Harding Lawson Associates

August 19, 1991

09382,040.02

California Regional Water
Quality Control Board
San Francisco Bay Region
2101 Webster Street
Oakland, California 94612

Attention: Mr. Don Dalke

Dear Mr. Dalke:

Report of Monitoring: April through July 1991
Chinatown Redevelopment Project Area
Oakland, California

This letter transmits a report titled *Groundwater Monitoring and Dewatering Effluent Treatment System Operation and Monitoring, April through July 1991, Chinatown Redevelopment Project Area, Oakland, California*, dated August 16, 1991. The report was prepared by Harding Lawson Associates (HLA) on behalf of the Redevelopment Agency of the City of Oakland (Agency).

The construction dewatering and groundwater treatment systems terminated operations on July 1, 1991. Analytical results indicate the treatment system reduced concentrations of volatile organic compounds to below discharge standards throughout the reporting period.

The report includes an evaluation of the extent of petroleum hydrocarbons remaining in groundwater in the vicinity of the PRP site. To summarize analytical results, groundwater samples collected from monitoring wells in May and June 1991 indicate low to nondetectable concentrations of target analytes at all wells sampled except MW-19. At Well MW-19, concentrations of gasoline constituents have declined significantly since December 1990. The report includes a recommendation for continued monitoring of groundwater levels and chemistry in the Chinatown area.

Please note that in conjunction with construction of the PRP building, soils were excavated to approximately 40 feet below ground surface; all known soil contamination within the PRP property boundary was removed in conjunction with excavation activities.

Please call me at 899-7352 or Peter Chen of the Agency at 273-3692 if you have any questions.

Yours very truly,

HARDING LAWSON ASSOCIATES

David F. Leland, P.E.
Associate Engineer

DFL/jc19208-oakland

Attachment: *Groundwater Monitoring and Dewatering Effluent Treatment System Operation and Monitoring, April through July 1991, Chinatown Redevelopment Project Area, Oakland, California*

cc: Lester Feldman, RWQCB
John Jang, RWQCB
Lowell Miller, Alameda County
Peter Chen, Agency (2)
Doug Grant, Pacific Renaissance Associates II
Fred Warren, Perini Corporation

A Report Prepared for

Redevelopment Agency of the City of Oakland
1333 Broadway, 9th Floor
Oakland, California 94612

GROUNDWATER MONITORING AND DEWATERING EFFLUENT TREATMENT SYSTEM OPERATION AND MONITORING APRIL THROUGH JULY 1991 CHINATOWN REDEVELOPMENT PROJECT AREA OAKLAND, CALIFORNIA

HLA Job No. 9382,040.02

Submitted to:

California Regional Water Quality Control Board
San Francisco Bay Region
2101 Webster Street, Suite 500
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by

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August 16, 1991

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1.0 INTRODUCTION

This report discusses operation and monitoring of the construction dewatering effluent treatment system at the Pacific Renaissance Plaza (PRP) site, and quarterly groundwater monitoring in the Chinatown Redevelopment Project Area of Oakland, California (Plate 1), from April through July 1991. The activities described herein were performed by Harding Lawson Associates (HLA) on behalf of the Redevelopment Agency of the City of Oakland (Agency). In addition, this report evaluates the extent of hydrocarbons remaining in groundwater in the vicinity of the PRP site at the termination of dewatering, which occurred July 1, 1991. This evaluation, proposed in HLA's *Investigation Plan, Hydrocarbons in Offsite Groundwater* (*HLA, 1990a*), is presented in Section 5.0.

The effluent treatment system was operated in conjunction with in situ soil bioremediation until May 30, 1990 (*HLA, 1990b*). The system was restarted on November 26, 1990; HLA continued to maintain and operate the system during construction dewatering of the PRP site by Perini Corporation, the general contractor for the project. Treatment system monitoring from January through March 1991 was reported in HLA's *Report of Monitoring of Groundwater and Dewatering Effluent Treatment System, January through March 1991* (*HLA, 1991a*).

The treatment system operates under National Pollution Discharge Elimination System (NPDES) permit CA 0029394, approved by the California Regional Water Quality Control Board, San Francisco Bay Region (RWQCB), as Order No. 88-119 dated July 26, 1988.

Groundwater monitoring is being performed to assess the distribution of gasoline and gasoline constituents in groundwater in the vicinity of the PRP site. The rationale

for groundwater monitoring and the proposed monitoring plan were described in HLA's *Investigation Plan, Hydrocarbons in Offsite Groundwater (HLA, 1990a).*

2.0 QUARTERLY GROUNDWATER MONITORING

Water levels were measured at 11 wells on April 12, May 10, and June 6, 1991, to monitor hydraulic conditions at the PRP site. On May 10, 1991, a groundwater sample was collected from Monitoring Well MW-19 and on June 6, 1991, groundwater samples were collected from Monitoring Wells MW-3, MW-7, and MW-18 through MW-23 (Plate 1) to monitor groundwater chemistry in the vicinity of the PRP site.

Standard HLA decontamination protocol was followed prior to sampling. All HLA employees performing field work were trained in safety procedures and used Level D personal protective equipment.

At least three well volumes were purged from each well prior to sampling; the purge water was collected and processed through the treatment system. Groundwater samples were collected with a stainless steel bailer. After being decanted into 40-milliliter sample bottles, samples were labeled and stored on ice until delivery under chain of custody to Pace Laboratories, Inc., (PACE), of Novato, California, for chemical analysis. Each sample was analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX) using EPA Test Method 8020. In addition, groundwater samples from Monitoring Wells MW-7 and MW-19 were analyzed for total petroleum hydrocarbons (TPH) as gasoline using EPA Test Method 8015.

3.0 TREATMENT SYSTEM OPERATION AND MONITORING

3.1 Operation and Maintenance

From March 28 through June 28, 1991, 1,895,630 gallons of groundwater from the dewatering wells and rain water collection sumps were pumped through the groundwater treatment system and released to the storm sewer. This is an average of approximately 14.3 gallons per minute (gpm) or 20,600 gallons per day (gpd), and is well below the NPDES maximum permitted average flow of 72,000 gpd.

The treatment system sand filter was backwashed 26 times during the reporting period; the carbon filters were backwashed 4 times. Bag filters were changed 24 times; cartridge filters were replaced 10 times. Treatment system filters were changed or backflushed more frequently during periods of rain because of increases in flow volume and suspended sediment in the influent.

System operations were terminated on July 1, 1991, concurrently with termination of site dewatering by the general contractor. During the period July 8-19, the system was demobilized and removed from the site.

3.2 Release

During this reporting period, a release of untreated water occurred through a portion of the period from April 26 to May 13, 1991, as described in a letter from HLA to Mr. John Jang of the RWQCB, dated June 21, 1991 (*HLA, 1991b*). Visual observations made by HLA personnel indicate that the release occurred from dewatering wells or the associated discharge piping system that was operated and maintained by the general contractor for the PRP construction project. The released water was discharged to the Webster Street storm gutter.

The exact volume and duration of the release are not known. Flow through the carbon absorption system was reduced by a maximum estimated volume of 294,000 gallons between April 26 and May 13, 1991, based on comparison of flow rates before, during, and after that period. It is not believed this entire volume was discharged without treatment; discussions with the general contractor indicate that several dewatering well pumps were not in service, and therefore the release volume was less than the maximum estimated flow reduction.

On May 10, HLA collected a sample of water being discharged to the street. The sample was analyzed by EPA Test Methods 8010 and 8020; results are included in the Appendix.

3.3 Monthly Monitoring

On April 12, May 10, and June 6, 1991, samples were collected from the influent, intermediate, and effluent sampling ports. Laboratories used and analyses performed are listed in Table 1.

All EPA Test Method 504 analyses for ethylene dibromide (EDB) were performed by Pacific Environmental Laboratory (PEL), San Francisco, California. Dissolved oxygen concentration was measured in the field by HLA. All other monthly analyses were performed by PACE.

Because of the short period of operation in July, HLA proposed that the July monthly sampling not be performed (*HLA, 1991c*). This modification of the self-monitoring plan was discussed with RWQCB staff in a telephone conversation between David Leland of HLA and John Jang of the RWQCB on June 26, 1991. RWQCB staff agreed to the modification.

4.0 RESULTS

4.1 Groundwater Elevations and Potentiometric Contours

Depths to groundwater and calculated water levels for the quarter are presented in Table 2; potentiometric contours interpreted from the water level data are shown on Plate 1 for June 6, 1991, and indicate a depression in the area of dewatering. Potentiometric data are not interpreted in the area bounded by 9th, 11th, Franklin, and Webster streets, the area occupied by the PRP excavation and the adjacent East Bay Municipal Utility District building.

Water levels increased in all eleven wells between March 8 and June 6, 1991. Water level increases ranged from 0.04 foot at MW-8 to 1.81 feet at MW-19.

4.2 Analytical Results - Groundwater Monitoring Wells

Results of chemical analyses of the groundwater samples collected on May 10 and June 6, 1991, are presented in Table 3 along with historical groundwater chemistry data for BTEX and TPH as gasoline. Laboratory reports for the May and June groundwater samples are presented in the Appendix.

BTEX compounds were detected in the groundwater samples collected from Monitoring Well MW-19; concentrations have remained generally stable since February 1991. BTEX compounds have not been detected in Monitoring Well MW-7 since December 1990. Toluene was reported in the sample from Monitoring Well MW-23 at a concentration of 0.4 microgram/liter (μg/l). None of the other wells had detectable concentrations of BTEX compounds.

At Monitoring Well MW-19, TPH as gasoline was detected in May and June at concentrations of 1.8 and 3.4 milligrams/liter (mg/l), respectively; TPH concentrations have declined since December 1990 at this well. TPH as gasoline, detected in samples

from Well MW-7 prior to February 1991, was not detected in the June sample from this well. TPH as gasoline was not detected in any of the other monitoring wells.

4.3 Analytical Results - Groundwater Treatment System

The April, May, and June treatment system water sample analyses for TPH as gasoline and EPA Test Methods 8010, 8020, and 504 compounds indicate that the groundwater treatment system removed most constituents to nondetectable levels (Tables 4 through 6).

The only chemical detected in the effluent was 1,2-dichloroethane (1,2-DCA). The effluent and effluent duplicate samples collected in April and June contained concentrations ranging from 0.6 to 1.0 μg/l. The May effluent sample contained 1,2-DCA at a concentration of 1.4 μg/l, but no 1,2-DCA was detected in the duplicate sample. No other compounds were detected in the effluent samples. No chemicals were detected in the blank samples for April, May, and June (Table 7).

4.4 Analytical Results - Release Sample

Results of analyses of the sample of untreated water discharged to Webster Street from the dewatering system are summarized in Table 8. The water showed concentrations above the permitted limits for discharge to the storm sewer system of 50 μg/l for TPH as gasoline, 5 μg/l for benzene, xylenes, 1,2-DCA, and trichloroethene, and 0.5 μg/l for toluene.

5.0 DISCUSSION AND RECOMMENDATIONS

Results of analysis of water samples collected in December 1990 indicate that at the start of dewatering, elevated concentrations of petroleum hydrocarbons and BTEX compounds were present in groundwater at two wells: MW-7 and MW-19. At the termination of dewatering, only Well MW-19 showed elevated concentrations of gasoline constituents. During the dewatering period, both the extent and the concentrations of hydrocarbons in groundwater were reduced. Concentrations at MW-19 were reduced more than an order of magnitude for most individual BTEX gasoline constituents. For example, between December 1990 and June 1991, concentrations of toluene declined from 1500 μg/l to 38 μg/l, xylene concentrations declined from 1600 to 150 μg/l, and ethylbenzene concentrations declined from 420 to 30 μg/l. Concentrations at MW-7 were reduced to nondetectable levels, indicating a reduction in the extent of hydrocarbons in groundwater in the area west of the PRP site as a result of the recovery of chemical-bearing groundwater by the dewatering system.

With the termination of dewatering, it is anticipated that a natural flow regime will be reestablished. Water-level measurements made prior to the March 1988 initiation of dewatering at the adjacent EBMUD site indicate that groundwater flow under ambient conditions is generally westerly (*HLA, 1989*). Thus, Well MW-18 is expected to be downgradient of Well MW-19 once natural conditions are reestablished, and can serve as a monitoring point to assess the potential for downgradient migration of hydrocarbons.

To characterize the possible continued presence of hydrocarbons at MW-19 and the potential for migration of any hydrocarbons present, HLA recommends quarterly sampling and analysis of groundwater from Monitoring Wells MW-18 and MW-19 through June 1992. Because hydrocarbons have not been detected in samples from other

wells in the vicinity of the PRP site during the dewatering period, and because these wells lie upgradient, cross gradient or, in the case of MW-20 and MW-21, further downgradient from MW-19 than MW-18, sampling and analysis of water from these wells is not proposed.

The next quarterly groundwater monitoring round is scheduled for September 1991. Water levels will be measured at Monitoring Wells MW-2, MW-3, MW-6, and MW-18 through MW-23. Samples from Monitoring Well MW-18 will be analyzed for BTEX, and samples from MW-19 for TPH as gasoline and BTEX. Results will be presented in a report to the RWQCB. The extent of hydrocarbons will be reevaluated in the report for the June 1992 quarterly monitoring.

6.0 REFERENCES

Harding Lawson Associates, 1989. *A-Aquifer Monitoring Report, Chinatown Redevelopment Project Area, Oakland, California.* January 31.

_____, 1990a. *Investigation Plan, Hydrocarbons in Offsite Groundwater, Chinatown Redevelopment Project Area, Oakland, California.* June 8.

_____, 1990b. *Report of System Monitoring, May 1990, Dewatering Effluent Treatment System, Chinatown Redevelopment Project Area, Oakland, California.* June 15.

_____, 1991a. *Report of Monitoring of Groundwater and Dewatering Effluent Treatment System, January through March 1991. Chinatown Redevelopment Project Area, Oakland, California.* April 30.

_____, 1991b. Letter, HLA to RWQCB. *Report of Noncompliance: April 26 - May 13, 1991, Water Treatment System: NPDES Permit CA 0029394, Pacific Renaissance Plaza, Oakland, California.* June 21.

_____, 1991c. Letter, HLA to RWQCB. *Self-Monitoring Activities, Groundwater Treatment System: NPDES Permit CA 0029394, Pacific Renaissance Plaza, Oakland, California.* July 2.

LARGE MAP REMOVED

TABLE 1. SUMMARY OF ANALYTICAL PROGRAM - TREATMENT SYSTEM MONITORING
PACIFIC RENAISSANCE PLAZA, OAKLAND, CALIFORNIA

Sampling Points	Date	Sample Number	8010	8020	TPH (Gasoline) 8015	EDB 504	Chlorine	Dissolved Oxygen
Influent	12-Apr-91	91151201	PACE	PACE	PACE	PEL	PACE	HLA (field)
Influent	12-Apr-91	91151202 (dup)	PACE	PACE	PACE			HLA (field)
Influent	10-May-91	91191002	PACE	PACE	PACE	PEL	PACE	HLA (field)
Influent	6-Jun-91	91230611	PACE	PACE	PACE	PEL	PACE	HLA (field)
Intermediate	12-Apr-91	91151203	PACE	PACE	PACE			
Intermediate	10-May-91	91191003	PACE	PACE				
Intermediate	6-Jun-91	91230612	PACE	PACE				
Effluent	12-Apr-91	91151204	PACE	PACE	PACE	PEL	PACE	HLA (field)
Effluent	12-Apr-91	91151205 (dup)	PACE	PACE	PACE	PEL		HLA (field)
Trip Blank	12-Apr-91	91151206	PACE	PACE	PACE	PEL		
Effluent	10-May-91	91191004	PACE	PACE	PACE	PEL	PACE	HLA (field)
Effluent	10-May-91	91191005 (dup)	PACE	PACE	PACE	PEL		HLA (field)
Field Blank	10-May-91	91191006	PACE	PACE	PACE	PEL		
Effluent	6-Jun-91	91230612	PACE	PACE	PACE	PEL	PACE	HLA (field)
Effluent	6-Jun-91	91230612 (dup)	PACE	PACE	PACE	PEL		HLA (field)
Field Blank	6-Jun-91	91230612	PACE	PACE	PACE	PEL		
Additional Sample Collected From Release to Webster Street								
Release Sample	10-May-91	91191007	PACE	PACE	PACE			

Note: Pacific Environmental Laboratories (PEL) was formerly known as Kennedy/Jenks/Chilton (KJC).

Table 2. WATER-LEVEL ELEVATIONS - AUGUST 1990 THROUGH JUNE 1991

Well No.	MW-2		MW-3		MW-6		MW-7		MW-8		MW-12	
	GROUND SURFACE 40.05	TOP OF CASING 39.55	GROUND SURFACE 39.02	TOP OF CASING 38.35	GROUND SURFACE 39.95	TOP OF CASING 39.59	GROUND SURFACE 39.35	TOP OF CASING 39.10	GROUND SURFACE 40.63	TOP OF CASING 40.47	GROUND SURFACE 37.70	TOP OF CASING 37.00
DATE	Depth to Water	Ele-vation	Depth to Water	Ele-vation	Depth to Water	Ele-vation	Depth to Water	Ele-vation	Depth to Water	Ele-vation	Depth to Water	Ele-vation
3-Aug-90	25.59	13.96	25.33	13.02	25.37	14.22	25.38	13.72	27.02	13.45	21.15	15.85
27-Aug-90	-	-	-	-	-	-	-	-	-	-	-	-
12-Sep-90	-	-	-	-	-	-	-	-	-	-	24.08	12.92
13-Sep-90	-	-	-	-	-	-	25.15	13.95	-	-	-	-
14-Nov-90	25.38	14.17	23.91	14.44	25.25	14.34	24.97	14.13	26.72	13.75	23.37	13.63
3-Dec-90	26.12	13.43	24.69	13.66	25.44	14.15	27.66	11.44	27.28	13.19	25.45	11.55
11-Jan-91	28.60	10.95	28.97	9.38	27.50	12.09	29.82	9.28	29.04	11.43	*	*
11-Feb-91	32.39	7.16	32.37	5.98	29.43	10.16	32.35	6.75	30.88	9.59	*	*
8-Mar-91	33.57	5.98	32.29	6.06	30.41	9.18	32.04	7.06	31.98	8.49	*	*
12-Apr-91	32.67	6.88	31.89	6.46	30.25	9.34	31.37	7.73	32.01	8.46	*	*
10-May-91	31.90	7.65	31.29	7.06	29.94	9.65	30.94	8.16	31.66	8.81	*	*
6-Jun-91	32.56	6.99	30.94	7.41	30.27	9.32	31.06	8.04	31.94	8.53	*	*

NOTES:

Elevations are in feet above mean sea level (MSL).

