

FOSTER WHEELER ENVIRONMENTAL CORPORATION

REPORT
QUARTERLY GROUNDWATER
MONITORING RESULTS,
AUGUST 1999

National Aeronautics and Space Administration
Jet Propulsion Laboratory
4800 Oak Grove Drive
Pasadena, California 91109

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EXECUTIVE SUMMARY

Presented in this report are the results of the twelfth quarterly groundwater sampling event (August 1999) completed as part of a long-term quarterly groundwater monitoring program 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. Based on results of long-term quarterly monitoring to date, the monitoring program has been adjusted pursuant to the long-term monitoring program plan (Foster Wheeler, 1996) to more efficiently monitor water quality at JPL as agreed to by the EPA, the California Department of Toxic Substances Control (DTSC), and the California Regional Water Quality Control Board (RWQCB).

From July 29 to August 26, 1999, 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 (ClO₄).

Results indicate that only four VOCs (carbon tetrachloride, trichloroethene, tetrachloroethene and 1,2-dichloroethane) were detected at concentrations above state or Federal Maximum Contaminant Levels (MCLs) for drinking water. Perchlorate was detected at concentrations exceeding the state Interim Action Level (IAL) of 18 µg/L. Hexavalent chromium was found in three wells. To date, an MCL has not been established for hexavalent chromium. Total chromium was detected in four wells, and one result was found to exceed the state and Federal MCL (0.050 and 0.100 mg/L, respectively) for total chromium. However, based on historic data, it is believed that this result is a laboratory error. A summary of the sampling procedures is included in Section 2.0 and a summary of the analytical results is included in Section 3.0.

In past events, major cation/anion analysis was performed on samples to determine general groundwater types and distribution beneath and adjacent to JPL. Data collected to date indicate that water type distribution has been consistent and, therefore, major cation/anion analysis (water chemistry) was not conducted during this event. Water chemistry analysis will now be conducted annually. Water-level measurements, recorded before and after sampling activities, are presented in Section 4.0.

1.0 INTRODUCTION

This report summarizes the results from the twelfth groundwater sampling event completed as part of the long-term quarterly monitoring program currently being conducted at the NASA-Jet Propulsion Laboratory (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. Based on the results of long-term quarterly monitoring to date, and the guidelines included in the long-term quarterly monitoring program plan (Foster Wheeler, 1996), adjustments have been made to the monitoring program.

The following changes have been agreed upon by the EPA, DTSC, and RWQCB. Sampling for nitroso-dimethylamine (NDMA) was discontinued since it was never detected at JPL. Sampling for 1,4-dioxane will be completed annually in the well in which it was previously detected, and in nearby downgradient wells. Lead (Pb), arsenic (As) and major cations/anions (water chemistry parameters) will be sampled annually in all wells.

In addition, all monitoring wells have been classified as either being plume, downgradient or upgradient wells based on analytical results and groundwater flow directions. Plume and downgradient wells will be sampled quarterly for volatile organic compounds (VOCs), hexavalent chromium [Cr(VI)], total chromium (Cr), and perchlorate (ClO_4^-). Upgradient wells will be sampled semi-annually for VOCs, Cr(VI), Cr, and ClO_4^- .

From August 2 to August 25, 1999, Foster Wheeler Environmental Corporation (Foster Wheeler) personnel collected samples from selected JPL monitoring wells (both on- and off-site, as described in Section 3.0). In addition, the water-level elevation at each well was measured prior to (June 29, 1999), and after (August 26, 1999) 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.

All of the JPL 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. A summary of the analyses performed on the samples collected at JPL is presented in Table 1-2.

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, dissolved oxygen, E_h (oxidation reduction potential), 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, dissolved oxygen, E_h , 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; 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 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 squeeze 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, dissolved oxygen, E_h , 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, dissolved oxygen, E_h , 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; 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), Cr, and perchlorate (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 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 August 2 to August 25, 1999. Monitoring well MW-2 was not sampled 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 changes in the sampling program (these wells are upgradient and will be sampled semi-annually unless conditions change).

The groundwater samples collected during this sampling event were analyzed for VOCs, Cr, Cr(VI), and ClO_4^- . Not all JPL wells and well screens were sampled for VOCs, Cr, Cr(VI), and ClO_4^- pursuant to the monitoring program. A summary of the samples collected, sample numbers used, and the analyses performed on each sample is presented in Table 1-2. 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 August 1999 sampling event were analyzed for over 60 different VOCs in accordance with EPA Method 524.2. Results of the analyses for VOCs in the August 1999 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 the EPA Health Advisory Guidelines. A small number of compounds were detected in the JPL samples, and only four VOCs [carbon tetrachloride (CCl_4), trichloroethene (TCE), tetrachloroethene (PCE), and 1,2-dichloroethane (1,2-DCA)] were found in concentrations exceeding state and/or Federal MCLs (Table 3-3).

As a result of the data collected for the groundwater remedial investigation at JPL (Foster Wheeler, 1999), the aquifer beneath the site was divided into layers 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, PCE, and 1,2-DCA 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 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, and Figure 3-7 contains contours of 1,2-DCA concentrations detected in aquifer Layer 1. Figures 3-8, 3-9 and 3-10 show contours of PCE detected in aquifer Layers 1, 2 and 3. A summary of the VOC

results compiled from all twelve long-term quarterly sampling events completed to date is provided in Table 3-3.

CCl_4 in excess of the state MCL ($0.5 \mu\text{g/L}$) was found in eight on-site wells and two off-site wells (Table 3-1, Figures 3-1, 3-2 and 3-3). The Federal MCL ($5.0 \mu\text{g/L}$) was exceeded in seven on-site wells and two off-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 (Screen 2).

TCE concentrations were equal to or exceeded the state and Federal MCL ($5.0 \mu\text{g/L}$) in five on-site wells, and one off-site well (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, MW-16 and off-site well MW-21 (Screen 1).

1,2-DCA was detected in two on-site wells (MW-13 and MW-16) in excess of its state MCL ($0.5 \mu\text{g/L}$) (Table 3-1 and Figure 3-7). 1,2-DCA was not detected in any off-site well. The Federal MCL for 1,2-DCA ($5.0 \mu\text{g/L}$) was not exceeded in any well.

PCE was detected at low levels in several on-site and off-site wells (Table 3-1, Figures 3-8, 3-9, and 3-10). The state and Federal MCL ($5.0 \mu\text{g/L}$) was exceeded only in off-site well MW-21 (Screens 4 and 5).

3.2 PERCHLORATE RESULTS

Perchlorate analyses were conducted on groundwater samples from the August 1999 event using ion chromatography (EPA 300.0, modified). 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 $18 \mu\text{g/L}$ for ClO_4^- . Perchlorate was detected in a total of 15 wells (Table 3-1). Concentrations in eight of the fifteen wells exceeded the Interim Action Level ($18 \mu\text{g/L}$). Perchlorate concentrations are contoured in Figures 3-11, 3-12 and 3-13 for aquifer Layers 1, 2 and 3, respectively. The highest ClO_4^- levels were observed on-site in wells MW-3 (Screen 5), MW-7, MW-13, MW-16, and MW-24 (Screen 2).

3.3 CHROMIUM RESULTS

Groundwater samples were analyzed for total Cr and Cr(VI). The results of these analyses are summarized below and in Table 3-4.

Total Cr was detected in four wells, MW-4 (Screen 2), MW-6, MW-8, and MW-13. The state and Federal drinking water standards (0.05 and 0.10 mg/L , respectively) were exceeded in the sample from well MW-16, however, because the result is greater than 8 times the next highest historical result from this well, it is therefore believed to be a laboratory error. Hexavalent chromium was detected in three on-site shallow wells, MW-7, MW-13, and MW-16. 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 twelve 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 August 1999 samples are acceptable for their intended use of characterizing aquifer quality. Surrogate compound, matrix and blank spike, and method blank results were used by the laboratory to determine the accuracy and precision of the analytical techniques with respect to the JPL groundwater matrix, and to identify anomalous results due to laboratory contamination or instrument malfunction.

In addition to laboratory QA/QC samples, 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 fifteen trip blanks were submitted for analysis during the August 1999 sampling event. Chloroform was detected at very low levels ($<3.0 \mu\text{g/L}$) in one equipment blank, the field blank, and in the groundwater samples associated with these blanks (see Table 3-1 and Table 3-3). This has occurred sporadically in previous sampling events and it is believed that very low levels of chloroform were present in the water used for decontamination and for making the field blank. No other VOCs were detected in the field QA/QC samples.

Overall, the field QA/QC data indicate contamination of JPL groundwater samples due to improper decontamination or exposure during travel is highly unlikely.

4.0 WATER-LEVEL MEASUREMENTS

Water-level measurements were recorded before sampling, on July 29, 1999, and after sampling, on August 26, 1999, 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. No data was available at MW-23 due to equipment malfunction.

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 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 several of 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).

5.0 REFERENCES

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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			2	47	0.010	4" low-carbon steel
					344-354			3	45	0.010	4" low-carbon steel
					555-565			4	39	0.010	4" low-carbon steel
					650-660			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			2	34	0.010	4" low-carbon steel
					318-328			3	42	0.010	4" low-carbon steel
					389-399			4	54	0.010	4" low-carbon steel
					509-519			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			2	22	0.010	4" low-carbon steel
					420-430			3	26	0.010	4" low-carbon steel
					515-525			4	26	0.010	4" low-carbon steel
					630-640			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,
AUGUST 1999

Sample Location	Sample Number	Sample Type	VOCs EPA 524.2	Total Cr	Hexavalent Cr EPA 7196	Perchlorate EPA 300.0 Modified
MW-1	Not Sampled					
MW-3						
Screen 1	Not Sampled					
Screen 2	MW-993-070	GW	X	X	X	X
Screen 3	MW-993-069	GW	X	X	X	X
Screen 4	MW-993-068	GW	X	X	X	X
Screen 5	MW-993-067	GW				X
MW-4						
Screen 1	MW-993-066	GW	X	X	X	X
Screen 2	MW-993-065	GW	X	X	X	X
Screen 2	MW-993-064	DUP	X	X	X	X
Screen 3	MW-993-063	GW	X	X	X	X
Screen 4	MW-993-062	GW		X	X	
Screen 5	MW-993-061	GW		X	X	
MW-5	MW-993-060	GW	X	X	X	X
MW-6	MW-993-059	GW	X	X	X	X
MW-7	MW-993-058	GW	X	X	X	X
MW-8	MW-993-057	GW	X	X	X	X
MW-9	Not Sampled					
MW-10	MW-993-056	GW	X	X	X	X
MW-10	MW-993-055	DUP	X	X	X	X
MW-11						
Screen 1	MW-993-054	GW	X	X	X	X
Screen 2	MW-993-053	GW	X	X	X	X
Screen 3	MW-993-052	GW	X	X	X	X
Screen 4	MW-993-051	GW	X			X
Screen 5	Not Sampled					
MW-12						
Screen 1	MW-993-050	GW	X	X	X	X
Screen 2	MW-993-049	GW	X	X	X	X
Screen 2	MW-993-048	DUP	X	X	X	X
Screen 3	MW-993-047	GW	X	X	X	X
Screen 4	MW-993-046	GW	X			X
Screen 5	MW-993-045	GW	X			X
MW-13	MW-993-044	GW	X	X	X	X
MW-13	MW-993-043	DUP	X	X	X	X
MW-14						
Screen 1	MW-993-042	GW	X	X	X	X
Screen 2	MW-993-041	GW	X	X	X	X
Screen 3	MW-993-040	GW	X	X	X	X
Screen 4	MW-993-039	GW	X	X	X	X
Screen 5	MW-993-038	GW	X			X
MW-15	Not Sampled					
MW-16	MW-993-037	GW	X	X	X	X
MW-17						
Screen 1	Not Sampled					
Screen 2	MW-993-036	GW	X	X	X	X
Screen 3	MW-993-035	GW	X	X	X	X

TABLE 1-2
SUMMARY OF ANALYSES PERFORMED ON GROUNDWATER SAMPLES
COLLECTED FROM JPL MONITORING WELLS,
AUGUST 1999

Sample Location	Sample Number	Sample Type	VOCs EPA 524.2	Total Cr	Hexavalent Cr EPA 7196	Perchlorate EPA 300.0 Modified
Screen 4	MW-993-034	GW	X	X	X	X
Screen 5	MW-993-033	GW	X			X
MW-18						
Screen 1	Not Sampled					
Screen 2	MW-993-032	GW	X	X	X	X
Screen 3	MW-993-031	GW	X	X	X	X
Screen 4	MW-993-030	GW	X	X	X	X
Screen 5	MW-993-029	GW	X			X
MW-19						
Screen 1	MW-993-028	GW	X			X
Screen 2	MW-993-027	GW	X			X
Screen 3	MW-993-026	GW	X			X
Screen 4	MW-993-025	GW	X			X
Screen 5	MW-993-024	GW	X			X
MW-20						
Screen 1	MW-993-023	GW	X	X	X	X
Screen 2	MW-993-022	GW	X	X	X	X
Screen 3	MW-993-021	GW	X	X	X	X
Screen 4	MW-993-020	GW	X	X	X	X
Screen 5	MW-993-019	GW	X	X	X	X
MW-21						
Screen 1	MW-993-018	GW	X			X
Screen 2	MW-993-017	GW	X			X
Screen 3	MW-993-016	GW	X			X
Screen 4	MW-993-015	GW	X			X
Screen 5	MW-993-014	GW	X			X
MW-22						
Screen 1	MW-993-013	GW	X	X	X	X
Screen 2	MW-993-012	GW	X	X	X	X
Screen 3	MW-993-011	GW	X			X
Screen 4	MW-993-010	GW				X
Screen 5	Not Sampled					
MW-23						
Screen 1	MW-993-009	GW	X	X	X	X
Screen 2	MW-993-008	GW	X	X	X	X
Screen 3	MW-993-007	GW	X	X	X	X
Screen 4	MW-993-006	GW		X	X	X
Screen 5	MW-993-005	GW				X
MW-24						
Screen 1	MW-993-004	GW	X	X	X	X
Screen 2	MW-993-003	GW	X	X	X	X
Screen 3	MW-993-002	GW	X	X	X	X
Screen 4	MW-993-001	GW		X	X	
Screen 5	Not Sampled					

GW: Groundwater sample.
DUP: Duplicate sample.

TABLE 3-1
SUMMARY OF VOLATILE ORGANIC COMPOUNDS AND PERCHLORATE DETECTED IN
GROUNDWATER SAMPLES COLLECTED FROM JPL MONITORING WELLS,
AUGUST 1999

(concentrations in µg/L)

Values above state or Federal MCLs or 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
<i>MW-1</i>	Not Sampled ⁽¹⁾										
<i>MW-3</i>											
Screen 1	Not Sampled ⁽¹⁾										
Screen 2	MW-993-070	--	--	--	--	--	--	--	--	--	--
Screen 3	MW-993-069	15	1.0	--	--	--	--	0.8	37	--	--
Screen 4	MW-993-068	--	--	--	--	--	--	--	--	--	--
Screen 5	MW-993-067	NS	NS	NS	NS	NS	NS	NS	NS	NS	140
<i>MW-4</i>											
Screen 1	MW-993-066	--	--	--	--	--	--	--	--	--	--
Screen 2	MW-993-065	1.9	5.5	--	--	--	--	--	3.3	--	69
Screen 2 (DUP)	MW-993-064	2.6	7.4	0.5	--	--	--	--	4.3	--	68
Screen 3	MW-993-063	--	--	--	--	--	--	--	--	--	--
Screen 4	MW-993-062	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Screen 5	MW-993-061	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
<i>MW-5</i>	MW-993-060	--	--	--	--	--	--	--	--	--	--
<i>MW-6</i>	MW-993-059	--	--	0.5	--	--	--	--	--	--	4.0
<i>MW-7</i>	MW-993-058	40	16	0.5	--	--	0.8	1.9	7.8(FB)	--	210
<i>MW-8</i>	MW-993-057	--	--	--	--	--	--	--	--	--	--
<i>MW-9</i>	Not Sampled ⁽¹⁾										
<i>MW-10</i>	MW-993-056	--	2.2	--	--	--	--	--	--	--	16
<i>MW-10 (DUP)</i>	MW-993-055	--	2.1	--	--	--	--	--	--	--	21

TABLE 3-1
SUMMARY OF VOLATILE ORGANIC COMPOUNDS AND PERCHLORATE DETECTED IN
GROUNDWATER SAMPLES COLLECTED FROM JPL MONITORING WELLS,
AUGUST 1999

(concentrations in µg/L)

Values above state or Federal MCLs or 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-993-054	--	--	--	--	--	--	--	--	--	--
Screen 2	MW-993-053	0.5	--	--	--	--	--	--	0.6	--	--
Screen 3	MW-993-052	0.7	--	--	--	--	--	--	0.7	--	--
Screen 4	MW-993-051	--	--	--	--	--	--	--	0.5	--	--
Screen 5	Not Sampled ⁽¹⁾										
MW-12											
Screen 1	MW-993-050	--	--	--	--	--	--	--	--	--	--
Screen 2	MW-993-049	0.5	--	--	--	--	--	--	--	--	--
Screen 2 (DUP)	MW-993-048	0.6	--	--	--	--	--	--	0.6	--	--
Screen 3	MW-993-047	19	--	--	--	--	--	--	2.3	--	--
Screen 4	MW-993-046	3.7	--	--	--	--	--	--	1.1	--	9.2
Screen 5	MW-993-045	1.9	--	--	--	--	--	--	0.6	--	--
MW-13	MW-993-044	11	29	--	--	0.7	0.9	--	12	--	150
MW-13 (DUP)	MW-993-043	11	28	--	--	0.7	1.0	--	12	--	150
MW-14											
Screen 1	MW-993-042	--	--	--	1.7	--	--	--	--	--	--
Screen 2	MW-993-041	--	--	1.0	--	--	--	--	--	--	--
Screen 3	MW-993-040	--	--	--	--	--	--	--	--	--	6.6
Screen 4	MW-993-039	--	--	--	--	--	--	--	--	--	4
Screen 5	MW-993-038	--	--	--	--	--	--	--	--	--	--
MW-15	Not Sampled ⁽¹⁾										
MW-16	MW-993-037	70	19	1.8	--	1.1	1.9	1.1	26(EB)	0.6 1,1,1-Trichloroethane	930

TABLE 3-1
SUMMARY OF VOLATILE ORGANIC COMPOUNDS AND PERCHLORATE DETECTED IN
GROUNDWATER SAMPLES COLLECTED FROM JPL MONITORING WELLS,
AUGUST 1999

(concentrations in µg/L)

Values above state or Federal MCLs or 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-993-036	--	--	--	--	--	--	--	2.5	--	--
Screen 3	MW-993-035	0.8	2.9	--	--	--	--	--	4.6	--	6.1
Screen 4	MW-993-034	--	3.5	--	--	--	--	--	1.5	--	12
Screen 5	MW-993-033	--	4.0	--	--	--	--	--	1.6	--	11
MW-18											
Screen 1	Not Sampled(1)										
Screen 2	MW-993-032	--	--	--	--	--	--	--	--	--	--
Screen 3	MW-993-031	--	1.0	--	--	--	--	--	2.8	--	--
Screen 4	MW-993-030	3.6	1.1	1.9	--	--	--	--	0.8	--	23
Screen 5	MW-993-029	--	--	--	--	--	--	--	--	1.0 Unknown (RT=4.25)	--
MW-19											
Screen 1	MW-993-028	--	--	--	--	--	--	--	--	--	--
Screen 2	MW-993-027	--	0.7	--	--	--	--	--	--	--	--
Screen 3	MW-993-026	--	0.6	1.9	--	--	--	--	--	--	4.4
Screen 4	MW-993-025	--	0.5	--	--	--	--	--	2.7	--	--
Screen 5	MW-993-024	--	--	1.5	--	--	--	--	--	--	4.2
MW-20											
Screen 1	MW-993-023	--	--	--	--	--	--	--	0.6	--	7.5
Screen 2	MW-993-022	--	--	--	--	--	--	--	4.8	0.6 Bromodichloromethane	--
Screen 3	MW-993-021	--	--	--	--	--	--	--	--	--	--
Screen 4	MW-993-020	--	--	--	--	--	--	--	--	--	--
Screen 5	MW-993-019	--	--	--	--	--	--	--	--	0.7 Carbonyl sulfide	--

TABLE 3-1
SUMMARY OF VOLATILE ORGANIC COMPOUNDS AND PERCHLORATE DETECTED IN
GROUNDWATER SAMPLES COLLECTED FROM JPL MONITORING WELLS,
AUGUST 1999

(concentrations in µg/L)

Values above state or Federal MCLs or 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-993-018	--	17	0.5	--	--	--	--	1.7	--	12
Screen 2	MW-993-017	--	--	0.8	--	--	--	--	--	--	--
Screen 3	MW-993-016	--	0.6	1.3	--	--	--	--	--	--	--
Screen 4	MW-993-015	--	0.7	6.1	--	--	--	--	0.6	1.2 cis-1,2-Dichloroethene	--
Screen 5	MW-993-014	--	0.6	9.6	--	--	--	--	0.8	1.6 cis-1,2-Dichloroethene 1.4 Chlorodifluoromethane	--
MW-22											
Screen 1	MW-993-013	--	--	2.1	0.7	--	--	--	--	--	--
Screen 2	MW-993-012	--	--	--	--	--	--	--	--	--	--
Screen 3	MW-993-011	--	--	--	--	--	--	--	--	--	--
Screen 4	MW-993-010	NS	NS	NS	NS	NS	NS	NS	NS	NS	--
Screen 5	Not Sampled ⁽¹⁾										
MW-23											
Screen 1	MW-993-009	--	3.5	1.1	1.0	--	--	--	0.7(EB)	--	--
Screen 2	MW-993-008	--	--	--	--	--	--	--	0.5(EB)	--	--
Screen 3	MW-993-007	--	--	--	--	--	--	--	--	--	--
Screen 4	MW-993-006	NS	NS	NS	NS	NS	NS	NS	NS	NS	--
Screen 5	MW-993-005	NS	NS	NS	NS	NS	NS	NS	NS	NS	--
MW-24											
Screen 1	MW-993-004	1.8	3.6	--	--	--	--	--	1.3	--	22
Screen 2	MW-993-003	35	3.6	0.9	--	--	1.4	--	7.5	--	700
Screen 3	MW-993-002	--	--	--	--	--	--	--	--	--	--
Screen 4	MW-993-001	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Screen 5	Not Sampled ⁽¹⁾										

TABLE 3-1
SUMMARY OF VOLATILE ORGANIC COMPOUNDS AND PERCHLORATE DETECTED IN
GROUNDWATER SAMPLES COLLECTED FROM JPL MONITORING WELLS,
AUGUST 1999

(concentrations in µg/L)

Values above state or Federal MCLs or 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.

NS: Not sampled.

1: Wells not sampled due to changes to the sampling program as agreed to by 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
<i>MW-23</i>				
Screen 1	X			
Screen 2		X		
Screen 3		X		
Screen 4			X	
Screen 5			X	
<i>MW-24</i>				
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 and/or Federal MCLs or 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
<i>MW-1</i>	Aug/Sep 1996	--	--	--	--	--	--	--	--	--	NS
	Oct/Nov 1996	--	--	--	--	--	--	--	--	1.9 Acetone	NS
	Feb/Mar 1997	--	--	--	--	--	--	--	--	1.9 Acetone	NS
	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/June 1999	--	--	--	--	--	--	--	--	--	--	
Aug 1999	Not Sampled(6)										
<i>MW-3</i>	Screen 1										
	Aug/Sep 1996	--	--	--	--	--	--	--	1.2	--	NS
	Oct/Nov 1996	--	--	--	--	--	--	--	8.3	0.7(B) Naphthalene	NS
	Feb/Mar 1997	--	--	--	--	--	--	--	--	2.6 Carbon disulfide	NS
	Jun/Jul 1997	--	--	--	--	--	--	--	--	--	--
	Sep/Oct 1997	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 1998	--	--	--	--	--	--	--	--	--	--
	Apr/May 1998	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	--	--	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	--
Feb/Mar 1999	--	--	--	--	--	--	--	--	--	--	
May/June 1999	--	--	--	--	--	--	--	--	--	--	
Aug 1999	Not Sampled(6)										
Screen 2	Aug/Sep 1996	--	--	--	--	--	--	--	5.5	--	NS
	Oct/Nov 1996	--	--	--	--	--	--	--	4.8	1.9(B) Naphthalene	NS
	Feb/Mar 1997	--	--	--	--	--	--	--	4.4	8.0 Carbon disulfide	NS
	Jun/Jul 1997	--	--	--	--	--	--	1.0	1.2	--	--
	Sep/Oct 1997	--	--	--	--	--	--	--	0.8	--	--
	Jan/Feb 1998	--	--	--	--	--	--	--	--	--	--
	Apr/May 1998	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	--	--	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	--
	Feb/Mar 1999	--	--	--	--	--	--	--	--	--	--
May/June 1999	--	--	--	--	--	--	--	--	--	--	
Aug 1999	Not Sampled(6)										
Screen 3	Aug/Sep 1996	0.6	0.8	--	--	--	--	--	1.6	--	NS
	Oct/Nov 1996	--	--	--	--	--	--	--	0.7	--	NS
	Feb/Mar 1997	--	--	--	--	--	--	--	0.8	--	NS
	Jun/Jul 1997	1.2	0.8	0.6	--	--	--	2.8	1.8	--	21

TABLE 3-3

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(concentrations in µg/L)

Values above state and/or Federal MCLs or 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
	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)(5)	--	8.9
	Aug 1999	15	1.0	--	--	--	--	0.8	37	--	--
Screen 4	Aug/Sep 1996	--	--	--	--	--	--	--	--	--	NS
	Oct/Nov 1996	--	--	--	--	--	--	--	--	1.2 Acetone	NS
	Feb/Mar 1997	--	--	--	--	--	--	--	--	1.0 Hexane	NS
	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	--	--	--	--	--	--	--	--	--	--
Screen 5	Aug/Sep 1996	--	--	--	--	--	--	--	--	2.1 Dichloromethane	NS
	Oct/Nov 1996	--	--	--	--	--	--	--	--	2.1 Acetone	NS
	Feb/Mar 1997	--	--	--	--	--	--	--	--	1.2 Carbon disulfide	NS
										1.5 Carbon disulfide	
										2.7 Sulfur dioxide	
										1.3 Unknown (RT=2.51)	
	Jun/Jul 1997	--	--	--	--	--	--	--	--	4.5 Carbon disulfide	--
	Sep/Oct 1997	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 1998	--	--	--	--	--	--	--	--	--	--
	Apr/May 1998	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	--	--	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	91
	Feb/Mar 1999	--	--	--	--	--	--	--	--	--	--
	May/Jun 1999	--	--	--	--	--	--	--	--	--	75
	Aug 1999	NS	NS	NS	NS	NS	NS	NS	NS	NS	140
MW-4											
Screen 1	Aug/Sep 1996	--	--	--	--	--	--	--	--	2.9(B) Acetone	NS
	Oct/Nov 1996	--	--	--	--	--	--	--	--	--	NS
	Feb/Mar 1997	--	--	--	--	--	--	--	--	--	NS
	Jun/Jul 1997	--	--	--	--	--	--	--	--	--	--
	Sep/Oct 1997	--	--	--	--	--	--	--	--	--	7.4

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	--	--	--	--	--	--	--	--	--	9.6
	Apr/May 1998	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	--	3.4 Dichloromethane(b)	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	--
	Feb/Mar 1999	--	--	--	--	--	--	0.8(B)	--	--	--
	May/June 1999	--	--	--	--	--	--	--	--	--	--
	Aug 1999	--	--	--	--	--	--	--	--	--	--
Screen 2	Aug/Sep 1996	5.5	19	--	--	0.9	0.7	--	6.7	3.2(B) Acetone	NS
	Oct/Nov 1996	5.3	15	--	--	0.6	0.8	--	5.4	1.8 Acetone	NS
	Feb/Mar 1997	7.9	19	--	--	0.8	0.8	--	7.8	--	NS
	Jun/Jul 1997	4.0	5.7	--	--	--	0.5	--	3.4	--	51
	Sep/Oct 1997	4.0	8.0	0.5	0.6	--	0.5	--	3.5	--	34
	Jan/Feb 1998	1.9	2.7	0.6	--	--	--	--	1.8	--	30
	Apr/May 1998	2.8	4.3	0.7	0.5	--	--	--	3.1	--	41
	Jul/Aug 1998	1.5	3.0	0.8	0.5	--	--	--	2.0	--	29
	Oct/Nov 1998	0.9	2.4	0.7	--	--	--	--	1.6	--	25
	Feb/Mar 1999	1.2	4.1	0.6	0.5	--	--	--	2.5	--	38
	May/June 1999	2.0	6.4	0.7	--	--	--	--	3.7(EB) ⁽⁵⁾	--	56
	Aug 1999	1.9	5.5	0.5	--	--	--	--	3.3	--	69
Screen 3	Aug/Sep 1996	--	--	--	--	--	--	--	--	3.0(B) Acetone	NS
	Oct/Nov 1996	--	--	--	--	--	--	--	--	1.5 Acetone	NS
	Feb/Mar 1997	--	--	--	--	--	--	--	--	--	NS
	Jun/Jul 1997	--	--	--	--	--	--	--	--	--	--
	Sep/Oct 1997	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 1998	--	--	--	--	--	--	--	--	--	--
	Apr/May 1998	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	--	1.0 Dichloromethane(b)	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	--
	Feb/Mar 1999	--	--	--	--	--	--	0.7(b)	--	--	--
	May/June 1999	--	--	--	--	--	--	--	--	--	--
	Aug 1999	--	--	--	--	--	--	--	--	--	--
Screen 4	Aug/Sep 1996	--	--	--	--	--	--	--	--	3.9(B) Acetone	NS
	Oct/Nov 1996	--	--	--	--	--	--	--	--	1.6 Acetone	NS
	Feb/Mar 1997	--	--	--	--	--	--	--	--	--	NS
	Jun/Jul 1997	--	--	--	--	--	--	--	--	--	--
	Sep/Oct 1997	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 1998	--	--	--	--	--	--	--	--	--	--
	Apr/May 1998	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	--	--	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	--
	Feb/Mar 1999	--	--	--	--	--	--	0.6(b)	--	--	--

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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/June 1999	--	--	--	--	--	--	--	--	--	--
	Aug 1999	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Screen 5	Oct/Nov 1996	--	--	--	--	--	--	--	--	1.9 Acetone	NS
	Aug/Sep 1996	--	--	--	--	--	--	--	--	--	NS
	Feb/Mar 1997	--	--	--	--	--	--	--	--	--	NS
	Jun/Jul 1997	--	--	--	--	--	--	--	--	--	--
	Sep/Oct 1997	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 1998	--	--	--	--	--	--	--	--	7.4 Hexane	--
	Apr/May 1998	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	--	--	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	--
	Feb/Mar 1999	--	--	--	--	--	--	0.6(b)	--	--	--
	May/June 1999	--	--	--	--	--	--	--	--	--	--
	Aug 1999	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
<i>MW-5</i>	Aug/Sep 1996	--	--	--	--	--	--	--	--	--	NS
	Oct/Nov 1996	--	--	--	--	--	--	--	--	--	NS
	Feb/Mar 1997	--	--	--	--	--	--	--	--	--	NS
	Jun/Jul 1997	--	--	--	--	--	--	--	--	--	--
	Sep/Oct 1997	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 1998	--	--	--	--	--	--	--	--	--	4.2
	Apr/May 1998	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	--	6.5 Dichloromethane(b)	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	--
	Feb/Mar 1999	--	--	--	--	--	--	--	--	--	--
	May/June 1999	--	--	--	--	--	--	--	--	--	--
	Aug 1999	--	--	--	--	--	--	--	--	--	--
<i>MW-6</i>	Aug/Sep 1996	--	--	--	--	--	--	--	1.3(TB)	--	NS
	Oct/Nov 1996	--	--	--	--	--	--	--	--	--	NS
	Feb/Mar 1997	--	--	--	0.8	--	--	--	--	--	NS
	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(b)	4.2
	Oct/Nov 1998	--	--	0.7	--	--	--	--	--	--	--
	Feb/Mar 1999	--	0.8	3.8	1.0	--	--	--	0.6	--	--
	May/June 1999	--	--	1.5	--	--	--	--	--	--	--
	Aug 1999	--	--	0.5	--	--	--	--	--	--	4.0
<i>MW-7</i>	Aug/Sep 1996	90	39	0.8	--	1.2	1.1	7.2	13(TB)	--	NS
	Oct/Nov 1996	170	27	1.3	--	0.8	2.3	7.7	14	4.3(B) 1,1-Difluoroethane 2.8(B) Acetone	NS

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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 1997	45	27	0.6	--	0.8	0.9	5.1	9.9	--	NS
	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 ^(b)	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/June 1999	42	14	--	--	--	--	2.2	5.7(FB)	--	120
	Aug 1999	40	16	0.5	--	--	0.8	1.9	7.8(FB)	--	210
MW-8	Aug/Sep 1996	4.0	4.6	--	--	--	--	--	1.3	--	NS
	Oct/Nov 1996	2.8	2.2	--	--	--	--	0.6	0.6	1.7 Acetone	NS
	Feb/Mar 1997	1.5	4.5	--	--	--	--	--	1.3	1.1 Freon 11	NS
										1.9 Carbon disulfide	
	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 ^(b)	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	--
	Feb/Mar 1999	--	--	--	--	--	--	--	--	--	--
	May/June 1999	--	--	--	--	--	--	--	--	--	--
	Aug 1999	--	--	--	--	--	--	--	--	--	--
MW-9	Aug/Sep 1996	--	--	--	--	--	--	--	--	--	NS
	Oct/Nov 1996	--	--	--	--	--	--	--	--	--	NS
	Feb/Mar 1997	--	--	--	--	--	--	--	--	--	NS
	Jun/Jul 1997	--	--	--	--	--	--	--	--	--	--
	Sep/Oct 1997	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 1998	--	--	--	--	--	--	--	--	3.9 Unknown RT=6.21	--
	Apr/May 1998	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	--	--	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	--
	Feb/Mar 1999	--	--	--	--	--	--	--	--	--	--
	May/June 1999	--	--	--	--	--	--	--	--	--	--
	Aug 1999	Not Sampled ⁽⁶⁾									
MW-10	Aug/Sep 1996	0.7	18	0.5	--	--	--	1.2	1.4(TB)	--	NS
	Oct/Nov 1996	0.6	6.6	1.0	1.9	--	--	0.8	1.1	3.0(B) Acetone	NS
										1.1 Unknown scan #350	
	Feb/Mar 1997	--	5.2	--	--	--	--	--	0.6	--	NS
	Jun/Jul 1997	--	2.2	--	--	--	--	--	--	--	11
	Sep/Oct 1997	--	4.3	1.3	1.2	--	--	--	1.0	--	16

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	Jan/Feb 1998	--	1.1	2.2	1.6	--	--	--	1.4	--	4.7
	Apr/May 1998	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	--	8.2 Dichloromethane(b)	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	--
	Feb/Mar 1999	--	5.7	--	--	--	--	--	0.9	--	39
	May/June 1999	--	1.1	--	--	--	--	--	--	--	10
	Aug 1999	--	2.2	--	--	--	--	--	--	--	21
MW-11											
Screen 1	Aug/Sep 1996	--	--	--	--	--	--	--	--	2.6(B) Acetone 7.1 MTBE	NS
	Oct/Nov 1996	--	--	--	--	--	--	--	--	1.8 Acetone	NS
	Feb/Mar 1997	--	--	--	--	--	--	--	--	--	NS
	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(b)	--	--	--
	May/June 1999	--	--	--	--	--	--	--	--	--	--
	Aug 1999	--	--	--	--	--	--	--	--	--	--
Screen 2	Aug/Sep 1996	2.4	--	--	--	--	--	--	1.0	--	NS
	Oct/Nov 1996	1.1	--	--	--	--	--	--	1.2	--	NS
	Feb/Mar 1997	1.7	--	--	--	--	--	--	1.0	--	NS
	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(b)	1.1	--	--
	May/June 1999	0.5	--	--	--	--	--	--	0.7(EB)(5)	--	--
	Aug 1999	0.5	--	--	--	--	--	--	0.6	--	--
Screen 3	Aug/Sep 1996	0.9	--	--	--	--	--	--	1.3	2.9(B) Acetone	NS
	Oct/Nov 1996	--	--	--	--	--	--	--	1.4	--	NS
	Feb/Mar 1997	--	--	--	--	--	--	--	1.1	--	NS
	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	--	--

TABLE 3-3

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(concentrations in µg/L)

Values above state and/or Federal MCLs or 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
	Oct/Nov 1998	1.3	--	--	--	--	--	--	1.1	--	--
	Feb/Mar 1999	--	--	--	--	--	--	0.7(b)	--	--	--
	May/June 1999	--	--	--	--	--	--	--	--	--	--
	Aug 1999	0.7	--	--	--	--	--	--	0.7	--	--
Screen 4	Aug/Sep 1996	--	--	--	--	--	--	--	0.5	2.4(B) Acetone	NS
	Oct/Nov 1996	--	--	--	--	--	--	--	--	--	NS
	Feb/Mar 1997	--	--	--	--	--	--	--	--	1.5 2-Methyl-1-Propene	NS
	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(b)	--	--	--
	May/June 1999	--	--	--	--	--	--	--	0.5(EB)(5)	--	--
	Aug 1999	--	--	--	--	--	--	--	0.5	--	--
Screen 5	Aug/Sep 1996	--	--	--	--	--	--	--	--	2.4(B) Acetone	NS
	Oct/Nov 1996	--	--	--	--	--	--	--	--	1.1 Acetone	NS
	Feb/Mar 1997	--	--	--	--	--	--	--	--	--	NS
	Jun/Jul 1997	--	--	--	--	--	--	--	--	--	--
	Sep/Oct 1997	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 1998	--	--	--	--	--	--	--	--	44 Carbon disulfide(4)	--
	Apr/May 1998	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	--	--	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	--
	Feb/Mar 1999	--	--	--	--	--	--	0.7(b)	--	--	--
	May/June 1999	--	--	--	--	--	--	--	--	--	--
	Aug 1999	Not Sampled(6)	--	--	--	--	--	--	--	--	--
MW-12											
Screen 1	Aug/Sep 1996	--	--	--	--	--	--	--	4.1	--	NS
	Oct/Nov 1996	Not Sampled*	--	--	--	--	--	--	--	--	--
	Feb/Mar 1997	--	--	--	--	--	--	--	5.8	--	NS
	Jun/Jul 1997	--	--	--	--	--	--	--	0.5	--	--
	Sep/Oct 1997	Not Sampled*	--	--	--	--	--	--	--	--	--
	Jan/Feb 1998	--	--	--	--	--	--	--	0.8	--	--
	Apr/May 1998	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	--	--	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	--
	Feb/Mar 1999	--	--	--	--	--	--	--	--	--	--
	May/June 1999	--	--	--	--	--	--	--	--	--	--
	Aug 1999	--	--	--	--	--	--	--	--	--	--

