Harding Lawson Associates

91 MAY -2 PM 3:10

April 30, 1991

09382,041.02

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: January through March 1991
Chinatown Redevelopment Project Area
Oakland, California

This letter transmits the *Report of Monitoring of Groundwater and Dewatering Effluent Treatment System, January through March 1991, Chinatown Redevelopment Project Area, Oakland, California* dated April 30, 1991. The report was prepared by Harding Lawson Associates (HLA) on behalf of the Redevelopment Agency of the City of Oakland (Agency).

Analysis of groundwater samples collected from monitoring wells in March 1991 indicates low to nondetectable concentrations of target analytes at most wells sampled. Gasoline constituents continue to be detected at Well MW-19 although concentrations have declined compared to December 1990 data.

The onsite groundwater treatment system continued to operate during this period. Analytical results indicate the treatment system reduced concentrations of volatile organic compounds to below discharge standards.

On the basis of discussions with the general contractor for the Pacific Renaissance Plaza (PRP) project, dewatering operations are expected to terminate in July 1991. After termination, HLA will evaluate the extent of petroleum hydrocarbons remaining in groundwater in the vicinity of the PRP site and report on the evaluation to the Regional Water Quality Control Board, San Francisco Bay Region.

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, INC.

David F. Leland, P.E.
Associate Engineer

DFL/jas 17502-oak

Attachment: *Report of Monitoring of Groundwater and Dewatering Effluent Treatment System, January through March 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

California Regional Water Quality Control Board
San Francisco Bay Region
2101 Webster Street, Suite 500
Oakland, California 94612

REPORT OF MONITORING OF GROUNDWATER AND DEWATERING EFFLUENT TREATMENT SYSTEM JANUARY THROUGH MARCH 1991 CHINATOWN REDEVELOPMENT PROJECT AREA OAKLAND, CALIFORNIA

HLA Job No. 9382,040.02

by

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April 30, 1991

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1.0 INTRODUCTION

This report discusses operations 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 January through March 1991. The activities described here were performed by or under the direction of Harding Lawson Associates (HLA) on behalf of the Redevelopment Agency of the City of Oakland (Agency).

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 has 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 through December 1990 was reported in HLA's *Report of Monitoring of Groundwater and Dewatering Effluent Treatment System (HLA, 1991a).*

The treatment system operates under National Pollution Discharge Elimination System (NPDES) permit CA0029394, 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 hydrocarbons in groundwater in the vicinity of the PRP site. Groundwater monitoring was performed as proposed in HLA's *Investigation Plan, Hydrocarbons in Offsite Groundwater (HLA, 1990a)*, and is scheduled to continue through the construction dewatering period.

2.0 QUARTERLY GROUNDWATER MONITORING

Water levels were measured at 11 wells on January 11, February 11 and March 8, 1991 to monitor hydraulic conditions at the PRP site. On February 11, 1991, groundwater samples were collected from Monitoring Wells MW-7 and MW-19 and on March 8, 1991, groundwater samples were collected from Monitoring Wells MW-3, MW-7, and MW-18 through MW-23 to monitor groundwater chemistry in the vicinity of the PRP site (Plate 1).

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.

For wells sampled on February 11 and March 8, water levels were obtained prior to purging and sampling. At least three well volumes were purged from each well prior to sampling; 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 and for total petroleum hydrocarbons (TPH) as gasoline using EPA Test Method 8015.

3.0 TREATMENT SYSTEM OPERATIONS AND MONITORING

3.1 Operations and Maintenance

From January 1 through March 28, 1991, 3,080,000 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 25 gallons per minute (gpm) or 35,400 gallons per day (gpd), and is well below the NPDES maximum permitted average flow of 72,000 gpd.

The treatment system sand filter was changed or backwashed 68 times during the reporting period; the carbon filters were backwashed 13 times. Bag filters were changed 42 times; cartridge filters were replaced 18 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.

3.2 Releases

During this quarter, release of untreated water occurred on February 5 and March 13, as described by HLA in letters to Mr. John Jang of the RWQCB dated February 24, 1991 and March 18, 1991 (*HLA, 1991b and 1991c*), respectively.

On February 5, 1991, the first Baker storage tank overflowed and released an estimated 3,000 gallons of untreated water to the storm gutter on Franklin Street, which directs water to the storm sewer inlet at 9th and Webster streets. To characterize the release, an influent water sample was collected from the first storage tank on February 5. In addition, samples were collected from four pipes representing individual sources of dewatering effluent that discharge to the treatment system storage tanks. The four pipes represent water from Dewatering Wells DW-1 through DW-11, Dewatering Wells DW-12 and DW-13 and sumps in the bottom of the excavation near 9th Street,

In January, as required by the NPDES permit CA0029394, biennial analyses for metals were performed on the influent and effluent samples by PACE. A fish bioassay was performed by ToxScan Laboratory, a state-certified laboratory in Watsonville, California, on the January effluent sample to evaluate toxicity. A fish bioassay of the effluent is required annually.

The duplicate influent sample for January, analyzed by EPA Test Methods 8010 and 8020, the duplicate influent sample for February, analyzed by EPA Test Method 8010, and all EPA Test Method 504 analyses for ethylene dibromide (EDB) were performed by KJC. Dissolved oxygen measurements were obtained in the field by HLA for the February and March rounds. All other monthly analyses were performed by PACE.

5.0 RECOMMENDATIONS AND PLANNED ACTIVITIES - APRIL THROUGH JUNE 1991

The next quarterly groundwater monitoring round is scheduled for June 1991; Monitoring Wells MW-3, MW-7, and MW-18 through MW-23 will be sampled. Water levels will be measured at these wells and at Monitoring Wells MW-2, MW-6, and MW-8.

Review of historical monitoring well data indicates that TPH has not been measured in samples from Wells MW-3, MW-20, MW-21, MW-22 and MW-23, and has been detected only once at MW-18. Since September 1990, only two wells, MW-7 and MW-19, have shown detectable concentrations of TPH. HLA recommends continued quarterly analysis for TPH as gasoline of samples from Monitoring Wells MW-7 and MW-19, and quarterly analysis of all monitoring well samples for BTEX compounds.

Samples from the treatment system will be collected and analyzed monthly in accordance with the NPDES permit. It is currently estimated by Perini Corporation that the dewatering system will terminate operation in July 1991.

6.0 REFERENCES

Harding Lawson Associates, 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, October through December 1990. Chinatown Redevelopment Project Area, Oakland, California.* January 23.

_____, 1991b. *Letter to RWQCB, Report of Noncompliance, Water Treatment System, NPDES Permit CA0029394, Pacific Renaissance Plaza, Oakland, California.* February 14.

_____, 1991c. *Letter to RWQCB, Report of Noncompliance: March 13, 1991, Water Treatment System, NPDES Permit CA0029394, Pacific Renaissance Plaza, Oakland, California.* March 18.

LARGE MAP REMOVED

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

			ANALYSES PERFORMED/LABORATORY							
Sampling Points	Date	Sample Number	8010	8020	TPH (Gasoline) 8015	EDB 504	Metals	Chlorine	Dissolved Oxygen	Fish Bioassay
Influent	11-Jan-91	91011101	PACE	PACE	PACE	KJC	PACE	PACE	PACE	
Influent	11-Jan-91	91011102 (dup)	KJC	KJC						
Influent	11-Feb-91	91022103		KJC		KJC				
Influent	11-Feb-91	91021103	PACE	PACE	PACE			PACE		
Influent	8-Mar-91	91033001	PACE	PACE	PACE			PACE		
Influent	8-Mar-91	91033002 (dup)		PACE	PACE					
Influent	8-Mar-91	91033007				KJC				
Intermediate	11-Jan-91	91011103	PACE	PACE						
Intermediate	11-Feb-91	91021104	PACE	PACE						
Intermediate	8-Mar-91	91033003	PACE	PACE						
Effluent	11-Jan-91	91011104	PACE	PACE	PACE	KJC	PACE	PACE	PACE	ToxScan
Effluent	11-Feb-91	91022105				KJC				
Effluent	11-Feb-91	91022106 (dup)				KJC				
Trip Blank	11-Feb-91	91022107				KJC				
Effluent	11-Feb-91	91021105	PACE	PACE	PACE			PACE		
Effluent	11-Feb-91	91021106 (dup)	PACE	PACE	PACE					
Trip Blank	11-Feb-91	91021107	PACE	PACE						
Effluent	8-Mar-91	91033004	PACE	PACE	PACE			PACE		
Effluent	8-Mar-91	91033005 (dup)	PACE	PACE	PACE					
Field Blank	8-Mar-91	91033006	PACE	PACE	PACE					
Effluent	8-Mar-91	91033008				KJC				
Effluent	8-Mar-91	91033009 (dup)				KJC				
Field Blank	8-Mar-91	91033010				KJC				
Samples Collected after the February Release of Untreated Influent Water										
Baker Tanks	5-Feb-91	91020501	PACE	PACE						
Franklin Street Sumps	6-Feb-91	91020601	PACE	PACE						
9th Street Sumps	6-Feb-91	91020602	PACE	PACE						
Webster Street Sumps	11-Feb-91	91022108	KJC	KJC		KJC				
9th Street Wells and Sumps	11-Feb-91	91022109	KJC	KJC		KJC				
Franklin Street Sumps	12-Feb-91	91021201	KJC	KJC		KJC				
Wells DW-1 to DW-11	12-Feb-91	91021202	KJC	KJC		KJC				
Travel Blank	12-Feb-91	911092	KJC	KJC		KJC				

Table 2. WATER-LEVEL ELEVATIONS - AUGUST 1990 THROUGH MARCH 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	*	*

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 MARCH 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

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-12	12-Sep-90	ND	ND	ND	0.0002	NT
	3-Dec-90	0.0006	0.0002 †	ND	0.0002 †	ND
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
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
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
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
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

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
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.

Table 4. TREATMENT SYSTEM WATER ANALYSIS: INFLUENT SAMPLES

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

Table 4. TREATMENT SYSTEM WATER ANALYSIS: INFLUENT SAMPLES

HLA SAMPLE ID #	91021103	91022103 (k)	91033001	91033002 (dup)	91033007 (k)
DATE	11-Feb-91	11-Feb-91	8-Mar-91	8-Mar-91	8-Mar-91
TEST METHOD/ COMPOUNDS					
EPA 8020					
Benzene	12	8.4	2.0	2.0	NT
Toluene	0.7	0.2	0.5	0.5	NT
Ethylbenzene	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	NT
Xylenes	0.3	1.2	ND < 0.2	ND < 0.2	NT
All other 8020 compounds	NT	NT	NT	NT	NT
EPA 8015					
TPH (Gasoline)	72	NT	ND < 50	ND < 50	NT
EPA 8010					
Chlorobenzene	ND < 0.5	NT	ND < 0.5	NT	NT
Chloroform	1.0	NT	ND < 0.5	NT	NT
1,2-Dichloroethane	4.1	NT	2.5	NT	NT
1,2-Dichloroethylene *	ND < 0.5	NT	ND < 0.5	NT	NT
Methylene chloride	ND < 0.5	NT	ND < 0.5	NT	NT
Tetrachloroethylene	ND < 0.5	NT	ND < 0.5	NT	NT
1,1,1-Trichloroethane	ND < 0.5	NT	ND < 0.5	NT	NT
Trichloroethene	110	NT	49	NT	NT
All other 8010 compounds	ND	NT	ND	NT	NT
EPA 504					
Ethylene dibromide	NT	0.033	NT	NT	0.10
Standard Method 408E					
Residual chlorine (mg/l)	0.10	NT	1.0	NT	NT
EPA 360.2					
Dissolved oxygen (mg/l)	5.6 (h)	5.6 (h)	9.2 (h)	9.2 (h)	9.2 (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: Laboratory analysis performed by Kennedy/Jenks/Chilton, Laboratory Division, 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
DATE	4-Dec-90	11-Jan-91	11-Feb-91	8-Mar-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	ND	NT	NT
EPA 8015				
TPH (Gasoline)	ND < 50	NT	NT	NT
EPA 8010				
Chloroform	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
1,2-Dichloroethane	ND < 0.5	ND < 0.5	ND < 0.5	1.5
Trichloroethene	ND < 0.5	ND < 0.5	1.0	2.2
All other 8010 compounds	ND	ND	ND	ND

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.
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)
DATE	8-Mar-91	8-Mar-91	8-Mar-91	8-Mar-91
TEST METHOD/COMPOUNDS				
EPA 8020				
Benzene	ND < 0.2	ND < 0.2	NT	NT
Toluene	ND < 0.2	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	2.1 *	ND < 0.5	NT	NT
Trichloroethene	ND < 0.5	ND < 0.5	NT	NT
All 8010 compounds	ND < 0.5	ND	NT	NT
EPA 504				
Ethylene dibromide	NT	NT	ND < 0.01	ND < 0.01
Standard Method 408E				
Residual chlorine (mg/l)	ND < 0.05	NT	NT	NT
EPA 360.2				
Dissolved oxygen (mg/l)	6.0 (h)	6.0 (h)	6.0 (h)	6.0 (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 Kennedy/Jenks/Chilton, Laboratory Division, 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: SAMPLES FROM RELEASES AND INDIVIDUAL INFLUENT SOURCES

