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Evaluation of Monitored Natural Attenuation as a Remedy to Meet Remedial Action Objectives
Sola Optical USA, Inc., Site
Petaluma, California

April 4, 2001
1954.00-005

Prepared for
Sola Optical USA, Inc.
Petaluma, California

LFR
LEVINE • FRICKE

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Ms. Holly Hadlock
Mail Code H-7-1
U.S. Environmental Protection Agency, Region IX
Superfund Branch/Enforcement Response Section
75 Hawthorne Street
San Francisco, California 94105-3901

Subject: Evaluation of Monitored Natural Attenuation as a Remedy to Meet Remedial Action Objectives, Sola Optical USA, Inc., Site, Petaluma, California

Dear Ms. Hadlock:

On behalf of Sola Optical USA, Inc., LFR Levine·Fricke (LFR) has prepared the enclosed report presenting an evaluation of monitored natural attenuation (MNA) as a remedy to meet remedial action objectives for the groundwater at the subject site. This report is submitted to EPA to provide a basis for changing the selected remedy at the Site from groundwater extraction and treatment (GWET) to MNA.

Please call me at (916) 786-0342 if you have any questions or comments regarding this report.

Sincerely,

Jennifer Beatty/for

J. Scott Seyfried
Principal Scientist

cc: Patricia Shanks
Roman Starno

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1.0 INTRODUCTION

This report presents an evaluation of monitored natural attenuation (MNA) as a remedy to meet remedial action objectives (RAOs) for volatile organic compounds (VOCs) in groundwater at the Sola Optical USA, Inc. site in Petaluma, California ("the Site"; Figure 1). This report was prepared by LFR Levine Fricke (LFR) on behalf of Sola Optical USA, Inc. (Sola), for submittal to the U.S. Environmental Protection Agency (EPA).

EPA's policy regarding the use of MNA for remediation of contaminated soil and groundwater in the Superfund, RCRA Corrective Action, and Underground Storage Tank programs is presented in the report entitled "Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action, and Underground Storage Tank Sites," Office of Solid Waste and Emergency Response Directive Number 9200.4-17P. This report was prepared using this directive as a guide.

The record of decision (ROD) for the Site, issued in 1991, selected groundwater extraction and treatment (GWET) as the remedy to meet RAOs for the Site. Groundwater monitoring data collected over the past 15 years have revealed that RAOs have been achieved in groundwater over the majority of the Site. Performance data for the GWET remedy have revealed that the majority of the observed decreases in VOC concentrations in groundwater have been the result of natural attenuation mechanisms, as opposed to mass removal via groundwater extraction. Because natural attenuation mechanisms have proven effective in reducing groundwater concentrations at the Site, Sola is requesting that the remedy for the Site be changed from GWET to MNA.

Sola understands that the EPA will have to amend the ROD to change the final remedy to MNA. To facilitate an evaluation of the appropriateness of MNA as a final remedy, this report provides an overview of historical regulatory involvement, previous investigations, and site conditions, as well as an assessment of the extent of VOC-affected groundwater and concentration trends for the Site over the past 15 years.

1.1 Site Setting

The Sola facility is located at 1500 Cader Lane in southeastern Petaluma, California (Figure 1). Sola's property encompasses 35 acres and is bounded by Lakeville Highway to the north, Cader Lane to the west, and open fields to the south and east. Improvements at the Site include a large one-story building that houses office, manufacturing, and warehouse facilities and an adjacent asphalt-covered parking lot. Six 1,000-gallon underground storage tanks (USTs) were at one time located near the southwestern corner of the manufacturing building (Figure 2). Land use in the immediate vicinity is primarily industrial, and in the surrounding areas is mixed commercial and residential.

The topography of the area, including the Site itself, gently slopes at a rate of approximately 50 feet per mile from low hills east of the Site toward the Petaluma River, located approximately one mile southwest of the Site. The closest natural surface water feature is Adobe Creek, a north-south trending intermittent stream located about 1,500 feet west of the Sola building. Adobe Creek drains into the Petaluma River.

1.2 Regulatory History

This section provides a brief overview of the regulatory history. A more complete discussion of the site history is included the "Remedial Investigation Report, Sola Optical USA, Inc., Petaluma, California," dated December 3, 1990 ("the RI report").

Sola began production at its ophthalmic manufacturing facility in 1978. Sola stored 1,1,1-trichloroethane (1,1,1-TCA), acetone, and methanol in six 1,000-gallon USTs from 1978 to 1985. VOCs were detected in shallow groundwater beneath the Site in 1982 in the vicinity of the former USTs. Sola removed the tanks in July 1985.

The California Regional Water Quality Control Board, San Francisco Region (RWQCB) provided oversight for a series of soil and groundwater investigations conducted at the Site from 1982 through 1989. Work completed at the Site during this time period included installation of several groundwater monitoring wells at depths ranging from 30 to 250 feet below ground surface (bgs), completion of source-area soil investigations, and installation of a GWET system. The GWET system consisted of nine groundwater extraction wells screened across the shallow- (up to approximately 30 feet bgs) and intermediate-depth (up to approximately 60 feet bgs) intervals and a treatment system consisting of granular activated carbon. The GWET system began operating in September 1988.

The City of Petaluma owns and formerly operated a water-supply well located approximately 300 feet north of the Site ("the Station 5 well; Figure 1). VOCs including 1,1,1-TCA, 1,1-dichloroethene (1,1-DCE), and 1,1-dichloroethane (1,1-DCA) were detected in samples collected from the Station 5 well at concentrations at or slightly above the detection limit in 1987 and 1988. Based partially on these data, the City of Petaluma ceased operation of the Station 5 well in June 1988 and demanded compensation from Sola. On October 16, 1989, Sola and the City of Petaluma entered into a written agreement ensuring that the Station 5 well would not be operated until pumping from that well would no longer potentially adversely affect remedial measures at the Site.

The RWQCB referred the Site to the EPA for inclusion onto the National Priorities List in May 1987. In May 1989, the EPA issued a Special Notice Letter requesting Sola to conduct a remedial investigation/feasibility study (RI/FS) for the Site. EPA approved Sola's RI/FS work plan and issued Administrative Consent Order 89-22 in October 1989. Sola completed the RI in December 1990 and the FS in June 1991.

The EPA completed a public health risk assessment (HRA) for the Site in March 1991. The HRA concluded that the Site poses no apparent public health hazard. However, a risk of 1 x 10^{-4} was calculated for 1,1-DCE in groundwater considering human exposure by ingestion of groundwater beneath the Site and the HRA recommended that institutional controls be implemented to prevent future use of VOC-affected water bearing zones for drinking water supplies.

The EPA issued the ROD for the Site in September 1991. The ROD selected maximum contaminant levels (MCLs) as applicable or relevant appropriate requirements for groundwater and specified the following RAOs.

Chemical	Drinking Water Standard (parts per billion)		Remedial Action Objective (parts per billion)
	State	Federal	
1,1-DCE	6	7	6
1,1-DCA	5	NA	5
1,1,1-TCA	200	200	200
Freon 113	1,200	1,200	1,200

The ROD selected an enhanced GWET system as the remedy for the Site. The enhancements to the original GWET system included adding two shallow source-area groundwater extraction wells and converting two deeper groundwater monitoring wells into extraction wells to address deeper zone groundwater at concentrations above MCLs. The enhanced GWET system began operating in 1992 and was operational until March 1997. At that time, concentrations of VOCs in several groundwater monitoring and extraction wells had reached apparently asymtotic levels, and, in accordance with the FS, the system was shut down to assess for potential "rebound" VOC concentrations.

2.0 PREVIOUS INVESTIGATIONS/SITE CONDITIONS

LFR conducted several soil and groundwater investigations at the Site from 1986 to 1990, installed a GWET system in 1989, added additional groundwater extraction wells to augment the GWET system in 1992, and has conducted monitoring and reporting for the Site since 1987.

2.1 Previous Investigations

The RI was completed in 1990 and the RI report for the Site was submitted to the EPA in December 1990. The RI report includes a list of reports of investigations conducted at the Site before 1990. Reports prepared by LFR and submitted to the EPA since 1990 are summarized below.

Report Title	Date	Description
Feasibility Study Report	June 1991	Provided a detailed evaluation of several potential enhancements to the existing GWET remedy. Recommended an option that included installing two additional shallow groundwater extraction wells, and converting two existing deep groundwater monitoring wells into groundwater extraction wells. Provided an estimate of the total mass of VOCs in groundwater and an estimate time to reach RAOs.
Remedial Design/Remedial Action Work Plan	February 1992	Presented the specifications and the scope of work for installing an enhanced GWET system.
Request for a Technical Impracticability Waiver	November 1996	Provides the rationale for a request to invoke a technical impracticality waiver for VOC-affected groundwater based on an evaluation of the effectiveness of the GWET system.
Groundwater Monitoring Reports and other submittals	Ongoing	Presents results of periodic groundwater monitoring including presentation of isopleth maps showing the extent of VOC-affected groundwater.

2.2 Hydrogeology

Environmental investigations conducted at the Site indicate that sediments from the ground surface to depths of approximately 100 feet bgs consist of discontinuous, heterogeneous sequences of interbedded clays, silts, and sands, with lesser amounts of gravel. Sediments in the immediate vicinity of the former USTs consist primarily of a fat "adobe" clay sediment characterized by a hydraulic conductivity of less than 8×10^{-5} centimeters per second (cm/sec; the RI report). In general, the presence of coarser-grained intervals increases with distance from the former USTs.

Deeper than approximately 100 feet bgs, thicker clay intervals, which appear to be relatively continuous over distances of hundreds of feet are encountered. Intervals of silt, sand, and gravel are present in this deeper clay interval.

Water-level data collected from both shallow- and intermediate-depth wells indicate that groundwater is encountered at a depth of approximately 10 feet bgs and flows toward the southwest, in the general direction of the Petaluma River (Figures 2 and 3). Vertical hydraulic gradients within the upper 80 feet of saturated sediments at the Site are

predominately upward. Downward vertical hydraulic gradients are present at depths below approximately 100 feet bgs.

2.3 Groundwater Quality

Groundwater quality at the Site has been monitored since 1986. Historical groundwater quality results are summarized in Table 1. The primary VOCs detected in groundwater samples from monitoring wells at the Site have included 1,1-DCE, 1,1-DCA, 1,1,1-TCA, and Freon 113. The highest concentrations of the primary VOCs (up to 3.3 parts per million [ppm] 1,1-DCE in 1986) have been detected in groundwater samples collected from shallow monitoring well W-14, located immediately downgradient of the vicinity of the former USTs. Concentrations decrease with distance from the former UST location to at or below MCLs within 350 feet downgradient of the source area.

2.3.1 Source for VOCs in Groundwater

VOCs detected in groundwater beneath the Site appear to have originated from the former tank backfill material, and possibly the immediately adjacent soils, in the vicinity of the former USTs. The USTs were removed in July 1985. Inspection of the tanks upon removal did not indicate that the tanks had leaked. However, observations at the time the tanks were removed revealed staining of the fill pipes and the immediately adjacent backfill material.

Measurements collected from water-level observation pipes (piezometers) in the tank backfill material revealed that up to a few feet of groundwater was intermittently present at the bottom of the former tank excavation during operation of the tanks. VOCs released from the tank fill pipes appear to have migrated into the backfill material and entered into groundwater in the bottom of the excavation, where it then may have migrated directly into the underlying shallow groundwater.

The site conceptual model, presented in Figure 4, depicts the presence of 1,1,1-TCA in the saturated backfill material near the former USTs. Extensive source-area soil investigations conducted as part of the RI indicated that soils in the vicinity of the former USTs do not represent a source for VOCs in shallow groundwater. These soil data support the hypothesis that VOCs were released "directly" into shallow groundwater via the tank backfill material.

2.3.2 Plume Stability

The lateral extent of the VOC groundwater plume beneath the Site is stable and the vertical extent has been decreasing since 1986. Historical groundwater quality data and the lateral extent of 1,1-DCE and 1,1-DCA in groundwater are shown in Figures 5 through 21. These figures are summarized below.

Figure Number	Chemical	Dates	Groundwater Depth Interval
5–10	1,1-DCE	1990, 1994, 1995, 1996, 1997, 1998	Shallow (<30 feet bgs)
11–14	1,1-DCA	1990, 1995, 1996, 1997	Shallow (<30 feet bgs)
15–17	1,1-DCE	1990, 1995, 1996	Intermediate (<60 feet bgs)
18–20	1,1-DCA	1995, 1996, 1997	Intermediate (<60 feet bgs)
21	1,1-DCE	1997	Deep (<200 feet bgs) Deeper (>200 feet bgs)

2.3.2.1 Lateral Extent of VOCs in Groundwater

A comparison of groundwater quality data collected from 1990 to 1998 indicates that the extent of VOC-affected groundwater above MCLs has decreased and has stabilized (i.e., VOCs in groundwater are not migrating) to an area within 350 feet of the source area, well within the Site boundary.

Figures 22 through 29 show concentration data versus time for wells W-14, W-25, W-27, W-28, LF-2, LF-22, E-2 and E-5. As shown on the figures, VOC concentrations measured in wells across the Site have decreased significantly since 1986. With the exception of wells W-27 and E-5, the concentrations of VOCs have shown a steady decrease to below the MCLs. Concentrations of 1,1-DCE and 1,1-DCA reported for wells W-27 and E-5 are relatively stable below approximately16 parts per billion (ppb). Groundwater data collected after the GWET system was turned off in 1997 indicate that the concentrations in groundwater continue to decrease or have remained stable (Table 1).

2.3.2.2 Vertical Extent of VOCs in Groundwater

Water quality data collected from deeper extraction wells EX-12 (formerly monitoring well LF-17) and EX-13 (formerly monitoring well LF-13) are shown on Figure 21. These data indicate that operation of the GWET system, which started in 1992, reduced concentrations of VOCs in deeper groundwater at the Site to levels below MCLs, thus meeting the RAOs for the Site.

3.0 MONITORED NATURAL ATTENUATION

The term "Monitored Natural Attenuation," as used by the EPA in Directive Number 9200.4-17P, refers to the reliance on natural attenuation processes (within the context of a carefully controlled and monitored site cleanup approach) to achieve site-specific RAOs within a time frame that is reasonable compared to that offered by other more active methods. The natural attenuation processes that are at work in such a remediation approach include a variety of physical, chemical, or biological processes that, under favorable conditions, act without human intervention to reduce the mass, toxicity, mobility, volume, or concentration of contaminants in soil or groundwater. (EPA 1999).

Sola operated a GWET system for approximately nine years. Groundwater monitoring data indicate that concentrations of VOCs in groundwater have decreased substantially and have stabilized at levels below the MCLs for most of the Site. A comparison of the mass removed by the GWET system and the mass removed from the groundwater as calculated from groundwater concentration data suggests that natural attenuation processes are effective in reducing VOC concentrations (Section 3.6.1). This is supported by an evaluation of the decreasing concentration trends relative to periods of GWET system operation. There does not appear to be a marked decrease in concentrations following start-up of the GWET system or enhanced GWET. Also, shut down of the GWET system in 1997 did not result in a significant increase in the concentration of VOCs over the Site. Based on these data and on other considerations discussed in this report, Sola is requesting that EPA consider MNA as a final remedy for the Site.

3.1 Mechanisms of Natural Attenuation

The following natural attenuation mechanisms may be active at the Site: dilution, dispersion, diffusion, volatilization, sorption, biodegradation, and abiotic degradation. All of these processes result in a decrease in the dissolved-phase concentration of the contaminant. However, only biodegradation and abiotic destruction results in destruction of the contaminant. These mechanisms are illustrated on Figure 4.

Nondestructive processes that result in decreases in contaminant concentrations in groundwater include the following:

- dilution: mixing of groundwater containing higher concentrations of the contaminant with surrounding clean or less impacted groundwater resulting in reduced contaminant concentrations
- dispersion: mixing of groundwater due to variations in the velocity of groundwater movement, resulting in longitudinal, transverse, and vertical spreading of the plume, and reduced contaminant concentrations

- diffusion: spreading and dilution of contaminants due to molecular diffusion of the contaminant in groundwater from areas of relatively high concentration to areas of lower concentration, resulting in overall decreases in contaminant concentrations
- volatilization: volatilization or transfer of contaminants from the groundwater phase to soil-gas in the vadose zone, lowering groundwater concentrations
- sorption: sorbing of contaminants to organic carbon or clay minerals in the saturated sediments, thus sequestering the contaminant and reducing groundwater concentrations and the potential for migration

Biotic and abiotic degradation of 1,1,1-TCA, the contaminant released at the Site, results in intermediate or daughter products, which are in turn degraded and ultimately destroyed. The most widespread contaminants at the Site are 1,1-DCE and 1,1-DCA. Neither of these compounds were reportedly used at the Site. However, both of these compounds are daughter products of 1,1,1-TCA, which was reportedly stored in the USTs. The mechanisms by which 1,1,1-TCA is degraded are described as follows:

- 1,1,1-TCA can be reductively dehalogenated (a chlorine atom is replaced with a hydrogen) to form 1,1-DCA. The 1,1-DCA formed by this reaction is in turn reductively dehalogenated to form chlorethane, which is then hydrolyzed to ethanol (abiotic or biotic).
- 1,1,1-TCA can be dehydrohalogenated (this elimination reaction results in the removal of a chlorine atom and a hydrogen and the formation of a double bond between the respective carbons atoms) to form 1,1-DCE. The 1,1-DCE formed by this reaction then undergoes reductive dehalogenation to form vinyl chloride, which is then reductively dehalogenated to ethylene or consumed as a substrate in an aerobic reaction (abiotic).
- 1,1,1-TCA can be abiotically transformed to acetic acid through a series of substitution reactions including hydrolysis.

Biotic transformations of chlorinated solvents under anaerobic conditions are generally reductions that involve either reductive dehalogenation or dehydrohalogenation. Reductive dehalogenation results in intermediate products that are reduced and often more susceptible to oxidative reactions.

LFR measured the concentration of dissolved oxygen (DO) in several groundwater monitoring wells at the Site. Measured concentrations of DO indicate the presence of anaerobic conditions within the plume area (DO concentrations of 0.6 mg/l and 1.2 mg/l for wells W-14 and W-26, respectively) and aerobic conditions in areas outside of the plume (up to 6 mg/l in well W-31, located near the western property boundary). These data indicate that conditions within the plume area near the UST source are likely conducive to reductive reactions.

3.2 Evaluation of Site Conditions Relative to MNA

An evaluation of current site conditions suggests that MNA is an appropriate remedy for the Site. The source has been removed, the plume is stable, and concentrations of VOCs have decreased to levels at or below MCLs over most of the Site.

As shown in Figure 4, the Site Conceptual Model, field observations and soil and groundwater data reported in the RI report suggest that 1,1,1-TCA was released to groundwater through a piezometer in the UST backfill. The source of VOCs to groundwater, the UST system, has been removed (see Section 2.3.1) and elevated concentrations of VOCs in groundwater near the former UST have been significantly reduced.

Groundwater quality data collected over the past 10 years indicate that the plume has stabilized to an area within 350 feet of the former UST, well within the Site boundary (see Section 2.2 and Figures 5 through 21). VOCs have not been detected in deep (greater than 100 feet bgs) or deeper (200 - 250 feet bgs) groundwater since June1997.

Concentrations of VOCs in shallow groundwater within the plume are low (generally less than 16 ppb) and continue to decrease (Table 1 and Figures 22 through 29). The presence of breakdown products of 1,1,1-TCA in groundwater (i.e., 1,1-DCE and 1,1-DCA) and the absence of 1,1,1-TCA indicate that site conditions are conducive to degradation of chlorinated solvents. Other natural attenuation processes illustrated in Figure 4 are also causing concentrations of VOCs to decrease over time.

3.3 Attenuation Rates

Although attenuation of chlorinated solvents is not truly a first-order reaction, degradation rates for contaminants can be approximated using pseudo-first-order kinetics for a steady-state plume (EPA 1998). To estimate apparent attenuation rates for 1,1-DCE and 1,1-DCA in groundwater at the Site, an exponential curve was fit to concentration versus time data where appropriate. It should be noted that the attenuation rate constant derived from this method represents a total, or "bulk" attenuation rate, and reflects a combination of destructive and nondestructive natural attenuation mechanisms (see Section 3.1). A portion of this total attenuation rate results from biotic or abiotic reactions, which destroy the contaminant.

The equation for the exponential curve fit to the concentration trend for a particular well includes the half-life term for the chemical as shown below:

$$C = C_i e^{-\lambda t}$$

where:

C = Current Concentration
Ci = Initial Concentration
λ = rate constant
t = time

Figures A-1 through A-6 in Appendix A show the exponential curve fit to concentration data for wells W-14, W-25, W-28, and LF-22 and the exponential equation. As shown on the figures, the attenuation constants (λ) determined for 1,1-DCE from the concentration data ranged from 0.0015 day^{-1} to 0.0022 day^{-1}. The best fit for an exponential curve to 1,1-DCA concentration data for wells W-14 and W-28 yielded an attenuation constant of 0.1897 day^{-1} and 0.0015 day^{-1}, respectively.

Half-life values can be calculated using the attenuation constant as follows:

$$\text{Half-life} = 0.693/\lambda$$

The half-life values determined for 1,1-DCE, based on historical groundwater concentration data for the Site ranged from a little less than one year to approximately 1.3 years. The half-life for 1,1-DCA, based on the data from two wells, ranged from 3.6 days to 1.3 years.

3.4 Estimated Timeframe to Meet RAOs

RAOs for groundwater have been met across most of the Site (i.e., concentrations of VOCs are below MCLs for the majority of the Site). Groundwater near wells W-27 and E-5 still contains concentrations of 1,1-DCE and 1,1-DCA just above the MCLs. Although historical groundwater quality data and the evaluation presented in this report clearly demonstrate the effectiveness of natural attenuation processes in reducing VOC concentrations to below RAOs, the concentrations of 1,1-DCE and 1,1-DCA in wells W-27 and E-5 appear to have stabilized slightly above the MCLs. For example, the lithologic log for well W-27 indicates the presence of a greater percentage of clay, relative to other wells in that portion of the Site. This relatively high clay content may be responsible for increased sorption and sequestering of VOCs into "dead end" pores. As a result, desorption and diffusion processes associated with these clays are slower, resulting in much slower rates of attenuation.

Rate limiting

(This could cause >1.7 yr RAO

Using the range of half-life values determined as described in Section 3.3, the following are predictions of the estimated time for concentrations of 1,1-DCA and 1,1-DCE to reach MCLs in wells W-27 and E-5:

Well	Chemical	Current Level (ppb)	RAO (ppb)	Range of Half-life Values Estimated Based on Concentration Data for the Site	Estimated Time for VOCs to Reach RAOs
W-27	1,1-DCA	15	6	3.6 days to 1.3 years	5 days to 1.7 years
E-5	1,1-DCE	12	5	0.86 to 1.3 years	1.1 to 1.6 years

why span 200 for 18 months?

3.5 Risk Management

Current concentrations of VOCs present in groundwater beneath the Site do not likely pose a threat to human health or the environment. Concentrations of VOCs are low and the extent of affected shallow groundwater has stabilized in a relatively small area well within the Site boundary (i.e., surface water and drinking water wells located near the Site are not threatened). A risk assessment was previously performed by the EPA and institutional controls have been implemented.

3.5.1 Risk Assessment

As discussed in Section 1.2, the EPA completed an HRA for the Site in March 1991. The HRA concluded that the Site poses no apparent public health hazard. However, a risk of 1×10^{-4} was calculated for 1,1-DCE in groundwater considering human exposure by ingestion of groundwater beneath the Site. Since 1991, concentrations of 1,1-DCE have decreased substantially, approaching MCLs, and the potential risk associated with ingestion of groundwater has also diminished.

3.5.2 Institutional Controls Implemented by Sola

Based on the HRA conducted by the EPA in 1991, EPA recommended that institutional controls be implemented to prevent future use of VOC-affected water bearing zones for drinking water supplies. Sola has implemented several institutional measures regarding use of groundwater in the vicinity of the Site. There were four deeper groundwater supply wells located in the Site vicinity that could have been used for water supply: the Stero well, the Crandell well, the Station 5 well, and the City of Petaluma well. With the exception of the Crandell well, which is located approximately 500 feet southwest of the downgradient site boundary, the locations of these wells are shown on Figure 1. Although VOCs had not been detected in any of these wells at concentrations at or above the MCLs, Sola implemented the following measures to prevent the potential exposure that might result from migration of VOCs in Site groundwater into deeper sediment intervals tapped by these water-supply wells.

Crandell Well. Sola abandoned the Crandell well and arranged for the residence to be serviced by the City of Petaluma water supply.

Stero Well. Sola shut down the Stero well by dismantling the pumping apparatus and arranged for the Stero facility to be supplied with City of Petaluma water.

City of Petaluma Well. Sola has entered a written agreement with the City of Petaluma to not operate this well until pumping from the well will no longer have potential adverse affects on remedial measure at the Site. Mr. Steve Simmons of the City of Petaluma Water Department has indicated that this well has been destroyed (verbal communication with Ms. Jenifer Beatty of LFR on April 2, 2001).

Station 5 Well. Sola entered into a written agreement that provides that the Station 5 well will not be operated until pumping from the well will no longer have potential adverse affects on remedial measure at the Site. As part of the agreement, Sola has been reimbursing the City of Petaluma for the costs of obtaining replacement water. Sola also finalized an agreement to replace the Station 5 well with another comparable water-supply well and to abandon the Station 5 well.

3.5.3 Community Involvement

Community involvement for this site has been minimal. According to the EPA case officer for the Site at the time, only two people from the community attended the public meeting for the Site that was held during the RI/FS stage of the project in 1991. Since that time, community interest has been limited to very infrequent information requests from adjacent property owners or developers. Sola did not receive any calls regarding the abandonment of the Station 5 well which was included in a Public Notice agenda item for the City of Petaluma board meeting.

3.6 Evaluation of Other Remediation Alternatives

3.6.1 Effectiveness of the GWET System

Sola completed an evaluation of the effectiveness of the GWET system as part of a five-year review. This evaluation is presented in the 1996 "Request for a Technical Impracticability Waiver" report and is summarized below.

Over the past several years, Sola has evaluated the performance of GWET system to assess its effectiveness in meeting the remedial objective and to evaluate potential modifications to the system. Results of these evaluations indicated that, while the GWET system was effective in providing hydraulic control, its effectiveness in meeting the other RAOs were marginal.

As part of the FS, the total mass of VOCs in the soil, soil-gas, and groundwater beneath the Site was estimated based on concentration data. Results of this evaluation yielded an

estimated mass of 165 pounds for total VOCs. A description of the methods used to calculate the mass of total VOCs is presented in the "Feasibility Study Report, Sola Optical USA Inc. Site," dated June 10, 1991.

The effectiveness of the GWET system in removing mass of VOCs from saturated sediments was evaluated in 1996 and presented in the "Request for a Technical Impracticability Waiver" report, submitted to the EPA for review on November 22, 1996. The total mass of VOCs remaining in the saturated sediments in 1996 (calculated by adding the mass of VOCs in groundwater based on 1996 groundwater concentration data to the associated mass of VOCs sorbed onto saturated sediments calculated using a soil/water partitioning coefficients) was 12 pounds. Comparing this mass with the mass calculated in 1990 (163 pounds) indicates that approximately 153 pounds of VOCs were removed from saturated sediments from 1990 to 1996.

The mass of VOCs removed by the GWET system from 1990 to 1996 was calculated using data collected for the influent to the treatment system. The volume of water pumped from the saturated sediments was multiplied by the concentration of VOCs detected in that influent water to calculate the mass of VOCs removed. Using this method, it was estimated that 11 pounds of VOCs were removed from saturated sediments by the GWET system from 1990 to 1996.

Comparing the mass removed from the saturated sediments (153 pounds), as calculated based on reductions in groundwater concentrations of VOCs, to the mass of VOCs removed by the GWET system (11 pounds) suggests that natural attenuation processes are largely responsible for the observed reduction in VOC concentrations at the Site from 1990 to 1996. As with most sites using a GWET system to reduce concentrations of VOCs in groundwater, the rate that mass was removed by the GWET system decreased over time, leveling off as concentrations approached MCLs.

An evaluation of concentration versus time data for groundwater monitoring wells shown in Figures 22 through 29 also demonstrates a decreasing trend in concentrations with a "leveling-off" of concentrations at the later times (especially data for wells W-14 and W-28). This trend in concentrations is typical of GWET system in complex hydrogeologic settings.

3.6.2 Consideration of Other Remedial Alternatives

EPA's MNA guidance states that, in order for MNA to be selected, a detailed comparison of MNA versus other potential remedies must be completed. The guidance document is clear that MNA is not to be considered as a "default" remedy. However, for this site, historic groundwater monitoring data and performance data from the GWET system have demonstrated that natural attenuation has been effective as a remedy and that the remediation time frame associated with this remedy is relatively short (within approximately 2 years). Thus, an evaluation of other potential remedies for this site should focus on those that have the potential to meet RAOs more cost-effectively or with a shorter predicted time frame when compared with MNA.

Sola has been conducting evaluations of available and reliable technologies to meet RAOs at the Site and assess their potential effectiveness in meeting the RAOs and accelerating remediation. This evaluation has consisted primarily of literature reviews, interviews with vendors of emerging technologies, and searches on EPA's VISIT database. The majority of the available technologies including in situ oxidation, engineered bioremediation, air sparging, and high vacuum extraction have limited success in reducing VOC concentrations to below MCLs in predominantly fine grained soils, especially over the time frame that is expected for MNA (5 days to 1.7 years). Because of the proven effectiveness of MNA at this site, and the anticipated time frame to reach remediation goals associated with MNA, MNA is recommended over other available technologies.

4.0 IMPLEMENTATION OF MNA

MNA, if selected as the final remedy for the Site, will be implemented in accordance with guidelines presented in Directive Number 9200.4-17P.

4.1 Performance Monitoring and Evaluation

Performance monitoring will be conducted to evaluate the effectiveness of MNA and determine whether or not RAOs have been met. Figure 30 identifies groundwater monitoring wells and extraction wells that will be retained for monitoring. Water level measurements and groundwater samples will be collected from nine groundwater monitoring wells on an annual basis. The groundwater samples will be analyzed for VOCs using EPA Method 8260A. Groundwater monitoring reports will be submitted to the EPA for review. Evaluations of plume stability and the effectiveness of MNA in maintaining or further reducing VOC concentrations to MCLs or below will be included in each report.

The frequency of monitoring can be increased if monitoring results indicate that VOC concentrations in groundwater are increasing or that the lateral extent of the plume is increasing.

4.2 Contingency Remedies

Figure 30 shows eight "contingency" wells that can be used for groundwater remediation or monitoring if necessary. A contingency remedy is a cleanup technology or approach specified in the site remedy decision document that functions as a "backup" remedy in the event that the "selected" remedy fails to perform as anticipated (EPA 1999).

Conditions warranting a contingency remedy are not anticipated for this Site because the RAOs have generally been met (i.e., groundwater concentrations are generally at or below MCLs). However, the eight contingency wells shown in Figure 30 could be used

for in situ remediation and/or an expanded groundwater monitoring program if appropriate. As discussed previously in this report, groundwater extraction has not proven effective in reducing low concentrations of VOCs to MCLs. If a contingency measure were warranted, it is anticipated that in situ oxidation techniques would be implemented at the Site to reduce VOC concentrations in groundwater.

An increase in concentrations of 1,1-DCE or 1,1-DCA by two orders of magnitude for four consecutive sampling events will trigger an evaluation and implementation of a contingency remedy to meet RAOs.

5.0 SUMMARY

Sola is requesting that EPA consider MNA as a final remedy for the Site. The basis for this request is that concentrations of VOCs are at, below, or very near RAOs. MNA is considered appropriate for this Site based on the following:

- The source for VOCs in groundwater (i.e., waste solvent USTs and high concentrations of VOCs in groundwater near the former USTs) has been removed.
- The extent of VOC-affected groundwater is limited to shallow saturated sediments and is stable, extending approximately 350 feet downgradient of the source area, well within the Site boundary.
- The low VOC concentrations in groundwater do not pose a threat to surface water or human receptors.
- Degradation of 1,1,1-TCA, 1,1-DCE, and 1,1-DCA by natural attenuation is clearly evident based on historical groundwater quality data.
- MNA has been effective in achieving MCLs over the majority of the Site and is predicted to reach RAOs in a reasonable time frame.
- Current conditions indicate that concentrations of VOCs in groundwater have reached or are very close to reaching RAOs for the Site.
- Site data demonstrate the proven effectiveness of MNA to reduce VOC concentrations in groundwater to MCLs over the majority of the Site.
- Alternative technologies to reduce the already low concentrations of VOCs remaining in two of the monitoring wells to below MCLs are limited and not yet proven, particularly given the site lithology.

REFERENCES

U.S. Environmental Protection Agency. 1998. Technical Protocol for Evaluating Natural Attenuation of Chlorinated Solvents in Groundwater. Office of Research and Development. September.

———. 1999. Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action, and Underground Storage Tank Sites. Office of Solid Waste and Emergency Response Directive Number 9200.4-17P. April.

