Appendix F
Results of the Comprehensive Groundwater Monitoring

1.0 Introduction

The comprehensive groundwater monitoring event was conducted to provide water quality data for additional analytes not previously analyzed in groundwater from the Arroyo Well and Well 52 and required to be analyzed by the California Department of Health Services (DHS) Policy Memorandum 97-005. As previously mentioned, since the Arroyo Well and Well 52 could not be sampled, it was necessary to sample monitoring wells within capture zones of these two production wells for the additional parameters.

The analyses required are summarized in Table 3A-1, DHS General Characterization Sampling. This table lists specific chemicals of interest to DHS and their required analytical methods. A significant number of analytical methods is needed to cover the category of Title 22 synthetic organic compounds (SOCs).

In addition, at the request of DHS, a list of the chemicals identified from known and potential sources within the capture zones was compared against previous analyses of groundwater samples to identify which chemicals had not been analyzed previously. This comparison is shown in Table 3A-2. The table indicates whether the chemical has been analyzed previously in groundwater from the JPL monitoring wells, the Arroyo Well, and Well 52. Selected information on the environmental fate of the chemical, whether the chemical is of human health concern, and whether the chemical would be detected indirectly by existing analytical methods (e.g., arsenic trioxide would be detected by the dissolved arsenic analysis) is included in Table 3A-2.

Based on this information, compounds were recommended for future monitoring, if appropriate. If the analysis previously had not included the analyte, the chemical was listed as a new analyte. New analytes recommended for monitoring included dioxins (because 1,2,3,4,6,7,8,9-octachlorodibenzo-p-dioxin [OCDD] was a COPC); cresols; di-isopropyl ether (DIPE); ethyl-tert-butyl ether (ETBE); formaldehyde; total petroleum hydrocarbons; methyl ethyl ketone; tert-amyl methyl ether (TAME); and tert-butyl alcohol (TBA). These compounds were added to the list of analytes for the comprehensive groundwater monitoring event either by specifying additional analytes for existing methods (e.g., DIPE, ETBE) or by adding new analytical methods (e.g., formaldehyde, dioxin).

The Request for Analysis table for the comprehensive groundwater monitoring event is shown in Table 3A-3. All of the analytical methods included in the comprehensive groundwater monitoring event were requested specifically by DHS or are included in the category of Title 22 synthetic organic compounds (SOCs) in the DHS General Characterization Sampling Table (Table 3A-1). Some additional parameters were included to evaluate treatment requirements for the planned groundwater treatment plant (e.g., chemical oxygen demand, biological oxygen demand, total dissolved solids, pH, oxidation reduction potential [Eh], hardness, and alkalinity). DHS requires that all state- and federal-regulated drinking water compounds (including MCLs, ALs, and California Public Health Goals) and "chemicals not regulated, but required to be monitored" be included in the groundwater quality evaluation. The total suspended solids analysis and bacteriological

analyses (fecal coliform, total coliform, and heterotrophic plate count) must be analyzed on the production wells when they are brought online; therefore, they are not included in the comprehensive groundwater- monitoring event.

In addition to the groundwater analyses required by the DHS, chemicals previously detected in groundwater were compiled and evaluated to ensure that all previously detected chemicals were included in the planned sampling event. Tentatively identified compounds (TICs) also were evaluated to assess whether any additional analytes needed to be added.

A review of the monitoring well data was completed to compile available information on TICs in groundwater samples taken within the Arroyo Well and Well 52 capture zones and to identify additional potential groundwater chemicals that are not covered by the routine analytical methods. TICs are compounds that are unidentified peaks on the chromatograms for the gas chromatography/mass spectroscopy (GC/MS) analyses of volatile organic compounds (VOCs) or semivolatile organic compounds (SVOCs). These compounds are not included in the list of standard analytes for each analytical method. Using the mass spectral signature for each unidentified peak, a tentative identification of the compound and its estimated concentration is made by computer comparison to a mass spectral library of tens of thousands of compounds. Because of the uncertainty associated with the identification of the compound, TIC data have very high error rates (over 50 percent) and conclusions are drawn in terms of generalities rather than specific compounds. For the JPL data set, the error rate may be larger, since a consistent TIC naming methodology was not used and retention times were not provided in the electronic data deliverable obtained from the laboratory.

TICs that were provided with the electronic data deliverables received from the laboratory for the JPL monitoring wells were compiled for further analysis. TICs were not provided with the groundwater analyses received from the DHS State water quality database for the Arroyo Well and Well 52. A summary of the TICs sorted by the number of detected values is provided in Table 3A-4.

The goal of this initial analysis of TICs was to remove chemicals that are system/analytical instrument artifacts (e.g., compounds that are common liquid-phase carriers in gas chromatography columns), lab/field contaminants, and/or compounds that are ubiquitous in the environment (e.g., petroleum hydrocarbons).

A total of 86 TICs were reported; however, only 20 specific compounds were tentatively identified (Table 3A-4). Thirteen of these 20 TICs were identified more than once and are listed in order of decreasing number of detections: acetone; ethylbenzene; carbon disulfide; tetrahydrofuran; 2,4-bis(1,1-dimethylethyl)phenol; cyclohexanone; 1,1,2-trichlorotrifluoroethane; isopropylbenzene; 2-methylpropane; dimethyl benzene; hexane; acetic acid, and isobutylene. Another nine TICs were identified only by the class of compound (e.g., "unknown alcohol, unknown phthalate, unknown alkene, unknown C8 acetate ester, unknown hydrocarbon, unknown polynuclear aromatic hydrocarbon, or unknown substituted oxetane scan"). No further analysis can be done with the compounds that are listed as unknowns (e.g., unknown scan #191, unknown retention time [RT]=2.51).

Only five TICs (2,4-bis(1,1-dimethylethyl)phenol, isopropylbenzene, 2-methylpropane, isobutylene, and acetic acid) of the 13 TICs identified more than once, have not been

previously analyzed by other methods for which the chemical is a target analyte (i.e. for which chemical is listed as a specific analyte in the analytical method). The other eight chemicals (acetone, carbon disulfide, ethylbenzene, tetrahydrofuran, cyclohexanone, 1,1,2-trichlorotrifluoroethane, dimethyl benzene, and hexane) were analyzed by other analytical methods. Acetone and carbon disulfide have each been detected only once in 78 samples by other analytical methods from JPL monitoring wells. Ethylbenzene has been analyzed and detected in 11 of 1,414 samples by other analytical methods. Tetrahydrofuran has been analyzed by other methods, but not detected in 78 samples. Cyclohexanone has been analyzed by other methods, but not detected in 19 samples. 1,1,2-Trichlorotrifluoroethane has been analyzed by other methods and detected in 3 of 188 samples. Dimethyl benzene, or mixed xylenes, has been analyzed and detected only in 4 samples out of 1,414 samples. Hexane is a common laboratory solvent, and without the lab blank data, it is impossible to ascertain whether it is present in groundwater. Hexane has not been specifically analyzed for in prior groundwater samples. This leaves only 2,4-bis(1,1-dimethylethyl)phenol, isopropylbenzene, 2-methylpropane, acetic acid, and isobutylene as potential chemicals in the groundwater. The laboratory used for the comprehensive groundwater monitoring event was notified of the potential presence of these compounds so that they could screen for them during the TICs analysis.

A review of compounds analyzed in samples from the Arroyo Well, Well 52, and JPL monitoring wells located within the capture zone of these production wells was conducted to determine the sampling criteria. The number of wells to be sampled for each analytical method was based on whether the parameter had been analyzed in previous groundwater monitoring events, the presence of historically detected groundwater chemicals (primarily VOCs or perchlorate), and sample location. There are essentially two sets of analyses that were conducted during this sampling event. The more comprehensive set of analyses was applied to 12 of the 22 sample locations that have historically shown higher chemical concentrations; the reduced set of analyses applied to the remaining 10 of the 22 sample locations that have historically shown little or no contamination. The dioxin analysis applied only to 4 of the 22 samples, since this compound has very low solubility and mobility in groundwater (see Table 3A-3).

Results obtained from the comprehensive groundwater monitoring event are provided in the tables listed below:

Table 3A-5	Summary of VOC Data for JPL Monitoring Wells
Table 3A-6	Summary of SVOC Data for JPL Monitoring Wells
Table 3A-7	Summary of Pesticides/PCBs Data for JPL Monitoring Wells
Table 3A-8	Summary of Explosives Data for JPL Monitoring Wells
Table 3A-9	Summary of Nitrogen/Phosphorus Pesticides and Organophosphorus Pesticides Data for JPL Monitoring Wells
Table 3A-10	Summary of Carbamates, Chloropicrin, Glyphosate, Endothall, Formaldehyde, Ethylene Glycol, Paraquat, Diquat, 1,2,3-Trichloropropane, EDB, and DBCP Data for JPL Monitoring Wells
Table 3A-11	Summary of Chlorophenoxy Herbicides Data for JPL Monitoring Wells

Table 3A-12 Summary of Dissolved Metals, Cyanide and Hexavalent Chromium Data for JPL Monitoring Wells

Table 3A-13 Summary of General Mineral, Physical, and Radiological Parameter Data for JPL Monitoring Wells

Table 3A-14 Summary of 1,4-Dioxane, Nitrosamines, Perchlorate and Chlorate Data for JPL Monitoring Wells

Table 3A-15 Summary of Dioxins and Furans Data for JPL Monitoring Wells

Table 3A-16 Summary of All Analytical Results.

State of California regulatory criteria for drinking water are also included in the data summary tables in order to evaluate the concentrations detected. The following four criteria were included on the tables: Primary Maximum Contaminant Level (MCL), Secondary MCL, Public Health Goal (PHG), and Action Level (AL). The lowest concentration limit of the Primary MCL, Secondary MCL, or AL was used as the applicable regulatory limit for each analyte. The PHG was not considered an applicable regulatory criterion because it is not enforceable and does not require notification to the public if exceeded. Although Secondary MCLs and ALs are not enforceable, they are considered applicable regulatory criteria because an exceedance of a Secondary MCL is required to be reported to DHS and an exceedance of an AL is required to be reported to the governing board of the local agency in which users of the drinking water reside.

In Tables 3A-5 through 3A-15 the Primary MCL, Secondary MCL, AL, and PHG are shown for each chemical. Detected values that exceed the applicable regulatory limit are shown by bolding the value and surrounding it by a box. Non-detected values (which represent the detection limit) that exceeded applicable regulatory limit are shown in bold. For some chemicals, the practical quantitation limit (PQL) that the lab uses to report the data is greater than the regulatory limit, however, the method detection limit (MDL) is less than the regulatory limit. In this instance, if a chemical is detected at a concentration less than the PQL, the data are flagged as an estimated value (J flag).

Some chemicals (e.g., 1,2-dibromoethane [EDB]) were included as an analyte in more than one analytical method. In this case the detection limit for EDB under EPA Method 524.2 (Table 3A-5) exceeded the regulatory limit (MCL of 0.05 g/L), but the detection limit for EDB under EPA 504.1 (Table 3A-10) was less than the regulatory limit.

2.0 Discussion of Results

2.1 Volatile Organic Compounds

The groundwater was analyzed for VOCs using EPA Method 524.2. A few additional analytes were included in this method at the request of DHS. The additional analytes included were gasoline oxygenates (MTBE, DIPE, ETBE, TAME, and TBA), the ketone solvents (2-butanone [methyl ethyl ketone or MEK] and 4-methyl-2-pentanone [methyl isobutyl ketone or MIBK], dichlorodifluoromethane (Freon 112), and tetrahydrofuran.

The analytical results from the comprehensive groundwater monitoring event show that 13 VOCs were detected in the 22 monitoring well samples (Tables 3A-5 and 3A-16). Five of the 13 chemicals exceeded an MCL or AL (carbon tetrachloride; methylene chloride; tetrachloroethene [PCE]; trichloroethene [TCE]; and 1,1-dichloroethene [1,1-DCE]). Carbon tetrachloride concentrations detected ranged from 0.62 to 157 σg/L, exceeding the MCL of 0.5 σg/L in 7 of 22 samples. PCE was detected in groundwater from 12 of 22 monitoring wells with concentrations ranging from 0.3 to 21.2 σg/L. PCE concentrations in exceeded four monitoring wells exceeded the MCL of 5 σg/L. TCE was detected in groundwater samples from 16 of the 22 monitoring wells at concentrations ranging from 0.5 to 7.8 σg/L. TCE concentrations in three monitoring wells exceeded the MCL of 5 σg/L (MW-7, MW-8, and MW-14-2). 1,1- DCE was detected in only two monitoring wells with concentrations 0.3 J σg/L (MW-17-3) and 8.2 σg/L (MW-7); the J is a data qualifier flag that indicates the value is estimated. Only the MW-7 sample exceeded the MCL of 6 σg/L.

Methylene chloride was detected in groundwater from six monitoring wells (MW-3-5, MW-4-2, MW-4-5, MW-12-3, MW-17-4, and MW-18-3). Detected concentrations ranged from 0.4 J to 11,300 J σg/L and five samples exceeded the MCL of 5 σg/L. Two values were extremely high (7,350 σg/L in groundwater from MW-3-5 and 11,300 J σg/L in groundwater from MW-4-5). Methylene chloride is a common laboratory contaminant and was detected in the associated blanks of many of the samples, indicating the samples may have been cross contaminated in the field or laboratory. Methylene chloride was detected historically in the monitoring wells only once in groundwater from MW3-5 (7.5 σg/L) and once from MW-4-5 (1.0 σg/L).

Other detected VOCs that did not exceed MCLs or ALs include 1,1,2-trichlorotrifluoro-methane (2 wells); 1,1-dichloroethane (4 wells); bromochloromethane (1 well); chloroform (18 wells); chloromethane (1 well); cis-1,2-dichloroethene (2 wells); ethylbenzene (1 well); styrene (1 well); and trichlorofluoromethane (1 well). Of these chemicals, four were detected in one well at low concentrations and, therefore, are not of significant concern: bromochloromethane (detected in MW-4-5 at 18 σg/L), ethylbenzene (detected in MW-3-5 at 1.1 J σg/L), styrene (detected in MW-3-5 at 0.5 J σg/L), and trichlorofluoromethane (detected in MW-8 at 0.4 J σg/L). 1,1-dichloroethane was detected in four wells: MW4-2 (0.4 σg/L), MW-10 (0.5 σg/L), MW-14-2 (0.5 σg/L), and MW-24-2 (0.3 σg/L). Cis-1,2-dichloroethene was detected in two wells: MW-21-3 (0.4 J σg/L) and MW-21-5 (2.7 σg/L). Chloroform was detected in 18 of 22 monitoring wells in concentrations ranging from 0.4 to 16.6 σg/L. With the exception of well sample MW-7 (16.6 σg/L), the majority of the

chloroform concentrations were between 0.4 and 2.9 σg/L. Chloroform is a common field contaminant and is present in tap water that is used for equipment decontamination.

The historical data for the Arroyo Well and Well 52 (Tables 3-1 and 3-2 in Section 3.0 of the report) show detections of 11 VOCs in the two wells: carbon tetrachloride; chloroform; TCE; PCE; 1,2-dichloroethane (1,2-DCA); ethylbenzene; bromodichloromethane; 1,1,2-trichlorotrifluroethane; 1,1,1-trichloroethane (TCA); dibromochloromethane; and methylene chloride. Of these detected VOCs, the average concentrations of carbon tetrachloride (4.7 σg/L) and 1,2-DCA (0.95 σg/L#) exceed the MCLs (0.5 σg/L for both) in the Arroyo Well and the average concentration of carbon tetrachloride (1.2 σg/L) exceeds the MCL in Well 52. Methylene chloride was detected only twice in groundwater from the Arroyo Well at an average concentration of 0.30 σg/L and was detected once in groundwater from Well 52 at a concentration of 0.28 σg/L.

Of 10 VOCs detected in the monitoring well samples, only carbon tetrachloride exceeds its MCL (0.5 σg/L) in the estimated water quality for the Arroyo Well. The estimated arithmetic mean concentration for carbon tetrachloride in the Arroyo Well is 4.02 σg/L (Table 3-11 in Section 3.0 of the report).

Eight VOCs were detected in the JPL monitoring wells within the Well 52 capture zone. For the estimated water quality for Well 52, carbon tetrachloride exceeded the MCL with an arithmetic mean concentration of 1.71 σg/L (Table 3-12 in Section 3.0 of the report). Although methylene chloride was detected at concentrations exceeding its MCL, the presence of this constituent is attributed to cross contamination and not to JPL site activities.

The estimated influent concentration of carbon tetrachloride is 2.86 σg/L (Table 3-13 in Section 3.0 of the report).

2.2 Semivolatile Organic Compounds

Groundwater samples were analyzed for SVOCs using EPA Method 8270. The analytical results show that no SVOCs were detected in the JPL monitoring well groundwater samples. (Tables 3A-6 and 3A-16).

The historical data for the Arroyo Well and Well 52 show no detections of SVOCs. The SVOCs are listed as base/neutral and acid extractable organics (BNAs) in the historical data tables. Note that atrazine and simazine are discussed under organophosphorus pesticides in Section 2.3.2.

Based on data from the monitoring wells located within the individual capture zones of the Arroyo Well and Well 52, no SVOCs are estimated to be present in groundwater from either the Arroyo Well or Well 52 (Tables 3-11 and 3-12 in Section 3.0 of the report). Therefore, the estimated concentration for these chemicals is equal to half the detection limit because that is the value used for nondetect data (Table 3-13 in Section 3.0 of the report).

2.3 Pesticides/Polychlorinated Biphenyls and Herbicides

Pesticides, polychlorinated biphenyls (PCBs), and herbicides were analyzed by EPA Method 508 (Pesticides/PCBs), EPA Method 8141A (Organophosphorus Pesticides), EPA Method 507 (Nitrogen and Phosphorus Pesticides), EPA Method 8151A (Chlorophenoxy Herbicides), EPA Method 549.1 (Paraquat and Diquat), EPA Method 531.1 (Carbamates), EPA Method 551.1 (Chloropicrin), EPA Method 547 (Glyphosate), EPA Method 548 (Endothall), and EPA Method 504.1 (EDB and DBCP). This wide range of analytical methods is needed to cover all of the regulated pesticides and herbicides. These EPA methods also cover pesticides and herbicides that are required to be monitored for a municipal drinking water supply.

2.3.1 Pesticides/PCBs (EPA Method 508)

One pesticide was detected in groundwater from the JPL monitoring wells sampled (Tables 3A-7 and 3A-11). Propachlor was detected in groundwater from MW-18-4 at a concentration of 0.28 σg/L. However, the percent difference in the concentration value between the primary and confirmation columns was greater than 40 percent; therefore, this value is an estimated concentration as indicated by the qualifier flag of J in Table 3A-7. There is no regulatory criterion for Propachlor. Aldrin, alpha-benzene hexachloride (BHC), beta-BHC, delta-BHC, and dieldrin were not detected. The detection limit for the analysis method exceeds the ALs for these compounds. The contracted laboratory used the lowest achievable detection limit for these chemicals. The laboratory had agreed that detected chemicals with concentrations between the PQL and MDL would be given a qualifier flag of J. The only J-flagged data observed for the pesticides and PCBs was a single detection of Propachlor.

Historical data from the Arroyo Well and Well 52 indicate that only one herbicide, chlorothal (i.e., dacthal) was detected one time (it was only sampled for one time in each of the production wells). Other pesticides or PCBs were not detected (Tables 3-1 and 3-2). The detection limits for aldrin, alpha-BHC, beta-BHC, delta-BHC, and dieldrin for the historic water quality data for the Arroyo Well and Well 52 are the same as those used for the analyses in the comprehensive groundwater monitoring event.

Based on the results of the JPL monitoring wells located within the capture zone of the Arroyo Well, the estimated concentrations of pesticides and PCBs for the Arroyo Well include only one chemical, Propachlor, at a concentration of 0.28 σg/L (Table 3-11 in Section 3.0 of the report). This value is based on the one Propachlor detection. The estimated concentration for the Arroyo Well is less than the detection limit so this value is not considered to be meaningful. There are no estimated concentrations for other pesticides or PCBs for the Arroyo Well or Well 52 because they were not detected (Tables 3-11 and 3-12 in Section 3.0 of the report).

The estimated influent concentrations of the water to the groundwater treatment plant for the Arroyo Well and Well 52 show that the Propachlor concentration is 0.065 σg/L. No other pesticides or PCBs were detected; therefore, the estimated concentration for these chemicals is equal to half the detection limit. The value of half the detection limit is used for nondetect data (Table 3-13 in Section 3.0 of the report).

2.3.2 Organophosphorus Pesticides (EPA Method 8141A)

No organophosphorus pesticides were detected in groundwater samples from any of the JPL monitoring wells sampled (Tables 3A-9 and 3A-16).

Approximately half of these organophosphorus pesticides are included in the historical data for the Arroyo Well and Well 52. There were no detections of organophosphorus pesticides in Well 52 (Table 3-2 in Section 3.0 of the report).

Based on data from the monitoring wells located within the capture zones of the Arroyo Well and Well 52, no organophosphorus pesticides are estimated to be present in groundwater from either well. Therefore, the estimated concentration for these chemicals is equal to half the detection limit because that is the value used for nondetect data (Tables 3-11 and 3-12 in Section 3.0 of the report).

No organophosphorus pesticides were detected; therefore, these constituents are not expected to be present in the influent to the groundwater treatment plant (Table 3-13 in Section 3.0 of the report). Therefore, the estimated concentration for these chemicals in the influent is assumed to be equal to half the detection limit, which is the value used for all nondetect data.

2.3.3 Nitrogen and Phosphorus Pesticides (EPA Method 8141A)

No nitrogen and phosphorous pesticides were detected in the JPL monitoring wells (Tables 3A-9 and 3A-16).

Only a few nitrogen and phosphorous pesticides are included in the historical data for the Arroyo Well and Well 52 (Tables 3-1 and 3-2 in Section 3.0 of the report). Atrazine and simazine were detected in groundwater from the Arroyo Well at concentrations of 0.5 σg/L each (Table 3-1 in Section 3.0 of the report). These values are less than the Primary MCL of 1.0 σg/L for atrazine and 4.0 σg/L for simazine.

Based on data from the monitoring wells located within the capture zones of the Arroyo Well and Well 52, nitrogen and phosphorous pesticides are not estimated to be present. Therefore, the estimated concentration for these chemicals is assumed to be equal to half the detection limit, which is the value used for nondetect data (Table 3-11 and 3-12 in Section 3.0 of the report).

No nitrogen and phosphorous pesticides were detected; therefore, the estimated influent concentration for these chemicals is equal to half the detection limit (Table 3-13 in Section 3.0 of the report).

2.3.4 Chlorophenoxy Herbicides (EPA Method 8151A)

No chlorophenoxy herbicides were detected in groundwater (Tables 3A-11 and 3A-16). Only a few chlorophenoxy herbicides are included in the historical data for the Arroyo Well and Well 52 (Tables 3-1 and 3-2 in Section 3.0 of the report). None of the chlorophenoxy herbicides analyzed were detected.

Based on data from the monitoring wells located within the capture zones of the Arroyo Well and Well 52, the estimated concentrations of chlorophenoxy herbicides in groundwater from the Arroyo Well and Well 52 are anticipated to be below the detection

limit. The estimated concentrations for groundwater from the Arroyo Well and Well 52 are listed at half of the detection limit in Table 3-11 and Table 3-12 (in Section 3.0 of the report) because half of the detection limit is the value used for nondetect data.

The estimated groundwater treatment plant influent concentration for the chlorophenoxy herbicides is below the detection limit (Table 3-13 in Section 3.0 of the report). The estimated concentration for these chemicals is equal to half the detection limit, which is the value used for nondetect data.

2.3.5 Paraquat and Diquat (EPA Method 549.1)

Paraquat and Diquat were not detected in groundwater samples from any of the monitoring wells (Tables 3A-10 and 3A-16). These compounds were not included in the historical water quality data for the Arroyo Well and Well 52 (Tables 3-1 and 3-2 in Section 3.0 of the report).

Paraquat and Diquat were not detected in any of the monitoring wells located within the capture zones of the Arroyo Well and Well 52. Therefore, the estimated concentrations for these chemicals in groundwater from the Arroyo Well and Well 52 is equal to half the detection limit, which is the value used for nondetect data (Table 3-11 and 3-12 in Section 3.0 of the report).

Paraquat and Diquat were not detected and therefore, are not expected to be present in the groundwater treatment plant influent. Therefore, the concentration for these chemicals is equal to half the detection limit (Table 3-13 in Section 3.0 of the report).

2.3.6 Carbamates (EPA Method 531.1)

Carbamates were not detected in groundwater samples from any of the monitoring wells sampled (Tables 3A-10 and 3A-16). Two of these compounds, aldicarb and carbofuran, were included in the historical water quality data for the Arroyo Well and Well 52 (Tables 3-1 and 3-2 in Section 3.0 of the report). Aldicarb and carbofuran were analyzed for once in each well but were not detected.

Carbamates were not detected in any of the monitoring wells located within the capture zones of the Arroyo Well and Well 52. Therefore, the estimated concentrations for these chemicals in groundwater from the Arroyo Well and Well 52 is equal to half the detection limit, which is the value used for nondetect data (Table 3-11 and 3-12 in Section 3.0 of the report).

Carbamates were not detected and are not expected to be present in the groundwater treatment plant influent. Therefore, the concentration for these chemicals is equal to half the detection limit (Table 3-13 in Section 3.0 of the report).

2.3.7 Chloropicrin (EPA Method 551.1)

Chloropicrin was not detected in groundwater samples from the six monitoring wells sampled (Tables 3A-10 and 3A-16). Chloropicrin was included in the historical water quality data for the Arroyo Well and Well 52 (Tables 3-1 and 3-2 in Section 3.0 of the report). Each well was analyzed once for Chloropicrin, but it was not detected.

Chloropicrin was not detected in groundwater samples from six of the monitoring wells located within the capture zones of the Arroyo Well and Well 52. Therefore, the estimated concentration for Chloropicrin in groundwater from the Arroyo Well and Well 52 is equal to half the detection limit, which is the value used for nondetect data (Table 3-11 and 3-12 in Section 3.0 of the report).

The only other analyte detected under EPA Method 551.1 is chloroform, which was detected in groundwater from four of six monitoring wells. The detected concentrations ranged from 1.1 to 26 σg/L. Chloroform was also detected in 18 out of 22 samples under EPA Method 524.2, as discussed in Section 2.1.

EPA Method 551.1 also lists total trihalomethanes, which is the sum of chloroform, bromodichloromethane, dibromochloromethane, and bromoform concentrations. The Total Trihalomethanes detections shown in Table 3A-16 is the result of the chloroform detections.

Chloropicrin was not detected during the comprehensive groundwater monitoring event and is not expected to be present in the groundwater treatment plant influent. Therefore, the concentration for Chloropicrin is equal to half the detection limit (Table 3-13 in Section 3.0 of the report).

2.3.8 Glyphosate (EPA Method 547) and Endothall (EPA Method 548)

Glyphosate and Endothall were not detected in groundwater (Tables 3A-10 and 3A-16). These compounds were analyzed once in the historical data for the Arroyo Well and Well 52, but were not detected (Tables 3-1 and 3-2 in Section 3.0 of the report).

Based on data from the monitoring wells located within the capture zones of the Arroyo Well and Well 52, no Glyphosate or Endothall is projected to be present in groundwater from the Arroyo Well or Well 52. The estimated concentrations for these chemicals are equal to half the detection limit, which is the value used for nondetect data (Table 3-11 and 3-12 in Section 3.0 of the report).

Glyphosate and Endothall were not detected; therefore, the estimated influent concentrations for these chemicals are equal to half the detection limits (Table 3-13 in Section 3.0 of the report).

2.3.9 EDB and DBCP (EPA Method 504.1)

EDB and DBCP were not detected in groundwater from any of the monitoring wells sampled (Tables 3A-10 and 3A-16). These compounds were analyzed three times in the historical data for the Arroyo Well and Well 52, but were not detected (Tables 3-1 and 3-2 in Section 3.0 of the report).

Based on data from the monitoring wells located within the capture zones of the Arroyo Well and Well 52, no EDB or DBCP is estimated to be present in groundwater from the Arroyo Well or Well 52. The estimated concentration for these chemicals in Tables 3-11 and 3-12 (in Section 3.0 of the report) is equal to half the detection limit, which is the value used for nondetect data.

EDB and DBCP were not detected; therefore, based on this data, the estimated groundwater treatment plant influent concentration for these chemicals is equal to half the detection limit (Table 3-13 in Section 3.0 of the report).

2.4 Other Synthetic Organic Chemicals

2.4.1 Explosives (EPA Method 8330)

Three explosive compounds were detected in samples from groundwater monitoring wells sampled during the comprehensive groundwater monitoring event: 2,4,6-trinitrotoluene (TNT); HMX (High Velocity Military Explosive; octogen; octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine); and RDX (Royal Demolition Explosive; cyclotrimethylenetrinitramine) (Tables 3A-8 and 3A-16). There are no regulatory criteria for these explosives.

TNT was detected in groundwater from 5 of the 22 monitoring wells (MW-3-3, MW-4-1, MW-4-2, MW-12-5, and MW-16) at concentrations ranging from 2.2 to 25.7 σg/L. The arithmetic mean for TNT in the monitoring well samples is 2.00 σg/L. The arithmetic mean is less than the lowest detected concentration value because the nondetects are assumed to be half the detection limit when calculating the statistical summaries. HMX was detected in groundwater samples from 2 of the 22 monitoring wells (MW-3-3 and MW-4-1) in concentrations ranging from 0.7 to 2.5 σg/L; the arithmetic mean HMX concentration is 0.59 σg/L. RDX was detected in groundwater from six of the monitoring wells (MW-3-3, MW-4-1, MW-4-2, MW-12-3, MW-12-5, and MW-16) in concentrations ranging from 0.66 to 27.3 σg/L and averaging 2.05 σg/L. HMX is used as an explosive charge when desensitized, as a booster charge in mixtures with TNT, and as an oxidizer in solid rocket and gun propellants. RDX is an explosive material widely used by the military and is a minor component of HMX (2 to 7 percent).

These three explosives are not included in the historical data for the Arroyo Well and Well 52 (Tables 3-1 and 3-2 in Section 3.0 of the report). Two explosives (2,4-dinitrotoluene and 2,6-dinitrotoluene) were included in the historical data for one sample event and were not detected.

Based on data for the monitoring wells located within the capture zone of the Arroyo Well, the estimated concentrations of the detected explosives for the Arroyo Well are 4.74 σg/L TNT; 1.18 σg/L HMX; and 5.26 σg/L RDX (Table 3-11 in Section 3.0 of the report). Based on data for the monitoring wells located within the capture zone of Well 52, the estimated concentrations of detected explosives for Well 52 are 0.61 σg/L TNT; and 0.53 σg/L RDX (Table 3-12 in Section 3.0 of the report).

Based on the data for the monitoring wells located within the capture zones of the Arroyo Well and Well 52, the estimated water quality of the groundwater treatment plant influent is 2.85 σg/L TNT; 0.75 σg/L HMX; and 3.05 σg/L RDX (Table 3-13 in Section 3.0 of the report).

2.4.2 1,2,3-Trichloropropane (EPA Method 504.1)

1,2,3-Trichloropropane (1,2,3-TCP) was detected in groundwater from 2 of the 12 monitoring wells sampled during the Comprehensive Groundwater Monitoring Event:

MW-12-3 (0.024 σg/L) and MW-18-4 (0.071 σg/L). These two values exceed the AL of 0.005 σg/L (Tables 3A-10 and 3A-16).

Historical data for the Arroyo Well and Well 52 indicate that the analysis included 1,2,3-TCP 27 times for the Arroyo Well and 53 times for Well 52, but it was not detected (Tables 3-1 and 3-2 in Section 3.0 of the report). However, the detection limits for the historical data ranged from 0.005 to 0.20 σg/L, with the majority of the samples being analyzed at the 0.005 σg/L limit (the current AL is 0.005 σg/L).

Based on data from monitoring wells located within the capture zone of the Arroyo Well, the estimated concentration of 1,2,3-TCP in groundwater from the Arroyo Well is 0.025 σg/L (Table 3-11 in Section 3.0 of the report), which exceeds the AL of 0.005 σg/L. 1,2,3-TCP is not expected to be present in groundwater from Well 52 because 1,2,3-TCP was not detected in any of the four monitoring wells located within the capture zone of Well 52. Based on data from monitoring wells located within the capture zone of Well 52, the estimated concentration of 1,2,3-TCP for Well 52 is equal to half the detection limit (Table 3-12 in Section 3.0 of the report). Half the detection limit is the value used for nondetect data.

The estimated water quality of the influent to the groundwater treatment plant for the Arroyo Well and Well 52 is 0.015 σg/L 1,2,3-TCP, which exceeds the AL of 0.005 σg/L (Table 3-13 in Section 3.0 of the report).

2.4.3 Formaldehyde (EPA Method 8315A)

Neither formaldehyde nor any of the other analytes under EPA Method 8315A were detected in any of the six monitoring wells sampled (Tables 3A-10 and 3A-16). Formaldehyde was not included in the historical water quality data for the Arroyo Well and Well 52 (Tables 3-1 and 3-2 in Section 3.0 of the report).

Based on data from the monitoring wells located within the capture zones of the Arroyo Well and Well 52, formaldehyde is not expected to be present in groundwater from the Arroyo Well and Well 52. The estimated concentration for both production wells is equal to half the detection limit, which is the value used for nondetect data (Table 3-11 and 3-12 in Section 3.0 of the report).

Formaldehyde was not detected and, therefore, is projected not to be present in the influent to the groundwater treatment plant for the Arroyo Well and Well 52. The value of half the detection limit is used for nondetect data (Table 3-13 in Section 3.0 of the report).

2.4.4 Ethylene Glycol (EPA Method 8015M)

Ethylene glycol was not detected in groundwater from any of the six wells sampled (Tables 3A-10 and 3A-16). Ethylene glycol was not included in the historical water quality data for the Arroyo Well and Well 52 (Tables 3-1 and 3-2 in Section 3.0 of the report).

Based on data from the monitoring wells located within the capture zones of the Arroyo Well and Well 52, ethylene glycol is not estimated to be present in groundwater from the Arroyo Well and Well 52. Therefore, in Tables 3-11 and 3-12 (in Section 3.0 of the report), the estimated concentration is equal to half the detection limit, which is the value used for nondetect data.

Ethylene glycol was not detected and, therefore, is estimated not to be present in the influent to the groundwater treatment plant for the Arroyo Well and Well 52. In Table 3-13 (in Section 3.0 of the report), the estimated influent concentration of ethylene glycol to the groundwater treatment plant is equal to half the detection limit, which is the value used for nondetect data.

2.4.5 1,4-Dioxane (EPA Method 8270 SIM)

1,4-Dioxane was detected in groundwater from 9 of the 22 monitoring wells sampled (Tables 3A-14 and 3A-16). The concentration range is from 0.6 to 3 σg/L, and the arithmetic mean concentration is 0.96 σg/L. The maximum concentration detected was 3 σg/L, which is equal to the AL; there are no other regulatory criteria for 1,4-dioxane.

Analysis of 1,4-dioxane was not included in historical water quality data for the Arroyo Well or Well 52 (Tables 3-1 and 3-2 in Section 3.0 of the report).

Based on monitoring wells located within the capture zone of the Arroyo Well, the estimated concentration of 1,4-dioxane in groundwater from the Arroyo Well is 1.0 σg/L (Table 3-11 in Section 3.0 of the report). Based on monitoring wells located within the capture zone of Well 52, the estimated concentration of 1,4-dioxane for Well 52 is 0.72 σg/L (Table 3-12 in Section 3.0 of the report). These concentrations do not exceed the AL.

Based on the monitoring well samples, the estimated concentration of 1,4-dioxane in the influent to the groundwater treatment plant for the Arroyo Well and Well 52 is 0.86 σg/L, which does not exceed the AL (Table 3-13 in Section 3.0 of the report).

2.4.6 Nitrosamines (Method MOE MSABN-E3291A)

The analysis for nitrosamines included the NDMA, n-nitrosodiphenylamine, and n-nitrosodi-n-propylamine. These compounds were analyzed under two different analytical methods: EPA Method 8270 and Method MOE MSABN-E3291A. The three analytes are included under EPA Method 8270; however, the detection limits for EPA Method 8270 are 1.0 σg/L, which are greater than the AL of 0.010 σg/L for NDMA. Therefore, these compounds were analyzed by a method with low-level reporting limits: MOE MSABN-E3291A. This method was used by the Canadian laboratory (Maxxam Analytics) that completed the low-level NDMA analyses. Maxxam is certified by the State of California for NDMA analyses. According to Maxxam, Method MOE MSABN-E3291A and EPA Method 607/1625 Modified are equivalent. The detection limits for Method MOE MSABN-E3291A are 0.005 σg/L for n-nitrosodi-n-propylamine and n-nitrosodiphenylamine and 0.002 σg/L for NDMA.

There are no MCLs or ALs for n-nitrosodi-n-propylamine and n-nitrosodiphenylamine, but NDMA has an AL of 0.010 σg/L. Therefore, data from Method MOE MSABN-E3291A has been used to assess the concentrations of NDMA for comparison to the AL (Tables 3A-14 and 3A-16).

NDMA was detected in groundwater from 4 of 22 wells that were sampled (Tables 3A-14 and 3A-16). The concentration range is from 0.00044 J to 0.00575 σg/L. None of the detected NDMA values exceeds the AL of 0.010 σg/L. NDMA was detected in the associated blanks of 10 of the samples. It is possible that the samples may have been cross

contaminated in the laboratory. N-nitrosodi-n-propylamine was detected in 1 of 22 monitoring wells sampled (MW-3-5) at 0.125 σg/L. N-nitrosodiphenylamine was detected in 14 of 22 monitoring well samples with concentrations ranging from 0.00148 J to 0.0249 J σg/L (Tables 3A-14 and 3A-16). These detections occur at very low reporting limits.

The historical water quality data for the Arroyo Well and Well 52 (Tables 3-1 and 3-2 in Section 3.0 of the report) show that these three nitrosamine compounds were analyzed once in groundwater from both wells with a detection limit of 0.5 σg/L, which exceeds the current AL of 0.010 σg/L. These compounds were not detected at the 0.5 σg/L detection limit.

Based on data from the monitoring wells located within the capture zone of the Arroyo Well, the estimated arithmetic mean concentrations in the Arroyo Well for the nitrosamines are 0.0015 σg/L NDMA, 0.018 σg/L n-nitrosodi-n-propylamine, and 0.005 σg/L n-nitrosodiphenylamine (Table 3-11 in Section 3.0 of the report). Based on data from the monitoring wells located within the capture zone of Well 52, estimated concentrations in groundwater from Well 52 for these compounds is 0.001 σg/L NDMA, 0.003 σg/L n-nitrosodi-n-propylamine, and 0.002 σg/L n-nitrosodiphenylamine (Table 3-12 in Section 3.0 of the report). The estimated NDMA in the Arroyo Well and Well 52 is less than the AL of 0.010 σg/L.

Based on data from monitoring wells located within the capture zones of the Arroyo Well and Well 52, estimated influent concentrations for the groundwater treatment plant for these compounds are 0.0013 σg/L NDMA, 0.0107 σg/L n-nitrosodi-n-propylamine, and 0.0036 σg/L n-nitrosodiphenylamine (Table 3-13 in Section 3.0 of the report). The 0.010 σg/L AL for NDMA is not exceeded in the estimated groundwater treatment plant influent.

2.4.7 Dioxins and Furans (EPA Method 8290)

Dioxins and furans were not detected (Tables 3A-15 and 3A-16). These compounds were not included in the historical water quality data for the Arroyo Well and Well 52 (Tables 3-1 and 3-2 in Section 3.0 of the report).

Based on data from the monitoring wells located within the capture zones of the Arroyo Well and Well 52, dioxins and furans are projected not to be present in groundwater from the Arroyo Well and Well 52. The estimated concentrations for these chemicals are equal to half the detection limit since that is the value used for nondetects (Table 3-11 and 3-12 in Section 3.0 of the report).

Dioxins and furans were not detected and, therefore, the concentrations of these chemicals in the influent to the groundwater treatment plant are estimated to be below the detection limit. The concentrations of the dioxins and furans are listed as half the detection limit in Table 3-13 (in Section 3.0 of the report).

2.5 Title 22 Regulated and Unregulated Metals

The analytical results show that 25 metals were detected in the groundwater monitoring well samples (Tables 3A-12 and 3A-16). These metals are naturally occurring in

groundwater. Two of these metals, manganese and iron, exceed secondary MCLs. Manganese concentrations ranged from 0.1 J to 86.6 σg/L, exceeding the secondary MCL of 50 σg/L. Iron concentrations ranged from 45.5 to 1,650 σg/L, exceeding the secondary MCL of 300 σg/L. Other metals detected that did not exceed MCLs or ALs include arsenic, barium, boron, calcium, total chromium, chromium VI (hexavalent chromium), magnesium, potassium, sodium, vanadium, copper, nickel, cobalt, lead, zinc, selenium, aluminum, antimony, beryllium, thallium, cadmium, silver, and mercury.

The historical data for the Arroyo Well and Well 52 (Tables 3-1 and 3-2 in Section 3.0 of the report) show detections of 13 metals for the two wells combined: aluminum, arsenic, barium, boron, calcium, chromium, chromium VI, copper, lead, magnesium, potassium, sodium, and vanadium. None these 13 detected metals had average concentrations that exceed MCLs or ALs.

Based on the groundwater analyses from monitoring wells within the capture zone of the Arroyo Well and Well 52 that were sampled during the comprehensive groundwater monitoring event, the estimated water quality of groundwater from the Arroyo Well and Well 52 contain 24 detected metals. None of these metals has an average concentration that exceeds MCLs or ALs (Tables 3-11 and 3-12 in Section 3.0 of the report).

Based on the comprehensive groundwater monitoring event data for the monitoring wells located within the capture zones of the Arroyo Well and Well 52 (Table 3-13 in Section 3.0 of the report), the estimated influent concentrations for the groundwater treatment plant show that none of the metals detected exceed the MCLs or ALs.

2.6 Anions, General Physical/Chemical, and Inorganic Parameters

Anions, general physical/chemical parameters, and inorganic constituents were analyzed in groundwater samples from the monitoring wells included in the comprehensive groundwater monitoring event.

2.6.1 Anions (Bromide, Chloride, Fluoride, Nitrate, Nitrite, Sulfate) (EPA Method 300.0)

The analytical results from the comprehensive groundwater monitoring event show that bromide, chloride, fluoride, nitrate (as nitrogen), and sulfate were detected (Tables 3A-13 and 3A-16). Bromide, chloride, fluoride, and sulfate are naturally occurring constituents in groundwater. Only the fluoride concentrations, which range from 0.74 to 4.1 mg/L, exceed the MCL of 2 mg/L. The other anions detected did not exceed MCLs or ALs.

These anions were included in the historical data received from the DHS database for the Arroyo Well and Well 52 (Tables 3-1 and 3-2 in Section 3.0 of the report); none of the concentrations exceeded regulatory standards.

The estimated average concentrations of anions from the monitoring wells located within their respective capture zones do not exceed the MCLs or ALs (Tables 3-11 and 3-12 in Section 3.0 of the report). The arithmetic mean concentrations for the Arroyo Well are 0.47 mg/L for bromide, 29.6 mg/L for chloride, 1.48 mg/L for fluoride, 2.77 mg/L for nitrate, and 41.8

mg/L for sulfate. The average concentrations for Well 52 are 0.87 mg/L for bromide, 56.3 mg/L for chloride, 1.37 mg/L for fluoride, 5.55 mg/L for nitrate, and 76.3 mg/L for sulfate.

The estimated concentrations of these anions in the influent to the groundwater treatment plant are based on data from the comprehensive groundwater monitoring event. The estimated influent concentrations from the monitoring wells located within the capture zones of the Arroyo Well and Well 52 (Table 3-13 in Section 3.0 of the report) show that none of the estimates exceed MCLs or ALs. The estimated concentrations are 0.67 mg/L for bromide, 42.9 mg/L for chloride, 1.43 mg/L for fluoride, 4.16 mg/L for nitrate, and 59.3 mg/L for sulfate.

2.6.2 General Physical/Chemical Parameters (Turbidity, Color, Hardness, Alkalinity, pH, Foaming Agents)

Turbidity, hardness, alkalinity, and pH are naturally occurring constituents of groundwater. In addition, some groundwater contains naturally occurring color and foaming agents (methylene blue-active substance [MBAS]). These constituents were analyzed by EPA Method 110.2 (color), EPA Method 130 (hardness), EPA Method 180.1 (turbidity), EPA Method 310.1 (alkalinity), EPA Method 9040B (pH), and EPA Method 425.1 (foaming agents).

The analytical results show that the parameters for color, hardness (as calcium carbonate), turbidity, alkalinity, pH, and foaming agents were detected at expected levels (Tables 3A-13 and 3A-16). The color units range from 5 to 25, which exceed the secondary MCL of 15 units. The turbidity range is from 0.27 to 38 nephelometric turbidity units (NTUs), which exceed the secondary MCL of 5 NTUs. It should be noted that turbidity values are commonly specific to the well from which the groundwater sample is obtained; production wells usually have much lower turbidity values than monitoring wells. The pH values range from 6.77 to 9.39. One value, 9.39, exceeds the secondary MCL range of 6.5 to 8.5 units. The hardness ranges from 93 to 564 milligrams per liter (mg/L), the alkalinity ranges from 123 to 273 mg/L, and the foaming agent concentrations range from 0.05 to 0.07 mg/L. There are no MCLs or ALs for hardness or alkalinity, and the secondary MCL for the foaming agents is not exceeded.

These parameters were included in the historical data received from DHS for the Arroyo Well and Well 52 (Tables 3-1 and 3-2 in Section 3.0 of the report).

The analyses of monitoring wells located within the respective capture zones of the Arroyo Well and Well 52 show that turbidity exceeds the MCLs or ALs (Tables 3-11 and 3-12 in Section 3.0 of the report). The average concentration is 5.21 NTUs for the Arroyo Well and 12.01 NTUs for Well 52. These values exceed the secondary MCL of 5 NTUs. The estimated turbidity for groundwater from the production wells based on data from monitoring wells is not considered reliable, as previously mentioned. The estimated concentrations of the other parameters for the Arroyo Well are 5.06 units for color, 215 mg/L for hardness, 170.2 mg/L for alkalinity, 0.03 mg/L for foaming agents, and 7.64 units for pH. The estimated concentrations of the other parameters for Well 52 are 6.38 units for color, 400 mg/L for hardness, 210 mg/L for alkalinity, 0.03 mg/L for foaming agents, and 7.65 units for pH.

Based on the data from monitoring wells located within the capture zones of the Arroyo Well and Well 52 (Table 3-13 in Section 3.0 of the report), the estimated influent concentrations for the groundwater treatment plant show that turbidity was the only parameter with an estimated average concentration that exceeds an MCL or AL. The estimated concentration for turbidity is 8.61 NTUs, which exceeds the secondary MCL of 5 NTUs. This value is not considered representative of the actual influent water quality. The estimated concentrations for the other parameters are 5.72 units for color, 297 mg/L for hardness, 188 mg/L for alkalinity, 0.03 mg/L for foaming agents, and 7.64 units for pH.

2.6.3 Other Inorganic Parameters (Perchlorate, Chlorate, and Cyanide)

Perchlorate was detected in groundwater samples from 7 of the 22 monitoring wells sampled, ranging in concentration from 3.05 to 13,300 σg/L (Tables 3A-14 and 3A-16). Most of the detected values exceed the AL of 4 σg/L; no MCLs are established for perchlorate. Chlorate was detected in 11 of 22 samples, ranging in concentration from 0.073J to 0.875 mg/L. There are no MCLs or ALs for chlorate. The perchlorate data in Tables 3A-14 and 3A-16 include data from the last round of quarterly sampling that was conducted in October and November 2002, immediately before the comprehensive groundwater monitoring event (SOTA, 2002b). The only monitoring well analyzed for perchlorate during the comprehensive groundwater monitoring event was MW 4-5 because it was not included in the quarterly sampling. It was decided to rely upon the earlier perchlorate data, because perchlorate had been monitored frequently in the past.

Cyanide was not detected in any groundwater monitoring well samples from the comprehensive groundwater monitoring event. Cyanide was added as a chemical of interest during the source water assessment.

The historical data for the Arroyo Well and Well 52 (Tables 3-1 and 3-2 in Section 3.0 of the report) show detections of perchlorate concentrations that range from 42 to 160 σg/L in the Arroyo Well and 6 to 38.8 σg/L in Well 52. Average perchlorate concentrations for the Arroyo Well and Well 52 were 96 σg/L and 22 σg/L, respectively. The average perchlorate concentrations estimated for the Arroyo Well and Well 52 exceed the AL. There are no historical data for chlorate. Cyanide was not analyzed previously in the Arroyo Well or in Well 52.

The estimated perchlorate concentrations for groundwater are 24.2 σg/L from the Arroyo Well and 16.3 σg/L from Well 52. These concentrations exceed the AL (Tables 3-11 and 3-12 in Section 3.0 of the report). The estimated chlorate concentrations are 120 μg/L for the Arroyo Well and 340 μg/L for Well 52 (Tables 3-11 and 3-12 in Section 3.0 of the report). There are no MCLs or ALs for chlorate.

Based on the data from the monitoring wells located within the capture zones of the Arroyo Well and Well 52 (Table 3-13 in Section 3.0 of the report), the estimated perchlorate concentration in the influent to the groundwater treatment plant is 20.25 σg/L, which exceeds the AL, and the estimated chlorate concentration is 225 μg/L.

2.7 Regulated Radioactivity Parameters

Historical radiologic water quality parameter data for the Arroyo Well (Table 3-1 in Section 3.0 of the report) and Well 52 (Table 3-2 in Section 3.0 of the report) demonstrate that measured values fall well below the Primary MCLs for gross alpha particle activity (MCL is 15 picoCuries per liter [pCi/L]), gross beta particle activity (MCL is 50 pCi/L), combined radium 226 and radium 228 (MCL is 5 pCi/L), and uranium (MCL is 20 pCi/L). Values for tritium, strontium-90, and radon were not found in the DHS database data. The gross beta values for the Arroyo Well ranged from 3.0 to 6.6 pCi/L, and the gross alpha values for Well 52 ranged from 2.4 to 7.0 pCi/L.

The monitoring wells in the comprehensive groundwater monitoring event were sampled for gross alpha particle activity and gross beta particle activity, which serve as screening parameters for radiologic species. The gross alpha and gross beta values were below their MCLs (Tables 3A-13 and 3A-16). Gross alpha particle activity ranged from 1.4 to 13.5 pCi/L and averaged 5.82 pCi/L. The high value of 13.5 pCi/L was from MW-21-5, which is near a potential source area. Gross Beta particle activity ranged from 2.09 to 9.16 pCi/L and averaged 4.63 pCi/L.

Based on the monitoring well analyses, the estimated (arithmetic mean) gross alpha for the Arroyo Well is 5.06 pCi/L, and the estimated gross beta is 4.42 pCi/L. Based on the monitoring well samples, the estimated gross alpha for Well 52 is 4.32 pCi/L, and the estimated gross beta is 4.34 pCi/L.

The estimated (arithmetic mean) groundwater treatment plant influent concentration is 4.73 pCi/L gross alpha particle activity and 4.38 pCi/L gross beta particle activity.

2.8 Water Quality Indicator Parameters

Water quality indicator parameters that were sampled in the comprehensive groundwater monitoring event include total dissolved solids (TDS), total organic carbon (TOC), biological oxygen demand (BOD), chemical oxygen demand (COD), total petroleum hydrocarbons-gasoline (TPH-gas), total petroleum hydrocarbons-diesel (TPH-diesel), and total petroleum hydrocarbons-motor oils (TPH-motor oils). TOC, BOD, and COD were sampled primarily to provide data on treatment parameters needed to design the groundwater treatment plant. These data are presented in Table 3A-13 and summarized in Table 3A-16.

2.8.1 Total Dissolved Solids (EPA 160.1)

The TDS of groundwater from the sampled monitoring wells ranges from 182 to 967 mg/L and averaged 409 mg/L, compared to a Recommended Secondary MCL of 500 mg/L and Upper Secondary MCL of 1,000 mg/L (Tables 3A-13 and 3A-16). Wells with TDS exceeding 500 mg/L include MW-4-2 (608 mg/L), MW-10 (821 mg/L), MW-14-2 (967 mg/L), MW-19-3 (837 mg/L), MW-21-3 (669 mg/L), and MW-21-5 (526 mg/L).

Historical monitoring data for the Arroyo Well and Well 52 included TDS data as shown on Tables 3-1 and 3-2 (in Section 3.0 of the report). The average concentration of TDS in the Arroyo Well and Well 52 were 494 and 316 mg/L, respectively.

Based on the monitoring well samples, the estimated (arithmetic mean) TDS for groundwater from the Arroyo Well and Well 52 is 315 mg/L and 462 mg/L, respectively. Both values are below the Recommended Secondary MCL (Tables 3-11 and 3-12 in Section 3.0 of the report).

The estimated (arithmetic mean) TDS for in the influent to the groundwater treatment plant for the Arroyo Well and Well 52 is 388 mg/L.

2.8.2 Biological Oxygen Demand (EPA 405.1)

BOD in groundwater from the monitoring wells sampled during the comprehensive groundwater monitoring event ranged from 0.67 to 2.6 milligrams (mg) oxygen per liter (O_2/L) and averaged 1.56 mg O_2/L (Tables 3A-13 and 3A-16). There are no regulatory standards for BOD in groundwater. Historical BOD data for the Arroyo Well and Well 52 were not found in the DHS database. The estimated concentration of BOD in groundwater from the Arroyo Well and Well 52 is 1.65 mg O_2/L and 1.36 mg O_2/L, respectively (Tables 3-11 and 3-12 in Section 3.0 of the report). The estimated BOD for influent into the groundwater treatment plant is 1.52 mg O_2/L for the arithmetic mean and 1.85 mg O_2/L for the upper 95th percentile confidence interval (Table 3-13 in Section 3.0 of the report).

2.8.3 Total Organic Carbon (EPA 415.1)

TOC (EPA 415.1) in groundwater from the monitoring wells sampled during the comprehensive groundwater monitoring event ranged from less than 1.1 mg/L to 7.3 mg/L and averaged 2.99 mg/L (Tables 3A-13 and 3A-16). There are no regulatory standards for TOC in groundwater. Wells with elevated TOC include MW-7 (7.3 mg/L), MW-8 (5.9 mg/L), MW-10 (6.4 mg/L), MW-16 (7 mg/L), and MW-16 (6.6 mg/L).

Historical TOC data for the Arroyo Well and Well 52 were not found in the DHS database. The estimated concentrations of TOC in groundwater from the Arroyo Well and Well 52 are 1.95 and 2.91 mg/L, respectively (Tables 3-11 and 3-12 in Section 3.0 of the report). The estimated TOC for influent into the groundwater treatment plant is 2.38 mg/L for the arithmetic mean and 3.84 mg/L for the upper 95th percentile confidence interval (Table 3-13 in Section 3.0 of the report).

