99	48.98	27.69	21.29
	02/19/99	48.98	27.19	21.79
	02/26/99	48.98	26.74	22.24
	03/02/99	48.98	26.39	22.59
	03/10/99	48.98	25.98	23.00
	03/15/99	48.98	22.14	26.84
	03/24/99	48.98	25.41	23.57
	03/30/99	48.98	24.88	24.10
	04/07/99	48.98	25.12	23.86
	04/13/99	48.98	24.82	24.16
	04/23/99	48.98	26.92	22.06
	04/30/99	48.98	31.81	17.17
	05/03/99	48.98	32.06	16.92
	05/14/99	48.98	40.09	8.89

MSLD Mean Sea Level Datum.
NR Not recorded.

TABLE 3
GROUNDWATER ELEVATION DATA
LEHR/SCDS ENVIRONMENTAL RESTORATION - DAVIS, CALIFORNIA

Well	Date	Well Elevation (MSLD)	Depth to Water	Groundwater Elevation (MSLD)
HSU-2				
UCD2-40	05/20/99	48.98	40.85	8.13
	05/27/99	48.98	40.54	8.44
	05/28/99	48.98	42.74	6.24

MSLD Mean Sea Level Datum.
NR Not recorded.

DATA VALIDATION QUALIFIER DEFINITIONS AND INTERPRETATION KEY [1]
Assigned by Dames & Moore's Data Review Team

DAMES & MOORE DATA QUALIFIER DEFINITIONS

U The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."

NJ The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

DAMES & MOORE DATA QUALIFIER DEFINITIONS — REASON CODE DEFINITIONS

a Analytical sequence deficiency or omission.
b Gross compound breakdown (4,4'-DDT/Endrin).
c Calibration failure; poor or unstable response.
d Laboratory duplicate imprecision.
e Laboratory duplicate control sample imprecision.
f Field duplicate imprecision.
g Poor chromatography.
h Holding time violation.
i Internal standard failure.
j Poor mass spectrographic performance.
k Serial dilution imprecision.
l Laboratory control sample recovery failure.
m Matrix spike/matrix spike duplicate recovery failure.
n Interference check sample recovery failure.
o Calibration blank contamination (metals/inorganics only).
p Preparation blank contamination (metals/inorganics only).
q Quantitiation exceeds linear range of analysis.
r Linearity failure in initial calibration.
s Surrogate spike recovery failure (GC organics and GC/MS organics only).
t Instrument tuning failure.
u No valid confirmation present (GC Organics only).
v Value is estimated below the MDA (Rads only).
w Retention time (RT) outside of RT window.
x Field blank contamination.
y Trip blank contamination
z Method blank contamination.
Q See respective monthly report for specific data qualifier definition

(1) The key to laboratory data qualifier flags follows this page.

INTERPRETATION KEY

The following example shows how an analytical result which includes qualifiers assigned by both the Dames & Moore data review team and the analytical laboratory could be displayed in the data tables:

<5.20 JB|Uz

The qualifier assigned by the laboratory precedes the "|"; the qualifier assigned by the Dames & Moore data review team follows it. In this example, the result is qualified as a non-detection data to the bias introduced by contamination of the associated method blank. Presence of the analyte in the method blank is indicated by the laboratory qualifier (B). The qualifier assigned by the Dames & Moore data review team (Uz) indicates that the analyte concentration is considered to be below the adjusted detection limit (quantitation limit) based on the level of contamination in the method blank.

GENERAL ENGINEERING LABORATORIES, INC.

DATA QUALIFIERS FOR ORGANIC ANALYSES

Data Qualifiers used on Form 1s or Certificate of Analysis (C of A) follow the specifications set forth in the technical specifications of the most current CLP Statement of Work and are defined as follows:

Section	Explanation	Location
A	The TIC is suspected aldol-condensation product.	C of A, Form 1, and EDD
B	Analyte was detected in the associated method blank as well as in the sample.	C of A, Form 1, and EDD
C	Pesticide analyte has been confirmed by GC/MS.	C of A, Form 1, and EDD
D	Analyte(s) quantified in an analysis performed at a secondary dilution factor.	C of A, Form 1, and EDD
E	Identifies compounds whose concentrations exceed the upper level of the calibration range of the instrument for that specific analysis.	C of A, Form 1, and EDD
J	This flag indicates an estimated value concerning either: (1) estimating a concentration for tentatively identified compounds (TICs), or (2) analyte detected at a level less than the RDL or PQL and greater than or equal to the MDL.	C of A, Form 1, and EDD
N	Presumptive evidence based upon a mass spectral library search to make a tentative identification of the analyte.	C of A, Form 1, and EDD
NJ	Analyte has been tentatively identified and the associated numerical value is estimated based upon 1:1 response factor to the nearest eluting internal standard.	C of A, Form 1, and EDD
P	Pesticide/PCG target analyte that is greater than 25% difference for the detected concentrations between the two GC columns.	C of A, EDD, Form 1, Form 10
U	Compound analyzed for but not detected (sample quantitation limit has been adjusted to reflect dilutions and percent moisture).	C of A, Form 1, and EDD
X	Other reporting flag as defined in report narrative.	C of A, Form 1, and EDD
**	Laboratory Control Sample recovery outside of acceptance limit.	QC Summary Report

All surrogate recoveries and acceptance ranges are reported at the bottom of the Form 2 or C of A. Any recoveries falling outside the acceptance range will be flagged with a **.

GENERAL ENGINEERING LABORATORIES, INC.

DATA QUALIFIERS FOR INORGANIC ANALYSES

Data Qualifiers used on Form 1s or Certificate of Analysis (C of A) follow the specifications set forth in the technical specifications of the most current CLP Statement of Work and are defined as follows:

Section	Explanation	Location
E	The reported value is estimated because of the presence of interference.	C of A, Form 1, and EDD
*	Duplicate analysis not within control limit.	C of A, Form 1, and EDD
+	Correlation Coefficient for the MSA is less than 0.995.	C of A, Form 2, and EDD
B	Reported value was obtained from a reading that was less than the reporting limit (RL) but greater than or equal to the detection limit (DL).	C of A, Form 1, and EDD
M	Duplicate Injection precision not met.	C of A, Form 1, and EDD
N	Spiked sample recovery not within control limits.	C of A, Form 1, and EDD
S	Reported Method was determined by MSA.	C of A, Form 1, and EDD
U	Analyte was analyzed for but not detected.	C of A, Form 1, and EDD
W	Post-digestion spike for GFAA is out of control limit (85-115%), while sample absorbance is less than 50% of spike absorbance.	C of A, EDD, Form 5 part 2
X	Other reporting flag as defined in report narrative.	C of A, Form 1, and EDD
**	Laboratory Control Sample recovery outside of acceptance limit.	QC Summary Report

QUANTERRA ENVIRONMENTAL SERVICES

LABORATORY DATA QUALIFERS FOR ANALYSES

Data qualifiers used on Form 1s or Certificate of Analysis follow the specifications set forth in the technical specifications of the most current CLP Statement of Work and are defined as follows:

Qualifier	Definition
J	(Organics only) Estimated value greater than MDL but less than CRDL
D	Diluted
U	Not detected
B	(Metals only) Estimated value greater than IDL but less than CRDL
B	(Organics only) Analyte found in the blank
E	Exceeds calibration

TABLE 4
FIELD PARAMETERS
GROUNDWATER MONITORING
LEHR/SCDS ENVIRONMENTAL RESTORATION
DAVIS, CALIFORNIA

Location	Date	EC-F umhos/cm	EH-F mvolts	pH-F	TEMPERATURE degrees C	TURBIDITY-F ntu
UCD1-028	06/03/98	1443	-2	7.38	14.4	7.66
	07/06/98	1444	--	7.46	21.1	--
	08/04/98	1857	--	6.99	19.3	--
	09/01/98	1342	-046	7.38	18.6	6.77
	10/07/98	1543	--	7.29	16.7	--
	11/02/98	1340	43	7.23	18.3	76
	12/03/98	1740	--	7.06	16.5	-1.49
	01/05/99	2470	--	7.58	9.4	0.41
	02/11/99	196 (1)	234	7.36	18.4	2.45
	03/02/99	1485	--	7.43	18.5	1.69
	04/01/99	1108	--	7.10	15.6	0.78
UCD2-007	08/26/98	722	-035	7.30	18.3	.10
	11/05/98	1030	26	7.42	14.6	.31
	02/01/99	766	126	7.57	18.2	0.08
	02/10/99	774	228	7.48	18.2	0.18
UCD2-014	05/26/98	1223	-4	7.49	18.1	0.34
	08/26/98	1148	-033	6.79	18.2	.18
	11/05/98	1130	21	7.22	14.3	.22
	02/02/99	860	106	7.39	18.1	0.16
UCD2-015	05/26/98	368	103	7.46	17.4	0.15
	11/05/98	860	56	7.51	15.3	.25
	02/10/99	694	113	7.56	18.1	0.25
UCD2-016	05/28/98	791	11	7.45	18.1	0.17
	08/24/98	693	-76	7.53	18.2	.05
	11/04/98	571	55	7.49	16.3	.09
	02/02/99	713	153	7.56	18.1	0.05
UCD2-017	08/24/98	575	-66	7.51	17.8	.30
	11/09/98	612	38	7.55	17.6	.08
	02/02/99	638	112	6.37	17.7	0.11
UCD2-026	05/27/98	731	-27	7.34	18.0	0.18
	08/27/98	634	-079	7.16	18.2	.08
	11/04/98	668	58	7.49	18.1	.13
	02/04/99	691	109	7.47	18.3	0.11
UCD2-029	06/03/98	714	-20	7.67	18.1	0.10
	07/06/98	724	--	7.65	19.2	--
	09/01/98	729	-064	7.30	18.1	.12
	10/07/98	815	--	7.66	17.7	--
	11/02/98	735	15	7.5	18	.15
	12/03/98	876	--	7.40	17.1	-1.03
	01/05/99	961	--	7.78	11.9	0.13
	02/03/99	747	113	7.38	18.0	0.27
	03/02/99	778	--	7.65	18.0	0.74
	04/01/99	576	--	7.48	17.17	0.26

-- = Not analyzed
(1) EC value appears to be anomolous, based on historical results
Table4&8 on 8/4/99 at 3:25 PM

TABLE 4
FIELD PARAMETERS
GROUNDWATER MONITORING
LEHR/SCDS ENVIRONMENTAL RESTORATION
DAVIS, CALIFORNIA

Location	Date	EC-F umhos/cm	EH-F mvolts	pH-F	TEMPERATURE degrees C	TURBIDITY-F ntu
UCD2-030	06/01/98	621	-89	7.63	18.2	0.30
	07/06/98	667	--	7.70	19.1	--
	08/04/98	920	--	7.26	18.6	--
	09/01/98	635	-053	7.37	18.1	0.39
	10/07/98	737	--	7.72	18.5	--
	11/02/98	698	36	7.56	17.9	.34
	12/03/98	838	--	7.44	17.1	-1.06
	01/05/99	884	--	7.77	13.6	0.13
	02/11/99	138 (1)	179	7.67	18.0	0.36
	03/02/99	738	--	7.62	17.5	0.73
	04/05/99	562	--	7.57	13.7	1.30
UCD2-031	06/01/98	618	-83	7.54	18.3	0.11
	07/07/98	665	--	7.61	17.7	--
	08/04/98	870	--	7.26	18.3	--
	09/01/98	609	-071	7.36	18.3	-0.12
	10/07/98	649	--	7.75	21.0	--
	11/02/98	655	2	7.54	18.1	0.09
	12/03/98	821	--	7.41	16.1	-1.95
	01/05/99	873	--	7.77	14.2	0.06
	02/11/99	715	269	7.62	18.2	0.23
	03/02/99	759	--	7.76	18.9	0.63
	04/05/99	580	--	7.56	12.8	1.12
UCD2-032	06/02/98	728	-70	7.62	18.3	0.10
	08/25/98	746	-37	7.52	18.3	.07
	11/03/98	758	027	7.43	18.2	4.31
	02/04/99	710	25	7.5	18.3	0.16
UCD2-035	06/03/98	628	-84	7.52	17.8	0.73
	07/08/98	654	--	7.85	18.5	--
	08/05/98	847	--	7.25	18.2	--
	09/02/98	588	-82	7.26	17.7	0.31
	10/06/98	624	--	7.56	18.7	--
	11/03/98	627	-26	7.52	17.5	.46
	12/02/98	765	--	7.45	16.7	0.40
	01/06/99	879	--	7.85	12.8	0.27
	02/03/99	664	31	7.52	17.6	0.20
	03/01/99	715	--	7.49	17.8	1.26
	04/06/99	545	--	7.36	17.9	1.30
UCD2-036	06/04/98	667	-63	7.57	18.2	0.31
	07/07/98	775	--	7.67	20.4	--
	08/05/98	1010	--	7.15	18.4	--
	09/02/98	703	-31	7.15	18.2	.49
	10/05/98	775	--	7.54	22.8	--
	11/03/98	700	57	7.44	18.0	.32
	12/01/98	772	--	7.66	19.4	--
	01/04/99	842	--	7.70	15.1	0.71
	02/01/99	702	14	7.59	18.1	.21
	03/03/99	727	--	7.62	17.9	0.61
	04/05/99	603	--	7.54	11.4	1.22

-- = Not analyzed
(1) EC value appears to be anomolous, based on historical results
Table4&8 on 8/4/99 at 3:25 PM

TABLE 5
SUMMARY OF RESULTS - MONITORING WELLS
LEHR/SCDS ENVIRONMENTAL RESTORATION
DAVIS, CALIFORNIA

			Volatile Organic Compounds											
		Analyte	1,1-DICHLOROETHANE		1,1-DICHLOROETHENE		1,2-DICHLOROBENZENE		1,2-DICHLOROETHANE		1,2-DICHLOROPROPANE		1,4-DICHLOROBENZENE	
		Units	ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Sample ID	Date	QA												
UCD1-028	06/03/98		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	07/06/98		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	08/04/98		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	09/01/98		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	10/07/98		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	11/02/98		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	11/02/98	D	<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	12/03/98		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	01/05/99		<0.50		<0.50		<0.50	|UJh	<0.50		<0.50		<0.50	|UJh
	02/11/99		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	03/02/99		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	03/02/99	D	<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	04/01/99		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
UCD2-007	08/26/98		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	11/05/98		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	11/05/98	D	<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	02/01/99		<0.50		<0.50		<0.50	|UJh	<0.50		<0.50		<0.50	|UJh
	02/01/99	D	<0.50		<0.50		<0.50	|UJh	<0.50		<0.50		<0.50	|UJh
	02/10/99		--		--		--		--		--		--	
	02/10/99	D	--		--		--		--		--		--	
UCD2-014	05/26/98		<0.50		<0.50		<0.50		<0.50		0.25	J|	<0.50	
	08/26/98		<0.50		<0.50		<0.50		<0.50		0.27	J|	<0.50	
	11/05/98		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	02/02/99		<0.50		<0.50		<0.50	|UJh	<0.50		0.14	J|	<0.50	|UJh
UCD2-015	05/26/98		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	11/05/98		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	02/10/99		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
UCD2-016	05/28/98		--		--		--		--		--		--	
	08/24/98		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	11/04/98		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	02/02/99		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
UCD2-017	08/24/98		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	11/04/98		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	02/02/99		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
UCD2-026	05/27/98		0.16	J|	<0.50		<0.50		0.22	J|	0.12	J|	<0.50	
	08/27/98		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	11/04/98		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	02/04/99		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
UCD2-029	06/03/98		0.74		0.72		<0.50		1.4		1.2		<0.50	
	07/06/98		0.59		<0.50		<0.50		1.1		0.82		<0.50	
	08/03/98		0.87	|Jh	0.91	|Jh	<0.50	|UJh	2.0	|Jh	2.0	|Jh	<0.50	|UJh
	09/01/98		0.69		1.0		<0.50		<0.50		1.3		<0.50	
	10/07/98		0.71		0.96		<0.50		1.1		1.2		<0.50	
	11/02/98		0.60		0.90		<0.50		1.0		1.0		<0.50	
	12/03/98		0.44	J|	0.64		<0.50		0.70		0.73		<0.50	
	01/05/99		0.36	J|	0.56		<0.50		0.62		0.63		<0.50	
	02/03/99		0.38	J|	0.59		<0.50	|UJh	0.60		0.58		<0.50	|UJh
	02/03/99	D	0.37	J|	0.52		<0.50		0.67		0.61		<0.50	
	03/02/99		0.39	J|	0.40	J|	<0.50		<0.66	|Uy	0.65		<0.50	
	04/01/99		0.49	J|	0.46	J|	<0.50		0.93		0.78		<0.50	

-- = Not Analyzed
< = Below Detection Limit

TABLE 5
SUMMARY OF RESULTS - MONITORING WELLS
LEHR/SCDS ENVIRONMENTAL RESTORATION
DAVIS, CALIFORNIA

			Volatile Organic Compounds											
		Analyte	1,1-DICHLOROETHANE		1,1-DICHLOROETHENE		1,2-DICHLOROBENZENE		1,2-DICHLOROETHANE		1,2-DICHLOROPROPANE		1,4-DICHLOROBENZENE	
		Units	ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Sample ID	Date	QA												
UCD2-030	06/01/98		0.28	J|	<0.50		<0.50		0.47	J|	0.32	J|	<0.50	
	07/06/98		0.20	J|	<0.50		<0.50		<0.50		0.16	J|	<0.50	
	08/04/98		<0.35	J|Rt	<0.50	|Rt	<0.50	|Rt	<0.66	|Rt	<0.21	J|Rt	<0.50	|Rt
	09/01/98		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	10/07/98		0.08	J|	<0.50		<0.50		0.18	J|	0.14	J|	<0.50	
	11/02/98		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	12/03/98		0.12	J|	<0.50		<0.50		0.23	J|	0.18	J|	<0.50	
	01/05/99		0.10	J|	<0.50		<0.50	|UJh	0.18	J|	0.18	J|	<0.50	|UJh
	02/11/99		0.082	J|	<0.50		<0.50		0.18	J|	0.17	J|	<0.50	
	03/02/99		0.057	J|	<0.50		<0.50		0.17	J|	0.14	J|	<0.50	
	04/05/99		<0.50		<0.50		<0.50		<0.50		0.11	J|	<0.50	
UCD2-031	06/01/98		0.21	J|	<0.50		<0.50		0.36	J|	0.22	J|	<0.50	
	07/07/98		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	08/04/98		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	09/01/98		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	10/07/98		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	11/02/98		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	12/03/98		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	01/05/99		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	02/11/99		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	03/02/99		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	04/05/99		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
UCD2-032	06/02/98		0.12	J|	<0.50		<0.50		<0.50		0.14	J|	<0.50	
	08/25/98		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	11/03/98		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	02/04/99		0.073	J|	<0.50		<0.50		0.17	J|	0.12	J|	<0.50	
UCD2-035	06/03/98		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	07/08/98		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	08/05/98		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	09/02/98		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	10/06/98		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	11/03/98		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	12/02/98		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	12/02/98	D	<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	01/06/99		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	02/03/99		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	03/01/99		<0.50		<0.50		<0.50	|UJh	<0.50		<0.50		<0.50	|UJh
	04/06/99		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
UCD2-036	06/04/98		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	07/07/98		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	08/05/98		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	09/02/98		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	10/05/98		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	10/05/98	D	<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	11/03/98		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	12/01/98		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	01/04/99		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	02/01/99		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	03/03/99		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	04/05/99		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	04/05/99	D	<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	

-- = Not Analyzed
< = Below Detection Limit

TABLE 5
SUMMARY OF RESULTS - MONITORING WELLS
LEHR/SCDS ENVIRONMENTAL RESTORATION
DAVIS, CALIFORNIA

			Volatile Organic Compounds											
		Analyte	1,1-DICHLOROETHANE		1,1-DICHLOROETHENE		1,2-DICHLOROBENZENE		1,2-DICHLOROETHANE		1,2-DICHLOROPROPANE		1,4-DICHLOROBENZENE	
		Units	ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Sample ID	Date	QA												
UCD2-037	06/04/98		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	07/08/98		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	08/05/98		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	09/01/98		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	10/05/98		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	11/04/98		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	12/02/98		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	01/04/99		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	01/04/99	D	<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	02/01/99		<0.50		<0.50		<0.50	|UJh	<0.50		<0.50		<0.50	|UJh
	03/03/99		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	04/06/99		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	05/04/99		<0.50	|UJc	<0.50	|UJc	<0.50	|UJc	<0.50	|UJc	<0.50	|UJc	<0.50	|UJc
UCD2-038	06/03/98		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	07/08/98		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	08/05/98		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	09/02/98		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	10/06/98		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	11/03/98		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	12/02/98		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	01/06/99		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	02/03/99		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	03/03/99		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	04/06/99		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
UCD2-039	06/03/98		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	07/07/98		0.090	J|	<0.50		<0.50		<0.50		<0.50		<0.50	
	08/04/98		0.15	J|	<0.50		<0.50		<0.50		<0.50		<0.50	
	08/04/98	D	0.14	J|	<0.50		<0.50		<0.50		<0.50		<0.50	
	09/02/98		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	09/02/98	D	<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	10/06/98		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	11/03/98		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	12/02/98		0.09	J|	<0.50		<0.50		<0.50		<0.50		<0.50	
	01/06/99		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	02/02/99		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
	03/03/99		<0.50		<0.50		<0.50		<0.14	J|Uy	<0.50		<0.50	
	04/06/99		<0.50		<0.50		<0.50		<0.50		<0.50		<0.50	
UCD2-040	06/01/98		0.98		0.91		<0.50		1.6		1.40		<0.50	
	07/07/98		0.53		0.80		<0.50		1.0		0.66		<0.50	
	07/07/98	D	0.56		0.91		<0.50		0.91		0.68		<0.50	
	08/04/98		0.49	J|	0.71		<0.50		1.0		0.55		<0.50	
	09/01/98		0.36	J|	0.60		<0.50		<0.50		0.43	J|	<0.50	
	10/06/98		0.56		0.82		<0.50		0.99		0.74		<0.50	
	11/02/98		<0.50		0.60		<0.50		<0.50		0.50	J|	<0.50	
	12/03/98		<0.50		<0.50		<0.50		<0.50		0.38	J|	<0.50	
	01/06/99		0.23	J|	0.43	J|	<0.50		0.42	J|	0.35	J|	<0.50	
	02/04/99		0.22	J|	0.32	J|	<0.50		0.49	J|	0.37	J|	<0.50	
	03/02/99		0.29	J|	0.29	J|	<0.50		<0.507	|Uy	0.44	J|	<0.50	
	04/05/99		0.23	J|	0.28	J|	<0.50		0.46	J|	0.38	J|	<0.50	

– = Not Analyzed
< = Below Detection Limit

TABLE 5
SUMMARY OF RESULTS - MONITORING WELLS
LEHR/SCDS ENVIRONMENTAL RESTORATION
DAVIS, CALIFORNIA

			Volatile Organic Compounds											
		Analyte	2-HEXANONE		ACETONE		BENZENE		BROMODICHLOROMETHANE		BROMOFORM		CHLOROBENZENE	
		Units	ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Sample ID	Date	QA												
UCD1-028	06/03/98		<1.0		<1.0		<0.50		<0.50		<0.50		<0.50	
	07/06/98		<1.0		<1.0		0.08	J|	<0.50		<0.50		<0.50	
	08/04/98		<1.0		<1.0		<0.50		<0.50		<0.50		<0.50	
	09/01/98		<1.0	|UJc	<1.0		<0.50		<0.50		<0.50		<0.50	
	10/07/98		<1.0		<5.0	|UJcl	<0.50		<0.50		<0.50		<0.50	
	11/02/98		<2.0		<5.0	|Rc	<0.50		<0.50		<0.50		<0.50	
	11/02/98	D	<2.0		<5.0	|Rc	<0.50		<0.50		<0.50		<0.50	
	12/03/98		<1.0		<4.7	B|UJc	<0.50		<0.50		<0.50		<0.50	
	01/05/99		<1.0		<5.0		<0.50	|UJh	<0.50		<0.50		<0.50	|UJh
	02/11/99		<1.0		<5.0		<0.50		<0.50		<0.50		<0.50	
	03/02/99		<1.0		<5.0		<0.50		<0.50		<0.50		<0.50	
	03/02/99	D	<1.0		<5.0		<0.50		<0.50		<0.50		<0.50	
	04/01/99		<1.0		<5.0	|Rc	<0.50		<0.50		<0.50		<0.50	
UCD2-007	08/26/98		<1.0		<1.0		<0.50		<0.50		<0.50		<0.50	
	11/05/98		<2.0	|UJc	<4.0	BJ|Rc	<0.50		<0.50		<0.50		<0.50	
	11/05/98	D	<2.0	|UJc	<5.0	|Rc	<0.50		<0.50		<0.50		<0.50	
	02/01/99		<1.0		<5.0		<0.50	|UJh	<0.50		<0.50		<0.50	|UJh
	02/01/99	D	<1.0		<5.0		<0.50	|UJh	<0.50		<0.50		<0.50	|UJh
	02/10/99		--		--		--		--		--		--	
	02/10/99	D	--		--		--		--		--		--	
UCD2-014	05/26/98		<1.0		<1.0		<0.50		<0.50		<0.50		<0.50	
	08/26/98		<1.0		<1.0		<0.50		<0.50		<0.50		<0.50	
	11/05/98		<2.0	|UJc	<5.0	|Rc	<0.50		<0.50		<0.50		<0.50	
	02/02/99		<1.0		<5.0		<0.50	|UJh	<0.50		<0.50		<0.50	|UJh
UCD2-015	05/26/98		<1.0		<1.0		<0.50		<0.50		<0.50		<0.50	
	11/05/98		<2.0	|UJc	<5.0	|Rc	<0.50		<0.50		<0.50		<0.50	
	02/10/99		<1.0		<5.0		<0.50		<0.50		<0.50		<0.50	
UCD2-016	05/28/98		--		--		--		--		--		--	
	08/24/98		<1.0		<1.0		<0.50		<0.50		<0.50		<0.50	
	11/04/98		<2.0	|UJc	<2.0	BJ|Rc	<0.50		<0.50		<0.50		<0.50	
	02/02/99		<1.0		<5.0		<0.50		<0.50		<0.50		<0.50	
UCD2-017	08/24/98		<1.0		<1.0		<0.50		<0.50		<0.50		<0.50	
	11/04/98		<2.0	|UJc	<5.0	|Rc	<0.50		<0.50		<0.50		<0.50	
	02/02/99		<1.0		<5.0		<0.50		<0.50		<0.50		<0.50	
UCD2-026	05/27/98		<1.0		<1.0		<0.50		<0.50		<0.50		<0.50	
	08/27/98		<1.0		<1.0		<0.50		<0.50		<0.50		<0.50	
	11/04/98		<2.0		<5.0	|Rc	<0.50		<0.50		<0.50		<0.50	
	02/04/99		<1.0		<5.0		<0.50		<0.50		<0.50		<0.50	
UCD2-029	06/03/98		<1.0		<1.0		<0.50		<0.50		<0.50		<0.50	
	07/06/98		<1.0		<1.0		<0.50		0.11	J|	0.29	J|	<0.50	
	08/03/98		<1.0	|UJh	<1.0	|UJh	<0.50	|UJh	<0.21	J|UJh	<0.50	|UJh	<0.50	|UJh
	09/01/98		<1.0		<1.0		<0.50		<0.50		<0.50		<0.50	
	10/07/98		<1.0		<5.0	|UJl	<0.50		0.14	J|	<0.50		<0.50	
	11/02/98		<2.0		<5.0	|Rc	<0.50		<0.50		<0.50		<0.50	
	12/03/98		<1.0		<5.0	B|UJc	<0.50		<0.10	JB|Uz	<0.50		<0.50	
	01/05/99		<1.0		<5.0		<0.50		<0.50		<0.50		<0.50	
	02/03/99		<1.0		<5.0		<0.50	|UJh	0.14	J|	0	J|	<0.50	|UJh
	02/03/99	D	<1.0		<5.0		<0.50		<0.50		<0.50		<0.50	
	03/02/99		<1.0		<5.0		<0.50		<0.50		<0.50		<0.50	
	04/01/99		<1.0		<5.0	|Rc	<0.50		<0.50		<0.50		<0.50	

-- = Not Analyzed
< = Below Detection Limit

TABLE 5
SUMMARY OF RESULTS - MONITORING WELLS
LEHR/SCDS ENVIRONMENTAL RESTORATION
DAVIS, CALIFORNIA

			Volatile Organic Compounds											
		Analyte	2-HEXANONE		ACETONE		BENZENE		BROMODICHLOROMETHANE		BROMOFORM		CHLOROBENZENE	
		Units	ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Sample ID	Date	QA												
UCD2-030	06/01/98		<1.0		<1.0		<0.50		<0.50		<0.50		<0.50	
	07/06/98		<1.0		<1.0		<0.50		<0.50		<0.50		<0.50	
	08/04/98		<1.0	|Rt	<1.0	|Rt	<0.50	|Rt	<0.50	|Rt	<0.50	|Rt	<0.50	|Rt
	09/01/98		<1.0	|UJc	<1.0		<0.50		<0.50		<0.50		<0.50	
	10/07/98		<1.0		<5.0	|UJl	<0.50		<0.50		<0.50		<0.50	
	11/02/98		<2.0		<5.0	|Rc	<0.50		<0.50		<0.50		<0.50	
	12/03/98		<1.0		<5.0	B|UJc	<0.50		<0.50		<0.50		<0.50	
	01/05/99		<1.0		<5.0		<0.50	|UJh	<0.50		<0.50		<0.50	|UJh
	02/11/99		<1.0		<5.0		<0.50		<0.50		<0.50		<0.50	
	03/02/99		<1.0		<5.0		<0.50		<0.50		<0.50		<0.50	
	04/05/99		<1.0		<5.0	|UJm	<0.50		<0.50		<0.50		<0.50	
UCD2-031	06/01/98		<1.0		<1.0		<0.50		<0.50		<0.50		<0.50	
	07/07/98		<1.0		<1.0		<0.50		<0.50		<0.50		<0.50	
	08/04/98		<1.0		<1.0	|UJl	<0.50		<0.50		<0.50		<0.50	
	09/01/98		<1.0	|UJc	<1.0		<0.50		<0.50		<0.50		<0.50	
	10/07/98		<1.0		<5.0	|UJl	<0.50		<0.50		<0.50		<0.50	
	11/02/98		<2.0		<5.0	|Rc	<0.50		<0.50		<0.50		<0.50	
	12/03/98		<1.0		<4.9	B|UJz	<0.50		<0.50		<0.50		<0.50	
	01/05/99		<1.0		<5.0		<0.50		<0.50		<0.50		<0.50	
	02/11/99		<1.0		<5.0		<0.50		<0.50		<0.50		<0.50	
	03/02/99		<1.0		<5.0		<0.50		<0.50		<0.50		<0.50	
	04/05/99		<1.0		<5.0		<0.50		<0.50		<0.50		<0.50	
UCD2-032	06/02/98		<1.0		<1.0		<0.50		<0.50		<0.50		<0.50	
	08/25/98		<1.0		<1.0		<0.50		<0.50		<0.50		<0.50	
	11/03/98		<2.0		<5.0	|Rc	<0.50		<0.50		<0.50		<0.50	
	02/04/99		<1.0		<5.0		<0.50		<0.50		<0.50		<0.50	
UCD2-035	06/03/98		<1.0		<1.0		<0.50		<0.50		<0.50		<0.50	
	07/08/98		<1.0		<1.0		<0.50		<0.50		<0.50		<0.50	
	08/05/98		<1.0		<1.0	|UJl	<0.50		<0.50		<0.50		<0.50	
	09/02/98		<1.0		<1.0		<0.50		<0.50		<0.50		<0.50	
	10/06/98		<1.0		<5.0	|UJcl	<0.50		<0.50		<0.50		<0.50	
	11/03/98		<2.0		<5.0	|Rc	<0.50		<0.50		<0.50		<0.50	
	12/02/98		<1.0		<4.4	JB|UJ	<0.50		<0.50		<0.50		<0.50	
	12/02/98	D	<1.0		<4.1	JB|UJ	<0.50		<0.50		<0.50		<0.50	
	01/06/99		<1.0		<5.0		<0.50		<0.50		<0.50		<0.50	
	02/03/99		<1.0		<5.0		<0.50		<0.50		<0.50		<0.50	
	03/01/99		<1.0		<5.0	|UJm	<0.50	|UJh	<0.50		<0.50		<0.50	|UJh
	04/06/99		<1.0		<5.0		<0.50		<0.50		<0.50		<0.50	
UCD2-036	06/04/98		<1.0		<1.0		<0.50		<0.50		<0.50		<0.50	
	07/07/98		<1.0		<1.0		<0.50		<0.50		<0.50		<0.50	
	08/05/98		<1.0		<1.0		<0.50		<0.50		<0.50		<0.50	
	09/02/98		<1.0		<1.0		<0.50		<0.50		<0.50		<0.50	
	10/05/98		<1.0	|UJl	<5.0	|UJl	<0.50		<0.50		<0.50		<0.50	
	10/05/98	D	<1.0	|UJl	<5.0	|UJl	<0.50		<0.50		<0.50		<0.50	
	11/03/98		<2.0		<5.0	|Rc	<0.50		<0.50		<0.50		<0.50	
	12/01/98		<1.0		5.1	B|	<0.50		<0.50		<0.50		<0.50	
	01/04/99		<1.0		<5.0		<0.50		<0.50		<0.50		<0.50	
	02/01/99		<1.0		<5.0	|UJm	<0.50		<0.50		<0.50		<0.50	
	03/03/99		<1.0		<5.0		<0.50		<0.50		<0.50		<0.50	
	04/05/99		<1.0		<5.0		<0.50		<0.50		<0.50		<0.50	
	04/05/99	D	<1.0		<5.0		<0.50		<0.50		<0.50		<0.50	

-- = Not Analyzed
< = Below Detection Limit

TABLE 5
SUMMARY OF RESULTS - MONITORING WELLS
LEHR/SCDS ENVIRONMENTAL RESTORATION
DAVIS, CALIFORNIA

			Volatile Organic Compounds											
		Analyte	2-HEXANONE		ACETONE		BENZENE		BROMODICHLOROMETHANE		BROMOFORM		CHLOROBENZENE	
		Units	ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Sample ID	Date	QA												
UCD2-037	06/04/98		<1.0		<1.0		<0.50		<0.50		<0.50		<0.50	
	07/08/98		<1.0		<1.0		<0.50		<0.50		<0.50		<0.50	
	08/05/98		<1.0		<1.0	|UJl	<0.50		<0.50		<0.50		<0.50	
	09/01/98		<1.0	|UJc	<1.0		<0.50		<0.50		<0.50		<0.50	
	10/05/98		<1.0	|UJl	<5.0	|UJl	<0.50		<0.50		<0.50		<0.50	
	11/04/98		<2.0	|UJc	<5.0	|Rc	<0.50		<0.50		<0.50		<0.50	
	12/02/98		<1.0		<5.0	|UJl	<0.50		<0.50		<0.50		<0.50	
	01/04/99		<1.0		<5.0		<0.50		<0.50		<0.50		<0.50	
	01/04/99	D	<1.0		<5.0		<0.50		<0.50		<0.50		<0.50	
	02/01/99		<1.0		<5.0		<0.50	|UJh	<0.50		<0.50		<0.50	|UJh
	03/03/99		<1.0		<5.0		<0.50		<0.50		<0.50		<0.50	
	04/06/99		<1.0		<5.0		<0.50		<0.50		<0.50		<0.50	
	05/04/99		<1.0	|UJc	<5.0	|UJc	<0.50	|UJc	<0.50	|UJc	<0.50	|UJc	<0.50	|UJc
UCD2-038	06/03/98		<1.0		<1.0		<0.50		<0.50		<0.50		<0.50	
	07/08/98		<1.0		<1.0		<0.50		<0.50		<0.50		<0.50	
	08/05/98		<1.0		<1.0	|UJl	<0.50		<0.50		<0.50		<0.50	
	09/02/98		<1.0		<1.0		<0.50		<0.50		<0.50		<0.50	
	10/06/98		<1.0		<1.1	J|UJcl	<0.50		<0.50		<0.50		<0.50	
	11/03/98		<2.0		<5.0	|Rc	<0.50		<0.50		<0.50		<0.50	
	12/02/98		<1.0		<5.0	|UJl	<0.50		<0.50		<0.50		<0.50	
	01/06/99		<1.0		<0.50	|Rc	<0.50		<0.50		<0.50		<0.50	
	02/03/99		<1.0		<5.0		<0.50		<0.50		<0.50		<0.50	
	03/03/99		<1.0		<5.0		<0.50		<0.50		<0.50		<0.50	
	04/06/99		<1.0		<5.0		<0.50		<0.50		<0.50		<0.50	
UCD2-039	06/03/98		<1.0		<1.0		<0.50		<0.50		<0.50		<0.50	
	07/07/98		<1.0		<1.0		<0.50		<0.50		<0.50		<0.50	
	08/04/98		<1.0		<1.0	|UJl	<0.50		<0.50		<0.50		<0.50	
	08/04/98	D	<1.0		<1.0		<0.50		<0.50		<0.50		<0.50	
	09/02/98		<1.0		<1.0		<0.50		<0.50		<0.50		<0.50	
	09/02/98	D	<1.0		<1.0		<0.50		<0.50		<0.50		<0.50	
	10/06/98		<1.0		<5.0	|UJcl	<0.50		<0.50		<0.50		<0.50	
	11/03/98		<2.0		<5.0	|Rc	<0.50		<0.50		<0.50		<0.50	
	12/02/98		<1.0		<4.2	B|UJz	<0.50		<0.50		<0.50		<0.50	
	01/06/99		<1.0		<5.0		<0.50		<0.50		<0.50		<0.50	
	02/02/99		<1.0		<5.0		<0.50		<0.50		<0.50		<0.50	
	03/03/99		<1.0		<5.0		<0.50		<0.50		<0.50		<0.50	
	04/06/99		<1.0		<5.0		<0.50		<0.50		<0.50		<0.50	
UCD2-040	06/01/98		<1.0		<1.0		<0.50		<0.50		<0.50		<0.50	
	07/07/98		<1.0		<1.0		<0.50		<0.50		<0.50		<0.50	
	07/07/98	D	<1.0		<1.0		<0.50		<0.50		<0.50		<0.50	
	08/04/98		<1.0		<1.0		<0.50		<0.50		<0.50		<0.50	
	09/01/98		<1.0		<1.0		<0.50		<0.50		<0.50		<0.50	
	10/06/98		<1.0		<5.0	|UJcl	<0.50		0.09	J|	<0.50		<0.50	
	11/02/98		0.20	J|	<5.0	|Rc	<0.50		<0.50		<0.50		<0.50	
	12/03/98		<1.0		<5.0	|UJl	<0.50		<0.50		<0.50		<0.50	
	01/06/99		<1.0		<5.0		<0.50		<0.50		<0.50		<0.50	
	02/04/99		<1.0		<5.0		<0.50		<0.50		<0.50		<0.50	
	03/02/99		<1.0		<5.0		<0.50		<0.50		<0.50		<0.50	
	04/05/99		<1.0		<5.0		<0.50		<0.50		<0.50		<0.50	