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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 2	Aug/Sep 1996	0.9	--	--	--	--	--	--	--	--	NS
	Oct/Nov 1996	1.5	0.6	--	--	--	--	0.5	--	--	NS
	Feb/Mar 1997	1.1	0.5	--	--	--	--	--	--	1.1(B) Acetone	NS
	Jun/Jul 1997	1.0	--	--	--	--	--	--	0.8	--	6.9
	Sep/Oct 1997	0.8	--	--	--	--	--	--	0.8	--	5.8
	Jan/Feb 1998	1.1	--	--	--	--	--	--	0.6	--	6.3
	Apr/May 1998	1.2	--	--	--	--	--	--	0.9	--	6.0
	Jul/Aug 1998	1.4	--	--	--	--	--	--	0.9	--	5.1
	Oct/Nov 1998	1.3	--	--	--	--	--	--	1.0	--	4.2
	Feb/Mar 1999	1.3	--	--	--	--	--	--	0.9	--	4.1
	May/June 1999	0.8	--	--	--	--	--	--	0.6(EB) ⁽⁵⁾	0.8 Dichloromethane(EB)	5.0
	Aug 1999	0.5	--	--	--	--	--	--	--	--	--
	Screen 3	Aug/Sep 1996	4.5	--	--	--	--	--	--	1.3	--
Oct/Nov 1996		3.8	--	--	--	--	--	--	1.3	1.6 Acetone	NS
Feb/Mar 1997		6.4	--	--	--	--	--	--	1.4	1.3(B) Acetone	NS
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/June 1999		19	--	--	--	--	--	--	2.0(EB) ⁽⁵⁾	--	8.7
Aug 1999		19	--	--	--	--	--	--	2.3	--	--
Screen 4		Aug/Sep 1996	6.3	--	--	--	--	--	--	1.4	--
	Oct/Nov 1996	5.1	--	--	--	--	--	--	1.4	2.5 Acetone	NS
	Feb/Mar 1997	4.9	--	--	--	--	--	--	1.3	--	NS
	Jun/Jul 1997	4.9	--	--	--	--	--	--	1.3	--	7.3
	Sep/Oct 1997	3.8	--	--	--	--	--	--	1.0	--	7.6
	Jan/Feb 1998	4.0	--	--	--	--	--	--	1.1	--	8.0
	Apr/May 1998	4.3	--	--	--	--	--	--	1.2	--	8.0
	Jul/Aug 1998	5.1	--	--	--	--	--	--	1.2	--	6.0
	Oct/Nov 1998	4.1	--	--	--	--	--	--	1.2	--	7.7
	Feb/Mar 1999	4.5	--	--	--	--	--	--	1.2	--	7.0
	May/June 1999	4.0	--	--	--	--	--	--	1.0(EB) ⁽⁵⁾	--	9.1
	Aug 1999	3.7	--	--	--	--	--	--	1.1	--	9.2
	Screen 5	Aug/Sep 1996	3.4	--	--	--	--	--	--	0.7	--
Oct/Nov 1996		1.3	--	--	--	--	--	--	--	1.5 Acetone	NS
Feb/Mar 1997		1.7	--	--	--	--	--	--	0.5	--	NS
Jun/Jul 1997		1.9	--	--	--	--	--	--	0.5	--	4.1
Sep/Oct 1997		1.3	--	--	--	--	--	--	--	--	--

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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	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/June 1999	1.6	--	--	--	--	--	--	0.5(EB) ⁽⁵⁾	--	--
	Aug 1999	1.9	--	--	--	--	--	--	0.6	--	--
MW-13	Aug/Sep 1996	21	47	0.6	--	2.5	1.5	0.7	21(TB)	--	NS
	Oct/Nov 1996	27	27	--	--	1.9	1.5	0.6	14	--	NS
	Feb/Mar 1997	18	28	--	--	0.9	1.1	0.6	9.2	--	NS
	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 (DUP ³)	--	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 ^(b) 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/June 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
MW-14											
Screen 1	Aug/Sep 1996	--	--	--	2.4	--	--	--	0.6	--	NS
	Oct/Nov 1996	--	--	--	2.9	--	--	--	--	--	NS
	Feb/Mar 1997	--	--	0.7	1.5	--	--	--	0.7	--	NS
	Jun/Jul 1997	--	--	--	2.0	--	--	--	--	--	--
	Sep/Oct 1997	--	--	--	1.9	--	--	--	--	--	--
	Jan/Feb 1998	--	--	--	2.1	--	--	--	0.5	--	--
	Apr/May 1998	--	--	1.2	0.8	--	--	--	0.8	--	4.4
	Jul/Aug 1998	--	--	0.8	1.7	--	--	--	0.6	--	4.4
	Oct/Nov 1998	--	--	0.5	2.4	--	--	--	0.6	--	4.2
	Feb/Mar 1999	--	--	0.8	1.2	--	--	0.6 ^(b)	0.6	--	4.2
	May/June 1999	--	--	0.5	2.6	--	--	--	--	--	--
	Aug 1999	--	--	--	1.7	--	--	--	--	--	--
Screen 2	Aug/Sep 1996	--	2.8	1.6	1.4	--	--	--	1.5	--	NS
	Oct/Nov 1996	--	1.5	1.6	1.0	--	--	--	0.9	0.6 1,2,3-Trichlorobenzene 1.1 Acetone	NS
	Feb/Mar 1997	--	0.9	1.9	1.3	--	--	--	0.8	0.8 1,2,3-Trichlorobenzene 1.1 Acetone	NS
	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

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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
	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(b)	0.6	--	4.2
	May/June 1999	--	1.0	1.2	0.8	--	--	--	0.6(EB)(5)	--	9.6
	Aug 1999	--	--	1.0	--	--	--	--	--	--	--
Screen 3	Aug/Sep 1996	--	--	--	--	--	--	--	--	--	NS
	Oct/Nov 1996	--	--	--	--	--	--	--	--	--	NS
	Feb/Mar 1997	--	--	--	--	--	--	--	--	--	NS
	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(b)	0.5	--	5.9
	May/June 1999	--	--	--	--	--	--	--	--	--	7.0
	Aug 1999	--	--	--	--	--	--	--	--	--	6.6
Screen 4	Aug/Sep 1996	--	--	--	--	--	--	--	--	--	NS
	Oct/Nov 1996	--	--	--	--	--	--	--	--	--	NS
	Feb/Mar 1997	--	--	--	--	--	--	--	--	--	NS
	Jun/Jul 1997	--	--	--	--	--	--	--	--	--	--
	Sep/Oct 1997	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 1998	--	--	--	--	--	--	--	--	--	--
	Apr/May 1998	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	--	--	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	--
	Feb/Mar 1999	--	--	--	--	--	--	0.6(b)	--	--	--
	May/June 1999	--	--	--	--	--	--	--	--	--	9.9
	Aug 1999	--	--	--	--	--	--	--	--	--	4.0
Screen 5	Aug/Sep 1996	--	--	--	--	--	--	--	--	2.1(B) Acetone	NS
	Oct/Nov 1996	--	--	--	--	--	--	--	--	1.6(TB) Acetone	NS
	Feb/Mar 1997	--	--	--	--	--	--	--	--	1.3 Carbon disulfide	NS
	Jun/Jul 1997	--	--	--	--	--	--	--	--	--	NS
	Sep/Oct 1997	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 1998	--	--	--	--	--	--	--	--	--	--
	Apr/May 1998	--	--	--	--	--	--	--	--	4.6 Carbon disulfide(4)	--
	Jul/Aug 1998	--	--	--	--	--	--	--	--	--	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	--
	Feb/Mar 1999	--	--	--	--	--	--	--	--	--	--

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	May/June 1999	--	--	--	--	--	--	--	--	--	--
	Aug 1999	--	--	--	--	--	--	--	--	--	--
MW-15	Aug/Sep 1996	--	--	--	--	--	--	--	--	--	NS
	Oct/Nov 1996	--	--	--	--	--	--	--	--	2.6 Acetone	NS
	Feb/Mar 1997	--	--	--	--	--	--	--	--	--	NS
	Jun/Jul 1997	--	--	--	--	--	--	--	--	--	--
	Sep/Oct 1997	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 1998	--	--	--	--	--	--	--	--	--	--
	Apr/May 1998	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	--	--	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	--
	Feb/Mar 1999	--	--	--	--	--	--	--	--	--	--
	May/June 1999	--	--	--	--	--	--	--	--	--	--
	Aug 1999	Not Sampled ⁽⁶⁾									
MW-16	Aug/Sep 1996	125	33	1.3	--	2.4	2.2	2.0	40(TB)	--	NS
	Oct/Nov 1996	Not Sampled*									
	Feb/Mar 1997	91	23	1.3	--	1.7	2.6	1.6	29	--	NS
	Jun/Jul 1997	68	25	1.1	--	2.1	1.7	0.6	43	--	615
	Sep/Oct 1997	Not Sampled*									
	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 ^(b)	420
	Oct/Nov 1998	51	18	1.0	--	1.5	1.6	1.4	29	1.0 1,1,1-Trichloroethane	220
	Feb/Mar 1999	67	20	1.4	--	1.1	1.8	1.1	24	1.1 1,1,1-Trichloroethane	790
	May/June 1999	58	15	1.0	--	0.8	1.3	1.2	23	13 Carbon disulfide	650
	Aug 1999	70	19	1.8	--	1.1	1.9	1.1	26(EB)	0.5 Fluorotrichloromethane	930
										0.6 1,1,1-Trichloroethane	
MW-17	Screen 1										
	Aug/Sep 1996	--	--	--	--	--	--	--	--	4.3(B) Acetone	NS
	Oct/Nov 1996	--	--	--	--	--	--	--	--	1.4 Acetone	NS
	Feb/Mar 1997	--	--	--	--	--	--	--	--	--	NS
	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/June 1999	--	--	--	--	--	--	--	--	--	--
	Aug 1999	Not Sampled ⁽⁶⁾									

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Screen 2	Aug/Sep 1996	--	--	--	--	--	--	--	3.8	4.5(B) Acetone	NS
	Oct/Nov 1996	--	--	--	--	--	--	--	6.0	--	NS
	Feb/Mar 1997	--	--	--	--	--	--	--	5.2	--	NS
	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(b)	3.9	--	--
	May/June 1999	--	--	--	--	--	--	--	3.2(EB) ⁽⁵⁾	--	--
Aug 1999	--	--	--	--	--	--	--	2.5	--	--	
Screen 3	Aug/Sep 1996	2.0	7.9	--	--	--	--	--	7.5	--	NS
	Oct/Nov 1996	3.3	18	0.8	--	--	--	--	8.7	--	NS
	Feb/Mar 1997	5.1	23	1.1	--	--	--	--	6.2	--	NS
	Jun/Jul 1997	1.3	5.9	--	--	--	--	--	8.2	--	12
	Sep/Oct 1997	6.6	22	1.4	--	--	--	--	9.2	--	55
	Jan/Feb 1998	3.3	8.7	--	--	--	--	--	6.8	--	25
	Apr/May 1998	--	0.9	--	--	--	--	--	5.3	--	--
	Jul/Aug 1998	--	1.0	--	--	--	--	--	4.9	--	--
	Oct/Nov 1998	--	1.9	--	--	--	--	--	4.1	--	5.1
	Feb/Mar 1999	--	1.6	--	--	--	--	--	3.8	--	4.2
	May/June 1999	--	1.5	--	--	--	--	--	3.5(EB) ⁽⁵⁾	--	--
Aug 1999	0.8	2.9	--	--	--	--	--	4.6	--	6.1	
Screen 4	Aug/Sep 1996	--	9.5	0.5	--	--	--	--	1.1	--	NS
	Oct/Nov 1996	--	8.9	--	--	--	--	--	1.5	--	NS
	Feb/Mar 1997	--	5.8	--	--	--	--	--	0.7	--	NS
	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(b)	1.8	--	9.8
	May/June 1999	--	3.2	--	--	--	--	--	1.4(EB) ⁽⁵⁾	--	14
Aug 1999	--	3.5	--	--	--	--	--	1.5	--	12	
Screen 5	Aug/Sep 1996	--	13	0.6	--	--	--	--	1.7	3.4(B) Acetone	NS
	Oct/Nov 1996	--	16	0.7	--	--	--	--	1.7	--	NS
	Feb/Mar 1997	--	14	0.7	--	--	--	--	1.3	--	NS
	Jun/Jul 1997	--	11	0.7	--	--	--	--	1.3	--	12
	Sep/Oct 1997	--	8.6	0.6	--	--	--	--	1.4	--	15

TABLE 3-3

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

(concentrations in µg/L)

Values above state and/or Federal MCLs or 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
	Jan/Feb 1998	--	7.9	--	--	--	--	--	1.5	--	15
	Apr/May 1998	--	8.8	0.6	--	--	--	--	1.8	--	15
	Jul/Aug 1998	--	8.9	0.6	--	--	--	--	2.0	--	13
	Oct/Nov 1998	--	11	0.8	--	--	--	--	2.7	--	12
	Feb/Mar 1999	--	4.9	--	--	--	--	--	2.1	--	6.4
	May/June 1999	--	6.6	0.6	--	--	--	--	2.0(EB) ⁽⁵⁾	--	12
	Aug 1999	--	4.0	--	--	--	--	--	1.6	--	11
MW-18											
Screen 1	Aug/Sep 1996	--	--	--	--	--	--	--	1.6	--	NS
	Oct/Nov 1996	Not Sampled*	--	--	--	--	--	--	--	--	--
	Feb/Mar 1997	--	--	--	--	--	--	--	3.0	--	NS
	Jun/Jul 1997	--	--	--	--	--	--	--	0.8	--	--
	Sep/Oct 1997	Not Sampled*	--	--	--	--	--	--	--	--	--
	Jan/Feb 1998	Not Sampled*	--	--	--	--	--	--	--	--	--
	Apr/May 1998	--	--	--	--	--	--	--	0.7	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	--	3.4 Unknown Hydrocarbon (RT=7.14)	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	--
	Feb/Mar 1999	--	--	--	--	--	--	--	--	--	--
	May/June 1999	--	--	--	--	--	--	--	--	--	--
	Aug 1999	Not Sampled ⁽⁶⁾	--	--	--	--	--	--	--	--	--
Screen 2	Aug/Sep 1996	--	--	--	--	--	--	--	7.3	--	NS
	Oct/Nov 1996	--	--	--	--	--	--	--	8.2	--	NS
	Feb/Mar 1997	--	--	--	--	--	--	--	1.9	--	NS
	Jun/Jul 1997	--	--	--	--	--	--	--	4.5	--	--
	Sep/Oct 1997	--	--	--	--	--	--	--	2.5	--	--
	Jan/Feb 1998	--	--	--	--	--	--	--	3.7	--	--
	Apr/May 1998	--	--	--	--	--	--	--	3.2	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	0.9	--	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	--
	Feb/Mar 1999	--	--	--	--	--	--	--	3.0	0.8 Bromodichloromethane	--
	May/June 1999	--	--	--	--	--	--	--	0.8(EB) ⁽⁵⁾	--	--
	Aug 1999	--	--	--	--	--	--	--	--	--	--
Screen 3	Aug/Sep 1996	0.7	4.7	2.8	--	--	--	--	5.1	--	NS
	Oct/Nov 1996	0.7	6.4	3.2	--	--	--	--	5.6	--	NS
	Feb/Mar 1997	0.8	6.6	2.9	--	--	--	--	5.1	--	NS
	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

TABLE 3-3

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(concentrations in µg/L)

Values above state and/or Federal MCLs or 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
	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) ⁽⁵⁾	0.6 Dichloromethane	--
	Aug 1999	--	1.0	--	--	--	--	--	2.8	--	--
Screen 4	Aug/Sep 1996	2.2	--	0.7	--	--	--	--	0.5	--	NS
	Oct/Nov 1996	2.2	--	0.7	--	--	--	--	0.5	1.4(TB) Acetone	NS
	Feb/Mar 1997	2.2	--	1.5	--	--	--	--	0.6	--	NS
	Jun/Jul 1997	1.9	--	0.7	--	--	--	--	--	--	11
	Sep/Oct 1997	2.4	--	0.7	--	--	--	--	--	1.5 Carbon Disulfide	12
	Jan/Feb 1998	2.6	--	1.0	--	--	--	--	0.5	--	11
	Apr/May 1998	3.1	0.6	1.4	--	--	--	--	0.8	--	13
	Jul/Aug 1998	2.5	0.6	1.2	--	--	--	--	0.6	--	16
	Oct/Nov 1998	3.4	0.8	1.5	--	--	--	--	0.7	--	19
	Feb/Mar 1999	4.7	1.2	2.3	--	--	--	--	1.1	--	24
	May/Jun 1999	3.6	1.6	2.5	--	--	--	--	1.1(EB) ⁽⁵⁾	0.7 Dichloromethane	16
	Aug 1999	3.6	1.1	1.9	--	--	--	--	0.8	--	23
Screen 5	Aug/Sep 1996	--	--	--	--	--	--	--	--	--	NS
	Oct/Nov 1996	--	--	--	--	--	--	--	--	1.6 Acetone	NS
	Feb/Mar 1997	--	--	--	--	--	--	--	--	--	NS
	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)	--
MW-19											
Screen 1	Aug/Sep 1996	--	--	--	--	--	--	--	0.9	3.7(B) Acetone	NS
	Oct/Nov 1996	--	--	--	--	--	--	--	0.6	2.9 Acetone	NS
	Feb/Mar 1997	--	--	--	--	--	--	--	0.8	--	NS
	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	--	--	--	--	--	--	--	--	--	--

TABLE 3-3

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

Values above state and/or Federal MCLs or 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	--	--	0.8	--	--	--	--	--	3.0(B) Acetone	NS
	Oct/Nov 1996	--	--	1.1	--	--	--	--	--	--	NS
	Feb/Mar 1997	--	--	--	--	--	--	--	--	--	NS
	Jun/Jul 1997	--	--	0.6	--	--	--	--	--	--	--
	Sep/Oct 1997	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 1998	--	0.6	0.9	--	--	--	--	--	--	--
	Apr/May 1998	--	0.9	1.2	--	--	--	--	--	--	--
	Jul/Aug 1998	--	0.6	0.7	--	--	--	--	--	--	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	--
	Feb/Mar 1999	--	0.6	--	--	--	--	--	--	--	--
	May/June 1999	--	1.3	1.1	--	--	--	--	--	--	4.5
Aug 1999	--	0.7	--	--	--	--	--	--	--	--	
Screen 3	Aug/Sep 1996	--	--	3.1	--	--	--	--	--	2.6(B) Acetone	NS
	Oct/Nov 1996	--	--	2.5	--	--	--	--	--	--	NS
	Feb/Mar 1997	--	--	2.1	--	--	--	--	--	--	NS
	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/June 1999	--	0.9	2.7	--	--	--	--	--	--	7.2
Aug 1999	--	0.6	1.9	--	--	--	--	--	--	4.4	
Screen 4	Aug/Sep 1996	0.5	1.5	--	--	--	--	--	2.1	--	NS
	Oct/Nov 1996	--	1.5	--	--	--	--	--	1.9	--	NS
	Feb/Mar 1997	--	1.1	0.6	--	--	--	--	1.5	--	NS
	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/June 1999	--	0.7	--	--	--	--	--	2.6(EB)(5)	--	--
Aug 1999	--	0.5	--	--	--	--	--	2.7	--	--	

TABLE 3-3

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

(concentrations in µg/L)

Values above state and/or Federal MCLs or 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 5	Aug/Sep 1996	--	--	3.0	--	--	--	--	0.6	1.6(B) Unknown scan #940	NS
	Oct/Nov 1996	--	--	2.4	--	--	--	--	--	--	NS
	Feb/Mar 1997	--	--	1.7	--	--	--	--	--	--	NS
	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	
MW-20											
Screen 1	Aug/Sep 1996	--	--	--	--	--	--	--	0.7	3.4(B) Acetone	NS
	Oct/Nov 1996	Not Sampled*	--	--	--	--	--	--	--	--	--
	Feb/Mar 1997	--	--	--	--	--	--	--	1.4	2.4(EB) Acetone	NS
	Jun/Jul 1997	--	--	--	--	--	--	--	0.8	--	5.7
	Sep/Oct 1997	Not Sampled*	--	--	--	--	--	--	--	--	--
	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) ⁽⁵⁾	--	4.4
Aug 1999	--	--	--	--	--	--	--	0.6	--	7.5	
Screen 2	Aug/Sep 1996	--	--	--	--	--	--	--	7.7	4.0(B) Acetone	NS
	Oct/Nov 1996	--	--	--	--	--	--	--	4.4	--	NS
	Feb/Mar 1997	--	--	--	--	--	--	--	3.2	--	NS
	Jun/Jul 1997	--	--	--	--	--	--	--	3.3	--	--
	Sep/Oct 1997	--	--	--	--	--	--	--	5.7	--	--
	Jan/Feb 1998	--	--	--	--	--	--	--	2.7	--	--
	Apr/May 1998	--	--	--	--	--	--	--	2.7	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	4.2	0.5 Dichlorobromomethane	--
	Oct/Nov 1998	--	--	--	--	--	--	--	3.6	--	--
	Feb/Mar 1999	--	--	--	--	--	--	--	4.2	--	--
	May/Jun 1999	--	--	--	--	--	--	--	4.6(EB) ⁽⁵⁾	0.6 Bromodichloromethane	--
Aug 1999	--	--	--	--	--	--	--	4.8	0.6 Bromodichloromethane	--	

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 3	Aug/Sep 1996	--	--	--	--	--	--	--	--	2.7(B) Acetone	NS
	Oct/Nov 1996	--	--	--	--	--	--	--	0.6	2.3 Acetone	NS
	Feb/Mar 1997	--	--	--	--	--	--	--	--	--	NS
	Jun/Jul 1997	--	--	--	--	--	--	--	--	--	--
	Sep/Oct 1997	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 1998	--	--	--	--	--	--	--	--	3.4 Unknown (RT=6.2)	--
	Apr/May 1998	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	--	--	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	--
	Feb/Mar 1999	--	--	--	--	--	--	--	--	--	--
	May/June 1999	--	--	--	--	--	--	--	--	--	--
	Aug 1999	--	--	--	--	--	--	--	--	--	--
Screen 4	Aug/Sep 1996	--	--	--	--	--	--	--	--	3.8(B) Acetone	NS
	Oct/Nov 1996	--	--	--	--	--	--	--	--	--	NS
	Feb/Mar 1997	--	--	--	--	--	--	--	--	--	NS
	Jun/Jul 1997	--	--	--	--	--	--	--	--	--	--
	Sep/Oct 1997	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 1998	--	--	--	--	--	--	--	--	--	--
	Apr/May 1998	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	--	--	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	20
	Feb/Mar 1999	--	--	--	--	--	--	--	--	--	--
	May/June 1999	--	--	--	--	--	--	--	--	--	--
	Aug 1999	--	--	--	--	--	--	--	--	--	--
Screen 5	Aug/Sep 1996	--	--	--	--	--	--	--	--	4.8(B) Acetone	NS
	Oct/Nov 1996	--	--	--	--	--	--	--	--	--	NS
	Feb/Mar 1997	--	--	--	--	--	--	--	--	--	NS
	Jun/Jul 1997	--	--	--	--	--	--	--	--	--	--
	Sep/Oct 1997	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 1998	--	--	--	--	--	--	--	--	--	--
	Apr/May 1998	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	--	--	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	8.2
	Feb/Mar 1999	--	--	--	--	--	--	--	--	--	--
	May/June 1999	--	--	--	--	--	--	--	--	--	--
	Aug 1999	--	--	--	--	--	--	--	--	0.7 Carbonyl sulfide	--
MW-21											
Screen 1	Aug/Sep 1996	--	33	0.7	--	--	--	--	1.8	2.3(B) Acetone	NS
	Oct/Nov 1996	Not Sampled*		--	--	--	--	--	--	--	--
	Feb/Mar 1997	--	29	--	--	--	--	--	2.2	--	NS
	Jun/Jul 1997	--	20	--	--	--	--	--	1.6	--	19

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	Sep/Oct 1997	Not Sampled*									
	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/June 1999	--	20	0.5	--	--	--	--	1.6(EB) ⁽⁵⁾	--	15
	Aug 1999	--	17	0.5	--	--	--	--	1.7	--	12
Screen 2	Aug/Sep 1996	--	--	0.9	--	--	--	--	0.5	--	NS
	Oct/Nov 1996	--	0.6	2.3	--	--	--	--	0.6	1.4(TB) Acetone	NS
	Feb/Mar 1997	--	--	1.1	--	--	--	--	--	--	NS
	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	--	--	--	--	--	--	4.1
	May/June 1999	--	--	0.6	--	--	--	--	--	--	--
	Aug 1999	--	--	0.8	--	--	--	--	--	--	--
Screen 3	Aug/Sep 1996	--	0.7	1.5	--	--	--	--	0.5	--	NS
	Oct/Nov 1996	--	0.9	1.6	--	--	--	--	--	1.2 Acetone	NS
	Feb/Mar 1997	--	0.8	1.6	--	--	--	--	--	--	NS
	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/June 1999	--	0.6	1.4	--	--	--	--	--	--	--
	Aug 1999	--	0.6	1.3	--	--	--	--	--	--	--
Screen 4	Aug/Sep 1996	--	0.8	4.2	--	--	--	--	--	--	NS
	Oct/Nov 1996	--	--	2.5	--	--	--	--	--	1.6 Acetone	NS
	Feb/Mar 1997	--	--	1.8	--	--	--	--	--	--	NS
	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	--

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 and/or Federal MCLs or 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	--	--	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	--
Screen 5	Aug/Sep 1996	--	--	4.5	--	--	--	--	0.6	--	NS
	Oct/Nov 1996	--	--	3.1	--	--	--	--	--	--	NS
	Feb/Mar 1997	--	--	3.0	--	--	--	--	--	--	NS
	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
	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) ⁽⁵⁾	1.5 cis-1,2-Dichloroethene	--
	Aug 1999	--	0.6	9.6	--	--	--	--	0.8	1.6 cis-1,2-Dichloroethene 1.4 Chlorodifluoromethane	--
MW-22(1)											
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(b)	0.5	--	6.4
	May/Jun 1999	--	--	2.7	1.0	--	--	--	--	--	4.9
	Aug 1999	--	--	2.1	0.7	--	--	--	--	--	--
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(b)	--	--	--
	May/Jun 1999	--	--	--	--	--	--	--	--	--	--
	Aug 1999	--	--	--	--	--	--	--	--	--	--
Screen 3	Sep/Oct 1997	--	--	--	--	--	--	--	--	--	15
	Jan/Feb 1998	--	--	--	--	--	--	--	--	--	--
	Apr/May 1998	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	--	--	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	--
	Feb/Mar 1999	--	--	--	--	--	--	1.3(b)	--	--	--

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 and/or Federal MCLs or 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/June 1999	--	--	--	--	--	--	--	--	--	4.5
	Aug 1999	--	--	--	--	--	--	--	--	--	--
Screen 4	Sep/Oct 1997	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 1998	--	--	--	--	--	--	--	--	--	--
	Apr/May 1998	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	--	--	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	--
	Feb/Mar 1999	--	--	--	--	--	--	1.3(b)	--	--	--
	May/June 1999	--	--	--	--	--	--	--	--	--	--
	Aug 1999	NS	NS	NS	NS	NS	NS	NS	NS	NS	--
Screen 5	Sep/Oct 1997	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 1998	--	--	--	--	--	--	--	--	--	--
	Apr/May 1998	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	--	--	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	--
	Feb/Mar 1999	--	--	--	--	--	--	1.3(b)	--	--	--
	May/June 1999	--	--	--	--	--	--	--	--	--	--
	Aug 1999	Not Sampled(6)									
MW-23(1)											
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(b)	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/June 1999	--	7.0	1.1	--	--	--	0.6	1.0(EB)(5)	0.7 1,2,3-Trichlorobenzene	7.6
	Aug 1999	--	3.5	1.1	1.0	--	--	--	0.7(EB)	--	--
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(b)	7.8
	Oct/Nov 1998	--	0.6	0.7	0.6	--	--	--	0.6	--	16
	Feb/Mar 1999	--	--	--	--	--	--	--	0.5	--	7.7
	May/June 1999	--	--	--	0.5	--	--	--	0.6(EB)(5)	--	7.8
	Aug 1999	--	--	--	--	--	--	--	0.5(EB)	--	--
Screen 3	Sep/Oct 1997	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 1998	--	--	--	--	--	--	--	--	--	--
	Apr/May 1998	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	--	1.7 Dichloromethane(b)	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	--
	Feb/Mar 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 and/or Federal MCLs or 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/June 1999	--	--	--	--	--	--	--	--	--	--
	Aug 1999	--	--	--	--	--	--	--	--	--	--
Screen 4	Sep/Oct 1997	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 1998	--	--	--	--	--	--	--	--	--	--
	Apr/May 1998	--	--	--	--	--	--	--	--	2.3 Dichloromethane(b)	--
	Jul/Aug 1998	--	--	--	--	--	--	--	--	--	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	--
	Feb/Mar 1999	--	--	--	--	--	--	--	--	--	--
	May/June 1999	--	--	--	--	--	--	--	--	--	--
	Aug 1999	NS	NS	NS	NS	NS	NS	NS	NS	NS	--
Screen 5	Sep/Oct 1997	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 1998	--	--	--	--	--	--	--	--	--	--
	Apr/May 1998	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	--	1.7 Dichloromethane(b) 3.0 Unknown (RT=3.93)	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	3.1 2-Methyl-1-propene	17
	Feb/Mar 1999	--	--	--	--	--	--	--	--	--	--
	May/June 1999	--	--	--	--	--	--	--	--	--	--
	Aug 1999	NS	NS	NS	NS	NS	NS	NS	NS	NS	--
MW-24(1)											
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/June 1999	1.0	1.6	--	--	--	--	--	0.6(EB)(5)	--	14
	Aug 1999	1.8	3.6	--	--	--	--	--	1.3	--	22
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/June 1999	33	4.3	1.3	--	--	1.8	--	7.7(EB)(5)	--	690
	Aug 1999	35	3.6	0.9	--	--	1.4	--	7.5	--	700
Screen 3	Sep/Oct 1997	--	--	--	--	--	--	--	--	--	--
	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 and/or Federal MCLs or 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	--	--	--	--	--	--	--	--	--	--
Screen 4	Sep/Oct 1997	--	--	--	--	--	--	--	--	--	--
	Jan/Feb 1998	--	--	--	--	--	--	--	--	--	--
	Apr/May 1998	--	--	--	--	--	--	--	--	--	--
	Jul/Aug 1998	--	--	--	--	--	--	--	--	--	--
	Oct/Nov 1998	--	--	--	--	--	--	--	--	--	--
	Feb/Mar 1999	--	--	--	--	--	--	--	--	--	--
	May/Jun 1999	--	--	--	--	--	--	--	--	--	--
	Aug 1999	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
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	Not Sampled ⁽⁶⁾									
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 ^(a) 6.0 cis-1,2-Dichloroethene ^(a) 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	5.0 Dichloromethane ^(a) 70 cis-1,2-Dichloroethene ^(a) 100 Bromodichloromethane ^(a) 1,1,1-Trichloroethane ^(a)	NE

--: Not detected.

*: Not sampled, no water over screen.

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

b: Attributed to laboratory contamination.

B: Compound detected in the laboratory method blank.

E: Estimated concentration; result exceeded calibration range.

EB: Compound detected in associated equipment blank.

FB: Compound detected in associated field blank.

TB: Compound detected in associated trip blank.

NE: Not established.

NS: Not sampled.

RT: Retention time.

1: Wells installed June-August 1997.

2: California Department of Health Services Interim Action Level.

3: DUP – Results from duplicate analysis; original sample was non-detect

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

5: 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.

6: Wells not sampled due to changes to the sampling program as agreed to by EPA, DTSC, and RWQCB.

TABLE 3-4

**RESULTS OF METALS ANALYSIS OF GROUNDWATER
SAMPLES COLLECTED FROM JPL MONITORING WELLS,
AUGUST 1999**

(concentrations in mg/L)

Values equal to or above state MCLs, (or other applicable regulatory limits), 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-993-070	--	--	1.0
Screen 3	MW-993-069	--	--	2.5
Screen 4	MW-993-068	--	--	1.05
Screen 5	MW-993-067	NS	NS	5.40
MW-4				
Screen 1	MW-993-066	--	--	1.21
Screen 2	MW-993-065	--	--	3.84
Screen 2 (DUP)	MW-993-064	0.01	--	3.84
Screen 3	MW-993-063	--	--	2.09
Screen 4	MW-993-062	--	--	1.21
Screen 5	MW-993-061	--	--	2.41
MW-5	MW-993-060	--	--	4.25
MW-6	MW-993-059	0.31(2)	--	2.74
MW-7	MW-993-058	--	0.005	3.09
MW-8	MW-993-057	0.014	--	0.74
MW-9	Not Sampled(1)			
MW-10	MW-993-056	--	--	3.55
MW-10 DUP	MW-993-055	--	--	3.55
MW-11				
Screen 1	MW-993-054	--	--	1.21
Screen 2	MW-993-053	--	--	1.89
Screen 3	MW-993-052	--	--	3.10
Screen 4	MW-993-051	NS	NS	3.47
Screen 5	Not Sampled(1)			
MW-12				
Screen 1	MW-993-050	--	--	41.6
Screen 2	MW-993-049	--	--	1.91
Screen 2 (DUP)	MW-993-048	--	--	1.91
Screen 3	MW-993-047	--	--	0.42
Screen 4	MW-993-046	NS	NS	0.98
Screen 5	MW-993-045	NS	NS	4.81

TABLE 3-4
RESULTS OF METALS ANALYSIS OF GROUNDWATER
SAMPLES COLLECTED FROM JPL MONITORING WELLS,
AUGUST 1999

(concentrations in mg/L)

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

Sample Location	Sample Number	Total Chromium	Hexavalent Chromium	Field Turbidity (NTUs)
MW-13	MW-993-044	0.037	0.031	0.15
MW-13 DUP	MW-993-043	0.033	0.031	0.15
MW-14				
Screen 1	MW-993-042	--	--	1.73
Screen 2	MW-993-041	--	--	2.76
Screen 3	MW-993-040	--	--	2.19
Screen 4	MW-993-039	--	--	1.24
Screen 5	MW-993-038	NS	NS	1.42
MW-15	Not Sampled ⁽¹⁾			
MW-16	MW-993-037	--	0.007	0.48
MW-17				
Screen 1	Not Sampled ⁽¹⁾			
Screen 2	MW-993-036	--	--	12.4
Screen 3	MW-993-035	--	--	2.45
Screen 4	MW-993-034	--	--	4.11
Screen 5	MW-993-033	NS	NS	2.38
MW-18				
Screen 1	Not Sampled ⁽¹⁾			
Screen 2	MW-993-032	--	--	0.96
Screen 3	MW-993-031	--	--	0.79
Screen 4	MW-993-030	--	--	0.73
Screen 5	MW-993-029	NS	NS	0.56
MW-19				
Screen 1	MW-993-028	NS	NS	1.10
Screen 2	MW-993-027	NS	NS	0.05
Screen 3	MW-993-026	NS	NS	0.18
Screen 4	MW-993-025	NS	NS	1.01
Screen 5	MW-993-024	NS	NS	0.84
MW-20				
Screen 1	MW-993-023	--	--	3.22
Screen 2	MW-993-022	--	--	2.75
Screen 3	MW-993-021	--	--	0.71
Screen 4	MW-993-020	--	--	0.32
Screen 5	MW-993-019	--	--	1.65

TABLE 3-4
RESULTS OF METALS ANALYSIS OF GROUNDWATER
SAMPLES COLLECTED FROM JPL MONITORING WELLS,
AUGUST 1999

(concentrations in mg/L)

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

Sample Location	Sample Number	Total Chromium	Hexavalent Chromium	Field Turbidity (NTUs)
<i>MW-21</i>				
Screen 1	MW-993-018	NS	NS	1.08
Screen 2	MW-993-017	NS	NS	1.64
Screen 3	MW-993-016	NS	NS	1.89
Screen 4	MW-993-015	NS	NS	0.52
Screen 5	MW-993-014	NS	NS	1.87
<i>MW-22</i>				
Screen 1	MW-993-013	--	--	4.8
Screen 2	MW-993-012	--	--	8.54
Screen 3	MW-993-011	NS	NS	5.10
Screen 4	MW-993-010	NS	NS	2.84
Screen 5	Not Sampled(1)			
<i>MW-23</i>				
Screen 1	MW-993-009	--	--	9.35
Screen 2	MW-993-008	--	--	1.47
Screen 3	MW-993-007	--	--	13.1
Screen 4	MW-993-006	--	--	4.18
Screen 5	MW-993-005	NS	NS	1.70
<i>MW-24</i>				
Screen 1	MW-993-004	--	--	9.70
Screen 2	MW-993-003	--	--	33.8
Screen 3	MW-993-002	--	--	25.2
Screen 4	MW-993-001	--	--	10.5
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.

NS: Not sampled.

--: Not detected.

1: Wells not sampled due to changes to the sampling program as agreed to by EPA, DTSC, and RWQCB.

2: Believed to be laboratory error.

