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FOSTER WHEELER ENVIRONMENTAL CORPORATION

REPORT

QUARTERLY GROUNDWATER MONITORING RESULTS, MARCH–APRIL 2000

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

JET PROPULSION LABORATORY

4800 Oak Grove Drive

Pasadena, California 91109

July 2000

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AT THE

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EXECUTIVE SUMMARY

Presented in this report are the results of the fourteenth quarterly groundwater sampling event (March-April 2000) completed as part of a long-term quarterly groundwater monitoring program at the NASA-Jet Propulsion Laboratory (JPL). This sampling event was conducted from March 6 through April 3, 2000.

During this event, groundwater samples were collected from JPL monitoring wells (both on- and off-site) and analyzed for volatile organic compounds (VOCs), total chromium (Cr), hexavalent chromium [Cr(VI)], and perchlorate (ClO_4^-).

Results indicate that only three VOCs (carbon tetrachloride, trichloroethene, and tetrachloroethene) were detected at concentrations above state or Federal Maximum Contaminant Levels (MCLs) for drinking water. In addition, perchlorate was detected at concentrations exceeding the state Interim Action Level (IAL) of 18 μg/L. Hexavalent chromium was found in two wells. To date, an MCL has not been established for hexavalent chromium. Total chromium was detected in four wells. The concentration in one well exceeded the state (0.050 mg/L), but not the Federal MCL (0.100 mg/L). A summary of the sampling procedures is included in Section 2.0, and analytical results are presented in Section 3.0.

In the past, general groundwater parameters (major cations/anions) were monitored quarterly to determine general groundwater types and distribution beneath and adjacent to JPL. However, because groundwater chemistry beneath JPL is now well understood, major cation/anion analysis was not conducted during this event, but will be conducted annually.

Water-level elevations were measured before and after sampling activities to determine groundwater gradients and flow directions present during sampling. Water-level measurements are presented in Section 4.0. Groundwater flow was observed to be primarily to the south and east across JPL, with a zone of depression in the water table around the nearby operating City of Pasadena municipal production wells.

1.0 INTRODUCTION

This report summarizes the results from the fourteenth groundwater sampling event completed as part of the Long-Term Quarterly Monitoring Program currently being conducted at the NASA-Jet Propulsion Laboratory (JPL). The Long-Term Quarterly Monitoring Program was initiated in 1996 in response to a request from the United States Environmental Protection Agency (EPA). The program began during the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Remedial Investigation for 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 March 9 to March 31, 2000, Foster Wheeler Environmental Corporation (Foster Wheeler) personnel collected samples from on- and off-site JPL monitoring wells. In addition, the water-level elevation at each well was measured prior to (March 6 & 8, 2000), and after (April 3, 2000) 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-7, 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. Monitoring well MW-2 was not sampled since it was replaced with well MW-14 (Figure 1-1) as a JPL sampling point. A summary of the well construction details for the JPL groundwater monitoring wells is included in Table 1-1.

Based on the approved Long-Term Quarterly Monitoring Program Plan (Foster Wheeler, 1996) and on results from the first two years of monitoring at JPL, the monitoring program was revised to improve monitoring efficiency. Following regulatory agency approval [U.S. Environmental Protection Agency (EPA), California Department of Toxic Substances Control (DTSC), and the Regional Water Quality Control Board (RWQCB)], the changes were first implemented during the August, 1999 Monitoring Event (Foster Wheeler, 1999a). Basically, the changes are specific to each event, and involve less frequent sampling of wells/screens (monitoring points) in which various JPL constituents of interest are not present. In addition, general groundwater parameters (major anions and cations), which had been monitored quarterly in the past to delineate groundwater types beneath the site, are now monitored annually. The changes are discussed in detail in the second and third Long-Term Quarterly Monitoring Program Annual Reports (Foster Wheeler, 1999b and 2000).

In accordance with these changes, the March-April 2000 event involved sampling of selected JPL monitoring points determined to be required to adequately monitor the JPL constituents of interest [volatile organic compounds (VOCs), total chromium (Cr), hexavalent chromium [Cr(VI)], and perchlorate (ClO_4^-)]. A summary of monitoring points sampled and analyses performed is presented in Table 1-2.

All groundwater samples were taken to Montgomery Watson Laboratories in Pasadena, California, for chemical analysis. Montgomery Watson Laboratories is certified by the California Department of Health Services (CADHS).

In addition to groundwater samples, field quality assurance/quality control (QA/QC) samples, including trip blanks, equipment blanks, duplicate samples, and a field blank were collected for laboratory analysis. Sampling records for each shallow well are included in Appendix A, and sampling records and piezometric pressure profiling records for each deep multi-port well are included in Appendix B. Field instrument calibration forms are included in Appendix C, and laboratory analytical reports and associated chain-of-custody forms are included in Appendix D.

2.0 SAMPLING AND FIELD QUALITY ASSURANCE/ QUALITY CONTROL 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 the shallow JPL monitoring wells sampled during this event. This includes monitoring wells MW-5, MW-6, MW-7, MW-8, MW-10, MW-13, and MW-16.

The primary equipment used to sample the shallow wells included dedicated 2-inch Grundfos Redi-Flo2® pumps, a pump controller, and a 220-volt generator. All of the dedicated 2-inch Grundfos Redi-Flo2® pump systems were decontaminated prior to their installation before the beginning of the long-term quarterly monitoring program. Details of the decontamination procedures for the Grundfos Redi-Flo2® pump systems are outlined in a previous document (Ebasco, 1993a).

Prior to sample collection, the water in each shallow well casing was purged (by pumping) 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 disposal by JPL personnel pursuant to EPA guidance (EPA, 1991 and 1992).

Temperature, pH, electrical conductivity, and turbidity of the water removed from each well were monitored during purging. After these parameters had stabilized (when two successive measurements made approximately 3 minutes apart were within 10 percent of each other) and the turbidity was less than 5 Nephelometric Turbidity Units, the groundwater samples were collected with the dedicated pump. During sampling for VOCs, the pump rate was reduced to approximately 0.02 gallons per minute to minimize sample agitation. 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 placed in a cooler with ice immediately thereafter. 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 and end of each sampling day. Field instrument calibration forms are included in Appendix C.

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, 1993a and 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:

- Wash each 250-mL stainless-steel sample-collection bottle 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 American Society of Testing Materials (ASTM) Type II (deionized) water.
- Rinse each bottle with ASTM Type II 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 ASTM Type II water solution through them. A final rinse with ASTM Type II water was carried out. Each of these decontamination procedures was completed using a clean plastic spray bottle used only for this purpose.

Purging before sampling is not required in the deep multi-port monitoring wells because the groundwater sample is 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, and to rinse the Westbay stainless-steel sample-collection bottles with formation water. Samples for laboratory analysis were then collected and transferred to sample containers as described in Section 2.1. A final sample was then collected and the temperature, pH, electrical conductivity, and turbidity were measured to ensure continuity of aquifer conditions during sampling. Results of the field analyses were recorded on well development logs, which are included in Appendix B. Calibration of field instruments was carried out according to procedures described previously (Ebasco, 1993a and 1994).

2.3 FIELD QUALITY ASSURANCE/QUALITY CONTROL SAMPLES

To verify the quality of the groundwater samples collected from the JPL monitoring wells, field QA/QC samples were collected. The field QA/QC program included the collection of duplicate samples, equipment blanks, trip blanks, and a field blank. In addition, laboratory QA/QC samples were used by the laboratory according to analytical method requirements.

Duplicate samples for VOCs, Cr(VI), total Cr, and ClO_4^- analyses were collected from shallow groundwater monitoring wells MW-10 and MW-13, and deep multi-port monitoring wells MW-4 (Screen 2) and MW-12 (Screen 2). In addition, after every 10 samples that were collected for VOC analyses, a matrix-spike (MS) sample and a matrix-spike-duplicate (MSD) sample were collected and submitted to the laboratory for use in verifying the accuracy of the analytical method. Similarly, after every 10 samples that were collected for total chromium analyses, an MS/MSD sample was collected and submitted to the laboratory for analytical method verification. A QC sample for hexavalent chromium was submitted for each day that samples were collected for hexavalent chromium.

One equipment blank was collected from the Westbay sample collection bottles during each day of sampling of the deep multi-port wells. Equipment blanks consisted of ASTM Type II water (provided by the laboratory), which had been passed through the sampling equipment after the equipment had been decontaminated. Equipment blanks were analyzed for the same constituents as the groundwater samples to identify potential cross contamination due to inadequate decontamination procedures. Equipment blanks were not collected during sampling of the shallow wells as 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, one field blank was collected at monitoring well MW-7. The field blank is used to determine whether ambient conditions or sample containers may effect analytical results. The field blank consisted of sample bottles, filled with ASTM Type II water supplied by the laboratory, left open at the well head during the sampling of the well. After sampling, the bottles containing the field blank were capped and analyzed for the same constituents as the groundwater samples.

3.0 ANALYTICAL RESULTS

JPL groundwater monitoring wells MW-3 through MW-8, MW-10 through MW-14, and MW-16 through MW-24 were sampled from March 9 to March 31, 2000. Monitoring well MW-2 is not included in the monitoring program, as it was replaced as a JPL monitoring point by deep multi-port monitoring well MW-14. Samples were not collected from MW-1, MW-3 (Screen 1), MW-9, MW-11 (Screen 5), MW-15, MW-17 (Screen 1), MW-18 (Screen 1), MW-22 (Screen 5), and MW-24 (Screen 5) due to approved changes in the sampling program (these wells are either upgradient or sufficiently far downgradient of detected contaminants of concern, and will be sampled semi-annually).

The groundwater samples collected during this sampling event were analyzed for VOCs, total Cr, Cr(VI), and ClO_4^-. Refer to Table 1-2 for a summary of the samples collected, sample numbers used, and the analyses performed. Analytical laboratory reports and associated chain-of-custody forms are included in Appendix D.

3.1 VOLATILE ORGANIC COMPOUNDS RESULTS

Groundwater samples collected during the March-April 2000 sampling event were analyzed for over 60 different VOCs in accordance with EPA Method 524.2. Results of the analyses for VOCs in the March-April 2000 samples are summarized in Table 3-1 along with the Maximum Contaminant Levels (MCLs) for drinking water as listed in Title 22 of the California Code of Regulations and in EPA Health Advisory Guidelines. Few VOCs were detected in the JPL samples, and only three VOCs [carbon tetrachloride (CCl_4), trichloroethene (TCE), and tetrachloroethene (PCE)] were found in concentrations exceeding state and/or Federal MCLs (Table 3-1).

At the request of the regulatory agencies, the aquifer beneath the site was divided into layers for data presentation purposes, based primarily on correlations interpreted from lithologic cross sections and from hydrologic characteristics. Listed in Table 3-2 are the JPL monitoring well screens and their corresponding aquifer layers. The concentrations of CCl_4, TCE, and PCE detected in each aquifer layer are contoured on site maps to show the spatial distribution of each constituent. A map for each of the above-mentioned VOCs was prepared for each aquifer layer in which it was detected. For instances where a constituent was not detected or only detected once in a particular aquifer layer, a contour map was not prepared for that constituent in that particular layer. 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. Figures 3-7, 3-8, and 3-9 show contours of PCE detected in Aquifer Layers 1, 2, and 3. A summary of the VOC results compiled from all fourteen long-term quarterly sampling events completed to date is provided in Table 3-3.

CCl_4 above the state MCL (0.5 μg/L) was found in eight on-site wells and one off-site well (Table 3-1, Figures 3-1, 3-2, and 3-3) The Federal MCL (5.0 μg/L) was exceeded in six on-site wells. The highest concentrations of CCl_4 were found in on-site wells MW-3 (Screen 3), MW-7, MW-12 (Screen 3), MW-13, MW-16, and MW-24 (Screens 1 and 2).

TCE concentrations exceeded the state and Federal MCL (5.0 μg/L) in three on-site wells and two off-site wells (Table 3-1, Figures 3-4, 3-5, and 3-6). The highest levels of TCE were found in on-site wells MW-7, MW-13, and off-site well MW-21 (Screen 1).

1,2-DCA was detected in one on-site well (MW-7) at its state MCL (0.5 μg/L) (Table 3-1), and was not detected in any off-site well. The Federal MCL for 1,2-DCA (5.0 μg/L) was not exceeded in any well.

PCE was detected at low levels in several on-site and off-site wells (Table 3-1, 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).

3.2 PERCHLORATE RESULTS

Perchlorate analyses were conducted on groundwater samples from the March-April 2000 event using ion chromatography (CADHS/EPA 314). Results are included in Table 3-1. No MCLs for ClO_4^- have been established to date. However, the California Department of Health Services has established an Interim Action Level (IAL) of 18 μg/L for ClO_4^-. Perchlorate was detected in a total of 17 wells (Table 3-1). Concentrations in seven of the 17 wells exceeded the Interim Action Level (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 ClO_4^- levels were observed on-site in wells MW-4 (Screen 2), MW-7, MW-13, MW-16, and MW-24 (Screens 1 and 2).

3.3 CHROMIUM RESULTS

Groundwater samples were analyzed for total Cr (EPA 200.8) and Cr(VI) [(EPA 7196)]. The results of these analyses for the March-April 2000 samples are summarized below and in Table 3-4.

Total Cr was detected in four wells, MW-6, MW-7, MW-10, and MW-13. All had concentrations below the Federal drinking water standard (0.100 mg/L), and all but MW-6 were below the state drinking water standard (0.05 mg/L). Hexavalent chromium was detected in two on-site shallow wells, MW-7 and MW-13. At this time, neither state nor Federal agencies have established an MCL for Cr(VI).

Table 3-5 contains a summary of metals data from all fourteen quarterly sampling events completed to date during the long-term monitoring program.

3.4 QUALITY ASSURANCE/QUALITY CONTROL RESULTS

Review of the QA/QC data provided with the laboratory analytical results (Appendix D) indicates that results obtained from the March-April 2000 sampling event 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, Foster Wheeler personnel collected QA/QC samples in the field. These samples included duplicate samples, equipment blanks, trip blanks, and a field blank.

Duplicate samples were used to evaluate the precision of the laboratory analyses. Duplicate groundwater samples were collected from MW-4 (Screen 2), MW-10, MW-12 (Screen 2), and MW-13, and analyzed for VOCs, ClO_4^-, total Cr, and Cr(VI). All of the analytical results for the duplicate samples were similar to the results of the original groundwater samples (Table 3-1 and Table 3-4).

Thirteen equipment blanks and sixteen trip blanks were submitted for analysis during the March-April 2000 sampling event. Chloroform was detected at very low levels (<2.2 μg/L) in the field blank and all equipment blanks. Some groundwater samples associated with these blanks also had detectable concentrations of chloroform, but were well below state and Federal drinking water standards (100 μg/L) (Tables 3-1 and 3-3). This has occurred in some previous sampling events. It is suspected that very low levels of chloroform were likely present in the deionized water used for the field and equipment blanks.

4.0 WATER-LEVEL MEASUREMENTS

Water-level measurements were recorded before sampling, on March 6 & 8, 2000, and after sampling, on April 3, 2000, to evaluate groundwater flow directions and gradients beneath and adjacent to JPL. Water-level data in the shallow wells were collected using a Solinst® water-level meter that utilized a water-sensor probe attached to a measuring tape. As the probe was lowered into a well, contact with the groundwater completed a circuit between two electrodes in the probe, thus activating a sounding device attached to a reel at the surface. Depth to groundwater was then read directly from the measuring tape at the top of the well casing.

In the deep multi-port wells, the hydraulic head at each sampling port in each screened interval was measured with a pressure-transducer probe manufactured by Westbay specifically for the unique casing used in these wells.

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

As indicated by Figures 4-1 and 4-2, groundwater flow was primarily to the south and east across JPL both before and after sampling. The "trough" of depression observed around the City of Pasadena municipal production wells (Figures 4-1 and 4-2) is the result of active pumping by these wells throughout this sampling event. This is also indicated by data shown in Figures 4-3 and 4-4 where the effects of municipal well pumping are reflected by relatively large drawdowns in the hydraulic heads measured at the lowermost screens within the multi-port wells closest to the production wells (MW-3, -4, -11, -12, -17, and -19).

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TABLES

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

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-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
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

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-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
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 1-2

SUMMARY OF ANALYSES PERFORMED ON GROUNDWATER SAMPLES COLLECTED FROM JPL MONITORING WELLS, MARCH-APRIL 2000

Sample Location	Sample Number	Sample Type	VOCs EPA 524.2	Total Cr EPA 200.8	Hexavalent Cr EPA 7196	Perchlorate CADHS/EPA 314
MW-1	Not Sampled					
MW-3						
Screen 1	Not Sampled					
Screen 2	MW-001-070	GW	X	X	X	X
Screen 3	MW-001-069	GW	X	X	X	X
Screen 4	MW-001-068	GW	X	X	X	X
Screen 5	MW-001-067	GW				X
MW-4						
Screen 1	MW-001-066	GW	X	X	X	X
Screen 2	MW-001-065	GW	X	X	X	X
Screen 2	MW-001-064	DUP	X	X	X	X
Screen 3	MW-001-063	GW	X	X	X	X
Screen 4	MW-001-062	GW		X	X	
Screen 5	MW-001-061	GW		X	X	
MW-5	MW-001-060	GW	X	X	X	X
MW-6	MW-001-059	GW	X	X	X	X
MW-7	MW-001-058	GW	X	X	X	X
MW-8	MW-001-057	GW	X	X	X	X
MW-9	Not Sampled					
MW-10	MW-001-056	GW	X	X	X	X
MW-10	MW-001-055	DUP	X	X	X	X
MW-11						
Screen 1	MW-001-054	GW	X	X	X	X
Screen 2	MW-001-053	GW	X	X	X	X
Screen 3	MW-001-052	GW	X	X	X	X
Screen 4	MW-001-051	GW	X			
Screen 5	Not Sampled					
MW-12						
Screen 1	MW-001-050	GW	X	X	X	X
Screen 2	MW-001-049	GW	X	X	X	X
Screen 2	MW-001-048	DUP	X	X	X	X
Screen 3	MW-001-047	GW	X	X	X	X
Screen 4	MW-001-046	GW	X			X
Screen 5	MW-001-045	GW	X			X
MW-13	MW-001-044	GW	X	X	X	X
MW-13	MW-001-043	DUP	X	X	X	X
MW-14						
Screen 1	MW-001-042	GW	X	X	X	X
Screen 2	MW-001-041	GW	X	X	X	X
Screen 3	MW-001-040	GW	X	X	X	X
Screen 4	MW-001-039	GW	X	X	X	X
Screen 5	MW-001-038	GW				X
MW-15	Not Sampled					
MW-16	MW-001-037	GW	X	X	X	X
MW-17						
Screen 1	Not Sampled					
Screen 2	MW-001-036	GW	X	X	X	X
Screen 3	MW-001-035	GW	X	X	X	X

TABLE 1-2

SUMMARY OF ANALYSES PERFORMED ON GROUNDWATER SAMPLES COLLECTED FROM JPL MONITORING WELLS, MARCH-APRIL 2000

Sample Location	Sample Number	Sample Type	VOCs EPA 524.2	Total Cr EPA 200.8	Hexavalent Cr EPA 7196	Perchlorate CADHS/EPA 314
Screen 4	MW-001-034	GW	X	X	X	X
Screen 5	MW-001-033	GW	X			X
MW-18						
Screen 1	Not Sampled					
Screen 2	MW-001-032	GW	X	X	X	X
Screen 3	MW-001-031	GW	X	X	X	X
Screen 4	MW-001-030	GW	X	X	X	X
Screen 5	MW-001-029	GW	X			X
MW-19						
Screen 1	MW-001-028	GW	X			X
Screen 2	MW-001-027	GW	X			X
Screen 3	MW-001-026	GW	X			X
Screen 4	MW-001-025	GW	X			X
Screen 5	MW-001-024	GW	X			X
MW-20						
Screen 1	MW-001-023	GW	X	X	X	X
Screen 2	MW-001-022	GW	X	X	X	X
Screen 3	MW-001-021	GW	X	X	X	X
Screen 4	MW-001-020	GW	X	X	X	X
Screen 5	MW-001-019	GW	X	X	X	X
MW-21						
Screen 1	MW-001-018	GW	X			X
Screen 2	MW-001-017	GW	X			X
Screen 3	MW-001-016	GW	X			X
Screen 4	MW-001-015	GW	X			X
Screen 5	MW-001-014	GW	X			X
MW-22						
Screen 1	MW-001-013	GW	X	X	X	X
Screen 2	MW-001-012	GW	X	X	X	X
Screen 3	MW-001-011	GW	X			X
Screen 4	MW-001-010	GW				X
Screen 5	Not Sampled					
MW-23						
Screen 1	MW-001-009	GW	X	X	X	X
Screen 2	MW-001-008	GW	X	X	X	X
Screen 3	MW-001-007	GW	X	X	X	X
Screen 4	MW-001-006	GW		X	X	X
Screen 5	MW-001-005	GW				X
MW-24						
Screen 1	MW-001-004	GW	X	X	X	X
Screen 2	MW-001-003	GW	X	X	X	X
Screen 3	MW-001-002	GW	X	X	X	X
Screen 4	MW-001-001	GW	X	X	X	
Screen 5	Not Sampled					

CADHS: California Department of Health Services.
DUP: Duplicate sample.
EPA: Environmental Protection Agency.
GW: Groundwater sample.

TABLE 3-1

SUMMARY OF VOLATILE ORGANIC COMPOUNDS AND PERCHLORATE DETECTED IN GROUNDWATER SAMPLES COLLECTED FROM JPL MONITORING WELLS, MARCH-APRIL 2000

(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	Perchlorate
MW-1	Not Sampled(1)										
MW-3											
Screen 1	Not Sampled(1)										
Screen 2	MW-001-070	--	--	--	--	--	--	--	--	--	--
Screen 3	MW-001-069	**42**	1.9	--	--	--	--	1.1	32(EB)	--	**19.4**
Screen 4	MW-001-068	--	--	--	--	--	--	--	--	4.1 Carbonyl Sulfide	--
Screen 5	MW-001-067	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	--
MW-4											
Screen 1	MW-001-066	--	--	--	--	--	--	--	--	--	--
Screen 2	MW-001-065	**1.4**	3.6	0.7	--	--	--	--	1.6(EB)	--	**33**
Screen 2 (DUP)	MW-001-064	**1.4**	3.9	0.7	--	--	--	--	1.7(EB)	--	**32**
Screen 3	MW-001-063	--	--	--	--	--	--	--	--	--	--
Screen 4	MW-001-062	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Screen 5	MW-001-061	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
MW-5	MW-001-060	--	--	--	--	--	--	--	--	--	--
MW-6	MW-001-059	--	--	3.0	0.8	--	--	--	--	--	4.8
MW-7	MW-001-058	**110**	**18**	2.7	--	0.5	2.3	2.6	8.9(FB)	--	**740**
MW-8	MW-001-057	--	--	--	--	--	--	--	--	--	--
MW-9	Not Sampled(1)										
MW-10	MW-001-056	--	2.0	2.1	1.0	--	--	--	0.9	--	9.0
MW-10 (DUP)	MW-001-055	--	2.0	2.2	1.1	--	--	--	0.9	--	9.1

TABLE 3-1

SUMMARY OF VOLATILE ORGANIC COMPOUNDS AND PERCHLORATE DETECTED IN GROUNDWATER SAMPLES COLLECTED FROM JPL MONITORING WELLS, MARCH-APRIL 2000

(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	Perchlorate
MW-11											
Screen 1	MW-001-054	--	--	--	--	--	--	--	--	--	--
Screen 2	MW-001-053	**0.8**	--	--	--	--	--	--	0.7(EB)	--	--
Screen 3	MW-001-052	**2.4**	--	--	--	--	--	--	1.0(EB)	--	--
Screen 4	MW-001-051	--	--	--	--	--	--	--	0.6(EB)	--	(1)
Screen 5	Not Sampled(1)										
MW-12											
Screen 1	MW-001-050	--	--	--	--	--	--	--	--	--	--
Screen 2	MW-001-049	--	--	--	--	--	--	--	--	--	--
Screen 2 (*DUP*)	MW-001-048	--	--	--	--	--	--	--	--	--	--
Screen 3	MW-001-047	**17**	--	--	--	--	--	--	1.9(EB)	--	8.2
Screen 4	MW-001-046	**5.3**	0.5	--	--	--	--	--	1.3(EB)	--	8.7
Screen 5	MW-001-045	**2.0**	--	--	--	--	--	--	0.6(EB)	--	4.7
MW-13	MW-001-044	**8.8**	**11**	0.7	0.7	--	0.6	--	5.2	--	**330**
MW-13 (DUP)	MW-001-043	**8.9**	**11**	0.7	0.7	--	--	--	5.2	--	**330**
MW-14											
Screen 1	MW-001-042	--	--	0.8	0.8	--	--	--	0.5(EB)	--	5.3
Screen 2	MW-001-041	--	2.5	0.7	--	--	--	--	0.6(EB)	--	6.0
Screen 3	MW-001-040	--	0.8	0.5	--	--	--	--	0.6(EB)	--	7.9
Screen 4	MW-001-039	--	--	--	--	--	--	--	--	--	--
Screen 5	MW-001-038	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	--
MW-15	Not Sampled(1)										
MW-16	MW-001-037	**24**	4.3	0.9	--	--	4.0	--	17	--	**1900**

TABLE 3-1

SUMMARY OF VOLATILE ORGANIC COMPOUNDS AND PERCHLORATE DETECTED IN GROUNDWATER SAMPLES COLLECTED FROM JPL MONITORING WELLS, MARCH-APRIL 2000

(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	Perchlorate
MW-17											
Screen 1	Not Sampled(1)										
Screen 2	MW-001-036	--	--	--	--	--	--	--	1.9(EB)	--	--
Screen 3	MW-001-035	--	1.9	--	--	--	--	--	2.6(EB)	--	5.0
Screen 4	MW-001-034	--	**9.9**	0.6	--	--	--	--	1.8(EB)	--	15
Screen 5	MW-001-033	--	**8.8**	--	--	--	--	--	1.8(EB)	--	15
MW-18											
Screen 1	Not Sampled(1)										
Screen 2	MW-001-032	--	--	--	--	--	--	--	2.5(EB)	0.9 Bromodichloromethane	--
Screen 3	MW-001-031	--	1.1	0.5	--	--	--	--	3.1(EB)	--	--
Screen 4	MW-001-030	**3.8**	1.2	2.2	--	--	--	--	0.9(EB)	--	**24**
Screen 5	MW-001-029	--	--	--	--	--	--	--	--	--	--
MW-19											
Screen 1	MW-001-028	--	--	--	--	--	--	--	--	--	--
Screen 2	MW-001-027	--	0.6	0.5	--	--	--	--	--	--	--
Screen 3	MW-001-026	--	0.8	2.0	--	--	--	--	--	--	4.8
Screen 4	MW-001-025	--	--	--	--	--	--	--	2.0(EB)	--	--
Screen 5	MW-001-024	--	--	1.4	--	--	--	--	0.6(EB)	--	--
MW-20											
Screen 1	MW-001-023	--	--	--	--	--	--	--	1.1(EB)	--	7.6
Screen 2	MW-001-022	--	--	--	--	--	--	--	3.8(EB)	--	--
Screen 3	MW-001-021	--	--	--	--	--	--	--	--	--	--
Screen 4	MW-001-020	--	--	--	--	--	--	--	--	--	--
Screen 5	MW-001-019	--	--	--	--	--	--	--	--	--	--

TABLE 3-1

SUMMARY OF VOLATILE ORGANIC COMPOUNDS AND PERCHLORATE DETECTED IN GROUNDWATER SAMPLES COLLECTED FROM JPL MONITORING WELLS, MARCH-APRIL 2000

(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	Perchlorate
MW-21											
Screen 1	MW-001-018	--	**17**	0.7	--	--	--	--	1.8(EB)	--	12
Screen 2	MW-001-017	--	--	0.9	--	--	--	--	--	1.8 Carbonyl Sulfide	4.1
Screen 3	MW-001-016	--	0.9	2.3	--	--	--	--	0.6(EB)	--	--
Screen 4	MW-001-015	--	--	4.0	--	--	--	--	--	0.9 cis-1,2-Dichloroethene	--
Screen 5	MW-001-014	--	0.7	**12**	--	--	--	--	1.2(EB)	2.5 cis-1,2-Dichloroethene 0.6 Bromodichloromethane	4.2
MW-22											
Screen 1	MW-001-013	--	--	3.1	0.7	--	--	--	--	--	4.3
Screen 2	MW-001-012	--	--	--	--	--	--	--	--	--	--
Screen 3	MW-001-011	--	--	--	--	--	--	--	--	--	--
Screen 4	MW-001-010	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	--
Screen 5	Not Sampled(1)										
MW-23											
Screen 1	MW-001-009	--	1.5	2.3	1.3	--	--	--	0.7(EB)	1.2 1,2,3-Trichlorobenzene	4.3
Screen 2	MW-001-008	--	--	0.6	--	--	--	--	0.6(EB)	--	7.2
Screen 3	MW-001-007	--	--	--	--	--	--	--	--	--	--
Screen 4	MW-001-006	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	--
Screen 5	MW-001-005	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	--
MW-24											
Screen 1	MW-001-004	**15**	**8.6**	0.6	--	--	--	0.6	5.1(EB)	--	**270**
Screen 2	MW-001-003	**28**	4.3	1.1	--	--	1.9	--	8.0(EB)	--	**570**
Screen 3	MW-001-002	--	--	--	--	--	--	--	--	--	--
Screen 4	MW-001-001	--	--	--	--	--	--	--	--	--	(1)
Screen 5	Not Sampled(1)										

TABLE 3-1

SUMMARY OF VOLATILE ORGANIC COMPOUNDS AND PERCHLORATE DETECTED IN GROUNDWATER SAMPLES COLLECTED FROM JPL MONITORING WELLS, MARCH-APRIL 2000

(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	Perchlorate
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	6 cis-1,2-Dichloroethene[a] 100 1,1,1-Trichloroethane[a]	18[2]
EPA Region IX Maximum Contaminant Level		5.0	5.0	5.0	NE	5.0	7.0	NE	100	70 cis-1,2-Dichloroethene[a] 200 1,1,1-Trichloroethane[a]	NE

--: Not detected.
DUP: Duplicate.
NE: Not established.
1: Monitoring point not sampled for the particular constituent(s) due to changes in the sampling program as agreed to by the EPA, DTSC, and RWQCB.
2: California Department of Health Services Interim Action Level.
a: Only VOCs for which MCLs have been established are listed.
EB: Compound detected in associated equipment blank.
FB: Compound detected in associated field blank.

