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1992 ANNUAL GROUNDWATER MONITORING REPORT
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

DAMES & MOORE

February 1993
Project No. 00173-072-044

SAC57.014

DAMES & MOORE
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February 9, 1993

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California Environmental Protection Agency
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Sacramento, CA 95827

Attention: Mr. James L. Tjosvold, P.E., Chief
Sacramento Responsible Party Unit
Site Mitigation Program

Re: Transmittal
1992 Annual Groundwater Monitoring Report
Union Pacific Railroad Yard
Sacramento, California
Dames & Moore Project No. 00173-072-044

Dear Mr. Tjosvold:

Union Pacific Railroad Company (UPRR) has requested that Dames & Moore transmit the above-referenced report. Presented in the Report are:

- Analytical results for 1992 quarterly groundwater monitoring;
- Results of installation and sampling of off-site second hydrostratigraphic zone groundwater monitoring well MW-44;
- A discussion of the extent of impacted groudnwater;
- An evaluation of constituent trends in groundwater; and
- Proposed changes to the sampling and analysis schedule for the 1993 groundwater monitoring year.

SAC57.014

If you have any questions or require further clarification, please contact Tim Parker at (916) 387-7527.

Sincerely,

DAMES & MOORE

Timothy K. Parker
Project Manager

William R. Short, C.E.G.
Senior Geologist

Enclosure

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1.0 INTRODUCTION

Presented in this report is a summary of the results of quarterly groundwater monitoring and groundwater investigation activities conducted by Dames & Moore during the 1992 calendar year at the Union Pacific Railroad (UPRR) Yard (The Site), Sacramento, California (Figure 1). Also presented in this report are Dames & Moore's recommendations for modifying the 1993 quarterly groundwater monitoring program.

1.1 GROUNDWATER INVESTIGATION BACKGROUND

Groundwater investigations were initiated at the site in 1987 by the installation, sampling, and chemical analysis of eight groundwater monitoring wells, MW-1 through MW-8 shown on Figure 2, as part of the Phase 1 Remedial Investigation (Dames & Moore, 1988). Phase 2 Remedial Investigations were conducted in 1989 and included the installation of an additional 17 groundwater monitoring wells (MW-11 through MW-27 shown on Figure 2), and sampling and chemical analysis of all 25 groundwater monitoring wells (Dames & Moore, 1990). A three well cluster (MW-28, MW-29, and MW-30, Figure 2) was installed along the eastern site boundary and most of the 28 groundwater monitoring wells were sampled and chemically analyzed in January and February 1990 (Dames & Moore, 1991c). Analytical results indicated groundwater in the first hydrostratigraphic zone on-site and, to a lesser extent, the second hydrostratigraphic zone, had been impacted by aromatic and chlorinated volatile organic compounds (CVOCs), and that off-site groundwater was likely affected (Dames & Moore, 1991c).

To further assess the off-site extent of aromatic and CVOCs in groundwater in the first hydrostratigraphic zone, 24 cone penetration tests (CPT) and 54 Hydropunch™ (HP) in-situ groundwater samples were collected and chemically analyzed in April and May 1990 (Dames & Moore, 1990). Additionally, three groundwater monitoring wells, MW-31, MW-32, and MW-33, were installed on-site, and samples from all 31 groundwater monitoring wells were collected and chemically analyzed at that time. CPT, HP, and groundwater monitoring well locations are provided in Figure 2. CPT and HP data indicated that off-site groundwater in the first hydrostratigraphic zone contained CVOCs, primarily 1,1-dichloroethylene (1,1-DCE), 1,2-dichloroethane (1,2-DCA), and trichloroethylene (TCE) at depths of approximately 45 to 55 feet below ground surface at least 1,200 feet down gradient of the site (Dames & Moore, 1990).

In September and October 1990, an additional 50 CPTs were completed and 92 HP samples were collected and chemically analyzed to further evaluate the downgradient extent of groundwater impacts. Additionally, all 31 groundwater monitoring wells were sampled in September 1990 and February 1991. Groundwater samples were chemically analyzed for aromatic and CVOCs, arsenic, chromium, lead, and nickel (Dames & Moore, January 1991a). In February 1991, an additional three CPTs were completed and 19 HP samples were collected and chemically analyzed to further evaluate the upgradient extent of groundwater impacts in the Central Fill Area of the site (Dames & Moore, 1991a). Analytical results from HP and groundwater monitoring well samples indicated that the CVOC plume originates in the Central Fill Area of the site and extends to the southeast approximately 4,800 feet downgradient (Dames & Moore, 1991a).

In March 1991, a Sampling and Analysis Plan (SAP) for Quarterly Groundwater Monitoring (Dames & Moore, 1991b) was submitted to DTSC. The SAP included a sampling and analysis schedule for the 31 existing monitoring wells. The first round of quarterly groundwater monitoring under this plan was conducted in April 1991.

In May and November of 1991, four additional on-site and six off-site groundwater monitoring wells were installed and sampled, respectively (Dames & Moore, 1991d , Dames & Moore, 1992a). Groundwater monitoring well locations are provided on Figure 2. Two of the on-site wells, MW-42 and MW-43, were completed in the first hydrostratigraphic zone in the Central Fill Area to further evaluate the source area of CVOC-impacted groundwater. The other two on-site wells, MW-40 and MW-41, were completed in the second and third hydrostratigraphic zones, respectively, to further evaluate the vertical extent of CVOCs in groundwater. The off-site installations consisted of five first hydrostratigraphic zone groundwater monitoring wells, MW-34, MW-35, MW-36, MW-38 and MW-39, and one second hydrostratigraphic zone groundwater monitoring well, MW-37, installed along the apparent CVOC plume axis. Groundwater monitoring wells were sampled after installation; analytical results for groundwater samples from first hydrostratigraphic zone wells were generally consistent with analytical results for HP samples. Additionally, analytical results indicated CVOC impacts to groundwater in the second hydrostratigraphic zone extends approximately 1,200 feet off-site (Dames & Moore, 1992a).

In March 1992, a revised sampling and analysis schedule for quarterly groundwater monitoring was proposed to the DTSC (Dames & Moore, 1992b). The modifications proposed in the revised sampling and analysis schedule were as follows:

- Groundwater monitoring wells in which there have previously been no detections of chlorinated VOCs or aromatics would be sampled on an annual basis;

- Samples from groundwater monitoring wells in which there have previously been no detections of aromatics would be analyzed for aromatics on an annual basis with the exception of MW-29 and MW-30 which are downgradient of the former Oil House area;

- Select groundwater monitoring wells consistently having low levels (less than 10 μg/l) of chlorinated VOCs would be sampled on semi-annual basis; and

- Arsenic, chromium, lead, and nickel would be analyzed on a semi-annual basis for most groundwater monitoring wells.

In correspondence dated May 6, 1992, the DTSC approved the revised sampling and analysis schedule.

2.0 PURPOSE AND SCOPE OF 1992 GROUNDWATER INVESTIGATIONS

The following groundwater investigation and monitoring activities were conducted during 1992:

- Quarterly groundwater monitoring in January, May/June, August/September and October of 1992;
- Dedicated groundwater sampling systems installed in 28 groundwater monitoring wells in May 1992;
- Twenty off-site exploratory CPTs completed and 18 adjacent HP in-situ water samples collected from the second hydrostratigraphic zone in May 1992; and
- One additional off-site monitoring well, MW-44, installed in the second hydrostratigraphic zone in October 1992.

The purpose of these activities was to:

- Assess seasonal variations in CVOC, aromatic compound, arsenic, chromium, lead and nickel concentrations in groundwater within the first and second hydrostratigraphic zone;
- Optimize groundwater sampling procedures by implementing a more consistent sampling methodology; and
- Further assess off-site CVOC impacts to groundwater in the second hydrostratigraphic zone.

Analytical results for the first three quarters of groundwater sampling, including tabulated results, shallow groundwater contour maps, and laboratory analytical reports, were provided to the DTSC in the form of data transmittals (Dames & Moore, 1992b, 1992c, and 1992d). CPT/HP investigation results were summarized in the Additional Off-Site Groundwater Investigation Second Hydrostratigraphic Zone Report (Dames & Moore, 1992d). Analytical results for fourth-quarter groundwater monitoring, and a discussion of 1992 groundwater investigation and monitoring results are provided in this report.

3.0 GROUNDWATER SAMPLING PROTOCOL

A brief description of groundwater monitoring well sampling protocol is presented in this section. A more detailed discussion is provided in Appendix A. The following steps were undertaken during quarterly groundwater monitoring:

- Water level measurements were collected from all 42 groundwater monitoring wells for each sampling round;
- Groundwater monitoring wells were sampled according to the sampling and analysis schedule provided in Table 1;
- Dedicated groundwater sampling systems consisting of Grundfos Redi-Flo2 submersible pumps were installed in 28 groundwater monitoring wells in April 1992;
- Prior to sampling, all groundwater monitoring wells were purged using submersible pumps until pH, electrical conductivity (EC), and temperature stabilized and at least three casing volumes had been extracted;
- Groundwater samples from wells containing dedicated sampling systems were collected from a sampling port within the discharge line;
- Groundwater samples from wells without dedicated sampling systems were collected using a disposable polyethylene bailer;
- Groundwater sample containers were labeled, stored on ice in coolers, logged onto chain-of-custody forms, and shipped to a DTSC-certified laboratory for analysis;
- Groundwater samples were analyzed for CVOCs, aromatic compounds, arsenic, chromium, lead, and nickel according to the sampling and analysis schedule provided in Table 1;
- All non-dedicated sampling equipment was properly decontaminated prior to sampling each monitoring well; and
- For quality assurance/quality control (QA/QC) purposes, field blanks, rinse blanks, and blind duplicates were collected at a quantity greater than or equivalent to ten percent of the monitoring wells sampled.

Following the installation of the dedicated sampling systems, a comparative evaluation between the dedicated submersible pumps and disposable bailers was conducted. A total of nine on- and off-site wells representing a range in constituent concentrations, was selected from the site groundwater monitoring well network for the comparative evaluation. The evaluation consisted of collecting five samples using the dedicated submersible pump and five samples using a disposable bailer from each of

the nine wells. A total of 90 groundwater samples were collected. Groundwater samples were analyzed for CVOCs and aromatic compounds. A statistical evaluation of the analytical results was also conducted. Results of the comparative evaluation suggest no statistical evidence that the two sampling devices perform differently for sampling CVOCs. Details of the comparative evaluation are provided in Appendix E.

4.0 GROUNDWATER INVESTIGATION AND MONITORING RESULTS

This section presents the results of groundwater investigations and groundwater monitoring conducted during 1992. A discussion of hydrogeology, groundwater analytical results, distribution and sources of constituents in groundwater, and constituent trends in groundwater are presented.

4.1 HYDROGEOLOGY

This section presents a discussion of site hydrogeology. A summary of stratigraphy and groundwater hydrogeology is provided, which has been supplemented with the results of groundwater investigations and groundwater monitoring conducted during 1992.

4.1.1 Stratigraphy

Interpretation of lithologic, geophysical, and CPT logs in conjunction with previously developed data indicates a sequence of fluvial materials composed of thickly and thinly bedded sands, silts, and clays which vary laterally across the area of investigation. This interpretation concurs with the previous stratigraphic interpretation of the area (Dames & Moore, 1991a, 1991c, 1991d, and 1992b). Groundwater monitoring well, CPT/HP locations and geologic cross-section locations are presented in Figure 2. Cross-sections interpreted from the data are provided as Figures 3 and 4. Boring, well completion, and geophysical logs are provided in Appendix D.

The primary pertinent subsurface hydrogeologic features identified during this and previous investigations are:

- The first hydrostratigraphic zone, which is designated as a generally correlatable, permeable saturated sand zone between approximately 30 and 65 feet bgs, pinches out south of Sutterville Road, to form clay to silty clay with sand to silty sand and silt stringers;
- A clay to silty clay zone generally 10 to 20 feet thick, underlying the first hydrostratigraphic zone; and
- Silty sand to clayey sand units, between approximately 70 and 84 feet bgs, designated as the second hydrostratigraphic zone.

The focus of the geologic portion of the 1992 investigations was to further evaluate the second hydrostratigraphic zone. The sandy units defining the second hydrostratigraphic zone ranged from 2 to 8 feet thick, and were generally present at most off-site monitoring well and CPT locations completed below 75 feet (Figures 3 and 4). However, at several CPT locations on the west flank of the investigation area (CPT-91, CPT-92, CPT-95, and CPT-96), a sand unit was absent at depth, and the deeper lithology was interpreted to be interbedded silty clay, clayey silt, and clay.

4.1.2 Groundwater Hydrogeology

Static water level measurements were obtained in January, May, September and November of 1992 and are provided in Table 2. Detailed shallow groundwater contour maps were provided with data transmittals to the DTSC for the first three quarterly sampling rounds (Dames & Moore, 1992b, 1992c, 1992f). A detailed shallow groundwater contour map for the fourth quarter is provided in Figure 5. Summary groundwater contour maps for all four quarters are provided in Figures 6 through 9.

The groundwater flow direction and gradient have generally been consistent over the last five years. The groundwater flow direction is to the southeast. The hydraulic gradient for the first hydrostratigraphic zone is approximately 0.002 in the northern portion of the site. The gradient increases to approximately 0.003 in the central portion of the site and remains fairly constant to the southeast.

A graph of groundwater elevations between 1988 and 1992 is provided in Figure 10. The graph includes water level measurements from wells along a transect from the north end of the site to the southeast extent of the investigation area. It is apparent that groundwater elevations fluctuate seasonally, with highest and lowest groundwater levels generally occurring in the spring and fall, respectively. Additionally, a decreasing trend in ground water elevations is apparent over the last five years, with an overall drop in water levels of approximately three feet.

4.2 GROUNDWATER ANALYTICAL RESULTS

Detailed discussions of groundwater analytical results are presented in the RI/FS Report (Dames & Moore, 1991c) and the Addendum RI/FS Report (Dames & Moore, 1991d). The following discussion on groundwater analytical results is intended to augment previous discussions with chemical analytical results from quarterly groundwater monitoring conducted during the 1992 calendar year. Analytical results are summarized in Tables 3 and 4. Comprehensive analytical results for 1992 groundwater monitoring are provided in Appendix B.

4.2.1 Metals

Analyses for arsenic, chromium, lead, and nickel were performed on groundwater samples according to the sampling and analysis schedule provided in Table 1. In general, metals analyses were performed only during the first and third sampling round. Summary analytical results are presented in Table 3. A brief discussion of metals analytical results is provided below.

Arsenic

Arsenic was reported in samples from 2 of 36 first hydrostratigraphic zone wells (MW-13 and MW-20), 1 of 5 second hydrostratigraphic zone wells (MW-44), and in the one third hydrostratigraphic zone well (MW-41) in 1992. Reported concentrations range from 5 to 43 μg/l. The highest concentration (>20 μg/L) occurred in groundwater samples from MW-13. The federal and state maximum contaminant limit (MCL) for arsenic in drinking water is 50 μg/l. Background levels for arsenic in groundwater within Sacramento County range from 0 to 20 μg/l (Johnson, 1985). Reported levels of arsenic are below the MCL and generally within the range of background levels.

Chromium (total)

Chromium, as total chromium, was reported in groundwater samples collected from 23 of 36 first hydrostratigraphic zone wells, in 4 of 5 second hydrostratigraphic zone wells and in the one third hydrostratigraphic zone well sampled in 1992. The range of reported concentrations was from 5 to 48 μg/l. The highest reported concentrations (>20 μg/l) occurred in groundwater samples from MW-7, MW-11, and MW-14. The federal MCL for chromium in drinking water is 50 μg/l. Background concentration range of chromium in groundwater for Sacramento County range from 1 to 20 μg/l, (Johnson, 1985). Reported levels of chromium are below the MCL, and generally within the range of background levels.

Lead

Lead was reported in groundwater samples collected from 6 of 36 first hydrostratigraphic zone wells sampled in 1992. Reported concentrations range from 1 to 16 μg/l. The federal MCL for lead in drinking water is 50 μg/l. Background concentrations of lead in groundwater for Sacramento County are reportedly <1 to 9 μg/l (Johnson, 1985). Reported levels of lead are below the MCL, and generally within the range of background levels.

Nickel

Nickel was detected in groundwater samples collected from 16 of 36 first hydrostratigraphic zone wells, and 2 of 5 second hydrostratigraphic zone wells sampled in 1992. Reported nickel concentrations ranged from 110 to 910 μg/l. The highest concentrations (> 200 μg/l) were reported in groundwater samples from first hydrostratigraphic zone wells MW-19, MW-21, MW-23, MW-25, and MW-26. The new federal MCL for nickel in drinking water of 100 μg/l becomes effective in January 1994. Previously, no state or federal MCL existed. Nickel concentrations for groundwater samples from the 18 wells with detections exceeded the new MCL (Table 2).

Background concentration of nickel in groundwater for Sacramento County reportedly range from 1 to 12 μg/l (Johnson, 1985). Groundwater samples from monitoring wells MW-1 and MW-2, generally considered upgradient of constituent sources or background wells, had reported concentrations of nickel at 130 μg/l and 140 mg/l, respectively, in April 1991. Since the detection limit for nickel has generally been 100 μg/l, background levels of nickel at the site are unclear and may be higher than the Sacramento County reported values.

4.2.2 CVOCs

Analyses for CVOCs in groundwater samples were performed according to the sampling and analysis schedule (Table 1). CVOC analyses were performed on groundwater samples from 41, 27, 36, and 28 monitoring wells during the first, second-, third-, and fourth-quarter groundwater monitoring rounds, respectively. Summary analytical results are presented in Table 4. A brief discussion of each compound detected in groundwater samples collected and analyzed during the 1992 calendar year follows.

1,1,1-Trichloroethane (1,1,1-TCA)

The compound 1,1,1-TCA was reported for groundwater samples from 21 of 36 first hydrostratigraphic zone wells, and 3 of 5 second hydrostratigraphic zone wells in 1992. Concentrations ranged from 0.5 to 22 μg/l. All detections were below the MCL of 200 μg/l in drinking water.

1,1,2-Trichloroethane (1,1,2-TCA)

The compound 1,1,2-TCA was reported for groundwater samples from 7 of 36 first hydrostratigraphic zone wells in 1992, at concentrations ranging from 0.5 to 4.9 μg/l. All detections were below the MCL of 32 μg/l in drinking water.

1,1-Dichloroethane (1,1-DCA)

The compound 1,1-DCA was reported for groundwater samples from 24 of 36 first hydrostratigraphic zone wells, and 4 of 5 second hydrostratigraphic zone wells in 1992. Concentrations ranged from 0.6 to 260 μg/l. The highest reported concentrations (> 100 μg/l) occurred in groundwater samples collected from wells MW-42 and MW-43, located in the Central Fill Area of the site (Figure 2). Groundwater samples from 15 of the 24 first hydrostratigraphic zone wells and 2 of the 4 second hydrostratigraphic zone wells exceeded the MCL for 1,1-DCA of 5 μg/l.

1,2-Dichloroethane (1,2-DCA)

The compound 1,2-DCA was reported for groundwater samples from 11 of 36 first hydrostratigraphic zone wells, and 3 of 5 second hydrostratigraphic zone wells in 1992. Concentrations ranged from 0.6 to 180 μg/l. The highest concentration was reported in groundwater samples collected from MW-4 and MW-13, located in the Former Oil House Area (Figure 2). 1,2-DCA was reported in off-site groundwater samples for the five first hydrostratigraphic zone and two second hydrostratigraphic zone monitoring wells, at concentrations ranging from 0.6 to 9.7 μg/l. All detections exceeded the MCL for 1,2-DCA in drinking water of 0.5 μg/l.

1,1-Dichloroethylene (1,1-DCE)

The compound 1,1-DCE is the most widely distributed CVOC constituent measured in groundwater both on- and off-site. 1,1-DCE was reported in water samples from 29 of 36 first hydrostratigraphic zone wells, and in all 5 second hydrostratigraphic zone wells in 1992. Concentrations ranged from 0.6 to 480 μg/l. The highest concentrations (> 200 μg/l) were reported for samples from on-site wells MW-31, MW-32, MW-40 and MW-42, and offsite wells MW-34, MW-36, MW-38. Reported concentrations of 1,1-DCE for groundwater samples from 23 of the first hydrostratigraphic zone wells and 3 of the second hydrostratigraphic zone wells exceeded the MCL of 6 μg/l (Table 3).

1,2-Dichloropropane (1,2-DCP)

The compound 1,2-DCP was reported in groundwater samples from first hydrostratigraphic zone well MW-13 during the third and fourth sampling round, at a concentration of 1.0 and 1.1 μg/l, respectively. Neither reported detections exceeded the MCL of 5 μg/l.

Carbon Tetrachloride

Carbon tetrachloride was reported in groundwater samples from 3 of 36 first hydrostratigraphic zone wells, and 2 of 5 second hydrostratigraphic zone wells in 1992. Concentrations ranged from 0.84 to 9.6 μg/l. Carbon Tetrachloride was not reported in any of the groundwater samples from wells located in the Inactive Yard (Figure 2). The furthest upgradient detection (1.5 μg/l) occurred in the first round 1992 groundwater sample from MW-29, located in a vacant lot along the eastern site boundary. Carbon tetrachloride was reported in groundwater samples from two off-site first hydrostratigraphic zone wells (MW-38 and MW-39), and two off-site second hydrostratigraphic zone wells (MW-37 and MW-44). The highest reported concentrations, 9.6 μg/l, occurred in groundwater samples from MW-44. All reported detections exceed the MCL for carbon tetrachloride in drinking water of 0.5 μg/l.

Cis-1,2-Dichloroethylene (1,2-DCE)

The compound Cis-1,2-DCE was reported in groundwater samples from 7 of 36 first hydrostratigraphic zone wells, and 2 of 5 second hydrostratigraphic zone wells in 1992. Concentrations ranged from 0.6 to 7.0 μg/l. All detections occurred in groundwater samples from on-site wells. Reported concentrations of Cis-1,2-DCE for groundwater samples from MW-13 (7.0 μg/l) exceeded the MCL of 6 μg/l.

Chloroform

Chloroform was reported in groundwater samples from 18 of 36 first hydrostratigraphic zone wells and 4 of 5 second hydrostratigraphic zone wells in 1992. Concentrations ranged from 0.56 to 7.2 μg/l. Chloroform was also reported in field blanks and rinse blanks. Chloroform may be present in water as a constituent used for decontamination of public water supply systems (chlorination), and as a potential laboratory contaminant. None of the reported levels exceeded the MCL for chloroform in drinking water of 200 μg/l.

Perchloroethylene (PCE)

The compound PCE was reported in groundwater samples from 13 of 36 first hydrostratigraphic zone wells, and 1 of 5 second hydrostratigraphic zone wells in 1992. Concentrations ranged from 0.5 to 28 μg/l. The highest reported concentrations (>20 μg/l) occurred in groundwater samples from first hydrostratigraphic zone well MW-42 located in the Central Fill Area of the site. PCE was reported in groundwater samples for one off-site first hydrostratigraphic zone well, MW-34. Reported concentrations

for groundwater samples from first hydrostratigraphic zone wells MW-15 and MW-42 exceeded the MCL for PCE in drinking water of 5 μg/l.

Trichloroethylene (TCE)

The compound TCE was reported in groundwater samples from 19 of 36 first hydrostratigraphic zone wells, and 3 of 5 second hydrostratigraphic zone wells in 1992. Concentrations ranged from 0.5 to 52 μg/l. TCE was reported in groundwater samples for four of five off-site first hydrostratigraphic zone wells and the two second hydrostratigraphic zone off-site wells. The highest reported concentrations (> 20 μg/l) occurred in groundwater samples from off-site first hydrostratigraphic zone well MW-34, and on-site second hydrostratigraphic zone MW-40. Reported concentrations for groundwater samples from 9 of the first hydrostratigraphic zone wells and 2 of the second hydrostratigraphic zone wells exceeded the MCL for TCE in drinking water of 5 μg/l.

Vinyl Chloride

Vinyl chloride was reported in groundwater samples from MW-43 for three of the four sampling rounds in 1992. Reported concentrations ranged from 7.4 to 10 μg/l. The MCL for vinyl chloride in drinking water is 0.5 μg/l.

4.2.3 Aromatic Hydrocarbons

Analyses for aromatic compounds in groundwater samples were performed on groundwater samples from 41, 27, 36, and 28 monitoring wells during the first, second, third and fourth quarterly groundwater monitoring rounds, respectively. Summary analytical results are presented in Table 3. A brief discussion of each compound detected in groundwater samples collected and analyzed during the 1992 monitoring year follows.

Benzene

Benzene was reported in groundwater samples from 6 of 36 first hydrostratigraphic zone wells and 1 of 5 second hydrostratigraphic zone wells in 1992, at concentrations ranging from 0.53 to 13,000 μg/l. Four of the groundwater samples with benzene detections are from wells in the Former Oil House Area, MW-4, MW-12, MW-13, and MW-14 shown in Figure 2. The highest reported concentrations (> 100 μg/l) occurred in groundwater samples from wells MW-4, and MW-13. Reported concentrations for groundwater samples from these 4 wells located in the Former Oil House Area exceed the MCL for benzene in drinking water of 1 μg/l (Table 3).

Benzene was also reported during one round in groundwater samples from wells MW-36 (January 23, 1992), and MW-43 (August 25, 1992) at levels slightly above detection limits. Benzene in groundwater samples from these wells may be due to field contamination.

Toluene

Toluene was reported in groundwater samples from 4 of 36 first hydrostratigraphic zone wells in 1992, at concentrations ranging from 1.4 to 630 μg/l. Two of the groundwater samples with toluene detections are from wells in the Former Oil House Area (MW-4 and MW-13 shown in Figure 2). The highest reported concentrations (> 100 μg/l) occurred in groundwater samples from MW-13. Toluene was also reported during one round in groundwater samples from wells MW-26 and MW-36 at 1.4 μg/l. None of the reported concentrations of toluene exceeded the MCL for toluene in drinking water of 1,000 μg/l.

Ethylbenzene

Ethylbenzene was reported in groundwater samples from 2 of 36 first hydrostratigraphic zone wells in 1992, at concentrations ranging from 4.1 to 780 μg/l. Ethylbenzene detections occurred in groundwater samples from on-site wells MW-11 and MW-13. The highest reported concentrations of 780 μg/l occurred in groundwater samples from MW-13. Reported concentrations for groundwater samples from MW-13 exceeded the MCL for drinking water of 680 μg/l.

Xylene

Xylene was reported in groundwater samples from 2 of 36 first hydrostratigraphic zone wells in 1992, at concentrations ranging from 1.7 to 1,300 μg/l. Both xylene detections occurred in groundwater samples from on-site wells MW-4 and MW-13 located in the Former Oil House Area (Figure 2). None of the reported concentrations of xylene total exceeded the MCL for total xylenes in drinking water of 1,750 μg/l.

4.3 DISTRIBUTION AND SOURCES OF CONSTITUENTS IN GROUNDWATER

Groundwater investigations to date have focused on assessing the lateral and vertical extent of CVOCs, aromatic compounds, arsenic, chromium, lead, and nickel in groundwater in the first and second hydrostratigraphic zones, both on- and off-site. Impacted groundwater has been grouped into two different plumes:

- Plume A (GW-1, Feasibility Study Supplement, Dames & Moore, 1992e) - First and second hydrostratigraphic zone impacted on- and off-site by CVOCs originating in the Central Fill Area of the site, and encompassing a smaller plume of aromatic compounds;

- Plume B (GW-2, Feasibility Study Supplement, Dames & Moore, 1992e) - First hydrostratigraphic zone aquifer impacted by low concentrations (near MCLs) of CVOCs, as well as nickel originating in the southern portion of the site.

The compound 1,1-DCE is the most widely distributed constituent in groundwater both on- and off-site. The first hydrostratigraphic zone lateral distribution of Plume A and Plume B are approximated with concentration contours of 1,1-DCE presented in Figure 11. Concentration contours are based on fourth quarter groundwater monitoring well analytical results, supplemented with existing HP analytical results. Plume A extends from the Central Fill Area, approximately 4,800 feet to the southeast and ranges in width between 250 and 500 feet. Plume B occupies the southeastern part of the site, including the former maintenance shop (round house) location, and extends off-site to the south.

The upgradient limit and potential source area of CVOCs in groundwater appears to be just south of groundwater monitoring well MW-2 in the Central Fill Area of the site. Examination of a 1953 aerial photograph indicates a dark area which may suggest the presence of a former surface impoundment just south of MW-2. This feature could potentially be the source of CVOCs in groundwater. Other potential sources include buried debris which may contain some drums in the Central Fill Area. This latter potential source may still be impacting groundwater.

Within the northern portion (700 feet) of Plume A, CVOCs appear to be limited to the upper portion of the sands in the first hydrostratigraphic zone. Further downgradient, CVOCs are present at the base of the first hydrostratigraphic zone. In the Former Oil House Area, approximately 1,500 feet downgradient of the northern extent of plume A, and extending downgradient to the area where the first hydrostratigraphic zone sand pinches out, higher levels of CVOCs are generally observed at the base of the first hydrostratigraphic zone sand than in the upper portion.

At the southern end of the groundwater investigations, low levels (< 10 μg/l) of 1,1,1-TCA, 1,1-DCA, 1,1-DCE, 1,2-DCA and carbon tetrachloride have been reported in MW-39. The low magnitude of these levels suggest the southern extent of Plume A.

CVOCs have been detected in groundwater samples from wells MW-12, MW-28, MW-37, MW-40, and MW-44, screened in the second hydrostratigraphic zone. The highest levels of CVOCs in the second hydrostratigraphic zone were reported in samples collected from MW-40 located along the eastern

site boundary. Lower levels of CVOCs (< 20 μg/l) were detected in MW-37 and MW-44 further downgradient. Off-site CVOC impacts to groundwater in the second hydrostratigraphic zone do not appear to exceed the lateral extent of the first hydrostratigraphic zone. Available data indicate that the extent and magnitude of impacts to the second hydrostratigraphic zone off-site are much less than impacts to the first hydrostratigraphic zone.

Analytical results of samples collected from well MW-41, screened in a lower (third) significant sand zone (third hydrostratigraphic zone) adjacent to MW-12, indicates no detectable levels of CVOCs during 7 rounds of groundwater of sampling. This suggests that the vertical extent of CVOCs in groundwater is confined to the upper two hydrostratigraphic zones in the Former Oil House Area of the site.

Carbon tetrachloride has not been detected on-site. The furthest upgradient off-site detection was reported in samples collected from MW-29 within the first hydrostratigraphic zone. MW-29 is located adjacent to a former gas station as referenced in the RI/FS report (Dames & Moore, 1991c). Therefore, the source of the carbon tetrachloride detected in the first and second hydrostratigraphic zones off-site may be the former gas station, or may be associated with sewers in the area, but does not appear to be the site.

In the Former Oil House Area, benzene has been reported above ten parts per million in the upper portion of the first hydrostratigraphic zone. The source of benzene, as well as other aromatic compounds in the Former Oil House Area, appears to be underground fuel storage tanks previously removed from the area. Analytical results from HP and groundwater monitoring well sampling to date suggest that aromatic hydrocarbons in groundwater are generally restricted to the Former Oil House Area of the site and have not migrated off-site.

Associated with the CVOC Plume A and Plume B are levels of nickel elevated with respect to background. Within Plume A, levels of nickel have been fairly consistently reported above the new MCL of 100 $_{\mu}$g/L in water samples collected from four groundwater monitoring wells (MW-34, MW-39, MW-42, and MW-43). Within Plume B, nickel levels have been consistently reported above the new MCL of 100 μg/l in nine groundwater monitoring wells (MW-6, MW-7, MW-17, MW-19, MW-21, MW-23, MW-24, MW-24, and MW-26). Nickel has also been reported above the MCL in samples collected during one sampling round from upgradient groundwater sampling wells MW-1 and MW-2. Since the detection limit for nickel has generally been 100 μg/l, background levels of nickel at the site are unclear. No source, of nickel either in soil or groundwater, has been identified at the site.

4.4 CONSTITUENT TRENDS IN GROUNDWATER

An evaluation of trends of constituents in groundwater was performed for selected wells and selected compounds. Graphs of constituent concentrations over the duration of the groundwater monitoring program are provided in Figures 12 through 21, and a graph of water level variation for selected wells is provided as Figure 10. Non-detects were plotted as one-half of the reported detection limit. Figures 12 and 13 are graphs of nickel from selected monitoring wells in the southern portion of the site where nickel levels appear elevated. Figures 14 through 21 are graphs of 1,1-DCE, 1,1-DCA, 1,2-DCA, and benzene for selected monitoring wells located along the axis of Plume A. The following observations were made from these graphs:

- In general, 1,1-DCE concentrations have remained relatively constant in groundwater monitoring wells over time, with the following exceptions:
  - 1,1-DCE concentrations in first hydrostratigraphic zone groundwater monitoring wells MW-14 and MW-28 appear to be increasing;
  - 1,1-DCE concentrations in second hydrostratigraphic zone wells MW-12, MW-28, and MW-40 appear to be increasing; and
  - Anomalously high 1,1-DCE concentrations were reported in samples collected during the first sampling event from groundwater monitoring wells MW-30, MW-35, and MW-42.
- In general, benzene concentration in groundwater monitoring wells MW-4 and MW-13 have remained relatively constant with time;
- Nickel levels have fluctuated greatly in most wells in the groundwater monitoring program with no trend apparent; and
- There does not appear to be a correlation between water level variation and constituent concentration.

5.0 CONCLUSIONS

Conclusions of 1992 groundwater investigations and monitoring are stated below.

- CVOCs in groundwater appear to occur in two plumes:
  - Plume A (GW-1), which originates in the Central Fill Area of the site, with impacts occurring in the first and second hydrostratigraphic zones; and
  - Plume B (GW-2), which originates generally in the south part of the inactive portion of the site, with impacts restricted to the first hydrostratigraphic zone.
- CVOCs reported in water samples collected from groundwater monitoring well (MW-39) located at the southern end of the groundwater investigations, were near but above the MCL for 1,1-DCE during the last two rounds, and near but above the MCL for 1,2-DCA during previous rounds. These low levels suggest the southern extent of Plume A.
- The downgradient extent of CVOC impacts to groundwater in the second hydrostratigraphic zone appears to be limited to the lateral extent of CVOC impacts to the first hydrostratigraphic zone.
- Carbon tetrachloride impacts to off-site groundwater are widespread, but do not appear attributable to the site.
- Aromatic compound impacts appear restricted to the upper portion of the first hydrostratigraphic zone in the Former Oil House Area on-site, and originate from previously removed underground storage tanks.
- With a few exceptions, reported CVOC concentrations appear to remain fairly constant with time. In two first hydrostratigraphic wells (MW-14 and MW-39) and three second hydrostratigraphic zone wells (MW-12, MW-28, MW-40), 1,1-DCE concentrations may be increasing.
- Nickel impacts to groundwater appear fairly widespread, with several reported levels above the MCL of 100 μg/L. No source of nickel has been identified at the site and background levels are uncertain. Reported levels of nickel vary with time and no trends are apparent.
- The groundwater monitoring sampling and analysis program for 1992 (Table 1) provided more than adequate monitoring of existing wells.

6.0 RECOMMENDATIONS

Based on the results of groundwater monitoring to date, Dames & Moore recommends revising the groundwater monitoring sampling and analysis schedule as presented in Table 5. Proposed changes in the sampling and analysis schedule are presented below.

- Monitoring wells in which reported arsenic, chromium, lead, and nickel concentrations historically have not exceeded 10 μg/l will no longer be evaluated for these metals.
- Monitoring wells in which reported arsenic, chromium, lead, and nickel concentrations have historically exceeded 10 μg/L, but remained below MCLs will be evaluated annually.
- The detection limit for nickel will be lowered to the range of 1 to 10 μg/l;
- Monitoring for aromatic compounds will be conducted annually in most wells, with the exception of the following wells which will be conducted quarterly for aromatic compounds.
    - Monitoring wells MW-42 and MW-43 in the Central Fill Area of the site; and
    - Monitoring wells MW-4, MW-12, MW-13, and MW-14 in the Former Oil House Area of the site, and MW-28, MW-29, MW-30, and MW-31 downgradient of the Former Oil House Area of the site.

7.0 REFERENCES

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TABLES

TABLE 1
1992 SAMPLING AND ANALYSIS SCHEDULE
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

Well	Screen Interval (feet bgs)	Total Depth	Hydrostrati-graphic Zone	Parameter				
				601	602	Select Metals	Water Level	Dedicated Sampling System
MW-1	15-35	46	1	A	A	A	Q	No
MW-2	37-57	66	1	Q	S	S	Q	Yes
MW-3	15-25	31	1	A	A	A	Q	No
MW-4	34-54	60	1	Q	Q	S	Q	Yes
MW-5	37-47	51	1	A	A	A	Q	No
MW-6	30-50	54	1	S	S	S	Q	No
MW-7	33-43	46	1	Q	A	S	Q	Yes
MW-8	37.5-52.5	59.5	1	S	S	S	Q	No
MW-11	50-55	56	1	Q	A	S	Q	Yes
MW-12	69-79	82	2	Q	Q	S	Q	Yes
MW-13	26-41	45	1	Q	Q	S	Q	Yes
MW-14	52.5-57.5	58	1	Q	Q	S	Q	Yes
MW-15	26-41	44	1	S	A	S	Q	No
MW-16	51.8-56.8	57.5	1	Q	A	S	Q	Yes
MW-17	26.5	45	1	S	A	S	Q	No
MW-18	52-57	57.5	1	Q	A	S	Q	Yes
MW-19	26-41	42	1	S	A	S	Q	No
MW-20	52-57	59	1	Q	A	S	Q	Yes
MW-21	22-40	40	1	S	A	S	Q	No
MW-22	45.5-50.5	52.5	1	A	A	A	Q	No
MW-23	25.5-40.5	42	1	S	A	S	Q	No
MW-24	34-39	52.5	1	A	A	A	Q	No
MW-25	26-41	41.5	1	S	A	S	Q	No
MW-26	38-43	50	1	Q	A	S	Q	Yes
MW-27	56.5-66.5	74	2	S	A	S	Q	Yes
MW-28	69-79	80	2	Q	A	S	Q	Yes

TABLE 1 (Continued)
1992 SAMPLING AND ANALYSIS SCHEDULE
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

Well	Screen Interval (feet bgs)	Total Depth	Hydrostrati-graphic Zone	Parameter				
				601	602	Select Metals	Water Level	Dedicated Sampling System
MW-29	26-41	42	1	Q	Q	S	Q	Yes
MW-30	51-56	57	1	Q	Q	S	Q	Yes
MW-31	49-54	54.5	1	Q	Q	S	Q	Yes
MW-32	51.5-56.5	57	1	Q	Q	S	Q	Yes
MW-33	23.5-38.5	39	1	Q	A	S	Q	Yes
MW-34	56-61	62	1	Q	Q	S	Q	Yes
MW-35	27-42	44	1	Q	Q	S	Q	Yes
MW-36	33.5-48.5	49	1	Q	Q	S	Q	Yes
MW-37	75-85	86	2	Q	Q	S	Q	Yes
MW-38	36-48.5	49	1	Q	Q	S	Q	Yes
MW-39	33-48	49	1	Q	A	S	Q	Yes
MW-40	72.5-82.5	83	2	Q	Q	S	Q	Yes
MW-41	104.5-114.5	115.5	3	Q	Q	S	Q	Yes
MW-42	20.5-35.5	37	1	Q	Q	S	Q	Yes
MW-43	20-35	37	1	Q	Q	S	Q	Yes
MW-44	73.5-78.5	81	2	Q	Q	Q	Q	Yes

Q - Quarterly
S - Semi-annually
A - Annually
601 - EPA method for chlorinated volatile organic compounds analysis
602 - EPA method for aromatic compound analysis

TABLE 2
GROUNDWATER ELEVATION DATA, 1988–1992
(Elevation in feet mean sea level datum)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

DATE	MW–1	MW–2	MW–3	MW–4	MW–5	MW–6	MW–7	MW–8	MW–11	MW–12	MW–13
02/19/88	0	–0.85	–0.61	–3.50	–3.37	–3.64	–5.73	–5.40	---	---	---
03/02/88	–0.02	–0.92	–0.62	–3.49	–3.44	–3.70	–4.83	–4.21	---	---	---
04/14–15–16/88	0.04	–1.22	–1.26	–3.71	–3.70	–3.96	–5.07	–4.47	---	---	---
07/15/88	–0.32	–2.24	–2.39	–4.50	–4.62	–4.85	–5.86	–5.24	---	---	---
08/19/88	–0.53	*	–2.97	–4.94	–5.05	–5.28	–6.25	–5.64	---	---	---
01/06/89	–1.92	*	–2.50	–5.42	–5.44	–5.68	–6.76	–6.16	---	---	---
10/09/89	–1.52	–2.83	–2.68	–5.43	–5.46	–5.72	–6.85	–6.21	–4.99	–5.63	–5.48
02/21/90	–1.29	–1.22	–0.24	–4.12	–4.20	–4.50	–5.83	–5.10	–3.48	–4.47	–4.21
06/15/90	–0.86	–1.99	–2.01	–4.66	–4.61	–4.90	–6.07	–5.44	–4.20	–4.93	–4.73
09/20/90	–1.89	–3.76	–4.05	–6.14	–6.15	–6.40	–7.47	–6.85	–5.74	–6.38	–6.18
02/05/91	–3.18	–3.85	–3.81	–6.60	–6.57	–6.84	–7.94	–7.37	–6.04	–6.82	–6.69
04/22/91	–2.05	–2.37	–2.22	–5.12	–5.07	–5.37	–6.59	–5.93	–4.64	–5.38	–5.18
07/30/91	–2.40	–3.98	–4.14	–6.43	–6.47	–6.73	–7.79	–7.17	–6.01	–6.65	–6.47
12/27/91	–3.82	–5.04	–5.20	–7.47	–7.41	–7.67	–8.72	–8.15	–7.05	–7.66	–7.53
01/22/92	–3.84	–4.72	–4.64	–7.28	–7.18	–7.46	–8.54	–7.98	–6.83	–7.49	–7.33
05/08/92	–2.37	–3.05	–2.97	–5.7	–5.46	–5.85	–7.04	–6.44	–5.41	–5.96	–5.76
09/29/92	–3.18	–4.95	–5.22	–7.21	–7.24	–7.49	–8.54	–7.92	–6.82	–7.42	–7.27
11/02/92	–3.67	–5.22	–5.26	–7.5	–7.49	–7.72	–8.8	–8.18	–7.11	–7.69	–7.58

DATE	MW–14	MW–15	MW–16	MW–17	MW–18	MW–19	MW–20	MW–21	MW–22	MW–23	MW–24
10/09/89	–5.55	–5.56	–5.56	–6.03	–6.09	–6.77	–6.85	–6.43	–6.41	–6.10	–6.10
02/21/90	–4.31	–4.29	–4.29	–4.82	–4.95	–5.82	–5.91	–5.35	–5.33	–4.96	–4.94
06/15/90	–4.80	–4.79	–4.79	–5.28	–5.36	–6.05	–6.12	–5.64	–5.62	–5.30	–5.27
09/20/90	–6.26	–6.26	–6.25	–6.69	–6.76	–7.37	–7.45	–7.07	–7.04	–6.77	–6.75
02/05/91	–6.76	–6.71	–6.71	–7.23	–7.29	–7.97	–8.03	–7.55	–7.53	–7.22	–7.18
04/22/91	–5.27	–5.22	–5.23	–5.77	–5.85	–6.57	–6.65	–6.13	–6.13	–5.80	–5.77
07/30/91	–6.53	–6.57	–6.55	–7.00	–7.06	–7.70	–7.76	–7.38	–7.35	–7.09	–7.07
12/27/91	–7.60	–7.57	–7.57	–8.02	–8.08	–8.69	–8.76	–8.33	–8.32	–8.04	–8.02
01/22/92	–7.41	–7.37	–7.36	–7.86	–7.92	–8.56	–8.64	–8.16	–8.15	–7.82	–7.82
05/08/92	–5.84	–5.79	–5.8	–6.32	–6.38	–7.08	–7.15	–6.64	–6.61	–6.25	–6.23
09/29/92	–7.32	–7.36	–7.36	–7.78	–7.85	–8.47	–8.52	–8.14	–8.12	–7.86	–7.85
11/02/92	–7.63	–7.26	–7.26	–7.58	–8.13	–8.71	–8.82	–8.38	–8.4	–8.1	–8.08

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TABLE 2
GROUNDWATER ELEVATION DATA, 1988–1992
(Elevation in feet mean sea level datum)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

DATE	MW–25	MW–26	MW–27	MW–28	MW–29	MW–30	MW–31	MW–32	MW–33	MW–34	MW–35
10/09/89	–7.47	–7.46	–7.46	---	---	---	---	---	---	---	---
02/21/90	–6.55	–6.55	–6.54	–5.35	–5.01	–5.07	---	---	---	---	---
06/15/90	–6.70	–6.70	–6.69	–5.66	–5.34	–5.37	–5.51	–6.04	–4.21	---	---
09/20/90	–8.05	–8.05	–8.04	–7.04	–6.73	–6.76	–6.88	–7.34	–5.75	---	---
02/05/91	–8.55	–8.55	–8.53	–7.59	–7.31	–7.40	–7.48	–7.93	–7.04	---	---
04/22/91	–7.26	–7.27	–7.25	–6.16	–5.86	–5.90	–6.02	–6.57	–4.63	---	---
07/30/91	–8.39	–8.38	–8.37	–7.32	–7.04	–7.07	–7.19	–7.66	–6.01	–8.34	–8.30
12/27/91	–9.29	–9.30	–9.29	–8.33	–8.10	–8.13	–8.26	–8.70	–7.06	–9.38	–9.39
01/22/92	–9.13	–9.14	–9.13	–8.15	–7.91	–7.94	–8.07	–8.54	–6.84	–9.28	–9.29
05/08/92	–7.69	–7.69	–7.68	–6.72	–6.41	–6.45	–6.58	–7.09	–5.23	–8.38	–7.89
09/29/92	–9.09	–9.09	–9.08	–8.08	–7.83	–7.86	–7.95	–8.39	–6.82	–9.11	–9.11
11/02/92	–9.34	–9.33	–9.33	–8.37	–8.1	–8.13	–8.27	–8.74	–7.13	–9.37	–9.4

DATE	MW–36	MW–37	MW–38	MW–39	MW–40	MW–41	MW–42	MW–43	MW–44
07/30/91	---	---	---	–13.73	–7.83	–6.66	–5.07	–4.24	---
12/27/91	–10.71	–10.91	–13.05	–14.67	–8.82	–7.66	–6.13	–5.30	---
01/22/92	–10.69	–10.85	–13.02	–14.64	–8.65	–7.49	–5.88	–4.99	---
05/08/92	–9.46	–9.66	–11.97	–13.69	–7.24	–5.98	–4.25	–3.32	---
09/29/92	–10.28	–10.61	–12.84	–14.51	–8.5	–7.41	–5.98	–5.2	---
11/02/92	–10.63	–10.88	–13.07	–14.67	–8.84	–7.7	–6.08	–5.15	–13.13

* Lock–on well cover was vandelized, rendering well inaccessible.
--- Prior to well installation.

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TABLE 3
SUMMARY MONITORING WELL GROUNDWATER ANALYTICAL RESULTS, 1988–1992
SELECTED METALS–DETECTIONS ONLY (ug/l)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

Monitoring Well	Date Sampled	As	Cr	Ni	Pb
	MCL	50	50	100*	50
	Background Concentration[1]	0–20	1–20	1–12	<1–9
MW–01	03/03/88	4.0	--	--	--
	04/14/88	5.0	30.0	--	--
	09/20/89	--	--	--	--
	05/10/90	9.0	--	--	--
	09/05/90	--	--	--	--
	01/21/91	--	--	--	--
	04/22/91	--	5.0	130.0	--
	01/29/92	--	8.0	--	--
MW–02	03/03/88	3.0	--	--	--
	04/14/88	--	120	--	--
	09/20/89	--	--	--	--
	05/17/90	1.0	--	20.0	--
	09/11/90	--	--	--	--
	01/22/91	--	--	--	--
	04/22/91	4.0	5.7	140.0	--
	08/01/91	--	--	--	--
	11/07/91	--	--	--	--
	02/07/92	--	--	--	--
	08/25/92	--	--	--	1.0
MW–03	03/03/88	4.0	--	--	--
	04/14/88	3.0	40.0	--	--
	09/20/89	--	--	--	16.0
	02/13/90	NA	NA	NA	20.0
	05/10/90	9.0	--	--	20.0
	09/05/90	--	--	--	--
	01/22/91	--	--	--	--
	04/23/91	--	1.5	--	--
	08/01/91	--	--	--	--
	01/29/92	--	--	--	--
MW–04	03/03/88	6.0	--	140.0	--
	04/18/88	5.0	10.0	160.0	--
	09/20/89	--	--	34.0	12.0
	02/15/90	NA	NA	NA	10.0
	05/23/90	--	4.5	99.0	--
	09/18/90	--	--	71.0	--
	05/01/91	6.1	--	11.0	--
	02/05/91	--	33.0	200.0	--
	08/14/91	5.0	--	--	--
	11/07/91	5.0	--	--	--
	01/28/92	--	--	--	--
	08/26/92	--	14.0	--	--

TABLE 3
SUMMARY MONITORING WELL GROUNDWATER ANALYTICAL RESULTS, 1988–1992
SELECTED METALS–DETECTIONS ONLY (ug/l)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

Monitoring Well	Date Sampled	As	Cr	Ni	Pb
	MCL	50	50	100*	50
	Background Concentration[1]	0–20	1–20	1–12	<1–9
MW–05	03/04/88	--	10.0	--	--
	04/15/88	--	--	--	--
	09/20/89	9.3	--	159.0	--
	05/17/90	2.0	--	70.0	--
	09/12/90	--	14.0	--	--
	01/22/91	--	11.0	100.0	--
	04/23/91	--	7.2	81.0	--
	08/12/91	--	--	--	--
	11/13/91	--	--	--	--
	01/28/92	--	--	--	--
MW–06	03/04/88	5.0	--	--	--
	04/15/88	--	40.0	--	--
	09/20/89	--	7.1	39.0	--
	05/17/90	2.0	--	100.0	--
	09/11/90	--	21.0	42.0	--
	01/24/91	7.0	15.0	--	--
	04/23/91	5.8	5.4	40.0	--
	08/12/91	--	--	120.0	1.0
	11/13/91	--	7.0	110.0	--
	01/28/92	--	--	180.0	--
	08/28/92	--	5.0	110.0	--
MW–07	03/04/88	4.0	10.0	50.0	--
	04/15/88	9.0	470.0	230.0	
	09/15/89	--	5.0	405.0	--
	05/23/90	--	111.0	215.0	10.0
	09/07/90	--	15.0	250.0	--
	01/30/91	7.0	200.0	200.0	--
	04/26/91	--	18.0	130.0	--
	08/07/91	--	14.0	150.0	--
	11/13/91	--	15.0	140.0	--
	02/07/92	--	15.0	180.0	--
	08/31/92	--	24.0	--	--
	10/23/92	NA	NA	--	NA
MW–08	03/03/88	--	--	--	--
	04/18/88	5.0	40.0		
	09/20/89	--	--	--	--
	02/13/90	NA	NA	NA	30.0
	05/23/90	--	--	12.0	24.0
	09/13/90	--	--	--	--
	01/30/91	6.0	--	--	70.0
	04/26/91	--	8.8	29.0	--
	08/12/91	--	--	--	--
	11/11/91	--	--	--	--
	01/28/92	--	6.0	--	--
	08/28/92	--	--	--	--

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TABLE 3
SUMMARY MONITORING WELL GROUNDWATER ANALYTICAL RESULTS, 1988–1992
SELECTED METALS–DETECTIONS ONLY (ug/l)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

Monitoring Well	Date Sampled	As	Cr	Ni	Pb
	MCL	50	50	100*	50
	Background Concentration[1]	0–20	1–20	1–12	<1–9
MW–11	09/06/89	9.7	27.0	160.0	57.0
	02/15/90	NA	NA	NA	20.0
	05/18/90	--	47.6	76.0	--
	09/17/90	--	47.0	55.0	--
	01/30/91	--	200.0	--	--
	04/26/91	--	38.0	32.0	--
	08/15/91	--	25.0	--	--
	11/07/91	--	19.0	--	--
	01/27/92	--	28.0	--	--
	08/26/92	--	48.0	--	--
MW–12	09/11/89	28.0	18.0	15.0	--
	02/15/90	NA	NA	NA	--
	05/22/90	--	10.0	51.0	15.0
	09/18/90	--	10.0	71.0	--
	02/04/91	--	50.0	200.0	--
	05/01/91	--	6.6	78.0	--
	08/15/91	--	5.0	--	--
	11/07/91	--	--	--	--
	01/28/92	--	--	120.0	--
	08/26/92	--	11.0	--	--
	10/26/92	NA	NA	--	NA
MW–13	09/13/89	18.0	--	14.0	--
	02/15/90	NA	NA	NA	--
	05/25/90	30.0	--	10.0	--
	09/18/90	36.0	--	--	--
	02/05/91	20.0	--	100.0	--
	04/30/91	33.0	--	7.0	--
	08/07/91	40.0	--	--	1.0
	11/07/91	38.0	--	--	--
	02/07/92	43.0	--	--	--
	08/26/92	42.0	--	2.0	--
MW–14	09/13/89	--	--	169.0	--
	02/15/90	NA	NA	NA	--
	05/22/90	--	16.0	174.0	--
	09/18/90	--	13.0	160.0	--
	02/04/91	--	21.0	300.0	--
	05/01/91	--	37.0	98.0	--
	08/14/91	6.0	36.0	--	--
	11/22/91	--	16.0	--	--
	02/07/92	--	20.0	--	--
	08/27/92	--	22.0	--	--

TABLE 3
SUMMARY MONITORING WELL GROUNDWATER ANALYTICAL RESULTS, 1988–1992
SELECTED METALS–DETECTIONS ONLY (ug/l)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

Monitoring Well	Date Sampled	As	Cr	Ni	Pb
	MCL	50	50	100*	50
	Background Concentration[1]	0–20	1–20	1–12	<1–9
MW–15	09/07/89	6.0	--	--	--
	02/07/90	NA	NA	NA	30.0
	05/16/90	4.0	30.0	70.0	--
	09/14/90	5.0	--	52.0	--
	01/24/91	--	12.0	--	--
	04/25/91	--	11.0	51.0	--
	08/05/91	--	18.0	--	--
	11/05/91	--	7.0	--	--
	01/30/92	--	6.0	--	--
	08/27/92	--	--	--	--
MW–16	09/07/89	6.0	--	--	--
	02/07/90	NA	NA	NA	30.0
	05/16/90	2.0	--	--	--
	09/14/90	--	10.0	--	--
	01/24/91	7.0	11.0	--	--
	04/25/91	--	5.7	20.0	--
	08/13/91	5.0	5.0	--	--
	11/07/91	--	--	--	--
	01/30/92	--	5.0	--	--
	08/27/92	--	9.0	--	--
MW–17	09/21/89	--	--	--	--
	02/07/90	NA	NA	NA	30.0
	05/18/90	--	7.2	67.0	12.0
	09/13/90	--	--	50.0	--
	01/25/91	7.0	9.0	200.0	--
	04/29/91	--	6.9	170.0	--
	08/06/91	--	5.0	170.0	--
	11/05/91	--	--	--	--
	01/30/92	--	6.0	110.0	--
	08/27/92	--	7.0	200.0	--
MW–18	09/21/89	--	--	10.0	--
	02/07/90	NA	NA	NA	40.0
	05/18/90	--	5.5	13.0	21.0
	09/13/90	--	--	--	--
	01/25/91	6.0	7.0	--	--
	04/29/91	--	6.5	24.0	--
	08/13/91	6.0	6.0	--	--
	11/05/91	--	--	--	--
	01/30/92	--	--	--	--
	08/27/92	--	7.0	--	--

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TABLE 3
SUMMARY MONITORING WELL GROUNDWATER ANALYTICAL RESULTS, 1988–1992
SELECTED METALS–DETECTIONS ONLY (ug/l)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

Monitoring Well	Date Sampled	As	Cr	Ni	Pb
	MCL	50	50	100*	50
	Background Concentration[1]	0–20	1–20	1–12	<1–9
MW–19	09/14/89	--	--	14.0	--
	02/13/90	NA	NA	NA	20.0
	05/14/90	8.0	--	60.0	50.0
	09/07/90	--	--	45.0	--
	01/24/91	10.0	--	--	--
	04/29/91	--	16.0	69.0	--
	08/05/91	--	5.0	--	--
	11/11/91	--	--	120.0	--
	01/30/92	--	5.0	170.0	--
	08/28/92	--	--	370.0	--
MW–20	09/14/89	--	--	--	--
	02/13/90	NA	NA	NA	--
	05/14/90	8.0	--	--	40.0
	09/07/90	--	--	--	--
	01/24/91	7.0	--	--	--
	04/29/91	--	15.0	5.3	--
	08/14/91	6.0	8.0	--	--
	11/11/91	--	--	--	--
	01/30/92	--	--	--	--
	08/28/92	--	7.0	--	--
MW–21	09/08/89	8.4	--	15.0	--
	05/15/90	6.0	--	380.0	40.0
	09/07/90	--	29.0	300.0	--
	01/23/91	5.0	7.0	300.0	--
	04/25/91	--	8.4	310.0	--
	08/07/91	--	--	190.0	--
	11/11/91	--	--	400.0	--
	01/30/92	--	5.0	370.0	--
	08/28/92	--	--	350.0	--
MW–22	09/08/89	24.0	--	17.0	--
	05/15/90	9.0	--	--	20.0
	09/07/90	--	--	--	--
	01/23/91	--	--	--	--
	04/25/91	--	6.9	--	--
	08/14/91	6.0	--	--	--
	11/11/91	--	--	--	--
	01/30/92	6.0	5.0	--	1.0
MW–23	09/08/89	9.7	--	--	--
	05/15/90	3.0	--	450.0	30.0
	09/06/90	--	--	250.0	--
	01/23/91	--	--	400.0	--
	04/23/91	--	6.5	360.0	--
	08/02/91	--	7.0	250.0	--
	11/11/91	--	--	180.0	--
	01/24/92	--	--	470.0	--
	08/28/92	--	--	280.0	--

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TABLE 3
SUMMARY MONITORING WELL GROUNDWATER ANALYTICAL RESULTS, 1988–1992
SELECTED METALS–DETECTIONS ONLY (ug/l)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

Monitoring Well	Date Sampled	As	Cr	Ni	Pb
	MCL	50	50	100*	50
	Background Concentration[1]	0–20	1–20	1–12	<1–9
MW–24	09/08/89	15.0	--	--	--
	05/15/90	5.0	--	420.0	30.0
	09/06/90	--	--	110.0	--
	01/23/91	--	--	100.0	2.0
	04/24/91	--	2.9	240.0	--
	08/01/91	--	--	300.0	--
	11/13/91	--	--	130.0	--
	01/24/92	--	--	190.0	--
MW–25	09/11/89	11.0	--	--	--
	05/16/90	3.0	--	200.0	--
	09/12/90	--	11.0	130.0	--
	01/29/91	8.0	10.0	300.0	--
	04/24/91	--	--	240.0	--
	08/02/91	--	9.0	210.0	--
	11/13/91	--	7.0	250.0	--
	01/23/92	--	5.0	910.0	--
	09/01/92	--	--	760.0	--
MW–26	09/11/89	11.0	--	--	--
	05/16/90	--	--	200.0	--
	09/12/90	--	--	260.0	--
	01/29/91	--	--	300.0	--
	04/24/91	--	8.0	240.0	--
	08/13/91	--	6.0	250.0	--
	11/13/91	--	--	750.0	--
	01/27/92	--	--	720.0	--
	09/01/92	–	10.0	--	--
	10/23/92	NA	NA	160.0	NA
MW–27	09/15/89	--	19.0	--	--
	05/21/90	--	--	67.0	23.3
	09/17/90	--	--	49.0	--
	01/29/91	--	8.0	--	--
	04/24/91	--	6.1	38.0	--
	08/13/91	--	--	--	1.0
	11/13/91	--	--	--	--
	01/23/92	--	--	--	--
	09/01/92	--	6.0	--	--
MW–28	02/15/90	NA	NA	NA	--
	05/25/90	--	4.4	26.0	16.0
	09/19/90	--	49.0	52.0	--
	02/01/91	--	10.0	--	1.0
	04/30/91	--	6.0	32.0	--
	08/13/91	--	5.0	--	2.0
	11/05/91	--	--	--	--
	01/30/92	--	--	--	--
	08/31/92	--	9.0	--	2.0

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TABLE 3
SUMMARY MONITORING WELL GROUNDWATER ANALYTICAL RESULTS, 1988–1992
SELECTED METALS–DETECTIONS ONLY (ug/l)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

Monitoring Well	Date Sampled	As	Cr	Ni	Pb
	MCL	50	50	100*	50
	Background Concentration[1]	0–20	1–20	1–12	<1–9
MW–29	02/15/90	NA	NA	NA	20.0
	05/25/90	--	--	15.0	--
	09/06/90	--	--	--	--
	02/01/91	--	--	--	10.0
	04/30/91	--	3.0	58.0	--
	08/15/91	--	--	--	--
	11/05/91	--	--	--	--
	01/30/92	--	--	--	--
	08/31/92	--	--	--	--
MW–30	02/15/90	NA	NA	NA	20.0
	05/24/90	5.0	--	174.0	63.0
	09/05/90	--	--	190.0	--
	02/04/91	--	--	200.0	2.0
	04/30/91	--	7.9	130.0	--
	08/15/91	--	8.0	--	--
	11/05/91	--	6.0	--	--
	01/31/92	--	9.0	--	--
	08/31/92	--	8.0	--	--
MW–31	05/24/90	9.0	--	201.0	30.0
	09/19/90	--	--	200.0	--
	02/01/91	--	--	200.0	1.0
	05/01/91	--	13.0	73.0	--
	08/15/91	--	21.0	--	--
	11/22/91	--	16.0	--	--
	01/31/92	--	13.0	--	1.0
	08/31/92	--	--	--	--
MW–32	05/24/90	--	7.4	169.0	10.0
	09/19/90	--	--	120.0	--
	02/01/91	--	40.0	200.0	4.0
	05/01/91	--	12.0	65.0	--
	08/16/91	--	--	--	--
	11/22/91	--	--	--	--
	01/29/92	--	--	--	--
	09/04/92	--	--	--	--
MW–33	05/18/90	--	--	17.0	35.0
	09/14/90	--	--	--	--
	01/30/91	8.0	200.0	--	--
	04/30/91	--	3.5	56.0	--
	08/07/91	--	5.0	--	1.0
	11/05/91	--	--	--	--
	01/24/92	--	--	--	--
	08/26/92	--	--	--	--

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TABLE 3
SUMMARY MONITORING WELL GROUNDWATER ANALYTICAL RESULTS, 1988–1992
SELECTED METALS–DETECTIONS ONLY (ug/l)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

Monitoring Well	Date Sampled	As	Cr	Ni	Pb
	MCL	50	50	100*	50
	Background Concentration[1]	0–20	1–20	1–12	<1–9
MW–34	07/02/91	--	7.0	300.0	--
	08/16/91	--	6.0	230.0	--
	11/13/91	--	--	190.0	--
	01/23/92	--	--	160.0	--
	09/01/92	--	5.0	--	16.0
	10/26/92	NA	NA	130	NA
MW–35	07/02/91	--	5.0	--	--
	08/08/91	6.0	9.0	--	--
	11/13/91	--	--	--	--
	01/23/92	--	--	--	--
	09/01/92	--	--	--	--
MW–36	12/12/91	--	--	--	--
	01/23/92	--	--	110.0	--
	09/04/92	--	10.0	120.0	--
	10/21/92	NA	NA	--	NA
MW–37	12/12/91	--	--	--	--
	01/23/92	--	--	--	--
	09/04/92	--	--	--	--
MW–38	12/12/91	--	--	--	--
	01/24/92	--	--	--	--
	09/04/92	--	7.0	100.0	--
MW–39	06/28/91	10.0	17.0	--	1.0
	08/06/91	--	17.0	--	--
	11/13/91	--	--	--	--
	01/24/92	--	--	180.0	--
	09/04/92	--	10.0	170.0	--
	10/21/92	NA	NA	100.0	NA
MW–40	06/28/91	5.0	4.0	--	--
	08/15/91	--	7.0	--	--
	11/22/91	--	5.0	--	--
	01/29/92	--	--	100.0	--
	08/31/92	--	5.0	--	--
MW–41	06/28/91	15.0	5.0	--	--
	08/12/91	7.0	--	--	--
	11/05/91	6.0	6.0	--	--
	01/31/92	7.0	7.0	--	--
	08/25/92	--	11.0	--	--
MW–42	06/28/91	8.0	--	200.0	1.0
	08/08/91	--	10.0	190.0	--
	11/07/91	--	--	160.0	--
	02/07/92	--	--	160.0	3.0
	08/25/92	--	5.0	--	12.0

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TABLE 3
SUMMARY MONITORING WELL GROUNDWATER ANALYTICAL RESULTS, 1988–1992
SELECTED METALS–DETECTIONS ONLY (ug/l)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

Monitoring Well	Date Sampled	As	Cr	Ni	Pb
	MCL	50	50	100*	50
	Background Concentration[1]	0–20	1–20	1–12	<1–9
MW–43	06/28/91	10.0	--	200.0	--
	11/07/91	--	--	160.0	--
	08/16/91	--	--	220.0	--
	02/07/92	--	--	180.0	--
	08/25/92	--	--	120.0	--
	08/25/92	--	--	120.0	--
	10/22/92	NA	NA	170.0	NA
MW–44	10/27/92	5	9	--	--

MCL Maximum Contaminant Level for drinking water, EPA or DHS, whichever is more stringent.
* Proposed EPA MCL for Nickel, effective 1/94.
-- Not detected.
NA Not analyzed.
1 Background Concentration–Values were obtained from: Johnson. K.L., 1985. Chemical Quality of Groundwater in Sacramento and Western Placer Counties, California. U.S. Geological Survey Water Resources Investigation Report, 85–4164.

