TRANSMITTAL OF JANUARY 1992 QUARTERLY GROUNDWATER MONITORING DATA UNION PACIFIC RAILROAD YARD SACRAMENTO, CALIFORNIA

DAMES & MOORE

March 1992
Project No. 00173-072-044

SAC35.010

DAMES & MOORE

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April 6, 1992

Mr. Val L. Siebal
Region 1, Department of Toxic Substances Control
California Environmental Protection Agency
10151 Croydon Way, Suite 3
Sacramento, CA 95827

Attention: Mr. James L. Tjosvold, Chief
Sacramento Responsible Party Unit
Site Mitigation Branch

Re: Transmittal of January 1992 Quarterly
Groundwater Monitoring Data
Union Pacific Railroad Yard
Sacramento, California
Project No. 00173-072-044

Dear Mr. Tjosvold:

INTRODUCTION

Union Pacific Railroad Company (UPRR) has requested that Dames & Moore transmit the results of quarterly groundwater monitoring conducted in January 1992. Utilizing groundwater monitoring analytical results dating back as far as 1988, an evaluation was performed of the existing sampling and analysis schedule, and the benefits of installing dedicated sampling systems in select groundwater monitoring wells. Proposed changes to the sampling and analysis program currently in place are presented with this data transmittal.

Included in this data transmittal are:

- First quarter (January 1992) groundwater monitoring analytical results;
- Proposed revised sampling and analysis schedule; and

- Proposed dedicated sampling systems approach.

Groundwater sampling analytical results are summarized in Tables 1 through 7. A map of water table contours is presented in Figure 1. Laboratory analytical reports are presented in Attachment 1.

PROPOSED REVISIONS TO THE GROUNDWATER SAMPLING PROGRAM

Groundwater sampling and analysis is currently guided by the California Environmental Protection Agency Department of Toxic Substances Control (DTSC) approved Sampling and Analysis Plan (SAP, Dames & Moore, March 1991). Since the submittal of the SAP, four quarterly groundwater sampling rounds have been completed. A review of the comprehensive groundwater monitoring well sampling data was conducted in order to propose a revised sampling and analysis schedule. Proposed changes to the sampling and analysis schedule should still provide the essential groundwater chemical data to monitor groundwater contamination effectively, while reducing the frequency of sampling and analysis for less critical monitoring wells. The proposed revised groundwater sampling program is outlined in Table 8. In general, the revised sampling and analysis schedule proposes the following changes:

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

As previously discussed with Mr. Jose Salcedo of the DTSC, groundwater monitoring well analytical results will be submitted to the DTSC on a quarterly basis in the form of a data transmittal. A groundwater monitoring report will be prepared on an annual basis, subsequent to the last quarter annual sampling round. The annual groundwater monitoring report will include summary and comprehensive groundwater analytical laboratory results and groundwater level measurements. Presented in the annual groundwater monitoring report will be an interpretation of temporal and spatial trends

observed in the analyzed data. Figures will include groundwater contour maps and a map of approximate concentration contours for 1,1-dichloroethylene.

DEDICATED GROUNDWATER SAMPLING SYSTEMS

UPRR proposes to install dedicated groundwater sampling systems in 28 of the existing groundwater monitoring wells proposed to be sampled most frequently. The dedicated sampling system which has been chosen is the Grundfos Redi-Flo2 submersible pump. This model of pump has the capacity to pump at up to 6 to 7 gallons per minute during monitoring well purging, and at 100 milliliters per minute during sample collection. At this sampling flow rate it is possible to collect water samples for volatile analysis without comprising the sample. Specifications and test results for this dedicated system are provided in Attachment 2.

The main advantages to a dedicated sampling system are:

- Establishment of more consistent sampling protocol for sampling events;
- Samples are extracted from the same sampling interval of the groundwater monitoring well reducing potential variabilities in groundwater sample chemistry; and
- Minimization of the insertion of sampling equipment into the monitoring wells, reducing the potential for introduction of other sources of contamination into the well.

The proposed wells for dedicated sampling system installation are listed in Table 8.

If you have any questions regarding the enclosed data transmittal, proposed revised sampling and analysis schedule or dedicated sampling systems please contact Tim Parker at (916) 387-7527.

Sincerely,

DAMES & MOORE

Timothy K. Parker
Project Manager

Andrew A. Kopania, R.G.
Senior Hydrogeologist

Enclosure

cc: Distribution List

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TRANSMITTAL OF JANUARY 1992 QUARTERLY
GROUNDWATER MONITORING DATA
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

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GROUNDWATER ELEVATION DATA, 1988-1992
(Elevations 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

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

TABLE 1 (Continued)
GROUNDWATER ELEVATION DATA, 1988-1991
(Elevations 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

DATE	MW-36	MW-37	MW-38	MW-39	MW-40	MW-41	MW-42	MW-43
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

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

TABLE 2
SUMMARY GROUNDWATER ANALYTICAL RESULTS
SELECTED METALS - DETECTIONS ONLY (µg/l)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

Monitoring Well	Date Sampled	As	Cr	Ni*	Pb
MCL		50	50	NE	50
Background Concentration[1]		0 - 20	1 - 20	1 - 12	<1 - 9
MW-01	03/03/88	4.0	--	--	--
	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	--	--	--
	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	--	--	--	--
MW-03	03/03/88	4.0	--	--	--
	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	--	--	--	--

TABLE 2 (Continued)
SUMMARY GROUNDWATER ANALYTICAL RESULTS
SELECTED METALS - DETECTIONS ONLY (µg/l)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

Monitoring Well	Date Sampled	As	Cr	Ni*	Pb
MCL		50	50	NE	50
Background Concentration[1]		0 - 20	1 - 20	1 - 12	< 1 - 9
MW-04	03/03/88	6.0	--	140.0	--
	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	--	--	--	--
MW-05	03/04/88	--	10.0	--	--
	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	--	--	--
	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	--

TABLE 2 (Continued)
SUMMARY GROUNDWATER ANALYTICAL RESULTS
SELECTED METALS - DETECTIONS ONLY (µg/l)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

Monitoring Well	Date Sampled	As	Cr	Ni*	Pb
MCL		50	50	NE	50
Background Concentration[1]		0 - 20	1 - 20	1 - 12	<1 - 9
MW-07	03/04/88	4.0	10.0	50.0	--
	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	--
MW-08	03/03/88	--	--	--	--
	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	--	--
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	--	--

TABLE 2 (Continued)
SUMMARY GROUNDWATER ANALYTICAL RESULTS
SELECTED METALS - DETECTIONS ONLY (µg/l)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

Monitoring Well	Date Sampled	As	Cr	Ni*	Pb
MCL		50	50	NE	50
Background Concentration[1]		0 - 20	1 - 20	1 - 12	<1 - 9
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	--
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	--	--	--
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	--	--

TABLE 2 (Continued)
SUMMARY GROUNDWATER ANALYTICAL RESULTS
SELECTED METALS - DETECTIONS ONLY (µg/l)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

Monitoring Well	Date Sampled	As	Cr	Ni*	Pb
MCL		50	50	NE	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	--	--
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	--	--
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	--

TABLE 2 (Continued)
SUMMARY GROUNDWATER ANALYTICAL RESULTS
SELECTED METALS - DETECTIONS ONLY (µg/l)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

Monitoring Well	Date Sampled	As	Cr	Ni*	Pb
MCL		50	50	NE	50
Background Concentration[1]		0 - 20	1 - 20	1 - 12	<1 - 9
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	--	--	--	--
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	--
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	--	--	--	--

TABLE 2 (Continued)
SUMMARY GROUNDWATER ANALYTICAL RESULTS
SELECTED METALS - DETECTIONS ONLY (µg/l)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

Monitoring Well	Date Sampled	As	Cr	Ni*	Pb
MCL		50	50	NE	50
Background Concentration[1]		0 - 20	1 - 20	1 - 12	<1 - 9
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	--
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	--
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	--

TABLE 2 (Continued)
SUMMARY GROUNDWATER ANALYTICAL RESULTS
SELECTED METALS - DETECTIONS ONLY (µg/l)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

Monitoring Well	Date Sampled	As	Cr	Ni*	Pb
MCL		50	50	NE	50
Background Concentration[1]		0 - 20	1 - 20	1 - 12	< 1 - 9
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	--
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	--
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	--	--	--	--
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	--	--	--	--

TABLE 2 (Continued)
SUMMARY GROUNDWATER ANALYTICAL RESULTS
SELECTED METALS - DETECTIONS ONLY (µg/l)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

Monitoring Well	Date Sampled	As	Cr	Ni*	Pb
MCL		50	50	NE	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	--	--	--	--
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	--	--
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
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	--	--	--	--

TABLE 2 (Continued)
SUMMARY GROUNDWATER ANALYTICAL RESULTS
SELECTED METALS - DETECTIONS ONLY (μg/l)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

Monitoring Well	Date Sampled	As	Cr	Ni*	Pb
MCL		50	50	NE	50
Background Concentration[1]		0 - 20	1 - 20	1 - 12	<1 - 9
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	--	--	--	--
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	--
MW-35	07/02/91	--	5.0	--	--
	08/08/91	6.0	9.0	--	--
	11/13/91	--	--	--	--
	01/23/92	--	--	--	--
MW-36	12/12/91	--	--	--	--
	01/23/92	--	--	110.0	--
MW-37	12/12/91	--	--	--	--
	01/23/92	--	--	--	--
MW-38	12/12/91	--	--	--	--
	01/24/92	--	--	--	--
MW-39	06/28/91	10.0	17.0	--	1.0
	08/06/91	--	17.0	--	--
	11/13/91	--	--	--	--
	01/24/92	--	--	180.0	--
MW-40	06/28/91	5.0	4.0	--	--
	08/15/91	--	7.0	--	--
	11/22/91	--	5.0	--	--
	01/29/92	--	--	100.0	--

TABLE 2 (Continued)
SUMMARY GROUNDWATER ANALYTICAL RESULTS
SELECTED METALS - DETECTIONS ONLY (μg/l)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

Monitoring Well	Date Sampled	As	Cr	Ni*	Pb
MCL		50	50	NE	50
Background Concentration[1]		0 - 20	1 - 20	1 - 12	< 1 - 9
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	--	--
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
MW-43	06/28/91	10.0	--	200.0	--
	11/07/91	--	--	160.0	--
	08/16/91	--	--	220.0	--
	02/07/92	--	--	180.0	--

* Although no MCL exists for Nickel, the DHS-Applied Action Level (AAL) which is solely health risk based, is 400 μg/l.
MCL Maximum Contaminant Level for drinking water, EPA or DHS, whichever is more stringent.
NE None exists.
-- 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 3
SUMMARY GROUNDWATER ANALYTICAL RESULTS
ORGANIC COMPOUNDS - DETECTIONS ONLY (μg/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	CHLORO FORM	PCE	TCE	CCL_4	TPH	TPH/ Gas
		MCL/AL														
		1	100*	1.750	680	200	32	5*	6	0.5	100	5	5	0.5	NE	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
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

TABLE 3 (Continued)
SUMMARY GROUNDWATER ANALYTICAL RESULTS
ORGANIC COMPOUNDS - DETECTIONS ONLY (µg/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	CHLORO FORM	PCE	TCE	CCL_4	TPH	TPH/ Gas
		MCL/AL														
		1	100*	1.750	680	200	32	5*	6	0.5	100	5	5	0.5	NE	NE
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
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

TABLE 3 (Continued)
SUMMARY GROUNDWATER ANALYTICAL RESULTS
ORGANIC COMPOUNDS - DETECTIONS ONLY (µg/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	CHLORO FORM	PCE	TCE	CCL_4	TPH	TPH/ Gas
		MCL/AL														
		1	100*	1.750	680	200	32	5*	6	0.5	100	5	5	0.5	NE	NE
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
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
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

TABLE 3 (Continued)
SUMMARY GROUNDWATER ANALYTICAL RESULTS
ORGANIC COMPOUNDS - DETECTIONS ONLY (µg/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	CHLORO FORM	PCE	TCE	CCL_4	TPH	TPH/ Gas
		MCL/AL														
		1	100*	1.750	680	200	32	5*	6	0.5	100	5	5	0.5	NE	NE
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
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

TABLE 3 (Continued)
SUMMARY GROUNDWATER ANALYTICAL RESULTS
ORGANIC COMPOUNDS - DETECTIONS ONLY (µg/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	CHLORO FORM	PCE	TCE	CCL_4	TPH	TPH/ Gas
		MCL/AL														
		1	100*	1.750	680	200	32	5*	6	0.5	100	5	5	0.5	NE	NE
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
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

TABLE 3 (Continued)
SUMMARY GROUNDWATER ANALYTICAL RESULTS
ORGANIC COMPOUNDS - DETECTIONS ONLY (µg/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	CHLORO FORM	PCE	TCE	CCL_4	TPH	TPH/ Gas
		MCL/AL														
		1	100*	1.750	680	200	32	5*	6	0.5	100	5	5	0.5	NE	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
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

TABLE 3 (Continued)
SUMMARY GROUNDWATER ANALYTICAL RESULTS
ORGANIC COMPOUNDS - DETECTIONS ONLY (µg/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	CHLORO FORM	PCE	TCE	CCL_4	TPH	TPH/ Gas
		MCL/AL														
		1	100*	1.750	680	200	32	5*	6	0.5	100	5	5	0.5	NE	NE
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
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

TABLE 3 (Continued)
SUMMARY GROUNDWATER ANALYTICAL RESULTS
ORGANIC COMPOUNDS - DETECTIONS ONLY (µg/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	CHLORO FORM	PCE	TCE	CCL_4	TPH	TPH/ Gas
		MCL/AL														
		1	100*	1.750	680	200	32	5*	6	0.5	100	5	5	0.5	NE	NE
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
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
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

TABLE 3 (Continued)
SUMMARY GROUNDWATER ANALYTICAL RESULTS
ORGANIC COMPOUNDS - DETECTIONS ONLY (µg/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	CHLORO FORM	PCE	TCE	CCL_4	TPH	TPH/ Gas
		MCL/AL														
		1	100*	1.750	680	200	32	5*	6	0.5	100	5	5	0.5	NE	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
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

TABLE 3 (Continued)
SUMMARY GROUNDWATER ANALYTICAL RESULTS
ORGANIC COMPOUNDS - DETECTIONS ONLY (µg/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	CHLORO FORM	PCE	TCE	CCL_4	TPH	TPH/ Gas
		MCL/AL														
		1	100*	1.750	680	200	32	5*	6	0.5	100	5	5	0.5	NE	NE
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
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
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

TABLE 3 (Continued)
SUMMARY GROUNDWATER ANALYTICAL RESULTS
ORGANIC COMPOUNDS - DETECTIONS ONLY (µg/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	CHLORO FORM	PCE	TCE	CCL_4	TPH	TPH/ Gas
		MCL/AL														
		1	100*	1.750	680	200	32	5*	6	0.5	100	5	5	0.5	NE	NE
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
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
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

TABLE 3 (Continued)
SUMMARY GROUNDWATER ANALYTICAL RESULTS
ORGANIC COMPOUNDS - DETECTIONS ONLY (µg/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	CHLORO FORM	PCE	TCE	CCL_4	TPH	TPH/ Gas
		MCL/AL														
		1	100*	1.750	680	200	32	5*	6	0.5	100	5	5	0.5	NE	NE
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
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
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
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
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
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

TABLE 3 (Continued)
SUMMARY GROUNDWATER ANALYTICAL RESULTS
ORGANIC COMPOUNDS - DETECTIONS ONLY (µg/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	CHLORO FORM	PCE	TCE	CCL_4	TPH	TPH/ Gas
		MCL/AL														
		1	100*	1.750	680	200	32	5*	6	0.5	100	5	5	0.5	NE	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
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
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
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

TABLE 3 (Continued)
SUMMARY GROUNDWATER ANALYTICAL RESULTS
ORGANIC COMPOUNDS - DETECTIONS ONLY (μg/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	CHLORO FORM	PCE	TCE	CCL_4	TPH	TPH/ Gas
		MCL/AL														
		1	100*	1.750	680	200	32	5*	6	0.5	100	5	5	0.5	NE	NE
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
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

CCL_4 - 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
* - Indicates DHS - AL
+ - 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 4
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
METALS
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-01	MW-02	MW-03	MW-04	MW-05	MW-06	MW-07
DATE		01/29/92	02/07/92	01/29/92	01/27/92	01/27/92	01/27/92	02/07/92
QA	MCL ug/L							
ARSENIC	50	< 5	< 5	< 5	< 5	< 5	< 5	< 5
CHROMIUM	50	8	< 5	< 5	< 5	< 5	< 5	15
LEAD	50	< 1	< 1	< 1	< 1	< 1	< 1	< 1
NICKEL	400 a	<100	<100	<100	<100	<100	180	180

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."
a = DHS Applied Action Level (AAL).

TABLE 4 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
METALS
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE			MW-08	MW-11	MW-12	MW-13	MW-14	MW-15	MW-16
DATE			01/27/92	01/27/92	01/27/92	02/07/92	02/07/92	01/29/92	01/29/92
QA	MCL ug/L								
ARSENIC	50		< 5	< 5	< 5	43	< 5	< 5	< 5
CHROMIUM	50		6	28	< 5	< 5	20	6	5
LEAD	50		< 1	< 1	< 1	< 1	< 1	< 1	< 1
NICKEL	400	a	<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."
a = DHS Applied Action Level (AAL).

TABLE 4 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
METALS
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE			MW-17	MW-18	MW-19	MW-20	MW-21	MW-22	MW-23
DATE			01/29/92	01/29/92	01/29/92	01/29/92	01/29/92	01/29/92	01/23/92
QA	MCL ug/L								
ARSENIC	50		< 5	< 5	< 5	< 5	< 5	6	< 5
CHROMIUM	50		6	< 5	5	< 5	5	5	< 5
LEAD	50		< 1	< 1	< 1	< 1	< 1	1	< 1
NICKEL	400	a	110	<100	170	<100	370	<100	470

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."
a = DHS Applied Action Level (AAL).

TABLE 4 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
METALS
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-24	MW-25	MW-26	MW-27	MW-28	MW-29	MW-30
DATE		01/23/92	01/23/92	01/27/92	01/23/92	01/29/92	01/29/92	01/31/92
QA	MCL ug/L							
ARSENIC	50	< 5	< 5	< 5	< 5	< 5	< 5	< 5
CHROMIUM	50	< 5	5	< 5	< 5	< 5	< 5	9
LEAD	50	< 1	< 1	< 1	< 1	< 1	< 1	< 1
NICKEL	400 a	190	910	720	<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."
a = DHS Applied Action Level (AAL).

TABLE 4 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
METALS
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-31	MW-32	MW-33	MW-34	MW-35	MW-36	MW-37
DATE		01/31/92	01/29/92	01/23/92	01/23/92	01/23/92	01/23/92	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	400 a	<100	<100	<100	160	<100	110	<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."
a = DHS Applied Action Level (AAL).

TABLE 4 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
METALS
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE			MW-38	MW-39	MW-39	MW-40	MW-40	MW-41	MW-41
DATE			01/23/92	01/23/92	01/23/92	01/29/92	01/29/92	01/31/92	01/31/92
QA	MCL				DUPLICATE		DUPLICATE		DUPLICATE
	ug/L				SAMPLE		SAMPLE		SAMPLE
ARSENIC	50		< 5	< 5	< 5	< 5	< 5	7	9
CHROMIUM	50		< 5	< 5	< 5	< 5	< 5	7	7
LEAD	50		< 1	< 1	< 1	< 1	< 1	< 1	< 1
NICKEL	400	a	<100	180	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."
a = DHS Applied Action Level (AAL).

TABLE 4 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
METALS
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-42	MW-42	MW-43	RB-01	RB-02	RB-03	RB-04
DATE		02/07/92	02/07/92	02/07/92	01/23/92	01/27/92	01/29/92	01/31/92
QA	MCL		DUPLICATE		RINSATE	RINSATE	RINSATE	RINSATE
	ug/L		SAMPLE		BLANK	BLANK	BLANK	BLANK
ARSENIC	50	< 5	< 5	< 5	< 5	< 5	< 5	< 5
CHROMIUM	50	< 5	11	< 5	< 5	< 5	< 5	< 5
LEAD	50	3	< 1	< 1	2	< 1	1	< 1
NICKEL	400	a 160	160	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."
a = DHS Applied Action Level (AAL).

TABLE 4 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
METALS
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		RB-05
DATE		02/07/92
QA	MCL	RINSATE
	ug/L	BLANK
ARSENIC	50	< 5
CHROMIUM	50	< 5
LEAD	50	< 1
NICKEL	400 a	<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."
a = DHS Applied Action Level (AAL).

TABLE 5
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		FB-01	FB-02	FB-03	FB-04	FB-05	MW-01	MW-02	MW-03
DATE		01/23/92	01/27/92	01/29/92	01/31/92	02/07/92	01/29/92	02/07/92	01/29/92
QA	MCL	FIELD	FIELD	FIELD	FIELD	FIELD			
	ug/L	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	< 0.50	< 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-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	< 0.50	< 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
CHLOROFORM	100.0	5.90	6.10	3.30	7.10	5.00	1.70	< 0.50	< 0.50
CHLOROMETHANE	-	< 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.

TABLE 5 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		FB-01	FB-02	FB-03	FB-04	FB-05	MW-01	MW-02	MW-03
DATE		01/23/92	01/27/92	01/29/92	01/31/92	02/07/92	01/29/92	02/07/92	01/29/92
QA	MCL ug/L	FIELD BLANK	FIELD BLANK	FIELD BLANK	FIELD BLANK	FIELD BLANK			
CIS-1,2-DICHLOROETHENE	6.0	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
CIS-1,3-DICHLOROPROPENE	-	< 0.40	< 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	3.00	< 0.50	< 0.50	0.80	< 0.50	< 0.50	< 0.50
TETRACHLOROETHENE	5.0	< 0.40	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
TRANS-1,2-DICHLOROETHENE	10.0	< 0.40	< 0.50	< 0.50	< 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)

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.

TABLE 5 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE DATE QA	MCL ug/L	MW-04 01/27/92	MW-05 01/27/92	MW-06 01/27/92	MW-07 02/07/92	MW-08 01/27/92	MW-11 01/27/92	MW-12 01/27/92	MW-13 02/07/92
1,1,1-TRICHLOROETHANE	200.0	0.60	< 0.50	< 0.50	7.20	< 0.50	1.50	0.80	< 5.00
1,1,2,2-TETRACHLOROETHANE	1.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 5.00
1,1,2-TRICHLOROETHANE	32.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 5.00
1,1-DICHLOROETHANE	5.0	12.00	< 0.50	< 0.50	12.00	< 0.50	11.00	23.00	34.00
1,1-DICHLOROETHENE	6.0	16.00	< 0.50	< 0.50	32.00	1.80	110.00	120.00	31.00
1,2-DICHLOROBENZENE	600.0 *	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 5.00
1,2-DICHLOROETHANE	0.5	170.00	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 5.00
1,2-DICHLOROPROPANE	5.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 5.00
1,3-DICHLOROBENZENE	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 5.00
1,4-DICHLOROBENZENE	5.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 5.00
BROMODICHLOROMETHANE	100.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 5.00
BROMOFORM	100.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 5.00
BROMOMETHANE	-	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 10.00
CARBON TETRACHLORIDE	0.5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 5.00
CHLOROBENZENE	30.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 5.00
CHLOROETHANE	-	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 10.00
CHLOROFORM	100.0	< 0.50	1.20	2.10	4.90	< 0.50	< 0.50	< 0.50	< 5.00
CHLOROMETHANE	-	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 10.00

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.

TABLE 5 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE DATE QA	MCL ug/L	MW-14 02/07/92	MW-15 01/29/92	MW-16 01/29/92	MW-17 01/29/92	MW-18 01/29/92	MW-19 01/29/92	MW-20 01/29/92	MW-21 01/29/92
1,1,1-TRICHLOROETHANE	200.0	3.10	< 0.50	0.60	< 0.50	1.00	< 0.50	0.60	< 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	12.00	< 0.50	< 0.50	< 0.50	0.80	< 0.50	< 0.50	< 0.50
1,1-DICHLOROETHENE	6.0	100.00	1.60	9.00	1.20	25.00	2.90	11.00	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-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
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

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."
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TABLE 5 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE DATE QA	MCL ug/L	MW-14 02/07/92	MW-15 01/29/92	MW-16 01/29/92	MW-17 01/29/92	MW-18 01/29/92	MW-19 01/29/92	MW-20 01/29/92	MW-21 01/29/92
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 *	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	0.50	< 0.50	< 0.50
TETRACHLOROETHENE	5.0	0.60	10.00	< 0.50	< 0.50	< 0.50	3.60	< 0.50	< 0.50
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	9.40	< 0.50	< 0.50	< 0.50	2.80	< 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.