HLA SAMPLE ID #	91020501	91020601	91020602	91022109 (k)	91022108 (k)
SAMPLE LOCATION	Baker Tank	Franklin Street Sumps	9th Street Sumps	9th Street Wells and Sumps	Webster Street Sumps
DATE	5-Feb-91	6-Feb-91	6-Feb-91	11-Feb-91	11-Feb-91
TEST METHOD/ COMPOUNDS					
EPA 8020					
Benzene	45	ND < 0.2	620	2	47
Toluene	6.2 (f)	0.4	3.1	0.3	0.7
Ethylbenzene	ND < 1.0	ND < 0.2	1.6 (f)	ND < 0.2	0.3
Xylenes	29	ND < 0.2	27	11	2.4
All other 8020 compounds	2.6 (f) *	ND	2.9 (f) *	NT	NT
EPA 8015					
TPH (Gasoline)	NT	NT	NT	NT	NT
EPA 8010					
Chlorobenzene	ND < 2.5	ND < 0.5	ND < 0.5	ND < 0.5	2.2
Chloroform	ND < 2.5	ND < 0.5	1.7 (f)	0.7	0.8
1,2-Dichloroethane	2.5 (f)	ND < 0.5	4.1 (f)	6.2	4.4
1,2-Dichloroethylene	ND < 2.5	ND < 0.5	ND < 0.5	1.8	29
Methylene chloride	5.5	ND < 0.5	ND < 0.5	0.6	ND < 0.5
Tetrachloroethylene	ND < 2.5	ND < 0.5	ND < 0.5	ND < 0.5	0.7
1,1,1-Trichloroethane	ND < 2.5	ND < 0.5	1.4 (f)	ND < 0.5	ND < 0.5
Trichloroethene	180	0.6	ND < 0.5	14	310
All other 8010 compounds	ND	ND	ND	ND	ND
EPA 504					
Ethylene dibromide	NT	NT	NT	0.08	0.10
Standard Method 408E					
Residual chlorine (mg/l)	NT	NT	NT	NT	NT
EPA 360.2					
Dissolved oxygen (mg/l)	NT	NT	NT	NT	NT

Table 7. TREATMENT SYSTEM WATER ANALYSIS: SAMPLES FROM RELEASES AND INDIVIDUAL INFLUENT SOURCES

HLA SAMPLE ID #	91021201 (k)	91021202 (k)
SAMPLE LOCATION	Franklin Street Sumps	Wells DW-1 to DW-11
DATE	12-Feb-91	12-Feb-91
TEST METHOD/ COMPOUNDS		
EPA 8020		
Benzene	31	1.5
Toluene	29	2.6
Ethylbenzene	14	0.9
Xylenes	47	3.8
All other 8020 compounds	NT	NT
EPA 8015		
TPH (Gasoline)	NT	NT
EPA 8010		
Chlorobenzene	1.2	ND < 0.5
Chloroform	ND < 0.5	ND < 0.5
1,2-Dichloroethane	4.4	4.6
1,2-Dichloroethylene	59	2.4
Methylene chloride	ND < 0.5	ND < 0.5
Tetrachloroethylene	ND < 0.5	ND < 0.5
1,1,1-Trichloroethane	ND < 0.5	ND < 0.5
Trichloroethene	140	13
All other 8010 compounds	ND	ND
EPA 504		
Ethylene dibromide	0.04	ND < 0.2
Standard Method 408E		
Residual chlorine (mg/l)	NT	NT
EPA 360.2		
Dissolved oxygen (mg/l)	NT	NT

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.
*: Total combined concentrations of 1,2-Dichlorobenzene, 1,3-Dichlorobenzene, and 1,4-Dichlorobenzene are shown.
k: Sample analyzed by Kennedy/Jenks/Chilton, Laboratory Division, San Francisco, California.
f: Compound cannot be confirmed due to dilution.

Table 8. 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

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 Kennedy/Jenks/Chilton, Laboratory Division, San Francisco, California.

Table 9. TREATMENT SYSTEM WATER ANALYSIS: BIENNIAL ANALYSIS FOR METALS IN INFLUENT AND EFFLUENT SAMPLES

Harding Lawson Associates

HLA SAMPLE ID # SAMPLE LOCATION DATE	RWQCB * SHALLOW WATER DISCHARGE LIMIT	METHOD DETECTION LIMIT	91011101 INFLUENT 11-Jan-91	91011104 EFFLUENT 11-Jan-91
METALS				
Arsenic	0.020	0.005	ND	ND
Mercury	0.001	0.0002	ND	ND
Selenium	NA	0.005	ND	ND
Antimony	NA	0.06	ND	ND
Beryllium	NA	0.01	ND	ND
Cadmium	0.010	0.005	ND	ND
Chromium	0.011	0.01	0.02	ND
Copper	0.020	0.01	ND	ND
Lead	0.0056	0.1	ND	ND
(reanalysis)		0.003	ND	0.006
Nickel	0.0071	0.02	ND	ND
(reanalysis)		0.001	0.017	0.005
Silver	0.0023	0.01	ND	ND
(reanalysis)		0.0002	ND	ND
Thallium	NA	0.2	ND	ND
Zinc	0.058	0.01	0.02	0.01

NOTES:
*: California Regional Water Quality Control Board, San Francisco Bay Region, 1986. Water Quality Control Plan. December.
ND: Not detected
NA: Not applicable

RESULTS OF LABORATORY ANALYSIS OF TREATMENT SYSTEM SAMPLES
JANUARY 1991

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REPORT OF LABORATORY ANALYSIS

TREATMENT SYSTEM

1-11-91

January 30, 1991

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

RE: PACE Project No. 410111.506
9382,039.02PRP/Oklnd

Dear Mr. Leland:

Enclosed is the report of laboratory analyses for samples received January 11, 1991.

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

Sincerely,

Lisa D. Petersen
Project Manager

Enclosures

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REPORT OF LABORATORY ANALYSIS

Harding Lawson Associates
200 Rush Landing Road
Novato, CA 94945

January 30, 1991
PACE Project Number: 410111506

Attn: Mr. David Leland

9382,039.02PRP/Oklnd

			Influent	Intermediate	Effluent
PACE Sample Number:			70 0003962	70 0003970	70 0003989
Date Collected:			01/11/91	01/11/91	01/11/91
Date Received:			01/11/91	01/11/91	01/11/91
Parameter	Units	MDL	91011101	91011103	91011104
INORGANIC ANALYSIS					
INDIVIDUAL PARAMETERS					
Arsenic (EPA Method 7060, Furnace AAS)	mg/L	0.005	ND	-	ND
Chlorine, Total Residual	mg/L	0.05	ND	-	ND
Mercury (EPA Method 7470, Cold Vapor AA)	mg/L	0.0002	ND	-	ND
Oxygen, Dissolved	mg/L	0.1	5.9	-	1.3
Selenium (EPA Method 7740, Furnace AAS)	mg/L	0.005	ND	-	ND
METALS IN AQUEOUS MATRIX, ICP SCAN					
Antimony (EPA Method 6010/200.7, ICP)	mg/L	0.06	ND	-	ND
Beryllium (EPA Method 6010/200.7, ICP)	mg/L	0.01	ND	-	ND
Cadmium (EPA Method 6010/200.7, ICP)	mg/L	0.005	ND	-	ND
Chromium (EPA Method 6010/200.7, ICP)	mg/L	0.01	0.02	-	ND
Copper (EPA Method 6010/200.7, ICP)	mg/L	0.01	ND	-	ND
Lead (EPA Method 6010/200.7, ICP)	mg/L	0.1	ND	-	ND
Nickel (EPA Method 6010/200.7, ICP)	mg/L	0.02	ND	-	ND
Silver (EPA Method 6010/200.7, ICP)	mg/L	0.01	ND	-	ND
Thallium (EPA Method 6010/200.7, ICP)	mg/L	0.2	ND	-	ND
Zinc (EPA Method 6010/200.7, ICP)	mg/L	0.01	0.02	-	0.01
ORGANIC ANALYSIS					
PURGEABLE FUELS AND AROMATICS					
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	-	-
Total Purgeable Fuels, as Gasoline	mg/L	0.05	ND	-	ND
PURGEABLE AROMATICS (BTXE BY EPA 8020):			-	-	-
Benzene	mg/L	0.0002	0.0004	-	ND
Ethylbenzene	mg/L	0.0002	ND	-	ND
Toluene	mg/L	0.0002	ND	-	ND
Xylenes, Total	mg/L	0.0002	0.0002	-	ND

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

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REPORT OF LABORATORY ANALYSIS

January 30, 1991
PACE Project Number: 410111506

9382,039.02PRP/Oklnd

PACE Sample Number:			70 0003962	70 0003970	70 0003989
Date Collected:			01/11/91	01/11/91	01/11/91
Date Received:			01/11/91	01/11/91	01/11/91
Parameter	Units	MDL	91011101	91011103	91011104
ORGANIC ANALYSIS					
HALOGENATED VOLATILE COMPOUNDS EPA 8010					
Dichlorodifluoromethane	ug/L	2.0	ND	-	ND
Chloromethane	ug/L	2.0	ND	-	ND
Vinyl Chloride	ug/L	2.0	ND	-	ND
Bromomethane	ug/L	2.0	ND	-	ND
Chloroethane	ug/L	2.0	ND	-	ND
Trichlorofluoromethane (Freon 11)	ug/L	2.0	ND	-	ND
1,1-Dichloroethene	ug/L	0.5	ND	-	ND
Methylene Chloride	ug/L	0.5	ND	-	ND
trans-1,2-Dichloroethene	ug/L	0.5	ND	-	ND
1,1-Dichloroethane	ug/L	0.5	ND	-	ND
Chloroform	ug/L	0.5	2.1	-	ND
1,1,1-Trichloroethane (TCA)	ug/L	0.5	ND	-	ND
Carbon Tetrachloride	ug/L	0.5	ND	-	ND
1,2-Dichloroethane (EDC)	ug/L	0.5	4.6	-	ND
Trichloroethene (TCE)	ug/L	0.5	21	-	ND
1,2-Dichloropropane	ug/L	0.5	ND	-	ND
Bromodichloromethane	ug/L	0.5	ND	-	ND
2-Chloroethylvinyl ether	ug/L	0.5	ND	-	ND
cis-1,3-Dichloropropene	ug/L	0.5	ND	-	ND
trans-1,3-Dichloropropene	ug/L	0.5	ND	-	ND
1,1,2-Trichloroethane	ug/L	0.5	ND	-	ND
Tetrachloroethene	ug/L	0.5	ND	-	ND
Dibromochloromethane	ug/L	0.5	ND	-	ND
Chlorobenzene	ug/L	0.5	ND	-	ND
Bromoform	ug/L	0.5	ND	-	ND
1,1,2,2-Tetrachloroethane	ug/L	0.5	ND	-	ND
1,3-Dichlorobenzene	ug/L	0.5	ND	-	ND
1,4-Dichlorobenzene	ug/L	0.5	ND	-	ND
1,2-Dichlorobenzene	ug/L	0.5	ND	-	ND

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

REPORT OF LABORATORY ANALYSIS

January 30, 1991
PACE Project Number: 410111506

9382,039.02PRP/Oklnd

Parameter	Units	MDL	70 0003962 01/11/91 01/11/91 91011101	70 0003970 01/11/91 01/11/91 91011103	70 0003989 01/11/91 01/11/91 91011104
PACE Sample Number:					
Date Collected:					
Date Received:					
ORGANIC ANALYSIS					
HALOGENATED VOLATILE COMPOUNDS EPA 8010					
Bromochloromethane (Surrogate Recovery)			112%	-	97%
1,4-Dichlorobutane (Surrogate Recovery)			99%	-	104%
VOLATILE HALOCARBONS AND AROMATICS					
VOLATILE HALOCARBONS BY EPA 8010			-	-	-
Dichlorodifluoromethane	ug/L	2.0	-	ND	-
Chloromethane	ug/L	2.0	-	ND	-
Vinyl Chloride	ug/L	2.0	-	ND	-
Bromomethane	ug/L	2.0	-	ND	-
Chloroethane	ug/L	2.0	-	ND	-
Trichlorofluoromethane (Freon 11)	ug/L	2.0	-	ND	-
1,1-Dichloroethene	ug/L	0.5	-	ND	-
Methylene Chloride	ug/L	0.5	-	ND	-
trans-1,2-Dichloroethene	ug/L	0.5	-	ND	-
1,1-Dichloroethane	ug/L	0.5	-	ND	-
Chloroform	ug/L	0.5	-	ND	-
1,1,1-Trichloroethane (TCA)	ug/L	0.5	-	ND	-
Carbon Tetrachloride	ug/L	0.5	-	ND	-
1,2-Dichloroethane (EDC)	ug/L	0.5	-	ND	-
Trichloroethene (TCE)	ug/L	0.5	-	ND	-
1,2-Dichloropropane	ug/L	0.5	-	ND	-
Bromodichloromethane	ug/L	0.5	-	ND	-
2-Chloroethylvinyl ether	ug/L	0.5	-	ND	-
cis-1,3-Dichloropropene	ug/L	0.5	-	ND	-
trans-1,3-Dichloropropene	ug/L	0.5	-	ND	-
1,1,2-Trichloroethane	ug/L	0.5	-	ND	-
Tetrachloroethene	ug/L	0.5	-	ND	-
Dibromochloromethane	ug/L	0.5	-	ND	-
Chlorobenzene	ug/L	0.5	-	ND	-