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	

TABLE 3-2

LOCATION OF WELL SCREENS IN AQUIFER LAYERS

Well Number	AQUIFER LAYERS			
	Layer 1	Layer 2	Layer 3	Layer 4
MW-15	X			
MW-16	X			
MW-17				
Screen 1	X			
Screen 2		X		
Screen 3		X		
Screen 4			X	
Screen 5			X	
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	

TABLE 3-2

LOCATION OF WELL SCREENS IN AQUIFER LAYERS

Well Number	AQUIFER LAYERS			
	Layer 1	Layer 2	Layer 3	Layer 4
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 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	Total Trihalomethanes (Primarily Chloroform)	Other Volatile Organic Compounds	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)
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)
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	--	--
	Jan/Feb 1998	--	--	--	--	--	--	--	--	--	--
	Apr/May 1998	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	--	--	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	--

TABLE 3-3

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	Total Trihalomethanes (Primarily Chloroform)	Other Volatile Organic Compounds	Perchlorate
	Feb/Mar 1999	--	--	--	--	--	--	--	--	--	--
	May/Jun 1999	--	--	--	--	--	--	--	--	--	--
	Aug 1999	--	--	--	--	--	--	--	--	--	--
	Nov/Dec 1999	--	--	--	--	--	--	--	--	--	--
	Mar/Apr 2000	--	--	--	--	--	--	--	--	--	--
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/Jun 1999	**42**	1.3	--	--	--	--	1.0	26(EB)[3]	--	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**
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[4]	--
	Apr/May 1998	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	--	--	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	--
	Feb/Mar 1999	--	--	--	--	--	--	--	--	--	--
	May/Jun 1999	--	--	--	--	--	--	--	--	--	--
	Aug 1999	--	--	--	--	--	--	--	--	--	--
	Nov/Dec 1999	--	--	--	--	--	--	--	--	--	--
	Mar/Apr 2000	--	--	--	--	--	--	--	--	4.1 Carbonyl Sulfide	--
Screen 5	Aug/Sep 1996	--	--	--	--	--	--	--	--	2.1 Dichloromethane	(1)
	Oct/Nov 1996	--	--	--	--	--	--	--	--	2.1 Acetone 1.2 Carbon Disulfide	(1)

TABLE 3-3

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	Total Trihalomethanes (Primarily Chloroform)	Other Volatile Organic Compounds	Perchlorate
	Feb/Mar 1997	--	--	--	--	--	--	--	--	1.5 Carbon Disulfide 2.7 Sulfur Dioxide 1.3 Unknown (RT=2.51)	(1)
	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/Jun 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)	--
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[5]	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	--
	Feb/Mar 1999	--	--	--	--	--	--	0.8(B)	--	--	--
	May/Jun 1999	--	--	--	--	--	--	--	--	--	--
	Aug 1999	--	--	--	--	--	--	--	--	--	--
	Nov/Dec 1999	--	--	--	--	--	--	--	--	--	--
	Mar/Apr 2000	--	--	--	--	--	--	--	--	--	--
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**

TABLE 3-3

SUMMARY OF VOLATILE ORGANIC COMPOUNDS AND PERCHLORATE DETECTED DURING THE LONG-TERM QUARTERLY GROUNDWATER SAMPLING PROGRAM, 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	Total Trihalomethanes (Primarily Chloroform)	Other Volatile Organic Compounds	Perchlorate
	Feb/Mar 1999	**1.2**	4.1	0.6	0.5[6]	--	--	--	2.5	--	**38**
	May/Jun 1999	**2.0**	**6.4**	0.7	--	--	--	--	3.7(EB)[3]	--	**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**
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[5]	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	--
	Feb/Mar 1999	--	--	--	--	--	--	0.7[5]	--	--	--
	May/Jun 1999	--	--	--	--	--	--	--	--	--	--
	Aug 1999	--	--	--	--	--	--	--	--	--	--
	Nov/Dec 1999	--	--	--	--	--	--	--	--	0.6 Unknown (RT=4.79)	--
	Mar/Apr 2000	--	--	--	--	--	--	--	--	--	--
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[5]	--	--	--
	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)
Screen 5	Oct/Nov 1996	--	--	--	--	--	--	--	--	1.9 Acetone	(1)
	Aug/Sep 1996	--	--	--	--	--	--	--	--	--	(1)
	Feb/Mar 1997	--	--	--	--	--	--	--	--	--	(1)
	Jun/Jul 1997	--	--	--	--	--	--	--	--	--	--
	Sep/Oct 1997	--	--	--	--	--	--	--	--	--	--

TABLE 3-3

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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	Total Trihalomethanes (Primarily Chloroform)	Other Volatile Organic Compounds	Perchlorate
	Jan/Feb 1998	--	--	--	--	--	--	--	--	7.4 Hexane	--
	Apr/May 1998	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	--	--	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	--
	Feb/Mar 1999	--	--	--	--	--	--	0.6(5)	--	--	--
	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)
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(5)	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	--
	Feb/Mar 1999	--	--	--	--	--	--	--	--	--	--
	May/Jun 1999	--	--	--	--	--	--	--	--	--	--
	Aug 1999	--	--	--	--	--	--	--	--	--	--
	Nov/Dec 1999	--	--	--	--	--	--	--	--	--	--
	Mar/Apr 2000	--	--	--	--	--	--	--	--	--	--
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(5)	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

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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	Total Trihalomethanes (Primarily Chloroform)	Other Volatile Organic Compounds	Perchlorate
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)
	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[5]	**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**
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 1.9 Carbon Disulfide	(1)
	Jun/Jul 1997	--	--	--	--	--	--	--	--	--	6.4
	Sep/Oct 1997	**3.2**	3.6	--	--	--	--	--	1.2	1.0 Freon 11	**29**
	Jan/Feb 1998	**1.8**	1.3	--	--	--	--	--	0.8	0.8 Freon 11	11
	Apr/May 1998	**1.3**	1.3	--	--	--	--	--	0.5	--	7.6
	Jul/Aug 1998	--	--	--	--	--	--	--	--	6.6 Dichloromethane[5]	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	--
	Feb/Mar 1999	--	--	--	--	--	--	--	--	--	--
	May/Jun 1999	--	--	--	--	--	--	--	--	--	--
	Aug 1999	--	--	--	--	--	--	--	--	--	--
	Nov/Dec 1999	**0.9**	0.8	--	--	--	--	--	--	--	5.2
	Mar/Apr 2000	--	--	--	--	--	--	--	--	--	--
MW-9	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	--
	Apr/May 1998	--	--	--	--	--	--	--	--	--	--

TABLE 3-3

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	Total Trihalomethanes (Primarily Chloroform)	Other Volatile Organic Compounds	Perchlorate
	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)
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[5]	--
	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
MW-11											
Screen 1	Aug/Sep 1996	--	--	--	--	--	--	--	--	2.6(B) Acetone 7.1 MTBE	(1)
	Oct/Nov 1996	--	--	--	--	--	--	--	--	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**	--	--	--	--	--	--	--	--	--
	Oct/Nov 1998	**1.4**	--	--	--	--	--	--	--	--	--
	Feb/Mar 1999	--	--	--	--	--	--	0.9[5]	--	--	--
	May/Jun 1999	--	--	--	--	--	--	--	--	--	--
	Aug 1999	--	--	--	--	--	--	--	--	--	--
	Nov/Dec 1999	--	--	--	--	--	--	--	--	--	--
	Mar/Apr 2000	--	--	--	--	--	--	--	--	--	--

TABLE 3-3

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	Total Trihalomethanes (Primarily Chloroform)	Other Volatile Organic Compounds	Perchlorate
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(5)	1.1	--	--
	May/Jun 1999	0.5	--	--	--	--	--	--	0.7(EB)(3)	--	--
	Aug 1999	0.5	--	--	--	--	--	--	0.6	--	--
	Nov/Dec 1999	--	--	--	--	--	--	--	0.5(EB)	--	--
	Mar/Apr 2000	**0.8**	--	--	--	--	--	--	0.7(EB)	--	--
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(5)	--	--	--
	May/Jun 1999	--	--	--	--	--	--	--	--	--	--
	Aug 1999	**0.7**	--	--	--	--	--	--	0.7	--	--
	Nov/Dec 1999	**0.9**	--	--	--	--	--	--	0.7(EB)	--	--
	Mar/Apr 2000	**2.4**	--	--	--	--	--	--	1.0(EB)	--	--
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(5)	--	--	--

TABLE 3-3

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	Total Trihalomethanes (Primarily Chloroform)	Other Volatile Organic Compounds	Perchlorate
	May/Jun 1999	--	--	--	--	--	--	--	0.5(EB)[3]	--	--
	Aug 1999	--	--	--	--	--	--	--	0.5	--	(2)
	Nov/Dec 1999	--	--	--	--	--	--	--	0.5(EB)	--	--
	Mar/Apr 2000	--	--	--	--	--	--	--	0.6(EB)	--	(2)
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[5]	--	--	--
	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)
MW-12											
Screen 1	Aug/Sep 1996	--	--	--	--	--	--	--	4.1	--	(1)
	Oct/Nov 1996	(7)	(7)	(7)	(7)	(7)	(7)	(7)	(7)	(7)	(7)
	Feb/Mar 1997	--	--	--	--	--	--	--	5.8	--	(1)
	Jun/Jul 1997	--	--	--	--	--	--	--	0.5	--	--
	Sep/Oct 1997	(7)	(7)	(7)	(7)	(7)	(7)	(7)	(7)	(7)	(7)
	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	--	--	--	--	--	--	--	--	--	--
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

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Sampling Location	Sampling Event	Carbon Tetrachloride	TCE	PCE	1,1-DCA	1,2-DCA	1,1-DCE	Freon 113	Total Trihalomethanes (Primarily Chloroform)	Other Volatile Organic Compounds	Perchlorate
	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/Jun 1999	**0.8**	--	--	--	--	--	--	0.6(EB)(3)	0.8 Dichloromethane(EB)	5.0
	Aug 1999	0.5	--	--	--	--	--	--	--	--	--
	Nov/Dec 1999	0.5	--	--	--	--	--	--	--	0.5 Unknown (RT=4.79)	--
	Mar/Apr 2000	--	--	--	--	--	--	--	--	--	--
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	**23E**	--	--	--	--	--	--	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/Jun 1999	**19**	--	--	--	--	--	--	2.0(EB)(3)	--	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
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/Jun 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

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Sampling Location	Sampling Event	Carbon Tetrachloride	TCE	PCE	1,1-DCA	1,2-DCA	1,1-DCE	Freon 113	Total Trihalomethanes (Primarily Chloroform)	Other Volatile Organic Compounds	Perchlorate
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)[3]	--	--
	Aug 1999	**1.9**	--	--	--	--	--	--	0.6	--	--
	Nov/Dec 1999	**1.4**	--	--	--	--	--	--	0.5(EB)	--	--
	Mar/Apr 2000	**2.0**	--	--	--	--	--	--	0.6(EB)	--	4.7
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[6]	--	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[5] 0.5 1,1,1-Trichloroethane	**59**
	Oct/Nov 1998	**9.0**	**20**	--	--	--	1.1	0.5	9.3	--	**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**
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

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	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(5)	0.6	--	4.2
	May/Jun 1999	--	--	0.5	2.6	--	--	--	--	--	--
	Aug 1999	--	--	--	1.7	--	--	--	--	--	--
	Nov/Dec 1999	(8)	(8)	(8)	(8)	(8)	(8)	(8)	(8)	(8)	(8)
	Mar/Apr 2000	--	--	0.8	0.8	--	--	--	0.5(EB)	--	5.3
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(4)	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(5)	0.6	--	4.2
	May/Jun 1999	--	1.0	1.2	0.8	--	--	--	0.6(EB)(3)	--	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
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(5)	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

TABLE 3-3

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	Total Trihalomethanes (Primarily Chloroform)	Other Volatile Organic Compounds	Perchlorate
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[5]	--	--	--
	May/Jun 1999	--	--	--	--	--	--	--	--	--	9.9
	Aug 1999	--	--	--	--	--	--	--	--	--	4.0
	Nov/Dec 1999	--	--	--	--	--	--	--	--	--	4.1
	Mar/Apr 2000	--	--	--	--	--	--	--	--	--	--
Screen 5	Aug/Sep 1996	--	--	--	--	--	--	--	--	2.1(B) Acetone	(1)
	Oct/Nov 1996	--	--	--	--	--	--	--	--	1.6(TB) Acetone 1.3 Carbon Disulfide	(1) (1)
	Feb/Mar 1997	--	--	--	--	--	--	--	--	--	(1)
	Jun/Jul 1997	--	--	--	--	--	--	--	--	--	--
	Sep/Oct 1997	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 1998	--	--	--	--	--	--	--	--	4.6 Carbon Disulfide[4]	--
	Apr/May 1998	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	--	--	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	--
	Feb/Mar 1999	--	--	--	--	--	--	--	--	--	--
	May/Jun 1999	--	--	--	--	--	--	--	--	--	--
	Aug 1999	--	--	--	--	--	--	--	--	--	--
	Nov/Dec 1999	--	--	--	--	--	--	--	--	--	--
	Mar/Apr 2000	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	--
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	--	--	--	--	--	--	--	--	--	--

TABLE 3-3

SUMMARY OF VOLATILE ORGANIC COMPOUNDS AND PERCHLORATE DETECTED DURING THE LONG-TERM QUARTERLY GROUNDWATER SAMPLING PROGRAM, 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	Total Trihalomethanes (Primarily Chloroform)	Other Volatile Organic Compounds	Perchlorate
	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)
MW-16	Aug/Sep 1996	**125**	**33**	1.3	--	**2.4**	2.2	2.0	40(TB)	--	(1)
	Oct/Nov 1996	(7)	(7)	(7)	(7)	(7)	(7)	(7)	(7)	(7)	(7)
	Feb/Mar 1997	**91**	**23**	1.3	--	**1.7**	2.6	1.6	29	--	(1)
	Jun/Jul 1997	**68**	**25**	1.1	--	**2.1**	1.7	0.6	43	--	**615**
	Sep/Oct 1997	(7)	(7)	(7)	(7)	(7)	(7)	(7)	(7)	(7)	(7)
	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	--	**640**
	Jul/Aug 1998	**58**	**19**	1.3	--	**0.8**	2.7	1.2	23	0.6 Dichloromethane[5]	**420**
	Oct/Nov 1998	**51**	**18**	1.0	--	**1.5**	1.6	1.4	29	1.0 1,1,1-Trichloroethane 1.1 1,1,1-Trichloroethane 13 Carbon Disulfide	**220**
	Feb/Mar 1999	**67**	**20**	1.4	--	**1.1**	1.8	1.1	24	--	**790**
	May/Jun 1999	**58**	**15**	1.0	--	**0.8**	1.3	1.2	23	0.5 Fluorotrichloromethane	**650**
	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**
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)

TABLE 3-3

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	Total Trihalomethanes (Primarily Chloroform)	Other Volatile Organic Compounds	Perchlorate
Screen 2	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(5)	3.9	--	--
	May/Jun 1999	--	--	--	--	--	--	--	3.2(EB)(3)	--	--
	Aug 1999	--	--	--	--	--	--	--	2.5	--	--
	Nov/Dec 1999	--	--	--	--	--	--	--	1.4(EB)	--	--
	Mar/Apr 2000	--	--	--	--	--	--	--	1.9(EB)	--	--
Screen 3	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/Jun 1999	--	1.5	--	--	--	--	--	3.5(EB)(3)	--	--
	Aug 1999	**0.8**	2.9	--	--	--	--	--	4.6	--	6.1
	Nov/Dec 1999	**0.7**	3.2	--	--	--	--	--	4.4(EB)	--	5.5
	Mar/Apr 2000	--	1.9	--	--	--	--	--	2.6(EB)	--	5.0
Screen 4	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
	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(5)	1.8	--	9.8

TABLE 3-3

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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	Total Trihalomethanes (Primarily Chloroform)	Other Volatile Organic Compounds	Perchlorate
	May/Jun 1999	--	3.2	--	--	--	--	--	1.4(EB)(3)	--	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
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/Jun 1999	--	**6.6**	0.6	--	--	--	--	2.0(EB)(3)	--	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
MW-18											
Screen 1	Aug/Sep 1996	--	--	--	--	--	--	--	1.6	--	(1)
	Oct/Nov 1996	(7)	(7)	(7)	(7)	(7)	(7)	(7)	(7)	(7)	(7)
	Feb/Mar 1997	--	--	--	--	--	--	--	3.0	--	(1)
	Jun/Jul 1997	--	--	--	--	--	--	--	0.8	--	--
	Sep/Oct 1997	(7)	(7)	(7)	(7)	(7)	(7)	(7)	(7)	(7)	(7)
	Jan/Feb 1998	(7)	(7)	(7)	(7)	(7)	(7)	(7)	(7)	(7)	(7)
	Apr/May 1998	--	--	--	--	--	--	--	0.7	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	--	3.4 Unknown Hydrocarbon (RT=7.14)	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	--
	Feb/Mar 1999	--	--	--	--	--	--	--	--	--	--
	May/Jun 1999	--	--	--	--	--	--	--	--	--	--
	Aug 1999	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
	Nov/Dec 1999	(7)	(7)	(7)	(7)	(7)	(7)	(7)	(7)	(7)	(7)
	Mar/Apr 2000	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)

TABLE 3-3

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Sampling Location	Sampling Event	Carbon Tetrachloride	TCE	PCE	1,1-DCA	1,2-DCA	1,1-DCE	Freon 113	Total Trihalomethanes (Primarily Chloroform)	Other Volatile Organic Compounds	Perchlorate
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/Jun 1999	--	--	--	--	--	--	--	0.8(EB)(3)	--	--
	Aug 1999	--	--	--	--	--	--	--	--	--	--
	Nov/Dec 1999	--	--	--	--	--	--	--	--	--	--
	Mar/Apr 2000	--	--	--	--	--	--	--	2.5(EB)	0.9 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/Jun 1999	--	1.1	--	--	--	--	--	2.5(EB)(3)	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)	--	--
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**

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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	Total Trihalomethanes (Primarily Chloroform)	Other Volatile Organic Compounds	Perchlorate
	May/Jun 1999	**3.6**	1.6	2.5	--	--	--	--	1.1(EB)[3]	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**
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/Jun 1999	--	--	--	--	--	--	--	--	0.8 Dichloromethane	--
	Aug 1999	--	--	--	--	--	--	--	--	1.0 Unknown (RT=4.25)	--
	Nov/Dec 1999	--	--	--	--	--	--	--	--	0.6 Unknown (RT=4.82)	--
	Mar/Apr 2000	--	--	--	--	--	--	--	--	--	--
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	--	--	--	--	--	--	--	--	--	--
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	--	--	--	--	--	--	--	--	--	--

TABLE 3-3

SUMMARY OF VOLATILE ORGANIC COMPOUNDS AND PERCHLORATE DETECTED DURING THE LONG-TERM QUARTERLY GROUNDWATER SAMPLING PROGRAM, 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	Total Trihalomethanes (Primarily Chloroform)	Other Volatile Organic Compounds	Perchlorate
	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	--	--	--	--	--	--	--
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
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)[3]	--	--
	Aug 1999	--	0.5	--	--	--	--	--	2.7	--	--
	Nov/Dec 1999	--	0.5	--	--	--	--	--	2.1(EB)	--	--
	Mar/Apr 2000	--	--	--	--	--	--	--	2.0(EB)	--	--

TABLE 3-3

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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	Total Trihalomethanes (Primarily Chloroform)	Other Volatile Organic Compounds	Perchlorate
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/Jun 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)	--	--
MW-20											
Screen 1	Aug/Sep 1996	--	--	--	--	--	--	--	0.7	3.4(B) Acetone	(1)
	Oct/Nov 1996	(7)	(7)	(7)	(7)	(7)	(7)	(7)	(7)	(7)	(7)
	Feb/Mar 1997	--	--	--	--	--	--	--	1.4	2.4(EB) Acetone	(1)
	Jun/Jul 1997	--	--	--	--	--	--	--	0.8	--	5.7
	Sep/Oct 1997	(7)	(7)	(7)	(7)	(7)	(7)	(7)	(7)	(7)	(7)
	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/Jun 1999	--	--	--	--	--	--	--	1.9(EB)(3)	--	4.4
	Aug 1999	--	--	--	--	--	--	--	0.6	--	7.5
	Nov/Dec 1999	--	--	--	--	--	--	--	1.3(EB)	--	7.7
	Mar/Apr 2000	--	--	--	--	--	--	--	1.1(EB)	--	7.6
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	--	--

TABLE 3-3

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Sampling Location	Sampling Event	Carbon Tetrachloride	TCE	PCE	1,1-DCA	1,2-DCA	1,1-DCE	Freon 113	Total Trihalomethanes (Primarily Chloroform)	Other Volatile Organic Compounds	Perchlorate
	Feb/Mar 1999	--	--	--	--	--	--	--	4.2	--	--
	May/Jun 1999	--	--	--	--	--	--	--	4.6(EB)[3]	0.6 Bromodichloromethane	--
	Aug 1999	--	--	--	--	--	--	--	4.8	0.6 Bromodichloromethane	--
	Nov/Dec 1999	--	--	--	--	--	--	--	3.8(EB)	--	--
	Mar/Apr 2000	--	--	--	--	--	--	--	3.8(EB)	--	--
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/Jun 1999	--	--	--	--	--	--	--	--	--	--
	Aug 1999	--	--	--	--	--	--	--	--	--	--
	Nov/Dec 1999	--	--	--	--	--	--	--	--	--	--
	Mar/Apr 2000	--	--	--	--	--	--	--	--	--	--
Screen 4	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/Jun 1999	--	--	--	--	--	--	--	--	--	--
	Aug 1999	--	--	--	--	--	--	--	--	--	--
	Nov/Dec 1999	--	--	--	--	--	--	--	--	--	--
	Mar/Apr 2000	--	--	--	--	--	--	--	--	--	--
Screen 5	Aug/Sep 1996	--	--	--	--	--	--	--	--	4.8(B) Acetone	(1)
	Oct/Nov 1996	--	--	--	--	--	--	--	--	--	(1)
	Feb/Mar 1997	--	--	--	--	--	--	--	--	--	(1)
	Jun/Jul 1997	--	--	--	--	--	--	--	--	--	--
	Sep/Oct 1997	--	--	--	--	--	--	--	--	--	--

TABLE 3-3

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

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Sampling Location	Sampling Event	Carbon Tetrachloride	TCE	PCE	1,1-DCA	1,2-DCA	1,1-DCE	Freon 113	Total Trihalomethanes (Primarily Chloroform)	Other Volatile Organic Compounds	Perchlorate
	Jan/Feb 1998	--	--	--	--	--	--	--	--	--	--
	Apr/May 1998	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	--	--	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	8.2
	Feb/Mar 1999	--	--	--	--	--	--	--	--	--	--
	May/Jun 1999	--	--	--	--	--	--	--	--	--	--
	Aug 1999	--	--	--	--	--	--	--	--	0.7 Carbonyl Sulfide	--
	Nov/Dec 1999	--	--	--	--	--	--	--	--	--	--
	Mar/Apr 2000	--	--	--	--	--	--	--	--	--	--
MW-21											
Screen 1	Aug/Sep 1996	--	**33**	0.7	--	--	--	--	1.8	2.3(B) Acetone	(1)
	Oct/Nov 1996	(7)	(7)	(7)	(7)	(7)	(7)	(7)	(7)	(7)	(7)
	Feb/Mar 1997	--	**29**	--	--	--	--	--	2.2	--	(1)
	Jun/Jul 1997	--	**20**	--	--	--	--	--	1.6	--	**19**
	Sep/Oct 1997	(7)	(7)	(7)	(7)	(7)	(7)	(7)	(7)	(7)	(7)
	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)[3]	--	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
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	--	--	--	--	--	--	--

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Sampling Location	Sampling Event	Carbon Tetrachloride	TCE	PCE	1,1-DCA	1,2-DCA	1,1-DCE	Freon 113	Total Trihalomethanes (Primarily Chloroform)	Other Volatile Organic Compounds	Perchlorate
	Nov/Dec 1999	--	--	1.2	--	--	--	--	--	--	4.6
	Mar/Apr 2000	--	--	0.9	--	--	--	--	--	1.8 Carbonyl Sulfide	4.1
Screen 3	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)	--	--
Screen 4	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 1.1 cis-1,2-Dichloroethene	--
	Mar/Apr 2000	--	--	4.0	--	--	--	--	--	0.9 cis-1,2-Dichloroethene	--
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[4]	5.2

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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	Total Trihalomethanes (Primarily Chloroform)	Other Volatile Organic Compounds	Perchlorate
	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
MW-22[9]											
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[5]	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
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[5]	--	--	--
	May/Jun 1999	--	--	--	--	--	--	--	--	--	--
	Aug 1999	--	--	--	--	--	--	--	--	--	--
	Nov/Dec 1999	--	--	--	--	--	--	--	--	--	--
	Mar/Apr 2000	--	--	--	--	--	--	--	--	--	--
Screen 3	Sep/Oct 1997	--	--	--	--	--	--	--	--	--	15
	Jan/Feb 1998	--	--	--	--	--	--	--	--	--	--
	Apr/May 1998	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	--	--	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	--
	Feb/Mar 1999	--	--	--	--	--	--	1.3[5]	--	--	--

TABLE 3-3

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	Total Trihalomethanes (Primarily Chloroform)	Other Volatile Organic Compounds	Perchlorate
	May/Jun 1999	--	--	--	--	--	--	--	--	--	--
	Aug 1999	--	--	--	--	--	--	--	--	--	--
	Nov/Dec 1999	--	--	--	--	--	--	--	--	--	--
	Mar/Apr 2000	--	--	--	--	--	--	--	--	--	--
Screen 4	Sep/Oct 1997	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 1998	--	--	--	--	--	--	--	--	--	--
	Apr/May 1998	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	--	--	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	--
	Feb/Mar 1999	--	--	--	--	--	--	1.3(5)	--	--	--
	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)	--
Screen 5	Sep/Oct 1997	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 1998	--	--	--	--	--	--	--	--	--	--
	Apr/May 1998	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	--	--	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	--
	Feb/Mar 1999	--	--	--	--	--	--	1.3(5)	--	--	--
	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)
MW-23(9)											
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(4)	**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)(3)	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

TABLE 3-3

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	Total Trihalomethanes (Primarily Chloroform)	Other Volatile Organic Compounds	Perchlorate
Screen 2	Sep/Oct 1997	--	--	--	--	--	--	--	--	--	7.6
	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(5)	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)(3)	--	7.8
	Aug 1999	--	--	--	--	--	--	--	0.5(EB)	--	--
	Nov/Dec 1999	--	--	--	--	--	--	--	--	--	7.5
	Mar/Apr 2000	--	--	0.6	--	--	--	--	0.6(EB)	--	7.2
Screen 3	Sep/Oct 1997	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 1998	--	--	--	--	--	--	--	--	--	--
	Apr/May 1998	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	--	1.7 Dichloromethane(5)	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	--
	Feb/Mar 1999	--	--	--	--	--	--	--	--	--	--
	May/Jun 1999	--	--	--	--	--	--	--	--	--	--
	Aug 1999	--	--	--	--	--	--	--	--	--	--
	Nov/Dec 1999	--	--	--	--	--	--	--	--	--	--
	Mar/Apr 2000	--	--	--	--	--	--	--	--	--	--
Screen 4	Sep/Oct 1997	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 1998	--	--	--	--	--	--	--	--	--	--
	Apr/May 1998	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	--	2.3 Dichloromethane(5)	--
	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)	--
Screen 5	Sep/Oct 1997	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 1998	--	--	--	--	--	--	--	--	--	--
	Apr/May 1998	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	--	1.7 Dichloromethane(5) 3.0 Unknown (RT=3.93)	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	3.1 2-Methyl-1-propene	17
	Feb/Mar 1999	--	--	--	--	--	--	--	--	--	--
	May/Jun 1999	--	--	--	--	--	--	--	--	--	--

TABLE 3-3

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	Total Trihalomethanes (Primarily Chloroform)	Other Volatile Organic Compounds	Perchlorate
	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)	--
MW-24[9]											
Screen 1	Sep/Oct 1997	**5.0**	5.0	--	--	--	--	0.6	3.1	--	**92**
	Jan/Feb 1998	**30E**	**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)[3]	--	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**
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	**30E**	3.0	1.0	--	--	1.5	--	6.6	--	**580**
	May/Jun 1999	**33**	4.3	1.3	--	--	1.8	--	7.7(EB)[3]	--	**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**
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	--	--	--	--	--	--	--	--	--	--
Screen 4	Sep/Oct 1997	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 1998	--	--	--	--	--	--	--	--	--	--
	Apr/May 1998	--	--	--	--	--	--	--	--	--	--

TABLE 3-3

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	Total Trihalomethanes (Primarily Chloroform)	Other Volatile Organic Compounds	Perchlorate
	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)
Screen 5	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)
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(10) 6.0 cis-1,2-Dichloroethene(10) 1,1,1-Trichloroethane(10)	18(11)
EPA Region IX Maximum Contaminant Level		5.0	5.0	5.0	NE	5.0	7.0	NE	100	5.0 Dichloromethane(10) 70 cis-1,2-Dichloroethene(10) 100 Bromodichloromethane(10) 1,1,1-Trichloroethane(10)	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: All the equipment blanks for the round had chloroform concentrations ranging from 0.8 to 2.9 µg/L. The ASTM Type II water used for the equipment blanks is the probable source of the chloroform.
4: Suspected by the laboratory to have resulted from carry over in analysis (see January/February 1998 report).
5: Attributed to laboratory contamination.
6: Results from duplicate analysis; original sample was non detect.
7: Not sampled, no water over screen.
8: Not sampled due to mechanical failure.
9: Wells installed June-August 1997.
10: Only VOCs for which MCLs have been established are listed.
11: California Department of Health Services Interim Action Level.

TABLE 3-4

RESULTS OF METALS ANALYSIS OF GROUNDWATER SAMPLES COLLECTED FROM JPL MONITORING WELLS, MARCH-APRIL 2000

(concentrations in mg/L)
Values above state or Federal MCLs are bold and shaded

Sample Location	Sample Number	Total Chromium	Hexavalent Chromium	Field Turbidity (NTUs)
MW-1	Not Sampled(1)			
MW-3				
Screen 1	Not Sampled(1)			
Screen 2	MW-001-070	--	--	3.5
Screen 3	MW-001-069	--	--	2.1
Screen 4	MW-001-068	--	--	2.2
Screen 5	MW-001-067	(1)	(1)	10.4
MW-4				
Screen 1	MW-001-066	--	--	1.5
Screen 2	MW-001-065	--	--	5.7
Screen 2 (DUP)	MW-001-064	--	--	5.7
Screen 3	MW-001-063	--	--	8.4
Screen 4	MW-001-062	--	--	1.0
Screen 5	MW-001-061	--	--	1.1
MW-5	MW-001-060	--	--	0.2
MW-6	MW-001-059	**0.082**	--	3.9
MW-7	MW-001-058	0.012	0.008	1.3
MW-8	MW-001-057	--	--	1.3
MW-9	Not Sampled(1)			
MW-10	MW-001-056	0.034	--	9.1
MW-10 DUP	MW-001-055	0.041	--	9.1
MW-11				
Screen 1	MW-001-054	--	--	2.7
Screen 2	MW-001-053	--	--	1.8
Screen 3	MW-001-052	--	--	1.2
Screen 4	MW-001-051	(1)	(1)	1.7
Screen 5	Not Sampled(1)			
MW-12				
Screen 1	MW-001-050	--	--	7.9
Screen 2	MW-001-049	--	--	0.9
Screen 2 (DUP)	MW-001-048	--	--	0.9
Screen 3	MW-001-047	--	--	0.8
Screen 4	MW-001-046	(1)	(1)	0.6
Screen 5	MW-001-045	(1)	(1)	5.9

TABLE 3-4

RESULTS OF METALS ANALYSIS OF GROUNDWATER SAMPLES COLLECTED FROM JPL MONITORING WELLS, MARCH-APRIL 2000

(concentrations in mg/L)
Values above state or Federal MCLs are bold and shaded

Sample Location	Sample Number	Total Chromium	Hexavalent Chromium	Field Turbidity (NTUs)
MW-13	MW-001-044	0.034	0.030	0.5
MW-13 DUP	MW-001-043	0.032	0.029	0.5
MW-14				
Screen 1	MW-001-042	--	--	1.7
Screen 2	MW-001-041	--	--	1.9
Screen 3	MW-001-040	--	--	0.6
Screen 4	MW-001-039	--	--	1.3
Screen 5	MW-001-038	(1)	(1)	3.2
MW-15	Not Sampled(1)			
MW-16	MW-001-037	--	--	0.1
MW-17				
Screen 1	Not Sampled(1)			
Screen 2	MW-001-036	--	--	2.0
Screen 3	MW-001-035	--	--	3.6
Screen 4	MW-001-034	--	--	10.0
Screen 5	MW-001-033	(1)	(1)	80.0
MW-18				
Screen 1	Not Sampled(1)			
Screen 2	MW-001-032	--	--	1.8
Screen 3	MW-001-031	--	--	0.2
Screen 4	MW-001-030	--	--	2.3
Screen 5	MW-001-029	(1)	(1)	2.3
MW-19				
Screen 1	MW-001-028	(1)	(1)	1.8
Screen 2	MW-001-027	(1)	(1)	1.9
Screen 3	MW-001-026	(1)	(1)	2.8
Screen 4	MW-001-025	(1)	(1)	0.7
Screen 5	MW-001-024	(1)	(1)	1.0
MW-20				
Screen 1	MW-001-023	--	--	2.8
Screen 2	MW-001-022	--	--	0.4
Screen 3	MW-001-021	--	--	0.3
Screen 4	MW-001-020	--	--	1.1
Screen 5	MW-001-019	--	--	0.4

TABLE 3-4

RESULTS OF METALS ANALYSIS OF GROUNDWATER SAMPLES COLLECTED FROM JPL MONITORING WELLS, MARCH-APRIL 2000

(concentrations in mg/L)
Values above state or Federal MCLs are bold and shaded

Sample Location	Sample Number	Total Chromium	Hexavalent Chromium	Field Turbidity (NTUs)
MW-21				
Screen 1	MW-001-018	(1)	(1)	(2)
Screen 2	MW-001-017	(1)	(1)	(2)
Screen 3	MW-001-016	(1)	(1)	(2)
Screen 4	MW-001-015	(1)	(1)	(2)
Screen 5	MW-001-014	(1)	(1)	(2)
MW-22				
Screen 1	MW-001-013	--	--	15.5
Screen 2	MW-001-012	--	--	0.8
Screen 3	MW-001-011	(1)	(1)	6.0
Screen 4	MW-001-010	(1)	(1)	2.4
Screen 5	Not Sampled(1)			
MW-23				
Screen 1	MW-001-009	--	--	44.2
Screen 2	MW-001-008	--	--	1.9
Screen 3	MW-001-007	--	--	1.6
Screen 4	MW-001-006	--	--	1.0
Screen 5	MW-001-005	(1)	(1)	3.0
MW-24				
Screen 1	MW-001-004	--	--	3.8
Screen 2	MW-001-003	--	--	19.2
Screen 3	MW-001-002	--	--	18.9
Screen 4	MW-001-001	--	--	9.5
Screen 5	Not Sampled(1)			
Practical Quantitation Limit		0.010	0.005	
California Maximum Contaminant Level		0.050	NE	
EPA Maximum Contaminant Level		0.100	NE	

(DUP): Duplicate.
NE: Not established.
--: Not detected.
1: Monitoring point not sampled for the particular constituent(s) due to changes in the sampling program as agreed to by the EPA, DTSC, and RWQCB.
2: Turbidity not measured due to equipment failure.