TABLE 5 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE DATE QA	MCL ug/L	MW-22 01/29/92	MW-23 01/23/92	MW-24 01/23/92	MW-25 01/23/92	MW-26 01/27/92	MW-27 01/23/92	MW-28 01/29/92	MW-29 01/29/92
1,1,1-TRICHLOROETHANE	200.0	< 0.50	< 0.40	< 0.40	2.10	1.10	< 0.40	< 0.50	0.70
1,1,2,2-TETRACHLOROETHANE	1.0	< 0.50	< 0.40	< 0.40	< 0.40	< 0.50	< 0.40	< 0.50	< 0.50
1,1,2-TRICHLOROETHANE	32.0	< 0.50	< 0.40	< 0.40	< 0.40	< 0.50	< 0.40	< 0.50	< 0.50
1,1-DICHLOROETHANE	5.0	< 0.50	< 0.40	< 0.40	6.90	4.80	< 0.40	17.00	2.00
1,1-DICHLOROETHENE	6.0	< 0.50	< 0.40	< 0.40	8.70	5.10	0.83	24.00	26.00
1,2-DICHLOROBENZENE	600.0 *	< 0.50	< 0.40	< 0.40	< 0.40	< 0.50	< 0.40	< 0.50	< 0.50
1,2-DICHLOROETHANE	0.5	< 0.50	< 0.40	< 0.40	< 0.40	< 0.50	< 0.40	< 0.50	5.20
1,2-DICHLOROPROPANE	5.0	< 0.50	< 0.40	< 0.40	< 0.40	< 0.50	< 0.40	< 0.50	< 0.50
1,3-DICHLOROBENZENE	-	< 0.50	< 0.40	< 0.40	< 0.40	< 0.50	< 0.40	< 0.50	< 0.50
1,4-DICHLOROBENZENE	5.0	< 0.50	< 0.40	< 0.40	< 0.40	< 0.50	< 0.40	< 0.50	< 0.50
BROMODICHLOROMETHANE	100.0	< 0.50	< 0.40	< 0.40	< 0.40	< 0.50	< 0.40	< 0.50	< 0.50
BROMOFORM	100.0	< 0.50	< 0.40	< 0.40	< 0.40	< 0.50	< 0.40	< 0.50	< 0.50
BROMOMETHANE	-	< 1.00	< 0.40	< 0.40	< 0.40	< 1.00	< 0.40	< 1.00	< 1.00
CARBON TETRACHLORIDE	0.5	< 0.50	< 0.40	< 0.40	< 0.40	< 0.50	< 0.40	< 0.50	1.50
CHLOROBENZENE	30.0	< 0.50	< 0.40	< 0.40	< 0.40	< 0.50	< 0.40	< 0.50	< 0.50
CHLOROETHANE	-	< 1.00	< 0.40	< 0.40	< 0.40	< 1.00	< 0.40	< 1.00	< 1.00
CHLOROFORM	100.0	5.80	2.80	2.50	2.20	2.00	1.30	< 0.50	1.20
CHLOROMETHANE	-	< 1.00	< 0.40	< 0.40	< 0.40	< 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.
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TABLE 5 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-22	MW-23	MW-24	MW-25	MW-26	MW-27	MW-28	MW-29
DATE		01/29/92	01/23/92	01/23/92	01/23/92	01/27/92	01/23/92	01/29/92	01/29/92
QA	MCL ug/L								
CIS-1,2-DICHLOROETHENE	6.0	< 0.50	-	-	-	< 0.50	-	< 0.50	< 0.50
CIS-1,3-DICHLOROPROPENE	-	< 0.50	< 0.40	< 0.40	< 0.40	< 0.50	< 0.40	< 0.50	< 0.50
DIBROMOCHLOROMETHANE	100.0	< 0.50	< 0.40	< 0.40	< 0.40	< 0.50	< 0.40	< 0.50	< 0.50
METHYLENE CHLORIDE	5.0 *	< 0.50	< 10.00	< 10.00	< 10.00	1.70	< 10.00	< 0.50	< 0.50
TETRACHLOROETHENE	5.0	< 0.50	< 0.40	< 0.40	< 0.40	< 0.50	< 0.40	< 0.50	< 0.50
TRANS-1,2-DICHLOROETHENE	10.0	< 0.50	< 0.40	< 0.40	< 0.40	< 0.50	< 0.40	< 0.50	< 0.50
TRANS-1,3-DICHLOROPROPENE	-	< 0.50	< 0.40	< 0.40	< 0.40	< 0.50	< 0.40	< 0.50	< 0.50
TRICHLOROETHENE	5.0	< 0.50	< 0.40	< 0.40	< 0.40	< 0.50	< 0.40	< 0.50	0.70
TRICHLOROFLUOROMETHANE	150.0	< 1.00	< 0.40	< 0.40	< 0.40	< 1.00	< 0.40	< 1.00	< 1.00
VINYL CHLORIDE	0.5	< 1.00	< 0.40	< 0.40	< 0.40	< 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.
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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."
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TABLE 5 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE DATE QA	MCL ug/L	MW-30 01/31/92	MW-31 01/31/92	MW-32 01/29/92	MW-33 01/23/92	MW-34 01/23/92	MW-35 01/23/92	MW-36 01/23/92	MW-37 01/23/92
CIS-1,2-DICHLOROETHENE	6.0	< 0.50	< 0.50	< 0.50	-	-	-	-	-
CIS-1,3-DICHLOROPROPENE	-	< 0.50	< 0.50	< 0.50	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40
DIBROMOCHLOROMETHANE	100.0	< 0.50	< 0.50	< 0.50	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40
METHYLENE CHLORIDE	5.0 *	0.90	0.70	0.70	< 10.00	< 10.00	< 10.00	< 10.00	< 10.00
TETRACHLOROETHENE	5.0	0.80	1.10	0.90	< 0.40	0.86	< 0.40	< 0.40	< 0.40
TRANS-1,2-DICHLOROETHENE	10.0	< 0.50	< 0.50	< 0.50	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40
TRANS-1,3-DICHLOROPROPENE	-	< 0.50	< 0.50	< 0.50	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40
TRICHLOROETHENE	5.0	8.00	12.00	16.00	< 0.40	20.00	3.90	8.90	< 0.40
TRICHLOROFLUOROMETHANE	150.0	< 1.00	< 1.00	< 1.00	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40
VINYL CHLORIDE	0.5	< 1.00	< 1.00	< 1.00	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40

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.
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TABLE 5 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE DATE QA	MCL ug/L	MW-37 01/23/92 DUPLICATE SAMPLE	MW-38 01/23/92	MW-38 01/24/92 DUPLICATE SAMPLE	MW-39 01/23/92	MW-39 01/23/92 DUPLICATE SAMPLE	MW-40 01/29/92	MW-40 01/29/92 DUPLICATE SAMPLE	MW-41 01/31/92
1,1,1-TRICHLOROETHANE	200.0	0.50	11.00	15.00	0.70	0.51	4.20	3.60	< 0.50
1,1,2,2-TETRACHLOROETHANE	1.0	< 0.50	< 0.40	< 2.50	< 0.40	< 0.40	< 0.50	< 0.50	< 0.50
1,1,2-TRICHLOROETHANE	32.0	< 0.50	< 0.40	< 2.50	< 0.40	< 0.40	< 0.50	< 0.50	< 0.50
1,1-DICHLOROETHANE	5.0	1.20	5.70	5.50	0.80	0.68	25.00	20.00	< 0.50
1,1-DICHLOROETHENE	6.0	6.50	250.00	120.00	4.10	3.40	190.00	250.00	< 0.50
1,2-DICHLOROBENZENE	600.0 *	< 0.50	< 0.40	< 2.50	< 0.40	< 0.40	< 0.50	< 0.50	< 0.50
1,2-DICHLOROETHANE	0.5	7.70	2.70	2.40	1.60	1.30	< 0.50	< 0.50	< 0.50
1,2-DICHLOROPROPANE	5.0	< 0.50	< 0.40	< 2.50	< 0.40	< 0.40	< 0.50	< 0.50	< 0.50
1,3-DICHLOROBENZENE	-	< 0.50	< 0.40	< 2.50	< 0.40	< 0.40	< 0.50	< 0.50	< 0.50
1,4-DICHLOROBENZENE	5.0	< 0.50	< 0.40	< 2.50	< 0.40	< 0.40	< 0.50	< 0.50	< 0.50
BROMODICHLOROMETHANE	100.0	< 0.50	< 0.40	< 5.00	< 0.40	< 0.40	< 0.50	< 0.50	< 0.50
BROMOFORM	100.0	< 0.50	< 0.40	< 2.50	< 0.40	< 0.40	< 0.50	< 0.50	< 0.50
BROMOMETHANE	-	< 1.00	< 0.40	< 5.00	< 0.40	< 0.40	< 1.00	< 1.00	< 1.00
CARBON TETRACHLORIDE	0.5	< 0.50	1.30	0.90	1.40	1.10	< 0.50	< 0.50	< 0.50
CHLOROBENZENE	30.0	< 0.50	< 0.40	< 2.50	< 0.40	< 0.40	< 0.50	< 0.50	< 0.50
CHLOROETHANE	-	< 1.00	< 0.40	< 5.00	< 0.40	< 0.40	< 1.00	< 1.00	< 1.00
CHLOROFORM	100.0	1.70	2.80	2.20	3.10	2.90	0.60	< 0.50	< 0.50
CHLOROMETHANE	-	< 1.00	< 0.40	< 5.00	< 0.40	< 0.40	< 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.

TABLE 5 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE DATE QA	MCL ug/L	MW-37 01/23/92 DUPLICATE SAMPLE	MW-38 01/23/92	MW-38 01/24/92 DUPLICATE SAMPLE	MW-39 01/23/92	MW-39 01/23/92 DUPLICATE SAMPLE	MW-40 01/29/92	MW-40 01/29/92 DUPLICATE SAMPLE	MW-41 01/31/92
CIS-1,2-DICHLOROETHENE	6.0	< 0.50	-	< 2.50	-	-	0.60	< 0.50	< 0.50
CIS-1,3-DICHLOROPROPENE	-	< 0.50	< 0.40	< 2.50	< 0.40	< 0.40	< 0.50	0.60	< 0.50
DIBROMOCHLOROMETHANE	100.0	< 0.50	< 0.40	< 2.50	< 0.40	< 0.40	< 0.50	< 0.50	< 0.50
METHYLENE CHLORIDE	5.0 *	< 0.50	< 10.00	< 2.50	< 10.00	< 10.00	< 0.50	2.10	1.00
TETRACHLOROETHENE	5.0	< 0.50	< 0.40	< 2.50	< 0.40	< 0.40	< 0.50	0.60	< 0.50
TRANS-1,2-DICHLOROETHENE	10.0	< 0.50	< 0.40	< 2.50	< 0.40	< 0.40	< 0.50	< 0.50	< 0.50
TRANS-1,3-DICHLOROPROPENE	-	< 0.50	< 0.40	< 2.50	< 0.40	< 0.40	< 0.50	< 0.50	< 0.50
TRICHLOROETHENE	5.0	< 0.50	5.70	11.00	< 0.40	1.30	40.00	35.00	< 0.50
TRICHLOROFLUOROMETHANE	150.0	< 0.50	< 0.40	< 2.50	< 0.40	< 0.40	< 1.00	< 1.00	< 1.00
VINYL CHLORIDE	0.5	< 1.00	< 0.40	< 5.00	< 0.40	< 0.40	< 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.

TABLE 5 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE DATE QA	MCL ug/L	MW-41 01/31/92 DUPLICATE SAMPLE	MW-42 02/07/92	MW-42 02/07/92 DUPLICATE SAMPLE	MW-43 02/07/92	RB-01 01/23/92 RINSATE BLANK	RB-02 01/27/92 RINSATE BLANK	RB-03 01/29/92 RINSATE BLANK	RB-04 01/31/92 RINSATE BLANK
1,1,1-TRICHLOROETHANE	200.0	< 0.50	8.70	9.50	0.70	< 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	2.20	2.40	2.20	< 0.40	< 0.50	< 0.50	< 0.50
1,1-DICHLOROETHANE	5.0	< 0.50	100.00	94.00	220.00	< 0.40	< 0.50	< 0.50	< 0.50
1,1-DICHLOROETHENE	6.0	< 0.50	480.00	400.00	45.00	< 0.40	< 0.50	< 0.50	< 0.50
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	< 0.50	0.70	0.80	2.30	< 0.40	< 0.50	< 0.50	< 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
CHLOROFORM	100.0	< 0.50	2.50	2.40	< 0.50	3.00	4.80	2.60	4.40
CHLOROMETHANE	-	< 1.00	< 1.00	< 1.00	< 1.00	< 0.40	< 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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* = Proposed USEPA MCL.

TABLE 5 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE DATE QA	MCL ug/L	MW-41 01/31/92 DUPLICATE SAMPLE	MW-42 02/07/92	MW-42 02/07/92 DUPLICATE SAMPLE	MW-43 02/07/92	RB-01 01/23/92 RINSATE BLANK	RB-02 01/27/92 RINSATE BLANK	RB-03 01/29/92 RINSATE BLANK	RB-04 01/31/92 RINSATE BLANK
CIS-1,2-DICHLOROETHENE	6.0	< 0.50	< 0.50	< 0.50	4.90	-	< 0.50	< 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 *	1.00	0.80	0.80	1.00	< 10.00	2.40	< 0.50	0.80
TETRACHLOROETHENE	5.0	< 0.50	1.60	2.10	1.40	< 0.40	< 0.50	< 0.50	< 0.50
TRANS-1,2-DICHLOROETHENE	10.0	< 0.50	< 0.50	< 0.50	0.60	< 0.40	< 0.50	< 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	5.50	5.50	4.30	< 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	7.40	< 0.40	< 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.

TABLE 5 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		RB-05	TB-01	TB-02	TB-03	TB-04	TB-05
DATE		02/07/92	01/23/92	01/27/92	01/29/92	01/31/92	02/07/92
QA	MCL ug/L	RINSATE BLANK	TRAVEL CONTROL	TRAVEL CONTROL	TRAVEL CONTROL	TRAVEL CONTROL	TRAVEL CONTROL
1,1,1-TRICHLOROETHANE	200.0	< 0.50	< 0.40	< 0.50	< 0.50	< 0.50	< 0.50
1,1,2,2-TETRACHLOROETHANE	1.0	< 0.50	< 0.40	< 0.50	< 0.50	< 0.50	< 0.50
1,1,2-TRICHLOROETHANE	32.0	< 0.50	< 0.40	< 0.50	< 0.50	< 0.50	< 0.50
1,1-DICHLOROETHANE	5.0	< 0.50	< 0.40	< 0.50	< 0.50	< 0.50	< 0.50
1,1-DICHLOROETHENE	6.0	< 0.50	< 0.40	< 0.50	< 0.50	< 0.50	< 0.50
1,2-DICHLOROBENZENE	600.0 *	< 0.50	< 0.40	< 0.50	< 0.50	< 0.50	< 0.50
1,2-DICHLOROETHANE	0.5	< 0.50	< 0.40	< 0.50	< 0.50	< 0.50	< 0.50
1,2-DICHLOROPROPANE	5.0	< 0.50	< 0.40	< 0.50	< 0.50	< 0.50	< 0.50
1,3-DICHLOROBENZENE	-	< 0.50	< 0.40	< 0.50	< 0.50	< 0.50	< 0.50
1,4-DICHLOROBENZENE	5.0	< 0.50	< 0.40	< 0.50	< 0.50	< 0.50	< 0.50
BROMODICHLOROMETHANE	100.0	< 0.50	< 0.40	< 0.50	< 0.50	< 0.50	< 0.50
BROMOFORM	100.0	< 0.50	< 0.40	< 0.50	< 0.50	< 0.50	< 0.50
BROMOMETHANE	-	< 1.00	< 0.40	< 1.00	< 1.00	< 1.00	< 1.00
CARBON TETRACHLORIDE	0.5	< 0.50	< 0.40	< 0.50	< 0.50	< 0.50	< 0.50
CHLOROBENZENE	30.0	< 0.50	< 0.40	< 0.50	< 0.50	< 0.50	< 0.50
CHLOROETHANE	-	< 1.00	< 0.40	< 1.00	< 1.00	< 1.00	< 1.00
CHLOROFORM	100.0	4.40	< 0.40	< 0.50	< 0.50	< 0.50	< 0.50
CHLOROMETHANE	-	< 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.

TABLE 5 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
CHLORINATED VOLATILE ORGANIC COMPOUNDS (METHOD 601)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		RB-05	TB-01	TB-02	TB-03	TB-04	TB-05
DATE		02/07/92	01/23/92	01/27/92	01/29/92	01/31/92	02/07/92
QA	MCL ug/L	RINSATE BLANK	TRAVEL CONTROL	TRAVEL CONTROL	TRAVEL CONTROL	TRAVEL CONTROL	TRAVEL CONTROL
CIS-1,2-DICHLOROETHENE	6.0	< 0.50	-	< 0.50	< 0.50	< 0.50	< 0.50
CIS-1,3-DICHLOROPROPENE	-	< 0.50	< 0.40	< 0.50	< 0.50	< 0.50	< 0.50
DIBROMOCHLOROMETHANE	100.0	< 0.50	< 0.40	< 0.50	< 0.50	< 0.50	< 0.50
METHYLENE CHLORIDE	5.0 *	0.80	< 10.00	2.00	1.40	1.70	1.30
TETRACHLOROETHENE	5.0	< 0.50	< 0.40	< 0.50	< 0.50	0.50	< 0.50
TRANS-1,2-DICHLOROETHENE	10.0	< 0.50	< 0.40	< 0.50	< 0.50	< 0.50	< 0.50
TRANS-1,3-DICHLOROPROPENE	-	< 0.50	< 0.40	< 0.50	< 0.50	< 0.50	< 0.50
TRICHLOROETHENE	5.0	< 0.50	< 0.40	< 0.50	< 0.50	< 0.50	< 0.50
TRICHLOROFLUOROMETHANE	150.0	< 1.00	< 0.40	< 1.00	< 1.00	< 1.00	< 1.00
VINYL CHLORIDE	0.5	< 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.

TABLE 6
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
AROMATIC HYDROCARBON COMPOUNDS (METHOD 602)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE			FB-01	FB-02	FB-03	FB-04	FB-05	MW-01	MW-02	MW-03
DATE			01/23/92	01/27/92	01/29/92	01/31/92	02/07/92	01/29/92	02/07/92	01/29/92
QA	MCL		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	< 0.50	< 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	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
TOLUENE	2000	*	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
XYLENE	1750		< 0.60	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50

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.

TABLE 6 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
AROMATIC HYDROCARBON COMPOUNDS (METHOD 602)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE			MW-04	MW-05	MW-06	MW-07	MW-08	MW-11	MW-12	MW-13
DATE			01/27/92	01/27/92	01/27/92	02/07/92	01/27/92	01/27/92	01/27/92	02/07/92
QA	MCL ug/L									
1,2-DICHLOROBENZENE	600	*	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 5.00
1,3-DICHLOROBENZENE	-		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 5.00
1,4-DICHLOROBENZENE	5		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 5.00
BENZENE	1		940.00	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	0.60	11000.00
CHLOROBENZENE	30		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 5.00
ETHYL BENZENE	680		18.00	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	780.00
TOLUENE	2000	*	12.00	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	630.00
XYLENE	1750		3.40	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	1300.00

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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.

TABLE 6 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
AROMATIC HYDROCARBON COMPOUNDS (METHOD 602)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE			MW-14	MW-15	MW-16	MW-17	MW-18	MW-19	MW-20	MW-21
DATE			02/07/92	01/29/92	01/29/92	01/29/92	01/29/92	01/29/92	01/29/92	01/29/92
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	2000	*	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 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."
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TABLE 6 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
AROMATIC HYDROCARBON COMPOUNDS (METHOD 602)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-22	MW-23	MW-24	MW-25	MW-26	MW-27	MW-28	MW-29
DATE		01/29/92	01/23/92	01/23/92	01/23/92	01/27/92	01/23/92	01/29/92	01/29/92
QA	MCL ug/L								
1,2-DICHLOROBENZENE	600 *	< 0.50	< 0.40	< 0.40	< 0.40	< 0.50	< 0.40	< 0.50	< 0.50
1,3-DICHLOROBENZENE	-	< 0.50	< 0.40	< 0.40	< 0.40	< 0.50	< 0.40	< 0.50	< 0.50
1,4-DICHLOROBENZENE	5	< 0.50	< 0.40	< 0.40	< 0.40	< 0.50	< 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	< 0.40	< 0.40	< 0.40	< 0.50	< 0.40	< 0.50	< 0.50
ETHYL BENZENE	680	< 0.50	< 0.60	< 0.60	< 0.60	< 0.50	< 0.60	< 0.50	< 0.50
TOLUENE	2000 *	< 0.50	< 0.50	< 0.50	< 0.50	1.40	< 0.50	< 0.50	< 0.50
XYLENE	1750	< 0.50	< 0.60	< 0.60	< 0.60	< 0.50	< 0.60	< 0.50	< 0.50

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.

TABLE 6 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
AROMATIC HYDROCARBON COMPOUNDS (METHOD 602)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE			MW-30	MW-31	MW-32	MW-33	MW-34	MW-35	MW-36	MW-37
DATE			01/31/92	01/31/92	01/29/92	01/23/92	01/23/92	01/23/92	01/23/92	01/23/92
QA	MCL ug/L									
1,2-DICHLOROBENZENE	600	*	< 0.50	< 0.50	< 0.50	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40
1,3-DICHLOROBENZENE	-		< 0.50	< 0.50	< 0.50	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40
1,4-DICHLOROBENZENE	5		< 0.50	< 0.50	< 0.50	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40
BENZENE	1		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	0.53	< 0.50
CHLOROBENZENE	30		< 0.50	< 0.50	< 0.50	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40
ETHYL BENZENE	680		< 0.50	< 0.50	< 0.50	< 0.60	< 0.60	< 0.60	< 0.60	< 0.60
TOLUENE	2000	*	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	1.40	< 0.50
XYLENE	1750		< 0.50	< 0.50	< 0.50	< 0.60	< 0.60	< 0.60	< 0.60	< 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.

TABLE 6 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
AROMATIC HYDROCARBON COMPOUNDS (METHOD 602)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-37	MW-38	MW-38	MW-39	MW-39	MW-40	MW-40	MW-41
DATE		01/23/92	01/23/92	01/24/92	01/23/92	01/23/92	01/29/92	01/29/92	01/31/92
QA	MCL ug/L	DUPLICATE SAMPLE		DUPLICATE SAMPLE		DUPLICATE SAMPLE		DUPLICATE SAMPLE	
1,2-DICHLOROBENZENE	600 *	< 0.30	< 0.40	< 0.30	< 0.40	< 0.40	< 0.50	< 0.50	< 0.50
1,3-DICHLOROBENZENE	-	< 0.30	< 0.40	< 0.30	< 0.40	< 0.40	< 0.50	< 0.50	< 0.50
1,4-DICHLOROBENZENE	5	< 0.30	< 0.40	< 0.30	< 0.40	< 0.40	< 0.50	< 0.50	< 0.50
BENZENE	1	< 0.30	< 0.50	< 0.30	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
CHLOROBENZENE	30	< 0.30	< 0.40	< 0.30	< 0.40	< 0.40	< 0.50	< 0.50	< 0.50
ETHYL BENZENE	680	< 0.30	< 0.60	< 0.30	< 0.60	< 0.60	< 0.50	< 0.50	< 0.50
TOLUENE	2000 *	< 0.30	< 0.50	< 0.30	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
XYLENE	1750	< 0.30	< 0.60	< 0.30	< 0.60	< 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.

TABLE 6 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
AROMATIC HYDROCARBON COMPOUNDS (METHOD 602)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE		MW-41	MW-42	MW-42	MW-43	RB-01	RB-02	RB-03	RB-04
DATE		01/31/92	02/07/92	02/07/92	02/07/92	01/23/92	01/27/92	01/29/92	01/31/92
QA	MCL ug/L	DUPLICATE SAMPLE		DUPLICATE SAMPLE		RINSATE BLANK	RINSATE BLANK	RINSATE BLANK	RINSATE BLANK
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	1.60	1.70	< 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	2000 *	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
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.

TABLE 6 (cont.)
1992 MONITORING WELL GROUNDWATER ANALYTICAL RESULTS
AROMATIC HYDROCARBON COMPOUNDS (METHOD 602)
UNION PACIFIC RAILROAD YARD
SACRAMENTO, CALIFORNIA

SAMPLE			RB-05
DATE			02/07/92
QA	MCL		RINSATE
	ug/L		BLANK
1,2-DICHLOROBENZENE	600	* <	0.50
1,3-DICHLOROBENZENE	-	<	0.50
1,4-DICHLOROBENZENE	5	<	0.50
BENZENE	1	<	0.50
CHLOROBENZENE	30	<	0.50
ETHYL BENZENE	680	<	0.50
TOLUENE	2000	* <	0.50
XYLENE	1750	<	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.

TABLE 7
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-03	01/29/92	17.7	586	7.09
MW-04	01/28/92	19.6	1313	6.84
MW-05	01/28/92	18.2	1224	6.88
MW-06	01/28/92	18.9	1722	6.93
MW-07	02/07/92	18.9	1168	7.12
MW-08	01/28/92	19.4	1471	6.67
MW-11	01/27/92	19.7	1293	7.58
MW-12	01/28/92	19.7	1581	6.96
MW-13	02/07/92	19.9	1095	6.71
MW-14	02/07/92	20.0	1362	7.39
MW-15	01/30/92	19.0	1370	7.66
MW-16	01/30/92	19.4	1353	7.27
MW-17	01/30/92	18.5	1040	7.32
MW-18	01/30/92	19.1	1185	7.31

DATE refers to date sampled.

TABLE 7 (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-19	01/30/92	18.9	1275	7.54
MW-20	01/30/92	19.1	1428	7.34
MW-21	01/30/92	18.5	1034	7.53
MW-22	01/30/92	19.4	930	7.78
MW-23	01/24/92	17.7	1088	7.20
MW-24	01/24/92	17.4	1231	7.31
MW-25	01/23/92	17.8	1408	7.03
MW-26	01/27/92	19.6	1490	7.12
MW-27	01/23/92	18.1	1147	7.19
MW-28	01/30/92	18.9	1378	7.48
MW-29	01/30/92	19.2	909	7.56
MW-30	01/31/92	19.5	1175	7.50
MW-31	01/31/92	19.7	1174	7.12
MW-32	01/29/92	19.3	1098	7.12
MW-33	01/24/92	18.9	812	7.51
MW-34	01/23/92	18.3	1064	7.28

DATE refers to date sampled.

TABLE 7 (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-35	01/23/92	17.3	888	7.38
MW-36	01/23/92	17.1	874	7.29
MW-37	01/23/92	17.4	830	7.42
MW-38	01/24/92	16.7	844	7.29
MW-39	01/24/92	16.9	846	7.39
MW-40	01/29/92	19.3	1560	7.12
MW-41	01/31/92	19.3	887	7.78
MW-42	02/07/92	20.2	1348	6.61
MW-43	02/07/92	19.5	4670	6.79

DATE refers to date sampled.

TABLE 8
PROPOSED REVISED 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

TABLE 8 (Continued)
PROPOSED REVISED 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-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
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

Q - Quarterly
S - Semi-annually
A - Annually
601 - EPA method for chlorinated volatile organic compounds analysis
602 - EPA method for aromatic compound analysis
Select Metals - Arsenic, chromium, lead and nickel (dissolved)

SAC34.007

Figures

Attachment

1

one

ATTACHMENT 1

JANUARY 1992

GROUNDWATER MONITORING LABORATORY REPORTS

D&M LABORATORIES
ENVIRONMENTAL AND INDUSTRIAL HYGIENE SERVICES
3700 Lakeville Highway, Petaluma, CA 94952
P.O. Box 808024, Petaluma, CA. 94975-8024
Telephone: (707) 763-8245 FAX: (707) 763-4065

Attn: Debby Fisher

Gary Dickenson

92- 0244

SAMPLE CHAIN OF CUSTODY / WORK ORDER

Client's Name Dames & Moore Phone (916) 387-8600
Address 8801 Folsom Blvd #200
City, State, Zip Sacramento, CA 95826
Client's or Representative's Signature Gary Dickenson
(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 fail to pick up samples.