TABLE 4
SUMMARY MONITORING WELL GROUNDWATER ANALYTICAL RESULTS, 1988 – 1992
ORGANIC COMPOUNDS – DETECTIONS ONLY (ug/l)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

Monitoring Well	Date Sampled	B 1	T 1000	X 1,750	E 680	1,1,1-TCA 200	1,1,2-TCA 32	1,1-DCA 5	1,1-DCE 6	1,2-DCA 0.5	Chloroform 100	PCE 5	TCE 5	CCL_4 0.5	TPH NE	TPH/Gas NE
MW-01	03/03/88	--	--	--	--	--	--	--	--	--	0.8	--	--	--	--	--
	09/20/89	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	05/10/90	--	--	--	--	--	--	--	--	--	--	--	--	--	N/A	N/A
	09/05/90	--	--	--	--	--	--	--	--	--	1.0	--	--	--	--	--
	01/21/91	--	--	--	--	--	--	--	--	--	0.80	--	--	--	N/A	N/A
	01/29/92	--	--	--	--	--	--	--	--	--	1.7	--	--	--	N/A	N/A
MW-02	03/03/88	--	--	--	--	--	--	--	--	--	0.6	--	--	--	280	--
	09/20/89	--	1.4	--	--	--	--	--	--	--	--	--	--	--	--	50*
	05/17/90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	09/11/90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	01/22/91	--	--	--	--	--	--	--	--	--	--	--	--	--	N/A	N/A
	04/22/91	--	--	--	--	--	--	--	--	--	--	--	--	--	N/A	N/A
	08/01/91	--	--	--	--	--	--	--	--	--	--	--	--	--	N/A	N/A
	11/07/91+	8.4	1.2	8.3	--	--	--	--	--	--	--	--	--	--	N/A	N/A
	02/07/92	--	--	--	--	--	--	--	--	--	--	--	--	--	N/A	N/A
	05/26/92	--	--	--	--	--	--	--	--	--	--	--	--	--	N/A	N/A
	08/25/92	--	--	--	--	--	--	--	--	--	--	--	--	--	N/A	N/A
	10/20/92	--	--	--	--	--	--	--	--	--	--	--	--	--	N/A	N/A
MW-03	03/03/88	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	09/20/89	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	05/10/90	--	--	--	--	--	--	--	--	--	--	--	--	--	N/A	N/A
	09/05/90	--	--	--	--	--	--	--	--	--	--	--	--	--	N/A	N/A
	01/22/91	--	--	--	--	--	--	--	--	--	--	--	--	--	N/A	N/A
	08/01/91	--	--	--	--	--	--	--	--	NA	--	--	--	--	N/A	N/A
	01/29/92	--	--	--	--	--	--	--	--	--	--	--	--	--	N/A	N/A
MW-04	03/03/88	11	4.5	6	1.5	22	--	12	130	42	--	--	--	--	1100	300
	09/20/89	210	--	--	--	--	--	7.1	--	120	--	--	--	--	--	3000
	02/15/90	190	3.5	7.5	2.1	5.3	--	12	250	46	--	--	5.7	--	N/A	N/A
	05/23/90	130	4.9	2.1	6.3	4.1	--	5.8	5.5	45	--	--	4.9	--	--	650
	09/18/90	98	4.1	2.7	4.3	2.4	--	6	30	38	--	--	4.5	--	--	--
	02/05/91	17	--	--	--	1.2	--	6	45	16	--	--	4.2	--	N/A	N/A
	05/01/91	580	--	24	12	--	--	11	15	93	--	--	0.89	--	N/A	N/A
	08/14/91	--	0.6	13	2.5	--	--	13	27	--	--	--	1.4	--	N/A	N/A
	11/07/91	1200	26	8.7	26	--	--	19	40	--	--	--	--	--	N/A	N/A
	01/28/92	940	12	3.4	18	0.6	--	12	16	170	--	--	1.4	--	N/A	N/A
	05/29/92	210	7.5	9.3	6.7	2.4	--	15	110	20	--	--	7.8	--	N/A	N/A
	08/26/92	230	2.4	1.7	4.1	1.3	--	14	120	13	--	1.3	8.6	--	N/A	N/A
	10/20/92	260	--	--	--	--	--	--	32	--	--	--	--	--	N/A	N/A

SAC21A3.WK1

TABLE 4
SUMMARY MONITORING WELL GROUNDWATER ANALYTICAL RESULTS, 1988 – 1992
ORGANIC COMPOUNDS – DETECTIONS ONLY (ug/l)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

Monitoring Well	Date Sampled	B	T	X	E	1,1,1-TCA	1,1,2-TCA	1,1-DCA	1,1-DCE	1,2-DCA	Chloroform	PCE	TCE	CCL_4	TPH	TPH/Gas
		1	1000	1.750	680	200	32	5	6	0.5	100	5	5	0.5	NE	NE
MW-05	03/04/88	--	--	--	--	--	--	--	--	--	4.9	--	--	--	--	--
	09/20/89	--	--	--	--	--	--	--	--	--	--	--	--	--	--	60
	05/17/90	--	--	--	--	--	--	--	--	--	2.6	--	--	--	--	--
	09/12/90	--	--	--	--	--	--	--	--	--	2.3	--	--	--	--	--
	08/12/91	--	--	--	--	--	--	--	--	--	--	--	--	--	N/A	N/A
	01/28/92	--	--	--	--	--	--	--	--	--	1.2	--	--	--	N/A	N/A
MW-06	03/04/88	--	--	--	--	--	--	--	--	--	0.6	--	--	--	--	--
	09/20/89	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	05/17/90	--	--	--	--	--	--	--	--	--	1.5	--	--	--	N/A	N/A
	09/11/90	--	--	--	--	--	--	--	--	--	2.0	--	--	--	--	--
	08/12/91	--	--	--	--	--	--	--	--	--	6.2	--	--	--	N/A	N/A
	01/28/92	--	--	--	--	--	--	--	--	--	2.1	--	--	--	N/A	N/A
	08/28/92	--	--	--	--	--	--	--	--	--	0.85	--	--	--	N/A	N/A
MW-07	03/04/88	--	--	--	--	25	--	15	17	1.6	1.9	--	1.0	--	--	--
	09/15/89	--	--	--	--	26	--	15	0.5	3.1	1.1	--	1.1	--	--	50
	02/07/90	--	--	--	--	11	--	9.9	58	--	2.6	--	0.6	--	N/A	N/A
	05/17/90	--	--	--	--	9.7	--	9.2	8.1	--	3	--	--	--	--	--
	09/07/90	--	--	--	--	6.4	--	6.1	19	--	2.5	--	--	--	--	--
	01/30/91	N/A	N/A	N/A	N/A	5.1	--	4.3	15	--	2.6	--	--	--	N/A	N/A
	04/26/91	N/A	N/A	N/A	N/A	4.6	--	4.5	11	--	3.0	--	--	--	N/A	N/A
	08/07/91	--	--	--	--	8.1	--	12	28	--	4.1	--	--	--	N/A	N/A
	02/07/92	--	--	--	--	7.2	--	12	32	--	4.9	--	--	--	N/A	N/A
	06/02/92	--	--	--	--	4.2	--	6.8	21	--	4.1	--	--	--	N/A	N/A
	08/31/92	--	--	--	--	5.2	--	8.5	39	--	4.5	--	--	--	N/A	N/A
	10/23/92	--	--	--	--	3.7	--	5.9	21	--	4.7	--	--	--	N/A	N/A
MW-08	03/03/88	--	--	--	--	--	--	0.9	--	--	--	0.8	--	--	--	--
	09/20/89	--	2.5	--	--	--	--	--	--	--	--	1.5	--	--	--	--
	05/23/90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	09/13/90	--	--	--	--	0.6	--	--	3.8	--	--	--	--	--	--	--
	01/30/91	N/A	N/A	N/A	N/A	--	--	--	1.8	--	--	--	--	--	N/A	N/A
	04/26/91	N/A	N/A	N/A	N/A	--	--	--	1.8	--	--	3.2	--	--	N/A	N/A
	08/12/91	--	--	--	--	--	--	--	9.6	--	--	21.0	--	--	N/A	N/A
	11/11/91	N/A	N/A	N/A	N/A	0.7	--	--	2.5	--	--	5.3	--	--	N/A	N/A
	01/28/92	--	--	--	--	--	--	--	1.8	--	--	8.8	--	--	N/A	N/A
	08/28/92	--	--	--	--	--	--	--	0.71	--	--	--	7.1	--	N/A	N/A

TABLE 4
SUMMARY MONITORING WELL GROUNDWATER ANALYTICAL RESULTS, 1988 – 1992
ORGANIC COMPOUNDS – DETECTIONS ONLY (ug/l)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

Monitoring Well	Date Sampled	B 1	T 1000	X 1,750	E 680	1,1,1-TCA 200	1,1,2-TCA 32	1,1-DCA 5	1,1-DCE 6	1,2-DCA 0.5	Chloroform 100	PCE 5	TCE 5	CCL_4 0.5	TPH NE	TPH/Gas NE
MW-11	09/06/89	--	6.0	--	--	--	--	0.8	--	--	5.1	--	1.7	--	600	120
	02/15/90	--	--	--	--	--	--	--	8.3	--	0.6	--	0.5	--	N/A	N/A
	05/18/90	--	--	--	--	--	--	3.2	--	--	--	0.7	4.2	--	--	--
	09/17/90	--	--	--	--	1.7	--	6.2	18	--	--	--	2.4	--	--	--
	01/30/91	N/A	N/A	N/A	N/A	2.8	--	16	46	--	--	--	2.5	--	N/A	N/A
	04/26/91	N/A	N/A	N/A	N/A	4.5	--	19	62	--	--	--	3.5	--	N/A	N/A
	08/15/91	--	--	--	--	1.8	--	11	--	--	--	--	2.0	--	N/A	N/A
	11/07/91	N/A	N/A	N/A	N/A	1.0	--	7.2	9.9	0.6	--	--	1.1	--	N/A	N/A
	01/27/92	--	--	--	--	1.5	--	11	110	--	--	0.7	3.0	--	N/A	N/A
	06/02/92	--	--	--	--	1.5	0.5	7.6	54	--	--	--	3.8	--	N/A	N/A
	08/26/92	--	--	--	--	0.72	--	8.0	57	--	--	1.3	4.3	--	N/A	N/A
	10/20/92	--	--	--	--	0.51	--	4.7	37	--	--	0.68	2.6	--	N/A	N/A
MW-12	09/11/89	--	2.2	--	--	--	--	1.3	--	--	6.4	--	4	--	--	70
	10/13/89	0.8	--	--	--	--	--	4.9	26.3	--	4.5	--	5.7	--	N/A	N/A
	02/15/90	--	--	--	--	--	--	9.6	62	--	1.4	--	9	--	N/A	N/A
	05/22/90	--	--	--	--	--	--	9.2	1.4	--	0.6	--	9	--	--	--
	09/18/90	--	--	--	--	0.88	--	10	24	--	--	--	12	--	--	--
	02/04/91	--	--	--	--	--	--	15	47	--	--	--	14	--	N/A	N/A
	05/01/91	N/A	N/A	N/A	N/A	--	--	12	52	--	--	--	15	--	N/A	N/A
	08/15/91	--	0.6	--	--	0.7	--	13	27	--	--	--	15	--	N/A	N/A
	11/07/91	--	--	--	--	1.4	--	15	28	--	--	--	13	--	N/A	N/A
	01/28/92	0.6	--	--	--	0.8	--	23	120	--	--	0.6	19	--	N/A	N/A
	06/01/92	--	--	--	--	0.8	--	19	61	--	--	--	11	--	N/A	N/A
	08/26/92	--	--	--	--	0.64	--	31	94	--	--	0.93	16	--	N/A	N/A
	10/26/92	--	--	--	--	--	--	26	97	--	--	--	14	--	N/A	N/A

TABLE 4
SUMMARY MONITORING WELL GROUNDWATER ANALYTICAL RESULTS, 1988 – 1992
ORGANIC COMPOUNDS – DETECTIONS ONLY (ug/l)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

Monitoring Well	Date Sampled	B	T	X	E	1,1,1–TCA	1,1,2–TCA	1,1–DCA	1,1–DCE	1,2–DCA	Chloroform	PCE	TCE	CCL_4	TPH	TPH/Gas
		1	1000	1,750	680	200	32	5	6	0.5	100	5	5	0.5	NE	NE
MW–13	09/13/89	5,700	343	147	--	--	0.8	13.2	--	360	--	--	0.6	--	3100	51000
	11/02/89	6,700	210	88	50	--	--	20	24	270	--	--	--	--	N/A	N/A
	02/15/90	10,500	400	1600	150	--	--	40	55	200	--	--	--	--	N/A	N/A
	05/25/90	12,000	250	530	1200	--	--	35	1.8	250	--	--	--	--	2400	46000
	09/18/90	7,300	310	620	410	--	--	27	15	210	--	--	--	--	--	12000
	02/05/91	10,000	390	600	--	0.6	--	36	25	96	--	--	--	--	N/A	N/A
	04/30/91	7,900	260	520	340	0.5	--	17	14	120	--	--	--	--	N/A	N/A
	08/7/91	11,000	440	760	450	1.1	--	24	9.6	108	--	--	1.5	--	N/A	N/A
	11/07/91	41,000	1,600	3,900	180	--	--	160	210	--	--	--	--	--	N/A	N/A
	02/07/92	11,000	630	1,300	780	--	--	34	31	--	--	5.6	--	--	N/A	N/A
	06/04/92	9900	380	500	570	--	--	35	18	160	--	--	--	--	N/A	N/A
	08/26/92	13,000	340	780	520	--	--	39	13	180	--	--	0.8	--	N/A	N/A
	10/27/92	9,600	330	740	500	--	--	34	13	170	--	--	0.91	--	N/A	N/A
MW–14	09/13/89	--	12.3	--	--	22	7.1	9.4	15.1	3.7	2.5	--	5.6	--	--	100
	11/02/89	--	--	--	--	20	6.3	9.3	75	7.7	2.5	--	4.7	--	N/A	N/A
	02/15/90	3.6	--	0.6	--	8.9	1.1	9.6	380	1.0	--	--	8.0	--	N/A	N/A
	05/22/90	2.2	--	--	--	4.1	--	5.8	11	1.4	--	--	5.9	--	--	--
	09/18/90	--	--	--	--	2.3	--	5.0	47	--	--	--	5.7	--	--	--
	02/04/91	--	--	--	--	1.3	--	4.4	47	--	--	--	6.2	--	N/A	N/A
	05/01/91	--	--	--	--	0.88	--	3.1	18	--	--	--	4.9	--	N/A	N/A
	08/14/91	0.7	--	--	--	1.6	--	4.8	50	--	--	0.6	9.7	--	N/A	N/A
	11/22/91	--	--	--	--	1.9	--	6.3	150	1.5	--	--	5.6	--	N/A	N/A
	02/07/92	--	--	--	--	3.1	--	12	100	--	0.5	0.6	9.4	--	N/A	N/A
	06/01/92	15	--	--	--	5.1	0.7	28	120	3.7	0.8	---	10	--	N/A	N/A
	08/27/92	--	--	--	--	3.3	--	43	142	--	--	--	12	--	N/A	N/A
	10/26/92	--	--	--	--	--	--	36	200	--	--	--	13	--	N/A	N/A
MW–15	09/07/89	--	--	--	--	--	--	--	--	--	--	2.2	--	--	--	--
	02/07/90	--	--	--	--	0.5	--	--	5.8	--	--	2.8	--	--	N/A	N/A
	05/16/90	--	--	--	--	--	--	--	--	--	--	3.5	--	--	N/A	N/A
	09/14/90	--	--	--	--	1.1	--	--	0.58	--	--	6.2	--	--	--	--
	01/24/91	N/A	N/A	N/A	N/A	0.7	--	--	1.2	--	--	--	6.8	--	N/A	N/A
	04/25/91	N/A	N/A	N/A	N/A	0.53	--	--	0.82	--	--	--	6.7	--	N/A	N/A
	08/05/91	--	--	--	--	--	--	--	--	--	--	7.8	--	--	N/A	N/A
	11/05/91	N/A	N/A	N/A	N/A	1.3	--	--	2.1	--	--	12	--	--	N/A	N/A
	01/30/92	--	--	--	--	--	--	--	1.6	--	--	10	--	--	N/A	N/A
	08/27/92	--	--	--	--	--	--	--	--	--	--	10	--	--	N/A	N/A

TABLE 4
SUMMARY MONITORING WELL GROUNDWATER ANALYTICAL RESULTS, 1988 – 1992
ORGANIC COMPOUNDS – DETECTIONS ONLY (ug/l)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

Monitoring Well	Date Sampled	B 1	T 1000	X 1,750	E 680	1,1,1-TCA 200	1,1,2-TCA 32	1,1-DCA 5	1,1-DCE 6	1,2-DCA 0.5	Chloroform 100	PCE 5	TCE 5	CCL_4 0.5	TPH NE	TPH/Gas NE
MW-16	09/07/89	--	3.9	--	--	0.8	--	0.7	--	--	0.5	--	--	--	--	--
	02/07/90	--	--	--	--	2	--	1.8	29	--	--	--	--	--	N/A	N/A
	05/16/90	--	--	--	--	--	--	--	--	--	--	--	--	--	N/A	N/A
	09/14/90	--	--	--	--	1.3	--	--	2.3	--	--	--	--	--	--	--
	01/24/91	N/A	N/A	N/A	N/A	--	--	--	2.6	--	--	--	--	--	N/A	N/A
	04/25/91	N/A	N/A	N/A	N/A	0.83	--	--	2.8	--	--	--	--	--	N/A	N/A
	08/13/91	--	--	--	--	1.5	--	--	8.3	--	--	--	--	--	N/A	N/A
	11/07/91	N/A	N/A	N/A	N/A	1.6	--	--	5.7	--	--	--	--	--	N/A	N/A
	01/30/92	--	--	--	--	0.6	--	--	9.0	--	--	--	--	--	N/A	N/A
	06/04/92	--	--	--	--	1.9	--	--	2.7	--	--	--	--	--	N/A	N/A
	08/27/92	--	--	--	--	--	--	--	3.9	--	--	--	--	--	N/A	N/A
	10/23/92	--	--	--	--	0.81	--	--	3.2	--	--	--	--	--	N/A	N/A
MW-17	09/21/89	--	1.3	--	--	1.1	--	0.5	--	--	2.6	--	0.7	--	--	--
	02/07/90	--	--	--	--	0.8	--	0.6	36	--	--	--	0.5	--	N/A	N/A
	05/18/90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	09/13/90	--	--	--	--	--	--	--	4.0	--	--	--	--	--	--	--
	01/25/91	--	--	--	--	--	--	--	3.0	--	--	--	--	--	N/A	N/A
	04/29/91	--	--	--	--	--	--	--	3.8	--	--	--	--	--	N/A	N/A
	08/06/91	--	--	--	--	--	--	--	3.7	--	--	--	--	--	N/A	N/A
	11/05/91	N/A	N/A	N/A	N/A	0.6	--	--	2.8	--	--	--	--	--	N/A	N/A
	01/30/92	--	--	--	--	--	--	--	1.2	--	--	--	--	--	N/A	N/A
	08/27/92	--	--	--	--	--	--	--	0.8	--	--	--	--	--	N/A	N/A
MW-18	09/21/89	--	1.3	--	--	1.9	0.8	3.4	0.5	--	1.5	--	9.4	--	--	50
	11/02/89	--	--	--	--	6.9	1.0	7.8	92	--	0.5	--	13	--	N/A	N/A
	02/07/90	--	--	--	--	4	--	4.8	230	--	--	--	8.1	--	N/A	N/A
	05/18/90	--	--	--	--	2.4	--	2.8	3.2	--	--	1.0	10	--	--	--
	09/13/90	--	--	--	--	3.3	--	3.9	19	--	--	--	4.4	--	--	--
	01/25/91	--	--	--	--	0.90	--	1.4	22	--	--	--	2.9	--	N/A	N/A
	04/29/91	--	--	--	--	0.94	--	1.1	20	--	--	--	2.3	--	N/A	N/A
	08/13/91	--	--	--	--	1.5	--	1.2	18	--	--	--	3.8	--	N/A	N/A
	11/05/91	N/A	N/A	N/A	N/A	2.2	3.8	2.0	18	--	--	--	--	--	N/A	N/A
	01/30/92	--	--	--	--	1.0	--	0.8	25	--	--	--	2.8	--	N/A	N/A
	06/01/92	--	--	--	--	1.4	--	0.6	13	--	--	--	2.2	--	N/A	N/A
	08/27/92	--	--	--	--	0.94	--	--	16	--	--	--	3.2	--	N/A	N/A
	10/26/92	--	--	--	--	2.6	--	--	--	--	--	--	3.0	--	N/A	N/A

TABLE 4
SUMMARY MONITORING WELL GROUNDWATER ANALYTICAL RESULTS, 1988 – 1992
ORGANIC COMPOUNDS – DETECTIONS ONLY (ug/l)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

Monitoring Well	Date Sampled	B	T	X	E	1,1,1–TCA	1,1,2–TCA	1,1–DCA	1,1–DCE	1,2–DCA	Chloroform	PCE	TCE	CCL_4	TPH	TPH/Gas
		1	1000	1,750	680	200	32	5	6	0.5	100	5	5	0.5	NE	NE
MW–19	09/14/89	--	--	--	--	--	--	--	--	--	0.9	1	--	--	--	--
	05/18/90	--	--	--	--	--	--	--	--	--	--	1.4	--	--	N/A	N/A
	09/07/90	--	--	--	--	--	--	--	6.8	--	--	1.5	--	--	--	--
	01/24/91	N/A	N/A	N/A	N/A	--	--	--	5.9	--	--	--	1.7	--	N/A	N/A
	04/29/91	N/A	N/A	N/A	N/A	--	--	--	4.2	--	--	--	1.9	--	N/A	N/A
	08/05/91	--	--	--	--	--	--	--	2.4	--	--	3.2	--	--	N/A	N/A
	11/11/91	N/A	N/A	N/A	N/A	--	--	--	3.7	--	--	2.8	--	--	N/A	N/A
	01/30/92	--	--	--	--	--	--	--	2.9	--	--	3.6	--	--	N/A	N/A
	08/28/92	--	--	--	--	--	--	--	1.5	--	--	2.0	--	--	N/A	N/A
MW–20	09/14/89	--	--	--	--	0.7	--	--	--	--	--	--	--	--	--	--
	05/14/90	--	--	--	--	1.4	--	0.9	--	--	--	--	--	--	N/A	N/A
	09/07/90	--	--	--	--	0.92	--	--	9.6	--	--	--	--	--	--	--
	01/24/91	N/A	N/A	N/A	N/A	--	--	--	9.8	--	--	--	--	--	N/A	N/A
	04/29/91	N/A	N/A	N/A	N/A	--	--	--	8.9	--	--	--	--	--	N/A	N/A
	08/14/91	--	--	--	--	--	--	--	--	--	--	--	--	--	N/A	N/A
	11/11/91	N/A	N/A	N/A	N/A	0.7	--	--	11	--	--	--	--	--	N/A	N/A
	01/30/92	--	--	--	--	0.6	--	--	11	--	--	--	--	--	N/A	N/A
	06/02/92	--	--	--	--	0.8	--	--	7.2	--	--	--	--	--	N/A	N/A
	08/28/92	--	--	--	--	--	--	--	8.3	--	--	--	--	--	N/A	N/A
	10/23/92	--	--	--	--	--	--	--	7.3	--	--	--	--	--	N/A	N/A
MW–21	09/08/89	--	--	--	--	--	--	--	--	--	1.6	--	--	--	--	--
	05/15/90	--	--	--	--	--	--	0.6	--	--	4.2	--	--	--	N/A	N/A
	09/07/90	--	--	--	--	--	--	--	2.1	--	1.9	--	--	--	--	--
	01/23/91	N/A	N/A	N/A	N/A	--	--	--	0.8	--	2.4	--	--	--	N/A	N/A
	04/25/91	N/A	N/A	N/A	N/A	--	--	--	4.7	--	2.5	--	--	--	N/A	N/A
	08/07/91	--	--	--	--	--	--	--	0.9	--	5.1	--	--	--	N/A	N/A
	11/11/91	N/A	N/A	N/A	N/A	--	--	--	--	--	4.8	--	--	--	N/A	N/A
	01/30/92	--	--	--	--	--	--	--	2.7	--	5.1	--	--	--	N/A	N/A
	08/28/92	--	--	--	--	--	--	--	0.6	--	4.0	--	--	--	N/A	N/A
MW–22	09/08/89	--	--	--	--	--	--	--	--	--	3.0	--	--	--	--	--
	02/07/90	--	--	--	--	--	--	--	--	--	0.9	--	--	--	N/A	N/A
	05/15/90	--	--	--	--	--	--	--	--	--	5.0	--	--	--	N/A	N/A
	09/07/90	--	--	--	--	--	--	--	--	--	2.6	--	--	--	--	--
	01/23/91	N/A	N/A	N/A	N/A	--	--	--	--	--	5.2	--	--	--	N/A	N/A
	04/25/91	N/A	N/A	N/A	N/A	--	--	--	--	--	4.8	--	--	--	N/A	N/A
	08/14/91	--	--	--	--	--	--	--	--	--	3.9	--	--	--	N/A	N/A
	01/30/92	--	--	--	--	--	--	--	--	--	5.8	--	--	--	N/A	N/A

SAC21A3.WK1

TABLE 4
SUMMARY MONITORING WELL GROUNDWATER ANALYTICAL RESULTS, 1988 – 1992
ORGANIC COMPOUNDS – DETECTIONS ONLY (ug/l)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

Monitoring Well	Date Sampled	B 1	T 1000	X 1,750	E 680	1,1,1–TCA 200	1,1,2–TCA 32	1,1–DCA 5	1,1–DCE 6	1,2–DCA 0.5	Chloroform 100	PCE 5	TCE 5	CCL_4 0.5	TPH NE	TPH/Gas NE
MW–23	09/08/89	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	05/15/90	--	--	--	--	--	--	1.3	--	--	10	--	--	--	N/A	N/A
	09/06/90	--	--	--	--	--	--	0.88	0.5	--	4.2	--	--	--	--	--
	04/23/91	N/A	N/A	N/A	N/A	--	--	--	0.67	--	3.0	--	--	--	N/A	N/A
	08/02/91	--	--	--	--	--	--	--	--	--	3.1	--	--	--	N/A	N/A
	11/11/91	N/A	N/A	N/A	N/A	--	--	--	--	--	4.6	0.7	--	--	N/A	N/A
	01/24/92	--	--	--	--	--	--	--	--	--	2.8	--	--	--	N/A	N/A
	08/28/92	--	--	--	--	--	--	1.2	--	--	4.5	--	--	--	N/A	N/A
MW–24	09/08/89	--	--	--	--	--	--	--	--	--	2.8	--	--	--	--	--
	05/15/90	--	--	--	--	--	--	--	--	--	11	--	--	--	N/A	N/A
	09/06/90	--	--	--	--	--	--	--	--	--	4.1	--	--	--	--	--
	09/06/90	--	--	--	--	--	--	--	--	--	4.1	--	--	--	--	--
	08/11/91	--	--	--	--	--	--	--	--	--	3.2	--	--	--	N/A	N/A
	01/24/92	--	--	--	--	--	--	--	--	--	2.5	--	--	--	N/A	N/A
MW–25	09/11/89	--	4.1	--	--	--	--	1.0	--	--	0.9	--	--	--	--	--
	02/07/90	--	--	--	--	--	--	1.3	7.6	--	1.1	--	--	--	N/A	N/A
	05/16/90	--	--	--	--	--	--	1.3	--	--	1.1	--	--	--	--	--
	09/12/90	--	--	--	--	--	--	1.5	3.1	--	1.3	--	--	--	--	--
	01/29/91	N/A	N/A	N/A	N/A	--	--	1.3	2.3	--	1.1	--	--	--	N/A	N/A
	04/24/91	N/A	N/A	N/A	N/A	--	--	2.1	2.5	--	1.4	--	--	--	N/A	N/A
	08/02/91	--	--	--	--	0.6	--	3.0	5.8	--	1.6	--	--	--	N/A	N/A
	01/23/92	--	--	--	--	2.1	--	6.9	8.7	--	2.2	--	--	--	N/A	N/A
	09/01/92	--	--	--	--	4.4	--	14	22	--	2.8	--	0.65	--	N/A	N/A
MW–26	09/11/89	--	--	--	--	--	--	1.0	--	--	2.6	--	--	--	--	50
	02/07/90	--	--	--	--	--	--	3.2	14	--	1.3	--	--	--	N/A	N/A
	05/16/90	--	--	--	--	--	--	1.6	--	--	1.1	--	--	--	--	--
	09/12/90	--	--	--	--	--	--	2.1	5	--	1.6	--	--	--	--	--
	01/29/91	N/A	N/A	N/A	N/A	--	--	1.6	3.6	--	1.0	--	--	--	N/A	N/A
	04/24/91	N/A	N/A	N/A	N/A	--	--	2.4	3.4	--	1.4	--	--	--	N/A	N/A
	08/13/91	--	--	--	--	0.6	--	4.0	8.1	--	1.5	--	--	--	N/A	N/A
	01/27/92	--	1.4	--	--	1.1	--	4.8	5.1	--	2.0	--	--	--	N/A	N/A
	06/04/92	--	--	--	--	4.4	--	8.6	8.2	0.6	2.7	--	--	--	N/A	N/A
	09/01/92	--	--	--	--	3.7	--	12	19	--	3.6	--	--	--	N/A	N/A
	10/23/92	--	--	--	--	2.4	--	10	9.4	--	3.1	--	--	--	N/A	N/A

TABLE 4
SUMMARY MONITORING WELL GROUNDWATER ANALYTICAL RESULTS, 1988 – 1992
ORGANIC COMPOUNDS – DETECTIONS ONLY (ug/l)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

Monitoring Well	Date Sampled	B 1	T 1000	X 1,750	E 680	1,1,1–TCA 200	1,1,2–TCA 32	1,1–DCA 5	1,1–DCE 6	1,2–DCA 0.5	Chloroform 100	PCE 5	TCE 5	CCL_4 0.5	TPH NE	TPH/Gas NE
MW–27	09/15/89	--	--	--	--	--	--	--	--	--	5.5	--	--	--	--	--
	05/21/90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	09/17/90	--	--	--	--	--	--	--	0.99	--	1.1	--	--	--	--	--
	01/29/91	N/A	N/A	N/A	N/A	--	--	--	--	--	0.7	--	--	--	N/A	N/A
	04/24/91	N/A	N/A	N/A	N/A	--	--	--	1.1	--	1.4	--	--	--	N/A	N/A
	08/13/91	--	--	--	--	--	--	--	--	--	0.9	--	--	--	N/A	N/A
	01/23/92	--	--	--	--	--	--	--	0.83	--	1.3	--	--	--	N/A	N/A
	09/01/92	--	--	--	--	--	--	--	--	--	3.0	--	--	--	N/A	N/A
MW–28	02/15/90	--	--	--	--	--	--	5.8	1	--	0.7	--	--	--	N/A	--
	05/21/90	--	--	--	--	--	--	9.5	--	--	--	--	--	--	--	--
	09/19/90	--	--	--	--	--	--	9	4	--	--	--	--	--	--	--
	02/01/91	--	--	--	--	--	--	13	4.3	--	--	--	--	--	N/A	N/A
	04/30/91	--	--	--	--	--	--	8.1	3.9	--	--	--	--	--	N/A	N/A
	08/13/91	--	--	--	--	--	--	13	--	--	--	--	--	--	N/A	N/A
	11/05/91	--	--	--	--	--	--	14	9.4	--	--	--	--	--	N/A	N/A
	01/30/92	--	--	--	--	--	--	17	24	--	--	--	--	--	N/A	N/A
	05/28/92	--	--	--	--	--	--	9.5	6.0	--	--	--	--	--	N/A	N/A
	08/31/92	--	--	--	--	--	--	20	31	--	--	--	--	--	N/A	N/A
	10/22/92	--	--	--	--	--	--	18	21	--	--	--	--	--	N/A	NN/A
MW–29	02/15/90	--	--	--	--	8.5	--	10	190	22	1.8	--	0.9	--	N/A	50
	04/23/90	--	--	--	--	5.0	--	14	72	16	1.2	--	0.87	--	N/A	N/A
	05/25/90	6.2	--	--	--	4.6	--	4.1	8.6	14	--	--	--	--	--	--
	09/06/90	--	--	--	--	3.2	--	4.4	38	11	1.3	--	0.76	1.3	--	--
	02/01/91	--	--	--	--	--	--	1.9	33	4.7	--	--	--	--	N/A	N/A
	04/30/91	--	--	--	--	--	--	2.4	16	6.6	0.57	--	--	0.68	N/A	N/A
	08/07/91	--	--	--	--	1.3	--	4.5	29	11	0.9	--	0.9	1.0	N/A	N/A
	11/05/91	--	--	--	--	1.4	--	3.7	21	7.1	1.0	--	0.8	1.1	N/A	N/A
	01/30/92	--	--	--	--	0.7	--	2.0	26	5.2	1.2	--	0.7	1.5	N/A	N/A
	05/29/92	--	--	--	--	1.1	--	4.3	19	--	0.8	--	1.2	--	N/A	N/A
	08/31/92	--	--	--	--	0.91	--	3.9	27	7.9	1.3	--	0.8	--	N/A	N/A
	10/22/92	--	--	--	--	0.87	--	2.3	18	6.1	0.56	--	--	--	N/A	N/A

TABLE 4
SUMMARY MONITORING WELL GROUNDWATER ANALYTICAL RESULTS, 1988 – 1992
ORGANIC COMPOUNDS – DETECTIONS ONLY (ug/l)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

Monitoring Well	Date Sampled	B	T	X	E	1,1,1–TCA	1,1,2–TCA	1,1–DCA	1,1–DCE	1,2–DCA	Chloroform	PCE	TCE	CCL_4	TPH	TPH/Gas
		1	1000	1.750	680	200	32	5	6	0.5	100	5	5	0.5	NE	NE
MW–30	02/15/90	--	--	--	--	4.5	2.3	18	820	--	1.5	--	4.8	--	N/A	60
	04/23/90	1.1	--	--	--	30.0	--	12	470	31	--	--	8.2	--	N/A	N/A
	05/24/90	2.4	--	--	--	22.0	3	19	48	4.8	1.1	--	6.8	--	--	60
	09/05/90	1.2	--	--	--	14.0	--	11	150	--	--	--	--	--	--	--
	02/04/91	--	--	--	--	6.3	--	8.2	160	--	--	--	--	--	N/A	N/A
	04/30/91	--	--	--	--	5.9	--	9.0	75	--	--	--	--	--	N/A	N/A
	08/15/91	--	--	--	--	4.4	--	6.8	84	--	--	--	6.4	--	N/A	N/A
	11/05/91	--	--	--	--	8.5	--	11	88	--	--	---	9.4	--	N/A	N/A
	01/31/92	--	--	--	--	1.8	--	7.0	140	--	--	0.8	8.0	--	N/A	N/A
	05/28/92	--	--	--	--	3.0	--	10	61	--	--	--	9.5	--	N/A	N/A
	08/31/92	--	--	--	--	6.9	--	14	130	--	--	--	10	--	N/A	N/A
	10/22/92	--	--	--	--	3.3	--	17	116	--	--	--	10	--	N/A	N/A
MW–31	05/24/90	1.1	--	--	--	39	2.7	22	54	0.6	1.7	--	10	--	--	60
	09/19/90	0.63	--	--	--	20	--	15	160	--	--	--	7.6	--	--	--
	02/01/91	--	--	--	--	--	--	7.6	150	--	--	--	--	--	N/A	N/A
	05/01/91	--	--	--	--	5.9	--	12	110	--	--	--	7.3	--	N/A	N/A
	08/15/91	--	--	--	--	6.2	--	10	120	--	--	--	6.6	--	N/A	N/A
	11/22/91	--	--	--	--	6.3	--	17	140	--	--	0.62	9.3	--	N/A	N/A
	01/31/91	--	--	--	--	4.3	0.6	16	310	--	0.6	1.1	12	--	N/A	N/A
	05/28/92	--	--	--	--	3.5	--	10	130	--	--	--	12	--	N/A	N/A
	08/31/92	--	--	--	--	5.5	--	9.6	170	--	--	--	10	--	N/A	N/A
	10/21/92	--	--	--	--	--	--	7.5	121	--	--	--	11	--	N/A	N/A
MW–32	05/24/90	--	--	--	--	20	0.9	21	45	--	0.9	0.6	13	--	--	60
	09/19/90	--	--	--	--	15	--	18	180	--	--	--	11	--	--	--
	02/01/91	--	--	--	--	--	--	6.1	130	--	--	--	5.0	--	N/A	N/A
	05/01/91	--	--	--	--	6.4	--	11	160	--	--	--	11	--	N/A	N/A
	08/16/91	--	--	--	--	5.2	--	7.5	140	--	--	--	8.8	--	N/A	N/A
	11/22/91	--	--	--	--	4.0	--	7.4	88	--	--	--	8.9	--	N/A	N/A
	01/29/92	--	--	--	--	3.3	--	8.7	240	--	--	0.9	16	--	N/A	N/A
	05/29/92	--	--	--	--	3.9	--	8.6	90	--	--	--	15	--	N/A	N/A
	09/04/92	--	--	--	--	--	--	7.1	155	--	--	--	11	--	N/A	N/A
	10/22/92	--	--	--	--	--	--	--	96	--	--	--	11	--	N/A	N/A

TABLE 4
SUMMARY MONITORING WELL GROUNDWATER ANALYTICAL RESULTS, 1988 – 1992
ORGANIC COMPOUNDS – DETECTIONS ONLY (ug/l)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

Monitoring Well	Date Sampled	B 1	T 1000	X 1.750	E 680	1,1,1–TCA 200	1,1,2–TCA 32	1,1–DCA 5	1,1–DCE 6	1,2–DCA 0.5	Chloroform 100	PCE 5	TCE 5	CCL_4 0.5	TPH NE	TPH/Gas NE
MW–33	05/18/90	--	--	--	--	17	--	8.1	38	--	--	--	1.4	--	--	--
	09/14/90	--	--	--	--	10	--	--	120	--	--	--	--	--	--	--
	01/30/91	--	--	--	--	3.4	--	2.0	31	--	--	--	--	--	N/A	N/A
	04/30/91	--	--	--	--	2.4	--	2.1	33	--	--	--	--	--	N/A	N/A
	08/07/91	--	--	--	--	6.7	--	5.4	85	--	--	--	1.0	--	N/A	N/A
	11/05/91	--	--	--	--	8.1	--	6.2	100	--	--	--	--	--	N/A	N/A
	01/24/92	--	--	--	--	3.0	--	2.7	97	--	--	--	--	--	N/A	N/A
	06/02/92	--	--	--	--	4.4	--	4.6	95	--	--	--	0.8	--	N/A	N/A
	08/26/92	--	--	--	--	3.4	--	7.0	170	--	--	--	1.6	--	N/A	N/A
	10/20/92	--	--	--	--	4.1	--	2.6	131	--	--	--	--	--	N/A	N/A
MW–34	07/02/91	--	--	--	--	17	1.3	17.0	470	--	1.2	--	15	--	N/A	N/A
	08/16/91	--	--	--	--	24	--	20.0	510	--	--	--	--	--	N/A	N/A
	12/12/91	0.9	--	--	--	18	1.1	28.0	318	1.7	2.3	1.4	26	--	N/A	N/A
	01/23/92	--	--	--	--	19	4.9	25.0	370	2.3	1.7	0.86	20	--	N/A	N/A
	06/03/92	--	--	--	--	11	1.2	21	270	0.6	1.2	--	24	--	N/A	N/A
	09/01/92	--	--	--	--	13	--	25	480	--	--	--	30	--	N/A	N/A
	10/26/92	--	--	--	--	--	--	--	380	--	--	--	31	--	N/A	N/A
MW–35	07/02/91	--	--	--	--	6.8	--	4.8	220	--	0.7	--	3.8	--	N/A	N/A
	08/08/91	--	--	--	--	40	--	41	880	--	--	--	19	--	N/A	N/A
	12/12/91	--	--	--	--	2.6	--	2.8	92	--	1.9	0.7	2.6	--	N/A	N/A
	01/23/92	--	--	--	--	5.4	--	5.8	140	--	1.0	--	3.9	--	N/A	N/A
	06/01/92	--	--	--	--	2.4	--	2.4	49	--	0.8	--	4.8	--	N/A	N/A
	09/01/92	--	--	--	--	5.8	--	--	135	--	--	--	--	--	N/A	N/A
	10/26/92	--	--	--	--	--	--	--	94	--	--	--	5.8	--	N/A	N/A
MW–36	12/12/91	--	--	--	--	15	--	12	290	1.6	3.4	0.7	8.8	1.4	N/A	N/A
	01/23/92	0.53	1.4	--	--	21	3.0	13	330	2.7	2.6	--	8.9	--	N/A	N/A
	06/01/92	--	--	--	--	12	--	9.6	180	0.7	2.0	--	8.3	--	N/A	N/A
	09/04/92	--	--	--	--	14	--	--	210	--	--	--	--	--	N/A	N/A
	10/21/92	--	--	--	--	--	--	--	110	--	--	--	--	--	--	--
MW–37	12/12/91	--	--	--	--	1.0	--	3.6	9.3	7.1	4.6	0.6	0.6	1.3	N/A	N/A
	01/23/92	--	--	--	--	--	--	4.4	8.5	9.7	3.1	--	--	1.8	N/A	N/A
	06/01/92	--	--	--	--	--	--	2.6	6.0	6.2	3.8	--	0.5	1.5	N/A	N/A
	09/04/92	--	--	--	--	0.95	--	3.6	16	7.4	4.2	--	--	1.4	N/A	N/A
	10/21/92	--	--	--	--	1.1	--	2.9	13	4.9	2.5	--	--	0.84	N/A	N/A

TABLE 4
SUMMARY MONITORING WELL GROUNDWATER ANALYTICAL RESULTS, 1988 – 1992
ORGANIC COMPOUNDS – DETECTIONS ONLY (ug/l)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

Monitoring Well	Date Sampled	B 1	T 1000	X 1,750	E 680	1,1,1-TCA 200	1,1,2-TCA 32	1,1-DCA 5	1,1-DCE 6	1,2-DCA 0.5	Chloroform 100	PCE 5	TCE 5	CCL_4 0.5	TPH NE	TPH/Gas NE
MW-38	12/12/91	--	--	--	--	13	--	9.1	260	4.0	4.2	--	8.6	2.2	N/A	N/A
	01/24/92	--	--	--	--	11	--	5.7	250	2.7	2.8	--	5.7	1.3	N/A	N/A
	06/03/92	--	--	--	--	14	--	8.6	150	2.2	3.6	--	8.7	1.9	N/A	N/A
	09/04/92	--	--	--	--	21	--	--	350	--	--	--	--	--	N/A	N/A
	10/27/92	--	--	--	--	22	--	13	230	--	--	--	14	--	N/A	N/A
MW-39	06/28/91	--	--	--	--	0.6	--	--	0.7	2.9	4.0	--	--	1.8	N/A	N/A
	08/06/91	--	--	--	--	0.6	--	1.0	1.0	2.1	3.3	--	--	2.4	N/A	N/A
	12/12/91	--	--	--	--	1.0	--	1.2	3.2	2.5	4.9	0.6	--	2.4	N/A	N/A
	01/24/92	--	--	--	--	0.7	--	0.8	4.1	1.6	3.1	--	--	1.4	N/A	N/A
	06/03/92	--	--	--	--	1.1	--	1.3	4.1	1.6	3.1	--	--	2.0	N/A	N/A
	09/04/92	--	--	--	--	1.6	--	1.7	12	1.8	4.2	--	--	2.8	N/A	N/A
	10/21/92	--	--	--	--	1.6	--	1.2	7.7	--	2.3	--	--	1.8	N/A	N/A
MW-40	06/28/91	--	--	--	--	4.0	--	19	110	--	--	--	46	--	N/A	N/A
	08/15/91	--	--	--	--	3.8	--	15	140	--	--	--	30	--	N/A	N/A
	11/22/91	--	--	--	--	2.4	--	12	95	--	--	--	27	--	N/A	N/A
	01/29/92	--	--	--	--	4.2	--	25	190	--	0.6	--	40	--	N/A	N/A
	05/29/92	--	--	--	--	5.2	--	25	170	--	0.6	--	38	--	N/A	N/A
	08/31/92	--	--	--	--	8.4	--	35	370	--	--	--	52	--	N/A	N/A
	10/22/92	--	--	--	--	6.9	--	--	220	29	--	--	49	--	N/A	N/A
MW-41	06/28/91	--	--	--	--	--	--	--	--	--	--	--	--	--	N/A	N/A
	08/12/91	--	--	--	--	--	--	--	--	--	--	--	--	--	N/A	N/A
	11/05/91	--	--	--	--	--	--	--	--	--	--	--	--	--	N/A	N/A
	01/31/92	--	--	--	--	--	--	--	--	--	--	--	--	--	N/A	N/A
	05/26/92	--	--	--	--	--	--	--	--	--	--	--	--	--	N/A	N/A
	08/25/92	--	--	--	--	--	--	--	--	--	--	--	--	--	N/A	N/A
	10/20/92	--	--	--	--	--	--	--	--	--	--	--	--	--	N/A	N/A
MW-42	06/28/91	--	--	--	--	11	--	110	340	--	2.0	--	4.0	--	N/A	N/A
	08/08/91	6.3	--	--	--	42.0	8.1	370	1500	--	8.7	--	19.0	--	N/A	N/A
	11/07/91	1.2	--	--	--	6.9	1.9	69	270	--	1.4	1.1	3.9	--	N/A	N/A
	02/07/92	1.6	--	--	--	8.7	2.2	100	480	0.7	2.5	1.6	5.5	--	N/A	N/A
	06/04/92	3.3	--	--	--	7.0	2.6	80	220	0.9	2.0	3.4	5.8	--	N/A	N/A
	08/25/92	1.2	--	--	--	5.5	2.6	110	260	1.6	1.9	4.2	7.2	--	N/A	N/A
	10/27/92	--	--	--	--	--	--	110	340	--	--	28	--	--	N/A	N/A

TABLE 4
SUMMARY MONITORING WELL GROUNDWATER ANALYTICAL RESULTS, 1988 – 1992
ORGANIC COMPOUNDS – DETECTIONS ONLY (ug/l)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

Monitoring Well	Date Sampled	B	T	X	E	1,1,1–TCA	1,1,2–TCA	1,1–DCA	1,1–DCE	1,2–DCA	Chloroform	PCE	TCE	CCL_4	TPH	TPH/Gas
		1	1000	1.750	680	200	32	5	6	0.5	100	5	5	0.5	NE	NE
MW–43	06/28/91	--	--	--	--	--	--	330	33	--	--	--	--	--	N/A	N/A
	08/16/91	--	--	--	--	--	--	200	21	--	--	--	--	--	N/A	N/A
	11/07/91	--	--	--	--	--	2.0	170	30	1.9	--	0.6	2.5	--	N/A	N/A
	02/07/92	--	--	--	--	0.7	2.2	220	45	2.3	--	1.4	4.3	--	N/A	N/A
	06/02/92	--	--	--	--	--	2.5	210	32	2.5	--	---	4.7	--	N/A	N/A
	08/25/92	0.6	--	--	--	--	1.9	260	--	2.0	--	1.1	5.4	--	N/A	N/A
	10/22/92	--	--	--	--	--	--	240	28	--	--	--	--	--	N/A	N/A
MW–44	10/27/92	--	--	--	--	--	--	0.69	2.0	4.3	7.2	--	--	9.6	N/A	N/A

CCL4 – Carbon Tetrachloride
MCL – Maximum Contaminant Level, Drinking Water Standard, EPA or DHS (whichever is more stringent)
AL – Drinking Water Action Level recommended by DHS, Listed in the absence of an MCL
\+ – Detections of Benzene, Toulene, and Xylene appear to be due to field contamination. Analysis duplicate of sample showed no detections
-- – Not Detected
N/A – Not Analyzed

TABLE 5
PROPOSED 1993 SAMPLING AND ANALYSIS SCHEDULE
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

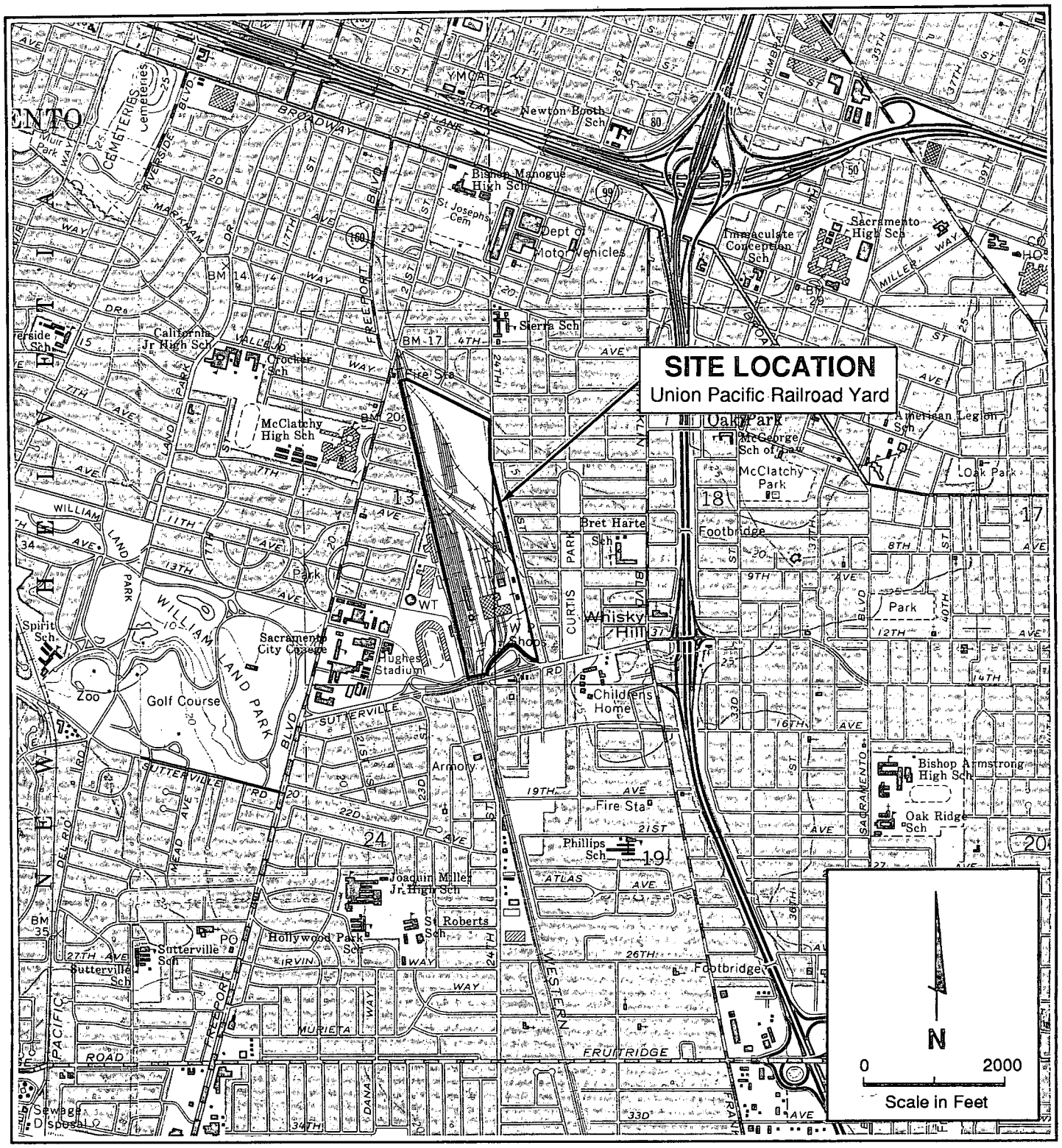
Well	Screen Interval (feet bgs)	Total Depth	Hydrostrati-graphic Zone	Parameter					
				601	602	As	Cr	Ni	Pb
MW-1	15-35	46	1	A	A	E	E	A	E
MW-2	37-57	66	1	Q	A	E	E	A	E
MW-3	15-25	31	1	A	A	E	E	E	A
MW-4	34-54	60	1	Q	Q	A	E	S	A
MW-5	37-47	51	1	A	A	E	A	S	E
MW-6	30-50	54	1	S	A	E	A	S	E
MW-7	33-43	46	1	Q	A	E	S	S	A
MW-8	37.5-52.5	59.5	1	S	A	E	E	A	A
MW-11	50-55	56	1	Q	A	E	S	A	A
MW-12	69-79	82	2	Q	Q	A	A	S	A
MW-13	26-41	45	1	Q	Q	S	E	A	E
MW-14	52.5-57.5	58	1	Q	Q	A	A	S	E
MW-15	26-41	44	1	S	A	E	A	S	A
MW-16	51.8-56.8	57.5	1	Q	A	E	A	A	A
MW-17	26.5	45	1	S	A	E	E	S	A
MW-18	52-57	57.5	1	Q	A	E	E	A	A
MW-19	26-41	42	1	S	A	A	A	S	A
MW-20	52-57	59	1	Q	A	E	A	E	A
MW-21	22-40	40	1	S	A	E	A	S	A
MW-22	45.5-50.5	52.5	1	A	A	A	E	E	A
MW-23	25.5-40.5	42	1	S	A	E	E	S	A
MW-24	34-39	52.5	1	A	A	A	E	S	A
MW-25	26-41	41.5	1	S	A	A	A	S	E
MW-26	38-43	50	1	Q	A	A	A	S	E
MW-27	56.5-66.5	74	2	S	A	E	A	S	A
MW-28	69-79	80	2	Q	Q	E	A	A	A
MW-29	26-41	42	1	Q	Q	E	E	A	A

TABLE 5 (Continued)
PROPOSED 1993 SAMPLING AND ANALYSIS SCHEDULE
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

Well	Screen Interval (feet bgs)	Total Depth	Hydrostrati-graphic Zone	Parameter					
				601	602	As	Cr	Ni	Pb
MW-30	51-56	57	1	Q	Q	E	E	S	A
MW-31	49-54	54.5	1	Q	Q	E	A	S	A
MW-32	51.5-56.5	57	1	Q	A	E	A	A	E
MW-33	23.5-38.5	39	1	Q	A	E	A	S	E
MW-34	56-61	62	1	Q	A	E	E	S	A
MW-35	27-42	44	1	Q	A	E	E	E	E
MW-36	33.5-48.5	49	1	Q	A	A	A	Q	A
MW-37	75-85	86	2	Q	A	A	A	S	A
MW-38	36-48.5	49	1	Q	A	A	A	Q	A
MW-39	33-48	49	1	Q	A	A	A	S	E
MW-40	72.5-82.5	83	2	Q	A	A	E	S	E
MW-41	104.5-114.5	115.5	3	Q	A	A	A	E	E
MW-42	20.5-35.5	37	1	Q	Q	A	A	S	A
MW-43	20-35	37	1	Q	Q	A	E	S	E
MW-44	73.5-78.5	81	2	Q	A	Q	Q	Q	Q

Q - Quarterly
S - Semi-annually
A - Annually
E - Eliminated
601 - EPA method for chlorinated volatile organic compounds analysis
602 - EPA method for aromatic compound analysis

FIGURES



REFERENCE: USGS 7.5 Minute Quadrangle; Sacramento East and Sacramento West, California, 1967, Photorevised 1980



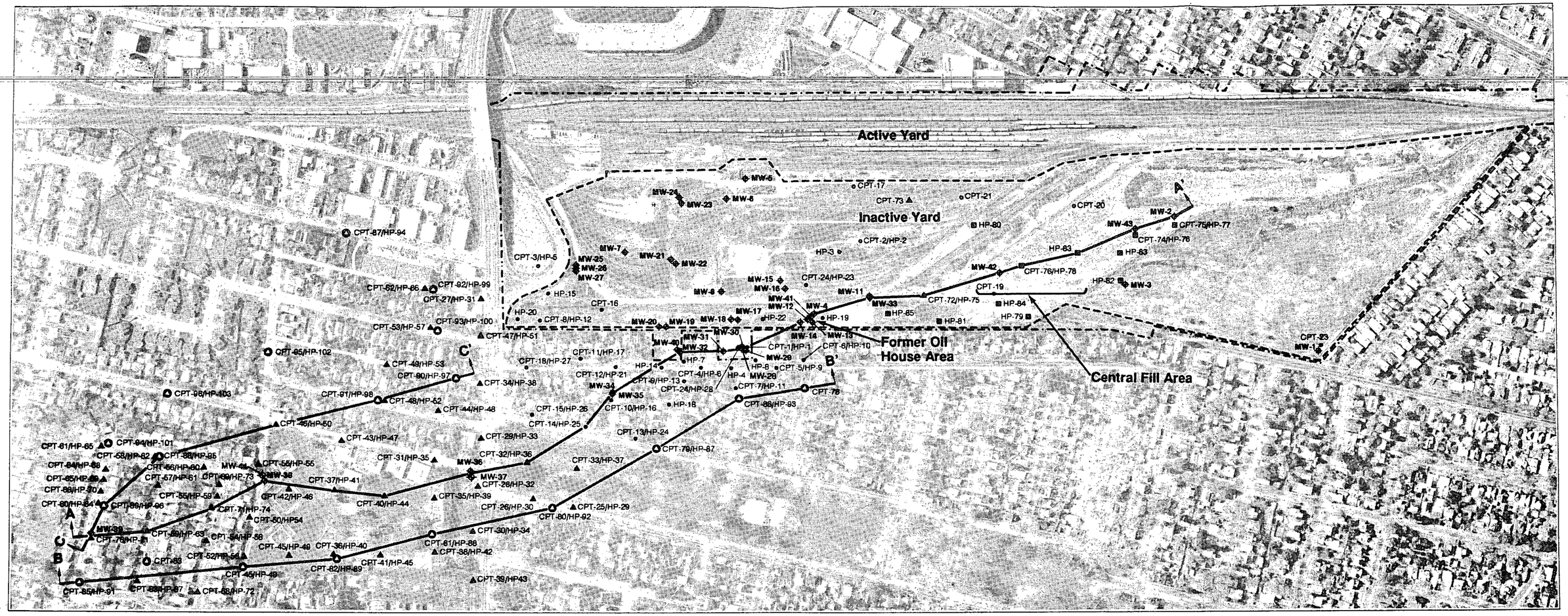
SITE VICINITY MAP

Union Pacific Railroad Yard
Sacramento, California
FEBRUARY 1993

DAMES & MOORE

00173-072-044

FIGURE 1



EXPLANATION

Exploratory Holes

- April - May, 1990 Locations
- September - October 1990 Locations
- February 1991 Locations

(Completed in First Hydrostratigraphic Zone)

- May 1992 Locations (Completed in Second Hydrostratigraphic Zone)
- CPT-13 Cone Penetration Test
- HP-2 Hydropunch Sample

Fence Line

Property Boundary

A — A' Cross Section Location

N

0 400

Scale in Feet

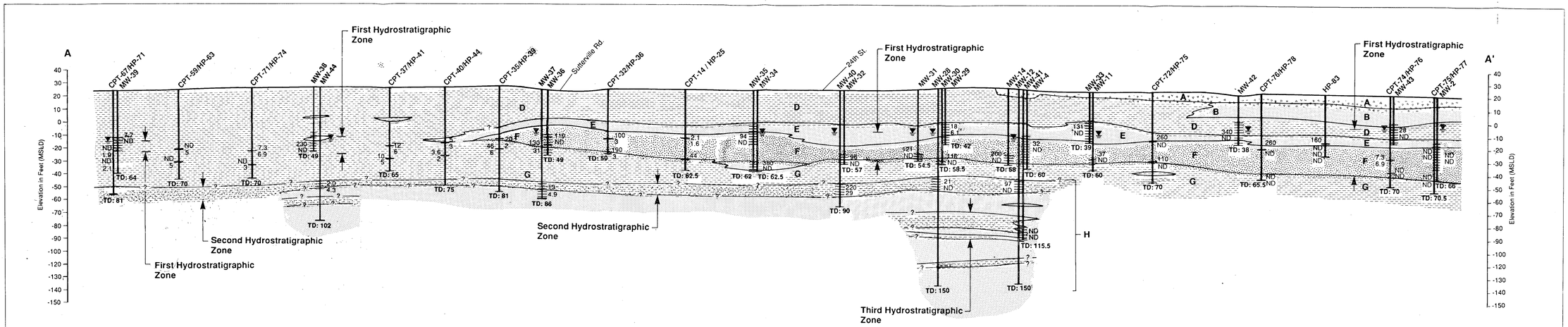
MONITORING WELL, CPT / HP AND CROSS SECTION LOCATIONS

Union Pacific Railroad Yard
Sacramento, California
JANUARY 1993

FIGURE 2

DAMES & MOORE

00173-072-044 SJR 1/12/93 SEC-LOC



EXPLANATION

MW-1
(1,1 - DCE) 10
(1,2 - DCA) 2

Monitoring Well
Screened Interval / Octob
Analytical Results in ug/L

CPT / HP
(1,1 - DCE) 10
(1,2 - DCA) 2

Cone Penetration Test / H
Hydropunch Sample Inter
Analytical Results in ug/L

Geologic Contact

Geologic Contact Uncerta

Groundwater Table, Base
Static Water Level in Well

Artificial Fill, Imported or E
Containing Demolition De
Manmade Materials (Zone

Medium Grained Sand Zo
Fine to Medium Grained S

Silty Clay and Clayey Silt
Clay and Silty Clay (zone
Interbedded Silty Clay, Cl
Clay (Zone I: CPT - Based

Interbedded Sandy Clay ,
Silty Sand (Zone B)
Interbedded Fine Sand, Si
Clay (Zone E & H)

Stippled Pattern Indicates
Coarser Grained Units wit

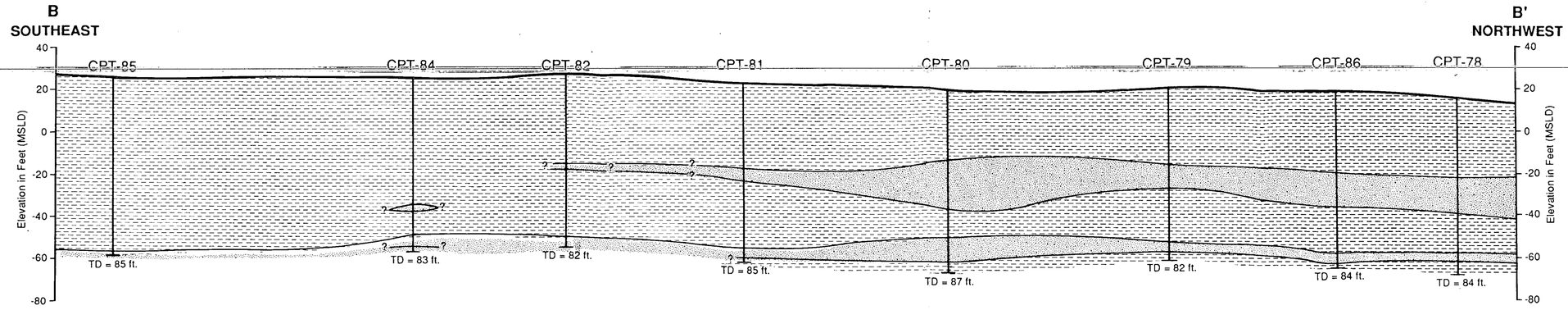
See RI Text for Detailed E
(Dames & Moore, 1991 C)
See Figure 1 for Location

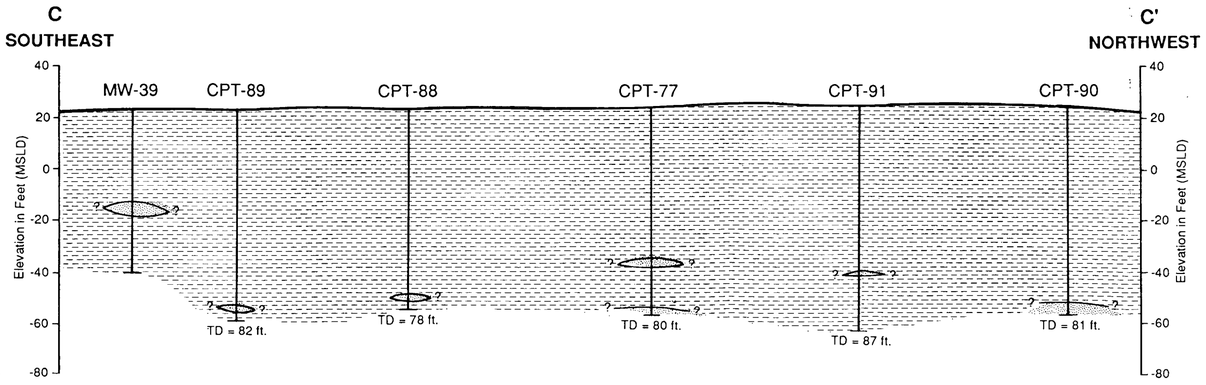
Hydrostratigraphic Zones D
Permeable Units.

0
Horizontal Scale
Vertical Scale Exag

SCHEMAT
CRO

DAMES & MOORE
00173-064-044





EXPLANATION

- Silty Sand to Sand
- Interbedded Silts and Clays
- Geological Contact
- ? Geologic Contact Uncertain

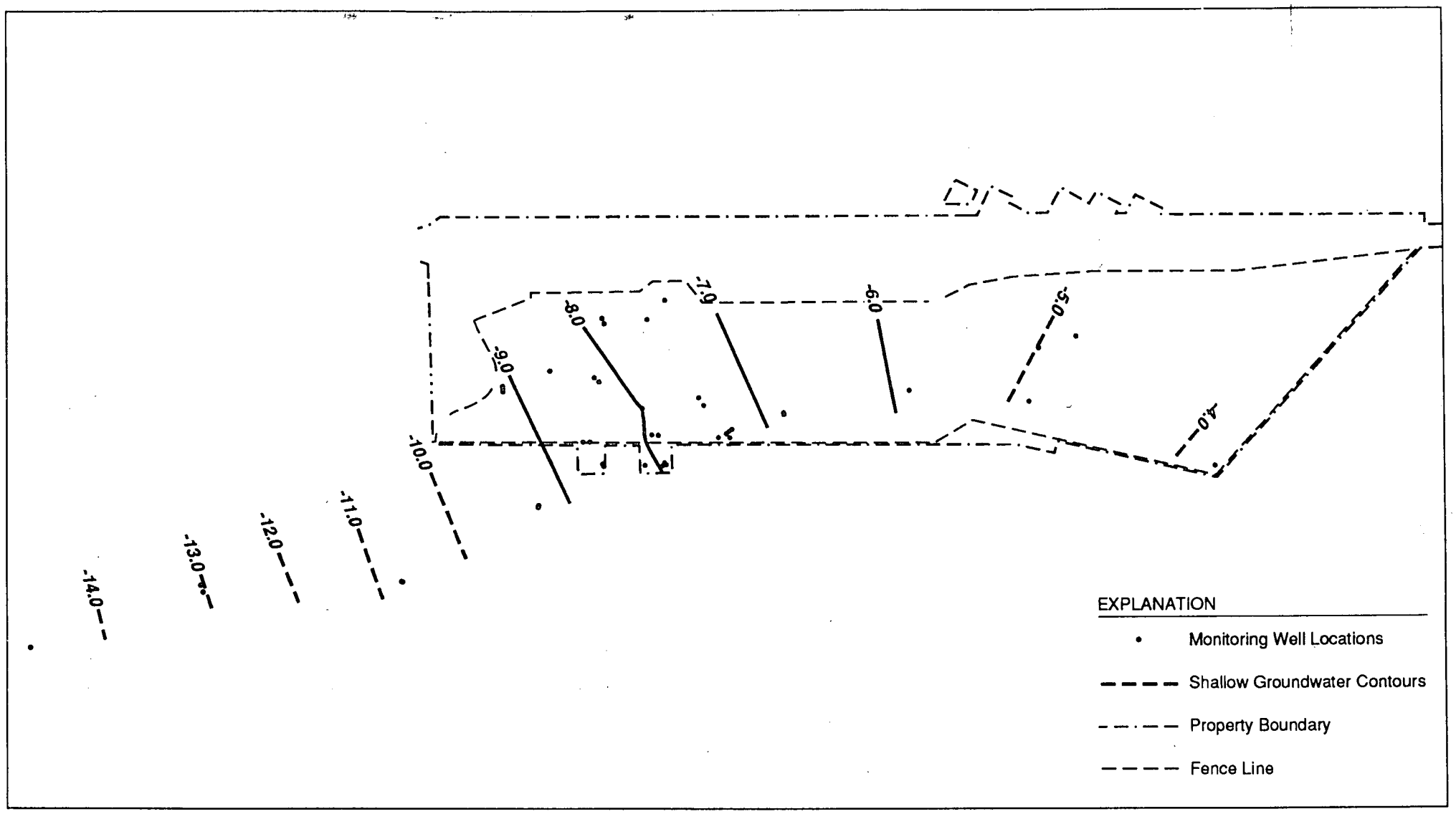
NOTE:
Stratigraphic interpretation is based primarily on CPT logs.
See FIGURE 1 for location of section line

0 200

Horizontal Scale in Feet
Vertical Scale Exagerated 5X

SCHEMATIC SUBSURFACE CROSS SECTIONS B-B' AND C-C'
Union Pacific Railroad Yard
Sacramento, California
JANUARY 1993
FIGURE 4

DAMES & MOORE
00173-072-044



N

0 600

Scale in Feet

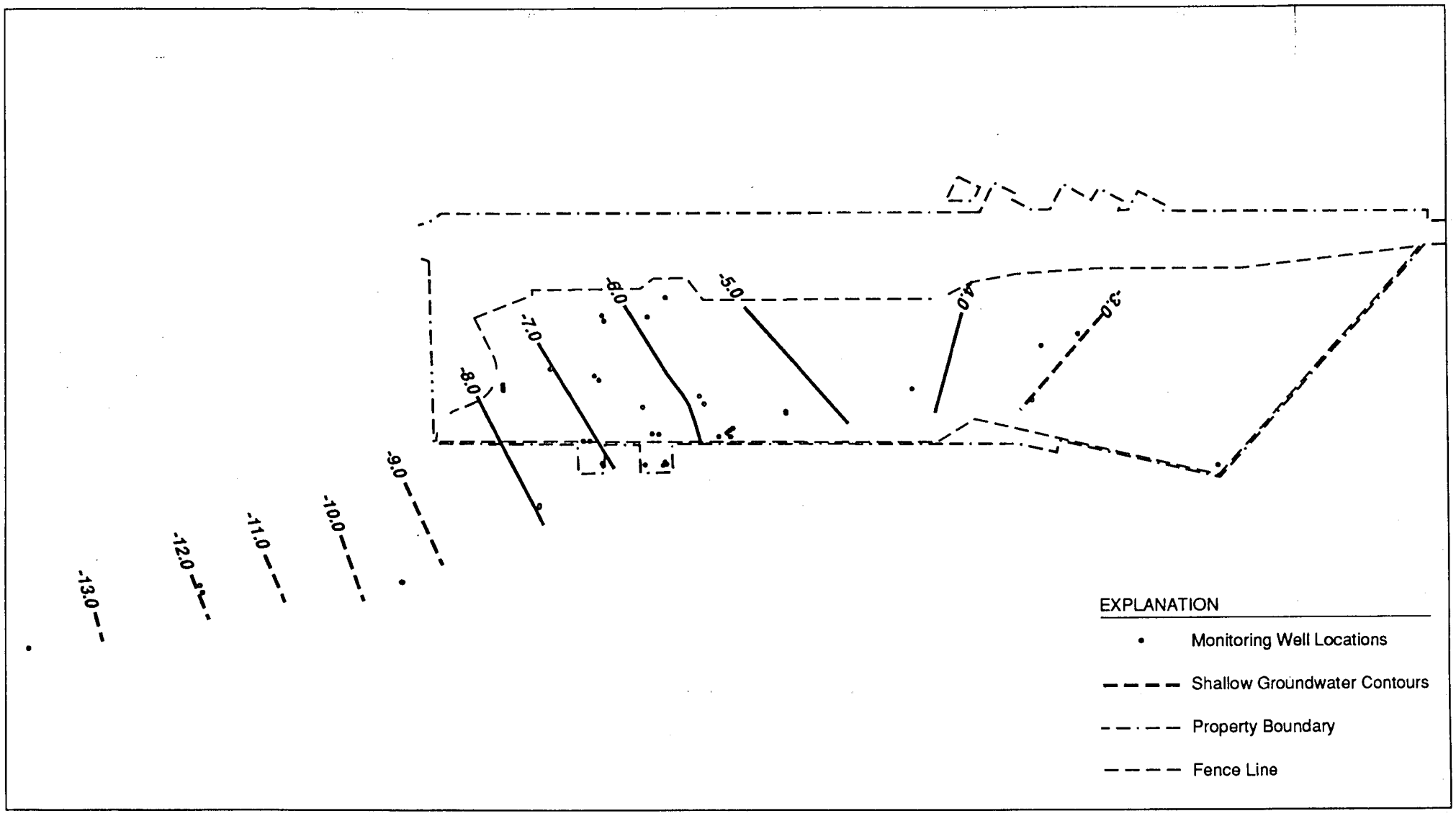
SHALLOW GROUNDWATER CONTOURS JANUARY 1992

Union Pacific Railroad Yard
Sacramento, California
JANUARY 1993

DAMES & MOORE

00173-072-044 SJR 1/5/93 GW-3

FIGURE 6



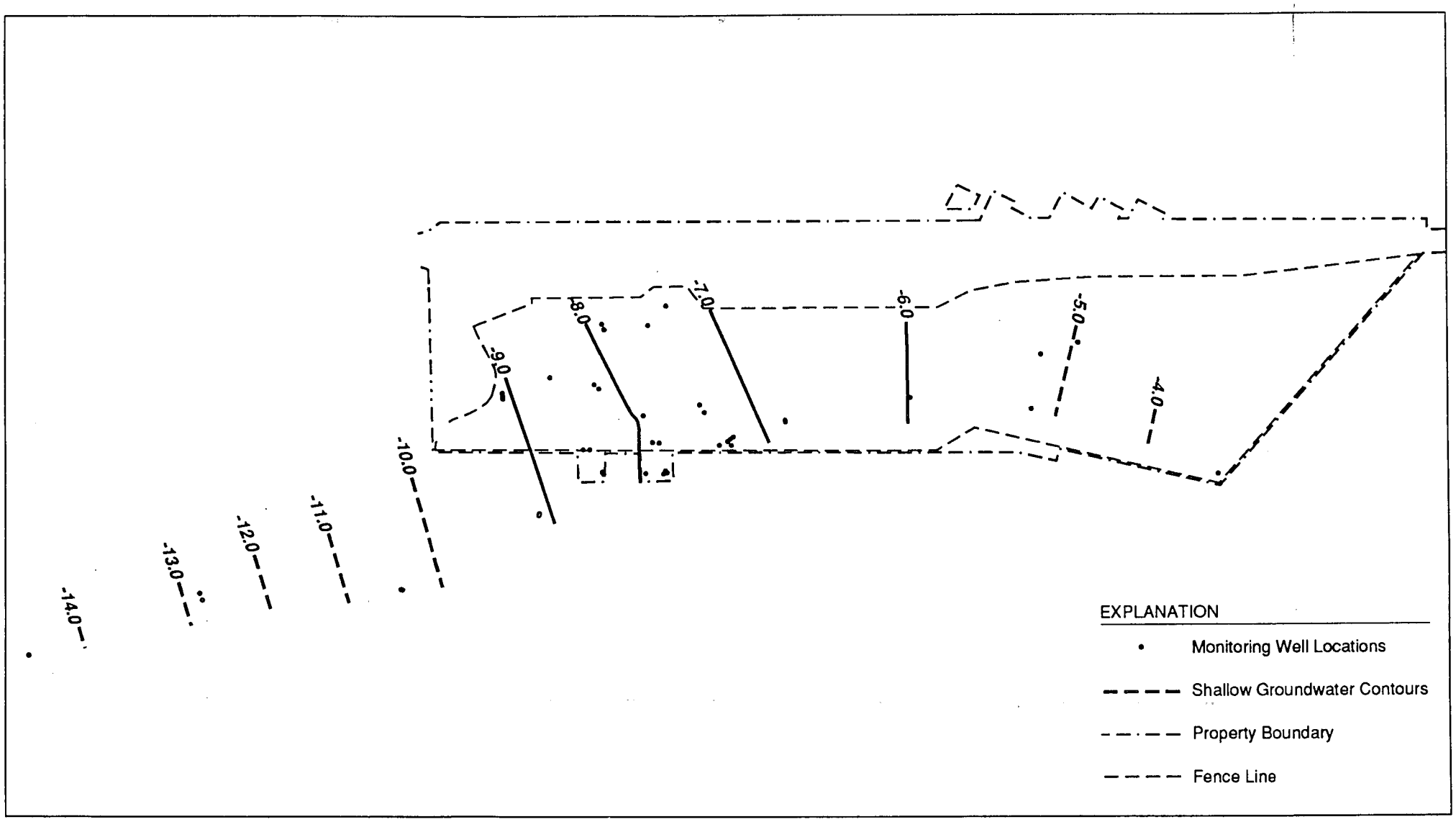
SHALLOW GROUNDWATER CONTOURS
MAY 1992

Union Pacific Railroad Yard
Sacramento, California
JANUARY 1993

DAMES & MOORE

00173-072-044 SJR 1/5/93 GW-2

FIGURE 7



N

0 600

Scale in Feet

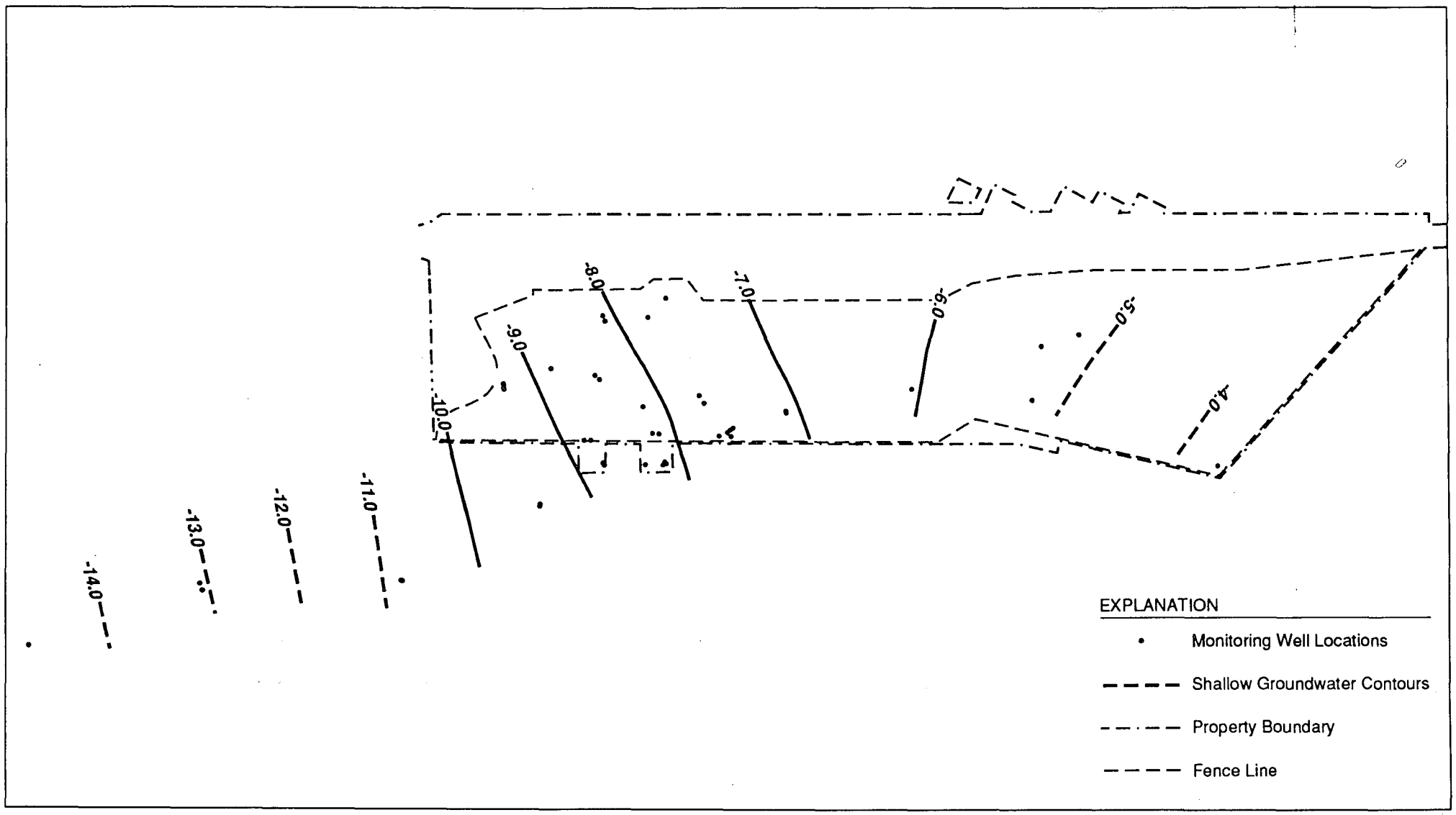
SHALLOW GROUNDWATER CONTOURS SEPTEMBER 1992

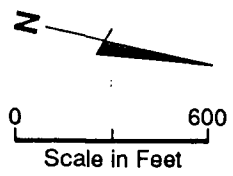
Union Pacific Railroad Yard
Sacramento, California
JANUARY 1993

DAMES & MOORE

00173-072-044 SJR 1/5/93 GW-4

FIGURE 8





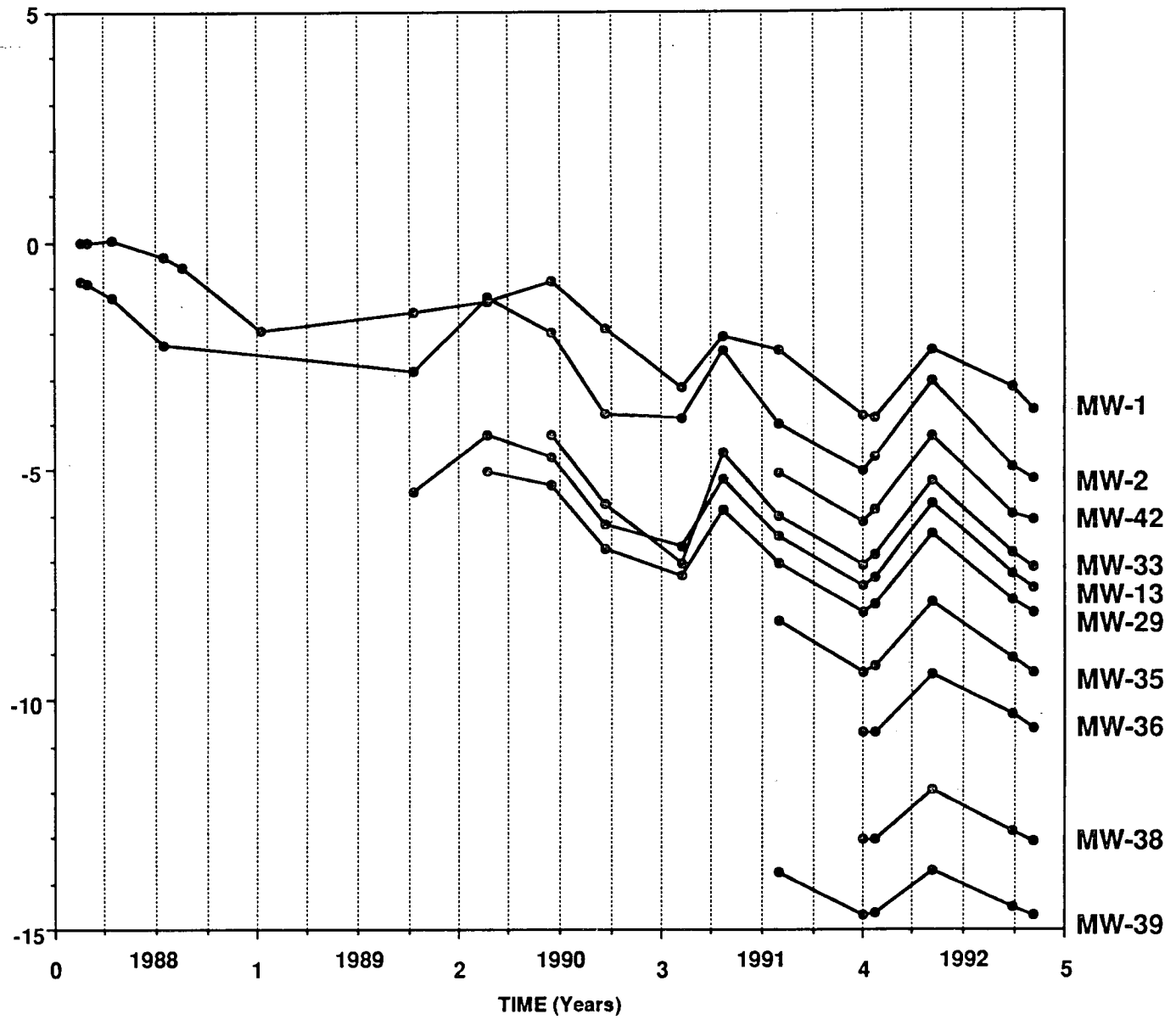
SHALLOW GROUNDWATER CONTOURS NOVEMBER 1992