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

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REPORT OF LABORATORY ANALYSIS

January 30, 1991
PACE Project Number: 410111506

9382,039.02PRP/Oklnd

PACE Sample Number:			70 0003962	70 0003970	70 0003989
Date Collected:			01/11/91	01/11/91	01/11/91
Date Received:			01/11/91	01/11/91	01/11/91
Parameter	Units	MDL	91011101	91011103	91011104
ORGANIC ANALYSIS					
VOLATILE HALOCARBONS AND AROMATICS					
Bromoform	ug/L	0.5	-	ND	-
1,1,2,2-Tetrachloroethane	ug/L	0.5	-	ND	-
1,3-Dichlorobenzene	ug/L	0.5	-	ND	-
1,4-Dichlorobenzene	ug/L	0.5	-	ND	-
1,2-Dichlorobenzene	ug/L	0.5	-	ND	-
Bromochloromethane (Surrogate Recovery)			-	90%	-
1,4-Dichlorobutane (Surrogate Recovery)			-	83%	-
VOLATILE AROMATICS BY EPA 8020			-	-	-
Benzene	ug/L	0.2	-	ND	-
Toluene	ug/L	0.2	-	ND	-
Chlorobenzene	ug/L	0.2	-	ND	-
Ethylbenzene	ug/L	0.2	-	ND	-
Xylenes, Total	ug/L	0.2	-	ND	-
1,3-Dichlorobenzene	ug/L	0.2	-	ND	-
1,4-Dichlorobenzene	ug/L	0.2	-	ND	-
1,2-Dichlorobenzene	ug/L	0.2	-	ND	-
Fluorobenzene (Surrogate Recovery)			-	102%	-

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

January 30, 1991
PACE Project Number: 410111506

9382,039.02PRP/Oklnd

The data contained in this report were obtained using EPA or other approved methodologies. All analyses were performed by me or under my supervision.

Marilyn R. Arsenault
Acting Inorganic Chemistry Manager

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Organic Chemistry Manager

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CHAIN OF CUSTODY FORM

Lab: PACE

Samplers: Tom M. DRINKARD

Job Number: 9382.039.02

Name/Location: PRP / OAKLAND

Project Manager: DAVID LEAND

Recorder: Tom Drinkard (Signature Required)

SOURCE CODE	MATRIX: Water	Sediment	Soil	Oil	#CONTAINERS & PRESERV.: Unpres.	H_2SO_4	HNO_3	Hex	HCL	REAGENT	SAMPLE NUMBER OR LAB NUMBER: Yr	Wk	Seq	DATE: Yr	Mo	Dy	Time	STATION DESCRIPTION/ NOTES
23	X				4		1		6 3	1	9 1	0 1	1 1 0 1	9 1	0 1	1 1	1 1 2 0	396.2
23	X								3		1		1 1 0 3		1		1 1 5 5	397.0
23	X				4		1		3	1	1		1 1 0 4	1			1 2 4 5	398.9

ANALYSIS REQUESTED	EPA 601/8010	EPA 602/8020 (BTEX)	EPA 624/8240	EPA 625/8270	Priority Plltnt. Metals	Benzene/Toluene/Xylene	Total Petrol. Hydrocarb.	CHLORINE	EPA 9015 (TPH)	Dissolved Oxygen
396.2	X	X			X			X	X	X
397.0	X	X								
398.9	X	X			X			X	X	X

A12,16/3,M12

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

CHAIN OF CUSTODY RECORD

RELINQUISHED BY: (Signature) Tom Drinkard	RECEIVED BY: (Signature) James W. Linden	DATE/TIME 1/11/1991 13:00
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) James W. Linden	DATE/TIME 1/11/1991 16:32	RECEIVED FOR LAB BY: (Signature) Stephanie Matz 1/25/91 16:35

METHOD OF SHIPMENT HLA TRUCK

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

6533

ToxScan Inc.

42 Hangar Way
Watsonville, CA 95076

(408) 724-4522

FAX (408) 724-3188

9381,450.02
039

22 January 1991

Kennedy/Jenks/Chilton
674 Harrison St.
San Francisco, CA 94107

ATTN: Greg Bryden

From 12 to 16 January 1991, ToxScan, Inc. conducted a bioassay evaluation of a sample received from Kennedy/Jenks/Chilton. The sample was identified as 910191. The sample was described as water. Upon arrival at ToxScan, the sample was assigned identification number T-7137.

The objective of the bioassay was to determine its toxicity to aquatic organisms. The toxicity test was conducted with fathead minnows, *Pimephales promelas*. Testing was performed under EPA guidelines for acute toxicity testing as presented in *Methods for Measuring the Acute Toxicity of Effluents to Freshwater and Marine Organisms*, EPA 600/4-85/013, March 1985. Test duration was 96 h; mortality assessment and water quality monitoring were performed each day coincident with renewal of test solution with a new effluent sample. All samples for renewals were received at one with no sampling date information, therefore, no specific sequence of sample use was employed. Dilution water was EPA moderately hard made with E-pure water.

Testing was conducted at five standard concentrations of the sample, i.e. 100%, 50%, 25%, 12.5%, and 6.25%. Test tanks were prepared with appropriate amounts of sample and the bioassay was initiated by the random addition of fathead minnows to each tank. Fish were 4-week-old juveniles from our in-house cultures.

Twenty fish were exposed to each test concentration. Survival of test animals was 100% at all concentrations. Results of this bioassay indicate that the LC50 of this sample was greater than 100% sample, and that its toxicity was seen to be 0.0 Toxic Units.

Raymond P. Markel, Ph.D.
Director, Bioassay Division

TEST SPECIFICATIONS:

Date Started:	12 January 1991
Time Started:	10:00
Date Completed:	16 January 1991
Time Completed:	10:00
Test Species:	Fathead Minnow (*Pimephales promelas*)
Age of fish:	4 weeks
Mean Weight:	0.01 grams
Mean Loading:	0.1 gram/liter
# Organisms/Tank:	10
Volume/Tank:	1 liter
Test Material Concentrations:	100%, 50%, 25%, 12.5%, 6.25%, 0% (control)
Replicates/Concentration:	2

TEST RESULTS:

Test Concentration	Replicate	Number of Fish Surviving 0 h	24 h	48 h	72 h	96 h
Control (0 ppm)	1	10	10	10	10	10
	2	10	10	10	10	10
6.25%	1	10	10	10	10	10
	2	10	10	10	10	10
12.5%	1	10	10	10	10	10
	2	10	10	10	10	10
25%	1	10	10	10	10	10
	2	10	10	10	10	10
50%	1	10	10	10	10	10
	2	10	10	10	10	10
100%	1	10	10	10	10	10
	2	10	10	10	10	10

ENVIRONMENTAL MONITORING DATA:	Mean	Std. Dev.	Maximum	Minimum
Dissolved Oxygen (mg/L)				
Controls	8.1	0.22	8.3	7.8
Test Tanks	7.9	0.83	8.7	4.9
Temperature (°C)				
Controls	25.5	0.58	26.0	25.0
Test Tanks	25.5	0.55	26.0	24.5
pH (Units)				
Controls	7.8	0.05	7.9	7.8
Test Tanks	7.7	0.14	7.9	7.4

Harding Lawson Associates [redacted] ALC Lynn, Harvey, Joleen, Tina, Kevin, Bill [redacted]
Redwood Boulevard
P.O. Box 578
Novato, California 94948
415/892-0821
Telecopy: 415/892-0831
Telex: 340523

REC'D 1/23/91

CHAIN OF CUSTODY FORM

Lab: KJC

Job Number: 9382,039.02
Name/Location: PRP / OAKLAND
Project Manager: DAVID LELAND

Samplers: Tom M. Drinkard
Recorder: Tom Drinkard (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: KJC #	EPA 601/8010	EPA 602/8020 (BTEX)	EPA 624/8240	EPA 625/8270	Priority Pllnt. Metals	Benzene/Toluene/Xylene	Total Petrol. Hydrocarb.	EPA 504 (EDB)	FISH BIOASSAY	Notes
23	X							2	91	01	1101	91	01	11	1120	#910189		✓						X		(2-VOCs)
23	X							6	〃	〃	1102	〃	〃	〃	1130	910190	X	X								(6-VOCs)
23	X				4			6	〃	〃	1104	〃	〃	〃	1245	910191								X	X	

(6-VOCs)

20 gal.

Subcontract to Toxscan 1/11/91 TN

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
Tom Drinkard		

DISPATCHED BY: (Signature)	DATE/TIME	RECEIVED FOR LAB BY: (Signature)	DATE/TIME
		[signature]	1-11-90 1345

METHOD OF SHIPMENT

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

6533

pace
INCORPORATED
THE ASSURANCE OF QUALITY

REPORT OF LABORATORY ANALYSIS

TREATMENT SYSTEM
METALS
1/11/91

February 13, 1991

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

RE: PACE Project No. 410201.503
PRP Oakland

Dear Mr. Leland:

Enclosed is the report of laboratory analyses for samples received January 11, 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

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THE ASSURANCE OF QUALITY

REPORT OF LABORATORY ANALYSIS

Harding Lawson Associates
200 Rush Landing Road
Novato, CA 94945

February 13, 1991
PACE Project Number: 410201503

Attn: Mr. David Leland

PRP Oakland

			INFLUENT	EFFLUENT
PACE Sample Number:			70 0012910	70 0012929
Date Collected:			01/11/91	01/11/91
Date Received:			01/11/91	01/11/91
			91011101	91011104
Parameter	Units	MDL	(396.2)	(398.9)
INORGANIC ANALYSIS				
INDIVIDUAL PARAMETERS				
Lead (EPA Method 7421, Graphite Furnace)	mg/L	0.003	ND	0.006
Nickel (EPA Method 7521, Furnace AAS)	mg/L	0.001	0.017	0.005
Silver (EPA Method 7761, Furnace AAS)	mg/L	0.0002	ND	ND

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

The data contained in this report were obtained using EPA or other approved methodologies. All analyses were performed by me or under my supervision.

Marilyn R. Arsenault
Acting Inorganic Chemistry Manager

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

pace INCORPORATED
THE ASSURANCE OF QUALITY

25862

CHAIN-OF-CUSTODY RECORD
Analytical Request

Client HLA
Address
Phone

Report To: David Leland
Bill To:
P.O. # / Billing Reference 9382.039.02
Project Name / No. PRP/Oakland

Pace Client No.
Pace Project Manager
Pace Project No. 41020 1.503
*Requested Due Date: 2/15

Sampled By (PRINT):
Sampler Signature
Date Sampled 1/11/91

ITEM NO.	SAMPLE DESCRIPTION	TIME	MATRIX	PACE NO.	NO. OF CONTAINERS	PRESERVATIVES: UNPRESERVED	H_2SO_4	HNO_3	VOA	ANALYSES REQUEST: Pb-low / Ni-HGA / Ag-HGA	REMARKS
1	91011101 (3960.2)		liquid	1291.0	1					X X X	
2	91011101 (3958.9)			1292.9	1					X X X	
3	QC			1293.7	1						
4											
5											
6											
7											
8											

COOLER NOS.	BAILERS	SHIPMENT METHOD OUT / DATE	SHIPMENT METHOD RETURNED / DATE	ITEM NUMBER	RELINQUISHED BY / AFFILIATION	ACCEPTED BY / AFFILIATION	DATE	TIME
						Stephanie Matzo	2/1/91	17:00

Additional Comments

Samples originally logged in under 41011.503

Samples already prepped - location is metals lab.