TABLES

Table 1
Historical Groundwater Quality Data
Primary VOCs (1986-2000)
Sola Optical U.S.A., Inc., Petaluma, California

All concentrations expressed in micrograms per liter (µg/L)

Well ID	Sample Date	Lab	Method	1,1-DCE	1,1-DCA	1,2-DCA	1,1,1-TCA	TCE	Freon 113
W-1	25-Mar-86	M-T	EPA 601	<0.1	<0.1	<0.1	0.6	<0.1	NR
W-2	25-Mar-86	M-T	EPA 601	<0.1	<0.1	<0.1	<0.1	<0.1	NR
W-3	25-Mar-86	M-T	EPA 601	<0.1	<0.1	<0.1	<0.1	<0.1	NR
W-4	25-Mar-86	M-T	EPA 601	13	<0.1	<0.1	20	<0.1	NR
W-5[20]	25-Mar-86	M-T	EPA 601	12	<0.1	<0.1	25	<0.1	NR
W-6	25-Mar-86	M-T	EPA 601	2	<0.1	<0.1	3	<0.1	NR
W-7	25-Mar-86	M-T	EPA 601	4	<0.1	<0.1	6	<0.1	NR
W-8[21]	21-Mar-86	M-T	EPA 601	12	<0.1	8	15	<0.1	NR
	25-Mar-86	M-T	EPA 601	7	<0.1	<0.1	6	<0.1	NR
W-9	21-Mar-86	M-T	EPA 601	12	<0.1	<0.1	38	<0.1	NR
W-10	25-Mar-86	M-T	EPA 601	<0.1	<0.1	<0.1	<0.1	<0.1	NR
W-11	25-Mar-86	M-T	EPA 601	<0.1	<0.1	<0.1	<0.1	<0.1	NR
W-12	25-Mar-86	M-T	EPA 601	<0.1	<0.1	<0.1	<0.1	<0.1	NR
	16-Apr-87	CAL	EPA 601	<0.5	<0.5	<1	<0.5	<0.5	<1
	18-Aug-87	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	NR
	17-May-89	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	4-May-90	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	25-Apr-91	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	11-Jul-96	AEN	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-13	21-Mar-86	M-T	EPA 601	<0.1	<0.1	<0.1	<0.1	<0.1	NR
	11-Dec-86	CAL	EPA 601	3.8	<0.5	<0.5	1.6	<0.5	<0.5
	15-Apr-87	CAL	EPA 601	<0.5	0.8	<1	1.4	<0.5	<1
	14-Aug-87	MED	EPA 601	0.8	<0.5	<0.5	0.6	<0.5	NR
	1-Jun-88	MED	EPA 601	86	25	<0.5	14	<0.5	<2
	20-Jan-89	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	19-May-89	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	22-Jan-90	MED	EPA 8010	0.6	<0.5	<0.5	<0.5	<0.5	<0.5
	26-Apr-90	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	31-Aug-90	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	25-Apr-91	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
duplicate	25-Apr-91	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	20-Aug-91	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	25-Sep-92	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	15-Apr-93	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	26-Oct-93	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	13-Apr-94	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	07-Oct-94	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	26-Apr-95	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	27-Oct-95	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	27-Mar-96	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	08-Nov-96	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	20-Jun-97		EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	09-Sep-97		EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	10-Jun-98		EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

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Well ID	Sample Date	Lab	Method	1,1-DCE	1,1-DCA	1,2-DCA	1,1,1-TCA	TCE	Freon 113
W-14	25-Mar-86	M-T	EPA 601	1600	460	<0.5	1300	7	NR
[1]	30-Sep-86	CAL	EPA 624	2900	590	<25	1500	<25	NR
[2]	30-Sep-86	CAL	EPA 624	3300	680	<50	1700	<50	NR
	11-Dec-86	CAL	EPA 601	570	260	<10	240	<10	<10
	15-Apr-87	CAL	EPA 601	3300	500	<100	1500	<50	<100
	14-Aug-87	MED	EPA 601	1200	340	<10	590	<10	NR
duplicate	14-Aug-87	MED	EPA 601	1600	400	<10	620	<10	NR
[18]	13-Jan-88	MED	EPA 601	340	69	0.7	100	1	NR
	2-Jun-88	MED	EPA 601	540	110	<5	150	<5	<5
	30-Sep-88	MED	EPA 601	750	130	1	300	3	6
[27]	20-Jan-89	MED	EPA 601	220	57	<0.5	76	1	<0.5
[32]	19-May-89	MED	EPA 601	2000	120	2	270	4	5
[33]	20-Sep-89	MED	EPA 8010	2400	100	2	250	3	10
[34]	20-Sep-89	MED	EPA 8010	2200	100	2	220	3	8
[42]	22-Jan-90	MED	EPA 8010	500	43	<0.5	90	1	1
[45]	26-Apr-90	MED	EPA 8010	1200	84	2	220	3	7
duplicate[46]	26-Apr-90	MED	EPA 8010	1200	81	2	200	2	6
[51]	10-Sep-90	MED	EPA 8010	1400	110	2	200	2	5
[59]	20-Dec-90	MED	EPA 8010	1000	62	0.6	93	2	<0.5
[60] Preserved		MED	EPA 601	900	59	0.9	89	2	<0.5
	25-Apr-91	QUA	EPA8010	240	20	1	36	<0.5	<0.5
	20-Aug-91	QUA	EPA8010	640	69	3	71	2	2
duplicate	20-Aug-91	QUA	EPA8010	700	73	3	77	2	2
	26-Jun-92	QUA	EPA8010	520	40	2	39	2	1
	26-Jun-92	EPA	EPA8010	109	26	<0.5	24	1	2
duplicate	26-Jun-92	QUA	EPA8010	510	41	2	40	2	1
	25-Sep-92	QUA	EPA8010	510	120	3	38	1	0.6
duplicate	25-Sep-92	QUA	EPA8010	440	110	4	38	1	0.7
	22-Dec-92	QUA	EPA8010	540	150	4	40	2	4
	14-Apr-93	QUA	EPA8010	490	170	6	28	2	3
duplicate	14-Apr-93	QUA	EPA8010	500	190	6	28	2	3
	27-Jul-93	AEN	EPA8010	400	230	5	19	1	3
	26-Oct-93	AEN	EPA8010	260	200	6	17	1	2
	30-Dec-93	AEN	EPA8010	220	140	4	12	<3	<3
duplicate	30-Dec-93	AEN	EPA8010	200	140	3	12	<3	<3
	14-Apr-94	AEN	EPA8010	230	110	3	10	1	3
	14-Apr-94	AEN	EPA8010	200	94	3	10	1	3
	25-Jul-94	AEN	EPA8010	230	200	4	6	<3	<3
duplicate	25-Jul-94	AEN	EPA8010	210	180	3	7	0.7	1
	7-Oct-94	AEN	EPA8010	260	160	3	7	1	3
duplicate	7-Oct-94	AEN	EPA8010	250	150	3	7	1	3
	7-Mar-95	AEN	EPA8010	150	110	2	4	0.7	1
duplicate	7-Mar-95	AEN	EPA8010	190	120	2	5	0.5	2
	26-Apr-95	AEN	EPA8010	140	120	2	4	<0.5	2
	25-Aug-95	AEN	EPA8010	120	120	<3	<10	<3	<3
	27-Oct-95	AEN	EPA8010	130	130	<3	<3	<3	<3
	4-Jan-96	AEN	EPA8010	97	92	1	2	<0.5	2
	27-Mar-96	AEN	EPA8010	74	72	0.5	1	<0.5	1.1
	9-Jul-96	AEN	EPA8010	96	100	<3	<3	<3	<3
duplicate	9-Jul-96	AEN	EPA8010	93	90	<3	<3	<3	<3
	12-Nov-96	AEN	EPA8010	33	88	0.6	<0.5	<0.5	0.9
	20-Jun-97		EPA8010	19	52	<0.5	<0.5	<0.5	<0.5
	9-Sep-97		EPA8010	24	54	<0.5	<0.5	<0.5	<0.5
	11-Jun-98		EPA8010	3.1	7.8	<0.5	<0.5	<0.5	<0.5
	16-Oct-98		EPA8010	8.9	24	<0.5	<0.5	<0.5	<1.0
duplicate	16-Oct-98		EPA8010	9.1	24	<0.5	<0.5	<0.5	<1.0

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Primary VOCs (1986-2000)
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All concentrations expressed in micrograms per liter (µg/L)

Well ID	Sample Date	Lab	Method	1,1-DCE	1,1-DCA	1,2-DCA	1,1,1-TCA	TCE	Freon 113
	17-Mar-99		EPA8260A(8010)	1.7	3.7	<0.5	<0.5	<0.5	<1.0
duplicate	17-Mar-99		EPA8260A(8010)	1.7	3.7	<0.5	<0.5	<0.5	<1.0
	23-Sep-99		EPA8260A(8010)	3.4	8.1	<0.5	<0.5	<0.5	<5.0
duplicate	23-Sep-99		EPA8260A(8010)	3.4	7.9	<0.5	<0.5	<0.5	<5.0
	12-Apr-00		EPA8260B	1.0	1.9	<0.5	<0.5	<0.5	<5.0
duplicate	12-Apr-00		EPA8260B	1.1	1.9	<0.5	<0.5	<0.5	<5.0
	8-Sep-00	C&T	EPA8260B	1.2	2.9	<0.5	<0.5	<0.5	<5.0
duplicate	8-Sep-00	C&T	EPA8260B	1.0	2.7	<0.5	<0.5	<0.5	<5.0
	Apr 01			ND.	0.8				
W-15	27-Mar-86	M-T	EPA 601	<0.1	<0.1	<0.1	<0.1	<0.1	NR
	10-Dec-86	CAL	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	22-Apr-87	CAL	EPA 601	<0.5	<0.5	<1	<0.5	<0.5	<1
	14-Aug-87	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	NR
	27-May-88	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	19-May-89	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	1-May-90	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	26-Apr-91	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	24	<0.5
W-17	25-Mar-86	M-T	EPA 601	<0.1	<0.1	<0.1	<0.1	<0.1	NR
	13-Aug-87	MED	EPA 601	0.9	<0.5	<0.5	<0.5	<0.5	NR
W-18	25-Mar-86	M-T	EPA 601	<0.1	<0.1	<0.1	<0.1	<0.1	NR
	14-Aug-87	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	NR
W-19	25-Mar-86	M-T	EPA 601	9	<0.1	<0.1	32	<0.1	NR
	13-Aug-87	MED	EPA 601	7	<0.5	<0.5	15	<0.5	NR
	16-Oct-98		EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0
	17-Mar-99		EPA8260A(8010)	0.7	<.5	<.5	<.5	<.5	<1.0
	23-Sep-99		EPA8260A(8010)	0.9	<.5	<.5	<.5	<.5	<5.0
	12-Apr-00		EPA8260B	1.1	<0.5	<0.5	<0.5	<0.5	<5.0
	8-Sep-00	C&T	EPA8260B	1.0	<0.5	<0.5	<0.5	<0.5	<5.0
	abandoned								
W-20	21-Mar-86	M-T	EPA 601	<0.1	<0.1	<0.1	<0.1	<0.1	NR
	8-Dec-86	CAL	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	16-Apr-87	CAL	EPA 601	<0.5	<0.5	<1	<0.5	<0.5	<1
	13-Mar-87	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	NR
W-21	21-Mar-86	M-T	EPA 601	<0.1	<0.1	<0.1	<0.1	<0.1	NR
	9-Dec-86	CAL	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	16-Apr-87	CAL	EPA 601	<0.5	<0.5	<1	<0.5	<0.5	<1
17	13-Aug-87	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	NR
	27-May-88	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	17-May-89	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	27-Apr-90	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	18-Apr-91	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-22	17-Aug-87	MED	EPA 601	7	3	<0.5	21	<0.5	NR
	9-Jul-96	AEN	EPA8010	3.9	2.2	<0.5	<0.5	<0.5	<0.5
	16-Oct-98		EPA8010	2.7	1.6	<0.5	<0.5	<0.5	<1.0
	17-Mar-99		EPA8260A(8010)	3	1.8	<0.5	<0.5	<0.5	<1.0
	23-Sep-99		EPA8260A(8010)	2.3	1.5	<0.5	<0.5	<0.5	<5.0
	12-Apr-00		EPA8260B	2.2	1.4	<0.5	<0.5	<0.5	<5.0
	8-Sep-00	C&T	EPA8260B	1.4	1.1	<0.5	<0.5	<0.5	<5.0
	Apr 01			2.4	1.6				
W-23	17-Aug-87	MED	EPA 601	4	1	<0.5	7	<0.5	NR
	10-Jul-96	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
duplicate	10-Jul-96	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Table 1
Historical Groundwater Quality Data
Primary VOCs (1986-2000)
Sola Optical U.S.A., Inc., Petaluma, California

All concentrations expressed in micrograms per liter (µg/L)

Well ID	Sample Date	Lab	Method	1,1-DCE	1,1-DCA	1,2-DCA	1,1,1-TCA	TCE	Freon 113
W-24	25-Mar-86	M-T	EPA 601	<0.1	<0.1	<0.1	<0.1	<0.1	NR
	8-Dec-86	CAL	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	22-Apr-87	CAL	EPA 601	<0.5	<0.5	<1	<0.5	<0.5	<1
	13-Aug-87	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	NR
	17-May-89	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	3-May-90	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	18-Apr-91	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	24-Sep-92	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	26-Oct-93	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	07-Oct-94	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	25-Oct-95	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	05-Nov-96	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	16-Jun-97		EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	10-Sep-97		EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	09-Jun-98		EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-25	21-Mar-86	M-T	EPA 601	190	7	<0.1	360	<0.1	NR
	26-Mar-86	M-T	EPA 601	130	5	<0.1	330	<0.1	NR
[3]	30-Sep-86	CAL	EPA 624	140	5	<5	220	<5	NR
	8-Dec-86	CAL	EPA 601	110	3.7	<2	140	<2	<2
	15-Apr-87	CAL	EPA 601	36	3	<100	100	<50	<100
[9]	18-Aug-87	MED	EPA 601	95	4	0.6	130	<0.5	NR
duplicate[10]	18-Aug-87	MED	EPA 601	91	4	0.6	110	<0.5	NR
	25-Jun-92	QUA	EPA8010	65	4	<0.5	43	<0.5	<0.5
	22-Sep-92	QUA	EPA8010	4	4	<0.5	0.7	<0.5	<0.5
	22-Dec-92	QUA	EPA8010	75	7	2	43	<0.5	<0.5
	13-Apr-93	QUA	EPA8010	69	7	0.6	36	<0.5	<0.5
duplicate	13-Apr-93	QUA	EPA8010	69	7	0.6	36	<0.5	<0.5
	27-Jul-93	AEN	EPA8010	73	7	1	32	<0.5	<0.5
duplicate	27-Jul-93	AEN	EPA8010	78	8	0.9	34	<0.5	<0.5
	28-Oct-93	AEN	EPA8010	50	8	1	2.6	<0.5	<0.5
	30-Dec-93	AEN	EPA8010	60	10	1	29	<0.5	<0.5
duplicate	30-Dec-93	AEN	EPA8010	58	9	1	25	<0.5	<0.5
	14-Apr-94	AEN	EPA8010	40	6	<0.5	15	<0.5	<0.5
	25-Jul-94	AEN	EPA8010	49	9	0.7	16	<0.5	<0.5
	07-Oct-94	AEN	EPA8010	37	7	0.6	11	<0.5	<0.5
duplicate	07-Oct-94	AEN	EPA8010	37	7	0.6	12	<0.5	<0.5
	07-Mar-95	AEN	EPA8010	26	6	<0.5	8	<0.5	<0.5
	28-Apr-95	AEN	EPA8010	16	4	<0.5	6	<0.5	<0.5
duplicate	28-Apr-95	AEN	EPA8010	17	4	<0.5	6	<0.5	<0.5
	24-Aug-95	AEN	EPA8010	19	5	<0.5	4	<0.5	0.9
duplicate	24-Aug-95	AEN	EPA8010	18	4	<0.5	4	<0.5	0.9
	26-Oct-95	AEN	EPA8010	15	4	<0.5	5	<0.5	<0.5
duplicate	26-Oct-95	AEN	EPA8010	14	4	<0.5	5	<0.5	<0.5
	05-Jan-96	AEN	EPA8010	16	4	<0.5	4	<0.5	<0.5
duplicate	05-Jan-96	AEN	EPA8010	16	4	<0.5	4	<0.5	<0.5
	27-Mar-96	AEN	EPA8010	11	3.5	<0.5	1.6	<0.5	<0.5
duplicate	27-Mar-96	AEN	EPA8010	11	3.5	<0.5	1.6	<0.5	<0.5
	11-Jul-96	AEN	EPA8010	6.5	2.3	<0.5	0.7	<0.5	<0.5
	05-Nov-96	AEN	EPA8010	7.4	2.1	<0.5	0.9	<0.5	<0.5
duplicate	05-Nov-96	AEN	EPA8010	7	1.9	<0.5	0.8	<0.5	<0.5
	16-Jun-97		EPA8010	4.1	1.8	<0.5	0.5	<0.5	<0.5
duplicate	16-Jun-97		EPA8010	3.8	1.7	<0.5	<0.5	<0.5	<0.5
	10-Sep-97		EPA8010	2.4	0.5	<0.5	<0.5	<0.5	<0.5
duplicate	10-Sep-97		EPA8010	2.7	0.5	<0.5	<0.5	<0.5	<0.5
	12-Jun-98		EPA8010	1.9	1.1	<0.5	<0.5	<0.5	<0.5
	16-Oct-98		EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0

Table 1
Historical Groundwater Quality Data
Primary VOCs (1986-2000)
Sola Optical U.S.A., Inc., Petaluma, California
All concentrations expressed in micrograms per liter (µg/L)

Well ID	Sample Date	Lab	Method	1,1-DCE	1,1-DCA	1,2-DCA	1,1,1-TCA	TCE	Freon 113
duplicate	16-Oct-98		EPA8010	3.1	1.4	<0.5	<0.5	<0.5	<1.0
	17-Mar-99		EPA8260A(8010)	3.3	1.7	<0.5	<0.5	<0.5	<1.0
	23-Sep-99		EPA8260A(8010)	3.3	1.8	<0.5	<0.5	<0.5	<5.0
	12-Apr-00		EPA8260B	3.9	1.8	<0.5	<0.5	<0.5	<5.0
	8-Sep-00	C&T	EPA8260B	2.4	1.5	<0.5	<0.5	<0.5	<5.0
	Apr 01			2.9	1.5				
W-26	21-Mar-86	M-T	EPA 601	13	9	<0.1	18	<0.1	NR
58	16-Apr-87	CAL	EPA 601	22	20	<1	17	<0.5	1
	17-Aug-87	MED	EPA 601	28	26	<0.5	21	<0.5	NR
	17-May-89	MED	EPA 601	4	3	<0.5	1	<0.5	<0.5
	20-Apr-90		EPA 8010	10	9	<0.5	3	<0.5	<0.5
	18-Apr-91	QUA	EPA8010	2	3	<0.5	1	<0.5	<0.5
	25-Jun-92	QUA	EPA8010	3	3	<0.5	<0.5	<0.5	<0.5
duplicate	25-Jun-92	QUA	EPA8010	3	3	<0.5	<0.5	<0.5	<0.5
	22-Sep-92	QUA	EPA8010	74	5	<0.5	40	<0.5	<0.5
	22-Dec-92	QUA	EPA8010	5	4	<0.5	0.7	<0.5	<0.5
	14-Apr-93	QUA	EPA8010	4	4	<0.5	0.7	<0.5	<0.5
	27-Jul-93	AEN	EPA8010	2	2	<0.5	0.6	<0.5	<0.5
	27-Oct-93	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	30-Dec-93	AEN	EPA8010	2	3	<0.5	<0.5	<0.5	<0.5
	14-Apr-94	AEN	EPA8010	2	2	<0.5	<0.5	<0.5	<0.5
duplicate	14-Apr-94	AEN	EPA8010	2	2	<0.5	<0.5	<0.5	<0.5
	25-Jul-94	AEN	EPA8010	2	2	<0.5	<0.5	<0.5	<0.5
	06-Oct-94	AEN	EPA8010	2	2	<0.5	<0.5	<0.5	<0.5
	07-Mar-95	AEN	EPA8010	1	1	<0.5	<0.5	<0.5	<0.5
	28-Apr-95	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	25-Aug-95	AEN	EPA8010	2	2	<0.5	<0.5	<0.5	<0.5
	26-Oct-95	AEN	EPA8010	<0.5	0.8	<0.5	<0.5	<0.5	<0.5
duplicate	26-Oct-95	AEN	EPA8010	<0.5	0.9	<0.5	<0.5	<0.5	<0.5
	05-Jan-96	AEN	EPA8010	0.9	0.8	<0.5	<0.5	<0.5	<0.5
duplicate	05-Jan-96	AEN	EPA8010	1	0.9	<0.5	<0.5	<0.5	<0.5
	27-Mar-96	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	10-Jul-96	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
duplicate	27-Mar-96	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	05-Nov-96		EPA8010	0.6	0.5	<0.5	<0.5	<0.5	<0.5
	02-Jul-97		EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	10-Sep-97		EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	11-Jun-98		EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-27	21-Mar-86	M-T	EPA 601	<0.1	<0.1	<0.1	<0.1	<0.1	NR
	16-Apr-87	CAL	EPA 601	<0.5	<0.5	<1	<0.5	<0.5	<1
	17-Aug-87	MED	EPA 601	13	11	<0.5	11	<0.5	NR
	17-May-89	MED	EPA 601	9	6	<0.5	3	<0.5	<0.5
	2-May-90	MED	EPA 8010	5	4	<0.5	1	<0.5	<0.5
	26-Apr-91	QUA	EPA8010	4	5	<0.5	0.9	<0.5	<0.5
	02-Jul-97		EPA8010	7.1	12	<0.5	<0.5	<0.5	<0.5
	10-Sep-97		EPA8010	6.8	12	<0.5	<0.5	<0.5	<0.5
duplicate	10-Sep-97		EPA8010	6.4	12	<0.5	<0.5	<0.5	<0.5
	11-Jun-98		EPA8010	10	15	<0.5	<0.5	<0.5	<0.5
duplicate	11-Jun-98		EPA8010	11	15	<0.5	<0.5	<0.5	<0.5
	16-Oct-98		EPA8260A(8010)	12	15	<0.5	<0.5	<0.5	<1.0
	17-Mar-99		EPA8260A(8010)	11	16	<0.5	<0.5	<0.5	<1.0
	23-Sep-99		EPA8260A(8010)	9.9	15	<0.5	<0.5	<0.5	<5.0
	12-Apr-00		EPA8260B	10	20	<0.5	<0.5	<0.5	<5.0
	8-Sep-00	C&T	EPA8260B	6.3	16	<0.5	<0.5	<0.5	<5.0
	21-Nov-00	C&T	EPA8260B	3.6	14	<0.5	<0.5	<0.5	<5.0
64	21-Nov-00	CLI	EPA8260A	<0.5	14	<0.5	<0.5	<0.5	<0.5
	Apr 01			7.1	18				

Table 1
Historical Groundwater Quality Data
Primary VOCs (1986-2000)
Sola Optical U.S.A., Inc., Petaluma, California
All concentrations expressed in micrograms per liter (µg/L)

Well ID	Sample Date	Lab	Method	1,1-DCE	1,1-DCA	1,2-DCA	1,1,1-TCA	TCE	Freon 113
W-28	21-Mar-86	M-T	EPA 601	62	140	11	90	0.3	NR
	26-Mar-86	M-T	EPA 601	86	130	10	76	<0.1	NR
[4]	30-Sep-86	CAL	EPA 624	93	150	<5	49	<5	NR
	9-Dec-86	CAL	EPA 601	120	160	<2	50	<2	<2
	16-Apr-87	CAL	EPA 601	55	63	<4	11	<2	<4
	16-Apr-87	CAL	EPA 601	62	78	<4	14	<2	<4
	17-Aug-87	MED	EPA 601	77	130	0.8	41	0.6	NR
	13-Jan-88	MED	EPA 601	75	110	0.7	28	<0.5	NR
	31-May-88	MED	EPA 601	110	170	0.7	25	0.5	<4
	30-Sep-88	MED	EPA 601	53	120	<0.5	15	<0.5	<1
	20-Jan-89	MED	EPA 601	76	140	0.6	36	0.8	<0.5
[31]	17-May-89	MED	EPA 601	220	160	0.8	48	1	1
[35]	20-Sep-89	MED	EPA 8010	180	210	0.8	34	<0.5	<0.5
[40]	22-Jan-90	MED	EPA 8010	85	140	0.8	21	<0.5	0.6
duplicate[41]	22-Jan-90	MED	EPA 8010	93	160	<0.5	22	<0.5	0.5
[47]	2-May-90	MED	EPA 8010	170	280	1	32	<0.5	1
[52]	11-Sep-90	MED	EPA 8010	74	170	<0.5	12	<0.5	<0.5
	20-Dec-90	MED	EPA 8010	60	120	<0.5	9	<0.5	<0.5
preserved*		MED	EPA 601	52	110	<0.5	7	<0.5	<0.5
	15-Aug-91	QUA	EPA8010	27	84	<0.5	3	<0.5	<0.5
	26-Jun-92	QUA	EPA8010	110	200	2	11	1	<0.5
	26-Jun-92	EPA	EPA8010	53	74	0.7	4	0.6	0.8
	24-Sep-92	QUA	EPA8010	26	86	<0.5	2	<0.5	<0.5
	22-Dec-92	QUA	EPA8010	54	130	1	3	0.8	1
	15-Apr-93	QUA	EPA8010	33	120	<0.5	2	<0.5	0.8
	27-Jul-93	AEN	EPA8010	19	90	0.7	1	<0.5	0.5
duplicate	27-Jul-93	AEN	EPA8010	19	86	0.6	1	<0.5	0.7
	26-Oct-93	AEN	EPA8010	5	28	<0.5	<0.5	<0.5	<0.5
	30-Dec-93	AEN	EPA8010	11	45	<0.5	<0.5	<0.5	<0.5
	14-Apr-94	AEN	EPA8010	4	17	<0.5	<0.5	<0.5	<0.5
	25-Jul-94	AEN	EPA8010	6	67	<0.5	<0.5	<0.5	<0.5
	06-Oct-94	AEN	EPA8010	9	48	<0.5	<0.5	<0.5	<0.5
duplicate	06-Oct-94	AEN	EPA8010	8	46	<0.5	<0.5	<0.5	<0.5
	07-Mar-95	AEN	EPA8010	4	24	<0.5	<0.5	<0.5	<0.5
	26-Apr-95	AEN	EPA8010	6	36	<0.5	<0.5	<0.5	<0.5
duplicate	26-Apr-95	AEN	EPA8010	5	36	<0.5	<0.5	<0.5	<0.5
	25-Aug-95	AEN	EPA8010	7	41	<0.5	<0.5	<0.5	<0.5
	27-Oct-95	AEN	EPA8010	2	29	<0.5	<0.5	<0.5	<0.5
	04-Jan-96	AEN	EPA8010	5	32	<0.5	<0.5	<0.5	<0.5
	27-Mar-96	AEN	EPA8010	4.2	24	<0.5	<0.5	<0.5	<0.5
	10-Jul-96	AEN	EPA8010	2	20	<0.5	<0.5	<0.5	<0.5
	12-Nov-96	AEN	EPA8010	<0.5	4.2	<0.5	<0.5	<0.5	<0.5
duplicate	12-Nov-96	AEN	EPA8010	<0.5	3	<0.5	<0.5	<0.5	<0.5
	20-Jun-97		EPA8010	4.2	31	<0.5	<0.5	<0.5	<0.5
	10-Sep-97		EPA8010	<0.5	3.2	<0.5	<0.5	<0.5	<0.5
	09-Jun-98		EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-29	21-Mar-86	M-T	EPA 601	65	4	3	150	<0.1	NR
	8-Dec-86	CAL	EPA 601	56	1.8	<0.5	64	<0.5	<0.5
	8-Dec-86	CAL	EPA 601	69	2.9	<0.5	75	<0.5	<0.5
	14-Apr-87	CAL	EPA 601	28	1.2	<2	46	<1	<2
[12]	17-Aug-87	MED	EPA 601	48	3	<0.5	56	<0.5	NR
	13-Jan-88	MED	EPA 601	49	2	<0.5	46	<0.5	NR
[23]	2-Jun-88	MED	EPA 601	84	4	<0.5	59	2	<0.5
duplicate[22]	2-Jun-88	MED	EPA 601	76	3	<0.5	49	<0.5	<0.5
W-30	25-Mar-86	M-T	EPA 601	<0.1	<0.1	<0.1	<0.1	<0.1	NR

Table 1
Historical Groundwater Quality Data
Primary VOCs (1986-2000)
Sola Optical U.S.A., Inc., Petaluma, California

All concentrations expressed in micrograms per liter (µg/L)

Well ID	Sample Date	Lab	Method	1,1-DCE	1,1-DCA	1,2-DCA	1,1,1-TCA	TCE	Freon 113
	26-Feb-87	CAL	EPA 601	<0.5	<0.5	<1	0.5	<1	<1
[11]	17-Aug-87	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	NR
	19-May-89	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2-May-90	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	25-Apr-91	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-31	17-Aug-87	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	NR
	11-Jul-96	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-32	25-Mar-86	M-T	EPA 601	<0.1	<0.1	<0.1	<0.1	<0.1	NR
	26-Feb-87	CAL	EPA 601	<0.5	<0.5	<1	0.5	<1	<1
	26-Feb-87	CAL	EPA 601	<0.5	<0.5	<1	0.5	<1	<1
	15-Apr-87	CAL	EPA 601	<0.5	<0.5	<1	<0.5	<0.5	<1
	14-Aug-87	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	NR
W-33	25-Mar-86	M-T	EPA 601	1	<0.1	<0.1	5	<0.1	NR
	10-Dec-86	CAL	EPA 601	<0.5	<0.5	<0.5	1.1	<0.5	<0.5
	15-Apr-87	CAL	EPA 601	0.9	<0.5	<1	2	<0.5	<1
	13-Aug-87	MED	EPA 601	2	<0.5	<0.5	4	<0.5	NR
	13-Jan-88	MED	EPA 601	1	<0.5	<0.5	3	<0.5	NR
	27-May-88	MED	EPA 601	1	<0.5	<0.5	2	<0.5	<0.5
	30-Sep-88	MED	EPA 601	2	<0.5	<0.5	1	<0.5	<0.5
	20-Jan-89	MED	EPA 601	3	<0.5	<0.5	1	<0.5	<0.5
	17-May-89	MED	EPA 601	0.7	<0.5	<0.5	0.8	<0.5	<0.5
	20-Sep-89	MED	EPA 8010	4	<0.5	<0.5	2	<0.5	<0.5
	20-Apr-90	MED	EPA 8010	3	<0.5	<0.5	3	<0.5	<0.5
	11-Sep-90	MED	EPA 8010	3	<0.5	<0.5	0.9	<0.5	<0.5
	19-Dec-90	MED	EPA 8010	6	<0.5	<0.5	2	<0.5	<0.5
	19-Aug-91	QUA	EPA8010	3	<0.5	<0.5	3	<0.5	<0.5
	22-Sep-92	QUA	EPA8010	2	<0.5	<0.5	1	<0.5	<0.5
	13-Apr-93	QUA	EPA8010	3	<0.5	<0.5	2	<0.5	<0.5
	28-Oct-93	AEN	EPA8010	2	<0.5	<0.5	1	<0.5	<0.5
	13-Apr-94	AEN	EPA8010	3	<0.5	<0.5	1	<0.5	0.7
	04-Oct-94	AEN	EPA8010	4	0.8	<0.5	2	<0.5	<0.5
	27-Apr-95	AEN	EPA8010	3	<0.5	<0.5	<0.5	<0.5	<0.5
	26-Oct-95	AEN	EPA8010	4	0.6	<0.5	0.8	<0.5	<0.5
	27-Mar-96	AEN	EPA8010	4.4	0.6	<0.5	0.5	<0.5	<0.5
	12-Nov-96	AEN	EPA8010	3.5	0.5	<0.5	<0.5	<0.5	<0.5
	16-Jun-97		EPA8010	3.1	0.7	<0.5	<0.5	<0.5	<0.5
	09-Sep-97		EPA8010	2.7	<0.5	<0.5	<0.5	<0.5	<0.5
	12-Jun-98		EPA8010	1.6	<0.5	<0.5	<0.5	<0.5	<0.5
	21-Nov-00	C&T	EPA8260B	1.6	0.8	<0.5	<0.5	<0.5	<5.0
[64]	21-Nov-00	CLI	EPA8260A	1.3	0.53	0.50	<0.5	<0.5	<0.5
LF-1[5]	18-Sep-86	CAL	EPA 624	61	7	<5	48	<5	NR
	18-Sep-86	CAL	EPA 601	120	8	<2	74	<2	4.4
	11-Dec-86	CAL	EPA 601	95	7.9	<2	60	<2	7.6
	14-Apr-87	CAL	EPA 601	43	6.4	<2	28	<1	<2
	11-Aug-87	MED	EPA 601	25	6	<0.5	18	<0.5	NR
	12-Jan-88	MED	EPA 601	60	10	<0.5	31	<0.5	NR
	1-Jun-88	MED	EPA 601	85	9	<0.5	32	<0.5	<3
LF-2	17-Sep-86	CAL	EPA 624	1	<5	<5	2	<5	NR
	18-Sep-86	CAL	EPA 601	<0.5	<0.5	<0.5	0.9	<0.5	<0.5
	9-Dec-86	CAL	EPA 601	0.7	<0.5	<0.5	0.7	<0.5	<0.5
	9-Dec-86	CAL	EPA 601	0.7	<0.5	<0.5	0.8	<0.5	<0.5
	14-Apr-87	CAL	EPA 601	<0.5	<0.5	<1	0.6	<0.5	<1

Table 1
Historical Groundwater Quality Data
Primary VOCs (1986-2000)
Sola Optical U.S.A., Inc., Petaluma, California

All concentrations expressed in micrograms per liter (µg/L)

Well ID	Sample Date	Lab	Method	1,1-DCE	1,1-DCA	1,2-DCA	1,1,1-TCA	TCE	Freon 113
	12-Aug-87	MED	EPA 601	6	<0.5	<0.5	9	<0.5	NR
	12-Aug-87	MED	EPA 601	7	<0.5	<0.5	11	<0.5	NR
	1-Jun-88	MED	EPA 601	1	<0.5	<0.5	0.7	<0.5	<0.5
	20-Jan-89	MED	EPA 601	14	<0.5	<0.5	13	<0.5	<0.5
	15-May-89	MED	EPA 601	14	<0.5	<0.5	6	<0.5	<0.5
	17-Jan-90	MED	EPA 8010	20	1	<0.5	14	<0.5	<0.5
	3-May-90	MED	EPA 8010	22	<0.5	<0.5	12	<0.5	<0.5
	31-Aug-90	MED	EPA 8010	21	4	<0.5	5	<0.5	<0.5
	17-Apr-91	QUA	EPA8010	23	7	<0.5	7	<0.5	<0.5
	20-Aug-91	QUA	EPA8010	20	4	<0.5	6	<0.5	<0.5
	25-Jun-92	QUA	EPA8010	10	4	<0.5	1	<0.5	<0.5
	24-Sep-92	QUA	EPA8010	2	<0.5	<0.5	<0.5	<0.5	<0.5
	22-Dec-92	QUA	EPA8010	1	0.7	<0.5	<0.5	<0.5	<0.5
duplicate	22-Dec-92	QUA	EPA8010	1	0.7	<0.5	<0.5	<0.5	<0.5
	14-Apr-93	QUA	EPA8010	4	3	<0.5	0.8	<0.5	<0.5
	27-Jul-93	AEN	EPA8010	2	1	<0.5	0.8	<0.5	<0.5
	28-Oct-93	AEN	EPA8010	3	1	<0.5	0.7	<0.5	<0.5
	29-Dec-93	AEN	EPA8010	2	1	<0.5	<0.5	<0.5	<0.5
	12-Apr-94	AEN	EPA8010	3	2	<0.5	<0.5	<0.5	<0.5
duplicate	12-Apr-94	AEN	EPA8010	3	2	<0.5	<0.5	<0.5	<0.5
	25-Jul-94	AEN	EPA8010	2	3	<0.5	<0.5	<0.5	<0.5
duplicate	25-Jul-94	AEN	EPA8010	3	2	<0.5	0.6	<0.5	<0.5
	04-Oct-94	AEN	EPA8010	5	4	<0.5	0.7	<0.5	<0.5
	07-Mar-95	AEN	EPA8010	3	2	<0.5	<0.5	<0.5	<0.5
duplicate	07-Mar-95	AEN	EPA8010	3	2	<0.5	<0.5	<0.5	<0.5
	27-Apr-95	AEN	EPA8010	2	0.9	<0.5	<0.5	<0.5	<0.5
	24-Aug-95	AEN	EPA8010	1	<0.5	<0.5	<0.5	<0.5	<0.5
	26-Oct-95	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	05-Jan-96	AEN	EPA8010	0.6	<0.5	<0.5	<0.5	<0.5	<0.5
	26-Mar-96	AEN	EPA8010	2.8	1.3	<0.5	<0.5	<0.5	<0.5
	10-Jul-96	AEN	EPA8010	3.8	2	<0.5	<0.5	<0.5	<0.5
	08-Nov-96	AEN	EPA8010	3.4	1.9	<0.5	<0.5	<0.5	<0.5
	20-Jun-97		EPA8010	30	61	<0.5	<0.5	<0.5	<0.5
	09-Sep-97		EPA8010	4.6	2.4	<0.5	<0.5	<0.5	<0.5
	09-Jun-98		EPA8010	4	2	<0.5	<0.5	<0.5	<0.5
duplicate	09-Jun-98		EPA8010	4.6	2	<0.5	<0.5	<0.5	<0.5
	16-Oct-98		EPA8010	5.0	2.3	<0.5	<0.5	<0.5	<1.0
	17-Mar-99		EPA8260A(8010)	5.5	2.2	<0.5	<0.5	<0.5	<1.0
	23-Sep-99		EPA8260A(8010)	5.0	2.4	<0.5	<0.5	<0.5	<5.0
	12-Apr-00		EPA8260B	5.4	2.3	<0.5	<0.5	<0.5	<5.0
	8-Sep-00	C&T	EPA8260B	4.1	2.1	<0.5	<0.5	<0.5	<5.0
	Apr 01			5.3	2.4				
LF-3	18-Sep-86	CAL	EPA 624	4	<5	<5	11	<5	NR
	18-Sep-86	CAL	EPA 601	1.7	<0.5	<0.5	5.8	<0.5	5.1
	18-Sep-86	CAL	EPA 601	1.9	<0.5	<0.5	5.1	<0.5	<0.5
	11-Dec-86	CAL	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	15-Apr-87	CAL	EPA 601	<0.5	<0.5	<1	<0.5	<0.5	<1
	15-Apr-87	CAL	EPA 601	<0.5	<0.5	<1	<0.5	<0.5	<1
	11-Aug-87	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	NR
	27-May-88	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	20-Jan-89	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	19-May-89	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	19-Jan-90	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	26-Apr-90	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	31-Aug-90	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	17-Apr-91	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	17-Apr-91	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	20-Aug-91	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Table 1
Historical Groundwater Quality Data
Primary VOCs (1986-2000)
Sola Optical U.S.A., Inc., Petaluma, California
All concentrations expressed in micrograms per liter (µg/L)

Well ID	Sample Date	Lab	Method	1,1-DCE	1,1-DCA	1,2-DCA	1,1,1-TCA	TCE	Freon 113
	24-Sep-92	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	28-Oct-93	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	07-Oct-94	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	27-Oct-95	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	11-Nov-96	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	18-Jun-97		EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	10-Sep-97		EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	12-Jun-98		EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
LF-4	17-Sep-86	CAL	EPA 624	<5	<5	<5	<5	<5	NR
	17-Sep-86	CAL	EPA 624	<5	<5	<5	<5	<5	NR
	18-Sep-86	CAL	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	18-Sep-86	CAL	EPA 8240	<200	<200	<200	<200	<200	<200
	11-Dec-86	CAL	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	11-Dec-86	CAL	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	14-Apr-87	CAL	EPA 601	<0.5	<0.5	<1	<0.5	<0.5	<1
	11-Aug-87	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	NR
	25-May-88	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	19-Jan-89	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	17-May-89	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	22-Jan-90	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	26-Apr-90	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	31-Aug-90	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	24-Apr-91	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	14-Aug-91	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	24-Sep-92	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	26-Oct-93	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	06-Oct-94	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	26-Oct-95	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	13-Nov-96	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	20-Jun-97		EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	10-Sep-97		EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	10-Jun-98		EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
LF-5	10-Dec-86	CAL	EPA 624	17	1	<5	20	<5	NR
	11-Dec-86	CAL	EPA 601	19	9	<0.5	20	<0.5	1.2
	14-Apr-87	CAL	EPA 601	7	0.5	<1	3.8	<0.5	<1
	6-Aug-87	MED	EPA 601	14	1	<0.5	16	<0.5	NR
	13-Jan-88	MED	EPA 601	15	1	0.9	13	<0.5	NR
	1-Jun-88	MED	EPA 601	12	0.7	<0.5	8	<0.5	<1
	29-Sep-88	MED	EPA 601	18	<0.5	<0.5	19	<0.5	<0.5
	20-Jan-89	MED	EPA 601	23	3	<0.5	16	<0.5	<1
duplicate	20-Jan-89	MED	EPA 601	23	3	<0.5	16	<0.5	<1
	15-May-89	MED	EPA 601	16	2	<0.5	7	<0.5	<0.5
duplicate	15-May-89	MED	EPA 601	17	2	<0.5	8	<0.5	<0.5
	19-Sep-89	MED	EPA 8010	10	0.6	<0.5	2	<0.5	<0.5
	18-Jan-90	MED	EPA 8010	2	0.6	<1	0.7	<1	<1
	1-May-90	MED	EPA 8010	2	<0.5	<1	0.7	<1	<1
	10-Sep-90	MED	EPA 8010	0.6	<0.5	<1	<0.5	<1	<1
	19-Dec-90	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
duplicate	19-Dec-90	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	16-Apr-91	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	16-Aug-91	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	22-Sep-92	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	14-Apr-93	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	26-Oct-93	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	12-Apr-94	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	05-Oct-94	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

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Primary VOCs (1986-2000)
Sola Optical U.S.A., Inc., Petaluma, California
All concentrations expressed in micrograms per liter (µg/L)

