

QUARTERLY GROUNDWATER MONITORING REPORT JANUARY-FEBRUARY 2001

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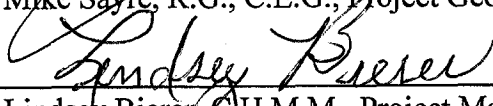
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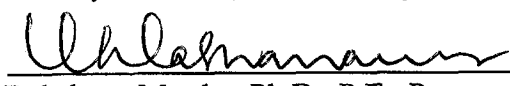
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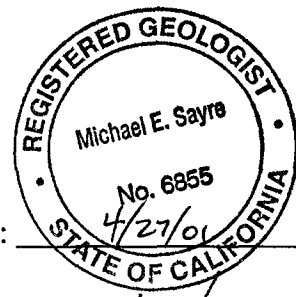
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ACRONYMS/ABBREVIATIONS

1,1-DCA	1,1-Dichloroethane
1,2-DCA	1,2-Dichloroethane
1,1-DCE	1,1-Dichloroethene
AL	Drinking Water Action Level
APCL	Applied Physics and Chemistry Laboratory
As	Arsenic
ASTM	American Society for Testing and Materials
bgs	Below Ground Surface
Ca	Calcium
CADHS	California Department of Health Services
CCl ₄	Carbon Tetrachloride
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
Cl	Chloride
ClO ₄ ⁻	Perchlorate
CO ₃ ²⁻	Carbonate
COC	Chain of Custody
Cr	Chromium
Cr(VI)	Hexavalent Chromium
DQO	Data Quality Objective
EPA	Environmental Protection Agency
Fe	Iron
gal/min	Gallons per minute
HCO ₃ ⁻	Bicarbonate
JPL	Jet Propulsion Laboratory
K	Potassium

L	Liter
LDC	Laboratory Data Consultants, Inc.
MCL	Maximum Contaminant Level
Mg	Magnesium
µg/L	Micrograms per Liter
mg/L	Milligrams per Liter
mL	Milliliter
MS	Matrix Spikes
MSD	Matrix Spike Duplicates
msl	Mean Sea Level
MTBE	Methyl tertiary butyl ether
MW	Monitoring Well
Na	Sodium
NASA	National Aeronautics and Space Administration
NDMA	N-Nitrosodimethylamine
NO ₃ ⁻	Nitrate
NTU	Nephelometric Turbidity Unit
OU	Operable Unit
Pb	Lead
PCE	Tetrachloroethene
PQL	Practical Quantitation Limit
QA/QC	Quality Assurance/Quality Control
QAPP	Quality Assurance Project Plan
SO ₄ ²⁻	Sulfate
SOTA	SOTA Environmental Technology, Inc.
SVOC	Semi Volatile Organic Compound

TCE	Trichloroethene
TDS	Total Dissolved Solids
USEPA	United States Environmental Protection Agency
VOC	Volatile Organic Compound
Westbay	Westbay Instruments, Inc.

EXECUTIVE SUMMARY

Presented in this report are the results of the January-February 2001 quarterly groundwater sampling event completed as part of a long-term groundwater monitoring program at the National Aeronautics and Space Administration (NASA) Jet Propulsion Laboratory (JPL) under contract with, Naval Facilities Engineering Command. This sampling event was conducted from January 5 through February 1, 2001.

During this event, groundwater samples were collected from 22 JPL monitoring wells, both on- and off-site, and analyzed for volatile organic compounds (VOCs), metals (arsenic, lead, total chromium, and hexavalent chromium), perchlorate, and general water chemistry parameters including major anions/cations, total dissolved solids, and pH. Analyses for 1,4-dioxane and N-Nitrosodimethylamine (NDMA) were additionally performed on five selected samples to evaluate its possible presence in groundwater beneath JPL. Despite the fact that NDMA was not detected in groundwater at JPL, 1,4-dioxane was detected at MW-16 at May and October of 1998, and February and May of 1999. The purpose of collecting and analyzing for 1,4-dioxane and NDMA was yearly confirmation sampling as directed by the regulatory agencies. A summary of the sampling procedures is included in Section 2.0, and analytical results are presented in Section 3.0.

The January – February 2001 results indicate that only three VOCs (i.e., carbon tetrachloride, trichloroethene, and tetrachloroethene) were detected at concentrations above the State or Federal Maximum Contaminant Levels (MCLs) for drinking water. In addition, perchlorate concentrations exceeded the State Drinking Water Action Level (AL) of 18 $\mu\text{g/L}$. Total chromium was detected in fifteen wells, with one well (MW-13) exceeding both the State (0.050 $\mu\text{g/L}$) and the Federal MCL (0.1 $\mu\text{g/L}$). Hexavalent chromium was only found in one well (MW-13 0.032 mg/L) only. (State or Federal MCLs have not been established for hexavalent chromium). NDMA was not detected in any of the groundwater samples collected from the selected wells. However, 1,4-dioxane was detected in three of the five wells analyzed (MW-13 1.94 $\mu\text{g/L}$, MW-16 5.51 $\mu\text{g/L}$, and MW-24 screen 1 3.62 $\mu\text{g/L}$). At this time, State or Federal MCLs/ALs have not been established for 1,4-dioxane. The drinking water AL for NDMA is 0.02 $\mu\text{g/L}$.

Results from major anion/cation analyses (water chemistry) were used to identify the general water types beneath JPL. These results are presented in Section 4.0. One hundred percent of the laboratory analytical data were validated pursuant the Navy's Level IV quality assurance requirements. The data validation summaries are presented in Section 5.0.

Water levels were measured in each well before and after sampling activities to evaluate groundwater gradients and flow directions present during sampling. Water-level measurements are discussed in Section 6.0. Groundwater flow was observed to be primarily to the south across JPL, turning eastward around the nearby City of Pasadena municipal production wells.

1.0 INTRODUCTION

This report summarizes the results from the January-February 2001 groundwater sampling event completed as part of the Long-Term Quarterly Monitoring Program currently being conducted at the National Aeronautics and Space Administration (NASA) Jet Propulsion Laboratory (JPL). This work is being performed by SOTA Environmental Technology, Inc., (SOTA) under contract with Naval Facilities Engineering Command, Contract No. N68711-98-D-5537 D.O. No. 0012-01. The JPL Long-Term Quarterly Monitoring Program was initiated in 1996 in response to a request from the United States Environmental Protection Agency (USEPA). The program began during the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Remedial Investigation of on-site and off-site groundwater at JPL. The purpose of the program is to monitor the elevation, flow direction, and quality of the groundwater beneath and adjacent to the JPL site.

From January 5 to February 1, 2001, SOTA personnel collected samples from 22 on- and off-site JPL monitoring wells. In addition, the water-level elevation at each well was measured prior to (December 28-29, 2000), and after (January 30-31, 2001) sampling to evaluate groundwater flow directions and gradients.

The locations of the JPL groundwater monitoring wells are shown in Figure 1-1. Monitoring wells MW-3, MW-4, MW-11, MW-12, MW-14, and MW-17 through MW-24 are deep multi-port wells, each containing five screened intervals equipped with a Westbay Instruments, Inc. (Westbay) multi-port casing system. Monitoring wells MW-1, MW-5, MW-6, MW-8, MW-9, MW-10, MW-13, MW-15, and MW-16 are relatively shallow standpipe wells, each containing a single screened interval located just below the water table. A summary of the well construction details for the JPL groundwater monitoring wells is included in Table 1-1.

MW-2 has not been sampled since it was replaced with well MW-14 (Figure 1-1) as a JPL sampling point. MW-7 was also not sampled during this event because a pilot test was in progress. The pilot test report shows a summary of groundwater quality data for MW-7 collected during the September 2000 through January 2001 period (US Filter Pilot Study Final Report, April 2001).

All of the JPL groundwater samples were shipped to Applied Physics and Chemistry Laboratory (APCL) in Chino, California, for chemical analysis. APCL is certified by the California Department of Health Services (CADHS) and approved for use by the Naval Facilities Engineering Command, Quality Assurance/Quality Control (QA/QC) program. Sample collection procedures and sample analysis were conducted by SOTA in accordance with the Work Plan for Performing a Remedial Investigation/Feasibility Study prepared by Ebasco (Ebasco, 1993a), which was approved by the regulatory agencies. The following analyses were performed on the samples collected at JPL:

Analysis	Well (Screen)	EPA Method
Volatile Organic Compounds (VOCs)	All*	524.2
Total Chromium (Cr)	All*	200.8
Hexavalent Chromium [Cr(VI)]	All*	7196
Total Lead (Pb)	All*	200.8
Total Arsenic (As)	All*	200.9
Total Dissolved Solids (TDS)	All*	2540-C
pH	All*	4500-H
Major Cations and Major Anions	All*	Various
Perchlorate (ClO_4^-)	All*	314.0
1,4-Dioxane	MW-4 (screen 2), MW-13, MW-16, MW-17 (screen 3), MW-24 (screen 1)	8270
N-Nitrosodimethylamine (NDMA)	MW-4 (screen 2), MW-13, MW-16, MW-17 (screen 3), MW-24 (screen 1)	1625M

Note:

* MW-7 was not sampled because a pilot test was in progress. The summary of groundwater quality data for MW-7 collected during the September 2000 through January 2001 can be found in the pilot test report (US Filter Pilot Study Final Report, April 2001). MW-18 (screen 1) was not sampled due to a dry screen.

In addition to groundwater samples, field quality assurance/quality control (QA/QC) samples, including trip blanks, equipment blanks, duplicate samples, and two source blanks were collected for laboratory analysis. Sampling records for each shallow well and field data sheets for deep multi-port wells are included in Appendix A. Piezometric pressure profiling records for each deep multi-port well are included in Appendix B. Laboratory analytical reports and associated chain-of-custody forms are included in Appendix C and Data Validation Reports are provided in Appendix D.

2.0 FIELD SAMPLING PROCEDURES

Two different procedures were used in collection of groundwater samples at JPL, one designed for the shallow wells and the other for the deep multi-port wells. These procedures are outlined below.

2.1 Shallow Monitoring Wells

The sampling procedure described below was applied to all the shallow JPL monitoring wells, which includes monitoring wells MW-1, MW-5, MW-6, MW-8, MW-9, MW-10, MW-13, MW-15, and MW-16.

The primary equipment used to sample the shallow wells included dedicated 2-inch diameter Grundfos Redi-Flo2® pumps, a pump controller, and a 220-volt generator. All of the dedicated Grundfos Redi-Flo2® pump systems were previously decontaminated, prior to their permanent installation. Details of the decontamination procedures for the Grundfos Redi-Flo2® pump systems are outlined in the OU-1 Field Sampling and Analysis Plan (Ebasco, 1993b).

Prior to sample collection, the water in each shallow well casing was purged (by pumping at about 2 gal/min) to remove groundwater that may have been exposed to the atmosphere and thus may not be representative of undisturbed aquifer conditions. This purged groundwater was discharged into 500- or 1,000-gallon polyethylene storage tanks for subsequent disposal by SOTA personnel pursuant to USEPA guidance (EPA, 1991 and EPA, 1992).

Temperature, pH, electrical conductivity, and turbidity of the water removed from each well were monitored during purging. Pursuant to the approved workplan (Ebasco, 1993b), a minimum of three casing volumes of water was purged and temperature, pH, electrical conductivity and turbidity were monitored for stabilization. When two successive measurements made approximately 5 minutes apart were within 10 percent of each other, groundwater samples were collected using the dedicated pump. During sampling for VOCs, the pumping rate was reduced to minimize sample agitation and volatilization. All information concerning sampling was noted on the Well Development/Well Sampling Log forms included in Appendix A.

All sample bottles were filled completely (though not allowed to overflow), capped, labeled, and immediately placed in a cooler with ice. Samples collected for VOCs had zero headspace.

Calibration, or standardization of the field instruments used to measure temperature, pH, electrical conductivity, and turbidity, was performed to the manufacturer's specifications at the beginning of each sampling day.

2.2 Deep Multi-Port Monitoring Wells

Sampling of the deep multi-port monitoring wells at JPL required specialized sampling equipment manufactured by Westbay. This equipment included a pressure profiling/sampling probe with a surface control unit. Field personnel using this equipment were trained by Westbay personnel to ensure proper use. Copies of the detailed operations manuals for the Westbay

pressure profiling/sampling probe are included in the OU-1 and OU-3 Field Sampling and Analysis Plans (Ebasco, 1993b; 1994).

The Westbay sampling probe and sample-collection bottles were decontaminated prior to sampling each screened interval in the deep multi-port wells according to the following procedures:

- Each 250-mL stainless-steel sample-collection bottle was washed in a solution of non-phosphate detergent (Liquinox[®]) and distilled water followed by washing each bottle in a solution of an acidic detergent (Citranox[®]) and distilled water.
- Each bottle was rinsed with distilled water.
- The interior surfaces of the Westbay sampling probe, and the hoses and valves associated with the Westbay sample bottles, were decontaminated by forcing several volumes of a solution of Liquinox[®] and distilled water through them followed by forcing several volumes of a Citranox[®] and distilled water solution through them. A final rinse with distilled water was carried out. Each of these decontamination procedures was completed using clean plastic spray bottles used only for this purpose.

Purging before sampling was not required in the deep multi-port monitoring wells because the groundwater sample was collected directly from the aquifer, thus ensuring that the groundwater sample has not been exposed to the atmosphere. However, at each screened interval an initial sample was collected in order to check temperature, pH, electrical conductivity, and turbidity in the field. Samples for laboratory analysis were then collected and transferred to sample containers as described in Section 2.1. Results of the field analyses were recorded on groundwater sampling field data sheets, which are included in Appendix A. Calibration of field instruments was carried out according to procedures described previously.

2.3 Field Quality Assurance/Quality Control Samples

Field QA/QC samples were collected to verify the quality of sampling procedures. The field QA/QC program included the collection of duplicate samples, equipment blanks, trip blanks, and source blanks. Laboratory QA/QC samples were used by the laboratory according to analytical method requirements.

Duplicate samples for VOCs, metals, and perchlorate (ClO_4^-) analyses were collected from shallow groundwater monitoring well MW-1 and deep multi-port monitoring wells MW-11 (Screen 5), MW-12 (Screen 5), MW-17 (Screen 2), MW-19 (Screen 2), MW-20 (Screen 4), and MW-22 (Screen 4). Duplicate samples for NDMA and 1,4-dioxane analyses were collected from shallow groundwater monitoring well MW-13.

Matrix-Spike (MS) and Matrix-Spike Duplicate (MSD) samples were collected for 10% of samples analyzed for VOCs, perchlorate, NDMA, 1,4-dioxane, and metals, except for lead and total chromium (5%). These samples were used for laboratory QA/QC requirements.

One equipment blank was collected from the Westbay sample-collection bottles during each day of sampling the deep multi-port wells. Equipment blanks consisted of distilled water, passed through the sampling equipment after the equipment had been decontaminated. Equipment blanks were analyzed for the same constituents as the groundwater samples, except cations and anions, total dissolved solids, and pH, to identify potential cross contamination due to inadequate decontamination. Equipment blanks were not collected during sampling of the shallow wells as only dedicated sampling equipment was used.

A trip blank, consisting of ASTM Type II water placed in two 40-mL glass vials by the laboratory, was transported with the empty sample bottles to the field and back to the laboratory with the groundwater samples. One trip blank was submitted for VOC analysis with each shipment of groundwater samples to the laboratory. Trip blanks were used to identify potential cross contamination of groundwater samples during transport.

During this sampling event, two source blanks were collected on January 15th and 23rd. The source blank was used to evaluate whether source water or sample containers may have effected the analytical results. The source blanks, consisting of sample bottles filled with distilled water, were analyzed for VOCs.

3.0 ANALYTICAL RESULTS

JPL groundwater monitoring wells MW-1, MW-3 through MW-6, and MW-8 through MW-24 were sampled from January 5 to February 1, 2001. Monitoring well MW-2 is not included in the current monitoring program, as it was replaced as a JPL monitoring point by deep multi-port monitoring well MW-14. MW-7 was also not included in this quarter's sampling because a pilot test was in progress at this time. The summary of groundwater quality data for MW-7 collected during the September 2000 through January 2001 can be found in the pilot test report (US Filter Pilot Study Final Report, April 2001).

The groundwater samples collected during this sampling event were analyzed for volatile organic compounds (VOCs), arsenic (As), lead (Pb), total chromium (Cr), hexavalent chromium [Cr(VI)], and perchlorate (ClO_4^-). Samples collected from selected wells/screens were also analyzed for 1,4-dioxane and NDMA. In addition, all samples were analyzed for general water chemistry parameters that included major cations and anions [sodium (Na^+), potassium (K^+), calcium (Ca^{2+}), magnesium (Mg^{2+}), iron (Fe^{2+}), alkalinity ($\text{CO}_3^{2-} + \text{HCO}_3^-$), chloride (Cl^-), sulfate (SO_4^{2-}), nitrate (NO_3^-)], total dissolved solids (TDS), and pH. A summary of the samples collected and the analyses performed on each sample is presented in Table 3-1. Analytical laboratory reports and associated chain-of-custody forms are included in Appendix C.

Nine compounds of concern have been most commonly reported above the laboratory detection limits (carbon tetrachloride (CCl_4), trichloroethene (TCE), tetrachloroethene (PCE), 1,1-dichloroethane (1,1-DCA), 1,2-dichloroethane (1,2-DCA), 1,1-dichloroethene (1,1-DCE), Freon 113, Chloroform, and perchlorate). The concentrations of these compounds have been plotted from August/September 1996 through January/February 2001 as presented in Figures 3-13 through 3-114.

3.1 Volatile Organic Compounds Results

Groundwater samples collected during the January-February 2001 sampling event were analyzed for over 60 different VOCs in accordance with EPA Method 524.2. To present the results on concentration contour maps, the JPL aquifer was divided into four aquifer layers based primarily on correlations interpreted from lithologic cross sections. Listed in Table 3-2 are the JPL monitoring well screens and their corresponding aquifer layers. Results of the analyses for VOCs in the January-February 2001 samples are summarized in Table 3-3 along with the State and Federal Maximum Contaminant Levels (MCLs) for drinking water as listed in Title 22 of the California Code of Regulations and in the EPA Health Advisory Guidelines. A small number of compounds were detected in the JPL samples, and only three VOCs [carbon tetrachloride, TCE, and PCE] were found in concentrations exceeding State and/or Federal MCLs (Table 3-3).

The concentrations of carbon tetrachloride, TCE, and PCE detected in each aquifer layer have been contoured on site maps to show the spatial distribution of each constituent (Figures 3-1 through 3-10). For instances where a constituent was not detected in a particular aquifer layer, a contour map was not prepared for that constituent in that particular layer. As an example, 1,2-dichloroethane (although previously contoured) was not detected in water samples from any aquifer layer and accordingly, no contour map for 1,2-dichloroethane is provided in this report.

Carbon tetrachloride concentrations detected in aquifer layers 1, 2, and 3 are contoured in Figures 3-1, 3-2, and 3-3, respectively. Figures 3-4, 3-5, and 3-6 display contours of TCE concentrations detected in layers 1, 2, and 3, respectively, and Figures 3-7, 3-8, and 3-9 show contours of PCE detected in aquifer layers 1, 2, and 3, respectively. A summary of the VOC results compiled from all long-term quarterly sampling events completed to date is provided in Table 3-4.

Carbon tetrachloride in excess of the State MCL (0.5 µg/L) was found in six on-site wells and two off-site wells (Table 3-3, Figures 3-1, 3-2, and 3-3). The Federal MCL (5.0 µg/L) was exceeded in three on-site wells. The highest concentrations of carbon tetrachloride were found in on-site wells MW-13, MW-16, MW-24 (Screen 1), MW-12 (Screen 4) and MW-3 (Screen 3).

TCE concentrations exceeded the State and Federal MCL (5.0 µg/L) in two on-site wells, and two off-site wells (Table 3-3, Figures 3-4, 3-5, and 3-6). The highest levels of TCE were found in on-site wells MW-13, MW-24 (Screen 1), and off-site well MW-21 (Screen 1).

PCE was detected at low levels in several on-site and off-site wells (Figures 3-7, 3-8, and 3-9). The State and Federal MCL (5.0 µg/L) was exceeded only in off-site well MW-21 (Screen 5).

Additional data was obtained from the California Department of Health Services for the nearby municipal production wells owned and operated by the City of Pasadena and other water purveyors. Data from several production wells exceeded State MCL. Carbon tetrachloride was sampled on January 23, 2001 and reported at concentrations of 2.55 µg/L (City of Pasadena Well #52). PCE was sampled on October 2, 2000 and reported at concentrations of 12 µg/L (Valley Water Company Well #1), on September 7, 2000 at 5 µg/L (Valley Water Company Well #2), and on December 26, 2000 at concentrations of 13 µg/L (Las Flores Water Company Well #2). TCE was sampled on September 5, 2000 and reported at concentrations of 6 µg/L (Lincoln Ave Water Company Well #3 and #5). These additional data were used to contour carbon tetrachloride, PCE, and TCE in Figures 3-1 through 3-10.

3.2 Perchlorate Results

Perchlorate (ClO_4^-) analyses were conducted on groundwater samples from the January-February 2001 event using ion chromatography (EPA 314.0, modified) and the results are included in Table 3-3. No MCLs for perchlorate have been established to date. However, the California Department of Health Services has established an Interim Action Level (AL) of 18 µg/L for perchlorate. Perchlorate was detected in a total of 12 wells (Table 3-3), with concentrations in three of the 12 wells exceeding the AL (18 µg/L). Perchlorate concentrations are contoured in Figures 3-10, 3-11, and 3-12 for aquifer layers 1, 2, and 3, respectively. The highest perchlorate levels were observed on-site in wells MW-5, MW-16, and MW-24 (Screens 1 and 2).

Additional data was obtained from the California Department of Health Services for the nearby municipal production wells. Only the sample from City of Pasadena Well #52 exceeded the AL of 18 µg/L. The wells were sampled for perchlorate on January 23, 2001 and reported at concentrations of 6.8 µg/L (City of Pasadena Ventura well), 24.41 µg/L (City of Pasadena Well

#52), and 5.17 µg/L (City of Pasadena Windsor well). These additional data were used to contour perchlorate in Figures 3-11 and 3-12.

3.3 Metals Results

Groundwater samples were analyzed for the following metals: arsenic, lead, total chromium, and hexavalent chromium. The results of the metals analyses are presented in Table 3-5, and are summarized below.

Arsenic and lead were not detected in any of the samples collected during the January-February 2001 event. Total chromium was detected in fifteen wells at concentrations below both State and Federal MCLs (0.05 and 0.10 mg/L, respectively) and in well MW-13 just above both the State and Federal MCLs. Hexavalent chromium was detected in one on-site shallow well, MW-13 at 0.032 mg/L. At this time, neither State nor Federal regulatory agencies have established MCLs for hexavalent chromium.

Table 3-6 presents a summary of metals data from all quarterly sampling events completed to date during the long-term monitoring program.

3.4 1,4-Dioxane and NDMA Results

Groundwater samples were collected from five locations [MW-13, MW-16, MW-4 (screen 2), MW-17 (screen 3), and MW-24 (Screen 1)] during the January-February 2001 sampling event and analyzed for 1,4-dioxane and NDMA as yearly confirmation pursuant the regulatory agencies. Samples from these five wells have historically contained the highest reported concentrations of VOCs at JPL. 1,4-Dioxane was analyzed using EPA Method 8270 and NDMA was analyzed using EPA Method 1625 (modified). At this time, neither State nor Federal MCLs/ALs have not been established for 1,4-dioxane. No State or Federal MCLs have been established for NDMA. The current drinking water AL for NDMA is 0.02 µg/L. The method detection limits for 1,4-dioxane and NDMA are 0.2 µg/L and 0.00027 µg/L, respectively. NDMA was not detected in any of the groundwater samples collected. 1,4-dioxane was detected in three of the five wells analyzed including; MW-13 (1.94 µg/L), MW-16 (5.51 µg/L) and MW-24 screen 1 (3.62 µg/L). No detectable concentrations of 1,4-dioxane were reported in samples from MW-17 (screen 3) and MW-4 (screen 2).

3.5 Quality Assurance/Quality Control Results

Review of the QA/QC data provided with the laboratory analytical results indicates that all of the analytical results obtained from January-February 2001 samples are acceptable for their intended use of characterizing aquifer quality. Surrogate compound, matrix and blank spike, and method blank results were used by the laboratory to determine the accuracy and precision of the analytical techniques with respect to the JPL groundwater matrix, and to identify anomalous results due to laboratory contamination or instrument malfunction.

In addition to laboratory QA/QC samples, SOTA personnel collected QA/QC samples in the field in accordance with Quality Assurance Project Plan (QAPP) (Ebasco, 1993c). These samples included duplicate samples, equipment blanks, trip blanks, and source blanks.

Duplicate samples were used to evaluate the precision of the laboratory analyses. Duplicate samples for VOCs, metals, and perchlorate analyses were collected from shallow groundwater monitoring well MW-1 and deep multi-port monitoring wells MW-17 (Screen 2), MW-20 (Screen 4), MW-19 (Screen 2), MW-11 (Screen 5), MW-22 (Screen 4), and MW-12 (Screen 5). Duplicate samples for NDMA and 1,4-dioxane analyses were collected from shallow groundwater monitoring well MW-13. All of the analytical results for the duplicate samples were comparable to the results of the original groundwater samples (Table 3-3 and Table 3-5).

Fourteen equipment blanks and nineteen trip blanks were submitted for analysis during the January-February 2001 sampling event. Methyl tertiary butyl ether (MTBE) was detected at levels below the practical quantitation limit (PQL) in the source blank and five of the fourteen equipment blanks. Fifteen groundwater samples associated with these equipment blanks also had detectable concentrations of MTBE, but were well below State and Federal MCLs (Table 3-3). However, MTBE was detected in four of the equipment blanks exceeding State and Federal MLCs. The wells associated with these equipment blanks were re-sampled on February 16-17, 2001 to confirm or deny the presence of MTBE. MTBE was not detected in any of the equipment blanks during re-sampling activities. However, MTBE was detected at MW-22 in one screen (0.4 J $\mu\text{g/L}$), below the PQL and the remaining groundwater samples associated with these blanks had non-detectable concentrations of MTBE reported during re-sampling activities (Table 3-3).

4.0 GENERAL WATER CHEMISTRY

As part of this groundwater monitoring event, groundwater samples were submitted for analysis of major cations and anions in an effort to further understand the natural water chemistry of the groundwater beneath and adjacent to JPL. All groundwater samples collected during the January/February 2001 event were analyzed for major cations (Ca^{2+} , Fe^{2+} , Mg^{2+} , Na^+ , and K^+), major anions (Cl^- , SO_4^{2-} , NO_3^- , CO_3^{2-} and HCO_3^-), pH, and total dissolved solids (TDS). The water chemistry results for this quarterly sampling event are summarized in Table 4-1.

4.1 Analytical Results

To illustrate the relative proportions of the major cations and anions in each groundwater sample, the water chemistry results from the January-February 2001 event have been plotted as Stiff diagrams (Figures 4-1, 4-2, and 4-3). Based on previous review of the water chemistry data, groundwater at JPL has been divided into three general types, based on the predominant cation and anion, and the occurrence of other ions. These general water types include:

- Type 1. Calcium-bicarbonate groundwater. Groundwater with Ca as the dominant cation and HCO_3^- as the dominant anion.
- Type 2. Sodium-bicarbonate groundwater. Groundwater with Na as the dominant cation and HCO_3^- as the dominant anion.
- Type 3. Calcium-bicarbonate/chloride/sulfate groundwater. Groundwater with Ca as the dominant cation and HCO_3^- as the dominant anion, but with relatively elevated Cl and SO_4 concentrations.

In addition to the general water types described above, the previous analytical data suggested that these water types may mix or blend with one another, creating "intermediate" water types. For example, water Types 1 and 2 can mix to create a 1+2 or a 2+1 type, where the first number indicates the general water type that is predominant in the mixture. The Stiff diagrams presented in Figures 4-1 through 4-3 contain some graphical representations of these "intermediate" water types.

Water Type 1, the calcium-bicarbonate water type, was again found to be the most common water type at JPL during the January-February 2001 sampling event. In general, it was found at relatively shallow depths in wells located around the Arroyo Seco. Water Type 2, the sodium-bicarbonate water type (including associated blends), was typically found in the deeper well screens of both the on-site and off-site multi-port wells. Type 3 groundwater, the calcium-bicarbonate/chloride/sulfate water type, was prevalent in the shallower screens of the monitoring wells located upgradient and to the south of the JPL facility. A list of water types and JPL monitoring wells in which they occur is provided in Table 4-2.

4.2 Quality Assurance/Quality Control Results

To evaluate the general quality of the water chemistry data, two independent geochemical quality control checks of the analytical results from the January-February 2001 samples were performed.

These checks included calculation of total ion-charge balances, and comparison of errors in the measured TDS values or the presence of other cations/anions. The results of these checks for the January-February 2001 water-chemistry results are presented in Table 4-3. Charge balances are expressed as the percent difference between the sum of the equivalent weights of all of the anions and all of the cations analyzed (Freeze and Cherry, 1979). The ideal range for charge balances is ± 5 percent, although charge balance errors up to ± 10 percent are considered acceptable.

The charge balances for 26 of the 73 samples analyzed for major anions and cations during the January-February 2001 sampling event are within the ideal range (± 5 percent) for all wells. Thirty-seven of the samples had charge balances between 5 and 10 percent, and ten samples had a charge balance over 10 percent. This indicates that 86% of the results are acceptable for their intended use.

The TDS results were used to verify that all of the important water-chemistry constituents were analyzed. This is done by comparing the measured laboratory TDS value to a calculated TDS value (calculated as the sum of the concentrations of all the major anions and cations) for each sample. Under ideal conditions, the ratio should range from 1.0 to 1.2 (Oppenheimer and Eaton, 1986).

The ratio of measured to calculated TDS values for the January-February 2001 water-chemistry results fell within the ideal range (0.8 to 1.2) for 39 of the 73 sets of water chemistry analyses performed (Table 4-3). The ratio for the remaining 34 sets of water chemistry data fell slightly outside this ideal range suggesting minor analytical errors, indicating that errors in the measured TDS values or the presence of other cations/anions. However, these data are suitable for their intended use of identifying differences in water chemistry across the site.

5.0 DATA VERIFICATION AND VALIDATION

The purpose of data verification and validation is to assure that the data collected meet the DQOs outlined in the Quality Assurance Project Plan of the Groundwater Monitoring Plan and that the data are of sufficient quality for use in meeting the objectives outlined in the Groundwater Monitoring Plan (Ebasco, 1993c).

5.1 Data Verification

All data collected were subjected to data verification. In general, verification identifies non-technical errors in the data package that can be corrected (e.g., typographical errors). Data verification included proofreading and editing hard-copy data reports to assure that data correctly represent the analytical measurement. Data verification also included verifying that the sample identifiers on laboratory reports (hard copy) match those on the chain-of-custody record.

5.2 Data Validation

Data validation was performed by an independent subcontractor, Laboratory Data Consultants, Inc., Carlsbad, CA (LDC). One hundred percent of all data analyzed by a fixed-base analytical laboratory (APCL) were validated. One hundred percent of the data were subjected to Level IV quality assurance requirements of the Navy (Navy, 1996 and Navy, 1999).

Data validation is a systematic process used to interpret, define, and document analytical data quality and determine if the data quality is sufficient to support the intended use(s) of the data. Validation of a data package includes a reconstruction of sample preparation and analysis activities from the raw data and reconciliation of the raw data with the reduced results, identification of data anomalies, and qualification of data to identify data usability limitations. The data were further evaluated to help ensure suitability and usability for the purpose of the groundwater monitoring report.

5.3 Data Validation Qualifiers

Analytical data were qualified based on data validation reviews. For chemical data, qualifiers were assigned in accordance with the applicable U.S. EPA National Functional Guidelines for Data Validation (EPA, 1994a and 1994b). Data may be rejected for non-compliance with method requirements during the course of validation. Data may also be qualified as unusable in dilutions and reanalysis to yield only one complete set of data for a given sample and eliminate redundant data. The intent of the latter classification is to guide data users in choosing the best set of sample analytical results when reanalysis and/or dilutions exist. Individual laboratory data flags can be found in Appendix D.

6.0 WATER-LEVEL MEASUREMENTS

Water-level measurements were recorded before sampling, on December 28-29, 2000, and after sampling, on January 30-31, 2001, to evaluate groundwater flow directions and gradients beneath and adjacent to JPL. Water levels in the shallow wells were measured using a Solinst® water level meter. In the deep multi-port wells, the hydraulic head at each sampling port was measured with a Westbay pressure-transducer probe.

Water table elevation measurements taken before sampling are provided in Table 5-1 and have been contoured in Figure 5-1. Water-table elevation measurements taken after sampling are provided in Table 5-2 and have been contoured in Figure 5-2. The hydraulic heads measured at each deep multi-port well screen before and after sampling are presented graphically in Figures 5-3 and 5-4, respectively. The pressure-profile records for the deep wells are included in Appendix B.

As indicated by Figures 5-1 and 5-2, the estimated groundwater flow direction both before and after sampling was primarily to the south through JPL and then turned east across the arroyo and plain in the vicinity of nearby municipal production wells. Groundwater gradients ranged from over 0.2 feet per foot near MW-15, at the northern end of the arroyo, to roughly 0.01 feet per foot across the arroyo and plain.

7.0 CONCLUSIONS AND RECOMMENDATIONS

The following conclusions are based upon interpretation of analytical data and field measurements collected during the January-February 2001 event of the JPL Long-Term Quarterly Monitoring Program:

- The groundwater contaminants and contaminant plumes are adequately defined and relatively stable, with the possible exception of; 1) perchlorate concentrations, which increased at MW-24 and MW-5, and; 2) 1,4-dioxane which reappeared in MW-16 and was detected for the first time in down gradient wells MW-13 and MW-24.
- General water chemistry analyses indicate an adequately defined and relatively stable groundwater chemistry beneath JPL, generally consistent with previously reported data (Foster Wheeler, 2000).
- The estimated groundwater flow direction was observed to be primarily to the south and east across JPL with an eastward flow direction in the plain near the City of Pasadena municipal production wells. This observation is generally consistent with previously reported data (Foster Wheeler, 2000).

Based on the results of the JPL Long-Term Quarterly Monitoring Program, an evaluation of the groundwater monitoring program should be conducted to update the program, which may include a reduction in the frequency of analyte monitoring as well as the number of analytes reported.