Union Pacific Railroad Yard
Sacramento, California
JANUARY 1993

DAMES & MOORE

00173-072-044 SJR 1/5/93 GW-1

FIGURE 9



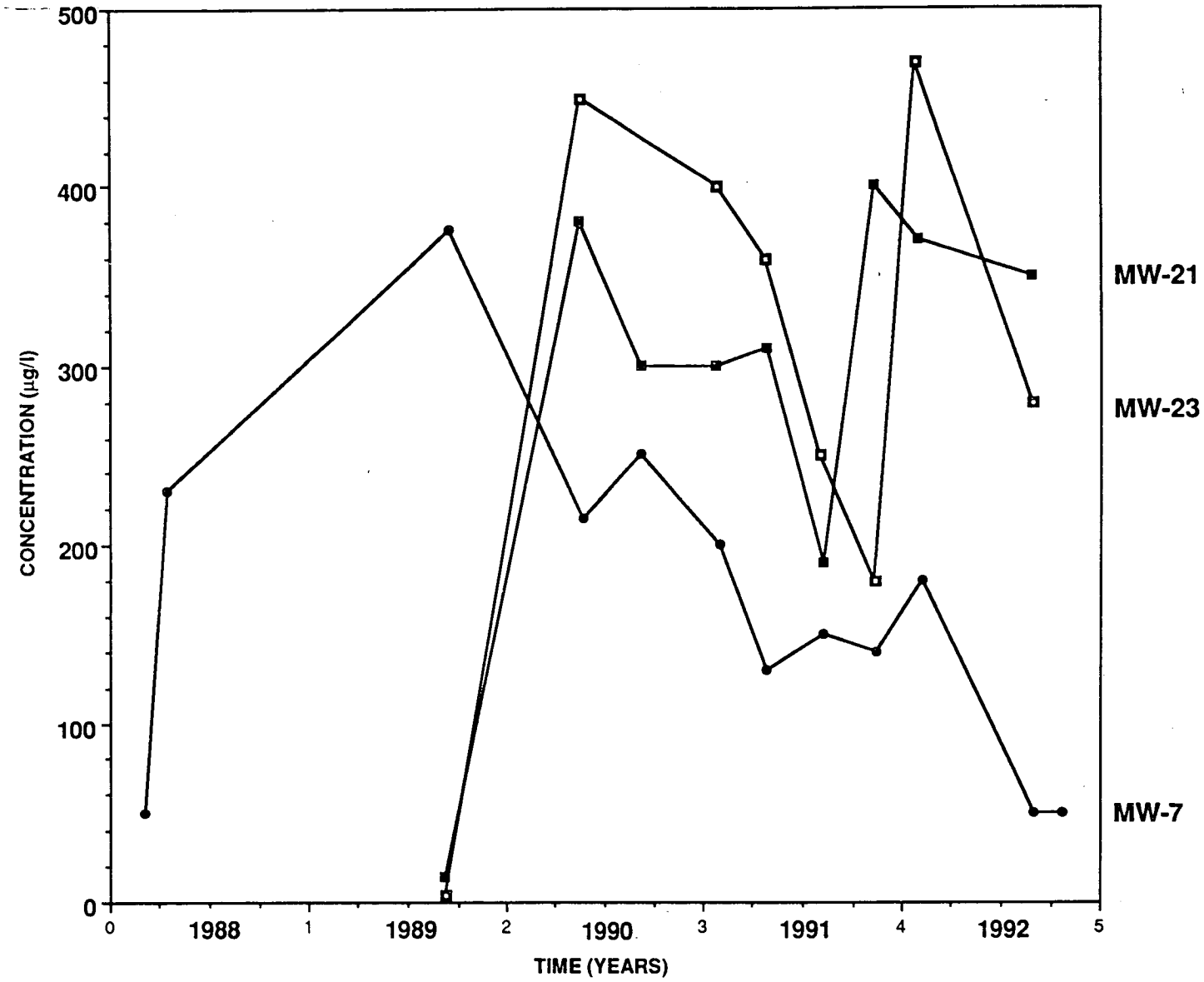
SHALLOW GROUNDWATER ELEVATIONS
1988 to 1992

Union Pacific Railroad Yard
Sacramento, California
JANUARY 1993

DAMES & MOORE

00173-072-044.88-92

FIGURE 10



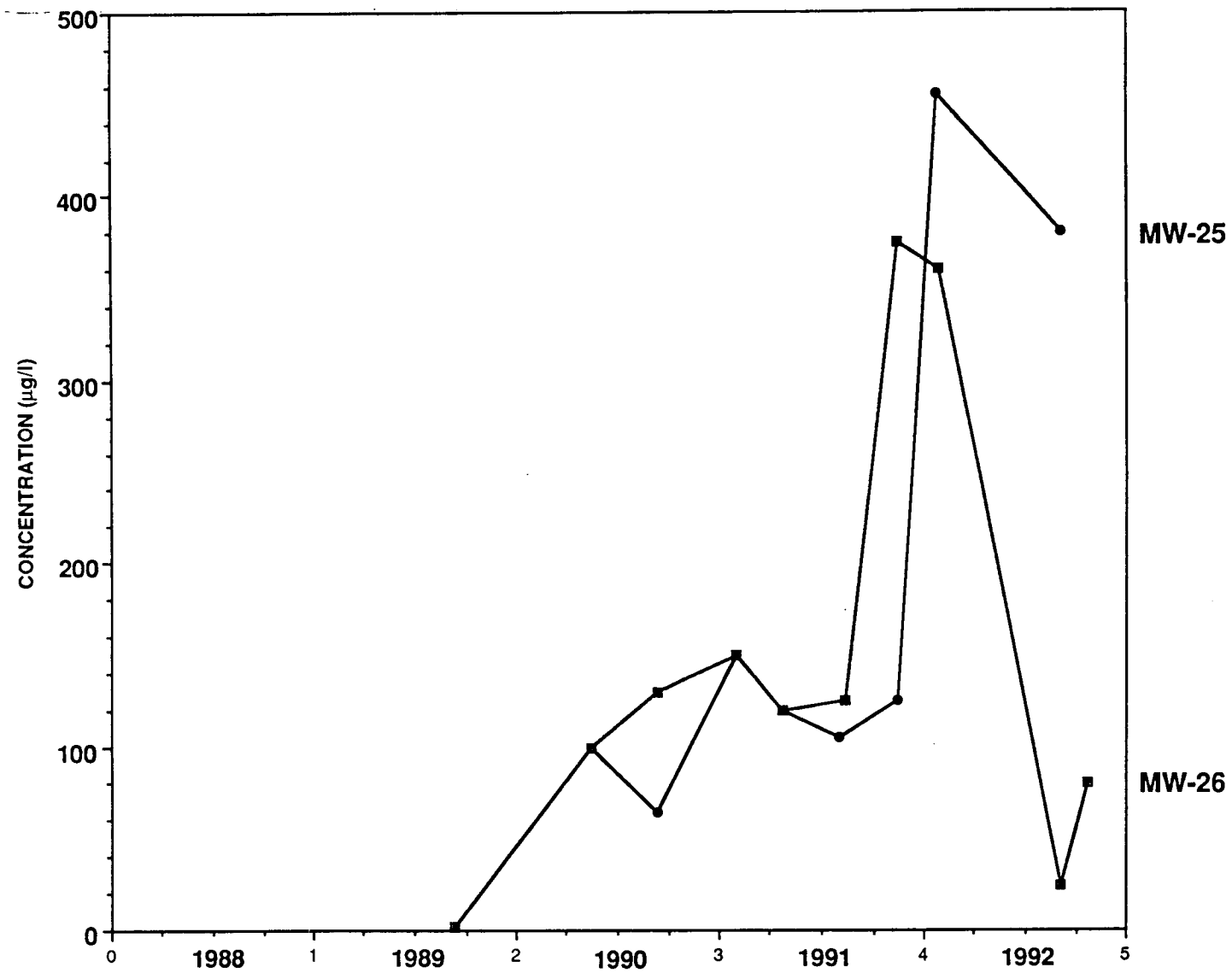
NICKEL CONCENTRATIONS vs. TIME
MW-7, MW-21, and MW-23

Union Pacific Railroad Yard
Sacramento, California
JANUARY 1993

DAMES & MOORE

00173-072-044.nc.1

FIGURE 12

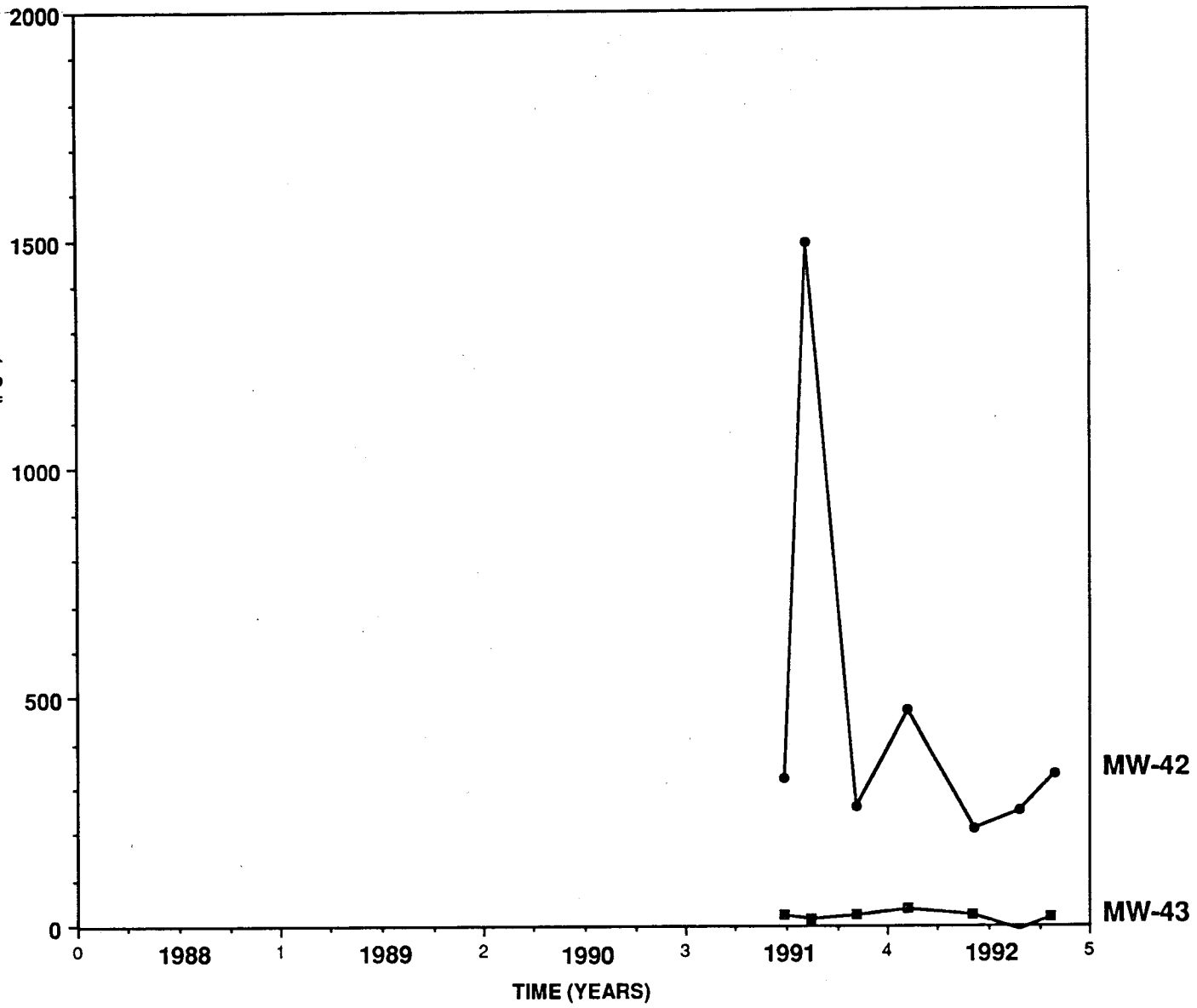


NICKEL CONCENTRATIONS vs. TIME
MW-25 and MW-26
Union Pacific Railroad Yard
Sacramento, California
JANUARY 1993

DAMES & MOORE

00173-072-044.nc.2

FIGURE 13

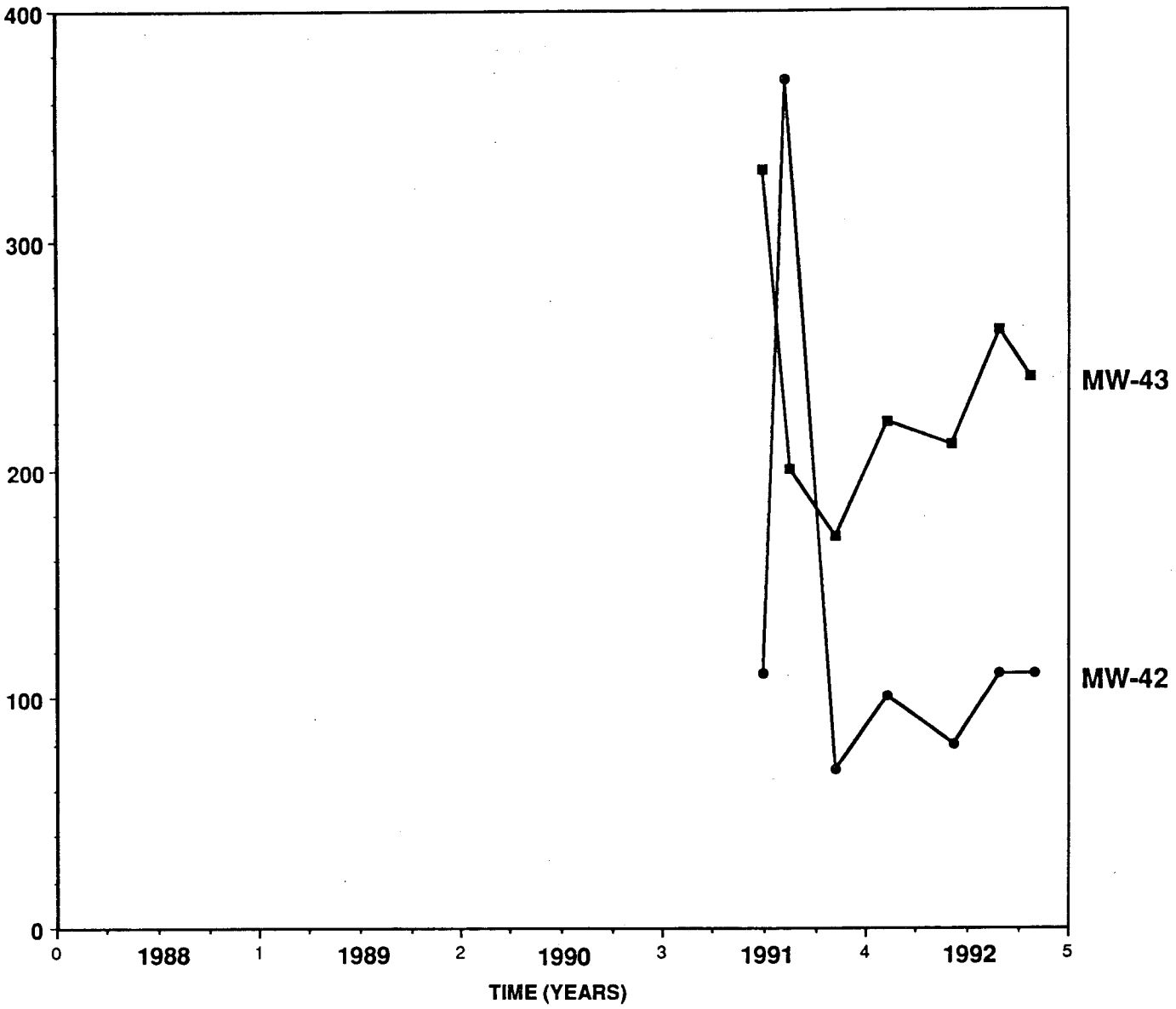


1,1-DCE CONCENTRATIONS vs. TIME
MW-42 and MW-43
Union Pacific Railroad Yard
Sacramento, California
JANUARY 1993

DAMES & MOORE

00173-072-044.1,1-DCE

FIGURE 14



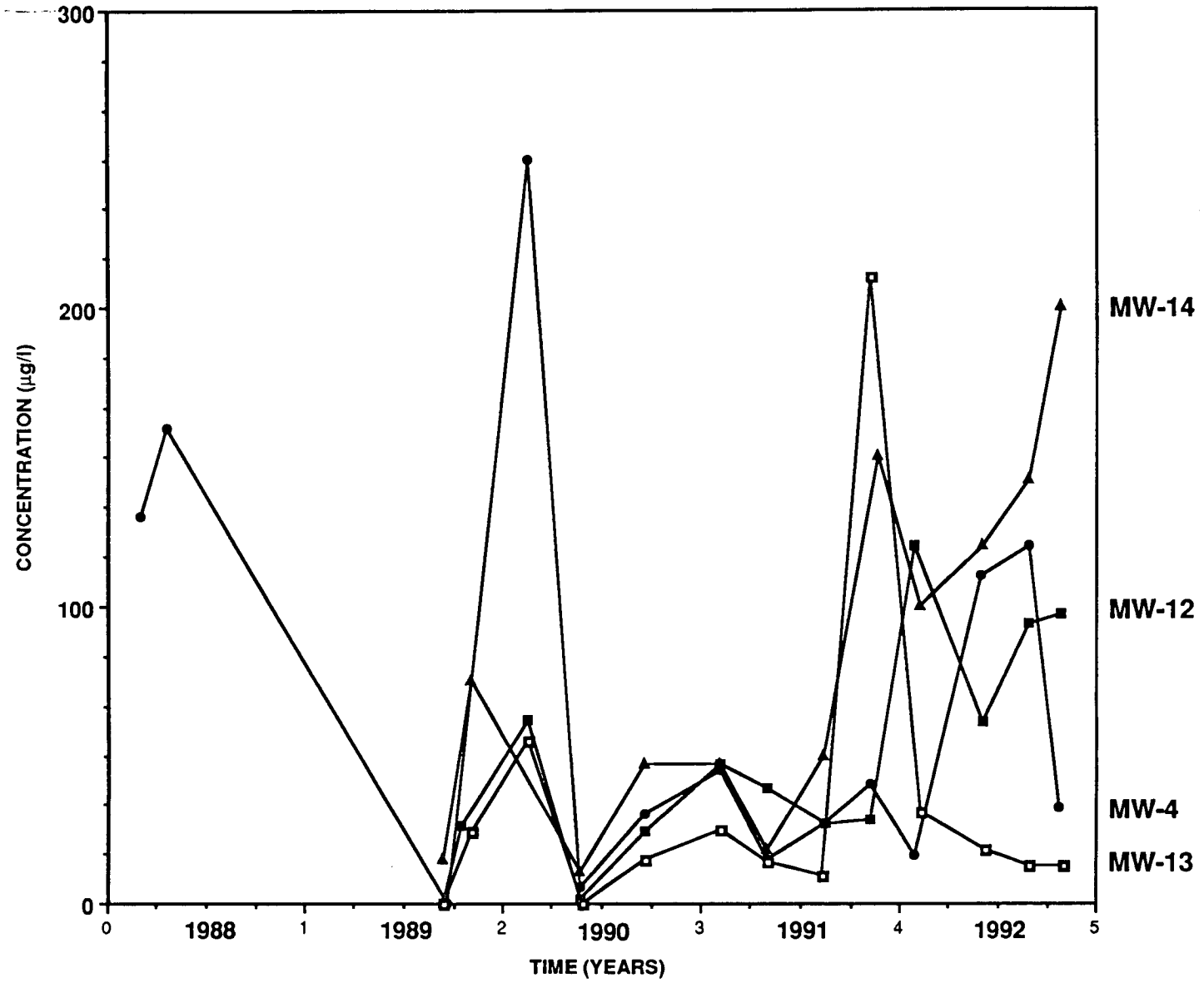
1,1-DCA CONCENTRATIONS vs. TIME
MW-42 and MW-43

Union Pacific Railroad Yard
Sacramento, California
JANUARY 1993

DAMES & MOORE

00173-072-044.1,1-DCA

FIGURE 15



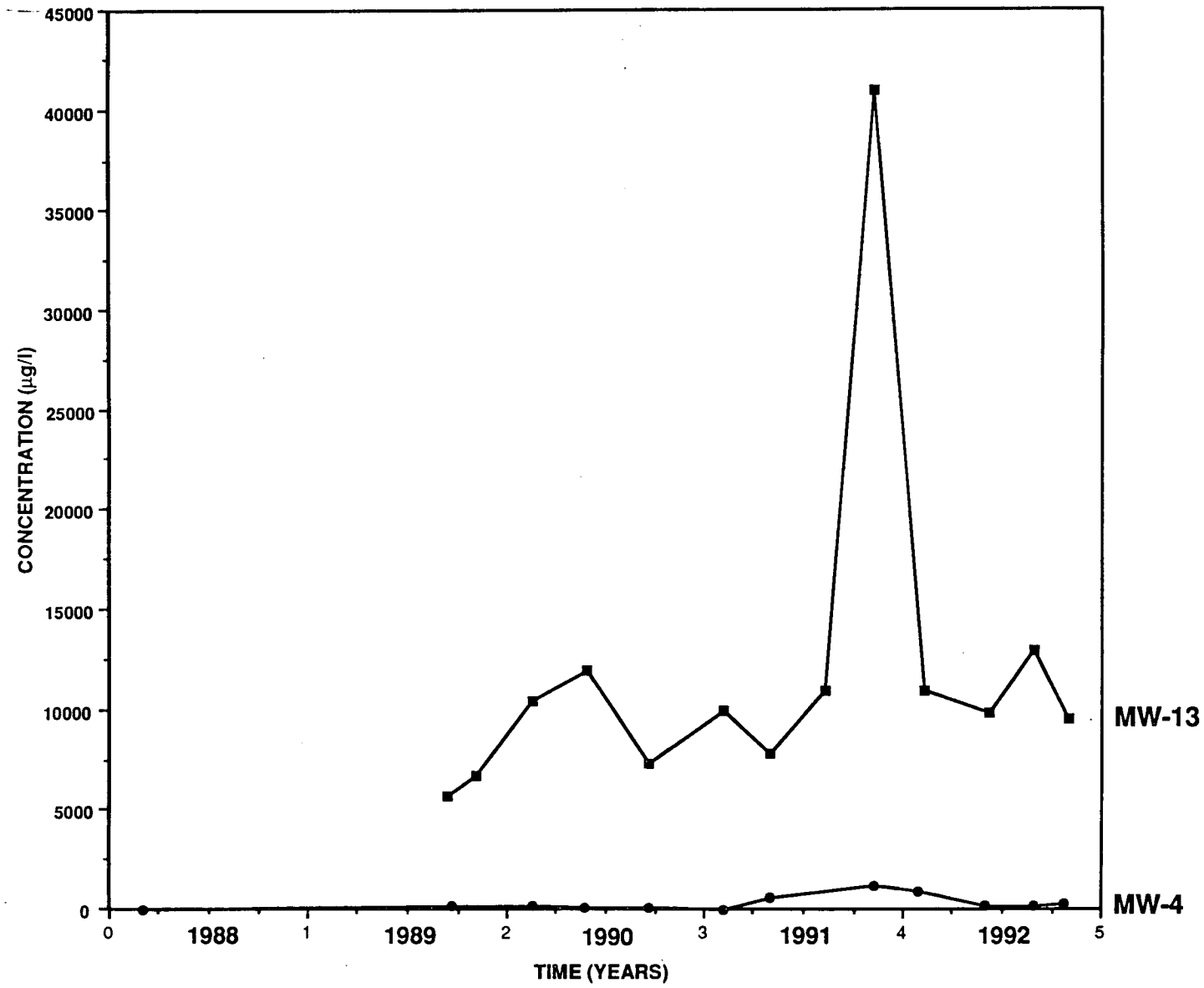
1,1-DCE CONCENTRATIONS vs. TIME
MW-4, MW-12, MW-13, and MW-14

Union Pacific Railroad Yard
Sacramento, California
JANUARY 1993

DAMES & MOORE

00173-072-044.1,1-DCE.1

FIGURE 16

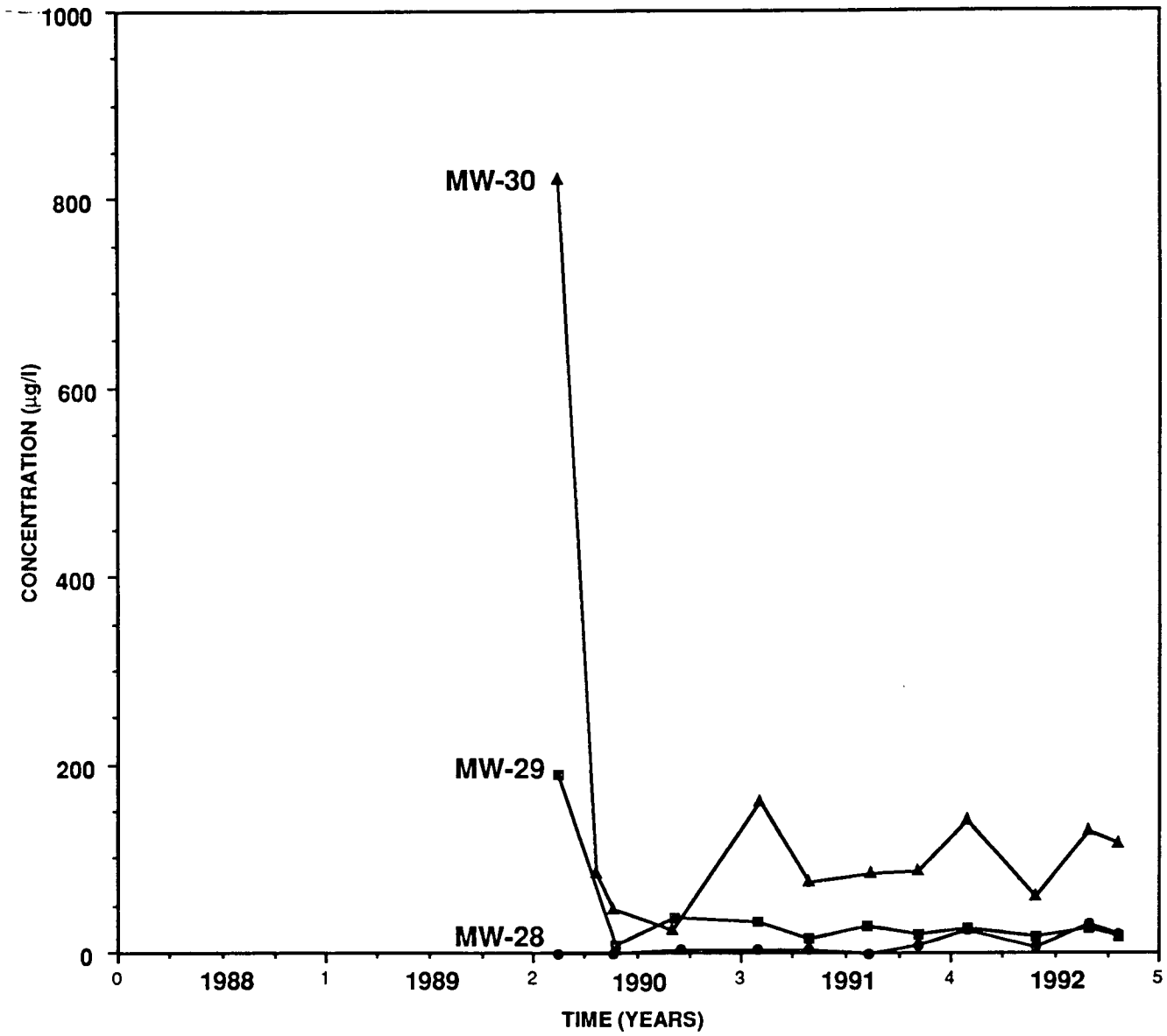


BENZENE CONCENTRATIONS vs. TIME
MW-4 and MW-13
Union Pacific Railroad Yard
Sacramento, California
JANUARY 1993

DAMES & MOORE

00173-072-044.BENZ

FIGURE 17



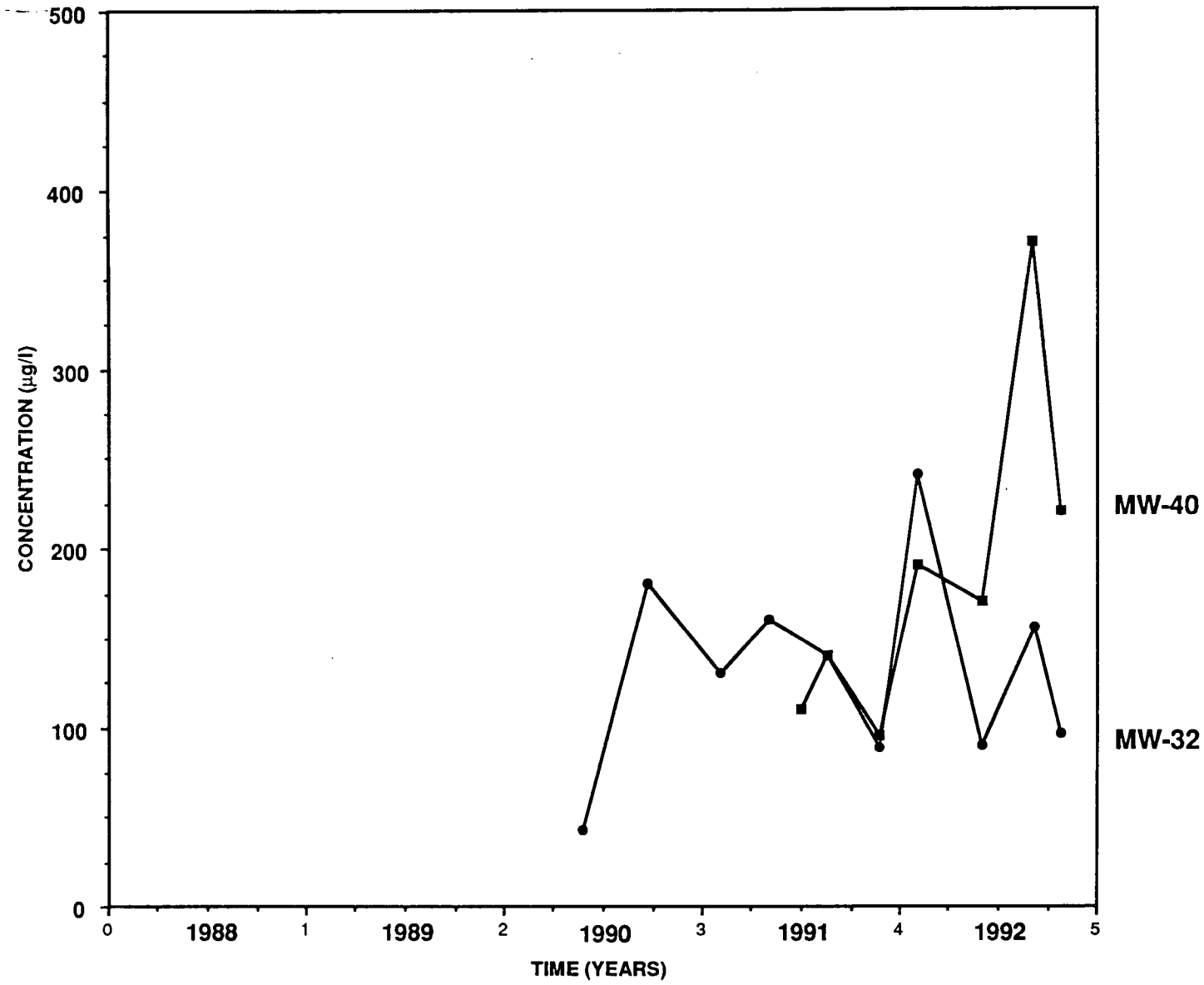
1,1-DCE CONCENTRATIONS vs. TIME
MW-28, MW-29, and MW-30

Union Pacific Railroad Yard
Sacramento, California
JANUARY 1993

DAMES & MOORE

00173-072-044.1,1DCE.2

FIGURE 18

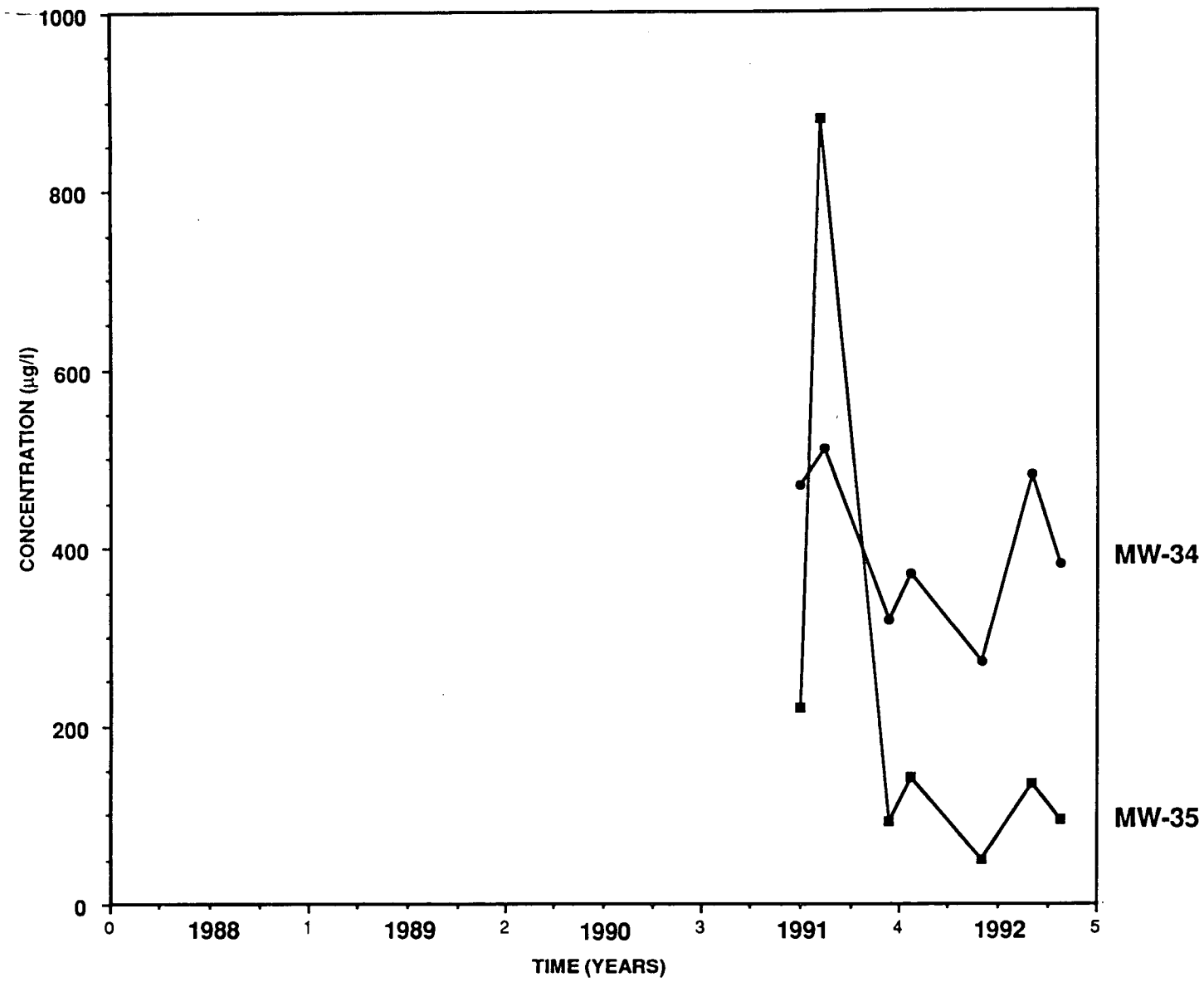


1,1-DCE CONCENTRATIONS vs. TIME
MW-32 and MW-40
Union Pacific Railroad Yard
Sacramento, California
JANUARY 1993

DAMES & MOORE

00173-072-044.1,1-DCE.3

FIGURE 19

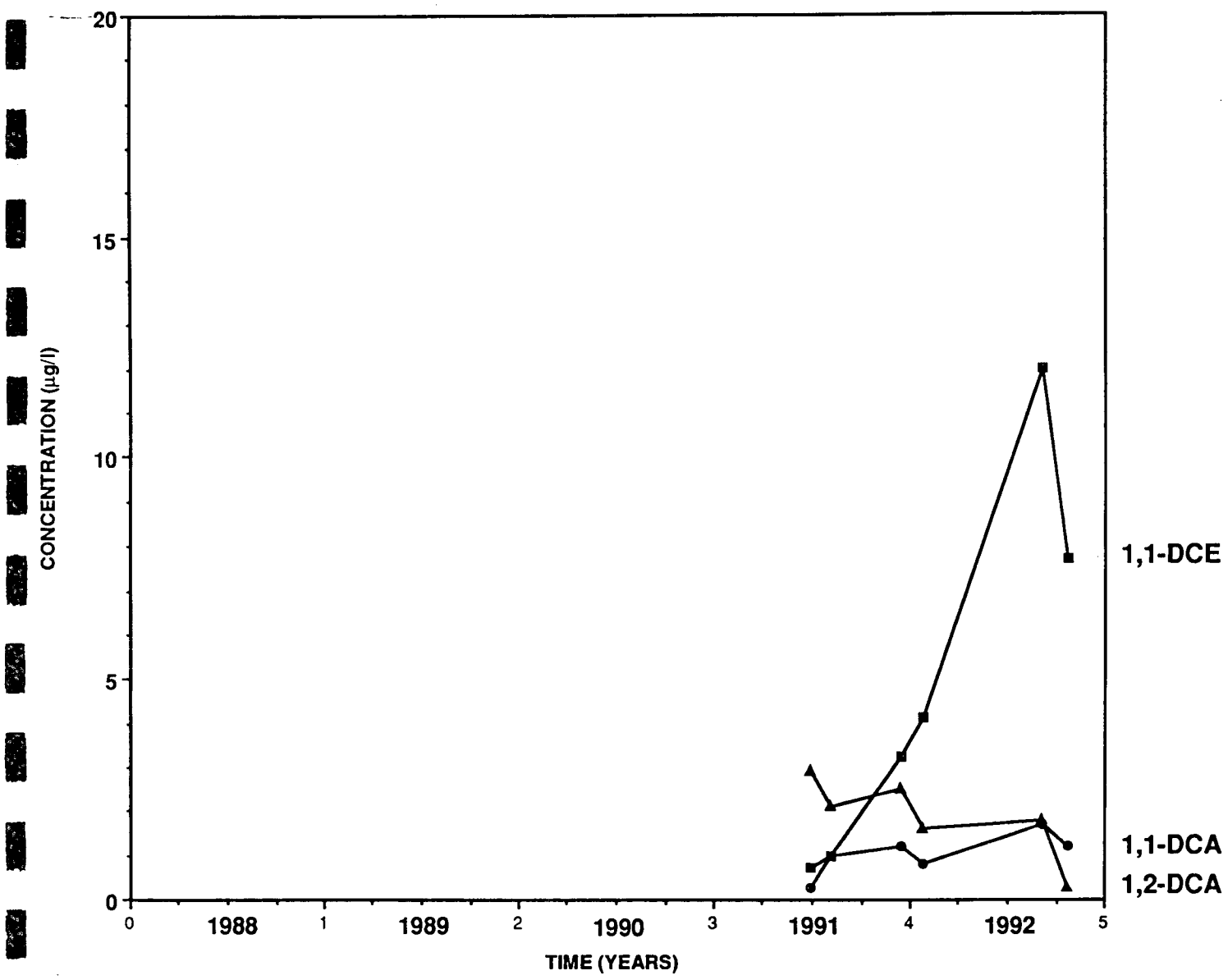


1,1-DCE CONCENTRATIONS vs. TIME
MW-34 and MW-35
Union Pacific Railroad Yard
Sacramento, California
JANUARY 1993

DAMES & MOORE

00173-072-044.1,1DCE.4

FIGURE 20



1,1-DCA, 1,1-DCE, and 1,2-DCA CONCENTRATIONS vs. TIME
MW-39

Union Pacific Railroad Yard
Sacramento, California
JANUARY 1993

DAMES & MOORE

00173-072-044.1,1DCE.5

FIGURE 21

Appendix A

APPENDIX A

GROUNDWATER SAMPLING METHODOLOGY

DRAFT
1992 ANNUAL GROUNDWATER MONITORING REPORT
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

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APPENDIX A

A.1 GROUNDWATER SAMPLING COLLECTION AND HANDLING PROCEDURES

Groundwater sampling was performed by Dames & Moore staff who have been properly trained in groundwater collection, handling, and preservation techniques. Quarterly sampling rounds were initiated by sampling monitoring wells with the lowest contaminant concentration and proceeded to those with the highest. Static water levels were measured prior to purging each well.

A.1.1 MEASUREMENT OF STATIC WATER LEVEL ELEVATION

The depth to static water level was measured in all of the wells on a quarterly basis. Water level measurements were completed in a four-hour period to approximate an instantaneous representation of the piezometric surface. Water level measurements were also made before purging and sampling were conducted. The depth to water was measured from the top of the PVC well casing at the PERMANENTLY marked reference point at which the well casing elevation was surveyed. Measurements were made using an electronic water level indicator instrument. Measurements were repeated until two consecutive depth readings were within 0.01 feet. Before and after each use, the water level indicator was thoroughly rinsed with deionized water.

A.1.2 MONITORING WELL EVACUATION

Subsequent to measurement of depth to water and prior to sampling, each monitoring well was purged to ensure that the sample contained groundwater representative of the formation. Purging was accomplished by evacuating a minimum of three casing volumes of water (EPA, November 1986). A casing volume (in gallons) was calculated in the following manner:

$$Casing\ Volume = \pi r^2 h$$

Where:
- π = 3.14
- r = casing radius in feet
- h = height of water in the well casing calculated as the total depth of the well minus depth to water in feet

For a 4-inch-diameter well casing, this equation becomes:

$$\textit{Casing Volume} = 7.48 \text{ gallons/ft}^3 \times 3.14 \times 0.1667 \text{ ft}^2 \times \text{h}$$

$$= 0.652h$$

A Teflon bailer or Grundfos RediFlo2 submersible pump was used for purging the monitoring wells. Purge water volumes were recorded on field sampling record forms. The purge water was discharged directly into a tank trailer. As necessary, the purge water was transferred from the tank trailer into a 3,000-gallon well purge water holding tank located on-site.

Field parameters were measured and recorded during purging. Field parameters included temperature, pH, and electrical conductivity, which were measured using portable field instruments. These instruments were calibrated with bottled standards daily. To measure these field parameters, each water sample was collected in a clean beaker, and the clean dry probe was inserted into the water. These parameters usually begin to stabilize as fresh formation water enters the well after removal of the first casing volume of borehole water. Once three casing volumes were removed, these parameters were measured approximately once per minute for about four minutes. If significant variation was encountered, purging and measurements continued until the measurements stabilized. Stabilization is considered achieved when pH does not vary more than 0.1 unit, temperature does not vary more than 1°C, and electrical conductivity does not vary by more than 10 percent. The field parameters, together with field observations of color, turbidity, and odor, were recorded on the field sampling record forms.

A.1.3 SAMPLE COLLECTION

Samples were withdrawn using new disposable polyethylene bailers fitted with VOA attachments, or dedicated Grundfos Redo-Flo2 submersible pumps where installed. Samples were collected in the following order:

1) Chlorinated Volatile Organic Compounds (CVOCs)/Aromatic Compounds
2) Metals

While filling VOAs through the discharge line of the dedicated system, the flow rate was reduced to 100 ml/min. Care was taken to minimize turbulence by positioning the bottle so that water flowed smoothly down the inner surface. Except for the 40-milliliter (ml) VOA vials, each sample container was filled to within 0.5 inch of the top, preserved as specified in Table A-1, sealed tightly, and properly labeled. The 40-ml VOA vials were completely filled and capped, leaving no head space. Sample handling and preservation information is summarized in Table A-1.

A.1.4 FIELD FILTRATION

Samples to be analyzed for dissolved metals were filtered in the field through a 0.45-micron in-line disposable filter. Samples for the other chemical constituents were not filtered. Filters were attached to the sampling port for monitoring wells with dedicated submersible pumps and filtered samples were collected at a rate of 100 ml/min. Samples from monitoring wells collected using disposal bailers were pumped through filters using a peristaltic pump.

A.1.5 DECONTAMINATION OF EQUIPMENT

Field equipment used for measuring pH, temperature, specific conductance, and depth to water were rinsed with de-ionized water at the completion of each sampling event. Teflon bailers and non-dedicated submersible pumps used for purging were decontaminated using a steam cleaner or a nonphosphate detergent, followed by rinses with tap water and de-ionized water. Rinsate samples were collected for laboratory testing.

A.1.6 SAMPLE CONTAINERS

After well evacuation and stabilization of the field parameters, samples were collected in appropriate containers supplied by the analytical laboratory. The specific containers used for each type of test are summarized in Table A-1.

A.1.7 SAMPLE PRESERVATION

Sample preservation procedures followed the guidelines given in Table 3.19 of the California Department of Health Services (May 1986) Decision Tree Manual. Samples were preserved upon collection by cooling them in ice chests maintained at or below 4°C and, where appropriate, by addition of preservatives. Coolant was added as necessary to maintain the temperature during shipment to a DTSC-certified hazardous material laboratory for analysis. Sample handling and preservation methods are summarized in Table A-1.

A.1.8 SAMPLE IDENTIFICATION

Each sample collected (including Quality Assurance samples) were labeled in order to provide unique information by which the sample was to be identified from the time of collection to its final disposition. This information included:

- Site name;
- Field sample ID number;
- Collection date and time;
- Collector's name;
- Sample preservation data; and
- Sample analyses.

The field sample ID number included the designation "MW" (for monitoring well), and a two-digit well number. Blind duplicates (Section 6.1.2) were given a false well number of 51 or higher in sequence, and referenced on the field sample record form. Trip blanks, rinsate blanks, and field blanks were designated TB, RB, or RB together with a two-digit number starting with 01 for each quarterly sampling round. Sample labels were completed using waterproof ink.

A.1.9 CHAIN-OF-CUSTODY PROCEDURES

Chain-of-custody protocol was used to document sample custody transfer from the field to the analytical laboratory. A chain-of-custody form accompanied the samples. This form was signed and dated, noting the time at each transfer of custody by those relinquishing and receiving the samples. Samples were properly packaged and sealed for shipment in a cooled ice chest. A custody record accompanied each shipment, with the method of shipment being noted. The original chain-of-custody form remained with the samples; the originator and other appropriate persons in the chain of custody retained copies.

A.1.10 ANALYTICAL TEST METHODS

Methods selected for chemical analyses are shown in Table A-1, together with the precision, accuracy, and method detection reporting limits for each method specified by the EPA (1983, 1986).

A.1.10.1 Organic Compounds

The following test methods were used for organic compounds:

- EPA 601: CVOCs
- EPA 602: Aromatic compounds

A.1.10.2 Metals (As, Cr, Ni, Pb)

The following test methods were used for metals:

Method Reference	Method	Parameter
7060	Graphite Furnace AA	Arsenic
7191	Graphite furnace AA	Chromium
6010	ICP	Nickel
7421	Graphite Furnace AA	Lead

A.1.11 PURGE WATER HANDLING AND DISPOSAL

Purge water was pumped into a tank mounted on a trailer. When the tank was filled, the purge water was transferred to the on-site 3,000-gallon storage tank. Within 60 days of completion of the quarterly sampling round, a sample was extracted from the storage tank. The sample was analyzed for CVOCs and aromatic compounds. Once the analytical results were received, Sacramento City and County permission to discharge was requested under Sacramento County Special Sewer Use Permit No. 164. Upon receipt of permission, the purge water was discharged to a nearby storm drain through 3/4-inch-diameter hosing under gravity flow.

A.2 GROUNDWATER SAMPLING QUALITY ASSURANCE/QUALITY CONTROL

Quality assurance measures were an integral part of the quarterly sampling program to validate the collected data. Quality control procedures were followed to document the quality assurance measures.

A.2.1 FIELD SAMPLING QUALITY ASSURANCE/QUALITY CONTROL

Field sampling quality assurance was implemented through standard sample collection procedures.

A.2.1.1 Quality Assurance Measures

Field sampling quality assurance measures included standardized procedures for purging, sample withdrawal, containers, sample preservation, labeling, transportation, and chain-of-custody documentation as discussed above in Sections A.1 and A.2.

A.2.1.2 Quality Control Samples

Blind duplicate groundwater samples, rinse blanks, and field blanks were collected at a minimum rate of 10 percent of the samples submitted for analysis. Travel blanks were included with sample shipments. Procedures for identifying and labeling blind duplicates, field blanks, and trip blanks are discussed in Section A.1.8.

Travel Control Blanks

To evaluate the potential for sample contamination during shipment, a travel control blank accompanied each ice chest shipped to the laboratory. Travel control blanks were provided by the laboratory prior to sampling. One travel control blank was placed in each ice chest prior to sample placement. The travel control blanks were labeled TC-1, TC-2, etc. Travel control blanks were analyzed for CVOCs and aromatics by EPA methods 601 and 602, respectively.

Field Blanks

To evaluate the potential for sample contamination caused by ambient field conditions (vapors present in air), field blanks were collected. Field blanks were collected using the de-ionized water source used for decontamination. Field blanks were prepared adjacent to monitoring wells being sampled. Collection of each field blank was noted on the field sampling record form. Field blanks were analyzed for CVOCs and aromatic compounds by EPA methods 601 and 602, respectively.

To evaluate the potential for sample contamination caused by decontamination procedures, rinse blanks were collected. Rinse blanks were collected by pouring de-ionized water through all the equipment used for purging and sampling, after it had been decontaminated. Collection of each rinse blank was recorded on the field sampling record form.

A.2.1.3 Field Equipment Maintenance and Calibration

All equipment used during the field investigation was checked at least on a daily basis to ensure it was functioning properly. Preventive maintenance was emphasized to reduce the need for corrective action. Manufacturers' manuals were used as guides for maintenance requirements; for equipment without such manuals, generally-accepted procedures were used.

The pH meter, and electrical conductivity (EC) meter were calibrated at the beginning of each sampling day and at any other time out-of-calibration operation was suspected.

Commercial standards in a three-point range were utilized for pH probe calibration, and the probes of the meters exposed to them sequentially. The standards ranged from 4 to 10 units (pH meter) and from 0 to 10,000 μmhos/cm (EC meter). Maintenance and calibration records were kept with each instrument.

A.2.2 ANALYTICAL LABORATORY QA/QC

All laboratory analysis was performed by D&M Laboratories. D&M Laboratories is certified by the DTSC as a Hazardous Materials Laboratory. D&M Laboratories provided summary QA/QC tables for each sample batch.

A.3 MONITORING WELL INSTALLATION PROCEDURES

Groundwater monitoring well MW-44 was installed between October 12 and 15, 1992. The boring log and geophysical log for MW-44 are provided in Appendix D. Site monitoring well construction details, including dedicated pump intake depths, are summarized in Table A-2.

A.3.1 DRILLING PROCEDURES

Groundwater monitoring well MW-44 was completed using direct mud rotary drilling methods. The drilling fluid consisted of a bentonite-water mixture. Steel conductor casing was sealed into a significant clay zone to minimize the potential for migration of water between the first and second hydrostratigraphic zones during drilling.

The borehole for the monitoring well was advanced in two stages. The first stage was completed in two steps. A 6-inch pilot hole was advanced to approximately 50 feet bgs. Continuous core was collected in short runs, for the last 10 feet. Core was evaluated to locate a competent clay unit immediately underlying the first hydrostratigraphic zone sand for seating the conductor casing.

The hole was then reamed about one foot into the top of the clay zone using a 15-3/4 inch roller bit. Conductor casing, 10-3/4 inches in diameter, was pressed approximately one foot into the clay zone to seal the primary sand zone from lower permeable zones. A cement plug was used at the base of the conductor casing to prevent drilling fluid from entering the inner casing. The annular space between the exterior of the conductor casing and the borehole walls was grouted using a cement/bentonite slurry. Drilling fluid used to drill the upper portion of the borehole was evacuated during grouting and disposed of properly. All downhole drilling equipment was steam cleaned prior to re-entering the borehole. Drilling and continuous sampling were subsequently resumed to a depth of 102 feet bgs. The hole was then back grouted to 81 feet bgs, and reamed using a 9-7/8 inch diameter roller bit. The monitoring well was subsequently installed.

A.3.2 GEOPHYSICAL LOGGING

Geophysical logging was performed in the borehole. The suite of geophysical parameters included spontaneous potential (SP), short and normal lateral resistivity, natural gamma, and caliper.

The borehole was geophysically logged in stages, as follows:

- The first stage was the 6-inch pilot hole advanced to approximately 50 feet bgs; and

- The second stage was the 6-inch pilot hole advanced from approximately 50 to 102 feet bgs.

A.3.3 MONITORING WELL CONSTRUCTION

The groundwater monitoring well was installed through the 10-3/4-inch steel conductor casing. The groundwater monitoring well was constructed of 4-inch diameter flush-threaded Schedule 40 PVC blank casing and stainless steel continuous-wrap well screen. Stainless steel continuous-wrap well screen (0.020-inch slot size) was used as it is envisaged that the well will be utilized for the long-term monitoring during remediation. The well was assembled without the use of chemical bonding agents.

The screened interval in the well was filter packed with a prewashed filter sand (No. 2/12) from total depth to approximately two feet above the top of the screened interval. Both the screen size and filter pack used were based upon the materials found at the interval to be screened.

The filter pack and seal were placed by using tremmie pipe. The filter pack was surged gently with a surge block to settle the filter pack material appropriately prior to placing the seal. Approximately two and a half feet of No. 60 silica sand was tremmied on top of the filter pack, followed by placement of approximately two feet of bentonite pellets. After addition of the bentonite pellets, the top of the seal was measured.

After allowing the bentonite seal to hydrate for a minimum of one hour, the remaining annular space was backfilled with a three-percent bentonite/cement grout mixture. Bentonite was weighed in the field and amounts of bentonite, cement and water were recorded on the field log.

The monitoring well was completed at ground surface with a water tight, flush mount, 12-inch diameter traffic rated surface vault. The top of the monitoring well PVC casing, ground surface elevations, and horizontal coordinates were subsequently surveyed by a licensed land surveyor.

A.3.4 MONITORING WELL DEVELOPMENT

After allowing the newly completed monitoring well to stabilize a minimum of 24 hours, the well was developed by surging with a surge block, followed by either bailing with a bailer or pumping with a submersible pump. Measurements of the pH, specific conductivity, and temperature was taken at regular intervals during development, and development proceeded until these parameters stabilize and the produced water is relatively free of sediment. Criteria used for stabilization was three consecutive readings within 0.2 pH units, 10-percent fluctuation in specific conductivity and 0.2 degrees temperature.

Water produced during development was temporarily stored in the 2,500 gallon tank located on-site and disposed of appropriately.

A.3.5 MONITORING WELL SAMPLING

Monitoring well sampling was conducted according to the procedures and protocol utilized for quarterly groundwater sampling at the site as stated in Section A.1. A minimum of one week stabilization period passed prior to sampling the new well. The well was fitted with a Grundfos RediFlo2 dedicated submersible pump for purging and sampling. The new well was sampled and analyzed for CVOCs, aromatic compounds, arsenic, chromium, lead, and nickel.

A.4 REFERENCES

California Department of Health Services, Toxic Substances Control Division, May 1986, the California Site Mitigation Decision Tree Manual.

U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Waste, EPA-600/4-79/020.

U.S. Environmental Protection Agency, November 1986. Test Methods for Evaluating Solid Waste: Physical and Chemical Test Methods: U.S. EPA SW-846, 3rd Edition.

TABLE A-1

DATA QUALITY OBJECTIVES, SAMPLE HANDLING, AND PRESERVATION METHODS
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

PARAMETER	METHOD	CONTAINER	VOLUME	PRESERVATIVE	HOLDING TIME	DETECTION LIMIT[1]	ACCURACY[1]	PRECISION (RPD)[1]
Specific Cond.	120.1	Field	N/A	N/A	N/A	10 μmhos/cm	N/A	N/A
pH	150.1	Field	N/A	N/A	N/A	0.05 units	N/A	N/A
Temperature	170.1	Field	N/A	N/A	N/A	N/A	N/A	N/A
Arsenic	7060	P,G	500 ml	HNO_3 pH < 2	6 months	5 μg/L	75-125%	0-25%
Chromium	7191					1 μg/L	75-125%	0-25%
Nickel	6010					40 μg/L	75-125%	0-25%
Lead	7421					5 μg/L	75-125%	0-25%
Volatile Organics	601	Glass vial with Teflon-lined cap	40 ml	Cool, 4°C	14 days	0.5 μg/L	75-130%	0-22%
Aromatic Hydrocarbons	602		40 ml	Cool, 4°C HCl pH < 2	14 days	0.5 μg/L	80-128%	0-19%

(1) Source: U.S. EPA 1983, 1986a
P Plastic
G Glass
RPD Relative Percent Difference

Appendix

B

APPENDIX B

1992 GROUNDWATER ANALYTICAL RESULTS - TABLES

TABLE B-1
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
METALS
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-01	MW-02	MW-02	MW-03	MW-04	MW-04	MW-05
DATE		01/29/92	02/07/92	08/25/92	01/29/92	01/28/92	08/26/92	01/27/92
QA	MCL ug/L							
ARSENIC	50	< 5	< 5	< 5	< 5	< 5	< 5	< 5
CHROMIUM	50	8	< 5	< 5	< 5	< 5	14	< 5
LEAD	50	< 1	< 1	1	< 1	< 1	< 1	< 1
NICKEL	100	<100	<100	<100	<100	<100	<100	<100

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. DATE refers to date sampled.
< = Constituent below detection limits. Detection limits may vary depending on interference oy other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring."
* = Proposed EPA MCL for nickel, effective January 1993.

TABLE B-1 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
METALS
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-06	MW-06	MW-07	MW-07	MW-07	MW-08	MW-08
DATE		01/28/92	08/28/92	02/07/92	08/31/92	10/23/92	01/28/92	08/28/92
QA	MCL ug/L							
ARSENIC	50	< 5	< 5	< 5	< 5	-	< 5	< 5
CHROMIUM	50	< 5	5	15	24	-	6	< 5
LEAD	50	< 1	< 1	< 1	< 1	-	< 1	< 1
NICKEL	100	180	110	180	<100	<100	<100	<100

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. DATE refers to date sampled.
< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring."
* = Proposed EPA MCL for nickel, effective January 1993.

TABLE B-1 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
METALS
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-11	MW-11	MW-12	MW-12	MW-12	MW-13	MW-13
DATE		01/27/92	08/26/92	01/28/92	08/26/92	10/26/92	02/07/92	08/26/92
QA	MCL ug/L							
ARSENIC	50	< 5	< 5	< 5	< 5	-	43	42
CHROMIUM	50	28	48	< 5	11	-	< 5	< 5
LEAD	50	< 1	< 1	< 1	< 1	-	< 1	2
NICKEL	100	<100	<100	120	<100	<100	<100	<100

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. DATE refers to date sampled.
< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring."
* = Proposed EPA MCL for nickel, effective January 1993.

TABLE B-1 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
METALS
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-13	MW-14	MW-14	MW-15	MW-15	MW-16	MW-16
DATE		08/26/92	02/07/92	08/27/92	01/30/92	08/27/92	01/30/92	08/27/92
QA	MCL ug/L	DUPLICATE SAMPLE						
ARSENIC	50	41	< 5	< 5	< 5	< 5	< 5	< 5
CHROMIUM	50	< 5	20	22	6	< 5	5	9
LEAD	50	1	< 1	< 1	< 1	< 1	< 1	< 1
NICKEL	100	<100	<100	<100	<100	<100	<100	<100

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. DATE refers to date sampled.
< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring."
* = Proposed EPA MCL for nickel, effective January 1993.

TABLE B-1 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
METALS
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-16	MW-17	MW-17	MW-18	MW-18	MW-19	MW-19
DATE		08/27/92	01/30/92	08/27/92	01/30/92	08/27/92	01/30/92	08/28/92
QA	MCL ug/L	DUPLICATE SAMPLE						
ARSENIC	50	< 5	< 5	< 5	< 5	< 5	< 5	< 5
CHROMIUM	50	6	6	7	< 5	7	5	< 5
LEAD	50	< 1	< 1	< 1	< 1	< 1	< 1	< 1
NICKEL	100	<100	110	200	<100	<100	170	370

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. DATE refers to date sampled.
< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring."
* = Proposed EPA MCL for nickel, effective January 1993.

TABLE B-1 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
METALS
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-20	MW-20	MW-21	MW-21	MW-22	MW-23	MW-23
DATE		01/30/92	08/28/92	01/30/92	08/28/92	01/30/92	01/24/92	08/28/92
QA	MCL ug/L							
ARSENIC	50	< 5	< 5	< 5	< 5	6	< 5	< 5
CHROMIUM	50	< 5	7	5	< 5	5	< 5	< 5
LEAD	50	< 1	< 1	< 1	< 1	1	< 1	< 1
NICKEL	100	<100	<100	370	350	<100	470	280

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. DATE refers to date sampled.
< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring."
* = Proposed EPA MCL for nickel, effective January 1993.

TABLE B-1 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
METALS
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-24	MW-25	MW-25	MW-26	MW-26	MW-26	MW-27
DATE		01/24/92	01/23/92	09/01/92	01/27/92	09/01/92	10/23/92	01/23/92
QA	MCL ug/L							
ARSENIC	50	< 5	< 5	< 5	< 5	< 5	-	< 5
CHROMIUM	50	< 5	5	< 5	< 5	10	-	< 5
LEAD	50	< 1	< 1	< 1	< 1	< 1	-	< 1
NICKEL	100	190	910	760	720	<100	160	<100

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. DATE refers to date sampled.
< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring."
* = Proposed EPA MCL for nickel, effective January 1993.

TABLE B-1 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
METALS
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-27	MW-28	MW-28	MW-29	MW-29	MW-30	MW-30
DATE		09/01/92	01/30/92	08/31/92	01/30/92	08/31/92	01/31/92	08/31/92
QA	MCL ug/L							
ARSENIC	50	< 5	< 5	< 5	< 5	< 5	< 5	< 5
CHROMIUM	50	6	< 5	9	< 5	< 5	9	8
LEAD	50	< 1	< 1	2	< 1	< 1	< 1	< 1
NICKEL	100	<100	<100	<100	<100	<100	<100	<100

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. DATE refers to date sampled.
< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring."
* = Proposed EPA MCL for nickel, effective January 1993.

TABLE B-1 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
METALS
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-31	MW-31	MW-32	MW-32	MW-33	MW-33	MW-34
DATE		01/31/92	08/31/92	01/29/92	09/04/92	01/24/92	08/26/92	01/23/92
QA	MCL ug/L							
ARSENIC	50	< 5	< 5	< 5	< 5	< 5	< 5	< 5
CHROMIUM	50	13	< 5	< 5	< 5	< 5	< 5	< 5
LEAD	50	1	< 1	< 1	< 1	< 1	< 1	< 1
NICKEL	100	<100	<100	<100	<100	<100	<100	160

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. DATE refers to date sampled.
< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring."
* = Proposed EPA MCL for nickel, effective January 1993.

TABLE B-1 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
METALS
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-34	MW-34	MW-35	MW-35	MW-35	MW-36	MW-36
DATE		09/01/92	10/26/92	01/23/92	09/01/92	09/01/92	01/23/92	09/04/92
QA	MCL ug/L					DUPLICATE SAMPLE		
ARSENIC	50	< 5	-	< 5	< 5	< 5	< 5	< 5
CHROMIUM	50	5	-	< 5	< 5	< 5	< 5	10
LEAD	50	16	-	< 1	< 1	< 1	< 1	< 1
NICKEL	100	<100	130	<100	<100	<100	110	120

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. DATE refers to date sampled.
< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring."
* = Proposed EPA MCL for nickel, effective January 1993.

TABLE B-1 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
METALS
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-36	MW-37	MW-37	MW-38	MW-38	MW-39	MW-39
DATE		10/21/92	01/23/92	09/04/92	01/24/92	09/04/92	01/23/92	01/23/92
QA	MCL ug/L							DUPLICATE SAMPLE
ARSENIC	50	-	< 5	< 5	< 5	< 5	< 5	< 5
CHROMIUM	50	-	< 5	< 5	< 5	7	< 5	< 5
LEAD	50	-	< 1	< 1	< 1	< 1	< 1	< 1
NICKEL	100	<100	<100	<100	<100	100	180	180

All units reported as ug/L (ppb)

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* = Proposed EPA MCL for nickel, effective January 1993.

TABLE B-1 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
METALS
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-39	MW-39	MW-39	MW-39	MW-40	MW-40	MW-40
DATE		09/04/92	09/04/92	10/21/92	10/21/92	01/29/92	01/29/92	08/31/92
QA	MCL ug/L		DUPLICATE SAMPLE		DUPLICATE SAMPLE		DUPLICATE SAMPLE	
ARSENIC	50	< 5	< 5	-	-	< 5	< 5	< 5
CHROMIUM	50	10	8	-	-	< 5	< 5	5
LEAD	50	< 1	< 1	-	-	< 1	< 1	< 1
NICKEL	100	170	180	<100	100	100	<100	<100

All units reported as ug/L (ppb)

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MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring."
* = Proposed EPA MCL for nickel, effective January 1993.

TABLE B-1 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
METALS
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-41	MW-41	MW-41	MW-42	MW-42	MW-42	MW-43
DATE		01/31/92	01/31/92	08/25/92	02/07/92	02/07/92	08/25/92	02/07/92
QA	MCL		DUPLICATE			DUPLICATE		
	ug/L		SAMPLE			SAMPLE		
ARSENIC	50	7	9	< 5	< 5	< 5	< 5	< 5
CHROMIUM	50	7	7	11	< 5	11	5	< 5
LEAD	50	< 1	< 1	< 1	3	< 1	12	< 1
NICKEL	100	<100	<100	<100	160	160	<100	180

All units reported as ug/L (ppb)

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< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring."
* = Proposed EPA MCL for nickel, effective January 1993.

TABLE B-1 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
METALS
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-43	MW-43	MW-44	RB-01	RB-01	RB-02	RB-02
DATE		08/25/92	10/22/92	10/27/92	01/23/92	08/26/92	01/27/92	08/28/92
QA	MCL ug/L				RINSATE BLANK	RINSATE BLANK	RINSATE BLANK	RINSATE BLANK
ARSENIC	50	< 5	-	5	< 5	< 5	< 5	< 5
CHROMIUM	50	< 5	-	9	< 5	< 5	< 5	< 5
LEAD	50	< 1	-	< 1	2	< 1	< 1	< 1
NICKEL	100	120	170	<100	<100	<100	<100	<100

All units reported as ug/L (ppb)

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MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring."
* = Proposed EPA MCL for nickel, effective January 1993.

TABLE B-1 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
METALS
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		RB-03	RB-03	RB-04	RB-05
DATE		01/29/92	09/01/92	01/31/92	02/07/92
QA	MCL	RINSATE	RINSATE	RINSATE	RINSATE
	ug/L	BLANK	BLANK	BLANK	BLANK
ARSENIC	50	< 5	< 5	< 5	< 5
CHROMIUM	50	< 5	< 5	< 5	< 5
LEAD	50	1	< 1	< 1	< 1
NICKEL	100	<100	<100	<100	<100

All units reported as ug/L (ppb)

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* = Proposed EPA MCL for nickel, effective January 1993.