ORIGINAL

SEE REVERSE SIDE FOR INSTRUCTIONS

LABORATORY REPORT

Kennedy/Jenks/Chilton, Laboratory Division
303 Second Street, Tenth Floor North
San Francisco, CA 94107
415-362-6065

Received	01/11/91
Reported	01/24/91

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

Source:	PRP/Oakland, Job No. 9382,039.02
Lab. No.:	910190
Sample I.D.:	91011102 Influent
Matrix:	Water
Depth:	--
Date Collected:	01/11/91
Time Collected:	1130
Collected by:	HLA
Date Extracted:	--
Date Analyzed:	01/11/91
EPA Analytical Method:	8010

Analysis	Units	Analytical Results	Det. Lim.
chloromethane	ug/L	<0.5	0.5
bromomethane	ug/L	<0.5	0.5
vinyl chloride	ug/L	<0.5	0.5
chloroethane	ug/L	<0.5	0.5
methylene chloride	ug/L	<0.5	0.5
trichlorofluoromethane	ug/L	<0.5	0.5
1,1-dichloroethylene	ug/L	<0.5	0.5
1,1-dichloroethane	ug/L	<0.5	0.5
1,2-dichloroethylene	ug/L	3.6	0.5
chloroform	ug/L	<0.5	0.5
1,1,2-trichloro-1,2,2-trifluoroethane	ug/L	<0.5	0.5
1,2-dichloroethane	ug/L	3.3	0.5
1,1,1-trichloroethane	ug/L	<0.5	0.5
carbon tetrachloride	ug/L	<0.5	0.5
bromodichloromethane	ug/L	<0.5	0.5
1,2-dichloropropane	ug/L	<0.5	0.5
cis-1,3-dichloropropylene	ug/L	<0.5	0.5
trichloroethylene	ug/L	15	0.5
1,1,2-trichloroethane	ug/L	<0.5	0.5
chlorodibromomethane	ug/L	<0.5	0.5
trans-1,3-dichloropropylene	ug/L	<0.5	0.5
2-chloroethylvinyl ether **	ug/L	<0.5	0.5
bromoform	ug/L	<0.5	0.5
tetrachloroethylene	ug/L	<0.5	0.5
1,1,2,2-tetrachloroethane	ug/L	<0.5	0.5
chlorobenzene	ug/L	<0.5	0.5
dichlorodifluoromethane	ug/L	<0.5	0.5

Comments: Results reported in micrograms per liter. ** Unstable compound.

Analyst Tina Mah, Kevin Draper Manager

LABORATORY REPORT

Kennedy/Jenks/Chilton, Laboratory Division
303 Second Street, Tenth Floor North
San Francisco, CA 94107
415-362-6065

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

Received	--
Reported	01/24/91

Quality Control Page

Source:	--
Lab. No.:	Method Blank
Sample I.D.:	Reagent Water
Matrix:	Water
Depth:	--
Date Collected:	--
Time Collected:	--
Collected by:	K/J/C
Date Extracted:	--
Date Analyzed:	01/11/91
EPA Analytical Method:	8010

Analysis	Units	Analytical Results	Det. Lim.
chloromethane	ug/L	<0.5	0.5
bromomethane	ug/L	<0.5	0.5
vinyl chloride	ug/L	<0.5	0.5
chloroethane	ug/L	<0.5	0.5
methylene chloride	ug/L	<0.5	0.5
trichlorofluoromethane	ug/L	<0.5	0.5
1,1-dichloroethylene	ug/L	<0.5	0.5
1,1-dichloroethane	ug/L	<0.5	0.5
1,2-dichloroethylene	ug/L	<0.5	0.5
chloroform	ug/L	<0.5	0.5
1,1,2-trichloro-1,2,2-trifluoroethane	ug/L	<0.5	0.5
1,2-dichloroethane	ug/L	<0.5	0.5
1,1,1-trichloroethane	ug/L	<0.5	0.5
carbon tetrachloride	ug/L	<0.5	0.5
bromodichloromethane	ug/L	<0.5	0.5
1,2-dichloropropane	ug/L	<0.5	0.5
cis-1,3-dichloropropylene	ug/L	<0.5	0.5
trichloroethylene	ug/L	<0.5	0.5
1,1,2-trichloroethane	ug/L	<0.5	0.5
chlorodibromomethane	ug/L	<0.5	0.5
trans-1,3-dichloropropylene	ug/L	<0.5	0.5
2-chloroethylvinyl ether **	ug/L	<0.5	0.5
bromoform	ug/L	<0.5	0.5
tetrachloroethylene	ug/L	<0.5	0.5
1,1,2,2-tetrachloroethane	ug/L	<0.5	0.5
chlorobenzene	ug/L	<0.5	0.5
dichlorodifluoromethane	ug/L	<0.5	0.5

Comments: Results reported in micrograms per liter. ** Unstable compound.

Analyst Tina Mah, Kevin Draper Manager Lenett Smith

LABORATORY REPORT

Kennedy/Jenks/Chilton, Laboratory Division
303 Second Street, Tenth Floor North
San Francisco, CA 94107
415-362-6065

Received	01/11/91
Reported	01/24/91

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

Source:	PRP/Oakland, Job No. 9382,039.02
Lab. No.:	910190
Sample I.D.:	91011102 Influent
Matrix:	Water
Depth:	--
Date Collected:	01/11/91
Time Collected:	1130
Collected by:	HLA
Date Extracted:	--
Date Analyzed:	01/21/91
EPA Analytical Method:	8020

Analysis	Units	Analytical Results	Det. Lim.
benzene	ug/L	15	0.2
toluene	ug/L	7.3	0.2
ethylbenzene	ug/L	<0.2	0.2
chlorobenzene	ug/L	<0.2	0.2
1,4-dichlorobenzene	ug/L	<0.2	0.2
1,3-dichlorobenzene	ug/L	<0.2	0.2
1,2-dichlorobenzene	ug/L	<0.2	0.2
p-xylene	ug/L	1.5	0.2
m-xylene	ug/L	1.6	0.2
o-xylene	ug/L	5.5	0.2

Comments: Results reported in micrograms per liter.

Analyst Tina Mah, Kevin Draper Manager

LABORATORY REPORT

Kennedy/Jenks/Chilton, Laboratory Division
303 Second Street, Tenth Floor North
San Francisco, CA 94107
415-362-6065

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

Received	--
Reported	01/24/91

Quality Control Page

Source:	--
Lab. No.:	Method Blank
Sample I.D.:	Reagent Water
Matrix:	Water
Depth:	--
Date Collected:	--
Time Collected:	--
Collected by:	K/J/C
Date Extracted:	--
Date Analyzed:	01/21/91
EPA Analytical Method:	8020

Analysis	Units	Analytical Results	Det. Lim.
benzene	ug/L	<0.2	0.2
toluene	ug/L	<0.2	0.2
ethylbenzene	ug/L	<0.2	0.2
chlorobenzene	ug/L	<0.2	0.2
1,4-dichlorobenzene	ug/L	<0.2	0.2
1,3-dichlorobenzene	ug/L	<0.2	0.2
1,2-dichlorobenzene	ug/L	<0.2	0.2
p-xylene	ug/L	<0.2	0.2
m-xylene	ug/L	<0.2	0.2
o-xylene	ug/L	<0.2	0.2

Comments: Results reported in micrograms per liter.

Analyst Tina Mah, Kevin Draper Manager

LABORATORY REPORT

Kennedy/Jenks/Chilton, Laboratory Division
303 Second Street, Tenth Floor North
San Francisco, CA 94107
415-362-6065

Received	01/11/91
Reported	01/24/91

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

Source:	PRP/Oakland, Job No. 9382,039.02
Lab. No.:	910189
Sample I.D.:	91011101
Matrix:	Water
Depth:	--
Date Collected:	01/11/91
Time Collected:	1120
Collected by:	HLA
Date Extracted:	01/14/91
Date Analyzed:	01/14/91
EPA Analytical Method:	504

Analysis	Units	Analytical Results	Det. Lim.
1,2-dibromoethane (EDB)	ug/L	0.14	0.01

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

Analyst Joseph Samoy Manager

LABORATORY REPORT

Kennedy/Jenks/Chilton, Laboratory Division
303 Second Street, Tenth Floor North
San Francisco, CA 94107
415-362-6065

Received	01/11/91
Reported	01/24/91

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

Source:	PRP/Oakland, Job No. 9382,039.02
Lab. No.:	910191
Sample I.D.:	91011104
Matrix:	Water
Depth:	--
Date Collected:	01/11/91
Time Collected:	1245
Collected by:	HLA
Date Extracted:	01/14/91
Date Analyzed:	01/14/91
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 Manager

LABORATORY REPORT

Kennedy/Jenks/Chilton, Laboratory Division
303 Second Street, Tenth Floor North
San Francisco, CA 94107
415-362-6065

Received	01/11/91
Reported	01/24/91

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

Quality Control Page

Source:	PRP/Oakland, Job No. 9382,039.02
Lab. No.:	910191
Sample I.D.:	91011104
Matrix:	Water
Depth:	--
Date Collected:	01/11/91
Time Collected:	1245
Collected by:	HLA
Date Extracted:	01/14/91
Date Analyzed:	01/14/91
EPA Analytical Method:	504

Analysis	Units	Replicate		Analytical Results	Det. Lim.
1,2-dibromoethane (EDB)	ug/L	<0.01	<0.01	Spike recovery 84%	0.01

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

Analyst Joseph Samoy Manager

LABORATORY REPORT

Kennedy/Jenks/Chilton, Laboratory Division
303 Second Street, Tenth Floor North
San Francisco, CA 94107
415-362-6065

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

Received	--
Reported	01/24/91

Quality Control Page

Source:	--
Lab. No.:	Method Blank and Spike
Sample I.D.:	Reagent Water
Matrix:	Water
Depth:	--
Date Collected:	--
Time Collected:	--
Collected by:	K/J/C
Date Extracted:	01/14/91
Date Analyzed:	01/14/91
EPA Analytical Method:	504

Analysis	Units	Analytical Results		Det. Lim.
1,2-dibromoethane (EDB)	ug/L	<0.01	Spike recovery 93%	0.01

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

Analyst Joseph Samoy Manager Leverett Smith

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

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THE ASSURANCE OF QUALITY

REPORT OF LABORATORY ANALYSIS

INFLUENT - BAKER TANK

February 08, 1991

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

RE: PACE Project No. 410205.502
PRP Oakland

Dear Mr. Leland:

Enclosed is the report of laboratory analyses for samples received February 05, 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

January 30, 1991
PACE Project Number: 410I11506

Attn: Mr. David Leland

9382,039.02PRP/Oklnd

			Influent	Intermediate	Effluent
PACE Sample Number:			70 0003962	70 0003970	70 0003989
Date Collected:			01/11/91	01/11/91	01/11/91
Date Received:			01/11/91	01/11/91	01/11/91
Parameter	Units	MDL	91011101	91011103	91011104
INORGANIC ANALYSIS					
INDIVIDUAL PARAMETERS					
Arsenic (EPA Method 7060, Furnace AAS)	mg/L	0.005	ND	-	ND
Chlorine, Total Residual	mg/L	0.05	ND	-	ND
Mercury (EPA Method 7470, Cold Vapor AA)	mg/L	0.0002	ND	-	ND
Oxygen, Dissolved	mg/L	0.1	5.9	-	1.3
Selenium (EPA Method 7740, Furnace AAS)	mg/L	0.005	ND	-	ND
METALS IN AQUEOUS MATRIX, ICP SCAN					
Antimony (EPA Method 6010/200.7, ICP)	mg/L	0.06	ND	-	ND
Beryllium (EPA Method 6010/200.7, ICP)	mg/L	0.01	ND	-	ND
Cadmium (EPA Method 6010/200.7, ICP)	mg/L	0.005	ND	-	ND
Chromium (EPA Method 6010/200.7, ICP)	mg/L	0.01	0.02	-	ND
Copper (EPA Method 6010/200.7, ICP)	mg/L	0.01	ND	-	ND
Lead (EPA Method 6010/200.7, ICP)	mg/L	0.1	ND	-	ND
Nickel (EPA Method 6010/200.7, ICP)	mg/L	0.02	ND	-	ND
Silver (EPA Method 6010/200.7, ICP)	mg/L	0.01	ND	-	ND
Thallium (EPA Method 6010/200.7, ICP)	mg/L	0.2	ND	-	ND
Zinc (EPA Method 6010/200.7, ICP)	mg/L	0.01	0.02	-	0.01
ORGANIC ANALYSIS					
PURGEABLE FUELS AND AROMATICS					
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	-	-
Total Purgeable Fuels, as Gasoline	mg/L	0.05	ND	-	ND
PURGEABLE AROMATICS (BTXE BY EPA 8020):			-	-	-
Benzene	mg/L	0.0002	0.0004	-	ND
Ethylbenzene	mg/L	0.0002	ND	-	ND
Toluene	mg/L	0.0002	ND	-	ND
Xylenes, Total	mg/L	0.0002	0.0002	-	ND

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

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

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 410205 · NET

Lab: NET

Job Number: 09382.050.02

Name/Location: PRP / OAKLAND

Project Manager: DAVID LELAND

Samplers: JAMES W. ANDERSON

Recorder: James W. Anderson
(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	EPA 624/8240	EPA 625/8270	Priority Pllnt. Metals	Benzene/Toluene/Xylene	Total Petrol. Hydrocarb.
23	X							3	91	02	0501	91	02	05	1455	1310.0	X	X					
																IOC 1311.9							

LAB NUMBER: Yr	Wk	Seq	DEPTH IN FEET	COL MTD CD	QA CODE	MISCELLANEOUS
						48 HOUR TURN AROUND - CONTACT D. LELAND w/ RESULTS.