2.8.4 Chemical Oxygen Demand (EPA 410.4)

COD (EPA 410.4) values for groundwater from the monitoring wells were less than 5 mg O_2/L (Tables 3A-13 and 3A-16). There are no regulatory standards for COD in groundwater.

Historical COD data for the Arroyo Well and Well 52 were not found in the DHS database. The estimated concentration of COD in groundwater from the Arroyo Well and Well 52 is less than 5 mg O_2/L (Tables 3-11 and 3-12 in Section 3.0 of the report). The estimated COD for influent into the groundwater treatment plant is also less than 5 mg O_2/L; the estimated concentration is equal to half the detection limit (Table 3-13 in Section 3.0 of the report).

2.8.5 Total Petroleum Hydrocarbons (EPA 8015M)

TPH-gas, TPH-diesel, and TPH-motor oil values are indicator parameters of petroleum products in groundwater. Each represents a different carbon (C) chain length fraction: TPH-gas (C_4 through C_{12}), TPH-diesel (C_{10} through C_{22}), and TPH-motor oil (C_{18} or greater).

TPH was analyzed by EPA Method 8015M. TPH-gas was not detected in groundwater from the 12 monitoring wells sampled. TPH-gas was detected in the associated blanks for 11 of the 12 samples. It is possible that the samples may have been cross contaminated in the laboratory. TPH-diesel was detected in groundwater from 3 of 12 monitoring well samples with a range of 0.01 J mg/L to 0.02 J mg/L. TPH-motor oils was detected in 2 of 12 monitoring well samples with estimated detected values (J-flagged) of 0.03 mg/L in MW-3-3 and 0.09 mg/L in MW-4-2 (Tables 3A-13 and 3A-16). There are no drinking water regulatory standards for TPH.

Historical TPH data for the Arroyo Well and Well 52 were not present in the DHS database.

The estimated concentrations of TPH-gas in groundwater from the Arroyo Well and Well 52 are 0.05 mg/L and 0.044 mg/L, respectively, based on using one-half the detection limits (Tables 3-11 and 3-12 in Section 3.0 of the report). The estimated concentrations of TPH-diesel in groundwater from the Arroyo Well and Well 52 are less than 0.363 mg/L and 0.368 mg/L, respectively. The estimated concentrations of TPH-motor oil are 0.270 mg/L and 0.388 mg/L, respectively. The estimated groundwater treatment plant influent is 0.047 mg/L TPH-gas, 0.365 mg/L TPH-diesel, and 0.329 mg/L TPH-motor oils. (Table 3-13 in Section 3.0 of the report).

3.0 Summary of Chemicals Identified in Draft Source Water Assessment

As part of the Source Water Assessment, DHS requested a comparison of chemicals used and wastes generated at JPL and other potential sites against previous analyses of groundwater samples to identify those chemicals that had not been detected. An evaluation of these chemicals was conducted to recommend those analytes that should be included in the comprehensive groundwater monitoring event. Information was evaluated regarding the environmental fate of the chemical and the human health concern of the chemical. Also considered was whether or not the chemical could be detected indirectly by existing analytical methods (e.g., arsenic trioxide would be detected by the dissolved arsenic analysis). Based on this information, chemicals were recommended for future monitoring, if appropriate. These chemicals are summarized in Table 3A-2.

The chemicals listed in Table 3A-2 were compared to the chemicals that were analyzed in groundwater samples as part of the groundwater monitoring event (Table 3A-16). Twelve of the 31 analytes recommended for testing were detected: arsenic trioxide (as arsenic); beryllium; chromic acid (as hexavalent chromium); cis-1,2-dichloroethylene; cobalt; fluoride; trichlorofluoromethane; fuming nitric acid (as nitrate); diesel; motor oil; nitrate; and total petroleum hydrocarbons (TPHs). Nitrate was the only analyte that exceeded regulatory criteria (exceeded its PHG).

Nineteen analytes from Table 3A-2 were not detected during the comprehensive groundwater- monitoring event: OCDD; 1,2-DCB; Arochlor-1242; Arochlor-1254; Arochlo-1260; butylbenzylphthalate; chlorobenzene; Freon 112; cresols (3/4 methylphenol); gasoline; DIPE; ETBE; fluorene; formaldehyde; MEK; PCBs; TAME; TBA; and 1,1,2-TCA.

TABLE 3A-1
DHS General Characterization Sampling Table for Policy Memo 97-005 Groundwater Monitoring
(Specific methods employed depend on the sampling purpose. See Notes below.)

Description	Method(s)	Comment
General Mineral/Physical	Various approved methods	None
Full Metals Scan	EPA Method 200.7 or approved methods for the 16 "CAM" metals and Title 22 metals. EPA Method 245.1 for Mercury and EPA Method 218.6 for Hexavalent Chromium	See Note 7. Utilization of EPA Method 200.8 (ICP/MS) may be necessary depending on results.
Perchlorate	DHS modified EPA Method 300.0 or EPA Method 314	None
N-nitrosodimethylamine (NDMA) [low level]	No approved method currently in place. Check DHS web site for update.	See note 8. Detection to < 2 ppt. With advance notice, confirmation of samples may be provided by the Department's Lab.
Nitroaromatics and Nitramines	EPA Method 8330	See note 9. Analyze for all 14 compounds listed in method.
Gross Alpha and Beta Radiation	EPA Method 900.0	None
Aldicarbs	EPA Method 531.1	None
Diquat and Paraquat	EPA Method 549.1	None
EDB and DBCP	EPA Method 504.1	None
1,2,3-TCP	Low level 1,2,3-Trichloropropane	See note 5. If required by DHS.
VOCs	EPA Method 524.2 or EPA Method 8260B with MTBE included	See notes 1, 2, 3, 4 and 10. Consult with DHS on specific method.
Semi-Volatile Organic Chemicals	EPA Method 8270C (all fractions) and modified for 1,4-Dioxane	See notes 1, 2, 3, 4, 6, 10 and 11.
Title 22 SOCs	Approved Drinking Water methods capable of meeting Title 22 DLRs.	If TICs are identified, confirm with other more selective and/or sensitive methods (e.g., EPA Methods 525.2, 8151, 8141, 508, 553, 555, etc.) may be required.

Notes:

1. The analyzing laboratory shall report results at Drinking Water levels if applicable, or at the laboratory's lowest achievable, reproducible and verifiable reporting limits, whichever are lower. Reporting limits shall be subject to the Department's review, approval and verification.

2. The laboratory performing the analyses shall be instructed to report all peaks (calibrated and uncalibrated) on chromatographic analyses. All uncalibrated peaks that can be identified by the mass spectra shall be identified as "Tentatively Identified Compounds" (TICs). All TICs must be reported to the Department along with the other compounds.

3. The Department may require an identification of all unknown peaks shown on GC-MS chromatograms which are not identified by the laboratory's existing library of spectra. This may involve an identification of functional groups or positive identification of the compound(s). Contact the Department for further instructions.

4. If samples need to be diluted for analysis, then the samples should be diluted at the lowest possible dilution for analysis to assure the analytes are reported at the lowest reporting limits.

5. While EPA Method 504.1 lists 1,2,3-TCP as an analyte, the method is not designed for the low level that the Department is seeking. Furthermore, ELAP does not certify laboratories for 1,2,3-TCP analysis. Method 504.1 is certified for EDB and DBCP only. The analyzing laboratory shall develop its own method for analyzing low-level 1,2,3-TCP. Laboratories are asked to develop and implement the lowest reporting limit possible or 2 ppt, whichever is less. Currently, a reporting limit of 50 ppt or lower is desired. The Department recommends using EPA method 524.2 with the mass spectrometer in the SIM mode.

6. Laboratory performing method 8270C shall take all necessary precautions to avoid cross contamination of samples. Laboratory shall implement procedures to avoid carry over of contaminants between samples. The laboratory should not batch drinking water samples from this study with soil, wastewater or other samples that may have high concentrations of analytes of interest. Additional quality control should be implemented to monitor contamination when an auto sampler is used.

7. Analysis for metals shall include all metals listed in Title 22 (i.e., Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Mercury, Nickel, Selenium, Thallium, Copper, Iron, Manganese, Silver and Zinc.) In addition, analysis shall include all metals which have action levels established by the Department or which have previously been detected in the study area (e.g., Lead, Boron, Lithium, Vanadium and Cobalt). For laboratories employing the ICP or ICP/MS technique, they shall include in their reports the results for any other metals that are included in the laboratory's calibration standards in addition to the targets analytes listed above.

8. There is no approved method or certification currently in place for the analysis of NDMA. Laboratories are advised to check the Department's web site for updated information on this analyte. Laboratories are to use the best available method or technology to achieve the lowest verifiable detection limit, if possible to less than 2 ppt.

9. Method 8330 from EPA SW-846 (Solid Waste Manual/Hazardous Waste testing) is employed for these analytes because there is no equivalent drinking water method available for these analytes.

10. Methods (8260B and 8270C) from EPA SW-846 (Solid Waste Manual/Hazardous Waste testing) are referenced because of their wider range of analytes (compounds) analyzed. To better characterize the contaminants, a more inclusive list of compounds is needed. See Note 1.

11. For the analysis of 1,4-Dioxane, analyzing laboratories are requested to modify EPA Method 8270C to include the analyte.

TABLE 3A-2
Comparison of Chemicals From Known and Potential Sources to Previously Analyzed Chemicals in JPL Monitoring Wells, Arroyo Well, and Well 52

COPCs	CAS#	Has Chemical Been Previously Analyzed in Groundwater from:			Recommended for Future Monitoring?	Recommended New Analyte	Comments
		JPL Monitoring Wells	Arroyo Well	Well 52			
1,2,3,4,6,7,8,9-octachlorodibenzo-p-dioxin (OCDD)	3268-87-9	No	No	No	ã	ã	Will be analyzed per EPA 8290 .
1,2-dichlorobenzene (o-dichlorobenzene)	95-50-1	Yes	Yes	Yes	ã		
acetic acid	64-19-7	No - See Comment	No - See Comment	No - See Comment			Not of health concern, would be rapidly biologically degraded in the subsurface
ammonia isotopes N^{14} and N^{15}		No - See Comment	No - See Comment	No - See Comment			Not of health concern
ammonium	14798-03-9	No	No	No			Consumed by biological activity in the subsurface.
aniline	-	No	No	No			Listed as component of ballastite, but chemical cannot be found in literature.
arochlor-1242	53469-21-9	No	Yes	Yes	ã		
arochlor-1254	11097-69-1	No	Yes	Yes	ã		
arochlor-1260	11096-82-5	No	Yes	Yes	ã		
arsenic trioxide	1327-53-3	Yes - See Comment	Yes - See Comment	Yes - See Comment	ã		Will be detected by elevated dissolved arsenic.
ballastite (cellulose nitrate, nitroglycerin, aniline)	90004-70-0, 55-63-0	No - See Comment	No - See Comment	No - See Comment			This is a highly reactive and unstable chemical that would not be present after 20 years.
beryllium	7440-41-7	Yes	No	No	ã		
butylbenzylphthalate	85-68-7	Yes	Yes	Yes	ã		
calcium permanganate	10118-76-0	No - See Comment	No - See Comment	No - See Comment			Permanganate is a highly reactive oxidizing agent that would be rapidly consumed in the subsurface. Would be detected by elevated managanese.
chlorine trifluoride	7790-91-2	No - See Comment	No - See Comment	No - See Comment			Rocket propellant, highly reactive with water and organics. Would not be present in water.
chlorobenzene	108-90-7	Yes	Yes	Yes	ã		
chlorodifluoromethane	75-45-6	No	No	No	ã		Will be included as an additional analyte in EPA 524.2
chromic acid	1333-82-0	Yes - See Comment	Yes - See Comment	Yes - See Comment	ã		Would be detected by elevated hexavalent chromium and low pH.
cis-1,2-dichloroethylene	156-59-2	Yes	Yes	Yes	ã		
cobalt	7440-48-4	Yes	No	No	ã		
cresols (3-methyl phenol)	108-39-4	No	No	No	ã	ã	This may be included as an additional analyte to EPA525 or 8270.
di-isopropyl ether (DIPE)	108-20-3	No	No	No	ã	ã	Gasoline oxygenate. This should be included as an additional analyte in EPA 524.2
ethylenediamine	107-15-3	No	No	No			Volatilization from atmosphere is likely from soil but not water. Adsorption to soil particulates is strong and leaching to groundwater is not expected; biodegradation is likely in soil but will also occur in water. Moderate toxicity in animals, not carcinogenic, exposure to public not evaluated. Used in epoxy, coating.
ethyl-t-butyl ether (ETBE)	637-92-3	No	No	No	ã	ã	Gasoline oxygenate
fluorene	86-73-7	Yes	Yes	Yes	ã		
fluoride	16984-48-8	No	Yes	Yes	ã		
fluorotrichloromethane (trichlorofluoromethane)	75-69-4	Yes	Yes	Yes	ã		This should be included as an additional analyte in EPA 524.2
formaldehyde	50-00-0	No	No	No	ã	ã	

TABLE 3A-2
Comparison of Chemicals From Known and Potential Sources to Previously Analyzed Chemicals in JPL Monitoring Wells, Arroyo Well, and Well 52

COPCs	CAS#	Has Chemical Been Previously Analyzed in Groundwater from:			Recommended for Future Monitoring?	Recommended New Analyte	Comments
		JPL Monitoring Wells	Arroyo Well	Well 52			
nitric acid (fuming)	7697-37-2	Yes - See Comment	Yes - See Comment	Yes - See Comment	ã		Highly reactive oxidizing acid is not stable in the subsurface. Would be detected by low pH and elevated nitrate.

TABLE 3A-2
Comparison of Chemicals From Known and Potential Sources to Previously Analyzed Chemicals in JPL Monitoring Wells, Arroyo Well, and Well 52

COPCs	CAS#	Has Chemical Been Previously Analyzed in Groundwater from:			Recommended for Future Monitoring?	Recommended New Analyte	Comments
		JPL Monitoring Wells	Arroyo Well	Well 52			
hydrazine	302-01-2	No - See Comment	No - See Comment	No - See Comment			H_4N_2. Highly reactive organic used as component of rocket engine propellant. Undergoes oxidation and biodegradation in soils and water. Hydrazines usually break down into less toxic compounds (nitrogen and water) within a few weeks in water (ATSDR, 1997).
Diesel range hydrocarbons (C_{10} through C_{22})		No	No	No	ã	ã	Will be covered by EPA 8015 Modified (Total petroleum hydrocarbons - diesel range)
Gas range hydrocarbons (C_4 through C_{12})		No	No	No	ã	ã	Will be covered by EPA 8015 Modified (Total petroleum hydrocarbons - gas range)
Oil range hydrocarbons (C_{18} or greater)		No	No	No	ã	ã	Will be covered by EPA 8015 Modified (Total petroleum hydrocarbons - oil range)
hydrochloric acid	7647-01-0	No - See Comment	No - See Comment	No - See Comment			Will be detected by elevated chloride and low pH.
hydroquinone	123-31-9	No - See Comment	No - See Comment	No - See Comment			Hydroquinone breaks down as a result of photochemical and biological processes and therefore does not persist in the environment.
iron oxide (not sure if Fe_2O_3 or F_3O_4)	1317-60-8 or 1309-38-2	No - See Comment	No - See Comment	No - See Comment			Not of health concern, naturally occurring in the subsurface.
methyl chloride (methane)	74-87-3	No	No	No			Volatile gas, not significantly soluble in water.
methyl ethyl ketone	78-93-3	No	No	No	ã	ã	This should be included as an additional analyte in EPA 524.2
monomethyl hydrazine (MMH)	60-34-4	No - See Comment	No - See Comment	No - See Comment			Used in rocket fuel. Ignites spontaneously in air when in contact with porous materials (e.g., earth, asbestos, wood, or cloth). Also ignites spontaneously on contact with strong oxidizing agents (e.g., fluorine, chlorine trifluoride, fuming nitric acid, and nitrogen tetroxide). Hydrazines usually break down into less toxic compounds within a few weeks in water (ATSDR). See comments for hydrazine.
nitrates	Various	No	Yes	Yes	ã		
nitrofluoride (not found--searched for nitrogen fluoride and find tetrafluorohydrazine; nitrofluoride term was found in JPL records)	10036-47-2	No - See Comment	No - See Comment	No - See Comment			This compound (listed as nitrofluoride is the JPL records) is most likely tetrafluorohydrazine. Hydrazines usually break down into less toxic compounds within a few weeks in water (ATSDR).
nitrogen tetroxide	10544-72-6	No - See Comment	No - See Comment	No - See Comment			Hazardous volatile liquid under pressure. Tested as oxidizing agent for rocket propulsion. Composed of an equilibrium mixture of NO2 and N2O4. Does not burn, but supports the combustion of carbon, phosphorus, and sulfur. Unstable, decomposes in water to nitric acid and nitric oxide. If present, composition products would be detected as nitrate.
nitromethane	75-52-5	No - See Comment	No - See Comment	No - See Comment			Nitromethane typically has a a 24 hour half life in water, degrading by a reaction with hydroxyl radicals.
Polybutadiene	106-99-0	No - See Comment	No - See Comment	No - See Comment			Butadiene is a gas and is expected to evaporate to the air before dissolving into water; there is little information about the fate of butadiene in water in the environment

TABLE 3A-2
Comparison of Chemicals From Known and Potential Sources to Previously Analyzed Chemicals in JPL Monitoring Wells, Arroyo Well, and Well 52

COPCs	CAS#	Has Chemical Been Previously Analyzed in Groundwater from:			Recommended for Future Monitoring?	Recommended New Analyte	Comments
		JPL Monitoring Wells	Arroyo Well	Well 52			
Acrylic acid	79-10-7	No - See Comment	No - See Comment	No - See Comment			Acrylic acid is not commonly found in groundwater; typically they evaporate to the air and are degraded by bacteria in soil. For analysis method development may be needed however indicator analyses could be carried out with EPA 525 or 8270
polychlorinated biphenyls (PCBs)	Various	No	Yes	Yes	ã		Will be covered under EPA 508.1
polyurethane (urethane)	51-79-6	No - See Comment	No - See Comment	No - See Comment			Commonly used wood finish, not expected to be groundwater contaminant. No common analytical method available.
propane	74-98-6	No - See Comment	No - See Comment	No - See Comment			Volatile gas, not significantly soluble in water.
steel (iron)	NA	Yes	Yes	Yes			Commonly used metal. Would be detected by soluble iron analysis.
sulfuric acid	7664-93-9	Yes - See Comment	Yes - See Comment	Yes - See Comment			Would be detected by elevated sulfate and low pH
t-amyl methyl ether (TAME)	994-05-8	No	No	No	ã	ã	Gasoline oxygenate
t-butyl alcohol (TBA)	75-65-0	No	No	No	ã	ã	Gasoline component. Should be included as analyte under EPA 524.2
total petroleum hydrocarbons (TPH)		No	No	No	ã	ã	Would be covered under EPA 8015 Modified
trichloroethane (1,1,2-trichloroethane)	79-00-5	Yes	Yes	Yes	ã		
uns-di-methyl-hydrazine (UDMH)	57-14-7	No - See Comment	No - See Comment	No - See Comment			Hydrazines usually break down into less toxic compounds within a few weeks in water (ATSDR).

Table 3A-3

Request for Analyses for Comprehensive Groundwater Monitoring Event

ANALYSES REQUESTED [7]		TOTAL PETROLEUM HYDROCARBONS-DIESEL	TOTAL PETROLEUM HYDROCARBONS-GASOLINE	VOLATILES	1,4-DIOXANE	SEMIVOLATILES	DIOXIN AND FURAN (TETRA THROUGH OCTA CONGENERS)	FORMALDEHYDE	ETHYLENE GLYCOL	PESTICIDES/ PCBs	ORGANOPHOSPHORUS PESTICIDES	NITROGEN & PHOSPHOROUS PESTICIDES	PARAQUAT & DIQUAT	CARBAMATES (ALDICARBS)	CHLOROPHENOXY HERBICIDES
METHOD		EPA 8015-MODIFIED	EPA 8015-MODIFIED	EPA 524.2	EPA 8270 SIM	EPA 8270	EPA 8290	EPA 8315 A	EPA 8015 M	EPA 508	EPA 8141A	EPA 507	EPA 549.1	EPA 531.1	EPA 8151 A
LABORATORY		APCL	APCL	APCL	APCL	West Coast Anal.	Frontier Anal.	West Coast Anal.	APCL	APPL	APPL	APPL	APCL	APCL	APCL
CONTAINER TYPE		GLASS AMBER	VOA VIAL	VOA VIAL	GLASS AMBER	GLASS AMBER	GLASS AMBER	GLASS AMBER	GLASS AMBER	GLASS AMBER	GLASS AMBER	GLASS AMBER	GLASS AMBER	GLASS AMBER	GLASS AMBER
PRESERVATIVES		CHILL to 4 °C	ADD HCl to pH < 2 CHILL to 4 °C NO HEADSPACE	ADD HCl to pH < 2 CHILL to 4 °C NO HEADSPACE	CHILL to 4 °C	CHILL to 4 °C	CHILL to 4 °C	CHILL to 4 °C	CHILL to 4 °C	CHILL to 4 °C	CHILL to 4 °C	CHILL to 4 °C	CHILL to 4 °C	MONO-Cl-ACETIC CHILL to 4 °C	CHILL to 4 °C
ANALYTICAL HOLDING TIMES		< 7 DAYS	< 7 DAYS	< 14 DAYS	< 7/40 DAYS[2]	< 7/40 DAYS[2]	< 30 DAYS	<3/3 DAYS	< 14 DAYS	< 7/40 DAYS[2]	< 7/40 DAYS[2]	< 7/40 DAYS[2]	< 7/40 DAYS[2]	< 7/40 DAYS[2]	< 7/40 DAYS[2]
NO. BOTTLES PER ANALYSIS[1]		(2) - 1000 mL	(3) - 40 mL	(3) - 40 mL	(2) - 1000 mL	(2) - 1000 mL	(2) - 1000 mL	(2) - 1000 mL	(2) - 1000 mL	(2) - 1000 mL	(2) - 1000 mL	(2) - 1000 mL	(2) - 1000 mL	(2) - 1000 mL	(2) - 1000 mL
SAMPLE LOCATION	**SAMPLING SCHEDULE**														
Monitoring Wells															
MW-3-3	FALL QUARTER 2002	1	1	1	1	1	1	1	1	1	1	1	1	1	1
MW-3-5	FALL QUARTER 2002	0	0	1	1	1	0	0	0	1	0	0	0	0	0
MW-4-1	FALL QUARTER 2002	0	0	1	1	1	0	0	0	1	0	0	0	0	0
MW-4-2	FALL QUARTER 2002	1	1	1	1	1	0	1	1	1	1	1	1	1	1
MW-4-5	FALL QUARTER 2002	0	0	1	1	1	0	0	0	1	0	0	0	0	0
MW-7	FALL QUARTER 2002	1	1	1	1	1	1	1	1	1	1	1	1	1	1
MW-8	FALL QUARTER 2002	0	0	1	1	1	0	0	0	1	0	0	0	0	0
MW-10	FALL QUARTER 2002	1	1	1	1	1	0	0	0	1	0	0	0	0	0
MW-12-3	FALL QUARTER 2002	1	1	1	1	1	1	1	1	1	1	1	1	1	1
MW-12-5	FALL QUARTER 2002	0	0	1	1	1	0	0	0	1	0	0	0	0	0
MW-16	FALL QUARTER 2002	1	1	1	1	1	1	1	1	1	1	1	1	1	1
MW-14-2	FALL QUARTER 2002	1	1	1	1	1	0	1	1	1	1	1	1	1	1
MW-14-4	FALL QUARTER 2002	0	0	1	1	1	0	0	0	1	0	0	0	0	0
MW-17-3	FALL QUARTER 2002	0	0	1	1	1	0	0	0	1	0	0	0	0	0
MW-17-4	FALL QUARTER 2002	1	1	1	1	1	0	0	0	1	0	0	0	0	0
MW-18-3	FALL QUARTER 2002	0	0	1	1	1	0	0	0	1	0	0	0	0	0
MW-18-4	FALL QUARTER 2002	1	1	1	1	1	0	0	0	1	0	0	0	0	0
MW-19-3	FALL QUARTER 2002	1	1	1	1	1	0	0	0	1	0	0	0	0	0
MW-19-5	FALL QUARTER 2002	0	0	1	1	1	0	0	0	1	0	0	0	0	0
MW-21-3	FALL QUARTER 2002	0	0	1	1	1	0	0	0	1	0	0	0	0	0
MW-21-5	FALL QUARTER 2002	1	1	1	1	1	0	0	0	1	0	0	0	0	0
MW-24-2	FALL QUARTER 2002	1	1	1	1	1	0	0	0	1	0	0	0	0	0
TOTAL	FALL QUARTER 2002	**12**	**12**	**22**	**22**	**22**	**4**	**6**	**6**	**22**	**6**	**6**	**6**	**6**	**6**
Field Blanks															
Equipment Rinsate Blanks[3]	FALL QUARTER 2002	2	2	4	4	4	1	1	1	4	1	1	1	1	1
Trip Blanks[4]	FALL QUARTER 2002	0	0	22	0	0	0	0	0	0	0	0	0	0	0
Source Blanks[5]	FALL QUARTER 2002	1	1	4	2	2	1	1	1	2	1	1	1	1	1
Duplicates															
Duplicates	FALL QUARTER 2002	1	1	2	2	2	1	1	1	2	1	1	1	1	1
Matrix Spike/Matrix Spike Duplicate[6]	FALL QUARTER 2002	1	1	1	1	1	1	1	1	1	1	1	1	1	1
TOTAL		**18**	**18**	**56**	**32**	**32**	**9**	**11**	**11**	**32**	**11**	**11**	**11**	**11**	**11**

NOTES:

1 The number of sample bottles may be reduced as analyses may be combined, depending on the type of the equipment used by the laboratory.

2 The first number indicates holding time to extraction; the second number indicates the holding time to analysis.

3 Equipment Rinsate Blanks will be collected at a rate of one per three sampling locations; for the multiport wells, each port is a sampling location.

4 Trip Blanks will be included with every cooler containing samples for VOC analyses.

5 Source Water Blanks will be collected for each lot of water used for equipment blanks; the number of samples are estimated.

6 MS/MSD samples will be taken at the rate of one per 20 samples; each MS/MSD sample counts for two analyses.

7 Turbidity, field pH, temperature, and electrical conductivity will be measured in the field for all wells.

8 Samples will be collected from production wells during a future sampling event.

9 Holding time is 14 days under refrigeration and 6 months if frozen.

Table 3A-3
Request for Analyses for Comprehensive Groun

ANALYSES REQUESTED [7]		CHLOROPICRIN GROUP	GLYPHOSATE	ENDOTHALL	1,2,3-TCP	EDB & DBCP	EXPLOSIVES	NDMA, N-nitrosodi-n-propylamine N-nitrosodiphenylamine	DISSOLVED METALS	MERCURY	ANTIMONY SELENIUM THALLIUM	CHROMIUM (VI)	PERCHLORATE	CHLORATES	CYANIDE	BROMIDE CHLORIDE FLUORIDE SULFATE
METHOD		EPA 551.1	EPA 547	EPA 548	EPA 504.1 SIM	EPA 504.1	EPA 8330	MOE MSABN-E3291A	EPA 200.8	EPA 245.1	EPA 200.8	EPA 218.6	EPA 314	EPA 300 Modified	EPA 335.3	EPA 300.0
LABORATORY		Babcock	APCL	APCL	FGL	APCL	APCL	Maxxam	APPL	APPL	APPL	APCL	APCL	EMAX	APCL	APCL
CONTAINER TYPE		GLASS AMBER	GLASS AMBER	GLASS AMBER	GLASS AMBER	GLASS AMBER	GLASS AMBER	GLASS AMBER	POLYETHYLENE	POLYETHYLENE	POLYETHYLENE	POLYETHYLENE	POLYETHYLENE	POLYETHYLENE	POLYETHYLENE	POLYETHYLENE
PRESERVATIVES		CHILL to 4 °C	NaS_2O_3 for chlorinated water sources CHILL to 4 °C	NaS_2O_3 for chlorinated water sources CHILL to 4 °C	CHILL to 4 °C NO HEADSPACE	CHILL to 4 °C NO HEADSPACE	CHILL to 4 °C	CHILL to 4 °C	ADD HNO_3 to pH < 2 CHILL to 4 °C	ADD HNO_3 to pH < 2 CHILL to 4 °C	ADD HNO_3 to pH < 2 CHILL to 4 °C	CHILL to 4 °C	CHILL to 4 °C	0D EDA (pre-preserved bottle	CHILL to 4 °C	CHILL to 4 °C
ANALYTICAL HOLDING TIMES		< 7/40 DAYS[2]	<14 DAYS/6 MONTHS [9]	<7 DAYS/40 DAYS	< 14 DAYS	< 14 DAYS	< 7/40 DAYS[2]	< 7/40 DAYS[2]	< 6 MONTHS	28 DAYS	< 6 MONTHS	24 HOURS	< 28 DAYS	< 28 DAYS	14 DAYS	< 28 DAYS
NO. BOTTLES PER ANALYSIS[1]		(2) - 1000 mL	(1) 125-mIL	(1) - 1000 mL	(3) 40-mL	(2) - 1000 mL	(2) - 1000 mL	(2) - 1000 mL	(1) - 125 mL	(1) - 125 mL	(1) - 125 mL	(1) - 125 mL	(1) - 125 mL	(1) - 125 mL	(1) - 125 mL	(1) - 125 mL
SAMPLE LOCATION	SAMPLING SCHEDULE															
Monitoring Wells																
MW-3-3	FALL QUARTER 2002	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
MW-3-5	FALL QUARTER 2002	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1
MW-4-1	FALL QUARTER 2002	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1
MW-4-2	FALL QUARTER 2002	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
MW-4-5	FALL QUARTER 2002	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1
MW-7	FALL QUARTER 2002	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
MW-8	FALL QUARTER 2002	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1
MW-10	FALL QUARTER 2002	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1
MW-12-3	FALL QUARTER 2002	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
MW-12-5	FALL QUARTER 2002	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1
MW-16	FALL QUARTER 2002	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
MW-14-2	FALL QUARTER 2002	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
MW-14-4	FALL QUARTER 2002	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1
MW-17-3	FALL QUARTER 2002	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1
MW-17-4	FALL QUARTER 2002	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1
MW-18-3	FALL QUARTER 2002	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1
MW-18-4	FALL QUARTER 2002	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1
MW-19-3	FALL QUARTER 2002	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1
MW-19-5	FALL QUARTER 2002	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1
MW-21-3	FALL QUARTER 2002	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1
MW-21-5	FALL QUARTER 2002	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1
MW-24-2	FALL QUARTER 2002	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1
TOTAL	FALL QUARTER 2002	**6**	**6**	**6**	**12**	**12**	**22**	**22**	**22**	**22**	**22**	**22**	**22**	**22**	**22**	**22**
Field Blanks																
Equipment Rinsate Blanks[3]	FALL QUARTER 2002	1	1	1	2	2	4	4	4	4	4	4	4	4	4	4
Trip Blanks[4]	FALL QUARTER 2002	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Source Blanks[5]	FALL QUARTER 2002	1	1	1	1	1	2	2	2	2	2	2	2	0	2	2
Duplicates																
Duplicates	FALL QUARTER 2002	1	1	1	1	1	2	2	2	2	2	2	2	2	1	2
Matrix Spike/Matrix Spike Duplicate[6]	FALL QUARTER 2002	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
TOTAL		**11**	**11**	**11**	**18**	**18**	**32**	**32**	**32**	**32**	**32**	**32**	**32**	**30**	**31**	**32**

NOTES:

1 The number of sample bottles may be reduced as analyses may be combined, depending on the type of the equipment used by the laboratory.

2 The first number indicates holding time to extraction; the second number indicates the holding time to analysis.

3 Equipment Rinsate Blanks will be collected at a rate of one per three sampling locations; for the multiport wells, each port is a sampling location.

4 Trip Blanks will be included with every cooler containing samples for VOC analyses.

5 Source Water Blanks will be collected for each lot of water used for equipment blanks; the number of samples are estimated.

6 MS/MSD samples will be taken at the rate of one per 20 samples; each MS/MSD sample counts for two analyses.

7 Turbidity, field pH, temperature, and electrical conductivity will be measured in the field for all wells.

8 Samples will be collected from production wells during a future sampling event.

9 Holding time is 14 days under refrigeration and 6 months if frozer

Table 3A-3
Request for Analyses for Comprehensive Groun

ANALYSES REQUESTED [7]		NITRATE (AS N) NITRITE (AS N)	GROSS ALPHA & BETA ACTIVITY	MBAS (DETERGENTS) (SURFACTANTS)	TOTAL DISSOLVED SOLIDS	TOTAL ORGANIC CARBON	HARDNESS (AS $CaCO_3$)	LABORATORY pH	BIOLOGICAL OXYGEN DEMAND (BOD)	CHEMICAL OXYGEN DEMAND (COD)	COLOR	ALKALINITY	TOTAL SUSPENDED SOLIDS (TSS)	COLIFORM BACTERIA (FECAL)	TOTAL COLIFORMS	HETEROTROPHIC PLATE COUNT	ODOR
METHOD		EPA 300.0	EPA 900.0	EPA 425.1	EPA 160.1	EPA 415.1	EPA 130	EPA 9040B	EPA 405.1	EPA 410.4	EPA 110.2	EPA 310.1	EPA 160.2	SM 9221E	SM 9221B	SM 9215 B	EPA 140.1 or SM 2150B
LABORATORY		APCL	GEL	APCL	APCL	APCL	APCL	APCL	APCL	APCL	APCL	APCL					
CONTAINER TYPE		POLYETHYLENE	POLYETHYLENE	POLYETHYLENE	POLYETHYLENE	POLYETHYLENE	POLYETHYLENE	POLYETHYLENE	POLYETHYLENE	POLYETHYLENE	POLYETHYLENE	POLYETHYLENE	POLYETHYLENE	POLYETHYLENE	POLYETHYLENE	POLYETHYLENE	POLYETHYLENE
PRESERVATIVES		CHILL to 4 °C	ADD HNO_3 to pH < 2 CHILL to 4 °C NO HEADSPACE	CHILL to 4 °C	CHILL to 4 °C	ADD H_2SO_4 to pH < 2 CHILL to 4 °C NO HEADSPACE	CHILL to 4 °C	CHILL to 4 °C	CHILL to 4 °C	CHILL to 4 °C	CHILL to 4 °C	CHILL to 4 °C NO HEADSPACE	CHILL to 4 °C	ADD $Na_2S_2O_3$ CHILL to 4 °C	ADD $Na_2S_2O_3$ CHILL to 4 °C	ADD $Na_2S_2O_3$ CHILL to 4 °C	CHILL to 4 °C
ANALYTICAL HOLDING TIMES		< 48 HOURS	< 6 MONTHS	48 HOURS	< 7 DAYS	28 DAYS	< 6 MONTHS	IMMEDIATELY	28 DAYS	28 DAYS	< 48 HOURS	14 DAYS	< 7 DAYS	30 HOURS	30 HOURS	30 HOURS	24 HOURS
NO. BOTTLES PER ANALYSIS[1]		(1) - 125 mL	(1) - 125 mL	(1) - 125 mL	(1) - 125 mL	(1) - 125 mL	(1) - 125 mL	(1) - 125 mL	(1) - 125 mL	(1) - 125 mL	(1) - 125 mL	(1) - 125 mL	(1) - 125 mL	(1) - 125 mL	(1) - 125 mL	(1) - 125 mL	(1) - 125 mL
SAMPLE LOCATION	SAMPLING SCHEDULE																
Monitoring Wells																	
MW-3-3	FALL QUARTER 2002	1	1	1	1	1	1	1	1	1	1	1	(8)	(8)	(8)	(8)	(8)
MW-3-5	FALL QUARTER 2002	1	0	1	1	0	0	1	0	0	1	0	(8)	(8)	(8)	(8)	(8)
MW-4-1	FALL QUARTER 2002	1	0	1	1	0	0	1	0	0	1	0	(8)	(8)	(8)	(8)	(8)
MW-4-2	FALL QUARTER 2002	1	1	1	1	1	1	1	1	1	1	1	(8)	(8)	(8)	(8)	(8)
MW-4-5	FALL QUARTER 2002	1	0	1	1	0	0	1	0	0	1	0	(8)	(8)	(8)	(8)	(8)
MW-7	FALL QUARTER 2002	1	1	1	1	1	1	1	1	1	1	1	(8)	(8)	(8)	(8)	(8)
MW-8	FALL QUARTER 2002	1	1	1	1	1	1	1	1	1	1	1	(8)	(8)	(8)	(8)	(8)
MW-10	FALL QUARTER 2002	1	1	1	1	1	1	1	1	1	1	1	(8)	(8)	(8)	(8)	(8)
MW-12-3	FALL QUARTER 2002	1	1	1	1	1	1	1	1	1	1	1	(8)	(8)	(8)	(8)	(8)
MW-12-5	FALL QUARTER 2002	1	0	1	1	0	0	1	0	0	1	0	(8)	(8)	(8)	(8)	(8)
MW-16	FALL QUARTER 2002	1	1	1	1	1	1	1	1	1	1	1	(8)	(8)	(8)	(8)	(8)
MW-14-2	FALL QUARTER 2002	1	1	1	1	1	1	1	1	1	1	1	(8)	(8)	(8)	(8)	(8)
MW-14-4	FALL QUARTER 2002	1	0	1	1	0	0	1	0	0	1	0	(8)	(8)	(8)	(8)	(8)
MW-17-3	FALL QUARTER 2002	1	0	1	1	0	0	1	0	0	1	0	(8)	(8)	(8)	(8)	(8)
MW-17-4	FALL QUARTER 2002	1	1	1	1	1	1	1	1	1	1	1	(8)	(8)	(8)	(8)	(8)
MW-18-3	FALL QUARTER 2002	1	0	1	1	0	0	1	0	0	1	0	(8)	(8)	(8)	(8)	(8)
MW-18-4	FALL QUARTER 2002	1	1	1	1	1	1	1	1	1	1	1	(8)	(8)	(8)	(8)	(8)
MW-19-3	FALL QUARTER 2002	1	1	1	1	1	1	1	1	1	1	1	(8)	(8)	(8)	(8)	(8)
MW-19-5	FALL QUARTER 2002	1	0	1	1	0	0	1	0	0	1	0	(8)	(8)	(8)	(8)	(8)
MW-21-3	FALL QUARTER 2002	1	0	1	1	0	0	1	0	0	1	0	(8)	(8)	(8)	(8)	(8)
MW-21-5	FALL QUARTER 2002	1	1	1	1	1	1	1	1	1	1	1	(8)	(8)	(8)	(8)	(8)
MW-24-2	FALL QUARTER 2002	1	1	1	1	1	1	1	1	1	1	1	(8)	(8)	(8)	(8)	(8)
TOTAL	FALL QUARTER 2002	**22**	**13**	**22**	**22**	**13**	**13**	**22**	**13**	**13**	**22**	**13**	0	0	0	0	0
Field Blanks																	
Equipment Rinsate Blanks[3]	FALL QUARTER 2002	4	3	4	4	3	3	4	3	3	4	3	0	0	0	0	0
Trip Blanks[4]	FALL QUARTER 2002	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Source Blanks[5]	FALL QUARTER 2002	2	1	2	2	2	1	2	1	1	1	1	0	0	0	0	
Duplicates																	
Duplicates	FALL QUARTER 2002	2	2	1	2	2	2	2	2	2	2	2	0	0	0	0	0
Matrix Spike/Matrix Spike Duplicate[6]	FALL QUARTER 2002	1	1	1	1	1	0	0	0	0	0	1	0	0	0	0	0
TOTAL		**32**	**21**	**31**	**32**	**22**	**19**	**30**	**19**	**19**	**29**	**21**	**0**	**0**	**0**	**0**	**0**

NOTES:

1 The number of sample bottles may be reduced as analyses may be combined, depending on the type of the equipment used by the laboratory.

2 The first number indicates holding time to extraction; the second number indicates the holding time to analysis.

3 Equipment Rinsate Blanks will be collected at a rate of one per three sampling locations; for the multiport wells, each port is a sampling location.

4 Trip Blanks will be included with every cooler containing samples for VOC analyses.

5 Source Water Blanks will be collected for each lot of water used for equipment blanks; the number of samples are estimated.

6 MS/MSD samples will be taken at the rate of one per 20 samples; each MS/MSD sample counts for two analyses.

7 Turbidity, field pH, temperature, and electrical conductivity will be measured in the field for all wells.

8 Samples will be collected from production wells during a future sampling event.

9 Holding time is 14 days under refrigeration and 6 months if frozer

TABLE 3A-4

Statistical Summary of Tentatively Identified Compounds (TICs) [1] for Jet Propulsion Laboratory Monitoring Wells [2]

(Sorted by Number of Detects)

		Concentration Data			
Analysis	Analyte	Number of Detects	Minimum Detected Value	Maximum Detected Value	Arithmetic Mean
TIC	ACETONE	69	1.10	10.00	3.58
TIC	ETHYLBENZENE	66	7.70	30.00	12.74
TIC	CARBON DISULFIDE	30	0.50	44.00	1.95
TIC	TETRAHYDROFURAN	15	7.80	1600.00	1013.32
TIC	2,4-BIS(1,1-DIMETHYLETHYL)-PHENOL	13	22.00	39.00	31.08
TIC	CYCLOHEXANONE	11	33.00	79.00	58.82
TIC	1,1,2-TRICHLOROTRIFLUOROETHANE	10	0.50	11.00	0.88
TIC	SUBSTITUTED ALKYL HEXANEDIOIC ACID ESTER	10	83.00	960.00	453.30
TIC	UNKNOWN,SCAN#190	9	1800.00	2800.00	2366.67
TIC	UNKNOWN ALKYL SUBSTITUTE PROPANOIC ACID	8	8.40	14.00	11.04
TIC	ISOPROPYLBENZENE	6	0.60	1.20	0.83
TIC	UNKNOWN SCAN#191	5	1800.00	3000.00	2340.00
TIC	UNKNOWN SCAN#188	5	1900.00	3200.00	2720.00
TIC	UNKNOWN SCAN#189	4	2300.00	3000.00	2750.00
TIC	2-METHYLPROPANE	3	1.20	1.60	1.43
TIC	DIMETHYL BENZENE	3	8.50	10.00	9.10
TIC	HEXANE	3	1.00	7.40	4.33
TIC	UNKNOWN (SCAN#92)	3	8.20	11.00	10.07
TIC	UNKNOWN ALCOHOL	3	14.00	17.00	15.33
TIC	ACETIC ACID	2	2.00	5.10	3.55
TIC	ISOBUTYLENE (2-METHYL-1-PROPENE)	2	1.50	3.10	2.30
TIC	UNKNOWN RT 5.12	2	1.90	2.10	2.00
TIC	UNKNOWN PHTHALATE	2	11.00	12.00	11.50
TIC	UNKNOWN SCAN#432	2	6.00	7.80	6.90
TIC	UNKNOWN SCAN#433	2	7.10	7.90	7.50
TIC	UNKNOWN(SCAN#1608)	2	8.20	21.00	14.60
TIC	UNKNOWN,SCAN#1239	2	8.30	10.00	9.15
TIC	1,1-DIFLUOROETHANE	1	4.30	4.30	4.30
TIC	1-METHYL-4-(1-METHYLETHENYL)	1	3.10	3.10	3.10
TIC	2-BUTANONE (MEK)	1	2.10	2.10	1.30
TIC	DICHLORODIFLUOROMETHANE	1	1.40	1.40	1.40
TIC	METHYL-T-BUTYL ETHER (MTBE)	1	0.70	0.70	0.70
TIC	N-BUTYL-BENZENESULFONAMIDE	1	8.90	8.90	8.90
TIC	SUBSTITUTED HEXANEDIOIC ACID ESTER	1	400.00	400.00	400.00
TIC	SULFUR DIOXIDE	1	2.70	2.70	2.70
TIC	UNKNOWN (RT= 21:27 TO 24:26)	1	10.00	10.00	10.00
TIC	UNKNOWN 5.26	1	1.20	1.20	1.20
TIC	UNKNOWN 5.27	1	0.60	0.60	0.60
TIC	UNKNOWN ALKENE SCAN #299	1	1.10	1.10	1.10
TIC	UNKNOWN C8 ACETATE ESTER	1	1.00	1.00	1.00
TIC	UNKNOWN HYDROCARBON	1	3.40	3.40	3.40
TIC	UNKNOWN POLYNUCLEAR AROMATIC HYDROCARBON	1	13.00	13.00	13.00
TIC	UNKNOWN RT=2.51	1	1.30	1.30	1.30
TIC	UNKNOWN RT=2:48	1	1.10	1.10	1.10
TIC	UNKNOWN RT=3.93	1	3.00	3.00	3.00
TIC	UNKNOWN RT=4.25	1	1.00	1.00	1.00
TIC	UNKNOWN RT=4.33	1	4.10	4.10	4.10
TIC	UNKNOWN RT=4.79	1	0.60	0.60	0.60
TIC	UNKNOWN RT=4.82	1	0.60	0.60	0.60
TIC	UNKNOWN RT=5.13	1	3.40	3.40	3.40
TIC	UNKNOWN RT=6.20	1	3.40	3.40	3.40
TIC	UNKNOWN RT=6.21	1	3.90	3.90	3.90
TIC	UNKNOWN RT=7.76	1	1.20	1.20	1.20
TIC	UNKNOWN SCAN#1047	1	1.60	1.60	1.60
TIC	UNKNOWN SCAN#1226	1	15.00	15.00	15.00
TIC	UNKNOWN SCAN#1237	1	8.50	8.50	8.50
TIC	UNKNOWN SCAN#1265	1	14.00	14.00	14.00
TIC	UNKNOWN SCAN#1266	1	9.90	9.90	9.90
TIC	UNKNOWN SCAN#1268	1	18.00	18.00	18.00
TIC	UNKNOWN SCAN#1268	1	48.00	48.00	48.00
TIC	UNKNOWN SCAN#1311	1	11.00	11.00	11.00
TIC	UNKNOWN SCAN#1390	1	12.00	12.00	12.00
TIC	UNKNOWN SCAN#1451	1	11.00	11.00	11.00
TIC	UNKNOWN SCAN#1596	1	2.20	2.20	2.20
TIC	UNKNOWN SCAN#185	1	2500.00	2500.00	2500.00
TIC	UNKNOWN SCAN#192	1	2700.00	2700.00	2700.00
TIC	UNKNOWN SCAN#193	1	3000.00	3000.00	3000.00
TIC	UNKNOWN SCAN#248	1	8.30	8.30	8.30

TABLE 3A-4

Statistical Summary of Tentatively Identified Compounds (TICs) [1] for Jet Propulsion Laboratory Monitoring Wells [2]

(Sorted by Number of Detects)

		Concentration Data			
Analysis	**Analyte**	**Number of Detects**	**Minimum Detected Value**	**Maximum Detected Value**	**Arithmetic Mean**
TIC	UNKNOWN SCAN#252	1	9.00	9.00	9.00
TIC	UNKNOWN SCAN#340	1	6.90	6.90	6.90
TIC	UNKNOWN SCAN#350	1	1.10	1.10	1.10
TIC	UNKNOWN SCAN#533	1	36.00	36.00	36.00
TIC	UNKNOWN SCAN#535	1	43.00	43.00	43.00
TIC	UNKNOWN SCAN#538	1	310.00	310.00	310.00
TIC	UNKNOWN SCAN#548	1	57.00	57.00	57.00
TIC	UNKNOWN SCAN#611	1	7.40	7.40	7.40
TIC	UNKNOWN SCAN#654	1	13.00	13.00	13.00
TIC	UNKNOWN SCAN#669	1	7.40	7.40	7.40
TIC	UNKNOWN SCAN#835	1	11.00	11.00	11.00
TIC	UNKNOWN SCAN#940	1	1.60	1.60	1.60
TIC	UNKNOWN SUBSTITUTED OXETANE SCAN#599	1	17.00	17.00	17.00
TIC	UNKNOWN SUBSTITUTED OXETANE SCAN#613	1	18.00	18.00	18.00
TIC	UNKNOWN SUBSTITUTED OXETANE SCAN#658	1	17.00	17.00	17.00
TIC	UNKNOWN SUBSTITUTED OXETANE SCAN#661	1	56.00	56.00	56.00
TIC	UNKNOWN SUBSTITUTED PROPANOIC ACID	1	12.00	12.00	12.00
TIC	UNKNOWN,SCAN#1240	1	8.60	8.60	8.60

[1] Jet Propulsion Laboratory Monitoring Wells MW-19, MW-20, and MW-21 are not included since these wells are not located within the capture zones of the Arroyo Well and Well 52

[2] Tentatively Identified Compounds (TICs) are compounds that are unidentified peaks on the chromatograms for the gas chromatography/mass spectroscopy (GC/MS) analyses of volatile organic compounds or semivolatile organic compounds.