TABLE B-2
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		FB-01	FB-01	FB-01	FB-02	FB-02	FB-02	FB-03	FB-03
SAMPLE_ID		FB-01	FB-01	FB-01	FB-02	FB-02	FB-02	FB-03	FB-03
DATE		01/23/92	06/02/92	08/26/92	01/27/92	06/03/92	08/28/92	01/29/92	06/04/92
QA	MCL	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD
	ug/L	BLANK	BLANK	BLANK	BLANK	BLANK	BLANK	BLANK	BLANK
1,1,1-TRICHLOROETHANE	200.0	< 0.40	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,1,2,2-TETRACHLOROETHANE	1.0	< 0.40	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,1,2-TRICHLOROETHANE	32.0	< 0.40	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,1-DICHLOROETHANE	5.0	< 0.40	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,1-DICHLOROETHENE	6.0	< 0.40	< 0.50	< 2.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,2-DICHLOROBENZENE	600.0 *	< 0.40	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,2-DICHLOROETHANE	0.5	< 0.40	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,2-DICHLOROETHENE	-	-	-	< 0.50	-	-	< 0.50	-	-
1,2-DICHLOROPROPANE	5.0	< 0.40	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,3-DICHLOROBENZENE	-	< 0.40	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,4-DICHLOROBENZENE	5.0	< 0.40	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
BROMODICHLOROMETHANE	100.0	< 0.40	< 0.50	< 0.50	< 0.50	0.60	< 0.50	< 0.50	< 0.50
BROMOFORM	100.0	< 0.40	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
BROMOMETHANE	-	< 0.40	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
CARBON TETRACHLORIDE	0.5	< 0.40	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
CHLOROBENZENE	30.0	< 0.40	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
CHLOROETHANE	-	< 0.40	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. - = Parameter not analyzed. DATE refers to date sampled.
< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring." * = Proposed USEPA MCL.
SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-2 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		FB-01	FB-01	FB-01	FB-02	FB-02	FB-02	FB-03	FB-03
SAMPLE_ID		FB-01	FB-01	FB-01	FB-02	FB-02	FB-02	FB-03	FB-03
DATE		01/23/92	06/02/92	08/26/92	01/27/92	06/03/92	08/28/92	01/29/92	06/04/92
QA	MCL	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD
	ug/L	BLANK	BLANK	BLANK	BLANK	BLANK	BLANK	BLANK	BLANK
CHLOROFORM	100.0	5.90	5.80	2.60	6.10	7.70	2.90	3.30	1.00
CHLOROMETHANE	-	< 0.40	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
CIS-1,2-DICHLOROETHENE	6.0	-	< 0.50	-	< 0.50	< 0.50	-	< 0.50	< 0.50
CIS-1,3-DICHLOROPROPENE	-	< 0.40	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
DIBROMOCHLOROMETHANE	100.0	< 0.40	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
METHYLENE CHLORIDE	5.0 *	< 10.00	< 5.00	< 1.00	3.00	< 5.00	< 1.00	< 0.50	< 5.00
TETRACHLOROETHENE	5.0	< 0.40	< 2.00	< 0.50	< 0.50	< 2.00	< 0.50	< 0.50	< 2.00
TRANS-1,2-DICHLOROETHENE	10.0	< 0.40	< 0.50	-	< 0.50	< 0.50	-	< 0.50	< 0.50
TRANS-1,3-DICHLOROPROPENE	-	< 0.40	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
TRICHLOROETHENE	5.0	< 0.40	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
TRICHLOROFLUOROMETHANE	150.0	< 0.40	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
VINYL CHLORIDE	0.5	< 0.40	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00

All units reported as ug/L (ppb)

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< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring." * = Proposed USEPA MCL.
SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-2 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		FB-03	FB-04	FB-05	MW-01	MW-02	MW-02	MW-02	MW-02
SAMPLE_ID		FB-03	FB-04	FB-05	MW-01	MW-02	MW-02	MW-02	MW-02
DATE		09/01/92	01/31/92	02/07/92	01/29/92	02/07/92	05/26/92	08/25/92	10/20/92
QA	MCL	FIELD	FIELD	FIELD					
	ug/L	BLANK	BLANK	BLANK					
1,1,1-TRICHLOROETHANE	200.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,1,2,2-TETRACHLOROETHANE	1.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,1,2-TRICHLOROETHANE	32.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,1-DICHLOROETHANE	5.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,1-DICHLOROETHENE	6.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,2-DICHLOROBENZENE	600.0 *	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,2-DICHLOROETHANE	0.5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,2-DICHLOROETHENE	-	< 0.50	-	-	-	-	-	< 0.50	< 0.50
1,2-DICHLOROPROPANE	5.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,3-DICHLOROBENZENE	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,4-DICHLOROBENZENE	5.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
BROMODICHLOROMETHANE	100.0	< 0.50	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
BROMOFORM	100.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
BROMOMETHANE	-	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
CARBON TETRACHLORIDE	0.5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
CHLOROBENZENE	30.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
CHLOROETHANE	-	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00

All units reported as ug/L (ppb)

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< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring." * = Proposed USEPA MCL.
SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-2 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		FB-03	FB-04	FB-05	MW-01	MW-02	MW-02	MW-02	MW-02
SAMPLE_ID		FB-03	FB-04	FB-05	MW-01	MW-02	MW-02	MW-02	MW-02
DATE		09/01/92	01/31/92	02/07/92	01/29/92	02/07/92	05/26/92	08/25/92	10/20/92
QA	MCL ug/L	FIELD BLANK	FIELD BLANK	FIELD BLANK					
CHLOROFORM	100.0	3.40	7.10	5.00	1.70	< 0.50	< 0.50	< 0.50	< 0.50
CHLOROMETHANE	-	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
CIS-1,2-DICHLOROETHENE	6.0	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	-	-
CIS-1,3-DICHLOROPROPENE	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
DIBROMOCHLOROMETHANE	100.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
METHYLENE CHLORIDE	5.0 *	< 1.00	< 0.50	0.80	< 0.50	< 0.50	< 5.00	< 1.00	< 1.00
TETRACHLOROETHENE	5.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 2.00	< 0.50	< 0.50
TRANS-1,2-DICHLOROETHENE	10.0	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	-	-
TRANS-1,3-DICHLOROPROPENE	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
TRICHLOROETHENE	5.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
TRICHLOROFLUOROMETHANE	150.0	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
VINYL CHLORIDE	0.5	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. - = Parameter not analyzed. DATE refers to date sampled.
< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring." * = Proposed USEPA MCL.
SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-2 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-03	MW-04	MW-04	MW-04	MW-04	MW-05	MW-06	MW-06
SAMPLE_ID		MW-03	MW-04	MW-04	MW-04	MW-04	MW-05	MW-06	MW-06
DATE		01/29/92	01/28/92	05/29/92	08/26/92	10/20/92	01/27/92	01/28/92	08/28/92
QA	MCL ug/L								
1,1,1-TRICHLOROETHANE	200.0	< 0.50	0.60	2.40	1.30	< 12.00	< 0.50	< 0.50	< 0.50
1,1,2,2-TETRACHLOROETHANE	1.0	< 0.50	< 0.50	< 0.50	< 0.50	< 12.00	< 0.50	< 0.50	< 0.50
1,1,2-TRICHLOROETHANE	32.0	< 0.50	< 0.50	< 0.50	< 0.50	< 12.00	< 0.50	< 0.50	< 0.50
1,1-DICHLOROETHANE	5.0	< 0.50	12.00	15.00	14.00	< 12.00	< 0.50	< 0.50	< 0.50
1,1-DICHLOROETHENE	6.0	< 0.50	16.00	110.00	120.00	32.00	< 0.50	< 0.50	< 0.50
1,2-DICHLOROBENZENE	600.0 *	< 0.50	< 0.50	< 0.50	< 0.50	< 12.00	< 0.50	< 0.50	< 0.50
1,2-DICHLOROETHANE	0.5	< 0.50	170.00	20.00	13.00	< 12.00	< 0.50	< 0.50	< 0.50
1,2-DICHLOROETHENE	-	-	-	-	< 0.50	< 12.00	-	-	< 0.50
1,2-DICHLOROPROPANE	5.0	< 0.50	< 0.50	< 0.50	< 0.50	< 12.00	< 0.50	< 0.50	< 0.50
1,3-DICHLOROBENZENE	-	< 0.50	< 0.50	< 0.50	< 0.50	< 12.00	< 0.50	< 0.50	< 0.50
1,4-DICHLOROBENZENE	5.0	< 0.50	< 0.50	< 0.50	< 0.50	< 12.00	< 0.50	< 0.50	< 0.50
BROMODICHLOROMETHANE	100.0	< 0.50	< 0.50	< 0.50	< 0.50	< 12.00	< 0.50	< 0.50	< 0.50
BROMOFORM	100.0	< 0.50	< 0.50	< 0.50	< 0.50	< 12.00	< 0.50	< 0.50	< 0.50
BROMOMETHANE	-	< 1.00	< 1.00	< 1.00	< 1.00	< 25.00	< 1.00	< 1.00	< 1.00
CARBON TETRACHLORIDE	0.5	< 0.50	< 0.50	< 0.50	< 0.50	< 12.00	< 0.50	< 0.50	< 0.50
CHLOROBENZENE	30.0	< 0.50	< 0.50	< 0.50	< 0.50	< 12.00	< 0.50	< 0.50	< 0.50
CHLOROETHANE	-	< 1.00	< 1.00	< 1.00	< 1.00	< 25.00	< 1.00	< 1.00	< 1.00

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. - = Parameter not analyzed. DATE refers to date sampled.
< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring." * = Proposed USEPA MCL.
SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-2 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-03	MW-04	MW-04	MW-04	MW-04	MW-05	MW-06	MW-06
SAMPLE_ID		MW-03	MW-04	MW-04	MW-04	MW-04	MW-05	MW-06	MW-06
DATE		01/29/92	01/28/92	05/29/92	08/26/92	10/20/92	01/27/92	01/28/92	08/28/92
QA	MCL ug/L								
CHLOROFORM	100.0	< 0.50	< 0.50	< 0.50	< 0.50	< 12.00	1.20	2.10	0.85
CHLOROMETHANE	-	< 1.00	< 1.00	< 1.00	< 1.00	< 25.00	< 1.00	< 1.00	< 1.00
CIS-1,2-DICHLOROETHENE	6.0	< 0.50	0.80	1.40	-	-	< 0.50	< 0.50	-
CIS-1,3-DICHLOROPROPENE	-	< 0.50	< 0.50	< 0.50	< 0.50	< 12.00	< 0.50	< 0.50	< 0.50
DIBROMOCHLOROMETHANE	100.0	< 0.50	< 0.50	< 0.50	< 0.50	< 12.00	< 0.50	< 0.50	< 0.50
METHYLENE CHLORIDE	5.0 *	< 0.50	< 0.50	< 5.00	< 1.00	< 25.00	< 0.50	< 0.50	< 1.00
TETRACHLOROETHENE	5.0	< 0.50	< 0.50	< 2.00	1.30	< 12.00	< 0.50	< 0.50	< 0.50
TRANS-1,2-DICHLOROETHENE	10.0	< 0.50	< 0.50	< 0.50	-	-	< 0.50	< 0.50	-
TRANS-1,3-DICHLOROPROPENE	-	< 0.50	< 0.50	< 0.50	< 0.50	< 12.00	< 0.50	< 0.50	< 0.50
TRICHLOROETHENE	5.0	< 0.50	1.40	7.80	8.60	< 12.00	< 0.50	< 0.50	< 0.50
TRICHLOROFLUOROMETHANE	150.0	< 1.00	< 1.00	< 1.00	< 1.00	< 25.00	< 1.00	< 1.00	< 1.00
VINYL CHLORIDE	0.5	< 1.00	< 1.00	< 1.00	< 1.00	< 25.00	< 1.00	< 1.00	< 1.00

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. - = Parameter not analyzed. DATE refers to date sampled.
< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring." * = Proposed USEPA MCL.
SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-2 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-07	MW-07	MW-07	MW-07	MW-07	MW-07	MW-07	MW-07
SAMPLE_ID		MW-07	MW-07	MW-07	MW-07-B-1	MW-07-B-2	MW-07-B-3	MW-07-B-4	MW-07-B-5
DATE		02/07/92	08/31/92	10/23/92	06/02/92	06/02/92	06/02/92	06/02/92	06/02/92
QA	MCL					DUPLICATE SAMPLE	DUPLICATE SAMPLE	DUPLICATE SAMPLE	DUPLICATE SAMPLE
	ug/L								
1,1,1-TRICHLOROETHANE	200.0	7.20	5.20	3.70	7.10	6.00	6.30	6.10	5.80
1,1,2,2-TETRACHLOROETHANE	1.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,1,2-TRICHLOROETHANE	32.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,1-DICHLOROETHANE	5.0	12.00	8.50	5.90	11.00	9.40	10.00	9.50	9.40
1,1-DICHLOROETHENE	6.0	32.00	39.00	21.00	35.00	26.00	28.00	26.00	24.00
1,2-DICHLOROBENZENE	600.0 *	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,2-DICHLOROETHANE	0.5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,2-DICHLOROETHENE	-	-	< 0.50	< 0.50	-	-	-	-	-
1,2-DICHLOROPROPANE	5.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,3-DICHLOROBENZENE	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,4-DICHLOROBENZENE	5.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
BROMODICHLOROMETHANE	100.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
BROMOFORM	100.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
BROMOMETHANE	-	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
CARBON TETRACHLORIDE	0.5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
CHLOROBENZENE	30.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
CHLOROETHANE	-	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00

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SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-2 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-07	MW-07	MW-07	MW-07	MW-07	MW-07	MW-07	MW-07
SAMPLE_ID		MW-07	MW-07	MW-07	MW-07-B-1	MW-07-B-2	MW-07-B-3	MW-07-B-4	MW-07-B-5
DATE		02/07/92	08/31/92	10/23/92	06/02/92	06/02/92	06/02/92	06/02/92	06/02/92
QA	MCL ug/L					DUPLICATE SAMPLE	DUPLICATE SAMPLE	DUPLICATE SAMPLE	DUPLICATE SAMPLE
CHLOROFORM	100.0	4.90	4.50	4.70	5.10	4.70	4.90	4.50	4.60
CHLOROMETHANE	-	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
CIS-1,2-DICHLOROETHENE	6.0	< 0.50	-	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
CIS-1,3-DICHLOROPROPENE	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
DIBROMOCHLOROMETHANE	100.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
METHYLENE CHLORIDE	5.0 *	< 0.50	< 1.00	< 1.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00
TETRACHLOROETHENE	5.0	< 0.50	< 0.50	< 0.50	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00
TRANS-1,2-DICHLOROETHENE	10.0	< 0.50	-	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
TRANS-1,3-DICHLOROPROPENE	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
TRICHLOROETHENE	5.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
TRICHLOROFLUOROMETHANE	150.0	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
VINYL CHLORIDE	0.5	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. - = Parameter not analyzed. DATE refers to date sampled.
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SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-2 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-07	MW-07	MW-07	MW-07	MW-07	MW-08	MW-08	MW-11
SAMPLE_ID		MW-07-P-1	MW-07-P-2	MW-07-P-3	MW-07-P-4	MW-07-P-5	MW-08	MW-08	MW-11
DATE		06/02/92	06/02/92	06/02/92	06/02/92	06/02/92	01/28/92	08/28/92	01/27/92
QA	MCL ug/L		DUPLICATE SAMPLE	DUPLICATE SAMPLE	DUPLICATE SAMPLE	DUPLICATE SAMPLE			
1,1,1-TRICHLOROETHANE	200.0	4.20	4.50	4.40	3.70	4.50	< 0.50	< 0.50	1.50
1,1,2,2-TETRACHLOROETHANE	1.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,1,2-TRICHLOROETHANE	32.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,1-DICHLOROETHANE	5.0	6.80	7.10	6.80	5.70	7.30	< 0.50	< 0.50	11.00
1,1-DICHLOROETHENE	6.0	21.00	20.00	19.00	16.00	19.00	1.80	0.71	110.00
1,2-DICHLOROBENZENE	600.0 *	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,2-DICHLOROETHANE	0.5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,2-DICHLOROETHENE	-	-	-	-	-	-	-	< 0.50	-
1,2-DICHLOROPROPANE	5.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,3-DICHLOROBENZENE	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,4-DICHLOROBENZENE	5.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
BROMODICHLOROMETHANE	100.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
BROMOFORM	100.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
BROMOMETHANE	-	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
CARBON TETRACHLORIDE	0.5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
CHLOROBENZENE	30.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
CHLOROETHANE	-	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. - = Parameter not analyzed. DATE refers to date sampled.
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SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-2 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-07	MW-07	MW-07	MW-07	MW-07	MW-08	MW-08	MW-11
SAMPLE_ID		MW-07-P-1	MW-07-P-2	MW-07-P-3	MW-07-P-4	MW-07-P-5	MW-08	MW-08	MW-11
DATE		06/02/92	06/02/92	06/02/92	06/02/92	06/02/92	01/28/92	08/28/92	01/27/92
QA	MCL ug/L		DUPLICATE SAMPLE	DUPLICATE SAMPLE	DUPLICATE SAMPLE	DUPLICATE SAMPLE			
CHLOROFORM	100.0	4.10	4.60	4.50	4.40	4.80	< 0.50	< 0.50	< 0.50
CHLOROMETHANE	-	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
CIS-1,2-DICHLOROETHENE	6.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	-	0.90
CIS-1,3-DICHLOROPROPENE	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
DIBROMOCHLOROMETHANE	100.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
METHYLENE CHLORIDE	5.0 *	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 0.50	< 1.00	1.30
TETRACHLOROETHENE	5.0	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	8.80	< 0.50	0.70
TRANS-1,2-DICHLOROETHENE	10.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	-	< 0.50
TRANS-1,3-DICHLOROPROPENE	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
TRICHLOROETHENE	5.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	7.10	3.00
TRICHLOROFLUOROMETHANE	150.0	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
VINYL CHLORIDE	0.5	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. - = Parameter not analyzed. DATE refers to date sampled.
< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring." * = Proposed USEPA MCL.
SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-2 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-11	MW-11	MW-11	MW-11	MW-11	MW-11	MW-11	MW-11
SAMPLE_ID		MW-11	MW-11	MW-11-B-1	MW-11-B-2	MW-11-B-3	MW-11-B-4	MW-11-B-5	MW-11-P-1
DATE		08/26/92	10/20/92	06/02/92	06/02/92	06/02/92	06/02/92	06/02/92	06/02/92
QA	MCL				DUPLICATE SAMPLE	DUPLICATE SAMPLE	DUPLICATE SAMPLE	DUPLICATE SAMPLE	
	ug/L								
1,1,1-TRICHLOROETHANE	200.0	0.72	0.51	1.30	1.10	1.30	1.40	1.40	1.50
1,1,2,2-TETRACHLOROETHANE	1.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,1,2-TRICHLOROETHANE	32.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	0.50
1,1-DICHLOROETHANE	5.0	8.00	4.70	5.60	5.70	6.20	6.40	7.20	7.60
1,1-DICHLOROETHENE	6.0	57.00	37.00	38.00	42.00	45.00	47.00	55.00	54.00
1,2-DICHLOROBENZENE	600.0 *	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,2-DICHLOROETHANE	0.5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,2-DICHLOROETHENE	-	< 0.50	< 0.50	-	-	-	-	-	-
1,2-DICHLOROPROPANE	5.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,3-DICHLOROBENZENE	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,4-DICHLOROBENZENE	5.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
BROMODICHLOROMETHANE	100.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
BROMOFORM	100.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
BROMOMETHANE	-	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
CARBON TETRACHLORIDE	0.5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
CHLOROBENZENE	30.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
CHLOROETHANE	-	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. - = Parameter not analyzed. DATE refers to date sampled.
< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring." * = Proposed USEPA MCL.
SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-2 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-11	MW-11	MW-11	MW-11	MW-11	MW-11	MW-11	MW-11
SAMPLE_ID		MW-11	MW-11	MW-11-B-1	MW-11-B-2	MW-11-B-3	MW-11-B-4	MW-11-B-5	MW-11-P-1
DATE		08/26/92	10/20/92	06/02/92	06/02/92	06/02/92	06/02/92	06/02/92	06/02/92
QA	MCL ug/L				DUPLICATE SAMPLE	DUPLICATE SAMPLE	DUPLICATE SAMPLE	DUPLICATE SAMPLE	
CHLOROFORM	100.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
CHLOROMETHANE	-	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
CIS-1,2-DICHLOROETHENE	6.0	-	-	0.70	1.00	1.00	1.10	1.30	1.40
CIS-1,3-DICHLOROPROPENE	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
DIBROMOCHLOROMETHANE	100.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
METHYLENE CHLORIDE	5.0 *	< 1.00	< 1.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00
TETRACHLOROETHENE	5.0	1.30	0.68	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00
TRANS-1,2-DICHLOROETHENE	10.0	-	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
TRANS-1,3-DICHLOROPROPENE	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
TRICHLOROETHENE	5.0	4.30	2.60	3.10	3.10	3.50	4.00	4.20	3.80
TRICHLOROFLUOROMETHANE	150.0	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
VINYL CHLORIDE	0.5	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. - = Parameter not analyzed. DATE refers to date sampled.
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SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-2 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-11	MW-11	MW-11	MW-11	MW-12	MW-12	MW-12	MW-12
SAMPLE_ID		MW-11-P-2	MW-11-P-3	MW-11-P-4	MW-11-P-5	MW-12	MW-12	MW-12	MW-12
DATE		06/02/92	06/02/92	06/02/92	06/02/92	01/28/92	06/01/92	08/26/92	10/26/92
QA	MCL	DUPLICATE	DUPLICATE	DUPLICATE	DUPLICATE				
	ug/L	SAMPLE	SAMPLE	SAMPLE	SAMPLE				
1,1,1-TRICHLOROETHANE	200.0	1.40	1.20	1.40	1.30	0.80	0.80	0.64	< 2.50
1,1,2,2-TETRACHLOROETHANE	1.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 2.50
1,1,2-TRICHLOROETHANE	32.0	0.60	< 0.50	0.80	< 0.50	< 0.50	< 0.50	< 0.50	< 2.50
1,1-DICHLOROETHANE	5.0	7.30	6.70	7.20	7.00	23.00	19.00	31.00	26.00
1,1-DICHLOROETHENE	6.0	53.00	49.00	52.00	50.00	120.00	61.00	94.00	97.00
1,2-DICHLOROBENZENE	600.0 *	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 2.50
1,2-DICHLOROETHANE	0.5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 2.50
1,2-DICHLOROETHENE	-	-	-	-	-	-	-	< 0.50	< 2.50
1,2-DICHLOROPROPANE	5.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 2.50
1,3-DICHLOROBENZENE	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 2.50
1,4-DICHLOROBENZENE	5.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 2.50
BROMODICHLOROMETHANE	100.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 2.50
BROMOFORM	100.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 2.50
BROMOMETHANE	-	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 5.00
CARBON TETRACHLORIDE	0.5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 2.50
CHLOROBENZENE	30.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 2.50
CHLOROETHANE	-	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 5.00

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SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-2 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-11	MW-11	MW-11	MW-11	MW-12	MW-12	MW-12	MW-12
SAMPLE_ID		MW-11-P-2	MW-11-P-3	MW-11-P-4	MW-11-P-5	MW-12	MW-12	MW-12	MW-12
DATE		06/02/92	06/02/92	06/02/92	06/02/92	01/28/92	06/01/92	08/26/92	10/26/92
QA	MCL ug/L	DUPLICATE SAMPLE	DUPLICATE SAMPLE	DUPLICATE SAMPLE	DUPLICATE SAMPLE				
CHLOROFORM	100.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 2.50
CHLOROMETHANE	-	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 5.00
CIS-1,2-DICHLOROETHENE	6.0	1.40	1.30	1.40	1.30	0.60	0.60	-	-
CIS-1,3-DICHLOROPROPENE	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 2.50
DIBROMOCHLOROMETHANE	100.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 2.50
METHYLENE CHLORIDE	5.0 *	< 5.00	< 5.00	< 5.00	< 5.00	< 0.50	< 5.00	< 1.00	< 5.00
TETRACHLOROETHENE	5.0	< 2.00	< 2.00	< 2.00	< 2.00	0.60	< 2.00	0.93	< 2.50
TRANS-1,2-DICHLOROETHENE	10.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	-	-
TRANS-1,3-DICHLOROPROPENE	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 2.50
TRICHLOROETHENE	5.0	4.00	3.60	3.90	3.80	19.00	11.00	16.00	14.00
TRICHLOROFLUOROMETHANE	150.0	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 5.00
VINYL CHLORIDE	0.5	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 5.00

All units reported as ug/L (ppb)

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SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-2 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-13	MW-13	MW-13	MW-13	MW-13	MW-13	MW-13	MW-13
SAMPLE_ID		MW-13	MW-13	MW-13	MW-13	MW-13	MW-13-B-1	MW-13-B-2	MW-13-B-3
DATE		02/07/92	08/26/92	08/26/92	10/27/92	10/27/92	06/04/92	06/04/92	06/04/92
QA	MCL			DUPLICATE		DUPLICATE		DUPLICATE	DUPLICATE
	ug/L			SAMPLE		SAMPLE		SAMPLE	SAMPLE
1,1,1-TRICHLOROETHANE	200.0	< 5.00	< 12.50	< 0.50	<250.00	< 0.50	< 2.50	< 2.50	< 2.50
1,1,2,2-TETRACHLOROETHANE	1.0	< 5.00	< 0.50	< 0.50	<250.00	< 0.50	< 2.50	< 2.50	< 2.50
1,1,2-TRICHLOROETHANE	32.0	< 5.00	< 0.50	< 0.50	<250.00	< 0.50	< 2.50	< 2.50	< 2.50
1,1-DICHLOROETHANE	5.0	34.00	39.00	44.00	<250.00	34.00	34.00	37.00	34.00
1,1-DICHLOROETHENE	6.0	31.00	13.00	13.00	<250.00	13.00	21.00	17.00	15.00
1,2-DICHLOROBENZENE	600.0 *	< 5.00	< 0.50	< 0.50	<250.00	< 0.50	< 2.50	< 2.50	< 2.50
1,2-DICHLOROETHANE	0.5	< 5.00	180.00	180.00	<250.00	170.00	160.00	180.00	160.00
1,2-DICHLOROETHENE	-	-	< 0.50	< 0.50	<250.00	< 0.50	-	-	-
1,2-DICHLOROPROPANE	5.0	< 5.00	0.76	1.00	<250.00	1.10	< 2.50	< 2.50	< 2.50
1,3-DICHLOROBENZENE	-	< 5.00	< 0.50	< 0.50	<250.00	< 0.50	< 2.50	< 2.50	< 2.50
1,4-DICHLOROBENZENE	5.0	< 5.00	< 0.50	< 0.50	<250.00	< 0.50	< 2.50	< 2.50	< 2.50
BROMODICHLOROMETHANE	100.0	< 5.00	< 0.50	< 0.50	<250.00	< 0.50	< 2.50	< 2.50	< 2.50
BROMOFORM	100.0	< 5.00	< 0.50	< 0.50	<250.00	< 0.50	< 2.50	< 2.50	< 2.50
BROMOMETHANE	-	< 10.00	< 1.00	< 1.00	<500.00	< 1.00	< 5.00	< 5.00	< 5.00
CARBON TETRACHLORIDE	0.5	< 5.00	< 0.50	< 0.50	<250.00	< 0.50	< 2.50	< 2.50	< 2.50
CHLOROBENZENE	30.0	< 5.00	< 0.50	< 0.50	<250.00	< 0.50	< 2.50	< 2.50	< 2.50
CHLOROETHANE	-	< 10.00	< 1.00	< 1.00	<500.00	< 1.00	< 5.00	< 5.00	< 5.00

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TABLE B-2 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-13	MW-13	MW-13	MW-13	MW-13	MW-13	MW-13	MW-13
SAMPLE_ID		MW-13	MW-13	MW-13	MW-13	MW-13	MW-13-B-1	MW-13-B-2	MW-13-B-3
DATE		02/07/92	08/26/92	08/26/92	10/27/92	10/27/92	06/04/92	06/04/92	06/04/92
QA	MCL ug/L			DUPLICATE SAMPLE		DUPLICATE SAMPLE		DUPLICATE SAMPLE	DUPLICATE SAMPLE
CHLOROFORM	100.0	< 5.00	< 0.50	< 0.50	<250.00	< 0.50	< 2.50	< 2.50	< 2.50
CHLOROMETHANE	-	< 10.00	< 1.00	< 1.00	<500.00	< 1.00	< 5.00	< 5.00	< 5.00
CIS-1,2-DICHLOROETHENE	6.0	6.70	-	-	-	-	6.00	6.60	6.20
CIS-1,3-DICHLOROPROPENE	-	< 5.00	< 0.50	< 0.50	<250.00	< 0.50	< 2.50	< 2.50	< 2.50
DIBROMOCHLOROMETHANE	100.0	< 5.00	< 0.50	< 0.50	<250.00	< 0.50	< 2.50	< 2.50	< 2.50
METHYLENE CHLORIDE	5.0 *	< 5.00	< 1.00	1.30	<500.00	6.70	< 5.00	< 5.00	< 5.00
TETRACHLOROETHENE	5.0	5.60	< 0.50	< 0.50	<250.00	< 0.50	< 2.00	< 2.00	< 2.00
TRANS-1,2-DICHLOROETHENE	10.0	< 5.00	-	-	-	-	< 2.50	< 2.50	< 2.50
TRANS-1,3-DICHLOROPROPENE	-	< 5.00	< 0.50	< 0.50	<250.00	< 0.50	< 2.50	< 2.50	< 2.50
TRICHLOROETHENE	5.0	< 5.00	0.80	0.95	<250.00	0.91	< 2.50	< 2.50	< 2.50
TRICHLOROFLUOROMETHANE	150.0	< 10.00	< 1.00	< 1.00	<500.00	< 1.00	< 5.00	< 5.00	< 5.00
VINYL CHLORIDE	0.5	< 10.00	< 1.00	< 1.00	<500.00	< 1.00	< 5.00	< 5.00	< 5.00

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SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-2 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-13	MW-13	MW-13	MW-13	MW-13	MW-13	MW-13	MW-14
SAMPLE_ID		MW-13-B-4	MW-13-B-5	MW-13-P-1	MW-13-P-2	MW-13-P-3	MW-13-P-4	MW-13-P-5	MW-14
DATE		06/04/92	06/04/92	06/04/92	06/04/92	06/04/92	06/04/92	06/04/92	02/07/92
QA	MCL	DUPLICATE	DUPLICATE		DUPLICATE	DUPLICATE	DUPLICATE	DUPLICATE	
	ug/L	SAMPLE	SAMPLE		SAMPLE	SAMPLE	SAMPLE	SAMPLE	
1,1,1-TRICHLOROETHANE	200.0	< 2.50	< 2.50	< 2.50	< 2.50	< 2.50	< 2.50	< 2.50	3.10
1,1,2,2-TETRACHLOROETHANE	1.0	< 2.50	< 2.50	< 2.50	< 2.50	< 2.50	< 2.50	< 2.50	< 0.50
1,1,2-TRICHLOROETHANE	32.0	< 2.50	< 2.50	< 2.50	< 2.50	< 2.50	< 2.50	< 2.50	< 0.50
1,1-DICHLOROETHANE	5.0	37.00	40.00	35.00	37.00	33.00	35.00	34.00	12.00
1,1-DICHLOROETHENE	6.0	16.00	14.00	18.00	15.00	12.00	12.00	13.00	100.00
1,2-DICHLOROBENZENE	600.0 *	< 2.50	< 2.50	< 2.50	< 2.50	< 2.50	< 2.50	< 2.50	< 0.50
1,2-DICHLOROETHANE	0.5	180.00	160.00	160.00	170.00	160.00	170.00	170.00	< 0.50
1,2-DICHLOROETHENE	-	-	-	-	-	-	-	-	-
1,2-DICHLOROPROPANE	5.0	< 2.50	< 2.50	< 2.50	< 2.50	< 2.50	< 2.50	< 2.50	< 0.50
1,3-DICHLOROBENZENE	-	< 2.50	< 2.50	< 2.50	< 2.50	< 2.50	< 2.50	< 2.50	< 0.50
1,4-DICHLOROBENZENE	5.0	< 2.50	< 2.50	< 2.50	< 2.50	< 2.50	< 2.50	< 2.50	< 0.50
BROMODICHLOROMETHANE	100.0	< 2.50	< 2.50	< 2.50	< 2.50	< 2.50	< 2.50	< 2.50	< 0.50
BROMOFORM	100.0	< 2.50	< 2.50	< 2.50	< 2.50	< 2.50	< 2.50	< 2.50	< 0.50
BROMOMETHANE	-	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 1.00
CARBON TETRACHLORIDE	0.5	< 2.50	< 2.50	< 2.50	< 2.50	< 2.50	< 2.50	< 2.50	< 0.50
CHLOROBENZENE	30.0	< 2.50	< 2.50	< 2.50	< 2.50	< 2.50	< 2.50	< 2.50	< 0.50
CHLOROETHANE	-	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 1.00

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SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-2 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-13	MW-13	MW-13	MW-13	MW-13	MW-13	MW-13	MW-14
SAMPLE_ID		MW-13-B-4	MW-13-B-5	MW-13-P-1	MW-13-P-2	MW-13-P-3	MW-13-P-4	MW-13-P-5	MW-14
DATE		06/04/92	06/04/92	06/04/92	06/04/92	06/04/92	06/04/92	06/04/92	02/07/92
QA	MCL ug/L	DUPLICATE SAMPLE	DUPLICATE SAMPLE		DUPLICATE SAMPLE	DUPLICATE SAMPLE	DUPLICATE SAMPLE	DUPLICATE SAMPLE	
CHLOROFORM	100.0	< 2.50	< 2.50	< 2.50	< 2.50	< 2.50	< 2.50	< 2.50	0.50
CHLOROMETHANE	-	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 1.00
CIS-1,2-DICHLOROETHENE	6.0	6.50	7.00	6.40	6.40	6.00	6.10	6.00	< 0.50
CIS-1,3-DICHLOROPROPENE	-	< 2.50	< 2.50	< 2.50	< 2.50	< 2.50	< 2.50	< 2.50	< 0.50
DIBROMOCHLOROMETHANE	100.0	< 2.50	< 2.50	< 2.50	< 2.50	< 2.50	< 2.50	< 2.50	< 0.50
METHYLENE CHLORIDE	5.0 *	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 0.50
TETRACHLOROETHENE	5.0	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	0.60
TRANS-1,2-DICHLOROETHENE	10.0	< 2.50	< 2.50	< 2.50	< 2.50	< 2.50	< 2.50	< 2.50	< 0.50
TRANS-1,3-DICHLOROPROPENE	-	< 2.50	< 2.50	< 2.50	< 2.50	< 2.50	< 2.50	< 2.50	< 0.50
TRICHLOROETHENE	5.0	< 2.50	< 2.50	< 2.50	< 2.50	< 2.50	< 2.50	< 2.50	9.40
TRICHLOROFLUOROMETHANE	150.0	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 1.00
VINYL CHLORIDE	0.5	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 1.00

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. - = Parameter not analyzed. DATE refers to date sampled.
< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring." * = Proposed USEPA MCL.
SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-2 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-14	MW-14	MW-14	MW-15	MW-15	MW-16	MW-16	MW-16
SAMPLE_ID		MW-14	MW-14	MW-14	MW-15	MW-15	MW-16	MW-16	MW-16
DATE		06/01/92	08/27/92	10/26/92	01/30/92	08/27/92	01/30/92	08/27/92	08/27/92
QA	MCL ug/L								DUPLICATE SAMPLE
1,1,1-TRICHLOROETHANE	200.0	5.10	3.30	< 2.50	< 0.50	< 0.50	0.60	< 0.50	< 0.50
1,1,2,2-TETRACHLOROETHANE	1.0	< 0.50	< 2.50	< 2.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,1,2-TRICHLOROETHANE	32.0	0.70	< 2.50	< 2.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,1-DICHLOROETHANE	5.0	28.00	43.00	36.00	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,1-DICHLOROETHENE	6.0	120.00	142.00	200.00	1.60	< 0.50	9.00	3.90	4.10
1,2-DICHLOROBENZENE	600.0 *	< 0.50	< 2.50	< 2.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,2-DICHLOROETHANE	0.5	3.70	< 2.50	< 2.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,2-DICHLOROETHENE	-	-	< 2.50	< 2.50	-	< 0.50	-	< 0.50	< 0.50
1,2-DICHLOROPROPANE	5.0	< 0.50	< 2.50	< 2.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,3-DICHLOROBENZENE	-	< 0.50	< 2.50	< 2.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,4-DICHLOROBENZENE	5.0	< 0.50	< 2.50	< 2.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
BROMODICHLOROMETHANE	100.0	< 0.50	< 2.50	< 2.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
BROMOFORM	100.0	< 0.50	< 2.50	< 2.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
BROMOMETHANE	-	< 1.00	< 5.00	< 5.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
CARBON TETRACHLORIDE	0.5	< 0.50	< 2.50	< 2.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
CHLOROBENZENE	30.0	< 0.50	< 2.50	< 2.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
CHLOROETHANE	-	< 1.00	< 5.00	< 5.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00

All units reported as ug/L (ppb)

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SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-2 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-14	MW-14	MW-14	MW-15	MW-15	MW-16	MW-16	MW-16
SAMPLE_ID		MW-14	MW-14	MW-14	MW-15	MW-15	MW-16	MW-16	MW-16
DATE		06/01/92	08/27/92	10/26/92	01/30/92	08/27/92	01/30/92	08/27/92	08/27/92
QA	MCL ug/L								DUPLICATE SAMPLE
CHLOROFORM	100.0	0.80	< 2.50	< 2.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
CHLOROMETHANE	-	< 1.00	< 5.00	< 5.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
CIS-1,2-DICHLOROETHENE	6.0	2.30	-	-	< 0.50	-	< 0.50	-	-
CIS-1,3-DICHLOROPROPENE	-	< 0.50	< 2.50	< 2.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
DIBROMOCHLOROMETHANE	100.0	< 0.50	< 2.50	< 2.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
METHYLENE CHLORIDE	5.0 *	< 5.00	< 5.00	< 5.00	< 0.50	< 1.00	< 0.50	< 1.00	< 1.00
TETRACHLOROETHENE	5.0	< 2.00	< 2.50	< 2.50	10.00	10.00	< 0.50	< 0.50	< 0.50
TRANS-1,2-DICHLOROETHENE	10.0	< 0.50	-	-	< 0.50	-	< 0.50	-	-
TRANS-1,3-DICHLOROPROPENE	-	< 0.50	< 2.50	< 2.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
TRICHLOROETHENE	5.0	10.00	12.00	13.00	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
TRICHLOROFLUOROMETHANE	150.0	< 1.00	< 5.00	< 5.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
VINYL CHLORIDE	0.5	< 1.00	< 5.00	< 5.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. - = Parameter not analyzed. DATE refers to date sampled.
< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring." * = Proposed USEPA MCL.
SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-2 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-16	MW-16	MW-16	MW-16	MW-16	MW-16	MW-16	MW-16
SAMPLE_ID		MW-16	MW-16-B-1	MW-16-B-2	MW-16-B-3	MW-16-B-4	MW-16-B-5	MW-16-P-1	MW-16-P-2
DATE		10/23/92	06/04/92	06/04/92	06/04/92	06/04/92	06/04/92	06/04/92	06/04/92
QA	MCL ug/L			DUPLICATE SAMPLE	DUPLICATE SAMPLE	DUPLICATE SAMPLE	DUPLICATE SAMPLE		DUPLICATE SAMPLE
1,1,1-TRICHLOROETHANE	200.0	0.81	2.30	2.30	2.10	2.40	2.50	1.90	2.30
1,1,2,2-TETRACHLOROETHANE	1.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,1,2-TRICHLOROETHANE	32.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,1-DICHLOROETHANE	5.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,1-DICHLOROETHENE	6.0	3.20	3.30	3.40	3.30	3.10	3.60	2.70	3.30
1,2-DICHLOROBENZENE	600.0 *	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,2-DICHLOROETHANE	0.5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,2-DICHLOROETHENE	-	< 0.50	-	-	-	-	-	-	-
1,2-DICHLOROPROPANE	5.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,3-DICHLOROBENZENE	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,4-DICHLOROBENZENE	5.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
BROMODICHLOROMETHANE	100.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
BROMOFORM	100.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
BROMOMETHANE	-	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
CARBON TETRACHLORIDE	0.5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
CHLOROBENZENE	30.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
CHLOROETHANE	-	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00

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SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-2 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-16	MW-16	MW-16	MW-16	MW-16	MW-16	MW-16	MW-16
SAMPLE_ID		MW-16	MW-16-B-1	MW-16-B-2	MW-16-B-3	MW-16-B-4	MW-16-B-5	MW-16-P-1	MW-16-P-2
DATE		10/23/92	06/04/92	06/04/92	06/04/92	06/04/92	06/04/92	06/04/92	06/04/92
QA	MCL			DUPLICATE SAMPLE	DUPLICATE SAMPLE	DUPLICATE SAMPLE	DUPLICATE SAMPLE		DUPLICATE SAMPLE
	ug/L								
CHLOROFORM	100.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
CHLOROMETHANE	-	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
CIS-1,2-DICHLOROETHENE	6.0	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
CIS-1,3-DICHLOROPROPENE	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
DIBROMOCHLOROMETHANE	100.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
METHYLENE CHLORIDE	5.0 *	< 1.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00
TETRACHLOROETHENE	5.0	< 0.50	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00
TRANS-1,2-DICHLOROETHENE	10.0	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
TRANS-1,3-DICHLOROPROPENE	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
TRICHLOROETHENE	5.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
TRICHLOROFLUOROMETHANE	150.0	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
VINYL CHLORIDE	0.5	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00

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TABLE B-2 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-16	MW-16	MW-16	MW-17	MW-17	MW-18	MW-18	MW-18
SAMPLE_ID		MW-16-P-3	MW-16-P-4	MW-16-P-5	MW-17	MW-17	MW-18	MW-18	MW-18
DATE		06/04/92	06/04/92	06/04/92	01/30/92	08/27/92	01/30/92	06/01/92	08/27/92
QA	MCL ug/L	DUPLICATE SAMPLE	DUPLICATE SAMPLE	DUPLICATE SAMPLE					
1,1,1-TRICHLOROETHANE	200.0	2.20	2.10	2.50	< 0.50	< 0.50	1.00	1.40	0.94
1,1,2,2-TETRACHLOROETHANE	1.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,1,2-TRICHLOROETHANE	32.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,1-DICHLOROETHANE	5.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	0.80	0.60	< 0.50
1,1-DICHLOROETHENE	6.0	3.20	3.10	3.30	1.20	0.80	25.00	13.00	16.00
1,2-DICHLOROBENZENE	600.0 *	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,2-DICHLOROETHANE	0.5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,2-DICHLOROETHENE	-	-	-	-	-	< 0.50	-	-	< 0.50
1,2-DICHLOROPROPANE	5.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,3-DICHLOROBENZENE	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,4-DICHLOROBENZENE	5.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
BROMODICHLOROMETHANE	100.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
BROMOFORM	100.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
BROMOMETHANE	-	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
CARBON TETRACHLORIDE	0.5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
CHLOROBENZENE	30.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
CHLOROETHANE	-	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00

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SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-2 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-16	MW-16	MW-16	MW-17	MW-17	MW-18	MW-18	MW-18
SAMPLE_ID		MW-16-P-3	MW-16-P-4	MW-16-P-5	MW-17	MW-17	MW-18	MW-18	MW-18
DATE		06/04/92	06/04/92	06/04/92	01/30/92	08/27/92	01/30/92	06/01/92	08/27/92
QA	MCL ug/L	DUPLICATE SAMPLE	DUPLICATE SAMPLE	DUPLICATE SAMPLE					
CHLOROFORM	100.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
CHLOROMETHANE	-	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
CIS-1,2-DICHLOROETHENE	6.0	< 0.50	< 0.50	< 0.50	< 0.50	-	< 0.50	< 0.50	-
CIS-1,3-DICHLOROPROPENE	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
DIBROMOCHLOROMETHANE	100.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
METHYLENE CHLORIDE	5.0 *	< 5.00	< 5.00	< 5.00	< 0.50	< 1.00	< 0.50	< 5.00	< 1.00
TETRACHLOROETHENE	5.0	< 2.00	< 2.00	< 2.00	< 0.50	< 0.50	< 0.50	< 2.00	< 0.50
TRANS-1,2-DICHLOROETHENE	10.0	< 0.50	< 0.50	< 0.50	< 0.50	-	< 0.50	< 0.50	-
TRANS-1,3-DICHLOROPROPENE	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
TRICHLOROETHENE	5.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	2.80	2.20	3.20
TRICHLOROFLUOROMETHANE	150.0	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
VINYL CHLORIDE	0.5	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00

All units reported as ug/L (ppb)

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TABLE B-2 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-18	MW-19	MW-19	MW-20	MW-20	MW-20	MW-20	MW-21
SAMPLE_ID		MW-18	MW-19	MW-19	MW-20	MW-20	MW-20	MW-20	MW-21
DATE		10/26/92	01/30/92	08/28/92	01/30/92	06/02/92	08/28/92	10/23/92	01/30/92
QA	MCL ug/L								
1,1,1-TRICHLOROETHANE	200.0	2.60	< 0.50	< 0.50	0.60	0.80	< 0.50	< 0.50	< 0.50
1,1,2,2-TETRACHLOROETHANE	1.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,1,2-TRICHLOROETHANE	32.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,1-DICHLOROETHANE	5.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,1-DICHLOROETHENE	6.0	17.00	2.90	1.50	11.00	7.20	8.30	7.30	2.70
1,2-DICHLOROBENZENE	600.0 *	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,2-DICHLOROETHANE	0.5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,2-DICHLOROETHENE	-	< 0.50	-	< 0.50	-	-	< 0.50	< 0.50	-
1,2-DICHLOROPROPANE	5.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,3-DICHLOROBENZENE	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,4-DICHLOROBENZENE	5.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
BROMODICHLOROMETHANE	100.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
BROMOFORM	100.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
BROMOMETHANE	-	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
CARBON TETRACHLORIDE	0.5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
CHLOROBENZENE	30.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
CHLOROETHANE	-	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. - = Parameter not analyzed. DATE refers to date sampled.
< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring." * = Proposed USEPA MCL.
SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-2 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-18	MW-19	MW-19	MW-20	MW-20	MW-20	MW-20	MW-21
SAMPLE_ID		MW-18	MW-19	MW-19	MW-20	MW-20	MW-20	MW-20	MW-21
DATE		10/26/92	01/30/92	08/28/92	01/30/92	06/02/92	08/28/92	10/23/92	01/30/92
QA	MCL ug/L								
CHLOROFORM	100.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	5.10
CHLOROMETHANE	-	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
CIS-1,2-DICHLOROETHENE	6.0	-	< 0.50	-	< 0.50	< 0.50	-	-	< 0.50
CIS-1,3-DICHLOROPROPENE	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
DIBROMOCHLOROMETHANE	100.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
METHYLENE CHLORIDE	5.0 *	< 1.00	0.50	< 1.00	< 0.50	< 5.00	< 1.00	< 1.00	< 0.50
TETRACHLOROETHENE	5.0	< 0.50	3.60	2.00	< 0.50	< 2.00	< 0.50	< 0.50	< 0.50
TRANS-1,2-DICHLOROETHENE	10.0	-	< 0.50	-	< 0.50	< 0.50	-	-	< 0.50
TRANS-1,3-DICHLOROPROPENE	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
TRICHLOROETHENE	5.0	3.00	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
TRICHLOROFLUOROMETHANE	150.0	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
VINYL CHLORIDE	0.5	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. - = Parameter not analyzed. DATE refers to date sampled.
< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring." * = Proposed USEPA MCL.
SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-2 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-21	MW-22	MW-23	MW-23	MW-24	MW-25	MW-25	MW-26
SAMPLE_ID		MW-21	MW-22	MW-23	MW-23	MW-24	MW-25	MW-25	MW-26
DATE		08/28/92	01/30/92	01/24/92	08/28/92	01/24/92	01/23/92	09/01/92	01/27/92
QA	MCL ug/L								
1,1,1-TRICHLOROETHANE	200.0	< 0.50	< 0.50	< 0.40	< 0.50	< 0.40	2.10	4.40	1.10
1,1,2,2-TETRACHLOROETHANE	1.0	< 0.50	< 0.50	< 0.40	< 0.50	< 0.40	< 0.40	< 0.50	< 0.50
1,1,2-TRICHLOROETHANE	32.0	< 0.50	< 0.50	< 0.40	< 0.50	< 0.40	< 0.40	< 0.50	< 0.50
1,1-DICHLOROETHANE	5.0	< 0.50	< 0.50	< 0.40	1.20	< 0.40	6.90	14.00	4.80
1,1-DICHLOROETHENE	6.0	0.60	< 0.50	< 0.40	< 0.50	< 0.40	8.70	22.00	5.10
1,2-DICHLOROBENZENE	600.0 *	< 0.50	< 0.50	< 0.40	< 0.50	< 0.40	< 0.40	< 0.50	< 0.50
1,2-DICHLOROETHANE	0.5	< 0.50	< 0.50	< 0.40	< 0.50	< 0.40	< 0.40	< 0.50	< 0.50
1,2-DICHLOROETHENE	-	< 0.50	-	-	< 0.50	-	-	< 0.50	-
1,2-DICHLOROPROPANE	5.0	< 0.50	< 0.50	< 0.40	< 0.50	< 0.40	< 0.40	< 0.50	< 0.50
1,3-DICHLOROBENZENE	-	< 0.50	< 0.50	< 0.40	< 0.50	< 0.40	< 0.40	< 0.50	< 0.50
1,4-DICHLOROBENZENE	5.0	< 0.50	< 0.50	< 0.40	< 0.50	< 0.40	< 0.40	< 0.50	< 0.50
BROMODICHLOROMETHANE	100.0	< 0.50	< 0.50	< 0.40	< 0.50	< 0.40	< 0.40	< 0.50	< 0.50
BROMOFORM	100.0	< 0.50	< 0.50	< 0.40	< 0.50	< 0.40	< 0.40	< 0.50	< 0.50
BROMOMETHANE	-	< 1.00	< 1.00	< 0.40	< 1.00	< 0.40	< 0.40	< 1.00	< 1.00
CARBON TETRACHLORIDE	0.5	< 0.50	< 0.50	< 0.40	< 0.50	< 0.40	< 0.40	< 0.50	< 0.50
CHLOROBENZENE	30.0	< 0.50	< 0.50	< 0.40	< 0.50	< 0.40	< 0.40	< 0.50	< 0.50
CHLOROETHANE	-	< 1.00	< 1.00	< 0.40	< 1.00	< 0.40	< 0.40	< 1.00	< 1.00

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. - = Parameter not analyzed. DATE refers to date sampled.
< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring." * = Proposed USEPA MCL.
SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-2 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-21	MW-22	MW-23	MW-23	MW-24	MW-25	MW-25	MW-26
SAMPLE_ID		MW-21	MW-22	MW-23	MW-23	MW-24	MW-25	MW-25	MW-26
DATE		08/28/92	01/30/92	01/24/92	08/28/92	01/24/92	01/23/92	09/01/92	01/27/92
QA	MCL ug/L								
CHLOROFORM	100.0	4.00	5.80	2.80	4.50	2.50	2.20	2.80	2.00
CHLOROMETHANE	-	< 1.00	< 1.00	< 0.40	< 1.00	< 0.40	< 0.40	< 1.00	< 1.00
CIS-1,2-DICHLOROETHENE	6.0	-	< 0.50	-	-	-	-	-	< 0.50
CIS-1,3-DICHLOROPROPENE	-	< 0.50	< 0.50	< 0.40	< 0.50	< 0.40	< 0.40	< 0.50	< 0.50
DIBROMOCHLOROMETHANE	100.0	< 0.50	< 0.50	< 0.40	< 0.50	< 0.40	< 0.40	< 0.50	< 0.50
METHYLENE CHLORIDE	5.0 *	< 1.00	< 0.50	< 10.00	< 1.00	< 10.00	< 10.00	< 1.00	1.70
TETRACHLOROETHENE	5.0	< 0.50	< 0.50	< 0.40	< 0.50	< 0.40	< 0.40	< 0.50	< 0.50
TRANS-1,2-DICHLOROETHENE	10.0	-	< 0.50	< 0.40	-	< 0.40	< 0.40	-	< 0.50
TRANS-1,3-DICHLOROPROPENE	-	< 0.50	< 0.50	< 0.40	< 0.50	< 0.40	< 0.40	< 0.50	< 0.50
TRICHLOROETHENE	5.0	< 0.50	< 0.50	< 0.40	< 0.50	< 0.40	< 0.40	0.65	< 0.50
TRICHLOROFLUOROMETHANE	150.0	< 1.00	< 1.00	< 0.40	< 1.00	< 0.40	< 0.40	< 1.00	< 1.00
VINYL CHLORIDE	0.5	< 1.00	< 1.00	< 0.40	< 1.00	< 0.40	< 0.40	< 1.00	< 1.00

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. - = Parameter not analyzed. DATE refers to date sampled.
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SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-2 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-26	MW-26	MW-26	MW-26	MW-26	MW-26	MW-26	MW-26
SAMPLE_ID		MW-26	MW-26	MW-26-B-1	MW-26-B-2	MW-26-B-3	MW-26-B-4	MW-26-B-5	MW-26-P-1
DATE		09/01/92	10/23/92	06/04/92	06/04/92	06/04/92	06/04/92	06/04/92	06/04/92
QA	MCL				DUPLICATE SAMPLE	DUPLICATE SAMPLE	DUPLICATE SAMPLE	DUPLICATE SAMPLE	
	ug/L								
1,1,1-TRICHLOROETHANE	200.0	3.70	2.40	3.60	2.00	1.90	2.10	2.00	4.40
1,1,2,2-TETRACHLOROETHANE	1.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,1,2-TRICHLOROETHANE	32.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,1-DICHLOROETHANE	5.0	12.00	10.00	7.20	6.90	7.50	7.90	8.00	8.60
1,1-DICHLOROETHENE	6.0	19.00	9.40	8.60	7.30	8.40	6.30	8.30	8.20
1,2-DICHLOROBENZENE	600.0 *	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,2-DICHLOROETHANE	0.5	< 0.50	< 0.50	0.50	0.50	0.50	0.50	0.60	0.60
1,2-DICHLOROETHENE	-	< 0.50	< 0.50	-	-	-	-	-	-
1,2-DICHLOROPROPANE	5.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,3-DICHLOROBENZENE	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,4-DICHLOROBENZENE	5.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
BROMODICHLOROMETHANE	100.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
BROMOFORM	100.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
BROMOMETHANE	-	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
CARBON TETRACHLORIDE	0.5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
CHLOROBENZENE	30.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
CHLOROETHANE	-	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00

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SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-2 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-26	MW-26	MW-26	MW-26	MW-27	MW-27	MW-28	MW-28
SAMPLE_ID		MW-26-P-2	MW-26-P-3	MW-26-P-4	MW-26-P-5	MW-27	MW-27	MW-28	MW-28
DATE		06/04/92	06/04/92	06/04/92	06/04/92	01/23/92	09/01/92	01/30/92	05/28/92
QA	MCL	DUPLICATE	DUPLICATE	DUPLICATE	DUPLICATE				
	ug/L	SAMPLE	SAMPLE	SAMPLE	SAMPLE				
1,1,1-TRICHLOROETHANE	200.0	4.20	2.20	2.00	2.40	< 0.40	< 0.50	< 0.50	< 0.50
1,1,2,2-TETRACHLOROETHANE	1.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.40	< 0.50	< 0.50	< 0.50
1,1,2-TRICHLOROETHANE	32.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.40	< 0.50	< 0.50	< 0.50
1,1-DICHLOROETHANE	5.0	8.30	8.20	7.20	8.50	< 0.40	< 0.50	17.00	9.50
1,1-DICHLOROETHENE	6.0	7.80	7.40	6.90	8.60	0.83	< 0.50	24.00	6.00
1,2-DICHLOROBENZENE	600.0 *	< 0.50	< 0.50	< 0.50	< 0.50	< 0.40	< 0.50	< 0.50	< 0.50
1,2-DICHLOROETHANE	0.5	0.60	0.50	0.50	0.60	< 0.40	< 0.50	< 0.50	< 0.50
1,2-DICHLOROETHENE	-	-	-	-	-	-	< 0.50	-	-
1,2-DICHLOROPROPANE	5.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.40	< 0.50	< 0.50	< 0.50
1,3-DICHLOROBENZENE	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.40	< 0.50	< 0.50	< 0.50
1,4-DICHLOROBENZENE	5.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.40	< 0.50	< 0.50	< 0.50
BROMODICHLOROMETHANE	100.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.40	< 0.50	< 0.50	< 0.50
BROMOFORM	100.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.40	< 0.50	< 0.50	< 0.50
BROMOMETHANE	-	< 1.00	< 1.00	< 1.00	< 1.00	< 0.40	< 1.00	< 1.00	< 1.00
CARBON TETRACHLORIDE	0.5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.40	< 0.50	< 0.50	< 0.50
CHLOROBENZENE	30.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.40	< 0.50	< 0.50	< 0.50
CHLOROETHANE	-	< 1.00	< 1.00	< 1.00	< 1.00	< 0.40	< 1.00	< 1.00	< 1.00

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SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-2 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-26	MW-26	MW-26	MW-26	MW-27	MW-27	MW-28	MW-28
SAMPLE_ID		MW-26-P-2	MW-26-P-3	MW-26-P-4	MW-26-P-5	MW-27	MW-27	MW-28	MW-28
DATE		06/04/92	06/04/92	06/04/92	06/04/92	01/23/92	09/01/92	01/30/92	05/28/92
QA	MCL	DUPLICATE	DUPLICATE	DUPLICATE	DUPLICATE				
	ug/L	SAMPLE	SAMPLE	SAMPLE	SAMPLE				
CHLOROFORM	100.0	2.60	2.50	2.20	2.60	1.30	3.00	< 0.50	< 0.50
CHLOROMETHANE	-	< 1.00	< 1.00	< 1.00	< 1.00	< 0.40	< 1.00	< 1.00	< 1.00
CIS-1,2-DICHLOROETHENE	6.0	0.60	0.50	< 0.50	0.60	-	-	< 0.50	< 0.50
CIS-1,3-DICHLOROPROPENE	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.40	< 0.50	< 0.50	< 0.50
DIBROMOCHLOROMETHANE	100.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.40	< 0.50	< 0.50	< 0.50
METHYLENE CHLORIDE	5.0 *	< 5.00	< 5.00	< 5.00	< 5.00	< 10.00	< 1.00	< 0.50	< 5.00
TETRACHLOROETHENE	5.0	< 2.00	< 2.00	< 2.00	< 2.00	< 0.40	< 0.50	< 0.50	< 2.00
TRANS-1,2-DICHLOROETHENE	10.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.40	-	< 0.50	< 0.50
TRANS-1,3-DICHLOROPROPENE	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.40	< 0.50	< 0.50	< 0.50
TRICHLOROETHENE	5.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.40	< 0.50	< 0.50	< 0.50
TRICHLOROFLUOROMETHANE	150.0	< 1.00	< 1.00	< 1.00	< 1.00	< 0.40	< 1.00	< 1.00	< 1.00
VINYL CHLORIDE	0.5	< 1.00	< 1.00	< 1.00	< 1.00	< 0.40	< 1.00	< 1.00	< 1.00

All units reported as ug/L (ppb)

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SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-2 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-28	MW-28	MW-29	MW-29	MW-29	MW-29	MW-30	MW-30
SAMPLE_ID		MW-28	MW-28	MW-29	MW-29	MW-29	MW-29	MW-30	MW-30
DATE		08/31/92	10/22/92	01/30/92	05/29/92	08/31/92	10/22/92	01/31/92	05/28/92
QA	MCL ug/L								
1,1,1-TRICHLOROETHANE	200.0	< 0.50	< 0.50	0.70	1.10	0.91	0.87	1.80	3.00
1,1,2,2-TETRACHLOROETHANE	1.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,1,2-TRICHLOROETHANE	32.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,1-DICHLOROETHANE	5.0	20.00	18.00	2.00	4.30	3.90	2.30	7.00	10.00
1,1-DICHLOROETHENE	6.0	31.00	21.00	26.00	19.00	27.00	18.00	140.00	61.00
1,2-DICHLOROBENZENE	600.0 *	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,2-DICHLOROETHANE	0.5	< 0.50	< 0.50	5.20	< 0.50	7.90	6.10	< 0.50	< 0.50
1,2-DICHLOROETHENE	-	< 0.50	< 0.50	-	-	< 0.50	< 0.50	-	-
1,2-DICHLOROPROPANE	5.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,3-DICHLOROBENZENE	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,4-DICHLOROBENZENE	5.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
BROMODICHLOROMETHANE	100.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
BROMOFORM	100.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
BROMOMETHANE	-	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
CARBON TETRACHLORIDE	0.5	< 0.50	< 0.50	1.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
CHLOROBENZENE	30.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
CHLOROETHANE	-	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. - = Parameter not analyzed. DATE refers to date sampled.
< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring." * = Proposed USEPA MCL.
SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-2 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-28	MW-28	MW-29	MW-29	MW-29	MW-29	MW-30	MW-30
SAMPLE_ID		MW-28	MW-28	MW-29	MW-29	MW-29	MW-29	MW-30	MW-30
DATE		08/31/92	10/22/92	01/30/92	05/29/92	08/31/92	10/22/92	01/31/92	05/28/92
QA	MCL ug/L								
CHLOROFORM	100.0	< 0.50	< 0.50	1.20	0.80	1.30	0.56	< 0.50	< 0.50
CHLOROMETHANE	-	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
CIS-1,2-DICHLOROETHENE	6.0	-	-	< 0.50	< 0.50	-	-	< 0.50	< 0.50
CIS-1,3-DICHLOROPROPENE	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
DIBROMOCHLOROMETHANE	100.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
METHYLENE CHLORIDE	5.0 *	< 1.00	< 1.00	< 0.50	< 5.00	< 1.00	< 1.00	0.90	< 5.00
TETRACHLOROETHENE	5.0	< 0.50	< 0.50	< 0.50	< 2.00	< 0.50	< 0.50	0.80	< 2.00
TRANS-1,2-DICHLOROETHENE	10.0	-	-	< 0.50	< 0.50	-	-	< 0.50	< 0.50
TRANS-1,3-DICHLOROPROPENE	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
TRICHLOROETHENE	5.0	< 0.50	< 0.50	0.70	1.20	0.80	< 0.50	8.00	9.50
TRICHLOROFLUOROMETHANE	150.0	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
VINYL CHLORIDE	0.5	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. - = Parameter not analyzed. DATE refers to date sampled.
< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring." * = Proposed USEPA MCL.
SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-2 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-30	MW-30	MW-31	MW-31	MW-31	MW-31	MW-32	MW-32
SAMPLE_ID		MW-30	MW-30	MW-31	MW-31	MW-31	MW-31	MW-32	MW-32
DATE		08/31/92	10/22/92	01/31/92	05/28/92	08/31/92	10/21/92	01/29/92	05/29/92
QA	MCL ug/L								
1,1,1-TRICHLOROETHANE	200.0	6.90	3.30	4.30	3.50	5.50	< 5.00	3.30	3.90
1,1,2,2-TETRACHLOROETHANE	1.0	< 5.00	< 2.50	< 0.50	< 0.50	< 5.00	< 5.00	< 0.50	< 0.50
1,1,2-TRICHLOROETHANE	32.0	< 5.00	< 2.50	0.60	< 0.50	< 5.00	< 5.00	< 0.50	< 0.50
1,1-DICHLOROETHANE	5.0	14.00	17.00	16.00	10.00	9.60	7.50	8.70	8.60
1,1-DICHLOROETHENE	6.0	130.00	116.00	310.00	130.00	170.00	121.00	240.00	90.00
1,2-DICHLOROBENZENE	600.0 *	< 5.00	< 2.50	< 0.50	< 0.50	< 5.00	< 5.00	< 0.50	< 0.50
1,2-DICHLOROETHANE	0.5	< 5.00	< 2.50	< 0.50	< 0.50	< 5.00	< 5.00	< 0.50	< 0.50
1,2-DICHLOROETHENE	-	< 5.00	< 2.50	-	-	< 5.00	< 5.00	-	-
1,2-DICHLOROPROPANE	5.0	< 5.00	< 2.50	< 0.50	< 0.50	< 5.00	< 5.00	< 0.50	< 0.50
1,3-DICHLOROBENZENE	-	< 5.00	< 2.50	< 0.50	< 0.50	< 5.00	< 5.00	< 0.50	< 0.50
1,4-DICHLOROBENZENE	5.0	< 5.00	< 2.50	< 0.50	< 0.50	< 5.00	< 5.00	< 0.50	< 0.50
BROMODICHLOROMETHANE	100.0	< 5.00	< 2.50	< 0.50	< 0.50	< 5.00	< 5.00	< 0.50	< 0.50
BROMOFORM	100.0	< 5.00	< 2.50	< 0.50	< 0.50	< 5.00	< 5.00	< 0.50	< 0.50
BROMOMETHANE	-	< 10.00	< 5.00	< 1.00	< 1.00	< 10.00	< 10.00	< 1.00	< 1.00
CARBON TETRACHLORIDE	0.5	< 5.00	< 2.50	< 0.50	< 0.50	< 5.00	< 5.00	< 0.50	< 0.50
CHLOROBENZENE	30.0	< 5.00	< 2.50	< 0.50	< 0.50	< 5.00	< 5.00	< 0.50	< 0.50
CHLOROETHANE	-	< 10.00	< 5.00	< 1.00	< 1.00	< 10.00	< 10.00	< 1.00	< 1.00

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. - = Parameter not analyzed. DATE refers to date sampled.
< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring." * = Proposed USEPA MCL.
SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-2 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-30	MW-30	MW-31	MW-31	MW-31	MW-31	MW-32	MW-32
SAMPLE_ID		MW-30	MW-30	MW-31	MW-31	MW-31	MW-31	MW-32	MW-32
DATE		08/31/92	10/22/92	01/31/92	05/28/92	08/31/92	10/21/92	01/29/92	05/29/92
QA	MCL ug/L								
CHLOROFORM	100.0	< 5.00	< 2.50	0.60	< 0.50	< 5.00	< 5.00	< 0.50	< 0.50
CHLOROMETHANE	-	< 10.00	< 5.00	< 1.00	< 1.00	< 10.00	< 10.00	< 1.00	< 1.00
CIS-1,2-DICHLOROETHENE	6.0	-	-	< 0.50	< 0.50	-	-	< 0.50	< 0.50
CIS-1,3-DICHLOROPROPENE	-	< 5.00	< 2.50	< 0.50	< 0.50	< 5.00	< 5.00	< 0.50	< 0.50
DIBROMOCHLOROMETHANE	100.0	< 5.00	< 2.50	< 0.50	< 0.50	< 5.00	< 5.00	< 0.50	< 0.50
METHYLENE CHLORIDE	5.0 *	< 10.00	< 5.00	0.70	< 5.00	< 10.00	< 10.00	0.70	< 5.00
TETRACHLOROETHENE	5.0	< 5.00	< 2.50	1.10	< 2.00	< 5.00	< 5.00	0.90	< 2.00
TRANS-1,2-DICHLOROETHENE	10.0	-	-	< 0.50	< 0.50	-	-	< 0.50	< 0.50
TRANS-1,3-DICHLOROPROPENE	-	< 5.00	< 2.50	< 0.50	< 0.50	< 5.00	< 5.00	< 0.50	< 0.50
TRICHLOROETHENE	5.0	10.00	10.00	12.00	12.00	10.00	11.00	16.00	15.00
TRICHLOROFLUOROMETHANE	150.0	< 10.00	< 5.00	< 1.00	< 1.00	< 10.00	< 10.00	< 1.00	< 1.00
VINYL CHLORIDE	0.5	< 10.00	< 5.00	< 1.00	< 1.00	< 10.00	< 10.00	< 1.00	< 1.00

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. - = Parameter not analyzed. DATE refers to date sampled.
< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring." * = Proposed USEPA MCL.
SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-2 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-32	MW-32	MW-33	MW-33	MW-33	MW-33	MW-33	MW-33
SAMPLE_ID		MW-32	MW-32	MW-33	MW-33	MW-33	MW-33-B-1	MW-33-B-2	MW-33-B-3
DATE		09/04/92	10/22/92	01/24/92	08/26/92	10/20/92	06/02/92	06/02/92	06/02/92
QA	MCL ug/L							DUPLICATE SAMPLE	DUPLICATE SAMPLE
1,1,1-TRICHLOROETHANE	200.0	< 5.00	< 5.00	3.00	3.40	4.10	3.70	3.10	3.70
1,1,2,2-TETRACHLOROETHANE	1.0	< 5.00	< 5.00	< 0.40	< 0.50	< 2.50	< 0.50	< 0.50	< 0.50
1,1,2-TRICHLOROETHANE	32.0	< 5.00	< 5.00	< 0.40	< 0.50	< 2.50	< 0.50	< 0.50	< 0.50
1,1-DICHLOROETHANE	5.0	7.10	< 5.00	2.70	7.00	2.60	3.80	3.10	3.80
1,1-DICHLOROETHENE	6.0	155.00	96.00	97.00	170.00	131.00	86.00	77.00	64.00
1,2-DICHLOROBENZENE	600.0 *	< 5.00	< 5.00	< 0.40	< 0.50	< 2.50	< 0.50	< 0.50	< 0.50
1,2-DICHLOROETHANE	0.5	< 5.00	< 5.00	< 0.40	< 0.50	< 2.50	< 0.50	< 0.50	< 0.50
1,2-DICHLOROETHENE	-	< 5.00	< 5.00	-	< 0.50	< 2.50	-	-	-
1,2-DICHLOROPROPANE	5.0	< 5.00	< 5.00	< 0.40	< 0.50	< 2.50	< 0.50	< 0.50	< 0.50
1,3-DICHLOROBENZENE	-	< 5.00	< 5.00	< 0.40	< 0.50	< 2.50	< 0.50	< 0.50	< 0.50
1,4-DICHLOROBENZENE	5.0	< 5.00	< 5.00	< 0.40	< 0.50	< 2.50	< 0.50	< 0.50	< 0.50
BROMODICHLOROMETHANE	100.0	< 5.00	< 5.00	< 0.40	< 0.50	< 2.50	< 0.50	< 0.50	< 0.50
BROMOFORM	100.0	< 5.00	< 5.00	< 0.40	< 0.50	< 2.50	< 0.50	< 0.50	< 0.50
BROMOMETHANE	-	< 10.00	< 10.00	< 0.40	< 1.00	< 5.00	< 1.00	< 1.00	< 1.00
CARBON TETRACHLORIDE	0.5	< 5.00	< 5.00	< 0.40	< 0.50	< 2.50	< 0.50	< 0.50	< 0.50
CHLOROBENZENE	30.0	< 5.00	< 5.00	< 0.40	< 0.50	< 2.50	< 0.50	< 0.50	< 0.50
CHLOROETHANE	-	< 10.00	< 10.00	< 0.40	< 1.00	< 5.00	< 1.00	< 1.00	< 1.00

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SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-2 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-32	MW-32	MW-33	MW-33	MW-33	MW-33	MW-33	MW-33
SAMPLE_ID		MW-32	MW-32	MW-33	MW-33	MW-33	MW-33-B-1	MW-33-B-2	MW-33-B-3
DATE		09/04/92	10/22/92	01/24/92	08/26/92	10/20/92	06/02/92	06/02/92	06/02/92
QA	MCL							DUPLICATE	DUPLICATE
	ug/L							SAMPLE	SAMPLE
CHLOROFORM	100.0	< 5.00	< 5.00	< 0.40	< 0.50	< 2.50	< 0.50	< 0.50	< 0.50
CHLOROMETHANE	-	< 10.00	< 10.00	< 0.40	< 1.00	< 5.00	< 1.00	< 1.00	< 1.00
CIS-1,2-DICHLOROETHENE	6.0	-	-	-	-	-	< 0.50	< 0.50	< 0.50
CIS-1,3-DICHLOROPROPENE	-	< 5.00	< 5.00	< 0.40	< 0.50	< 2.50	< 0.50	< 0.50	< 0.50
DIBROMOCHLOROMETHANE	100.0	< 5.00	< 5.00	< 0.40	< 0.50	< 2.50	< 0.50	< 0.50	< 0.50
METHYLENE CHLORIDE	5.0 *	< 10.00	< 10.00	< 10.00	< 1.00	< 5.00	< 5.00	< 5.00	< 5.00
TETRACHLOROETHENE	5.0	< 5.00	< 5.00	< 0.40	< 0.50	< 2.50	< 2.00	< 2.00	< 2.00
TRANS-1,2-DICHLOROETHENE	10.0	-	-	< 0.40	-	-	< 0.50	< 0.50	< 0.50
TRANS-1,3-DICHLOROPROPENE	-	< 5.00	< 5.00	< 0.40	< 0.50	< 2.50	< 0.50	< 0.50	< 0.50
TRICHLOROETHENE	5.0	11.00	11.00	< 0.40	1.60	< 2.50	0.70	0.60	0.80
TRICHLOROFLUOROMETHANE	150.0	< 10.00	< 10.00	< 0.40	< 1.00	< 5.00	< 1.00	< 1.00	< 1.00
VINYL CHLORIDE	0.5	< 10.00	< 10.00	< 0.40	< 1.00	< 5.00	< 1.00	< 1.00	< 1.00

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. - = Parameter not analyzed. DATE refers to date sampled.
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MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring." * = Proposed USEPA MCL.
SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-2 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-33	MW-33	MW-33	MW-33	MW-33	MW-33	MW-33	MW-34
SAMPLE_ID		MW-33-B-4	MW-33-B-5	MW-33-P-1	MW-33-P-2	MW-33-P-3	MW-33-P-4	MW-33-P-5	MW-34
DATE		06/02/92	06/02/92	06/02/92	06/02/92	06/02/92	06/02/92	06/02/92	01/23/92
QA	MCL ug/L	DUPLICATE SAMPLE	DUPLICATE SAMPLE		DUPLICATE SAMPLE	DUPLICATE SAMPLE	DUPLICATE SAMPLE	DUPLICATE SAMPLE	
1,1,1-TRICHLOROETHANE	200.0	3.80	3.70	4.40	4.40	4.20	4.10	4.20	19.00
1,1,2,2-TETRACHLOROETHANE	1.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.40
1,1,2-TRICHLOROETHANE	32.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	4.90
1,1-DICHLOROETHANE	5.0	3.70	3.70	4.60	4.60	4.30	4.10	4.20	25.00
1,1-DICHLOROETHENE	6.0	77.00	78.00	95.00	89.00	93.00	95.00	86.00	370.00
1,2-DICHLOROBENZENE	600.0 *	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.40
1,2-DICHLOROETHANE	0.5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	2.30
1,2-DICHLOROETHENE	-	-	-	-	-	-	-	-	-
1,2-DICHLOROPROPANE	5.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.40
1,3-DICHLOROBENZENE	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.40
1,4-DICHLOROBENZENE	5.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.40
BROMODICHLOROMETHANE	100.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.40
BROMOFORM	100.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.40
BROMOMETHANE	-	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 0.40
CARBON TETRACHLORIDE	0.5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.40
CHLOROBENZENE	30.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.40
CHLOROETHANE	-	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 0.40

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SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-2 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-34	MW-34	MW-34	MW-34	MW-34	MW-34	MW-34	MW-34
SAMPLE_ID		MW-34	MW-34	MW-34-B-1	MW-34-B-2	MW-34-B-3	MW-34-B-4	MW-34-B-5	MW-34-P-1
DATE		09/01/92	10/26/92	06/03/92	06/03/92	06/03/92	06/03/92	06/03/92	06/03/92
QA	MCL				DUPLICATE SAMPLE	DUPLICATE SAMPLE	DUPLICATE SAMPLE	DUPLICATE SAMPLE	
	ug/L								
1,1,1-TRICHLOROETHANE	200.0	13.00	< 12.00	12.00	9.50	9.20	9.30	8.60	11.00
1,1,2,2-TETRACHLOROETHANE	1.0	< 5.00	< 12.00	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,1,2-TRICHLOROETHANE	32.0	< 5.00	< 12.00	1.40	1.20	1.20	1.20	1.10	1.20
1,1-DICHLOROETHANE	5.0	25.00	< 12.00	23.00	19.00	19.00	18.00	17.00	21.00
1,1-DICHLOROETHENE	6.0	480.00	380.00	340.00	230.00	290.00	290.00	240.00	270.00
1,2-DICHLOROBENZENE	600.0 *	< 5.00	< 12.00	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,2-DICHLOROETHANE	0.5	< 5.00	< 12.00	0.70	0.60	0.60	0.60	0.60	0.60
1,2-DICHLOROETHENE	-	< 5.00	< 12.00	-	-	-	-	-	-
1,2-DICHLOROPROPANE	5.0	< 5.00	< 12.00	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,3-DICHLOROBENZENE	-	< 5.00	< 12.00	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,4-DICHLOROBENZENE	5.0	< 5.00	< 12.00	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
BROMODICHLOROMETHANE	100.0	< 5.00	< 12.00	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
BROMOFORM	100.0	< 5.00	< 12.00	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
BROMOMETHANE	-	< 10.00	< 25.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
CARBON TETRACHLORIDE	0.5	< 5.00	< 12.00	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
CHLOROBENZENE	30.0	< 5.00	< 12.00	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
CHLOROETHANE	-	< 10.00	< 25.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. - = Parameter not analyzed. DATE refers to date sampled.
< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring." * = Proposed USEPA MCL.
SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-2 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-34	MW-34	MW-34	MW-34	MW-34	MW-34	MW-34	MW-34
SAMPLE_ID		MW-34	MW-34	MW-34-B-1	MW-34-B-2	MW-34-B-3	MW-34-B-4	MW-34-B-5	MW-34-P-1
DATE		09/01/92	10/26/92	06/03/92	06/03/92	06/03/92	06/03/92	06/03/92	06/03/92
QA	MCL ug/L				DUPLICATE SAMPLE	DUPLICATE SAMPLE	DUPLICATE SAMPLE	DUPLICATE SAMPLE	
CHLOROFORM	100.0	< 5.00	< 12.00	1.30	1.10	1.10	1.00	1.00	1.20
CHLOROMETHANE	-	< 10.00	< 25.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
CIS-1,2-DICHLOROETHENE	6.0	-	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
CIS-1,3-DICHLOROPROPENE	-	< 5.00	< 12.00	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
DIBROMOCHLOROMETHANE	100.0	< 5.00	< 12.00	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
METHYLENE CHLORIDE	5.0 *	< 10.00	< 25.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00
TETRACHLOROETHENE	5.0	< 5.00	< 12.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00
TRANS-1,2-DICHLOROETHENE	10.0	-	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
TRANS-1,3-DICHLOROPROPENE	-	< 5.00	< 12.00	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
TRICHLOROETHENE	5.0	30.00	31.00	27.00	22.00	22.00	21.00	20.00	24.00
TRICHLOROFLUOROMETHANE	150.0	< 10.00	< 25.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
VINYL CHLORIDE	0.5	< 10.00	< 25.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. - = Parameter not analyzed. DATE refers to date sampled.
< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring." * = Proposed USEPA MCL.
SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-2 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-34	MW-34	MW-34	MW-34	MW-35	MW-35	MW-35	MW-35
SAMPLE_ID		MW-34-P-2	MW-34-P-3	MW-34-P-4	MW-34-P-5	MW-35	MW-35	MW-35	MW-35
DATE		06/03/92	06/03/92	06/03/92	06/03/92	01/23/92	06/01/92	09/01/92	09/01/92
QA	MCL ug/L	DUPLICATE SAMPLE	DUPLICATE SAMPLE	DUPLICATE SAMPLE	DUPLICATE SAMPLE				DUPLICATE SAMPLE
1,1,1-TRICHLOROETHANE	200.0	9.40	9.20	8.80	9.00	5.40	2.40	5.80	2.10
1,1,2,2-TETRACHLOROETHANE	1.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.40	< 0.50	< 5.00	< 0.50
1,1,2-TRICHLOROETHANE	32.0	1.00	1.20	1.20	1.20	< 0.40	< 0.50	< 5.00	< 0.50
1,1-DICHLOROETHANE	5.0	18.00	18.00	18.00	18.00	5.80	2.40	< 5.00	2.00
1,1-DICHLOROETHENE	6.0	290.00	300.00	260.00	250.00	140.00	49.00	135.00	130.00
1,2-DICHLOROBENZENE	600.0 *	< 0.50	< 0.50	< 0.50	< 0.50	< 0.40	< 0.50	< 5.00	< 0.50
1,2-DICHLOROETHANE	0.5	0.60	0.60	0.60	0.50	< 0.40	< 0.50	< 5.00	< 0.50
1,2-DICHLOROETHENE	-	-	-	-	-	-	-	< 5.00	< 0.50
1,2-DICHLOROPROPANE	5.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.40	< 0.50	< 5.00	< 0.50
1,3-DICHLOROBENZENE	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.40	< 0.50	< 5.00	< 0.50
1,4-DICHLOROBENZENE	5.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.40	< 0.50	< 5.00	< 0.50
BROMODICHLOROMETHANE	100.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.40	< 0.50	< 5.00	< 0.50
BROMOFORM	100.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.40	< 0.50	< 5.00	< 0.50
BROMOMETHANE	-	< 1.00	< 1.00	< 1.00	< 1.00	< 0.40	< 1.00	< 10.00	< 1.00
CARBON TETRACHLORIDE	0.5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.40	< 0.50	< 5.00	< 0.50
CHLOROBENZENE	30.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.40	< 0.50	< 5.00	< 0.50
CHLOROETHANE	-	< 1.00	< 1.00	< 1.00	< 1.00	< 0.40	< 1.00	< 10.00	< 1.00

All units reported as ug/L (ppb)

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SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-2 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-34	MW-34	MW-34	MW-34	MW-35	MW-35	MW-35	MW-35
SAMPLE_ID		MW-34-P-2	MW-34-P-3	MW-34-P-4	MW-34-P-5	MW-35	MW-35	MW-35	MW-35
DATE		06/03/92	06/03/92	06/03/92	06/03/92	01/23/92	06/01/92	09/01/92	09/01/92
QA	MCL	DUPLICATE	DUPLICATE	DUPLICATE	DUPLICATE				DUPLICATE
	ug/L	SAMPLE	SAMPLE	SAMPLE	SAMPLE				SAMPLE
CHLOROFORM	100.0	1.00	1.00	1.00	1.00	1.00	0.80	< 5.00	1.20
CHLOROMETHANE	-	< 1.00	< 1.00	< 1.00	< 1.00	< 0.40	< 1.00	< 10.00	< 1.00
CIS-1,2-DICHLOROETHENE	6.0	< 0.50	< 0.50	< 0.50	< 0.50	-	< 0.50	-	-
CIS-1,3-DICHLOROPROPENE	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.40	< 0.50	< 5.00	< 0.50
DIBROMOCHLOROMETHANE	100.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.40	< 0.50	< 5.00	< 0.50
METHYLENE CHLORIDE	5.0 *	< 5.00	< 5.00	< 5.00	< 5.00	< 10.00	< 5.00	< 10.00	< 1.00
TETRACHLOROETHENE	5.0	< 2.00	< 2.00	< 2.00	< 2.00	< 0.40	< 2.00	< 5.00	< 0.50
TRANS-1,2-DICHLOROETHENE	10.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.40	< 0.50	-	-
TRANS-1,3-DICHLOROPROPENE	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.40	< 0.50	< 5.00	< 0.50
TRICHLOROETHENE	5.0	21.00	21.00	21.00	20.00	3.90	4.80	< 5.00	5.10
TRICHLOROFLUOROMETHANE	150.0	< 1.00	< 1.00	< 1.00	< 1.00	< 0.40	< 1.00	< 10.00	< 1.00
VINYL CHLORIDE	0.5	< 1.00	< 1.00	< 1.00	< 1.00	< 0.40	< 1.00	< 10.00	< 1.00