-- = Not Analyzed
< = Below Detection Limit

TABLE 5
SUMMARY OF RESULTS - MONITORING WELLS
LEHR/SCDS ENVIRONMENTAL RESTORATION
DAVIS, CALIFORNIA

			Volatile Organic Compounds													
		Analyte	CHLOROFORM		CHLOROMETHANE		DIBROMOCHLOROMETHANE		METHYLENE CHLORIDE		TOLUENE		TRICHLOROETHENE		XYLENES (TOTAL)	
		Units	ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Sample ID	Date	QA														
UCD1-028	06/03/98		0.46	J|	<0.50		<0.50		<0.70	JB|UJcz	<0.50		<0.50		<1.0	
	07/06/98		0.25	J|	<0.50		<0.50		<0.85	JB|Uyz	0.16	J|	0.14	J|	0.11	J|
	08/04/98		0.34	J|	<0.50		<0.50		<1.2	B|Uz	<0.50		<0.50		<0.50	
	09/01/98		<0.50		<0.50		<0.50		<1.0		<0.50		<0.50		<1.0	
	10/07/98		<0.39	J|Uy	<0.50		<0.50		<1.0		<0.50		<0.50		<1.0	
	11/02/98		0.50	J|	<0.50		<0.50		<2.0	B|UJcz	0.20	J|	<0.50		<1.0	
	11/02/98	D	0.40	J|	<0.50		<0.50		<2.0	B|UJcz	<0.50		<0.50		<1.0	
	12/03/98		<0.33	JB|Uz	<0.50		<0.50		<0.99	JB|Uz	<0.50		<0.50		<1.0	
	01/05/99		<0.32	JB|Uz	<0.50		<0.50		<1.0		<0.50	|UJh	<0.50		<1.0	|UJh
	02/11/99		<1.4	B|Ua	<0.50		<0.50		<0.62	J|Uz	<0.50		<0.50		<1.0	
	03/02/99		<0.27	J|Uy	<0.50		<0.50		<1.0	|UJl	<0.50		<0.50		<1.0	
	03/02/99	D	<0.25	J|Uy	<0.50		<0.50		<1.0	|UJl	<0.50		<0.50		<1.0	
	04/01/99		0.34	J|	<0.50	|UJl	<0.50		<1.0	|UJl	<0.50		<0.50		<1.0	
UCD2-007	08/26/98		<0.50		<0.50		<0.50		<1.0		<0.50		<0.50		0.28	J|
	11/05/98		<0.50		<0.50		<0.50		<0.40	BJ|Uz	<0.50		<0.50		<1.0	
	11/05/98	D	<0.50		<0.50		<0.50		<0.40	BJ|Uz	<0.50		<0.50		<1.0	
	02/01/99		<0.15	JB|Uz	<0.50		<0.50		<1.0		<0.50	|UJh	<0.50		<1.0	|UJh
	02/01/99	D	<0.15	JB|Uz	<0.50		<0.50		<1.0		<0.50	|UJh	<0.50		<1.0	|UJh
	02/10/99		--		--		--		--		--		--		--	
	02/10/99	D	--		--		--		--		--		--		--	
UCD2-014	05/26/98		<0.504	|UJlz	<0.50		<0.50		<1.2	B|UJcz	<0.50		<0.50		<1.0	
	08/26/98		<0.42	J|Uy	0.97		<0.50		<1.0		<0.50		<0.50		<1.0	
	11/05/98		2.0		<0.50		<0.50		<1.0		<0.50		<0.50		<1.0	
	02/02/99		1.8	B|	<0.50		<0.50		<0.64	J|Uy	<0.50	|UJh	<0.50		<1.0	|UJh
UCD2-015	05/26/98		<0.27	J|UJlz	<0.50		<0.50		<1.4	JB|UJcz	<0.50		<0.50		<1.0	
	11/05/98		<0.50		<0.50		<0.50		<0.50	BJ|Uz	<0.30	J|Uy	<0.50		<1.0	
	02/10/99		<0.50		<0.50		<0.50		<1.0		<0.50		<0.50		<1.0	
UCD2-016	05/28/98		--		--		--		--		--		--		--	
	08/24/98		<0.50		<0.50		<0.50		<1.0		<0.50		<0.50		<1.0	
	11/04/98		<0.50		<0.50		<0.50		<0.70	BJ|Uz	<0.50		<0.50		<1.0	
	02/02/99		<0.50		<0.50		<0.50		<1.0		<0.50		<0.50		<1.0	
UCD2-017	08/24/98		<0.50		<0.50		<0.50		<1.0		<0.50		<0.50		<1.0	
	11/04/98		<0.50		<0.50		<0.50		<1.0	B|Uz	<0.20	J|Uy	<0.50		<1.0	
	02/02/99		<0.50		<0.50		<0.50		<1.0		<0.50		<0.50		<1.0	
UCD2-026	05/27/98		43.0	|Jl	<0.50		<0.50		<0.62	JB|UJcz	<0.50		<0.50		<1.0	
	08/27/98		8.5		<0.50	|UJl	<0.50		<1.1	B|UJcz	<0.50		<0.50		<1.0	
	11/04/98		5.0		<0.50	|UJc	<0.50		<1.0	B|UJcz	<0.50		<0.50		<1.0	
	02/04/99		3.7	B|	<0.50		<0.50		<1.0		<0.50		<0.50		<1.0	
UCD2-029	06/03/98		67.3		<0.50		<0.50		<0.72	JB|UJcz	<0.50		<0.50		<1.0	
	07/06/98		100	E|Jq	<0.50		<0.50		<0.68	JB|Uz	<0.50		0.56		<0.50	
	08/03/98		160	|Jh	<0.50	|UJh	<0.50	|UJh	0.70	J|Jh	<0.50	|UJh	<0.50	|UJh	<0.50	|UJh
	09/01/98		234		<0.50		<0.50		<0.28	JB|Uz	<0.50		<0.50		<1.0	
	10/07/98		329	|Jhs	<0.50	|UJl	<0.50		<1.0		<0.50		<0.50		<1.0	
	11/02/98		150	D|	<0.50		<0.50		<0.90	BJ|UJcz	<0.50		<0.50		<1.0	
	12/03/98		146	DB|	<0.50		<0.50		<1.4	B|Uz	<0.50		<0.50		<1.0	
	01/05/99		126	DB|	<0.50		<0.50		<1.0		<0.50		0.06	J|	<1.0	
	02/03/99		86.0	DB|Jh	<0.50		0.063	J|	<0.81	J|Uy	<0.50	|UJh	0.078	J|	<1.0	|UJh
	02/03/99	D	121	DB|	0.40	J|	<0.50		<0.50	J|Uy	<0.50		0.073	J|	<1.0	
	03/02/99		118	|Jch	<0.50		<0.50		<1.0	|UJl	<0.50		0.065	J|	<1.0	
	04/01/99		77.9		<0.50	|UJl	<0.50		<1.0	|UJl	<0.50		<0.50		<1.0	

-- = Not Analyzed
< = Below Detection Limit

TABLE 5
SUMMARY OF RESULTS - MONITORING WELLS
LEHR/SCDS ENVIRONMENTAL RESTORATION
DAVIS, CALIFORNIA

			Volatile Organic Compounds													
		Analyte	CHLOROFORM		CHLOROMETHANE		DIBROMOCHLOROMETHANE		METHYLENE CHLORIDE		TOLUENE		TRICHLOROETHENE		XYLENES (TOTAL)	
		Units	ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Sample ID	Date	QA														
UCD2-030	06/01/98		15.2		<0.50		<0.50		<0.49	JB|UJcz	<0.50		<0.50		<1.0	
	07/06/98		9.2		<0.50		<0.50		<0.46	J|Uy	<0.50		<0.50		<0.50	
	08/04/98		<20.9	|Rt	<0.50	|Rt	<0.50	|Rt	<3.6	B|Rt	<0.50	|Rt	<0.50	|Rt	<0.50	|Rt
	09/01/98		7.5		<0.50		<0.50		<1.0		<0.50		<0.50		<1.0	
	10/07/98		<5.40	|UQ	<0.50	|UJl	<0.50		<1.0		<0.50		<0.50		<1.0	
	11/02/98		18.0		<0.50		<0.50		<0.60	BJ|UJcz	<0.50		<0.50		<1.0	
	12/03/98		7.8	B|Jm	<0.50		<0.50		<2.8	B|Uz	<0.50		<0.50		<1.0	
	01/05/99		6.0	B|	<0.50		<0.50		<1.0		<0.50	|UJh	<0.50		<1.0	|UJh
	02/11/99		5.2	B|	<0.50		<0.50		<0.77	J|Uz	<0.50		<0.50		<1.0	
	03/02/99		3.6		<0.50		<0.50		<1.0	|UJl	<0.50		<0.50		<1.0	
	04/05/99		3.2		<0.50	|UJm	<0.50		<1.0		<0.50		<0.50		<1.0	
UCD2-031	06/01/98		45.9		<0.50		<0.50		<0.65	JB|UJcz	<0.50		<0.50		<1.0	
	07/07/98		11.7		<0.50		<0.50		<1.0		<0.50		<0.50		<0.50	
	08/04/98		7.3		<0.50	|UJl	<0.50		<0.509	JB|Uz	<0.50		<0.50		<0.50	
	09/01/98		3.8		<0.50		<0.50		<1.0		<0.50		<0.50		<1.0	
	10/07/98		<2.2	|UQ	<0.50	|UJl	<0.50		<1.0		<0.50		<0.50		<1.0	
	11/02/98		2.0		<0.50		<0.50		<1.0	B|UJcz	<0.50		<0.50		<1.0	
	12/03/98		1.8	B|	<0.50		<0.50		<2.0	B|Uz	<0.50		<0.50		<1.0	
	01/05/99		<1.8	B|Uz	<0.50		<0.50		<1.0		<0.50		<0.50		<1.0	
	02/11/99		1.7	B|	<0.50		<0.50		<0.504	J|Uz	<0.50		<0.50		<1.0	
	03/02/99		1.2		<0.50		<0.50		<1.0	|UJl	<0.50		<0.50		<1.0	
	04/05/99		3.5		<0.50		<0.50		<1.0		<0.50		<0.50		<1.0	
UCD2-032	06/02/98		14.5		<0.50		<0.50		<0.77	JB|UJcz	<0.50		<0.50		<1.0	
	08/25/98		1.0		<0.50		<0.50		<1.0		<0.50		<0.50		<1.0	
	11/03/98		4.0		<0.50		<0.50		<0.70	BJ|UJcz	<0.50		<0.50		<1.0	
	02/04/99		10.1	B|	<0.50		<0.50		<1.1	|Uy	<0.50		<0.50		<1.0	
UCD2-035	06/03/98		<0.50		<0.50		<0.50		<1.0		<0.50		<0.50		<1.0	
	07/08/98		<0.50		<0.50		<0.50		<0.89	J|Uy	<0.50		<0.50		<0.50	
	08/05/98		<0.50		<0.50	|UJl	<0.50		<0.502	JB|Uz	<0.50		<0.50		<0.50	
	09/02/98		<0.50		<0.50		<0.50		<1.0		<0.50		<0.50		<1.0	
	10/06/98		<0.50		<0.50		<0.50		<1.0		<0.50		<0.50		<1.0	
	11/03/98		<0.50		<0.50		<0.50		<0.90	BJ|UJcz	<0.50		<0.50		<1.0	
	12/02/98		<0.50		<0.50		<0.50		<3.1	B|Uz	<0.50		<0.50		<1.0	
	12/02/98	D	<0.50		<0.50		<0.50		<2.7	B|Uz	<0.50		<0.50		<1.0	
	01/06/99		<0.50		<0.50		<0.50		<1.0		<0.50		<0.50		<1.0	
	02/03/99		<0.50		<0.50		<0.50		<0.98	J|Uy	<0.50		<0.50		<1.0	
	03/01/99		<0.50		<0.50		<0.50		<1.0	|UJl	<0.50	|UJh	<0.50		<1.0	|UJh
	04/06/99		<0.50		<0.50		<0.50		<1.0		<0.50		<0.50		<1.0	
UCD2-036	06/04/98		<0.50		<0.50		<0.50		<1.0		<0.50		<0.50		<1.0	
	07/07/98		<0.50		<0.50		<0.50		<0.95	J|Uy	<0.50		<0.50		<0.50	
	08/05/98		<0.50		<0.50	|UJl	<0.50		0.98	J|	<0.50		<0.50		<0.50	
	09/02/98		<0.50		<0.50		<0.50		<1.0		<0.50		<0.50		<1.0	
	10/05/98		<0.50		<0.50		<0.50		<1.0		<0.50		<0.50		<1.0	
	10/05/98	D	<0.50		<0.50		<0.50		<1.0		<0.50		<0.50		<1.0	
	11/03/98		<0.50		<0.50		<0.50		<0.80	BJ|UJcz	<0.50		<0.50		<1.0	
	12/01/98		<0.50		<0.50		<0.50		<0.90	JB|Uz	<0.50		<0.50		<1.0	
	01/04/99		<0.50		<0.50		<0.50		<1.0		<0.50		<0.50		<1.0	
	02/01/99		<0.50		<0.50	|UJm	<0.50		<1.0		<0.50		<0.50		<1.0	
	03/03/99		<0.50		<0.50		<0.50		<1.0	|UJl	<0.50		<0.50		<1.0	
	04/05/99		<0.50		<0.50		<0.50		<1.0		<0.50		<0.50		<1.0	
	04/05/99	D	<0.50		<0.50		<0.50		<1.0		<0.50		<0.50		<1.0	

-- = Not Analyzed
< = Below Detection Limit

TABLE 5
SUMMARY OF RESULTS - MONITORING WELLS
LEHR/SCDS ENVIRONMENTAL RESTORATION
DAVIS, CALIFORNIA

			Volatile Organic Compounds													
		Analyte	CHLOROFORM		CHLOROMETHANE		DIBROMOCHLOROMETHANE		METHYLENE CHLORIDE		TOLUENE		TRICHLOROETHENE		XYLENES (TOTAL)	
		Units	ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Sample ID	Date	QA														
UCD2-037	06/04/98		<0.50		<0.50		<0.50		<1.0		<0.50		<0.50		<1.0	
	07/08/98		0.23	J|	<0.50		<0.50		<0.91	J|Uy	<0.50		<0.50		<0.50	
	08/05/98		0.28	J|	<0.50	|UJI	<0.50		<0.63	JB|Uz	<0.50		<0.50		<0.50	
	09/01/98		<0.50		<0.50		<0.50		<1.0		<0.50		<0.50		<1.0	
	10/05/98		<0.20	J|Uy	<0.50		<0.50		<1.0		<0.50		<0.50		<1.0	
	11/04/98		0.30	J|	<0.50		<0.50		<0.40	BJ|Uz	<0.50		<0.50		<1.0	
	12/02/98		<0.19	JB|Uz	<0.50		<0.50		<1.0	B|Uz	<0.50		<0.50		<1.0	
	01/04/99		<0.15	JB|Uz	<0.50		<0.50		<1.0		<0.50		<0.50		<1.0	
	01/04/99	D	<0.16	JB|Uz	<0.50		<0.50		<1.0		<0.50		<0.50		<1.0	
	02/01/99		<0.18	JB|Uz	<0.50		<0.50		<1.0		<0.50	|UJh	<0.50		<1.0	|UJh
	03/03/99		<0.50		<0.50		<0.50		<1.0	|UJI	<0.50		<0.50		<1.0	
	04/06/99		<0.50		<0.50		<0.50		<1.0		<0.50		<0.50		<1.0	
	05/04/99		<0.50	|UJc	<0.50	|UJc	<0.50	|UJc	<1.0	|UJc	<0.50	|UJc	<0.50	|UJc	<1.0	|UJc
UCD2-038	06/03/98		<0.50		<0.50		<0.50		<1.0		<0.50		<0.50		<1.0	
	07/08/98		<0.50		<0.50		<0.50		<0.509	J|Uy	<0.50		0.33	J|	<0.50	
	08/05/98		<0.50		<0.50	|UJI	<0.50		<0.507	JB|Uz	<0.50		<0.50		<0.50	
	09/02/98		<0.50		<0.50		<0.50		<1.0		<0.50		<0.50		<1.0	
	10/06/98		<0.50		<0.50		<0.50		<1.0		<0.50		<0.50		<1.0	
	11/03/98		<0.50		<0.50		<0.50		<0.8	BJ|UJcz	0.20	J|	<0.50		<1.0	
	12/02/98		<0.16	JB|Uz	<0.50		<0.50		<2.1	B|Uz	<0.50		<0.50		<1.0	
	01/06/99		<0.503	B|Uz	<0.50		<0.50		<1.0		<0.50		<0.50		<0.50	
	02/03/99		<0.50		<0.50		<0.50		<0.503	J|Uy	<0.50		<0.50		<1.0	
	03/03/99		<0.50		<0.50		<0.50		<1.0	|UJI	<0.50		<0.50		<1.0	
	04/06/99		<0.50		<0.50		<0.50		<1.0		<0.50		<0.50		<1.0	
UCD2-039	06/03/98		1.0		<0.50		<0.50		<1.2	BJ|UJcz	<0.50		<0.50		<1.0	
	07/07/98		2.6		<0.50		<0.50		<0.48	J|Uy	<0.50		<0.50		<0.50	
	08/04/98		4.2		<0.50	|UJI	<0.50		<0.66	JB|Uz	<0.50		<0.50		<0.50	
	08/04/98	D	3.9		<0.50	|UJI	<0.50		0.66	J|	<0.50		<0.50		<0.50	
	09/02/98		3.8		<0.50		<0.50		<1.0		<0.50		<0.50		<1.0	
	09/02/98	D	3.8		<0.50		<0.50		<1.0		<0.50		<0.50		<1.0	
	10/06/98		2.4		<0.50		<0.50		<1.0		<0.50		<0.50		<1.0	
	11/03/98		2.0		<0.50		<0.50		<1.0	B|UJcz	<0.50		<0.50		<1.0	
	12/02/98		2.3	B|	<0.50		<0.50		<3.3	B|Uz	<0.50		<0.50		<1.0	
	01/06/99		<1.7	B|Uz	<0.50		<0.50		<1.0		<0.50		<0.50		<1.0	
	02/02/99		1.7	B|	<0.50		<0.50		<1.0		<0.50		<0.50		<1.0	
	03/03/99		<1.0	|Uy	<0.50		<0.50		<1.0	|UJI	<0.50		<0.50		<1.0	
	04/06/99		0.71		<0.50		<0.50		<1.0		<0.50		<0.50		<1.0	
UCD2-040	06/01/98		113	D|	<0.50		<0.50		<0.79	JB|UJcz	<0.50		<0.50		<1.0	
	07/07/98		85.9		<0.50		<0.50		<0.70	J|Uy	<0.50		0.06	J|	<0.50	
	07/07/98	D	83.4	B|	<0.50		<0.50		<4.2	B|Uyz	<0.50		0.06	J|	<0.50	
	08/04/98		104		<0.50		<0.50		<4.9	B|Uz	<0.50		<0.50		<0.50	
	09/01/98		73.2		<0.50		<0.50		<1.8	B|UJcz	<0.50		<0.50		<1.0	
	10/06/98		71.8	|Jh	<0.50		<0.50		<1.0		<0.50		<0.50		<1.0	
	11/02/98		51.0	D|	<0.50		<0.50		<0.90	BJ|UJcz	<0.50		<0.50		<1.0	
	12/03/98		44.6	B|	<0.50		<0.50		<1.0	|Uz	<0.50		<0.50		<1.0	
	01/06/99		40.2	B|	<0.50		<0.50		<1.0		<0.50		<0.50		<1.0	
	02/04/99		36.7	B|	<0.50		<0.50		<1.0		<0.50		0.06	J|	<1.0	
	03/02/99		43.0		<0.50		<0.50		<1.0	|UJI	<0.50		<0.50		<1.0	
	04/05/99		44.8		<0.50		<0.50		<1.0		<0.50		<0.50		<1.0	

-- = Not Analyzed
< = Below Detection Limit

TABLE 5
SUMMARY OF RESULTS - MONITORING WELLS
LEHR/SCDS ENVIRONMENTAL RESTORATION
DAVIS, CALIFORNIA

			Metals				General Chemistry						Radionuclides			
		Analyte	TOTAL CHROMIUM		CHROMIUM, HEXAVALENT		NITROGEN, NITRATE		TOTAL DISSOLVED SOLIDS		TOTAL ORGANIC CARBON		CARBON-14		TRITIUM	
		Units	ug/L		ug/L		mg/L		mg/L		mg/L		pCi/L		pCi/L	
Sample ID	Date	QA														
UCD1-028	06/03/98		526		510		39.6		1040	|Jc	1.77		1.53±5.34	U|	-29.9±103	U|
	07/06/98		530		560		36.8		1040	|Jc	5.94		-3.37±5.11	U|	-224±92.	U|
	08/04/98		550		125		40.1		1040		2.41		0.70±5.34	U|	30.8±114	U|
	09/01/98		465		540		41.1		988		2.90		3.29±4.87	U|	-172±148	U|
	10/07/98		543		500		46.6		1050		8.92		-1.29±6.62	U|	-162±147	U|
	11/02/98		495		510		45.0		1020		4.34	|Jf	2.49±5.28	U|	-234±147	U|
	11/02/98	D	491		500		44.6		1010		9.31	|Jf	4.10±5.5	U|UJv	-262±153	U|
	12/03/98		535		405		49.6		1030		13.40		1.65±5.38	U|	-234±136	U|
	01/05/99		522		480		46.7		1060		9.83		-4.60±4.63	U|	-319±149	U|
	02/11/99		485		545		50.0		1060		9.35		3.5±5.59	U|	-41.1±155	U|
	03/02/99		472		515		--		1060		1.13	|Jf	9.74±4.93	J|Jvf	-183±120	U|
	03/02/99	D	491		<22.0	|Rfq	--		1030		0.331	J|Jf	-0.344±4.51	U|UJf	-249±118	U|
	04/01/99		518		581		45.2		1050		2.69		-2.48±4.18	U|	-140±143	U|
UCD2-007	08/26/98		45.6		38.0		10.8		591		6.38		-2.58±8.07	U|	0.00±149	U|
	11/05/98		--		32.0		10.1		537		4.25		1.90±5.98	U|	-320±153	U|
	11/05/98	D	--		32.0		9.92		555		6.57		1.53±5.85	U|	-289±145	U|
	02/01/99		--		27.0	|Jh	8.93		499		3.32		-3.12±4.93	U|	-123±113	U|
	02/01/99	D	--		27.0	|Jh	8.89		510		5.13		-1.67±5.3	U|	-79.7±114	U|
	02/10/99		31.1		--		--		--		--		--		--	
	02/10/99	D	31.2		--		--		--		--		--		--	
UCD2-014	05/26/98		53.6		48.0	|Jh	6.33		836	|Jc	2.91		684±14.4		3630±236	
	08/26/98		51.2		54.0		7.31		868		11.80		646±24.9		4010±330	
	11/05/98		27.5		27.0		6.00		598		5.16		189±11		480±172	
	02/02/99		27.2		<10		6.97		566		3.91		173±9.07		504±126	
UCD2-015	05/26/98		--		--		2.04		430	|Jc	1.53		--		-66.5±119	U|
	11/05/98		17.8		14.0		6.32		450		5.35		5.08±6.32	U|UJv	-341±153	U|
	02/10/99		21.0		11.0		6.43		446		4.49		8.8±5.8	U|UJv	-75.7±150	U|
UCD2-016	05/28/98		38.6		42.0		--		566	|Jc	1.40		--		--	
	08/24/98		31.9		36.0		6.45	|Jh	543		5.08		-3.24±6.61	U|	-31.0±155	U|
	11/04/98		28.6		28.0		5.55		469		4.02		0.57±5.9	U|	-205±161	U|
	02/02/99		28.1		<10		4.61		472		4.06		-2.24±4.99	U|	-155±112	U|
UCD2-017	08/24/98		10.5		7.0	J|	1.86		417		6.16		-4.75±5.54	U|	-80.7±138	U|
	11/04/98		10.6		10.0		1.83		407		3.71		-2.53±5.24	U|	-171±155	U|
	02/02/99		12.3		<10		1.92		434		3.62		-.515±5.02	U|	-118±111	U|
UCD2-026	05/27/98		--		21.0		5.69		492	|Jc	1.06		7.51±3.87	J|Jv	-92.5±109	U|
	08/27/98		25.3		12.0		4.51		467		4.07		-4.06±7.41	U|	62.7±163	U|
	11/04/98		18.6		17.0		4.57		438		5.46		2.84±5.38	U|	-139±155	U|
	02/04/99		18.9		16.0		4.48		460		3.09		-0.992±6.02	U|	29.5±132	U|
UCD2-029	06/03/98		14.5		13.0		4.48		475	|Jc	1.54		14.1±6.19	J|Jv	28.9±102	U|
	07/06/98		21.5		23.0		7.15		504	|Jc	2.61		7.55±5.53	U|UJv	-133±91.	U|
	08/03/98		27.6		21.0		10.1		533		2.24		9.68±7.81	U|	0.00±113	U|UJv
	09/01/98		19.6		21.0		9.90		527		1.47		15.0±4.58	J|	-84.5±151	U|
	10/07/98		23.1		21.0		11.60		529		6.37		14.5±6.85	J|Jv	-137±149	U|
	11/02/98		22.6		20.0		9.85		500		3.84		4.29±5.36	U|UJv	-183±139	U|
	12/03/98		22.0		13.0		9.15		496		10.40		3.93±5.48	U|UJv	-117±144	U|
	01/05/99		17.9	|Jo	19.0		8.23		491		4.91		-0.26±4.66	U|	-127±161	U|
	02/03/99		21.6		16.0		7.98		489		1.87		3.88±5.33	U|UJv	-195±111	U|
	02/03/99	D	22.8		17.0		8.08		501		2.24		2.56±5.2	U|	-126±115	U|
	03/02/99		18.7		<515	|Rq	--		485		1.56		7.74±4.69	J|Jv	-245±118	U|
	04/01/99		21.2		23.0		8.5		498		0.625		0.945±7.24	U|	-177±142	U|

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TABLE 5
SUMMARY OF RESULTS - MONITORING WELLS
LEHR/SCDS ENVIRONMENTAL RESTORATION
DAVIS, CALIFORNIA

			Metals				General Chemistry						Radionuclides			
		Analyte	TOTAL CHROMIUM		CHROMIUM, HEXAVALENT		NITROGEN, NITRATE	TOTAL DISSOLVED SOLIDS		TOTAL ORGANIC CARBON			CARBON-14		TRITIUM	
		Units	ug/L		ug/L		mg/L	mg/L		mg/L			pCi/L		pCi/L	
Sample ID	Date	QA														
UCD2-030	06/01/98		11.9		12.0		2.63	462	|Jc	1.98			5.90±3.68	U|UJv	32.1±119	U|
	07/06/98		13.0		12.0		2.58	452	|Jc	2.69			11.5±9.38	U|UJv	-85.6±100	U|
	08/04/98		15.1		14.0		3.54	453		1.75			5.89±5.74	U|UJv	-30.5±110	U|
	09/01/98		13.1	E|	15.0		3.45	452		1.90			14.7±4.51	J|	28.7±161	U|
	10/07/98		19.6		18.0		5.42	476		5.19			9.88±6.68	U|UJv	-92.2±151	U|
	11/02/98		17.4		18.0		5.34	461		3.76			9.24±5.64	J|Jv	-107±157	U|
	12/03/98		19.2		<10		5.70	479		7.67			11.9±5.74	J|Jv	-204±138	U|
	01/05/99		12.4	|Jo	9.0	J|	4.71	471		7.86			4.12±4.9	U|UJv	-225±156	U|
	02/11/99		15.5		13.0		3.77	485		2.58			3.57±5.58	U|	-87.6±153	U|
	03/02/99		14.2		20.0		5.16	451		0.162	J|		7.16±4.79	U|UJv	-63.0±167	U|
	04/05/99		12.1		17.0		2.88	444		2.2			0.523±4.38	U|UJm	-206±140	U|
UCD2-031	06/01/98		12.6		12.0		3.36	448	|Jc	1.65			4.73±3.59	U|UJv	0.00±123	U|
	07/07/98		16.4		14.0		3.14	437	|Jc	2.91			-0.85±3.77	U|	-179±101	U|
	08/04/98		15.8		14.0		3.13	435		1.92			3.89±5.99	U|	-31.2±113	U|
	09/01/98		13.2		14.0		3.72	447		1.63			5.45±5.58	U|UJv	-196±143	U|
	10/07/98		17.2		15.0		4.85	453		4.99			3.53±11.1	U|	-166±114	U|
	11/02/98		17.2		17.0		4.57	451		3.98			4.17±5.11	U|UJv	-124±147	U|
	12/03/98		18.4		18.0		5.63	452		7.35			3.51±5.41	U|	-176±141	U|
	01/05/99		16.4	|Jo	16.0		5.84	467		--			-4.13±4.58	U|	-255±153	U|
	02/11/99		19.3		17.0		5.93	485		3.49			0.307±5.63	U|	-83.3±152	U|
	03/02/99		18.4		14.0		--	457		2.94			7.98±7.85	U|UJv	-177±119	U|
	04/05/99		16.0		20.0		3.9	441		0.713			-0.154±4.37	U|	-236±139	U|
UCD2-032	06/02/98		26.5		26.0		5.39	491	|Jc	1.30			4.39±3.7	U|UJv	70.7±133	U|
	08/25/98		37.1		40.0		9.50	576		9.64			-1.06±5.75	U|	-80.5±137	U|
	11/03/98		32.9		<2.0		7.83	502		2.16			2.27±5.25	U|	-185±160	U|
	02/04/99		23.3		15.0		5.81	474		2.44			1.56±6.12	U|	87.9±135	U|
UCD2-035	06/03/98		4.7	B|	<4.0		<0.05	422	|Jc	1.51			1.73±5.42	U|	0.00±103	U|
	07/08/98		4.2	B|	<4.0		1.19	441	|Jc	2.02			4.71±3.88	U|UJv	-145±99.0	U|
	08/05/98		5.5	B|	<4.0		1.63	439		<1.71	|Uo		1.75±6.16	U|	-238±106	U|
	09/02/98		7.0	B|	<6.0		1.75	526		2.18			3.78±4.24	U|UJv	-131±162	U|
	10/06/98		6.5		<6.0		2.24	426		5.29			0.23±6.09	U|	-81.9±134	U|
	11/03/98		6.9	B|	10.0		3.04	417		4.83			1.13±5.36	U|	1350±187	
	12/02/98		8.7	B|	<10	|UJh	3.76	437		8.67			-2.64±5.2	U|	-146±142	U|
	12/02/98	D	8.4	B|	<10	|UJh	3.78	417		8.23			0.670±5.31	U|	-145±141	U|
	01/06/99		6.3	B|Jo	18.0		4.17	424		3.70			-0.620±4.9	U|	-188±155	U|
	02/03/99		<11.5	|Uo	10.0		4.04	437		3.62			0.809±5.11	U|	-198±108	U|
	03/01/99		12.0		10.0		4.36	433		1.71			2.86±4.58	U|UJv	1170±146	
	04/06/99		12.6		11.0		4.49	452		0.351	J|		4.47±9.2	U|	-175±140	U|
UCD2-036	06/04/98		15.3		14.0	J|	3.24	463	|Jc	1.74			-0.45±5.25	U|	58.7±105	U|
	07/07/98		21.1		17.0		5.59	487	|Jc	2.47			7.56±3.84	J|Jv	-96.7±113	U|
	08/05/98		25.7		24.0		8.38	517		2.71			8.24±7.74	U|UJv	-180±110	U|
	09/02/98		19.9		16.0		6.72	498		2.02			3.76±6.62	U|	-67.7±183	U|
	10/05/98		18.6		19.0		5.94	480		7.92			6.37±5.82	U|UJv	-29.5±109	U|
	10/05/98	D	20.9		20.0		8.32	480		9.89			5.33±5.72	U|UJv	-58.7±108	U|
	11/03/98		18.7		<6.0		4.89	464		4.28			2.53±5.62	U|	-340±146	U|
	12/01/98		16.4		<10		5.96	448		18.60			-1.95±5.2	U|	-176±141	U|
	01/04/99		12.6	|Jo	13.0		5.88	448		6.53			-2.61±4.71	U|	-221±153	U|
	02/01/99		17.1		14.0	|Jh	4.75	466		5.71			-1.35±5.13	U|	-176±111	U|
	03/03/99		14.1		16.7		6.18	441		1.35			-0.917±4.57	U|	-213±93.7	U|
	04/05/99		13.8		12.0		3.82	457		1.01			14.7±4.86	J|	-205±139	U|
	04/05/99	D	14.5		15.0		4.84	459		0.81			16.3±4.85	J|	-236±139	U|

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TABLE 5
SUMMARY OF RESULTS - MONITORING WELLS
LEHR/SCDS ENVIRONMENTAL RESTORATION
DAVIS, CALIFORNIA

			Metals				General Chemistry						Radionuclides			
		Analyte	TOTAL CHROMIUM		CHROMIUM, HEXAVALENT		NITROGEN, NITRATE	TOTAL DISSOLVED SOLIDS		TOTAL ORGANIC CARBON			CARBON-14		TRITIUM	
		Units	ug/L		ug/L		mg/L	mg/L		mg/L			pCi/L		pCi/L	
Sample ID	Date	QA														
UCD2-037	06/04/98		7.3	B|	6.0	J|	1.82	422	|Jc	1.71			6.06±5.74	U|UJv	-28.8±99.1	U|
	07/08/98		7.2	B|	<4.0		1.77	436	|Jc	1.48			5.46±3.89	U|UJv	-210±101	U|
	08/05/98		7.6	B|	<4.0		2.20	427		1.87			-0.12±5.12	U|	-119±112	U|
	09/01/98		5.6	B|	<6.0		2.18	408		1.59			3.29±4.18	U|UJv	-167±145	U|
	10/05/98		7.2		8.0	J|	2.45	422		9.58			14.4±9.81	U|UJv	-29.8±110	U|
	11/04/98		6.8	B|	<6.0		2.27	399		2.99			-3.19±6.08	U|	-263±175	U|
	12/02/98		6.8	B|	<10	|UJh	2.28	415		13.50			-0.20±5.19	U|	-146±142	U|
	01/04/99		4.5	B|Jo	7.0	J|	3.08	413		6.56			-1.01±4.71	U|	-316±147	U|
	01/04/99	D	4.1	B|Jo	10.0		3.06	408		3.86			-7.16±4.46	U|	-95.3±163	U|
	02/01/99		8.5	B|	<10	|UJh	2.99	420		3.48			-1.63±4.9	U|	-107±112	U|
	03/03/99		11.8		12.1		4.12	424		2.19			0.212±4.72	U|	-190±94.3	U|
	04/06/99		15.0		15.0		5.17	445		0.315	J|		4.76±4.51	U|UJv	-207±140	U|
	05/04/99		13.9		15.0	|Jh	4.88	446		<0.50			9.59±4.58	J|Jv	31.8±123	U|
UCD2-038	06/03/98		5.7	B|	5.0	J|	1.84	436	|Jc	1.61			2.29±5.41	U|	-58.2±98.8	U|
	07/08/98		8.9	B|	5.0	J|	2.34	454	|Jc	2.62			4.21±6.38	U|	-192±92.	U|
	08/05/98		8.2	B|	9.0	J|	1.91	436		<2.67	|Uo		-0.67±6.88	U|	-118±111	U|
	09/02/98		10.2		<6.0		4.34	439		3.17			5.88±4.4	U|UJv	-138±162	U|
	10/06/98		17.8		14.0		6.43	458		9.91			2.46±6.28	U|	-83.6±142	U|
	11/03/98		15.4		<2.0		4.88	423		1.70			9.47±5.35	J|Jv	29.3±153	U|
	12/02/98		17.0		<10	|UJh	6.15	441		6.85			3.46±5.34	U|	-117±144	U|
	01/06/99		15.7	|Jo	18.0		6.35	435		5.42			5.87±4.83	U|UJv	-190±156	U|
	02/03/99		19.8		15.0		6.33	457		2.93			7.51±5.31	U|UJv	-113±111	U|
	03/03/99		18.3		22.4		6.09	437		1.82			5.30±4.87	U|UJv	-186±93.2	U|
	04/06/99		19.3		20.0		6.2	445		1.42			4.21±4.5	U|UJv	-207±141	U|
UCD2-039	06/03/98		8.3	B|	8.0	J|	1.83	447	|Jc	1.44			15.4±6.01	J|Jv	89.1±108	U|UJv
	07/07/98		8.8	B|	8.0	J|	2.37	448	|Jc	2.56			12.1±4.15	J|	-90.5±106	U|
	08/04/98		11.7		11.0		4.03	489		2.99			21.4±13.8	U|	0.00±118	U|
	08/04/98	D	12.7		11.0		3.88	491		1.74			11.3±5.58	J|Jv	94.6±120	U|UJv
	09/02/98		12.4		10.0		5.27	497		<0.67	|Up		32.5±8.22		212±253	U|UJv
	09/02/98	D	12.5		10.0		5.24	486		<0.88	|Up		22.3±5.56		-47.7±170	U|
	10/06/98		15.6		16.0		6.00	498		4.71			11.2±5.92	J|Jv	-100±144	U|
	11/03/98		16.6		<6.0		6.57	467		3.28			11.8±5.95	J|Jv	-193±146	U|
	12/02/98		17.0		13.0	|Jh	6.92	471		7.30			6.27±6.78	U|UJv	-28.8±148	U|
	01/06/99		13.8	|Jo	25.0		6.62	467		3.29			8.60±8.34	U|UJv	-97.0±166	U|
	02/02/99		18.1		<10		6.53	513		4			9.36±5.35	J|Jv	-71.1±113	U|
	03/03/99		17.3		17.8		6.17	456		2.49			10.2±8.05	U|UJv	-72.7±94.7	U|
	04/06/99		19.4		19.0		6.27	458		0.242	J|		12.3±5.17	J|Jv	-59.0±147	U|
UCD2-040	06/01/98		36.0		35.0		10.50	550	|Jc	1.67			11.3±3.78		32.8±122	U|
	07/07/98		46.8		47.0		7.61	527	|Jc	3.01			7.23±3.84	J|Jv	-87.7±103	U|
	07/07/98	D	45.6		46.0		8.85	524	|Jc	2.39			7.94±3.92	J|Jv	-58.9±105	U|
	08/04/98		43.7		44.0		8.48	525		3.44			8.90±5.67	U|UJv	-30.8±112	U|
	09/01/98		34.3		40.0		7.13	492		0.95			5.24±8.78	U|	-81.2±145	U|
	10/06/98		41.1		35.0		9.10	550		6.95			11.0±6.13	J|Jv	108±158	U|
	11/02/98		30.0		31.0		6.11	467		4.46			9.54±5.77	J|Jv	-405±190	U|
	12/03/98		28.8		24.0		5.82	485		9.03			7.83±5.6	U|UJv	-87.8±146	U|
	01/06/99		22.2	|Jo	12.0		5.74	446		5.89			3.34±4.88	U|	-317±148	U|
	02/04/99		27.8		19.0		5.79	475		2.7			2.32±5.9	U|	0.00±130	U|
	03/02/99		26.8		30.0		--	471		1.56			6.56±4.73	U|UJv	-97.8±120	U|
	04/05/99		38.0		39.0		7.69	531		0.917			11.3±4.8	J|Jv	-236±139	U|

-- = Not Analyzed
< = Below Detection Limit

TABLE 6
SYSTEM OPERATION LOG
GROUNDWATER IRA SYSTEM
LEHR/SCDS ENVIRONMENTAL RESTORATION
DAVIS, CALIFORNIA

DATE	TIME	Turn System ON	System OFF	EXTRACTION WELL Flow Rate (gpm)	EXTRACTION WELL Totalizer (gallons x 10)	INTO AIRSTRIPPER Flow Rate (gpm)	INTO AIRSTRIPPER Totalizer (gallons x 10)	INJECTION WELL Flow Rate (gpm)	INJECTION WELL Totalizer (gallons x 10)	BLOWER HOURS
				—	0	—	0	—	0	0.0
TREATMENT PLANT EVALUATION										
04/20/98	10:10	X						—	0	
	10:30			162	1,434	177	1,498	—	0	
	12:46		A	—		—		—	0	
	13:14	X						—	0	
	15:00			155	4,277	202	7,693	—	0	
	19:35			158	7,597	206	8,332	—	0	
	20:30			154	9,612	209	10,568	—	0	
	23:45			157	10,511	206	11,549	—	0	
04/21/98	2:00			160	12,094	204		—	0	
	4:15			158	13,729	201	15,077	—	0	
	6:55			155	15,640	200	17,185	—	0	
	10:36			157	18,290	207	20,172	—	0	
	12:05	*		208	19,599	265	21,516	—	0	
	19:30			162	25,644	202	28,298	—	0	
	21:20			155	26,947	202	29,699	—	0	
	23:00			153	28,072	207	30,871	—	0	
04/22/98	1:15			158	29,681	198	32,681	—	0	
	4:00			163	31,813	199	34,987	—	0	
	8:00			166	34,759	0	38,243	—	0	
	12:40		M	—	38,959	—	42,983	—	0	
TREATMENT PLANT EVALUATION - ADDITIONAL SAMPLING										
04/27/98	13:40	X			38,959		42,983	—	0	
	14:45			157	39,793	211	43,899	—	0	
	15:30		M	—		—		—	0	
05/04/98	8:45	X						—	0	
	9:35			154	40,869	208	45,185	—	0	
	11:00			158	41,835	201	46,210	—	0	
	11:43			161	42,297	207	46,696	—	0	
	11:53		M	—				—	0	
FULL SCALE OPERATION										
05/11/98	11:51	X						—	0	
	12:15			158	42,807	209	47,296	—	0	
	15:39							—	0	162.9
	15:50			158	44,911	205	49,695	—	0	
	16:15		M	—	45,202	—	50,032	—	0	163.7
05/12/98	9:30	X			45,202		50,032	—	0	163.7
	9:39			149		210		—	0	
FULL SCALE OPERATION - BEGIN INJECTING										
05/12/98	15:40									
	17:00		M	—		—	55,842		435	
05/13/98	10:10	X					55,842		435	
	10:15			148	50,457				435	
	10:34								435	
	12:40			177	52,160	186	57,756	212	1,718	
	16:35			195	55,222	218	61,088	233	4,796	177.6
	?		A	—	58,658	—	64,909	—	8,428	
05/14/98	9:54	X			58,658		64,909		8,428	
	11:15			193	59,812	222	66,188	175	9,602	
	19:12		A	—	67,248	—	74,413	—	17,336	202.6
05/15/98	11:32	X			67,248		74,413		17,336	202.6
	11:58		M	—						
	15:39	X								
	16:49			119	68,372	148	75,639	158	18,160	
	17:27									205.4
05/16/98	13:42			120	79,485	150	89,187	136	29,658	
05/17/98	8:40			118	89,826	140	101,810	141	40,360	

TABLE 6
SYSTEM OPERATION LOG
GROUNDWATER IRA SYSTEM
LEHR/SCDS ENVIRONMENTAL RESTORATION
DAVIS, CALIFORNIA

		Turn		EXTRACTION WELL		INTO AIRSTRIPPER		INJECTION WELL		
DATE	TIME	System ON	System OFF	Flow Rate (gpm)	Totalizer (gallons x 10)	Flow Rate (gpm)	Totalizer (gallons x 10)	Flow Rate (gpm)	Totalizer (gallons x 10)	BLOWER HOURS
05/17/98	9:00									244.9
05/18/98	8:50			114	102,324	147	116,086	128	53,527	
05/19/98	12:37			118	117,132		133,326	131	68,945	
05/20/98	10:45			118	128,873	148	146,885	148	81,183	
05/20/98	11:46			-						319.7
05/22/98	10:56			115	154,394	146	176,484	152	107,757	
	14:10		A	—	156,651	—	179,156	—	110,343	
05/26/98	14:23	X			156,651		179,156		110,343	
	14:34									371.4
	15:15		M							
	15:49	X								
05/27/98	10:15			127	167,636	146	191,625	103	121,195	
05/29/98	8:07		A	—	194,353	—	221,855	—	149,134	
	16:03	X		128	194,353	154	221,855		149,134	
	16:17									
	16:45		M		194,704		222,345		149,231	437.1
05/30/98	9:39	X			194,704		222,345		149,231	437.1
	9:50									
	11:00				195,456		223,221		149,985	438.3
06/01/98	9:00			101	1,651,959	149	1,889,875	137	1,310,955	484.5
	10:45			101	1,657,664	138	1,896,884	151	1,317,712	486.3
06/05/98	9:00				1,809,108		2,069,597		1,470,979	529.5
	11:34			108		123		154		
	12:05			111	1,815,758	132	2,077,444	122	1,477,423	
	12:55			98		132		104		532.2
06/08/98	8:40			92	2,046,002		2,343,294	106	1,714,332	
	8:50									600.0
	10:03			95	2,054,719	130	2,353,101	140	1,722,576	
	11:35									602.8
6/17/98	14:51			98	2,792,740	128	3,214,001	135	2,478,145	822.1
6/20/98	8:20			95	2,932,029	130	3,375,298	150	2,621,758	863.5
	9:06	**INCREASE FLOWS**								
	9:45			175	2,938,847	202	3,383,618	222	2,629,620	865.0
	9:50	**RESET TOTALIZERS**								
	10:36			175	7,715	205	20,045	225	7,100	865.8
6/22/98	9:33			174	757,451	201	853,143*	220	790,049	936.7
6/26/98	4:15		P	—	1,708,341	—	1,907,607	—	1,779,972	1027.4
6/27/98	17:05	X		171		209		227		
6/29/98	9:59			172	2,129,827	204	2,376,167	185	2,221,199	1068.4
07/06/98	12:37			170	3,861,807	206	4,301,439	180	4,035,996	1239.0
07/10/98	11:15		M							
	14:00	X								
07/13/98	16:27			170	5,561,912	206	6,187,369	236	5,809,703	1408.0
	16:30	**INCREASE FLOWS**								
	16:30			190		220		230		
	17:51		A	–	5,688,180	–	632,771	–	5,943,991	1409.4
7/16/98	8:52	X								1434.6
	9:15		M							
	11:40	X								
	12:45		M	–	5,698,395	–	6,338,918	–	5,946,399	1436.0
07/17/98	7:56	X			5,698,395		6,338,918		5,946,399	1436.0
	9:42			187	5,713,897	218	6,355,704	233	5,961,136	1437.8
07/20/98	10:35			189	6,522,358	217	7,245,892	185	6,820,064	1510.7
07/22/98	17:11		A	–	6,679,693	–	7,418,609	–	6,987,809	1565.3
07/23/98	10:00	X		192	6,679,693	223	7,418,609	232	6,987,809	1565.3
07/28/98	9:55			195	7,778,143	217	8,625,241	238	8,169,199	1661.0
07/30/98	16:31		A	–	8,297,473	–	9,196,201	–	8,725,784	1715.6
07/31/98	8:36	X		195	8,297,473	210	9,196,201	240	8,725,784	1715.6