Depth to water measured in feet from top of casing.

* Well MW-12 was damaged during excavation and construction activities and can no longer be monitored.

Table 2. WATER-LEVEL ELEVATIONS - AUGUST 1990 THROUGH JUNE 1991

Well No.	MW-18		MW-19		MW-20		MW-21		MW-22		MW-23	
	GROUND SURFACE 36.52	TOP OF CASING 35.88	GROUND SURFACE 37.15	TOP OF CASING 36.62	GROUND SURFACE 38.32	TOP OF CASING 37.86	GROUND SURFACE 38.67	TOP OF CASING 38.08	GROUND SURFACE 37.70	TOP OF CASING 37.34	GROUND SURFACE 34.68	TOP OF CASING 34.23
DATE	Depth to Water	Ele-vation	Depth to Water	Ele-vation	Depth to Water	Ele-vation	Depth to Water	Ele-vation	Depth to Water	Ele-vation	Depth to Water	Ele-vation
3-Aug-90	24.41	11.47	25.32	11.30	25.01	12.85	27.60	10.48	-	-	-	-
27-Aug-90	-	-	-	-	-	-	27.52	10.56	22.93	14.41	22.45	11.78
12-Sep-90	-	-	-	-	24.06	13.80	27.38	10.70	-	-	-	-
13-Sep-90	24.33	11.55	22.44	14.18	-	-	-	-	22.78	14.56	21.27	12.96
14-Nov-90	24.13	11.75	21.97	14.65	24.47	13.39	27.32	10.76	22.65	14.69	21.80	12.43
3-Dec-90	24.81	11.07	22.16	14.46	26.29	11.57	27.39	10.69	22.78	14.56	22.00	12.23
11-Jan-91	25.90	9.98	25.33	11.29	28.38	9.48	28.03	10.05	24.98	12.36	22.51	11.72
11-Feb-91	26.40	9.48	26.55	10.07	29.55	8.31	28.08	10.00	26.05	11.29	22.69	11.54
8-Mar-91	26.44	9.44	26.56	10.06	29.95	7.91	28.33	9.75	26.63	10.71	22.77	11.46
12-Apr-91	26.31	9.57	25.92	10.70	29.62	8.24	28.52	9.56	26.22	11.12	22.36	11.87
10-May-91	25.48	10.40	24.90	11.72	29.01	8.85	28.34	9.74	25.84	11.50	22.14	12.09
6-Jun-91	25.61	10.27	24.75	11.87	29.06	8.80	28.21	9.87	25.69	11.65	22.17	12.06

NOTES:

Elevations are in feet above mean sea level (MSL).

Depth to water measured in feet from top of casing.

Table 3. RESULTS OF ORGANIC CHEMICAL ANALYSES OF GROUNDWATER SAMPLES FROM MONITORING WELLS

Purgeable Aromatics (EPA Method 8020)
Petroleum Hydrocarbons (EPA Method 8015)

WELL	DATE	BENZENE	TOLUENE	ETHYL BENZENE	XYLENES, TOTAL	TPH AS GASOLINE
LOD	(mg/l)	0.0005/0.0002 *		0.0005/0.0002 *		0.25/0.05**
MW-3	10-Mar-88	ND	ND	ND	ND	ND
	18-Mar-88	ND	ND	ND	ND	ND
	25-Mar-88	ND	ND	ND	ND	ND
	1-Apr-88	0.7	0.4	ND	1.2	ND
	15-Apr-88	ND	ND	ND	ND	ND
	28-Apr-88	ND	ND	ND	ND	ND
	28-Apr-88	ND (0.4)	ND (0.4)	ND (0.4)	ND (0.4)	ND
	11-May-88	ND	ND	ND	ND	ND
	27-May-88	ND	ND	ND	ND	ND
	16-Jun-88	ND	ND	ND	ND	ND
	27-Jul-88	ND	ND	ND	ND	ND
	26-Aug-88	ND	ND	ND	ND	ND
	30-Sep-88	ND	ND	ND	ND	ND
	2-Nov-88	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND
	2-Dec-88	ND	ND	ND	ND	ND
	4-Jan-89	ND	ND	ND	ND	ND
	3-Feb-89	ND	0.0009	ND	ND	ND (0.25)
	3-Dec-90	ND	0.0002 †	ND	ND	ND
	8-Mar-91	ND	ND	ND	ND	ND
	6-Jun-91	ND	ND	ND	ND d	NT
MW-7	4-Apr-89	ND	0.0007	0.0010	0.0012	ND
	3-May-89	ND	0.0012	0.0018	0.0048	0.27
	6-Jun-89	0.0010	0.001	0.0022	0.0011	0.4
	7-Jul-89	0.0002	0.001	0.00034	0.0059	0.56
	2-Aug-89	ND	0.0015	0.0054	0.0059	0.7
	7-Sep-89	ND	ND	ND	0.0015	0.59
	5-Oct-89	ND	0.0011	0.0006	0.0013	0.73
	2-Nov-89	0.0002	0.001	0.0055	0.0036	0.63
	6-Dec-89	0.0006	0.0087	0.0059	0.0036	0.32
	3-Jan-90	0.0007	0.0007	0.0006	0.0013	0.18
	1-Feb-90	ND	0.0009	ND	0.0003	ND
	28-Feb-90	ND	0.0006	0.0004	0.0052	0.09
	11-Apr-90	ND	0.0007	0.0033	0.0029	0.130
	18-May-90	ND	0.0008	0.0014	0.0008	0.43
	13-Sep-90	ND	0.0019	ND	ND	NT
	3-Dec-90	0.0002	0.0024	0.0019	0.0012	0.32
	11-Feb-91	ND	ND	ND	ND	ND
	8-Mar-91	ND	ND	ND	ND	ND
	6-Jun-91	ND	ND	ND	ND d	ND
MW-12	15-Feb-89	ND	ND	ND	ND	ND
	3-Mar-89	NT	NT	NT	NT	ND
	5-Apr-89	0.0014	0.0023	ND	0.0054	ND
	2-May-89	0.026	0.0033	ND	0.0063	0.10
	7-Jun-89	0.034	0.0037	ND	0.012	0.18
	6-Jul-89	0.029	0.0025	ND	0.0059	0.12
	2-Aug-89	0.023	0.002	ND	0.005	ND
	7-Sep-89 @	0.051/0.059	0.0016/0.0022	ND/ND	0.0049/0.0058	ND/ND
	5-Oct-89 @	0.037/0.040	0.0032/0.0031	ND/ND	0.0086/0.0094	ND/ND
	2-Nov-89	0.0056	0.0011	ND	0.0019	0.071
	6-Dec-89	0.0062	0.0012	ND	0.0017	0.06
	3-Jan-90	0.0086	0.0010	ND	0.0012	0.09
	1-Feb-90 @	0.0018/0.0024	0.0010/0.0004	ND/ND	0.0005/0.0004	ND/ND
	1-Mar-90	0.0016	0.0014	ND	0.0003	ND
	11-Apr-90	0.0066	0.0174	0.0015	0.0116	0.147
	18-May-90	ND	0.0009	ND	ND	ND
	12-Sep-90	ND	ND	ND	0.0002	NT
	3-Dec-90	0.0006	0.0002 †	ND	0.0002 †	ND

Table 3. RESULTS OF ORGANIC CHEMICAL ANALYSES OF GROUNDWATER SAMPLES FROM MONITORING WELLS

Purgeable Aromatics (EPA Method 8020)
Petroleum Hydrocarbons (EPA Method 8015)

WELL	DATE	BENZENE	TOLUENE	ETHYL BENZENE	XYLENES, TOTAL	TPH AS GASOLINE
LOD	(mg/l)	0.0005/0.0002 *		0.0005/0.0002 *		0.25/0.05**
MW-18	15-Feb-89	ND	ND	ND	ND	ND
	3-Mar-89	NT	NT	NT	NT	ND
	5-Apr-89	ND	ND	ND	ND	ND
	2-May-89	ND	ND	ND	ND	ND
	7-Jun-89	ND	ND	ND	ND	ND
	6-Jul-89	ND	ND	ND	ND	ND
	2-Aug-89	ND	ND	ND	ND	ND
	6-Sep-89	ND	ND	ND	ND	ND
	5-Oct-89	ND	ND	ND	ND	ND
	1-Nov-89	ND	ND	ND	ND	ND
	6-Dec-89	ND	0.0009	ND	0.0013	ND
	2-Jan-90	0.016	0.0080	0.0014	0.0098	0.10
	1-Feb-90	ND	ND	ND	ND	ND
	1-Mar-90	0.0003	ND	ND	0.0002	ND
	11-Apr-90	0.0004	0.0006	0.0005	0.0003	ND
	18-May-90	ND	ND	ND	ND	ND
	13-Sep-90	0.0027	ND	ND	ND	NT
	4-Dec-90	0.0029	0.0002 †	ND	0.0003 †	ND
	8-Mar-91	0.0009	0.0003	ND	ND	ND
	6-Jun-91	ND	ND	ND	ND d	NT
MW-19	15-Dec-89	5.0	0.30	0.078	0.61	12
	3-Jan-90	3.0	0.46	0.12	1.1	13
	1-Feb-90	1.1	0.022	LT 0.0040	0.032	1.9
	1-Mar-90	4.2	0.92	0.24	0.82	9.2
	11-Apr-90	3.8	1.1	0.82	0.34	10
	18-May-90	5.6	0.75	0.70	0.78	11
	13-Sep-90	1.4	1.2	0.35	1.6	NT
	4-Dec-90	2.1	1.5	0.42	1.6	12
	11-Feb-91	0.45 a	0.12 a	0.086	0.21 a	2.7
	8-Mar-91	0.52 a	0.057 a	0.020 a	0.083 a	1.40 b
	10-May-91	0.32 c	0.088	0.055	0.160	1.80
	6-Jun-91	0.38 c	0.027	0.023	0.092 d	3.40
	6-Jun-91 (dup)	0.46 c	0.038	0.030	0.150 d	NT
MW-20	15-Dec-89	ND	ND	ND	ND	ND
	3-Jan-90	0.0004	0.0004	ND	0.0008	ND
	1-Feb-90	ND	0.0014	ND	0.0005	ND
	28-Feb-90	ND	ND	ND	0.0005	ND
	11-Apr-90	0.0028	0.0110	0.0011	0.0066	ND
	18-May-90	ND	ND	ND	ND	ND
	12-Sep-90	ND	ND	ND	ND	NT
	3-Dec-90	ND	0.0002 †	ND	ND	ND
	8-Mar-91	ND	ND	ND	ND	ND
	6-Jun-91	ND	ND	ND	ND d	NT
MW-21	27-Aug-90	ND	ND	ND	ND	NT
	12-Sep-90	ND	ND	ND	ND	NT
	3-Dec-90	ND	0.0005 †	ND	0.0011 †	ND
	8-Mar-91	ND	ND	ND	ND	ND
	6-Jun-91	ND	ND	ND	ND d	NT
MW-22	27-Aug-90	ND	ND	ND	ND	NT
	13-Sep-90	ND	ND	ND	ND	NT
	4-Dec-90	ND	0.0002 †	ND	0.0002 †	ND
	8-Mar-91	ND	ND	ND	ND	ND
	6-Jun-91	ND	ND	ND	ND d	NT

Table 3. RESULTS OF ORGANIC CHEMICAL ANALYSES OF GROUNDWATER SAMPLES FROM MONITORING WELLS

Purgeable Aromatics (EPA Method 8020)
Petroleum Hydrocarbons (EPA Method 8015)

WELL	DATE	BENZENE	TOLUENE	ETHYL BENZENE	XYLENES, TOTAL	TPH AS GASOLINE
LOD	(mg/l)	0.0005/0.0002 *		0.0005/0.0002 *		0.25/0.05**
MW-23	27-Aug-90	ND	ND	ND	ND	NT
	13-Sep-90	ND	ND	ND	ND	NT
	4-Dec-90	ND	0.0002 †	ND	ND	ND
	8-Mar-91	ND	ND	ND	ND	ND
	6-Jun-91	ND	0.0004	ND	ND d	NT
BLANK	5-Apr-89	0.5	ND	ND	ND	ND
	1-May-89	ND	ND	ND	ND	ND
	6-Jun-89	ND	ND	ND	ND	ND
	6-Jul-89	ND	ND	ND	ND	ND
	1-Aug-89	ND	ND	ND	ND	ND
	2-Aug-89	ND	ND	ND	ND	ND
	3-Aug-89	ND	ND	ND	ND	ND
	6-Sep-89	ND	ND	ND	ND	ND
	7-Sep-89	ND	ND	ND	ND	ND
	4-Oct-89	ND	ND	ND	ND	ND
	2-Nov-89	ND	ND	ND	ND	ND
	5-Dec-89	ND	ND	ND	ND	ND
	3-Jan-90	ND	0.0006	ND	0.0017	ND
	13-Sep-90	ND	ND	ND	ND	NT
	11-Feb-91	ND	ND	ND	ND	NT
	8-Mar-91	ND	ND	ND	ND	ND

NOTES:

Results reported in milligrams per liter (mg/l); equivalent to parts per million.
Analyses performed by PACE Laboratories, Inc., Novato, California.

LOD: Limit of Detection.
ND: Not detected at or above LOD.
NT: Not tested.
*: LOD Changed to 0.0002 on 01-May-89
**: LOD Changed to 0.05 on 01-May-89
†: PACE laboratory reported toluene and total xylenes in the method blanks analyzed along with the samples.
@: Two values indicate results of duplicate analyses.
LT: Less than the concentration indicated.
a: Method detection limit is 0.004 mg/l.
b: Method detection limit is 1.0 mg/l.
c: Method detection limit is 0.001 mg/l.
d: Method detection limit is 0.0004 mg/l.
e: Method detection limit is 0.002 mg/l.

Table 4. TREATMENT SYSTEM WATER ANALYSIS: INFLUENT SAMPLES

HLA SAMPLE ID #	9011IN00	9011IN01	90120405	91011101	91011102 (dup) (k)	91021103
DATE	26-Nov-90	28-Nov-90	4-Dec-90	11-Jan-91	11-Jan-91	11-Feb-91
TEST METHOD/ COMPOUNDS						
EPA 8020						
Benzene	ND < 0.2	21	18	0.4	15	12
Toluene	ND < 0.2	110	12	ND < 0.2	7.3	0.7
Ethylbenzene	ND < 0.2	0.40	1.3	ND < 0.2	ND < 0.2	ND < 0.2
Xylenes	ND < 0.2	130	36	0.2	8.6	0.3
All other 8020 compounds	NT	NT	NT	NT	ND	NT
EPA 8015						
TPH (Gasoline)	ND < 50	470	250	ND < 50	NT	72
EPA 8010						
Chlorobenzene	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
Chloroform	3.7	4.2	1.5	2.1	ND < 0.5	1.0
1,2-Dichloroethane	ND < 0.5	1.0	3.1	4.6	3.3	4.1
1,2-Dichloroethylene *	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	3.6	ND < 0.5
Methylene chloride	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
Tetrachloroethylene	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
1,1,1-Trichloroethane	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
Trichloroethene	ND < 0.5	0.9	8.1	21	15	110
All other 8010 compounds	ND	ND	ND	ND	ND	ND
EPA 504						
Ethylene dibromide	ND < 0.05	0.21	0.48	NT	0.14	NT
Standard Method 408E						
Residual chlorine (mg/l)	ND < 0.05	NT	ND < 0.05	ND < 0.05	NT	0.10
EPA 360.2						
Dissolved oxygen (mg/l)	8.8	NT	8.9	5.9	NT	5.6 (h)

Table 4. TREATMENT SYSTEM WATER ANALYSIS: INFLUENT SAMPLES

HLA SAMPLE ID #	91022103 (k)	91033001	91033002 (dup)	91033007 (k)	91151201	91151202 (dup)
DATE	11-Feb-91	8-Mar-91	8-Mar-91	8-Mar-91	12-Apr-91	12-Apr-91
TEST METHOD/ COMPOUNDS						
EPA 8020						
Benzene	8.4	2.0	2.0	NT	ND < 0.2	ND < 0.2
Toluene	0.2	0.5	0.5	NT	ND < 0.2	ND < 0.2
Ethylbenzene	ND < 0.2	ND < 0.2	ND < 0.2	NT	ND < 0.2	ND < 0.2
Xylenes	1.2	ND < 0.2	ND < 0.2	NT	ND < 0.2	ND < 0.2
All other 8020 compounds	NT	NT	NT	NT	NT	NT
EPA 8015						
TPH (Gasoline)	NT	ND < 50	ND < 50	NT	ND < 50	ND < 50
EPA 8010						
Chlorobenzene	NT	ND < 0.5	NT	NT	ND < 0.5	NT
Chloroform	NT	ND < 0.5	NT	NT	ND < 0.5	NT
1,2-Dichloroethane	NT	2.5	NT	NT	3.8	NT
1,2-Dichloroethylene *	NT	ND < 0.5	NT	NT	ND < 0.5	NT
Methylene chloride	NT	ND < 0.5	NT	NT	ND < 2.0	NT
Tetrachloroethylene	NT	ND < 0.5	NT	NT	ND < 0.5	NT
1,1,1-Trichloroethane	NT	ND < 0.5	NT	NT	ND < 0.5	NT
Trichloroethene	NT	49	NT	NT	66	NT
All other 8010 compounds	NT	ND	NT	NT	ND	NT
EPA 504						
Ethylene dibromide	0.033	NT	NT	0.10	0.11 (k)	NT
Standard Method 408E						
Residual chlorine (mg/l)	NT	1.0	NT	NT	0.1	NT
EPA 360.2						
Dissolved oxygen (mg/l)	5.6 (h)	9.2 (h)	9.2 (h)	9.2 (h)	9.5 (h)	9.5 (h)

Table 4. TREATMENT SYSTEM WATER ANALYSIS: INFLUENT SAMPLES

HLA SAMPLE ID #	91191002	91230611
DATE	10-May-91	6-Jun-91
TEST METHOD/ COMPOUNDS		
EPA 8020		
Benzene	1.1	6.2
Toluene	0.54	0.7
Ethylbenzene	ND < 0.2	0.4
Xylenes	0.7	1.7
All other 8020 compounds	NT	NT
EPA 8015		
TPH (Gasoline)	ND < 50	65
EPA 8010		
Chlorobenzene	ND < 0.5	ND < 0.5
Chloroform	ND < 0.5	0.6
1,2-Dichloroethane	0.8	4.2
1,2-Dichloroethylene *	ND < 0.5	ND < 0.5
Methylene chloride	ND < 2.0	ND < 2.0
Tetrachloroethylene	ND < 0.5	ND < 0.5
1,1,1-Trichloroethane	ND < 0.5	ND < 0.5
Trichloroethene	ND < 0.5	110
All other 8010 compounds	ND	ND
EPA 504		
Ethylene dibromide	0.03 (k)	0.05 (k)
Standard Method 408E		
Residual chlorine (mg/l)	0.1	0.15
EPA 360.2		
Dissolved oxygen (mg/l)	8.7 (h)	9.9 (h)

Notes:

All results reported in micrograms per liter (ug/l) (equivalent to parts per billion) except where indicated.