8.0 REFERENCES

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TABLE 1-1

SUMMARY OF WELL CONSTRUCTION DETAILS FOR JPL GROUNDWATER MONITORING WELLS

Well Number	Well Type	Year Installed	Drilling Method	Depth to Bottom of Casing (feet)	Depth of Screened Interval (feet)	Elevation Top 4 inch Casing (feet above mean sea level)	Elevation of Screened Interval (feet above mean sea level)	Multi-Port Well Screen Number	Sand Pack (feet)	Screen Slot Size (inch)	Casing Material
MW-1	Shallow Standpipe	1989	Mud Rotary	120	70-110	1116.7	1006.70-1046.70	-	99		4" PVC
MW-2	Shallow Standpipe	1989	Mud Rotary	177	127-167	1168.85	1001.85-1041.85	-			
MW-3	Deep Multi-Port	1990	Mud Rotary	700	170-180	1099.82	919.82-929.82	1	37	0.010	4" low-carbon steel
					250-260		839.82-849.82	2	47	0.010	4" low-carbon steel
					344-354		745.82-755.82	3	45	0.010	4" low-carbon steel
					555-565		534.82-544.82	4	39	0.010	4" low-carbon steel
					650-660		433.82-443.82	5	64	0.010	4" low-carbon steel
MW-4	Deep Multi-Port	1990	Mud Rotary	559	147-157	1082.72	925.72-935.72	1	48	0.010	4" low-carbon steel
					237-247		835.72-845.72	2	34	0.010	4" low-carbon steel
					318-328		754.72-764.72	3	42	0.010	4" low-carbon steel
					389-399		683.72-693.72	4	54	0.010	4" low-carbon steel
					509-519		563.72-573.72	5	52	0.010	4" low-carbon steel
MW-5	Shallow Standpipe	1990	Air Percussion	140	85-135	1071.6	936.60-986.60	-	71	0.010	4" low-carbon steel
MW-6	Shallow Standpipe	1990	Air Percussion	245	195-245	1188.52	943.52-993.52	-	62	0.010	4" low-carbon steel
MW-7	Shallow Standpipe	1990	Air Percussion	275	225-275	1212.88	937.88-987.88	-	63	0.010	4" low-carbon steel
MW-8	Shallow Standpipe	1992	Air Percussion	205	155-205	1139.53	934.53-984.53	-	75	0.010	4" low-carbon steel
MW-9	Shallow Standpipe	1992	Air Percussion	68	18-68	1106.02	1038.02-1088.02	-	56	0.010	4" PVC
MW-10	Shallow Standpipe	1992	Air Percussion	155	105-155	1087.71	932.71-982.71	-	67.5	0.010	4" PVC (0-85') 4" stainless steel (85'-105')
MW-11	Deep Multi-Port	1992	Mud Rotary	680	140-150	1139.35	989.35-999.35	1	24	0.010	4" low-carbon steel
					250-260		879.35-889.35	2	22	0.010	4" low-carbon steel
					420-430		709.35-719.35	3	26	0.010	4" low-carbon steel
					515-525		614.35-624.35	4	26	0.010	4" low-carbon steel
					630-640		499.35-509.35	5	28	0.010	4" low-carbon steel
MW-12	Deep Multi-Port	1994	Mud Rotary	596	135-145	1102.14	957.14-967.14	1	22	0.010	4" low-carbon steel
					240-250		852.14-862.14	2	19	0.010	4" low-carbon steel
					315-325		777.14-787.14	3	21	0.010	4" low-carbon steel
					430-440		662.14-672.14	4	22	0.010	4" low-carbon steel
					546-556		546.14-556.14	5	21	0.010	4" low-carbon steel
MW-13	Shallow Standpipe	1994	Air Rotary	235	180-230	1183.47	953.47-1003.47	-	65	0.010	4" PVC

TABLE 1-1

SUMMARY OF WELL CONSTRUCTION DETAILS FOR JPL GROUNDWATER MONITORING WELLS

Well Number	Well Type	Year Installed	Drilling Method	Depth to Bottom of Casing (feet)	Depth of Screened Interval (feet)	Elevation Top 4 inch Casing (feet above mean sea level)	Elevation of Screened Interval (feet above mean sea level)	Multi-Port Well Screen Number	Sand Pack (feet)	Screen Slot Size (inch)	Casing Material
MW-14	Deep Multi-Port	1994	Mud Rotary	588	205-215	1173.42	958.42-968.42	1	22	0.010	4" low-carbon steel
					275-285		888.42-898.42	2	26	0.010	4" low-carbon steel
					380-390		783.42-793.42	3	22	0.010	4" low-carbon steel
					453-463		710.42-720.42	4	27	0.010	4" low-carbon steel
					538-548		625.42-635.42	5	21	0.010	4" low-carbon steel
MW-15	Shallow Standpipe	1994	Air Percussion	74	19-69	1120.66	1051.66-1101.66	-	60	0.010	4" stainless steel
MW-16	Shallow Standpipe	1994	Air Percussion	285	230-280	1236.27	956.27-1006.27	-	62	0.010	4.5" PVC
MW-17	Deep Multi-Port	1995	Mud Rotary	774	246-256	1190.99	934.99-944.99	1	24	0.010	4" low-carbon steel
					366-376		814.99-824.99	2	24	0.010	4" low-carbon steel
					466-476		714.99-724.99	3	27	0.010	4" low-carbon steel
					578-588		602.99-612.99	4	25	0.010	4" low-carbon steel
					723-733		457.99-467.99	5	22	0.010	4" low-carbon steel
MW-18	Deep Multi-Port	1995	Mud Rotary	732	266-276	1225.34	949.34-959.34	1	22	0.010	4" low-carbon steel
					326-336		889.34-899.34	2	24	0.010	4" low-carbon steel
					421-431		794.34-804.34	3	20	0.010	4" low-carbon steel
					561-571		654.34-664.34	4	22	0.010	4" low-carbon steel
					681-691		534.34-544.34	5	23	0.010	4" low-carbon steel
MW-19	Deep Multi-Port	1995	Mud Rotary	543	240-250	1143.2	893.20-903.20	1	20	0.010	4" low-carbon steel
					310-320		823.20-833.20	2	20	0.010	4" low-carbon steel
					390-400		743.20-753.20	3	17	0.010	4" low-carbon steel
					442-452		691.20-701.20	4	20	0.010	4" low-carbon steel
					492-502		641.20-651.20	5	22	0.010	4" low-carbon steel
MW-20	Deep Multi-Port	1995	Mud Rotary	948	228-238	1164.89	926.89-936.89	1	24	0.010	4" low-carbon steel
					388-398		766.89-776.89	2	23	0.010	4" low-carbon steel
					558-568		596.89-606.89	3	19	0.010	4" low-carbon steel
					698-708		456.89-466.89	4	23	0.010	4" low-carbon steel
					898-908		256.89-266.89	5	27	0.010	4" low-carbon steel
MW-21	Deep Multi-Port	1995	Mud Rotary	416	86-96	1058.99	962.99-972.99	1	26	0.010	4" low-carbon steel
					156-166		892.99-902.99	2	25	0.010	4" low-carbon steel
					236-246		812.99-822.99	3	21	0.010	4" low-carbon steel
					306-316		742.99-752.99	4	22	0.010	4" low-carbon steel
					366-376		682.99-692.99	5	22	0.010	4" low-carbon steel

TABLE 1-1

SUMMARY OF WELL CONSTRUCTION DETAILS FOR JPL GROUNDWATER MONITORING WELLS

Well Number	Well Type	Year Installed	Drilling Method	Depth to Bottom of Casing (feet)	Depth of Screened Interval (feet)	Elevation Top 4 inch Casing (feet above mean sea level)	Elevation of Screened Interval (feet above mean sea level)	Multi-Port Well Screen Number	Sand Pack (feet)	Screen Slot Size (inch)	Casing Material
MW-22	Deep Multi-Port	1997	Mud Rotary	634	239-249	1176.81	927.81-937.81	1	24	0.010	4" low-carbon steel
					324-334		842.81-852.81	2	21	0.010	4" low-carbon steel
					384-394		782.81-792.81	3	22	0.010	4" low-carbon steel
					464-474		702.81-712.81	4	23	0.010	4" low-carbon steel
					584-594		582.81-592.81	5	22	0.010	4" low-carbon steel
MW-23	Deep Multi-Port	1997	Mud Rotary	590	170-180	1108.34	928.34-938.34	1	23	0.010	4" low-carbon steel
					250-260		843.34-858.34	2	20.5	0.010	4" low-carbon steel
					315-325		783.34-793.34	3	18	0.010	4" low-carbon steel
					440-450		658.34-668.34	4	25	0.010	4" low-carbon steel
					540-550		558.34-568.34	5	22.5	0.010	4" low-carbon steel
MW-24	Deep Multi-Port	1997	Mud Rotary	725	275-285	1200.91	915.91-925.91	1	25	0.010	4" low-carbon steel
					370-380		820.91-830.91	2	50	0.010	4" low-carbon steel
					430-440		760.91-770.91	3	25	0.010	4" low-carbon steel
					550-560		640.91-650.91	4	19	0.010	4" low-carbon steel
					675-685		515.91-525.91	5	16	0.010	4" low-carbon steel

TABLE 3-1
SUMMARY OF ANALYSES PERFORMED ON GROUNDWATER SAMPLES COLLECTED FROM
JPL MONITORING WELLS,
JANUARY-FEBRUARY 2001

Sample Location	VOCs (524.2)	Total Cr (200.8)	Hexavalent Cr (7196)	Perchlorate (CADHS/ EPA 314)	Lead (200.8)	Arsenic (200.9)	NDMA (1625M)	1,4-Dioxane (8270)	Major Anions and Cations	Total Dissolved Solids (2540-C)	pH (4500-H)
MW-1	x	x	x	x	x	x			x	x	x
MW-3											
Screen 1	x	x	x	x	x	x			x	x	x
Screen 2	x	x	x	x	x	x			x	x	x
Screen 3	x	x	x	x	x	x			x	x	x
Screen 4	x	x	x	x	x	x			x	x	x
Screen 5	x	x	x	x	x	x			x	x	x
MW-4											
Screen 1	x	x	x	x	x	x			x	x	x
Screen 2	x	x	x	x	x	x	x	x	x	x	x
Screen 3	x	x	x	x	x	x			x	x	x
Screen 4	x	x	x	x	x	x			x	x	x
Screen 5	x	x	x	x	x	x			x	x	x
MW-5	x	x	x	x	x	x			x	x	x
MW-6	x	x	x	x	x	x			x	x	x
MW-7	NOT SAMPLED - PILOT TEST										
MW-8	x	x	x	x	x	x			x	x	x
MW-9	x	x	x	x	x	x			x	x	x
MW-10	x	x	x	x	x	x			x	x	x
MW-11											
Screen 1	x	x	x	x	x	x			x	x	x
Screen 2	x	x	x	x	x	x			x	x	x
Screen 3	x	x	x	x	x	x			x	x	x
Screen 4	x	x	x	x	x	x			x	x	x
Screen 5	x	x	x	x	x	x			x	x	x
MW-12											
Screen 1	x	x	x	x	x	x			x	x	x
Screen 2	x	x	x	x	x	x			x	x	x
Screen 3	x	x	x	x	x	x			x	x	x
Screen 4	x	x	x	x	x	x			x	x	x
Screen 5	x	x	x	x	x	x			x	x	x
MW-13	x	x	x	x	x	x	x	x	x	x	x
MW-14											
Screen 1	x	x	x	x	x	x			x	x	x
Screen 2	x	x	x	x	x	x			x	x	x
Screen 3	x	x	x	x	x	x			x	x	x
Screen 4	x	x	x	x	x	x			x	x	x
Screen 5	x	x	x	x	x	x			x	x	x
MW-15	x	x	x	x	x	x			x	x	x
MW-16	x	x	x	x	x	x	x	x	x	x	x
MW-17											
Screen 1	x	x	x	x	x	x			x	x	x
Screen 2	x	x	x	x	x	x			x	x	x
Screen 3	x	x	x	x	x	x	x	x	x	x	x
Screen 4	x	x	x	x	x	x			x	x	x
Screen 5	x	x	x	x	x	x			x	x	x

TABLE 3-1
SUMMARY OF ANALYSES PERFORMED ON GROUNDWATER SAMPLES COLLECTED FROM
JPL MONITORING WELLS,
JANUARY-FEBRUARY 2001

Sample Location	VOCs (524.2)	Total Cr (200.8)	Hexavalent Cr (7196)	Perchlorate (CADHS/ EPA 314)	Lead (200.8)	Arsenic (200.9)	NDMA (1625M)	1,4-Dioxane (8270)	Major Anions and Cations	Total Dissolved Solids (2540-C)	pH (4500-H)
MW-18											
Screen 1	NOT SAMPLED - DRY										
Screen 2	x	x	x	x	x	x			x	x	x
Screen 3	x	x	x	x	x	x			x	x	x
Screen 4	x	x	x	x	x	x			x	x	x
Screen 5	x	x	x	x	x	x			x	x	x
MW-19											
Screen 1	x	x	x	x	x	x			x	x	x
Screen 2	x	x	x	x	x	x			x	x	x
Screen 3	x	x	x	x	x	x			x	x	x
Screen 4	x	x	x	x	x	x			x	x	x
Screen 5	x	x	x	x	x	x			x	x	x
MW-20											
Screen 1	x	x	x	x	x	x			x	x	x
Screen 2	x	x	x	x	x	x			x	x	x
Screen 3	x	x	x	x	x	x			x	x	x
Screen 4	x	x	x	x	x	x			x	x	x
Screen 5	x	x	x	x	x	x			x	x	x
MW-21											
Screen 1	x	x	x	x	x	x			x	x	x
Screen 2	x	x	x	x	x	x			x	x	x
Screen 3	x	x	x	x	x	x			x	x	x
Screen 4	x	x	x	x	x	x			x	x	x
Screen 5	x	x	x	x	x	x			x	x	x
MW-22											
Screen 1	x	x	x	x	x	x			x	x	x
Screen 2	x	x	x	x	x	x			x	x	x
Screen 3	x	x	x	x	x	x			x	x	x
Screen 4	x	x	x	x	x	x			x	x	x
Screen 5	x	x	x	x	x	x			x	x	x
MW-23											
Screen 1	x	x	x	x	x	x			x	x	x
Screen 2	x	x	x	x	x	x			x	x	x
Screen 3	x	x	x	x	x	x			x	x	x
Screen 4	x	x	x	x	x	x			x	x	x
Screen 5	x	x	x	x	x	x			x	x	x
MW-24											
Screen 1	x	x	x	x	x	x	x	x	x	x	x
Screen 2	x	x	x	x	x	x			x	x	x
Screen 3	x	x	x	x	x	x			x	x	x
Screen 4	x	x	x	x	x	x			x	x	x
Screen 5	x	x	x	x	x	x			x	x	x

TABLE 3-2
LOCATION OF WELL SCREENS IN AQUIFER LAYERS

WELL NUMBER	AQUIFER LAYERS			
	Layer 1	Layer 2	Layer 3	Layer 4
MW-1	x			
MW-3				
Screen 1	x			
Screen 2		x		
Screen 3		x		
Screen 4			x	
Screen 5			x	
MW-4				
Screen 1	x			
Screen 2		x		
Screen 3		x		
Screen 4		x		
Screen 5			x	
MW-5	x			
MW-6	x			
MW-7	x			
MW-8	x			
MW-9	x			
MW-10	x			
MW-11				
Screen 1	x			
Screen 2		x		
Screen 3		x		
Screen 4		x		
Screen 5			x	
MW-12				
Screen 1	x			
Screen 2		x		
Screen 3		x		
Screen 4		x		
Screen 5			x	
MW-13	x			
MW-14				
Screen 1	x			
Screen 2		x		
Screen 3		x		
Screen 4			x	
Screen 5			x	
MW-15	x			
MW-16	x			
MW-17				
Screen 1	x			
Screen 2		x		
Screen 3		x		
Screen 4			x	
Screen 5			x	

TABLE 3-2
LOCATION OF WELL SCREENS IN AQUIFER LAYERS

WELL NUMBER	AQUIFER LAYERS			
	Layer 1	Layer 2	Layer 3	Layer 4
MW-18				
Screen 1	x			
Screen 2	x			
Screen 3		x		
Screen 4			x	
Screen 5			x	
MW-19				
Screen 1	x			
Screen 2		x		
Screen 3		x		
Screen 4			x	
Screen 5			x	
MW-20				
Screen 1	x			
Screen 2		x		
Screen 3			x	
Screen 4			x	
Screen 5				x
MW-21				
Screen 1	x			
Screen 2		x		
Screen 3		x		
Screen 4			x	
Screen 5			x	
MW-22				
Screen 1	x			
Screen 2		x		
Screen 3		x		
Screen 4			x	
Screen 5			x	
MW-23				
Screen 1	x			
Screen 2		x		
Screen 3		x		
Screen 4			x	
Screen 5			x	
MW-24				
Screen 1	x			
Screen 2		x		
Screen 3		x		
Screen 4			x	
Screen 5			x	

TABLE 3-3

**SUMMARY OF VOLATILE ORGANIC COMPOUNDS AND PERCHLORATE DETECTED IN
GROUNDWATER SAMPLES COLLECTED FROM JPL MONITORING WELLS, JANUARY-FEBRUARY 2001**

(concentrations in µg/L)

Values above state or Federal MCLs, or above/equal to action levels, are bold and shaded

Sampling Location	Sample Number	Carbon Tetrachloride	TCE	PCE	1,1-DCA	1,2-DCA	1,1-DCE	Freon 113	Chloroform	Other Volatile Organic Compounds (including 1,4-Dioxane)	Perchlorate
MW-1	MW-1	--	--	--	--	--	--	--	--	0.5 J Benzene	--
MW-1 (DUP)	MW-1D	--	--	--	--	--	--	--	--	0.8 Benzene	--
MW-3											
Screen 1	MW-3-1	--	--	--	--	--	--	--	--	--	--
Screen 2	MW-3-2	--	--	--	--	--	--	--	--	--	--
Screen 3	MW-3-3	2.6	0.9	--	--	--	--	--	32.9	--	--
Screen 4	MW-3-4	--	--	--	--	--	--	--	--	--	--
Screen 5	MW-3-5	--	--	--	--	--	--	--	--	0.3 J Ethylbenzene 0.5 J Styrene	--
MW-4											
Screen 1	MW-4-1	--	--	--	--	--	--	--	--	2.0 Methylene chloride	--
Screen 2	MW-4-2	--	0.7 J	--	--	--	--	--	--	1.0 Methylene chloride	7.0
Screen 3	MW-4-3	--	--	--	--	--	--	--	--	1.0 Methylene chloride 1.0 Ethylbenzene	--
Screen 4	MW-4-4	--	--	--	--	--	--	--	--	2.0 J Methylene chloride	--
Screen 5	MW-4-5	--	--	--	--	--	--	--	--	1.0 Methylene chloride 3.8 Methyl tertiary butyl ether	--
MW-5	MW-5	--	4.5	--	--	--	--	--	0.5 J	--	21
MW-6	MW-6	--	--	3.0	1.1	--	--	--	0.5 J	0.4 J Methylene Chloride 1.0 J Methyl tertiary butyl ether	--
MW-7	NOT SAMPLED – PILOT TEST										1,100*
MW-8	MW-8	1.1	0.9	--	--	--	--	--	0.4 J	0.5 J Methyl tertiary butyl ether 1.0 Trichloro-fluoromethane	5.0
MW-9	MW-9	--	--	--	--	--	--	--	--	--	--
MW-10	MW-10	--	0.6	1.6	0.9	--	--	--	1.0	--	5.0

TABLE 3-3

**SUMMARY OF VOLATILE ORGANIC COMPOUNDS AND PERCHLORATE DETECTED IN
GROUNDWATER SAMPLES COLLECTED FROM JPL MONITORING WELLS, JANUARY-FEBRUARY 2001**

(concentrations in µg/L)

Values above state or Federal MCLs, or above/equal to action levels, are bold and shaded

Sampling Location	Sample Number	Carbon Tetrachloride	TCE	PCE	1,1-DCA	1,2-DCA	1,1-DCE	Freon 113	Chloroform	Other Volatile Organic Compounds (including 1,4-Dioxane)	Perchlorate
MW-11											
Screen 1	MW-11-1	--	--	--	--	--	--	--	0.4 J	--	--
Screen 2	MW-11-2	--	--	--	--	--	--	--	0.7	--	--
Screen 3	MW-11-3	--	--	--	--	--	--	--	--	--	--
Screen 4	MW-11-4	--	--	--	--	--	--	--	0.3 J	0.6 Methylene Chloride	--
Screen 5	MW-11-5	--	--	--	--	--	--	--	--	--	--
Screen 5 (DUP)	MW-11-5D	--	--	--	--	--	--	--	--	1.0 J 2-Butanone	--
MW-12											
Screen 1	MW-12-1	--	--	--	--	--	--	--	--	--	--
Screen 2	MW-12-2	--	--	--	--	--	--	--	--	--	--
Screen 3	MW-12-3	2.0 J	--	--	--	--	--	--	--	--	--
Screen 4	MW-12-4	3.0	--	--	--	--	--	--	--	--	6.0
Screen 5	MW-12-5	--	--	--	--	--	--	--	--	--	--
Screen 5 (DUP)	MW-12-5D	1.0	--	--	--	--	--	--	--	--	--
MW-13	MW-13	7.2	5.4	0.6	1.0	--	0.5 J	--	3.4	1.94 1,4-Dioxane 1.3 Trichlorofluoromethane	--
MW-14											
Screen 1	MW-14-1	--	--	1.4	1.1	--	--	--	0.6	--	--
Screen 2	MW-14-2	--	2.5	0.7	0.5 J	--	--	--	0.7	--	--
Screen 3	MW-14-3	--	4.0	--	--	--	--	--	--	--	6.0
Screen 4	MW-14-4	--	--	--	--	--	--	--	--	--	--
Screen 5	MW-14-5	--	--	--	--	--	--	--	--	--	--
MW-15	MW-15	--	--	--	--	--	--	--	--	--	--
MW-16	MW-16	14.1	2.1	0.6	--	--	2.1	--	15.5	5.51 1,4-Dioxane 0.6 J Methyl tertiary butyl ether 1.0 Trichlorofluoromethane	1780

TABLE 3-3

**SUMMARY OF VOLATILE ORGANIC COMPOUNDS AND PERCHLORATE DETECTED IN
GROUNDWATER SAMPLES COLLECTED FROM JPL MONITORING WELLS, JANUARY-FEBRUARY 2001**

(concentrations in µg/L)

Values above state or Federal MCLs, or above/equal to action levels, are bold and shaded

Sampling Location	Sample Number	Carbon Tetrachloride	TCE	PCE	1,1-DCA	1,2-DCA	1,1-DCE	Freon 113	Chloroform	Other Volatile Organic Compounds (including 1,4-Dioxane)	Perchlorate
MW-17											
Screen 1	MW-17-1	--	--	--	--	--	--	--	--	0.3 J Methyl tertiary butyl ether	--
Screen 2	MW-17-2	--	--	--	--	--	--	--	0.3 J	0.3 J Methyl tertiary butyl ether	--
Screen 2 (DUP)	MW-17-2D	--	--	--	--	--	--	--	0.5 J	0.4 J Methyl tertiary butyl ether	--
Screen 3	MW-17-3	0.5	1.1	--	--	--	--	--	1.8	0.5 J Methyl tertiary butyl ether	--
Screen 4	MW-17-4	--	4.6	0.3 J	--	--	--	--	0.9	0.4 J Methyl tertiary butyl ether	8
Screen 5	MW-17-5	0.3 J	7.5	0.5 J	--	--	--	--	1.2	0.6 J Methyl tertiary butyl ether	7
MW-18											
Screen 1	Dry Screen	NA (--)	NA (--)	NA (--)	NA (--)	NA (--)	NA (--)	NA (--)	NA (--)	NA (--)	NA
Screen 2	MW-18-2	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	1.2 (0.9)	0.4 J Bromodichloromethane (--)	--
Screen 3	MW-18-3	-- (--)	0.5 (0.6)	0.3 J (0.4 J)	-- (--)	-- (--)	-- (--)	-- (--)	2.2 (2.4)	-- (--)	--
Screen 4	MW-18-4	3.5 (7.6)	1.1 (3.3)	1.9 (4.6)	-- (--)	-- (--)	-- (--)	-- (--)	0.8 (1.6)	-- (--)	15
Screen 5	MW-18-5	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	1.4 Chloromethane (--)	--
MW-19											
Screen 1	MW-19-1	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	--
Screen 2	MW-19-2	-- (--)	0.5 (0.8)	-- (0.5 J)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	--
Screen 2 (DUP)	MW-19-2D	-- (--)	0.6 (0.8)	-- (0.5 J)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	--
Screen 3	MW-19-3	-- (--)	0.5 (0.7)	1.4 (1.5)	-- (--)	-- (--)	-- (--)	-- (--)	0.4 J (0.5 J)	-- (--)	--
Screen 4	MW-19-4	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	2.6 (2.3)	-- (--)	--
Screen 5	MW-19-5	-- (--)	0.4 J (0.4 J)	2.1 (2.7)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	--
MW-20											
Screen 1	MW-20-1	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	1.4 (1.2)	0.3 J Methyl tertiary butyl ether	5.0
Screen 2	MW-20-2	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	2.8 (3.3)	-- (--)	--
Screen 3	MW-20-3	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	0.4 J Methyl tertiary butyl ether	--
Screen 4	MW-20-4	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	0.6 J Methyl tertiary butyl ether (EB)	--
Screen 4 (DUP)	MW-20-4D	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	0.8 J Methyl tertiary butyl ether (EB) 0.6 Styrene	--
Screen 5	MW-20-5	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	0.4 J Styrene	--

TABLE 3-3

**SUMMARY OF VOLATILE ORGANIC COMPOUNDS AND PERCHLORATE DETECTED IN
GROUNDWATER SAMPLES COLLECTED FROM JPL MONITORING WELLS, JANUARY-FEBRUARY 2001**

(concentrations in µg/L)

Values above state or Federal MCLs, or above/equal to action levels, are bold and shaded

Sampling Location	Sample Number	Carbon Tetrachloride	TCE	PCE	1,1-DCA	1,2-DCA	1,1-DCE	Freon 113	Chloroform	Other Volatile Organic Compounds (including 1,4-Dioxane)	Perchlorate
MW-21											
Screen 1	MW-21-1	--	9.8	0.5	--	--	--	--	1.6	--	11
Screen 2	MW-21-2	--	0.3 J	1.2	--	--	--	--	0.4 J	--	--
Screen 3	MW-21-3	--	0.9	2.5	--	--	0.5 J	--	1.1	0.3 J cis-1,2-Dichloroethene 0.6 Bromodichloromethane 0.4 J Chlorodibromomethane 0.3 J 1,2-Dichloroethene (Total)	--
Screen 4	MW-21-4	--	1.2	4.3	--	--	--	--	0.7	1.0 cis-1,2-Dichloroethene 0.4 J Bromodichloromethane 1.0 J 1,2-Dichloroethene (Total)	--
Screen 5	MW-21-5	--	0.7	15.1	--	--	--	--	1.7	2.6 cis-1,2-Dichloroethene 0.6 Bromodichloromethane 2.6 1,2-Dichloroethene (Total) 0.4 J Methyl tertiary butyl ether	--
MW-22											
Screen 1	MW-22-1	-- (--)	-- (--)	2.0 (2.9)	0.7 (0.8)	-- (--)	-- (--)	-- (--)	0.4 J (0.4 J)	-- (--)	--
Screen 2	MW-22-2	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	-- (0.4 J Methyl tertiary butyl ether)	--
Screen 3	MW-22-3	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	--
Screen 4	MW-22-4	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	--
Screen 4 (DUP)	MW-22-4D	--	--	--	--	--	--	--	--	0.7 Methylene Chloride	--
Screen 5	MW-22-5	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	0.4 J Methylene Chloride (--)	--
MW-23											
Screen 1	MW-23-1	--	0.9	1.6	0.9	--	--	--	0.5	--	--
Screen 2	MW-23-2	--	0.4 J	0.4 J	--	--	--	--	0.4 J	--	--
Screen 3	MW-23-3	--	--	--	--	--	--	--	--	--	--
Screen 4	MW-23-4	--	--	--	--	--	--	--	--	--	--
Screen 5	MW-23-5	--	--	--	--	--	--	--	--	0.4 J Styrene	--

TABLE 3-3

**SUMMARY OF VOLATILE ORGANIC COMPOUNDS AND PERCHLORATE DETECTED IN
GROUNDWATER SAMPLES COLLECTED FROM JPL MONITORING WELLS, JANUARY-FEBRUARY 2001**

(concentrations in µg/L)

Values above state or Federal MCLs, or above/equal to action levels, are bold and shaded

Sampling Location	Sample Number	Carbon Tetrachloride	TCE	PCE	1,1-DCA	1,2-DCA	1,1-DCE	Freon 113	Chloroform	Other Volatile Organic Compounds (including 1,4-Dioxane)	Perchlorate
MW-24											
Screen 1	MW-24-1	12.1	5.5	0.6	--	0.4 J	0.4 J	1.5	7.5	3.62 1,4-Dioxane	1,100
Screen 2	MW-24-2	0.5 J	--	0.5 J	--	--	--	--	--	--	42
Screen 3	MW-24-3	--	--	--	--	--	--	--	--	--	--
Screen 4	MW-24-4	--	--	--	--	--	--	--	--	--	--
Screen 5	MW-24-5	--	--	--	--	--	--	--	--	--	--
Practical Quantitation Limit		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	--	4.0
California Maximum Contaminant Level		0.5	5.0	5.0	5.0	0.5	6.0	1,200	100	--	18 ¹
EPA Region IX Maximum Contaminant Level		5.0	5.0	5.0	NE	5.0	7.0	NE	100	--	NE

--: Not detected.

DUP: Duplicate.

NE: Not Established.

NA: Not Analyzed

1: California Department of Health Services Interim Action Level.

EB: Compound detected in associated equipment blank.

J: Reported between the practical quantitation limit and the method detection limit

(--): Results in parenthesis are from re-sampling on February 16-17, 2001

* Result is from pilot study – sample was collected on December 18, 2000.

TABLE 3-4

**SUMMARY OF VOLATILE ORGANIC COMPOUNDS AND PERCHLORATE DETECTED
DURING THE LONG-TERM QUARTERLY GROUNDWATER SAMPLING PROGRAM,
JET PROPULSION LABORATORY**

(concentrations in µg/L)

Values above State or Federal MCLs, or above/equal to action levels, are bold and shaded

Sampling Location	Sampling Event	Carbon Tetrachloride	TCE	PCE	1,1-DCA	1,2-DCA	1,1-DCE	Freon 113	Chloroform	Other Volatile Organic Compounds (including 1,4-Dioxane)	Perchlorate
MW-1	Aug/Sep 1996	--	--	--	--	--	--	--	--	--	(1)
	Oct/Nov 1996	--	--	--	--	--	--	--	--	1.9 Acetone	(1)
	Feb/Mar 1997	--	--	--	--	--	--	--	--	1.9 Acetone	(1)
	Jun/Jul 1997	--	--	--	--	--	--	--	--	--	--
	Sep/Oct 1997	--	--	--	--	--	--	--	--	1.3 m,p-Xylenes	--
	Jan/Feb 1998	--	--	--	--	--	--	--	--	--	--
	Apr/May 1998	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	--	--	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	--
	Feb/Mar 1999	--	--	--	--	--	--	--	--	--	--
	May/Jun 1999	--	--	--	--	--	--	--	--	--	--
	Aug 1999	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
	Nov/Dec 1999	--	--	--	--	--	--	--	--	--	--
	Mar/Apr 2000	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
	Jul/Aug 2000	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 2001	--	--	--	--	--	--	--	--	0.8 Benzene ⁽⁵⁾	--
MW-3											
Screen 1	Aug/Sep 1996	--	--	--	--	--	--	--	1.2	--	(1)
	Oct/Nov 1996	--	--	--	--	--	--	--	8.3	0.7(B) Naphthalene	(1)
	Feb/Mar 1997	--	--	--	--	--	--	--	--	2.6 Carbon Disulfide	(1)
	Jun/Jul 1997	--	--	--	--	--	--	--	--	--	--
	Sep/Oct 1997	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 1998	--	--	--	--	--	--	--	--	--	--
	Apr/May 1998	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	--	--	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	--
	Feb/Mar 1999	--	--	--	--	--	--	--	--	--	--
	May/Jun 1999	--	--	--	--	--	--	--	--	--	--
	Aug 1999	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
	Nov/Dec 1999	--	--	--	--	--	--	--	--	--	--
	Mar/Apr 2000	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
	Jul/Aug 2000	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 2001	--	--	--	--	--	--	--	--	--	--
Screen 2	Aug/Sep 1996	--	--	--	--	--	--	--	5.5	--	(1)
	Oct/Nov 1996	--	--	--	--	--	--	--	4.8	1.9(B) Naphthalene	(1)
	Feb/Mar 1997	--	--	--	--	--	--	--	4.4	8.0 Carbon Disulfide	(1)
	Jun/Jul 1997	--	--	--	--	--	--	1.0	1.2	--	--
	Sep/Oct 1997	--	--	--	--	--	--	--	0.8	--	--

TABLE 3-4
SUMMARY OF VOLATILE ORGANIC COMPOUNDS AND PERCHLORATE DETECTED
DURING THE LONG-TERM QUARTERLY GROUNDWATER SAMPLING PROGRAM,
JET PROPULSION LABORATORY

(concentrations in µg/L)

Values above State or Federal MCLs, or above/equal to action levels, are bold and shaded

Sampling Location	Sampling Event	Carbon Tetrachloride	TCE	PCE	1,1-DCA	1,2-DCA	1,1-DCE	Freon 113	Chloroform	Other Volatile Organic Compounds (including 1,4-Dioxane)	Perchlorate
	Jan/Feb 1998	--	--	--	--	--	--	--	--	--	--
	Apr/May 1998	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	--	--	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	--
	Feb/Mar 1999	--	--	--	--	--	--	--	--	--	--
	May/June 1999	--	--	--	--	--	--	--	--	--	--
	Aug 1999	--	--	--	--	--	--	--	--	--	--
	Nov/Dec 1999	--	--	--	--	--	--	--	--	--	--
	Mar/Apr 2000	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 2000	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 2001	--	--	--	--	--	--	--	--	--	--
Screen 3	Aug/Sep 1996	0.6	0.8	--	--	--	--	--	1.6	--	(1)
	Oct/Nov 1996	--	--	--	--	--	--	--	0.7	--	(1)
	Feb/Mar 1997	--	--	--	--	--	--	--	0.8	--	(1)
	Jun/Jul 1997	1.2	0.8	0.6	--	--	--	2.8	1.8	--	21
	Sep/Oct 1997	1.2	0.5	--	--	--	--	--	1.6	--	13
	Jan/Feb 1998	1.2	--	--	--	--	--	--	2.7	--	6.5
	Apr/May 1998	3.6	0.9	--	--	--	--	--	3.9	--	6.2
	Jul/Aug 1998	2.4	0.6	--	--	--	--	--	3.6	--	10
	Oct/Nov 1998	5.8	0.7	--	--	--	--	--	21	2.7 Carbon Disulfide	--
	Feb/Mar 1999	4.5	1.3	--	--	--	--	0.9	42	--	--
	May/June 1999	42	1.3	--	--	--	--	1.0	26(EB)	--	8.9
	Aug 1999	15	1.0	--	--	--	--	0.8	37	--	--
	Nov/Dec 1999	26	1.3	--	--	--	--	0.9	43(EB)	--	5.2
	Mar/Apr 2000	42	1.9	--	--	--	--	1.1	32(EB)	--	19.4
	Jul/Aug 2000	8.6	1.4	--	--	--	--	0.7	37(EB)	--	--
	Jan/Feb 2001	2.6	0.9	--	--	--	--	--	32.9	--	--
Screen 4	Aug/Sep 1996	--	--	--	--	--	--	--	--	--	(1)
	Oct/Nov 1996	--	--	--	--	--	--	--	--	1.2 Acetone	(1)
	Feb/Mar 1997	--	--	--	--	--	--	--	--	1.0 Hexane	(1)
	Jun/Jul 1997	--	--	--	--	--	--	--	--	--	--
	Sep/Oct 1997	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 1998	--	--	--	--	--	--	--	--	4.7 Carbon Disulfide ⁽³⁾	--
	Apr/May 1998	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	--	--	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	--
	Feb/Mar 1999	--	--	--	--	--	--	--	--	--	--
	May/June 1999	--	--	--	--	--	--	--	--	--	--

TABLE 3-4
SUMMARY OF VOLATILE ORGANIC COMPOUNDS AND PERCHLORATE DETECTED
DURING THE LONG-TERM QUARTERLY GROUNDWATER SAMPLING PROGRAM,
JET PROPULSION LABORATORY

(concentrations in µg/L)

Values above State or Federal MCLs, or above/equal to action levels, are bold and shaded

Sampling Location	Sampling Event	Carbon Tetrachloride	TCE	PCE	1,1-DCA	1,2-DCA	1,1-DCE	Freon 113	Chloroform	Other Volatile Organic Compounds (including 1,4-Dioxane)	Perchlorate
	Aug 1999	--	--	--	--	--	--	--	--	--	--
	Nov/Dec 1999	--	--	--	--	--	--	--	--	--	--
	Mar/Apr 2000	--	--	--	--	--	--	--	--	4.1 Carbonyl Sulfide	--
	Jul/Aug 2000	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 2001	--	--	--	--	--	--	--	--	--	--
Screen 5	Aug/Sep 1996	--	--	--	--	--	--	--	--	2.1 Dichloromethane	(1)
	Oct/Nov 1996	--	--	--	--	--	--	--	--	2.1 Acetone	(1)
										1.2 Carbon Disulfide	
										1.5 Carbon Disulfide	
	Feb/Mar 1997	--	--	--	--	--	--	--	--	2.7 Sulfur Dioxide	(1)
										1.3 Unknown (RT=2.51)	
	Jun/Jul 1997	--	--	--	--	--	--	--	--	4.5 Carbon Disulfide	--
	Sep/Oct 1997	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 1998	--	--	--	--	--	--	--	--	--	--
	Apr/May 1998	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	--	--	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	91
	Feb/Mar 1999	--	--	--	--	--	--	--	--	--	--
	May/June 1999	--	--	--	--	--	--	--	--	--	75
	Aug 1999	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	140
	Nov/Dec 1999	--	--	--	--	--	--	--	--	0.2 Carbonyl Sulfide	--
	Mar/Apr 2000	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	--
	Jul/Aug 2000	--	--	--	--	--	--	--	--	0.7 Carbonyl Sulfide	--
										0.3 J Ethylbenzene	
	Jan/Feb 2001	--	--	--	--	--	--	--	--	0.5 J Styrene	--
MW-4											
Screen 1	Aug/Sep 1996	--	--	--	--	--	--	--	--	2.9(B) Acetone	(1)
	Oct/Nov 1996	--	--	--	--	--	--	--	--	--	(1)
	Feb/Mar 1997	--	--	--	--	--	--	--	--	--	(1)
	Jun/Jul 1997	--	--	--	--	--	--	--	--	--	--
	Sep/Oct 1997	--	--	--	--	--	--	--	--	--	7.4
	Jan/Feb 1998	--	--	--	--	--	--	--	--	--	9.6
	Apr/May 1998	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	--	3.4 Dichloromethane ⁽⁴⁾	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	--
	Feb/Mar 1999	--	--	--	--	--	--	0.8(B)	--	--	--
	May/June 1999	--	--	--	--	--	--	--	--	--	--

TABLE 3-4
SUMMARY OF VOLATILE ORGANIC COMPOUNDS AND PERCHLORATE DETECTED
DURING THE LONG-TERM QUARTERLY GROUNDWATER SAMPLING PROGRAM,
JET PROPULSION LABORATORY

(concentrations in µg/L)

Values above State or Federal MCLs, or above/equal to action levels, are bold and shaded