TABLE 3A-5
Summary of VOC Data for JPL Monitoring Wells

Station ID:								MW-3-3	MW-3-5	MW-4-1	MW-4-2	MW-4-5	MW-7	MW-8	MW-10	MW-12-3	MW-12-5	MW-14-2	MW-14-4
QAQC Type:								N	N	N	N	N	N	N	N	N	N	N	N
Date Collected:								02/24/03	02/27/03	12/27/02	01/02/03	01/02/03	01/16/03	01/17/03	01/17/03	01/06/03	01/07/03	12/17/02	12/18/02
Analyte Type	Method	Analyte	Units	CA Primary MCL	CA Secondary MCL	CA PHG	DHS Action Level												
VOCs	EPA 524.2	1,1,1,2-TETRACHLOROETHANE	µg/L	--	--	--	--	0.50 U	0.50 UJ	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	1,1,1-TRICHLOROETHANE	µg/L	200	--	--	--	0.50 U	0.50 UJ	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	1,1,2,2-TETRACHLOROETHANE	µg/L	1.0	--	--	--	0.50 U	0.50 UJ	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	1,1,2-TRICHLOROETHANE	µg/L	5.0	--	--	--	0.50 U	0.50 UJ	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	1,1,2-TRICHLOROTRIFLUOROETHANE	µg/L	1,200	--	4,000	--	0.50 U	0.50 UJ	0.50 U	0.50 U	0.50 U	5.9	2.1	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	1,1-DICHLOROETHANE	µg/L	5.0	--	--	--	0.30 U	0.30 UJ	0.30 U	0.40	0.30 U	0.30 U	0.30 U	0.50	0.30 U	0.30 U	0.50	0.30 U
VOCs	EPA 524.2	1,1-DICHLOROETHENE	µg/L	6.0	--	10	--	0.50 U	0.50 UJ	0.50 U	0.50 U	0.50 U	**8.2**	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	1,2,3-TRICHLOROBENZENE	µg/L	--	--	--	--	0.50 U	0.50 UJ	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	1,2,4-TRICHLOROBENZENE	µg/L	5.0	--	5.0	--	0.50 U	0.50 UJ	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	1,2,4-TRIMETHYLBENZENE	µg/L	--	--	--	330	0.50 U	0.50 UJ	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE, EDB)	µg/L	0.050	--	--	--	**0.50 U**	**0.50 UJ**	**0.50 U**	**0.50 U**	**0.50 U**	**0.50 U**	**0.50 U**	**0.50 U**	**0.50 U**	**0.50 U**	**0.50 U**	**0.50 U**
VOCs	EPA 524.2	1,2-DICHLOROBENZENE (O-DICHLOROBENZENE)	µg/L	600	--	600	--	0.50 U	0.50 UJ	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	1,2-DICHLOROETHANE	µg/L	0.5	--	0.40	--	0.50 U	0.50 UJ	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	1,2-DICHLOROPROPANE	µg/L	5.0	--	0.50	--	0.50 U	0.50 UJ	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	1,3,5-TRIMETHYLBENZENE	µg/L	--	--	--	330	0.50 U	0.50 UJ	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	1,3-DICHLOROPROPANE	µg/L	--	--	--	--	0.50 U	0.50 UJ	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	1,4-DICHLOROBENZENE (PARA-DICHLOROBENZENE)	µg/L	5.0	--	6.0	--	0.50 U	0.50 UJ	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	2,2-DICHLOROPROPANE	µg/L	--	--	--	--	0.50 U	0.50 UJ	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	2-BUTANONE (METHYL ETHYL KETONE, MEK)	µg/L	--	--	--	--	5.0 U	5.0 UJ	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
VOCs	EPA 524.2	2-CHLOROETHYLVINYLETHER	µg/L	--	--	--	--	5.0 UJ	5.0 UJ	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
VOCs	EPA 524.2	2-CHLOROTOLUENE	µg/L	--	--	--	140	0.50 U	0.50 UJ	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	2-HEXANONE	µg/L	--	--	--	--	2.0 U	2.0 UJ	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
VOCs	EPA 524.2	4-CHLOROTOLUENE	µg/L	--	--	--	140	0.50 U	0.50 UJ	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	4-METHYL-2-PENTANONE (MIBK)	µg/L	--	--	--	120	5.0 U	5.0 UJ	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
VOCs	EPA 524.2	ACETONE	µg/L	--	--	--	--	8.4 U	8.4 UJ	5.0 U	5.0 U	5.0 U	5.0 UJ	5.0 UJ	5.0 UJ	5.0 U	5.0 U	5.0 U	5.0 U
VOCs	EPA 524.2	ACROLEIN	µg/L	--	--	--	--	50 U	50 UJ	50 U	50 U	50 U	50 UJ	50 UJ	50 UJ	50 U	50 U	50 UJ	50 UJ
VOCs	EPA 524.2	ACRYLONITRILE	µg/L	--	--	--	--	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
VOCs	EPA 524.2	BENZENE	µg/L	1.0	--	0.15	--	0.50 U	0.50 UJ	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	BROMOBENZENE	µg/L	--	--	--	--	0.50 U	0.50 UJ	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	BROMOCHLOROMETHANE	µg/L	--	--	--	--	1.0 U	1.0 UJ	1.0 U	1.0 U	18	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
VOCs	EPA 524.2	BROMODICHLOROMETHANE	µg/L	--	--	--	--	0.50 U	0.50 UJ	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	BROMOFORM	µg/L	--	--	--	--	0.50 U	0.50 UJ	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	BROMOMETHANE (METHYL BROMIDE)	µg/L	--	--	--	--	0.50 U	0.50 UJ	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	CARBON DISULFIDE	µg/L	--	--	--	160	2.0 UJ	2.0 UJ	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
VOCs	EPA 524.2	CARBON TETRACHLORIDE	µg/L	0.50	--	0.10	--	0.20 U	0.20 UJ	0.20 U	0.20 U	0.20 U	**157**	**13**	0.20 U	**9.2**	0.20 U	0.20 U	0.20 U
VOCs	EPA 524.2	CHLOROBENZENE	µg/L	70	--	--	--	0.50 U	0.50 UJ	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	CHLORODIBROMOMETHANE (THM)	µg/L	--	--	--	--	0.50 U	0.50 UJ	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	CHLOROETHANE	µg/L	--	--	--	--	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
VOCs	EPA 524.2	CHLOROFORM	µg/L	100	--	--	--	0.71	0.30 UJ	1.2	0.40	0.30 U	17	2.9	0.63	1.7	0.30 U	0.62	0.30 U
VOCs	EPA 524.2	CHLOROMETHANE (METHYL CHLORIDE)	µg/L	--	--	--	--	0.50 U	0.50 UJ	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	CIS-1,2-DICHLOROETHENE	µg/L	6.0	--	--	--	0.50 U	0.50 UJ	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	CIS-1,3-DICHLOROPROPENE	µg/L	--	--	--	--	0.50 U	0.50 UJ	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	DI-ISOPROPYL ETHER	µg/L	--	--	--	--	0.52 U	0.52 UJ	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	DIBROMOMETHANE	µg/L	--	--	--	--	0.50 U	0.50 UJ	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	DICHLORODIFLUOROMETHANE (FREON 112)	µg/L	--	--	--	1,000	0.50 U	0.50 UJ	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	ETHYL-TERT-BUTYL ETHER (ETBE)	µg/L	--	--	--	--	3.0 U	3.0 UJ	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U
VOCs	EPA 524.2	ETHYLBENZENE	µg/L	300	--	300	--	0.50 U	1.1 J	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	HEXACHLOROBUTADIENE	µg/L	--	--	--	--	0.50 U	0.50 UJ	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	ISOPROPYLBENZENE (CUMENE)	µg/L	--	--	--	770	0.50 U	0.50 UJ	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	M-XYLENE	µg/L	--	--	--	--	0.50 U	0.50 UJ	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	METHYL ACETATE	µg/L	--	--	--	--	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ
VOCs	EPA 524.2	METHYL-T-BUTYL ETHER (MTBE)	µg/L	13	5.0	13	--	0.50 U	0.50 UJ	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	METHYLENE CHLORIDE (DICHLOROMETHANE)	µg/L	5.0	--	4.0	--	1.8 U	**7,350**	0.90 U	**5.8 J**	**11,300 J**	0.50 UJ	0.50 UJ	0.50 UJ	0.40 J	0.50 UJ	1.9 UB	**6.2 UB**
VOCs	EPA 524.2	N-BUTYLBENZENE	µg/L	--	--	--	260	0.50 U	0.50 UJ	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	N-PROPYLBENZENE	µg/L	--	--	--	260	0.50 U	0.50 UJ	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U

TABLE 3A-5
Summary of VOC Data for JPL Monitoring Wells

Station ID:								MW-3-3	MW-3-5	MW-4-1	MW-4-2	MW-4-5	MW-7	MW-8	MW-10	MW-12-3	MW-12-5	MW-14-2	MW-14-4
QAQC Type:								N	N	N	N	N	N	N	N	N	N	N	N
Date Collected:								02/24/03	02/27/03	12/27/02	01/02/03	01/02/03	01/16/03	01/17/03	01/17/03	01/06/03	01/07/03	12/17/02	12/18/02
Analyte Type	Method	Analyte	Units	CA Primary MCL	CA Secondary MCL	CA PHG	DHS Action Level												
VOCs	EPA 524.2	NAPHTHALENE	µg/L	--	--	--	170	0.50 U	0.50 UJ	0.50 U	0.50 U	0.50 U	0.50 UJ	0.50 UJ	0.50 UJ	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	O-XYLENE	µg/L	1,750	--	--	--	0.20 U	0.20 UJ	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
VOCs	EPA 524.2	P-ISOPROPYLTOLUENE	µg/L	--	--	--	--	0.50 U	0.50 UJ	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	SEC-BUTYLBENZENE	µg/L	--	--	--	260	0.50 U	0.50 UJ	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	STYRENE	µg/L	100	--	--	--	0.50 U	0.50 J	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	TERT-AMYL-METHYL ETHER (TAME)	µg/L	--	--	--	--	3.0 U	3.0 UJ	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U
VOCs	EPA 524.2	TERT-BUTYLBENZENE	µg/L	--	--	--	260	0.50 U	0.50 UJ	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	TERTIARY BUTYL ALCOHOL (TBA)	µg/L	--	--	--	12	11 U	11 UJ	2.0 U	3.6 U	3.6 U	3.6 U	3.6 U	3.6 U	3.6 U	3.6 U	3.6 U	3.6 U
VOCs	EPA 524.2	TETRACHLOROETHENE (PCE)	µg/L	5.0	--	0.060	--	0.50 U	0.50 UJ	0.50 U	0.60	0.50 U	**20**	0.50 U	1.5	0.50 U	0.50 U	1.0	0.50 U
VOCs	EPA 524.2	TETRAHYDROFURAN	µg/L	--	--	--	--	2.7 U	2.7 UJ	0.50 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U
VOCs	EPA 524.2	TOLUENE	µg/L	150	--	150	--	0.50 U	0.50 UJ	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	TRANS-1,2-DICHLOROETHENE	µg/L	10	--	--	--	0.50 U	0.50 UJ	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	TRANS-1,3-DICHLOROPROPENE	µg/L	--	--	--	--	0.50 U	0.50 UJ	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	TRICHLOROETHENE (TCE)	µg/L	5.0	--	0.80	--	0.50 U	0.50 UJ	1.2	1.2	0.50 U	**6.3**	**7.8**	2.8	0.50	0.50 U	**7.6**	0.50 U
VOCs	EPA 524.2	TRICHLOROFLUOROMETHANE	µg/L	150	--	700	--	0.50 U	0.50 UJ	0.50 U	0.50 U	0.50 U	0.50 U	0.40 J	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	VINYL ACETATE	µg/L	--	--	--	--	2.0 UJ	2.0 UJ	2.0 UJ	2.0 UJ	2.0 UJ	2.0 UJ	2.0 UJ	2.0 UJ	2.0 UJ	2.0 UJ	2.0 UJ	2.0 UJ
VOCs	EPA 524.2	VINYL CHLORIDE (CHLOROETHANE)	µg/L	0.50	--	0.050	--	0.50 U	0.50 UJ	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	XYLENES (TOTAL)	µg/L	1,750	--	1,800	--	--	0.50 UJ	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	--	0.50 U	0.50 U

Notes:

N = Normal Environmental Sample
DUP = Field Duplicate Sample
"--" = Sample was not analyzed using this method.
B = Analyte is present in method blank
J = Estimated value
U = Not detected at the listed reporting limit.
UB = Not detected at the listed reporting limit; however, analyte is also present in the method blank.
UJ = The compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
µg/L = micrograms per liter
XX = Bolding of value and qualifier means that the detection limit exceeds a CA Primary/Secondary MCL or DHS Action Level.
[ ] = Bolding and outlining of value and qualifier means that a detected value exceeds a CA Primary/Secondary MCL or DHS Action Level.

TABLE 3A-5
Summary of VOC Data for JPL Monitoring Wells

Station ID:								MW-16	MW-16	MW-17-3	MW-17-4	MW-17-4	MW-18-3	MW-18-4	MW-19-3	MW-19-5	MW-21-3	MW-21-5	MW-24-2
QAQC Type:								N	DUP	N	N	DUP	N	N	N	N	N	N	N
Date Collected:								01/16/03	01/16/03	12/12/02	12/16/02	12/16/02	12/10/02	12/11/02	12/06/02	12/09/02	12/04/02	12/05/02	01/09/03
Analyte Type	**Method**	**Analyte**	**Units**	**CA Primary MCL**	**CA Secondary MCL**	**CA PHG**	**DHS Action Level**												
VOCs	EPA 524.2	1,1,1,2-TETRACHLOROETHANE	µg/L	--	--	--	--	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	1,1,1-TRICHLOROETHANE	µg/L	200	--	--	--	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	1,1,2,2-TETRACHLOROETHANE	µg/L	1.0	--	--	--	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	1,1,2-TRICHLOROETHANE	µg/L	5.0	--	--	--	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	1,1,2-TRICHLOROTRIFLUOROETHANE	µg/L	1,200	--	4,000	--	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	1,1-DICHLOROETHANE	µg/L	5.0	--	--	--	0.30 U	0.30 U	0.30 U	0.30 U	0.30 U	0.30 U	0.30 U	0.30 U	0.30 U	0.30 U	0.30 U	0.30
VOCs	EPA 524.2	1,1-DICHLOROETHENE	µg/L	6.0	--	10	--	0.50 U	0.50 U	0.30 J	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	1,2,3-TRICHLOROBENZENE	µg/L	--	--	--	--	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	1,2,4-TRICHLOROBENZENE	µg/L	5.0	--	5.0	--	0.50 U	0.50 U	0.50 U	0.50 UJ	0.50 UJ	0.50 U	0.50 UJ	0.50 UJ	0.50 U	0.50 U	0.50 UJ	0.50 U
VOCs	EPA 524.2	1,2,4-TRIMETHYLBENZENE	µg/L	--	--	--	330	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE, EDB)	µg/L	0.050	--	--	--	**0.50 U**	**0.50 U**	**0.50 U**	**0.50 U**	**0.50 U**	**0.50 U**	**0.50 U**	**0.50 U**	**0.50 U**	**0.50 U**	**0.50 U**	**0.50 U**
VOCs	EPA 524.2	1,2-DICHLOROBENZENE (O-DICHLOROBENZENE)	µg/L	600	--	600	--	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	1,2-DICHLOROETHANE	µg/L	0.5	--	0.40	--	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	1,2-DICHLOROPROPANE	µg/L	5.0	--	0.50	--	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	1,3,5-TRIMETHYLBENZENE	µg/L	--	--	--	330	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	1,3-DICHLOROPROPANE	µg/L	--	--	--	--	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	1,4-DICHLOROBENZENE (PARA-DICHLOROBENZENE)	µg/L	5.0	--	6.0	--	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	2,2-DICHLOROPROPANE	µg/L	--	--	--	--	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	2-BUTANONE (METHYL ETHYL KETONE, MEK)	µg/L	--	--	--	--	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
VOCs	EPA 524.2	2-CHLOROETHYLVINYLETHER	µg/L	--	--	--	--	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
VOCs	EPA 524.2	2-CHLOROTOLUENE	µg/L	--	--	--	140	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	2-HEXANONE	µg/L	--	--	--	--	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 UJ	2.0 UJ	2.0 UJ	2.0 UJ	2.0 UJ	2.0 UJ	2.0 U
VOCs	EPA 524.2	4-CHLOROTOLUENE	µg/L	--	--	--	140	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	4-METHYL-2-PENTANONE (MIBK)	µg/L	--	--	--	120	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 UJ	5.0 UJ	5.0 UJ	5.0 UJ	5.0 UJ	5.0 UJ	5.0 U
VOCs	EPA 524.2	ACETONE	µg/L	--	--	--	--	5.0 UJ	5.0 UJ	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
VOCs	EPA 524.2	ACROLEIN	µg/L	--	--	--	--	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 U	50 UJ	50 UJ	50 UJ	50 U	50 UJ	50 U
VOCs	EPA 524.2	ACRYLONITRILE	µg/L	--	--	--	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
VOCs	EPA 524.2	BENZENE	µg/L	1.0	--	0.15	--	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	BROMOBENZENE	µg/L	--	--	--	--	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	BROMOCHLOROMETHANE	µg/L	--	--	--	--	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
VOCs	EPA 524.2	BROMODICHLOROMETHANE	µg/L	--	--	--	--	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	BROMOFORM	µg/L	--	--	--	--	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	BROMOMETHANE (METHYL BROMIDE)	µg/L	--	--	--	--	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	CARBON DISULFIDE	µg/L	--	--	--	160	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
VOCs	EPA 524.2	CARBON TETRACHLORIDE	µg/L	0.50	--	0.10	--	**0.64**	**0.60**	**13**	0.20 U	0.20 U	0.20 U	**9.2**	0.20 U	0.20 U	0.20 U	0.20 U	**2.6**
VOCs	EPA 524.2	CHLOROBENZENE	µg/L	70	--	--	--	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	CHLORODIBROMOMETHANE (THM)	µg/L	--	--	--	--	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	CHLOROETHANE	µg/L	--	--	--	--	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
VOCs	EPA 524.2	CHLOROFORM	µg/L	100	--	--	--	1.4	1.4	2.9	0.60	0.50	1.6	1.4	0.50	0.40	0.95	3.0	1.1
VOCs	EPA 524.2	CHLOROMETHANE (METHYL CHLORIDE)	µg/L	--	--	--	--	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 J	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	CIS-1,2-DICHLOROETHENE	µg/L	6.0	--	--	--	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.40 J	2.7	0.50 U
VOCs	EPA 524.2	CIS-1,3-DICHLOROPROPENE	µg/L	--	--	--	--	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	DI-ISOPROPYL ETHER	µg/L	--	--	--	--	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	DIBROMOMETHANE	µg/L	--	--	--	--	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	DICHLORODIFLUOROMETHANE (FREON 112)	µg/L	--	--	--	1,000	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	ETHYL-TERT-BUTYL ETHER (ETBE)	µg/L	--	--	--	--	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U
VOCs	EPA 524.2	ETHYLBENZENE	µg/L	300	--	300	--	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	HEXACHLOROBUTADIENE	µg/L	--	--	--	--	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	ISOPROPYLBENZENE (CUMENE)	µg/L	--	--	--	770	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	M-XYLENE	µg/L	--	--	--	--	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	METHYL ACETATE	µg/L	--	--	--	--	10 U	10 U	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 U
VOCs	EPA 524.2	METHYL-T-BUTYL ETHER (MTBE)	µg/L	13	5.0	13	--	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	METHYLENE CHLORIDE (DICHLOROMETHANE)	µg/L	5.0	--	4.0	--	0.50 UJ	0.50 UJ	**10 UB**	**71 B**	**85 B**	**80 B**	1.9 UB	1.4 UB	1.8 UB	1.3 UB	4.8 UB	0.50 UJ
VOCs	EPA 524.2	N-BUTYLBENZENE	µg/L	--	--	--	260	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	N-PROPYLBENZENE	µg/L	--	--	--	260	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U

TABLE 3A-5
Summary of VOC Data for JPL Monitoring Wells

Station ID:								MW-16	MW-16	MW-17-3	MW-17-4	MW-17-4	MW-18-3	MW-18-4	MW-19-3	MW-19-5	MW-21-3	MW-21-5	MW-24-2
QAQC Type:								N	DUP	N	N	DUP	N	N	N	N	N	N	N
Date Collected:								01/16/03	01/16/03	12/12/02	12/16/02	12/16/02	12/10/02	12/11/02	12/06/02	12/09/02	12/04/02	12/05/02	01/09/03
Analyte Type	**Method**	**Analyte**	**Units**	**CA Primary MCL**	**CA Secondary MCL**	**CA PHG**	**DHS Action Level**												
VOCs	EPA 524.2	NAPHTHALENE	µg/L	--	--	--	170	0.50 UJ	0.50 UJ	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	O-XYLENE	µg/L	1,750	--	--	--	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
VOCs	EPA 524.2	P-ISOPROPYLTOLUENE	µg/L	--	--	--	--	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	SEC-BUTYLBENZENE	µg/L	--	--	--	260	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	STYRENE	µg/L	100	--	--	--	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	TERT-AMYL-METHYL ETHER (TAME)	µg/L	--	--	--	--	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U
VOCs	EPA 524.2	TERT-BUTYLBENZENE	µg/L	--	--	--	260	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	TERTIARY BUTYL ALCOHOL (TBA)	µg/L	--	--	--	12	3.6 U	3.6 U	3.6 U	3.6 U	3.6 U	3.6 U	3.6 U	3.6 U	3.6 U	3.6 U	3.6 U	3.6 U
VOCs	EPA 524.2	TETRACHLOROETHENE (PCE)	µg/L	5.0	--	0.060	--	0.50 U	0.50 U	0.40 J	0.50 U	0.50 U	0.30 J	**5.5**	1.5	**5.4**	2.0	**21.2**	0.50 J
VOCs	EPA 524.2	TETRAHYDROFURAN	µg/L	--	--	--	--	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U
VOCs	EPA 524.2	TOLUENE	µg/L	150	--	150	--	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	TRANS-1,2-DICHLOROETHENE	µg/L	10	--	--	--	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	TRANS-1,3-DICHLOROPROPENE	µg/L	--	--	--	--	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	TRICHLOROETHENE (TCE)	µg/L	5.0	--	0.80	--	0.50 U	0.50 U	3.7	3.6	3.1	0.60	3.2	0.80	0.60	1.1	1.2	0.60
VOCs	EPA 524.2	TRICHLOROFLUOROMETHANE	µg/L	150	--	700	--	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	VINYL ACETATE	µg/L	--	--	--	--	2.0 UJ	2.0 UJ	2.0 UJ	2.0 UJ	2.0 UJ	2.0 UJ	2.0 UJ	2.0 UJ	2.0 UJ	2.0 UJ	2.0 UJ	2.0 UJ
VOCs	EPA 524.2	VINYL CHLORIDE (CHLOROETHANE)	µg/L	0.50	--	0.050	--	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
VOCs	EPA 524.2	XYLENES (TOTAL)	µg/L	1,750	--	1,800	--	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	--	0.50 U	0.50 U	0.50 U	0.50 U

Notes:

N = Normal Environmental Sample
DUP = Field Duplicate Sample
"--" = Sample was not analyzed using this method.
B = Analyte is present in method blank
J = Estimated value
U = Not detected at the listed reporting limit.
UB = Not detected at the listed reporting limit; however, analyte is also present in the method blank.
UJ = The compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
µg/L = micrograms per liter
XX = Bolding of value and qualifier means that the detection limit exceeds a CA Primary/Secondary MCL or DHS Action Level.
[ ] = Bolding and outlining of value and qualifier means that a detected value exceeds a CA Primary/Secondary MCL or DHS Action Level.

TABLE 3A-6
Summary of SVOC Data for JPL Monitoring Wells

Station ID:								MW-3-3	MW-3-5	MW-4-1	MW-4-2	MW-4-5	MW-7	MW-8	MW-10	MW-12-3	MW-12-5	MW-14-2	MW-14-4	MW-16
QAQC Type:								N	N	N	N	N	N	N	N	N	N	N	N	N
Date Collected:								01/14/03	01/14/03	01/16/03	01/16/03	01/16/03	01/16/03	01/17/03	01/17/03	01/16/03	01/16/03	01/14/03	01/14/03	01/16/03
Analyte Type	Method	Analyte	Units	CA Primary MCL	CA Secondary MCL	CA PHG	DHS Action Level													
SVOCs	EPA 8270	1,2,4-TRICHLOROBENZENE	µg/L	5	--	5	--	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	1,2-DICHLOROBENZENE (O-DICHLOROBENZENE)	µg/L	600	--	600	--	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	1,3-DICHLOROBENZENE (M-DICHLOROBENZENE)	µg/L	--	--	--	600	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	1,4-DICHLOROBENZENE (PARA-DICHLOROBENZENE)	µg/L	5	--	6	--	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	2,4,5-TRICHLOROPHENOL	µg/L	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	2,4,6-TRICHLOROPHENOL	µg/L	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	2,4-DICHLOROPHENOL	µg/L	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	2,4-DIMETHYLPHENOL	µg/L	--	--	--	100	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	2,4-DINITROPHENOL	µg/L	--	--	--	--	4 U	4 U	4 U	4 U	4 U	4 U	4 UJ	4 UJ	4 U	4 U	4 U	4 U	4 U
SVOCs	EPA 8270	2,4-DINITROTOLUENE	µg/L	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	2,6-DINITROTOLUENE	µg/L	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	2-CHLORONAPHTHALENE	µg/L	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	2-CHLOROPHENOL	µg/L	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	2-METHYLNAPHTHALENE	µg/L	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	2-METHYLPHENOL	µg/L	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	2-NITROANILINE	µg/L	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	2-NITROPHENOL	µg/L	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	3,3'-DICHLOROBENZIDINE	µg/L	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	3-NITROANILINE	µg/L	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	3/4-METHYLPHENOL	µg/L	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	4,6-DINITRO-O-CRESOL	µg/L	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	4-BROMOPHENYLPHENYLETHER	µg/L	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	4-CHLORO-3-METHYLPHENOL	µg/L	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	4-CHLOROANILINE	µg/L	--	--	--	--	4 U	4 U	4 U	4 U	4 U	4 U	4 UJ	4 UJ	4 U	4 U	4 U	4 U	4 U
SVOCs	EPA 8270	4-CHLOROPHENYLPHENYLETHER	µg/L	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	4-NITROANILINE	µg/L	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	4-NITROPHENOL	µg/L	--	--	--	--	3 U	3 U	3 U	3 U	3 U	3 U	3 UJ	3 UJ	3 U	3 U	3 U	3 U	3 U
SVOCs	EPA 8270	ACENAPHTHENE	µg/L	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	ACENAPHTHYLENE	µg/L	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	ACETOPHENONE	µg/L	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	ANILINE	µg/L	--	--	--	--	4 U	4 U	4 U	4 U	4 U	4 U	4 UJ	4 UJ	4 U	4 U	4 U	4 U	4 U
SVOCs	EPA 8270	ANTHRACENE	µg/L	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	BENZALDEHYDE	µg/L	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	BENZO (A) ANTHRACENE	µg/L	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	BENZO (A) PYRENE	µg/L	0.2	--	0.004	--	**1 U**	**1 U**	**1 U**	**1 U**	**1 U**	**1 U**	**1 UJ**	**1 UJ**	**1 U**	**1 U**	**1 U**	**1 U**	**1 U**
SVOCs	EPA 8270	BENZO (GHI) PERYLENE	µg/L	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	BENZO(B & K)FLUORANTHENES	µg/L	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	BENZOIC ACID	µg/L	--	--	--	--	4 U	4 U	4 U	4 U	4 U	4 U	4 UJ	4 UJ	4 U	4 U	4 U	4 U	4 U
SVOCs	EPA 8270	BENZYL ALCOHOL	µg/L	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	BIS (2-CHLOROETHYL) ETHER	µg/L	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	BIS (2-CHLOROISOPROPYL) ETHER	µg/L	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	BIS(2-CHLOROETHOXY)METHANE	µg/L	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	BIS(2-ETHYLHEXYL)PHTHALATE	µg/L	4	--	12	--	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	BUTYLBENZYLPHTHALATE	µg/L	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	CAPROLACTAM	µg/L	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	CARBAZOLE	µg/L	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	CHRYSENE	µg/L	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	DI-(2-ETHYLHEXYL)ADIPATE	µg/L	400	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	DI-N-BUTYLPHTHALATE	µg/L	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	DI-N-OCTYLPHTHALATE	µg/L	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	DIBENZO (A,H) ANTRACENE	µg/L	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	DIBENZOFURAN	µg/L	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	DIETHYLPHTHALATE	µg/L	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	DIMETHYL 2,3,5,6-TETRACHLOROTEREPHTHALATE	µg/L	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	DIMETHYLPHTHALATE	µg/L	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U

TABLE 3A-6
Summary of SVOC Data for JPL Monitoring Wells

Station ID:								MW-3-3	MW-3-5	MW-4-1	MW-4-2	MW-4-5	MW-7	MW-8	MW-10	MW-12-3	MW-12-5	MW-14-2	MW-14-4	MW-16
QAQC Type:								N	N	N	N	N	N	N	N	N	N	N	N	N
Date Collected:								01/14/03	01/14/03	01/16/03	01/16/03	01/16/03	01/16/03	01/17/03	01/17/03	01/16/03	01/16/03	01/14/03	01/14/03	01/16/03
Analyte Type	**Method**	**Analyte**	**Units**	**CA Primary MCL**	**CA Secondary MCL**	**CA PHG**	**DHS Action Level**													
SVOCs	EPA 8270	FLUORANTHENE	µg/L	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	FLUORENE	µg/L	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	HEXACHLOROBENZENE	µg/L	1	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	HEXACHLOROBUTADIENE	µg/L	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	HEXACHLOROCYCLOPENTADIENE	µg/L	50	--	50	--	8 U	8 U	8 U	8 U	8 U	8 U	8 UJ	8 UJ	8 U	8 U	8 U	8 U	8 U
SVOCs	EPA 8270	HEXACHLOROETHANE	µg/L	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	INDENO(1,2,3-C,D)PYRENE	µg/L	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	ISOPHORONE	µg/L	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	N-NITROSODI-N-PROPYLAMINE	µg/L	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	N-NITROSODIMETHYLAMINE (NDMA)	µg/L	--	--	--	0.01	**1 U**	**1 U**	**1 U**	**1 U**	**1 U**	**1 U**	**1 UJ**	**1 UJ**	**1 U**	**1 U**	**1 U**	**1 U**	**1 U**
SVOCs	EPA 8270	N-NITROSODIPHENYLAMINE	µg/L	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	NAPHTHALENE	µg/L	--	--	--	170	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	NITROBENZENE	µg/L	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	PENTACHLOROPHENOL	µg/L	1	--	0.4	--	**4 U**	**4 U**	**4 U**	**4 U**	**4 U**	**4 U**	**4 UJ**	**4 UJ**	**4 U**	**4 U**	**4 U**	**4 U**	**4 U**
SVOCs	EPA 8270	PHENANTHRENE	µg/L	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	PHENOL	µg/L	--	--	--	4200	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	PYRENE	µg/L	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	PYRIDINE	µg/L	--	--	--	--	3 U	3 U	3 U	3 U	3 U	3 U	3 UJ	3 UJ	3 U	3 U	3 U	3 U	3 U

Notes:

N = Normal Environmental Sample
DUP = Field Duplicate Sample
"--" = Sample was not analyzed using this method.
J = Estimated value
U = Not detected at the listed reporting limit.
UJ = The compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
µg/L = micrograms per liter
XX = Bolding of value and qualifier means that the detection limit exceeds a CA Primary/Secondary MCL or DHS Action Level.
[ ] = Bolding and outlining of value and qualifier means that a detected value exceeds a CA Primary/Secondary MCL or DHS Action Level.

TABLE 3A-6
Summary of SVOC Data for JPL Monitoring Wells

Station ID:								MW-16	MW-17-3	MW-17-4	MW-17-4	MW-18-3	MW-18-4	MW-19-3	MW-19-5	MW-21-3	MW-21-5	MW-24-2
QAQC Type:								DUP	N	N	DUP	N	N	N	N	N	N	N
Date Collected:								01/16/03	01/21/03	01/14/03	01/14/03	01/20/03	01/20/03	01/14/03	01/14/03	01/14/03	01/14/03	01/16/03
Analyte Type	**Method**	**Analyte**	**Units**	**CA Primary MCL**	**CA Secondary MCL**	**CA PHG**	**DHS Action Level**											
SVOCs	EPA 8270	1,2,4-TRICHLOROBENZENE	µg/L	5	--	5	--	1 U	1 UJ	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	1,2-DICHLOROBENZENE (O-DICHLOROBENZENE)	µg/L	600	--	600	--	1 U	1 UJ	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	1,3-DICHLOROBENZENE (M-DICHLOROBENZENE)	µg/L	--	--	--	600	1 U	1 UJ	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	1,4-DICHLOROBENZENE (PARA-DICHLOROBENZENE)	µg/L	5	--	6	--	1 U	1 UJ	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	2,4,5-TRICHLOROPHENOL	µg/L	--	--	--	--	1 U	1 UJ	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	2,4,6-TRICHLOROPHENOL	µg/L	--	--	--	--	1 U	1 UJ	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	2,4-DICHLOROPHENOL	µg/L	--	--	--	--	1 U	1 UJ	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	2,4-DIMETHYLPHENOL	µg/L	--	--	--	100	1 U	1 UJ	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	2,4-DINITROPHENOL	µg/L	--	--	--	--	4 U	4 UJ	4 U	4 U	4 UJ	4 UJ	4 U	4 U	4 U	4 U	4 U
SVOCs	EPA 8270	2,4-DINITROTOLUENE	µg/L	--	--	--	--	1 U	1 UJ	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	2,6-DINITROTOLUENE	µg/L	--	--	--	--	1 U	1 UJ	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	2-CHLORONAPHTHALENE	µg/L	--	--	--	--	1 U	1 UJ	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	2-CHLOROPHENOL	µg/L	--	--	--	--	1 U	1 UJ	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	2-METHYLNAPHTHALENE	µg/L	--	--	--	--	1 U	1 UJ	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	2-METHYLPHENOL	µg/L	--	--	--	--	1 U	1 UJ	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	2-NITROANILINE	µg/L	--	--	--	--	1 U	1 UJ	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	2-NITROPHENOL	µg/L	--	--	--	--	1 U	1 UJ	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	3,3'-DICHLOROBENZIDINE	µg/L	--	--	--	--	1 U	1 UJ	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	3-NITROANILINE	µg/L	--	--	--	--	1 U	1 UJ	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	3/4-METHYLPHENOL	µg/L	--	--	--	--	1 U	1 UJ	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	4,6-DINITRO-O-CRESOL	µg/L	--	--	--	--	1 U	1 UJ	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	4-BROMOPHENYLPHENYLETHER	µg/L	--	--	--	--	1 U	1 UJ	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	4-CHLORO-3-METHYLPHENOL	µg/L	--	--	--	--	1 U	1 UJ	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	4-CHLOROANILINE	µg/L	--	--	--	--	4 U	4 UJ	4 U	4 U	4 UJ	4 UJ	4 U	4 U	4 U	4 U	4 U
SVOCs	EPA 8270	4-CHLOROPHENYLPHENYLETHER	µg/L	--	--	--	--	1 U	1 UJ	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	4-NITROANILINE	µg/L	--	--	--	--	1 U	1 UJ	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	4-NITROPHENOL	µg/L	--	--	--	--	3 U	3 UJ	3 U	3 U	3 UJ	3 UJ	3 U	3 U	3 U	3 U	3 U
SVOCs	EPA 8270	ACENAPHTHENE	µg/L	--	--	--	--	1 U	1 UJ	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	ACENAPHTHYLENE	µg/L	--	--	--	--	1 U	1 UJ	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	ACETOPHENONE	µg/L	--	--	--	--	1 U	1 UJ	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	ANILINE	µg/L	--	--	--	--	4 U	4 UJ	4 U	4 U	4 UJ	4 UJ	4 U	4 U	4 U	4 U	4 U
SVOCs	EPA 8270	ANTHRACENE	µg/L	--	--	--	--	1 U	1 UJ	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	BENZALDEHYDE	µg/L	--	--	--	--	1 U	1 UJ	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	BENZO (A) ANTHRACENE	µg/L	--	--	--	--	1 U	1 UJ	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	BENZO (A) PYRENE	µg/L	0.2	--	0.004	--	**1 U**	**1 UJ**	**1 U**	**1 U**	**1 UJ**	**1 UJ**	**1 U**	**1 U**	**1 U**	**1 U**	**1 U**
SVOCs	EPA 8270	BENZO (GHI) PERYLENE	µg/L	--	--	--	--	1 U	1 UJ	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	BENZO(B & K)FLUORANTHENES	µg/L	--	--	--	--	1 U	1 UJ	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	BENZOIC ACID	µg/L	--	--	--	--	4 U	4 UJ	4 U	4 U	4 UJ	4 UJ	4 U	4 U	4 U	4 U	4 U
SVOCs	EPA 8270	BENZYL ALCOHOL	µg/L	--	--	--	--	1 U	1 UJ	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	BIS (2-CHLOROETHYL) ETHER	µg/L	--	--	--	--	1 U	1 UJ	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	BIS (2-CHLOROISOPROPYL) ETHER	µg/L	--	--	--	--	1 U	1 UJ	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	BIS(2-CHLOROETHOXY)METHANE	µg/L	--	--	--	--	1 U	1 UJ	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	BIS(2-ETHYLHEXYL)PHTHALATE	µg/L	4	--	12	--	1 U	1 UJ	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	BUTYLBENZYLPHTHALATE	µg/L	--	--	--	--	1 U	1 UJ	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	CAPROLACTAM	µg/L	--	--	--	--	1 U	1 UJ	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	CARBAZOLE	µg/L	--	--	--	--	1 U	1 UJ	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	CHRYSENE	µg/L	--	--	--	--	1 U	1 UJ	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	DI-(2-ETHYLHEXYL)ADIPATE	µg/L	400	--	--	--	1 U	1 UJ	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	DI-N-BUTYLPHTHALATE	µg/L	--	--	--	--	1 U	1 UJ	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	DI-N-OCTYLPHTHALATE	µg/L	--	--	--	--	1 U	1 UJ	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	DIBENZO (A,H) ANTRACENE	µg/L	--	--	--	--	1 U	1 UJ	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	DIBENZOFURAN	µg/L	--	--	--	--	1 U	1 UJ	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	DIETHYLPHTHALATE	µg/L	--	--	--	--	1 U	1 UJ	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	DIMETHYL 2,3,5,6-TETRACHLOROTEREPHTHALATE	µg/L	--	--	--	--	1 U	1 UJ	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	DIMETHYLPHTHALATE	µg/L	--	--	--	--	1 U	1 UJ	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U

TABLE 3A-6
Summary of SVOC Data for JPL Monitoring Wells

Station ID:							MW-16	MW-17-3	MW-17-4	MW-17-4	MW-18-3	MW-18-4	MW-19-3	MW-19-5	MW-21-3	MW-21-5	MW-24-2
QAQC Type:							DUP	N	N	DUP	N	N	N	N	N	N	N
Date Collected:							01/16/03	01/21/03	01/14/03	01/14/03	01/20/03	01/20/03	01/14/03	01/14/03	01/14/03	01/14/03	01/16/03
Analyte Type	**Method**	**Analyte**	**Units**	**CA Primary MCL**	**CA Secondary MCL**	**CA PHG**	**DHS Action Level**										
SVOCs	EPA 8270	FLUORANTHENE	µg/L	--	--	--	--	1 U	1 UJ	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	FLUORENE	µg/L	--	--	--	--	1 U	1 UJ	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	HEXACHLOROBENZENE	µg/L	1	--	--	--	1 U	1 UJ	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	HEXACHLOROBUTADIENE	µg/L	--	--	--	--	1 U	1 UJ	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	HEXACHLOROCYCLOPENTADIENE	µg/L	50	--	50	--	8 U	8 UJ	8 U	8 U	8 UJ	8 UJ	8 U	8 U	8 U	8 U	8 U
SVOCs	EPA 8270	HEXACHLOROETHANE	µg/L	--	--	--	--	1 U	1 UJ	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	INDENO(1,2,3-C,D)PYRENE	µg/L	--	--	--	--	1 U	1 UJ	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	ISOPHORONE	µg/L	--	--	--	--	1 U	1 UJ	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	N-NITROSODI-N-PROPYLAMINE	µg/L	--	--	--	--	1 U	1 UJ	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	N-NITROSODIMETHYLAMINE (NDMA)	µg/L	--	--	--	0.01	**1 U**	**1 UJ**	**1 U**	**1 U**	**1 UJ**	**1 UJ**	**1 U**	**1 U**	**1 U**	**1 U**	**1 U**
SVOCs	EPA 8270	N-NITROSODIPHENYLAMINE	µg/L	--	--	--	--	1 U	1 UJ	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	NAPHTHALENE	µg/L	--	--	--	170	1 U	1 UJ	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	NITROBENZENE	µg/L	--	--	--	--	1 U	1 UJ	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	PENTACHLOROPHENOL	µg/L	1	--	0.4	--	**4 U**	**4 UJ**	**4 U**	**4 U**	**4 UJ**	**4 UJ**	**4 U**	**4 U**	**4 U**	**4 U**	**4 U**
SVOCs	EPA 8270	PHENANTHRENE	µg/L	--	--	--	--	1 U	1 UJ	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	PHENOL	µg/L	--	--	--	4200	1 U	1 UJ	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	PYRENE	µg/L	--	--	--	--	1 U	1 UJ	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
SVOCs	EPA 8270	PYRIDINE	µg/L	--	--	--	--	3 U	3 UJ	3 U	3 U	3 UJ	3 UJ	3 U	3 U	3 U	3 U	3 U

Notes:

N = Normal Environmental Sample
DUP = Field Duplicate Sample
"--" = Sample was not analyzed using this method.
J = Estimated value
U = Not detected at the listed reporting limit.
UJ = The compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
µg/L = micrograms per liter
XX = Bolding of value and qualifier means that the detection limit exceeds a CA Primary/Secondary MCL or DHS Action Level.
[ ] = Bolding and outlining of value and qualifier means that a detected value exceeds a CA Primary/Secondary MCL or DHS Action Level.

TABLE 3A-7
Summary of Pesticides/PCBs Data for JPL Monitoring Wells

Station ID:								MW-3-3	MW-3-5	MW-4-1	MW-4-2	MW-4-5	MW-7	MW-8	MW-10	MW-12-3	MW-12-5	MW-14-2	MW-14-4	MW-16	MW-16
QAQC Type:								N	N	N	N	N	N	N	N	N	N	N	N	N	DUP
Date Collected:								02/24/03	02/27/03	12/30/02	12/30/02	12/30/02	01/16/03	01/17/03	01/17/03	01/06/03	01/06/03	12/19/02	12/19/02	01/16/03	01/16/03
Analyte Type	Method	Analyte	Units	CA Primary MCL	CA Secondary MCL	CA PHG	DHS Action Level														
Pesticides/PCBs	EPA 508	2,4'-DDD	µg/L	--	--	--	--	0.05 U	0.05 U	0.05 UJ	0.05 UJ	0.05 UJ	0.05 U	0.05 U	0.05 U	0.05 UJ	0.05 U	0.05 UJ	0.05 UJ	0.05 U	0.05 U
Pesticides/PCBs	EPA 508	2,4'-DDE	µg/L	--	--	--	--	0.05 U	0.05 U	0.05 UJ	0.05 UJ	0.05 UJ	0.05 U	0.05 U	0.05 U	0.05 UJ	0.05 U	0.05 UJ	0.05 UJ	0.05 U	0.05 U
Pesticides/PCBs	EPA 508	2,4'-DDT	µg/L	--	--	--	--	0.02 U	0.02 U	0.02 UJ	0.02 UJ	0.02 UJ	0.02 U	0.02 U	0.02 U	0.02 UJ	0.02 U	0.02 UJ	0.02 UJ	0.02 U	0.02 U
Pesticides/PCBs	EPA 508	4,4-DDD	µg/L	--	--	--	--	0.02 U	0.02 U	0.02 UJ	0.02 UJ	0.02 UJ	0.02 U	0.02 U	0.02 U	0.02 UJ	0.02 U	0.02 UJ	0.02 UJ	0.02 U	0.02 U
Pesticides/PCBs	EPA 508	4,4-DDE	µg/L	--	--	--	--	0.01 U	0.01 U	0.01 UJ	0.01 UJ	0.01 UJ	0.01 U	0.01 U	0.01 U	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.01 U	0.01 U
Pesticides/PCBs	EPA 508	4,4-DDT	µg/L	--	--	--	--	0.02 U	0.02 U	0.02 UJ	0.02 UJ	0.02 UJ	0.02 U	0.02 U	0.02 U	0.02 UJ	0.02 UJ	0.02 UJ	0.02 UJ	0.02 U	0.02 U
Pesticides/PCBs	EPA 508	ALACHLOR	µg/L	2	--	4	--	0.1 U	0.1 U	0.1 UJ	0.1 UJ	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 UJ	0.1 UJ	0.1 U	0.1 U
Pesticides/PCBs	EPA 508	ALDRIN	µg/L	--	--	--	0.002	**0.05 U**	**0.05 U**	**0.05 UJ**	**0.05 UJ**	**0.05 UJ**	**0.05 UJ**	**0.05 UJ**	**0.05 UJ**	**0.05 UJ**	**0.05 UJ**	**0.05 UJ**	**0.05 UJ**	**0.05 UJ**	**0.05 UJ**
Pesticides/PCBs	EPA 508	ALPHA-BHC	µg/L	--	--	--	0.015	**0.05 U**	**0.05 U**	**0.05 UJ**	**0.05 UJ**	**0.05 UJ**	**0.05 UJ**	**0.05 UJ**	**0.05 UJ**	**0.05 UJ**	**0.05 UJ**	**0.05 UJ**	**0.05 UJ**	**0.05 UJ**	**0.05 UJ**
Pesticides/PCBs	EPA 508	BENFLURALIN (BENEFIN)	µg/L	--	--	--	--	0.1 U	0.1 U	0.1 UJ	0.1 UJ	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 UJ	0.1 UJ	0.1 U	0.1 U
Pesticides/PCBs	EPA 508	BETA-BHC	µg/L	--	--	--	0.025	**0.05 U**	**0.05 U**	**0.05 UJ**	**0.05 UJ**	**0.05 UJ**	**0.05 U**	**0.05 U**	**0.05 U**	**0.05 UJ**	**0.05 U**	**0.05 UJ**	**0.05 UJ**	**0.05 U**	**0.05 U**
Pesticides/PCBs	EPA 508	CAPTAN	µg/L	--	--	--	1.5	0.1 U	0.1 U	0.1 UJ	0.1 UJ	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 UJ	0.1 UJ	0.1 U	0.1 U
Pesticides/PCBs	EPA 508	CARBOPHENOTHION	µg/L	--	--	--	--	0.05 U	0.05 U	0.05 UJ	0.05 UJ	0.05 UJ	0.05 U	0.05 U	0.05 U	0.05 UJ	0.05 U	0.05 UJ	0.05 UJ	0.05 U	0.05 U
Pesticides/PCBs	EPA 508	CHLORDANE	µg/L	0.1	--	0.03	--	0.05 U	0.05 U	0.05 UJ	0.05 UJ	0.05 UJ	0.05 U	0.05 U	0.05 U	0.05 UJ	0.05 U	0.05 UJ	0.05 UJ	0.05 U	0.05 U
Pesticides/PCBs	EPA 508	CHLOROTHALONIL	µg/L	--	--	--	--	0.05 U	0.05 U	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ
Pesticides/PCBs	EPA 508	DELTA-BHC	µg/L	--	--	--	0.025	**0.05 U**	**0.05 U**	**0.05 UJ**	**0.05 UJ**	**0.05 UJ**	**0.05 UJ**	**0.05 UJ**	**0.05 UJ**	**0.05 UJ**	**0.05 UJ**	**0.05 UJ**	**0.05 UJ**	**0.05 UJ**	**0.05 UJ**
Pesticides/PCBs	EPA 508	DICOFOL	µg/L	--	--	--	--	0.1 U	0.1 U	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ
Pesticides/PCBs	EPA 508	DIELDRIN	µg/L	--	--	--	0.002	**0.02 U**	**0.02 U**	**0.02 UJ**	**0.02 UJ**	**0.02 UJ**	**0.02 U**	**0.02 U**	**0.02 U**	**0.02 UJ**	**0.02 U**	**0.02 UJ**	**0.02 UJ**	**0.02 U**	**0.02 U**
Pesticides/PCBs	EPA 508	DMPA	µg/L	--	--	--	--	0.1 U	0.1 U	0.1 UJ	0.1 UJ	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 UJ	0.1 UJ	0.1 U	0.1 U
Pesticides/PCBs	EPA 508	ENDOSULFAN I	µg/L	--	--	--	--	0.02 U	0.02 U	0.02 UJ	0.02 UJ	0.02 UJ	0.02 U	0.02 U	0.02 U	0.02 UJ	0.02 U	0.02 UJ	0.02 UJ	0.02 U	0.02 U
Pesticides/PCBs	EPA 508	ENDOSULFAN II	µg/L	--	--	--	--	0.01 U	0.01 U	0.01 UJ	0.01 UJ	0.01 UJ	0.01 U	0.01 U	0.01 U	0.01 UJ	0.01 U	0.01 UJ	0.01 UJ	0.01 U	0.01 U
Pesticides/PCBs	EPA 508	ENDOSULFAN SULFATE	µg/L	--	--	--	--	0.05 U	0.05 U	0.05 UJ	0.05 UJ	0.05 UJ	0.05 U	0.05 U	0.05 U	0.05 UJ	0.05 U	0.05 UJ	0.05 UJ	0.05 U	0.05 U
Pesticides/PCBs	EPA 508	ENDRIN	µg/L	2	--	1.8	--	0.05 U	0.05 U	0.05 UJ	0.05 UJ	0.05 UJ	0.05 U	0.05 U	0.05 U	0.05 UJ	0.05 U	0.05 UJ	0.05 UJ	0.05 U	0.05 U
Pesticides/PCBs	EPA 508	ENDRIN ALDEHYDE	µg/L	--	--	--	--	0.05 U	0.05 U	0.05 UJ	0.05 UJ	0.05 UJ	0.05 U	0.05 U	0.05 U	0.05 UJ	0.05 U	0.05 UJ	0.05 UJ	0.05 U	0.05 U
Pesticides/PCBs	EPA 508	ENDRIN KETONE	µg/L	--	--	--	--	0.05 U	0.05 U	0.05 UJ	0.05 UJ	0.05 UJ	0.05 U	0.05 U	0.05 U	0.05 UJ	0.05 U	0.05 UJ	0.05 UJ	0.05 U	0.05 U
Pesticides/PCBs	EPA 508	GAMMA- BHC (LINDANE)	µg/L	0.2	--	0.032	--	0.05 U	0.05 U	0.05 UJ	0.05 UJ	0.05 UJ	0.05 U	0.05 U	0.05 U	0.05 UJ	0.05 U	0.05 UJ	0.05 UJ	0.05 U	0.05 U
Pesticides/PCBs	EPA 508	HEPTACHLOR	µg/L	0.01	--	0.008	--	0.01 U	0.01 U	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ
Pesticides/PCBs	EPA 508	HEPTACHLOR EPOXIDE	µg/L	0.01	--	0.006	--	0.01 U	0.01 U	0.01 UJ	0.01 UJ	0.01 UJ	0.01 U	0.01 U	0.01 U	0.01 UJ	0.01 U	0.01 UJ	0.01 UJ	0.01 U	0.01 U
Pesticides/PCBs	EPA 508	HEXACHLOROBENZENE	µg/L	1	--	--	--	0.05 U	0.05 U	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ
Pesticides/PCBs	EPA 508	METHOXYCHLOR	µg/L	30	--	30	--	0.05 U	0.05 U	0.05 UJ	0.05 UJ	0.05 UJ	0.05 U	0.05 U	0.05 U	0.05 UJ	0.05 U	0.05 UJ	0.05 UJ	0.05 U	0.05 U
Pesticides/PCBs	EPA 508	NITROFEN	µg/L	--	--	--	--	0.05 U	0.05 U	0.05 UJ	0.05 UJ	0.05 UJ	0.05 U	0.05 U	0.05 U	0.05 UJ	0.05 U	0.05 UJ	0.05 UJ	0.05 U	0.05 U
Pesticides/PCBs	EPA 508	PCB-1016	µg/L	--	--	--	--	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 U	0.5 U
Pesticides/PCBs	EPA 508	PCB-1221	µg/L	--	--	--	--	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 U	0.5 U
Pesticides/PCBs	EPA 508	PCB-1232	µg/L	--	--	--	--	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 U	0.5 U
Pesticides/PCBs	EPA 508	PCB-1242	µg/L	--	--	--	--	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 U	0.5 U
Pesticides/PCBs	EPA 508	PCB-1248	µg/L	--	--	--	--	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 U	0.5 U
Pesticides/PCBs	EPA 508	PCB-1254	µg/L	--	--	--	--	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 U	0.5 U
Pesticides/PCBs	EPA 508	PCB-1260	µg/L	--	--	--	--	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ
Pesticides/PCBs	EPA 508	PCNB	µg/L	--	--	--	--	0.05 U	0.05 U	0.05 UJ	0.05 UJ	0.05 UJ	0.05 U	0.05 U	0.05 U	0.05 UJ	0.05 U	0.05 UJ	0.05 UJ	0.05 U	0.05 U
Pesticides/PCBs	EPA 508	PROPACHLOR	µg/L	--	--	--	--	0.1 U	0.1 U	0.1 UJ	0.1 UJ	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 UJ	0.1 UJ	0.1 U	0.1 U
Pesticides/PCBs	EPA 508	TOXAPHENE	µg/L	3	--	--	--	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U

Notes:

N = Normal Environmental Sample
DUP = Field Duplicate Sample
"--" = Sample was not analyzed using this method.
J = Estimated value
U = Not detected at the listed reporting limit.
UJ = The compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
µg/L = micrograms per liter
XX = Bolding of value and qualifier means that the detection limit exceeds a CA Primary/Secondary MCL or DHS Action Level.
[ ] = Bolding and outlining of value and qualifier means that a detected value exceeds a CA Primary/Secondary MCL or DHS Action Level.