All laboratory analysis performed by PACE Inc., Novato, California, except where indicated.

ND: Not detected at stated detection limit.

NT: Not tested.

k: Sample analyzed by Pacific Environmental Laboratory, San Francisco, California.

h: Dissolved oxygen measured by HLA in the field.

*: PACE reports trans-1,2-Dichloroethylene and KJC reports the combined concentrations of cis-1,2-Dichloroethylene and trans-1,2-Dichloroethylene.

Table 5. TREATMENT SYSTEM WATER ANALYSIS: INTERMEDIATE SAMPLES

HLA SAMPLE ID #	90120406	91011103	91021104	91033003	91151203	91191003	91230612
DATE	4-Dec-90	11-Jan-91	11-Feb-91	8-Mar-91	12-Apr-91	10-May-91	6-Jun-91
TEST METHOD/COMPOUNDS							
EPA 8020							
Benzene	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2
Toluene	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2
Ethylbenzene	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2
Xylenes	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.4
All other 8020 compounds	NT	ND	NT	NT	NT	NT	NT
EPA 8015							
TPH (Gasoline)	ND < 50	NT	NT	NT	ND < 50	NT	NT
EPA 8010							
Chloroform	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	0.6
1,2-Dichloroethane	ND < 0.5	ND < 0.5	ND < 0.5	1.5	2.3	1.4	2.9
Trichloroethene	ND < 0.5	ND < 0.5	1.0	2.2	4.1	2.4	12
All other 8010 compounds	ND	ND	ND	ND	ND	ND	ND

NOTES:

All results reported in micrograms per liter (ug/l) (equivalent to parts per billion).
All laboratory analysis performed by PACE Inc., Novato, California.
ND: Not detected at stated detection limit.
NT: Not tested.

Table 6. TREATMENT SYSTEM WATER ANALYSIS: EFFLUENT SAMPLES

HLA SAMPLE ID #	9011EF01	9011EF02(Dup)	9011EF03	90120407	90120408(Dup)	91011104
DATE	26-Nov-90	26-Nov-90	28-Nov-90	4-Dec-90	4-Dec-90	11-Jan-91
TEST METHOD/COMPOUNDS						
EPA 8020						
Benzene	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2
Toluene	ND < 0.2	ND < 0.2	ND < 0.2	0.2	ND < 0.2	ND < 0.2
Ethylbenzene	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2
Xylenes	ND < 0.2	ND < 0.2	ND < 0.2	0.2	ND < 0.2	ND < 0.2
All other 8020 compounds	NT	NT	NT	NT	NT	NT
EPA 8015						
TPH (Gasoline)	ND < 50	ND < 50	ND < 50	ND < 50	ND < 50	ND < 50
EPA 8010						
Chloroform	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
1,2-Dichloroethane	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
Methylene chloride	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
Trichloroethene	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
All 8010 compounds	ND	ND	NT	ND	ND	ND
EPA 504						
Ethylene dibromide	0.11	0.10	ND < 0.05	0.23	ND < 0.05	ND < 0.01 (k)
Standard Method 408E						
Residual chlorine (mg/l)	ND < 0.05	ND < 0.05	ND < 0.05	ND < 0.05	ND < 0.05	ND < 0.05
EPA 360.2						
Dissolved oxygen (mg/l)	7	6.8	0.8	1	1	1.3

Table 6. TREATMENT SYSTEM WATER ANALYSIS: EFFLUENT SAMPLES

HLA SAMPLE ID #	91021105	91021106 (dup)	91022105 (k)	91022106 (dup) (k)
DATE	11-Feb-91	11-Feb-91	11-Feb-91	11-Feb-91
TEST METHOD/COMPOUNDS				
EPA 8020				
Benzene	ND < 0.2	ND < 0.2	NT	NT
Toluene	0.3	ND < 0.2	NT	NT
Ethylbenzene	ND < 0.2	ND < 0.2	NT	NT
Xylenes	ND < 0.2	ND < 0.2	NT	NT
All other 8020 compounds	NT	NT	NT	NT
EPA 8015				
TPH (Gasoline)	ND < 50	ND < 50	NT	NT
EPA 8010				
Chloroform	ND < 0.5	ND < 0.5	NT	NT
1,2-Dichloroethane	ND < 0.5	ND < 0.5	NT	NT
Methylene chloride	ND < 0.5	ND < 0.5	NT	NT
Trichloroethene	ND < 0.5	ND < 0.5	NT	NT
All 8010 compounds	ND	ND	NT	NT
EPA 504				
Ethylene dibromide	NT	NT	ND < 0.02	ND < 0.02
Standard Method 408E				
Residual chlorine (mg/l)	ND < 0.05	NT	NT	NT
EPA 360.2				
Dissolved oxygen (mg/l)	4.4 (h)	4.4 (h)	4.4 (h)	4.4 (h)

Table 6. TREATMENT SYSTEM WATER ANALYSIS: EFFLUENT SAMPLES

HLA SAMPLE ID #	91033004	91033005 (dup)	91033008 (k)	91033009 (dup) (k)	91151204	91151205 (dup)
DATE	8-Mar-91	8-Mar-91	8-Mar-91	8-Mar-91	12-Apr-91	12-Apr-91
TEST METHOD/COMPOUNDS						
EPA 8020						
Benzene	ND < 0.2	ND < 0.2	NT	NT	ND < 0.2	ND < 0.2
Toluene	ND < 0.2	ND < 0.2	NT	NT	ND < 0.2	ND < 0.2
Ethylbenzene	ND < 0.2	ND < 0.2	NT	NT	ND < 0.2	ND < 0.2
Xylenes	ND < 0.2	ND < 0.2	NT	NT	ND < 0.2	ND < 0.2
All other 8020 compounds	NT	NT	NT	NT	NT	NT
EPA 8015						
TPH (Gasoline)	ND < 50	ND < 50	NT	NT	ND < 50	ND < 50
EPA 8010						
Chloroform	ND < 0.5	ND < 0.5	NT	NT	ND < 0.5	ND < 0.5
1,2-Dichloroethane	ND < 0.5	ND < 0.5	NT	NT	0.7	0.6
Methylene chloride	2.1 *	ND < 0.5	NT	NT	ND < 0.5	ND < 0.5
Trichloroethene	ND < 0.5	ND < 0.5	NT	NT	ND < 0.5	ND < 0.5
All 8010 compounds	ND < 0.5	ND	NT	NT	ND	ND
EPA 504						
Ethylene dibromide	NT	NT	ND < 0.01	ND < 0.01	ND < 0.01 (k)	ND < 0.01 (k)
Standard Method 408E						
Residual chlorine (mg/l)	ND < 0.05	NT	NT	NT	ND < 0.05	NT
EPA 360.2						
Dissolved oxygen (mg/l)	6.0 (h)	6.0 (h)	6.0 (h)	6.0 (h)	7.4 (h)	7.4 (h)

Table 6. TREATMENT SYSTEM WATER ANALYSIS: EFFLUENT SAMPLES

HLA SAMPLE ID #	91191004	91191005 (dup)	91230613	91230614 (dup)
DATE	10-May-91	10-May-91	6-Jun-91	6-Jun-91
TEST METHOD/COMPOUNDS				
EPA 8020				
Benzene	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2
Toluene	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2
Ethylbenzene	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2
Xylenes	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2
All other 8020 compounds	NT	NT	NT	NT
EPA 8015				
TPH (Gasoline)	ND < 50	ND < 50	ND < 50	ND < 50
EPA 8010				
Chloroform	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
1,2-Dichloroethane	1.4	ND < 0.5	1.0	0.9
Methylene chloride	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
Trichloroethene	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
All 8010 compounds	ND	ND	ND	ND
EPA 504				
Ethylene dibromide	ND < 0.01 (k)	ND < 0.01 (k)	ND < 0.01 (k)	ND < 0.01 (k)
Standard Method 408E				
Residual chlorine (mg/l)	ND < 0.05	NT	ND < 0.05	NT
EPA 360.2				
Dissolved oxygen (mg/l)	6.4 (h)	6.4 (h)	8.4 (h)	8.4 (h)

NOTES:

All results reported in micrograms per liter (µg/l) (equivalent to parts per billion) except where indicated.
All laboratory analysis performed by PACE Inc., Novato, California, except where indicated.
ND: Not detected at stated detection limit.
NT: Not tested.
k: Sample analyzed by Pacific Environmental Laboratory, San Francisco, California.
h: Dissolved oxygen measured by HLA in the field.
*: Methylene chloride present in laboratory blank at 3.3µg/L.

Table 7. TREATMENT SYSTEM WATER ANALYSIS: BLANK SAMPLES

HLA SAMPLE ID #	91022107 (trip blank) (k)	91021107 (trip blank)	911092 (trip blank) (k)	91033006 (field blank)	91033010 (field blank) (k)
DATE	11-Feb-91	11-Feb-91	12-Feb-91	8-Mar-91	8-Mar-91
TEST METHOD/COMPOUNDS					
EPA 8020					
Benzene	NT	ND < 0.2	ND < 0.2	ND < 0.2	NT
Toluene	NT	ND < 0.2	ND < 0.2	ND < 0.2	NT
Ethylbenzene	NT	ND < 0.2	ND < 0.2	ND < 0.2	NT
Xylenes	NT	ND < 0.2	ND < 0.2	ND < 0.2	NT
All other 8020 compounds	NT	NT	NT	NT	NT
EPA 8015					
TPH (Gasoline)	NT	NT	NT	ND < 50	NT
EPA 8010					
Chloroform	NT	ND < 0.5	ND < 0.5	ND < 0.5	NT
1,2-Dichloroethane	NT	ND < 0.5	ND < 0.5	ND < 0.5	NT
Methylene chloride	NT	0.5	ND < 0.5	ND < 0.5	NT
Trichloroethene	NT	ND < 0.5	ND < 0.5	ND < 0.5	NT
All 8010 compounds	NT	ND	ND	ND	NT
EPA 504					
Ethylene dibromide	ND < 0.02	NT	ND < 0.02	NT	ND < 0.01

Table 7. TREATMENT SYSTEM WATER ANALYSIS: BLANK SAMPLES

HLA SAMPLE ID #	91151206 (trip blank)	91191006 (field blank)	91230615 (field blank)
DATE	12-Apr-91	10-May-91	6-Jun-91
TEST METHOD/COMPOUNDS			
EPA 8020			
Benzene	ND < 0.2	ND < 0.2	ND < 0.2
Toluene	ND < 0.2	ND < 0.2	ND < 0.2
Ethylbenzene	ND < 0.2	ND < 0.2	ND < 0.2
Xylenes	ND < 0.2	ND < 0.2	ND < 0.2
All other 8020 compounds	NT	NT	NT
EPA 8015			
TPH (Gasoline)	ND < 50	ND < 50	ND < 50
EPA 8010			
Chloroform	ND < 0.5	ND < 0.5	ND < 0.5
1,2-Dichloroethane	ND < 0.5	ND < 0.5	ND < 0.5
Methylene chloride	ND < 0.5	ND < 0.5	ND < 0.5
Trichloroethene	ND < 0.5	ND < 0.5	ND < 0.5
All 8010 compounds	ND	ND	ND
EPA 504			
Ethylene dibromide	ND < 0.01 (k)	NT	ND < 0.01 (k)

NOTES:

All results reported in micrograms per liter (µg/l) (equivalent to parts per billion).

All laboratory analysis performed by PACE Inc., Novato, California, except where indicated.

ND: Not detected at stated detection limit.

NT: Not tested.

k: Sample analyzed by Pacific Environmental Laboratory, San Francisco, California.

Table 8. WATER ANALYSIS: RELEASE SAMPLE

HLA SAMPLE ID #	91191007
SAMPLE LOCATION	Release to Webster Street
DATE	10-May-91
TEST METHOD/ COMPOUNDS	
EPA 8020	
Benzene	74
Toluene	1.0
Ethylbenzene	5.6
Xylenes	4.0
All other 8020 compounds	NT
EPA 8015	
TPH (Gasoline)	420
EPA 8010	
Chlorobenzene	4.8
Chloroform	1.0
1,1-Dichloroethane	0.9
1,2-Dichloroethane	8.5
1,2-Dichloroethylene	ND < 0.5
Methylene chloride	ND < 0.5
Tetrachloroethylene	1.6
1,1,1-Trichloroethane	ND < 0.5
Trichloroethene	420
All other 8010 compounds	ND

Notes:

All results reported in micrograms per liter (µg/l) (equivalent to parts per billion).
All laboratory analysis performed by PACE Inc., Novato, California.
ND: Not detected at stated detection limit.
NT: Not tested.

APPENDIX

RESULTS OF LABORATORY ANALYSIS OF GROUNDWATER SAMPLES FROM MONITORING WELLS, TREATMENT SYSTEM SAMPLES, AND RELEASE SAMPLE

RESULTS OF LABORATORY ANALYSIS OF TREATMENT SYSTEM SAMPLES
APRIL 1991

pace
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THE ASSURANCE OF QUALITY

REPORT OF LABORATORY ANALYSIS

26

April 25, 1991

09382,039.02

CC: DL (2)
MTE

Mr. David Leland
Harding Lawson Associates
200 Rush Landing Road
Novato, CA 94945

RE: PACE Project No. 410412.505
PRP 09382,039.02

Dear Mr. Leland:

Enclosed is the report of laboratory analyses for samples received April 12, 1991.

If you have any questions concerning this report, please feel free to contact us.

Sincerely,

Lisa J. Petersen
Project Manager

Enclosures

11 Digital Drive
Novato, CA 94949
TEL: 415-883-6100
FAX: 415-883-2673

pace INCORPORATED
THE ASSURANCE OF QUALITY

REPORT OF LABORATORY ANALYSIS

Harding Lawson Associates
200 Rush Landing Road
Novato, CA 94945

April 25, 1991
PACE Project Number: 410412505
WPPLAB No. 371

Attn: Mr. David Leland

PRP 09382,039.02

INFLUENT

Parameter	Units	MDL	PACE Sample Number: 70 0036879 Date Collected: 04/12/91 Date Received: 04/12/91 91151201	DATE ANALYZED
INORGANIC ANALYSIS				
INDIVIDUAL PARAMETERS				
Chlorine, Total Residual	mg/L	0.05	0.1	04/15/91
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	04/16/91
Total Purgeable Fuels, as Gasoline	ug/L	50	ND	04/16/91
PURGEABLE AROMATICS (BTXE BY EPA 8020):			-	04/16/91
Benzene	ug/L	0.20	ND	04/16/91
Toluene	ug/L	0.20	ND	04/16/91
Ethylbenzene	ug/L	0.20	ND	04/16/91
Xylenes, Total	ug/L	0.20	ND	04/16/91
HALOGENATED VOLATILE COMPOUNDS EPA 8010				
Dichlorodifluoromethane	ug/L	2.0	ND	04/18/91
Chloromethane	ug/L	2.0	ND	04/18/91
Vinyl Chloride	ug/L	2.0	ND	04/18/91
Bromomethane	ug/L	2.0	ND	04/18/91
Chloroethane	ug/L	2.0	ND	04/18/91
Trichlorofluoromethane (Freon 11)	ug/L	2.0	ND	04/18/91
1,1-Dichloroethene	ug/L	0.5	ND	04/18/91
Methylene Chloride	ug/L	2.0	ND	04/18/91
trans-1,2-Dichloroethene	ug/L	0.5	ND	04/18/91
1,1-Dichloroethane	ug/L	0.5	ND	04/18/91
Chloroform	ug/L	0.5	ND	04/18/91
1,1,1-Trichloroethane (TCA)	ug/L	0.5	ND	04/18/91
Carbon Tetrachloride	ug/L	0.5	ND	04/18/91

MDL Method Detection Limit
ND Not detected at or above the MDL.

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PRP 09382,039.02

PACE Sample Number:			70 0036879	
Date Collected:			04/12/91	
Date Received:			04/12/91	
Parameter	Units	MDL	91151201(*)	DATE ANALYZED
ORGANIC ANALYSIS				
HALOGENATED VOLATILE COMPOUNDS EPA 8010				
1,2-Dichloroethane (EDC)	ug/L	0.5	3.8	04/18/91
Trichloroethene (TCE)	ug/L	0.5	66	04/18/91
1,2-Dichloropropane	ug/L	0.5	ND	04/18/91
Bromodichloromethane	ug/L	0.5	ND	04/18/91
2-Chloroethylvinyl ether	ug/L	0.5	ND	04/18/91
cis-1,3-Dichloropropene	ug/L	0.5	ND	04/18/91
trans-1,3-Dichloropropene	ug/L	0.5	ND	04/18/91
1,1,2-Trichloroethane	ug/L	0.5	ND	04/18/91
Tetrachloroethene	ug/L	0.5	ND	04/18/91
Dibromochloromethane	ug/L	0.5	ND	04/18/91
Chlorobenzene	ug/L	0.5	ND	04/18/91
Bromoform	ug/L	0.5	ND	04/18/91
1,1,2,2-Tetrachloroethane	ug/L	0.5	ND	04/18/91
1,3-Dichlorobenzene	ug/L	0.5	ND	04/18/91
1,4-Dichlorobenzene	ug/L	0.5	ND	04/18/91
1,2-Dichlorobenzene	ug/L	0.5	ND	04/18/91
Bromochloromethane (Surrogate Recovery)			79%	04/18/91
1,4-Dichlorobutane (Surrogate Recovery)			110%	04/18/91

MDL Method Detection Limit
ND Not detected at or above the MDL.
(*) cis-1,2-DCE quantified but not confirmed at 5.8ug/L.

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INFLUENT

PACE Sample Number:			70 0036887	
Date Collected:			04/12/91	
Date Received:			04/12/91	
Parameter	Units	MDL	91151202	DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	04/17/91
Total Purgeable Fuels, as Gasoline	ug/L	50	ND	04/17/91
PURGEABLE AROMATICS (BTXE BY EPA 8020):			-	04/17/91
Benzene	ug/L	0.20	ND	04/17/91
Toluene	ug/L	0.20	ND	04/17/91
Ethylbenzene	ug/L	0.20	ND	04/17/91
Xylenes, Total	ug/L	0.20	ND	04/17/91

MDL Method Detection Limit
ND Not detected at or above the MDL.