CHAIN OF CUSTODY RECORD

RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
James W. Anderson		
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
James W. Anderson	2/5/1991 17:08	[signature] PACE Inc	17:08 2/5/91

METHOD OF SHIPMENT: HLA TRUCK

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REPORT OF LABORATORY ANALYSIS

SUMP WATER

February 08, 1991

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

RE: PACE Project No. 410206.503
PRP Oakland

Dear Mr. Leland:

Enclosed is the report of laboratory analyses for samples received February 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
Novato, CA 94949
TEL: 415-883-6100
FAX: 415-883-2673

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REPORT OF LABORATORY ANALYSIS

Harding Lawson Associates
200 Rush Landing Road
Novato, CA 94945

February 08, 1991
PACE Project Number: 410206503

Attn: Mr. David Leland

PRP Oakland

			Franklin Street	9th Street
PACE Sample Number:			70 0013801	70 0013810
Date Collected:			02/06/91	02/06/91
Date Received:			02/06/91	02/06/91
Parameter	Units	MDL	91020601	91020602
ORGANIC ANALYSIS				
VOLATILE HALOCARBONS AND AROMATICS				
VOLATILE HALOCARBONS BY EPA 8010			-	-
Dichlorodifluoromethane	ug/L	2.0	ND	ND
Chloromethane	ug/L	2.0	ND	ND
Vinyl Chloride	ug/L	2.0	ND	ND
Bromomethane	ug/L	2.0	ND	ND
Chloroethane	ug/L	2.0	ND	ND
Trichlorofluoromethane (Freon 11)	ug/L	2.0	ND	ND
1,1-Dichloroethene	ug/L	0.5	ND	ND
Methylene Chloride	ug/L	0.5	ND	ND
trans-1,2-Dichloroethene	ug/L	0.5	ND	ND
1,1-Dichloroethane	ug/L	0.5	ND	ND
Chloroform	ug/L	0.5	ND	1.7 (*)
1,1,1-Trichloroethane (TCA)	ug/L	0.5	ND	1.4 (*)
Carbon Tetrachloride	ug/L	0.5	ND	ND
1,2-Dichloroethane (EDC)	ug/L	0.5	ND	4.1 (*)
Trichloroethene (TCE)	ug/L	0.5	0.6	ND
1,2-Dichloropropane	ug/L	0.5	ND	ND
Bromodichloromethane	ug/L	0.5	ND	ND
2-Chloroethylvinyl ether	ug/L	0.5	ND	ND
cis-1,3-Dichloropropene	ug/L	0.5	ND	ND
trans-1,3-Dichloropropene	ug/L	0.5	ND	ND
1,1,2-Trichloroethane	ug/L	0.5	ND	ND
Tetrachloroethene	ug/L	0.5	ND	ND
Dibromochloromethane	ug/L	0.5	ND	ND
Chlorobenzene	ug/L	0.5	ND	ND
Bromoform	ug/L	0.5	ND	ND

MDL Method Detection Limit
ND Not detected at or above the MDL.
(*) Compound cannot be confirmed due to dilution.

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THE ASSURANCE OF QUALITY

REPORT OF LABORATORY ANALYSIS

February 08, 1991
PACE Project Number: 410206503

PRP Oakland

PACE Sample Number:			70 0013801	70 0013810
Date Collected:			02/06/91	02/06/91
Date Received:			02/06/91	02/06/91
Parameter	Units	MDL	91020601	91020602
ORGANIC ANALYSIS				
VOLATILE HALOCARBONS AND AROMATICS				
1,1,2,2-Tetrachloroethane	ug/L	0.5	ND	ND
1,3-Dichlorobenzene	ug/L	0.5	ND	ND
1,4-Dichlorobenzene	ug/L	0.5	ND	ND
1,2-Dichlorobenzene	ug/L	0.5	ND	ND
Bromochloromethane (Surrogate Recovery)			112%	113%
1,4-Dichlorobutane (Surrogate Recovery)			95%	108%
VOLATILE AROMATICS BY EPA 8020				
Benzene			-	-
Benzene	ug/L	0.2	ND	-
Toluene	ug/L	5.0	-	620
Chlorobenzene	ug/L	0.2	0.4	3.1
Ethylbenzene	ug/L	0.2	ND	ND
Xylenes, Total	ug/L	0.2	ND	1.6 (*)
1,3-Dichlorobenzene	ug/L	0.2	ND	27
1,4-Dichlorobenzene	ug/L	0.2	ND	0.6 (*)
1,2-Dichlorobenzene	ug/L	0.2	ND	0.2
Fluorobenzene (Surrogate Recovery)			102%	2.1 (*)
				87%

MDL Method Detection Limit
ND Not detected at or above the MDL.
(*) Compound cannot be confirmed due to dilution.

The data contained in this report were obtained using EPA or other approved methodologies. All analyses were performed by me or under my supervision.

Ruth Siegmund

Ruth J. Siegmund
Organic Chemistry Manager

11 Digital Drive
Novato, CA 94949
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[redacted]

7655 Redwood Boulevard
P.O. Box 578
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415/892-0821
Telecopy: 415/892-0831
Telex: 340523

CHAIN OF CUSTODY FORM 206 • 503

Lab: PACE

Samplers: JAMES W. ANDERSEN

Job Number: 09387.050.02

Name/Location: FRP / OAKLAND

Project Manager: DAVID LELAND

Recorder: James W. Anderson (Signature Required)

SOURCE CODE	MATRIX: Water	Sediment	Soil	Oil	#CONTAINERS & PRESERV.: Unpres.	H_2SO_4	HNO_3	SAMPLE NUMBER OR LAB NUMBER: Yr	Wk	Seq	DATE: Yr	Mo	Dy	Time	STATION DESCRIPTION/ NOTES	ANALYSIS REQUESTED: EPA 601/8010	EPA 602/8020	EPA 624/8240	EPA 625/8270	Priority Pllnt. Metals	Benzene/Toluene/Xylene	Total Petrol. Hydrocarb.
23	X				5			91	02	0601	91	02	06	1048	1380.1	X	X					
23	X				3			91	02	0602	91	02	06	1106	1381.0	X	X					
														QC	1382.8							

ON 5/2

LAB NUMBER: Yr	Wk	Seq	DEPTH IN FEET	COL MTD CD	QA CODE	MISCELLANEOUS
						48 HOUR TURN AROUND - CONTACT D. LELAND W/ RESULTS

* samples recd in a bag -- no cooler or ice near rm. temp. - CES. 2/6/91

CHAIN OF CUSTODY RECORD

RELINQUISHED BY: (Signature) James W. Anderson	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) James W. Anderson — DATE/TIME 2/6/1991 12:38	RECEIVED FOR LAB BY: (Signature) Sonia PACE — DATE/TIME 2/6/91 1245	
METHOD OF SHIPMENT: HLA PICK UP TRUCK		

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REPORT OF LABORATORY ANALYSIS

TREATMENT SYSTEM
FEBRUARY 11, 1991

February 27, 1991

FEB 91 9:18

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

RE: PACE Project No. 410211.505
PRP 09382,039.02

Dear Mr. Leland:

Enclosed is the report of laboratory analyses for samples received February 11, 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

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THE ASSURANCE OF QUALITY

REPORT OF LABORATORY ANALYSIS

Harding Lawson Associates
200 Rush Landing Road
Novato, CA 94945

February 27, 1991
PACE Project Number: 410211505

Attn: Mr. David Leland

PRP 09382,039.02

Parameter	Units	MDL	MW-7	MW-19	Influent
PACE Sample Number:			70 0016118	70 0016126	70 0016134
Date Collected:			02/11/91	02/11/91	02/11/91
Date Received:			02/11/91	02/11/91	02/11/91
			91021101	91021102	91021103
INORGANIC ANALYSIS					
INDIVIDUAL PARAMETERS					
Chlorine, Total Residual	mg/L	0.05	-	-	0.10
ORGANIC ANALYSIS					
PURGEABLE FUELS AND AROMATICS					
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	-	-
Total Purgeable Fuels, as Gasoline	mg/L	0.05	ND	-	0.072
Total Purgeable Fuels, as Gasoline	mg/L	0.050	-	2.7	-
PURGEABLE AROMATICS (BTXE BY EPA 8020):			-	-	-
Benzene	mg/L	0.0002	ND	-	0.012
Benzene	mg/L	0.0040	-	0.45	-
Toluene	mg/L	0.0002	ND	-	0.0007
Toluene	mg/L	0.0040	-	0.12	-
Ethylbenzene	mg/L	0.0002	ND	0.086	ND
Xylenes, Total	mg/L	0.0002	ND	-	0.0003
Xylenes, Total	mg/L	0.0040	-	0.21	-
HALOGENATED VOLATILE COMPOUNDS EPA 8010					
Dichlorodifluoromethane	ug/L	2.0	-	-	ND
Chloromethane	ug/L	2.0	-	-	ND
Vinyl Chloride	ug/L	2.0	-	-	ND
Bromomethane	ug/L	2.0	-	-	ND
Chloroethane	ug/L	2.0	-	-	ND
Trichlorofluoromethane (Freon 11)	ug/L	2.0	-	-	ND
1,1-Dichloroethene	ug/L	0.5	-	-	ND
Methylene Chloride	ug/L	0.5	-	-	ND
trans-1,2-Dichloroethene	ug/L	0.5	-	-	ND
1,1-Dichloroethane	ug/L	0.5	-	-	ND

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

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REPORT OF LABORATORY ANALYSIS

February 27, 1991
PACE Project Number: 410211505

PRP 09382,039.02

PACE Sample Number:			70 0016118	70 0016126	70 0016134
Date Collected:			02/11/91	02/11/91	02/11/91
Date Received:			02/11/91	02/11/91	02/11/91
Parameter	Units	MDL	91021101	91021102	91021103
ORGANIC ANALYSIS					
HALOGENATED VOLATILE COMPOUNDS EPA 8010					
Chloroform	ug/L	0.5	-	-	1.0
1,1,1-Trichloroethane (TCA)	ug/L	0.5	-	-	ND
Carbon Tetrachloride	ug/L	0.5	-	-	ND
1,2-Dichloroethane (EDC)	ug/L	0.5	-	-	4.1
Trichloroethene (TCE)	ug/L	0.5	-	-	110
1,2-Dichloropropane	ug/L	0.5	-	-	ND
Bromodichloromethane	ug/L	0.5	-	-	ND
2-Chloroethylvinyl ether	ug/L	0.5	-	-	ND
cis-1,3-Dichloropropene	ug/L	0.5	-	-	ND
trans-1,3-Dichloropropene	ug/L	0.5	-	-	ND
1,1,2-Trichloroethane	ug/L	0.5	-	-	ND
Tetrachloroethene	ug/L	0.5	-	-	ND
Dibromochloromethane	ug/L	0.5	-	-	ND
Chlorobenzene	ug/L	0.5	-	-	ND
Bromoform	ug/L	0.5	-	-	ND
1,1,2,2-Tetrachloroethane	ug/L	0.5	-	-	ND
1,3-Dichlorobenzene	ug/L	0.5	-	-	ND
1,4-Dichlorobenzene	ug/L	0.5	-	-	ND
1,2-Dichlorobenzene	ug/L	0.5	-	-	ND
Bromochloromethane (Surrogate Recovery)			-	-	116%
1,4-Dichlorobutane (Surrogate Recovery)			-	-	94%

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

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REPORT OF LABORATORY ANALYSIS