Sampling Location	Sampling Event	Carbon Tetrachloride	TCE	PCE	1,1-DCA	1,2-DCA	1,1-DCE	Freon 113	Chloroform	Other Volatile Organic Compounds (including 1,4-Dioxane)	Perchlorate
	Aug 1999	--	--	--	--	--	--	--	--	--	--
	Nov/Dec 1999	--	--	--	--	--	--	--	--	--	--
	Mar/Apr 2000	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 2000	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 2001	--	--	--	--	--	--	--	--	2.0 Methylene chloride	--
Screen 2	Aug/Sep 1996	5.5	19	--	--	0.9	0.7	--	6.7	3.2(B) Acetone	(1)
	Oct/Nov 1996	5.3	15	--	--	0.6	0.8	--	5.4	1.8 Acetone	(1)
	Feb/Mar 1997	7.9	19	--	--	0.8	0.8	--	7.8	--	(1)
	Jun/Jul 1997	4.0	5.7	--	--	--	0.5	--	3.4	--	51
	Sep/Oct 1997	4.0	8.0	0.5	0.6	--	0.5	--	3.5	--	34
	Jan/Feb 1998	1.9	2.7	0.6	--	--	--	--	1.8	--	30
	Apr/May 1998	2.8	4.3	0.7	0.5	--	--	--	3.1	--	41
	Jul/Aug 1998	1.5	3.0	0.8	0.5	--	--	--	2.0	--	29
	Oct/Nov 1998	0.9	2.4	0.7	--	--	--	--	1.6	--	25
	Feb/Mar 1999	1.2	4.1	0.6	0.5 ⁽⁵⁾	--	--	--	2.5	--	38
	May/Jun 1999	2.0	6.4	0.7	--	--	--	--	3.7(EB)	--	56
	Aug 1999	1.9	5.5	0.5	--	--	--	--	3.3	--	69
	Nov/Dec 1999	2.3	6.2	0.7	--	--	--	--	3.1(EB)	--	42
	Mar/Apr 2000	1.4	3.9	0.7	--	--	--	--	1.7(EB)	--	33
	Jul/Aug 2000	1.7	3.8	1.0	0.6	--	--	--	1.9(EB)	--	32
	Jan/Feb 2001	--	0.7 J	--	--	--	--	--	--	1.0 Methylene chloride	7.0
Screen 3	Aug/Sep 1996	--	--	--	--	--	--	--	--	3.0(B) Acetone	(1)
	Oct/Nov 1996	--	--	--	--	--	--	--	--	1.5 Acetone	(1)
	Feb/Mar 1997	--	--	--	--	--	--	--	--	--	(1)
	Jun/Jul 1997	--	--	--	--	--	--	--	--	--	--
	Sep/Oct 1997	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 1998	--	--	--	--	--	--	--	--	--	--
	Apr/May 1998	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	--	1.0 Dichloromethane ⁽⁴⁾	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	--
	Feb/Mar 1999	--	--	--	--	--	--	0.7 ⁽⁴⁾	--	--	--
	May/Jun 1999	--	--	--	--	--	--	--	--	--	--
	Aug 1999	--	--	--	--	--	--	--	--	--	--
	Nov/Dec 1999	--	--	--	--	--	--	--	--	0.6 Unknown (RT=4.79)	--
	Mar/Apr 2000	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 2000	--	--	--	--	--	--	--	--	--	--

TABLE 3-4
SUMMARY OF VOLATILE ORGANIC COMPOUNDS AND PERCHLORATE DETECTED
DURING THE LONG-TERM QUARTERLY GROUNDWATER SAMPLING PROGRAM,
JET PROPULSION LABORATORY

(concentrations in µg/L)
 Values above State or Federal MCLs, or above/equal to action levels, are bold and shaded

Sampling Location	Sampling Event	Carbon Tetrachloride	TCE	PCE	1,1-DCA	1,2-DCA	1,1-DCE	Freon 113	Chloroform	Other Volatile Organic Compounds (including 1,4-Dioxane)	Perchlorate
	Jan/Feb 2001	--	--	--	--	--	--	--	--	1.0 Methylene chloride	--
										1.0 Ethylbenzene	
Screen 4	Aug/Sep 1996	--	--	--	--	--	--	--	--	3.9(B) Acetone	(1)
	Oct/Nov 1996	--	--	--	--	--	--	--	--	1.6 Acetone	(1)
	Feb/Mar 1997	--	--	--	--	--	--	--	--	--	(1)
	Jun/Jul 1997	--	--	--	--	--	--	--	--	--	--
	Sep/Oct 1997	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 1998	--	--	--	--	--	--	--	--	--	--
	Apr/May 1998	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	--	--	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	--
	Feb/Mar 1999	--	--	--	--	--	--	0.6 ⁽⁴⁾	--	--	--
	May/Jun 1999	--	--	--	--	--	--	--	--	--	--
	Aug 1999	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
	Nov/Dec 1999	--	--	--	--	--	--	--	--	--	--
	Mar/Apr 2000	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
	Jul/Aug 2000	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 2001	--	--	--	--	--	--	--	--	2.0 J Methylene chloride	--
Screen 5	Oct/Nov 1996	--	--	--	--	--	--	--	--	1.9 Acetone	(1)
	Aug/Sep 1996	--	--	--	--	--	--	--	--	--	(1)
	Feb/Mar 1997	--	--	--	--	--	--	--	--	--	(1)
	Jun/Jul 1997	--	--	--	--	--	--	--	--	--	--
	Sep/Oct 1997	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 1998	--	--	--	--	--	--	--	--	7.4 Hexane	--
	Apr/May 1998	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	--	--	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	--
	Feb/Mar 1999	--	--	--	--	--	--	0.6 ⁽⁴⁾	--	--	--
	May/Jun 1999	--	--	--	--	--	--	--	--	--	--
	Aug 1999	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
	Nov/Dec 1999	--	--	--	--	--	--	--	--	--	--
	Mar/Apr 2000	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
	Jul/Aug 2000	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 2001	--	--	--	--	--	--	--	--	1.0 Methylene chloride	--
										3.8 Methyl tertiary butyl ether	--

TABLE 3-4

**SUMMARY OF VOLATILE ORGANIC COMPOUNDS AND PERCHLORATE DETECTED
DURING THE LONG-TERM QUARTERLY GROUNDWATER SAMPLING PROGRAM,
JET PROPULSION LABORATORY**

(concentrations in µg/L)

Values above State or Federal MCLs, or above/equal to action levels, are bold and shaded

Sampling Location	Sampling Event	Carbon Tetrachloride	TCE	PCE	1,1-DCA	1,2-DCA	1,1-DCE	Freon 113	Chloroform	Other Volatile Organic Compounds (including 1,4-Dioxane)	Perchlorate
MW-5	Aug/Sep 1996	--	--	--	--	--	--	--	--	--	(1)
	Oct/Nov 1996	--	--	--	--	--	--	--	--	--	(1)
	Feb/Mar 1997	--	--	--	--	--	--	--	--	--	(1)
	Jun/Jul 1997	--	--	--	--	--	--	--	--	--	--
	Sep/Oct 1997	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 1998	--	--	--	--	--	--	--	--	--	4.2
	Apr/May 1998	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	--	6.5 Dichloromethane ⁽⁴⁾	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	--
	Feb/Mar 1999	--	--	--	--	--	--	--	--	--	--
	May/Jun 1999	--	--	--	--	--	--	--	--	--	--
	Aug 1999	--	--	--	--	--	--	--	--	--	--
	Nov/Dec 1999	--	--	--	--	--	--	--	--	--	--
	Mar/Apr 2000	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 2000	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 2001	--	4.5	--	--	--	--	--	0.5 J	--	21
MW-6	Aug/Sep 1996	--	--	--	--	--	--	--	1.3(TB)	--	(1)
	Oct/Nov 1996	--	--	--	--	--	--	--	--	--	(1)
	Feb/Mar 1997	--	--	--	0.8	--	--	--	--	--	(1)
	Jun/Jul 1997	--	--	--	--	--	--	--	--	--	5.5
	Sep/Oct 1997	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 1998	--	--	2.0	1.0	--	--	--	--	--	--
	Apr/May 1998	--	0.7	3.2	1.1	--	--	--	0.6	--	--
	Jul/Aug 1998	--	0.6	2.5	0.8	--	--	--	--	7.6 Dichloromethane ⁽⁴⁾	4.2
	Oct/Nov 1998	--	--	0.7	--	--	--	--	--	--	--
	Feb/Mar 1999	--	0.8	3.8	1.0	--	--	--	0.6	--	--
	May/Jun 1999	--	--	1.5	--	--	--	--	--	--	--
	Aug 1999	--	--	0.5	--	--	--	--	--	--	4.0
	Nov/Dec 1999	--	--	--	--	--	--	--	--	--	--
	Mar/Apr 2000	--	--	3.0	0.8	--	--	--	--	--	4.8
	Jul/Aug 2000	--	--	--	--	--	--	--	--	--	4.1
	Jan/Feb 2001	--	--	3.0	1.1	--	--	--	0.5 J	0.4 J Methylene Chloride 1.0 J Methyl tertiary butyl ether	--
MW-7	Aug/Sep 1996	90	39	0.8	--	1.2	1.1	7.2	13(TB)	--	(1)
	Oct/Nov 1996	170	27	1.3	--	0.8	2.3	7.7	14	4.3(B) 1,1-Difluoroethane 2.8(B) Acetone	(1)
	Feb/Mar 1997	45	27	0.6	--	0.8	0.9	5.1	9.9	--	(1)

TABLE 3-4
SUMMARY OF VOLATILE ORGANIC COMPOUNDS AND PERCHLORATE DETECTED
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JET PROPULSION LABORATORY

(concentrations in µg/L)

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Sampling Location	Sampling Event	Carbon Tetrachloride	TCE	PCE	1,1-DCA	1,2-DCA	1,1-DCE	Freon 113	Chloroform	Other Volatile Organic Compounds (including 1,4-Dioxane)	Perchlorate
	Jun/Jul 1997	39	23	0.7	--	0.8	1.0	4.1	11	10 Unknown	285
	Sep/Oct 1997	93	22	1.1	--	0.9	1.3	4.7	13	--	550
	Jan/Feb 1998	150	24	3.7	--	0.8	2.1	6.4	13	--	720
	Apr/May 1998	31	13	0.5	--	--	--	3.1	6.1	--	130
	Jul/Aug 1998	43	19	0.8	--	0.6	0.9	3.4	9.0	1.0 Dichloromethane ⁽⁴⁾	190
	Oct/Nov 1998	51	18	0.9	--	0.7	1.1	3.0	9.8	3.4 Carbon Disulfide	210
	Feb/Mar 1999	49	17	0.6	--	--	0.9	2.0	7.2	--	150
	May/Jun 1999	42	14	--	--	--	--	2.2	5.7(FB)	--	120
	Aug 1999	40	16	0.5	--	--	0.8	1.9	7.8(FB)	--	210
	Nov/Dec 1999	120	19.7	3.0	--	0.7	2.2	2.4	10.8(FB)	--	460
	Mar/Apr 2000	110	18	2.7	--	0.5	2.3	2.6	8.9(FB)	--	740
	Jul/Aug 2000	50	14	1.2	--	--	0.9	2.0	7.1(FB)	--	290
	Jan/Feb 2001	NOT SAMPLED – PILOT TEST									
MW-8	Aug/Sep 1996	4.0	4.6	--	--	--	--	--	1.3	--	(1)
	Oct/Nov 1996	2.8	2.2	--	--	--	--	0.6	0.6	1.7 Acetone	(1)
	Feb/Mar 1997	1.5	4.5	--	--	--	--	--	1.3	1.1 Freon 11	(1)
	Jun/Jul 1997	--	--	--	--	--	--	--	--	1.9 Carbon Disulfide	6.4
	Sep/Oct 1997	3.2	3.6	--	--	--	--	--	1.2	--	29
	Jan/Feb 1998	1.8	1.3	--	--	--	--	--	0.8	1.0 Freon 11	11
	Apr/May 1998	1.3	1.3	--	--	--	--	--	0.5	0.8 Freon 11	7.6
	Jul/Aug 1998	--	--	--	--	--	--	--	--	--	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	6.6 Dichloromethane ⁽⁴⁾	--
	Feb/Mar 1999	--	--	--	--	--	--	--	--	--	--
	May/Jun 1999	--	--	--	--	--	--	--	--	--	--
	Aug 1999	--	--	--	--	--	--	--	--	--	--
	Nov/Dec 1999	0.9	0.8	--	--	--	--	--	--	--	5.2
	Mar/Apr 2000	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 2000	--	--	--	--	--	--	--	--	--	10
MW-9	Jan/Feb 2001	1.1	0.9	--	--	--	--	--	0.4 J	0.5 J Methyl tertiary butyl ether	5.0
										1.0 Trichlorofluoromethane	
	Aug/Sep 1996	--	--	--	--	--	--	--	--	--	(1)
	Oct/Nov 1996	--	--	--	--	--	--	--	--	--	(1)
	Feb/Mar 1997	--	--	--	--	--	--	--	--	--	(1)
	Jun/Jul 1997	--	--	--	--	--	--	--	--	--	--
	Sep/Oct 1997	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 1998	--	--	--	--	--	--	--	--	3.9 Unknown RT=6.21	--

TABLE 3-4
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(concentrations in µg/L)

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Sampling Location	Sampling Event	Carbon Tetrachloride	TCE	PCE	1,1-DCA	1,2-DCA	1,1-DCE	Freon 113	Chloroform	Other Volatile Organic Compounds (including 1,4-Dioxane)	Perchlorate
	Apr/May 1998	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	--	--	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	--
	Feb/Mar 1999	--	--	--	--	--	--	--	--	--	--
	May/Jun 1999	--	--	--	--	--	--	--	--	--	--
	Aug 1999	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
	Nov/Dec 1999	--	--	--	--	--	--	--	--	--	--
	Mar/Apr 2000	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
	Jul/Aug 2000	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 2001	--	--	--	--	--	--	--	--	--	--
MW-10	Aug/Sep 1996	0.7	18	0.5	--	--	--	1.2	1.4(TB)	--	(1)
	Oct/Nov 1996	0.6	6.6	1.0	1.9	--	--	0.8	1.1	3.0(B) Acetone 1.1 Unknown Scan #350	(1)
	Feb/Mar 1997	--	5.2	--	--	--	--	--	0.6	--	(1)
	Jun/Jul 1997	--	2.2	--	--	--	--	--	--	--	11
	Sep/Oct 1997	--	4.3	1.3	1.2	--	--	--	1.0	--	16
	Jan/Feb 1998	--	1.1	2.2	1.6	--	--	--	1.4	--	4.7
	Apr/May 1998	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	--	8.2 Dichloromethane ⁽⁴⁾	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	--
	Feb/Mar 1999	--	5.7	--	--	--	--	--	0.9	--	39
	May/Jun 1999	--	1.1	--	--	--	--	--	--	--	10
	Aug 1999	--	2.2	--	--	--	--	--	--	--	21
	Nov/Dec 1999	--	3.7	1.1	0.6	--	--	--	0.9	--	21
	Mar/Apr 2000	--	2.0	2.2	1.1	--	--	--	0.9	--	9.1
	Jul/Aug 2000	--	1.1	--	--	--	--	--	--	--	15
	Jan/Feb 2001	--	0.6	1.6	0.9	--	--	--	1.0	--	5.0
MW-11											
Screen 1	Aug/Sep 1996	--	--	--	--	--	--	--	--	2.6(B) Acetone	(1)
	Oct/Nov 1996	--	--	--	--	--	--	--	--	7.1 MTBE 1.8 Acetone	(1)
	Feb/Mar 1997	--	--	--	--	--	--	--	--	--	(1)
	Jun/Jul 1997	1.4	--	--	--	--	--	--	--	--	--
	Sep/Oct 1997	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 1998	--	--	--	--	--	--	--	--	--	--
	Apr/May 1998	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 1998	1.5	--	--	--	--	--	--	--	--	--

TABLE 3-4
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Sampling Location	Sampling Event	Carbon Tetrachloride	TCE	PCE	1,1-DCA	1,2-DCA	1,1-DCE	Freon 113	Chloroform	Other Volatile Organic Compounds (including 1,4-Dioxane)	Perchlorate
	Oct/Nov 1998	1.4	--	--	--	--	--	--	--	--	--
	Feb/Mar 1999	--	--	--	--	--	--	0.9 ⁽⁴⁾	--	--	--
	May/June 1999	--	--	--	--	--	--	--	--	--	--
	Aug 1999	--	--	--	--	--	--	--	--	--	--
	Nov/Dec 1999	--	--	--	--	--	--	--	--	--	--
	Mar/Apr 2000	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 2000	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 2001	--	--	--	--	--	--	--	0.4 J	--	--
Screen 2	Aug/Sep 1996	2.4	--	--	--	--	--	--	1.0	--	(1)
	Oct/Nov 1996	1.1	--	--	--	--	--	--	1.2	--	(1)
	Feb/Mar 1997	1.7	--	--	--	--	--	--	1.0	--	(1)
	Jun/Jul 1997	1.2	--	--	--	--	--	--	1.0	--	--
	Sep/Oct 1997	0.6	--	--	--	--	--	--	0.6	--	--
	Jan/Feb 1998	0.7	--	--	--	--	--	--	0.7	--	--
	Apr/May 1998	1.0	--	--	--	--	--	--	0.7	--	--
	Jul/Aug 1998	0.9	--	--	--	--	--	--	0.6	--	--
	Oct/Nov 1998	0.6	--	--	--	--	--	--	0.7	--	--
	Feb/Mar 1999	--	--	--	--	--	--	0.7 ⁽⁴⁾	1.1	--	--
	May/June 1999	0.5	--	--	--	--	--	--	0.7(EB)	--	--
	Aug 1999	0.5	--	--	--	--	--	--	0.6	--	--
	Nov/Dec 1999	--	--	--	--	--	--	--	0.5(EB)	--	--
	Mar/Apr 2000	0.8	--	--	--	--	--	--	0.7(EB)	--	--
	Jul/Aug 2000	0.7	--	--	--	--	--	--	0.5(EB)	--	--
	Jan/Feb 2001	--	--	--	--	--	--	--	0.7	--	--
Screen 3	Aug/Sep 1996	0.9	--	--	--	--	--	--	1.3	2.9(B) Acetone	(1)
	Oct/Nov 1996	--	--	--	--	--	--	--	1.4	--	(1)
	Feb/Mar 1997	--	--	--	--	--	--	--	1.1	--	(1)
	Jun/Jul 1997	0.7	--	--	--	--	--	--	1.4	--	--
	Sep/Oct 1997	0.6	--	--	--	--	--	--	1.3	--	--
	Jan/Feb 1998	--	--	--	--	--	--	--	1.4	--	--
	Apr/May 1998	1.0	--	--	--	--	--	--	1.3	--	--
	Jul/Aug 1998	1.5	--	--	--	--	--	--	1.4	--	--
	Oct/Nov 1998	1.3	--	--	--	--	--	--	1.1	--	--
	Feb/Mar 1999	--	--	--	--	--	--	0.7 ⁽⁴⁾	--	--	--
	May/June 1999	--	--	--	--	--	--	--	--	--	--
	Aug 1999	0.7	--	--	--	--	--	--	0.7	--	--
	Nov/Dec 1999	0.9	--	--	--	--	--	--	0.7(EB)	--	--

TABLE 3-4
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Sampling Location	Sampling Event	Carbon Tetrachloride	TCE	PCE	1,1-DCA	1,2-DCA	1,1-DCE	Freon 113	Chloroform	Other Volatile Organic Compounds (including 1,4-Dioxane)	Perchlorate
	Mar/Apr 2000	2.4	--	--	--	--	--	--	1.0(EB)	--	--
	Jul/Aug 2000	0.9	--	--	--	--	--	--	0.6(EB)	--	--
	Jan/Feb 2001	--	--	--	--	--	--	--	--	--	--
Screen 4	Aug/Sep 1996	--	--	--	--	--	--	--	0.5	2.4(B) Acetone	(1)
	Oct/Nov 1996	--	--	--	--	--	--	--	--	--	(1)
	Feb/Mar 1997	--	--	--	--	--	--	--	--	1.5 2-Methyl-1-Propene	(1)
	Jun/Jul 1997	--	--	--	--	--	--	--	--	--	--
	Sep/Oct 1997	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 1998	--	--	--	--	--	--	--	0.5	--	--
	Apr/May 1998	--	--	--	--	--	--	--	0.5	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	0.5	--	--
	Oct/Nov 1998	--	--	--	--	--	--	--	0.6	--	--
	Feb/Mar 1999	--	--	--	--	--	--	0.7 ⁽⁴⁾	--	--	--
	May/Jun 1999	--	--	--	--	--	--	--	0.5(EB)	--	--
	Aug 1999	--	--	--	--	--	--	--	0.5	--	(2)
	Nov/Dec 1999	--	--	--	--	--	--	--	0.5(EB)	--	--
	Mar/Apr 2000	--	--	--	--	--	--	--	0.6(EB)	--	(2)
	Jul/Aug 2000	--	--	--	--	--	--	--	0.6(EB)	--	--
	Jan/Feb 2001	--	--	--	--	--	--	--	0.3 J	0.6 Methylene Chloride	--
Screen 5	Aug/Sep 1996	--	--	--	--	--	--	--	--	2.4(B) Acetone	(1)
	Oct/Nov 1996	--	--	--	--	--	--	--	--	1.1 Acetone	(1)
	Feb/Mar 1997	--	--	--	--	--	--	--	--	--	(1)
	Jun/Jul 1997	--	--	--	--	--	--	--	--	--	--
	Sep/Oct 1997	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 1998	--	--	--	--	--	--	--	--	44 Carbon Disulfide ⁽³⁾	--
	Apr/May 1998	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	--	--	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	--
	Feb/Mar 1999	--	--	--	--	--	--	0.7 ⁽⁴⁾	--	--	--
	May/Jun 1999	--	--	--	--	--	--	--	--	--	--
	Aug 1999	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
	Nov/Dec 1999	--	--	--	--	--	--	--	--	--	--
	Mar/Apr 2000	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
	Jul/Aug 2000	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 2001	--	--	--	--	--	--	--	--	--	--
MW-12											
Screen 1	Aug/Sep 1996	--	--	--	--	--	--	--	4.1	--	(1)

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Sampling Location	Sampling Event	Carbon Tetrachloride	TCE	PCE	1,1-DCA	1,2-DCA	1,1-DCE	Freon 113	Chloroform	Other Volatile Organic Compounds (including 1,4-Dioxane)	Perchlorate
	Oct/Nov 1996	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)
	Feb/Mar 1997	--	--	--	--	--	--	--	5.8	--	(1)
	Jun/Jul 1997	--	--	--	--	--	--	--	0.5	--	--
	Sep/Oct 1997	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)
	Jan/Feb 1998	--	--	--	--	--	--	--	0.8	--	--
	Apr/May 1998	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	--	--	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	--
	Feb/Mar 1999	--	--	--	--	--	--	--	--	--	--
	May/June 1999	--	--	--	--	--	--	--	--	--	--
	Aug 1999	--	--	--	--	--	--	--	--	--	--
	Nov/Dec 1999	--	--	--	--	--	--	--	--	--	--
	Mar/Apr 2000	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 2000	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 2001	--	--	--	--	--	--	--	--	--	--
Screen 2	Aug/Sep 1996	0.9	--	--	--	--	--	--	--	--	(1)
	Oct/Nov 1996	1.5	0.6	--	--	--	--	0.5	--	--	(1)
	Feb/Mar 1997	1.1	0.5	--	--	--	--	--	--	1.1(B) Acetone	(1)
	Jun/Jul 1997	1.0	--	--	--	--	--	--	0.8	--	6.9
	Sep/Oct 1997	0.8	--	--	--	--	--	--	0.8	--	5.8
	Jan/Feb 1998	1.1	--	--	--	--	--	--	0.6	--	6.3
	Apr/May 1998	1.2	--	--	--	--	--	--	0.9	--	6.0
	Jul/Aug 1998	1.4	--	--	--	--	--	--	0.9	--	5.1
	Oct/Nov 1998	1.3	--	--	--	--	--	--	1.0	--	4.2
	Feb/Mar 1999	1.3	--	--	--	--	--	--	0.9	--	4.1
	May/June 1999	0.8	--	--	--	--	--	--	0.6(EB)	0.8 Dichloromethane(EB)	5.0
	Aug 1999	0.5	--	--	--	--	--	--	--	--	--
	Nov/Dec 1999	0.5	--	--	--	--	--	--	--	0.5 Unknown (RT=4.79)	--
	Mar/Apr 2000	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 2000	--	--	--	--	--	--	--	--	--	--

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Sampling Location	Sampling Event	Carbon Tetrachloride	TCE	PCE	1,1-DCA	1,2-DCA	1,1-DCE	Freon 113	Chloroform	Other Volatile Organic Compounds (including 1,4-Dioxane)	Perchlorate
	Jan/Feb 2001	--	--	--	--	--	--	--	--	--	--
Screen 3	Aug/Sep 1996	4.5	--	--	--	--	--	--	1.3	--	(1)
	Oct/Nov 1996	3.8	--	--	--	--	--	--	1.3	1.6 Acetone	(1)
	Feb/Mar 1997	6.4	--	--	--	--	--	--	1.4	1.3(B) Acetone	(1)
	Jun/Jul 1997	20	--	--	--	--	--	--	1.6	--	5.7
	Sep/Oct 1997	14	--	--	--	--	--	--	1.7	--	6.2
	Jan/Feb 1998	23 E	--	--	--	--	--	--	2.3	--	5.9
	Apr/May 1998	25	--	--	--	--	--	--	2.0	--	6.9
	Jul/Aug 1998	35	--	--	--	--	--	--	2.2	--	6.6
	Oct/Nov 1998	27	--	--	--	--	--	--	2.2	--	6.9
	Feb/Mar 1999	23	--	--	--	--	--	--	--	--	--
	May/June 1999	19	--	--	--	--	--	--	2.0(EB)	--	8.7
	Aug 1999	19	--	--	--	--	--	--	2.3	--	--
	Nov/Dec 1999	23	--	--	--	--	--	--	2.4(EB)	0.5 Unknown	8.5
	Mar/Apr 2000	17	--	--	--	--	--	--	1.9(EB)	--	8.2
	Jul/Aug 2000	16	--	--	--	--	--	--	1.9(EB)	--	6.9
	Jan/Feb 2001	2.0 J	--	--	--	--	--	--	--	--	--
Screen 4	Aug/Sep 1996	6.3	--	--	--	--	--	--	1.4	--	(1)
	Oct/Nov 1996	5.1	--	--	--	--	--	--	1.4	2.5 Acetone	(1)
	Feb/Mar 1997	4.9	--	--	--	--	--	--	1.3	--	(1)
	Jun/Jul 1997	4.9	--	--	--	--	--	--	1.3	--	7.3
	Sep/Oct 1997	3.8	--	--	--	--	--	--	1.0	--	7.6
	Jan/Feb 1998	4.0	--	--	--	--	--	--	1.1	--	8.0
	Apr/May 1998	4.3	--	--	--	--	--	--	1.2	--	8.0
	Jul/Aug 1998	5.1	--	--	--	--	--	--	1.2	--	6.0
	Oct/Nov 1998	4.1	--	--	--	--	--	--	1.2	--	7.7
	Feb/Mar 1999	4.5	--	--	--	--	--	--	1.2	--	7.0
	May/June 1999	4.0	--	--	--	--	--	--	1.0(EB) ⁽³⁾	--	9.1
	Aug 1999	3.7	--	--	--	--	--	--	1.1	--	9.2
	Nov/Dec 1999	3.9	--	--	--	--	--	--	1.3(EB)	0.5 Unknown (RT=4.8)	8.5
	Mar/Apr 2000	5.3	0.5	--	--	--	--	--	1.3(EB)	--	8.7
	Jul/Aug 2000	4.1	--	--	--	--	--	--	1.2(EB)	--	8.1

TABLE 3-4
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JET PROPULSION LABORATORY

(concentrations in µg/L)

Values above State or Federal MCLs, or above/equal to action levels, are bold and shaded

Sampling Location	Sampling Event	Carbon Tetrachloride	TCE	PCE	1,1-DCA	1,2-DCA	1,1-DCE	Freon 113	Chloroform	Other Volatile Organic Compounds (including 1,4-Dioxane)	Perchlorate
	Jan/Feb 2001	3.0	--	--	--	--	--	--	--	--	6.0
Screen 5	Aug/Sep 1996	3.4	--	--	--	--	--	--	0.7	--	(1)
	Oct/Nov 1996	1.3	--	--	--	--	--	--	--	1.5 Acetone	(1)
	Feb/Mar 1997	1.7	--	--	--	--	--	--	0.5	--	(1)
	Jun/Jul 1997	1.9	--	--	--	--	--	--	0.5	--	4.1
	Sep/Oct 1997	1.3	--	--	--	--	--	--	--	--	--
	Jan/Feb 1998	1.3	--	--	--	--	--	--	--	--	--
	Apr/May 1998	1.7	--	--	--	--	--	--	0.6	--	--
	Jul/Aug 1998	2.1	--	--	--	--	--	--	0.6	--	--
	Oct/Nov 1998	2.0	--	--	--	--	--	--	0.6	--	--
	Feb/Mar 1999	1.3	--	--	--	--	--	--	0.7	--	--
	May/Jun 1999	1.6	--	--	--	--	--	--	0.5(EB)	--	--
	Aug 1999	1.9	--	--	--	--	--	--	0.6	--	--
	Nov/Dec 1999	1.4	--	--	--	--	--	--	0.5(EB)	--	--
	Mar/Apr 2000	2.0	--	--	--	--	--	--	0.6(EB)	--	4.7
	Jul/Aug 2000	1.4	--	--	--	--	--	--	0.5(EB)	--	4.0
	Jan/Feb 2001	1.0 ⁽⁵⁾	--	--	--	--	--	--	--	--	--
MW-13	Aug/Sep 1996	21	47	0.6	--	2.5	1.5	0.7	21(TB)	--	(1)
	Oct/Nov 1996	27	27	--	--	1.9	1.5	0.6	14	--	(1)
	Feb/Mar 1997	18	28	--	--	0.9	1.1	0.6	9.2	--	(1)
	Jun/Jul 1997	6.4	24 E	--	--	0.9	0.5	--	11	--	130
	Sep/Oct 1997	8.2	19	--	--	1.1	0.5	--	10	--	210
	Jan/Feb 1998	12	5.2	0.5	--	--	0.5 ⁽⁵⁾	--	2.9	1.8 Freon 11	99
	Apr/May 1998	13	17	0.6	--	--	0.9	0.6	5.7	--	100
	Jul/Aug 1998	15	29	0.6	--	--	1.2	0.7	7.7	1.0 Dichloromethane ⁽⁴⁾	59
	Oct/Nov 1998	9.0	20	--	--	--	1.1	0.5	9.3	0.5 1,1,1-Trichloroethane	86
	Feb/Mar 1999	9.4	28	--	--	0.7	0.7	11	--	--	98
	May/Jun 1999	9.8	40	0.6	--	0.5	0.8	1.0	9.4	--	120
	Aug 1999	11	29	--	--	0.7	0.9	--	12	--	150
	Nov/Dec 1999	10.7	20	--	--	0.5	0.7	--	9.2	--	590
	Mar/Apr 2000	8.9	11	0.7	0.7	--	0.6	--	5.2	--	330
	Jul/Aug 2000	8.8	20	--	--	0.6	0.7	--	8.8	--	420

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(concentrations in µg/L)

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Sampling Location	Sampling Event	Carbon Tetrachloride	TCE	PCE	1,1-DCA	1,2-DCA	1,1-DCE	Freon 113	Chloroform	Other Volatile Organic Compounds (including 1,4-Dioxane)	Perchlorate
	Jan/Feb 2001	7.2	5.4	0.6	1.0	--	0.5 J	--	3.4	1.94 1,4-Dioxane	--
										1.3 Trichlorofluoromethane	
MW-14											
Screen 1	Aug/Sep 1996	--	--	--	2.4	--	--	--	0.6	--	(1)
	Oct/Nov 1996	--	--	--	2.9	--	--	--	--	--	(1)
	Feb/Mar 1997	--	--	0.7	1.5	--	--	--	0.7	--	(1)
	Jun/Jul 1997	--	--	--	2.0	--	--	--	--	--	--
	Sep/Oct 1997	--	--	--	1.9	--	--	--	--	--	--
	Jan/Feb 1998	--	--	--	2.1	--	--	--	0.5	--	--
	Apr/May 1998	--	--	1.2	0.8	--	--	--	0.8	--	4.4
	Jul/Aug 1998	--	--	0.8	1.7	--	--	--	0.6	--	4.4
	Oct/Nov 1998	--	--	0.5	2.4	--	--	--	0.6	--	4.2
	Feb/Mar 1999	--	--	0.8	1.2	--	--	0.6 ⁽⁴⁾	0.6	--	4.2
	May/Jun 1999	--	--	0.5	2.6	--	--	--	--	--	--
	Aug 1999	--	--	--	1.7	--	--	--	--	--	--
	Nov/Dec 1999	(7)	(7)	(7)	(7)	(7)	(7)	(7)	(7)	(7)	(7)
	Mar/Apr 2000	--	--	0.8	0.8	--	--	--	0.5(EB)	--	5.3
	Jul/Aug 2000	--	--	--	1.0	--	--	--	--	--	4.2
	Jan/Feb 2001	--	--	1.4	1.1	--	--	--	0.6	--	--
Screen 2	Aug/Sep 1996	--	2.8	1.6	1.4	--	--	--	1.5	--	(1)
	Oct/Nov 1996	--	1.5	1.6	1.0	--	--	--	0.9	0.6 1,2,3-Trichlorobenzene 1.1 Acetone	(1)
	Feb/Mar 1997	--	0.9	1.9	1.3	--	--	--	0.8	0.8 1,2,3-Trichlorobenzene 1.1 Acetone	(1)
	Jun/Jul 1997	--	1.1	1.7	1.5	--	--	--	0.9	0.5 1,2,3-Trichlorobenzene	--
	Sep/Oct 1997	--	1.2	1.9	1.6	--	--	--	0.8	--	--
	Jan/Feb 1998	--	--	1.2	0.7	--	--	--	--	8.9 Carbon Disulfide ⁽³⁾	9.0
	Apr/May 1998	--	--	1.2	0.7	--	--	--	0.6	--	4.0
	Jul/Aug 1998	--	0.9	1.8	0.8	--	--	--	0.6	--	4.9
	Oct/Nov 1998	--	0.6	1.5	0.7	--	--	--	0.5	--	4.2
	Feb/Mar 1999	--	0.9	1.6	0.7	--	--	0.6 ⁽⁴⁾	0.6	--	4.2
	May/Jun 1999	--	1.0	1.2	0.8	--	--	--	0.6(EB)	--	9.6
	Aug 1999	--	--	1.0	--	--	--	--	--	--	--
	Nov/Dec 1999	--	1.0	0.8	--	--	--	--	--	--	5.2
	Mar/Apr 2000	--	2.5	0.7	--	--	--	--	0.6(EB)	--	6.0
	Jul/Aug 2000	--	1.7	0.8	--	--	--	--	0.5(EB)	--	4.9

TABLE 3-4

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(concentrations in µg/L)

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Sampling Location	Sampling Event	Carbon Tetrachloride	TCE	PCE	1,1-DCA	1,2-DCA	1,1-DCE	Freon 113	Chloroform	Other Volatile Organic Compounds (including 1,4-Dioxane)	Perchlorate
	Jan/Feb 2001	--	2.5	0.7	0.5 J	--	--	--	0.7	--	--
Screen 3	Aug/Sep 1996	--	--	--	--	--	--	--	--	--	(1)
	Oct/Nov 1996	--	--	--	--	--	--	--	--	--	(1)
	Feb/Mar 1997	--	--	--	--	--	--	--	--	--	(1)
	Jun/Jul 1997	--	--	--	--	--	--	--	--	--	4.3
	Sep/Oct 1997	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 1998	--	--	--	--	--	--	--	--	--	5.6
	Apr/May 1998	--	--	--	--	--	--	--	--	--	5.8
	Jul/Aug 1998	--	--	--	--	--	--	--	--	--	5.9
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	6.7
	Feb/Mar 1999	--	--	0.5	--	--	--	0.6 ⁽⁴⁾	0.5	--	5.9
	May/Jun 1999	--	--	--	--	--	--	--	--	--	7.0
	Aug 1999	--	--	--	--	--	--	--	--	--	6.6
	Nov/Dec 1999	--	0.5	--	--	--	--	--	0.5(EB)	--	6.8
	Mar/Apr 2000	--	0.8	0.5	--	--	--	--	0.6(EB)	--	7.9
	Jul/Aug 2000	--	0.7	--	--	--	--	--	0.5(EB)	--	7.5
	Jan/Feb 2001	--	4.0	--	--	--	--	--	--	--	6.0
Screen 4	Aug/Sep 1996	--	--	--	--	--	--	--	--	--	(1)
	Oct/Nov 1996	--	--	--	--	--	--	--	--	--	(1)
	Feb/Mar 1997	--	--	--	--	--	--	--	--	--	(1)
	Jun/Jul 1997	--	--	--	--	--	--	--	--	--	--
	Sep/Oct 1997	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 1998	--	--	--	--	--	--	--	--	--	--
	Apr/May 1998	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	--	--	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	--
	Feb/Mar 1999	--	--	--	--	--	--	0.6 ⁽⁴⁾	--	--	--
	May/Jun 1999	--	--	--	--	--	--	--	--	--	9.9
	Aug 1999	--	--	--	--	--	--	--	--	--	4.0
	Nov/Dec 1999	--	--	--	--	--	--	--	--	--	4.1
	Mar/Apr 2000	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 2000	--	--	--	--	--	--	--	--	--	4.2

TABLE 3-4
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(concentrations in µg/L)