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INTERMEDIATE

Parameter	Units	MDL	70 0036895 04/12/91 04/12/91 91151203	DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	04/17/91
Total Purgeable Fuels, as Gasoline	ug/L	50	ND	04/17/91
PURGEABLE AROMATICS (BTXE BY EPA 8020):			-	04/17/91
Benzene	ug/L	0.20	ND	04/17/91
Toluene	ug/L	0.20	ND	04/17/91
Ethylbenzene	ug/L	0.20	ND	04/17/91
Xylenes, Total	ug/L	0.20	ND	04/17/91
HALOGENATED VOLATILE COMPOUNDS EPA 8010				
Dichlorodifluoromethane	ug/L	2.0	ND	04/18/91
Chloromethane	ug/L	2.0	ND	04/18/91
Vinyl Chloride	ug/L	2.0	ND	04/18/91
Bromomethane	ug/L	2.0	ND	04/18/91
Chloroethane	ug/L	2.0	ND	04/18/91
Trichlorofluoromethane (Freon 11)	ug/L	2.0	ND	04/18/91
1,1-Dichloroethene	ug/L	0.5	ND	04/18/91
Methylene Chloride	ug/L	2.0	ND	04/18/91
trans-1,2-Dichloroethene	ug/L	0.5	ND	04/18/91
1,1-Dichloroethane	ug/L	0.5	ND	04/18/91
Chloroform	ug/L	0.5	ND	04/18/91
1,1,1-Trichloroethane (TCA)	ug/L	0.5	ND	04/18/91
Carbon Tetrachloride	ug/L	0.5	ND	04/18/91
1,2-Dichloroethane (EDC)	ug/L	0.5	2.3	04/18/91
Trichloroethene (TCE)	ug/L	0.5	4.1	04/18/91
1,2-Dichloropropane	ug/L	0.5	ND	04/18/91
Bromodichloromethane	ug/L	0.5	ND	04/18/91
2-Chloroethylvinyl ether	ug/L	0.5	ND	04/18/91
cis-1,3-Dichloropropene	ug/L	0.5	ND	04/18/91
trans-1,3-Dichloropropene	ug/L	0.5	ND	04/18/91

MDL Method Detection Limit
ND Not detected at or above the MDL.

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PACE Sample Number:			70 0036895	
Date Collected:			04/12/91	
Date Received:			04/12/91	
Parameter	Units	MDL	91151203(*)	DATE ANALYZED
ORGANIC ANALYSIS				
HALOGENATED VOLATILE COMPOUNDS EPA 8010				
1,1,2-Trichloroethane	ug/L	0.5	ND	04/18/91
Tetrachloroethene	ug/L	0.5	ND	04/18/91
Dibromochloromethane	ug/L	0.5	ND	04/18/91
Chlorobenzene	ug/L	0.5	ND	04/18/91
Bromoform	ug/L	0.5	ND	04/18/91
1,1,2,2-Tetrachloroethane	ug/L	0.5	ND	04/18/91
1,3-Dichlorobenzene	ug/L	0.5	ND	04/18/91
1,4-Dichlorobenzene	ug/L	0.5	ND	04/18/91
1,2-Dichlorobenzene	ug/L	0.5	ND	04/18/91
Bromochloromethane (Surrogate Recovery)			72%	04/18/91
1,4-Dichlorobutane (Surrogate Recovery)			109%	04/18/91

MDL Method Detection Limit
ND Not detected at or above the MDL.
(*) cis-1,2-DCE quantified but not confirmed at 3.0ug/L.

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EFFLUENT

Parameter	Units	MDL	PACE Sample Number: 70 0036909	DATE ANALYZED
			Date Collected: 04/12/91	
			Date Received: 04/12/91	
			91151204	
INORGANIC ANALYSIS				
INDIVIDUAL PARAMETERS				
Chlorine, Total Residual	mg/L	0.05	ND	04/15/91
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	04/16/91
Total Purgeable Fuels, as Gasoline	ug/L	50	ND	04/16/91
PURGEABLE AROMATICS (BTXE BY EPA 8020):			-	04/16/91
Benzene	ug/L	0.20	ND	04/16/91
Toluene	ug/L	0.20	ND	04/16/91
Ethylbenzene	ug/L	0.20	ND	04/16/91
Xylenes, Total	ug/L	0.20	ND	04/16/91
HALOGENATED VOLATILE COMPOUNDS EPA 8010				
Dichlorodifluoromethane	ug/L	2.0	ND	04/18/91
Chloromethane	ug/L	2.0	ND	04/18/91
Vinyl Chloride	ug/L	2.0	ND	04/18/91
Bromomethane	ug/L	2.0	ND	04/18/91
Chloroethane	ug/L	2.0	ND	04/18/91
Trichlorofluoromethane (Freon 11)	ug/L	2.0	ND	04/18/91
1,1-Dichloroethene	ug/L	0.5	ND	04/18/91
Methylene Chloride	ug/L	2.0	ND	04/18/91
trans-1,2-Dichloroethene	ug/L	0.5	ND	04/18/91
1,1-Dichloroethane	ug/L	0.5	ND	04/18/91
Chloroform	ug/L	0.5	ND	04/18/91
1,1,1-Trichloroethane (TCA)	ug/L	0.5	ND	04/18/91
Carbon Tetrachloride	ug/L	0.5	ND	04/18/91
1,2-Dichloroethane (EDC)	ug/L	0.5	0.7	04/18/91
Trichloroethene (TCE)	ug/L	0.5	ND	04/18/91
1,2-Dichloropropane	ug/L	0.5	ND	04/18/91

MDL Method Detection Limit
ND Not detected at or above the MDL.

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Date Collected:			04/12/91	
Date Received:			04/12/91	
Parameter	Units	MDL	91151204(*)	DATE ANALYZED
ORGANIC ANALYSIS				
HALOGENATED VOLATILE COMPOUNDS EPA 8010				
Bromodichloromethane	ug/L	0.5	ND	04/18/91
2-Chloroethylvinyl ether	ug/L	0.5	ND	04/18/91
cis-1,3-Dichloropropene	ug/L	0.5	ND	04/18/91
trans-1,3-Dichloropropene	ug/L	0.5	ND	04/18/91
1,1,2-Trichloroethane	ug/L	0.5	ND	04/18/91
Tetrachloroethene	ug/L	0.5	ND	04/18/91
Dibromochloromethane	ug/L	0.5	ND	04/18/91
Chlorobenzene	ug/L	0.5	ND	04/18/91
Bromoform	ug/L	0.5	ND	04/18/91
1,1,2,2-Tetrachloroethane	ug/L	0.5	ND	04/18/91
1,3-Dichlorobenzene	ug/L	0.5	ND	04/18/91
1,4-Dichlorobenzene	ug/L	0.5	ND	04/18/91
1,2-Dichlorobenzene	ug/L	0.5	ND	04/18/91
Bromochloromethane (Surrogate Recovery)			81%	04/18/91
1,4-Dichlorobutane (Surrogate Recovery)			119%	04/18/91

MDL Method Detection Limit
ND Not detected at or above the MDL.
(*) cis-1,2-DCE quantified but not confirmed at 1.0 ug/L.

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EFFLUENT

Parameter	Units	MDL	70 0036917 04/12/91 04/12/91 91151205	DATE ANALYZED
PACE Sample Number:				
Date Collected:				
Date Received:				
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	04/16/91
Total Purgeable Fuels, as Gasoline	ug/L	50	ND	04/16/91
PURGEABLE AROMATICS (BTXE BY EPA 8020):			-	04/16/91
Benzene	ug/L	0.20	ND	04/16/91
Toluene	ug/L	0.20	ND	04/16/91
Ethylbenzene	ug/L	0.20	ND	04/16/91
Xylenes, Total	ug/L	0.20	ND	04/16/91
HALOGENATED VOLATILE COMPOUNDS EPA 8010				
Dichlorodifluoromethane	ug/L	2.0	ND	04/18/91
Chloromethane	ug/L	2.0	ND	04/18/91
Vinyl Chloride	ug/L	2.0	ND	04/18/91
Bromomethane	ug/L	2.0	ND	04/18/91
Chloroethane	ug/L	2.0	ND	04/18/91
Trichlorofluoromethane (Freon 11)	ug/L	2.0	ND	04/18/91
1,1-Dichloroethene	ug/L	0.5	ND	04/18/91
Methylene Chloride	ug/L	2.0	ND	04/18/91
trans-1,2-Dichloroethene	ug/L	0.5	ND	04/18/91
1,1-Dichloroethane	ug/L	0.5	ND	04/18/91
Chloroform	ug/L	0.5	ND	04/18/91
1,1,1-Trichloroethane (TCA)	ug/L	0.5	ND	04/18/91
Carbon Tetrachloride	ug/L	0.5	ND	04/18/91
1,2-Dichloroethane (EDC)	ug/L	0.5	0.6	04/18/91
Trichloroethene (TCE)	ug/L	0.5	ND	04/18/91
1,2-Dichloropropane	ug/L	0.5	ND	04/18/91
Bromodichloromethane	ug/L	0.5	ND	04/18/91
2-Chloroethylvinyl ether	ug/L	0.5	ND	04/18/91
cis-1,3-Dichloropropene	ug/L	0.5	ND	04/18/91
trans-1,3-Dichloropropene	ug/L	0.5	ND	04/18/91

MDL Method Detection Limit
ND Not detected at or above the MDL.

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PACE Sample Number:			70 0036917	
Date Collected:			04/12/91	
Date Received:			04/12/91	
Parameter	Units	MDL	91151205(*)	DATE ANALYZED
ORGANIC ANALYSIS				
HALOGENATED VOLATILE COMPOUNDS EPA 8010				
1,1,2-Trichloroethane	ug/L	0.5	ND	04/18/91
Tetrachloroethene	ug/L	0.5	ND	04/18/91
Dibromochloromethane	ug/L	0.5	ND	04/18/91
Chlorobenzene	ug/L	0.5	ND	04/18/91
Bromoform	ug/L	0.5	ND	04/18/91
1,1,2,2-Tetrachloroethane	ug/L	0.5	ND	04/18/91
1,3-Dichlorobenzene	ug/L	0.5	ND	04/18/91
1,4-Dichlorobenzene	ug/L	0.5	ND	04/18/91
1,2-Dichlorobenzene	ug/L	0.5	ND	04/18/91
Bromochloromethane (Surrogate Recovery)			81%	04/18/91
1,4-Dichlorobutane (Surrogate Recovery)			115%	04/18/91

MDL Method Detection Limit
ND Not detected at or above the MDL.
(*) cis-1,2-DCE quantified but not confirmed at 1.0 ug/L.

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Parameter	Units	MDL	70 0036925 04/12/91 04/12/91 91151206	DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	04/17/91
Total Purgeable Fuels, as Gasoline	ug/L	50	ND	04/17/91
PURGEABLE AROMATICS (BTXE BY EPA 8020):			-	04/17/91
Benzene	ug/L	0.20	ND	04/17/91
Toluene	ug/L	0.20	ND	04/17/91
Ethylbenzene	ug/L	0.20	ND	04/17/91
Xylenes, Total	ug/L	0.20	ND	04/17/91
HALOGENATED VOLATILE COMPOUNDS EPA 8010				
Dichlorodifluoromethane	ug/L	2.0	ND	04/19/91
Chloromethane	ug/L	2.0	ND	04/19/91
Vinyl Chloride	ug/L	2.0	ND	04/19/91
Bromomethane	ug/L	2.0	ND	04/19/91
Chloroethane	ug/L	2.0	ND	04/19/91
Trichlorofluoromethane (Freon 11)	ug/L	2.0	ND	04/19/91
1,1-Dichloroethene	ug/L	0.5	ND	04/19/91
Methylene Chloride	ug/L	2.0	ND	04/19/91
trans-1,2-Dichloroethene	ug/L	0.5	ND	04/19/91
1,1-Dichloroethane	ug/L	0.5	ND	04/19/91
Chloroform	ug/L	0.5	ND	04/19/91
1,1,1-Trichloroethane (TCA)	ug/L	0.5	ND	04/19/91
Carbon Tetrachloride	ug/L	0.5	ND	04/19/91
1,2-Dichloroethane (EDC)	ug/L	0.5	ND	04/19/91
Trichloroethene (TCE)	ug/L	0.5	ND	04/19/91
1,2-Dichloropropane	ug/L	0.5	ND	04/19/91
Bromodichloromethane	ug/L	0.5	ND	04/19/91
2-Chloroethylvinyl ether	ug/L	0.5	ND	04/19/91
cis-1,3-Dichloropropene	ug/L	0.5	ND	04/19/91
trans-1,3-Dichloropropene	ug/L	0.5	ND	04/19/91

MDL Method Detection Limit
ND Not detected at or above the MDL.

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PACE Sample Number:			70 0036925	
Date Collected:			04/12/91	
Date Received:			04/12/91	
Parameter	Units	MDL	91151206(*)	DATE ANALYZED
ORGANIC ANALYSIS				
HALOGENATED VOLATILE COMPOUNDS EPA 8010				
1,1,2-Trichloroethane	ug/L	0.5	ND	04/19/91
Tetrachloroethene	ug/L	0.5	ND	04/19/91
Dibromochloromethane	ug/L	0.5	ND	04/19/91
Chlorobenzene	ug/L	0.5	ND	04/19/91
Bromoform	ug/L	0.5	ND	04/19/91
1,1,2,2-Tetrachloroethane	ug/L	0.5	ND	04/19/91
1,3-Dichlorobenzene	ug/L	0.5	ND	04/19/91
1,4-Dichlorobenzene	ug/L	0.5	ND	04/19/91
1,2-Dichlorobenzene	ug/L	0.5	ND	04/19/91
Bromochloromethane (Surrogate Recovery)			74%	04/19/91
1,4-Dichlorobutane (Surrogate Recovery)			109%	04/19/91

MDL Method Detection Limit
ND Not detected at or above the MDL.
(*) cis-1,2-DCE quantified but not confirmed at 0.6ug/L.

These data have been reviewed and are approved for release.

Frank Resnick
Acting Laboratory Director

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Harding Lawson Associates
7655 Redwood Boulevard
P.O. Box 578
Novato, California 94948
415/892-0821
Telecopy: 415/892-0831
Telex: 340523

CHAIN OF CUSTODY FORM

Lab: PACE

Samplers: Doug Lund

Job Number: 09382.039.02

Name/Location: FRP

Project Manager: DAVID LELAND

Recorder: *Doug Lund* (Signature Required)

SOURCE CODE	MATRIX: Water	Sediment	Soil	Oil	#CONTAINERS & PRESERV.: Unpres.	H_2SO_4	HNO_3	HCl	SAMPLE NUMBER OR LAB NUMBER: Yr	Wk	Seq	DATE: Yr	Mo	Dy	Time	STATION DESCRIPTION/ NOTES
2	X				1			9	91	15	120	91	04	12	0800	3687.9
2	X							3	91	15	120	2	91	04	12	0830	88.7 delete per DL 4/15/91
2	X							6	91	15	120	3	91	04	12	0900	89.5
2	X				1			9	91	15	120	4	91	04	12	0930	90.9
2	X							9	91	15	120	5	91	04	12	1000	91.7
2	X				3			3	91	15	120	6	91	04	12	1030	92.5

EPA 601/8010	EPA 602/8020	EPA 624/8240	EPA 625/8270	Priority Pllnt. Metals	Benzene/Toluene/Xylene	Total Petrol. Hydrocarb.	EPA 8015	Chlorine	
X	X						X	X	
X	X								
X	X								
X	X						X	X	
X	X						X		
X	X								Medical Waste

LAB NUMBER: Yr	Wk	Seq	DEPTH IN FEET	COL MTD CD	QA CODE	MISCELLANEOUS
						61, A1

CHAIN OF CUSTODY RECORD

RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
DISPATCHED BY: (Signature) *Doug Lund* — DATE/TIME 4/12/91 1802	RECEIVED FOR LAB BY: (Signature) *Tina Meyers* — DATE/TIME 4/12/91 1802	
METHOD OF SHIPMENT: cooler w/ blue ice		

Laboratory Copy White — Project Office Copy Yellow — Field or Office Copy Pink

6533

LABORATORY REPORT

PACIFIC ENVIRONMENTAL LABORATORY
674 Harrison Street
San Francisco, CA 94107
415-243-2580

For Harding Lawson Associates
Attention David Leland
Address 200 Rush Landing Road
Novato, CA 94948

Received 04/15/91
Reported 05/03/91

Source:	PRP, Job No. 09382,039.02
Lab. No.:	912827
Sample I.D.:	91151201
Matrix:	Water
Depth:	--
Date Collected:	04/12/91
Time Collected:	0800
Collected by:	HLA
Date Extracted:	04/19/91
Date Analyzed:	04/23/91
EPA Analytical Method:	504

Analysis	Units	Analytical Results	Det. Lim.
1,2-dibromoethane (EDB)	ug/L	0.11	0.01

Comments: Analysis by microextraction and gas chromatography. Results reported in micrograms per liter.

Analyst Joseph Samoy, Lynn Perrine Manager Lenett Smith

LABORATORY REPORT

PACIFIC ENVIRONMENTAL LABORATORY
674 Harrison Street
San Francisco, CA 94107
415-243-2580

For Harding Lawson Associates
Attention David Leland
Address 200 Rush Landing Road
Novato, CA 94948

Received 04/15/91
Reported 05/03/91

Source:	PRP, Job No. 09382,039.02
Lab. No.:	912828
Sample I.D.:	91151204
Matrix:	Water
Depth:	--
Date Collected:	04/12/91
Time Collected:	0930
Collected by:	HLA
Date Extracted:	04/19/91
Date Analyzed:	04/23/91
EPA Analytical Method:	504

Analysis	Units	Analytical Results	Det. Lim.
1,2-dibromoethane (EDB)	ug/L	<0.01	0.01

Comments: Analysis by microextraction and gas chromatography. Results reported in micrograms per liter.