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. - = Parameter not analyzed. DATE refers to date sampled.
< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring." * = Proposed USEPA MCL.
SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-2 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-35	MW-35	MW-36	MW-36	MW-36	MW-36	MW-37	MW-37
SAMPLE_ID		MW-35	MW-35	MW-36	MW-36	MW-36	MW-36	MW-37	MW-37
DATE		10/26/92	10/26/92	01/23/92	06/01/92	09/04/92	10/21/92	01/23/92	01/23/92
QA	MCL ug/L		DUPLICATE SAMPLE						DUPLICATE SAMPLE
1,1,1-TRICHLOROETHANE	200.0	< 2.50	2.90	21.00	12.00	14.00	< 5.00	< 0.40	0.50
1,1,2,2-TETRACHLOROETHANE	1.0	< 2.50	< 0.50	< 0.40	< 0.50	< 12.00	< 5.00	< 0.40	< 0.50
1,1,2-TRICHLOROETHANE	32.0	< 2.50	< 0.50	3.00	< 0.50	< 12.00	< 5.00	< 0.40	< 0.50
1,1-DICHLOROETHANE	5.0	< 2.50	2.30	13.00	9.60	< 12.00	< 5.00	4.40	1.20
1,1-DICHLOROETHENE	6.0	94.00	80.00	330.00	180.00	210.00	110.00	8.50	6.50
1,2-DICHLOROBENZENE	600.0 *	< 2.50	< 0.50	< 0.40	< 0.50	< 12.00	< 5.00	< 0.40	< 0.50
1,2-DICHLOROETHANE	0.5	< 2.50	< 0.50	2.70	0.70	< 12.00	< 5.00	9.70	7.70
1,2-DICHLOROETHENE	-	< 2.50	< 0.50	-	-	< 12.00	< 5.00	-	-
1,2-DICHLOROPROPANE	5.0	< 2.50	< 0.50	< 0.40	< 0.50	< 12.00	< 5.00	< 0.40	< 0.50
1,3-DICHLOROBENZENE	-	< 2.50	< 0.50	< 0.40	< 0.50	< 12.00	< 5.00	< 0.40	< 0.50
1,4-DICHLOROBENZENE	5.0	< 2.50	< 0.50	< 0.40	< 0.50	< 12.00	< 5.00	< 0.40	< 0.50
BROMODICHLOROMETHANE	100.0	< 2.50	< 0.50	< 0.40	< 0.50	< 12.00	< 5.00	< 0.40	< 0.50
BROMOFORM	100.0	< 2.50	< 0.50	< 0.40	< 0.50	< 12.00	< 5.00	< 0.40	< 0.50
BROMOMETHANE	-	< 5.00	< 1.00	< 0.40	< 1.00	< 25.00	< 10.00	< 0.40	< 1.00
CARBON TETRACHLORIDE	0.5	< 2.50	< 0.50	< 0.40	< 0.50	< 12.00	< 5.00	1.80	< 0.50
CHLOROBENZENE	30.0	< 2.50	< 0.50	< 0.40	< 0.50	< 12.00	< 5.00	< 0.40	< 0.50
CHLOROETHANE	-	< 5.00	< 1.00	< 0.40	< 1.00	< 25.00	< 10.00	< 0.40	< 1.00

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SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-2 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-35	MW-35	MW-36	MW-36	MW-36	MW-36	MW-37	MW-37
SAMPLE_ID		MW-35	MW-35	MW-36	MW-36	MW-36	MW-36	MW-37	MW-37
DATE		10/26/92	10/26/92	01/23/92	06/01/92	09/04/92	10/21/92	01/23/92	01/23/92
QA	MCL ug/L		DUPLICATE SAMPLE						DUPLICATE SAMPLE
CHLOROFORM	100.0	< 2.50	< 0.50	2.60	2.00	< 12.00	< 5.00	3.10	1.70
CHLOROMETHANE	-	< 5.00	< 1.00	< 0.40	< 1.00	< 25.00	< 10.00	< 0.40	< 1.00
CIS-1,2-DICHLOROETHENE	6.0	-	-	-	< 0.50	-	-	-	< 0.50
CIS-1,3-DICHLOROPROPENE	-	< 2.50	< 0.50	< 0.40	< 0.50	< 12.00	< 5.00	< 0.40	< 0.50
DIBROMOCHLOROMETHANE	100.0	< 2.50	< 0.50	< 0.40	< 0.50	< 12.00	< 5.00	< 0.40	< 0.50
METHYLENE CHLORIDE	5.0 *	< 5.00	< 1.00	< 10.00	< 5.00	13.00	< 10.00	< 10.00	< 0.50
TETRACHLOROETHENE	5.0	< 2.50	< 0.50	< 0.40	< 2.00	< 12.00	< 5.00	< 0.40	< 0.50
TRANS-1,2-DICHLOROETHENE	10.0	-	-	< 0.40	< 0.50	-	-	< 0.40	< 0.50
TRANS-1,3-DICHLOROPROPENE	-	< 2.50	< 0.50	< 0.40	< 0.50	< 12.00	< 5.00	< 0.40	< 0.50
TRICHLOROETHENE	5.0	5.80	6.00	8.90	8.30	< 12.00	< 5.00	< 0.40	< 0.50
TRICHLOROFLUOROMETHANE	150.0	< 5.00	< 1.00	< 0.40	< 1.00	< 25.00	< 10.00	< 0.40	< 0.50
VINYL CHLORIDE	0.5	< 5.00	< 1.00	< 0.40	< 1.00	< 25.00	< 10.00	< 0.40	< 1.00

All units reported as ug/L (ppb)

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SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-2 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE SAMPLE_ID DATE QA	MCL ug/L	MW-37 MW-37 06/01/92	MW-37 MW-37 09/04/92	MW-37 MW-37 10/21/92	MW-38 MW-38 01/24/92	MW-38 MW-38 01/24/92 DUPLICATE SAMPLE	MW-38 MW-38 09/04/92	MW-38 MW-38 10/27/92	MW-38 MW-38-B-1 06/03/92
1,1,1-TRICHLOROETHANE	200.0	< 0.50	0.95	1.10	11.00	15.00	21.00	22.00	14.00
1,1,2,2-TETRACHLOROETHANE	1.0	< 0.50	< 0.50	< 0.50	< 0.40	< 2.50	< 12.00	< 2.50	< 0.50
1,1,2-TRICHLOROETHANE	32.0	< 0.50	< 0.50	< 0.50	< 0.40	< 2.50	< 12.00	< 2.50	< 0.50
1,1-DICHLOROETHANE	5.0	2.60	3.60	2.90	5.70	5.50	< 12.00	13.00	8.90
1,1-DICHLOROETHENE	6.0	6.00	16.00	13.00	250.00	120.00	350.00	230.00	140.00
1,2-DICHLOROBENZENE	600.0 *	< 0.50	< 0.50	< 0.50	< 0.40	< 2.50	< 12.00	< 2.50	< 0.50
1,2-DICHLOROETHANE	0.5	6.20	7.40	4.90	2.70	2.40	< 12.00	< 2.50	2.40
1,2-DICHLOROETHENE	-	-	< 0.50	< 0.50	-	-	< 12.00	< 2.50	-
1,2-DICHLOROPROPANE	5.0	< 0.50	< 0.50	< 0.50	< 0.40	< 2.50	< 12.00	< 2.50	< 0.50
1,3-DICHLOROBENZENE	-	< 0.50	< 0.50	< 0.50	< 0.40	< 2.50	< 12.00	< 2.50	< 0.50
1,4-DICHLOROBENZENE	5.0	< 0.50	< 0.50	< 0.50	< 0.40	< 2.50	< 12.00	< 2.50	< 0.50
BROMODICHLOROMETHANE	100.0	< 0.50	< 0.50	< 0.50	< 0.40	< 5.00	< 12.00	< 2.50	< 0.50
BROMOFORM	100.0	< 0.50	< 0.50	< 0.50	< 0.40	< 2.50	< 12.00	< 2.50	< 0.50
BROMOMETHANE	-	< 1.00	< 1.00	< 1.00	< 0.40	< 5.00	< 25.00	< 5.00	< 1.00
CARBON TETRACHLORIDE	0.5	1.50	1.40	0.84	1.30	0.90	< 12.00	< 2.50	2.00
CHLOROBENZENE	30.0	< 0.50	< 0.50	< 0.50	< 0.40	< 2.50	< 12.00	< 2.50	< 0.50
CHLOROETHANE	-	< 1.00	< 1.00	< 1.00	< 0.40	< 5.00	< 25.00	< 5.00	< 1.00

All units reported as ug/L (ppb)

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< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring." * = Proposed USEPA MCL.
SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-2 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-37	MW-37	MW-37	MW-38	MW-38	MW-38	MW-38	MW-38
SAMPLE_ID		MW-37	MW-37	MW-37	MW-38	MW-38	MW-38	MW-38	MW-38-B-1
DATE		06/01/92	09/04/92	10/21/92	01/24/92	01/24/92	09/04/92	10/27/92	06/03/92
QA	MCL ug/L					DUPLICATE SAMPLE			
CHLOROFORM	100.0	3.80	4.20	2.50	2.80	2.20	< 12.00	< 2.50	3.80
CHLOROMETHANE	-	< 1.00	< 1.00	< 1.00	< 0.40	< 5.00	< 25.00	< 5.00	< 1.00
CIS-1,2-DICHLOROETHENE	6.0	< 0.50	-	-	-	< 2.50	-	-	< 0.50
CIS-1,3-DICHLOROPROPENE	-	< 0.50	< 0.50	< 0.50	< 0.40	< 2.50	< 12.00	< 2.50	< 0.50
DIBROMOCHLOROMETHANE	100.0	< 0.50	< 0.50	< 0.50	< 0.40	< 2.50	< 12.00	< 2.50	< 0.50
METHYLENE CHLORIDE	5.0 *	< 5.00	< 1.00	< 1.00	< 10.00	< 2.50	< 25.00	< 5.00	< 5.00
TETRACHLOROETHENE	5.0	< 2.00	< 0.50	< 0.50	< 0.40	< 2.50	< 12.00	< 2.50	< 2.00
TRANS-1,2-DICHLOROETHENE	10.0	< 0.50	-	-	< 0.40	< 2.50	-	-	< 0.50
TRANS-1,3-DICHLOROPROPENE	-	< 0.50	< 0.50	< 0.50	< 0.40	< 2.50	< 12.00	< 2.50	< 0.50
TRICHLOROETHENE	5.0	0.50	< 0.50	< 0.50	5.70	11.00	< 12.00	14.00	9.20
TRICHLOROFLUOROMETHANE	150.0	< 1.00	< 1.00	< 1.00	< 0.40	< 2.50	< 25.00	< 5.00	< 1.00
VINYL CHLORIDE	0.5	< 1.00	< 1.00	< 1.00	< 0.40	< 5.00	< 25.00	< 5.00	< 1.00

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. - = Parameter not analyzed. DATE refers to date sampled.
< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring." * = Proposed USEPA MCL.
SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-2 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-38	MW-38	MW-38	MW-38	MW-38	MW-38	MW-38	MW-38
SAMPLE_ID		MW-38-B-2	MW-38-B-3	MW-38-B-4	MW-38-B-5	MW-38-P-1	MW-38-P-2	MW-38-P-3	MW-38-P-4
DATE		06/03/92	06/03/92	06/03/92	06/03/92	06/03/92	06/03/92	06/03/92	06/03/92
QA	MCL	DUPLICATE	DUPLICATE	DUPLICATE	DUPLICATE		DUPLICATE	DUPLICATE	DUPLICATE
	ug/L	SAMPLE	SAMPLE	SAMPLE	SAMPLE		SAMPLE	SAMPLE	SAMPLE
1,1,1-TRICHLOROETHANE	200.0	14.00	13.00	12.00	13.00	14.00	14.00	13.00	13.00
1,1,2,2-TETRACHLOROETHANE	1.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,1,2-TRICHLOROETHANE	32.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,1-DICHLOROETHANE	5.0	8.60	8.00	8.00	8.40	8.60	8.70	8.50	8.40
1,1-DICHLOROETHENE	6.0	160.00	140.00	150.00	140.00	150.00	160.00	150.00	140.00
1,2-DICHLOROBENZENE	600.0 *	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,2-DICHLOROETHANE	0.5	2.60	2.20	2.10	2.50	2.20	2.50	2.30	2.20
1,2-DICHLOROETHENE	-	-	-	-	-	-	-	-	-
1,2-DICHLOROPROPANE	5.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,3-DICHLOROBENZENE	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,4-DICHLOROBENZENE	5.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
BROMODICHLOROMETHANE	100.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
BROMOFORM	100.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
BROMOMETHANE	-	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
CARBON TETRACHLORIDE	0.5	2.00	1.80	1.80	1.90	1.90	2.00	1.90	1.90
CHLOROBENZENE	30.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
CHLOROETHANE	-	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. - = Parameter not analyzed. DATE refers to date sampled.
< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring." * = Proposed USEPA MCL.
SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-2 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-38	MW-38	MW-38	MW-38	MW-38	MW-38	MW-38	MW-38
SAMPLE_ID		MW-38-B-2	MW-38-B-3	MW-38-B-4	MW-38-B-5	MW-38-P-1	MW-38-P-2	MW-38-P-3	MW-38-P-4
DATE		06/03/92	06/03/92	06/03/92	06/03/92	06/03/92	06/03/92	06/03/92	06/03/92
QA	MCL ug/L	DUPLICATE SAMPLE	DUPLICATE SAMPLE	DUPLICATE SAMPLE	DUPLICATE SAMPLE		DUPLICATE SAMPLE	DUPLICATE SAMPLE	DUPLICATE SAMPLE
CHLOROFORM	100.0	3.70	3.50	3.50	3.80	3.60	3.80	3.70	3.60
CHLOROMETHANE	-	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
CIS-1,2-DICHLOROETHENE	6.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
CIS-1,3-DICHLOROPROPENE	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
DIBROMOCHLOROMETHANE	100.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
METHYLENE CHLORIDE	5.0 *	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00
TETRACHLOROETHENE	5.0	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00
TRANS-1,2-DICHLOROETHENE	10.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
TRANS-1,3-DICHLOROPROPENE	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
TRICHLOROETHENE	5.0	9.20	8.40	8.60	9.10	8.70	9.00	8.70	8.60
TRICHLOROFLUOROMETHANE	150.0	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
VINYL CHLORIDE	0.5	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. - = Parameter not analyzed. DATE refers to date sampled.
< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring." * = Proposed USEPA MCL.
SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-2 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-38	MW-39	MW-39	MW-39	MW-39	MW-39	MW-39	MW-39
SAMPLE_ID		MW-38-P-5	MW-39	MW-39	MW-39	MW-39	MW-39	MW-39	MW-39-B-1
DATE		06/03/92	01/23/92	01/23/92	09/04/92	09/04/92	10/21/92	10/21/92	06/03/92
QA	MCL	DUPLICATE		DUPLICATE		DUPLICATE		DUPLICATE	
	ug/L	SAMPLE		SAMPLE		SAMPLE		SAMPLE	
1,1,1-TRICHLOROETHANE	200.0	13.00	0.70	0.51	1.60	1.70	1.60	1.10	1.00
1,1,2,2-TETRACHLOROETHANE	1.0	< 0.50	< 0.40	< 0.40	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,1,2-TRICHLOROETHANE	32.0	< 0.50	< 0.40	< 0.40	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,1-DICHLOROETHANE	5.0	8.70	0.80	0.68	1.70	1.50	1.20	1.30	1.30
1,1-DICHLOROETHENE	6.0	120.00	4.10	3.40	12.00	11.00	7.70	8.90	4.20
1,2-DICHLOROBENZENE	600.0 *	< 0.50	< 0.40	< 0.40	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,2-DICHLOROETHANE	0.5	2.50	1.60	1.30	1.80	1.80	< 0.50	1.50	1.40
1,2-DICHLOROETHENE	-	-	-	-	< 0.50	< 0.50	< 0.50	< 0.50	-
1,2-DICHLOROPROPANE	5.0	< 0.50	< 0.40	< 0.40	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,3-DICHLOROBENZENE	-	< 0.50	< 0.40	< 0.40	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,4-DICHLOROBENZENE	5.0	< 0.50	< 0.40	< 0.40	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
BROMODICHLOROMETHANE	100.0	< 0.50	< 0.40	< 0.40	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
BROMOFORM	100.0	< 0.50	< 0.40	< 0.40	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
BROMOMETHANE	-	< 1.00	< 0.40	< 0.40	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
CARBON TETRACHLORIDE	0.5	1.90	1.40	1.10	2.80	2.90	1.80	2.00	2.20
CHLOROBENZENE	30.0	< 0.50	< 0.40	< 0.40	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
CHLOROETHANE	-	< 1.00	< 0.40	< 0.40	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00

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SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-2 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-38	MW-39	MW-39	MW-39	MW-39	MW-39	MW-39	MW-39
SAMPLE_ID		MW-38-P-5	MW-39	MW-39	MW-39	MW-39	MW-39	MW-39	MW-39-B-1
DATE		06/03/92	01/23/92	01/23/92	09/04/92	09/04/92	10/21/92	10/21/92	06/03/92
QA	MCL	DUPLICATE		DUPLICATE		DUPLICATE		DUPLICATE	
	ug/L	SAMPLE		SAMPLE		SAMPLE		SAMPLE	
CHLOROFORM	100.0	3.90	3.10	2.90	4.20	4.40	2.30	2.90	3.20
CHLOROMETHANE	-	< 1.00	< 0.40	< 0.40	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
CIS-1,2-DICHLOROETHENE	6.0	< 0.50	-	-	-	-	-	-	< 0.50
CIS-1,3-DICHLOROPROPENE	-	< 0.50	< 0.40	< 0.40	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
DIBROMOCHLOROMETHANE	100.0	< 0.50	< 0.40	< 0.40	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
METHYLENE CHLORIDE	5.0 *	< 5.00	< 10.00	< 10.00	< 1.00	< 1.00	< 1.00	< 1.00	< 5.00
TETRACHLOROETHENE	5.0	< 2.00	< 0.40	< 0.40	< 0.50	< 0.50	< 0.50	< 0.50	< 2.00
TRANS-1,2-DICHLOROETHENE	10.0	< 0.50	< 0.40	< 0.40	-	-	-	-	< 0.50
TRANS-1,3-DICHLOROPROPENE	-	< 0.50	< 0.40	< 0.40	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
TRICHLOROETHENE	5.0	9.30	< 0.40	1.30	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
TRICHLOROFLUOROMETHANE	150.0	< 1.00	< 0.40	< 0.40	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
VINYL CHLORIDE	0.5	< 1.00	< 0.40	< 0.40	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. - = Parameter not analyzed. DATE refers to date sampled.
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SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-2 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-39	MW-39	MW-39	MW-39	MW-39	MW-39	MW-39	MW-39
SAMPLE_ID		MW-39-B-2	MW-39-B-3	MW-39-B-4	MW-39-B-5	MW-39-P-1	MW-39-P-2	MW-39-P-3	MW-39-P-4
DATE		06/03/92	06/03/92	06/03/92	06/03/92	06/03/92	06/03/92	06/03/92	06/03/92
QA	MCL	DUPLICATE	DUPLICATE	DUPLICATE	DUPLICATE		DUPLICATE	DUPLICATE	DUPLICATE
	ug/L	SAMPLE	SAMPLE	SAMPLE	SAMPLE		SAMPLE	SAMPLE	SAMPLE
1,1,1-TRICHLOROETHANE	200.0	1.20	1.20	1.20	1.10	1.10	1.20	1.20	1.20
1,1,2,2-TETRACHLOROETHANE	1.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,1,2-TRICHLOROETHANE	32.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,1-DICHLOROETHANE	5.0	1.40	1.40	1.40	1.40	1.30	1.30	1.40	1.40
1,1-DICHLOROETHENE	6.0	3.20	3.80	3.40	4.20	4.10	3.70	3.80	3.60
1,2-DICHLOROBENZENE	600.0 *	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,2-DICHLOROETHANE	0.5	1.60	1.70	1.50	1.50	1.60	1.60	1.60	1.60
1,2-DICHLOROETHENE	-	-	-	-	-	-	-	-	-
1,2-DICHLOROPROPANE	5.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,3-DICHLOROBENZENE	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,4-DICHLOROBENZENE	5.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
BROMODICHLOROMETHANE	100.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
BROMOFORM	100.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
BROMOMETHANE	-	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
CARBON TETRACHLORIDE	0.5	2.40	2.40	2.40	2.20	2.00	2.20	2.20	2.30
CHLOROBENZENE	30.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
CHLOROETHANE	-	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00

All units reported as ug/L (ppb)

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SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-2 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-39	MW-39	MW-39	MW-39	MW-39	MW-39	MW-39	MW-39
SAMPLE_ID		MW-39-B-2	MW-39-B-3	MW-39-B-4	MW-39-B-5	MW-39-P-1	MW-39-P-2	MW-39-P-3	MW-39-P-4
DATE		06/03/92	06/03/92	06/03/92	06/03/92	06/03/92	06/03/92	06/03/92	06/03/92
QA	MCL	DUPLICATE	DUPLICATE	DUPLICATE	DUPLICATE		DUPLICATE	DUPLICATE	DUPLICATE
	ug/L	SAMPLE	SAMPLE	SAMPLE	SAMPLE		SAMPLE	SAMPLE	SAMPLE
CHLOROFORM	100.0	3.50	3.50	3.60	3.30	3.10	3.30	3.40	3.40
CHLOROMETHANE	-	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
CIS-1,2-DICHLOROETHENE	6.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
CIS-1,3-DICHLOROPROPENE	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
DIBROMOCHLOROMETHANE	100.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
METHYLENE CHLORIDE	5.0 *	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00
TETRACHLOROETHENE	5.0	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00
TRANS-1,2-DICHLOROETHENE	10.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
TRANS-1,3-DICHLOROPROPENE	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
TRICHLOROETHENE	5.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
TRICHLOROFLUOROMETHANE	150.0	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
VINYL CHLORIDE	0.5	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. - = Parameter not analyzed. DATE refers to date sampled.
< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring." * = Proposed USEPA MCL.
SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-2 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-39	MW-40	MW-40	MW-40	MW-40	MW-40	MW-41	MW-41
SAMPLE_ID		MW-39-P-5	MW-40	MW-40	MW-40	MW-40	MW-40	MW-41	MW-41
DATE		06/03/92	01/29/92	01/29/92	05/29/92	08/31/92	10/22/92	01/31/92	01/31/92
QA	MCL ug/L	DUPLICATE SAMPLE		DUPLICATE SAMPLE					DUPLICATE SAMPLE
1,1,1-TRICHLOROETHANE	200.0	1.20	4.20	3.60	5.20	8.40	6.90	< 0.50	< 0.50
1,1,2,2-TETRACHLOROETHANE	1.0	< 0.50	< 0.50	< 0.50	< 0.50	< 5.00	< 2.50	< 0.50	< 0.50
1,1,2-TRICHLOROETHANE	32.0	< 0.50	< 0.50	< 0.50	< 0.50	< 5.00	< 2.50	< 0.50	< 0.50
1,1-DICHLOROETHANE	5.0	1.20	25.00	20.00	25.00	35.00	< 2.50	< 0.50	< 0.50
1,1-DICHLOROETHENE	6.0	3.80	190.00	250.00	170.00	370.00	220.00	< 0.50	< 0.50
1,2-DICHLOROBENZENE	600.0 *	< 0.50	< 0.50	< 0.50	< 0.50	< 5.00	< 2.50	< 0.50	< 0.50
1,2-DICHLOROETHANE	0.5	1.40	< 0.50	< 0.50	< 0.50	< 5.00	29.00	< 0.50	< 0.50
1,2-DICHLOROETHENE	-	-	-	-	-	< 5.00	< 2.50	-	-
1,2-DICHLOROPROPANE	5.0	< 0.50	< 0.50	< 0.50	< 0.50	< 5.00	< 2.50	< 0.50	< 0.50
1,3-DICHLOROBENZENE	-	< 0.50	< 0.50	< 0.50	< 0.50	< 5.00	< 2.50	< 0.50	< 0.50
1,4-DICHLOROBENZENE	5.0	< 0.50	< 0.50	< 0.50	< 0.50	< 5.00	< 2.50	< 0.50	< 0.50
BROMODICHLOROMETHANE	100.0	< 0.50	< 0.50	< 0.50	< 0.50	< 5.00	< 2.50	< 0.50	< 0.50
BROMOFORM	100.0	< 0.50	< 0.50	< 0.50	< 0.50	< 5.00	< 2.50	< 0.50	< 0.50
BROMOMETHANE	-	< 1.00	< 1.00	< 1.00	< 1.00	< 10.00	< 5.00	< 1.00	< 1.00
CARBON TETRACHLORIDE	0.5	2.00	< 0.50	< 0.50	< 0.50	< 5.00	< 2.50	< 0.50	< 0.50
CHLOROBENZENE	30.0	< 0.50	< 0.50	< 0.50	< 0.50	< 5.00	< 2.50	< 0.50	< 0.50
CHLOROETHANE	-	< 1.00	< 1.00	< 1.00	< 1.00	< 10.00	< 5.00	< 1.00	< 1.00

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. - = Parameter not analyzed. DATE refers to date sampled.
< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring." * = Proposed USEPA MCL.
SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-2 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-39	MW-40	MW-40	MW-40	MW-40	MW-40	MW-41	MW-41
SAMPLE_ID		MW-39-P-5	MW-40	MW-40	MW-40	MW-40	MW-40	MW-41	MW-41
DATE		06/03/92	01/29/92	01/29/92	05/29/92	08/31/92	10/22/92	01/31/92	01/31/92
QA	MCL ug/L	DUPLICATE SAMPLE		DUPLICATE SAMPLE					DUPLICATE SAMPLE
CHLOROFORM	100.0	3.00	0.60	< 0.50	0.60	< 5.00	< 2.50	< 0.50	< 0.50
CHLOROMETHANE	-	< 1.00	< 1.00	< 1.00	< 1.00	< 10.00	< 5.00	< 1.00	< 1.00
CIS-1,2-DICHLOROETHENE	6.0	< 0.50	0.60	< 0.50	0.80	-	-	< 0.50	< 0.50
CIS-1,3-DICHLOROPROPENE	-	< 0.50	< 0.50	0.60	< 0.50	< 5.00	< 2.50	< 0.50	< 0.50
DIBROMOCHLOROMETHANE	100.0	< 0.50	< 0.50	< 0.50	< 0.50	< 5.00	< 2.50	< 0.50	< 0.50
METHYLENE CHLORIDE	5.0 *	< 5.00	< 0.50	2.10	< 5.00	< 10.00	< 5.00	1.00	1.00
TETRACHLOROETHENE	5.0	< 2.00	< 0.50	0.60	< 2.00	< 5.00	< 2.50	< 0.50	< 0.50
TRANS-1,2-DICHLOROETHENE	10.0	< 0.50	< 0.50	< 0.50	< 0.50	-	-	< 0.50	< 0.50
TRANS-1,3-DICHLOROPROPENE	-	< 0.50	< 0.50	< 0.50	< 0.50	< 5.00	< 2.50	< 0.50	< 0.50
TRICHLOROETHENE	5.0	< 0.50	40.00	35.00	38.00	52.00	49.00	< 0.50	< 0.50
TRICHLOROFLUOROMETHANE	150.0	< 1.00	< 1.00	< 1.00	< 1.00	< 10.00	< 5.00	< 1.00	< 1.00
VINYL CHLORIDE	0.5	< 1.00	< 1.00	< 1.00	< 1.00	< 10.00	< 5.00	< 1.00	< 1.00

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. - = Parameter not analyzed. DATE refers to date sampled.
< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring." * = Proposed USEPA MCL.
SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-2 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-41	MW-41	MW-41	MW-42	MW-42	MW-42	MW-42	MW-42
SAMPLE_ID		MW-41	MW-41	MW-41	MW-42	MW-42	MW-42	MW-42	MW-42
DATE		05/26/92	08/25/92	10/20/92	02/07/92	02/07/92	06/04/92	08/25/92	10/27/92
QA	MCL ug/L					DUPLICATE SAMPLE			
1,1,1-TRICHLOROETHANE	200.0	< 0.50	< 0.50	< 0.50	8.70	9.50	7.00	5.50	< 12.00
1,1,2,2-TETRACHLOROETHANE	1.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 12.00
1,1,2-TRICHLOROETHANE	32.0	< 0.50	< 0.50	< 0.50	2.20	2.40	2.60	2.60	< 12.00
1,1-DICHLOROETHANE	5.0	< 0.50	< 0.50	< 0.50	100.00	94.00	80.00	110.00	110.00
1,1-DICHLOROETHENE	6.0	< 0.50	< 0.50	< 0.50	480.00	400.00	220.00	260.00	340.00
1,2-DICHLOROBENZENE	600.0 *	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 12.00
1,2-DICHLOROETHANE	0.5	< 0.50	< 0.50	< 0.50	0.70	0.80	0.90	1.60	< 12.00
1,2-DICHLOROETHENE	-	-	< 0.50	< 0.50	-	-	-	< 0.50	< 12.00
1,2-DICHLOROPROPANE	5.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 12.00
1,3-DICHLOROBENZENE	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 12.00
1,4-DICHLOROBENZENE	5.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 12.00
BROMODICHLOROMETHANE	100.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 12.00
BROMOFORM	100.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 12.00
BROMOMETHANE	-	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 25.00
CARBON TETRACHLORIDE	0.5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 12.00
CHLOROBENZENE	30.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 12.00
CHLOROETHANE	-	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 25.00

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. - = Parameter not analyzed. DATE refers to date sampled.
< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring." * = Proposed USEPA MCL.
SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-2 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-41	MW-41	MW-41	MW-42	MW-42	MW-42	MW-42	MW-42
SAMPLE_ID		MW-41	MW-41	MW-41	MW-42	MW-42	MW-42	MW-42	MW-42
DATE		05/26/92	08/25/92	10/20/92	02/07/92	02/07/92	06/04/92	08/25/92	10/27/92
QA	MCL ug/L					DUPLICATE SAMPLE			
CHLOROFORM	100.0	< 0.50	< 0.50	< 0.50	2.50	2.40	2.00	1.90	< 12.00
CHLOROMETHANE	-	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 25.00
CIS-1,2-DICHLOROETHENE	6.0	< 0.50	-	-	< 0.50	< 0.50	0.60	-	-
CIS-1,3-DICHLOROPROPENE	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 12.00
DIBROMOCHLOROMETHANE	100.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 12.00
METHYLENE CHLORIDE	5.0 *	< 5.00	< 1.00	< 1.00	0.80	0.80	< 5.00	1.50	< 25.00
TETRACHLOROETHENE	5.0	< 2.00	< 0.50	< 0.50	1.60	2.10	3.40	4.20	28.00
TRANS-1,2-DICHLOROETHENE	10.0	< 0.50	-	-	< 0.50	< 0.50	< 0.50	-	-
TRANS-1,3-DICHLOROPROPENE	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 12.00
TRICHLOROETHENE	5.0	< 0.50	< 0.50	< 0.50	5.50	5.50	5.80	7.20	< 12.00
TRICHLOROFLUOROMETHANE	150.0	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 25.00
VINYL CHLORIDE	0.5	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 25.00

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. - = Parameter not analyzed. DATE refers to date sampled.
< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring." * = Proposed USEPA MCL.
SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-2 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-43	MW-43	MW-43	MW-43	MW-44	RB-01	RB-01	RB-01
SAMPLE_ID		MW-43	MW-43	MW-43	MW-43	MW-44	RB-01	RB-01	RB-01
DATE		02/07/92	06/02/92	08/25/92	10/22/92	10/27/92	01/23/92	06/02/92	08/26/92
QA	MCL ug/L						RINSATE BLANK	RINSATE BLANK	RINSATE BLANK
1,1,1-TRICHLOROETHANE	200.0	0.70	< 0.50	< 0.50	< 5.00	< 0.50	< 0.40	< 0.50	< 0.50
1,1,2,2-TETRACHLOROETHANE	1.0	< 0.50	< 0.50	< 0.50	< 5.00	< 0.50	< 0.40	< 0.50	< 0.50
1,1,2-TRICHLOROETHANE	32.0	2.20	2.50	1.90	< 5.00	< 0.50	< 0.40	< 0.50	< 0.50
1,1-DICHLOROETHANE	5.0	220.00	210.00	260.00	240.00	0.69	< 0.40	< 0.50	< 0.50
1,1-DICHLOROETHENE	6.0	45.00	32.00	< 0.50	28.00	2.00	< 0.40	< 0.50	< 0.50
1,2-DICHLOROBENZENE	600.0 *	< 0.50	0.60	< 0.50	< 5.00	< 0.50	< 0.40	< 0.50	< 0.50
1,2-DICHLOROETHANE	0.5	2.30	2.50	2.00	< 5.00	4.30	< 0.40	< 0.50	< 0.50
1,2-DICHLOROETHENE	-	-	-	< 0.50	< 5.00	< 0.50	-	-	< 0.50
1,2-DICHLOROPROPANE	5.0	< 0.50	< 0.50	< 0.50	< 5.00	< 0.50	< 0.40	< 0.50	< 0.50
1,3-DICHLOROBENZENE	-	< 0.50	< 0.50	< 0.50	< 5.00	< 0.50	< 0.40	< 0.50	< 0.50
1,4-DICHLOROBENZENE	5.0	< 0.50	< 0.50	< 0.50	< 5.00	< 0.50	< 0.40	< 0.50	< 0.50
BROMODICHLOROMETHANE	100.0	< 0.50	< 0.50	< 0.50	< 5.00	< 0.50	< 0.40	0.50	< 0.50
BROMOFORM	100.0	< 0.50	< 0.50	< 0.50	< 5.00	< 0.50	< 0.40	< 0.50	< 0.50
BROMOMETHANE	-	< 1.00	< 1.00	< 1.00	< 10.00	< 1.00	< 0.40	< 1.00	< 1.00
CARBON TETRACHLORIDE	0.5	< 0.50	< 0.50	< 0.50	< 5.00	9.60	< 0.40	< 0.50	< 0.50
CHLOROBENZENE	30.0	< 0.50	< 0.50	< 0.50	< 5.00	< 0.50	< 0.40	< 0.50	< 0.50
CHLOROETHANE	-	< 1.00	< 1.00	< 1.00	< 10.00	< 1.00	< 0.40	< 1.00	< 1.00

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QA = Samples taken as part of the quality assurance program. - = Parameter not analyzed. DATE refers to date sampled.
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MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring." * = Proposed USEPA MCL.
SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-2 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-43	MW-43	MW-43	MW-43	MW-44	RB-01	RB-01	RB-01
SAMPLE_ID		MW-43	MW-43	MW-43	MW-43	MW-44	RB-01	RB-01	RB-01
DATE		02/07/92	06/02/92	08/25/92	10/22/92	10/27/92	01/23/92	06/02/92	08/26/92
QA	MCL						RINSATE	RINSATE	RINSATE
	ug/L						BLANK	BLANK	BLANK
CHLOROFORM	100.0	< 0.50	< 0.50	< 0.50	< 5.00	7.20	3.00	6.80	2.40
CHLOROMETHANE	-	< 1.00	< 1.00	< 1.00	< 10.00	< 1.00	< 0.40	< 1.00	< 1.00
CIS-1,2-DICHLOROETHENE	6.0	4.90	5.50	-	-	-	-	< 0.50	-
CIS-1,3-DICHLOROPROPENE	-	< 0.50	< 0.50	< 0.50	< 5.00	< 0.50	< 0.40	< 0.50	< 0.50
DIBROMOCHLOROMETHANE	100.0	< 0.50	< 0.50	< 0.50	< 5.00	< 0.50	< 0.40	< 0.50	< 0.50
METHYLENE CHLORIDE	5.0 *	1.00	< 5.00	< 1.00	< 10.00	< 1.00	< 10.00	< 5.00	< 1.00
TETRACHLOROETHENE	5.0	1.40	< 2.00	1.10	< 5.00	< 0.50	< 0.40	< 2.00	< 0.50
TRANS-1,2-DICHLOROETHENE	10.0	0.60	0.50	-	-	-	< 0.40	< 0.50	-
TRANS-1,3-DICHLOROPROPENE	-	< 0.50	< 0.50	< 0.50	< 5.00	< 0.50	< 0.40	< 0.50	< 0.50
TRICHLOROETHENE	5.0	4.30	4.70	5.40	< 5.00	< 0.50	< 0.40	< 0.50	< 0.50
TRICHLOROFLUOROMETHANE	150.0	< 1.00	< 1.00	< 1.00	< 10.00	< 1.00	< 0.40	< 1.00	< 1.00
VINYL CHLORIDE	0.5	7.40	10.00	7.90	< 10.00	< 1.00	< 0.40	< 1.00	< 1.00

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. - = Parameter not analyzed. DATE refers to date sampled.
< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring." * = Proposed USEPA MCL.
SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-2 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		RB-01	RB-02	RB-02	RB-02	RB-02	RB-03	RB-03	RB-03
SAMPLE_ID		RB-01	RB-02	RB-02	RB-02	RB-02	RB-03	RB-03	RB-03
DATE		10/23/92	01/27/92	06/03/92	08/28/92	10/23/92	01/29/92	06/04/92	09/01/92
QA	MCL	RINSATE	RINSATE	RINSATE	RINSATE	RINSATE	RINSATE	RINSATE	RINSATE
	ug/L	BLANK	BLANK	BLANK	BLANK	BLANK	BLANK	BLANK	BLANK
1,1,1-TRICHLOROETHANE	200.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,1,2,2-TETRACHLOROETHANE	1.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,1,2-TRICHLOROETHANE	32.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,1-DICHLOROETHANE	5.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,1-DICHLOROETHENE	6.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,2-DICHLOROBENZENE	600.0 *	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,2-DICHLOROETHANE	0.5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,2-DICHLOROETHENE	-	< 0.50	-	-	< 0.50	< 0.50	-	-	< 0.50
1,2-DICHLOROPROPANE	5.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,3-DICHLOROBENZENE	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,4-DICHLOROBENZENE	5.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
BROMODICHLOROMETHANE	100.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
BROMOFORM	100.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
BROMOMETHANE	-	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
CARBON TETRACHLORIDE	0.5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
CHLOROBENZENE	30.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
CHLOROETHANE	-	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. - = Parameter not analyzed. DATE refers to date sampled.
< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring." * = Proposed USEPA MCL.
SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-2 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		RB-01	RB-02	RB-02	RB-02	RB-02	RB-03	RB-03	RB-03
SAMPLE_ID		RB-01	RB-02	RB-02	RB-02	RB-02	RB-03	RB-03	RB-03
DATE		10/23/92	01/27/92	06/03/92	08/28/92	10/23/92	01/29/92	06/04/92	09/01/92
QA	MCL	RINSATE	RINSATE	RINSATE	RINSATE	RINSATE	RINSATE	RINSATE	RINSATE
	ug/L	BLANK	BLANK	BLANK	BLANK	BLANK	BLANK	BLANK	BLANK
CHLOROFORM	100.0	3.40	4.80	4.60	2.50	3.30	2.60	2.50	3.50
CHLOROMETHANE	-	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
CIS-1,2-DICHLOROETHENE	6.0	-	< 0.50	< 0.50	-	-	< 0.50	< 0.50	-
CIS-1,3-DICHLOROPROPENE	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
DIBROMOCHLOROMETHANE	100.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
METHYLENE CHLORIDE	5.0 *	< 1.00	2.40	< 5.00	< 1.00	< 1.00	< 0.50	< 5.00	< 1.00
TETRACHLOROETHENE	5.0	< 0.50	< 0.50	< 2.00	< 0.50	< 0.50	< 0.50	< 2.00	< 0.50
TRANS-1,2-DICHLOROETHENE	10.0	-	< 0.50	< 0.50	-	-	< 0.50	< 0.50	-
TRANS-1,3-DICHLOROPROPENE	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
TRICHLOROETHENE	5.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
TRICHLOROFLUOROMETHANE	150.0	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
VINYL CHLORIDE	0.5	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. - = Parameter not analyzed. DATE refers to date sampled.
< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring." * = Proposed USEPA MCL.
SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-2 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		RB-03	RB-04	RB-05	TB-01	TB-01	TB-01	TB-01	TB-02
SAMPLE_ID		RB-03	RB-04	RB-05	TB-01	TB-01	TB-01	TB-01	TB-02
DATE		10/27/92	01/31/92	02/07/92	01/23/92	05/26/92	08/25/92	10/20/92	01/27/92
QA	MCL	RINSATE	RINSATE	RINSATE	TRAVEL	TRAVEL	TRAVEL	TRAVEL	TRAVEL
	ug/L	BLANK	BLANK	BLANK	CONTROL	CONTROL	CONTROL	CONTROL	CONTROL
1,1,1-TRICHLOROETHANE	200.0	< 0.50	< 0.50	< 0.50	< 0.40	< 0.50	< 0.50	< 0.50	< 0.50
1,1,2,2-TETRACHLOROETHANE	1.0	< 0.50	< 0.50	< 0.50	< 0.40	< 0.50	< 0.50	< 0.50	< 0.50
1,1,2-TRICHLOROETHANE	32.0	< 0.50	< 0.50	< 0.50	< 0.40	< 0.50	< 0.50	< 0.50	< 0.50
1,1-DICHLOROETHANE	5.0	< 0.50	< 0.50	< 0.50	< 0.40	< 0.50	< 0.50	< 0.50	< 0.50
1,1-DICHLOROETHENE	6.0	< 0.50	< 0.50	< 0.50	< 0.40	< 0.50	< 0.50	< 0.50	< 0.50
1,2-DICHLOROBENZENE	600.0 *	< 0.50	< 0.50	< 0.50	< 0.40	< 0.50	< 0.50	< 0.50	< 0.50
1,2-DICHLOROETHANE	0.5	< 0.50	< 0.50	< 0.50	< 0.40	< 0.50	< 0.50	< 0.50	< 0.50
1,2-DICHLOROETHENE	-	< 0.50	-	-	-	-	< 0.50	< 0.50	-
1,2-DICHLOROPROPANE	5.0	< 0.50	< 0.50	< 0.50	< 0.40	< 0.50	< 0.50	< 0.50	< 0.50
1,3-DICHLOROBENZENE	-	< 0.50	< 0.50	< 0.50	< 0.40	< 0.50	< 0.50	< 0.50	< 0.50
1,4-DICHLOROBENZENE	5.0	< 0.50	< 0.50	< 0.50	< 0.40	< 0.50	< 0.50	< 0.50	< 0.50
BROMODICHLOROMETHANE	100.0	< 0.50	< 0.50	< 0.50	< 0.40	< 0.50	< 0.50	< 0.50	< 0.50
BROMOFORM	100.0	< 0.50	< 0.50	< 0.50	< 0.40	< 0.50	< 0.50	< 0.50	< 0.50
BROMOMETHANE	-	< 1.00	< 1.00	< 1.00	< 0.40	< 1.00	< 1.00	< 1.00	< 1.00
CARBON TETRACHLORIDE	0.5	< 0.50	< 0.50	< 0.50	< 0.40	< 0.50	< 0.50	< 0.50	< 0.50
CHLOROBENZENE	30.0	< 0.50	< 0.50	< 0.50	< 0.40	< 0.50	< 0.50	< 0.50	< 0.50
CHLOROETHANE	-	< 1.00	< 1.00	< 1.00	< 0.40	< 1.00	< 1.00	< 1.00	< 1.00

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. - = Parameter not analyzed. DATE refers to date sampled.
< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring." * = Proposed USEPA MCL.
SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-2 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		RB-03	RB-04	RB-05	TB-01	TB-01	TB-01	TB-01	TB-02
SAMPLE_ID		RB-03	RB-04	RB-05	TB-01	TB-01	TB-01	TB-01	TB-02
DATE		10/27/92	01/31/92	02/07/92	01/23/92	05/26/92	08/25/92	10/20/92	01/27/92
QA	MCL	RINSATE	RINSATE	RINSATE	TRAVEL	TRAVEL	TRAVEL	TRAVEL	TRAVEL
	ug/L	BLANK	BLANK	BLANK	CONTROL	CONTROL	CONTROL	CONTROL	CONTROL
CHLOROFORM	100.0	3.90	4.40	4.40	< 0.40	< 0.50	< 0.50	< 0.50	< 0.50
CHLOROMETHANE	-	< 1.00	< 1.00	< 1.00	< 0.40	< 1.00	< 1.00	< 1.00	< 1.00
CIS-1,2-DICHLOROETHENE	6.0	-	< 0.50	< 0.50	-	< 0.50	-	-	< 0.50
CIS-1,3-DICHLOROPROPENE	-	< 0.50	< 0.50	< 0.50	< 0.40	< 0.50	< 0.50	< 0.50	< 0.50
DIBROMOCHLOROMETHANE	100.0	< 0.50	< 0.50	< 0.50	< 0.40	< 0.50	< 0.50	< 0.50	< 0.50
METHYLENE CHLORIDE	5.0 *	< 1.00	0.80	0.80	< 10.00	< 5.00	< 1.00	< 1.00	2.00
TETRACHLOROETHENE	5.0	< 0.50	< 0.50	< 0.50	< 0.40	< 2.00	0.67	< 0.50	< 0.50
TRANS-1,2-DICHLOROETHENE	10.0	-	< 0.50	< 0.50	< 0.40	< 0.50	-	-	< 0.50
TRANS-1,3-DICHLOROPROPENE	-	< 0.50	< 0.50	< 0.50	< 0.40	< 0.50	< 0.50	< 0.50	< 0.50
TRICHLOROETHENE	5.0	< 0.50	< 0.50	< 0.50	< 0.40	< 0.50	< 0.50	< 0.50	< 0.50
TRICHLOROFLUOROMETHANE	150.0	< 1.00	< 1.00	< 1.00	< 0.40	< 1.00	< 1.00	< 1.00	< 1.00
VINYL CHLORIDE	0.5	< 1.00	< 1.00	< 1.00	< 0.40	< 1.00	< 1.00	< 1.00	< 1.00

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. - = Parameter not analyzed. DATE refers to date sampled.
< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring." * = Proposed USEPA MCL.
SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-2 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		TB-02	TB-02	TB-03	TB-03	TB-03	TB-04	TB-04	TB-05
SAMPLE_ID		TB-02	TB-02	TB-03	TB-03	TB-03	TB-04	TB-04	TB-05
DATE		05/29/92	10/22/92	01/29/92	08/31/92	10/26/92	01/31/92	06/03/92	02/07/92
QA	MCL ug/L	TRAVEL CONTROL	TRAVEL CONTROL	TRAVEL CONTROL	TRAVEL CONTROL	TRAVEL CONTROL	TRAVEL CONTROL	TRAVEL CONTROL	TRAVEL CONTROL
1,1,1-TRICHLOROETHANE	200.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,1,2,2-TETRACHLOROETHANE	1.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,1,2-TRICHLOROETHANE	32.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,1-DICHLOROETHANE	5.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,1-DICHLOROETHENE	6.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,2-DICHLOROBENZENE	600.0 *	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,2-DICHLOROETHANE	0.5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,2-DICHLOROETHENE	-	-	< 0.50	-	< 0.50	< 0.50	-	-	-
1,2-DICHLOROPROPANE	5.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,3-DICHLOROBENZENE	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,4-DICHLOROBENZENE	5.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
BROMODICHLOROMETHANE	100.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
BROMOFORM	100.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
BROMOMETHANE	-	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
CARBON TETRACHLORIDE	0.5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
CHLOROBENZENE	30.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
CHLOROETHANE	-	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. - = Parameter not analyzed. DATE refers to date sampled.
< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring." * = Proposed USEPA MCL.
SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-2 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		TB-02	TB-02	TB-03	TB-03	TB-03	TB-04	TB-04	TB-05
SAMPLE_ID		TB-02	TB-02	TB-03	TB-03	TB-03	TB-04	TB-04	TB-05
DATE		05/29/92	10/22/92	01/29/92	08/31/92	10/26/92	01/31/92	06/03/92	02/07/92
QA	MCL	TRAVEL	TRAVEL	TRAVEL	TRAVEL	TRAVEL	TRAVEL	TRAVEL	TRAVEL
	ug/L	CONTROL	CONTROL	CONTROL	CONTROL	CONTROL	CONTROL	CONTROL	CONTROL
CHLOROFORM	100.0	< 0.50	< 0.50	< 0.50	3.00	< 0.50	< 0.50	< 0.50	< 0.50
CHLOROMETHANE	-	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
CIS-1,2-DICHLOROETHENE	6.0	< 0.50	-	< 0.50	-	-	< 0.50	< 0.50	< 0.50
CIS-1,3-DICHLOROPROPENE	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
DIBROMOCHLOROMETHANE	100.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
METHYLENE CHLORIDE	5.0 *	< 5.00	< 1.00	1.40	< 1.00	< 1.00	1.70	< 5.00	1.30
TETRACHLOROETHENE	5.0	< 2.00	< 0.50	< 0.50	< 0.50	< 0.50	0.50	< 2.00	< 0.50
TRANS-1,2-DICHLOROETHENE	10.0	< 0.50	-	< 0.50	-	-	< 0.50	< 0.50	< 0.50
TRANS-1,3-DICHLOROPROPENE	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
TRICHLOROETHENE	5.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
TRICHLOROFLUOROMETHANE	150.0	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
VINYL CHLORIDE	0.5	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. - = Parameter not analyzed. DATE refers to date sampled.
< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring." * = Proposed USEPA MCL.
SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-2 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		TB-05
SAMPLE_ID		TB-05
DATE		06/04/92
QA	MCL	TRAVEL
	ug/L	CONTROL
1,1,1-TRICHLOROETHANE	200.0	< 0.50
1,1,2,2-TETRACHLOROETHANE	1.0	< 0.50
1,1,2-TRICHLOROETHANE	32.0	< 0.50
1,1-DICHLOROETHANE	5.0	< 0.50
1,1-DICHLOROETHENE	6.0	< 0.50
1,2-DICHLOROBENZENE	600.0 *	< 0.50
1,2-DICHLOROETHANE	0.5	< 0.50
1,2-DICHLOROETHENE	-	-
1,2-DICHLOROPROPANE	5.0	< 0.50
1,3-DICHLOROBENZENE	-	< 0.50
1,4-DICHLOROBENZENE	5.0	< 0.50
BROMODICHLOROMETHANE	100.0	< 0.50
BROMOFORM	100.0	< 0.50
BROMOMETHANE	-	< 1.00
CARBON TETRACHLORIDE	0.5	< 0.50
CHLOROBENZENE	30.0	< 0.50
CHLOROETHANE	-	< 1.00

All units reported as ug/L (ppb)

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< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring." * = Proposed USEPA MCL.
SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-2 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		TB-05
SAMPLE_ID		TB-05
DATE		06/04/92
QA	MCL	TRAVEL
	ug/L	CONTROL
CHLOROFORM	100.0	< 0.50
CHLOROMETHANE	-	< 1.00
CIS-1,2-DICHLOROETHENE	6.0	< 0.50
CIS-1,3-DICHLOROPROPENE	-	< 0.50
DIBROMOCHLOROMETHANE	100.0	< 0.50
METHYLENE CHLORIDE	5.0 *	< 5.00
TETRACHLOROETHENE	5.0	< 2.00
TRANS-1,2-DICHLOROETHENE	10.0	< 0.50
TRANS-1,3-DICHLOROPROPENE	-	< 0.50
TRICHLOROETHENE	5.0	< 0.50
TRICHLOROFLUOROMETHANE	150.0	< 1.00
VINYL CHLORIDE	0.5	< 1.00

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. - = Parameter not analyzed. DATE refers to date sampled.
< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring." * = Proposed USEPA MCL.
SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-3
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
AROMATIC COMPOUNDS (METHOD 602)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE			FB-01	FB-01	FB-01	FB-02	FB-02	FB-02	FB-03	FB-03
SAMPLE_ID			FB-01	FB-01	FB-01	FB-02	FB-02	FB-02	FB-03	FB-03
DATE			01/23/92	06/02/92	08/26/92	01/27/92	06/03/92	08/28/92	01/29/92	06/04/92
QA	MCL		FIELD BLANK	FIELD BLANK	FIELD BLANK	FIELD BLANK	FIELD BLANK	FIELD BLANK	FIELD BLANK	FIELD BLANK
	ug/L									
1,2-DICHLOROBENZENE	600	*	< 0.40	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,3-DICHLOROBENZENE	-		< 0.40	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,4-DICHLOROBENZENE	5		< 0.40	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
BENZENE	1		< 0.50	2.70	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
CHLOROBENZENE	30		< 0.40	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
ETHYL BENZENE	680		< 0.60	0.60	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
TOLUENE	1000		< 0.50	5.20	< 0.50	< 0.50	< 1.50	< 0.50	< 0.50	< 1.00
XYLENE	1750		< 0.60	1.40	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. - = Parameter not analyzed. DATE refers to date sampled.
< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring." * = Proposed USEPA MCL.
SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-3 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
AROMATIC COMPOUNDS (METHOD 602)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE			FB-03	FB-04	FB-05	MW-01	MW-02	MW-02	MW-02	MW-02
SAMPLE_ID			FB-03	FB-04	FB-05	MW-01	MW-02	MW-02	MW-02	MW-02
DATE			09/01/92	01/31/92	02/07/92	01/29/92	02/07/92	05/26/92	08/25/92	10/20/92
QA	MCL		FIELD BLANK	FIELD BLANK	FIELD BLANK					
	ug/L									
1,2-DICHLOROBENZENE	600	*	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,3-DICHLOROBENZENE	-		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,4-DICHLOROBENZENE	5		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
BENZENE	1		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
CHLOROBENZENE	30		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
ETHYL BENZENE	680		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
TOLUENE	1000		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 1.00	< 0.50	< 0.50
XYLENE	1750		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. - = Parameter not analyzed. DATE refers to date sampled.
< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring." * = Proposed USEPA MCL.
SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-3 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
AROMATIC COMPOUNDS (METHOD 602)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE			MW-03	MW-04	MW-04	MW-04	MW-04	MW-05	MW-06	MW-06
SAMPLE_ID			MW-03	MW-04	MW-04	MW-04	MW-04	MW-05	MW-06	MW-06
DATE			01/29/92	01/28/92	05/29/92	08/26/92	10/20/92	01/27/92	01/28/92	08/28/92
QA	MCL ug/L									
1,2-DICHLOROBENZENE	600	*	< 0.50	< 0.50	< 0.50	< 0.50	< 12.00	< 0.50	< 0.50	< 0.50
1,3-DICHLOROBENZENE	-		< 0.50	< 0.50	< 0.50	< 0.50	< 12.00	< 0.50	< 0.50	< 0.50
1,4-DICHLOROBENZENE	5		< 0.50	< 0.50	< 0.50	< 0.50	< 12.00	< 0.50	< 0.50	< 0.50
BENZENE	1		< 0.50	940.00	210.00	230.00	260.00	< 0.50	< 0.50	< 0.50
CHLOROBENZENE	30		< 0.50	< 0.50	< 0.50	< 0.50	< 12.00	< 0.50	< 0.50	< 0.50
ETHYL BENZENE	680		< 0.50	18.00	6.70	4.10	< 12.00	< 0.50	< 0.50	< 0.50
TOLUENE	1000		< 0.50	12.00	7.50	2.40	< 12.00	< 0.50	< 0.50	< 0.50
XYLENE	1750		< 0.50	3.40	9.30	1.70	< 12.00	< 0.50	< 0.50	< 0.50

All units reported as ug/L (ppb)

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MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring." * = Proposed USEPA MCL.
SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-3 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
AROMATIC COMPOUNDS (METHOD 602)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-07	MW-07	MW-07	MW-07	MW-07	MW-07	MW-07	MW-07
SAMPLE_ID		MW-07	MW-07	MW-07	MW-07-B-1	MW-07-B-2	MW-07-B-3	MW-07-B-4	MW-07-B-5
DATE		02/07/92	08/31/92	10/23/92	06/02/92	06/02/92	06/02/92	06/02/92	06/02/92
QA	MCL ug/L					DUPLICATE SAMPLE	DUPLICATE SAMPLE	DUPLICATE SAMPLE	DUPLICATE SAMPLE
1,2-DICHLOROBENZENE	600 *	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,3-DICHLOROBENZENE	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,4-DICHLOROBENZENE	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
BENZENE	1	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
CHLOROBENZENE	30	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
ETHYL BENZENE	680	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
TOLUENE	1000	< 0.50	< 0.50	< 0.50	1.00	< 1.00	< 1.00	< 1.00	< 1.00
XYLENE	1750	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. - = Parameter not analyzed. DATE refers to date sampled.
< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring." * = Proposed USEPA MCL.
SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-3 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
AROMATIC COMPOUNDS (METHOD 602)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-07	MW-07	MW-07	MW-07	MW-07	MW-08	MW-08	MW-11
SAMPLE_ID		MW-07-P-1	MW-07-P-2	MW-07-P-3	MW-07-P-4	MW-07-P-5	MW-08	MW-08	MW-11
DATE		06/02/92	06/02/92	06/02/92	06/02/92	06/02/92	01/28/92	08/28/92	01/27/92
QA	MCL		DUPLICATE SAMPLE	DUPLICATE SAMPLE	DUPLICATE SAMPLE	DUPLICATE SAMPLE			
	ug/L								
1,2-DICHLOROBENZENE	600 *	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,3-DICHLOROBENZENE	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,4-DICHLOROBENZENE	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
BENZENE	1	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
CHLOROBENZENE	30	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
ETHYL BENZENE	680	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
TOLUENE	1000	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 0.50	< 0.50	< 0.50
XYLENE	1750	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. - = Parameter not analyzed. DATE refers to date sampled.
< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring." * = Proposed USEPA MCL.
SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-3 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
AROMATIC COMPOUNDS (METHOD 602)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-11	MW-11	MW-11	MW-11	MW-11	MW-11	MW-11	MW-11
SAMPLE_ID		MW-11	MW-11	MW-11-B-1	MW-11-B-2	MW-11-B-3	MW-11-B-4	MW-11-B-5	MW-11-P-1
DATE		08/26/92	10/20/92	06/02/92	06/02/92	06/02/92	06/02/92	06/02/92	06/02/92
QA	MCL ug/L				DUPLICATE SAMPLE	DUPLICATE SAMPLE	DUPLICATE SAMPLE	DUPLICATE SAMPLE	
1,2-DICHLOROBENZENE	600 *	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,3-DICHLOROBENZENE	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,4-DICHLOROBENZENE	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
BENZENE	1	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
CHLOROBENZENE	30	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
ETHYL BENZENE	680	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
TOLUENE	1000	< 0.50	< 0.50	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
XYLENE	1750	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. - = Parameter not analyzed. DATE refers to date sampled.
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MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring." * = Proposed USEPA MCL.
SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-3 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
AROMATIC COMPOUNDS (METHOD 602)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-11	MW-11	MW-11	MW-11	MW-12	MW-12	MW-12	MW-12
SAMPLE_ID		MW-11-P-2	MW-11-P-3	MW-11-P-4	MW-11-P-5	MW-12	MW-12	MW-12	MW-12
DATE		06/02/92	06/02/92	06/02/92	06/02/92	01/28/92	06/01/92	08/26/92	10/26/92
QA	MCL ug/L	DUPLICATE SAMPLE	DUPLICATE SAMPLE	DUPLICATE SAMPLE	DUPLICATE SAMPLE				
1,2-DICHLOROBENZENE	600 *	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 2.50
1,3-DICHLOROBENZENE	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 2.50
1,4-DICHLOROBENZENE	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 2.50
BENZENE	1	< 0.50	< 0.50	< 0.50	< 0.50	0.60	< 0.50	< 0.50	< 2.50
CHLOROBENZENE	30	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 2.50
ETHYL BENZENE	680	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 2.50
TOLUENE	1000	< 1.00	< 1.00	< 1.00	< 1.00	< 0.50	< 1.00	< 0.50	< 2.50
XYLENE	1750	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 2.50

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. - = Parameter not analyzed. DATE refers to date sampled.
< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring." * = Proposed USEPA MCL.
SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-3 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
AROMATIC COMPOUNDS (METHOD 602)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE			MW-13	MW-13	MW-13	MW-13	MW-13	MW-13	MW-13	MW-13
SAMPLE_ID			MW-13	MW-13	MW-13	MW-13	MW-13	MW-13-B-1	MW-13-B-2	MW-13-B-3
DATE			02/07/92	08/26/92	08/26/92	10/27/92	10/27/92	06/04/92	06/04/92	06/04/92
QA	MCL				DUPLICATE		DUPLICATE		DUPLICATE	DUPLICATE
	ug/L				SAMPLE		SAMPLE		SAMPLE	SAMPLE
1,2-DICHLOROBENZENE	600	*	< 5.00	< 25.00	< 25.00	< 250.00	< 50.00	< 250.00	< 250.00	< 250.00
1,3-DICHLOROBENZENE	-		< 5.00	< 25.00	< 25.00	< 250.00	< 50.00	< 250.00	< 250.00	< 250.00
1,4-DICHLOROBENZENE	5		< 5.00	< 25.00	< 25.00	< 250.00	< 50.00	< 250.00	< 250.00	< 250.00
BENZENE	1		11000.00	13000.00	12000.00	9600.00	4800.00	17000.00	10000.00	10000.00
CHLOROBENZENE	30		< 5.00	< 25.00	< 25.00	< 250.00	< 50.00	< 250.00	< 250.00	< 250.00
ETHYL BENZENE	680		780.00	520.00	550.00	500.00	530.00	900.00	550.00	510.00
TOLUENE	1000		630.00	340.00	370.00	330.00	360.00	650.00	420.00	410.00
XYLENE	1750		1300.00	780.00	850.00	740.00	1100.00	1000.00	640.00	580.00

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SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-3 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
AROMATIC COMPOUNDS (METHOD 602)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE			MW-13	MW-13	MW-13	MW-13	MW-13	MW-13	MW-13	MW-14
SAMPLE_ID			MW-13-B-4	MW-13-B-5	MW-13-P-1	MW-13-P-2	MW-13-P-3	MW-13-P-4	MW-13-P-5	MW-14
DATE			06/04/92	06/04/92	06/04/92	06/04/92	06/04/92	06/04/92	06/04/92	02/07/92
QA	MCL		DUPLICATE SAMPLE	DUPLICATE SAMPLE		DUPLICATE SAMPLE	DUPLICATE SAMPLE	DUPLICATE SAMPLE	DUPLICATE SAMPLE	
	ug/L									
1,2-DICHLOROBENZENE	600	*	< 250.00	< 250.00	< 250.00	< 250.00	< 250.00	< 250.00	< 250.00	< 0.50
1,3-DICHLOROBENZENE	-		< 250.00	< 250.00	< 250.00	< 250.00	< 250.00	< 250.00	< 250.00	< 0.50
1,4-DICHLOROBENZENE	5		< 250.00	< 250.00	< 250.00	< 250.00	< 250.00	< 250.00	< 250.00	< 0.50
BENZENE	1		10000.00	9500.00	9900.00	10000.00	9800.00	9600.00	9700.00	< 0.50
CHLOROBENZENE	30		< 250.00	< 250.00	< 250.00	< 250.00	< 250.00	< 250.00	< 250.00	< 0.50
ETHYL BENZENE	680		510.00	500.00	500.00	510.00	500.00	490.00	500.00	< 0.50
TOLUENE	1000		380.00	380.00	380.00	400.00	390.00	360.00	380.00	< 0.50
XYLENE	1750		560.00	560.00	570.00	580.00	580.00	540.00	550.00	< 0.50

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< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring." * = Proposed USEPA MCL.
SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-3 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
AROMATIC COMPOUNDS (METHOD 602)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-14	MW-14	MW-14	MW-15	MW-15	MW-16	MW-16	MW-16
SAMPLE_ID		MW-14	MW-14	MW-14	MW-15	MW-15	MW-16	MW-16	MW-16
DATE		06/01/92	08/27/92	10/26/92	01/30/92	08/27/92	01/30/92	08/27/92	08/27/92
QA	MCL ug/L								DUPLICATE SAMPLE
1,2-DICHLOROBENZENE	600 *	< 0.50	< 2.50	< 2.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,3-DICHLOROBENZENE	-	< 0.50	< 2.50	< 2.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,4-DICHLOROBENZENE	5	< 0.50	< 2.50	< 2.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
BENZENE	1	15.00	< 2.50	< 2.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
CHLOROBENZENE	30	< 0.50	< 2.50	< 2.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
ETHYL BENZENE	680	< 0.50	< 2.50	< 2.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
TOLUENE	1000	< 1.00	< 2.50	< 2.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
XYLENE	1750	< 0.50	< 2.50	< 2.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. - = Parameter not analyzed. DATE refers to date sampled.
< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring." * = Proposed USEPA MCL.
SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-3 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
AROMATIC COMPOUNDS (METHOD 602)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-16	MW-16	MW-16	MW-16	MW-16	MW-16	MW-16	MW-16
SAMPLE_ID		MW-16	MW-16-B-1	MW-16-B-2	MW-16-B-3	MW-16-B-4	MW-16-B-5	MW-16-P-1	MW-16-P-2
DATE		10/23/92	06/04/92	06/04/92	06/04/92	06/04/92	06/04/92	06/04/92	06/04/92
QA	MCL ug/L			DUPLICATE SAMPLE	DUPLICATE SAMPLE	DUPLICATE SAMPLE	DUPLICATE SAMPLE		DUPLICATE SAMPLE
1,2-DICHLOROBENZENE	600 *	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,3-DICHLOROBENZENE	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,4-DICHLOROBENZENE	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
BENZENE	1	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
CHLOROBENZENE	30	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
ETHYL BENZENE	680	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
TOLUENE	1000	< 0.50	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
XYLENE	1750	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. - = Parameter not analyzed. DATE refers to date sampled.
< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring." * = Proposed USEPA MCL.
SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-3 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
AROMATIC COMPOUNDS (METHOD 602)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-16	MW-16	MW-16	MW-17	MW-17	MW-18	MW-18	MW-18
SAMPLE_ID		MW-16-P-3	MW-16-P-4	MW-16-P-5	MW-17	MW-17	MW-18	MW-18	MW-18
DATE		06/04/92	06/04/92	06/04/92	01/30/92	08/27/92	01/30/92	06/01/92	08/27/92
QA	MCL	DUPLICATE	DUPLICATE	DUPLICATE					
	ug/L	SAMPLE	SAMPLE	SAMPLE					
1,2-DICHLOROBENZENE	600 *	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,3-DICHLOROBENZENE	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,4-DICHLOROBENZENE	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
BENZENE	1	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
CHLOROBENZENE	30	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
ETHYL BENZENE	680	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
TOLUENE	1000	< 1.00	< 1.00	< 1.00	< 0.50	< 0.50	< 0.50	< 1.00	< 0.50
XYLENE	1750	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. - = Parameter not analyzed. DATE refers to date sampled.
< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring." * = Proposed USEPA MCL.
SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-3 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
AROMATIC COMPOUNDS (METHOD 602)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-18	MW-19	MW-19	MW-20	MW-20	MW-20	MW-20	MW-21
SAMPLE_ID		MW-18	MW-19	MW-19	MW-20	MW-20	MW-20	MW-20	MW-21
DATE		10/26/92	01/30/92	08/28/92	01/30/92	06/02/92	08/28/92	10/23/92	01/30/92
QA	MCL ug/L								
1,2-DICHLOROBENZENE	600 *	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,3-DICHLOROBENZENE	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,4-DICHLOROBENZENE	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
BENZENE	1	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
CHLOROBENZENE	30	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
ETHYL BENZENE	680	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
TOLUENE	1000	< 0.50	< 0.50	< 0.50	< 0.50	< 1.00	< 0.50	< 0.50	< 0.50
XYLENE	1750	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. - = Parameter not analyzed. DATE refers to date sampled.
< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring." * = Proposed USEPA MCL.
SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-3 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
AROMATIC COMPOUNDS (METHOD 602)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE			MW-21	MW-22	MW-23	MW-23	MW-24	MW-25	MW-25	MW-26
SAMPLE_ID			MW-21	MW-22	MW-23	MW-23	MW-24	MW-25	MW-25	MW-26
DATE			08/28/92	01/30/92	01/24/92	08/28/92	01/24/92	01/23/92	09/01/92	01/27/92
QA	MCL ug/L									
1,2-DICHLOROBENZENE	600	*	< 0.50	< 0.50	< 0.40	< 0.50	< 0.40	< 0.40	< 0.50	< 0.50
1,3-DICHLOROBENZENE	-		< 0.50	< 0.50	< 0.40	< 0.50	< 0.40	< 0.40	< 0.50	< 0.50
1,4-DICHLOROBENZENE	5		< 0.50	< 0.50	< 0.40	< 0.50	< 0.40	< 0.40	< 0.50	< 0.50
BENZENE	1		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
CHLOROBENZENE	30		< 0.50	< 0.50	< 0.40	< 0.50	< 0.40	< 0.40	< 0.50	< 0.50
ETHYL BENZENE	680		< 0.50	< 0.50	< 0.60	< 0.50	< 0.60	< 0.60	< 0.50	< 0.50
TOLUENE	1000		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	1.40
XYLENE	1750		< 0.50	< 0.50	< 0.60	< 0.50	< 0.60	< 0.60	< 0.50	< 0.50

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. - = Parameter not analyzed. DATE refers to date sampled.
< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring." * = Proposed USEPA MCL.
SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-3 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
AROMATIC COMPOUNDS (METHOD 602)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-26	MW-26	MW-26	MW-26	MW-26	MW-26	MW-26	MW-26
SAMPLE_ID		MW-26	MW-26	MW-26-B-1	MW-26-B-2	MW-26-B-3	MW-26-B-4	MW-26-B-5	MW-26-P-1
DATE		09/01/92	10/23/92	06/04/92	06/04/92	06/04/92	06/04/92	06/04/92	06/04/92
QA	MCL ug/L				DUPLICATE SAMPLE	DUPLICATE SAMPLE	DUPLICATE SAMPLE	DUPLICATE SAMPLE	
1,2-DICHLOROBENZENE	600 *	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,3-DICHLOROBENZENE	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,4-DICHLOROBENZENE	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
BENZENE	1	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
CHLOROBENZENE	30	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
ETHYL BENZENE	680	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
TOLUENE	1000	< 0.50	< 0.50	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
XYLENE	1750	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. - = Parameter not analyzed. DATE refers to date sampled.
< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring." * = Proposed USEPA MCL.
SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-3 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
AROMATIC COMPOUNDS (METHOD 602)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-26	MW-26	MW-26	MW-26	MW-27	MW-27	MW-28	MW-28
SAMPLE_ID		MW-26-P-2	MW-26-P-3	MW-26-P-4	MW-26-P-5	MW-27	MW-27	MW-28	MW-28
DATE		06/04/92	06/04/92	06/04/92	06/04/92	01/23/92	09/01/92	01/30/92	05/28/92
QA	MCL ug/L	DUPLICATE SAMPLE	DUPLICATE SAMPLE	DUPLICATE SAMPLE	DUPLICATE SAMPLE				
1,2-DICHLOROBENZENE	600 *	< 0.50	< 0.50	< 0.50	< 0.50	< 0.40	< 0.50	< 0.50	< 0.50
1,3-DICHLOROBENZENE	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.40	< 0.50	< 0.50	< 0.50
1,4-DICHLOROBENZENE	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.40	< 0.50	< 0.50	< 0.50
BENZENE	1	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
CHLOROBENZENE	30	< 0.50	< 0.50	< 0.50	< 0.50	< 0.40	< 0.50	< 0.50	< 0.50
ETHYL BENZENE	680	< 0.50	< 0.50	< 0.50	< 0.50	< 0.60	< 0.50	< 0.50	< 0.50
TOLUENE	1000	< 1.00	< 1.00	< 1.00	< 1.00	< 0.50	< 0.50	< 0.50	< 1.00
XYLENE	1750	< 0.50	< 0.50	< 0.50	< 0.50	< 0.60	< 0.50	< 0.50	< 0.50

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. - = Parameter not analyzed. DATE refers to date sampled.
< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring." * = Proposed USEPA MCL.
SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-3 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
AROMATIC COMPOUNDS (METHOD 602)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE			MW-28	MW-28	MW-29	MW-29	MW-29	MW-29	MW-30	MW-30
SAMPLE_ID			MW-28	MW-28	MW-29	MW-29	MW-29	MW-29	MW-30	MW-30
DATE			08/31/92	10/22/92	01/30/92	05/29/92	08/31/92	10/22/92	01/31/92	05/28/92
QA	MCL ug/L									
1,2-DICHLOROBENZENE	600	*	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,3-DICHLOROBENZENE	-		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,4-DICHLOROBENZENE	5		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
BENZENE	1		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
CHLOROBENZENE	30		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
ETHYL BENZENE	680		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
TOLUENE	1000		< 0.50	< 0.50	< 0.50	< 1.00	< 0.50	< 0.50	< 0.50	< 1.00
XYLENE	1750		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. - = Parameter not analyzed. DATE refers to date sampled.
< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring." * = Proposed USEPA MCL.
SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-3 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
AROMATIC COMPOUNDS (METHOD 602)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE			MW-30	MW-30	MW-31	MW-31	MW-31	MW-31	MW-32	MW-32
SAMPLE_ID			MW-30	MW-30	MW-31	MW-31	MW-31	MW-31	MW-32	MW-32
DATE			08/31/92	10/22/92	01/31/92	05/28/92	08/31/92	10/21/92	01/29/92	05/29/92
QA	MCL ug/L									
1,2-DICHLOROBENZENE	600	*	< 5.00	< 2.50	< 0.50	< 0.50	< 5.00	< 5.00	< 0.50	< 0.50
1,3-DICHLOROBENZENE	-		< 5.00	< 2.50	< 0.50	< 0.50	< 5.00	< 5.00	< 0.50	< 0.50
1,4-DICHLOROBENZENE	5		< 5.00	< 2.50	< 0.50	< 0.50	< 5.00	< 5.00	< 0.50	< 0.50
BENZENE	1		< 5.00	< 2.50	< 0.50	< 0.50	< 5.00	< 5.00	< 0.50	< 0.50
CHLOROBENZENE	30		< 5.00	< 2.50	< 0.50	< 0.50	< 5.00	< 5.00	< 0.50	< 0.50
ETHYL BENZENE	680		< 5.00	< 2.50	< 0.50	< 0.50	< 5.00	< 5.00	< 0.50	< 0.50
TOLUENE	1000		< 5.00	< 2.50	< 0.50	< 1.00	< 5.00	< 5.00	< 0.50	< 1.00
XYLENE	1750		< 5.00	< 2.50	< 0.50	< 0.50	< 5.00	< 5.00	< 0.50	< 0.50

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. - = Parameter not analyzed. DATE refers to date sampled.
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SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-3 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
AROMATIC COMPOUNDS (METHOD 602)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-32	MW-32	MW-33	MW-33	MW-33	MW-33	MW-33	MW-33
SAMPLE_ID		MW-32	MW-32	MW-33	MW-33	MW-33	MW-33-B-1	MW-33-B-2	MW-33-B-3
DATE		09/04/92	10/22/92	01/24/92	08/26/92	10/20/92	06/02/92	06/02/92	06/02/92
QA.	MCL ug/L							DUPLICATE SAMPLE	DUPLICATE SAMPLE
1,2-DICHLOROBENZENE	600 *	< 5.00	< 5.00	< 0.40	< 0.50	< 2.50	< 0.50	< 0.50	< 0.50
1,3-DICHLOROBENZENE	-	< 5.00	< 5.00	< 0.40	< 0.50	< 2.50	< 0.50	< 0.50	< 0.50
1,4-DICHLOROBENZENE	5	< 5.00	< 5.00	< 0.40	< 0.50	< 2.50	< 0.50	< 0.50	< 0.50
BENZENE	1	< 5.00	< 5.00	< 0.50	< 0.50	< 2.50	< 0.50	< 0.50	< 0.50
CHLOROBENZENE	30	< 5.00	< 5.00	< 0.40	< 0.50	< 2.50	< 0.50	< 0.50	< 0.50
ETHYL BENZENE	680	< 5.00	< 5.00	< 0.60	< 0.50	< 2.50	< 0.50	< 0.50	< 0.50
TOLUENE	1000	< 5.00	< 5.00	< 0.50	< 0.50	< 2.50	< 1.00	< 1.00	< 1.00
XYLENE	1750	< 5.00	< 5.00	< 0.60	< 0.50	< 2.50	< 0.50	< 0.50	< 0.50