Mr. David Leland
Page 3

February 27, 1991
PACE Project Number: 410211505

PRP 09382,039.02

			Intermediate	Effluent	Effluent Cdup
PACE Sample Number:			70 0016142	70 0016150	70 0016169
Date Collected:			02/11/91	02/11/91	02/11/91
Date Received:			02/11/91	02/11/91	02/11/91
Parameter	Units	MDL	91021104	91021105	91021106
INORGANIC ANALYSIS					
INDIVIDUAL PARAMETERS					
Chlorine, Total Residual	mg/L	0.05	-	0.05	-
ORGANIC ANALYSIS					
PURGEABLE FUELS AND AROMATICS					
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	-	-
Total Purgeable Fuels, as Gasoline	mg/L	0.05	-	ND	ND
PURGEABLE AROMATICS (BTXE BY EPA 8020):			-	-	-
Benzene	mg/L	0.0002	ND	ND	ND
Toluene	mg/L	0.0002	ND	0.0003	ND
Ethylbenzene	mg/L	0.0002	ND	ND	ND
Xylenes, Total	mg/L	0.0002	ND	ND	ND
HALOGENATED VOLATILE COMPOUNDS EPA 8010					
Dichlorodifluoromethane	ug/L	2.0	ND	ND	ND
Chloromethane	ug/L	2.0	ND	ND	ND
Vinyl Chloride	ug/L	2.0	ND	ND	ND
Bromomethane	ug/L	2.0	ND	ND	ND
Chloroethane	ug/L	2.0	ND	ND	ND
Trichlorofluoromethane (Freon 11)	ug/L	2.0	ND	ND	ND
1,1-Dichloroethene	ug/L	0.5	ND	ND	ND
Methylene Chloride	ug/L	0.5	ND	ND	ND
trans-1,2-Dichloroethene	ug/L	0.5	ND	ND	ND
1,1-Dichloroethane	ug/L	0.5	ND	ND	ND
Chloroform	ug/L	0.5	ND	ND	ND
1,1,1-Trichloroethane (TCA)	ug/L	0.5	ND	ND	ND
Carbon Tetrachloride	ug/L	0.5	ND	ND	ND
1,2-Dichloroethane (EDC)	ug/L	0.5	ND	ND	ND
Trichloroethene (TCE)	ug/L	0.5	1.0	ND	ND
1,2-Dichloropropane	ug/L	0.5	ND	ND	ND

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

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REPORT OF LABORATORY ANALYSIS

Mr. David Leland
Page 4

February 27, 1991
PACE Project Number: 410211505

PRP 09382,039.02

PACE Sample Number:			70 0016142	70 0016150	70 0016169
Date Collected:			02/11/91	02/11/91	02/11/91
Date Received:			02/11/91	02/11/91	02/11/91
Parameter	Units	MDL	91021104	91021105	91021106
ORGANIC ANALYSIS					
HALOGENATED VOLATILE COMPOUNDS EPA 8010					
Bromodichloromethane	ug/L	0.5	ND	ND	ND
2-Chloroethylvinyl ether	ug/L	0.5	ND	ND	ND
cis-1,3-Dichloropropene	ug/L	0.5	ND	ND	ND
trans-1,3-Dichloropropene	ug/L	0.5	ND	ND	ND
1,1,2-Trichloroethane	ug/L	0.5	ND	ND	ND
Tetrachloroethene	ug/L	0.5	ND	ND	ND
Dibromochloromethane	ug/L	0.5	ND	ND	ND
Chlorobenzene	ug/L	0.5	ND	ND	ND
Bromoform	ug/L	0.5	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	0.5	ND	ND	ND
1,3-Dichlorobenzene	ug/L	0.5	ND	ND	ND
1,4-Dichlorobenzene	ug/L	0.5	ND	ND	ND
1,2-Dichlorobenzene	ug/L	0.5	ND	ND	ND
Bromochloromethane (Surrogate Recovery)			107%	102%	103%
1,4-Dichlorobutane (Surrogate Recovery)			90%	91%	94%

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

February 27, 1991
PACE Project Number: 410211505

PRP 09382,039.02

Trip Blank

Parameter	Units	MDL	70 0016177
PACE Sample Number:			70 0016177
Date Collected:			02/11/91
Date Received:			02/11/91
ORGANIC ANALYSIS			91021107
PURGEABLE FUELS AND AROMATICS			
PURGEABLE AROMATICS (BTXE BY EPA 8020):			-
Benzene	mg/L	0.0002	ND
Toluene	mg/L	0.0002	ND
Ethylbenzene	mg/L	0.0002	ND
Xylenes, Total	mg/L	0.0002	ND
HALOGENATED VOLATILE COMPOUNDS EPA 8010			
Dichlorodifluoromethane	ug/L	2.0	ND
Chloromethane	ug/L	2.0	ND
Vinyl Chloride	ug/L	2.0	ND
Bromomethane	ug/L	2.0	ND
Chloroethane	ug/L	2.0	ND
Trichlorofluoromethane (Freon 11)	ug/L	2.0	ND
1,1-Dichloroethene	ug/L	0.5	ND
Methylene Chloride	ug/L	0.5	0.5
trans-1,2-Dichloroethene	ug/L	0.5	ND
1,1-Dichloroethane	ug/L	0.5	ND
Chloroform	ug/L	0.5	ND
1,1,1-Trichloroethane (TCA)	ug/L	0.5	ND
Carbon Tetrachloride	ug/L	0.5	ND
1,2-Dichloroethane (EDC)	ug/L	0.5	ND
Trichloroethene (TCE)	ug/L	0.5	ND
1,2-Dichloropropane	ug/L	0.5	ND
Bromodichloromethane	ug/L	0.5	ND
2-Chloroethylvinyl ether	ug/L	0.5	ND
cis-1,3-Dichloropropene	ug/L	0.5	ND
trans-1,3-Dichloropropene	ug/L	0.5	ND
1,1,2-Trichloroethane	ug/L	0.5	ND
Tetrachloroethene	ug/L	0.5	ND
Dibromochloromethane	ug/L	0.5	ND

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

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REPORT OF LABORATORY ANALYSIS

Mr. David Leland
Page 6

February 27, 1991
PACE Project Number: 410211505

PRP 09382,039.02

PACE Sample Number:			70 0016177
Date Collected:			02/11/91
Date Received:			02/11/91
Parameter	Units	MDL	91021107
ORGANIC ANALYSIS			
HALOGENATED VOLATILE COMPOUNDS EPA 8010			
Chlorobenzene	ug/L	0.5	ND
Bromoform	ug/L	0.5	ND
1,1,2,2-Tetrachloroethane	ug/L	0.5	ND
1,3-Dichlorobenzene	ug/L	0.5	ND
1,4-Dichlorobenzene	ug/L	0.5	ND
1,2-Dichlorobenzene	ug/L	0.5	ND
Bromochloromethane (Surrogate Recovery)			107%
1,4-Dichlorobutane (Surrogate Recovery)			95%

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

The data contained in this report were obtained using EPA or other approved methodologies. All analyses were performed by me or under my supervision.

for
Marilyn R. Arsenault
Acting Inorganic Chemistry Manager

Ruth J. Siegmund
Organic Chemistry Manager

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

[redacted]
200 Rush Landing Road
P.O. Box 6107
Novato, California 94948
415/892-0821
Telecopy: 415/892-1586

CHAIN OF CUSTODY FORM

41021T.505

Lab: Pace

Samplers: David M Evans
Jim W Anderson

Job Number: 09382.039.02

Name/Location: PRP

Project Manager: Dave Leland

Recorder: David M Evans (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	EPA 602/8020 BTEX only	EPA 624/8240	EPA 625/8270	Priority Pllnt. Metals	Benzene/Toluene/Xylene	Total Petrol. Hydrocarb.	EPA 8015 Chlorine	
23	X				5			5	91	02	1101	91	02	11	1345	Delete 8010 →	XX						XX		1611.8
23	X							5	91	02	1102	91	02	11	1445	Delete 8010 →	XX						XX		1612.6
23	X				1			5	91	02	1103	91	02	11	1530	as per Rick Hutton 2/12/91 SJP	XX						XX	X	1613.4
23	X							5	91	02	1104	91	02	11	1615		XX								1614.2
23	X				1			5	91	02	1105	91	02	11	1715		XX						XX	X	1615.0
23	X							5	91	02	1106	91	02	11	1730		XX						XX		1616.9
23	X							3	91	02	1107	91	02	11	1745	QC	XX								1617.7
																									1618.5

ON 63, G/1

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

CHAIN OF CUSTODY RECORD

RELINQUISHED BY: (Signature) David M Evans	RECEIVED BY: (Signature) James W. Anderson	DATE/TIME 2/11/91 18:25
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) James W. Anderson	DATE/TIME 2/11/91 19:14	RECEIVED FOR LAB BY: (Signature) Gina Meyer	DATE/TIME 2/11 1825
METHOD OF SHIPMENT: Hand delivered in cooler w/ice		

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6533

LABORATORY REPORT

Kennedy/Jenks/Chilton, Laboratory Division
303 Second Street, Tenth Floor North
San Francisco, CA 94107
415-362-6065

Received	02/11/91
Reported	02/14/91

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

Source:	PRP, Job No. 09382,039.02
Lab. No.:	911060
Sample I.D.:	91022103
Matrix:	Water
Depth:	--
Date Collected:	02/11/91
Time Collected:	1530
Collected by:	HLA
Date Extracted:	02/11/91
Date Analyzed:	02/11/91
EPA Analytical Method:	504

INFLUENT

Analysis	Units	Analytical Results	Det. Lim.
1,2-dibromoethane (EDB)	ug/L	0.033	0.02

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

Analyst Lynn Perrine, Joseph Samoy Manager Leverett Smith

LABORATORY REPORT

Kennedy/Jenks/Chilton, Laboratory Division
303 Second Street, Tenth Floor North
San Francisco, CA 94107
415-362-6065

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

Received	02/11/91
Reported	02/14/91

Quality Control Page

Source:	PRP, Job No. 09382,039.02
Lab. No.:	911060
Sample I.D.:	91022103
Matrix:	Water
Depth:	--
Date Collected:	02/11/91
Time Collected:	1530
Collected by:	HLA
Date Extracted:	02/11/91
Date Analyzed:	02/11/91
EPA Analytical Method:	504

Analysis	Units	Replicate	Analytical Results		Det. Lim.
1,2-dibromoethane (EDB)	ug/L	0.0431	0.0229	Spike Recovery 103%	0.02

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

Analyst Lynn Perrine, Joseph Samoy Manager Lenett Smith

LABORATORY REPORT

Kennedy/Jenks/Chilton, Laboratory Division
303 Second Street, Tenth Floor North
San Francisco, CA 94107
415-362-6065

Received	02/11/91
Reported	02/14/91

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

Source:	PRP, Job No. 09382,039.02
Lab. No.:	911061
Sample I.D.:	91022105
Matrix:	Water
Depth:	--
Date Collected:	02/11/91
Time Collected:	1715
Collected by:	HLA
Date Extracted:	02/11/91
Date Analyzed:	02/11/91
EPA Analytical Method:	504

EFFLUENT

Analysis	Units	Analytical Results	Det. Lim.
1,2-dibromoethane (EDB)	ug/L	<0.02	0.02

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

Analyst Lynn Perrine, Joseph Samoy Manager Leverett Smith

LABORATORY REPORT

Kennedy/Jenks/Chilton, Laboratory Division
303 Second Street, Tenth Floor North
San Francisco, CA 94107
415-362-6065

Received	02/11/91
Reported	02/14/91

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

Source:	PRP, Job No. 09382,039.02
Lab. No.:	911062
Sample I.D.:	91022106
Matrix:	Water
Depth:	--
Date Collected:	02/11/91
Time Collected:	1730
Collected by:	HLA
Date Extracted:	02/11/91
Date Analyzed:	02/11/91
EPA Analytical Method:	504

EFFLUENT (dup)

Analysis	Units	Analytical Results	Det. Lim.
1,2-dibromoethane (EDB)	ug/L	<0.02	0.02

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

Analyst Lynn Perrine, Joseph Samoy Manager Brett Smith

LABORATORY REPORT

Kennedy/Jenks/Chilton, Laboratory Division
303 Second Street, Tenth Floor North
San Francisco, CA 94107
415-362-6065

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

Received	--
Reported	02/14/91

Quality Control Page

Source:	--
Lab. No.:	Method Blank and Spike
Sample I.D.:	Reagent Water
Matrix:	Water
Depth:	--
Date Collected:	--
Time Collected:	--
Collected by:	K/J/C
Date Extracted:	02/11/91
Date Analyzed:	02/11/91
EPA Analytical Method:	504

Analysis	Units		Analytical Results	Det. Lim.
1,2-dibromoethane (EDB)	ug/L	<0.02	Spike Recovery 109%	0.02

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

Analyst Lynn Perrine, Joseph Samoy Manager Everett Smith

LABORATORY REPORT

Kennedy/Jenks/Chilton, Laboratory Division
303 Second Street, Tenth Floor North
San Francisco, CA 94107
415-362-6065

Received	02/11/91
Reported	02/14/91

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

Source:	PRP, Job No. 09382,039.02
Lab. No.:	911063
Sample I.D.:	91022107
Matrix:	Water
Depth:	--
Date Collected:	02/11/91
Time Collected:	1745
Collected by:	HLA
Date Extracted:	02/12/91
Date Analyzed:	02/12/91
EPA Analytical Method:	504

TRIP BLANK

Analysis	Units	Analytical Results	Det. Lim.
1,2-dibromoethane (EDB)	ug/L	<0.02	0.02

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

Analyst Lynn Perrine, Joseph Samoy Manager Lenett Smith

LABORATORY REPORT

Kennedy/Jenks/Chilton, Laboratory Division
303 Second Street, Tenth Floor North
San Francisco, CA 94107
415-362-6065

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

Received	--
Reported	02/14/91

Quality Control Page

Source:	--
Lab. No.:	Method Blank and Spike
Sample I.D.:	Reagent Water
Matrix:	Water
Depth:	--
Date Collected:	--
Time Collected:	--
Collected by:	K/J/C
Date Extracted:	02/12/91
Date Analyzed:	02/12/91
EPA Analytical Method:	504

Analysis	Units		Analytical Results	Det. Lim.
1,2-dibromoethane (EDB)	ug/L	<0.02	Spike Recovery 106%	0.02

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

Analyst Lynn Perrine, Joseph Samoy Manager Leverett Smith

LABORATORY REPORT

MAR 91 9:08

Kennedy/Jenks/Chilton, Laboratory Division
303 Second Street, Tenth Floor North
San Francisco, CA 94107
415-362-6065

Received	02/11/91
Reported	02/14/91

Corrected 02/27/91

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

Source:	PRP, Job No. 09382,039.02
Lab. No.:	911060
Sample I.D.:	91022103 Influent
Matrix:	Water
Depth:	--
Date Collected:	02/11/91
Time Collected:	1530
Collected by:	HLA
Date Extracted:	--
Date Analyzed:	02/11/91
EPA Analytical Method:	8020

Analysis	Units	Analytical Results	Det. Lim.
benzene	ug/L	8.4	0.2
toluene	ug/L	0.2	0.2
ethylbenzene	ug/L	<0.2	0.2
total xylenes	ug/L	1.2	0.2

Comments: Results reported in micrograms per liter.