TABLE 3-5

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)
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)
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
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

TABLE 3-5

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)
	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/Jun 1999	--	--	--	--	1.8
	Aug 1999	(2)	(2)	--	--	2.5
	Nov/Dec 1999	(2)	(2)	--	--	2.3
	Mar/Apr 2000	(2)	(2)	--	--	2.1
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/Jun 1999	--	--	--	--	1.5
	Aug 1999	(2)	(2)	--	--	1.1
	Nov/Dec 1999	(2)	(2)	--	--	2.6
	Mar/Apr 2000	(2)	(2)	--	--	2.2
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/Jun 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
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

TABLE 3-5

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)
	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
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
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
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

TABLE 3-5

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	--	--	--	--	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
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
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
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

TABLE 3-5

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)
	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
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
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/Jun 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)
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/Jun 1999	--	--	--	--	1.8
	Aug 1999	(2)	(2)	--	--	3.6

TABLE 3-5

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)
	Nov/Dec 1999	(2)	(2)	0.026	--	4.7
	Mar/Apr 2000	(2)	(2)	0.041	--	9.1
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/Jun 1999	--	--	--	--	1.1
	Aug 1999	(2)	(2)	--	--	1.2
	Nov/Dec 1999	(2)	(2)	--	--	2.4
	Mar/Apr 2000	(2)	(2)	--	--	2.7
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
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

TABLE 3-5

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	--	--	--	--	3.9
	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
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)
MW-12						
Screen 1	Aug/Sep 1996	--	0.004	--	--	50.4
	Oct/Nov 1996	(4)	(4)	(4)	(4)	(4)
	Feb/Mar 1997	--	0.003	--	--	3.8
	Jun/Jul 1997	--	--	--	--	4.8
	Sep/Oct 1997	(4)	(4)	(4)	(4)	(4)
	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
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

TABLE 3-5

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)
	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
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/Jun 1999	--	--	--	--	0.8
	Aug 1999	(2)	(2)	--	--	0.4
	Nov/Dec 1999	(2)	(2)	--	--	0.4
	Mar/Apr 2000	(2)	(2)	--	--	0.8
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/Jun 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
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/Jun 1999	--	--	--	--	3.2

TABLE 3-5

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)
	Aug 1999	(2)	(2)	(2)	(2)	4.8
	Nov/Dec 1999	(2)	(2)	--	--	3.7
	Mar/Apr 2000	(2)	(2)	(2)	(2)	5.9
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/Jun 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
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/Jun 1999	--	--	--	--	3.4
	Aug 1999	(2)	(2)	--	--	1.7
	Nov/Dec 1999	(5)	(5)	(5)	(5)	(5)
	Mar/Apr 2000	(2)	(2)	--	--	1.7
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/Jun 1999	--	--	--	--	4.4
	Aug 1999	(2)	(2)	--	--	2.8
	Nov/Dec 1999	(2)	(2)	--	--	4.6
	Mar/Apr 2000	(2)	(2)	--	--	1.9

TABLE 3-5

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
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
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
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

TABLE 3-5

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)
	Apr/May 1998	--	--	--	--	0.4
	Jul/Aug 1998	--	--	--	--	3.0
	Oct/Nov 1998	--	--	--	--	2.0
	Feb/Mar 1999	--	--	--	--	0.6
	May/Jun 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)
MW-16	Aug/Sep 1996	--	--	0.018	--	3.4
	Oct/Nov 1996	(4)	(4)	(4)	(4)	1.4
	Feb/Mar 1997	--	--	--	0.007	0.2
	Jun/Jul 1997	--	--	--	--	0.1
	Sep/Oct 1997	(4)	(4)	(4)	(4)	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/Jun 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
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/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)
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/Jun 1999	--	--	--	--	1.6

TABLE 3-5

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)
	Aug 1999	(2)	(2)	--	--	12.4
	Nov/Dec 1999	(2)	(2)	--	--	3.1
	Mar/Apr 2000	(2)	(2)	--	--	2.0
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/Jun 1999	--	--	--	--	2.2
	Aug 1999	(2)	(2)	--	--	2.5
	Nov/Dec 1999	(2)	(2)	--	--	4.6
	Mar/Apr 2000	(2)	(2)	--	--	3.6
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/Jun 1999	--	--	--	--	7.9
	Aug 1999	(2)	(2)	--	--	4.1
	Nov/Dec 1999	(2)	(2)	--	--	4.9
	Mar/Apr 2000	(2)	(2)	--	--	10.0
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

TABLE 3-5

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-18						
Screen 1	Aug/Sep 1996	--	--	NS	NS	0.9
	Oct/Nov 1996	(4)	--	--	--	--
	Feb/Mar 1997	--	--	--	--	1.9
	Jun/Jul 1997	--	--	--	--	0.4
	Sep/Oct 1997	(4)	--	--	--	--
	Jan/Feb 1998	(4)	--	--	--	--
	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	(4)	(4)	(4)	(4)	(4)
	Mar/Apr 2000	(2)	(2)	(2)	(2)	(2)
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
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
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

TABLE 3-5

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)
	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
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
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/Jun 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
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

TABLE 3-5

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)
	May/Jun 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
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/Jun 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
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
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

TABLE 3-5

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-20						
Screen 1	Aug/Sep 1996	--	--	--	NS	3.5
	Oct/Nov 1996	(4)	(4)	(4)	(4)	(4)
	Feb/Mar 1997	--	--	--	--	2.3
	Jun/Jul 1997	--	--	--	--	0.2
	Sep/Oct 1997	(4)	(4)	(4)	(4)	(4)
	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
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/Jun 1999	--	--	--	--	0.9
	Aug 1999	(2)	(2)	--	--	2.8
	Nov/Dec 1999	(2)	(2)	--	--	0.5
	Mar/Apr 2000	(2)	(2)	--	--	0.4
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/Jun 1999	--	--	--	--	1.0
	Aug 1999	(2)	(2)	--	--	0.7
	Nov/Dec 1999	(2)	(2)	--	--	0.3
	Mar/Apr 2000	(2)	(2)	--	--	0.3
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

TABLE 3-5

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)
	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/Jun 1999	--	--	--	--	2.4
	Aug 1999	(2)	(2)	--	--	0.3
	Nov/Dec 1999	(2)	(2)	--	--	2.3
	Mar/Apr 2000	(2)	(2)	--	--	1.1
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
MW-21						
Screen 1	Aug/Sep 1996	--	--	NS	NS	0.9
	Oct/Nov 1996	(4)	(4)	(4)	(4)	(4)
	Feb/Mar 1997	--	--	--	--	1.1
	Jun/Jul 1997	--	--	--	--	2.8
	Sep/Oct 1997	(4)	(4)	(4)	(4)	(4)
	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)
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

TABLE 3-5

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)
	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)
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)
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)
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)

TABLE 3-5

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[6]						
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
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
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
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
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

TABLE 3-5

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)
	Aug 1999	(2)	(2)	(2)	(2)	(2)
	Nov/Dec 1999	(2)	(2)	--	--	0.6
	Mar/Apr 2000	(2)	(2)	(2)	(2)	(2)
MW-23[6]						
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
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
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
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
Screen 5	Sep/Oct 1997	--	--	--	--	1.8
	Jan/Feb 1998	--	--	--	--	1.8
	Apr/May 1998	--	--	--	--	2.4
	Jul/Aug 1998	--	--	--	--	1.7

TABLE 3-5

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)
	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
MW-24[6]						
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
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
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
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

TABLE 3-5

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	--	--	--	--	4.8
	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)
Practical Quantitation Limit		0.005	0.002	0.01	0.005	
Calif. Maximum Contaminant Level		0.05	(7)	0.05	NE	
EPA Maximum Contaminant Level		0.05	(7)	0.10	NE	

--: Not detected.
NS: Not sampled.
NE: Not established.
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.
3: Believed to be a laboratory error.
4: Not sampled, no water over screen.
5: Not sampled due to mechanical failure.
6: Wells installed June-August 1997.
7: Treatment technique and public notification triggered at Action Level of 0.015 mg/L.
8: Turbidity not measured due to equipment failure.

TABLE 4-1

GROUNDWATER MONITORING WELL WATER LEVEL MEASUREMENTS

March 6 & 8, 2000

Well Number	Screen Number	Date Measured	Depth to Water (ft)	Reference Elevation (ft msl)	Water Level Elevation (ft msl)
MW-1		3/6/2000	22.75	1116.69	1093.94
MW-3	1 (top)	3/8/2000	114.41	1100.34	985.93
	2	3/8/2000	126.99	1100.34	973.35
	3	3/8/2000	130.88	1100.34	969.46
	4	3/8/2000	213.12	1100.34	887.22
	5	3/8/2000	244.10	1100.34	856.24
MW-4	1 (top)	3/8/2000	89.95	1082.84	992.89
	2	3/8/2000	107.75	1082.84	975.09
	3	3/8/2000	111.00	1082.84	971.84
	4	3/8/2000	120.41	1082.84	962.43
	5	3/8/2000	199.86	1082.84	882.98
MW-5		3/6/2000	83.19	1071.62	988.43
MW-6		3/6/2000	196.04	1188.54	992.50
MW-7		3/6/2000	231.99	1212.90	980.91
MW-8		3/6/2000	155.07	1139.55	984.48
MW-9		3/6/2000	18.20	1106.06	1087.86
MW-10		3/6/2000	104.68	1087.73	983.05
MW-11	1 (top)	3/8/2000	118.75	1139.30	1020.55
	2	3/8/2000	153.39	1139.30	985.91
	3	3/8/2000	168.92	1139.30	970.38
	4	3/8/2000	179.16	1139.30	960.14
	5	3/8/2000	239.50	1139.30	899.80
MW-12	1 (top)	3/8/2000	102.02	1102.14	1000.12
	2	3/8/2000	124.05	1102.14	978.09
	3	3/8/2000	127.45	1102.14	974.69
	4	3/8/2000	141.47	1102.14	960.67
	5	3/8/2000	205.49	1102.14	896.65
MW-13		3/6/2000	201.20	1183.49	982.29

TABLE 4-1

GROUNDWATER MONITORING WELL WATER LEVEL MEASUREMENTS

March 6 & 8, 2000

Well Number	Screen Number	Date Measured	Depth to Water (ft)	Reference Elevation (ft msl)	Water Level Elevation (ft msl)
MW-14	1 (top)	3/8/2000	Inaccessible port	1173.47	No Data
	2	3/8/2000	Inaccessible port	1173.47	No Data
	3	3/8/2000	Inaccessible port	1173.47	No Data
	4	3/8/2000	Inaccessible port	1173.47	No Data
	5	3/8/2000	Inaccessible port	1173.47	No Data
MW-15		3/6/2000	28.55	1120.68	1092.13
MW-16		3/6/2000	254.96	1236.29	981.33
MW-17	1 (top)	3/8/2000	221.59	1191.21	969.62
	2	3/8/2000	224.91	1191.21	966.30
	3	3/8/2000	235.75	1191.21	955.46
	4	3/8/2000	292.89	1191.21	898.32
	5	3/8/2000	304.79	1191.21	886.42
MW-18	1 (top)	3/8/2000	263.13	1225.41	962.28
	2	3/8/2000	261.20	1225.41	964.21
	3	3/8/2000	259.63	1225.41	965.78
	4	3/8/2000	289.47	1225.41	935.94
	5	3/8/2000	306.75	1225.41	918.66
MW-19	1 (top)	3/8/2000	174.67	1142.94	968.27
	2	3/8/2000	187.04	1142.94	955.90
	3	3/8/2000	192.00	1142.94	950.94
	4	3/8/2000	297.54	1142.94	845.40
	5	3/8/2000	301.80	1142.94	841.14
MW-20	1 (top)	3/8/2000	210.83	1165.05	954.22
	2	3/8/2000	210.55	1165.05	954.50
	3	3/8/2000	219.60	1165.05	945.45
	4	3/8/2000	238.66	1165.05	926.39
	5	3/8/2000	212.71	1165.05	952.34

TABLE 4-1

GROUNDWATER MONITORING WELL WATER LEVEL MEASUREMENTS

March 6 & 8, 2000

Well Number	Screen Number	Date Measured	Depth to Water (ft)	Reference Elevation (ft msl)	Water Level Elevation (ft msl)
MW-21	1 (top)	3/8/2000	72.84	1059.10	986.26
	2	3/8/2000	70.40	1059.10	988.70
	3	3/8/2000	70.54	1059.10	988.56
	4	3/8/2000	71.59	1059.10	987.51
	5	3/8/2000	71.65	1059.10	987.45
MW-22	1 (top)	3/8/2000	191.67	1176.98	985.31
	2	3/8/2000	190.03	1176.98	986.95
	3	3/8/2000	189.72	1176.98	987.26
	4	3/8/2000	208.22	1176.98	968.76
	5	3/8/2000	219.95	1176.98	957.03
MW-23	1 (top)	3/8/2000	124.54	1108.84	984.30
	2	3/8/2000	126.92	1108.84	981.92
	3	3/8/2000	127.23	1108.84	981.61
	4	3/8/2000	149.91	1108.84	958.93
	5	3/8/2000	150.61	1108.84	958.23
MW-24	1 (top)	3/8/2000	216.98	1200.94	983.96
	2	3/8/2000	220.37	1200.94	980.57
	3	3/8/2000	222.60	1200.94	978.34
	4	3/8/2000	248.07	1200.94	952.87
	5	3/8/2000	271.07	1200.94	929.87

TABLE 4-2

GROUNDWATER MONITORING WELL WATER LEVEL MEASUREMENTS

April 3, 2000

Well Number	Screen Number	Date Measured	Depth to Water (ft)	Reference Elevation (ft msl)	Water Level Elevation (ft msl)
MW-1		4/3/2000	23.98	1116.69	1092.71
MW-3	1 (top)	4/3/2000	106.51	1100.34	993.83
	2	4/3/2000	119.35	1100.34	980.99
	3	4/3/2000	123.79	1100.34	976.55
	4	4/3/2000	208.45	1100.34	891.89
	5	4/3/2000	239.41	1100.34	860.93
MW-4	1 (top)	4/3/2000	80.73	1082.84	1002.11
	2	4/3/2000	100.10	1082.84	982.74
	3	4/3/2000	103.94	1082.84	978.90
	4	4/3/2000	113.87	1082.84	968.97
	5	4/3/2000	195.61	1082.84	887.23
MW-5		4/3/2000	72.45	1071.62	999.17
MW-6		4/3/2000	189.14	1188.54	999.40
MW-7		4/3/2000	217.04	1212.90	995.86
MW-8		4/3/2000	140.07	1139.55	999.48
MW-9		4/3/2000	20.35	1106.06	1085.71
MW-10		4/3/2000	93.42	1087.73	994.31
MW-11	1 (top)	4/3/2000	114.27	1139.30	1025.03
	2	4/3/2000	144.82	1139.30	994.48
	3	4/3/2000	161.86	1139.30	977.44
	4	4/3/2000	173.08	1139.30	966.22
	5	4/3/2000	234.01	1139.30	905.29
MW-12	1 (top)	4/3/2000	91.97	1102.14	1010.17
	2	4/3/2000	115.51	1102.14	986.63
	3	4/3/2000	119.77	1102.14	982.37
	4	4/3/2000	134.98	1102.14	967.16
	5	4/3/2000	200.70	1102.14	901.44
MW-13		4/3/2000	188.31	1183.49	995.18

TABLE 4-2

GROUNDWATER MONITORING WELL WATER LEVEL MEASUREMENTS

April 3, 2000

Well Number	Screen Number	Date Measured	Depth to Water (ft)	Reference Elevation (ft msl)	Water Level Elevation (ft msl)
MW-14	1 (top)	4/3/2000	172.18	1173.47	1001.29
	2	4/3/2000	172.11	1173.47	1001.36
	3	4/3/2000	171.94	1173.47	1001.53
	4	4/3/2000	172.02	1173.47	1001.45
	5	4/3/2000	172.63	1173.47	1000.84
MW-15		4/3/2000	30.35	1120.68	1090.33
MW-16		4/3/2000	241.44	1236.29	994.85
MW-17	1 (top)	4/3/2000	200.82	1191.21	990.39
	2	4/3/2000	217.56	1191.21	973.65
	3	4/3/2000	229.16	1191.21	962.05
	4	4/3/2000	288.08	1191.21	903.13
	5	4/3/2000	299.83	1191.21	891.38
MW-18	1 (top)	4/3/2000	250.61	1225.41	974.80
	2	4/3/2000	250.70	1225.41	974.71
	3	4/3/2000	251.91	1225.41	973.50
	4	4/3/2000	283.45	1225.41	941.96
	5	4/3/2000	301.70	1225.41	923.71
MW-19	1 (top)	4/3/2000	168.03	1142.94	974.91
	2	4/3/2000	181.08	1142.94	961.86
	3	4/3/2000	186.15	1142.94	956.79
	4	4/3/2000	295.63	1142.94	847.31
	5	4/3/2000	299.90	1142.94	843.04
MW-20	1 (top)	4/3/2000	207.25	1165.05	957.80
	2	4/3/2000	206.12	1165.05	958.93
	3	4/3/2000	215.96	1165.05	949.09
	4	4/3/2000	234.16	1165.05	930.89
	5	4/3/2000	208.37	1165.05	956.68

TABLE 4-2

GROUNDWATER MONITORING WELL WATER LEVEL MEASUREMENTS

April 3, 2000

Well Number	Screen Number	Date Measured	Depth to Water (ft)	Reference Elevation (ft msl)	Water Level Elevation (ft msl)
MW-21	1 (top)	4/3/2000	66.24	1059.10	992.86
	2	4/3/2000	64.59	1059.10	994.51
	3	4/3/2000	64.93	1059.10	994.17
	4	4/3/2000	66.12	1059.10	992.98
	5	4/3/2000	66.13	1059.10	992.97
MW-22	1 (top)	4/3/2000	181.99	1176.98	994.99
	2	4/3/2000	183.27	1176.98	993.71
	3	4/3/2000	183.15	1176.98	993.83
	4	4/3/2000	202.24	1176.98	974.74
	5	4/3/2000	213.97	1176.98	963.01
MW-23	1 (top)	4/3/2000	114.44	1108.84	994.40
	2	4/3/2000	119.53	1108.84	989.31
	3	4/3/2000	120.13	1108.84	988.71
	4	4/3/2000	143.82	1108.84	965.02
	5	4/3/2000	144.38	1108.84	964.46
MW-24	1 (top)	4/3/2000	204.19	1200.94	996.75
	2	4/3/2000	211.97	1200.94	988.97
	3	4/3/2000	215.45	1200.94	985.49
	4	4/3/2000	242.08	1200.94	958.86
	5	4/3/2000	266.18	1200.94	934.76

FIGURES

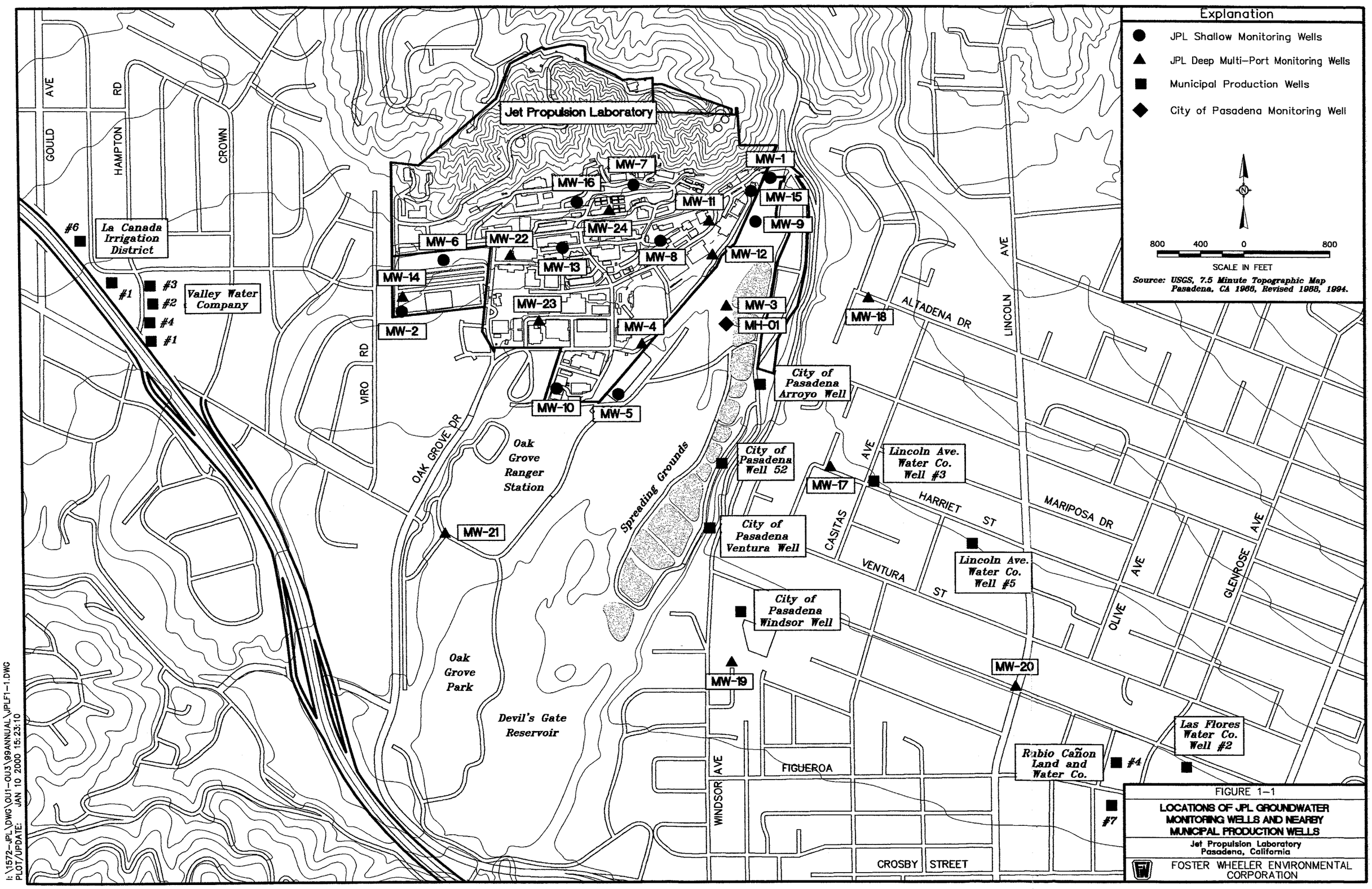

FIGURE 1-1

LOCATIONS OF JPL GROUNDWATER MONITORING WELLS AND NEARBY MUNICIPAL PRODUCTION WELLS

Jet Propulsion Laboratory
Pasadena, California

FOSTER WHEELER ENVIRONMENTAL CORPORATION

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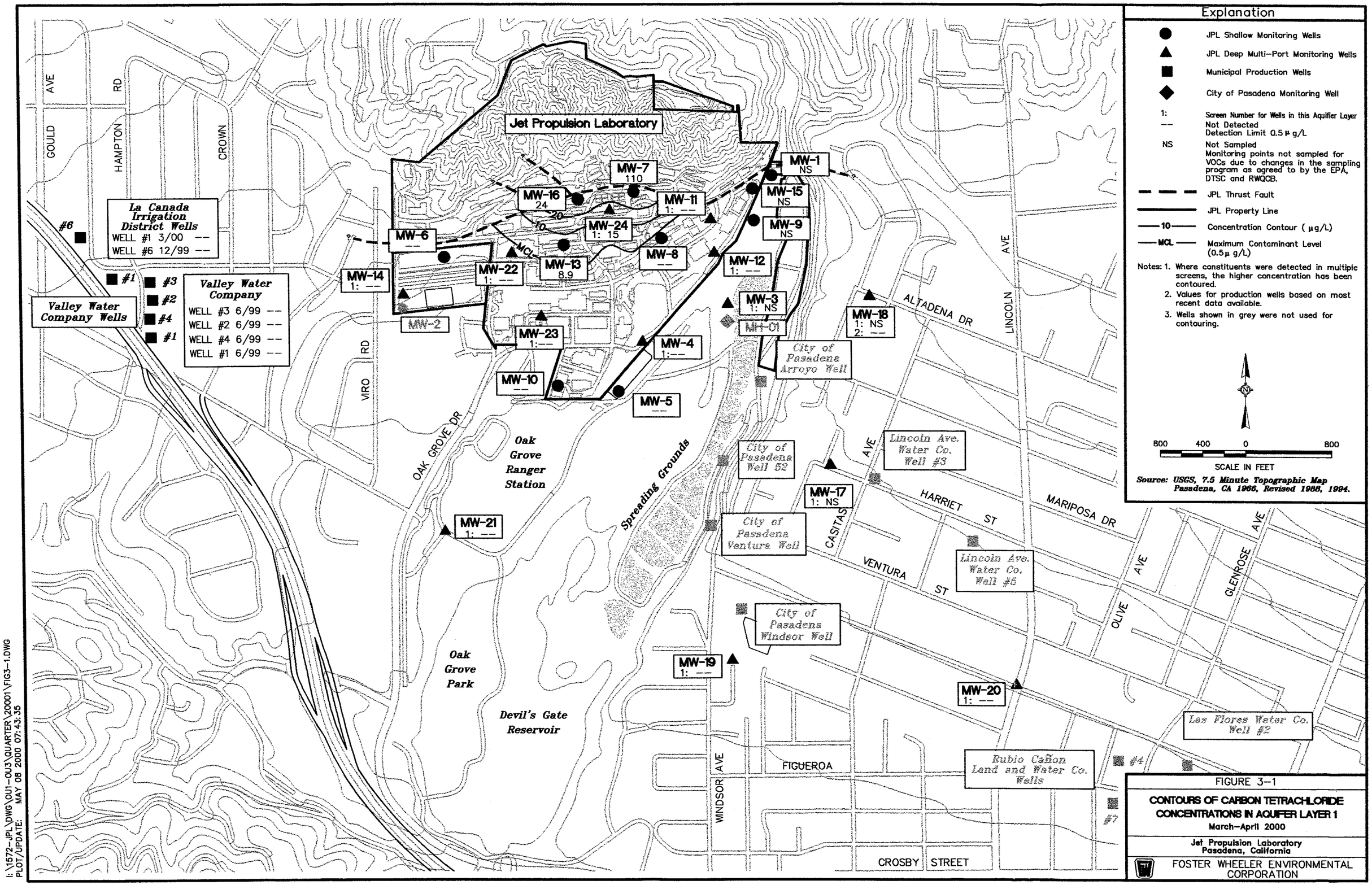

FIGURE 3-1

CONTOURS OF CARBON TETRACHLORIDE CONCENTRATIONS IN AQUIFER LAYER 1

March-April 2000

Jet Propulsion Laboratory
Pasadena, California

FOSTER WHEELER ENVIRONMENTAL CORPORATION

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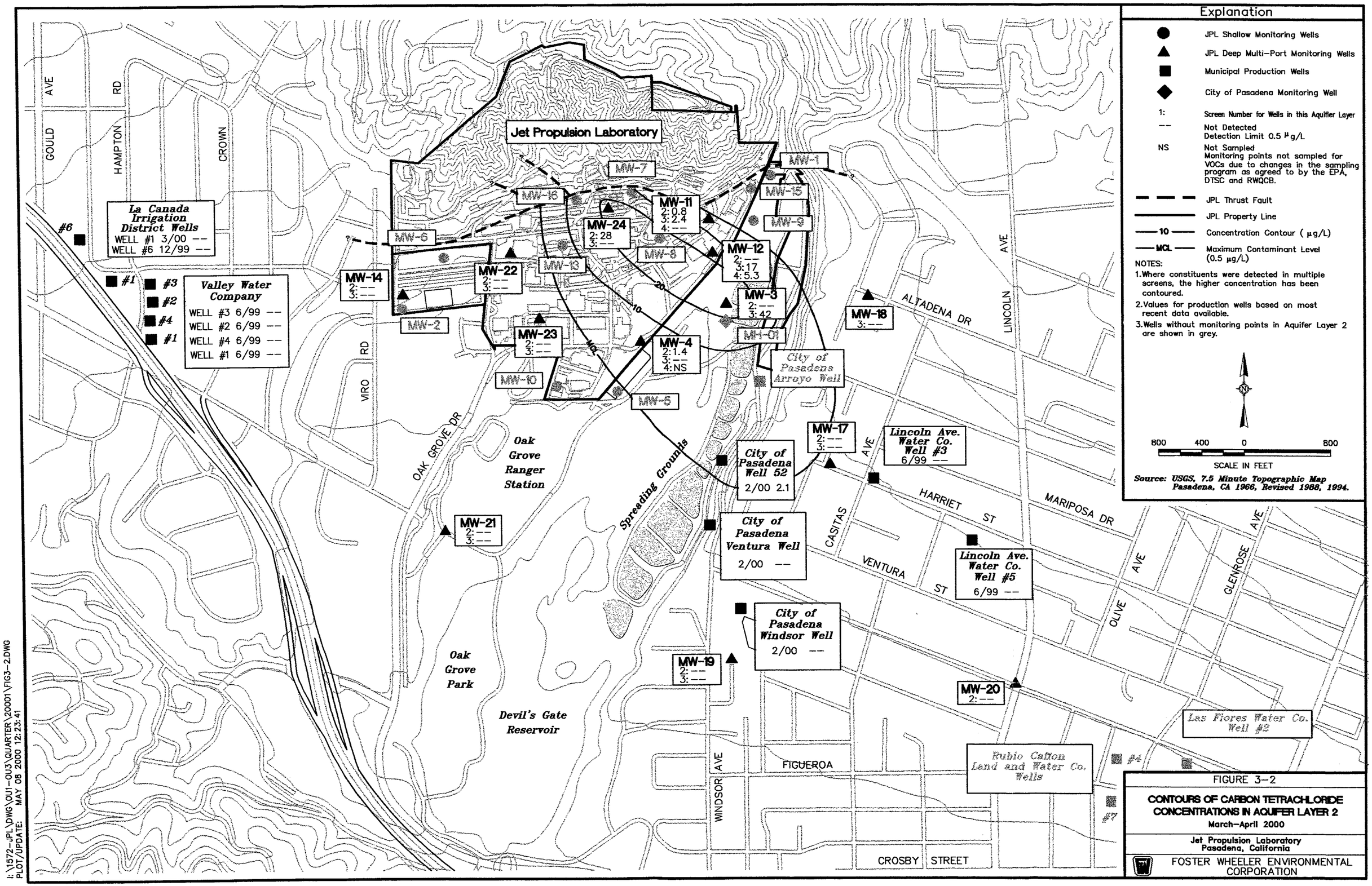

FIGURE 3-2

CONTOURS OF CARBON TETRACHLORIDE CONCENTRATIONS IN AQUIFER LAYER 2

March-April 2000

Jet Propulsion Laboratory
Pasadena, California

FOSTER WHEELER ENVIRONMENTAL CORPORATION

I:\1572-JPL\DWG\OU1-OU3\QUARTER\20001\FIG3-2.DWG
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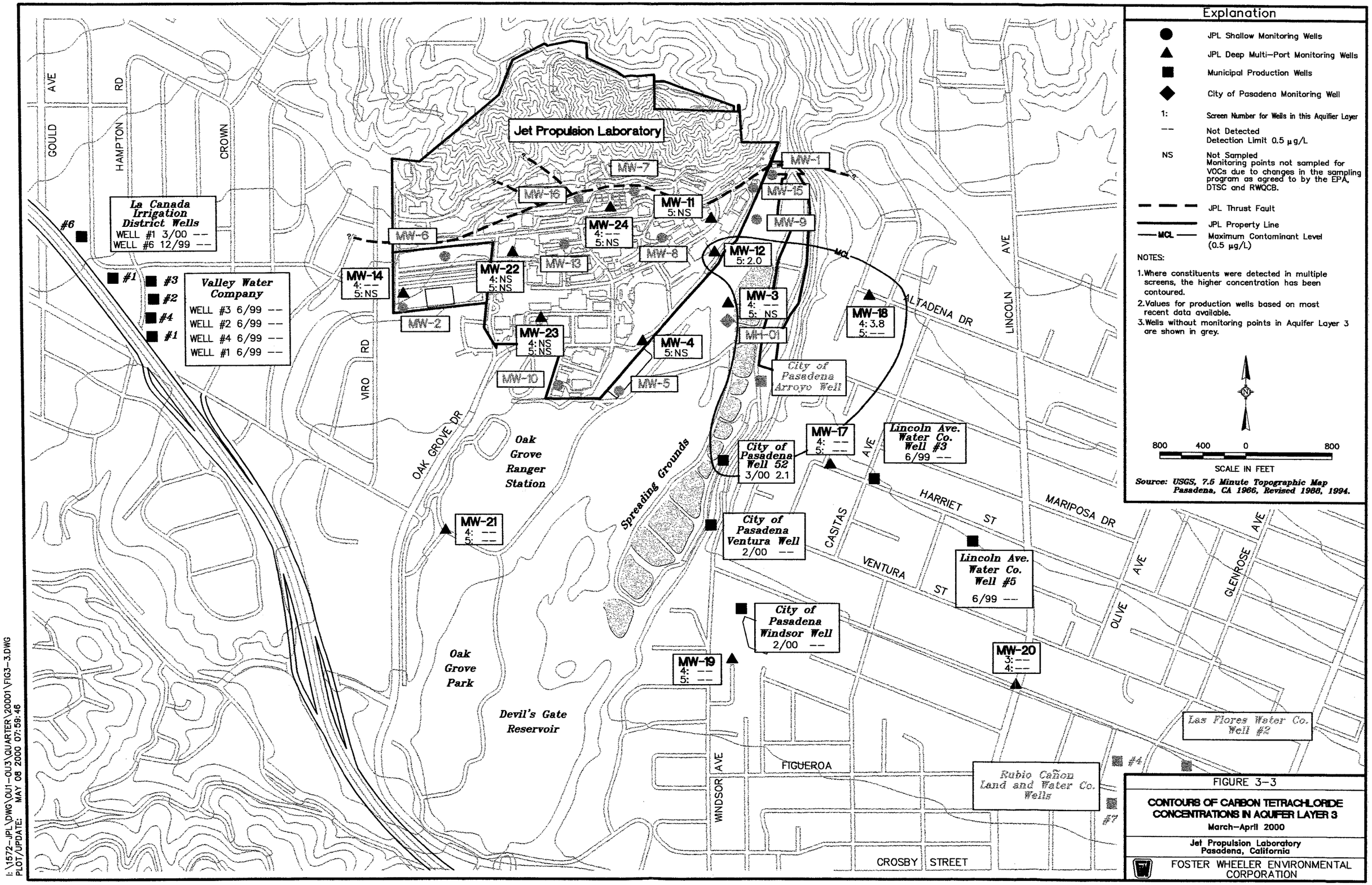
Jet Propulsion Laboratory
MW-1
MW-2
MW-3
4: --
5: NS
MW-4
5: NS
MW-5
MW-6
MW-7
MW-8
MW-9
MW-10
MW-11
5: NS
MW-12
5: 2.0
MW-13
MW-14
4: --
5: NS
MW-15
MW-16
MW-17
4: --
5: --
MW-18
4: 3.8
5: --
MW-19
4: --
5: --
MW-20
3: --
4: --
MW-21
4: --
5: --
MW-22
4: NS
5: NS
MW-23
4: NS
5: NS
MW-24
4: --
5: NS
MW-101
MCL
La Canada Irrigation District Wells
WELL #1 3/00 --
WELL #6 12/99 --
Valley Water Company
WELL #3 6/99 --
WELL #2 6/99 --
WELL #4 6/99 --
WELL #1 6/99 --
#1
#2
#3
#4
#6
#7
City of Pasadena Arroyo Well
City of Pasadena Well 52
3/00 2.1
Lincoln Ave. Water Co. Well #3
6/99 --
City of Pasadena Ventura Well
2/00 --
Lincoln Ave. Water Co. Well #5
6/99 --
City of Pasadena Windsor Well
2/00 --
Oak Grove Ranger Station
Oak Grove Park
Devil's Gate Reservoir
Spreading Grounds
Las Flores Water Co. Well #2
Rubio Cañon Land and Water Co. Wells
GOULD AVE
HAMPTON RD
CROWN
VIRO RD
OAK GROVE DR
ALTADENA DR
LINCOLN AVE
CASITAS AVE
HARRIET ST
MARIPOSA DR
VENTURA ST
OLIVE AVE
GLENROSE AVE
WINDSOR AVE
FIGUEROA
CROSBY STREET
Explanation
JPL Shallow Monitoring Wells
JPL Deep Multi-Port Monitoring Wells
Municipal Production Wells
City of Pasadena Monitoring Well
1: Screen Number for Wells in this Aquifer Layer
-- Not Detected Detection Limit 0.5 µg/L
NS Not Sampled Monitoring points not sampled for VOCs due to changes in the sampling program as agreed to by the EPA, DTSC and RWQCB.
JPL Thrust Fault
JPL Property Line
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.
3. Wells without monitoring points in Aquifer Layer 3 are shown in grey.
N
800 400 0 800
SCALE IN FEET
Source: USGS, 7.5 Minute Topographic Map Pasadena, CA 1966, Revised 1988, 1994.
FIGURE 3-3
CONTOURS OF CARBON TETRACHLORIDE CONCENTRATIONS IN AQUIFER LAYER 3
March-April 2000
Jet Propulsion Laboratory
Pasadena, California
FOSTER WHEELER ENVIRONMENTAL CORPORATION
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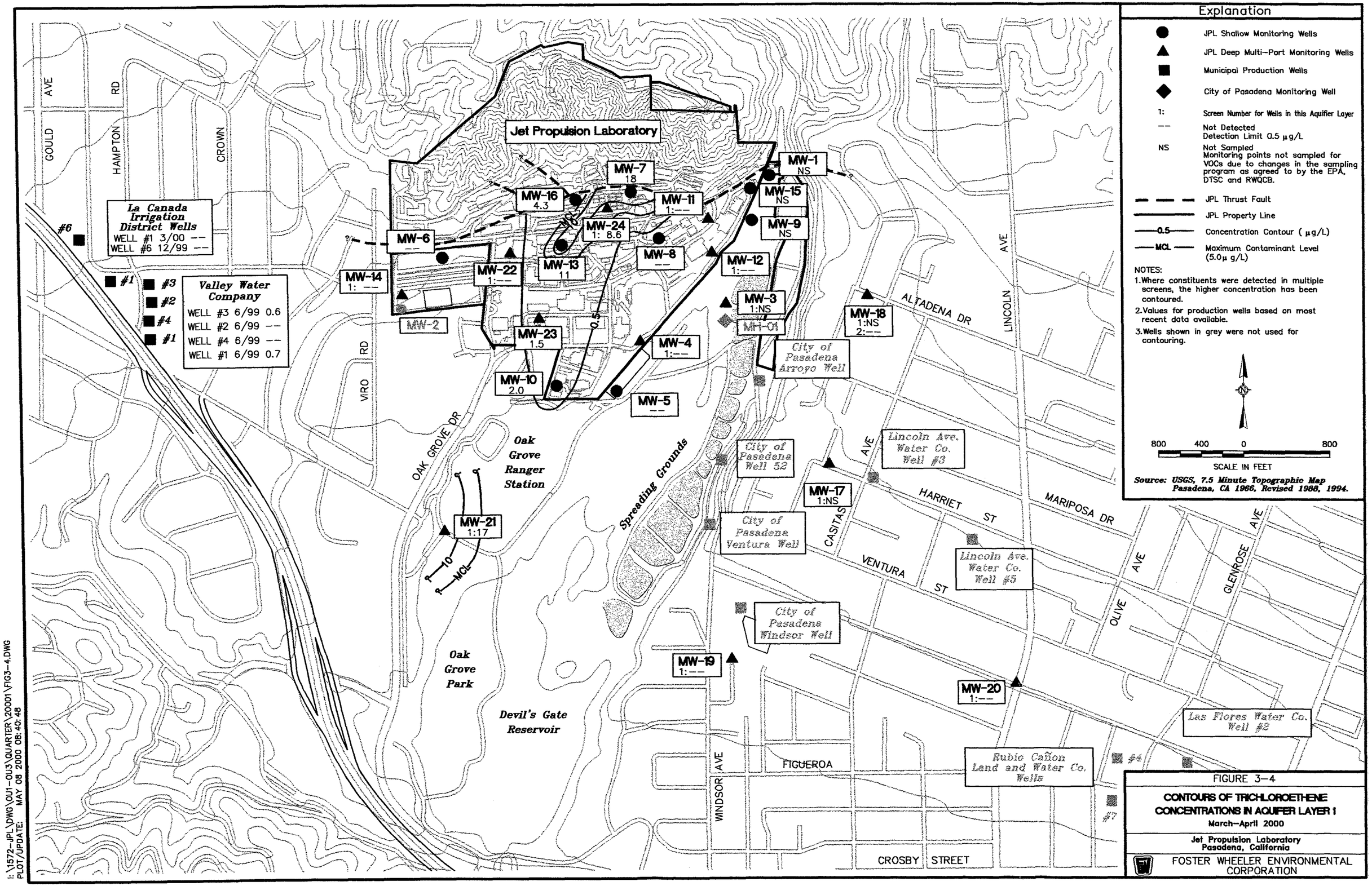