Analyst Joseph Samoy, Lynn Perrine Manager Everett Smith

LABORATORY REPORT

PACIFIC ENVIRONMENTAL LABORATORY
674 Harrison Street
San Francisco, CA 94107
415-243-2580

For Harding Lawson Associates
Attention David Leland
Address 200 Rush Landing Road
Novato, CA 94948

Received 04/15/91
Reported 05/03/91

Source:	PRP, Job No. 09382,039.02
Lab. No.:	912829
Sample I.D.:	91151205
Matrix:	Water
Depth:	--
Date Collected:	04/12/91
Time Collected:	1000
Collected by:	HLA
Date Extracted:	04/19/91
Date Analyzed:	04/23/91
EPA Analytical Method:	504

Analysis	Units	Analytical Results	Det. Lim.
1,2-dibromoethane (EDB)	ug/L	<0.01	0.01

Comments: Analysis by microextraction and gas chromatography. Results reported in micrograms per liter.

Analyst Joseph Samoy, Lynn Perrine Manager Robert Smith

LABORATORY REPORT

PACIFIC ENVIRONMENTAL LABORATORY
674 Harrison Street
San Francisco, CA 94107
415-243-2580

For Harding Lawson Associates
Attention David Leland
Address 200 Rush Landing Road
Novato, CA 94948

Received 04/15/91
Reported 05/03/91

Source:	PRP, Job No. 09382,039.02
Lab. No.:	912830
Sample I.D.:	91151206
Matrix:	Water
Depth:	--
Date Collected:	04/12/91
Time Collected:	1030
Collected by:	HLA
Date Extracted:	04/19/91
Date Analyzed:	04/23/91
EPA Analytical Method:	504

Analysis	Units	Analytical Results	Det. Lim.
1,2-dibromoethane (EDB)	ug/L	<0.01	0.01

Comments: Analysis by microextraction and gas chromatography. Results reported in micrograms per liter.

Analyst Joseph Samoy, Lynn Perrine Manager Leverett Smith

LABORATORY REPORT

PACIFIC ENVIRONMENTAL LABORATORY
674 Harrison Street
San Francisco, CA 94107
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For Harding Lawson Associates
Attention David Leland
Address 200 Rush Landing Road
Novato, CA 94948

Received 04/15/91
Reported 05/03/91

Quality Control Page

Source:	PRP, Job No. 09382,039.02
Lab. No.:	912830
Sample I.D.:	91151206
Matrix:	Water
Depth:	--
Date Collected:	04/12/91
Time Collected:	1030
Collected by:	HLA
Date Extracted:	04/19/91
Date Analyzed:	04/23/91
EPA Analytical Method:	504

Analysis	Units	Replicate Analytical Results			Det. Lim.
1,2-dibromoethane (EDB)	ug/L	<0.01	<0.01	Spike rec. 75%	0.01

Comments: Analysis by microextraction and gas chromatography. Results reported in micrograms per liter.

Analyst Joseph Samoy, Lynn Perrine Manager Leverett Smith

LABORATORY REPORT

PACIFIC ENVIRONMENTAL LABORATORY
674 Harrison Street
San Francisco, CA 94107
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For Harding Lawson Associates
Attention David Leland
Address 200 Rush Landing Road
Novato, CA 94948

Received --
Reported 05/03/91

Quality Control Page

Source:	--
Lab. No.:	Method Blank and Spike
Sample I.D.:	Reagent Water
Matrix:	Water
Depth:	--
Date Collected:	--
Time Collected:	--
Collected by:	PEL
Date Extracted:	04/19/91
Date Analyzed:	04/23/91
EPA Analytical Method:	504

Analysis	Units	Analytical Results		Det. Lim.
1,2-dibromoethane (EDB)	ug/L	<0.01	Spike rec. 98%	0.01

Comments: Analysis by microextraction and gas chromatography. Results reported in micrograms per liter.

Analyst Joseph Samoy, Lynn Perrine Manager Leslett Smith

RESULTS OF LABORATORY ANALYSIS OF GROUNDWATER SAMPLES FROM MONITORING WELLS, TREATMENT SYSTEM SAMPLES, AND RELEASE SAMPLE MAY 1991

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THE ASSURANCE OF QUALITY

REPORT OF LABORATORY ANALYSIS

Mark Egbert
David Leland

May 22, 1991

Mr. David Leland
Harding Lawson Associates
200 Rush Landing Road
Novato, CA 94945

RE: PACE Project No. 410510.502
09382,039.02

Dear Mr. Leland:

Enclosed is the report of laboratory analyses for samples received May 10, 1991.

If you have any questions concerning this report, please feel free to contact us.

Sincerely,

Lisa J. Petersen
Project Manager

Enclosures

11 Digital Drive
Novato, CA 94949
TEL: 415-883-8100
FAX: 415-883-2673

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REPORT OF LABORATORY ANALYSIS

Harding Lawson Associates
200 Rush Landing Road
Novato, CA 94945

May 22, 1991
PACE Project Number: 410510502

Attn: Mr. David Leland

09382,039.02

MW-19

Parameter	Units	MDL	70 0044820 05/10/91 05/10/91 91191001	DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	05/16/91
Total Purgeable Fuels, as Gasoline	ug/L	50	1800	05/16/91
PURGEABLE AROMATICS (BTXE BY EPA 8020):			-	05/16/91
Benzene	ug/L	1.0	320	05/16/91
Toluene	ug/L	0.20	88	05/16/91
Ethylbenzene	ug/L	0.20	55	05/16/91
Xylenes, Total	ug/L	0.20	160	05/16/91

MDL Method Detection Limit

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REPORT OF LABORATORY ANALYSIS

May 22, 1991
PACE Project Number: 410510502

09382,039.02

INFLUENT

Parameter	Units	MDL	70 0044839	DATE ANALYZED
PACE Sample Number:				
Date Collected:			05/10/91	
Date Received:			05/10/91	
INORGANIC ANALYSIS				
INDIVIDUAL PARAMETERS				
Chlorine, Total Residual	mg/L	0.05	0.1	05/10/91
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	05/17/91
Total Purgeable Fuels, as Gasoline	ug/L	50	ND	05/17/91
PURGEABLE AROMATICS (BTXE BY EPA 8020):			-	05/17/91
Benzene	ug/L	0.20	1.1	05/17/91
Toluene	ug/L	0.20	0.54	05/17/91
Ethylbenzene	ug/L	0.20	ND	05/17/91
Xylenes, Total	ug/L	0.20	0.70	05/17/91
HALOGENATED VOLATILE COMPOUNDS EPA 8010				
Dichlorodifluoromethane	ug/L	2.0	ND	05/13/91
Chloromethane	ug/L	2.0	ND	05/13/91
Vinyl Chloride	ug/L	2.0	ND	05/13/91
Bromomethane	ug/L	2.0	ND	05/13/91
Chloroethane	ug/L	2.0	ND	05/13/91
Trichlorofluoromethane (Freon 11)	ug/L	2.0	ND	05/13/91
1,1-Dichloroethene	ug/L	0.5	ND	05/13/91
Methylene Chloride	ug/L	2.0	ND	05/13/91
trans-1,2-Dichloroethene	ug/L	0.5	ND	05/13/91
1,1-Dichloroethane	ug/L	0.5	ND	05/13/91
Chloroform	ug/L	0.5	ND	05/13/91
1,1,1-Trichloroethane (TCA)	ug/L	0.5	ND	05/13/91
Carbon Tetrachloride	ug/L	0.5	ND	05/13/91
1,2-Dichloroethane (EDC)	ug/L	0.5	0.8	05/13/91
Trichloroethene (TCE)	ug/L	0.5	ND	05/13/91
1,2-Dichloropropane	ug/L	0.5	ND	05/13/91

MDL Method Detection Limit
ND Not detected at or above the MDL.

REPORT OF LABORATORY ANALYSIS

May 22, 1991
PACE Project Number: 410510502

09382,039.02

Parameter	Units	MDL	70 0044839 05/10/91 05/10/91 91191002	DATE ANALYZED
ORGANIC ANALYSIS				
HALOGENATED VOLATILE COMPOUNDS EPA 8010				
Bromodichloromethane	ug/L	0.5	ND	05/13/91
2-Chloroethylvinyl ether	ug/L	0.5	ND	05/13/91
cis-1,3-Dichloropropene	ug/L	0.5	ND	05/13/91
trans-1,3-Dichloropropene	ug/L	0.5	ND	05/13/91
1,1,2-Trichloroethane	ug/L	0.5	ND	05/13/91
Tetrachloroethene	ug/L	0.5	ND	05/13/91
Dibromochloromethane	ug/L	0.5	ND	05/13/91
Chlorobenzene	ug/L	0.5	ND	05/13/91
Bromoform	ug/L	0.5	ND	05/13/91
1,1,2,2-Tetrachloroethane	ug/L	0.5	ND	05/13/91
1,3-Dichlorobenzene	ug/L	0.5	ND	05/13/91
1,4-Dichlorobenzene	ug/L	0.5	ND	05/13/91
1,2-Dichlorobenzene	ug/L	0.5	ND	05/13/91
Bromochloromethane (Surrogate Recovery)			98%	05/13/91
1,4-Dichlorobutane (Surrogate Recovery)			78%	05/13/91

MDL Method Detection Limit
ND Not detected at or above the MDL.

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REPORT OF LABORATORY ANALYSIS

Mr. David Leland
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May 22, 1991
PACE Project Number: 410510502

09382,039.02

INTERMEDIATE

PACE Sample Number:			70 0044847	
Date Collected:			05/10/91	
Date Received:			05/10/91	
Parameter	Units	MDL	91191003	DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE AROMATICS (BTXE BY EPA 8020):			-	05/17/91
Benzene	ug/L	0.20	ND	05/17/91
Toluene	ug/L	0.20	ND	05/17/91
Ethylbenzene	ug/L	0.20	ND	05/17/91
Xylenes, Total	ug/L	0.20	ND	05/17/91
HALOGENATED VOLATILE COMPOUNDS EPA 8010				
Dichlorodifluoromethane	ug/L	2.0	ND	05/13/91
Chloromethane	ug/L	2.0	ND	05/13/91
Vinyl Chloride	ug/L	2.0	ND	05/13/91
Bromomethane	ug/L	2.0	ND	05/13/91
Chloroethane	ug/L	2.0	ND	05/13/91
Trichlorofluoromethane (Freon 11)	ug/L	2.0	ND	05/13/91
1,1-Dichloroethene	ug/L	0.5	ND	05/13/91
Methylene Chloride	ug/L	2.0	ND	05/13/91
trans-1,2-Dichloroethene	ug/L	0.5	ND	05/13/91
1,1-Dichloroethane	ug/L	0.5	ND	05/13/91
Chloroform	ug/L	0.5	ND	05/13/91
1,1,1-Trichloroethane (TCA)	ug/L	0.5	ND	05/13/91
Carbon Tetrachloride	ug/L	0.5	ND	05/13/91
1,2-Dichloroethane (EDC)	ug/L	0.5	1.4	05/13/91
Trichloroethene (TCE)	ug/L	0.5	2.4	05/13/91
1,2-Dichloropropane	ug/L	0.5	ND	05/13/91
Bromodichloromethane	ug/L	0.5	ND	05/13/91
2-Chloroethylvinyl ether	ug/L	0.5	ND	05/13/91
cis-1,3-Dichloropropene	ug/L	0.5	ND	05/13/91
trans-1,3-Dichloropropene	ug/L	0.5	ND	05/13/91

MDL Method Detection Limit
ND Not detected at or above the MDL.

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REPORT OF LABORATORY ANALYSIS

Mr. David Leland
Page 5

May 22, 1991
PACE Project Number: 410510502

09382,039.02

Parameter	Units	MDL	70 0044847 05/10/91 05/10/91 91191003	DATE ANALYZED
PACE Sample Number:				
Date Collected:				
Date Received:				
ORGANIC ANALYSIS				
HALOGENATED VOLATILE COMPOUNDS EPA 8010				
1,1,2-Trichloroethane	ug/L	0.5	ND	05/13/91
Tetrachloroethene	ug/L	0.5	ND	05/13/91
Dibromochloromethane	ug/L	0.5	ND	05/13/91
Chlorobenzene	ug/L	0.5	ND	05/13/91
Bromoform	ug/L	0.5	ND	05/13/91
1,1,2,2-Tetrachloroethane	ug/L	0.5	ND	05/13/91
1,3-Dichlorobenzene	ug/L	0.5	ND	05/13/91
1,4-Dichlorobenzene	ug/L	0.5	ND	05/13/91
1,2-Dichlorobenzene	ug/L	0.5	ND	05/13/91
Bromochloromethane (Surrogate Recovery)			96%	05/13/91
1,4-Dichlorobutane (Surrogate Recovery)			92%	05/13/91

MDL Method Detection Limit
ND Not detected at or above the MDL.

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REPORT OF LABORATORY ANALYSIS

Mr. David Leland
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May 22, 1991
PACE Project Number: 410510502

09382,039.02

EFFLUENT

Parameter	Units	MDL	70 0044855 91191004	DATE ANALYZED
PACE Sample Number:				
Date Collected:			05/10/91	
Date Received:			05/10/91	
INORGANIC ANALYSIS				
INDIVIDUAL PARAMETERS				
Chlorine, Total Residual	mg/L	0.05	ND	05/10/91
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	05/16/91
Total Purgeable Fuels, as Gasoline	ug/L	50	ND	05/16/91
PURGEABLE AROMATICS (BTXE BY EPA 8020):			-	05/16/91
Benzene	ug/L	0.20	ND	05/16/91
Toluene	ug/L	0.20	ND	05/16/91
Ethylbenzene	ug/L	0.20	ND	05/16/91
Xylenes, Total	ug/L	0.20	ND	05/16/91
HALOGENATED VOLATILE COMPOUNDS EPA 8010				
Dichlorodifluoromethane	ug/L	2.0	ND	05/13/91
Chloromethane	ug/L	2.0	ND	05/13/91
Vinyl Chloride	ug/L	2.0	ND	05/13/91
Bromomethane	ug/L	2.0	ND	05/13/91
Chloroethane	ug/L	2.0	ND	05/13/91
Trichlorofluoromethane (Freon 11)	ug/L	2.0	ND	05/13/91
1,1-Dichloroethene	ug/L	0.5	ND	05/13/91
Methylene Chloride	ug/L	2.0	ND	05/13/91
trans-1,2-Dichloroethene	ug/L	0.5	ND	05/13/91
1,1-Dichloroethane	ug/L	0.5	ND	05/13/91
Chloroform	ug/L	0.5	ND	05/13/91
1,1,1-Trichloroethane (TCA)	ug/L	0.5	ND	05/13/91
Carbon Tetrachloride	ug/L	0.5	ND	05/13/91
1,2-Dichloroethane (EDC)	ug/L	0.5	1.4	05/13/91
Trichloroethene (TCE)	ug/L	0.5	ND	05/13/91
1,2-Dichloropropane	ug/L	0.5	ND	05/13/91

MDL Method Detection Limit
ND Not detected at or above the MDL.

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THE ASSURANCE OF QUALITY

REPORT OF LABORATORY ANALYSIS

Mr. David Leland
Page 8

May 22, 1991
PACE Project Number: 410510502

09382,039.02

EFFLUENT

Parameter	Units	MDL	70 0044863 05/10/91 05/10/91 91191005	DATE ANALYZED
PACE Sample Number:				
Date Collected:				
Date Received:				
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	05/17/91
Total Purgeable Fuels, as Gasoline	ug/L	50	ND	05/17/91
PURGEABLE AROMATICS (BTXE BY EPA 8020):			-	05/17/91
Benzene	ug/L	0.20	ND	05/17/91
Toluene	ug/L	0.20	ND	05/17/91
Ethylbenzene	ug/L	0.20	ND	05/17/91
Xylenes, Total	ug/L	0.20	ND	05/17/91
HALOGENATED VOLATILE COMPOUNDS EPA 8010				
Dichlorodifluoromethane	ug/L	2.0	ND	05/13/91
Chloromethane	ug/L	2.0	ND	05/13/91
Vinyl Chloride	ug/L	2.0	ND	05/13/91
Bromomethane	ug/L	2.0	ND	05/13/91
Chloroethane	ug/L	2.0	ND	05/13/91
Trichlorofluoromethane (Freon 11)	ug/L	2.0	ND	05/13/91
1,1-Dichloroethene	ug/L	0.5	ND	05/13/91
Methylene Chloride	ug/L	2.0	ND	05/13/91
trans-1,2-Dichloroethene	ug/L	0.5	ND	05/13/91
1,1-Dichloroethane	ug/L	0.5	ND	05/13/91
Chloroform	ug/L	0.5	ND	05/13/91
1,1,1-Trichloroethane (TCA)	ug/L	0.5	ND	05/13/91
Carbon Tetrachloride	ug/L	0.5	ND	05/13/91
1,2-Dichloroethane (EDC)	ug/L	0.5	ND	05/13/91
Trichloroethene (TCE)	ug/L	0.5	ND	05/13/91
1,2-Dichloropropane	ug/L	0.5	ND	05/13/91
Bromodichloromethane	ug/L	0.5	ND	05/13/91
2-Chloroethylvinyl ether	ug/L	0.5	ND	05/13/91
cis-1,3-Dichloropropene	ug/L	0.5	ND	05/13/91
trans-1,3-Dichloropropene	ug/L	0.5	ND	05/13/91

MDL Method Detection Limit
ND Not detected at or above the MDL.

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REPORT OF LABORATORY ANALYSIS

May 22, 1991
PACE Project Number: 410510502

09382,039.02

Parameter	Units	MDL	70 0044863 05/10/91 05/10/91 91191005	DATE ANALYZED
PACE Sample Number:				
Date Collected:				
Date Received:				
ORGANIC ANALYSIS				
HALOGENATED VOLATILE COMPOUNDS EPA 8010				
1,1,2-Trichloroethane	ug/L	0.5	ND	05/13/91
Tetrachloroethene	ug/L	0.5	ND	05/13/91
Dibromochloromethane	ug/L	0.5	ND	05/13/91
Chlorobenzene	ug/L	0.5	ND	05/13/91
Bromoform	ug/L	0.5	ND	05/13/91
1,1,2,2-Tetrachloroethane	ug/L	0.5	ND	05/13/91
1,3-Dichlorobenzene	ug/L	0.5	ND	05/13/91
1,4-Dichlorobenzene	ug/L	0.5	ND	05/13/91
1,2-Dichlorobenzene	ug/L	0.5	ND	05/13/91
Bromochloromethane (Surrogate Recovery)			96%	05/13/91
1,4-Dichlorobutane (Surrogate Recovery)			93%	05/13/91

MDL Method Detection Limit
ND Not detected at or above the MDL.