TABLE 6
SYSTEM OPERATION LOG
GROUNDWATER IRA SYSTEM
LEHR/SCDS ENVIRONMENTAL RESTORATION
DAVIS, CALIFORNIA

DATE	TIME	Turn System ON	System OFF	EXTRACTION WELL Flow Rate (gpm)	EXTRACTION WELL Totalizer (gallons x 10)	INTO AIRSTRIPPER Flow Rate (gpm)	INTO AIRSTRIPPER Totalizer (gallons x 10)	INJECTION WELL Flow Rate (gpm)	INJECTION WELL Totalizer (gallons x 10)	BLOWER HOURS
08/03/98	8:52			192	9,109,605	221	10,090,054	221	9,587,695	1787.9
08/05/98	15:04		A	---	9,722,639	---	10,764,988	---	10,235,011	1842.1
08/06/98	9:18	X		---	9,722,639	---	10,764,988	---	10,235,011	1842.1
	11:15			192		218		180		
08/11/98	10:47			188	11,089,427	221	12,289,796	226	11,675,379	1636.6
08/24/98	8:09			184	14,583,374	217	16,190,291	251	15,350,263	2273.0
08/25/98	12:52			187	14,906,961	222	16,551,099	231	15,688,011	
08/26/98	9:33			183	15,140,239	227	16,810,875		15,932,977	
	9:35	DECREASE FLOWS FOR MAINTENANCE								
	10:20			102	15,144,916		16,816,999	148	15,937,339	2323.2
8/31/98	14:35			106	15,923,590	136	17,737,999	146	16,709,529	2447.7
	15:40			106	15,930,257	136	17,746,685	128	16,718,082	2448.5
	15:46	INCREASE FLOWS AFTER MAINTENANCE IS COMPLETE								
	16:24			193		219		236		
09/09/98	9:41			190	18,323,768	215	20,404,685	180	19,224,947	2658.5
09/14/98	15:25			190	19,757,509	215	21,998,712	227	20,744,276	2784.4
09/22/98	10:14			190	21,889,357	215	24,370,801	220	23,009,829	2971.0
09/28/98	11:28			191	23,552,226	218	26,221,977	210	24,776,406	3116.3
09/30/98	10:16			191	24,089,483	216	26,818,297	212	25,344,588	3163.1
10/05/98	11:07			190	25,478,270	215	28,364,687	220	26,797,236	3284.0
10/08/98	10:34			192	26,305,499	214	29,285,800	215	27,661,208	
10/08/98	11:05		M							
10/20/98	9:42	X								
10/22/98	11:00			151	26,754,932	192	29,785,025	206	28,119,178	3405.2
10/26/98	14:58			151	27,675,141	185	30,808,857	195	29,068,773	3506.4
10/28/98	11:31		M							
10/29/98	11:00	X								
10/29/98	11:50			119	28,089,312	151	31,269,601	162	29,840,742	3551.3
11/02/98	9:35			116	28,753,445	156	32,022,053	167	30,178,051	3645.4
11/07/98	8:23		A							
11/09/98	10:57	X								
11/10/98	12:10			119	29,770,760	149	33,170,255	159	31,222,311	3789.4
11/16/98	14:50			120	30,818,750	154	34,377,580	160	32,303,980	3935.9
11/23/98	10:15			120	31,997,398	150	35,719,300	160	33,519,063	4099.6
12/02/98	10:53			121	33,569,125	155	37,475,534	165	35,144,745	4316.9
12/08/98	13:48			120	34,628,732	150	38,656,333	160	36,246,603	4463.1
12/15/98	15:50			120	35,863,845	150	40,034,026	160	37,560,297	4633.1
12/21/98	14:30			120	36,902,344	150	41,195,065	160	38,609,455	4775.9
12/28/98	10:35			120	38,093,617	150	42,529,498	160	39,838,571	4939.8
01/04/99	14:03			120	39,344,870	151	43,927,366	160	41,149,497	5111.3
01/08/99	10:30		M		39,492,504		44,091,908		41,305,135	5203.8
01/08/99	14:42	X		120	39,492,504	150	44,091,908	160	41,305,135	5203.8
01/11/99	10:06			120	39,968,862	150	44,622,933	160	41,795,185	5271.4
01/19/99	13:35			120	41,362,836	160	46,185,588	162	43,248,480	5466.9
01/25/99	13:27			120	42,382,570	150	47,372,639	160	44,325,398	5610.7
02/01/99	14:15			118	43,967,589	154	49,227,998	155	45,925,975	5779.7
02/08/99	15:45			121	44,785,197	145	50,186,850	160	46,849,249	5949.1
02/16/99	15:44			120	46,152,014	150	51,776,282	160	48,296,592	6140.7
02/22/99	9:36			120	47,142,250	150	52,922,006	160	49,349,563	6278.9
03/01/99	11:22			120	48,365,418	150	54,338,616	160	50,640,545	6448.7
03/04/99	10:55		M	121	48,880,889	150	54,921,046	159	51,182,390	6520.1
03/08/99	11:45	X			48,880,889		54,921,046		51,182,390	6520.1
03/09/99	14:03			120	49,067,533	150	55,137,144	160	51,372,663	6629.0
03/15/99	13:46			120	50,086,859	150	56,344,138	160	52,447,723	6772.6
03/22/99	8:10		P		51,245,092		57,697,777		53,679,262	6935.0
03/22/99	10:05	X			51,245,092		57,697,777		53,679,262	6935.0
03/22/99	10:35			120	51,248,236	150	57,701,287	160	53,680,351	6935.6
03/30/99	9:54			120	52,577,695	150	59,250,211	155	55,089,735	7126.9

TABLE 6
SYSTEM OPERATION LOG
GROUNDWATER IRA SYSTEM
LEHR/SCDS ENVIRONMENTAL RESTORATION
DAVIS, CALIFORNIA

		Turn		EXTRACTION WELL		INTO AIRSTRIPPER		INJECTION WELL		
DATE	TIME	System ON	System OFF	Flow Rate (gpm)	Totalizer (gallons x 10)	Flow Rate (gpm)	Totalizer (gallons x 10)	Flow Rate (gpm)	Totalizer (gallons x 10)	BLOWER HOURS
04/05/99	9:51			120	53,574,877	150	60,406,913	160	56,137,879	7269.8
04/13/99	14:12			120	54,945,556	150	61,977,268	160	57,582,915	7466.1
04/16/99	14:35		M	120	55,287,495	150	62,375,701	160	57,941,575	7537.7
04/16/99	15:10	X		120	55,287,495	150	62,375,701	160	57,941,575	7537.1
04/19/99	8:45			120	55,746,753	150	62,911,941	160	58,422,273	7603.3
04/19/99	9:10	RESET TOTALIZERS								
04/26/99	13:36			120	1,208,830	150	1,406,400	160	1,249,112	7776.2

* = flow rate increased to about 210 gpm for 3 hours.
M = manual shut-off.
A = automatic shut-off.
P = power outage

TABLE 7
TREATMENT SYSTEM MONITORING PARAMETERS AND SCHEDULE
LEHR/SCDS ENVIRONMENTAL RESTORATION
DAVIS, CALIFORNIA

	Analyte/Analysis																							
	Chemical Analytes												Radiological				Field Parameters							
	VOC		Total Cr		Cr VI		Nitrate		TDS		TOC		Tritium		C-14		pH		EC		T		Turbidity	
Location	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
Influent	m	m									m	m	m	m	m	m	m	m	m	m	m	m	m	m
Effluent	m	m	m	m	m	R	W	m	W	R							m	m	m	m	m	m	m	m

Proposed changes are highlighted
R = Removed from sampling program
C= Current Schedule; P = Proposed Schedule
Q, = quarterly sampling ; m = monthly sampling, W = weekly sampling
VOC = Volatile Organic Compounds (including chloroform)
Total Cr = Total Dissolved Chromium (all valent states)

Nitrate = Nitrate as Nitrogen
TDS = Total Dissolved Solids
TOC = Total Organic Carbon
C-14 = Carbon -14
EC = Electrical Conductivity
T = Temperature

Note: Influent/Effluent monitoring program includes measuring total volume of water treated and discharged, influent and effluent flow rates at time of sampling, water levels in extraction well and injection well, and extraction rate at time of sampling. Monitoring frequencies depend on parameter.

TABLE 8
SUMMARY OF RESULTS
TREATMENT SYSTEM FIELD PARAMETERS
LEHR/SCDS ENVIRONMENTAL RESTORATION
DAVIS, CALIFORNIA

Location	Date	EC-F	PH-F	TEMPERATURE	TURBIDITY-F
	Analyte	EC-F	PH-F	TEMPERATURE	TURBIDITY-F
	Units	umhos/cm		degree C	ntu
	Allowable Limits		6.5-8.5		
EFFLUENT					
Sample ID	Date				
TPEF0001	04/20/98	722	8.31	19.2	1.65
TPEF0002	04/20/98	722	**8.53**	21.8	0.88
TPEF0003	04/21/98	694	**8.67**	17.1	0.45
TPEF0004	04/21/98	672	**8.50**	21.1	0.54
TPEF0005	04/21/98	698	**8.51**	21.8	0.41
TPEF0006	04/22/98	645	**8.64**	18.3	0.89
TPEF0007	04/22/98	640	**8.60**	19.3	1.25
TPEF0008	04/27/98	691	**8.55**	22.9	0.13
TPEF0009	04/27/98	658	**8.57**	20.0	0.14
TPEF0010	05/04/98	655	**8.51**	19.7	0.21
TPEF0011	05/11/98	723	8.48	17.7	1.71
TPEF0012	05/13/98	678	8.24	18.1	0.41
TPEF0013	05/14/98	662	8.21	18.4	0.76
TPEF0014	05/14/98	627	8.44	18.9	0.62
TPEF0015	05/16/98	599	8.15	18.8	0.74
TPEF0016	05/17/98	592	8.49	17.7	0.66
TPEF0017	05/18/98	591	8.08	16.0	0.66
TPEF0018	05/19/98	702	**8.55**	18.5	0.66
TPEF0019	05/20/98	--	8.30	18.1	0.70
TPEF0020	05/22/98	628	**8.50**	18.3	0.78
TPEF0021	05/27/98	637	8.11	17.9	0.61
TPEF0022	06/01/98	654	8.30	20.9	0.68
TPEF0023	06/08/98	725	--	20.3	0.80
TPEF0024	06/17/98	737	7.29 (1)	22.9	0.84
TPEF0025	06/22/98	620	--	19.1	0.99
TPEF0026	06/22/98	620	--	19.1	0.99
TPEF0027	06/29/98	624	--	18.9	0.91
TPEF0028	07/06/98	670	--	7.10	1.05
TPEF0029	07/06/98	670	--	21.7	1.05
TPEF0030	07/13/98	670	8.32	19.2	0.79
TPEF0031	07/20/98	682	--	20.0	0.72
TPEF0032	07/28/98	889	8.31	21.3	0.72
TPEF0033	08/03/98	916	8.24	21.3	0.83
TPEF0038	09/09/98	590	8.47	19.11	0.23
TPEF0042	10/05/98	2320	8.49	18.78	0
TPEF0043	10/22/98	282	**8.64**	18.72	0
TPEF0045	11/02/98	.91	**8.79**	17.6	.02
TPEF0049	12/02/98	860	**8.72**	17.67	0.08
TPEF0050	12/08/98	840	**8.68**	16.33	0.13
TPEF0051A	12/15/98	--	8.41	18.22	--
TPEF0051B	12/21/98	--	8.45	15.89	--
TPEF0052	12/28/98	--	8.42	16.22	--
TPEF0053	01/04/99	1000	8.45	15.72	0.05
TPEF0057	02/01/99	860	**8.5**	16.56	0.19
TPEF0061	03/01/99	930	8.47	17.8	0.16
TPEF0066	04/05/99	105	8.42	16.11	0.06
TPEF0070	05/03/99	798	8.42	17.7	0.08

Bolded text exceeds effluent limits
(1) pH meter reported to malfunction
-- = Not analyzed

TABLE 8
SUMMARY OF RESULTS
TREATMENT SYSTEM FIELD PARAMETERS
LEHR/SCDS ENVIRONMENTAL RESTORATION
DAVIS, CALIFORNIA

Location		Analyte Units	EC-F umhos/cm	PH-F	TEMPERATURE degree C	TURBIDITY-F ntu
INFLUENT						
Sample ID	Date					
TPIN0001	04/20/98		699	7.88	18.4	2.40
TPIN0002	04/20/98		711	7.98	19.8	0.66
TPIN0003	04/21/98		712	8.34	16.9	0.67
TPIN0004	04/21/98		668	8.01	19.7	0.59
TPIN0005	04/21/98		684	8.12	20.7	0.661
TPIN0006	04/22/98		626	8.37	18.2	0.51
TPIN0007	04/21/98		642	8.10	18.7	0.49
TPIN0008	04/27/98		599	8.28	19.1	0.10
TPIN0009	04/27/98		606	8.10	21.1	0.66
TPIN0010	05/11/98		718	8.10	17.2	0.54
TPIN0011	05/13/98		662	8.03	19.7	0.50
TPIN0012	05/14/98		640	7.97	17.8	0.51
TPIN0013	05/16/98		599	7.98	18.1	0.61
TPIN0014	05/17/98		608	8.06	17.9	1.20
TPIN0015	05/17/98		608	8.06	17.9	1.20
TPIN0016	05/18/98		507	7.05	15.8	0.66
TPIN0017	05/19/98		612	8.00	18.4	0.52
TPIN0018	05/20/98		--	8.00	17.9	0.55
TPIN0019	05/22/98		618	7.92	18.2	0.71
TPIN0020	05/27/98		635	7.85	17.9	0.66
TPIN0021	06/01/98		623	7.84	18.9	0.61
TPIN0022	06/08/98		683	--	18.8	0.77
TPIN0023	06/17/98		--	7.59	--	--
TPIN0024	06/17/98		710	7.59	20.2	0.76
TPIN0025	06/22/98		613	--	18.7	0.79
TPIN0026	06/29/98		619	--	18.6	0.73
TPIN0027	07/06/98		653	--	21.6	0.66
TPIN0028	07/06/98		653	--	21.6	0.66
TPIN0029	07/13/98		674	7.55	18.7	0.80
TPIN0030	07/20/98		687	--	19.3	0.89
TPIN0031	07/28/98		890	7.69	20.9	0.79
TPIN0032	08/03/98		922	7.61	21.1	0.72
TPIN0033	09/09/98		560	7.92	18.5	0.05
TPIN0034	10/05/98		1350	7.97	18.39	--
TPIN0045	11/02/98		12.27	8.05	17.9	.05
TPIN0049	12/02/98		880	8.07	17.67	0.12
TPIN0053	01/04/99		1040	7.90	15.78	0.07
TPIN0057	02/01/99		950	7.66	16.67	0.10
TPIN0061	03/01/99		950	7.87	17.8	0.11
TPIN0066	04/05/99		112	7.95	16.67	0.25

Bolded text exceeds effluent limits
(1) pH meter reported to malfunction
-- = Not analyzed

TABLE 9
SUMMARY OF RESULTS - TREATMENT SYSTEM INFLUENT
LEHR/SCDS ENVIRONMENTAL RESTORATION
DAVIS, CALIFORNIA

		Analyte	1,1-DCA	1,1-DCE	1,2-DCA	1,2-DCP	2-BUTANONE	CHLOROFORM	CHLOROMETHANE	METHYLENE CHLORIDE
		Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Sample ID	Date	QA								
TPIN0001	04/20/98		<	<	0.66	0.55 J|	<	29	0.80 J|	<
TPIN0002	04/20/98		<	<	0.59	<	<	29	0.75 J|	<
TPIN0003	04/21/98		<	<	0.65	<	<	30	1.40	<
TPIN0004	04/21/98		<	<	0.64	<	<	32	0.95 J|	<
TPIN0005	04/21/98		<	<	0.64	<	<	31	0.87 J|	<
TPIN0006	04/22/98		<	<	0.63	<	<	30	0.68 J|	<
TPIN0007	04/22/98		<	<	0.67	<	2.2 b|	33	<	<
TPIN0008	04/27/98		<	<	0.64	<	<	30	<	<
TPIN0009	04/27/98		<	<	0.53	<	<	25	<	<
TPIN0010	05/11/98		<	<	0.72	<	<	32	<	<
TPIN0011	05/13/98		<	<	0.83	<	<	39	<	<
TPIN0012	05/14/98		<	<	0.75	<	<	37	<	<
TPIN0013	05/16/98		<	<	0.61	<	<	33	<	<
TPIN0014	05/17/98		<	<	0.65	<	<	34	<	<
TPIN0015	05/17/98		<	<	0.64	<	<	33	<	<
TPIN0016	05/18/98		<	<	0.58	<	<	34	<	<
TPIN0017	05/19/98		<	<	0.70	<	<	35	<	<
TPIN0018	05/20/98		<	<	0.67	<	<	36	<	<
TPIN0019	05/22/98		<	<	0.81	<	<	37	<	<
TPIN0020	05/27/98		<	<	0.76	<	<	37	<	<
TPIN0021	06/01/98		<	<	0.62	<	<	31	<	<
TPIN0022	06/08/98		<	<	0.57	<	<	34	<	<
TPIN0023	06/17/98		<	<	0.62	<	<	37	<	<
TPIN0024	06/17/98		<	<	0.63	<	<	37	<	<
TPIN0025	06/22/98		<	<	0.60	<	<	39	<	<
TPIN0026	06/29/98		<	<	<	<	<	46	<	<
TPIN0027	07/06/98		<	<	<	<	<	52	<	<
TPIN0028	07/06/98		<	<	<	<	<	52	<	<
TPIN0029	07/13/98		<	<	<	<	<	59	<	<
TPIN0030	07/20/98		<	<	<	<	<	73	<	<

-- = Not Analyzed
< = Below detection limit.
TDS =Total Dissolved Solids
TOC =Total Organic Carbon

TABLE 9
SUMMARY OF RESULTS - TREATMENT SYSTEM INFLUENT
LEHR/SCDS ENVIRONMENTAL RESTORATION
DAVIS, CALIFORNIA

		Analyte	1,1-DCA		1,1-DCE		1,2-DCA		1,2-DCP		2-BUTANONE	CHLOROFORM		CHLOROMETHANE	METHYLENE CHLORIDE	
		Units	ug/L		ug/L		ug/L		ug/L		ug/L	ug/L		ug/L	ug/L	
Sample ID	Date	QA														
TPIN0031	07/28/98		<		<		<		<		<	88		<	<	
TPIN0032	08/03/98		0.74		0.48	J|	1.6		1.4		<	80		<	0.77	J|
TPIN0033	09/09/98		0.46	J|	0.36	J|	0.86		0.54		<	52		<	<	JB|Uz
TPIN0034	10/05/98		0.28	J|	<		0.53		0.35	J|	<	58		<	<	
TPIN0045	11/02/98		<		<		<		<		<	34		<	1.0	BJ|UJcz
TPIN0049	12/02/98		0.22	J|	<		0.51		0.35	J|	<	25	B|	<	<	B|Uz
TPIN0053	01/04/99		0.20	J|	<		0.34	J|	0.28	J|	<	23	B|	<	<	
TPIN0057	02/01/99		0.19	J|	0.2	J|	0.31	J|	0.25	J|	<	19.7	B|	<	<	
TPIN0061	03/01/99		0.15	J|	<		0.23	J|	0.19	J|	<	14.5		<	<	
TPIN0066	04/05/99		0.14	J|	<		0.23	J|	0.17	J|	<	15.1		<	<	

-- = Not Analyzed
< = Below detection limit.
TDS =Total Dissolved Solids
TOC =Total Organic Carbon

TABLE 9
SUMMARY OF RESULTS - TREATMENT SYSTEM INFLUENT
LEHR/SCDS ENVIRONMENTAL RESTORATION
DAVIS, CALIFORNIA

		Analyte	NITRATE	TDS	TOC	CARBON-14		TRITIUM	
		Units	mg/L	mg/L	mg/L	pCi/L		pCi/L	
Sample ID	Date	QA							
TPIN0001	04/20/98		--	--	--	--		--	
TPIN0002	04/20/98		--	--	--	--		--	
TPIN0003	04/21/98		--	--	--	--		--	
TPIN0004	04/21/98		--	--	--	--		--	
TPIN0005	04/21/98		--	--	--	--		--	
TPIN0006	04/22/98		--	--	--	--		--	
TPIN0007	04/22/98		--	--	--	--		--	
TPIN0008	04/27/98		--	--	--	--		--	
TPIN0009	04/27/98		--	--	--	--		--	
TPIN0010	05/11/98		--	--	1.7	2.97±5.3	|UJv	21.0±200	|Uv
TPIN0011	05/13/98		--	--	1.7	5.05±5.2	|UJv	93.6±190	|UJv
TPIN0012	05/14/98		--	--	2.3	6.13±5.2	|UJv	138±190	|UJv
TPIN0013	05/16/98		--	--	1.5	51.30±6.9		63.9±180	|Uv
TPIN0014	05/17/98		--	--	1.5	3.63±5.2	|UJv	-27.1±1180	|Uv
TPIN0015	05/17/98		--	--	1.6	5.99±5.3	|UJv	43.5±180	|Uv
TPIN0016	05/18/98		--	--	1.4	8.58±5.2	|Jv	85.9±180	|UJv
TPIN0017	05/19/98		--	--	1.4	9.12±5.2	|Jv	183±180	|UJv
TPIN0018	05/20/98		--	--	1.4	5.27±5.1	|UJv	74.7±180	|Uv
TPIN0019	05/22/98		--	--	1.4	22.7±5.7	|Jd	35.3±180	|Uv
TPIN0020	05/27/98		--	--	2.0	5.07±5.1	|UJd	76.2±180	|Uv
TPIN0021	06/01/98		--	--	2.0	17.3±5.5	|Jd	149±180	|UJv
TPIN0022	06/08/98		--	--	1.4	13.3±5.3		21.0±180	|Uv
TPIN0023	06/17/98		--	--	1.5	1.51±5.1	|Uv	55.3±180	|Uv
TPIN0024	06/17/98		--	--	1.4	7.88±5.3	|Jv	-24.0±170	|Uv
TPIN0025	06/22/98		--	--	<	4.53±5.3	|UJv	175±180	|UJv
TPIN0026	06/29/98		--	--	1.0	6.55±5.5	|UJv	52.2±160	|Uv
TPIN0027	07/06/98		--	--	<	-0.32±155	U|	40.4±200	U|
TPIN0028	07/06/98		--	--	<	3.11±5.2	U|UJv	140±210	U|UJv
TPIN0029	07/13/98		--	--	1.1	3.42±5.30	U|UJv	-21.5±5170	U|
TPIN0030	07/20/98		--	--	1.0	7.39±5.0	|Jv	92.6±190	|Jv

-- = Not Analyzed
< = Below detection limit.
TDS =Total Dissolved Solids
TOC =Total Organic Carbon

TABLE 9
SUMMARY OF RESULTS - TREATMENT SYSTEM INFLUENT
LEHR/SCDS ENVIRONMENTAL RESTORATION
DAVIS, CALIFORNIA

		Analyte	NITRATE	TDS	TOC	CARBON-14		TRITIUM	
		Units	mg/L	mg/L	mg/L	pCi/L		pCi/L	
Sample ID	Date	QA							
TPIN0031	07/28/98		--	--	1.2	2.91±5.0	U|UJv	59.4±180	U|
TPIN0032	08/03/98		--	--	3.56	10.2±5.7	J|Jv	-30.5±110	U|
TPIN0033	09/09/98		--	--	4.41	16.3±10	U|	-83.8±150	U|
TPIN0034	10/05/98		--	--	6.63	14.3±6.12	J|Jv	-30.2±112	U|
TPIN0045	11/02/98		--	--	1.49	9.84±5.35	J|Jv	93.5±160	U|
TPIN0049	12/02/98		--	--	7.23	5.94±5.5	U|UJv	-145±142	U|
TPIN0053	01/04/99		--	--	4.55	3.18±4.87	U|	-224±156	U|
TPIN0057	02/01/99		--	--	4.6	8.20±5.37	U|UJv	-83.2±110	U|
TPIN0061	03/01/99		--	--	1.53	11.1±4.82	J|Jv	-129±122	U|
TPIN0066	04/05/99		--	--	1.04	7.25±4.7	U|UJ	-120±146	U|

-- = Not Analyzed
< = Below detection limit.
TDS =Total Dissolved Solids
TOC =Total Organic Carbon

TABLE 10
SUMMARY OF RESULTS - TREATMENT SYSTEM EFFLUENT
LEHR/SCDS ENVIRONMENTAL RESTORATION
DAVIS, CALIFORNIA

		Analyte	1,2-DCA		2-BUTANONE		ACETONE	CHLOROFORM	CHLOROMETHETHANE		METHYLENE CHLORIDE
		Units	ug/L		ug/L		ug/L	ug/L	ug/L		ug/L
		Daily Limit	0.50		1.0		1.0	1.0	1.0		1.0
		Monthly Limit	0.5		0.5		0.5	0.5	32		0.5
Sample ID	Date	QA									
TPEF0001	04/20/98		<		<		<	<	**1.00**		<
TPEF0002	04/20/98		<		**11**		<	<	**1.40**		<
TPEF0003	04/21/98		<		<		<	<	**1.80**		<
TPEF0004	04/21/98		<		**2.6**	b|	<	<	0.80	J|	<
TPEF0005	04/21/98		<		**4.2**	b|	<	<	0.92	J|	<
TPEF0006	04/22/98		<		**3.0**	b|	<	<	0.67	J|	<
TPEF0007	04/22/98		<		**3.4**	b|	<	<	<		<
TPEF0008	04/27/98		<		**1.5**	J|	<	<	<		<
TPEF0009	04/27/98		<		**1.1**	J|	<	<	<		<
TPEF0010	05/04/98		<		<		<	<	<		<
TPEF0011	05/11/98		<		<		<	<	<		<
TPEF0012	05/13/98		<		<		<	<	<		<
TPEF0013	05/14/98		<		<		<	<	<		<
TPEF0014	05/14/98		<		<		<	<	<		<
TPEF0015	05/16/98		<		<		<	<	<		<
TPEF0016	05/17/98		<		<		<	<	<		<
TPEF0017	05/18/98		<		<		<	<	<		<
TPEF0018	05/19/98		<		<		<	<	<		<
TPEF0019	05/20/98		<		<		<	<	<		<
TPEF0020	05/22/98		<		<		<	<	<		<
TPEF0021	05/27/98		<		<		<	<	<		<
TPEF0022	06/01/98		<		<		<	<	<		<
TPEF0023	06/08/98		<		<		<	<	<		<
TPEF0024	06/17/98		<		<		<	<	<		<
TPEF0025	06/22/98		<		<		<	<	<		<
TPEF0026	06/22/98		<		<		<	<	<		<
TPEF0027	06/29/98		<		<		<	<	<		<
TPEF0028	07/06/98		<		<		<	<	<		<
TPEF0029	07/06/98		<		<		<	<	<		<
TPEF0030	07/13/98		<		<		<	<	<		<

Bolded text indicates values exceeding effluent limits
-- = Not Analyzed
< = Below detection limit.
TDS =Total Dissolved Solids
TOC =Total Organic Carbon

TABLE 10
SUMMARY OF RESULTS - TREATMENT SYSTEM EFFLUENT
LEHR/SCDS ENVIRONMENTAL RESTORATION
DAVIS, CALIFORNIA

		Analyte	1,2-DCA		2-BUTANONE		ACETONE		CHLOROFORM		CHLOROMETHETHANE		METHYLENE CHLORIDE	
		Units	ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
		Daily Limit	0.50		1.0		1.0		1.0		1.0		1.0	
		Monthly Limit	0.5		0.5		0.5		0.5		32		0.5	
Sample ID	Date	QA												
TPEF0031	07/20/98		<		<		<		<		<		<	
TPEF0032	07/28/98		<		<		<		<		<		<	
TPEF0033	08/03/98		<		<		**1.00**		0.18	J|	<		**0.97**	J|
TPEF0034	08/10/98		--		--		--		--		--		--	
TPEF0035	08/17/98		--		--		--		--		--		--	
TPEF0036	08/24/98		--		--		--		--		--		--	
TPEF0037	08/31/98		--		--		--		--		--		--	
TPEF0038	09/09/98		<		<		<		<		<		<	JB|Uz
TPEF0039	09/14/98		--		--		--		--		--		--	
TPEF0040	09/22/98		--		--		--		--		--		--	
TPEF0041	09/28/98		--		--		--		--		--		--	
TPEF0042	10/05/98		<		<		<		<		<		<	
TPEF0043	10/22/98		--		--		--		--		--		--	
TPEF0044	10/26/98		--		--		--		--		--		--	
TPEF0045	11/02/98		<		<		<		<		<		**0.70**	BJ|UJcz
TPEF0046	11/10/98		--		--		--		--		--		--	
TPEF0047	11/16/98		--		--		--		--		--		--	
TPEF0048	11/23/98		--		--		--		--		--		--	
TPEF0049	12/02/98		0.14	J|	<		<	B|UJ	<		<		<	B|Uz
TPEF0050	12/08/98		--		--		--		--		--		--	
TPEF 0051	12/21/98		--		--		--		--		--		--	
TPEF0051A	12/15/98		--		--		--		--		--		--	
TPEF0051B	12/21/98		--		--		--		--		--		--	
TPEF0052	12/28/98		--		--		--		--		--		--	
TPEF0053	01/04/99		<		<		<		<		<		<	
TPEF0054	01/11/99		--		--		--		--		--		--	
TPEF0055	01/19/99		--		--		--		--		--		--	
TPEF0056	01/25/99		--		--		--		--		--		--	
TPEF0057	02/01/99		<		<		<		<		<		<	J|Uy
TPEF0058	02/08/99		--		--		--		--		--		--	
TPEF0059	02/16/99		--		--		--		--		--		--	

Bolded text indicates values exceeding effluent limits
-- = Not Analyzed
< = Below detection limit.
TDS =Total Dissolved Solids
TOC =Total Organic Carbon

TABLE 10
SUMMARY OF RESULTS - TREATMENT SYSTEM EFFLUENT
LEHR/SCDS ENVIRONMENTAL RESTORATION
DAVIS, CALIFORNIA

		Analyte	1,2-DCA	2-BUTANONE	ACETONE	CHLOROFORM	CHLOROMETHETHANE	METHYLENE CHLORIDE
		Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
		Daily Limit	0.50	1.0	1.0	1.0	1.0	1.0
		Monthly Limit	0.5	0.5	0.5	0.5	32	0.5
Sample ID	Date	QA						
TPEF0060	02/22/99		--	--	--	--	--	--
TPEF0061	03/01/99		<	<	<	<	<	<
TPEF0062	03/09/99		--	--	--	--	--	--
TPEF0063	03/16/99		--	--	--	--	--	--
TPEF0064	03/22/99		--	--	--	--	--	--
TPEF0065	03/30/99		--	--	--	--	--	--
TPEF0066	04/05/99		<	<	<	<	<	<
TPEF0067	04/13/99		--	--	--	--	--	--
TPEF0068	04/19/99		--	--	--	--	--	--
TPEF0069	04/26/99		--	--	--	--	--	--

Bolded text indicates values exceeding effluent limits
-- = Not Analyzed
< = Below detection limit.
TDS =Total Dissolved Solids
TOC =Total Organic Carbon

TABLE 10
SUMMARY OF RESULTS - TREATMENT SYSTEM EFFLUENT
LEHR/SCDS ENVIRONMENTAL RESTORATION
DAVIS, CALIFORNIA

		Analyte	TOTAL CHROMIUM	HEXAVALENT CHROMIUM	NITRATE	TDS	CARBON-14		TRITIUM	
		Units	ug/L	ug/L	mg/L	mg/L	pCi/L		pCi/L	
		Daily Limit	50	50	10	500	—		—	
		Monthly Limit	32	32	7.7	485	20		300	
Sample ID	Date	QA								
TPEF0001	04/20/98		13.0	10.0	3.20	464	4.71±5.3	|UJv	190±230	|UJv
TPEF0002	04/20/98		--	--	--	460	--		--	
TPEF0003	04/21/98		--	--	--	461	--		--	
TPEF0004	04/21/98		14.0	16.0	3.40	442	4.80±5.3	|UJv	166±200	|UJv
TPEF0005	04/21/98		--	--	--	476	--		--	
TPEF0006	04/22/98		--	--	--	473	--		--	
TPEF0007	04/22/98		14.0	13.0	3.40	455	-9.68±85.5	|Uv	42.4±180	|Uv
TPEF0008	04/27/98		--	--	--	--	--		--	
TPEF0009	04/27/98		--	--	--	--	--		--	
TPEF0010	05/04/98		--	--	--	--	--		--	
TPEF0011	05/11/98		11.0	--	3.10	457	--		--	
TPEF0012	05/13/98		16.0	--	3.40	460	--		--	
TPEF0013	05/14/98		13.0	--	3.70	474	--		--	
TPEF0014	05/14/98		--	--	--	--	--		--	
TPEF0015	05/16/98		14.0	--	3.50	452	--		--	
TPEF0016	05/17/98		14.0	--	3.50	451	--		--	
TPEF0017	05/18/98		13.0	--	3.60	450	--		--	
TPEF0018	05/19/98		15.0	--	3.50	435	--		--	
TPEF0019	05/20/98		15.0	--	3.60	429	--		--	
TPEF0020	05/22/98		19.0	--	3.60	403	--		--	
TPEF0021	05/27/98		16.0	--	3.70	478	--		--	
TPEF0022	06/01/98		13.0	--	3.50	457	--		--	
TPEF0023	06/08/98		13.0	--	3.70	468	--		--	
TPEF0024	06/17/98		14.0	--	3.90	485	--		--	
TPEF0025	06/22/98		13.0	--	3.70	455	--		--	
TPEF0026	06/22/98		15.0	--	3.80	461	--		--	
TPEF0027	06/29/98		18.0	--	4.50	458	--		--	
TPEF0028	07/06/98		20.0	--	4.70	**502**	--		--	
TPEF0029	07/06/98		19.0	--	4.70	**507**	--		--	
TPEF0030	07/13/98		16.0	--	5.70	470	--		--	

Bolded text indicates values exceeding effluent limits
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TDS =Total Dissolved Solids
TOC =Total Organic Carbon

TABLE 10
SUMMARY OF RESULTS - TREATMENT SYSTEM EFFLUENT
LEHR/SCDS ENVIRONMENTAL RESTORATION
DAVIS, CALIFORNIA

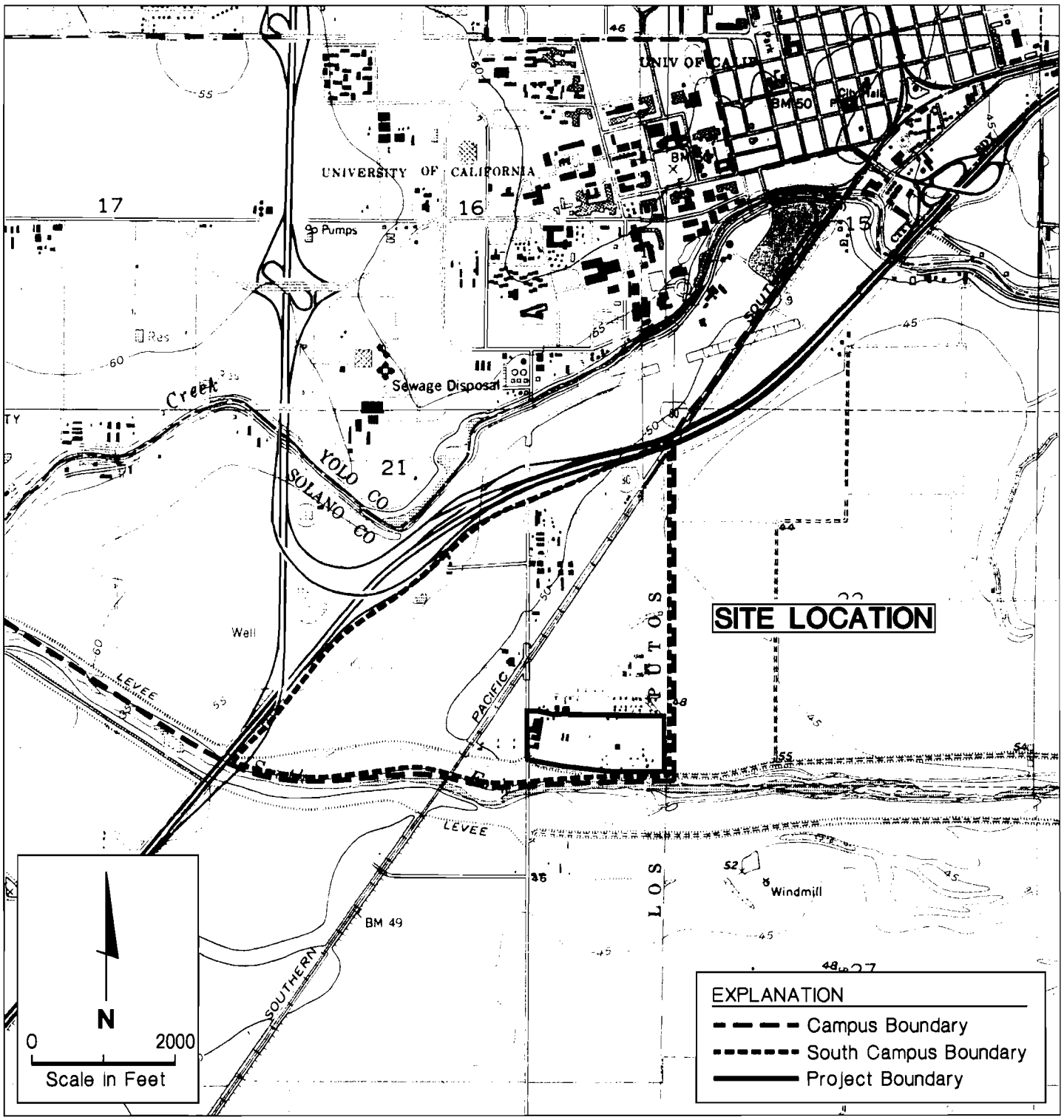
		Analyte	TOTAL CHROMIUM	HEXAVALENT CHROMIUM	NITRATE	TDS	CARBON-14	TRITIUM
		Units	ug/L	ug/L	mg/L	mg/L	pCi/L	pCi/L
		Daily Limit	50	50	10	500	—	—
		Monthly Limit	32	32	7.7	485	20	300
Sample ID	Date	QA						
TPEF0031	07/20/98		22.0	--	6.00	428	--	--
TPEF0032	07/28/98		22.0	--	6.70	**495**	--	--
TPEF0033	08/03/98		20.9	--	7.26	**498**	--	--
TPEF0034	08/10/98		--	--	--	**524**	--	--
TPEF0035	08/17/98		--	--	--	**502**	--	--
TPEF0036	08/24/98		--	--	--	**503**	--	--
TPEF0037	08/31/98		--	--	--	**530**	--	--
TPEF0038	09/09/98		21.2	--	6.84	**492**	--	--
TPEF0039	09/14/98		--	--	--	**506**	--	--
TPEF0040	09/22/98		--	--	--	**488**	--	--
TPEF0041	09/28/98		--	--	--	**517**	--	--
TPEF0042	10/05/98		21.0	--	6.76	479	--	--
TPEF0043	10/22/98		--	--	7.20	**499**	--	--
TPEF0044	10/26/98		--	--	6.10	**490**	--	--
TPEF0045	11/02/98		19.2	18.0	6.66	469	--	--
TPEF0046	11/10/98		--	--	6.10	**487**	--	--
TPEF0047	11/16/98		--	--	6.10	**499**	--	--
TPEF0048	11/23/98		--	--	6.10	477	--	--
TPEF0049	12/02/98		--	16.0	6.69	480	--	--
TPEF0050	12/08/98		--	--	6.20	**497**	--	--
TPEF 0051	12/21/98		--	--	--	**485**	--	--
TPEF0051A	12/15/98		--	--	6.20	**490**	--	--
TPEF0051B	12/21/98		--	--	6.30	**485**	--	--
TPEF0052	12/28/98		--	--	5.90	**532**	--	--
TPEF0053	01/04/99		16.8	21.0	6.57	**486**	--	--
TPEF0054	01/11/99		--	--	6.30	**512**	--	--
TPEF0055	01/19/99		--	--	6.30	**493**	--	--
TPEF0056	01/25/99		--	--	6.40	**498**	--	--
TPEF0057	02/01/99		20.0	21.0	6.38	476	--	--
TPEF0058	02/08/99		--	--	6.0	483	--	--
TPEF0059	02/16/99		--	--	5.9	**496**	--	--

Bolded text indicates values exceeding effluent limits
-- = Not Analyzed
< = Below detection limit.
TDS =Total Dissolved Solids
TOC =Total Organic Carbon

TABLE 10
SUMMARY OF RESULTS - TREATMENT SYSTEM EFFLUENT
LEHR/SCDS ENVIRONMENTAL RESTORATION
DAVIS, CALIFORNIA

		Analyte	TOTAL CHROMIUM	HEXAVALENT CHROMIUM	NITRATE	TDS	CARBON-14	TRITIUM
		Units	ug/L	ug/L	mg/L	mg/L	pCi/L	pCi/L
		Daily Limit	50	50	10	500	---	---
		Monthly Limit	32	32	7.7	485	20	300
Sample ID	Date	QA						
TPEF0060	02/22/99		--	--	6.0	**490**	--	--
TPEF0061	03/01/99		20.5	0.020	--	475	--	--
TPEF0062	03/09/99		--	--	6.3	475	--	--
TPEF0063	03/16/99		--	--	6.1	**511**	--	--
TPEF0064	03/22/99		--	--	5.9	482	--	--
TPEF0065	03/30/99		--	--	6.1	465	--	--
TPEF0066	04/05/99		20.2	0.022	--	482	--	--
TPEF0067	04/13/99		--	--	6.4	483	--	--
TPEF0068	04/19/99		--	--	6.2	473	--	--
TPEF0069	04/26/99		--	--	6.4	**492**	--	--

Bolded text indicates values exceeding effluent limits
-- = Not Analyzed
< = Below detection limit.
TDS =Total Dissolved Solids
TOC =Total Organic Carbon



REFERENCE: USGS 7.5 Quadrangle; Merritt, CA, 1952, photorevised 1981; and Davis, CA, 1952, photorevised 1981.