TABLE 3A-7
Summary of Pesticides/PCBs Data for JPL Monitoring Wells

Station ID:								MW-17-3	MW-17-4	MW-17-4	MW-18-3	MW-18-4	MW-19-3	MW-19-5	MW-21-3	MW-21-5	MW-24-2
QAQC Type:								N	N	DUP	N	N	N	N	N	N	N
Date Collected:								12/12/02	12/12/02	12/12/02	12/10/02	12/11/02	12/09/02	12/09/02	12/05/02	12/05/02	01/08/03
Analyte Type	**Method**	**Analyte**	**Units**	**CA Primary MCL**	**CA Secondary MCL**	**CA PHG**	**DHS Action Level**										
Pesticides/PCBs	EPA 508	2,4'-DDD	µg/L	--	--	--	--	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 U	0.05 U	0.05 UJ
Pesticides/PCBs	EPA 508	2,4'-DDE	µg/L	--	--	--	--	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 U	0.05 U	0.05 UJ
Pesticides/PCBs	EPA 508	2,4'-DDT	µg/L	--	--	--	--	0.02 UJ	0.02 UJ	0.02 UJ	0.02 UJ	0.02 UJ	0.02 UJ	0.02 UJ	0.02 U	0.02 U	0.02 UJ
Pesticides/PCBs	EPA 508	4,4-DDD	µg/L	--	--	--	--	0.02 UJ	0.02 UJ	0.02 UJ	0.02 UJ	0.02 UJ	0.02 UJ	0.02 UJ	0.02 U	0.02 U	0.02 UJ
Pesticides/PCBs	EPA 508	4,4-DDE	µg/L	--	--	--	--	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.01 U	0.01 U	0.01 UJ
Pesticides/PCBs	EPA 508	4,4-DDT	µg/L	--	--	--	--	0.02 UJ	0.02 UJ	0.02 UJ	0.02 UJ	0.02 UJ	0.02 UJ	0.02 UJ	0.02 U	0.02 U	0.02 UJ
Pesticides/PCBs	EPA 508	ALACHLOR	µg/L	2	--	4	--	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 U	0.1 U	0.1 UJ
Pesticides/PCBs	EPA 508	ALDRIN	µg/L	--	--	--	0.002	**0.05 UJ**	**0.05 UJ**	**0.05 UJ**	**0.05 UJ**	**0.05 UJ**	**0.05 UJ**	**0.05 UJ**	**0.05 U**	**0.05 U**	**0.05 UJ**
Pesticides/PCBs	EPA 508	ALPHA-BHC	µg/L	--	--	--	0.015	**0.05 UJ**	**0.05 UJ**	**0.05 UJ**	**0.05 UJ**	**0.05 UJ**	**0.05 UJ**	**0.05 UJ**	**0.05 U**	**0.05 U**	**0.05 UJ**
Pesticides/PCBs	EPA 508	BENFLURALIN (BENEFIN)	µg/L	--	--	--	--	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 U	0.1 U	0.1 UJ
Pesticides/PCBs	EPA 508	BETA-BHC	µg/L	--	--	--	0.025	**0.05 UJ**	**0.05 UJ**	**0.05 UJ**	**0.05 UJ**	**0.05 UJ**	**0.05 UJ**	**0.05 UJ**	**0.05 U**	**0.05 U**	**0.05 UJ**
Pesticides/PCBs	EPA 508	CAPTAN	µg/L	--	--	--	1.5	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 U	0.1 U	0.1 UJ
Pesticides/PCBs	EPA 508	CARBOPHENOTHION	µg/L	--	--	--	--	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 U	0.05 U	0.05 UJ
Pesticides/PCBs	EPA 508	CHLORDANE	µg/L	0.1	--	0.03	--	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 U	0.05 U	0.05 UJ
Pesticides/PCBs	EPA 508	CHLOROTHALONIL	µg/L	--	--	--	--	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 U	0.05 U	0.05 UJ
Pesticides/PCBs	EPA 508	DELTA-BHC	µg/L	--	--	--	0.025	**0.05 UJ**	**0.05 UJ**	**0.05 UJ**	**0.05 UJ**	**0.05 UJ**	**0.05 UJ**	**0.05 UJ**	**0.05 U**	**0.05 U**	**0.05 UJ**
Pesticides/PCBs	EPA 508	DICOFOL	µg/L	--	--	--	--	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 U	0.1 U	0.1 UJ
Pesticides/PCBs	EPA 508	DIELDRIN	µg/L	--	--	--	0.002	**0.02 UJ**	**0.02 UJ**	**0.02 UJ**	**0.02 UJ**	**0.02 UJ**	**0.02 UJ**	**0.02 UJ**	**0.02 U**	**0.02 U**	**0.02 UJ**
Pesticides/PCBs	EPA 508	DMPA	µg/L	--	--	--	--	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 U	0.1 U	0.1 UJ
Pesticides/PCBs	EPA 508	ENDOSULFAN I	µg/L	--	--	--	--	0.02 UJ	0.02 UJ	0.02 UJ	0.02 UJ	0.02 UJ	0.02 UJ	0.02 UJ	0.02 U	0.02 U	0.02 UJ
Pesticides/PCBs	EPA 508	ENDOSULFAN II	µg/L	--	--	--	--	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.01 U	0.01 U	0.01 UJ
Pesticides/PCBs	EPA 508	ENDOSULFAN SULFATE	µg/L	--	--	--	--	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 U	0.05 U	0.05 UJ
Pesticides/PCBs	EPA 508	ENDRIN	µg/L	2	--	1.8	--	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 U	0.05 U	0.05 UJ
Pesticides/PCBs	EPA 508	ENDRIN ALDEHYDE	µg/L	--	--	--	--	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 U	0.05 U	0.05 UJ
Pesticides/PCBs	EPA 508	ENDRIN KETONE	µg/L	--	--	--	--	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 U	0.05 U	0.05 UJ
Pesticides/PCBs	EPA 508	GAMMA- BHC (LINDANE)	µg/L	0.2	--	0.032	--	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 U	0.05 U	0.05 UJ
Pesticides/PCBs	EPA 508	HEPTACHLOR	µg/L	0.01	--	0.008	--	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.01 U	0.01 U	0.01 UJ
Pesticides/PCBs	EPA 508	HEPTACHLOR EPOXIDE	µg/L	0.01	--	0.006	--	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.01 U	0.01 U	0.01 UJ
Pesticides/PCBs	EPA 508	HEXACHLOROBENZENE	µg/L	1	--	--	--	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 U	0.05 U	0.05 UJ
Pesticides/PCBs	EPA 508	METHOXYCHLOR	µg/L	30	--	30	--	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 U	0.05 U	0.05 UJ
Pesticides/PCBs	EPA 508	NITROFEN	µg/L	--	--	--	--	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 U	0.05 U	0.05 UJ
Pesticides/PCBs	EPA 508	PCB-1016	µg/L	--	--	--	--	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 UJ
Pesticides/PCBs	EPA 508	PCB-1221	µg/L	--	--	--	--	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 UJ
Pesticides/PCBs	EPA 508	PCB-1232	µg/L	--	--	--	--	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 UJ
Pesticides/PCBs	EPA 508	PCB-1242	µg/L	--	--	--	--	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 UJ
Pesticides/PCBs	EPA 508	PCB-1248	µg/L	--	--	--	--	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 UJ
Pesticides/PCBs	EPA 508	PCB-1254	µg/L	--	--	--	--	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 UJ
Pesticides/PCBs	EPA 508	PCB-1260	µg/L	--	--	--	--	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 UJ
Pesticides/PCBs	EPA 508	PCNB	µg/L	--	--	--	--	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 U	0.05 U	0.05 UJ
Pesticides/PCBs	EPA 508	PROPACHLOR	µg/L	--	--	--	--	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.28 J	0.1 UJ	0.1 UJ	0.1 U	0.1 U	0.1 UJ
Pesticides/PCBs	EPA 508	TOXAPHENE	µg/L	3	--	--	--	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 UJ

Notes:

N = Normal Environmental Sample
DUP = Field Duplicate Sample
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µg/L = micrograms per liter
XX = Bolding of value and qualifier means that the detection limit exceeds a CA Primary/Secondary MCL or DHS Action Level.
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TABLE 3A-8
Summary of Explosives Data for JPL Monitoring Wells

Station ID:								MW-3-3	MW-3-5	MW-4-1	MW-4-2	MW-4-5	MW-7	MW-8	MW-10	MW-12-3	MW-12-5	MW-14-2	MW-14-4	MW-16	MW-16
QAQC Type:								N	N	N	N	N	N	N	N	N	N	N	N	N	DUP
Date Collected:								12/20/02	02/24/03	12/27/02	12/27/02	01/02/03	01/16/03	01/17/03	01/17/03	01/03/03	01/07/03	12/17/02	12/18/02	01/16/03	01/16/03
Analyte Type	**Method**	**Analyte**	**Units**	**CA Primary MCL**	**CA Secondary MCL**	**CA PHG**	**DHS Action Level**														
Explosives	EPA 8330	1,3,5-TRINITROBENZENE (TNB)	µg/L	--	--	--	--	0.2 U	4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Explosives	EPA 8330	1,3-DINITROBENZENE (DNB)	µg/L	--	--	--	--	0.2 U	4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Explosives	EPA 8330	2,4,6-TRINITROTOLUENE (TNT)	µg/L	--	--	--	--	25.7	2 U	4.32	4.5	0.11 U	0.11 UJ	0.11 U	0.11 U	0.11 U	2.2	0.11 U	0.11 U	8.29 J	2.6 J
Explosives	EPA 8330	2,4-DINITROTOLUENE	µg/L	--	--	--	--	0.2 U	4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Explosives	EPA 8330	2,6-DINITROTOLUENE	µg/L	--	--	--	--	0.33 U	4 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.330 U	0.33 U	0.33 U	0.33 U	0.33 U
Explosives	EPA 8330	2-AMINO-4,6-DINITROTOLUENE	µg/L	--	--	--	--	0.21 U	2 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.210 U	0.21 U	0.21 U	0.21 U	0.21 U
Explosives	EPA 8330	2-NITROTOLUENE	µg/L	--	--	--	--	0.66 U	11 U	0.66 U	0.66 U	0.66 U	0.66 U	0.66 U	0.66 U	0.66 U	0.660 U	0.66 U	0.66 U	0.66 U	0.66 U
Explosives	EPA 8330	3-NITROTOLUENE	µg/L	--	--	--	--	0.3 U	6 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Explosives	EPA 8330	4-AMINO-2,6-DINITROTOLUENE	µg/L	--	--	--	--	0.2 U	4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Explosives	EPA 8330	4-NITROTOLUENE	µg/L	--	--	--	--	0.66 U	11 U	0.66 U	0.66 U	0.66 U	0.66 U	0.66 U	0.66 U	0.66 U	0.660 U	0.66 U	0.66 U	0.66 U	0.66 U
Explosives	EPA 8330	HMX	µg/L	--	--	--	--	2.5	10 U	0.7	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Explosives	EPA 8330	NITROBENZENE	µg/L	--	--	--	--	0.2 U	4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Explosives	EPA 8330	RDX	µg/L	--	--	--	--	27.3	4 U	5.83	3.1	0.2 U	0.2 U	0.2 U	0.2 U	0.66	3	0.2 U	0.2 U	2.1	1.3
Explosives	EPA 8330	TETRYL	µg/L	--	--	--	--	0.15 U	4.4 U	0.15 U	0.15 U	0.15 U	0.15 UJ	0.15 U	0.15 U	0.15 U	0.150 U	0.15 U	0.15 U	0.15 UJ	0.15 UJ

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TABLE 3A-8
Summary of Explosives Data for JPL Monitoring Wells

Station ID:								MW-17-3	MW-17-4	MW-17-4	MW-18-3	MW-18-4	MW-19-3	MW-19-5	MW-21-3	MW-21-5	MW-24-2
QAQC Type:								N	N	DUP	N	N	N	N	N	N	N
Date Collected:								12/12/02	12/13/02	12/13/02	12/10/02	12/11/02	12/06/02	12/09/02	12/04/02	12/05/02	01/08/03
Analyte Type	**Method**	**Analyte**	**Units**	**CA Primary MCL**	**CA Secondary MCL**	**CA PHG**	**DHS Action Level**										
Explosives	EPA 8330	1,3,5-TRINITROBENZENE (TNB)	µg/L	--	--	--	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Explosives	EPA 8330	1,3-DINITROBENZENE (DNB)	µg/L	--	--	--	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Explosives	EPA 8330	2,4,6-TRINITROTOLUENE (TNT)	µg/L	--	--	--	--	0.11 U	0.11 U	0.11 U	0.110 U	0.110 U	0.110 U	0.110 U	0.110 U	0.110 U	0.110 U
Explosives	EPA 8330	2,4-DINITROTOLUENE	µg/L	--	--	--	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Explosives	EPA 8330	2,6-DINITROTOLUENE	µg/L	--	--	--	--	0.33 U	0.33 U	0.33 U	0.330 U	0.330 U	0.330 U	0.330 U	0.330 U	0.330 U	0.330 U
Explosives	EPA 8330	2-AMINO-4,6-DINITROTOLUENE	µg/L	--	--	--	--	0.21 U	0.21 U	0.21 U	0.210 U	0.210 U	0.210 U	0.210 U	0.210 U	0.210 U	0.210 U
Explosives	EPA 8330	2-NITROTOLUENE	µg/L	--	--	--	--	0.66 U	0.66 U	0.66 U	0.660 U	0.660 U	0.660 U	0.660 U	0.660 U	0.660 U	0.660 U
Explosives	EPA 8330	3-NITROTOLUENE	µg/L	--	--	--	--	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Explosives	EPA 8330	4-AMINO-2,6-DINITROTOLUENE	µg/L	--	--	--	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Explosives	EPA 8330	4-NITROTOLUENE	µg/L	--	--	--	--	0.66 U	0.66 U	0.66 U	0.660 U	0.660 U	0.660 U	0.660 U	0.660 U	0.660 U	0.660 U
Explosives	EPA 8330	HMX	µg/L	--	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Explosives	EPA 8330	NITROBENZENE	µg/L	--	--	--	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Explosives	EPA 8330	RDX	µg/L	--	--	--	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Explosives	EPA 8330	TETRYL	µg/L	--	--	--	--	0.15 U	0.15 U	0.15 U	0.150 U	0.150 U	0.150 U	0.150 U	0.150 U	0.150 U	0.150 U

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XX = Bolding of value and qualifier means that the detection limit exceeds a CA Primary/Secondary MCL or DHS Action Level.
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J

TABLE 3A-9

Summary of Nitrogen/Phosphorus Pesticides and Organophosphorus Pesticides Data for JPL Monitoring Wells

Station ID:								**MW-3-3**	**MW-4-2**	**MW-7**	**MW-12-3**	**MW-14-2**	**MW-16**	**MW-16**
QAQC Type:								N	N	N	N	N	N	DUP
Date Collected:								02/24/03	12/30/02	01/16/03	01/06/03	12/19/02	01/16/03	01/16/03
Analyte Type	**Method**	**Analyte**	**Units**	**CA Primary MCL**	**CA Secondary MCL**	**CA PHG**	**DHS Action Level**							
N&P Pesticides	EPA 507	ALACHLOR	µg/L	2	--	4	--	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 UR	0.5 U	0.5
N&P Pesticides	EPA 507	ATRAZINE	µg/L	1	--	0.15	–	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UR	0.5 U	0.5
N&P Pesticides	EPA 507	BROMACIL	µg/L	--	--	--	–	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 UR	0.5 U	0.5
N&P Pesticides	EPA 507	BUTACHLOR	µg/L	--	--	--	–	0.38 U	0.38 U	0.38 U	0.38 U	0.38 UR	0.38 U	0.38
N&P Pesticides	EPA 507	DEMETON	µg/L	--	--	--	–	0.5 U	0.5 UJ	0.5 UJ	0.5 U	--	0.5 UJ	0.5
N&P Pesticides	EPA 507	DIAZINON	µg/L	--	--	--	6	0.25 U	0.25 U	0.25 UJ	0.25 U	--	0.25 UJ	0.25
N&P Pesticides	EPA 507	DIMETHOATE	µg/L	--	--	--	1	0.5 U	0.5 UJ	0.5 UJ	0.5 U	--	0.5 UJ	0.5
N&P Pesticides	EPA 507	DISULFOTON	µg/L	--	--	--	–	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5
N&P Pesticides	EPA 507	METOLACHLOR	µg/L	--	--	--	–	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 UR	0.5 U	0.5
N&P Pesticides	EPA 507	METRIBUZIN	µg/L	--	--	--	–	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UR	0.5 U	0.5
N&P Pesticides	EPA 507	MEVINPHOS	µg/L	--	--	--	–	0.5 U	0.5 UJ	0.5 U	0.5 U	--	0.5 U	0.5
N&P Pesticides	EPA 507	MOLINATE	µg/L	20	--	--	–	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UR	0.5 U	0.5
N&P Pesticides	EPA 507	PROMETON	µg/L	--	--	--	–	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 UR	0.5 UJ	0.5
N&P Pesticides	EPA 507	PROMETRYN	µg/L	--	--	--	–	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UR	0.5 U	0.5
N&P Pesticides	EPA 507	PRONAMIDE	µg/L	--	--	--	–	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UR	0.5 U	0.5
N&P Pesticides	EPA 507	SIMAZINE	µg/L	4	–	4	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UR	0.5 U	0.5
N&P Pesticides	EPA 507	SIMETRYN	µg/L	--	--	--	–	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UR	0.5 U	0.5
N&P Pesticides	EPA 507	TERBUTRYN	µg/L	--	--	--	–	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UR	0.5 U	0.5
N&P Pesticides	EPA 507	THIOBENCARB	µg/L	70	1	70	–	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UR	0.5 U	0.5
O-P Pesticides	EPA 8141A	BOLSTAR	µg/L	--	--	--	–	0.1 U	0.1 U	0.1 U	0.1 U	0.1 UR	0.1 U	0.1
O-P Pesticides	EPA 8141A	CHLORPYRIFOS	µg/L	--	--	--	–	0.05 U	0.05 U	0.05 U	0.05 U	0.05 UR	0.05 U	0.05
O-P Pesticides	EPA 8141A	COUMAPHOS	µg/L	--	--	--	–	0.2 U	0.2 U	0.2 U	0.2 U	0.2 UR	0.2 U	0.2
O-P Pesticides	EPA 8141A	DEMETON	µg/L	--	--	--	–	0.2 U	0.2 U	0.2 UJ	0.2 UJ	0.2 UR	0.2 UJ	0.2
O-P Pesticides	EPA 8141A	DIAZINON	µg/L	--	--	--	6	0.05 U	0.05 U	0.05 UJ	0.05 U	0.05 UR	0.05 UJ	0.05
O-P Pesticides	EPA 8141A	DICHLORVOS	µg/L	--	--	--	–	0.2 U	0.2 U	0.2 UJ	0.2 U	0.2 UR	0.2 UJ	0.2
O-P Pesticides	EPA 8141A	DIMETHOATE	µg/L	--	--	--	1	0.1 U	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UR	0.1 UJ	0.1
O-P Pesticides	EPA 8141A	DISULFOTON	µg/L	--	--	--	–	0.1 U	0.1 U	0.1 U	0.1 U	0.1 UR	0.1 U	0.1
O-P Pesticides	EPA 8141A	EPN	µg/L	--	--	--	–	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 UR	0.1 UJ	0.1
O-P Pesticides	EPA 8141A	EPTC	µg/L	--	--	--	–	0.1 U	0.1 U	0.1 U	0.1 U	0.1 UR	0.1 U	0.1
O-P Pesticides	EPA 8141A	ETHION	µg/L	--	--	--	–	0.1 U	0.1 U	0.1 U	0.1 U	0.1 UR	0.1 U	0.1
O-P Pesticides	EPA 8141A	ETHOPROP	µg/L	--	--	--	–	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 UR	0.1 UJ	0.1
O-P Pesticides	EPA 8141A	FENSULFOTHION	µg/L	--	--	--	–	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UR	0.5 UJ	0.5
O-P Pesticides	EPA 8141A	FENTHION	µg/L	--	--	--	–	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 UR	0.1 UJ	0.1
O-P Pesticides	EPA 8141A	GUTHION	µg/L	--	--	--	–	1 U	1 U	1 U	1 U	1 UR	1 U	1
O-P Pesticides	EPA 8141A	MALATHION	µg/L	--	--	--	–	0.1 U	0.1 U	0.1 U	0.1 U	0.1 UR	0.1 U	0.1
O-P Pesticides	EPA 8141A	MERPHOS	µg/L	--	--	--	–	0.1 U	0.1 U	0.1 U	0.1 U	0.1 UR	0.1 U	0.1
O-P Pesticides	EPA 8141A	METHYL PARATHION	µg/L	--	--	--	–	0.1 U	0.1 U	0.1 U	0.1 U	0.1 UR	0.1 U	0.1
O-P Pesticides	EPA 8141A	MEVINPHOS	µg/L	--	--	--	–	0.7 U	0.7 U	0.7 UJ	0.7 U	0.7 UR	0.7 UJ	0.7
O-P Pesticides	EPA 8141A	NALED	µg/L	--	--	--	–	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 UR	0.5 UJ	0.5
O-P Pesticides	EPA 8141A	PARATHION	µg/L	--	--	--	–	0.1 U	0.1 U	0.1 U	0.1 U	0.1 UR	0.1 U	0.1
O-P Pesticides	EPA 8141A	PHORATE	µg/L	--	--	--	–	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 UR	0.1 UJ	0.1

TABLE 3A-9

Summary of Nitrogen/Phosphorus Pesticides and Organophosphorus Pesticides Data for JPL Monitoring Wells

Station ID:								**MW-3-3**	**MW-4-2**	**MW-7**	**MW-12-3**	**MW-14-2**	**MW-16**	**MW-16**
QAQC Type:								N	N	N	N	N	N	DUP
Date Collected:								02/24/03	12/30/02	01/16/03	01/06/03	12/19/02	01/16/03	01/16/03
Analyte Type	**Method**	**Analyte**	**Units**	**CA Primary MCL**	**CA Secondary MCL**	**CA PHG**	**DHS Action Level**							
O-P Pesticides	EPA 8141A	PROWL	µg/L	--	--	--	–	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 UR	0.1 UJ	0.1
O-P Pesticides	EPA 8141A	RONNEL	µg/L	--	--	--	–	0.1 U	0.1 U	0.1 U	0.1 U	0.1 UR	0.1 U	0.1
O-P Pesticides	EPA 8141A	S,S,S-TRIBUTYLPHOSPHOROTRITHIOATE	µg/L	--	--	--	--	0.1 U	0.1 U	0.1 U	0.1 U	0.1 UR	0.1 U	0.1
O-P Pesticides	EPA 8141A	STIROPHOS	µg/L	--	--	--	--	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 UR	0.1 U	0.1
O-P Pesticides	EPA 8141A	SULFOTEPP	µg/L	--	--	--	–	0.1 U	0.1 U	0.1 U	0.1 U	0.1 UR	0.1 U	0.1
O-P Pesticides	EPA 8141A	TOKUTHION	µg/L	--	--	--	--	0.1 U	0.1 U	0.1 U	0.1 U	0.1 UR	0.1 U	0.1
O-P Pesticides	EPA 8141A	TRICHLORONATE	µg/L	--	--	--	–	0.1 U	0.1 U	0.1 U	0.1 U	0.1 UR	0.1 U	0.1
O-P Pesticides	EPA 8141A	TRIFLURALIN	µg/L	--	--	--	–	0.1 U	0.1 U	0.1 UJ	0.1 UJ	0.1 UR	0.1 UJ	0.1

Notes:

N = Normal Environmental Sample
DUP = Field Duplicate Sample
"--" = Sample was not analyzed using this method.
U = Not detected at the listed reporting limit.
UJ = The compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
UR = Not detected at the listed reporting limit. Quality control indicates the data are not usable.
µg/L = micrograms per liter
XX = Bolding of value and qualifier means that the detection limit exceeds a CA Primary/Secondary MCL or DHS Action Level.
[ ] = Bolding and outlining of value and qualifier means that a detected value exceeds a CA Primary/Secondary MCL or DHS Action Level.

TABLE 3A-9

Summary of Nitrogen/Phosphorus Pesticides and Organophosphorus Pesticides Data for JPL Monitoring Wells

Station ID:
QAQC Type:
Date Collected:

Analyte Type	Method	Analyte	Units	CA Primary MCL	CA Secondary MCL	CA PHG	DHS Action Level	
N&P Pesticides	EPA 507	ALACHLOR	µg/L	2	--	4	--	U
N&P Pesticides	EPA 507	ATRAZINE	µg/L	1	--	0.15	–	U
N&P Pesticides	EPA 507	BROMACIL	µg/L	--	--	--	–	U
N&P Pesticides	EPA 507	BUTACHLOR	µg/L	--	--	--	–	U
N&P Pesticides	EPA 507	DEMETON	µg/L	--	--	--	–	UJ
N&P Pesticides	EPA 507	DIAZINON	µg/L	--	--	--	6	UJ
N&P Pesticides	EPA 507	DIMETHOATE	µg/L	--	--	--	1	UJ
N&P Pesticides	EPA 507	DISULFOTON	µg/L	--	--	--	–	U
N&P Pesticides	EPA 507	METOLACHLOR	µg/L	--	--	--	–	U
N&P Pesticides	EPA 507	METRIBUZIN	µg/L	--	--	--	–	U
N&P Pesticides	EPA 507	MEVINPHOS	µg/L	--	--	--	–	U
N&P Pesticides	EPA 507	MOLINATE	µg/L	20	--	--	–	U
N&P Pesticides	EPA 507	PROMETON	µg/L	--	--	--	–	UJ
N&P Pesticides	EPA 507	PROMETRYN	µg/L	--	--	--	–	U
N&P Pesticides	EPA 507	PRONAMIDE	µg/L	--	--	--	–	U
N&P Pesticides	EPA 507	SIMAZINE	µg/L	4	–	4	--	U
N&P Pesticides	EPA 507	SIMETRYN	µg/L	--	--	--	–	U
N&P Pesticides	EPA 507	TERBUTRYN	µg/L	--	--	--	–	U
N&P Pesticides	EPA 507	THIOBENCARB	µg/L	70	1	70	–	U
O-P Pesticides	EPA 8141A	BOLSTAR	µg/L	--	--	--	–	U
O-P Pesticides	EPA 8141A	CHLORPYRIFOS	µg/L	--	--	--	–	U
O-P Pesticides	EPA 8141A	COUMAPHOS	µg/L	--	--	--	–	U
O-P Pesticides	EPA 8141A	DEMETON	µg/L	--	--	--	–	UJ
O-P Pesticides	EPA 8141A	DIAZINON	µg/L	--	--	--	6	UJ
O-P Pesticides	EPA 8141A	DICHLORVOS	µg/L	--	--	--	–	UJ
O-P Pesticides	EPA 8141A	DIMETHOATE	µg/L	--	--	--	1	UJ
O-P Pesticides	EPA 8141A	DISULFOTON	µg/L	--	--	--	–	U
O-P Pesticides	EPA 8141A	EPN	µg/L	--	--	--	–	UJ
O-P Pesticides	EPA 8141A	EPTC	µg/L	--	--	--	–	U
O-P Pesticides	EPA 8141A	ETHION	µg/L	--	--	--	–	U
O-P Pesticides	EPA 8141A	ETHOPROP	µg/L	--	--	--	–	UJ
O-P Pesticides	EPA 8141A	FENSULFOTHION	µg/L	--	--	--	–	UJ
O-P Pesticides	EPA 8141A	FENTHION	µg/L	--	--	--	–	UJ
O-P Pesticides	EPA 8141A	GUTHION	µg/L	--	--	--	–	U
O-P Pesticides	EPA 8141A	MALATHION	µg/L	--	--	--	–	U
O-P Pesticides	EPA 8141A	MERPHOS	µg/L	--	--	--	–	U
O-P Pesticides	EPA 8141A	METHYL PARATHION	µg/L	--	--	--	–	U
O-P Pesticides	EPA 8141A	MEVINPHOS	µg/L	--	--	--	–	UJ
O-P Pesticides	EPA 8141A	NALED	µg/L	--	--	--	–	UJ
O-P Pesticides	EPA 8141A	PARATHION	µg/L	--	--	--	–	U
O-P Pesticides	EPA 8141A	PHORATE	µg/L	--	--	--	–	UJ

TABLE 3A-9

Summary of Nitrogen/Phosphorus Pesticides and Organophosphorus Pesticides Data for JPL Monitoring Wells

Station ID:
QAQC Type:
Date Collected:

Analyte Type	Method	Analyte	Units	CA Primary MCL	CA Secondary MCL	CA PHG	DHS Action Level	
O-P Pesticides	EPA 8141A	PROWL	µg/L	--	--	--	--	UJ
O-P Pesticides	EPA 8141A	RONNEL	µg/L	--	--	--	--	U
O-P Pesticides	EPA 8141A	S,S,S-TRIBUTYLPHOSPHOROTRITHIOATE	µg/L	--	--	--	--	U
O-P Pesticides	EPA 8141A	STIROPHOS	µg/L	--	--	--	--	U
O-P Pesticides	EPA 8141A	SULFOTEPP	µg/L	--	--	--	--	U
O-P Pesticides	EPA 8141A	TOKUTHION	µg/L	--	--	--	--	U
O-P Pesticides	EPA 8141A	TRICHLORONATE	µg/L	--	--	--	--	U
O-P Pesticides	EPA 8141A	TRIFLURALIN	µg/L	--	--	--	--	UJ

Notes:

N = Normal Environmental Sample
DUP = Field Duplicate Sample
"--" = Sample was not analyzed using this method.
U = Not detected at the listed reporting limit.
UJ = The compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
UR = Not detected at the listed reporting limit. Quality control indicates the data are not usable.
µg/L = micrograms per liter
XX = Bolding of value and qualifier means that the detection limit exceeds a CA Primary/Secondary MCL or DHS Action Level.
[ ] = Bolding and outlining of value and qualifier means that a detected value exceeds a CA Primary/Secondary MCL or DHS Action Level.

TABLE 3A-10

Summary of Carbamates, Chloropicrin, Glyphosate, Endothall, Formaldehyde, Ethylene Glycol, Paraquat, Diquat, 1,2,3-Trichloropropane, EDB, and DBCP Data for JPL Monitoring Wells

Station ID:								MW-3-3	MW-3-3	MW-3-3	MW-3-3	MW-4-2	MW-4-2	MW-4-2	MW-4-2	MW-7	MW-10	MW-10	MW-12-3	MW-12-3	MW-12-3
QAQC Type:								N	N	N	N	N	N	N	N	N	N	N	N	N	N
Date Collected:								12/20/02	01/14/03	02/24/03	02/27/03	12/31/02	01/02/03	01/15/03	02/27/03	01/16/03	01/16/03	01/17/03	01/03/03	01/06/03	01/15/03
Analyte Type	**Method**	**Analyte**	**Units**	**CA Primary MCL**	**CA Secondary MCL**	**CA PHG**	**DHS Action Level**														
Aldehydes	EPA 8315A	2-BUTANONE (METHYL ETHYL KE	UG/ML	--	--	--	--	--	--	--	0.03 U	--	--	--	0.03 U	0.03 U	--	--	--	--	--
Aldehydes	EPA 8315A	ACETALDEHYDE	UG/ML	--	--	--	--	--	--	--	0.003 U	--	--	--	0.003 U	0.003 UJ	--	--	--	--	--
Aldehydes	EPA 8315A	ACETONE	UG/ML	--	--	--	--	--	--	--	0.01 U	--	--	--	0.01 U	0.01 U	--	--	--	--	--
Aldehydes	EPA 8315A	ACROLEIN	UG/ML	--	--	--	--	--	--	--	0.01 U	--	--	--	0.01 U	0.01 U	--	--	--	--	--
Aldehydes	EPA 8315A	BENZALDEHYDE	UG/ML	--	--	--	--	--	--	--	0.03 U	--	--	--	0.03 U	0.03 U	--	--	--	--	--
Aldehydes	EPA 8315A	BUTYRALDEHYDE	UG/ML	--	--	--	--	--	--	--	0.03 U	--	--	--	0.03 U	0.03 UJ	--	--	--	--	--
Aldehydes	EPA 8315A	CROTONALDEHYDE	UG/ML	--	--	--	--	--	--	--	0.03 U	--	--	--	0.03 U	0.03 U	--	--	--	--	--
Aldehydes	EPA 8315A	FORMALDEHYDE	UG/ML	--	--	--	--	--	--	--	0.004 U	--	--	--	0.004 U	0.004 UJ	--	--	--	--	--
Aldehydes	EPA 8315A	HEXANALDEHYDE	UG/ML	--	--	--	--	--	--	--	0.03 U	--	--	--	0.03 U	0.03 U	--	--	--	--	--
Aldehydes	EPA 8315A	M-TOLUALDEHYDE	UG/ML	--	--	--	--	--	--	--	0.03 U	--	--	--	0.03 U	0.03 U	--	--	--	--	--
Aldehydes	EPA 8315A	METHACROLEIN	UG/ML	--	--	--	--	--	--	--	0.03 U	--	--	--	0.03 U	0.03 U	--	--	--	--	--
Aldehydes	EPA 8315A	PROPIONALDEHYDE	UG/ML	--	--	--	--	--	--	--	0.03 U	--	--	--	0.03 U	0.03 UJ	--	--	--	--	--
Aldehydes	EPA 8315A	VALERALDEHYDE	UG/ML	--	--	--	--	--	--	--	0.03 U	--	--	--	0.03 U	0.03 U	--	--	--	--	--
Carbamates	EPA 531.1	3-HYDROXYCARBOFURAN	µg/L	--	--	--	--	--	--	3 U	--	3 U	--	--	--	3 U	--	--	3 UR	--	--
Carbamates	EPA 531.1	ALDICARB	µg/L	--	--	--	7	--	--	3 U	--	3 U	--	--	--	3 U	--	--	3 UR	--	--
Carbamates	EPA 531.1	ALDICARB SULFONE	µg/L	--	--	--	--	--	--	4 U	--	4 U	--	--	--	4 U	--	--	4 UR	--	--
Carbamates	EPA 531.1	ALDICARB SULFOXIDE	µg/L	--	--	--	--	--	--	3 U	--	3 U	--	--	--	3 U	--	--	3 UR	--	--
Carbamates	EPA 531.1	CARBARYL	µg/L	--	--	--	700	--	--	5 U	--	5 U	--	--	--	5 U	--	--	5 UR	--	--
Carbamates	EPA 531.1	CARBOFURAN	µg/L	18	--	1.7	--	--	--	5 U	--	5 U	--	--	--	5 U	--	--	5 UR	--	--
Carbamates	EPA 531.1	METHIOCARB	µg/L	--	--	--	--	--	--	5 U	--	5 U	--	--	--	5 U	--	--	5 UR	--	--
Carbamates	EPA 531.1	METHOMYL	µg/L	--	--	--	--	--	--	2 U	--	2 U	--	--	--	2 U	--	--	2 UR	--	--
Carbamates	EPA 531.1	OXAMYL	µg/L	50	--	50	--	--	--	5 U	--	5 U	--	--	--	5 U	--	--	5 UR	--	--
Carbamates	EPA 531.1	PROPOXUR	µg/L	--	--	--	--	--	--	5 U	--	5 U	--	--	--	5 U	--	--	5 UR	--	--
CHLOROPICRIN	EPA 551.1	1,1,1-TRICHLORO-2-PROPANONE	µg/L	--	--	--	--	--	--	1 U	--	1 U	--	--	--	1 U	--	--	--	1 U	--
CHLOROPICRIN	EPA 551.1	1,1-DICHLOROPROPANONE	µg/L	--	--	--	--	--	--	1 U	--	1 U	--	--	--	1 U	--	--	--	1 U	--
CHLOROPICRIN	EPA 551.1	BROMOCHLOROACETONITRILE	µg/L	--	--	--	--	--	--	5 U	--	5 U	--	--	--	5 U	--	--	--	5 U	--
CHLOROPICRIN	EPA 551.1	BROMODICHLOROMETHANE	µg/L	--	--	--	--	--	--	0.5 U	--	0.5 U	--	--	--	0.5 U	--	--	--	0.5 U	--
CHLOROPICRIN	EPA 551.1	BROMOFORM	µg/L	--	--	--	--	--	--	0.5 U	--	0.5 U	--	--	--	0.5 U	--	--	--	0.5 U	--
CHLOROPICRIN	EPA 551.1	CHLORODIBROMOMETHANE (THI	µg/L	--	--	--	--	--	--	0.5 U	--	0.5 U	--	--	--	0.5 U	--	--	--	0.5 U	--
CHLOROPICRIN	EPA 551.1	CHLOROFORM	µg/L	100	--	--	--	--	--	0.5 U	--	0.5 U	--	--	--	26	--	--	--	5.8	--
CHLOROPICRIN	EPA 551.1	CHLOROPICRIN	µg/L	--	--	--	56	--	--	1 U	--	1 U	--	--	--	1 U	--	--	--	1 U	--
CHLOROPICRIN	EPA 551.1	DIBROMOACETONITRILE	µg/L	--	--	--	--	--	--	2 U	--	2 U	--	--	--	2 U	--	--	--	2 U	--
CHLOROPICRIN	EPA 551.1	DICHLOROACETONITRILE	µg/L	--	--	--	--	--	--	1 U	--	1 U	--	--	--	1 U	--	--	--	1 U	--
CHLOROPICRIN	EPA 551.1	TOTAL TRIHALOMETHANES	µg/L	100	--	--	--	--	--	0.5 U	--	0.5 U	--	--	--	27	--	--	--	5.8	--
CHLOROPICRIN	EPA 551.1	TRICHLOROACETONITRILE	µg/L	--	--	--	--	--	--	2 U	--	2 U	--	--	--	2 U	--	--	--	2 U	--
Endothall	EPA 548	ENDOTHALL	µg/L	100	--	580	--	--	--	**500 U**	--	--	5 U	--	--	5 U	--	--	--	5 U	--
Ethylene Glycol	EPA 8015M	ETHYLENE GLYCOL	mg/L	--	--	--	--	5 U	--	--	--	5 U	--	--	--	5 U	--	--	5 U	--	--
Glyphosate	EPA 547	GLYPHOSATE	µg/L	700	--	1000	--	--	--	10 U	--	--	10 U	--	--	10 U	--	--	--	10 U	--
Paraquat & Diquat	EPA 549.1	DIQUAT	µg/L	20	--	15	--	0.4 U	--	--	--	0.4 UJ	--	--	--	0.4 U	--	--	0.4 UR	--	--
Paraquat & Diquat	EPA 549.1	PARAQUAT	µg/L	--	--	--	--	0.4 U	--	--	--	0.4 UJ	--	--	--	0.4 U	--	--	0.4 UR	--	--
TCP, EDB, DBCP	EPA 504.1	1,2,3-TRICHLOROPROPANE	µg/L	--	--	--	0.005	--	0.005 U	--	--	--	--	0.005 U	--	0.005 U	0.005 U	--	--	--	**0.024**
TCP, EDB, DBCP	EPA 504.1	1,2-DIBROMOETHANE (ETHYLENE	µg/L	0.05	--	--	--	--	--	0.02 U	--	0.02 U	--	--	--	0.02 U	--	0.02 U	0.02 U	--	--
TCP, EDB, DBCP	EPA 504.1	DIBROMOCHLOROPROPANE (DB	µg/L	0.2	--	0.0017	--	--	--	0.02 U	--	0.02 U	--	--	--	0.02 U	--	0.02 U	0.02 U	--	--

Notes:

N = Normal Environmental Sample
DUP = Field Duplicate Sample
"--" = Sample was not analyzed using this method.
U = Not detected at the listed reporting limit.
UJ = The compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
UR = Not detected at the listed reporting limit. Quality control indicates the data are not usable.
µg/L = micrograms per liter
µg/mL = micrograms per milliliter
XX = Bolding of value and qualifier means that the detection limit exceeds a CA Primary/Secondary MCL or DHS Action Level.

TABLE 3A-10

Summary of Carbamates, Chloropicrin, Glyphosate, Endothall, Formaldehyde, Ethylene Glycol, Paraquat, Diquat, 1,2,3-Trichloropropane, EDB, and DBCP Data for JPL Monitoring Wells

Station ID:								**MW-3-3**	**MW-3-3**	**MW-3-3**	**MW-3-3**	**MW-4-2**	**MW-4-2**	**MW-4-2**	**MW-4-2**	**MW-7**	**MW-10**	**MW-10**	**MW-12-3**	**MW-12-3**	**MW-12-3**
QAQC Type:								N	N	N	N	N	N	N	N	N	N	N	N	N	N
Date Collected:								12/20/02	01/14/03	02/24/03	02/27/03	12/31/02	01/02/03	01/15/03	02/27/03	01/16/03	01/16/03	01/17/03	01/03/03	01/06/03	01/15/03
Analyte Type	**Method**	**Analyte**	**Units**	**CA Primary MCL**	**CA Secondary MCL**	**CA PHG**	**DHS Action Level**														

= Bolding and outlining of value and qualifier means that a detected value exceeds a CA Primary/Secondary MCL or DHS Action Level.

TABLE 3A-10

Summary of Carbamates, Chloropicrin, Glyphosate, Endothall, Formaldehyde, Ethylene Glycol, Paraquat, Diquat, 1,2,3-Trichloropropane, EDB, and DBCP Data for JPL Monitoring Wells

Station ID:								MW-12-3	MW-14-2	MW-14-2	MW-14-2	MW-14-2	MW-16	MW-16	MW-17-4	MW-17-4	MW-18-4	MW-18-4	MW-19-3	MW-19-3
QAQC Type:								N	N	N	N	N	N	DUP	N	N	N	N	N	N
Date Collected:								02/27/03	12/17/02	12/26/02	01/14/03	02/27/03	01/16/03	01/16/03	12/16/02	01/13/03	12/11/02	01/20/03	12/06/02	01/13/03
Analyte Type	**Method**	**Analyte**	**Units**	**CA Primary MCL**	**CA Secondary MCL**	**CA PHG**	**DHS Action Level**													
Aldehydes	EPA 8315A	2-BUTANONE (METHYL ETHYL KE	UG/ML	--	--	--	--	0.03 U	--	--	--	0.03 U	0.03 U	0.03 U	--	--	--	--	--	--
Aldehydes	EPA 8315A	ACETALDEHYDE	UG/ML	--	--	--	--	0.003 U	--	--	--	0.003 U	0.003 UJ	0.003 UJ	--	--	--	--	--	--
Aldehydes	EPA 8315A	ACETONE	UG/ML	--	--	--	--	0.01 U	--	--	--	0.01 U	0.01 U	0.01 U	--	--	--	--	--	--
Aldehydes	EPA 8315A	ACROLEIN	UG/ML	--	--	--	--	0.01 U	--	--	--	0.01 U	0.01 U	0.01 U	--	--	--	--	--	--
Aldehydes	EPA 8315A	BENZALDEHYDE	UG/ML	--	--	--	--	0.03 U	--	--	--	0.03 U	0.03 U	0.03 U	--	--	--	--	--	--
Aldehydes	EPA 8315A	BUTYRALDEHYDE	UG/ML	--	--	--	--	0.03 U	--	--	--	0.03 U	0.03 UJ	0.03 UJ	--	--	--	--	--	--
Aldehydes	EPA 8315A	CROTONALDEHYDE	UG/ML	--	--	--	--	0.03 U	--	--	--	0.03 U	0.03 U	0.03 U	--	--	--	--	--	--
Aldehydes	EPA 8315A	FORMALDEHYDE	UG/ML	--	--	--	--	0.004 U	--	--	--	0.004 U	0.004 UJ	0.004 UJ	--	--	--	--	--	--
Aldehydes	EPA 8315A	HEXANALDEHYDE	UG/ML	--	--	--	--	0.03 U	--	--	--	0.03 U	0.03 U	0.03 U	--	--	--	--	--	--
Aldehydes	EPA 8315A	M-TOLUALDEHYDE	UG/ML	--	--	--	--	0.03 U	--	--	--	0.03 U	0.03 U	0.03 U	--	--	--	--	--	--
Aldehydes	EPA 8315A	METHACROLEIN	UG/ML	--	--	--	--	0.03 U	--	--	--	0.03 U	0.03 U	0.03 U	--	--	--	--	--	--
Aldehydes	EPA 8315A	PROPIONALDEHYDE	UG/ML	--	--	--	--	0.03 U	--	--	--	0.03 U	0.03 UJ	0.03 UJ	--	--	--	--	--	--
Aldehydes	EPA 8315A	VALERALDEHYDE	UG/ML	--	--	--	--	0.03 U	--	--	--	0.03 U	0.03 U	0.03 U	--	--	--	--	--	--
Carbamates	EPA 531.1	3-HYDROXYCARBOFURAN	µg/L	--	--	--	--	--	3 UR	--	--	--	3 U	3 U	--	--	--	--	--	--
Carbamates	EPA 531.1	ALDICARB	µg/L	--	--	--	7	--	3 UR	--	--	--	3 U	3 U	--	--	--	--	--	--
Carbamates	EPA 531.1	ALDICARB SULFONE	µg/L	--	--	--	--	--	4 UR	--	--	--	4 U	4 U	--	--	--	--	--	--
Carbamates	EPA 531.1	ALDICARB SULFOXIDE	µg/L	--	--	--	--	--	3 UR	--	--	--	3 U	3 U	--	--	--	--	--	--
Carbamates	EPA 531.1	CARBARYL	µg/L	--	--	--	700	--	5 UR	--	--	--	5 U	5 U	--	--	--	--	--	--
Carbamates	EPA 531.1	CARBOFURAN	µg/L	18	--	1.7	--	--	5 UR	--	--	--	5 U	5 U	--	--	--	--	--	--
Carbamates	EPA 531.1	METHIOCARB	µg/L	--	--	--	--	--	5 UR	--	--	--	5 U	5 U	--	--	--	--	--	--
Carbamates	EPA 531.1	METHOMYL	µg/L	--	--	--	--	--	2 UR	--	--	--	2 U	2 U	--	--	--	--	--	--
Carbamates	EPA 531.1	OXAMYL	µg/L	50	--	50	--	--	5 UR	--	--	--	5 U	5 U	--	--	--	--	--	--
Carbamates	EPA 531.1	PROPOXUR	µg/L	--	--	--	--	--	5 UR	--	--	--	5 U	5 U	--	--	--	--	--	--
CHLOROPICRIN	EPA 551.1	1,1,1-TRICHLORO-2-PROPANONE	µg/L	--	--	--	--	--	--	0.32 U	--	--	1 U	1 U	--	--	--	--	--	--
CHLOROPICRIN	EPA 551.1	1,1-DICHLOROPROPANONE	µg/L	--	--	--	--	--	--	0.21 U	--	--	1 U	1 U	--	--	--	--	--	--
CHLOROPICRIN	EPA 551.1	BROMOCHLOROACETONITRILE	µg/L	--	--	--	--	--	--	1.8 U	--	--	5 U	5 U	--	--	--	--	--	--
CHLOROPICRIN	EPA 551.1	BROMODICHLOROMETHANE	µg/L	--	--	--	--	--	--	0.27 U	--	--	0.5 U	0.5 U	--	--	--	--	--	--
CHLOROPICRIN	EPA 551.1	BROMOFORM	µg/L	--	--	--	--	--	--	0.26 U	--	--	0.5 U	0.5 U	--	--	--	--	--	--
CHLOROPICRIN	EPA 551.1	CHLORODIBROMOMETHANE (THI	µg/L	--	--	--	--	--	--	0.21 U	--	--	0.5 U	0.5 U	--	--	--	--	--	--
CHLOROPICRIN	EPA 551.1	CHLOROFORM	µg/L	100	--	--	--	--	--	1.8 J	--	--	1.3	1.1	--	--	--	--	--	--
CHLOROPICRIN	EPA 551.1	CHLOROPICRIN	µg/L	--	--	--	56	--	--	0.34 U	--	--	1 U	1 U	--	--	--	--	--	--
CHLOROPICRIN	EPA 551.1	DIBROMOACETONITRILE	µg/L	--	--	--	--	--	--	0.49 U	--	--	2 U	2 U	--	--	--	--	--	--
CHLOROPICRIN	EPA 551.1	DICHLOROACETONITRILE	µg/L	--	--	--	--	--	--	0.21 U	--	--	1 U	1 U	--	--	--	--	--	--
CHLOROPICRIN	EPA 551.1	TOTAL TRIHALOMETHANES	µg/L	100	--	--	--	--	--	1.9 J	--	--	1.3	1.2	--	--	--	--	--	--
CHLOROPICRIN	EPA 551.1	TRICHLOROACETONITRILE	µg/L	--	--	--	--	--	--	0.81 U	--	--	2 U	2 U	--	--	--	--	--	--
Endothall	EPA 548	ENDOTHALL	µg/L	100	--	580	--	--	5 UR	--	--	--	5 U	5 U	--	--	--	--	--	--
Ethylene Glycol	EPA 8015M	ETHYLENE GLYCOL	mg/L	--	--	--	--	--	5 U	--	--	--	5 U	5 U	--	--	--	--	--	--
Glyphosate	EPA 547	GLYPHOSATE	µg/L	700	--	1000	--	--	10 UR	--	--	--	10 U	10 U	--	--	--	--	--	--
Paraquat & Diquat	EPA 549.1	DIQUAT	µg/L	20	--	15	--	--	0.4 UR	--	--	--	0.4 U	0.4 U	--	--	--	--	--	--
Paraquat & Diquat	EPA 549.1	PARAQUAT	µg/L	--	--	--	--	--	0.4 UR	--	--	--	0.4 U	0.4 U	--	--	--	--	--	--
TCP, EDB, DBCP	EPA 504.1	1,2,3-TRICHLOROPROPANE	µg/L	--	--	--	0.005	--	--	--	0.005 U	--	0.005 U	--	--	0.005 U	--	**0.071**	--	0.005 U
TCP, EDB, DBCP	EPA 504.1	1,2-DIBROMOETHANE (ETHYLENE	µg/L	0.05	--	--	--	--	0.02 U	--	--	--	0.02 U	0.02 U	0.02 U	--	0.02 U	--	0.02 U	--
TCP, EDB, DBCP	EPA 504.1	DIBROMOCHLOROPROPANE (DB	µg/L	0.2	--	0.0017	--	--	0.02 U	--	--	--	0.02 U	0.02 U	0.02 U	--	0.02 UJ	--	0.02 U	--

Notes:

N = Normal Environmental Sample
DUP = Field Duplicate Sample
"--" = Sample was not analyzed using this method.
U = Not detected at the listed reporting limit.
UJ = The compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
UR = Not detected at the listed reporting limit. Quality control indicates the data are not usable.
µg/L = micrograms per liter
µg/mL = micrograms per milliliter
XX = Bolding of value and qualifier means that the detection limit exceeds a CA Primary/Secondary MCL or DHS Action Level.

TABLE 3A-10

Summary of Carbamates, Chloropicrin, Glyphosate, Endothall, Formaldehyde, Ethylene Glycol, Paraquat, Diquat, 1,2,3-Trichloropropane, EDB, and DBCP Data for JPL Monitoring Wells

Station ID:								**MW-12-3**	**MW-14-2**	**MW-14-2**	**MW-14-2**	**MW-14-2**	**MW-16**	**MW-16**	**MW-17-4**	**MW-17-4**	**MW-18-4**	**MW-18-4**	**MW-19-3**	**MW-19-3**
QAQC Type:								N	N	N	N	N	N	DUP	N	N	N	N	N	N
Date Collected:								02/27/03	12/17/02	12/26/02	01/14/03	02/27/03	01/16/03	01/16/03	12/16/02	01/13/03	12/11/02	01/20/03	12/06/02	01/13/03
Analyte Type	**Method**	**Analyte**	**Units**	**CA Primary MCL**	**CA Secondary MCL**	**CA PHG**	**DHS Action Level**													

= Bolding and outlining of value and qualifier means that a detected value exceeds a CA Primary/Secondary MCL or DHS Action Level.

TABLE 3A-10

Summary of Carbamates, Chloropicrin, Glyphosate, Endothall, Formaldehyde, Ethylene Glycol, Paraquat, Diquat, 1,2,3-Trichloropropane, EDB, and DBCP Data for JPL Monitoring Wells

Station ID:								**MW-21-5**	**MW-21-5**	**MW-24-2**	**MW-24-2**
QAQC Type:								N	N	N	N
Date Collected:								12/05/02	01/13/03	01/09/03	01/15/03
Analyte Type	**Method**	**Analyte**	**Units**	**CA Primary MCL**	**CA Secondary MCL**	**CA PHG**	**DHS Action Level**				
Aldehydes	EPA 8315A	2-BUTANONE (METHYL ETHYL KE	UG/ML	--	--	--	--	--	--	--	--
Aldehydes	EPA 8315A	ACETALDEHYDE	UG/ML	--	--	--	--	--	--	--	--
Aldehydes	EPA 8315A	ACETONE	UG/ML	--	--	--	--	--	--	--	--
Aldehydes	EPA 8315A	ACROLEIN	UG/ML	--	--	--	--	--	--	--	--
Aldehydes	EPA 8315A	BENZALDEHYDE	UG/ML	--	--	--	--	--	--	--	--
Aldehydes	EPA 8315A	BUTYRALDEHYDE	UG/ML	--	--	--	--	--	--	--	--
Aldehydes	EPA 8315A	CROTONALDEHYDE	UG/ML	--	--	--	--	--	--	--	--
Aldehydes	EPA 8315A	FORMALDEHYDE	UG/ML	--	--	--	--	--	--	--	--
Aldehydes	EPA 8315A	HEXANALDEHYDE	UG/ML	--	--	--	--	--	--	--	--
Aldehydes	EPA 8315A	M-TOLUALDEHYDE	UG/ML	--	--	--	--	--	--	--	--
Aldehydes	EPA 8315A	METHACROLEIN	UG/ML	--	--	--	--	--	--	--	--
Aldehydes	EPA 8315A	PROPIONALDEHYDE	UG/ML	--	--	--	--	--	--	--	--
Aldehydes	EPA 8315A	VALERALDEHYDE	UG/ML	--	--	--	--	--	--	--	--
Carbamates	EPA 531.1	3-HYDROXYCARBOFURAN	µg/L	--	--	--	--	--	--	--	--
Carbamates	EPA 531.1	ALDICARB	µg/L	--	--	--	7	--	--	--	--
Carbamates	EPA 531.1	ALDICARB SULFONE	µg/L	--	--	--	--	--	--	--	--
Carbamates	EPA 531.1	ALDICARB SULFOXIDE	µg/L	--	--	--	--	--	--	--	--
Carbamates	EPA 531.1	CARBARYL	µg/L	--	--	--	700	--	--	--	--
Carbamates	EPA 531.1	CARBOFURAN	µg/L	18	--	1.7	--	--	--	--	--
Carbamates	EPA 531.1	METHIOCARB	µg/L	--	--	--	--	--	--	--	--
Carbamates	EPA 531.1	METHOMYL	µg/L	--	--	--	--	--	--	--	--
Carbamates	EPA 531.1	OXAMYL	µg/L	50	--	50	--	--	--	--	--
Carbamates	EPA 531.1	PROPOXUR	µg/L	--	--	--	--	--	--	--	--
CHLOROPICRIN	EPA 551.1	1,1,1-TRICHLORO-2-PROPANONE	µg/L	--	--	--	--	--	--	--	--
CHLOROPICRIN	EPA 551.1	1,1-DICHLOROPROPANONE	µg/L	--	--	--	--	--	--	--	--
CHLOROPICRIN	EPA 551.1	BROMOCHLOROACETONITRILE	µg/L	--	--	--	--	--	--	--	--
CHLOROPICRIN	EPA 551.1	BROMODICHLOROMETHANE	µg/L	--	--	--	--	--	--	--	--
CHLOROPICRIN	EPA 551.1	BROMOFORM	µg/L	--	--	--	--	--	--	--	--
CHLOROPICRIN	EPA 551.1	CHLORODIBROMOMETHANE (THI	µg/L	--	--	--	--	--	--	--	--
CHLOROPICRIN	EPA 551.1	CHLOROFORM	µg/L	100	--	--	--	--	--	--	--
CHLOROPICRIN	EPA 551.1	CHLOROPICRIN	µg/L	--	--	--	56	--	--	--	--
CHLOROPICRIN	EPA 551.1	DIBROMOACETONITRILE	µg/L	--	--	--	--	--	--	--	--
CHLOROPICRIN	EPA 551.1	DICHLOROACETONITRILE	µg/L	--	--	--	--	--	--	--	--
CHLOROPICRIN	EPA 551.1	TOTAL TRIHALOMETHANES	µg/L	100	--	--	--	--	--	--	--
CHLOROPICRIN	EPA 551.1	TRICHLOROACETONITRILE	µg/L	--	--	--	--	--	--	--	--
Endothall	EPA 548	ENDOTHALL	µg/L	100	--	580	--	--	--	--	--
Ethylene Glycol	EPA 8015M	ETHYLENE GLYCOL	mg/L	--	--	--	--	--	--	--	--
Glyphosate	EPA 547	GLYPHOSATE	µg/L	700	--	1000	--	--	--	--	--
Paraquat & Diquat	EPA 549.1	DIQUAT	µg/L	20	--	15	--	--	--	--	--
Paraquat & Diquat	EPA 549.1	PARAQUAT	µg/L	--	--	--	--	--	--	--	--
TCP, EDB, DBCP	EPA 504.1	1,2,3-TRICHLOROPROPANE	µg/L	--	--	--	0.005	--	0.005 U	--	0.005 U
TCP, EDB, DBCP	EPA 504.1	1,2-DIBROMOETHANE (ETHYLENE	µg/L	0.05	--	--	--	0.02 U	--	0.02 U	--
TCP, EDB, DBCP	EPA 504.1	DIBROMOCHLOROPROPANE (DB	µg/L	0.2	--	0.0017	--	0.02 U	--	0.02 U	--

Notes:

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UR = Not detected at the listed reporting limit. Quality control indicates the data are not usable.
µg/L = micrograms per liter
µg/mL = micrograms per milliliter
XX = Bolding of value and qualifier means that the detection limit exceeds a CA Primary/Secondary MCL or DHS Action Level.

TABLE 3A-10

Summary of Carbamates, Chloropicrin, Glyphosate, Endothall, Formaldehyde, Ethylene Glycol, Paraquat, Diquat, 1,2,3-Trichloropropane, EDB, and DBCP Data for JPL Monitoring Wells

Station ID:								**MW-21-5**	**MW-21-5**	**MW-24-2**	**MW-24-2**
QAQC Type:								N	N	N	N
Date Collected:								12/05/02	01/13/03	01/09/03	01/15/03
Analyte Type	**Method**	**Analyte**	**Units**	**CA Primary MCL**	**CA Secondary MCL**	**CA PHG**	**DHS Action Level**				

[ ] = Bolding and outlining of value and qualifier means that a detected value exceeds a CA Primary/Secondary MCL or DHS Action Level.

TABLE 3A-11

Summary of Chlorophenoxy Herbicides Data for JPL Monitoring Wells

Station ID:								MW-3-3	MW-4-2	MW-7	MW-12-3	MW-14-2	MW-16	MW-16
QAQC Type:								N	N	N	N	N	N	DUP
Date Collected:								12/20/02	12/31/02	01/16/03	01/03/03	12/17/02	01/16/03	01/16/03
Analyte Type	**Method**	**Analyte**	**Units**	**CA Primary MCL**	**CA Secondary MCL**	**CA PHG**	**DHS Action Level**							
Herbicides	EPA 8151A	2,4,5-T	µg/L	--	--	--	--	0.23 U	0.22 UJ	0.22 UJ	0.22 UJ	0.23 UJ	0.22 UJ	0.22 UJ
Herbicides	EPA 8151A	2,4,5-TP	µg/L	50	--	--	--	0.1 U	0.1 U	0.096 U	0.1 U	0.1 U	0.096 U	0.096 U
Herbicides	EPA 8151A	2,4-D	µg/L	70	--	70	--	0.5 U	0.48 U	0.48 UJ	0.48 U	0.5 U	0.48 UJ	0.48 UJ
Herbicides	EPA 8151A	3,5-DICHLOROBENZOIC ACID	µg/L	--	--	--	--	--	0.48 U	--	--	0.5 U	--	--
Herbicides	EPA 8151A	4-NITROPHENOL	µg/L	--	--	--	--	--	0.48 U	--	--	0.5 U	--	--
Herbicides	EPA 8151A	ACIFLUORFEN	µg/L	--	--	--	--	--	0.96 U	--	--	1 U	--	--
Herbicides	EPA 8151A	BENTAZON	µg/L	18	--	200	--	0.5 U	0.48 U	0.48 U	0.48 U	0.5 U	0.48 U	0.48 U
Herbicides	EPA 8151A	CHLORAMBEN	µg/L	--	--	--	--	--	0.48 U	--	--	0.5 U	--	--
Herbicides	EPA 8151A	DACTHAL	µg/L	--	--	--	--	0.17 U	0.16 U	0.16 U	0.16 U	0.17 U	0.16 U	0.16 U
Herbicides	EPA 8151A	DALAPON	µg/L	200	--	790	--	1 U	0.96 U	0.96 U	0.96 U	1 U	0.96 U	0.96 U
Herbicides	EPA 8151A	DICAMBA	µg/L	--	--	--	--	0.1 U	0.1 U	0.096 U	0.1 U	0.1 U	0.096 U	0.096 U
Herbicides	EPA 8151A	DICHLOROPROP	µg/L	--	--	--	--	0.5 U	0.48 U	0.48 U	0.48 U	0.5 U	0.48 U	0.48 U
Herbicides	EPA 8151A	DINOSEB	µg/L	7	--	14	--	0.3 U	0.29 U	0.29 U	0.29 U	0.3 UJ	0.29 U	0.29 U
Herbicides	EPA 8151A	MCPA	µg/L	--	--	--	--	100 U	96 U	96 UJ	96 U	100 U	96 UJ	96 UJ
Herbicides	EPA 8151A	MCPP	µg/L	--	--	--	--	100 U	96 U	96 UJ	96 U	100 U	96 UJ	96 UJ
Herbicides	EPA 8151A	PENTACHLOROPHENOL	µg/L	1	--	0.4	--	0.1 U	0.1 U	0.096 U	0.1 U	0.1 U	0.096 U	0.096 U
Herbicides	EPA 8151A	PICLORAM	µg/L	500	--	500	--	0.21 U	0.2 U	0.2 U	0.2 U	0.21 U	0.2 U	0.2 U

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µg/L = micrograms per liter
XX = Bolding of value and qualifier means that the detection limit exceeds a CA Primary/Secondary MCL or DHS Action Level.
[ ] = Bolding and outlining of value and qualifier means that a detected value exceeds a CA Primary/Secondary MCL or DHS Action Level.