Well ID	Sample Date	Lab	Method	1,1-DCE	1,1-DCA	1,2-DCA	1,1,1-TCA	TCE	Freon 113
	28-Apr-95	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	25-Oct-95	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	27-Mar-96	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	08-Nov-96	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	17-Jun-97		EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	10-Sep-97		EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	11-Jun-98		EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
LF-6	10-Dec-86	CAL	EPA 624	<5	<5	<5	1	<5	NR
	10-Dec-86	CAL	EPA 624	<5	<5	<5	1	<5	NR
	11-Dec-86	CAL	EPA 601	<0.5	<0.5	<0.5	0.9	<0.5	NR
	14-Apr-87	CAL	EPA 601	<0.5	<0.5	<1	1.3	<0.5	<1
	11-Aug-87	MED	EPA 601	4	0.6	<0.5	8	<0.5	NR
18	12-Jan-88	MED	EPA 601	2	<0.5	<0.5	4	<0.5	NR
	1-Jun-88	MED	EPA 601	5	<0.5	<0.5	5	<0.5	<1
	28-Sep-88	MED	EPA 601	5	<0.5	<0.5	5	<0.5	<1
	20-Jan-89	MED	EPA 601	5	<0.5	<0.5	3	<0.5	<0.5
	16-May-89	MED	EPA 601	3	<0.5	<0.5	2	<0.5	<0.5
	19-Sep-89	MED	EPA 8010	4	<0.5	<0.5	1	<0.5	<0.5
	22-Jan-90	MED	EPA 8010	2	<0.5	<0.5	1	<0.5	<0.5
	1-May-90	MED	EPA 8010	2	<0.5	<0.5	0.7	<0.5	<0.5
	10-Sep-90	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	18-Dec-90	MED	EPA 8010	2	<0.5	<0.5	<0.5	<0.5	<0.5
	17-Apr-91	QUA	EPA8010	0.5	<0.5	<0.5	0.5	<0.5	<0.5
	19-Aug-91	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	22-Sep-92	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	14-Apr-93	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	27-Oct-93	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	13-Apr-94	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	05-Oct-94	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	27-Apr-95	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	25-Oct-95	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	27-Mar-96	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	08-Nov-96	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	16-Jun-97		EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	10-Sep-97		EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	12-Jun-98		EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
LF-7	13-Apr-87	CAL	EPA 601	<0.5	<0.5	<1	<0.5	<1	<1
	21-Apr-87	CAL	EPA 624	<5	<5	<5	<5	<5	NR
	7-Aug-87	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	NR
	26-May-88	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	19-Jan-89	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	15-May-89	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	4-May-90	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	30-Aug-90	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	16-Apr-91	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	16-Aug-91	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
LF-8	13-Apr-87	CAL	EPA 601	<0.5	<0.5	<1	<0.5	<1	<1
	21-Apr-87	CAL	EPA 624	<5	<5	<5	<5	<5	NR
	10-Aug-87	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	NR
	26-May-88	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	19-Jan-89	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	15-May-89	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	1-May-90	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	30-Aug-90	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	16-Apr-91	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Table 1
Historical Groundwater Quality Data
Primary VOCs (1986-2000)
Sola Optical U.S.A., Inc., Petaluma, California

All concentrations expressed in micrograms per liter (µg/L)

Well ID	Sample Date	Lab	Method	1,1-DCE	1,1-DCA	1,2-DCA	1,1,1-TCA	TCE	Freon 113
	19-Aug-91	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	26-Mar-96	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
LF-9	13-Apr-87	CAL	EPA 601	<0.5	<0.5	<1	<0.5	<1	<1
	21-Apr-87	CAL	EPA 624	<5	<5	<5	<5	<5	NR
	10-Aug-87	MED	EPA 601	0.7	<0.5	<0.5	1	<0.5	NR
	13-Jan-88	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	NR
	26-May-88	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	28-Sep-88	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	19-Jan-89	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	15-May-89	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	19-Sep-89	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	22-Jan-90	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	3-May-90	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	10-Sep-90	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
duplicate	10-Sep-90	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	18-Dec-90	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	16-Apr-91	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	14-Aug-91	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	27-Mar-96	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
LF-10	10-Apr-87	CAL	EPA 601	<0.5	<0.5	<1	<0.5	<1	<1
	21-Apr-87	CAL	EPA 601	<5	<5	<5	<5	<5	NR
	12-Aug-87	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	NR
	25-May-88	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	19-May-89	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	25-Apr-90	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	25-Apr-91	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
LF-11	17-Aug-87	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	NR
LF-12	1-Jul-87	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	2
	10-Aug-87	MED	EPA 624	<5	<5	<5	<5	<5	NR
	25-May-88	MED	EPA 601	4	1	<0.5	4	1	<2
	1-Jul-88	MED	EPA 601	4	<0.5	<0.5	1	<0.5	<0.5
	30-Sep-88	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	17-Jan-89	MED	EPA 601	1	<0.5	<0.5	0.6	<0.5	<0.5
	10-May-89	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	18-Sep-89	MED	EPA 8010	1	<0.5	<0.5	<0.5	<0.5	<0.5
	18-Sep-89	MED	EPA 8010	1	<0.5	<0.5	<0.5	<0.5	<0.5
	17-Jan-90	MED	EPA 8010	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	27-Apr-90	MED	EPA 8010	0.7	<0.5	<0.5	<0.5	<0.5	<0.5
	11-Sep-90	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	19-Dec-90	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	15-Aug-91	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	23-Sep-92	QUA	EPA8010	0.8	<0.5	<0.5	<0.5	<0.5	<0.5
	26-Oct-93	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	06-Oct-94	AEN	EPA8010	2	0.7	<0.5	<0.5	<0.5	<0.5
	24-Oct-95	AEN	EPA8010	1	<0.5	<0.5	<0.5	<0.5	<0.5
	11-Nov-96	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	17-Jun-97		EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	12-Jun-98		EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
LF-13	15-Apr-87	CAL	EPA 601	<0.5	0.8	<1	1.4	<0.5	<1
	1-Jul-87	MED	EPA 601	11	0.7	<0.5	6	<0.5	<0.5
	7-Aug-87	MED	EPA 624	9	<5	<5	8	<5	NR
duplicate	7-Aug-87	MED	EPA 624	10	<5	<5	7	<5	NR
	13-Jan-88	MED	EPA 601	9	0.5	2	7	<0.5	NR

Table 1
Historical Groundwater Quality Data
Primary VOCs (1986-2000)
Sola Optical U.S.A., Inc., Petaluma, California
All concentrations expressed in micrograms per liter (µg/L)

Well ID	Sample Date	Lab	Method	1,1-DCE	1,1-DCA	1,2-DCA	1,1,1-TCA	TCE	Freon 113
	31-May-88	MED	EPA 601	9	0.7	<0.5	6	<0.5	<2
duplicate	31-May-88	MED	EPA 601	<0.5	0.8	<0.5	7	<0.5	<3
	29-Sep-88	MED	EPA 601	6	<0.5	<0.5	4	<0.5	<0.5
	29-Sep-88	FIR	EPA 601	1.6	<0.5	<0.5	2.5	<0.5	NR
	29-Sep-88	NET	EPA 624	<2.8	<4.7	<2.8	<3.8	<1.9	NR
	18-Jan-89	MED	EPA 601	4	<0.5	<0.5	4	<0.5	<0.5
29	10-May-89	MED	EPA 601	3	<0.5	<0.5	2	<0.5	<0.5
	19-Sep-89	MED	EPA 8010	23	0.5	<0.5	8	<0.5	2
	18-Jan-90	MED	EPA 8010	4	<0.5	<0.5	4	<0.5	<0.5
	2-May-90	MED	EPA 8010	22	<0.5	<0.5	9	<0.5	2
	split	EPA	EPA 8240	15	1	<1	8	<1	NA
	11-Sep-90	MED	EPA 8010	7	<0.5	<0.5	3	<0.5	<0.5
	19-Dec-90	MED	EPA 8010	26	1	<0.5	11	<0.5	<0.5
	14-Aug-91	QUA	EPA8010	4	<0.5	<0.5	0.5	<0.5	<0.5
	24-Apr-92	QUA	EPA8010	13	0.7	<0.5	4	<0.5	1
	24-Apr-92	QUA	EPA8010	5	0.5	<0.5	4	<0.5	1
	25-Jun-92	QUA	EPA8010	8	<0.5	<0.5	2	<0.5	<0.5
LF-14	1-Jul-87	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	10-Aug-87	MED	EPA 624	<5	<5	<5	<5	<5	NR
	24-May-88	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	17-Jan-89	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	10-May-89	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	18-Jan-90	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2-Apr-90	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	30-Aug-90	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	25-Apr-91	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	14-Aug-91	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	23-Sep-92	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	26-Oct-93	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
duplicate	26-Oct-93	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	06-Oct-94	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	24-Oct-95	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	11-Nov-96	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	18-Jun-97		EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	09-Jun-98		EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
LF-15	8-Jul-87	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	6-Aug-87	MED	EPA 624	<5	<5	<5	<5	<5	NR
	25-May-88	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	18-Jan-89	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	11-May-89	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	17-Jan-90	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	24-Apr-90	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	29-Aug-90	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	16-Aug-91	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	16-Aug-91	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	23-Sep-92	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	26-Oct-93	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	05-Oct-94	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	25-Oct-95	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	11-Nov-96	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	17-Jun-97		EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	15-Jun-98		EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
LF-16	8-Jul-87	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	7-Aug-87	MED	EPA 624	<5	<5	<5	<5	<5	NR
	26-May-88	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Table 1
Historical Groundwater Quality Data
Primary VOCs (1986-2000)
Sola Optical U.S.A., Inc., Petaluma, California
All concentrations expressed in micrograms per liter (µg/L)

Well ID	Sample Date	Lab	Method	1,1-DCE	1,1-DCA	1,2-DCA	1,1,1-TCA	TCE	Freon 113
	18-Oct-88	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	18-Jan-89	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	11-May-89	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	19-Sep-89	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	19-Jan-90	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	25-Apr-90	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	28-Aug-90	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	20-Dec-90	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	16-Aug-91	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	23-Sep-92	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	27-Oct-93	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	05-Oct-94	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	25-Oct-95	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	11-Nov-96	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	17-Jun-97		EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	10-Jun-98		EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
LF-17[7]	8-Jul-87	MED	EPA 601	3	<0.5	<0.5	<0.5	<0.5	<0.5
	6-Aug-87	MED	EPA 624	8	<5	<5	7	<5	NR
	12-Jan-88	MED	EPA 601	12	1	0.6	11	<0.5	NR
	12-Jan-88	MED	EPA 601	12	0.7	3	9	<0.5	NR
	26-May-88	MED	EPA 601	9	0.5	<0.5	7	<0.5	<1
	29-Sep-88	MED	EPA 601	6	<0.5	<0.5	7	<0.5	<0.5
	18-Jan-89	MED	EPA 601	8	<0.5	<0.5	7	<0.5	<0.5
	11-May-89	MED	EPA 601	7	<0.5	<0.5	5	<0.5	<0.5
duplicate	11-May-89	MED	EPA 601	8	<0.5	<0.5	5	<0.5	<0.5
	19-Sep-89	MED	EPA 8010	20	<0.5	<0.5	8	<0.5	0.6
duplicate	19-Sep-89	MED	EPA 8010	20	<0.5	<0.5	8	<0.5	<0.5
	18-Jan-90	MED	EPA 8010	12	0.6	<0.5	9	<0.5	<0.5
	2-May-90	MED	EPA 8010	20	0.9	<0.5	10	<0.5	0.6
55	split	EPA	EPA 8240	18	2	<1	9	<1	NA
	29-Aug-90	MED	EPA 8010	19	1	<0.5	9	<0.5	<0.5
	20-Dec-90	MED	EPA 8010	25	2	<0.5	11	<0.5	<0.5
	16-Aug-91	QUA	EPA8010	17	1	<0.5	6	<0.5	<0.5
	25-Jun-92	QUA	EPA8010	9	1	<0.5	4	<0.5	<0.5
LF-18	8-Jul-87	MED	EPA 601	3	<0.5	<0.5	7	<0.5	<0.5
	6-Aug-87	MED	EPA 624	<5	<5	<5	<5	<5	NR
	31-May-88	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	19-Jan-88	MED	EPA 601	0.7	<0.5	<0.5	<0.5	<0.5	<0.5
	15-May-89	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	19-Jan-90	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
duplicate	19-Jan-90	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	25-Apr-90	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	30-Aug-90	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	25-Apr-91	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	16-Aug-91	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
LF-19	23-Jul-87	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	12-Aug-87	MED	EPA 624	<5	<5	<5	<5	<5	NR
	31-May-88	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	19-May-89	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	24-Apr-90	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	24-Apr-91	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
LF-20	23-Jul-87	MED	EPA 601	<0.5	2	<0.5	<0.5	<0.5	<0.5

Table 1
Historical Groundwater Quality Data
Primary VOCs (1986-2000)
Sola Optical U.S.A., Inc., Petaluma, California

All concentrations expressed in micrograms per liter (µg/L)

Well ID	Sample Date	Lab	Method	1,1-DCE	1,1-DCA	1,2-DCA	1,1,1-TCA	TCE	Freon 113
	12-Aug-87	MED	EPA 624	<5	<5	<5	<5	<5	NR
	31-May-88	MED	EPA 601	0.8	4	<0.5	<0.5	<0.5	<0.5
	19-May-89	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	24-Apr-90	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	17-Apr-91	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
LF-21	24-Apr-90	MED	EPA 8240	<5	<5	<5	<5	<5	NA
duplicate	24-Apr-90	MED	EPA 8240	<5	<5	<5	<5	<5	NA
	2-May-90	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
duplicate	2-May-90	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
[56]	split	EPA	EPA 8240	<1	<1	<1	<1	<1	NA
	29-Aug-90	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	20-Dec-90	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	preserved*	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	17-Apr-91	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	14-Aug-91	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
duplicate	14-Aug-91	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
LF-22	24-Apr-90	MED	EPA 8240	6	<5	<5	<5	<5	NA
	30-Apr-90	MED	EPA 8010	12	<0.5	<0.5	4	<0.5	<0.5
	30-Aug-90	MED	EPA 8010	20	0.6	<0.5	7	<0.5	<0.5
	19-Dec-90	MED	EPA 8010	17	0.8	<0.5	5	<0.5	<0.5
	18-Apr-91	QUA	EPA8010	9	<0.5	<0.5	5	<0.5	<0.5
	20-Aug-91	QUA	EPA8010	10	<0.5	<0.5	4	<0.5	<0.5
	26-Jun-92	QUA	EPA8010	3	<0.5	<0.5	0.6	<0.5	<0.5
	26-Jun-92	EPA	EPA8010	3	<0.5	<0.5	<0.5	<0.5	<0.5
	24-Sep-92	QUA	EPA8010	1	<0.5	<0.5	<0.5	<0.5	<0.5
	22-Dec-92	QUA	EPA8010	2	<0.5	<0.5	<0.5	<0.5	<0.5
duplicate	22-Dec-92	QUA	EPA8010	2	<0.5	<0.5	<0.5	<0.5	<0.5
	14-Apr-93	QUA	EPA8010	1	<0.5	<0.5	<0.5	<0.5	<0.5
	27-Jul-93	AEN	EPA8010	2	<0.5	<0.5	0.6	<0.5	<0.5
	27-Oct-93	AEN	EPA8010	0.7	<0.5	<0.5	<0.5	<0.5	<0.5
	30-Dec-93	AEN	EPA8010	<1	<0.5	<0.5	<0.5	<0.5	<0.5
	12-Apr-94	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	25-Jul-94	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	06-Oct-94	AEN	EPA8010	1	<0.5	<0.5	<0.5	<0.5	<0.5
	07-Mar-95	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	28-Apr-95	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	25-Aug-95	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	26-Oct-95	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	05-Jan-96	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	26-Mar-96	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	11-Jul-96	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	08-Nov-96	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	19-Jun-97		EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	09-Sep-97		EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	09-Jun-98		EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
LF-23	23-Apr-90	MED	EPA 8240	<5	<5	<5	<5	<5	NA
	30-Apr-90	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	30-Aug-90	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	18-Dec-90	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	17-Apr-91	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	19-Aug-91	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	26-Mar-96	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
LF-24	19-Apr-90	MED	EPA 8240	<5	<5	<5	<5	<5	NA
duplicate	19-Apr-90	MED	EPA 8240	<5	<5	<5	<5	<5	NA

Table 1
Historical Groundwater Quality Data
Primary VOCs (1986-2000)
Sola Optical U.S.A., Inc., Petaluma, California
All concentrations expressed in micrograms per liter (µg/L)

Well ID	Sample Date	Lab	Method	1,1-DCE	1,1-DCA	1,2-DCA	1,1,1-TCA	TCE	Freon 113
	2-May-90	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	split	EPA	EPA 8240	<1	<1	<1	<1	<1	NA
	30-Aug-90	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	20-Dec-90	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	17-Apr-91	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	19-Aug-91	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	26-Mar-96	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
LF-25	23-Apr-90	MED	EPA 8240	5	<5	<5	<5	<5	NA
	30-Apr-90	MED	EPA 8010	7	<0.5	<0.5	4	<0.5	1
	29-Aug-90	MED	EPA 8010	4	<0.5	<0.5	3	<0.5	<0.5
duplicate	29-Aug-90	MED	EPA 8010	4	<0.5	<0.5	2	<0.5	<0.5
	18-Dec-90	MED	EPA 8010	6	<0.5	<0.5	3	<0.5	<0.5
	19-Aug-91	QUA	EPA8010	3	<0.5	<0.5	2	<0.5	<0.5
	22-Sep-92	QUA	EPA8010	3	<0.5	<0.5	2	<0.5	<0.5
duplicate	22-Sep-92	QUA	EPA8010	3	<0.5	<0.5	2	<0.5	<0.5
	13-Apr-93	QUA	EPA8010	4	0.6	<0.5	2	<0.5	<0.5
	27-Oct-93	AEN	EPA8010	5	<0.5	<0.5	3	<0.5	0.8
duplicate	27-Oct-93	AEN	EPA8010	5	<0.5	<0.5	3	<0.5	0.8
	12-Apr-94	AEN	EPA8010	5	2	<0.5	2	<0.5	0.9
	04-Oct-94	AEN	EPA8010	5	2	<0.5	2	<0.5	0.7
	27-Apr-95	AEN	EPA8010	3	0.6	<0.5	<0.5	<0.5	<0.5
duplicate	27-Apr-95	AEN	EPA8010	3	0.5	<0.5	<0.5	<0.5	<0.5
	25-Oct-95	AEN	EPA8010	3	<0.5	<0.5	0.9	<0.5	<0.5
	26-Mar-96	AEN	EPA8010	4.3	0.9	<0.5	0.6	<0.5	<0.5
	05-Nov-96	AEN	EPA8010	3.6	1.1	<0.5	0.5	<0.5	<0.5
	19-Jun-97		EPA8010	2.8	1	<0.5	<0.5	<0.5	<0.5
	09-Sep-97		EPA8010	3.1	1.1	<0.5	<0.5	<0.5	<0.5
duplicate	09-Sep-97		EPA8010	2.6	1	<0.5	<0.5	<0.5	<0.5
	10-Jun-98		EPA8010	2.3	1.1	<0.5	<0.5	<0.5	<0.5
duplicate	10-Jun-98		EPA8010	2.4	1.1	<0.5	<0.5	<0.5	<0.5
	16-Oct-98		EPA8010	2.5	1	<0.5	<0.5	<0.5	<1.0
	17-Mar-99		EPA8260A(8010)	3	1.1	<0.5	<0.5	<0.5	<1.0
	23-Sep-99		EPA8260A(8010)	2.6	1.1	<0.5	<0.5	<0.5	<5.0
	12-Apr-00		EPA8260B	2.6	0.9	<0.5	<0.5	<0.5	<5.0
	8-Sep-00	C&T	EPA8260B	<0.5	1.2	0.5	<0.5	<0.5	<5.0
	Apr 01			2.8	1.4				
LF-26	23-Apr-90	MED	EPA 8240	<0.5	<0.5	<0.5	<0.5	<0.5	NA
	30-Apr-90	MED	EPA 8010	<0.5	5	<0.5	4	<0.5	4
	29-Aug-90	MED	EPA 8010	2	<0.5	<0.5	0.8	<0.5	<0.5
duplicate	29-Aug-90	MED	EPA 8010	2	<0.5	<0.5	1	<0.5	<0.5
	20-Dec-90	MED	EPA 8010	6	<0.5	<0.5	3	<0.5	<0.5
duplicate	20-Dec-90	MED	EPA 8010	6	<0.5	<0.5	3	<0.5	<0.5
	19-Aug-91	QUA	EPA8010	2	<0.5	<0.5	2	<0.5	<0.5
	22-Sep-92	QUA	EPA8010	4	<0.5	<0.5	2	<0.5	<0.5
duplicate	22-Sep-92	QUA	EPA8010	4	<0.5	<0.5	2	<0.5	<0.5
	13-Apr-93	QUA	EPA8010	5	<0.5	<0.5	3	<0.5	0.9
duplicate	13-Apr-93	QUA	EPA8010	5	<0.5	<0.5	3	<0.5	0.9
	27-Oct-93	AEN	EPA8010	3	<0.5	<0.5	2	<0.5	1
duplicate	27-Oct-93	AEN	EPA8010	3	<0.5	<0.5	2	<0.5	0.6
	12-Apr-94	AEN	EPA8010	3	0.8	<0.5	2	<0.5	2
	04-Oct-94	AEN	EPA8010	6	1	<0.5	2	<0.5	1
	27-Apr-95	62							
	24-Aug-95	AEN	EPA8010	6	1	<0.5	2	<0.5	0.7
duplicate	24-Aug-95	AEN	EPA8010	6	1	<0.5	2	<0.5	0.7
	25-Oct-95	AEN	EPA8010	6	<0.5	<0.5	1	<0.5	<0.5
duplicate	25-Oct-95	AEN	EPA8010	6	<0.5	<0.5	1	<0.5	<0.5
	26-Mar-96	AEN	EPA8010	5.8	0.7	<0.5	0.8	<0.5	<0.5

Table 1
Historical Groundwater Quality Data
Primary VOCs (1986-2000)
Sola Optical U.S.A., Inc., Petaluma, California

All concentrations expressed in micrograms per liter (µg/L)

Well ID	Sample Date	Lab	Method	1,1-DCE	1,1-DCA	1,2-DCA	1,1,1-TCA	TCE	Freon 113
duplicate	26-Mar-96	AEN	EPA8010	5.3	0.7	<0.5	0.8	<0.5	<0.5
	05-Nov-96	AEN	EPA8010	5	0.9	<0.5	0.7	<0.5	<0.5
duplicate	05-Nov-96	AEN	EPA8010	5	0.9	<0.5	0.8	<0.5	<0.5
	19-Jun-97		EPA8010	4.2	1	<0.5	0.6	<0.5	<0.5
duplicate	19-Jun-97		EPA8010	4.1	0.9	<0.5	0.6	<0.5	<0.5
	09-Sep-97		EPA8010	2.8	<0.5	<0.5	<0.5	<0.5	<0.5
	10-Jun-98		EPA8010	4.3	1.1	<0.5	0.5	<0.5	<0.5
duplicate	10-Jun-98		EPA8010	4.2	1.1	<0.5	0.5	<0.5	<0.5
	23-Sep-99		EPA8260A(8010)	3.6	1.1	<0.5	<0.5	<0.5	<5.0
	12-Apr-00		EPA8260B	3.2	1.0	<0.5	<0.5	<0.5	<5.0
	8-Sep-00	C&T	EPA8260B	2.5	0.8	<0.5	<0.5	<0.5	<5.0
LF-27	24-Apr-90	MED	EPA 8240	<5	<5	<5	<5	<5	NA
	3-May-90	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
duplicate	3-May-90	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
[57]	split	EPA	EPA 8240	<1	<1	<1	<1	<1	NA
	28-Aug-90	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
duplicate	28-Aug-90	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	27-Mar-96	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Apr 01			2.6	1.0				
LF-27A	08-Feb-91	QUA	EPA624	<5	<5	<5	<5	<5	NA
	15-Aug-91	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
LF-28	20-Apr-90	MED	EPA 8240	<5	<5	<5	<5	<5	NA
	1-May-90	MED	EPA 8010	0.6	<0.5	<0.5	<0.5	<0.5	<0.5
	29-Aug-90	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	18-Dec-90	MED	EPA 8010	1	<0.5	<0.5	<0.5	<0.5	<0.5
	17-Apr-91	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	19-Aug-91	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	22-Sep-92	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	27-Oct-93	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	06-Oct-94	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	25-Oct-95	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	12-Nov-96	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	16-Jun-97		EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	09-Sep-97		EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	12-Jun-98		EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
DH-2	15-Jun-90	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	31-Aug-90	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Station 5	20-Nov-86	5 M-T	EPA 601	<0.1	<0.1	<0.1	0.9	<0.1	NR
	10-Dec-86	CAL	EPA 601	0.5	<0.5	<0.5	0.5	<0.5	<0.5
	10-Dec-86	CAL	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	12-Dec-86	M-T	EPA 601	0.9	0.9	<0.1	3.2	<0.1	NR
	30-Dec-86	M-T	EPA 601	0.4	<0.1	<0.1	0.7	<0.1	NR
	5-Feb-87	CAL	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	5-Feb-87	B&C	EPA 601	<5	<5	<5	<5	<5	<5
	26-Feb-87	CAL	EPA 601	0.8	<0.5	<1	<0.5	<1	<1
	26-Feb-87	CAL	EPA 601	<0.5	<0.5	<1	0.5	<1	<1
[8]	27-Mar-87	M-T	EPA 601	<0.1	<0.1	<0.1	<0.1	<0.1	NR
[6]	21-Apr-87	CAL	EPA 601	<0.5	<0.5	<1	<0.5	<0.5	<1
[8]	22-May-87	M-T	EPA 601	<0.2	<0.5	<0.5	<0.5	<0.5	NR
	3-Dec-87	M-T	EPA 601	1.3	0.6	<0.5	1.2	<0.5	NR
	21-Dec-87	M-T	EPA 601	1.2	0.7	<0.5	1.4	<0.5	NR
	30-Dec-87	MED	EPA 601	2	<0.5	<0.5	2	<0.5	NR

Table 1
Historical Groundwater Quality Data
Primary VOCs (1986-2000)
Sola Optical U.S.A., Inc., Petaluma, California

All concentrations expressed in micrograms per liter (µg/L)

Well ID	Sample Date	Lab	Method	1,1-DCE	1,1-DCA	1,2-DCA	1,1,1-TCA	TCE	Freon 113
	13-Jan-88	MED	EPA 601	1	<0.5	<0.5	1	<0.5	NR
	26-May-88	MED	EPA 601	2	<0.5	<0.5	0.9	<0.5	<0.5
duplicate	26-May-88	MED	EPA 601	2	<0.5	<0.5	0.9	<0.5	<0.5
Sola City Well	10-Dec-86	CAL	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
16	11-Aug-87	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	NR
	26-May-88	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	16-May-89	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	26-Apr-90	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Stero	10-Apr-87	CAL	EPA 601	<0.5	<0.5	<1	0.6	<1	<1
13	12-Aug-87	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	NR
19	26-May-88	MED	EPA 601	2	<0.5	<0.5	1	<0.5	<0.5
28	20-Jan-89	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
30	11-May-89	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
44	22-Jan-90	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Crandell	5-Feb-87	CAL	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	5-Feb-87	CAL	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
14	12-Aug-87	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	NR
	26-May-88	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	19-Jan-89	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	11-May-89	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
E-1[25]	29-Apr-88	MED	EPA 601	480	120	<0.5	79	2	<10
24	28-Sep-88	MED	EPA 601	160	54	<0.5	23	<0.5	<2
	20-Jan-89	MED	EPA 601	56	13	<0.5	7	<0.5	<0.5
	19-May-89	MED	EPA 601	130	47	<0.5	12	<0.5	<0.5
36	20-Sep-89	MED	EPA 8010	320	120	<0.5	20	<0.5	<0.5
	19-Jan-90	MED	EPA 8010	120	110	<0.5	18	<0.5	<0.5
48	30-Apr-90	MED	EPA 8010	100	80	<0.5	12	<0.5	<0.5
duplicate[49]	30-Apr-90	MED	EPA 8010	91	59	<0.5	9	<0.5	<0.5
53	28-Aug-90	MED	EPA 8010	110	85	<0.5	15	<0.5	<0.5
	18-Dec-90	MED	EPA 8010	70	52	<0.5	8	<0.5	<0.5
	15-Apr-91	QUA	EPA8010	49	37	<0.5	5	<0.5	<0.5
	14-Aug-91	QUA	EPA8010	94	83	<0.5	6	<0.5	<0.5
	25-Jun-92	QUA	EPA8010	16	14	<0.5	1	<0.5	<0.5
	24-Sep-92	QUA	EPA8010	18	18	<0.5	1	<0.5	<0.5
	22-Dec-92	QUA	EPA8010	10	11	<0.5	0.7	<0.5	<0.5
	15-Apr-93	QUA	EPA8010	11	30	<0.5	0.8	<0.5	<0.5
	26-Jul-93	AEN	EPA8010	6	19	<0.5	0.7	<0.5	<0.5
	29-Oct-93	[1]							
	29-Dec-93	AEN	EPA8010	18	43	<0.5	2	<0.5	<0.5
	13-Apr-94	AEN	EPA8010	9	31	<0.5	<0.5	<0.5	<0.5
	25-Jul-94	AEN	EPA8010	4	11	<0.5	<0.5	<0.5	<0.5
	07-Oct-94	AEN	EPA8010	2	3	<0.5	<0.5	<0.5	<0.5
	07-Mar-95	AEN	EPA8010	3	11	<0.5	<0.5	<0.5	<0.5
	26-Apr-95	AEN	EPA8010	4	41	<0.5	<0.5	<0.5	<0.5
	17-Aug-95	AEN	EPA8010	5	25	<0.5	<0.5	<0.5	<0.5
	23-Oct-95	AEN	EPA8010	0.6	2	<0.5	<0.5	<0.5	<0.5
	03-Jan-96	AEN	EPA8010	2	4	<0.5	<0.5	<0.5	<0.5
	25-Mar-96	AEN	EPA8010	2.6	8.5	<0.5	<0.5	<0.5	<0.5
	08-Jul-96	AEN	EPA8010	3.4	21	<0.5	<0.5	<0.5	<0.5

Table 1
Historical Groundwater Quality Data
Primary VOCs (1986-2000)
Sola Optical U.S.A., Inc., Petaluma, California
All concentrations expressed in micrograms per liter (µg/L)

Well ID	Sample Date	Lab	Method	1,1-DCE	1,1-DCA	1,2-DCA	1,1,1-TCA	TCE	Freon 113
	04-Nov-96	AEN	EPA8010	0.7	1.5	<0.5	<0.5	<0.5	<0.5
	18-Jun-97		EPA8010	2.1	22	<0.5	<0.5	<0.5	<0.5
	11-Sep-97		EPA8010	2.2	25	<0.5	<0.5	<0.5	<0.5
	11-Jun-98		EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
E-2[26]	29-Apr-88	MED	EPA 601	830	31	<0.5	460	5	<0.5
	28-Sep-88	MED	EPA 601	110	11	<0.5	43	<0.5	<0.5
	20-Jan-89	MED	EPA 601	51	5	<0.5	22	<0.5	<0.5
	19-May-89	MED	EPA 601	68	36	<0.5	22	<0.5	<0.5
	20-Sep-89	MED	EPA 8010	210	110	0.6	31	<0.5	<0.5
	22-Jan-90	MED	EPA 8010	41	28	<0.5	11	<0.5	<0.5
	30-Apr-90	MED	EPA 8010	10	2	<0.5	3	<0.5	<0.5
[54]	28-Aug-90	MED	EPA 8010	90	63	0.6	20	<0.5	<0.5
	18-Dec-90	MED	EPA 8010	84	54	<0.5	15	<0.5	<0.5
	15-Apr-91	QUA	EPA8010	58	45	<0.5	9	<0.5	<0.5
	14-Aug-91	QUA	EPA8010	27	10	<0.5	3	<0.5	<0.5
	26-Jun-92	QUA	EPA8010	50	53	<0.5	14	<0.5	<0.5
	26-Jun-92	EPA	EPA8010	26	34	<0.5	9	<0.5	<0.5
	24-Sep-92	QUA	EPA8010	6	1	<0.5	3	<0.5	<0.5
	22-Dec-92	QUA	EPA8010	8	5	<0.5	2	<0.5	<0.5
	15-Apr-93	QUA	EPA8010	30	21	<0.5	9	<0.5	<0.5
	26-Jul-93	AEN	EPA8010	5	3	<0.5	1	<0.5	<0.5
	28-Oct-93	AEN	EPA8010	8	7	<0.5	2	<0.5	<0.5
	29-Dec-93	AEN	EPA8010	5	4	<0.5	0.6	<0.5	<0.5
	14-Apr-94	*61*							
	25-Jul-94	AEN	EPA8010	21	16	<0.5	2	<0.5	<0.5
	07-Oct-94	AEN	EPA8010	3	2	<0.5	<0.5	<0.5	<0.5
	07-Mar-95	AEN	EPA8010	5	4	<0.5	0.5	<0.5	<0.5
	26-Apr-95	AEN	EPA8010	3	2	<0.5	<0.5	<0.5	<0.5
	17-Aug-95	AEN	EPA8010	11	8	<0.5	2	<0.5	<0.5
	23-Oct-95	AEN	EPA8010	2	<0.5	<0.5	<0.5	<0.5	<0.5
	03-Jan-96	AEN	EPA8010	2	2	<0.5	<0.5	<0.5	<0.5
	25-Mar-96	AEN	EPA8010	11	8.7	<0.5	1.1	<0.5	<0.5
	09-Jul-96	AEN	EPA8010	5.7	4.3	<0.5	<0.5	<0.5	<0.5
	04-Nov-96	AEN	EPA8010	0.8	<0.5	<0.5	<0.5	<0.5	<0.5
	18-Jun-97		EPA8010	9.4	10	<0.5	0.8	<0.5	<0.5
	11-Sep-97		EPA8010	3.5	3.5	<0.5	<0.5	<0.5	<0.5
	11-Jun-98		EPA8010	5.2	13	<0.5	<0.5	<0.5	<0.5
E-3	28-Apr-88	MED	EPA 601	90	8	<0.5	41	1	<10
duplicate	28-Apr-88	MED	EPA 601	96	8	<0.5	44	0.9	<10
	28-Sep-88	MED	EPA 601	110	13	<0.5	43	<0.5	<0.5
	20-Jan-89	MED	EPA 601	81	14	<0.5	34	<0.5	<0.5
	19-May-89	MED	EPA 601	130	34	<0.5	35	<0.5	9
	20-Sep-89	MED	EPA 8010	110	9	<0.5	16	<0.5	2
	22-Jan-90	MED	EPA 8010	53	12	<0.5	11	<0.5	0.8
	1-May-90	MED	EPA 8010	72	21	<0.5	15	<0.5	0.7
	28-Aug-90	MED	EPA 8010	38	9	<0.5	6	<0.5	<0.5
	18-Dec-90	MED	EPA 8010	58	18	<0.5	9	<0.5	<0.5
	15-Apr-91	QUA	EPA8010	45	13	<0.5	7	<0.5	<0.5
	14-Aug-91	QUA	EPA8010	37	7	<0.5	2	<0.5	<0.5
	25-Jun-92	QUA	EPA8010	33	17	<0.5	3	<0.5	<0.5
	24-Sep-92	QUA	EPA8010	30	12	<0.5	3	<0.5	<0.5
	22-Dec-92	QUA	EPA8010	38	21	<0.5	4	<0.5	0.6

Table 1
Historical Groundwater Quality Data
Primary VOCs (1986-2000)
Sola Optical U.S.A., Inc., Petaluma, California
All concentrations expressed in micrograms per liter (µg/L)