Analyst Kevin Draper, Tina Mah

Manager Leverett Smith

LABORATORY REPORT

Kennedy/Jenks/Chilton, Laboratory Division
303 Second Street, Tenth Floor North
San Francisco, CA 94107
415-362-6065

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

Received	--
Reported	02/14/91

Quality Control Page

Source:	--
Lab. No.:	Method Blank
Sample I.D.:	Reagent Water
Matrix:	Water
Depth:	--
Date Collected:	--
Time Collected:	--
Collected by:	K/J/C
Date Extracted:	--
Date Analyzed:	02/11/91
EPA Analytical Method:	8020

Analysis	Units	Analytical Results	Det. Lim.
benzene	ug/L	<0.2	0.2
toluene	ug/L	<0.2	0.2
ethylbenzene	ug/L	<0.2	0.2
total xylenes	ug/L	<0.2	0.2

Comments: Results reported in micrograms per liter.

Analyst Kevin Draper, Tina Mah Manager Leverett Smith

LABORATORY REPORT

Kennedy/Jenks/Chilton, Laboratory Division
303 Second Street, Tenth Floor North
San Francisco, CA 94107
415-362-6065

Received	02/11/91
Reported	02/13/91

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

Source:	PRP, Job No. 09382,039.02
Lab. No.:	911058
Sample I.D.:	91022108 Webster Street
Matrix:	Water
Depth:	--
Date Collected:	02/11/91
Time Collected:	1749
Collected by:	HLA
Date Extracted:	02/11/91
Date Analyzed:	02/11/91
EPA Analytical Method:	504

Analysis	Units	Analytical Results	Det. Lim.
1,2-dibromoethane (EDB)	ug/L	0.10	0.02

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

Analyst Lynn Perrine, Joseph Samoy Manager Lenett Smith

LABORATORY REPORT

Kennedy/Jenks/Chilton, Laboratory Division
303 Second Street, Tenth Floor North
San Francisco, CA 94107
415-362-6065

Received	02/11/91
Reported	02/13/91

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

Source:	PRP, Job No. 09382,039.02
Lab. No.:	911059
Sample I.D.:	91022109 9th Street
Matrix:	Water
Depth:	--
Date Collected:	02/11/91
Time Collected:	1800
Collected by:	HLA
Date Extracted:	02/11/91
Date Analyzed:	02/11/91
EPA Analytical Method:	504

Analysis	Units	Analytical Results	Det. Lim.
1,2-dibromoethane (EDB)	ug/L	0.08	0.02

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

Analyst Lynn Perrine, Joseph Samoy Manager Everett Smith

LABORATORY REPORT

Kennedy/Jenks/Chilton, Laboratory Division
303 Second Street, Tenth Floor North
San Francisco, CA 94107
415-362-6065

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

Received	--
Reported	02/13/91

Quality Control Page

Source:	--
Lab. No.:	Method Blank and Spike
Sample I.D.:	Reagent Water
Matrix:	Water
Depth:	--
Date Collected:	--
Time Collected:	--
Collected by:	K/J/C
Date Extracted:	02/11/91
Date Analyzed:	02/11/91
EPA Analytical Method:	504

Analysis	Units		Analytical Results	Det. Lim.
1,2-dibromoethane (EDB)	ug/L	<0.02	Spike Recovery 109%	0.02

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

Analyst Lynn Perrine, Joseph Samoy Manager Everett Smith

LABORATORY REPORT

Kennedy/Jenks/Chilton, Laboratory Division
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Received	02/11/91
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For: Harding Lawson Associates
Attention: David Leland
Address: 200 Rush Landing Raod
Novato, CA 94948

Source:	PRP, Job No. 09382,039.02
Lab. No.:	911058
Sample I.D.:	91022108 Webster Street
Matrix:	Water
Depth:	--
Date Collected:	02/11/91
Time Collected:	1749
Collected by:	HLA
Date Extracted:	--
Date Analyzed:	02/11/91
EPA Analytical Method:	8020

Analysis	Units	Analytical Results	Det. Lim.
benzene	ug/L	47	0.2
toluene	ug/L	0.7	0.2
ethylbenzene	ug/L	0.3	0.2
total xylenes	ug/L	2.4	0.2

Comments: Results reported in micrograms per liter.

Analyst Kevin Draper, Tina Mah Manager

LABORATORY REPORT

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For: Harding Lawson Associates
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Novato, CA 94948

Source:	PRP, Job No. 09382,039.02
Lab. No.:	911058
Sample I.D.:	91022108 Webster Street
Matrix:	Water
Depth:	--
Date Collected:	02/11/91
Time Collected:	1749
Collected by:	HLA
Date Extracted:	--
Date Analyzed:	02/11/91
EPA Analytical Method:	8020

Analysis	Units	Replicate	Analytical Results		Det. Lim.
benzene	ug/L	46	48	Spike Recovery 69%	0.2
toluene	ug/L	0.7	0.7	Spike Recovery 100%	0.2
ethylbenzene	ug/L	0.3	0.3		0.2
total xylenes	ug/L	2.5	2.4		0.2

Comments: Results reported in micrograms per liter.

Analyst Kevin Draper, Tina Mah Manager

LABORATORY REPORT

Kennedy/Jenks/Chilton, Laboratory Division
303 Second Street, Tenth Floor North
San Francisco, CA 94107
415-362-6065

Received	02/11/91
Reported	02/13/91

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

Source:	PRP, Job No. 09382,039.02
Lab. No.:	911059
Sample I.D.:	91022109 9th Street
Matrix:	Water
Depth:	--
Date Collected:	02/11/91
Time Collected:	1800
Collected by:	HLA
Date Extracted:	--
Date Analyzed:	02/11/91
EPA Analytical Method:	8020

Analysis	Units	Analytical Results	Det. Lim.
benzene	ug/L	2.0	0.2
toluene	ug/L	0.3	0.2
ethylbenzene	ug/L	<0.2	0.2
total xylenes	ug/L	11	0.2

Comments: Results reported in micrograms per liter.

Analyst Kevin Draper, Tina Mah Manager Lenett Smith

LABORATORY REPORT

Kennedy/Jenks/Chilton, Laboratory Division
303 Second Street, Tenth Floor North
San Francisco, CA 94107
415-362-6065

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

Received	--
Reported	02/13/91

Quality Control Page

Source:	--
Lab. No.:	Method Blank
Sample I.D.:	Reagent Water
Matrix:	Water
Depth:	--
Date Collected:	--
Time Collected:	--
Collected by:	K/J/C
Date Extracted:	--
Date Analyzed:	02/11/91
EPA Analytical Method:	8020

Analysis	Units	Analytical Results	Det. Lim.
benzene	ug/L	<0.2	0.2
toluene	ug/L	<0.2	0.2
ethylbenzene	ug/L	<0.2	0.2
total xylenes	ug/L	<0.2	0.2

Comments: Results reported in micrograms per liter.

Analyst Kevin Draper, Tina Mah Manager Leslett Smith

LABORATORY REPORT

Kennedy/Jenks/Chilton, Laboratory Division
303 Second Street, Tenth Floor North
San Francisco, CA 94107
415-362-6065

Received	02/11/91
Reported	02/13/91

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

Source:	PRP, Job No. 09382,039.02
Lab. No.:	911058
Sample I.D.:	91022108 Webster Street
Matrix:	Water
Depth:	--
Date Collected:	02/11/91
Time Collected:	1749
Collected by:	HLA
Date Extracted:	--
Date Analyzed:	02/11/91
EPA Analytical Method:	8010

Analysis	Units	Analytical Results	Det. Lim.
chloromethane	ug/L	<0.5	0.5
bromomethane	ug/L	<0.5	0.5
vinyl chloride	ug/L	<0.5	0.5
chloroethane	ug/L	<0.5	0.5
methylene chloride	ug/L	<0.5	0.5
trichlorofluoromethane	ug/L	<0.5	0.5
1,1-dichloroethylene	ug/L	<0.5	0.5
1,1-dichloroethane	ug/L	<0.5	0.5
1,2-dichloroethylene	ug/L	29	0.5
chloroform	ug/L	0.8	0.5
1,1,2-trichloro-1,2,2-trifluoroethane	ug/L	<0.5	0.5
1,2-dichloroethane	ug/L	4.4	0.5
1,1,1-trichloroethane	ug/L	<0.5	0.5
carbon tetrachloride	ug/L	<0.5	0.5
bromodichloromethane	ug/L	<0.5	0.5
1,2-dichloropropane	ug/L	<0.5	0.5
cis-1,3-dichloropropylene	ug/L	<0.5	0.5
trichloroethylene	ug/L	310	0.5
1,1,2-trichloroethane	ug/L	<0.5	0.5
chlorodibromomethane	ug/L	<0.5	0.5
trans-1,3-dichloropropylene	ug/L	<0.5	0.5
2-chloroethylvinyl ether **	ug/L	<0.5	0.5
bromoform	ug/L	<0.5	0.5
tetrachloroethylene	ug/L	0.7	0.5
1,1,2,2-tetrachloroethane	ug/L	<0.5	0.5
chlorobenzene	ug/L	2.2	0.5
dichlorodifluoromethane	ug/L	<0.5	0.5

Comments: Results reported in micrograms per liter. ** Unstable compound.

Analyst William Svoboda, Tina Mah Manager Leverett Smith

LABORATORY REPORT

Kennedy/Jenks/Chilton, Laboratory Division
303 Second Street, Tenth Floor North
San Francisco, CA 94107
415-362-6065

Received	02/11/91
Reported	02/13/91

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

Source:	PRP, Job No. 09382,039.02
Lab. No.:	911059
Sample I.D.:	91022109 9th Street
Matrix:	Water
Depth:	--
Date Collected:	02/11/91
Time Collected:	1800
Collected by:	HLA
Date Extracted:	--
Date Analyzed:	02/11/91
EPA Analytical Method:	8010

Analysis	Units	Analytical Results	Det. Lim.
chloromethane	ug/L	<0.5	0.5
bromomethane	ug/L	<0.5	0.5
vinyl chloride	ug/L	<0.5	0.5
chloroethane	ug/L	<0.5	0.5
methylene chloride	ug/L	0.6	0.5
trichlorofluoromethane	ug/L	<0.5	0.5
1,1-dichloroethylene	ug/L	<0.5	0.5
1,1-dichloroethane	ug/L	<0.5	0.5
1,2-dichloroethylene	ug/L	1.8	0.5
chloroform	ug/L	0.7	0.5
1,1,2-trichloro-1,2,2-trifluoroethane	ug/L	<0.5	0.5
1,2-dichloroethane	ug/L	6.2	0.5
1,1,1-trichloroethane	ug/L	<0.5	0.5
carbon tetrachloride	ug/L	<0.5	0.5
bromodichloromethane	ug/L	<0.5	0.5
1,2-dichloropropane	ug/L	<0.5	0.5
cis-1,3-dichloropropylene	ug/L	<0.5	0.5
trichloroethylene	ug/L	14	0.5
1,1,2-trichloroethane	ug/L	<0.5	0.5
chlorodibromomethane	ug/L	<0.5	0.5
trans-1,3-dichloropropylene	ug/L	<0.5	0.5
2-chloroethylvinyl ether **	ug/L	<0.5	0.5
bromoform	ug/L	<0.5	0.5
tetrachloroethylene	ug/L	<0.5	0.5
1,1,2,2-tetrachloroethane	ug/L	<0.5	0.5
chlorobenzene	ug/L	<0.5	0.5
dichlorodifluoromethane	ug/L	<0.5	0.5

Comments: Results reported in micrograms per liter. ** Unstable compound.