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Sampling Location	Sampling Event	Carbon Tetrachloride	TCE	PCE	1,1-DCA	1,2-DCA	1,1-DCE	Freon 113	Chloroform	Other Volatile Organic Compounds (including 1,4-Dioxane)	Perchlorate
	Jan/Feb 2001	--	--	--	--	--	--	--	--	--	--
Screen 5	Aug/Sep 1996	--	--	--	--	--	--	--	--	2.1(B) Acetone	(1)
	Oct/Nov 1996	--	--	--	--	--	--	--	--	1.6(TB) Acetone	(1)
	Feb/Mar 1997	--	--	--	--	--	--	--	--	1.3 Carbon Disulfide	(1)
	Jun/Jul 1997	--	--	--	--	--	--	--	--	--	--
	Sep/Oct 1997	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 1998	--	--	--	--	--	--	--	--	4.6 Carbon Disulfide ⁽³⁾	--
	Apr/May 1998	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	--	--	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	--
	Feb/Mar 1999	--	--	--	--	--	--	--	--	--	--
	May/June 1999	--	--	--	--	--	--	--	--	--	--
	Aug 1999	--	--	--	--	--	--	--	--	--	--
	Nov/Dec 1999	--	--	--	--	--	--	--	--	--	--
	Mar/Apr 2000	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	--
	Jul/Aug 2000	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 2001	--	--	--	--	--	--	--	--	--	--
MW-15	Aug/Sep 1996	--	--	--	--	--	--	--	--	--	(1)
	Oct/Nov 1996	--	--	--	--	--	--	--	--	2.6 Acetone	(1)
	Feb/Mar 1997	--	--	--	--	--	--	--	--	--	(1)
	Jun/Jul 1997	--	--	--	--	--	--	--	--	--	--
	Sep/Oct 1997	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 1998	--	--	--	--	--	--	--	--	--	--
	Apr/May 1998	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	--	--	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	--
	Feb/Mar 1999	--	--	--	--	--	--	--	--	--	--
	May/June 1999	--	--	--	--	--	--	--	--	--	--
	Aug 1999	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
	Nov/Dec 1999	--	--	--	--	--	--	--	--	--	--
	Mar/Apr 2000	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
	Jul/Aug 2000	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 2001	--	--	--	--	--	--	--	--	--	--
MW-16	Aug/Sep 1996	125	33	1.3	--	2.4	2.2	2.0	40(TB)	--	(1)
	Oct/Nov 1996	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)
	Feb/Mar 1997	91	23	1.3	--	1.7	2.6	1.6	29	--	(1)

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Sampling Location	Sampling Event	Carbon Tetrachloride	TCE	PCE	1,1-DCA	1,2-DCA	1,1-DCE	Freon 113	Chloroform	Other Volatile Organic Compounds (including 1,4-Dioxane)	Perchlorate
	Jun/Jul 1997	68	25	1.1	--	2.1	1.7	0.6	43	--	615
	Sep/Oct 1997	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)
	Jan/Feb 1998	30	3.5	1.0	--	--	1.3	--	14	--	1230
	Apr/May 1998	42	12	0.8	--	1.4	1.6	1.2	20	5.0 1,4-Dioxane	640
	Jul/Aug 1998	58	19	1.3	--	0.8	2.7	1.2	23	0.6 Dichloromethane ⁽⁴⁾	420
										1.0 1,1,1-Trichloroethane	
	Oct/Nov 1998	51	18	1.0	--	1.5	1.6	1.4	29	3.7 1,4-Dioxane	220
										1.1 1,1,1-Trichloroethane	
										13 Carbon Disulfide	
	Feb/Mar 1999	67	20	1.4	--	1.1	1.8	1.1	24	3.7 1,4-Dioxane	790
	May/Jun 1999	58	15	1.0	--	0.8	1.3	1.2	23	3.4 1,4-Dioxane	650
										0.5 Fluorotrichloromethane	
	Aug 1999	70	19	1.8	--	1.1	1.9	1.1	26(EB)	0.6 1,1,1-Trichloroethane	930
	Nov/Dec 1999	80	10	3.0	--	0.7	5.3	0.7	24	--	770
	Mar/Apr 2000	24	4.3	0.9	--	--	4.0	--	17	--	1900
	Jul/Aug 2000	33	8.2	1.1	--	0.7	1.3	0.5	16	--	1500
										5.51 1,4-Dioxane	
	Jan/Feb 2001	14.1	2.1	0.6	--	--	2.1	--	15.5	0.6 J Methyl tertiary butyl ether	1780
										1.0 Trichlorofluoromethane	
MW-17											
Screen 1	Aug/Sep 1996	--	--	--	--	--	--	--	--	4.3(B) Acetone	(1)
	Oct/Nov 1996	--	--	--	--	--	--	--	--	1.4 Acetone	(1)
	Feb/Mar 1997	--	--	--	--	--	--	--	--	--	(1)
	Jun/Jul 1997	--	--	--	--	--	--	--	--	--	--
	Sep/Oct 1997	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 1998	--	--	--	--	--	--	--	2.9	--	--
	Apr/May 1998	--	--	--	--	--	--	--	3.2	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	--	--	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	--
	Feb/Mar 1999	--	--	--	--	--	--	--	--	--	--
	May/Jun 1999	--	--	--	--	--	--	--	--	--	--
	Aug 1999	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
	Nov/Dec 1999	--	--	--	--	--	--	--	--	--	--
	Mar/Apr 2000	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
	Jul/Aug 2000	--	--	--	--	--	--	--	--	--	--

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Sampling Location	Sampling Event	Carbon Tetrachloride	TCE	PCE	1,1-DCA	1,2-DCA	1,1-DCE	Freon 113	Chloroform	Other Volatile Organic Compounds (including 1,4-Dioxane)	Perchlorate
Screen 2	Jan/Feb 2001	--	--	--	--	--	--	--	--	0.3 J Methyl tertiary butyl ether	--
	Aug/Sep 1996	--	--	--	--	--	--	--	3.8	4.5(B) Acetone	(1)
	Oct/Nov 1996	--	--	--	--	--	--	--	6.0	--	(1)
	Feb/Mar 1997	--	--	--	--	--	--	--	5.2	--	(1)
	Jun/Jul 1997	--	--	--	--	--	--	--	4.1	--	--
	Sep/Oct 1997	--	--	--	--	--	--	--	6.1	--	--
	Jan/Feb 1998	--	--	--	--	--	--	--	5.4	--	--
	Apr/May 1998	--	--	--	--	--	--	--	3.2	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	2.4	--	--
	Oct/Nov 1998	--	--	--	--	--	--	--	3.7	--	--
	Feb/Mar 1999	--	--	--	--	--	--	1.0 ⁽⁴⁾	3.9	--	--
	May/June 1999	--	--	--	--	--	--	--	3.2(EB)	--	--
	Aug 1999	--	--	--	--	--	--	--	2.5	--	--
	Nov/Dec 1999	--	--	--	--	--	--	--	1.4(EB)	--	--
	Mar/Apr 2000	--	--	--	--	--	--	--	1.9(EB)	--	--
Screen 3	Jul/Aug 2000	--	--	--	--	--	--	--	1.1(EB)	--	--
	Jan/Feb 2001	--	--	--	--	--	--	--	0.5 J ⁽⁵⁾	0.4 J Methyl tertiary butyl ether ⁽⁵⁾	--
	Aug/Sep 1996	2.0	7.9	--	--	--	--	--	7.5	--	(1)
	Oct/Nov 1996	3.3	18	0.8	--	--	--	--	8.7	--	(1)
	Feb/Mar 1997	5.1	23	1.1	--	--	--	--	6.2	--	(1)
	Jun/Jul 1997	1.3	5.9	--	--	--	--	--	8.2	--	12
	Sep/Oct 1997	6.6	22	1.4	--	--	--	--	9.2	--	55
	Jan/Feb 1998	3.3	8.7	--	--	--	--	--	6.8	--	25
	Apr/May 1998	--	0.9	--	--	--	--	--	5.3	--	--
	Jul/Aug 1998	--	1.0	--	--	--	--	--	4.9	--	--
	Oct/Nov 1998	--	1.9	--	--	--	--	--	4.1	--	5.1
	Feb/Mar 1999	--	1.6	--	--	--	--	--	3.8	--	4.2
	May/June 1999	--	1.5	--	--	--	--	--	3.5(EB)	--	--
	Aug 1999	0.8	2.9	--	--	--	--	--	4.6	--	6.1
	Nov/Dec 1999	0.7	3.2	--	--	--	--	--	4.4(EB)	--	5.5
Screen 4	Mar/Apr 2000	--	1.9	--	--	--	--	--	2.6(EB)	--	5.0
	Jul/Aug 2000	--	1.6	--	--	--	--	--	2.8(EB)	--	6.7
	Jan/Feb 2001	0.5	1.1	--	--	--	--	--	1.8	0.5 J Methyl tertiary butyl ether	--
	Aug/Sep 1996	--	9.5	0.5	--	--	--	--	1.1	--	(1)
	Oct/Nov 1996	--	8.9	--	--	--	--	--	1.5	--	(1)
	Feb/Mar 1997	--	5.8	--	--	--	--	--	0.7	--	(1)
	Jun/Jul 1997	--	4.5	--	--	--	--	--	0.6	--	13

TABLE 3-4

**SUMMARY OF VOLATILE ORGANIC COMPOUNDS AND PERCHLORATE DETECTED
DURING THE LONG-TERM QUARTERLY GROUNDWATER SAMPLING PROGRAM,
JET PROPULSION LABORATORY**

(concentrations in µg/L)

Values above State or Federal MCLs, or above/equal to action levels, are bold and shaded

Sampling Location	Sampling Event	Carbon Tetrachloride	TCE	PCE	1,1-DCA	1,2-DCA	1,1-DCE	Freon 113	Chloroform	Other Volatile Organic Compounds (including 1,4-Dioxane)	Perchlorate
	Sep/Oct 1997	--	6.8	0.5	--	--	--	--	1.0	--	16
	Jan/Feb 1998	--	7.3	0.6	--	--	--	--	1.2	--	16
	Apr/May 1998	--	7.6	0.6	--	--	--	--	1.5	--	17
	Jul/Aug 1998	--	8.9	0.6	--	--	--	--	1.9	--	14
	Oct/Nov 1998	--	6.2	0.5	--	--	--	--	1.9	--	12
	Feb/Mar 1999	--	3.8	--	--	--	--	1.0 ⁽⁴⁾	1.8	--	9.8
	May/June 1999	--	3.2	--	--	--	--	--	1.4(EB)	--	14
	Aug 1999	--	3.5	--	--	--	--	--	1.5	--	12
	Nov/Dec 1999	--	6.8	--	--	--	--	--	2.0(EB)	--	10
	Mar/Apr 2000	--	9.9	0.6	--	--	--	--	1.8(EB)	--	15
	Jul/Aug 2000	--	6.0	--	--	--	--	--	1.4(EB)	--	13
	Jan/Feb 2001	--	4.6	0.3 J	--	--	--	--	0.9	0.4 J Methyl tertiary butyl ether	8
Screen 5	Aug/Sep 1996	--	13	0.6	--	--	--	--	1.7	3.4(B) Acetone	(1)
	Oct/Nov 1996	--	16	0.7	--	--	--	--	1.7	--	(1)
	Feb/Mar 1997	--	14	0.7	--	--	--	--	1.3	--	(1)
	Jun/Jul 1997	--	11	0.7	--	--	--	--	1.3	--	12
	Sep/Oct 1997	--	8.6	0.6	--	--	--	--	1.4	--	15
	Jan/Feb 1998	--	7.9	--	--	--	--	--	1.5	--	15
	Apr/May 1998	--	8.8	0.6	--	--	--	--	1.8	--	15
	Jul/Aug 1998	--	8.9	0.6	--	--	--	--	2.0	--	13
	Oct/Nov 1998	--	11	0.8	--	--	--	--	2.7	--	12
	Feb/Mar 1999	--	4.9	--	--	--	--	--	2.1	--	6.4
	May/June 1999	--	6.6	0.6	--	--	--	--	2.0(EB)	--	12
	Aug 1999	--	4.0	--	--	--	--	--	1.6	--	11
	Nov/Dec 1999	--	6.7	--	--	--	--	--	2.1(EB)	--	9.1
	Mar/Apr 2000	--	8.8	--	--	--	--	--	1.8(EB)	--	15
	Jul/Aug 2000	--	7.1	0.6	--	--	--	--	1.5(EB)	--	12
	Jan/Feb 2001	0.3 J	7.5	0.5 J	--	--	--	--	1.2	0.6 J Methyl tertiary butyl ether	7
MW-18											
Screen 1	Aug/Sep 1996	--	--	--	--	--	--	--	1.6	--	(1)
	Oct/Nov 1996	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)
	Feb/Mar 1997	--	--	--	--	--	--	--	3.0	--	(1)
	Jun/Jul 1997	--	--	--	--	--	--	--	0.8	--	--
	Sep/Oct 1997	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)
	Jan/Feb 1998	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)
	Apr/May 1998	--	--	--	--	--	--	--	0.7	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	--	3.4 Unknown Hydrocarbon (RT=7.14)	--

TABLE 3-4

**SUMMARY OF VOLATILE ORGANIC COMPOUNDS AND PERCHLORATE DETECTED
DURING THE LONG-TERM QUARTERLY GROUNDWATER SAMPLING PROGRAM,
JET PROPULSION LABORATORY**

(concentrations in µg/L)

Values above State or Federal MCLs, or above/equal to action levels, are bold and shaded

Sampling Location	Sampling Event	Carbon Tetrachloride	TCE	PCE	1,1-DCA	1,2-DCA	1,1-DCE	Freon 113	Chloroform	Other Volatile Organic Compounds (including 1,4-Dioxane)	Perchlorate
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	--
	Feb/Mar 1999	--	--	--	--	--	--	--	--	--	--
	May/June 1999	--	--	--	--	--	--	--	--	--	--
	Aug 1999	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
	Nov/Dec 1999	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)
	Mar/Apr 2000	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
	Jul/Aug 2000	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 2001	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)
Screen 2	Aug/Sep 1996	--	--	--	--	--	--	--	7.3	--	(1)
	Oct/Nov 1996	--	--	--	--	--	--	--	8.2	--	(1)
	Feb/Mar 1997	--	--	--	--	--	--	--	1.9	--	(1)
	Jun/Jul 1997	--	--	--	--	--	--	--	4.5	--	--
	Sep/Oct 1997	--	--	--	--	--	--	--	2.5	--	--
	Jan/Feb 1998	--	--	--	--	--	--	--	3.7	--	--
	Apr/May 1998	--	--	--	--	--	--	--	3.2	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	0.9	--	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	--
	Feb/Mar 1999	--	--	--	--	--	--	--	3.0	0.8 Bromodichloromethane	--
	May/June 1999	--	--	--	--	--	--	--	0.8(EB)	--	--
	Aug 1999	--	--	--	--	--	--	--	--	--	--
	Nov/Dec 1999	--	--	--	--	--	--	--	--	--	--
	Mar/Apr 2000	--	--	--	--	--	--	--	2.5(EB)	0.9 Bromodichloromethane	--
	Jul/Aug 2000	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 2001	--	--	--	--	--	--	--	1.2	0.4 J Bromodichloromethane	--
Screen 3	Aug/Sep 1996	0.7	4.7	2.8	--	--	--	--	5.1	--	(1)
	Oct/Nov 1996	0.7	6.4	3.2	--	--	--	--	5.6	--	(1)
	Feb/Mar 1997	0.8	6.6	2.9	--	--	--	--	5.1	--	(1)
	Jun/Jul 1997	0.6	2.4	1.8	--	--	--	--	4.4	--	--
	Sep/Oct 1997	--	3.0	1.9	--	--	--	--	6.2	--	--
	Jan/Feb 1998	--	1.9	1.7	--	--	--	--	6.6	4.1 Unknown (RT=4.33)	--
	Apr/May 1998	0.5	1.8	1.3	--	--	--	--	5.7	--	5.0
	Jul/Aug 1998	--	1.5	0.9	--	--	--	--	4.6	--	5.2
	Oct/Nov 1998	--	1.4	0.8	--	--	--	--	4.2	--	--
	Feb/Mar 1999	--	1.0	0.5	--	--	--	--	3.5	--	--
	May/June 1999	--	1.1	--	--	--	--	--	2.5(EB)	0.6 Dichloromethane	--
	Aug 1999	--	1.0	--	--	--	--	--	2.8	--	--
	Nov/Dec 1999	--	0.8	--	--	--	--	--	0.8(EB)	--	--
	Mar/Apr 2000	--	1.1	0.5	--	--	--	--	3.1(EB)	--	--

TABLE 3-4

**SUMMARY OF VOLATILE ORGANIC COMPOUNDS AND PERCHLORATE DETECTED
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JET PROPULSION LABORATORY**

(concentrations in µg/L)

Values above State or Federal MCLs, or above/equal to action levels, are bold and shaded

Sampling Location	Sampling Event	Carbon Tetrachloride	TCE	PCE	1,1-DCA	1,2-DCA	1,1-DCE	Freon 113	Chloroform	Other Volatile Organic Compounds (including 1,4-Dioxane)	Perchlorate
	Jul/Aug 2000	--	0.6	--	--	--	--	--	2.6(EB)	--	--
	Jan/Feb 2001	--	0.5	0.3 J	--	--	--	--	2.2	--	--
Screen 4	Aug/Sep 1996	2.2	--	0.7	--	--	--	--	0.5	--	(1)
	Oct/Nov 1996	2.2	--	0.7	--	--	--	--	0.5	1.4(TB) Acetone	(1)
	Feb/Mar 1997	2.2	--	1.5	--	--	--	--	0.6	--	(1)
	Jun/Jul 1997	1.9	--	0.7	--	--	--	--	--	--	11
	Sep/Oct 1997	2.4	--	0.7	--	--	--	--	--	1.5 Carbon Disulfide	12
	Jan/Feb 1998	2.6	--	1.0	--	--	--	--	0.5	--	11
	Apr/May 1998	3.1	0.6	1.4	--	--	--	--	0.8	--	13
	Jul/Aug 1998	2.5	0.6	1.2	--	--	--	--	0.6	--	16
	Oct/Nov 1998	3.4	0.8	1.5	--	--	--	--	0.7	--	19
	Feb/Mar 1999	4.7	1.2	2.3	--	--	--	--	1.1	--	24
	May/Jul 1999	3.6	1.6	2.5	--	--	--	--	1.1(EB)	0.7 Dichloromethane	16
	Aug 1999	3.6	1.1	1.9	--	--	--	--	0.8	--	23
	Nov/Dec 1999	3.8	1.2	2.0	--	--	--	--	0.8(EB)	--	23
	Mar/Apr 2000	3.8	1.2	2.2	--	--	--	--	0.9(EB)	--	24
	Jul/Aug 2000	3.6	1.1	2.0	--	--	--	--	0.9(EB)	--	24
	Jan/Feb 2001	3.5	1.1	1.9	--	--	--	--	0.8	--	15
Screen 5	Aug/Sep 1996	--	--	--	--	--	--	--	--	--	(1)
	Oct/Nov 1996	--	--	--	--	--	--	--	--	1.6 Acetone	(1)
	Feb/Mar 1997	--	--	--	--	--	--	--	--	--	(1)
	Jun/Jul 1997	--	--	--	--	--	--	--	--	1.1 Carbon Disulfide	--
	Sep/Oct 1997	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 1998	--	--	--	--	--	--	--	--	--	--
	Apr/May 1998	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	--	4.6 Hexane	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	--
	Feb/Mar 1999	--	--	--	--	--	--	--	--	--	--
	May/Jul 1999	--	--	--	--	--	--	--	--	0.8 Dichloromethane	--
	Aug 1999	--	--	--	--	--	--	--	--	1.0 Unknown (RT=4.25)	--
	Nov/Dec 1999	--	--	--	--	--	--	--	--	0.6 Unknown (RT=4.82)	--
	Mar/Apr 2000	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 2000	--	--	--	--	--	--	--	--	--	--

TABLE 3-4

**SUMMARY OF VOLATILE ORGANIC COMPOUNDS AND PERCHLORATE DETECTED
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(concentrations in µg/L)

Values above State or Federal MCLs, or above/equal to action levels, are bold and shaded

Sampling Location	Sampling Event	Carbon Tetrachloride	TCE	PCE	1,1-DCA	1,2-DCA	1,1-DCE	Freon 113	Chloroform	Other Volatile Organic Compounds (including 1,4-Dioxane)	Perchlorate
	Jan/Feb 2001	--	--	--	--	--	--	--	--	1.4 Chloromethane	--
MW-19											
Screen 1	Aug/Sep 1996	--	--	--	--	--	--	--	0.9	3.7(B) Acetone	(1)
	Oct/Nov 1996	--	--	--	--	--	--	--	0.6	2.9 Acetone	(1)
	Feb/Mar 1997	--	--	--	--	--	--	--	0.8	--	(1)
	Jun/Jul 1997	--	--	--	--	--	--	--	2.5	--	--
	Sep/Oct 1997	--	--	--	--	--	--	--	1.4	--	--
	Jan/Feb 1998	--	--	--	--	--	--	--	0.8	--	--
	Apr/May 1998	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	--	--	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	--
	Feb/Mar 1999	--	--	--	--	--	--	--	--	--	--
	May/Jun 1999	--	--	--	--	--	--	--	--	--	--
	Aug 1999	--	--	--	--	--	--	--	--	--	--
	Nov/Dec 1999	--	--	--	--	--	--	--	--	--	--
	Mar/Apr 2000	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 2000	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 2001	--	--	--	--	--	--	--	--	--	--
Screen 2	Aug/Sep 1996	--	--	0.8	--	--	--	--	--	3.0(B) Acetone	(1)
	Oct/Nov 1996	--	--	1.1	--	--	--	--	--	--	(1)
	Feb/Mar 1997	--	--	--	--	--	--	--	--	--	(1)
	Jun/Jul 1997	--	--	0.6	--	--	--	--	--	--	--
	Sep/Oct 1997	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 1998	--	0.6	0.9	--	--	--	--	--	--	--
	Apr/May 1998	--	0.9	1.2	--	--	--	--	--	--	--
	Jul/Aug 1998	--	0.6	0.7	--	--	--	--	--	--	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	--
	Feb/Mar 1999	--	0.6	--	--	--	--	--	--	--	--
	May/Jun 1999	--	1.3	1.1	--	--	--	--	--	--	4.5
	Aug 1999	--	0.7	--	--	--	--	--	--	--	--
	Nov/Dec 1999	--	0.5	--	--	--	--	--	--	--	--
	Mar/Apr 2000	--	0.6	0.5	--	--	--	--	--	--	--
	Jul/Aug 2000	--	0.6	--	--	--	--	--	--	--	--

TABLE 3-4

**SUMMARY OF VOLATILE ORGANIC COMPOUNDS AND PERCHLORATE DETECTED
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(concentrations in µg/L)

Values above State or Federal MCLs, or above/equal to action levels, are bold and shaded

Sampling Location	Sampling Event	Carbon Tetrachloride	TCE	PCE	1,1-DCA	1,2-DCA	1,1-DCE	Freon 113	Chloroform	Other Volatile Organic Compounds (including 1,4-Dioxane)	Perchlorate
	Jan/Feb 2001	--	0.6 ⁽⁵⁾	--	--	--	--	--	--	--	--
Screen 3	Aug/Sep 1996	--	--	3.1	--	--	--	--	--	2.6(B) Acetone	(1)
	Oct/Nov 1996	--	--	2.5	--	--	--	--	--	--	(1)
	Feb/Mar 1997	--	--	2.1	--	--	--	--	--	--	(1)
	Jun/Jul 1997	--	--	2.0	--	--	--	--	--	--	4.1
	Sep/Oct 1997	--	--	1.5	--	--	--	--	--	0.6 Toluene	--
	Jan/Feb 1998	--	--	2.1	--	--	--	--	--	--	--
	Apr/May 1998	--	--	2.5	--	--	--	--	--	--	--
	Jul/Aug 1998	--	--	2.1	--	--	--	--	--	--	4.4
	Oct/Nov 1998	--	--	2.0	--	--	--	--	--	--	4.2
	Feb/Mar 1999	--	--	1.5	--	--	--	--	--	--	--
	May/Jun 1999	--	0.9	2.7	--	--	--	--	--	--	7.2
	Aug 1999	--	0.6	1.9	--	--	--	--	--	--	4.4
	Nov/Dec 1999	--	0.6	1.9	--	--	--	--	--	--	5.0
	Mar/Apr 2000	--	0.8	2.0	--	--	--	--	--	--	4.8
	Jul/Aug 2000	--	0.7	1.8	--	--	--	--	--	--	5.0
	Jan/Feb 2001	--	0.5	1.4	--	--	--	--	0.4 J	--	--
Screen 4	Aug/Sep 1996	0.5	1.5	--	--	--	--	--	2.1	--	(1)
	Oct/Nov 1996	--	1.5	--	--	--	--	--	1.9	--	(1)
	Feb/Mar 1997	--	1.1	0.6	--	--	--	--	1.5	--	(1)
	Jun/Jul 1997	--	0.7	--	--	--	--	--	1.3	--	--
	Sep/Oct 1997	--	0.7	0.6	--	--	--	--	1.7	--	4.9
	Jan/Feb 1998	--	0.5	0.6	--	--	--	--	1.3	--	--
	Apr/May 1998	--	0.8	1.0	--	--	--	--	1.6	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	1.4	--	--
	Oct/Nov 1998	--	--	--	--	--	--	--	2.2	--	--
	Feb/Mar 1999	--	--	--	--	--	--	--	3.0	--	--
	May/Jun 1999	--	0.7	--	--	--	--	--	2.6(EB)	--	--
	Aug 1999	--	0.5	--	--	--	--	--	2.7	--	--
	Nov/Dec 1999	--	0.5	--	--	--	--	--	2.1(EB)	--	--
	Mar/Apr 2000	--	--	--	--	--	--	--	2.0(EB)	--	--
	Jul/Aug 2000	--	--	--	--	--	--	--	3.2(EB)	--	--

TABLE 3-4

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Sampling Location	Sampling Event	Carbon Tetrachloride	TCE	PCE	1,1-DCA	1,2-DCA	1,1-DCE	Freon 113	Chloroform	Other Volatile Organic Compounds (including 1,4-Dioxane)	Perchlorate
	Jan/Feb 2001	--	--	--	--	--	--	--	2.6	--	--
Screen 5	Aug/Sep 1996	--	--	3.0	--	--	--	--	0.6	1.6(B) Unknown scan #940	(1)
	Oct/Nov 1996	--	--	2.4	--	--	--	--	--	--	(1)
	Feb/Mar 1997	--	--	1.7	--	--	--	--	--	--	(1)
	Jun/Jul 1997	--	--	1.5	--	--	--	--	--	--	--
	Sep/Oct 1997	--	--	2.2	--	--	--	--	0.8	--	--
	Jan/Feb 1998	--	--	1.4	--	--	--	--	--	--	--
	Apr/May 1998	--	--	0.9	--	--	--	--	0.6	--	--
	Jul/Aug 1998	--	--	1.5	--	--	--	--	--	--	--
	Oct/Nov 1998	--	--	1.5	--	--	--	--	--	--	--
	Feb/Mar 1999	--	--	1.3	--	--	--	--	--	--	--
	May/June 1999	--	--	2.1	--	--	--	--	--	0.7 Dichloromethane	4.4
	Aug 1999	--	--	1.5	--	--	--	--	--	--	4.2
	Nov/Dec 1999	--	--	1.5	--	--	--	--	--	--	--
	Mar/Apr 2000	--	--	1.4	--	--	--	--	0.6(EB)	--	--
	Jul/Aug 2000	--	0.5	1.7	--	--	--	--	0.5(EB)	--	4.2
	Jan/Feb 2001	--	0.4 J	2.1	--	--	--	--	--	--	--
MW-20											
Screen 1	Aug/Sep 1996	--	--	--	--	--	--	--	0.7	3.4(B) Acetone	(1)
	Oct/Nov 1996	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)
	Feb/Mar 1997	--	--	--	--	--	--	--	1.4	2.4(EB) Acetone	(1)
	Jun/Jul 1997	--	--	--	--	--	--	--	0.8	--	5.7
	Sep/Oct 1997	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)
	Jan/Feb 1998	--	--	--	--	--	--	--	1.4	--	6.3
	Apr/May 1998	--	--	--	--	--	--	--	2.5	--	5.5
	Jul/Aug 1998	--	--	--	--	--	--	--	1.8	--	5.9
	Oct/Nov 1998	--	--	--	--	--	--	--	0.8	--	7.8
	Feb/Mar 1999	--	--	--	--	--	--	--	2.2	--	4.9
	May/June 1999	--	--	--	--	--	--	--	1.9(EB)	--	4.4
	Aug 1999	--	--	--	--	--	--	--	0.6	--	7.5
	Nov/Dec 1999	--	--	--	--	--	--	--	1.3(EB)	--	7.7
	Mar/Apr 2000	--	--	--	--	--	--	--	1.1(EB)	--	7.6
	Jul/Aug 2000	--	--	--	--	--	--	--	--	--	7.5

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Sampling Location	Sampling Event	Carbon Tetrachloride	TCE	PCE	1,1-DCA	1,2-DCA	1,1-DCE	Freon 113	Chloroform	Other Volatile Organic Compounds (including 1,4-Dioxane)	Perchlorate
	Jan/Feb 2001	--	--	--	--	--	--	--	1.4	0.3 J Methyl tertiary butyl ether	5.0
Screen 2	Aug/Sep 1996	--	--	--	--	--	--	--	7.7	4.0(B) Acetone	(1)
	Oct/Nov 1996	--	--	--	--	--	--	--	4.4	--	(1)
	Feb/Mar 1997	--	--	--	--	--	--	--	3.2	--	(1)
	Jun/Jul 1997	--	--	--	--	--	--	--	3.3	--	--
	Sep/Oct 1997	--	--	--	--	--	--	--	5.7	--	--
	Jan/Feb 1998	--	--	--	--	--	--	--	2.7	--	--
	Apr/May 1998	--	--	--	--	--	--	--	2.7	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	4.2	0.5 Dichlorobromomethane	--
	Oct/Nov 1998	--	--	--	--	--	--	--	3.6	--	--
	Feb/Mar 1999	--	--	--	--	--	--	--	4.2	--	--
	May/June 1999	--	--	--	--	--	--	--	4.6(EB)	0.6 Bromodichloromethane	--
	Aug 1999	--	--	--	--	--	--	--	4.8	0.6 Bromodichloromethane	--
	Nov/Dec 1999	--	--	--	--	--	--	--	3.8(EB)	--	--
	Mar/Apr 2000	--	--	--	--	--	--	--	3.8(EB)	--	--
	Jul/Aug 2000	--	--	--	--	--	--	--	4.1(EB)	0.6 Bromodichloromethane	--
	Jan/Feb 2001	--	--	--	--	--	--	--	2.8	--	--
Screen 3	Aug/Sep 1996	--	--	--	--	--	--	--	--	2.7(B) Acetone	(1)
	Oct/Nov 1996	--	--	--	--	--	--	--	0.6	2.3 Acetone	(1)
	Feb/Mar 1997	--	--	--	--	--	--	--	--	--	(1)
	Jun/Jul 1997	--	--	--	--	--	--	--	--	--	--
	Sep/Oct 1997	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 1998	--	--	--	--	--	--	--	--	3.4 Unknown (RT=6.2)	--
	Apr/May 1998	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	--	--	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	--
	Feb/Mar 1999	--	--	--	--	--	--	--	--	--	--
	May/June 1999	--	--	--	--	--	--	--	--	--	--
	Aug 1999	--	--	--	--	--	--	--	--	--	--
	Nov/Dec 1999	--	--	--	--	--	--	--	--	--	--
	Mar/Apr 2000	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 2000	--	--	--	--	--	--	--	--	--	--

TABLE 3-4
SUMMARY OF VOLATILE ORGANIC COMPOUNDS AND PERCHLORATE DETECTED
DURING THE LONG-TERM QUARTERLY GROUNDWATER SAMPLING PROGRAM,
JET PROPULSION LABORATORY

(concentrations in µg/L)
 Values above State or Federal MCLs, or above/equal to action levels, are bold and shaded

Sampling Location	Sampling Event	Carbon Tetrachloride	TCE	PCE	1,1-DCA	1,2-DCA	1,1-DCE	Freon 113	Chloroform	Other Volatile Organic Compounds (including 1,4-Dioxane)	Perchlorate
Screen 4	Jan/Feb 2001	--	--	--	--	--	--	--	--	0.4 J Methyl tertiary butyl ether	--
	Aug/Sep 1996	--	--	--	--	--	--	--	--	3.8(B) Acetone	(1)
	Oct/Nov 1996	--	--	--	--	--	--	--	--	--	(1)
	Feb/Mar 1997	--	--	--	--	--	--	--	--	--	(1)
	Jun/Jul 1997	--	--	--	--	--	--	--	--	--	--
	Sep/Oct 1997	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 1998	--	--	--	--	--	--	--	--	--	--
	Apr/May 1998	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	--	--	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	20
	Feb/Mar 1999	--	--	--	--	--	--	--	--	--	--
	May/June 1999	--	--	--	--	--	--	--	--	--	--
	Aug 1999	--	--	--	--	--	--	--	--	--	--
	Nov/Dec 1999	--	--	--	--	--	--	--	--	--	--
	Mar/Apr 2000	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 2000	--	--	--	--	--	--	--	--	--	--
Screen 5	Jan/Feb 2001	--	--	--	--	--	--	--	--	0.8 J Methyl tertiary butyl ether (EB) ⁽⁵⁾	--
										0.6 Styrene ⁽⁵⁾	--
	Aug/Sep 1996	--	--	--	--	--	--	--	--	4.8(B) Acetone	(1)
	Oct/Nov 1996	--	--	--	--	--	--	--	--	--	(1)
	Feb/Mar 1997	--	--	--	--	--	--	--	--	--	(1)
	Jun/Jul 1997	--	--	--	--	--	--	--	--	--	--
	Sep/Oct 1997	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 1998	--	--	--	--	--	--	--	--	--	--
	Apr/May 1998	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	--	--	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	8.2
	Feb/Mar 1999	--	--	--	--	--	--	--	--	--	--
	May/June 1999	--	--	--	--	--	--	--	--	--	--
	Aug 1999	--	--	--	--	--	--	--	--	0.7 Carbonyl Sulfide	--
	Nov/Dec 1999	--	--	--	--	--	--	--	--	--	--
	Mar/Apr 2000	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 2000	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 2001	--	--	--	--	--	--	--	--	0.4 J Styrene	--
MW-21											
Screen 1	Aug/Sep 1996	--	33	0.7	--	--	--	--	1.8	2.3(B) Acetone	(1)

TABLE 3-4

**SUMMARY OF VOLATILE ORGANIC COMPOUNDS AND PERCHLORATE DETECTED
DURING THE LONG-TERM QUARTERLY GROUNDWATER SAMPLING PROGRAM,
JET PROPULSION LABORATORY**

(concentrations in µg/L)

Values above State or Federal MCLs, or above/equal to action levels, are bold and shaded

Sampling Location	Sampling Event	Carbon Tetrachloride	TCE	PCE	1,1-DCA	1,2-DCA	1,1-DCE	Freon 113	Chloroform	Other Volatile Organic Compounds (including 1,4-Dioxane)	Perchlorate
	Oct/Nov 1996	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)
	Feb/Mar 1997	--	29	--	--	--	--	--	2.2	--	(1)
	Jun/Jul 1997	--	20	--	--	--	--	--	1.6	--	19
	Sep/Oct 1997	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)
	Jan/Feb 1998	--	16	--	--	--	--	--	1.8	--	14
	Apr/May 1998	--	16	--	--	--	--	--	1.8	--	14
	Jul/Aug 1998	--	16	0.6	--	--	--	--	1.8	--	13
	Oct/Nov 1998	--	10	--	--	--	--	--	1.6	--	13
	Feb/Mar 1999	--	20	0.5	--	--	--	--	1.8	--	14
	May/Jun 1999	--	20	0.5	--	--	--	--	1.6(EB)	--	15
	Aug 1999	--	17	0.5	--	--	--	--	1.7	--	12
	Nov/Dec 1999	--	15	0.7	--	--	--	--	2.2(EB)	--	16
	Mar/Apr 2000	--	17	0.7	--	--	--	--	1.8(EB)	--	12
	Jul/Aug 2000	--	12	0.5	--	--	--	--	1.7(EB)	--	16
	Jan/Feb 2001	--	9.8	0.5	--	--	--	--	1.6	--	11
Screen 2	Aug/Sep 1996	--	--	0.9	--	--	--	--	0.5	--	(1)
	Oct/Nov 1996	--	0.6	2.3	--	--	--	--	0.6	1.4(TB) Acetone	(1)
	Feb/Mar 1997	--	--	1.1	--	--	--	--	--	--	(1)
	Jun/Jul 1997	--	--	0.7	--	--	--	--	--	--	--
	Sep/Oct 1997	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 1998	--	--	1.1	--	--	--	--	--	--	--
	Apr/May 1998	--	--	1.0	--	--	--	--	--	--	--
	Jul/Aug 1998	--	--	0.7	--	--	--	--	0.7	--	--
	Oct/Nov 1998	--	--	--	--	--	--	--	0.7	--	--
	Feb/Mar 1999	--	--	0.8	--	--	--	--	--	--	--
	May/Jun 1999	--	--	0.6	--	--	--	--	--	--	--
	Aug 1999	--	--	0.8	--	--	--	--	--	--	--
	Nov/Dec 1999	--	--	1.2	--	--	--	--	--	--	4.6
	Mar/Apr 2000	--	--	0.9	--	--	--	--	--	1.8 Carbonyl Sulfide	4.1
	Jul/Aug 2000	--	--	0.9	--	--	--	--	--	--	--

TABLE 3-4
SUMMARY OF VOLATILE ORGANIC COMPOUNDS AND PERCHLORATE DETECTED
DURING THE LONG-TERM QUARTERLY GROUNDWATER SAMPLING PROGRAM,
JET PROPULSION LABORATORY

(concentrations in µg/L)

Values above State or Federal MCLs, or above/equal to action levels, are bold and shaded