PROJ. NO. 00173-012 -044 | PROJECT NAME UPRR Oroville

SAMPLERS (Signature) Gary Dickenson

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	As (7060), Pb (7421), Ni (6010)	Cr (7191)	601	602	REMARKS	LAB USE ONLY LAB NO.
MW-25	1/23/92	1540		✓	MW-25	5	x	x	x	x		
MW-27		1530		✓	MW-27	5	x	x	x	x		
MW-34		1400		✓	MW-34	5	x	x	x	x		
MW-35		1410		✓	MW-35	5	x	x	x	x		
MW-36		1100		✓	MW-36	5	x	x	x	x		
MW-37		1110		✓	MW-37	5	x	x	x	x		
RB-01		1000		✓	RB-01	5	x	x	x	x		
MW-33	1/24/92	1410		✓	MW-33	5	x	x	x	x		
MW-39		1300		✓	MW-39	5	x	x	x	x		
MW-51		1310		✓	MW-51	5	x	x	x	x		
MW-38		1105		✓	MW-38	5	x	x	x	x		
MW-23		0930		✓	MW-23	5	x	x	x	x		
MW-24		0945		✓	MW-24	5	x	x	x	x		
FB-01		0850		✓	FB-01	4	x	x	x	x		
TB-01	1/24				TB-01	2			x			

92 JAN 27 AM 10:20

Relinquished by: (Signature)	DATE	TIME	Received by: (Signature)
Gary Dickenson	1/24/92	1530	
Relinquished by: (Signature)	DATE	TIME	Received by: (Signature)
Relinquished by: (Signature)	DATE	TIME	Received by: (Signature)

General Remarks:
Send Results to Sac. Office.
Attn: Mark E. Ten
Please Return 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-SACTO
Project/Release # 00173-012-044

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

Laboratory Job No.: 920244
Date Collected: 01/23/92
Date Analyzed: 01/30/92
Date Received: 01/27/92
Date Reported: 02/11/92

ASSAY:METAL SCAN BY ICP(EPA 6010)

LABNO	SMPLNO-ID	RESULTS		DET. LIM.
1888	MW-25 WATER		CA STLC LEVEL	
	NI	0.91 mg/L	20	0.10 mg/L
1889	MW-27 WATER		CA STLC LEVEL	
	NI	ND	20	0.10 mg/L
1890	MW-34 WATER		CA STLC LEVEL	
	NI	0.16 mg/L	20	0.10 mg/L
1891	MW-35 WATER		CA STLC LEVEL	
	NI	ND	20	0.10 mg/L
1892	MW-36 WATER		CA STLC LEVEL	
	NI	0.11 mg/L	20	0.10 mg/L
1893	MW-37 WATER		CA STLC LEVEL	
	NI	ND	20	0.10 mg/L
1894	RB-01 WATER		CA STLC LEVEL	
	NI	ND	20	0.10 mg/L
1895	MW-33 WATER		CA STLC LEVEL	
	NI	ND	20	0.10 mg/L
1896	MW-39 WATER		CA STLC LEVEL	
	NI	0.18 mg/L	20	0.10 mg/L

THIS REPORT HAS BEEN REVIEWED
AND APPROVED FOR RELEASE. DLF

D&M LABORATORIES
ENVIRONMENTAL AND INDUSTRIAL HYGIENE SERVICES

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

Laboratory Job No.: 920244

LABNO	SMPLNO-ID	RESULTS		DET. LIM.
1897	MW-51 WATER		CA STLC LEVEL	
	NI	0.18 mg/L	20	0.10 mg/L
1898	MW-38 WATER		CA STLC LEVEL	
	NI	ND	20	0.10 mg/L
1899	MW-23 WATER		CA STLC LEVEL	
	NI	0.47 mg/L	20	0.10 mg/L
1900	MW-24 WATER		CA STLC LEVEL	
	NI	0.19 mg/L	20	0.10 mg/L
1903	MB WATER			
	NI	ND		0.10 mg/L
1904	MBS WATER			
	NI	1.01 mg/L		0.10 mg/L
1905	MX WATER			
	NI	0.19 mg/L		0.10 mg/L
1906	MS WATER			
	NI	1.17 mg/L		0.10 mg/L
1907	MSD WATER			
	NI	1.07 mg/L		0.10 mg/L

ND=Not Detected

NOTE: MBS, MS AND MSD WERE SPIKED AT 1.00 mg/L.

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

Laboratory Job No.: 920244
Date Collected: 01/23/92
Date Received: 01/27/92
Date Analyzed: 01/29/92
Date Reported: 02/11/92

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
1888	MW-25	AS	ND	5.0	0.005
		PB	ND	5.0	0.001
		CR	0.005	560	0.005
1889	MW-27	AS	ND	5.0	0.005
		PB	ND	5.0	0.001
		CR	ND	560	0.005
1890	MW-34	AS	ND	5.0	0.005
		PB	ND	5.0	0.001
		CR	ND	560	0.005
1891	MW-35	AS	ND	5.0	0.005
		PB	ND	5.0	0.001
		CR	ND	560	0.005
1892	MW-36	AS	ND	5.0	0.005
		PB	ND	5.0	0.001
		CR	ND	560	0.005
1893	MW-37	AS	ND	5.0	0.005
		PB	ND	5.0	0.001
		CR	ND	560	0.005

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

Laboratory Job No.: 920244

LABNO	SMPLNO	COMPOUND	FOUND mg/L	CA STLC LEV	DET.LIM. mg/L
1894	RB-01	AS	ND	5.0	0.005
		PB	0.002	5.0	0.001
		CR	ND	560	0.005
1895	MW-33	AS	ND	5.0	0.005
		PB	ND	5.0	0.001
		CR	ND	560	0.005
1896	MW-39	AS	ND	5.0	0.005
		PB	ND	5.0	0.001
		CR	ND	560	0.005
1897	MW-51	AS	ND	5.0	0.005
		PB	ND	5.0	0.001
		CR	ND	560	0.005
1898	MW-38	AS	ND	5.0	0.005
		PB	ND	5.0	0.001
		CR	ND	560	0.005
1899	MW-23	AS	ND	5.0	0.005
		PB	ND	5.0	0.001
		CR	ND	560	0.005
1900	MW-24	AS	ND	5.0	0.005
		PB	ND	5.0	0.001
		CR	ND	560	0.005
1903	MB	AS	ND		0.005
		PB	ND		0.001
		CR	ND		0.005
				SPIKE LEVELS	
1904	MBS	AS	0.022	0.025 mg/L	0.005
		PB	0.010	0.010 mg/L	0.001
		CR	0.021	0.025 mg/L	0.005

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

Laboratory Job No.: 920244

LABNO	SMPLNO	COMPOUND	FOUND mg/L		DET.LIM. mg/L
1905	MX	AS	ND		0.005
		PB	ND		0.001
		CR	ND		0.005
				SPIKE LEVELS	
1906	MS	AS	0.024	0.025 mg/L	0.005
		PB	0.009	0.010 mg/L	0.001
		CR	0.027	0.025 mg/L	0.005
1907	MSD	AS	0.025	0.025 mg/L	0.005
		PB	0.009	0.010 mg/L	0.001
		CR	0.030	0.025 mg/L	0.005

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FAX (707) 763-4065

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

Laboratory Job No.: 920244
Date Collected: 01/23/92
Date Received: 01/27/92
Date Analyzed: 02/06/92
Date Reported: 02/11/92

ASSAY:
PURGEABLES IN WATER (EPA 601)

COMPOUNDS:	LAB#	1888	DET.	1889	DET.	1890	DET.
	SMP#	MW-25	LIM.	MW-27	LIM.	MW-34	LIM.
	dil.	1		1		1	
PURGEABLES		ug/L		ug/L		ug/L	
BROMODICHLOROMETHANE		ND	0.4	ND	0.4	ND	0.4
BROMOFORM		ND	0.4	ND	0.4	ND	0.4
BROMOMETHANE		ND	0.4	ND	0.4	ND	0.4
CARBON TETRACHLORIDE		ND	0.4	ND	0.4	ND	0.4
CHLOROBENZENE		ND	0.4	ND	0.4	ND	0.4
CHLOROETHANE		ND	0.4	ND	0.4	ND	0.4
CHLOROFORM		2.2	0.4	1.3	0.4	1.7	0.4
CHLOROMETHANE		ND	0.4	ND	0.4	ND	0.4
DIBROMOCHLOROMETHANE		ND	0.4	ND	0.4	ND	0.4
1,4-DICHLOROBENZENE		ND	0.4	ND	0.4	ND	0.4
1,3-DICHLOROBENZENE		ND	0.4	ND	0.4	ND	0.4
1,2-DICHLOROBENZENE		ND	0.4	ND	0.4	ND	0.4
1,1-DICHLOROETHANE		6.9	0.4	ND	0.4	25	0.4
1,2-DICHLOROETHANE		ND	0.4	ND	0.4	2.3	0.4
1,1-DICHLOROETHENE		8.7	0.4	0.83	0.4	370 *	0.4
TRANS-1,2-DICHLOROETHENE		ND	0.4	ND	0.4	ND	0.4
1,2-DICHLOROPROPANE		ND	0.4	ND	0.4	ND	0.4
CIS-1,3-DICHLOROPROPENE		ND	0.4	ND	0.4	ND	0.4
TRANS-1,3-DICHLOROPROPENE		ND	0.4	ND	0.4	ND	0.4
METHYLENE CHLORIDE		ND	10	ND	10	ND	10
1,1,2,2-TETRACHLOROETHANE		ND	0.4	ND	0.4	ND	0.4
TETRACHLOROETHENE		ND	0.4	ND	0.4	0.86	0.4
1,1,1-TRICHLOROETHANE		2.1	0.4	ND	0.4	19	0.4
1,1,2-TRICHLOROETHANE		ND	0.4	ND	0.4	4.9	0.4
TRICHLOROETHENE		ND	0.4	ND	0.4	20	0.4
TRICHLOROFLUOROMETHANE		ND	0.4	ND	0.4	ND	0.4
VINYL CHLORIDE		ND	0.4	ND	0.4	ND	0.4

* DILUTION IS A FACTOR OF 100

D&M LABORATORIES
ENVIRONMENTAL AND INDUSTRIAL HYGIENE SERVICES

3700 Lakeville Highway, Petaluma, CA 94954
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Telephone: (707) 763-8245
FAX (707) 763-4065

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

Laboratory Job No.: 920244

COMPOUNDS:	LAB#	1891	DET.	1892	DET.	1893	DET.
	SMP#	MW-35	LIM.	MW-36	LIM.	MW-37	LIM.
	dil.	1		1		1	
PURGEABLES		ug/L		ug/L		ug/L	
BROMODICHLOROMETHANE		ND	0.4	ND	0.4	ND	0.4
BROMOFORM		ND	0.4	ND	0.4	ND	0.4
BROMOMETHANE		ND	0.4	ND	0.4	ND	0.4
CARBON TETRACHLORIDE		ND	0.4	ND	0.4	1.8	0.4
CHLOROBENZENE		ND	0.4	ND	0.4	ND	0.4
CHLOROETHANE		ND	0.4	ND	0.4	ND	0.4
CHLOROFORM		1.0	0.4	2.6	0.4	3.1	0.4
CHLOROMETHANE		ND	0.4	ND	0.4	ND	0.4
DIBROMOCHLOROMETHANE		ND	0.4	ND	0.4	ND	0.4
1,4-DICHLOROBENZENE		ND	0.4	ND	0.4	ND	0.4
1,3-DICHLOROBENZENE		ND	0.4	ND	0.4	ND	0.4
1,2-DICHLOROBENZENE		ND	0.4	ND	0.4	ND	0.4
1,1-DICHLOROETHANE		5.8	0.4	13	0.4	4.4	0.4
1,2-DICHLOROETHANE		ND	0.4	2.7	0.4	9.7	0.4
1,1-DICHLOROETHENE		140 **	0.4	330 *	0.4	8.5	0.4
TRANS-1,2-DICHLOROETHENE		ND	0.4	ND	0.4	ND	0.4
1,2-DICHLOROPROPANE		ND	0.4	ND	0.4	ND	0.4
CIS-1,3-DICHLOROPROPENE		ND	0.4	ND	0.4	ND	0.4
TRANS-1,3-DICHLOROPROPENE		ND	0.4	ND	0.4	ND	0.4
METHYLENE CHLORIDE		ND	10	ND	10	ND	10
1,1,2,2-TETRACHLOROETHANE		ND	0.4	ND	0.4	ND	0.4
TETRACHLOROETHENE		ND	0.4	ND	0.4	ND	0.4
1,1,1-TRICHLOROETHANE		5.4	0.4	21	0.4	ND	0.4
1,1,2-TRICHLOROETHANE		ND	0.4	3.0	0.4	ND	0.4
TRICHLOROETHENE		3.9	0.4	8.9	0.4	ND	0.4
TRICHLOROFLUOROMETHANE		ND	0.4	ND	0.4	ND	0.4
VINYL CHLORIDE		ND	0.4	ND	0.4	ND	0.4

* DILUTION IS A FACTOR OF 100
** DILUTION IS A FACTOR OF 10

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

Laboratory Job No.: 920244

COMPOUNDS:	LAB#	1894	DET.		1895	DET.		1896	DET.
	SMP#	RB-01	LIM.		MW-33	LIM.		MW-39	LIM.
	dil.	1			1			1	
PURGEABLES		ug/L			ug/L			ug/L	
BROMODICHLOROMETHANE		ND	0.4		ND	0.4		ND	0.4
BROMOFORM		ND	0.4		ND	0.4		ND	0.4
BROMOMETHANE		ND	0.4		ND	0.4		ND	0.4
CARBON TETRACHLORIDE		ND	0.4		ND	0.4		1.4	0.4
CHLOROBENZENE		ND	0.4		ND	0.4		ND	0.4
CHLOROETHANE		ND	0.4		ND	0.4		ND	0.4
CHLOROFORM		3.0	0.4		ND	0.4		3.1	0.4
CHLOROMETHANE		ND	0.4		ND	0.4		ND	0.4
DIBROMOCHLOROMETHANE		ND	0.4		ND	0.4		ND	0.4
1,4-DICHLOROBENZENE		ND	0.4		ND	0.4		ND	0.4
1,3-DICHLOROBENZENE		ND	0.4		ND	0.4		ND	0.4
1,2-DICHLOROBENZENE		ND	0.4		ND	0.4		ND	0.4
1,1-DICHLOROETHANE		ND	0.4		2.7	0.4		0.80	0.4
1,2-DICHLOROETHANE		ND	0.4		ND	0.4		1.6	0.4
1,1-DICHLOROETHENE		ND	0.4		97	0.4	**	4.1	0.4
TRANS-1,2-DICHLOROETHENE		ND	0.4		ND	0.4		ND	0.4
1,2-DICHLOROPROPANE		ND	0.4		ND	0.4		ND	0.4
CIS-1,3-DICHLOROPROPENE		ND	0.4		ND	0.4		ND	0.4
TRANS-1,3-DICHLOROPROPENE		ND	0.4		ND	0.4		ND	0.4
METHYLENE CHLORIDE		ND	10		ND	10		ND	10
1,1,2,2-TETRACHLOROETHANE		ND	0.4		ND	0.4		ND	0.4
TETRACHLOROETHENE		ND	0.4		ND	0.4		ND	0.4
1,1,1-TRICHLOROETHANE		ND	0.4		3.0	0.4		0.70	0.4
1,1,2-TRICHLOROETHANE		ND	0.4		ND	0.4		ND	0.4
TRICHLOROETHENE		ND	0.4		ND	0.4		ND	0.4
TRICHLOROFLUOROMETHANE		ND	0.4		ND	0.4		ND	0.4
VINYL CHLORIDE		ND	0.4		ND	0.4		ND	0.4

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

Laboratory Job No.: 920244

COMPOUNDS:	LAB#	1897	DET.	1898	DET.	1899	DET.
	SMP#	MW-51	LIM.	MW-38	LIM.	MW-23	LIM.
	dil.	1		1		1	
PURGEABLES		ug/L		ug/L		ug/L	
BROMODICHLOROMETHANE		ND	0.4	ND	0.4	ND	0.4
BROMOFORM		ND	0.4	ND	0.4	ND	0.4
BROMOMETHANE		ND	0.4	ND	0.4	ND	0.4
CARBON TETRACHLORIDE		1.1	0.4	1.3	0.4	ND	0.4
CHLOROBENZENE		ND	0.4	ND	0.4	ND	0.4
CHLOROETHANE		ND	0.4	ND	0.4	ND	0.4
CHLOROFORM		2.9	0.4	2.8	0.4	2.8	0.4
CHLOROMETHANE		ND	0.4	ND	0.4	ND	0.4
DIBROMOCHLOROMETHANE		ND	0.4	ND	0.4	ND	0.4
1,4-DICHLOROBENZENE		ND	0.4	ND	0.4	ND	0.4
1,3-DICHLOROBENZENE		ND	0.4	ND	0.4	ND	0.4
1,2-DICHLOROBENZENE		ND	0.4	ND	0.4	ND	0.4
1,1-DICHLOROETHANE		0.68	0.4	5.7	0.4	ND	0.4
1,2-DICHLOROETHANE		1.3	0.4	2.7	0.4	ND	0.4
1,1-DICHLOROETHENE		3.4	0.4	250 **	0.4	ND	0.4
TRANS-1,2-DICHLOROETHENE		ND	0.4	ND	0.4	ND	0.4
1,2-DICHLOROPROPANE		ND	0.4	ND	0.4	ND	0.4
CIS-1,3-DICHLOROPROPENE		ND	0.4	ND	0.4	ND	0.4
TRANS-1,3-DICHLOROPROPENE		ND	0.4	ND	0.4	ND	0.4
METHYLENE CHLORIDE		ND	10	ND	10	ND	10
1,1,2,2-TETRACHLOROETHANE		ND	0.4	ND	0.4	ND	0.4
TETRACHLOROETHENE		ND	0.4	ND	0.4	ND	0.4
1,1,1-TRICHLOROETHANE		0.51	0.4	11	0.4	ND	0.4
1,1,2-TRICHLOROETHANE		ND	0.4	ND	0.4	ND	0.4
TRICHLOROETHENE		1.3	0.4	5.7	0.4	ND	0.4
TRICHLOROFLUOROMETHANE		ND	0.4	ND	0.4	ND	0.4
VINYL CHLORIDE		ND	0.4	ND	0.4	ND	0.4

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

Laboratory Job No.: 920244

COMPOUNDS:	LAB#	1900	DET.	1901	DET.	1902	DET.
	SMP#	MW-24	LIM.	FB-01	LIM.	TB-01	LIM.
	dil.	1		1		1	
PURGEABLES		ug/L		ug/L		ug/L	
BROMODICHLOROMETHANE		ND	0.4	ND	0.4	ND	0.4
BROMOFORM		ND	0.4	ND	0.4	ND	0.4
BROMOMETHANE		ND	0.4	ND	0.4	ND	0.4
CARBON TETRACHLORIDE		ND	0.4	ND	0.4	ND	0.4
CHLOROBENZENE		ND	0.4	ND	0.4	ND	0.4
CHLOROETHANE		ND	0.4	ND	0.4	ND	0.4
CHLOROFORM		2.5	0.4	5.9	0.4	ND	0.4
CHLOROMETHANE		ND	0.4	ND	0.4	ND	0.4
DIBROMOCHLOROMETHANE		ND	0.4	ND	0.4	ND	0.4
1,4-DICHLOROBENZENE		ND	0.4	ND	0.4	ND	0.4
1,3-DICHLOROBENZENE		ND	0.4	ND	0.4	ND	0.4
1,2-DICHLOROBENZENE		ND	0.4	ND	0.4	ND	0.4
1,1-DICHLOROETHANE		ND	0.4	ND	0.4	ND	0.4
1,2-DICHLOROETHANE		ND	0.4	ND	0.4	ND	0.4
1,1-DICHLOROETHENE		ND	0.4	ND	0.4	ND	0.4
TRANS-1,2-DICHLOROETHENE		ND	0.4	ND	0.4	ND	0.4
1,2-DICHLOROPROPANE		ND	0.4	ND	0.4	ND	0.4
CIS-1,3-DICHLOROPROPENE		ND	0.4	ND	0.4	ND	0.4
TRANS-1,3-DICHLOROPROPENE		ND	0.4	ND	0.4	ND	0.4
METHYLENE CHLORIDE		ND	10	ND	10	ND	10
1,1,2,2-TETRACHLOROETHANE		ND	0.4	ND	0.4	ND	0.4
TETRACHLOROETHENE		ND	0.4	ND	0.4	ND	0.4
1,1,1-TRICHLOROETHANE		ND	0.4	ND	0.4	ND	0.4
1,1,2-TRICHLOROETHANE		ND	0.4	ND	0.4	ND	0.4
TRICHLOROETHENE		ND	0.4	ND	0.4	ND	0.4
TRICHLOROFLUOROMETHANE		ND	0.4	ND	0.4	ND	0.4
VINYL CHLORIDE		ND	0.4	ND	0.4	ND	0.4

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

Laboratory Job No.: 920244

COMPOUNDS: PURGEABLES	LAB# SMP# dil.	MB-1	DET. LIM. 1 ug/L	MX-1	DET. LIM. 1 ug/L	MS-1	DET. LIM. 1 ug/L
BROMODICHLOROMETHANE		ND	0.4	NA	0.4	NA	0.4
BROMOFORM		ND	0.4	NA	0.4	NA	0.4
BROMOMETHANE		ND	0.4	NA	0.4	NA	0.4
CARBON TETRACHLORIDE		ND	0.4	NA	0.4	NA	0.4
CHLOROBENZENE		ND	0.4	NA	0.4	NA	0.4
CHLOROETHANE		ND	0.4	NA	0.4	NA	0.4
CHLOROFORM		ND	0.4	NA	0.4	NA	0.4
CHLOROMETHANE		ND	0.4	NA	0.4	NA	0.4
DIBROMOCHLOROMETHANE		ND	0.4	NA	0.4	NA	0.4
1,4-DICHLOROBENZENE		ND	0.4	NA	0.4	NA	0.4
1,3-DICHLOROBENZENE		ND	0.4	NA	0.4	NA	0.4
1,2-DICHLOROBENZENE		ND	0.4	NA	0.4	NA	0.4
1,1-DICHLOROETHANE		ND	0.4	NA	0.4	NA	0.4
1,2-DICHLOROETHANE		ND	0.4	NA	0.4	NA	0.4
1,1-DICHLOROETHENE		ND	0.4	8.65	0.4	34.7	0.4
TRANS-1,2-DICHLOROETHENE		ND	0.4	NA	0.4	NA	0.4
1,2-DICHLOROPROPANE		ND	0.4	NA	0.4	NA	0.4
CIS-1,3-DICHLOROPROPENE		ND	0.4	NA	0.4	NA	0.4
TRANS-1,3-DICHLOROPROPENE		ND	0.4	NA	0.4	NA	0.4
METHYLENE CHLORIDE		ND	10	NA	10	NA	10
1,1,2,2-TETRACHLOROETHANE		ND	0.4	NA	0.4	NA	0.4
TETRACHLOROETHENE		ND	0.4	NA	0.4	NA	0.4
1,1,1-TRICHLOROETHANE		ND	0.4	NA	0.4	NA	0.4
1,1,2-TRICHLOROETHANE		ND	0.4	NA	0.4	NA	0.4
TRICHLOROETHENE		ND	0.4	ND	0.4	23.5	0.4
TRICHLOROFLUOROMETHANE		ND	0.4	NA	0.4	NA	0.4
VINYL CHLORIDE		ND	0.4	NA	0.4	NA	0.4

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

Laboratory Job No.: 920244

COMPOUNDS:	LAB#		DET.		DET.		DET.
	SMP#	MSD-1	LIM.	MB-2	LIM.	MX-2	LIM.
	dil.	1		1		1	
PURGEABLES		ug/L		ug/L		ug/L	
BROMODICHLOROMETHANE		NA	0.4	ND	0.4	NA	0.4
BROMOFORM		NA	0.4	ND	0.4	NA	0.4
BROMOMETHANE		NA	0.4	ND	0.4	NA	0.4
CARBON TETRACHLORIDE		NA	0.4	ND	0.4	NA	0.4
CHLOROBENZENE		NA	0.4	ND	0.4	NA	0.4
CHLOROETHANE		NA	0.4	ND	0.4	NA	0.4
CHLOROFORM		NA	0.4	ND	0.4	NA	0.4
CHLOROMETHANE		NA	0.4	ND	0.4	NA	0.4
DIBROMOCHLOROMETHANE		NA	0.4	ND	0.4	NA	0.4
1,4-DICHLOROBENZENE		NA	0.4	ND	0.4	NA	0.4
1,3-DICHLOROBENZENE		NA	0.4	ND	0.4	NA	0.4
1,2-DICHLOROBENZENE		NA	0.4	ND	0.4	NA	0.4
1,1-DICHLOROETHANE		NA	0.4	ND	0.4	NA	0.4
1,2-DICHLOROETHANE		NA	0.4	ND	0.4	NA	0.4
1,1-DICHLOROETHENE		33.8	0.4	ND	0.4	ND	0.4
TRANS-1,2-DICHLOROETHENE		NA	0.4	ND	0.4	NA	0.4
1,2-DICHLOROPROPANE		NA	0.4	ND	0.4	NA	0.4
CIS-1,3-DICHLOROPROPENE		NA	0.4	ND	0.4	NA	0.4
TRANS-1,3-DICHLOROPROPENE		NA	0.4	ND	0.4	NA	0.4
METHYLENE CHLORIDE		NA	10	ND	10	NA	10
1,1,2,2-TETRACHLOROETHANE		NA	0.4	ND	0.4	NA	0.4
TETRACHLOROETHENE		NA	0.4	ND	0.4	NA	0.4
1,1,1-TRICHLOROETHANE		NA	0.4	ND	0.4	NA	0.4
1,1,2-TRICHLOROETHANE		NA	0.4	ND	0.4	NA	0.4
TRICHLOROETHENE		23.3	0.4	ND	0.4	0.568	0.4
TRICHLOROFLUOROMETHANE		NA	0.4	ND	0.4	NA	0.4
VINYL CHLORIDE		NA	0.4	ND	0.4	NA	0.4

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

Laboratory Job No.: 920244

COMPOUNDS:	LAB#		DET.		DET.
	SMP#	MS-2	LIM.	MSD-2	LIM.
	dil.	1		1	
PURGEABLES		ug/L		ug/L	
BROMODICHLOROMETHANE		NA	0.4	NA	0.4
BROMOFORM		NA	0.4	NA	0.4
BROMOMETHANE		NA	0.4	NA	0.4
CARBON TETRACHLORIDE		NA	0.4	NA	0.4
CHLOROBENZENE		NA	0.4	NA	0.4
CHLOROETHANE		NA	0.4	NA	0.4
CHLOROFORM		NA	0.4	NA	0.4
CHLOROMETHANE		NA	0.4	NA	0.4
DIBROMOCHLOROMETHANE		NA	0.4	NA	0.4
1,4-DICHLOROBENZENE		NA	0.4	NA	0.4
1,3-DICHLOROBENZENE		NA	0.4	NA	0.4
1,2-DICHLOROBENZENE		NA	0.4	NA	0.4
1,1-DICHLOROETHANE		NA	0.4	NA	0.4
1,2-DICHLOROETHANE		NA	0.4	NA	0.4
1,1-DICHLOROETHENE		23.5	0.4	21.5	0.4
TRANS-1,2-DICHLOROETHENE		NA	0.4	NA	0.4
1,2-DICHLOROPROPANE		NA	0.4	NA	0.4
CIS-1,3-DICHLOROPROPENE		NA	0.4	NA	0.4
TRANS-1,3-DICHLOROPROPENE		NA	0.4	NA	0.4
METHYLENE CHLORIDE		NA	10	NA	10
1,1,2,2-TETRACHLOROETHANE		NA	0.4	NA	0.4
TETRACHLOROETHENE		NA	0.4	NA	0.4
1,1,1-TRICHLOROETHANE		NA	0.4	NA	0.4
1,1,2-TRICHLOROETHANE		NA	0.4	NA	0.4
TRICHLOROETHENE		23.1	0.4	21.5	0.4
TRICHLOROFLUOROMETHANE		NA	0.4	NA	0.4
VINYL CHLORIDE		NA	0.4	NA	0.4

NOTES: (1) PRECEEDING ANALYSES (EPA 601) WERE PERFORMED BY NET PACIFIC.

(2) THE FIRST SET OF QA-QC RESULTS PERTAIN TO LABORATORY SAMPLE NUMBERS 1888 THROUGH 1894. THE SECOND SET PERTAINS TO LABORATORY SAMPLE NUMBERS 1895 THROUGH 1902.

ENVIRONMENTAL AND
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Telephone: (707) 763-8245
FAX (707) 763-4065

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

Laboratory Job No.: 920244

NOTES (Continued):

(3) ND DENOTES NOT DETECTED. NA DENOTES NOT APPLICABLE. THE SPIKED SAMPLES WERE ANALYZED ONLY FOR THE COMPOUNDS THAT WERE SPIKED.

(4) MS AND MSD WERE SPIKED AT 20 ug/L.