TABLE 3-5

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

(concentrations in mg/L)

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

Sample Location	Sampling Date	Arsenic	Lead	Total Chromium	Hexavalent Chromium	Field Turbidity (NTUs)	
<i>MW-1</i>	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	--	1.0	
	Oct/Nov 1998	--	--	--	--	1.1	
	Feb/Mar 1999	--	--	--	--	1.9	
	May/Jun 1999	--	--	--	--	0.4	
	Aug 1999	Not Sampled ⁽¹⁾					
	<i>MW-3</i>	Screen 1	Aug/Sep 1996	--	--	--	--
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			Not Sampled ⁽¹⁾				
Screen 2			Aug/Sep 1996	--	--	--	--
		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	NS	NS	--	--	1.0	
	Screen 3	Aug/Sep 1996	--	--	--	--	5.2
Oct/Nov 1996		--	--	--	--	2.7	
Feb/Mar 1997		--	--	--	--	1.7	
Jun/Jul 1997		--	--	--	--	3.4	
Sep/Oct 1997		--	--	--	--	5.0	
Jan/Feb 1998		--	--	--	--	4.9	
Apr/May 1998		--	--	--	--	4.7	
Jul/Aug 1998		--	--	--	--	4.6	
Oct/Nov 1998		--	--	--	--	3.3	

TABLE 3-5

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

(concentrations in mg/L)

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

Sample Location	Sampling Date	Arsenic	Lead	Total Chromium	Hexavalent Chromium	Field Turbidity (NTUs)
	Feb/Mar 1999	--	--	--	--	3.2
	May/Jun 1999	--	--	--	--	1.8
	Aug 1999	NS	NS	--	--	2.5
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	NS	NS	--	--	1.1
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	NS	NS	NS	NS	5.4
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
	May/Jun 1999	--	--	--	--	1.8
	Aug 1999	NS	NS	--	--	1.2
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

TABLE 3-5

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

(concentrations in mg/L)

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

Sample Location	Sampling Date	Arsenic	Lead	Total Chromium	Hexavalent Chromium	Field Turbidity (NTUs)
	Jul/Aug 1998	--	--	0.011	--	4.9
	Oct/Nov 1998	--	--	0.010	--	3.4
	Feb/Mar 1999	--	--	--	--	6.1
	May/June 1999	--	--	--	--	4.8
	Aug 1999	NS	NS	0.01	--	3.8
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/June 1999	--	--	--	--	4.9
	Aug 1999	NS	NS	--	--	2.1
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/June 1999	--	--	--	--	2.9
	Aug 1999	NS	NS	--	--	1.2
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/June 1999	--	--	--	--	1.1
	Aug 1999	NS	NS	--	--	2.4
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

TABLE 3-5

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

(concentrations in mg/L)

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

Sample Location	Sampling Date	Arsenic	Lead	Total Chromium	Hexavalent Chromium	Field Turbidity (NTUs)
	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	NS	NS	--	--	4.3
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	NS	NS	0.31⁽²⁾	--	2.7
MW-7	Aug/Sep 1996	--	--	0.013	0.007	4.8
	Oct/Nov 1996	--	--	0.019	0.019	3.5
	Feb/Mar 1997	--	--	--	0.010	2.2
	Jun/Jul 1997	--	--	--	--	1.0
	Sep/Oct 1997	--	--	0.018	--	0.8
	Jan/Feb 1998	--	--	0.012	--	1.2
	Apr/May 1998	--	--	--	--	4.1
	Jul/Aug 1998	--	--	--	--	4.7
	Oct/Nov 1998	--	--	--	--	1.2
	Feb/Mar 1999	--	--	--	--	4.3
	May/Jun 1999	--	--	0.011	--	3.5
	Aug 1999	NS	NS	--	0.005	3.1
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	NS	NS	0.014	--	0.7

TABLE 3-5

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

(concentrations in mg/L)

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

Sample Location	Sampling Date	Arsenic	Lead	Total Chromium	Hexavalent Chromium	Field Turbidity (NTUs)
<i>MW-9</i>	Aug/Sep 1996	--	--	--	--	2.1
	Oct/Nov 1996	--	--	--	--	2.5
	Feb/Mar 1997	--	--	--	--	4.2
	Jun/Jul 1997	--	--	--	--	3.2
	Sep/Oct 1997	--	--	--	--	1.0
	Jan/Feb 1998	--	--	--	--	2.4
	Apr/May 1998	--	--	--	--	1.3
	Jul/Aug 1998	--	--	--	--	3.0
	Oct/Nov 1998	--	--	--	--	2.1
	Feb/Mar 1999	--	--	--	--	2.8
	May/June 1999	--	--	--	--	0.1
	Aug 1999	Not Sampled ⁽¹⁾				
<i>MW-10</i>	Aug/Sep 1996	--	--	0.011	0.010	4.5
	Oct/Nov 1996	--	0.003	0.011	--	4.9
	Feb/Mar 1997	--	--	--	--	2.2
	Jun/Jul 1997	--	--	0.014	--	2.9
	Sep/Oct 1997	--	--	--	--	3.2
	Jan/Feb 1998	--	--	--	--	2.1
	Apr/May 1998	--	0.008	0.010	--	2.6
	Jul/Aug 1998	--	--	--	--	3.8
	Oct/Nov 1998	--	--	--	--	3.6
	Feb/Mar 1999	--	--	0.014	--	3.3
	May/June 1999	--	--	--	--	1.8
	Aug 1999	NS	NS	--	--	3.6
<i>MW-11</i>						
Screen 1	Aug/Sep 1996	--	--	--	--	4.0
	Oct/Nov 1996	--	--	--	--	2.5
	Feb/Mar 1997	--	--	--	--	2.5
	Jun/Jul 1997	--	--	--	--	1.5
	Sep/Oct 1997	--	--	--	--	4.6
	Jan/Feb 1998	--	--	--	--	1.0
	Apr/May 1998	--	--	--	--	1.0
	Jul/Aug 1998	--	--	--	--	4.6
	Oct/Nov 1998	--	--	--	--	1.4
	Feb/Mar 1999	--	--	--	--	1.6
	May/June 1999	--	--	--	--	1.1
	Aug 1999	NS	NS	--	--	1.2
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

TABLE 3-5

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

(concentrations in mg/L)

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

Sample Location	Sampling Date	Arsenic	Lead	Total Chromium	Hexavalent Chromium	Field Turbidity (NTUs)
	May/June 1999	--	--	--	--	1.3
	Aug 1999	NS	NS	--	--	1.9
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/June 1999	--	--	--	--	2.7
	Aug 1999	NS	NS	--	--	3.1
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/June 1999	--	--	--	--	4.0
	Aug 1999	NS	NS	NS	NS	3.5
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/June 1999	0.005	--	--	--	1.4
	Aug 1999	Not Sampled ⁽¹⁾				
MW-12						
Screen 1	Aug/Sep 1996	--	0.004	--	--	50.4
	Oct/Nov 1996	Not Sampled*				
	Feb/Mar 1997	--	0.003	--	--	3.8
	Jun/Jul 1997	--	--	--	--	4.8
	Sep/Oct 1997	Not Sampled*				
	Jan/Feb 1998	--	--	--	--	2.6
	Apr/May 1998	--	--	0.010	--	4.8
	Jul/Aug 1998	--	--	--	--	5.0

TABLE 3-5

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LONG-TERM QUARTERLY SAMPLING PROGRAM,
JET PROPULSION LABORATORY**

(concentrations in mg/L)

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

Sample Location	Sampling Date	Arsenic	Lead	Total Chromium	Hexavalent Chromium	Field Turbidity (NTUs)
	Oct/Nov 1998	--	--	--	--	7.4
	Feb/Mar 1999	--	--	--	--	7.5
	May/Jun 1999	--	--	--	--	10.5
	Aug 1999	NS	NS	--	--	41.6
Screen 2	Aug/Sep 1996	--	0.024	--	--	4.0
	Oct/Nov 1996	--	--	--	--	4.0
	Feb/Mar 1997	--	--	--	--	2.5
	Jun/Jul 1997	--	--	--	--	3.2
	Sep/Oct 1997	--	--	--	--	3.4
	Jan/Feb 1998	--	--	--	--	4.4
	Apr/May 1998	--	--	--	--	1.6
	Jul/Aug 1998	--	0.006	--	--	3.7
	Oct/Nov 1998	--	--	--	--	4.9
	Feb/Mar 1999	--	--	--	--	2.5
	May/Jun 1999	--	--	--	--	1.7
	Aug 1999	NS	NS	--	--	1.9
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	NS	NS	--	--	0.4
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	NS	NS	NS	NS	0.9
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

TABLE 3-5

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

(concentrations in mg/L)

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

Sample Location	Sampling Date	Arsenic	Lead	Total Chromium	Hexavalent Chromium	Field Turbidity (NTUs)
	Jul/Aug 1998	--	--	--	--	3.1
	Oct/Nov 1998	--	--	--	--	1.3
	Feb/Mar 1999	--	--	--	--	5.0
	May/June 1999	--	--	--	--	3.2
	Aug 1999	NS	NS	NS	NS	4.8
MW-13	Aug/Sep 1996	--	--	0.046	0.047	4.1
	Oct/Nov 1996	--	0.005	0.031	0.028	3.0
	Feb/Mar 1997	--	--	0.032	0.035	0.5
	Jun/Jul 1997	--	--	0.038	0.037	1.2
	Sep/Oct 1997	--	--	0.050	0.045	2.4
	Jan/Feb 1998	--	0.003	0.040	0.036	1.0
	Apr/May 1998	--	--	0.082	0.024	3.5
	Jul/Aug 1998	--	--	0.025	0.023	1.0
	Oct/Nov 1998	--	--	0.036	0.029	3.4
	Feb/Mar 1999	--	--	0.030	0.019	1.0
	May/June 1999	--	--	0.024	0.024	0.4
	Aug 1999	NS	NS	0.037	0.031	0.15
MW-14						
Screen 1	Aug/Sep 1996	--	--	--	--	3.3
	Oct/Nov 1996	--	--	--	--	4.5
	Feb/Mar 1997	--	--	--	--	4.3
	Jun/Jul 1997	--	--	--	--	2.2
	Sep/Oct 1997	--	--	--	--	3.9
	Jan/Feb 1998	--	0.004	--	--	5.0
	Apr/May 1998	--	--	0.011	--	3.1
	Jul/Aug 1998	--	--	--	--	3.8
	Oct/Nov 1998	--	--	--	--	4.2
	Feb/Mar 1999	--	--	--	--	4.8
	May/June 1999	--	--	--	--	3.4
	Aug 1999	NS	NS	--	--	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/June 1999	--	--	--	--	4.4
	Aug 1999	NS	NS	--	--	2.8

TABLE 3-5

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

(concentrations in mg/L)

Values equal to or above state MCLs, (or other applicable regulatory limits), 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/June 1999	--	--	--	--	0.8
	Aug 1999	NS	NS	--	--	2.2
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/June 1999	--	--	--	--	1.7
	Aug 1999	NS	NS	--	--	1.2
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/June 1999	--	--	--	--	1.9
	Aug 1999	NS	NS	NS	NS	1.4
MW-15	Aug/Sep 1996	--	--	--	--	1.3
	Oct/Nov 1996	--	--	NS	--	0.5
	Feb/Mar 1997	--	--	--	--	2.6
	Jun/Jul 1997	--	--	--	--	0.2
	Sep/Oct 1997	--	--	--	--	0.9
	Jan/Feb 1998	--	--	--	--	1.4
	Apr/May 1998	--	--	--	--	0.4
	Jul/Aug 1998	--	--	--	--	3.0
	Oct/Nov 1998	--	--	--	--	2.0
	Feb/Mar 1999	--	--	--	--	0.6

TABLE 3-5

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

(concentrations in mg/L)

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

Sample Location	Sampling Date	Arsenic	Lead	Total Chromium	Hexavalent Chromium	Field Turbidity (NTUs)
	May/June 1999	--	--	--	--	0.4
	Aug 1999	Not Sampled ⁽¹⁾				
MW-16	Aug/Sep 1996	--	--	0.018	--	3.4
	Oct/Nov 1996	Not Sampled*				
	Feb/Mar 1997	--	--	--	0.007	0.2
	Jun/Jul 1997	--	--	--	--	0.1
	Sep/Oct 1997	Not Sampled*				
	Jan/Feb 1998	--	--	--	--	1.1
	Apr/May 1998	--	--	0.014	--	1.4
	Jul/Aug 1998	--	--	--	--	1.9
	Oct/Nov 1998	--	--	0.013	--	0.9
	Feb/Mar 1999	--	--	0.013	0.007	1.0
	May/June 1999	--	--	--	--	2.2
	Aug 1999	NS	NS	--	0.007	0.5
MW-17						
Screen 1	Aug/Sep 1996	--	--	NS	NS	1.0
	Oct/Nov 1996	--	--	--	--	2.9
	Feb/Mar 1997	--	--	--	--	2.0
	Jun/Jul 1997	--	--	--	--	2.2
	Sep/Oct 1997	--	--	--	--	1.3
	Jan/Feb 1998	--	--	--	--	5.0
	Apr/May 1998	--	--	--	--	1.7
	Jul/Aug 1998	--	--	--	--	1.5
	Oct/Nov 1998	--	--	--	--	0.5
	Feb/Mar 1999	--	--	--	--	1.5
	May/June 1999	--	--	--	--	0.4
	Aug 1999	Not Sampled ⁽¹⁾				
Screen 2	Aug/Sep 1996	--	--	NS	NS	4.5
	Oct/Nov 1996	--	--	--	--	2.5
	Feb/Mar 1997	--	--	--	--	2.7
	Jun/Jul 1997	--	--	--	--	4.5
	Sep/Oct 1997	--	--	--	--	1.2
	Jan/Feb 1998	--	--	--	--	0.8
	Apr/May 1998	--	--	--	--	2.2
	Jul/Aug 1998	--	0.007	--	--	1.0
	Oct/Nov 1998	--	--	--	--	1.7
	Feb/Mar 1999	--	--	--	--	1.1
	May/June 1999	--	--	--	--	1.6
	Aug 1999	NS	NS	--	--	12.4
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

TABLE 3-5

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

(concentrations in mg/L)

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

Sample Location	Sampling Date	Arsenic	Lead	Total Chromium	Hexavalent Chromium	Field Turbidity (NTUs)
	Oct/Nov 1998	--	--	--	--	4.4
	Feb/Mar 1999	--	--	--	--	6.3
	May/June 1999	--	--	--	--	2.2
	Aug 1999	NS	NS	--	--	2.5
Screen 4	Aug/Sep 1996	--	--	NS	NS	2.8
	Oct/Nov 1996	--	--	--	--	2.6
	Feb/Mar 1997	--	--	--	--	5.6
	Jun/Jul 1997	--	--	--	--	4.1
	Sep/Oct 1997	--	--	--	--	3.6
	Jan/Feb 1998	--	--	--	--	3.9
	Apr/May 1998	--	--	--	--	3.7
	Jul/Aug 1998	--	--	--	--	4.4
	Oct/Nov 1998	--	--	--	--	1.8
	Feb/Mar 1999	--	--	--	--	4.8
	May/June 1999	--	--	--	--	7.9
	Aug 1999	NS	NS	--	--	4.1
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/June 1999	--	0.004	--	--	16.3
	Aug 1999	NS	NS	NS	NS	2.4
MW-18						
Screen 1	Aug/Sep 1996	--	--	NS	NS	0.9
	Oct/Nov 1996	Not Sampled*		--	--	
	Feb/Mar 1997	--	--	--	--	1.9
	Jun/Jul 1997	--	--	--	--	0.4
	Sep/Oct 1997	Not Sampled*		--	--	
	Jan/Feb 1998	Not Sampled*		--	--	
	Apr/May 1998	--	--	--	--	0.1
	Jul/Aug 1998	--	--	--	--	3.8
	Oct/Nov 1998	--	--	--	--	2.3
	Feb/Mar 1999	--	--	--	--	0.7
	May/June 1999	--	--	--	--	2.8
	Aug 1999	Not Sampled ⁽¹⁾		--	--	
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

TABLE 3-5

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

(concentrations in mg/L)

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

Sample Location	Sampling Date	Arsenic	Lead	Total Chromium	Hexavalent Chromium	Field Turbidity (NTUs)
	Apr/May 1998	--	--	--	--	0.1
	Jul/Aug 1998	--	--	--	--	3.1
	Oct/Nov 1998	--	--	--	--	1.9
	Feb/Mar 1999	--	0.005	--	--	2.7
	May/June 1999	--	--	--	--	4.1
	Aug 1999	NS	NS	--	--	1.0
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/June 1999	--	--	--	--	2.1
	Aug 1999	NS	NS	--	--	0.8
Screen 4	Aug/Sep 1996	--	--	NS	NS	2.0
	Oct/Nov 1996	--	0.003	--	--	1.9
	Feb/Mar 1997	--	--	--	--	2.8
	Jun/Jul 1997	0.005	--	--	--	3.6
	Sep/Oct 1997	--	--	--	--	1.1
	Jan/Feb 1998	--	--	--	--	2.2
	Apr/May 1998	--	--	--	--	0.04
	Jul/Aug 1998	--	--	--	--	2.5
	Oct/Nov 1998	--	--	--	--	4.6
	Feb/Mar 1999	--	--	--	--	2.7
	May/June 1999	--	--	--	--	3.0
	Aug 1999	NS	NS	--	--	0.7
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/June 1999	--	--	--	--	2.4
	Aug 1999	NS	NS	NS	NS	0.6

TABLE 3-5

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

(concentrations in mg/L)

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

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

TABLE 3-5

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

(concentrations in mg/L)

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

Sample Location	Sampling Date	Arsenic	Lead	Total Chromium	Hexavalent Chromium	Field Turbidity (NTUs)
	May/June 1999	--	--	--	--	1.7
	Aug 1999	NS	NS	NS	NS	1.0
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/June 1999	--	--	--	--	1.7
	Aug 1999	NS	NS	NS	NS	0.8
MW-20						
Screen 1	Aug/Sep 1996	--	--	--	NS	3.5
	Oct/Nov 1996	Not Sampled*		--	--	--
	Feb/Mar 1997	--	--	--	--	2.3
	Jun/Jul 1997	--	--	--	--	0.2
	Sep/Oct 1997	Not Sampled*		--	--	--
	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/June 1999	--	--	--	--	1.1
	Aug 1999	NS	NS	--	--	3.2
Screen 2	Aug/Sep 1996	--	--	NS	NS	3.9
	Oct/Nov 1996	--	--	--	--	1.1
	Feb/Mar 1997	--	--	--	--	2.1
	Jun/Jul 1997	--	--	--	--	2.5
	Sep/Oct 1997	--	--	--	--	3.6
	Jan/Feb 1998	--	--	--	--	0.4
	Apr/May 1998	--	--	--	--	1.4
	Jul/Aug 1998	--	--	--	--	1.3
	Oct/Nov 1998	--	--	--	--	2.4
	Feb/Mar 1999	--	--	--	--	0.8
	May/June 1999	--	--	--	--	0.9
	Aug 1999	NS	NS	--	--	2.8
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

TABLE 3-5

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LONG-TERM QUARTERLY SAMPLING PROGRAM,
JET PROPULSION LABORATORY**

(concentrations in mg/L)

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

Sample Location	Sampling Date	Arsenic	Lead	Total Chromium	Hexavalent Chromium	Field Turbidity (NTUs)
	Oct/Nov 1998	--	--	--	--	2.7
	Feb/Mar 1999	--	0.009	--	--	0.1
	May/June 1999	--	--	--	--	1.0
	Aug 1999	NS	NS	--	--	0.7
Screen 4	Aug/Sep 1996	--	--	NS	NS	1.0
	Oct/Nov 1996	--	--	--	--	1.3
	Feb/Mar 1997	--	--	--	--	3.3
	Jun/Jul 1997	--	--	--	--	1.3
	Sep/Oct 1997	--	--	--	--	1.4
	Jan/Feb 1998	--	--	--	--	0.6
	Apr/May 1998	--	--	--	--	1.7
	Jul/Aug 1998	--	--	--	--	2.1
	Oct/Nov 1998	--	--	--	--	2.6
	Feb/Mar 1999	--	--	--	--	0.8
	May/June 1999	--	--	--	--	2.4
	Aug 1999	NS	NS	--	--	0.3
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/June 1999	--	--	--	--	2.7
	Aug 1999	NS	NS	--	--	1.7
MW-21						
Screen 1	Aug/Sep 1996	--	--	NS	NS	0.9
	Oct/Nov 1996	Not Sampled*		--	--	--
	Feb/Mar 1997	--	--	--	--	1.1
	Jun/Jul 1997	--	--	--	--	2.8
	Sep/Oct 1997	Not Sampled*		--	--	--
	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/June 1999	--	--	--	--	2.8
	Aug 1999	NS	NS	NS	NS	1.1
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

TABLE 3-5

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LONG-TERM QUARTERLY SAMPLING PROGRAM,
JET PROPULSION LABORATORY**

(concentrations in mg/L)

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

Sample Location	Sampling Date	Arsenic	Lead	Total Chromium	Hexavalent Chromium	Field Turbidity (NTUs)
	Apr/May 1998	--	--	--	--	1.8
	Jul/Aug 1998	--	--	--	--	3.9
	Oct/Nov 1998	--	--	--	--	3.5
	Feb/Mar 1999	--	--	--	--	0.04
	May/June 1999	--	--	--	--	0.8
	Aug 1999	NS	NS	NS	NS	1.6
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/June 1999	--	--	--	--	2.2
	Aug 1999	NS	NS	NS	NS	1.9
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/June 1999	--	--	--	--	7.6
	Aug 1999	NS	NS	NS	NS	0.5
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/June 1999	--	--	--	--	3.3
	Aug 1999	NS	NS	NS	NS	1.9

TABLE 3-5

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

(concentrations in mg/L)

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

Sample Location	Sampling Date	Arsenic	Lead	Total Chromium	Hexavalent Chromium	Field Turbidity (NTUs)
MW-22⁽¹⁾						
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/June 1999	--	--	--	--	37.6
	Aug 1999	NS	NS	--	--	4.8
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/June 1999	--	--	--	--	4.5
	Aug 1999	NS	NS	--	--	8.5
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/June 1999	--	--	--	--	3.7
	Aug 1999	NS	NS	NS	NS	5.1
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/June 1999	--	--	--	--	4.1
	Aug 1999	NS	NS	NS	NS	2.8
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/June 1999	--	--	--	--	4.7
	Aug 1999	Not Sampled ⁽¹⁾				
MW-23⁽³⁾						
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

TABLE 3-5

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

(concentrations in mg/L)

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

Sample Location	Sampling Date	Arsenic	Lead	Total Chromium	Hexavalent Chromium	Field Turbidity (NTUs)
	Feb/Mar 1999	--	--	--	--	4.2
	May/Jun 1999	--	--	--	--	7.0
	Aug 1999	NS	NS	--	--	9.4
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	NS	NS	--	--	1.5
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	NS	NS	--	--	13.1
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	NS	NS	--	--	4.2
Screen 5	Sep/Oct 1997	--	--	--	--	1.8
	Jan/Feb 1998	--	--	--	--	1.8
	Apr/May 1998	--	--	--	--	2.4
	Jul/Aug 1998	--	--	--	--	1.7
	Oct/Nov 1998	--	--	--	--	2.5
	Feb/Mar 1999	--	--	--	--	3.2
	May/Jun 1999	--	--	--	--	2.4
	Aug 1999	NS	NS	NS	NS	1.7
MW-24⁽³⁾						
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	NS	NS	--	--	9.7
Screen 2	Sep/Oct 1997	--	--	--	--	4.4
	Jan/Feb 1998	--	--	--	--	4.9
	Apr/May 1998	--	--	--	--	4.5

TABLE 3-5

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

(concentrations in mg/L)

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

Sample Location	Sampling Date	Arsenic	Lead	Total Chromium	Hexavalent Chromium	Field Turbidity (NTUs)
	Jul/Aug 1998	--	--	--	--	4.8
	Oct/Nov 1998	--	--	--	--	8.3
	Feb/Mar 1999	--	--	--	--	4.2
	May/June 1999	--	--	--	--	5.4
	Aug 1999	NS	NS	--	--	33.8
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/June 1999	--	--	--	--	27.2
	Aug 1999	NS	NS	--	--	25.2
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/June 1999	--	--	--	--	10.0
	Aug 1999	NS	NS	--	--	10.5
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/June 1999	--	--	--	--	5.8
	Aug 1999	Not Sampled ⁽²⁾		--	--	
Practical Quantitation Limit		0.005	0.002	0.01	0.005	
Calif. Maximum Contaminant Level		0.05	(a)	0.05	NE	
EPA Maximum Contaminant Level		0.05	(a)	0.10	NE	

NE: Not established.

NS: Not sampled.

1: Wells not sampled due to changes to the sampling program as agreed to by EPA, DTSC, and RWQCB.

2: Believed to be a laboratory error.

3: Wells installed June-August 1997.

*: Not sampled, no water over screen.

a: Treatment technique and public notification triggered at 0.015 mg/L.

--: Not detected.

TABLE 4-1
GROUNDWATER MONITORING WELL WATER LEVEL MEASUREMENTS
July 29,1999

Well Number	Screen Number	Date Measured	Depth to Water (ft)	Reference Elevation (ft msl)	Water Level Elevation (ft msl)
<i>MW-1</i>		7/29/99	30.04	1116.69	1086.65
<i>MW-3</i>	1 (top)	7/29/99	116.43	1100.34	983.91
	2	7/29/99	118.91	1100.34	981.43
	3	7/29/99	118.98	1100.34	981.36
	4	7/29/99	133.06	1100.34	967.28
	5	7/29/99	144.25	1100.34	956.09
<i>MW-4</i>	1 (top)	7/29/99	94.30	1082.84	988.54
	2	7/29/99	98.33	1082.84	984.51
	3	7/29/99	98.58	1082.84	984.26
	4	7/29/99	100.61	1082.84	982.23
	5	7/29/99	114.10	1082.84	968.74
<i>MW-5</i>		7/29/99	83.13	1071.62	988.49
<i>MW-6</i>		7/29/99	189.67	1188.54	998.87
<i>MW-7</i>		7/29/99	222.36	1212.90	990.54
<i>MW-8</i>		7/29/99	148.12	1139.55	991.43
<i>MW-9</i>		7/29/99	23.15	1106.06	1082.91
<i>MW-10</i>		7/29/99	97.97	1087.73	989.76
<i>MW-11</i>	1 (top)	7/29/99	117.89	1139.30	1021.41
	2	7/29/99	146.40	1139.30	992.90
	3	7/29/99	153.94	1139.30	985.36
	4	7/29/99	159.14	1139.30	980.16
	5	7/29/99	172.23	1139.30	967.07
<i>MW-12</i>	1 (top)	7/29/99	109.73	1102.14	992.41
	2	7/29/99	116.29	1102.14	985.85
	3	7/29/99	117.31	1102.14	984.83
	4	7/29/99	119.80	1102.14	982.34
	5	7/29/99	132.23	1102.14	969.91
<i>MW-13</i>		7/29/99	191.95	1183.49	991.54

TABLE 4-1
GROUNDWATER MONITORING WELL WATER LEVEL MEASUREMENTS
July 29,1999

Well Number	Screen Number	Date Measured	Depth to Water (ft)	Reference Elevation (ft msl)	Water Level Elevation (ft msl)
MW-14	1 (top)	7/29/99	172.83	1173.47	1000.64
	2	7/29/99	174.34	1173.47	999.13
	3	7/29/99	174.70	1173.47	998.77
	4	7/29/99	174.76	1173.47	998.71
	5	7/29/99	175.22	1173.47	998.25
MW-15		7/29/99	35.50	1120.68	1085.18
MW-16		7/29/99	245.18	1236.29	991.11
MW-17	1 (top)	7/29/99	211.73	1191.21	979.48
	2	7/29/99	219.24	1191.21	971.97
	3	7/29/99	230.31	1191.21	960.90
	4	7/29/99	230.99	1191.21	960.22
	5	7/29/99	240.91	1191.21	950.30
MW-18	1 (top)	7/29/99	250.36	1225.41	975.05
	2	7/29/99	250.71	1225.41	974.70
	3	7/29/99	251.45	1225.41	973.96
	4	7/29/99	263.77	1225.41	961.64
	5	7/29/99	283.02	1225.41	942.39
MW-19	1 (top)	7/29/99	165.91	1142.94	977.03
	2	7/29/99	167.75	1142.94	975.19
	3	7/29/99	167.48	1142.94	975.46
	4	7/29/99	175.64	1142.94	967.30
	5	7/29/99	175.78	1142.94	967.16
MW-20	1 (top)	7/29/99	204.56	1165.05	960.49
	2	7/29/99	205.24	1165.05	959.81
	3	7/29/99	222.60	1165.05	942.45
	4	7/29/99	237.78	1165.05	927.27
	5	7/29/99	202.33	1165.05	962.72

TABLE 4-1
GROUNDWATER MONITORING WELL WATER LEVEL MEASUREMENTS
July 29, 1999

Well Number	Screen Number	Date Measured	Depth to Water (ft)	Reference Elevation (ft msl)	Water Level Elevation (ft msl)
MW-21	1 (top)	7/29/99	64.75	1059.10	994.35
	2	7/29/99	64.36	1059.10	994.74
	3	7/29/99	64.74	1059.10	994.36
	4	7/29/99	65.83	1059.10	993.27
	5	7/29/99	65.94	1059.10	993.16
MW-22	1 (top)	7/29/99	183.87	1176.98	993.11
	2	7/29/99	182.79	1176.98	994.19
	3	7/29/99	182.67	1176.98	994.31
	4	7/29/99	188.03	1176.98	988.95
	5	7/29/99	191.98	1176.98	985.00
MW-23	1 (top)	7/29/99	117.51	1108.84	991.33
	2	7/29/99	118.40	1108.84	990.44
	3	7/29/99	118.35	1108.84	990.49
	4	7/29/99	124.31	1108.84	984.53
	5	7/29/99	126.78	1108.84	982.06
MW-24	1 (top)	7/29/99	209.48	1200.94	991.46
	2	7/29/99	211.69	1200.94	989.25
	3	7/29/99	212.16	1200.94	988.78
	4	7/29/99	218.20	1200.94	982.74
	5	7/29/99	223.47	1200.94	977.47

TABLE 4-2
GROUNDWATER MONITORING WELL WATER LEVEL MEASUREMENTS
August 26,1999

Well Number	Screen Number	Date Measured	Depth to Water (ft)	Reference Elevation (ft msl)	Water Level Elevation (ft msl)
<i>MW-1</i>		8/26/99	31.34	1116.69	1085.35
<i>MW-3</i>	1 (top)	8/26/99	129.02	1100.34	971.32
	2	8/26/99	136.29	1100.34	964.05
	3	8/26/99	140.19	1100.34	960.15
	4	8/26/99	218.95	1100.34	881.39
	5	8/26/99	247.86	1100.34	852.48
<i>MW-4</i>	1 (top)	8/26/99	103.60	1082.84	979.24
	2	8/26/99	115.12	1082.84	967.72
	3	8/26/99	118.34	1082.84	964.50
	4	8/26/99	127.29	1082.84	955.55
	5	8/26/99	205.80	1082.84	877.04
<i>MW-5</i>		8/26/99	92.05	1071.62	979.57
<i>MW-6</i>		8/26/99	196.50	1188.54	992.04
<i>MW-7</i>		8/26/99	230.67	1212.90	982.23
<i>MW-8</i>		8/26/99	156.75	1139.55	982.80
<i>MW-9</i>		8/26/99	24.31	1106.06	1081.75
<i>MW-10</i>		8/26/99	106.29	1087.73	981.44
<i>MW-11</i>	1 (top)	8/26/99	121.21	1139.30	1018.09
	2	8/26/99	158.78	1139.30	980.52
	3	8/26/99	174.48	1139.30	964.82
	4	8/26/99	181.79	1139.30	957.51
	5	8/26/99	245.11	1139.30	894.19
<i>MW-12</i>	1 (top)	8/26/99	118.84	1102.14	983.30
	2	8/26/99	131.60	1102.14	970.54
	3	8/26/99	135.12	1102.14	967.02
	4	8/26/99	148.92	1102.14	953.22
	5	8/26/99	211.71	1102.14	890.43
<i>MW-13</i>		8/26/99	199.78	1183.49	983.71

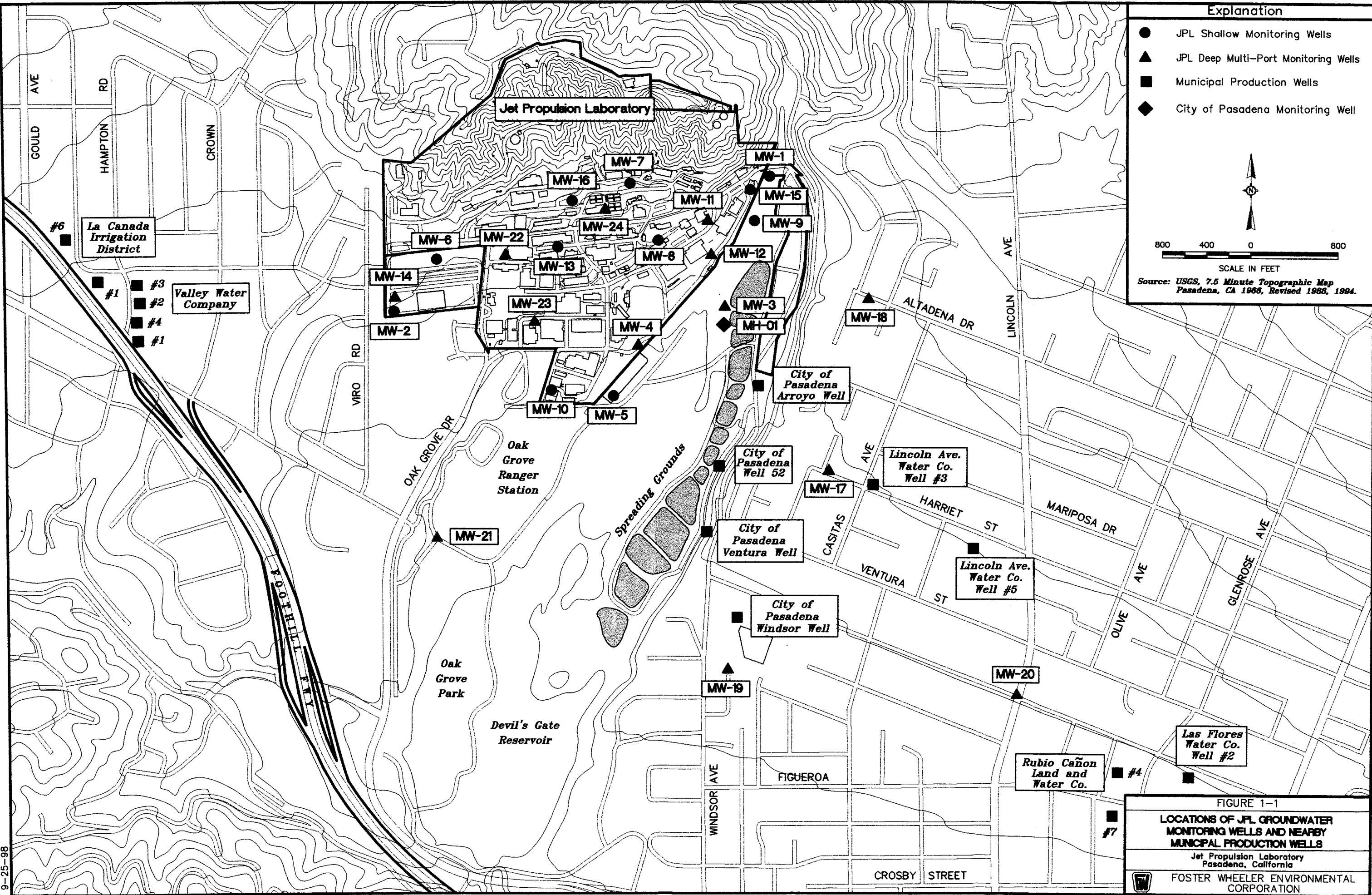
TABLE 4-2
GROUNDWATER MONITORING WELL WATER LEVEL MEASUREMENTS
August 26,1999

Well Number	Screen Number	Date Measured	Depth to Water (ft)	Reference Elevation (ft msl)	Water Level Elevation (ft msl)
MW-14	1 (top)	8/26/99	179.15	1173.47	994.32
	2	8/26/99	181.13	1173.47	992.34
	3	8/26/99	181.87	1173.47	991.60
	4	8/26/99	182.00	1173.47	991.47
	5	8/26/99	183.09	1173.47	990.38
MW-15		8/26/99	36.59	1120.68	1084.09
MW-16		8/26/99	253.02	1236.29	983.27
MW-17	1 (top)	8/26/99	220.29	1191.21	970.92
	2	8/26/99	236.07	1191.21	955.14
	3	8/26/99	253.45	1191.21	937.76
	4	8/26/99	303.80	1191.21	887.41
	5	8/26/99	312.80	1191.21	878.41
MW-18	1 (top)	8/26/99	258.62	1225.41	966.79
	2	8/26/99	260.77	1225.41	964.64
	3	8/26/99	267.70	1225.41	957.71
	4	8/26/99	299.33	1225.41	926.08
	5	8/26/99	314.93	1225.41	910.48
MW-19	1 (top)	8/26/99	177.34	1142.94	965.60
	2	8/26/99	194.38	1142.94	948.56
	3	8/26/99	200.65	1142.94	942.29
	4	8/26/99	298.56	1142.94	844.38
	5	8/26/99	302.11	1142.94	840.83
MW-20	1 (top)	8/26/99	212.24	1165.05	952.81
	2	8/26/99	214.38	1165.05	950.67
	3	8/26/99	242.78	1165.05	922.27
	4	8/26/99	250.03	1165.05	915.02
	5	8/26/99	210.19	1165.05	954.86

TABLE 4-2
GROUNDWATER MONITORING WELL WATER LEVEL MEASUREMENTS
August 26,1999

Well Number	Screen Number	Date Measured	Depth to Water (ft)	Reference Elevation (ft msl)	Water Level Elevation (ft msl)
MW-21	1 (top)	8/26/99	71.38	1059.10	987.72
	2	8/26/99	72.05	1059.10	987.05
	3	8/26/99	73.01	1059.10	986.09
	4	8/26/99	74.46	1059.10	984.64
	5	8/26/99	74.51	1059.10	984.59
MW-22	1 (top)	8/26/99	191.97	1176.98	985.01
	2	8/26/99	194.89	1176.98	982.09
	3	8/26/99	194.69	1176.98	982.29
	4	8/26/99	213.43	1176.98	963.55
	5	8/26/99	211.50	1176.98	965.48
MW-23	1 (top)	8/26/99	No Data	1108.84	No Data
	2	8/26/99	131.55	1108.84	977.29
	3	8/26/99	132.21	1108.84	976.63
	4	8/26/99	154.94	1108.84	953.90
	5	8/26/99	155.08	1108.84	953.76
MW-24	1 (top)	8/26/99	217.91	1200.94	983.03
	2	8/26/99	225.15	1200.94	975.79
	3	8/26/99	228.19	1200.94	972.75
	4	8/26/99	253.59	1200.94	947.35
	5	8/26/99	277.07	1200.94	923.87

FIGURES



Explanation

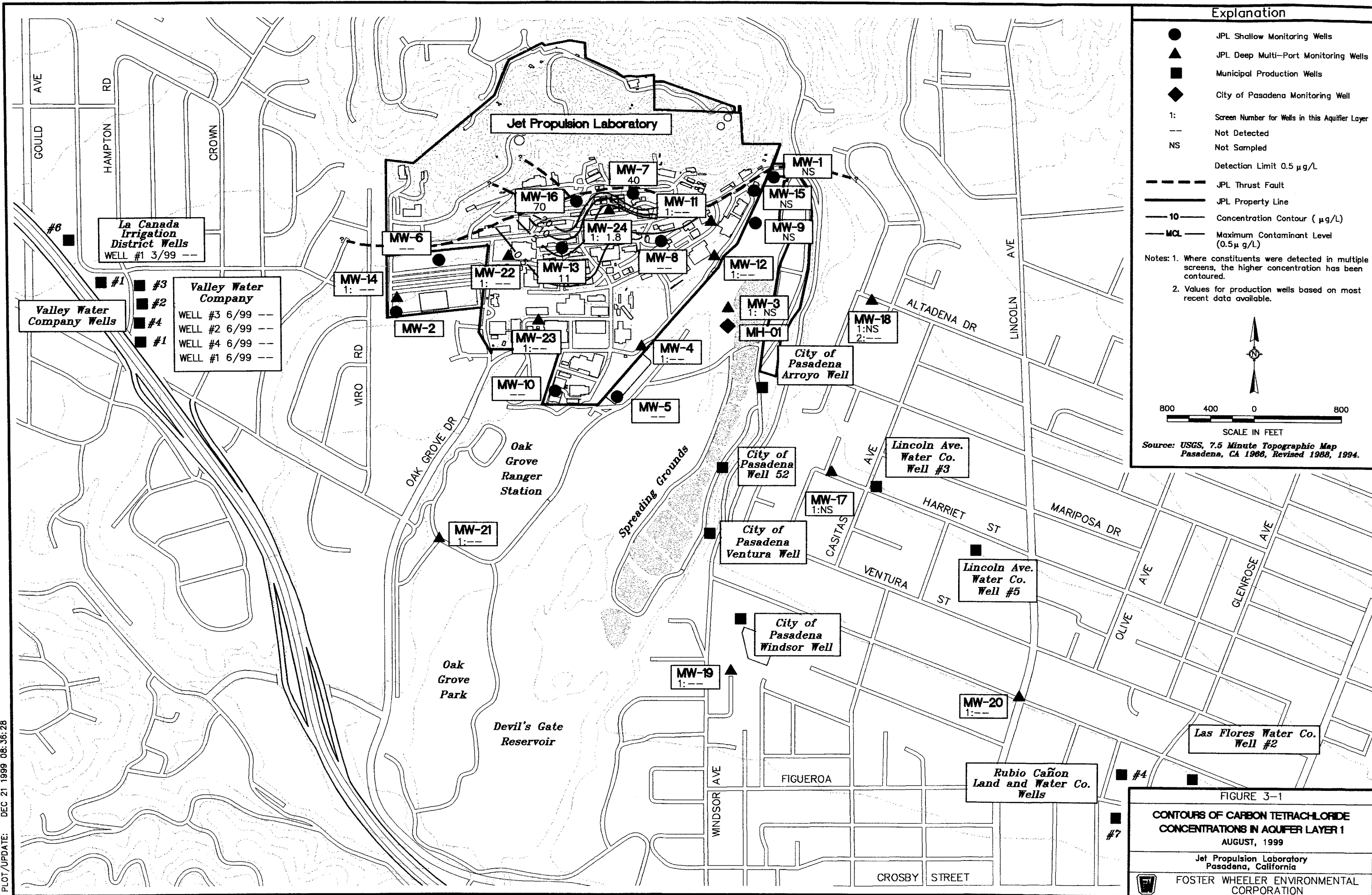
- JPL Shallow Monitoring Wells
- ▲ JPL Deep Multi-Port Monitoring Wells
- Municipal Production Wells
- ◆ City of Pasadena Monitoring Well

800 400 0 800
SCALE IN FEET

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

FIGURE 1-1
LOCATIONS OF JPL GROUNDWATER MONITORING WELLS AND NEARBY MUNICIPAL PRODUCTION WELLS
 Jet Propulsion Laboratory
 Pasadena, California
 FOSTER WHEELER ENVIRONMENTAL CORPORATION

I:\1572-JPL\DWG\001-003\QUARTER\993\FIG3-1.DWG
 PLOT/UPDATE: DEC 21 1999 08:36:28



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
- NS Not Sampled
- Detection Limit 0.5 µg/L
- - - - - JPL Thrust Fault
- JPL Property Line
- 10— Concentration Contour (µg/L)
- MCL— Maximum Contaminant Level (0.5µg/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.