Well ID	Sample Date	Lab	Method	1,1-DCE	1,1-DCA	1,2-DCA	1,1,1-TCA	TCE	Freon 113
	15-Apr-93	QUA	EPA8010	24	15	<0.5	2	<0.5	<0.5
	26-Jul-93	AEN	EPA8010	18	11	<0.5	1	<0.5	<0.5
	28-Oct-96	AEN	EPA8010	21	18	<0.5	2	<0.5	<0.5
	29-Dec-93	AEN	EPA8010	52	39	<0.5	3	<0.5	0.5
	14-Apr-94	AEN	EPA8010	130	130	1	9	1	6
	25-Jul-94	AEN	EPA8010	20	15	<0.5	0.7	<0.5	<0.5
	07-Oct-94	AEN	EPA8010	13	9	<0.5	<0.5	<0.5	<0.5
	07-Mar-95	61							
	26-Apr-95	AEN	EPA8010	9	10	<0.5	<0.5	<0.5	<0.5
	17-Aug-95	AEN	EPA8010	24	23	<0.5	0.8	<0.5	0.7
	23-Oct-95	AEN	EPA8010	24	28	<0.5	<0.5	<0.5	<0.5
	03-Jan-96	AEN	EPA8010	9	10	<0.5	<0.5	<0.5	<0.5
	25-Mar-96	AEN	EPA8010	5.4	8.6	<0.5	<0.5	<0.5	<0.5
	08-Jul-96	AEN	EPA8010	35	43	<0.5	<0.5	<0.5	0.6
	04-Nov-96	AEN	EPA8010	15	19	<0.5	1.1	<0.5	<0.5
	18-Jun-97		EPA8010	7.6	10	<0.5	<0.5	<0.5	<0.5
	11-Sep-97		EPA8010	9	11	<0.5	<0.5	<0.5	<0.5
	11-Jun-98		EPA8010	15	18	<0.5	<0.5	<0.5	<0.5
E-4	28-Apr-88	MED	EPA 601	41	71	<0.5	15	<0.5	<1
	28-Sep-88	MED	EPA 601	50	90	<0.5	14	<0.5	<0.5
	20-Jan-89	MED	EPA 601	31	61	<0.5	10	<0.5	<0.5
	17-May-89	MED	EPA 601	39	58	<0.5	10	<0.5	<0.5
	20-Sep-89	MED	EPA 8010	68	79	<0.5	11	<0.5	<0.5
43	22-Jan-90	MED	EPA 8010	32	63	<0.5	7	<0.5	<0.5
50	1-May-90	MED	EPA 8010	33	66	<0.5	7	<0.5	<0.5
	28-Aug-90	MED	EPA 8010	32	75	<0.5	6	<0.5	<0.5
	18-Dec-90	MED	EPA 8010	33	69	<0.5	5	<0.5	<0.5
	15-Apr-91	QUA	EPA8010	32	69	<0.5	4	<0.5	<0.5
	14-Aug-91	QUA	EPA8010	28	41	<0.5	1	<0.5	<0.5
	25-Jun-92	QUA	EPA8010	29	77	<0.5	2	<0.5	<0.5
	24-Sep-92	QUA	EPA8010	22	64	<0.5	3	<0.5	<0.5
	22-Dec-92	QUA	EPA8010	20	57	<0.5	2	<0.5	<0.5
	15-Apr-93	QUA	EPA8010	18	67	<0.5	1	<0.5	<0.5
	26-Jul-93	AEN	EPA8010	17	75	0.6	1	<0.5	<0.5
	28-Oct-93	AEN	EPA8010	10	50	<0.5	<0.5	<0.5	<0.5
	29-Dec-93	AEN	EPA8010	19	60	<0.5	1	<0.5	<0.5
	14-Apr-94	AEN	EPA8010	15	63	<0.5	0.6	<0.5	<0.5
	25-Jul-94	AEN	EPA8010	22	68	<0.5	0.6	<0.5	<0.5
	06-Oct-94	AEN	EPA8010	13	57	<0.5	<0.5	<0.5	<0.5
	07-Mar-95	AEN	EPA8010	15	66	<0.5	<0.5	<0.5	<0.5
	26-Apr-95	AEN	EPA8010	11	56	<0.5	<0.5	<0.5	<0.5
	17-Aug-95	AEN	EPA8010	11	47	<0.5	<0.5	<0.5	<0.5
	23-Oct-95	AEN	EPA8010	7	39	<0.5	<0.5	<0.5	<0.5
	03-Jan-96	AEN	EPA8010	8	43	<0.5	<0.5	<0.5	<0.5
	25-Mar-96	AEN	EPA8010	7.2	34	<0.5	<0.5	<0.5	<0.5
	09-Jul-96	AEN	EPA8010	4.8	31	<0.5	<0.5	<0.5	<0.5
	05-Nov-96	AEN	EPA8010	4.2	24	<0.5	<0.5	<0.5	<0.5
	18-Jun-97		EPA8010	3.7	22	<0.5	<0.5	<0.5	<0.5
	11-Sep-97		EPA8010	3.7	24	<0.5	<0.5	<0.5	<0.5
	11-Jun-98		EPA8010	0.6	5.8	<0.5	<0.5	<0.5	<0.5
E-5	28-Apr-88	MED	EPA 601	14	2	<0.5	10	3	<1
	28-Sep-88	MED	EPA 601	24	3	<0.5	19	<0.5	<0.5
	20-Jan-89	MED	EPA 601	24	2	<0.5	18	<0.5	0.9
	16-May-89	MED	EPA 601	26	4	<0.5	12	<0.5	<0.5
	20-Sep-89	MED	EPA 8010	55	6	<0.5	18	<0.5	<0.5

Table 1
Historical Groundwater Quality Data
Primary VOCs (1986-2000)
Sola Optical U.S.A., Inc., Petaluma, California
All concentrations expressed in micrograms per liter (µg/L)

Well ID	Sample Date	Lab	Method	1,1-DCE	1,1-DCA	1,2-DCA	1,1,1-TCA	TCE	Freon 113
	19-Jan-90	MED	EPA 8010	20	5	<0.5	10	<0.5	<0.5
	1-May-90	MED	EPA 8010	26	6	<0.5	10	<0.5	<0.5
	27-Aug-90	MED	EPA 8010	23	4	<0.5	9	<0.5	<0.5
	18-Dec-90	MED	EPA 8010	37	10	<0.5	8	<0.5	<0.5
	15-Apr-91	QUA	EPA8010	18	6	<0.5	5	<0.5	<0.5
	14-Aug-91	QUA	EPA8010	27	4	<0.5	3	<0.5	<0.5
	25-Jun-92	QUA	EPA8010	16	8	<0.5	2	<0.5	<0.5
	24-Sep-92	QUA	EPA8010	15	6	<0.5	3	<0.5	<0.5
	21-Dec-92	QUA	EPA8010	14	7	<0.5	2	<0.5	<0.5
	13-Apr-93	QUA	EPA8010	17	9	<0.5	2	<0.5	<0.5
	29-Oct-93	AEN	EPA8010	11	6	<0.5	2	<0.5	<0.5
	29-Dec-93	AEN	EPA8010	14	8	<0.5	2	<0.5	<0.5
	11-Apr-94	AEN	EPA8010	11	5	<0.5	1	<0.5	<0.5
	25-Jul-94	AEN	EPA8010	14	5	<0.5	1	<0.5	<0.5
	04-Oct-94	AEN	EPA8010	11	6	<0.5	2	<0.5	<0.5
	07-Mar-95	AEN	EPA8010	11	6	<0.5	<0.5	<0.5	<0.5
	28-Apr-95	AEN	EPA8010	7	4	<0.5	<0.5	<0.5	<0.5
	17-Aug-95	AEN	EPA8010	8	5	<0.5	0.7	<0.5	<0.5
	23-Oct-95	AEN	EPA8010	14	8	<0.5	0.7	<0.5	<0.5
	03-Jan-96	AEN	EPA8010	8	5	<0.5	<0.5	<0.5	<0.5
	25-Mar-96	AEN	EPA8010	6.7	4.8	<0.5	<0.5	<0.5	<0.5
	08-Jul-96	AEN	EPA8010	5.9	3.3	<0.5	<0.5	<0.5	<0.5
	04-Nov-96	AEN	EPA8010	5.7	3.3	<0.5	<0.5	<0.5	<0.5
	18-Jun-97		EPA8010	10	4	<0.5	<0.5	<0.5	<0.5
	11-Sep-97		EPA8010	11	3.7	<0.5	<0.5	<0.5	<0.5
	15-Jun-98		EPA8010	9.7	3.1	<0.5	<0.5	<0.5	<0.5
	16-Oct-98		EPA8010	12	3.7	<0.5	<0.5	<0.5	<1.0
	17-Mar-99		EPA8260A(8010)	13	3.7	<0.5	<0.5	<0.5	<1.0
	23-Sep-99		EPA8260A(8010)	15	4.3	<0.5	<0.5	<0.5	<5.0
	12-Apr-00		EPA8260B	12	3.7	<0.5	<0.5	<0.5	<0.5
	08-Sep-00	C&T	EPA8260B	12	3.5	<0.5	<0.5	<0.5	<5.0
	21-Nov-00	C&T	EPA8260B	10	3.6	<0.5	<0.5	<0.5	<5.0
64	21-Nov-00	CLI	EPA8260A	6.5	2.9	<0.5	<0.5	<0.5	<0.5
	Apr 01			13	4.5				
E-6	28-Sep-88	MED	EPA 601	26	1	<0.5	20	<0.5	<0.5
	20-Jan-89	MED	EPA 601	15	<0.5	<0.5	13	<0.5	<0.5
	19-May-89	MED	EPA 601	17	0.6	<0.5	11	<0.5	<0.5
	20-Sep-89	MED	EPA 8010	37	1	<0.5	17	<0.5	<0.5
	19-Jan-90	MED	EPA 8010	20	3	<0.5	15	<0.5	<0.5
	26-Apr-90	MED	EPA 8010	23	3	<0.5	12	<0.5	<0.5
	27-Aug-90	MED	EPA 8010	17	2	<0.5	8	<0.5	<0.5
	18-Dec-90	MED	EPA 8010	20	4	<0.5	7	<0.5	<0.5
	15-Apr-91	QUA	EPA8010	15	3	<0.5	7	<0.5	<0.5
	14-Aug-91	QUA	EPA8010	15	0.8	<0.5	3	<0.5	<0.5
	25-Jun-92	QUA	EPA8010	8	2	<0.5	4	<0.5	<0.5
	24-Sep-92	QUA	EPA8010	12	3	<0.5	6	<0.5	<0.5
	21-Dec-92	61							
	13-Apr-93	61							
	26-Jul-93	AEN	EPA8010	7	3	<0.5	2	<0.5	<0.5
	29-Oct-93	AEN	EPA8010	7	3	<0.5	2	<0.5	<0.5
	29-Dec-93	AEN	EPA8010	10	4	<0.5	2	<0.5	<0.5
	11-Apr-94	AEN	EPA8010	6	2	<0.5	1	<0.5	<0.5
	22-Jul-94	AEN	EPA8010	5	2	<0.5	0.7	<0.5	<0.5
	07-Oct-94	AEN	EPA8010	8	3	<0.5	0.7	<0.5	<0.5
	07-Mar-95	AEN	EPA8010	5	2	<0.5	<0.5	<0.5	<0.5
	28-Apr-95	AEN	EPA8010	3	1	<0.5	<0.5	<0.5	<0.5
	17-Aug-95	AEN	EPA8010	5	2	<0.5	0.7	<0.5	<0.5

Table 1
Historical Groundwater Quality Data
Primary VOCs (1986-2000)
Sola Optical U.S.A., Inc., Petaluma, California
All concentrations expressed in micrograms per liter (µg/L)

Well ID	Sample Date	Lab	Method	1,1-DCE	1,1-DCA	1,2-DCA	1,1,1-TCA	TCE	Freon 113
	23-Oct-95	AEN	EPA8010	5	1	<0.5	<0.5	<0.5	<0.5
	02-Jan-96	AEN	EPA8010	6	5	<0.5	<0.5	<0.5	<0.5
	03-Jan-96	AEN	EPA8010	4	1	<0.5	<0.5	<0.5	<0.5
	25-Mar-96	AEN	EPA8010	3.5	1.1	<0.5	<0.5	<0.5	<0.5
	08-Jul-96	AEN	EPA8010	2.5	0.8	<0.5	<0.5	<0.5	<0.5
	04-Nov-96	AEN	EPA8010	3	1.2	<0.5	<0.5	<0.5	<0.5
	18-Jun-97		EPA8010	2.6	1.4	<0.5	<0.5	<0.5	<0.5
	11-Sep-97		EPA8010	2.4	1	<0.5	<0.5	<0.5	<0.5
	15-Jun-98		EPA8010	2.9	0.6	<0.5	<0.5	<0.5	<0.5
E-7	29-Sep-88	MED	EPA 601	23	7	<0.5	13	<0.5	<0.5
	29-Sep-88	FIR	EPA 601	56	4.6	<0.5	7.2	<0.5	NR
	29-Sep-88	NET	EPA 624	<2.8	<4.7	<2.8	<3.8	<1.9	NR
	20-Jan-89	MED	EPA 601	5	<0.5	<0.5	1	<0.5	<0.5
	20-Jan-89	MED	EPA 601	4	1	<0.5	1	<0.5	<0.5
	19-May-89	MED	EPA 601	3	0.6	<0.5	<0.5	<0.5	<0.5
	20-Sep-89	MED	EPA 8010	2	<0.5	<0.5	<0.5	<0.5	<0.5
	19-Jan-90	MED	EPA 8010	0.7	0.6	<0.5	<0.5	<0.5	<0.5
	1-May-90	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
duplicate	1-May-90	MED	EPA 8010	<0.5	0.6	<0.5	<0.5	<0.5	<0.5
	27-Aug-90	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	18-Dec-90	MED	EPA 8010	2	0.8	<0.5	<0.5	<0.5	<0.5
	15-Apr-91	QUA	EPA8010	<0.5	0.6	<0.5	<0.5	<0.5	<0.5
	14-Aug-91	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	25-Jun-92	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	24-Sep-92	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	21-Dec-92	QUA	EPA8010	<0.5	1	<0.5	<0.5	<0.5	<0.5
	13-Apr-93	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	26-Jul-93	AEN	EPA8010	<0.5	0.7	<0.5	<0.5	<0.5	<0.5
	29-Oct-93	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	29-Dec-93	AEN	EPA8010	1	1	<0.5	<0.5	<0.5	<0.5
	11-Apr-94	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	22-Jul-94	AEN	EPA8010	<0.5	0.7	<0.5	<0.5	<0.5	<0.5
	03-Oct-94	AEN	EPA8010	0.6	1	<0.5	<0.5	<0.5	<0.5
	07-Mar-95	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	28-Apr-95	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	17-Aug-95	61							
	23-Oct-95	61							
	03-Jan-96	AEN	EPA8010	0.6	<0.5	<0.5	<0.5	<0.5	<0.5
	25-Mar-96	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	08-Jul-96	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	04-Nov-96	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	18-Jun-97		EPA8010	<0.5	0.5	<0.5	<0.5	<0.5	<0.5
	11-Sep-97		EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	12-Jun-98		EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
E-8	28-Apr-88	MED	EPA 601	10	1	<0.5	9	<0.5	<1
	29-Sep-88	MED	EPA 601	9	<0.5	<0.5	9	<0.5	<0.5
	20-Jan-89	MED	EPA 601	21	<0.5	<0.5	10	<0.5	2
	17-May-89	MED	EPA 601	10	<0.5	<0.5	4	<0.5	<0.5
	19-Sep-89	MED	EPA 8010	12	<0.5	<0.5	3	<0.5	<0.5
	17-Jan-90	MED	EPA 8010	4	<0.5	<0.5	2	<0.5	<0.5
	1-May-90	MED	EPA 8010	4	<0.5	<0.5	1	<0.5	<0.5
	27-Aug-90	MED	EPA 8010	3	<0.5	<0.5	1	<0.5	<0.5
	18-Dec-90	MED	EPA 8010	4	<0.5	<0.5	<0.5	<0.5	<0.5
	15-Apr-91	QUA	EPA8010	1	<0.5	<0.5	0.6	<0.5	<0.5
	14-Aug-91	QUA	EPA8010	2	<0.5	<0.5	<0.5	<0.5	<0.5
	25-Jun-92	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Table 1
Historical Groundwater Quality Data
Primary VOCs (1986-2000)
Sola Optical U.S.A., Inc., Petaluma, California

All concentrations expressed in micrograms per liter (µg/L)

Well ID	Sample Date	Lab	Method	1,1-DCE	1,1-DCA	1,2-DCA	1,1,1-TCA	TCE	Freon 113
	23-Sep-92	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	21-Dec-92	QUA	EPA8010	0.7	<0.5	<0.5	<0.5	<0.5	<0.5
	13-Apr-93	61							
	29-Oct-93	61							
	29-Dec-93	61							
	11-Apr-94	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	22-Jul-94	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	03-Oct-94	AEN	EPA8010	0.6	<0.5	<0.5	<0.5	<0.5	<0.5
	07-Mar-95	61							
	27-Apr-95	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	17-Aug-95	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	27-Oct-95	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	1	<0.5
	03-Jan-96	61							
	27-Mar-96	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	08-Jul-96	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	04-Nov-96	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	17-Jun-97		EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	11-Sep-97		EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	15-Jun-98		EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
E-9	27-Apr-88	MED	EPA 601	90	0.7	<0.5	9	<0.5	<2
	30-Sep-88	MED	EPA 601	8	<0.5	<0.5	6	<0.5	<1
	20-Jan-89	MED	EPA 601	13	<0.5	<0.5	8	<0.5	2
	16-May-89	MED	EPA 601	11	<0.5	<0.5	6	<0.5	<0.5
	19-Sep-89	MED	EPA 8010	16	<0.5	<0.5	6	<0.5	<0.5
	17-Jan-90	MED	EPA 8010	7	<0.5	<0.5	4	<0.5	<0.5
	1-May-90	MED	EPA 8010	7	<0.5	<0.5	3	<0.5	<0.5
	27-Aug-90	MED	EPA 8010	4	<0.5	<0.5	2	<0.5	<0.5
	18-Dec-90	MED	EPA 8010	6	<0.5	<0.5	2	<0.5	<0.5
	15-Apr-91	QUA	EPA8010	3	<0.5	<0.5	3	<0.5	<0.5
	14-Aug-91	QUA	EPA8010	4	<0.5	<0.5	<0.5	<0.5	<0.5
	26-Jun-92	QUA	EPA8010	4	<0.5	<0.5	1	<0.5	<0.5
	26-Jun-92	EPA	EPA8010	5	34	<0.5	1	<0.5	<0.5
	24-Sep-92	QUA	EPA8010	1	<0.5	<0.5	<0.5	<0.5	<0.5
	21-Dec-92	QUA	EPA8010	2	<0.5	<0.5	<0.5	<0.5	<0.5
	13-Apr-93	QUA	EPA8010	2	<0.5	<0.5	<0.5	<0.5	<0.5
	26-Jul-93	AEN	EPA8010	2	<0.5	<0.5	0.7	<0.5	<0.5
	29-Oct-93	AEN	EPA8010	0.6	<0.5	<0.5	<0.5	<0.5	<0.5
	29-Dec-93	AEN	EPA8010	2	<0.5	<0.5	0.5	<0.5	<0.5
	11-Apr-94	AEN	EPA8010	2	<0.5	<0.5	<0.5	<0.5	<0.5
	22-Jul-94	AEN	EPA8010	1	<0.5	<0.5	<0.5	<0.5	<0.5
	05-Oct-94	AEN	EPA8010	2	<0.5	<0.5	<0.5	<0.5	<0.5
	07-Mar-95	AEN	EPA8010	1	<0.5	<0.5	<0.5	<0.5	<0.5
	27-Apr-95	AEN	EPA8010	0.6	<0.5	<0.5	<0.5	<0.5	<0.5
	17-Aug-95	AEN	EPA8010	2	<0.5	<0.5	<0.5	<0.5	<0.5
	23-Oct-95	AEN	EPA8010	0.8	<0.5	<0.5	<0.5	<0.5	<0.5
	03-Jan-96	AEN	EPA8010	2	<0.5	<0.5	<0.5	<0.5	<0.5
	25-Mar-96	AEN	EPA8010	1.3	<0.5	<0.5	<0.5	<0.5	<0.5
	08-Jul-96	AEN	EPA8010	1	<0.5	<0.5	<0.5	<0.5	<0.5
	04-Nov-96	AEN	EPA8010	1.3	<0.5	<0.5	<0.5	<0.5	<0.5
	18-Jun-97		EPA8010	1.2	<0.5	<0.5	<0.5	<0.5	<0.5
	11-Sep-97		EPA8010	1	<0.5	<0.5	<0.5	<0.5	<0.5
	15-Jun-98		EPA8010	0.9	<0.5	<0.5	<0.5	<0.5	<0.5
E-10	23-Apr-92	QUA	EPA624	35	<5	<5	<5	<5	NA
	23-Apr-92	EPA	EPA8010	37	3	<0.5	1	<0.5	<0.5
	26-Jun-92	QUA	EPA8010	44	5	<0.5	2	<0.5	<0.5

Table 1
Historical Groundwater Quality Data
Primary VOCs (1986-2000)
Sola Optical U.S.A., Inc., Petaluma, California
All concentrations expressed in micrograms per liter (µg/L)

Well ID	Sample Date	Lab	Method	1,1-DCE	1,1-DCA	1,2-DCA	1,1,1-TCA	TCE	Freon 113
	24-Sep-92	QUA	EPA8010	130	33	<0.5	9	<0.5	<0.5
	22-Dec-92	QUA	EPA8010	28	10	<0.5	2	<0.5	<0.5
	13-Apr-93	61							
	26-Jul-93	AEN	EPA8010	94	53	1	6	<0.5	1
	29-Oct-93	61							
	29-Dec-93	61							
	11-Apr-94	61							
	25-Jul-94	AEN	EPA8010	44	33	0.5	1	<0.5	0.6
	07-Oct-94	AEN	EPA8010	53	36	<0.5	0.9	<0.5	0.9
	07-Mar-95	AEN	EPA8010	19	15	<0.5	<0.5	<0.5	<0.5
	26-Apr-95	AEN	EPA8010	16	14	<0.5	<0.5	<0.5	<0.5
	17-Aug-95	AEN	EPA8010	25	22	<0.5	0.7	<0.5	<0.5
	23-Oct-95	AEN	EPA8010	26	25	<0.5	<0.5	<0.5	<0.5
	05-Jan-96	AEN	EPA8010	6	5	<0.5	<0.5	<0.5	<0.5
	25-Mar-96	61							
	08-Jul-96	AEN	EPA8010	7.9	10	<0.5	<0.5	<0.5	<0.5
	05-Nov-96	AEN	EPA8010	13	11	<0.5	<0.5	<0.5	<0.5
	18-Jun-97		EPA8010	3.3	5.6	<0.5	<0.5	<0.5	<0.5
	11-Sep-97		EPA8010	5.7	11	<0.5	<0.5	<0.5	<0.5
	11-Jun-98		EPA8010	0.7	1.8	<0.5	<0.5	<0.5	<0.5
E-11	23-Apr-92	QUA	EPA624	12	<5	<5	<5	<5	NA
	23-Apr-92	EPA	EPA8010	11	4	<0.5	2	<0.5	<0.5
	26-Jun-92	QUA	EPA8010	13	5	<0.5	2	<0.5	<0.5
	24-Sep-92	QUA	EPA8010	3	1	<0.5	0.6	<0.5	<0.5
	21-Dec-92	QUA	EPA8010	4	2	<0.5	1	<0.5	<0.5
	13-Apr-93	QUA	EPA8010	4	3	<0.5	0.7	<0.5	<0.5
	26-Jul-93	AEN	EPA8010	4	3	<0.5	0.8	<0.5	<0.5
	29-Oct-93	AEN	EPA8010	5	2	<0.5	<0.5	<0.5	<0.5
	29-Dec-93	AEN	EPA8010	5	3	<0.5	0.8	<0.5	<0.5
	11-Apr-94	AEN	EPA8010	4	2	<0.5	<0.5	<0.5	<0.5
	22-Jul-94	AEN	EPA8010	4	2	<0.5	<0.5	<0.5	<0.5
	04-Oct-94	AEN	EPA8010	4	3	<0.5	0.6	<0.5	<0.5
	07-Mar-95	AEN	EPA8010	3	2	<0.5	<0.5	<0.5	<0.5
	27-Apr-95	AEN	EPA8010	2	1	<0.5	<0.5	<0.5	<0.5
	17-Aug-95	AEN	EPA8010	3	2	<0.5	<0.5	<0.5	<0.5
	23-Oct-95	AEN	EPA8010	2	1	<0.5	<0.5	<0.5	<0.5
	03-Jan-96	AEN	EPA8010	2	<0.5	<0.5	<0.5	<0.5	<0.5
	25-Mar-96	AEN	EPA8010	3	1.8	<0.5	<0.5	<0.5	<0.5
	08-Jul-96	61		61					
	05-Nov-96			61					
	20-Jun-97		EPA8010	29	59	<0.5	0.8	<0.5	<0.5
	24-Sep-97		EPA8010	5.8	2.6	<0.5	<0.5	<0.5	<0.5
	12-Jun-98		EPA8010	3.9	1.8	<0.5	<0.5	<0.5	<0.5
E-12	24-Sep-92	QUA	EPA8010	10	0.7	<0.5	5	<0.5	<0.5
	22-Dec-92	QUA	EPA8010	11	2	<0.5	4	<0.5	<0.5
	13-Apr-93	QUA	EAP8010	7	1	<0.5	2	<0.5	<0.5
	26-Jul-93	AEN	EAP8010	4	0.6	<0.5	1	<0.5	0.5
	27-Oct-93	AEN	EAP8010	0.9	<0.5	<0.5	<0.5	<0.5	<0.5
	29-Dec-93	61							
	11-Apr-94	AEN	EPA8010	2	<0.5	<0.5	<0.5	<0.5	<0.5
	22-Jul-94	AEN	EPA8010	2	<0.5	<0.5	<0.5	<0.5	<0.5
	03-Oct-94	AEN	EPA8010	3	<0.5	<0.5	0.8	<0.5	<0.5
	07-Mar-95	AEN	EPA8010	2	<0.5	<0.5	<0.5	<0.5	<0.5
	27-Apr-95	AEN	EPA8010	1	<0.5	<0.5	<0.5	<0.5	<0.5
	17-Aug-95	AEN	EPA8010	2	<0.5	<0.5	<0.5	<0.5	<0.5

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Historical Groundwater Quality Data
Primary VOCs (1986-2000)
Sola Optical U.S.A., Inc., Petaluma, California

All concentrations expressed in micrograms per liter (µg/L)

Well ID	Sample Date	Lab	Method	1,1-DCE	1,1-DCA	1,2-DCA	1,1,1-TCA	TCE	Freon 113
	23-Oct-95	AEN	EPA8010	4	<0.5	<0.5	0.5	<0.5	<0.5
	03-Jan-96	AEN	EPA8010	3	2	<0.5	<0.5	<0.5	<0.5
	25-Mar-96	AEN	EPA8010	1.8	<0.5	<0.5	<0.5	<0.5	<0.5
	08-Jul-96	AEN	EPA8010	0.7	<0.5	<0.5	<0.5	<0.5	<0.5
	05-Nov-96	AEN	EPA8010	3.4	<0.5	<0.5	<0.5	<0.5	<0.5
	17-Jun-97		EPA8010	1.7	<0.5	<0.5	<0.5	<0.5	<0.5
	11-Sep-97		EPA8010	1.6	<0.5	<0.5	<0.5	<0.5	<0.5
	15-Jun-98		EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
E-13	23-Sep-92	QUA	EPA8010	3	<0.5	<0.5	2	<0.5	<0.5
	22-Dec-92	QUA	EPA8010	4	<0.5	<0.5	2	<0.5	<0.5
	13-Apr-93	61							
	26-Jul-93	AEN	EPA8010	1	<0.5	<0.5	0.5	<0.5	<0.5
	28-Oct-93	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	29-Dec-93	AEN	EPA8010	2	<0.5	<0.5	<0.5	<0.5	<0.5
	11-Apr-94	AEN	EPA8010	1	<0.5	<0.5	<0.5	<0.5	<0.5
	25-Jul-94	AEN	EPA8010	0.9	<0.5	<0.5	<0.5	<0.5	<0.5
	03-Oct-94	AEN	EPA8010	2	<0.5	<0.5	<0.5	<0.5	<0.5
	07-Mar-95	AEN	EPA8010	0.8	<0.5	<0.5	<0.5	<0.5	<0.5
	26-Apr-95	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	17-Aug-95	AEN	EPA8010	1	<0.5	<0.5	<0.5	<0.5	<0.5
	23-Oct-95	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	04-Jan-96	AEN	EPA8010	0.6	<0.5	<0.5	<0.5	<0.5	<0.5
	25-Mar-96	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	08-Jul-96	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	04-Nov-96	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	17-Jun-97		EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	11-Sep-97		EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	12-Jun-98		EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
SOLA CITY	17-Apr-91	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
PZ-1	18-May-89	MED	EPA 601	4	16	<0.5	0.8	<0.5	<0.5
	10-Jun-98		EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
PZ-2	18-May-89	MED	EPA 601	21	7	<0.5	6	<0.5	<0.5
	9-Jun-98		EPA8010	1.4	3.7	<0.5	<0.5	<0.5	<0.5
PZ-3	18-May-89	MED	EPA 601	3	<0.5	<0.5	<0.5	<0.5	<0.5
	11-Jun-98		EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
PZ-4	9-Jun-98		EPA8010	4.1	4.1	<0.5	<0.5	<0.5	<0.5
PZ-5	16-May-89	MED	EPA 601	18	2	<0.5	0.5	<0.5	<0.5
	9-Jun-98		EPA8010	1	1.3	<0.5	<0.5	<0.5	<0.5
duplicate	9-Jun-98		EPA8010	1.1	1.4	<0.5	<0.5	<0.5	<0.5
PZ-6	9-Jun-98		EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
PZ-7	11-Jun-98		EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
PZ-8	16-May-89	MED	EPA 601	14	0.5	<0.5	7	<0.5	<0.5
	9-Jun-98		EPA8010	4.3	3.1	<0.5	<0.5	<0.5	<0.5
PZ-9	9-Jun-98		EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
PZ-10	16-May-89	MED	EPA 601	7	<0.5	<0.5	6	<0.5	<0.5
	10-Jun-98		EPA8010	0.6	<0.5	<0.5	<0.5	<0.5	<0.5

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Historical Groundwater Quality Data
Primary VOCs (1986-2000)
Sola Optical U.S.A., Inc., Petaluma, California

All concentrations expressed in micrograms per liter (µg/L)

Well ID	Sample Date	Lab	Method	1,1-DCE	1,1-DCA	1,2-DCA	1,1,1-TCA	TCE	Freon 113
PZ-11	10-Jun-98		EPA8010	2.7	1.2	<0.5	<0.5	<0.5	<0.5
PZ-12	15-Jun-98		EPZ8010	0.6	<0.5	<0.5	<0.5	<0.5	<0.5
FIELD BLANKS									
	7-Aug-87	MED	EPA 624	<5	<5	<5	<5	<5	NR
[15]	12-Aug-87	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	NR
	14-Aug-87	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	NR
	18-Aug-87	MED	EPA 601	<0.5	0.8	<0.5	<0.5	<0.5	NR
W29	13-Jan-88	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	NR
LF-17	12-Jan-88	MED	EPA 601	0.9	<0.5	<0.5	<0.5	<0.5	NR
W14	12-Jan-88	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
E-1	29-Apr-88	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
LF-4	25-May-88	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-14	2-Jun-88	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
E-1	28-Sep-88	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
LF-9	28-Sep-88	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W28	30-Sep-88	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
E-9	30-Sep-88	MED	EPA 601	8	<0.5	<0.5	6	<0.5	<1
LF-16	18-Oct-88	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
LF-13	10-May-89	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W27	17-May-89	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W15B	19-May-89	MED	EPA 601	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W33[37]	20-Sep-89	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
LF-12[38]	18-Sep-89	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
LF-16[39]	18-Sep-89	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
LF-18	19-Jan-90	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W14	22-Jan-90	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
LF-24	19-Apr-90	MED	EPA 8240	<5	<5	<5	<5	<5	NR
LF-28	20-Apr-90	MED	EPA 8240	<5	<5	<5	<5	<5	NR
LF-23	23-Apr-90	MED	EPA 8240	<5	<5	<5	<5	<5	NR
LF-25	23-Apr-90	MED	EPA 8240	<5	<5	<5	<5	<5	NR
LF-26	23-Apr-90	MED	EPA 8240	<5	<5	<5	<5	<5	NR
LF-21	21-Apr-90	MED	EPA 8240	<5	<5	<5	<5	<5	NR
LF-12	27-Apr-90	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
LF-23	30-Apr-90	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
LF-27	3-May-90	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
LF-7	4-May-90	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
LF-3	31-Aug-90	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
LF-4	30-Aug-90	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
LF-6	10-Sep-90	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
LF-17	29-Aug-90	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
LF-16	20-Dec-90	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
LF-7-FB	16-Apr-91	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
LF-23-FB	17-Apr-91	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
LF-22-FB	18-Apr-91	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
LF-19-FB	24-Apr-91	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
LF-9-FB	14-Aug-91	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
LF-27A-FB	15-Aug-91	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
LF-16-FB	16-Aug-91	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
LF-28-FB	19-Aug-91	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
LF-3-FB	20-Aug-91	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
LF-13-FB	25-Jun-92	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
E-11-FB	26-Jun-92	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W33-FB	22-Sep-92	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Table 1
Historical Groundwater Quality Data
Primary VOCs (1986-2000)
Sola Optical U.S.A., Inc., Petaluma, California

All concentrations expressed in micrograms per liter (µg/L)

Well ID	Sample Date	Lab	Method	1,1-DCE	1,1-DCA	1,2-DCA	1,1,1-TCA	TCE	Freon 113
LF-15-FB	23-Sep-92	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
LF-2-FB	24-Sep-92	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-14-FB	22-Dec-92	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
LF-25-FB	13-Apr-93	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-13-FB	15-Apr-93	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-25-FB	27-Jul-93	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
LF-14-FB	26-Oct-93	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
LF-25-FB	27-Oct-93	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-33-FB	28-Oct-93	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
LF-2-FB	29-Dec-93	AEN	EPA8010	<1	<0.5	<0.5	<0.5	<0.5	<0.5
W-26-FB	30-Dec-93	AEN	EPA8010	<1	<0.5	<0.5	<0.5	<0.5	<0.5
LF-26-FB	12-Apr-94	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-28-FB	25-Jul-94	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
LF-15-FB	05-Oct-94	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
LF-22-FB	07-Mar-95	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-13-FB	26-Apr-95	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-26-FB	25-Aug-95	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
LF-26-FB	25-Oct-95	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-26-FB	26-Oct-95	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-13-FB	27-Oct-95	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
LF-22-FB	05-Jan-96	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
LF-26-FB	26-Mar-96	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-25-FB	27-Mar-96	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-13-FB	08-Nov-96	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-14-FB	11-Nov-96	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-24-FB	05-Nov-96	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
LF-4-FB	13-Nov-96	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-33-FB	16-Jun-97		EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
LF-16-FB	17-Jun-97		EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
LF-3-FB	18-Jun-97		EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
LF-25-FB	19-Jun-97		EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-28-FB	20-Jun-97		EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W33-FB	09-Sep-97		EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
LF-6-FB	10-Sep-97		EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-28-FB	09-Jun-98		EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
LF-16-FB	10-Jun-98		EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
W-25-FB	16-Oct-98	(63)	EPA8260A(8010)	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0
W-14-FB	17-Mar-99		EPA8260A(8010)	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0
W-19-FB	23-Sep-99		EPA8260A(8010)	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
W-27-FB	12-Apr-00		EPA8260B	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
LF-26FB	8-Sep-00	C&T	EPA8260B	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
TRIP BLANKS									
TB	17-Jan-90	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	15-Jun-90	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	28-Aug-90	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	31-Aug-90	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	10-Sep-90	MED	EPA 8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	17-Apr-91	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	18-Apr-91	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	26-Apr-91	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	14-Aug-91	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	15-Aug-91	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	20-Aug-91	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	23-Jun-92	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	17-Sep-92	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Table 1
Historical Groundwater Quality Data
Primary VOCs (1986-2000)
Sola Optical U.S.A., Inc., Petaluma, California

All concentrations expressed in micrograms per liter (µg/L)

Well ID	Sample Date	Lab	Method	1,1-DCE	1,1-DCA	1,2-DCA	1,1,1-TCA	TCE	Freon 113
	17-Sep-92	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	18-Dec-92	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	18-Dec-92	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	08-Apr-93	QUA	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	27-Jul-93	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	21-Oct-93	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	23-Dec-93	AEN	EPA8010	<1	<0.5	<0.5	<0.5	<0.5	<0.5
	07-Apr-94	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	07-Apr-94	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	08-Jul-94	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	20-Jul-94	AEN	EPA8010	<0.5	<0.5	0.7	<0.5	<0.5	<0.5
	04-Oct-94	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	07-Oct-94	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	07-Mar-95	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	27-Apr-95	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	28-Apr-95	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	18-Aug-95	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	27-Oct-95	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	02-Jan-96	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	25-Mar-96	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	27-Mar-96	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	08-Jul-96	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	12-Jul-96	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	01-Nov-96	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	12-Nov-96	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	13-Nov-96	AEN	EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	17-Jun-97		EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	20-Jun-97		EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	09-Sep-97		EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	10-Sep-97		EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	09-Jun-98		EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	12-Jun-98		EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	15-Jun-98		EPA8010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	17-Mar-99		EPA8260A(8010)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Data updated by SXS. Proofed by LPL. QA/QC by SXS.

Notes:

1,1-DCE = 1,1-Dichloroethene
1,1-DCA = 1,1-Dichloroethane
1,2-DCA = 1,2-Dichloroethane
1,1,1-TCA = 1,1,1-Trichloroethane
TCE = Trichloroethene

* = Samples preserved with HCL
NR = Not Reported
NA = Not Analyzed

Analytical Laboratories:

M-T = Multi-Tech Laboratories, Inc., Santa Rosa, California.
CAL = California Analytical Laboratories, Inc., Sacramento, California.
B&C = Brown and Caldwell Laboratories, Emeryville, California.
MED = Med-Tox Associates, Inc., Pleasant Hill, California.
FIR = Fireman's Fund Environmental Laboratory, Petaluma, California.
NET = National Environmental Testing, Inc., Santa Rosa, California.
EPA = U.S. Environmental Protection Agency. Split sample collected by EPA and analyzed by EPA contract laboratory.

Table 1
Historical Groundwater Quality Data
Primary VOCs (1986-2000)
Sola Optical U.S.A., Inc., Petaluma, California
All concentrations expressed in micrograms per liter (µg/L)

Well ID	Sample Date	Lab	Method	1,1-DCE	1,1-DCA	1,2-DCA	1,1,1-TCA	TCE	Freon 113

AEN = American Environmental Network (formerly Quanteq).
QUA = Quanteq Labs (formerly Med-Tox, Pleasant Hill, California).
CLI = Chromalab, Inc.