D&M LABORATORIES
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L A B O R A T O R Y R E S U L T S

Laboratory Job No.: 920244
Date Collected: 01/23/92
Date Received: 01/27/92
Date Analyzed: 02/06/92
Date Reported: 02/11/92

ASSAY:
PURGEABLE AROMATICS IN WATER (EPA 602)

COMPOUNDS:	LAB#	1888	DET.	1889	DET.	1890	DET.	1891	DET.
	SMP#	MW-25	LIM.	MW-27	LIM.	MW-34	LIM.	MW-35	LIM.
	dil.	1		1		1		1	
PURGEABLES		ug/L		ug/L		ug/L		ug/L	
BENZENE		ND	0.5	ND	0.5	ND	0.5	ND	0.5
CHLOROBENZENE		ND	0.4	ND	0.4	ND	0.4	ND	0.4
1,2-DICHLOROBENZENE		ND	0.4	ND	0.4	ND	0.4	ND	0.4
1,3-DICHLOROBENZENE		ND	0.4	ND	0.4	ND	0.4	ND	0.4
1,4-DICHLOROBENZENE		ND	0.4	ND	0.4	ND	0.4	ND	0.4
ETHYL BENZENE		ND	0.6	ND	0.6	ND	0.6	ND	0.6
TOLUENE		ND	0.5	ND	0.5	ND	0.5	ND	0.5
XYLENE		ND	0.6	ND	0.6	ND	0.6	ND	0.6

COMPOUNDS:	LAB#	1892	DET.	1893	DET.	1894	DET.	1895	DET.
	SMP#	MW-36	LIM.	MW-37	LIM.	RB-01	LIM.	MW-33	LIM.
	dil.	1		1		1		1	
PURGEABLES		ug/L		ug/L		ug/L		ug/L	
BENZENE		0.53	0.5	ND	0.5	ND	0.5	ND	0.5
CHLOROBENZENE		ND	0.4	ND	0.4	ND	0.4	ND	0.4
1,2-DICHLOROBENZENE		ND	0.4	ND	0.4	ND	0.4	ND	0.4
1,3-DICHLOROBENZENE		ND	0.4	ND	0.4	ND	0.4	ND	0.4
1,4-DICHLOROBENZENE		ND	0.4	ND	0.4	ND	0.4	ND	0.4
ETHYL BENZENE		ND	0.6	ND	0.6	ND	0.6	ND	0.6
TOLUENE		1.4	0.5	ND	0.5	ND	0.5	ND	0.5
XYLENE		ND	0.6	ND	0.6	ND	0.6	ND	0.6

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

Laboratory Job No.: 920244

COMPOUNDS:	LAB#	1896	DET.	1897	DET.	1898	DET.	1899	DET.
	SMP#	MW-39	LIM.	MW-51	LIM.	MW-38	LIM.	MW-23	LIM.
	dil.	1		1		1		1	
PURGEABLES		ug/L		ug/L		ug/L		ug/L	
BENZENE		ND	0.5	ND	0.5	ND	0.5	ND	0.5
CHLOROBENZENE		ND	0.4	ND	0.4	ND	0.4	ND	0.4
1,2-DICHLOROBENZENE		ND	0.4	ND	0.4	ND	0.4	ND	0.4
1,3-DICHLOROBENZENE		ND	0.4	ND	0.4	ND	0.4	ND	0.4
1,4-DICHLOROBENZENE		ND	0.4	ND	0.4	ND	0.4	ND	0.4
ETHYL BENZENE		ND	0.6	ND	0.6	ND	0.6	ND	0.6
TOLUENE		ND	0.5	ND	0.5	ND	0.5	ND	0.5
XYLENE		ND	0.6	ND	0.6	ND	0.6	ND	0.6

COMPOUNDS:	LAB#	1900	DET.	1901	DET.
	SMP#	MW-24	LIM.	FB-01	LIM.
	dil.	1		1	
PURGEABLES		ug/L		ug/L	
BENZENE		ND	0.5	ND	0.5
CHLOROBENZENE		ND	0.4	ND	0.4
1,2-DICHLOROBENZENE		ND	0.4	ND	0.4
1,3-DICHLOROBENZENE		ND	0.4	ND	0.4
1,4-DICHLOROBENZENE		ND	0.4	ND	0.4
ETHYL BENZENE		ND	0.6	ND	0.6
TOLUENE		ND	0.5	ND	0.5
XYLENE		ND	0.6	ND	0.6

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

Laboratory Job No.: 920244

COMPOUNDS:	LAB#		DET.		DET.		DET.		DET.
	SMP#	MB-1	LIM.	MX-1	LIM.	MS-1	LIM.	MSD-1	LIM.
	dil.	1		1		1		1	
PURGEABLES		ug/L		ug/L		ug/L		ug/L	
BENZENE		ND	0.5	ND	0.5	21.7	0.5	21.4	0.5
CHLOROBENZENE		ND	0.4	ND	0.4	22.3	0.4	21.9	0.4
1,2-DICHLOROBENZENE		ND	0.4	NA	0.4	NA	0.4	NA	0.4
1,3-DICHLOROBENZENE		ND	0.4	NA	0.4	NA	0.4	NA	0.4
1,4-DICHLOROBENZENE		ND	0.4	NA	0.4	NA	0.4	NA	0.4
ETHYL BENZENE		ND	0.6	NA	0.6	NA	0.6	NA	0.6
TOLUENE		ND	0.5	1.42	0.5	19.4	0.5	19.2	0.5
XYLENE		ND	0.6	NA	0.6	NA	0.6	NA	0.6

COMPOUNDS:	LAB#		DET.		DET.		DET.		DET.
	SMP#	MB-2	LIM.	MX-2	LIM.	MS-2	LIM.	MSD-2	LIM.
	dil.	1		1		1		1	
PURGEABLES		ug/L		ug/L		ug/L		ug/L	
BENZENE		ND	0.5	ND	0.5	19.4	0.5	19.0	0.5
CHLOROBENZENE		ND	0.4	ND	0.4	20.8	0.4	17.3	0.4
1,2-DICHLOROBENZENE		ND	0.4	NA	0.4	NA	0.4	NA	0.4
1,3-DICHLOROBENZENE		ND	0.4	NA	0.4	NA	0.4	NA	0.4
1,4-DICHLOROBENZENE		ND	0.4	NA	0.4	NA	0.4	NA	0.4
ETHYL BENZENE		ND	0.6	NA	0.6	NA	0.6	NA	0.6
TOLUENE		ND	0.5	ND	0.5	20.2	0.5	19.7	0.5
XYLENE		ND	0.6	NA	0.6	NA	0.6	NA	0.6

NOTES: (1) THE PRECEEDING ANALYSES (EPA 602) WERE PERFORMED BY NET PACIFIC.

(2) THE FIRST SET OF QA/QC RESULTS PERTAIN TO LABORATORY SAMPLE NUMBERS 1888 THROUGH 1894. THE SECOND SET PERTAINS TO LABORATORY SAMPLE NUMBERS 1895 THROUGH 1902.

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

Laboratory Job No.: 920244

NOTES (Continued):

(3) ND DENOTES NOT DETECTED. NA DENOTES NOT APPLICABLE. THE SPIKED SAMPLES WERE ANALYZED ONLY FOR THE COMPOUNDS THAT WERE SPIKED.

(4) MS AND MSD WERE SPIKED AT 20 ug/L.

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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**.

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 - sample) / MS spike level X 100
RPD = | MS - MSD | / ((MS + MSD) / 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.

Attn - Webby Fisher Cary Dickenson

92-0276

D&M LABORATORIES
ENVIRONMENTAL AND INDUSTRIAL HYGIENE SERVICES
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Telephone: (707)763-8245 FAX: (707)763-4065

SAMPLE CHAIN OF CUSTODY / WORK ORDER

92 JAN 29 PM 12:22

Client's Name Dames + Moore Phone (916)387-8600
Address 8801 Folsom Blvd, # 200
City, State, Zip Sacramento, CA 95826
Client's or Representative's Signature Gary Dickenson
(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. 00173-072-044 PROJECT NAME UPRR Sac.

SAMPLERS (Signature) Gary Dickenson

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	Cd	Cr	As (7060), Pb (7421), Ni (6010)				REMARKS	LAB USE ONLY LAB NO.
TB-02	1/27				TB-02	2	X							
RB-02	1/27/92	1205		✓	RB-02	5	X	X	X	X				
FB-02	↓	1155		✓	FB-02	4	X	X						
MW-26		1320		✓	MW-26	5	X	X	X	X				
MW-11	↓	1535		✓	MW-11	5	X	X	X	X				
MW-4	1/28/92	1325		✓	MW-4	5	X	X	X	X				
MW-6	↓	1105		✓	MW-6	5	X	X	X	X				
MW-5		0925		✓	MW-5	5	X	X	X	X				
MW-8		1230		✓	MW-8	5	X	X	X	X				
MW-12	↓	1455		✓	MW-12	5	X	X	X	X				

Relinquished by: (Signature)	DATE	TIME	Received by: (Signature)
Gary Dickenson	1/28/92	1630	T. Belarde
Relinquished by: (Signature)	DATE	TIME	Received by: (Signature)
Relinquished by: (Signature)	DATE	TIME	Received by: (Signature)

General Remarks:
Send Results to Sac. Office
Att: Mark Eisen
Please return blue ice

CLIENT COPY

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FAX (707) 763-4065

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

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

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

Laboratory Job No.: 920276
Date Collected: 01/27/92
Date Analyzed: 02/06/92
Date Received: 01/29/92
Date Reported: 02/12/92

ASSAY:METAL SCAN BY ICP(EPA 6010)

LABNO	SMPLNO-ID	RESULTS		DET. LIM.
2095	RB-02 WATER		CA STLC LEVEL	
	NI	ND	20	0.10 mg/L
2097	MW-26 WATER		CA STLC LEVEL	
	NI	0.72 mg/L	20	0.10 mg/L
2098	MW-11 WATER		CA STLC LEVEL	
	NI	ND	20	0.10 mg/L
2099	MW-4 WATER		CA STLC LEVEL	
	NI	ND	20	0.10 mg/L
2100	MW-6 WATER		CA STLC LEVEL	
	NI	0.18 mg/L	20	0.10 mg/L
2101	MW-5 WATER		CA STLC LEVEL	
	NI	ND	20	0.10 mg/L
2102	MW-8 WATER		CA STLC LEVEL	
	NI	ND	20	0.10 mg/L
2103	MW-12 WATER		CA STLC LEVEL	
	NI	0.12 mg/L	20	0.10 mg/L
2104	MB WATER			
	NI	ND		0.10 mg/L

THIS REPORT HAS BEEN REVIEWED AND APPROVED FOR RELEASE.

DLF

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

Laboratory Job No.: 920276

LABNO	SMPLNO-ID	RESULTS	DET. LIM.
2105	MBS WATER NI	0.52 mg/L	0.10 mg/L
2106	MX WATER NI	ND	0.10 mg/L
2107	MS WATER NI	0.54 mg/L	0.10 mg/L
2108	MSD WATER NI	0.53 mg/L	0.10 mg/L

NOTE: MBS, MS AND MSD WERE SPIKED AT 0.50 mg/L.

ND=Not Detected

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

Laboratory Job No.: 920276
Date Collected: 01/27/92
Date Received: 01/29/92
Date Analyzed: 02/06/92
Date Reported: 02/12/92

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
2095	RB-02	AS	ND	5.0	0.005
		PB	ND	5.0	0.001
		CR	ND	560	0.005
2097	MW-26	AS	ND	5.0	0.005
		PB	ND	5.0	0.001
		CR	ND	560	0.005
2098	MW-11	AS	ND	5.0	0.005
		PB	ND	5.0	0.001
		CR	0.028	560	0.005
2099	MW-4	AS	ND	5.0	0.005
		PB	ND	5.0	0.001
		CR	ND	560	0.005
2100	MW-6	AS	ND	5.0	0.005
		PB	ND	5.0	0.001
		CR	ND	560	0.005
2101	MW-5	AS	ND	5.0	0.005
		PB	ND	5.0	0.001
		CR	ND	560	0.005

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

Laboratory Job No.: 920276

LABNO	SMPLNO	COMPOUND	FOUND mg/L	CA STLC LEV	DET.LIM. mg/L
2102	MW-8	AS	ND	5.0	0.005
		PB	ND	5.0	0.001
		CR	0.006	560	0.005
2103	MW-12	AS	ND	5.0	0.005
		PB	ND	5.0	0.001
		CR	ND	560	0.005
2104	MB	AS	ND		0.005
		PB	ND		0.001
		CR	ND		0.005
				SPIKE LEVELS	
2105	MBS	AS	0.023	0.025 mg/L	0.005
		PB	0.011	0.010 mg/L	0.001
		CR	0.020	0.025 mg/L	0.005
2106	MX	AS	ND		0.005
		PB	ND		0.001
		CR	ND		0.005
				SPIKE LEVELS	
2107	MS	AS	0.025	0.025 mg/L	0.005
		PB	0.010	0.010 mg/L	0.001
		CR	0.027	0.025 mg/L	0.005
2108	MSD	AS	0.025	0.025 mg/L	0.005
		PB	0.009	0.010 mg/L	0.001
		CR	0.033	0.025 mg/L	0.005

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

Date Collected: 01/27/92
Date Extracted: 02/06/92
Date Analyzed: 02/06/92

Laboratory Job No.: 920276
Date Received: 01/29/92
Date Reported: 02/12/92

ASSAY:
PURGEABLES IN WATER (EPA 601)

COMPOUNDS:	LAB#	2094	DET.	2095	DET.	2096	DET.
	SMP#	TB-02	LIM.	RB-02	LIM.	FB-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	4.8	0.50	6.1	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	ND	0.50	ND	0.50
CIS-1,2-DICHLOROETHENE		ND	0.50	ND	0.50	ND	0.50
TRANS-1,2-DICHLOROETHENE		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		2.0	0.50	2.4	0.50	3.0	0.50
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

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

Laboratory Job No.: 920276

COMPOUNDS:	LAB#	2097	DET.	2098	DET.	2099	DET.
	SMP#	MW-26	LIM.	MW-11	LIM.	MW-4	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		2.0	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		4.8	0.50	11	0.50	12	0.50
1,2-DICHLOROETHANE		ND	0.50	ND	0.50	170 *	12.50
1,1-DICHLOROETHENE		5.1	0.50	110 *	1.00	16	0.50
CIS-1,2-DICHLOROETHENE		ND	0.50	0.9	0.50	0.8	0.50
TRANS-1,2-DICHLOROETHENE		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		1.7	0.50	1.3	0.50	ND	0.50
1,1,2,2-TETRACHLOROETHANE		ND	0.50	ND	0.50	ND	0.50
TETRACHLOROETHENE		ND	0.50	0.7	0.50	ND	0.50
1,1,1-TRICHLOROETHANE		1.1	0.50	1.5	0.50	0.6	0.50
1,1,2-TRICHLOROETHANE		ND	0.50	ND	0.50	ND	0.50
TRICHLOROETHENE		ND	0.50	3.0	0.50	1.4	0.50
TRICHLOROFLUOROMETHANE		ND	1.0	ND	1.0	ND	1.0
VINYL CHLORIDE		ND	1.0	ND	1.0	ND	1.0

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FAX (707) 763-4065

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

Laboratory Job No.: 920276

COMPOUNDS:	LAB#	2100	DET.	2101	DET.	2102	DET.
	SMP#	MW-6	LIM.	MW-5	LIM.	MW-8	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		2.1	0.50	1.2	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		ND	0.50	ND	0.50	1.8	0.50
CIS-1,2-DICHLOROETHENE		ND	0.50	ND	0.50	ND	0.50
TRANS-1,2-DICHLOROETHENE		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	0.50	ND	0.50	ND	0.50
1,1,2,2-TETRACHLOROETHANE		ND	0.50	ND	0.50	ND	0.50
TETRACHLOROETHENE		ND	0.50	ND	0.50	8.8	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

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

Laboratory Job No.: 920276

COMPOUNDS:	LAB#	2103	DET.	2104	DET.	2105	DET.
	SMP#	MW-12	LIM.	MB	LIM.	MBS	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	9.3	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	11	0.50
1,2-DICHLOROBENZENE		ND	0.50	ND	0.50	9.7	0.50
1,1-DICHLOROETHANE		23	0.50	ND	0.50	10	0.50
1,2-DICHLOROETHANE		ND	0.50	ND	0.50	ND	0.50
1,1-DICHLOROETHENE		120	* 1.00	ND	0.50	ND	0.50
CIS-1,2-DICHLOROETHENE		0.6	0.50	ND	0.50	ND	0.50
TRANS-1,2-DICHLOROETHENE		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	0.50	1.5	0.50	0.8	0.50
1,1,2,2-TETRACHLOROETHANE		ND	0.50	ND	0.50	ND	0.50
TETRACHLOROETHENE		0.6	0.50	ND	0.50	ND	0.50
1,1,1-TRICHLOROETHANE		0.8	0.50	ND	0.50	ND	0.50
1,1,2-TRICHLOROETHANE		ND	0.50	ND	0.50	ND	0.50
TRICHLOROETHENE		19	0.50	ND	0.50	11	0.50
TRICHLOROFLUOROMETHANE		ND	1.0	ND	1.0	ND	1.0
VINYL CHLORIDE		ND	1.0	ND	1.0	ND	1.0

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

Laboratory Job No.: 920276

COMPOUNDS:	LAB#	2106	DET.	2107	DET.	2108	DET.
	SMP#	MX	LIM.	MS	LIM.	MSD	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	9.6	0.50	9.8	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	11	0.50	11	0.50
1,2-DICHLOROBENZENE		ND	0.50	9.4	0.50	9.8	0.50
1,1-DICHLOROETHANE		ND	0.50	11	0.50	11	0.50
1,2-DICHLOROETHANE		ND	0.50	ND	0.50	ND	0.50
1,1-DICHLOROETHENE		ND	0.50	ND	0.50	ND	0.50
CIS-1,2-DICHLOROETHENE		ND	0.50	ND	0.50	ND	0.50
TRANS-1,2-DICHLOROETHENE		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		1.0	0.50	0.5	0.50	0.7	0.50
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	11	0.50	11	0.50
TRICHLOROFLUOROMETHANE		ND	1.0	ND	1.0	ND	1.0
VINYL CHLORIDE		ND	1.0	ND	1.0	ND	1.0

NOTES: PRESENCE OF METHYLENE CHLORIDE IN BLANKS AND SAMPLES APPEAR TO BE DUE TO LABORATORY CONTAMINATION. TETRACHLOROETHENE IN SAMPLES MAY ALSO BE DUE TO LABORATORY CONTAMINATION.

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

Laboratory Job No.: 920276

NOTES: MBS, MS AND MSD WERE SPIKED AT 10 ug/L.
SPIKING COMPOUNDS ARE: CHLOROBENZENE, 1,2- and 1,3-DICHLOROBENZENE, 1,1-DICHLOROETHANE AND TRICHLOROETHENE.

* THESE DETECTION LIMITS ARE HIGHER THAN USUAL DUE TO THE DILUTION NEEDED TO BRING ALL PEAKS WITHIN THE LINEAR RANGE OF THE DETECTOR.

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

Date Collected: 01/27/92
Date Extracted: 02/06/92
Date Analyzed: 02/06/92

Laboratory Job No.: 920276
Date Received: 01/29/92
Date Reported: 02/12/92

ASSAY:
PURGEABLE AROMATICS IN WATER (EPA 602)

COMPOUNDS:	LAB#	2095	DET.	2096	DET.	2097	DET.
	SMP#	RB-02	LIM.	FB-02	LIM.	MW-26	LIM.
	dil.	1		1		1	
PURGEABLES		ug/L		ug/L		ug/L	
BENZENE		ND	0.50	ND	0.50	ND	0.50
CHLOROBENZENE		ND	0.50	ND	0.50	ND	0.50
1,2-DICHLOROBENZENE		ND	0.50	ND	0.50	ND	0.50
1,3-DICHLOROBENZENE		ND	0.50	ND	0.50	ND	0.50
1,4-DICHLOROBENZENE		ND	0.50	ND	0.50	ND	0.50
ETHYL BENZENE		ND	0.50	ND	0.50	ND	0.50
TOLUENE		ND	0.50	ND	0.50	1.4	0.50
XYLENE		ND	0.50	ND	0.50	ND	0.50

COMPOUNDS:	LAB#	2098	DET.	2099	DET.	2100	DET.	2101	DET.
	SMP#	MW-11	LIM.	MW-4	LIM.	MW-6	LIM.	MW-5	LIM.
	dil.	1		1		1		1	
PURGEABLES		ug/L		ug/L		ug/L		ug/L	
BENZENE		ND	0.50	940 *	12.50	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	18	0.50	ND	0.50	ND	0.50
TOLUENE		ND	0.50	12	0.50	ND	0.50	ND	0.50
XYLENE		ND	0.50	3.4	0.50	ND	0.50	ND	0.50

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

Laboratory Job No.: 920276

COMPOUNDS:	LAB#	2102	DET.	2103	DET.	2104	DET.	2105	DET.
	SMP#	MW-8	LIM.	MW-12	LIM.	MB	LIM.	MBS	LIM.
	dil.	1		1		1		1	
PURGEABLES		ug/L		ug/L		ug/L		ug/L	
BENZENE		ND	0.50	0.6	0.50	ND	0.50	9.6	0.50
CHLOROBENZENE		ND	0.50	ND	0.50	ND	0.50	9.4	0.50
1,2-DICHLOROBENZENE		ND	0.50	ND	0.50	ND	0.50	9.4	0.50
1,3-DICHLOROBENZENE		ND	0.50	ND	0.50	ND	0.50	9.5	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#	2106	DET.	2107	DET.	2108	DET.
	SMP#	MX	LIM.	MS	LIM.	MSD	LIM.
	dil.	1		1		1	
PURGEABLES		ug/L		ug/L		ug/L	
BENZENE		ND	0.50	9.2	0.50	9.9	0.50
CHLOROBENZENE		ND	0.50	8.8	0.50	9.5	0.50
1,2-DICHLOROBENZENE		ND	0.50	8.8	0.50	9.4	0.50
1,3-DICHLOROBENZENE		ND	0.50	9.0	0.50	9.4	0.50
1,4-DICHLOROBENZENE		ND	0.50	ND	0.50	ND	0.50
ETHYL BENZENE		ND	0.50	ND	0.50	ND	0.50
TOLUENE		5.6	0.50	1.1	0.50	7.8	0.50
XYLENE		ND	0.50	ND	0.50	ND	0.50

* THE QUANTITY REPORTED IS FROM A RE-ANALYSIS OF THE SAMPLE AT A DILUTION.

NOTE: MBS, MS AND MSD WERE SPIKED AT 10 ug/L.
SPIKING COMPOUNDS ARE: BENZENE, CHLOROBENZENE, 1,2- and 1,3-DICHLORO-BENZENE.

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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**.

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 - sample) / MS spike level X 100
RPD = | MS - MSD | / ((MS + MSD) / 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.

92-0297

Att. Debby Fisher

Gary Dickenson

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

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 Gary Dickenson
(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 fai to pick up samples.

PROJ. NO. 00173-042 -044
PROJECT NAME UPRR Sac.
SAMPLERS (Signature) Gary Dickenson

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	601	602	As(7060), Pb(7421), Ni(6010)	Cr(7421), Ni(6010)			REMARKS	LAB USE ONL LAB NO
TB-03	1/29/92			V	TB-03	2	X							
MW-1		1520		V	MW-1	5	X	X	X	X				
MW-40		1135		V	MW-40	5	X	X	X	X				
MW-55		1145		V	MW-55	5	X	X	X	X				
FB-03		0930		V	FB-03	4	X	X						
RB-03		0925		V	RB-03	5	X	X	X	X				
MW-32		1030		V	MW-32	5	X	X	X	X				
MW-3		1415		V	MW-3	5	X	X	X	X				
MW-29	1/30/92	1520		V	MW-29	5	X	X	X	X				
MW-28		1530		V	MW-28	5	X	X	X	X				
MW-16		1415		V	MW-16	5	X	X	X	X				
MW-15		1400		V	MW-15	5	X	X	X	X				
MW-21		1245		V	MW-21	5	X	X	X	X				
MW-22		1230		V	MW-22	5	X	X	X	X				
MW-20		1045		V	MW-20	5	X	X	X	X				
MW-17		~~0900~~ 0940 CAO		V	MW-17	5	X	X	X	X				
MW-19		~~0920~~ 1030 CAO		V	MW-19	5	* X	X	X	X			* one VOA broken	
MW-18		0920		V	MW-18	5	X	X	X	X				
			*		The rest of the VOA's are in a separate ice che									
					8260 waters - Acid Ext									

Relinquished by: (Signature)	DATE	TIME	Received by: (Signature)
Gary Dickenson	1/30/92 CAO	1650	1/31/92
Relinquished by: (Signature)	DATE	TIME	Received by: (Signature)
Relinquished by: (Signature)	DATE	TIME	Received by: (Signature)

General Remarks:
Send results to Sac. office.
Attn: Mark Eisen
Please return ice chest + blue ice.
Could you send extra blue ice?

CLIENT COPY

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

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

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

Laboratory Job No.: 920297
Date Collected: 01/29/92
Date Analyzed: 02/06/92
Date Received: 01/31/92
Date Reported: 02/12/92

ASSAY:METAL SCAN BY ICP(EPA 6010)

LABNO	SMPLNO-ID		RESULTS		DET. LIM.
2274	MW-1 WATER			CA STLC LEVEL	
		NI	ND	20	0.10 mg/L
2275	MW-40 WATER			CA STLC LEVEL	
		NI	0.10 mg/L	20	0.10 mg/L
2276	MW-55 WATER			CA STLC LEVEL	
		NI	ND	20	0.10 mg/L
2278	RB-03 WATER			CA STLC LEVEL	
		NI	ND	20	0.10 mg/L
2279	MW-32 WATER			CA STLC LEVEL	
		NI	ND	20	0.10 mg/L
2280	MW-3 WATER			CA STLC LEVEL	
		NI	ND	20	0.10 mg/L
2281	MW-29 WATER			CA STLC LEVEL	
		NI	ND	20	0.10 mg/L
2282	MW-28 WATER			CA STLC LEVEL	
		NI	ND	20	0.10 mg/L
2283	MW-16 WATER			CA STLC LEVEL	
		NI	ND	20	0.10 mg/L

THIS REPORT HAS BEEN REVIEWED AND APPROVED FOR RELEASE. DLF

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

Laboratory Job No.: 920297

LABNO	SMPLNO-ID	RESULTS		DET. LIM.
2284	MW-15 WATER		CA STLC LEVEL	
	NI	ND	20	0.10 mg/L
2285	MW-21 WATER		CA STLC LEVEL	
	NI	0.37 mg/L	20	0.10 mg/L
2286	MW-22 WATER		CA STLC LEVEL	
	NI	ND	20	0.10 mg/L
2287	MW-20 WATER		CA STLC LEVEL	
	NI	ND	20	0.10 mg/L
2288	MW-17 WATER		CA STLC LEVEL	
	NI	0.11 mg/L	20	0.10 mg/L
2289	MW-19 WATER		CA STLC LEVEL	
	NI	0.17 mg/L	20	0.10 mg/L
2290	MW-18 WATER		CA STLC LEVEL	
	NI	ND	20	0.10 mg/L
2303	MB WATER			
	NI	ND		0.10 mg/L
2304	MBS WATER			
	NI	0.52 mg/L		0.10 mg/L
2305	MX WATER			
	NI	ND		0.10 mg/L
2306	MS WATER			
	NI	0.54 mg/L		0.10 mg/L
2307	MSD WATER			
	NI	0.53 mg/L		0.10 mg/L

ND = NOT DETECTED

NOTE: MBS, MS AND MSD WERE SPIKED AT 0.50 mg/L.