800 400 0 800
SCALE IN FEET

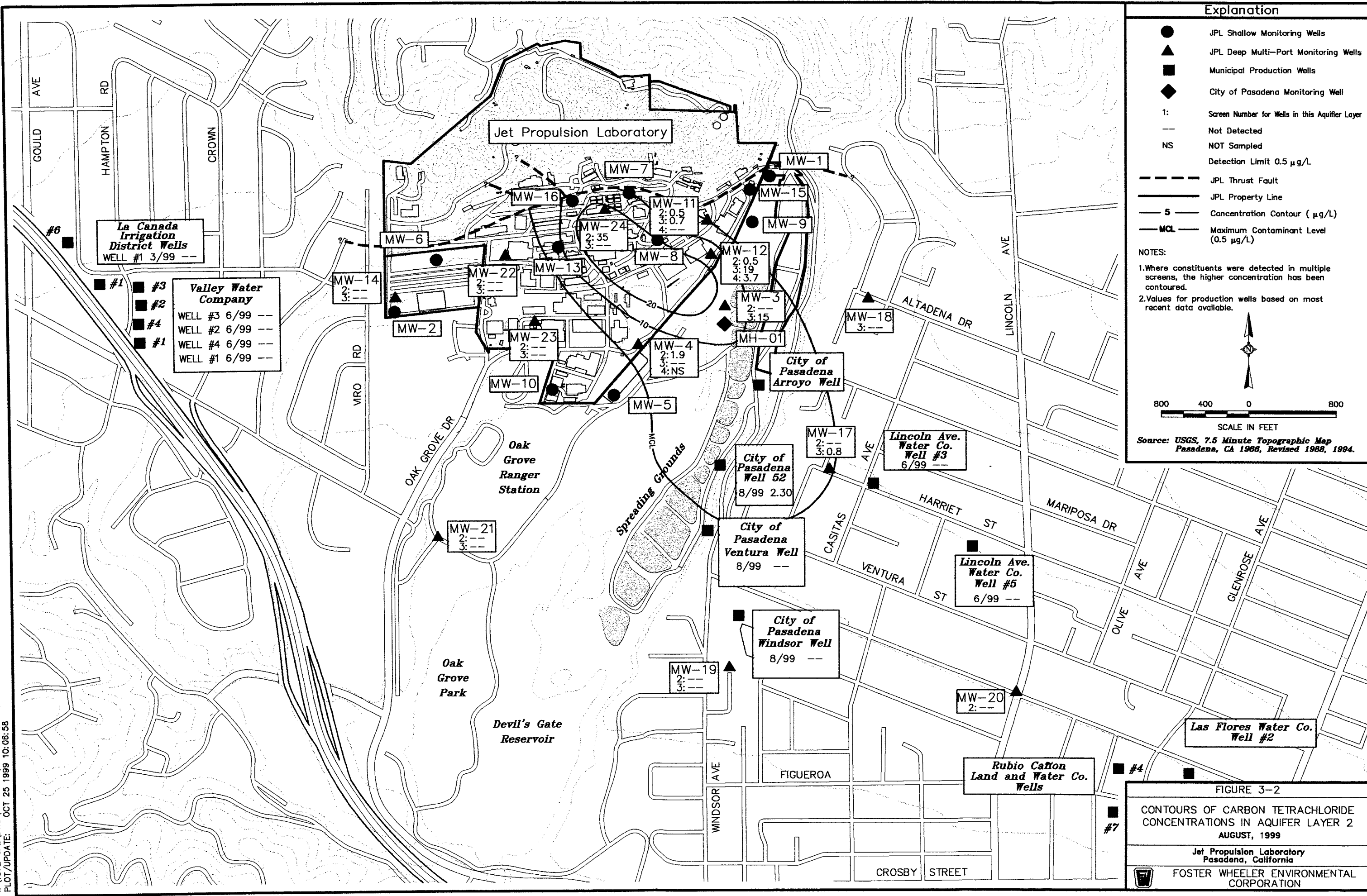
Source: USGS, 7.5 Minute Topographic Map Pasadena, CA 1966, Revised 1988, 1994.

FIGURE 3-1
CONTOURS OF CARBON TETRACHLORIDE CONCENTRATIONS IN AQUIFER LAYER 1
 AUGUST, 1999

Jet Propulsion Laboratory
 Pasadena, California

FOSTER WHEELER ENVIRONMENTAL CORPORATION

I:\1572-JPL\DWG\01-OU3\QUARTER\993\FIG3-2.DWG
 PLOT/UPDATE: OCT 25 1999 10:06:58



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
- NS NOT Sampled
- Detection Limit 0.5 µg/L
- JPL Thrust Fault
- JPL Property Line
- 5 Concentration Contour (µg/L)
- MCL Maximum Contaminant Level (0.5 µg/L)

NOTES:

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

SCALE IN FEET

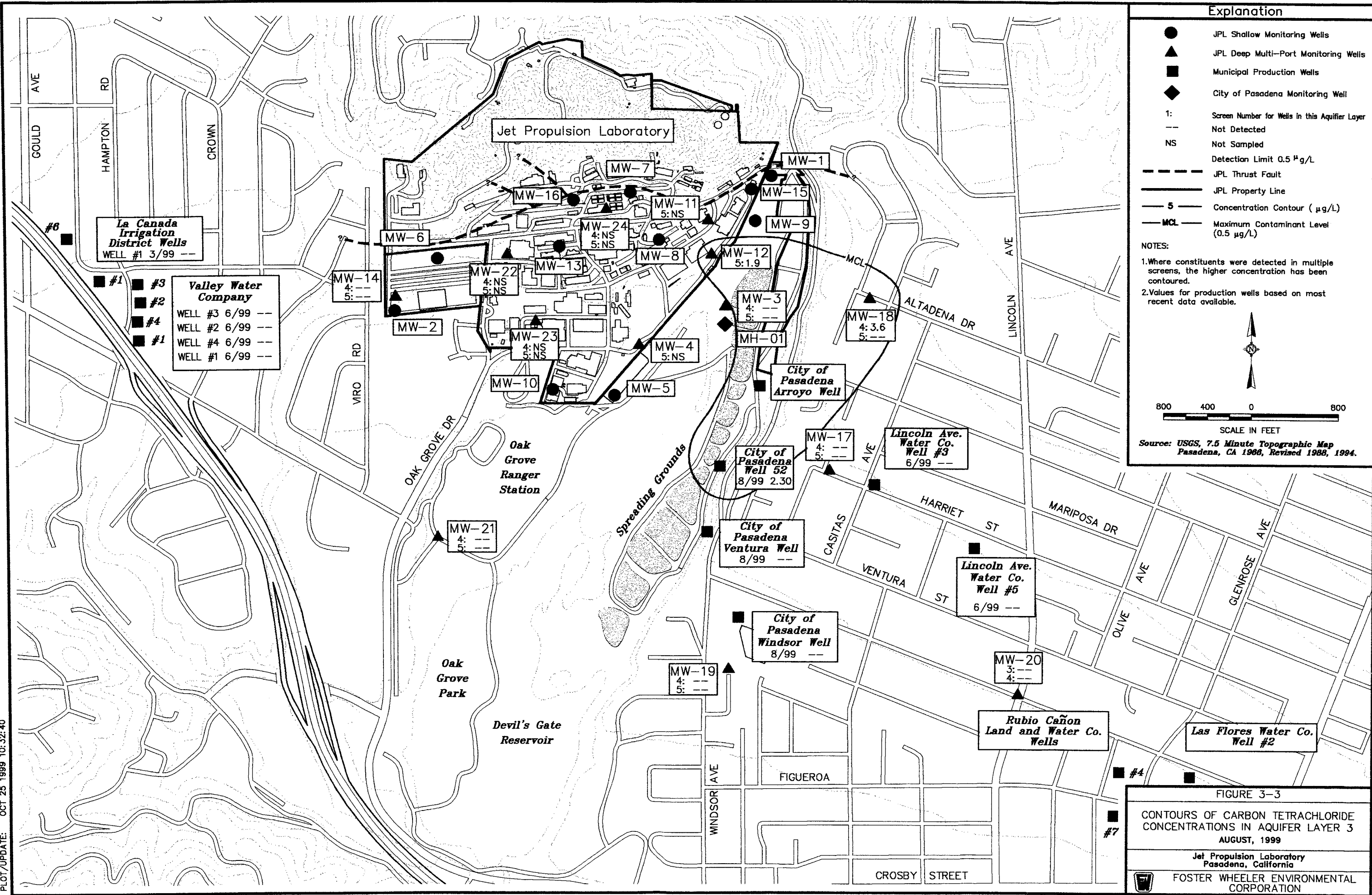
Source: USGS, 7.5 Minute Topographic Map Pasadena, CA 1986, Revised 1988, 1994.

FIGURE 3-2
 CONTOURS OF CARBON TETRACHLORIDE CONCENTRATIONS IN AQUIFER LAYER 2 AUGUST, 1999

Jet Propulsion Laboratory
 Pasadena, California

FOSTER WHEELER ENVIRONMENTAL CORPORATION

I:\1572-JPL\DWG\OU1-OU3\QUARTER_993\FIG3-3.DWG
 PLOT/UPDATE: OCT 25 1999 10:32:40



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
- NS Not Sampled
- - - - - Detection Limit 0.5 µg/L
- - - - - JPL Thrust Fault
- - - - - JPL Property Line
- 5 - Concentration Contour (µg/L)
- MCL - Maximum Contaminant Level (0.5 µg/L)

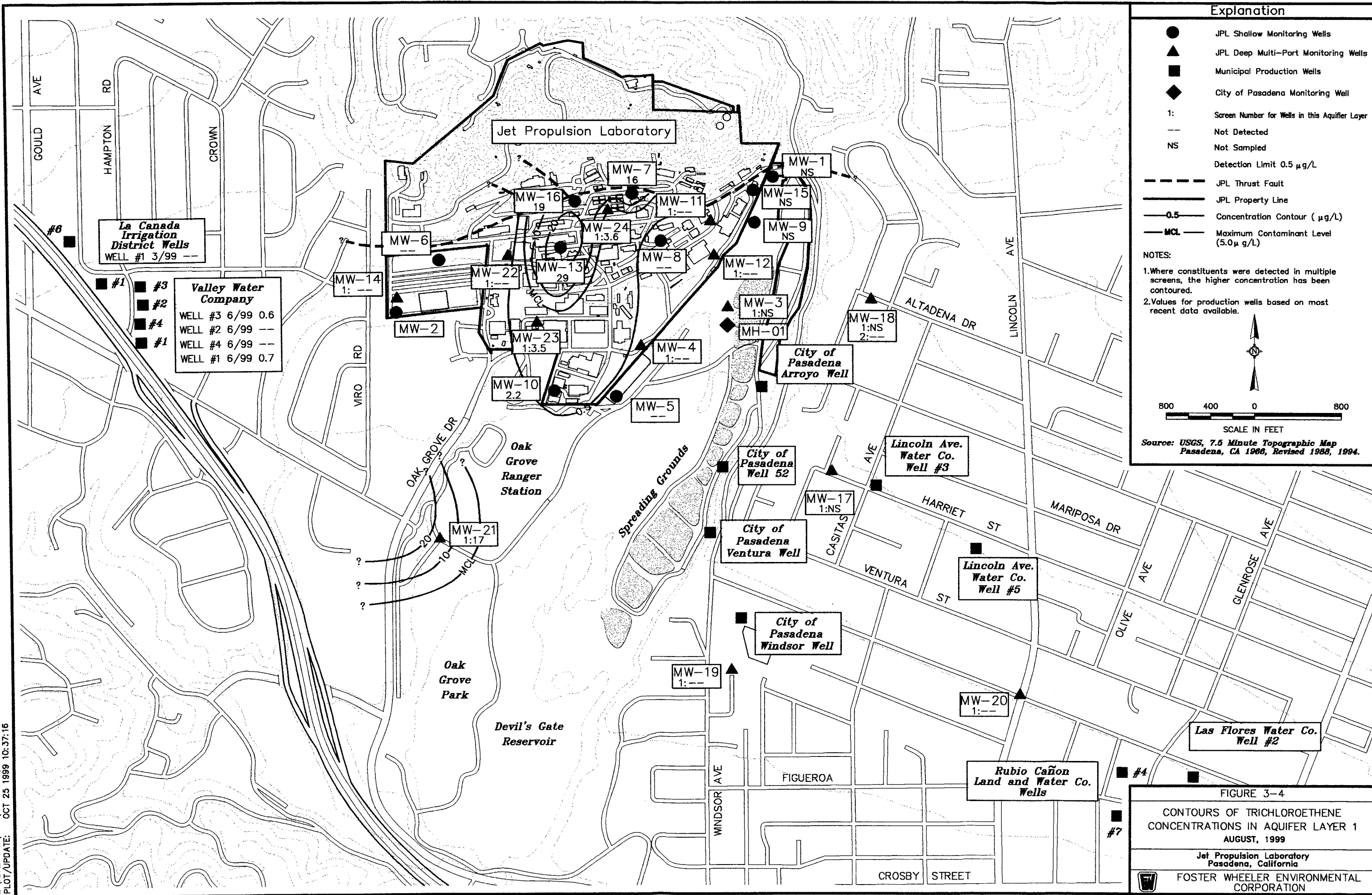
NOTES:

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

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 AUGUST, 1999
 Jet Propulsion Laboratory Pasadena, California
 FOSTER WHEELER ENVIRONMENTAL CORPORATION

I:\1572-JPL\DWG\01-003\QUARTER 993\FIG3-4.DWG
 PLOT/UPDATE: OCT 25 1999 10:37:16

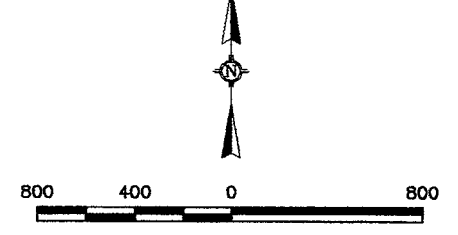


Explanation

- 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
- NS Not Sampled
- 0.5 Detection Limit 0.5 µg/L

- JPL Thrust Fault
- JPL Property Line
- 0.5 Concentration Contour (µg/L)
- MCL Maximum Contaminant Level (5.0µg/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.



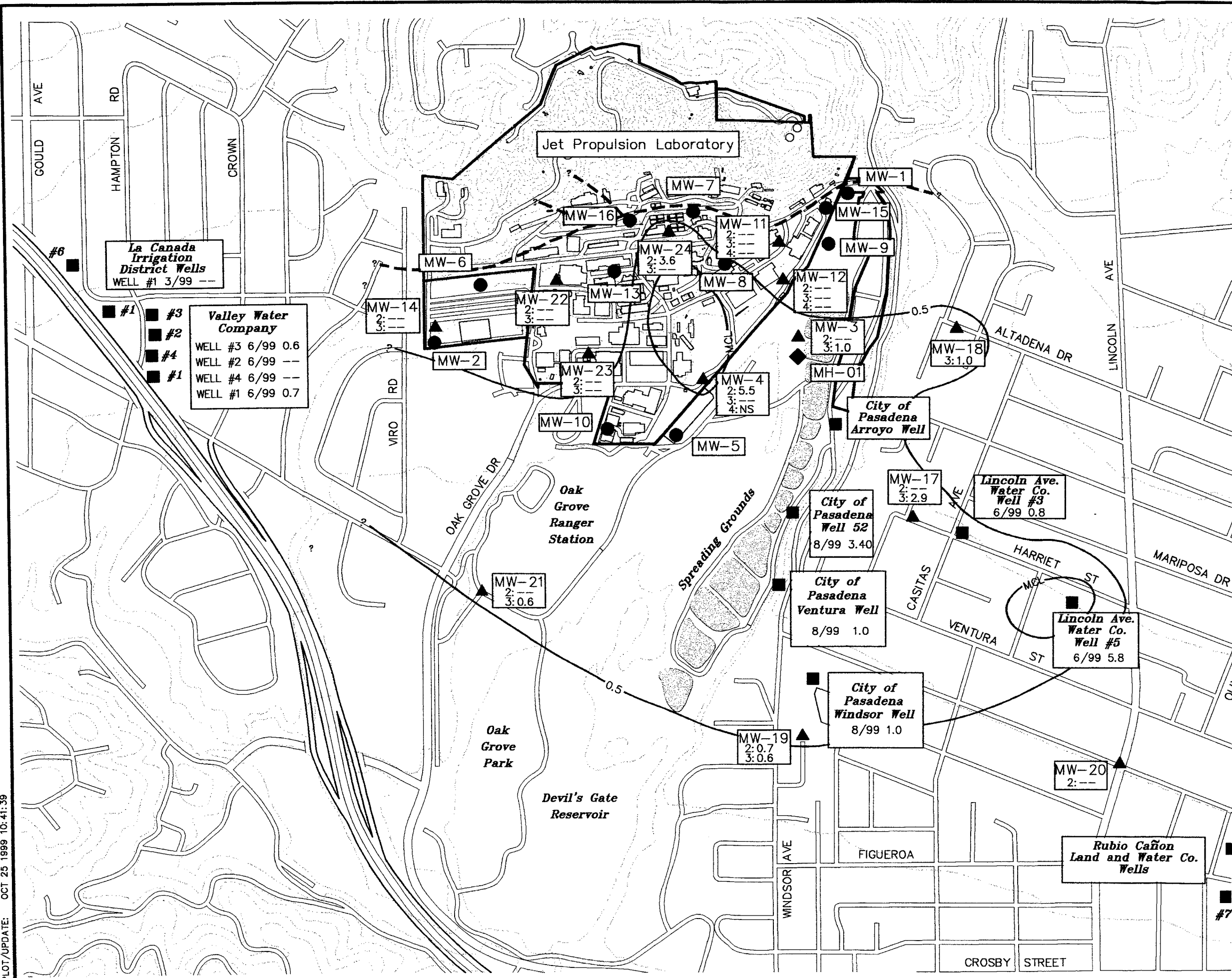
Source: USGS, 7.5 Minute Topographic Map Pasadena, CA 1966, Revised 1988, 1994.

FIGURE 3-4

CONTOURS OF TRICHLOROETHENE CONCENTRATIONS IN AQUIFER LAYER 1 AUGUST, 1999

Jet Propulsion Laboratory Pasadena, California
 FOSTER WHEELER ENVIRONMENTAL CORPORATION

I:\1572-JPL_DWG\01-003\QUARTER\993\FIG3-5.DWG
 PLOT/UPDATE: OCT 25 1999 10:41:39



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
- NS Not Sampled
- 0.5 Detection Limit 0.5 µg/L
- JPL Thrust Fault
- JPL Property Line
- 0.5 Concentration Contour (µg/L)
- MCL Maximum Contaminant Level (5.0 µg/L)

NOTES:

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

800 400 0 800
SCALE IN FEET

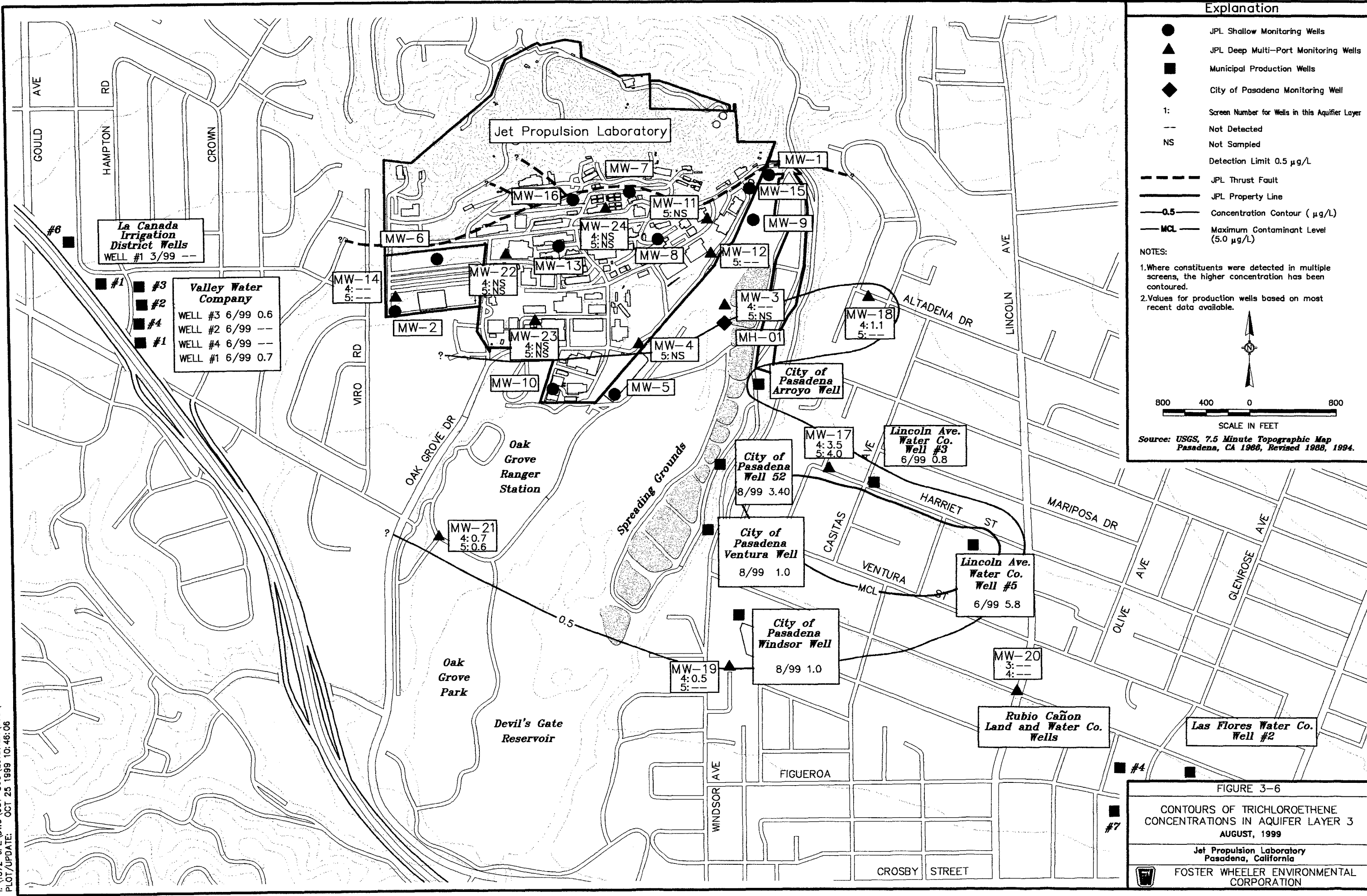
Source: USGS, 7.5 Minute Topographic Map Pasadena, CA 1986, Revised 1988, 1994.

FIGURE 3-5
 CONTOURS OF TRICHLOROETHENE
 CONCENTRATIONS IN AQUIFER LAYER 2
 AUGUST, 1999

Jet Propulsion Laboratory
 Pasadena, California

FOSTER WHEELER ENVIRONMENTAL
 CORPORATION

I:\1572-JPL\DWG\01-OU3\QUARTER 993\FIC3-6.DWG
 PLOT/UPDATE: OCT 25 1999 10:46:06



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
- NS Not Sampled
- - - - - Detection Limit 0.5 µg/L
- - - - - JPL Thrust Fault
- JPL Property Line
- 0.5— Concentration Contour (µg/L)
- MCL— Maximum Contaminant Level (5.0 µg/L)

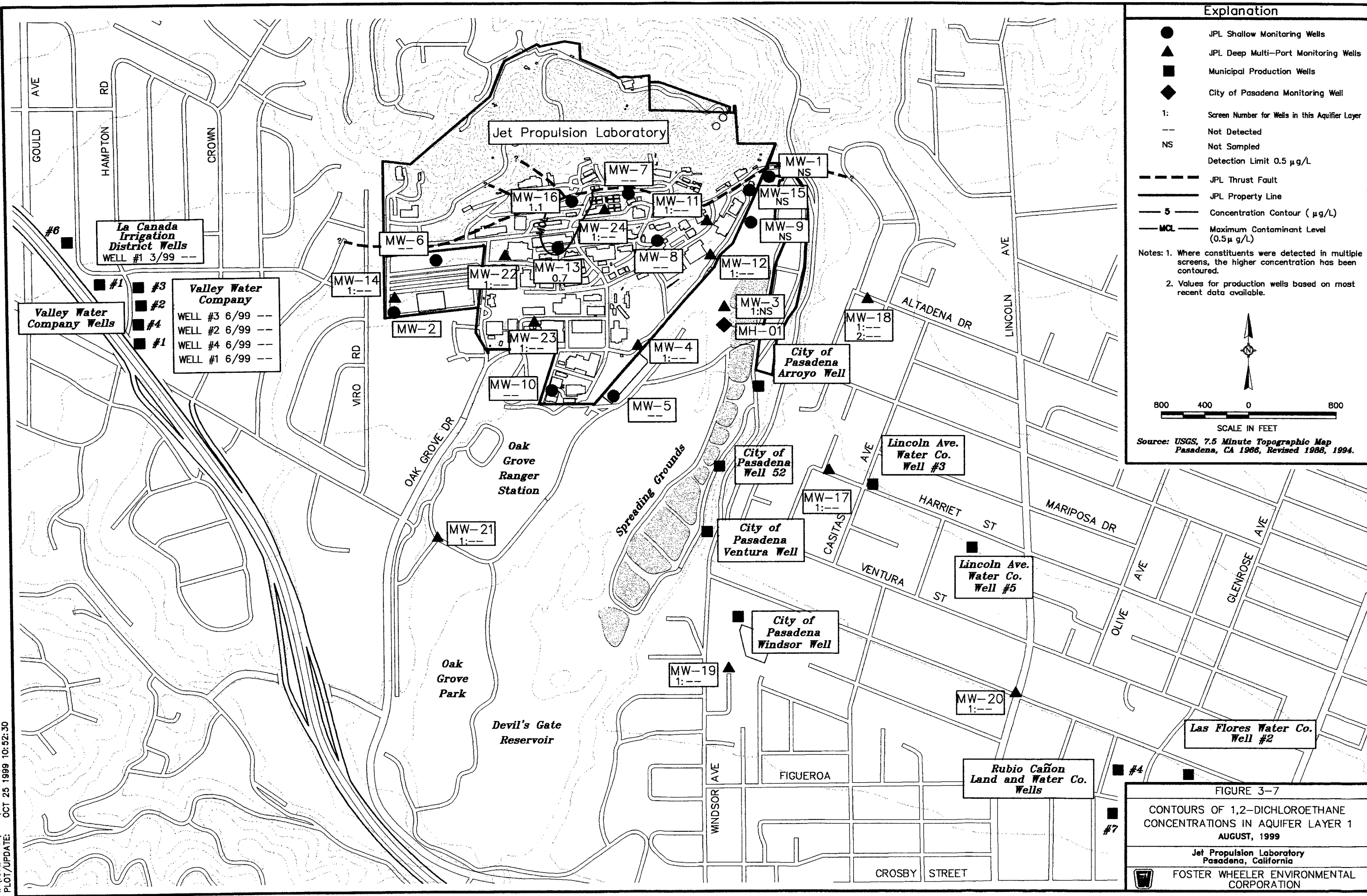
NOTES:

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.

800 400 0 800
 SCALE IN FEET
 Source: USGS, 7.5 Minute Topographic Map Pasadena, CA 1988, Revised 1988, 1994.

FIGURE 3-6
 CONTOURS OF TRICHLOROETHENE
 CONCENTRATIONS IN AQUIFER LAYER 3
 AUGUST, 1999
 Jet Propulsion Laboratory
 Pasadena, California
 FOSTER WHEELER ENVIRONMENTAL
 CORPORATION

I:\1572-JPL\DWG\01-003\QUARTER\993\FIG3--7.DWG
 PLOT/UPDATE: OCT 25 1999 10:52:30



Explanation

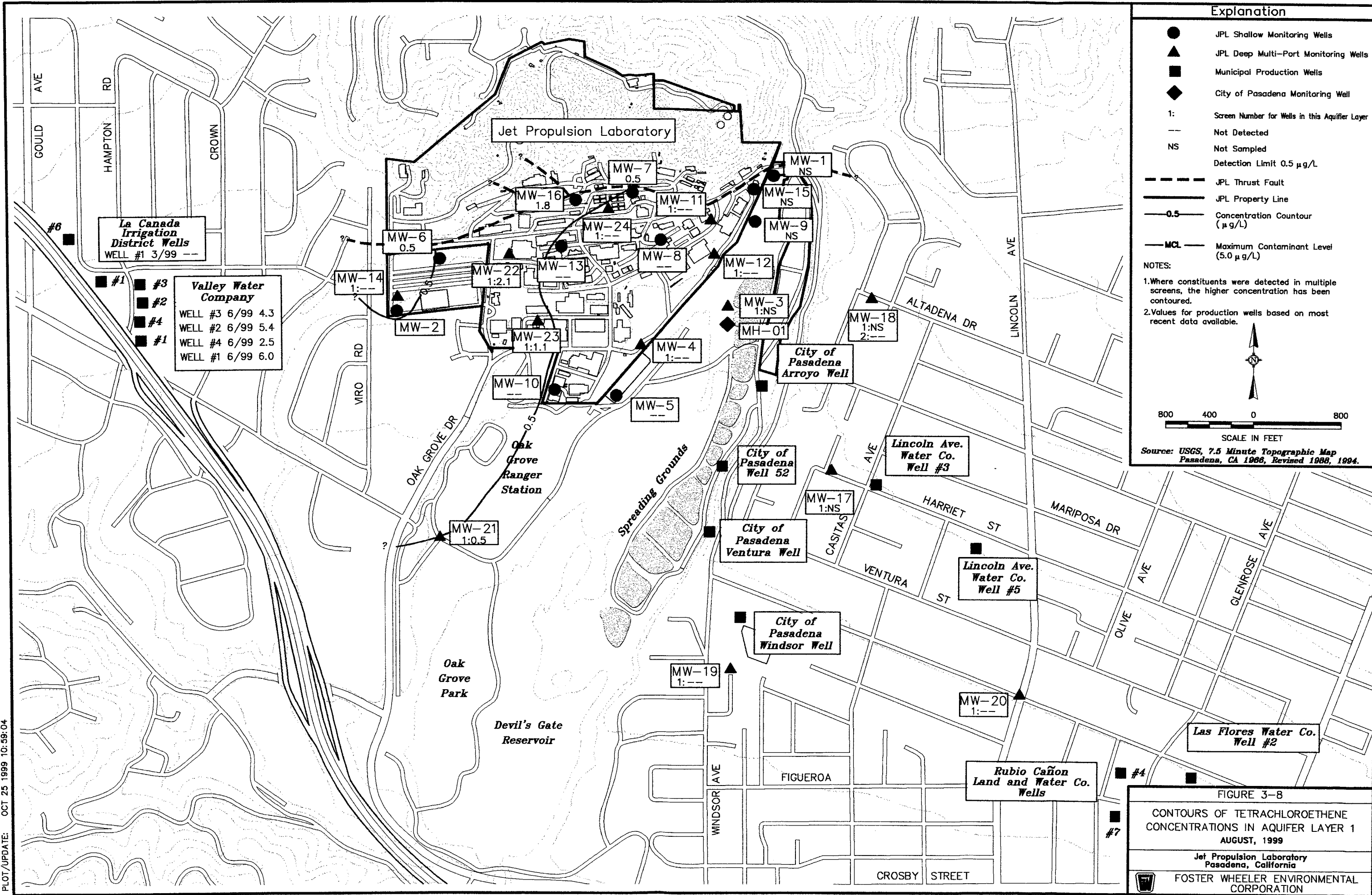
- JPL Shallow Monitoring Wells
- ▲ JPL Deep Multi-Port Monitoring Wells
- Municipal Production Wells
- ◆ City of Pasadena Monitoring Well
- 1: Screen Number for Wells in this Aquifer Layer
- Not Detected
- NS Not Sampled
- 0.5 μg/L Detection Limit
- JPL Thrust Fault
- JPL Property Line
- 5 Concentration Contour (μg/L)
- MCL Maximum Contaminant Level (0.5 μg/L)

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

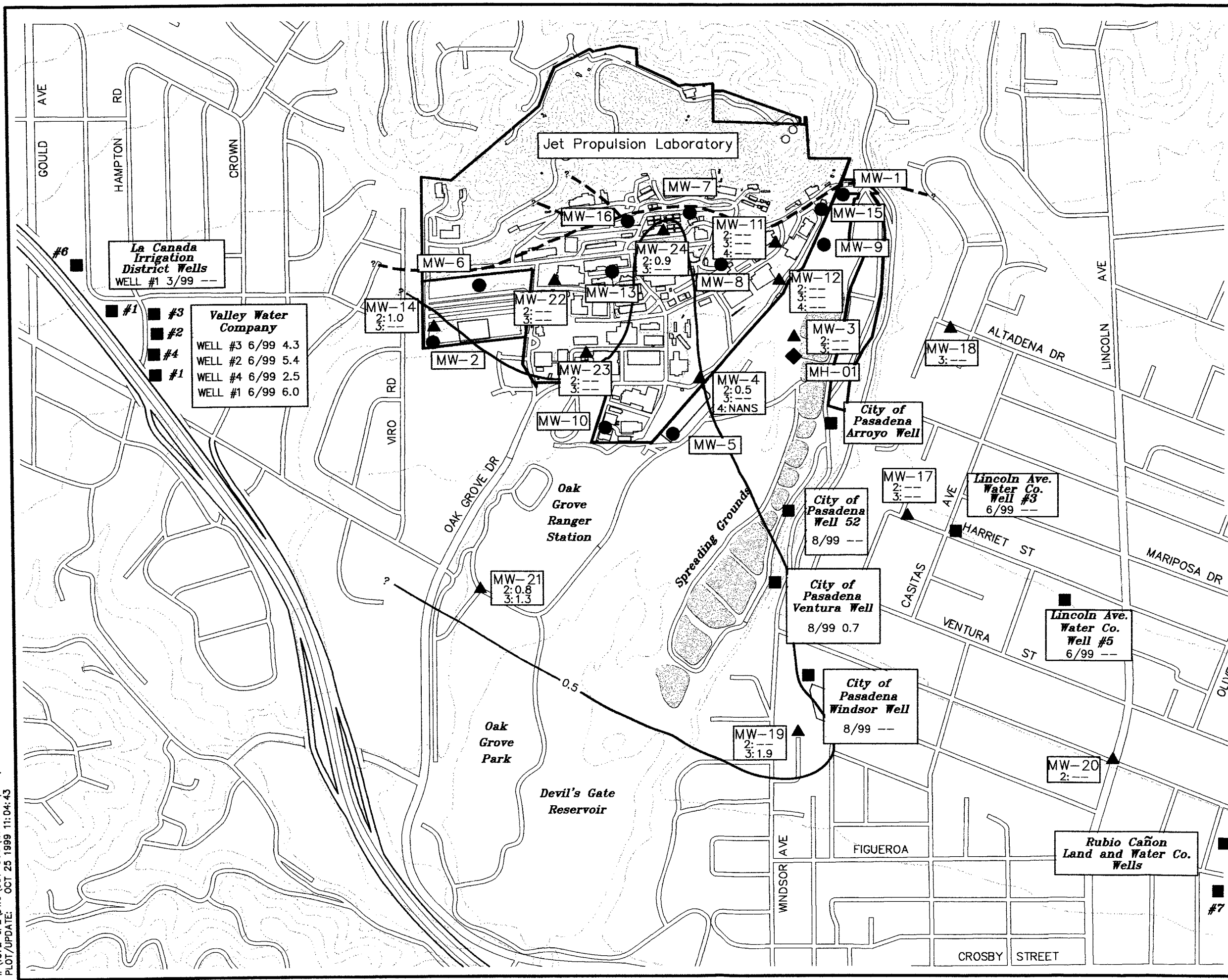
800 400 0 800
 SCALE IN FEET
 Source: USGS, 7.5 Minute Topographic Map Pasadena, CA 1986, Revised 1988, 1994.

FIGURE 3-7
 CONTOURS OF 1,2-DICHLOROETHANE
 CONCENTRATIONS IN AQUIFER LAYER 1
 AUGUST, 1999
 Jet Propulsion Laboratory
 Pasadena, California
 FOSTER WHEELER ENVIRONMENTAL
 CORPORATION

I:\1572-JPL\DWG\001-003\QUARTER 993\FIG3-8.DWG
 PLOT/UPDATE: OCT 25 1999 10:59:04



I:\1572-JPL\DWG\01-003\QUARTER\993\FIG3-9.DWG
 PLOT/UPDATE: OCT 25 1999 11:04:43



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
- NA Not Analyzed
- NS Not Sampled
- Detection Limit 0.5 µg/L
- JPL Thrust Fault
- JPL Property Line
- 0.5— Concentration Contour (µg/L)
- MCL— Maximum Contaminant Level (5.0 µg/L)

NOTES:

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

800 400 0 800
SCALE IN FEET

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

FIGURE 3-9

CONTOURS OF TETRACHLOROETHENE CONCENTRATIONS IN AQUIFER LAYER 2 AUGUST, 1999

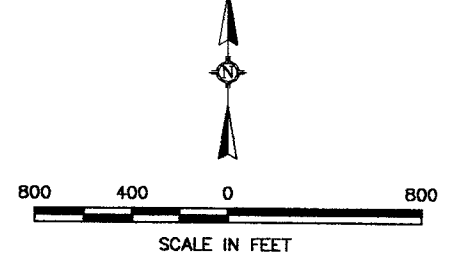
Jet Propulsion Laboratory
Pasadena, California

FOSTER WHEELER ENVIRONMENTAL CORPORATION

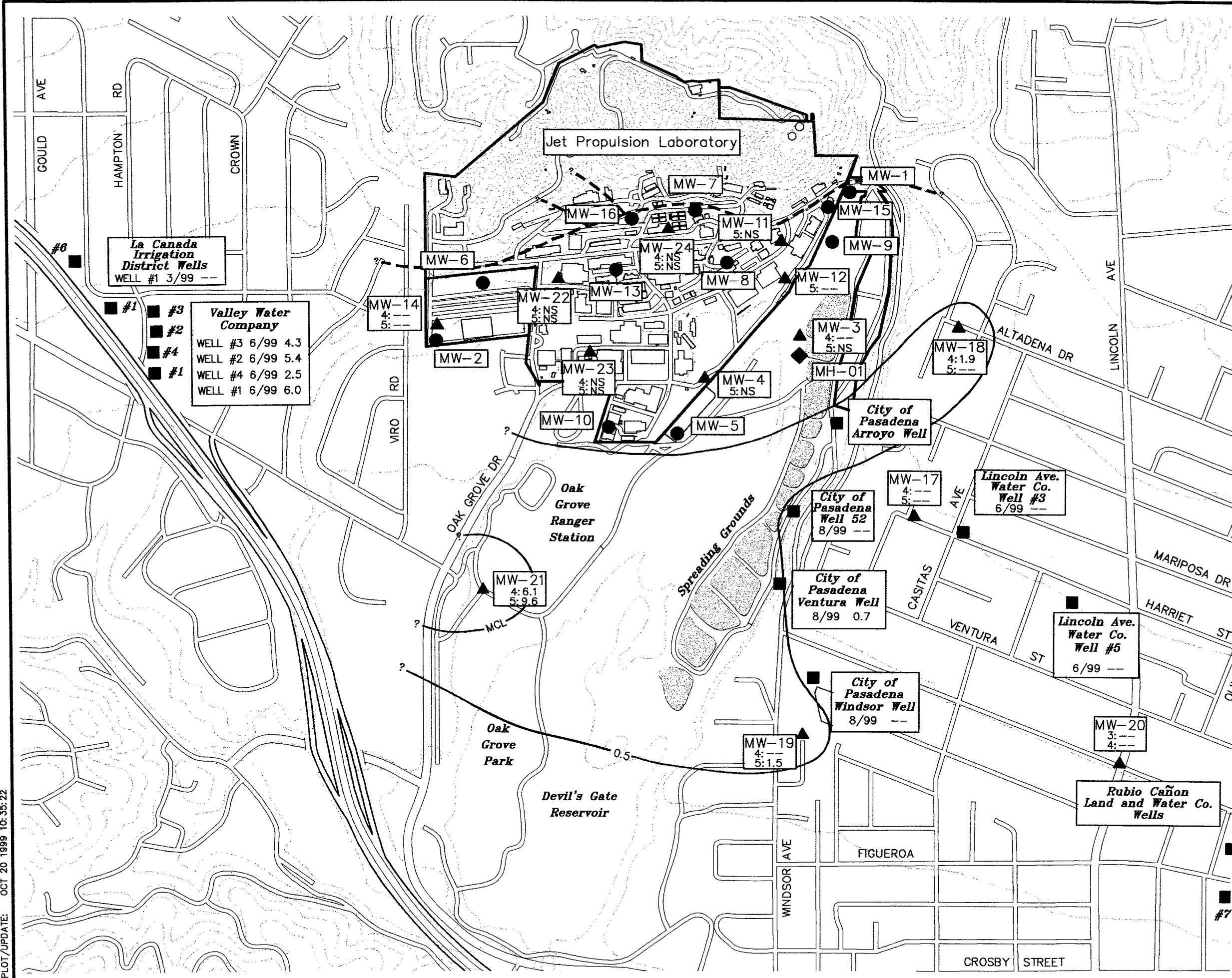
Explanation

- 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
- NS Not Sampled
- - - - - Detection Limit 0.5 µg/L
- - - - - JPL Thrust Fault
- JPL Property Line
- 0.5— Concentration Contour (µg/L)
- MCL— Maximum Contaminant Level (5.0 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.