FIGURE 3–4

CONTOURS OF TRICHLOROETHENE CONCENTRATIONS IN AQUIFER LAYER 1

March–April 2000

Jet Propulsion Laboratory
Pasadena, California

FOSTER WHEELER ENVIRONMENTAL CORPORATION

I:\1572-JPL\DWG\OU1-OU3\QUARTER\20001\FIG3-4.DWG
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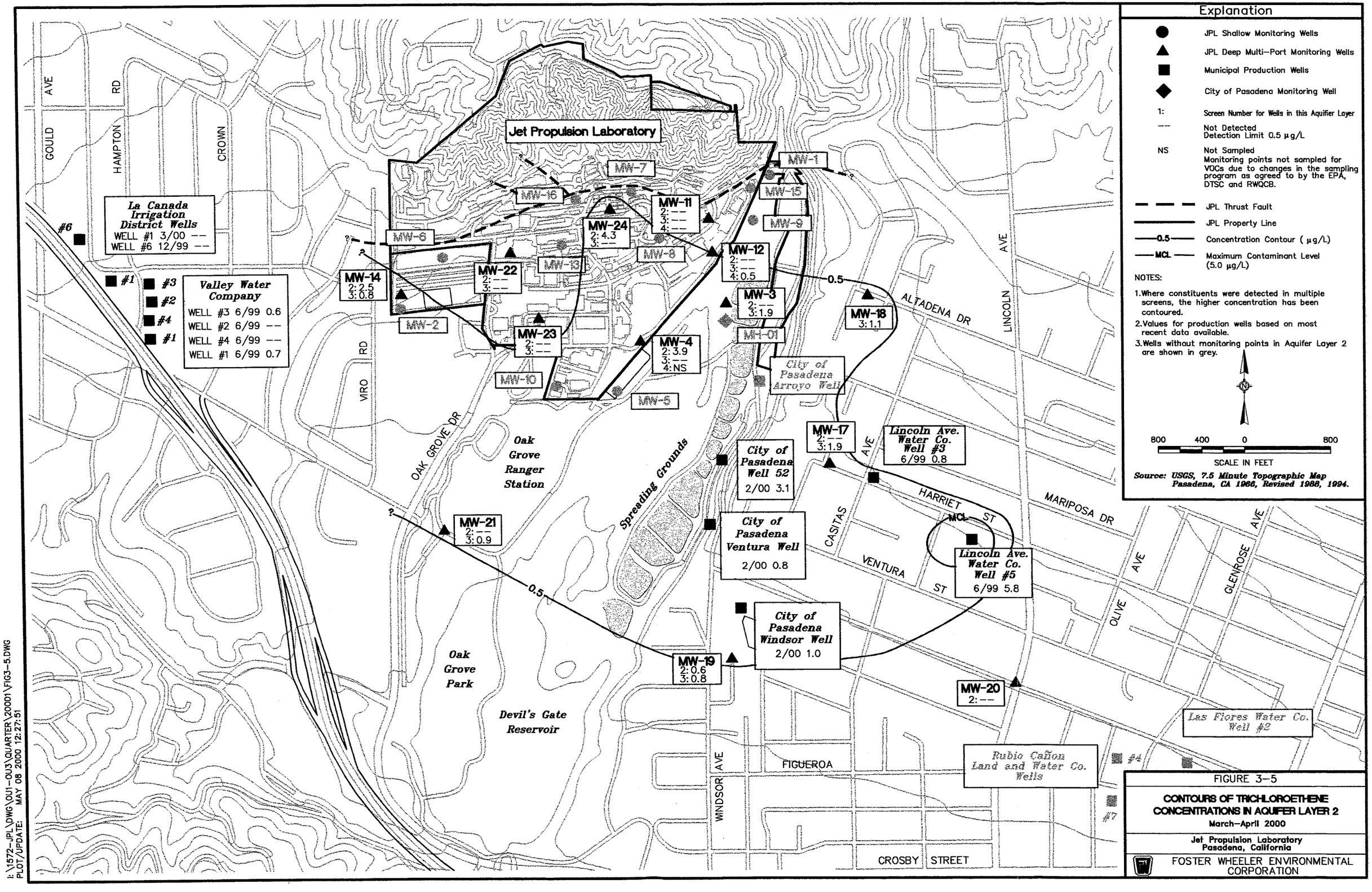

FIGURE 3-5

CONTOURS OF TRICHLOROETHENE CONCENTRATIONS IN AQUIFER LAYER 2

March-April 2000

Jet Propulsion Laboratory
Pasadena, California

FOSTER WHEELER ENVIRONMENTAL CORPORATION

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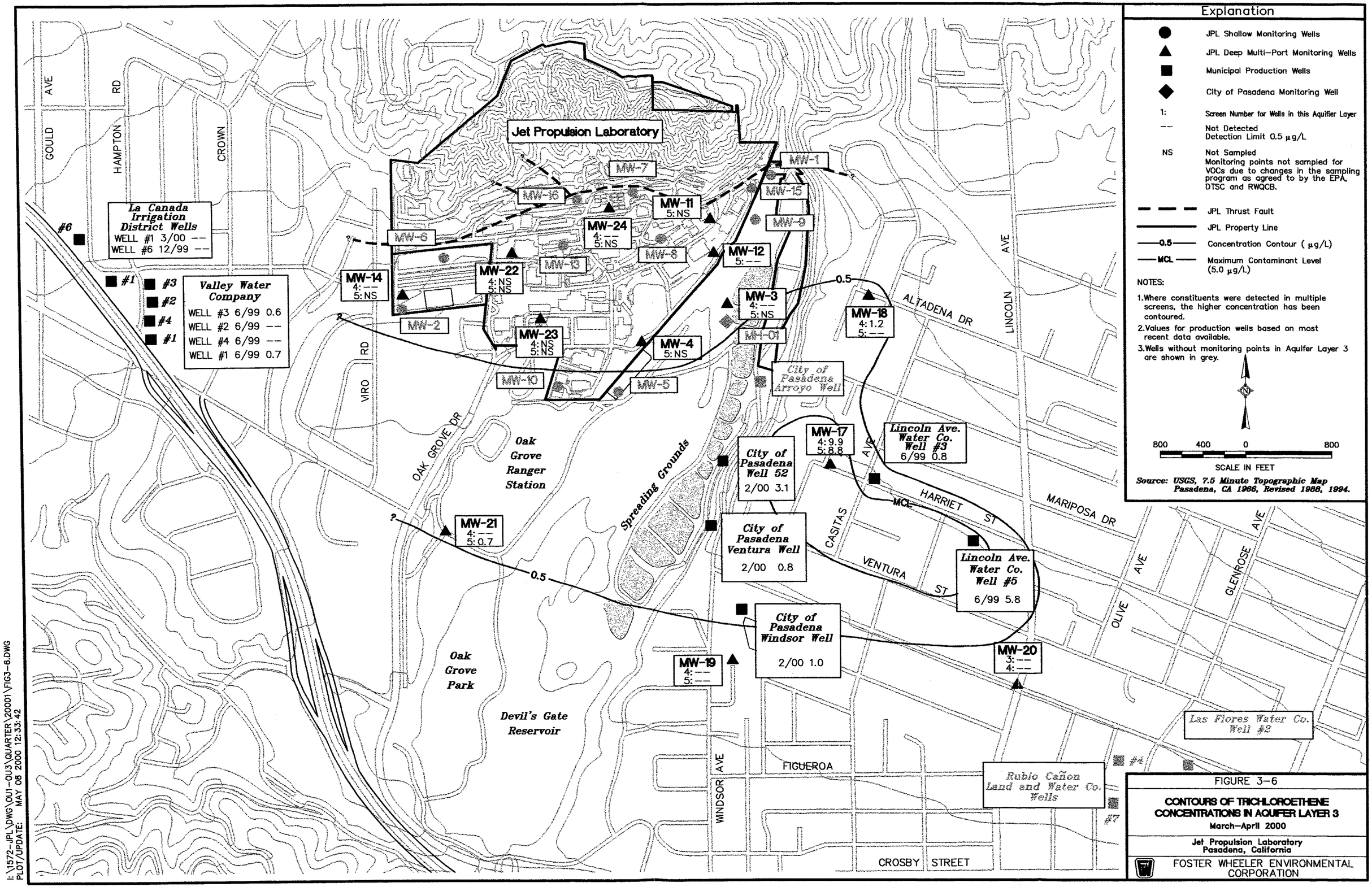

FIGURE 3-6

CONTOURS OF TRICHLOROETHENE CONCENTRATIONS IN AQUIFER LAYER 3

March-April 2000

Jet Propulsion Laboratory
Pasadena, California

FOSTER WHEELER ENVIRONMENTAL CORPORATION

I:\1572-JPL\DWG\OU1-OU3\QUARTER\20001\FIG3-6.DWG
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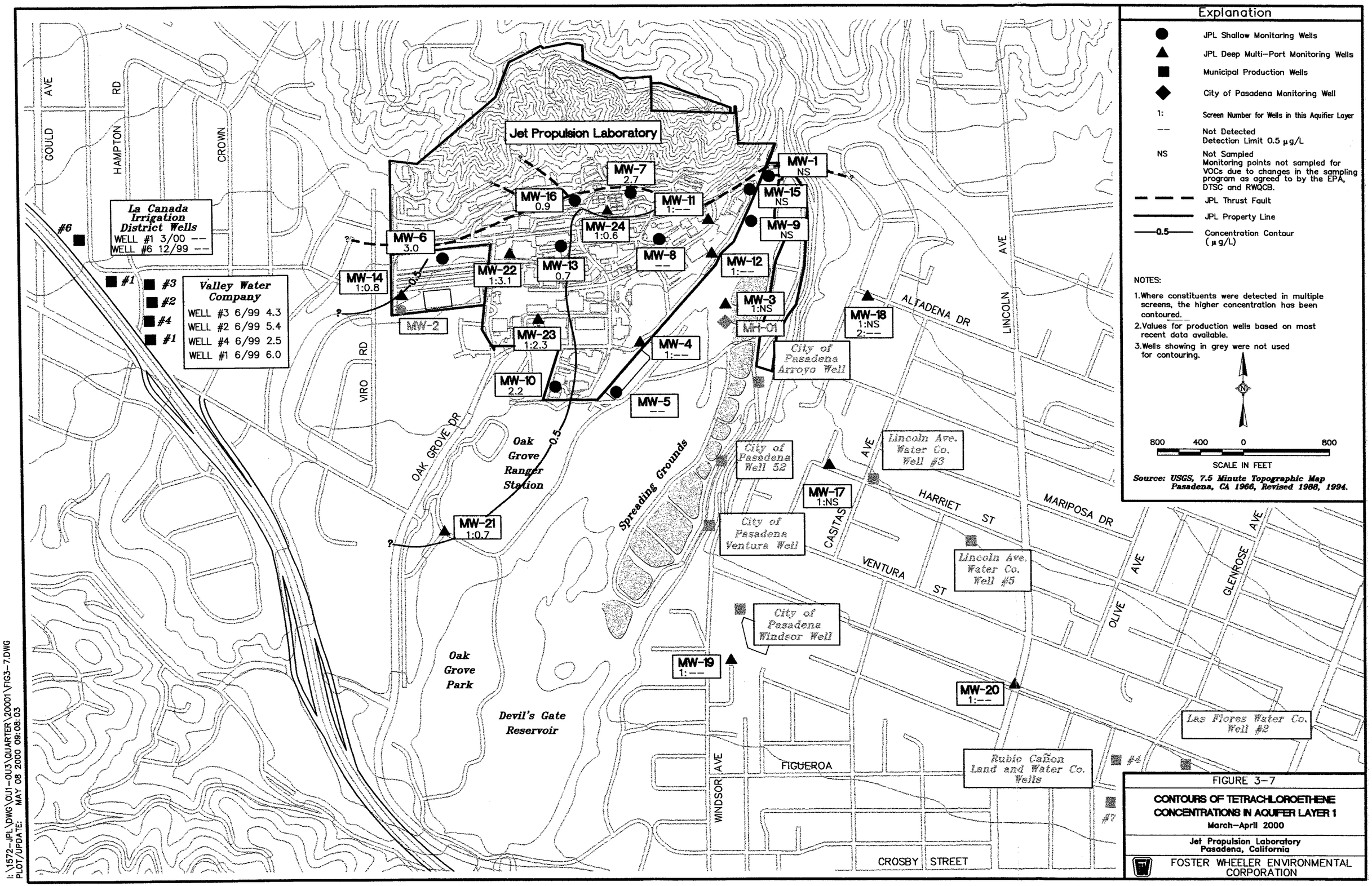
Jet Propulsion Laboratory
MW-1 NS
MW-7 2.7
MW-16 0.9
MW-11 1:--
MW-15 NS
MW-24 1:0.6
MW-9 NS
MW-6 3.0
MW-8 --
MW-12 1:--
MW-14 1:0.8
MW-22 1:3.1
MW-13 0.7
MW-3 1:NS
MW-2
MW-23 1:2.3
MW-4 1:--
MW-18 1:NS 2:--
MW-10 2.2
MW-5 --
MW-17 1:NS
MW-21 1:0.7
MW-19 1:--
MW-20 1:--
La Canada Irrigation District Wells
WELL #1 3/00 --
WELL #6 12/99 --
Valley Water Company
WELL #3 6/99 4.3
WELL #2 6/99 5.4
WELL #4 6/99 2.5
WELL #1 6/99 6.0
#6
#1
#3
#2
#4
#1
City of Pasadena Arroyo Well
City of Pasadena Well 52
City of Pasadena Ventura Well
City of Pasadena Windsor Well
Lincoln Ave. Water Co. Well #3
Lincoln Ave. Water Co. Well #5
Las Flores Water Co. Well #2
Rubio Cañon Land and Water Co. Wells
#4
#7
Oak Grove Ranger Station
Oak Grove Park
Devil's Gate Reservoir
Spreading Grounds
0.5
GOULD AVE
HAMPTON RD
CROWN
VIRO RD
OAK GROVE DR
ALTADENA DR
LINCOLN AVE
CASITAS AVE
HARRIET ST
MARIPOSA DR
VENTURA ST
OLIVE AVE
GLENROSE AVE
WINDSOR AVE
FIGUEROA
CROSBY STREET
Explanation
JPL Shallow Monitoring Wells
JPL Deep Multi-Port Monitoring Wells
Municipal Production Wells
City of Pasadena Monitoring Well
1: Screen Number for Wells in this Aquifer Layer
-- Not Detected Detection Limit 0.5 µg/L
NS Not Sampled Monitoring points not sampled for VOCs due to changes in the sampling program as agreed to by the EPA, DTSC and RWQCB.
JPL Thrust Fault
JPL Property Line
0.5 Concentration Contour (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.
3. Wells showing in grey were not used for contouring.
N
800 400 0 800
SCALE IN FEET
Source: USGS, 7.5 Minute Topographic Map Pasadena, CA 1966, Revised 1988, 1994.
FIGURE 3-7
CONTOURS OF TETRACHLOROETHENE CONCENTRATIONS IN AQUIFER LAYER 1
March-April 2000
Jet Propulsion Laboratory
Pasadena, California
FOSTER WHEELER ENVIRONMENTAL CORPORATION
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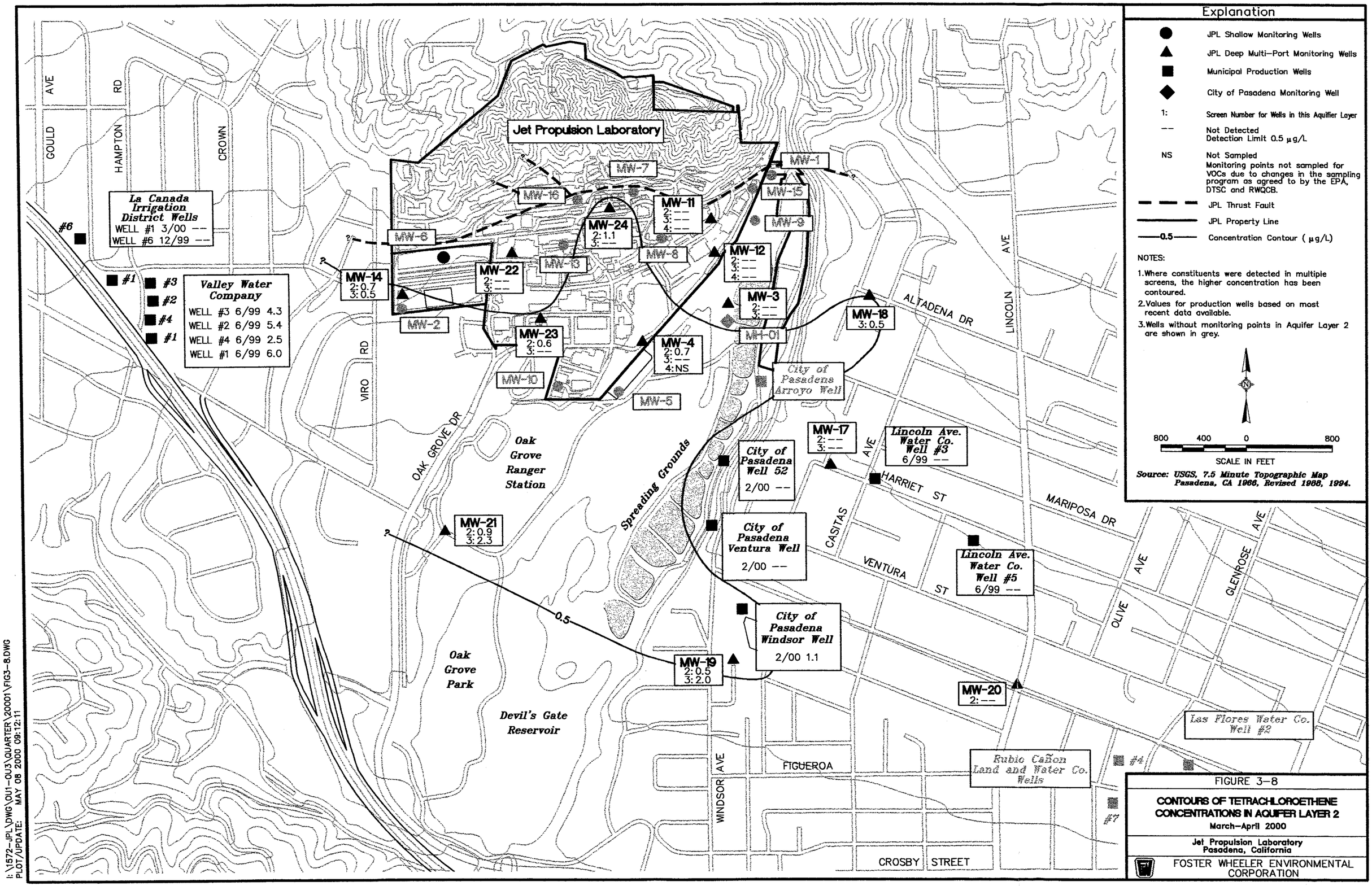

FIGURE 3-8

CONTOURS OF TETRACHLOROETHENE CONCENTRATIONS IN AQUIFER LAYER 2

March-April 2000

Jet Propulsion Laboratory
Pasadena, California

FOSTER WHEELER ENVIRONMENTAL CORPORATION

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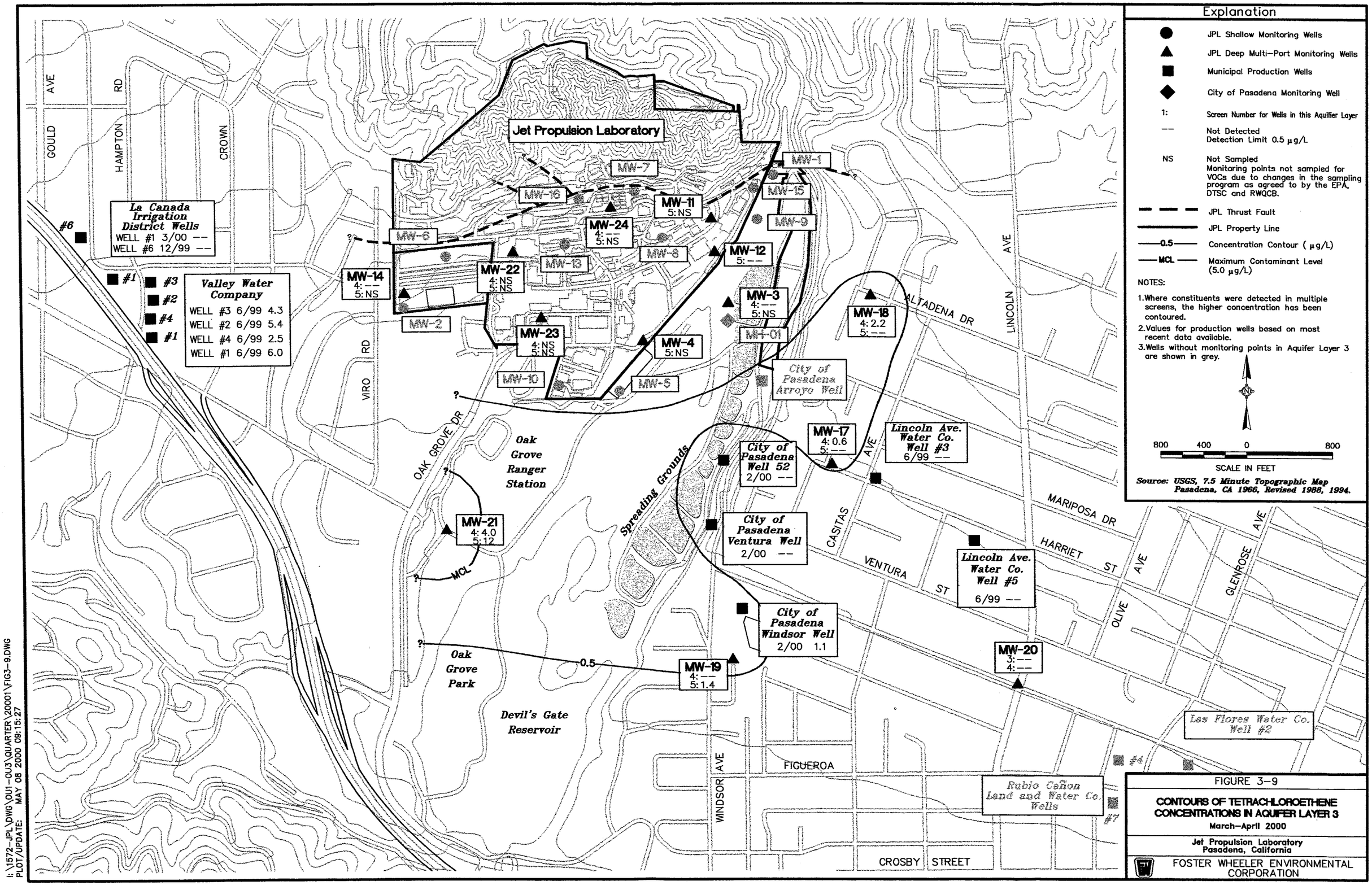

FIGURE 3-9

CONTOURS OF TETRACHLOROETHENE CONCENTRATIONS IN AQUIFER LAYER 3

March-April 2000

Jet Propulsion Laboratory
Pasadena, California

FOSTER WHEELER ENVIRONMENTAL CORPORATION

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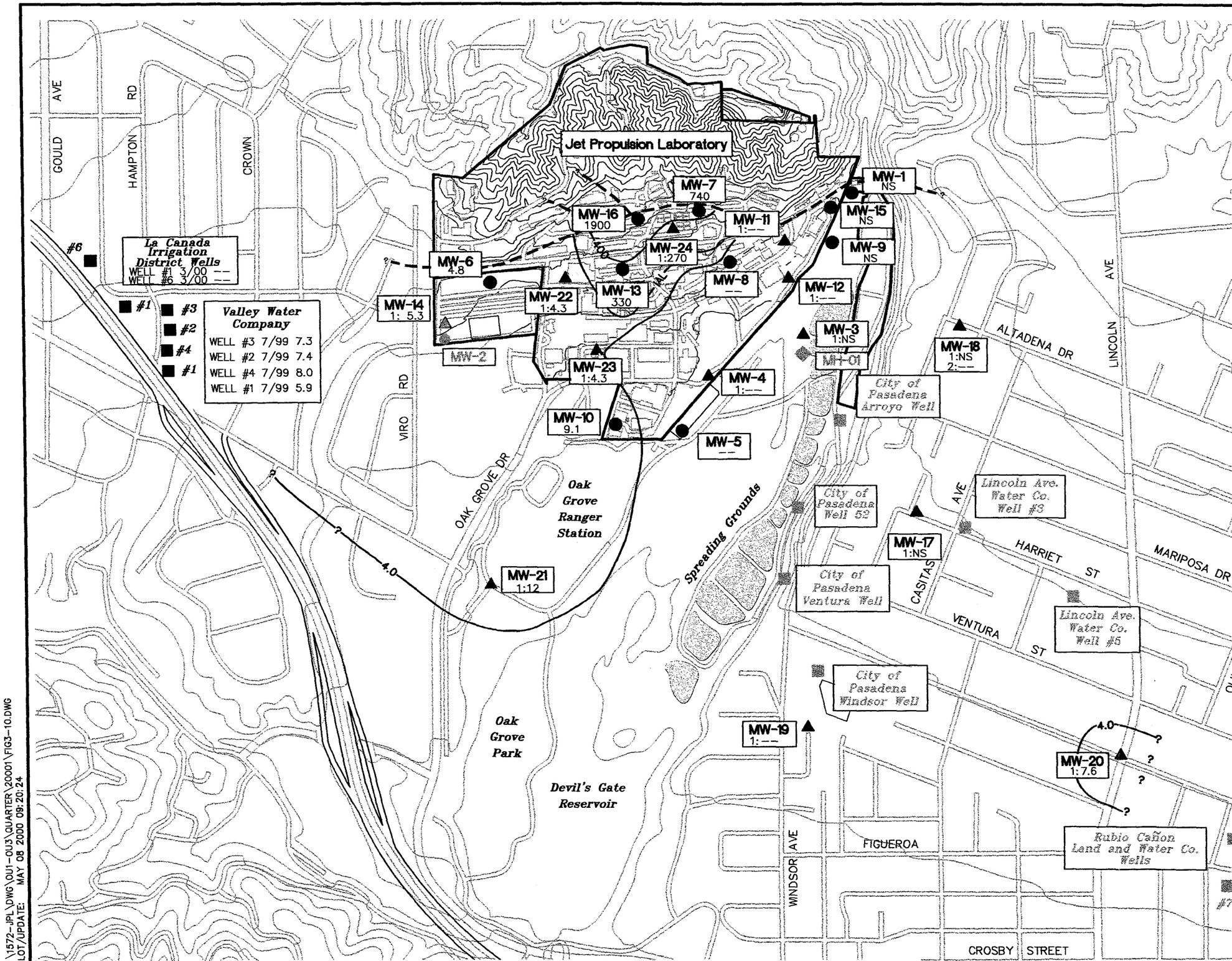

Explanation

- JPL Shallow Monitoring Wells
- JPL Deep Multi-Port Monitoring Wells
- Municipal Production Wells
- City of Pasadena Monitoring Well
- 1: Screen Number for Wells in this Aquifer Layer
- -- Not Detected Detection Limit 4.0 µg/L
- NS Not Sampled Monitoring points not sampled for perchlorate due to changes in the sampling program as agreed to by the EPA, DTSC and RWQCB.
- JPL Thrust Fault
- JPL Property Line
- 4.0 Concentration Contour (µg/L)
- IAL Interim Action Level (18 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.
3. Wells shown in grey were not used for contouring.