Sampling Location	Sampling Event	Carbon Tetrachloride	TCE	PCE	1,1-DCA	1,2-DCA	1,1-DCE	Freon 113	Chloroform	Other Volatile Organic Compounds (including 1,4-Dioxane)	Perchlorate
Screen 3	Jan/Feb 2001	--	0.3 J	1.2	--	--	--	--	0.4 J	--	--
	Aug/Sep 1996	--	0.7	1.5	--	--	--	--	0.5	--	(1)
	Oct/Nov 1996	--	0.9	1.6	--	--	--	--	--	1.2 Acetone	(1)
	Feb/Mar 1997	--	0.8	1.6	--	--	--	--	--	--	(1)
	Jun/Jul 1997	--	--	1.2	--	--	--	--	--	--	--
	Sep/Oct 1997	--	0.6	1.3	--	--	--	--	--	--	--
	Jan/Feb 1998	--	0.5	1.4	--	--	--	--	--	--	--
	Apr/May 1998	--	--	1.1	--	--	--	--	--	--	--
	Jul/Aug 1998	--	--	0.9	--	--	--	--	--	--	--
	Oct/Nov 1998	--	--	0.8	--	--	--	--	--	--	--
	Feb/Mar 1999	--	--	1.0	--	--	--	--	--	--	4.1
	May/Jun 1999	--	0.6	1.4	--	--	--	--	--	--	--
	Aug 1999	--	0.6	1.3	--	--	--	--	--	--	--
	Nov/Dec 1999	--	0.9	2.2	--	--	--	--	0.6(EB)	4.9 Carbonyl Sulfide	4.8
	Mar/Apr 2000	--	0.9	2.3	--	--	--	--	0.6(EB)	--	--
	Jul/Aug 2000	--	0.6	1.5	--	--	--	--	0.7(EB)	--	--
										0.3 J cis-1,2-Dichloroethene	
Screen 4	Jan/Feb 2001	--	0.9	2.5	--	--	0.5 J	--	1.1	0.6 Bromodichloromethane	--
										0.4 J Chlorodibromomethane	
										0.3 J 1,2-Dichloroethene (Total)	
	Aug/Sep 1996	--	0.8	4.2	--	--	--	--	--	--	(1)
	Oct/Nov 1996	--	--	2.5	--	--	--	--	--	1.6 Acetone	(1)
	Feb/Mar 1997	--	--	1.8	--	--	--	--	--	--	(1)
	Jun/Jul 1997	--	--	2.8	--	--	--	--	--	--	4.6
	Sep/Oct 1997	--	0.6	4.4	--	--	--	--	--	--	7.7
	Jan/Feb 1998	--	--	2.4	--	--	--	--	--	--	--
	Apr/May 1998	--	0.6	4.4	--	--	--	--	--	0.7 cis-1,2-Dichloroethene	--
	Jul/Aug 1998	--	0.8	4.3	--	--	--	--	--	0.8 cis-1,2-Dichloroethene	4.3
	Oct/Nov 1998	--	1.1	8.3	--	--	--	0.6	--	1.3 cis-1,2-Dichloroethene	--
	Feb/Mar 1999	--	--	3.8	--	--	--	--	--	0.7 cis-1,2-Dichloroethene	--
	May/Jun 1999	--	--	3.2	--	--	--	--	--	0.6 cis-1,2-Dichloroethene	4.8
	Aug 1999	--	0.7	6.1	--	--	--	0.6	--	1.2 cis-1,2-Dichloroethene	--
	Nov/Dec 1999	--	0.6	6.0	--	--	--	--	--	5.1 Carbonyl Sulfide	--
	Mar/Apr 2000	--	--	4.0	--	--	--	--	--	1.1 cis-1,2-Dichloroethene	--
	Jul/Aug 2000	--	0.5	6.2	--	--	--	--	0.7(EB)	0.9 cis-1,2-Dichloroethene	--
										1.3 cis-1,2-Dichloroethene	--

TABLE 3-4
SUMMARY OF VOLATILE ORGANIC COMPOUNDS AND PERCHLORATE DETECTED
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JET PROPULSION LABORATORY

(concentrations in µg/L)
 Values above State or Federal MCLs, or above/equal to action levels, are bold and shaded

Sampling Location	Sampling Event	Carbon Tetrachloride	TCE	PCE	1,1-DCA	1,2-DCA	1,1-DCE	Freon 113	Chloroform	Other Volatile Organic Compounds (including 1,4-Dioxane)	Perchlorate
	Jan/Feb 2001	--	1.2	4.3	--	--	--	--	0.7	1.0 cis-1,2-Dichloroethene 0.4 J Bromodichloromethane 1.0 J 1,2-Dichloroethene (Total)	--
Screen 5	Aug/Sep 1996	--	--	4.5	--	--	--	--	0.6	--	(1)
	Oct/Nov 1996	--	--	3.1	--	--	--	--	--	--	(1)
	Feb/Mar 1997	--	--	3.0	--	--	--	--	--	--	(1)
	Jun/Jul 1997	--	--	3.0	--	--	--	--	--	--	--
	Sep/Oct 1997	--	--	2.9	--	--	--	--	--	--	--
	Jan/Feb 1998	--	--	4.1	--	--	--	--	--	0.6 cis-1,2-Dichloroethene 5.0 Carbon Disulfide ⁽³⁾	5.2
	Apr/May 1998	--	--	6.5	--	--	--	--	--	1.0 cis-1,2-Dichloroethene	5.8
	Jul/Aug 1998	--	--	7.6	--	--	--	--	0.6	1.5 cis-1,2-Dichloroethene	--
	Oct/Nov 1998	--	--	6.7	--	--	--	--	0.6	1.4 cis-1,2-Dichloroethene	4.0
	Feb/Mar 1999	--	0.5	7.7	--	--	--	--	0.7	1.4 cis-1,2-Dichloroethene	4.2
	May/Jun 1999	--	--	8.2	--	--	--	--	0.7(EB) ⁽³⁾	1.5 cis-1,2-Dichloroethene	--
	Aug 1999	--	0.6	9.6	--	--	--	--	0.8	1.6 cis-1,2-Dichloroethene 1.4 Chlorodifluoromethane	--
	Nov/Dec 1999	--	0.7	11.4	--	--	--	--	1.0(EB)	2.2 cis-1,2-Dichloroethene	4.9
	Mar/Apr 2000	--	0.7	12	--	--	--	--	1.2(EB)	2.5 cis-1,2-Dichloroethene 0.6 Bromodichloromethane	4.2
	Jul/Aug 2000	--	0.6	11	--	--	--	--	1.2(EB)	2.2 cis-1,2-Dichloroethene 0.6 Bromodichloromethane	--
	Jan/Feb 2001	--	0.7	15.1	--	--	--	--	1.7	2.6 cis-1,2-Dichloroethene 0.6 Bromodichloromethane 2.6 1,2-Dichloroethene (Total) 0.4 J Methyl tertiary butyl ether	--
MW-22⁽⁸⁾											
Screen 1	Sep/Oct 1997	--	--	2.0	0.7	--	--	--	--	--	--
	Jan/Feb 1998	--	--	2.3	0.8	--	--	0.5	--	--	--
	Apr/May 1998	--	0.9	2.1	0.8	--	--	--	0.5	--	5.4
	Jul/Aug 1998	--	0.9	1.7	0.6	--	--	--	--	--	6.4
	Oct/Nov 1998	--	--	1.7	0.7	--	--	--	--	--	5.0
	Feb/Mar 1999	--	0.6	3.6	1.0	--	--	1.3 ⁽⁴⁾	0.5	--	6.4
	May/Jun 1999	--	--	2.7	1.0	--	--	--	--	--	4.9
	Aug 1999	--	--	2.1	0.7	--	--	--	--	--	--
	Nov/Dec 1999	--	--	3.6	0.9	--	--	--	0.5(EB)	--	4.2
	Mar/Apr 2000	--	--	3.1	0.7	--	--	--	--	--	4.3

TABLE 3-4

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Sampling Location	Sampling Event	Carbon Tetrachloride	TCE	PCE	1,1-DCA	1,2-DCA	1,1-DCE	Freon 113	Chloroform	Other Volatile Organic Compounds (including 1,4-Dioxane)	Perchlorate
	Jul/Aug 2000	--	--	3.2	0.6	--	--	--	--	--	4.4
	Jan/Feb 2001	--	--	2.0	0.7	--	--	--	0.4 J	--	--
Screen 2	Sep/Oct 1997	--	--	--	--	--	--	--	--	0.8 Dichloromethane	--
	Jan/Feb 1998	--	--	--	--	--	--	--	--	--	--
	Apr/May 1998	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	--	--	4.9
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	--
	Feb/Mar 1999	--	0.6	--	--	--	--	1.4 ⁽⁴⁾	--	--	--
	May/June 1999	--	--	--	--	--	--	--	--	--	--
	Aug 1999	--	--	--	--	--	--	--	--	--	--
	Nov/Dec 1999	--	--	--	--	--	--	--	--	--	--
	Mar/Apr 2000	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 2000	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 2001	--	--	--	--	--	--	--	--	--	--
Screen 3	Sep/Oct 1997	--	--	--	--	--	--	--	--	--	15
	Jan/Feb 1998	--	--	--	--	--	--	--	--	--	--
	Apr/May 1998	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	--	--	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	--
	Feb/Mar 1999	--	--	--	--	--	--	1.3 ⁽⁴⁾	--	--	--
	May/June 1999	--	--	--	--	--	--	--	--	--	--
	Aug 1999	--	--	--	--	--	--	--	--	--	--
	Nov/Dec 1999	--	--	--	--	--	--	--	--	--	--
	Mar/Apr 2000	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 2000	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 2001	--	--	--	--	--	--	--	--	--	--
Screen 4	Sep/Oct 1997	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 1998	--	--	--	--	--	--	--	--	--	--
	Apr/May 1998	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	--	--	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	--
	Feb/Mar 1999	--	--	--	--	--	--	1.3 ⁽⁴⁾	--	--	--
	May/June 1999	--	--	--	--	--	--	--	--	--	--
	Aug 1999	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	--
	Nov/Dec 1999	--	--	--	--	--	--	--	--	--	--
	Mar/Apr 2000	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	--
	Jul/Aug 2000	--	--	--	--	--	--	--	--	--	--

TABLE 3-4

**SUMMARY OF VOLATILE ORGANIC COMPOUNDS AND PERCHLORATE DETECTED
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(concentrations in µg/L)

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Sampling Location	Sampling Event	Carbon Tetrachloride	TCE	PCE	1,1-DCA	1,2-DCA	1,1-DCE	Freon 113	Chloroform	Other Volatile Organic Compounds (including 1,4-Dioxane)	Perchlorate
Screen 5	Jan/Feb 2001	--	--	--	--	--	--	--	--	0.7 Methylene Chloride ⁽⁵⁾	--
	Sep/Oct 1997	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 1998	--	--	--	--	--	--	--	--	--	--
	Apr/May 1998	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	--	--	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	--
	Feb/Mar 1999	--	--	--	--	--	--	1.3 ⁽⁴⁾	--	--	--
	May/Jun 1999	--	--	--	--	--	--	--	--	--	--
	Aug 1999	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
	Nov/Dec 1999	--	--	--	--	--	--	--	--	--	--
	Mar/Apr 2000	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
	Jul/Aug 2000	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 2001	--	--	--	--	--	--	--	--	0.4 J Methylene Chloride	--
MW-23⁽⁶⁾											
Screen 1	Sep/Oct 1997	--	3.1	0.6	0.8	--	--	--	--	--	4.4
	Jan/Feb 1998	--	4.2	1.6	1.2	--	--	--	0.9	0.6 1,2,3-Trichlorobenzene	5.2
	Apr/May 1998	0.5	16	0.8	1.2	--	--	--	1.9	--	16
	Jul/Aug 1998	0.5	9.2	--	--	--	--	--	1.0	2.2 Dichloromethane ⁽³⁾	19
	Oct/Nov 1998	0.8	15	--	--	--	--	--	1.9	--	21
	Feb/Mar 1999	0.6	15	1.1	1.4	--	--	--	1.9	0.06 1,2,3-Trichlorobenzene	8.4
	May/Jun 1999	--	7.0	1.1	--	--	--	0.6	1.0(EB)	0.7 1,2,3-Trichlorobenzene	7.6
	Aug 1999	--	3.5	1.1	1.0	--	--	--	0.7(EB)	--	--
	Nov/Dec 1999	--	1.2	1.3	1.0	--	--	--	0.5(EB)	1.1 1,2,3-Trichlorobenzene	4.1
	Mar/Apr 2000	--	1.5	2.3	1.3	--	--	--	0.7(EB)	1.2 1,2,3-Trichlorobenzene	4.3
	Jul/Aug 2000	--	1.4	0.9	--	--	0.6	--	0.5(EB)	--	4.9
	Jan/Feb 2001	--	0.9	1.6	0.9	--	--	--	0.5	--	--
	Sep/Oct 1997	--	--	--	--	--	--	--	--	--	7.6
Screen 2	Jan/Feb 1998	--	--	--	--	--	--	--	0.7	--	6.7
	Apr/May 1998	--	--	--	--	--	--	--	--	--	7.5
	Jul/Aug 1998	--	1.1	1.0	0.8	--	--	--	0.7	1.8 Dichloromethane ⁽⁴⁾	7.8
	Oct/Nov 1998	--	0.6	0.7	0.6	--	--	--	0.6	--	16
	Feb/Mar 1999	--	--	--	--	--	--	--	0.5	--	7.7
	May/Jun 1999	--	--	--	0.5	--	--	--	0.6(EB)	--	7.8
	Aug 1999	--	--	--	--	--	--	--	0.5(EB)	--	--
	Nov/Dec 1999	--	--	--	--	--	--	--	--	--	7.5
	Mar/Apr 2000	--	--	0.6	--	--	--	--	0.6(EB)	--	7.2
	Jul/Aug 2000	--	--	0.7	--	--	--	--	0.7(EB)	--	6.6
	Jan/Feb 2001	--	--	--	--	--	--	--	--	--	--
	Sep/Oct 1997	--	--	--	--	--	--	--	--	--	7.6

TABLE 3-4
SUMMARY OF VOLATILE ORGANIC COMPOUNDS AND PERCHLORATE DETECTED
DURING THE LONG-TERM QUARTERLY GROUNDWATER SAMPLING PROGRAM,
JET PROPULSION LABORATORY

(concentrations in µg/L)

Values above State or Federal MCLs, or above/equal to action levels, are bold and shaded

Sampling Location	Sampling Event	Carbon Tetrachloride	TCE	PCE	1,1-DCA	1,2-DCA	1,1-DCE	Freon 113	Chloroform	Other Volatile Organic Compounds (including 1,4-Dioxane)	Perchlorate
	Jan/Feb 2001	--	0.4 J	0.4 J	--	--	--	--	0.4 J	--	--
Screen 3	Sep/Oct 1997	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 1998	--	--	--	--	--	--	--	--	--	--
	Apr/May 1998	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	--	1.7 Dichloromethane ⁽⁴⁾	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	--
	Feb/Mar 1999	--	--	--	--	--	--	--	--	--	--
	May/Jun 1999	--	--	--	--	--	--	--	--	--	--
	Aug 1999	--	--	--	--	--	--	--	--	--	--
	Nov/Dec 1999	--	--	--	--	--	--	--	--	--	--
	Mar/Apr 2000	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 2000	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 2001	--	--	--	--	--	--	--	--	--	--
Screen 4	Sep/Oct 1997	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 1998	--	--	--	--	--	--	--	--	--	--
	Apr/May 1998	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	--	2.3 Dichloromethane ⁽⁴⁾	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	--
	Feb/Mar 1999	--	--	--	--	--	--	--	--	--	--
	May/Jun 1999	--	--	--	--	--	--	--	--	--	--
	Aug 1999	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	--
	Nov/Dec 1999	--	--	--	--	--	--	--	--	--	--
	Mar/Apr 2000	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	--
	Jul/Aug 2000	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 2001	--	--	--	--	--	--	--	--	--	--
Screen 5	Sep/Oct 1997	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 1998	--	--	--	--	--	--	--	--	--	--
	Apr/May 1998	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	--	1.7 Dichloromethane ⁽⁴⁾ 3.0 Unknown (RT=3.93) 3.1 2-Methyl-1-propene	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	17
	Feb/Mar 1999	--	--	--	--	--	--	--	--	--	--
	May/Jun 1999	--	--	--	--	--	--	--	--	--	--
	Aug 1999	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	--
	Nov/Dec 1999	--	--	--	--	--	--	--	--	--	--
	Mar/Apr 2000	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	--
	Jul/Aug 2000	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 2001	--	--	--	--	--	--	--	--	--	--

TABLE 3-4

**SUMMARY OF VOLATILE ORGANIC COMPOUNDS AND PERCHLORATE DETECTED
DURING THE LONG-TERM QUARTERLY GROUNDWATER SAMPLING PROGRAM,
JET PROPULSION LABORATORY**

(concentrations in µg/L)

Values above State or Federal MCLs, or above/equal to action levels, are bold and shaded

Sampling Location	Sampling Event	Carbon Tetrachloride	TCE	PCE	1,1-DCA	1,2-DCA	1,1-DCE	Freon 113	Chloroform	Other Volatile Organic Compounds (including 1,4-Dioxane)	Perchlorate
	Jan/Feb 2001	--	--	--	--	--	--	--	--	0.4 J Styrene	--
MW-24^(B)											
Screen 1	Sep/Oct 1997	5.0	5.0	--	--	--	--	0.6	3.1	--	92
	Jan/Feb 1998	30 E	15	0.5	--	0.8	--	0.6	15	--	330
	Apr/May 1998	6.7	5.4	--	--	--	--	--	3.3	--	74
	Jul/Aug 1998	--	1.7	--	--	--	--	--	0.9	--	20
	Oct/Nov 1998	1.0	1.3	--	--	--	--	--	0.8	--	16
	Feb/Mar 1999	1.0	1.5	--	--	--	--	--	0.8	--	14
	May/Jun 1999	1.0	1.6	--	--	--	--	--	0.6(EB)	--	14
	Aug 1999	1.8	3.6	--	--	--	--	--	1.3	--	22
	Nov/Dec 1999	6.3	5.3	--	--	--	--	--	2.5(EB)	--	91
	Mar/Apr 2000	15	8.6	0.6	--	--	--	0.6	5.1(EB)	--	270
	Jul/Aug 2000	18	7.7	0.9	--	--	--	--	4.5(EB)	--	440
	Jan/Feb 2001	12.1	5.5	0.6	--	0.4 J	0.4 J	1.5	7.5	3.62 1,4-Dioxane	1100
Screen 2	Sep/Oct 1997	13	1.3	--	--	--	--	--	3.8	--	200
	Jan/Feb 1998	6.9	0.7	--	--	--	--	--	2.4	--	110
	Apr/May 1998	29	3.3	0.9	--	--	1.4	--	9.4	--	480
	Jul/Aug 1998	58	4.0	1.5	--	--	2.0	--	8.4	--	500
	Oct/Nov 1998	19	2.3	0.8	--	--	0.8	--	5.9	--	490
	Feb/Mar 1999	30 E	3.0	1.0	--	--	1.5	--	6.6	--	580
	May/Jun 1999	33	4.3	1.3	--	--	1.8	--	7.7(EB)	--	690
	Aug 1999	35	3.6	0.9	--	--	1.4	--	7.5	--	700
	Nov/Dec 1999	25	3.7	0.9	--	--	1.4	--	7.4(EB)	--	570
	Mar/Apr 2000	28	4.3	1.1	--	--	1.9	--	8.0(EB)	--	570
	Jul/Aug 2000	23 E	3.3	0.8	--	--	1.2	--	7.7(EB)	--	530
	Jan/Feb 2001	0.5 J	--	0.5 J	--	--	--	--	--	--	42
Screen 3	Sep/Oct 1997	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 1998	--	--	--	--	--	--	--	--	--	--
	Apr/May 1998	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	--	--	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	--
	Feb/Mar 1999	--	--	--	--	--	--	--	--	--	--
	May/Jun 1999	--	--	--	--	--	--	--	--	--	--
	Aug 1999	--	--	--	--	--	--	--	--	--	--
	Nov/Dec 1999	--	--	--	--	--	--	--	--	--	--
	Mar/Apr 2000	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 2000	--	--	--	--	--	--	--	--	--	--

TABLE 3-4
SUMMARY OF VOLATILE ORGANIC COMPOUNDS AND PERCHLORATE DETECTED
DURING THE LONG-TERM QUARTERLY GROUNDWATER SAMPLING PROGRAM,
JET PROPULSION LABORATORY

(concentrations in µg/L)

Values above State or Federal MCLs, or above/equal to action levels, are bold and shaded

Sampling Location	Sampling Event	Carbon Tetrachloride	TCE	PCE	1,1-DCA	1,2-DCA	1,1-DCE	Freon 113	Chloroform	Other Volatile Organic Compounds (including 1,4-Dioxane)	Perchlorate
Screen 4	Jan/Feb 2001	--	--	--	--	--	--	--	--	--	--
	Sep/Oct 1997	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 1998	--	--	--	--	--	--	--	--	--	--
	Apr/May 1998	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	--	--	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	--
	Feb/Mar 1999	--	--	--	--	--	--	--	--	--	--
	May/Jun 1999	--	--	--	--	--	--	--	--	--	--
	Aug 1999	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
	Nov/Dec 1999	--	--	--	--	--	--	--	--	--	--
	Mar/Apr 2000	--	--	--	--	--	--	--	--	--	(2)
	Jul/Aug 2000	--	--	--	--	--	--	--	--	--	--
Screen 5	Jan/Feb 2001	--	--	--	--	--	--	--	--	--	--
	Sep/Oct 1997	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 1998	--	--	--	--	--	--	--	--	--	--
	Apr/May 1998	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	--	--	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	--
	Feb/Mar 1999	--	--	--	--	--	--	--	--	--	--
	May/Jun 1999	--	--	--	--	--	--	--	--	--	--
	Aug 1999	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
	Nov/Dec 1999	--	--	--	--	--	--	--	--	--	--
	Mar/Apr 2000	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
	Jul/Aug 2000	--	--	--	--	--	--	--	--	--	--

TABLE 3-4

**SUMMARY OF VOLATILE ORGANIC COMPOUNDS AND PERCHLORATE DETECTED
DURING THE LONG-TERM QUARTERLY GROUNDWATER SAMPLING PROGRAM,
JET PROPULSION LABORATORY**

(concentrations in µg/L)

Values above State or Federal MCLs, or above/equal to action levels, are bold and shaded

Sampling Location	Sampling Event	Carbon Tetrachloride	TCE	PCE	1,1-DCA	1,2-DCA	1,1-DCE	Freon 113	Chloroform	Other Volatile Organic Compounds (including 1,4-Dioxane)	Perchlorate
	Jan/Feb 2001	--	--	--	--	--	--	--	--	--	--
Practical Quantitation Limit		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	4.0
California Maximum Contaminant Level		0.5	5.0	5.0	5.0	0.5	6.0	1,200	100	150 Freon 11 ⁽⁹⁾ 6.0 cis-1,2-Dichloroethene ⁽⁹⁾ 200 1,1,1-Trichloroethane ⁽⁹⁾	18 ⁽¹⁰⁾
EPA Region IX Maximum Contaminant Level		5.0	5.0	5.0	NE	5.0	7.0	NE	100	5.0 Dichloromethane ⁽⁹⁾ 70 cis-1,2-Dichloroethene ⁽⁹⁾ 100 Bromodichloromethane ⁽⁹⁾ 200 1,1,1-Trichloroethane ⁽⁹⁾	NE

--: Not detected.

B: Compound detected in laboratory method blank.

EB: Compound detected in associated equipment blank.

RT: Retention time.

TB: Compound detected in associated trip blank.

FB: Compound detected in associated field blank.

E: Estimated concentration; result exceeded calibration range.

NE: Not established.

1: Perchlorate not part of monitoring program.

2: Monitoring point not sampled for the particular constituent due to changes in the sampling program as agreed to by the EPA, DTSC, and RWQCB.

3: Suspected by the laboratory to have resulted from carry over in analysis (see January/February 1998 report).

4: Attributed to laboratory contamination.

5: Results from duplicate analysis; reported as being higher than the regular sample.

6: Not sampled, no water over screen.

7: Not sampled due to mechanical failure.

8: Wells installed June-August 1997.

9: Only VOCs for which MCLs have been established are listed.

10: California Department of Health Services Interim Action Level.

TABLE 3-5

**RESULTS OF METALS ANALYSIS OF GROUNDWATER
SAMPLES COLLECTED FROM JPL MONITORING WELLS,
JANUARY-FEBRUARY 2001**

(concentrations in mg/L)

Values equal to or above state MCLs, (or other applicable regulatory limits), are bold and shaded

Sample Location	Sample Number	Arsenic	Lead	Total Chromium	Hexavalent Chromium	Field Turbidity (NTUs)
MW-1	MW-1	--	--	--	--	0
MW-1 (DUP)	MW-1D	--	--	--	--	0
MW-3						
Screen 1	MW-3-1	--	--	--	--	11
Screen 2	MW-3-2	--	--	--	--	11
Screen 3	MW-3-3	--	--	--	--	12
Screen 4	MW-3-4	--	--	--	--	10
Screen 5	MW-3-5	--	--	--	--	- 10
MW-4						
Screen 1	MW-4-1	--	--	--	--	786
Screen 2	MW-4-2	--	--	0.011 J	--	7
Screen 3	MW-4-3	--	--	0.0051 J	--	- 7
Screen 4	MW-4-4	--	--	--	--	794
Screen 5	MW-4-5	--	--	--	--	5
MW-5	MW-5	--	--	0.0055 J	--	2
MW-6	MW-6	--	--	0.011 J	--	- 2
MW-7	NOT SAMPLED – PILOT TEST					
MW-8	MW-8	--	--	0.0069 J	--	2
MW-9	MW-9	--	--	--	--	3
MW-10	MW-10	--	--	0.011 J	--	20
MW-11						
Screen 1	MW-11-1	--	--	0.00504 J	--	2
Screen 2	MW-11-2	--	--	--	--	- 10
Screen 3	MW-11-3	--	--	--	--	9
Screen 4	MW-11-4	--	--	--	--	- 10
Screen 5	MW-11-5	--	--	--	--	3
Screen 5 (DUP)	MW-11-5D	--	--	--	--	3
MW-12						
Screen 1	MW-12-1	--	--	0.0083 J	--	10
Screen 2	MW-12-2	--	--	--	--	9
Screen 3	MW-12-3	--	--	--	--	9
Screen 4	MW-12-4	--	--	0.0059 J	--	- 5
Screen 5	MW-12-5	0.0027 B	--	0.0064 J	--	- 10
Screen 5 (DUP)	MW-12-5D	--	--	0.0052 J	--	- 10
MW-13	MW-13	--	--	0.11 J	0.032	5
MW-14						
Screen 1	MW-14-1	--	--	--	--	- 10
Screen 2	MW-14-2	--	--	--	--	- 10
Screen 3	MW-14-3	--	--	--	--	- 10

TABLE 3-5

**RESULTS OF METALS ANALYSIS OF GROUNDWATER
SAMPLES COLLECTED FROM JPL MONITORING WELLS,
JANUARY-FEBRUARY 2001**
(concentrations in mg/L)

Values equal to or above state MCLs, (or other applicable regulatory limits), are bold and shaded

Sample Location	Sample Number	Arsenic	Lead	Total Chromium	Hexavalent Chromium	Field Turbidity (NTUs)
Screen 4	MW-14-4	--	--	--	--	- 10
Screen 5	MW-14-5	--	--	--	--	6
MW-15	MW-15	--	--	--	--	0
MW-16	MW-16	--	--	0.0078 J	--	- 10
MW-17						
Screen 1	MW-17-1	--	--	--	--	4
Screen 2	MW-17-2	--	--	--	--	- 2
Screen 2 (DUP)	MW-17-2D	--	--	--	--	- 2
Screen 3	MW-17-3	--	--	--	--	- 10
Screen 4	MW-17-4	--	--	--	--	1
Screen 5	MW-17-5	--	--	--	--	5
MW-18						
Screen 1	Dry Screen	NA	NA	NA	NA	NA
Screen 2	MW-18-2	--	--	--	--	- 10
Screen 3	MW-18-3	--	--	0.0075 J	--	27
Screen 4	MW-18-4	--	--	--	--	2
Screen 5	MW-18-5	--	--	--	--	11
MW-19						
Screen 1	MW-19-1	--	--	--	--	10
Screen 2	MW-19-2	--	--	--	--	21
Screen 2 (DUP)	MW-19-2D	--	--	--	--	21
Screen 3	MW-19-3	--	--	0.00608 J	--	1
Screen 4	MW-19-4	0.0032 B	--	--	--	- 8
Screen 5	MW-19-5	--	--	--	--	- 10
MW-20						
Screen 1	MW-20-1	--	--	--	--	0
Screen 2	MW-20-2	--	--	--	--	- 10
Screen 3	MW-20-3	--	--	--	--	8
Screen 4	MW-20-4	--	--	--	--	0
Screen 4 (DUP)	MW-20-4D	--	--	--	--	0
Screen 5	MW-20-5	--	--	--	--	7
MW-21						
Screen 1	MW-21-1	--	--	0.0056 J	--	6
Screen 2	MW-21-2	--	--	0.008 J	--	8
Screen 3	MW-21-3	--	--	0.0069 J	--	7
Screen 4	MW-21-4	--	--	0.006 J	--	9
Screen 5	MW-21-5	--	--	0.006 J	--	6

TABLE 3-5

**RESULTS OF METALS ANALYSIS OF GROUNDWATER
SAMPLES COLLECTED FROM JPL MONITORING WELLS,
JANUARY-FEBRUARY 2001**

(concentrations in mg/L)

Values equal to or above state MCLs, (or other applicable regulatory limits), are bold and shaded

Sample Location	Sample Number	Arsenic	Lead	Total Chromium	Hexavalent Chromium	Field Turbidity (NTUs)
MW-22						
Screen 1	MW-22-1	--	--	0.006 J	--	9
Screen 2	MW-22-2	--	--	--	--	917
Screen 3	MW-22-3	--	--	0.0056 J	--	7
Screen 4	MW-22-4	--	--	--	--	2
Screen 4 (DUP)	MW-22-4D	--	--	--	--	2
Screen 5	MW-22-5	--	--	--	--	8
MW-23						
Screen 1	MW-23-1	--	--	0.00619 J	--	- 1
Screen 2	MW-23-2	--	--	0.0056 J	--	8
Screen 3	MW-23-3	--	--	0.0054 J	--	0
Screen 4	MW-23-4	--	--	--	--	- 2
Screen 5	MW-23-5	--	--	--	--	- 10
MW-24						
Screen 1	MW-24-1	--	--	0.0061 J	--	10
Screen 2	MW-24-2	--	--	--	--	10
Screen 3	MW-24-3	--	--	--	--	10
Screen 4	MW-24-4	--	--	--	--	10
Screen 5	MW-24-5	--	--	0.0052 J	--	9
Practical Quantitation Limit		0.005	0.001	0.005	0.010	
California Maximum Contaminant Level		0.050	0.015 ¹	0.050	NE	
EPA Maximum Contaminant Level		0.050	0.015 ¹	0.100	NE	

(DUP): Duplicate.

NE: Not Established.

NA: Not Analyzed

--: Not detected.

1: Action Level: Treatment technique and public notification triggered.

B: Reported between the practical quantitation limit and the method detection limit.

J: Reported between the practical quantitation limit and the method detection limit.

TABLE 3-6

**SUMMARY OF METALS DETECTED DURING THE
LONG-TERM QUARTERLY SAMPLING PROGRAM,
JET PROPULSION LABORATORY**

(concentrations in mg/L)

Values above state or Federal MCLs, or above/equal to action levels, are bold and shaded

Sample Location	Sampling Date	Arsenic	Lead	Total Chromium	Hexavalent Chromium	Field Turbidity (NTUs)
MW-1	Aug/Sep 1996	--	--	--	--	0.8
	Oct/Nov 1996	--	--	--	--	0.5
	Feb/Mar 1997	--	--	--	--	2.5
	Jun/Jul 1997	--	--	--	--	1.9
	Sep/Oct 1997	--	--	--	--	0.7
	Jan/Feb 1998	--	--	--	--	1.6
	Apr/May 1998	--	--	--	--	0.5
	Jul/Aug 1998	--	0.009	0.055 ⁽¹⁾	--	1.0
	Oct/Nov 1998	--	--	--	--	1.1
	Feb/Mar 1999	--	--	--	--	1.9
	May/Jun 1999	--	--	--	--	0.4
	Aug 1999	(2)	(2)	(2)	(2)	(2)
	Nov/Dec 1999	(2)	(2)	--	--	1.2
	Mar/Apr 2000	(2)	(2)	(2)	(2)	(2)
	Jul/Aug 2000	--	--	--	--	0.1
	Jan/Feb 2001	--	--	--	--	0
MW-3						
Screen 1	Aug/Sep 1996	--	--	--	--	7.2
	Oct/Nov 1996	--	--	--	--	3.1
	Feb/Mar 1997	--	--	--	--	6.1
	Jun/Jul 1997	--	--	--	--	2.6
	Sep/Oct 1997	--	--	--	--	2.1
	Jan/Feb 1998	--	--	--	--	2.9
	Apr/May 1998	--	--	--	--	4.8
	Jul/Aug 1998	--	--	--	--	4.5
	Oct/Nov 1998	--	--	--	--	3.8
	Feb/Mar 1999	--	--	--	--	4.7
	May/Jun 1999	--	--	--	--	4.6
	Aug 1999	(2)	(2)	(2)	(2)	(2)
	Nov/Dec 1999	(2)	(2)	--	--	4.5
	Mar/Apr 2000	(2)	(2)	(2)	(2)	(2)
	Jul/Aug 2000	--	--	--	--	7.6
	Jan/Feb 2001	--	--	--	--	11
Screen 2	Aug/Sep 1996	--	--	--	--	1.7
	Oct/Nov 1996	--	--	--	--	2.7
	Feb/Mar 1997	--	--	--	--	3.8
	Jun/Jul 1997	--	--	--	--	1.1
	Sep/Oct 1997	--	--	--	--	2.1
	Jan/Feb 1998	--	--	--	--	2.3
	Apr/May 1998	--	--	--	--	4.3
	Jul/Aug 1998	--	0.004	--	--	3.3
	Oct/Nov 1998	--	--	--	--	4.3
	Feb/Mar 1999	--	--	--	--	2.1
	May/Jun 1999	--	--	--	--	3.1
	Aug 1999	(2)	(2)	--	--	1.0
	Nov/Dec 1999	(2)	(2)	--	--	3.9
	Mar/Apr 2000	(2)	(2)	--	--	3.5
	Jul/Aug 2000	--	--	--	--	1.2
	Jan/Feb 2001	--	--	--	--	11

TABLE 3-6

**SUMMARY OF METALS DETECTED DURING THE
LONG-TERM QUARTERLY SAMPLING PROGRAM,
JET PROPULSION LABORATORY**

(concentrations in mg/L)

Values above state or Federal MCLs, or above/equal to action levels, are bold and shaded

Sample Location	Sampling Date	Arsenic	Lead	Total Chromium	Hexavalent Chromium	Field Turbidity (NTUs)
Screen 3	Aug/Sep 1996	--	--	--	--	5.2
	Oct/Nov 1996	--	--	--	--	2.7
	Feb/Mar 1997	--	--	--	--	1.7
	Jun/Jul 1997	--	--	--	--	3.4
	Sep/Oct 1997	--	--	--	--	5.0
	Jan/Feb 1998	--	--	--	--	4.9
	Apr/May 1998	--	--	--	--	4.7
	Jul/Aug 1998	--	--	--	--	4.6
	Oct/Nov 1998	--	--	--	--	3.3
	Feb/Mar 1999	--	--	--	--	3.2
	May/June 1999	--	--	--	--	1.8
	Aug 1999	(2)	(2)	--	--	2.5
	Nov/Dec 1999	(2)	(2)	--	--	2.3
	Mar/Apr 2000	(2)	(2)	--	--	2.1
	Jul/Aug 2000	--	--	--	--	1.1
	Jan/Feb 2001	--	--	--	--	12
Screen 4	Aug/Sep 1996	--	--	--	--	4.3
	Oct/Nov 1996	--	--	--	--	2.6
	Feb/Mar 1997	--	--	--	--	4.5
	Jun/Jul 1997	--	--	--	--	2.7
	Sep/Oct 1997	--	--	--	--	2.5
	Jan/Feb 1998	--	--	--	--	3.0
	Apr/May 1998	--	--	--	--	3.6
	Jul/Aug 1998	--	--	--	--	3.1
	Oct/Nov 1998	--	--	--	--	1.3
	Feb/Mar 1999	--	--	--	--	3.5
	May/June 1999	--	--	--	--	1.5
	Aug 1999	(2)	(2)	--	--	1.1
	Nov/Dec 1999	(2)	(2)	--	--	2.6
	Mar/Apr 2000	(2)	(2)	--	--	2.2
	Jul/Aug 2000	--	--	--	--	1.6
	Jan/Feb 2001	--	--	--	--	10
Screen 5	Aug/Sep 1996	0.011	--	--	--	1.5
	Oct/Nov 1996	0.007	--	--	--	1.9
	Feb/Mar 1997	--	--	--	--	2.5
	Jun/Jul 1997	0.007	--	--	--	0.8
	Sep/Oct 1997	0.010	--	--	--	1.0
	Jan/Feb 1998	0.009	0.008	--	--	2.3
	Apr/May 1998	--	0.002	--	--	2.0
	Jul/Aug 1998	0.006	--	--	--	3.2
	Oct/Nov 1998	--	--	--	--	4.2
	Feb/Mar 1999	--	--	--	--	4.4
	May/June 1999	0.006	--	--	--	4.2
	Aug 1999	(2)	(2)	(2)	(2)	5.4
	Nov/Dec 1999	(2)	(2)	--	--	4.9
	Mar/Apr 2000	(2)	(2)	(2)	(2)	10.4
	Jul/Aug 2000	--	--	--	--	11.6
	Jan/Feb 2001	--	--	--	--	- 10

TABLE 3-6

**SUMMARY OF METALS DETECTED DURING THE
LONG-TERM QUARTERLY SAMPLING PROGRAM,
JET PROPULSION LABORATORY**

(concentrations in mg/L)

Values above state or Federal MCLs, or above/equal to action levels, are bold and shaded