TABLE 3A-12

Summary of Dissolved Metals, Cyanide, and Hexavalent Chromium Data for JPL Monitoring Wells

Station ID:								MW-3-3	MW-3-3	MW-3-5	MW-3-5	MW-4-1	MW-4-1	MW-4-1	MW-4-2	MW-4-2	MW-4-2	MW-4-5	MW-4-5	MW-4-5	MW-7	MW-8
QAQC Type:								N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Date Collected:								12/20/02	02/24/03	02/24/03	02/27/03	12/27/02	12/30/02	01/02/03	12/27/02	12/30/02	01/02/03	12/30/02	01/02/03	01/10/03	01/16/03	01/17/03
Analyte Type	**Method**	**Analyte**	**Units**	**CA Primary MCL**	**CA Secondary MCL**	**CA PHG**	**DHS Action Level**															
Chromium (VI)	EPA 218.6	CHROMIUM (VI)	mg/L	--	--	0.0002	--	0.0002 U	--	--	0.0002 U	--	--	0.0002 U	--	--	0.0002 U	--	0.0002 U	--	0.0025	0.0002 U
Cyanide	EPA 335.2/335.3	CYANIDE	mg/L	0.15	--	0.15	--	--	0.021 U	0.021 U	--	0.024 U	--	--	0.024 U	--	--	--	--	0.024 U	0.024 U	0.024 U
Mercury	EPA/ML 245.1	MERCURY	µg/L	2	--	1.2	--	--	0.2 U	--	0.2 U	--	0.1 J	--	--	0.1 J	--	0.078 J	--	--	0.2 U	0.2 U
Metals	EPA 200.8	ALUMINUM	µg/L	1000	200	600	--	--	50 U	--	12 J	--	2.2 J	--	--	1.4 J	--	1.6 J	--	--	50 U	50 U
Metals	EPA 200.8	ANTIMONY	µg/L	6	--	20	--	--	0.5 U	--	0.1 J	--	0.7	--	--	0.2	--	0.2 J	--	--	0.4	1.8
Metals	EPA 200.8	ARSENIC	µg/L	50	--	--	--	--	1.4	--	0.5	--	1.2	--	--	1	--	0.9	--	--	0.6	1
Metals	EPA 200.8	BARIUM	µg/L	1000	--	--	--	--	73.9	--	41.4	--	108	--	--	106	--	15.7	--	--	52.9	52
Metals	EPA 200.8	BERYLLIUM	µg/L	4	--	--	--	--	0.2 U	--	0.2 U	--	0.2 U	--	--	0.2 U	--	0.2 U	--	--	0.2 U	0.2 U
Metals	EPA 200.8	BORON	µg/L	--	--	--	1000	--	154	--	9.2	--	57 J	--	--	59.2 J	--	188	--	--	78.2 J	122
Metals	EPA 200.8	CADMIUM	µg/L	5	--	0.07	--	--	0.2 U	--	0.2 U	--	0.2 U	--	--	0.2 U	--	0.2 U	--	--	0.2 U	0.2 U
Metals	EPA 200.8	CALCIUM	µg/L	--	--	--	--	--	29200	--	14600	--	94600 J	--	--	96000 J	--	17700	--	--	51700 J	52600 J
Metals	EPA 200.8	CHROMIUM	µg/L	50	--	--	--	--	2.4	--	4.1	--	3.7	--	--	4	--	1.8	--	--	6.4	0.5
Metals	EPA 200.8	COBALT	µg/L	--	--	--	--	--	0.2 U	--	0.2 U	--	0.1 J	--	--	0.095 J	--	0.055 J	--	--	0.071 J	0.079 J
Metals	EPA 200.8	COPPER	µg/L	--	1000	170	1300	--	4	--	3	--	1.4	--	--	1.3	--	1 U	--	--	1	2.7
Metals	EPA 200.8	IRON	µg/L	--	300	--	--	--	25 U	--	**983**	--	201	--	--	197	--	49.9	--	--	25 U	25 U
Metals	EPA 200.8	LEAD	µg/L	--	--	2	15	--	0.3	--	1.1	--	0.2	--	--	0.1 J	--	0.063 J	--	--	0.064 J	0.1 J
Metals	EPA 200.8	MAGNESIUM	µg/L	--	--	--	--	--	13600	--	2570	--	35700	--	--	36300	--	11400	--	--	16500	17100
Metals	EPA 200.8	MANGANESE	µg/L	--	50	--	500	--	34.1	--	49.7	--	3.6	--	--	3.6	--	**85.2**	--	--	0.1 J	0.2 J
Metals	EPA 200.8	NICKEL	µg/L	100	--	12	--	--	10 U	--	1.1 J	--	2.8 J	--	--	2.7 J	--	1.2 J	--	--	1 J	1.2 J
Metals	EPA 200.8	POTASSIUM	µg/L	--	--	--	--	--	3020	--	2340	--	2920	--	--	2920	--	2070	--	--	2670	2780
Metals	EPA 200.8	SELENIUM	µg/L	50	--	--	--	--	0.3	--	0.2 U	--	1.7	--	--	1.9	--	0.6	--	--	0.7	0.7
Metals	EPA 200.8	SILVER	µg/L	--	100	--	--	--	0.2 U	--	0.2 U	--	0.2 U	--	--	0.2 U	--	0.2 U	--	--	0.2 UJ	0.2 UJ
Metals	EPA 200.8	SODIUM	µg/L	--	--	--	--	--	47800	--	14500	--	40500	--	--	41300	--	41900	--	--	19400	18200
Metals	EPA 200.8	THALLIUM	µg/L	2	--	0.1	--	--	0.2 U	--	0.2 U	--	0.2 J	--	--	0.053 J	--	0.2 U	--	--	0.2 U	0.037 J
Metals	EPA 200.8	VANADIUM	µg/L	--	--	--	50	--	1.2	--	1.4	--	6.2	--	--	6.1	--	1.3	--	--	3	2.9
Metals	EPA 200.8	ZINC	µg/L	--	5000	--	--	--	50 U	--	80.7	--	5.2 J	--	--	4.9 J	--	50 U	--	--	16.6 J	19.7 J

Notes:

N = Normal Environmental Sample
DUP = Field Duplicate Sample
"--" = Sample was not analyzed using this method.
E = Analyte concentration is above calibration range
J = Estimated value
U = Not detected at the listed reporting limit.
UJ = The compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
µg/L = micrograms per liter
mg/L = milligrams per liter
XX = Bolding of value and qualifier means that the detection limit exceeds a CA Primary/Secondary MCL or DHS Action Level.
[ ] = Bolding and outlining of value and qualifier means that a detected value exceeds a CA Primary/Secondary MCL or DHS Action Level.

TABLE 3A-12
Summary of Dissolved Metals, Cyanide, and Hexavalent Chromium Data for JPL
Monitoring Wells

Station ID:								MW-10	MW-12-3	MW-12-3	MW-12-5	MW-12-5	MW-14-2	MW-14-2	MW-14-4	MW-14-4	MW-16	MW-16	MW-17-3	MW-17-4	MW-17-4	MW-17-4
QAQC Type:								N	N	N	N	N	N	N	N	N	N	DUP	N	N	N	N
Date Collected:								01/17/03	01/06/03	01/07/03	01/06/03	01/07/03	12/17/02	12/19/02	12/18/02	12/19/02	01/16/03	01/16/03	12/12/02	12/12/02	12/13/02	12/16/02
Analyte Type	**Method**	**Analyte**	**Units**	**CA Primary MCL**	**CA Secondary MCL**	**CA PHG**	**DHS Action Level**															
Chromium (VI)	EPA 218.6	CHROMIUM (VI)	mg/L	--	--	0.0002	--	0.00066	--	0.0001 U	--	0.0001 U	0.0001 U	--	0.0025	--	0.0002 U	0.0002 U	0.0001 U	--	0.0001 U	--
Cyanide	EPA 335.2/335.3	CYANIDE	mg/L	0.15	--	0.15	--	0.024 U	0.024 U	--	--	0.024 U	0.02 U	--	0.024 U	--	0.024 U	0.024 U	0.024 U	--	--	0.024
Mercury	EPA/ML 245.1	MERCURY	µg/L	2	--	1.2	--	0.2 U	0.2 U	--	0.2 U	--	--	0.1 U	--	0.082 U	0.2 U	0.2 U	0.082 J	0.076 J	--	--
Metals	EPA 200.8	ALUMINUM	µg/L	1000	200	600	--	50 U	1.2 J	--	2.4 J	--	--	3.1 U	--	1.6 U	50 U	50 U	50 U	1.2 J	--	--
Metals	EPA 200.8	ANTIMONY	µg/L	6	--	20	--	0.5	0.2 J	--	0.2 U	--	--	0.2 U	--	0.2 U	0.2	0.2 J	0.2 U	0.2 U	--	--
Metals	EPA 200.8	ARSENIC	µg/L	50	--	--	--	0.5	0.7	--	0.6	--	--	0.5 U	--	0.8	1.2	1.1	2.1	2.8	--	--
Metals	EPA 200.8	BARIUM	µg/L	1000	--	--	--	170	45.4	--	108	--	--	104 U	--	91.5 U	82.5	77.3	44.9	31.9	--	--
Metals	EPA 200.8	BERYLLIUM	µg/L	4	--	--	--	0.2 U	0.2 U	--	0.2 U	--	--	0.5 U	--	0.7	0.2 U	0.2 U	0.9	1.8	--	--
Metals	EPA 200.8	BORON	µg/L	--	--	--	1000	41.1 J	182	--	174	--	--	64.7 U	--	95.7 J	53.5 J	53.2 J	118	248	--	--
Metals	EPA 200.8	CADMIUM	µg/L	5	--	0.07	--	0.2 U	0.049 J	--	0.046 J	--	--	0.2 U	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	--	--
Metals	EPA 200.8	CALCIUM	µg/L	--	--	--	--	141000 J	48200 J	--	18400	--	--	142000 U	--	51000 U	54900 J	52700 J	35300	22500	--	--
Metals	EPA 200.8	CHROMIUM	µg/L	50	--	--	--	4.5	3.9	--	1.2	--	--	3.5 U	--	4.4	2	2.4	2.8	1.7	--	--
Metals	EPA 200.8	COBALT	µg/L	--	--	--	--	0.2 J	0.057 J	--	0.2 U	--	--	0.2 U	--	0.071 U	0.076 J	0.08 J	0.046 J	0.05 J	--	--
Metals	EPA 200.8	COPPER	µg/L	--	1000	170	1300	2.6	0.8 J	--	1.1	--	--	1.6 U	--	0.7 U	2	1 U	0.9 J	0.7 J	--	--
Metals	EPA 200.8	IRON	µg/L	--	300	--	--	25 U	116	--	45.5	--	--	25 U	--	25 U	25 U	25 U	25 U	25 U	--	--
Metals	EPA 200.8	LEAD	µg/L	--	--	2	15	0.3	0.09 J	--	0.2	--	--	0.079 J	--	0.2 U	0.1 J	0.2 U	0.1 J	0.2 U	--	--
Metals	EPA 200.8	MAGNESIUM	µg/L	--	--	--	--	46700	16400	--	334	--	--	49100 U	--	19200 U	19700	20100	19000	7970	--	--
Metals	EPA 200.8	MANGANESE	µg/L	--	50	--	500	0.4	2.9	--	0.1 J	--	--	0.5 U	--	1.3	0.4	0.4	5.5	8.6	--	--
Metals	EPA 200.8	NICKEL	µg/L	100	--	12	--	5.7 J	1 J	--	0.7 J	--	--	3 U	--	1.4 U	4.1 J	4.3 J	0.7 J	0.5 J	--	--
Metals	EPA 200.8	POTASSIUM	µg/L	--	--	--	--	3240	2950	--	3720	--	--	2580 U	--	2140 U	2620	2620	2330	2010	--	--
Metals	EPA 200.8	SELENIUM	µg/L	50	--	--	--	1.1	0.5	--	0.3	--	--	0.6 U	--	0.5 U	1.1	1	0.2 U	0.2 U	--	--
Metals	EPA 200.8	SILVER	µg/L	--	100	--	--	0.024 J	0.2 U	--	0.2 U	--	--	0.2 U	--	0.2 U	0.2 UJ	0.2 UJ	0.2 U	0.2 U	--	--
Metals	EPA 200.8	SODIUM	µg/L	--	--	--	--	33300	24200	--	25700	--	--	33400 U	--	29500 U	26300	26600	23600	43200	--	--
Metals	EPA 200.8	THALLIUM	µg/L	2	--	0.1	--	0.2 U	0.2 U	--	0.2 U	--	--	0.2 U	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	--	--
Metals	EPA 200.8	VANADIUM	µg/L	--	--	--	50	5	2.8	--	0.8	--	--	6.4 U	--	11.8	6.2	6.3	11.5	6.9	--	--
Metals	EPA 200.8	ZINC	µg/L	--	5000	--	--	20.1 J	9.2 J	--	4.6 J	--	--	6 U	--	3.9 U	22 J	17 J	4 J	50 U	--	--

Notes:

N = Normal Environmental Sample
DUP = Field Duplicate Sample
"--" = Sample was not analyzed using this method.
E = Analyte concentration is above calibration range
J = Estimated value
U = Not detected at the listed reporting limit.
UJ = The compound or analyte was analyzed for but not detected. The sample detection limit is an estimatec
µg/L = micrograms per liter
mg/L = milligrams per liter
XX = Bolding of value and qualifier means that the detection limit exceeds a CA Primary/Secondary MCL or DHS Action Level.
[ ] = Bolding and outlining of value and qualifier means that a detected value exceeds a CA Primary/Seconda MCL or DHS Action Level.

J

TABLE 3A-12

Summary of Dissolved Metals, Cyanide, and Hexavalent Chromium Data for JPL Monitoring Wells

Station ID:								MW-17-4	MW-17-4	MW-18-3	MW-18-4	MW-18-4	MW-19-3	MW-19-3	MW-19-5	MW-21-3	MW-21-3	MW-21-5	MW-21-5	MW-24-2	MW-24-2
QAQC Type:								DUP	DUP	N	N	N	N	N	N	N	N	N	N	N	N
Date Collected:								12/12/02	12/13/02	12/10/02	12/11/02	02/27/03	12/06/02	12/09/02	12/09/02	12/04/02	12/05/02	12/05/02	12/06/02	01/08/03	01/09/03
Analyte Type	**Method**	**Analyte**	**Units**	**CA Primary MCL**	**CA Secondary MCL**	**CA PHG**	**DHS Action Level**														
Chromium (VI)	EPA 218.6	CHROMIUM (VI)	mg/L	--	--	0.0002	--	--	0.0001 U	0.0027	0.00085	--	0.00049	--	0.0001 U	0.00079	--	--	0.0022	--	0.0002 U
Cyanide	EPA 335.2/335.3	CYANIDE	mg/L	0.15	--	0.15	--	U --	--	0.024 U	0.024 U	0.021 U	0.024 U	--	0.024 U	0.024 U	--	--	0.024 U	--	0.024 U
Mercury	EPA/ML 245.1	MERCURY	µg/L	2	--	1.2	--	0.086 J	--	0.087 J	0.066 U	--	--	0.059 J	0.058 J	--	0.059 J	0.2 U	--	0.2 U	--
Metals	EPA 200.8	ALUMINUM	µg/L	1000	200	600	--	50 U	--	50 U	50 U	--	--	50 U	50 U	--	5.9 J	173	--	1.3 J	--
Metals	EPA 200.8	ANTIMONY	µg/L	6	--	20	--	0.2 U	--	0.2 U	0.2 U	--	--	0.2 U	0.2 U	--	0.2 U	0.2 U	--	0.091 J	--
Metals	EPA 200.8	ARSENIC	µg/L	50	--	--	--	2.8	--	1.5	1	--	--	1	0.5	--	0.7	1	--	2	--
Metals	EPA 200.8	BARIUM	µg/L	1000	--	--	--	41.8	--	48.6	47	--	--	194	54.5	--	175	122	--	72.5	--
Metals	EPA 200.8	BERYLLIUM	µg/L	4	--	--	--	1.8	--	1.3	1	--	--	0.6	0.6	--	0.4	0.7	--	0.2 U	--
Metals	EPA 200.8	BORON	µg/L	--	--	--	1000	236	--	174	139	--	--	84.9 J	86 J	--	54.6 J	90.5 J	--	205	--
Metals	EPA 200.8	CADMIUM	µg/L	5	--	0.07	--	0.2 U	--	0.2 U	0.2 U	--	--	0.2 U	0.2 U	--	0.2 U	0.2 U	--	0.2 U	--
Metals	EPA 200.8	CALCIUM	µg/L	--	--	--	--	21600	--	57500 J	43400	--	--	131000 J	49700	--	132000	95700	--	38700	--
Metals	EPA 200.8	CHROMIUM	µg/L	50	--	--	--	1.5	--	7.2	3.2	--	--	4.1	2.5	--	4.2	9.2	--	2.8	--
Metals	EPA 200.8	COBALT	µg/L	--	--	--	--	0.2 U	--	0.06 J	0.044 J	--	--	0.1 J	0.043 J	--	0.2 J	0.3	--	0.045 J	--
Metals	EPA 200.8	COPPER	µg/L	--	1000	170	1300	0.7 J	--	0.8 J	0.7 U	--	--	1.3	1.4	--	1	1.4	--	0.7 J	--
Metals	EPA 200.8	IRON	µg/L	--	300	--	--	25 U	--	25 U	25 U	--	--	25 U	25 U	--	**396**	**1650**	--	90.4	--
Metals	EPA 200.8	LEAD	µg/L	--	--	2	15	0.2 U	--	0.058 J	0.2 U	--	--	0.3	0.1 J	--	0.3	0.6	--	0.048 J	--
Metals	EPA 200.8	MAGNESIUM	µg/L	--	--	--	--	7840	--	19600	14200	--	--	45100	31800	--	39100	31300	--	22000	--
Metals	EPA 200.8	MANGANESE	µg/L	--	50	--	500	8.5	--	0.3	0.6	--	--	6.5	**86.6**	--	2	12.9	--	28.5	--
Metals	EPA 200.8	NICKEL	µg/L	100	--	12	--	0.5 J	--	1.4 J	0.9 J	--	--	2.5 J	1.4 J	--	3.4 J	10 U	--	0.8 J	--
Metals	EPA 200.8	POTASSIUM	µg/L	--	--	--	--	1980	--	3080	1900	--	--	3120	2900	--	3080	2840	--	3200	--
Metals	EPA 200.8	SELENIUM	µg/L	50	--	--	--	0.2 U	--	0.2 U	0.2 U	--	--	0.8	0.5	--	2	1.3	--	1.2	--
Metals	EPA 200.8	SILVER	µg/L	--	100	--	--	0.2 U	--	0.2 U	0.2 U	--	--	0.2 U	0.2 U	--	0.2 U	0.2 U	--	0.2 U	--
Metals	EPA 200.8	SODIUM	µg/L	--	--	--	--	42700	--	23200	29400	--	--	34300	34700	--	39300	34200	--	48300	--
Metals	EPA 200.8	THALLIUM	µg/L	2	--	0.1	--	0.2 U	--	0.2 U	0.2 U	--	--	0.033 J	0.2 U	--	0.2 U	0.033 J	--	0.2 U	--
Metals	EPA 200.8	VANADIUM	µg/L	--	--	--	50	6.7	--	9.2	7.5	--	--	14.4	4.3	--	6.9	7.9	--	6.5	--
Metals	EPA 200.8	ZINC	µg/L	--	5000	--	--	50 U	--	3.7 J	11.4 U	--	--	4.7 J	4.2 J	--	15.9 J	42.2 J	--	50 U	--

Notes:

N = Normal Environmental Sample
DUP = Field Duplicate Sample
"--" = Sample was not analyzed using this method.
E = Analyte concentration is above calibration range
J = Estimated value
U = Not detected at the listed reporting limit.
UJ = The compound or analyte was analyzed for but not detected. The sample detection limit is an estimatec
µg/L = micrograms per liter
mg/L = milligrams per liter
XX = Bolding of value and qualifier means that the detection limit exceeds a CA Primary/Secondary MCL or DHS Action Level.
[ ] = Bolding and outlining of value and qualifier means that a detected value exceeds a CA Primary/Seconda MCL or DHS Action Level.

TABLE 3A-13

Summary of General Mineral, Physical, and Radiological Parameter Data for JPL Monitoring Wels

Station ID:								MW-3-3	MW-3-3	MW-3-5	MW-4-1	MW-4-2	MW-4-2	MW-4-2	MW-4-5	MW-7	MW-8	MW-10	MW-12-3
QAQC Type:								N	N	N	N	N	N	N	N	N	N	N	N
Date Collected:								12/20/02	02/24/03	02/27/03	12/27/02	12/27/02	12/31/02	01/02/03	01/02/03	01/16/03	01/17/03	01/17/03	01/03/03
Analyte Type	**Method**	**Analyte**	**Units**	**CA Primary MCL**	**CA Secondary MCL**	**CA PHG**	**DHS Action Level**												
Alkalinity	EPA 310.1	ALKALINITY	mg/L	--	--	--	--	135	--	--	--	--	230	--	--	123	156	222	169
Anions	EPA 300.0	BROMIDE	mg/L	--	--	--	--	2 U	--	0.5 U	1 U	--	2 U	--	1 U	0.44 B	0.5 U	4 U	0.8 U
Anions	EPA 300.0	CHLORIDE	mg/L	--	250	--	--	43.6	--	8.4	28.8	--	92.9	--	20.9	31	19.6	141	15.2
Anions	EPA 300.0	FLUORIDE	mg/L	2	--	1	--	1.3 B	--	**4.1**	1	--	1.5	--	0.75	1.2	0.86	2 B	1.1
Anions	EPA 300.0	NITRATE (NO3-) AS N	mg/L	45	--	10	--	1 U	--	0.25 U	6.3	--	8.3	--	0.29	9.1	3.4	17.4	0.64
Anions	EPA 300.0	NITRITE (AS N)	mg/L	1	--	0.001	--	1 U	--	0.25 U	0.5 U	--	0.1 U	--	0.1 U	0.5 U	0.25 U	**2 U**	0.4 U
Anions	EPA 300.0	SULFATE (SO4--)	mg/L	--	250	--	--	36.7	--	14.5	55.3	--	107	--	19.5	36.8	44.4	189	36.9
BOD	EPA 405.1	BIOLOGIC OXYGEN DEMAND	mg O2/L	--	--	--	--	0.88 B	--	--	--	--	2 B	--	--	2.5 B	3 U	1.5 B	3 U
COD	EPA 410.4	CHEMICAL OXYGEN DEMAND	mg O2/L	--	--	--	--	--	5 U	--	--	--	--	5 U	--	5 U	5 U	5 U	--
Color	EPA 110.2	COLOR	COLOR	--	15	--	--	5	--	10	5	--	5	--	5	1 U	5	5	5
Hardness (Total) as CaCO3	EPA 130	HARDNESS (TOTAL) AS CACO3	mg/L	--	--	--	--	146	--	--	--	--	382	--	--	197	205	562	186
MBAS	EPA 425.1	FOAMING AGENTS (MBAS)	mg/L	--	0.5	--	--	0.05 U	--	0.021 U	0.05 U	--	0.05 U	--	0.05 U	0.049 U	0.049 U	0.049 U	0.05
pH	EPA 9040B	PH	UNIT	--	6.5	--	--	**7.96**	--	**9.39**	**7.05**	--	**7.16**	--	**8.37**	**7.2**	**6.93**	**6.77**	**7.01**
RAD	ML/EPA 900.0	ALPHA, GROSS	PCI/L	15	--	--	--	0.447 U	--	--	--	--	--	9.76	--	1.4	2.41	3.34	--
RAD	ML/EPA 900.0	BETA, GROSS	PCI/L	50	--	--	--	1.12 U	--	--	--	--	--	9.16	--	3.16	3.93	2.4	--
TDS	EPA 160.1	TOTAL DISSOLVED SOLIDS (TDS)	mg/L	--	500	--	--	253	--	271	350	--	**608**	--	182	301	311	**821**	253
TOC	415.1	TOTAL ORGANIC CARBON	mg/L	--	--	--	--	--	1.2	--	--	--	--	1 U	--	7.3	5.9	6.4	--
TPH - Diesel	EPA 8015M	TPH-DIESEL	mg/L	--	--	--	--	0.01 J	--	--	--	0.96 U	--	--	--	0.96 U	--	0.96 U	0.96 U
TPH - Gasoline	EPA 8015M	TPH-GASOLINE	mg/L	--	--	--	--	--	0.1 UB	--	--	--	--	0.1 UB	--	0.1 UB	--	0.1 UB	--
TPH - Motor Oils	EPA 8015M	TPH-MOTOR OILS	mg/L	--	--	--	--	0.03 J	--	--	--	0.09 J	--	--	--	0.96 U	--	0.96 U	0.96 U
Turbidity	EPA 180.1	TURBIDITY	NTU	--	5	--	--	1.6	--	**5.3**	**21.3**	--	2.7	--	**12.2**	1.6	1.7	2.2	1.9

Notes:

N = Normal Environmental Sample
DUP = Field Duplicate Sample
"--" = Sample was not analyzed using this method.
B = Analyte is present in method blank
F = Analyte confirmation on secondary column
J = Estimated value
U = Not detected at the listed reporting limit.
UR = Not detected at the listed reporting limit. Quality control indicates the data are not usable.
µg/L = micrograms per liter
mg/L = milligrams per liter
NTU = Nephelometric Turbidity Units
mg O2/L = milligrams of oxygen per liter
pCi/L = picocuries per liter
XX = Bolding of value and qualifier means that the detection limit exceeds a CA Primary/Secondary MCL or DHS Action Level.
[ ] = Bolding and outlining of value and qualifier means that a detected value exceeds a CA Primary/Secondary MCL or DHS Action Level.

TABLE 3A-13

Summary of General Mineral, Physical, and Radiological Parameter Data for JPL Monitoring Wels

Station ID:								MW-12-3	MW-12-5	MW-14-2	MW-14-4	MW-14-4	MW-16	MW-16	MW-17-3	MW-17-4	MW-17-4	MW-17-4
QAQC Type:								N	N	N	N	N	N	DUP	N	N	N	DUP
Date Collected:								01/06/03	01/07/03	12/17/02	12/18/02	12/20/02	01/16/03	01/16/03	12/12/02	12/13/02	12/16/02	12/13/02
Analyte Type	**Method**	**Analyte**	**Units**	**CA Primary MCL**	**CA Secondary MCL**	**CA PHG**	**DHS Action Level**											
Alkalinity	EPA 310.1	ALKALINITY	mg/L	--	--	--	--	--	--	240	--	--	169	171	--	148	--	146
Anions	EPA 300.0	BROMIDE	mg/L	--	--	--	--	--	0.5 U	4 U	1.6 U	--	2 U	2 U	0.4 U	0.4 U	--	0.4 U
Anions	EPA 300.0	CHLORIDE	mg/L	--	250	--	--	--	16.4	111	41	--	46.2	45.3	12.7	11.8	--	11.7
Anions	EPA 300.0	FLUORIDE	mg/L	2	--	1	--	--	1.1	**4 U**	**2.1**	--	1.4 B	1.4 B	0.83	0.96	--	0.93
Anions	EPA 300.0	NITRATE (NO3-) AS N	mg/L	45	--	10	--	--	1.6	15	0.8 U	--	4	4.2	1.5	0.41	--	0.42
Anions	EPA 300.0	NITRITE (AS N)	mg/L	1	--	0.001	--	--	0.100 U	**2 U**	0.8 U	--	1 U	1 U	0.2 U	0.2 U	--	0.2 U
Anions	EPA 300.0	SULFATE (SO4--)	mg/L	--	250	--	--	--	12.6	176	35.5	--	33.5	33.8	30.1	14.6	--	14.4
BOD	EPA 405.1	BIOLOGIC OXYGEN DEMAND	mg O2/L	--	--	--	--	--	--	1.2 F	--	--	2.5 B	2.7 B	--	3 U	--	0.73 B
COD	EPA 410.4	CHEMICAL OXYGEN DEMAND	mg O2/L	--	--	--	--	5 U	--	5 U	--	--	5 U	5 U	--	--	5 U	--
Color	EPA 110.2	COLOR	COLOR	--	15	--	--	--	5	5	1 U	--	1 U	1 U	**25**	5	--	5
Hardness (Total) as CaCO3	EPA 130	HARDNESS (TOTAL) AS CACO3	mg/L	--	--	--	--	--	--	564	--	--	218	220	--	96.9	--	89
MBAS	EPA 425.1	FOAMING AGENTS (MBAS)	mg/L	--	0.5	--	--	--	0.049 U	0.05 UR	0.05 U	--	0.049 U	0.049 U	0.05 U	0.05 U	--	0.05 U
pH	EPA 9040B	PH	UNIT	--	6.5	--	--	--	**7.71**	**7.39**	**7.56**	--	**7.24**	**7.29**	**7.95**	**7.94**	--	**8.09**
RAD	ML/EPA 900.0	ALPHA, GROSS	PCI/L	15	--	--	--	7.75	--	1.54	--	1.85	3.81	2.01	--	--	2.22	--
RAD	ML/EPA 900.0	BETA, GROSS	PCI/L	50	--	--	--	4.62	--	2.09	--	3.69	5.67	3.29	--	--	3.78	--
TDS	EPA 160.1	TOTAL DISSOLVED SOLIDS (TDS)	mg/L	--	500	--	--	--	232	**967**	372	--	342	335	221	190	--	202
TOC	415.1	TOTAL ORGANIC CARBON	mg/L	--	--	--	--	1 U	--	3.7	--	--	7	6.1	--	--	0.51 B	--
TPH - Diesel	EPA 8015M	TPH-DIESEL	mg/L	--	--	--	--	--	--	1 U	--	--	0.96 U	0.96 U	--	0.01 J	--	0.01 J
TPH - Gasoline	EPA 8015M	TPH-GASOLINE	mg/L	--	--	--	--	0.1 UB	--	0.05 U	--	--	0.1 UB	0.1 UB	--	--	0.1 UB	--
TPH - Motor Oils	EPA 8015M	TPH-MOTOR OILS	mg/L	--	--	--	--	--	--	1 U	--	--	0.96 U	0.96 U	--	0.96 U	--	0.96 U
Turbidity	EPA 180.1	TURBIDITY	NTU	--	5	--	--	--	4.8	**5.7**	1.1	--	1.5	1.4	**38**	**15.4**	--	**29**

Notes:

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µg/L = micrograms per liter
mg/L = milligrams per liter
NTU = Nephelometric Turbidity Units
mg O2/L = milligrams of oxygen per liter
pCi/L = picocuries per liter
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J

TABLE 3A-13

Summary of General Mineral, Physical, and Radiological Parameter Data for JPL Monitoring Wels

Station ID:								MW-17-4	MW-18-3	MW-18-4	MW-19-3	MW-19-5	MW-21-3	MW-21-5	MW-21-5	MW-24-2	MW-24-2
QAQC Type:								DUP	N	N	N	N	N	N	N	N	N
Date Collected:								12/16/02	12/10/02	12/11/02	12/06/02	12/09/02	12/04/02	12/05/02	12/06/02	01/08/03	01/09/03
Analyte Type	**Method**	**Analyte**	**Units**	**CA Primary MCL**	**CA Secondary MCL**	**CA PHG**	**DHS Action Level**										
Alkalinity	EPA 310.1	ALKALINITY	mg/L	--	--	--	--	--	--	161	273	--	--	210	--	164	--
Anions	EPA 300.0	BROMIDE	mg/L	--	--	--	--	--	0.5 U	0.120 B	4 U	2 U	2.5 U	2 U	--	2 U	--
Anions	EPA 300.0	CHLORIDE	mg/L	--	250	--	--	--	18.9	12.1	101	68.4	108	69.4	--	53.4	--
Anions	EPA 300.0	FLUORIDE	mg/L	2	--	1	--	--	0.840	0.900	**4 U**	2 U	1.5 B	0.740 B	--	1.3 B	--
Anions	EPA 300.0	NITRATE (NO3-) AS N	mg/L	45	--	10	--	--	1.1	1.3	10.3	1.2	9.5	7.4	--	2.8	--
Anions	EPA 300.0	NITRITE (AS N)	mg/L	1	--	0.001	--	--	0.25 U	0.130 U	**2 U**	1 U	**1.3 U**	1 U	--	1 U	--
Anions	EPA 300.0	SULFATE (SO4--)	mg/L	--	250	--	--	--	42.2	27.1	111	65.8	117	99.4	--	45.1	--
BOD	EPA 405.1	BIOLOGIC OXYGEN DEMAND	mg O2/L	--	--	--	--	--	--	4.7 U	1.1 B	--	--	3 U	--	0.670 B	--
COD	EPA 410.4	CHEMICAL OXYGEN DEMAND	mg O2/L	--	--	--	--	5 U	--	5 U	5 U	--	--	5 U	--	--	5 U
Color	EPA 110.2	COLOR	COLOR	--	15	--	--	--	1 U	1 U	1 U	5	1 U	5	--	1 U	--
Hardness (Total) as CaCO3	EPA 130	HARDNESS (TOTAL) AS CACO3	mg/L	--	--	--	--	--	--	156	509	--	--	372	--	207	--
MBAS	EPA 425.1	FOAMING AGENTS (MBAS)	mg/L	--	0.5	--	--	--	0.062	0.049 U	0.049 U	0.069	0.07	0.049 U	--	0.049 U	--
pH	EPA 9040B	PH	UNIT	--	6.5	--	--	--	**7.96**	**7.92**	**7.39**	**8.17**	**7.39**	**7.78**	--	**7.86**	--
RAD	ML/EPA 900.0	ALPHA, GROSS	PCI/L	15	--	--	--	3.04	--	5.17	8.49	--	--	--	13.5	--	8.68
RAD	ML/EPA 900.0	BETA, GROSS	PCI/L	50	--	--	--	3.63	--	3.82	8.87	--	--	--	8.85	--	5.53
TDS	EPA 160.1	TOTAL DISSOLVED SOLIDS (TDS)	mg/L	--	500	--	--	--	326	239	**837**	383	**669**	**526**	--	343	--
TOC	415.1	TOTAL ORGANIC CARBON	mg/L	--	--	--	--	1.6	--	3.3 U	1.8	--	--	--	1.6	--	1.3 U
TPH - Diesel	EPA 8015M	TPH-DIESEL	mg/L	--	--	--	--	--	--	0.96 U	0.96 U	--	--	0.96 U	--	--	0.02 J
TPH - Gasoline	EPA 8015M	TPH-GASOLINE	mg/L	--	--	--	--	--	--	0.1 UB	0.1 UB	--	--	0.1 UB	--	--	0.1 UB
TPH - Motor Oils	EPA 8015M	TPH-MOTOR OILS	mg/L	--	--	--	--	--	--	0.96 U	0.96 U	--	--	0.96 U	--	--	0.96 U
Turbidity	EPA 180.1	TURBIDITY	NTU	--	5	--	--	--	--	2.4	--	--	0.27 B	**11.6**	--	3.2 U	--

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NTU = Nephelometric Turbidity Units
mg O2/L = milligrams of oxygen per liter
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TABLE 3A-14

Summary of 1,4-Dioxane, Nitrosamines, Perchlorate, and Chlorate Data for JPL Monitoring Wells

Station ID:								MW-3-3	MW-3-3	MW-3-3	MW-3-5	MW-3-5	MW-4-1	MW-4-1	MW-4-1	MW-4-1	MW-4-2	MW-4-2	MW-4-2	MW-4-2
QAQC Type:								N	N	N	N	N	N	N	N	N	N	N	N	N
Date Collected:								10/28/02	12/20/02	02/24/03	10/28/02	02/27/03	10/30/02	12/27/02	12/30/02	01/02/03	10/30/02	12/27/02	12/30/02	01/02/03
Analyte Type	**Method**	**Analyte**	**Units**	**CA Primary MCL**	**CA Secondary MCL**	**CA PHG**	**DHS Action Level**													
1,4-Dioxane	EPA 8270 SIM	1,4-DIOXANE	µg/L	--	--	--	3	--	0.6 J	--	--	1 U	--	1.2	--	--	--	1.1	--	--
Anions	EPA 300.0	CHLORATE	mg/L	--	--	--	--	--	--	0.100 U	--	0.100 U	--	--	0.099 J	--	--	--	0.52	--
NDMA	MOE MSABN-E3291A	N-NITROSODI-N-PROPYLAMINE	µg/L	--	--	--	--	--	--	0.005 U	--	0.125	--	--	--	0.005 UJ	--	--	--	0.005 UJ
NDMA	MOE MSABN-E3291A	N-NITROSODIMETHYLAMINE (NDMA)	µg/L	--	--	--	0.01	--	--	0.00044 J	--	0.00575	--	--	--	0.002 U	--	--	--	0.002 U
NDMA	MOE MSABN-E3291A	N-NITROSODIPHENYLAMINE	µg/L	--	--	--	--	--	--	0.005 U	--	0.0249 J	--	--	--	0.00178 J	--	--	--	0.005 UJ
Perchlorate	EPA 314	PERCHLORATE	µg/L	--	--	--	4	4 U	--	--	4 U	--	**28.7**	--	--	--	4 U	--	--	--

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µg/L = micrograms per liter
mg/L = milligrams per liter
XX = Bolding of value and qualifier means that the detection limit exceeds a CA Primary/Secondary MCL or DHS Action Level.
[ ] = Bolding and outlining of value and qualifier means that a detected value exceeds a CA Primary/Secondary MCL or DHS Action Level.

TABLE 3A-14

Summary of 1,4-Dioxane, Nitrosamines, Perchlorate, and Chlorate Data for JPL Monitoring Wells

Station ID:								**MW-4-2**	**MW-4-5**	**MW-4-5**	**MW-4-5**	**MW-7**	**MW-7**	**MW-8**	**MW-8**	**MW-10**	**MW-10**	**MW-12-3**	**MW-12-3**	**MW-12-3**
QAQC Type:								DUP	N	N	DUP	N	N	N	N	N	N	N	N	N
Date Collected:								10/30/02	12/30/02	01/02/03	01/02/03	11/06/02	01/16/03	11/06/02	01/17/03	11/05/02	01/17/03	10/15/02	01/03/03	01/06/03
Analyte Type	**Method**	**Analyte**	**Units**	**CA Primary MCL**	**CA Secondary MCL**	**CA PHG**	**DHS Action Level**													
1,4-Dioxane	EPA 8270 SIM	1,4-DIOXANE	µg/L	--	--	--	3	--	--	1 U	--	--	3	--	1 U	--	1	--	1.7	--
Anions	EPA 300.0	CHLORATE	mg/L	--	--	--	--	--	0.1 U	--	--	--	0.1 U	--	0.1 U	--	0.875	--	--	0.1 U
NDMA	MOE MSABN-E3291A	N-NITROSODI-N-PROPYLAMINE	µg/L	--	--	--	--	--	--	0.005 UJ	--	--	0.005 U	--	0.005 U	--	0.005 U	--	--	--
NDMA	MOE MSABN-E3291A	N-NITROSODIMETHYLAMINE (NDMA)	µg/L	--	--	--	0.01	--	--	0.002 U	--	--	0.00366	--	0.00209 U	--	0.00314 U	--	--	--
NDMA	MOE MSABN-E3291A	N-NITROSODIPHENYLAMINE	µg/L	--	--	--	--	--	--	0.00148 J	--	--	0.00174 J	--	0.00166 J	--	0.00201 J	--	--	--
Perchlorate	EPA 314	PERCHLORATE	µg/L	--	--	--	4	4 U	--	3.6	2.5 B	**13300**	--	**127**	--	4 U	--	4 U	--	--

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mg/L = milligrams per liter
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J

TABLE 3A-14

Summary of 1,4-Dioxane, Nitrosamines, Perchlorate, and Chlorate Data for JPL Monitoring Wells

Station ID:								**MW-12-3**	**MW-12-5**	**MW-12-5**	**MW-12-5**	**MW-14-2**	**MW-14-2**	**MW-14-2**	**MW-14-2**	**MW-14-4**	**MW-14-4**	**MW-14-4**	**MW-16**
QAQC Type:								N	N	N	N	N	N	N	N	N	N	N	N
Date Collected:								01/07/03	10/15/02	01/06/03	01/07/03	10/31/02	12/17/02	12/18/02	12/19/02	10/31/02	12/18/02	12/19/02	11/05/02
Analyte Type	**Method**	**Analyte**	**Units**	**CA Primary MCL**	**CA Secondary MCL**	**CA PHG**	**DHS Action Level**												
1,4-Dioxane	EPA 8270 SIM	1,4-DIOXANE	µg/L	--	--	--	3	--	--	--	1 U	--	1.2	--	--	--	1 U	--	--
Anions	EPA 300.0	CHLORATE	mg/L	--	--	--	--	--	--	0.1 U	--	--	--	--	0.8 J	--	--	0.265	--
NDMA	MOE MSABN-E3291A	N-NITROSODI-N-PROPYLAMINE	µg/L	--	--	--	--	0.005 U	--	--	0.005 U	--	--	0.005 U	--	--	0.005 U	--	--
NDMA	MOE MSABN-E3291A	N-NITROSODIMETHYLAMINE (NDMA)	µg/L	--	--	--	0.01	0.002 UB	--	--	0.002 UB	--	--	0.002 UB	--	--	0.002 UB	--	--
NDMA	MOE MSABN-E3291A	N-NITROSODIPHENYLAMINE	µg/L	--	--	--	--	0.005 U	--	--	0.005 U	--	--	0.00258 J	--	--	0.00173 J	--	--
Perchlorate	EPA 314	PERCHLORATE	µg/L	--	--	--	4	--	4 U	--	--	4 U	--	--	--	4 U	--	--	**1920**

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mg/L = milligrams per liter
XX = Bolding of value and qualifier means that the detection limit exceeds a CA Primary/Secondary MCL or DHS Action Level.
[ ] = Bolding and outlining of value and qualifier means that a detected value exceeds a CA Primary/Secondary MCL or DHS Action Level.

TABLE 3A-14

Summary of 1,4-Dioxane, Nitrosamines, Perchlorate, and Chlorate Data for JPL Monitoring Wells

Station ID:								MW-16	MW-16	MW-16	MW-16	MW-17-3	MW-17-3	MW-17-3	MW-17-4	MW-17-4	MW-17-4	MW-17-4	MW-17-4
QAQC Type:								N	DUP	DUP	DUP	N	N	N	N	N	N	N	DUP
Date Collected:								01/16/03	11/05/02	01/16/03	01/17/03	11/01/02	12/12/02	12/26/02	11/01/02	12/12/02	12/13/02	01/13/03	12/12/02
Analyte Type	**Method**	**Analyte**	**Units**	**CA Primary MCL**	**CA Secondary MCL**	**CA PHG**	**DHS Action Level**												
1,4-Dioxane	EPA 8270 SIM	1,4-DIOXANE	µg/L	--	--	--	3	3	--	3	--	--	0.96 U	--	--	--	0.96 U	--	--
Anions	EPA 300.0	CHLORATE	mg/L	--	--	--	--	0.11	--	0.1 U	--	--	0.100 U	--	--	0.1 U	--	--	0.1 U
NDMA	MOE MSABN-E3291A	N-NITROSODI-N-PROPYLAMINE	µg/L	--	--	--	--	0.005 U	--	--	0.005 U	--	--	0.005 U	--	--	--	0.005 U	--
NDMA	MOE MSABN-E3291A	N-NITROSODIMETHYLAMINE (NDMA)	µg/L	--	--	--	0.01	0.0023 U	--	--	0.00229 U	--	--	0.002 UB	--	--	--	0.002 UB	--
NDMA	MOE MSABN-E3291A	N-NITROSODIPHENYLAMINE	µg/L	--	--	--	--	0.00143 J	--	--	0.0021 J	--	--	0.00227 J	--	--	--	0.00312 J	--
Perchlorate	EPA 314	PERCHLORATE	µg/L	--	--	--	4	--	**2000**	--	--	**115**	--	--	4 U	--	--	--	--

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mg/L = milligrams per liter
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TABLE 3A-14

Summary of 1,4-Dioxane, Nitrosamines, Perchlorate, and Chlorate Data for JPL Monitoring Wells

Station ID:								**MW-17-4**	**MW-18-3**	**MW-18-3**	**MW-18-3**	**MW-18-4**	**MW-18-4**	**MW-18-4**	**MW-19-3**	**MW-19-3**	**MW-19-3**	**MW-19-5**	**MW-19-5**
QAQC Type:								DUP	N	N	N	N	N	N	N	N	N	N	N
Date Collected:								12/13/02	11/04/02	12/10/02	01/20/03	11/04/02	12/11/02	01/20/03	10/21/02	12/06/02	12/09/02	10/21/02	12/09/02
Analyte Type	**Method**	**Analyte**	**Units**	**CA Primary MCL**	**CA Secondary MCL**	**CA PHG**	**DHS Action Level**												
1,4-Dioxane	EPA 8270 SIM	1,4-DIOXANE	µg/L	--	--	--	3	0.96 U	--	0.96 U	--	--	1.9	--	--	0.96 U	--	--	0.96 U
Anions	EPA 300.0	CHLORATE	mg/L	--	--	--	--	--	--	0.073 J	--	--	0.100 U	--	--	--	0.549	--	0.100 U
NDMA	MOE MSABN-E3291A	N-NITROSODI-N-PROPYLAMINE	µg/L	--	--	--	--	--	--	--	0.005 U	--	--	0.005 U	--	--	0.005 U	--	0.005 U
NDMA	MOE MSABN-E3291A	N-NITROSODIMETHYLAMINE (NDMA)	µg/L	--	--	--	0.01	--	--	--	0.002 UB	--	--	0.002 UB	--	--	0.002 U	--	0.002 U
NDMA	MOE MSABN-E3291A	N-NITROSODIPHENYLAMINE	µg/L	--	--	--	--	--	--	--	0.005 U	--	--	0.005 U	--	--	0.00334 J	--	0.00617
Perchlorate	EPA 314	PERCHLORATE	µg/L	--	--	--	4	--	4 U	--	--	**28.2**	--	--	4 U	--	--	4 U	--

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UJ = The compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
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[ ] = Bolding and outlining of value and qualifier means that a detected value exceeds a CA Primary/Secondary MCL or DHS Action Level.

TABLE 3A-14

Summary of 1,4-Dioxane, Nitrosamines, Perchlorate, and Chlorate Data for JPL Monitoring Wells

Station ID:								**MW-19-5**	**MW-21-3**	**MW-21-3**	**MW-21-3**	**MW-21-3**	**MW-21-5**	**MW-21-5**	**MW-24-2**	**MW-24-2**
QAQC Type:								DUP	N	N	N	N	N	N	N	N
Date Collected:								10/21/02	10/18/02	12/04/02	12/05/02	01/13/03	10/18/02	12/05/02	10/29/02	01/08/03
Analyte Type	**Method**	**Analyte**	**Units**	**CA Primary MCL**	**CA Secondary MCL**	**CA PHG**	**DHS Action Level**									
1,4-Dioxane	EPA 8270 SIM	1,4-DIOXANE	µg/L	--	--	--	3	--	--	1 U	--	--	--	0.96 U	--	1 U
Anions	EPA 300.0	CHLORATE	mg/L	--	--	--	--	--	--	--	0.457	--	--	0.361	--	0.106
NDMA	MOE MSABN-E3291A	N-NITROSODI-N-PROPYLAMINE	µg/L	--	--	--	--	--	--	--	--	0.005 U	--	0.005 U	--	--
NDMA	MOE MSABN-E3291A	N-NITROSODIMETHYLAMINE (NDMA)	µg/L	--	--	--	0.01	--	--	--	--	0.002 UB	--	0.0016 J	--	--
NDMA	MOE MSABN-E3291A	N-NITROSODIPHENYLAMINE	µg/L	--	--	--	--	--	--	--	--	0.005 U	--	0.00199 J	--	--
Perchlorate	EPA 314	PERCHLORATE	µg/L	--	--	--	4	4 U	4 U	--	--	--	4 U	--	4 U	--

Notes:

N = Normal Environmental Sample
DUP = Field Duplicate Sample
"--" = Sample was not analyzed using this method.
B = Analyte is present in method blank
J = Estimated value
U = Not detected at the listed reporting limit.
UJ = The compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
µg/L = micrograms per liter
mg/L = milligrams per liter
XX = Bolding of value and qualifier means that the detection limit exceeds a CA Primary/Secondary MCL or DHS Action Level.
[ ] = Bolding and outlining of value and qualifier means that a detected value exceeds a CA Primary/Secondary MCL or DHS Action Level.

TABLE 3A-15

Summary of Dioxins and Furans Data for JPL Monitoring Wells

Station ID:								MW-3-3	MW-7	MW-12-3	MW-16	MW-16
QAQC Type:								N	N	N	N	DUP
Date Collected:								12/26/02	01/16/03	01/06/03	01/16/03	01/16/03
Analyte Type	**Method**	**Analyte**	**Units**	**CA Primary MCL**	**CA Secondary MCL**	**CA PHG**	**DHS Action Level**					
Dioxins & Furans	EPA 8290	1,2,3,4,6,7,8-HpCDD	PG/L	--	--	--	--	3.02 U	3.06 U	3.57 U	3.06 U	1.88 U
Dioxins & Furans	EPA 8290	1,2,3,4,6,7,8-HpCDF	PG/L	--	--	--	--	2.31 U	1.56 U	1.17 U	1.42 U	1.28 U
Dioxins & Furans	EPA 8290	1,2,3,4,7,8,9-HpCDF	PG/L	--	--	--	--	3.11 U	2.37 U	1.46 U	1.94 U	1.83 U
Dioxins & Furans	EPA 8290	1,2,3,4,7,8-HxCDD	PG/L	--	--	--	--	4.97 U	2.83 U	3.75 U	3.84 U	2.67 U
Dioxins & Furans	EPA 8290	1,2,3,4,7,8-HxCDF	PG/L	--	--	--	--	0.845 U	1.09 U	0.941 U	1.03 U	1.02 U
Dioxins & Furans	EPA 8290	1,2,3,6,7,8-HxCDD	PG/L	--	--	--	--	5.42 U	3.35 U	4.11 U	4.48 U	2.55 U
Dioxins & Furans	EPA 8290	1,2,3,6,7,8-HxCDF	PG/L	--	--	--	--	1.06 U	1.28 U	1.08 U	1.12 U	1.15 U
Dioxins & Furans	EPA 8290	1,2,3,7,8,9-HxCDD	PG/L	--	--	--	--	4.85 U	3.02 U	3.73 U	4.1 U	2.45 U
Dioxins & Furans	EPA 8290	1,2,3,7,8,9-HxCDF	PG/L	--	--	--	--	1.07 U	1.37 U	1.15 U	1.2 U	1.2 U
Dioxins & Furans	EPA 8290	1,2,3,7,8-PeCDD	PG/L	--	--	--	--	2.42 U	2.74 U	2.68 U	3 U	1.81 U
Dioxins & Furans	EPA 8290	1,2,3,7,8-PeCDF	PG/L	--	--	--	--	2.58 U	2.82 U	3.02 U	2.01 U	2.01 U
Dioxins & Furans	EPA 8290	2,3,4,6,7,8-HxCDF	PG/L	--	--	--	--	1.28 U	1.73 U	1.27 U	1.63 U	1.49 U
Dioxins & Furans	EPA 8290	2,3,4,7,8-PeCDF	PG/L	--	--	--	--	2.18 U	2.41 U	2.33 U	1.68 U	2.09 U
Dioxins & Furans	EPA 8290	2,3,7,8-TCDD (DIOXIN)	PG/L	30	--	--	--	1.68 U	1.22 U	1.55 U	1.44 U	1.13 U
Dioxins & Furans	EPA 8290	2,3,7,8-TCDF	PG/L	--	--	--	--	1.7 U	1.13 U	1.17 U	1.11 U	1.08 U
Dioxins & Furans	EPA 8290	OCDD	PG/L	--	--	--	--	3.7 U	5.65 U	4.73 U	4.35 U	4 U
Dioxins & Furans	EPA 8290	OCDF	PG/L	--	--	--	--	3.39 U	3.83 U	4.23 U	3.34 U	2.67 U
Dioxins & Furans	EPA 8290	Total HpCDD	PG/L	--	--	--	--	3.02 U	3.06 U	3.57 U	3.06 U	1.87 U
Dioxins & Furans	EPA 8290	Total HpCDF	PG/L	--	--	--	--	3.11 U	2.37 U	1.46 U	1.94 U	1.83 U
Dioxins & Furans	EPA 8290	Total HxCDD	PG/L	--	--	--	--	5.42 U	3.35 U	4.11 U	4.48 U	2.67 U
Dioxins & Furans	EPA 8290	Total HxCDF	PG/L	--	--	--	--	1.28 U	1.73 U	1.27 U	1.63 U	1.49 U
Dioxins & Furans	EPA 8290	Total PeCDD	PG/L	--	--	--	--	2.42 U	2.74 U	2.68 U	3 U	1.81 U
Dioxins & Furans	EPA 8290	Total PeCDF	PG/L	--	--	--	--	2.58 U	2.82 U	3.02 U	2.01 U	2.09 U
Dioxins & Furans	EPA 8290	Total TCDD	PG/L	--	--	--	--	1.68 U	1.22 U	1.55 U	1.44 U	1.13 U
Dioxins & Furans	EPA 8290	Total TCDF	PG/L	--	--	--	--	1.7 U	1.13 U	1.17 U	1.11 U	1.08 U

Notes:

N = Normal Environmental Sample
DUP = Field Duplicate Sample
"--" = Sample was not analyzed using this method.
U = Not detected at the listed reporting limit.
pg/L = picograms per liter
XX = Bolding of value and qualifier means that the detection limit exceeds a CA Primary/Secondary MCL or DHS Action Level.
[ ] = Bolding and outlining of value and qualifier means that a detected value exceeds a CA Primary/Secondary MCL or DHS Action Level.