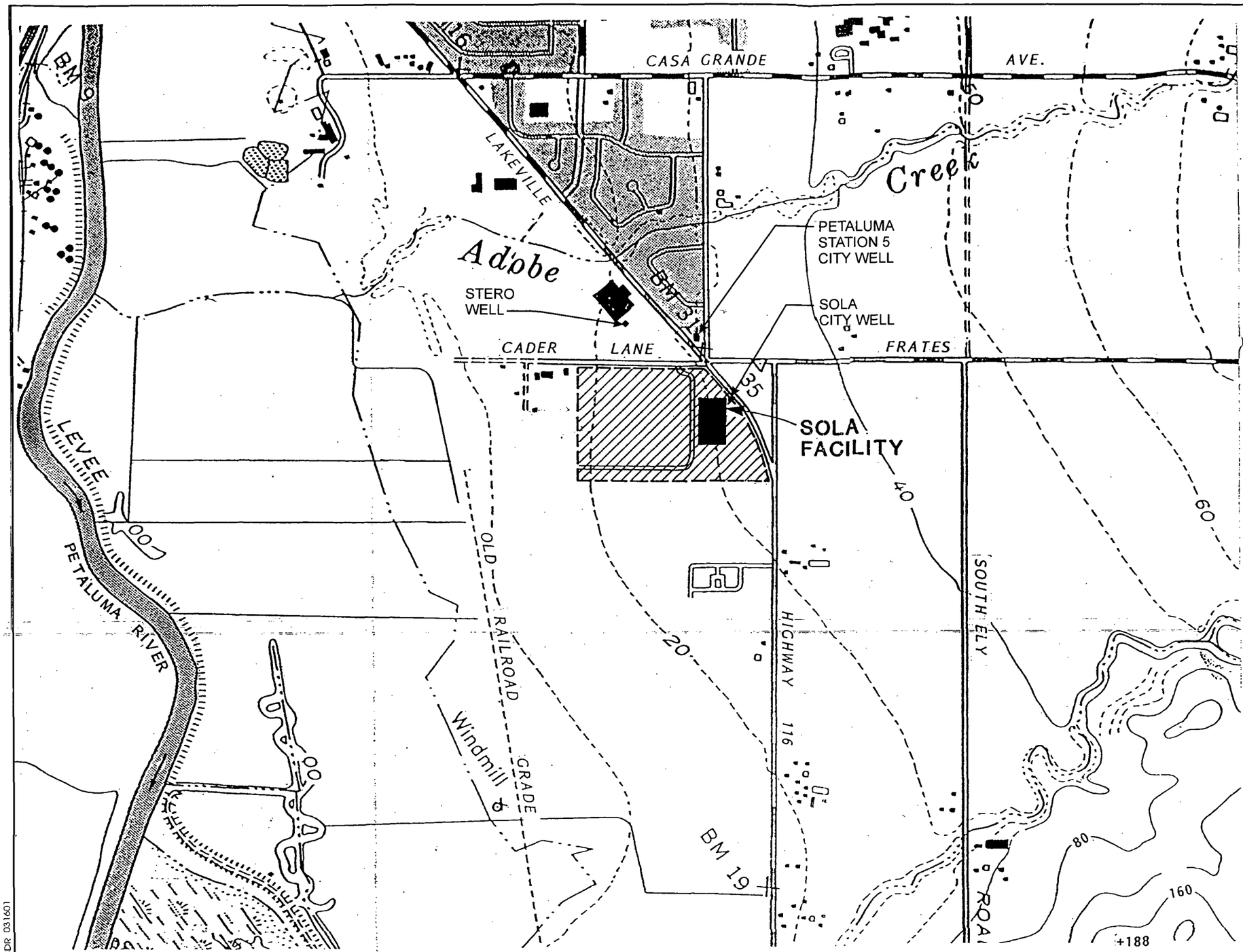
1 1,1,2-Trichlorethane and Toluene detected at concentrations below the reporting limits.
2 Toluene detected at a concentration below the reporting limit.
3 1,1,2-Trichloroethane detected at a concentration below the reporting limit.
4 Chloroethane and Methylene Chloride detected at concentrations below the reporting limits.
5 Toluene detected at a concentration below the reporting limit.
6 Chloroform detected at 0.002 ppm, Bromodichloromethane detected at 0.0025 ppm, and Dibromochloromethane detected at 0.0022 ppm.
7 Chloroform detected at 0.001 ppm and Bromodichloromethane detected at 0.0009 ppm.
8 Samples were collected by Multi-Tech personnel for the City of Petaluma.
9 Dibromochloromethane detected at 0.001 ppm.
10 Dibromochloromethane detected at 0.001 ppm.
11 Tetrachloroethene detected at 0.001 ppm.
12 Dibromochloromethane detected at 0.0009 ppm.
13 Bromodichloromethane detected at 0.002 ppm, Chloroform detected at 0.002 ppm, Bromoform detected at 0.002 ppm, Dibromochloromethane detected at 0.002 ppm, Tetrachloroethene detected at 0.002 ppm, and Trans-1,2-Dichloroethene detected at 0.0007 ppm.
14 Tetrachloroethene detected at 0.001 ppm.
15 Tetrachloroethene detected at 0.0007 ppm.
16 Tetrachloroethene detected at 0.0007 ppm.
17 Tetrachloroethene detected at 0.0006 ppm.
18 Tetrachloroethene detected at 0.0005 ppm.
19 Chloroform detected at 0.0005 ppm.
20 Trans-1,2-Dichloroethene detected at 0.002 ppm.
21 Trans-1,2-Dichloroethene detected at 0.002 ppm.
22 1,1,2-Trichloroethane detected at 0.001 ppm.
23 Chlorobenzene detected at 0.002 ppm and 1,1,2-Trichloroethane detected at 0.0008 ppm.
24 1,2-Dichloropropane detected at 0.0006 ppm.
25 1,1,2-Trichloroethane detected at 0.001 ppm.
26 1,1,2-Trichloroethane detected at 0.002 ppm.
27 Dibromochloromethane detected at 0.001 ppm and Tetrachloroethene detected at 0.0008 ppm.
28 Bromodichloromethane detected at 0.005 ppm, Bromoform detected at 0.0005 ppm, Chloroform detected at 0.005 ppm and Dibromochloroethane detected at 0.004 ppm.
29 Dichlorodifluoromethane detected at 0.0007 ppm.
30 Bromoform detected at 0.002 ppm.
31 Trichlorofluromethane detected at 0.005 ppm.
32 Chloroform detected at 0.001 ppm, Tetrachloroethene detected at 0.002 ppm, 1,1,2-Trichloroethane detected at 0.002 ppm and Trichlorofluormethane detected at 0.003 ppm.
33 Chloroform detected at 0.001 ppm, Tetrachloroethene detected at 0.002 ppm, 1,1,2-Trichloroethane detected at 0.002 ppm and Trichlorofluormethane detected at 0.003 ppm.
34 Chloroform detected at 0.001 ppm, Tetrachloroethene detected at 0.002 ppm, 1,1,2-Trichloroethane detected at 0.002 ppm and Trichlorofluormethane detected at 0.003 ppm.
35 Trichlorofluormethane detected at 0.003 ppm.
36 Trichlorofluormethane detected at 0.003 ppm.
37 Chloroform detected at 0.002 ppm.
38 Chloroform detected at 0.002 ppm.
39 Chloroform detected at 0.002 ppm.
40 Trichlorofluoromethane detected at 0.003 ppm, chlorofluoromethane detected at 0.003 ppm.
41 Trichlorofluoromethane detected at 0.001 ppm, chlorofluoromethane detected at 0.001 ppm.
42 Chloroform detected at 0.0006 ppm, Methylene Chloride detected at 0.0008 ppm.
43 Trichlorofluoromethane detected at 0.001 ppm.
44 Bromodichloromethane detected at 0.006 ppm, Bromoform detected at 0.002 ppm, Chloroform detected at 0.003 ppm and Dibromochloromethane detected at 0.007 ppm.
45 Chloroform, 1,1,2-TCA, PCE, and Freon 11 detected at 0.007, 0.003, 0.002, and 0.004 ppm, respectively.
46 Chloroform, 1,1,2-TCA, PCE, and Freon 11 detected at 0.001, 0.003, 0.002, and 0.003 ppm, respectively.

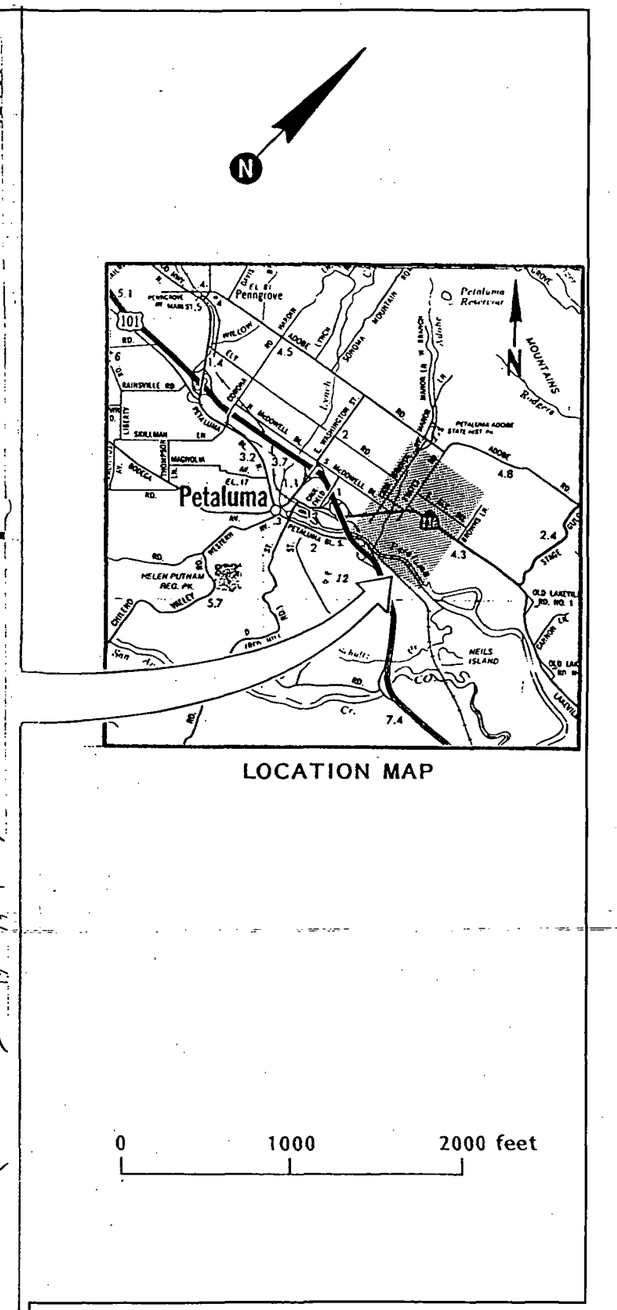
Table 1
Historical Groundwater Quality Data
Primary VOCs (1986-2000)
Sola Optical U.S.A., Inc., Petaluma, California
All concentrations expressed in micrograms per liter (µg/L)

Well ID	Sample Date	Lab	Method	1,1-DCE	1,1-DCA	1,2-DCA	1,1,1-TCA	TCE	Freon 113

47 Freon 11 detected at 0.009 ppm.
48 Freon 11 detected at 0.0009 ppm.
49 Freon 11 detected at 0.001 ppm.
50 Freon 11 detected at 0.0007 ppm.
51 Chloroform detected at 0.0009 ppm, PCE detected at 0.001 ppm, 1,1,2 TCA detected at 0.002 ppm, and Freon 11 detected at 0.002 ppm.
52 Freon 11 detected at 0.0007 ppm.
53 Methylene Chloride detected at 0.0006 ppm.
54 Methylene Chloride detected at 0.0006 ppm.
55 Toluene detected at 0.003 ppm.
56 Toluene detected at 0.003 ppm.
57 Toluene detected at 0.017 ppm.
58 Methylene Chloride detected at 0.0051 ppm.
59 PCE detected at 0.0009 ppm, 1,1,2 TCA detected at 0.0002 ppm.
60 PCE detected at 0.0008 ppm, 1,1,2 TCA detected at 0.0007 ppm.
61 Extraction wells were inoperative due to various problems and consequently, were not sampled.
62 This sample was inadvertently spiked by the laboratory, invalidating the sample.
63 Chloroform detected at 1.7 µg/l
64 Sampled by PES Environmental.

FIGURES





SOURCE: U.S. Geological Survey 7.5 minute
Petaluma River quadrangle,
photo revised 1980.

G:\19545V001.CDR 031601

Site and Vicinity Map

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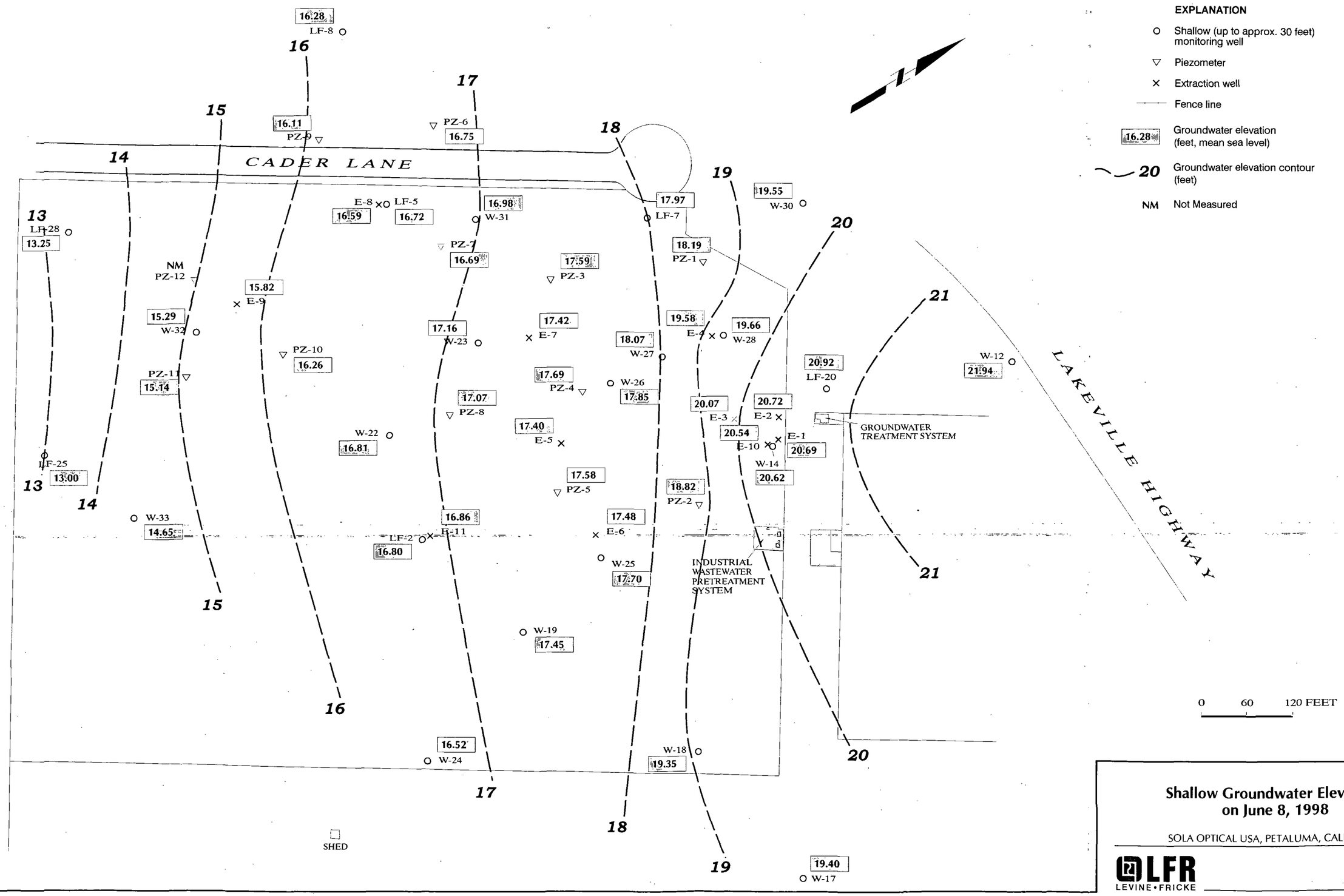
Figure 1



Shallow Groundwater Elevations on June 8, 1998

SOLA OPTICAL USA, PETALUMA, CALIFORNIA

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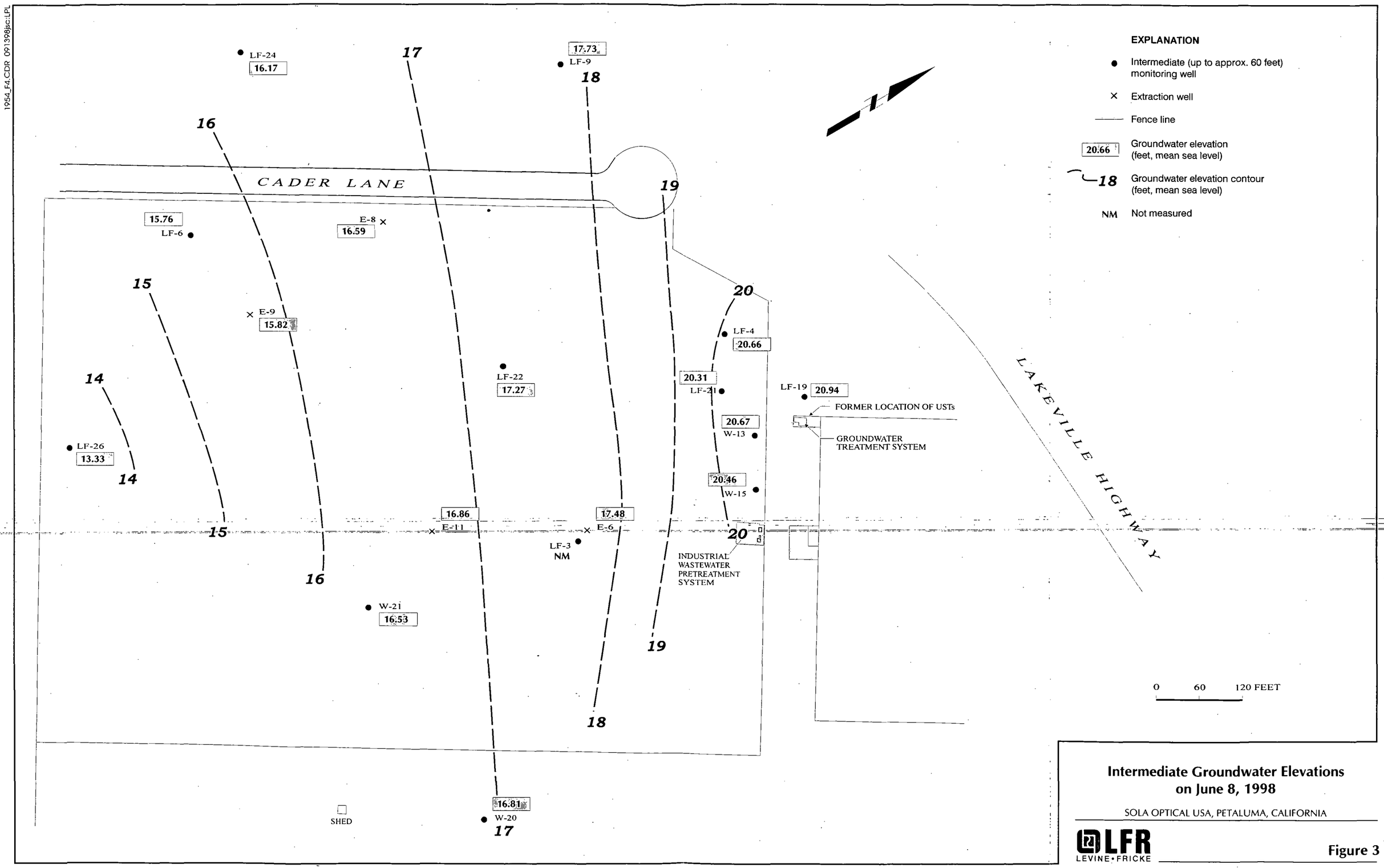
Figure 2

1954_F3.CDR 091398jsc:LPL

1954B008.LPL:JSM 090996

1954_F4.CDR 091398jsc:LPL



Intermediate Groundwater Elevations on June 8, 1998

SOLA OPTICAL USA, PETALUMA, CALIFORNIA

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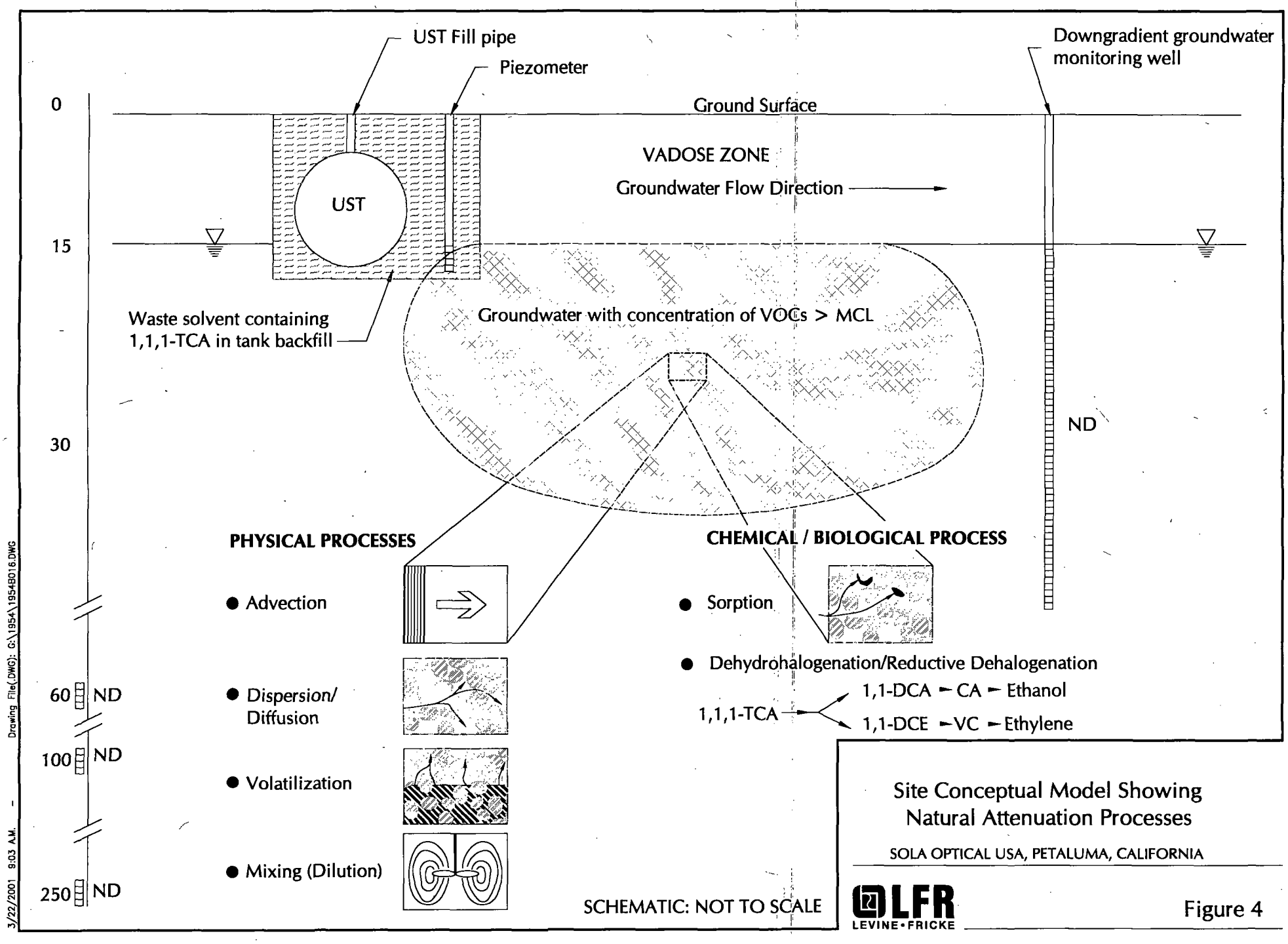
Figure 3



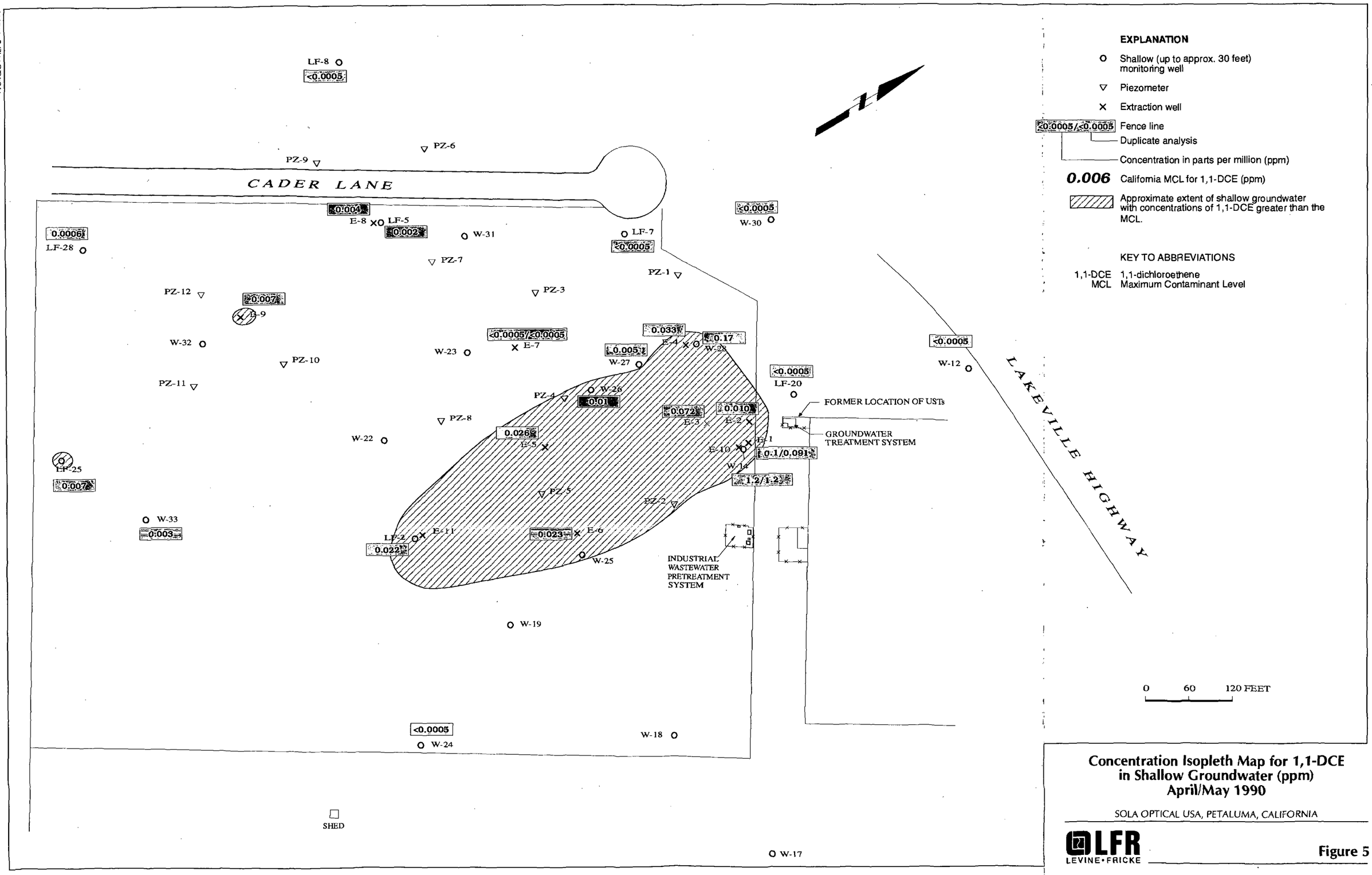
Site Conceptual Model Showing Natural Attenuation Processes

SOLA OPTICAL USA, PETALUMA, CALIFORNIA

Figure 4

Drawing File(.DWG): G:\1954\1954B016.DWG 3/22/2001 9:03 A.M.

1954GC11.LPL 112597



Concentration Isopleth Map for 1,1-DCE in Shallow Groundwater (ppm) April/May 1990

SOLA OPTICAL USA, PETALUMA, CALIFORNIA

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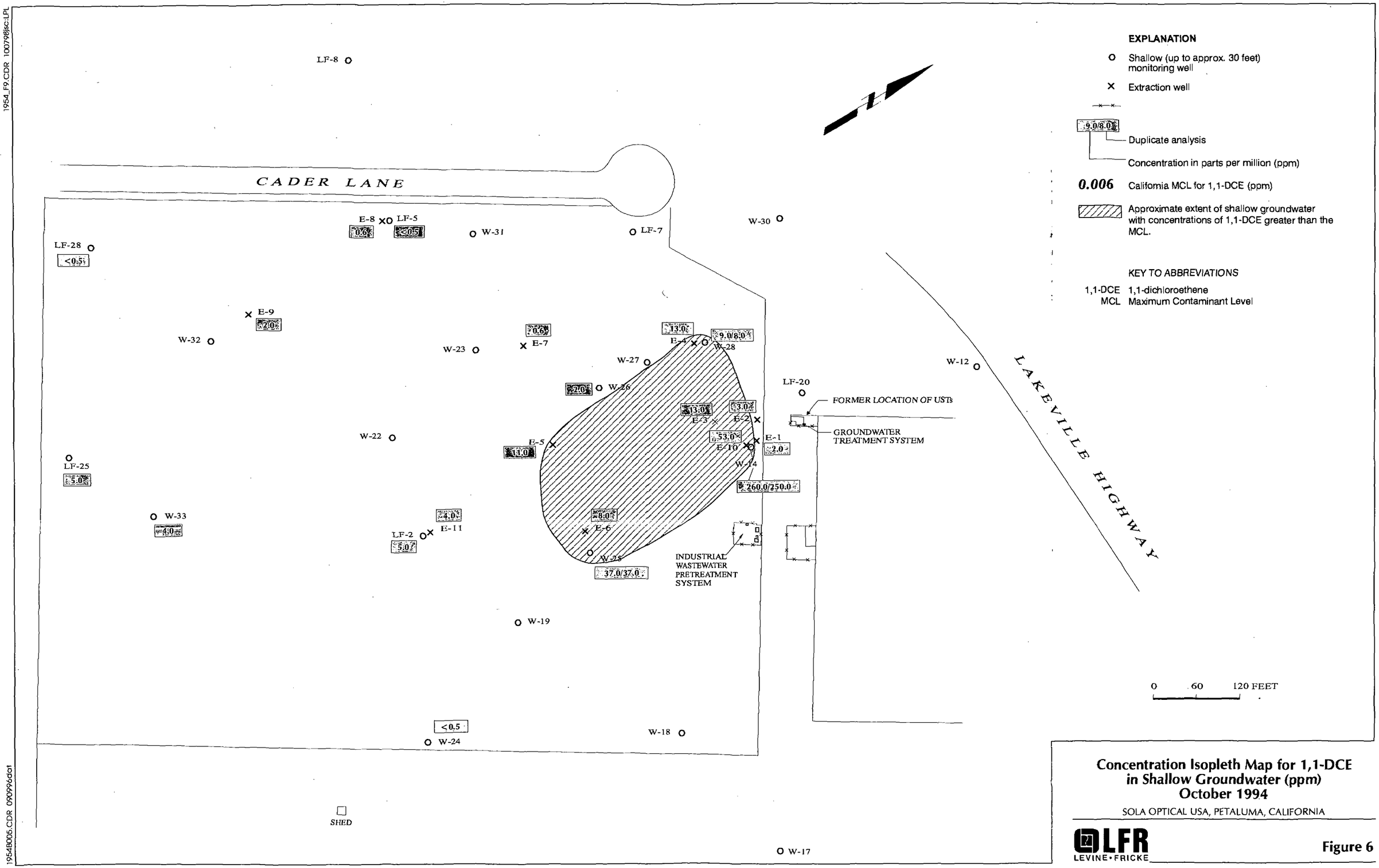
Figure 5

1954_F9.CDR 100798jsc:LPL



Concentration Isopleth Map for 1,1-DCE in Shallow Groundwater (ppm)
October 1994

SOLA OPTICAL USA, PETALUMA, CALIFORNIA

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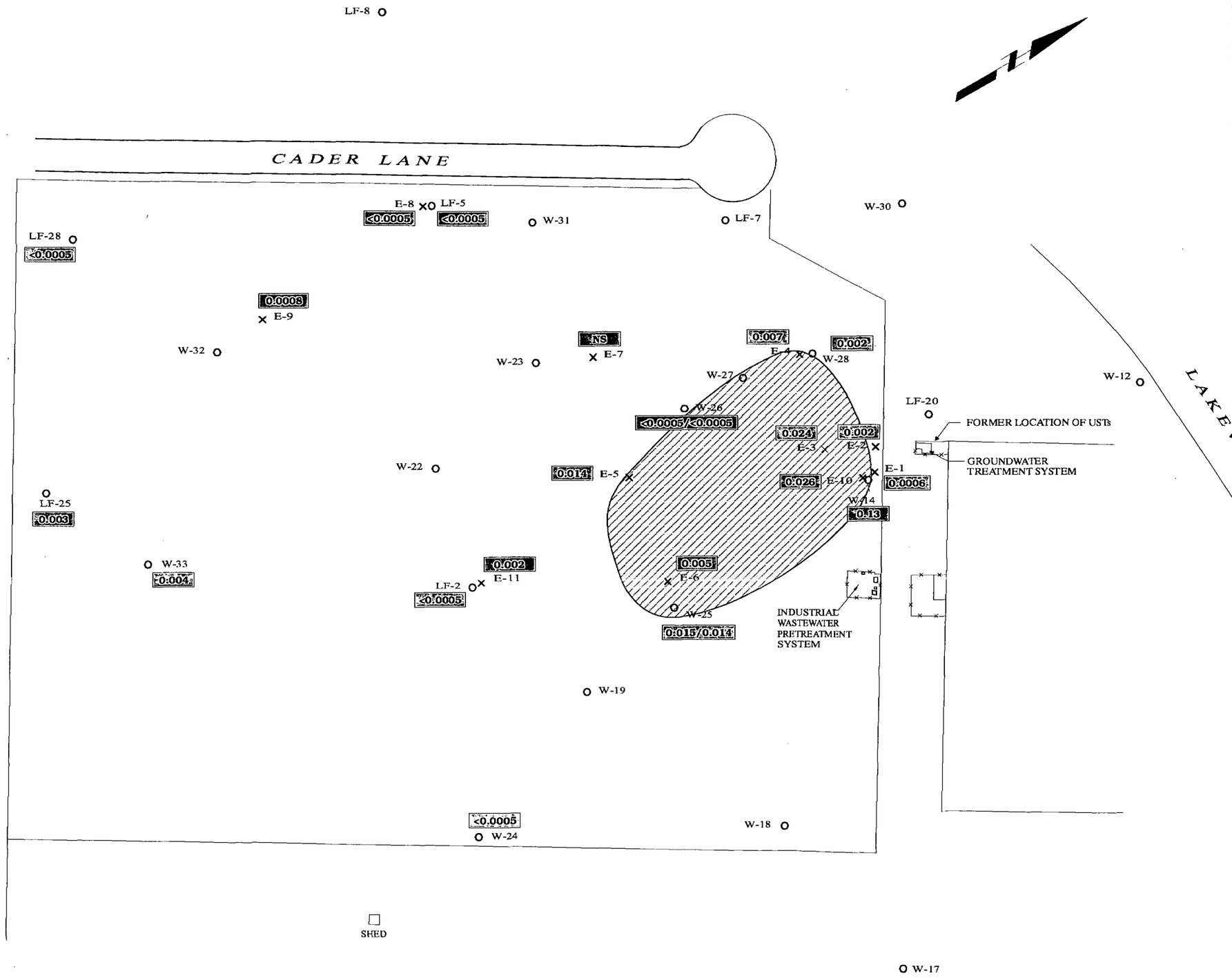
Figure 6

19548005.CDR 090996dat

1954AC01.CDR 120396jsm



EXPLANATION

- ○ Shallow (up to approx. 30 feet) monitoring well
- × Extraction well
- Fence line
- 0.015/0.014 — Duplicate analysis; Concentration in parts per million (ppm)
- NS — Not sampled
- **0.006** California MCL for 1,1-DCE (ppm)
- Approximate extent of shallow groundwater with concentrations of 1,1-DCE greater than the MCL.