Sample Location	Sampling Date	Arsenic	Lead	Total Chromium	Hexavalent Chromium	Field Turbidity (NTUs)
MW-4						
Screen 1	Aug/Sep 1996	--	--	--	--	2.6
	Oct/Nov 1996	--	--	--	--	1.7
	Feb/Mar 1997	--	--	--	--	4.6
	Jun/Jul 1997	--	--	--	--	2.8
	Sep/Oct 1997	--	--	--	--	4.8
	Jan/Feb 1998	--	--	--	--	3.4
	Apr/May 1998	--	--	--	--	3.7
	Jul/Aug 1998	--	--	--	--	3.0
	Oct/Nov 1998	--	--	--	--	2.7
	Feb/Mar 1999	--	--	--	--	1.0
	May/Jun 1999	--	--	--	--	1.8
	Aug 1999	(2)	(2)	--	--	1.2
	Nov/Dec 1999	(2)	(2)	--	--	4.9
	Mar/Apr 2000	(2)	(2)	--	--	1.5
	Jul/Aug 2000	--	--	--	--	8.6
	Jan/Feb 2001	--	--	--	--	786
Screen 2	Aug/Sep 1996	--	--	0.023	--	3.8
	Oct/Nov 1996	--	--	0.014	--	4.2
	Feb/Mar 1997	--	--	0.011	--	4.5
	Jun/Jul 1997	--	--	0.013	--	2.7
	Sep/Oct 1997	--	--	0.012	--	3.5
	Jan/Feb 1998	--	--	--	--	4.8
	Apr/May 1998	--	--	--	--	1.8
	Jul/Aug 1998	--	--	0.011	--	4.9
	Oct/Nov 1998	--	--	0.010	--	3.4
	Feb/Mar 1999	--	--	--	--	6.1
	May/Jun 1999	--	--	--	--	4.8
	Aug 1999	(2)	(2)	0.010	--	3.8
	Nov/Dec 1999	(2)	(2)	--	--	4.9
	Mar/Apr 2000	(2)	(2)	--	--	5.7
	Jul/Aug 2000	--	--	0.014	--	7.0
	Jan/Feb 2001	--	--	0.011 J	--	7
Screen 3	Aug/Sep 1996	--	--	--	--	0.6
	Oct/Nov 1996	--	--	--	--	1.5
	Feb/Mar 1997	--	--	--	--	2.8
	Jun/Jul 1997	--	--	--	--	2.0
	Sep/Oct 1997	--	--	--	--	1.4
	Jan/Feb 1998	--	--	--	--	4.6
	Apr/May 1998	--	--	--	--	3.2
	Jul/Aug 1998	--	--	--	--	3.9
	Oct/Nov 1998	--	--	--	--	1.2
	Feb/Mar 1999	--	--	--	--	2.9
	May/Jun 1999	--	--	--	--	4.9
	Aug 1999	(2)	(2)	--	--	2.1
	Nov/Dec 1999	(2)	(2)	--	--	3.0
	Mar/Apr 2000	(2)	(2)	--	--	8.4
	Jul/Aug 2000	--	--	--	--	9.6
	Jan/Feb 2001	--	--	0.0051 J	--	-7

TABLE 3-6

**SUMMARY OF METALS DETECTED DURING THE
LONG-TERM QUARTERLY SAMPLING PROGRAM,
JET PROPULSION LABORATORY**

(concentrations in mg/L)

Values above state or Federal MCLs, or above/equal to action levels, are bold and shaded

Sample Location	Sampling Date	Arsenic	Lead	Total Chromium	Hexavalent Chromium	Field Turbidity (NTUs)
Screen 4	Aug/Sep 1996	--	--	--	--	3.0
	Oct/Nov 1996	--	--	--	--	1.4
	Feb/Mar 1997	--	--	--	--	2.5
	Jun/Jul 1997	--	--	--	--	4.6
	Sep/Oct 1997	--	--	--	--	3.3
	Jan/Feb 1998	--	--	--	--	4.7
	Apr/May 1998	--	--	--	--	2.0
	Jul/Aug 1998	--	--	0.007	--	3.6
	Oct/Nov 1998	--	--	--	--	2.7
	Feb/Mar 1999	--	--	--	--	3.3
	May/Jun 1999	--	--	--	--	2.9
	Aug 1999	(2)	(2)	--	--	1.2
	Nov/Dec 1999	(2)	(2)	--	--	1.9
	Mar/Apr 2000	(2)	(2)	--	--	1.0
	Jul/Aug 2000	--	--	--	--	5.3
	Jan/Feb 2001	--	--	--	--	794
Screen 5	Aug/Sep 1996	--	--	--	--	4.5
	Oct/Nov 1996	--	--	--	--	4.1
	Feb/Mar 1997	--	--	--	--	4.4
	Jun/Jul 1997	--	--	--	--	4.0
	Sep/Oct 1997	--	--	--	--	3.9
	Jan/Feb 1998	--	--	--	--	4.5
	Apr/May 1998	--	--	--	--	3.8
	Jul/Aug 1998	0.005	--	--	--	4.6
	Oct/Nov 1998	--	--	--	--	2.9
	Feb/Mar 1999	--	--	--	--	2.4
	May/Jun 1999	--	--	--	--	1.1
	Aug 1999	(2)	(2)	--	--	2.4
	Nov/Dec 1999	(2)	(2)	--	--	3.4
	Mar/Apr 2000	(2)	(2)	--	--	1.1
	Jul/Aug 2000	--	--	--	--	0.4
	Jan/Feb 2001	--	--	--	--	5
MW-5	Aug/Sep 1996	--	--	--	--	2.7
	Oct/Nov 1996	--	0.003	--	--	2.7
	Feb/Mar 1997	--	--	--	--	1.5
	Jun/Jul 1997	--	--	--	--	4.5
	Sep/Oct 1997	--	--	--	--	1.0
	Jan/Feb 1998	--	--	--	--	0.9
	Apr/May 1998	--	--	--	--	3.1
	Jul/Aug 1998	--	--	--	--	4.6
	Oct/Nov 1998	--	--	--	--	4.2
	Feb/Mar 1999	--	--	--	--	7.9
	May/Jun 1999	--	--	--	--	1.7
	Aug 1999	(2)	(2)	--	--	4.3
	Nov/Dec 1999	(2)	(2)	--	--	3.6
	Mar/Apr 2000	(2)	(2)	--	--	0.2
	Jul/Aug 2000	--	--	--	--	1.3
	Jan/Feb 2001	--	--	0.0055 J	--	2

TABLE 3-6

**SUMMARY OF METALS DETECTED DURING THE
LONG-TERM QUARTERLY SAMPLING PROGRAM,
JET PROPULSION LABORATORY**

(concentrations in mg/L)

Values above state or Federal MCLs, or above/equal to action levels, are bold and shaded

Sample Location	Sampling Date	Arsenic	Lead	Total Chromium	Hexavalent Chromium	Field Turbidity (NTUs)
MW-6	Aug/Sep 1996	--	--	0.050	--	4.5
	Oct/Nov 1996	--	--	0.011	--	1.1
	Feb/Mar 1997	--	--	0.014	--	4.3
	Jun/Jul 1997	--	--	0.019	--	2.5
	Sep/Oct 1997	--	--	--	--	1.8
	Jan/Feb 1998	--	--	--	--	0.4
	Apr/May 1998	--	--	0.012	--	2.1
	Jul/Aug 1998	--	--	0.013	--	3.0
	Oct/Nov 1998	--	--	0.037	--	3.8
	Feb/Mar 1999	--	--	0.017	--	2.7
	May/Jun 1999	--	--	0.036	--	4.1
	Aug 1999	(2)	(2)	0.31⁽³⁾	--	2.7
	Nov/Dec 1999	(2)	(2)	0.012	--	2.2
	Mar/Apr 2000	(2)	(2)	0.082	--	3.9
	Jul/Aug 2000	--	--	0.051	--	10.5
	Jan/Feb 2001	0.0022 B	--	0.011 J	--	- 2
MW-7	Aug/Sep 1996	--	--	0.013	0.007	4.8
	Oct/Nov 1996	--	--	0.019	0.019	3.5
	Feb/Mar 1997	--	--	--	0.010	2.2
	Jun/Jul 1997	--	--	--	--	1.0
	Sep/Oct 1997	--	--	0.018	--	0.8
	Jan/Feb 1998	--	--	0.012	--	1.2
	Apr/May 1998	--	--	--	--	4.1
	Jul/Aug 1998	--	--	--	--	4.7
	Oct/Nov 1998	--	--	--	--	1.2
	Feb/Mar 1999	--	--	--	--	4.3
	May/Jun 1999	--	--	0.011	--	3.5
	Aug 1999	(2)	(2)	--	0.005	3.1
	Nov/Dec 1999	(2)	(2)	0.010	0.007	1.0
	Mar/Apr 2000	(2)	(2)	0.012	0.008	1.3
	Jul/Aug 2000	--	--	0.014	--	30.0
	Jan/Feb 2001	Not Analyzed – Pilot Test				
MW-8	Aug/Sep 1996	--	--	--	--	4.0
	Oct/Nov 1996	--	0.003	--	--	4.7
	Feb/Mar 1997	--	--	--	--	3.1
	Jun/Jul 1997	--	0.002	--	--	4.6
	Sep/Oct 1997	--	--	--	--	4.2
	Jan/Feb 1998	--	--	--	--	3.4
	Apr/May 1998	--	--	0.013	--	2.6
	Jul/Aug 1998	--	--	--	--	1.2
	Oct/Nov 1998	--	--	--	--	3.7
	Feb/Mar 1999	--	--	--	--	1.5
	May/Jun 1999	--	--	--	--	1.5
	Aug 1999	(2)	(2)	0.014	--	0.7
	Nov/Dec 1999	(2)	(2)	--	--	4.6
	Mar/Apr 2000	(2)	(2)	--	--	1.3
	Jul/Aug 2000	--	--	0.016	--	5.3
	Jan/Feb 2001	--	--	0.0069 J	--	2

TABLE 3-6

**SUMMARY OF METALS DETECTED DURING THE
LONG-TERM QUARTERLY SAMPLING PROGRAM,
JET PROPULSION LABORATORY**

(concentrations in mg/L)

Values above state or Federal MCLs, or above/equal to action levels, are bold and shaded

Sample Location	Sampling Date	Arsenic	Lead	Total Chromium	Hexavalent Chromium	Field Turbidity (NTUs)
MW-9	Aug/Sep 1996	--	--	--	--	2.1
	Oct/Nov 1996	--	--	--	--	2.5
	Feb/Mar 1997	--	--	--	--	4.2
	Jun/Jul 1997	--	--	--	--	3.2
	Sep/Oct 1997	--	--	--	--	1.0
	Jan/Feb 1998	--	--	--	--	2.4
	Apr/May 1998	--	--	--	--	1.3
	Jul/Aug 1998	--	--	--	--	3.0
	Oct/Nov 1998	--	--	--	--	2.1
	Feb/Mar 1999	--	--	--	--	2.8
	May/June 1999	--	--	--	--	0.1
	Aug 1999	(2)	(2)	(2)	(2)	(2)
	Nov/Dec 1999	(2)	(2)	--	--	4.6
	Mar/Apr 2000	(2)	(2)	(2)	(2)	(2)
	Jul/Aug 2000	--	--	--	--	2.3
	Jan/Feb 2001	--	--	--	--	- 2
MW-10	Aug/Sep 1996	--	--	0.011	0.010	4.5
	Oct/Nov 1996	--	0.003	0.011	--	4.9
	Feb/Mar 1997	--	--	--	--	2.2
	Jun/Jul 1997	--	--	0.014	--	2.9
	Sep/Oct 1997	--	--	--	--	3.2
	Jan/Feb 1998	--	--	--	--	2.1
	Apr/May 1998	--	0.008	0.010	--	2.6
	Jul/Aug 1998	--	--	--	--	3.8
	Oct/Nov 1998	--	--	--	--	3.6
	Feb/Mar 1999	--	--	0.014	--	3.3
	May/June 1999	--	--	--	--	1.8
	Aug 1999	(2)	(2)	--	--	3.6
	Nov/Dec 1999	(2)	(2)	0.026	--	4.7
	Mar/Apr 2000	(2)	(2)	0.041	--	9.1
	Jul/Aug 2000	--	--	0.012 ⁽⁴⁾	--	1.8
	Jan/Feb 2001	--	--	0.011 J	--	20
MW-11						
Screen 1	Aug/Sep 1996	--	--	--	--	4.0
	Oct/Nov 1996	--	--	--	--	2.5
	Feb/Mar 1997	--	--	--	--	2.5
	Jun/Jul 1997	--	--	--	--	1.5
	Sep/Oct 1997	--	--	--	--	4.6
	Jan/Feb 1998	--	--	--	--	1.0
	Apr/May 1998	--	--	--	--	1.0
	Jul/Aug 1998	--	--	--	--	4.6
	Oct/Nov 1998	--	--	--	--	1.4
	Feb/Mar 1999	--	--	--	--	1.6
	May/June 1999	--	--	--	--	1.1
	Aug 1999	(2)	(2)	--	--	1.2
	Nov/Dec 1999	(2)	(2)	--	--	2.4
	Mar/Apr 2000	(2)	(2)	--	--	2.7
	Jul/Aug 2000	--	--	--	--	0.8
	Jan/Feb 2001	--	--	0.00504 J	--	2

TABLE 3-6

**SUMMARY OF METALS DETECTED DURING THE
LONG-TERM QUARTERLY SAMPLING PROGRAM,
JET PROPULSION LABORATORY**

(concentrations in mg/L)

Values above state or Federal MCLs, or above/equal to action levels, are bold and shaded

Sample Location	Sampling Date	Arsenic	Lead	Total Chromium	Hexavalent Chromium	Field Turbidity (NTUs)
Screen 2	Aug/Sep 1996	--	--	--	--	4.5
	Oct/Nov 1996	--	--	--	--	4.7
	Feb/Mar 1997	--	--	--	--	3.1
	Jun/Jul 1997	--	--	--	--	4.7
	Sep/Oct 1997	--	--	--	--	3.0
	Jan/Feb 1998	--	--	--	--	2.4
	Apr/May 1998	--	--	--	--	1.4
	Jul/Aug 1998	--	--	--	--	3.5
	Oct/Nov 1998	--	--	--	--	3.7
	Feb/Mar 1999	--	--	--	--	12.8
	May/Jun 1999	--	--	--	--	1.3
	Aug 1999	(2)	(2)	--	--	1.9
	Nov/Dec 1999	(2)	(2)	--	--	3.3
	Mar/Apr 2000	(2)	(2)	--	--	1.8
	Jul/Aug 2000	--	--	--	--	1.0
	Jan/Feb 2001	--	--	--	--	- 10
Screen 3	Aug/Sep 1996	--	--	--	--	0.5
	Oct/Nov 1996	--	--	--	--	2.3
	Feb/Mar 1997	--	--	--	--	1.7
	Jun/Jul 1997	--	--	--	--	1.9
	Sep/Oct 1997	--	--	--	--	3.0
	Jan/Feb 1998	--	--	--	--	1.4
	Apr/May 1998	--	--	--	--	2.1
	Jul/Aug 1998	--	--	--	--	2.6
	Oct/Nov 1998	--	0.008	--	--	4.5
	Feb/Mar 1999	--	--	--	--	2.6
	May/Jun 1999	--	--	--	--	2.7
	Aug 1999	(2)	(2)	--	--	3.1
	Nov/Dec 1999	(2)	(2)	--	--	2.1
	Mar/Apr 2000	(2)	(2)	--	--	1.2
	Jul/Aug 2000	--	--	--	--	1.6
	Jan/Feb 2001	--	--	--	--	9
Screen 4	Aug/Sep 1996	--	--	--	--	3.9
	Oct/Nov 1996	--	--	--	--	3.3
	Feb/Mar 1997	--	0.009	--	--	5.2
	Jun/Jul 1997	--	--	--	--	4.8
	Sep/Oct 1997	--	--	--	--	5.0
	Jan/Feb 1998	--	--	--	--	3.4
	Apr/May 1998	--	--	--	--	4.2
	Jul/Aug 1998	--	--	--	--	3.7
	Oct/Nov 1998	--	--	--	--	4.5
	Feb/Mar 1999	--	--	--	--	1.4
	May/Jun 1999	--	--	--	--	4.0
	Aug 1999	(2)	(2)	(2)	(2)	3.5
	Nov/Dec 1999	(2)	(2)	--	--	2.3
	Mar/Apr 2000	(2)	(2)	(2)	(2)	1.7
	Jul/Aug 2000	--	--	--	--	1.9
	Jan/Feb 2001	--	--	--	--	- 10

TABLE 3-6

**SUMMARY OF METALS DETECTED DURING THE
LONG-TERM QUARTERLY SAMPLING PROGRAM,
JET PROPULSION LABORATORY**

(concentrations in mg/L)

Values above state or Federal MCLs, or above/equal to action levels, are bold and shaded

Sample Location	Sampling Date	Arsenic	Lead	Total Chromium	Hexavalent Chromium	Field Turbidity (NTUs)
Screen 5	Aug/Sep 1996	0.007	--	--	--	0.6
	Oct/Nov 1996	0.005	--	--	--	1.9
	Feb/Mar 1997	--	0.002	--	--	1.6
	Jun/Jul 1997	--	--	--	--	0.7
	Sep/Oct 1997	--	--	--	--	2.6
	Jan/Feb 1998	--	--	--	--	1.2
	Apr/May 1998	--	--	--	--	1.7
	Jul/Aug 1998	--	--	--	--	1.7
	Oct/Nov 1998	--	--	--	--	1.4
	Feb/Mar 1999	--	--	--	--	4.1
	May/Jun 1999	0.005	--	--	--	1.4
	Aug 1999	(2)	(2)	(2)	(2)	(2)
	Nov/Dec 1999	(2)	(2)	--	--	1.0
	Mar/Apr 2000	(2)	(2)	(2)	(2)	(2)
	Jul/Aug 2000	--	--	--	--	0.3
	Jan/Feb 2001	--	--	--	--	3
MW-12						
Screen 1	Aug/Sep 1996	--	0.004	--	--	50.4
	Oct/Nov 1996	(5)	(5)	(5)	(5)	(5)
	Feb/Mar 1997	--	0.003	--	--	3.8
	Jun/Jul 1997	--	--	--	--	4.8
	Sep/Oct 1997	(5)	(5)	(5)	(5)	(5)
	Jan/Feb 1998	--	--	--	--	2.6
	Apr/May 1998	--	--	0.010	--	4.8
	Jul/Aug 1998	--	--	--	--	5.0
	Oct/Nov 1998	--	--	--	--	7.4
	Feb/Mar 1999	--	--	--	--	7.5
	May/Jun 1999	--	--	--	--	10.5
	Aug 1999	(2)	(2)	--	--	41.6
	Nov/Dec 1999	(2)	(2)	--	--	13.1
	Mar/Apr 2000	(2)	(2)	--	--	7.9
	Jul/Aug 2000	--	--	--	--	33.6
	Jan/Feb 2001	--	--	0.0083 J	--	10
Screen 2	Aug/Sep 1996	--	0.024	--	--	4.0
	Oct/Nov 1996	--	--	--	--	4.0
	Feb/Mar 1997	--	--	--	--	2.5
	Jun/Jul 1997	--	--	--	--	3.2
	Sep/Oct 1997	--	--	--	--	3.4
	Jan/Feb 1998	--	--	--	--	4.4
	Apr/May 1998	--	--	--	--	1.6
	Jul/Aug 1998	--	0.006	--	--	3.7
	Oct/Nov 1998	--	--	--	--	4.9
	Feb/Mar 1999	--	--	--	--	2.5
	May/Jun 1999	--	--	--	--	1.7
	Aug 1999	(2)	(2)	--	--	1.9
	Nov/Dec 1999	(2)	(2)	--	--	1.6
	Mar/Apr 2000	(2)	(2)	--	--	0.9
	Jul/Aug 2000	--	--	--	--	1.7
	Jan/Feb 2001	--	--	--	--	9

TABLE 3-6

**SUMMARY OF METALS DETECTED DURING THE
LONG-TERM QUARTERLY SAMPLING PROGRAM,
JET PROPULSION LABORATORY**

(concentrations in mg/L)

Values above state or Federal MCLs, or above/equal to action levels, are bold and shaded

Sample Location	Sampling Date	Arsenic	Lead	Total Chromium	Hexavalent Chromium	Field Turbidity (NTUs)
Screen 3	Aug/Sep 1996	--	--	--	--	2.5
	Oct/Nov 1996	--	--	--	--	3.1
	Feb/Mar 1997	--	--	--	--	5.0
	Jun/Jul 1997	--	--	--	--	4.8
	Sep/Oct 1997	--	--	--	--	4.2
	Jan/Feb 1998	--	--	--	--	2.8
	Apr/May 1998	--	--	--	--	4.4
	Jul/Aug 1998	--	0.018	--	--	3.2
	Oct/Nov 1998	--	--	--	--	4.2
	Feb/Mar 1999	--	--	--	--	4.6
	May/June 1999	--	--	--	--	0.8
	Aug 1999	(2)	(2)	--	--	0.4
	Nov/Dec 1999	(2)	(2)	--	--	0.4
	Mar/Apr 2000	(2)	(2)	--	--	0.8
	Jul/Aug 2000	--	--	--	--	0.4
	Jan/Feb 2001	--	--	--	--	9
Screen 4	Aug/Sep 1996	--	0.005	--	--	1.8
	Oct/Nov 1996	--	--	--	--	0.7
	Feb/Mar 1997	--	--	--	--	2.4
	Jun/Jul 1997	--	--	--	--	2.5
	Sep/Oct 1997	--	--	--	--	1.6
	Jan/Feb 1998	--	--	--	--	3.4
	Apr/May 1998	--	--	--	--	1.7
	Jul/Aug 1998	--	--	--	--	3.7
	Oct/Nov 1998	--	--	--	--	4.2
	Feb/Mar 1999	--	--	--	--	3.1
	May/June 1999	--	--	--	--	1.1
	Aug 1999	(2)	(2)	(2)	(2)	0.9
	Nov/Dec 1999	(2)	(2)	--	--	3.2
	Mar/Apr 2000	(2)	(2)	(2)	(2)	0.6
	Jul/Aug 2000	--	--	--	--	0.6
	Jan/Feb 2001	--	--	0.0059 J	--	- 5
Screen 5	Aug/Sep 1996	--	--	--	--	2.0
	Oct/Nov 1996	--	--	--	--	2.0
	Feb/Mar 1997	--	--	--	--	1.5
	Jun/Jul 1997	--	--	--	--	5.0
	Sep/Oct 1997	--	--	--	--	1.0
	Jan/Feb 1998	--	--	--	--	2.2
	Apr/May 1998	--	--	--	--	3.5
	Jul/Aug 1998	--	--	--	--	3.1
	Oct/Nov 1998	--	--	--	--	1.3
	Feb/Mar 1999	--	--	--	--	5.0
	May/June 1999	--	--	--	--	3.2
	Aug 1999	(2)	(2)	(2)	(2)	4.8
	Nov/Dec 1999	(2)	(2)	--	--	3.7
	Mar/Apr 2000	(2)	(2)	(2)	(2)	5.9
	Jul/Aug 2000	--	--	--	--	1.7
	Jan/Feb 2001	0.0027 B	--	0.0064 J	--	- 10

TABLE 3-6

**SUMMARY OF METALS DETECTED DURING THE
LONG-TERM QUARTERLY SAMPLING PROGRAM,
JET PROPULSION LABORATORY**

(concentrations in mg/L)

Values above state or Federal MCLs, or above/equal to action levels, are bold and shaded

Sample Location	Sampling Date	Arsenic	Lead	Total Chromium	Hexavalent Chromium	Field Turbidity (NTUs)
MW-13	Aug/Sep 1996	--	--	0.046	0.047	4.1
	Oct/Nov 1996	--	0.005	0.031	0.028	3.0
	Feb/Mar 1997	--	--	0.032	0.035	0.5
	Jun/Jul 1997	--	--	0.038	0.037	1.2
	Sep/Oct 1997	--	--	0.050	0.045	2.4
	Jan/Feb 1998	--	0.003	0.040	0.036	1.0
	Apr/May 1998	--	--	0.082	0.024	3.5
	Jul/Aug 1998	--	--	0.025	0.023	1.0
	Oct/Nov 1998	--	--	0.036	0.029	3.4
	Feb/Mar 1999	--	--	0.030	0.019	1.0
	May/June 1999	--	--	0.024	0.024	0.4
	Aug 1999	(2)	(2)	0.037	0.031	0.15
	Nov/Dec 1999	(2)	(2)	0.034	0.029	1.2
	Mar/Apr 2000	(2)	(2)	0.034	0.030	0.5
	Jul/Aug 2000	--	--	0.044	0.019	1.4
	Jan/Feb 2001	--	--	0.11 J	0.032	5
MW-14						
Screen 1	Aug/Sep 1996	--	--	--	--	3.3
	Oct/Nov 1996	--	--	--	--	4.5
	Feb/Mar 1997	--	--	--	--	4.3
	Jun/Jul 1997	--	--	--	--	2.2
	Sep/Oct 1997	--	--	--	--	3.9
	Jan/Feb 1998	--	0.004	--	--	5.0
	Apr/May 1998	--	--	0.011	--	3.1
	Jul/Aug 1998	--	--	--	--	3.8
	Oct/Nov 1998	--	--	--	--	4.2
	Feb/Mar 1999	--	--	--	--	4.8
	May/June 1999	--	--	--	--	3.4
	Aug 1999	(2)	(2)	--	--	1.7
	Nov/Dec 1999	(6)	(6)	(6)	(6)	(6)
	Mar/Apr 2000	(2)	(2)	--	--	1.7
	Jul/Aug 2000	--	--	--	--	2.2
	Jan/Feb 2001	--	--	--	--	- 10
Screen 2	Aug/Sep 1996	--	--	--	--	4.4
	Oct/Nov 1996	--	--	--	--	3.8
	Feb/Mar 1997	--	--	--	--	4.8
	Jun/Jul 1997	--	--	--	--	5.0
	Sep/Oct 1997	--	--	--	--	3.2
	Jan/Feb 1998	--	0.003	--	--	4.8
	Apr/May 1998	--	--	--	--	4.9
	Jul/Aug 1998	--	--	--	--	4.8
	Oct/Nov 1998	--	--	--	--	4.3
	Feb/Mar 1999	--	--	--	--	4.7
	May/June 1999	--	--	--	--	4.4
	Aug 1999	(2)	(2)	--	--	2.8
	Nov/Dec 1999	(2)	(2)	--	--	4.6
	Mar/Apr 2000	(2)	(2)	--	--	1.9
	Jul/Aug 2000	--	--	--	--	3.4
	Jan/Feb 2001	--	--	--	--	- 10

TABLE 3-6

**SUMMARY OF METALS DETECTED DURING THE
LONG-TERM QUARTERLY SAMPLING PROGRAM,
JET PROPULSION LABORATORY**

(concentrations in mg/L)

Values above state or Federal MCLs, or above/equal to action levels, are bold and shaded

Sample Location	Sampling Date	Arsenic	Lead	Total Chromium	Hexavalent Chromium	Field Turbidity (NTUs)
Screen 3	Aug/Sep 1996	--	--	--	--	1.7
	Oct/Nov 1996	--	--	--	--	2.0
	Feb/Mar 1997	--	--	--	--	2.5
	Jun/Jul 1997	--	--	--	--	0.7
	Sep/Oct 1997	--	--	--	--	2.9
	Jan/Feb 1998	--	0.003	0.026	--	2.1
	Apr/May 1998	--	--	--	--	1.4
	Jul/Aug 1998	--	--	--	--	3.1
	Oct/Nov 1998	--	--	--	--	0.8
	Feb/Mar 1999	--	--	--	--	0.7
	May/Jun 1999	--	--	--	--	0.8
	Aug 1999	(2)	(2)	--	--	2.2
	Nov/Dec 1999	(2)	(2)	--	--	0.7
	Mar/Apr 2000	(2)	(2)	--	--	0.6
	Jul/Aug 2000	--	--	--	--	0.2
	Jan/Feb 2001	--	--	--	--	- 10
Screen 4	Aug/Sep 1996	--	--	--	--	3.1
	Oct/Nov 1996	--	--	--	--	2.5
	Feb/Mar 1997	--	--	--	--	4.1
	Jun/Jul 1997	--	--	--	--	2.3
	Sep/Oct 1997	--	--	--	--	1.7
	Jan/Feb 1998	--	0.002	--	--	2.7
	Apr/May 1998	--	--	--	--	1.3
	Jul/Aug 1998	--	--	--	--	1.0
	Oct/Nov 1998	--	--	--	--	2.3
	Feb/Mar 1999	--	--	--	--	2.1
	May/Jun 1999	--	--	--	--	1.7
	Aug 1999	(2)	(2)	--	--	1.2
	Nov/Dec 1999	(2)	(2)	--	--	1.2
	Mar/Apr 2000	(2)	(2)	--	--	1.3
	Jul/Aug 2000	--	--	--	--	0.2
	Jan/Feb 2001	--	--	--	--	- 10
Screen 5	Aug/Sep 1996	--	--	--	--	1.5
	Oct/Nov 1996	--	--	--	--	4.1
	Feb/Mar 1997	--	0.028	--	--	2.3
	Jun/Jul 1997	--	--	--	--	1.9
	Sep/Oct 1997	--	--	--	--	3.8
	Jan/Feb 1998	--	--	--	--	4.7
	Apr/May 1998	--	--	--	--	1.9
	Jul/Aug 1998	--	--	--	--	2.4
	Oct/Nov 1998	--	--	--	--	4.5
	Feb/Mar 1999	--	--	--	--	4.2
	May/Jun 1999	--	--	--	--	1.9
	Aug 1999	(2)	(2)	(2)	(2)	1.4
	Nov/Dec 1999	(2)	(2)	--	--	3.6
	Mar/Apr 2000	(2)	(2)	(2)	(2)	3.2
	Jul/Aug 2000	--	--	--	--	2.9
	Jan/Feb 2001	--	--	--	--	6

TABLE 3-6

**SUMMARY OF METALS DETECTED DURING THE
LONG-TERM QUARTERLY SAMPLING PROGRAM,
JET PROPULSION LABORATORY**

(concentrations in mg/L)

Values above state or Federal MCLs, or above/equal to action levels, are bold and shaded

Sample Location	Sampling Date	Arsenic	Lead	Total Chromium	Hexavalent Chromium	Field Turbidity (NTUs)
MW-15	Aug/Sep 1996	--	--	--	--	1.3
	Oct/Nov 1996	--	--	NS	--	0.5
	Feb/Mar 1997	--	--	--	--	2.6
	Jun/Jul 1997	--	--	--	--	0.2
	Sep/Oct 1997	--	--	--	--	0.9
	Jan/Feb 1998	--	--	--	--	1.4
	Apr/May 1998	--	--	--	--	0.4
	Jul/Aug 1998	--	--	--	--	3.0
	Oct/Nov 1998	--	--	--	--	2.0
	Feb/Mar 1999	--	--	--	--	0.6
	May/June 1999	--	--	--	--	0.4
	Aug 1999	(2)	(2)	(2)	(2)	(2)
	Nov/Dec 1999	(2)	(2)	--	--	0.3
	Mar/Apr 2000	(2)	(2)	(2)	(2)	(2)
	Jul/Aug 2000	--	--	--	--	0.4
	Jan/Feb 2001	--	--	--	--	0
MW-16	Aug/Sep 1996	--	--	0.018	--	3.4
	Oct/Nov 1996	(5)	(5)	(5)	(5)	1.4
	Feb/Mar 1997	--	--	--	0.007	0.2
	Jun/Jul 1997	--	--	--	--	0.1
	Sep/Oct 1997	(5)	(5)	(5)	(5)	1.4
	Jan/Feb 1998	--	--	--	--	1.1
	Apr/May 1998	--	--	0.014	--	1.4
	Jul/Aug 1998	--	--	--	--	1.9
	Oct/Nov 1998	--	--	0.013	--	0.9
	Feb/Mar 1999	--	--	0.013	0.007	1.0
	May/June 1999	--	--	--	--	2.2
	Aug 1999	(2)	(2)	--	0.007	0.5
	Nov/Dec 1999	(2)	(2)	--	0.006	1.9
	Mar/Apr 2000	(2)	(2)	--	--	0.1
	Jul/Aug 2000	--	--	--	0.006	0.2
	Jan/Feb 2001	--	--	0.0078 J	--	- 10
MW-17						
Screen 1	Aug/Sep 1996	--	--	NS	NS	1.0
	Oct/Nov 1996	--	--	--	--	2.9
	Feb/Mar 1997	--	--	--	--	2.0
	Jun/Jul 1997	--	--	--	--	2.2
	Sep/Oct 1997	--	--	--	--	1.3
	Jan/Feb 1998	--	--	--	--	5.0
	Apr/May 1998	--	--	--	--	1.7
	Jul/Aug 1998	--	--	--	--	1.5
	Oct/Nov 1998	--	--	--	--	0.5
	Feb/Mar 1999	--	--	--	--	1.5
	May/June 1999	--	--	--	--	0.4
	Aug 1999	(2)	(2)	(2)	(2)	(2)
	Nov/Dec 1999	(2)	(2)	--	--	1.2
	Mar/Apr 2000	(2)	(2)	(2)	(2)	(2)
	Jul/Aug 2000	--	--	--	--	1.5
	Jan/Feb 2001	--	--	--	--	4

TABLE 3-6

**SUMMARY OF METALS DETECTED DURING THE
LONG-TERM QUARTERLY SAMPLING PROGRAM,
JET PROPULSION LABORATORY**

(concentrations in mg/L)

Values above state or Federal MCLs, or above/equal to action levels, are bold and shaded

Sample Location	Sampling Date	Arsenic	Lead	Total Chromium	Hexavalent Chromium	Field Turbidity (NTUs)
Screen 2	Aug/Sep 1996	--	--	NS	NS	4.5
	Oct/Nov 1996	--	--	--	--	2.5
	Feb/Mar 1997	--	--	--	--	2.7
	Jun/Jul 1997	--	--	--	--	4.5
	Sep/Oct 1997	--	--	--	--	1.2
	Jan/Feb 1998	--	--	--	--	0.8
	Apr/May 1998	--	--	--	--	2.2
	Jul/Aug 1998	--	0.007	--	--	1.0
	Oct/Nov 1998	--	--	--	--	1.7
	Feb/Mar 1999	--	--	--	--	1.1
	May/June 1999	--	--	--	--	1.6
	Aug 1999	(2)	(2)	--	--	12.4
	Nov/Dec 1999	(2)	(2)	--	--	3.1
	Mar/Apr 2000	(2)	(2)	--	--	2.0
	Jul/Aug 2000	--	--	--	--	1.3
	Jan/Feb 2001	--	--	--	--	- 2
Screen 3	Aug/Sep 1996	--	0.002	NS	NS	4.9
	Oct/Nov 1996	--	--	--	--	4.8
	Feb/Mar 1997	--	--	--	--	6.0
	Jun/Jul 1997	--	--	--	--	4.8
	Sep/Oct 1997	--	--	--	0.006	2.5
	Jan/Feb 1998	--	--	--	--	3.2
	Apr/May 1998	--	--	--	--	3.6
	Jul/Aug 1998	--	--	--	--	4.0
	Oct/Nov 1998	--	--	--	--	4.4
	Feb/Mar 1999	--	--	--	--	6.3
	May/June 1999	--	--	--	--	2.2
	Aug 1999	(2)	(2)	--	--	2.5
	Nov/Dec 1999	(2)	(2)	--	--	4.6
	Mar/Apr 2000	(2)	(2)	--	--	3.6
	Jul/Aug 2000	--	--	--	--	1.8
	Jan/Feb 2001	--	--	--	--	- 10
Screen 4	Aug/Sep 1996	--	--	NS	NS	2.8
	Oct/Nov 1996	--	--	--	--	2.6
	Feb/Mar 1997	--	--	--	--	5.6
	Jun/Jul 1997	--	--	--	--	4.1
	Sep/Oct 1997	--	--	--	--	3.6
	Jan/Feb 1998	--	--	--	--	3.9
	Apr/May 1998	--	--	--	--	3.7
	Jul/Aug 1998	--	--	--	--	4.4
	Oct/Nov 1998	--	--	--	--	1.8
	Feb/Mar 1999	--	--	--	--	4.8
	May/June 1999	--	--	--	--	7.9
	Aug 1999	(2)	(2)	--	--	4.1
	Nov/Dec 1999	(2)	(2)	--	--	4.9
	Mar/Apr 2000	(2)	(2)	--	--	10.0
	Jul/Aug 2000	--	--	--	--	1.4
	Jan/Feb 2001	--	--	--	--	1

TABLE 3-6

**SUMMARY OF METALS DETECTED DURING THE
LONG-TERM QUARTERLY SAMPLING PROGRAM,
JET PROPULSION LABORATORY**

(concentrations in mg/L)

Values above state or Federal MCLs, or above/equal to action levels, are bold and shaded