TABLE 3A-16
Summary Water Quality Statistics for JPL Monitoring Wells
Comprehensive Groundwater Monitoring Event (Dec 2002-Feb 2003)

															CA Primary MCL			CA Secondary MCL			CA PHG			DHS Action Level		
Method	Analyte	CAS	Unit	Number of Detects	Number of Samples	Frequency of Detection	Minimum Nondetect Value	Maximum Nondetect Value	Minimum Detected Value	Maximum Detected Value	Arithmetic Mean	Geometric Mean	Standard Deviation	Upper 95% Confidence	Criteria	# of Detects Exceeded	# of ND Exceeded	Criteria	# of Detects Exceeded	# of ND Exceeded	Criteria	# of Detects Exceeded	# of ND Exceeded	Criteria	# of Detects Exceeded	# of ND Exceeded
EPA 110.2	COLOR	CCC-CC-C	COLOR	14	22	64%	1	1	5	25	4.500	2.403	5.262	6.431	--	--	--	15	1	--	--	--	--	--	--	--
EPA 130	HARDNESS (TOTAL) AS CACO3	11-02-9	mg/L	13	13	100%	--	--	92.95	564	292.150	252.000	165.401	373.911	--	--	--	--	--	--	--	--	--	--	--	--
EPA 160.1	TOTAL DISSOLVED SOLIDS (TDS)	10-33-3	mg/L	22	22	100%	--	--	182	967	409.068	361.555	227.657	492.593	--	--	--	500	6	--	--	--	--	--	--	--
EPA 180.1	TURBIDITY	--	NTU	18	19	95%	3.2	3.2	0.27	38	7.348	3.560	9.908	11.290	--	--	--	5	7	--	--	--	--	--	--	--
EPA 200.8	ALUMINUM	7429-90-5	µg/L	10	22	45%	1.6	50	1.2	173	20.661	8.587	35.631	36.092	1000	--	--	200	--	--	600	--	--	--	--	--
EPA 200.8	ANTIMONY	7440-36-0	µg/L	10	22	45%	0.2	0.5	0.091	1.8	0.261	0.168	0.378	0.399	6	--	--	--	--	--	20	--	--	--	--	--
EPA 200.8	ARSENIC	7440-38-2	µg/L	21	22	95%	0.5	0.5	0.5	2.8	1.055	0.913	0.606	1.277	50	--	--	--	--	--	--	--	--	--	--	--
EPA 200.8	BARIUM	7440-39-3	µg/L	20	22	91%	91.5	104	15.7	194	79.377	66.980	48.960	99.835	1000	--	--	--	--	--	--	--	--	--	--	--
EPA 200.8	BERYLLIUM	7440-41-7	µg/L	9	22	41%	0.2	0.5	0.4	1.8	0.430	0.245	0.474	0.604	4	--	--	--	--	--	--	--	--	--	--	--
EPA 200.8	BORON	7440-42-8	µg/L	21	22	95%	64.7	64.7	9.2	242	110.914	89.817	63.352	134.157	--	--	--	--	--	--	--	--	--	1000	--	--
EPA 200.8	CADMIUM	7440-43-9	µg/L	2	22	9%	0.2	0.2	0.046	0.049	0.095	0.093	0.015	0.101	5	--	--	--	--	--	0.07	--	20	--	--	--
EPA 200.8	CALCIUM	7440-70-2	µg/L	20	22	91%	51000	142000	14600	141000	59984.000	48809.000	38784.000	76190.790	--	--	--	--	--	--	--	--	--	--	--	--
EPA 200.8	CHROMIUM	7440-47-3	µg/L	21	22	95%	3.5	3.5	0.5	9.2	3.566	3.012	2.033	4.312	50	--	--	--	--	--	--	--	--	--	--	--
EPA 200.8	COBALT	7440-48-4	µg/L	17	22	77%	0.071	0.2	0.043	0.3	0.094	0.081	0.063	0.121	--	--	--	--	--	--	--	--	--	--	--	--
EPA 200.8	COPPER	7440-50-8	µg/L	18	22	82%	0.7	1.6	0.7	4	1.334	1.095	0.992	1.722	--	--	--	1000	--	--	170	--	--	1300	--	--
EPA 200.8	IRON	7439-89-6	µg/L	9	22	41%	25	25	45.5	1650	176.877	39.158	394.290	321.538	--	--	--	300	3	--	--	--	--	--	--	--
EPA 200.8	LEAD	7439-92-1	µg/L	19	22	86%	0.2	0.2	0.048	1.1	0.205	0.140	0.239	0.292	--	--	--	--	--	--	2	--	--	15	--	--
EPA 200.8	MAGNESIUM	7439-95-4	µg/L	20	22	91%	19200	49100	334	46700	21848.000	15933.000	13029.000	27293.000	--	--	--	--	--	--	--	--	--	--	--	--
EPA 200.8	MANGANESE	7439-96-5	µg/L	21	22	95%	0.5	0.5	0.1	86.6	15.150	2.646	26.283	24.793	--	--	--	50	2	--	--	--	--	500	--	--
EPA 200.8	NICKEL	7440-02-0	µg/L	18	22	82%	1.4	10	0.5	5.7	2.064	1.576	1.616	2.739	100	--	--	--	--	--	12	--	--	--	--	--
EPA 200.8	POTASSIUM	7440-09-7	µg/L	20	22	91%	2140	2580	1900	3720	2638.860	2542.000	645.330	2908.520	--	--	--	--	--	--	--	--	--	--	--	--
EPA 200.8	SELENIUM	7782-49-2	µg/L	15	22	68%	0.2	0.6	0.3	2	0.714	0.464	0.602	0.965	50	--	--	--	--	--	--	--	--	--	--	--
EPA 200.8	SILVER	7440-22-4	µg/L	1	22	5%	0.2	0.2	0.024	0.024	0.097	0.094	0.016	0.102	--	--	--	100	--	--	--	--	--	--	--	--
EPA 200.8	SODIUM	7440-23-5	µg/L	20	22	91%	29500	33400	14500	48300	30666.000	28756.000	10687.000	35132.000	--	--	--	--	--	--	--	--	--	--	--	--
EPA 200.8	THALLIUM	7440-28-0	µg/L	5	22	23%	0.2	0.2	0.033	0.2	0.093	0.087	0.034	0.106	2	--	--	--	--	--	0.1	1	17	--	--	--
EPA 200.8	VANADIUM	7440-62-2	µg/L	21	22	95%	6.4	6.4	0.8	14.4	5.770	4.491	3.685	7.122	--	--	--	--	--	--	--	--	--	50	--	--
EPA 200.8	ZINC	7440-66-6	µg/L	15	22	68%	3.9	50	3.7	80.7	16.630	10.487	17.837	24.085	--	--	--	5000	--	--	--	--	--	--	--	--
EPA 218.6	CHROMIUM (VI)	18540-29-9	mg/L	8	22	36%	0.0001	0.0002	0.0005	0.0027	0.001	0.000	0.001	0.001	--	--	--	--	--	--	0.0002	8	--	--	--	--
EPA 300.0	BROMIDE	24959-67-9	mg/L	2	22	9%	0.4	4	0.120	0.44	0.791	0.581	0.602	1.012	--	--	--	--	--	--	--	--	--	--	--	--
EPA 300.0	CHLORATE	7790-93-4	mg/L	11	22	50%	0.1	0.1	0.073	0.875	0.217	0.116	0.261	0.324	--	--	--	--	--	--	--	--	--	--	--	--
EPA 300.0	CHLORIDE	16887-00-6	mg/L	22	22	100%	--	--	8.4	141	48.691	34.871	39.368	63.134	--	--	--	250	--	--	--	--	--	--	--	--
EPA 300.0	FLUORIDE	16984-48-8	mg/L	19	22	86%	2	4	0.740	4.1	1.385	1.256	0.746	1.658	2	2	2	--	--	--	1	11	3	--	--	--
EPA 300.0	NITRATE (NO3-) AS N	14797-55-8	mg/L	19	22	86%	0.25	1	0.29	17.4	4.667	2.180	5.059	6.523	45	--	--	--	--	--	10	3	--	--	--	--
EPA 300.0	NITRITE (AS N)	7727-37-9	mg/L	--	22	0%	0.1	2	--	--	0.365	0.236	0.319	0.483	1	--	4	--	--	--	0.001	--	22	--	--	--
EPA 300.0	SULFATE (SO4--)	14808-79-8	mg/L	22	22	100%	--	--	12.6	189	61.366	45.850	50.435	79.870	--	--	--	250	--	--	--	--	--	--	--	--
EPA 310.1	ALKALINITY	10-09-3	mg/L	13	13	100%	--	--	123	273	184.615	179.644	45.564	207.139	--	--	--	--	--	--	--	--	--	--	--	--
EPA 314	PERCHLORATE	14797-73-0	µg/L	7	22	32%	4	4	3.05	13300	708.725	7.688	2842.804	1751.719	--	--	--	--	--	--	--	--	--	4	6	--
EPA 335.2/335.3	CYANIDE	57-12-5	mg/L	--	23	0%	0.02	0.024	--	--	0.012	0.012	0.001	0.012	0.15	--	--	--	--	--	0.15	--	--	--	--	--
EPA 405.1	BIOLOGIC OXYGEN DEMAND	10-26-4	mg O2/L	9	13	69%	3	4.7	0.670	2.6	1.556	1.411	0.650	1.862	--	--	--	--	--	--	--	--	--	--	--	--
EPA 410.4	CHEMICAL OXYGEN DEMAND	10-27-5	mg O2/L	--	13	0%	5	5	--	--	2.500	2.500	--	2.500	--	--	--	--	--	--	--	--	--	--	--	--
EPA 415.1	TOTAL ORGANIC CARBON	7440-44-0	mg/L	9	13	69%	1	3.3	1.055	7.3	2.985	1.965	2.611	4.276	--	--	--	--	--	--	--	--	--	--	--	--
EPA 425.1	FOAMING AGENTS (MBAS)	10-75-3	mg/L	4	21	19%	0.021	0.05	0.05	0.07	0.031	0.028	0.016	0.037	--	--	--	0.5	--	--	--	--	--	--	--	--
EPA 504.1	1,2,3-TRICHLOROPROPANE	96-18-4	µg/L	2	12	17%	0.005	0.005	0.024	0.071	0.010	0.004	0.020	0.020	--	--	--	--	--	--	--	--	--	0.005	2	--
EPA 504.1	1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE, EDB)	106-93-4	µg/L	--	12	0%	0.02	0.02	--	--	0.010	0.010	0.000	0.010	0.05	--	--	--	--	--	--	--	--	--	--	--
EPA 504.1	DIBROMOCHLOROPROPANE (DBCP)	96-12-8	µg/L	--	12	0%	0.02	0.02	--	--	0.010	0.010	0.000	0.010	0.2	--	--	--	--	--	0.0017	--	12	--	--	--
EPA 507	ALACHLOR	15972-60-8	µg/L	--	5	0%	0.5	0.5	--	--	0.250	0.250	--	0.250	2	--	--	--	--	--	4	--	--	--	--	--
EPA 507	ATRAZINE	1912-24-9	µg/L	--	5	0%	0.5	0.5	--	--	0.250	0.250	--	0.250	1	--	--	--	--	--	0.15	--	5	--	--	--
EPA 507	BROMACIL	314-40-9	µg/L	--	5	0%	0.5	0.5	--	--	0.250	0.250	--	0.250	--	--	--	--	--	--	--	--	--	--	--	--
EPA 507	BUTACHLOR	23184-66-9	µg/L	--	5	0%	0.38	0.38	--	--	0.190	0.190	--	0.190	--	--	--	--	--	--	--	--	--	--	--	--
EPA 507	DEMETON	8065-48-3	µg/L	--	5	0%	0.5	0.5	--	--	0.250	0.250	--	0.250	--	--	--	--	--	--	--	--	--	--	--	--
EPA 507	DIAZINON	333-41-5	µg/L	--	5	0%	0.25	0.25	--	--	0.125	0.125	--	0.125	--	--	--	--	--	--	--	--	--	6	--	--
EPA 507	DIMETHOATE	60-51-5	µg/L	--	5	0%	0.5	0.5	--	--	0.250	0.250	--	0.250	--	--	--	--	--	--	--	--	--	1	--	--
EPA 507	DISULFOTON	298-04-4	µg/L	--	5	0%	0.5	0.5	--	--	0.250	0.250	--	0.250	--	--	--	--	--	--	--	--	--	--	--	--
EPA 507	METOLACHLOR	51218-45-2	µg/L	--	5	0%	0.5	0.5	--	--	0.250	0.250	--	0.250	--	--	--	--	--	--	--	--	--	--	--	--
EPA 507	METRIBUZIN	21087-64-9	µg/L	--	5	0%	0.5	0.5	--	--	0.250	0.250	--	0.250	--	--	--	--	--	--	--	--	--	--	--	--
EPA 507	MEVINPHOS	7786-34-7	µg/L	--	5	0%	0.5	0.5	--	--	0.250	0.250	--	0.250	--	--	--	--	--	--	--	--	--	--	--	--
EPA 507	MOLINATE	2212-67-1	µg/L	--	5	0%	0.5	0.5	--	--	0.250	0.250	--	0.250	20	--	--	--	--	--	--	--	--	--	--	--
EPA 507	PROMETON	1610-18-0	µg/L	--	5	0%	0.5	0.5	--	--	0.250	0.250	--	0.250	--	--	--	--	--	--	--	--	--	--	--	--
EPA 507	PROMETRYN	7287-19-6	µg/L	--	5	0%	0.5	0.5	--	--	0.250	0.250	--	0.250	--	--	--	--	--	--	--	--	--	--	--	--
EPA 507	PRONAMIDE	23950-58-5	µg/L	--	5	0%	0.5	0.5	--	--	0.250	0.250	--	0.250	--	--	--	--	--	--	--	--	--	--	--	--
EPA 507	SIMAZINE	122-34-9	µg/L	--	5	0%	0.5	0.5	--	--	0.250	0.250	--	0.250	4	--	--	--	--	--	4	--	--	--	--	--
EPA 507	SIMETRYN	1014-70-6	µg/L	--	5	0%	0.5	0.5	--	--	0.250	0.250	--	0.250	--	--	--	--	--	--	--	--	--	--	--	--
EPA 507	TERBUTRYN	886-50-0	µg/L	--	5	0%	0.5	0.5	--	--	0.250	0.250	--	0.250	--	--	--	--	--	--	--	--	--	--	--	--
EPA 507	THIOBENCARB	28249-77-6	µg/L	--	5	0%	0.5	0.5	--	--	0.250	0.250	--	0.250	70	--	--	1	--	--	70	--	--	--	--	--
EPA 508	2,4'-DDD	53-19-0	µg/L	--	22	0%	0.05	0.05	--	--	0.025	0.025	0.000	0.025	--	--	--	--	--	--	--	--	--	--	--	--
EPA 508	2,4'-DDE	3424-82-6	µg/L	--	22	0%	0.05	0.05	--	--	0.025	0.025	0.000	0.025	--	--	--	--	--	--	--	--	--	--	--	--
EPA 508	2,4'-DDT	789-02-6	µg/L	--	22	0%	0.02	0.02	--	--	0.010	0.010	--	--	--	--	--	--	--	--	--	--	--	--	--	--
EPA 508	4,4-DDD	72-54-8	µg/L	--	22	0%	0.02	0.02	--	--	0.010	0.010	--	--	--	--	--	--	--	--	--	--	--	--	--	--
EPA 508	4,4-DDE	72-55-9	µg/L	--	22	0%	0.01	0.01	--	--	0.005	0.005	--	--	--	--	--	--	--	--	--	--	--	--	--	--
EPA 508	4,4-DDT	50-29-3	µg/L	--	22	0%	0.02	0.02	--	--	0.010	0.010	--	--	--	--	--	--	--	--	--	--	--	--	--	--

TABLE 3A-16
Summary Water Quality Statistics for JPL Monitoring Wells
Comprehensive Groundwater Monitoring Event (Dec 2002-Feb 2003)

															CA Primary MCL			CA Secondary MCL			CA PHG			DHS Action Level		
Method	Analyte	CAS	Unit	Number of Detects	Number of Samples	Frequency of Detection	Minimum Nondetect Value	Maximum Nondetect Value	Minimum Detected Value	Maximum Detected Value	Arithmetic Mean	Geometric Mean	Standard Deviation	Upper 95% Confidence	Criteria	# of Detects Exceeded	# of ND Exceeded	Criteria	# of Detects Exceeded	# of ND Exceeded	Criteria	# of Detects Exceeded	# of ND Exceeded	Criteria	# of Detects Exceeded	# of ND Exceeded
EPA 508	ALACHLOR	15972-60-8	µg/L	--	22	0%	0.1	0.1	--	--	0.050	0.050	0.000	0.050	2	--	--	--	--	--	4	--	--	--	--	--
EPA 508	ALDRIN	309-00-2	µg/L	--	22	0%	0.05	0.05	--	--	0.025	0.025	0.000	0.025	--	--	--	--	--	--	--	--	--	0.002	--	22
EPA 508	ALPHA-BHC	319-84-6	µg/L	--	22	0%	0.05	0.05	--	--	0.025	0.025	0.000	0.025	--	--	--	--	--	--	--	--	--	0.015	--	22
EPA 508	BENFLURALIN	1861-40-1	µg/L	--	22	0%	0.1	0.1	--	--	0.050	0.050	0.000	0.050	--	--	--	--	--	--	--	--	--	--	--	--
EPA 508	BETA-BHC	319-85-7	µg/L	--	22	0%	0.05	0.05	--	--	0.025	0.025	0.000	0.025	--	--	--	--	--	--	--	--	--	0.025	--	22
EPA 508	CAPTAN	133-06-2	µg/L	--	22	0%	0.1	0.1	--	--	0.050	0.050	0.000	0.050	--	--	--	--	--	--	--	--	--	1.5	--	--
EPA 508	CARBOPHENOTHION	786-19-6	µg/L	--	22	0%	0.05	0.05	--	--	0.025	0.025	0.000	0.025	--	--	--	--	--	--	--	--	--	--	--	--
EPA 508	CHLORDANE	57-74-9	µg/L	--	22	0%	0.05	0.05	--	--	0.025	0.025	0.000	0.025	0.1	--	--	--	--	--	0.03	--	22	--	--	--
EPA 508	CHLOROTHALONIL	1897-45-6	µg/L	--	22	0%	0.05	0.05	--	--	0.025	0.025	0.000	0.025	--	--	--	--	--	--	--	--	--	--	--	--
EPA 508	DELTA-BHC	319-86-8	µg/L	--	22	0%	0.05	0.05	--	--	0.025	0.025	0.000	0.025	--	--	--	--	--	--	--	--	--	0.025	--	22
EPA 508	DICOFOL	115-32-2	µg/L	--	22	0%	0.1	0.1	--	--	0.050	0.050	0.000	0.050	--	--	--	--	--	--	--	--	--	--	--	--
EPA 508	DIELDRIN	60-57-1	µg/L	--	22	0%	0.02	0.02	--	--	0.010	0.010	--	--	--	--	--	--	--	--	--	--	--	0.002	--	22
EPA 508	DMPA	299-85-4	µg/L	--	22	0%	0.1	0.1	--	--	0.050	0.050	0.000	0.050	--	--	--	--	--	--	--	--	--	--	--	--
EPA 508	ENDOSULFAN I	959-98-8	µg/L	--	22	0%	0.02	0.02	--	--	0.010	0.010	--	--	--	--	--	--	--	--	--	--	--	--	--	--
EPA 508	ENDOSULFAN II	33213-65-9	µg/L	--	22	0%	0.01	0.01	--	--	0.005	0.005	--	--	--	--	--	--	--	--	--	--	--	--	--	--
EPA 508	ENDOSULFAN SULFATE	1031-07-8	µg/L	--	22	0%	0.05	0.05	--	--	0.025	0.025	0.000	0.025	--	--	--	--	--	--	--	--	--	--	--	--
EPA 508	ENDRIN	72-20-8	µg/L	--	22	0%	0.05	0.05	--	--	0.025	0.025	0.000	0.025	2	--	--	--	--	--	1.8	--	--	--	--	--
EPA 508	ENDRIN ALDEHYDE	7421-93-4	µg/L	--	22	0%	0.05	0.05	--	--	0.025	0.025	0.000	0.025	--	--	--	--	--	--	--	--	--	--	--	--
EPA 508	ENDRIN KETONE	53494-70-5	µg/L	--	22	0%	0.05	0.05	--	--	0.025	0.025	0.000	0.025	--	--	--	--	--	--	--	--	--	--	--	--
EPA 508	GAMMA- BHC (LINDANE)	58-89-9	µg/L	--	22	0%	0.05	0.05	--	--	0.025	0.025	0.000	0.025	0.2	--	--	--	--	--	0.032	--	22	--	--	--
EPA 508	HEPTACHLOR	76-44-8	µg/L	--	22	0%	0.01	0.01	--	--	0.005	0.005	--	--	0.01	--	--	--	--	--	0.008	--	22	--	--	--
EPA 508	HEPTACHLOR EPOXIDE	1024-57-3	µg/L	--	22	0%	0.01	0.01	--	--	0.005	0.005	--	--	0.01	--	--	--	--	--	0.006	--	22	--	--	--
EPA 508	HEXACHLOROBENZENE	118-74-1	µg/L	--	22	0%	0.05	0.05	--	--	0.025	0.025	0.000	0.025	1	--	--	--	--	--	--	--	--	--	--	--
EPA 508	METHOXYCHLOR	72-43-5	µg/L	--	22	0%	0.05	0.05	--	--	0.025	0.025	0.000	0.025	30	--	--	--	--	--	30	--	--	--	--	--
EPA 508	NITROFEN	1836-75-5	µg/L	--	22	0%	0.05	0.05	--	--	0.025	0.025	0.000	0.025	--	--	--	--	--	--	--	--	--	--	--	--
EPA 508	PCB-1016	12674-11-2	µg/L	--	22	0%	0.5	0.5	--	--	0.250	0.250	--	0.250	--	--	--	--	--	--	--	--	--	--	--	--
EPA 508	PCB-1221	11104-28-2	µg/L	--	22	0%	0.5	0.5	--	--	0.250	0.250	--	0.250	--	--	--	--	--	--	--	--	--	--	--	--
EPA 508	PCB-1232	11141-16-5	µg/L	--	22	0%	0.5	0.5	--	--	0.250	0.250	--	0.250	--	--	--	--	--	--	--	--	--	--	--	--
EPA 508	PCB-1242	53469-21-9	µg/L	--	22	0%	0.5	0.5	--	--	0.250	0.250	--	0.250	--	--	--	--	--	--	--	--	--	--	--	--
EPA 508	PCB-1248	12672-29-6	µg/L	--	22	0%	0.5	0.5	--	--	0.250	0.250	--	0.250	--	--	--	--	--	--	--	--	--	--	--	--
EPA 508	PCB-1254	11097-69-1	µg/L	--	22	0%	0.5	0.5	--	--	0.250	0.250	--	0.250	--	--	--	--	--	--	--	--	--	--	--	--
EPA 508	PCB-1260	11096-82-5	µg/L	--	22	0%	0.5	0.5	--	--	0.250	0.250	--	0.250	--	--	--	--	--	--	--	--	--	--	--	--
EPA 508	PCNB	82-68-8	µg/L	--	22	0%	0.05	0.05	--	--	0.025	0.025	0.000	0.025	--	--	--	--	--	--	--	--	--	--	--	--
EPA 508	PROPACHLOR	1918-16-7	µg/L	1	22	5%	0.1	0.1	0.28	0.28	0.060	0.054	0.049	0.078	--	--	--	--	--	--	--	--	--	--	--	--
EPA 508	TOXAPHENE	8001-35-2	µg/L	--	22	0%	0.5	0.5	--	--	0.250	0.250	--	0.250	3	--	--	--	--	--	--	--	--	--	--	--
EPA 524.2	1,1,1,2-TETRACHLOROETHANE	630-20-6	µg/L	--	22	0%	0.5	0.5	--	--	0.250	0.250	--	0.250	--	--	--	--	--	--	--	--	--	--	--	--
EPA 524.2	1,1,1-TRICHLOROETHANE	71-55-6	µg/L	--	22	0%	0.5	0.5	--	--	0.250	0.250	--	0.250	200	--	--	--	--	--	--	--	--	--	--	--
EPA 524.2	1,1,2,2-TETRACHLOROETHANE	79-34-5	µg/L	--	22	0%	0.5	0.5	--	--	0.250	0.250	--	0.250	1	--	--	--	--	--	--	--	--	--	--	--
EPA 524.2	1,1,2-TRICHLOROETHANE	79-00-5	µg/L	--	22	0%	0.5	0.5	--	--	0.250	0.250	--	0.250	5	--	--	--	--	--	--	--	--	--	--	--
EPA 524.2	1,1,2-TRICHLOROTRIFLUOROETHANE	76-13-1	µg/L	2	22	9%	0.5	0.5	2.1	5.9	0.591	0.318	1.250	1.049	1200	--	--	--	--	--	4000	--	--	--	--	--
EPA 524.2	1,1-DICHLOROETHANE	75-34-3	µg/L	4	22	18%	0.3	0.3	0.3	0.5	0.200	0.181	0.114	0.242	5	--	--	--	--	--	--	--	--	--	--	--
EPA 524.2	1,1-DICHLOROETHENE	75-35-4	µg/L	2	22	9%	0.5	0.5	0.3	8.2	0.614	0.295	1.694	1.235	6	1	--	--	--	--	10	--	--	--	--	--
EPA 524.2	1,2,3-TRICHLOROBENZENE	87-61-6	µg/L	--	22	0%	0.5	0.5	--	--	0.250	0.250	--	0.250	--	--	--	--	--	--	--	--	--	--	--	--
EPA 524.2	1,2,4-TRICHLOROBENZENE	120-82-1	µg/L	--	22	0%	0.5	0.5	--	--	0.250	0.250	--	0.250	5	--	--	--	--	--	5	--	--	--	--	--
EPA 524.2	1,2,4-TRIMETHYLBENZENE	95-63-6	µg/L	--	22	0%	0.5	0.5	--	--	0.250	0.250	--	0.250	--	--	--	--	--	--	--	--	--	330	--	--
EPA 524.2	1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE, EDB)	106-93-4	µg/L	--	22	0%	0.5	0.5	--	--	0.250	0.250	--	0.250	0.05	--	22	--	--	--	--	--	--	--	--	--
EPA 524.2	1,2-DICHLOROBENZENE (O-DICHLOROBENZENE)	95-50-1	µg/L	--	22	0%	0.5	0.5	--	--	0.250	0.250	--	0.250	600	--	--	--	--	--	600	--	--	--	--	--
EPA 524.2	1,2-DICHLOROETHANE	107-06-2	µg/L	--	22	0%	0.5	0.5	--	--	0.250	0.250	--	0.250	5	--	--	--	--	--	0.4	--	22	--	--	--
EPA 524.2	1,2-DICHLOROPROPANE	78-87-5	µg/L	--	22	0%	0.5	0.5	--	--	0.250	0.250	--	0.250	5	--	--	--	--	--	0.5	--	--	--	--	--
EPA 524.2	1,3,5-TRIMETHYLBENZENE	108-67-8	µg/L	--	22	0%	0.5	0.5	--	--	0.250	0.250	--	0.250	--	--	--	--	--	--	--	--	--	330	--	--
EPA 524.2	1,3-DICHLOROPROPANE	142-28-9	µg/L	--	22	0%	0.5	0.5	--	--	0.250	0.250	--	0.250	--	--	--	--	--	--	--	--	--	--	--	--
EPA 524.2	1,4-DICHLOROBENZENE (PARA-DICHLOROBENZENE)	106-46-7	µg/L	--	22	0%	0.5	0.5	--	--	0.250	0.250	--	0.250	5	--	--	--	--	--	6	--	--	--	--	--
EPA 524.2	2,2-DICHLOROPROPANE	594-20-7	µg/L	--	22	0%	0.5	0.5	--	--	0.250	0.250	--	0.250	--	--	--	--	--	--	--	--	--	--	--	--
EPA 524.2	2-BUTANONE (METHYL ETHYL KETONE, MEK)	78-93-3	µg/L	--	22	0%	5	5	--	--	2.500	2.500	--	2.500	--	--	--	--	--	--	--	--	--	--	--	--
EPA 524.2	2-CHLOROETHYLVINYLETHER	110-75-8	µg/L	--	22	0%	5	5	--	--	2.500	2.500	--	2.500	--	--	--	--	--	--	--	--	--	--	--	--
EPA 524.2	2-CHLOROTOLUENE	95-49-8	µg/L	--	22	0%	0.5	0.5	--	--	0.250	0.250	--	0.250	--	--	--	--	--	--	--	--	--	140	--	--
EPA 524.2	2-HEXANONE	591-78-6	µg/L	--	22	0%	2	2	--	--	1.000	1.000	--	1.000	--	--	--	--	--	--	--	--	--	--	--	--
EPA 524.2	4-CHLOROTOLUENE	106-43-4	µg/L	--	22	0%	0.5	0.5	--	--	0.250	0.250	--	0.250	--	--	--	--	--	--	--	--	--	140	--	--
EPA 524.2	4-METHYL-2-PENTANONE (MIBK)	108-10-1	µg/L	--	22	0%	5	5	--	--	2.500	2.500	--	2.500	--	--	--	--	--	--	--	--	--	120	--	--
EPA 524.2	ACETONE	67-64-1	µg/L	--	22	0%	5	8.4	--	--	2.655	2.621	0.500	2.838	--	--	--	--	--	--	--	--	--	--	--	--
EPA 524.2	ACROLEIN	107-02-8	µg/L	--	22	0%	50	50	--	--	25.000	25.000	--	25.000	--	--	--	--	--	--	--	--	--	--	--	--
EPA 524.2	ACRYLONITRILE	107-13-1	µg/L	--	22	0%	10	10	--	--	5.000	5.000	--	5.000	--	--	--	--	--	--	--	--	--	--	--	--
EPA 524.2	BENZENE	71-43-2	µg/L	--	22	0%	0.5	0.5	--	--	0.250	0.250	--	0.250	1	--	--	--	--	--	0.15	--	22	--	--	--
EPA 524.2	BROMOBENZENE	108-86-1	µg/L	--	22	0%	0.5	0.5	--	--	0.250	0.250	--	0.250	--	--	--	--	--	--	--	--	--	--	--	--
EPA 524.2	BROMOCHLOROMETHANE	74-97-5	µg/L	1	22	5%	1	1	18	18	1.295	0.588	3.731	2.664	--	--	--	--	--	--	--	--	--	--	--	--
EPA 524.2	BROMODICHLOROMETHANE	75-27-4	µg/L	--	22	0%	0.5	0.5	--	--	0.250	0.250	--	0.250	--	--	--	--	--	--	--	--	--	--	--	--
EPA 524.2	BROMOFORM	75-25-2	µg/L	--	22	0%	0.5	0.5	--	--	0.250	0.250	--	0.250	--	--	--	--	--	--	--	--	--	--	--	--
EPA 524.2	BROMOMETHANE (METHYL BROMIDE)	74-83-9	µg/L	--	22	0%	0.5	0.5	--	--	0.250	0.250	--	0.250	--	--	--	--	--	--	--	--	--	--	--	--
EPA 524.2	CARBON DISULFIDE	75-15-0	µg/L	--	22	0%	2	2	--	--	1.000	1.000	--	1.000	--	--	--	--	--	--	--	--	--	160	--	--
EPA 524.2	CARBON TETRACHLORIDE	56-23-5	µg/L	7	22	32%	0.2	0.2	0.62	157	9.369	0.413	33.260	21.559	0.5	7	--	--	--	--	0.1	7	15	--	--	--

TABLE 3A-16
Summary Water Quality Statistics for JPL Monitoring Wells
Comprehensive Groundwater Monitoring Event (Dec 2002-Feb 2003)

															CA Primary MCL			CA Secondary MCL			CA PHG			DHS Action Level		
Method	Analyte	CAS	Unit	Number of Detects	Number of Samples	Frequency of Detection	Minimum Nondetect Value	Maximum Nondetect Value	Minimum Detected Value	Maximum Detected Value	Arithmetic Mean	Geometric Mean	Standard Deviation	Upper 95% Confidence	Criteria	# of Detects Exceeded	# of ND Exceeded	Criteria	# of Detects Exceeded	# of ND Exceeded	Criteria	# of Detects Exceeded	# of ND Exceeded	Criteria	# of Detects Exceeded	# of ND Exceeded
EPA 524.2	CHLOROBENZENE	108-90-7	µg/L	--	22	0%	0.5	0.5	--	--	0.250	0.250	--	0.250	70	--	--	--	--	--	--	--	--	--	--	--
EPA 524.2	CHLORODIBROMOMETHANE (THM)	124-48-1	µg/L	--	22	0%	0.5	0.5	--	--	0.250	0.250	--	0.250	--	--	--	--	--	--	--	--	--	--	--	--
EPA 524.2	CHLOROETHANE	75-00-3	µg/L	--	22	0%	1	1	--	--	0.500	0.500	--	0.500	--	--	--	--	--	--	--	--	--	--	--	--
EPA 524.2	CHLOROFORM	67-66-3	µg/L	18	22	82%	0.3	0.3	0.4	16.6	1.780	0.832	3.428	3.038	100	--	--	--	--	--	--	--	--	--	--	--
EPA 524.2	CHLOROMETHANE (METHYL CHLORIDE)	74-87-3	µg/L	--	22	0%	0.5	0.5	--	--	0.250	0.250	--	0.250	--	--	--	--	--	--	--	--	--	--	--	--
EPA 524.2	CIS-1,2-DICHLOROETHENE	156-59-2	µg/L	2	22	9%	0.5	0.5	0.4	2.7	0.368	0.285	0.522	0.560	6	--	--	--	--	--	--	--	--	--	--	--
EPA 524.2	CIS-1,3-DICHLOROPROPENE	10061-01-5	µg/L	--	22	0%	0.5	0.5	--	--	0.250	0.250	--	0.250	--	--	--	--	--	--	--	--	--	--	--	--
EPA 524.2	DI-ISOPROPYL ETHER	108-20-3	µg/L	--	22	0%	0.5	0.52	--	--	0.251	0.251	0.003	0.252	--	--	--	--	--	--	--	--	--	--	--	--
EPA 524.2	DIBROMOMETHANE	74-95-3	µg/L	--	22	0%	0.5	0.5	--	--	0.250	0.250	--	0.250	--	--	--	--	--	--	--	--	--	--	--	--
EPA 524.2	DICHLORODIFLUOROMETHANE (FREON 112)	75-71-8	µg/L	--	22	0%	0.5	0.5	--	--	0.250	0.250	--	0.250	--	--	--	--	--	--	--	--	--	1000	--	--
EPA 524.2	ETHYL-TERT-BUTYL ETHER (ETBE)	637-92-3	µg/L	--	22	0%	3	3	--	--	1.500	1.500	--	1.500	--	--	--	--	--	--	--	--	--	--	--	--
EPA 524.2	ETHYLBENZENE	100-41-4	µg/L	1	22	5%	0.5	0.5	1.1	1.1	0.289	0.267	0.181	0.355	300	--	--	--	--	--	300	--	--	--	--	--
EPA 524.2	HEXACHLOROBUTADIENE	87-68-3	µg/L	--	22	0%	0.5	0.5	--	--	0.250	0.250	--	0.250	--	--	--	--	--	--	--	--	--	--	--	--
EPA 524.2	ISOPROPYLBENZENE (CUMENE)	98-82-8	µg/L	--	22	0%	0.5	0.5	--	--	0.250	0.250	--	0.250	--	--	--	--	--	--	--	--	--	770	--	--
EPA 524.2	M-XYLENE	108-38-3	µg/L	--	22	0%	0.5	0.5	--	--	0.250	0.250	--	0.250	--	--	--	--	--	--	--	--	--	--	--	--
EPA 524.2	METHYL ACETATE	79-20-9	µg/L	--	22	0%	10	10	--	--	5.000	5.000	--	5.000	--	--	--	--	--	--	--	--	--	--	--	--
EPA 524.2	METHYL-T-BUTYL ETHER (MTBE)	1634-04-4	µg/L	--	22	0%	0.5	0.5	--	--	0.250	0.250	--	0.250	13	--	--	5	--	--	13	--	--	--	--	--
EPA 524.2	METHYLENE CHLORIDE (DICHLOROMETHANE)	75-09-2	µg/L	6	22	20%	0.5	10.1	0.400	11300	856.000	1.161	23.917	18.321	5	3	2	--	--	--	4	3	3	--	--	--
EPA 524.2	N-BUTYLBENZENE	104-51-8	µg/L	--	22	0%	0.5	0.5	--	--	0.250	0.250	--	0.250	--	--	--	--	--	--	--	--	--	260	--	--
EPA 524.2	N-PROPYLBENZENE	103-65-1	µg/L	--	22	0%	0.5	0.5	--	--	0.250	0.250	--	0.250	--	--	--	--	--	--	--	--	--	260	--	--
EPA 524.2	NAPHTHALENE	91-20-3	µg/L	--	22	0%	0.5	0.5	--	--	0.250	0.250	--	0.250	--	--	--	--	--	--	--	--	--	170	--	--
EPA 524.2	O-XYLENE	95-47-6	µg/L	--	22	0%	0.2	0.2	--	--	0.100	0.100	0.000	0.100	1750	--	--	--	--	--	--	--	--	--	--	--
EPA 524.2	P-ISOPROPYLTOLUENE	99-87-6	µg/L	--	22	0%	0.5	0.5	--	--	0.250	0.250	--	0.250	--	--	--	--	--	--	--	--	--	--	--	--
EPA 524.2	SEC-BUTYLBENZENE	135-98-8	µg/L	--	22	0%	0.5	0.5	--	--	0.250	0.250	--	0.250	--	--	--	--	--	--	--	--	--	260	--	--
EPA 524.2	STYRENE	100-42-5	µg/L	1	22	5%	0.5	0.5	0.5	0.5	0.261	0.258	0.053	0.281	100	--	--	--	--	--	--	--	--	--	--	--
EPA 524.2	TERT-AMYL-METHYL ETHER (TAME)	994-05-8	µg/L	--	22	0%	3	3	--	--	1.500	1.500	--	1.500	--	--	--	--	--	--	--	--	--	--	--	--
EPA 524.2	TERT-BUTYLBENZENE	98-06-6	µg/L	--	22	0%	0.5	0.5	--	--	0.250	0.250	--	0.250	--	--	--	--	--	--	--	--	--	260	--	--
EPA 524.2	TERTIARY BUTYL ALCOHOL (TBA)	75-65-0	µg/L	--	22	0%	2	11	--	--	2.100	1.940	1.114	2.509	--	--	--	--	--	--	--	--	--	12	--	--
EPA 524.2	TETRACHLOROETHENE (PCE)	127-18-4	µg/L	12	22	55%	0.5	0.5	0.3	21.2	2.836	0.752	5.879	4.971	5	4	--	--	--	--	0.06	12	10	--	--	--
EPA 524.2	TETRAHYDROFURAN	109-99-9	µg/L	--	22	0%	0.5	2.7	--	--	1.084	1.048	0.200	1.158	--	--	--	--	--	--	--	--	--	--	--	--
EPA 524.2	TOLUENE	108-88-3	µg/L	--	22	0%	0.5	0.5	--	--	0.250	0.250	--	0.250	150	--	--	--	--	--	150	--	--	--	--	--
EPA 524.2	TRANS-1,2-DICHLOROETHENE	156-60-5	µg/L	--	22	0%	0.5	0.5	--	--	0.250	0.250	--	0.250	10	--	--	--	--	--	--	--	--	--	--	--
EPA 524.2	TRANS-1,3-DICHLOROPROPENE	10061-02-6	µg/L	--	22	0%	0.5	0.5	--	--	0.250	0.250	--	0.250	--	--	--	--	--	--	--	--	--	--	--	--
EPA 524.2	TRICHLOROETHENE (TCE)	79-01-6	µg/L	16	22	73%	0.5	0.5	0.5	7.8	2.002	1.023	2.400	2.883	5	3	--	--	--	--	0.8	12	--	--	--	--
EPA 524.2	TRICHLOROFLUOROMETHANE	75-69-4	µg/L	1	22	5%	0.5	0.5	0.4	0.4	0.257	0.255	0.032	0.269	150	--	--	--	--	--	700	--	--	--	--	--
EPA 524.2	VINYL ACETATE	108-05-4	µg/L	--	22	0%	2	2	--	--	1.000	1.000	--	1.000	--	--	--	--	--	--	--	--	--	--	--	--
EPA 524.2	VINYL CHLORIDE (CHLOROETHANE)	75-01-4	µg/L	--	22	0%	0.5	0.5	--	--	0.250	0.250	--	0.250	0.5	--	--	--	--	--	0.05	--	22	--	--	--
EPA 524.2	XYLENES (TOTAL)	--	µg/L	--	19	0%	0.5	0.5	--	--	0.250	0.250	--	0.250	1750	--	--	--	--	--	1800	--	--	--	--	--
EPA 531.1	3-HYDROXYCARBOFURAN	16655-82-6	µg/L	--	4	0%	3	3	--	--	1.500	1.500	--	1.500	--	--	--	--	--	--	--	--	--	--	--	--
EPA 531.1	ALDICARB	116-06-3	µg/L	--	4	0%	3	3	--	--	1.500	1.500	--	1.500	--	--	--	--	--	--	--	--	--	7	--	--
EPA 531.1	ALDICARB SULFONE	1646-88-4	µg/L	--	4	0%	4	4	--	--	2.000	2.000	--	2.000	--	--	--	--	--	--	--	--	--	--	--	--
EPA 531.1	ALDICARB SULFOXIDE	1646-87-3	µg/L	--	4	0%	3	3	--	--	1.500	1.500	--	1.500	--	--	--	--	--	--	--	--	--	--	--	--
EPA 531.1	CARBARYL	63-25-2	µg/L	--	4	0%	5	5	--	--	2.500	2.500	--	2.500	--	--	--	--	--	--	--	--	--	700	--	--
EPA 531.1	CARBOFURAN	1563-66-2	µg/L	--	4	0%	5	5	--	--	2.500	2.500	--	2.500	18	--	--	--	--	--	1.7	--	4	--	--	--
EPA 531.1	METHIOCARB	2032-65-7	µg/L	--	4	0%	5	5	--	--	2.500	2.500	--	2.500	--	--	--	--	--	--	--	--	--	--	--	--
EPA 531.1	METHOMYL	16752-77-5	µg/L	--	4	0%	2	2	--	--	1.000	1.000	--	1.000	--	--	--	--	--	--	--	--	--	--	--	--
EPA 531.1	OXAMYL	23135-22-0	µg/L	--	4	0%	5	5	--	--	2.500	2.500	--	2.500	50	--	--	--	--	--	50	--	--	--	--	--
EPA 531.1	PROPOXUR	114-26-1	µg/L	--	4	0%	5	5	--	--	2.500	2.500	--	2.500	--	--	--	--	--	--	--	--	--	--	--	--
EPA 547	GLYPHOSATE	1071-83-6	µg/L	--	5	0%	10	10	--	--	5.000	5.000	--	5.000	700	--	--	--	--	--	1000	--	--	--	--	--
EPA 548	ENDOTHALL	145-73-3	µg/L	--	5	0%	5	500	--	--	52.000	6.280	110.685	157.537	100	--	1	--	--	--	580	--	--	--	--	--
EPA 549.1	DIQUAT	231-36-7	µg/L	--	4	0%	0.4	0.4	--	--	0.200	0.200	--	0.200	20	--	--	--	--	--	15	--	--	--	--	--
EPA 549.1	PARAQUAT	4685-14-7	µg/L	--	4	0%	0.4	0.4	--	--	0.200	0.200	--	0.200	--	--	--	--	--	--	--	--	--	--	--	--
EPA 551.1	1,1,1-TRICHLORO-2-PROPANONE	918-00-3	µg/L	--	6	0%	0.32	1	--	--	0.443	0.414	0.139	0.558	--	--	--	--	--	--	--	--	--	--	--	--
EPA 551.1	1,1-DICHLOROPROPANONE	513-88-2	µg/L	--	6	0%	0.21	1	--	--	0.434	0.385	0.161	0.567	--	--	--	--	--	--	--	--	--	--	--	--
EPA 551.1	BROMOCHLOROACETONITRILE	83463-62-1	µg/L	--	6	0%	1.8	5	--	--	2.233	2.109	0.653	2.771	--	--	--	--	--	--	--	--	--	--	--	--
EPA 551.1	BROMODICHLOROMETHANE	75-27-4	µg/L	--	6	0%	0.27	0.5	--	--	0.231	0.226	0.047	0.269	--	--	--	--	--	--	--	--	--	--	--	--
EPA 551.1	BROMOFORM	75-25-2	µg/L	--	6	0%	0.26	0.5	--	--	0.230	0.224	0.049	0.270	--	--	--	--	--	--	--	--	--	--	--	--
EPA 551.1	CHLORODIBROMOMETHANE (THM)	124-48-1	µg/L	--	6	0%	0.21	0.5	--	--	0.226	0.216	0.059	0.275	--	--	--	--	--	--	--	--	--	--	--	--
EPA 551.1	CHLOROFORM	67-66-3	µg/L	4	6	67%	0.5	0.5	1.2	26	5.883	1.652	10.067	14.165	100	--	--	--	--	--	--	--	--	--	--	--
EPA 551.1	CHLOROPICRIN	76-06-2	µg/L	--	6	0%	0.34	1	--	--	0.445	0.418	0.135	0.556	--	--	--	--	--	--	--	--	--	56	--	--
EPA 551.1	DIBROMOACETONITRILE	3252-43-5	µg/L	--	6	0%	0.49	2	--	--	0.874	0.791	0.308	1.128	--	--	--	--	--	--	--	--	--	--	--	--
EPA 551.1	DICHLOROACETONITRILE	3018-12-0	µg/L	--	6	0%	0.21	1	--	--	0.434	0.385	0.161	0.567	--	--	--	--	--	--	--	--	--	--	--	--
EPA 551.1	TOTAL TRIHALOMETHANES	--	µg/L	4	6	67%	0.5	0.5	1.25	27	6.075	1.689	10.455	14.676	100	--	--	--	--	--	--	--	--	--	--	--
EPA 551.1	TRICHLOROACETONITRILE	545-06-2	µg/L	--	6	0%	0.81	2	--	--	0.901	0.860	0.243	1.101	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8015M	ETHYLENE GLYCOL	107-21-1	mg/L	--	6	0%	5	5	--	--	2.500	2.500	--	2.500	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8015M	TPH-DIESEL	11-84-7	mg/L	3	12	25%	0.96	1	0.01	0.02	0.365	0.194	0.212	0.475	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8015M	TPH-GASOLINE	8006-61-9	mg/L	--	12	0%	0.05	0.1	--	--	0.048	0.047	0.007	0.052	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8015M	TPH-MOTOR OILS	--	mg/L	2	12	17%	0.96	1	0.03	0.09	0.412	0.333	0.165	0.497	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8141A	BOLSTAR	35400-43-2	µg/L	--	5	0%	0.1	0.1	--	--	0.050	0.050	0.000	0.050	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8141A	CHLORPYRIFOS	2921-88-2	µg/L	--	5	0%	0.05	0.05	--	--	0.025	0.025	0.000	0.025	--	--	--	--	--	--	--	--	--	--	--	--

TABLE 3A-16
Summary Water Quality Statistics for JPL Monitoring Wells
Comprehensive Groundwater Monitoring Event (Dec 2002-Feb 2003)

															CA Primary MCL			CA Secondary MCL			CA PHG			DHS Action Level		
Method	Analyte	CAS	Unit	Number of Detects	Number of Samples	Frequency of Detection	Minimum Nondetect Value	Maximum Nondetect Value	Minimum Detected Value	Maximum Detected Value	Arithmetic Mean	Geometric Mean	Standard Deviation	Upper 95% Confidence	Criteria	# of Detects Exceeded	# of ND Exceeded	Criteria	# of Detects Exceeded	# of ND Exceeded	Criteria	# of Detects Exceeded	# of ND Exceeded	Criteria	# of Detects Exceeded	# of ND Exceeded
EPA 8141A	COUMAPHOS	56-72-4	µg/L	--	5	0%	0.2	0.2	--	--	0.100	0.100	0.000	0.100	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8141A	DEMETON	8065-48-3	µg/L	--	5	0%	0.2	0.2	--	--	0.100	0.100	0.000	0.100	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8141A	DIAZINON	333-41-5	µg/L	--	5	0%	0.05	0.05	--	--	0.025	0.025	0.000	0.025	--	--	--	--	--	--	--	--	--	6	--	--
EPA 8141A	DICHLORVOS	62-73-7	µg/L	--	5	0%	0.2	0.2	--	--	0.100	0.100	0.000	0.100	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8141A	DIMETHOATE	60-51-5	µg/L	--	5	0%	0.1	0.1	--	--	0.050	0.050	0.000	0.050	--	--	--	--	--	--	--	--	--	1	--	--
EPA 8141A	DISULFOTON	298-04-4	µg/L	--	5	0%	0.1	0.1	--	--	0.050	0.050	0.000	0.050	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8141A	EPN	2104-64-5	µg/L	--	5	0%	0.1	0.1	--	--	0.050	0.050	0.000	0.050	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8141A	EPTC	759-94-4	µg/L	--	5	0%	0.1	0.1	--	--	0.050	0.050	0.000	0.050	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8141A	ETHION	563-12-2	µg/L	--	5	0%	0.1	0.1	--	--	0.050	0.050	0.000	0.050	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8141A	ETHOPROP	13194-48-4	µg/L	--	5	0%	0.1	0.1	--	--	0.050	0.050	0.000	0.050	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8141A	FENSULFOTHION	115-90-2	µg/L	--	5	0%	0.5	0.5	--	--	0.250	0.250	--	0.250	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8141A	FENTHION	55-38-9	µg/L	--	5	0%	0.1	0.1	--	--	0.050	0.050	0.000	0.050	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8141A	GUTHION	86-50-0	µg/L	--	5	0%	1	1	--	--	0.500	0.500	--	0.500	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8141A	MALATHION	121-75-5	µg/L	--	5	0%	0.1	0.1	--	--	0.050	0.050	0.000	0.050	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8141A	MERPHOS	150-50-5	µg/L	--	5	0%	0.1	0.1	--	--	0.050	0.050	0.000	0.050	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8141A	METHYL PARATHION	298-00-0	µg/L	--	5	0%	0.1	0.1	--	--	0.050	0.050	0.000	0.050	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8141A	MEVINPHOS	7786-34-7	µg/L	--	5	0%	0.7	0.7	--	--	0.350	0.350	--	0.350	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8141A	NALED	300-76-5	µg/L	--	5	0%	0.5	0.5	--	--	0.250	0.250	--	0.250	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8141A	PARATHION	56-38-2	µg/L	--	5	0%	0.1	0.1	--	--	0.050	0.050	0.000	0.050	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8141A	PHORATE	298-02-2	µg/L	--	5	0%	0.1	0.1	--	--	0.050	0.050	0.000	0.050	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8141A	PROWL	40487-42-1	µg/L	--	5	5%	0.1	0.1	--	--	0.050	0.050	0.000	0.050	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8141A	RONNEL	299-84-3	µg/L	--	5	0%	0.1	0.1	--	--	0.050	0.050	0.000	0.050	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8141A	S,S,S-TRIBUTYLPHOSPHOROTRITHIOATE	78-48-8	µg/L	--	5	0%	0.1	0.1	--	--	0.050	0.050	0.000	0.050	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8141A	STIROPHOS	22248-79-9	µg/L	--	5	0%	0.1	0.1	--	--	0.050	0.050	0.000	0.050	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8141A	SULFOTEPP	3689-24-5	µg/L	--	5	0%	0.1	0.1	--	--	0.050	0.050	0.000	0.050	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8141A	TOKUTHION	34643-46-4	µg/L	--	5	0%	0.1	0.1	--	--	0.050	0.050	0.000	0.050	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8141A	TRICHLORONATE	327-98-0	µg/L	--	5	0%	0.1	0.1	--	--	0.050	0.050	0.000	0.050	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8141A	TRIFLURALIN	1582-09-8	µg/L	--	5	0%	0.1	0.1	--	--	0.050	0.050	0.000	0.050	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8151A	2,4,5-T	93-76-5	µg/L	--	6	0%	0.22	0.23	--	--	0.112	0.112	0.003	0.114	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8151A	2,4,5-TP	93-72-1	µg/L	--	6	0%	0.096	0.1	--	--	0.049	0.049	0.001	0.050	50	--	--	--	--	--	--	--	--	--	--	--
EPA 8151A	2,4-D	94-75-7	µg/L	--	6	0%	0.48	0.5	--	--	0.243	0.243	0.005	0.248	70	--	--	--	--	--	70	--	--	--	--	--
EPA 8151A	3,5-DICHLOROBENZOIC ACID	51-36-5	µg/L	--	2	0%	0.48	0.5	--	--	0.245	0.245	0.007	0.277	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8151A	4-NITROPHENOL	100-02-7	µg/L	--	2	0%	0.48	0.5	--	--	0.245	0.245	0.007	0.277	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8151A	ACIFLUORFEN	50594-66-6	µg/L	--	2	0%	0.96	1	--	--	0.490	0.490	0.014	0.553	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8151A	BENTAZON	25057-89-0	µg/L	--	6	0%	0.48	0.5	--	--	0.243	0.243	0.005	0.248	18	--	--	--	--	--	200	--	--	--	--	--
EPA 8151A	CHLORAMBEN	133-90-4	µg/L	--	2	0%	0.48	0.5	--	--	0.245	0.245	0.007	0.277	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8151A	DACTHAL	1861-32-1	µg/L	--	6	0%	0.16	0.17	--	--	0.082	0.082	0.003	0.084	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8151A	DALAPON	75-99-0	µg/L	--	6	0%	0.96	1	--	--	0.487	0.487	0.010	0.495	200	--	--	--	--	--	790	--	--	--	--	--
EPA 8151A	DICAMBA	1918-00-9	µg/L	--	6	0%	0.096	0.1	--	--	0.049	0.049	0.001	0.050	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8151A	DICHLOROPROP	120-36-5	µg/L	--	6	0%	0.48	0.5	--	--	0.243	0.243	0.005	0.248	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8151A	DINOSEB	88-85-7	µg/L	--	6	0%	0.29	0.3	--	--	0.147	0.147	0.003	0.149	7	--	--	--	--	--	14	--	--	--	--	--
EPA 8151A	MCPA	94-74-6	µg/L	--	6	0%	96	100	--	--	48.667	48.658	1.033	49.516	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8151A	MCPP	93-65-2	µg/L	--	6	0%	96	100	--	--	48.667	48.658	1.033	49.516	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8151A	PENTACHLOROPHENOL	87-86-5	µg/L	--	6	0%	0.096	0.1	--	--	0.049	0.049	0.001	0.050	1	--	--	--	--	--	0.4	--	--	--	--	--
EPA 8151A	PICLORAM	1918-02-1	µg/L	--	6	0%	0.2	0.21	--	--	0.102	0.102	0.003	0.104	500	--	--	--	--	--	500	--	--	--	--	--
EPA 8270	1,2,4-TRICHLOROBENZENE	120-82-1	µg/L	--	22	0%	1	1	--	--	0.500	0.500	--	0.500	5	--	--	--	--	--	5	--	--	--	--	--
EPA 8270	1,2-DICHLOROBENZENE (O-DICHLOROBENZENE)	95-50-1	µg/L	--	22	0%	1	1	--	--	0.500	0.500	--	0.500	600	--	--	--	--	--	600	--	--	--	--	--
EPA 8270	1,3-DICHLOROBENZENE (M-DICHLOROBENZENE)	541-73-1	µg/L	--	22	0%	1	1	--	--	0.500	0.500	--	0.500	--	--	--	--	--	--	--	--	--	600	--	--
EPA 8270	1,4-DICHLOROBENZENE (PARA-DICHLOROBENZENE)	106-46-7	µg/L	--	22	0%	1	1	--	--	0.500	0.500	--	0.500	5	--	--	--	--	--	6	--	--	--	--	--
EPA 8270	2,4,5-TRICHLOROPHENOL	95-95-4	µg/L	--	22	0%	1	1	--	--	0.500	0.500	--	0.500	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8270	2,4,6-TRICHLOROPHENOL	88-06-2	µg/L	--	22	0%	1	1	--	--	0.500	0.500	--	0.500	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8270	2,4-DICHLOROPHENOL	120-83-2	µg/L	--	22	0%	1	1	--	--	0.500	0.500	--	0.500	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8270	2,4-DIMETHYLPHENOL	105-67-9	µg/L	--	22	0%	1	1	--	--	0.500	0.500	--	0.500	--	--	--	--	--	--	--	--	--	100	--	--
EPA 8270	2,4-DINITROPHENOL	51-28-5	µg/L	--	22	0%	4	4	--	--	2.000	2.000	--	2.000	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8270	2,4-DINITROTOLUENE	121-14-2	µg/L	--	22	0%	1	1	--	--	0.500	0.500	--	0.500	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8270	2,6-DINITROTOLUENE	606-20-2	µg/L	--	22	0%	1	1	--	--	0.500	0.500	--	0.500	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8270	2-CHLORONAPHTHALENE	91587	µg/L	--	22	0%	1	1	--	--	0.500	0.500	--	0.500	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8270	2-CHLOROPHENOL	95-57-8	µg/L	--	22	0%	1	1	--	--	0.500	0.500	--	0.500	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8270	2-METHYLNAPHTHALENE	91-57-6	µg/L	--	22	0%	1	1	--	--	0.500	0.500	--	0.500	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8270	2-METHYLPHENOL	95-48-7	µg/L	--	22	0%	1	1	--	--	0.500	0.500	--	0.500	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8270	2-NITROANILINE	88-74-4	µg/L	--	22	0%	1	1	--	--	0.500	0.500	--	0.500	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8270	2-NITROPHENOL	88-75-5	µg/L	--	22	0%	1	1	--	--	0.500	0.500	--	0.500	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8270	3,3'-DICHLOROBENZIDINE	91-94-1	µg/L	--	22	0%	1	1	--	--	0.500	0.500	--	0.500	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8270	3-NITROANILINE	99-09-2	µg/L	--	22	0%	1	1	--	--	0.500	0.500	--	0.500	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8270	3/4-METHYLPHENOL	--	µg/L	--	22	0%	1	1	--	--	0.500	0.500	--	0.500	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8270	4,6-DINITRO-O-CRESOL	534-52-1	µg/L	--	22	0%	1	1	--	--	0.500	0.500	--	0.500	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8270	4-BROMOPHENYLPHENYLETHER	101-55-3	µg/L	--	22	0%	1	1	--	--	0.500	0.500	--	0.500	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8270	4-CHLORO-3-METHYLPHENOL	35421-08-0	µg/L	--	22	0%	1	1	--	--	0.500	0.500	--	0.500	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8270	4-CHLOROANILINE	106-47-8	µg/L	--	22	0%	4	4	--	--	2.000	2.000	--	2.000	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8270	4-CHLOROPHENYLPHENYLETHER	7005-72-3	µg/L	--	22	0%	1	1	--	--	0.500	0.500	--	0.500	--	--	--	--	--	--	--	--	--	--	--	--