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. - = Parameter not analyzed. DATE refers to date sampled.
< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring." * = Proposed USEPA MCL.
SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-3 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
AROMATIC COMPOUNDS (METHOD 602)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-33	MW-33	MW-33	MW-33	MW-33	MW-33	MW-33	MW-34
SAMPLE_ID		MW-33-B-4	MW-33-B-5	MW-33-P-1	MW-33-P-2	MW-33-P-3	MW-33-P-4	MW-33-P-5	MW-34
DATE		06/02/92	06/02/92	06/02/92	06/02/92	06/02/92	06/02/92	06/02/92	01/23/92
QA	MCL	DUPLICATE	DUPLICATE		DUPLICATE	DUPLICATE	DUPLICATE	DUPLICATE	
	ug/L	SAMPLE	SAMPLE		SAMPLE	SAMPLE	SAMPLE	SAMPLE	
1,2-DICHLOROBENZENE	600 *	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.40
1,3-DICHLOROBENZENE	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.40
1,4-DICHLOROBENZENE	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.40
BENZENE	1	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
CHLOROBENZENE	30	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.40
ETHYL BENZENE	680	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.60
TOLUENE	1000	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 0.50
XYLENE	1750	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.60

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. - = Parameter not analyzed. DATE refers to date sampled.
< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring." * = Proposed USEPA MCL.
SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-3 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
AROMATIC COMPOUNDS (METHOD 602)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-34	MW-34	MW-34	MW-34	MW-34	MW-34	MW-34	MW-34
SAMPLE_ID		MW-34	MW-34	MW-34-B-1	MW-34-B-2	MW-34-B-3	MW-34-B-4	MW-34-B-5	MW-34-P-1
DATE		09/01/92	10/26/92	06/03/92	06/03/92	06/03/92	06/03/92	06/03/92	06/03/92
QA	MCL ug/L				DUPLICATE SAMPLE	DUPLICATE SAMPLE	DUPLICATE SAMPLE	DUPLICATE SAMPLE	
1,2-DICHLOROBENZENE	600 *	< 5.00	< 12.00	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,3-DICHLOROBENZENE	-	< 5.00	< 12.00	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,4-DICHLOROBENZENE	5	< 5.00	< 12.00	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
BENZENE	1	< 5.00	< 12.00	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
CHLOROBENZENE	30	< 5.00	< 12.00	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
ETHYL BENZENE	680	< 5.00	< 12.00	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
TOLUENE	1000	< 5.00	< 12.00	< 1.50	< 1.50	< 1.50	< 1.50	< 1.50	< 1.50
XYLENE	1750	< 5.00	< 12.00	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. - = Parameter not analyzed. DATE refers to date sampled.
< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring." * = Proposed USEPA MCL.
SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-3 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
AROMATIC COMPOUNDS (METHOD 602)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-34	MW-34	MW-34	MW-34	MW-35	MW-35	MW-35	MW-35
SAMPLE_ID		MW-34-P-2	MW-34-P-3	MW-34-P-4	MW-34-P-5	MW-35	MW-35	MW-35	MW-35
DATE		06/03/92	06/03/92	06/03/92	06/03/92	01/23/92	06/01/92	09/01/92	09/01/92
QA	MCL ug/L	DUPLICATE SAMPLE	DUPLICATE SAMPLE	DUPLICATE SAMPLE	DUPLICATE SAMPLE				DUPLICATE SAMPLE
1,2-DICHLOROBENZENE	600 *	< 0.50	< 0.50	< 0.50	< 0.50	< 0.40	< 0.50	< 5.00	< 0.50
1,3-DICHLOROBENZENE	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.40	< 0.50	< 5.00	< 0.50
1,4-DICHLOROBENZENE	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.40	< 0.50	< 5.00	< 0.50
BENZENE	1	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 5.00	< 0.50
CHLOROBENZENE	30	< 0.50	< 0.50	< 0.50	< 0.50	< 0.40	< 0.50	< 5.00	< 0.50
ETHYL BENZENE	680	< 0.50	< 0.50	< 0.50	< 0.50	< 0.60	< 0.50	< 5.00	< 0.50
TOLUENE	1000	< 1.50	< 1.50	< 1.50	< 1.50	< 0.50	< 1.00	< 5.00	< 0.50
XYLENE	1750	< 0.50	< 0.50	< 0.50	< 0.50	< 0.60	< 0.50	< 5.00	< 0.50

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. - = Parameter not analyzed. DATE refers to date sampled.
< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring." * = Proposed USEPA MCL.
SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-3 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
AROMATIC COMPOUNDS (METHOD 602)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-35	MW-35	MW-36	MW-36	MW-36	MW-36	MW-37	MW-37
SAMPLE_ID		MW-35	MW-35	MW-36	MW-36	MW-36	MW-36	MW-37	MW-37
DATE		10/26/92	10/26/92	01/23/92	06/01/92	09/04/92	10/21/92	01/23/92	01/23/92
QA	MCL ug/L		DUPLICATE SAMPLE						DUPLICATE SAMPLE
1,2-DICHLOROBENZENE	600 *	< 2.50	< 0.50	< 0.40	< 0.50	< 12.00	< 5.00	< 0.40	< 0.30
1,3-DICHLOROBENZENE	-	< 2.50	< 0.50	< 0.40	< 0.50	< 12.00	< 5.00	< 0.40	< 0.30
1,4-DICHLOROBENZENE	5	< 2.50	< 0.50	< 0.40	< 0.50	< 12.00	< 5.00	< 0.40	< 0.30
BENZENE	1	< 2.50	< 0.50	0.53	< 0.50	< 12.00	< 5.00	< 0.50	< 0.30
CHLOROBENZENE	30	< 2.50	< 0.50	< 0.40	< 0.50	< 12.00	< 5.00	< 0.40	< 0.30
ETHYL BENZENE	680	< 2.50	< 0.50	< 0.60	< 0.50	< 12.00	< 5.00	< 0.60	< 0.30
TOLUENE	1000	< 2.50	< 0.50	1.40	< 1.00	< 12.00	< 5.00	< 0.50	< 0.30
XYLENE	1750	< 2.50	< 0.50	< 0.60	< 0.50	< 12.00	< 5.00	< 0.60	< 0.30

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. - = Parameter not analyzed. DATE refers to date sampled.
< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring." * = Proposed USEPA MCL.
SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-3 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
AROMATIC COMPOUNDS (METHOD 602)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE			MW-37	MW-37	MW-37	MW-38	MW-38	MW-38	MW-38	MW-38
SAMPLE_ID			MW-37	MW-37	MW-37	MW-38	MW-38	MW-38	MW-38	MW-38-B-1
DATE			06/01/92	09/04/92	10/21/92	01/24/92	01/24/92	09/04/92	10/27/92	06/03/92
QA	MCL ug/L						DUPLICATE SAMPLE			
1,2-DICHLOROBENZENE	600	*	< 0.50	< 0.50	< 0.50	< 0.40	< 0.30	< 12.00	< 2.50	< 0.50
1,3-DICHLOROBENZENE	-		< 0.50	< 0.50	< 0.50	< 0.40	< 0.30	< 12.00	< 2.50	< 0.50
1,4-DICHLOROBENZENE	5		< 0.50	< 0.50	< 0.50	< 0.40	< 0.30	< 12.00	< 2.50	< 0.50
BENZENE	1		< 0.50	< 0.50	< 0.50	< 0.50	< 0.30	< 12.00	< 2.50	< 0.50
CHLOROBENZENE	30		< 0.50	< 0.50	< 0.50	< 0.40	< 0.30	< 12.00	< 2.50	< 0.50
ETHYL BENZENE	680		< 0.50	< 0.50	< 0.50	< 0.60	< 0.30	< 12.00	< 2.50	< 0.50
TOLUENE	1000		< 1.00	< 0.50	< 0.50	< 0.50	< 0.30	< 12.00	< 2.50	< 1.50
XYLENE	1750		< 0.50	< 0.50	< 0.50	< 0.60	< 0.30	< 12.00	< 2.50	< 0.50

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. - = Parameter not analyzed. DATE refers to date sampled.
< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring." * = Proposed USEPA MCL.
SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-3 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
AROMATIC COMPOUNDS (METHOD 602)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-38	MW-38	MW-38	MW-38	MW-38	MW-38	MW-38	MW-38
SAMPLE_ID		MW-38-B-2	MW-38-B-3	MW-38-B-4	MW-38-B-5	MW-38-P-1	MW-38-P-2	MW-38-P-3	MW-38-P-4
DATE		06/03/92	06/03/92	06/03/92	06/03/92	06/03/92	06/03/92	06/03/92	06/03/92
QA	MCL	DUPLICATE	DUPLICATE	DUPLICATE	DUPLICATE		DUPLICATE	DUPLICATE	DUPLICATE
	ug/L	SAMPLE	SAMPLE	SAMPLE	SAMPLE		SAMPLE	SAMPLE	SAMPLE
1,2-DICHLOROBENZENE	600 *	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,3-DICHLOROBENZENE	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,4-DICHLOROBENZENE	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
BENZENE	1	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
CHLOROBENZENE	30	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
ETHYL BENZENE	680	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
TOLUENE	1000	< 1.50	< 1.50	< 1.50	< 1.50	< 1.50	< 1.50	< 1.50	< 1.50
XYLENE	1750	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. - = Parameter not analyzed. DATE refers to date sampled.
< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring." * = Proposed USEPA MCL.
SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-3 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
AROMATIC COMPOUNDS (METHOD 602)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-38	MW-39	MW-39	MW-39	MW-39	MW-39	MW-39	MW-39
SAMPLE_ID		MW-38-P-5	MW-39	MW-39	MW-39	MW-39	MW-39	MW-39	MW-39-B-1
DATE		06/03/92	01/23/92	01/23/92	09/04/92	09/04/92	10/21/92	10/21/92	06/03/92
QA	MCL	DUPLICATE		DUPLICATE		DUPLICATE		DUPLICATE	
	ug/L	SAMPLE		SAMPLE		SAMPLE		SAMPLE	
1,2-DICHLOROBENZENE	600 *	< 0.50	< 0.40	< 0.40	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,3-DICHLOROBENZENE	-	< 0.50	< 0.40	< 0.40	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,4-DICHLOROBENZENE	5	< 0.50	< 0.40	< 0.40	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
BENZENE	1	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
CHLOROBENZENE	30	< 0.50	< 0.40	< 0.40	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
ETHYL BENZENE	680	< 0.50	< 0.60	< 0.60	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
TOLUENE	1000	< 1.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 1.50
XYLENE	1750	< 0.50	< 0.60	< 0.60	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. - = Parameter not analyzed. DATE refers to date sampled.
< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring." * = Proposed USEPA MCL.
SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-3 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
AROMATIC COMPOUNDS (METHOD 602)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-39	MW-39	MW-39	MW-39	MW-39	MW-39	MW-39	MW-39
SAMPLE_ID		MW-39-B-2	MW-39-B-3	MW-39-B-4	MW-39-B-5	MW-39-P-1	MW-39-P-2	MW-39-P-3	MW-39-P-4
DATE		06/03/92	06/03/92	06/03/92	06/03/92	06/03/92	06/03/92	06/03/92	06/03/92
QA	MCL ug/L	DUPLICATE SAMPLE	DUPLICATE SAMPLE	DUPLICATE SAMPLE	DUPLICATE SAMPLE		DUPLICATE SAMPLE	DUPLICATE SAMPLE	DUPLICATE SAMPLE
1,2-DICHLOROBENZENE	600 *	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,3-DICHLOROBENZENE	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,4-DICHLOROBENZENE	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
BENZENE	1	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
CHLOROBENZENE	30	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
ETHYL BENZENE	680	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
TOLUENE	1000	< 1.50	< 1.50	< 1.50	< 1.50	< 1.50	< 1.50	< 1.50	< 1.50
XYLENE	1750	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. - = Parameter not analyzed. DATE refers to date sampled.
< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring." * = Proposed USEPA MCL.
SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-3 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
AROMATIC COMPOUNDS (METHOD 602)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-39	MW-40	MW-40	MW-40	MW-40	MW-40	MW-41	MW-41
SAMPLE_ID		MW-39-P-5	MW-40	MW-40	MW-40	MW-40	MW-40	MW-41	MW-41
DATE		06/03/92	01/29/92	01/29/92	05/29/92	08/31/92	10/22/92	01/31/92	01/31/92
QA	MCL ug/L	DUPLICATE SAMPLE		DUPLICATE SAMPLE					DUPLICATE SAMPLE
1,2-DICHLOROBENZENE	600 *	< 0.50	< 0.50	< 0.50	< 0.50	< 5.00	< 2.50	< 0.50	< 0.50
1,3-DICHLOROBENZENE	-	< 0.50	< 0.50	< 0.50	< 0.50	< 5.00	< 2.50	< 0.50	< 0.50
1,4-DICHLOROBENZENE	5	< 0.50	< 0.50	< 0.50	< 0.50	< 5.00	< 2.50	< 0.50	< 0.50
BENZENE	1	< 0.50	< 0.50	< 0.50	< 0.50	< 5.00	< 2.50	< 0.50	< 0.50
CHLOROBENZENE	30	< 0.50	< 0.50	< 0.50	< 0.50	< 5.00	< 2.50	< 0.50	< 0.50
ETHYL BENZENE	680	< 0.50	< 0.50	< 0.50	< 0.50	< 5.00	< 2.50	< 0.50	< 0.50
TOLUENE	1000	< 1.50	< 0.50	< 0.50	< 1.00	< 5.00	< 2.50	< 0.50	< 0.50
XYLENE	1750	< 0.50	< 0.50	< 0.50	< 0.50	< 5.00	< 2.50	< 0.50	< 0.50

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. - = Parameter not analyzed. DATE refers to date sampled.
< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring." * = Proposed USEPA MCL.
SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-3 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
AROMATIC COMPOUNDS (METHOD 602)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-41	MW-41	MW-41	MW-42	MW-42	MW-42	MW-42	MW-42
SAMPLE_ID		MW-41	MW-41	MW-41	MW-42	MW-42	MW-42	MW-42	MW-42
DATE		05/26/92	08/25/92	10/20/92	02/07/92	02/07/92	06/04/92	08/25/92	10/27/92
QA	MCL ug/L					DUPLICATE SAMPLE			
1,2-DICHLOROBENZENE	600 *	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 12.00
1,3-DICHLOROBENZENE	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 12.00
1,4-DICHLOROBENZENE	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 12.00
BENZENE	1	< 0.50	< 0.50	0.50	1.60	1.70	3.30	1.20	< 12.00
CHLOROBENZENE	30	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 12.00
ETHYL BENZENE	680	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 12.00
TOLUENE	1000	< 1.00	< 0.50	< 0.50	< 0.50	< 0.50	< 1.00	< 0.50	< 12.00
XYLENE	1750	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 12.00

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. - = Parameter not analyzed. DATE refers to date sampled.
< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring." * = Proposed USEPA MCL.
SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-3 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
AROMATIC COMPOUNDS (METHOD 602)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-43	MW-43	MW-43	MW-43	MW-44	RB-01	RB-01	RB-01
SAMPLE_ID		MW-43	MW-43	MW-43	MW-43	MW-44	RB-01	RB-01	RB-01
DATE		02/07/92	06/02/92	08/25/92	10/22/92	10/27/92	01/23/92	06/02/92	08/26/92
QA	MCL ug/L						RINSATE BLANK	RINSATE BLANK	RINSATE BLANK
1,2-DICHLOROBENZENE	600 *	< 0.50	< 0.50	0.51	< 5.00	< 0.50	< 0.40	< 0.50	< 0.50
1,3-DICHLOROBENZENE	-	< 0.50	< 0.50	< 0.50	< 5.00	< 0.50	< 0.40	< 0.50	< 0.50
1,4-DICHLOROBENZENE	5	< 0.50	< 0.50	< 0.50	< 5.00	< 0.50	< 0.40	< 0.50	< 0.50
BENZENE	1	< 0.50	< 0.50	0.60	< 5.00	< 0.50	< 0.50	< 0.50	< 0.50
CHLOROBENZENE	30	< 0.50	< 0.50	< 0.50	< 5.00	< 0.50	< 0.40	< 0.50	< 0.50
ETHYL BENZENE	680	< 0.50	< 0.50	< 0.50	< 5.00	< 0.50	< 0.60	< 0.50	< 0.50
TOLUENE	1000	< 0.50	< 1.00	< 0.50	< 5.00	< 0.50	< 0.50	< 1.00	< 0.50
XYLENE	1750	< 0.50	< 0.50	< 0.50	< 5.00	< 0.50	< 0.60	< 0.50	< 0.50

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. - = Parameter not analyzed. DATE refers to date sampled.
< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring." * = Proposed USEPA MCL.
SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-3 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
AROMATIC COMPOUNDS (METHOD 602)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE			RB-01	RB-02	RB-02	RB-02	RB-02	RB-03	RB-03	RB-03
SAMPLE_ID			RB-01	RB-02	RB-02	RB-02	RB-02	RB-03	RB-03	RB-03
DATE			10/23/92	01/27/92	06/03/92	08/28/92	10/23/92	01/29/92	06/04/92	09/01/92
QA	MCL		RINSATE	RINSATE	RINSATE	RINSATE	RINSATE	RINSATE	RINSATE	RINSATE
	ug/L		BLANK	BLANK	BLANK	BLANK	BLANK	BLANK	BLANK	BLANK
1,2-DICHLOROBENZENE	600	*	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,3-DICHLOROBENZENE	-		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,4-DICHLOROBENZENE	5		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
BENZENE	1		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
CHLOROBENZENE	30		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
ETHYL BENZENE	680		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
TOLUENE	1000		< 0.50	< 0.50	< 1.50	< 0.50	< 0.50	< 0.50	1.00	< 0.50
XYLENE	1750		< 0.50	< 0.50	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. - = Parameter not analyzed. DATE refers to date sampled.
< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring." * = Proposed USEPA MCL.
SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-3 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
AROMATIC COMPOUNDS (METHOD 602)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		RB-03	RB-04	RB-05	TB-01	TB-01	TB-01	TB-02	TB-02
SAMPLE_ID		RB-03	RB-04	RB-05	TB-01	TB-01	TB-01	TB-02	TB-02
DATE		10/27/92	01/31/92	02/07/92	05/26/92	08/25/92	10/20/92	05/29/92	10/22/92
QA	MCL ug/L	RINSATE BLANK	RINSATE BLANK	RINSATE BLANK	TRAVEL CONTROL	TRAVEL CONTROL	TRAVEL CONTROL	TRAVEL CONTROL	TRAVEL CONTROL
1,2-DICHLOROBENZENE	600 *	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,3-DICHLOROBENZENE	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,4-DICHLOROBENZENE	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
BENZENE	1	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
CHLOROBENZENE	30	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
ETHYL BENZENE	680	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
TOLUENE	1000	< 0.50	< 0.50	< 0.50	1.00	< 0.50	< 0.50	1.00	< 0.50
XYLENE	1750	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. - = Parameter not analyzed. DATE refers to date sampled.
< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring." * = Proposed USEPA MCL.
SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-3 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
AROMATIC COMPOUNDS (METHOD 602)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		TB-03	TB-03	TB-04	TB-05
SAMPLE_ID		TB-03	TB-03	TB-04	TB-05
DATE		08/31/92	10/26/92	06/03/92	06/04/92
QA	MCL	TRAVEL	TRAVEL	TRAVEL	TRAVEL
	ug/L	CONTROL	CONTROL	CONTROL	CONTROL
1,2-DICHLOROBENZENE	600 *	< 0.50	< 0.50	< 0.50	< 0.50
1,3-DICHLOROBENZENE	-	< 0.50	< 0.50	< 0.50	< 0.50
1,4-DICHLOROBENZENE	5	< 0.50	< 0.50	< 0.50	< 0.50
BENZENE	1	< 0.50	< 0.50	< 0.50	< 0.50
CHLOROBENZENE	30	< 0.50	< 0.50	< 0.50	< 0.50
ETHYL BENZENE	680	< 0.50	< 0.50	< 0.50	< 0.50
TOLUENE	1000	< 0.50	< 0.50	< 1.50	< 1.00
XYLENE	1750	< 0.50	< 0.50	< 0.50	< 0.50

All units reported as ug/L (ppb)

QA = Samples taken as part of the quality assurance program. - = Parameter not analyzed. DATE refers to date sampled.
< = Constituent below detection limits. Detection limits may vary depending on interference by other sample constituents.
MCL = California Department of Health Services (DHS) Maximum Contaminant Level (primary), Title 22 of the California Code of Regulations, Division 4, Chapter 15, "Domestic Water Quality and Monitoring." * = Proposed USEPA MCL.
SAMPLE_ID: B = Sample collected with Bailer. P = Sample collected by Pumping.

TABLE B-4
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
FIELD PARAMETERS
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE	DATE	TEMPERATURE	EC-F	pH-F
		degrees C	umhos/cm	
MW-01	01/29/92	18.6	601	6.95
MW-02	02/07/92	19.1	897	6.58
MW-02	05/26/92	20.6	848	6.63
MW-02	08/25/92	20.4	759	6.89
MW-02	10/20/92	20.9	919	6.68
MW-03	01/29/92	17.7	586	7.09
MW-04	01/28/92	19.6	1313	6.84
MW-04	05/29/92	20.8	1128	6.82
MW-04	08/26/92	21.0	847	6.66
MW-04	10/20/92	20.2	982	7.01
MW-05	01/28/92	18.2	1224	6.88
MW-06	01/28/92	18.9	1722	6.93
MW-06	08/28/92	19.0	1034	7.29
MW-07	02/07/92	18.9	1168	7.12
MW-07	06/02/92	20.3	1014	7.22
MW-07	08/31/92	19.3	848	7.34
MW-07	10/23/92	20.3	997	7.22
MW-08	01/28/92	19.4	1471	6.67
MW-08	08/28/92	19.6	923	7.36
MW-11	01/27/92	19.7	1293	7.58
MW-11	06/02/92	20.8	1130	7.45
MW-11	08/26/92	20.1	1032	7.34
MW-11	10/20/92	20.8	975	7.28
MW-12	01/28/92	19.7	1581	6.96
MW-12	06/01/92	20.6	1512	7.18
MW-12	08/26/92	21.1	967	7.00
MW-12	10/26/92	20.2	1478	7.20
MW-13	02/07/92	19.9	1095	6.71
MW-13	06/04/92	20.9	1061	6.61
MW-13	08/26/92	21.2	706	6.08
MW-13	10/27/92	20.8	895	6.65
MW-14	02/07/92	20.0	1362	7.39
MW-14	06/01/92	20.8	1383	7.07
MW-14	08/27/92	20.2	857	6.93
MW-14	10/26/92	20.2	1331	7.15
MW-15	01/30/92	19.0	1370	7.66
MW-15	08/27/92	20.8	909	6.82

DATE refers to date sampled.

TABLE B-4 (cont.)

1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS

FIELD PARAMETERS

UNION PACIFIC RAILROAD YARD

SACRAMENTO, CALIFORNIA

SAMPLE	DATE	TEMPERATURE	EC-F	pH-F
		degrees C	umhos/cm	
MW-16	01/30/92	19.4	1353	7.27
MW-16	06/04/92	20.2	1347	6.66
MW-16	08/27/92	19.7	1053	6.91
MW-16	10/23/92	20.3	1019	7.02
MW-17	01/30/92	18.5	1040	7.32
MW-17	08/27/92	21.4	677	7.44
MW-18	01/30/92	19.1	1185	7.31
MW-18	06/01/92	20.8	1183	6.95
MW-18	08/27/92	21.2	749	6.98
MW-18	10/26/92	20.2	1261	7.04
MW-19	01/30/92	18.9	1275	7.54
MW-19	08/28/92	21.7	800	7.33
MW-20	01/30/92	19.1	1428	7.34
MW-20	06/02/92	20.4	1204	6.94
MW-20	08/28/92	20.8	995	7.15
MW-20	10/23/92	20.6	1220	7.06
MW-21	01/30/92	18.5	1034	7.53
MW-21	08/28/92	20.9	692	7.36
MW-22	01/30/92	19.4	930	7.78
MW-23	01/24/92	17.7	1088	7.20
MW-23	08/28/92	20.9	891	7.11
MW-24	01/24/92	17.4	1231	7.31
MW-25	01/23/92	17.8	1408	7.03
MW-25	09/01/92	20.4	1019	6.74
MW-26	01/27/92	19.6	1490	7.12
MW-26	06/04/92	20.8	1373	7.16
MW-26	09/01/92	20.4	969	7.20
MW-26	10/23/92	20.4	1119	7.14
MW-27	01/23/92	18.1	1147	7.19
MW-27	09/01/92	20.1	935	7.24
MW-28	01/30/92	18.9	1378	7.48
MW-28	05/28/92	20.6	1449	7.05
MW-28	08/31/92	20.8	1058	7.00
MW-28	10/22/92	20.7	1188	7.15
MW-29	01/30/92	19.2	909	7.56
MW-29	05/29/92	20.9	1007	7.09
MW-29	08/31/92	20.2	750	7.09

DATE refers to date sampled.

TABLE B-4 (cont.)

1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS

FIELD PARAMETERS

UNION PACIFIC RAILROAD YARD

SACRAMENTO, CALIFORNIA

SAMPLE	DATE	TEMPERATURE	EC-F	pH-F
		degrees C	umhos/cm	
MW-29	10/22/92	20.9	802	7.09
MW-30	01/31/92	19.5	1175	7.50
MW-30	05/28/92	20.6	1151	7.33
MW-30	08/31/92	20.5	840	7.03
MW-30	10/22/92	20.8	945	7.07
MW-31	01/31/92	19.7	1174	7.12
MW-31	05/28/92	21.1	1077	7.08
MW-31	08/31/92	21.1	797	6.91
MW-31	10/21/92	21.1	887	7.07
MW-32	01/29/92	19.3	1098	7.12
MW-32	05/29/92	20.6	940	6.95
MW-32	09/04/92	21.3	612	6.98
MW-32	10/22/92	19.8	873	7.13
MW-33	01/24/92	18.9	812	7.51
MW-33	06/02/92	20.8	735	7.18
MW-33	08/26/92	20.5	619	6.89
MW-33	10/20/92	20.8	678	7.03
MW-34	01/23/92	18.3	1064	7.28
MW-34	06/03/92	20.5	1126	7.18
MW-34	09/01/92	20.5	731	7.01
MW-34	10/26/92	20.4	1119	7.15
MW-35	01/23/92	17.3	888	7.38
MW-35	06/01/92	20.8	901	7.04
MW-35	09/01/92	20.8	583	7.02
MW-35	10/26/92	20.4	882	7.15
MW-36	01/23/92	17.1	874	7.29
MW-36	06/01/92	19.9	902	7.00
MW-36	09/04/92	18.0	642	7.08
MW-36	10/21/92	18.9	844	7.11
MW-37	01/23/92	17.4	830	7.42
MW-37	06/01/92	19.4	922	7.21
MW-37	09/04/92	18.4	660	7.01
MW-37	10/21/92	18.8	897	7.21
MW-38	01/24/92	16.7	844	7.29
MW-38	06/03/92	18.9	874	6.99
MW-38	09/04/92	19.1	658	6.95
MW-38	10/27/92	18.8	897	7.03

DATE refers to date sampled.

TABLE B-4 (cont.)

1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS

FIELD PARAMETERS

UNION PACIFIC RAILROAD YARD

SACRAMENTO, CALIFORNIA

SAMPLE	DATE	TEMPERATURE	EC-F	pH-F
		degrees C	umhos/cm	
MW-39	01/24/92	16.9	846	7.39
MW-39	06/03/92	19.0	876	7.23
MW-39	09/04/92	18.9	646	7.14
MW-39	10/21/92	18.8	861	7.18
MW-40	01/29/92	19.3	1560	7.12
MW-40	05/29/92	20.4	1468	7.03
MW-40	08/31/92	21.2	1087	7.07
MW-40	10/22/92	20.0	1357	7.13
MW-41	01/31/92	19.3	887	7.78
MW-41	05/26/92	20.4	890	7.46
MW-41	08/25/92	18.6	782	8.01
MW-41	10/20/92	20.1	771	7.55
MW-42	02/07/92	20.2	1348	6.61
MW-42	06/04/92	21.3	1312	6.45
MW-42	08/25/92	21.4	894	6.89
MW-42	10/27/92	21.2	1063	6.56
MW-43	02/07/92	19.5	4670	6.79
MW-43	06/02/92	21.3	3970	6.92
MW-43	08/25/92	21.7	328	7.00
MW-43	10/22/92	21.3	3360	6.94
MW-44	10/27/92	19.4	696	7.34

DATE refers to date sampled.

Appendix C

APPENDIX C

1992 FOURTH QUARTER
GROUNDWATER MONITORING ANALYTICAL LABORATORY REPORTS

ATTN: DEBBIE FISHER 92-3119
QUOTE # 1451
RECEIVED
D&M LABORATORIES RICHARD A ELLIS

ACCULAB ENVIRONMENTAL SERVICES
3700 Lakeville Highway, Petaluma, CA 94952
P.O. Box 808024, Petaluma, CA, 94975-8024
Telephone: (707) 763-8245 FAX: (707) 763-4065

SAMPLE CHAIN OF CUSTODY / WORK ORDER 1992 OCT 26 AM 9:05

Client's Name DAMES + MOORE Phone (916) 387-8800
Address 8801 FOLSOM BLVD #200
City, State, Zip SACRAMENTO CA 95826
Client's or Representative's Signature Richard A. Ellis
(signature authorizes the work and terms listed below)

All samples remain the property of the client who is responsible for disposal. A disposal fee may be imposed if client fails to pick up samples.

PROJ. NO. 00173-072 818X-014 | PROJECT NAME UPRR SAC
SAMPLERS (Signature) Richard A. Ellis

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	EPA 601/602	EPA 6010 Ni Cd As Cr Ni Pb	REMARKS / LAB USE ONLY LAB NO.
MW-18	10/26/92	0830		X	MW-18	4	X		027263
MW-14		0935		X	MW-14	4	X		027264
MW-12		1040		X	MW-12	5	X	X	027265
MW-35		1135		X	MW-35	4	X		027266
MW-52		1140		X	MW-52	4	X		027267
MW-34		1250		X	MW-34	5	X	X	027268
TB-03	10/27/92	1000		X	TB-03	4	X		027269
MW-38		0830		X	MW-38	4	X		027270
MW-44		0935		X	MW-44	5	X	X	027271
RB-03		1000		X	RB-03	4	X		027272
MW-42		1050		X	MW-42	4	X		027273
MW-13		1140		X	MW-13	4	X		027274
MW-53		1150		X	MW-53	4	X		027275
									027276
									027277
					SAMPLES RECEIVED IN GOOD CONDITION NO BROKEN OR LEAKING CONTAINERS				027278
									027279
					UPS - 3 liters, 52 VOAs				027280
					TEMP. BLANK - 4°C				

Relinquished by: (Signature)	DATE	TIME	Received by: (Signature)
Richard A. Ellis	10-27-92	1400	J. Filiento
Relinquished by: (Signature)	DATE	TIME	Received by: (Signature)
Relinquished by: (Signature)	DATE	TIME	Received by: (Signature)

General Remarks:
PLEASE SEND RESULTS TO ATTN: MARK EISEN
* PLEASE SEND BACK BLUE ICE

CLIENT COPY

ENVIRONMENTAL AND INDUSTRIAL HYGIENE SERVICES

3700 Lakeville Highway, Petaluma, CA 94954
P.O. Box 808024, Petaluma, CA 94975-8024
Telephone: (707) 763-8245
FAX (707) 763-4065

Mark Eisen
Dames & Moore
8801 Folsom Blvd - Suite 200
Sacramento, CA 95826

Client Code: DAMM14
Survey # UPRR
Project/Release #
00173-072-818X-044

REVISED REPORT - 11/17/92

L A B O R A T O R Y R E S U L T S

Laboratory Job No.: 923119
Date Collected: 10/26/92
Date Analyzed: 11/02/92
Date Received: 10/28/92
Date Reported: 11/13/92

ASSAY:METAL SCAN BY ICP(EPA 6010)

LABNO	SMPLNO-ID	RESULTS		DET. LIM.
27265	MW-12 WATER		CA STLC LEVEL	
	NI	ND	20	0.10 mg/L
27268	MW-34 WATER		CA STLC LEVEL	
	NI	0.13 mg/L	20	0.10 mg/L
27271	MW-44 WATER		CA STLC LEVEL	
	NI	ND	20	0.10 mg/L
	MB WATER			
	NI	ND		0.10 mg/L
	MBS WATER		SPIKE LEVEL	
	NI	2.01 mg/L	2.00 mg/L	0.10 mg/L
	MX WATER			
	NI	ND		0.10 mg/L
	MS WATER		SPIKE LEVEL	
	NI	1.98 mg/L	2.00 mg/L	0.10 mg/L
	MSD WATER		SPIKE LEVEL	
	NI	2.03 mg/L	2.00 mg/L	0.10 mg/L

ND=Not Detected

THIS REPORT HAS BEEN REVIEWED AND APPROVED FOR RELEASE.
DLF

L A B O R A T O R Y R E S U L T S

Laboratory Job No.: 923119
Date Collected: 10/26/92 — Date Received: 10/28/92
Date Analyzed: 11/06/92 — Date Reported: 11/13/92

ASSAY:
ARSENIC (EPA 7060),3020 ACID DIGEST
LEAD (EPA 7421),3020 ACID DIGEST
CHROMIUM (EPA 7191),3020 ACID DIGEST

MATRIX: WATER

LABNO	SMPLNO	COMPOUND	FOUND mg/L	CA STLC LEV	DET.LIM. mg/L
27271	MW-44	AS	0.005	5.0	0.005
		PB	ND	5.0	0.001
		CR	0.009	560	0.005
	MB	AS	ND		0.005
		PB	ND		0.001
		CR	ND		0.005
				SPIKE LEVELS	
	MBS	AS	0.024	0.025 mg/L	0.005
		PB	0.009	0.010 mg/L	0.001
		CR	0.026	0.025 mg/L	0.005
	MX	AS	ND		0.005
		PB	ND		0.001
		CR	0.009		0.005
				SPIKE LEVELS	
	MS	AS	0.029	0.025 mg/L	0.005
		PB	0.010	0.010 mg/L	0.001
		CR	0.039	0.025 mg/L	0.005
	MSD	AS	0.029	0.025 mg/L	0.005
		PB	0.012	0.010 mg/L	0.001
		CR	0.040	0.025 mg/L	0.005

D & M Laboratories

L A B O R A T O R Y R E S U L T S

Date Collected: 10/26/92
Date Extracted: 10/31/92
Date Analyzed: 10/31/92

Laboratory Job No.: 923119
Date Received: 10/28/92
Date Reported: 11/13/92

ASSAY:
PURGEABLES IN WATER (EPA 601)

COMPOUNDS:	LAB#	27263	DET.	27264	DET.	27265	DET.
	SMP#	MW-18	LIM.	MW-14	LIM.	MW-12	LIM.
	dil.	1		5		5	
PURGEABLES		ug/L		ug/L		ug/L	
BROMODICHLOROMETHANE		ND	0.50	ND	2.5	ND	2.5
BROMOFORM		ND	0.50	ND	2.5	ND	2.5
BROMOMETHANE		ND	1.0	ND	5.0	ND	5.0
CARBON TETRACHLORIDE		ND	0.50	ND	2.5	ND	2.5
CHLOROBENZENE		ND	0.50	ND	2.5	ND	2.5
CHLOROETHANE		ND	1.0	ND	5.0	ND	5.0
CHLOROFORM		ND	0.50	ND	2.5	ND	2.5
CHLOROMETHANE		ND	1.0	ND	5.0	ND	5.0
DIBROMOCHLOROMETHANE		ND	0.50	ND	2.5	ND	2.5
1,4-DICHLOROBENZENE		ND	0.50	ND	2.5	ND	2.5
1,3-DICHLOROBENZENE		ND	0.50	ND	2.5	ND	2.5
1,2-DICHLOROBENZENE		ND	0.50	ND	2.5	ND	2.5
1,1-DICHLOROETHANE		ND	0.50	36	2.5	26	2.5
1,2-DICHLOROETHANE		ND	0.50	ND	2.5	ND	2.5
1,1-DICHLOROETHENE		17	0.50	200	2.5	97	2.5
1,2-DICHLOROETHENE (TOTAL)		ND	0.50	ND	2.5	ND	2.5
1,2-DICHLOROPROPANE		ND	0.50	ND	2.5	ND	2.5
CIS-1,3-DICHLOROPROPENE		ND	0.50	ND	2.5	ND	2.5
TRANS-1,3-DICHLOROPROPENE		ND	0.50	ND	2.5	ND	2.5
METHYLENE CHLORIDE		ND	1.0	ND	5.0	ND	5.0
1,1,2,2-TETRACHLOROETHANE		ND	0.50	ND	2.5	ND	2.5
TETRACHLOROETHENE		ND	0.50	ND	2.5	ND	2.5
1,1,1-TRICHLOROETHANE		2.6	0.50	ND	2.5	ND	2.5
1,1,2-TRICHLOROETHANE		ND	0.50	ND	2.5	ND	2.5
TRICHLOROETHENE		3.0	0.50	13	2.5	14	2.5
TRICHLOROFLUOROMETHANE		ND	1.0	ND	5.0	ND	5.0
VINYL CHLORIDE		ND	1.0	ND	5.0	ND	5.0

L A B O R A T O R Y R E S U L T S

Laboratory Job No.: 923119

COMPOUNDS:	LAB#	27266	DET.	27267	DET.	27268	DET.
	SMP#	MW-35	LIM.	MW-52	LIM.	MW-34	LIM.
	dil.		5		1		25
PURGEABLES			ug/L		ug/L		ug/L
BROMODICHLOROMETHANE		ND	2.5	ND	0.50	ND	12
BROMOFORM		ND	2.5	ND	0.50	ND	12
BROMOMETHANE		ND	5.0	ND	1.0	ND	25
CARBON TETRACHLORIDE		ND	2.5	ND	0.50	ND	12
CHLOROBENZENE		ND	2.5	ND	0.50	ND	12
CHLOROETHANE		ND	5.0	ND	1.0	ND	25
CHLOROFORM		ND	2.5	ND	0.50	ND	12
CHLOROMETHANE		ND	5.0	ND	1.0	ND	25
DIBROMOCHLOROMETHANE		ND	2.5	ND	0.50	ND	12
1,4-DICHLOROBENZENE		ND	2.5	ND	0.50	ND	12
1,3-DICHLOROBENZENE		ND	2.5	ND	0.50	ND	12
1,2-DICHLOROBENZENE		ND	2.5	ND	0.50	ND	12
1,1-DICHLOROETHANE		ND	2.5	2.3	0.50	ND	12
1,2-DICHLOROETHANE		ND	2.5	ND	0.50	ND	12
1,1-DICHLOROETHENE		94	2.5	80 *	0.50	380	12
1,2-DICHLOROETHENE (TOTAL)		ND	2.5	ND	0.50	ND	12
1,2-DICHLOROPROPANE		ND	2.5	ND	0.50	ND	12
CIS-1,3-DICHLOROPROPENE		ND	2.5	ND	0.50	ND	12
TRANS-1,3-DICHLOROPROPENE		ND	2.5	ND	0.50	ND	12
METHYLENE CHLORIDE		ND	5.0	ND	1.0	ND	25
1,1,2,2-TETRACHLOROETHANE		ND	2.5	ND	0.50	ND	12
TETRACHLOROETHENE		ND	2.5	ND	0.50	ND	12
1,1,1-TRICHLOROETHANE		ND	2.5	2.9	0.50	ND	12
1,1,2-TRICHLOROETHANE		ND	2.5	ND	0.50	ND	12
TRICHLOROETHENE		5.8	2.5	6.0	0.50	31	12
TRICHLOROFLUOROMETHANE		ND	5.0	ND	1.0	ND	25
VINYL CHLORIDE		ND	5.0	ND	1.0	ND	25

L A B O R A T O R Y R E S U L T S

Laboratory Job No.: 923119

COMPOUNDS:	LAB#	27269	DET.	27270	DET.	27271	DET.
	SMP#	TB-03	LIM.	MW-38	LIM.	MW-44	LIM.
	dil.	1		5		1	
PURGEABLES		ug/L		ug/L		ug/L	
BROMODICHLOROMETHANE		ND	0.50	ND	2.5	ND	0.50
BROMOFORM		ND	0.50	ND	2.5	ND	0.50
BROMOMETHANE		ND	1.0	ND	5.0	ND	1.0
CARBON TETRACHLORIDE		ND	0.50	ND	2.5	9.6	0.50
CHLOROBENZENE		ND	0.50	ND	2.5	ND	0.50
CHLOROETHANE		ND	1.0	ND	5.0	ND	1.0
CHLOROFORM		ND	0.50	ND	2.5	7.2	0.50
CHLOROMETHANE		ND	1.0	ND	5.0	ND	1.0
DIBROMOCHLOROMETHANE		ND	0.50	ND	2.5	ND	0.50
1,4-DICHLOROBENZENE		ND	0.50	ND	2.5	ND	0.50
1,3-DICHLOROBENZENE		ND	0.50	ND	2.5	ND	0.50
1,2-DICHLOROBENZENE		ND	0.50	ND	2.5	ND	0.50
1,1-DICHLOROETHANE		ND	0.50	13	2.5	0.69	0.50
1,2-DICHLOROETHANE		ND	0.50	ND	2.5	4.3	0.50
1,1-DICHLOROETHENE		ND	0.50	230 *	2.5	2.0	0.50
1,2-DICHLOROETHENE (TOTAL)		ND	0.50	ND	2.5	ND	0.50
1,2-DICHLOROPROPANE		ND	0.50	ND	2.5	ND	0.50
CIS-1,3-DICHLOROPROPENE		ND	0.50	ND	2.5	ND	0.50
TRANS-1,3-DICHLOROPROPENE		ND	0.50	ND	2.5	ND	0.50
METHYLENE CHLORIDE		ND	1.0	ND	5.0	ND	1.0
1,1,2,2-TETRACHLOROETHANE		ND	0.50	ND	2.5	ND	0.50
TETRACHLOROETHENE		ND	0.50	ND	2.5	ND	0.50
1,1,1-TRICHLOROETHANE		ND	0.50	22	2.5	ND	0.50
1,1,2-TRICHLOROETHANE		ND	0.50	ND	2.5	ND	0.50
TRICHLOROETHENE		ND	0.50	14	2.5	ND	0.50
TRICHLOROFLUOROMETHANE		ND	1.0	ND	5.0	ND	1.0
VINYL CHLORIDE		ND	1.0	ND	5.0	ND	1.0

L A B O R A T O R Y R E S U L T S

Laboratory Job No.: 923119

COMPOUNDS:	LAB#	27272	DET.	27273	DET.	27274	DET.
	SMP#	RB-03	LIM.	MW-42	LIM.	MW-13	LIM.
	dil.	1		25		500	
PURGEABLES		ug/L		ug/L		ug/L	
BROMODICHLOROMETHANE		ND	0.50	ND	12	ND	250
BROMOFORM		ND	0.50	ND	12	ND	250
BROMOMETHANE		ND	1.0	ND	25	ND	500
CARBON TETRACHLORIDE		ND	0.50	ND	12	ND	250
CHLOROBENZENE		ND	0.50	ND	12	ND	250
CHLOROETHANE		ND	1.0	ND	25	ND	500
CHLOROFORM		3.9	0.50	ND	12	ND	250
CHLOROMETHANE		ND	1.0	ND	25	ND	500
DIBROMOCHLOROMETHANE		ND	0.50	ND	12	ND	250
1,4-DICHLOROBENZENE		ND	0.50	ND	12	ND	250
1,3-DICHLOROBENZENE		ND	0.50	ND	12	ND	250
1,2-DICHLOROBENZENE		ND	0.50	ND	12	ND	250
1,1-DICHLOROETHANE		ND	0.50	110	12	ND	250
1,2-DICHLOROETHANE		ND	0.50	ND	12	ND	250
1,1-DICHLOROETHENE		ND	0.50	340	12	ND	250
1,2-DICHLOROETHENE (TOTAL)		ND	0.50	ND	12	ND	250
1,2-DICHLOROPROPANE		ND	0.50	ND	12	ND	250
CIS-1,3-DICHLOROPROPENE		ND	0.50	ND	12	ND	250
TRANS-1,3-DICHLOROPROPENE		ND	0.50	ND	12	ND	250
METHYLENE CHLORIDE		ND	1.0	ND	25	ND	500
1,1,2,2-TETRACHLOROETHANE		ND	0.50	ND	12	ND	250
TETRACHLOROETHENE		ND	0.50	28	12	ND	250
1,1,1-TRICHLOROETHANE		ND	0.50	ND	12	ND	250
1,1,2-TRICHLOROETHANE		ND	0.50	ND	12	ND	250
TRICHLOROETHENE		ND	0.50	ND	12	ND	250
TRICHLOROFLUOROMETHANE		ND	1.0	ND	25	ND	500
VINYL CHLORIDE		ND	1.0	ND	25	ND	500

L A B O R A T O R Y R E S U L T S

Laboratory Job No.: 923119

COMPOUNDS:	LAB#	27275	DET.
	SMP#	MW-53	LIM.
	dil.	1	
PURGEABLES		ug/L	
BROMODICHLOROMETHANE		ND	0.5
BROMOFORM		ND	0.5
BROMOMETHANE		ND	1.0
CARBON TETRACHLORIDE		ND	0.5
CHLOROBENZENE		ND	0.5
CHLOROETHANE		ND	1.0
CHLOROFORM		ND	0.5
CHLOROMETHANE		ND	1.0
DIBROMOCHLOROMETHANE		ND	0.5
1,4-DICHLOROBENZENE		ND	0.5
1,3-DICHLOROBENZENE		ND	0.5
1,2-DICHLOROBENZENE		ND	0.5
1,1-DICHLOROETHANE		34 *	0.5
1,2-DICHLOROETHANE		170	0.5
1,1-DICHLOROETHENE		13 *	0.5
1,2-DICHLOROETHENE (TOTAL)		ND	0.5
1,2-DICHLOROPROPANE		1.1	0.5
CIS-1,3-DICHLOROPROPENE		ND	0.5
TRANS-1,3-DICHLOROPROPENE		ND	0.5
METHYLENE CHLORIDE		6.7*	1.0
1,1,2,2-TETRACHLOROETHANE		ND	0.5
TETRACHLOROETHENE		ND	0.5
1,1,1-TRICHLOROETHANE		ND	0.5
1,1,2-TRICHLOROETHANE		ND	0.5
TRICHLOROETHENE		0.91*	0.5
TRICHLOROFLUOROMETHANE		ND	1.0
VINYL CHLORIDE		ND	1.0

L A B O R A T O R Y R E S U L T S

Date Collected: 10/26/92
Date Extracted: 10/31/92
Date Analyzed: 10/31/92

Laboratory Job No.: 923119
Date Received: 10/28/92
Date Reported: 11/13/92

ASSAY:
PURGEABLES IN WATER (EPA 601)

COMPOUNDS:	LAB#		DET.		DET.		DET.
	SMP#	MB	LIM.	MBS	LIM.	MX	LIM.
	dil.	1		1		1	
PURGEABLES		ug/L		ug/L		ug/L	
BROMODICHLOROMETHANE		ND	0.50	ND	0.50	ND	0.50
BROMOFORM		ND	0.50	ND	0.50	ND	0.50
BROMOMETHANE		ND	1.0	ND	1.0	ND	1.0
CARBON TETRACHLORIDE		ND	0.50	ND	0.50	ND	0.50
CHLOROBENZENE		ND	0.50	10	0.50	ND	0.50
CHLOROETHANE		ND	1.0	ND	1.0	ND	1.0
CHLOROFORM		ND	0.50	ND	0.50	3.9	0.50
CHLOROMETHANE		ND	1.0	ND	1.0	ND	1.0
DIBROMOCHLOROMETHANE		ND	0.50	ND	0.50	ND	0.50
1,4-DICHLOROBENZENE		ND	0.50	ND	0.50	ND	0.50
1,3-DICHLOROBENZENE		ND	0.50	ND	0.50	ND	0.50
1,2-DICHLOROBENZENE		ND	0.50	ND	0.50	ND	0.50
1,1-DICHLOROETHANE		ND	0.50	ND	0.50	ND	0.50
1,2-DICHLOROETHANE		ND	0.50	ND	0.50	ND	0.50
1,1-DICHLOROETHENE		ND	0.50	13	0.50	ND	0.50
1,2-DICHLOROETHENE (TOTAL)		ND	0.50	ND	0.50	ND	0.50
1,2-DICHLOROPROPANE		ND	0.50	ND	0.50	ND	0.50
CIS-1,3-DICHLOROPROPENE		ND	0.50	ND	0.50	ND	0.50
TRANS-1,3-DICHLOROPROPENE		ND	0.50	ND	0.50	ND	0.50
METHYLENE CHLORIDE		ND	1.0	ND	1.0	ND	1.0
1,1,2,2-TETRACHLOROETHANE		ND	0.50	ND	0.50	ND	0.50
TETRACHLOROETHENE		ND	0.50	ND	0.50	ND	0.50
1,1,1-TRICHLOROETHANE		ND	0.50	ND	0.50	ND	0.50
1,1,2-TRICHLOROETHANE		ND	0.50	ND	0.50	ND	0.50
TRICHLOROETHENE		ND	0.50	12	0.50	ND	0.50
TRICHLOROFLUOROMETHANE		ND	1.0	ND	1.0	ND	1.0
VINYL CHLORIDE		ND	1.0	ND	1.0	ND	1.0

L A B O R A T O R Y R E S U L T S

Laboratory Job No.: 923119

COMPOUNDS:	LAB#		DET.		DET.
	SMP#	MS	LIM.	MSD	LIM.
	dil.	1		1	
PURGEABLES		ug/L		ug/L	
BROMODICHLOROMETHANE		ND	0.50	ND	0.50
BROMOFORM		ND	0.50	ND	0.50
BROMOMETHANE		ND	1.0	ND	1.0
CARBON TETRACHLORIDE		ND	0.50	ND	0.50
CHLOROBENZENE		10	0.50	11	0.50
CHLOROETHANE		ND	1.0	ND	1.0
CHLOROFORM		3.9	0.50	3.6	0.50
CHLOROMETHANE		ND	1.0	ND	1.0
DIBROMOCHLOROMETHANE		ND	0.50	ND	0.50
1,4-DICHLOROBENZENE		ND	0.50	ND	0.50
1,3-DICHLOROBENZENE		ND	0.50	ND	0.50
1,2-DICHLOROBENZENE		ND	0.50	ND	0.50
1,1-DICHLOROETHANE		ND	0.50	ND	0.50
1,2-DICHLOROETHANE		ND	0.50	ND	0.50
1,1-DICHLOROETHENE		12	0.50	13	0.50
1,2-DICHLOROETHENE (TOTAL)		ND	0.50	ND	0.50
1,2-DICHLOROPROPANE		ND	0.50	ND	0.50
CIS-1,3-DICHLOROPROPENE		ND	0.50	ND	0.50
TRANS-1,3-DICHLOROPROPENE		ND	0.50	ND	0.50
METHYLENE CHLORIDE		ND	1.0	ND	1.0
1,1,2,2-TETRACHLOROETHANE		ND	0.50	ND	0.50
TETRACHLOROETHENE		ND	0.50	ND	0.50
1,1,1-TRICHLOROETHANE		ND	0.50	ND	0.50
1,1,2-TRICHLOROETHANE		ND	0.50	ND	0.50
TRICHLOROETHENE		14	0.50	14	0.50
TRICHLOROFLUOROMETHANE		ND	1.0	ND	1.0
VINYL CHLORIDE		ND	1.0	ND	1.0

L A B O R A T O R Y R E S U L T S

Laboratory Job No.: 923119

PURGEABLES IN WATER (EPA 601)

NOTES: (1) MBS, MS AND MSD WERE SPIKED AT 10 ug/L WITH 1,1-DICHLOROETHENE, TIRCHLOROETHENE AND CHLOROBENZENE.

(2) IDENTIFICATION OF COMPOUNDS WAS CONFIRMED BY GC/MS OR BY SECONDARY COLUMN ANALYSIS.

* SINCE THE CONFIRMATION WAS RUN AT A HIGH DILUTION, THESE COMPOUNDS WERE DILUTED OUT AND THEREFORE ARE UNCONFIRMED.

L A B O R A T O R Y R E S U L T S

Date Collected: 10/26/92
Date Extracted: 10/31/92
Date Analyzed: 10/31/92

Laboratory Job No.: 923119
Date Received: 10/28/92
Date Reported: 11/13/92

ASSAY:
PURGEABLE AROMATICS IN WATER (EPA 602)

COMPOUNDS:	LAB#	27263	DET.	27264	DET.	27265	DET.	27266	DET.
	SMP#	MW-18	LIM.	MW-14	LIM.	MW-12	LIM.	MW-35	LIM.
	dil.	1		5		5		5	
PURGEABLES		ug/L		ug/L		ug/L		ug/L	
BENZENE		ND	0.50	ND	2.5	ND	2.5	ND	2.5
CHLOROBENZENE		ND	0.50	ND	2.5	ND	2.5	ND	2.5
1,2-DICHLOROBENZENE		ND	0.50	ND	2.5	ND	2.5	ND	2.5
1,3-DICHLOROBENZENE		ND	0.50	ND	2.5	ND	2.5	ND	2.5
1,4-DICHLOROBENZENE		ND	0.50	ND	2.5	ND	2.5	ND	2.5
ETHYL BENZENE		ND	0.50	ND	2.5	ND	2.5	ND	2.5
TOLUENE		ND	0.50	ND	2.5	ND	2.5	ND	2.5
XYLENE		ND	0.50	ND	2.5	ND	2.5	ND	2.5

COMPOUNDS:	LAB#	27267	DET.	27268	DET.	27269	DET.	27270	DET.
	SMP#	MW-52	LIM.	MW-34	LIM.	TB-03	LIM.	MW-38	LIM.
	dil.	1		25		1		5	
PURGEABLES		ug/L		ug/L		ug/L		ug/L	
BENZENE		ND	0.50	ND	12	ND	0.50	ND	2.5
CHLOROBENZENE		ND	0.50	ND	12	ND	0.50	ND	2.5
1,2-DICHLOROBENZENE		ND	0.50	ND	12	ND	0.50	ND	2.5
1,3-DICHLOROBENZENE		ND	0.50	ND	12	ND	0.50	ND	2.5
1,4-DICHLOROBENZENE		ND	0.50	ND	12	ND	0.50	ND	2.5
ETHYL BENZENE		ND	0.50	ND	12	ND	0.50	ND	2.5
TOLUENE		ND	0.50	ND	12	ND	0.50	ND	2.5
XYLENE		ND	0.50	ND	12	ND	0.50	ND	2.5

D & M Laboratories

L A B O R A T O R Y R E S U L T S

Laboratory Job No.: 923119

COMPOUNDS:	LAB#	27271	DET.	27272	DET.	27273	DET.
	SMP#	MW-44	LIM.	RB-03	LIM.	MW-42	LIM.
	dil.	1		1		25	
PURGEABLES		ug/L		ug/L		ug/L	
BENZENE		ND	0.50	ND	0.50	ND	12
CHLOROBENZENE		ND	0.50	ND	0.50	ND	12
1,2-DICHLOROBENZENE		ND	0.50	ND	0.50	ND	12
1,3-DICHLOROBENZENE		ND	0.50	ND	0.50	ND	12
1,4-DICHLOROBENZENE		ND	0.50	ND	0.50	ND	12
ETHYL BENZENE		ND	0.50	ND	0.50	ND	12
TOLUENE		ND	0.50	ND	0.50	ND	12
XYLENE		ND	0.50	ND	0.50	ND	12

COMPOUNDS:	LAB#	27274	DET.	27275	DET.
	SMP#	MW-13	LIM.	MW-53	LIM.
	dil.	500		100	
PURGEABLES		ug/L		ug/L	
BENZENE		9600	250	4800	50
CHLOROBENZENE		ND	250	ND	50
1,2-DICHLOROBENZENE		ND	250	ND	50
1,3-DICHLOROBENZENE		ND	250	ND	50
1,4-DICHLOROBENZENE		ND	250	ND	50
ETHYL BENZENE		500	250	530	50
TOLUENE		330	250	360	50
XYLENE		740	250	1100	50

L A B O R A T O R Y R E S U L T S

Date Collected: 10/26/92
Date Extracted: 10/31/92
Date Analyzed: 10/31/92

Laboratory Job No.: 923119
Date Received: 10/28/92
Date Reported: 11/13/92

ASSAY:
PURGEABLE AROMATICS IN WATER (EPA 602)

COMPOUNDS: PURGEABLES	LAB# SMP# dil.	MB	DET. LIM. 1 ug/L	MBS	DET. LIM. 1 ug/L	MX	DET. LIM. 1 ug/L	MS	DET. LIM. 1 ug/L
BENZENE		ND	0.50	11	0.50	ND	0.50	12	0.50
CHLOROBENZENE		ND	0.50	11	0.50	ND	0.50	11	0.50
1,2-DICHLOROBENZENE		ND	0.50	ND	0.50	ND	0.50	ND	0.50
1,3-DICHLOROBENZENE		ND	0.50	ND	0.50	ND	0.50	ND	0.50
1,4-DICHLOROBENZENE		ND	0.50	ND	0.50	ND	0.50	ND	0.50
ETHYL BENZENE		ND	0.50	ND	0.50	ND	0.50	ND	0.50
TOLUENE		ND	0.50	11	0.50	ND	0.50	11	0.50
XYLENE		ND	0.50	ND	0.50	ND	0.50	ND	0.50

COMPOUNDS: PURGEABLES	LAB# SMP# dil.	MSD	DET. LIM. 1 ug/L
BENZENE		12	0.50
CHLOROBENZENE		11	0.50
1,2-DICHLOROBENZENE		ND	0.50
1,3-DICHLOROBENZENE		ND	0.50
1,4-DICHLOROBENZENE		ND	0.50
ETHYL BENZENE		ND	0.50
TOLUENE		12	0.50
XYLENE		ND	0.50

D & M Laboratories

L A B O R A T O R Y R E S U L T S

Laboratory Job No.: 923119

PURGEABLE AROMATICS IN WATER (EPA 602)

NOTES: (1) MBS, MS AND MSD WERE SPIKED AT 10 ug/L.
SPIKING COMPOUNDS ARE: BENZENE, CHLOROBENZENE AND TOLUENE.

(2) IDENTIFICATION OF COMPOUNDS WAS CONFIRMED BY GC/MS OR SECONDARY COLUMN ANALYSIS.

QA/QC SUMMARY

LABORATORY JOB 923119

EPA METHOD 601

I.D.	RESULTS (UG/L)	SPIKE AMOUNT (UG/L)	AMOUNT IN SAMPLE (UG/L)	AMOUNT RECOV. (UG/L)	PERCENT RECOVERY	PERCENT R.P.D.
MBS Chlorobenzene	10	10	ND	10	100	N/A
1,1-Dichloro-ethene	13	10	ND	13	130	N/A
Trichloroethene	12	10	ND	12	120	N/A
MS Chlorobenzene	10	10	ND	10	100	9.5
1,1-Dichloro-ethene	12	10	ND	12	120	8.0
Trichloroethene	14	10	ND	14	140	0
MSD Chlorobenzene	11	10	ND	11	110	N/A
1,1-Dichloro-ethene	13	10	ND	13	130	N/A
Trichloroethene	14	10	ND	14	140	N/A

D & M Laboratories

QA/QC SUMMARY

LABORATORY JOB 923119

EPA METHOD 602

I.D.	RESULTS (UG/L)	SPIKE AMOUNT (UG/L)	AMOUNT IN SAMPLE (UG/L)	AMOUNT RECOV. (UG/L)	PERCENT RECOVERY	PERCENT R.P.D.
MBS Benzene	11	10	ND	11	110	N/A
Chloro-benzene	11	10	ND	11	110	N/A
Toluene	11	10	ND	11	110	N/A
MS Benzene	12	10	ND	12	120	0
Chloro-benzene	11	10	ND	11	110	0
Toluene	11	10	ND	11	110	8.7
MSD Benzene	12	10	ND	12	120	N/A
Chloro-Benzene	11	10	ND	11	110	N/A
Toluene	12	10	ND	12	120	N/A

D & M Laboratories

QA/QC SUMMARY

LABORATORY JOB 923119

EPA METHOD 6010, NICKEL
EPA METHOD 7060, ARSENIC
EPA METHOD 7421, LEAD
EPA METHOD 7191, CHROMIUM

I.D.	RESULTS (MG/L)	SPIKE AMOUNT (MG/L)	AMOUNT IN SAMPLE (MG/L)	AMOUNT RECOV. (MG/L)	PERCENT RECOVERY	PERCENT R.P.D.
MBS NICKEL	2.01	2.00	ND	2.01	101	N/A
MS NICKEL	1.98	2.00	ND	1.98	99	2.5
MSD NICKEL	2.03	2.00	ND	2.03	102	N/A
MBS ARSENIC	0.024	0.025	ND	0.024	96	N/A
MS ARSENIC	0.029	0.025	ND	0.029	116	0
MSD ARSENIC	0.029	0.025	ND	0.029	116	N/A
MBS LEAD	0.009	0.010	ND	0.009	90	N/A
MS LEAD	0.010	0.010	ND	0.010	100	18
MSD LEAD	0.012	0.010	ND	0.012	120	N/A
MBS CHROMIUM	0.026	0.025	ND	0.026	104	N/A
MS CHROMIUM	0.039	0.025	0.009	0.030	120	2.5
MSD CHROMIUM	0.040	0.025	0.009	0.031	124	N/A

D & M Laboratories

D&M LABORATORIES
3700 Lakeville Highway, Petaluma, CA 94954
P.O. Box 808024, Petaluma, CA 94975-8024
Telephone: (707) 763-8245 Fax: (707) 763-4065

ATTN: DEBBIE FICHER — RICHARD A ELLIS

QUOTE # 1451

92-3047

RECEIVED
D&M LABORATORIES
1992 OCT 22 AM 9:27

SAMPLE CHAIN OF CUSTODY / WORK ORDER

Client's Name DAMES + MOORE — Phone (916) 387-8800
Address 8801 FOLSOM BLVD #200
City, State, Zip SACRAMENTO CA 95826
Client's or Representative's Signature Richard A Ellis
(signature authorizes the work and terms listed below)

All samples remain the property of the client who is responsible for disposal. A disposal fee may be imposed if client fails to pick up samples.

PROJ. NO. 00173-072 81BX-099 — PROJECT NAME: UNION PACIFIC RAILROAD SAC
SAMPLERS (Signature): Richard A Ellis

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	EPA 601/602	EPA 6010 NICKEL	REMARKS	LAB USE ONLY LAB NO.
TB-01	10-20-92	0		X	TB-01	2	X			026699
MW-4		0920		X	MW-4	4	X			026700
MW-41		1035		X	MW-41	4	X			026701
MW-2		1230		X	MW-2	4	X			026702
MW-11		1315		X	MW-11	4	X			026703
MW-33		1400		X	MW-33	4	X			026704
MW-36	10-21-92	0810		X	MW-36	5	X	X		026705
MW-37		0900		X	MW-37	4	X			026706
MW-39		1015		X	MW-39	5	X	X		026707
MW-51		1020		X	MW-51	5	X	X		026708
MW-31		1245		X	MW-31	4	X			026709
										026710
										026711
										026712
										026713
					UPS - 3-1 Lt. Waters					026714
					4 1 Voa Waters					

SAMPLES RECEIVED IN GOOD CONDITION
NO BROKEN OR LEAKING CONTAINERS

Relinquished by: (Signature)	DATE	TIME	Received by: (Signature)
Richard A. Ellis	10-21-92		
Relinquished by: (Signature)	DATE	TIME	Received by: (Signature)
Relinquished by: (Signature)	DATE	TIME	Received by: (Signature)

General Remarks:
PLEASE SEND RESULTS TO ATTN: MARK EISEN
*PLEASE RETURN ICE CHEST AND BLUE ICE.

3700 Lakeville Highway, Petaluma, CA 94954
P.O. Box 808024, Petaluma, CA 94975-8024
Telephone: (707) 763-8245
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Mark Eisen
Dames & Moore
8801 Folsom Blvd - Suite 200
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Client Code: DAMM14
Survey # UPRR-SACTO
Project/Release #
00173-072-818X-044

L A B O R A T O R Y R E S U L T S

Laboratory Job No.: 923047
Date Collected: 10/20/92
Date Received: 10/22/92
Date Analyzed: 10/27/92
Date Reported: 11/05/92

ASSAY:METAL SCAN BY ICP(EPA 6010)

LABNO	SMPLNO-ID	RESULTS		DET. LIM.
26705	MW-36 WATER		CA STLC LEVEL	
	NI	ND	20	0.10 mg/L
26707	MW-39 WATER		CA STLC LEVEL	
	NI	ND	20	0.10 mg/L
26708	MW-51 WATER		CA STLC LEVEL	
	NI	0.10 mg/L	20	0.10 mg/L
	MB WATER			
	NI	ND		0.10 mg/L
	MBS WATER		SPIKE LEVEL	
	NI	0.46 mg/L	0.5 mg/L	0.10 mg/L
	MX WATER			
	NI	ND		0.10 mg/L
	MS WATER		SPIKE LEVEL	
	NI	0.51 mg/L	0.5 mg/L	0.10 mg/L
	MSD WATER		SPIKE LEVEL	
	NI	0.49 mg/L	0.5 mg/L	0.10 mg/L

ND=Not Detected

THIS REPORT HAS BEEN REVIEWED
AND APPROVED FOR RELEASE.
DF

L A B O R A T O R Y R E S U L T S

Date Collected: 10/20/92
Date Extracted: 10/28/92
Date Analyzed: 10/28/92

Laboratory Job No.: 923047
Date Received: 10/22/92
Date Reported: 11/05/92

ASSAY:
PURGEABLES IN WATER (EPA 601)

COMPOUNDS:	LAB#	26699	DET.	26700	DET.	26701	DET.
	SMP#	TB-01	LIM.	MW-4	LIM.	MW-41	LIM.
	dil.	1		25		1	
PURGEABLES		ug/L		ug/L		ug/L	
BROMODICHLOROMETHANE		ND	0.50	ND	12	ND	0.50
BROMOFORM		ND	0.50	ND	12	ND	0.50
BROMOMETHANE		ND	1.0	ND	25	ND	1.0
CARBON TETRACHLORIDE		ND	0.50	ND	12	ND	0.50
CHLOROBENZENE		ND	0.50	ND	12	ND	0.50
CHLOROETHANE		ND	1.0	ND	25	ND	1.0
CHLOROFORM		ND	0.50	ND	12	ND	0.50
CHLOROMETHANE		ND	1.0	ND	25	ND	1.0
DIBROMOCHLOROMETHANE		ND	0.50	ND	12	ND	0.50
1,4-DICHLOROBENZENE		ND	0.50	ND	12	ND	0.50
1,3-DICHLOROBENZENE		ND	0.50	ND	12	ND	0.50
1,2-DICHLOROBENZENE		ND	0.50	ND	12	ND	0.50
1,1-DICHLOROETHANE		ND	0.50	ND	12	ND	0.50
1,2-DICHLOROETHANE		ND	0.50	ND	12	ND	0.50
1,1-DICHLOROETHENE		ND	0.50	32	12	ND	0.50
1,2-DICHLOROETHENE (TOTAL)		ND	0.50	ND	12	ND	0.50
1,2-DICHLOROPROPANE		ND	0.50	ND	12	ND	0.50
CIS-1,3-DICHLOROPROPENE		ND	0.50	ND	12	ND	0.50
TRANS-1,3-DICHLOROPROPENE		ND	0.50	ND	12	ND	0.50
METHYLENE CHLORIDE		ND	1.0	ND	25	ND	1.0
1,1,2,2-TETRACHLOROETHANE		ND	0.50	ND	12	ND	0.50
TETRACHLOROETHENE		ND	0.50	ND	12	ND	0.50
1,1,1-TRICHLOROETHANE		ND	0.50	ND	12	ND	0.50
1,1,2-TRICHLOROETHANE		ND	0.50	ND	12	ND	0.50
TRICHLOROETHENE		ND	0.50	ND	12	ND	0.50
TRICHLOROFLUOROMETHANE		ND	1.0	ND	25	ND	1.0
VINYL CHLORIDE		ND	1.0	ND	25	ND	1.0

L A B O R A T O R Y R E S U L T S

Laboratory Job No.: 923047

COMPOUNDS:	LAB#	26702	DET.	26703	DET.	26704	DET.
	SMP#	MW-2	LIM.	MW-11	LIM.	MW-33	LIM.
	dil.	1		1		5	
PURGEABLES		ug/L		ug/L		ug/L	
BROMODICHLOROMETHANE		ND	0.50	ND	0.50	ND	2.5
BROMOFORM		ND	0.50	ND	0.50	ND	2.5
BROMOMETHANE		ND	1.0	ND	1.0	ND	5.0
CARBON TETRACHLORIDE		ND	0.50	ND	0.50	ND	2.5
CHLOROBENZENE		ND	0.50	ND	0.50	ND	2.5
CHLOROETHANE		ND	1.0	ND	1.0	ND	5.0
CHLOROFORM		ND	0.50	ND	0.50	ND	2.5
CHLOROMETHANE		ND	1.0	ND	1.0	ND	5.0
DIBROMOCHLOROMETHANE		ND	0.50	ND	0.50	ND	2.5
1,4-DICHLOROBENZENE		ND	0.50	ND	0.50	ND	2.5
1,3-DICHLOROBENZENE		ND	0.50	ND	0.50	ND	2.5
1,2-DICHLOROBENZENE		ND	0.50	ND	0.50	ND	2.5
1,1-DICHLOROETHANE		ND	0.50	4.7	0.50	2.6	2.5
1,2-DICHLOROETHANE		ND	0.50	ND	0.50	ND	2.5
1,1-DICHLOROETHENE		ND	0.50	*37	0.50	131	2.5
1,2-DICHLOROETHENE (TOTAL)		ND	0.50	ND	0.50	ND	2.5
1,2-DICHLOROPROPANE		ND	0.50	ND	0.50	ND	2.5
CIS-1,3-DICHLOROPROPENE		ND	0.50	ND	0.50	ND	2.5
TRANS-1,3-DICHLOROPROPENE		ND	0.50	ND	0.50	ND	2.5
METHYLENE CHLORIDE		ND	1.0	ND	1.0	ND	5.0
1,1,2,2-TETRACHLOROETHANE		ND	0.50	ND	0.50	ND	2.5
TETRACHLOROETHENE		ND	0.50	0.68	0.50	ND	2.5
1,1,1-TRICHLOROETHANE		ND	0.50	0.51	0.50	4.1	2.5
1,1,2-TRICHLOROETHANE		ND	0.50	ND	0.50	ND	2.5
TRICHLOROETHENE		ND	0.50	2.6	0.50	ND	2.5
TRICHLOROFLUOROMETHANE		ND	1.0	ND	1.0	ND	5.0
VINYL CHLORIDE		ND	1.0	ND	1.0	ND	5.0

L A B O R A T O R Y R E S U L T S

Laboratory Job No.: 923047

COMPOUNDS:	LAB#	26705	DET.	26706	DET.	26707	DET.
	SMP#	MW-36	LIM.	MW-37	LIM.	MW-39	LIM.
	dil.	10		1		1	
PURGEABLES		ug/L		ug/L		ug/L	
BROMODICHLOROMETHANE		ND	5.0	ND	0.50	ND	0.50
BROMOFORM		ND	5.0	ND	0.50	ND	0.50
BROMOMETHANE		ND	10	ND	1.0	ND	1.0
CARBON TETRACHLORIDE		ND	5.0	0.84	0.50	1.8	0.50
CHLOROBENZENE		ND	5.0	ND	0.50	ND	0.50
CHLOROETHANE		ND	10	ND	1.0	ND	1.0
CHLOROFORM		ND	5.0	2.5	0.50	2.3	0.50
CHLOROMETHANE		ND	10	ND	1.0	ND	1.0
DIBROMOCHLOROMETHANE		ND	5.0	ND	0.50	ND	0.50
1,4-DICHLOROBENZENE		ND	5.0	ND	0.50	ND	0.50
1,3-DICHLOROBENZENE		ND	5.0	ND	0.50	ND	0.50
1,2-DICHLOROBENZENE		ND	5.0	ND	0.50	ND	0.50
1,1-DICHLOROETHANE		ND	5.0	2.9	0.50	1.2	0.50
1,2-DICHLOROETHANE		ND	5.0	4.9	0.50	ND	0.50
1,1-DICHLOROETHENE		110	5.0	13	0.50	7.7	0.50
1,2-DICHLOROETHENE (TOTAL)		ND	5.0	ND	0.50	ND	0.50
1,2-DICHLOROPROPANE		ND	5.0	ND	0.50	ND	0.50
CIS-1,3-DICHLOROPROPENE		ND	5.0	ND	0.50	ND	0.50
TRANS-1,3-DICHLOROPROPENE		ND	5.0	ND	0.50	ND	0.50
METHYLENE CHLORIDE		ND	10	ND	1.0	ND	1.0
1,1,2,2-TETRACHLOROETHANE		ND	5.0	ND	0.50	ND	0.50
TETRACHLOROETHENE		ND	5.0	ND	0.50	ND	0.50
1,1,1-TRICHLOROETHANE		ND	5.0	1.1	0.50	1.6	0.50
1,1,2-TRICHLOROETHANE		ND	5.0	ND	0.50	ND	0.50
TRICHLOROETHENE		ND	5.0	ND	0.50	ND	0.50
TRICHLOROFLUOROMETHANE		ND	10	ND	1.0	ND	1.0
VINYL CHLORIDE		ND	10	ND	1.0	ND	1.0

L A B O R A T O R Y R E S U L T S

Laboratory Job No.: 923047

COMPOUNDS:	LAB#	26708	DET.	26709	DET.		DET.
	SMP#	MW-51	LIM.	MW-31	LIM.	MB	LIM.
	dil.	1		10		1	
PURGEABLES		ug/L		ug/L		ug/L	
BROMODICHLOROMETHANE		ND	0.50	ND	5.0	ND	0.50
BROMOFORM		ND	0.50	ND	5.0	ND	0.50
BROMOMETHANE		ND	1.0	ND	10	ND	1.0
CARBON TETRACHLORIDE		2.0	0.50	ND	5.0	ND	0.50
CHLOROBENZENE		ND	0.50	ND	5.0	ND	0.50
CHLOROETHANE		ND	1.0	ND	10	ND	1.0
CHLOROFORM		2.9	0.50	ND	5.0	ND	0.50
CHLOROMETHANE		ND	1.0	ND	10	ND	1.0
DIBROMOCHLOROMETHANE		ND	0.50	ND	5.0	ND	0.50
1,4-DICHLOROBENZENE		ND	0.50	ND	5.0	ND	0.50
1,3-DICHLOROBENZENE		ND	0.50	ND	5.0	ND	0.50
1,2-DICHLOROBENZENE		ND	0.50	ND	5.0	ND	0.50
1,1-DICHLOROETHANE		1.3	0.50	7.5	5.0	ND	0.50
1,2-DICHLOROETHANE		1.5	0.50	ND	5.0	ND	0.50
1,1-DICHLOROETHENE		8.9	0.50	121	5.0	ND	0.50
1,2-DICHLOROETHENE (TOTAL)		ND	0.50	ND	5.0	ND	0.50
1,2-DICHLOROPROPANE		ND	0.50	ND	5.0	ND	0.50
CIS-1,3-DICHLOROPROPENE		ND	0.50	ND	5.0	ND	0.50
TRANS-1,3-DICHLOROPROPENE		ND	0.50	ND	5.0	ND	0.50
METHYLENE CHLORIDE		ND	1.0	ND	10	ND	1.0
1,1,2,2-TETRACHLOROETHANE		ND	0.50	ND	5.0	ND	0.50
TETRACHLOROETHENE		ND	0.50	ND	5.0	ND	0.50
1,1,1-TRICHLOROETHANE		1.1	0.50	ND	5.0	ND	0.50
1,1,2-TRICHLOROETHANE		ND	0.50	ND	5.0	ND	0.50
TRICHLOROETHENE		ND	0.50	11	5.0	ND	0.50
TRICHLOROFLUOROMETHANE		ND	1.0	ND	10	ND	1.0
VINYL CHLORIDE		ND	1.0	ND	10	ND	1.0

D & M Laboratories

L A B O R A T O R Y R E S U L T S

Laboratory Job No.: 923047

COMPOUNDS:	LAB#		DET.		DET.		DET.
	SMP#	MBS	LIM.	MX	LIM.	MS	LIM.
	dil.	1		1		1	
PURGEABLES		ug/L		ug/L		ug/L	
BROMODICHLOROMETHANE		ND	0.50	ND	0.50	ND	0.50
BROMOFORM		ND	0.50	ND	0.50	ND	0.50
BROMOMETHANE		ND	1.0	ND	1.0	ND	1.0
CARBON TETRACHLORIDE		ND	0.50	ND	0.50	ND	0.50
CHLOROBENZENE		11	0.50	ND	0.50	10	0.50
CHLOROETHANE		ND	1.0	ND	1.0	ND	1.0
CHLOROFORM		ND	0.50	ND	0.50	ND	0.50
CHLOROMETHANE		ND	1.0	ND	1.0	ND	1.0
DIBROMOCHLOROMETHANE		ND	0.50	ND	0.50	ND	0.50
1,4-DICHLOROBENZENE		ND	0.50	ND	0.50	ND	0.50
1,3-DICHLOROBENZENE		ND	0.50	ND	0.50	ND	0.50
1,2-DICHLOROBENZENE		ND	0.50	ND	0.50	ND	0.50
1,1-DICHLOROETHANE		ND	0.50	ND	0.50	ND	0.50
1,2-DICHLOROETHANE		ND	0.50	ND	0.50	ND	0.50
1,1-DICHLOROETHENE		10	0.50	ND	0.50	10	0.50
1,2-DICHLOROETHENE (TOTAL)		ND	0.50	ND	0.50	ND	0.50
1,2-DICHLOROPROPANE		ND	0.50	ND	0.50	ND	0.50
CIS-1,3-DICHLOROPROPENE		ND	0.50	ND	0.50	ND	0.50
TRANS-1,3-DICHLOROPROPENE		ND	0.50	ND	0.50	ND	0.50
METHYLENE CHLORIDE		ND	1.0	ND	1.0	ND	1.0
1,1,2,2-TETRACHLOROETHANE		ND	0.50	ND	0.50	ND	0.50
TETRACHLOROETHENE		ND	0.50	ND	0.50	ND	0.50
1,1,1-TRICHLOROETHANE		ND	0.50	ND	0.50	ND	0.50
1,1,2-TRICHLOROETHANE		ND	0.50	ND	0.50	ND	0.50
TRICHLOROETHENE		12	0.50	ND	0.50	13	0.50
TRICHLOROFLUOROMETHANE		ND	1.0	ND	1.0	ND	1.0
VINYL CHLORIDE		ND	1.0	ND	1.0	ND	1.0

L A B O R A T O R Y R E S U L T S

Laboratory Job No.: 923047

COMPOUNDS:	LAB# SMP# dil.	MSD	DET. LIM. 1
PURGEABLES			ug/L
BROMODICHLOROMETHANE		ND	0.50
BROMOFORM		ND	0.50
BROMOMETHANE		ND	1.0
CARBON TETRACHLORIDE		ND	0.50
CHLOROBENZENE		10	0.50
CHLOROETHANE		ND	1.0
CHLOROFORM		ND	0.50
CHLOROMETHANE		ND	1.0
DIBROMOCHLOROMETHANE		ND	0.50
1,4-DICHLOROBENZENE		ND	0.50
1,3-DICHLOROBENZENE		ND	0.50
1,2-DICHLOROBENZENE		ND	0.50
1,1-DICHLOROETHANE		ND	0.50
1,2-DICHLOROETHANE		ND	0.50
1,1-DICHLOROETHENE		10	0.50
1,2-DICHLOROETHENE (TOTAL)		ND	0.50
1,2-DICHLOROPROPANE		ND	0.50
CIS-1,3-DICHLOROPROPENE		ND	0.50
TRANS-1,3-DICHLOROPROPENE		ND	0.50
METHYLENE CHLORIDE		ND	1.0
1,1,2,2-TETRACHLOROETHANE		ND	0.50
TETRACHLOROETHENE		ND	0.50
1,1,1-TRICHLOROETHANE		ND	0.50
1,1,2-TRICHLOROETHANE		ND	0.50
TRICHLOROETHENE		13	0.50
TRICHLOROFLUOROMETHANE		ND	1.0
VINYL CHLORIDE		ND	1.0

NOTES: (1) MBS, MS AND MSD WERE SPIKED AT 10 ug/L WITH CHLOROBENZENE, 1,1-DICHLOROETHENE AND TRICHLOROETHENE.