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

Laboratory Job No.: 920297
Date Collected: 01/29/92
Date Received: 01/31/92
Date Analyzed: 02/07/92
Date Reported: 02/12/92

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

MATRIX: WATER

LABNO	SMPLNO	COMPOUND	FOUND mg/L	CA STLC LEV	DET.LIM. mg/L
2274	MW-1	AS	ND	5.0	0.005
		CR	0.008	560	0.005
		PB	ND	5.0	0.001
2275	MW-40	AS	ND	5.0	0.005
		CR	ND	560	0.005
		PB	ND	5.0	0.001
2276	MW-55	AS	ND	5.0	0.005
		CR	ND	560	0.005
		PB	ND	5.0	0.001
2278	RB-03	AS	ND	5.0	0.005
		CR	ND	560	0.005
		PB	0.001	5.0	0.001
2279	MW-32	AS	ND	5.0	0.005
		CR	ND	560	0.005
		PB	ND	5.0	0.001
2280	MW-3	AS	ND	5.0	0.005
		CR	ND	560	0.005
		PB	ND	5.0	0.001

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

Laboratory Job No.: 920297

LABNO	SMPLNO	COMPOUND	FOUND mg/L	CA STLC LEV	DET.LIM. mg/L
2281	MW-29	AS	ND	5.0	0.005
		CR	ND	560	0.005
		PB	ND	5.0	0.001
2282	MW-28	AS	ND	5.0	0.005
		CR	ND	560	0.005
		PB	ND	5.0	0.001
2283	MW-16	AS	ND	5.0	0.005
		CR	0.005	560	0.005
		PB	ND	5.0	0.001
2284	MW-15	AS	ND	5.0	0.005
		CR	0.006	560	0.005
		PB	ND	5.0	0.001
2285	MW-21	AS	ND	5.0	0.005
		CR	0.005	560	0.005
		PB	ND	5.0	0.001
2286	MW-22	AS	0.006	5.0	0.005
		CR	0.005	560	0.005
		PB	0.001	5.0	0.001
2287	MW-20	AS	ND	5.0	0.005
		CR	ND	560	0.005
		PB	ND	5.0	0.001
2288	MW-17	AS	ND	5.0	0.005
		CR	0.006	560	0.005
		PB	ND	5.0	0.001
2289	MW-19	AS	ND	5.0	0.005
		CR	0.005	560	0.005
		PB	ND	5.0	0.001
2290	MW-18	AS	ND	5.0	0.005
		CR	ND	560	0.005
		PB	ND	5.0	0.001

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

Laboratory Job No.: 920297

LABNO	SMPLNO	COMPOUND	FOUND mg/L	CA STLC LEV	DET.LIM. mg/L
2303	MB	AS	ND		0.005
		CR	ND		0.005
		PB	ND		0.001
				SPIKE LEVELS	
2304	MBS	AS	0.023	0.025 mg/L	0.005
		CR	0.022	0.025 mg/L	0.005
		PB	0.011	0.010 mg/L	0.001
2305	MX	AS	ND		0.005
		CR	0.006		0.005
		PB	ND		0.001
				SPIKE LEVELS	
2306	MS	AS	0.025	0.025 mg/L	0.005
		CR	0.026	0.025 mg/L	0.005
		PB	0.010	0.010 mg/L	0.001
				SPIKE LEVELS	
2307	MSD	AS	0.025	0.025 mg/L	0.005
		CR	0.027	0.025 mg/L	0.005
		PB	0.009	0.010 mg/L	0.001

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

Date Collected: 01/29/92
Date Extracted: 02/08/92
Date Analyzed: 02/08/92

Laboratory Job No.: 920297
Date Received: 01/31/92
Date Reported: 02/12/92

ASSAY:
PURGEABLES IN WATER (EPA 601)

COMPOUNDS:	LAB#	2273	DET.	2274	DET.	2275	DET.
	SMP#	TB-03	LIM.	MW-1	LIM.	MW-40	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	1.7	0.50	0.6	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	25	0.50
1,2-DICHLOROETHANE		ND	0.50	ND	0.50	ND	0.50
1,1-DICHLOROETHENE		ND	0.50	ND	0.50	190 *	5.00
CIS-1,2-DICHLOROETHENE		ND	0.50	ND	0.50	0.6	0.50
TRANS-1,2-DICHLOROETHENE		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		1.4	0.50	ND	0.50	ND	0.50
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	4.2	0.50
1,1,2-TRICHLOROETHANE		ND	0.50	ND	0.50	ND	0.50
TRICHLOROETHENE		ND	0.50	ND	0.50	40	0.50
TRICHLOROFLUOROMETHANE		ND	1.0	ND	1.0	ND	1.0
VINYL CHLORIDE		ND	1.0	ND	1.0	ND	1.0

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

Laboratory Job No.: 920297

COMPOUNDS:	LAB#	2276	DET.	2277	DET.	2278	DET.
	SMP#	MW-55	LIM.	FB-03	LIM.	RB-03	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	3.3	0.50	2.6	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		20	0.50	ND	0.50	ND	0.50
1,2-DICHLOROETHANE		ND	0.50	ND	0.50	ND	0.50
1,1-DICHLOROETHENE		250 *	2.50	ND	0.50	ND	0.50
CIS-1,2-DICHLOROETHENE		ND	0.50	ND	0.50	ND	0.50
TRANS-1,2-DICHLOROETHENE		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		0.6	0.50	ND	0.50	ND	0.50
TRANS-1,3-DICHLOROPROPENE		ND	0.50	ND	0.50	ND	0.50
METHYLENE CHLORIDE		2.1	0.50	ND	0.50	ND	0.50
1,1,2,2-TETRACHLOROETHANE		ND	0.50	ND	0.50	ND	0.50
TETRACHLOROETHENE		0.6	0.50	ND	0.50	ND	0.50
1,1,1-TRICHLOROETHANE		3.6	0.50	ND	0.50	ND	0.50
1,1,2-TRICHLOROETHANE		ND	0.50	ND	0.50	ND	0.50
TRICHLOROETHENE		35	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

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

Laboratory Job No.: 920297

COMPOUNDS:	LAB#	2279	DET.	2280	DET.	2281	DET.
	SMP#	MW-32	LIM.	MW-3	LIM.	MW-29	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	1.5	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	ND	0.50	1.2	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		8.7	0.50	ND	0.50	2.0	0.50
1,2-DICHLOROETHANE		ND	0.50	ND	0.50	5.2	0.50
1,1-DICHLOROETHENE		240 *	2.50	ND	0.50	26	0.50
CIS-1,2-DICHLOROETHENE		ND	0.50	ND	0.50	ND	0.50
TRANS-1,2-DICHLOROETHENE		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		0.7	0.50	ND	0.50	ND	0.50
1,1,2,2-TETRACHLOROETHANE		ND	0.50	ND	0.50	ND	0.50
TETRACHLOROETHENE		0.9	0.50	ND	0.50	ND	0.50
1,1,1-TRICHLOROETHANE		3.3	0.50	ND	0.50	0.7	0.50
1,1,2-TRICHLOROETHANE		ND	0.50	ND	0.50	ND	0.50
TRICHLOROETHENE		16	0.50	ND	0.50	0.7	0.50
TRICHLOROFLUOROMETHANE		ND	1.0	ND	1.0	ND	1.0
VINYL CHLORIDE		ND	1.0	ND	1.0	ND	1.0

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

Laboratory Job No.: 920297

COMPOUNDS:	LAB#	2282	DET.	2283	DET.	2284	DET.
	SMP#	MW-28	LIM.	MW-16	LIM.	MW-15	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	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		17	0.50	ND	0.50	ND	0.50
1,2-DICHLOROETHANE		ND	0.50	ND	0.50	ND	0.50
1,1-DICHLOROETHENE		24	0.50	9.0	0.50	1.6	0.50
CIS-1,2-DICHLOROETHENE		ND	0.50	ND	0.50	ND	0.50
TRANS-1,2-DICHLOROETHENE		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	0.50	ND	0.50	ND	0.50
1,1,2,2-TETRACHLOROETHANE		ND	0.50	ND	0.50	ND	0.50
TETRACHLOROETHENE		ND	0.50	ND	0.50	10	0.50
1,1,1-TRICHLOROETHANE		ND	0.50	0.6	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

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

Laboratory Job No.: 920297

COMPOUNDS:	LAB#	2285	DET.	2286	DET.	2287	DET.
	SMP#	MW-21	LIM.	MW-22	LIM.	MW-20	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		5.1	0.50	5.8	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		2.7	0.50	ND	0.50	11	0.50
CIS-1,2-DICHLOROETHENE		ND	0.50	ND	0.50	ND	0.50
TRANS-1,2-DICHLOROETHENE		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	0.50	ND	0.50	ND	0.50
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	0.6	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

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

Laboratory Job No.: 920297

COMPOUNDS:	LAB#	2288	DET.	2289	DET.	2290	DET.
	SMP#	MW-17	LIM.	MW-19	LIM.	MW-18	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	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	0.8	0.50
1,2-DICHLOROETHANE		ND	0.50	ND	0.50	ND	0.50
1,1-DICHLOROETHENE		1.2	0.50	2.9	0.50	25	0.50
CIS-1,2-DICHLOROETHENE		ND	0.50	ND	0.50	ND	0.50
TRANS-1,2-DICHLOROETHENE		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	0.50	0.5	0.50	ND	0.50
1,1,2,2-TETRACHLOROETHANE		ND	0.50	ND	0.50	ND	0.50
TETRACHLOROETHENE		ND	0.50	3.6	0.50	ND	0.50
1,1,1-TRICHLOROETHANE		ND	0.50	ND	0.50	1.0	0.50
1,1,2-TRICHLOROETHANE		ND	0.50	ND	0.50	ND	0.50
TRICHLOROETHENE		ND	0.50	ND	0.50	2.8	0.50
TRICHLOROFLUOROMETHANE		ND	1.0	ND	1.0	ND	1.0
VINYL CHLORIDE		ND	1.0	ND	1.0	ND	1.0

D&M LABORATORIES
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FAX (707) 763-4065

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

Laboratory Job No.: 920297

COMPOUNDS:	LAB#	2303	DET.	2304	DET.	2305	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	9.2	0.50	ND	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	10	0.50	ND	0.50
1,2-DICHLOROBENZENE		ND	0.50	8.7	0.50	ND	0.50
1,1-DICHLOROETHANE		ND	0.50	8.7	0.50	ND	0.50
1,2-DICHLOROETHANE		ND	0.50	ND	0.50	ND	0.50
1,1-DICHLOROETHENE		ND	0.50	ND	0.50	ND	0.50
CIS-1,2-DICHLOROETHENE		ND	0.50	ND	0.50	ND	0.50
TRANS-1,2-DICHLOROETHENE		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		0.8	0.50	1.0	0.50	ND	0.50
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	10	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

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

Laboratory Job No.: 920297

COMPOUNDS:	LAB#	2306	DET.	2307	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	10	0.50
CHLOROETHANE		ND	1.0	ND	1.0
CHLOROFORM		ND	0.50	ND	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		12	0.50	12	0.50
1,2-DICHLOROBENZENE		10	0.50	11	0.50
1,1-DICHLOROETHANE		10	0.50	10	0.50
1,2-DICHLOROETHANE		ND	0.50	ND	0.50
1,1-DICHLOROETHENE		ND	0.50	ND	0.50
CIS-1,2-DICHLOROETHENE		ND	0.50	ND	0.50
TRANS-1,2-DICHLOROETHENE		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		0.7	0.50	0.8	0.50
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		11	0.50	12	0.50
TRICHLOROFLUOROMETHANE		ND	1.0	ND	1.0
VINYL CHLORIDE		ND	1.0	ND	1.0

NOTES: PRESENCE OF METHYLENE CHLORIDE IN SAMPLES APPEARS TO BE DUE TO LABORATORY CONTAMINATION. TETRACHLOROETHENE MAY ALSO BE DUE TO LABORATORY CONTAMINATION.

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

Laboratory Job No.: 920297

NOTES: MBS, MS AND MSD WERE SPIKED AT 10 ug/L.
SPIKING COMPOUNDS ARE: CHLOROBENZENE, 1,2- and 1,3-DICHLOROBENZENE, 1,1-DICHLOROETHANE AND TRICHLOROETHENE.

* THESE DETECTION LIMITS ARE HIGHER THAN USUAL DUE TO THE DILUTIONS NEEDED TO BRING ALL PEAKS WITHIN THE LINEAR RANGE OF THE DETECTOR.

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

Date Collected: 01/29/92
Date Extracted: 02/08/92
Date Analyzed: 02/08/92

Laboratory Job No.: 920297
Date Received: 01/31/92
Date Reported: 02/12/92

ASSAY:
PURGEABLE AROMATICS IN WATER (EPA 602)

COMPOUNDS:	LAB#	2274	DET.	2275	DET.	2276	DET.	2277	DET.
	SMP#	MW-1	LIM.	MW-40	LIM.	MW-55	LIM.	FB-03	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#	2278	DET.	2279	DET.	2280	DET.	2281	DET.
	SMP#	RB-03	LIM.	MW-32	LIM.	MW-3	LIM.	MW-29	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

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

Laboratory Job No.: 920297

COMPOUNDS:	LAB#	2282	DET.	2283	DET.	2284	DET.	2285	DET.
	SMP#	MW-28	LIM.	MW-16	LIM.	MW-15	LIM.	MW-21	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#	2286	DET.	2287	DET.	2288	DET.	2289	DET.
	SMP#	MW-22	LIM.	MW-20	LIM.	MW-17	LIM.	MW-19	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

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

Laboratory Job No.: 920297

COMPOUNDS:	LAB#	2290	DET.	2303	DET.	2304	DET.	2305	DET.
	SMP#	MW-18	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	9.1	0.50	ND	0.50
CHLOROBENZENE		ND	0.50	ND	0.50	8.9	0.50	ND	0.50
1,2-DICHLOROBENZENE		ND	0.50	ND	0.50	8.7	0.50	ND	0.50
1,3-DICHLOROBENZENE		ND	0.50	ND	0.50	8.9	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

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

Laboratory Job No.: 920297

COMPOUNDS:	LAB#	2306	DET.	2307	DET.
	SMP#	MS	LIM.	MSD	LIM.
	dil.	1		1	
PURGEABLES		ug/L		ug/L	
BENZENE		10	0.50	10	0.50
CHLOROBENZENE		10	0.50	10	0.50
1,2-DICHLOROBENZENE		10	0.50	9.8	0.50
1,3-DICHLOROBENZENE		10	0.50	9.9	0.50
1,4-DICHLOROBENZENE		ND	0.50	ND	0.50
ETHYL BENZENE		ND	0.50	ND	0.50
TOLUENE		ND	0.50	ND	0.50
XYLENE		ND	0.50	ND	0.50

NOTE: MBS, MS AND MSD WERE SPIKED AT 10 ug/L.
SPIKING COMPOUNDS ARE: BENZENE, CHLOROBENZENE, 1,2- and 1,3-DICHLORO-BENZENE.

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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**.

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 - sample) / MS spike level X 100
RPD = | MS - MSD | / ((MS + MSD) / 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.

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: Debby Fisher

Gary Dickenson

92-0313

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 Gary Dickenson
(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 fai to pick up samples.

PROJ. NO. 00173-072 -044 | PROJECT NAME UPRR Sac.

SAMPLERS (Signature) Gary Dickenson

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CON-TAINERS	6010	602	As(7060), Pb(7421), Cr(7421), Ni(6010)				REMARKS	LAB USE ONL LAB NO
TB-04	1/26/92			✓	TB-04	2	X							
MW-41	1/31/92	1330		✓	MW-41	5	X	X	X	X				
MW-54		1340		✓	MW-54	5	X	X	X	X				
MW-30		1150		✓	MW-30	5	X	X	X	X				
MW-31		1005		✓	MW-31	5	X	X	X	X				
FB-04		~~0850~~ 0910		✓	FB-04	4	X	X						
RB-04		0850		✓	RB-04	5	X	X	X	X				

92 JAN 32 PM 1:11

Relinquished by: (Signature)	DATE	TIME	Received by: (Signature)
Gary Dickenson	1/31/92	1545	S. Beard
Relinquished by: (Signature)	DATE	TIME	Received by: (Signature)
Relinquished by: (Signature)	DATE	TIME	Received by: (Signature)

General Remarks:
Send Results to Sac. office.
Attn: Mark Elson
Please return ice chest + Blue ice.

CLIENT COPY

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

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

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

Laboratory Job No.: 920313
Date Collected: 01/31/92
Date Analyzed: 02/06/92
Date Received: 02/02/92
Date Reported: 02/13/92

ASSAY:METAL SCAN BY ICP(EPA 6010)

LABNO	SMPLNO-ID	RESULTS		DET. LIM.
2422	MW-41 WATER		CA STLC LEVEL	
	NI	ND	20	0.10 mg/L
2423	MW-54 WATER		CA STLC LEVEL	
	NI	ND	20	0.10 mg/L
2424	MW-30 WATER		CA STLC LEVEL	
	NI	ND	20	0.10 mg/L
2425	MW-31 WATER		CA STLC LEVEL	
	NI	ND	20	0.10 mg/L
2427	RB-04 WATER		CA STLC LEVEL	
	NI	ND	20	0.10 mg/L
2428	MB WATER			
	NI	ND		0.10 mg/L
2429	MBS WATER			
	NI	0.54 mg/L		0.10 mg/L
2430	MX WATER			
	NI	ND		0.10 mg/L
2431	MS WATER			
	NI	0.54 mg/L		0.10 mg/L

THIS REPORT HAS BEEN REVIEWED AND APPROVED FOR RELEASE. DLF

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

Laboratory Job No.: 920313

LABNO	SMPLNO-ID	RESULTS	DET. LIM.
2432	MSD WATER		
	NI	0.51 mg/L	0.10 mg/L

NOTE: MBS, MS AND MSD WERE SPIKED AT 0.50 mg/L.
ND=Not Detected

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

Laboratory Job No.: 920313
Date Collected: 01/31/92
Date Received: 02/02/92
Date Analyzed: 02/10/92
Date Reported: 02/13/92

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

MATRIX: WATER

LABNO	SMPLNO	COMPOUND	FOUND mg/L	CA STLC LEV	DET.LIM. mg/L
2422	MW-41	AS	0.007	5.0	0.005
		CR	0.007	560	0.005
		PB	ND	5.0	0.001
2423	MW-54	AS	0.009	5.0	0.005
		CR	0.007	560	0.005
		PB	ND	5.0	0.001
2424	MW-30	AS	ND	5.0	0.005
		CR	0.009	560	0.005
		PB	ND	5.0	0.001
2425	MW-31	AS	ND	5.0	0.005
		CR	0.013	560	0.005
		PB	0.001	5.0	0.001
2427	RB-04	AS	ND	5.0	0.005
		CR	ND	560	0.005
		PB	ND	5.0	0.001

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

Laboratory Job No.: 920313

LABNO	SMPLNO	COMPOUND	FOUND mg/L	CA STLC LEV	DET.LIM. mg/L
2428	MB	AS	ND		0.005
		CR	ND		0.005
		PB	ND		0.001
				SPIKE LEVELS	
2429	MBS	AS	0.024	0.025 mg/L	0.005
		CR	0.021	0.025 mg/L	0.005
		PB	0.010	0.010 mg/L	0.001
2430	MX	AS	0.006		0.005
		CR	ND		0.005
		PB	ND		0.001
				SPIKE LEVELS	
2431	MS	AS	0.028	0.025 mg/L	0.005
		CR	0.025	0.025 mg/L	0.005
		PB	0.010	0.010 mg/L	0.001
				SPIKE LEVELS	
2432	MSD	AS	0.029	0.025 mg/L	0.005
		CR	0.026	0.025 mg/L	0.005
		PB	0.010	0.010 mg/L	0.001

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FAX (707) 763-4065

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

Date Collected: 01/31/92
Date Extracted: 02/10/92
Date Analyzed: 02/10/92

Laboratory Job No.: 920313
Date Received: 02/02/92
Date Reported: 02/13/92

ASSAY:
PURGEABLES IN WATER (EPA 601)

COMPOUNDS:	LAB#	2421	DET.	2422	DET.	2423	DET.
	SMP#	TB-04	LIM.	MW-41	LIM.	MW-54	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	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		ND	0.50	ND	0.50	ND	0.50
CIS-1,2-DICHLOROETHENE		ND	0.50	ND	0.50	ND	0.50
TRANS-1,2-DICHLOROETHENE		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		1.7	0.50	1.0	0.50	1.0	0.50
1,1,2,2-TETRACHLOROETHANE		ND	0.50	ND	0.50	ND	0.50
TETRACHLOROETHENE		0.5	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

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

Laboratory Job No.: 920313

COMPOUNDS:	LAB#	2424	DET.	2425	DET.	2426	DET.
	SMP#	MW-30	LIM.	MW-31	LIM.	FB-04	LIM.
	dil.	1		1		1	
PURGEABLES		ug/L		ug/L		ug/L	
BROMODICHLOROMETHANE		ND	0.50	ND	0.50	0.5	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	0.6	0.50	7.1	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		7.0	0.50	16	0.50	ND	0.50
1,2-DICHLOROETHANE		ND	0.50	ND	0.50	ND	0.50
1,1-DICHLOROETHENE		140 *	2.50	310 *	2.50	ND	0.50
CIS-1,2-DICHLOROETHENE		ND	0.50	ND	0.50	ND	0.50
TRANS-1,2-DICHLOROETHENE		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		0.9	0.50	0.7	0.50	ND	0.50
1,1,2,2-TETRACHLOROETHANE		ND	0.50	ND	0.50	ND	0.50
TETRACHLOROETHENE		0.8	0.50	1.1	0.50	ND	0.50
1,1,1-TRICHLOROETHANE		1.8	0.50	4.3	0.50	ND	0.50
1,1,2-TRICHLOROETHANE		ND	0.50	0.6	0.50	ND	0.50
TRICHLOROETHENE		8.0	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

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

Laboratory Job No.: 920313

COMPOUNDS:	LAB#	2427	DET.	2428	DET.	2429	DET.
	SMP#	RB-04	LIM.	MB	LIM.	MBS	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	10	0.50
CHLOROETHANE		ND	1.0	ND	1.0	ND	1.0
CHLOROFORM		4.4	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	12	0.50
1,2-DICHLOROBENZENE		ND	0.50	ND	0.50	11	0.50
1,1-DICHLOROETHANE		ND	0.50	ND	0.50	10	0.50
1,2-DICHLOROETHANE		ND	0.50	ND	0.50	ND	0.50
1,1-DICHLOROETHENE		ND	0.50	ND	0.50	ND	0.50
CIS-1,2-DICHLOROETHENE		ND	0.50	ND	0.50	ND	0.50
TRANS-1,2-DICHLOROETHENE		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		0.8	0.50	1.4	0.50	0.9	0.50
1,1,2,2-TETRACHLOROETHANE		ND	0.50	ND	0.50	ND	0.50
TETRACHLOROETHENE		ND	0.50	0.6	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	11	0.50
TRICHLOROFLUOROMETHANE		ND	1.0	ND	1.0	ND	1.0
VINYL CHLORIDE		ND	1.0	ND	1.0	ND	1.0

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

Laboratory Job No.: 920313

COMPOUNDS:	LAB#	2430	DET.	2431	DET.	2432	DET.
	SMP#	MX	LIM.	MS	LIM.	MSD	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	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	12	0.50	11	0.50
1,2-DICHLOROBENZENE		ND	0.50	10	0.50	10	0.50
1,1-DICHLOROETHANE		ND	0.50	11	0.50	9.3	0.50
1,2-DICHLOROETHANE		ND	0.50	ND	0.50	ND	0.50
1,1-DICHLOROETHENE		ND	0.50	ND	0.50	ND	0.50
CIS-1,2-DICHLOROETHENE		ND	0.50	ND	0.50	ND	0.50
TRANS-1,2-DICHLOROETHENE		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		1.0	0.50	1.1	0.50	0.9	0.50
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	11	0.50
TRICHLOROFLUOROMETHANE		ND	1.0	ND	1.0	ND	1.0
VINYL CHLORIDE		ND	1.0	ND	1.0	ND	1.0

NOTES: PRESENCE OF METHYLENE CHLORIDE AND TETRACHLOROETHANE IN SAMPLES APPEARS TO BE DUE TO LABORATORY CONTAMINATION.

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

Laboratory Job No.: 920313

NOTES: MBS, MS AND MSD WERE SPIKED AT 10 ug/L.
SPIKING COMPOUNDS ARE: CHLOROBENZENE, 1,2- and 1,3-DICHLOROBENZENE, 1,1-DICHLOROETHANE AND TRICHLOROETHENE.

* THESE DETECTION LIMITS ARE HIGHER THAN USUAL DUE TO THE DILUTION NEEDEI TO BRING ALL PEAKS WITHIN THE LINEAR RANGE OF THE DETECTOR.

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

Date Collected: 01/31/92
Date Extracted: 02/10/92
Date Analyzed: 02/10/92

Laboratory Job No.: 920313
Date Received: 02/02/92
Date Reported: 02/13/92

ASSAY:
PURGEABLE AROMATICS IN WATER (EPA 602)

COMPOUNDS:	LAB#	2422	DET.	2423	DET.	2424	DET.	2425	DET.
	SMP#	MW-41	LIM.	MW-54	LIM.	MW-30	LIM.	MW-31	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#	2426	DET.	2427	DET.	2428	DET.	2429	DET.
	SMP#	FB-04	LIM.	RB-04	LIM.	MB	LIM.	MBS	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	9.5	0.50
CHLOROBENZENE		ND	0.50	ND	0.50	ND	0.50	10	0.50
1,2-DICHLOROBENZENE		ND	0.50	ND	0.50	ND	0.50	11	0.50
1,3-DICHLOROBENZENE		ND	0.50	ND	0.50	ND	0.50	11	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

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

Laboratory Job No.: 920313

COMPOUNDS:	LAB#	2430	DET.	2431	DET.	2432	DET.
	SMP#	MX	LIM.	MS	LIM.	MSD	LIM.
	dil.	1		1		1	
PURGEABLES		ug/L		ug/L		ug/L	
BENZENE		ND	0.50	10	0.50	9.9	0.50
CHLOROBENZENE		ND	0.50	10	0.50	9.8	0.50
1,2-DICHLOROBENZENE		ND	0.50	10	0.50	9.9	0.50
1,3-DICHLOROBENZENE		ND	0.50	10	0.50	10	0.50
1,4-DICHLOROBENZENE		ND	0.50	ND	0.50	ND	0.50
ETHYL BENZENE		ND	0.50	ND	0.50	ND	0.50
TOLUENE		ND	0.50	ND	0.50	ND	0.50
XYLENE		ND	0.50	ND	0.50	ND	0.50

NOTE: MBS, MS AND MSD WERE SPIKED AT 10 ug/L.
SPIKING COMPOUNDS ARE: BENZENE, CHLOROBENZENE, 1,2- and 1,3-DICHLORO-BENZENE.

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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**.

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 - sample) / MS spike level X 100
RPD = | MS - MSD | / ((MS + MSD) / 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.