TABLE 3A-16
Summary Water Quality Statistics for JPL Monitoring Wells
Comprehensive Groundwater Monitoring Event (Dec 2002-Feb 2003)

															CA Primary MCL			CA Secondary MCL			CA PHG			DHS Action Level		
Method	Analyte	CAS	Unit	Number of Detects	Number of Samples	Frequency of Detection	Minimum Nondetect Value	Maximum Nondetect Value	Minimum Detected Value	Maximum Detected Value	Arithmetic Mean	Geometric Mean	Standard Deviation	Upper 95% Confidence	Criteria	# of Detects Exceeded	# of ND Exceeded	Criteria	# of Detects Exceeded	# of ND Exceeded	Criteria	# of Detects Exceeded	# of ND Exceeded	Criteria	# of Detects Exceeded	# of ND Exceeded
EPA 8270	4-NITROANILINE	100-01-6	µg/L	--	22	0%	1	1	--	--	0.500	0.500	--	0.500	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8270	4-NITROPHENOL	100-02-7	µg/L	--	22	0%	3	3	--	--	1.500	1.500	--	1.500	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8270	ACENAPHTHENE	83-32-9	µg/L	--	22	0%	1	1	--	--	0.500	0.500	--	0.500	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8270	ACENAPHTHYLENE	208-96-8	µg/L	--	22	0%	1	1	--	--	0.500	0.500	--	0.500	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8270	ACETOPHENONE	98-86-2	µg/L	--	22	0%	1	1	--	--	0.500	0.500	--	0.500	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8270	ANILINE	62-53-3	µg/L	--	22	0%	4	4	--	--	2.000	2.000	--	2.000	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8270	ANTHRACENE	120-12-7	µg/L	--	22	0%	1	1	--	--	0.500	0.500	--	0.500	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8270	BENZALDEHYDE	100-52-7	µg/L	--	22	0%	1	1	--	--	0.500	0.500	--	0.500	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8270	BENZO (A) ANTHRACENE	56-55-3	µg/L	--	22	0%	1	1	--	--	0.500	0.500	--	0.500	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8270	BENZO (A) PYRENE	50-32-8	µg/L	--	22	0%	1	1	--	--	0.500	0.500	--	0.500	0.2	--	22	--	--	--	0.004	--	22	--	--	--
EPA 8270	BENZO (GHI) PERYLENE	191-24-2	µg/L	--	22	0%	1	1	--	--	0.500	0.500	--	0.500	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8270	BENZO(B & K)FLUORANTHENES	--	µg/L	--	22	0%	1	1	--	--	0.500	0.500	--	0.500	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8270	BENZOIC ACID	65-85-0	µg/L	--	22	0%	4	4	--	--	2.000	2.000	--	2.000	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8270	BENZYL ALCOHOL	100-51-6	µg/L	--	22	0%	1	1	--	--	0.500	0.500	--	0.500	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8270	BIS (2-CHLOROETHYL) ETHER	111-44-4	µg/L	--	22	0%	1	1	--	--	0.500	0.500	--	0.500	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8270	BIS (2-CHLOROISOPROPYL) ETHER	108-60-1	µg/L	--	22	0%	1	1	--	--	0.500	0.500	--	0.500	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8270	BIS(2-CHLOROETHOXY)METHANE	111-91-1	µg/L	--	22	0%	1	1	--	--	0.500	0.500	--	0.500	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8270	BIS(2-ETHYLHEXYL)PHTHALATE	117-81-7	µg/L	--	22	0%	1	1	--	--	0.500	0.500	--	0.500	4	--	--	--	--	--	12	--	--	--	--	--
EPA 8270	BUTYLBENZYLPHTHALATE	85-68-7	µg/L	--	22	0%	1	1	--	--	0.500	0.500	--	0.500	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8270	CAPROLACTAM	105-60-2	µg/L	--	22	0%	1	1	--	--	0.500	0.500	--	0.500	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8270	CARBAZOLE	86-74-8	µg/L	--	22	0%	1	1	--	--	0.500	0.500	--	0.500	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8270	CHRYSENE	218-01-9	µg/L	--	22	0%	1	1	--	--	0.500	0.500	--	0.500	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8270	DI-(2-ETHYLHEXYL)ADIPATE	103-23-1	µg/L	--	22	0%	1	1	--	--	0.500	0.500	--	0.500	400	--	--	--	--	--	--	--	--	--	--	--
EPA 8270	DI-N-BUTYLPHTHALATE	84-74-2	µg/L	--	22	0%	1	1	--	--	0.500	0.500	--	0.500	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8270	DI-N-OCTYLPHTHALATE	117-84-0	µg/L	--	22	0%	1	1	--	--	0.500	0.500	--	0.500	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8270	DIBENZO (A,H) ANTRACENE	53-70-3	µg/L	--	22	0%	1	1	--	--	0.500	0.500	--	0.500	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8270	DIBENZOFURAN	132-64-9	µg/L	--	22	0%	1	1	--	--	0.500	0.500	--	0.500	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8270	DIETHYLPHTHALATE	84-66-2	µg/L	--	22	0%	1	1	--	--	0.500	0.500	--	0.500	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8270	DIMETHYL 2,3,5,6-TETRACHLOROTEREPHTHALATE (CHL(	1861-32-1	µg/L	--	22	0%	1	1	--	--	0.500	0.500	--	0.500	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8270	DIMETHYLPHTHALATE	131-11-3	µg/L	--	22	0%	1	1	--	--	0.500	0.500	--	0.500	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8270	FLUORANTHENE	206-44-0	µg/L	--	22	0%	1	1	--	--	0.500	0.500	--	0.500	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8270	FLUORENE	86-73-7	µg/L	--	22	0%	1	1	--	--	0.500	0.500	--	0.500	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8270	HEXACHLOROBENZENE	118-74-1	µg/L	--	22	0%	1	1	--	--	0.500	0.500	--	0.500	1	--	--	--	--	--	--	--	--	--	--	--
EPA 8270	HEXACHLOROBUTADIENE	87-68-3	µg/L	--	22	0%	1	1	--	--	0.500	0.500	--	0.500	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8270	HEXACHLOROCYCLOPENTADIENE	77-47-4	µg/L	--	22	0%	8	8	--	--	4.000	4.000	--	4.000	50	--	--	--	--	--	50	--	--	--	--	--
EPA 8270	HEXACHLOROETHANE	67-72-1	µg/L	--	22	0%	1	1	--	--	0.500	0.500	--	0.500	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8270	INDENO(1,2,3-C,D)PYRENE	193-39-5	µg/L	--	22	0%	1	1	--	--	0.500	0.500	--	0.500	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8270	ISOPHORONE	78-59-1	µg/L	--	22	0%	1	1	--	--	0.500	0.500	--	0.500	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8270	N-NITROSODI-N-PROPYLAMINE	621-64-7	µg/L	--	22	0%	1	1	--	--	0.500	0.500	--	0.500	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8270	N-NITROSODIMETHYLAMINE (NDMA)	62-75-9	µg/L	--	22	0%	1	1	--	--	0.500	0.500	--	0.500	--	--	--	--	--	--	--	--	--	0.01	--	22
EPA 8270	N-NITROSODIPHENYLAMINE	86-30-6	µg/L	--	22	0%	1	1	--	--	0.500	0.500	--	0.500	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8270	NAPHTHALENE	91-20-3	µg/L	--	22	0%	1	1	--	--	0.500	0.500	--	0.500	--	--	--	--	--	--	--	--	--	170	--	--
EPA 8270	NITROBENZENE	98-95-3	µg/L	--	22	0%	1	1	--	--	0.500	0.500	--	0.500	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8270	PENTACHLOROPHENOL	87-86-5	µg/L	--	22	0%	4	4	--	--	2.000	2.000	--	2.000	1	--	22	--	--	--	0.4	--	22	--	--	--
EPA 8270	PHENANTHRENE	85-01-8	µg/L	--	22	0%	1	1	--	--	0.500	0.500	--	0.500	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8270	PHENOL	108-95-2	µg/L	--	22	0%	1	1	--	--	0.500	0.500	--	0.500	--	--	--	--	--	--	--	--	--	4200	--	--
EPA 8270	PYRENE	129-00-0	µg/L	--	22	0%	1	1	--	--	0.500	0.500	--	0.500	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8270	PYRIDINE	110-86-1	µg/L	--	22	0%	3	3	--	--	1.500	1.500	--	1.500	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8270 SIM	1,4-DIOXANE	123-91-1	µg/L	9	22	41%	0.96	1	0.6	3	0.958	0.763	0.783	1.246	--	--	--	--	--	--	--	--	--	3	--	--
EPA 8290	1,2,3,4,6,7,8-HpCDD	35822-46-9	PG/L	--	4	0%	1.88	3.57	--	--	1.515	1.403	0.357	1.861	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8290	1,2,3,4,6,7,8-HpCDF	67562-39-4	PG/L	--	4	0%	1.17	2.31	--	--	0.798	0.762	0.257	1.092	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8290	1,2,3,4,7,8,9-HpCDF	55673-89-7	PG/L	--	4	0%	1.46	3.11	--	--	1.003	1.053	0.358	1.518	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8290	1,2,3,4,7,8-HxCDD	39227-28-6	PG/L	--	4	0%	2.83	4.97	--	--	1.851	1.722	0.528	2.399	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8290	1,2,3,4,7,8-HxCDF	70648-26-9	PG/L	--	4	0%	0.845	1.09	--	--	0.488	0.485	0.053	0.549	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8290	1,2,3,6,7,8-HxCDD	57653-85-7	PG/L	--	4	0%	3.35	5.42	--	--	2.049	1.857	0.610	2.647	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8290	1,2,3,6,7,8-HxCDF	57117-44-9	PG/L	--	4	0%	1.06	1.28	--	--	0.569	0.566	0.050	0.626	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8290	1,2,3,7,8,9-HxCDD	19408-74-3	PG/L	--	4	0%	3.02	4.85	--	--	1.859	1.701	0.517	2.365	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8290	1,2,3,7,8,9-HxCDF	72918-21-9	PG/L	--	4	0%	1.07	1.37	--	--	0.599	0.596	0.063	0.673	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8290	1,2,3,7,8-PeCDD	40321-76-4	PG/L	--	4	0%	2.405	2.74	--	--	1.281	1.191	0.213	1.456	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8290	1,2,3,7,8-PeCDF	57117-41-6	PG/L	--	4	0%	2.01	3.02	--	--	1.304	1.289	0.219	1.561	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8290	2,3,4,6,7,8-HxCDF	60851-34-5	PG/L	--	4	0%	1.27	1.73	--	--	0.730	0.715	0.108	0.849	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8290	2,3,4,7,8-PeCDF	57117-31-4	PG/L	--	4	0%	1.88	2.41	--	--	1.101	1.065	0.164	1.268	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8290	2,3,7,8-TCDD (DIOXIN)	1746-01-6	PG/L	--	4	0%	1.22	1.68	--	--	0.717	0.688	0.131	0.852	30	--	--	--	--	--	--	--	--	--	--	--
EPA 8290	2,3,7,8-TCDF	51207-31-9	PG/L	--	4	0%	1.095	1.7	--	--	0.637	0.624	0.145	0.805	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8290	OCDD	3268-87-9	PG/L	--	4	0%	3.7	5.65	--	--	2.282	2.230	0.434	2.771	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8290	OCDF	39001-02-0	PG/L	--	4	0%	3.005	4.23	--	--	1.807	1.740	0.334	2.158	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8290	Total HpCDD	37871-00-4	PG/L	--	4	0%	2.465	3.57	--	--	1.514	1.401	0.359	1.863	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8290	Total HpCDF	38998-75-3	PG/L	--	4	0%	1.46	3.11	--	--	1.103	1.053	0.358	1.518	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8290	Total HxCDD	34465-46-8	PG/L	--	4	0%	3.35	5.42	--	--	2.057	1.879	0.589	2.637	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8290	Total HxCDF	55684-94-1	PG/L	--	4	0%	1.27	1.73	--	--	0.730	0.715	0.108	0.849	--	--	--	--	--	--	--	--	--	--	--	--

TABLE 3A-16
Summary Water Quality Statistics for JPL Monitoring Wells
Comprehensive Groundwater Monitoring Event (Dec 2002-Feb 2003)

															CA Primary MCL			CA Secondary MCL			CA PHG			DHS Action Level		
Method	Analyte	CAS	Unit	Number of Detects	Number of Samples	Frequency of Detection	Minimum Nondetect Value	Maximum Nondetect Value	Minimum Detected Value	Maximum Detected Value	Arithmetic Mean	Geometric Mean	Standard Deviation	Upper 95% Confidence	Criteria	# of Detects Exceeded	# of ND Exceeded	Criteria	# of Detects Exceeded	# of ND Exceeded	Criteria	# of Detects Exceeded	# of ND Exceeded	Criteria	# of Detects Exceeded	# of ND Exceeded
EPA 8290	Total PeCDD	36088-22-9	PG/L	--	4	0%	2.405	2.74	--	--	1.281	1.191	0.213	1.456	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8290	Total PeCDF	30402-15-4	PG/L	--	4	0%	20.5	3.02	--	--	1.309	1.289	0.219	1.561	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8290	Total TCDD	41903-57-5	PG/L	--	4	0%	1.22	1.68	--	--	0.717	0.688	0.131	0.852	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8290	Total TCDF	55722-27-5	PG/L	--	4	0%	1.095	1.7	--	--	0.637	0.624	0.145	0.805	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8315A	2-BUTANONE (METHYL ETHYL KETONE, MEK)	78-93-3	UG/ML	--	6	0%	0.03	0.03	--	--	0.015	0.015	--	0.015	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8315A	ACETALDEHYDE	75-07-0	UG/ML	--	6	0%	0.003	0.003	--	--	0.002	0.002	--	0.002	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8315A	ACETONE	67-64-1	UG/ML	--	6	0%	0.01	0.01	--	--	0.005	0.005	--	0.005	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8315A	ACROLEIN	107-02-8	UG/ML	--	6	0%	0.01	0.01	--	--	0.005	0.005	--	0.005	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8315A	BENZALDEHYDE	100-52-7	UG/ML	--	6	0%	0.03	0.03	--	--	0.015	0.015	--	0.015	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8315A	BUTYRALDEHYDE	123-72-8	UG/ML	--	6	0%	0.03	0.03	--	--	0.015	0.015	--	0.015	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8315A	CROTONALDEHYDE	4170-30-3	UG/ML	--	6	0%	0.03	0.03	--	--	0.015	0.015	--	0.015	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8315A	FORMALDEHYDE	50-00-0	UG/ML	--	6	0%	0.004	0.004	--	--	0.002	0.002	--	0.002	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8315A	HEXANALDEHYDE	66-25-1	UG/ML	--	6	0%	0.03	0.03	--	--	0.015	0.015	--	0.015	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8315A	M-TOLUALDEHYDE	620-23-5	UG/ML	--	6	0%	0.03	0.03	--	--	0.015	0.015	--	0.015	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8315A	METHACROLEIN	78-85-3	UG/ML	--	6	0%	0.03	0.03	--	--	0.015	0.015	--	0.015	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8315A	PROPIONALDEHYDE	123-38-6	UG/ML	--	6	0%	0.03	0.03	--	--	0.015	0.015	--	0.015	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8315A	VALERALDEHYDE	110-62-3	UG/ML	--	6	0%	0.03	0.03	--	--	0.015	0.015	--	0.015	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8330	1,3,5-TRINITROBENZENE (TNB)	99-35-4	µg/L	--	22	0%	0.2	4	--	--	0.186	0.115	0.405	0.335	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8330	1,3-DINITROBENZENE (DNB)	99-65-0	µg/L	--	22	0%	0.2	4	--	--	0.186	0.115	0.405	0.335	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8330	2,4,6-TRINITROTOLUENE (TNT)	118-96-7	µg/L	5	22	23%	0.110	2	2.2	25.7	2.002	0.180	5.550	4.038	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8330	2,4-DINITROTOLUENE	121-14-2	µg/L	--	22	0%	0.2	4	--	--	0.186	0.115	0.405	0.335	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8330	2,6-DINITROTOLUENE	606-20-2	µg/L	--	22	0%	0.33	4	--	--	0.248	0.185	0.391	0.392	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8330	2-AMINO-4,6-DINITROTOLUENE	35572-78-2	µg/L	--	22	0%	0.210	2	--	--	0.146	0.116	0.191	0.216	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8330	2-NITROTOLUENE	88-72-2	µg/L	--	22	0%	0.66	11	--	--	0.565	0.375	1.102	0.969	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8330	3-NITROTOLUENE	99-08-1	µg/L	--	22	0%	0.3	6	--	--	0.280	0.172	0.608	0.502	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8330	4-AMINO-2,6-DINITROTOLUENE	19406-51-0	µg/L	--	22	0%	0.2	4	--	--	0.186	0.115	0.405	0.335	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8330	4-NITROTOLUENE	99-99-0	µg/L	--	22	0%	0.66	11	--	--	0.565	0.375	1.102	0.969	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8330	HMX	2691-41-0	µg/L	2	22	9%	0.5	10	0.7	2.5	0.589	0.333	1.098	0.991	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8330	NITROBENZENE	98-95-3	µg/L	--	22	0%	0.2	4	--	--	0.186	0.115	0.405	0.335	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8330	RDX	121-82-4	µg/L	6	22	27%	0.2	4	0.66	27.3	2.050	0.301	5.827	4.187	--	--	--	--	--	--	--	--	--	--	--	--
EPA 8330	TETRYL	479-45-8	µg/L	--	22	0%	0.15	4.4	--	--	0.172	0.087	0.453	0.338	--	--	--	--	--	--	--	--	--	--	--	--
EPA 9040B	PH	10-29-7	UNIT	22	22	100%	--	--	6.77	9.39	7.645	7.625	0.587	7.861	--	--	--	6.5-8.5	1	--	--	--	--	--	--	--
EPA/ML 245.1	MERCURY	7439-97-6	µg/L	9	22	41%	0.066	0.2	0.058	0.087	0.083	0.079	0.023	0.093	2	--	--	--	--	--	1.2	--	--	--	--	--
ML/EPA 900.0	ALPHA, GROSS	12587-46-1	PCI/L	13	14	93%	0.447	0.447	1.4	13.5	5.183	3.338	3.974	6.856	15	--	--	--	--	--	--	--	--	--	--	--
ML/EPA 900.0	BETA, GROSS	12587-47-2	PCI/L	13	14	93%	1.12	1.12	2.09	9.16	4.633	3.837	2.634	5.880	50	--	--	--	--	--	--	--	--	--	--	--
MOE MSABN-E3291A	N-NITROSODI-N-PROPYLAMINE	621-64-7	µg/L	1	22	5%	0.005	0.005	0.125	0.125	0.008	0.003	0.026	0.019	--	--	--	--	--	--	--	--	--	--	--	--
MOE MSABN-E3291A	N-NITROSODIMETHYLAMINE (NDMA)	62-75-9	µg/L	4	22	18%	0.002	0.00314	0.00044	0.00575	0.001	0.001	0.001	0.002	--	--	--	--	--	--	--	--	--	0.01	--	--
MOE MSABN-E3291A	N-NITROSODIPHENYLAMINE	86-30-6	µg/L	14	22	64%	0.005	0.005	0.00148	0.0249	0.003	0.003	0.005	0.006	--	--	--	--	--	--	--	--	--	--	--	--

Notes:

µg/L = micrograms per liter
µg/mL = micrograms per milliliter
mg/L = milligrams per liter
NTU = Nephelometric Turbidity Units
mg O2/L = milligrams of oxygen per liter
pCi/L = picocuries per liter
pg/L = picograms per liter

1/2 of the detection limit was used for nondetected values when calculating the arithmetic mean, geometric mean, standard deviation, and 95% upper confidence limit.

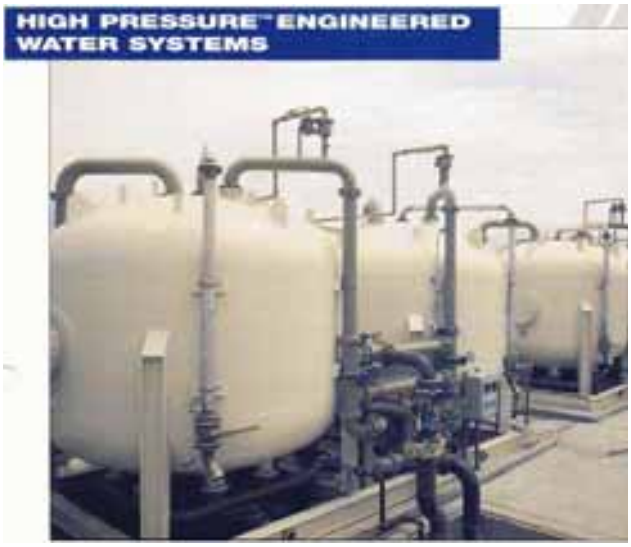
TABLE 3A-17

Evaluation of Detected Analytes included in the Comprehensive Groundwater Monitoring Event

Analytes	Result	Analytes	Result
1,2,3,4,6,7,8,9-octachlorodibenzo-p-dioxin (OCDD)	not detected	fluorene	not detected
1,2-dichlorobenzene (1,2-DCB)	not detected	fluoride	detected (below reg. limits)
arochlor-1242 (PCB-1254)	not detected	flurotrichloromethane (trichloroflurometh ane)	detected (below reg. limits)
arochlor-1254	not detected	formaldehyde	not detected
arochlor-1260	not detected	fuming nitric acid (nitrate)	detected (below reg. limits)
arsenic trioxide	arsenic detected (below reg. Limits)	hydrocarbons with C_{10} through C_{22} (diesel)	detected (below reg. limits)
beryllium	detected (below reg. limits)	hydrocarbons with C_4 through C_{12} (gasoline)	not detected
butylbenzylphthalate	not detected	hydrocarbons with C_{18} or greater (motor oil)	detected (below reg. limits)
chlorobenzene	not detected	methyl ethyl ketone	not detected
chlorodifluromethane (Freon 112)	not detected	nitrates	detected (below reg. limits)
chromic acid (hexavalent chromium)	detected (above PHG)	polychlorinated biphenyls (PCBs)	not detected
cis-1,2-dichloroethylene	detected (below reg. limits)	t-amyl methyl ether (TAME)	not detected
cobalt	detected (below reg. limits)	t-butyl alcohol (TBA)	not detected
cresols (3/4-methylphenol)	not detected	total petroleum hydrocarbons (TPH)	detected (below reg. limits)
di-isopropyl ether (DIPE)	not detected	trichloroethane (1,1,2-trichloroethane)	not detected
ethyl-t-butyl ether (ETBE)	not detected		

Appendix G
USFilter Ion Exchange Treatment System

SYSTEM SPECIFICATION SUMMARY: HP1220DS Hi-Flow System



HP1220DS Hi Flow Ion Exchange Systems are designed to treat a wide range of contaminated process streams. All piping and valves are configured for series, parallel, or vessel isolation flows. System includes inlet and outlet piping, and backwash capabilities. The system consists of two vessels, skid mounted, with all piping, valves, and gauges assembled for ease of operation. The vessels are equipped with underdrains capable of maximum flow rate of 2400 GPM.

EACH VESSEL:

Vessel Diameter .....144”
Side Shell Height.....60”
Overall Height (Approx.) ..... …15’-4”
Working Pressure ..... 125 psi @ 150 ∀F
Manway:
- Flanged at side shell.....20”
- Elliptical type at head.....14” x 18”

Vessel Volume .....7,520 gal.
Vessel Resin Capacity .....300 Ft^3
Maximum Flow .....2,400 GPM
Nominal Flow.....2,000 GPM
Design Criteria ..... ASME
Code Stamping ..... YES
Material .....Carbon Steel
Supports..... Wide Flange Legs
Lifting..... Lifting Lugs
Siesmic ..... Zone 4
Interior Surface Prep SSPC-SP5
Interior Surface Coating .....Plasite 4110 35 mil dft min
Exterior Surface Primer.....Carboline 893 Rust Preventative Epoxy 3 mil min dft
Exterior Surface Coating.....Carboline 134 High Solids Urethane 3mil min dft
Standard Color.....Blue (Federal Standard 15052)

UNDERDRAINS:

Hub Lateral Design ..... Stainless Steel
Resin Screens .....304L Stainless Steel V-Wire Screens 1 ½" Dia

VALVE ASSEMBLY AND PIPING:

Piping:

Process Piping..... 12" Schedule 40 Carbon Steel
Resin Transfer Piping .....4" Sch 10 304L Stainless Steel

Valves:

Process.....12" Butterfly, Cast Iron Body w/AL-Brnz Disk, Gear Operator
Resin Transfer ..... 4" Fanged 316 Stainless Steel Ball Valve
Vent/Wash .....2"Bronze Apollo Ball Valve
Sample Ports (3) .....1/2"Bronze Apollo Ball Valve

SYSTEM WEIGHT:

System Shipping weight..... 40,000 lb
System Resin Weight ..... 40,000 lb
Operating Weight ..... 190,000 lb

ION EXCHANGE FOR PERCHLORATE REMOVAL (USFILTER SUMMARY)

USFILTER EXPERIENCE WITH PERCHLORATE REMOVAL

Through its North American Technology Center and Development Council, USFilter's team of experts are developing and implementing new solutions to solve the world's most daunting water challenges. The company owns or licenses more than 3,000 active patents worldwide and continues to develop technologies for the future at the rate of more than two patents per week. Worldwide, the company invests more than $50 million a year on research and development.

USFilter started to develop solutions to the perchlorate problem in California in the late 90's. We established a dedicated team to look at various methods to treat this water contaminant. The USFilter team incorporated people from our operations, research, construction, field application engineering, and marketing groups across multiple product lines. Two existing technologies emerged from this team's work along with a promising third technology from research efforts:

- Fluidized Bed Reactors
- Once Through Media – Ion Exchange Resin
- Once Through Media – Tailored Carbon

Two of these technologies have been approved by the California Department of Health Services (CA DHS) for the removal of perchlorate from drinking water (Fluidized Bed Reactors and Ion Exchange). The third (Tailored Carbon) will be submitted shortly for approval by the CA DHS.

USFilter found that both approved technologies would produce water quality of a level that was below the California Action Limit (AL) for perchlorate. Our studies showed that the application of the ion exchange technology is dependent upon the level of perchlorate and the background anions present in the water. This is generally applied where the perchlorate influent concentration is <500 ppb. In keeping with maintaining "Good Environmental Stewardship", the once through ion exchange resin technology collects the perchlorate and then allows for destruction of the perchlorate through destruction of the ion exchange resins, thus eliminating the "Cradle to Grave" responsibility for this material. There is no brine generated nor is there the need for brine connection fees. And with the pending brine disposal restriction (and/or elimination) rules, the liability for the brine waste material is eliminated.

The Fluidized Bed Reactor (FBR) technology has been applied in Northern California for the past four years, where significant (ppm) levels of perchlorate have been found in the groundwater. This technology consistently maintained perchlorate concentrations that were less than 1 ppb in the treated effluent.

We are recommending the use of ion exchange resin for Lincoln Avenue Water Company (LAWC). Further, we have selected the one time use resin as our technology of choice for perchlorate removal for potable water, since it provides significant advantage over on site regeneration technologies; with the complete thermal destruction of the perchlorate ion as well as the elimination of a new waste stream in the form of spent brine regenerant.

In California, USFilter has been selected as the supplier of resin services to remove Perchlorate and nitrate from well sites for the following:

City of West San Bernardino	Perchlorate removal using on-site vessels. Product water used for municipal supply. DHS operating permit issued.

City of Rialto	Perchlorate removal using on-site vessels at the Chino #2 site. Product water used for municipal supply. DHS permit has been issued and the system went into operation on October 2nd, 2003 at 1500 GPM.
City of Morgan Hill	Two well sites wells for perchlorate removal using exchange units. Product water used for municipal supply. The resin is the same as being recommended for LAWC wells. A DHS permit is in the process of being issued.
West San Martin	Two well sites wells for perchlorate removal using exchange units. Product water used for municipal supply. The resin is also a non-nitrate sloughing resin. A DHS permit will be applied for this summer.
City of Fresno	Four well sites wells for nitrate removal using on-site fixed units and trailers. Product water used for municipal supply DHS permit issued.
Aerojet	Removal of high levels of Perchlorate in ground water for site remediation, using portable vessels. Product water used for groundwater replenishment. Environmental operating permit by State issued.
Shaw Environmental	Client Site remediation of Perchlorate using portable vessels.

FUTURE ABILITY TO SUPPLY RESIN AND EQUIPMENT

USFilter is in a unique position to assure that LAWC will receive resin and services now and in the future. We are a strong healthy company that is the single largest supplier of services and equipment for water treatment in the world. This is why cities such as Indianapolis, Atlanta, and Berlin, as well as local cities such as Burlingame, California and Richmond, California have signed long term operating contracts with USFilter over the next 20 years.

In addition we are the single largest purchaser of resins in the world and maintain close and direct relationships at a corporate level with the major suppliers including DOW, Rohm and Haas, and Purolite. In addition the consumption rate of perchlorate resin for these wells represents less than 2% of our current perchlorate resin consumption.

When you need us, whether it is this weekend or in ten years, we will be here.

ION EXCHANGE (IX) PROCESS DESCRIPTION

This section describes the design and operation of USFilter's proposed Perchlorate Ion Exchange (IX) System, the separate components, and their operations that comprise this system.

DESCRIPTION

We are proposing the following equipment for LAWC. This equipment option is designed to treat a nominal flow of 2,000 gpm of groundwater and will operate utilizing USFilter's HP1220™ ion exchange Hi-Flow vessels configured in lead / lag. The treatment system will have one

vessel in the lead working position and one vessel in the lag polishing position. There would be a total of one (1) lead vessel and one (1) lag vessel online at the well site. Each vessel is 12' in diameter and will be filled with NSF approved anion exchange resin in the chloride form, selected for optimum capacity of perchlorate removal. This is a tried, proven, and accepted technology for the removal of perchlorate from water.

Perchlorate concentrations leaving the vessels are monitored by routine sampling for breakthrough. The lead vessels will be changed when the product perchlorate has reached a level of 30% of the influent perchlorate level, or if the perchlorate level leaving the lag vessel exceeds 2 ppb. During an individual change, a lead vessel is taken off line. The vessel stays on-site and new, virgin resin is loaded into the vessel. The vessel containing the new resin is placed in the lag, polishing position. The former lag, polishing vessel is valved into the lead position. This ensures that the newest anion resin is always in the polishing position.

Testing for Perchlorate on the lead vessels will need to be performed on a routine basis. We are recommending a frequency of 7 days between tests after the initial performance-testing period has been completed. The testing of the perchlorate will be the responsibility of the client unless otherwise agreed to by client and USFilter.

Feedwater is fed to each vessel through the top, passes through anion NSF approved ion exchange resin, and leaves the vessel at the bottom (co-current flow). Perchlorate ions in the feedwater are replaced with chloride ions as the water passes through the bed. The spent resin from this process will be removed from the vessels and sent to a facility for destruction by fuel blending once the effluent perchlorate levels indicate that the resin has achieved a predetermined perchlorate saturation level.

The treated water flows to the customer's reservoir and then distribution system for use. This proposed system will maintain an effluent perchlorate level of <2 ppb.

INDIVIDUAL UNIT / COMPONENT OPERATION

The proposed IX system will use USFilter's HP 1220™ Hi-Flow ion exchange vessels configured in lead / lag. The system at the Lincoln Avenue Water well site will have one (1) vessels in the lead working position and one (1) vessels in the lag polishing position for a total of two (2) vessels online designed to produce a nominal flow rate of 2,000 gpm and is capable of a maximum flow rate of 2,400 gpm.

The system will produce and maintain a maximum product water perchlorate level of < 2 ppb as determined by EPA Method 314 for perchlorate analysis. Each of the vessels will hold 300 cubic feet of anion resin.

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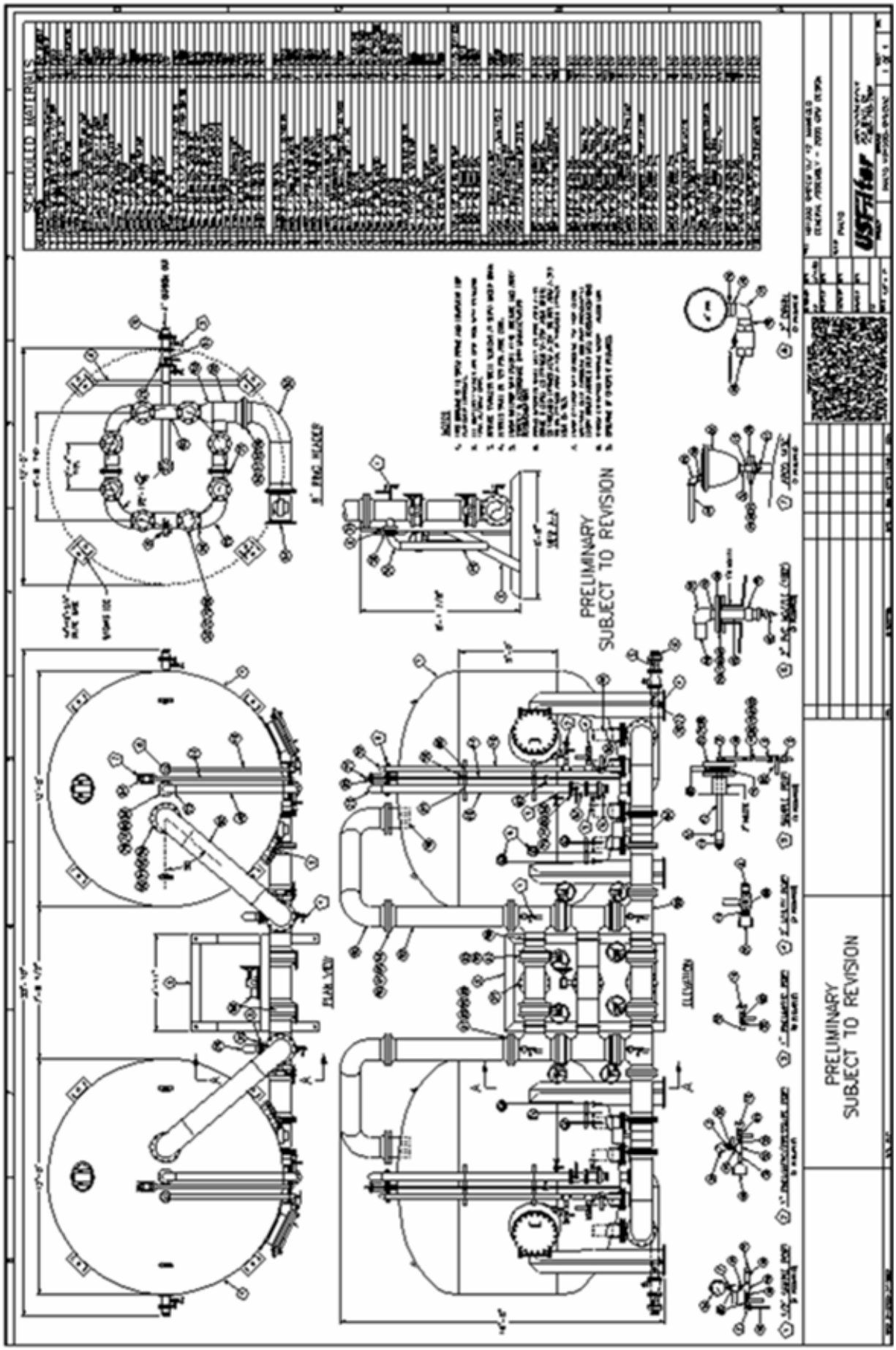
SCHEDULED MATERIALS
PRELIMINARY
SUBJECT TO REVISION
PRELIMINARY
SUBJECT TO REVISION

Appendix H
Rohm and Haas, Amberlite™ PWA2 Strongly Basic Anion Exchange Resin

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ROHM HAAS

ION EXCHANGE RESINS

AMBERLITE® PWA2

STRONGLY BASIC ANION EXCHANGE RESIN

Amberlite® PWA2 is a specially designed ion exchange resin for the selective removal of perchlorate from potable water, and as such, Amberlite PWA2 has been certified for potable water use according to NSF/ANSI standard 61 for drinking water system components (for material requirements only).

PROPERTIES	
Matrix	Polystyrene divinylbenzene copolymer
Physical form	Amber translucent beads
Ionic form as shipped	Chloride
Total exchange capacity	0.60 eq/l minimum (Cl^- form)
Shipping weight	42 lbs/ft^3

SUGGESTED OPERATING CONDITIONS

Optimum pH range	0 to14
Maximum operating temperature	140°F
Minimum bed depth	24 inches
Service flow rate	25 – 50 BV/hour

It is recommended that all potential users seek advice from Rohm and Haas Company to determine the optimum operating conditions.

SAFE HANDLING INFORMATION

Material Safety Data Sheets

Material Safety Data Sheets (MSDS) are available for all Rohm and Haas products. These sheets contain pertinent information that you may need to protect your employees and customers against any known health or safety hazards associated with our products.

We recommend that you obtain copies of our MSDS by calling 1-800-RH-AMBER before using our products in your facilities. We also suggest that you contact your suppliers of other materials recommended for use with our products for appropriate health and safety precautions before using them.

Caution: Acidic and basic regenerant solutions are corrosive and should be handled in a manner that will prevent eye and skin contact. In addition, the hazards of other organic solvents should be recognized and steps taken to control exposure.

Nitric acid and other strong oxidizing agents can cause explosive reactions when mixed with ion exchange resins. Proper design of process equipment to prevent rapid build up of pressure is necessary if use of an oxidizing agent such as nitric acid is contemplated. Before using strong oxidizing agents in contact with ion exchange resins, consult sources knowledgeable in the handling of these materials.

Note: Ion exchange resins and polymeric adsorbents, as produced, contain by-products resulting from the manufacturing process. The user must determine the extent to which organic by-products must be removed for any particular use and establish techniques to assure that the appropriate level of purity is achieved for that use. The user must ensure compliance with all prudent safety standards and regulatory requirements governing the application. Except where specifically otherwise stated, Rohm and Haas Company does not recommend its ion exchange resins or polymeric adsorbents as supplied as being suitable or appropriately pure for any particular use. Consult your Rohm and Haas technical representative for further information.

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DRAFT

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WATER QUALITY ASSOCIATION

CERTIFICATE OF VALIDATION

This is to certify that the drinking water system component herein has been independently tested and certified by the Water Quality Association in accordance with "Drinking Water System Components - Health Effects," NSF/ANSI-61-2002. The material safety of the component listed has earned the Gold Seal.

Manufacturer:	Rohm and Haas Company
Address:	100 Indepence Mall West Philadelphia, PA 19106-2399
Model:	Amberlite PWA2
Product Type:	Process Media
Size:	N/A
Water Contact Temp:	CLD 23
Water Contact Material:	SYN
Listing Notes:	Ion Exchange Resin
Initial Date:	Monday, September 08, 2003
Expiration Date:	Friday, August 29, 2008
Test Unit Number:	03087.001
Certificate Number:	CRT.080803.03087001.R1

Joseph F. Harrison

Joseph F. Harrison, P.E., CWS-VI

12 Sept. 2003

Date

Appendix I
Operations Manual for PWP VOC Treatment Plant

Operation and Maintenance Procedures

for the

Devil's Gate VOC Groundwater Treatment Plant

==========

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1.0.0 Description of Duties for Personnel (See Appendix B - City of Pasadena Organizational Chart)

1.1.0 The **VOC Plant Inspector** has primary responsibility for the daily inspection of the VOC Plant in order to perform necessary recordkeeping and determine whether it is operating properly. He shall be an employee of the City and shall possess, as a minimum, a Grade II Water Treatment Operator Certificate from the State of California, Department of Health Services.

1.1.1 A VOC Plant Inspector shall make a daily inspection of the VOC Plant when the plant is in operation. The VOC Plant Inspector shall be responsible for immediately informing his supervisor(s) if he believes that the VOC Plant is operating in a manner which might jeopardize water quality. He has the authority to turn the VOC Plant off if his supervisor(s) instructs him to do so, but he does not have the authority to turn the VOC Plant on under any circumstances. He shall be responsible for performing the daily physical inspection, for completing the daily production report, and for taking scheduled samples. See Section 5, "Record Keeping" for instructions for completing the Daily Inspection Report, a copy of the Daily Inspection Report, and see Section 6, "Sampling Schedule and Treatment Regimen", for a copy of the sampling schedule. The VOC Plant Inspector shall pass all paperwork on to his foreman at the end of his weekly shift.

1.1.2 The VOC Plant Inspector shall be responsible for immediately informing his supervisor(s) of any abnormal situation. If his immediate supervisor is not available, he shall notify the next person up in his chain of command. He shall continue up the chain of command to the Water System Superintendent, then to the Principal Engineer and up that chain of command until he locates someone who is available. (See Appendix B--City of Pasadena Organizational Chart). The VOC Plant Inspector shall also be responsible for informing his supervisor of any maintenance that is needed.

1.2.0 The **VOC Plant Operator** has responsibility for turning the VOC Plant on and off. He shall be a Water System Supervisor or a Water System Foreman as described in Sections 1.5.0 and 1.6.0 of these procedures.

1.2.1 The VOC Plant Operator shall perform plant start up and shutdown in accordance with the startup procedures given in Section 7, "Plant Startup", of these procedures. He may also be designated as the VOC Plant Inspector for a particular day, and his responsibilities in that role are defined above.

1.3.0 The **Calgon Representative** has complete responsibility for maintenance of the VOC Plant and for any inspection and operation which are not part of the daily inspection or the start up and shut down procedures performed by City staff.

1.4.0 The Water Quality Laboratory Coordinator performs the water quality analyses of certain samples and is involved in consultations with the engineering and operating personnel.

1.5.0 The **Water System Foreman** is responsible for the immediate supervision of the VOC Plant Inspectors. He may also serve in one of those roles as necessary. He is responsible for ensuring that the VOC Plant Inspectors are free and able to carry out the responsibilities described herein. He is responsible for ensuring that all communications and instructions are properly received and understood by all concerned who report to him. He takes the place of the Water System Supervisor when that supervisor is not available. The Water System Foreman shall possess, as a minimum, a Grade III Water Treatment Operator Certificate from the State of California, Department of Health Services.

1.6.0 The **Water System Supervisor** is responsible for the overall operation, staffing, and scheduling of people directly involved in water quality operation activities. He shall be responsible for providing proper instructions and work policies as needed to properly conduct the work. Any directives, schedules, instructions, or policies made shall always be consistent with and in accord with these procedures. He shall be responsible for consulting with the engineering staff as necessary for VOC plant operation. If he is in doubt as to whether or not to consult, he shall consult. Likewise, if he is in doubt as to whether or not to inform, he shall inform. The Water System Supervisor shall possess, as a minimum, a Grade III Certificate Water Treatment Operator Certificate from the State of California, Department of Health Services.

1.7.0 The **Water System Superintendent** is responsible for all operations related to water quality as well as all construction and operations activities in the Water Division. He is the immediate supervisor of the Water System Supervisor and shall be responsible for ensuring that these procedures are adhered to. He shall also be directly involved in the promulgating of these procedures.

1.8.0 The **civil engineers** in the Water Quality and Supply Engineering Section assist the Principal Civil Engineer in training, making recommendations on policy and procedures, and serving as monitors on the application of these procedures. A designated civil engineer shall be responsible for receiving the official VOC Treatment Plant records from the Water System Supervisor at the end of each month and transmitting them to the State Department of Health Services.

1.9.0 The **Principal Civil Engineer** in the Water Quality and Supply Engineering Section has the responsibility for all engineering work related to water quality and supply and directly supervises the civil engineers in the section and the Water Quality Laboratory Coordinator. It is the responsibility of the Principal Civil Engineer to make necessary communications with the Department of Health Services and Calgon Carbon Corporation, although he may delegate this responsibility to the civil engineers.

1.10.0 The **Water Engineering Manager** has overall responsibility for the engineering activities of the Water Division, including those activities relating to water quality and supply. He directly supervises the Principal Civil Engineer.

1.11.0 The **Manager of Water Systems** has overall responsibility for the Water Division, including all engineering, operations, construction, and maintenance activities. He is responsible for all water quality activities, both engineering and operations.

1.12.0 If any person involved in the operation of the VOC Plant believes that he has been asked to do something in violation of policy or regulations, he may seek advice from anyone he considers appropriate. He may ask questions of advisory personnel at any time. In no way does this relieve him of any responsibility for performing his duties as defined in these procedures.

2.0.0 Proficiency of Personnel

2.1.0 All personnel involved in the operation of the VOC Plant shall thoroughly understand and be proficient in the inspection on the treatment plant and the recordkeeping related to the operation of the treatment plant.

2.2.2 All personnel are encouraged to upgrade their certification as Water Treatment Operators. The appropriate State Department of Health Services certificate shall be held by any person performing a task for which such certification is required. The State Department of Health Services advises that the Water System Superintendent, the Water System Supervisor, and the Water System Foreman all have Grade III Water Treatment Operator certificates if the plant is to be operated. It is recommended that either the Water System Superintendent or the Principal Civil Engineer possess a Grade IV certificate.

2.3.0 All personnel, regardless of classification, will at times need to exercise judgment in the performance of their job duties. The City expects that this judgment always be exercised with water quality being the primary consideration. If in doubt as to a course of action, the safest action with respect to water quality shall be taken.

3.0.0 System Description

3.1.0 General

The treatment system is designed to treat a maximum of 7,000 gallons per minute of water from four contaminated wells and deliver it to Windsor Reservoir. The design influent concentrations and maximum allowable effluent contaminations levels are as follows:

Compound	Design Influent Concentrations (ppb)	Design Maximum Allowable Effluent Concentrations (ppb)	MCL's (ppb)
Trichloroethylene (TCE)	20.0	2.0	5.0
Carbon Tetrachloride (CCl_4)	20.0	0.2	0.5
Tetrachloroethylene (PCE)	8.0	2.0	5.0
1,2-Dichloroethane (1,2-DCA)	2.5	0.2	0.5

3.2.0 Air Strippers

3.2.1 The facility uses two air strippers of the same design. Under normal operations, the system is designed to accept flow from the four well sources in the following configuration: (1) the combined flow from Arroyo Well and Well 52 into the north air stripper tower and (2) the combined flow from the Ventura and Windsor Wells into the south air stripper tower. Under different operating conditions, this configuration may be altered. The VOC Plant Inspector shall check the log book for current operating conditions. Each tower is designed to treat a maximum flow of 3,750 gpm and a minimum flow of 1,160 gpm. The tower design is based upon treating the maximum flow at the maximum influent contaminant concentration.

3.2.2 Air stripping is a process that removes volatile organic compounds (VOCs) from a liquid stream. The packed tower air stripping system uses the unique characteristics of certain organic compounds. The VOCs are transferred from the liquid stream to the vapor stream in the air stripper. Air stripping is a physical process in which the compounds attempt to equilibrate between the water and the gas phase. The packed tower system enhances the air stripping process by providing highly effective air-water contact on the packing media via countercurrent air flow.

3.2.3 Water is introduced at the top of the packing section to a system to equally distribute the water across the packing area. Packing is provided in the stripping tower to increase the liquid contact area. The groundwater trickles down through the packed bed, exposing the liquid to a large surface area to contact the vapor stream and is collected at the bottom in a stripper sump. The treated water flows by gravity from the air stripper to the air stripper sump.

3.2.4 Air is introduced to the packing at the bottom of the tower by a forced air blower. The air flows up through the packing countercurrent to the water flow. This countercurrent flow allows the cleanest air to contact the cleanest water, maximizing the efficiency of removal.

3.2.5 After the packing section, the air stream passes through a demister to remove entrained moisture and is discharged to the vapor phase carbon adsorbers.

3.3.0 Blowers

3.3.1 Each tower has a single blower located between the air stripper and the off-gas carbon adsorption treatment system. Clean air is drawn by the blower into the bottom of the air stripper. The air passes through the packing to remove VOCs in the water flowing down over the packing and exits the top of the tower into the blower. The blower discharge enters the vapor phase carbon adsorption system for removal of the entrained VOCs from the air stream. The scrubbed air is discharged to the atmosphere via a 4-foot diameter stack.

3.4.0 Sump and Booster Pumps

3.4.1 After treatment in the strippers, the treated water is collected in the concrete sump located under the air strippers. The two effluent pumps transfer the treated groundwater from the sump to Windsor Reservoir. A level control system in the sump modulates a variable frequency drive on one of the transfer pumps to maintain a constant level in the sump. A drop in liquid level in the sump will cause the variable frequency pump to slow down thereby reducing the flow rate. The second pump is fixed speed drive. Should high water level occur in the clear well, the liquid level control will shut down the well pumps. A low level in the sump will shut down the transfer pumps.

3.5.0 Carbon Adsorption System

3.5.1 The carbon adsorption system uses granular activated carbon (GAC) for efficient removal of organic compounds from the air. Adsorption is a physical process in which the compounds adhere to the external surface of the carbon particle. The large surface area contained in the internal pore structure of the carbon particle provides the carbon adsorption system with a substantial capacity for organic compound removal. The adsorption system provides effective exposure of the contaminated air to a quantity of granular activated carbon.

3.6.0 Control Panel

3.6.1 The control panel is provided to control the mechanical equipment and shut down the treatment system in the event of a power failure, a blower shutdown, a high sump level, or a low sump level. The equipment interlocked with the control panel are the well pumps, the air stripper blowers (B-1, B-2), and the effluent booster pumps (P-1, P-2).

3.6.2 The alarms which may appear on the panel are as follows.

Loop Number	Alarm Description	Action Taken by System When Alarm is Set Off
LIC-1	V-1 Sump Level High 73"	Shut Down Treatment System and Well Pumps
LIC-1	V-1 Sump Level Low 43"	Shut Down Effluent Pumps
DPI-5	S-1 Air Stripper Low Pressure	Shut Down Treatment System and Well Pumps
DPI-6	S-2 Air Stripper Low Pressure	Shut Down Treatment System and Well Pumps

4.0.0 Compliance

4.1.0 The State Department of Health Services standards will be the only standards governing the operation of the VOC Water Treatment Plant. Any instructions contrary to the State Health standards shall be ignored and reported to higher authority.

4.2.0 Under no circumstances is Windsor Reservoir to be considered a sump. It is not to be considered part of the treatment process in any way. The treatment process ends immediately downstream of the booster pumps at the VOC Plant.