(2) IDENTIFICATION OF COMPOUNDS WAS CONFIRMED BY GC/MS.

* QUANTITATED FROM A HIGHER DILUTION.

D & M Laboratories

L A B O R A T O R Y R E S U L T S

Date Collected: 10/20/92
Date Extracted: 10/28/92
Date Analyzed: 10/28/92

Laboratory Job No.: 923047
Date Received: 10/22/92
Date Reported: 11/05/92

ASSAY:
PURGEABLE AROMATICS IN WATER (EPA 602)

COMPOUNDS:	LAB#	26699	DET.	26700	DET.	26701	DET.	26702	DET.
	SMP#	TB-01	LIM.	MW-4	LIM.	MW-41	LIM.	MW-2	LIM.
	dil.	1		25		1		1	
PURGEABLES		ug/L		ug/L		ug/L		ug/L	
BENZENE		ND	0.50	260	12	ND	0.50	ND	0.50
CHLOROBENZENE		ND	0.50	ND	12	ND	0.50	ND	0.50
1,2-DICHLOROBENZENE		ND	0.50	ND	12	ND	0.50	ND	0.50
1,3-DICHLOROBENZENE		ND	0.50	ND	12	ND	0.50	ND	0.50
1,4-DICHLOROBENZENE		ND	0.50	ND	12	ND	0.50	ND	0.50
ETHYL BENZENE		ND	0.50	ND	12	ND	0.50	ND	0.50
TOLUENE		ND	0.50	ND	12	ND	0.50	ND	0.50
XYLENE		ND	0.50	ND	12	ND	0.50	ND	0.50

COMPOUNDS:	LAB#	26703	DET.	26704	DET.	26705	DET.	26706	DET.
	SMP#	MW-11	LIM.	MW-33	LIM.	MW-36	LIM.	MW-37	LIM.
	dil.	1		5		10		1	
PURGEABLES		ug/L		ug/L		ug/L		ug/L	
BENZENE		ND	0.50	ND	2.5	ND	5.0	ND	0.50
CHLOROBENZENE		ND	0.50	ND	2.5	ND	5.0	ND	0.50
1,2-DICHLOROBENZENE		ND	0.50	ND	2.5	ND	5.0	ND	0.50
1,3-DICHLOROBENZENE		ND	0.50	ND	2.5	ND	5.0	ND	0.50
1,4-DICHLOROBENZENE		ND	0.50	ND	2.5	ND	5.0	ND	0.50
ETHYL BENZENE		ND	0.50	ND	2.5	ND	5.0	ND	0.50
TOLUENE		ND	0.50	ND	2.5	ND	5.0	ND	0.50
XYLENE		ND	0.50	ND	2.5	ND	5.0	ND	0.50

D & M Laboratories

L A B O R A T O R Y R E S U L T S

Laboratory Job No.: 923047

COMPOUNDS:	LAB#	26707	DET.	26708	DET.	26709	DET.		DET.
	SMP#	MW-39	LIM.	MW-51	LIM.	MW-31	LIM.	MB	LIM.
	dil.	1		1		10		1	
PURGEABLES		ug/L		ug/L		ug/L		ug/L	
BENZENE		ND	0.50	ND	0.50	ND	5.0	ND	0.50
CHLOROBENZENE		ND	0.50	ND	0.50	ND	5.0	ND	0.50
1,2-DICHLOROBENZENE		ND	0.50	ND	0.50	ND	5.0	ND	0.50
1,3-DICHLOROBENZENE		ND	0.50	ND	0.50	ND	5.0	ND	0.50
1,4-DICHLOROBENZENE		ND	0.50	ND	0.50	ND	5.0	ND	0.50
ETHYL BENZENE		ND	0.50	ND	0.50	ND	5.0	ND	0.50
TOLUENE		ND	0.50	ND	0.50	ND	5.0	ND	0.50
XYLENE		ND	0.50	ND	0.50	ND	5.0	ND	0.50

COMPOUNDS:	LAB#		DET.		DET.		DET.		DET.
	SMP#	MBS	LIM.	MX	LIM.	MS	LIM.	MSD	LIM.
	dil.	1		1		1		1	
PURGEABLES		ug/L		ug/L		ug/L		ug/L	
BENZENE		11	0.50	ND	0.50	13	0.50	13	0.50
CHLOROBENZENE		12	0.50	ND	0.50	12	0.50	12	0.50
1,2-DICHLOROBENZENE		ND	0.50	ND	0.50	ND	0.50	ND	0.50
1,3-DICHLOROBENZENE		ND	0.50	ND	0.50	ND	0.50	ND	0.50
1,4-DICHLOROBENZENE		ND	0.50	ND	0.50	ND	0.50	ND	0.50
ETHYL BENZENE		ND	0.50	ND	0.50	ND	0.50	ND	0.50
TOLUENE		12	0.50	ND	0.50	13	0.50	13	0.50
XYLENE		ND	0.50	ND	0.50	ND	0.50	ND	0.50

NOTES: (1) MBS, MS AND MSD WERE SPIKED AT 10 ug/L.
SPIKING COMPOUNDS ARE: BENZENE, CHLOROBENZENE AND TOLUENE.

(2) IDENTIFICATION OF COMPOUNDS WAS CONFIRMED BY GC/MS.

D & M Laboratories

ENVIRONMENTAL AND
INDUSTRIAL HYGIENE SERVICES

3700 Lakeville Highway, Petaluma, CA 94954
P.O. Box 808024, Petaluma, CA 94975-8024
Telephone: (707) 763-8245
FAX (707) 763-4065

QUALITY CONTROL REPORT

In order to provide you with the means of assessing the quality of the data in our report, **D&M Laboratories** reports the results of Quality Control samples analyzed with your samples.

The Quality Control samples provide the following QC information:

The Method Blank (**MB**) monitors the level of contamination introduced by reagents or glassware. A minimum of one MB is run per batch of 20 samples or less.

The Method Blank Spike (**MBS**) measures the accuracy of analytical techniques and is not subject to matrix effects. A minimum of one MBS is run per batch of 20 samples or less.

The Matrix Spike (**MS**) measures the accuracy of the method for a matrix type. Due to the high variability within matrix types and the necessity of batching samples from varied sources, matrix spike information from one sample is not necessarily relevant to other samples on the batch. A minimum of two matrix spikes, MS and MSD, are run per batch of 20 samples or less. The sample selected for the matrix spike is designated **MX**, and may or may not have been submitted by the recipient of this report.

The Matrix Spike Duplicate (**MSD**), along with the MS, is used to monitor the precision (**RPD**) of the method and to indicate possible non homogeneity of the sample matrix.

Equations used for determining percent recovery and relative percent difference (RPD) are as follows:

MBS % Recovery = (MBS result / MBS spike level) x 100
MS % Recovery = [(MS result - MX result) / MS spike level] x 100
RPD ={ | MS result - MSD result | / [(MS result + MSD result) / 2]} x 100

We continue to strive to improve the quality of service to our clients. We welcome any questions or comments you may have about this information, or about **D&M Laboratories** in general. Please contact a Project Manager for further information.

QA/QC SUMMARY

LABORATORY JOB 923047

EPA METHOD 6010, NICKEL

I.D.	RESULTS (MG/L)	SPIKE AMOUNT (MG/L)	AMOUNT IN SAMPLE (MG/L)	AMOUNT RECOV. (MG/L)	PERCENT RECOVERY	PERCENT R.P.D.
MBS NICKEL	0.46	0.50	ND	0.46	92	N/A
MS NICKEL	0.51	0.50	ND	0.51	102	4.0
MSD NICKEL	0.49	0.50	ND	0.49	98	N/A

D & M Laboratories

QA/QC SUMMARY

LABORATORY JOB 923047

EPA METHOD 601

I.D.	RESULTS (UG/L)	SPIKE AMOUNT (UG/L)	AMOUNT IN SAMPLE (UG/L)	AMOUNT RECOV. (UG/L)	PERCENT RECOVERY	PERCENT R.P.D.
MBS Chlorobenzene	11	10	ND	11	110	N/A
1,1-Dichloro-ethene	10	10	ND	10	100	N/A
Trichloroethene	12	10	ND	12	120	N/A
MS Chlorobenzene	10	10	ND	10	100	0
1,1-Dichloro-ethene	10	10	ND	10	100	0
Trichloroethene	13	10	ND	13	130	0
MSD Chlorobenzene	10	10	ND	10	100	N/A
1,1-Dichloro-ethene	10	10	ND	10	100	N/A
Trichloroethene	13	10	ND	13	130	N/A

QA/QC SUMMARY

LABORATORY JOB 923047

EPA METHOD 602

I.D.	RESULTS (UG/L)	SPIKE AMOUNT (UG/L)	AMOUNT IN SAMPLE (UG/L)	AMOUNT RECOV. (UG/L)	PERCENT RECOVERY	PERCENT R.P.D.
MBS Benzene	11	10	ND	11	110	N/A
Chloro-benzene	12	10	ND	12	120	N/A
Toluene	12	10	ND	12	120	N/A
MS Benzene	13	10	ND	13	130	0
Chloro-benzene	12	10	ND	12	120	0
Toluene	13	10	ND	13	130	0
MSD Benzene	13	10	ND	13	130	N/A
Chloro-Benzene	12	10	ND	12	120	N/A
Toluene	13	10	ND	13	130	N/A

D & M Laboratories

ACCULAB
ENVIRONMENTAL SERVICES
3700 Lakeville Highway, Petaluma, CA 94952
P.O. Box 808024, Petaluma, CA. 94975-8024
Telephone: (707)763-8245 FAX: (707)763-4065

ATTN: DEBBIE FISHER
QUOTE # 0814

RECEIVED
ACCULAB LABORATORIES
1992 OCT 26 AM 10:06

RICHARD A ELLIS

SAMPLE CHAIN OF CUSTODY / WORK ORDER

Client's Name DAMES + MOORE Phone (916) 387 8800
Address 8801 FOLSOM BLVD #200
City, State, Zip SACRAMENTO CA 95826

92-3085

Client's or Representative's Signature _____
(signature authorizes the work and terms listed below)

All samples remain the property of the client who is responsible for disposal. A disposal fee may be imposed if client fails to pick up samples.

PROJ. NO. 00173-072, 818K-044 | PROJECT NAME: UPRR SAC RAILROAD
SAMPLERS (Signature): R. A. Ellis

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	EPA 601/602	EPA 6010, NICKEL	REMARKS	LAB USE ONLY LAB NO.
TB-02	10-23-92	—			TB-02	2	X			027053
MW-32		0900			MW-32	4	X			027054
MW-40		1000			MW-40	4	X			027055
MW-29		1055			MW-29	4	X			027056
MW-30		1200			MW-30	4	X			027057
MW-28		1310			MW-28	4	X			027058
MW-43		1420			MW-43	5	X	X		027059
MW-26	10-23-92	0920			MW-26	5	X	X		027060
MW-7		1005			MW-7	5	X	X		027061
MW-20		1110			MW-20	4	X			027062
RB-01		1130			RB-01	4	X			027063
RB-02		1140			RB-02	4	X			027064
MW-16		1245			MW-16	4	X			027065
										027066
										027067
										027068
										027069
										027070

SAMPLES RECEIVED IN GOOD CONDITION
NO BROKEN OR LEAKING CONTAINERS

3 - 1 LT. Waters
50 Voa Waters
UPS Red

Relinquished by: (Signature)	DATE	TIME	Received by: (Signature)
R. A. Ellis	10-23-92	1300	G. Giardi
Relinquished by: (Signature)	DATE	TIME	Received by: (Signature)
Relinquished by: (Signature)	DATE	TIME	Received by: (Signature)

General Remarks:
PLEASE SEND RESULTS TO ATTN: MARK EISEN
* PLEASE SEND ICE AND CHEST BACK

RECEIVED
ACCULAB LABORATORIES
1992 OCT 26 AM 10:06

CLIENT COPY

ENVIRONMENTAL AND INDUSTRIAL HYGIENE SERVICES

3700 Lakeville Highway, Petaluma, CA 94954
P.O. Box 808024, Petaluma, CA 94975-8024
Telephone: (707) 763-8245
FAX (707) 763-4065

Mark Eisen
Dames & Moore
8801 Folsom Blvd - Suite 200
Sacramento, CA 95826

Client Code: DAMM14
Survey # UPRR-SACTO.
Project/Release #
00173-072-818X-044

L A B O R A T O R Y R E S U L T S

Laboratory Job No.: 923085
Date Collected: 10/22/92
Date Analyzed: 10/27/92
Date Received: 10/26/92
Date Reported: 11/12/92

ASSAY:METAL SCAN BY ICP(EPA 6010)

LABNO	SMPLNO-ID	RESULTS		DET. LIM.
27059	MW-43 WATER		CA STLC LEVEL	
	NI	0.17 mg/L	20	0.10 mg/L
27060	MW-26 WATER		CA STLC LEVEL	
	NI	0.16 mg/L	20	0.10 mg/L
27061	MW-7 WATER		CA STLC LEVEL	
	NI	ND	20	0.10 mg/L
	MB WATER			
	NI	ND		0.10 mg/L
	MBS WATER		SPIKE LEVEL	
	NI	0.53 mg/L	0.50 mg/L	0.10 mg/L
	MX WATER			
	NI	ND		0.10 mg/L
	MS WATER		SPIKE LEVEL	
	NI	0.52 mg/L	0.50 mg/L	0.10 mg/L
	MSD WATER		SPIKE LEVEL	
	NI	0.47 mg/L	0.50 mg/L	0.10 mg/L

ND=Not Detected

THIS REPORT HAS BEEN REVIEWED
AND APPROVED FOR RELEASE.
DCF

L A B O R A T O R Y R E S U L T S

Date Collected: 10/22/92
Date Extracted: 10/29/92
Date Analyzed: 10/29/92

Laboratory Job No.: 923085
Date Received: 10/26/92
Date Reported: 11/12/92

ASSAY:
PURGEABLES IN WATER (EPA 601)

COMPOUNDS:	LAB#	27053	DET.	27054	DET.	27055	DET.
	SMP#	TB-02	LIM.	MW-32	LIM.	MW-40	LIM.
	dil.	1		10		5	
PURGEABLES		ug/L		ug/L		ug/L	
BROMODICHLOROMETHANE		ND	0.50	ND	5.0	ND	2.5
BROMOFORM		ND	0.50	ND	5.0	ND	2.5
BROMOMETHANE		ND	1.0	ND	10	ND	5.0
CARBON TETRACHLORIDE		ND	0.50	ND	5.0	ND	2.5
CHLOROBENZENE		ND	0.50	ND	5.0	ND	2.5
CHLOROETHANE		ND	1.0	ND	10	ND	5.0
CHLOROFORM		ND	0.50	ND	5.0	ND	2.5
CHLOROMETHANE		ND	1.0	ND	10	ND	5.0
DIBROMOCHLOROMETHANE		ND	0.50	ND	5.0	ND	2.5
1,4-DICHLOROBENZENE		ND	0.50	ND	5.0	ND	2.5
1,3-DICHLOROBENZENE		ND	0.50	ND	5.0	ND	2.5
1,2-DICHLOROBENZENE		ND	0.50	ND	5.0	ND	2.5
1,1-DICHLOROETHANE		ND	0.50	ND	5.0	ND	2.5
1,2-DICHLOROETHANE		ND	0.50	ND	5.0	29	2.5
1,1-DICHLOROETHENE		ND	0.50	96	5.0	220	2.5
1,2-DICHLOROETHENE (TOTAL)		ND	0.50	ND	5.0	ND	2.5
1,2-DICHLOROPROPANE		ND	0.50	ND	5.0	ND	2.5
CIS-1,3-DICHLOROPROPENE		ND	0.50	ND	5.0	ND	2.5
TRANS-1,3-DICHLOROPROPENE		ND	0.50	ND	5.0	ND	2.5
METHYLENE CHLORIDE		ND	1.0	ND	10	ND	5.0
1,1,2,2-TETRACHLOROETHANE		ND	0.50	ND	5.0	ND	2.5
TETRACHLOROETHENE		ND	0.50	ND	5.0	ND	2.5
1,1,1-TRICHLOROETHANE		ND	0.50	ND	5.0	6.9	2.5
1,1,2-TRICHLOROETHANE		ND	0.50	ND	5.0	ND	2.5
TRICHLOROETHENE		ND	0.50	11	5.0	49	2.5
TRICHLOROFLUOROMETHANE		ND	1.0	ND	10	ND	5.0
VINYL CHLORIDE		ND	1.0	ND	10	ND	5.0

L A B O R A T O R Y R E S U L T S

Laboratory Job No.: 923085

COMPOUNDS:	LAB#	27056	DET.	27057	DET.	27058	DET.
	SMP#	MW-29	LIM.	MW-30	LIM.	MW-28	LIM.
	dil.	1		5		1	
PURGEABLES		ug/L		ug/L		ug/L	
BROMODICHLOROMETHANE		ND	0.50	ND	2.5	ND	0.50
BROMOFORM		ND	0.50	ND	2.5	ND	0.50
BROMOMETHANE		ND	1.0	ND	5.0	ND	1.0
CARBON TETRACHLORIDE		ND	0.50	ND	2.5	ND	0.50
CHLOROBENZENE		ND	0.50	ND	2.5	ND	0.50
CHLOROETHANE		ND	1.0	ND	5.0	ND	1.0
CHLOROFORM		0.56	0.50	ND	2.5	ND	0.50
CHLOROMETHANE		ND	1.0	ND	5.0	ND	1.0
DIBROMOCHLOROMETHANE		ND	0.50	ND	2.5	ND	0.50
1,4-DICHLOROBENZENE		ND	0.50	ND	2.5	ND	0.50
1,3-DICHLOROBENZENE		ND	0.50	ND	2.5	ND	0.50
1,2-DICHLOROBENZENE		ND	0.50	ND	2.5	ND	0.50
1,1-DICHLOROETHANE		2.3	0.50	17	2.5	18	0.50
1,2-DICHLOROETHANE		6.1	0.50	ND	2.5	ND	0.50
1,1-DICHLOROETHENE		18	0.50	116	2.5	21	0.50
1,2-DICHLOROETHENE (TOTAL)		ND	0.50	ND	2.5	ND	0.50
1,2-DICHLOROPROPANE		ND	0.50	ND	2.5	ND	0.50
CIS-1,3-DICHLOROPROPENE		ND	0.50	ND	2.5	ND	0.50
TRANS-1,3-DICHLOROPROPENE		ND	0.50	ND	2.5	ND	0.50
METHYLENE CHLORIDE		ND	1.0	ND	5.0	ND	1.0
1,1,2,2-TETRACHLOROETHANE		ND	0.50	ND	2.5	ND	0.50
TETRACHLOROETHENE		ND	0.50	ND	2.5	ND	0.50
1,1,1-TRICHLOROETHANE		0.87	0.50	3.3	2.5	ND	0.50
1,1,2-TRICHLOROETHANE		ND	0.50	ND	2.5	ND	0.50
TRICHLOROETHENE		ND	0.50	10	2.5	ND	0.50
TRICHLOROFLUOROMETHANE		ND	1.0	ND	5.0	ND	1.0
VINYL CHLORIDE		ND	1.0	ND	5.0	ND	1.0

L A B O R A T O R Y R E S U L T S

Laboratory Job No.: 923085

COMPOUNDS:	LAB#	27059	DET.	27060	DET.	27061	DET.
	SMP#	MW-43	LIM.	MW-26	LIM.	MW-7	LIM.
	dil.	10		1		1	
PURGEABLES		ug/L		ug/L		ug/L	
BROMODICHLOROMETHANE		ND	5.0	ND	0.50	ND	0.50
BROMOFORM		ND	5.0	ND	0.50	ND	0.50
BROMOMETHANE		ND	10	ND	1.0	ND	1.0
CARBON TETRACHLORIDE		ND	5.0	ND	0.50	ND	0.50
CHLOROBENZENE		ND	5.0	ND	0.50	ND	0.50
CHLOROETHANE		ND	10	ND	1.0	ND	1.0
CHLOROFORM		ND	5.0	3.1	0.50	4.7	0.50
CHLOROMETHANE		ND	10	ND	1.0	ND	1.0
DIBROMOCHLOROMETHANE		ND	5.0	ND	0.50	ND	0.50
1,4-DICHLOROBENZENE		ND	5.0	ND	0.50	ND	0.50
1,3-DICHLOROBENZENE		ND	5.0	ND	0.50	ND	0.50
1,2-DICHLOROBENZENE		ND	5.0	ND	0.50	ND	0.50
1,1-DICHLOROETHANE		240	5.0	10	0.50	5.9	0.50
1,2-DICHLOROETHANE		ND	5.0	ND	0.50	ND	0.50
1,1-DICHLOROETHENE		28	5.0	9.4	0.50	21	0.50
1,2-DICHLOROETHENE (TOTAL)		ND	5.0	ND	0.50	ND	0.50
1,2-DICHLOROPROPANE		ND	5.0	ND	0.50	ND	0.50
CIS-1,3-DICHLOROPROPENE		ND	5.0	ND	0.50	ND	0.50
TRANS-1,3-DICHLOROPROPENE		ND	5.0	ND	0.50	ND	0.50
METHYLENE CHLORIDE		ND	10	ND	1.0	ND	1.0
1,1,2,2-TETRACHLOROETHANE		ND	5.0	ND	0.50	ND	0.50
TETRACHLOROETHENE		ND	5.0	ND	0.50	ND	0.50
1,1,1-TRICHLOROETHANE		ND	5.0	2.4	0.50	3.7	0.50
1,1,2-TRICHLOROETHANE		ND	5.0	ND	0.50	ND	0.50
TRICHLOROETHENE		ND	5.0	ND	0.50	ND	0.50
TRICHLOROFLUOROMETHANE		ND	10	ND	1.0	ND	1.0
VINYL CHLORIDE		ND	10	ND	1.0	ND	1.0

L A B O R A T O R Y R E S U L T S

Laboratory Job No.: 923085

COMPOUNDS:	LAB#	27062	DET.	27063	DET.	27064	DET.
	SMP#	MW-20	LIM.	RB-01	LIM.	RB-02	LIM.
	dil.	1		1		1	
PURGEABLES		ug/L		ug/L		ug/L	
BROMODICHLOROMETHANE		ND	0.50	ND	0.50	ND	0.50
BROMOFORM		ND	0.50	ND	0.50	ND	0.50
BROMOMETHANE		ND	1.0	ND	1.0	ND	1.0
CARBON TETRACHLORIDE		ND	0.50	ND	0.50	ND	0.50
CHLOROBENZENE		ND	0.50	ND	0.50	ND	0.50
CHLOROETHANE		ND	1.0	ND	1.0	ND	1.0
CHLOROFORM		ND	0.50	3.4	0.50	3.3	0.50
CHLOROMETHANE		ND	1.0	ND	1.0	ND	1.0
DIBROMOCHLOROMETHANE		ND	0.50	ND	0.50	ND	0.50
1,4-DICHLOROBENZENE		ND	0.50	ND	0.50	ND	0.50
1,3-DICHLOROBENZENE		ND	0.50	ND	0.50	ND	0.50
1,2-DICHLOROBENZENE		ND	0.50	ND	0.50	ND	0.50
1,1-DICHLOROETHANE		ND	0.50	ND	0.50	ND	0.50
1,2-DICHLOROETHANE		ND	0.50	ND	0.50	ND	0.50
1,1-DICHLOROETHENE		7.3	0.50	ND	0.50	ND	0.50
1,2-DICHLOROETHENE (TOTAL)		ND	0.50	ND	0.50	ND	0.50
1,2-DICHLOROPROPANE		ND	0.50	ND	0.50	ND	0.50
CIS-1,3-DICHLOROPROPENE		ND	0.50	ND	0.50	ND	0.50
TRANS-1,3-DICHLOROPROPENE		ND	0.50	ND	0.50	ND	0.50
METHYLENE CHLORIDE		ND	1.0	ND	1.0	ND	1.0
1,1,2,2-TETRACHLOROETHANE		ND	0.50	ND	0.50	ND	0.50
TETRACHLOROETHENE		ND	0.50	ND	0.50	ND	0.50
1,1,1-TRICHLOROETHANE		ND	0.50	ND	0.50	ND	0.50
1,1,2-TRICHLOROETHANE		ND	0.50	ND	0.50	ND	0.50
TRICHLOROETHENE		ND	0.50	ND	0.50	ND	0.50
TRICHLOROFLUOROMETHANE		ND	1.0	ND	1.0	ND	1.0
VINYL CHLORIDE		ND	1.0	ND	1.0	ND	1.0

L A B O R A T O R Y R E S U L T S

Laboratory Job No.: 923085

COMPOUNDS:	LAB#	27065	DET.
	SMP#	MW-16	LIM.
	dil.	1	
PURGEABLES		ug/L	
BROMODICHLOROMETHANE		ND	0.50
BROMOFORM		ND	0.50
BROMOMETHANE		ND	1.0
CARBON TETRACHLORIDE		ND	0.50
CHLOROBENZENE		ND	0.50
CHLOROETHANE		ND	1.0
CHLOROFORM		ND	0.50
CHLOROMETHANE		ND	1.0
DIBROMOCHLOROMETHANE		ND	0.50
1,4-DICHLOROBENZENE		ND	0.50
1,3-DICHLOROBENZENE		ND	0.50
1,2-DICHLOROBENZENE		ND	0.50
1,1-DICHLOROETHANE		ND	0.50
1,2-DICHLOROETHANE		ND	0.50
1,1-DICHLOROETHENE		3.2	0.50
1,2-DICHLOROETHENE (TOTAL)		ND	0.50
1,2-DICHLOROPROPANE		ND	0.50
CIS-1,3-DICHLOROPROPENE		ND	0.50
TRANS-1,3-DICHLOROPROPENE		ND	0.50
METHYLENE CHLORIDE		ND	1.0
1,1,2,2-TETRACHLOROETHANE		ND	0.50
TETRACHLOROETHENE		ND	0.50
1,1,1-TRICHLOROETHANE		0.81	0.50
1,1,2-TRICHLOROETHANE		ND	0.50
TRICHLOROETHENE		ND	0.50
TRICHLOROFLUOROMETHANE		ND	1.0
VINYL CHLORIDE		ND	1.0

L A B O R A T O R Y R E S U L T S

Date Collected: 10/22/92
Date Extracted: 10/29/92
Date Analyzed: 10/29/92

Laboratory Job No.: 923085
Date Received: 10/26/92
Date Reported: 11/12/92

ASSAY:
PURGEABLES IN WATER (EPA 601)

COMPOUNDS:	LAB#		DET.		DET.		DET.
	SMP#	MB	LIM.	MBS	LIM.	MX	LIM.
	dil.	1		1		1	
PURGEABLES		ug/L		ug/L		ug/L	
BROMODICHLOROMETHANE		ND	0.50	ND	0.50	ND	0.50
BROMOFORM		ND	0.50	ND	0.50	ND	0.50
BROMOMETHANE		ND	1.0	ND	1.0	ND	1.0
CARBON TETRACHLORIDE		ND	0.50	ND	0.50	ND	0.50
CHLOROBENZENE		ND	0.50	11	0.50	ND	0.50
CHLOROETHANE		ND	1.0	ND	1.0	ND	1.0
CHLOROFORM		ND	0.50	ND	0.50	3.4	0.50
CHLOROMETHANE		ND	1.0	ND	1.0	ND	1.0
DIBROMOCHLOROMETHANE		ND	0.50	ND	0.50	ND	0.50
1,4-DICHLOROBENZENE		ND	0.50	ND	0.50	ND	0.50
1,3-DICHLOROBENZENE		ND	0.50	ND	0.50	ND	0.50
1,2-DICHLOROBENZENE		ND	0.50	ND	0.50	ND	0.50
1,1-DICHLOROETHANE		ND	0.50	ND	0.50	ND	0.50
1,2-DICHLOROETHANE		ND	0.50	ND	0.50	ND	0.50
1,1-DICHLOROETHENE		ND	0.50	11	0.50	ND	0.50
1,2-DICHLOROETHENE (TOTAL)		ND	0.50	ND	0.50	ND	0.50
1,2-DICHLOROPROPANE		ND	0.50	ND	0.50	ND	0.50
CIS-1,3-DICHLOROPROPENE		ND	0.50	ND	0.50	ND	0.50
TRANS-1,3-DICHLOROPROPENE		ND	0.50	ND	0.50	ND	0.50
METHYLENE CHLORIDE		ND	1.0	ND	1.0	ND	1.0
1,1,2,2-TETRACHLOROETHANE		ND	0.50	ND	0.50	ND	0.50
TETRACHLOROETHENE		ND	0.50	ND	0.50	ND	0.50
1,1,1-TRICHLOROETHANE		ND	0.50	ND	0.50	ND	0.50
1,1,2-TRICHLOROETHANE		ND	0.50	ND	0.50	ND	0.50
TRICHLOROETHENE		ND	0.50	14	0.50	ND	0.50
TRICHLOROFLUOROMETHANE		ND	1.0	ND	1.0	ND	1.0
VINYL CHLORIDE		ND	1.0	ND	1.0	ND	1.0

L A B O R A T O R Y R E S U L T S

Laboratory Job No.: 923085

COMPOUNDS:	LAB# SMP# dil.	MS	DET. LIM. 1	MSD	DET. LIM. 1
PURGEABLES			ug/L		ug/L
BROMODICHLOROMETHANE		ND	0.50	ND	0.50
BROMOFORM		ND	0.50	ND	0.50
BROMOMETHANE		ND	1.0	ND	1.0
CARBON TETRACHLORIDE		ND	0.50	ND	0.50
CHLOROBENZENE		10	0.50	10	0.50
CHLOROETHANE		ND	1.0	ND	1.0
CHLOROFORM		3.6	0.50	3.5	0.50
CHLOROMETHANE		ND	1.0	ND	1.0
DIBROMOCHLOROMETHANE		ND	0.50	ND	0.50
1,4-DICHLOROBENZENE		ND	0.50	ND	0.50
1,3-DICHLOROBENZENE		ND	0.50	ND	0.50
1,2-DICHLOROBENZENE		ND	0.50	ND	0.50
1,1-DICHLOROETHANE		ND	0.50	ND	0.50
1,2-DICHLOROETHANE		ND	0.50	ND	0.50
1,1-DICHLOROETHENE		12	0.50	12	0.50
1,2-DICHLOROETHENE (TOTAL)		ND	0.50	ND	0.50
1,2-DICHLOROPROPANE		ND	0.50	ND	0.50
CIS-1,3-DICHLOROPROPENE		ND	0.50	ND	0.50
TRANS-1,3-DICHLOROPROPENE		ND	0.50	ND	0.50
METHYLENE CHLORIDE		ND	1.0	1.1	1.0
1,1,2,2-TETRACHLOROETHANE		ND	0.50	ND	0.50
TETRACHLOROETHENE		ND	0.50	ND	0.50
1,1,1-TRICHLOROETHANE		ND	0.50	ND	0.50
1,1,2-TRICHLOROETHANE		ND	0.50	ND	0.50
TRICHLOROETHENE		15	0.50	15	0.50
TRICHLOROFLUOROMETHANE		ND	1.0	ND	1.0
VINYL CHLORIDE		ND	1.0	ND	1.0

NOTES: (1) MBS, MS AND MSD WERE SPIKED AT 10 ug/L WITH 1,1-DICHLOROETHENE, TRICHLOROETHENE AND CHLOROBENZENE.

(2) IDENTIFICATION OF COMPOUNDS WAS CONFIRMED BY GC/MS.

D & M Laboratories

L A B O R A T O R Y R E S U L T S

Date Collected: 10/22/92
Date Extracted: 10/29/92
Date Analyzed: 10/29/92

Laboratory Job No.: 923085
Date Received: 10/26/92
Date Reported: 11/12/92

ASSAY:
PURGEABLE AROMATICS IN WATER (EPA 602)

COMPOUNDS:	LAB#	27053	DET.	27054	DET.	27055	DET.	27056	DET.
	SMP#	TB-02	LIM.	MW-32	LIM.	MW-40	LIM.	MW-29	LIM.
	dil.	1		10		5		1	
PURGEABLES		ug/L		ug/L		ug/L		ug/L	
BENZENE		ND	0.50	ND	5.0	ND	2.5	ND	0.50
CHLOROBENZENE		ND	0.50	ND	5.0	ND	2.5	ND	0.50
1,2-DICHLOROBENZENE		ND	0.50	ND	5.0	ND	2.5	ND	0.50
1,3-DICHLOROBENZENE		ND	0.50	ND	5.0	ND	2.5	ND	0.50
1,4-DICHLOROBENZENE		ND	0.50	ND	5.0	ND	2.5	ND	0.50
ETHYL BENZENE		ND	0.50	ND	5.0	ND	2.5	ND	0.50
TOLUENE		ND	0.50	ND	5.0	ND	2.5	ND	0.50
XYLENE		ND	0.50	ND	5.0	ND	2.5	ND	0.50

COMPOUNDS:	LAB#	27057	DET.	27058	DET.	27059	DET.	27060	DET.
	SMP#	MW-30	LIM.	MW-28	LIM.	MW-43	LIM.	MW-26	LIM.
	dil.	5		1		10		1	
PURGEABLES		ug/L		ug/L		ug/L		ug/L	
BENZENE		ND	2.5	ND	0.50	ND	5.0	ND	0.50
CHLOROBENZENE		ND	2.5	ND	0.50	ND	5.0	ND	0.50
1,2-DICHLOROBENZENE		ND	2.5	ND	0.50	ND	5.0	ND	0.50
1,3-DICHLOROBENZENE		ND	2.5	ND	0.50	ND	5.0	ND	0.50
1,4-DICHLOROBENZENE		ND	2.5	ND	0.50	ND	5.0	ND	0.50
ETHYL BENZENE		ND	2.5	ND	0.50	ND	5.0	ND	0.50
TOLUENE		ND	2.5	ND	0.50	ND	5.0	ND	0.50
XYLENE		ND	2.5	ND	0.50	ND	5.0	ND	0.50

D & M Laboratories

L A B O R A T O R Y R E S U L T S

Laboratory Job No.: 923085

COMPOUNDS:	LAB#	27061	DET.	27062	DET.	27063	DET.	27064	DET.
	SMP#	MW-7	LIM.	MW-20	LIM.	RB-01	LIM.	RB-02	LIM.
	dil.	1		1		1		1	
PURGEABLES		ug/L		ug/L		ug/L		ug/L	
BENZENE		ND	0.50	ND	0.50	ND	0.50	ND	0.50
CHLOROBENZENE		ND	0.50	ND	0.50	ND	0.50	ND	0.50
1,2-DICHLOROBENZENE		ND	0.50	ND	0.50	ND	0.50	ND	0.50
1,3-DICHLOROBENZENE		ND	0.50	ND	0.50	ND	0.50	ND	0.50
1,4-DICHLOROBENZENE		ND	0.50	ND	0.50	ND	0.50	ND	0.50
ETHYL BENZENE		ND	0.50	ND	0.50	ND	0.50	ND	0.50
TOLUENE		ND	0.50	ND	0.50	ND	0.50	ND	0.50
XYLENE		ND	0.50	ND	0.50	ND	0.50	ND	0.50

COMPOUNDS:	LAB#	27065	DET.		DET.		DET.		DET.
	SMP#	MW-16	LIM.	MB	LIM.	MBS	LIM.	MX	LIM.
	dil.	1		1		1		1	
PURGEABLES		ug/L		ug/L		ug/L		ug/L	
BENZENE		ND	0.50	ND	0.50	12	0.50	ND	0.50
CHLOROBENZENE		ND	0.50	ND	0.50	11	0.50	ND	0.50
1,2-DICHLOROBENZENE		ND	0.50	ND	0.50	ND	0.50	ND	0.50
1,3-DICHLOROBENZENE		ND	0.50	ND	0.50	ND	0.50	ND	0.50
1,4-DICHLOROBENZENE		ND	0.50	ND	0.50	ND	0.50	ND	0.50
ETHYL BENZENE		ND	0.50	ND	0.50	ND	0.50	ND	0.50
TOLUENE		ND	0.50	ND	0.50	12	0.50	ND	0.50
XYLENE		ND	0.50	ND	0.50	ND	0.50	ND	0.50

L A B O R A T O R Y R E S U L T S

Laboratory Job No.: 923085

COMPOUNDS: PURGEABLES	LAB# SMP# dil.	MS	DET. LIM. 1 ug/L	MSD	DET. LIM. 1 ug/L
BENZENE		12	0.50	12	0.50
CHLOROBENZENE		12	0.50	12	0.50
1,2-DICHLOROBENZENE		ND	0.50	ND	0.50
1,3-DICHLOROBENZENE		ND	0.50	ND	0.50
1,4-DICHLOROBENZENE		ND	0.50	ND	0.50
ETHYL BENZENE		ND	0.50	ND	0.50
TOLUENE		12	0.50	12	0.50
XYLENE		ND	0.50	ND	0.50

NOTES: (1) MBS, MS AND MSD WERE SPIKED AT 10 ug/L
SPIKING COMPOUNDS ARE: BENZENE, CHLOROBENZENE AND TOLUENE.

(2) IDENTIFICATION OF COMPOUNDS WAS CONFIRMED BY GC/MS.

D & M Laboratories

ENVIRONMENTAL AND
INDUSTRIAL HYGIENE SERVICES

3700 Lakeville Highway, Petaluma, CA 94954
P.O. Box 808024, Petaluma, CA 94975-8024
Telephone: (707) 763-8245
FAX (707) 763-4065

QUALITY CONTROL REPORT

In order to provide you with the means of assessing the quality of the data in our report, **D&M Laboratories** reports the results of Quality Control samples analyzed with your samples.

The Quality Control samples provide the following QC information:

The Method Blank (**MB**) monitors the level of contamination introduced by reagents or glassware. A minimum of one MB is run per batch of 20 samples or less.

The Method Blank Spike (**MBS**) measures the accuracy of analytical techniques and is not subject to matrix effects. A minimum of one MBS is run per batch of 20 samples or less.

The Matrix Spike (**MS**) measures the accuracy of the method for a matrix type. Due to the high variability within matrix types and the necessity of batching samples from varied sources, matrix spike information from one sample is not necessarily relevant to other samples on the batch. A minimum of two matrix spikes, MS and MSD, are run per batch of 20 samples or less. The sample selected for the matrix spike is designated **MX**, and may or may not have been submitted by the recipient of this report.

The Matrix Spike Duplicate (**MSD**), along with the MS, is used to monitor the precision (**RPD**) of the method and to indicate possible non homogeneity of the sample matrix.

Equations used for determining percent recovery and relative percent difference (RPD) are as follows:

MBS % Recovery = (MBS result / MBS spike level) x 100
MS % Recovery = [(MS result - MX result) / MS spike level] x 100
RPD ={ | MS result - MSD result | / [(MS result + MSD result) / 2]} x 100

We continue to strive to improve the quality of service to our clients. We welcome any questions or comments you may have about this information, or about **D&M Laboratories** in general. Please contact a Project Manager for further information.

QA/QC SUMMARY

LABORATORY JOB 923085

EPA METHOD 6010, NICKEL

I.D.	RESULTS (MG/L)	SPIKE AMOUNT (MG/L)	AMOUNT IN SAMPLE (MG/L)	AMOUNT RECOV. (MG/L)	PERCENT RECOVERY	PERCENT R.P.D.
MBS NICKEL	0.53	0.50	ND	0.53	106	N/A
MS NICKEL	0.52	0.50	ND	0.52	104	10
MSD NICKEL	0.47	0.50	ND	0.47	94	N/A

QA/QC SUMMARY

LABORATORY JOB 923085

EPA METHOD 601

I.D.	RESULTS (UG/L)	SPIKE AMOUNT (UG/L)	AMOUNT IN SAMPLE (UG/L)	AMOUNT RECOV. (UG/L)	PERCENT RECOVERY	PERCENT R.P.D.
MBS Chlorobenzene	11	10	ND	11	110	N/A
1,1-Dichloro-ethene	11	10	ND	11	110	N/A
Trichloroethene	14	10	ND	14	140	N/A
MS Chlorobenzene	10	10	ND	10	100	0
1,1-Dichloro-ethene	12	10	ND	12	120	0
Trichloroethene	15	10	ND	15	150	0
MSD Chlorobenzene	10	10	ND	10	100	N/A
1,1-Dichloro-ethene	12	10	ND	12	120	N/A
Trichloroethene	15	10	ND	15	150	N/A

D & M Laboratories

QA/QC SUMMARY

LABORATORY JOB 923085

EPA METHOD 602

I.D.	RESULTS (UG/L)	SPIKE AMOUNT (UG/L)	AMOUNT IN SAMPLE (UG/L)	AMOUNT RECOV. (UG/L)	PERCENT RECOVERY	PERCENT R.P.D.
MBS Benzene	12	10	ND	12	120	N/A
Chloro-benzene	11	10	ND	11	110	N/A
Toluene	12	10	ND	12	120	N/A
MS Benzene	12	10	ND	12	120	0
Chloro-benzene	12	10	ND	12	120	0
Toluene	12	10	ND	12	120	0
MSD Benzene	12	10	ND	12	120	N/A
Chloro-Benzene	12	10	ND	12	120	N/A
Toluene	12	10	ND	12	120	N/A

D & M Laboratories

Appendix

D

APPENDIX D

LITHOLOGIC/WELL COMPLETION, AND GEOPHYSICAL LOGS
GROUNDWATER MONITORING WELL MW-44

TABLE D-1

SUMMARY OF WELL CONSTRUCTION DETAILS
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

WELL	DATE COMPLETED	GROUND ELEV. (feet MSLD)	TOP OF CASING ELEV.[A] (feet MSLD)	COMPLETED DEPTH (feet)	BORING DIAM. (inches)	WELL CASING DIAM. (inches)	SCREENED INTERVAL (feet bgs)	FILTER PACK INTERVAL (feet bgs)	DEDICATED PUMP INTAKE (feet bgs)
MW-1	01/20/88	17.15	18.67	46.0	12	4	15-35	12-46	—
MW-2	01/25/88	21.93	23.62	66.0	12	4	37-57	34-66	46.7
MW-3	01/23/88	15.22	16.76	31.0	12	4	15-25	13.31	—
MW-4	02/03/88	24.68	26.17	60.0	12	4	34-54	30.5-57	44.0
MW-5	02/09/88	24.60	28.00	51.0	12	4	37-47	31.5-51	—
MW-6	02/15/88	24.63	26.50	54.0	12	4	30-50	26.5-54	—
MW-7	01/29/88	24.78	26.29	46.0	12	4	33-43	29-46	38.6
MW-8	02/06/88	24.85	26.66	59.5	12	4	37.5-52.5	28-59	—
MW-11	08/09/89	23.9	26.29	56.0	12	4	50-55	48-56	52.26
MW-12	08/30/89	25.5	28.37	82.0	10.5[B]	4	69-79	67-82	74.0
MW-13	08/16/89	25.8	27.88	45.0	12	4	26-41	24-43	38.5
MW-14	08/17/89	26.8	29.21	58.0	12	4	52.5-57.5	49.5-58	54.9
MW-15	08/21/89	25.1	27.32	44.0	12	4	26-41	24-41	—
MW-16	08/23/89	25.1	27.37	57.5	12	4	51.8-56.8	49.8-57.5	54.4
MW-17	09/12/89	25.2	27.55	45.0	12	4	26.5-41.5	24-43	—
MW-18	09/13/89	25.1	27.64	57.5	12	4	52-57	50-57.5	54.7
MW-19	09/08/89	24.5	27.05	42.0	12	4	26-41	24-42	—
MW-20	09/11/89	24.7	27.15	59.0	12	4	52-57	50-59	54.6
MW-21	08/31/89	24.3	26.46	40.0	12	4	24-39	22-40	—
MW-22	09/06/89	24.8	27.35	52.5	12	4	45.5-50.5	43.5-52.5	—
MW-23	08/28/89	24.5	26.68	42.0	12	4	25.5-40.5	23.5-42	—
MW-24	08/30/89	24.9	27.13	45.0	12	4	34-39	32-45	—
MW-25	08/03/89	23.7	26.13	41.5	12	4	26-41	24-41.5	—

SAC57.014

TABLE D-1 (Continued)

SUMMARY OF WELL CONSTRUCTION DETAILS
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

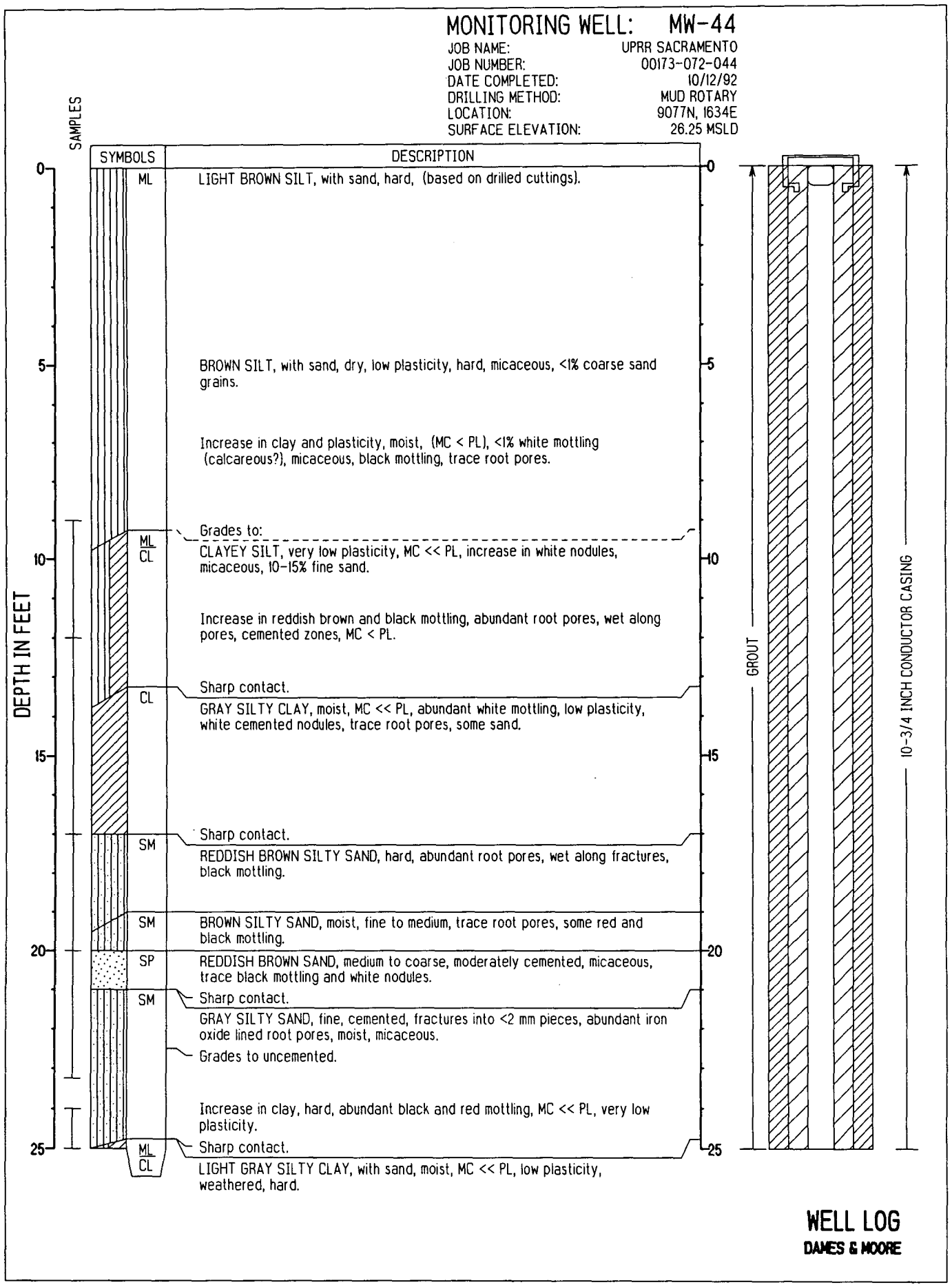
WELL	DATE COMPLETED	GROUND ELEV. (feet MSLD)	TOP OF CASING ELEV.[A] (feet MSLD)	COMPLETED DEPTH (feet)	BORING DIAM. (inches)	WELL CASING DIAM. (inches)	SCREENED INTERVAL (feet bgs)	FILTER PACK INTERVAL (feet bgs)	DEDICATED PUMP INTAKE (feet bgs)
MW-26	08/04/89	23.7	26.04	50.0	12	4	38-43	35-44	40.6
MW-27	09/07/89	23.8	26.53	73.0	10.5[B]	4	56.5-66.5	54.5-70	61.5
MW-28	02/07/90	25.15	25.14	85.0	12[B]	4	69.0-79.0	65.6-80.5	74.7
MW-29	01/22/90	25.24	25.22	42.0	12	4	26.0-41.0	24.0-42.0	39.1
MW-30	01/24/90	26.19	25.16	57.0	12	4	51.0-56.0	49.0-57.0	53.9
MW-31	04/26/90	25.34	25.28	54.5	12	4	49.0-54.0	47.0-54.5	51.7
MW-32	04/24/90	25.02	24.96	57.0	12	4	51.5-56.5	49.5-57.0	53.8
MW-33	04/27/90	23.80	25.46	39.0	12	4	23.5-38.5	21.5-39.0	35.7
MW-34	5/22/91	24.5	24.45	62.0	10	4	56-61	55-62	59.0
MW-35	5/22/91	24.5	24.51	44.0	10	4	27-42	25-44	39.5
MW-36	11/15/91	25.4	25.36	49.0	10	4	33.5-48.5	31-49	42.6
MW-37	11/21/91	25.4	25.43	86.0	10[B]	4	75-85	73-86	79.9
MW-38	11/15/91	26.2	26.27	49.0	10	4	36-48.5	34-49	45.0
MW-39	5/21/91	24.4	24.41	49.0	10	4	33-48	31-49.5	44.5
MW-40	5/20/91	25.0	25.06	83.0	10[B]	4	72.5-82.5	71.5-83	77.5
MW-41	5/15/91	25.2	27.48	115.5	10[B]	4	104.5-114.5	103.5-115.5	109.6
MW-42	5/23/91	21.7	23.62	37	10	4	20.5-35.5	18.5-37	33.0
MW-43	5/23/91	21.2	22.82	37	10	4	20-35	18-37	31.3
MW-44	10/14/92	26.1	26.25	81	10[B]	4	73.5-78.5	72.5-81	76.0

[A] Measured from stand pipe rim or surface vault rim.
[B] Direct mud rotary drilled.
— Indicates dedicated pump not installed in well.

SAC57.014

MONITORING WELL: MW-44

JOB NAME:	UPRR SACRAMENTO
JOB NUMBER:	00173-072-044
DATE COMPLETED:	10/12/92
DRILLING METHOD:	MUD ROTARY
LOCATION:	9077N, 1634E
SURFACE ELEVATION:	26.25 MSLD

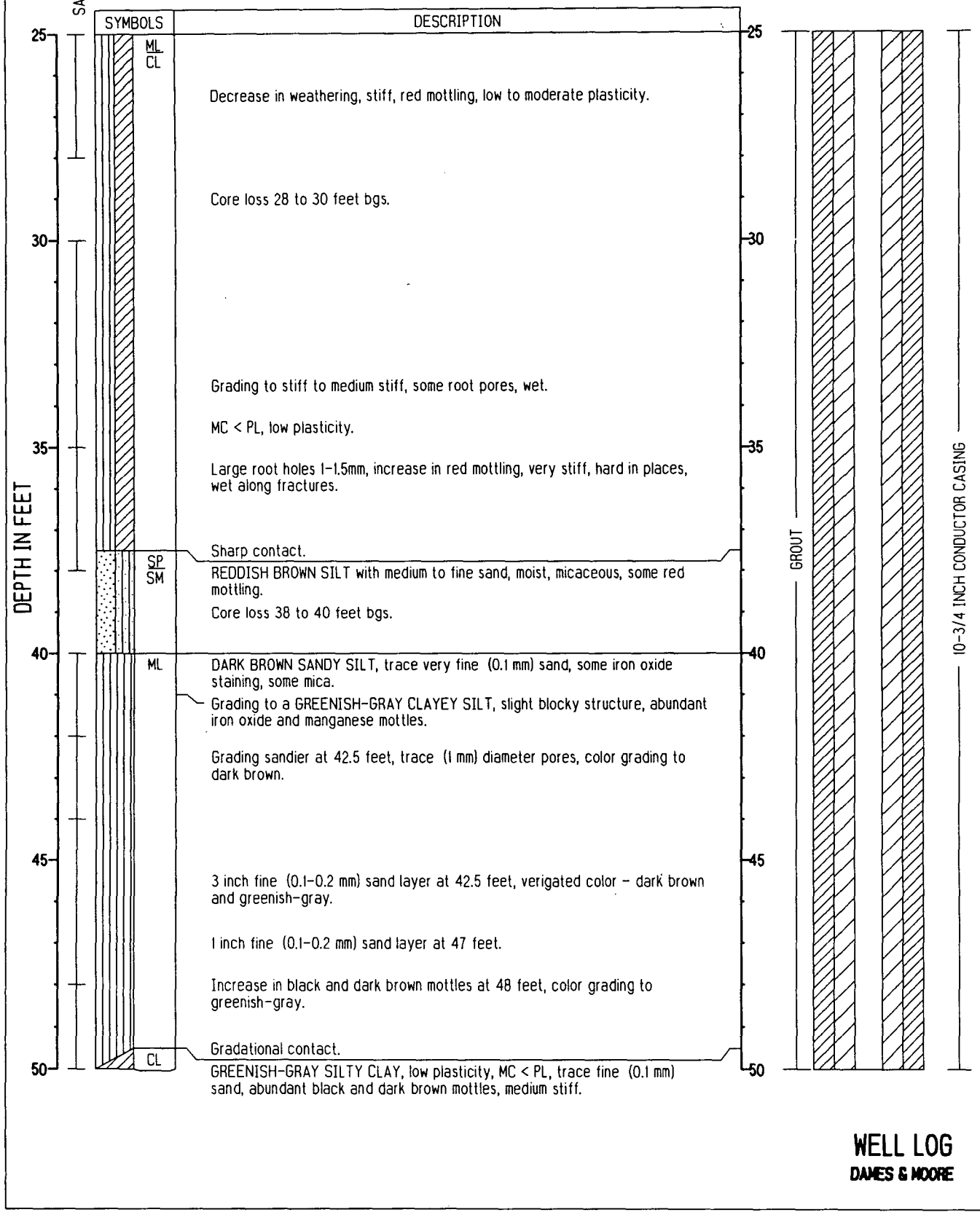


WELL LOG

DAMES & MOORE

MONITORING WELL: MW-44

JOB NAME:	UPRR SACRAMENTO
JOB NUMBER:	00173-072-044
DATE COMPLETED:	10/12/92
DRILLING METHOD:	MUD ROTARY
LOCATION:	9077N, 1634E
SURFACE ELEVATION:	26.25 MSLD

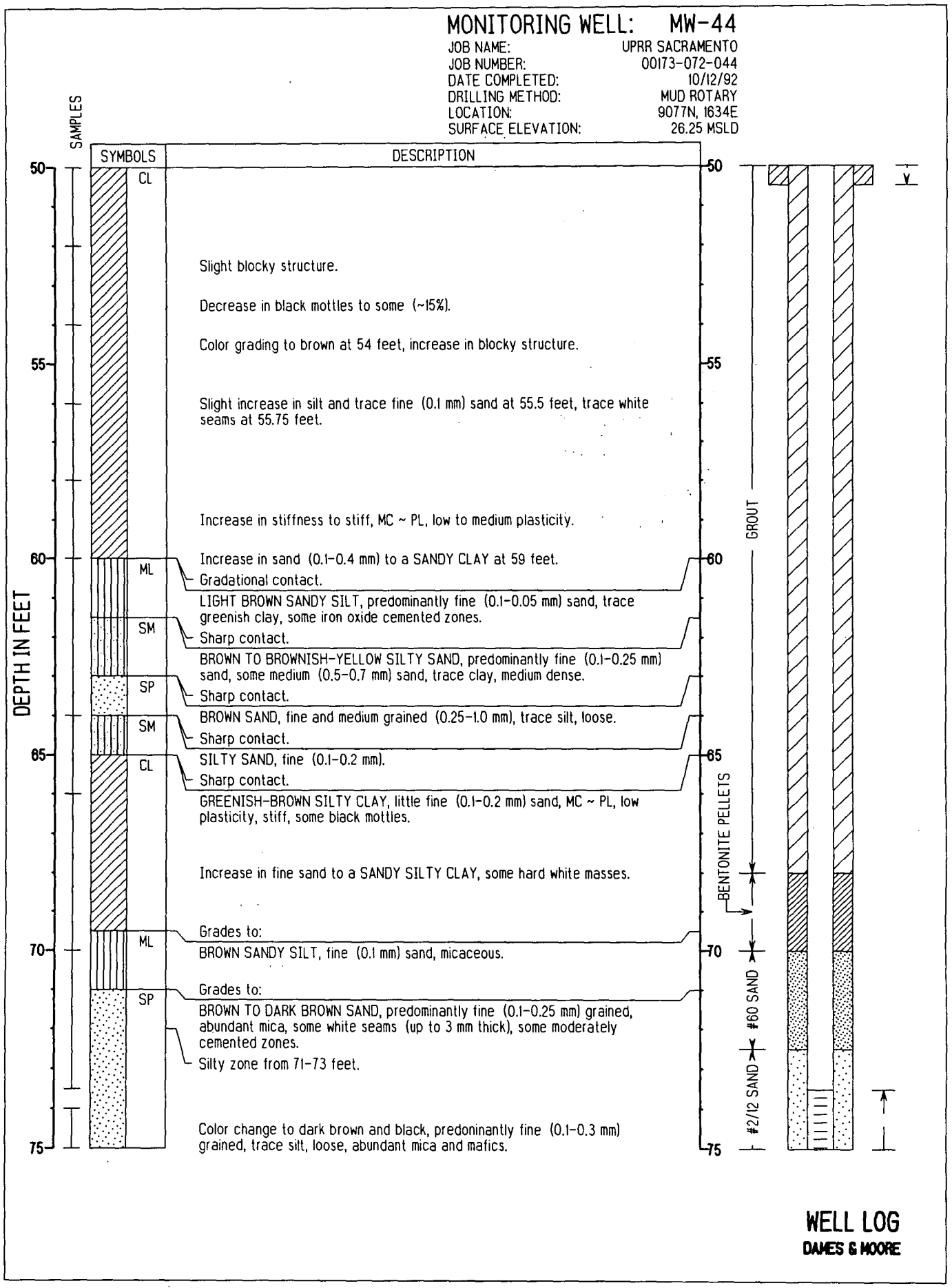


WELL LOG

DAMES & MOORE

MONITORING WELL: MW-44

JOB NAME:	UPRR SACRAMENTO
JOB NUMBER:	00173-072-044
DATE COMPLETED:	10/12/92
DRILLING METHOD:	MUD ROTARY
LOCATION:	9077N, 1634E
SURFACE ELEVATION:	26.25 MSLD

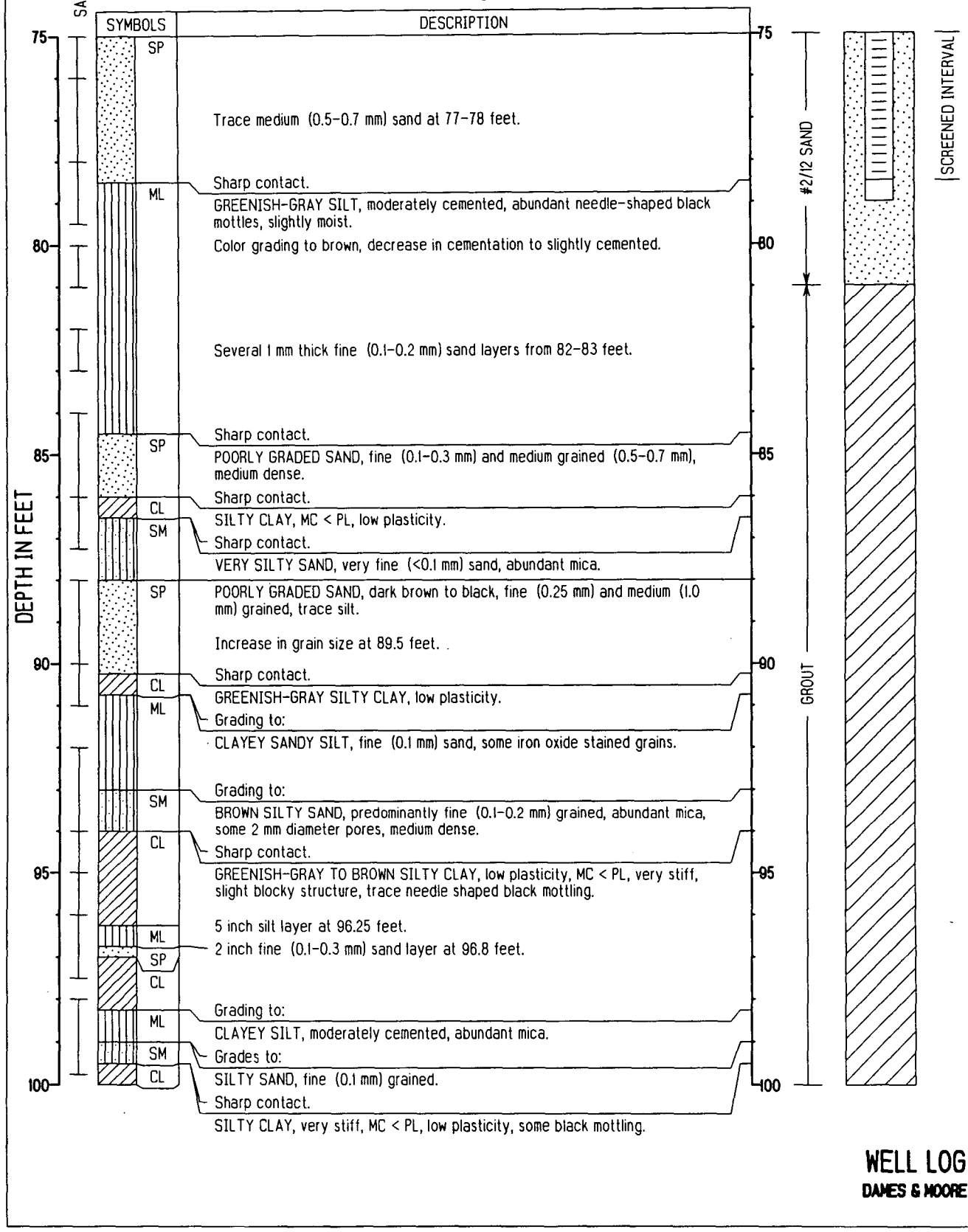


WELL LOG

DAMES & MOORE

MONITORING WELL: MW-44

JOB NAME:	UPRR SACRAMENTO
JOB NUMBER:	00173-072-044
DATE COMPLETED:	10/12/92
DRILLING METHOD:	MUD ROTARY
LOCATION:	9077N, 1634E
SURFACE ELEVATION:	26.25 MSLD

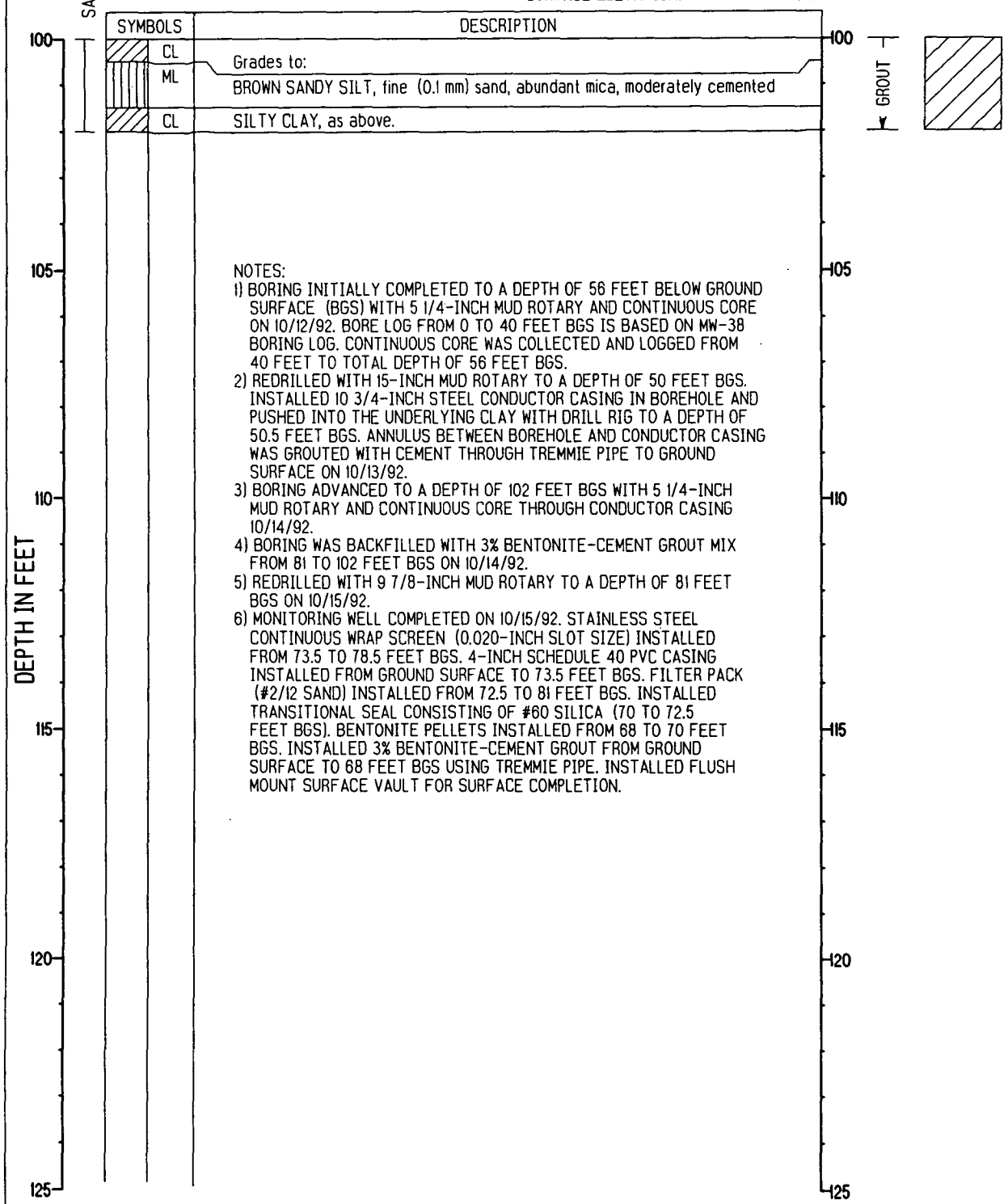


WELL LOG

DAMES & MOORE

MONITORING WELL: MW-44

JOB NAME:	UPRR SACRAMENTO
JOB NUMBER:	00173-072-044
DATE COMPLETED:	10/12/92
DRILLING METHOD:	MUD ROTARY
LOCATION:	9077N, 1634E
SURFACE ELEVATION:	26.25 MSLD



NOTES:

1) BORING INITIALLY COMPLETED TO A DEPTH OF 56 FEET BELOW GROUND SURFACE (BGS) WITH 5 1/4-INCH MUD ROTARY AND CONTINUOUS CORE ON 10/12/92. BORE LOG FROM 0 TO 40 FEET BGS IS BASED ON MW-38 BORING LOG. CONTINUOUS CORE WAS COLLECTED AND LOGGED FROM 40 FEET TO TOTAL DEPTH OF 56 FEET BGS.
2) REDRILLED WITH 15-INCH MUD ROTARY TO A DEPTH OF 50 FEET BGS. INSTALLED 10 3/4-INCH STEEL CONDUCTOR CASING IN BOREHOLE AND PUSHED INTO THE UNDERLYING CLAY WITH DRILL RIG TO A DEPTH OF 50.5 FEET BGS. ANNULUS BETWEEN BOREHOLE AND CONDUCTOR CASING WAS GROUTED WITH CEMENT THROUGH TREMMIE PIPE TO GROUND SURFACE ON 10/13/92.
3) BORING ADVANCED TO A DEPTH OF 102 FEET BGS WITH 5 1/4-INCH MUD ROTARY AND CONTINUOUS CORE THROUGH CONDUCTOR CASING 10/14/92.
4) BORING WAS BACKFILLED WITH 3% BENTONITE-CEMENT GROUT MIX FROM 81 TO 102 FEET BGS ON 10/14/92.
5) REDRILLED WITH 9 7/8-INCH MUD ROTARY TO A DEPTH OF 81 FEET BGS ON 10/15/92.
6) MONITORING WELL COMPLETED ON 10/15/92. STAINLESS STEEL CONTINUOUS WRAP SCREEN (0.020-INCH SLOT SIZE) INSTALLED FROM 73.5 TO 78.5 FEET BGS. 4-INCH SCHEDULE 40 PVC CASING INSTALLED FROM GROUND SURFACE TO 73.5 FEET BGS. FILTER PACK (#2/12 SAND) INSTALLED FROM 72.5 TO 81 FEET BGS. INSTALLED TRANSITIONAL SEAL CONSISTING OF #60 SILICA (70 TO 72.5 FEET BGS). BENTONITE PELLETS INSTALLED FROM 68 TO 70 FEET BGS. INSTALLED 3% BENTONITE-CEMENT GROUT FROM GROUND SURFACE TO 68 FEET BGS USING TREMMIE PIPE. INSTALLED FLUSH MOUNT SURFACE VAULT FOR SURFACE COMPLETION.