Attn: Debby Fisher

Gary Dickenson

92-0392

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

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 Gary Dickenson
(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 fai to pick up samples.

PROJ. NO. 00173-072-044 | PROJECT NAME UPRR Sac.

SAMPLERS (Signature) Gary Dickenson

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	601/8010	8020	As(7060), Pb(7421), Cr(7191), Ni(6010)				REMARKS / LAB USE ONLY LAB NO
TB-05	0800	2/7/92		b	TB-05	2	X						92FEB10 AM 9:43
MW-7	1530			/	MW-7	5	X	X	X	X			
MW-13	1350			/	MW-13	5	X	X	X	X			
MW-14	1305			/	MW-14	5	X	X	X	X			
MW-42	1200			/	MW-42	5	X	X	X	X			
MW-53	1210			/	MW-53	5	X	X	X	X			
FB-05	0830			/	FB-05	4	X	X					
RB-05	0840			/	RB-05	5	X	X	X	X			
MW-43	1115			/	MW-43	5	X	X	X	X			
MW-2	1015			/	MW-2	5	X	X	X	X			

Relinquished by: (Signature)	DATE	TIME	Received by: (Signature)
Gary Dickenson	2/7/92	1640	2/10/92 10:50
Relinquished by: (Signature)	DATE	TIME	Received by: (Signature)
Relinquished by: (Signature)	DATE	TIME	Received by: (Signature)

General Remarks:
Send results to Sac. Office
Attn: Matt Elson
Please return ice chest + blue ice.

CLIENT COPY

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

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

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

Laboratory Job No.: 920392
Date Collected: 02/07/92
Date Analyzed: 02/11/92
Date Received: 02/10/92
Date Reported: 02/25/92

ASSAY:METAL SCAN BY ICP(EPA 6010)

LABNO	SMPLNO-ID	RESULTS		DET. LIM.
3293	MW-7 WATER		CA STLC LEVEL	
	NI	0.18 mg/L	20	0.10 mg/L
3294	MW-13 WATER		CA STLC LEVEL	
	NI	ND	20	0.10 mg/L
3295	MW-14 WATER		CA STLC LEVEL	
	NI	ND	20	0.10 mg/L
3296	MW-42 WATER		CA STLC LEVEL	
	NI	0.16 mg/L	20	0.10 mg/L
3297	MW-53 WATER		CA STLC LEVEL	
	NI	0.16 mg/L	20	0.10 mg/L
3299	RB-05 WATER		CA STLC LEVEL	
	NI	ND	20	0.10 mg/L
3300	MW-43 WATER		CA STLC LEVEL	
	NI	0.18 mg/L	20	0.10 mg/L
3301	MW-2 WATER		CA STLC LEVEL	
	NI	ND	20	0.10 mg/L
3302	MB WATER			
	NI	ND		0.10 mg/L

THIS REPORT HAS BEEN REVIEWED AND APPROVED FOR RELEASE.

DLF

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

Laboratory Job No.: 920392

LABNO	SMPLNO-ID	RESULTS	DET. LIM.
3303	MBS WATER		
	NI	0.51 mg/L	0.10 mg/L
3304	MX WATER		
	NI	ND	0.10 mg/L
3305	MS WATER		
	NI	0.51 mg/L	0.10 mg/L
3306	MSD WATER		
	NI	0.53 mg/L	0.10 mg/L

ND=Not Detected

NOTE: MBS, MS AND MSD WERE SPIKED AT 0.50 mg/L.

ENVIRONMENTAL AND INDUSTRIAL HYGIENE SERVICES

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

Laboratory Job No.: 920392
Date Collected: 02/07/92
Date Received: 02/10/92
Date Analyzed: 02/21/92
Date Reported: 02/25/92

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

MATRIX: WATER

LABNO	SMPLNO	COMPOUND	FOUND mg/L	CA STLC LEV	DET.LIM. mg/L
3293	MW-7	AS	ND	5.0	0.005
		CR	0.015	560	0.005
		PB	ND	5.0	0.001
3294	MW-13	AS	0.043	5.0	0.005
		CR	ND	560	0.005
		PB	ND	5.0	0.001
3295	MW-14	AS	ND	5.0	0.005
		CR	0.020	560	0.005
		PB	ND	5.0	0.001
3296	MW-42	AS	ND	5.0	0.005
		CR	ND	560	0.005
		PB	0.003	5.0	0.001
3297	MW-53	AS	ND	5.0	0.005
		CR	0.011	560	0.005
		PB	ND	5.0	0.001
3299	RB-05	AS	ND	5.0	0.005
		CR	ND	560	0.005
		PB	ND	5.0	0.001

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

Laboratory Job No.: 920392

LABNO	SMPLNO	COMPOUND	FOUND mg/L	CA STLC LEV	DET.LIM. mg/L
3300	MW-43	AS	ND	5.0	0.005
		CR	ND	560	0.005
		PB	ND	5.0	0.001
3301	MW-2	AS	ND	5.0	0.005
		CR	ND	560	0.005
		PB	ND	5.0	0.001
3302	MB	AS	ND		0.005
		CR	ND		0.005
		PB	ND		0.001
				SPIKE LEVELS	
3303	MBS	AS	0.022	0.025 mg/L	0.005
		CR	0.024	0.025 mg/L	0.005
		PB	0.009	0.010 mg/L	0.001
3304	MX	AS	ND		0.005
		CR	0.009		0.005
		PB	ND		0.001
				SPIKE LEVELS	
3305	MS	AS	0.024	0.025 mg/L	0.005
		CR	0.033	0.025 mg/L	0.005
		PB	0.010	0.010 mg/L	0.001
3306	MSD	AS	0.024	0.025 mg/L	0.005
		CR	0.033	0.025 mg/L	0.005
		PB	0.009	0.010 mg/L	0.001

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

Date Collected: 02/07/92
Date Extracted: 02/18/92
Date Analyzed: 02/18/92

Laboratory Job No.: 920392
Date Received: 02/10/92
Date Reported: 02/25/92

ASSAY:
PURGEABLES IN WATER (EPA 601)

COMPOUNDS:	LAB#	3292	DET.	3293	DET.	3294	DET.
	SMP#	TB-05	LIM.	MW-7	LIM.	MW-13	LIM.
	dil.	1		1		10	
PURGEABLES		ug/L		ug/L		ug/L	
BROMODICHLOROMETHANE		ND	0.50	ND	0.50	ND	5.0
BROMOFORM		ND	0.50	ND	0.50	ND	5.0
BROMOMETHANE		ND	1.0	ND	1.0	ND	10
CARBON TETRACHLORIDE		ND	0.50	ND	0.50	ND	5.0
CHLOROBENZENE		ND	0.50	ND	0.50	ND	5.0
CHLOROETHANE		ND	1.0	ND	1.0	ND	10
CHLOROFORM		ND	0.50	4.9	0.50	ND	5.0
CHLOROMETHANE		ND	1.0	ND	1.0	ND	10
DIBROMOCHLOROMETHANE		ND	0.50	ND	0.50	ND	5.0
1,4-DICHLOROBENZENE		ND	0.50	ND	0.50	ND	5.0
1,3-DICHLOROBENZENE		ND	0.50	ND	0.50	ND	5.0
1,2-DICHLOROBENZENE		ND	0.50	ND	0.50	ND	5.0
1,1-DICHLOROETHANE		ND	0.50	12	0.50	34	5.0
1,2-DICHLOROETHANE		ND	0.50	ND	0.50	ND	5.0
1,1-DICHLOROETHENE		ND	0.50	32	0.50	31	5.0
CIS-1,2-DICHLOROETHENE		ND	0.50	ND	0.50	6.7	5.0
TRANS-1,2-DICHLOROETHENE		ND	0.50	ND	0.50	ND	5.0
1,2-DICHLOROPROPANE		ND	0.50	ND	0.50	ND	5.0
CIS-1,3-DICHLOROPROPENE		ND	0.50	ND	0.50	ND	5.0
TRANS-1,3-DICHLOROPROPENE		ND	0.50	ND	0.50	ND	5.0
METHYLENE CHLORIDE		1.3	0.50	ND	0.50	ND	5.0
1,1,2,2-TETRACHLOROETHANE		ND	0.50	ND	0.50	ND	5.0
TETRACHLOROETHENE		ND	0.50	ND	0.50	5.6	5.0
1,1,1-TRICHLOROETHANE		ND	0.50	7.2	0.50	ND	5.0
1,1,2-TRICHLOROETHANE		ND	0.50	ND	0.50	ND	5.0
TRICHLOROETHENE		ND	0.50	ND	0.50	ND	5.0
TRICHLOROFLUOROMETHANE		ND	1.0	ND	1.0	ND	10
VINYL CHLORIDE		ND	1.0	ND	1.0	ND	10

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

Laboratory Job No.: 920392

COMPOUNDS:	LAB#	3295	DET.	3296	DET.	3297	DET.
	SMP#	MW-14	LIM.	MW-42	LIM.	MW-53	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		0.5	0.50	2.5	0.50	2.4	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		12	0.50	100 *	5.00	94 *	5.00
1,2-DICHLOROETHANE		ND	0.50	0.7	0.50	0.8	0.50
1,1-DICHLOROETHENE		100 *	2.50	480 *	5.00	400 *	5.00
CIS-1,2-DICHLOROETHENE		ND	0.50	ND	0.50	ND	0.50
TRANS-1,2-DICHLOROETHENE		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	0.50	0.8	0.50	0.8	0.50
1,1,2,2-TETRACHLOROETHANE		ND	0.50	ND	0.50	ND	0.50
TETRACHLOROETHENE		0.6	0.50	1.6	0.50	2.1	0.50
1,1,1-TRICHLOROETHANE		3.1	0.50	8.7	0.50	9.5	0.50
1,1,2-TRICHLOROETHANE		ND	0.50	2.2	0.50	2.4	0.50
TRICHLOROETHENE		9.4	0.50	5.5	0.50	5.5	0.50
TRICHLOROFLUOROMETHANE		ND	1.0	ND	1.0	ND	1.0
VINYL CHLORIDE		ND	1.0	ND	1.0	ND	1.0

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

Laboratory Job No.: 920392

COMPOUNDS:	LAB#	3298	DET.	3299	DET.	3300	DET.
	SMP#	FB-05	LIM.	RB-05	LIM.	MW-43	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		5.0	0.50	4.4	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	220 *	5.00
1,2-DICHLOROETHANE		ND	0.50	ND	0.50	2.3	0.50
1,1-DICHLOROETHENE		ND	0.50	ND	0.50	45	0.50
CIS-1,2-DICHLOROETHENE		ND	0.50	ND	0.50	4.9	0.50
TRANS-1,2-DICHLOROETHENE		ND	0.50	ND	0.50	0.6	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		0.8	0.50	0.8	0.50	1.0	0.50
1,1,2,2-TETRACHLOROETHANE		ND	0.50	ND	0.50	ND	0.50
TETRACHLOROETHENE		ND	0.50	ND	0.50	1.4	0.50
1,1,1-TRICHLOROETHANE		ND	0.50	ND	0.50	0.7	0.50
1,1,2-TRICHLOROETHANE		ND	0.50	ND	0.50	2.2	0.50
TRICHLOROETHENE		ND	0.50	ND	0.50	4.3	0.50
TRICHLOROFLUOROMETHANE		ND	1.0	ND	1.0	ND	1.0
VINYL CHLORIDE		ND	1.0	ND	1.0	7.4	1.0

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

Laboratory Job No.: 920392

COMPOUNDS:	LAB#	3301	DET.	3302	DET.	3303	DET.
	SMP#	MW-2	LIM.	MB	LIM.	MBS	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	8.9	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	9.8	0.50
1,2-DICHLOROBENZENE		ND	0.50	ND	0.50	8.7	0.50
1,1-DICHLOROETHANE		ND	0.50	ND	0.50	8.7	0.50
1,2-DICHLOROETHANE		ND	0.50	ND	0.50	ND	0.50
1,1-DICHLOROETHENE		ND	0.50	ND	0.50	ND	0.50
CIS-1,2-DICHLOROETHENE		ND	0.50	ND	0.50	ND	0.50
TRANS-1,2-DICHLOROETHENE		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	0.50	0.5	0.50	0.5	0.50
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	9.4	0.50
TRICHLOROFLUOROMETHANE		ND	1.0	ND	1.0	ND	1.0
VINYL CHLORIDE		ND	1.0	ND	1.0	ND	1.0

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

Laboratory Job No.: 920392

COMPOUNDS:	LAB#	3304	DET.	3305	DET.	3306	DET.
	SMP#	MX	LIM.	MS	LIM.	MSD	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	9.9	0.50	9.8	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	11	0.50	11	0.50
1,2-DICHLOROBENZENE		ND	0.50	9.5	0.50	9.9	0.50
1,1-DICHLOROETHANE		ND	0.50	9.8	0.50	9.8	0.50
1,2-DICHLOROETHANE		ND	0.50	ND	0.50	ND	0.50
1,1-DICHLOROETHENE		ND	0.50	ND	0.50	ND	0.50
CIS-1,2-DICHLOROETHENE		ND	0.50	ND	0.50	ND	0.50
TRANS-1,2-DICHLOROETHENE		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	0.50	ND	0.50	ND	0.50
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	11	0.50	12	0.50
TRICHLOROFLUOROMETHANE		ND	1.0	ND	1.0	ND	1.0
VINYL CHLORIDE		ND	1.0	ND	1.0	ND	1.0

NOTES: (1) MBS, MS AND MSD WERE SPIKED AT 10 ug/L.
SPIKING COMPOUNDS ARE: CHLOROBENZENE, 1,2- and 1,3-DICHLOROBENZENE
1,1-DICHLOROETHANE AND TRICHLOROETHENE.

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

Laboratory Job No.: 920392

(2) PRESENCE OF METHYLENE CHLORIDE APPEARS TO BE DUE TO LABORATORY CONTAMINATION. THE PRESENCE OF SMALL AMOUNTS OF TETRACHLOROETHENE HAS OCCASIONALLY BEEN SEEN AS A CONTAMINANT IN THE LABORATORY. HOWEVER, THIS COMPOUND DID NOT APPEAR IN THE QUALITY CONTROL BLANKS FOR THIS BATCH OF SAMPLES.

* THESE DETECTION LIMITS ARE HIGHER THAN USUAL DUE TO THE DILUTION NEEDED TO BRING ALL PEAKS WITHIN THE LINEAR RANGE OF THE DETECTOR.

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

Date Collected: 02/07/92
Date Extracted: 02/18/92
Date Analyzed: 02/18/92

Laboratory Job No.: 920392
Date Received: 02/10/92
Date Reported: 02/25/92

ASSAY:
PURGEABLE AROMATICS IN WATER (EPA 602)

COMPOUNDS:	LAB#	3293	DET.	3294	DET.	3295	DET.	3296	DET.
	SMP#	MW-7	LIM.	MW-13	LIM.	MW-14	LIM.	MW-42	LIM.
	dil.	1		10		1		1	
PURGEABLES		ug/L		ug/L		ug/L		ug/L	
BENZENE		ND	0.50	11000	500 *	ND	0.50	1.6	0.50
CHLOROBENZENE		ND	0.50	ND	5.0	ND	0.50	ND	0.50
1,2-DICHLOROBENZENE		ND	0.50	ND	5.0	ND	0.50	ND	0.50
1,3-DICHLOROBENZENE		ND	0.50	ND	5.0	ND	0.50	ND	0.50
1,4-DICHLOROBENZENE		ND	0.50	ND	5.0	ND	0.50	ND	0.50
ETHYL BENZENE		ND	0.50	780	5.0	ND	0.50	ND	0.50
TOLUENE		ND	0.50	630	5.0	ND	0.50	ND	0.50
XYLENE		ND	0.50	1300	5.0	ND	0.50	ND	0.50

COMPOUNDS:	LAB#	3297	DET.	3298	DET.	3299	DET.	3300	DET.
	SMP#	MW-53	LIM.	FB-05	LIM.	RB-05	LIM.	MW-43	LIM.
	dil.	1		1		1		1	
PURGEABLES		ug/L		ug/L		ug/L		ug/L	
BENZENE		1.7	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

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

Laboratory Job No.: 920392

COMPOUNDS:	LAB#	3301	DET.	3302	DET.	3303	DET.	3304	DET.
	SMP#	MW-2	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	8.6	0.50	ND	0.50
CHLOROBENZENE		ND	0.50	ND	0.50	8.7	0.50	ND	0.50
1,2-DICHLOROBENZENE		ND	0.50	ND	0.50	8.8	0.50	ND	0.50
1,3-DICHLOROBENZENE		ND	0.50	ND	0.50	9.0	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#	3305	DET.	3306	DET.
	SMP#	MS	LIM.	MSD	LIM.
	dil.	1		1	
PURGEABLES		ug/L		ug/L	
BENZENE		8.7	0.50	9.5	0.50
CHLOROBENZENE		9.1	0.50	9.0	0.50
1,2-DICHLOROBENZENE		9.1	0.50	8.9	0.50
1,3-DICHLOROBENZENE		9.4	0.50	9.0	0.50
1,4-DICHLOROBENZENE		ND	0.50	ND	0.50
ETHYL BENZENE		ND	0.50	ND	0.50
TOLUENE		ND	0.50	ND	0.50
XYLENE		ND	0.50	ND	0.50

* SAMPLE #3294 (MW-13) WAS DILUTED 1:10 IN ORDER TO BRING ALL PEAKS WITHI
LINEAR RANGE OF THE DETECTOR. QUANTITY OF BENZENE IS FROM A REANALYSIS
OF THE SAMPLE AT A DILUTION OF 1:1000.

NOTE: MBS, MS AND MSD WERE SPIKED AT 10 ug/L.
SPIKING COMPOUNDS ARE: BENZENE, CHLOROBENZENE, 1,2- and 1,3-DICHLORO-
BENZENE.

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**.

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 - sample) / MS spike level X 100
RPD = | MS - MSD | / ((MS + MSD) / 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.

Gary Dickinson

20357

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

Client's Name Dames + Moore Phone (916) 387-8800
Address 880 Folsom Blvd. #200
City, State. Zip Sacramento, CA 95826
Client's or Representative's Signature Gary Dickinson
(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 fa to pick up samples.

PROJ. NO. 00173-072-044
PROJECT NAME UPRR Sac
SAMPLERS (Signature) Gary Dickinson

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CON-TAINERS	601	602					REMARKS / LAB USE ONL LAB NO
MW-50	1/27/92	1110		✓	MW-50	4	X	X					
MW-52	1/24/92	1105		✓	MW-52	4	X	X					

Please Initial:
Samples Shipped on Ice.
Appropriate containers.
Samples received
VOA's with
Comments

1/27/92 14:00

Relinquished by: (Signature)	DATE	TIME	Received by: (Signature)	General Remarks:
	1/29/91	2:00	Brenda LOC 1/30/92	Send results to Sacto. office. Attn: Mark Eitzen
Relinquished by: (Signature)	DATE	TIME	Received by: (Signature)	Please return ice chest and blue ice.
Relinquished by: (Signature)	DATE	TIME	Received by: (Signature)	
			Debra Paulson 1/28/92	

CLIENT COPY

Superior Precision Analytical, Inc.
835 Arnold Drive, Suite 106 • Martinez, California 94553 • (510) 229-0166 / fax (510) 229-0916

CERTIFICATE OF ANALYSIS

LABORATORY NO: 20357
CLIENT: Dames & Moore Laboratories
PROJECT NO: 00173-072044

DATE SAMPLED :01/23/92
DATE RECEIVED:01/28/92
DATE REPORTED:02/04/92

EPA SW-846 METHOD 8010
HALOGENATED VOLATILE ORGANICS

LAB#: 20357-1 (Analyzed:01/29/92)
SAMPLE: MW-50 (Water)

ANALYTE	MDL(ug/L)	RESULT(ug/L)
Chloromethane/Vinyl Chloride	1.0	ND
Bromomethane/Chloroethane	1.0	ND
Trichlorofluoromethane	0.5	ND
1,1-Dichloroethene/Freon 113	0.5	6.5*
Dichloromethane	0.5	ND
trans-1,2-Dichloroethene	0.5	ND
1,1-Dichloroethane	0.5	1.2
cis-1,2-Dichloroethene	0.5	ND
Chloroform	0.5	1.7
1,1,1-Trichloroethane	0.5	0.5
Carbon Tetrachloride	0.5	ND
1,2-Dichloroethane	0.5	7.7
Trichloroethene (TCE)	0.5	ND
1,2-Dichloropropane	0.5	ND
Bromodichloromethane	0.5	ND
cis-1,3-Dichloropropene	0.5	ND
trans-1,3-Dichloropropene	0.5	ND
1,1,2-Trichloroethane	0.5	ND
Tetrachloroethene (PCE)	0.5	ND
Dibromochloromethane	0.5	ND
Chlorobenzene	0.5	ND
Bromoform	0.5	ND
1,1,2,2-Tetrachloroethane	0.5	ND
1,3-Dichlorobenzene	0.5	ND
1,4-Dichlorobenzene	0.5	ND
1,2-Dichlorobenzene	0.5	ND

Surrogate (BFB) Recovery: 71%

MDL: Method Detection Limit
* Confirmation by GC/MS is required to positively identify these compounds.

QA/QC Summary: For Water Matrix (01/29/92)
MS/MSD Average Recovery: 98 %
MS/MSD %RPD: 3%

Senior Analyst

Superior Precision Analytical, Inc.
835 Arnold Drive, Suite 106 • Martinez, California 94553 • (510) 229-0166 / fax (510) 229-0916

CERTIFICATE OF ANALYSIS

LABORATORY NO: 20357
CLIENT: Dames & Moore Laboratories
PROJECT NO: 00173-072044

DATE SAMPLED :01/23/92
DATE RECEIVED:01/28/92
DATE REPORTED:01/31/92

EPA SW-846 METHOD 8010
HALOGENATED VOLATILE ORGANICS

LAB#: 20357-2 (Analyzed:01/29/92)
SAMPLE: MW-52 (Water)

ANALYTE	MDL(ug/L)	RESULT(ug/L)
Chloromethane/Vinyl Chloride	5.0	ND
Bromomethane/Chloroethane	5.0	ND
Trichlorofluoromethane	2.5	ND
1,1-Dichloroethene/Freon 113	2.5	120*
Dichloromethane	2.5	ND
trans-1,2-Dichloroethene	2.5	ND
1,1-Dichloroethane	2.5	5.5
cis-1,2-Dichloroethene	2.5	ND
Chloroform	2.5	2.2
1,1,1-Trichloroethane	2.5	15
Carbon Tetrachloride	2.5	0.9
1,2-Dichloroethane	2.5	2.4
Trichloroethene (TCE)	2.5	11
1,2-Dichloropropane	2.5	ND
Bromodichloromethane	2.5	ND
cis-1,3-Dichloropropene	2.5	ND
trans-1,3-Dichloropropene	2.5	ND
1,1,2-Trichloroethane	2.5	ND
Tetrachloroethene (PCE)	2.5	ND
Dibromochloromethane	2.5	ND
Chlorobenzene	2.5	ND
Bromoform	2.5	ND
1,1,2,2-Tetrachloroethane	2.5	ND
1,3-Dichlorobenzene	2.5	ND
1,4-Dichlorobenzene	2.5	ND
1,2-Dichlorobenzene	2.5	ND

Surrogate (BFB) Recovery: 75%

MDL: Method Detection Limit
* Confirmation by GC/MS is required to positively identify these compounds.

QA/QC Summary: For Water Matrix (01/29/92)
MS/MSD Average Recovery: 98 %
MS/MSD %RPD: 3%

Nancy A. Nelson
Senior Analyst

Superior Precision Analytical, Inc.
335 Arnold Drive, Suite 106 • Martinez, California 94553 • (510) 229-0166 / fax (510) 229-0916

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 20357
CLIENT: Dames & Moore Laboratories
CLIENT JOB NO.: 00173-072044

DATE RECEIVED: 01/28/92
DATE REPORTED: 01/05/92

EPA SW-846 METHOD 8020
AROMATIC VOLATILE ORGANICS

LAB #: 2
SAMPLE: MW-52

Analyte	MDL (ug/L)	(ug/L)
Benzene	0.3	ND
Toluene	0.3	ND
Ethyl Benzene	0.3	ND
Chlorobenzene	0.3	ND
1,4-dichlorobenzene	0.3	ND
1,3-dichlorobenzene	0.3	ND
1,2-dichlorobenzene	0.3	ND
Xylenes	0.3	ND

Method Detection Limit in Water: 0.3 ug/L

QAQC Summary:

Daily Standard run at 20mg/L: RPD = <15%
MS/MSD Average Recovery =100 %: Duplicate RPD = <3

Richard Srna, Ph.D.
Laboratory Manager

Superior Precision Analytical, Inc.
335 Arnold Drive, Suite 106 • Martinez, California 94553 • (510) 229-0166 / fax (510) 229-0916

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 20357
CLIENT: Dames & Moore Laboratories
CLIENT JOB NO.: 00173-072044

DATE RECEIVED: 01/28/92
DATE REPORTED: 01/05/92

EPA SW-846 METHOD 8020
AROMATIC VOLATILE ORGANICS

LAB #: 1
SAMPLE: MW-50

Analyte	MDL (ug/L)	(ug/L)
Benzene	0.3	ND
Toluene	0.3	ND
Ethyl Benzene	0.3	ND
Chlorobenzene	0.3	ND
1,4-dichlorobenzene	0.3	ND
1,3-dichlorobenzene	0.3	ND
1,2-dichlorobenzene	0.3	ND
Xylenes	0.3	ND

Method Detection Limit in Water: 0.3 ug/L

QAQC Summary:

Daily Standard run at 20mg/L: RPD = <15%
MS/MSD Average Recovery =100%: Duplicate RPD = <3

Richard Srna, Ph.D.
Laboratory Manager

Attachment

2

ATTACHMENT 2

DOCUMENTATION FOR

DEDICATED SUBMERSIBLE PUMP SAMPLING SYSTEMS

Laboratory test results indicate that the pumping rates can be effectively varied from rates as low as 0.1 liter per minute to rates in excess of 30 liters per minute at pumping levels between 6 to 30 meters. Special laboratory mixtures of water with specific concentrations of organic and inorganic compounds were created to determine the pump's ability to deliver "representative" samples.

Test results indicate that there were no statistically significant losses in the low and high concentration organic solutions for the compounds Methane, 1,1-DCE, t-1,2-DCE, Benzene, TCE and Toluene. There were no statistically significant changes in the concentrations of inorganic compounds. Based on comparative data with most commonly used mechanical sampling devices, the Grundfos pump equals or exceeds their ability to provide representative samples for organic and inorganic chemical analyses.

Field testing verified the practicality of using the pump for purging and sampling. The pump was also found to be able to pump water with considerable turbidity without experiencing operation difficulties.

The Grundfos small-diameter ground-water sampling pump offers the ability to deliver "representative" samples of water from two-inch monitoring wells, throughout a broad range of depth. It also offers the flexibility of being able to purge water at flow rates in excess of 30 liters per minute during the process of preparing the well for sampling in a reasonable length of time.