KEY TO ABBREVIATIONS

1,1-DCE 1,1-dichloroethene
MCL Maximum Contaminant Level

0 60 120 FEET

Concentration Isopleth Map for 1,1-DCE in Shallow Groundwater (ppm)
October 1995

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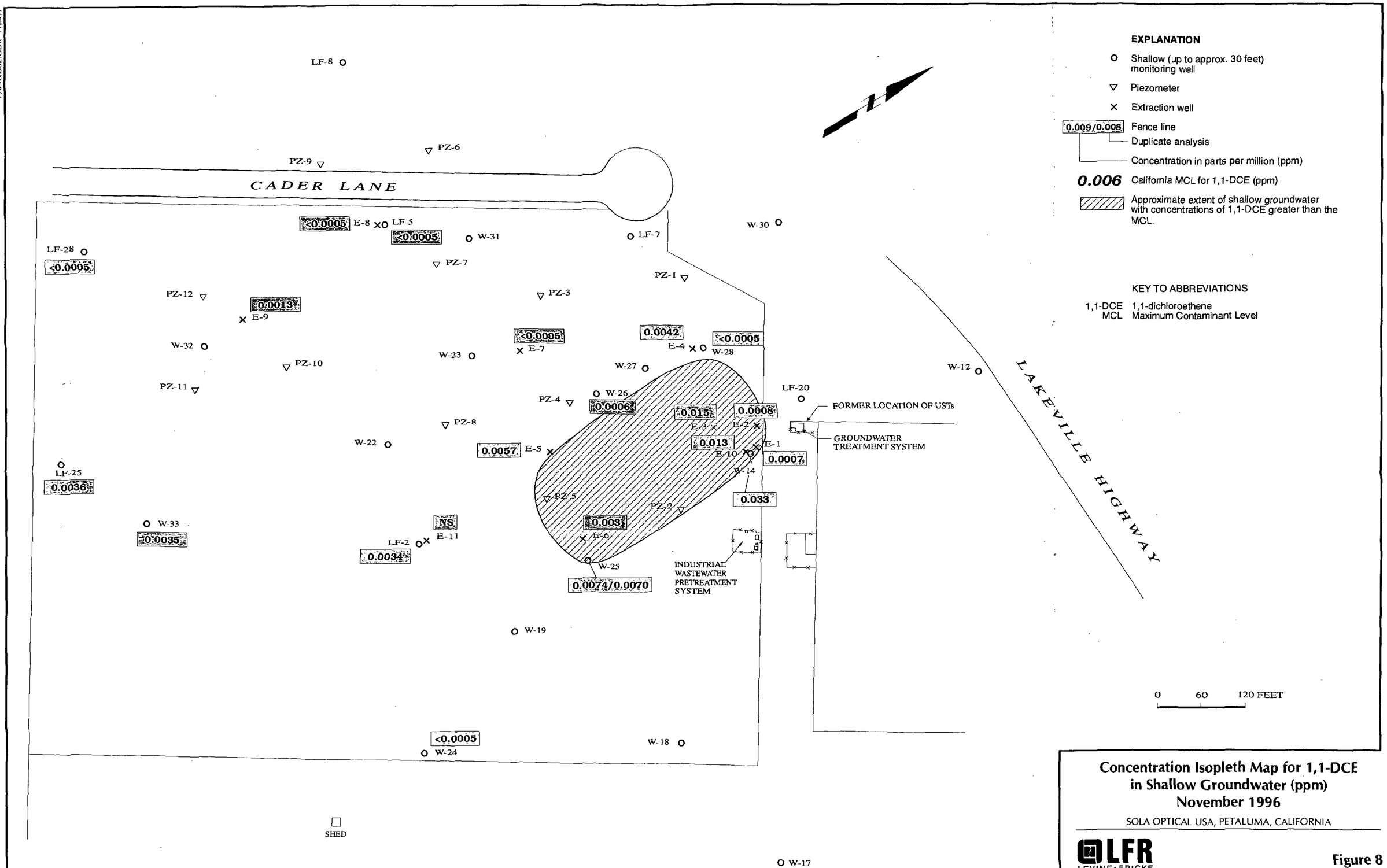
Figure 7

1954GC02.CDR 112597



Concentration Isopleth Map for 1,1-DCE in Shallow Groundwater (ppm)
November 1996

SOLA OPTICAL USA, PETALUMA, CALIFORNIA

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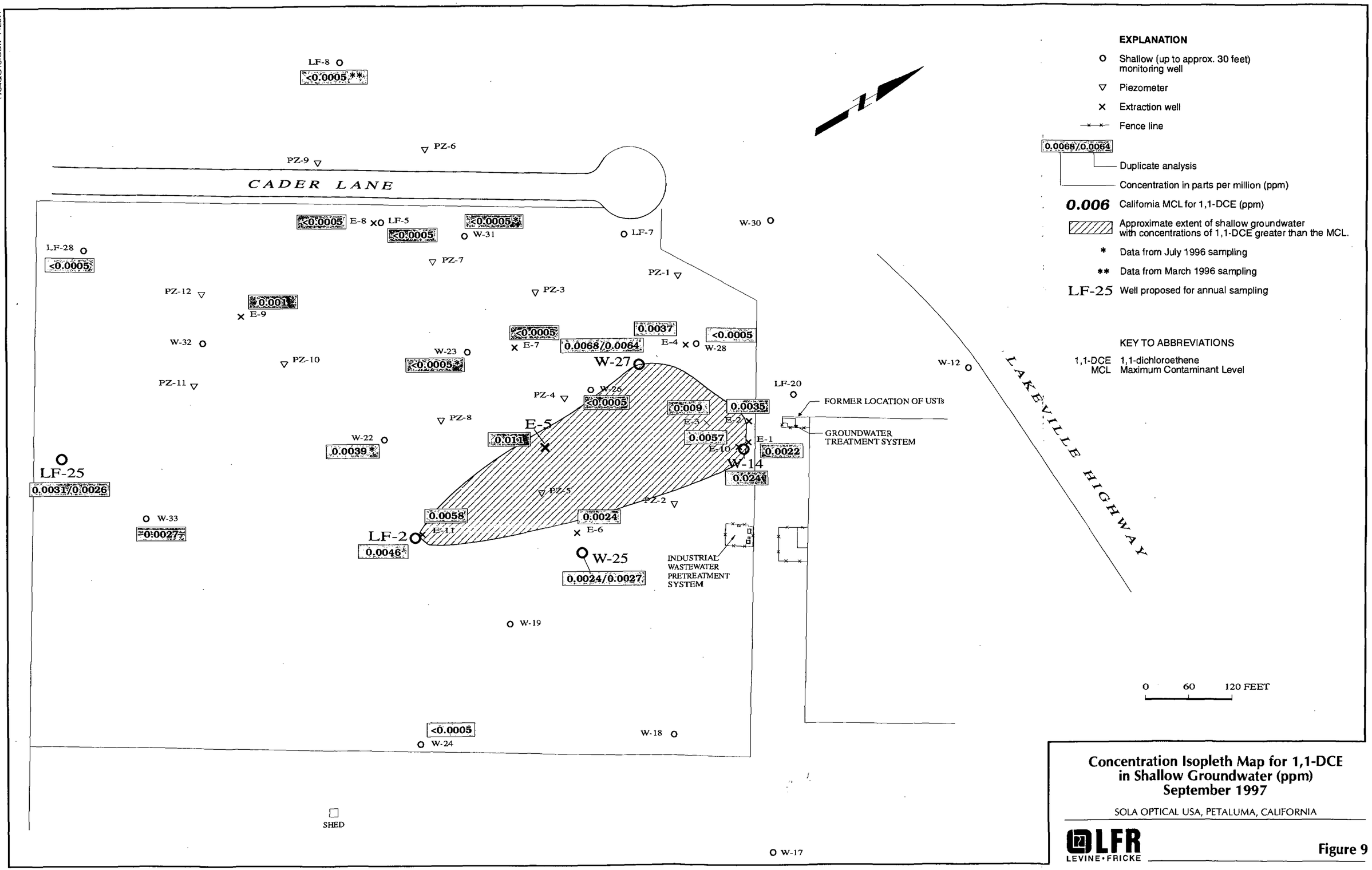
Figure 8

1954QC18.CDR 112597



Concentration Isopleth Map for 1,1-DCE in Shallow Groundwater (ppm) September 1997

SOLA OPTICAL USA, PETALUMA, CALIFORNIA

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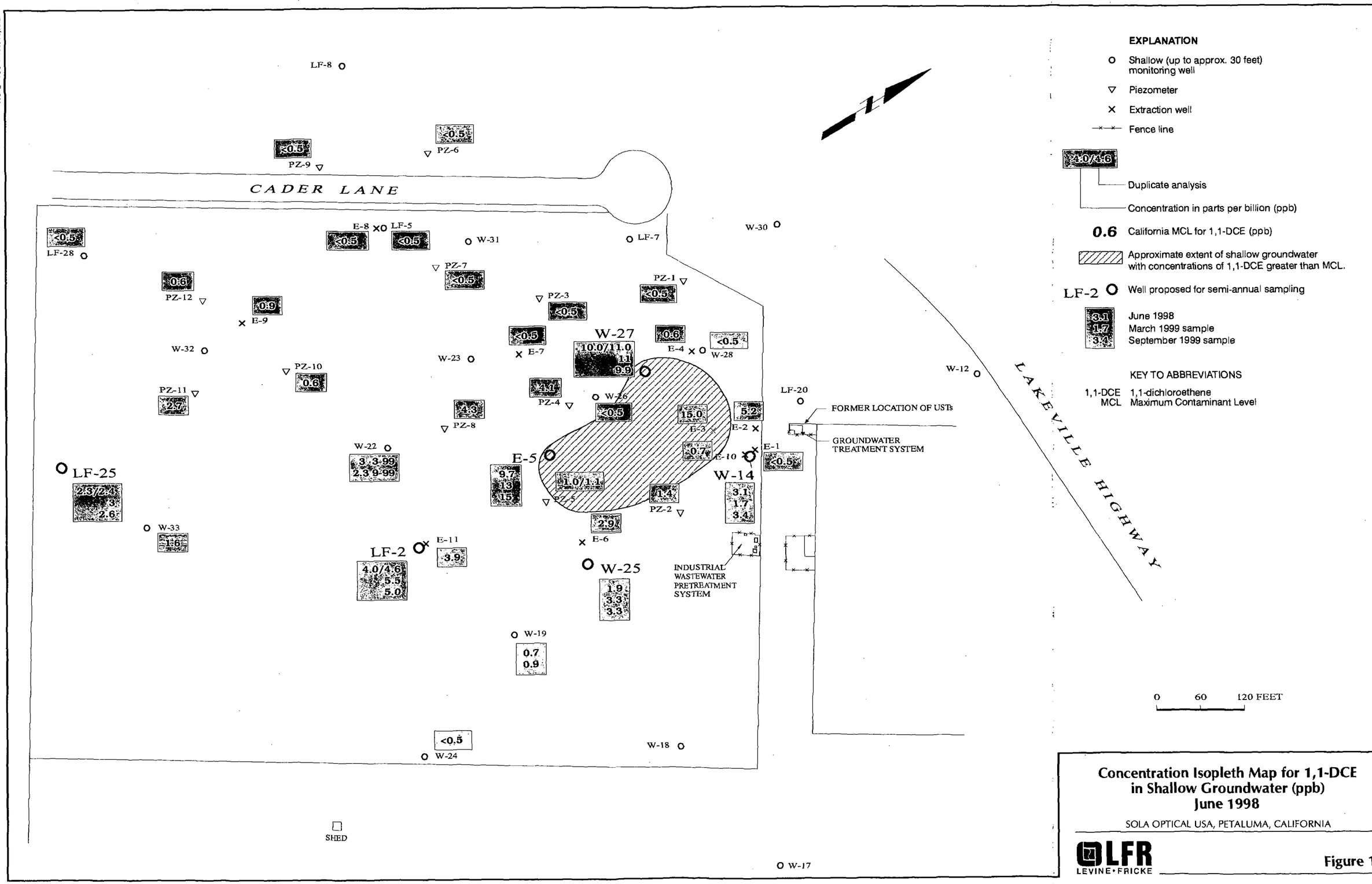
Figure 9

1954_F7.CDR 100798sc:LPL



Concentration Isopleth Map for 1,1-DCE in Shallow Groundwater (ppb)
June 1998

SOLA OPTICAL USA, PETALUMA, CALIFORNIA

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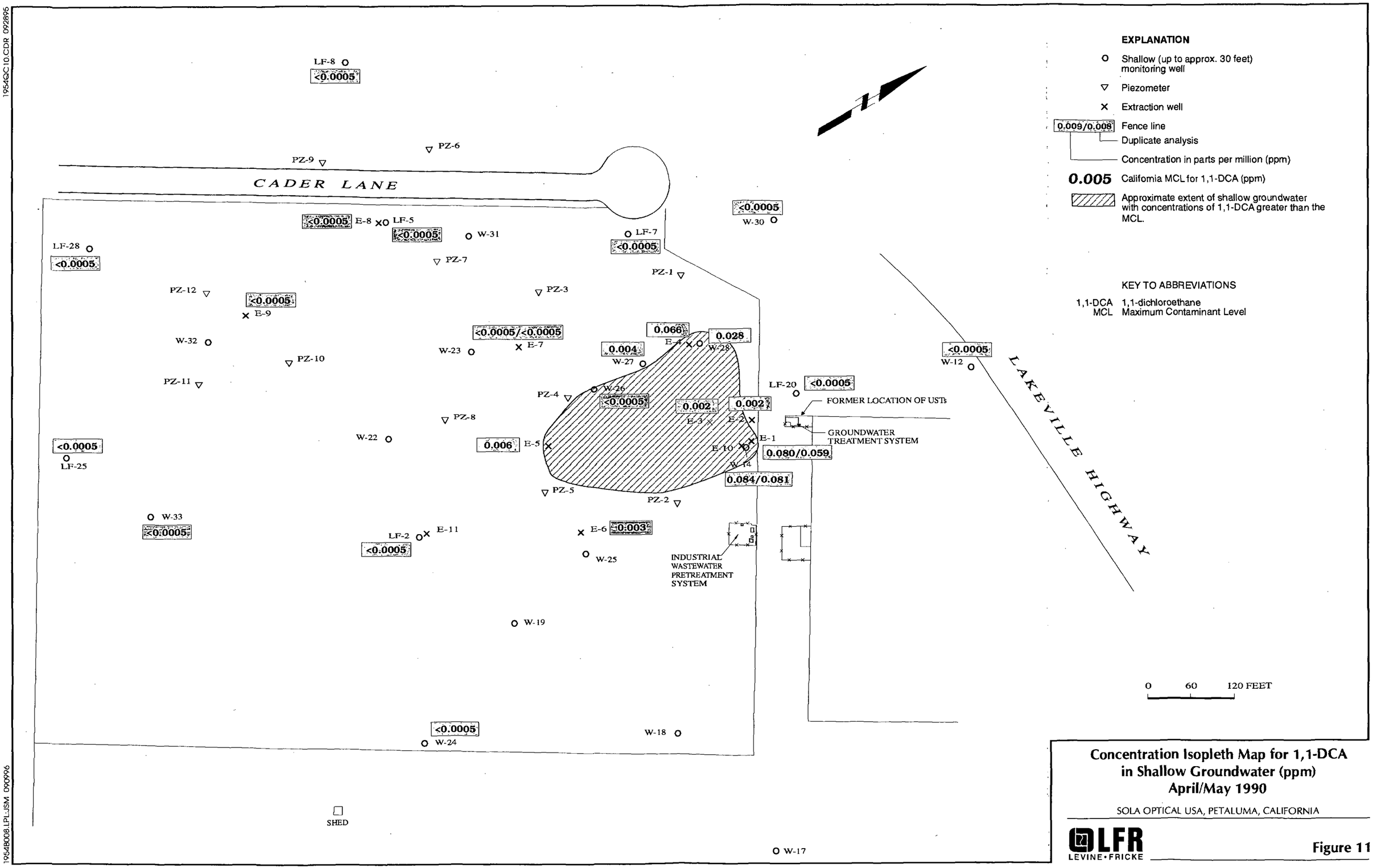
Figure 10

1954GC10.CDR 092895



Concentration Isopleth Map for 1,1-DCA in Shallow Groundwater (ppm) April/May 1990

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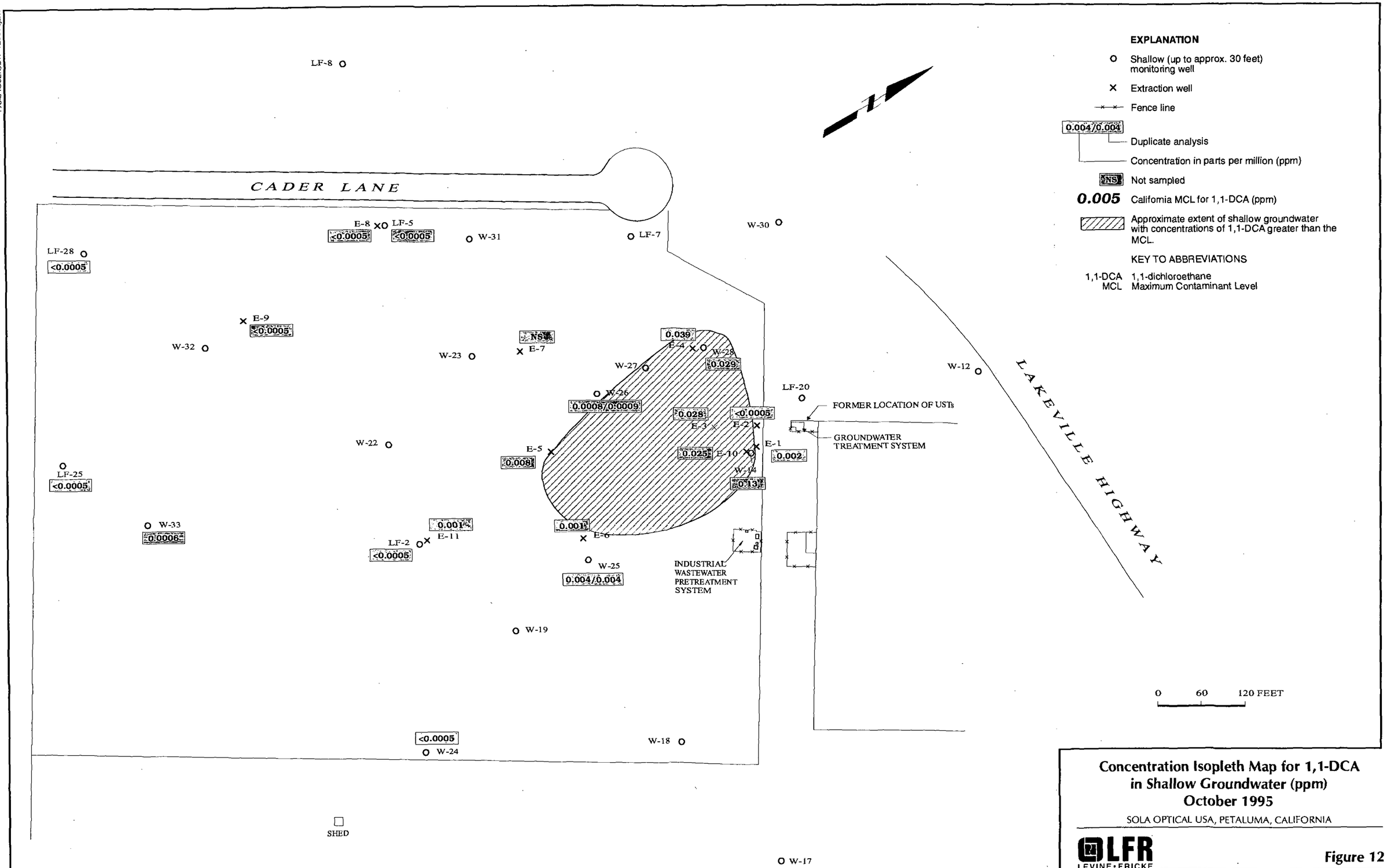
Figure 11

1954B008.LPL.JSM 090996

1954AC02.CDR 120396jsm



Concentration Isopleth Map for 1,1-DCA in Shallow Groundwater (ppm)
October 1995

SOLA OPTICAL USA, PETALUMA, CALIFORNIA

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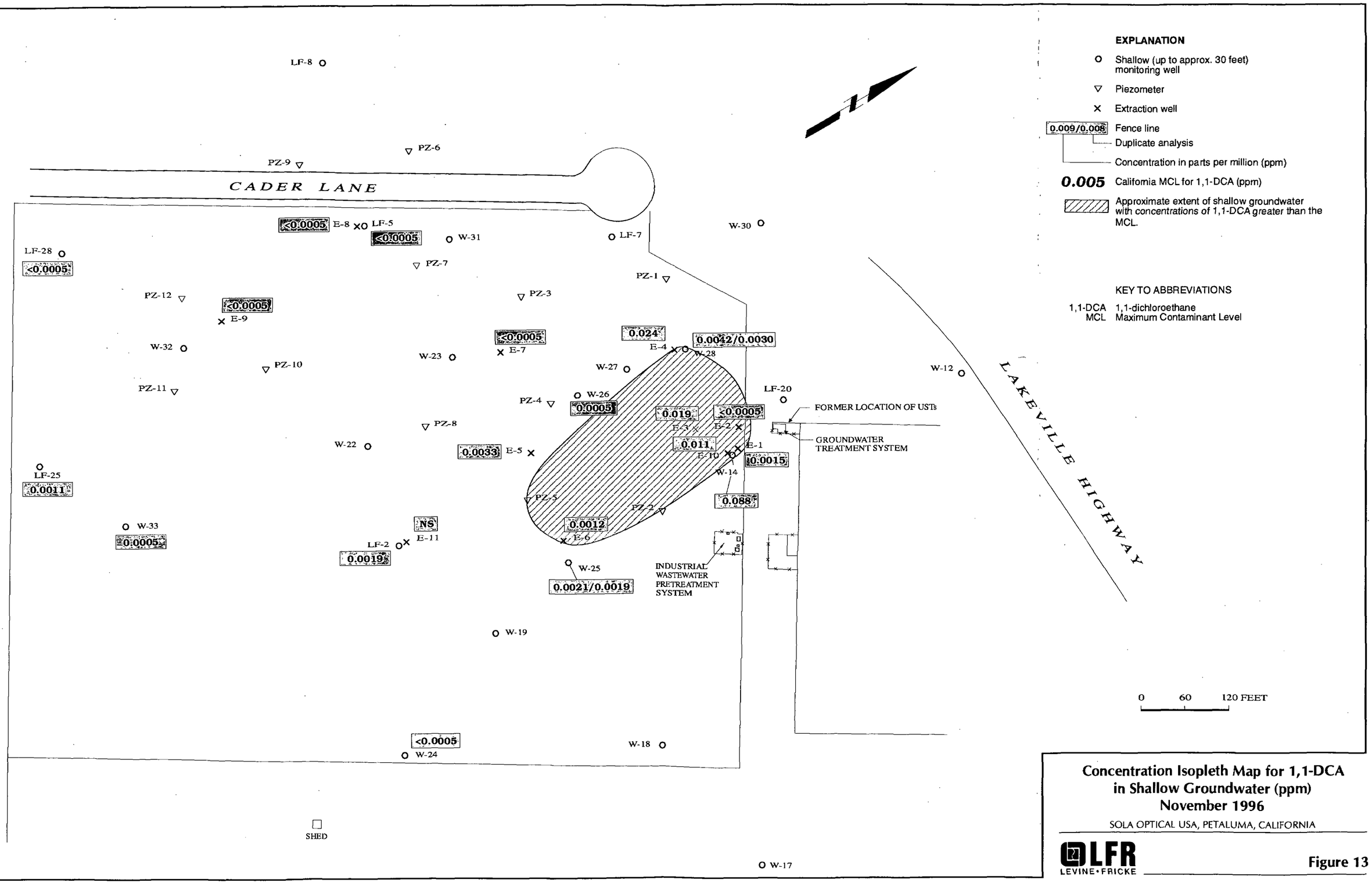
Figure 12

1954GC07.CDR 120396jsm



Concentration Isopleth Map for 1,1-DCA in Shallow Groundwater (ppm)
November 1996

SOLA OPTICAL USA, PETALUMA, CALIFORNIA

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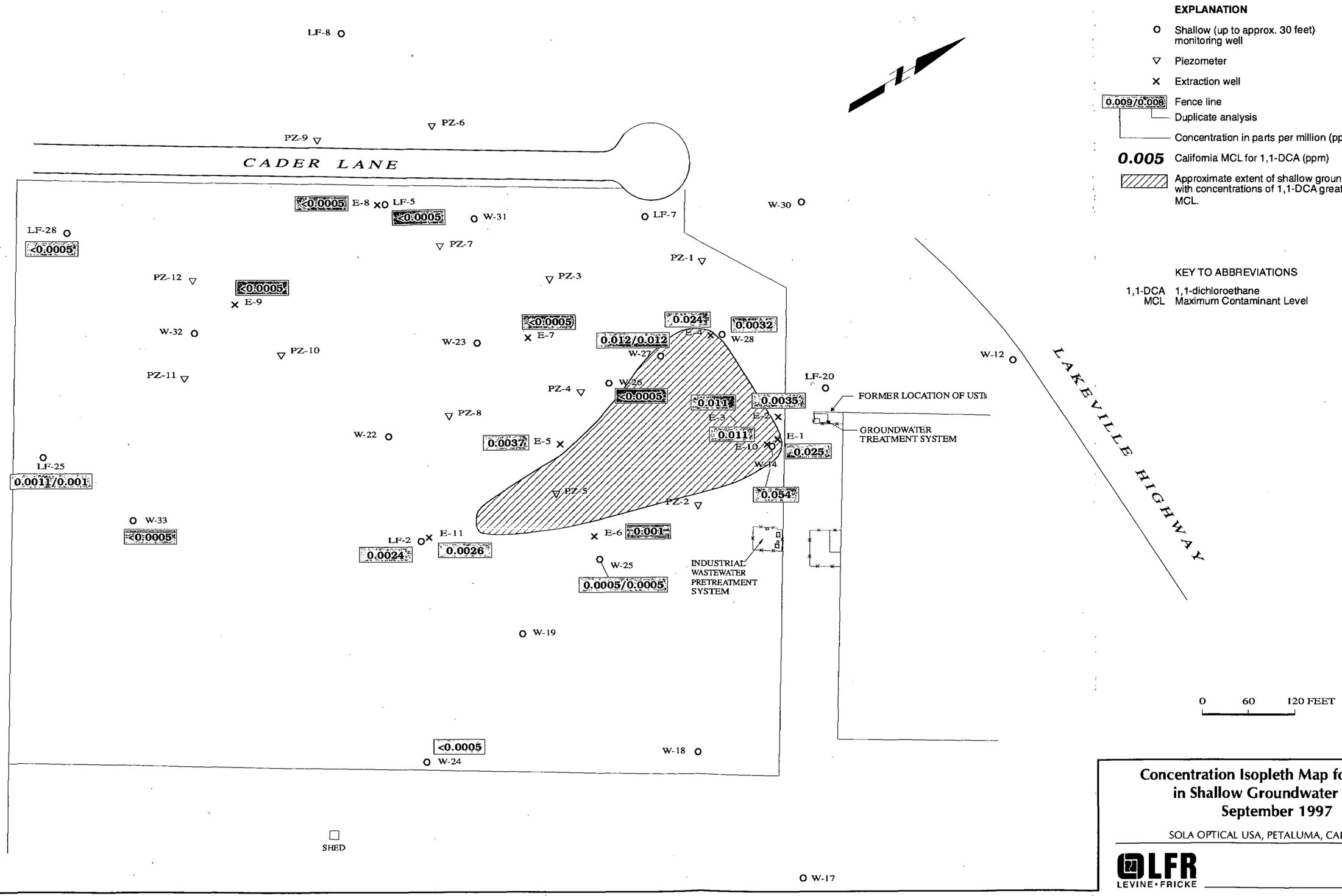
Figure 13

1954B008.LPL JSM 090996



EXPLANATION

- ○ Shallow (up to approx. 30 feet) monitoring well
- ▽ Piezometer
- × Extraction well
- 0.009/0.008 Fence line
  - Duplicate analysis
  - Concentration in parts per million (ppm)
- **0.005** California MCL for 1,1-DCA (ppm)
- Approximate extent of shallow groundwater with concentrations of 1,1-DCA greater than the MCL.

KEY TO ABBREVIATIONS

1,1-DCA 1,1-dichloroethane
MCL Maximum Contaminant Level

Concentration Isopleth Map for 1,1-DCA in Shallow Groundwater (ppm) September 1997

SOLA OPTICAL USA, PETALUMA, CALIFORNIA

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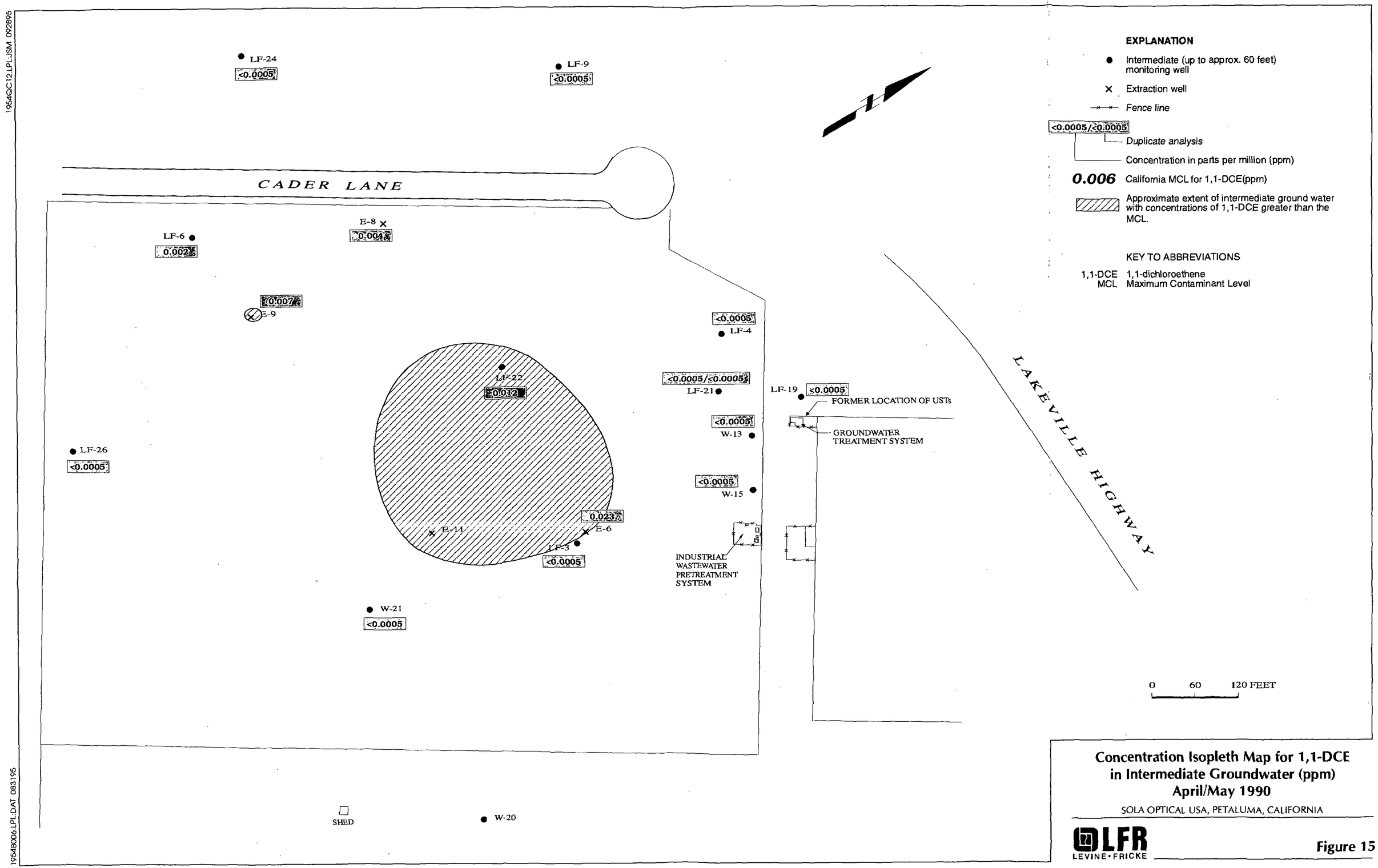
Figure 14

1954GC19.CDR 112597

1954B008.LPL;SM 090996



Concentration Isopleth Map for 1,1-DCE in Intermediate Groundwater (ppm) April/May 1990

SOLA OPTICAL USA, PETALUMA, CALIFORNIA

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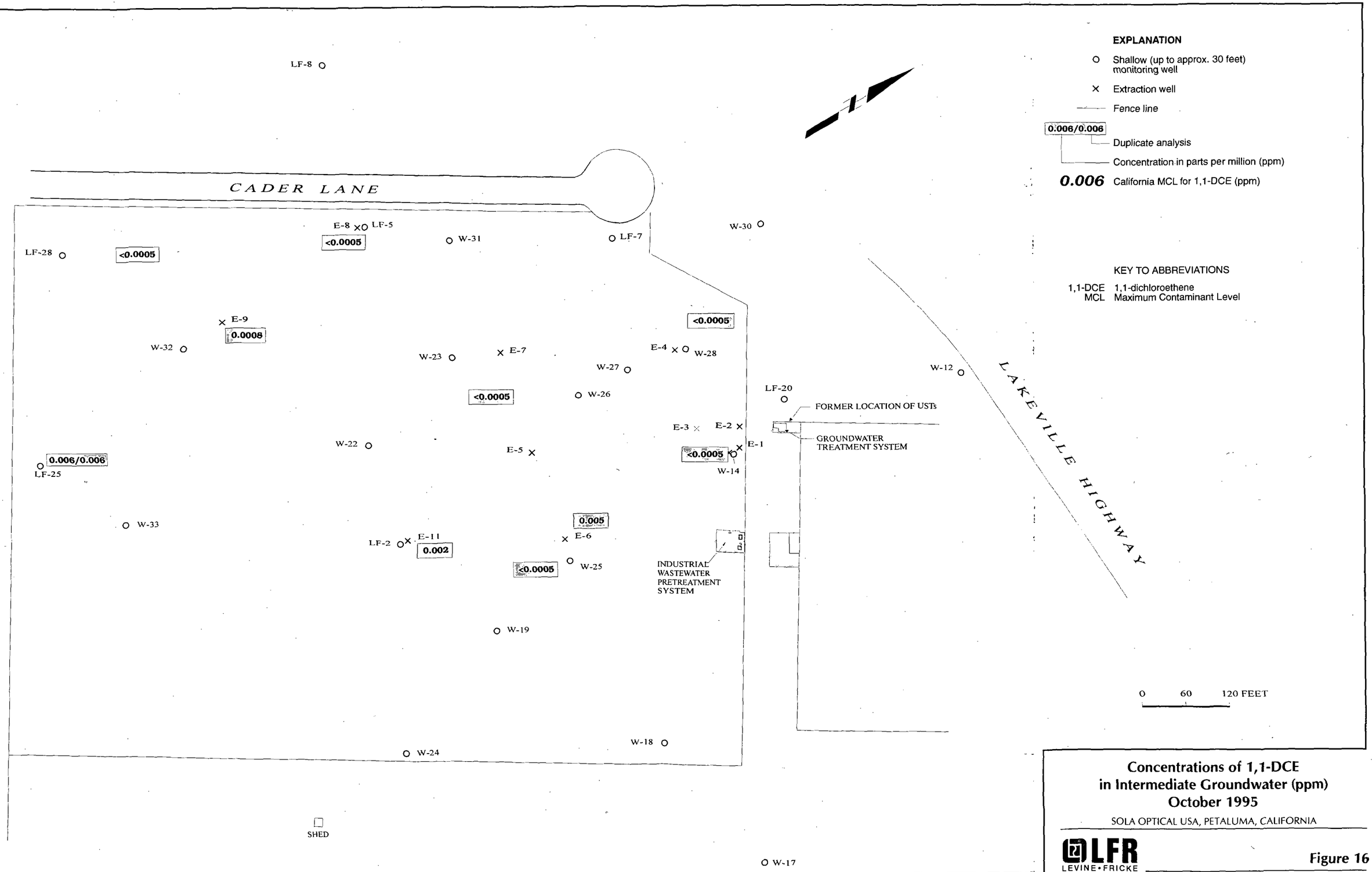
Figure 15

1954AC03.CDR 120396jsm



Concentrations of 1,1-DCE in Intermediate Groundwater (ppm) October 1995

SOLA OPTICAL USA, PETALUMA, CALIFORNIA

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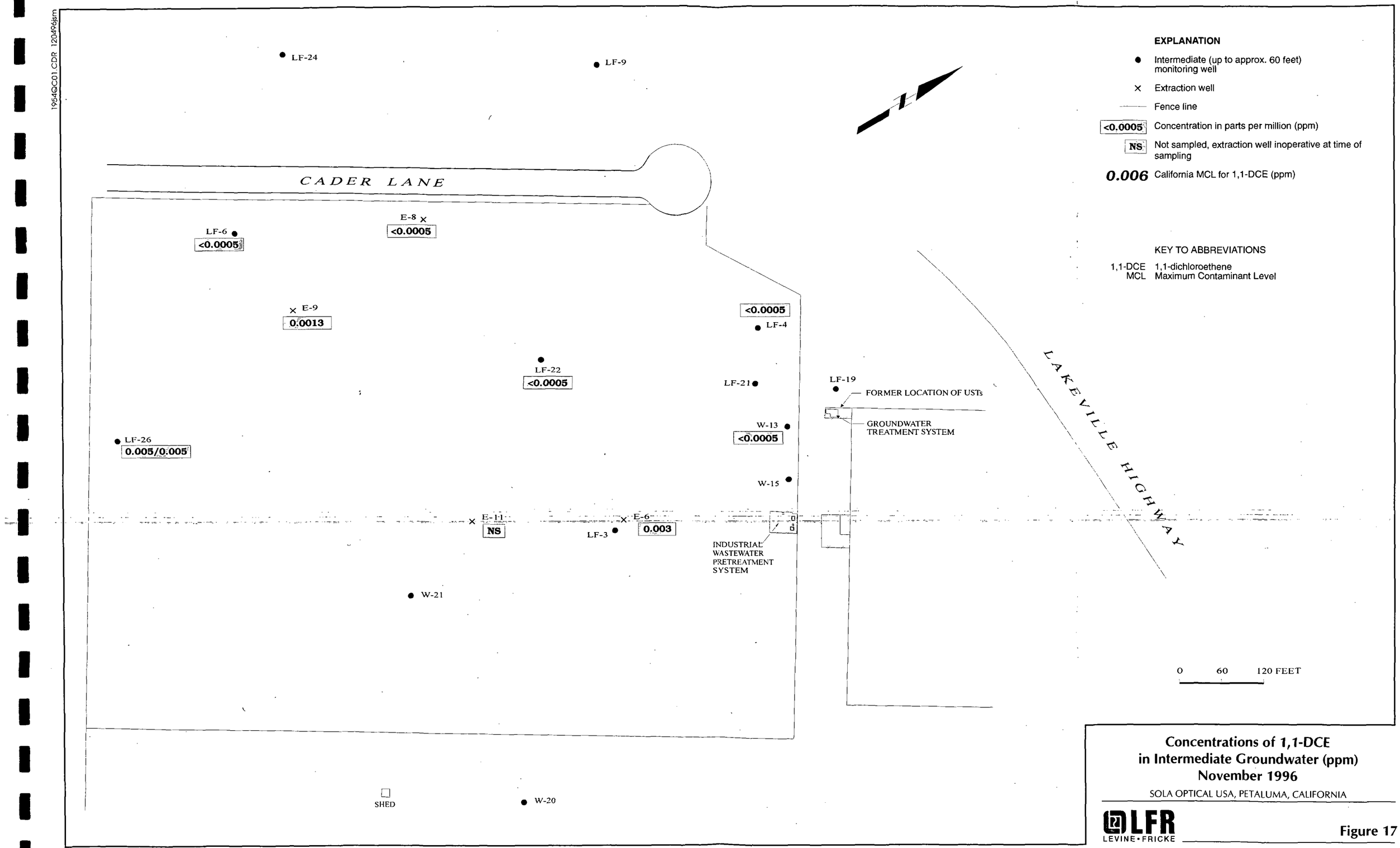
Figure 16