WELL LOG

DAMES & MOORE

GEO-HYDRO-DATA

INCORPORATED

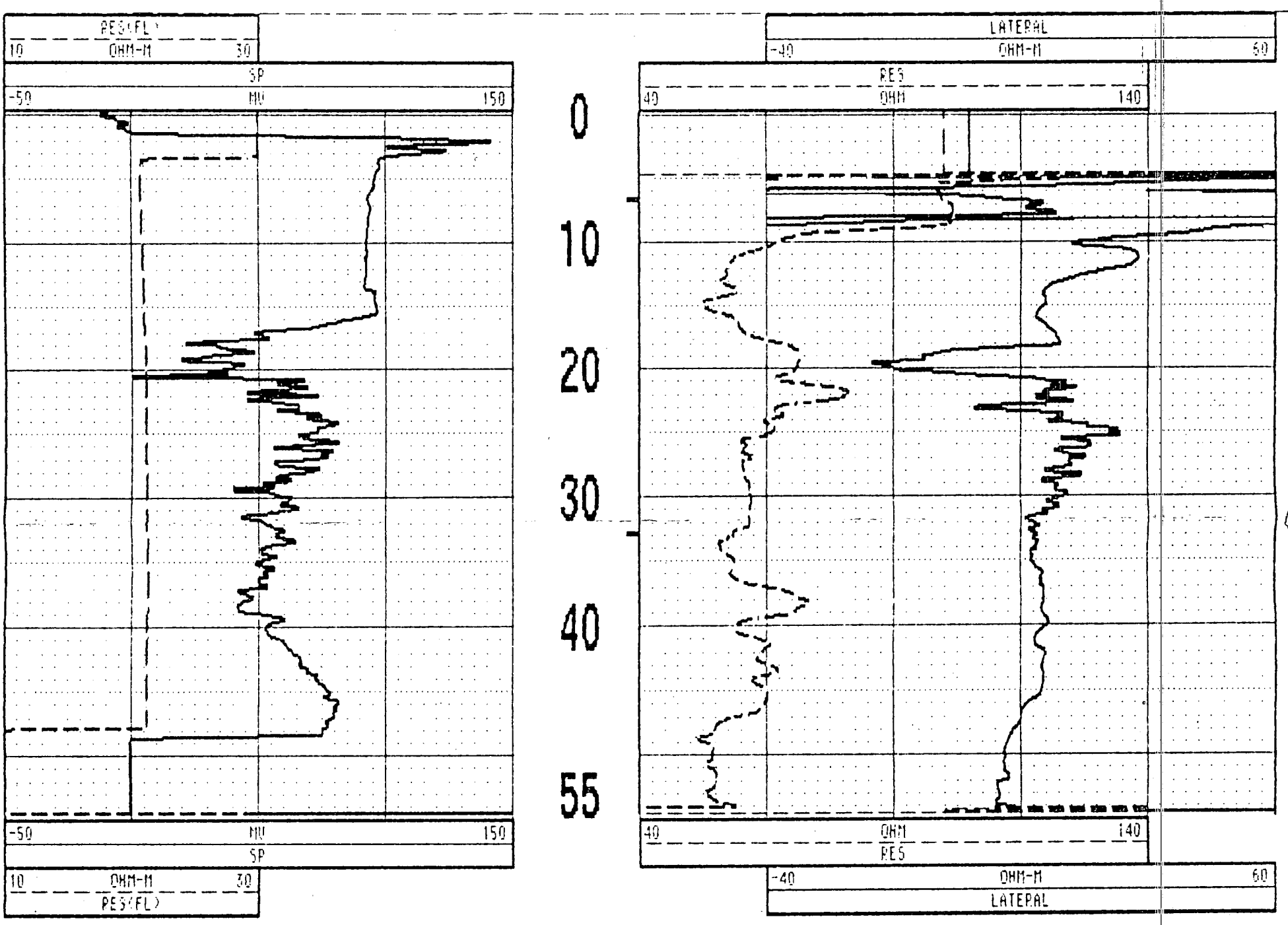
ELECTRIC WELL LOG

COMPANY	: UNION PACIFIC RAILROAD				
WELL	: #MW-44				
LOCATION/FIELD	: WILMINGTON & NORTON				
COUNTY	: SACRAMENTO				
STATE	: CALIFORNIA				
SECTION	:	TOWNSHIP	:	RANGE	:
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LOG TOP	: -1.30	DRL MEASURED FROM	: G.L.	GL	:
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CASING THICKNESS	: .5	RECORDED BY	: C. HERON		
BIT SIZE	: 5.25	BOREHOLE FLUID	: CLAY-GEL	FILE	: ORIGINAL
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MATRIX DENSITY	:	RM TEMPERATURE	:	LOG	: 1
FLUID DENSITY	:	MATRIX DELTA T	:	PLOT	: 1 0
NEUTRON MATRIX	:	FLUID DELTA T	:	THRESH	: 1000

OTHER SERVICES:
INV 8556
MUD 300D

REMARKS :
DRILLED BY: ALL TERRAIN DRILLING - ROSEVILLE, CA
CONSULTANT: DAMES & MOORE - SACRAMENTO, CA WITNESSED BY: PAUL MURPHY

ALL SERVICES PROVIDED SUBJECT TO STANDARD TERMS AND CONDITIONS



GEO-HYDRO-DATA

INCORPORATED

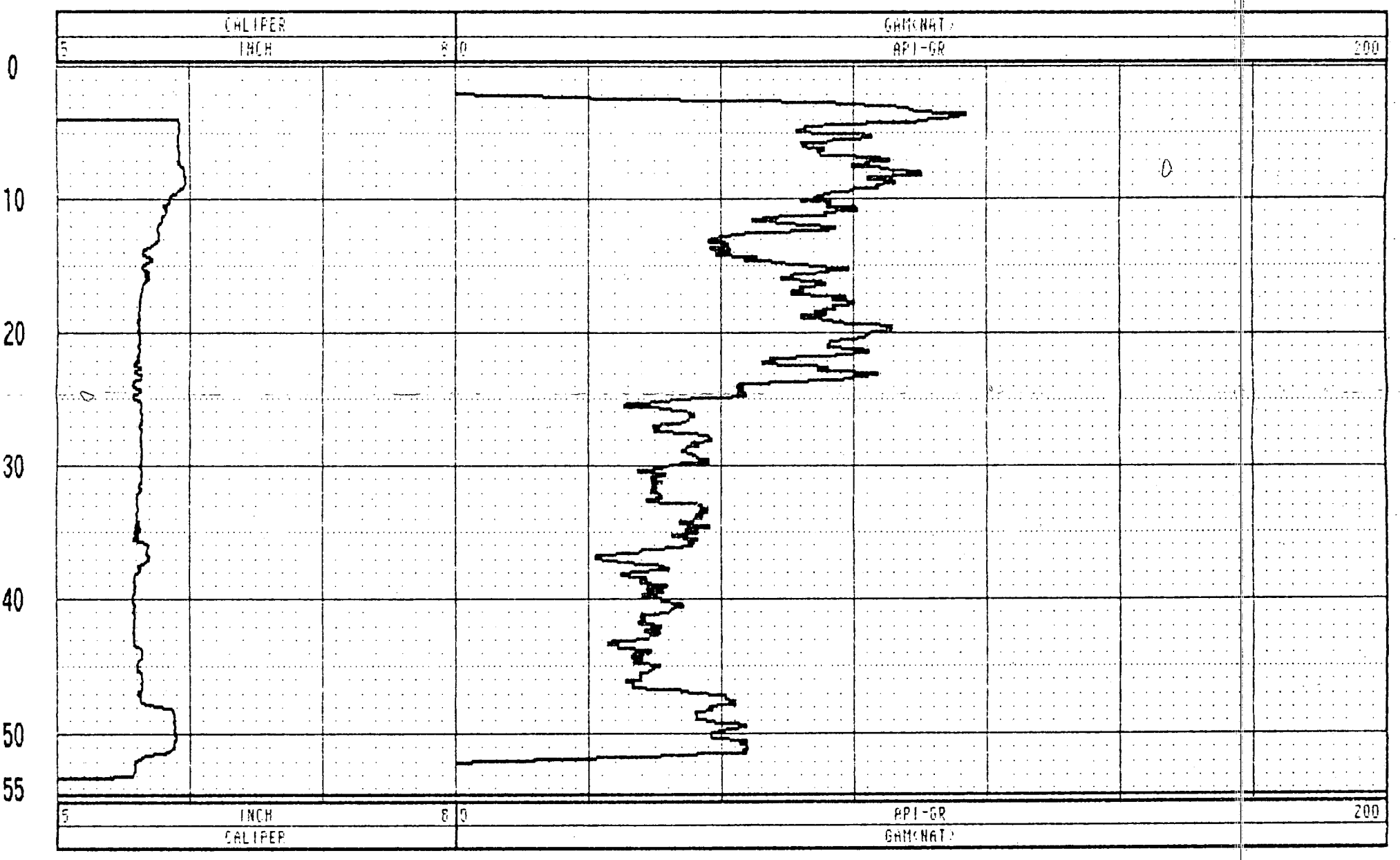
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WELL	: #MW-44				
LOCATION/FIELD	: WILMINGTON & NORTON				
COUNTY	: SACRAMENTO				
STATE	: CALIFORNIA				
SECTION	:	TOWNSHIP	:	RANGE	:
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NEUTRON MATRIX	:	FLUID DELTA T	:	THRESH	: 1000

OTHER SERVICES:
INV 8556
MUD 300D

REMARKS :
DRILLED BY: ALL TERRAIN DRILLING - ROSEVILLE, CA
CONSULTANT: DAMES & MOORE - SACRAMENTO, CA WITNESSED BY: PAUL MURPHY

ALL SERVICES PROVIDED SUBJECT TO STANDARD TERMS AND CONDITIONS



GEO-HYDRO-DATA

INCORPORATED

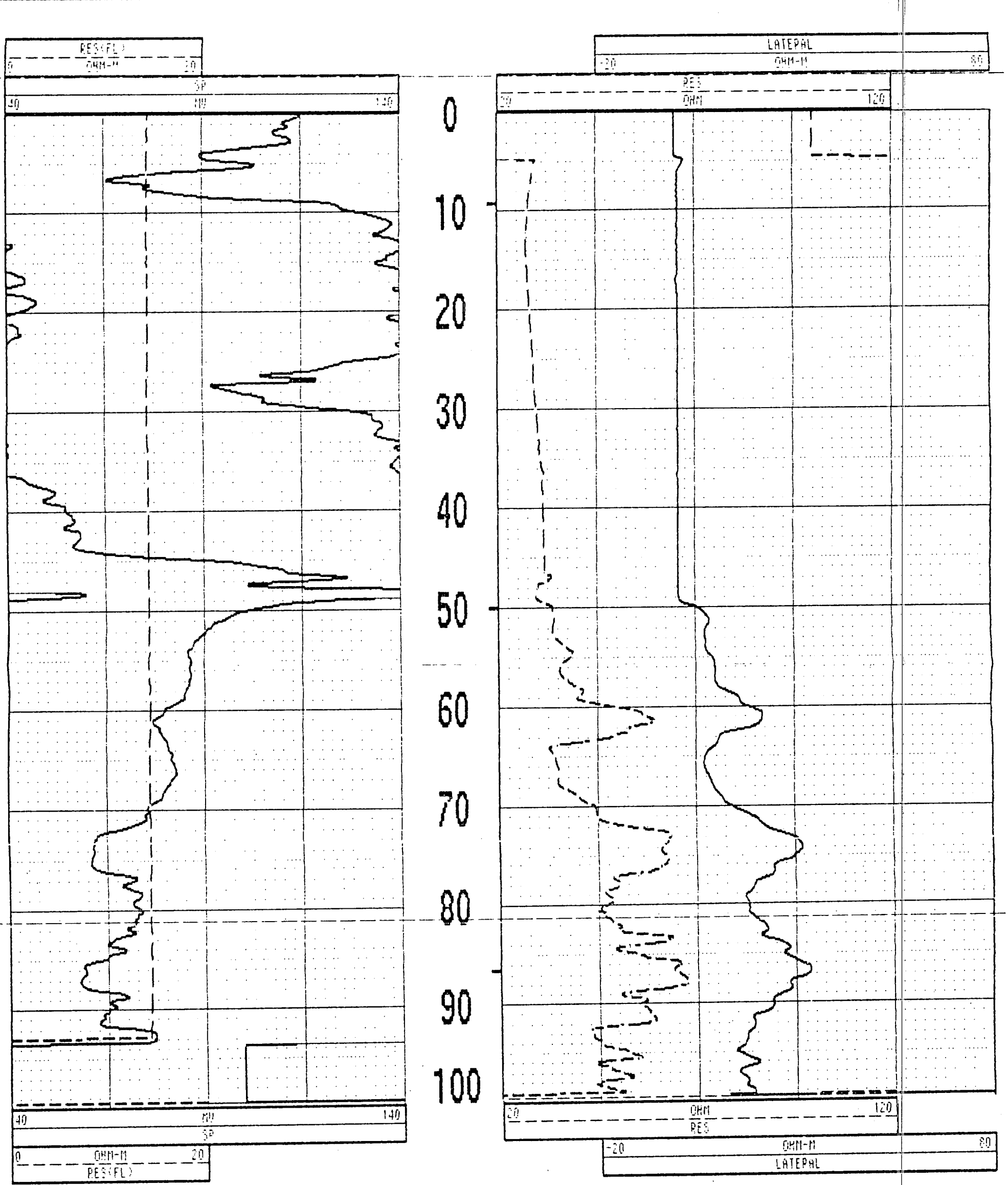
ELECTRIC WELL LOG

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LOCATION/FIELD	: WILMINGTON & NORTON				
COUNTY	: SACRAMENTO				
STATE	: CALIFORNIA				
SECTION	:	TOWNSHIP	:	RANGE	:
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NEUTRON MATRIX	:	FLUID DELTA T	:	THRESH	: 1000
REMARKS	:				

OTHER SERVICES:
INV 8560
MUD 300

DRILLED BY: ALL TERRAIN - ROSEVILLE, CA
CONSULTANT: DAMES & MOORE - SACRAMENTO, CA WITNESSED BY: PAUL MURPHY

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GEO-HYDRO-DATA

INCORPORATED

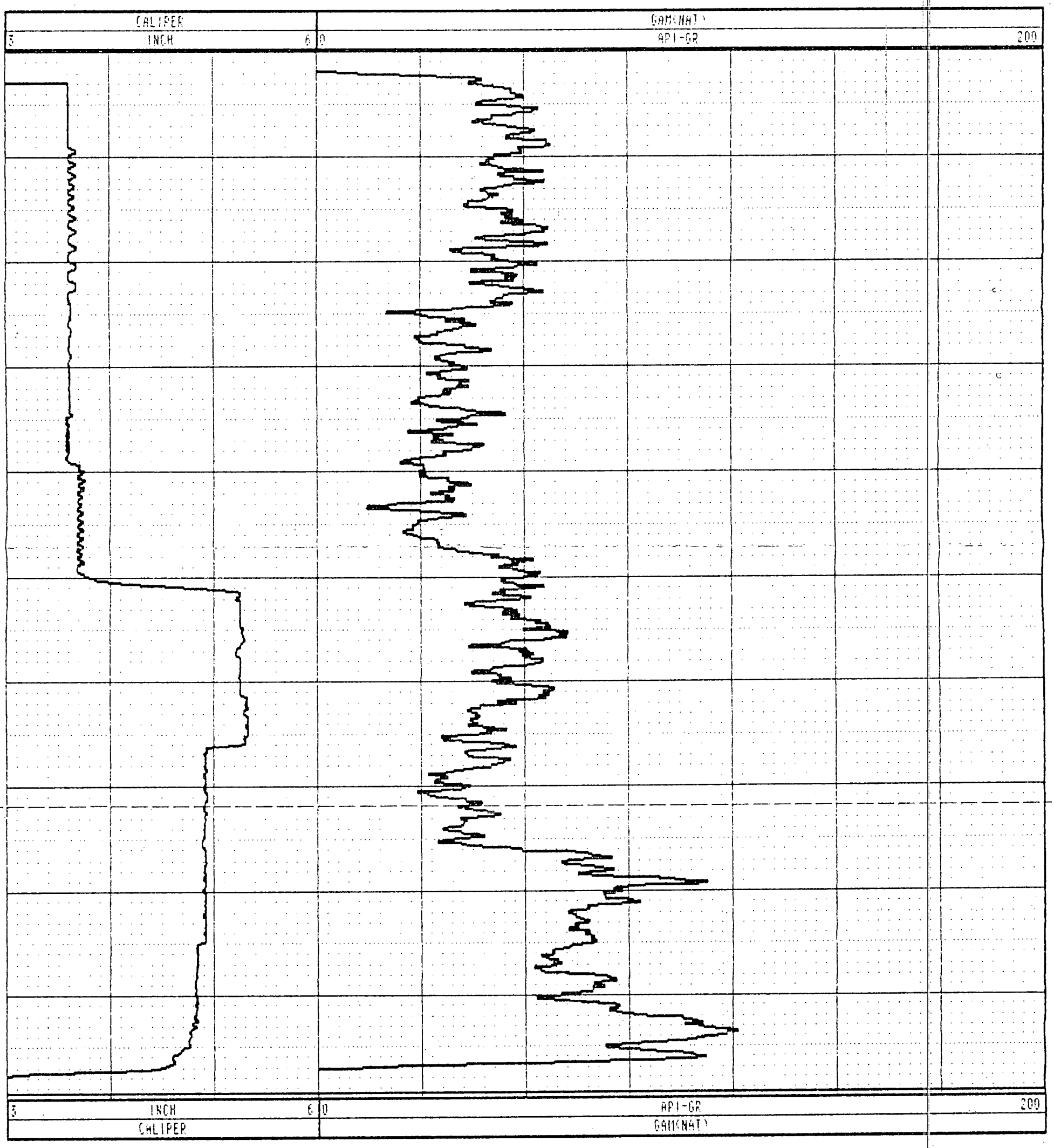
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LOCATION/FIELD	: WILMINGTON & NORTON				
COUNTY	: SACRAMENTO				
STATE	: CALIFORNIA				
SECTION	:	TOWNSHIP	:	RANGE	:
DATE	: 10/14/92	PERMANENT DATUM	: G.L.	ELEVATIONS	
DEPTH DRILLER	: 102	ELEV. PERM. DATUM	:	KB	:
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CASING TYPE	: STEEL	FIELD OFFICE	: SAN JOSE		
CASING THICKNESS	: .375	RECORDED BY	: C. HERON		
BIT SIZE	: 5.25	BOREHOLE FLUID	: CLAY-GEL	FILE	: PROCESSED
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NEUTRON MATRIX	:	FLUID DELTA T	:	THRESH	: 1000

OTHER SERVICES:
INV 8560
MUD 300

REMARKS :
DRILLED BY: ALL TERRAIN - ROSEVILLE, CA
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Appendix

E

APPENDIX E

SELECTION, DESIGN, INSTALLATION,
AND EVALUATION OF DEDICATED GROUNDWATER SAMPLING SYSTEMS:
A CASE STUDY
IN PROCEEDINGS OF THE NATIONAL GROUNDWATER SAMPLING SYMPOSIUM,
WASHINGTON, D.C., NOVEMBER 30, 1992

Selection, Design, Installation, and Evaluation of Dedicated Groundwater Sampling Systems: A Case Study

by

Timothy K. Parker Mark F. Eisen Andrew A. Kopania Alix Robertson
of Dames & Moore

and

Rick L. Eades Glenn Thomas
of Union Pacific Railroad Company

ABSTRACT

Dedicated sampling systems were installed in groundwater monitoring wells at the Union Pacific Railroad Yard state superfund site (the site) in Sacramento, California. The primary purpose of installing the dedicated systems was to provide cost savings obtained through reduced groundwater sampling labor during monitoring of the future site groundwater remedial action, projected to take 10 to 20 years. Grundfos Redi-Flo2 submersible pumps were the selected dedicated groundwater sampling devices installed at the site selected because of the ability to pump at an appropriate well purge rate (up to 8 gallons per minute) and recommended volatile organic compound (VOC) sampling rate (100 milliliters per minute), combined attributes which provide good field sampling efficiency. Redi-Flo2 pumps were installed in thirty of the site quarterly groundwater monitoring program wells. An evaluation was conducted to compare the Redi-Flo2 dedicated pumps with disposable bailers for sampling VOCs at the site. Ninety samples were collected from nine of the wells using the dedicated pumps and disposable bailers, and samples were analyzed for VOCs. Results of the evaluation indicate there is no statistical evidence that the two sampling devices perform differently. Comparison of labor costs for sampling groundwater monitoring wells at the site indicates a cost savings of approximately $100 per well per sampling event when the Redi-Flo2 pumps are used, and annual savings are projected to be $12,000. Considering the pumps cost approximately $1,100 to $1,300 per installation, and totaled approximately $35,500 for the site, costs of the pumps will be recovered in groundwater sampling labor savings in approximately 2.95 years.

INTRODUCTION

Groundwater remedial actions at Superfund sites are typically projected to require decades or more to complete, and collectively cost millions of dollars annually. Costs of groundwater remedial actions can be minimized through understanding and planning for the projected long term nature of the problem, and associated potential expenditures.

Significant long term annual costs for groundwater remedial actions include remedial system operation and maintenance (O&M), and groundwater monitoring. One method of reducing long term annual costs of groundwater remedial actions is by taking measures to optimize the groundwater monitoring program. Steps which may be taken to optimize the groundwater monitoring program include the installation of dedicated groundwater sampling systems to maximize field sampling labor efficiency, and minimize equipment costs and potential groundwater sampling variability.

Presented in this paper is a case study of measures taken to reduce long term groundwater monitoring costs at the Union Pacific Railroad (UPRR) Yard in Sacramento, California (the site). Cost savings are being provided to UPRR through a streamlined groundwater monitoring program which includes the use of dedicated groundwater sampling systems in groundwater monitoring wells which are sampled quarterly. Field groundwater sampling practices at the site have been further streamlined with the use of more efficient groundwater sampling equipment.

SITE DESCRIPTION

SITE BACKGROUND

The site (Figure 1) is located within the Sacramento City limits in an area which is comprised of mixed commercial, light industrial, and primarily residential land use. The site was established in 1910 by Western Pacific Railroad (WPRR) as their main west coast maintenance facility to maintain and rebuild steam locomotive boilers and to refurbish rail cars. Diesel engine repair and maintenance began in the early 1950's. UPRR purchased WPRR in 1982. The Sacramento yard operation was shut down in 1984, and the site structures were, for the most, part dismantled in 1986. The site was placed on the State Superfund list in March 1987. Site remedial activities are being overseen by the California Environmental Protection Agency, Department of Toxic Substances Control.

On behalf of UPRR, Dames & Moore has investigated the site in phases since 1987. To date, approximately 300 on-site exploratory test pits, 70 on-site soil borings, 100 cone penetration test/hydropunch™ (CPT/HP) sample locations on- and off-site, 35 on-site groundwater monitoring wells, and seven off-site groundwater monitoring wells have been completed. Quarterly groundwater monitoring has been conducted since 1990. Groundwater monitoring well and CPT HP locations are presented in Figure 1.

The Remedial Investigation (RI) and Feasibility Study (FS), and a Draft Remedial Action Plan (RAP) have been completed. A Revised Draft RAP is currently being prepared.

HYDROGEOLOGY

The site overlies an upward fining sequence of sand, silt, and clay interpreted to be fluvial in origin (Figure 1). The lower portion of the sequence is formed by fine- to medium-grained sand which locally contains pebble and fine gravel lenses at its base. The sand is variable in thickness and lithology, lenticular in shape, and occurs

between approximately 30 and 65 feet (9 and 20 meters) below ground surface at the site. This sand forms the first hydrostratigraphic zone on-site.

The base of the first hydrostratigraphic zone is formed by an erosional surface on a clay to silty clay aquitard zone containing minor amounts of sand and silt. The shallow aquitard zone varies in thickness from less than 10 to approximately 20 feet (less than 3 to approximately 6 meters) across the site.

Underlying the shallow aquitard are a number of continuous and discontinuous aquifer zones (second, third and fourth hydrostratigraphic zones) which may be semi-confined. The stratigraphy of these lower zones consists of fine- to medium-grained sands and silty sands interbedded with silts and clays varying in thickness from a few feet to approximately 10 feet (3 meters) with variable lateral distribution.

The first hydrostratigraphic zone is unconfined. A facies change occurs within this zone. The fluvial channel pinches out laterally to interbedded clay, silt and fine sand to the south, southeast, northeast and west. Depth to groundwater in the first hydrostratigraphic zone ranges from 28 to 35 feet (8.5 to 10.5 meters) below ground surface. Groundwater flow in the first hydrostratigraphic zone is generally to the southeast. The hydraulic gradient is approximately 0.002. Water level measurements indicates a downward vertical gradient between the upper and lower hydrostratigraphic zones.

NATURE AND EXTENT OF IMPACTED GROUNDWATER

Impacted groundwater extends from the central portion of the site to the southeast in a plume approximately 4,800 feet (1,460 meters) long and from 300 to 500 feet (90 to 150 meters) wide in the first hydrostratigraphic zone (Figure 1). The source of the groundwater plume appears to be associated with historical railroad maintenance activities conducted in the central portion of the site.

The groundwater plume contains the volatile organic compounds (VOCs) 1,1-dichloroethylene, 1,1,1-trichloroethane, 1,2-dichloroethane, 1,1-dichloroethane, trichloroethylene and perchloroethylene. Concentrations of these VOCs range from 0.5 to 480 ug L, based on August 1992 groundwater monitoring data. The aromatic compounds benzene, ethylbenzene, toluene and xylene have also been detected at concentrations ranging from 0.6 to 13,000 ug/L. However, the aromatics appear restricted vertically to the upper portion of the first hydrostratigraphic zone and laterally to within a few hundred feet of a former underground tank location. The second hydrostratigraphic zone has also been impacted, but to a lesser degree. The third underlying hydrostratigraphic zone does not appear to have been impacted.

GROUNDWATER MONITORING PROGRAM

Dames & Moore historically utilized a combination of submersible pumps and bailers for well purging. The first hydrostratigraphic zone wells were typically purged with a bailer by hand. Submersible pumps were utilized in second and third hydrostratigraphic zone wells because of the larger volume of well purge water. Disposable bailers were utilized for collecting samples from the wells. Groundwater sampling procedures and protocols followed applicable regulatory guidelines.

Currently, 30 groundwater monitoring wells are sampled on a quarterly basis, and an additional 12 wells are sampled on a semi-annual and annual basis. As more data become available, groundwater monitoring requirements will likely be reduced in scope over time through the elimination of some of the wells from the program.

Groundwater monitoring will be required throughout the groundwater remedial action at the site. Preliminary estimates provided in the FS and Draft RAP suggest that groundwater cleanup could require 10 to 20 years to complete. It appears unlikely that less than approximately 30 wells will be required for quarterly groundwater monitoring at the site for the next several decades.

DEDICATED GROUNDWATER SAMPLING SYSTEMS

In an effort to reduce groundwater monitoring costs, dedicated groundwater sampling systems were installed in 30 wells sampled quarterly at the site. Dedicated groundwater sampling systems include the pumps, piping, cable, and well caps necessary to obtain water samples from groundwater monitoring wells. The systems are dedicated in the sense that equipment is permanently installed in groundwater monitoring wells, and removal of the equipment occurs only if equipment maintenance is required.

ADVANTAGES OF DEDICATED GROUNDWATER SAMPLING SYSTEMS

The advantages of installing dedicated groundwater sampling systems in groundwater monitoring wells are twofold:

(1) Economic Advantages

- Reduction in groundwater sampling costs through reduced labor because less time is required for sampling setup and equipment decontamination; and
- Reduction in equipment costs because less ancillary equipment is necessary to sample.

(2) Improved Data Quality Control

- Minimize field sampling variables (for example well purge rate and volume and pump or sampler intake depth), through more controlled sampling environment, resulting in more consistent chemical analytical data; and
- Minimize possible cross-contamination resulting from the introduction of inadequately decontaminated equipment into wells.

SYSTEM SELECTION

A number of sampling systems were evaluated for installation in groundwater monitoring wells at the site. Factors considered in the evaluation included net capital cost, purge and sampling rate, field sampling efficiency, ease of operation, reliability, suitability for VOC sample collection, and Dames & Moore's experience with the system. The systems that were evaluated included bailers, bladder pumps, two-stage (combined air lift/bladder) pumps, and submersible pumps (See Table 1).

Dedicated bailers would require the least net capital investment, and being the simplest device evaluated, would be expected to require the least potential maintenance. However, a bailer is an inefficient means of purging and sampling a well in two ways: (1) it is slow compared to a pump, and (2) it is laborious. As a result, the field sampling efficiency is poor. The field technician is fully occupied during purging, and is unable to perform other field sampling tasks such as setup of sample containers, completion of sample labels and preparation of field records. Additionally, purging with a bailer agitates the water in the well and filter pack material, which may result in loss of volatile organic compounds from the well water.

Dedicated bladder pumps would require a net capital investment greater than for bailers but less than the other pumps under consideration. Equipment required to operate the bladder pump include a control box and compressor. Bladder pumps can attain the suitable rate of 0.026 gallons/minute (100 milliliter/minute) for sampling for VOCs, but are relatively slow for well purging. The field sampling efficiency of this device is considered fair, because during purging the field technician is free to perform other sampling setup tasks, however, because the purge rate is so slow, the field technician generally has standby time and labor utilization is not maximized. Operation and reliability of this device is considered fair. Maximizing flow rate requires some re-adjustment of the controls. Some problems have been noted on other projects with ball valve clogging at the bottom of the pump with sand, which necessitates removal of the pump and cleaning of the valve for proper operation.

Two stage pumps (combined air lift and bladder pumps) would require a net capital cost comparable to the submersible pumps under consideration. Equipment required to operate the pumps include a control box and compressor. The air lift part of the two stage pump has the capability of attaining a purge rate of 1.5 to 2 gallons/minute (5.7 to 7.6 liters/minute) at 50 feet (15.2 meters) below ground surface, but requires a minimum of about 12 feet (3.7 meters) of head over the top of the pump to maximize pump efficiency. For most of the wells at the site, the required head to achieve maximize pump efficiency for purging with the air lift pump would not be available. As a result, the field sampling efficiency of the pump is considered fair. Operation and reliability of this device is considered fair. Maximizing flow rate requires some re-adjustment of the controls. Problems encountered on other projects include clogging of the ball valve at the bottom of the pump with sand which necessitates removal of the pump and cleaning of the valve for proper operation, and lowering of the water column below the minimum head requirement which greatly reduced the pump efficiency.

The submersible pump under consideration was the Grundfos RediFlo2 two-inch electric pump. Equipment required to operate the RediFlo2 pump include a control box and generator. The submersible pump has a suitable well purging rate (8 gallons /minute at 50 feet bgs, or 30 liters minute at 15 meters bgs), and sampling rate (100 milliliters/minute) for VOCs. The field sampling efficiency of this pump is rated good because the well purge rate is high enough to minimize field sampling stand-by time and optimize field sampling efficiency. The submersible pump is easy to operate. As this pump has been available for only two years, the pump's long-term reliability is untested. However, available data indicates the pumps should be maintenance-free beyond the time in which pump costs are recovered.

On the basis of the factors discussed above, the submersible Grundfos RediFlo2 pump was selected as the dedicated sampling system for the groundwater monitoring wells at the site. The selection of the submersible pump over the other devices considered was due mainly to the pump field sampling efficiency and corresponding projected savings in groundwater monitoring labor costs.

SYSTEM DESIGN AND INSTALLATION

Dedicated sampling systems were installed in 30 monitoring wells located both on- and off-site. On-site wells have an above ground stand pipe surface completion which do not require a water-tight well cap. Off-site wells have flush-mount surface vault completions which require a water tight well cap. A different well cap design was used for the two different types of monitoring well surface completions. System design is illustrated in Figure 2.

Above ground surface completions are fitted with a PVC slip cap equipped with a discharge port, motor lead port, and a water level measuring port. The Redi-Flo2 pumps are suspended from a PVC incased stainless steel safety cable. The pumps are fitted with 1.2-inch (1.27 cm) diameter nylon reinforced flexible PVC discharge hosing, and teflon coated motor leads.

Wells completed with flush mount surface vaults are fitted with the water tight Dedicator™ well cap and hosing system designed and manufactured by Instrumentation Northwest. The Dedicator™ system consists of an anodized aluminum well cap with a compressible rubber gasket which provides a water tight seal around the outside of the PVC casing. The cap is equipped with a discharge port, motor lead port, and water level measuring port. Caps for the discharge port, water level port and motor lead port are of stainless steel construction and are fitted with rubber O-rings to maintain a water tight seal. The discharge hose is 1/2-inch (1.27 cm) diameter nylon-reinforced flexible PVC tubing. The motor leads are incased in a flexible PVC jacket which also incases the safety cable. The flexible PVC motor lead jacket and discharge hose are heat welded side by side.

The dedicated groundwater sampling systems were installed in May of 1992. Pump depths were chosen such that the pump intake is positioned in the center of the screened interval for each well, or in the case of water table wells, midway between the water table and the bottom of the well screen. All components of the dedicated groundwater sampling systems were decontaminated using a steam cleaner prior to installation.

COMPARATIVE EVALUATION

An evaluation was conducted to compare the Redi-Flo2 submersible pumps with disposable polyethylene bailers for sampling groundwater containing VOC at the site. As previously discussed, disposable polyethylene bailers were the previous sample collection device at the site, and are currently recognized as an acceptable method of collecting groundwater samples for VOC analysis. The purpose of the evaluation was to provide comparative groundwater analytical results for samples collected using the Redi-Flo2 submersible pumps and the disposable polyethylene bailer, in order to validate the Redi-Flo2 pump as an appropriate groundwater sampling device at the site.

Well Selection Rationale

Nine groundwater monitoring wells were selected for the comparative evaluation. Wells were selected to represent the range in concentrations and types of VOCs detected in groundwater at the site. Three wells each were chosen to evaluate VOC concentrations representative of the following general ranges of concentrations in groundwater at the site:

- Low (less than 10 ug/l);
- Moderate (tens of ug/l); and
- High (hundreds of ug/l)

Methodology

To provide a comparison of submersible pump and disposable polyethylene bailer sampling methods, a total of ten groundwater samples were collected from each well, five using the submersible pump, and five using the disposable polyethylene bailer. Each sample was analyzed for chlorinated VOCs and aromatic compounds using EPA Test methods 601 and 602, respectively. A description of the sampling protocol is presented below.

Wells were initially purged using the dedicated Redi-Flo2 submersible pumps at flow rates ranging from two to five gallons per minute (7.5 to 18.9 liters/min). During the purging process, the purge water parameters of temperature, pH and electrical conductivity were periodically monitored and recorded. Purging continued until parameters stabilized. A minimum of three well casing volumes was removed from each well prior to sampling.

Groundwater samples were collected from wells in a manner to approximate the same well casing sampling depth and sampling time for both sampling devices. The submersible pump flow rate was reduced to 100 milliliters/minute. A disposable polyethylene bailer was lowered to the top of the submersible pump just above the pump intake. The bailer was surged gently up and down at the top of the pump to allow groundwater to enter the bottom of the bailer at the approximate depth corresponding to the pump intake. The disposable bailer was then extracted from the well casing, and six 40-ml VOAs were filled from the base of the bailer at a flow rate of approximately 100 milliliters/minute. The purge time was calculated for groundwater entering the pump intake at the moment bailer extraction was initiated to travel through the discharge hose and reach the discharge point at ground surface. After the discharge hose was purged, six 40 ml VOAs were filled from the pump discharge hose at a flow rate of approximately 100 milliliters/minute. Sample containers were immediately capped, checked for air bubbles, and chilled in an ice chest

The process was repeated four more times for each well. The fifth sample collected with both devices was labeled with a different identification number and sent to the laboratory as a blind duplicate. Samples were logged on a chain of custody form for tracking during shipment to an analytical laboratory.

Statistical Comparison of Sampling Devices

The trial to compare the two sampling devices (i.e., pumps versus bailers) consisted of five repeat measures (i.e., sampling and analysis for VOCs) for each device in each of nine monitoring wells. A statistical analysis of the resulting trial data was performed to compare the VOC concentrations detected using the two sampling devices. Rationale for the statistical analysis was as follows:

First, because review of the data indicated a strong correlation among concentrations of individual chlorinated volatile organic compounds (CVOCs) detected in each sample, the sampling devices were compared based on the sum of the individual CVOC concentrations. Individual CVOC concentrations are shown by well and sampling device in Table 2, a summary of pertinent statistics are provided in Table 3, and total CVOC concentrations are shown by well and sampling device in Table 4.

Second, it was noted that repeat measures were highly correlated in some wells. For example, in MW-7, total CVOC concentrations were higher in bailer than pump samples. However, this seems due just to correlations among repeat measures within this particular monitoring well sampling event since a similar pattern was not observed in the other wells. Therefore, the results for a single well do not provide statistically significant evidence about the relative performance of the two sampling devices.

In addition to the CVOCs, the aromatic compounds benzene, toluene, xylenes, and ethylbenzene, were detected in a single well. The aromatic results were not included in the statistical analysis because aromatics were present at detectable concentrations only in the repeat measures from a single well. sampling devices.

Finally, the data appear to satisfy the assumptions of equal variance and normality which are required for a parametric analysis of variance. Therefore, a two-way analysis of variance (ANOVA) was performed to test for significant differences in the measured total CVOC concentration resulting from sampling device, while controlling for the effect of differences among wells. The ANOVA model included an interaction term to test for possible differences among wells in the effect of sampling device.

The ANOVA results are shown on Table 5. The results indicate that there is no statistical evidence that the two sampling devices performed differently.

COST-BENEFIT ANALYSIS

A cost-benefit analysis has been completed since the installation of the dedicated systems. The cost-benefit analysis was completed to evaluate the reduction in labor and equipment costs for the two quarterly sampling periods that the dedicated systems have been sampled. Results of the evaluation indicate that labor and equipment costs were reduced approximately $3,000 for each quarter. This is a savings of approximately $12,000 annually. With an installation investment of approximately $35,500, this indicates the dedicated system will be fully amortized in 2.95 years.

ADDITIONAL GROUNDWATER MONITORING COST SAVINGS

Other practices which have been initiated at the site to provide additional groundwater monitoring cost savings include:

- Groundwater Sampling Trailer - A groundwater sampling trailer is now utilized which includes all the necessary equipment , non-dedicated pumps and monitoring devices, purge water storage and fresh water tanks, steam cleaner and generator, to streamline the groundwater sampling field practices at the site:

- Continued Re-evaluation of Wells and Parameters of the Groundwater Monitoring Program - Groundwater sampling analytical results continue to be re-evaluated to optimize the groundwater monitoring program by reducing and minimizing the well sampling effort as much as is technically feasible:

- Well Purge Water Handling and Disposal Practices - Well purge water, previously containerized in drums on-site, is now transported and temporarily stored on-site in a 3,000 gallon polytank until analytical results are received, and then directly discharged into the sewer under a special sewer use permit.

Initiation of the practices described above at the site are estimated to provide groundwater monitoring cost savings of approximately $8,000 to $12,000 annually.

SUMMARY AND CONCLUSIONS

Dedicated groundwater sampling systems were installed at the UPRR Sacramento site to provide long term groundwater monitoring costs savings. The Grundfos RediFlo2 pump was selected over the bailer, bladder pump and 2 stage pump, primarily because of the combined capability to purge at a rate of 8 gallons per minute, which provides a high field sampling efficiency and corresponding cost savings for field sampling activities, and also sample at the desired rate of 100 milliliter minute, the industry wide accepted rate for sampling VOCs in groundwater.

The pumps were tested by taking samples simultaneously by the pump and by disposable bailer. The purpose of the testing was to validate the pump as an appropriate groundwater sampling device for VOCs. The results of the testing were statistically analyzed. The results of the testing indicate that the pumps are a comparable sampling device for VOCs.

Subsequent to installing the dedicated pumps in groundwater monitoring wells at the site, comparative costs were evaluated. Approximate groundwater monitoring cost savings with the dedicated pumps are projected at approximately $12,000 annually. The cost of the pumps will be paid off through groundwater monitoring labor and equipment cost savings in approximately 2.95 years.

Additional practices which have been initiated at the site to streamline the groundwater monitoring program include use of a groundwater sampling trailer, continued re-evaluation of the analytical results to further optimize the groundwater sampling through reduction in number of wells sampled and parameters analyzed, and more efficient well purge water handling and disposal. These practices at the site are projected to provide an additional cost savings of $8,000 to $12,000 annually.

BIOGRAPHICAL SKETCHES

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Mr. Parker holds a BS in Geology from the University of California, Davis, and has completed post graduate studies in Waste Management Engineering, Engineering Geology and Hydrogeology. He has been with Dames & Moore for over four years. Before joining Dames & Moore, he was at the California EPA, Department of Toxic Substances Control. His primary focus at Dames & Moore is managing state superfund RI FS projects. Mailing address: Dames & Moore, 8801 Folsom Boulevard, Suite 200, Sacramento, California 95826.

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Mr. Eisen holds a BS in Geology from the University of California, Santa Barbara. He is currently completing his MS in Geological Oceanography at the University of Rhode Island, Graduate School of Oceanography. He has been with Dames & Moore for the past three years. The emphasis of his work has been in conducting soil and groundwater remedial investigations. Mailing Address: Dames & Moore, 8801 Folsom Boulevard, Suite 200, Sacramento, California 95826.

Andrew A. Kopania, R.G., D.Env.

Dr. Kopania, a California Registered Geologist, holds advanced degrees in Geology and Environmental Science and Engineering. He has over nine years of professional experience in the earth science and environmental fields, focusing on subsurface investigations. His doctoral dissertation was titled "Geologic Heterogeneity and Groundwater Contamination: Guidelines for Determination of Significance to Investigation and Remediation" and involved field work at the Borden site, Ontario, Canada. Dr. Kopania has been the lead hydrogeologist on numerous investigation and remediation projects. He has conducted groundwater and contaminant transport modeling evaluations and contaminant tracer experiments with the USGS, the US Army, UCLA, and the University of Waterloo. Dr. Kopania is currently working for Dames & Moore in Sacramento, California, as a Senior Hydrogeologist. Mailing Address: Dames & Moore, 8801 Folsom Boulevard, Suite 200, Sacramento, California 95826.

Alix Rhodes Robertson, Ph.D.

Dr. Robertson is a Senior Statistician with the Toxicology and Risk Assessment Group. Dr. Robertson recently joined Dames & Moore and has over seven years experience as an environmental statistician. Her expertise includes human health risk assessment, environmental assessments, statistical validation of site sampling and monitoring plans, and waste management/economic feasibility studies. She has developed statistical analyses of regional background surface water and groundwater quality to evaluate potential impacts and regulatory status, for various sites. Mailing Address: Dames & Moore, 621 East Carnegie Drive, Suite 260, San Bernardino, California 92408.

Table 1

SUMMARY OF DEDICATED SYSTEMS COMPARISON

Parameter	Disposable Bailer	Bladder	2-Stage Pump	Submersible Pump
Installation Cost per Well	$200	$750	$1,150	$1,100-1,300*
Total Installation Cost	$6,000	$22,500	$34,500	$35,500
Purge Rate (gal/min)	1.5	Varies with lift, submergence and compressed air source.	Varies with lift, submergence and compressed air source.	8.0
Sampling Rate (ml/min)	N/A	100	100	100
Field Sampling Efficiency	Poor	Fair	Fair	Good
Ease of Operation	Poor	Fair	Fair	Good
Reliability	Good	Fair	Fair	Good
Suitability for Sampling VOCs	Fair	Good	Good	Good
Experience	Poor	Fair	Fair	Good

Notes: Cost based on 30 wells.
N/A - VOC sampling requires the use of a disposable bailer for sampling.
* $1,100 per stand pipe system, and $1,300 for flush-mount completion (see Figure 2).

Table 2

COMPARATIVE EVALUATION MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - VOCs (µg/l) DETECTIONS ONLY

Monitoring Well	Sampling Device	Sample Number	B	T	X	E	1,1,1-TCA	1,1,2-TCA	1,1-DCA	1,1-DCE	1,2-DCA	CIS-1,2-DCE	Chloroform	PCE	TCE	CCl_4
MW-07	Pump	1	---	---	---	---	4.2	---	6.8	21	---	---	4.1	---	---	---
		2	---	---	---	---	4.5	---	7.1	20	---	---	4.6	---	---	---
		3	---	---	---	---	4.4	---	6.8	19	---	---	4.5	---	---	---
		4	---	---	---	---	3.7	---	5.7	16	---	---	4.4	---	---	---
		5	---	---	---	---	4.5	---	7.3	19	---	---	4.8	---	---	---
	Bailer	1	---	---	---	---	7.1	---	11	35	---	---	5.1	---	---	---
		2	---	---	---	---	6.0	---	9.4	26	---	---	4.7	---	---	---
		3	---	---	---	---	6.3	---	10	28	---	---	4.9	---	---	---
		4	---	---	---	---	6.1	---	9.5	26	---	---	4.5	---	---	---
		5	---	---	---	---	5.8	---	9.4	24	---	---	4.6	---	---	---
MW-11	Pump	1	---	---	---	---	1.5	---	7.6	54	---	1.4	---	---	3.8	---
		2	---	---	---	---	1.4	---	7.3	53	---	1.4	---	---	4.0	---
		3	---	---	---	---	1.2	---	6.7	49	---	1.3	---	---	3.6	---
		4	---	---	---	---	1.4	---	7.2	52	---	1.4	---	---	3.9	---
		5	---	---	---	---	1.3	---	7.0	50	---	1.3	---	---	3.8	---
	Bailer	1	---	---	---	---	1.3	---	5.6	38	---	0.7	---	---	3.1	---
		2	---	---	---	---	1.1	---	5.7	42	---	1.0	---	---	3.1	---
		3	---	---	---	---	1.3	---	6.2	45	---	1.0	---	---	3.5	---
		4	---	---	---	---	1.4	---	6.4	47	---	1.1	---	---	4.0	---
		5	---	---	---	---	1.4	---	7.2	55	---	1.3	---	---	4.2	---
MW-13	Pump	1	9,900	350	500	570	---	---	35	18	160	6.4	---	---	---	---
		2	10,000	400	510	580	---	---	37	15	170	6.4	---	---	---	---
		3	9,800	390	500	580	---	---	33	12	160	6.0	---	---	---	---
		4	9,600	360	490	540	---	---	35	12	170	6.1	---	---	---	---
		5	9,700	380	500	550	---	---	34	13	---	6.0	---	---	---	---
	Bailer	1	17,000	650	900	1,000	---	---	34	21	160	6.0	---	---	---	---
		2	10,000	420	550	640	---	---	37	17	160	6.6	---	---	---	---
		3	10,000	410	510	580	---	---	34	15	160	6.2	---	---	---	---
		4	10,000	380	510	560	---	---	37	16	180	6.5	---	---	---	---
		5	9,500	380	500	560	---	---	40	14	160	7.0	---	---	---	---
MW-16	Pump	1	---	---	---	---	1.9	---	---	2.7	---	---	---	---	---	---
		2	---	---	---	---	2.3	---	---	3.3	---	---	---	---	---	---
		3	---	---	---	---	2.2	---	---	3.2	---	---	---	---	---	---
		4	---	---	---	---	2.1	---	---	3.1	---	---	---	---	---	---
		5	---	---	---	---	2.5	---	---	3.3	---	---	---	---	---	---
	Bailer	1	---	---	---	---	2.3	---	---	3.3	---	---	---	---	---	---
		2	---	---	---	---	2.3	---	---	3.4	---	---	---	---	---	---
		3	---	---	---	---	2.1	---	---	3.3	---	---	---	---	---	---
		4	---	---	---	---	2.4	---	---	3.1	---	---	---	---	---	---
		5	---	---	---	---	2.5	---	---	3.6	---	---	---	---	---	---

Table 2
(continued)

COMPARATIVE EVALUATION
MONITORING WELL GROUNDWATER
ANALYTICAL RESULTS - VOCs (µg/l)
DETECTIONS ONLY

Monitoring Well	Sampling Device	Sample Number	B	T	X	E	1,1,1-TCA	1,1,2-TCA	1,1-DCA	1,1-DCE	1,2-DCA	CIS-1,2-DCE	Chloroform	PCE	TCE	CCl_4
MW-26	Pump	1	---	---	---	---	4.4	---	8.6	8.2	0.6	---	2.7	---	---	---
		2	---	---	---	---	4.2	---	8.3	7.8	0.6	0.6	2.6	---	---	---
		3	---	---	---	---	2.2	---	8.2	7.4	0.5	0.5	2.5	---	---	---
		4	---	---	---	---	2.0	---	7.2	6.9	0.5	---	2.2	---	---	---
		5	---	---	---	---	2.4	---	8.5	8.6	0.6	0.6	2.6	---	---	---
	Bailer	1	---	---	---	---	3.6	---	7.2	8.6	0.5	---	2.2	---	---	---
		2	---	---	---	---	2.0	---	6.9	7.3	0.5	---	2.1	---	---	---
		3	---	---	---	---	1.9	---	7.5	8.4	0.5	---	2.3	---	---	---
		4	---	---	---	---	2.1	---	7.9	6.3	0.5	---	2.4	---	---	---
		5	---	---	---	---	2.0	---	8.0	8.3	0.6	0.5	2.5	---	---	---
MW-33	Pump	1	---	---	---	---	4.4	---	4.6	95	---	---	---	---	0.8	---
		2	---	---	---	---	4.4	---	4.6	89	---	---	---	---	1.0	---
		3	---	---	---	---	4.3	---	4.2	93	---	---	---	---	0.9	---
		4	---	---	---	---	4.1	---	4.1	95	---	---	---	---	0.8	---
		5	---	---	---	---	4.2	---	4.2	86	---	---	---	---	0.9	---
	Bailer	1	---	---	---	---	3.7	---	3.8	86	---	---	---	---	0.7	---
		2	---	---	---	---	3.1	---	3.1	77	---	---	---	---	0.6	---
		3	---	---	---	---	3.7	---	3.8	64	---	---	---	---	0.8	---
		4	---	---	---	---	3.8	---	3.7	77	---	---	---	---	0.8	---
		5	---	---	---	---	3.7	---	3.7	78	---	---	---	---	0.8	---
MW-34	Pump	1	---	---	---	---	11	1.2	21	270	0.6	---	1.2	---	24	---
		2	---	---	---	---	9.4	1.0	18	290	0.6	---	1.0	---	21	---
		3	---	---	---	---	9.2	1.2	18	300	0.6	---	1.0	---	21	---
		4	---	---	---	---	8.8	1.2	18	260	0.6	---	1.0	---	21	---
		5	---	---	---	---	9.0	1.2	18	250	0.5	---	1.0	---	20	---
	Bailer	1	---	---	---	---	12	1.4	23	340	0.7	---	1.3	---	27	---
		2	---	---	---	---	9.5	1.2	19	230	0.6	---	1.0	---	22	---
		3	---	---	---	---	9.2	1.2	19	290	0.6	---	1.1	---	22	---
		4	---	---	---	---	9.3	1.2	18	290	0.6	---	1.1	---	21	---
		5	---	---	---	---	8.6	1.1	17	240	0.6	---	1.0	---	20	---
MW-38	Pump	1	---	---	---	---	14	---	8.6	150	2.2	---	3.6	---	8.7	1.9
		2	---	---	---	---	14	---	8.7	160	2.5	---	3.8	---	9.0	2.0
		3	---	---	---	---	13	---	8.5	150	2.3	---	3.7	---	8.7	1.9
		4	---	---	---	---	13	---	8.4	140	2.2	---	3.6	---	8.6	1.9
		5	---	---	---	---	13	---	8.7	120	2.5	---	3.9	---	9.3	1.9
	Bailer	1	---	---	---	---	14	---	8.9	140	2.4	---	3.8	---	9.0	2.0
		2	---	---	---	---	14	---	8.6	160	2.6	---	3.7	---	9.2	2.0
		3	---	---	---	---	13	---	8.0	140	2.2	---	3.5	---	8.4	1.8
		4	---	---	---	---	12	---	8.0	150	2.1	---	3.5	---	8.6	1.8
		5	---	---	---	---	13	---	8.4	140	2.5	---	3.6	---	9.1	1.9

Table 2
(continued)

COMPARATIVE EVALUATION
MONITORING WELL GROUNDWATER
ANALYTICAL RESULTS - VOCs (μg l)
DETECTIONS ONLY

Monitoring Well	Sampling Device	Sample Number	B	T	X	E	1,1,1-TCA	1,1,2-TCA	1,1-DCA	1,1-DCE	1,2-DCA	CIS-1,2-DCE	Chloroform	PCE	TCE	CCl_4
MW-39	Pump	1	—	---	---	---	1.1	---	1.3	4.1	1.6	---	3.1	---	---	2.0
		2	—	---	---	---	1.2	---	1.3	3.7	1.6	---	3.3	---	---	2.2
		3	—	---	---	---	1.2	---	1.4	3.8	1.6	---	3.4	---	---	2.2
		4	—	---	---	---	1.2	---	1.4	3.6	1.6	---	3.4	---	---	2.3
		5	—	---	---	---	1.2	---	1.2	3.8	1.4	---	3.0	---	---	2.0
	Bailer	1	—	---	---	---	1.0	---	1.3	4.2	1.4	---	3.2	---	---	2.2
		2	—	---	---	---	1.2	---	1.4	3.2	1.6	---	3.5	---	---	2.4
		3	—	---	---	---	1.2	---	1.4	3.8	1.7	---	3.5	---	---	2.4
		4	—	---	---	---	1.2	---	1.4	3.4	1.5	---	3.6	---	---	2.4
		5	—	---	---	---	1.1	---	1.4	4.2	1.5	---	3.3	---	---	2.2

CCl_4 — Carbon Tetrachloride
— — Non Detected

SUMMARY OF STATISTICAL DATA
DETECTED VOLATILE ORGANIC COMPOUNDS (ug/L)

Monitoring Well	Sampling Device	Parameter	No. of Detects	Standard Deviation	Mean	Upper 95% CL	Low Concentration	High Concentration
MW-07	Bailer	1,1,1-TRICHLOROETHANE	5	0.50	6.26	6.74	5.8	7.1
MW-07	Bailer	1,1-DICHLOROETHANE	5	0.68	9.86	10.51	9.4	11.0
MW-07	Bailer	1,1-DICHLOROETHENE	5	4.27	27.80	31.87	24.0	35.0
MW-07	Bailer	CHLOROFORM	5	0.24	4.76	4.99	4.5	5.1
MW-07	Pump	1,1,1-TRICHLOROETHANE	5	0.34	4.26	4.58	3.7	4.5
MW-07	Pump	1,1-DICHLOROETHANE	5	0.62	6.74	7.33	5.7	7.3
MW-07	Pump	1,1-DICHLOROETHENE	5	1.87	19.00	20.78	16.0	21.0
MW-07	Pump	CHLOROFORM	5	0.26	4.48	4.73	4.1	4.8
MW-11	Bailer	1,1,1-TRICHLOROETHANE	5	0.12	1.30	1.42	1.1	1.4
MW-11	Bailer	1,1-DICHLOROETHANE	5	0.64	6.22	6.83	5.6	7.2
MW-11	Bailer	1,1-DICHLOROETHENE	5	6.35	45.40	51.45	38.0	55.0
MW-11	Bailer	CIS-1,2-DICHLOROETHENE	5	0.22	1.02	1.23	0.7	1.3
MW-11	Bailer	TRICHLOROETHENE	5	0.51	3.58	4.06	3.1	4.2
MW-11	Pump	1,1,1-TRICHLOROETHANE	5	0.11	1.36	1.47	1.2	1.5
MW-11	Pump	1,1,2-TRICHLOROETHANE	3	0.15	0.63	0.89	0.5	0.8
MW-11	Pump	1,1-DICHLOROETHANE	5	0.34	7.16	7.48	6.7	7.6
MW-11	Pump	1,1-DICHLOROETHENE	5	2.07	51.60	53.58	49.0	54.0
MW-11	Pump	CIS-1,2-DICHLOROETHENE	5	0.05	1.36	1.41	1.3	1.4
MW-11	Pump	TRICHLOROETHENE	5	0.15	3.82	3.96	3.6	4.0
MW-13	Bailer	1,1-DICHLOROETHANE	5	2.51	36.40	38.79	34.0	40.0
MW-13	Bailer	1,1-DICHLOROETHENE	5	2.70	16.60	19.18	14.0	21.0
MW-13	Bailer	1,2-DICHLOROETHANE	5	10.95	168.00	178.44	160.0	180.0
MW-13	Bailer	BENZENE	5	3193.74	11300.00	14345.11	9500.0	17000.0
MW-13	Bailer	CIS-1,2-DICHLOROETHENE	5	0.38	6.46	6.83	6.0	7.0
MW-13	Bailer	ETHYL BENZENE	5	172.13	594.00	758.12	500.0	900.0
MW-13	Bailer	TOLUENE	5	114.32	448.00	557.00	380.0	650.0
MW-13	Bailer	XYLENE	5	188.47	668.00	847.70	560.0	1000.0
MW-13	Pump	1,1-DICHLOROETHANE	5	1.48	34.80	36.21	33.0	37.0
MW-13	Pump	1,1-DICHLOROETHENE	5	2.55	14.00	16.43	12.0	18.0
MW-13	Pump	1,2-DICHLOROETHANE	5	5.48	166.00	171.22	160.0	170.0
MW-13	Pump	BENZENE	5	158.11	9800.00	9950.76	9600.0	10000.0
MW-13	Pump	CIS-1,2-DICHLOROETHENE	5	0.20	6.18	6.38	6.0	6.4
MW-13	Pump	ETHYL BENZENE	5	7.07	500.00	506.74	490.0	510.0
MW-13	Pump	TOLUENE	5	14.83	382.00	396.14	360.0	400.0
MW-13	Pump	XYLENE	5	18.17	564.00	581.32	540.0	580.0

Table 3

Timothy K. Parker, Mark F. Eiser, Andrew A. Kopania,
Alix Robertson, Rick L. Eaves and Glenn Thomas

Timothy K. Parker, Mark F. Eisen, Andrew A. Kopania, Alix Robertson, Rick L. Eaies and Glenn Thomas

Table 3
(continued)

Monitoring Well	Sampling Device	Parameter	No. of Detects	Standard Deviation	Mean	Upper 95% CL	Low Concentration	High Concentration
MW-16	Bailer	1,1,1-TRICHLOROETHANE	5	0.15	2.32	2.46	2.1	2.5
MW-16	Bailer	1,1-DICHLOROETHENE	5	0.18	3.34	3.51	3.1	3.6
MW-16	Pump	1,1,1-TRICHLOROETHANE	5	0.22	2.20	2.41	1.9	2.5
MW-16	Pump	1,1-DICHLOROETHENE	5	0.25	3.12	3.36	2.7	3.3
MW-26	Bailer	1,1,1-TRICHLOROETHANE	5	0.72	2.32	3.01	1.9	3.6
MW-26	Bailer	1,1-DICHLOROETHANE	5	0.46	7.50	7.94	6.9	8.0
MW-26	Bailer	1,1-DICHLOROETHENE	5	0.97	7.78	8.70	6.3	8.6
MW-26	Bailer	1,2-DICHLOROETHANE	5	0.04	0.52	0.56	0.5	0.6
MW-26	Bailer	CHLOROFORM	5	0.16	2.30	2.45	2.1	2.5
MW-26	Bailer	CIS-1,2-DICHLOROETHENE	1	0.00	0.50	0.00	0.5	0.5
MW-26	Pump	1,1,1-TRICHLOROETHANE	5	1.16	3.04	4.15	2.0	4.4
MW-26	Pump	1,1-DICHLOROETHANE	5	0.56	8.16	8.69	7.2	8.6
MW-26	Pump	1,1-DICHLOROETHENE	5	0.66	7.78	8.41	6.9	8.6
MW-26	Pump	1,2-DICHLOROETHANE	5	0.05	0.56	0.61	0.5	0.6
MW-26	Pump	CHLOROFORM	5	0.19	2.52	2.70	2.2	2.7
MW-26	Pump	CIS-1,2-DICHLOROETHENE	3	0.06	0.57	0.68	0.5	0.6
MW-33	Bailer	1,1,1-TRICHLOROETHANE	5	0.28	3.60	3.87	3.1	3.8
MW-33	Bailer	1,1-DICHLOROETHANE	5	0.29	3.62	3.90	3.1	3.8
MW-33	Bailer	1,1-DICHLOROETHENE	5	7.89	76.40	83.93	64.0	86.0
MW-33	Bailer	TRICHLOROETHENE	5	0.09	0.74	0.83	0.6	0.8
MW-33	Pump	1,1,1-TRICHLOROETHANE	5	0.13	4.26	4.39	4.1	4.4
MW-33	Pump	1,1-DICHLOROETHANE	5	0.23	4.36	4.58	4.1	4.6
MW-33	Pump	1,1-DICHLOROETHENE	5	3.97	91.60	95.39	86.0	95.0
MW-33	Pump	TRICHLOROETHENE	5	0.08	0.88	0.96	0.8	1.0
MW-34	Bailer	1,1,1-TRICHLOROETHANE	5	1.32	9.72	10.98	8.6	12.0
MW-34	Bailer	1,1,2-TRICHLOROETHANE	5	0.11	1.22	1.32	1.1	1.4
MW-34	Bailer	1,1-DICHLOROETHANE	5	2.28	19.20	21.37	17.0	23.0
MW-34	Bailer	1,1-DICHLOROETHENE	5	44.38	278.00	320.32	230.0	340.0
MW-34	Bailer	1,2-DICHLOROETHANE	5	0.04	0.62	0.66	0.6	0.7
MW-34	Bailer	CHLOROFORM	5	0.12	1.10	1.22	1.0	1.3
MW-34	Bailer	TRICHLOROETHENE	5	2.70	22.40	24.98	20.0	27.0
MW-34	Pump	1,1,1-TRICHLOROETHANE	5	0.88	9.48	10.32	8.8	11.0
MW-34	Pump	1,1,2-TRICHLOROETHANE	5	0.09	1.16	1.25	1.0	1.2
MW-34	Pump	1,1-DICHLOROETHANE	5	1.34	18.60	19.88	18.0	21.0
MW-34	Pump	1,1-DICHLOROETHENE	5	20.74	274.00	293.77	250.0	300.0
MW-34	Pump	1,2-DICHLOROETHANE	5	0.04	0.58	0.62	0.5	0.6
MW-34	Pump	CHLOROFORM	5	0.09	1.04	1.13	1.0	1.2
MW-34	Pump	TRICHLOROETHENE	5	1.52	21.40	22.85	20.0	24.0

Table 3
(continued)

Monitoring Well	Sampling Device	Parameter	No. of Detects	Standard Deviation	Mean	Upper 95% CL	Low Concentration	High Concentration
MW-38	Bailer	1,1,1-TRICHLOROETHANE	5	0.84	13.20	14.00	12.0	14.0
MW-38	Bailer	1,1-DICHLOROETHANE	5	0.39	8.38	8.75	8.0	8.9
MW-38	Bailer	1,1-DICHLOROETHENE	5	8.94	146.00	154.53	140.0	160.0
MW-38	Bailer	1,2-DICHLOROETHANE	5	0.21	2.36	2.56	2.1	2.6
MW-38	Bailer	CARBON TETRACHLORIDE	5	0.10	1.90	2.00	1.8	2.0
MW-38	Bailer	CHLOROFORM	5	0.15	3.66	3.80	3.5	3.8
MW-38	Bailer	TRICHLOROETHENE	5	0.37	8.90	9.26	8.4	9.2
MW-38	Pump	1,1,1-TRICHLOROETHANE	5	0.55	13.40	13.92	13.0	14.0
MW-38	Pump	1,1-DICHLOROETHANE	5	0.13	8.58	8.70	8.4	8.7
MW-38	Pump	1,1-DICHLOROETHENE	5	15.17	144.00	158.46	120.0	160.0
MW-38	Pump	1,2-DICHLOROETHANE	5	0.15	2.34	2.48	2.2	2.5
MW-38	Pump	CARBON TETRACHLORIDE	5	0.04	1.92	1.96	1.9	2.0
MW-38	Pump	CHLOROFORM	5	0.13	3.72	3.84	3.6	3.9
MW-38	Pump	TRICHLOROETHENE	5	0.29	8.86	9.13	8.6	9.3
MW-39	Bailer	1,1,1-TRICHLOROETHANE	5	0.09	1.14	1.23	1.0	1.2
MW-39	Bailer	1,1-DICHLOROETHANE	5	0.04	1.38	1.42	1.3	1.4
MW-39	Bailer	1,1-DICHLOROETHENE	5	0.46	3.76	4.19	3.2	4.2
MW-39	Bailer	1,2-DICHLOROETHANE	5	0.11	1.54	1.65	1.4	1.7
MW-39	Bailer	CARBON TETRACHLORIDE	5	0.11	2.32	2.42	2.2	2.4
MW-39	Bailer	CHLOROFORM	5	0.16	3.42	3.58	3.2	3.6
MW-39	Pump	1,1,1-TRICHLOROETHANE	5	0.04	1.18	1.22	1.1	1.2
MW-39	Pump	1,1-DICHLOROETHANE	5	0.08	1.32	1.40	1.2	1.4
MW-39	Pump	1,1-DICHLOROETHENE	5	0.19	3.80	3.98	3.6	4.1
MW-39	Pump	1,2-DICHLOROETHANE	5	0.09	1.56	1.65	1.4	1.6
MW-39	Pump	CARBON TETRACHLORIDE	5	0.13	2.14	2.27	2.0	2.3
MW-39	Pump	CHLOROFORM	5	0.18	3.24	3.41	3.0	3.4

Table 4

TOTAL CHLORINATED VOLATILE ORGANIC COMPOUNDS DETECTED (µg/l)

	MW-07	MW-11	MW-13	MW-16	MW-26	MW-33	MW-34	MW-38	MW-39
Bailer	58.2	48.7	2,121.0	5.6	22.1	94.2	405.4	180.3	13.3
Bailer	46.1	52.9	1,430.6	5.7	18.8	83.8	283.4	200.1	13.3
Bailer	49.2	57.0	1,305.2	5.4	20.6	72.3	343.1	176.9	14.0
Bailer	46.1	59.9	1,309.5	5.5	19.2	85.3	341.1	186.0	13.5
Bailer	43.8	69.1	1,281.0	6.1	21.9	86.2	288.3	178.7	13.7
Pump	36.1	68.8	1,289.4	4.6	24.5	104.8	329.0	189.0	13.2
Pump	36.2	67.7	1,318.4	5.6	24.1	99.0	341.0	200.0	13.3
Pump	34.7	61.8	1,291.0	5.4	21.3	102.4	351.0	188.1	13.6
Pump	29.6	66.7	1,253.1	5.2	18.8	104.0	310.6	177.7	13.5
Pump	35.6	63.4	1,273.0	5.8	23.3	95.3	299.7	159.3	12.6

Table 5

ANALYSIS OF VARIANCE
TRIAL OF PUMPS VERSUS BAILERS
IN NINE GROUNDWATER MONITORING WELLS

Source of Variation	Sums of Squares	Degrees of Freedom	Mean Squares	F-Ratio	P (Significance Level)
Well	.157419E+08	8	1967733.128	268.249	0.000
Device (Pump Versus Bailer)	11126.672	1	11126.672	1.517	0.222
Interaction (Well Times Device)	94880.259	8	11860.032	1.617	0.135
Error	528153.628	72	7335.467		

Notes: Dependent Variable: Total CVOC Concentration.
N: 90
Multiple R: 0.984.
Squared Multiple R: 0.968.

Figure 1

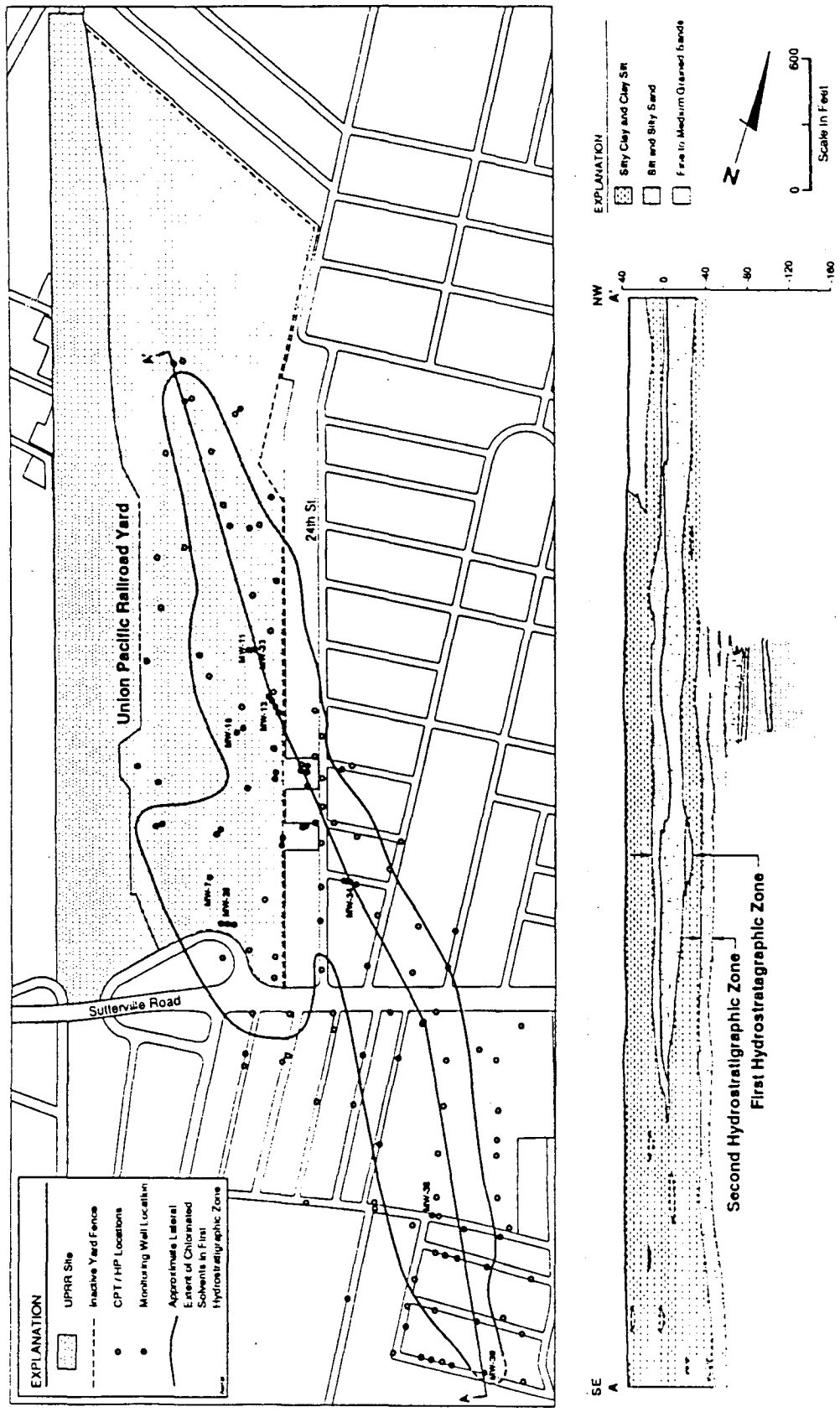
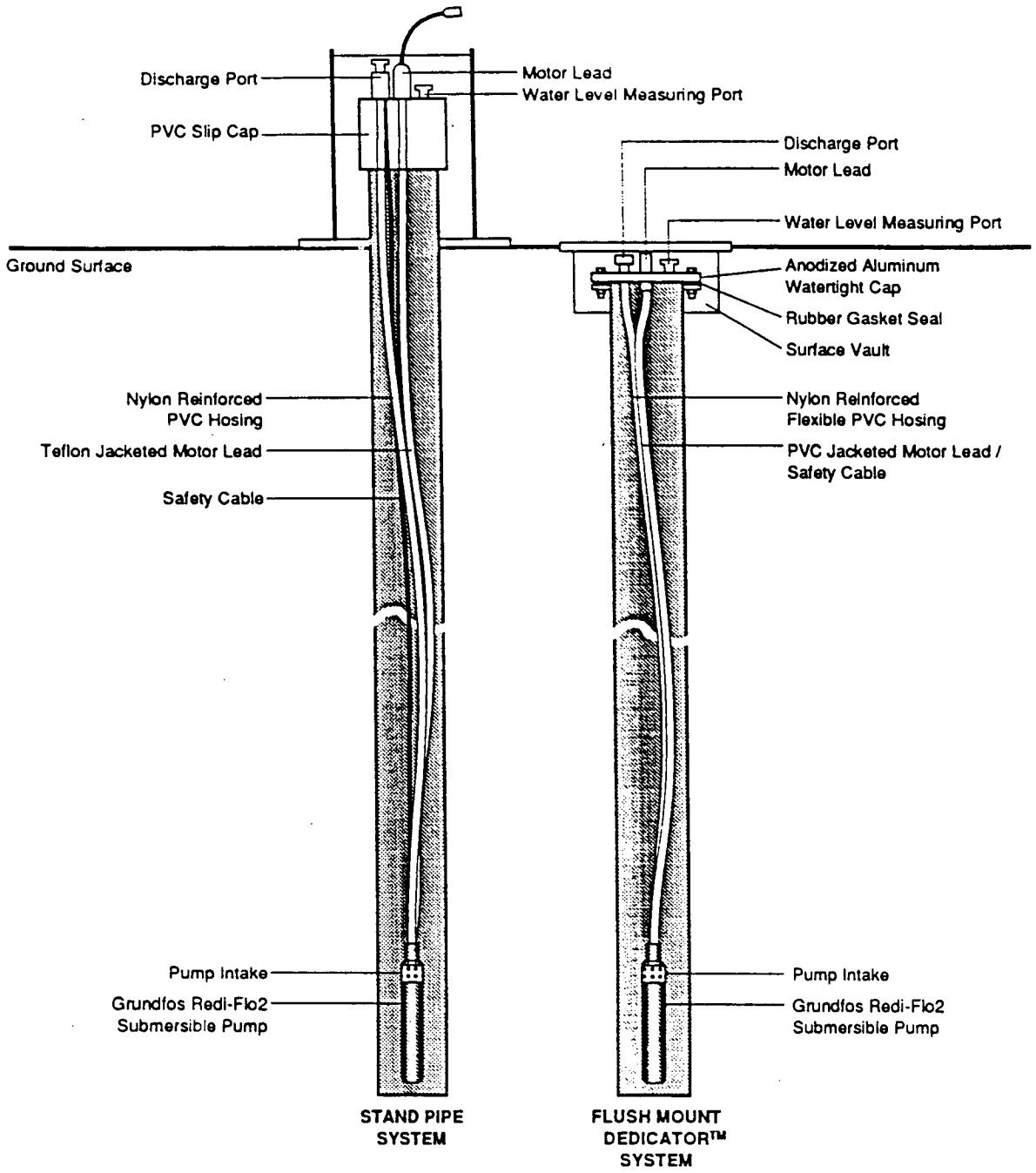

EXPLANATION
UPRR Site
Inactive Yard Fence
CPT / HP Locations
Monitoring Well Location
Approximate Lateral Extent of Chlorinated Solvents in First Hydrostratigraphic Zone
Union Pacific Railroad Yard
24th St
Sutterville Road
A'
EXPLANATION
Silty Clay and Clay Silt
Silt and Silty Sand
Fine to Medium Grained Sands
N
0
600
Scale in Feet
NW
A'
SE
A
-40
0
40
80
120
160
First Hydrostratigraphic Zone
Second Hydrostratigraphic Zone

Figure 2


Discharge Port
Motor Lead
Water Level Measuring Port
PVC Slip Cap
Ground Surface
Nylon Reinforced PVC Hosing
Teflon Jacketed Motor Lead
Safety Cable
Pump Intake
Grundfos Redi-Flo2 Submersible Pump
STAND PIPE SYSTEM
Discharge Port
Motor Lead
Water Level Measuring Port
Anodized Aluminum Watertight Cap
Rubber Gasket Seal
Surface Vault
Nylon Reinforced Flexible PVC Hosing
PVC Jacketed Motor Lead / Safety Cable
Pump Intake
Grundfos Redi-Flo2 Submersible Pump
FLUSH MOUNT DEDICATOR™ SYSTEM