Introduction

Grundfos Pumps Corporation (Grundfos) contracted Blasland, Bouck & Lee in July 1989 to conduct a series of performance tests on a new small-diameter pump (MP1 Redi-Flow 2-inch Environmental Submersible Pump) developed by Grundfos for the purpose of purging and sampling ground water from ground-water monitoring wells. Blasland, Bouck & Lee subcontracted with the University of Waterloo Centre for Groundwater Research (Waterloo) to run a series of tests on the pump under controlled conditions and provide a scientific, unbiased evaluation of the ability of the pump to deliver a "representative" sample. This evaluation was designed specifically to determine whether or not the new Grundfos pump could compete in the existing ground-water sampling market as a purging and sampling pump.

Blasland, Bouck & Lee staff also conducted a field evaluation of the new Grundfos pump to provide information on the pump's operational characteristics. This evaluation was designed specifically to determine the pump's ease of operation, maintenance, and decontamination under actual field conditions, and to identify any operational difficulties or design flaws that should be corrected prior to marketing the pump for ground-water purging and sampling applications.

Experimental Design and Test Method

An artificial "well" was installed in a stairwell at Waterloo. The well consisted of a 15.24-centimeter diameter stainless steel tube, 10 meters high, with a control sampling port near its bottom. The well was filled and drained at the bottom with an air-driven pump connected to a stainless steel reservoir.

The organic compounds used in the evaluation were:

Compound	Henry's Constant
methane	67.4
1,1-dichloroethene (1,1-DCE)	15.6
trans-1,2-dichloroethene (t-1,2-DEC)	0.669
benzene	0.550
trichloroethene (TCE)	0.915
toluene	0.670

The organics (except for methane) were introduced into the system by injecting and mixing a methanolic stock solution below the surface of the water in the reservoir, prior to being pumped up the column. Inorganic constituents, including sulfate, nitrate, arsenic, chromium, and iron were added in a similar manner.

Three separate pumping experiments were conducted at flow rates of 0.1 liters per minute (l/m). This is the flow rate that U.S. EPA recommends for sampling ground water with volatile organic compounds (VOCs). The first experiment involved water containing 20 ppb of VOCs (low loading). The second experiment involved using water with a VOC concentration of 200 ppb (high loading). The third experiment involved examination of the influence of the pump on the inorganic chemicals listed above.

The experiments entailed pumping 60 liters of organic-spiked or inorganic-spiked water into the column and simultaneously collecting five pumped and five control samples, in duplicate, in 60-ml hypo-vials for organic analyses and 100 ml polyethylene bottles for inorganics analyses for each set of conditions. The pumping lift was approximately 20 feet.

Pre- and post-test "in-line" parameters were obtained for all of the experiments. These consisted of measuring pH, temperature, and conductivity at the control port and the pump outlet before and after sample collection.

Each set of organic samples (i.e., from one sampler) was randomized and split in two; five for the methane determinations, five for the other organics (or in the case of the control experiment, three and three). Samples from a given experiment were always randomized for analysis and run in one session. Methane determinations were done using

GC/FID (static headspace injection). The organic solvents were determined by GC/PID (static headspace injection). Inorganic analyses were performed following approved EPA methods. Syringe blanks and external standards were run periodically to maintain data quality.

The method detection limits for the various organic parameters were:

Compound	Detection Limit (ppb)
methane	0.22
1,1-DCE	0.14
trans-1,2-DCE	0.20
benzene	0.26
trichloroethylene	0.58
toluene	0.56

Test Results

Data were tabulated and the means and relative standard deviations calculated for each set of five values. The SYSTAT statistical package was used to obtain box plots and perform Bartlett's tests, analyses of variance, and t-tests, where applicable. Statistical outliers found in the box plots and values below detection levels (for inorganic compounds) were discarded. A confidence interval of 95 percent was used throughout.

In the first experiment, at a low concentration of organic compounds (20 ppb), there were no statistically significant differences between samples from the pump and the control samples for the compounds analyzed. Likewise, in the second experiment at high concentrations of organic compounds (200 ppb), there were no statistically significant differences between the samples from the pump and the control samples for the compounds analyzed. There were also no statistically significant difference observed for inorganic compounds for the pump samples and control samples in experiment number 3.

Tables 1 through 3 contain the actual test data for each of the experiments. Pump sample data are compared to control sample data as a function of percent recovery for each compound in Figures 1 through 3. The figures more readily present an impartial comparison of the pump and control data for specific compounds. It should also be noted that for the volatile organic compounds there was no perceived relationships observed between compound volatility and the percent recovery of the compound.

Field Evaluation of Pump Performance

Blasland, Bouck & Lee conducted limited testing of the Grundfos pump to evaluate pump performance in the field. Specifically, Blasland, Bouck & Lee attempted to determine the following:

- the effect of varying pump depth on pump discharge rates;
- the ability of the device to pump silt-laden ground water; and
- general pump operational characteristics.

Geologic environments in which the pump was used included bedrock wells completed in limestone and fractured sandstone, and screened wells completed in clay-rich glacial till and sandy alluvial aquifers. Well depths varied from 15 to 120 feet and well diameters varied from 2 to 4 inches.

Operation of the Pump

There are two primary components to the Grundfos pump system. The MP1 Environmental Submersible Pump and the BT1/MP1 Converter. Both the pump and converter are compact and relatively light, 5.5 pounds and 25 pounds, respectively. Used in a portable operating mode, a two-person crew can conveniently manage a multiple well sampling operation. If the MP1 is dedicated to each well, then one person could operate the system assuming an appropriate power source is readily available.

The pump is constructed primarily of 316 stainless and teflon components. Overall length of the pump is 287 millimeters (mm) or 11.30 inches. Maximum pump diameter is 46 mm or 1.81 inches. The dimensions of the converter are 228.6 mm (9 inches) by 355.6 mm (14 inches) by 469.9 mm (18.5 inches).

The system requires a single-phase, 230 volt source of electricity. In remote locations, where an appropriate power source is not available, a properly sized portable generator is required. When using a portable generator, a two-person sampling crew will be required.

Normal procedures require the placement of the pump down to the desired depth in the well. Note that pump power leads are available in 3.62-meters (25-foot) increments of length. The unit is then attached to its power source and turned on at the converter. A dial on the converter permits adjustment of the pump frequency, allowing the operator to increase or decrease the flow rate within the operating limits of the pump for a given amount of total hydraulic head (pumping lift).

TABLE 1

RESULT OF TEST
FOR LOW VOC LOADING
AT FLOW RATE OF 0.1 l/min

Sample	Methane	1,1-DCE	t-1,2-DCE	Benzene	TCE
Control 1	0.259	2.22	2.49	3.18	5.15
Control 2	0.244	2.05	2.18	3.07	4.75
Control 3	0.248	2.10	2.09	2.95	4.65
Control 4	0.252	2.27	2.43	3.31	5.50
Control 5	0.240	2.45	2.19	2.89	4.70
AVG	0.249	2.22	2.28	3.08	4.95
N	5	5	5	5	5
VAR	0.0000	0.02	0.03	0.03	0.13
STD	0.007	0.16	0.17	0.17	0.36
Grund 1	0.232	2.12	2.00	2.82	4.33
Grund 2	0.244	1.46	1.65	2.32	3.38
Grund 3	0.254	2.73	2.72	3.51	5.22
Grund 4	0.244	2.34	2.15	3.10	4.85
Grund 5	0.244	2.56	2.22	3.08	4.30
AVG	0.244	2.24	2.15	2.97	4.41
N	5	5	5	5	5
VAR	0.000	0.25	0.15	0.19	0.48
STD	0.008	0.50	0.39	0.44	0.69
			PERCENT OF RECOVERY		
	97.99	101.02	94.4	96.36	89.19

TABLE 2

RESULT OF TEST
HIGH VOC CONCENTRATION
AT FLOW RATE OF 0.1 l/min

Sample	CH4	1,1-DCE	t-1,2-DCE	Benzene	TCE	Toluene
Control 1	0.934	22.71	22.25	33.27	53.92	67.57
Control 2	1.005	26.98	27.11	38.69	62.74	78.27
Control 3	0.994	27.29	27.33	37.05	-	75.01
Control 4	0.970	27.18	27.68	41.87	64.76	82.58
Control 5	0.982	28.28	30.83	41.73	69.80	77.47
AVG	0.977	26.49	27.04	38.52	62.81	76.18
N	5	5	5	5	4	5
VAR	0.001	4.71	9.45	12.82	43.90	30.62
STD	0.027	2.17	3.07	3.58	6.63	5.53
Gruna 1	0.978	27.74	30.65	39.06	67.21	82.77
Gruna 2	0.974	24.95	26.52	37.05	61.87	70.90
Gruna 3	0.942	24.73	25.65	38.24	60.24	74.99
Gruna 4	0.974	29.21	29.81	40.74	68.41	79.90
Gruna 5	1.014	25.14	25.08	36.60	57.60	76.55
AVG	0.976	26.35	27.54	38.34	63.07	77.02
N	5	5	5	5	5	5
VAR	0.001	4.04	6.37	2.75	21.26	20.79
STD	0.026	2.01	2.52	1.66	4.61	4.56

PERCENT OF RECOVERY

99.94	99.49	101.86	99.52	100.42	101.11

TABLE 3

RESULT OF TEST
INORGANIC COMPOUND DATA
AT FLOW RATE OF 0.1 l/min

Sample	Total Iron	Total Chromium	Sulfate	NO3/NO4
Control 1	<0.05	0.23	44	2.7
Control 2	0.06	0.23	56	3.0
Control 3	<0.05	0.23	61	2.9
Control 4	0.05	0.21	49	2.9
Control 5	<0.05	0.22	44	3.0
Grund 1	<0.05	0.23	56	2.9
Grund 2	<0.05	0.22	46	3.0
Grund 3	<0.05	0.22	57	2.9
Grund 4	0.06	0.21	44	3.0
Grund 5	0.05	0.22	53	2.9
			PERCENT OF RECOVERY	
	100	98.2	100.7	100

FIGURE 1

RESULTS OF TEST/LOW VOC LOADING AT FLOW RATE OF 0.1 l/min

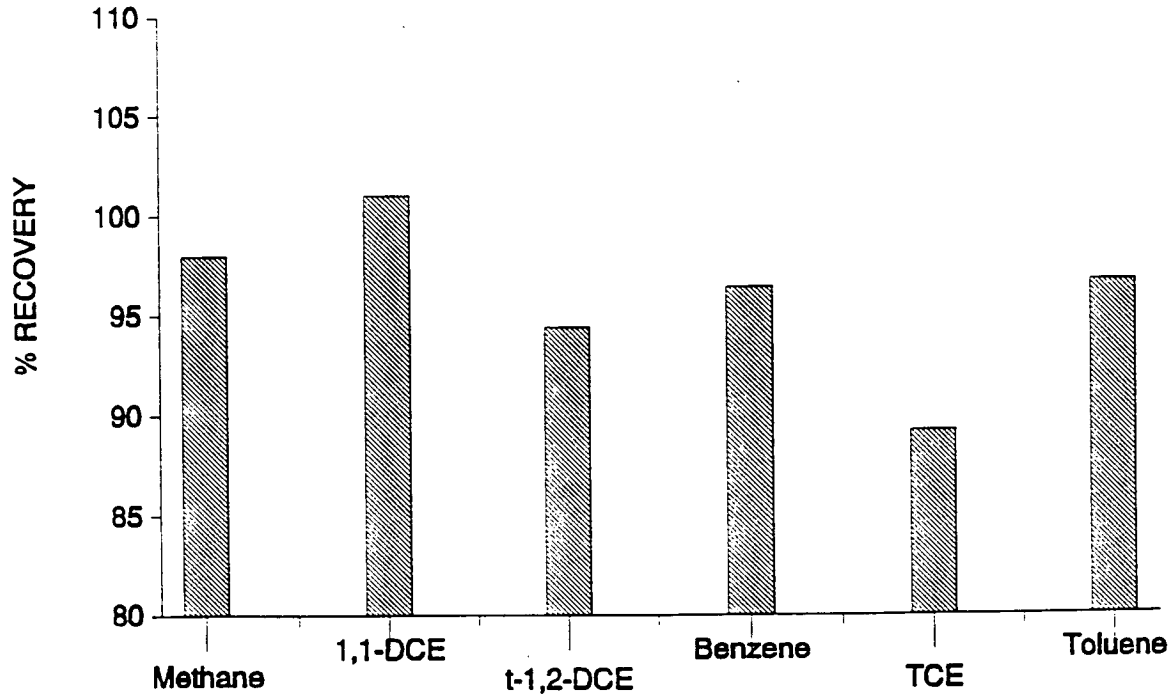


FIGURE 2

RESULTS OF TEST/HIGH VOC CONCENTRACTION AT FLOW RATE OF 0.1 l/min

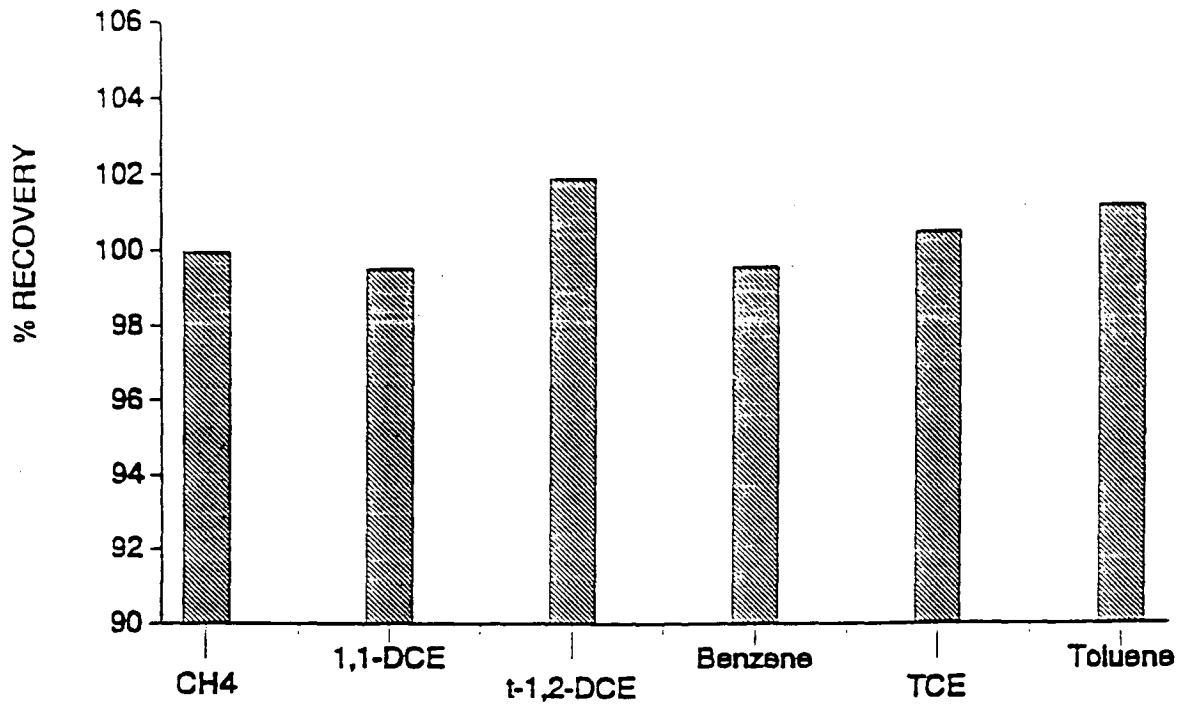
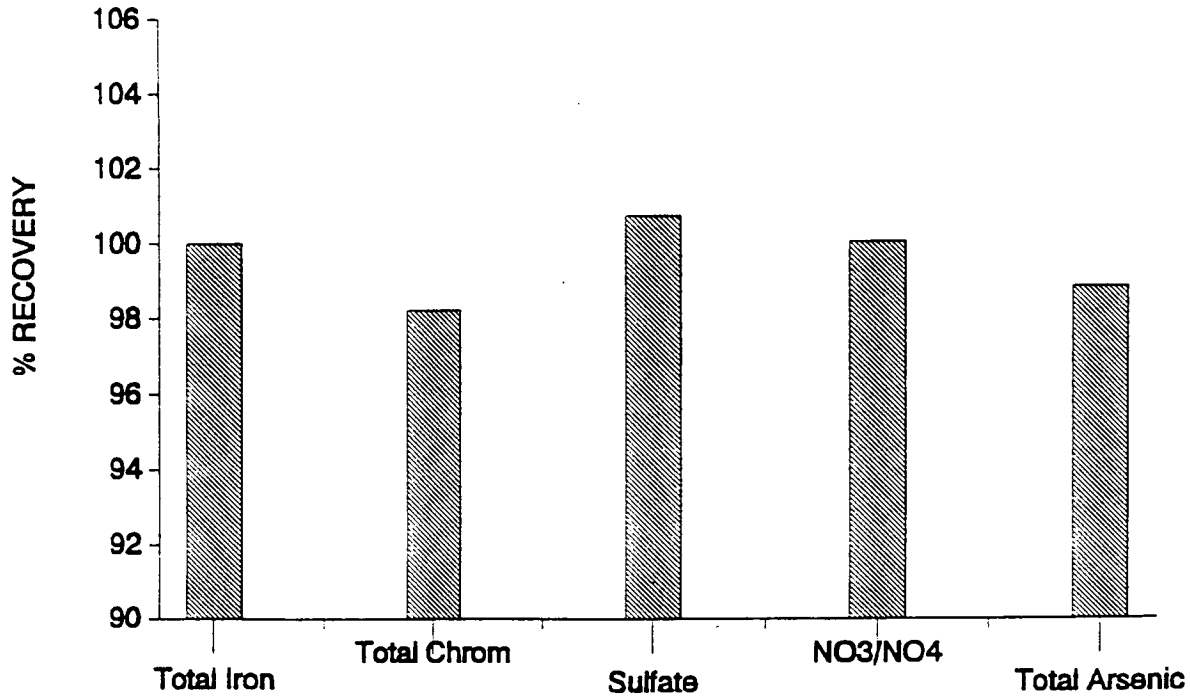


FIGURE 3

RESULTS OF TEST/INORGANIC COMPOUND DATA AT FLOW RATE OF 0.1 l/min



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370

368

CREEK

MONITORING WELL

LEVEE

MONITORING WELL

370

RECOVERY WELL

OLD GAS PLANT

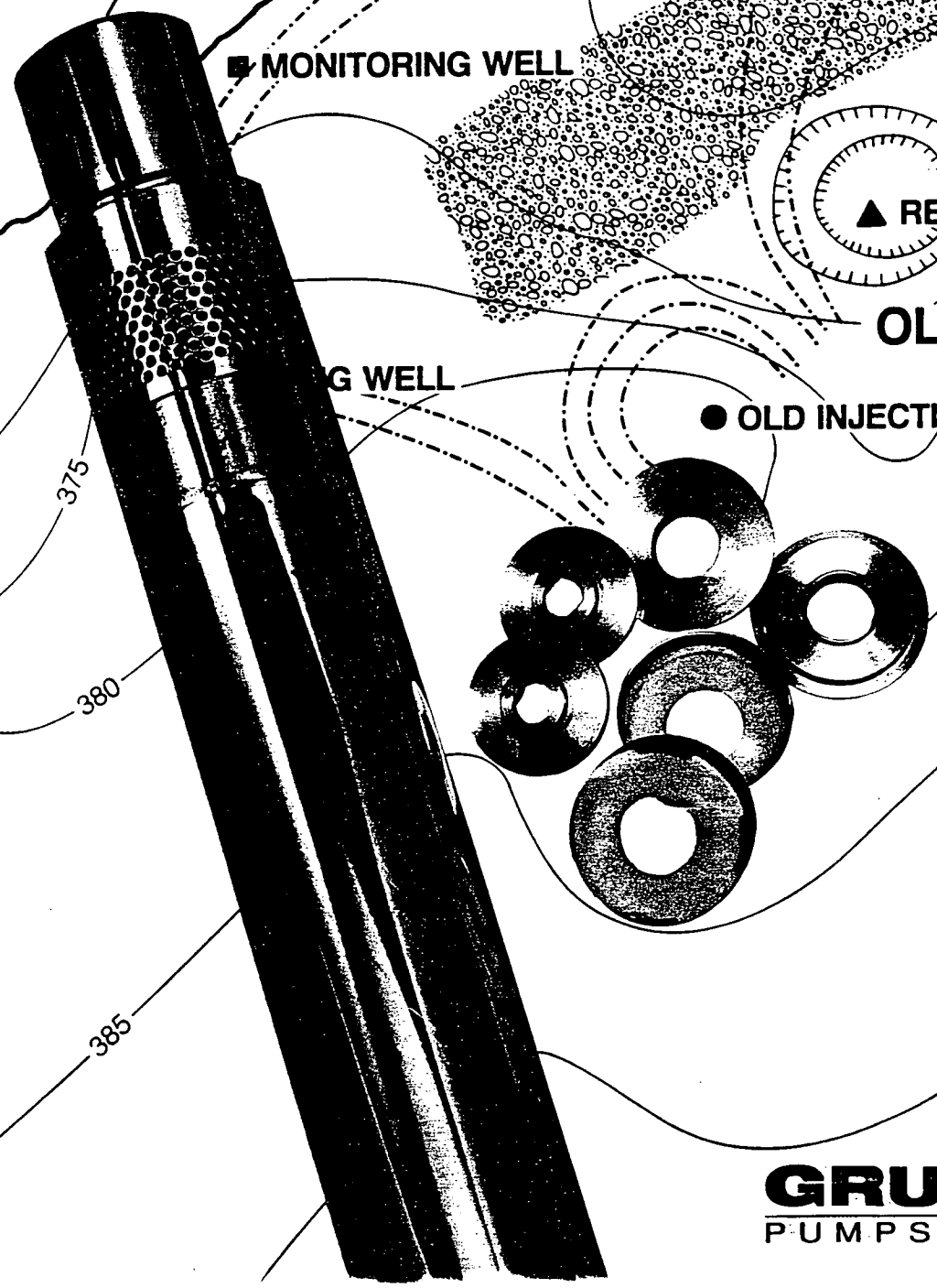
G WELL

OLD INJECTION WELL

375

380

385



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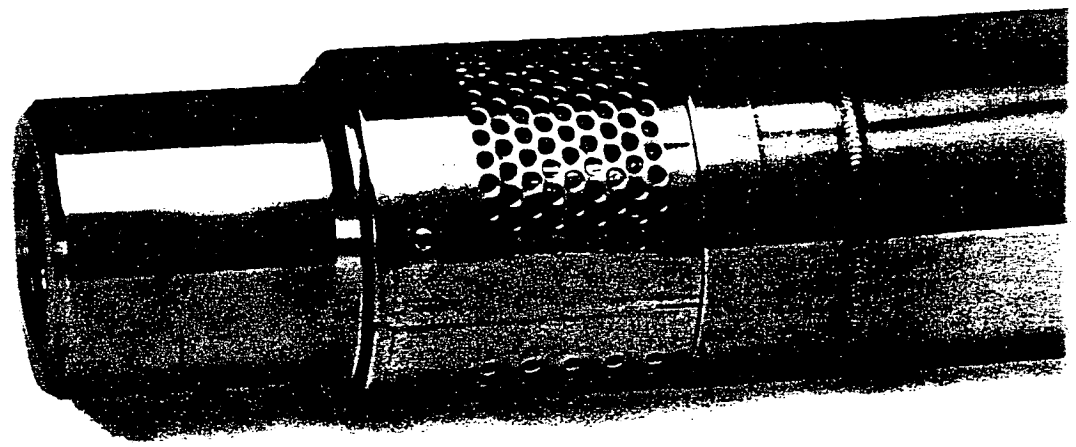
PUMPS CORPORATION

We've Taken The
Groundwater Monito



Redi-Flo2... Setti
For Environn

For years, Grundfos Pumps has pioneered better ways to work with our most precious resource... water. You've trusted Grundfos and the Redi-Flo submersible pump line in the past for quality and dependability. Now, after years of design, engineering and field testing, Grundfos proudly introduces the Redi-Flo2 system.

COMPACT DESIGN

No other pump on the market combines the compact design and power of Redi-Flo2. Measuring just over 11" tall, 1.8" in diameter and weighing 5.5 pounds, this compact pump ensures easy access into 2" wells.

QUALITY CONSTRUCTION

The sturdy pumping components of Redi-Flo2 are made of 316 Stainless Steel and virgin Teflon®. These chemically inert materials assure maximum sample integrity, limit cross-contamination, and simplify the decontamination process.

FLEXIBLE PERFORMANCE

The portable, solid state converter eliminates the need for "throttling" or control valves.

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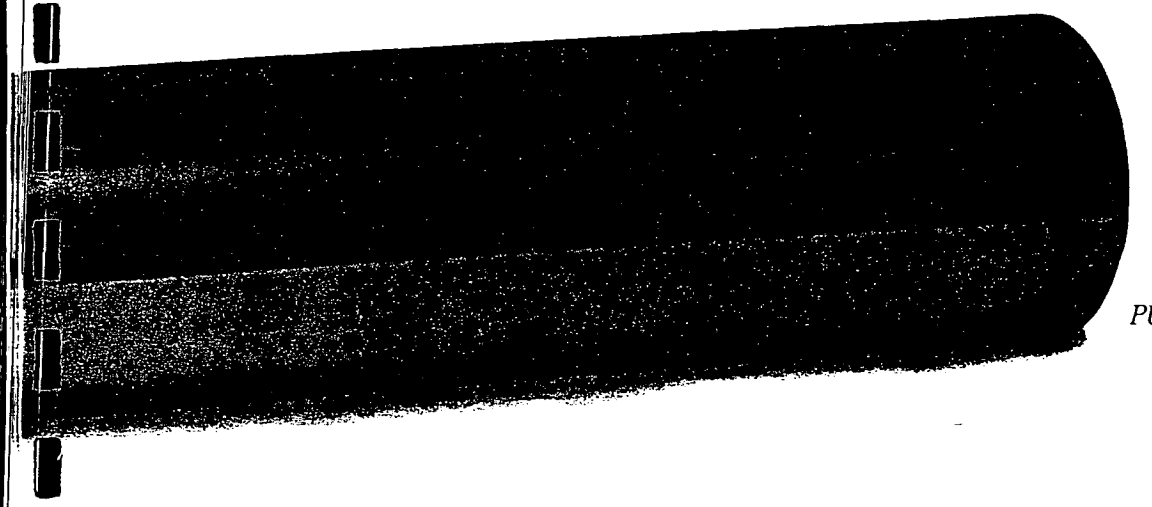
g & Made It Simple!



PUMP SHOWN ACTUAL SIZE.

ig New Standards
iental Pumps.

Flow rates ranging from 9 gpm to as little as 100 ml/min are controlled with the simple turn of a dial.

CONTINUOUS FLOW

Redi-Flo2 is ideal for groundwater sampling or conducting aquifer tests to depths of 250 feet because of its smooth, uninterrupted flow.

PURGING & SAMPLING

This pump does it all! The ingenious design of Redi-Flo2 makes it a natural for groundwater purging and sampling. Both high flow rates needed for purging and low flows recommended for sampling are achieved with the same pump!

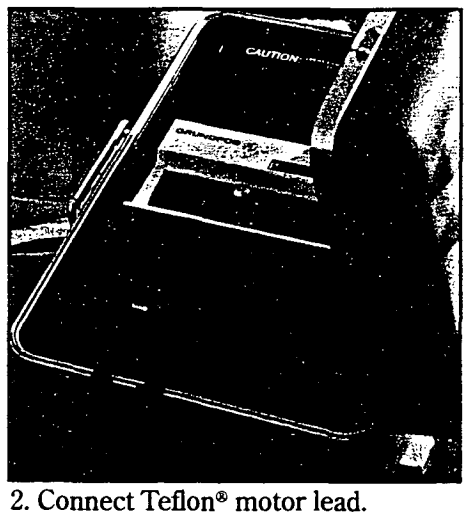
DEDICATED OR PORTABLE INSTALLATIONS

Redi-Flo2 is designed for both dedicated and non-dedicated sampling installations. By attaching the pump to a reel of tubing, it becomes fully portable.