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REPORT OF LABORATORY ANALYSIS

Mr. David Leland
Page 10

May 22, 1991
PACE Project Number: 410510502

09382,039.02

FIELD BLANK

PACE Sample Number:			70 0044871	
Date Collected:			05/10/91	
Date Received:			05/10/91	
Parameter	Units	MDL	91191006	DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE AROMATICS (BTXE BY EPA 8020):			-	05/17/91
Benzene	ug/L	0.20	ND	05/17/91
Toluene	ug/L	0.20	ND	05/17/91
Ethylbenzene	ug/L	0.20	ND	05/17/91
Xylenes, Total	ug/L	0.20	ND	05/17/91
HALOGENATED VOLATILE COMPOUNDS EPA 8010				
Dichlorodifluoromethane	ug/L	2.0	ND	05/13/91
Chloromethane	ug/L	2.0	ND	05/13/91
Vinyl Chloride	ug/L	2.0	ND	05/13/91
Bromomethane	ug/L	2.0	ND	05/13/91
Chloroethane	ug/L	2.0	ND	05/13/91
Trichlorofluoromethane (Freon 11)	ug/L	2.0	ND	05/13/91
1,1-Dichloroethene	ug/L	0.5	ND	05/13/91
Methylene Chloride	ug/L	2.0	ND	05/13/91
trans-1,2-Dichloroethene	ug/L	0.5	ND	05/13/91
1,1-Dichloroethane	ug/L	0.5	ND	05/13/91
Chloroform	ug/L	0.5	ND	05/13/91
1,1,1-Trichloroethane (TCA)	ug/L	0.5	ND	05/13/91
Carbon Tetrachloride	ug/L	0.5	ND	05/13/91
1,2-Dichloroethane (EDC)	ug/L	0.5	ND	05/13/91
Trichloroethene (TCE)	ug/L	0.5	ND	05/13/91
1,2-Dichloropropane	ug/L	0.5	ND	05/13/91
Bromodichloromethane	ug/L	0.5	ND	05/13/91
2-Chloroethylvinyl ether	ug/L	0.5	ND	05/13/91
cis-1,3-Dichloropropene	ug/L	0.5	ND	05/13/91
trans-1,3-Dichloropropene	ug/L	0.5	ND	05/13/91

MDL Method Detection Limit
ND Not detected at or above the MDL.

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FAX: 415-883-2673

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REPORT OF LABORATORY ANALYSIS

Mr. David Leland
Page 11

May 22, 1991
PACE Project Number: 410510502

09382,039.02

PACE Sample Number:			70 0044871	
Date Collected:			05/10/91	
Date Received:			05/10/91	
Parameter	Units	MDL	91191006	DATE ANALYZED
ORGANIC ANALYSIS				
HALOGENATED VOLATILE COMPOUNDS EPA 8010				
1,1,2-Trichloroethane	ug/L	0.5	ND	05/13/91
Tetrachloroethene	ug/L	0.5	ND	05/13/91
Dibromochloromethane	ug/L	0.5	ND	05/13/91
Chlorobenzene	ug/L	0.5	ND	05/13/91
Bromoform	ug/L	0.5	ND	05/13/91
1,1,2,2-Tetrachloroethane	ug/L	0.5	ND	05/13/91
1,3-Dichlorobenzene	ug/L	0.5	ND	05/13/91
1,4-Dichlorobenzene	ug/L	0.5	ND	05/13/91
1,2-Dichlorobenzene	ug/L	0.5	ND	05/13/91
Bromochloromethane (Surrogate Recovery)			94%	05/13/91
1,4-Dichlorobutane (Surrogate Recovery)			93%	05/13/91

MDL Method Detection Limit
ND Not detected at or above the MDL.

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Mr. David Leland
Page 12

May 22, 1991
PACE Project Number: 410510502

09382,039.02

Webster St. discharge

Parameter	Units	MDL	91191007	DATE ANALYZED
PACE Sample Number:			70 0044880	
Date Collected:			05/10/91	
Date Received:			05/10/91	
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	05/21/91
Total Purgeable Fuels, as Gasoline	ug/L	50	420	05/21/91
PURGEABLE AROMATICS (BTXE BY EPA 8020):			-	05/21/91
Benzene	ug/L	0.20	74	05/21/91
Toluene	ug/L	0.20	1.0	05/21/91
Ethylbenzene	ug/L	0.20	5.6	05/21/91
Xylenes, Total	ug/L	0.20	4.0	05/21/91
HALOGENATED VOLATILE COMPOUNDS EPA 8010				
Dichlorodifluoromethane	ug/L	2.0	ND	05/13/91
Chloromethane	ug/L	2.0	ND	05/13/91
Vinyl Chloride	ug/L	2.0	ND	05/13/91
Bromomethane	ug/L	2.0	ND	05/13/91
Chloroethane	ug/L	2.0	ND	05/13/91
Trichlorofluoromethane (Freon 11)	ug/L	2.0	ND	05/13/91
1,1-Dichloroethene	ug/L	0.5	ND	05/13/91
Methylene Chloride	ug/L	2.0	ND	05/13/91
trans-1,2-Dichloroethene	ug/L	0.5	ND	05/13/91
1,1-Dichloroethane	ug/L	0.5	0.9	05/13/91
Chloroform	ug/L	0.5	1.0	05/13/91
1,1,1-Trichloroethane (TCA)	ug/L	0.5	ND	05/13/91
Carbon Tetrachloride	ug/L	0.5	ND	05/13/91
1,2-Dichloroethane (EDC)	ug/L	0.5	8.5	05/13/91
Trichloroethene (TCE)	ug/L	25.0	420	05/13/91
1,2-Dichloropropane	ug/L	0.5	ND	05/13/91
Bromodichloromethane	ug/L	0.5	ND	05/13/91
2-Chloroethylvinyl ether	ug/L	0.5	ND	05/13/91
cis-1,3-Dichloropropene	ug/L	0.5	ND	05/13/91
trans-1,3-Dichloropropene	ug/L	0.5	ND	05/13/91

MDL Method Detection Limit
ND Not detected at or above the MDL.

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REPORT OF LABORATORY ANALYSIS

May 22, 1991
PACE Project Number: 410510502

09382,039.02

Parameter	Units	MDL	70 0044880 05/10/91 05/10/91 91191007	DATE ANALYZED
ORGANIC ANALYSIS				
HALOGENATED VOLATILE COMPOUNDS EPA 8010				
1,1,2-Trichloroethane	ug/L	0.5	ND	05/13/91
Tetrachloroethene	ug/L	0.5	1.6	05/13/91
Dibromochloromethane	ug/L	0.5	ND	05/13/91
Chlorobenzene	ug/L	0.5	4.8	05/13/91
Bromoform	ug/L	0.5	ND	05/13/91
1,1,2,2-Tetrachloroethane	ug/L	0.5	ND	05/13/91
1,3-Dichlorobenzene	ug/L	0.5	ND	05/13/91
1,4-Dichlorobenzene	ug/L	0.5	ND	05/13/91
1,2-Dichlorobenzene	ug/L	0.5	ND	05/13/91
Bromochloromethane (Surrogate Recovery)			97%	05/13/91
1,4-Dichlorobutane (Surrogate Recovery)			95%	05/13/91

MDL Method Detection Limit
ND Not detected at or above the MDL.

These data have been reviewed and are approved for release.

Mark A. Valentini

Mark A. Valentini, Ph.D.
Regional Director

11 Digital Drive
Novato, CA 94949
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[redacted]arding [redacted]on As[redacted]tes
7655 Redwood Boulevard
P.O. Box 578
Novato, California 94948
415/892-0821
Telecopy: General: 415/892-0831
Accounting: 415/898-1052

CHAIN OF CUSTODY FORM

410510 · 502

Lab: PACE

Job Number: 09382,039.02

Name/Location: PRP

Project Manager: DAVID LELAND

Samplers: DOUG LUND

Recorder: [signature] (Signature Required)

SOURCE CODE	MATRIX: Water	Sediment	Soil	Oil	#CONTAINERS & PRESERV.: Unpres.	H_2SO_4	HNO_3	HCl	SAMPLE NUMBER OR LAB NUMBER: Yr	Wk	Seq	DATE: Yr	Mo	Dy	Time	STATION DESCRIPTION/ NOTES	EPA 601/8010	EPA 602/8020 (BTEX)	EPA 624/8240	EPA 625/8270	ICP METALS	EPA 8015M/TPH mod	Chlorine	
23	X							4	91	19	1001	91	05	10	0610			X				X		44820
23	X				1			6	91	19	1002	91	05	10	0800		X	X				X	X	839
23	X							4	91	19	1003	91	05	10	0830		X	X						847
23	X				1			6	91	19	1004	91	05	10	0900		X	X				X	X	855
23	X							6	91	19	1005	91	05	10	0930		X	X				X		86.3
23	X							4	91	19	1006	91	05	10	1000		X	X						87.1
23	X							2	91	19	1007	91	05	10	1030		X	(X)				(X)		880

added 5/14 per LWP per request of D. Leland

91 LAB NUMBER D/3: Yr	Wk	Seq	DEPTH IN FEET	COL MTD CD	QA CODE	MISCELLANEOUS

CHAIN OF CUSTODY RECORD

RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME

DISPATCHED BY: (Signature)	DATE/TIME	RECEIVED FOR LAB BY: (Signature)	DATE/TIME
[signature] 5/10	91 1220	Pace [signature]	5/10/91 12:20

METHOD OF SHIPMENT: cooler w/ blue ice

Laboratory Copy White · Project Office Copy Yellow · Field or Office Copy Pink

6533

LABORATORY REPO

ORIGINAL

PACIFIC ENVIRONMENTAL LABORATORY
674 Harrison Street
San Francisco, CA 94107
415-243-2580

For Harc :s
Attention Davi
Address 200 ..... ---
Novato, CA 94948

MAY 91 9:21

Received 05/10/91
Reported 06/12/91

Source:	PRP, Job No. 09382,039.02
Lab. No.:	913593
Sample I.D.:	91191002
Matrix:	Water
Depth:	--
Date Collected:	05/10/91
Time Collected:	0800
Collected by:	HLA
Date Extracted:	05/17/91
Date Analyzed:	05/29/91
EPA Analytical Method:	504

Analysis	Units	Analytical Results	Det. Lim.
1,2-dibromoethane (EDB)	ug/L	0.03	0.01

Comments: Analysis by microextraction and gas chromatography. Results reported in micrograms per liter.

Analyst Lynn Perrine Manager Lenett Smith

LABORATORY REPORT

PACIFIC ENVIRONMENTAL LABORATORY
674 Harrison Street
San Francisco, CA 94107
415-243-2580

For Harding Lawson Associates
Attention David Leland
Address 200 Rush Landing Road
Novato, CA 94948

Received 05/10/91
Reported 06/12/91

Quality Control Page

Source:	PRP, Job No. 09382,039.02
Lab. No.:	913593
Sample I.D.:	91191002
Matrix:	Water
Depth:	--
Date Collected:	05/10/91
Time Collected:	0800
Collected by:	HLA
Date Extracted:	05/17/91
Date Analyzed:	05/29/91
EPA Analytical Method:	504

Analysis	Units	Replicate	Analytical Results	Det. Lim.
1,2-dibromoethane (EDB)	ug/L	0.020	0.034 Spike rec. 58%	0.01

Comments: Analysis by microextraction and gas chromatography. Results reported in micrograms per liter.

Analyst Lynn Perrine Manager Leverett Smith

LABORATORY REPORT

PACIFIC ENVIRONMENTAL LABORATORY
674 Harrison Street
San Francisco, CA 94107
415-243-2580

For Harding Lawson Associates
Attention David Leland
Address 200 Rush Landing Road
Novato, CA 94948

Received 05/10/91
Reported 06/12/91

Source:	PRP, Job No. 09382,039.02
Lab. No.:	913594
Sample I.D.:	91191004
Matrix:	Water
Depth:	--
Date Collected:	05/10/91
Time Collected:	0900
Collected by:	HLA
Date Extracted:	05/17/91
Date Analyzed:	05/29/91
EPA Analytical Method:	504

Analysis	Units	Analytical Results	Det. Lim.
1,2-dibromoethane (EDB)	ug/L	<0.01	0.01

Comments: Analysis by microextraction and gas chromatography. Results reported in micrograms per liter.

Analyst Lynn Perrine Manager Leverett Smith

LABORATORY REPORT

PACIFIC ENVIRONMENTAL LABORATORY
674 Harrison Street
San Francisco, CA 94107
415-243-2580

For Harding Lawson Associates
Attention David Leland
Address 200 Rush Landing Road
Novato, CA 94948

Received 05/10/91
Reported 06/12/91

Source:	PRP, Job No. 09382,039.02
Lab. No.:	913595
Sample I.D.:	91191005
Matrix:	Water
Depth:	--
Date Collected:	05/10/91
Time Collected:	0930
Collected by:	HLA
Date Extracted:	05/17/91
Date Analyzed:	05/29/91
EPA Analytical Method:	504

Analysis	Units	Analytical Results	Det. Lim.
1,2-dibromoethane (EDB)	ug/L	<0.01	0.01

Comments: Analysis by microextraction and gas chromatography. Results reported in micrograms per liter.

Analyst Lynn Perrine Manager Leverett Smith

LABORATORY REPORT

PACIFIC ENVIRONMENTAL LABORATORY
674 Harrison Street
San Francisco, CA 94107
415-243-2580

For Harding Lawson Associates
Attention David Leland
Address 200 Rush Landing Road
Novato, CA 94948

Received --
Reported 06/12/91

Quality Control Page

Source:	--
Lab. No.:	Method Blank and Spike
Sample I.D.:	Reagent Water
Matrix:	Water
Depth:	--
Date Collected:	--
Time Collected:	--
Collected by:	PEL
Date Extracted:	05/17/91
Date Analyzed:	05/29/91
EPA Analytical Method:	504

Analysis	Units	Analytical Results		Det. Lim.
1,2-dibromoethane (EDB)	ug/L	<0.01	Spike rec. 96%	0.01

Comments: Analysis by microextraction and gas chromatography. Results reported in micrograms per liter.

Analyst Lynn Perrine Manager Everett Smith

RESULTS OF LABORATORY ANALYSIS OF GROUNDWATER SAMPLES FROM MONITORING WELLS AND TREATMENT SYSTEM SAMPLES JUNE 1991

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REPORT OF LABORATORY ANALYSIS

June 14, 1991

Mr. David Leland
Harding Lawson Associates
200 Rush Landing Road
Novato, CA 94945

RE: PACE Project No. 410606.502
09382,039.02

Dear Mr. Leland:

Enclosed is the report of laboratory analyses for samples received June 06, 1991.

If you have any questions concerning this report, please feel free to contact us.

Sincerely,

Lisa J. Petersen
Project Manager

Enclosures

11 Digital Drive
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REPORT OF LABORATORY ANALYSIS

arding Lawson Associates
200 Rush Landing Road
Novato, CA 94945

June 14, 1991
PACE Project Number: 410606502
WPPLABNo. 516

Attn: Mr. David Leland

9382,039.02

MW-19

Parameter	Units	MDL	70 0050723 06/06/91 06/06/91 91230601	DATE ANALYZED
PACE Sample Number:				
Date Collected:				
Date Received:				
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	06/07/91
Total Purgeable Fuels, as Gasoline	ug/L	50	3400	06/07/91
PURGEABLE AROMATICS (BTXE BY EPA 8020):			-	06/07/91
Benzene	ug/L	1.0	380	06/07/91
Toluene	ug/L	0.20	27	06/07/91
Ethylbenzene	ug/L	0.20	23	06/07/91
Xylenes, Total	ug/L	0.40	92	06/07/91

MDL Method Detection Limit

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REPORT OF LABORATORY ANALYSIS

r. David Leland
Page 2

June 14, 1991
PACE Project Number: 410606502

9382,039.02

MW-19

PACE Sample Number:			70 0050731	
ate Collected:			06/06/91	
ate Received:			06/06/91	
Parameter	Units	MDL	91230602	DATE ANALYZED
RGANIC ANALYSIS				
PURGEABLE AROMATICS (BTXE BY EPA 8020)				
enzene	ug/L	2.0	460	06/07/91
oluene	ug/L	0.20	38	06/07/91
Ethylbenzene	ug/L	0.20	30	06/07/91
ylenes, Total	ug/L	0.40	150	06/07/91

MDL Method Detection Limit

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June 14, 1991
PACE Project Number: 410606502

9382,039.02

MW-23

PACE Sample Number:			70 0050740	
Date Collected:			06/06/91	
Date Received:			06/06/91	
Parameter	Units	MDL	91230603	DATE ANALYZED
RGANIC ANALYSIS				
PURGEABLE AROMATICS (BTXE BY EPA 8020)				
enzene	ug/L	0.20	ND	06/07/91
oluene	ug/L	0.20	0.4	06/07/91
Ethylbenzene	ug/L	0.20	ND	06/07/91
ylenes, Total	ug/L	0.40	ND	06/07/91

MDL Method Detection Limit
D Not detected at or above the MDL.

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June 14, 1991
PACE Project Number: 410606502

9382,039.02

MW-22

PACE Sample Number:			70 0050758	
Date Collected:			06/06/91	
Date Received:			06/06/91	
Parameter	Units	MDL	91230604	DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE AROMATICS (BTXE BY EPA 8020)				
Benzene	ug/L	0.20	ND	06/07/91
Toluene	ug/L	0.20	ND	06/07/91
Ethylbenzene	ug/L	0.20	ND	06/07/91
Xylenes, Total	ug/L	0.40	ND	06/07/91

MDL Method Detection Limit
ND Not detected at or above the MDL.

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June 14, 1991
PACE Project Number: 410606502

9382,039.02

MW-18

PACE Sample Number:			70 0050766	
Date Collected:			06/06/91	
Date Received:			06/06/91	
Parameter	Units	MDL	91230605	DATE ANALYZED
RGANIC ANALYSIS				
PURGEABLE AROMATICS (BTXE BY EPA 8020)				
enzene	ug/L	0.20	ND	06/11/91
oluene	ug/L	0.20	ND	06/11/91
Ethylbenzene	ug/L	0.20	ND	06/11/91
ylenes, Total	ug/L	0.40	ND	06/11/91

MDL Method Detection Limit
ND Not detected at or above the MDL.

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REPORT OF LABORATORY ANALYSIS

r. David Leland
age 6

June 14, 1991
PACE Project Number: 410606502

9382,039.02

MW-20

PACE Sample Number:			70 0050774	
ate Collected:			06/06/91	
ate Received:			06/06/91	
Parameter	Units	MDL	91230606	DATE ANALYZED
RGANIC ANALYSIS				
PURGEABLE AROMATICS (BTXE BY EPA 8020)				
enzene	ug/L	0.20	ND	06/07/91
oluene	ug/L	0.20	ND	06/07/91
Ethylbenzene	ug/L	0.20	ND	06/07/91
Xylenes, Total	ug/L	0.40	ND	06/07/91

MDL Method Detection Limit
D Not detected at or above the MDL.