Source: USGS, 7.5 Minute Topographic Map Pasadena, CA 1986, Revised 1988, 1994.



La Canada Irrigation District Wells
 WELL #1 3/99 ---

Valley Water Company
 #3
 WELL #3 6/99 4.3
 #2
 WELL #2 6/99 5.4
 #4
 WELL #4 6/99 2.5
 #1
 WELL #1 6/99 6.0

MW-21
 4: 6.1
 5: 9.6

MW-19
 4: ---
 5: 1.5

City of Pasadena Ventura Well
 8/99 0.7

City of Pasadena Windsor Well
 8/99 ---

City of Pasadena Well 52
 8/99 ---

Lincoln Ave. Water Co. Well #3
 6/99 ---

Lincoln Ave. Water Co. Well #5
 6/99 ---

MW-20
 3: ---
 4: ---

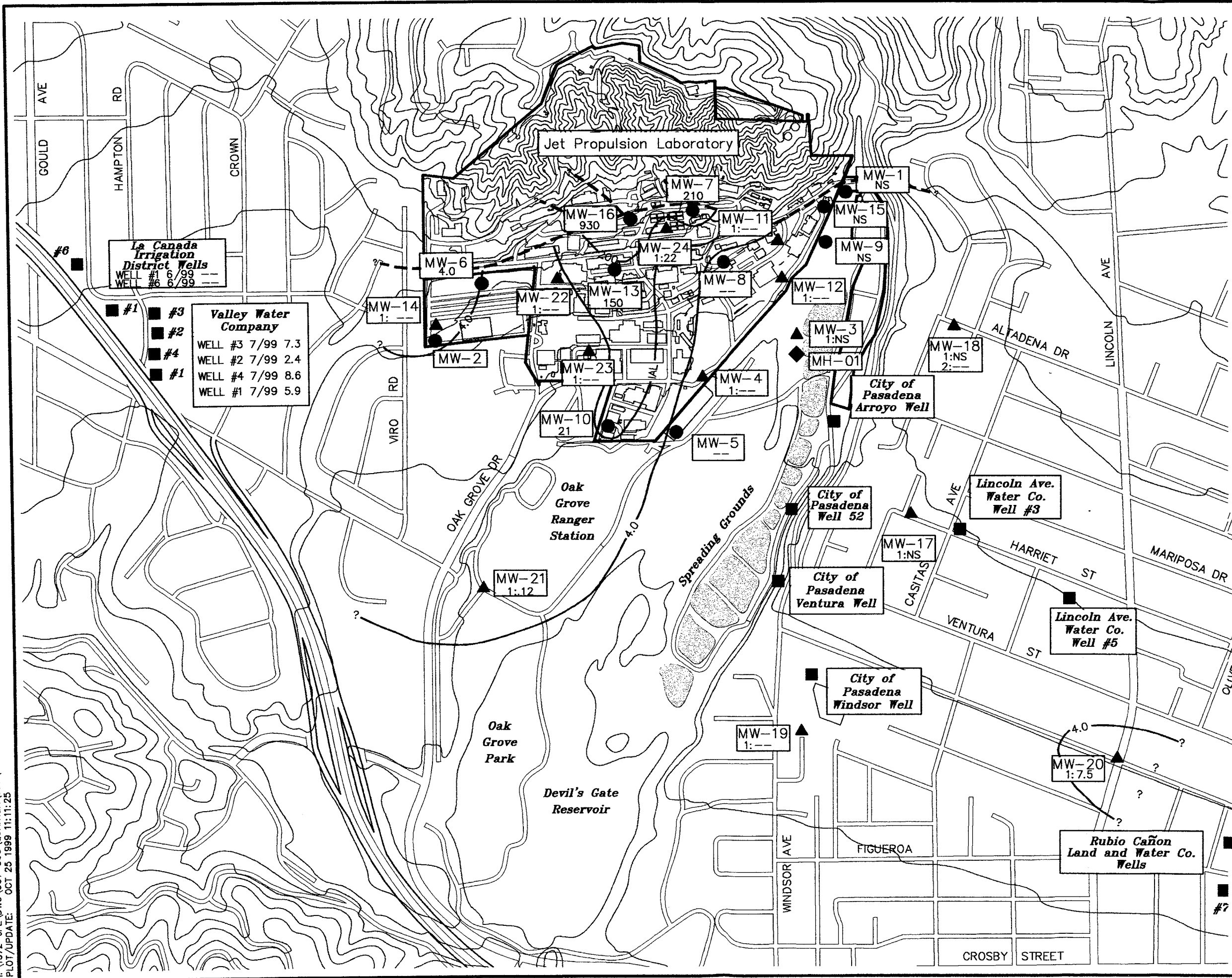
Rubio Cañon Land and Water Co. Wells

Las Flores Water Co. Well #2

FIGURE 3-10
 CONTOURS OF TETRACHLOROETHENE CONCENTRATIONS IN AQUIFER LAYER 3
 AUGUST, 1999
 Jet Propulsion Laboratory
 Pasadena, California
 FOSTER WHEELER ENVIRONMENTAL CORPORATION

I:\1572-JPL\DWG\001-003\QUARTER_993\FIG3-10.DWG
 PLOT/UPDATE: OCT 20 1999 10:35:22

I:\1572-JPL\DWG\OUT-OUT\QUARTER\993\FIG3-11.DWG
 PLOT/UPDATE: OCT 25 1999 11:11:25



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
- NS Not Sampled
- 4.0 Detection Limit 4.0 µg/L
- JPL Thrust Fault
- JPL Property Line
- 4.0 Concentration Contour (µg/L)
- IAL Interim Action Level (18 µg/L)

NOTES:

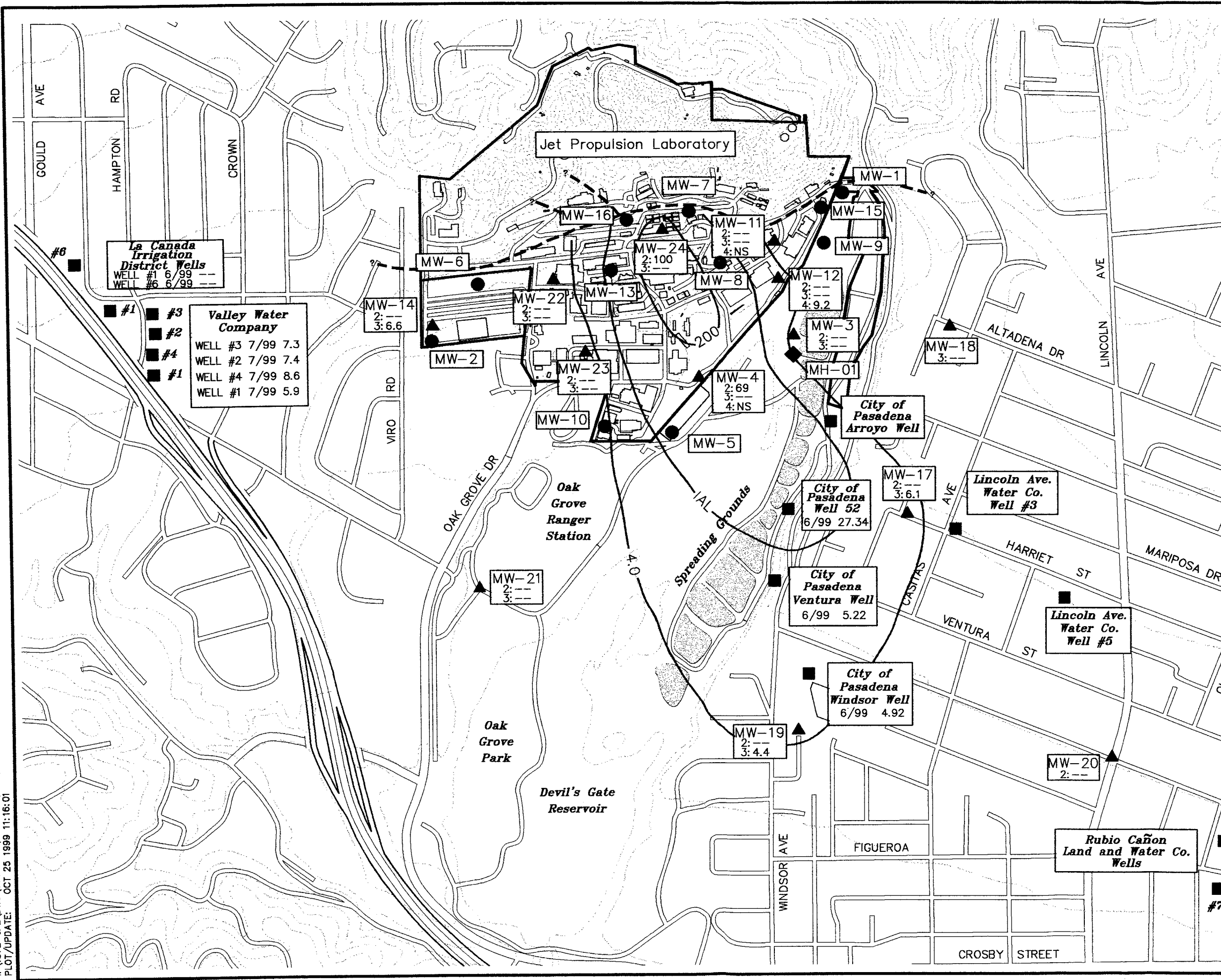
- Where constituents were detected in multiple screens, the higher concentration has been contoured.
- Values for production wells based on most recent data available.

800 400 0 800
SCALE IN FEET

Source: USGS, 7.5 Minute Topographic Map Pasadena, CA 1986, Revised 1988, 1994.

FIGURE 3-11
 CONTOURS OF PERCHLORATE
 CONCENTRATIONS IN AQUIFER LAYER 1
 AUGUST, 1999
 Jet Propulsion Laboratory
 Pasadena, California
 FOSTER WHEELER ENVIRONMENTAL
 CORPORATION

I:\1572-JPL\DWG\01-OU3\QUARTER\993\FIG3-12.DWG
 PLOT/UPDATE: OCT 25 1999 11:16:01



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
- NS Not Sampled
- 4.0 Detection Limit 4.0 µg/L
- JPL Thrust Fault
- JPL Property Line
- 4.0 Concentration Contour (µg/L)
- 18.0 Interim Action Level (18 µg/L)

NOTES:

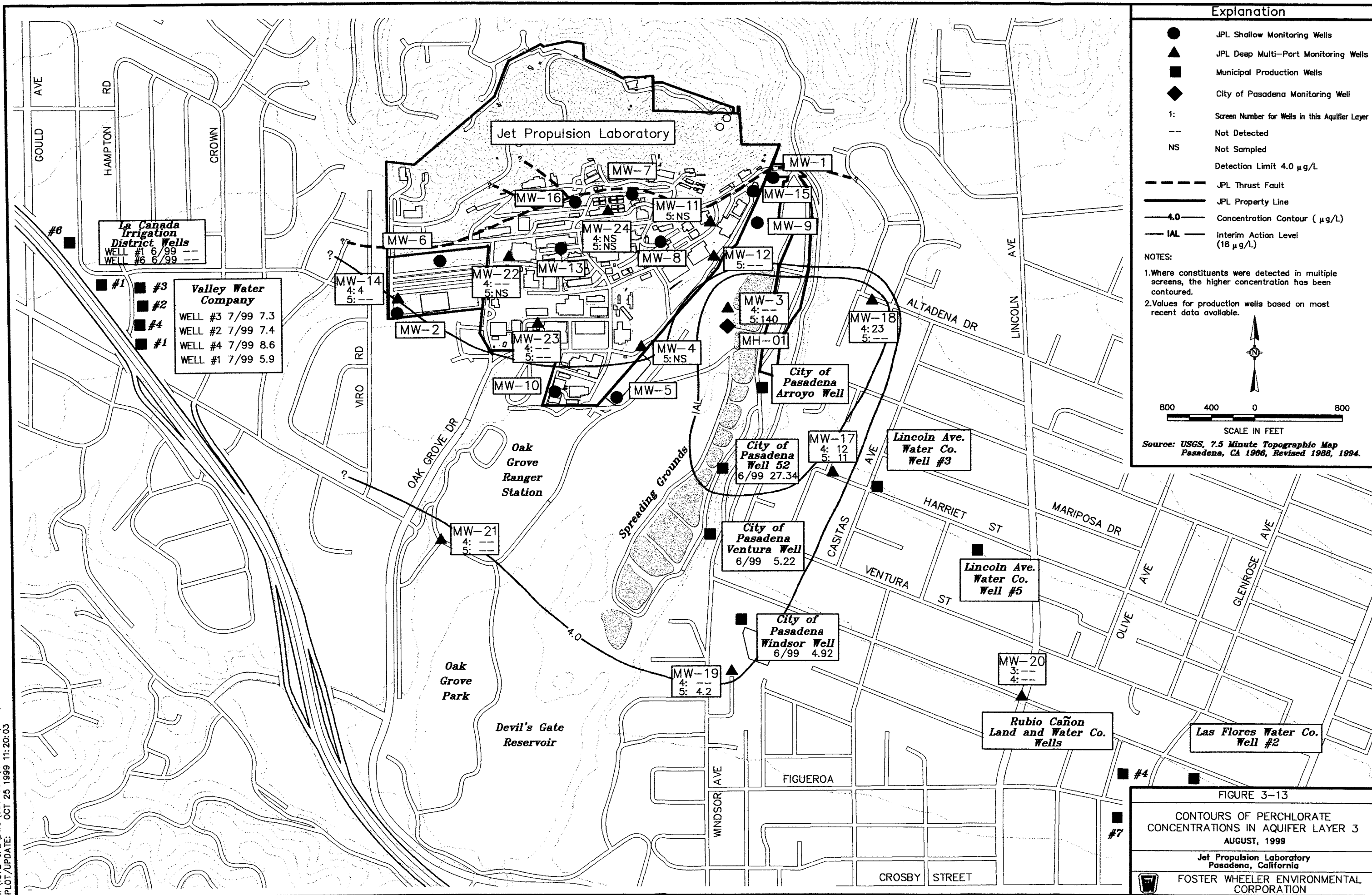
- Where constituents were detected in multiple screens, the higher concentration has been contoured.
- Values for production wells based on most recent data available.

800 400 0 800
SCALE IN FEET

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

FIGURE 3-12
 CONTOURS OF PERCHLORATE
 CONCENTRATIONS IN AQUIFER LAYER 2
 AUGUST, 1999
 Jet Propulsion Laboratory
 Pasadena, California
 FOSTER WHEELER ENVIRONMENTAL
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I:\1572-JPL\DWG\OU1-OU3\QUARTER 993\FIG3-13.DWG
 PLOT/UPDATE: OCT 25 1999 11:20:03



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
- NS Not Sampled
- Detection Limit 4.0 µg/L
- JPL Thrust Fault
- JPL Property Line
- 4.0 Concentration Contour (µg/L)
- IAL Interim Action Level (18 µg/L)

NOTES:

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

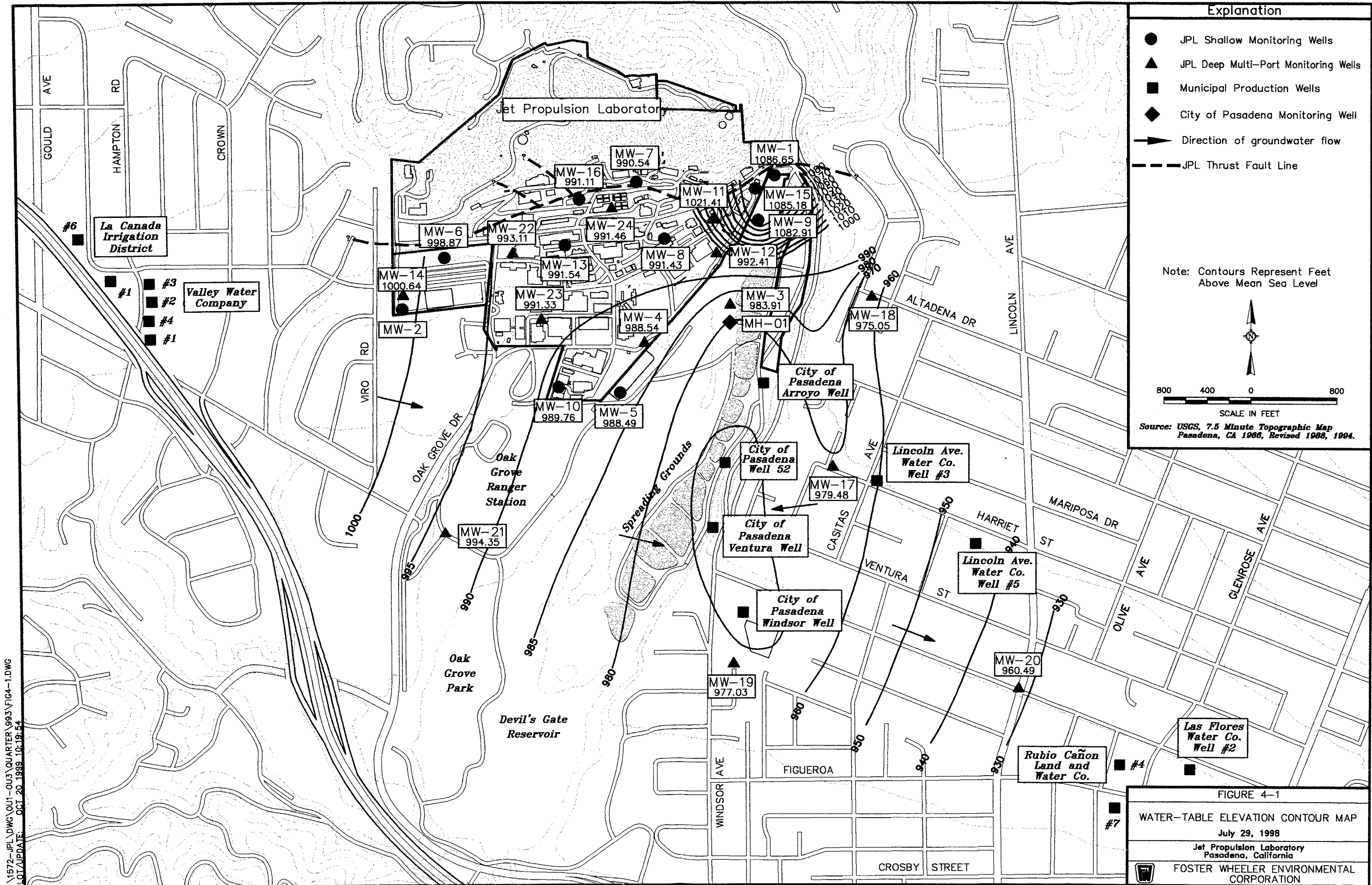
800 400 0 800
SCALE IN FEET

Source: USGS, 7.5 Minute Topographic Map Pasadena, CA 1968, Revised 1988, 1994.

FIGURE 3-13
 CONTOURS OF PERCHLORATE
 CONCENTRATIONS IN AQUIFER LAYER 3
 AUGUST, 1999

Jet Propulsion Laboratory
 Pasadena, California

FOSTER WHEELER ENVIRONMENTAL
 CORPORATION



Explanation

- JPL Shallow Monitoring Wells
- ▲ JPL Deep Multi-Port Monitoring Wells
- Municipal Production Wells
- ◆ City of Pasadena Monitoring Well
- ➔ Direction of groundwater flow
- JPL Thrust Fault Line

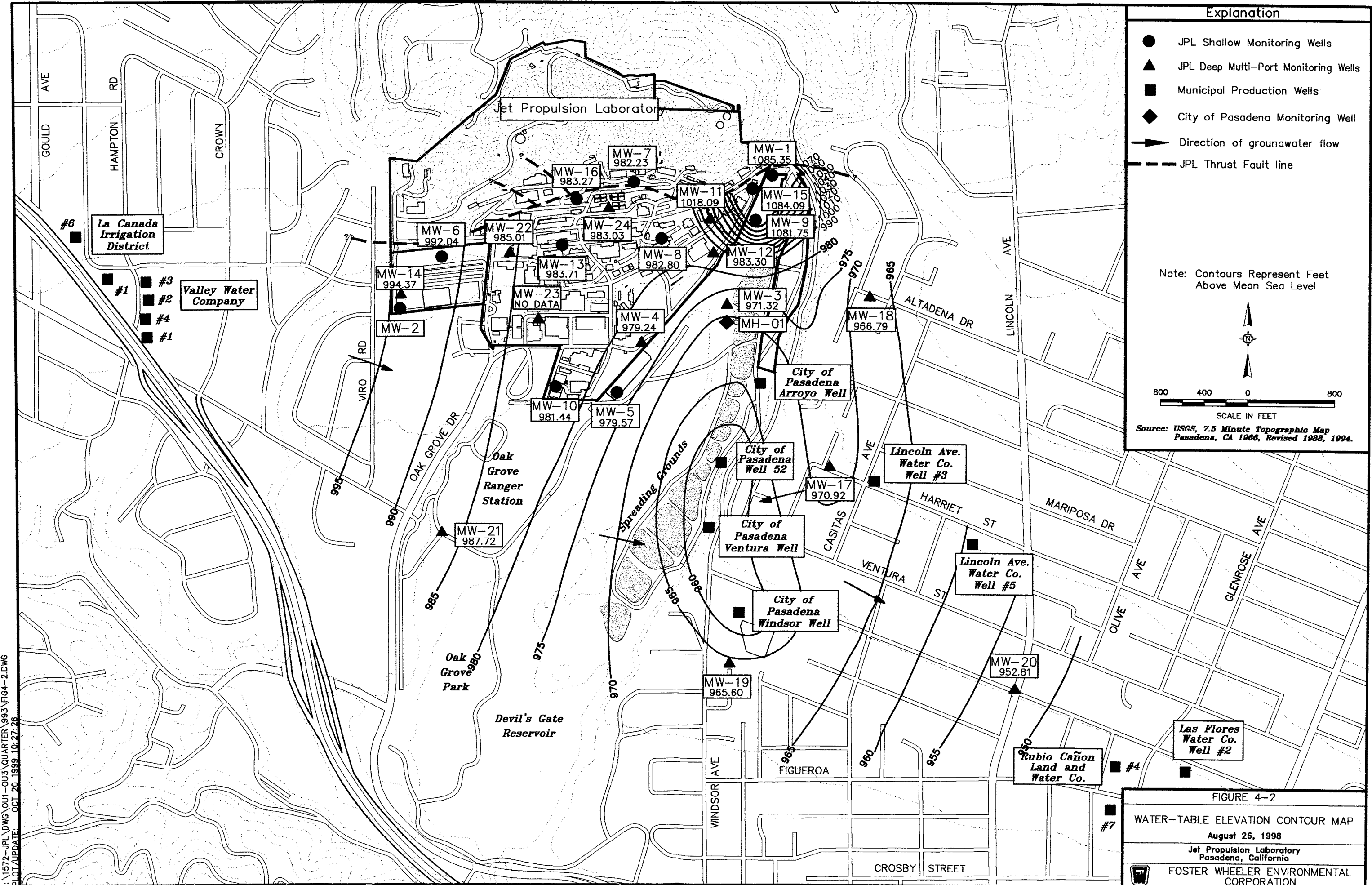
Note: Contours Represent Feet Above Mean Sea Level

800 400 0 800
SCALE IN FEET

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

I:\1572-JPL\DWG\OU1-OU3\QUARTER\993\FIG4-1.DWG
 PLOT/UPDATE: OCT 20 1999 10:19:54

FIGURE 4-1
 WATER-TABLE ELEVATION CONTOUR MAP
 July 29, 1998
 Jet Propulsion Laboratory
 Pasadena, California
 FOSTER WHEELER ENVIRONMENTAL CORPORATION



I:\1572-JPL\DWG\01-003\QUARTER\993\FIG4-2.DWG
PLOT/UPDATE: OCT. 20.1999.10:27:26

FIGURE 4-2
WATER-TABLE ELEVATION CONTOUR MAP
August 26, 1998
Jet Propulsion Laboratory
Pasadena, California
FOSTER WHEELER ENVIRONMENTAL CORPORATION

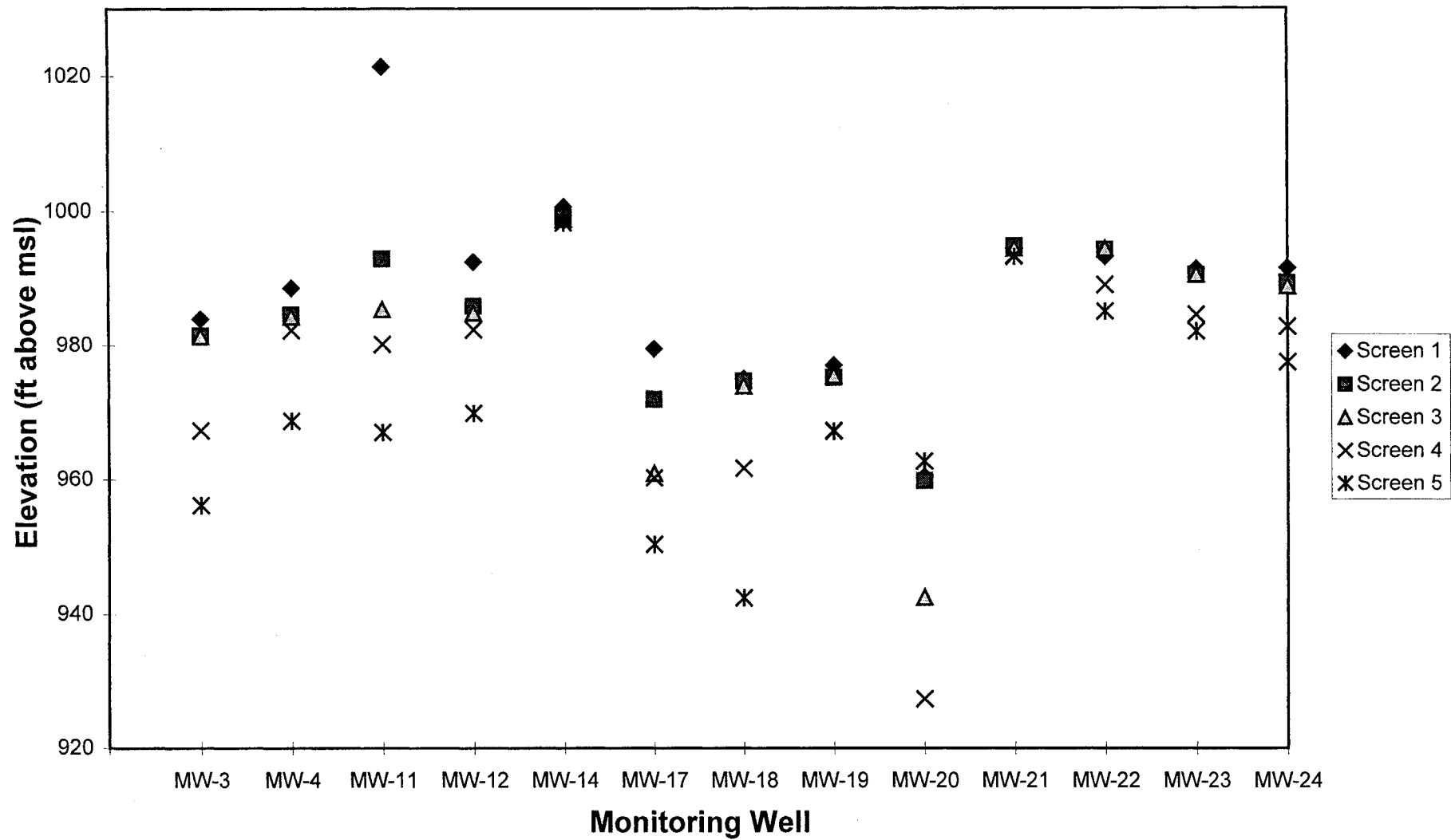


Figure 4-3
**HYDRAULIC HEAD ELEVATIONS
 FROM DEEP (MP) WELLS**
 July 29, 1999
 Jet Propulsion Laboratory
 Pasadena, California

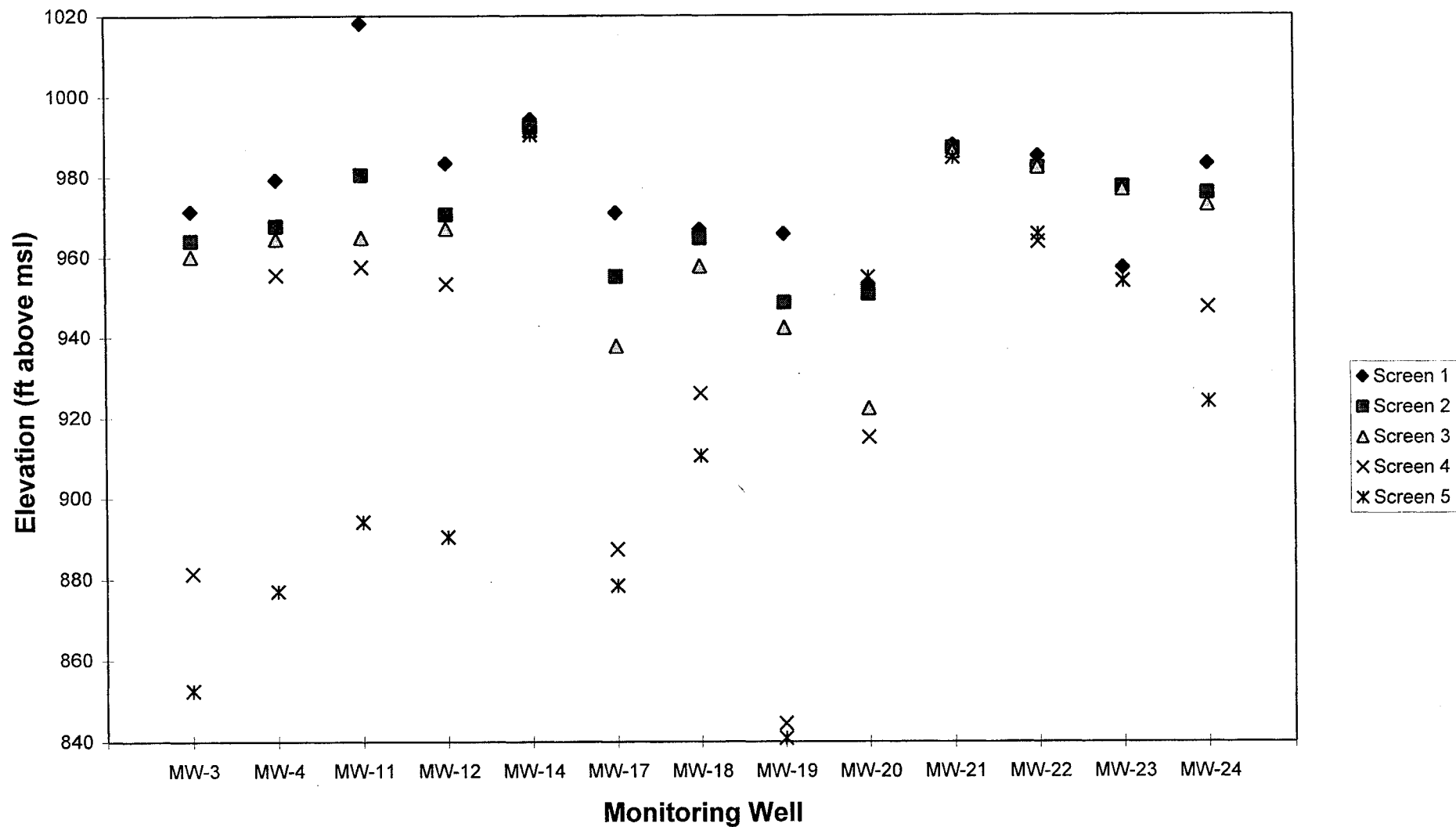


Figure 4-4
HYDRAULIC HEAD ELEVATIONS
FROM DEEP (MP) WELLS
 August 26, 1999
 Jet Propulsion Laboratory
 Pasadena, California

APPENDIX A
WELL DEVELOPMENT/WELL SAMPLING LOG FORMS
FOR SHALLOW WELLS

WELL DEVELOPMENT LOG / WELL SAMPLING LOG

Project Name: JPL
 Project Number: 1572.0284
 Date: 8-24-99
 Site Engineer: M. Hunt, J. Brenner

Well Number: MW-5
 Equipment: YSI 3500, Horiba U-10,
 DRT-15C, Grundfos
 Contractor: None

	Before	Reference Point	After
Depth to Water (ft)	<u>91.41</u>	Top of 4" casing	<u>91.41</u>
Depth to Sediment (ft)	<u>139.86</u>	Top of 4" casing	<u>139.86</u>
Thickness of Sediment (ft)	<u>0.14</u>		<u>0.14</u>

Depth of Well (ft) 140.00
 Diameter of Casing (ft) 0.333
 Water Column Height (ft) 48.45

Casing Volume (gals) = $\pi(\text{Diam. of Casing (ft)/2})^2 (\text{Water Column Height (ft)})(7.48 \text{ gals/ft}^3) = \underline{31.55}$
 Casing Volumes Purged 1.03

Total Volume Purged (gals) 32.5

Time	pH	Turbidity (NTU)	Temp (°C)	Conductivity (µmhos)	Dissolved Oxygen (mg/L)	Eh (mV)	Comments
1150	6.39	1.70	17.4	352	4.45	+155	Pump on; Control box set at 223 Hz; flow rate = 1.3 gpm
1155	6.66	2.53	17.3	344	4.43	+148	Water Clear
1200	6.74	2.92	19.8	359	4.24	+132	Water Clear
1205	6.77	4.75	19.0	353	4.16	+123	Ready to Sample
1210	6.79	4.25	19.2	356	4.26	+115	Flow reduced to 0.2 gpm
1215	—	—	—	—	—	—	Collect MW-993-060
1220	—	—	—	—	—	—	Pump off

Notes Sampling Procedures: Flow rate = 1.3 gpm



WELL DEVELOPMENT LOG / WELL SAMPLING LOG

Project Name: <u>JPL</u>	Well Number: <u>MW-6</u>
Project Number: <u>1572.0284</u>	Equipment: <u>GRUNDIGUS YSI 3500</u>
Date: <u>8/25/99</u>	<u>DRT-15C HORIBA U-10</u>
Site Engineer: <u>T. TURPIN, KENSER, H. HUNT</u> <u>ATUL RAS</u>	Contractor: _____

	<u>Before</u>	<u>Reference Point</u>	<u>After</u>
Depth to Water (ft)	<u>196.27</u>	<u>TOC</u>	<u>196.27</u>
Depth to Sediment (ft)	<u>244.00</u>	<u>TOC</u>	<u>244.00</u>
Thickness of Sediment (ft)	<u>1.00</u>		<u>1.00</u>

Depth of Well (ft) 245.00
 Diameter of Casing (ft) 0.333
 Water Column Height (ft) 47.73

Casing Volume (gals) = $\pi(\text{Diam. of Casing (ft)}/2)^2 (\text{Water Column Height (ft)})(7.48 \text{ gals/ft}^3) = \underline{31.08}$
 Casing Volumes Purged 1.45

Total Volume Purged (gals) 45

Time	pH	Turbidity (NTU)	Temp (°C)	Conductivity (µmhos)	Dissolved Oxygen (mg/L)	Eh (mV)	Comments
1000	6.98	6.40	21.2	736	6.29	+115	Pump on; Control box set at 330 Hz; flow rate = 1.5 gpm
✓	✓	—	—	—	—	—	
1005	6.92	3.66	21.6	716	6.16	+98	CLEAN
1010	6.87	3.00	23.1	736	5.97	+90	CLEAN
1015	6.87	2.89	24.8	765	5.75	+85	CLEAN
1020	6.93	2.44	23.7	755	5.55	+80	CLEAN
1025	6.88	2.74	24.9	772	5.60	+80	CLEAN
1030	—	—	—	—	—	—	COLLECT MW-993-059
1035	—	—	—	—	—	—	PUMP OFF

Notes Sampling Procedures: Flow rate = 1.5 gpm



WELL DEVELOPMENT LOG / WELL SAMPLING LOG

Project Name: JPL
 Project Number: 1572.0284
 Date: 8-24-99
 Site Engineer: M. Hunt, J. Brenner

Well Number: MW-7
 Equipment: YSI 3500, Horiba U-10
DRT-15C, Grundfos
 Contractor: None

	Before	Reference Point	After
Depth to Water (ft)	<u>229.97</u>	<u>Top of 4" casing</u>	<u>229.97</u>
Depth to Sediment (ft)	<u>273.61</u>	<u>Top of 4" casing</u>	<u>273.61</u>
Thickness of Sediment (ft)	<u>1.39</u>		<u>1.39</u>

Depth of Well (ft) 275.00
 Diameter of Casing (ft) 0.333
 Water Column Height (ft) 43.64

Casing Volume (gals) = $\pi(\text{Diam. of Casing (ft)/2})^2 (\text{Water Column Height (ft)})(7.48 \text{ gals/ft}^3) = \underline{28.41}$
 Casing Volumes Purged 2.38

Total Volume Purged (gals) 67.5

Time	pH	Turbidity (NTU)	Temp (°C)	Conductivity (µmhos)	Dissolved Oxygen (mg/L)	Eh (mV)	Comments
0835	—	—	—	—	—	—	Pump on; control box set at 355 Hz; flow rate = 1.5 gpm
0840	7.38	20.2	23.6	519	5.57	+220	Slightly Cloudy
0845	7.37	18.1	23.0	493	5.85	+198	Slightly Cloudy
0850	7.41	15.7	23.7	486	5.95	+193	Clear
0855	7.39	12.7	23.3	489	6.11	+180	Clear
0900	7.40	7.02	23.6	492	6.25	+166	Clear
0905	7.40	5.30	23.7	490	6.15	+163	Clear
0910	7.36	4.25	24.0	487	6.05	+145	Ready to sample
0915	7.40	3.09	23.7	491	6.19	+142	Flow reduced to 0.2 gpm
0920	—	—	—	—	—	—	Collect MW-983-058
0925	—	—	—	—	—	—	Pump off

Notes Sampling Procedures: Flow rate = 1.5 gpm



WELL DEVELOPMENT LOG / WELL SAMPLING LOG

Project Name: SPL
 Project Number: 1572.0284
 Date: 8/25/99
 Site Engineer: T. TURPIN, KEASUR, M. HUNT
A. KAS

Well Number: MW-8
 Equipment: GRUNDIGS, YSI-3500, DRT-15 C
HORIBA U-10
 Contractor: _____

Depth to Water (ft)	<u>Before</u> <u>156.45</u>	Reference Point	<u>After</u> <u>156.45</u>
Depth to Sediment (ft)	<u>202.25</u>	TOL	<u>202.25</u>
Thickness of Sediment (ft)	<u>2.75</u>	TOC	<u>2.75</u>

Depth of Well (ft) 205.00
 Diameter of Casing (ft) 4" 0.333
 Water Column Height (ft) 45.80