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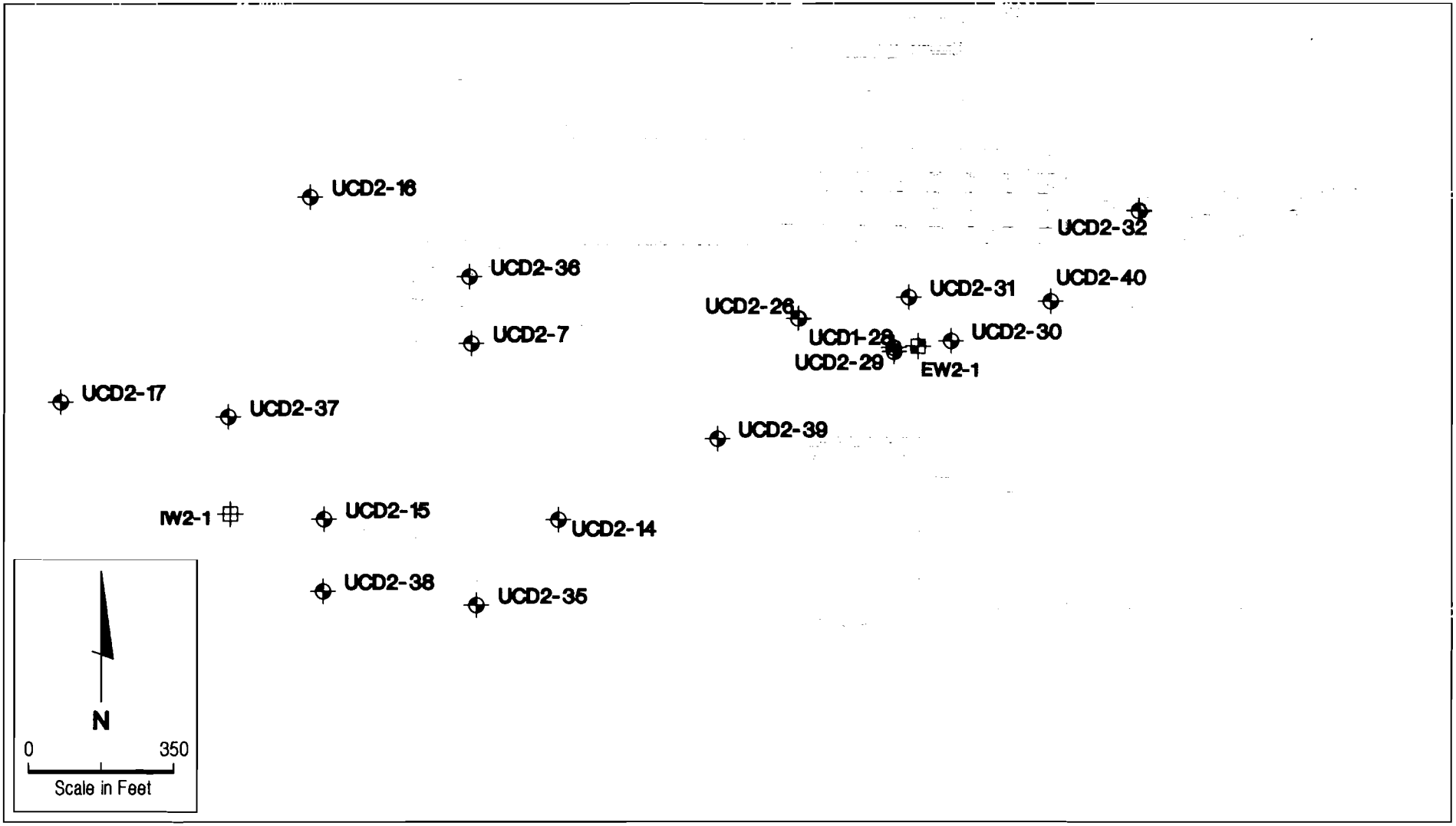
0023400-990514 MLM 990514svm 05/25/99

SITE VICINITY MAP

LEHR/SCDS Environmental Restoration
Davis, California

FIGURE 1



EXPLANATION

UCD2-26	IRA Monitoring Network Well
EW2-1	Extraction Well
IW2-1	Injection Well
	Other Monitoring Well

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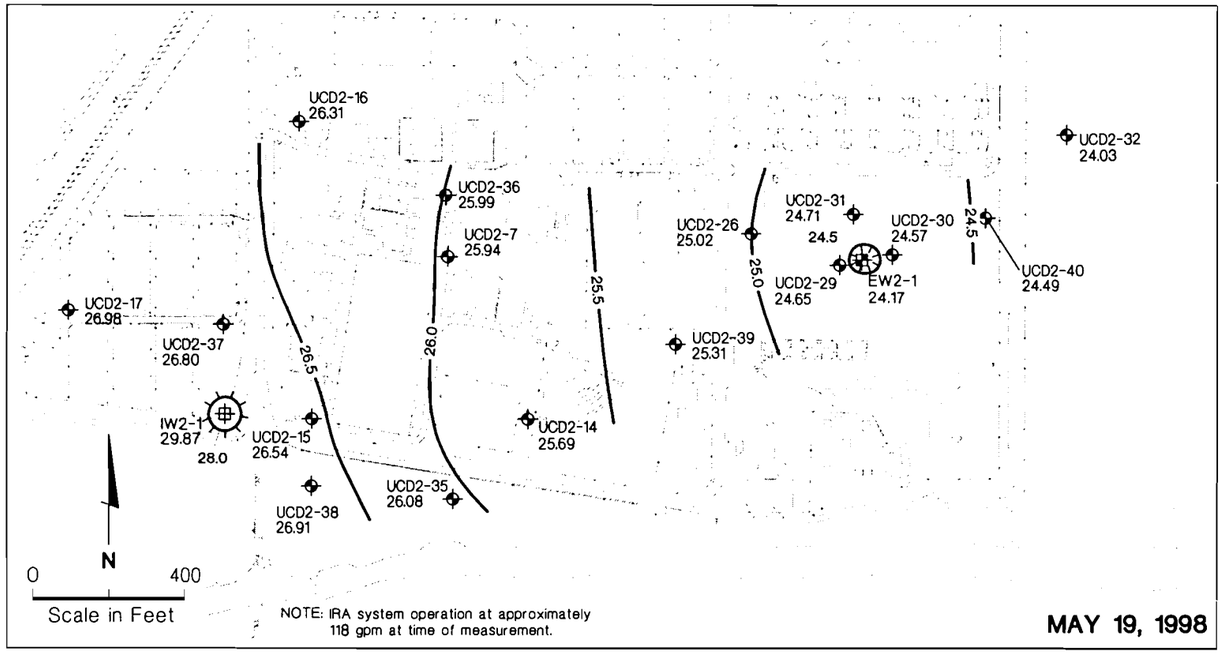
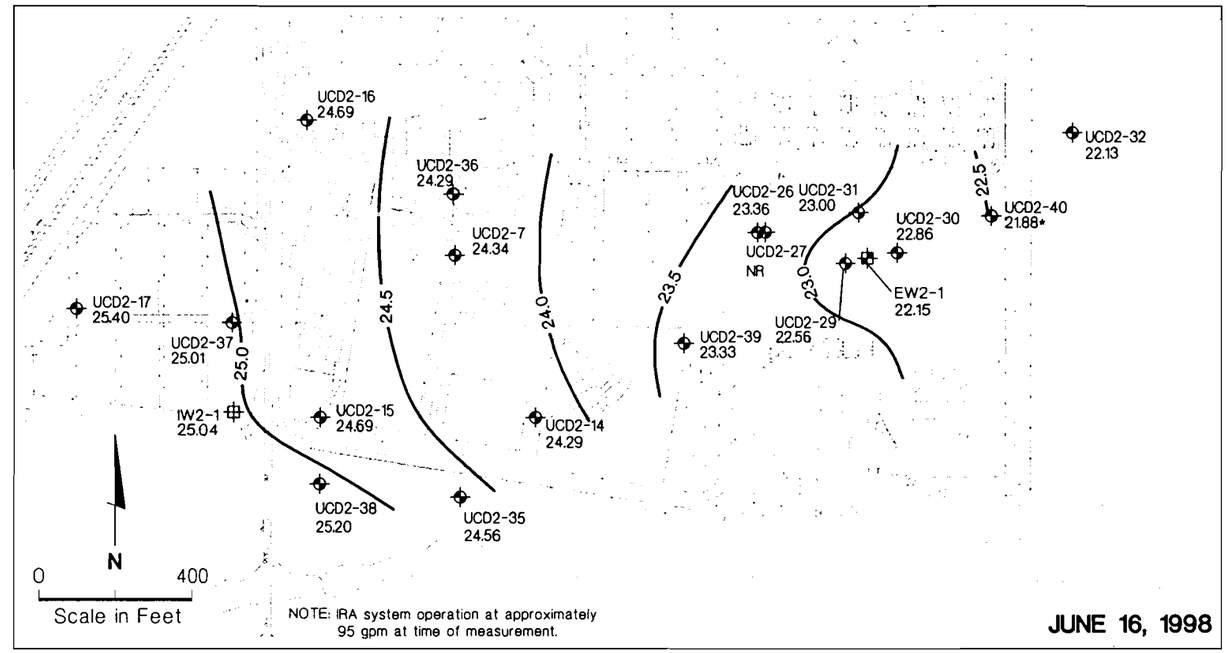
0023400-990514 MLM/JDF 990514B 07/1/99

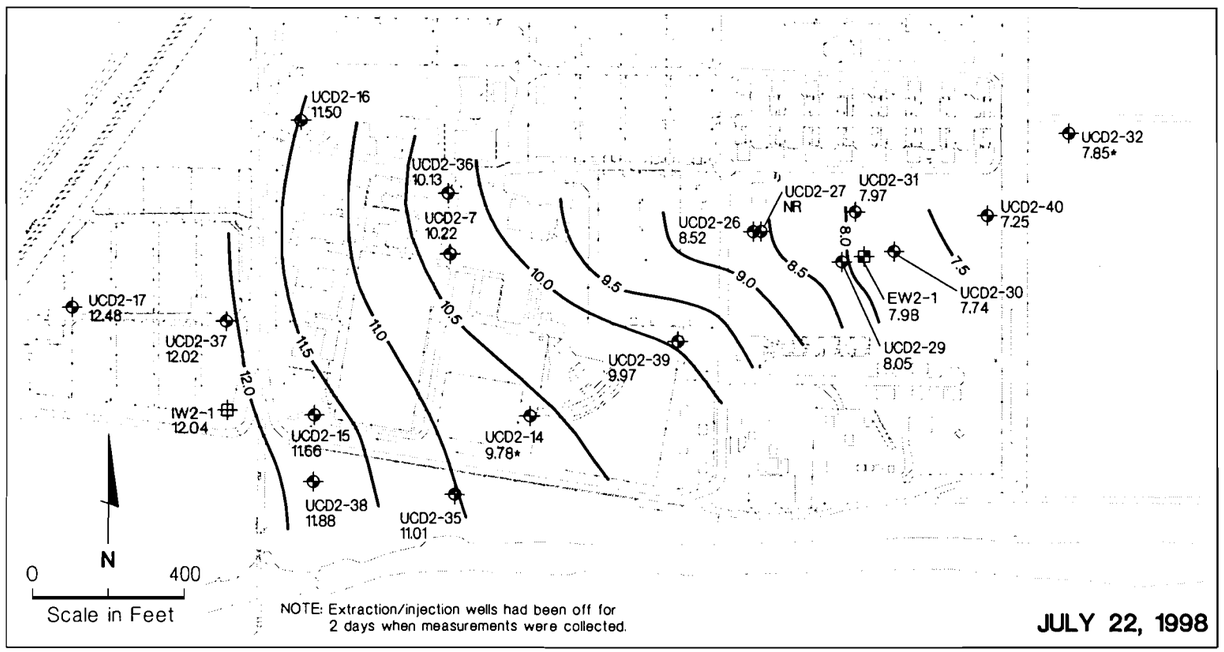
WELL LOCATION MAP

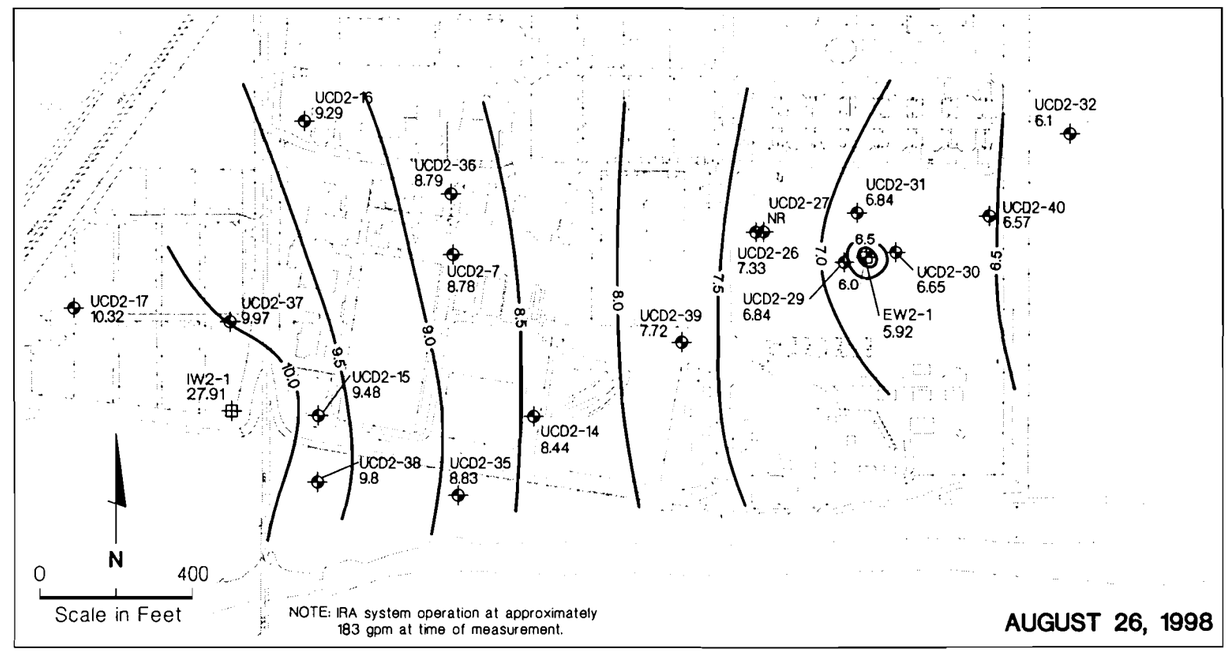
LEHR/SCDS Environmental Restoration
Davis, California

FIGURE 2









EXPLANATION

- UCD2-17 HSU-2 Monitoring Well
- EW2-1 HSU-2 Extraction Well
- IW2-1 HSU-2 Injection Well
- 24.0 Groundwater Elevation Contour (Feet MSL)

* Appears to be anomalous, not used in contouring.

GROUNDWATER ELEVATION CONTOUR MAP - HSU-2
MAY - AUGUST 1998

LEHR/SCDS Environmental Restoration
Davis, California

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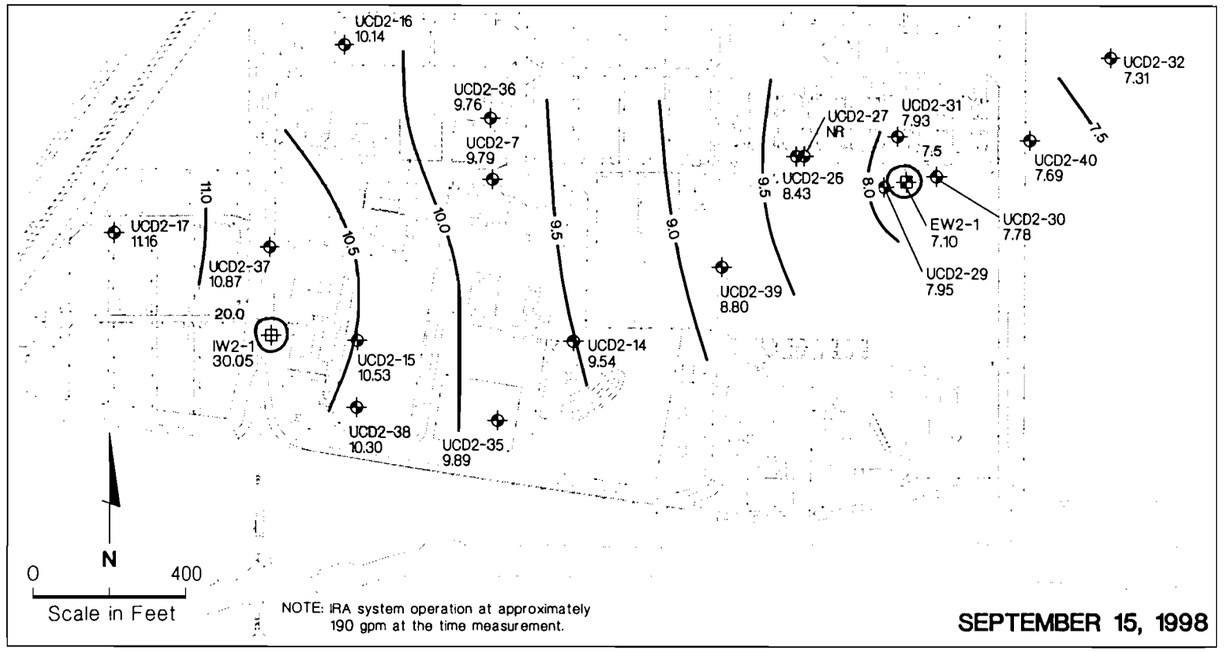
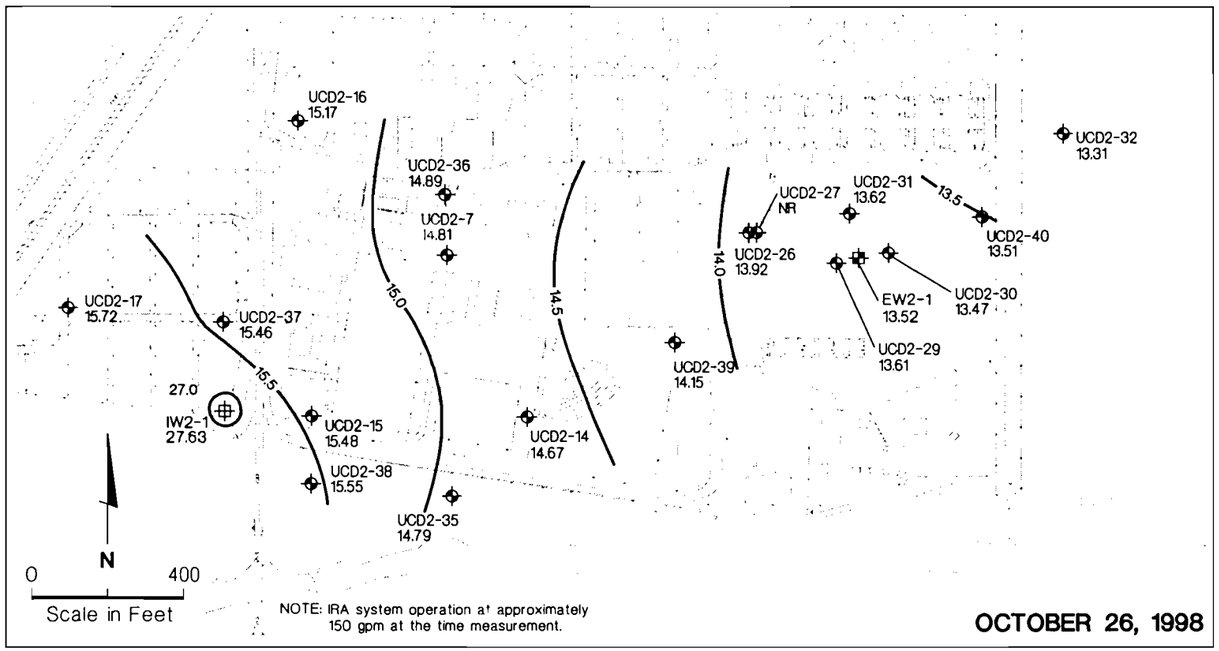
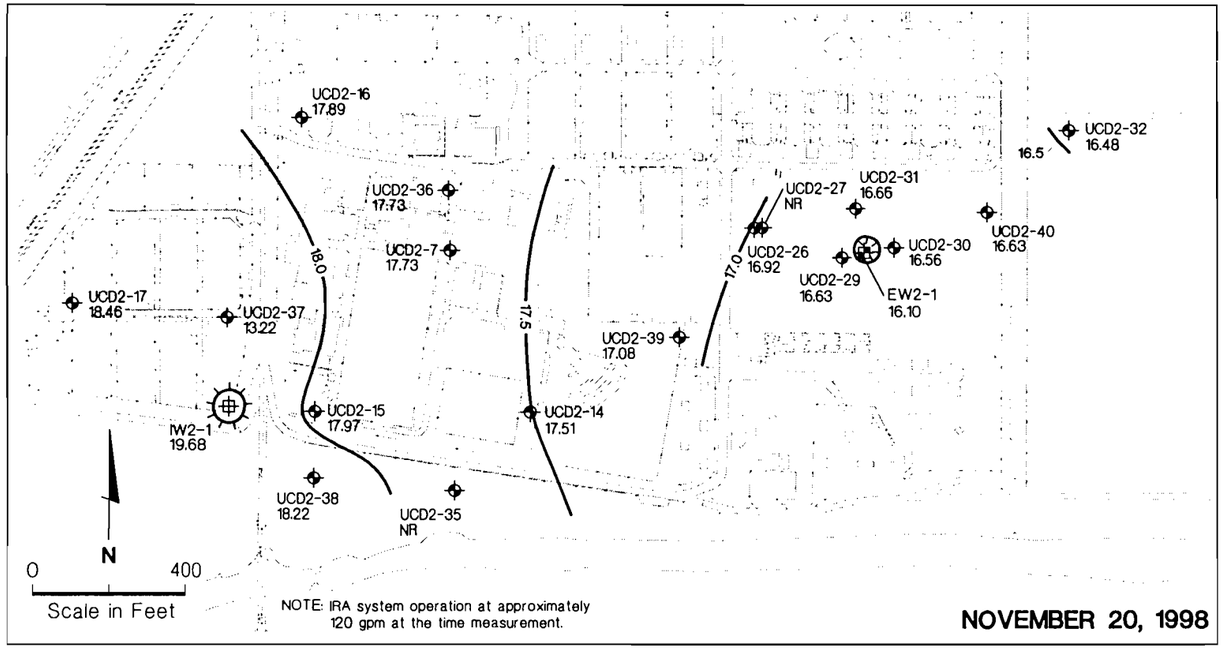
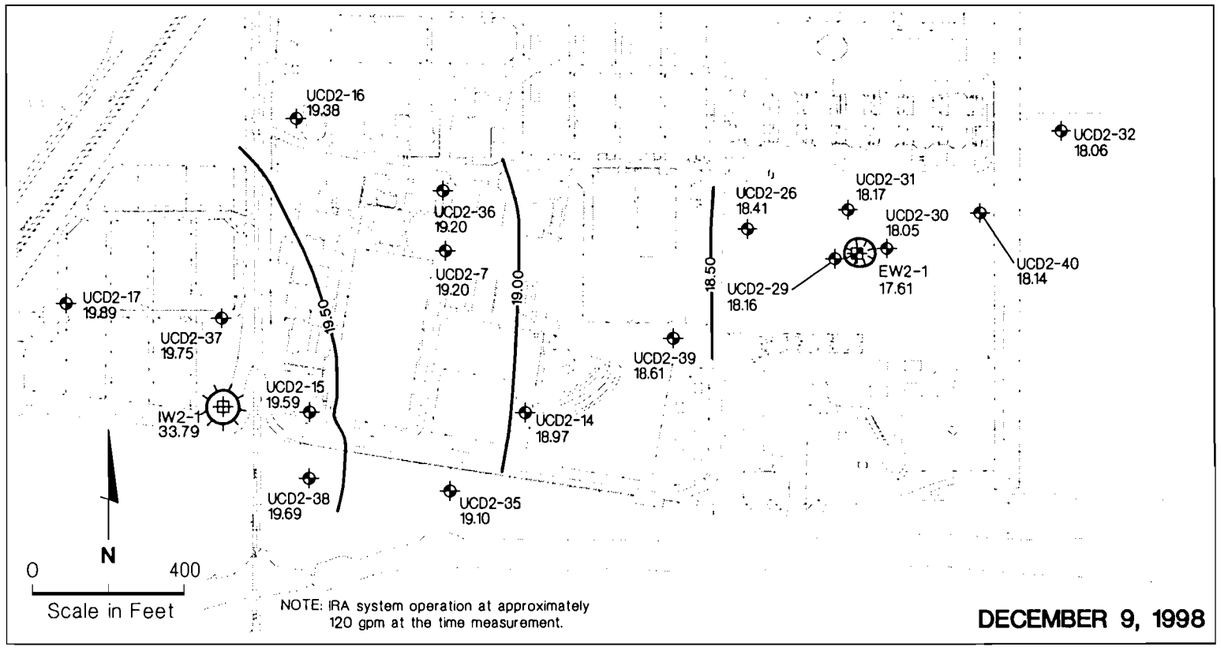
00234000-990514 MAJ 990514D 5/26/99

FIGURE 3









EXPLANATION

- UCD2-17 HSU-2 Monitoring Well
- EW2-1 HSU-2 Extraction Well
- IW2-1 HSU-2 Injection Well
- 24.0 — Groundwater Elevation Contour (Feet MSL)
- NR = Not Reported

* Appears to be anomalous, not used in contouring.

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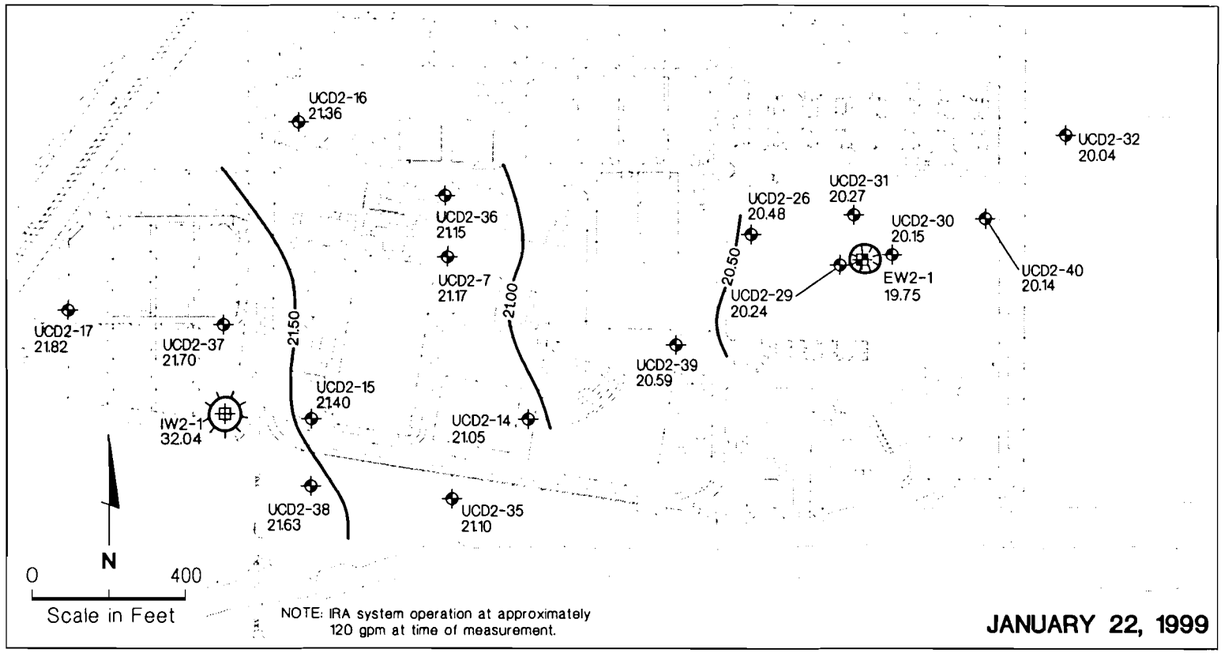
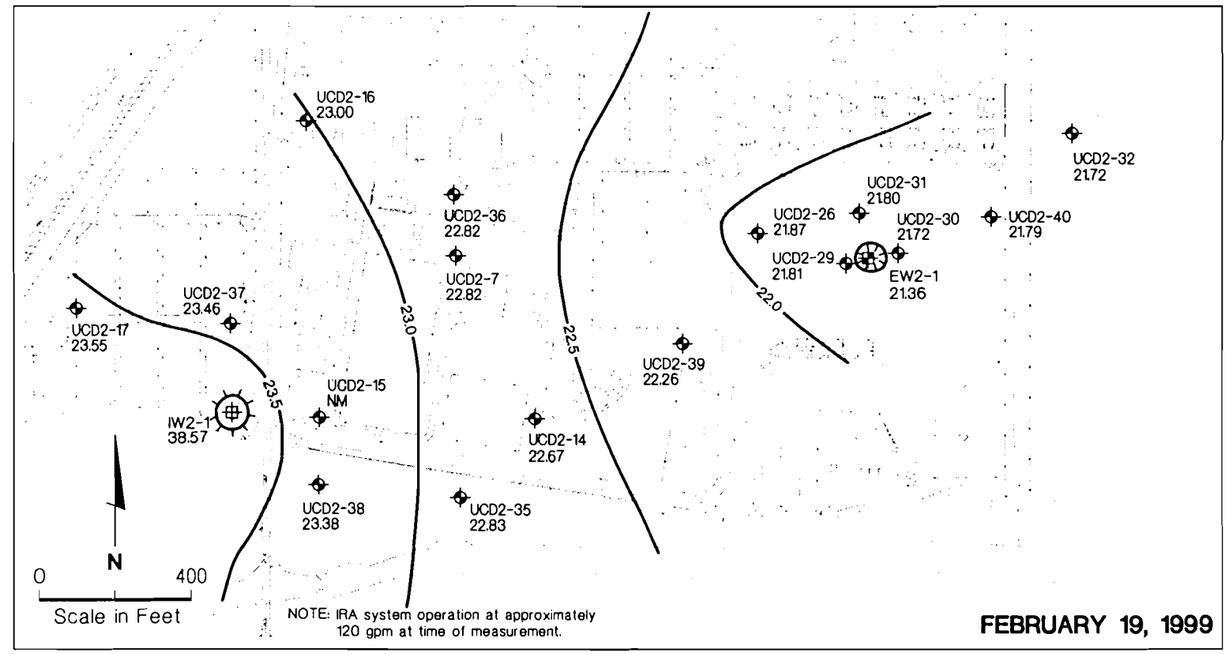
00234000-990514 MAJ 990514C 5/26/99

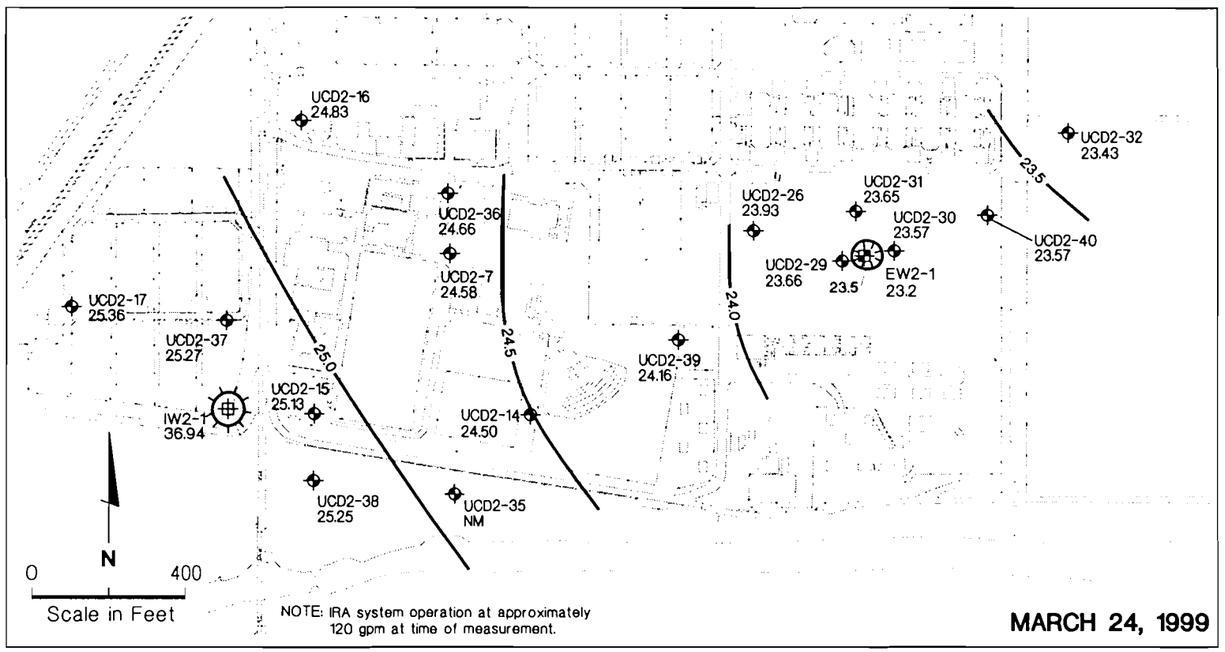
GROUNDWATER ELEVATION CONTOUR MAP - HSU-2
SEPTEMBER - DECEMBER 1998

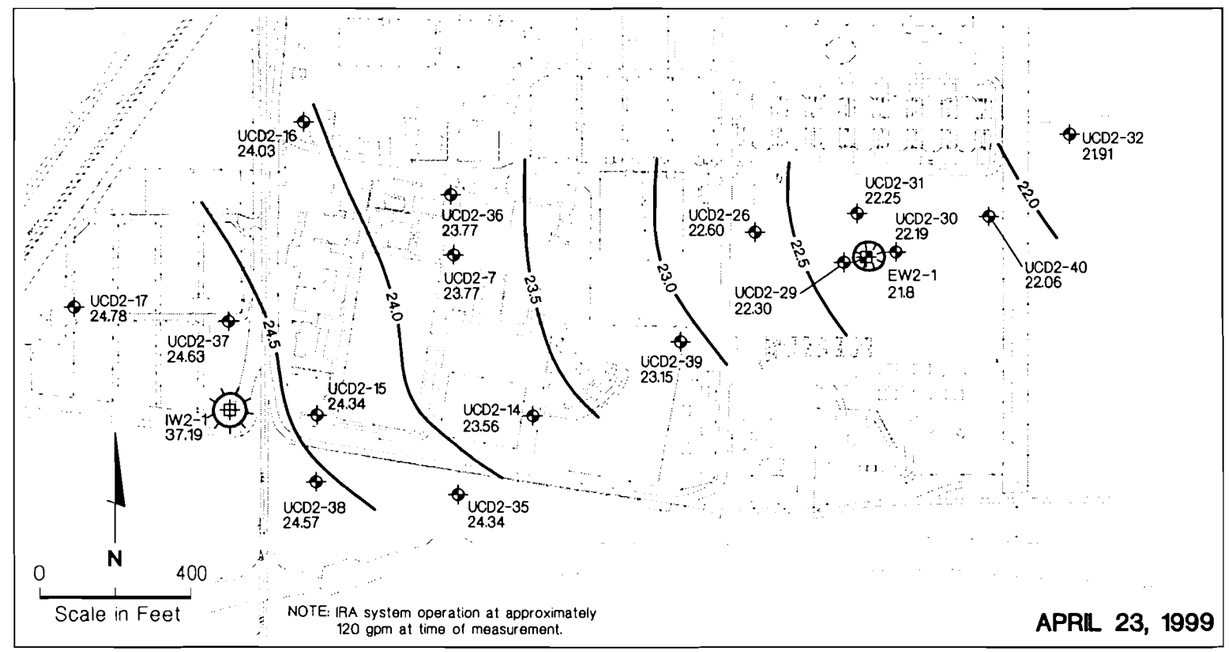
LEHR/SCDS Environmental Restoration
Davis, California

FIGURE 4









EXPLANATION

- UCD2-17 HSU-2 Monitoring Well
- EW2-1 HSU-2 Extraction Well
- IW2-1 HSU-2 Injection Well
- 24.0 Groundwater Elevation Contour (Feet MSL)

NM = Not Measured

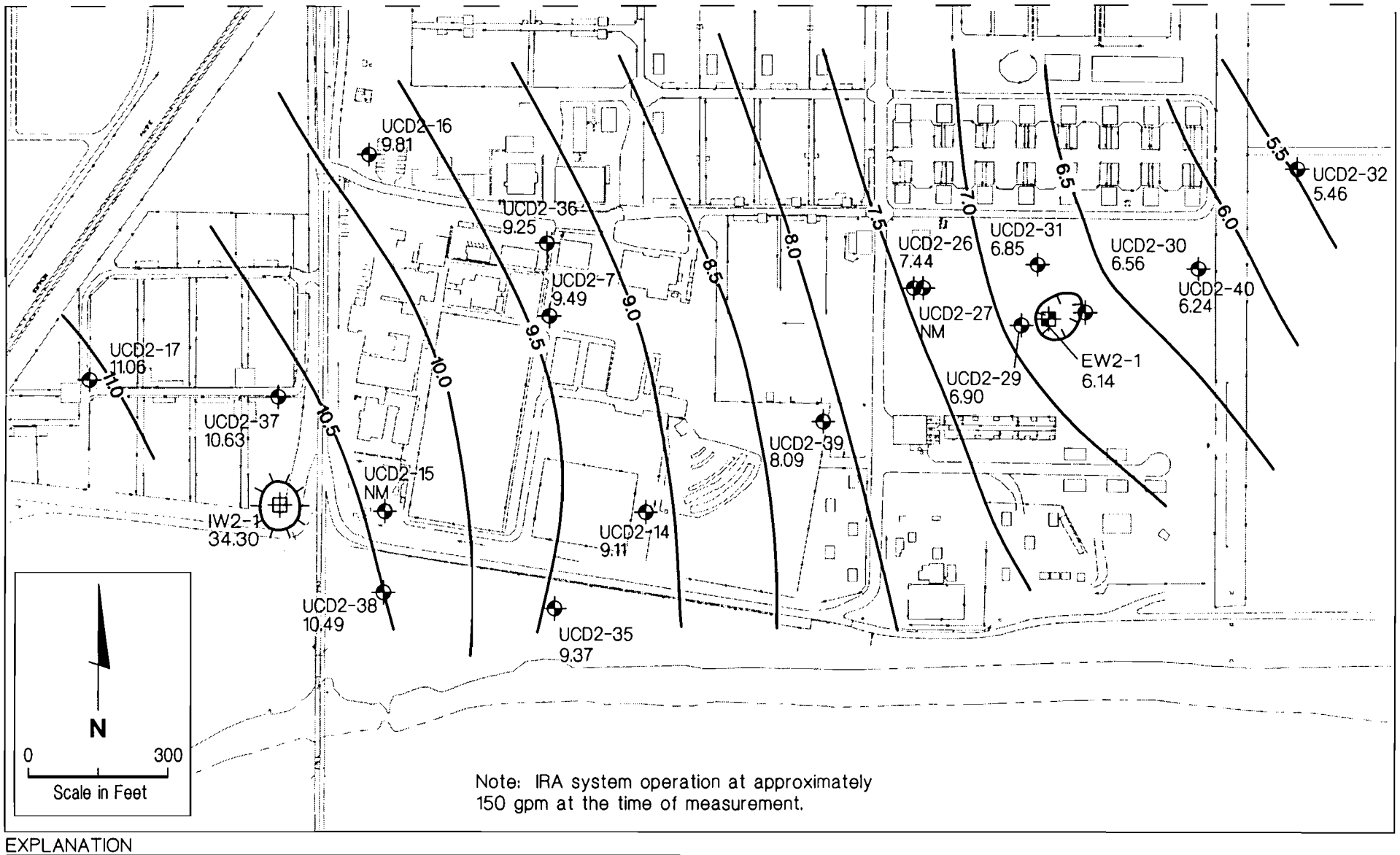
GROUNDWATER ELEVATION CONTOUR MAP - HSU-2
JANUARY - APRIL 1999

LEHR/SCDS Environmental Restoration
Davis, California

FIGURE 5

DAMES & MOORE
A DAMES & MOORE GROUP COMPANY

00234000-990514 MAJ 990514A 5/26/99



EXPLANATION

- UCD2-17 HSU-2 Monitoring Well
- EW2-1 HSU-2 Extraction Well
- IW2-1 HSU-2 Injection Well
- NM = Not Measured
- 24.0 Groundwater Elevation Contour (Feet MSL)