Sample Location	Sampling Date	Arsenic	Lead	Total Chromium	Hexavalent Chromium	Field Turbidity (NTUs)
Screen 5	Aug/Sep 1996	--	--	NS	NS	5.0
	Oct/Nov 1996	--	0.005	--	--	5.2
	Feb/Mar 1997	--	0.003	--	--	25
	Jun/Jul 1997	--	--	--	--	34
	Sep/Oct 1997	--	--	--	--	4.8
	Jan/Feb 1998	--	--	--	--	4.8
	Apr/May 1998	--	0.002	--	--	3.7
	Jul/Aug 1998	--	--	--	--	4.8
	Oct/Nov 1998	--	--	--	--	5.1
	Feb/Mar 1999	--	0.007	--	--	12.4
	May/Jun 1999	--	0.004	--	--	16.3
	Aug 1999	(2)	(2)	(2)	(2)	2.4
	Nov/Dec 1999	(2)	(2)	--	--	4.4
	Mar/Apr 2000	(2)	(2)	(2)	(2)	80.0
	Jul/Aug 2000	--	--	--	--	4.4
	Jan/Feb 2001	--	--	--	--	5
MW-18						
Screen 1	Aug/Sep 1996	--	--	NS	NS	0.9
	Oct/Nov 1996	(5)	--	--	--	--
	Feb/Mar 1997	--	--	--	--	1.9
	Jun/Jul 1997	--	--	--	--	0.4
	Sep/Oct 1997	(5)	--	--	--	--
	Jan/Feb 1998	(5)	--	--	--	--
	Apr/May 1998	--	--	--	--	0.1
	Jul/Aug 1998	--	--	--	--	3.8
	Oct/Nov 1998	--	--	--	--	2.3
	Feb/Mar 1999	--	--	--	--	0.7
	May/Jun 1999	--	--	--	--	2.8
	Aug 1999	(2)	(2)	(2)	(2)	(2)
	Nov/Dec 1999	(5)	(5)	(5)	(5)	(5)
	Mar/Apr 2000	(2)	(2)	(2)	(2)	(2)
	Jul/Aug 2000	--	--	--	--	0.1
	Jan/Feb 2001	(5)	(5)	(5)	(5)	(5)
Screen 2	Aug/Sep 1996	--	--	NS	NS	3.5
	Oct/Nov 1996	--	0.003	--	--	3.4
	Feb/Mar 1997	--	--	--	--	2.8
	Jun/Jul 1997	--	--	--	--	1.5
	Sep/Oct 1997	--	--	--	--	1.4
	Jan/Feb 1998	--	--	--	--	3.6
	Apr/May 1998	--	--	--	--	0.1
	Jul/Aug 1998	--	--	--	--	3.1
	Oct/Nov 1998	--	--	--	--	1.9
	Feb/Mar 1999	--	0.005	--	--	2.7
	May/Jun 1999	--	--	--	--	4.1
	Aug 1999	(2)	(2)	--	--	1.0
	Nov/Dec 1999	(2)	(2)	--	--	4.0
	Mar/Apr 2000	(2)	(2)	--	--	1.8
	Jul/Aug 2000	--	--	--	--	2.1
	Jan/Feb 2001	--	--	--	--	- 10

TABLE 3-6

**SUMMARY OF METALS DETECTED DURING THE
LONG-TERM QUARTERLY SAMPLING PROGRAM,
JET PROPULSION LABORATORY**

(concentrations in mg/L)

Values above state or Federal MCLs, or above/equal to action levels, are bold and shaded

Sample Location	Sampling Date	Arsenic	Lead	Total Chromium	Hexavalent Chromium	Field Turbidity (NTUs)
Screen 3	Aug/Sep 1996	--	--	NS	NS	4.2
	Oct/Nov 1996	--	0.002	NS	--	4.0
	Feb/Mar 1997	--	--	0.015	0.007	3.3
	Jun/Jul 1997	--	--	--	--	3.9
	Sep/Oct 1997	--	--	--	--	2.1
	Jan/Feb 1998	--	--	--	--	0.6
	Apr/May 1998	--	--	0.012	0.007	0.04
	Jul/Aug 1998	--	--	0.014	--	2.3
	Oct/Nov 1998	--	--	--	--	1.7
	Feb/Mar 1999	--	--	--	0.007	1.2
	May/Jun 1999	--	--	--	--	2.1
	Aug 1999	(2)	(2)	--	--	0.8
	Nov/Dec 1999	(2)	(2)	--	--	0.7
	Mar/Apr 2000	(2)	(2)	--	--	0.2
	Jul/Aug 2000	--	--	--	--	0.1
	Jan/Feb 2001	--	--	0.0075 J	--	27
Screen 4	Aug/Sep 1996	--	--	NS	NS	2.0
	Oct/Nov 1996	--	0.003	--	--	1.9
	Feb/Mar 1997	--	--	--	--	2.8
	Jun/Jul 1997	0.005	--	--	--	3.6
	Sep/Oct 1997	--	--	--	--	1.1
	Jan/Feb 1998	--	--	--	--	2.2
	Apr/May 1998	--	--	--	--	0.04
	Jul/Aug 1998	--	--	--	--	2.5
	Oct/Nov 1998	--	--	--	--	4.6
	Feb/Mar 1999	--	--	--	--	2.7
	May/Jun 1999	--	--	--	--	3.0
	Aug 1999	(2)	(2)	--	--	0.7
	Nov/Dec 1999	(2)	(2)	--	--	1.4
	Mar/Apr 2000	(2)	(2)	--	--	2.3
	Jul/Aug 2000	--	--	--	--	0.4
	Jan/Feb 2001	--	--	--	--	2
Screen 5	Aug/Sep 1996	--	--	NS	NS	2.8
	Oct/Nov 1996	--	0.002	--	--	3.6
	Feb/Mar 1997	--	--	--	--	2.9
	Jun/Jul 1997	--	--	--	--	4.0
	Sep/Oct 1997	--	--	--	--	1.7
	Jan/Feb 1998	--	--	--	--	1.6
	Apr/May 1998	--	--	--	--	0.1
	Jul/Aug 1998	--	--	--	--	1.1
	Oct/Nov 1998	--	--	--	--	2.8
	Feb/Mar 1999	--	--	--	--	2.0
	May/Jun 1999	--	--	--	--	2.4
	Aug 1999	(2)	(2)	(2)	(2)	0.6
	Nov/Dec 1999	(2)	(2)	--	--	2.3
	Mar/Apr 2000	(2)	(2)	(2)	(2)	2.3
	Jul/Aug 2000	--	--	--	--	1.8
	Jan/Feb 2001	--	--	--	--	11

TABLE 3-6

**SUMMARY OF METALS DETECTED DURING THE
LONG-TERM QUARTERLY SAMPLING PROGRAM,
JET PROPULSION LABORATORY**

(concentrations in mg/L)

Values above state or Federal MCLs, or above/equal to action levels, are bold and shaded

Sample Location	Sampling Date	Arsenic	Lead	Total Chromium	Hexavalent Chromium	Field Turbidity (NTUs)
MW-19						
Screen 1	Aug/Sep 1996	--	--	NS	NS	5.0
	Oct/Nov 1996	--	--	--	--	3.4
	Feb/Mar 1997	--	--	--	--	6.6
	Jun/Jul 1997	--	--	--	--	0.8
	Sep/Oct 1997	--	--	--	--	4.6
	Jan/Feb 1998	--	--	--	--	4.7
	Apr/May 1998	--	--	--	--	2.2
	Jul/Aug 1998	--	--	--	--	4.9
	Oct/Nov 1998	--	--	--	--	13.0
	Feb/Mar 1999	--	--	--	--	5.0
	May/June 1999	--	--	--	--	5.0
	Aug 1999	(2)	(2)	(2)	(2)	1.1
	Nov/Dec 1999	(2)	(2)	--	--	4.9
	Mar/Apr 2000	(2)	(2)	(2)	(2)	1.8
	Jul/Aug 2000	--	--	--	--	0.8
	Jan/Feb 2001	--	--	--	--	10
Screen 2	Aug/Sep 1996	--	--	NS	NS	4.5
	Oct/Nov 1996	--	--	--	--	3.6
	Feb/Mar 1997	--	--	--	--	22
	Jun/Jul 1997	--	--	--	--	2.8
	Sep/Oct 1997	--	--	--	--	4.6
	Jan/Feb 1998	--	--	--	--	4.7
	Apr/May 1998	--	--	--	--	2.3
	Jul/Aug 1998	--	--	--	--	4.9
	Oct/Nov 1998	--	--	--	--	4.8
	Feb/Mar 1999	--	--	--	--	3.9
	May/June 1999	--	--	--	--	2.3
	Aug 1999	(2)	(2)	(2)	(2)	0.1
	Nov/Dec 1999	(2)	(2)	--	--	1.5
	Mar/Apr 2000	(2)	(2)	(2)	(2)	1.9
	Jul/Aug 2000	--	--	--	--	0.3
	Jan/Feb 2001	--	--	--	--	21
Screen 3	Aug/Sep 1996	--	--	NS	NS	3.0
	Oct/Nov 1996	--	--	--	--	5.0
	Feb/Mar 1997	--	--	--	--	4.9
	Jun/Jul 1997	--	--	--	--	4.9
	Sep/Oct 1997	--	--	--	--	2.0
	Jan/Feb 1998	--	--	--	--	4.1
	Apr/May 1998	--	--	--	--	2.4
	Jul/Aug 1998	--	--	--	--	3.9
	Oct/Nov 1998	--	--	--	--	3.4
	Feb/Mar 1999	--	--	--	--	4.1
	May/June 1999	--	--	--	--	2.5
	Aug 1999	(2)	(2)	(2)	(2)	0.2
	Nov/Dec 1999	(2)	(2)	--	--	3.8
	Mar/Apr 2000	(2)	(2)	(2)	(2)	2.8
	Jul/Aug 2000	--	--	--	--	5.4
	Jan/Feb 2001	--	--	0.00608 J	--	1

TABLE 3-6

**SUMMARY OF METALS DETECTED DURING THE
LONG-TERM QUARTERLY SAMPLING PROGRAM,
JET PROPULSION LABORATORY**

(concentrations in mg/L)

Values above state or Federal MCLs, or above/equal to action levels, are bold and shaded

Sample Location	Sampling Date	Arsenic	Lead	Total Chromium	Hexavalent Chromium	Field Turbidity (NTUs)
Screen 4	Aug/Sep 1996	--	--	NS	NS	4.2
	Oct/Nov 1996	--	--	--	--	8.0
	Feb/Mar 1997	--	0.003	--	--	16
	Jun/Jul 1997	--	--	--	--	4.9
	Sep/Oct 1997	--	--	--	--	4.8
	Jan/Feb 1998	--	--	--	--	4.8
	Apr/May 1998	--	--	--	--	4.8
	Jul/Aug 1998	--	--	--	--	4.6
	Oct/Nov 1998	--	--	--	--	1.5
	Feb/Mar 1999	--	--	--	--	4.4
	May/Jun 1999	--	--	--	--	1.7
	Aug 1999	(2)	(2)	(2)	(2)	1.0
	Nov/Dec 1999	(2)	(2)	--	--	3.1
	Mar/Apr 2000	(2)	(2)	(2)	(2)	0.7
	Jul/Aug 2000	--	--	--	--	2.3
	Jan/Feb 2001	0.0032 B	--	--	--	- 8
Screen 5	Aug/Sep 1996	--	--	NS	NS	4.9
	Oct/Nov 1996	--	--	NS	--	4.6
	Feb/Mar 1997	--	--	--	--	3.8
	Jun/Jul 1997	--	--	--	--	2.2
	Sep/Oct 1997	--	--	--	--	5.0
	Jan/Feb 1998	--	--	--	--	4.0
	Apr/May 1998	--	--	--	--	4.6
	Jul/Aug 1998	--	0.010	--	--	4.8
	Oct/Nov 1998	--	--	--	--	2.5
	Feb/Mar 1999	--	--	--	--	4.4
	May/Jun 1999	--	--	--	--	1.7
	Aug 1999	(2)	(2)	(2)	(2)	0.8
	Nov/Dec 1999	(2)	(2)	--	--	1.0
	Mar/Apr 2000	(2)	(2)	(2)	(2)	1.0
	Jul/Aug 2000	--	--	--	--	0.2
	Jan/Feb 2001	--	--	--	--	- 10
MW-20						
Screen 1	Aug/Sep 1996	--	--	--	NS	3.5
	Oct/Nov 1996	(5)	(5)	(5)	(5)	(5)
	Feb/Mar 1997	--	--	--	--	2.3
	Jun/Jul 1997	--	--	--	--	0.2
	Sep/Oct 1997	(5)	(5)	(5)	(5)	(5)
	Jan/Feb 1998	--	--	--	--	3.2
	Apr/May 1998	--	--	--	--	2.9
	Jul/Aug 1998	--	--	--	--	3.2
	Oct/Nov 1998	--	--	--	--	1.3
	Feb/Mar 1999	--	--	--	--	0.5
	May/Jun 1999	--	--	--	--	1.1
	Aug 1999	(2)	(2)	--	--	3.2
	Nov/Dec 1999	(2)	(2)	--	--	0.8
	Mar/Apr 2000	(2)	(2)	--	--	2.8
	Jul/Aug 2000	--	--	--	--	0.2
	Jan/Feb 2001	--	--	--	--	0

TABLE 3-6

**SUMMARY OF METALS DETECTED DURING THE
LONG-TERM QUARTERLY SAMPLING PROGRAM,
JET PROPULSION LABORATORY**

(concentrations in mg/L)

Values above state or Federal MCLs, or above/equal to action levels, are bold and shaded

Sample Location	Sampling Date	Arsenic	Lead	Total Chromium	Hexavalent Chromium	Field Turbidity (NTUs)
Screen 2	Aug/Sep 1996	--	--	NS	NS	3.9
	Oct/Nov 1996	--	--	--	--	1.1
	Feb/Mar 1997	--	--	--	--	2.1
	Jun/Jul 1997	--	--	--	--	2.5
	Sep/Oct 1997	--	--	--	--	3.6
	Jan/Feb 1998	--	--	--	--	0.4
	Apr/May 1998	--	--	--	--	1.4
	Jul/Aug 1998	--	--	--	--	1.3
	Oct/Nov 1998	--	--	--	--	2.4
	Feb/Mar 1999	--	--	--	--	0.8
	May/June 1999	--	--	--	--	0.9
	Aug 1999	(2)	(2)	--	--	2.8
	Nov/Dec 1999	(2)	(2)	--	--	0.5
	Mar/Apr 2000	(2)	(2)	--	--	0.4
	Jul/Aug 2000	--	--	--	--	0.03
	Jan/Feb 2001	--	--	--	--	- 10
Screen 3	Aug/Sep 1996	--	--	NS	NS	1.7
	Oct/Nov 1996	--	--	--	--	1.6
	Feb/Mar 1997	--	--	--	--	1.9
	Jun/Jul 1997	--	--	--	--	2.1
	Sep/Oct 1997	--	--	--	--	4.6
	Jan/Feb 1998	--	--	--	--	2.2
	Apr/May 1998	--	--	--	--	1.3
	Jul/Aug 1998	--	--	--	--	0.7
	Oct/Nov 1998	--	--	--	--	2.7
	Feb/Mar 1999	--	0.009	--	--	0.1
	May/June 1999	--	--	--	--	1.0
	Aug 1999	(2)	(2)	--	--	0.7
	Nov/Dec 1999	(2)	(2)	--	--	0.3
	Mar/Apr 2000	(2)	(2)	--	--	0.3
	Jul/Aug 2000	--	--	--	--	0.1
	Jan/Feb 2001	--	--	--	--	8
Screen 4	Aug/Sep 1996	--	--	NS	NS	1.0
	Oct/Nov 1996	--	--	--	--	1.3
	Feb/Mar 1997	--	--	--	--	3.3
	Jun/Jul 1997	--	--	--	--	1.3
	Sep/Oct 1997	--	--	--	--	1.4
	Jan/Feb 1998	--	--	--	--	0.6
	Apr/May 1998	--	--	--	--	1.7
	Jul/Aug 1998	--	--	--	--	2.1
	Oct/Nov 1998	--	--	--	--	2.6
	Feb/Mar 1999	--	--	--	--	0.8
	May/June 1999	--	--	--	--	2.4
	Aug 1999	(2)	(2)	--	--	0.3
	Nov/Dec 1999	(2)	(2)	--	--	2.3
	Mar/Apr 2000	(2)	(2)	--	--	1.1
	Jul/Aug 2000	--	--	--	--	1.6
	Jan/Feb 2001	--	--	--	--	0

TABLE 3-6

**SUMMARY OF METALS DETECTED DURING THE
LONG-TERM QUARTERLY SAMPLING PROGRAM,
JET PROPULSION LABORATORY**

(concentrations in mg/L)

Values above state or Federal MCLs, or above/equal to action levels, are bold and shaded

Sample Location	Sampling Date	Arsenic	Lead	Total Chromium	Hexavalent Chromium	Field Turbidity (NTUs)
Screen 5	Aug/Sep 1996	--	--	NS	NS	1.8
	Oct/Nov 1996	--	--	NS	--	1.3
	Feb/Mar 1997	--	0.004	--	--	1.6
	Jun/Jul 1997	0.006	--	--	--	1.9
	Sep/Oct 1997	--	--	--	--	3.5
	Jan/Feb 1998	--	--	--	--	0.1
	Apr/May 1998	--	--	--	--	1.1
	Jul/Aug 1998	--	--	--	--	3.3
	Oct/Nov 1998	--	--	--	--	1.6
	Feb/Mar 1999	--	--	--	--	1.0
	May/Jun 1999	--	--	--	--	2.7
	Aug 1999	(2)	(2)	--	--	1.7
	Nov/Dec 1999	(2)	(2)	--	--	1.1
	Mar/Apr 2000	(2)	(2)	--	--	0.4
	Jul/Aug 2000	--	--	--	--	2.3
	Jan/Feb 2001	--	--	--	--	7
MW-21						
Screen 1	Aug/Sep 1996	--	--	NS	NS	0.9
	Oct/Nov 1996	(5)	(5)	(5)	(5)	(5)
	Feb/Mar 1997	--	--	--	--	1.1
	Jun/Jul 1997	--	--	--	--	2.8
	Sep/Oct 1997	(5)	(5)	(5)	(5)	(5)
	Jan/Feb 1998	--	--	--	--	0.8
	Apr/May 1998	--	--	--	--	0.7
	Jul/Aug 1998	--	--	--	--	3.4
	Oct/Nov 1998	--	--	--	--	2.2
	Feb/Mar 1999	--	--	--	--	0.3
	May/Jun 1999	--	--	--	--	2.8
	Aug 1999	(2)	(2)	(2)	(2)	1.1
	Nov/Dec 1999	(2)	(2)	--	--	0.6
	Mar/Apr 2000	(2)	(2)	(2)	(2)	(8)
	Jul/Aug 2000	--	--	--	--	0.2
	Jan/Feb 2001	--	--	0.0056 J	--	6
Screen 2	Aug/Sep 1996	--	--	NS	NS	2.1
	Oct/Nov 1996	--	--	--	--	1.2
	Feb/Mar 1997	--	--	--	--	3.9
	Jun/Jul 1997	--	--	--	--	1.7
	Sep/Oct 1997	--	--	--	--	0.8
	Jan/Feb 1998	--	--	--	--	0.6
	Apr/May 1998	--	--	--	--	1.8
	Jul/Aug 1998	--	--	--	--	3.9
	Oct/Nov 1998	--	--	--	--	3.5
	Feb/Mar 1999	--	--	--	--	0.04
	May/Jun 1999	--	--	--	--	0.8
	Aug 1999	(2)	(2)	(2)	(2)	1.6
	Nov/Dec 1999	(2)	(2)	--	--	2.1
	Mar/Apr 2000	(2)	(2)	(2)	(2)	(8)
	Jul/Aug 2000	--	--	--	--	0.8
	Jan/Feb 2001	--	--	0.008 J	--	8

TABLE 3-6

**SUMMARY OF METALS DETECTED DURING THE
LONG-TERM QUARTERLY SAMPLING PROGRAM,
JET PROPULSION LABORATORY**

(concentrations in mg/L)

Values above state or Federal MCLs, or above/equal to action levels, are bold and shaded

Sample Location	Sampling Date	Arsenic	Lead	Total Chromium	Hexavalent Chromium	Field Turbidity (NTUs)
Screen 3	Aug/Sep 1996	--	--	NS	NS	4.6
	Oct/Nov 1996	--	--	--	--	4.9
	Feb/Mar 1997	--	0.003	--	--	4.6
	Jun/Jul 1997	--	--	--	--	1.4
	Sep/Oct 1997	--	--	--	--	3.2
	Jan/Feb 1998	--	0.003	--	--	4.8
	Apr/May 1998	--	--	--	--	4.1
	Jul/Aug 1998	--	--	--	--	4.8
	Oct/Nov 1998	--	--	--	--	4.8
	Feb/Mar 1999	--	--	--	--	4.2
	May/Jun 1999	--	--	--	--	2.2
	Aug 1999	(2)	(2)	(2)	(2)	1.9
	Nov/Dec 1999	(2)	(2)	--	--	2.6
	Mar/Apr 2000	(2)	(2)	(2)	(2)	(8)
	Jul/Aug 2000	--	--	--	--	1.2
	Jan/Feb 2001	--	--	0.0069 J	--	7
Screen 4	Aug/Sep 1996	--	--	NS	NS	2.5
	Oct/Nov 1996	--	--	--	--	3.3
	Feb/Mar 1997	--	0.004	--	--	4.4
	Jun/Jul 1997	--	--	--	--	2.5
	Sep/Oct 1997	--	--	--	--	4.5
	Jan/Feb 1998	--	--	--	--	1.1
	Apr/May 1998	--	--	--	--	4.6
	Jul/Aug 1998	--	--	--	--	2.4
	Oct/Nov 1998	--	--	--	--	4.4
	Feb/Mar 1999	--	--	--	--	13.1
	May/Jun 1999	--	--	--	--	7.6
	Aug 1999	(2)	(2)	(2)	(2)	0.5
	Nov/Dec 1999	(2)	(2)	--	--	2.8
	Mar/Apr 2000	(2)	(2)	(2)	(2)	(8)
	Jul/Aug 2000	--	--	--	--	6.2
	Jan/Feb 2001	--	--	0.006 J	--	9
Screen 5	Aug/Sep 1996	--	--	NS	NS	4.9
	Oct/Nov 1996	--	--	--	--	5.0
	Feb/Mar 1997	--	--	--	--	28
	Jun/Jul 1997	--	--	--	--	26
	Sep/Oct 1997	--	--	--	--	12
	Jan/Feb 1998	--	--	--	--	4.9
	Apr/May 1998	--	--	--	--	4.6
	Jul/Aug 1998	--	--	--	--	4.2
	Oct/Nov 1998	--	--	--	--	14.0
	Feb/Mar 1999	--	--	--	--	4.3
	May/Jun 1999	--	--	--	--	3.3
	Aug 1999	(2)	(2)	(2)	(2)	1.9
	Nov/Dec 1999	(2)	(2)	--	--	4.8
	Mar/Apr 2000	(2)	(2)	(2)	(2)	(8)
	Jul/Aug 2000	--	--	--	--	3.0
	Jan/Feb 2001	--	--	0.006 J	--	6

TABLE 3-6

**SUMMARY OF METALS DETECTED DURING THE
LONG-TERM QUARTERLY SAMPLING PROGRAM,
JET PROPULSION LABORATORY**

(concentrations in mg/L)

Values above state or Federal MCLs, or above/equal to action levels, are bold and shaded

Sample Location	Sampling Date	Arsenic	Lead	Total Chromium	Hexavalent Chromium	Field Turbidity (NTUs)
MW-22⁽⁷⁾						
Screen 1	Sep/Oct 1997	--	--	--	--	34
	Jan/Feb 1998	--	--	--	--	4.5
	Apr/May 1998	--	--	--	--	4.6
	Jul/Aug 1998	--	--	--	--	4.8
	Oct/Nov 1998	--	--	--	--	4.0
	Feb/Mar 1999	--	--	--	--	20.1
	May/Jun 1999	--	--	--	--	37.6
	Aug 1999	(2)	(2)	--	--	4.8
	Nov/Dec 1999	(2)	(2)	--	--	8.1
	Mar/Apr 2000	(2)	(2)	--	--	15.5
	Jul/Aug 2000	--	--	--	--	15.8
	Jan/Feb 2001	--	--	0.006 J	--	9
Screen 2	Sep/Oct 1997	--	--	--	--	4.9
	Jan/Feb 1998	--	--	--	--	4.2
	Apr/May 1998	--	--	--	--	4.7
	Jul/Aug 1998	--	--	--	--	4.4
	Oct/Nov 1998	--	--	--	--	4.1
	Feb/Mar 1999	--	--	--	--	8.1
	May/Jun 1999	--	--	--	--	4.5
	Aug 1999	(2)	(2)	--	--	8.5
	Nov/Dec 1999	(2)	(2)	--	--	2.1
	Mar/Apr 2000	(2)	(2)	--	--	0.8
	Jul/Aug 2000	--	--	--	--	0.6
	Jan/Feb 2001	--	--	--	--	917
Screen 3	Sep/Oct 1997	--	--	--	--	3.0
	Jan/Feb 1998	--	--	--	--	3.8
	Apr/May 1998	--	--	--	--	2.9
	Jul/Aug 1998	--	--	--	--	4.9
	Oct/Nov 1998	--	--	--	--	3.5
	Feb/Mar 1999	--	--	--	--	5.2
	May/Jun 1999	--	--	--	--	3.7
	Aug 1999	(2)	(2)	(2)	(2)	5.1
	Nov/Dec 1999	(2)	(2)	--	--	4.9
	Mar/Apr 2000	(2)	(2)	(2)	(2)	6.0
	Jul/Aug 2000	--	--	--	--	0.5
	Jan/Feb 2001	--	--	0.0056 J	--	7
Screen 4	Sep/Oct 1997	--	--	--	--	2.8
	Jan/Feb 1998	--	--	--	--	3.7
	Apr/May 1998	--	--	--	--	3.0
	Jul/Aug 1998	--	--	--	--	4.0
	Oct/Nov 1998	--	--	--	--	4.3
	Feb/Mar 1999	--	--	--	--	5.1
	May/Jun 1999	--	--	--	--	4.1
	Aug 1999	(2)	(2)	(2)	(2)	2.8
	Nov/Dec 1999	(2)	(2)	--	--	4.9
	Mar/Apr 2000	(2)	(2)	(2)	(2)	2.4
	Jul/Aug 2000	--	--	--	--	0.8
	Jan/Feb 2001	--	--	--	--	2

TABLE 3-6

**SUMMARY OF METALS DETECTED DURING THE
LONG-TERM QUARTERLY SAMPLING PROGRAM,
JET PROPULSION LABORATORY**

(concentrations in mg/L)

Values above state or Federal MCLs, or above/equal to action levels, are bold and shaded

Sample Location	Sampling Date	Arsenic	Lead	Total Chromium	Hexavalent Chromium	Field Turbidity (NTUs)
Screen 5	Sep/Oct 1997	--	--	--	--	4.4
	Jan/Feb 1998	--	--	--	--	2.8
	Apr/May 1998	--	--	--	--	2.9
	Jul/Aug 1998	--	--	--	--	2.3
	Oct/Nov 1998	--	--	--	--	3.3
	Feb/Mar 1999	--	--	--	--	2.6
	May/Jun 1999	--	--	--	--	4.7
	Aug 1999	(2)	(2)	(2)	(2)	(2)
	Nov/Dec 1999	(2)	(2)	--	--	0.6
	Mar/Apr 2000	(2)	(2)	(2)	(2)	(2)
	Jul/Aug 2000	--	--	--	--	0.4
	Jan/Feb 2001	--	--	--	--	8
MW-23⁽⁷⁾						
Screen 1	Sep/Oct 1997	--	--	--	--	3.4
	Jan/Feb 1998	--	--	--	--	4.1
	Apr/May 1998	--	--	--	--	4.5
	Jul/Aug 1998	--	--	--	--	4.0
	Oct/Nov 1998	--	--	--	--	6.3
	Feb/Mar 1999	--	--	--	--	4.2
	May/Jun 1999	--	--	--	--	7.0
	Aug 1999	(2)	(2)	--	--	9.4
	Nov/Dec 1999	(2)	(2)	--	--	35.0
	Mar/Apr 2000	(2)	(2)	--	--	44.2
	Jul/Aug 2000	--	--	--	--	13.1
	Jan/Feb 2001	--	--	0.00619 J	--	- 1
Screen 2	Sep/Oct 1997	--	--	--	--	4.9
	Jan/Feb 1998	--	--	--	--	4.9
	Apr/May 1998	--	--	--	--	4.7
	Jul/Aug 1998	--	--	--	--	3.4
	Oct/Nov 1998	--	--	--	--	4.1
	Feb/Mar 1999	--	--	--	--	2.5
	May/Jun 1999	--	--	--	--	7.3
	Aug 1999	(2)	(2)	--	--	1.5
	Nov/Dec 1999	(2)	(2)	--	--	1.8
	Mar/Apr 2000	(2)	(2)	--	--	1.9
	Jul/Aug 2000	--	--	--	--	1.7
	Jan/Feb 2001	--	--	0.0056 J	--	8
Screen 3	Sep/Oct 1997	--	--	--	--	3.0
	Jan/Feb 1998	--	--	--	--	4.6
	Apr/May 1998	--	--	--	--	4.6
	Jul/Aug 1998	--	--	--	--	4.7
	Oct/Nov 1998	--	--	--	--	4.5
	Feb/Mar 1999	--	--	--	--	4.3
	May/Jun 1999	--	--	--	--	7.5
	Aug 1999	(2)	(2)	--	--	13.1
	Nov/Dec 1999	(2)	(2)	--	--	3.0
	Mar/Apr 2000	(2)	(2)	--	--	1.6
	Jul/Aug 2000	--	--	--	--	2.7
	Jan/Feb 2001	--	--	0.0054 J	--	0

TABLE 3-6

**SUMMARY OF METALS DETECTED DURING THE
LONG-TERM QUARTERLY SAMPLING PROGRAM,
JET PROPULSION LABORATORY**

(concentrations in mg/L)

Values above state or Federal MCLs, or above/equal to action levels, are bold and shaded

Sample Location	Sampling Date	Arsenic	Lead	Total Chromium	Hexavalent Chromium	Field Turbidity (NTUs)
Screen 4	Sep/Oct 1997	--	--	--	--	4.9
	Jan/Feb 1998	--	--	--	--	4.5
	Apr/May 1998	--	--	--	--	4.9
	Jul/Aug 1998	--	--	--	--	4.6
	Oct/Nov 1998	--	--	--	--	4.2
	Feb/Mar 1999	--	--	--	--	5.1
	May/Jun 1999	--	--	--	--	2.0
	Aug 1999	(2)	(2)	--	--	4.2
	Nov/Dec 1999	(2)	(2)	--	--	3.6
	Mar/Apr 2000	(2)	(2)	--	--	1.0
	Jul/Aug 2000	--	--	--	--	0.8
	Jan/Feb 2001	--	--	--	--	- 2
Screen 5	Sep/Oct 1997	--	--	--	--	1.8
	Jan/Feb 1998	--	--	--	--	1.8
	Apr/May 1998	--	--	--	--	2.4
	Jul/Aug 1998	--	--	--	--	1.7
	Oct/Nov 1998	--	--	--	--	2.5
	Feb/Mar 1999	--	--	--	--	3.2
	May/Jun 1999	--	--	--	--	2.4
	Aug 1999	(2)	(2)	(2)	(2)	1.7
	Nov/Dec 1999	(2)	(2)	--	--	1.7
	Mar/Apr 2000	(2)	(2)	(2)	(2)	3.0
	Jul/Aug 2000	--	--	--	--	1.4
	Jan/Feb 2001	--	--	--	--	- 10
MW-24⁽⁷⁾						
Screen 1	Sep/Oct 1997	--	--	--	--	1.6
	Jan/Feb 1998	--	--	--	--	3.8
	Apr/May 1998	--	--	--	--	2.7
	Jul/Aug 1998	--	--	--	--	4.9
	Oct/Nov 1998	--	--	--	--	3.8
	Feb/Mar 1999	--	--	--	--	7.6
	May/Jun 1999	--	--	--	--	4.3
	Aug 1999	(2)	(2)	--	--	9.7
	Nov/Dec 1999	(2)	(2)	--	--	1.1
	Mar/Apr 2000	(2)	(2)	--	--	3.8
	Jul/Aug 2000	--	--	--	--	0.8
	Jan/Feb 2001	--	--	0.0061 J	--	10
Screen 2	Sep/Oct 1997	--	--	--	--	4.4
	Jan/Feb 1998	--	--	--	--	4.9
	Apr/May 1998	--	--	--	--	4.5
	Jul/Aug 1998	--	--	--	--	4.8
	Oct/Nov 1998	--	--	--	--	8.3
	Feb/Mar 1999	--	--	--	--	4.2
	May/Jun 1999	--	--	--	--	5.4
	Aug 1999	(2)	(2)	--	--	33.8
	Nov/Dec 1999	(2)	(2)	--	--	23.8
	Mar/Apr 2000	(2)	(2)	--	--	19.2
	Jul/Aug 2000	--	--	--	--	14.1
	Jan/Feb 2001	--	--	--	--	10

TABLE 3-6

**SUMMARY OF METALS DETECTED DURING THE
LONG-TERM QUARTERLY SAMPLING PROGRAM,
JET PROPULSION LABORATORY**

(concentrations in mg/L)

Values above state or Federal MCLs, or above/equal to action levels, are bold and shaded

Sample Location	Sampling Date	Arsenic	Lead	Total Chromium	Hexavalent Chromium	Field Turbidity (NTUs)
Screen 3	Sep/Oct 1997	--	--	--	--	4.6
	Jan/Feb 1998	0.006	--	--	--	4.7
	Apr/May 1998	--	--	--	--	4.9
	Jul/Aug 1998	--	--	--	--	4.9
	Oct/Nov 1998	--	--	--	--	7.8
	Feb/Mar 1999	0.006	--	0.013	--	34.8
	May/Jun 1999	--	--	--	--	27.2
	Aug 1999	(2)	(2)	--	--	25.2
	Nov/Dec 1999	(2)	(2)	--	--	45.5
	Mar/Apr 2000	(2)	(2)	--	--	18.9
	Jul/Aug 2000	--	--	--	--	6.9
	Jan/Feb 2001	--	--	--	--	10
Screen 4	Sep/Oct 1997	--	--	--	--	4.0
	Jan/Feb 1998	--	--	--	--	4.9
	Apr/May 1998	--	--	--	--	4.3
	Jul/Aug 1998	--	--	--	--	4.8
	Oct/Nov 1998	--	--	--	--	8.3
	Feb/Mar 1999	--	0.003	--	--	6.1
	May/Jun 1999	--	--	--	--	10.0
	Aug 1999	(2)	(2)	--	--	10.5
	Nov/Dec 1999	(2)	(2)	--	--	14.7
	Mar/Apr 2000	(2)	(2)	--	--	9.5
	Jul/Aug 2000	--	--	--	--	4.9
	Jan/Feb 2001	--	--	--	--	10
Screen 5	Sep/Oct 1997	--	--	--	--	4.8
	Jan/Feb 1998	--	--	--	--	4.8
	Apr/May 1998	--	--	--	--	4.0
	Jul/Aug 1998	--	--	--	--	4.0
	Oct/Nov 1998	--	--	--	--	8.0
	Feb/Mar 1999	--	--	--	--	5.7
	May/Jun 1999	--	--	--	--	5.8
	Aug 1999	(2)	(2)	(2)	(2)	(2)
	Nov/Dec 1999	(2)	(2)	--	--	12.0
	Mar/Apr 2000	(2)	(2)	(2)	(2)	(2)
	Jul/Aug 2000	--	--	--	--	16.1
	Jan/Feb 2001	--	--	0.0052 J	--	9
Practical Quantitation Limit		0.005	0.002	0.010	0.005	
Calif. Maximum Contaminant Level		0.05	(9)	0.05	NE	
EPA Maximum Contaminant Level		0.05	(9)	0.10	NE	

--: Not detected.

NS: Not sampled.

NE: Not established.

B: Reported between the practical quantitation limit and the method detection limit.

J: Reported between the practical quantitation limit and the method detection limit.

1: Probable lab error. MW-1 is always upgradient of the site, and Cr contamination is not believed to be present upgradient of the site.

2: Monitoring point not sampled for the particular constituent due to changes in the sampling program as agreed to by the EPA, DTSC, and RWQCB.

TABLE 3-6

**SUMMARY OF METALS DETECTED DURING THE
LONG-TERM QUARTERLY SAMPLING PROGRAM,
JET PROPULSION LABORATORY**

(concentrations in mg/L)

Values above state or Federal MCLs, or above/equal to action levels, are bold and shaded

- 3: Believed to be a laboratory error.
- 4: Result from original analysis; duplicate sample was non-detect.
- 5: Not sampled, no water over screen.
- 6: Not sampled due to mechanical failure.
- 7: Wells installed June-August 1997.
- 8: Turbidity not measured due to equipment failure.
- 9: Treatment technique and public notification triggered at Action Level of 0.015 mg/L.