GRUNDFOS®
PUMPS CORPORATION

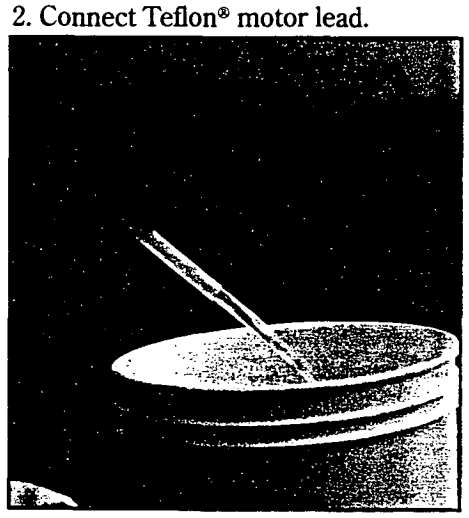
Purge & Sample With Redi-Flo2

1. Lower Redi-Flo2 into the well.

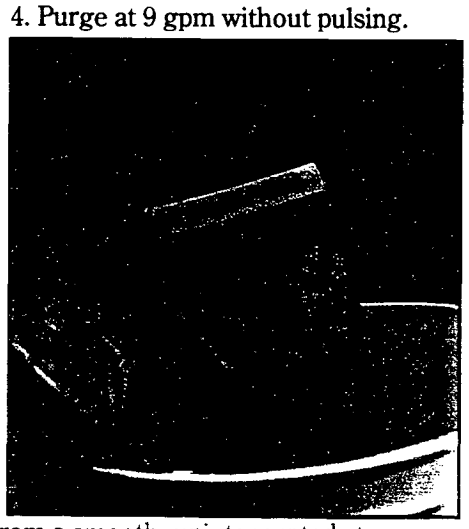


2. Connect Teflon® motor lead.

3. Dial in flow rate without throttling.



4. Purge at 9 gpm without pulsing.



5. Adjust the flow rate and collect samples from a smooth, uninterrupted stream.

Th
With

REDI-FLO2 ALLOWS FOR C
FOR GROUNDWATER CONT
YOUR SAMPLES

PURGING & SAMPLING

with the same pump is extremely efficient. With Redi-Flo2, there is no delay between purging the well and collecting your sample.

FASTER PURGING is

achieved with the powerful 9 gpm capacity. Using a bailer for purging can be costly and tiresome. Field tests demonstrate operators prefer the Redi-Flo2 system because of its purging power.

CONTINUOUS FLOW

allows for a cleaner, simpler sample catch. Partially filled sample containers are a thing of the past. Redi-Flo2 allows you to fill your containers completely, without having to wait for additional water to be extracted from the well. Uninterrupted sample collection improves sample integrity.

Redi-Flo2 Delivers Sample Integrity You Need The Purging Power You Want!

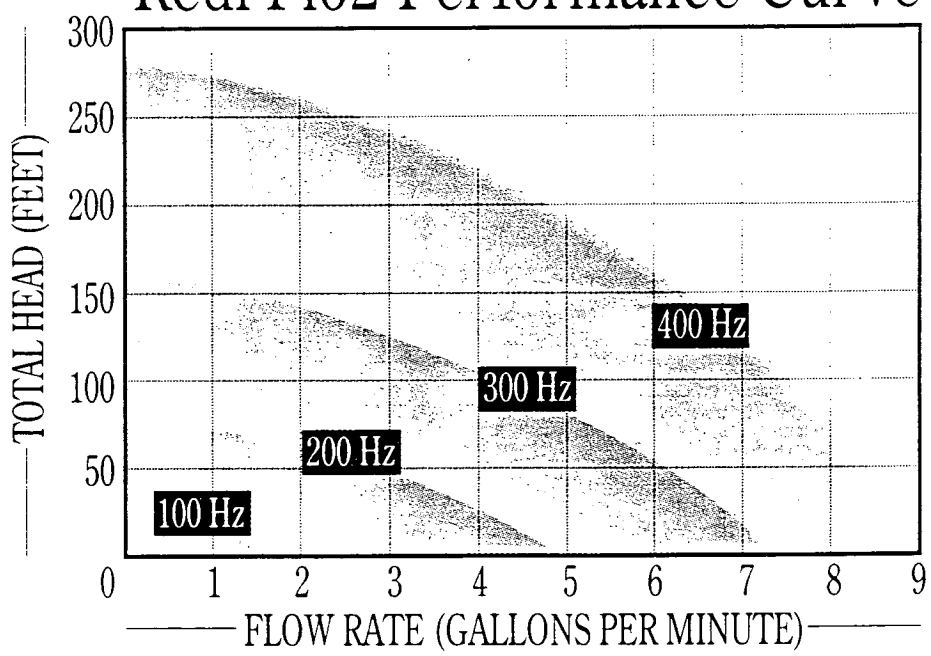
UM SAMPLE INTEGRITY NANTS. WITH REDI-FLO2, AT THEIR BEST.

100 ML/MIN FLOW RATE allows for maximum control when sampling. In addition, the 100 ml/min flow rate recommended for volatile compound sampling is easily achieved in seconds, simply by turning a dial.

OPTIMUM SAMPLE INTEGRITY is critical! With dedicated installations of Redi-Flo2, there is no risk of cross-contamination between wells. In addition, the risk of contaminants from the surface or well casing entering into samples is reduced.

FAST DECONTAMINATION is achieved each and every time. The unique design and superior materials of construction make "decon" a snap. Redi-Flo2 is designed for easy disassembly and re-assembly in minutes. That means less down time and higher productivity.

Redi-Flo2 Performance Curve



CONTINUOUS FLOW is available from 100 ml/min to 9 gpm.

MINIMAL TRAINING is required to effectively operate the converter. Its construction and dial design make the Redi-Flo2 system easy to operate, without extensive training. Operator error is virtually zero.

SAMPLE EXPOSURE IS MINIMIZED since the pump is submerged and water flows directly into your sample container. Less contact with the atmosphere produces better samples.

Redi-Flo2

Materials & Components

1. **INLET SCREEN** (316 Stainless Steel) — non-corrosive inlet screen prevents impellers from clogging.

2. **PUMP HOUSING** (316 Stainless Steel) — corrosion resistant with 1/2 inch NPT discharge connection.

3. **GUIDE VANE** (316 Stainless Steel) — increases pump efficiency and resists clogging.

4. **WEAR RING** (Teflon®) — placed at each stage; reduces upthrust and vibration.

5. **IMPELLER** (316 Stainless Steel) — long-wearing, abrasion and corrosion resistant with high strength-to-mass ratio. The fabricated design allows for optimum hydraulic performance.

6. **SPACER RING** (316 Stainless Steel) — heavy-duty, corrosion resistant.

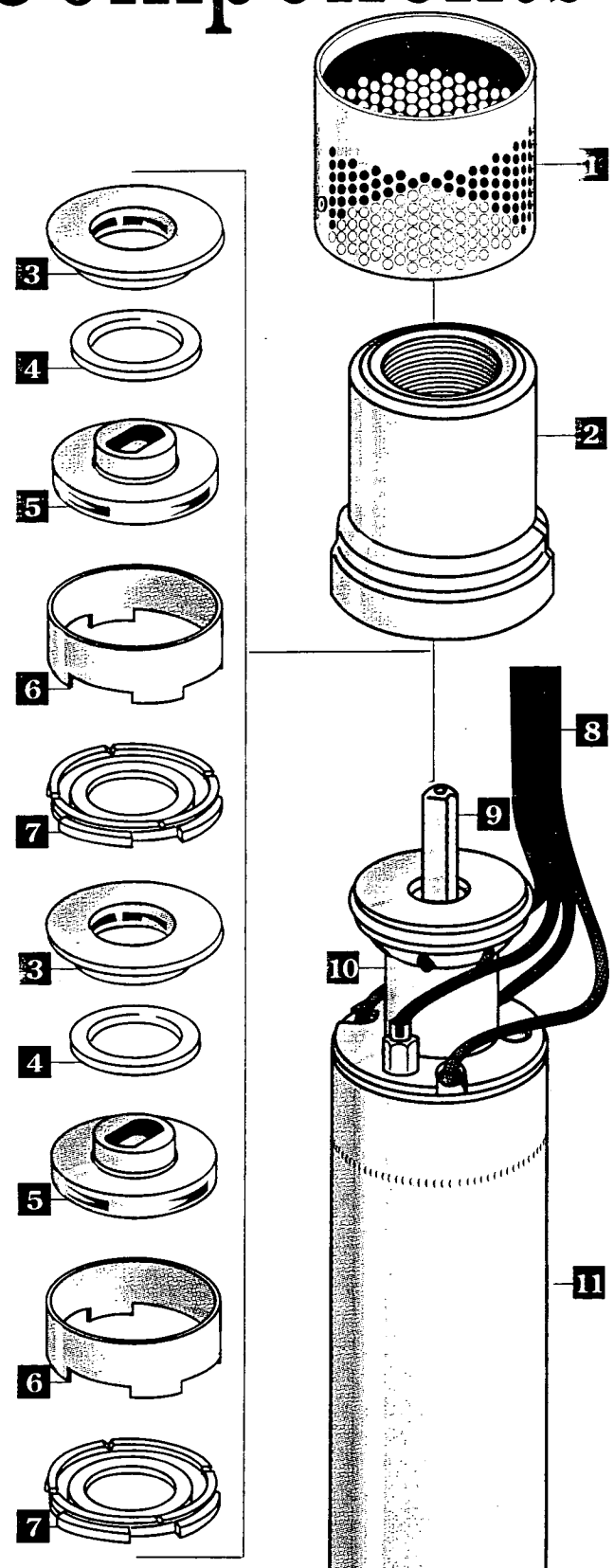
7. **WEAR PLATE** (Teflon®) — placed at each stage; eliminates vibration and maintains pump efficiency.

8. **MOTOR LEAD** (Teflon® insulated wire) — corrosion resistant; reduces the risk of sample bias.

9. **SHAFT** (329 Stainless Steel) — splined shaft prevents slippage of the impellers while allowing for easy disassembly and re-assembly of the pump for cleaning or service.

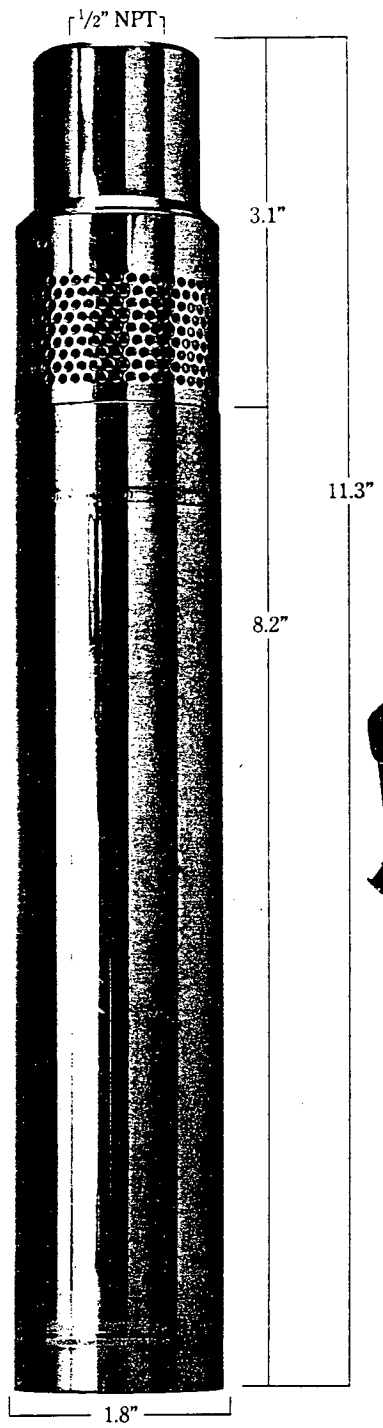
10. **SUCTION INTERCONNECTOR** (316 Stainless Steel) — rugged design with large flow openings. Provides positive pump and motor alignment.

11. **MOTOR HOUSING** (316 Stainless Steel) — meets the specifications required for environmental applications.



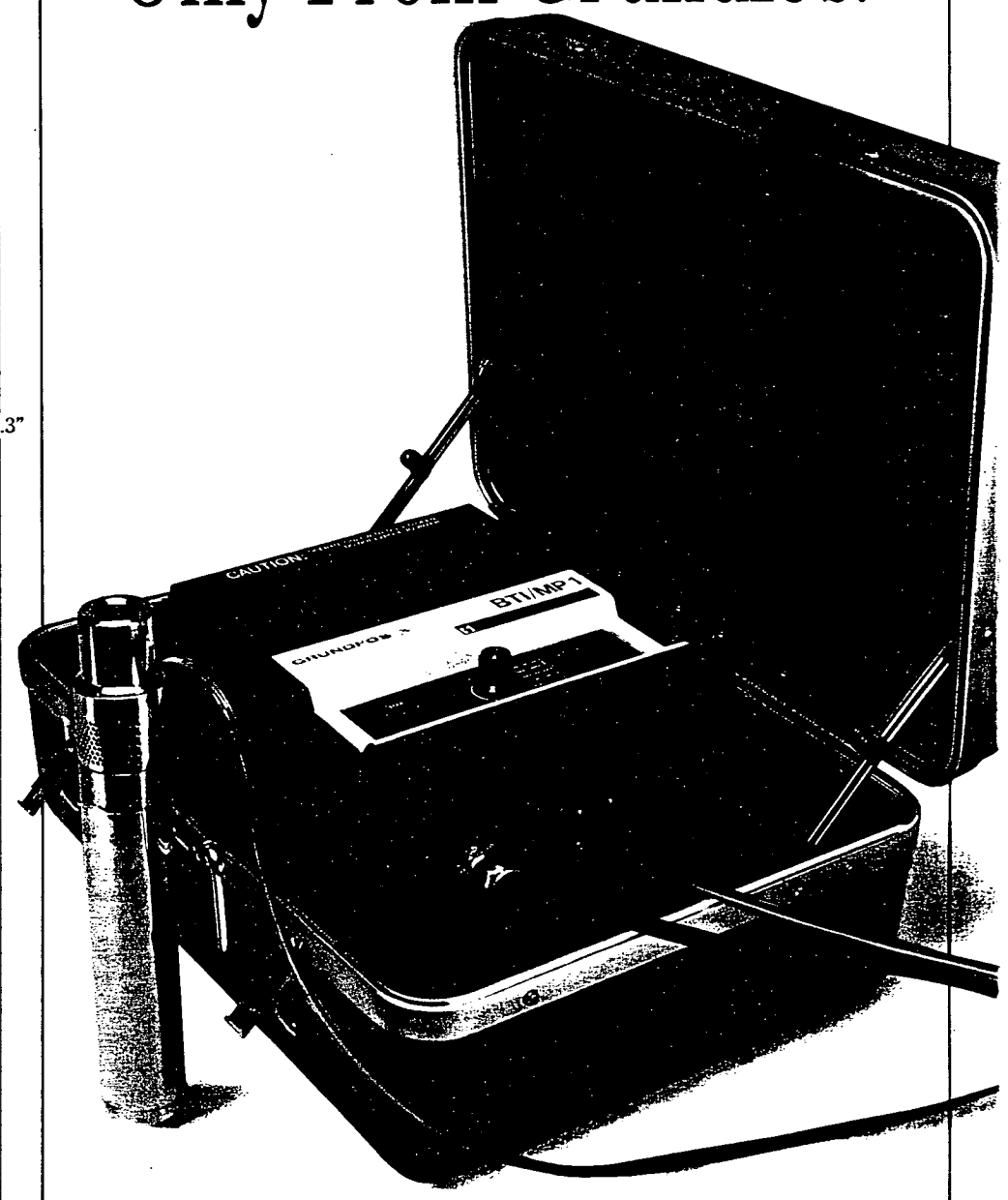
NOTE: Specifications are subject to change without notice. Teflon® is a registered trademark of DuPont.

Redi-Flo2 Compact Design



No other pump on the market combines compact design and power like Redi-Flo2. Measuring just over 11" tall, 1.8" in diameter and weighing 5.5 pounds, this pump ensures easy access into 2" wells.

The Complete Purge & Sample System Only From Grundfos.

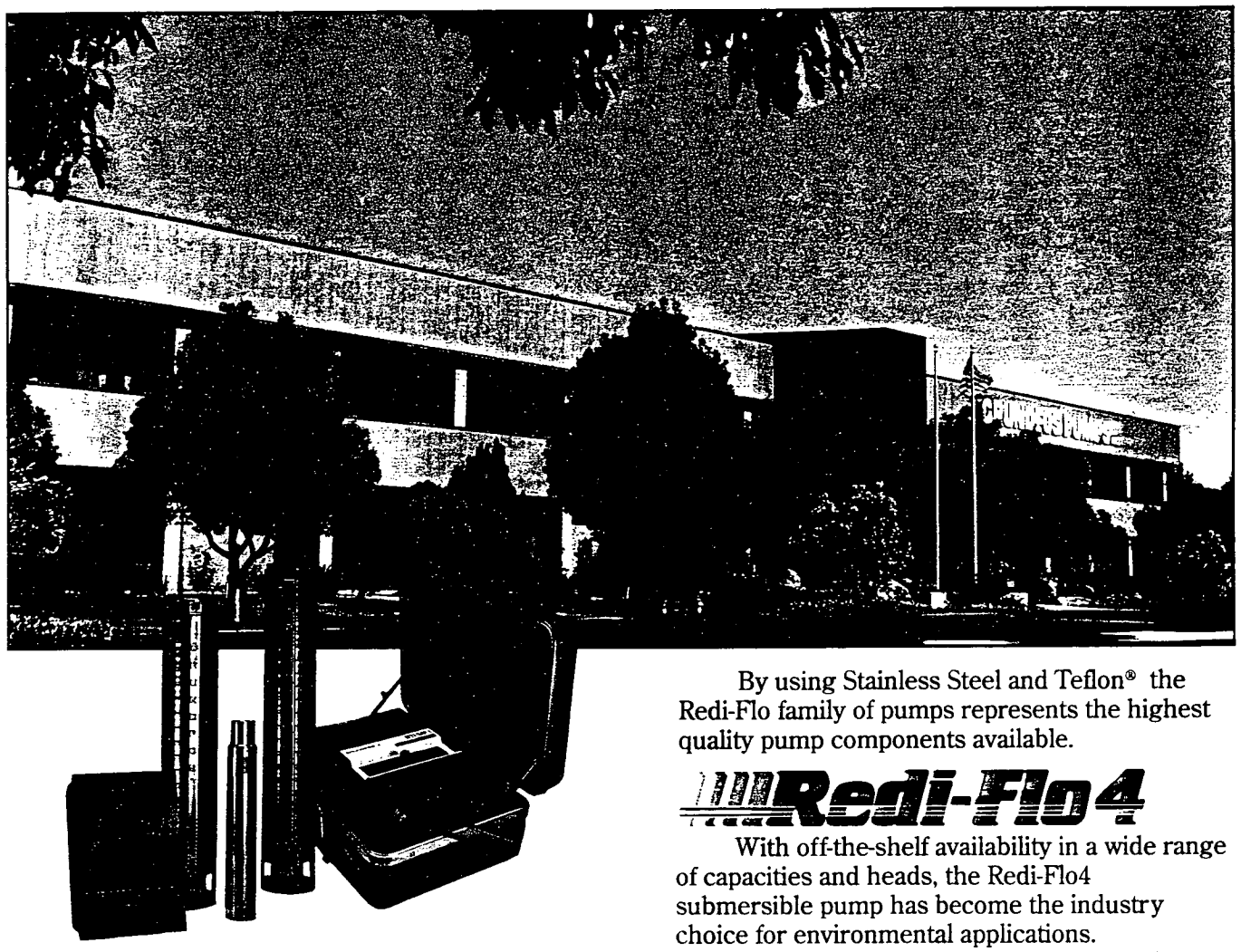


Redi-Flo2 is designed for dedicated or non-dedicated sampling installations. By attaching the pump to a reel of tubing, it becomes fully portable.

Put the power of Redi-Flo2 into your daily operation. Once this pump is part of your sampling protocol, you'll wonder how you ever got along without Redi-Flo2.

Redi-Flo2

Redi-Flo2



The Grundfos Redi-Flo Environmental family featuring the new 2" Redi-Flo2 and the 4" Redi-Flo4 submersible pumps.

By using Stainless Steel and Teflon® the Redi-Flo family of pumps represents the highest quality pump components available.

Redi-Flo4

With off-the-shelf availability in a wide range of capacities and heads, the Redi-Flo4 submersible pump has become the industry choice for environmental applications.

Put the power of Redi-Flo2 and Redi-Flo4 into your operations.

AVAILABLE FROM:

GRUNDFOS®
PUMPS CORPORATION
2555 Clovis Ave • Clovis, California 93612
Telephone (209) 292-8000 • TeleFAX (209) 291-1357.

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GRUNDFOS

Redi-Flo2 2" Environmental Submersible Pumps

MP1

Submittal Data 2300-23000 RPM 46-400 Cycles

JOB or CUSTOMER:

ENGINEER:

CONTRACTOR:

SUBMITTED BY: DATE:

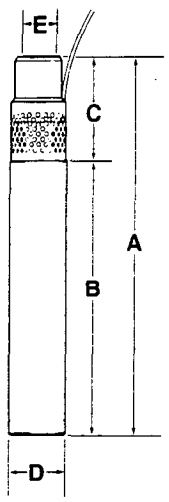
APPROVED BY: DATE:

ORDER NO.: DATE:

SPECIFICATION REF.:

QUANTITY	TAG NO.	MODEL NO.	GPM	FEET	LEAD LENGTH	COMMENTS

Dimensions



Technical Data

FLOW RANGE: Continuous/Variable (100 ml/min - 9 US GPM)

INTEGRAL PUMP/MOTOR UNIT

Motor Type: Water-filled, canned, variable speed submersible
Maximum Fluid Temperature: 86°F (30°C)
Minimum Fluid Temperature: 34°F (1°C)
Maximum Input Power: 1.5 KW (2 HP)
Maximum Motor Voltage: 3 PH X 220 Volts at 400 Hz
Maximum Motor Current: 5.5 Amps
Motor Protection: Thermal Overload – Thermik Geratebau, Series SY6
Disconnect Temperature: 176°F (80°C)
Rate Current: 5 Amps
Current Overload – Incorporated into MP1 Converter

DISCHARGE SIZE: ½" Female NPT

PUMP END CONSTRUCTION MATERIALS: Stainless Steel and Teflon® (See reverse side.)

INSTALLATION: Unit to be installed vertically for submerged operation.

AVAILABLE LEAD LENGTHS: 50 Ft., 75 Ft, 100 Ft., 125 Ft., 150 Ft., 175 Ft., 200 Ft., 250 Ft., and 300 Ft.

Dimensions and Weights

DIMENSIONS IN INCHES (mm)						
PUMP TYPE	OVERALL LENGTH (A)	MOTOR LENGTH (B)	PUMP END LENGTH (C)	MAX. DIA (D)	DISCH. PIPE SIZE (NPT) (E)	NET WEIGHT①
MP1	11.30" (287)	8.19" (208)	3.11" (79)	1.81" (46)	½"	5.5 LBS.

① Weight does not include motor lead.

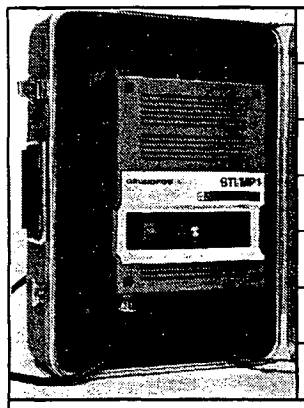
Teflon® is a registered trademark of Dupont.

GRUNDFOS

Redi-Flo2 Converter

BTI/MP1

Submittal Data



JOB or CUSTOMER:	
ENGINEER:	
CONTRACTOR:	
SUBMITTED BY:	DATE:
APPROVED BY:	DATE:
ORDER NO.:	DATE:
SPECIFICATION REF.:	

Technical Data

ELECTRICAL:

INPUT
- Voltage: 1 PH × 220 - 230 V ± 10%
- Frequency: 50 - 60 Hz ± 2%
- Maximum Current: 10 Amps

OUTPUT
- Voltage: 3 PH × 25 V - 3 PH × 220 V
- Frequency: 46 - 400 Hz
- Maximum Current: 5.5 Amps
- Power: 1.5 KW (2HP)

ACCELERATION TIME:
- 0 to 400 Hz: 10 seconds

DECELERATION TIME:
- 400 to 0 Hz: 10 seconds

INPUT LINE FUSE:
- 2 each T 30 A. type FERRAZ

MOTOR LEAD CONNECTOR:
- AMP CPC Plug, Type 206429-1

POWER CABLE:
- Type SJOW. 14 AWG, 10' long

OPERATING CONDITIONS:

AMBIENT TEMPERATURE:
- 32° F to 104° F (0° C to 40°C)

RELATIVE AIR HUMIDITY: Maximum 95%

NOTE (Radio Noise): When the converter is connected to public electrical supply, radio noise may occur. This can be eliminated by adding a Siemens filter type B 84112-B-A 120/20 A.

STORAGE CONDITIONS:

AMBIENT TEMPERATURE:
- -13° F to 149° F (-25° C to 65° C)

RELATIVE AIR HUMIDITY:
- Maximum 50% at 104° F (40° C) unlimited
- Maximum 90% at 68° F (20° C) for periods not exceeding 30 days per year
- 75% annual average
- Non-condensing

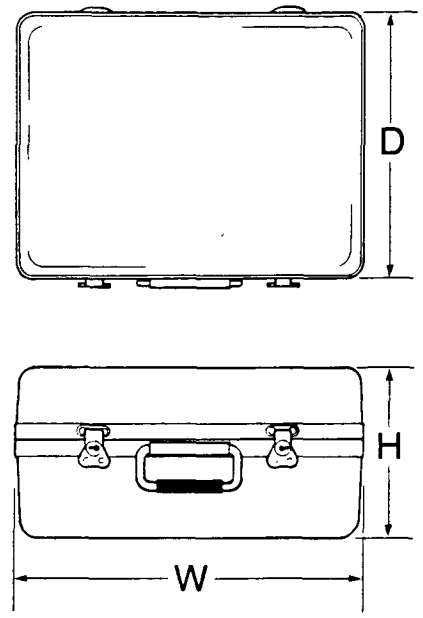
PROTECTIVE CASE CONTRUCTION:

CASE: High density polyethylene

TRIM: Aluminum

LOCK: Military twist-type – steel with zinc plating

Dimensions



Dimensions and Weights

DIMENSIONS IN INCHES (mm)				
TYPE	HEIGHT (H)	DEPTH (D)	WIDTH (W)	NET WEIGHT
BTI / MP1	9" (228.6)	14" (355.6)	18.5" (469.9)	25 LBS.

Teflon® is a registered trademark of Du Pont.

GRUNDFOS Pumps Corp. • 2555 Clovis Ave. • Clovis, CA 93612
Support Centers: Allentown, PA • Atlanta, GA • Mississauga, Ontario, Canada

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