Casing Volume (gals) = $\pi(\text{Diam. of Casing (ft)} / 2)^2 (\text{Water Column Height (ft)}) (7.48 \text{ gals/ft}^3)$ = 29.82
 Casing Volumes Purged 1.01

Total Volume Purged (gals) 30

Time	pH	Turbidity (NTU)	Temp (°C)	Conductivity (µmhos)	Dissolved Oxygen (mg/L)	Eh (mV)	Comments
0840	6.74	25.6	18.9	320	5.45	+103	Pump on; Control box set at 290 Hz; 1.0 gpm
0845	6.84	3.05	18.1	469325	5.61	+101	Clear
0850	7.04	2.95	20.7	329	5.20	+84	Clear
0855	7.13	4.52	23.0	353	5.25	+77	clear
0900	7.15	2.08	23.6	351	5.85	+85	clear
0905	7.15	0.74	24.5	357	4.93	+80	clear
0910	—	—	—	—	—	—	Collect MW-993-057
0915	—	—	—	—	—	—	PUMP OFF

Notes Sampling Procedures: Flow rate = 1.0 gpm



WELL DEVELOPMENT LOG / WELL SAMPLING LOG

Project Name: JPL Well Number: MW-10
 Project Number: 1572.0284 Equipment: YSI 3500, Horiba U-10
 Date: 8-24-99 DRT-15C
 Site Engineer: M. Hunt, J. Brenner Contractor: None

	<u>Before</u>	<u>Reference Point</u>	<u>After</u>
Depth to Water (ft)	<u>105.73</u>	<u>Top of 4" casing</u>	<u>105.73</u>
Depth to Sediment (ft)	<u>154.40</u>	<u>Top of 4" casing</u>	<u>154.40</u>
Thickness of Sediment (ft)	<u>0.60</u>		<u>0.60</u>

Depth of Well (ft) 755.00
 Diameter of Casing (ft) 0.333
 Water Column Height (ft) 48.67

Casing Volume (gals) = $\pi(\text{Diam. of Casing (ft)/2})^2 (\text{Water Column Height (ft)})(7.48 \text{ gals/ft}^3) = \underline{31.69}$
 Casing Volumes Purged 1.33

Total Volume Purged (gals) 42

Time	pH	Turbidity (NTU)	Temp (°C)	Conductivity (µmhos)	Dissolved Oxygen (mg/L)	Eh (mV)	Comments
1510	6.65	10.5	20.5	625	5.60	+114	Pump on; Control box at 260 Hz; Flow rate = 2.1 gpm
1515	6.68	17.2	20.9	589	5.25	+121	Water Clear
1520	6.63	4.69	20.4	590	5.15	+115	Water Clear Ready to Sample
1525	6.74	3.55	20.5	583	5.22	+105	Flow reduced to 0.2 gpm
1530	—	—	—	—	—	—	Collect MW-993-056
1535	—	—	—	—	—	—	Collect MW-993-055
1540	—	—	—	—	—	—	Pump off

Notes Sampling Procedures: Flow rate = 2.1 gpm



WELL DEVELOPMENT LOG / WELL SAMPLING LOG

Project Name: JPL
 Project Number: 1572.0284
 Date: 8-24-99
 Site Engineer: M. Hunt, J. Brenner

Well Number: MW-13
 Equipment: KSI 3500, Horiba U-10, DRT-15C
 Contractor: None

Depth to Water (ft)	<u>Before</u> <u>199.26</u>	<u>Reference Point</u> <u>Top of 4" casing</u>	<u>After</u> <u>199.26</u>
Depth to Sediment (ft)	<u>234.92</u>	<u>Top of 4" casing</u>	<u>234.92</u>
Thickness of Sediment (ft)	<u>0.08</u>		<u>0.08</u>

Depth of Well (ft) 235.00
 Diameter of Casing (ft) 0.333
 Water Column Height (ft) 35.66

Casing Volume (gals) = $\pi(\text{Diam. of Casing (ft)} / 2)^2 (\text{Water Column Height (ft)}) (7.48 \text{ gals/ft}^3) = \underline{23.22}$
 Casing Volumes Purged 1.72

Total Volume Purged (gals) 40

Time	pH	Turbidity (NTU)	Temp (°C)	Conductivity (µmhos)	Dissolved Oxygen (mg/L)	Eh (mV)	Comments
1405	6.74	3.02	23.7	633	7.10	+119	Pump on; Control box set at 350 Hz; flow rate = 2.0 gpm
1410	7.07	0.40	23.3	592	6.82	+113	Water Clear
1415	7.04	0.20	23.6	586	6.65	+112	Water Clear Ready to sample
1420	7.12	0.15	23.6	582	6.55	+112	Flow reduced to 0.2 gpm
1425	—	—	—	—	—	—	Collect MW-993-044
1430	—	—	—	—	—	—	Collect MW-993-043
1435	—	—	—	—	—	—	Pump off

Notes Sampling Procedures: Flow rate = 2.0 gpm



WELL DEVELOPMENT LOG / WELL SAMPLING LOG

Project Name: JPL Well Number: MW-16
 Project Number: 15720294 Equipment: 2 DEDICATED GRINDERS PUMP
 Date: 8/23/99 HORIBA J-10 DIG-150, PSI 3500
 Site Engineer: M. HUNT, T. TUCKER, J. BROWN Contractor: NOPE (initials)

	Before	Reference Point	After
Depth to Water (ft)	<u>252.32</u>	<u>TOP OF 4" CASING</u>	<u>252.32</u>
Depth to Sediment (ft)	<u>285.00</u>	<u>TOP OF 4" CASING</u>	<u>285.00</u>
Thickness of Sediment (ft)	<u>0</u>		<u>0</u>

Depth of Well (ft) 285.00
 Diameter of Casing (ft) 3.333
 Water Column Height (ft) 32.68
 Casing Volume (gals) = $\pi(\text{Diam. of Casing (ft)/2})^2 (\text{Water Column Height (ft)})(7.48 \text{ gals/ft}^3) =$ 21.27
 Total Volume Purged (gals) 30 Casing Volumes Purged 1.41

Time	pH	Turbidity (NTU)	Temp (°C)	Conductivity (µmhos)	Dissolved Oxygen (mg/L)	Eh (mV)	Comments
<u>1345</u>	<u>6.64</u>	<u>3.00</u>	<u>24.1</u>	<u>588</u>	<u>6.42</u>	<u>+059</u>	<u>PUMP ON; CONTROL BOX SET AT 365Hz; FLOW RATE = 1.0 gpm</u>
<u>1350</u>	<u>6.87</u>	<u>1.08</u>	<u>24.3</u>	<u>585</u>	<u>6.29</u>	<u>+057</u>	<u>WATER CLEAR</u>
<u>1355</u>	<u>7.05</u>	<u>1.18</u>	<u>24.5</u>	<u>578</u>	<u>6.00</u>	<u>+068</u>	<u>WATER CLEAR</u>
<u>1400</u>	<u>7.19</u>	<u>0.73</u>	<u>24.5</u>	<u>589</u>	<u>5.90</u>	<u>+078</u>	<u>Water Clear</u>
<u>1405</u>	<u>7.14</u>	<u>0.60</u>	<u>24.5</u>	<u>585</u>	<u>5.80</u>	<u>+070</u>	<u>READY TO SAMPLE</u>
<u>1410</u>	<u>7.09</u>	<u>0.48</u>	<u>24.3</u>	<u>581</u>	<u>5.75</u>	<u>+064</u>	<u>FLOW REDUCED TO 0.2 gpm</u>
<u>1415</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>COLLECT MW-993-037</u>
<u>1420</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>PUMP OFF</u>

Notes Sampling Procedures: Flow Rate = 1.0 gpm
PUMP SET AT 1100' BGL

APPENDIX B

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



WELL DEVELOPMENT LOG / WELL SAMPLING LOG

Project Name: JPL
 Project Number: 1572.0294
 Date: 8/4/99
 Site Engineer: M. Hunt, T. Turpin-Karsen

Well Number: MW-3
 Equipment: VSI 3500, DRT-15C
HORIBA U-10
 Contractor: _____

	Before	Reference Point	After
Depth to Water (ft)	* SEE MULTI PORT FIELD DATA SHEET		
Depth to Sediment (ft)	_____	_____	_____
Thickness of Sediment (ft)	_____	_____	_____
Depth of Well (ft)	_____	_____	_____
Diameter of Casing (ft)	_____	_____	_____
Water Column Height (ft)	_____	_____	_____
Casing Volume (gals) = $\pi(\text{Diam. of Casing (ft)/2})^2 (\text{Water Column Height (ft)}) (7.48 \text{ gals/ft}^3) =$	_____		
Total Volume Purged (gals)	_____		
	Casing Volumes Purged _____		

Time	pH	Turbidity (NTU)	Temp (°C)	Conductivity (µmhos)	Dissolved Oxygen (mg/L)	Eh (mV)	Comments
1005	9.23	7.47	21.2	306	6.05	-189	1 st RUN TO SCREEN 5, INITIAL PARAM.
1025	9.23	5.40	22.7	317	6.43	-189	2 nd RUN: COLLECT MW-993-067 FINAL PARAMETERS
1105	8.36	2.00	21.5	332	5.51	-039	1 st RUN TO SCREEN 4: INITIAL PARAMETERS
1135	8.31	1.05	25.1	360	6.05	-013	2 nd RUN: COLLECT MW-993-069 MS/MS FINAL PARAMETERS
1155	8.19	4.90	21.8	439	5.35	-003	1 st RUN TO SCREEN 5 INITIAL PARAMETERS
1220	8.21	2.50	25.2	464	5.61	+004	2 nd run; collect MW-993-069 Final parameters
1250	7.91	0.45	22.5	4.38	5.75	+043	1 st run to screen 2 Initial parameters
1520	7.83	1.00	24.8	4.59	5.55	+076	2 nd RUN TO SCREEN 2: collect MW-993-070 FINAL PARAMETERS

Notes Sampling Procedures: _____



WELL DEVELOPMENT LOG / WELL SAMPLING LOG

Project Name: JPL Well Number: MW-4
 Project Number: 1572.0284 Equipment: DIT-15CE, YSI 3500
 Date: 8/20/99 HORIBA U-10
 Site Engineer: M. HUNT, J. BRUNER, M. LOSI Contractor: NONE

	Before	Reference Point	After
Depth to Water (ft)	<u>* SEE PRESS. FINAL SHEETS</u>	<u>FINAL SHEETS</u>	
Depth to Sediment (ft)			
Thickness of Sediment (ft)			
Depth of Well (ft)			
Diameter of Casing (ft)			
Water Column Height (ft)			
Casing Volume (gals) = $\pi(\text{Diam. of Casing (ft)/2})^2 (\text{Water Column Height (ft)})(7.48 \text{ gals/ft}^3) =$ _____			
Casing Volumes Purged _____			
Total Volume Purged (gals) _____			

Time	pH	Turbidity (NTU)	Temp (°C)	Conductivity (µmhos)	Dissolved Oxygen (mg/L)	Eh (mV)	Comments
0835	7.16	3.12	20.8	352	7.20	+031	1ST RUN TO SCREEN #5; INITIAL PARAMETERS
0855	7.27	2.41	21.1	364	7.71	+065	COLLECT MW-993-061; FINAL PARAMETERS
0920	7.99	1.18	21.1	371	6.02	+045	1ST RUN TO SCREEN #4; INITIAL PARAMETERS
0940	7.92	1.21	21.5	365	6.68	+016	COLLECT MW-993-062; FINAL PARAMETERS
1000	8.05	2.16	21.3	371	3.81	+017	1ST RUN TO SCREEN #3; INITIAL PARAMETERS
1040	8.09	2.09	21.6	375	4.96	+025	COLLECT MW-993-063; 063MS-063-02; FINAL PARAMETERS
1105	7.16	2.65	21.5	629	6.49	+023	1ST RUN TO SCREEN #2; INITIAL PARAMETERS
1120	-	-	-	-	-	-	COLLECT MW-993-065
1140	7.14	3.84	21.1	640	6.62	+018	COLLECT MW-993-064; FINAL PARAMETERS
1205	7.18	2.05	19.8	383	5.21	+058	1ST RUN TO SCREEN #1; INITIAL PARAMETERS
1220	7.07	1.21	20.2	380	4.71	+035	COLLECT MW-993-066

Notes Sampling Procedures: _____



WELL DEVELOPMENT LOG / WELL SAMPLING LOG

Project Name: JPL Well Number: MW-11
 Project Number: 1572.0284 Equipment: YSI 3500, Horiba U-10
 Date: 8-11-99 DRT-15C
 Site Engineer: M. Hunt, T. Turpijn-Keasler Contractor: None

Depth to Water (ft) Before Reference Point After
~~*~~ 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) = $\pi(\text{Diam. of Casing (ft)/2})^2 (\text{Water Column Height (ft)})(7.48 \text{ gals/ft}^3) =$ _____
 Casing Volumes Purged _____
 Total Volume Purged (gals) _____

Time	pH	Turbidity (NTU)	Temp (°C)	Conductivity (µmhos)	Dissolved Oxygen (mg/L)	Eh (mV)	Comments
0840	8.14	3.21	18.2	323	7.23	-014	1 st run to screen #4; initial parameters
0855	8.17	3.47	18.8	330	7.10	-020	2 nd run; collect MW-993-051
0925	8.10	3.60	19.5	370	6.33	-098	1 st run to screen #3; initial parameters
0950	8.12	3.10	20.1	380	6.10	-102	2 nd run; collect MW-993-052
1025	8.01	1.99	19.0	401	4.53	-070	1 st run to screen #2; initial parameters
1040	7.96	1.89	20.0	412	4.33	-068	2 nd run; collect MW-993-053
1105	7.80	0.98	20.1	448	4.20	-034	1 st run to screen #1; initial parameters
1115	7.77	1.21	21.1	462	4.35	+038	2 nd run; collect MW-993-054

Notes Sampling Procedures: _____



WELL DEVELOPMENT LOG / WELL SAMPLING LOG

Project Name: JPL
 Project Number: 1572.0284
 Date: 8-11-99
 Site Engineer: M Hunt, T. Turpin-Keasler

Well Number: MW-12
 Equipment: YSI 3500, Horiba U-10
DRT-15C
 Contractor: None

	<i>Before</i>	<i>Reference Point</i>	<i>After</i>
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) = $\pi(\text{Diam. of Casing (ft)/2})^2 (\text{Water Column Height (ft)})(7.48 \text{ gals/ft}^3) =$ _____			
			Casing Volumes Purged _____
Total Volume Purged (gals) _____			

Time	pH	Turbidity (NTU)	Temp (°C)	Conductivity (µmhos)	Dissolved Oxygen (mg/L)	Eh (mV)	Comments
1240	7.44	1.82	21.1	438	6.26	+002	1 st run to screen #2; initial parameters
1305	—	—	—	—	—	—	2 nd run; collect MW-993-048
1320	7.44	1.91	20.1	465	6.42	+005	3 rd run; collect MW-993-049; find parameters poor turbidity
1340	7.62	34.4	22.3	410	4.47	+025	1 st run to screen #1; initial parameters 2 nd run; collect MW-993-050
1400	—	—	—	—	—	—	2 nd run
1415	7.64	41.6	22.9	416	4.67	+022	3 rd run; initial parameters 4 th run; collect MW-993-050

Notes Sampling Procedures: _____

runs



WELL DEVELOPMENT LOG / WELL SAMPLING LOG

Project Name: JPL Well Number: MW-12
 Project Number: 1572,0284 Equipment: YSI-3500, Horiba U-10, DRT-15C
 Date: 8-16-99
 Site Engineer: M. Hunt, T. Turpin-Keasler Contractor: None

	<u>Before</u>	<u>Reference Point</u>	<u>After</u>
Depth to Water (ft)	<u>* See Pressure Profile Sheets</u>		_____
Depth to Sediment (ft)	_____	_____	_____
Thickness of Sediment (ft)	_____	_____	_____
Depth of Well (ft)	_____	_____	_____
Diameter of Casing (ft)	_____	_____	_____
Water Column Height (ft)	_____	_____	_____
Casing Volume (gals) = $\pi(\text{Diam. of Casing (ft)/2})^2 (\text{Water Column Height (ft)})(7.48 \text{ gals/ft}^3)$ = _____			
Casing Volumes Purged _____			
Total Volume Purged (gals) _____			

Time	pH	Turbidity (NTU)	Temp (°C)	Conductivity (µmhos)	Dissolved Oxygen (mg/L)	Eh (mV)	Comments
0810	7.76	7.69	18.9	390	6.47	+024	1 st run to screen #5; initial parameters
0845	7.48	4.81	20.0	400	8.14	+009	2 nd run; collect MW-993-045
0915	7.17	1.57	19.4	429	6.35	+015	1 st run to screen #4; initial parameters
0935	7.01	0.98	20.0	429	7.15	+018	2 nd run; collect MW-993-046
1000	7.06	2.43	19.7	459	6.07	+016	1 st run to screen #3; initial parameters
1020	6.99	0.42	21.4	461	6.29	+017	2 nd run; collect MW-993-047

Notes Sampling Procedures: _____



WELL DEVELOPMENT LOG / WELL SAMPLING LOG

Project Name: JPL
 Project Number: 1572.0234
 Date: 8/19/99
 Site Engineer: J. BREWER, M. HUNT

Well Number: MW-14
 Equipment: DRT-15C HORIZON -10, YSI 3500
 Contractor: NONE

	Before	Reference Point	After
Depth to Water (ft)	<u>* SEE PRESS. PROFILE SHEETS</u>		
Depth to Sediment (ft)	_____	_____	_____
Thickness of Sediment (ft)	_____	_____	_____
Depth of Well (ft)	_____	_____	_____
Diameter of Casing (ft)	_____	_____	_____
Water Column Height (ft)	_____	_____	_____
Casing Volume (gals) = $\pi(\text{Diam. of Casing (ft)/2})^2 (\text{Water Column Height (ft)})(7.48 \text{ gals/ft}^3) =$ _____			
Casing Volumes Purged _____			
Total Volume Purged (gals) _____			

Time	pH	Turbidity (NTU)	Temp (°C)	Conductivity (µmhos)	Dissolved Oxygen (mg/L)	Eh (mV)	Comments
0845	8.50	2.40	20.4	297	6.23	+1.37	1ST RUN TO SCREEN #5, INITIAL PARAMETERS
0910	8.61	1.42	20.5	297	7.10	+1.57	COLLECT MW-993-035, FINAL PARAMETERS
0930	7.97	2.17	20.1	521	7.63	+102	1ST RUN TO SCREEN #4, INITIAL PARAMETERS
0955	7.91	1.24	21.3	544	7.51	+112	COLLECT MW-993-037, FINAL PARAMETERS
1020	7.73	2.51	20.6	913	5.87	+057	1ST RUN TO SCREEN #3, INITIAL PARAMETERS
1035	7.75	2.19	22.2	959	5.51	+097	COLLECT MW-993-040, FINAL PARAMETERS AT SCREEN #3
1100	6.93	1.67	20.9	1132	5.96	+060	1ST RUN TO SCREEN #2, INITIAL PARAMETERS
1115	7.03	2.76	22.7	1204	6.18	+073	COLLECT MW-993-041, FINAL PARAMETERS AT SCREEN #2
1140	6.94	1.91	22.3	1255	5.39	+085	1ST RUN TO SCREEN #1, INITIAL PARAMETERS
1155	7.14	1.73	24.1	1338	5.96	+129	COLLECT MW-993-042, FINAL PARAMETERS AT SCREEN #1

Notes Sampling Procedures: _____



WELL DEVELOPMENT LOG / WELL SAMPLING LOG

Project Name: JPL Well Number: MW-17
 Project Number: 1572.0284 Equipment: DRT-15C; Hariba U-10;
 Date: 8/10/99 YSI 3500
 Site Engineer: M. Hunt; T. Turpin-Keasler 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) = $\pi(\text{Diam. of Casing (ft)/2})^2 (\text{Water Column Height (ft)})(7.48 \text{ gals/ft}^3) =$	_____	_____	_____
Total Volume Purged (gals)	_____	Casing Volumes Purged	_____

Time	pH	Turbidity (NTU)	Temp (°C)	Conductivity (µmhos)	Dissolved Oxygen (mg/L)	Eh (mV)	Comments
1040	7.74	4.80	17.5	353	8.55	+019	1 st run to screen #5; initial parameters
1120	7.94	12.4	18.1	373	6.74	+013	2 nd run; collect MW-993-033
1150	7.65	1.88	20.9	391	6.54	+048	1 st run to screen #4; initial parameters
1220	7.68	2.45	22.9	418	7.41	+045	2 nd run; collect MW-993-034
1245	7.67	4.28	18.4	366	6.17	+063	1 st run to screen #3; initial parameters
1315	7.65	4.11	20.4	380	5.90	+054	2 nd run; collect MW-993-035
1340	8.08	1.22	18.5	298	5.76	+085	1 st run to screen #2; initial parameters
1400	8.15	2.38	20.2	306	5.91	+089	2 nd run; collect MW-993-036

Notes Sampling Procedures: _____



WELL DEVELOPMENT LOG / WELL SAMPLING LOG

Project Name: JPL
 Project Number: 1572.0284
 Date: 8/2/95
 Site Engineer: N. Hunt, J. Blanner

Well Number: MW-18
 Equipment: DRT-150 HOKUBA U-10
YSI 3500
 Contractor: NOVE

	Before	Reference Point	After
Depth to Water (ft)	<u>*SEE PRESS PROFILE SHEETS</u>		
Depth to Sediment (ft)	_____	_____	_____
Thickness of Sediment (ft)	_____	_____	_____
Depth of Well (ft)	_____	_____	_____
Diameter of Casing (ft)	_____	_____	_____
Water Column Height (ft)	_____	_____	_____
Casing Volume (gals) = $\pi(\text{Diam. of Casing (ft)} / 2)^2 (\text{Water Column Height (ft)}) (7.48 \text{ gals/ft}^3) =$	_____		
Total Volume Purged (gals)	_____		
	Casing Volumes Purged _____		

Time	pH	Turbidity (NTU)	Temp (°C)	Conductivity (µmhos)	Dissolved Oxygen (mg/L)	Eh (mV)	Comments
1140	8.42	1.47	21.3	291	9.64	+016	1ST RUN TO SCREEN #5; INITIAL PARAMETERS
1210	8.60	0.96	22.7	301	9.85	+020	COLLECT MW-913-024; FINAL PARAMETERS @ SCREEN #5
1240	7.98	0.97	21.8	374	10.13	-038	1ST RUN TO SCREEN #4; INITIAL PARAMETERS
1305	7.95	0.79	23.8	396	10.35	-007	COLLECT MW-913-030; FINAL PARAMETERS @ SCREEN #4
1330	7.97	0.96	20.5	419	11.77	-054	1ST RUN TO SCREEN #3; INITIAL PARAMETERS
1350	7.91	0.73	21.1	423	10.96	-049	COLLECT MW-913-031; FINAL PARAMETERS @ SCREEN #3
1425	7.33	0.60	21.8	403	11.49	-008	1ST RUN TO SCREEN #2; INITIAL PARAMETERS
1445	7.48	0.56	21.9	411	10.53	-011	COLLECT MW-913-032; -032MS; FINAL PARAMETERS

Notes Sampling Procedures: _____



WELL DEVELOPMENT LOG / WELL SAMPLING LOG

Project Name: JPL Well Number: MW-19
 Project Number: 1572.0284 Equipment: DRT-15C, HORIBA 0-10
 Date: 8/3/99 YSI 3500
 Site Engineer: M. HUNT, T. Turpin-Keasler Contractor: NONE
J. Brenner

	Before	Reference Point	After
Depth to Water (ft)	x 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) = $\pi(\text{Diam. of Casing (ft)/2})^2 (\text{Water Column Height (ft)})(7.48 \text{ gals/ft}^3) =$	_____		
Total Volume Purged (gals)	_____		

Time	pH	Turbidity (NTU)	Temp (°C)	Conductivity (µmhos)	Dissolved Oxygen (mg/L)	Eh (mV)	Comments
0920	7.47	1.54	19.9	739	4.51	+066	1st run to screen #5; initial parameters
0950	7.63	0.84	20.8	767	4.84	+045	Collect MW-993-024; Final parameters at screen #5
1020	7.70	1.15	19.8	444	6.32	+002	1st run to screen #4; initial parameters
1045	7.53	1.01	23.2	468	6.55	+027	Collect MW-993-025; Final parameter at screen #4
1115	6.98	1.71	21.4	824	6.68	+016	1st run to screen #3; initial parameters
1140	7.05	0.18	21.9	896	6.54	+011	Collect MW-993-026; Final parameters at screen #3
1220	6.90	2.21	21.9	586	4.66	+036	1st run to screen #2; initial parameters
1255	6.75	0.05	23.6	576	4.66	+067	Collect MW-993-027; Final parameters at screen #2
1325	7.32	1.00	22.8	318	4.75	+075	1st run to screen #1; initial parameters
1345	7.40	1.10	24.1	311	4.67	+120	Collect MW-993-028; Final parameters at screen #1

Notes Sampling Procedures: _____



WELL DEVELOPMENT LOG / WELL SAMPLING LOG

Project Name: JPL Well Number: MW-20
 Project Number: 1572-0284 Equipment: YSI 3500, DRT-15C
 Date: 8/5/99 HORIBA U-10
 Site Engineer: M. HUNT, T. TURPIN-KEASLER 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) = $\pi(\text{Diam. of Casing (ft)/2})^2 (\text{Water Column Height (ft)})(7.48 \text{ gals/ft}^3) =$ _____
 Casing Volumes Purged _____
 Total Volume Purged (gals) _____

Time	pH	Turbidity (NTU)	Temp (°C)	Conductivity (µmhos)	Dissolved Oxygen (mg/L)	Eh (mV)	Comments
0900	8.42	2.04	18.8	303	7.71	-127	1 ST RUN TO SCREEN 5 INITIAL PARAMETERS
0946	8.70	3.22	19.4	189	7.71	-130	2 ND RUN: COLLECT MW-93-020 2006L FINAL PARAMETERS
1017	8.68	3.21	18.9	299	6.74	-131	1 ST RUN TO SCREEN 4 INITIAL PARAMETERS
1045	8.66	2.75	19.9	309	7.86	-127	2 ND RUN TO SCREEN 4 INITIAL FINAL PARAMETERS
1120	7.92	0.68	20.0	520	7.37	-062	1 ST RUN TO SCREEN 3 INITIAL PARAMETERS
1150	8.16	0.71	20.2	504	7.39	-029	2 ND RUN TO SCREEN 3 FINAL PARAMETERS
1220	7.86	0.52	19.6	369	6.84	-069	1 ST RUN TO SCREEN 2 INITIAL PARAMETERP
1245	7.71	0.32	21.4	378	6.98	-058	2 ND RUN TO SCREEN 2 FINAL PARAMETERS
1340	7.46	1.09	21.8	722	6.56	+013	1 ST RUN TO SCREEN 1 INITIAL PARAMETERS
1405	7.38	1.65	22.7	759	6.57	+028	2 ND RUN TO SCREEN 1 FINAL PARAMETERS

Notes Sampling Procedures: _____



WELL DEVELOPMENT LOG / WELL SAMPLING LOG

Project Name: JPL Well Number: MW-21
 Project Number: 1572-0284 Equipment: YSE 3500, DRT 15C
 Date: 8/6/99 HORIBA U-10
 Site Engineer: A. HUNT, T. TURPIN-KATSON Contractor: _____

Before Reference Point After

Depth to Water (ft) * See Pressure Profile Sheet _____

Depth to Sediment (ft) _____

Thickness of Sediment (ft) _____

Depth of Well (ft) _____

Diameter of Casing (ft) _____

Water Column Height (ft) _____

Casing Volume (gals) = $\pi(\text{Diam. of Casing (ft)/2})^2 (\text{Water Column Height (ft)})(7.48 \text{ gals/ft}^3) =$ _____

Total Volume Purged (gals) _____ Casing Volumes Purged _____

Time	pH	Turbidity (NTU)	Temp (°C)	Conductivity (µmhos)	Dissolved Oxygen (mg/L)	Eh (mV)	Comments
0810	7.33	1.03	19.1	733	6.15	+083	1 st run to screen #5; initial parameters
0830	7.59	1.87	18.8	736	7.45	+073	Collect MW-993-014; final parameters
0855	7.36	2.06	19.0	734	7.17	+064	1 st run to screen #4; initial parameters
0925	7.26	0.52	18.9	743	6.93	+061	Collect MW-993-015; final parameters
0935	7.32	1.18	18.9	896	5.32	+037	1 st run to screen #3; initial parameters
0955	7.27	1.89	18.9	896	5.30	+041	Collect MW-993-016; final parameters
1015	7.72	1.23	19.0	988	4.07	+037	1 st run to screen #2; initial parameters
1030	7.57	1.64	18.8	988	3.61	+038	Collect MW-993-017; final parameters
1050	6.63 6.63	0.66	19.0	799	3.97	+049	1 st run to screen #1; initial parameters
1110	6.71	1.08	19.0	787	4.74	+056	Collect MW-993-018; final parameters

Notes Sampling Procedures: _____



WELL DEVELOPMENT LOG / WELL SAMPLING LOG

Project Name: JPL Well Number: MW-22
 Project Number: 1572.0284 Equipment: Horiba U-10, YSI 3500, DRT-15C
 Date: 8-13-99
 Site Engineer: M. Hunt, T. Turpijn-Keasler Contractor: None

	<i>Before</i>	<i>Reference Point</i>	<i>After</i>
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) = $\pi(\text{Diam. of Casing (ft)}/2)^2 (\text{Water Column Height (ft)}) (7.48 \text{ gals}/\text{ft}^3) =$	_____		
Total Volume Purged (gals)	_____		
		Casing Volumes Purged	_____

Time	pH	Turbidity (NTU)	Temp (°C)	Conductivity (µmhos)	Dissolved Oxygen (mg/L)	Eh (mV)	Comments
0805	7.49	3.20	20.2	336	6.83	+129	1st run to screen #4; initial parameters
0830	7.63	2.84	20.3	341	8.26	+095	2nd run; collect MW-993-010
0900	7.51	7.50	20.1	459	6.50	+086	1st run to screen #3; initial parameters
0920	7.44	5.10	20.4	473	7.82	+079	2nd run; collect MW-993-011
	7.20	7.20					
0955	7.20	6.84	20.7	635	5.70	+088	1st run to screen #2; initial parameters
1015	7.11	8.54	21.2	644	5.85	+095	2nd run; collect MW-993-012
1045	6.49	6.50	21.6	1002	5.50	+086	1st run to screen #1; initial parameters
1100	6.52	4.80	20.8	990	5.20	+090	2nd run; collect MW-993-013

Notes Sampling Procedures: _____



WELL DEVELOPMENT LOG / WELL SAMPLING LOG

Project Name: JPL Well Number: MW-23
 Project Number: 1572.0284 Equipment: YSI 3500, DRT-15C,
 Date: 8-23-99 Noriba U-10
 Site Engineer: H. Hunt, T. Turpijn-Keebler, J. Brenner 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) = $\pi(\text{Diam. of Casing (ft)} / 2)^2 (\text{Water Column Height (ft)}) (7.48 \text{ gals/ft}^3) =$ _____			
Casing Volumes Purged _____			
Total Volume Purged (gals) _____			

Time	pH	Turbidity (NTU)	Temp (°C)	Conductivity (µmhos)	Dissolved Oxygen (mg/L)	Eh (mV)	Comments
0940	9.54	1.81	22.7	524	5.77	-220	1 st run to screen #5; initial parameters
0955	9.49	1.70	22.8	550	5.59	-218	2 nd run; collect MW-993-005
1030	8.21	5.12	22.1	369	6.42	-098	1 st run to screen #4; initial parameters
1045	7.87	4.18	22.3	359	6.85 6.85	-022	2 nd run; collect MW-993-006
1115	7.69	26.6	22.4	469	6.89	-040	1 st run to screen #3; initial parameters
1140	7.65	13.1	22.7	474	6.72	-050	2 nd run; collect MW-993-007
1155	7.22	1.56	23.1	1006	6.15	-026	1 st run to screen #2; initial parameters
1205	7.17	1.47	23.1	1020	6.05	+015	2 nd run; collect MW-993-008
1220	6.95	7.91	24.2	1109	5.65	+008	1 st run to screen #1; initial parameters
1245	6.81	9.35	24.7	1146	5.67	+022	2 nd run; collect MW-993-009

Notes Sampling Procedures: _____



WELL DEVELOPMENT LOG / WELL SAMPLING LOG

Project Name: JPL Well Number: MW-24
 Project Number: 1572.0284 Equipment: YSI 3500, Horiba U-10,
 Date: 8-19-99 DRT-15C
 Site Engineer: M. Hunt, J. Brenner, T. Turpin-Keasler Contractor: None

Depth to Water (ft) Before Reference Point After
 * 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) = $\pi(\text{Diam. of Casing (ft)/2})^2 (\text{Water Column Height (ft)})(7.48 \text{ gals/ft}^3) =$ _____
 Casing Volumes Purged _____
 Total Volume Purged (gals) _____

Time	pH	Turbidity (NTU)	Temp (°C)	Conductivity (µmhos)	Dissolved Oxygen (mg/L)	Eh (mV)	Comments
0930	8.05	6.90	21.3	325	6.14	+043	1 st run to screen #4; initial parameters
0950	8.49	10.51	22.2	332	6.51	+023	2 nd run; collect MW-993-001
1020	7.58	57.5	22.7	434	6.09	+022	1 st run to screen #3; initial parameters
1035	7.62	39.9	22.8	434	6.73	+016	2 nd run; collect MW-993-002 (MWB)
1105	7.63	25.2	23.6	441	6.60	+015	3 rd run; collect MW-993-002
1130	8.14	19.9	22.2	372	5.97	+031	1 st run to screen #2; initial parameters
1200	8.16	33.8	24.2	385	5.87	+034	2 nd run; collect MW-993-003
1225	7.56	8.27	21.6	398	5.98	+041	1 st run to screen #1; initial parameters
1245	7.50	9.10	24.5	420	5.79	+045	2 nd run; collect MW-993-004

Notes Sampling Procedures: _____

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: 7/29/99 Job No.: 1572
 Serial No.: 1455 Well Name: MW-3
 Elevation of Range: 0 to 750 psia Client: Jet Propulsion Laboratory
 atum(ft msl): 1100.34 Weather: 75 degrees, sunny Casing Size: 1.5-inch Westbay Casing
 Operator: J. Brenner/T. Turpijn/M. Hunt
 Ambient Reading (Pressure/Temperature/Time) Start: 14.38/20.60/1009 Finish: 14.34/19.63/1024

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	653	163.45			22.16	1012		144.25	956.09
			234.90						
			234.88						
			234.93						
				163.48					
4	558	122.26			23.19	1014		133.06	967.28
			198.55						
			198.57						
			198.60						
				122.23					
3	346	30.18			21.92	1016		118.98	981.36
			112.75						
			112.77						
			112.80						
				30.19					
2	252	14.38			20.97	1018		118.91	981.43
			72.03						
			72.06						
			72.08						
				14.36					
1	172	14.31			20.04	1020		116.43	983.91
			38.41						
			38.46						
			38.48						
				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: 7/29/99 Job No.: 1572

Serial No.: 1455 Well Name: MW-4

Elevation of Range: 0 to 750 psia Client: Jet Propulsion Laboratory

atum(ft msl): 1082.84 Weather: 75 degrees, sunny Casing Size: 1.5-inch Westbay Casing

Operator: J. Brenner/T. Turpijn/M. Hunt

Ambient Reading (Pressure/Temperature/Time) Start: 14.38/20.44/1105 Finish: 14.43/20.28/1119

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	513	125.46			21.60	1107		114.10	968.74
			187.30						
			187.33						
			187.35						
				125.44					
4	392	72.86			22.01	1109		100.61	982.23
			140.70						
			140.72						
			140.75						
				72.88					
3	322	42.45			21.77	1111		98.58	984.26
			111.23						
			111.26						
			111.28						
				42.47					
2	240	14.40			21.21	1113		98.33	984.51
			75.80						
			75.82						
			75.84						
				14.38					
1	150	14.36			20.68	1115		94.30	988.54
			38.53						
			38.55						
			38.57						
				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: 7/29/99 Job No.: 1572

Serial No.: 1455 Well Name: MW-11

Elevation of Range: 0 to 750 psia Client: Jet Propulsion Laboratory

atum(ft msl): 1139.30 Weather: 75 degrees, sunny Casing Size: 1.5-inch Westbay Casing

Operator: J. Brenner/T. Turpijn/M. Hunt

Ambient Reading (Pressure/Temperature/Time) Start: 14.24/22.28/1200 Finish: 14.23/18.42/1214

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	188.55			21.76	1202		172.23	967.07
			216.56						
			216.58						
			216.60						
				188.58					
4	524	139.06			22.16	1204		159.14	980.16
			172.38						
			172.40						
			172.42						
				139.03					
3	429	98.20			20.16	1206		153.94	985.36
			133.45						
			133.47						
			133.50						
				98.23					
2	259	24.69			19.64	1208		146.40	992.90
			63.02						
			63.05						
			63.07						
				24.72					
1	149	14.30			18.80	1210		117.89	1021.41
			27.70						
			27.72						
			27.75						
				14.28					

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: 7/29/99 Job No.: 1572

Serial No.: 1455 Well Name: MW-12

Elevation of Range: 0 to 750 psia Client: Jet Propulsion Laboratory

atum(ft msl): 1102.14 Weather: 75 degrees, sunny Casing Size: 1.5-inch Westbay Casing

Operator: J. Brenner/T. Turpijn/M. Hunt

Ambient Reading (Pressure/Temperature/Time) Start: 14.36/22.22/1040 Finish: 14.26/18.01/1055

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	548	165.60			21.77	1043		132.23	969.91
			194.52						
			194.55						
			194.57						
				165.65					
4	436	116.90			22.05	1045		119.80	982.34
			151.36						
			151.38						
			151.41						
				116.88					
3	323	67.73			19.60	1047		117.31	984.83
			103.45						
			103.48						
			103.50						
				67.74					
2	243	32.99			19.20	1049		116.29	985.85
			69.20						
			69.25						
			69.27						
				32.97					
1	140	14.35			18.56	1051		109.73	992.41
			27.41						
			27.43						
			27.46						
				14.30					

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: 7/29/99 Job No.: 1572

Serial No.: 1455 Well Name: MW-14

Elevation of Datum(ft msl): 1173.47 Range: 0 to 750 psia Client: Jet Propulsion Laboratory

Weather: 75 degrees, sunny Casing Size: 1.5-inch Westbay Casing

Operator: J. Brenner/T. Turpijn/M. Hunt

Ambient Reading (Pressure/Temperature/Time) Start: 14.30/24.17/1345 Finish: 14.46/20.06/1400

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	540	153.44			22.59	1348		175.22	998.25
			172.50						
			172.53						
			172.50						
				153.44					
4	456	116.95			22.19	1350		174.76	998.71
			136.30						
			136.27						
			136.32						
				116.93					
3	382	84.71			21.41	1352		174.70	998.77
			104.24						
			104.26						
			104.24						
				84.74					
2	277	39.09			20.61	1354		174.34	999.13
			58.87						
			58.89						
			58.89						
				39.11					
1	207	14.26			20.10	1356		172.83	1000.64
			29.20						
			29.18						
			29.20						
				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: 7/29/99 Job No.: 1572

Serial No.: 1455 Well Name: MW-17

Elevation of Datum(ft msl): 1191.21 Range: 0 to 750 psia Client: Jet Propulsion Laboratory

Weather: 75 degrees, sunny Casing Size: 1.5-inch Westbay Casing

Operator: J. Brenner/T. Turpijn/M. Hunt

Ambient Reading (Pressure/Temperature/Time) Start: 14.14/22.35/0820 Finish: 14.31/20.61/0835

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	726	187.87			20.79	823		240.91	950.30
			224.52						
			224.49						
			224.52						
				187.90					
4	582	125.33			19.31	825		230.99	960.22
			166.38						
			166.40						
			166.38						
				125.32					
3	468	75.79			18.06	827		230.31	960.90
			117.27						
			117.25						
			117.27						
				75.82					
2	370	33.24			17.17	829		219.24	971.97
			79.57						
			79.60						
			79.57						
				33.22					
1	250	14.28			15.76	831		211.73	979.48
			30.82						
			30.80						
			30.82						
				14.26					