800 400 0 800
SCALE IN FEET

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

FIGURE 3-10

CONTOURS OF PERCHLORATE CONCENTRATIONS IN AQUIFER LAYER 1

March-April 2000

Jet Propulsion Laboratory
Pasadena, California

FOSTER WHEELER ENVIRONMENTAL CORPORATION

I:\1572-JPL\DWG\OU1-OU3\QUARTER\20001\FIG3-10.DWG
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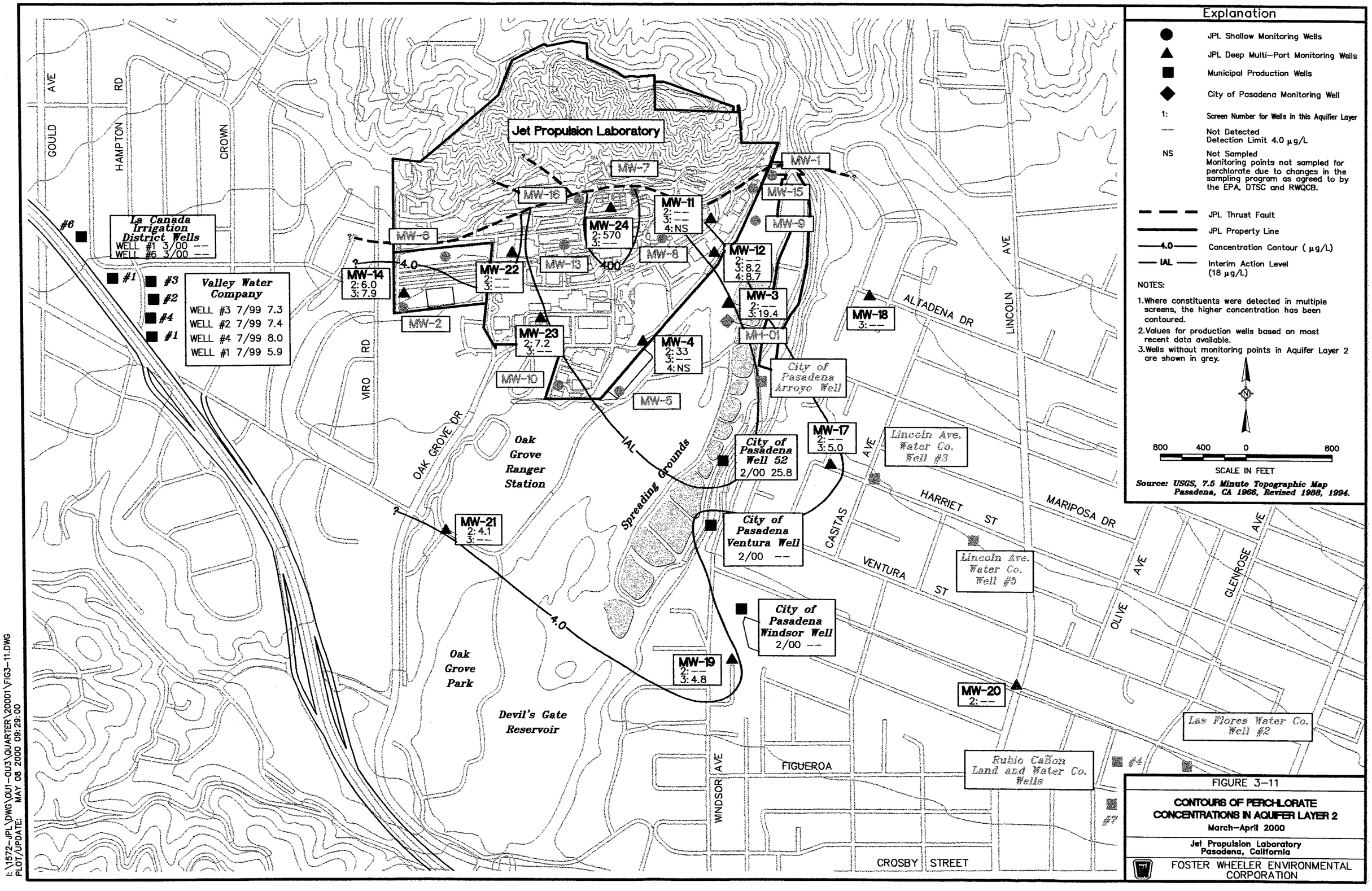

FIGURE 3–11

CONTOURS OF PERCHLORATE CONCENTRATIONS IN AQUIFER LAYER 2

March–April 2000

Jet Propulsion Laboratory
Pasadena, California

FOSTER WHEELER ENVIRONMENTAL CORPORATION

I:\1572-JPL\DWG\OU1-OU3\QUARTER\20001\FIG3-11.DWG
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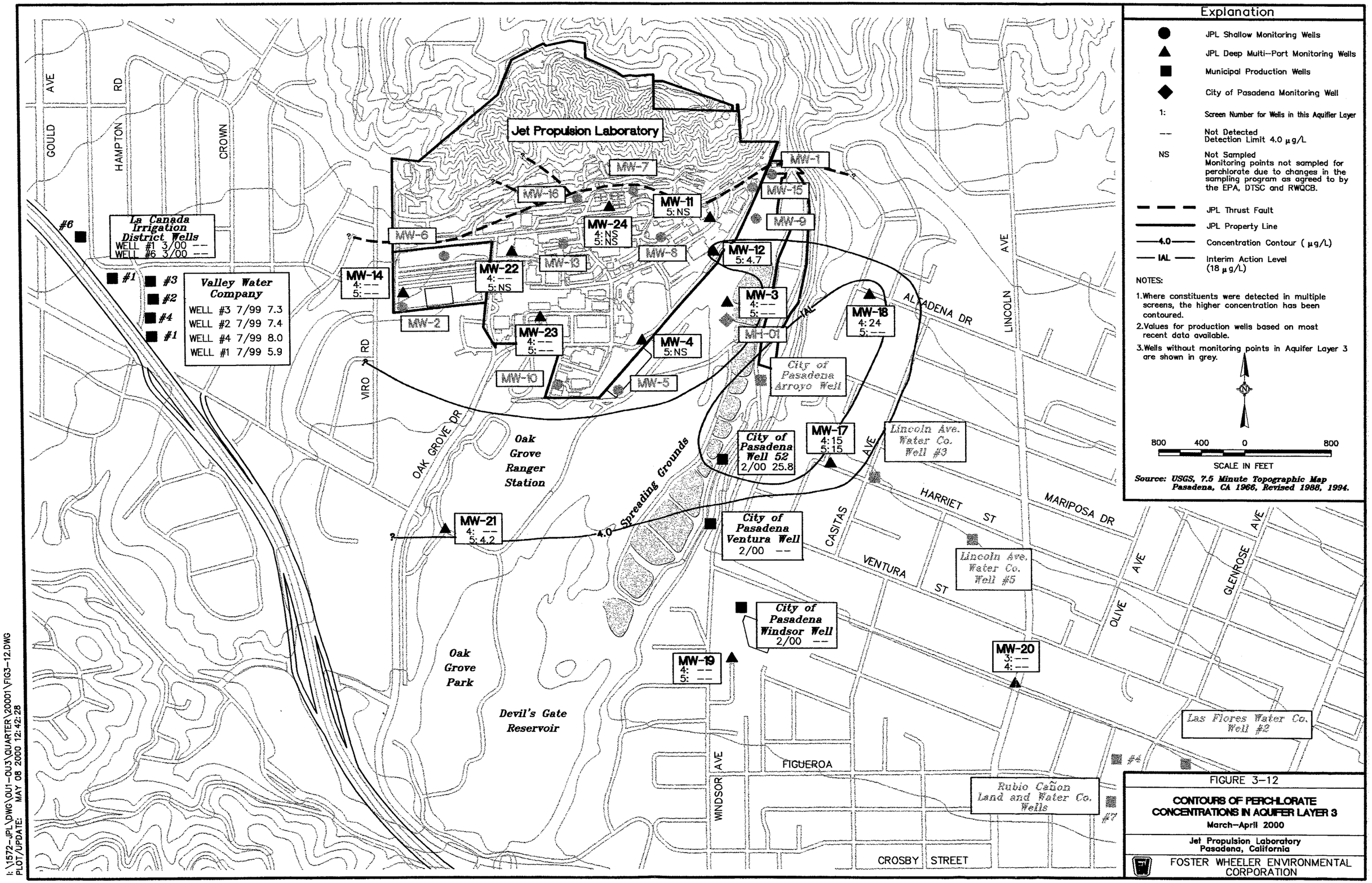

FIGURE 3-12

CONTOURS OF PERCHLORATE CONCENTRATIONS IN AQUIFER LAYER 3

March-April 2000

Jet Propulsion Laboratory
Pasadena, California

FOSTER WHEELER ENVIRONMENTAL CORPORATION

I:\1572-JPL\DWG\OU1-OU3\QUARTER\20001\FIG3-12.DWG
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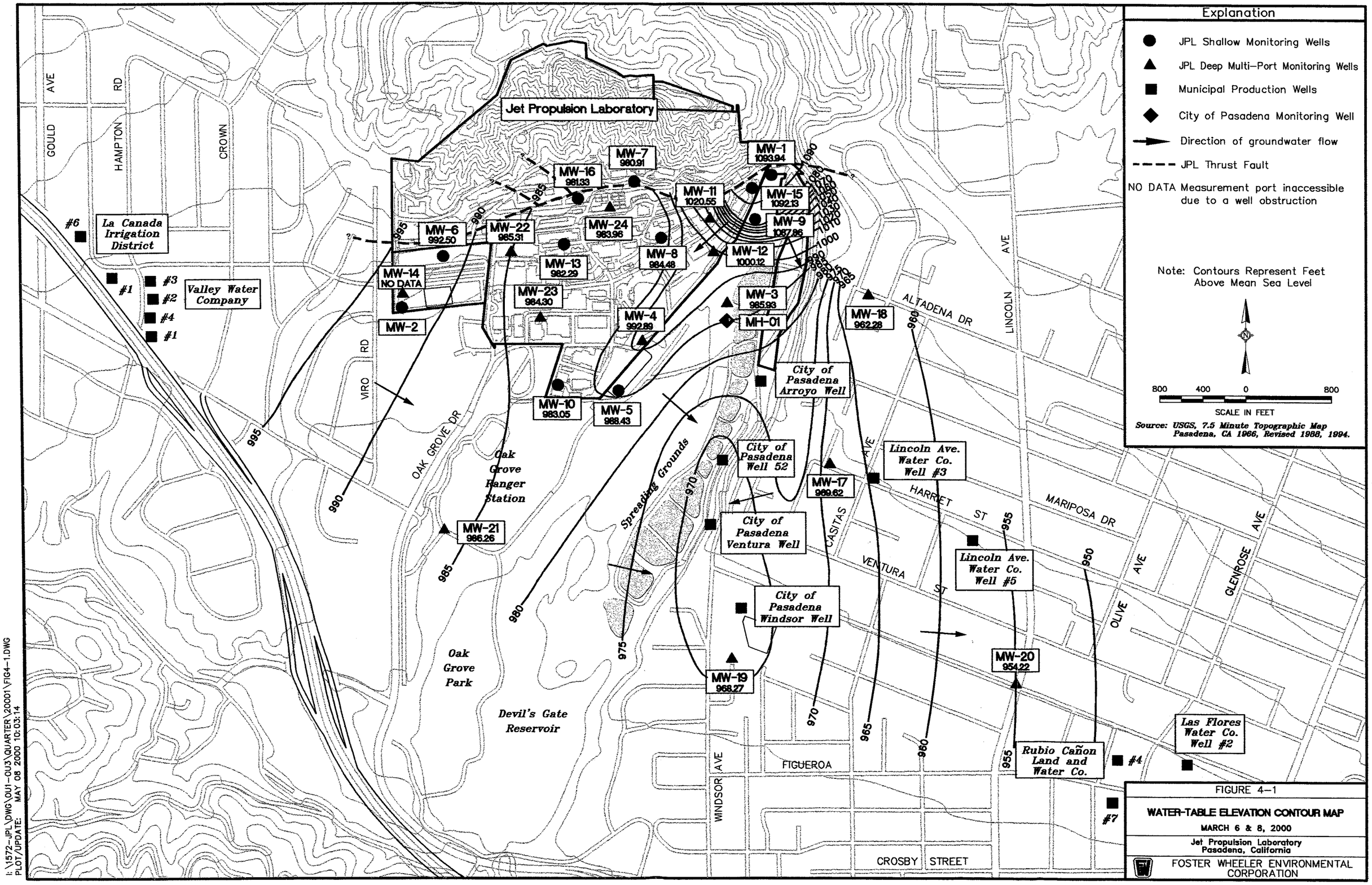

I:\1572-JPL\DWG\OU1-OU3\QUARTER\20001\FIG4-1.DWG
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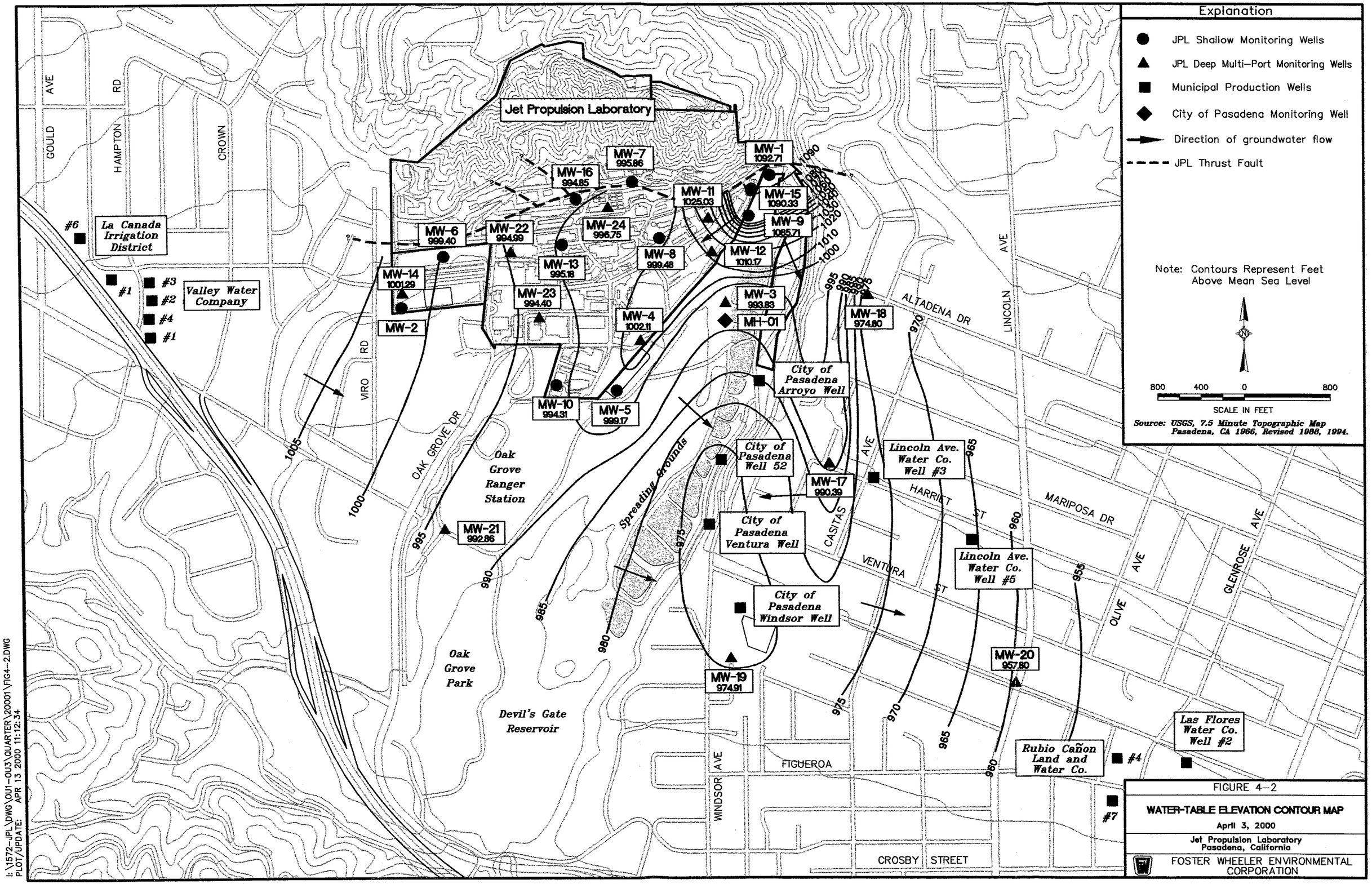

FIGURE 4–2

WATER-TABLE ELEVATION CONTOUR MAP

April 3, 2000

Jet Propulsion Laboratory
Pasadena, California

FOSTER WHEELER ENVIRONMENTAL CORPORATION

I:\1572-JPL\DWG\OU1-OU3\QUARTER\20001\FIG4-2.DWG
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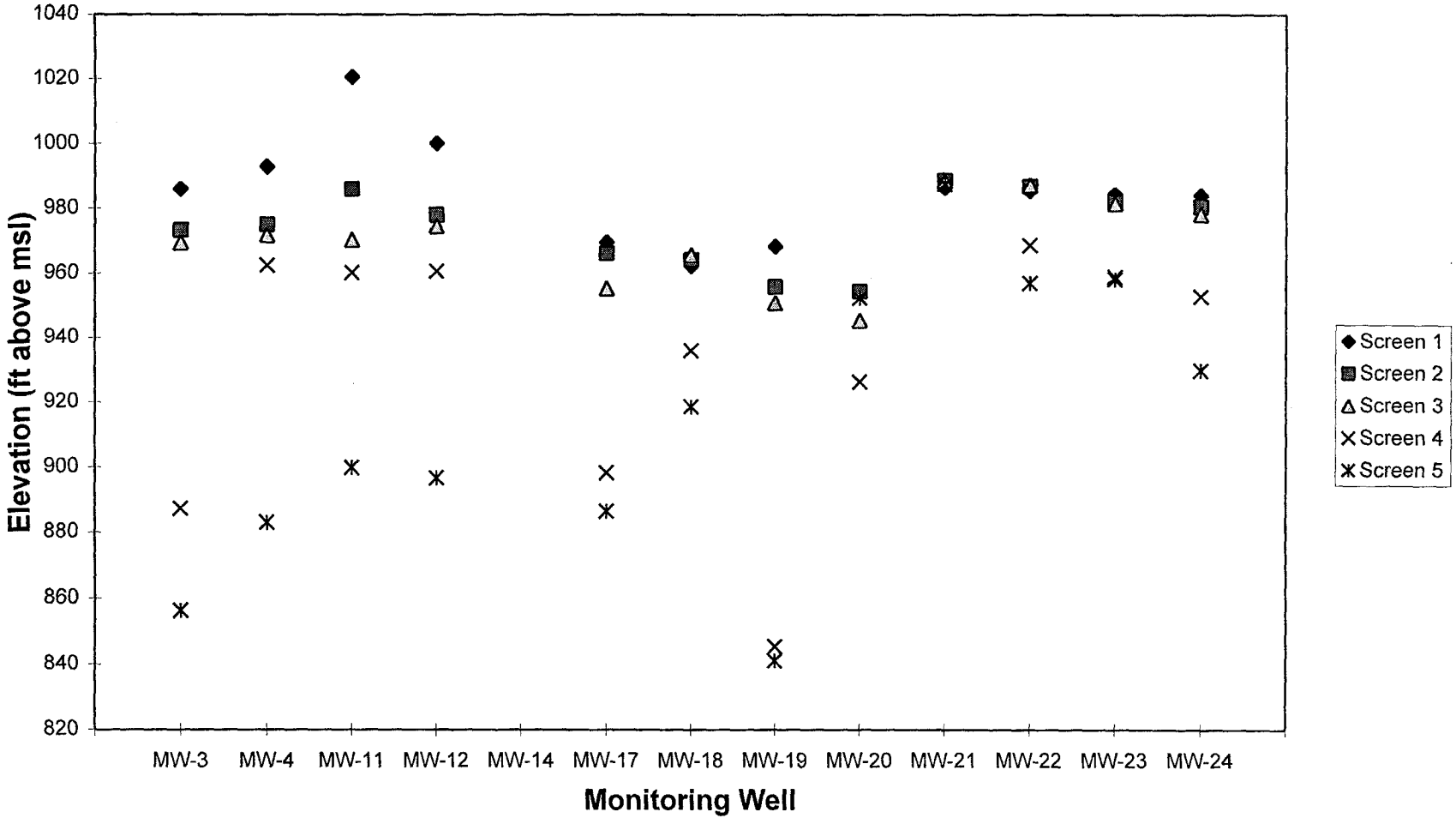

Note: No data available for well MW-14, due to well obstruction.

Figure 4-3

HYDRAULIC HEAD ELEVATIONS FROM DEEP (MP) WELLS

March 8, 2000

Jet Propulsion Laboratory
Pasadena, California

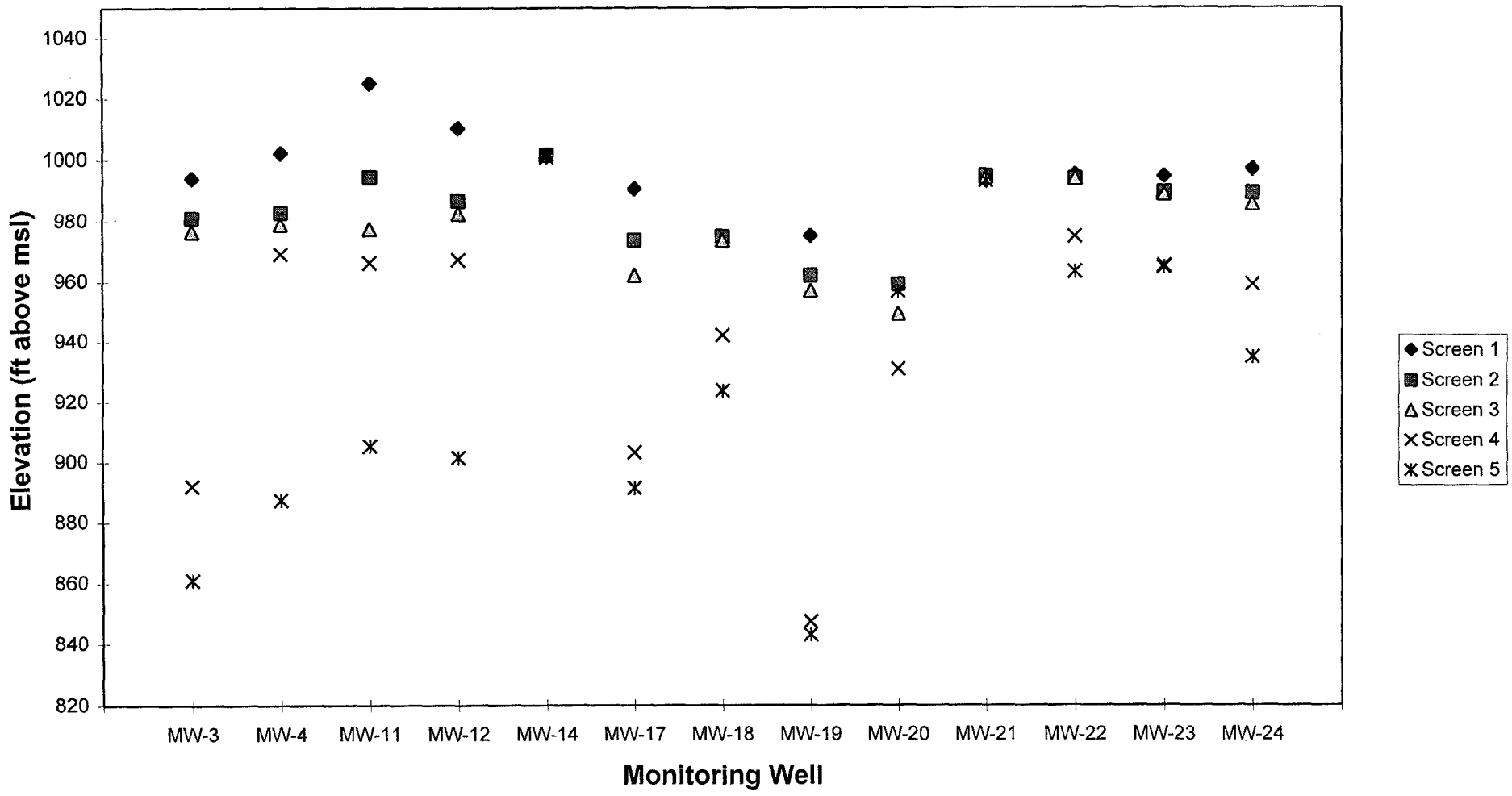

Figure 4-4

HYDRAULIC HEAD ELEVATIONS

FROM DEEP (MP) WELLS

April 3, 2000

Jet Propulsion Laboratory
Pasadena, California

APPENDIX A

WELL DEVELOPMENT/WELL SAMPLING LOG FORMS FOR SHALLOW WELLS

FOSTER WHEELER ENVIRONMENTAL CORPORATION

WELL DEVELOPMENT LOG / WELL SAMPLING LOG

Project Name : JPL
Project Number : 1572.0305
Date : 3-31-00
Site Engineer : M. Hunt, V. Richt

Well Number : MW-5
Equipment : Solinst; 2" Grundfos
H.F. Scientific - DRT-15CC; YSI-3500
Contractor : None

	Before	Reference Point	After
Depth to Water (ft)	72.00	Top of 4" Casing	72.00
Depth to Sediment (ft)	139.86	Top of 4" Casing	139.86
Thickness of Sediment (ft)	0.14		0.14

Depth of Well (ft) 140.00
Diameter of Casing (ft) 0.333
Water Column Height (ft) 67.9
Casing Volume (gals) = π(Diam. of Casing (ft)/2)^2 (Water Column Height (ft))(7.48 gals/ft^3) = 44.2
Casing Volumes Purged 3.2
Total Volume Purged (gals) 141

Time	pH	Turbidity (NTU)	Temp. (°C)	Conductivity (µmhos)	Pump Rate (gpm)	Comments
0925	8.01	6.86	16.9	354	3	Pump on @ 276 Hz
—	—	—	—	—	—	Water is clear
0930	7.27	6.01	16.0	370	3	Water is clear
0935	7.11	1.27	16.0	367	3	Water is clear
0945	6.90	0.68	15.9	361	3	Water is clear
0955	7.24	0.19	16.1	356	3	Water is clear
1005	7.72	0.16	16.2	354	3	Ready to sample; water is clear
1007	—	—	—	—	—	Reduce flow to 0.026 gpm
1010	—	—	—	—	—	Collect MW-001-060
1012	—	—	—	—	—	Pump off

Notes Sampling Procedures: Pump @ 100' BTOC

F4

FOSTER WHEELER ENVIRONMENTAL CORPORATION

WELL DEVELOPMENT LOG / WELL SAMPLING LOG

Project Name : JPL
Project Number : 1572.0305
Date : 3-24-00
Site Engineer : M. Hunt, V. Richards, M. Flores

Well Number : MW-6
Equipment : Solinst, YSI 3500, DRT-15CE
2" Grundfos pump
Contractor : None

	Before	Reference Point	After
Depth to Water (ft)	191.02	Top of 4" Casing	191.02
Depth to Sediment (ft)	244.00	Top of 4" Casing	244.00
Thickness of Sediment (ft)	1.00		1.00

Depth of Well (ft) 245.00
Diameter of Casing (ft) 0.333
Water Column Height (ft) 53.0
Casing Volume (gals) = π(Diam. of Casing (ft)/2)^2 (Water Column Height (ft))(7.48 gals/ft^3) = 34.5
Casing Volumes Purged 3.5
Total Volume Purged (gals) 120

Time	pH	Turbidity (NTU)	Temp. (°C)	Conductivity (µmhos)	Pump Rate (gpm)	Comments
0900	6.91	7.06	19.0	755	2	Pump on at 325 Hz;
—	—	—	—	—	—	Water is clear
0905	6.80	8.45	20.0	919	2	Water is clear
0910	~~6.74~~ 6.81	9.34	19.6	929	2	Water is clear
0915	6.76	9.03	19.9	937	2	Water is clear
0925	6.81	9.04	20.2	~~9.0~~ 917	2	Water is clear
0935	6.75	7.24	20.0	963	2	Water is clear
0945	6.80	4.65	20.1	950	2	Water is clear
0950	6.81	3.87	19.8	937	2	Water is clear; Ready to sample
0952	—	—	—	—	—	Reduce Flow to 0.026 gpm
0955	—	—	—	—	—	Collect MW-001-059
1000	—	—	—	—	—	Pump off

Notes Sampling Procedures: Pump set at 240' BTOC

F4

FOSTER WHEELER ENVIRONMENTAL CORPORATION

WELL DEVELOPMENT LOG / WELL SAMPLING LOG

Project Name : JPL
Project Number : 1572.0305
Date : 3-24-00
Site Engineer : M. Hunt, V. Richards, M. Flores

Well Number : MW-7
Equipment : Solinist - 2" Grundfos Pump
HF Scient. Fic DRT-15CE ; YSI 3500
Contractor : NONE

	Before	Reference Point	After
Depth to Water (ft)	220.10	Top of 4" Casing	220.10
Depth to Sediment (ft)	273.61	Top of 4" Casing	273.61
Thickness of Sediment (ft)	1.39		1.39

Depth of Well (ft) 275.00
Diameter of Casing (ft) 0.333
Water Column Height (ft) 53.5
Casing Volume (gals) = π(Diam. of Casing (ft)/2)^2 (Water Column Height (ft))(7.48 gals/ft^3) = 34.8
Casing Volumes Purged 3.6
Total Volume Purged (gals) 124

Time	pH	Turbidity (NTU)	Temp. (°C)	Conductivity (µmhos)	Pump Rate (gpm)	Comments
1320	5.78	4.30	20.3	427	2	Pump on @ 374 Hz
—	—	—	—	—	—	Water is clear
—	—	—	—	—	—	Pump set @ 230 BTOC
1325	5.98	6.9	21.4	433	2	Water is clear
1330	6.17	4.4	21.8	435	2	Water is clear
1335	6.29	2.8	22.0	433	2	Water is clear
1345	6.78	1.1	21.8	437	2	Water is clear
1355	6.76	1.9	22.4	439	2	Water is clear
1410	7.06	1.3	22.9	447	2	Water is clear, ready to sample
1412	—	—	—	—	—	Reduce flow to 0.026 gpm
1415	—	—	—	—	—	Collect MW-001-058
1420	—	—	—	—	—	Collect MW-001-200 (Field Blank)
1422	—	—	—	—	—	Pump off

Notes Sampling Procedures: Pump set @ 245' BTOC

F4

FOSTER WHEELER ENVIRONMENTAL CORPORATION

WELL DEVELOPMENT LOG / WELL SAMPLING LOG

Project Name : JPL
Project Number : 1572.3050
Date : 3-27-00
Site Engineer : M. Hunt, V. Richards

Well Number : MW-8
Equipment : Solinst - 2" Groundfos pump
H.F. SCIENTIFIC DM-15CE - YSI 3500
Contractor : None

	Before	Reference Point	After
Depth to Water (ft)	141.59	Top of 4" Casing	141.59
Depth to Sediment (ft)	202.18	Top of 4" Casing	202.18
Thickness of Sediment (ft)	2.82		2.82

Depth of Well (ft) 205
Diameter of Casing (ft) 0.333
Water Column Height (ft) 60.6
Casing Volume (gals) = π(Diam. of Casing (ft)/2)^2 (Water Column Height (ft))(7.48 gals/ft^3) = 39.5
Casing Volumes Purged 3.7
Total Volume Purged (gals) 147

Time	pH	Turbidity (NTU)	Temp. (°C)	Conductivity (µmhos)	Pump Rate (gpm)	Comments
0715	8.12	1.19	16.3	309	2.1	Pump on @ 300 Hz
—	—	—	—	—	—	Water is clear
0720	7.16	1.66	16.9	306	2.1	Water is clear
0725	6.97	2.26	17.9	321	2.1	Water is clear
0730	7.00	2.08	18.8	319	2.1	Water is clear
0740	7.05	1.97	18.5	322	2.1	Water is clear
0750	7.07	1.90	18.6	331	2.1	Water is clear
0800	7.13	1.88	18.8	337	2.1	Water is clear
0815	7.03	1.29	19.2	331	2.1	Water is clear
0817	—	—	—	—	—	Reduce flow ~~0.0026~~ 0.020 gpm
0820	—	—	—	—	—	Collect MW-001-057MS, 057-150, 057
0825	—	—	—	—	—	Pump off

Notes Sampling Procedures: * Pump set @ 150' BTOC -

F4

FOSTER WHEELER ENVIRONMENTAL CORPORATION

WELL DEVELOPMENT LOG / WELL SAMPLING LOG

Project Name : JPL
Project Number : 1572.0305
Date : 3-24-00
Site Engineer : N. Hunt, V. Richards, N. Flores

Well Number : MW-~~6~~ ~~7~~ 10 (MZM)
Equipment : (YSI-3500)-(Solinist) (2" Grundfos Pump) (H.F. Scientific DRT-15CE)
Contractor : NONE

	Before	Reference Point	After
Depth to Water (ft)	94.58	Top of 4" Casing	94.58
Depth to Sediment (ft)	154.40	Top of 4" Casing	154.40
Thickness of Sediment (ft)	0.60		0.60

Depth of Well (ft) 155.00
Diameter of Casing (ft) 0.333
Water Column Height (ft) 59.8
Casing Volume (gals) = π(Diam. of Casing (ft)/2)^2 (Water Column Height (ft))(7.48 gals/ft^3) = 38.9
Casing Volumes Purged 4.7
Total Volume Purged (gals) 184

Time	pH	Turbidity (NTU)	Temp. (°C)	Conductivity (µmhos)	Pump Rate (gpm)	Comments
1050	(VV) ~~19.7~~ 58	8.94	19.7	1003	2	Pump on @250 Hz;
—	—	—	—	—	—	Water is clear
1055	6.27	10.32	19.6	1014	2	Water is clear
1100	6.47	10.98	20.2	1023	2	water slight cloudy
1103	—	—	—	—	—	Pump off
1105	—	—	—	—	—	pump on
1108	6.61	114.8	20.2	1029	2	Water is cloudy w/ fine sediment
1115	6.66	92.6	20.7	1033	2	Water is cloudy w/ fine sediment
1120	6.65	75.9	20.7	1038	2	Slight reduction in H_2O ~~cloudyness~~ turb. (MZM)
1123	—	—	—	—	—	Cut flow to 235 Hz
1130	6.68	26.8	22.0	1068	1.8	H_2O turb. improves; H_2O slightly cloudy
1140	6.69	21.5	21.5	1027	1.8	H_2O slightly cloudy
1150	6.70	15.9	20.5	1031	1.8	H_2O slightly cloudy
(VV) ~~1200~~ 1154	—	—	—	—	—	Cut flow to 225 Hz
1200	6.76	14.8	20.6	1036	1.7	H_2O almost clear
1203	—	—	—	—	—	Cut flow to 215 Hz
1210	6.70	11.9	20.7	1035	1.6	H_2O slight cloud/clear
1220	6.65	9.1	20.9	1033	1.6	H_2O ~~water~~ (OK) clear; ready to sample
1224	—	—	—	—	—	Reduce flow to 0.026 gpm
1225	—	—	—	—	—	Collect MW-001-56 =
1230	—	—	—	—	—	collect MW-001-55 - Duplicate
1235	—	—	—	—	—	Pump off

Notes Sampling Procedures: Pump set at 150' BTOC

F4

FOSTER WHEELER ENVIRONMENTAL CORPORATION

WELL DEVELOPMENT LOG / WELL SAMPLING LOG

Project Name : JPL
Project Number : 1572-0305
Date : 3-27-00
Site Engineer : M. Hunt, V. Rw

Well Number : MW-13
Equipment : Solinest - 2" Grunfos pump
HIF Scientific DRT-15CE - YSI 350
Contractor : NONE

	Before	Reference Point	After
Depth to Water (ft)	189.98	Top of 4" Casing	189.98
Depth to Sediment (ft)	MZM ~~0.08~~ 234.92	Top of 4" Casing	MZM ~~0.08~~ 234.92
Thickness of Sediment (ft)	0.08		0.08

Depth of Well (ft) MZM ~~250'~~ 235.00
Diameter of Casing (ft) 0.333
Water Column Height (ft) 45.0
Casing Volume (gals) = π(Diam. of Casing (ft)/2)^2 (Water Column Height (ft))(7.48 gals/ft^3) = 29.3
Casing Volumes Purged 4.9
Total Volume Purged (gals) 144

Time	pH	Turbidity (NTU)	Temp. (°C)	Conductivity (µmhos)	Pump Rate (gpm)	Comments
VJ ~~1015~~ 1255	5.91	0.52	20.8	621	2	Pump on @ 388 ft2
—	—	—	—	—	—	water is clear
VJ ~~1020~~ 1300	6.14	0.36	21.8	619	2	Water is clear
1305	6.39	0.59	21.9	603	2	Water is clear
1315	6.66	0.54	21.4	603	2	Water is clear
1330	6.86	0.52	21.2	600	2	Water is clear
1345	6.95	0.53	21.2	592	2	Water is clear; ready to sample
VJ ~~13~~ ~~1400~~ 1357	—	—	—	—	—	Reduce Flow 0.026 gpm
1400	—	—	—	—	—	Collect MW-001-044
1405	—	—	—	—	—	Collect MW001-043
1407	—	—	—	—	—	Pump off