4.3.0 If any instrumentation is malfunctioning to the point where proper operation of the plant cannot be assured, then the plant shall be shut down. The VOC Plant Inspector shall report this condition immediately to his foreman.

4.4.0 No treatment unit shall ever be bypassed during operation of the plant.

5.0.0 Recordkeeping

5.1.0 No white-out or eradicator shall be used on any records kept relating to water quality matters. If a change is to be made, the original entry shall be lined through once and the revised entry made immediately above it. All record keeping shall be done in ink.

5.2.0 Any record made regarding the plant shall be recorded and kept in a formal fashion on the Daily Production Report or in the log book maintained at the VOC Plant site. In no case shall blank pieces of paper or scraps of scratch paper be used to record any plant information. Readings written on any form shall be made in ink.

5.3.0 The VOC Treatment Plant Daily Inspection Report, the Instructions for Completing the Daily Inspection, and the VOC Treatment Plant Operations Report are included in this section for reference.

Daily operational records including, as a minimum, flow rates, total volume treated, air-to-water ratios, the amount of chlorine used, chlorine residual measurements, operational changes and unusual occurrences shall be maintained. A monthly report containing the foregoing records shall be submitted by the 10th day of the following month to the Los Angeles District Office of the State Department of Health Services.

City of Pasadena
Water and Power Department
VOC Treatment Plant
Inspector's Daily Checklist

The Water Treatment Inspector making the daily rounds to the VOC Treatment Plant shall follow these instructions and record all the appropriate information on the Daily Production Report for the VOC Treatment Plant.

1. Log Book--The inspector shall first check the Log Book in the control room regarding the current operational status of the plant (i.e. which blowers and wells are running). Log status on daily Production Report.

2. Level Controller--Are alarm indicators 1 and 2 showing on display? Is level at or near setpoint of 58"? Log reading in report.

3. Vari-Speed Drives--Observe indicators, log readings.
   A. P1 (Pump 1)--Varies depending on sump level but should read between a minimum of 30.0 and a maximum of 60.0.
   B. B1 and B2 (Blower 1 and Blower 2)--The two blowers are manually set and do not change. Note from log book what the current value should be. B1 and B2 may be different.

   The following conditions shall be reported to the foreman or supervisor immediately.
   Any variation from the most recent logged value.
   Any display other than frequency.
   No blowers are operating and the pump(s) are running.

4. Plant Walk-Around
   A. Observe Pumps (P1 and P2)
      -Listen for abnormal noise.
      -Observe oil level (foaming is normal).
      -Feel body of motor for unusually high temperature.
      -Observe shaft packing for excessive leaking.
   B. Observe Blowers (B1 and B2)
      -Observe manometers, reading should be between 14" and 18", and record readings.
      -Listen for abnormal noise.
   C. Carbon Adsortion Tanks (C1 and C2)
      -Open bottom valves, check for excessive water.
      -Observe manometers, readings should be between 3" and 7", and record readings.
   D. Inspect pressure gauges and valve manifold behind towers
      -Record pressure gauge readings.
      -Check for leaks, noise, or tampering.

**Report any indication of tampering or signs of intrusion to the foreman or supervisor immediately. During the physical walk-around and inspection, the operational status of the equipment shall correspond to the status readings taken earlier in the control room. If there are discrepancies (i.e. B1 is indicated to be ON in the control but during the physical walk-around, B1 is OFF), report situation to the foreman or supervisor. Any readings that do not correspond to what they should be shall be reported to the foreman or supervisor.

City of Pasadena
Water and Power Department
VOC Treatment Plant
Daily Inspection Report

Control Room Inspection							Plant Walk-Around								
Date & Time	Status	Level Controller Sump Level	Level Controller Out %	P1	Blowers		Blowers (Manometers)		Carbon Tanks (Manometers)				Pressure Gauges		Operator's Initials, Comments
					B1	B2	B1	B2	C1		C2		South	East	
									U	L	U	L			

6.0.0 Sampling Schedule and Chlorination Regimen

The water quality analyses shall follow the sampling schedule in this section.

6.1.0 Well and VOC Treatment Plant Sampling

The four wells (Arroyo, Ventura, Well 52, and Windsor) that provide water to the VOC Water Treatment shall be sampled monthly for VOCs (TCE, PCE, CCl_4, 1,2-DCA) when the plant is in operation.

6.2.0 Reservoir Sampling

The blended water in Windsor Reservoir shall be sampled weekly for VOCs.

6.3.0 Compliance Report

The Volatile Organic Chemical Compliance Report shall be submitted to the State Department of Health Services every month. A copy of this report follows in this section and is made a part of this operation and maintenance manual.

6.4.0 Chlorination Regimen

All water entering the distribution system from this plant shall be continuously and reliably chlorinated. The chlorine residual shall be measured daily at Windsor Reservoir.

The amount of chlorine used and the chlorine residual measurements shall be recorded on the daily chlorination report at Windsor Reservoir and on the monthly VOC Treatment Plant Operations Report.

CITY OF PASADENA
VOLATILE ORGANIC CHEMICAL
COMPLIANCE REPORT

MONTH _____ YEAR _____

1. WATER QUALITY

Wells and Treatment Plant Effluent (sampled monthly)

	CCL4	TCE	PCE	1,2 DCA
Arroyo Well	____ppb	____ppb	____ppb	____ppb
Well 52	____ppb	____ppb	____ppb	____ppb
Inf. N. Tower	____ppb	____ppb	____ppb	____ppb
Ventura Well	____ppb	____ppb	____ppb	____ppb
Windsor Well	____ppb	____ppb	____ppb	____ppb
Inf. S. Tower	____ppb	____ppb	____ppb	____ppb
Plant Effluent	____ppb	____ppb	____ppb	____ppb

Windsor Reservoir Blend (sampled weekly)

	CCL4	TCE	PCE	1,2 DCA
1st Week	____ppb	____ppb	____ppb	____ppb
2nd Week	____ppb	____ppb	____ppb	____ppb
3rd Week	____ppb	____ppb	____ppb	____ppb
4th Week	____ppb	____ppb	____ppb	____ppb
5th Week	____ppb	____ppb	____ppb	____ppb

2. PRODUCTION

Source	Production (Ac-Ft)	Pumping Time (hours)	Capacity (CFS)
Arroyo Well	_____	_____	_____
Well 52	_____	_____	_____
Ventura Well	_____	_____	_____
Windsor Well	_____	_____	_____
Behner WTP	_____	_____	_____

Signed_____ Date _____

CCL4: Carbon Tetrachloride
TCE: Trichloroethylene
PCE: Tetrachloroethylene
1,2 DCA: 1,2 Dichloroethane

CITY OF PASADENA
VOC TREATMENT PLANT
OPERATIONS REPORT

MONTH_____ YEAR_____

1. Total Water Treated_____ AC-FT

2. Average Flow Rates

	Water	Air	Air/Water
South Tower (1) Ventura Well and Windsor Well	_____cfs	_____cfm	_____
North Tower (2) Arroyo Well and Well 52	_____cfs	_____cfm	_____

3. Chlorination at Windsor Reservoir

Daily Chlorination Max_____ppd Min_____ppd

Chlorine Residual

Free Chlorine Max_____ppm Min_____ppm

Total Chlorine Max_____ppm Min_____ppm

4. Operational Changes and Comments:

Signed_____ Date_____

vocoper

7.0.0 Maintenance

The ~~Water Treatment~~ VOC Plant Operator shall report any items that require maintenance to his foreman. The Water System Foreman shall report these to the Water System Supervisor. The Water System Supervisor shall report the these conditions to the Calgon Representative or to the civil engineers. If any maintenance item affects the water quality to below any regulatory standards, the plant shall be shut down until such repair is made.

8.0.0 Plant Startup

8.1.0 The VOC Plant shall be started only in accordance with the procedures described below. The Water System Foreman and the Water System Supervisor, in consultation with Calgon, shall be the only personnel authorized to start up the plant.

8.2.0 Blowers B-1 and B-2 variable speed drive switches, located on the variable speed drives, must be in the following positions. (If the plant shuts down automatically, these switches should be in the correct position.)

Blower Control Panel

Switch	Position
"Off"-"Hand"-"Auto"	"Hand"
"Normal"-"Preset"	"Normal"
"Manual"-"Stop"-"Run"	"Stop"

8.3.0 To start the blowers, the liquid level must be below the high level alarm point of 73". This is the reading on the Level Control Panel. When the level is below the high level alarm point a red number 2 will appear in the upper left corner of the display. If this number does not appear, the liquid level in the sump is too high and must be lowered to start the blowers. (See below for how to lower the liquid level without running the fans.) The pumps will not run unless both fans are operating.

8.4.0 With the liquid level below the high level alarm point, start both blowers simultaneously by pressing the start buttons on the variable frequency drives. Both fans should ramp up to the appropriate frequency as displayed on the drive digital display. Adjust the speed pot on the door to obtain the desired frequency. If the plant shuts down automatically, the speed pots should have been previously set to the correct frequency and not require adjustment.

8.5.0 If one of the blowers ramps up to full speed and the other does not, hit the stop buttons on both blowers and allow the blowers to stop spinning. After the blowers stop spinning, restart both drives. (If one blower starts and the second one does not, the pressure in the discharge duct will cause the blower that did not start to begin spinning backwards. The variable frequency drive cannot start the fan when it is spinning backwards.)

8.6.0 With the blowers running, check the liquid level controller to check that the "Man"-"Auto" setting is in the "Auto" mode. The VOC plant shall always be operated in the "Auto" mode. When in the Auto mode, the upper right corner of the display will read "A". To switch the plant operation from "Auto" to "Man" and/or from "Man" to "Auto", press the button until the desired mode is indicated in the upper right corner.

If the plant does not start in the "Auto" mode, place the controller in the Manual mode. A "Man" will appear in the upper right corner. **Operating and/or starting the plant in the Manual mode shall be performed only by the Calgon Representative.** Press the "Lower-Disp" until the lower display reads "Out". The lower display indicates the output to the variable speed drive from the pump (30% is the minimum setting; 100% represents the pump running at full speed). Adjust the output in the manual mode to approximately 65%. Pump the level in the sump to approximately 54".

8.7.0 Start a well pump. When the liquid level rises to 58", start the variable speed drive pump while the level controller is still in the "Auto" position. An "A" appears in the upper right corner when in the auto mode.

8.8.0 To turn on the variable frequency drive pump place the switches on the face of the panel in the following positions:

Pump Control Panel

Switch	Position
"Off"-"Hand"-"Auto"	"Auto"
"Normal"-"Preset"	"Normal"
"Manual"-"Stop"-"Run"	"Stop"

To start the drive, push the start button on the variable frequency drive. The pump will start. The level controller controls the speed of the pump. With the level controller in the manual mode, the speed of the pump can be adjusted by the arrow keys on the face of the panel.

8.9.0 Start a second well pump. The level controller should speed up the variable speed to compensate for the additional flow.

8.10.0 Start a third well pump. The variable speed pump should run to the maximum speed and the level in the sump will begin to rise. Start the fixed speed pump by pressing the start button on the motor control center.

8.11.0 Start the fourth well pump. The level control system should control the level in the sump to the set point of 58". The pumps will shut down automatically if the blowers shut down or if the level in the sump falls below 43".

9.0.0 Plant Shutdown

9.1.0 The VOC Plant shall be shut down only in accordance with the procedures described below. The Water System Foreman and the Water System Supervisor shall be the only personnel authorized to shut down the plant. The VOC Plant Inspector may shut down the VOC Plant only upon instruction to do so by his supervisor(s).

9.2.0 Shut off the well pumps feeding the treatment system.

9.3.0 The booster pumps will pump until a low level is detected in the sump.

9.4.0 Shut off the Air Stripper Blowers.

10.0.0 Promulgation of These Procedures

10.1.0 If there is an interpretation needed of these rules for a particular situation, the engineering staff shall be consulted.

10.2.0 These Operation and Maintenance Procedures shall be promulgated to ascertain that all concerned totally understand the contents of these procedures and are in agreement with them. Each employee who will be performing duties associated with the VOC Treatment Plant operation shall sign a Statement of Compliance (See Appendix D) to certify that he has received a copy of these procedures, that he has read them and understands them, and that he will strictly follow them.

10.3.0 At least once a year, the Manager of Water Systems, the Water System Superintendent, the Water Engineering Manager, and the Principal Civil Engineer shall meet with the Water System Supervisor, the Water System Foreman, the Water Treatment Plant Operators, and any potential substitute operators to discuss and review these Procedures. The Water System Superintendent shall be responsible for arranging this meeting. Failure to arrange this meeting in a timely manner shall be considered dereliction of duty. At the end of this meeting, all present shall sign a statement that they completely understand these Procedures and are in accord with them and will follow them completely. If there are difficulties with the Procedures, these difficulties shall be brought up at this meeting if not sooner and the proper modifications made by the engineering staff. In this case, the above referenced statement will not be signed but the Water System Superintendent shall be responsible for arranging a follow-up meeting within two months to review and approve the modified Procedures.

11.0.0 Approvals for the Operation and Maintenance Procedures for the VOC Water Treatment Plant

Willard O. Bangham
Manager of Water Systems

Date 3-29-91

David C. Plumb
General Manager
Water and Power Department

Date 4/2/91

State of California
Department of Health Services

Date 4/10/91

Appendix A

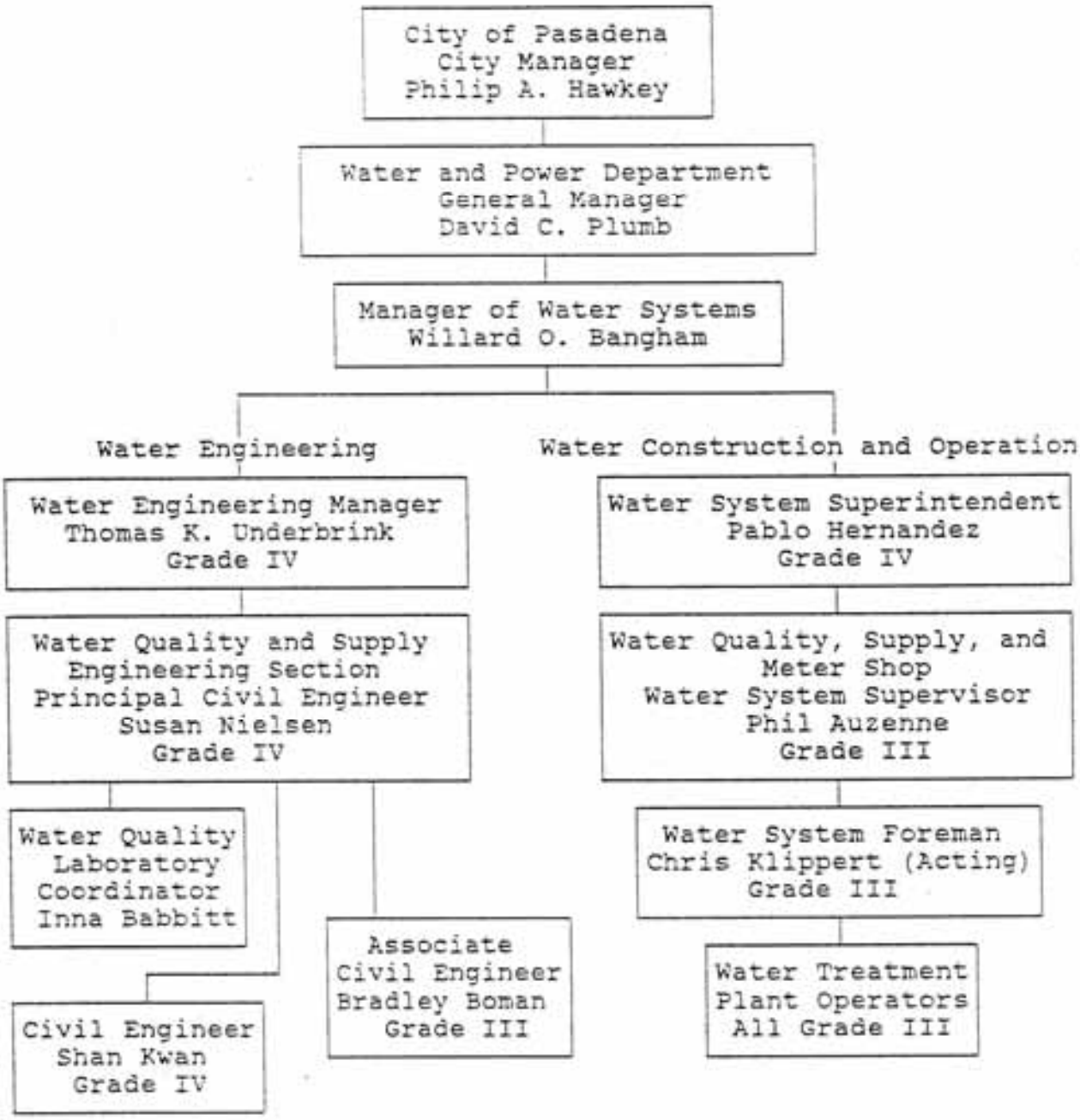
City of Pasadena Personnel

It is recommended that the following people be contacted in the order listed in that the City will hold them responsible for providing the proper response in this order. It is understood that there is intercommunication between these people and that they are free to be called. In many cases, they will consult with each other in response to a given situation.

		Work Telephone
1.	Phil Auzenne	(818) 405-4456
2.	Chris Klippert	(818) 405-4456
3.	Pablo Hernandez	(818) 405-4456
4.	Susan Nielsen	(818) 405-4278
5.	Thomas Underbrink	(818) 405-4415
6.	Willard Bangham	(818) 405-4420

Appendix B
City of Pasadena
Organizational Chart
(Revised 02/28/91)

Only those parts of the Water and Power Department relating to these Procedures are shown. Horizontal relationships indicate lines of communication only. State of California, Water Treatment Operator Certification Grades are indicated also. Grade V represents the highest proficiency grade and correspondingly Grade I would be the lowest proficiency grade.



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Appendix C

State of California
Department of Health Services Personnel
and
Pasadena Health Department Personnel

	Work Telephone
State of California Department of Health Services	
1. Fahd Rizk Associate Sanitary Engineer	(213) 620-2980 or (213) 620-3836
2. Gary Yamamoto Senior Sanitary Engineer District Engineer	(213) 620-2980
Pasadena Health Department	
1. Melvin Lim Acting Environmental Health Coordinator	(818) 405-4390
2. Dr. Jacqueline Stiff Health Officer	(818) 405-4392
3. Mary Yamashiro Laboratory Coordinator	(818) 405-4151

Statement of Compliance

Operation and Maintenance Procedures for the VOC Water Treatment Plant.

I, _____, do hereby certify that I have received my own copy of the above named Operation and Maintenance Procedures, that I have read them, understand them, and will follow them.

_____ Signature

_____ Date

Appendix J
Operations Manual for Lincoln Avenue Water Company

OPERATIONS MANUAL FOR
LINCOLN AVENUE WATER COMPANY

2000 GPM ION EXCHANGE PERCHLORATE REMOVAL SYSTEM
(Manual Provided by USFilter)

1.0 INTRODUCTION

This manual covers a general description of the equipment and operating procedures for an Ion Exchange (IX) System. The Ion Exchange (IX) System is designed to provide many years of trouble free service. To achieve this, the IX System equipment must be properly handled and installed to obtain the desired results. Failure to do so can cause premature equipment malfunctions and/or undesirable System performance.

The Purchaser is fully responsible for proper inspection, handling, and installation of the IX System equipment, and shall insure that quality workmanship practices and construction procedures are followed throughout. The Purchaser also accepts all liability for the loss of or damage to any equipment resulting from the improper handling and/or installation, regardless of the inclusion or omission of any applicable suggestions in this manual. Unknown situations or conditions not covered in this manual are the responsibility of the Purchaser.

Section 1.4 provides helpful information for the receiving, unloading, handling and installation of the IX System equipment.

1.1 GLOSSARY

Adsorber - A vessel designed to hold ion exchange resin media.

Backwash - Performed prior to placing system on-line to cleanse the resin bed of fines entrapped air and stratify bed depth. Also used during normal operations to remove particulate build up.

Backflush - Performed during normal operations to remove entrapped air from the resin bed.

Bulk Transport Trailer - Hopper type trailer used to transport resin, slurry in fresh resin, and remove spent resin from adsorbers.

Ion Exchange- The removal of positively or negatively charges ions by way of resin media.

Lead Adsorber - The first bed of resin through which a process or a waste stream is passed. (Also called Primary Adsorber.)

Polishing Adsorber - The second or last bed of resin through which a process or a waste stream is passed. (Also called Secondary Adsorber.)

Pneumatic Port – The air and water connection for service and wash-down of vessel.

Pressure Port - The air and water connection for service and wash-down of vessel.

IX Resin System Rupture Disk - A relief disk to prevent over pressurization of a vessel.

Underdrain - Device designed to permit an evenly distributed flow of water but retain resin in vessel.

Utility Port - The air and water connection for service and wash-down of vessel.

Vent - A line from each adsorber with automatic vacuum/air release valve (APCO).

Water Cushion - The water added to an adsorber before charging it with resin to protect under drain and lining.

1.2 IMPORTANT MESSAGES AND WARNINGS

This Manual should be in the possession of the personnel who operate and maintain the IX System. The purpose of this manual is for instruction and to advise operators and maintenance personnel. This manual will remain a valuable resource for the safe, economical, efficient operation and maintenance of the IX System.

Failure to properly follow instructions, failure to take notice of warnings, and failure to take proper precautions and preventive measures may be dangerous and could cause serious injury, equipment damage, and environmental problems.

Mechanical modifications or substitutions of parts on equipment that may affect structural or operational safety shall not be made without prior manufacturer's approval or engineer's advice. Modifications other than those approved may defeat protective features originally designed into the equipment and its controls; and therefore, shall not be made.

Unauthorized personnel should be kept away from this equipment at all times. Only qualified personnel who have been properly instructed in this equipment's proper operation and maintenance requirements and in its potential hazards shall be allowed to operate and maintain it.

IMPORTANT

USFILTER MAKES NO WARRANTY OF ANY KIND WITH REGARD TO THE MATERIAL CONTAINED IN THIS MANUAL, INCLUDING, BUT NOT LIMITED TO, IMPLIED WARRANTIES OR FITNESS FOR A PARTICULAR PURPOSE. USFILTER SHALL NOT BE LIABLE FOR ERRORS CONTAINED HEREIN OR FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES IN CONNECTION WITH THE PERFORMANCE OR USE OF THIS MATERIAL.

THIS MANUAL CONTAINS CERTAIN PROPRIETARY CRITERIA, IDEAS AND DESIGNS AS AN INSTRUMENT OR PROFESSIONAL SERVICE AND SHALL NOT BE REPRINTED IN WHOLE OR IN PART WITHOUT EXPRESSED WRITTEN AUTHORIZATION FROM USFILTER.

1.3 RECEIVING

Immediately upon receipt and prior to removal from the truck trailer, railcar or shipping container, inspect the IX System equipment for damage. Claiming any damage that may have occurred in transit should be filed promptly with the delivering carrier. The unloading operation should be delayed until the carrier's representative has completed his inspection of the damaged equipment, otherwise a damage claim may not be honored. The inspection should include as a minimum:

1. External surface damage.
2. Damage such as broken nozzles, valves, pipes, underdrain, etc.
3. Equipment damage at contact points.
4. Unpacking and inspection of all packaged equipment and accessories.
5. Internal lining.

1.4 UNLOADING AND HANDLING

When unloading and handling the IX System equipment, extreme care should be taken as not to damage it.

Regardless of the type of equipment being handled, certain precautionary measures must be implemented such as:

1. Insure the lifting equipment can withstand the total intended load.
2. Always use lifting eyes and brackets.
3. Never position the lifting equipment where damage to the equipment load may occur.
4. When using a forklift, make sure the forks are long enough to extend past the intended load. This prevents accidental punctures on the underside of the equipment crates, boxes and skids that may damage the equipment itself.
5. Use spreader bars.
6. Do not slide, drag or push equipment across surfaces. Always lift to move into position.
7. Do not roll, drop or throw equipment or accessories.
8. Lifting cables and/or straps must not be attached to, or permitted to come in contact with nozzles, flanges, gussets, pipes, shafts, painted surfaces, or any other accessory that may be damaged by contact.
9. When equipment is being lifted, proper rigging practices should be observed and a guide- line should be attached to prevent impact damage caused by swinging into contact with other object.
10. Never set on or roll over an equipment fitting and never use a fitting as a lifting point.
11. Prevent tools, hooks, etc. from striking the IX System equipment.

1.5 ASSEMBLY INSTRUCTIONS

The IX System has been shipped pre-assembled to the greatest extent possible. The attached drawing shows the system after assembly. The piping module skid and vessel skids have drilled holes for placement and mounting. The site foundation should be level, but most importantly flat. Check to see if any bolts that may have come loose during shipment, if so, tighten them. The internal nozzles have been shipped installed. Be sure to use proper flange tightening procedures when assembling the piping.

The IX System should be assembled in the following order:

1. Mark the foundation with guide-lines in order to place the vessels in a straight line.
2. Located the vessels spaced as shown on drawing.
3. Place the piping module appropriately between the face piping connections.
4. If alignment is off, make sure the vessels and piping module are level and in the correct positions. Some shimming of the vessels and piping module may be required.
5. Bolt Tank A to the piping module (bolt loosely until system is fully assembled).
6. Bolt Tank B to the piping module (bolt loosely until system is fully assembled).
7. If alignment is acceptable, tighten all the bolts.
8. Secure the vessels and piping module to the foundation.
9. Assembly is complete.

2.0 EQUIPMENT DESCRIPTION

2.1 GENERAL DESCRIPTION

The IX System consists of (2) two anion resin adsorber vessels, face piping, and piping module with support skid. The piping system comes complete with influent, effluent, backwash, air vent line, resin fill, resin removal, compressed air, and sampling connections.

The carbon steel adsorbers are vertical cylindrical pressure vessels with elliptical tops and bottoms manufactured for a maximum operating pressure of 150 PSIG. The adsorbers are designed for down flow operation with a specially designed underdrain collection system to maximize the utilization of resin as well as allow for efficient and rapid removal of the spent carbon. Three sample valves are used for sampling treated water at various levels through the adsorber.

The process and utility piping to operate the system are mounted on the adsorbers and piping module. The piping options include valving to operate both adsorbers in parallel or series (lead/lag) flow configuration. Each adsorber has its own resin fill, discharge and vent lines. The process piping is equipped with pressure gauges and sample ports at the inlet and outlet of each adsorber. Compressed air connections are provided for use during resin transfer.

2.2 PROCESS DESCRIPTION

The Ion Exchange System is designed to remove dissolved ionic compounds from contaminated feed water using anion exchange resin. The feed water to be treated will be pumped by the client at a controlled rate through the adsorbers in a series or parallel configuration.

Depending on the feed water analysis, a pre-filter may be required to remove any suspended solids from the feed water prior to entering the resin adsorbers.

Each adsorber shall contain 300 cubic ft. of USF anion resin, which will provide sufficient contact time at the design flow rate to remove the perchlorate in the feed water.

Feed water enters the adsorber from the top and flows down through the resin bed. The treated water is collected in the underdrain system.

When piped in the series configuration, and the lead adsorber becomes saturated (exhausted) it's taken off-line for replacement of the spent resin. The feed water is directed to the second adsorber, allowing the system to remain in service. The lead adsorber is then pressurized up to 30 psig with air. With the addition of utility water, the spent resin is pneumatically displaced as slurry to a bulk transport trailer. The dewatered spent resin is destroyed.

To refill the adsorber with fresh resin, the resin in the trailer is slurried, using clean water, pressurized up to 15 psig and then transferred to the empty adsorber.

Once the fresh resin is placed in the vessel, this vessel will become the lag vessel.

2.3 OPERATING CONDITIONS

The design operating conditions and characteristics for this system are as follows:

Maximum flow rate:	2,000 gpm per vessel
Superficial surface loading:	5.4 min per vessel @ 1,000 gpm
Maximum Pressure:	125 psig
Maximum Temperature:	150°F
Resin content:	300 cubic ft. per vessel
Resin Type:	USF select

2.4 GENERAL PROCESS COMMENTS

OPERATIONAL CHANGES

Optimum operation of the system is obtained if changes to the system occur slowly. Rapid changes in flow will cause upsets to the adsorbers, which could adversely affect the operation. Valves should be turned slowly at all times to prevent hydraulic shock.

3.0 START-UP

3.1 SAFETY

Any piece of equipment can be dangerous if operated improperly. Safety is ultimately the responsibility of those operating and maintaining the equipment. All personnel operating and maintaining the IX System and its proper implementation must be familiar with all of the Ion Exchange System components, and observe all OSHA, federal, state and local safety codes and requirements. The personnel should also be active participants in an approved plant-wide health and safety program.

Failure to properly follow instructions and failure to take proper safety precautions is dangerous and can cause serious personal injury, needless equipment damage, and unnecessary environmental harm. Mechanical modifications and/or substitutions of parts on equipment that will affect structural, operational, or environmental safety should not be made. Modifications that may defeat protective features originally designed into the equipment and control; and therefore, should not be made.

The following is a partial list of precautions to follow but in no case is the list exhaustive nor is it intended to be. Operators and maintenance personnel should expand on this list after first reviewing the entire IX System and its operation with the appropriate health and safety authorities.

- Keep areas clean. A clean work area is a much safer area.
- Keep all equipment guards in place. If removed to service the equipment, make sure the guards are replaced properly.
- Wear eye and face protection around rotating and pumping equipment and whenever working around or handling chemicals. Be especially cautions for splash when disconnecting piping, valves and fittings.
- Wear ear protection if necessary.
- Wear proper apparel. Do not wear loose clothing, or jewelry, which could be caught in machinery.
- Wear a proper respirator around chemicals and in areas where vapors and/or gases may be present.
- Non-skid footwear is recommended and always wear protective gloves when feasible.
- Remove adjusting screws or wrenches. Form a habit of checking to see that all tools are removed from equipment.
- Make sure all personnel are familiar with OSHA approved Material Safety Data Sheets for all hazardous materials they may come in contact with.

STAY ALERT

WATCH WHAT YOU ARE DOING

USE COMMON SENSE

DO NOT PERFORM OPERATION OR MAINTENANCE FUNCTIONS WHEN YOU ARE TIRED OR GROGGY

DO NOT ATTEMPT TO SERVICE OR OPERATE MACHINERY YOU ARE NOT FULLY FAMILIAR WITH

DO NOT TAKE CHANCES

ASK FOR ASSISTANCE IF IN DOUBT

DO NOT TRY TO DO IT ALONE

THINK BEFORE YOU ACT AND BE CAREFUL

NOTE:

ALL CONFINED SPACES, INCLUDING THOSE CONTAINING ION EXCHANGE RESINS, SHOULD BE PRESUMED TO BE HAZARDOUS. APPROPRIATE SAFETY MEASURES SHOULD ALWAYS BE TAKEN BEFORE ENTERING, AS WELL AS WHEN WORKERS ARE IN A CONFINED SPACE. OSHA REGULATIONS APPLICABLE TO RESPIRATORY PROTECTION IN OXYGEN-DEFICIENT ATMOSPHERES SHOULD BE STRICTLY FOLLOWED.

3.2 PLACING THE SYSTEM IN OPERATION

ADSORPTION SYSTEM START-UP, OPERATION IN SERIES

To put the adsorption system on-stream, the procedure is described below.

The feed to the adsorption system is provided by the user's feed pump. The pump must be started and brought up to operating conditions prior to placing the ion exchange adsorption system in operation. When this has been accomplished, the pump discharge valve is slowly opened. Initially, all valves in the adsorption system are closed.

Prior to placing the ion exchange system on-line, the valves to the system must be set to allow flow through the system as the feed water pump is brought on-line. The system is designed to allow both train (Train A or Train B) to be placed in the lead position and either train (Train A or Train B) to be placed in the lag position. When Train A is in the lead position, Train B must be in the lag position. When Train B is in the lead position, Train A must be in the lag position. This forms a double barrier for production of potable water and ensures that the newest Anion resin is put into the polishing application. The following table **Figure 1** outlines the valve positions depending on which train is in the lead position:

Figure 1	Train A (Lead) / Train B (Lag)		Train B (Lead) / Train A (Lag)	
Valves	Open Position	Close Position	Open Position	Close Position
V-100	X		X	
V-101	X			X
V-102		X	X	
V-103	X		X	
V-104	X		X	
V-105	X		X	
V-106	X		X	
V-107	X		X	
V-108	X		X	
V-109		X	X	
V-110	X			X
V-200		X		X
V-201		X	X	
V-202	X			X
V-203	X		X	
V-204	X		X	
V-205	X		X	
V-206	X		X	
V-207	X		X	
V-208	X		X	
V-209	X			X
V-210		X	X	

Once the valves are placed into position as per the table above, the system is ready for the initial start up. The customer's feed water pump provides water to the ion exchange system. The feed water pump must be started and brought up to operating condition. As water begins to flow through the system, the following sequences must be followed:

1. Allow water to enter into the lead vessel.

2. Manually vent air within the vessel through the vent valves.

3. Once no air is observed discharging through the vent valves (all water), slowly close the vent valves and Open Valve V-100.

4. Allow water to enter into the lag vessel.

5. Manually vent air within the vessel through the vent valves.

6. Once no air is observed discharging through the vent valves (all water), slowly close the vent valves and Open Valve V-200.

7. Refer to **Figure 1,** any DRAWINGS and the valve sequence tag located on the vessels for the desired valve sequence to put the system in operation, remembering to operate each valve slowly.

Normal operation requires no further changes until breakthrough occurs. When this happens, call the **USFILTER** Service Department at (800) 435-3223 to arrange for RESIN change-out.

3.6 BACKWASH

There will be no backwashing of these vessels. The application is a once through resin operation. Once resin is exhausted, it is replaced and disposed of by way of fuel blending.

3.7 SPENT RESIN REMOVAL

When the lead adsorber becomes saturated (exhausted) it is taken off-line for replacement of the spent resin. The feed water is directed to the second adsorber, allowing the system to remain in service. The lead adsorber is then pressurized up to 30 psig with air. With the addition of utility water, the spent resin is pneumatically displaced as slurry to a bulk transport trailer by slowly opening the slurry outlet valve. To remove the 300 cubic ft. of resin, approximately 9,000 gallons of water is required to keep the spent resin in slurry to facilitate removal. This will prevent a line clogging.

3.8 RESIN SLUICING PROCEDURE FOR NEW AND SPENT RESIN

This section describes the operations involved in the resin sluicing process that will be used at the Lincoln Avenue Water Company (LAWC) site. This well site will be treated by USFilter, for the LAWC. The treatment consists of Ion Exchange system for the removal of perchlorate. The system contains multiple tanks that will have their resin changed on a periodic basis.

OPERATIONS OVERVIEW

US Filter will be supplying the services and equipment for the exchange of resin from the tanks on site. The resin volume in each of the tanks is 300 cubic feet. The exchange of a resin bed will be triggered by the LAWC upon receiving laboratory analysis that indicates the resin has it a targeted breakpoint.

Upon notification by the LAWC that an exchange will need to take place US Filter will schedule the work from our Los Angeles service center. This service center is located at 1441 Washington Street in Los Angeles, California.

A truck / trailer combination configured for resin sluicing will leave the US Filter branch containing 300 cubic feet of virgin USF anion resin. The driver will proceed directly to the well site and back the truck into the well area for the exchange to occur. At that time the following operations will take place:

- The driver will check in with the LAWC staff to confirm which vessel will need the resin exchanged. This confirmation will be noted on the service order.
- The well system will be shut down and the Ion exchange Vessels isolated from the well system.
- The tank to be exchanged will be depressurized and vented to atmosphere.
- Using the media transfer line, the resin will be sluiced from the Ion Exchange Vessel to a holding tank.
- Once all the resin has been evacuated from the vessel the new resin will be transferred from the truck to the ion exchange vessel.
- The vessel will be closed and placed back on line.
- The US Filter Service Technician will wait 15 minutes to observe the vessel and observe that no leaks are occurring.
- We will remove the spent resin from the site and store the hoses for the next transfer.
- The driver will note the time and leave the site following the protocols for securing gates.

INDIVIDUAL COMPONENT DISCUSSION

Resin Transfer Truck

The resin transfer truck is a US Filter owned trailer that is operated under DOT regulations and meets those requirements. The unit is only used to haul resin that is used for potable water applications, pharmaceutical applications, or other equally high purity applications. It is a dedicated trailer that is never used for other media nor used to haul resins that have been used in waste stream applications.

Transfer Hoses

The connections between he truck and vessels will be made using food grade hoses that will follow the DHS accepted sanitization procedure established for the City of Fresno mobile ion exchange operation. Trailer connections are Goodyear PLICORD BREWLINE hoses. They have a maximum working pressure of 250 psi and are capable of handling temperatures from -40 to 220 F. The interior construction is white chlorobutyl rubber that conforms to FDA, USDA and 3-A Sanitary Standards and eliminates chance of taste or odor transfer. The hose is reinforced with 6 ply synthetic fabric, and the cover is white Versigard rubber that resists abrasion from dragging over rough, uneven surfaces.

Disinfection Procedure

The disinfectant kit is called Clean-Gear System, from the Lab Safety Supply Inc. After de-pressuring the equipment as needed, the Hoses can be disconnected from the trailer and prior to setting on the pad, each fitting is sprayed liberally with the disinfectant and placed in a sealed sterile plastic bag. Contact time is achieved while making the trailer exchange. Prior to reinstalling the fittings, wipe off the new trailer fittings using the isopropyl alcohol saturated cleanings pads. Then remove the hose connection from plastic bag, wipe down both the exterior and interior of the fitting with a fresh clean cotton wipe and reconnect.

4.0 TROUBLESHOOTING

The following tables list malfunctions, probable causes, and in most cases, possible corrective action to take for the problem at hand. By no means is this list complete. It is intended only as a guide for the maintenance personnel to help them in properly identifying and isolating equipment malfunctions. If in doubt as to the actual cause of a malfunction, consult the factory or nearest equipment representative for assistance.

MALFUNCTION	PROBLEM CAUSE	CORRECTION ACTION
High pressure drop across adsorber	Bed not flooded Bed air bound	Check to see that the air release valve is operating. Make sure there is a constant flow before valve closes.
	Feed pump pressure too high	Throttle feed pump
	Improper valving	Check valve sequence. Check for obstructions in transfer lines.
	Particulate build-up on carbon bed	Backwash per Section 3.6
Leaking flange	Loose bolts	Tighten bolts
Discharge Water From the Backwash/Vent Outlet Line	Broken Rupture Disk	Replace Rupture Disk

MALFUNCTION	PROBLEM CAUSE	CORRECTION ACTION
Leaking Pressure Relief Valve	Leaking or broken Relief Valve	Check to see is resin has collected on the valve seat. Replace Relief Valve
Resin in the effluent	Internal mechanical failure	To confirm, open effluent sample valve. Collect 1 qt. Effluent sample to check for resin. If the test confirms internal failure, call **USFILTER** at 800-435-3223
Premature breakthrough	Change of influent concentrations	Confirm by checking influent and effluent samples before changing resin
	Siphoning air in	Check Air Release/Vacuum Relief Valve for correct operation
	Background Perchlorate Colloids	Change resin
Sudden high contamination level in effluent	Check heel due to improper resin change-out	Call **USFILTER** service department
Frozen lines, broken gauges and valves	Cold weather	Insulate piping and or heat trace process. Call **USFILTER** at 800-435-3223
System bacteria infections	Disinfect System	See Appendix A – Disinfection Procedures

5.0 SYSTEM MONITORING

It is responsibility of the user to monitor the Ion Exchange System during operation. Spent resin must be properly profiled according to all applicable regulations prior to destruction.

The following is a suggested format for an operating log. This list is meant as a suggestion only and is by no means complete. Record each day the following items for each individual IX System Vessel:

1. Record all equipment maintenance, calibrations, system cleaning, repairing and any parts replacement.

2. Record any unusual occurrences, shutdowns, breakdowns, etc.

3. Record the date and time when each item is logged.

4. Record the pressure drop across the system daily to indicate if any foreign objects have entered the Ion Exchange System.

6.0 GENERAL ION EXCHANGE (IX) SYSTEM INFORMATION

6.1 TEMPORARY SHUTDOWNS:

For shutdown or intermittent operation, the IX System should remain completely full of water and the inlet and outlet should be sealed either by a valve or a cap. Prior to restarting the unit, the IX System should be rinsed using two to three bed volumes of water. Failure to rinse may result in a temporary presence of contaminated water at the outlet of the adsorber.

6.2 EXTENDED SHUTDOWNS:

If the IX System is shutdown for an extended period of time, the following procedure should be followed to reduce potential degradation of bed life.

Drain the IX System of all water. There should be no free standing water left in the vessel. All valves, manways, and vents shall be tightly sealed for the duration of the shutdown to eliminate any supply of oxygen that would promote biological growth. Prior to re-commissioning the units, follow the start-up instructions included.

6.3 EMERGENCY PROCEDURES

In the event something should occur to cause a shutdown of an adsorber, the operation shall be switched over to the other adsorber and steps shall be taken immediately to remedy the situation.

If a major leak or failure occurs which would cause the IX System to be inoperative, then the feed to the system should be shut down immediately. If repairs are beyond the scope of the plant operators, the customer service department at USFilter should be contacted immediately.

6.4 USFILTER CONTACTS - HOW TO OBTAIN HELP AND INFORMATION

USFILTER (800) 435-3223

Normal contact concerning the day-to-day operation of the system should be with the Customer Service Department. The telephone number is 800-435-3223.

7.0 MAINTENANCE

7.1 MINOR MAINTENANCE

Minor maintenance is that maintenance to be performed by the plant to ensure continuous and effective operation. This maintenance includes visual check of pressure gauges and adjustments to valves and regulators, tightening flanges and connections to eliminate leakage, backwashing, etc.

7.2 MAJOR MAINTENANCE

Major maintenance is that effort needed to repair or replace equipment in order to continue system operation. The need for major maintenance would result from a major malfunction causing the system to be inoperative. Major maintenance also refers to system design changes and/or maintenance requiring downtime. USFilter can be contacted when any major maintenance is called for.

Appendix K
DHS Permit for Las Flores Water Company

Department of Health Services
Drinking Water Field Operations Branch

WATER PERMIT NO. 04-16-03PA-001

LAS FLORES WATER COMPANY

Los Angeles County

System No. 1910061

February 2003

STATE OF CALIFORNIA

AMENDMENT TO THE

DOMESTIC WATER SUPPLY PERMIT ISSUED TO

Las Flores Water Company
Public Water System – 1910061

ORIGINAL PERMIT: ***by Department of Public Health*** DATE OF ISSUE: ***12/18/52***

PERMIT AMENDMENT: ***04-16-03PA-000*** EFFECTIVE DATE: ***02/25/03***

WHEREAS:

I. The ***Las Flores Water Company*** (hereinafter, ***Company***) submitted an application to the California Department of Health Services dated ***November 20, 2002*** for an amendment to the Domestic Water Supply Permit issued to ***the District*** on ***December 18, 1952***.

II. The purpose of the amendment, as stated in the application, is to allow the ***Company*** to make the following modification to the public water system:

To construct and operate a Granular Activated Carbon Treatment System for the purpose of removing volatile organic compounds from the Mountain View Well 2.

III. The ***Company*** has submitted all of the supporting information required to evaluate the application.

IV. The California Department of Health Services has evaluated the application and the supporting material and has determined that the proposed modifications comply with all applicable State drinking water requirements.

THEREFORE:

I. The California Department of Health Services hereby approves the application submitted by the ***Company*** for a permit amendment. The Domestic Water Supply Permit issued to ***Company*** on ***December 18, 1952*** and its amendments on ***April 17, 1958, and July 9, 1998*** is hereby amended as follows:

- ***To provide Volatile Organic Chemicals Treatment at Mountain View Well 2 by using Granular Activated Carbon System.***

II. This permit amendment is subject to the following conditions:

GENERAL

1. The Company shall comply with all state laws applicable to public water systems and any regulations, standards, or orders adopted thereunder.

2. All water supplied by the Company or domestic purposes shall meet all Maximum Contaminant Levels (MCLs) established by the State Department of Health Services. If the water quality does not comply with the California Drinking Water Standards, treatment shall be provided to meet standards.

3. The only approved sources of domestic water supply are listed in Tables 1.

Table 1. Approved Sources

Source	FRDS ID	Status	Capacity
Groundwater Sources			
Mountain View Well 2	1910061-002	Active	750
Interconnections			
Foothill MWD connection	1910061-005	Active	1,400

4. The only approved treatment facilities are listed in Table 2.

Table 2. Treatment

Sacramento Blending Facilities	VOC/Nitrate/Perchlorate Blending and Chlorination	1910061-006	T2
Mountain View Well 2 Treatment Facility	VOC Removal and Chlorination	1910061-007	T2

5. No additions, changes or modifications to the approved sources of water supply or water treatment facilities outlined in Provisions 3 and 4 shall be made without prior receipt of an amended domestic water supply permit from this Department.

6. All treatment facilities shall be operated by personnel who have been certified in accordance with the Regulations relating to Certification of Water Treatment Facility Operation, California Code of Regulations. Classification of each approved treatment plant is shown in above Table 2 and the Company's water distribution system is classified as a D2 distribution system.

7. All analyses shall be performed by a laboratory certified by the Environmental Laboratory Accreditation Program (ELAP) of the State Department of Health Services for the specific analytical procedure and analytical results shall be submitted through electronic data transfer (EDT) using the PS Codes listed on Table 3.

FACILITY OPERATIONS

8. The Granular Activated Carbon vessel shall be operated not to exceed the maximum design capacity of 750 gpm.

9. The GAC facility shall be inspected daily when in use and operational records of it operations shall be maintained. Daily operational records including, as a minimum, flow rates, total volume treated, chlorine residual measurements, monthly bacteriological samples testing, operational changes and unusual occurrences shall be maintained. The records shall also document any emergency and scheduled interruptions, including:

    a. Location of the interruption,
    b. Cause of the interruption,
    c. Date, approximate time, and duration of the interruption,
    d. Precautions taken to minimize contamination of the supply and notification of the affected users, and

e. Solution/Resolution of the interruption.

10. All equipment at the Mountain View Treatment Facility shall be maintained according to the manufacturer's specifications.

11. The Mountain View Treatment Facility for Well 2 shall be operated in accordance with the approved Operations Maintenance and Monitoring Plan (Plan). The Plan shall describe the operational and emergency procedures, monitoring program and reporting requirements. The Company may modify the plans at any time to accommodate changing conditions; however, any modified plans must be submitted to and be approved by the Department prior to implementation. At any time, the Department can require the Company to modify the plans due to changing conditions, change of laws or regulations, or concerns of the public.

12. The draft Operations, Maintenance, and Monitoring Plan shall be finalized and submitted to the Department for review and approval within 45 days after receiving this amended permit.

13. Operators (shift operators) and supervisor personnel (chief operator) who make operational decisions on the treatment facilities as identified in Provision 4 and the rest of the system shall have a copy of and shall be familiar with the conditions of the water supply permit provisions and the provisions of this permit amendment. A copy of provisions shall be maintained at Las Flores Water Company's main control center.

14. Las Flores shall implement PCE Blending Plan whenever the GAC system is not operating.

MONITORING AND REPORTING

15. Well 2 shall be sampled, as a minimum, in accordance with the attached Vulnerability Assessment and Monitoring Frequency Guidelines (Appendix D of Engineering Report) or its replacement prepared by this Department.

16. Monthly sampling results for Well 2 shall be submitted to this Department by the 10th day of the following month. Table 3 summarizes the overall sampling frequency for the Well 2 treatment facility.

Table 3: Overall Sampling Schedule with Primary Station Code

Source	Primary Station Code	Contaminant	Frequency
Mountain View Well 2 Wellhead (GAC influent)	1910061-003	Nitrate Perchlorate PCE HPC VOCs	Weekly Weekly Weekly Monthly Annually
GAC Sample Port at 50%	1910061-007	PCE Perchlorate	Weekly (until detected)
GAC Sample Port at 75%	1910061-008	PCE Perchlorate	Weekly (if detected at 50% Port)
GAC Effluent	1910061-009	PCE Nitrate Perchlorate HPC	Weekly Weekly Weekly Monthly
Sacramento Blending Facility	1910061-006	PCE Nitrate Perchlorate	Weekly (if GAC is bypassed) Weekly Weekly

17. All treated water from the GAC filter shall be continuously and reliably chlorinated to a residual of at least 0.2 mg/L. The chlorine residual shall be measured daily before the treated water reaches the first customer in the system.

18. Monthly bacteriological (total coliform and Heterotropic Plate Count bacteria) samples shall also be collected and analyzed for the treated water from the GAC filters prior to disinfection, and the results shall be maintained in the daily operation records.

19. The activated carbon in all vessels shall be replaced when breakthrough of (VOC) is detected in any water sample at the sample tap at 75 percent of the depth of the GAC bed measured from the top of any contractor.

20. If any GAC in the vessels is replaced with reactivated GAC, the GAC must be reactivated according to the Department Policy Number 94-005, "Use of Re-activated Carbon for Drinking Water Treatment." The Department approval is required prior to the use of any GAC other than AQUACARB 830.

21. A monthly report of the operation of the Mountain View Treatment Facility shall be submitted to the Department by the 10th day of the following month unless otherwise specified. As a minimum, the report shall include:

   a. A report indicating the status of GAC vessel in terms of the daily flow rate, number of days in service, monitoring port status, differential pressure across the vessels, date of backwash, and bacterial analysis of the system effluent prior to chlorination;

   b. Operational schedule and problems, both scheduled interruptions and any unscheduled interruption;

   c. The report shall also include a summary of all required analytical results of the wells.

This amendment shall be appended to and shall be considered to be an integral part of the Domestic Water Supply Permit issued to ***Las Flores Water Company*** on ***December 18, 1952,*** and its amendments on ***April 17, 1958 and July 9, 1998.***

FOR THE CALIFORNIA DEPARTMENT OF HEALTH SERVICES

February 25, 2003
Date

Heather L. Collins
Heather L. Collins, P.E., District Engineer
Central District

Appendix L
Treatability Assessment

Treatability Using Air Stripping

	Henry's Law[1] (dimensionless)	Treatable Using AS [2]
Arroyo Well and Well 52		
PERCHLORATE	--	No
1,2,3-TRICHLOROPROPANE[3]	0.013	Yes
CARBON TETRACHLORIDE	1.25	Yes
TRICHLOROETHYLENE	0.42	Yes
TNT	--	No
RDX	--	No

Notes:

(1) Henry's Law Constants obtained from: USEPA, March 2001. *Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites, Peer Review Draft*. OSWER 9355.4-24. October.

(2) Treatability of contaminants using air stripping determined based on dimensionless Henry's Law constants. If H>0.01 then air stripping is considered effective, per USEPA 1996. *Presumptive Response Strategy and Ex-situ Treatment Technologies for Contaminated Ground Water at CERCLA Sites*. EPA 540/R-96/023.

(3) Henry's Law Constant for 1,2,3-trichloropropane obtained from Lyman WJ, Reehl WF, Rosenblatt DH. 1982. Handbook of Chemical Property Estimation Methods. Environmental Behavior of Organic Compounds. New York, NY: McGraw-Hill Book Co.

Treatability Using LGAC

	Adsorbance at 1 ppm[1] (mg/g carbon)	Treatable Using LGAC[2]
Arroyo Well and Well 52		
PERCHLORATE	--	No
1,2,3-TRICHLOROPROPANE	--	Yes[3]
CARBON TETRACHLORIDE	6.8 - 49.03	Yes
TRICHLOROETHYLENE	28 - 51.62	Yes
TNT	--	Yes[4]
RDX	--	Yes[4]
LAWC		
PERCHLORATE	--	No
CARBON TETRACHLORIDE	6.8 - 49.03	Yes
TRICHLOROETHYLENE	28 - 51.62	Yes
Las Flores		
NITRATE	--	No
PERCHLORATE	--	No
TETRACHLOROETHYLENE	50.8 - 108.17	Yes

Notes:

(1) Adsorbance value obtained from Calgon Carbon Advanced Oxidation Treatment (AOT) Handbook.

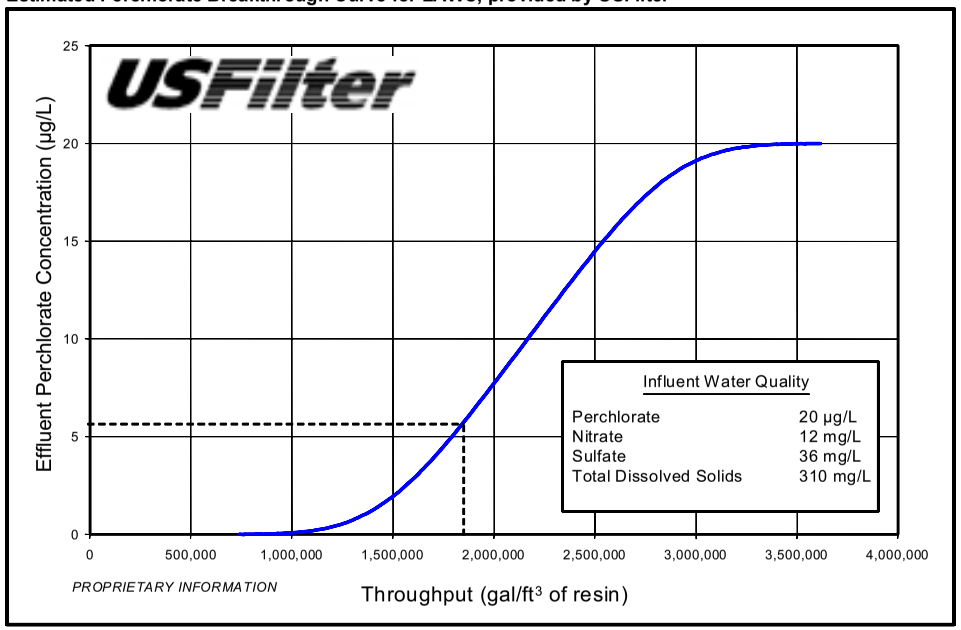
(2) Constituent is treatable using LGAC if it is characterized as an average or good adsorber (adsorbance > 4 mg/g).

(3) Treatability of 1,2,3-TCP obtained from the *Draft Groundwater Information Sheet: 1,2,3,-Trhchloropropane*, prepared by Jan Stepek, SWRCB-Division of Clean Water Programs, October 23, 2002.

(4) Treatability of TNT and RDX obtained from the Federal Remediation Technologies Roundtable, Screening Matrix and Reference Guide, Version 4.0, Section 2.10.3 - Common Treatment Technologies for Explosives in Ground Water, Surface Water, and Leachate.

Treatability Using Ion Exchange

Estimated Perchlorate Breakthrough Curve for LAWC, provided by USFilter



Estimated Perchlorate Breakthrough Curve for PWP, provided by XXX