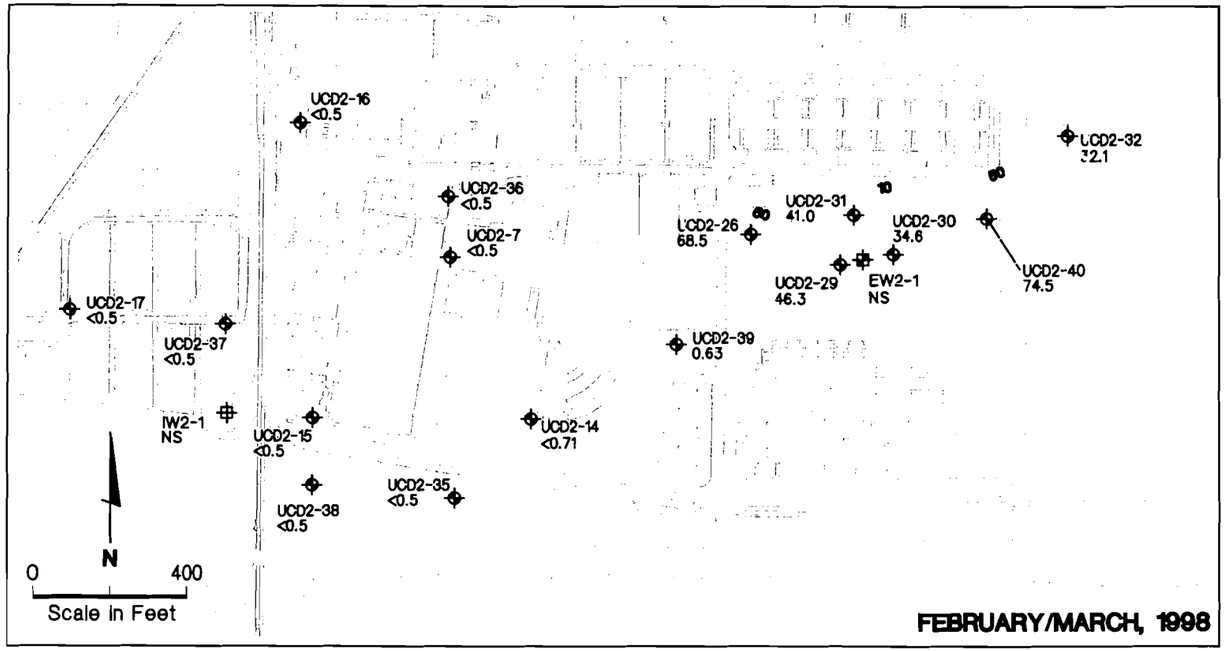
GROUNDWATER ELEVATION CONTOUR MAP MAY 28, 1999

LEHR/SCDS Environmental Restoration
Davis, California

DAMES & MOORE
A DAMES & MOORE GROUP COMPANY

00234000-990514 MLM 99051U 06/08/99

FIGURE 6



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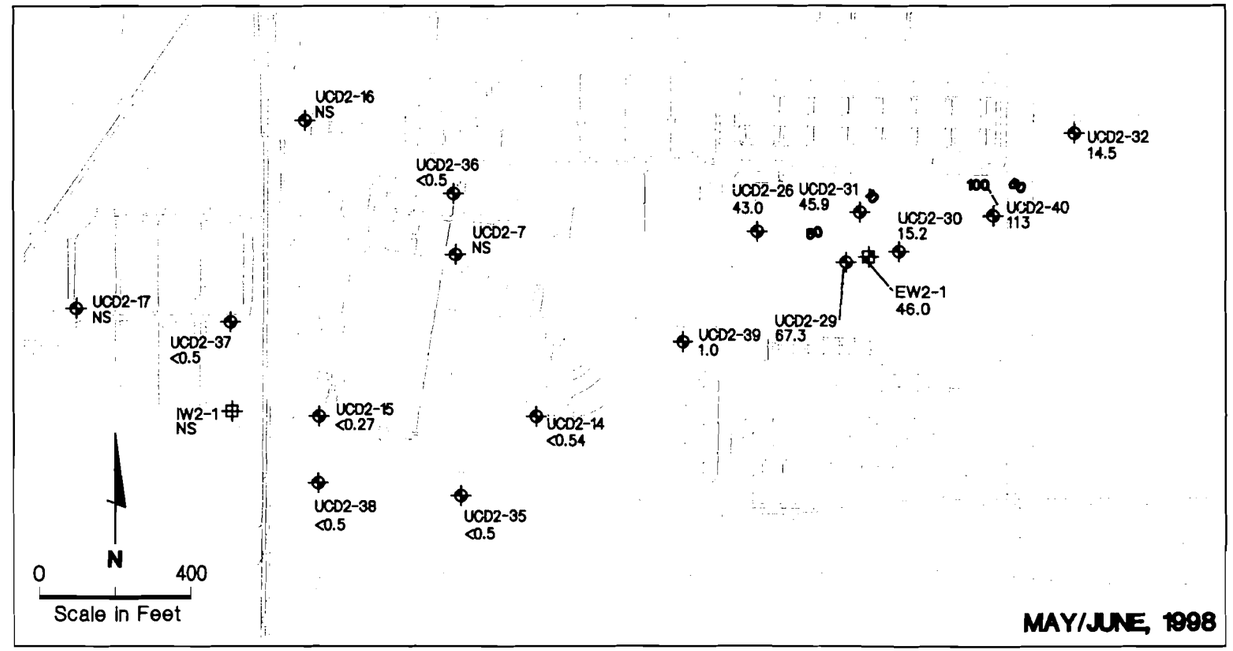
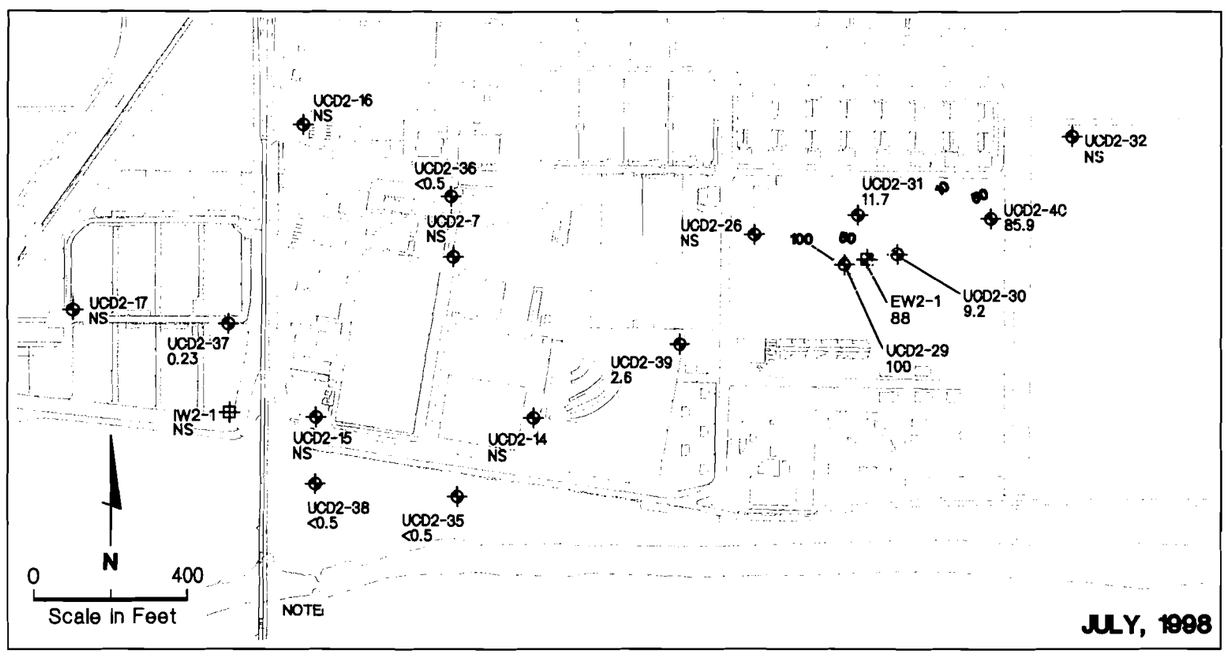
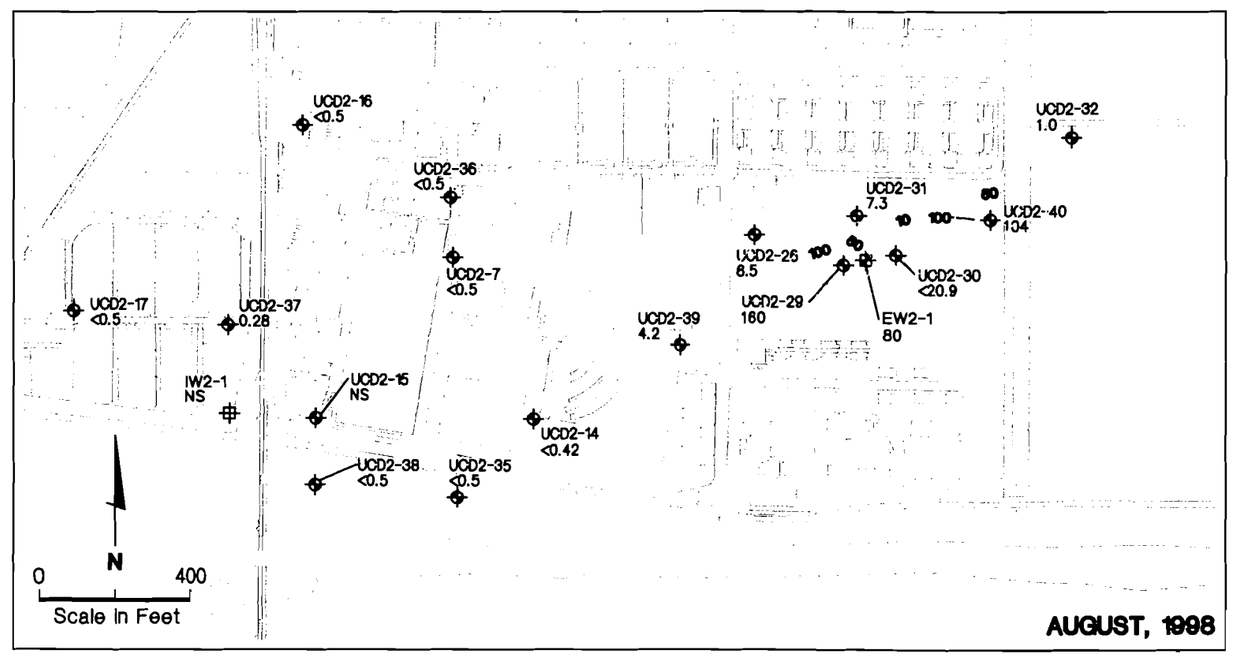


MAY/JUNE, 1998



JULY, 1998



AUGUST, 1998

EXPLANATION

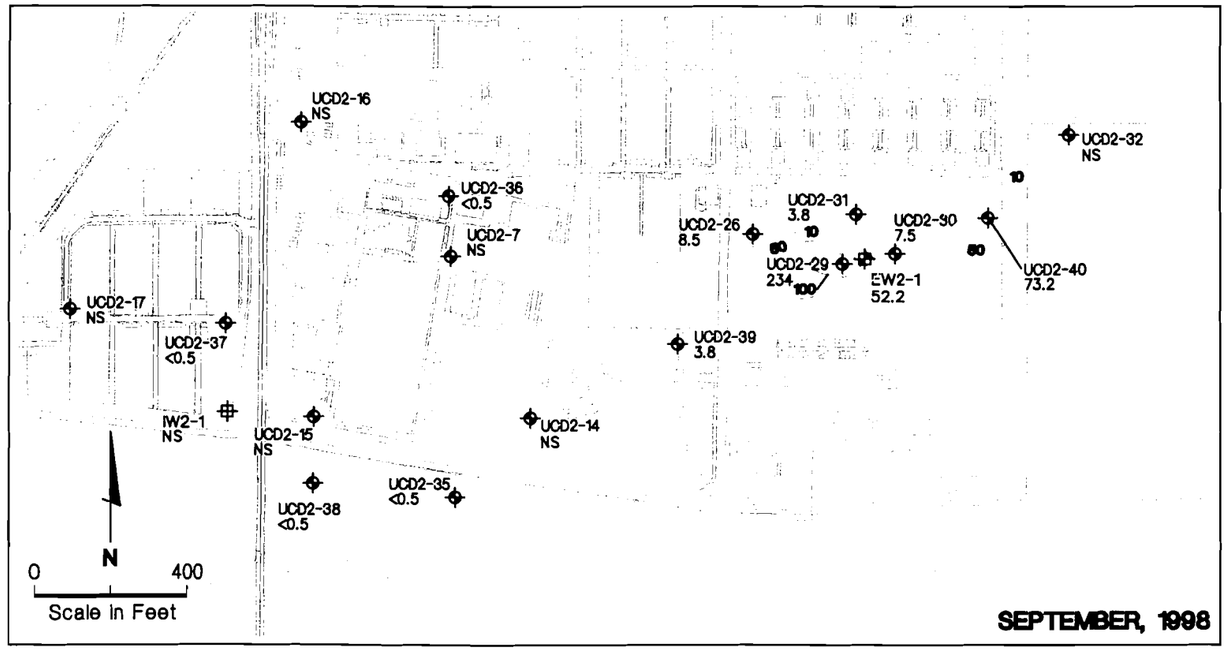
- UCD2-17 HSU-2 Monitoring Well
- EW2-1 HSU-2 Extraction Well
- IW2-1 HSU-2 Injection Well
- NS = Not Sampled
- 10 Chloroform Concentration Contours, in ug/L. Dashed Where Estimated.

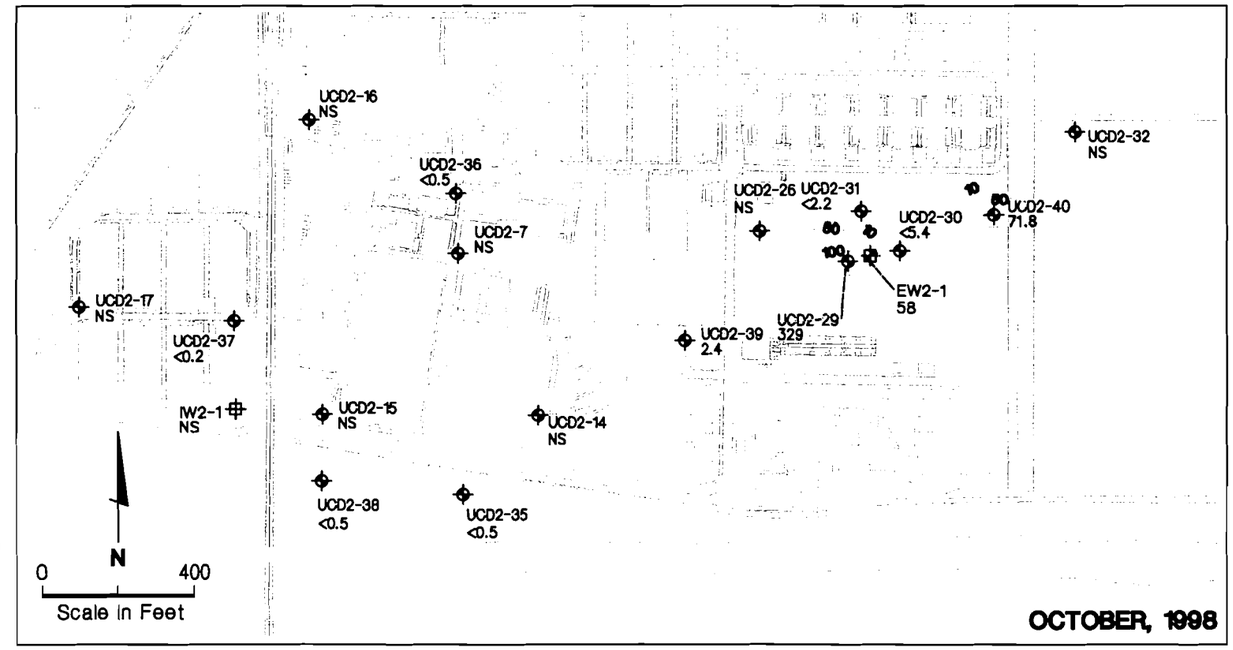
CHLOROFORM ISOCONCENTRATION MAPS FEBRUARY - AUGUST 1998

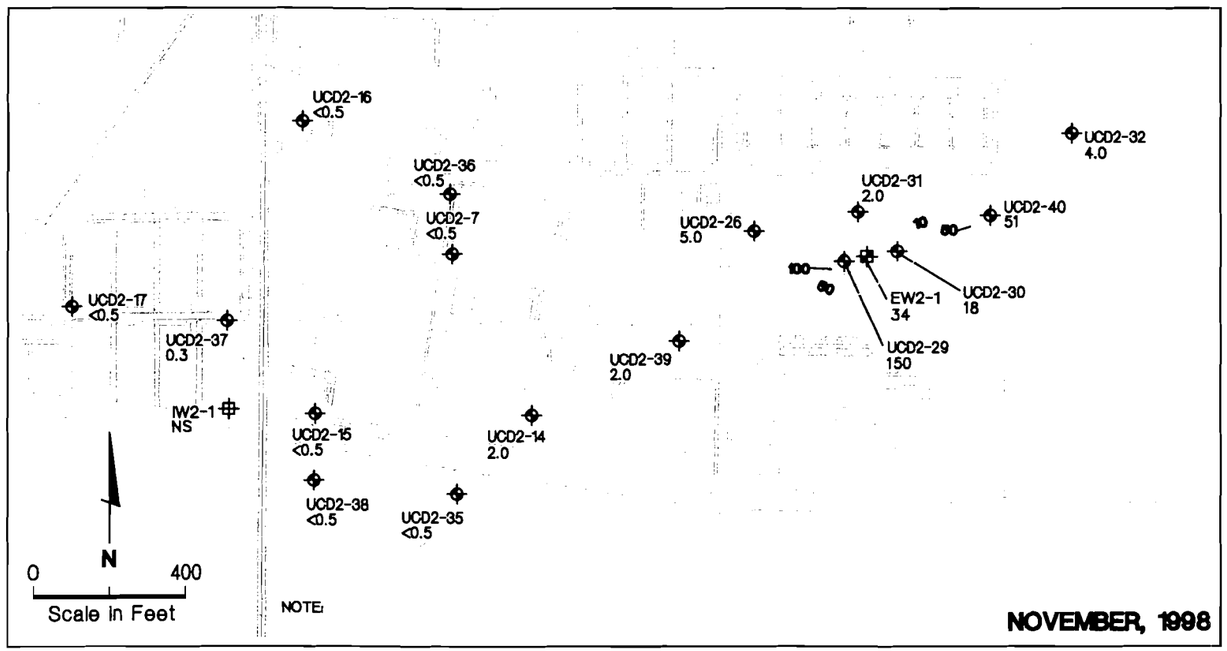
LEHR/SCDS Environmental Restoration
Davis, California
FIGURE 7

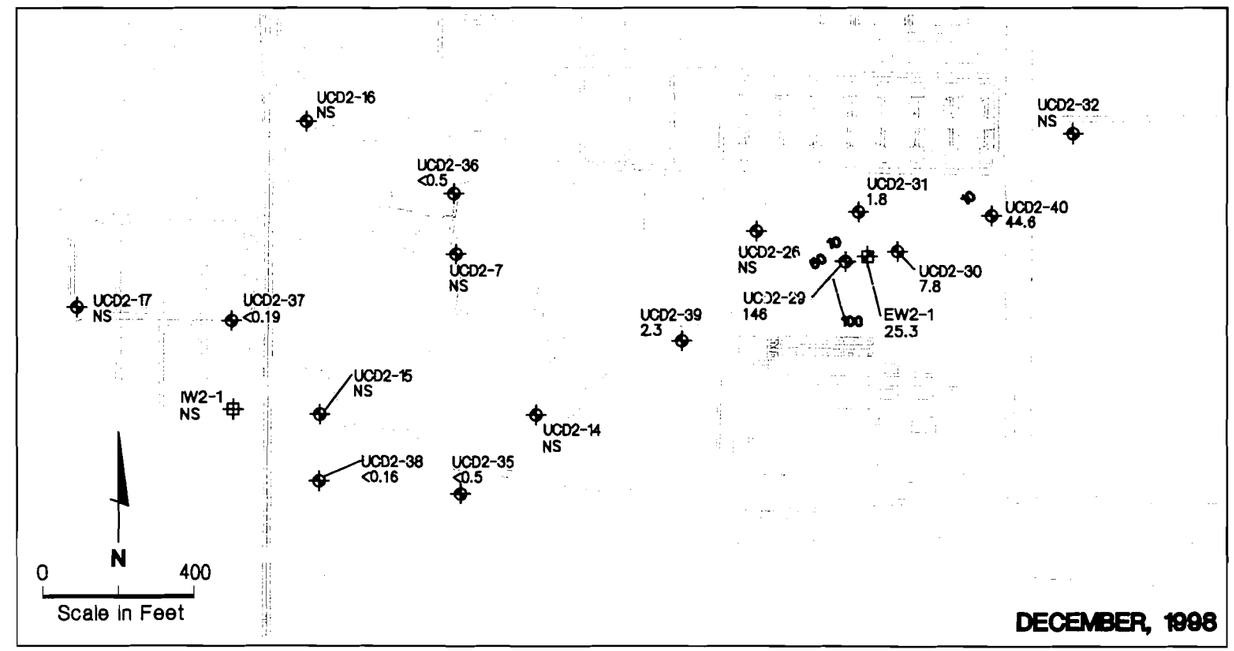
DAMES & MOORE
A DAMES & MOORE GROUP COMPANY

00234000-990514 MAJ/MLM/JDF 990514E 06/26/99









EXPLANATION

- UCD2-17 HSU-2 Monitoring Well
- EW2-1 HSU-2 Extraction Well
- IW2-1 HSU-2 Injection Well
- NS = Not Sampled
- 10 — Chloroform Concentration Contours, in ug/L. Dashed Where Estimated.

DAMES & MOORE
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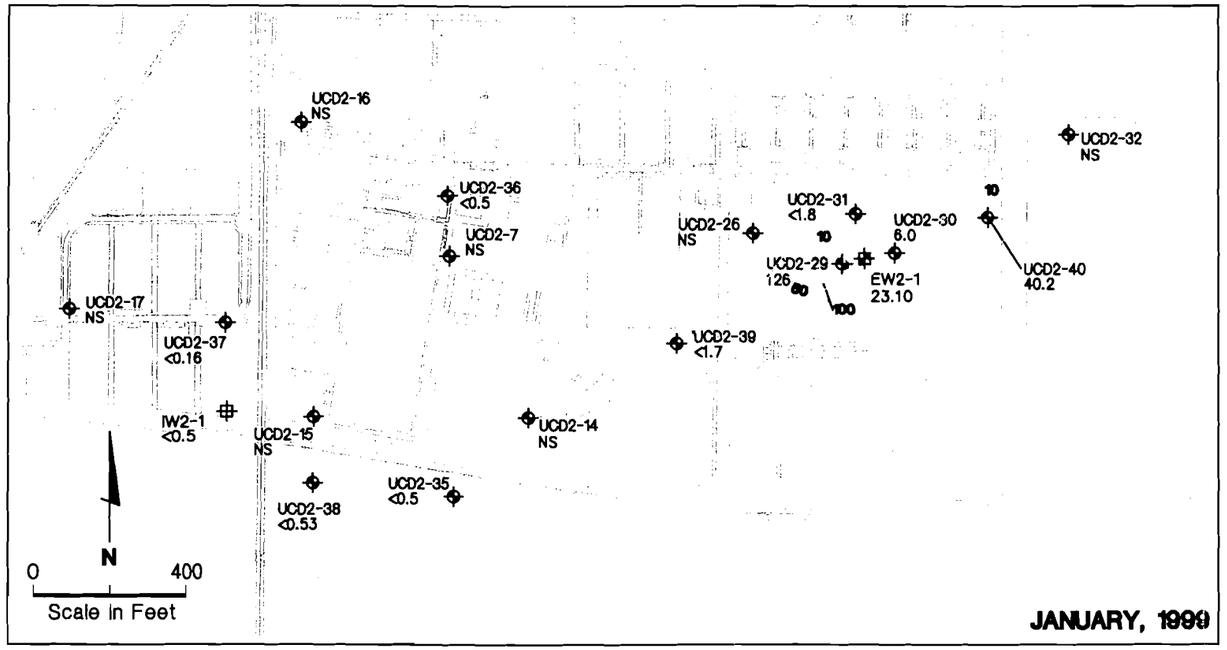
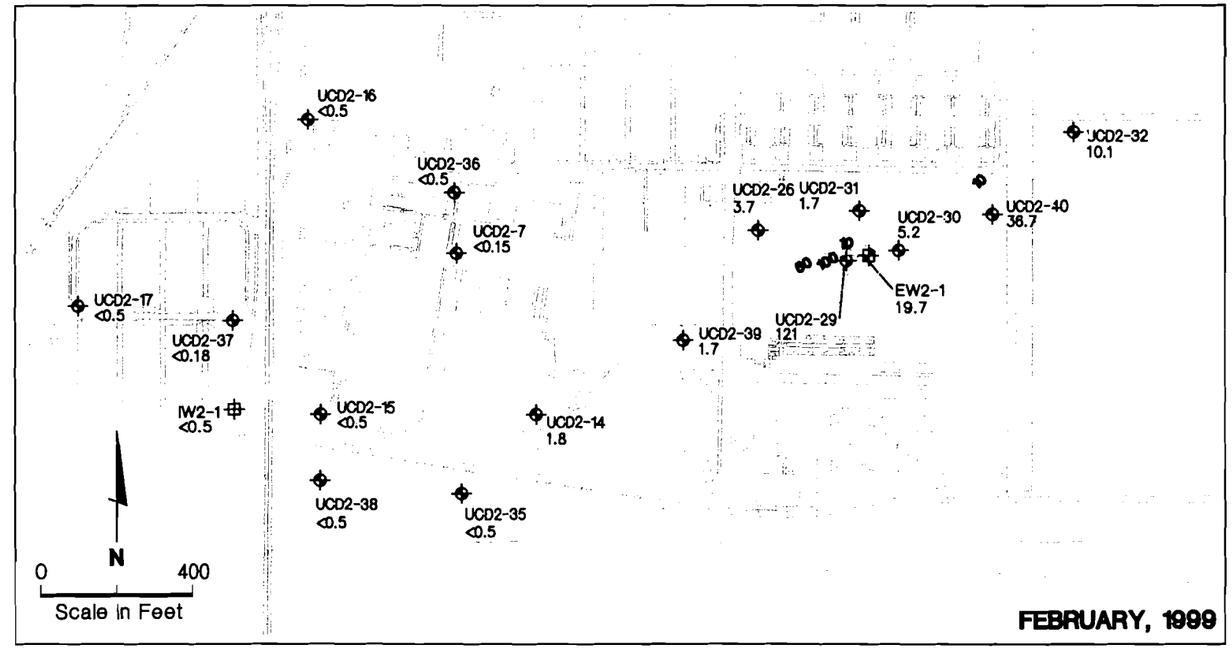
00234000-990514 MAJ/MLM/JDF 990514F 06/26/99

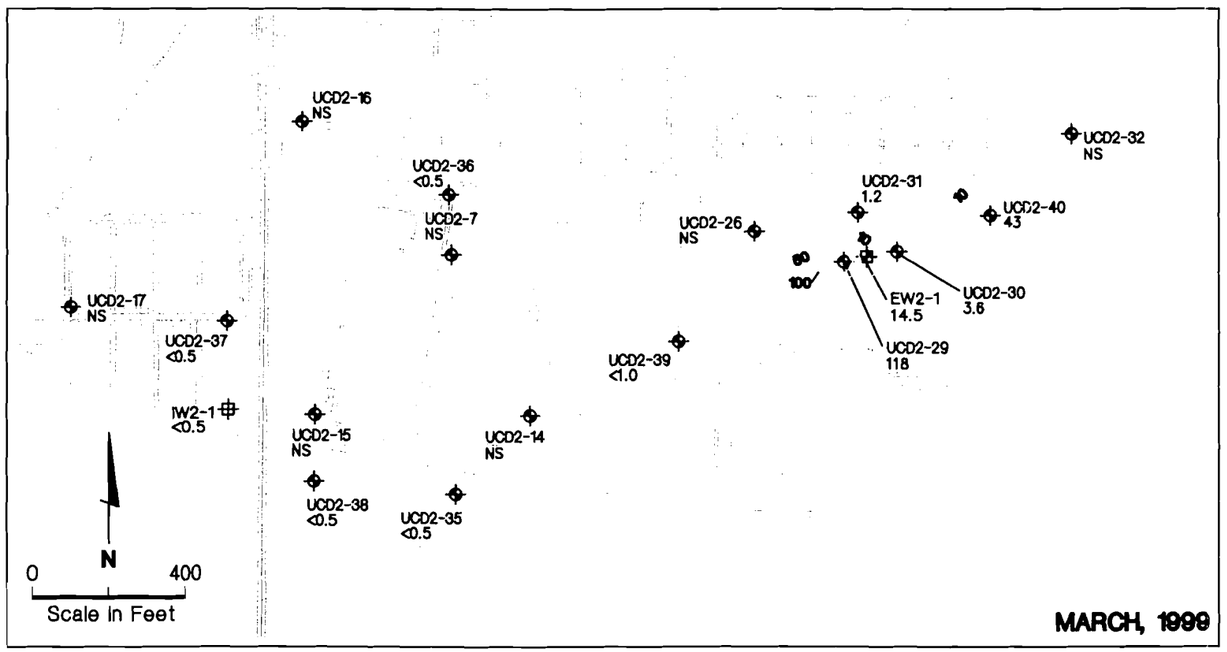
CHLOROFORM ISOCONCENTRATION MAPS SEPTEMBER - DECEMBER 1998

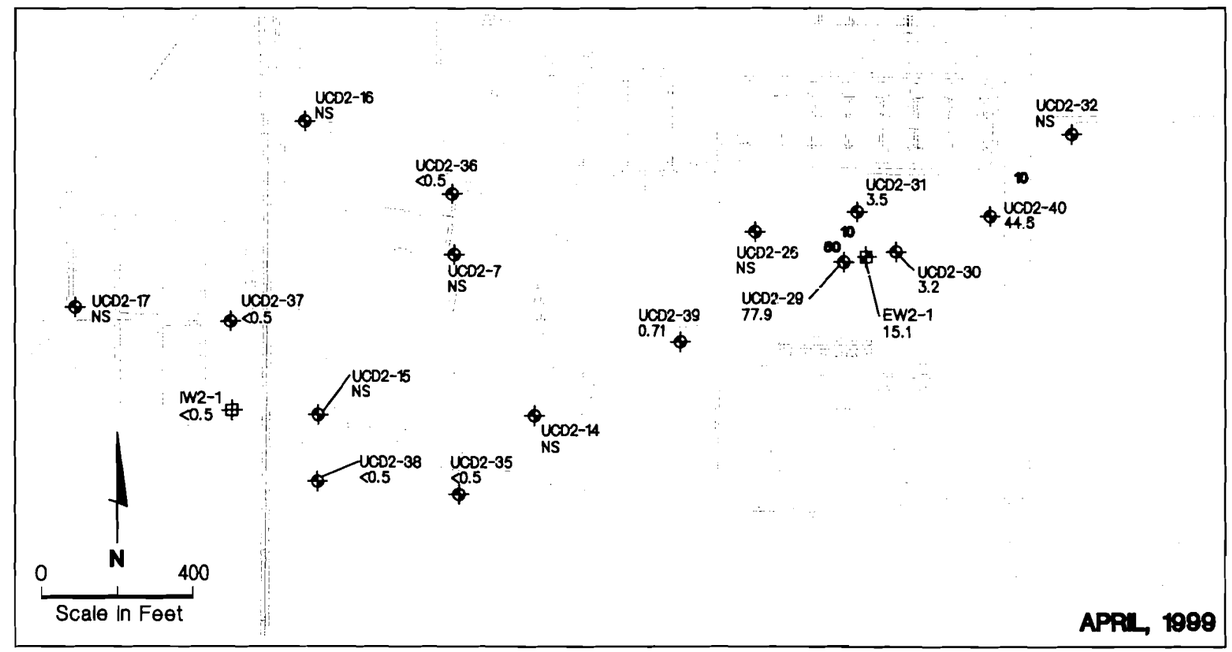
LEHR/SCDS Environmental Restoration
Davis, California

FIGURE 8









EXPLANATION

- UCD2-17 HSU-2 Monitoring Well
- EW2-1 HSU-2 Extraction Well
- IW2-1 HSU-2 Injection Well
- NS = Not Sampled

10 Chloroform Concentration Contours, in ug/L. Dashed Where Estimated.

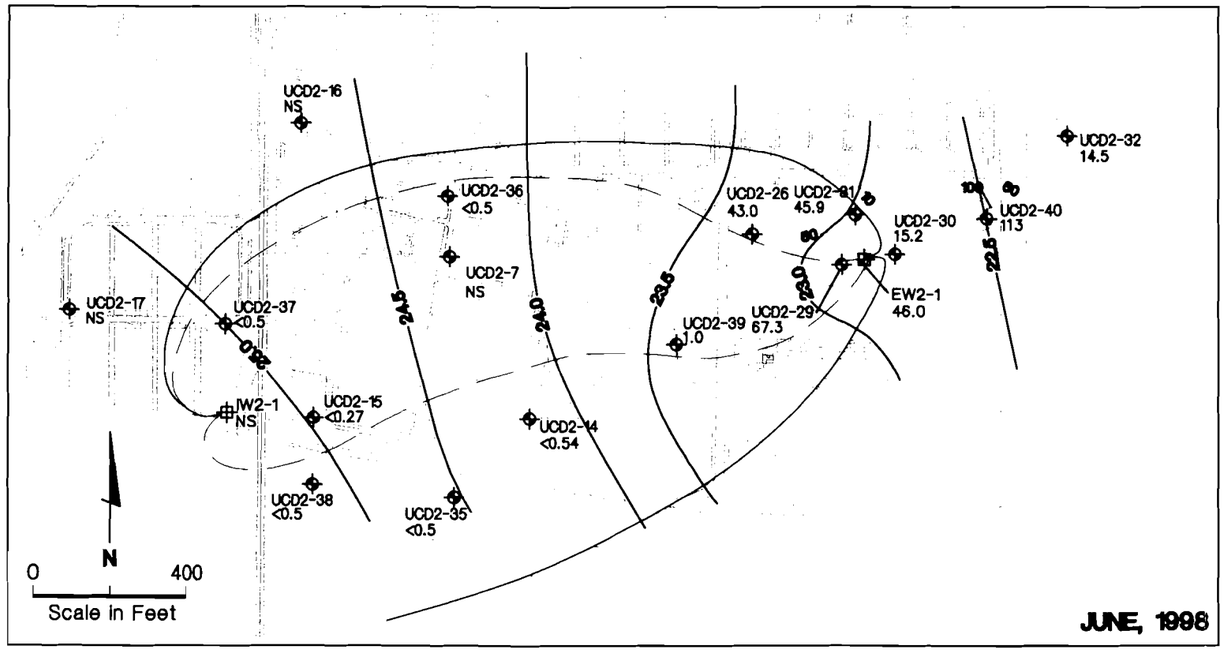
CHLOROFORM ISOCONCENTRATION MAPS JANUARY - APRIL 1999

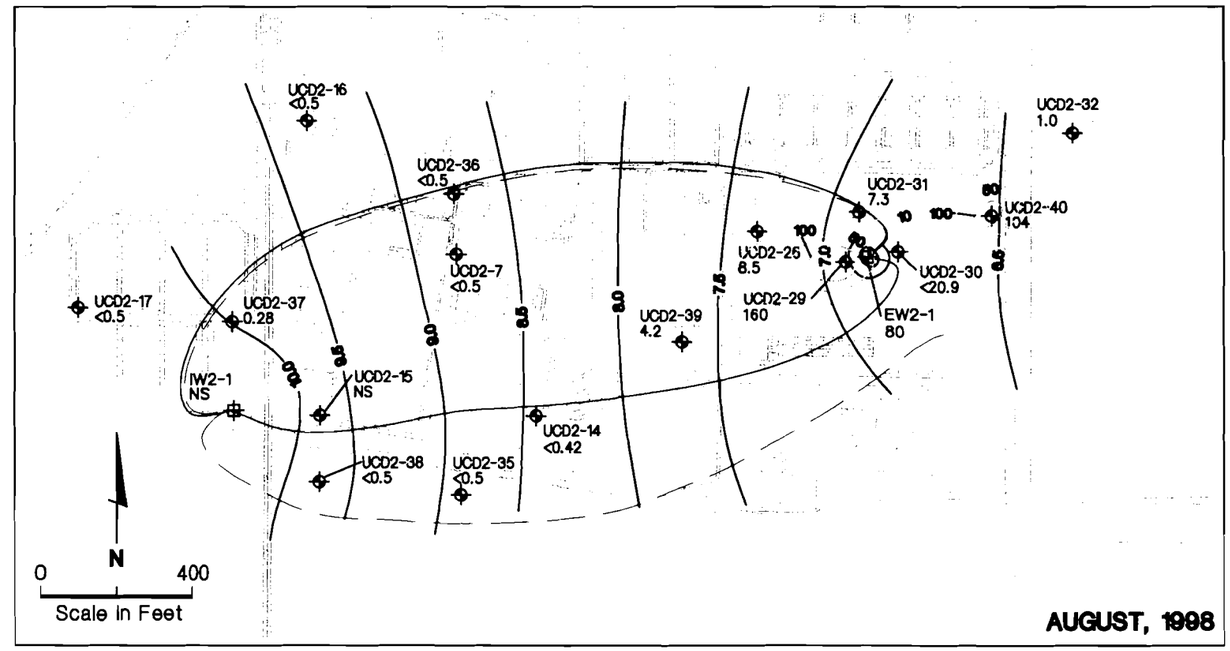
LEHR/SCDS Environmental Restoration
Davis, California

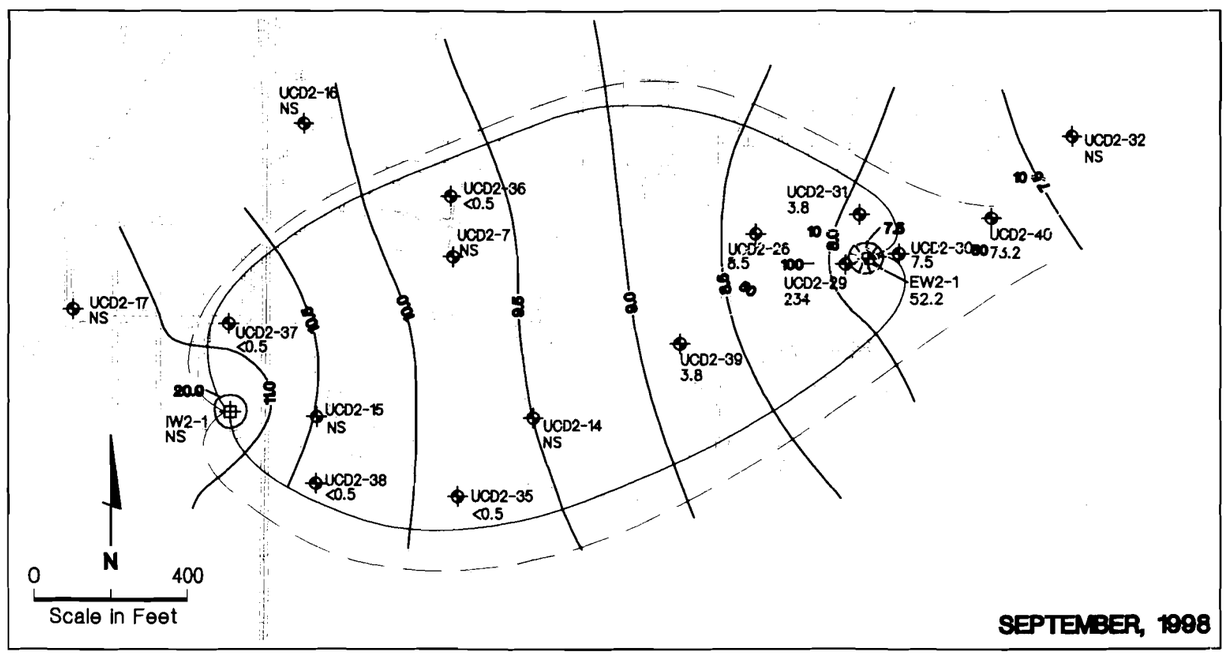
DAMES & MOORE
A DAMES & MOORE GROUP COMPANY

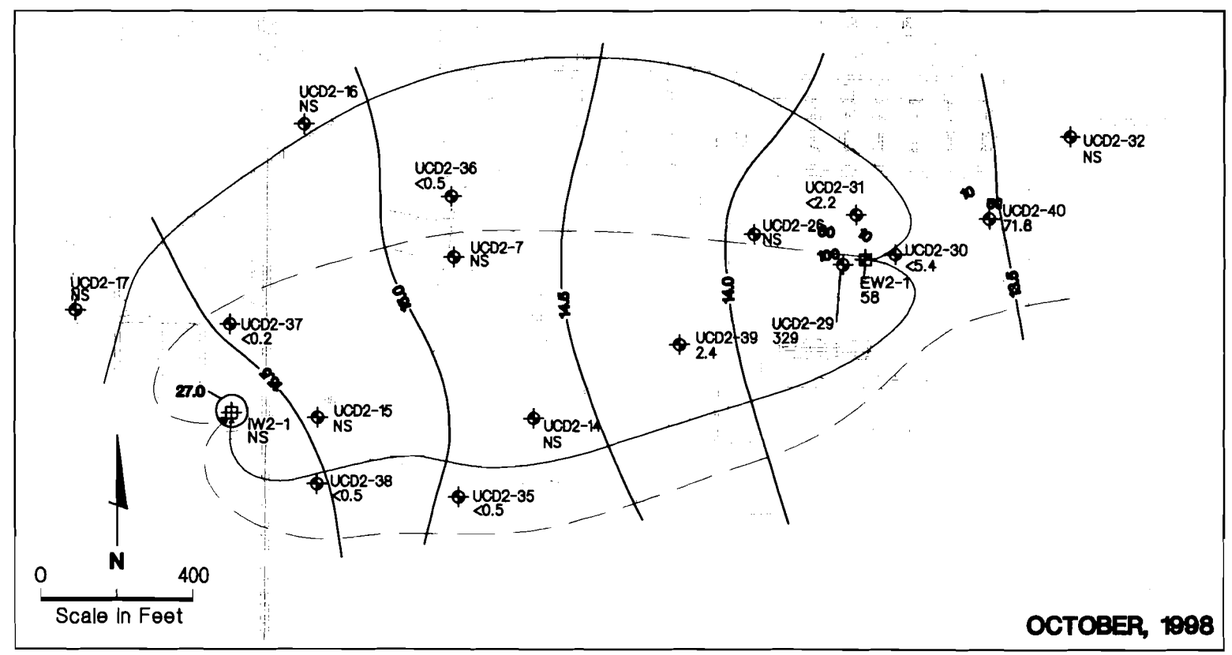
00234000-990514 MAJ/MLM/JDF 990514S 06/26/99