Notes Sampling Procedures: Pump set @ 210' BTOC

F4

FOSTER WHEELER ENVIRONMENTAL CORPORATION

WELL DEVELOPMENT LOG / WELL SAMPLING LOG

Project Name : JPL
Project Number : ~~13~~1572.0305
Date : 3-31-00
Site Engineer : M. HUNT ; V. Richel

Well Number : MW-16
Equipment : Solinst ; 2" Grundfos pump
H.F Scientific - DRT-15CE ; YSI 3500
Contractor : NONE

	Before	Reference Point	After
Depth to Water (ft)	241.97	Top of 4" Casing	241.97
Depth to Sediment (ft)	285.00	Top of 4" Casing	285.00
Thickness of Sediment (ft)	0		0
Depth of Well (ft)	~~0~~ 285.00		
Diameter of Casing (ft)	0.333		
Water Column Height (ft)	43.0		

Casing Volume (gals) = π(Diam. of Casing (ft)/2)^2 (Water Column Height (ft))(7.48 gals/ft^3) = 28.0

Casing Volumes Purged 4.9

Total Volume Purged (gals) 136

Time	pH	Turbidity (NTU)	Temp. (°C)	Conductivity (µmhos)	Pump Rate (gpm)	Comments
1055	6.13	3.08	21.6	449	2	Pump on @ 385 Hz
—	—	—	—	—	—	Water is clear
1100	6.24	1.81	22.0	445	2	Water is clear
1105	6.42	4.66	22.9	453	2	Water is clear
1110	6.66	8.09	23.3	472	2	Water is clear
1111	—	—	—	—	—	Pump off - low flow ; ADJUST SETTING
1115	6.71	4.07	22.7	436	2	Pump on @ 385 Hz ; water clear
1120	6.67	3.24	22.2	434	2	Water is clear
1125	6.82	1.07	22.8	449	2	Water is clear
1135	6.78	0.52	22.7	443	2	Water is clear
1145	6.97	0.32	22.4	444	2	Water is clear
1155	6.95	0.12	22.3	450	2	Water clear ; Ready to SAMPLE
1200	—	—	—	—	—	Reduce flow to 0.026 gpm
1205	—	—	—	—	—	Collect MW-001-037
1207	—	—	—	—	—	Pump off

Notes Sampling Procedures: Pump set @ ~~20~~ feet BTOC
260 MFH

F4

APPENDIX B

WELL DEVELOPMENT/WELL SAMPLING LOG FORMS, PIEZOMETRIC PRESSURE PROFILE RECORDS, AND GROUNDWATER SAMPLING FIELD DATA SHEETS FOR DEEP MULTI-PORT WELLS

FOSTER WHEELER ENVIRONMENTAL CORPORATION

WELL DEVELOPMENT LOG / WELL SAMPLING LOG

Project Name : JP2
Project Number : 1572.0305
Date : 3/9/00
Site Engineer : M. Hunt, T. Turpijn-Keasler

Well Number : MW-3
Equipment : YSI 3500
DRT 15CE
Contractor : —

	Before	Reference Point	After
Depth to Water (ft)	See Pressure Profile Sheets		
Depth to Sediment (ft)			
Thickness of Sediment (ft)			

Depth of Well (ft) _____
Diameter of Casing (ft) _____
Water Column Height (ft) _____
Casing Volume (gals) = π(Diam. of Casing (ft)/2)^2 (Water Column Height (ft))(7.48 gals/ft^3) = _____
Casing Volumes Purged _____
Total Volume Purged (gals) _____

Time	pH	Turbidity (NTU)	Temp. (°C)	Conductivity (µmhos)	Pump Rate (gpm)	Comments
1030	8.49	11.44	18.5	284	—	INITIAL RUN TO SCREEN 5 INITIAL PARAMETERS
1113	9.04	11.27	18.6	292	—	2nd RUN PARAMETERS
1210	9.04	10.35	18.7	295	—	Collect MW-001-067; final parameters
—	—	—	—	—	—	—
1240	8.39	3.63	19.5	312	—	1st RUN TO SCREEN 4 INITIAL PARAMETERS
1311	8.30	2.24	20.1	318	—	COLLECT MW-001-068 VOCs, Cr+6, Cl04
—	—	—	—	—	—	—
1330	8.09	1.81	19.0	409	—	1st RUN TO SCREEN 3 INITIAL PARAMETERS
1350	8.05	2.11	18.3	404	—	COLLECT MW-001-069
—	—	—	—	—	—	—
1415	7.91	2.97	17.6	360	—	1st RUN TO SCREEN 2 INITIAL PARAMETERS
1440	7.83	3.52	17.9	360	—	COLLECT MW-001-070

Notes Sampling Procedures: _____

F4

FOSTER WHEELER ENVIRONMENTAL CORPORATION

WELL DEVELOPMENT LOG / WELL SAMPLING LOG

Project Name : JPL
Project Number : 1572.0305
Date : 3-14-00
Site Engineer : M. Hunt, V. Richards, J. Downey

Well Number : MW-4
Equipment : YSI 3500
HF Scientific DRT-15
Contractor : None

	Before	Reference Point	After
Depth to Water (ft)	* See pressure profile sheets		
Depth to Sediment (ft)			
Thickness of Sediment (ft)			

Depth of Well (ft) _____
Diameter of Casing (ft) _____
Water Column Height (ft) _____
Casing Volume (gals) = π(Diam. of Casing (ft)/2)^2 (Water Column Height (ft))(7.48 gals/ft^3) = _____
Casing Volumes Purged _____
Total Volume Purged (gals) _____

Time	pH	Turbidity (NTU)	Temp. (°C)	Conductivity (µmhos)	Pump Rate (gpm)	Comments
0820	8.41	0.85	19.1	186	—	1st run to screen 5; initial parameters
0845	—	—	—	—	—	Collect MW-001-061
0915	8.22	1.10	20.3	203	—	3rd run to screen 5; final parameters
—	—	—	—	—	—	—
0940	8.05	1.10	20.6	209	—	1st run to screen 4; initial parameters
1005	8.16	1.04	22.0	400	—	Collect MW-001-062; final parameters
—	—	—	—	—	—	—
1030	8.09	8.17	18.4	468	—	1st run to screen 3; initial parameters
1055	8.27	8.40	21.7	204	—	Collect MW-001-063, -063MS, -063MSD; final parameters
—	—	—	—	—	—	—
1120	8.03	3.98	21.0	373	—	1st run to screen 2; initial parameters
1140	—	—	—	—	—	Collect MW-001-064 (Dup)
1145	—	—	—	—	—	Collect MW-001-065
1200	7.66	5.70	21.1	572	—	3rd run to screen 2; final parameters
—	—	—	—	—	—	—
1223	7.40	2.48	20.9	401	—	1st run to screen 1; initial parameters
1240	7.53	1.52	20.7	402	—	Collect MW-001-066; final parameters

Notes Sampling Procedures: _____

F4

FOSTER WHEELER ENVIRONMENTAL CORPORATION

WELL DEVELOPMENT LOG / WELL SAMPLING LOG

Project Name : JPL
Project Number : 1572.0305
Date : 3-15-00
Site Engineer : M. Hunt, V. Richards, J. Donnay

Well Number : MW-11
Equipment : YSI 3500
HF Scientific DRT-15
Contractor : None

	Before	Reference Point	After
Depth to Water (ft)	*See pressure profile sheets		
Depth to Sediment (ft)			
Thickness of Sediment (ft)			

Depth of Well (ft) _____
Diameter of Casing (ft) _____
Water Column Height (ft) _____
Casing Volume (gals) = π(Diam. of Casing (ft)/2)^2 (Water Column Height (ft))(7.48 gals/ft^3) = _____
Casing Volumes Purged _____
Total Volume Purged (gals) _____

Time	pH	Turbidity (NTU)	Temp. (°C)	Conductivity (µmhos)	Pump Rate (gpm)	Comments
0947	7.39	1.90	19.5	316	—	1st run to screen 4; initial parameters
1010	7.53	1.72	19.9	320	—	Collect MW-001-051; final parameters
—	—	—	—	—	—	—
1040	—	1.40	—	—	—	1st run to screen 3; NTUs
1100	7.81	1.38	20.4	378	—	Initial parameters; collect MW-001-052; 052MS 052MSD
1125	7.86	1.17	20.6	384	—	3rd run to screen 3; final parameters
—	—	—	—	—	—	—
1155	7.81	1.57	20.8	408	—	1st run to screen 2; initial parameters
1220	7.86	1.80	21.1	416	—	Collect MW-001-053; final parameters
—	—	—	—	—	—	—
1240	7.82	2.85	21.6	481	—	1st run to screen 1; initial parameters
1300	7.70	2.67	21.2	482	—	Collect MW-001-054; final parameters

Notes Sampling Procedures: _____

F4

FOSTER WHEELER ENVIRONMENTAL CORPORATION

WELL DEVELOPMENT LOG / WELL SAMPLING LOG

Project Name : JPL
Project Number : 1572.0305
Date : 3-16-00
Site Engineer : M. Hunt, V. Richards

Well Number : MW-12
Equipment : YSI 3500
HF Scientific DRT-15
Contractor : None

	Before	Reference Point	After
Depth to Water (ft)	* see pressure profiles		
Depth to Sediment (ft)			
Thickness of Sediment (ft)			

Depth of Well (ft) _____
Diameter of Casing (ft) _____
Water Column Height (ft) _____
Casing Volume (gals) = π(Diam. of Casing (ft)/2)^2 (Water Column Height (ft))(7.48 gals/ft^3) = _____
Casing Volumes Purged _____
Total Volume Purged (gals) _____

Time	pH	Turbidity (NTU)	Temp. (°C)	Conductivity (µmhos)	Pump Rate (gpm)	Comments
0759	7.08	24.10	17.2	377	—	1ST RUN screen 5; initial Parameters
0824	7.36	6.90	17.9	379	—	2nd run; parameters
0849	7.37	3.98	18.1	371	—	3rd run; parameters
0915	7.66	5.90	17.6	373	—	4th run; collect MW001-045; final PARAMETERS
—	—	—	—	—	—	—
0940	7.64	0.38	18.4	405	—	1ST RUN SCREEN 4; initial PARAMETERS
1000	7.74	0.54	19.0	413	—	2nd Run; collect MW-001-046; final Parameters
—	—	—	—	—	—	—
1028	7.75	0.05	18.6	438	—	1ST RUN SCREEN 3; initial Parameters
1050	7.74	0.84	21.4	470	—	2nd Run; collect MW-001-047; final parameters
—	—	—	—	—	—	—
1113	7.63	0.87	19.1	424	—	1ST RUN SCREEN 2; initial parameters
1140	—	—	—	—	—	2nd Run; collect MW-001-049
1145	—	—	—	—	—	2nd Run; collect MW-001-048
1202	7.39	0.86	19.5	436	—	3rd Run; final parameters
—	—	—	—	—	—	—
1234	7.38	10.80	20.3	429	—	1ST RUN screen 1; initial PARAMETERS
1253	7.37	8.85	20.3	435	—	2nd run; parameters
1313	7.44	7.85	21.3	443	—	3rd run; parameters
1334	7.34	8.83	19.1	426		4th run; parameters
1350	7.35	7.92	20.5	437		5th run; collect MW-001-050; final parameters

Notes Sampling Procedures: _____

F4

FOSTER WHEELER ENVIRONMENTAL CORPORATION

WELL DEVELOPMENT LOG / WELL SAMPLING LOG

Project Name : JPL
Project Number : 1572.0305
Date : 3-30-00
Site Engineer : M. Hunt, V. Richards

Well Number : MW-14
Equipment : YSI 3500
HF SCIENTIFIC - DRT 15CE
Contractor : NONE

	Before	Reference Point	After
Depth to Water (ft)	* see pressure profiles		
Depth to Sediment (ft)			
Thickness of Sediment (ft)			

Depth of Well (ft) _____
Diameter of Casing (ft) _____
Water Column Height (ft) _____
Casing Volume (gals) = π(Diam. of Casing (ft)/2)^2 (Water Column Height (ft))(7.48 gals/ft^3) = _____
Casing Volumes Purged _____
Total Volume Purged (gals) _____

Time	pH	Turbidity (NTU)	Temp. (°C)	Conductivity (µmhos)	Pump Rate (gpm)	Comments
0837	8.5	3.00	19.2	280	—	1st Run screen 5; initial parameters
0900	8.24	3.17	18.9	278	—	2nd Run; collect MW-001-038; final parameters
—	—	—	—	—	—	—
0928	8.24	0.51	20.1	501	—	1st Run screen 4; initial parameters
0950	8.27	1.27	21.5	509	—	2nd Run; collect MW-001-039; final parameters
—	—	—	—	—	—	—
1020	7.89	0.44	21.6	948	—	1st Run screen #3; initial parameters
1045	7.89	0.58	22.5	990	—	2nd Run; collect MW-001-040; final parameters
1110	7.83	2.25	20.6	1082	—	1st Run screen #2; initial parameters
1140	7.62	1.92	22.9	1131	—	2nd Run; collect MW-001-041; final parameters
—	—	—	—	—	—	—
1211	7.49	1.48	20.6	1178		1st Run screen #1; initial parameters
1230	6.83	1.72	21.5	1186		2nd Run; collect MW-001-042; final parameters

Notes Sampling Procedures: _____

F4

FOSTER WHEELER ENVIRONMENTAL CORPORATION

WELL DEVELOPMENT LOG / WELL SAMPLING LOG

Project Name : JPL
Project Number : 1572.0305
Date : 3-13-00
Site Engineer : M. Hunt, V. Richards, J. Donnay

Well Number : MW-17
Equipment : YSI 3500
HF Scientific DRT-15CE
Contractor : None

	Before	Reference Point	After
Depth to Water (ft)	* See pressure profile sheets		
Depth to Sediment (ft)			
Thickness of Sediment (ft)			

Depth of Well (ft) _____
Diameter of Casing (ft) _____
Water Column Height (ft) _____
Casing Volume (gals) = π(Diam. of Casing (ft)/2)^2 (Water Column Height (ft))(7.48 gals/ft^3) = _____
Casing Volumes Purged _____
Total Volume Purged (gals) _____

Time	pH	Turbidity (NTU)	Temp. (°C)	Conductivity (µmhos)	Pump Rate (gpm)	Comments
0950	7.15	10.97	18.8	378	—	1st run to screen 5; initial parameters
1030	7.89	65.0	18.4	380	—	2nd run to screen 5; parameters
1100	8.01	73.1	18.0	382	—	3rd run to screen 5; parameters
1130	7.78	80.0	18.4	384	—	Collect MW-001-033; final parameters
—	—	—	—	—	—	—
1200	7.79	6.45	18.1	383	—	1st run to screen 4; initial parameters
1228	7.65	9.10	18.1	383	—	2nd run to screen 4; parameters
1255	7.77	10.0	18.6	383	—	Collect MW-001-034; final parameters
—	—	—	—	—	—	—
1330	7.61	5.16	17.6	365	—	1st run to screen 3; initial parameters
1400	7.58	3.59	18.6	365	—	Collect MW-001-035, -035MS, + -035MSD; final parameters
—	—	—	—	—	—	—
1430	7.73	2.10	17.4	295	—	1st run to screen 2; initial parameters
1445	7.69	2.00	17.7	294	—	Collect MW-001-036; final parameters

Notes Sampling Procedures: _____

F4

FOSTER WHEELER ENVIRONMENTAL CORPORATION

WELL DEVELOPMENT LOG / WELL SAMPLING LOG

Project Name : JPL
Project Number : 1572.0305
Date : 3-20-00
Site Engineer : M. Hunt, V. Richard, M. Flores

Well Number : MW-18
Equipment : YSI - 3500
H.F. SCIENTIFIC - DRT-15
Contractor : NONE

	Before	Reference Point	After
Depth to Water (ft)	* see pressure profiles		
Depth to Sediment (ft)			
Thickness of Sediment (ft)			

Depth of Well (ft) _____
Diameter of Casing (ft) _____
Water Column Height (ft) _____
Casing Volume (gals) = π(Diam. of Casing (ft)/2)^2 (Water Column Height (ft))(7.48 gals/ft^3) = _____
Casing Volumes Purged _____
Total Volume Purged (gals) _____

Time	pH	Turbidity (NTU)	Temp. (°C)	Conductivity (µmhos)	Pump Rate (gpm)	Comments
0956	8.44	2.03	18.3	267	—	1ST RUN SCREEN 5; initial parameters
1030	8.68	2.30	19.4	268	—	2nd run; collect FW+EPA MW-001-029;
1035	—	—	—	—	—	collect EPA MW-001-099 (dup. VOC's); final param
—	—	—	—	—	—	—
1100	7.36	0.59	18.5	341	—	1ST RUN screen 4; initial parameters
1130	—	—	—	—	—	2nd Run; collect FW+EPA MW-001-030;
(VN) ~~1130~~ 1135	—	—	—	—	—	collect EPA MW-001-098 (dup. VOC's)
(VN) ~~1130~~ 1205	7.40	2.30	19.3	359	—	3rd Run; collect FW+EPA MW-001-030; final param.
—	—	—	—	—	—	—
1234	7.65	0.30	18.0	418	—	1ST Run screen 3; initial parameters
1255	—	—	—	—	—	2nd Run; collect FW+EPA MW-001-031;
1300	—	—	—	—	—	collect EPA MW-001-096 (dup VOC's)
1320	7.83	0.23	19.0	434	—	3RD RUN; collect FW+EPA MW-001-031; final par
—	—	—	—	—	—	—
1345	7.77	1.04	17.6	381		1ST RUN screen 2; initial parameters
1405	—	—	—	—	—	2nd Run; collect MW-001-032 FW+EPA;
1410	—	—	—	—	—	collect EPA MW-001-095 (dup VOC's)
1435	7.55	1.99	19.2	372	—	3rd run; EPA+FW MW-001-032; final param

Notes Sampling Procedures: _____

F4

FOSTER WHEELER ENVIRONMENTAL CORPORATION

WELL DEVELOPMENT LOG / WELL SAMPLING LOG

Project Name : JPL
Project Number : 1572.0305
Date : 3-21-00
Site Engineer : M. Hunt, V. Richards, M. Flores

Well Number : MW-19
Equipment : YSI - 3500
HF SCIENTIFIC - DRT-15
Contractor : NONE

	Before	Reference Point	After
Depth to Water (ft)	* see pressure profiles		
Depth to Sediment (ft)			
Thickness of Sediment (ft)			

Depth of Well (ft) _____
Diameter of Casing (ft) _____
Water Column Height (ft) _____
Casing Volume (gals) = π(Diam. of Casing (ft)/2)^2 (Water Column Height (ft))(7.48 gals/ft^3) = _____
Casing Volumes Purged _____
Total Volume Purged (gals) _____

Time	pH	Turbidity (NTU)	Temp. (°C)	Conductivity (µmhos)	Pump Rate (gpm)	Comments
0830	6.81	0.82	17.7	677	—	1st Run Screen 5; initial parameters
0900	7.26	0.96	18.4	697	—	2nd Run collect FW-EPA MW-001-024;
—	—	—	—	—	—	final parameters
—	—	—	—	—	—	—
0930	7.50	0.64	17.4	389	—	1st Run screen 4; initial parameters
1000	—	—	—	—	—	2nd Run; collect EPA+FW MW-001-025
1023	7.69	0.65	18.5	387	—	3rd Run; collect EPA+FW MW-001-025; final par.
-	-	—	—	—	—	—
1050	7.29	2.86	18.3	818	—	1st Run screen 3; initial parameters
1110	7.12	2.79	20.2	857	—	2nd Run; collect EPA+FW MW-001-026; final para
—	—	—	—	—	—	—
1138	7.05	1.43	19.4	636	—	1st Run screen 2; initial parameters
1200	6.86	1.87	20.2	648	—	2nd Run; collect EPA+FW MW-001-027; final param.
—	—	—	—	—	—	—
1223	7.04	2.07	18.5	310	—	1st Run screen 1; initial parameters
1245	7.26	1.82	20.9	319	—	2nd Run; collect EPA+FW MW-001-028;
—	—	—	—	—	—	final Parameters

Notes Sampling Procedures: _____

F4

FOSTER WHEELER ENVIRONMENTAL CORPORATION

WELL DEVELOPMENT LOG / WELL SAMPLING LOG

Project Name : JPL
Project Number : ~~15~~ 1572.0305
Date : 3-22-00
Site Engineer : J. Brenner, V. Richards, M. Flores

Well Number : MW-20
Equipment : YSI-3500
Contractor : MF SCIENTIFIC DRT-15 / MF SCIENTIFIC DRT-15CC * / NONE

	Before	Reference Point	After
Depth to Water (ft)	* see pressure profile sheets		
Depth to Sediment (ft)			
Thickness of Sediment (ft)			

Depth of Well (ft) _____
Diameter of Casing (ft) _____
Water Column Height (ft) _____
Casing Volume (gals) = π(Diam. of Casing (ft)/2)^2 (Water Column Height (ft))(7.48 gals/ft^3) = _____
Casing Volumes Purged _____
Total Volume Purged (gals) _____

Time	pH	Turbidity (NTU)	Temp. (°C)	Conductivity (µmhos)	Pump Rate (gpm)	Comments
0828	9.08	0.91	17.0	354	—	1ST Run screen 5; initial parameters
0905	—	—	—	—	—	2nd Run; collect FW-EPA MW-001-019
0940	8.53	0.37	18.1	310	—	3rd Run; collect FW-EPA MW-001-019; final para
—	—	—	—	—	—	—
1010	8.68	1.71	18.1	283	—	1ST Run screen 4; initial parameters
1040	—	—	—	—	—	2nd Run; collect FW-EPA MW-001-20
1110	8.52	1.06	19.1	285	—	3rd Run; collect FW-EPA MW-001-20; final param
—	—	—	—	—	—	—
1137	8.20	0.28	18.6	482	—	1ST Run screen 3; initial parameters
1210	—	—	—	—	—	2nd Run; collect FW-EPA MW-001-21
1240	8.02	0.29	19.3	502	—	3rd Run; collect FW-EPA MW-001-021; final param
—	—	—	—	—	—	—
1317	8.19	0.24*	18.2	314	—	1ST Run screen 2; initial parameters
1338	—	—	—	—	—	2nd Run; collect FW-EPA MW-001-022
1359	8.46	0.38	19.2	307	—	3rd Run; collect FW-EPA MW-001-022; final param
—	—	—	—	—	—	—
1427	7.87	4.45	19.5	717	—	1ST Run screen 1; initial parameters
1445	—	—	—	—	—	2nd Run; collect EPA+FW MW-001-023
1505	7.76	2.83	18.5	715	—	3rd Run; collect EPA FW MW-001-023; final param

Notes Sampling Procedures: *@ 1251 1ST TURB. METER FAILS; CALIB. 2ND meter @ 1253; TURB. READINGS FOR SCREEN #2 + #1 used 2nd meter.
EPA collect EQUIPMENT BLANK - MW-001-093 @ 0845
EPA collects Field Sample/BLANK - MW-001-091 @ 0940
EPA collect TRIP BLANK - MW-001-092 @ 0920
EPA - NO MS/MSD VOC'S TODAY EPA collects MS/MSD Cr TOT @ SCREEN #2

F4

FOSTER WHEELER ENVIRONMENTAL CORPORATION

WELL DEVELOPMENT LOG / WELL SAMPLING LOG

Project Name : JPL
Project Number : 1572.0305
Date : 3/10/00
Site Engineer : M. HUNT, J. Donnay, T. Turpijn-Kessler
Well Number : MW-21 (MW-21)
Equipment : YSI 3500
DRT 15CE
Contractor : —

	Before	Reference Point	After
Depth to Water (ft)	* See Pressure Profile Sheets		
Depth to Sediment (ft)			
Thickness of Sediment (ft)			

Depth of Well (ft) _____
Diameter of Casing (ft) _____
Water Column Height (ft) _____
Casing Volume (gals) = π(Diam. of Casing (ft)/2)^2 (Water Column Height (ft))(7.48 gals/ft^3) = _____
Casing Volumes Purged _____
Total Volume Purged (gals) _____

Time	pH	Turbidity (NTU)*	Temp. (°C)*	Conductivity (µmhos)	Pump Rate (gpm)	Comments
0925	6.59	—	—	707	—	1ST RUN TO SCREEN 5 INITIAL PARAMETERS
0950	6.65	—	—	740	—	2ND RUN COLLECT MW-001-014
—	—	—	—	—	—	—
1020	7.09	—	21.2	622	—	1ST RUN TO SCREEN 4 INITIAL PARAMETERS
1040	6.88	—	21.7	647	—	COLLECT MW-001-015
—	—	—	—	—	—	—
1110	7.15	—	—	937	—	1ST RUN TO SCREEN 3 INITIAL PARAMETERS
1125	7.07	—	—	969	—	collect MW-001-016
—	—	—	—	—	—	—
1150	7.0	—	—	1162	—	1ST RUN TO SCREEN 2 INITIAL PARAMETERS
1200	6.75	—	—	1177	—	COLLECT MW-001-017
—	—	—	—	—	—	—
1235	6.73	—	—	798	—	1ST RUN TO SCREEN 1 INITIAL PARAMETERS
1245	6.58	—	—	816	—	collect MW-000-018

Notes Sampling Procedures: Historically, turbidity readings at this well are typically less than 5 NTUs.
* Turbidimeter not working
* Temperature probe not working

F4

FOSTER WHEELER ENVIRONMENTAL CORPORATION

WELL DEVELOPMENT LOG / WELL SAMPLING LOG

Project Name : JPL
Project Number : 1572. 0305
Date : 3-17-00
Site Engineer : M. Hunt, V. Richards, M. Flores

Well Number : MW-22
Equipment : YSI - 350
HF. Scientific - DRT-15
Contractor : NONE

	Before	Reference Point	After
Depth to Water (ft)	* see pressure profile sheets		
Depth to Sediment (ft)			
Thickness of Sediment (ft)			

Depth of Well (ft) _____
Diameter of Casing (ft) _____
Water Column Height (ft) _____
Casing Volume (gals) = π(Diam. of Casing (ft)/2)^2 (Water Column Height (ft))(7.48 gals/ft^3) = _____
Casing Volumes Purged _____
Total Volume Purged (gals) _____

Time	pH	Turbidity (NTU)	Temp. (°C)	Conductivity (µmhos)	Pump Rate (gpm)	Comments
0935	7.51	1.94	19.9	324	—	1ST RUN SCREEN 4; initial parameters
1000	7.39	2.44	20.5	320	—	2no Run; collect MW-001-010; final parameters
—	—	—	—	—	—	—
1025	7.56	3.24	21.0	428	—	1ST RUN Screen 3; initial parameters
1050	7.22	6.01	20.6	450	—	2nd Run screen 3; collect MW-001-011; final parameters
—	—	—	—	—	—	—
1115	7.79	0.53	20.7	550	—	1ST Run screen 2; initial parameters
1135	7.65	0.75	23.1	614	—	2nd Run; collected MW-001-012; final parameters
—	—	—	—	—	—	—
1202	7.48	16.70	22.7	1150	—	1ST Run screen 1; initial parameters
1220	7.41	15.82	23.0	1154	—	2nd Run; parameters
1240	7.43	16.01	23.3	1157	—	3rd Run; parameters
1300	7.36	15.50	24.3	1184	—	4th Run, collect MW-001-013; final parameters

Notes Sampling Procedures: _____

F4

FOSTER WHEELER ENVIRONMENTAL CORPORATION

WELL DEVELOPMENT LOG / WELL SAMPLING LOG

Project Name : JPL
Project Number : 1572-0305
Date : 3/28/00
Site Engineer : M. Hunt, T. Turpyn-Keasler

Well Number : MW-23
Equipment : YSI 3500
HF SCIENTIFIC DIRT ISCE
Contractor : —

	Before	Reference Point	After
Depth to Water (ft)	* See Pressure Profile Sheets		*
Depth to Sediment (ft)			
Thickness of Sediment (ft)			

Depth of Well (ft) _____
Diameter of Casing (ft) _____
Water Column Height (ft) _____
Casing Volume (gals) = π(Diam. of Casing (ft)/2)^2 (Water Column Height (ft))(7.48 gals/ft^3) = _____
Casing Volumes Purged _____
Total Volume Purged (gals) _____

Time	pH	Turbidity (NTU)	Temp. (°C)	Conductivity (µmhos)	Pump Rate (gpm)	Comments
0815	10.01	2.53	19.2	466	—	1st RUN TO SCREEN 5 INITIAL PARAMETERS
0845	9.93	3.02	18.3	452	—	COLLECT MW-001-005 ClO4-
—	—	—	—	—	—	—
0910	8.19	0.72	19.0	323	—	1st RUN TO SCREEN 4 INITIAL PARAMETERS
0930	8.00	0.96	19.6	328	—	COLLECT MW-001-004 ClO4-, CrTOT MS/MSD, Cr6+
—	—	—	—	—	—	—
0955	8.00	2.67	19.5	409	—	1st RUN TO SCREEN 3 INITIAL PARAMETERS
1020	7.99	1.56	19.4	419	—	COLLECT MW-001-003 VOCs MS/MSD, CrTOT, Cr6+, ClO4-
—	—	—	—	—	—	—
1045	7.70	1.13	18.8	901	—	1st RUN TO SCREEN 2 INITIAL PARAMETERS
1105	7.55	1.94	18.9	896	—	COLLECT MW-001-002 VOCs, CrTOT, Cr6+, ClO4-
—	—	—	—	—	—	—
1125	7.22	12.43	18.1	1071	—	1st RUN TO SCREEN 1 INITIAL PARAMETERS
1145	7.25	18.8	18.2	1075	—	2nd RUN TO SCREEN 1
1205	7.11	44.2	18.9	1084	—	COLLECT MW-001-009 VOCs, CrTOT, Cr6+, ClO4-

Notes Sampling Procedures: _____

F4

FOSTER WHEELER ENVIRONMENTAL CORPORATION

WELL DEVELOPMENT LOG / WELL SAMPLING LOG

Project Name : JPL
Project Number : 1572.0305
Date : 3/23/00
Site Engineer : J. Brenner, ~~A. Colon~~; V. Richard, M. Flores
Well Number : MW-24
Equipment : YSI-3500, H.F. Scientific DRT-15CE
Contractor : NONE

	Before	Reference Point	After
Depth to Water (ft)	* see pressure profile		
Depth to Sediment (ft)			
Thickness of Sediment (ft)			

Depth of Well (ft) _____
Diameter of Casing (ft) _____
Water Column Height (ft) _____
Casing Volume (gals) = π(Diam. of Casing (ft)/2)^2 (Water Column Height (ft))(7.48 gals/ft^3) = _____
Casing Volumes Purged _____
Total Volume Purged (gals) _____

Time	pH	Turbidity (NTU)	Temp. (°C)	Conductivity (µmhos)	Pump Rate (gpm)	Comments
0824	7.81	10.4	20.7	.327	—	1st Run screen 4; initial parameters
0900	—	—	—	—	—	2nd Run; collect FW+EPA MW-001-001
0920	8.50	9.5	20.0	.376	—	3rd Run; collect FW+EPA MW-001-001; final par.
—	—	—	—	—	—	—
0945	8.30	28.4	20.7	.435	—	1st Run screen 3; initial parameters
1010	—	—	—	—	—	2nd Run; collect FW+EPA MW-001-002
1034	7.94	18.9	21.3	.452	—	3rd Run, collect FW+EPA MW-001-002; final p
—	—	—	—	—	—	—
1056	8.03	15.9	21.2	.355	—	1st Run screen 2; initial parameters
1120	—	—	—	—	—	2nd Run; collect FW+EPA MW-001-003
1144	8.49	19.1	21.5	.367	—	3rd Run; collect FW+EPA MW-001-003; final par.
—	—	—	—	—	—	—
1205	8.32	1.9	21.2	.403	—	1st Run screen 1; initial parameters
1225	—	—	—	—	—	2nd Run; collect FW+EPA MW-001-004
1244	8.03	3.84	23.3	.427	—	3rd Run; collect FW+EPA MW-001-004; final par.