TABLE 4-1

**SUMMARY OF WATER-CHEMISTRY RESULTS FROM GROUNDWATER SAMPLES
COLLECTED FROM JPL MONITORING WELLS,
JANUARY-FEBRUARY 2001**

(concentrations in mg/L)

Well Number	ANIONS					CATIONS					Measured Alkalinity	Measured pH
	Cl ⁻	CO ₃ ²⁻	HCO ₃ ⁻	NO ₃ -N	SO ₄ ²⁻	Na ⁺	Mg ²⁺	K ⁺	Ca ²⁺	Fe ²⁺		
MW-1	21	--	194	1.2	50	26.6	19.4	2.98	59.6	--	NA	7.25
MW-3												
Screen 1	13	--	172	0.79	33	19.9	16.8	2.71	45.7	1.09	NA	7.34
Screen 2	14	--	159	0.47	33	19.5	18.3	2.64	40.2	0.33	NA	7.67
Screen 3	20	--	155	--	35	41.2	14.4	3.04	28.5	0.22	NA	7.69
Screen 4	11	--	150	0.2	12	47.5	8.33	1.96	19.4	0.27	NA	8.09
Screen 5	10	--	93	--	6.9	74.8	0.554	1.13	2.64	1.64	NA	9.17
MW-4												
Screen 1	10.2	--	141	0.78	38	20.3	13.7	2.33	41.7	0.76	NA	7.21
Screen 2	76	--	194	5.8	82	35.7	29.7	2.74	82.3	1.02	NA	7.39
Screen 3	29	--	179	--	5	30.8	14.9	1.84	40.2	36.1	NA	6.70
Screen 4	22	--	194	--	--	39.4	12.4	1.98	37.1	7.04	NA	7.36
Screen 5	9.5	--	144	--	15	34.1	8.31	1.78	23.1	1.55	NA	7.89
MW-5	21	--	144	3.2	39	18.1	15.4	3.09	46.5	--	NA	6.69
MW-6	101	--	219	8.9	130	30.9	40.5	2.48	119	0.19	NA	6.81
MW-7	NOT SAMPLED - PILOT TEST											
MW-8	12	--	147	1.4	30	16.4	15	2.6	45.1	2.08	NA	6.68
MW-9	21	--	192	1	46	24.6	19.3	3.41	62.7	1	NA	6.83
MW-10	114	--	192	23	170	35.1	47.8	3.78	138	0.11	NA	6.55
MW-11												
Screen 1	20.2	--	203	1	46	25.5	18.8	2.89	58.1	0.1	NA	7.31
Screen 2	16	--	166	--	37	22.9	17.1	2.63	40.5	0.39	NA	7.54
Screen 3	13	--	161	--	23	24.2	13	1.89	38.8	0.87	NA	7.89
Screen 4	11	--	131	--	4.2	25.4	10.6	1.9	18.9	0.12	NA	8.22
Screen 5	12	--	117	--	19	47.7	1.99	1.16	20.9	0.31	NA	7.8
MW-12												
Screen 1	10.8	--	159	0.5	40	21.5	18.2	2.81	41.2	3.25	NA	7.79
Screen 2	16	--	190	1.4	41	24.7	19.1	2.99	44.8	0.15	NA	7.92
Screen 3	16.4	--	199	0.64	39	22	16.8	2.55	53.7	0.15	NA	7.87
Screen 4	15	--	190	1.1	32	22.6	14.1	2.04	55.3	0.21	NA	7.78
Screen 5	15	--	168	1.3	15	35	9.85	1.95	35	0.13	NA	7.91
Screen 5D	15	--	168	1.3	16	36.3	10.2	2.08	36.6	0.13	NA	7.96
MW-13	53	--	148	6.2	65	26.6	22	2.7	64.1	0.08	NA	6.68

TABLE 4-1

**SUMMARY OF WATER-CHEMISTRY RESULTS FROM GROUNDWATER SAMPLES
COLLECTED FROM JPL MONITORING WELLS,
JANUARY-FEBRUARY 2001**

(concentrations in mg/L)

Well Number	ANIONS					CATIONS					Measured Alkalinity	Measured pH
	Cl ⁻	CO ₃ ²⁻	HCO ₃ ⁻	NO ₃ -N	SO ₄ ²⁻	Na ⁺	Mg ²⁺	K ⁺	Ca ²⁺	Fe ²⁺		
MW-14												
Screen 1	130	--	201	18	190	49.2	47.2	2.97	149	0.29	NA	6.74
Screen 2	114	--	216	14	180	34.5	46.3	2.67	139	0.49	NA	7.25
Screen 3	99	--	212	13	130	40	41.5	3	110	0.09	NA	7.62
Screen 4	42	--	159	10.6	34	29.3	19.3	2.03	58.8	0.11	NA	7.71
Screen 5	9.4	8.8	133	0.2	16	32	12.3	1.92	17.5	0.57	NA	8.41
MW-15	25	--	201	1.2	54	28.5	21.5	3.17	63.2	--	NA	7.27
MW-16	32	--	130	4.8	27	23.4	17	2.24	44.4	--	NA	6.80
MW-17												
Screen 1	9.72	--	146	0.81	37	12	12	1.74	35.2	0.14	NA	6.87
Screen 2	6.8	--	133	0.57	22	14.7	14.8	2.34	28.3	0.24	NA	7.97
Screen 3	10	--	157	0.93	32	19.4	18.2	2.03	38.9	0.65	NA	7.90
Screen 4	10	--	166	1.3	30	30.2	12.3	1.62	43.1	0.37	NA	7.65
Screen 5	11	--	170	1.4	30	30.3	12.8	1.87	41.9	2.58	NA	7.90
MW-18												
Screen 1												
Screen 2	13	--	168	1.1	38	18.9	15.7	2.18	50	0.08	NA	6.98
Screen 3	15	--	183	0.96	39	21.2	17.1	2.44	55.9	0.06	NA	7.10
Screen 4	11	--	139	0.81	22	36.2	6.71	2.19	23.3	0.24	NA	8.28
Screen 5	10	13	113	--	4.9	52.9	4.75	1.5	8.27	0.48	NA	8.70
MW-19												
Screen 1	18.8	--	163	0.64	29	14.8	15	2.25	47.1	2.31	NA	7.49
Screen 2	25	--	174	3.8	48	16	20.3	1.66	57.3	2.27	NA	6.84
Screen 3	105	--	256	8.7	110	33.3	41.7	3.01	121	2.89	NA	7.35
Screen 4	15	--	144	1.5	33	22.5	17.1	1.73	31.2	0.16	NA	8.18
Screen 5	65	--	197	5.8	59	32.6	28.7	2.54	72.7	0.35	NA	7.83
MW-20												
Screen 1	47	--	161	9.9	122	21.7	28.7	3.25	90.3	0.073	NA	7.36
Screen 2	12	--	157	2	31	14.2	16.5	1.74	44.5	--	NA	7.43
Screen 3	33	--	188	0.92	28	59.9	13.8	2.48	29.9	0.0921	NA	7.75
Screen 4	11	13	117	--	19	60	3.32	1.12	10.9	0.403	NA	8.54
Screen 5	10.1	49	120	--	21	81.4	1.3	1.61	6.49	0.05	NA	9.07
Screen 4D	10.7	8.8	122	--	20	57.6	3.22	1.09	10.9	0.2	NA	8.35

TABLE 4-1

**SUMMARY OF WATER-CHEMISTRY RESULTS FROM GROUNDWATER SAMPLES
COLLECTED FROM JPL MONITORING WELLS,
JANUARY-FEBRUARY 2001**

(concentrations in mg/L)

Well Number	ANIONS					CATIONS					Measured Alkalinity	Measured pH
	Cl ⁻	CO ₃ ²⁻	HCO ₃ ⁻	NO ₃ -N	SO ₄ ²⁻	Na ⁺	Mg ²⁺	K ⁺	Ca ²⁺	Fe ²⁺		
MW-21												
Screen 1	59	--	147	8.5	120	29.6	24.6	1.91	85.4	0.06	NA	6.30
Screen 2	160	--	268	7.7	160	63.5	44.6	3.4	138	0.11	NA	6.69
Screen 3	101	--	257	9.0	100	39.5	36.1	2.95	118	0.07	NA	7.10
Screen 4	52	--	191	7.3	52	27.1	23	2.09	73.4	0.12	NA	7.12
Screen 5	67	--	205	8.0	90	35.2	31.2	2.72	95.4	0.93	NA	7.25
MW-22												
Screen 1	134	--	245	12	190	36.4	49.1	3.08	151	0.782	NA	7.00
Screen 2	45	--	177	7.02	39	31.8	20.8	2.11	59.3	0.113	NA	7.83
Screen 3	32	--	144	8.14	23	34.3	13.7	1.89	44.6	0.52	NA	7.88
Screen 4	14	--	137	4.72	7.8	27.7	9.54	1.52	33	0.302	NA	7.72
Screen 5	8.7	22	95	--	37	72.7	2.42	1.31	14	2.73	NA	8.69
MW-23												
Screen 1	118	--	272	13	190	36.8	49.2	3.14	156	2.45	NA	6.91
Screen 2	104	--	210	13	150	36	39.4	2.87	117	0.33	NA	8.05
Screen 3	28	--	137	9.19	18	27.6	14.2	1.73	45.1	0.803	NA	7.39
Screen 4	16	--	139	5.97	7.3	29	10.9	1.76	28.3	0.196	NA	8.09
Screen 5	14	--	212	--	11	114	0.474	2.7	5.07	0.218	NA	9.4
MW-24												
Screen 1	22	--	161	6.05	37	18.1	18	2.41	49.8	0.167	NA	7.87
Screen 2	43	--	139	1.7	28	40.8	19.6	2.96	25.6	0.274	NA	8.35
Screen 3	16.3	2	138	0.94	12	41	12.4	2.25	15.7	0.330	NA	8.59
Screen 4	13	18	99	0.58	6.4	44.3	8.72	2.25	8.08	0.225	NA	8.89
Screen 5	9.5	--	159	1.10	19	39.1	9.14	1.86	29.2	0.587	NA	7.84
Detection Limit	1	2	2	0.04	0.5	2	0.1	0.4	0.2	0.05		0.01

TABLE 4-2
GENERAL WATER TYPES OBSERVED DURING THE
JANUARY-FEBRUARY 2001 SAMPLING EVENT
 (Interpreted with Stiff Diagrams)

Well/Screen Number	Water Type ¹	Well/Screen Number	Water Type	Well/Screen Number	Water Type
MW-1	Type 1	MW-14		MW-21	
MW-3		Screen 1	Type 3	Screen 1	Type 3,1
Screen 1	Type 1	Screen 2	Type 3	Screen 2	Type 3
Screen 2	Type 1	Screen 3	Type 3,1	Screen 3	Type 3
Screen 3	Type 2	Screen 4	Type 1,2	Screen 4	Type 3,1
Screen 4	Type 2	Screen 5	Type 2	Screen 5	Type 3,1
Screen 5	Type 2	MW-15	Type 1	MW-22	
MW-4		MW-16	Type 1	Screen 1	Type 3
Screen 1	Type 1	MW-17		Screen 2	Type 1,3
Screen 2	Type 1,3	Screen 1	Type 1	Screen 3	Type 1,2,3
Screen 3	Type 1	Screen 2	Type 1	Screen 4	Type 1,2
Screen 4	Type 2,1	Screen 3	Type 1	Screen 5	Type 2
Screen 5	Type 2	Screen 4	Type 1,2	MW-23	
MW-5	Type 1	Screen 5	Type 1,2	Screen 1	Type 3
MW-6	Type 1,3	MW-18		Screen 2	Type 3
MW-7	Not Sampled	Screen 1	Type 1	Screen 3	Type 1,2,3
MW-8	Type 1	Screen 2	Type 1	Screen 4	Type 1,2
MW-9	Type 1	Screen 3	Type 1	Screen 5	Type 2
MW-10	Type 1,3	Screen 4	Type 2	MW-24	
MW-11		Screen 5	Type 2	Screen 1	Type 1
Screen 1	Type 1	MW-19		Screen 2	Type 2
Screen 2	Type 1	Screen 1	Type 1	Screen 3	Type 2
Screen 3	Type 1	Screen 2	Type 1	Screen 4	Type 2
Screen 4	Type 2	Screen 3	Type 3	Screen 5	Type 2
Screen 5	Type 2	Screen 4	Type 1		
MW-12		Screen 5	Type 1,3		
Screen 1	Type 1	MW-20			
Screen 2	Type 1	Screen 1	Type 1,3		
Screen 3	Type 1	Screen 2	Type 1		
Screen 4	Type 1	Screen 3	Type 2,1		
Screen 5	Type 1,2	Screen 4	Type 2		
MW-13	Type 1	Screen 5	Type 2		

1: General Water Types:

Type 1: Calciumbicarbonate groundwater

Type 2: Sodiumbicarbonate groundwater

Type 3: Calciumbicarbonate/chloride/sulfate groundwater

Note: Water type denoted by more than one number (e.g., Type 1,3) represent blends of the listed basic types, with the more dominant type listed first.

TABLE 4-3

**SUMMARY OF QUALITY CONTROL ANALYSIS OF WATER-CHEMISTRY DATA FROM
GROUNDWATER SAMPLES COLLECTED FROM JPL MONITORING WELLS,
JANUARY-FEBRUARY 2001**

(Ion concentrations reported in meq/L, TDS concentrations in mg/L)

Well Number	Total Anion	Total Cations	Total Ions	Charge Balance Error ¹	Measured TDS	Calculated TDS	Measured TDS/Calculated TDS ²
MW-1	4.9	5.8	10.7	8.7	316	276	1.1
MW-3							
Screen 1	3.9	4.6	8.6	8.4	264	218	1.2
Screen 2	3.7	4.4	8.1	9.0	265	207	1.3
Screen 3	3.8	4.5	8.3	8.0	275	219	1.3
Screen 4	3.0	3.8	6.8	11.0	249	174	1.4
Screen 5	1.9	3.5	5.5	28.8	224	143	1.6
MW-4							
Screen 1	3.4	4.2	7.6	9.8	249	197	1.3
Screen 2	7.4	8.2	15.6	5.1	514	411	1.3
Screen 3	3.9	5.9	9.8	21.1	284	246	1.2
Screen 4	3.8	4.9	8.7	12.5	243	215	1.1
Screen 5	2.9	3.4	6.4	7.7	200	164	1.2
MW-5	4.0	4.5	8.4	5.7	261	214	1.2
MW-6	9.7	10.7	20.4	4.7	627	541	1.2
MW-7	Not Sampled (pilot test)						
MW-8	3.5	4.3	7.8	11.3	240	197	1.2
MW-9	4.7	5.9	10.7	10.9	309	273	1.1
MW-10	11.5	12.4	23.9	4.1	846	626	1.4
MW-11							
Screen 1	4.9	5.6	10.5	6.9	332	272	1.2
Screen 2	3.9	4.5	8.4	6.9	266	218	1.2
Screen 3	3.5	4.1	7.6	8.7	266	194	1.4
Screen 4	2.5	3.0	5.5	7.8	190	137	1.4
Screen 5	2.6	3.3	6.0	11.4	205	161	1.3
MW-12							
Screen 1	3.8	4.7	8.4	10.8	241	216	1.1
Screen 2	4.5	5.0	9.5	4.9	265	244	1.1
Screen 3	4.6	5.1	9.7	5.4	280	249	1.1
Screen 4	4.3	5.0	9.2	7.5	271	236	1.1
Screen 5	3.6	4.1	7.7	7.2	238	196	1.2
Screen 5D	3.6	4.3				200	

TABLE 4-3

**SUMMARY OF QUALITY CONTROL ANALYSIS OF WATER-CHEMISTRY DATA FROM
GROUNDWATER SAMPLES COLLECTED FROM JPL MONITORING WELLS,
JANUARY-FEBRUARY 2001**

(Ion concentrations reported in meq/L, TDS concentrations in mg/L)

Well Number	Total Anion	Total Cations	Total Ions	Charge Balance Error ¹	Measured TDS	Calculated TDS	Measured TDS/ Calculated TDS ²
MW-13	5.7	6.2	11.9	4.6	382	312	1.2
MW-14							
Screen 1	12.1	13.5	25.7	5.6	754	685	1.1
Screen 2	11.4	12.3	23.8	3.8	714	637	1.1
Screen 3	9.8	10.7	20.6	4.3	589	541	1.1
Screen 4	5.2	5.9	11.1	5.5	321	274	1.2
Screen 5	3.0	3.3	6.4	4.9	150	164	0.9
MW-15	5.2	6.2	11.4	9.2	345	295	1.2
MW-16	3.9	4.7	8.6	8.9	257	215	1.2
MW-17							
Screen 1	3.5	3.3	6.8	2.4	251	180	1.4
Screen 2	2.9	3.3	6.2	7.7	200	155	1.3
Screen 3	3.6	4.4	7.9	9.9	258	199	1.3
Screen 4	3.7	4.5	8.2	10.0	267	211	1.3
Screen 5	3.8	4.6	8.4	9.4	284	215	1.3
MW-18							
Screen 1	Not Sampled (dry)						
Screen 2	4.0	4.7	8.6	8.0	244	222	1.1
Screen 3	4.3	5.2	9.5	9.5	313	242	1.3
Screen 4	3.1	3.4	6.4	4.0	232	171	1.4
Screen 5	2.6	3.2	5.8	9.7	190	138	1.4
MW-19							
Screen 1	3.8	4.4	8.2	6.4	259	210	1.2
Screen 2	4.8	5.3	10.2	5.3	359	260	1.4
Screen 3	10.0	11.1	21.1	5.1	706	551	1.3
Screen 4	3.6	4.0	7.6	5.7	243	193	1.3
Screen 5	6.7	7.5	14.2	5.7	478	364	1.3
MW-20							
Screen 1	7.2	7.9	15.1	4.9	542	402	1.3
Screen 2	3.7	4.2	7.9	7.0	233	199	1.2
Screen 3	4.6	5.3	9.9	6.5	295	261	1.1
Screen 4	3.0	3.5	6.5	7.6	200	176	1.1

TABLE 4-3

**SUMMARY OF QUALITY CONTROL ANALYSIS OF WATER-CHEMISTRY DATA FROM
GROUNDWATER SAMPLES COLLECTED FROM JPL MONITORING WELLS,
JANUARY-FEBRUARY 2001**

(Ion concentrations reported in meq/L, TDS concentrations in mg/L)

Well Number	Total Anion	Total Cations	Total Ions	Charge Balance Error ¹	Measured TDS	Calculated TDS	Measured TDS/ Calculated TDS ²
Screen 5	4.1	4.0	8.1	0.6	240	230	1.0
Screen 5D	3.0	3.3	6.3	6.2	240	172	1.4
MW-21							
Screen 1	7.1	7.6	14.8	3.4	534	401	1.3
Screen 2	12.7	13.4	26.1	2.7	844	709	1.2
Screen 3	9.7	10.7	20.4	4.5	726	533	1.4
Screen 4	6.2	6.8	13.0	4.7	424	331	1.3
Screen 5	7.7	9.0	16.6	7.9	575	431	1.3
MW-22							
Screen 1	12.5	13.3	25.8	2.9	887	697	1.3
Screen 2	5.5	6.1	11.6	5.6	397	292	1.4
Screen 3	4.3	4.9	9.2	6.5	308	229	1.3
Screen 4	3.1	3.7	6.8	8.1	218	166	1.3
Screen 5	3.2	4.2	7.4	13.8	240	186	1.3
MW-23							
Screen 1	12.6	13.6	26.2	3.9	898	702	1.3
Screen 2	10.4	10.7	21.1	1.8	712	566	1.3
Screen 3	4.1	4.7	8.8	7.2	280	212	1.3
Screen 4	3.3	3.6	6.9	4.6	217	168	1.3
Screen 5	4.1	5.3	9.4	13.1	294	252	1.2
MW-24							
Screen 1	4.4	4.8	9.3	4.0	298	233	1.3
Screen 2	4.2	4.8	8.9	6.4	290	230	1.3
Screen 3	3.1	3.7	6.7	8.4	220	171	1.3
Screen 4	2.7	3.1	5.8	7.7	170	150	1.1
Screen 5	3.3	4.0	7.3	8.7	246	188	1.3

Notes:

- 1: Expressed in percent - Ideal error range between 0 and 5 percent. Values between 5 and 10 percent considered acceptable for intended use.
- 2: Ideal values range between 0.8 and 1.2.

TABLE 5-1
GROUNDWATER MONITORING WELL WATER LEVEL MEASUREMENTS
DECEMBER 28-29, 2000

Well Number	Screen Number	Date Measured	Depth to Water (ft.)	Reference Elevation (ft. +MSL)	Water Level Elevation (ft. +MSL)
MW-1		12/29/00	30.74	1116.69	1085.95
MW-3	1 (top)	12/28/00	135.14	1100.34	965.20
	2	12/28/00	139.41	1100.34	960.93
	3	12/28/00	141.22	1100.34	959.12
	4	12/28/00	202.50	1100.34	897.84
	5	12/28/00	229.56	1100.34	870.78
MW-4	1 (top)	12/28/00	114.00	1082.84	968.84
	2	12/28/00	118.77	1082.84	964.07
	3	12/28/00	119.93	1082.84	962.91
	4	12/28/00	126.74	1082.84	956.10
	5	12/28/00	187.87	1082.84	894.97
MW-5		12/29/00	102.98	1071.62	968.64
MW-6		12/29/00	203.37	1188.54	985.17
MW-7		Not measured (pilot test)			
MW-8		12/29/00	168.78	1139.55	970.77
MW-9		12/29/00	25.45	1106.06	1080.61
MW-10		12/29/00	116.54	1087.73	971.19
MW-11	1 (top)	12/28/00	126.22	1139.30	1013.08
	2	12/28/00	164.27	1139.30	975.03
	3	12/28/00	175.53	1139.30	963.77
	4	12/28/00	180.80	1139.30	958.50
	5	12/28/00	231.65	1139.30	907.65
MW-12	1 (top)	12/28/00	128.15	1102.14	973.99
	2	12/28/00	136.36	1102.14	965.78
	3	12/28/00	137.98	1102.14	964.16
	4	12/28/00	147.13	1102.14	955.01
	5	12/28/00	196.71	1102.14	905.43
MW-13		12/29/00	210.57	1183.49	972.92
MW-14	1 (top)	12/28/00	185.48	1173.47	987.99
	2	12/28/00	185.65	1173.47	987.82
	3	12/28/00	185.13	1173.47	988.34
	4	12/28/00	185.08	1173.47	988.39
	5	12/28/00	185.34	1173.47	988.13
MW-15		12/29/00	36.98	1120.68	1083.70
MW-16		12/29/00	264.26	1236.29	972.03
MW-17	1 (top)	12/28/00	234.74	1191.21	956.47
	2	12/28/00	235.46	1191.21	955.75
	3	12/28/00	241.31	1191.21	949.90
	4	12/28/00	285.16	1191.21	906.05
	5	12/28/00	294.75	1191.21	896.46

TABLE 5-1
GROUNDWATER MONITORING WELL WATER LEVEL MEASUREMENTS
DECEMBER 28-29, 2000

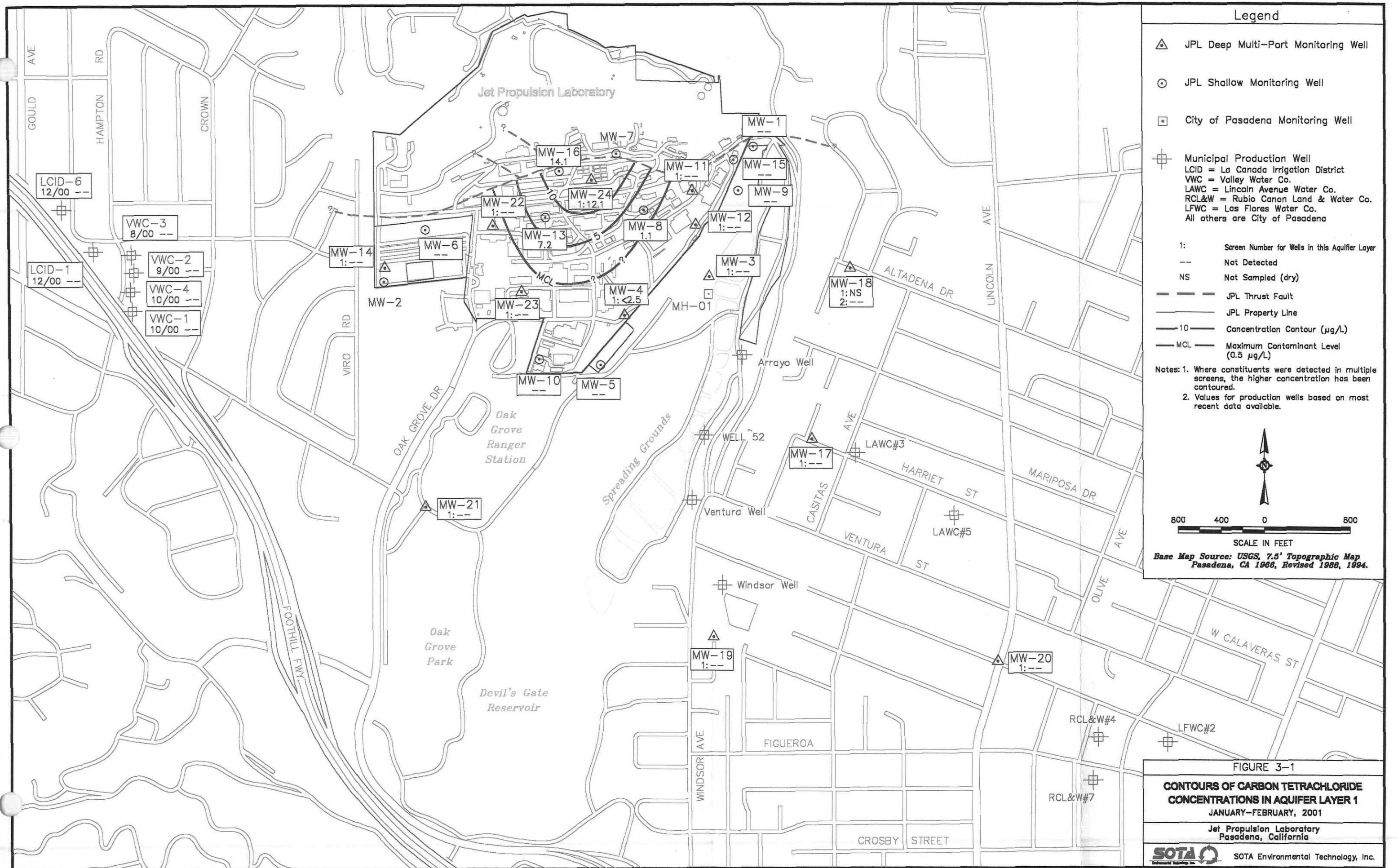
Well Number	Screen Number	Date Measured	Depth to Water (ft.)	Reference Elevation (ft. +MSL)	Water Level Elevation (ft. +MSL)
MW-18	1 (top)	12/28/00	269.72	1225.41	955.69
	2	12/28/00	269.84	1225.41	955.57
	3	12/28/00	269.50	1225.41	955.91
	4	12/28/00	290.47	1225.41	934.94
	5	12/28/00	302.72	1225.41	922.69
MW-19	1 (top)	12/28/00	185.73	1142.94	957.21
	2	12/28/00	191.19	1142.94	951.75
	3	12/28/00	194.48	1142.94	948.46
	4	12/28/00	282.76	1142.94	860.18
	5	12/28/00	287.01	1142.94	855.93
MW-20	1 (top)	12/28/00	226.66	1165.05	938.39
	2	12/28/00	214.36	1165.05	950.69
	3	12/28/00	221.42	1165.05	943.63
	4	12/28/00	235.96	1165.05	929.09
	5	12/28/00	215.77	1165.05	949.28
MW-21	1 (top)	12/28/00	80.73	1059.10	978.37
	2	12/28/00	79.42	1059.10	979.68
	3	12/28/00	3.95	1059.10	1055.15
	4	12/28/00	80.33	1059.10	978.77
	5	12/28/00	80.40	1059.10	978.70
MW-22	1 (top)	12/28/00	200.40	1176.98	976.58
	2	12/28/00	198.79	1176.98	978.19
	3	12/28/00	198.33	1176.98	978.65
	4	12/28/00	213.04	1176.98	963.94
	5	12/28/00	222.79	1176.98	954.19
MW-23	1 (top)	12/28/00	135.02	1108.84	973.82
	2	12/28/00	136.22	1108.84	972.62
	3	12/28/00	136.06	1108.84	972.78
	4	12/28/00	153.55	1108.84	955.29
	5	12/28/00	154.08	1108.84	954.76
MW-24	1 (top)	12/28/00	229.21	1200.94	971.73
	2	12/28/00	230.60	1200.94	970.34
	3	12/28/00	231.50	1200.94	969.44
	4	12/28/00	250.70	1200.94	950.24
	5	12/28/00	269.57	1200.94	931.37

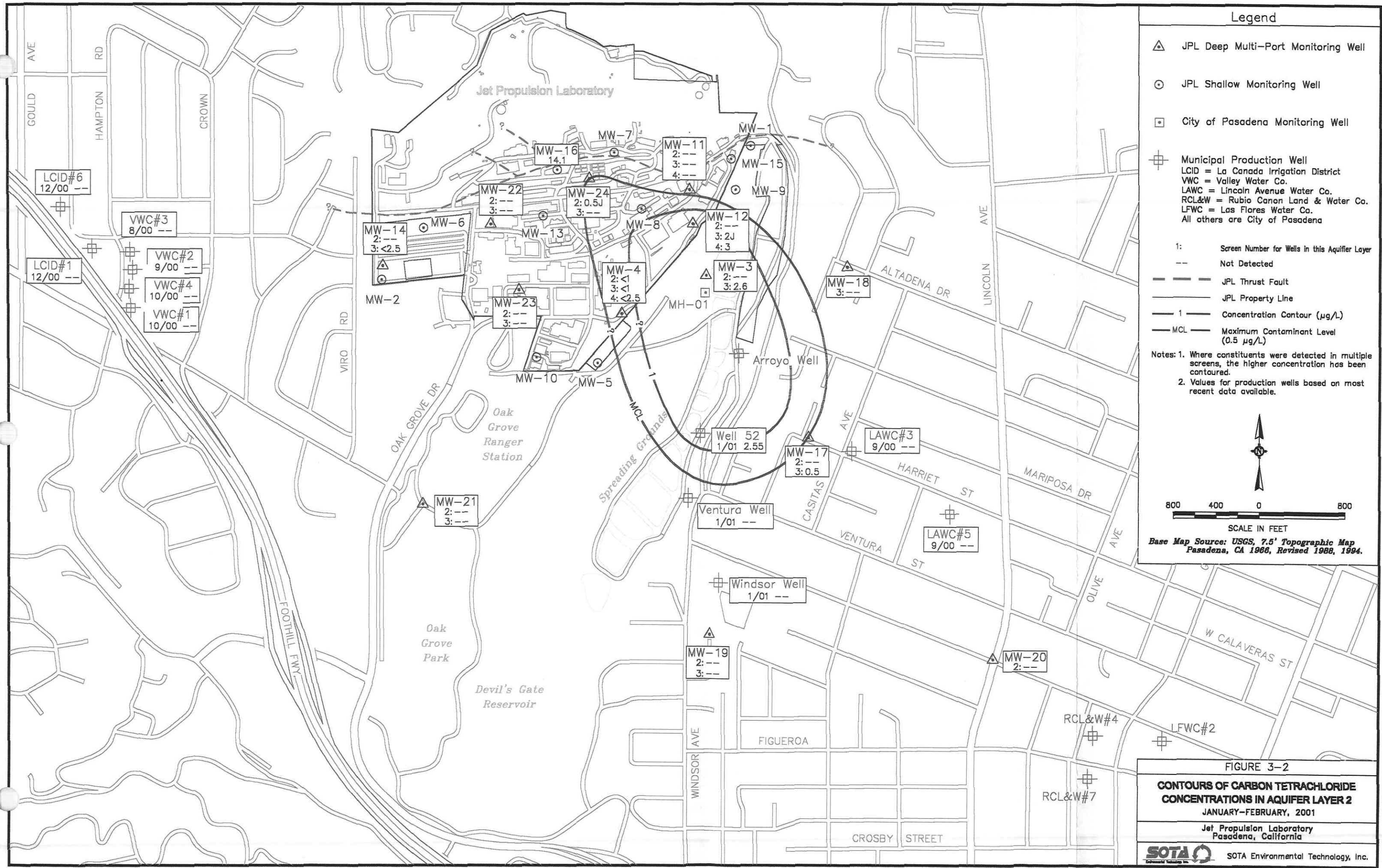
TABLE 5-2
GROUNDWATER MONITORING WELL WATER LEVEL MEASUREMENTS
JANUARY 30-31, 2001

Well Number	Screen Number	Date Measured	Depth to Water (ft.)	Reference Elevation (ft. +MSL)	Water Level Elevation (ft. +MSL)
MW-1		1/30/01	24.09	1116.69	1092.60
MW-3	1 (top)	1/31/01	121.88	1100.34	978.46
	2	1/31/01	132.01	1100.34	968.33
	3	1/31/01	124.41	1100.34	975.93
	4	1/31/01	128.67	1100.34	971.67
	5	1/31/01	131.24	1100.34	969.10
MW-4	1 (top)	1/31/01	102.01	1082.84	980.83
	2	1/31/01	104.85	1082.84	977.99
	3	1/31/01	104.55	1082.84	978.29
	4	1/31/01	104.83	1082.84	978.01
	5	1/31/01	110.79	1082.84	972.05
MW-5		1/31/01	94.05	1071.62	977.57
MW-6		1/30/01	197.02	1188.54	991.52
MW-7		Not measured - pilot test			
MW-8		1/30/01	159.15	1139.55	980.40
MW-9		1/30/01	19.68	1106.06	1086.38
MW-10		1/31/01	108.91	1087.73	978.82
MW-11	1 (top)	1/31/01	123.01	1139.30	1016.29
	2	1/31/01	153.09	1139.30	986.21
	3	1/31/01	157.25	1139.30	982.05
	4	1/31/01	153.30	1139.30	986.00
	5	1/31/01	169.43	1139.30	969.87
MW-12	1 (top)	1/31/01	115.21	1102.14	986.93
	2	1/31/01	123.39	1102.14	978.75
	3	1/31/01	123.58	1102.14	978.56
	4	1/31/01	123.21	1102.14	978.93
	5	1/31/01	128.61	1102.14	973.53
MW-13		1/31/01	203.87	1183.49	979.62
MW-14	1 (top)	1/31/01	179.58	1173.47	993.89
	2	1/31/01	179.68	1173.47	993.79
	3	1/31/01	179.17	1173.47	994.30
	4	1/31/01	178.94	1173.47	994.53
	5	1/31/01	178.68	1173.47	994.79
MW-15		1/30/01	30.2	1120.68	1090.48
MW-16		1/31/01	257.64	1236.29	978.65
MW-17	1 (top)	1/31/01	248.05	1191.21	943.16
	2	1/31/01	222.85	1191.21	968.36
	3	1/31/01	225.47	1191.21	965.74
	4	1/31/01	222.84	1191.21	968.37
	5	1/31/01	225.11	1191.21	966.10

TABLE 5-2
GROUNDWATER MONITORING WELL WATER LEVEL MEASUREMENTS
JANUARY 30-31, 2001

Well Number	Screen Number	Date Measured	Depth to Water (ft.)	Reference Elevation (ft. +MSL)	Water Level Elevation (ft. +MSL)
MW-18	1 (top)	1/31/01	264.32	1225.41	961.09
	2	1/31/01	262.32	1225.41	963.09
	3	1/31/01	257.10	1225.41	968.31
	4	1/31/01	259.15	1225.41	966.26
	5	1/31/01	262.01	1225.41	963.40
MW-19	1 (top)	1/31/01	177.00	1142.94	965.94
	2	1/31/01	174.82	1142.94	968.12
	3	1/31/01	173.58	1142.94	969.36
	4	1/31/01	174.16	1142.94	968.78
	5	1/31/01	174.23	1142.94	968.71
MW-20	1 (top)	1/31/01	227.56	1165.05	937.49
	2	1/31/01	209.05	1165.05	956.00
	3	1/31/01	206.75	1165.05	958.30
	4	1/31/01	207.22	1165.05	957.83
	5	1/31/01	207.15	1165.05	957.90
MW-21	1 (top)	1/31/01	74.82	1059.10	984.28
	2	1/31/01	72.61	1059.10	986.49
	3	1/31/01	72.31	1059.10	986.79
	4	1/31/01	73.15	1059.10	985.95
	5	1/31/01	73.21	1059.10	985.89
MW-22	1 (top)	1/31/01	192.62	1176.98	984.36
	2	1/31/01	189.03	1176.98	987.95
	3	1/31/01	188.72	1176.98	988.26
	4	1/31/01	191.60	1176.98	985.38
	5	1/31/01	194.54	1176.98	982.44
MW-23	1 (top)	1/31/01	126.58	1108.84	982.26
	2	1/31/01	125.22	1108.84	983.62
	3	1/31/01	124.78	1108.84	984.06
	4	1/31/01	127.21	1108.84	981.63
	5	1/31/01	127.53	1108.84	981.31
MW-24	1 (top)	1/31/01	220.22	1200.94	980.72
	2	1/31/01	307.30	1200.94	893.64
	3	1/31/01	218.51	1200.94	982.43
	4	1/31/01	220.52	1200.94	980.42
	5	1/31/01	223.56	1200.94	977.38



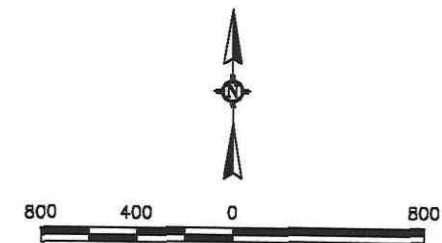


Legend

- △ JPL Deep Multi-Port Monitoring Well
- JPL Shallow Monitoring Well
- City of Pasadena Monitoring Well
- ⊕ Municipal Production Well
LCID = La Canada Irrigation District
VWC = Valley Water Co.
LAWC = Lincoln Avenue Water Co.
RCL&W = Rubio Canon Land & Water Co.
LFWC = Las Flores Water Co.
All others are City of Pasadena

- 1: Screen Number for Wells in this Aquifer Layer
- Not Detected
- JPL Thrust Fault
- JPL Property Line
- 1 --- Concentration Contour (µg/L)
- MCL --- Maximum Contaminant Level (0.5 µg/L)

Notes: 1. Where constituents were detected in multiple screens, the higher concentration has been contoured.
2. Values for production wells based on most recent data available.



Base Map Source: USGS, 7.5' Topographic Map Pasadena, CA 1966, Revised 1988, 1994.

FIGURE 3-2

CONTOURS OF CARBON TETRACHLORIDE CONCENTRATIONS IN AQUIFER LAYER 2
JANUARY-FEBRUARY, 2001

Jet Propulsion Laboratory
Pasadena, California



SOTA Environmental Technology, Inc.