FIGURE 9









EXPLANATION

- UCD2-17 HSU-2 Monitoring Well
- EW2-1 HSU-2 Extraction Well
- IW2-1 HSU-2 Injection Well
- 10 — Chloroform Concentration Contours, in ug/L. Dashed Where Estimated.
- 13.5 — Groundwater Elevation Contour (Feet MSLD)
- Capture Zone
- Injection Well Flow Path

CAPTURE ZONE ANALYSIS MAPS
JUNE - OCTOBER 1998
LEHR/SCDS Environmental Restoration
Davis, California
FIGURE 10

DAMES & MOORE
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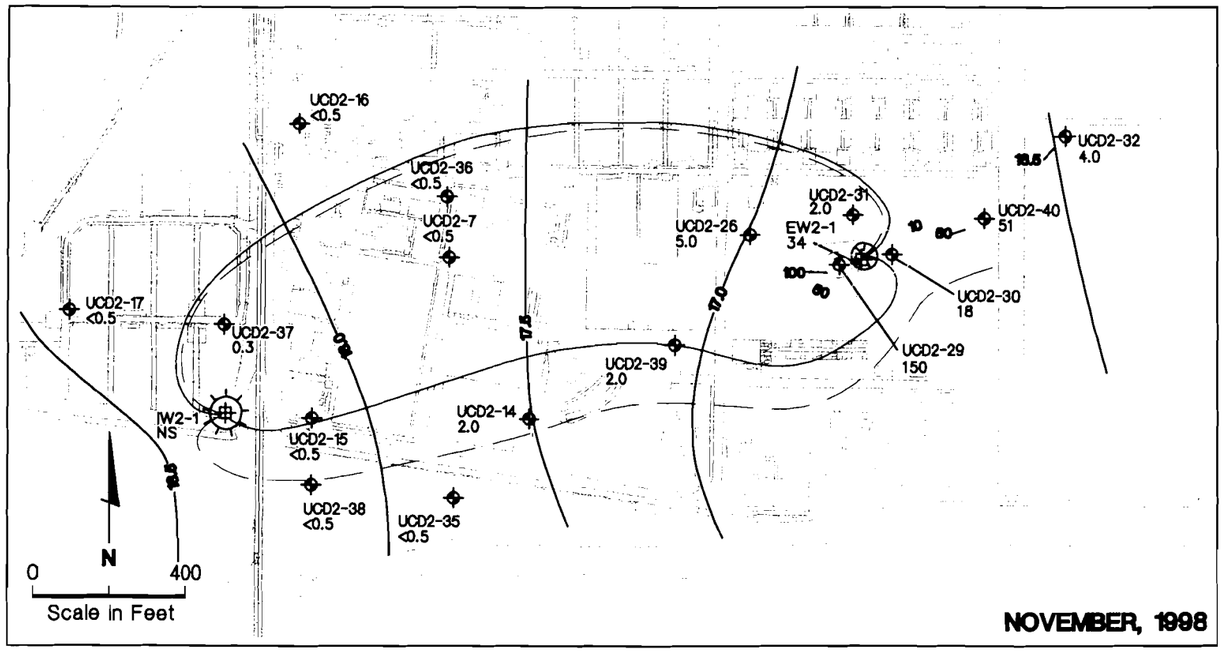
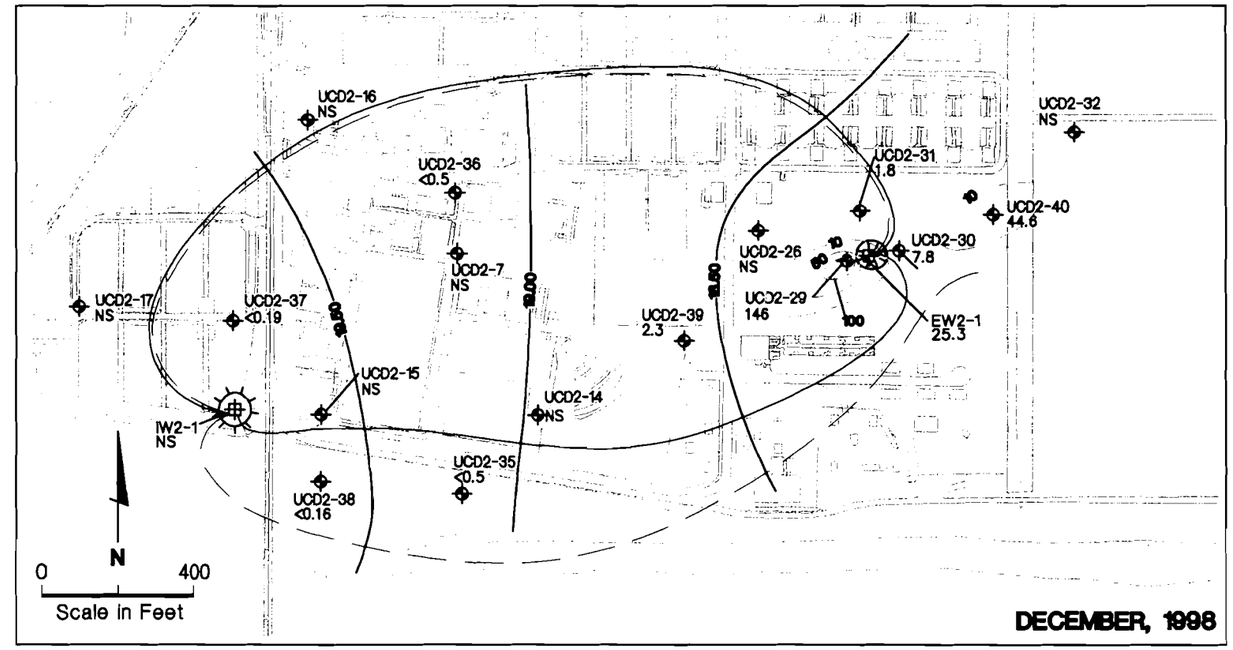
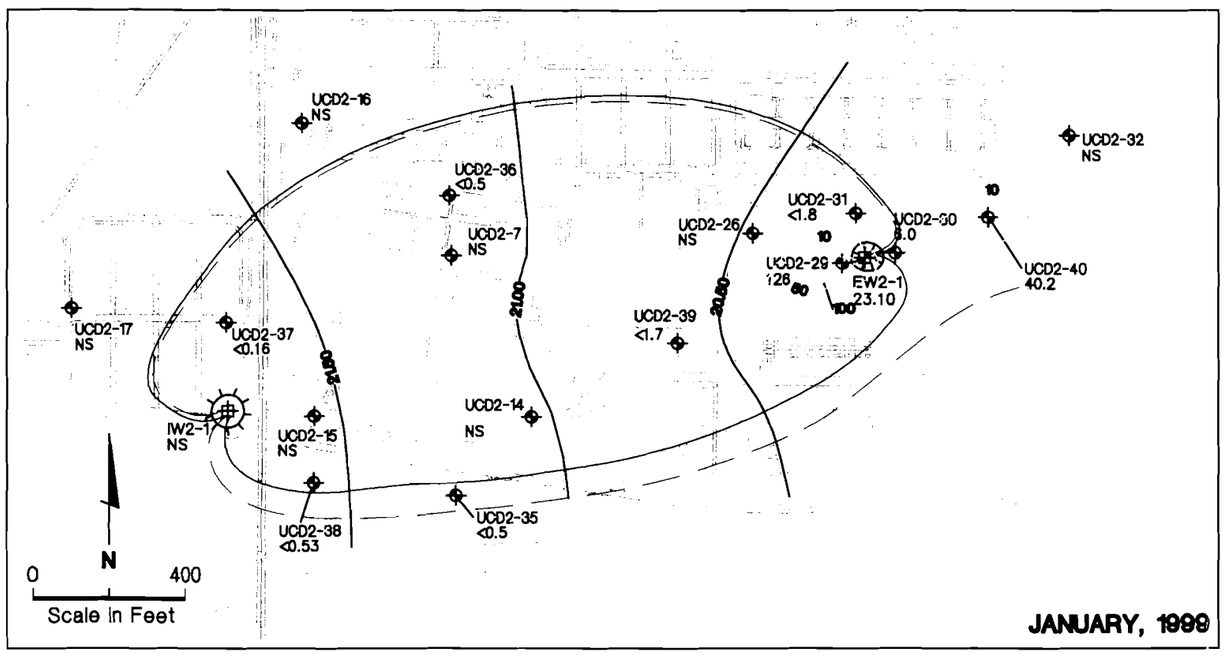
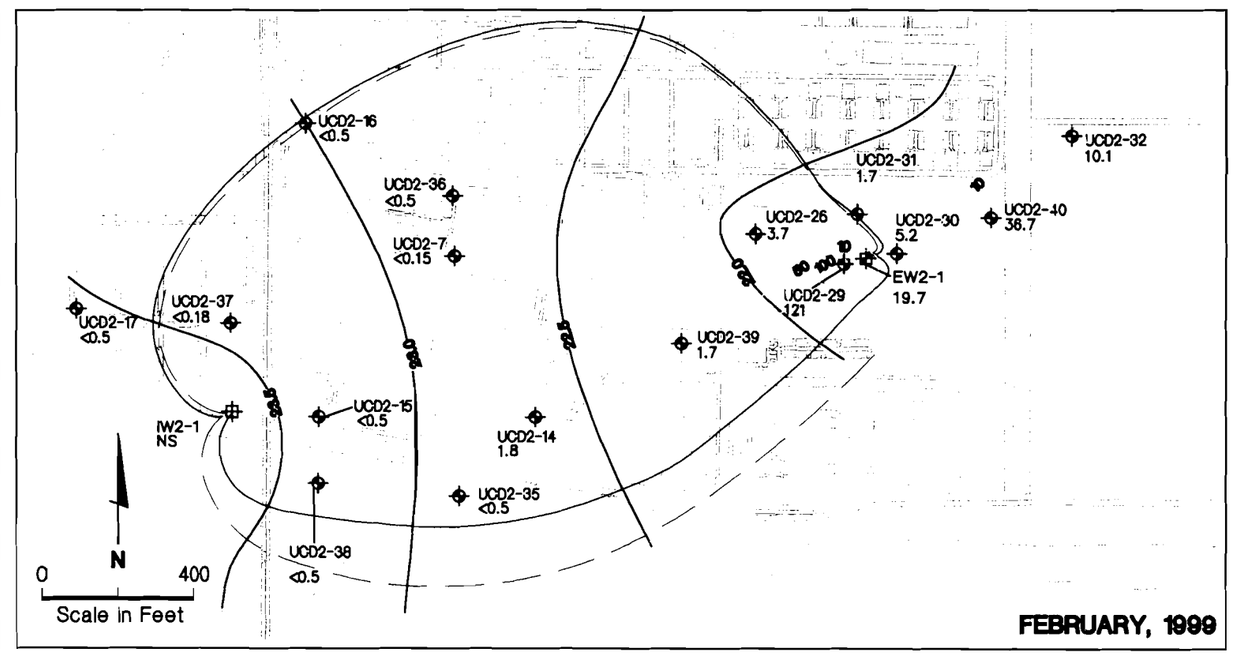
00234000-990514 MAJ/MLM/JDF 990514H 06/26/99









EXPLANATION

- UCD2-17 HSU-2 Monitoring Well
- EW2-1 HSU-2 Extraction Well
- IW2-1 HSU-2 Injection Well
- 10 — Chloroform Concentration Contours, in ug/L. Dashed Where Estimated.
- 18.5 — Groundwater Elevation Contour (Feet MSLD)
- Capture Zone
- Injection Well Flow Path

CAPTURE ZONE ANALYSIS MAPS NOVEMBER 1998 - FEBRUARY 1999

LEHR/SCDS Environmental Restoration
Davis, California

FIGURE 11

DAMES & MOORE
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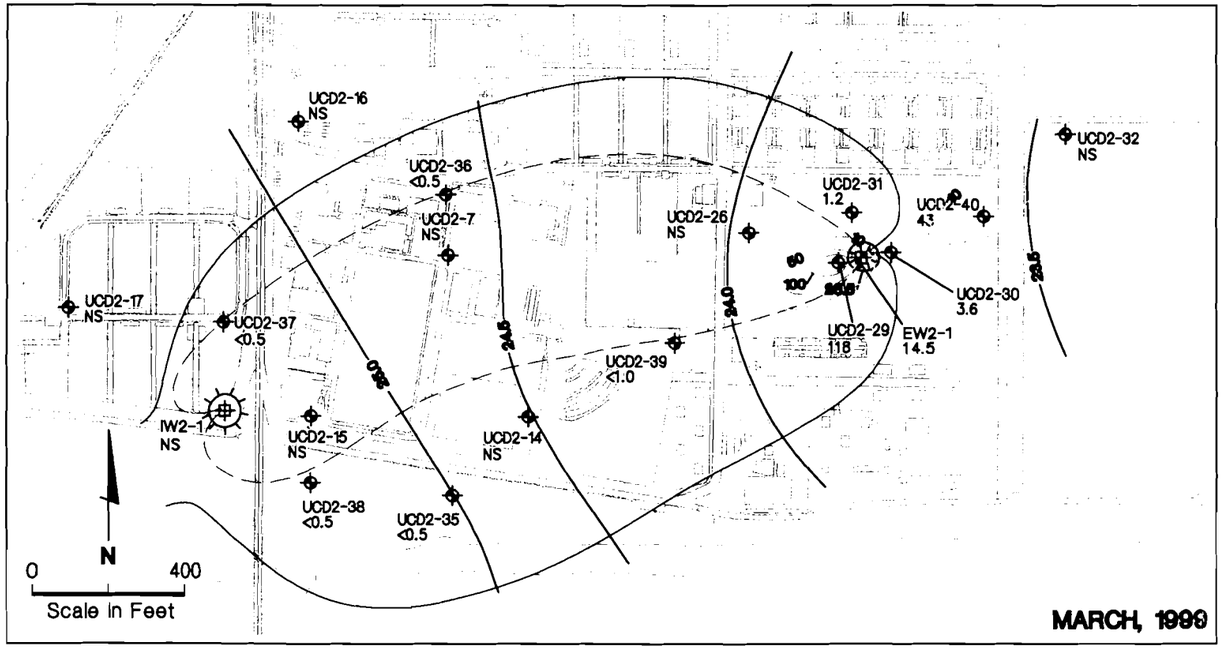
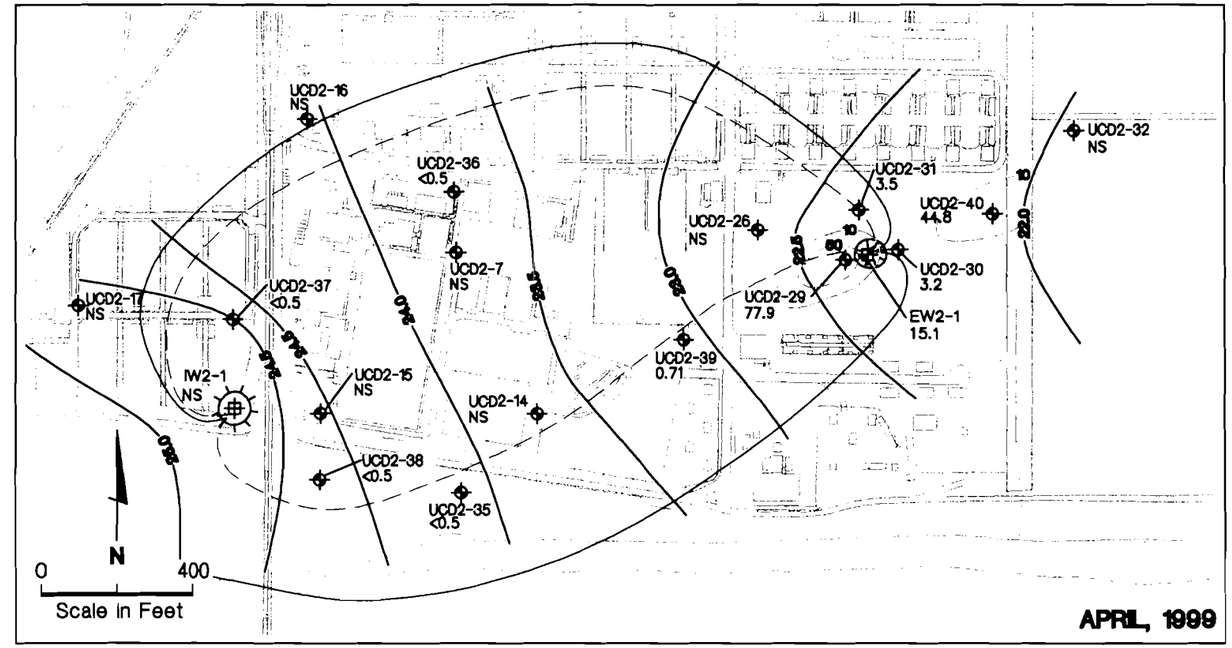
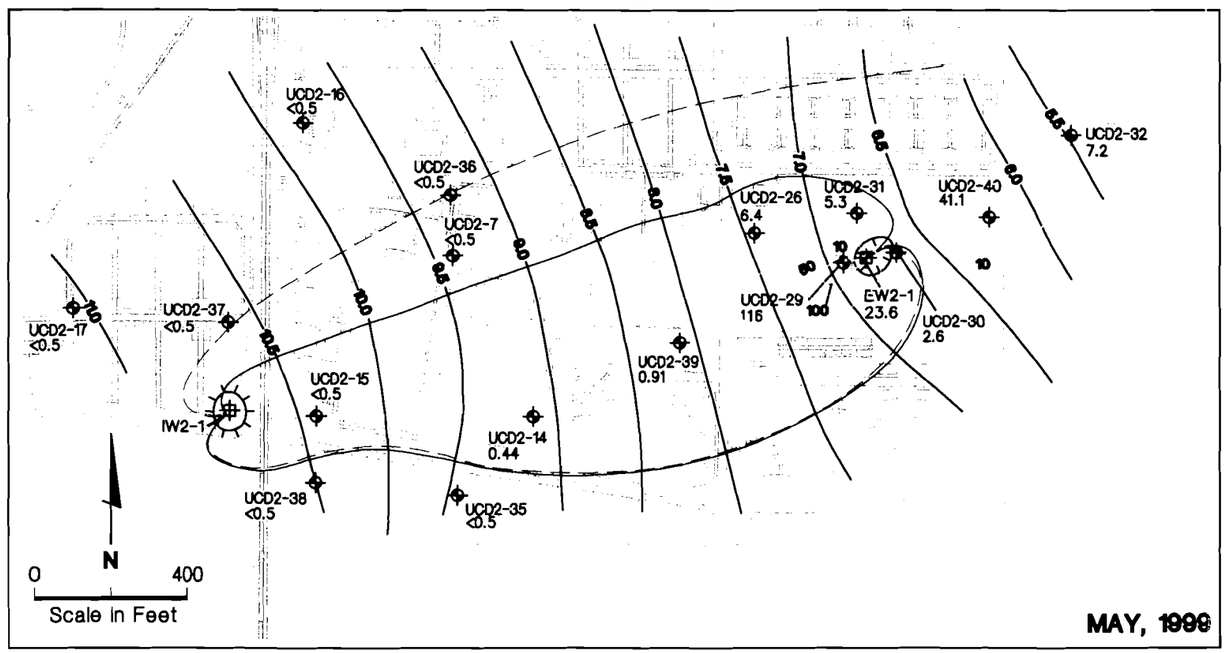
00234000-990514 MAJ/MLM/JDF 990514J 06/26/99







EXPLANATION

- UCD2-17 HSU-2 Monitoring Well
- EW2-1 HSU-2 Extraction Well
- IW2-1 HSU-2 Injection Well
- NS = Not Sampled
- 10 — Chloroform Concentration Contours, in ug/L. Dashed Where Estimated.
- 18.5 — Groundwater Elevation Contour (Feet MSLD)
- Capture Zone
- Injection Well Flow Path

NOTE: April 99 Chloroform Data Used for May 99 Capture Zone Map.

CAPTURE ZONE ANALYSIS MAPS MARCH 1999 - MAY 1999

LEHR/SCDS Environmental Restoration
Davis, California

FIGURE 12

DAMES & MOORE
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00234000-990514 MAJ/MLM/JDF 990514K 06/26/99

APPENDIX A

WASTE DISCHARGE REQUIREMENTS ORDER NO. 97-223

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

3443 Routier Road, Suite A
Sacramento, CA 95827-3098
Phone (916) 255-3000
FAX (916) 255-3015

Cal/EPA

Pete Wilson, Governor

3 November 1997

NOV 1997
Received
EH & S

CERTIFIED MAIL
NO. #430 798 269

Ms. Julie McNeal, Director
Environmental Health and Safety TB30
University of California
Davis, CA 95616

TRANSMITTAL OF ADOPTED WASTE DISCHARGE REQUIREMENTS ORDER NO. 97-223 FOR LABORATORY FOR ENERGY-RELATED HEALTH RESEARCH, UNIVERSITY OF CALIFORNIA, DAVIS, INJECTION OF TREATED GROUNDWATER, SOLANO COUNTY

Enclosed is an official copy of Waste Discharge Requirements Order No. 97-223 as adopted by the California Regional Water Quality Control Board, Central Valley Region, at its 24 October 1997 meeting. The Order was adopted as originally proposed with no revisions.

If you have any questions, please call Susan Timm at (916) 255-3057.

Wendy L. Cohen

WENDY L. COHEN
Senior Engineer

ST:st/lsb

Enclosures: Adopted Order
Standard Provisions (Discharger only)

cc: Ms. Kathy Setian, U.S. Environmental Protection Agency, San Francisco
Ms. Susan Fields, U.S. Department of Energy, Oakland
Mr. Phil Wyels, State Water Resources Control Board, Sacramento
Mr. Stan Martinson, State Water Resources Control Board, Sacramento
Mr. Duncan Austin, Department of Toxic Substances Control, Sacramento
Mr. Steve Hsu, Department of Health Services Radiological Branch, Sacramento
Department of Fish and Game, Rancho Cordova
Office of Drinking Water, Department of Health Services, Sacramento
Environmental Management Branch, Dept of Health Services, Sacramento
Solano County Health Department, Fairfield
Solano County Planning Department, Fairfield
Ms. Julie Roth, Davis
Ms. Mary Rust, Davis
Dr. G. Fred Lee, El Macero

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. 97-223

WASTE DISCHARGE REQUIREMENTS FOR LABORATORY FOR ENERGY-RELATED HEALTH RESEARCH UNIVERSITY OF CALIFORNIA, DAVIS INJECTION OF TREATED GROUNDWATER SOLANO COUNTY

The California Regional Water Quality Control Board, Central Valley Region, (hereafter Board) finds that:

1. The University of California, Davis (UCD), hereafter Discharger, submitted a Report of Waste Discharge (RWD), dated 9 July 1997, which included the 27 June 1997 project memorandum *Groundwater Interim Removal Action-Technical Issue Summary,* for discharge of treated groundwater by injection into an underlying aquifer. UCD incorporated in the RWD by reference the following documents: *Assessment of Remedial Options, Groundwater Extraction and Treatment, Dames & Moore, 1996; Technical Memorandum/Work Plan, Pre-Design Activities, Groundwater IRA, Dames & Moore, 1997; EE/CA Report, Groundwater IRA, Dames & Moore, 1997*; and *50% Design Submittal, Groundwater IRA, Dames & Moore, 1997.*

2. UCD has received formal comments from the Davis South Campus Superfund Oversight Committee and the Remedial Project Managers (RPMs) on these documents.

3. The groundwater treatment system is part of an interim removal action (IRA) at the Laboratory for Energy-Related Health Research (LEHR). The purpose of the IRA is to remove high concentrations of chloroform from groundwater in the first transmissive water-bearing zone below the site (HSU-2) and to stop or diminish further migration of chloroform and other constituents of concern (COCs) hydraulically downgradient of the site.

4. The U.S. Environmental Protection Agency placed LEHR on the National Priorities List on 31 May 1994. LEHR occupies approximately 15 acres in the southern part of the UCD campus in Section 21, T&S, R2E, MDB&M. LEHR is on campus property bordered on the south by the south fork of Putah Creek and on the east by private agricultural property. A site vicinity map is shown on Figure 1, which is attached hereto and part of this Order by reference.

5. UCD conducted radiological studies on laboratory animals at LEHR for the U.S. Department of Energy (DOE) from the 1950s until 1988. Radioactive, chemical and animal wastes from LEHR research activities were buried in waste holes and trenches at the facility. Also at the site, UCD disposed of campus laboratory, municipal and construction waste in waste holes, trenches and three campus landfills. The landfills were open in succession from the 1940s until 1967. The disposal areas are shown on Figure 2.

13. UCD is treating the extracted groundwater only for VOCs, so expected effluent concentrations for other COCs are the same as the influent concentrations listed in Finding 11. Because these expected effluent concentrations are based on a 48-hour pumping test of the extraction well, the concentrations may change over time. This Order establishes maximum contaminant levels for drinking water as the maximum daily effluent limits for COCs other than VOCs, with contingencies which require UCD to modify the system if the monthly average effluent concentrations reach or exceed midway between expected effluent concentrations and the daily maximum effluent limitations.

14. The agricultural limit for TDS is 450 mg/L; however, concentrations in agricultural pumping wells locally average 600 mg/L and the 95% upper tolerance limit for TDS calculated from well UCD2-17 (background well nearest the point of injection) is 520 mg/L. The expected effluent concentration for TDS is 470 mg/L. This Order establishes the drinking water MCL of 500 mg/L as the daily maximum and 485 mg/L as the monthly average, to allow for some variation in the effluent concentrations.

15. UCD has designed the extraction and injection system to capture 60 to 85 percent of the injected groundwater. Pumping of agricultural wells during spring and summer cause the natural groundwater flow direction to change from slightly north of east to northeast. Figures 3 and 4 show the prediction by a groundwater flow model of the extremes of capture between winter and summer. The percent of capture of injected water changes with changes in groundwater flow direction. The significance of the effect of reinjected groundwater not recaptured by the extraction well on groundwater quality will be evaluated by monthly groundwater monitoring.

16. The proposed effluent concentrations to be injected into the HSU-2 aquifer are consistent with State Water Resources Control Board Resolution 68-16 (Resolution 68-16). Injection of treated groundwater may cause a localized increase in concentrations of nitrates, chromium and/or TDS but will not result in pollution of high quality groundwater. By removing high levels of chloroform from groundwater and monitoring groundwater affected by injection of treated groundwater, the removal action, as conducted pursuant to the Order, "will result in the best practicable treatment or control of the discharge necessary to assure that (a) a pollution or nuisance will not occur and (b) the highest water quality consistent with the maximum benefit to the people of the State will be maintained" as required by Resolution 68-16.

17. Twenty-six groundwater monitoring wells have been installed at the site and are included in a quarterly groundwater monitoring program designed to characterize the lateral and vertical extent of groundwater pollution. All new wells will be included in the quarterly groundwater monitoring program.

18. UCD will install five additional monitoring wells in October 1997. These five wells and 12 of the existing wells will be monitored specifically to evaluate the performance of the extraction and injection system and to determine the effect of injection on water quality. The extraction

IT IS HEREBY ORDERED that the University of California, its agents, successors, and assigns, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, shall comply with the following:

A. **Discharge Prohibitions:**

1. The direct discharge of wastes to surface waters or surface water drainage courses is prohibited.

2. The by-pass or overflow of untreated or partially treated waste is prohibited.

3. Discharge of waste classified as 'hazardous' or 'designated', as defined in Title 23, Division 3, Chapter 15, Section 2521 and Title 27, Division 2, Section 20210, is prohibited.

B. **Effluent Limitations:**

1. The discharge of effluent by injection, in excess of the following limits, is prohibited:

Constituent	Units	Monthly Average	Daily Maximum
Chloroform	µg/L	0.5	1.0
Volatile Organic Compounds	µg/L	0.5	1.0
Nitrate as N	mg/L	34 7.7	10 45
Chromium	µg/L	32	50
Total Dissolved Solids	mg/L	485	500
Tritium	pCi/L	300	---
Carbon 14	pCi/L	20	---

2. All peaks shall be identified.

3. The discharge shall not have a pH less than 6.5 nor greater than 8.5.

C. **Discharge Specifications:**

The Discharger shall comply with each of the following operational phase discharge specifications:

1. **System Check**

Prior to operating the groundwater treatment system with polluted groundwater, a system check shall be conducted to confirm the proper construction and operation of the treatment system. The following minimum requirements apply to this system check phase:

f. The Discharger shall not resume operation of the system until the Board, DTSC, DHS, and the U.S. EPA have reviewed the TPE report (Provision 6) and have authorized, in writing, full-scale operation.

3. **Full-Scale Operation**

The following minimum requirements apply to the full-scale operation (FSO) phase:

a. All extracted groundwater shall be treated by the groundwater treatment system and discharged to the injection well.

b. The Discharger shall operate the treatment system to maximize removal of VOCs from the extracted groundwater.

c. The Discharger shall operate the extraction well in a manner that provides as great a control as feasible of the contaminant plume and injected groundwater.

d. The system operations shall be monitored in accordance with the FSO phase monitoring plan in attached Monitoring and Reporting Program No. 97-223.

e. All treatment, transport, and disposal components (including pumps, valves, liquid level controllers, pipelines, blowers, flow meters, pressure gauges, etc.) shall be inspected for leaks and/or malfunctions each business day for the first two weeks of system operation and weekly thereafter.

f. The system's automatic controls, including the alarm/notification and shutdown systems, shall be tested and certified operational twice a year.

4. **During All Phases Of Operations**

a. The treatment facility shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.

b. Neither the treatment nor the discharge shall cause a nuisance or condition of pollution as defined by the California Water Code, Section 13050.

c. The Discharger shall not cause degradation of any water supply.

d. The Discharger shall not pollute unpolluted groundwater by operating the groundwater extraction and treatment system.

e. Collected screenings, sludges, and other solids removed from the treated groundwater, or generated as the result of groundwater treatment, shall be disposed of in accordance with applicable laws and regulations.

7. Prior to the end of the fourth month of full-scale operation of the groundwater treatment system, the Discharger shall submit the Startup Monitoring Report to the Board, DTSC, DHS and the U.S. EPA. The report shall include analytical results from the first three months of operation in accordance with attached Monitoring and Reporting Program No. 97-223, a summary of the data, and a determination if the influent to and/or the effluent from the treatment system contains previously unidentified constituents of sufficient magnitude to pose a threat to water quality and/or to affect the treatment effectiveness of the groundwater treatment system. In the event that significant levels of previously unidentified pollutants are detected, the report shall show how the Anti-Degradation Policy and Chapter 15, Article 5 have been complied with, including recommendations on possible groundwater treatment system modifications and an assessment of the impacts to the beneficial uses of the receiving groundwater due to the discharge.

8. The Discharger shall submit to the Board, DTSC, DHS and the U.S. EPA monthly operations reports by the **20th of the following month.** This report may be included in the monthly monitoring report required in attached Monitoring and Reporting Program No. 97-223, or if agreed to by the RPMs, the monthly reports may be documented in the monthly RPM meeting minutes. These operational reports shall contain a summary of the operating parameters, operation and maintenance activities, and a summary of any shutdown or spill events that occurred during the month.

9. **Twelve months** after beginning full-scale operation of the groundwater treatment system, the Discharger shall submit to the Board, DTSC, DHS and the U.S. EPA a system evaluation report. This report shall determine if the performance monitoring well network provides sufficient hydrologic and water quality data to accomplish the following objectives:

   a. Monitor water levels and water quality within the permeable zone screened by the extraction well(s) and within the overlying and underlying aquifers.

   b. Monitor hydraulic capture zone of the extraction well(s).

   c. Verify that migration of contaminants is being reduced.

   d. Determine hydrogeologic and water quality parameters of the groundwater regime.

   e. Operate the groundwater extraction and discharge system in the most effective manner.

   f. Provide sufficient information to determine whether monitoring frequency, location, and/or constituents could or should be increased or decreased.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. 97-223
FOR
LABORATORY FOR ENERGY-RELATED HEALTH RESEARCH
UNIVERSITY OF CALIFORNIA, DAVIS
INJECTION OF TREATED GROUNDWATER
SOLANO COUNTY

This Monitoring and Reporting Program contains minimum monitoring and reporting requirements necessary to determine compliance with the Waste Discharge Requirements Order No. 97-223. These requirements apply to any additional monitoring, extraction and/or injection wells installed in the future for the purpose of monitoring the performance of the interim remedial action groundwater treatment system. Monitoring requirements are established for the different phases of the groundwater treatment system operation: the treatment performance evaluation and the full-scale operation. In addition, monitoring requirements are established to characterize the effect of extraction, treatment and injection on groundwater during full-scale operation.

All monitoring samples will be "grab" type samples, except for extraction and discharge rates and total volume, which will be continuous, and water level measurements, which will be instantaneous at the time of measurement.

The Discharger shall monitor constituents by Standard EPA Analytical Methods using the following maximum detection limits:

Constituent	Maximum Detection Limits
Volatile Organic Compounds	0.5 µg/L
Hexavalent Chromium	10 µg/L
Total Chromium	10 µg/L
Nitrate as N	0.1 mg/L
Total Dissolved Solids	20 mg/L
Total Organic Carbon	1 mg/L
Tritium	300 pCi/L
Carbon-14	20 pCi/L

TREATMENT PERFORMANCE EVALUATION MONITORING

The objectives of this phase are to monitor the performance of the extraction well, to determine the effectiveness of the treatment system to meet effluent limitations, and to monitor the effluent water quality to ascertain if inorganic concentrations are at or near predicted levels. During the treatment performance evaluation, the Discharger shall sample the influent to and effluent from the treatment system one hour after start-up and every eight hours for at least 48 hours for the following parameters:

Constituent	Units
Total Organic Carbon	mg/L
pH	pH units
Electrical Conductivity	µmhos/cm
Temperature	degrees Celcius
Turbidity	NT units
Total Volume of Water Treated	gallons
Total Volume of Water Discharged	gallons
Influent and Effluent Flow Rate at Time of Sampling	gpm
Water Level in Extraction and Injection Well	feet msl
Extraction Rate at Time of Sampling	gpm
Water Levels in Monitoring Wells	feet msl

The Discharger shall sample the effluent for:

Constituent	Units
Volatile Organic Compounds	µg/L
Hexavalent Chromium	µg/L
Total Chromium	µg/L
Nitrate as N	mg/L
Total Dissolved Solids	mg/L
pH	pH units
Electrical Conductivity	µmhos/cm
Temperature	degrees Celcius
Turbidity	NT units

GROUNDWATER MONITORING

The 17 monitoring wells shown on Figure 3 will be used to monitor performance of the groundwater treatment system. Wells UCD1-28, UCD2-29, UCD2-30, UCD2-31, UCD2-35, UCD2-36, UCD2-37, UCD2-38, UCD2-39 and UCD2-40 shall be monitored monthly and Well UCD2-7, UCD2-14, UCD2-15, UCD2-16, UCD2-17, UCD2-26 and UCD2-32 shall be monitored quarterly for:

Monthly reports shall be submitted to the Board by the 20th day of the following month until such time that the Executive Officer determines the reports are no longer necessary. These reports shall include a groundwater contour map, the status of any ongoing investigation and remediation, and in tabular form, influent, effluent and groundwater quality data; depth to groundwater from reference elevation; and reference elevation.

An annual report evaluating the effectiveness and progress of investigation and remediation shall be submitted to the Board by **30 January** of each year. The report shall include at a minimum the following information: both tabular and graphical summaries of the monitoring data obtained during the previous year; trends in concentration for the pollutants in the groundwater monitoring wells; whether the contaminant plume is being remediated or is continuing to spread; plans as needed for improving the groundwater treatment system; the anticipated date for completion of cleanup activities. The annual report also shall include reasons for and duration of any interruptions in the operation of the treatment system.

Based on the data from the previous year, the Discharger shall, in the annual report, identify data gaps and potential deficiencies/redundancies in the monitoring system or reporting program and propose any necessary revisions in the sampling plan frequency and analyses with the rationale for the proposed revisions.

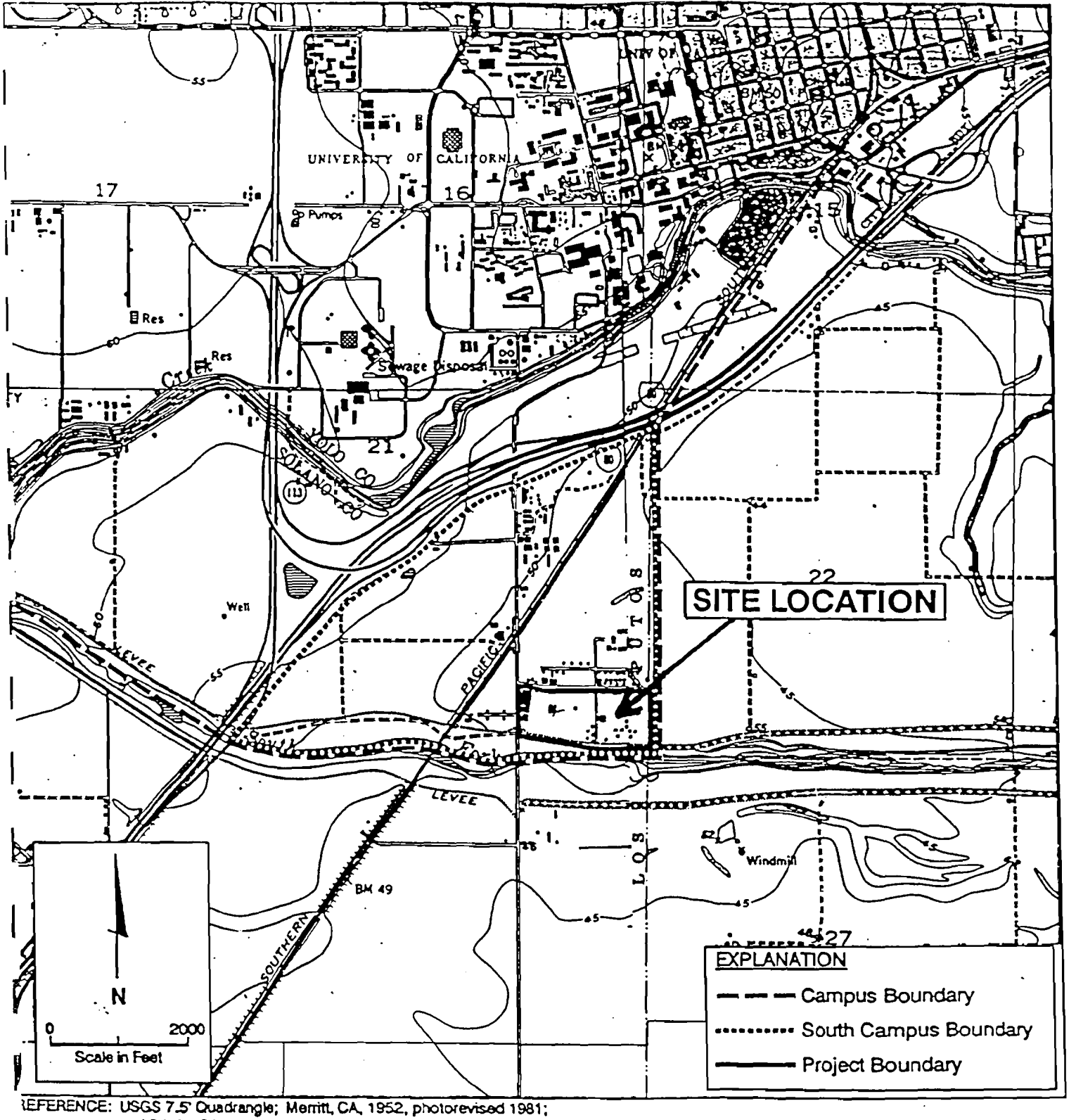
The results of any monitoring done more frequently than required at the locations specified in the monitoring and reporting program shall be reported to the Board.

The Discharger shall implement the above monitoring program as of the date of this Order.

Ordered by: Thomas R Pinto
for GARY M. CARLTON, Executive Officer

24 October 1997
(date)

ST:st/lsb



REFERENCE: USGS 7.5' Quadrangle; Merritt, CA, 1952, photorevised 1981; and DAvis, CA, 1952, photorevised 1981.