Notes Sampling Procedures: _____

F4

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PIEZOMETRIC PRESSURES/LEVELS

FIELD DATA SHEET FOR MULTI-PORT MONITORING WELLS

Datum: Top of 1.5" Casing
Probe Type: Westbay
Date: 3/8/2000
Job No.: 1572
Serial No.: EMS1058
Well Name: MW-3
Elevation of atum(ft msl): 1100.34
Range: 0 to 1000 psia
Weather: 55 degrees, raining
Client: Jet Propulsion Laboratory
Casing Size: 1.5-inch Westbay Casing
Operator: M. Hunt, J. Donnay
Ambient Reading (Pressure/Temperature/Time) Start: 14.10/16.71/0829
Finish: 14.12/19.39/0843

Screen No.:	Depth (ft btoc)	Fluid Pressure Readings: Inside Casing (psia)	Outside Casing (psia)	Inside Casing (psia)	Temp. (C)	Time (hrs:min)	Depth to Water (ft)	Piezometric Level Outside Port (ft)	Water Level Elevation (ft)
5	653	170.60			20.66	833		244.10	856.24
			191.36						
			191.39						
			191.36						
				170.63					
4	558	129.32			22.05	835		213.12	887.22
			163.62						
			163.64						
			163.59						
				129.30					
3	346	37.30			21.67	838		130.88	969.46
			107.37						
			107.39						
			107.34						
				37.28					
2	252	14.26			20.69	840		126.99	973.35
			68.28						
			68.30						
			68.33						
				14.24					
1	172	14.19			19.84	842		114.41	985.93
			39.09						
			39.06						
			39.07						
				14.17					

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PIEZOMETRIC PRESSURES/LEVELS

FIELD DATA SHEET FOR MULTI-PORT MONITORING WELLS

Datum: Top of 1.5" Casing
Probe Type: Westbay
Date: 3/8/2000
Job No.: 1572
Serial No.: EMS1058
Well Name: MW-4
Elevation of atum(ft msl): 1082.84
Range: 0 to 1000 psia
Weather: 55 degrees, raining
Client: Jet Propulsion Laboratory
Casing Size: 1.5-inch Westbay Casing
Operator: M. Hunt, J. Donnay
Ambient Reading (Pressure/Temperature/Time) Start: 14.14/17.58/1132
Finish: 14.11/20.02/1144

Screen No.:	Depth (ft btoc)	Fluid Pressure Readings: Inside Casing (psia)	Outside Casing (psia)	Inside Casing (psia)	Temp. (C)	Time (hrs:min)	Depth to Water (ft)	Piezometric Level Outside Port (ft)	Water Level Elevation (ft)
5	513	125.27			19.46	1135		199.86	882.98
			149.85						
			149.87						
			149.90						
				125.24					
4	392	72.66			20.88	1137		120.41	962.43
			131.83						
			131.86						
			131.89						
				72.69					
3	322	42.24			20.98	1139		111.00	971.84
			105.57						
			105.59						
			105.62						
				42.21					
2	240	14.24			20.85	1140		107.75	975.09
			71.49						
			71.46						
			71.41						
				14.26					
1	150	14.19			20.43	1142		89.95	992.89
			40.18						
			40.13						
			40.16						
				14.16					

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PIEZOMETRIC PRESSURES/LEVELS

FIELD DATA SHEET FOR MULTI-PORT MONITORING WELLS

Datum: Top of 1.5" Casing
Probe Type: Westbay
Date: 3/8/2000
Job No.: 1572
Serial No.: EMS1058
Well Name: MW-11
Elevation of
Range: 0 to 1000 psia
Client: Jet Propulsion Laboratory
atum(ft msl): 1139.30
Weather: 55 degrees, raining
Casing Size: 1.5-inch Westbay Casing
Operator: M. Hunt, J. Donnay
Ambient Reading (Pressure/Temperature/Time) Start: 14.09/18.00/0753
Finish: 14.05/18.82/0810

Screen No.:	Depth (ft btoc)	Fluid Pressure Readings Inside Casing (psia)	Outside Casing (psia)	Inside Casing (psia)	Temp. (C)	Time (hrs:min)	Depth to Water (ft)	Piezometric Level Outside Port (ft)	Water Level Elevation (ft)
5	639	168.79			20.07	758		239.50	899.80
			187.24						
			187.27						
			187.25						
				168.82					
4	524	119.31			21.06	801		179.16	960.14
			163.59						
			163.56						
			163.53						
				119.29					
3	429	78.46			20.55	803		168.92	970.38
			126.81						
			126.84						
			126.79						
				78.43					
2	259	14.17			19.76	806		153.39	985.91
			59.88						
			59.85						
			59.83						
				14.20					
1	149	14.18			19.08	808		118.75	1020.55
			27.16						
			27.18						
			27.21						
				14.13					

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PIEZOMETRIC PRESSURES/LEVELS

FIELD DATA SHEET FOR MULTI-PORT MONITORING WELLS

Datum: Top of 1.5" Casing
Probe Type: Westbay
Date: 3/8/2000
Job No.: 1572
Serial No.: EMS1058
Well Name: MW-12
Elevation of atum(ft msl): 1102.14
Range: 0 to 1000 psia
Weather: 55 degrees, raining
Client: Jet Propulsion Laboratory
Casing Size: 1.5-inch Westbay Casing
Operator: M. Hunt, J. Donnay
Ambient Reading (Pressure/Temperature/Time) Start: 14.06/17.74/1156
Finish: 14.16/18.32/1212

Screen No.:	Depth (ft btoc)	Fluid Pressure Readings Inside Casing (psia)	Outside Casing (psia)	Inside Casing (psia)	Temp. (C)	Time (hrs:min)	Depth to Water (ft)	Piezometric Level Outside Port (ft)	Water Level Elevation (ft)
5	548	167.01			19.99	1157		205.49	896.65
			162.59						
			162.56						
			162.62						
				167.01					
4	436	118.29			20.88	1203		141.47	960.67
			141.80						
			141.77						
			141.79						
				118.32					
3	323	69.14			20.41	1205		127.45	974.69
			98.88						
			98.91						
			98.85						
				69.14					
2	243	34.37			19.52	1207		124.05	978.09
			65.67						
			65.65						
			65.70						
				34.38					
1	140	14.15			18.77	1209		102.02	1000.12
			30.60						
			30.57						
			30.55						
				14.18					

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PIEZOMETRIC PRESSURES/LEVELS

FIELD DATA SHEET FOR MULTI-PORT MONITORING WELLS

Datum: Top of 1.5" Casing
Probe Type: Westbay
Date: 3/8/2000
Job No.: 1572
Serial No.: EMS1058
Well Name: MW-17
Elevation of atum(ft msl): 1191.21
Range: 0 to 1000 psia
Weather: 55 degrees, raining
Client: Jet Propulsion Laboratory
Casing Size: 1.5-inch Westbay Casing
Operator: M. Hunt, J. Donnay
Ambient Reading (Pressure/Temperature/Time) Start: 14.01/17.26/0857
Finish: 14.10/16.36/0912

Screen No.:	Depth (ft btoc)	Fluid Pressure Readings Inside Casing (psia)	Outside Casing (psia)	Inside Casing (psia)	Temp. (C)	Time (hrs:min)	Depth to Water (ft)	Piezometric Level Outside Port (ft)	Water Level Elevation (ft)
5	726	169.84			18.34	900		304.79	886.42
			196.65						
			196.62						
			196.68						
				169.85					
4	582	107.29			19.60	903		292.89	898.32
			139.38						
			139.36						
			139.41						
				107.29					
3	468	57.75			18.31	905		235.75	955.46
			114.73						
			114.76						
			114.71						
				57.75					
2	370	15.13			17.27	907		224.91	966.30
			76.95						
			76.98						
			76.92						
				15.11					
1	250	14.15			16.68	911		221.59	969.62
			26.40						
			26.37						
			26.34						
				14.15					

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PIEZOMETRIC PRESSURES/LEVELS

FIELD DATA SHEET FOR MULTI-PORT MONITORING WELLS

Datum: Top of 1.5" Casing
Probe Type: Westbay
Date: 3/8/2000
Job No.: 1572
Serial No.: EMS1058
Well Name: MW-18
Elevation of atum(ft msl): 1225.41
Range: 0 to 1000 psia
Weather: 55 degrees, raining
Client: Jet Propulsion Laboratory
Casing Size: 1.5-inch Westbay Casing
Operator: M. Hunt, J. Donnay
Ambient Reading (Pressure/Temperature/Time) Start: 14.09/15.06/0923
Finish: 14.01/17.71/0939

Screen No.:	Depth (ft btoc)	Fluid Pressure Readings: Inside Casing (psia)	Outside Casing (psia)	Inside Casing (psia)	Temp. (C)	Time (hrs:min)	Depth to Water (ft)	Piezometric Level Outside Port (ft)	Water Level Elevation (ft)
5	684	147.35			18.10	926		306.75	918.66
			177.59						
			177.57						
			177.60						
				147.33					
4	564	95.15			20.04	930		289.47	935.94
			133.06						
			133.09						
			133.03						
				95.12					
3	424	34.32			19.70	932		259.63	965.78
			85.30						
			85.28						
			85.33						
				34.32					
2	330	14.21			18.77	934		261.20	964.21
			43.87						
			43.85						
			43.90						
				14.16					
1	270	14.16			18.08	936		263.13	962.28
			17.03						
			17.00						
			17.06						
				14.14					

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PIEZOMETRIC PRESSURES/LEVELS

FIELD DATA SHEET FOR MULTI-PORT MONITORING WELLS

Datum: Top of 1.5" Casing
Probe Type: Westbay
Date: 3/8/2000
Job No.: 1572
Serial No.: EMS1058
Well Name: MW-19
Elevation of atum(ft msl): 1142.94
Range: 0 to 1000 psia
Weather: 55 degrees, raining
Client: Jet Propulsion Laboratory
Casing Size: 1.5-inch Westbay Casing
Operator: M. Hunt, J. Donnay
Ambient Reading (Pressure/Temperature/Time) Start: 14.08/16.18/1028
Finish: 14.09/18.00/1040

Screen No.:	Depth (ft btoc)	Fluid Pressure Readings: Inside Casing (psia)	Outside Casing (psia)	Inside Casing (psia)	Temp. (C)	Time (hrs:min)	Depth to Water (ft)	Piezometric Level Outside Port (ft)	Water Level Elevation (ft)
5	498	77.13			17.27	1030		301.80	841.14
			99.14						
			99.16						
			99.11						
				77.16					
4	444	53.63			17.73	1032		297.54	845.40
			77.55						
			77.58						
			77.60						
				53.66					
3	392	31.05			17.68	1034		192.00	950.94
			100.78						
			100.76						
			100.81						
				31.05					
2	314	14.27			18.06	1037		187.04	955.90
			69.12						
			69.10						
			69.15						
				14.24					
1	242	14.21			18.11	1039		174.67	968.27
			43.27						
			43.25						
			43.30						
				14.19					

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PIEZOMETRIC PRESSURES/LEVELS

FIELD DATA SHEET FOR MULTI-PORT MONITORING WELLS

Datum: Top of 1.5" Casing
Probe Type: Westbay
Date: 3/8/2000
Job No.: 1572
Serial No.: EMS1058
Well Name: MW-20
Elevation of atum(ft msl): 1165.05
Range: 0 to 1000 psia
Weather: 55 degrees, raining
Client: Jet Propulsion Laboratory
Casing Size: 1.5-inch Westbay Casing
Operator: M. Hunt, J. Donnay
Ambient Reading (Pressure/Temperature/Time) Start: 14.11/15.96/0952
Finish: 14.06/17.98/1011

Screen No.:	Depth (ft btoc)	Fluid Pressure Readings: Inside Casing (psia)	Outside Casing (psia)	Inside Casing (psia)	Temp. (C)	Time (hrs:min)	Depth to Water (ft)	Piezometric Level Outside Port (ft)	Water Level Elevation (ft)
5	900	263.71			20.23	956		212.71	952.34
			312.03						
			312.05						
			312.00						
				263.70					
4	700	176.76			21.88	1001		238.66	926.39
			214.08						
			214.10						
			214.05						
				176.73					
3	562	116.75			21.50	1004		219.60	945.45
			162.52						
			162.54						
			162.49						
				116.78					
2	392	42.92			20.36	1007		210.55	954.50
			92.74						
			92.77						
			92.72						
				42.95					
1	230	14.16			18.71	1009		210.83	954.22
			22.42						
			22.39						
			22.37						
				14.19					

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PIEZOMETRIC PRESSURES/LEVELS

FIELD DATA SHEET FOR MULTI-PORT MONITORING WELLS

Datum: Top of 1.5" Casing
Probe Type: Westbay
Date: 3/8/2000
Job No.: 1572
Serial No.: EMS1058
Well Name: MW-21
Elevation of atum(ft msl): 1059.10
Range: 0 to 1000 psia
Weather: 55 degrees, raining
Client: Jet Propulsion Laboratory
Casing Size: 1.5-inch Westbay Casing
Operator: M. Hunt, J. Donnay
Ambient Reading (Pressure/Temperature/Time) Start: 14.13/16.50/1057
Finish: 14.15/19.00/1107

Screen No.:	Depth (ft btoc)	Fluid Pressure Readings			Temp. (C)	Time (hrs:min)	Depth to Water (ft)	Piezometric Level Outside Port (ft)	Water Level Elevation (ft)
		Inside Casing (psia)	Outside Casing (psia)	Inside Casing (psia)					
5	372	124.76			17.83	1059		71.65	987.45
			144.37						
			144.32						
			144.34						
				124.77					
4	310	97.89			19.13	1101		71.59	987.51
			117.48						
			117.51						
			117.48						
				97.91					
3	240	67.89			19.34	1103		70.54	988.56
			87.60						
			87.63						
			87.57						
				67.92					
2	161	33.49			19.18	1104		70.40	988.70
			53.39						
			53.41						
			53.44						
				33.46					
1	90	14.15			19.05	1106		72.84	986.26
			21.58						
			21.61						
			21.55						
				14.18					

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PIEZOMETRIC PRESSURES/LEVELS

FIELD DATA SHEET FOR MULTI-PORT MONITORING WELLS

Datum: Top of 1.5" Casing
Probe Type: Westbay
Date: 3/8/2000
Job No.: 1572
Serial No.: EMS1058
Well Name: MW-22
Elevation of atum(ft msl): 1176.98
Range: 0 to 1000 psia
Weather: 55 degrees, raining
Client: Jet Propulsion Laboratory
Casing Size: 1.5-inch Westbay Casing
Operator: M. Hunt, J. Donnay
Ambient Reading (Pressure/Temperature/Time) Start: 14.06/18.35/1221
Finish: 14.11/20.59/1234

Screen No.:	Depth (ft btoc)	Fluid Pressure Readings Inside Casing (psia)	Outside Casing (psia)	Inside Casing (psia)	Temp. (C)	Time (hrs:min)	Depth to Water (ft)	Piezometric Level Outside Port (ft)	Water Level Elevation (ft)
5	588	146.08			20.14	1224		219.95	957.03
			173.61						
			173.66						
			173.63						
				146.06					
4	467	93.58			21.41	1227		208.22	968.76
			126.27						
			126.29						
			126.24						
				93.58					
3	389	59.71			21.46	1229		189.72	987.26
			100.47						
			100.50						
			100.45						
				59.69					
2	329	33.63			21.26	1230		190.03	986.95
			74.36						
			74.33						
			74.30						
				33.65					
1	245	14.24			20.85	1232		191.67	985.31
			37.18						
			37.20						
			37.23						
				14.21					

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PIEZOMETRIC PRESSURES/LEVELS

FIELD DATA SHEET FOR MULTI-PORT MONITORING WELLS

Datum: Top of 1.5" Casing
Probe Type: Westbay
Date: 3/8/2000
Job No.: 1572
Serial No.: EMS1058
Well Name: MW-23
Elevation of
Range: 0 to 1000 psia
Client: Jet Propulsion Laboratory
atum(ft msl): 1108.84
Weather: 55 degrees, raining
Casing Size: 1.5-inch Westbay Casing
Operator: M. Hunt, J. Donnay
Ambient Reading (Pressure/Temperature/Time) Start: 14.09/14.36/0720
Finish: 14.01/19.91/0741

Screen No.:	Depth (ft btoc)	Fluid Pressure Readings Inside Casing (psia)	Outside Casing (psia)	Inside Casing (psia)	Temp. (C)	Time (hrs:min)	Depth to Water (ft)	Piezometric Level Outside Port (ft)	Water Level Elevation (ft)
5	542	159.19			17.68	731		150.61	958.23
			183.72						
			183.74						
			183.69						
				159.18					
4	445	117.06			20.21	733		149.91	958.93
			141.95						
			141.98						
			141.99						
				117.04					
3	319	62.35			20.53	734		127.23	981.61
			97.18						
			97.21						
			97.16						
				62.33					
2	254	34.13			20.48	737		126.92	981.92
			69.14						
			69.17						
			69.11						
				34.11					
1	174	14.11			20.12	739		124.54	984.30
			35.52						
			35.49						
			35.46						
				14.14					

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PIEZOMETRIC PRESSURES/LEVELS

FIELD DATA SHEET FOR MULTI-PORT MONITORING WELLS

Datum: Top of 1.5" Casing
Probe Type: Westbay
Date: 3/8/2000
Job No.: 1572
Serial No.: EMS1058
Well Name: MW-24
Elevation of atum(ft msl): 1200.94
Range: 0 to 1000 psia
Weather: 55 degrees, raining
Client: Jet Propulsion Laboratory
Casing Size: 1.5-inch Westbay Casing
Operator: M. Hunt, J. Donnay
Ambient Reading (Pressure/Temperature/Time) Start: 14.01/17.92/1250
Finish: 14.07/21.31/13.03

Screen No.:	Depth (ft btoc)	Fluid Pressure Readings Inside Casing (psia)	Outside Casing (psia)	Inside Casing (psia)	Temp. (C)	Time (hrs:min)	Depth to Water (ft)	Piezometric Level Outside Port (ft)	Water Level Elevation (ft)
5	678	168.11			20.17	1252		271.07	929.87
			190.98						
			190.20						
			190.15						
				168.14					
4	554	114.29			21.22	1254		248.07	952.87
			146.63						
			146.66						
			146.69						
				114.27					
3	435	62.64			21.47	1257		222.60	978.34
			106.11						
			106.09						
			106.14						
				62.61					
2	373	35.71			21.67	1259		220.37	980.57
			80.20						
			80.18						
			80.23						
				35.68					
1	279	14.20			21.62	1301		216.98	983.96
			40.90						
			40.93						
			40.95						
				14.18					

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PIEZOMETRIC PRESSURES/LEVELS

FIELD DATA SHEET FOR MULTI-PORT MONITORING WELLS

Datum: Top of 1.5" Casing
Probe Type: Westbay
Date: 4/3/2000
Job No.: 1572
Serial No.: EMS1058
Well Name: MW-3
Elevation of atum(ft msl): 1100.34
Range: 0 to 1000 psia
Weather: 70 degrees, sunny
Client: Jet Propulsion Laboratory
Casing Size: 1.5-inch Westbay Casing
Operator: M. Hunt/V. Richards
Ambient Reading (Pressure/Temperature/Time) Start: 14.29/18.16/0827
Finish: 14.29/19.45/0845

Screen No.:	Depth (ft btoc)	Fluid Pressure Readings Inside Casing (psia)	Outside Casing (psia)	Inside Casing (psia)	Temp. (C)	Time (hrs:min)	Depth to Water (ft)	Piezometric Level Outside Port (ft)	Water Level Elevation (ft)
5	653	170.52			21.36	831		239.41	860.93
			193.59						
			193.56						
			193.59						
				170.53					
4	558	129.25			22.35	833		208.45	891.89
			165.82						
			165.82						
			165.82						
				129.27					
3	346	37.25			20.90	836		123.79	976.55
			110.61						
			110.61						
			110.64						
				37.23					
2	252	14.34			20.54	839		119.35	980.99
			71.80						
			71.78						
			71.80						
				14.35					
1	172	14.32			19.99	841		106.51	993.83
			42.66						
			42.69						
			42.69						
				14.33					

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PIEZOMETRIC PRESSURES/LEVELS

FIELD DATA SHEET FOR MULTI-PORT MONITORING WELLS

Datum: Top of 1.5" Casing
Probe Type: Westbay
Date: 4/3/2000
Job No.: 1572
Serial No.: EMS1058
Well Name: MW-4
Elevation of atum(ft msl): 1082.84
Range: 0 to 1000 psia
Weather: 70 degrees, sunny
Client: Jet Propulsion Laboratory
Casing Size: 1.5-inch Westbay Casing
Operator: M. Hunt/V. Richards
Ambient Reading (Pressure/Temperature/Time) Start: 14.24/22.29/1315
Finish: 14.24/20.20/1330

Screen No.:	Depth (ft btoc)	Fluid Pressure Readings: Inside Casing (psia)	Outside Casing (psia)	Inside Casing (psia)	Temp. (C)	Time (hrs:min)	Depth to Water (ft)	Piezometric Level Outside Port (ft)	Water Level Elevation (ft)
5	513	125.17			22.33	1319		195.61	887.23
			151.84						
			151.82						
			151.82						
				125.14					
4	392	72.57			22.60	1321		113.87	968.97
			134.81						
			134.81						
			134.81						
				72.58					
3	322	42.15			22.12	1323		103.94	978.90
			108.78						
			108.75						
			108.78						
				42.15					
2	240	14.38			21.70	1325		100.10	982.74
			74.88						
			74.88						
			74.90						
				14.33					
1	150	14.31			21.16	1326		80.73	1002.11
			44.27						
			44.27						
			44.27						
				14.32					

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PIEZOMETRIC PRESSURES/LEVELS

FIELD DATA SHEET FOR MULTI-PORT MONITORING WELLS

Datum: Top of 1.5" Casing
Probe Type: Westbay
Date: 4/3/2000
Job No.: 1572
Serial No.: EMS1058
Well Name: MW-11
Elevation of atum(ft msl): 1139.30
Range: 0 to 1000 psia
Weather: 70 degrees, sunny
Client: Jet Propulsion Laboratory
Casing Size: 1.5-inch Westbay Casing
Operator: M. Hunt/V. Richards
Ambient Reading (Pressure/Temperature/Time) Start: 14.23/19.21/0746
Finish: 14.18/19.05/0802

Screen No.:	Depth (ft btoc)	Fluid Pressure Readings			Temp. (C)	Time (hrs:min)	Depth to Water (ft)	Piezometric Level Outside Port (ft)	Water Level Elevation (ft)
		Inside Casing (psia)	Outside Casing (psia)	Inside Casing (psia)					
5	639	168.66			20.43	750		234.01	905.29
			189.76						
			189.78						
			189.76						
				168.69					
4	524	119.21			21.71	754		173.08	966.22
			166.31						
			166.34						
			166.34						
				119.18					
3	429	78.35			20.94	756		161.86	977.44
			130.00						
			130.03						
			130.00						
				78.33					
2	259	14.30			19.91	758		144.82	994.48
			63.71						
			63.69						
			63.71						
				14.30					
1	149	14.25			19.45	800		114.27	1025.03
			29.27						
			29.24						
			29.27						
				14.25					

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PIEZOMETRIC PRESSURES/LEVELS

FIELD DATA SHEET FOR MULTI-PORT MONITORING WELLS

Datum: Top of 1.5" Casing
Probe Type: Westbay
Date: 4/3/2000
Job No.: 1572
Serial No.: EMS1058
Well Name: MW-12
Elevation of atum(ft msl): 1102.14
Range: 0 to 1000 psia
Weather: 70 degrees, sunny
Client: Jet Propulsion Laboratory
Casing Size: 1.5-inch Westbay Casing
Operator: M. Hunt/V. Richards
Ambient Reading (Pressure/Temperature/Time) Start: 14.23/21.65/1342
Finish: 14.26/18.69/1402

Screen No.:	Depth (ft btoc)	Fluid Pressure Readings Inside Casing (psia)	Outside Casing (psia)	Inside Casing (psia)	Temp. (C)	Time (hrs:min)	Depth to Water (ft)	Piezometric Level Outside Port (ft)	Water Level Elevation (ft)
5	548	134.40			22.15	1348		200.70	901.44
			164.82						
			164.79						
			164.79						
				134.40					
4	436	85.74			22.10	1351		134.98	967.16
			144.73						
			144.75						
			144.73						
				85.71					
3	323	36.60			19.76	1355		119.77	982.37
			102.35						
			102.35						
			102.33						
				36.64					
2	243	14.33			19.18	1358		115.51	986.63
			69.51						
			69.48						
			69.54						
				14.33					
1	140	14.31			18.92	1400		91.97	1010.17
			35.06						
			35.08						
			35.06						
				14.31					

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PIEZOMETRIC PRESSURES/LEVELS

FIELD DATA SHEET FOR MULTI-PORT MONITORING WELLS

Datum: Top of 1.5" Casing
Probe Type: Westbay
Date: 4/3/2000
Job No.: 1572
Serial No.: EMS1058
Well Name: MW-14
Elevation of
Range: 0 to 1000 psia
Client: Jet Propulsion Laboratory
atum(ft msl): 1173.47
Weather: 70 degrees, sunny
Casing Size: 1.5-inch Westbay Casing
Operator: M. Hunt/V. Richards
Ambient Reading (Pressure/Temperature/Time) Start: 14.24/23.31/1143
Finish: 14.19/19.91/1201

Screen No.:	Depth (ft btoc)	Fluid Pressure Readings Inside Casing (psia)	Outside Casing (psia)	Inside Casing (psia)	Temp. (C)	Time (hrs:min)	Depth to Water (ft)	Piezometric Level Outside Port (ft)	Water Level Elevation (ft)
5	540	158.99			22.62	1147		172.63	1000.84
			173.49						
			173.46						
			173.46						
				158.99					
4	456	122.45			22.33	1149		172.02	1001.45
			137.33						
			137.33						
			137.30						
				122.45					
3	382	90.28			21.62	1152		171.94	1001.53
			105.28						
			105.30						
			105.25						
				90.29					
2	277	44.69			20.78	1154		172.11	1001.36
			59.67						
			59.70						
			59.69						
				44.67					
1	207	14.30			19.97	1159		172.18	1001.29
			29.31						
			29.31						
			29.31						
				14.27					

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PIEZOMETRIC PRESSURES/LEVELS

FIELD DATA SHEET FOR MULTI-PORT MONITORING WELLS

Datum: Top of 1.5" Casing
Probe Type: Westbay
Date: 4/3/2000
Job No.: 1572
Serial No.: EMS1058
Well Name: MW-17
Elevation of atum(ft msl): 1191.21
Range: 0 to 1000 psia
Weather: 70 degrees, sunny
Client: Jet Propulsion Laboratory
Casing Size: 1.5-inch Westbay Casing
Operator: M. Hunt/V. Richards
Ambient Reading (Pressure/Temperature/Time) Start: 14.28/19.08/0857
Finish: 14.29/16.26/0914

Screen No.:	Depth (ft btoc)	Fluid Pressure Readings Inside Casing (psia)	Outside Casing (psia)	Inside Casing (psia)	Temp. (C)	Time (hrs:min)	Depth to Water (ft)	Piezometric Level Outside Port (ft)	Water Level Elevation (ft)
5	726	169.57			19.96	900		299.83	891.38
			199.02						
			199.05						
			199.02						
				169.57					
4	582	107.03			19.20	905		288.08	903.13
			141.71						
			141.68						
			141.71						
				107.00					
3	468	57.49			18.06	907		229.16	962.05
			117.84						
			117.81						
			117.81						
				57.49					
2	370	14.93			17.09	910		217.56	973.65
			80.37						
			80.34						
			80.39						
				14.96					
1	250	14.25			16.68	912		200.82	990.39
			35.62						
			35.60						
			35.60						
				14.31					

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PIEZOMETRIC PRESSURES/LEVELS

FIELD DATA SHEET FOR MULTI-PORT MONITORING WELLS

Datum: Top of 1.5" Casing
Probe Type: Westbay
Date: 4/3/2000
Job No.: 1572
Serial No. EMS1058
Well Name: MW-18
Elevation of
Range: 0 to 1000 psia
Client: Jet Propulsion Laboratory
atum(ft msl): 1225.41
Weather: 70 degrees, sunny
Casing Size: 1.5-inch Westbay Casing
Operator: M. Hunt/V. Richards
Ambient Reading (Pressure/Temperature/Time) Start: 14.17/17.77/0929
Finish: 14.19/17.92/0947

Screen No.:	Depth (ft btoc)	Fluid Pressure Readings			Temp. (C)	Time (hrs:min)	Depth to Water (ft)	Piezometric Level Outside Port (ft)	Water Level Elevation (ft)
		Inside Casing (psia)	Outside Casing (psia)	Inside Casing (psia)					
5	684	147.05			19.96	934		301.70	923.71
			179.91						
			179.89						
			179.92						
				147.03					
4	564	94.93			20.84	938		283.45	941.96
			135.81						
			135.78						
			135.81						
				94.91					
3	424	34.16			20.14	941		251.91	973.50
			88.77						
			88.80						
			88.77						
				34.17					
2	330	14.31			18.95	943		250.70	974.71
			48.56						
			48.57						
			48.54						
				14.34					
1	270	14.34			18.35	945		250.61	974.80
			22.58						
			22.60						
			22.58						
				14.29					

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PIEZOMETRIC PRESSURES/LEVELS

FIELD DATA SHEET FOR MULTI-PORT MONITORING WELLS

Datum: Top of 1.5" Casing
Probe Type: Westbay
Date: 4/3/2000
Job No.: 1572
Serial No.: EMS1058
Well Name: MW-19
Elevation of atum(ft msl): 1142.94
Range: 0 to 1000 psia
Weather: 70 degrees, sunny
Client: Jet Propulsion Laboratory
Casing Size: 1.5-inch Westbay Casing
Operator: M. Hunt/V. Richards
Ambient Reading (Pressure/Temperature/Time) Start: 14.29/18.56/1001
Finish: 14.24/18.24/1014

Screen No.:	Depth (ft btoc)	Fluid Pressure Readings: Inside Casing (psia)	Outside Casing (psia)	Inside Casing (psia)	Temp. (C)	Time (hrs:min)	Depth to Water (ft)	Piezometric Level Outside Port (ft)	Water Level Elevation (ft)
5	498	77.29			18.67	1005		299.90	843.04
			100.13						
			100.16						
			100.13						
				77.31					
4	444	53.83			18.65	1007		295.63	847.31
			78.59						
			78.57						
			78.59						
				53.81					
3	392	31.28			18.18	1009		186.15	956.79
			103.50						
			103.47						
			103.53						
				31.33					
2	314	14.37			18.48	1011		181.08	961.86
			71.89						
			71.91						
			71.86						
				14.34					
1	242	14.37			18.45	1012		168.03	974.91
			46.32						
			46.35						
			46.32						
				14.32					

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PIEZOMETRIC PRESSURES/LEVELS

FIELD DATA SHEET FOR MULTI-PORT MONITORING WELLS

Datum: Top of 1.5" Casing
Probe Type: Westbay
Date: 4/3/2000
Job No.: 1572
Serial No.: EMS1058
Well Name: MW-20
Elevation of atum(ft msl): 1165.05
Range: 0 to 1000 psia
Weather: 70 degrees, sunny
Client: Jet Propulsion Laboratory
Casing Size: 1.5-inch Westbay Casing
Operator: M. Hunt/V. Richards
Ambient Reading (Pressure/Temperature/Time) Start: 14.23/19.11/1027
Finish: 14.21/18.11/1048

Screen No.:	Depth (ft btoc)	Fluid Pressure Readings Inside Casing (psia)	Outside Casing (psia)	Inside Casing (psia)	Temp. (C)	Time (hrs:min)	Depth to Water (ft)	Piezometric Level Outside Port (ft)	Water Level Elevation (ft)
5	900	262.30			22.75	1035		208.37	956.68
			314.03						
			314.03						
			314.06						
				262.33					
4	700	175.29			22.88	1037		234.16	930.89
			216.18						
			216.15						
			216.15						
				175.32					
3	562	115.34			22.12	1040		215.96	949.09
			164.24						
			164.22						
			164.22						
				115.31					
2	392	41.51			20.72	1043		206.12	958.93
			94.81						
			94.81						
			94.78						
				41.52					
1	230	14.34			18.87	1046		207.25	957.80
			24.09						
			24.06						
			24.09						
				14.34					

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PIEZOMETRIC PRESSURES/LEVELS

FIELD DATA SHEET FOR MULTI-PORT MONITORING WELLS

Datum: Top of 1.5" Casing
Probe Type: Westbay
Date: 4/3/2000
Job No.: 1572
Serial No.: EMS1058
Well Name: MW-21
Elevation of atum(ft msl): 1059.10
Range: 0 to 1000 psia
Weather: 70 degrees, sunny
Client: Jet Propulsion Laboratory
Casing Size: 1.5-inch Westbay Casing
Operator: M. Hunt/V. Richards
Ambient Reading (Pressure/Temperature/Time) Start: 14.33/19.84/1106
Finish: 14.28/19.39/1124

Screen No.:	Depth (ft btoc)	Fluid Pressure Readings Inside Casing (psia)	Outside Casing (psia)	Inside Casing (psia)	Temp. (C)	Time (hrs:min)	Depth to Water (ft)	Piezometric Level Outside Port (ft)	Water Level Elevation (ft)
5	372	124.62			20.37	1109		66.13	992.97
			146.89						
			146.92						
			146.89						
				124.64					
4	310	97.65			20.35	1115		66.12	992.98
			120.02						
			120.02						
			120.04						
				97.68					
3	240	67.68			20.23	1118		64.93	994.17
			90.21						
			90.18						
			90.21						
				67.68					
2	161	33.35			19.78	1119		64.59	994.51
			56.07						
			56.12						
			56.10						
				33.36					
1	90	14.30			19.42	1122		66.24	992.86
			24.62						
			24.60						
			24.60						
				14.33					

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PIEZOMETRIC PRESSURES/LEVELS

FIELD DATA SHEET FOR MULTI-PORT MONITORING WELLS

Datum: Top of 1.5" Casing
Probe Type: Westbay
Date: 4/3/2000
Job No.: 1572
Serial No.: EMS1058
Well Name: MW-22
Elevation of atum(ft msl): 1176.98
Range: 0 to 1000 psia
Weather: 70 degrees, sunny
Client: Jet Propulsion Laboratory
Casing Size: 1.5-inch Westbay Casing
Operator: M. Hunt/V. Richards
Ambient Reading (Pressure/Temperature/Time) Start: 14.21/21.18/1214
Finish: 14.21/20.72/1230

Screen No.:	Depth (ft btoc)	Fluid Pressure Readings Inside Casing (psia)	Outside Casing (psia)	Inside Casing (psia)	Temp. (C)	Time (hrs:min)	Depth to Water (ft)	Piezometric Level Outside Port (ft)	Water Level Elevation (ft)
5	588	145.96			21.72	1216		213.97	963.01
			176.36						
			176.34						
			176.36						
				145.98					
4	467	93.44			22.16	1221		202.24	974.74
			128.98						
			129.01						
			128.96						
				93.47					
3	389	59.58			21.98	1223		183.15	993.83
			103.45						
			103.47						
			103.42						
				59.63					
2	329	33.54			21.59	1225		183.27	993.71
			77.41						
			77.38						
			77.36						
				33.55					
1	245	14.28			21.06	1228		181.99	994.99
			41.53						
			41.51						
			41.53						
				14.34					

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PIEZOMETRIC PRESSURES/LEVELS

FIELD DATA SHEET FOR MULTI-PORT MONITORING WELLS

Datum: Top of 1.5" Casing
Probe Type: Westbay
Date: 4/3/2000
Job No.: 1572
Serial No.: EMS1058
Well Name: MW-23
Elevation of atum(ft msl): 1108.84
Range: 0 to 1000 psia
Weather: 70 degrees, sunny
Client: Jet Propulsion Laboratory
Casing Size: 1.5-inch Westbay Casing
Operator: M. Hunt/V. Richards
Ambient Reading (Pressure/Temperature/Time) Start: 14.23/20.23/0715
Finish: 14.23/20.23/0730

Screen No.:	Depth (ft btoc)	Fluid Pressure Readings Inside Casing (psia)	Outside Casing (psia)	Inside Casing (psia)	Temp. (C)	Time (hrs:min)	Depth to Water (ft)	Piezometric Level Outside Port (ft)	Water Level Elevation (ft)
5	542	158.98			21.36	717		144.38	964.46
			186.62						
			186.56						
			186.62						
				158.98					
4	445	116.80			21.42	721		143.82	965.02
			144.80						
			144.78						
			144.80						
				116.83					
3	319	62.17			21.28	723		120.13	988.71
			100.45						
			100.42						
			100.45						
				62.17					
2	254	33.97			20.84	725		119.53	989.31
			72.51						
			72.53						
			72.53						
				33.95					
1	174	14.27			20.51	727		114.44	994.40
			40.05						
			40.05						
			40.05						
				14.29					