1954B005.CDR 092095dat

1954GC01.CDR 120496jsm



Concentrations of 1,1-DCE in Intermediate Groundwater (ppm) November 1996

SOLA OPTICAL USA, PETALUMA, CALIFORNIA

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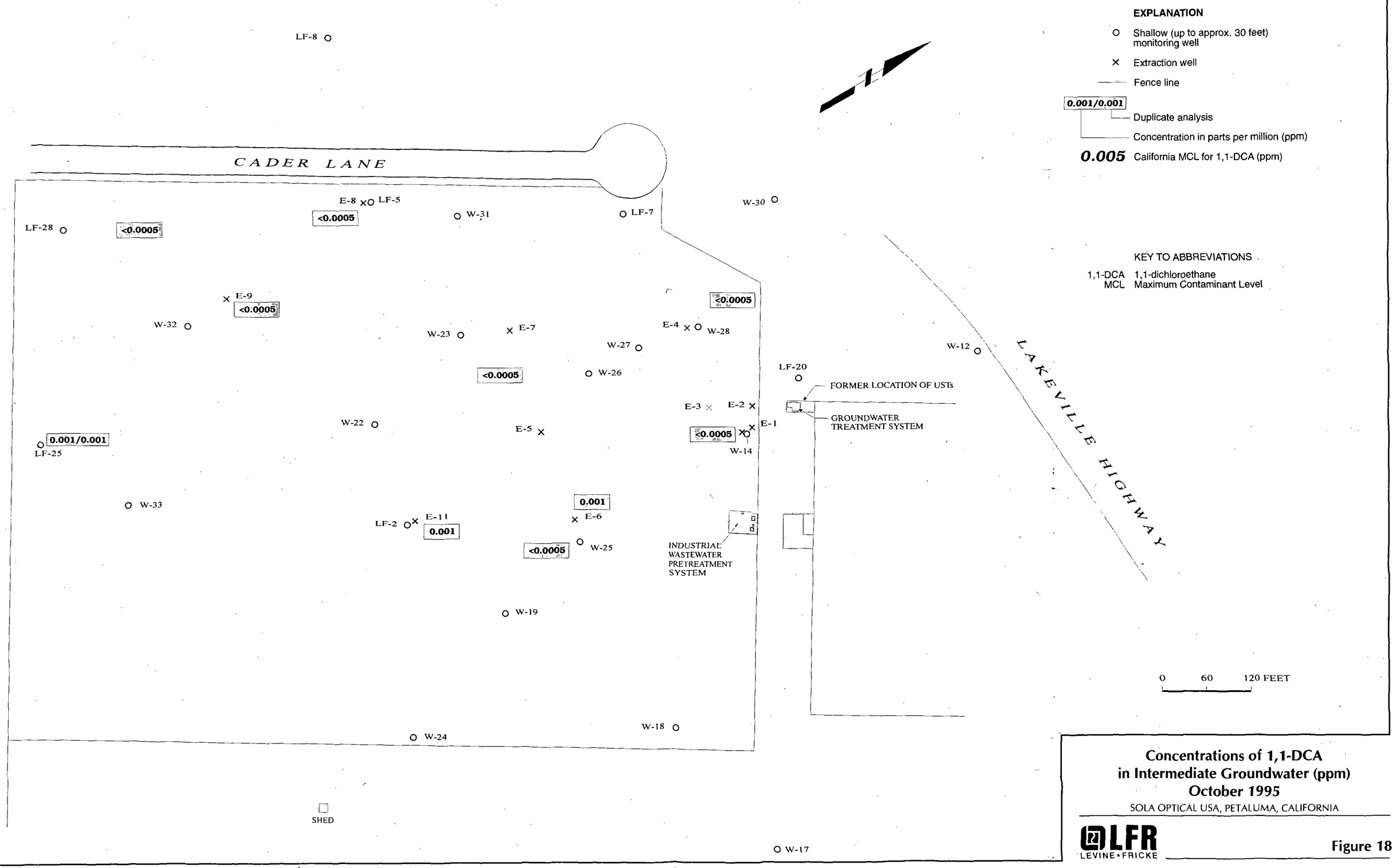
Figure 17

1954AC04.CDR 120396jsm



1954B005.CDR 092095dat

Concentrations of 1,1-DCA in Intermediate Groundwater (ppm)
October 1995

SOLA OPTICAL USA, PETALUMA, CALIFORNIA

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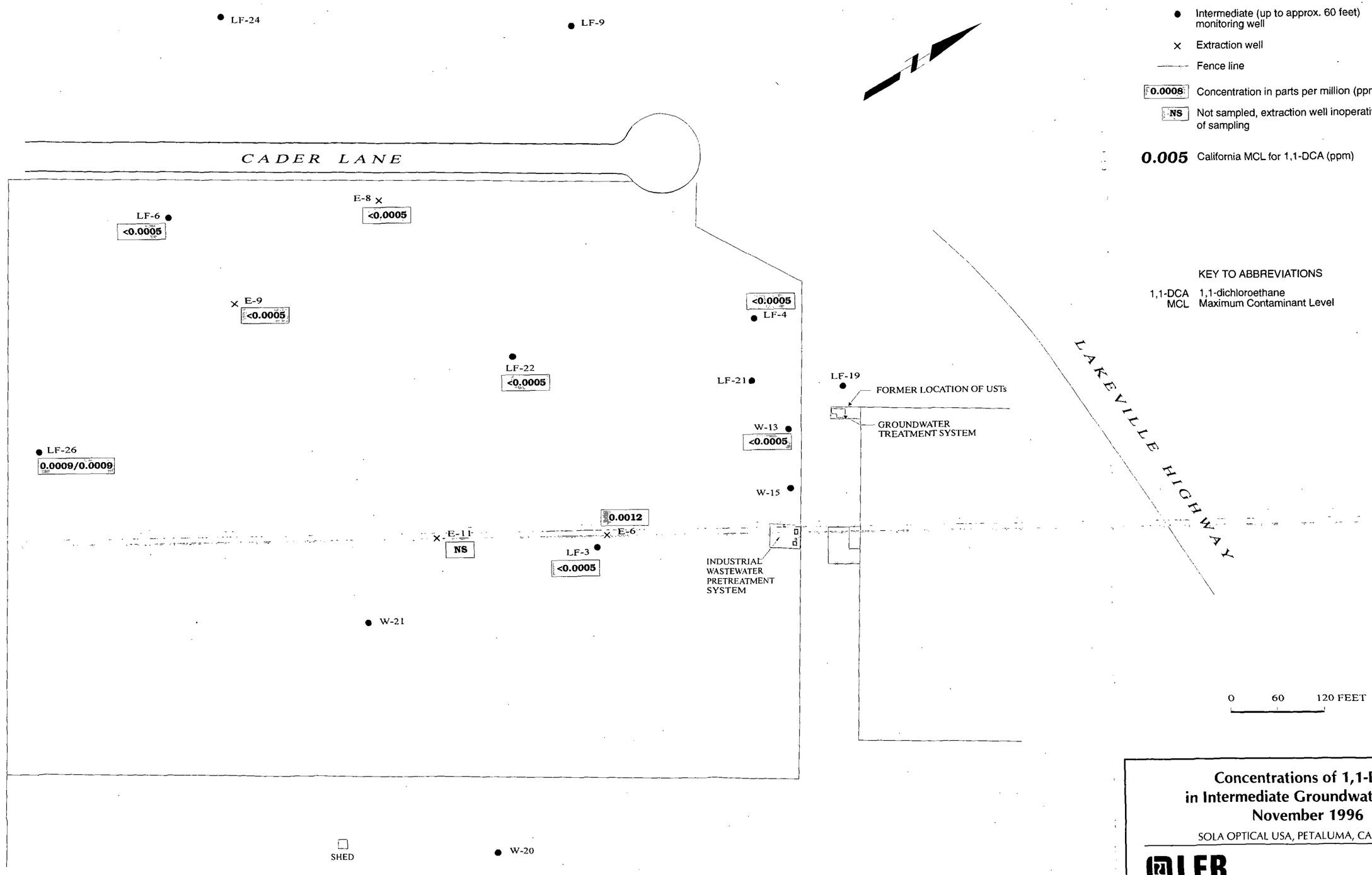
Figure 18

1954QC05.CDR 120496jsm



EXPLANATION

- ● Intermediate (up to approx. 60 feet) monitoring well
- × Extraction well
- —— Fence line
- 0.0008 Concentration in parts per million (ppm)
- NS Not sampled, extraction well inoperative at time of sampling
- **0.005** California MCL for 1,1-DCA (ppm)

KEY TO ABBREVIATIONS

1,1-DCA 1,1-dichloroethane
MCL Maximum Contaminant Level

Concentrations of 1,1-DCA in Intermediate Groundwater (ppm) November 1996

SOLA OPTICAL USA, PETALUMA, CALIFORNIA

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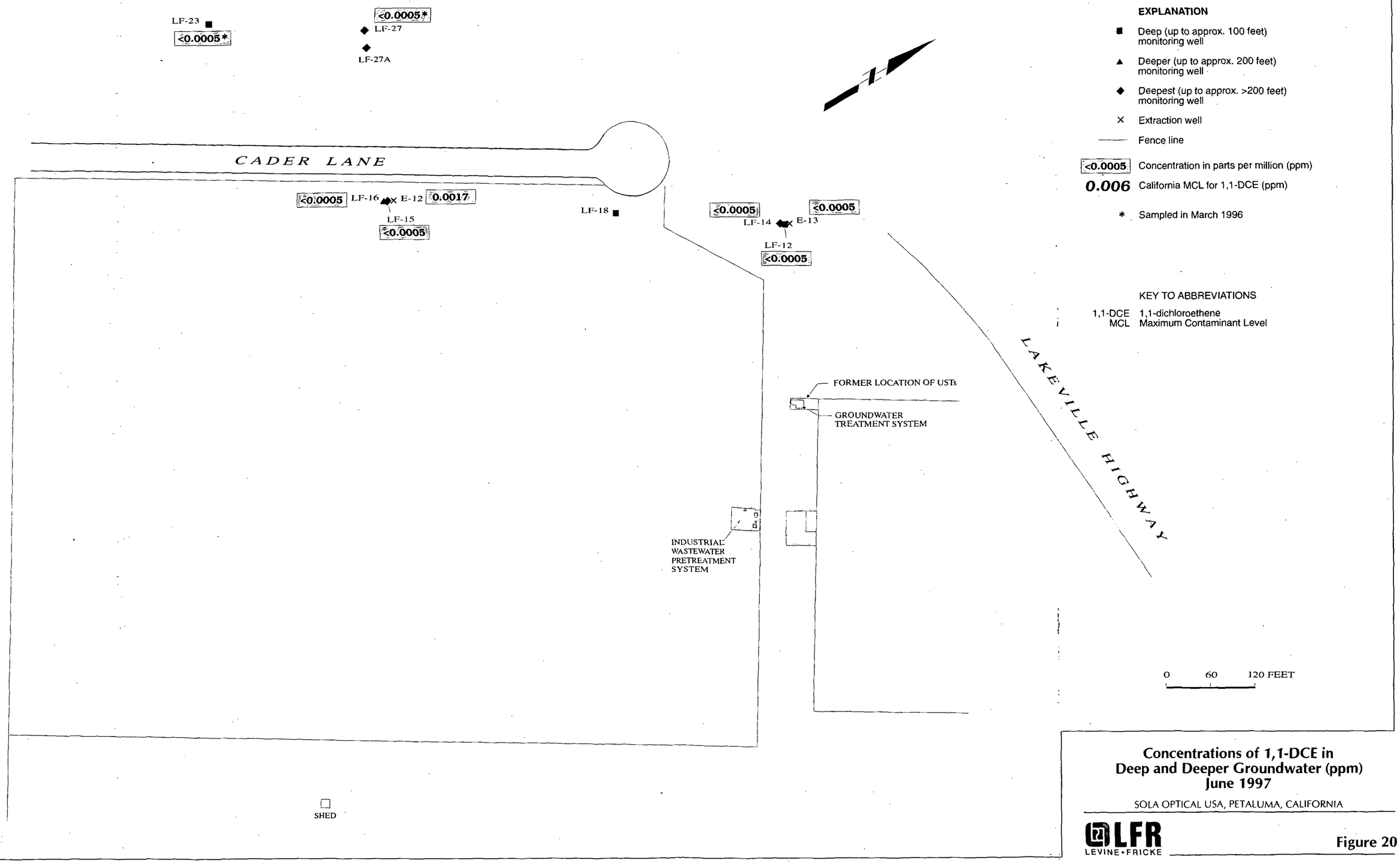
Figure 19

1954C001.CDR 112597



1954B007.CDR 101797

Concentrations of 1,1-DCE in Deep and Deeper Groundwater (ppm) June 1997

SOLA OPTICAL USA, PETALUMA, CALIFORNIA

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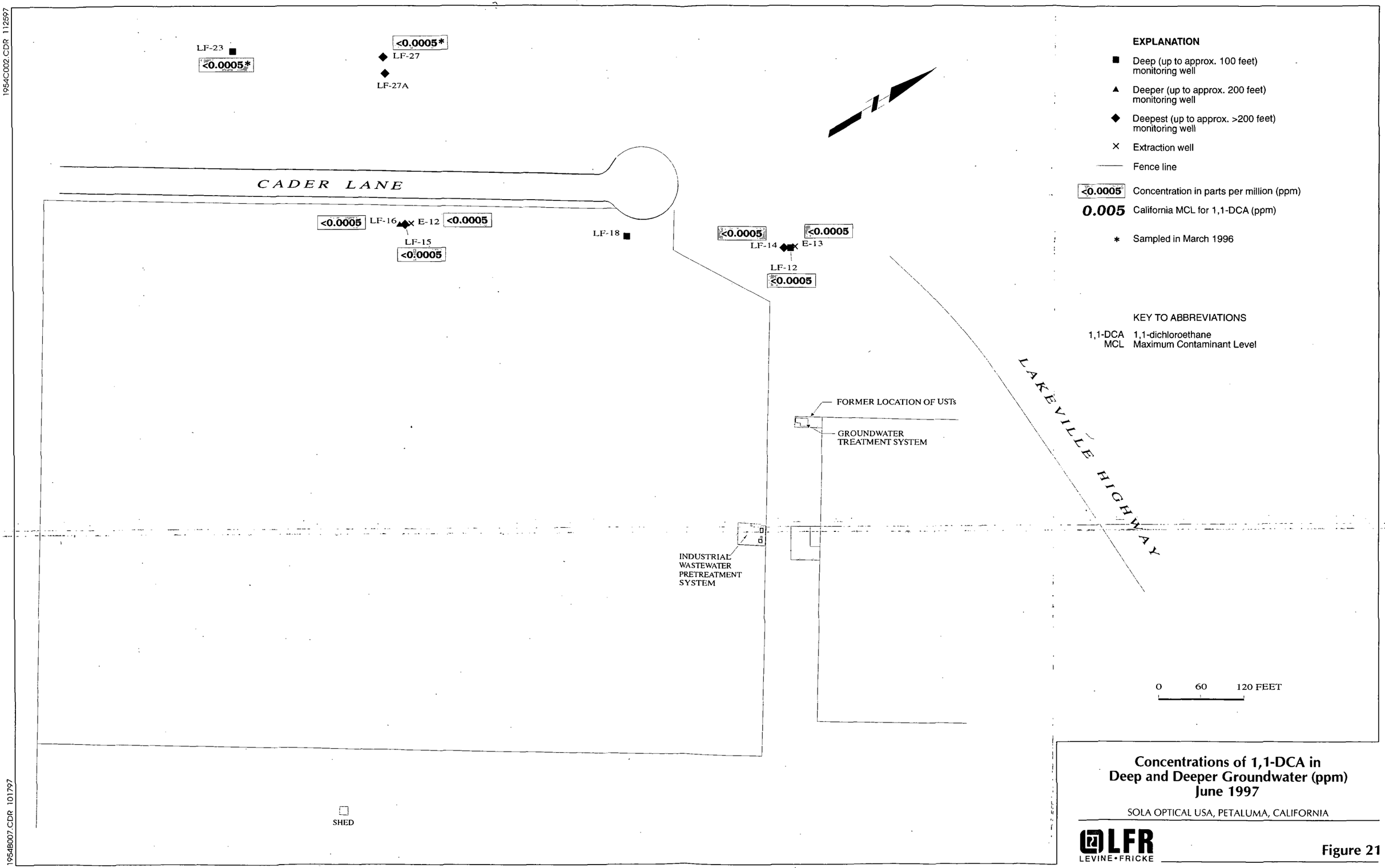
Figure 20

1954C002.CDR 112597



Concentrations of 1,1-DCA in Deep and Deeper Groundwater (ppm) June 1997

SOLA OPTICAL USA, PETALUMA, CALIFORNIA

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Figure 21

1954B007.CDR 101797

Figure 22:
Concentration of 1,1-DCE, 1,1-DCA, and 1,1,1-TCA Detected in Samples Collected from Well W-14

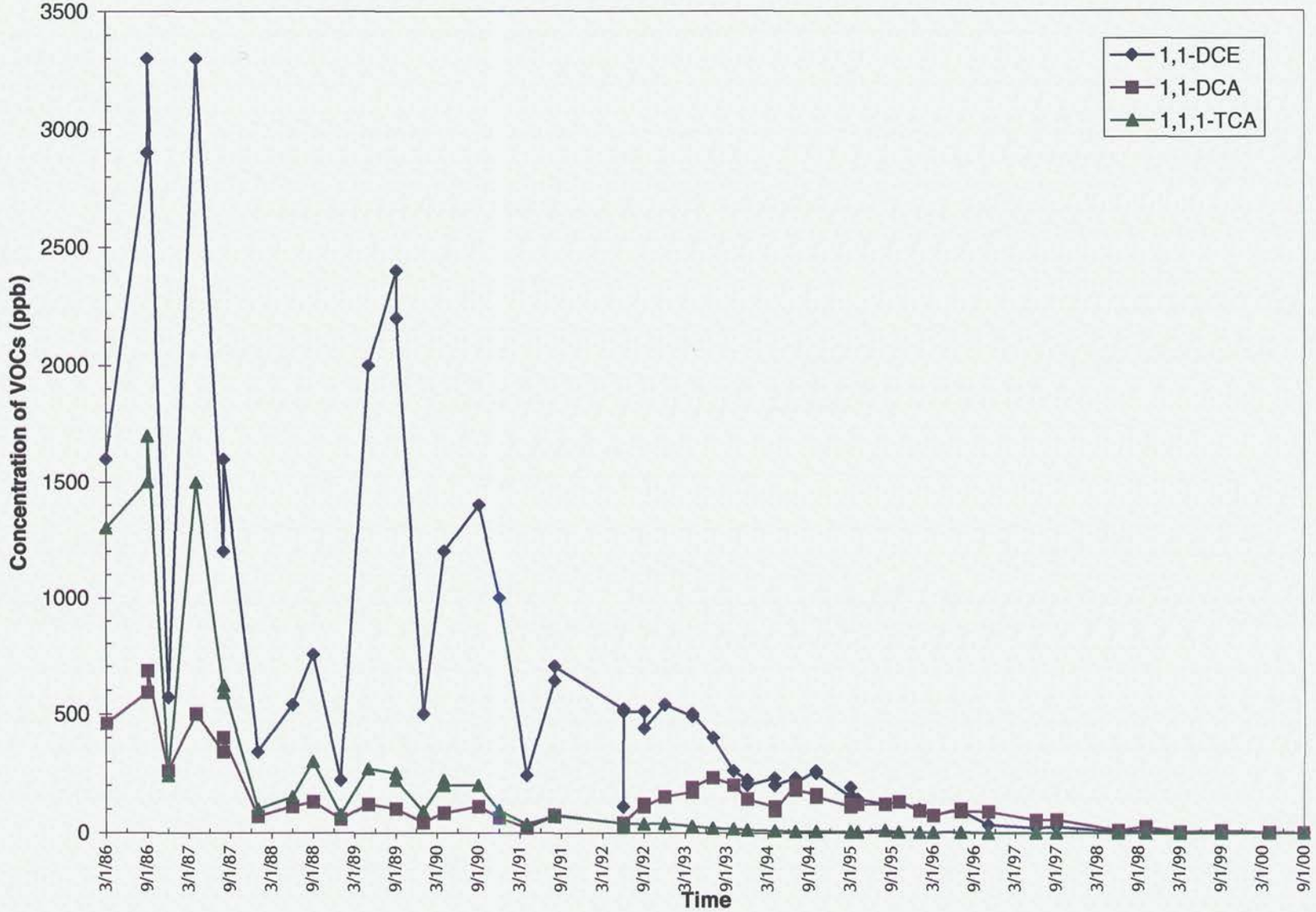


Figure 23:
Concentration of 1,1-DCE, 1,1-DCA, and 1,1,1-TCA
Detected in Samples Collected from Well W-25

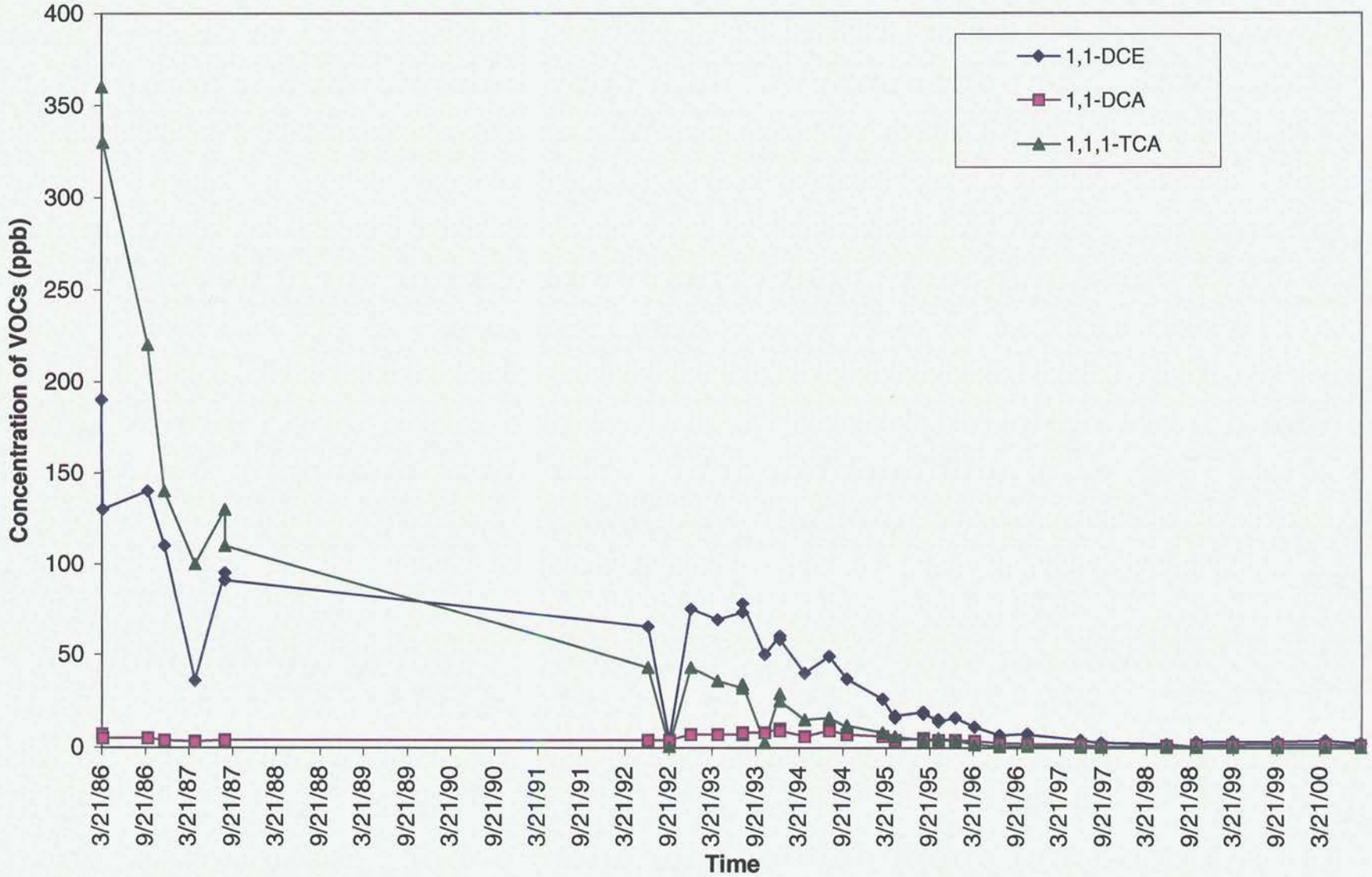


Figure 24:
Concentrations of 1,1-DCE, 1,1-DCA and 1,1,1-TCA
Detected in Samples Collected from Well W-27

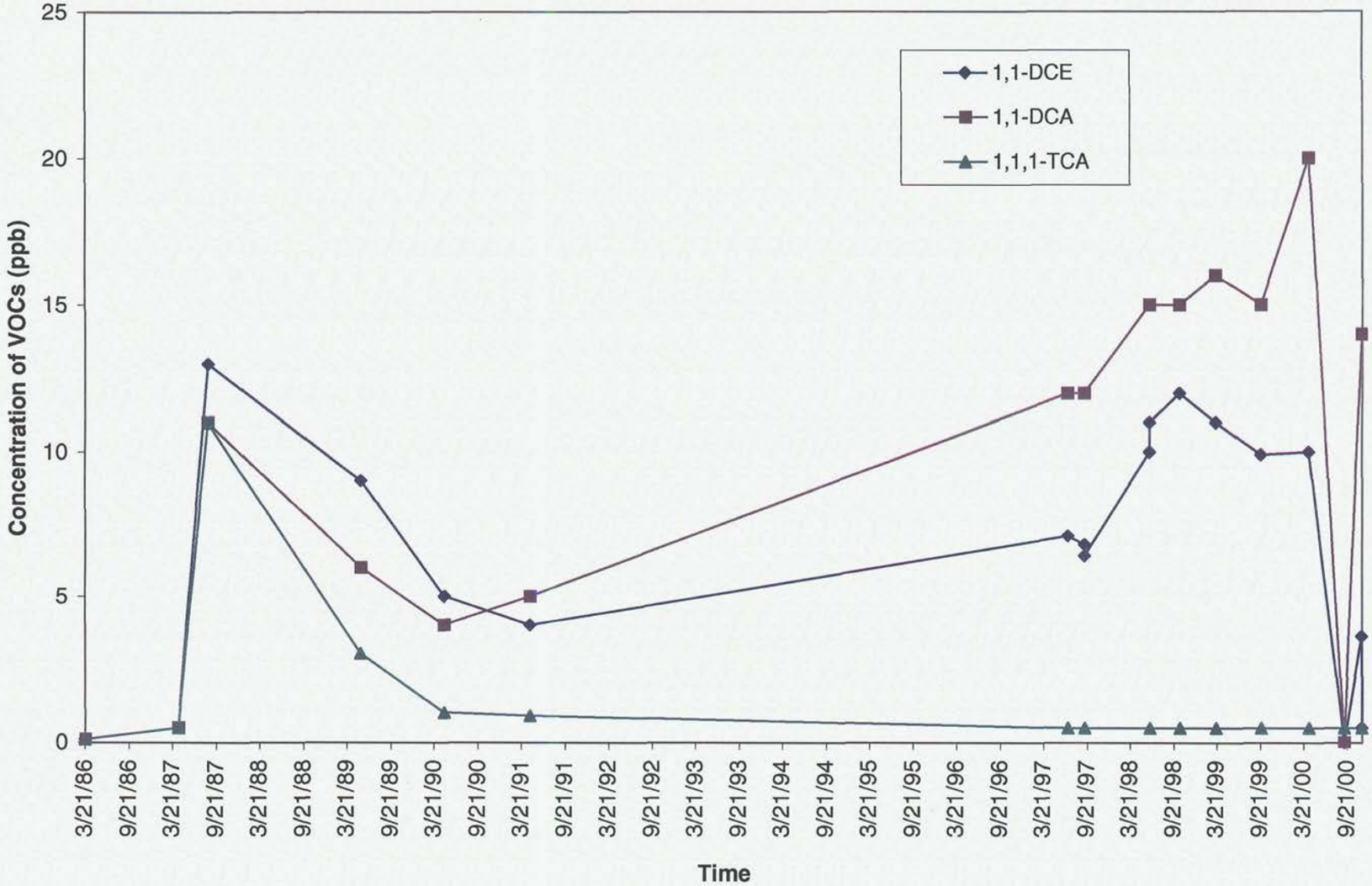


Figure 25:
Concentration of 1,1-DCE, 1,1-DCA, and 1,1,1-TCA
Detected in Samples Collected from Well W-28

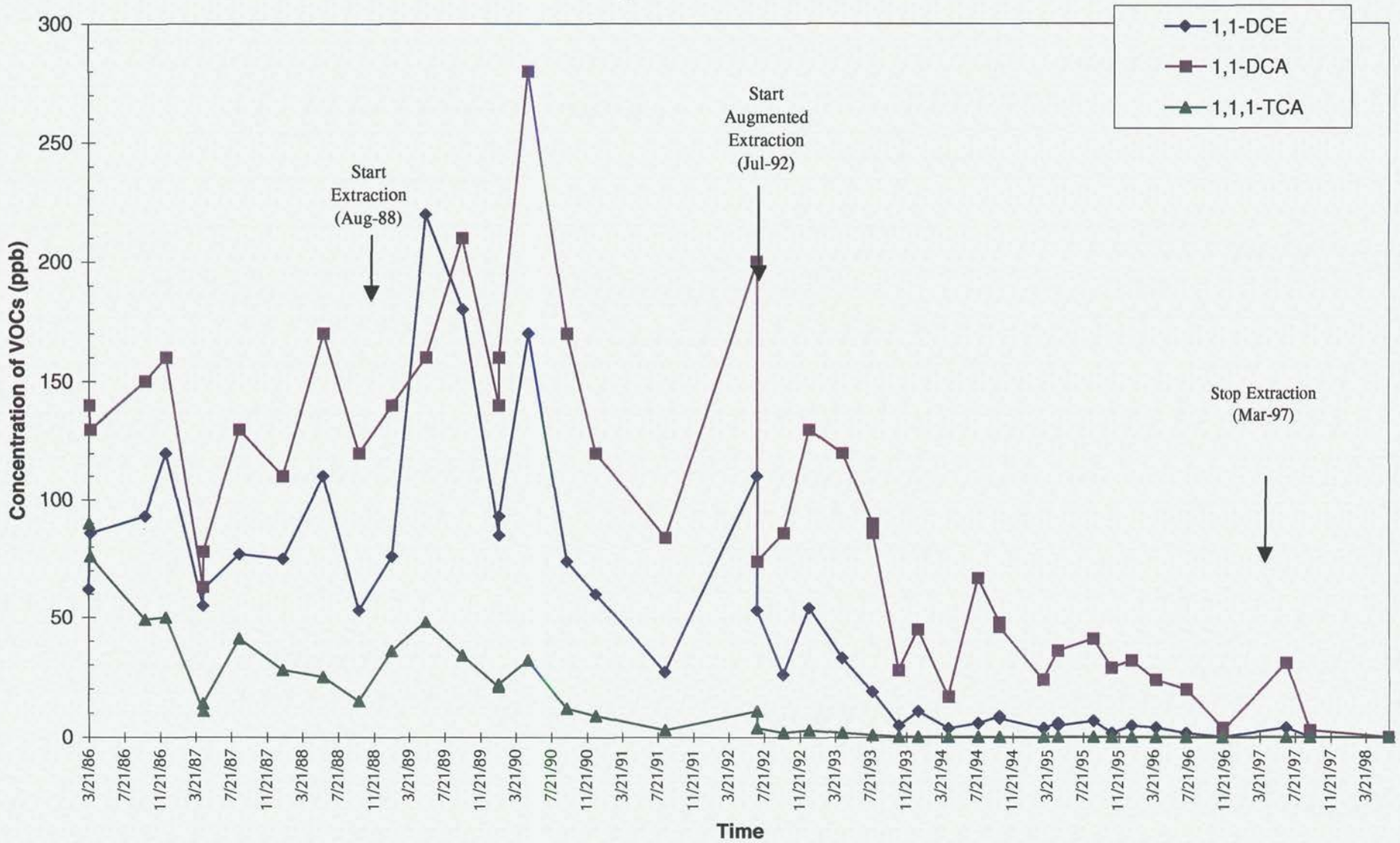


Figure 26:
Concentration of 1,1-DCE, 1,1-DCA, and 1,1,1-TCA
Detected in Samples Collected from Well LF-2

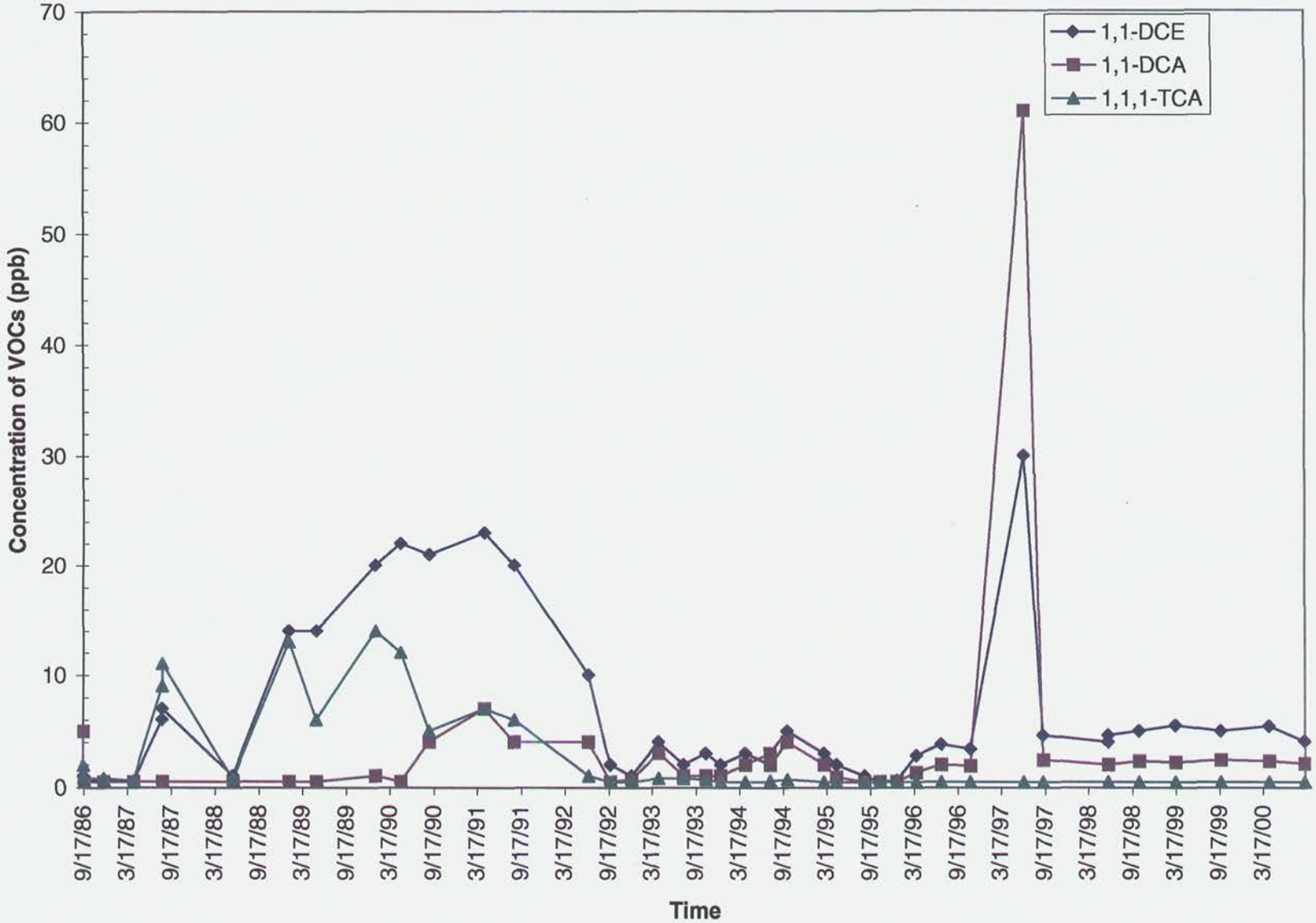
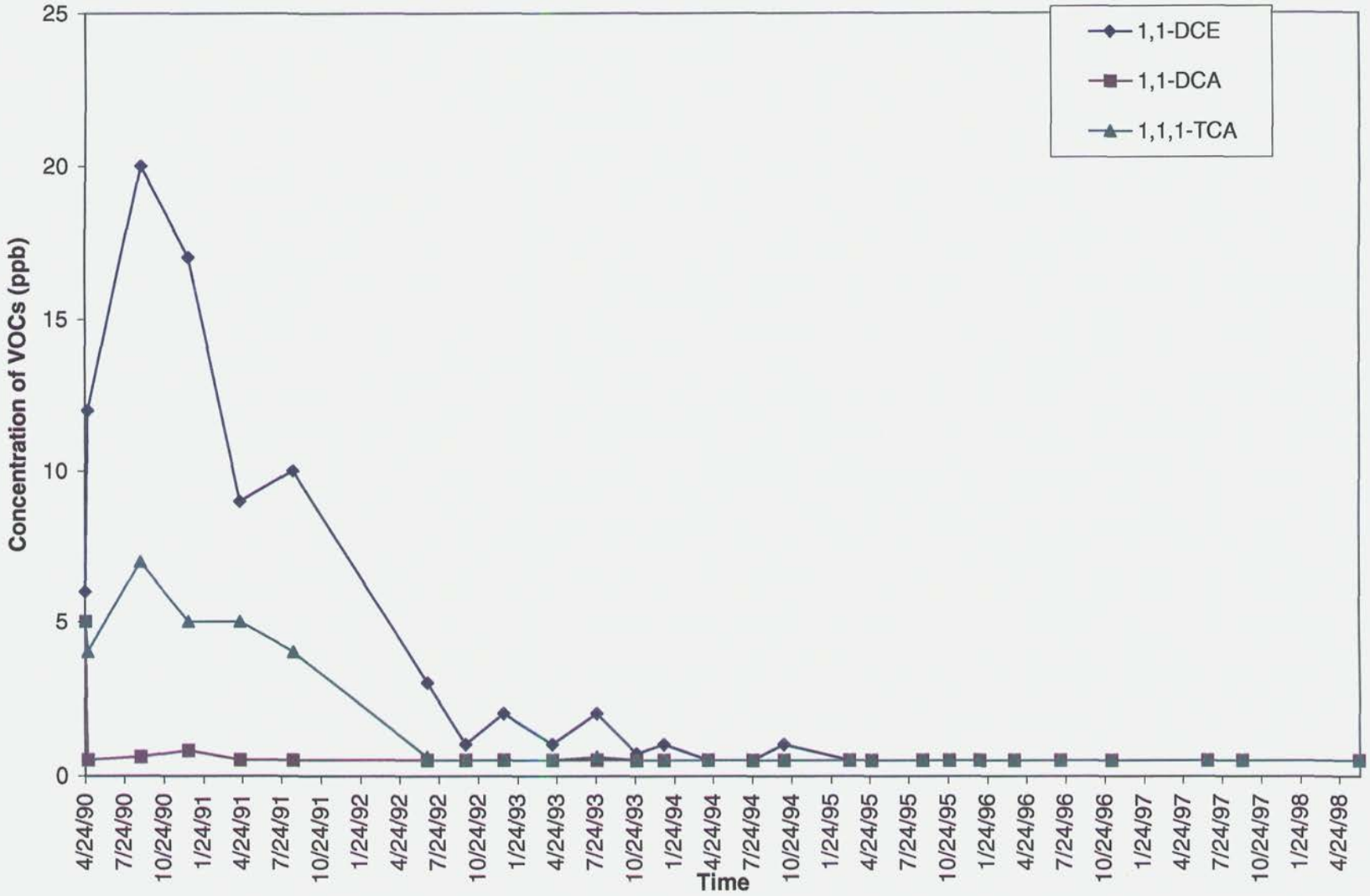