SITE VICINITY MAP

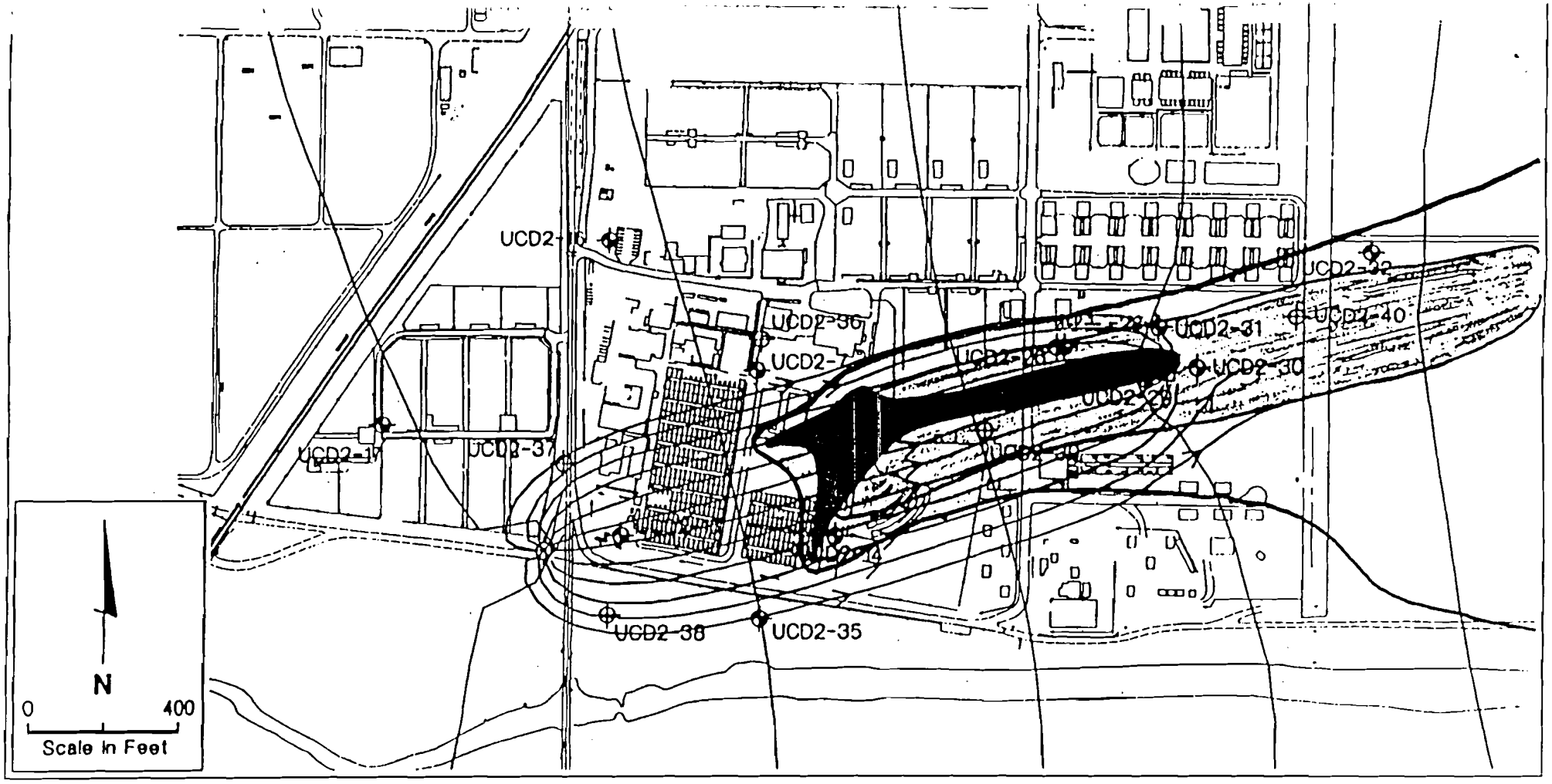
LABORATORY FOR ENERGY - RELATED HEALTH RESEARCH

UNIVERSITY OF CALIFORNIA, DAVIS

PROVIDED BY
DAMES & MOORE
A DAMES & MOORE GROUP COMPANY

00234-255-8005-044 maj 8005svm 5/27/97

FIGURE 1



EXPLANATION

- Simulated Extraction Well Location
- Simulated Reinjection Well Location
- UCD2-29 Existing Monitoring Well
- UCD2-38 Proposed IRA Monitoring Well
- 4 Simulated Groundwater Elevation Contour in HSU - 2
- Simulated Particle Trace of Treated Reinjected Groundwater
- Chloroform Concentrations Above 1 ug/L
- Chloroform Concentrations Above 10 ug/L
- Chloroform Concentrations Above 100 ug/L
- Chloroform Concentrations Above 1,000 ug/L

WELL LOCATIONS

CHLOROFORM PLUME & SUMMER CAPTURE ZO

LABORATORY FOR ENERGY - RELATED HEALTH RESEARCH

UNIVERSITY OF CALIFORNIA, DAVIS

DAMES & MOORE

00234-266-5003-044 maj 60038 9/6/97

FIGURE 3

INFORMATION SHEET

UNIVERSITY OF CALIFORNIA
LABORATORY FOR ENERGY-RELATED HEALTH RESEARCH
INJECTION OF TREATED GROUNDWATER
SOLANO COUNTY

The Laboratory for Energy-Related Health Research (LEHR) is on the National Priorities List (Superfund) with oversight from the U.S. Environmental Protection Agency, the Department of Toxic Substances Control, the Department of Health Services Radiological Branch and the Regional Water Quality Control Board.

The University of California, Davis (UCD) conducted radiological studies on laboratory animals at LEHR for the U.S. Department of Energy (DOE) from the 1950's to 1988. Radioactive, chemical and animal wastes from LEHR research activities were buried in waste holes and trenches at the facility. Also at the facility, UCD disposed of laboratory, municipal and construction waste in waste holes, trenches and three campus landfills which were open in succession from the 1940's until 1967.

The LEHR site occupies approximately 15 acres in the southern part of the UCD campus. LEHR is on campus property bordered on the south by the south fork of Putah Creek and on the east by private agricultural property.

Monitoring wells have shown that several constituents have polluted soil and groundwater below the site. Both lateral and vertical migration has occurred to varying degrees depending on mobility of the constituents. A chloroform plume in the first transmissive aquifer (HSU-2) below the site has been defined sufficiently for UCD to design a groundwater cleanup action. Other known constituents of concern (COCs) in groundwater are nitrate, chromium, total dissolved solids, tritium and carbon-14. Investigation of the source, extent and possible methods of remediation for these constituents is ongoing.

UCD is proposing a groundwater extraction, treatment and injection system as an interim action to remove high concentrations of chloroform from groundwater in HSU-2 and to stop or diminish further migration of chloroform and other COCs hydraulically downgradient of the site.

UCD is proposing to treat the extracted groundwater to nondetectable concentrations for chloroform and other volatile organic compounds. The treated water will be injected into HSU-2 upgradient of the chloroform plume. UCD has designed the extraction and injection system to capture 60 to 85 percent of the injected groundwater. Pumping of agricultural wells during spring and summer causes the groundwater flow direction to change from slightly north of east to northeast. The percent of capture of injected water changes with changes in groundwater flow direction.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

STANDARD PROVISIONS AND REPORTING REQUIREMENTS FOR WASTE DISCHARGE REQUIREMENTS

1 March 1991

A. General Provisions:

1. The requirements prescribed herein do not authorize the commission of any act causing injury to the property of another, or protect the discharger from liabilities under federal, state, or local laws. This Order does not convey any property rights or exclusive privileges.

2. The provisions of this Order are severable. If any provision of this Order is held invalid, the remainder of this Order shall not be affected.

3. After notice and opportunity for a hearing, this Order may be terminated or modified for cause, including, but not limited to:

   a. Violation of any term or condition contained in this Order;

   b. Obtaining this Order by misrepresentation, or failure to disclose fully all relevant facts;

   c. A change in any condition that results in either a temporary or permanent need to reduce or eliminate the authorized discharge;

   d. A material change in the character, location, or volume of discharge.

4. Before making a material change in the character, location, or volume of discharge, the discharger shall file a new Report of Waste Discharge with the Regional Board. A material change includes, but is not limited to, the following:

   a. An increase in area or depth to be used for solid waste disposal beyond that specified in waste discharge requirements

   b. A significant change in disposal method, location or volume, e.g., change from land disposal to land treatment.

   c. The addition of a major industrial, municipal or domestic waste discharge facility.

   d. The addition of a major industrial waste discharge to a discharge of essentially domestic sewage, or the addition of a new process or product by an industrial facility resulting in a change in the character of the waste.

A. General Provisions (continued)

12. The discharge shall remain within the designated disposal area at all times.

B. **General Reporting Requirements**

1. In the event the discharger does not comply or will be unable to comply with any prohibition or limitation of this Order for any reason, the discharger shall notify the Board by telephone at (916) 255-3000 as soon as it or its agents have knowledge of such noncompliance or potential for noncompliance, and shall confirm this notification in writing within two weeks. The written notification shall state the nature, time and cause of noncompliance, and shall describe the measures being taken to prevent recurrences and shall include a timetable for corrective actions.

2. The discharger shall have a plan for preventing and controlling accidental discharges, and for minimizing the effect of such events.

   This plan shall:

   a. Identify the possible sources of accidental loss or leakage of wastes from each waste management, treatment, or disposal facility.

   b. Evaluate the effectiveness of present waste management/treatment units and operational procedures, and identify needed changes or contingency plans.

   c. Predict the effectiveness of the proposed changes in waste management/treatment facilities and procedures and provide an implementation schedule containing interim and final dates when changes will be implemented.

   The Board, after review of the plan, may establish conditions that it deems necessary to control leakages and minimize their effects.

3. All reports shall be signed by persons identified below:

   a. <u>For a corporation</u>: by a principal executive officer of at least the level of senior vice-president.

   b. <u>For a partnership or sole proprietorship</u>: by a general partner or the proprietor.

   c. <u>For a municipality, state, federal or other public agency</u>: by either a principal executive officer or ranking elected or appointed official.

C. Provisions for Monitoring

1. All analyses shall be made in accordance with the latest edition of: (1) "Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater" (EPA 600 Series) and (2) "Test Methods for Evaluating Solid Waste" (SW 846-latest edition). The test method may be modified subject to application and approval of alternate test procedures under the Code of Federal Regulations (40 CFR 136).

2. Chemical, bacteriological, and bioassay analyses shall be conducted at a laboratory certified for such analyses by the State Department of Health Services. In the event a certified laboratory is not available to the discharger, analyses performed by a noncertified laboratory will be accepted provided a Quality Assurance-Quality Control Program is instituted by the laboratory. A manual containing the steps followed in this program must be kept in the laboratory and shall be available for inspection by Board staff. The Quality Assurance-Quality Control Program must conform to EPA guidelines or to procedures approved by the Board.

   Unless otherwise specified, all metals shall be reported as Total Metals.

3. The discharger shall retain records of all monitoring information, including all calibration and maintenance records, all original strip chart recordings of continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order. Records shall be maintained for a minimum of three years from the date of the sample, measurement, report, or application, This period may be extended during the course of any unresolved litigation regarding this discharge or when requested by the Regional Board Executive Officer.

   Record of monitoring information shall include:

   a. the date, exact place, and time of sampling or measurements,
   b. the individual(s) who performed the sampling of measurements,
   c. the date(s) analyses were performed,
   d. the individual(s) who performed the analyses,
   e. the laboratory which performed the analysis,
   f. the analytical techniques or methods used, and
   g. the results of such analyses.

4. All monitoring instruments and devices used by the discharger to fulfill the prescribed monitoring program shall be properly maintained and calibrated at least yearly to ensure their continued accuracy.

E. Conditions Applicable to Discharge Facilities Exempted From Chapter 15 Under Section 2511

1. If the discharger's wastewater treatment plant is publicly owned or regulated by the Public Utilities Commission, it shall be supervised and operated by persons possessing certificates of appropriate grade according to California Code of Regulations, Title 23, Division 4, Chapter 14.

2. By-pass (the intentional diversion of waste streams from any portion of a treatment facility, except diversions designed to meet variable effluent limits) is prohibited. The Board may take enforcement action against the discharger for by-pass unless:

   a. (1) By-pass was unavoidable to prevent loss of life, personal injury, or severe property damage. (Severe property damage means substantial physical damage to property, damage to the treatment facilities that causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a by-pass. Severe property damage does not mean economic loss caused by delays in production); <u>and</u>

      (2) There were no feasible alternatives to by-pass, such as the use of auxiliary treatment facilities or retention of untreated waste. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a by-pass that would otherwise occur during normal periods of equipment downtime or preventive maintenance; <u>or</u>

   b. (1) by-pass is required for essential maintenance to assure efficient operation; and

      (2) neither effluent nor receiving water limitations are exceeded; and

      (3) the discharger notifies the Board ten days in advance.

   The permittee shall submit notice of an unanticipated by-pass as required in paragraph B.1. above.

3. A discharger that wishes to establish the affirmative defense of an upset (see definition in E.6 below) in an action brought for noncompliance shall demonstrate, through properly signed, contemporaneous operating logs, or other evidence, that:

   a. an upset occurred and the cause(s) can be identified;

E. Dischargers Exempt from Chapter 15 (continued)

c. The monthly average concentration is the arithmetic mean of measurements made during the month.

d. The "daily maximum" discharge is the total discharge by volume during any day.

e. The "daily maximum" concentration is the highest measurement made on any single discrete sample or composite sample.

f. A "grab" sample is any sample collected in less than 15 minutes.

g. Unless otherwise specified, a composite sample is a combination of individual samples collected over the specified sampling period;

(1) at equal time intervals, with a maximum interval of one hour

(2) at varying time intervals (average interval one hour or less) so that each sample represents an equal portion of the cumulative flow.

The duration of the sampling period shall be specified in the Monitoring and Reporting Program. The method of compositing shall be reported with the results.

7. Annual Pretreatment Report Requirements:

Applies to dischargers required to have a Pretreatment Program as stated in waste discharge requirements.)

The annual report shall be submitted by 28 February and include, but not be limited to, the following items:

a. A summary of analytical results from representative, flow-proportioned, 24-hour composite sampling of the influent and effluent for those pollutants EPA has identified under Section 307(a) of the Clean Water Act which are known or suspected to be discharged by industrial users.

The discharger is not required to sample and analyze for asbestos until EPA promulgates an applicable analytical technique under 40 CFR (Code of Federal Regulations) Part 136. Sludge shall be sampled during the same 24-hour period and analyzed for the same pollutants as the influent and effluent sampling and analysis. The sludge analyzed shall be a composite sample of a minimum of 12 discrete samples taken at equal time intervals over the 24-hour period. Wastewater and sludge sampling and analysis shall be

E. Dischargers Exempt from Chapter 15 (continued)

(5) Complied with schedule to achieve compliance (include the date final compliance is required);

(6) Did not achieve compliance and not on a compliance schedule;

(7) Compliance status unknown.

A report describing the compliance status of any industrial user characterized by the descriptions in items (d)(3) through (d)(7) above shall be submitted quarterly from the annual report date to EPA and the Board. The report shall identify the specific compliance status of each such industrial user. This quarterly reporting requirement shall commence upon issuance of this Order.

e. A summary of the inspection and sampling activities conducted by the discharger during the past year to gather information and data regarding the industrial users. The summary shall include but not be limited to, a tabulation of categories of dischargers that were inspected and sampled; how many and how often; and incidents of noncompliance detected.

f. A summary of the compliance and enforcement activities during the past year. The summary shall include the names and addresses of the industrial users affected by the following actions:

(1) Warning letters or notices of violation regarding the industrial user's apparent noncompliance with federal categorical standards or local discharge limitations. For each industrial user, identify whether the apparent violation concerned the federal categorical standards or local discharge limitations;

(2) Administrative Orders regarding the industrial user's noncompliance with federal categorical standards or local discharge limitations. For each industrial user, identify whether the violation concerned the federal categorical standards or local discharge limitations;

(3) Civil actions regarding the industrial user's noncompliance with federal categorical standards or local discharge limitations. For each industrial user, identify whether the violation concerned the federal categorical standards or local discharge limitations;

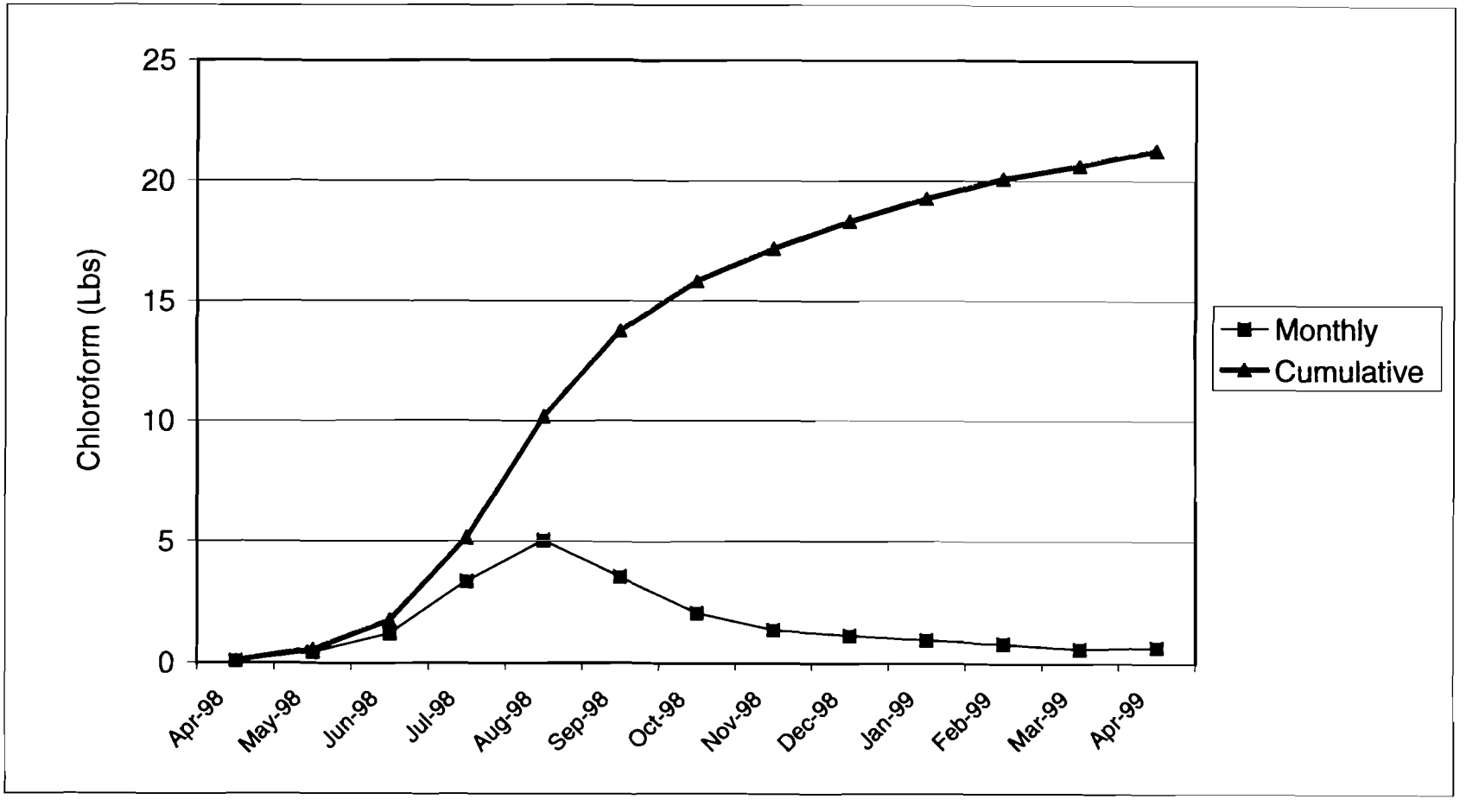
APPENDIX B

CHLOROFORM MASS REMOVAL CALCULATIONS

APPENDIX B -TABLE 1
CHLOROFORM MASS REMOVAL TOTALS
GROUNDWATER IRA FULL SCALE OPERATION
LEHR/SCDS ENVIRONMENTAL RESTORATION
DAVIS, CALIFORNIA

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)
April-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
June-98	37.3	3.73E-08	3,865,155	14,629,612	0.55	1.20
July-98	68	6.80E-08	5,968,366	22,590,265	1.54	3.39
August-98	80	8.00E-08	7,564,438	28,631,398	2.29	5.05
Sep-98	52	5.20E-08	8,221,465	31,118,245	1.62	3.57
Oct-98	58	5.80E-08	4,261,762	16,130,769	0.94	2.06
Nov-98	34	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
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
		TOTAL	61,409,050	232,433,254	9.64	21.25

* Mass Removed = Average Concentration x Volume of Extracted Groundwater



CHLOROFORM MASS REMOVAL

LEHR/SCDS ENVRIOMENTAL RESTORATION

DAVIS, CALIFORNIA

DAMES & MOORE

A DAMES & MOORE GROUP COMPANY

FIGURE B-1

APPENDIX B - TABLE 2
MASS CALCULATION - CHLOROFORM IN HSU-2, ENTIRE PLUME
GROUNDWATER MONITORING DATA - 1998 ANNUAL WATER MONITORING REPORT
LEHR/SCDS Environmental Restoration
Davis, California

Assumptions

Saturated thickness = 41 feet
Porosity = 0.25
$1ft^3$ = 28.32 L
1 Kg = 1 E-9 µg
1 Kg = 2.2 lb

Calculation

Volume of Impacted Groundwater = Area of Impacted Groundwater x Saturateed Thickness x Porosity
Mass of Chloroform in Groundwater = Average Chloroform Concentration for Contour Interval x Volume of Water

Contour	Area	Average Concentration	Volume of Impacted Groundwater		Mass of Chloroform in HSU-1 Groundwater		
(µg/L)	(ft^2) †	(µg/L)	(ft^3)	(L)	(µg)	(Kg)	(lb)
1	2,616,000	5.5^	26,814,000	759,372,480	4,176,548,640	4.2	9.2
10	484,800	55^	4,969,200	140,727,744	7,740,025,920	7.7	17.0
100	99,200	550^	1,016,800	28,795,776	15,837,676,800	15.8	34.8
1,000	8,800	4500	90,200	2,554,464	11,495,088,000	11.5	25.3
					TOTAL	39.2	86.3

† Area calculated using Engineering Evaluation/Cost Analysis, Dames & Moore 1997, Figure 8
^ Concentration calculated by averaging contours.

APPENDIX B - TABLE 3
MASS CALCULATION - CHLOROFORM IN HSU-2, PLUME WITHIN IRA CAPTURE ZONE
GROUNDWATER MONITORING DATA - 1998 ANNUAL WATER MONITORING REPORT
LEHR/SCDS Environmental Restoration
Davis, California

Assumptions

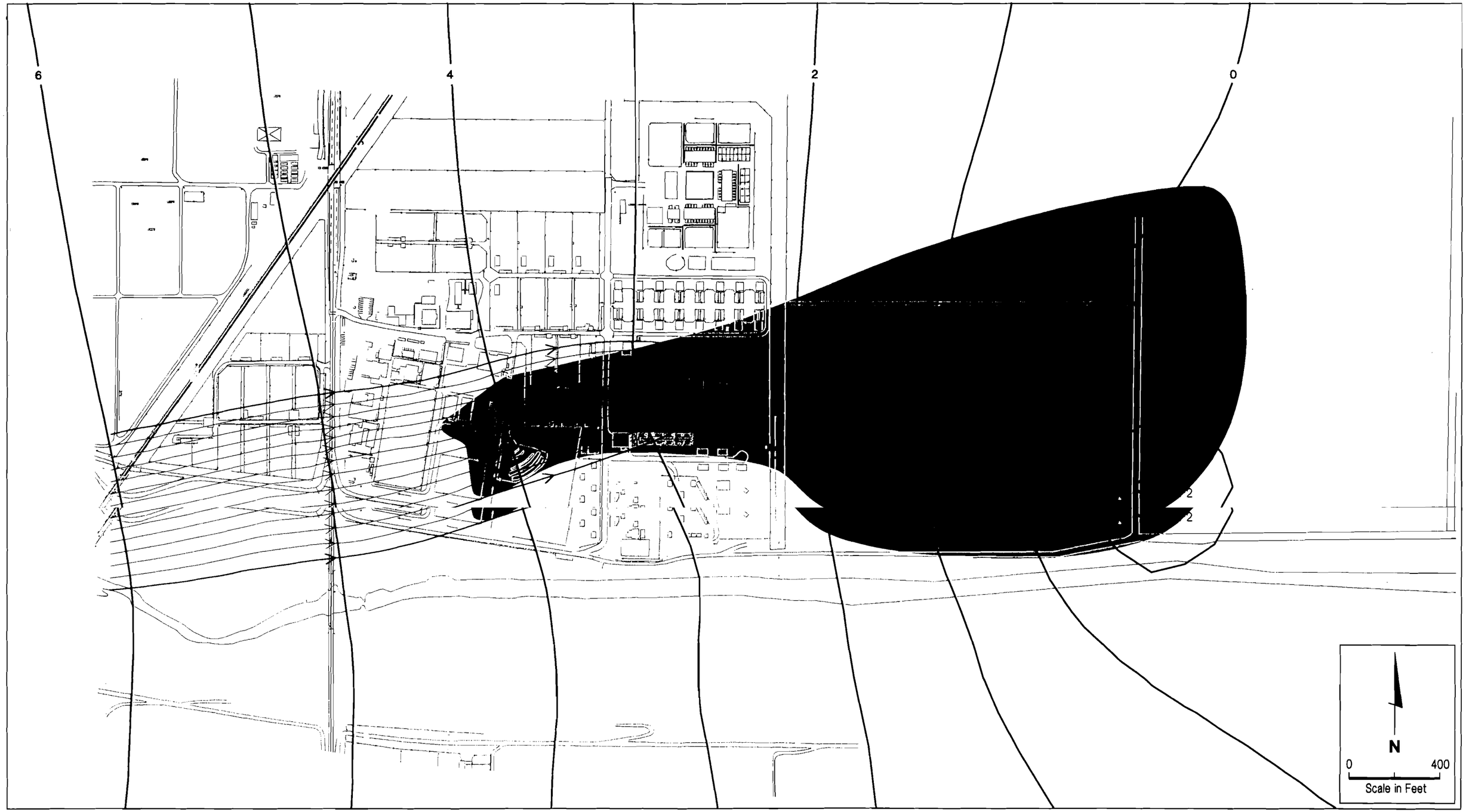
Saturated thickness = 41 feet
Porosity = 0.25
$1 ft^3$ = 28.32 L
1 Kg = 1 E-9 µg
1 Kg = 2.2 lb

Calculation

Volume of Impacted Groundwater = Area of Impacted Groundwater x Saturateed Thickness x Porosity
Mass of Chloroform in Groundwater = Average Chloroform Concentration for Contour Interval x Volume of Water

Contour	Area	Average Concentration	Volume of Impacted Groundwater		Mass of Chloroform in HSU-1 Groundwater		
(µg/L)	(ft^2) †	(µg/L)	(ft^3)	(L)	(µg)	(Kg)	(lb)
1	84,800	5.5^	869,200	24,615,744	135,386,592	0.1	0.3
10	156,800	55^	1,607,200	45,515,904	2,503,374,720	2.5	5.5
100	99,200	550^	1,016,800	28,795,776	15,837,676,800	15.8	34.8
1,000	8,800	4500	90,200	2,554,464	11,495,088,000	11.5	25.3
					TOTAL	30.0	65.9

† Area calculated using Engineering Evaluation/Cost Analysis, Dames & Moore 1997, Figure 8
^ Concentration calculated by averaging contours.



EXPLANATION

- Simulated Extraction Well Location
- Simulated Irrigation Well Location
- 4 — Simulated Groundwater Elevation Contour for Model Layer 3 (HSU-2) in Feet MSL
- Simulated Particle Trace
- Simulated Particle Trace Showing Predicted Capture Extent
- Chloroform Concentrations Above 1 ug/L
- Chloroform Concentrations Above 10 ug/L
- Chloroform Concentrations Above 100 ug/L
- Chloroform Concentrations Above 1,000 ug/L

SUMMER PARTICLE TRACKING RESULTS
EW2-1 PUMPING AT 190 gpm

EE/CA Report - LEHR Groundwater IRA
LEHR Environmental Restoration
Davis, California

DAMES & MOORE
A DAMES & MOORE GROUP COMPANY

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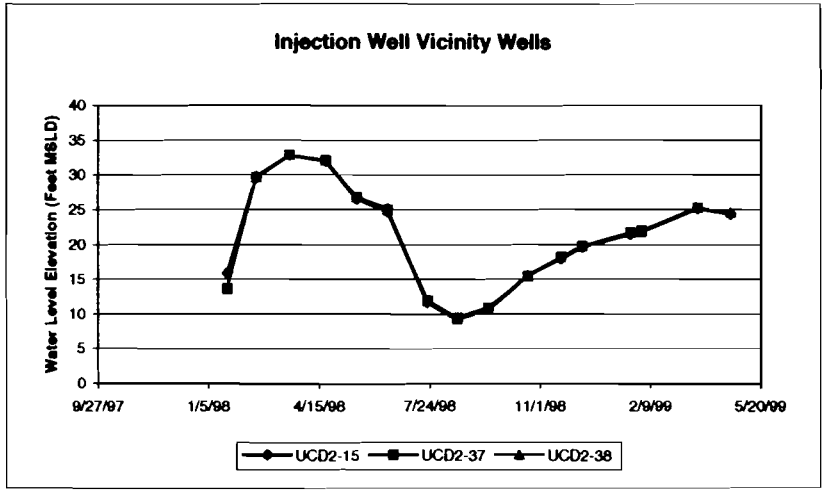
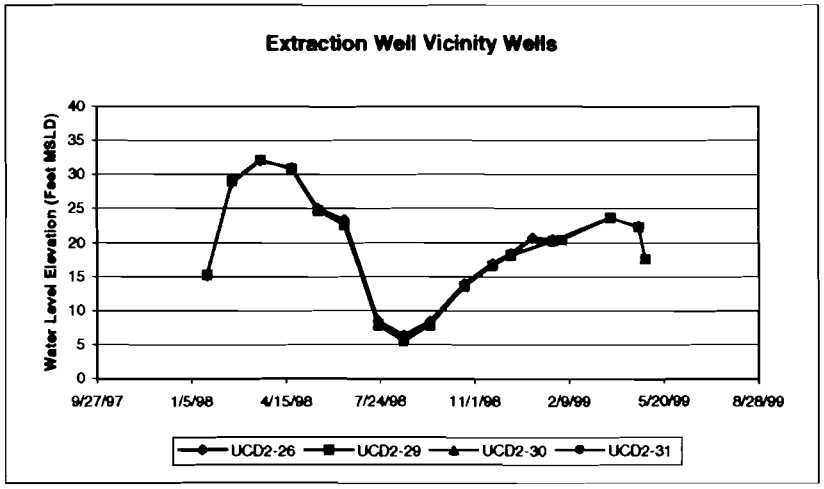
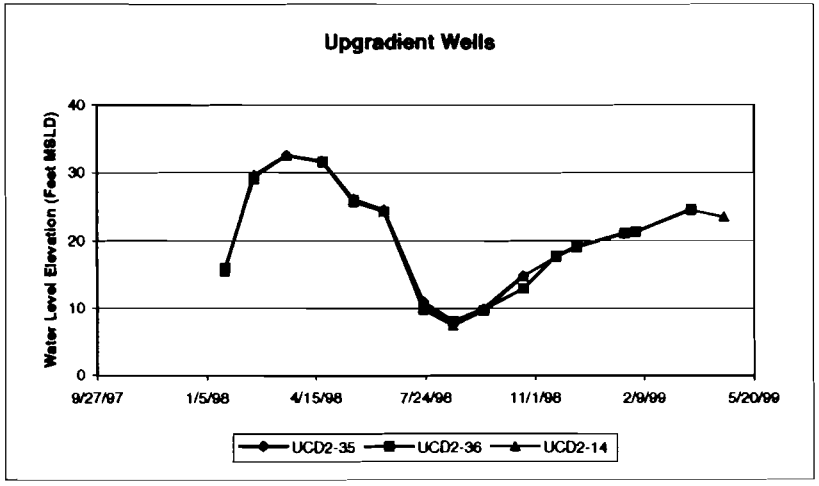
FIGURE 8

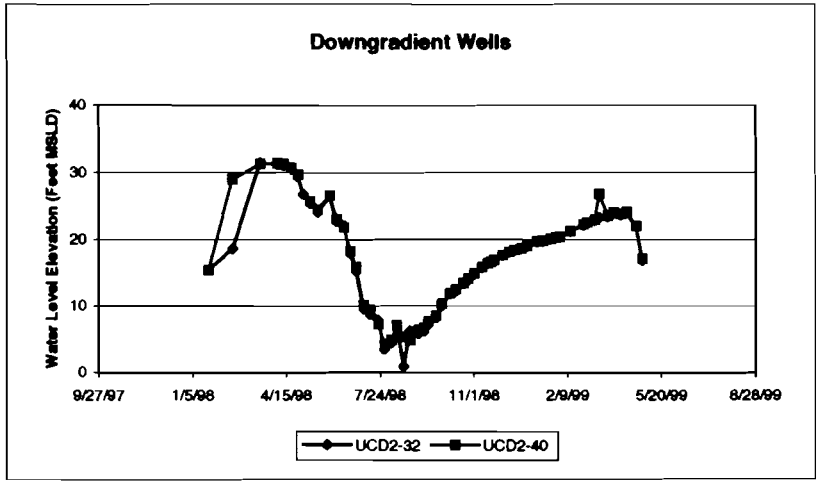
APPENDIX C

CONCENTRATION VS. TIME GRAPHS









GROUNDWATER LEVEL HYDROGRAPHS

LEHR/SCDS ENVRIOMENTAL RESTORATION

DAVIS, CALIFORNIA

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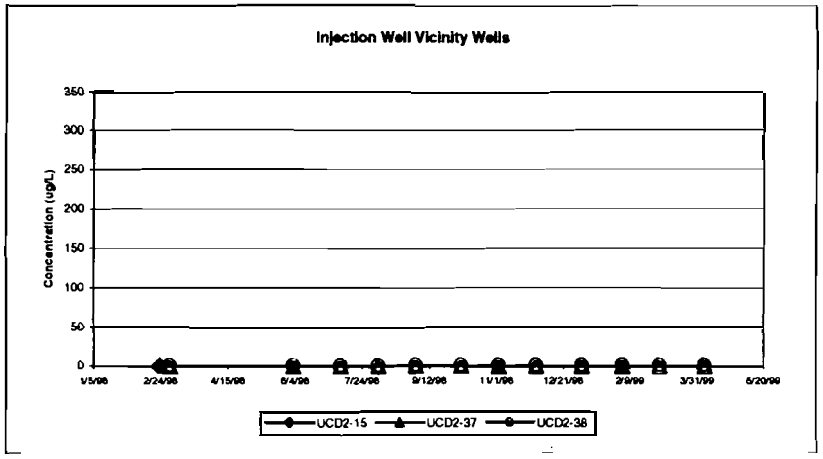
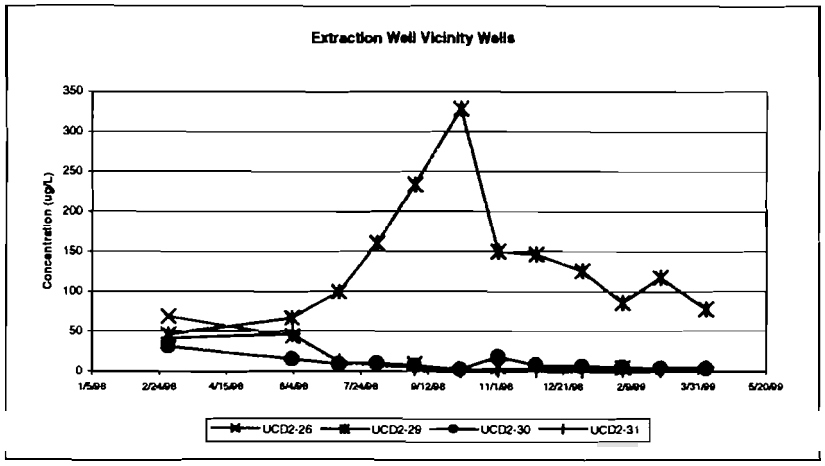
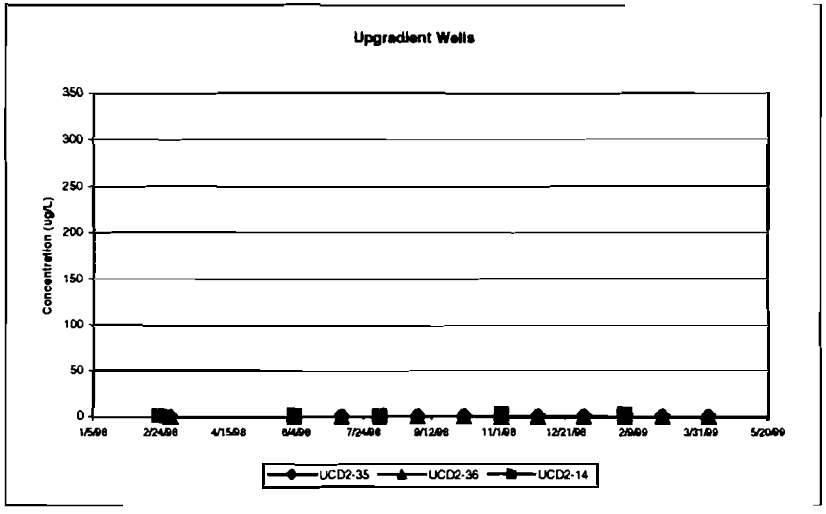
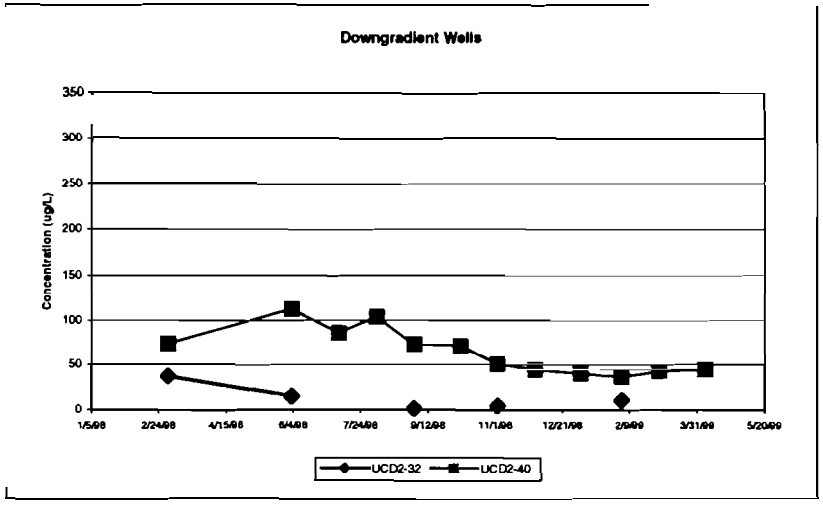
FIGURE C-1

Timeconc/water levels









CONCENTRATION VS TIME GRAPHS - CHLOROFORM

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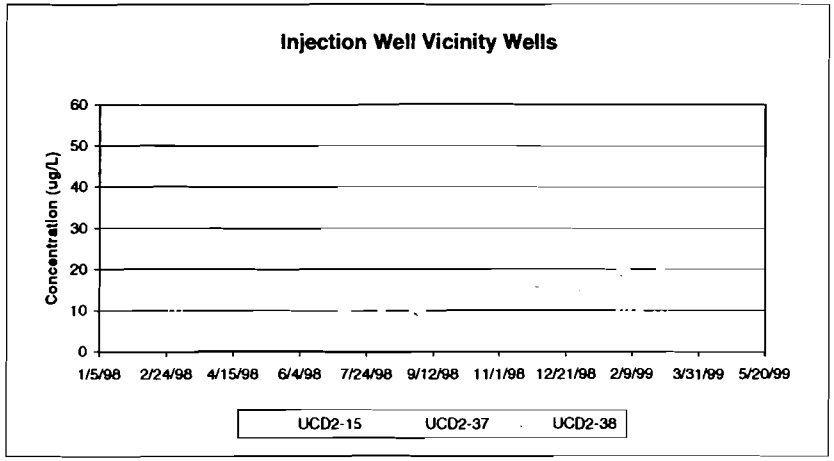
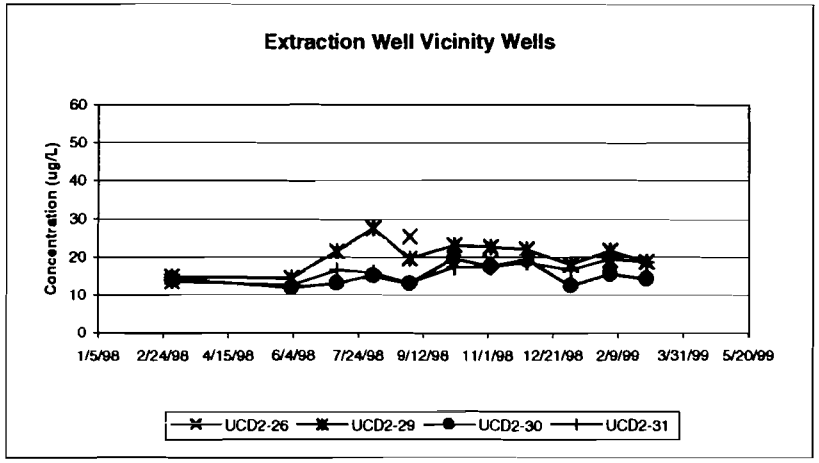
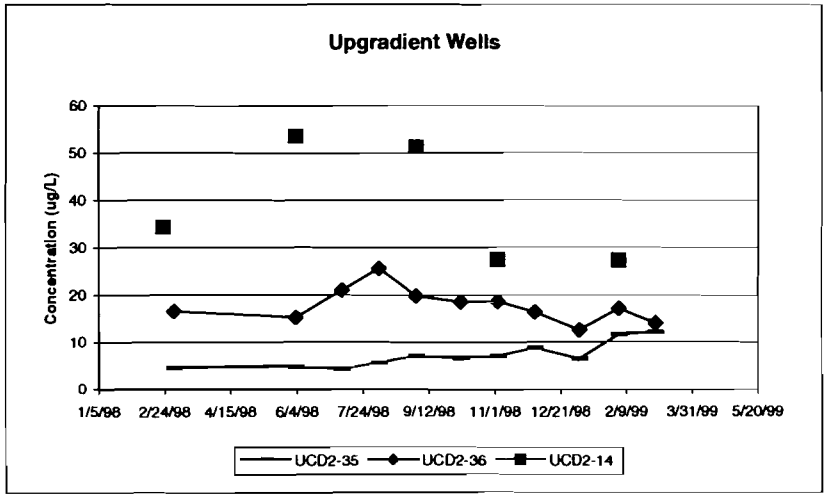
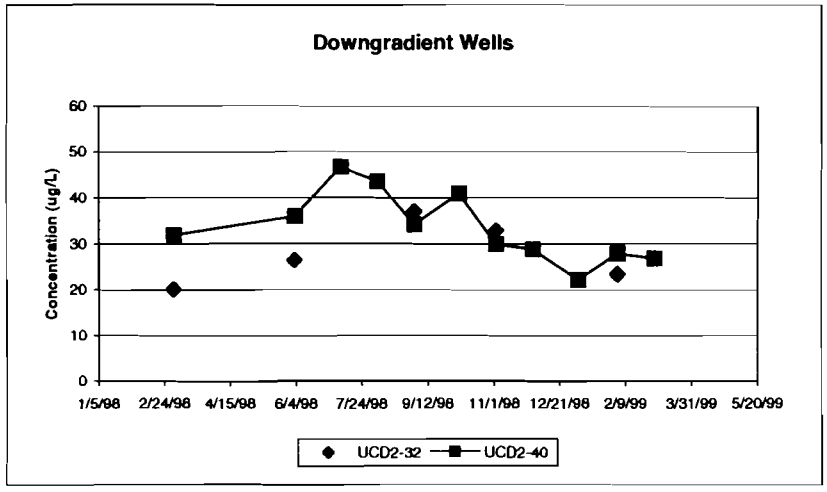
FIGURE C-2