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PIEZOMETRIC PRESSURES/LEVELS

FIELD DATA SHEET FOR MULTI-PORT MONITORING WELLS

Datum: Top of 1.5" Casing
Probe Type: Westbay
Date: 4/3/2000
Job No.: 1572
Serial No.: EMS1058
Well Name: MW-24
Elevation of atum(ft msl): 1200.94
Range: 0 to 1000 psia
Weather: 70 degrees, sunny
Client: Jet Propulsion Laboratory
Casing Size: 1.5-inch Westbay Casing
Operator: M. Hunt/V. Richards
Ambient Reading (Pressure/Temperature/Time) Start: 14.16/22.42/1247
Finish: 14.15/21.47/1304

Screen No.:	Depth (ft btoc)	Fluid Pressure Readings: Inside Casing (psia)	Outside Casing (psia)	Inside Casing (psia)	Temp. (C)	Time (hrs:min)	Depth to Water (ft)	Piezometric Level Outside Port (ft)	Water Level Elevation (ft)
5	678	167.86			22.67	1250		266.18	934.76
			192.68						
			192.68						
			192.68						
				167.88					
4	554	114.06			22.66	1253		242.08	958.86
			149.36						
			149.38						
			149.38						
				114.08					
3	435	62.42			22.37	1255		215.45	985.49
			109.33						
			109.33						
			109.33						
				62.39					
2	373	35.49			22.37	1257		211.97	988.97
			83.96						
			83.99						
			83.93						
				35.52					
1	279	14.38			22.06	1259		204.19	996.75
			46.56						
			46.59						
			46.61						
				14.33					

FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling
Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-3 Depth: 252 Date: 3/9/00

Well Name: MW-3 Sampling Zone No.: 2 Starting Time: 1400 Finishing Time: 1440

Technicians M. Hunt, T. Turpyn-Keasler

Water Level Inside MP Casing (Beginning of Session) 14.26 psi (End of Session) 14.31 psi

Run No.	Surface Function Checks					Position Sampler	Surface Collection Checks							Comments
	Activate	Vacuum Check Valve Closed	Valve Open	Evacuate Container	Valve Closed	Deactivate Set Arm Locate Port	Water Level in MP (ft)	Activate	Valve Open Time	Valve Closed Time	Deactivate	Water Level in MP (ft) Remove Tape	Volume Retrieved (liters)	
1	✓	✓	✓	✓	✓	✓	14.26	✓	1406	1408	✓	14.33	1	1st run to screen 2; initial parameters; NTU's = 2.97
2	✓	✓	✓	✓	✓	✓	14.27	✓	1425	1428	✓	14.31	1	2nd run to screen 2; Collect MW-001-070; VOCs, Cr_{Tot}, Cr(VI), ClO_4^-; final parameters
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: Pressure outside MP casing = 68.62 psi

Total Volume: 2

F-2

FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling
Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-3 Depth: 346 Date: 3/9/00

Well Name: MW-3 Sampling Zone No.: 3 Starting Time: 1320 Finishing Time: 1355

Technicians M. Hunt, T. Turpyn-Keasler

Water Level Inside MP Casing (Beginning of Session) 38.62 psi (End of Session) 38.59 psi

Run No.	Surface Function Checks					Position Sampler	Surface Collection Checks							Comments
	Activate	Vacuum Check Valve Closed	Valve Open	Evacuate Container	Valve Closed	Deactivate Set Arm Locate Port	Water Level in MP (ft)	Activate	Valve Open Time	Valve Closed Time	Deactivate	Water Level in MP (ft) Remove Tape	Volume Retrieved (liters)	
1	✓	✓	✓	✓	✓	✓	38.62	✓	1322	1323	✓	38.64	0.75 (max)	1st run to screen 3; initial parameters; NTU's = 1.81
2	✓	✓	✓	✓	✓	✓	38.59	✓	1341	1343	✓	38.59	0.75	2nd run to screen 3; Collect MW-001-069; VOC's, Cr_{Tot}, Cr(VI), ClO_4; final parameters
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: Pressure outside MP casing = 107.79 psi

Total Volume: 1.5

F-2

FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling
Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-3 Depth: 558 Date: 3/9/00

Well Name: MW-3 Sampling Zone No.: 4 Starting Time: 1220 Finishing Time: 1315

Technicians M. Hunt, T. Turpyn-Keasler

Water Level Inside MP Casing (Beginning of Session) 131.21 psi (End of Session) 131.18 psi

Run No.	Surface Function Checks					Position Sampler	Surface Collection Checks							Comments
	Activate	Vacuum Check Valve Closed	Valve Open	Evacuate Container	Valve Closed	Deactivate Set Arm Locate Port	Water Level in MP (ft)	Activate	Valve Open Time	Valve Closed Time	Deactivate	Water Level in MP (ft) Remove Tape	Volume Retrieved (liters)	
1	✓	✓	✓	✓	✓	✓	131.21	✓	1227	1230	✓	131.18	1	Initial run to screen 4; parameters; NTU's = 3.63
2	✓	✓	✓	✓	✓	✓	131.18	✓	1253	1255	✓	131.18	1	2nd run to screen 4; Collect MW-001-068; VOC's, Cr_{Tot}, Cr(VI), ClO_4^-
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: Pressure outside MP casing = 165.29 psi

Total Volume: 2

F-2

FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling
Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-3 Depth: 653 Date: 3/8/00

Well Name: MW-3 Sampling Zone No.: 5 Starting Time: 0950 Finishing Time: 1210

Technicians M. Hunt, T. Turpyn-Keasler

Water Level Inside MP Casing (Beginning of Session) 172.54 psi (End of Session) 171.50 psi

Run No.	Surface Function Checks					Position Sampler	Surface Collection Checks							Comments
	Activate	Vacuum Check Valve Closed	Valve Open	Evacuate Container	Valve Closed	Deactivate Set Arm Locate Port	Water Level in MP (ft)	Activate	Valve Open Time	Valve Closed Time	Deactivate	Water Level in MP (ft) Remove Tape	Volume Retrieved (liters)	
1	✓	✓	✓	✓	✓	✓	172.54	✓	1014	1016	✓	172.52	1	INITIAL RUN TO SCREEN 5; NTUs = 11.44
2	✓	✓	✓	✓	✓	✓	172.02	✓	1053	1056	✓	172.02	0.75	2nd run to screen 5; parameters NTUs = 11.27
3	✓	✓	✓	✓	✓	✓	171.49	✓	1156	1158	✓	171.50	0.50	3rd run to screen 5; final parameters; Collect MW-001-067; Cl.04
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: Pressure outside MP casing = 190.87 psi

Total Volume: 2.25

F-2

FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling
Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-4 Depth: 150 ft. Date: 3-14-00

Well Name: MW-4 Sampling Zone No.: 1 Starting Time: 1210 Finishing Time: 1240

Technicians M. Hunt, V. Richards, J. Donnay

Water Level Inside MP Casing (Beginning of Session) 14.09 psi (End of Session) 14.12 psi

Run No.	Surface Function Checks					Position Sampler	Surface Collection Checks							Comments
	Activate	Vacuum Check Valve Closed	Valve Open	Evacuate Container	Valve Closed	Deactivate Set Arm Locate Port	Water Level in MP (ft)	Activate	Valve Open Time	Valve Closed Time	Deactivate	Water Level in MP (ft) Remove Tape	Volume Retrieved (liters)	
1	✓	✓	✓	✓	✓	✓	14.09	✓	1212	1216	✓	14.12	1	1st run; initial parameters; NTU's = 2.48
2	✓	✓	✓	✓	✓	✓	14.11	✓	1228	1232	✓	14.12	1	2nd run; Collect MW-001-066; VOCs, Cr_{Tot}, Cr^{6+}, CCl_4^-; final parameters
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: Pressure outside MP casing = 42.66 psi

Total Volume: 2

F-2

FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling
Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-4 Depth: 240 ft. Date: 3-14-00

Well Name: MW-4 Sampling Zone No.: 2 Starting Time: 1100 Finishing Time: 1200

Technicians M. Hunt, V. Richards

Water Level Inside MP Casing (Beginning of Session) 14.15 psi (End of Session) 14.19 psi

Run No.	Surface Function Checks					Position Sampler	Surface Collection Checks							Comments
	Activate	Vacuum Check Valve Closed	Valve Open	Evacuate Container	Valve Closed	Deactivate Set Arm Locate Port	Water Level in MP (ft)	Activate	Valve Open Time	Valve Closed Time	Deactivate	Water Level in MP (ft) Remove Tape	Volume Retrieved (liters)	
1	✓	✓	✓	✓	✓	✓	14.15	✓	1107	1109	✓	14.16	1	1st run; initial parameters; NTU's = 3.98
2	✓	✓	✓	✓	✓	✓	14.14	✓	1127	1131	✓	14.19	1	2nd run; Collect MW-001-064 (Dup) + MW-001-065; VOC's, Cr_{Tot}, Cr^{6+}, ClO_4^-
3	✓	✓	✓	✓	✓	✓	14.12	✓	1152	1154	✓	14.19	0.5	3rd run; final parameters
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: Pressure outside MP casing = 72.84 psi

Total Volume: 2.5

F-2

FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling
Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-4 Depth: 322 ft. Date: 3-14-00

Well Name: MW-4 Sampling Zone No.: 3 Starting Time: 1010 Finishing Time: 1055

Technicians M. Hunt, V. Richards, J. Donnay

Water Level Inside MP Casing (Beginning of Session) 43.96 psi (End of Session) 43.95 psi

Run No.	Surface Function Checks					Position Sampler	Surface Collection Checks							Comments
	Activate	Vacuum Check Valve Closed	Valve Open	Evacuate Container	Valve Closed	Deactivate Set Arm Locate Port	Water Level in MP (ft)	Activate	Valve Open Time	Valve Closed Time	Deactivate	Water Level in MP (ft) Remove Tape	Volume Retrieved (liters)	
1	✓	✓	✓	✓	✓	✓	43.96	✓	1019	1021	✓	43.95	1	1st run; initial parameters; NTU's = 8.17 MSA pt-063MS; -063MSD
2	✓	✓	✓	✓	✓	✓	43.92	✓	1038	1041	✓	43.95	1	2nd run; Collected MW-001-063; VOC's, Cr_{Tot}, Cr^{6+}, ClO_4^-; final parameters
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: Pressure outside MP casing = 106.61 psi

Total Volume: 2

F-2

FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling
Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-4 Depth: 392 ft. Date: 3-14-00

Well Name: MW-4 Sampling Zone No.: 4 Starting Time: 0920 Finishing Time: 1005

Technicians M. Hunt, V. Richards, J. Donnay

Water Level Inside MP Casing (Beginning of Session) 73.97 psi (End of Session) 73.99 psi

Run No.	Surface Function Checks					Position Sampler	Surface Collection Checks							Comments
	Activate	Vacuum Check Valve Closed	Valve Open	Evacuate Container	Valve Closed	Deactivate Set Arm Locate Port	Water Level in MP (ft)	Activate	Valve Open Time	Valve Closed Time	Deactivate	Water Level in MP (ft) Remove Tape	Volume Retrieved (liters)	
1	✓	✓	✓	✓	✓	✓	73.97	✓	0930	0932	✓	73.94	0.75	1st run; initial parameter NTU's = 1.10
2	✓	✓	✓	✓	✓	✓	73.91	✓	0954	0955	✓	73.99	0.75	2nd run, collect MW-001-62; Cr_{TOT}, Cr^{+6}; final PARAMETERS.
3	✓	✓	✓											
4		MJH												
5														
6														
7														
8														
9														
10														
11														
12														

Comments: Pressure outside MP casing = 132.50

Total Volume: 1.5

F-2

FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling
Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-4 Depth: 513 ft. Date: 3-14-00

Well Name: MW-4 Sampling Zone No.: 5 Starting Time: 0755 Finishing Time: 0915

Technicians: M. Hunt, V. Richards, J. Donnay

Water Level Inside MP Casing (Beginning of Session) 127.13 psi (End of Session) 126.05 psi

Run No.	Surface Function Checks					Position Sampler	Surface Collection Checks							Comments
	Activate	Vacuum Check Valve Closed	Valve Open	Evacuate Container	Valve Closed	Deactivate Set Arm Locate Port	Water Level in MP (ft)	Activate	Valve Open Time	Valve Closed Time	Deactivate	Water Level in MP (ft) Remove Tape	Volume Retrieved (liters)	
1	✓	✓	✓	✓	✓	~~127.13~~ ✓	127.13	✓	0803	0806	✓	127.10	1	1st run; initial parameters; NTU's = .85
2	✓	✓	✓	✓	✓	✓	127.08	✓	0832	0833	✓	127.10	0.25	2nd Run; collect MW-001-061; CR TOT, CR+6; ~~final parameters~~
3	✓	✓	✓	✓	✓	✓	126.08	✓	0903	0904	✓	126.05	0.5	3rd Run; final parameters
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: Pressure outside MP Casing = 148.99 psi

Total Volume: 1.75

FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling
Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-11 Depth: 149 ft. Date: 3-15-00

Well Name: MW-11 Sampling Zone No.: 1 Starting Time: 1225 Finishing Time: 1300

Technicians M. Hunt, V. Richards, J. Donnay

Water Level Inside MP Casing (Beginning of Session) 14.02 psi (End of Session) 14.06 psi

Run No.	Surface Function Checks					Position Sampler	Surface Collection Checks							Comments
	Activate	Vacuum Check Valve Closed	Valve Open	Evacuate Container	Valve Closed	Deactivate Set Arm Locate Port	Water Level in MP (ft)	Activate	Valve Open Time	Valve Closed Time	Deactivate	Water Level in MP (ft) Remove Tape	Volume Retrieved (liters)	
1	✓	✓	✓	✓	✓	✓	14.02	✓	1229	1233	✓	14.08	1	1st run; initial parameters; NTU's = 2.85
2	✓	✓	✓	✓	✓	✓	14.06	✓	1249	1254	✓	14.06	1	2nd run; Collect MW-001-054; VOCs, Cr_{TOT}, Cr^{6+}, ClO_4^-; final parameters
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: Pressure outside MP casing = 27.85 psi

Total Volume: 2

F-2

FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling
Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-11 Depth: 259 ft. Date: 3-15-00

Well Name: MW-11 Sampling Zone No.: 2 Starting Time: 1130 Finishing Time: 1220

Technicians M. Hunt, V. Richards, J. Downey

Water Level Inside MP Casing (Beginning of Session) 14.13 psi (End of Session) 14.14 psi

Run No.	Surface Function Checks					Position Sampler	Surface Collection Checks							Comments
	Activate	Vacuum Check Valve Closed	Valve Open	Evacuate Container	Valve Closed	Deactivate Set Arm Locate Port	Water Level in MP (ft)	Activate	Valve Open Time	Valve Closed Time	Deactivate	Water Level in MP (ft) Remove Tape	Volume Retrieved (liters)	
1	✓	✓	✓	✓	✓	✓	14.13	✓	1141	1144	✓	14.16	1	1st run; initial parameters; NTU's = 1.57
2	✓	✓	✓	✓	✓	✓	14.11	✓	1203	1206	✓	14.14	1	2nd run; Collect MW-001-053; VOC's; Cr_{Tot}, Cr^{6+}, ClO_4^-; final parameters
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: Pressure outside MP casing = 61.40 psi

Total Volume: 2

F-2

FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling

Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-11 Depth: 429 ft. Date: 3-15-00

Well Name: MW-11 Sampling Zone No.: 3 Starting Time: 1015 Finishing Time: 1125

Technicians M. Hunt, V. Richards, J. Donnay

Water Level Inside MP Casing (Beginning of Session) 80.26 psi (End of Session) 80.23 psi

Run No.	Surface Function Checks					Position Sampler	Surface Collection Checks							Comments
	Activate	Vacuum Check Valve Closed	Valve Open	Evacuate Container	Valve Closed	Deactivate Set Arm Locate Port	Water Level in MP (ft)	Activate	Valve Open Time	Valve Closed Time	Deactivate	Water Level in MP (ft) Remove Tape	Volume Retrieved (liters)	
1	✓	✓	✓	✓	✓	✓	80.26	✓	1025	1027	✓	80.29	1	1st run; ~~initial parameters~~; NTU's = 1.40 (m2H) pt-052MS; -052MSD
2	✓	✓	✓	✓	✓	✓	80.26	✓	1047	1049	✓	80.29	1	2nd run; Collect MW-001-052; VOC's, Cr_{TOT}, ~~Cr^{6+}~~ Cr^{6+}, ClO_4^-; initial parameters
3	✓	✓	✓	✓	✓	✓	80.23	✓	1114	1116	✓	80.23	1	3rd run; Cr^{6+}; final parameters
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: Pressure outside MP casing = 127.68 psi

Total Volume: 3

F-2

FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling
Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-11 Depth: 524 ft. Date: 3-15-00

Well Name: MW-11 Sampling Zone No.: 4 Starting Time: 0925 Finishing Time: 1010

Technicians M. Hunt, V. Richards, J. Donnay

Water Level Inside MP Casing (Beginning of Session) 120.64 psi (End of Session) 120.67 psi

Run No.	Surface Function Checks					Position Sampler	Surface Collection Checks							Comments
	Activate	Vacuum Check Valve Closed	Valve Open	Evacuate Container	Valve Closed	Deactivate Set Arm Locate Port	Water Level in MP (ft)	Activate	Valve Open Time	Valve Closed Time	Deactivate	Water Level in MP (ft) Remove Tape	Volume Retrieved (liters)	
1	✓	✓	✓	✓	✓	✓	120.64	✓	0933	0935	✓	120.67	0.75	1st run; initial parameters; NTU's = 1.90
2	✓	✓	✓	✓	✓	✓	120.64	✓	0957	0959	✓	120.67	0.75	2nd run; VOC's; final parameters; Collect MW-001-051
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: Pressure outside MP casing = 164.08 psi

Total Volume: 1.5

F-2

FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling
Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-12 Depth: 140 ft. Date: 3-16-00

Well Name: MW-12 Sampling Zone No.: 1 Starting Time: 1215 Finishing Time: 1350

Technicians M. Hunt, V. Richards

Water Level Inside MP Casing (Beginning of Session) 14.06 psi (End of Session) 14.13 psi

Run No.	Surface Function Checks					Position Sampler	Surface Collection Checks							Comments
	Activate	Vacuum Check Valve Closed	Valve Open	Evacuate Container	Valve Closed	Deactivate Set Arm Locate Port	Water Level in MP (ft)	Activate	Valve Open Time	Valve Closed Time	Deactivate	Water Level in MP (ft) Remove Tape	Volume Retrieved (liters)	
1	✓	✓	✓	✓	✓	✓	14.06	✓	1222	1227	✓	14.10	1	1st run; initial parameters; NTU's = 10.80
2	✓	✓	✓	✓	✓	✓	14.09	✓	1240	1245	✓	14.12	1	2nd run; parameters
3	✓	✓	✓	✓	✓	✓	14.11	✓	1259	1304	✓	14.12	1	3rd run; parameters
4	✓	✓	✓	✓	✓	✓	14.07	✓	1320	1326	✓	14.10	1	4th run; parameters
5	✓	✓	✓	✓	✓	✓	14.12	✓	1338	1343	✓	14.13	1	5th run; Collect MW-001-050; VOCs, Cr_{tot}, Cr^{6+}, ClO_4^-; final parameters
6														
7														
8														
9														
10														
11														
12														

Comments: Pressure outside MP casing = 33.65 psi

Total Volume: 5

F-2

FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling
Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-12 Depth: 243 ft. Date: 3-16-00

Well Name: MW-12 Sampling Zone No.: 2 Starting Time: 1100 Finishing Time: 1205

Technicians M. Hunt, V. Richards

Water Level Inside MP Casing (Beginning of Session) 16.39 psi (End of Session) 16.90 psi

Run No.	Surface Function Checks					Position Sampler	Surface Collection Checks							Comments
	Activate	Vacuum Check Valve Closed	Valve Open	Evacuate Container	Valve Closed	Deactivate Set Arm Locate Port	Water Level in MP (ft)	Activate	Valve Open Time	Valve Closed Time	Deactivate	Water Level in MP (ft) Remove Tape	Volume Retrieved (liters)	
1	✓	✓	✓	✓	✓	✓	16.39	✓	1103	1105	✓	16.45	0.75	1st run; initial parameters; NTU's = 0.87
2	✓	✓	✓	✓	✓	✓	16.91	✓	1128	1130	✓	16.97	1	2nd run; Collect MW-001-048+-049; VOC's, Cr_{tot}, Cr^{6+}, ClO_4^- (Dup)
3	✓	✓	✓	✓	✓	✓	16.84	✓	1150	1153	✓	16.90	1	3rd run; final parameters
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: Pressure outside MP casing = 67.77 psi

Total Volume: 2.75

FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling
Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-12 Depth: 323 ft. Date: 3-16-00

Well Name: MW-12 Sampling Zone No.: 3 Starting Time: 1005 Finishing Time: 1050

Technicians M. Hunt, V. Richards

Water Level Inside MP Casing (Beginning of Session) 51.77 psi (End of Session) 51.77 psi

Run No.	Surface Function Checks					Position Sampler	Surface Collection Checks							Comments
	Activate	Vacuum Check Valve Closed	Valve Open	Evacuate Container	Valve Closed	Deactivate Set Arm Locate Port	Water Level in MP (ft)	Activate	Valve Open Time	Valve Closed Time	Deactivate	Water Level in MP (ft) Remove Tape	Volume Retrieved (liters)	
1	✓	✓	✓	✓	✓	✓	51.77	✓	1014	1016	✓	51.77	1	1st run; initial parameters: NTU's = 0.05 → +-047 MS; 047 MSD
2	✓	✓	✓	✓	✓	✓	51.71	✓	1034	1036	✓	51.77	1	2nd run: collect MW-001-047; VOCs, Cr_{tot}, Cr^{6+}, ClO_4^-; final parameters
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: Pressure outside MP casing = 100.76 psi

Total Volume: 2

F-2

FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling
Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-12 Depth: 436 ft. Date: 3-16-00

Well Name: MW-12 Sampling Zone No.: 4 Starting Time: 0920 Finishing Time: 1000

Technicians M. Hunt, V. Richards

Water Level Inside MP Casing (Beginning of Session) 100.45 psi (End of Session) 100.42 psi

Run No.	Surface Function Checks					Position Sampler	Surface Collection Checks							Comments
	Activate	Vacuum Check Valve Closed	Valve Open	Evacuate Container	Valve Closed	Deactivate Set Arm Locate Port	Water Level in MP (ft)	Activate	Valve Open Time	Valve Closed Time	Deactivate	Water Level in MP (ft) Remove Tape	Volume Retrieved (liters)	
1	✓	✓	✓	✓	✓	✓	100.45	✓	0928	0930	✓	100.45	0.75	1st run; initial parameters; NTU's = 0.38
2	✓	✓	✓	✓	✓	✓	100.45	✓	0949	0951	✓	100.42	0.75	2nd run; Collect MW-001-046; VOC's, ClO_4^-; final parameters
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: Pressure outside MP casing = 143.22 psi

Total Volume: 1.5

F-2

FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling
Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-12 Depth: 548 ft. Date: 3-16-00

Well Name: MW-12 Sampling Zone No.: 5 Starting Time: 0735 Finishing Time: 0915

Technicians M. Hunt, V. Richards

Water Level Inside MP Casing (Beginning of Session) 149.17 psi (End of Session) 149.12 psi

Run No.	Surface Function Checks					Position Sampler	Surface Collection Checks							Comments
	Activate	Vacuum Check Valve Closed	Valve Open	Evacuate Container	Valve Closed	Deactivate Set Arm Locate Port	Water Level in MP (ft)	Activate	Valve Open Time	Valve Closed Time	Deactivate	Water Level in MP (ft) Remove Tape	Volume Retrieved (liters)	
1	✓	✓	✓	✓	✓	~~149.17~~ (MZM)	149.17	✓	0745	0747	✓	149.15	0.75	1st run; initial parameters; NTU's = 24.1
2	✓	✓	✓	✓	✓	✓	149.14	✓	0809	0811	✓	149.15	0.75	2nd run; parameters
3	✓	✓	✓	✓	✓	✓	149.14	✓	0834	0836	✓	149.12	0.75	3rd run; parameters
4	✓	✓	✓	✓	✓	✓	149.14	✓	0900	0902	✓	149.12	0.75	4th run; collect MW-001-045; VOC's, ClO_4; final parameters
5														
6														
7														
8														
9														
10														
11														
12														

Comments: Pressure outside MP casing = 163.24 psi

Total Volume: 3

F-2

FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling
Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-14 Depth: 207 ft. Date: 3-30-00

Well Name: MW-14 Sampling Zone No.: 1 Starting Time: 1150 Finishing Time: 1230

Technicians M. Hunt, V. Richards

Water Level Inside MP Casing (Beginning of Session) 15.63 psi (End of Session) 16.22 psi

Run No.	Surface Function Checks					Position Sampler	Surface Collection Checks							Comments
	Activate	Vacuum Check Valve Closed	Valve Open	Evacuate Container	Valve Closed	Deactivate Set Arm Locate Port	Water Level in MP (ft)	Activate	Valve Open Time	Valve Closed Time	Deactivate	Water Level in MP (ft) Remove Tape	Volume Retrieved (liters)	
1	✓	✓	✓	✓	✓	✓	15.63	✓	1159	1204	✓	15.69	0.75	1st run; initial parameters; NTU's = 1.48
2	✓	✓	✓	✓	✓	✓	16.19	✓	1219	1224	✓	16.22	1	2nd run; Collect MW-001-042; VOC's, Cr_{tot}, Cr^{6+}, ClO_4^-; final parameters
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: Pressure outside MP casing = 28.92 psi

Total Volume: 1.75

F-2

FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling
Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-14 Depth: 277 ft. Date: 3-30-00

Well Name: MW-14 Sampling Zone No.: 2 Starting Time: 1050 Finishing Time: 1140

Technicians M. Hunt, V. Richards

Water Level Inside MP Casing (Beginning of Session) 46.13 psi (End of Session) 46.65 psi

Run No.	Surface Function Checks					Position Sampler	Surface Collection Checks							Comments
	Activate	Vacuum Check Valve Closed	Valve Open	Evacuate Container	Valve Closed	Deactivate Set Arm Locate Port	Water Level in MP (ft)	Activate	Valve Open Time	Valve Closed Time	Deactivate	Water Level in MP (ft) Remove Tape	Volume Retrieved (liters)	
1	✓	✓	✓	✓	✓	✓	46.13	✓	1059	1103	✓	46.18	0.75	1st run; initial parameters; NTU's = 2.25
2	✓	✓	✓	✓	✓	✓	46.62	✓	1126	1131	✓	46.65	1	2nd run; Collect MW-001-041; VOC's, Cr_{Tot}, Cr^{6+}, ClO_4^-; final parameters
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: Pressure outside MP casing = 59.21 psi

Total Volume: 1.75

FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling
Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-14 Depth: 382 ft. Date: 3-20-00

Well Name: MW-14 Sampling Zone No.: 3 Starting Time: 0955 Finishing Time: 1045

Technicians M. Hunt, V. Richards

Water Level Inside MP Casing (Beginning of Session) 91.83 psi (End of Session) 92.32 psi

Run No.	Surface Function Checks					Position Sampler	Surface Collection Checks							Comments
	Activate	Vacuum Check Valve Closed	Valve Open	Evacuate Container	Valve Closed	Deactivate Set Arm Locate Port	Water Level in MP (ft)	Activate	Valve Open Time	Valve Closed Time	Deactivate	Water Level in MP (ft) Remove Tape	Volume Retrieved (liters)	
1	✓	✓	✓	✓	✓	✓	91.83	✓	1005	1008	✓	91.85	0.75	1st run; initial parameters; NTU's = 0.44
2	✓	✓	✓	✓	✓	✓	92.32	✓	1031	1034	✓	92.32	1	2nd run: Collect MW-001-040; VOCs, Cr_{TOT}, Cr^{6+}, ClO_4^-; final parameters
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: Pressure outside MP casing = 104.97 psi

Total Volume: 1.75

F-2

FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling
Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-14 Depth: 456 ft. Date: 3-30-00

Well Name: MW-14 Sampling Zone No.: 4 Starting Time: 0905 Finishing Time: 0950

Technicians M. Hunt, V. Richards

Water Level Inside MP Casing (Beginning of Session) 124.62 psi (End of Session) 124.59 psi

Run No.	Surface Function Checks					Position Sampler	Surface Collection Checks							Comments
	Activate	Vacuum Check Valve Closed	Valve Open	Evacuate Container	Valve Closed	Deactivate Set Arm Locate Port	Water Level in MP (ft)	Activate	Valve Open Time	Valve Closed Time	Deactivate	Water Level in MP (ft) Remove Tape	Volume Retrieved (liters)	
1	✓	✓	✓	✓	✓	✓	124.62	✓	0914	0916	✓	124.59	1	1st run; initial parameters; NTU's = 0.51
2	✓	✓	✓	✓	✓	✓	124.57	✓	0936	0938	✓	124.59	1	2nd run; collect MW-001-039, -039MS, +039MSD; VOCs, Cr_{Tot}, Cr^{6+}, CCl_4^-; final parameters
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: Pressure outside MP casing = 137.24 psi

Total Volume: 2

F-2

FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling
Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-14 Depth: 540 ft. Date: 3-30-00

Well Name: MW-14 Sampling Zone No.: ~~MW~~ 5 Starting Time: 0810 Finishing Time: 0900

Technicians M. Hunt, V. Richards

Water Level Inside MP Casing (Beginning of Session) 160.65 psi (End of Session) 160.66 psi

Run No.	Surface Function Checks					Position Sampler	Surface Collection Checks							Comments
	Activate	Vacuum Check Valve Closed	Valve Open	Evacuate Container	Valve Closed	Deactivate Set Arm Locate Port	Water Level in MP (ft)	Activate	Valve Open Time	Valve Closed Time	Deactivate	Water Level in MP (ft) Remove Tape	Volume Retrieved (liters)	
1	✓	✓	✓	✓	✓	✓	160.65	✓	0817	0819	✓	160.63	0.75	1st run; initial parameters; NTU's = 3.00
2	✓	✓	✓	✓	✓	✓	160.65	✓	0846	0849	✓	160.66	0.75	2nd run; Collect MW-001-038; ClO_4^-; final parameters
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: Pressure outside MP casing = 173.40 psi

Total Volume: 1.5

F-2

FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling
Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-17 Depth: 370 Date: 3-13-00

Well Name: MW-17 Sampling Zone No.: 2 Starting Time: 1410 Finishing Time: 1445

Technicians M. Hunt, V. Richards, J. Donnay

Water Level Inside MP Casing (Beginning of Session) 16.20 psi (End of Session) 16.26 psi

Run No.	Surface Function Checks					Position Sampler	Surface Collection Checks							Comments
	Activate	Vacuum Check Valve Closed	Valve Open	Evacuate Container	Valve Closed	Deactivate Set Arm Locate Port	Water Level in MP (ft)	Activate	Valve Open Time	Valve Closed Time	Deactivate	Water Level in MP (ft) Remove Tape	Volume Retrieved (liters)	
1	✓	✓	✓	✓	✓	✓	16.20	✓	1414	1416	✓	16.25	0.75	1st run; initial parameters; NTU's = 2.10
2	✓	✓	✓	✓	✓	✓	16.22	✓	1433	1435	✓	16.26	0.75	2nd run; Collect MW-001-0.36; VOCs, Cr_{Tot}, Cr^{6+}, ClO_4^-; final parameters
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: Pressure outside MP casing: 76.35 psi

Total Volume: 1.5

F-2

FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling
Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-17 Depth: 468 ft. Date: 3-13-00

Well Name: MW-17 Sampling Zone No.: 3 Starting Time: 1305 Finishing Time: 1400

Technicians M. Hunt, V. Richards, J. Donnay

Water Level Inside MP Casing (Beginning of Session) 59.33 psi (End of Session) 59.37 psi

Run No.	Surface Function Checks					Position Sampler	Surface Collection Checks							Comments
	Activate	Vacuum Check Valve Closed	Valve Open	Evacuate Container	Valve Closed	Deactivate Set Arm Locate Port	Water Level in MP (ft)	Activate	Valve Open Time	Valve Closed Time	Deactivate	Water Level in MP (ft) Remove Tape	Volume Retrieved (liters)	
1	✓	✓	✓	✓	✓	✓	59.33	✓	1312	1317	✓	59.37	1	1st run; initial parameters; NTU's = 5.16 pt-035 MS; -035 MSD
2	✓	✓	✓	✓	✓	✓	59.34	✓	1339	1342	✓	59.37	1	2nd run; Collect MW-001-035; VOCs, Cr_{TOT}, Cr 6+, ClO_4^-; final parameters
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: Pressure outside MP casing = 110.87 psi

Total Volume: 2

F-2

Continue

FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling

Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-17 Depth: 582 ft. Date: 3-13-00

Well Name: MW-17 Sampling Zone No.: 4 Starting Time: 1140 Finishing Time: 1255

Technicians M. Hunt, V. Richards, J. Donnay

Water Level Inside MP Casing (Beginning of Session) 108.49 psi (End of Session) 108.49 psi

Run No.	Surface Function Checks					Position Sampler	Surface Collection Checks							Comments
	Activate	Vacuum Check Valve Closed	Valve Open	Evacuate Container	Valve Closed	Deactivate Set Arm Locate Port	Water Level in MP (ft)	Activate	Valve Open Time	Valve Closed Time	Deactivate	Water Level in MP (ft) Remove Tape	Volume Retrieved (liters)	
1	✓	✓	✓	✓	✓	✓	108.49	✓	1149	1151	✓	108.51	0.75	1st run; initial parameters; NTU's = 6.45
2	✓	✓	✓	✓	✓	✓	108.49	✓	1214	1216	✓	108.49	0.75	2nd run; parameters
3	✓	✓	✓	✓	✓	✓	108.46	✓	1238	1240	✓	108.49	0.75	3rd run; Collect MW-001-034; VOCs, Cr_{TOT}, Cr^{6+}, ClO_4^-; final parameters
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: Pressure outside MP casing: 138.35 psi

Total Volume: 2.25