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: 7/29/99 Job No.: 1572

Serial No.: 1455 Well Name: MW-18

Elevation of Range: 0 to 750 psia Client: Jet Propulsion Laboratory

atum(ft msl): 1225.41 Weather: 75 degrees, sunny Casing Size: 1.5-inch Westbay Casing

Operator: J. Brenner/T. Turpijn/M. Hunt

Ambient Reading (Pressure/Temperature/Time) Start: 14.20/19.45/0855 Finish: 14.21/18.20/0910

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	147.97			21.05	857		283.02	942.39
			188.02						
			188.05						
			188.02						
				147.95					
4	564	95.83			20.75	859		263.77	961.64
			144.36						
			144.33						
			144.38						
				95.86					
3	424	35.08			19.99	902		251.45	973.96
			89.01						
			88.99						
			89.01						
				35.09					
2	330	14.32			18.99	904		250.71	974.70
			48.57						
			48.59						
			48.57						
				14.35					
1	270	14.28			18.37	906		250.36	975.05
			22.72						
			22.74						
			22.70						
				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: 7/29/99 Job No.: 1572

Serial No.: 1455 Well Name: MW-19

Elevation of Range: 0 to 750 psia Client: Jet Propulsion Laboratory

atum(ft msl): 1142.94 Weather: 75 degrees, sunny Casing Size: 1.5-inch Westbay Casing

Operator: J. Brenner/T. Turpijn/M. Hunt

Ambient Reading (Pressure/Temperature/Time) Start: 14.32/19.31/0940 Finish: 14.26/17.71/0954

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	498	93.80			19.24	942		175.78	967.16
			153.95						
			153.97						
			154.00						
			93.77						
4	444	70.32			18.82	944		175.64	967.30
			130.62						
			130.64						
			130.61						
			70.30						
3	392	47.71			18.07	946		167.48	975.46
			111.58						
			111.63						
			111.65						
			47.74						
2	314	14.40			18.50	948		167.75	975.19
			77.65						
			77.70						
			77.72						
			14.38						
1	242	14.33			18.09	950		165.91	977.03
			47.25						
			47.27						
			47.30						
			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: 7/29/99 Job No.: 1572

Serial No.: 1455 Well Name: MW-20

Elevation of datum(ft msl): 1165.05 Range: 0 to 750 psia Client: Jet Propulsion Laboratory
 Weather: 75 degrees, sunny Casing Size: 1.5-inch Westbay Casing

Operator: J. Brenner/T. Turpijn/M. Hunt

Ambient Reading (Pressure/Temperature/Time) Start: 14.25/19.31/0915 Finish: 14.26/17.85/0930

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	900	263.57			22.75	916	202.33	962.72	
			316.68						
			316.69						
			316.71						
				263.61					
4	700	176.66			22.55	918	237.78	927.27	
			214.65						
			214.63						
			214.60						
				176.64					
3	562	116.66			22.05	920	222.60	942.45	
			161.36						
			161.38						
			161.41						
				116.63					
2	392	42.80			20.73	922	205.24	959.81	
			95.19						
			95.24						
			95.22						
				42.78					
1	230	14.28			18.66	924	204.56	960.49	
			25.26						
			25.31						
			25.28						
				14.28					

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: 7/29/99 Job No.: 1572
 Serial No.: 1455 Well Name: MW-21
 Elevation of Range: 0 to 750 psia Client: Jet Propulsion Laboratory
 atum(ft msl): 1059.10 Weather: 75 degrees, sunny Casing Size: 1.5-inch Westbay Casing
 Operator: J. Brenner/T. Turpijn/M. Hunt
 Ambient Reading (Pressure/Temperature/Time) Start: 14.34/23.23/1411 Finish: 14.32/19.34/1425

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	135.61			22.08	1413		65.94	993.16
			147.01						
			146.98						
			147.03						
				135.66					
4	310	108.66			21.49	1415		65.83	993.27
			120.15						
			120.18						
			120.20						
				108.69					
3	240	78.73			20.73	1417		64.74	994.36
			90.28						
			90.31						
			90.33						
				78.70					
2	161	44.39			19.53	1419		64.36	994.74
			56.18						
			56.23						
			56.26						
				44.37					
1	90	14.34			19.34	1421		64.75	994.35
			25.25						
			25.28						
			25.30						
				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: 7/29/99 Job No.: 1572
 Serial No.: 1455 Well Name: MW-22
 Elevation of Range: 0 to 750 psia Client: Jet Propulsion Laboratory
 Datum(ft msl): 1176.98 Weather: 75 degrees, sunny Casing Size: 1.5-inch Westbay Casing
 Operator: J. Brenner/T. Turpijn/M. Hunt
 Ambient Reading (Pressure/Temperature/Time) Start: 14.25/24.41/1315 Finish: 14.30/20.95/1330

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	588	162.65			23.43	1320	191.98	985.00	
			185.94						
			185.97						
			185.94						
				162.67					
4	467	109.98			22.74	1322	188.03	988.95	
			135.20						
			135.22						
			135.20						
				109.96					
3	389	76.18			22.13	1324	182.67	994.31	
			103.73						
			103.70						
			103.73						
				76.16					
2	329	50.12			21.64	1326	182.79	994.19	
			77.65						
			77.67						
			77.65						
				50.09					
1	245	14.30			21.08	1328	183.87	993.11	
			40.77						
			40.79						
			40.77						
				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: 7/29/99 Job No.: 1572

Serial No.: 1455 Well Name: MW-23

Elevation of Datum(ft msl): 1108.84 Range: 0 to 750 psia Client: Jet Propulsion Laboratory
 Weather: 75 degrees, sunny Casing Size: 1.5-inch Westbay Casing

Operator: J. Brenner/T. Turpijn/M. Hunt

Ambient Reading (Pressure/Temperature/Time) Start: 14.31/22.51/1132 Finish: 14.34/20.14/1147

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	542	183.22			22.55	1135	126.78	982.06	
			194.33						
			194.31						
			194.33						
				183.20					
4	445	141.19			22.24	1137	124.31	984.53	
			153.32						
			153.34						
			153.37						
				141.16					
3	319	86.67			21.64	1139	118.35	990.49	
			101.28						
			101.31						
			101.33						
				86.64					
2	254	58.48			20.53	1141	118.40	990.44	
			73.08						
			73.11						
			73.13						
				58.50					
1	174	23.86			20.29	1143	117.51	991.33	
			38.77						
			38.82						
			38.85						
				23.81					

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: 7/29/99 Job No.: 1572

Serial No.: 1455 Well Name: MW-24

Elevation of Range: 0 to 750 psia Client: Jet Propulsion Laboratory

atum(ft msl): 1200.94 Weather: 75 degrees, sunny Casing Size: 1.5-inch Westbay Casing

Operator: J. Brenner/T. Turpijn/M. Hunt

Ambient Reading (Pressure/Temperature/Time) Start: 14.12/30.13/1250 Finish: 14.22/21.80/1310

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	678	205.50			26.00	1256	223.47	977.47	
			211.22						
			211.19						
			211.22						
				205.44					
4	554	151.66			24.53	1258	218.20	982.74	
			159.76						
			159.73						
			159.73						
				151.68					
3	435	100.27			23.61	1300	212.16	988.78	
			110.76						
			110.79						
			110.76						
				100.23					
2	373	73.39			23.10	1302	211.69	989.25	
			84.12						
			84.09						
			84.09						
				73.34					
1	279	32.69			22.20	1304	209.48	991.46	
			44.30						
			44.32						
			44.30						
				32.65					

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: 8/26/99 Job No.: 1572

Serial No.: 1455 Well Name: MW-3

Elevation of Range: 0 to 750 psia Client: Jet Propulsion Laboratory

atum(ft msl): 1100.34 Weather: 90 degrees, sunny Casing Size: 1.5-inch Westbay Casing

Operator: M. Losi/A. Raj/M. Hunt

Ambient Reading (Pressure/Temperature/Time) Start: 14.26/20.97/1240 Finish: 14.24/20.40/1255

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	653	163.18			22.87	1245		247.86	852.48
			189.88						
			189.90						
			189.86						
				163.21					
4	558	121.99			23.22	1247		218.95	881.39
			161.23						
			161.20						
			161.25						
				121.97					
3	346	29.98			21.78	1249		140.19	960.15
			103.46						
			103.51						
			103.44						
				29.95					
2	252	14.30			20.99	1251		136.29	964.05
			64.41						
			64.43						
			64.39						
				14.33					
1	172	14.28			20.40	1253		129.02	971.32
			32.89						
			32.84						
			32.91						
				14.24					

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: 8/26/99 Job No.: 1572

Serial No.: 1455 Well Name: MW-4

Elevation of Range: 0 to 750 psia Client: Jet Propulsion Laboratory

atum(ft msl): 1082.84 Weather: 90 degrees, sunny Casing Size: 1.5-inch Westbay Casing

Operator: M. Losi/A. Raj/M. Hunt

Ambient Reading (Pressure/Temperature/Time) Start: 14.28/22.91/1137 Finish: 14.23/20.71/1148

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	513	125.12			23.01	1139		205.80	877.04
			147.43						
			147.40						
			147.45						
				125.10					
4	392	72.51			22.72	1142		127.29	955.55
			129.01						
			129.00						
			129.01						
				72.49					
3	322	42.10			22.21	1143		118.34	964.50
			102.53						
			102.55						
			102.55						
				42.13					
2	240	14.32			21.63	1145		115.12	967.72
			68.39						
			68.41						
			68.37						
				14.29					
1	150	14.28			21.02	1146		103.60	979.24
			34.37						
			34.39						
			34.35						
				14.28					

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: 8/26/99 Job No.: 1572

Serial No.: 1455 Well Name: MW-11

Elevation of Range: 0 to 750 psia Client: Jet Propulsion Laboratory

atum(ft msl): 1139.30 Weather: 90 degrees, sunny Casing Size: 1.5-inch Westbay Casing

Operator: M. Losi/A. Raj/M. Hunt

Ambient Reading (Pressure/Temperature/Time) Start: 14.28/20.87/1215 Finish: 14.23/18.95/1234

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	188.32			21.44	1218		245.11	894.19
			185.00						
			185.02						
			185.00						
				188.31					
4	524	138.79			21.87	1225		181.79	957.51
			162.61						
			162.59						
			162.61						
				138.79					
3	429	97.88			20.54	1228		174.48	964.82
			124.58						
			124.62						
			124.57						
				97.86					
2	259	24.40			19.67	1230		158.78	980.52
			57.70						
			57.68						
			57.72						
				24.42					
1	149	14.20			18.95	1232		121.21	1018.09
			26.30						
			26.31						
			26.30						
				14.23					

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: 8/26/99 Job No.: 1572

Serial No.: 1455 Well Name: MW-12

Elevation of Range: 0 to 750 psia Client: Jet Propulsion Laboratory

atum(ft msl): 1102.14 Weather: 90 degrees, sunny Casing Size: 1.5-inch Westbay Casing

Operator: M. Losi/A. Raj/M. Hunt

Ambient Reading (Pressure/Temperature/Time) Start: 14.28/22.86/1154 Finish: 14.25/19.23/1205

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	548	134.58			22.48	1156		211.71	890.43
			160.02						
			160.07						
			160.05						
4	436	85.93		134.59	21.34	1158		148.92	953.22
			138.71						
			138.69						
			138.74						
3	323	36.81		85.91	20.58	1200		135.12	967.02
			95.73						
			95.69						
			95.71						
2	243	14.26		36.79	19.87	1202		131.60	970.54
			62.56						
			62.58						
			62.53						
1	140	14.22		14.19	19.40	1203		118.84	983.30
			23.40						
			23.47						
			23.45						
				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: 8/26/99 Job No.: 1572

Serial No.: 1455 Well Name: MW-14

Elevation of Range: 0 to 750 psia Client: Jet Propulsion Laboratory

atum(ft msl): 1173.47 Weather: 90 degrees, sunny Casing Size: 1.5-inch Westbay Casing

Operator: M. Losi/A. Raj/M. Hunt

Ambient Reading (Pressure/Temperature/Time) Start: 14.20/20.17/1024 Finish: 14.21/20.17/1034

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	540	154.40			22.82	1026		183.09	990.38
			168.91						
			168.93						
			168.93						
				154.42					
4	456	118.00			22.62	1028		182.00	991.47
			132.99						
			133.01						
			132.95						
				118.00					
3	382	85.86			21.24	1030		181.87	991.60
			100.96						
			100.99						
			100.94						
				85.81					
2	277	40.21			21.21	1032		181.13	992.34
			55.74						
			55.77						
			55.79						
				40.26					
1	207	14.24			20.17	1034		179.15	994.32
			26.27						
			26.28						
			26.29						
				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: 8/26/99 Job No.: 1572
 Serial No.: 1455 Well Name: MW-17
 Elevation of Range: 0 to 750 psia Client: Jet Propulsion Laboratory
 atum(ft msl): 1191.21 Weather: 90 degrees, sunny Casing Size: 1.5-inch Westbay Casing
 Operator: M. Losi/A. Raj/M. Hunt
 Ambient Reading (Pressure/Temperature/Time) Start: 14.14/22.30/0811 Finish: 14.20/22.10/0830

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	726	170.21			21.28	816		312.80	878.41
			193.29						
			193.27						
			193.32						
				170.22					
4	582	107.66			20.38	818		303.80	887.41
			134.77						
			134.75						
			134.79						
				107.68					
3	468	58.11			18.57	820		253.45	937.76
			107.16						
			107.19						
			107.18						
				58.09					
2	370	15.58			17.25	822		236.07	955.14
			72.25						
			72.22						
			72.22						
				15.60					
1	250	14.09			16.72	824		220.29	970.92
			27.04						
			27.07						
			27.04						
				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: 8/26/99 Job No.: 1572

Serial No.: 1455 Well Name: MW-18

Elevation of Range: 0 to 750 psia Client: Jet Propulsion Laboratory

atum(ft msl): 1225.41 Weather: 90 degrees, sunny Casing Size: 1.5-inch Westbay Casing

Operator: M. Losi/A. Raj/M. Hunt

Ambient Reading (Pressure/Temperature/Time) Start: 14.30/18.80/0836 Finish: 14.17/18.37/0850

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	147.44			21.31	842	314.93	910.48	
			174.20						
			174.23						
			174.25						
				147.39					
4	564	95.32			21.07	844	299.33	926.08	
			128.96						
			128.99						
			128.96						
				95.29					
3	424	34.55			20.06	846	267.70	957.71	
			82.07						
			81.95						
			81.95						
				34.53					
2	330	14.20			18.99	848	260.77	964.64	
			44.27						
			44.25						
			44.22						
				14.25					
1	270	14.15			18.37	850	258.62	966.79	
			19.16						
			19.18						
			19.16						
				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: 8/26/99 Job No.: 1572
 Serial No.: 1455 Well Name: MW-19
 Elevation of Range: 0 to 750 psia Client: Jet Propulsion Laboratory
 Datum(ft msl): 1142.94 Weather: 90 degrees, sunny Casing Size: 1.5-inch Westbay Casing
 Operator: M. Losi/A. Raj/M. Hunt
 Ambient Reading (Pressure/Temperature/Time) Start: 14.21/21.07/0930 Finish: 14.21/21.30/0945

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	498	93.71			19.89	932		302.11	840.83
			99.10						
			99.13						
			99.15						
				93.69					
4	444	70.18			19.17	935		298.56	844.38
			77.24						
			77.29						
			77.24						
				70.18					
3	392	47.62			18.94	937		200.65	942.29
			97.12						
			97.17						
			97.19						
				46.98					
2	314	14.52			18.22	940		194.38	948.56
			66.05						
			66.07						
			66.07						
				14.40					
1	242	14.23			18.01	942		177.34	965.60
			42.25						
			42.22						
			42.25						
				14.43					

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: 8/26/99 Job No.: 1572

Serial No.: 1455 Well Name: MW-20

Elevation of Range: 0 to 750 psia Client: Jet Propulsion Laboratory

atum(ft msl): 1165.05 Weather: 90 degrees, sunny Casing Size: 1.5-inch Westbay Casing

Operator: M. Losi/A. Raj/M. Hunt

Ambient Reading (Pressure/Temperature/Time) Start: 14.21/21.07/0903 Finish: 14.23/21.06/0920

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	900	264.61			22.46	910		210.19	954.86
			313.26						
			313.24						
			313.26						
				264.71					
4	700	177.69			22.68	912		250.03	915.02
			209.29						
			209.27						
			209.29						
				177.74					
3	562	117.59			21.85	914		242.78	922.27
			152.58						
			152.61						
			152.61						
				117.47					
2	392	43.89			21.03	916		214.38	950.67
			91.16						
			91.24						
			91.26						
				43.97					
1	230	14.22			18.83	918		212.24	952.81
			21.91						
			21.94						
			21.91						
				14.23					

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: 8/26/99 Job No.: 1572
 Serial No.: 1455 Well Name: MW-21
 Elevation of Range: 0 to 750 psia Client: Jet Propulsion Laboratory
 atum(ft msl): 1059.10 Weather: 90 degrees, sunny Casing Size: 1.5-inch Westbay Casing
 Operator: M. Losi/A. Raj/M. Hunt
 Ambient Reading (Pressure/Temperature/Time) Start: 14.26/23.70/0957 Finish: 14.29/24.10/1010

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	135.31			21.13	1000		74.51	984.59
			143.26						
			143.24						
			143.21						
				135.31					
4	310	108.37			20.61	1002		74.46	984.64
			116.36						
			116.39						
			116.39						
				108.36					
3	240	78.36			20.17	1005		73.01	986.09
			86.69						
			86.64						
			86.67						
				78.32					
2	161	44.02			19.65	1007		72.05	987.05
			52.91						
			52.79						
			52.81						
				44.00					
1	90	14.27			19.55	1010		71.38	987.72
			22.42						
			22.30						
			22.32						
				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: 8/26/99 Job No.: 1572

Serial No.: 1455 Well Name: MW-22

Elevation of Range: 0 to 750 psia Client: Jet Propulsion Laboratory

atum(ft msl): 1176.98 Weather: 90 degrees, sunny Casing Size: 1.5-inch Westbay Casing

Operator: M. Losi/A. Raj/M. Hunt

Ambient Reading (Pressure/Temperature/Time) Start: 14.34/23.70/1046 Finish: 14.32/21.24/1104

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	588	162.25			23.56	1057		211.50	965.48
			177.55						
			177.53						
			177.55						
				162.23					
4	467	109.74			23.14	1058		213.43	963.55
			124.26						
			124.24						
			124.26						
				109.75					
3	389	75.90			22.52	1100		194.69	982.29
			98.57						
			98.54						
			98.58						
				75.90					
2	329	49.82			21.98	1101		194.89	982.09
			72.47						
			72.49						
			72.44						
				49.90					
1	245	14.22			21.40	1102		191.97	985.01
			37.32						
			37.35						
			37.29						
				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: 8/26/99 Job No.: 1572

Serial No.: 1455 Well Name: MW-24

Elevation of Range: 0 to 750 psia Client: Jet Propulsion Laboratory

atum(ft msl): 1200.94 Weather: 90 degrees, sunny Casing Size: 1.5-inch Westbay Casing

Operator: M. Losi/A. Raj/M. Hunt

Ambient Reading (Pressure/Temperature/Time) Start: 14.19/23.67/1113 Finish: 14.23/21.24/1128

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	678	205.26			23.27	1116		277.07	923.87
			188.02						
			188.00						
			188.02						
				205.23					
4	554	151.49			22.85	1120		253.59	947.35
			144.44						
			144.42						
			144.45						
				151.50					
3	435	100.01			22.58	1122		228.19	972.75
			103.87						
			103.85						
			103.87						
				100.03					
2	373	73.17			22.38	1124		225.15	975.79
			78.31						
			78.28						
			78.32						
				73.13					
1	279	32.48			21.80	1125		217.91	983.03
			40.71						
			40.69						
			40.68						
				32.49					



FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-3 Depth: 252 ft Date: 8-4-99Well Name: MW-3 Sampling Zone No.: 2 Starting Time: 1230 Finishing Time: 1320Technicians: M. Hunt, T. Turpin-KeaslerWater Level Inside MP Casing (Beginning of Session) 14.01 psi (End of Session) 14.16 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	✓	✓	✓	✓	✓	✓	14.01	✓	1235	1238	✓	14.18	1	1 st run; initial parameters; NTUs=1.0
2	✓	✓	✓	✓	✓	✓	14.14	✓	1304	1306	✓	14.16	1	2 nd RUN COLLECT MW-993-070 2 nd DC CLOG; Cr ⁶⁺ ; TOTAL Cr; PH PARAMETERS
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: Outside MP casing pressure = 66.85Total 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: 8/4/99Well Name: MW-3 Sampling Zone No.: 3 Starting Time: 1140 Finishing Time: 1820Technicians M. HUNT, T. TURPIN-KEASLERWater Level Inside MP Casing (Beginning of Session) 31.77 (PSIA) (End of Session) 31.78 psia

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	✓	✓	✓	✓	✓	✓	31.77	✓	1145	1147	✓	31.82	1	1 st RUN: PARAMETERS NTUs = 4.90
2	✓	✓	✓	✓	✓	✓	31.71	✓	1202	1205	✓	31.78	1	2 nd run; collect MW-993-069 VOCs, Cr _{tot} , Cr ⁶⁺ , Cl _{sp} ; final parameters
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: OUTSIDE MP CASING = 105.89 psiaTotal Volume: 2 F2



FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-3 Depth: 558 Date: 8/4/99

Well Name: MW-3 Sampling Zone No.: 4 Starting Time: 1035 Finishing Time: 1135

Technicians M. HUNT, T. TURPIN-KASLER

Water Level Inside MP Casing (Beginning of Session) 123.90 (PSIA) (End of Session) 123.92

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	✓	✓	✓	✓	✓	✓	123.90	✓	1048	1050	✓	123.95	1	1 ST RUN: PARAMETERS NTUS = 2.00
2	✓	✓	✓	✓	✓	✓	123.90	✓	1114	1116	✓	123.92	1	2 ND RUN: COLLECT MW-993-06P 2 VOLS, ClO ₄ , Cr ⁶⁺ , TOC Cr PARAMETERS N)
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: OUTSIDE MP CASING = 165.09 PSIA

Total Volume: 2 l ^{F2}



FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-3 Depth: 653 Date: 8/4/99Well Name: MW-3 Sampling Zone No.: 5 Starting Time: 0930 Finishing Time: 1035Technicians M. HUNT, T. Turpin-KeaslerWater Level Inside MP Casing (Beginning of Session) 165.31 (PSIA) (End of Session) 165.26

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
1	✓	✓	✓	✓	✓	✓	165.31	✓	0946	0948	✓	165.31	1	1 st RUN: PARAMETERS NTUs = 7.47
2	✓	✓	✓	✓	✓	✓	165.29	✓	1014	1016	✓	165.26	1	2 nd RUN: COLLECT MW-993-067 1X125 ml PARAMETER.
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: _____

Total Volume: 2l F2



FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling
Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-4 Depth: 150 ft. Date: 8-20-99
 Well Name: MW-4 Sampling Zone No.: 1 Starting Time: 1145 Finishing Time: 1220
 Technicians: M. Hunt, J. Brenner, M. Losi
 Water Level Inside MP Casing (Beginning of Session) 14.13 (psia) (End of Session) 14.15 (psia)

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	✓	1143	1148	✓	14.16	1.0	1st run; initial parameters; NTUs = 2.05
2	✓	✓	✓	✓	✓	✓	14.19	✓	1200	1205	✓	14.15	1.0	2nd run; collect MW-993-066; VOCs, Cr tot, Cr 6t, Cd4
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: Pressure outside MP casing = 35.06 (psia) Total Volume: 2.0^{F2}



FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-4 Depth: 240 ft. Date: 8-20-99
 Well Name: MW-4 Sampling Zone No.: 2 Starting Time: 10 40 Finishing Time: 11 40
 Technicians M. Hunt, J. Brenner, M. Losi
 Water Level Inside MP Casing (Beginning of Session) 14.19 (psia) (End of Session) 14.25 (psia)

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	✓	✓	✓	✓	✓	✓	14.19	✓	1044	1047	✓	14.21	1.0	1st run; initial parameters NTUs = 2.68
2	✓	✓	✓	✓	✓	✓	14.22	✓	1102	1104	✓	14.29	1.0	2nd run; collect MW-993-064; VOCs, Cr Tot, Cr 6+, Cd ₄
3	✓	✓	✓	✓	✓	✓	14.20	✓	1123	1126	✓	14.25	1.0	3rd run; final parameters
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: Pressure outside MP casing = 68.96 psia

Total Volume: 2.0 ^{F2}
3.0



FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-4 Depth: 322 ft Date: 8-20-99
 Well Name: MW-4 Sampling Zone No.: 3 Starting Time: 0945 Finishing Time: 1035
 Technicians: M. Hunt, J. Brenner, M. Losi 44.08
 Water Level Inside MP Casing (Beginning of Session) 44.13 (psia) (End of Session) 44.16 (psia)

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
1	✓	✓	✓	✓	✓	✓	44.13	✓	0942	0945	✓	44.11	1.0	1st run; initial parameters Cr Tot, Cr 6+, VOCs, ClO ₄ NTUs=2.65
2	✓	✓	✓	✓	✓	✓	44.10	✓	1001	1003	✓	44.16	1.0	2nd run; collect MW-93-063; VOCs, Cr Tot, Cr 6+, ClO ₄ ; final parameters
3	✓	✓	✓	✓	✓	✓	44.07	✓	1021	1024	✓	44.08	1.0	3rd run; final parameters
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: Pressure outside MP casing = 103.12 (psia)

Total Volume: 2.0
3.0



FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-4 Depth: 392 ft. Date: 8-20-99
 Well Name: MW-4 Sampling Zone No.: 4 Starting Time: 0900 Finishing Time: 0940
 Technicians: M. Hunt, J. Brenner, M. Losi
 Water Level Inside MP Casing (Beginning of Session) 74.57 (psia) (End of Session) 74.57 (psia)

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
1	✓	✓	✓	✓	✓	✓	74.57	✓	0901	0903	✓	74.64	1.0	1st run; initial parameters NTUs = 1.19
2	✓	✓	✓	✓	✓	✓	74.55	✓	0920	0923	✓	74.57	1.0	2nd run; collect MW-993-06.2 Cr tot, Cr 6t; final parameters
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: Pressure outside MP casing = 129.47 psia

Total Volume: 2.0 ^{F2}



FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-4 Depth: 513 ft. Date: 8/20/99

Well Name: MW-4 Sampling Zone No.: 5 Starting Time: 0805 Finishing Time: 0855

Technicians: J. BRENNER, M. HUNT, M. LOSI

Water Level Inside MP Casing (Beginning of Session) 127.30 (psia) (End of Session) 127.30 (psia)

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
1	✓	✓	✓	✓	✓	✓	127.30	✓	0817	0819	✓	127.32	1.0	1st run; initial parameters; NITUS = 3.12
2	✓	✓	✓	✓	✓	✓	127.25	✓	0835	0837	✓	127.30	1.0	2nd run; collect MW-993-061; Crit. Cr. Cr.; final parameters
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: PRESS. OUTSIDE MP CASING = 147.79 psia

Total Volume: 2.0 ^{F2}



FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-11 Depth: 149 Date: 8/11/99
 Well Name: MW-11 Sampling Zone No.: 1 Starting Time: 1045 Finishing Time: 1115
 Technicians M. HUNT, T. TURPIN-KENSCON
 Water Level Inside MP Casing (Beginning of Session) 14.28 psia (End of Session) 14.29 psia

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	✓	✓	✓	✓	✓	✓	14.28	✓	1050	1056	✓	14.29	1	1 ST RUN; PARAMETERS NTUS = 0.98
2	✓	✓	✓	✓	✓	✓	14.27	✓	1107	1111	✓	14.29	1	2 ND RUN; COLLECT MW-993-054 VOCs, Cr, Fe, Cl ₂ , PARAMETERS
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: PRESSURE OUTSIDE MP CASING = 27.06 psia Total Volume: 202



FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-11 Depth: 259 Date: 8/11/99Well Name: MW-11 Sampling Zone No.: 2 Starting Time: 1005 Finishing Time: 1040Technicians M. HUNT, T. TURPIN-KEASLERWater Level Inside MP Casing (Beginning of Session) 26.52 (End of Session) 26.56

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
1	✓	✓	✓	✓	✓	✓	26.52	✓	1011	1014	✓	26.55	1	1 st RUN; PARAMETERS NTUs = 1.99
2	✓	✓	✓	✓	✓	✓	26.54	✓	1030	1033	✓	26.56	1	2 nd RUN; COLLECT MW-993-053 VOGS, Cr ⁶⁺ , Cr ³⁺ , ClO ₂ ; PARAMETER
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: PRESSURE OUTSIDE MP CASING = 59.30Total Volume: 2L ^{F2}



FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-11 Depth: 429 Date: 8/11/99
 Well Name: MW-11 Sampling Zone No.: 3 Starting Time: 0900 Finishing Time: 0950
 Technicians: M. Hunt, J. Torpju-Keasler
 Water Level Inside MP Casing (Beginning of Session) 100.08 (End of Session) 100.11

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
1	✓	✓	✓	✓	✓	✓	100.08	✓	0902	0912	✓	100.13	1	1 st RUN; INITIAL PARAMETERS NTUs = 3.60
2	✓	✓	✓	✓	✓	✓	100.08	✓	0932	0936	✓	100.11	1	2 nd RUN; COLLECT MW-993-052 VOLs, Cr ₂₀₂ , Cr ₂₀₄ , ClO ₄ ; PARAMETERS
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: PRESSURE OUTSIDE MP CASING = 126.25

Total Volume: 2 l ^{F2}



FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-11 Depth: 524 Date: 8/11/99

Well Name: MW-11 Sampling Zone No.: 4 Starting Time: 0800 Finishing Time: 0855

Technicians H. Hunt T. Turpin-Kearson

Water Level Inside MP Casing (Beginning of Session) 141.07 (End of Session) 141.08

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
1	✓	✓	✓	✓	✓	✓	141.07	✓	0812	0816	✓	141.08	1	1 st RUN; INITIAL PARAMETERS NTUs ~ 3.21
2	✓	✓	✓	✓	✓	✓	141.05	✓	0837	0842	✓	141.08	1	2 nd RUN: COLLECT MW-993-051 VOLs, ClO ₂ ; PARAMETERS
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: PRESSURE OUTSIDE MP CASING ~ 164.39

Total Volume: 2 l ^{F2}



FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-12 Depth: 140 Date: 8/11/99
 Well Name: MW-12 Sampling Zone No.: 1 Starting Time: 1326 Finishing Time: 1415
 Technicians M. HUNT, T. TURPIN-KOASLEY
 Water Level Inside MP Casing (Beginning of Session) 14.26 psia (End of Session) 1428 psia

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
1	✓	✓	✓	✓	✓	✓	14.26	✓	1333	1338	✓	14.28	1	1 st RUN; INITIAL PARAMETERS NTU NTU ₅ = 34.4
2	✓	✓	✓	✓	✓	✓	14.26	✓	1348	1354	✓	14.28	1	2 nd RUN; PARAMETERS NTU ₅ = 2
3	✓	✓	✓	✓	✓	✓	14.25	✓	1406	1412	✓	14.28	1	3 rd RUN; COLLECT MW-193-050 A
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: Pressure outside MP casing = 25.38 psia

Total Volume: 2 L^{F2}



FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-12 Depth: 243 Date: 8/11/99Well Name: MW-12 Sampling Zone No.: 2 Starting Time: 1215 Finishing Time: 1320Technicians M. HUNT T. TURPIN-KEASLERWater Level Inside MP Casing (Beginning of Session) 34.84 psia (End of Session) 34.94 psia

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	✓	✓	✓	✓	✓	✓	34.84	✓	1222	1225	✓	34.94	1	1 st RUN; PARAMETERS NTU _s = 1.82
2	✓	✓	✓	✓	✓	✓	34.92	✓	1254	1258	✓	34.94	1	2 nd RUN; COLLECT MW-993-05-1305 VOCs, Cr, Cr ⁶⁺ , ClO ₂ , Parameters
3	✓	✓	✓	✓	✓	✓	34.82	✓	1314	1317	✓	34.94	1	3 rd RUN; FINAL PARAMETERS COLLECT MW-993-049 DUP
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: Outside MP casing pressure = 64.20 psiaTotal Volume: 3 l^{F2}



FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-12 Depth: 323 Date: 8/16/99Well Name: MW-12 Sampling Zone No.: 3 Starting Time: 0940 Finishing Time: 1020Technicians M. HUNT T. TURPIN-KEASLERWater Level Inside MP Casing (Beginning of Session) 38.92 psia (End of Session) 38.95 psia

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	✓	✓	✓	✓	✓	✓	38.92	✓	0949	0951	✓	38.95	1	1 st RUN; PARAMETERS NTUs = 2.43
2	✓	✓	✓	✓	✓	✓	38.92	✓	1008	1011	✓	38.95	1	2 nd RUN; COLLECT MW-993-047 VOLs, Cr, Cr ⁶⁺ , ClO ₄ ; PARAMETERS
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: PRESSURE OUTSIDE MP CASING = 96.83 psiaTotal Volume: 2 l ^{F2}



FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-12 Depth: 436 Date: 8/16/99

Well Name: MW-12 Sampling Zone No.: 4 Starting Time: 0950 Finishing Time: 0935

Technicians M. Hunt, T. Turpin-Kasler

Water Level Inside MP Casing (Beginning of Session) 88.11 psia (End of Session) 88.11 psia

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
1	✓	✓	✓	✓	✓	✓	88.94	✓	0900	0903	✓	88.13	1	1st RUN; PARAMETERS NTUs = 1.57
2	✓	✓	✓	✓	✓	✓	88.08	✓	0922	0925	✓	88.11	1	2nd RUN; COLLECT MW-993-046 VOLs ClO ₄ ; PARAMETERS
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: PRESSURE OUTSIDE MP CASING = 139.73 psia

Total Volume: 2L ^{F2}



FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-12 Depth: 548 Date: 8/14/99Well Name: MW-12 Sampling Zone No.: 5 Starting Time: 0750 Finishing Time: 0845Technicians M. HUNT, T. TURNER - KEASLERWater Level Inside MP Casing (Beginning of Session) 136.88 psia (End of Session) 136.88 psia

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
1	✓	✓	✓	✓	✓	✓	136.88	✓	0757	0800	✓	136.91	1	1 st RUN; PARAMETERS NTUs = 7.69
2	✓	✓	✓	✓	✓	✓	136.89	✓	0826	0829	✓	136.88	1	2 nd RUN; COLLECT MW-993-045 VOCs, ClO ₄ ; PARAMETERS
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: PRESSURE OUTSIDE MP CASING = 160.80 psiaTotal Volume: 2 l ^{F2}



FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-14 Depth: 207 Date: 8/9/99

Well Name: MW-14 Sampling Zone No.: 1 Starting Time: 1120 Finishing Time: 1155

Technicians: J. BRANNON, M. HUNT

Water Level Inside MP Casing (Beginning of Session) 14.10 (PSIA) (End of Session) 14.09 (PSIA)

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
1	✓	✓	✓	✓	✓	✓	14.10	✓	1124	1128	✓	14.16	1.0	1ST RUN, INITIAL PARAMETERS, NUS = 1.91
2	✓	✓	✓	✓	✓	✓	14.05	✓	1143	1147	✓	14.11	1.0	2ND RUN, COLLECT MW-993-092, 2/1003, TOT. CF, C ₆ , C ₁₀₄ , FINAL PARAMETERS
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: PRESS. OUTSIDE MP CASING = 27.78 PSIA Total Volume: 20 L²



FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-14 Depth: 277 Date: 8/9/99
 Well Name: MW-14 Sampling Zone No.: Z Starting Time: 1040 Finishing Time: 1115
 Technicians: J. BRANNER, M. WINT
 Water Level Inside MP Casing (Beginning of Session) 42.12 (PSIA) (End of Session) 42.19 (PSIA)

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
1	✓	✓	✓	✓	✓	✓	42.12	✓	1047	1051	✓	42.16	1.0	1st RUN: INITIAL PARAMETERS; NTVS = 1.67
2	✓	✓	✓	✓	✓	✓	42.17	✓	1104	1108	✓	42.19	1.0	2nd RUN: COLLECT MW 993-041; ZONES TOT. CR. CR. for C104; FINAL PARAMETERS
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: PRESS. OUTSIDE MP CASING = 57.23 PSIA Total Volume: 2.0L^{F2}



FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-14 Depth: 382 Date: 8/9/95
 Well Name: MW-14 Sampling Zone No.: 3 Starting Time: 1000 Finishing Time: 1035
 Technicians: J. Branner, M. H. J.
 Water Level Inside MP Casing (Beginning of Session) 87.79 (P.S.I.) (End of Session) 87.84 (P.S.I.)

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	✓	✓	✓	✓	✓	✓	87.79	✓	1005	1005	✓	87.84	1.0	1st RIN. INITIAL PARAMETERS, NITR = 2.51
2	✓	✓	✓	✓	✓	✓	87.82	✓	1025	1025	✓	87.84	1.0	2ND RIN. COLLECT MW-993-040 ZV005, TOT. Cr., Cr. Cr. C104, FINAL PARAMETERS
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: PRESS. WTS. OF MP CASING = 102.43 P.S.I.

Total Volume: 2.00 ^{F2}



FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-14 Depth: 456 Date: 8/9/79

Well Name: MW-14 Sampling Zone No.: 4 Starting Time: 0915 Finishing Time: 0955

Technicians: J. BRUNNER; M. HUNT

Water Level Inside MP Casing (Beginning of Session) 120.03 (P.S.A.) (End of Session) 120.05 (P.S.A.)