CONCENTRATION VS TIME GRAPHS - TOTAL CHROMIUM

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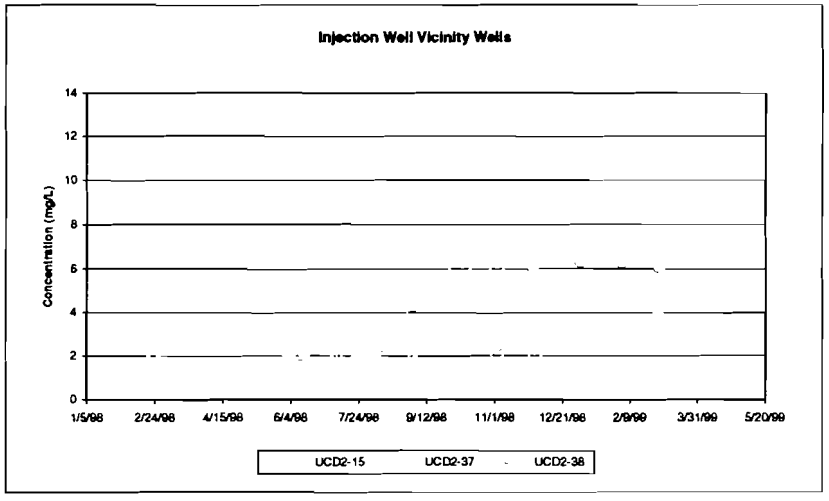
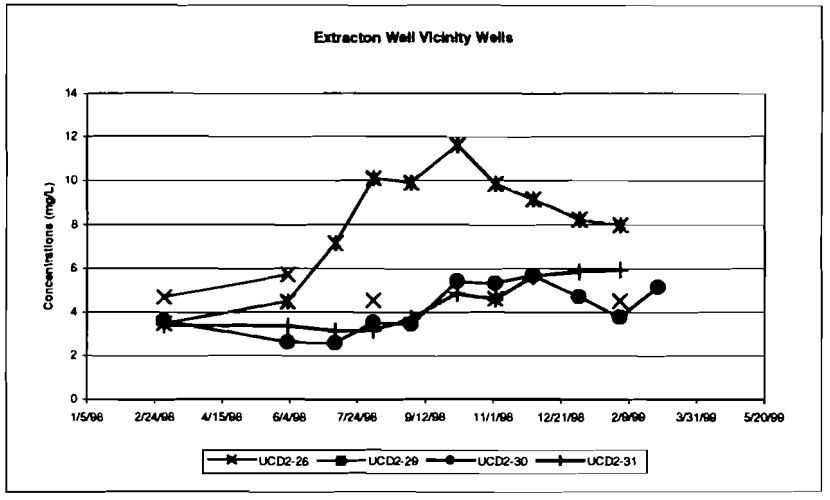
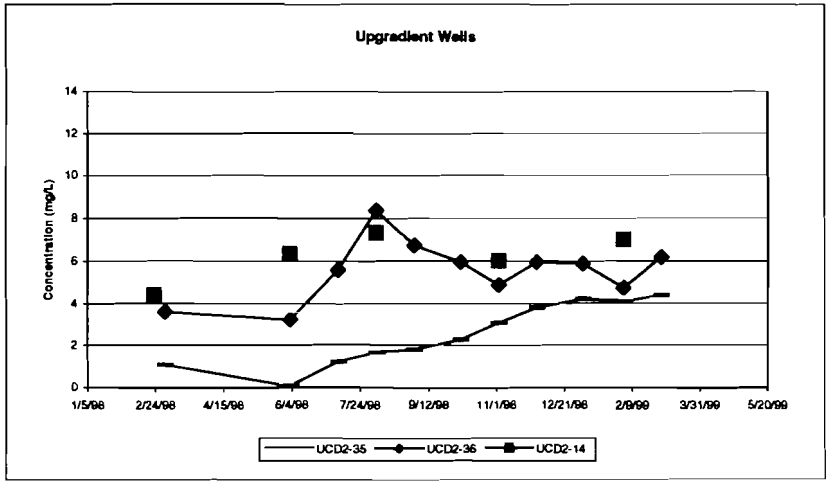
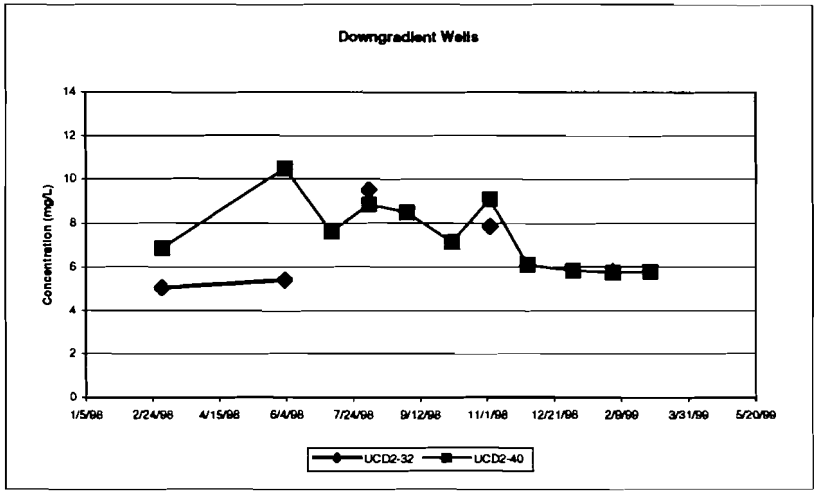
FIGURE C-3









CONCENTRATION VS TIME GRAPHS - NITRATE as N

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DAVIS, CALIFORNIA

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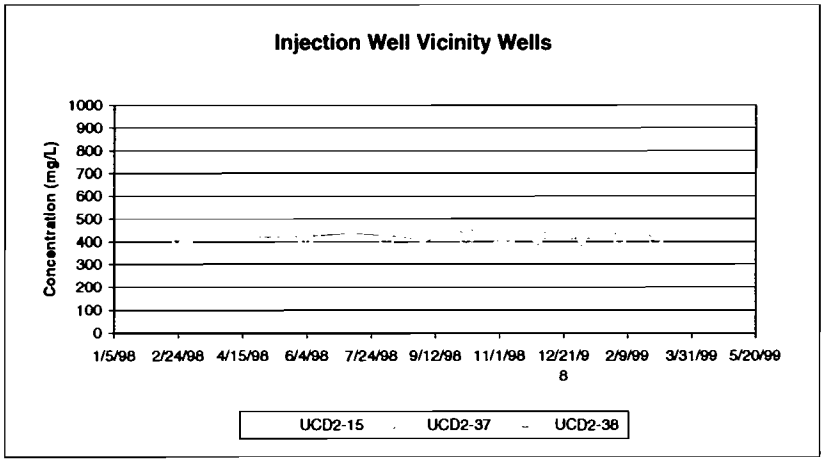
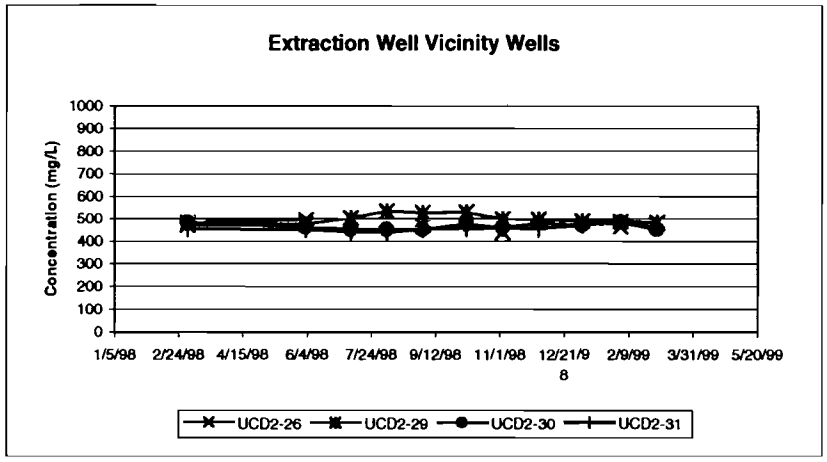
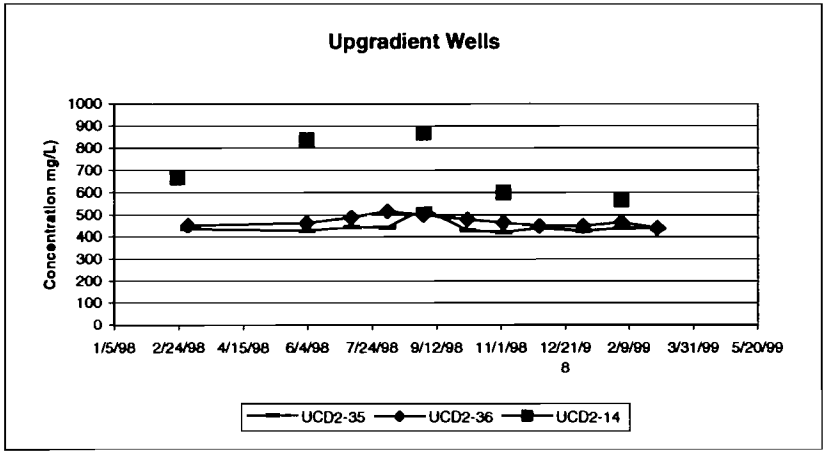
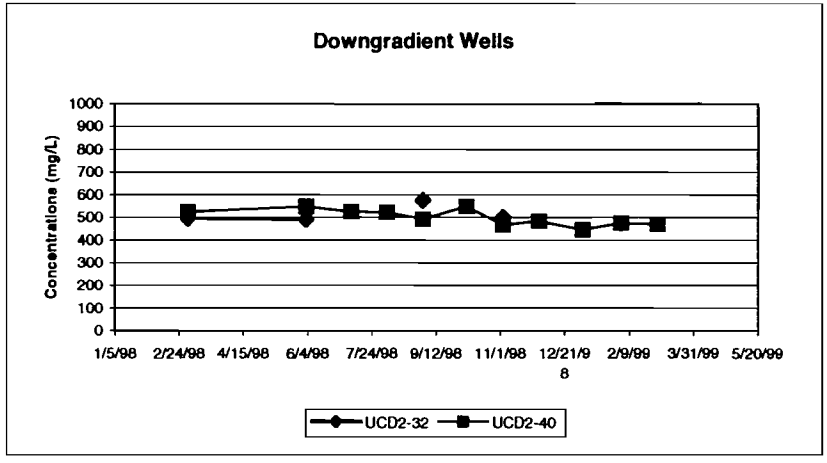
FIGURE C-4









CONCENTRATION VS TIME GRAPHS - TDS

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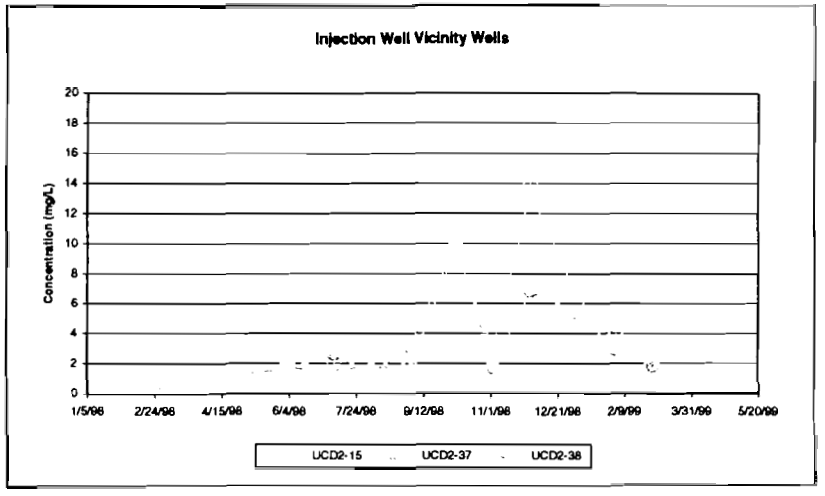
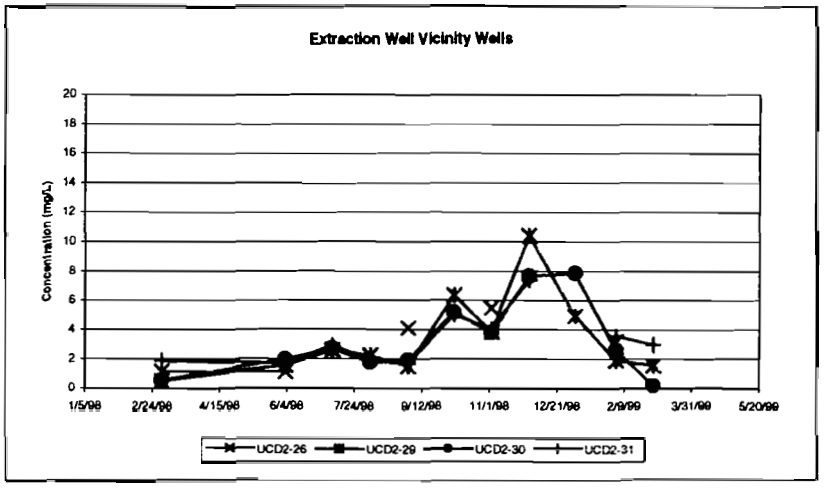
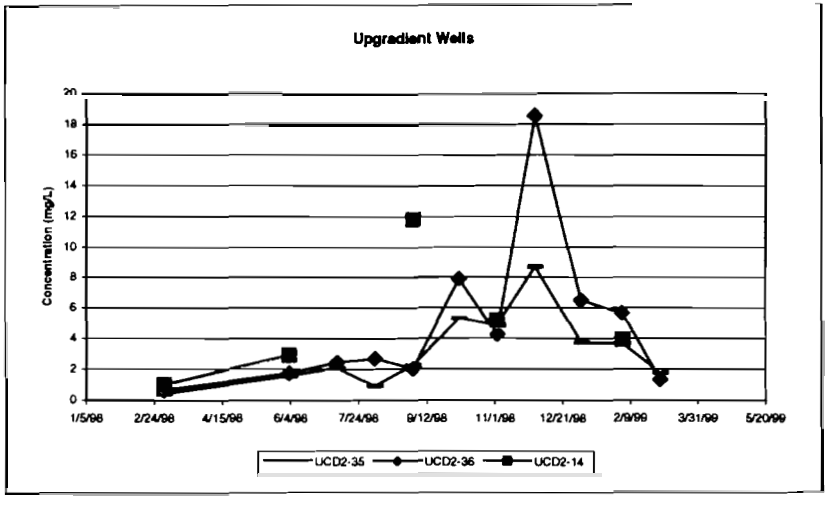
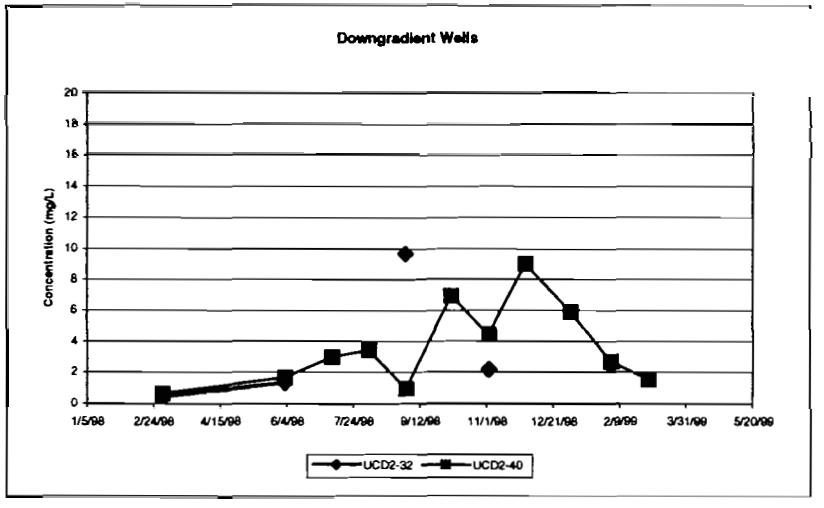
FIGURE C-5









CONCENTRATION VS TIME GRAPHS - TOC

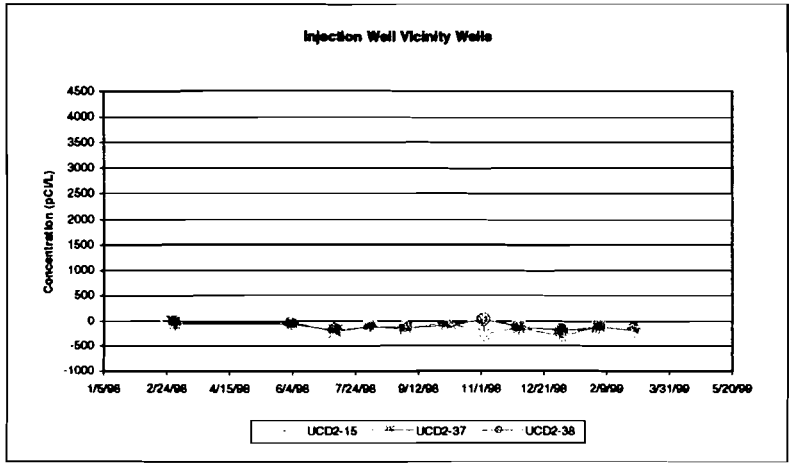
LEHR/SCDS ENVRIOMENTAL RESTORATION

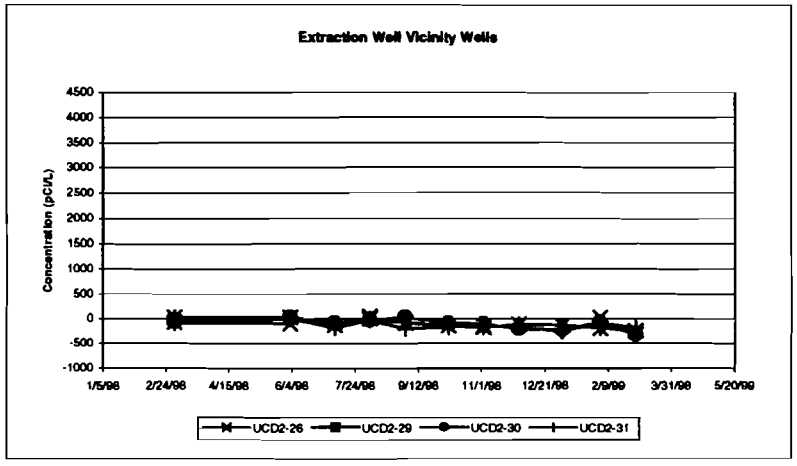
DAVIS, CALIFORNIA

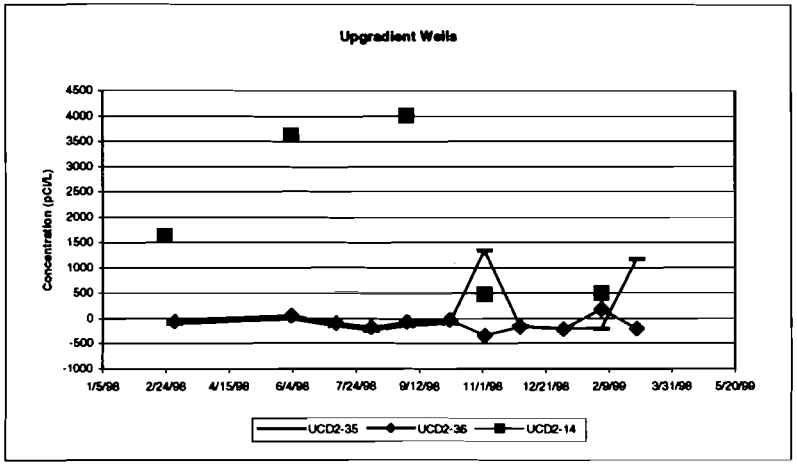
DAMES & MOORE

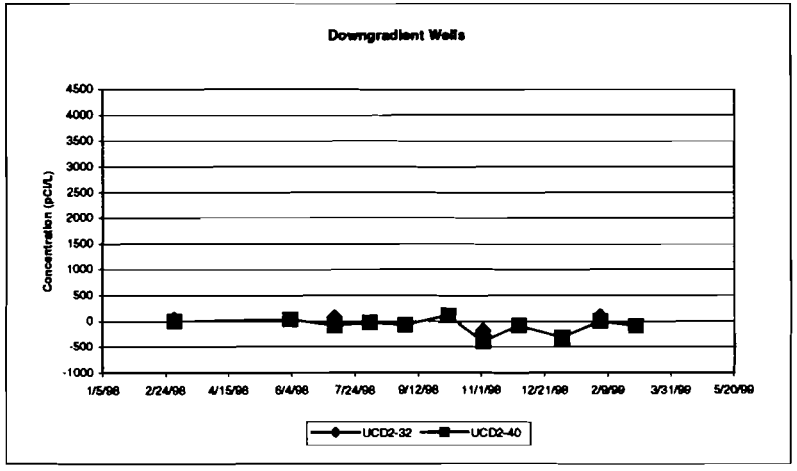
A DAMES & MOORE GROUP COMPANY

FIGURE C-6









CONCENTRATION VS TIME GRAPHS - TRITIUM

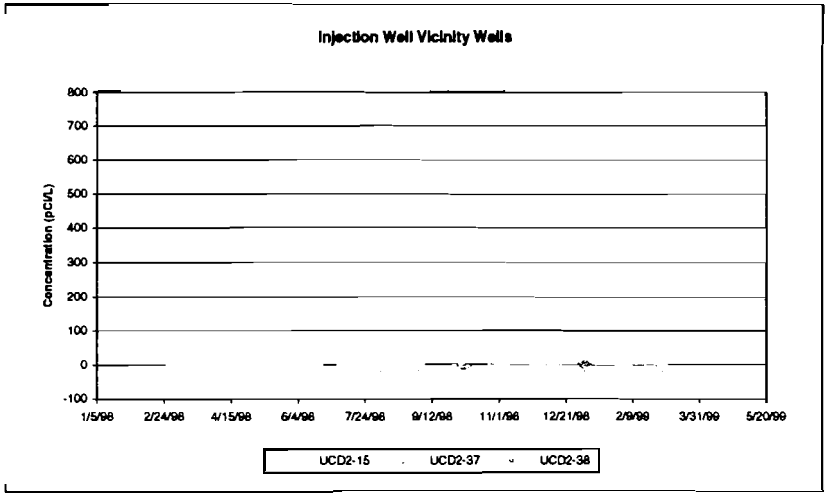
LEHR/SCDS ENVRIOMENTAL RESTORATION

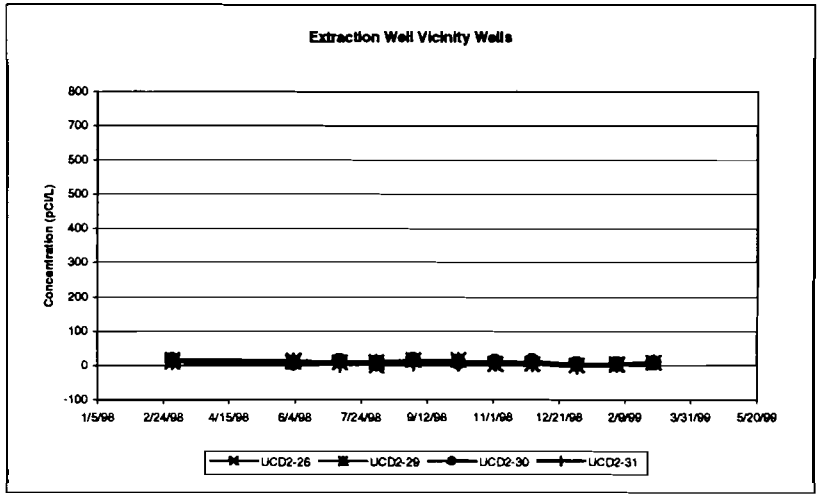
DAVIS, CALIFORNIA

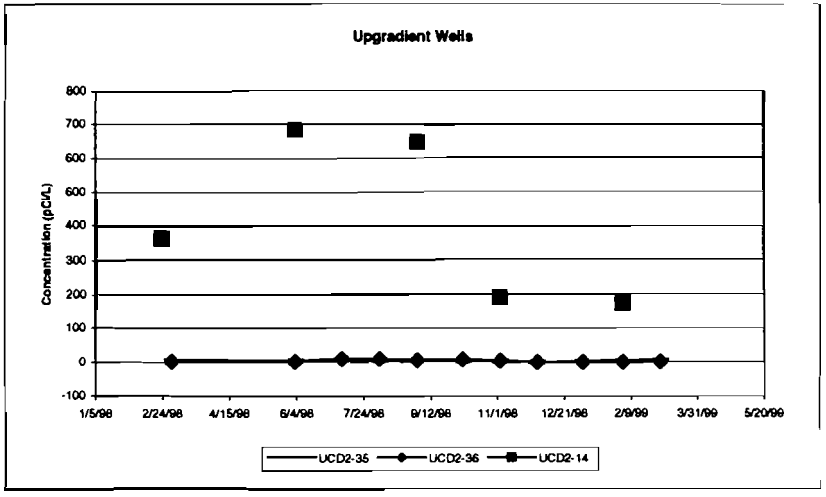
DAMES & MOORE

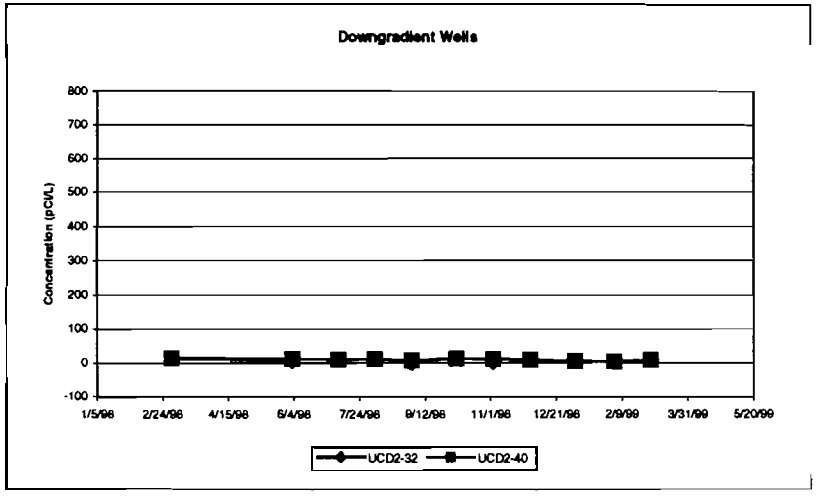
A DAMES & MOORE GROUP COMPANY

FIGURE C-7







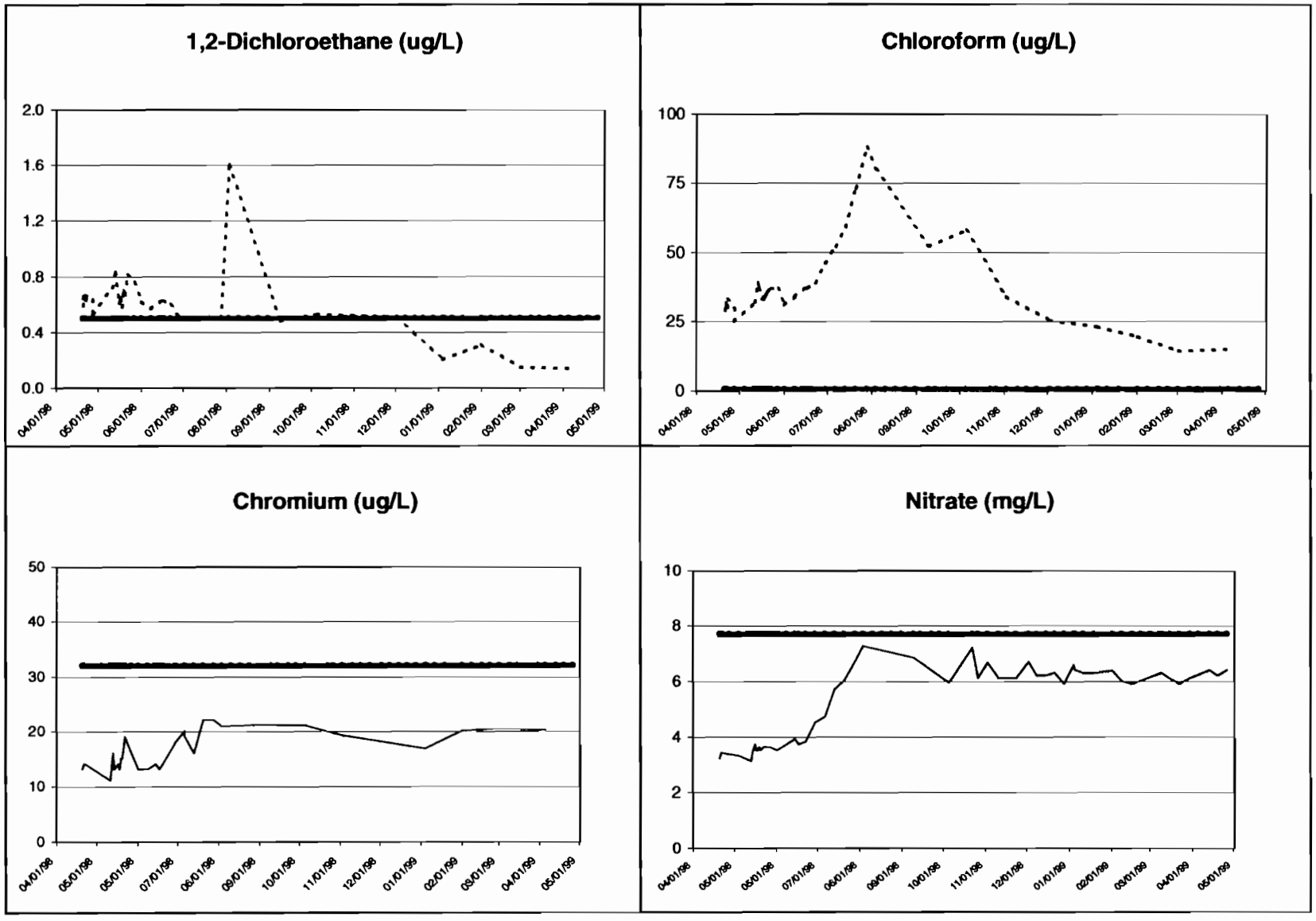


CONCENTRATION VS TIME GRAPHS - CARBON-14

LEHR/SCDS ENVRIOMENTAL RESTORATION
DAVIS, CALIFORNIA

DAMES & MOORE
A DAMES & MOORE GROUP COMPANY

FIGURE C-8



------ = Influent ——— = Effluent —o—o— = Monthly Discharge Limit

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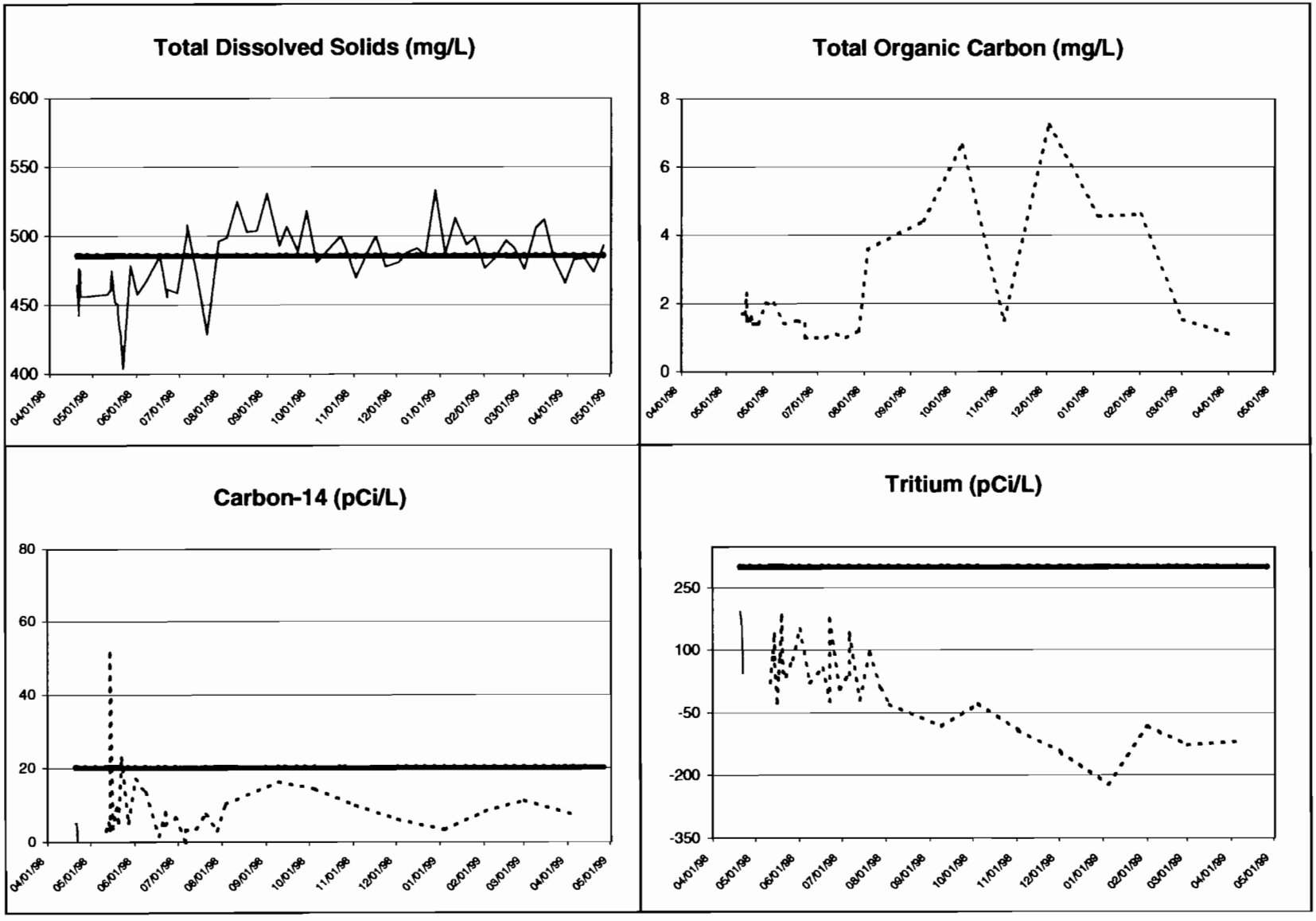
CONCENTRATION VS TIME GRAPHS
1,2-DCA, CHLOROFORM, CHROMIUM AND NITRATE
LEHR/SCDS ENVIRONMENTAL RESTORATION
DAVIS, CALIFORNIA

Figure C-9



------ = Influent —— = Effluent —o—o— = Monthly Discharge Limit

DAMES & MOORE
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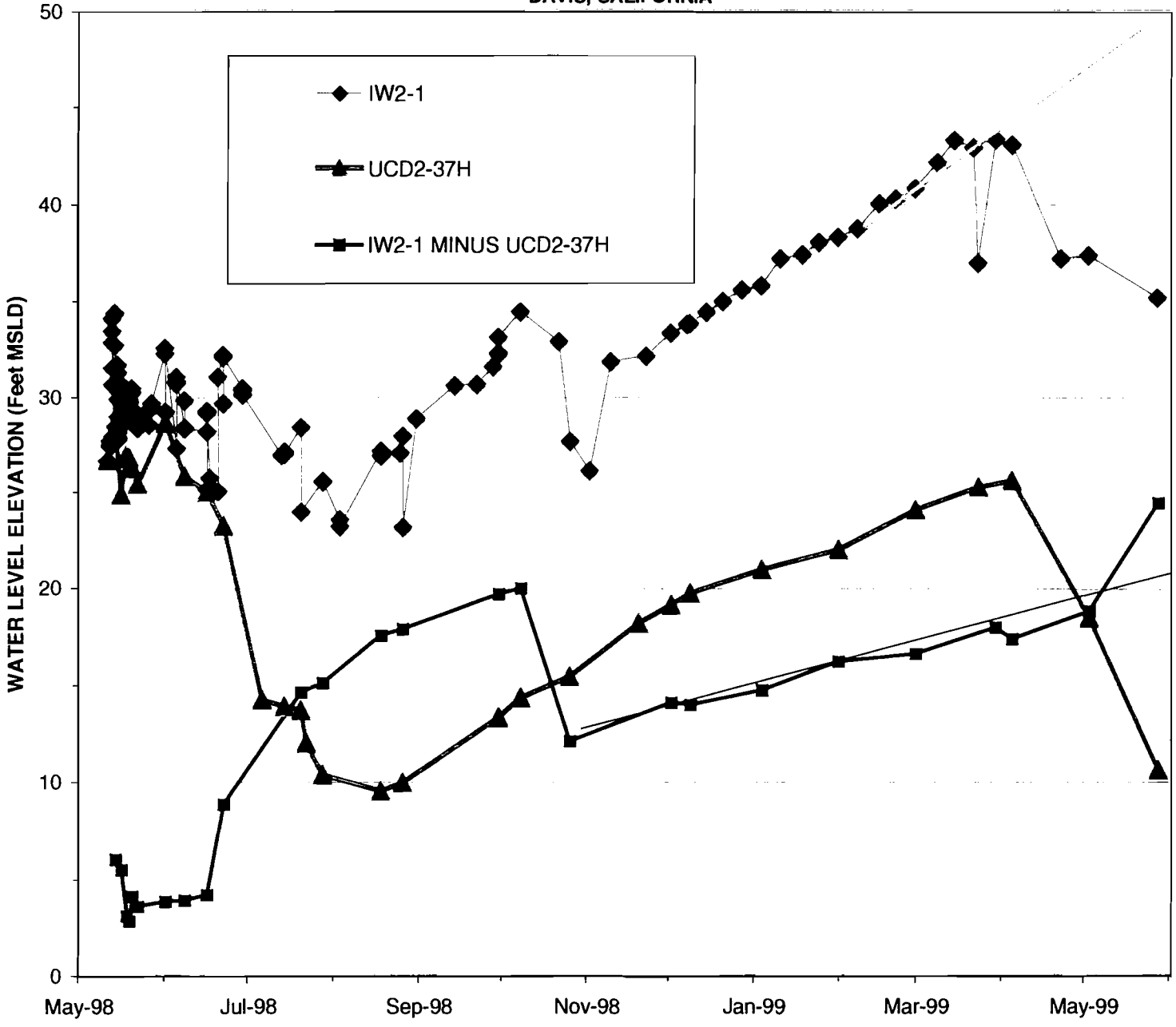
CONCENTRATION VS TIME GRAPHS
TDS, TOC, CARBON-14 AND TRITIUM
LEHR/SCDS ENVIRONMENTAL RESTORATION
DAVIS, CALIFORNIA

Figure C-10

APPENDIX D

INJECTION WELL WATER LEVELS

APPENDIX D
INJECTION WELL WATER LEVELS
LEHR/SCDS ENVIRONMENTAL RESTORATION
DAVIS, CALIFORNIA



APPENDIX E

EFFLUENT STATISTICS

APPENDIX E
EFFLUENT TOTAL DISSOLVED SOLID CONCENTRATION STATISTICS
LEHR/SCDS ENVIRONMENTAL RESTORATION
DAVIS, CALIFORNIA

Analyte	TDS	Daily Limit			Monthly Limit		
Units	mg/L	500			485		
		daily results			monthly averages		
Sample ID	Date	data	value	statistic	data	value	statistic
TPEF0001	04/20/98	464	67	Count		13	Count
TPEF0002	04/20/98	460	532	Max		511	Max
TPEF0003	04/21/98	461	403	Min		449	Min
TPEF0004	04/21/98	442	479	mean		483	mean
TPEF0005	04/21/98	476	482	median		483	median
TPEF0006	04/22/98	473	485	mode		#N/A	mode
TPEF0007	04/22/98	455					
TPEF0008	04/27/98						
TPEF0009	04/27/98				462		
TPEF0010	05/04/98						
TPEF0011	05/11/98	457					
TPEF0012	05/13/98	460					
TPEF0013	05/14/98	474					
TPEF0014	05/14/98						
TPEF0015	05/16/98	452					
TPEF0016	05/17/98	451					
TPEF0017	05/18/98	450					
TPEF0018	05/19/98	435					
TPEF0019	05/20/98	429					
TPEF0020	05/22/98	403					
TPEF0021	05/27/98	478			449		
TPEF0022	06/01/98	457					
TPEF0023	06/08/98	468					
TPEF0024	06/17/98	485					
TPEF0025	06/22/98	455					
TPEF0026	06/22/98	461					
TPEF0027	06/29/98	458			464		
TPEF0028	07/06/98	502					
TPEF0029	07/06/98	507					
TPEF0030	07/13/98	470					
TPEF0031	07/20/98	428					
TPEF0032	07/28/98	495			480		
TPEF0033	08/03/98	498					
TPEF0034	08/10/98	524					
TPEF0035	08/17/98	502					
TPEF0036	08/24/98	503					
TPEF0037	08/31/98	530			511		
TPEF0038	09/09/98	492					
TPEF0039	09/14/98	506					
TPEF0040	09/22/98	488					
TPEF0041	09/28/98	517			501		
TPEF0042	10/05/98	479					

APPENDIX E
EFFLUENT TOTAL DISSOLVED SOLID CONCENTRATION STATISTICS
LEHR/SCDS ENVIRONMENTAL RESTORATION
DAVIS, CALIFORNIA

Analyte	TDS	Daily Limit			Monthly Limit		
Units	mg/L	500			485		
		daily results			monthly averages		
Sample ID	Date	data	value	statistic	data	value	statistic
TPEF0043	10/22/98	499					
TPEF0044	10/26/98	490			489		
TPEF0045	11/02/98	469					
TPEF0046	11/10/98	487					
TPEF0047	11/16/98	499					
TPEF0048	11/23/98	477			483		
TPEF0049	12/02/98	480					
TPEF0050	12/08/98	497					
TPEF 0051	12/21/98	485					
TPEF0051A	12/15/98	490					
TPEF0051B	12/21/98	485					
TPEF0052	12/28/98	532			495		
TPEF0053	01/04/99	486					
TPEF0054	01/11/99	512					
TPEF0055	01/19/99	493					
TPEF0056	01/25/99	498			497		
TPEF0057	02/01/99	476					
TPEF0058	02/08/99	483					
TPEF0059	02/16/99	496					
TPEF0060	02/22/99	490			486		
TPEF0061	03/01/99	475					
TPEF0062	03/09/99	475					
TPEF0063	03/16/99	511					
TPEF0064	03/22/99	482					
TPEF0065	03/30/99	465			482		
TPEF0066	04/05/99	482					
TPEF0067	04/13/99	483					
TPEF0068	04/19/99	473					
TPEF0069	04/26/99	492			483		
CONDITION		Count	Percentage				
DAILY TDS >499		11	16%				
Monthly TDS AVG >484		6	46%				