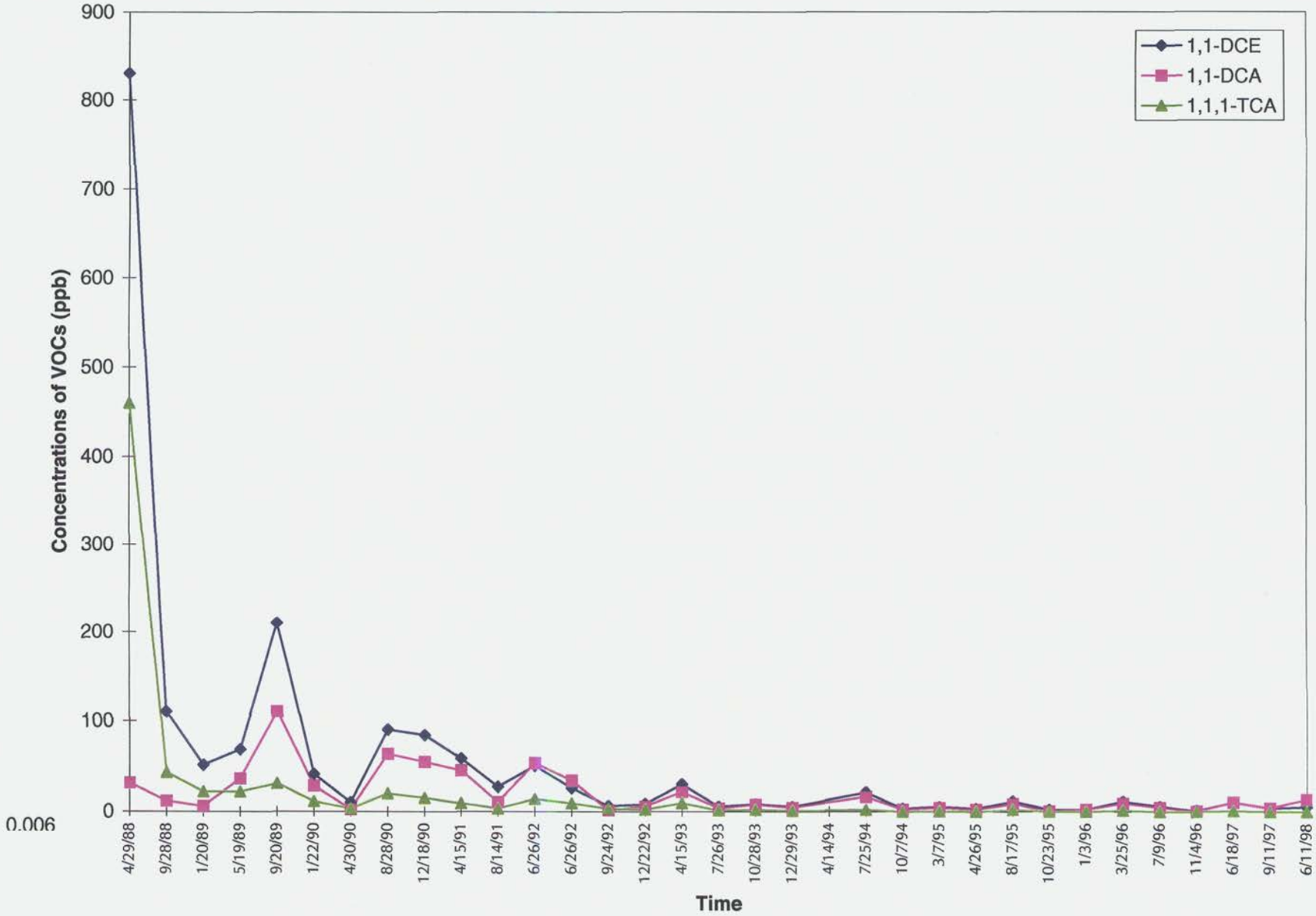
Figure 27:
Concentrations of 1,1-DCE, 1,1-DCA, and 1,1,1-TCA
Detected in Samples Collected from Well LF-22



1954LF-22.xls.xls\LF-22

4/3/01

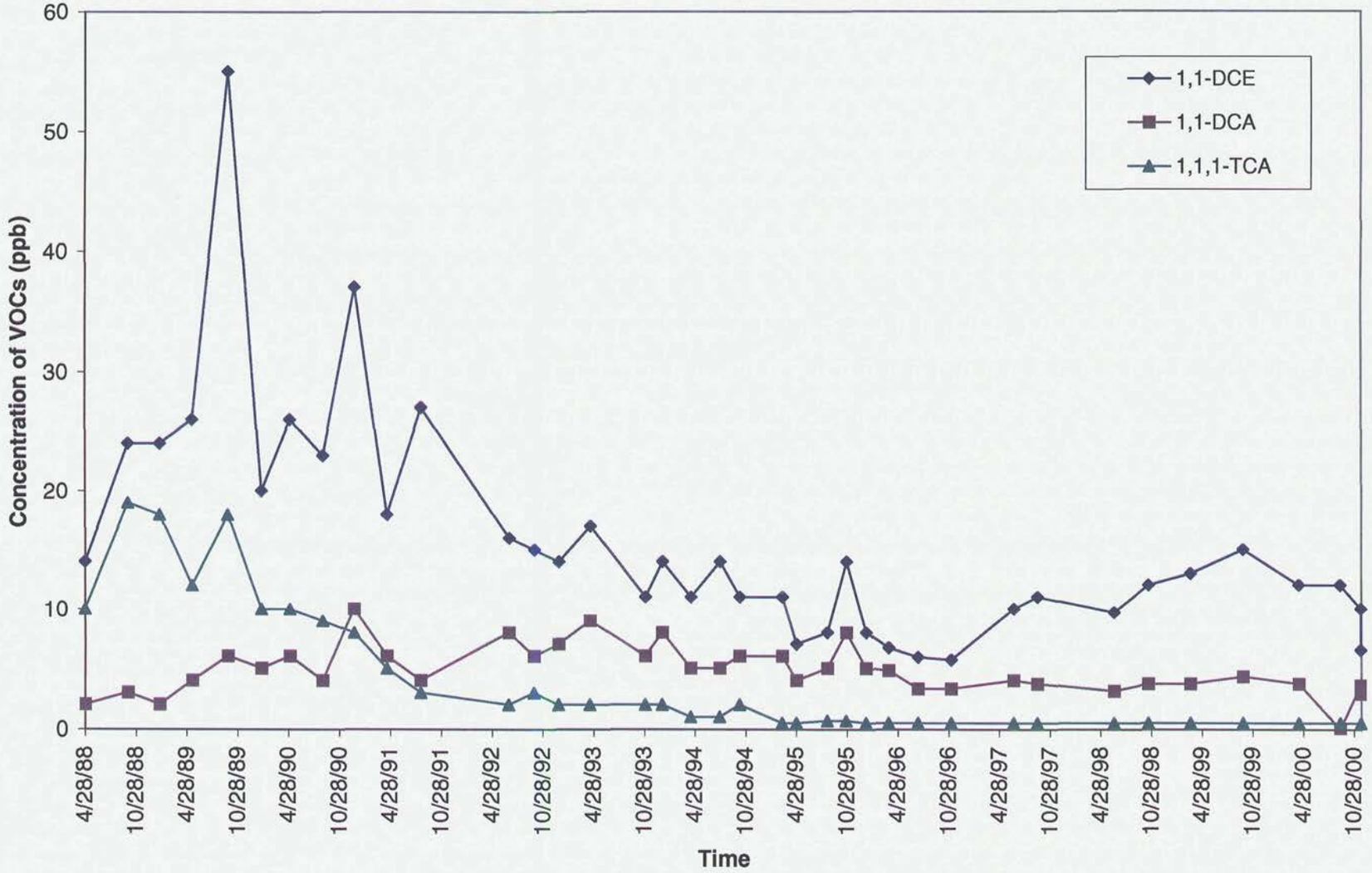
Figure 28:
Concentration of 1,1-DCE, 1,1-DCA, and 1,1,1-TCA Detected in Samples Collected from Well E-2



1954sola_chart_E-2.xls E-2

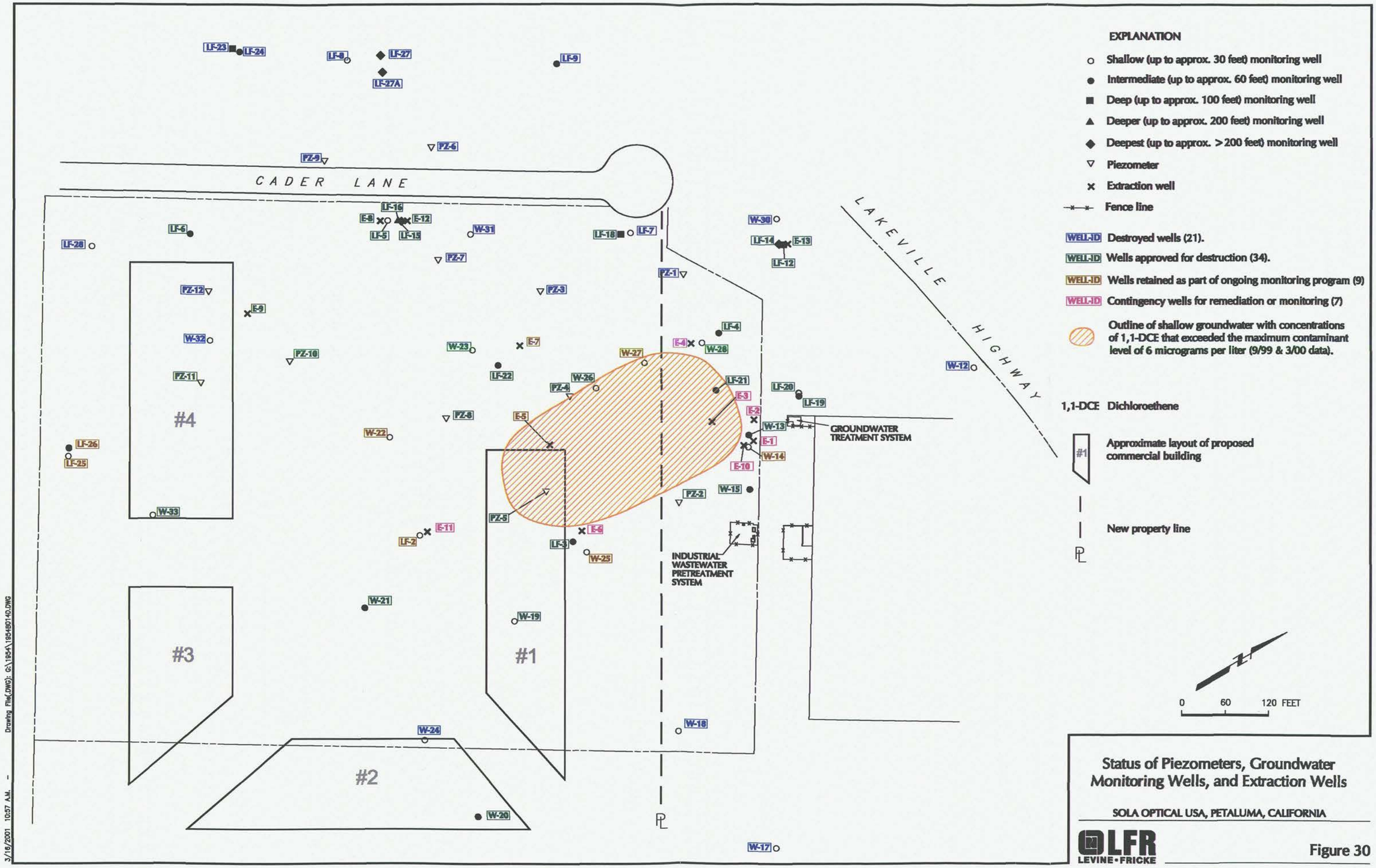
4/3/01

Figure 29:
Concentrations of 1,1-DCE, 1,1-DCA, and 1,1,1-TCA
Detected in Samples Collected from Well E-5



1954E-5.xls.xls\E-5

4/3/01



Status of Piezometers, Groundwater Monitoring Wells, and Extraction Wells

SOLA OPTICAL USA, PETALUMA, CALIFORNIA

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Figure 30

APPENDICES

APPENDIX A

Concentration Versus Time Charts Used to Estimate Attenuation Rates of 1,1-DCE and 1,1-DCA

Figure A1:
Concentration of 1,1-DCE Detected in Samples Collected from Well W-14

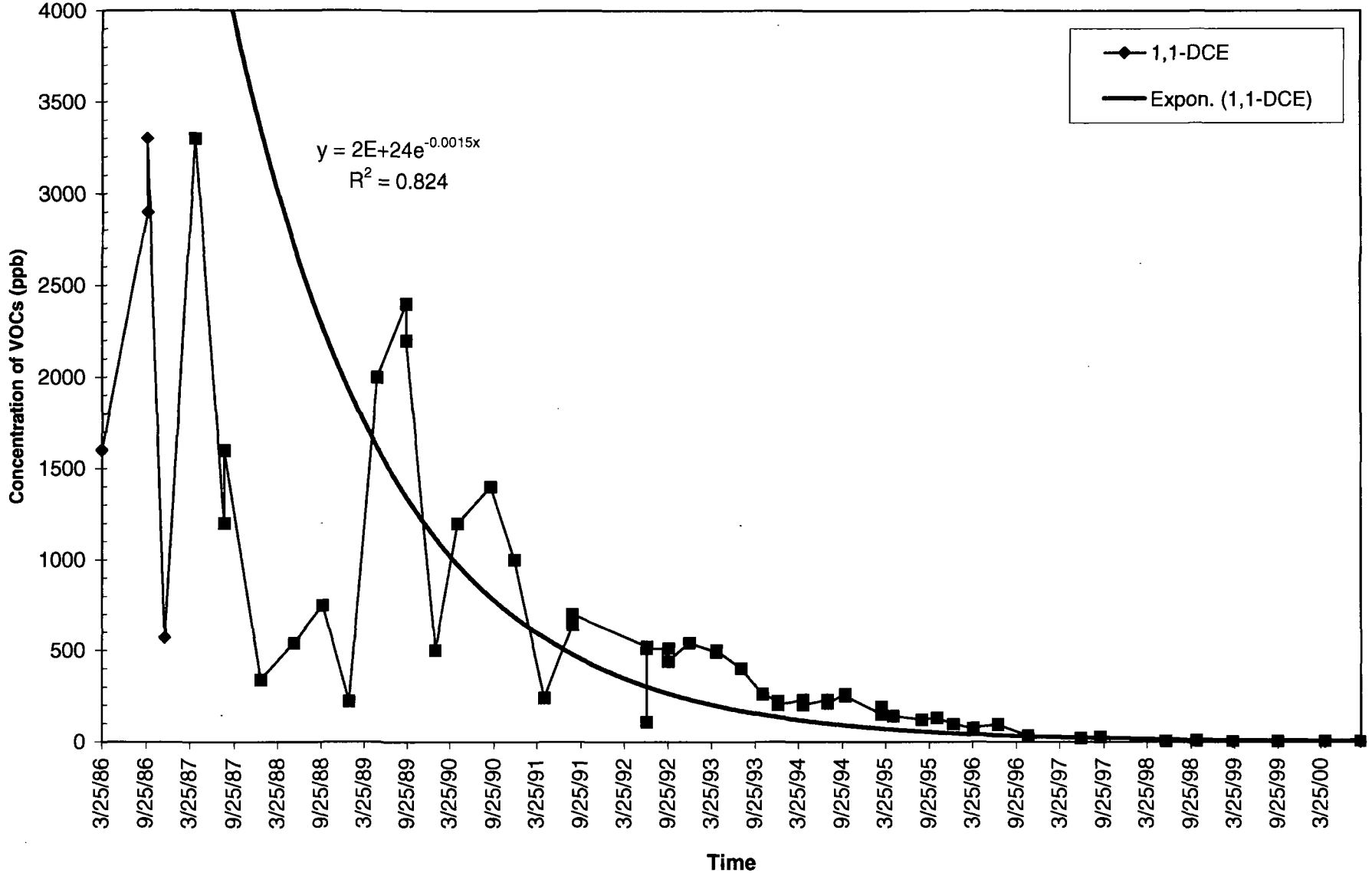


Figure A2:
Concentration of 1,1-DCA
Detected in Samples Collected from Well W-14

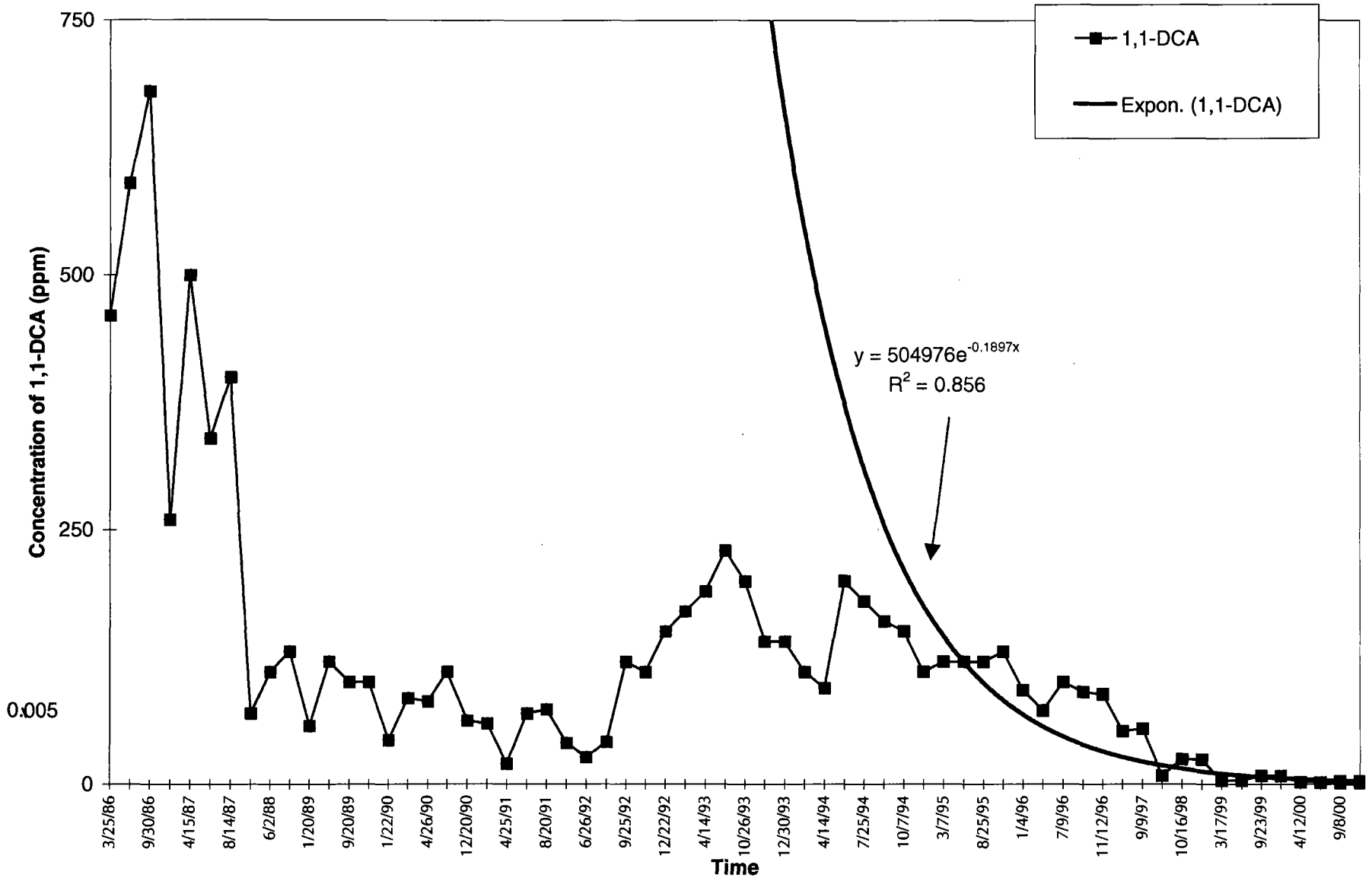


Figure A3:
Concentration of 1,1-DCE Detected in Samples Collected from Well 25

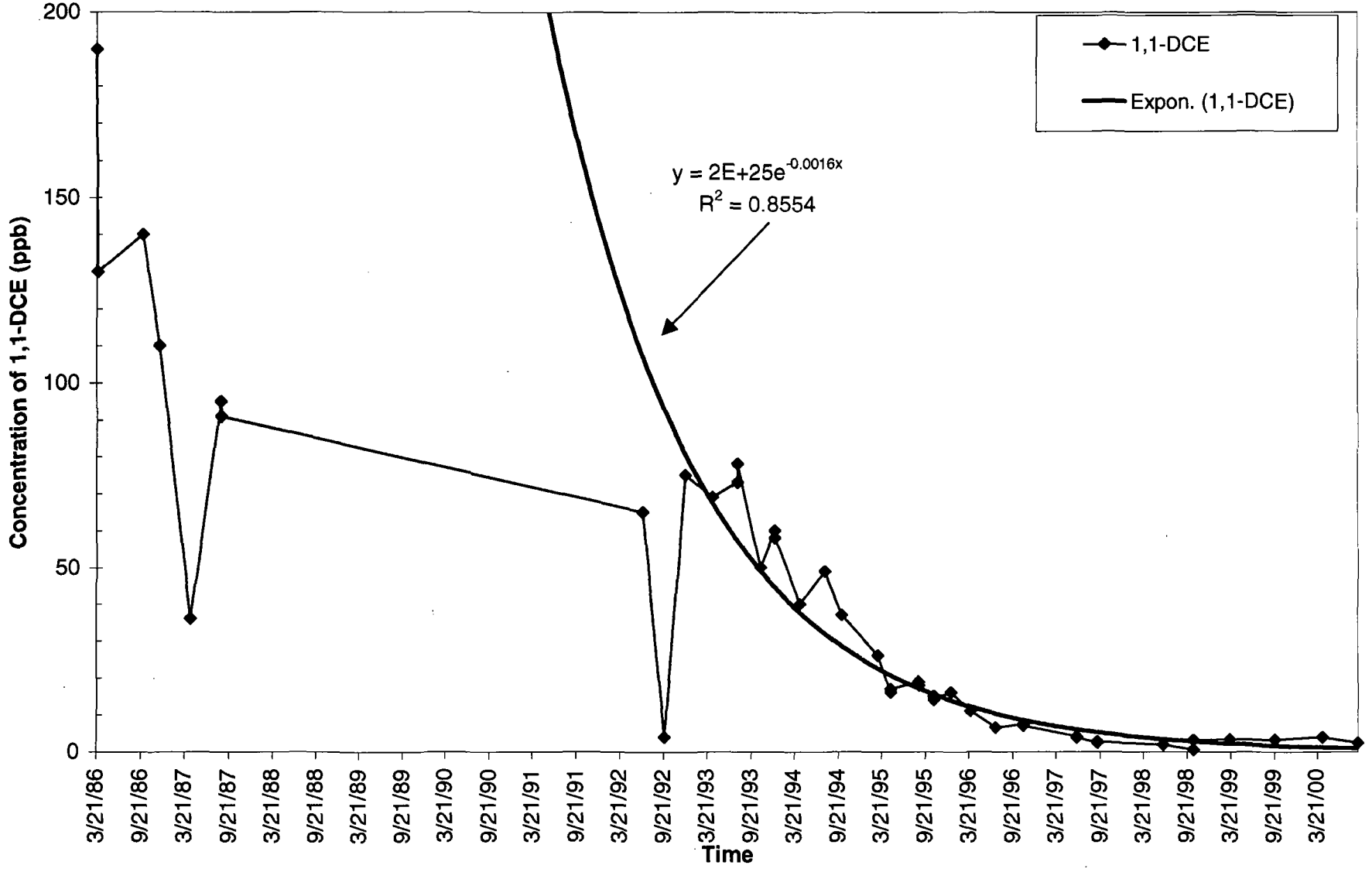


Figure A4:
Concentration of 1,1-DCE Detected in Samples Collected from Well W-28

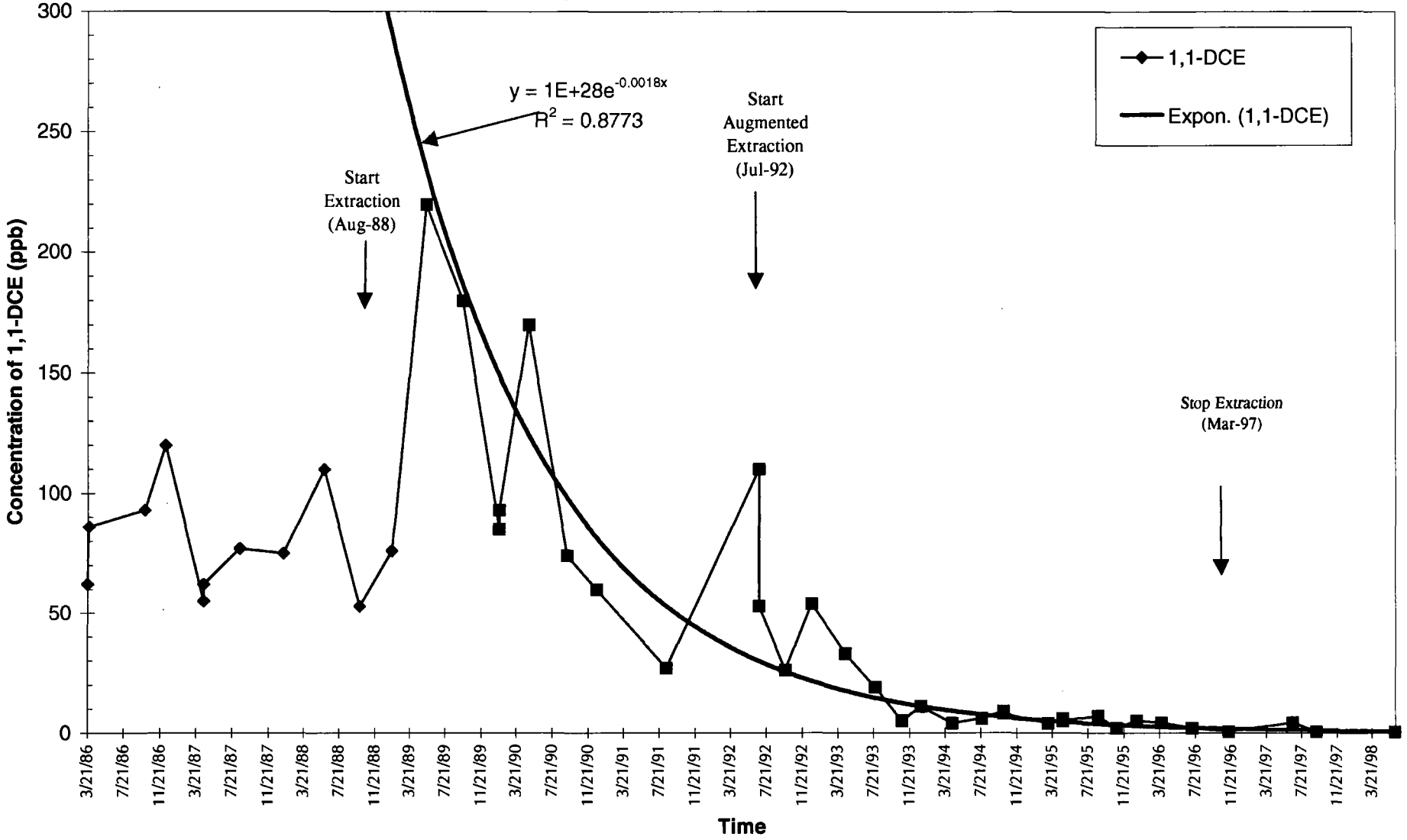


Figure A5: Concentration of 1,1-DCA Detected in Samples Collected from Well W-28

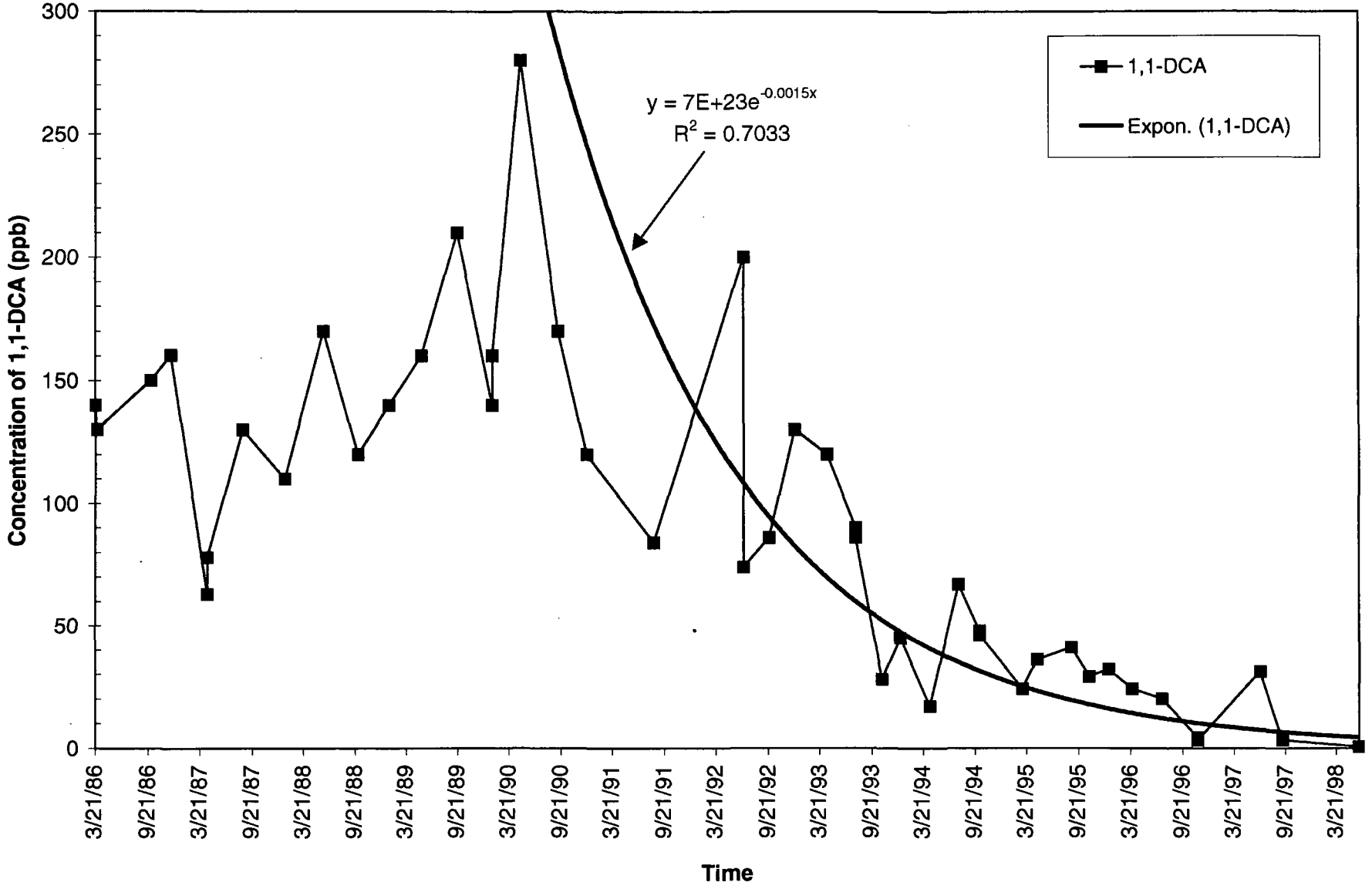
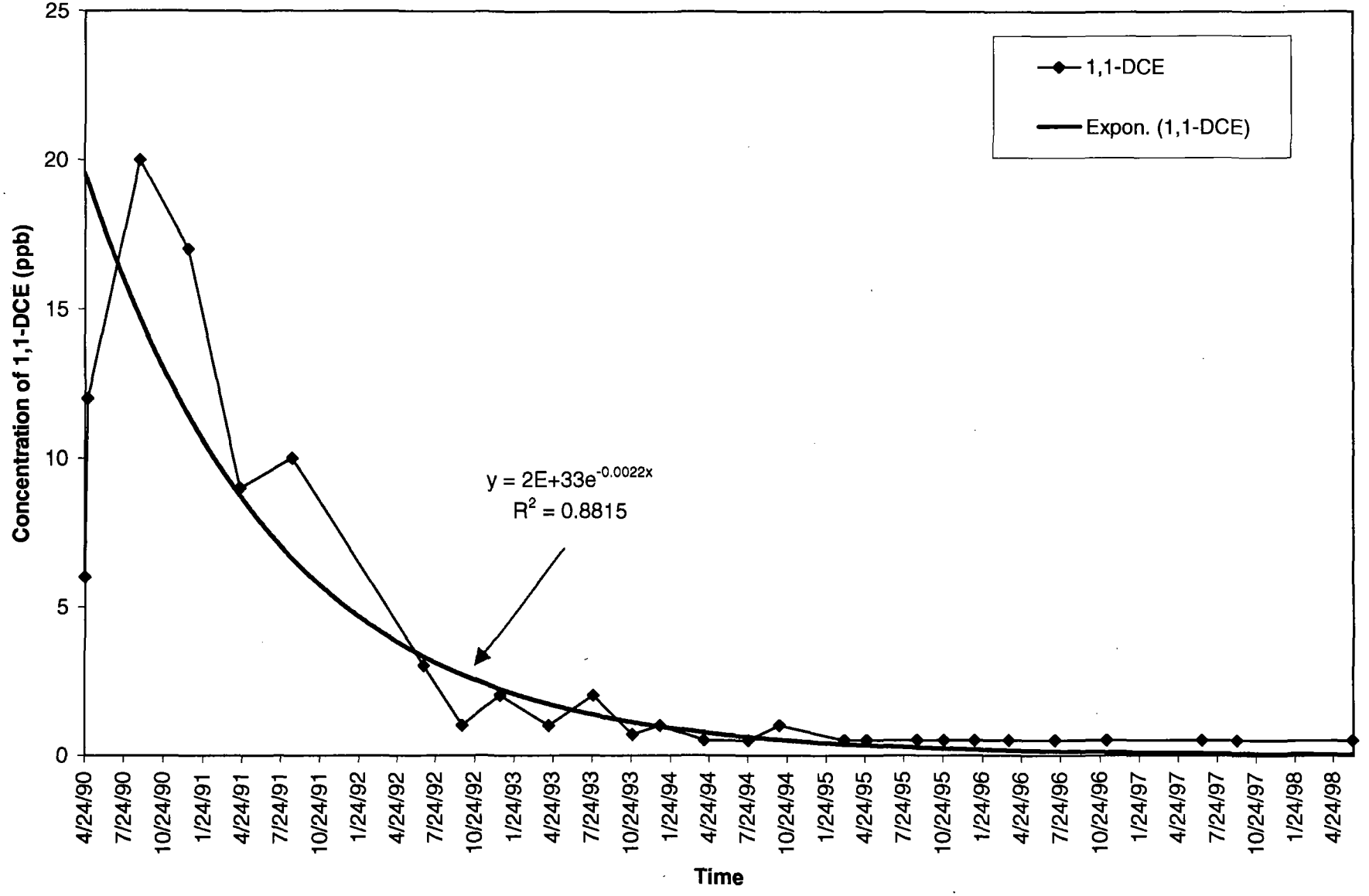


Figure A6: Concentration of 1,1-DCE Dectected in Samples Collected from Well LF-22



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