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
1	✓	✓	✓	✓	✓	✓	120.03	✓	0920	0922	✓	120.06	1.0	1st RUN: INITIAL PARAMETERS; NITR = 2.17
2	✓	✓	✓	✓	✓	✓	120.01	✓	0942	0945	✓	120.05	1.0	2nd RUN: COLLECT MW-793-039. ZWAS, TOI, CO, CR, CIO, SWI. PARAMETERS
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: Press. OUTSIDE MP CASING = 134.43 P.S.A. Total Volume: 2.0 ^{F2}



FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-14 Depth: 540 Date: 8/9/99

Well Name: MW-14 Sampling Zone No.: S Starting Time: 0820 Finishing Time: 0910

Technicians J. BRENNER; M. HUNT

Water Level Inside MP Casing (Beginning of Session) 156.76 (PSIA) (End of Session) 156.70 (PSIA)

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
1	✓	✓	✓	✓	✓	✓	156.76	✓	0829	0854	✓	156.73	1.0	1ST RUN; INITIAL PARAMETERS; NTU'S = 2.40
2	✓	✓	✓	✓	✓	✓	156.69	✓	0858	0857	✓	156.70	1.0	2ND RUN; COLLECT MW-993-0383; 2ND'S PERCENTAGE; INITIAL PARAMETERS
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: PRESS. OUTSIDE MP CASING = 170.48 PSIA Total Volume: 2.0 ^{F2}



FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-17 Depth: 370 ft. Date: 8-10-99Well Name: MW-17 Sampling Zone No.: 2 Starting Time: 1320 Finishing Time: 1400Technicians T. Turpijn-Kessler, M. HuntWater Level Inside MP Casing (Beginning of Session) 17.51 psia (End of Session) 17.62

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
1	✓	✓	✓	✓	✓	✓	17.51	✓	1327	1330	✓	17.57	1	1ST RUN; INITIAL PARAMETERS MTLS - 1.22
2	✓	✓	✓	✓	✓	✓	17.55	✓	1347	1351	✓	17.62	1	2ND RUN; COLLECT MW-793-03 VOCs, Cr, Cr ⁶⁺ , ClO ₄ PARAMETERS
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: Pressure outside MP casing = 73.96 Total Volume: 2 L^{F2}



FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-17 Depth: 468 ft. Date: 8-10-99

Well Name: MW-17 Sampling Zone No.: 3 Starting Time: 1225 Finishing Time: 1315

Technicians T. Turpijn-Keasler, M. Hunt

Water Level Inside MP Casing (Beginning of Session) 60.17 psia (End of Session) 60.24 psia

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
1	✓	✓	✓	✓	✓	✓	60.17	✓	1232	1235	✓	60.23	1	1 st RUN; INITIAL PARAMETERS NTU _s = 4.29
2	✓	✓	✓	✓	✓	✓	60.19	✓	1255	1258	✓	60.24	1	2 nd RUN: COLLECT MW 993-35 2 VOCs, Cr ⁶⁺ , Fe ²⁺ ; FINAL PARAMETER
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: Pressure outside MP casing = 105.94

Total Volume: 20^{F2}



FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-17 Depth: 582 ft. Date: 8-10-99
 Well Name: MW-17 Sampling Zone No.: 4 Starting Time: 1122 Finishing Time: 1220
 Technicians T. Turpijn-Keasler, M. Hunt
 Water Level Inside MP Casing (Beginning of Session) 109.76 psia (End of Session) 109.79 psia

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	✓	✓	✓	✓	✓	✓	109.76	✓	1133	1135	✓	109.81	1	1 st run; initial parameters NTUS = 1.88
2	✓	✓	✓	✓	✓	✓	109.74	✓	1201	1204	✓	109.79	1	2 nd run; collect MW-993-034; 1st VOCs, Crd, Cr6+, ClO4; final parameters
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: Pressure outside MP casing = 136.96 Total Volume: 2 L



FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling
Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-17 Depth: 726 ft. Date: 8-10-99

Well Name: MW-17 Sampling Zone No.: 5 Starting Time: 0805 1005 Finishing Time: 1120

Technicians T. Turpijn-Keasler, M. Hunt

Water Level Inside MP Casing (Beginning of Session) 172.11 (End of Session) 172.30

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	✓	✓	✓	✓	✓	✓	189.76	✓	—	—	—	—	—	1 st RUN TO SCREEN 5; PARAMETERS NTUS = Bailed 3.5 gallons
2	✓	✓	✓	✓	✓	✓	172.11	✓	1017	1024	✓ [Ⓢ] 172.16	172.16	1	2 nd RUN TO SCREEN 5; PARAMETERS NTUS = 4.8
3	✓	✓	✓	✓	✓	✓	172.25	✓	1054	1101	✓	172.30	1	3 rd RUN COLLECT MW-993-033 2 VOCs + PERCHLORATE FINAL PARAMETERS
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: Pressure outside MP casing = ~~195.58~~ 195.50

Total Volume: 2.2



FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-18 Depth: 330 Date: 8/2/95
 Well Name: MW-18 Sampling Zone No.: 2 Starting Time: 1405 Finishing Time: 1445
 Technicians: M. HUNT, J. BRENNER
 Water Level Inside MP Casing (Beginning of Session) 14.23 (PSIA) (End of Session) 14.29 (PSIA)

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
1	✓	✓	✓	✓	✓	✓	14.23	✓	1415	1419	✓	14.21	1.0	1ST RUN, INITIAL PARAMETERS, NTUS = 0.68
2	✓	✓	✓	✓	✓	✓	14.29	✓	1433	1439	✓	14.29	1.0	2ND RUN, COLLECT MUMS-052-032MS, 032MSD, 6 VOLS TOP 4 C60
3														C104, FINAL PARAMETERS
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: PRESS. OUTSIDE MP CASING = 17.31 PSIA Total Volume: 2.00 F²



FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-13 Depth: 424 Date: 8/2/99

Well Name: MW-13 Sampling Zone No.: 3 Starting Time: 1315 Finishing Time: 1350

Technicians: M. HUNT, J. BRENNER

Water Level Inside MP Casing (Beginning of Session) 36.66 (PSIA) (End of Session) 36.75 (PSIA)

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	✓	✓	✓	✓	✓	✓	36.66	✓	1323	1326	✓	36.72	1.0	1ST RUN, INITIAL PARAMETERS NHS = 0.86
2	✓	✓	✓	✓	✓	✓	36.74	✓	1344	1347	✓	36.75	1.0	2ND RUN, COLLECT MW-13-031 2.005, T.C. C ₆ , C ₁₀ , FINAL PARAMETERS
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: PRESS. OUTSIDE MP CASING = 28.94 PSIA

Total Volume: 2.02 ^{F2}



FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-18 Depth: 564 Date: 8/2/99
 Well Name: MW-18 Sampling Zone No.: # Starting Time: 1215 Finishing Time: 1305
 Technicians: M. Hunt, J. Brenner
 Water Level Inside MP Casing (Beginning of Session) 97.59 (P.S.A.) (End of Session) 97.64 (P.S.A.)

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	✓	✓	✓	✓	✓	✓	97.59	✓	1224	1227	✓	97.64	1.0	1ST RUN - INITIAL PARAMETERS, NTUS = 0.97
2	✓	✓	✓	✓	✓	✓	97.61	✓	1253	1257	✓	97.64	1.0	END RUN - COLLECT PW-713-030 2 VOLS. TO S. CGG, CLO, FINAL PARAMETERS
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: PRESS. OUTSIDE MP. CAS. SG = 133.34 P.S.A Total Volume: 2.02 ^{F2}



FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-18 Depth: 684 Date: 8/2/99

Well Name: MW-18 Sampling Zone No.: 5 Starting Time: 1110 Finishing Time: 1210

Technicians: M. HUNT, J. BRENNER

Water Level Inside MP Casing (Beginning of Session) 149.75 (PSIA) (End of Session) 149.82 (PSIA)

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
1	✓	✓	✓	✓	✓	✓	149.75	✓	1122	1125	✓	149.82	1.0	1ST RUN, INITIAL PARAMETERS NTUS = 1.47
2	✓	✓	✓	✓	✓	✓	149.80	✓	1153	1156	✓	149.82	1.0	2ND RUN, COLLECT MW-9915-029, 2-029, RECALIBRATE, FINAL PARAMETERS
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: PRESS. OUTSIDE MP CASING = 181.56 PSIA

Total Volume: 2.02^{F2}



FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-19 Depth: 242 Date: 8/2/99Well Name: MW-19 Sampling Zone No.: 1 Starting Time: 1300 Finishing Time: 1350 1345 [Ⓚ]Technicians T. Turpin, Keasler, M. Hunt, J. BRENNERWater Level Inside MP Casing (Beginning of Session) 14.23 psia (End of Session) 14.19 psia

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
1	✓	✓	✓	✓	✓	✓	14.23	✓	1306	1310	✓	14.22	✓	1 ST RUN; INITIAL PARAMETERS NTUs = 1.0
2	✓	✓	✓	✓	✓	✓	14.17	✓	1329	1333	✓	14.19	✓	2 ND RUN; COLLECT MW-993-028 2 VOAs, PERCHLORATE, PARAMETERS
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: PRESSURE OUTSIDE MP CASING = 44.68Total Volume: 2 l ^{F2}



FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling Field Data Sheet for Multi-Port Well

Project: SPL Location: MW-19 Depth: 314 Date: 8/3/99Well Name: MW-19 Sampling Zone No.: 2 Starting Time: 1150 Finishing Time: 1255Technicians T. Turpin-Keaster, M. Hunt, J. BrennerWater Level Inside MP Casing (Beginning of Session) 15.78 psia (End of Session) 15.74 psia

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
1	✓	✓	✓	✓	✓	✓	15.78	✓	1202	1205	✓	15.75	✓	1 st RUN; INITIAL PARAMETERS NTU ₅ = 2.21
2	✓	✓	✓	✓	✓	✓	15.70	✓	1249	1252	✓	15.74	✓	2 nd RUN; COLLECT MW-993-027 2 VOA's, PERCHLORATE, PARAMETERS
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: PRESSURE OUTSIDE MP CASING = 68.22 psiaTotal Volume: 2 L



FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-19 Depth: 392 Date: 8/3/99Well Name: MW-19 Sampling Zone No.: 3 Starting Time: 1050 Finishing Time: 1145Technicians: T. Tu-pyn-Keusler, M. Hunt, J. BrennerWater Level Inside MP Casing (Beginning of Session) 49.54 (psia) (End of Session) 49.54 psia

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
1	✓	✓	✓	✓	✓	✓	49.54	✓	1103	1106	✓	49.52	1.0	1st RUN; INITIAL PARAMETERS; NTU'S = 1.71
2	✓	✓	✓	✓	✓	✓	49.51	✓	1130	1133	✓	49.54	1.0	2nd RUN; COLLECT MW-993-026 2 UOAs, PERCHLORATE PARAMETERS
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: PRESS. OUTSIDE MP CASING = 99.99 PSIATotal Volume: 2 l ^{F2}



FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-19 Depth: 444 Date: 8/3/99

Well Name: MW-19 Sampling Zone No.: 4 Starting Time: 1004 Finishing Time: 1045

Technicians T. Turpin - Keasler, J. Brenner, M. Hunt

Water Level Inside MP Casing (Beginning of Session) 72.20 psia (End of Session) 72.18 psia

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	✓	✓	✓	✓	✓	✓	72.20	✓	1014	1017	✓	72.25	1	1 st RUN; INITIAL PARAMETERS NTU'S = 1.15
2	✓	✓	✓	✓	✓	✓	72.21	✓	1039	1042	✓	72.18	1	2 nd RUN: COLLECT MW-993-025 2 VOAs, PERCHLORATE, PARAMETERS
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: Outside MP casing = 83.10 psi

Total Volume: 2.08 ^{F2}



FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling Field Data Sheet for Multi-Port Well

Project: JPL Quarterly Monitoring Location: Pasadena MW-19 Depth: 498 Date: 8/3/99Well Name: MW-19 Sampling Zone No.: 5 Starting Time: 0850 Finishing Time: 0950Technicians T. Turpin-Kessler, J. Brenner, M. HuntWater Level Inside MP Casing (Beginning of Session) 95.73 PSI (End of Session) 95.75 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	
1	✓	✓	✓	✓	✓	✓	95.73	✓	0910	0913	✓	95.78	1	1 st RUN; INITIAL PARAMETERS NTU'S = 1.54
2	✓	✓	✓	✓	✓	✓	95.75 ⁷⁰⁰	✓	0942	0945	✓	95.75	1	2 nd RUN; COLLECT MW-993-024 2 VOAs; PERCHLORATE FINAL PARAMETERS
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: pressure outside MP casing = 105.07 PSITotal Volume: 2 l

F2



FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-20 Depth: 230 Date: 8/5/99
 Well Name: MW-20 Sampling Zone No.: 1 Starting Time: 1250 Finishing Time: 1405
 Technicians M. HUNT, T. TURPIN, KEASLER
 Water Level Inside MP Casing (Beginning of Session) 13.95 psia (End of Session) 14.21 psia

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	✓	✓	✓	✓	✓	✓	13.95	✓	1322	1328	✓	14.18	1	1 st run; initial parameters; NTUs = 2.04 1.09
2	✓	✓	✓	✓	✓	✓	14.16	✓	1343	1348	✓	14.21	1	2 nd run; collect MW-993-023; VOC's, Cu, Tot Cr (22), Cd, Pb; final parameters
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: Outside MP casing pressure = 24.17 psia

Total Volume: 2 l^{F2}



FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-20 Depth: 392 Date: 8/5/99Well Name: MW-20 Sampling Zone No.: 2 Starting Time: 1155 Finishing Time: 1245Technicians M. HUNT, T. TURPIN - KEASUMWater Level Inside MP Casing (Beginning of Session) 45.77 psia (End of Session) 45.81 psia

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
1	✓	✓	✓	✓	✓	✓	45.77	✓	1203	1205	✓	45.79	1	1 st run; initial parameters; NTUs = 0.52
2	✓	✓	✓	✓	✓	✓	45.78	✓	1226	1229	✓	45.81	1	2 nd run; Collect for MW-113-022; VORS, Cr Tot Cr (tot), CDB; final parameters
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: Outside MP casing pressure = 93.51 psiaTotal Volume: 2 L ^{F2}



FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-20 Depth: 562 Date: 8/5/99Well Name: MW-20 Sampling Zone No.: 3 Starting Time: 1050 Finishing Time: 1150Technicians M. HUNT, T. TURPUN-KEASLERWater Level Inside MP Casing (Beginning of Session) 118.29 psia (End of Session) 119.20 psia

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	✓	✓	✓	✓	✓	✓	118.29	✓	1058	1102	✓	118.76	1	1 st run; initial parameters; NTUs=0.68
2	✓	✓	✓	✓	✓	✓	118.98	✓	1127	1130	✓	119.20	1	2 nd run; Collect MW-493-021; VOCs, Cr, Cu, Co (Cd), Cd; Final parameters
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: Outside MP casing pressure = 155.50 psiaTotal Volume: 2 l^{F2}



FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-20 Depth: 700 Date: 8/5/99Well Name: MW-20 Sampling Zone No.: 4 Starting Time: 0945 Finishing Time: 1045Technicians: M. HUNT, T. TURPIN-KEASLERWater Level Inside MP Casing (Beginning of Session) 178.42 psia (End of Session) 178.37 psia

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	
1	✓	✓	✓	✓	✓	✓	178.42	✓	0956	0958	✓	178.40	1	1st run; initial parameters; NTUs=3.21
2	✓	✓	✓	✓	✓	✓	178.36	✓	1025	1027	✓	178.37	1	2nd run; collect MW-993-020; VOCs, Cr Tot Cr(VI), Cd, Pb; final parameters
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: Outside MP casing pressure = 215.13 psiaTotal Volume: 2l^{F2}



FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-20 Depth: 900 Date: 8/5/99

Well Name: MW-20 Sampling Zone No.: 5 Starting Time: 0820 Finishing Time: 0940

Technicians M. HUNT, T. TURPUN-KEASLER

Water Level Inside MP Casing (Beginning of Session) 265.41 psia (End of Session) 265.36 psia

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	
1	✓	✓	✓	✓	✓	✓	265.41	✓	0836	0839	✓	265.42	1	1 st run; initial parameters; NTUs = 2.04
2	✓	✓	✓	✓	✓	✓	265.38	✓	0911	0913	✓	265.36	1	2 nd run; collect MW-993-019; VOCs, Crut, Cr(VI), ClO ₂ ; final parameters
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: OUTSIDE MP CASING = 315.68 psia

Total Volume: 2 l^{F2}



FOSTER WHEELER ENVIRONMENTAL CORPORATION

**Groundwater Sampling
Field Data Sheet for Multi-Port Well**

Project: JPL Location: MW-21 Depth: 90 Date: 8/6/99

Well Name: MW-21 Sampling Zone No.: 1 Starting Time: 1035 Finishing Time: 1110

Technicians: M. Hunt, T. Turpijn-Keasler

Water Level Inside MP Casing (Beginning of Session) 14.83 psia (End of Session) 14.88 psia

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 Local Port	Water Level in MP (ft)	Activate	Valve Open Time	Valve Closed Time	Deactivate		Water Level in MP (ft) Remove Tape
1	✓	✓	✓	✓	✓	✓	14.83	✓	1041	1047	✓	14.86	1	1 st run to screen #1; initial parameters; NTUs = 0.66
2	✓	✓	✓	✓	✓	✓	14.81	✓	1057	1103	✓	14.88	1	2 nd run; collect MW-443-018; VOCs, CO ₂ ; final parameters
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: Outside MP casing pressure = 24.40 psia

Total Volume: 2 l^{F2}



FOSTER WHEELER ENVIRONMENTAL CORPORATION

**Groundwater Sampling
Field Data Sheet for Multi-Port Well**

Project: JPL Location: MW-21 Depth: 161 Date: 8/6/99

Well Name: MW-21 Sampling Zone No.: 2 Starting Time: 1000 Finishing Time: 1030

Technicians M. HUNT, T. TURPIN-KEASLER

Water Level Inside MP Casing (Beginning of Session) 46.10 psia (End of Session) 46.15 psia

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
1	✓	✓	✓	✓	✓	✓	46.10	✓	1006	1010	✓	46.13	1	1st run to screen #2; initial parameters; NTUs = 1.18
2	✓	✓	✓	✓	✓	✓	46.17	✓	1022	1025	✓	46.15	1	2nd run; collect MW-93-017; VOCs, ClO ₂ ; final parameters
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														

1.23

Comments: Outside MP casing pressure = 54.82 psia

Total Volume: 2 L²



FOSTER WHEELER ENVIRONMENTAL CORPORATION

**Groundwater Sampling
Field Data Sheet for Multi-Port Well**

Project: JPL Location: MW-21 Depth: 240 Date: 8/6/99
 Well Name: MW-21 Sampling Zone No.: 3 Starting Time: 0930 Finishing Time: 0955
 Technicians: M. Hunt, T. Turpin
 Water Level Inside MP Casing (Beginning of Session) 80.48 psia (End of Session) 80.49 psia

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
1	✓	✓	✓	✓	✓	✓	80.48	✓	0928	0934	✓	80.51	1	1st run to screen 3; initial parameters; ADUs = 1.18
2	✓	✓	✓	✓	✓				0932				+	
3	✓	✓	✓	✓	✓	✓	80.46	✓	0945	0947	✓	80.49	1	2nd run; collect MW-993-016; VOCs, ClO ₂ ; final parameters
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: Outside MP casing pressure = 88.64 psia Total Volume: 2L



FOSTER WHEELER ENVIRONMENTAL CORPORATION

**Groundwater Sampling
Field Data Sheet for Multi-Port Well**

Project: JPL Location: MW-21 Depth: 310 Date: 8/6/99

Well Name: MW-21 Sampling Zone No.: 4 Starting Time: 0838 Finishing Time: 0925

Technicians M. Hout, T. Turpin - Keasler

Water Level Inside MP Casing (Beginning of Session) 110.49 psia (End of Session) 110.47 psia

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
1	✓	✓	✓	✓	✓	✓	110.49	✓	0845	0847	✓	110.49	1	1st run to screen 1 - parameters NTUS = 2.06
2	✓	✓	✓	✓	✓	✓	110.49	✓	0904	0906	✓	110.47	1	2nd run; collect MW-993-015; VOCs, cell; final parameters
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: OUTSIDE MP CASING - 118.36 psia

Total Volume: 2L



FOSTER WHEELER ENVIRONMENTAL CORPORATION

**Groundwater Sampling
Field Data Sheet for Multi-Port Well**

Project: JPL Location: MW-21 Depth: 372 Date: 8/6/99

Well Name: MW-21 Sampling Zone No.: 5 Starting Time: 0750 Finishing Time: 0830

Technicians M. HUNT, T. TURPIN - KEASLER

Water Level Inside MP Casing (Beginning of Session) 137.55 psia (End of Session) 137.54 psia

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
1	✓	✓	✓	✓	✓	✓	137.55	✓	0801	0801	✓	137.58	1	1st RUN TO SCREEN 5 INITIAL PARAMETERS NTUs=1.03
2	✓	✓	✓	✓	✓	✓	137.51	✓	0822	0825	✓	137.54	1	2nd RUN COLLECT MW-093-014 2 VOCs, PERCHLORATE PARAMETERS
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: OUTSIDE MP CASING = 145.26 psia Total Volume: 2 L



FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-22 Depth: 245 Date: 8/13/99

Well Name: MW-22 Sampling Zone No.: 1 Starting Time: 1020 Finishing Time: 1100

Technicians M. HUNT, T. TURPIN-KEASON

Water Level Inside MP Casing (Beginning of Session) 14.90 psia (End of Session) 14.95 psia

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	✓	✓	✓	✓	✓	✓	14.90	✓	1030	1034	✓	14.91	1	1 st RUN; PARAMETERS NTU ₆₀
2	✓	✓	✓	✓	✓	✓	14.89	✓	1048	1052	✓	14.95	1	2 nd RUN; COLLECT MW-993-013 VOCs, Cr ⁶⁺ , ClO ₂ ; PARAMETERS
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: PRESSURE OUTSIDE MP CASING = 38.86 psia

Total Volume: 2 l^{F2}



FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-22 Depth: 329 Date: 8/13/99Well Name: MW-22 Sampling Zone No.: 2 Starting Time: 0925 Finishing Time: 1015Technicians M. HUNT, T. Turpin-KEASLERWater Level Inside MP Casing (Beginning of Session) 51.96 psia (End of Session) 51.98 psia

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	
1	✓	✓	✓	✓	✓	✓	51.96	✓	0940	0943	✓	51.98	1	1 st RUN; PARAMETERS NTU'S = 6.84
2	✓	✓	✓	✓	✓	✓	51.95	✓	1002	1005	✓	51.98	1	2 nd RUN; COLLECT MW-993-012 VOCs, Cr ⁶⁺ , ClO ₂ ; PARAMETERS
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: PRESSURE OUTSIDE MP CASING = 73.89 psiaTotal Volume: 2 l



FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-22 Depth: 389 Date: 8/13/99

Well Name: MW-22 Sampling Zone No.: 3 Starting Time: 0835 Finishing Time: 0920

Technicians A. HUNT, T. TURPIN, KEASLER

Water Level Inside MP Casing (Beginning of Session) 78.04 psia (End of Session) 78.04 psia

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	✓	✓	✓	✓	✓	✓	78.04	✓	0845	0848	✓	78.07	1	1st RUN; PARAMETERS NTUs = 7.50
2	✓	✓	✓	✓	✓	✓	78.04	✓	0909	0911	✓	78.04	1	2nd RUN; COLLECT MW-993-011 VOCs, ClO ₄ ; PARAMETERS
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: PRESSURE OUTSIDE MP CASING = 99.94 psia

Total Volume: 2 L ^{F2}



FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-22 Depth: 467 Date: 8/13Well Name: MW-22 Sampling Zone No.: 4 Starting Time: 0740 Finishing Time: 0830Technicians M. Hunt, T. Turpin-KesslerWater Level Inside MP Casing (Beginning of Session) 111.99 psia (End of Session) 112.01 psia

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
1	✓	✓	✓	✓	✓	✓	111.99	✓	0749	0752	✓	112.01	1	1 st RUN; PARAMETERS NTU ~ 3.20
2	✓	✓	✓	✓	✓	✓	111.99	✓	0817	0820	✓	112.01	1	2 nd RUN; COLLECT MW-993-010 ClO ₄ ; FINAL PARAMETERS
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: PRESSURE OUTSIDE MP CASING = 125.70 psiaTotal Volume: 2 L



FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-23 Depth: 174 Date: 8/23/97

Well Name: MW-23 Sampling Zone No.: 1 Starting Time: 1215 Finishing Time: 1245

Technicians M. HUNT, T. TURPIN - KEASLER

Water Level Inside MP Casing (Beginning of Session) 14.26 (PSIA) (End of Session) 14.15 (PSIA)

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
1	✓	✓	✓	✓	✓	✓	14.26	✓	1220	1225	✓	14.28	1.0	1ST RUN, INITIAL PARAMETERS; NTUS = 7.91
2	✓	✓	✓	✓	✓	✓	14.18	✓	1235	1240	✓	14.15	1.0	COLLECT MW-993-009; 2VOCs; TOT. Cr Cr6+, ClO4; KINAK; PARAMETERS
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: PRESSURE OUTSIDE MP CASING = 35.48 PSIA

Total Volume: 2 L ^{F2}



FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-23 Depth: 254 Date: 8/23/99

Well Name: MW-23 Sampling Zone No.: ~~254~~ 2 Starting Time: 1145 Finishing Time: 1205

Technicians M. HUNT, T. TURPIN-KEASLER

Water Level Inside MP Casing (Beginning of Session) 46.60 (P.S.I.A) (End of Session) 46.58 (P.S.I.A)

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
1	✓	✓	✓	✓	✓	✓	46.60	✓	1147	1151	✓	46.61	1.0	1ST RUN; INITIAL PARAMETERS, NTJ'S = 1.56 CORRECT MW-993-003; 2 VOLS TOT. CF, C ₆₀ , C ₁₀₀ ; FINAL
2	✓	✓	✓	✓	✓	✓	46.60	✓	1203	1203	✓	46.58	1.0	
3														PARAMETERS
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: PRESSURE OUTSIDE MP CASING = 67.60

Total Volume: 2.0 ^{F2}



FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-23 Depth: 319 Date: 8/23/97

Well Name: MW-23 Sampling Zone No.: 3 Starting Time: ~~0805~~ 1050 Finishing Time: 1140

Technicians M. HUNT, T. TURPIN - KEASLER

Water Level Inside MP Casing (Beginning of Session) 74.87 (PSID) (End of Session) 74.87 (PSM)

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
1	✓	✓	✓	✓	✓	✓	74.87 75.69	✓	1101	1105	✓	74.87	1.0	1 ST RUN; PARAMETERS NTU _s = 26.6 COLLECT MW-993-007, 007MS, 007MSD; 6 VAS, TOT. Cr, G ⁶⁰ , Cl ⁶⁰
2	✓	✓	✓	✓	✓	✓	74.80	✓	1127	1131	✓	74.87	1.0	
3														FINAL PARAMETERS
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: PRESSURE OUTSIDE MP CASING = 95.44 psig

Total Volume: 2.0 L^{F2}



FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-23 Depth: 445 Date: 8/23/99

Well Name: MW-23 Sampling Zone No.: 4 Starting Time: 1000 Finishing Time: 1045

Technicians M. HUNT, T. TURPIN - KEASCO

Water Level Inside MP Casing (Beginning of Session) 129.59
130.45 psia (End of Session) 129.62 psia

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	
1	✓	✓	✓	✓	✓	✓	129.59 130.45	✓	1013	1016	✓	129.62	1	1 st RUN; PARAMETERS NTUs = 5.12
2	✓	✓	✓	✓	✓	✓	129.59	✓	1034	1037	✓	129.62	1	2 nd RUN: COLLECT MW-993-006 Cr ⁶⁺ , Cr ³⁺ , ClO ₄ ; PARAMETERS
3	✓	✓	✓	✓	✓									
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: PRESSURE OUTSIDE MP CASING = 140.01 psia Total Volume: 2 l



FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-23 Depth: 542 Date: 8/23/99

Well Name: MW-23 Sampling Zone No.: 5 Starting Time: 0816 0900 Finishing Time: 0955

Technicians M. Hunt, T. Turpin-Keasler

Water Level Inside MP Casing (Beginning of Session) 171.72 psia (End of Session) 171.77 psia

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	✓	✓	✓	✓	✓	✓	183.80							1 st RUN; PARAMETERS NTUS = 8.1
2	✓	✓	✓	✓	✓	✓	171.72	✓	0910	0914	✓	171.75	1	1 st RUN; PARAMETERS NTUS = 1.81
3	✓	✓	✓	✓	✓	✓	171.75	✓	0912	0915	✓	171.77	1	2 nd RUN; COLLECT MW-993-005 ClO ₄ ; PARAMETERS
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: PRESSURE OUTSIDE MP CASING = 181.83 psia

Total Volume: 2 l



FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-24 Depth: 279 ft Date: 8-19-99
 Well Name: MW-24 Sampling Zone No.: 1 Starting Time: 1203 Finishing Time: 1245
 Technicians M. Hunt, J. Brenner, T. Turpijn-Keasler
 Water Level Inside MP Casing (Beginning of Session) 34.14 psi (End of Session) 33.35 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	✓	✓	✓	✓	✓	✓	33.31 34.14	✓	1210 1207	1213	✓	33.33	1	1 st RUN; PARAMETERS NTUs = 8.27
2	✓	✓	✓	✓	✓	✓	33.31		1231	1234	✓	33.35	1	2 nd RUN, COLLECT MW-993-CO-9 VOCs, Cd, Cr, Cu, ClO ₂ PARAMETERS
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: Pressure outside MP casing = ~~40.42~~ 41.47 psia

Total Volume: 2 L ^{F2}



FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-24 Depth: 373 ft. Date: 8-19-99

Well Name: MW-24 Sampling Zone No.: 2 Starting Time: 1110 Finishing Time: 1200

Technicians M. Hunt, J. Brenner, T. Turpijn-Keasler

Water Level Inside MP Casing (Beginning of Session) 73.97 psia (End of Session) 74.01 psia

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
1	✓	✓	✓	✓	✓	✓	73.97	✓	1119	1121	✓	73.01	!	1st RUN PARAMETERS NTUS = 19.9
2	✓	✓	✓	✓	✓	✓	73.98	✓	1141	1144	✓	74.01	✓	2nd RUN COLLECT MW-993-003 100s, C_{org} , Cr^{6+} , ClO_4^- Parameters
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: Pressure outside MP casing = 78.89 psia

Total Volume: 22 ^{F2}



FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-24 Depth: 435 ft. Date: 8-19-99
 Well Name: MW-24 Sampling Zone No.: 3 Starting Time: 0955 Finishing Time: 1105
 Technicians M. Hunt, J. Brenner, T. Turpijn-Keasler
 Water Level Inside MP Casing (Beginning of Session) 100.89 psia (End of Session) 100.89 psia

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
1	✓	✓	✓	✓	✓	✓	100.89	✓	1006	1008	✓ 100.89	100.89	1	1 st RUN; PARAMETERS NTUs = 57.5
2	✓	✓	✓	✓	✓	✓	100.89	✓	1030	1032	✓	100.89	1	2 nd RUN; TURBIDITY NTUs = 39.7
3	✓	✓	✓	✓	✓	✓	100.89	✓	1051	1053	✓	100.89	1	3 rd RUN - COLLECT MW-9713-002 VOCs, Cr, Cr ⁶⁺ , ClO ₂ ; PARAMETERS
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: Pressure outside MP casing = 104.43

Total Volume: 3 l ^{F2}



FOSTER WHEELER ENVIRONMENTAL CORPORATION

Groundwater Sampling Field Data Sheet for Multi-Port Well

Project: JPL Location: MW-24 Depth: 554 ft. Date: 8-19-99

Well Name: MW-24 Sampling Zone No.: 4 Starting Time: 0900 Finishing Time: 0950

Technicians M. Hunt, J. Brenner, T. Turpin-Keasler

Water Level Inside MP Casing (Beginning of Session) 152.42 (psia) (End of Session) 152.46 psia

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
1	✓	✓	✓	✓	✓	✓	152.42	✓	0910	0914	✓	152.46	1	1 st RUN; PARAMETERS 1YTUS = 6.90
2	✓	✓	✓	✓	✓	✓	152.41	✓	0936	0938	✓	152.46	1	2 nd RUN, COLLECT MW-493-C01 VOCs, Cr, Pb & Cr ⁶⁺ ; PARAMETERS
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														

Comments: Pressure outside MP casing = 144.92 psia Total Volume: 2 l F2

APPENDIX C
FIELD INSTRUMENT CALIBRATION FORMS

TURBIDIMETER FIELD STANDARDIZATION FORM

Project Name: JPL
Standardization by: M. Hunt Date: 8-2-99
Instrument Manufacturer: HF Scientific Model: DRT-15C
Serial Number: 3879 Calibration Date: 8-2-99

STANDARDIZATION

Time: 1045 Scale: 20 Zero: Yes Stray Light: N/A
Standard NTU: 0.02 Reading: 0.02
Standard NTU: _____ Reading: _____

Time: 1500 Scale: 20 Zero: Yes Stray Light: N/A
Standard NTU: 0.02 Reading: 0.02
Standard NTU: _____ Reading: _____

Time: _____ Scale: _____ Zero: _____ Stray Light: _____
Standard NTU: _____ Reading: _____
Standard NTU: _____ Reading: _____

Time: _____ Scale: _____ Zero: _____ Stray Light: _____
Standard NTU: _____ Reading: _____
Standard NTU: _____ Reading: _____

Time: _____ Scale: _____ Zero: _____ Stray Light: _____
Standard NTU: _____ Reading: _____
Standard NTU: _____ Reading: _____

Time: _____ Scale: _____ Zero: _____ Stray Light: _____
Standard NTU: _____ Reading: _____
Standard NTU: _____ Reading: _____

Time: _____ Scale: _____ Zero: _____ Stray Light: _____
Standard NTU: _____ Reading: _____
Standard NTU: _____ Reading: _____

Comments: _____

TURBIDIMETER FIELD STANDARDIZATION FORM

Project Name: JPL
Standardization by: M. Hunt Date: 8-3-99
Instrument Manufacturer: HF Scientific Model: DRT-15C
Serial Number: 3879 Calibration Date: 8-3-99

STANDARDIZATION

Time: 0835 Scale: 20 Zero: Yes Stray Light: —
Standard NTU: 0.02 Reading: 0.02
Standard NTU: _____ Reading: _____

Time: 1405 Scale: 20 Zero: Yes Stray Light: —
Standard NTU: 0.02 Reading: 0.02
Standard NTU: _____ Reading: _____

Time: _____ Scale: _____ Zero: _____ Stray Light: _____
Standard NTU: _____ Reading: _____
Standard NTU: _____ Reading: _____

Time: _____ Scale: _____ Zero: _____ Stray Light: _____
Standard NTU: _____ Reading: _____
Standard NTU: _____ Reading: _____

Time: _____ Scale: _____ Zero: _____ Stray Light: _____
Standard NTU: _____ Reading: _____
Standard NTU: _____ Reading: _____

Time: _____ Scale: _____ Zero: _____ Stray Light: _____
Standard NTU: _____ Reading: _____
Standard NTU: _____ Reading: _____

Time: _____ Scale: _____ Zero: _____ Stray Light: _____
Standard NTU: _____ Reading: _____
Standard NTU: _____ Reading: _____

Comments: _____

TURBIDIMETER FIELD STANDARDIZATION FORM

Project Name: JPL
Standardization by: M. Hunt Date: 8-4-99
Instrument Manufacturer: HF Scientific Model: DRT-15C
Serial Number: 3921 Calibration Date: 8-4-99

STANDARDIZATION

Time: 0845 Scale: 20 Zero: Yes Stray Light: —
Standard NTU: 0.02 Reading: 0.02
Standard NTU: _____ Reading: _____

Time: 1400 Scale: 20 Zero: Yes Stray Light: —
Standard NTU: 0.02 Reading: 0.02
Standard NTU: _____ Reading: _____

Time: _____ Scale: _____ Zero: _____ Stray Light: _____
Standard NTU: _____ Reading: _____
Standard NTU: _____ Reading: _____

Time: _____ Scale: _____ Zero: _____ Stray Light: _____
Standard NTU: _____ Reading: _____
Standard NTU: _____ Reading: _____

Time: _____ Scale: _____ Zero: _____ Stray Light: _____
Standard NTU: _____ Reading: _____
Standard NTU: _____ Reading: _____

Time: _____ Scale: _____ Zero: _____ Stray Light: _____
Standard NTU: _____ Reading: _____
Standard NTU: _____ Reading: _____

Time: _____ Scale: _____ Zero: _____ Stray Light: _____
Standard NTU: _____ Reading: _____
Standard NTU: _____ Reading: _____

Comments: _____

TURBIDIMETER FIELD STANDARDIZATION FORM

Project Name: JPL (MLB)
Standardization by: M. Hunt Date: 8-5-99
Instrument Manufacturer: HF Scientific Model: DRT-15C
Serial Number: 3921 Calibration Date: 8-5-99

STANDARDIZATION

Time: 0800 Scale: 20 Zero: Yes Stray Light: —
Standard NTU: 0.02 Reading: 0.02
Standard NTU: _____ Reading: _____

Time: 1415 Scale: 20 Zero: Yes Stray Light: —
Standard NTU: 0.02 Reading: 0.02
Standard NTU: _____ Reading: _____

Time: _____ Scale: _____ Zero: _____ Stray Light: _____
Standard NTU: _____ Reading: _____
Standard NTU: _____ Reading: _____

Time: _____ Scale: _____ Zero: _____ Stray Light: _____
Standard NTU: _____ Reading: _____
Standard NTU: _____ Reading: _____

Time: _____ Scale: _____ Zero: _____ Stray Light: _____
Standard NTU: _____ Reading: _____
Standard NTU: _____ Reading: _____

Time: _____ Scale: _____ Zero: _____ Stray Light: _____
Standard NTU: _____ Reading: _____
Standard NTU: _____ Reading: _____

Time: _____ Scale: _____ Zero: _____ Stray Light: _____
Standard NTU: _____ Reading: _____
Standard NTU: _____ Reading: _____

Comments: _____

TURBIDIMETER FIELD STANDARDIZATION FORM

Project Name: JPL
Standardization by: M. Hunt Date: 8-6-99
Instrument Manufacturer: HF Scientific Model: DRT-15C
Serial Number: 3921 Calibration Date: 8-6-99

STANDARDIZATION

Time: 0745 Scale: 20 Zero: Yes Stray Light: —
Standard NTU: 0.02 Reading: 0.02
Standard NTU: _____ Reading: _____

Time: 1140 Scale: 20 Zero: Yes Stray Light: —
Standard NTU: 0.02 Reading: 0.02
Standard NTU: _____ Reading: _____

Time: _____ Scale: _____ Zero: _____ Stray Light: _____
Standard NTU: _____ Reading: _____
Standard NTU: _____ Reading: _____

Time: _____ Scale: _____ Zero: _____ Stray Light: _____
Standard NTU: _____ Reading: _____
Standard NTU: _____ Reading: _____

Time: _____ Scale: _____ Zero: _____ Stray Light: _____
Standard NTU: _____ Reading: _____
Standard NTU: _____ Reading: _____

Time: _____ Scale: _____ Zero: _____ Stray Light: _____
Standard NTU: _____ Reading: _____
Standard NTU: _____ Reading: _____

Time: _____ Scale: _____ Zero: _____ Stray Light: _____
Standard NTU: _____ Reading: _____
Standard NTU: _____ Reading: _____

Comments: _____

TURBIDIMETER FIELD STANDARDIZATION FORM

Project Name: JPL
Standardization by: M. Hunt Date: 8-9-99
Instrument Manufacturer: HF Scientific Model: DRT-15C
Serial Number: 3921 Calibration Date: 8-9-99

STANDARDIZATION

Time: 0750 Scale: 20 Zero: Yes Stray Light: —
Standard NTU: 0.02 Reading: 0.02
Standard NTU: _____ Reading: _____

Time: 1205 Scale: 20 Zero: Yes Stray Light: —
Standard NTU: 0.02 Reading: 0.02
Standard NTU: _____ Reading: _____

Time: _____ Scale: _____ Zero: _____ Stray Light: _____
Standard NTU: _____ Reading: _____
Standard NTU: _____ Reading: _____

Time: _____ Scale: _____ Zero: _____ Stray Light: _____
Standard NTU: _____ Reading: _____
Standard NTU: _____ Reading: _____

Time: _____ Scale: _____ Zero: _____ Stray Light: _____
Standard NTU: _____ Reading: _____
Standard NTU: _____ Reading: _____

Time: _____ Scale: _____ Zero: _____ Stray Light: _____
Standard NTU: _____ Reading: _____
Standard NTU: _____ Reading: _____

Time: _____ Scale: _____ Zero: _____ Stray Light: _____
Standard NTU: _____ Reading: _____
Standard NTU: _____ Reading: _____

Comments: _____

TURBIDIMETER FIELD STANDARDIZATION FORM

Project Name: JPL
Standardization by: M. Hunt Date: 8-10-99
Instrument Manufacturer: HF Scientific Model: DRT-15C
Serial Number: 3921 Calibration Date: 8-10-99

STANDARDIZATION

Time: 0755 Scale: 20 Zero: Yes Stray Light: —
Standard NTU: 0.02 Reading: 0.02
Standard NTU: _____ Reading: _____

Time: 1410 Scale: 20 Zero: Yes Stray Light: —
Standard NTU: 0.02 Reading: 0.02
Standard NTU: _____ Reading: _____

Time: _____ Scale: _____ Zero: _____ Stray Light: _____
Standard NTU: _____ Reading: _____
Standard NTU: _____ Reading: _____

Time: _____ Scale: _____ Zero: _____ Stray Light: _____
Standard NTU: _____ Reading: _____
Standard NTU: _____ Reading: _____

Time: _____ Scale: _____ Zero: _____ Stray Light: _____
Standard NTU: _____ Reading: _____
Standard NTU: _____ Reading: _____

Time: _____ Scale: _____ Zero: _____ Stray Light: _____
Standard NTU: _____ Reading: _____
Standard NTU: _____ Reading: _____

Time: _____ Scale: _____ Zero: _____ Stray Light: _____
Standard NTU: _____ Reading: _____
Standard NTU: _____ Reading: _____

Comments: _____