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REPORT OF LABORATORY ANALYSIS

. David Leland
age 7

June 14, 1991
PACE Project Number: 410606502

382,039.02

MW-21

PACE Sample Number:			70 0050782	
te Collected:			06/06/91	
te Received:			06/06/91	
Parameter	Units	MDL	91230607	DATE ANALYZED
GANIC ANALYSIS				
PURGEABLE AROMATICS (BTXE BY EPA 8020)				
nzene	ug/L	0.20	ND	06/07/91
luene	ug/L	0.20	ND	06/07/91
Ethylbenzene	ug/L	0.20	ND	06/07/91
ylenes, Total	ug/L	0.40	ND	06/07/91

MDL Method Detection Limit
Not detected at or above the MDL.

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REPORT OF LABORATORY ANALYSIS

Mr. David Leland
Page 8

June 14, 1991
PACE Project Number: 410606502

0382,039.02

MW-7

PACE Sample Number:			70 0050790	
Date Collected:			06/06/91	
Date Received:			06/06/91	
Parameter	Units	MDL	91230608	DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	06/07/91
Total Purgeable Fuels, as Gasoline	ug/L	50	ND	06/07/91
PURGEABLE AROMATICS (BTXE BY EPA 8020):			-	06/07/91
Benzene	ug/L	0.20	ND	06/07/91
Toluene	ug/L	0.20	ND	06/07/91
Ethylbenzene	ug/L	0.20	ND	06/07/91
Xylenes, Total	ug/L	0.40	ND	06/07/91

MDL Method Detection Limit
ND Not detected at or above the MDL.

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r. David Leland
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June 14, 1991
PACE Project Number: 410606502

9382,039.02

MW-3

PACE Sample Number:			70 0050804	
ate Collected:			06/06/91	
ate Received:			06/06/91	
Parameter	Units	MDL	91230609	DATE ANALYZED
RGANIC ANALYSIS				
PURGEABLE AROMATICS (BTXE BY EPA 8020)				
enzene	ug/L	0.20	ND	06/07/91
oluene	ug/L	0.20	ND	06/07/91
Ethylbenzene	ug/L	0.20	ND	06/07/91
ylenes, Total	ug/L	0.40	ND	06/07/91

MDL Method Detection Limit
ND Not detected at or above the MDL.

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REPORT OF LABORATORY ANALYSIS

r. David Leland
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June 14, 1991
PACE Project Number: 410606502

9382,039.02

Influent

Parameter	Units	MDL	PACE Sample Number: 70 0050820	DATE ANALYZED
			Date Collected: 06/06/91	
			Date Received: 06/06/91	
			91230611	
INORGANIC ANALYSIS				
INDIVIDUAL PARAMETERS				
hlorine, Total Residual	mg/L	0.05	0.15	06/06/91
ORGANIC ANALYSIS				
URGEABLE FUELS AND AROMATICS				
OTAL FUEL HYDROCARBONS, (LIGHT):			-	06/07/91
otal Purgeable Fuels, as Gasoline	ug/L	50	65	06/07/91
URGEABLE AROMATICS (BTXE BY EPA 8020):			-	06/07/91
enzene	ug/L	0.20	6.2	06/07/91
Toluene	ug/L	0.20	0.7	06/07/91
thylbenzene	ug/L	0.20	0.4	06/07/91
Xylenes, Total	ug/L	0.40	1.7	06/07/91
ALOGENATED VOLATILE COMPOUNDS EPA 8010				
Dichlorodifluoromethane	ug/L	2.0	ND	06/10/91
Chloromethane	ug/L	2.0	ND	06/10/91
inyl Chloride	ug/L	2.0	ND	06/10/91
romomethane	ug/L	2.0	ND	06/10/91
Chloroethane	ug/L	2.0	ND	06/10/91
richlorofluoromethane (Freon 11)	ug/L	2.0	ND	06/10/91
1,1-Dichloroethene	ug/L	0.5	ND	06/10/91
Methylene Chloride	ug/L	2.0	ND	06/10/91
rans-1,2-Dichloroethene	ug/L	0.5	ND	06/10/91
1,1-Dichloroethane	ug/L	0.5	ND	06/10/91
Chloroform	ug/L	0.5	0.6	06/10/91
1,1,1-Trichloroethane (TCA)	ug/L	0.5	ND	06/10/91
Carbon Tetrachloride	ug/L	0.5	ND	06/10/91
1,2-Dichloroethane (EDC)	ug/L	0.5	4.2	06/10/91
richloroethene (TCE)	ug/L	50	110	06/10/91
1,2-Dichloropropane	ug/L	0.5	ND	06/10/91

MDL Method Detection Limit
ND Not detected at or above the MDL.

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Novato, CA 94949
TEL: 415-883-6100
FAX: 415-883-2673

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REPORT OF LABORATORY ANALYSIS

r. David Leland
Page 11

June 14, 1991
PACE Project Number: 410606502

9382,039.02

Parameter	Units	MDL	70 0050820	DATE ANALYZED
PACE Sample Number:				
ate Collected:			06/06/91	
ate Received:			06/06/91	
RGANIC ANALYSIS				
HALOGENATED VOLATILE COMPOUNDS EPA 8010				
romodichloromethane	ug/L	0.5	ND	06/10/91
-Chloroethylvinyl ether	ug/L	0.5	ND	06/10/91
cis-1,3-Dichloropropene	ug/L	0.5	ND	06/10/91
rans-1,3-Dichloropropene	ug/L	0.5	ND	06/10/91
,1,2-Trichloroethane	ug/L	0.5	ND	06/10/91
Tetrachloroethene	ug/L	0.5	ND	06/10/91
ibromochloromethane	ug/L	0.5	ND	06/10/91
hlorobenzene	ug/L	0.5	ND	06/10/91
Bromoform	ug/L	0.5	ND	06/10/91
,1,2,2-Tetrachloroethane	ug/L	0.5	ND	06/10/91
,3-Dichlorobenzene	ug/L	0.5	ND	06/10/91
1,4-Dichlorobenzene	ug/L	0.5	ND	06/10/91
,2-Dichlorobenzene	ug/L	0.5	ND	06/10/91
Bromochloromethane (Surrogate Recovery)			102%	06/10/91
,4-Dichlorobutane (Surrogate Recovery)			98%	06/10/91

MDL Method Detection Limit
D Not detected at or above the MDL.

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REPORT OF LABORATORY ANALYSIS

r. David Leland
age 12

June 14, 1991
PACE Project Number: 410606502

9382,039.02

Intermediate

PACE Sample Number:			70 0050839	
ate Collected:			06/06/91	
ate Received:			06/06/91	
Parameter	Units	MDL	91230612	DATE ANALYZED
RGANIC ANALYSIS				
PURGEABLE AROMATICS (BTXE BY EPA 8020)				
enzene	ug/L	0.20	ND	06/07/91
oluene	ug/L	0.20	ND	06/07/91
Ethylbenzene	ug/L	0.20	ND	06/07/91
ylenes, Total	ug/L	0.40	ND	06/07/91
HALOGENATED VOLATILE COMPOUNDS EPA 8010				
ichlorodifluoromethane	ug/L	2.0	ND	06/10/91
hloromethane	ug/L	2.0	ND	06/10/91
Vinyl Chloride	ug/L	2.0	ND	06/10/91
romomethane	ug/L	2.0	ND	06/10/91
hloroethane	ug/L	2.0	ND	06/10/91
Trichlorofluoromethane (Freon 11)	ug/L	2.0	ND	06/10/91
,1-Dichloroethene	ug/L	0.5	ND	06/10/91
ethylene Chloride	ug/L	2.0	ND	06/10/91
trans-1,2-Dichloroethene	ug/L	0.5	ND	06/10/91
,1-Dichloroethane	ug/L	0.5	ND	06/10/91
hloroform	ug/L	0.5	0.6	06/10/91
1,1,1-Trichloroethane (TCA)	ug/L	0.5	ND	06/10/91
arbon Tetrachloride	ug/L	0.5	ND	06/10/91
1,2-Dichloroethane (EDC)	ug/L	0.5	2.9	06/10/91
Trichloroethene (TCE)	ug/L	0.5	12	06/10/91
,2-Dichloropropane	ug/L	0.5	ND	06/10/91
romodichloromethane	ug/L	0.5	ND	06/10/91
2-Chloroethylvinyl ether	ug/L	0.5	ND	06/10/91
is-1,3-Dichloropropene	ug/L	0.5	ND	06/10/91
trans-1,3-Dichloropropene	ug/L	0.5	ND	06/10/91

MDL Method Detection Limit
ND Not detected at or above the MDL.

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June 14, 1991
PACE Project Number: 410606502

9382,039.02

PACE Sample Number:			70 0050839	
ate Collected:			06/06/91	
ate Received:			06/06/91	
Parameter	Units	MDL	91230612	DATE ANALYZED
RGANIC ANALYSIS				
HALOGENATED VOLATILE COMPOUNDS EPA 8010				
,1,2-Trichloroethane	ug/L	0.5	ND	06/10/91
etrachloroethene	ug/L	0.5	ND	06/10/91
Dibromochloromethane	ug/L	0.5	ND	06/10/91
hlorobenzene	ug/L	0.5	ND	06/10/91
romoform	ug/L	0.5	ND	06/10/91
1,1,2,2-Tetrachloroethane	ug/L	0.5	ND	06/10/91
,3-Dichlorobenzene	ug/L	0.5	ND	06/10/91
,4-Dichlorobenzene	ug/L	0.5	ND	06/10/91
1,2-Dichlorobenzene	ug/L	0.5	ND	06/10/91
romochloromethane (Surrogate Recovery)			100%	06/10/91
,4-Dichlorobutane (Surrogate Recovery)			98%	06/10/91

DL Method Detection Limit
ND Not detected at or above the MDL.

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REPORT OF LABORATORY ANALYSIS

r. David Leland
age 14

June 14, 1991
PACE Project Number: 410606502

9382,039.02

Effluent

Parameter	Units	MDL	PACE Sample Number: 70 0050847	Date Collected: 06/06/91	Date Received: 06/06/91
			91230613	DATE ANALYZED	
INORGANIC ANALYSIS					
INDIVIDUAL PARAMETERS					
hlorine, Total Residual	mg/L	0.05	ND	06/06/91	
ORGANIC ANALYSIS					
URGEABLE FUELS AND AROMATICS					
OTAL FUEL HYDROCARBONS, (LIGHT):			-	06/07/91	
Total Purgeable Fuels, as Gasoline	ug/L	50	ND	06/07/91	
URGEABLE AROMATICS (BTXE BY EPA 8020):			-	06/07/91	
enzene	ug/L	0.20	ND	06/07/91	
Toluene	ug/L	0.20	ND	06/07/91	
thylbenzene	ug/L	0.20	ND	06/07/91	
ylenes, Total	ug/L	0.40	ND	06/07/91	
ALOGENATED VOLATILE COMPOUNDS EPA 8010					
ichlorodifluoromethane	ug/L	2.0	ND	06/10/91	
Chloromethane	ug/L	2.0	ND	06/10/91	
inyl Chloride	ug/L	2.0	ND	06/10/91	
romomethane	ug/L	2.0	ND	06/10/91	
Chloroethane	ug/L	2.0	ND	06/10/91	
richlorofluoromethane (Freon 11)	ug/L	2.0	ND	06/10/91	
,1-Dichloroethene	ug/L	0.5	ND	06/10/91	
Methylene Chloride	ug/L	2.0	ND	06/10/91	
rans-1,2-Dichloroethene	ug/L	0.5	ND	06/10/91	
,1-Dichloroethane	ug/L	0.5	ND	06/10/91	
Chloroform	ug/L	0.5	ND	06/10/91	
,1,1-Trichloroethane (TCA)	ug/L	0.5	ND	06/10/91	
Carbon Tetrachloride	ug/L	0.5	ND	06/10/91	
1,2-Dichloroethane (EDC)	ug/L	0.5	1.0	06/10/91	
richloroethene (TCE)	ug/L	0.5	ND	06/10/91	
,2-Dichloropropane	ug/L	0.5	ND	06/10/91	

MDL Method Detection Limit
ND Not detected at or above the MDL.

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REPORT OF LABORATORY ANALYSIS

r. David Leland
age 15

June 14, 1991
PACE Project Number: 410606502

9382,039.02

PACE Sample Number:			70 0050847	
ate Collected:			06/06/91	
ate Received:			06/06/91	
Parameter	Units	MDL	91230613	DATE ANALYZED
RGANIC ANALYSIS				
HALOGENATED VOLATILE COMPOUNDS EPA 8010				
romodichloromethane	ug/L	0.5	ND	06/10/91
-Chloroethylvinyl ether	ug/L	0.5	ND	06/10/91
cis-1,3-Dichloropropene	ug/L	0.5	ND	06/11/91
rans-1,3-Dichloropropene	ug/L	0.5	ND	06/11/91
,1,2-Trichloroethane	ug/L	0.5	ND	06/11/91
etrachloroethene	ug/L	0.5	ND	06/11/91
ibromochloromethane	ug/L	0.5	ND	06/11/91
hlorobenzene	ug/L	0.5	ND	06/11/91
Bromoform	ug/L	0.5	ND	06/11/91
,1,2,2-Tetrachloroethane	ug/L	0.5	ND	06/11/91
,3-Dichlorobenzene	ug/L	0.5	ND	06/11/91
1,4-Dichlorobenzene	ug/L	0.5	ND	06/11/91
,2-Dichlorobenzene	ug/L	0.5	ND	06/11/91
romochloromethane (Surrogate Recovery)			102%	06/11/91
1,4-Dichlorobutane (Surrogate Recovery)			100%	06/11/91

MDL Method Detection Limit
D Not detected at or above the MDL.

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REPORT OF LABORATORY ANALYSIS

r. David Leland
age 16

June 14, 1991
PACE Project Number: 410606502

09382,039.02

Effluent

PACE Sample Number:			70 0050855	
Date Collected:			06/06/91	
ate Received:			06/06/91	
arameter	Units	MDL	91230614	DATE ANALYZED
RGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	06/07/91
otal Purgeable Fuels, as Gasoline	ug/L	50	ND	06/07/91
URGEABLE AROMATICS (BTXE BY EPA 8020):			-	06/07/91
Benzene	ug/L	0.20	ND	06/07/91
oluene	ug/L	0.20	ND	06/07/91
thylbenzene	ug/L	0.20	ND	06/07/91
ylenes, Total	ug/L	0.40	ND	06/07/91
HALOGENATED VOLATILE COMPOUNDS EPA 8010				
Dichlorodifluoromethane	ug/L	2.0	ND	06/10/91
hloromethane	ug/L	2.0	ND	06/10/91
inyl Chloride	ug/L	2.0	ND	06/10/91
Bromomethane	ug/L	2.0	ND	06/10/91
hloroethane	ug/L	2.0	ND	06/10/91
richlorofluoromethane (Freon 11)	ug/L	2.0	ND	06/10/91
,1-Dichloroethene	ug/L	0.5	ND	06/10/91
ethylene Chloride	ug/L	2.0	ND	06/10/91
trans-1,2-Dichloroethene	ug/L	0.5	ND	06/10/91
1,1-Dichloroethane	ug/L	0.5	ND	06/10/91
hloroform	ug/L	0.5	ND	06/10/91
,1,1-Trichloroethane (TCA)	ug/L	0.5	ND	06/10/91
arbon Tetrachloride	ug/L	0.5	ND	06/10/91
,2-Dichloroethane (EDC)	ug/L	0.5	0.9	06/10/91
Trichloroethene (TCE)	ug/L	0.5	ND	06/10/91
1,2-Dichloropropane	ug/L	0.5	ND	06/10/91
Bromodichloromethane	ug/L	0.5	ND	06/10/91
2-Chloroethylvinyl ether	ug/L	0.5	ND	06/10/91
cis-1,3-Dichloropropene	ug/L	0.5	ND	06/10/91
trans-1,3-Dichloropropene	ug/L	0.5	ND	06/10/91

MDL Method Detection Limit
ND Not detected at or above the MDL.

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REPORT OF LABORATORY ANALYSIS

r. David Leland
age 17

June 14, 1991
PACE Project Number: 410606502

382,039.02

Parameter	Units	MDL	70 0050855	DATE ANALYZED
PACE Sample Number:				
Date Collected:			06/06/91	
ate Received:			06/06/91	
RGANIC ANALYSIS				
HALOGENATED VOLATILE COMPOUNDS EPA 8010				
1,1,2-Trichloroethane	ug/L	0.5	ND	06/10/91
etrachloroethene	ug/L	0.5	ND	06/10/91
Dibromochloromethane	ug/L	0.5	ND	06/10/91
Chlorobenzene	ug/L	0.5	ND	06/10/91
romoform	ug/L	0.5	ND	06/10/91
1,1,2,2-Tetrachloroethane	ug/L	0.5	ND	06/10/91
,3-Dichlorobenzene	ug/L	0.5	ND	06/10/91
,4-Dichlorobenzene	ug/L	0.5	ND	06/10/91
1,2-Dichlorobenzene	ug/L	0.5	ND	06/10/91
Bromochloromethane (Surrogate Recovery)			95%	06/10/91
,4-Dichlorobutane (Surrogate Recovery)			105%	06/10/91

DL Method Detection Limit
D Not detected at or above the MDL.

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REPORT OF LABORATORY ANALYSIS

r. David Leland
age 18

June 14, 1991
PACE Project Number: 410606502

9382,039.02

Field Blank

PACE Sample Number:			70 0050863	
Date Collected:			06/06/91	
ate Received:			06/06/91	
arameter	Units	MDL	91230615	DATE ANALYZED
RGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	06/07/91
otal Purgeable Fuels, as Gasoline	ug/L	50	ND	06/07/91
PURGEABLE AROMATICS (BTXE BY EPA 8020):			-	06/07/91
Benzene	ug/L	0.20	ND	06/07/91
oluene	ug/L	0.20	ND	06/07/91
thylbenzene	ug/L	0.20	ND	06/07/91
ylenes, Total	ug/L	0.40	ND	06/07/91
HALOGENATED VOLATILE COMPOUNDS EPA 8010				
Dichlorodifluoromethane	ug/L	2.0	ND	06/10/91
hloromethane	ug/L	2.0	ND	06/10/91
Vinyl Chloride	ug/L	2.0	ND	06/10/91
Bromomethane	ug/L	2.0	ND	06/10/91
hloroethane	ug/L	2.0	ND	06/10/91
richlorofluoromethane (Freon 11)	ug/L	2.0	ND	06/10/91
,1-Dichloroethene	ug/L	0.5	ND	06/10/91
ethylene Chloride	ug/L	2.0	ND	06/10/91
trans-1,2-Dichloroethene	ug/L	0.5	ND	06/10/91
1,1-Dichloroethane	ug/L	0.5	ND	06/10/91
hloroform	ug/L	0.5	ND	06/10/91
1,1,1-Trichloroethane (TCA)	ug/L	0.5	ND	06/10/91
arbon Tetrachloride	ug/L	0.5	ND	06/10/91
1,2-Dichloroethane (EDC)	ug/L	0.5	ND	06/10/91
Trichloroethene (TCE)	ug/L	0.5	ND	06/10/91
,2-Dichloropropane	ug/L	0.5	ND	06/10/91
Bromodichloromethane	ug/L	0.5	ND	06/10/91
2-Chloroethylvinyl ether	ug/L	0.5	ND	06/10/91
cis-1,3-Dichloropropene	ug/L	0.5	ND	06/10/91
trans-1,3-Dichloropropene	ug/L	0.5	ND	06/10/91

MDL Method Detection Limit
ND Not detected at or above the MDL.

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REPORT OF LABORATORY ANALYSIS

Mr. David Leland
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June 14, 1991
PACE Project Number: 410606502

09382,039.02

PACE Sample Number:			70 0050863	
Date Collected:			06/06/91	
Date Received:			06/06/91	
Parameter	Units	MDL	91230615	DATE ANALYZED
ORGANIC ANALYSIS				
HALOGENATED VOLATILE COMPOUNDS EPA 8010				
1,1,2-Trichloroethane	ug/L	0.5	ND	06/10/91
Tetrachloroethene	ug/L	0.5	ND	06/10/91
Dibromochloromethane	ug/L	0.5	ND	06/10/91
Chlorobenzene	ug/L	0.5	ND	06/10/91
Bromoform	ug/L	0.5	ND	06/10/91
1,1,2,2-Tetrachloroethane	ug/L	0.5	ND	06/10/91
1,3-Dichlorobenzene	ug/L	0.5	ND	06/10/91
1,4-Dichlorobenzene	ug/L	0.5	ND	06/10/91
1,2-Dichlorobenzene	ug/L	0.5	ND	06/10/91
Bromochloromethane (Surrogate Recovery)			96%	06/10/91
1,4-Dichlorobutane (Surrogate Recovery)			107%	06/10/91

MDL Method Detection Limit
ND Not detected at or above the MDL.

These data have been reviewed and are approved for release.

Mark A. Valentini

Mark A. Valentini, Ph.D.
Regional Director

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

June 14, 1991
PACE Project Number: 410606502

9382,039.02

Chlorine, Total Residual
Batch: 70 04066
amples: 70 0050820, 70 0050847

ETHOD BLANK AND SAMPLE DUPLICATE:

arameter	Units	MDL	Method Blank	70 0050820 91230611	Duplicate of Sample 70 0050820	RPD
hlorine, Total Residual	mg/L	0.05	ND	0.15	0.15	0%

PIKE AND SPIKE DUPLICATE:

arameter	Units	MDL	70 0050847 91230613	Spike	Spike Recv	Spike Dupl Recv	RPD
hlorine, Total Residual	mg/L	0.05	ND	0.25	100%	100%	0%

ABORATORY CONTROL SAMPLE:

arameter	Units	MDL	tap water	Spike	Recv
hlorine, Total Residual	mg/L	0.05	0.5	0.50	100%

MDL Method Detection Limit
ND Not detected at or above the MDL.
RPD Relative Percent Difference

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QUALITY CONTROL DATA

June 14, 1991
PACE Project Number: 410606502

9382,039.02

HALOGENATED VOLATILE COMPOUNDS EPA 8010
Batch: 70 04136
amples: 70 0050820, 70 0050839, 70 0050847, 70 0050855, 70 0050863

ETHOD BLANK:

Parameter	Units	MDL	Method Blank
ichlorodifluoromethane	ug/L	2.0	ND
hloromethane	ug/L	2.0	ND
Vinyl Chloride	ug/L	2.0	ND
romomethane	ug/L	2.0	ND
hloroethane	ug/L	2.0	ND
Trichlorofluoromethane (Freon 11)	ug/L	2.0	ND
,1-Dichloroethene	ug/L	0.5	ND
ethylene Chloride	ug/L	2.0	ND
trans-1,2-Dichloroethene	ug/L	0.5	ND
,1-Dichloroethane	ug/L	0.5	ND
hloroform	ug/L	0.5	ND
1,1,1-Trichloroethane (TCA)	ug/L	0.5	ND
arbon Tetrachloride	ug/L	0.5	ND
1,2-Dichloroethane (EDC)	ug/L	0.5	ND
Trichloroethene (TCE)	ug/L	0.5	ND
,2-Dichloropropane	ug/L	0.5	ND
romodichloromethane	ug/L	0.5	ND
2-Chloroethylvinyl ether	ug/L	0.5	ND
is-1,3-Dichloropropene	ug/L	0.5	ND
trans-1,3-Dichloropropene	ug/L	0.5	ND
,1,2-Trichloroethane	ug/L	0.5	ND
etrachloroethene	ug/L	0.5	ND
Dibromochloromethane	ug/L	0.5	ND
Chlorobenzene	ug/L	0.5	ND
romoform	ug/L	0.5	ND
1,1,2,2-Tetrachloroethane	ug/L	0.5	ND
,3-Dichlorobenzene	ug/L	0.5	ND
,4-Dichlorobenzene	ug/L	0.5	ND
1,2-Dichlorobenzene	ug/L	0.5	ND
Bromochloromethane (Surrogate Recover			91%

MDL Method Detection Limit
ND Not detected at or above the MDL.

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REPORT OF LABORATORY ANALYSIS

r. David Leland
age 22

QUALITY CONTROL DATA

June 14, 1991
PACE Project Number: 410606502

9382,039.02

HALOGENATED VOLATILE COMPOUNDS EPA 8010
Batch: 70 04136
amples: 70 0050820, 70 0050839, 70 0050847, 70 0050855, 70 0050863

ETHOD BLANK:

Parameter	Units	MDL	Method Blank
ALOGENATED VOLATILE COMPOUNDS EPA 8010			
1,4-Dichlorobutane (Surrogate Recovery)			107%

SPIKE AND SPIKE DUPLICATE:

arameter	Units	MDL	70 0050847 91230613	Spike	Spike Recv	Spike Dupl Recv	RPD
1,1-Dichloroethane	ug/L	0.5	ND	10.00	98%	94%	4%
richloroethene (TCE)	ug/L	0.5	ND	10.00	107%	102%	4%
rans-1,3-Dichloropropene	ug/L	0.5	ND	5.00	96%	98%	2%
Tetrachloroethene	ug/L	0.5	ND	10.00	123%	115%	6%

MDL Method Detection Limit
ND Not detected at or above the MDL.
RPD Relative Percent Difference

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REPORT OF LABORATORY ANALYSIS

QUALITY CONTROL DATA

June 14, 1991
PACE Project Number: 410606502

9382,039.02

PURGEABLE FUELS AND AROMATICS
Batch: 70 04125
amples: 70 0050723, 70 0050731, 70 0050740, 70 0050758, 70 0050766
70 0050774, 70 0050782, 70 0050790, 70 0050804, 70 0050839
70 0050847, 70 0050855, 70 0050863

METHOD BLANK:

Parameter	Units	MDL	Method Blank
TOTAL FUEL HYDROCARBONS, (LIGHT):			-
otal Purgeable Fuels, as Gasoline	ug/L	50	ND
URGEABLE AROMATICS (BTXE BY EPA 8020			-
Benzene	ug/L	0.20	ND
oluene	ug/L	0.20	ND
thylbenzene	ug/L	0.20	ND
Xylenes, Total	ug/L	0.40	ND

SPIKE AND SPIKE DUPLICATE:

Parameter	Units	MDL	70 0051991	Spike	Spike Recv	Spike Dupl Recv	RPD
Total Purgeable Fuels, as Gasoline	ug/L	50	ND	384.00	110%	108%	1%
enzene	ug/L	0.20	ND	40.00	90%	103%	13%
oluene	ug/L	0.20	ND	40.00	92%	105%	13%
Xylenes, Total	ug/L	0.40	ND	120.00	97%	110%	12%

MDL Method Detection Limit
ND Not detected at or above the MDL.
PD Relative Percent Difference

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415/892-0821
Telecopy: General: 415/892-0831
Accounting: 415/898-1052

CHAIN OF CUSTODY FORM 410006 · 502

Lab: PACE

Job Number: 09382,039.02
Name/Location: PRP
Project Manager: DAVID LELAND

Samplers: Doug Lund
KARL GROSS

Recorder: [signature]
(Signature Required)

SOURCE CODE	MATRIX: Water	Sediment	Soil	Oil	#CONTAINERS & PRESERV.: Unpres.	H_2SO_4	HNO_3	HCl	SAMPLE NUMBER OR LAB NUMBER: Yr	Wk	Seq	DATE: Yr	Mo	Dy	Time	STATION DESCRIPTION/ NOTES	EPA 601/8010	EPA 602/8020 BTEX	EPA 624/8240	EPA 625/8270	ICP METALS	EPA 8015M/TPH
2W	X							4	91	23	0601	91	06	06	0545	5072.3		X				X
2W	X							2	91	23	0602	91	06	06	0600	73.1		X				
23	X							2	91	23	0603	91	06	06	0615	74.0		X				
23	X							2	91	23	0604	91	06	06	0645	75.8		X				
23	X							2	91	23	0605	91	06	06	0715	76.6		X				
23	X							2	91	23	0606	91	06	06	0815	77.4		X				
23	X							2	91	23	0607	91	06	06	0845	78.2		X				
23	X							4	91	23	0608	91	06	06	0915	79.0		X				X
23	X							2	91	23	0609	91	06	06	0930	80.4		X				
23	X							2	91	23	0610	91	06	06	0945	81.2		X				

Released [illegible] 6/7/91 [illegible] 2:15 pm

LAB NUMBER: Yr	Wk	Seq	DEPTH IN FEET	COL MTD CD	QA CODE	MISCELLANEOUS
						5/1, B13

CHAIN OF CUSTODY RECORD

RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME

DISPATCHED BY: (Signature)	DATE/TIME	RECEIVED FOR LAB BY: (Signature)	DATE/TIME
Doug Lund	6/6/91 1415	[signature]	6/6/91 14:15

METHOD OF SHIPMENT: Cooler w/ blue ice

Harding Lawson Associates
7655 Redwood Boulevard
P.O. Box 578
Novato, California 94948
415/892-0821
Telecopy: 415/892-0831
Telex: 340523

CHAIN OF CUSTODY FORM

410008 · 502

Lab: PACE

Samplers: Doug Lund
KARL GROSS

Job Number: 09382.039.02

Name/Location: PRP

Project Manager: DAVID LELAND

Recorder: Doug Lund (Signature Required)

SOURCE CODE	MATRIX: Water	Sediment	Soil	Oil	#CONTAINERS & PRESERV.: Unpres.	H_2SO_4	HNO_3	HCl	SAMPLE NUMBER OR LAB NUMBER: Yr Wk Seq	DATE: Yr Mo Dy Time	STATION DESCRIPTION/ NOTES	ANALYSIS REQUESTED: EPA 601/8010 (BTEX)	EPA 602/8020	EPA 624/8240	EPA 625/8270	Priority Pllnt. Metals	Benzene/Toluene/Xylene	Total Petrol. Hydrocarb. EPA 8015 (TPH)	Chlorine
SW	X				1			6	91 23 06 11	91 06 06 10 30	5082.0	X	X					X	X
SW	X							4	91 23 06 12	91 06 06 11 00	83.9	X	X						
SW	X				1			6	91 23 06 13	91 06 06 11 30	84.7	X	X					X	X
SW	X							6	91 23 06 14	91 06 06 12 00	85.5	X	X					X	
SW	X							6	91 23 06 15	91 06 06 12 30	86.3	X	X					X	

LAB NUMBER: Yr Wk Seq	DEPTH IN FEET	COL MTD CD	QA CODE	MISCELLANEOUS

CHAIN OF CUSTODY RECORD

RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
DISPATCHED BY: (Signature) Doug Lund 6/6/91 1415	RECEIVED FOR LAB BY: (Signature) Stephen Mattz	DATE/TIME 6/6/91 14:15
METHOD OF SHIPMENT: Cooler w/ blue ice		

Laboratory Copy Project Office Copy Field or Office Copy

LABORATORY REPORT

N 91 9: 18

PACIFIC ENVIRONMENTAL LABORATORY
674 Harrison Street
San Francisco, CA 94107
415-243-2580

For Harding Lawson Associates
Attention David Leland
Address 200 Rush Landing Road
Novato, CA 94948

Received 06/06/91
Reported 06/25/91

Source:	PRP, Job No. 09382,039.02
Lab. No.:	915067
Sample I.D.:	91230611
Matrix:	Water
Depth:	--
Date Collected:	06/06/91
Time Collected:	1030
Collected by:	HLA
Date Extracted:	06/13/91
Date Analyzed:	06/13/91
EPA Analytical Method:	504

Analysis	Units	Analytical Results	Det. Lim.
1,2-dibromoethane (EDB)	ug/L	0.05	0.01

Comments: Analysis by microextraction and gas chromatography. Results reported in micrograms per liter.

Analyst Lynn Perrine Manager Leverett Smith

LABORATORY REPORT

PACIFIC ENVIRONMENTAL LABORATORY
674 Harrison Street
San Francisco, CA 94107
415-243-2580

For Harding Lawson Associates
Attention David Leland
Address 200 Rush Landing Road
Novato, CA 94948

Received 06/06/91
Reported 06/25/91

Quality Control Page

Source:	PRP, Job No. 09382,039.02
Lab. No.:	915067
Sample I.D.:	91230611
Matrix:	Water
Depth:	--
Date Collected:	06/06/91
Time Collected:	1030
Collected by:	HLA
Date Extracted:	06/13/91
Date Analyzed:	06/13/91
EPA Analytical Method:	504

Analysis	Units	Replicate Analytical Results			Det. Lim.
1,2-dibromoethane (EDB)	ug/L	0.047	0.044	Spike rec. 74%	0.01

Comments: Analysis by microextraction and gas chromatography. Results reported in micrograms per liter.

Analyst Lynn Perrine Manager Everett Smith

LABORATORY REPORT

PACIFIC ENVIRONMENTAL LABORATORY
674 Harrison Street
San Francisco, CA 94107
415-243-2580

For Harding Lawson Associates
Attention David Leland
Address 200 Rush Landing Road
Novato, CA 94948

Received 06/06/91
Reported 06/25/91

Source:	PRP, Job No. 09382,039.02
Lab. No.:	915068
Sample I.D.:	91230613
Matrix:	Water
Depth:	--
Date Collected:	06/06/91
Time Collected:	1130
Collected by:	HLA
Date Extracted:	06/13/91
Date Analyzed:	06/13/91
EPA Analytical Method:	504

Analysis	Units	Analytical Results	Det. Lim.
1,2-dibromoethane (EDB)	ug/L	<0.01	0.01

Comments: Analysis by microextraction and gas chromatography. Results reported in micrograms per liter.

Analyst Lynn Perrine Manager Leverett Smith

LABORATORY REPORT

PACIFIC ENVIRONMENTAL LABORATORY
674 Harrison Street
San Francisco, CA 94107
415-243-2580

For Harding Lawson Associates
Attention David Leland
Address 200 Rush Landing Road
Novato, CA 94948

Received 06/06/91
Reported 06/25/91

Source:	PRP, Job No. 09382,039.02
Lab. No.:	915069
Sample I.D.:	91230614
Matrix:	Water
Depth:	--
Date Collected:	06/06/91
Time Collected:	1200
Collected by:	HLA
Date Extracted:	06/13/91
Date Analyzed:	06/13/91
EPA Analytical Method:	504

Analysis	Units	Analytical Results	Det. Lim.
1,2-dibromoethane (EDB)	ug/L	<0.01	0.01

Comments: Analysis by microextraction and gas chromatography. Results reported in micrograms per liter.

Analyst Lynn Perrine Manager Leverett Smith

LABORATORY REPORT

PACIFIC ENVIRONMENTAL LABORATORY
674 Harrison Street
San Francisco, CA 94107
415-243-2580

For Harding Lawson Associates
Attention David Leland
Address 200 Rush Landing Road
Novato, CA 94948

Received 06/06/91
Reported 06/25/91

Source:	PRP, Job No. 09382,039.02
Lab. No.:	915070
Sample I.D.:	91230615
Matrix:	Water
Depth:	--
Date Collected:	06/06/91
Time Collected:	1230
Collected by:	HLA
Date Extracted:	06/13/91
Date Analyzed:	06/13/91
EPA Analytical Method:	504

Analysis	Units	Analytical Results	Det. Lim.
1,2-dibromoethane (EDB)	ug/L	<0.01	0.01

Comments: Analysis by microextraction and gas chromatography. Results reported in micrograms per liter.

Analyst Lynn Perrine Manager Everett Smith

LABORATORY REPORT

PACIFIC ENVIRONMENTAL LABORATORY
674 Harrison Street
San Francisco, CA 94107
415-243-2580

For Harding Lawson Associates
Attention David Leland
Address 200 Rush Landing Road
Novato, CA 94948

Received --
Reported 06/25/91

Quality Control Page

Source:	--
Lab. No.:	Method Blank and Spike
Sample I.D.:	Reagent Water
Matrix:	Water
Depth:	--
Date Collected:	--
Time Collected:	--
Collected by:	PEL
Date Extracted:	06/13/91
Date Analyzed:	06/13/91
EPA Analytical Method:	504

Analysis	Units	Analytical Results		Det. Lim.
1,2-dibromoethane (EDB)	ug/L	<0.01	Spike rec. 76%	0.01

Comments: Analysis by microextraction and gas chromatography. Results reported in micrograms per liter.

Analyst Lynn Perrine Manager Leverett Smith

DISTRIBUTION

GROUNDWATER MONITORING AND DEWATERING EFFLUENT TREATMENT SYSTEM OPERATION AND MONITORING APRIL THROUGH JULY 1991 CHINATOWN REDEVELOPMENT PROJECT AREA OAKLAND, CALIFORNIA

August 16, 1991

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MTE/DFL/TLW/lah/D18290-H

QUALITY CONTROL REVIEWER

Tamara L. Williams

Tamara L. Williams
Geologist - 3954