Analyst William Svoboda, Tina Mah Manager Leverett Smith

LABORATORY REPORT

Kennedy/Jenks/Chilton, Laboratory Division
303 Second Street, Tenth Floor North
San Francisco, CA 94107
415-362-6065

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

Received	02/11/91
Reported	02/13/91

Quality Control Page

Source:	PRP, Job No. 09382,039.02
Lab. No.:	911059
Sample I.D.:	91022109 9th Street
Matrix:	Water
Depth:	--
Date Collected:	02/11/91
Time Collected:	1800
Collected by:	HLA
Date Extracted:	--
Date Analyzed:	02/11/91
EPA Analytical Method:	8010

Analysis	Units		Analytical Results		Det. Lim.
chloromethane	ug/L	<0.5	<0.5		0.5
bromomethane	ug/L	<0.5	<0.5		0.5
vinyl chloride	ug/L	<0.5	<0.5		0.5
chloroethane	ug/L	<0.5	<0.5		0.5
methylene chloride	ug/L	0.6	0.6		0.5
trichlorofluoromethane	ug/L	<0.5	<0.5		0.5
1,1-dichloroethylene	ug/L	<0.5	<0.5	Spike Recovery 120%	0.5
1,1-dichloroethane	ug/L	<0.5	<0.5		0.5
1,2-dichloroethylene	ug/L	1.7	1.8		0.5
chloroform	ug/L	0.8	0.6		0.5
1,1,2-trichloro-1,2,2-trifluoroethane	ug/L	<0.5	<0.5	Spike Recovery 139%	0.5
1,2-dichloroethane	ug/L	6.1	6.2		0.5
1,1,1-trichloroethane	ug/L	<0.5	<0.5	Spike Recovery 114%	0.5
carbon tetrachloride	ug/L	<0.5	<0.5		0.5
bromodichloromethane	ug/L	<0.5	<0.5		0.5
1,2-dichloropropane	ug/L	<0.5	<0.5		0.5
cis-1,3-dichloropropylene	ug/L	<0.5	<0.5		0.5
trichloroethylene	ug/L	14	14	Spike Recovery 111%	0.5
1,1,2-trichloroethane	ug/L	<0.5	<0.5		0.5
chlorodibromomethane	ug/L	<0.5	<0.5		0.5
trans-1,3-dichloropropylene	ug/L	<0.5	<0.5		0.5
2-chloroethylvinyl ether **	ug/L	<0.5	<0.5		0.5
bromoform	ug/L	<0.5	<0.5		0.5
tetrachloroethylene	ug/L	<0.5	<0.5	Spike Recovery 111%	0.5
1,1,2,2-tetrachloroethane	ug/L	<0.5	<0.5		0.5
chlorobenzene	ug/L	<0.5	<0.5	Spike Recovery 112%	0.5
dichlorodifluoromethane	ug/L	<0.5	<0.5	Spike Recovery 84%	0.5

Comments: Results reported in micrograms per liter. ** Unstable compound.

Analyst William Svoboda, Tina Mah Manager Everett Smith

LABORATORY REPORT

Kennedy/Jenks/Chilton, Laboratory Division
303 Second Street, Tenth Floor North
San Francisco, CA 94107
415-362-6065

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

Received	--
Reported	02/13/91

Quality Control Page

Source:	--
Lab. No.:	Method Blank
Sample I.D.:	Reagent Water
Matrix:	Water
Depth:	--
Date Collected:	--
Time Collected:	--
Collected by:	K/J/C
Date Extracted:	--
Date Analyzed:	02/11/91
EPA Analytical Method:	8010

Analysis	Units	Analytical Results	Det. Lim.
chloromethane	ug/L	<0.5	0.5
bromomethane	ug/L	<0.5	0.5
vinyl chloride	ug/L	<0.5	0.5
chloroethane	ug/L	<0.5	0.5
methylene chloride	ug/L	<0.5	0.5
trichlorofluoromethane	ug/L	<0.5	0.5
1,1-dichloroethylene	ug/L	<0.5	0.5
1,1-dichloroethane	ug/L	<0.5	0.5
1,2-dichloroethylene	ug/L	<0.5	0.5
chloroform	ug/L	<0.5	0.5
1,1,2-trichloro-1,2,2-trifluoroethane	ug/L	<0.5	0.5
1,2-dichloroethane	ug/L	<0.5	0.5
1,1,1-trichloroethane	ug/L	<0.5	0.5
carbon tetrachloride	ug/L	<0.5	0.5
bromodichloromethane	ug/L	<0.5	0.5
1,2-dichloropropane	ug/L	<0.5	0.5
cis-1,3-dichloropropylene	ug/L	<0.5	0.5
trichloroethylene	ug/L	<0.5	0.5
1,1,2-trichloroethane	ug/L	<0.5	0.5
chlorodibromomethane	ug/L	<0.5	0.5
trans-1,3-dichloropropylene	ug/L	<0.5	0.5
2-chloroethylvinyl ether **	ug/L	<0.5	0.5
bromoform	ug/L	<0.5	0.5
tetrachloroethylene	ug/L	<0.5	0.5
1,1,2,2-tetrachloroethane	ug/L	<0.5	0.5
chlorobenzene	ug/L	<0.5	0.5
dichlorodifluoromethane	ug/L	<0.5	0.5

Comments: Results reported in micrograms per liter. ** Unstable compound.

Analyst William Svoboda, Tina Mah

Manager Lenett Smith

LABORATORY REPORT

Kennedy/Jenks/Chilton, Laboratory Division
303 Second Street, Tenth Floor North
San Francisco, CA 94107
415-362-6065

Received	02/12/91
Reported	02/13/91

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

Source:	PRP/Oakland, Job No. 09382.050.02
Lab. No.:	911090
Sample I.D.:	91021201 Franklin Street
Matrix:	Water
Depth:	--
Date Collected:	02/12/91
Time Collected:	1440
Collected by:	HLA
Date Extracted:	--
Date Analyzed:	02/12/91
EPA Analytical Method:	8010

ORIGINAL

Analysis	Units	Analytical Results	Det. Lim.
chloromethane	ug/L	<0.5	0.5
bromomethane	ug/L	<0.5	0.5
vinyl chloride	ug/L	<0.5	0.5
chloroethane	ug/L	<0.5	0.5
methylene chloride	ug/L	<0.5	0.5
trichlorofluoromethane	ug/L	<0.5	0.5
1,1-dichloroethylene	ug/L	<0.5	0.5
1,1-dichloroethane	ug/L	<0.5	0.5
1,2-dichloroethylene	ug/L	59	0.5
chloroform	ug/L	<0.5	0.5
1,1,2-trichloro-1,2,2-trifluoroethane	ug/L	<0.5	0.5
1,2-dichloroethane	ug/L	4.4	0.5
1,1,1-trichloroethane	ug/L	<0.5	0.5
carbon tetrachloride	ug/L	<0.5	0.5
bromodichloromethane	ug/L	<0.5	0.5
1,2-dichloropropane	ug/L	<0.5	0.5
cis-1,3-dichloropropylene	ug/L	<0.5	0.5
trichloroethylene	ug/L	140	0.5
1,1,2-trichloroethane	ug/L	<0.5	0.5
chlorodibromomethane	ug/L	<0.5	0.5
trans-1,3-dichloropropylene	ug/L	<0.5	0.5
2-chloroethylvinyl ether **	ug/L	<0.5	0.5
bromoform	ug/L	<0.5	0.5
tetrachloroethylene	ug/L	<0.5	0.5
1,1,2,2-tetrachloroethane	ug/L	<0.5	0.5
chlorobenzene	ug/L	1.2	0.5
dichlorodifluoromethane	ug/L	<0.5	0.5

Comments: Results reported in micrograms per liter. ** Unstable compound.

Analyst Tina Mah, Kevin Draper Manager Leverett Smith

LABORATORY REPORT

Kennedy/Jenks/Chilton, Laboratory Division
303 Second Street, Tenth Floor North
San Francisco, CA 94107
415-362-6065

Received	02/12/91
Reported	02/13/91

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

Source:	PRP/Oakland, Job No. 09382.050.02
Lab. No.:	911091
Sample I.D.:	91021202 Wells DW-1 to DW-11
Matrix:	Water
Depth:	--
Date Collected:	02/12/91
Time Collected:	1450
Collected by:	HLA
Date Extracted:	--
Date Analyzed:	02/12/91
EPA Analytical Method:	8010

Analysis	Units	Analytical Results	Det. Lim.
chloromethane	ug/L	<0.5	0.5
bromomethane	ug/L	<0.5	0.5
vinyl chloride	ug/L	<0.5	0.5
chloroethane	ug/L	<0.5	0.5
methylene chloride	ug/L	<0.5	0.5
trichlorofluoromethane	ug/L	<0.5	0.5
1,1-dichloroethylene	ug/L	<0.5	0.5
1,1-dichloroethane	ug/L	<0.5	0.5
1,2-dichloroethylene	ug/L	2.4	0.5
chloroform	ug/L	<0.5	0.5
1,1,2-trichloro-1,2,2-trifluoroethane	ug/L	<0.5	0.5
1,2-dichloroethane	ug/L	4.6	0.5
1,1,1-trichloroethane	ug/L	<0.5	0.5
carbon tetrachloride	ug/L	<0.5	0.5
bromodichloromethane	ug/L	<0.5	0.5
1,2-dichloropropane	ug/L	<0.5	0.5
cis-1,3-dichloropropylene	ug/L	<0.5	0.5
trichloroethylene	ug/L	13	0.5
1,1,2-trichloroethane	ug/L	<0.5	0.5
chlorodibromomethane	ug/L	<0.5	0.5
trans-1,3-dichloropropylene	ug/L	<0.5	0.5
2-chloroethylvinyl ether **	ug/L	<0.5	0.5
bromoform	ug/L	<0.5	0.5
tetrachloroethylene	ug/L	<0.5	0.5
1,1,2,2-tetrachloroethane	ug/L	<0.5	0.5
chlorobenzene	ug/L	<0.5	0.5
dichlorodifluoromethane	ug/L	<0.5	0.5

Comments: Results reported in micrograms per liter. ** Unstable compound.

Analyst Tina Mah, Kevin Draper Manager Leverett Smith

LABORATORY REPORT

Kennedy/Jenks/Chilton, Laboratory Division
303 Second Street, Tenth Floor North
San Francisco, CA 94107
415-362-6065

Received	02/12/91
Reported	02/13/91

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

Quality Control Page

Source:	PRP/Oakland, Job No. 09382.050.02
Lab. No.:	911091
Sample I.D.:	91021202 Wells DW-1 to DW-2
Matrix:	Water
Depth:	--
Date Collected:	02/12/91
Time Collected:	1450
Collected by:	HLA
Date Extracted:	--
Date Analyzed:	02/12/91
EPA Analytical Method:	8010

Analysis	Units	Replicate		Analytical Results	Det. Lim.
chloromethane	ug/L	<0.5	<0.5		0.5
bromomethane	ug/L	<0.5	<0.5		0.5
vinyl chloride	ug/L	<0.5	<0.5		0.5
chloroethane	ug/L	<0.5	<0.5		0.5
methylene chloride	ug/L	<0.5	<0.5		0.5
trichlorofluoromethane	ug/L	<0.5	<0.5		0.5
1,1-dichloroethylene	ug/L	<0.5	<0.5	Spike recovery 122%	0.5
1,1-dichloroethane	ug/L	<0.5	<0.5		0.5
1,2-dichloroethylene	ug/L	2.4	2.4		0.5
chloroform	ug/L	<0.5	<0.5		0.5
1,1,2-trichloro-1,2,2-trifluoroethane	ug/L	<0.5	<0.5	Spike recovery 140%	0.5
1,2-dichloroethane	ug/L	4.9	4.3		0.5
1,1,1-trichloroethane	ug/L	<0.5	<0.5	Spike recovery 119%	0.5
carbon tetrachloride	ug/L	<0.5	<0.5		0.5
bromodichloromethane	ug/L	<0.5	<0.5		0.5
1,2-dichloropropane	ug/L	<0.5	<0.5		0.5
cis-1,3-dichloropropylene	ug/L	<0.5	<0.5		0.5
trichloroethylene	ug/L	14	12	Spike recovery 102%	0.5
1,1,2-trichloroethane	ug/L	<0.5	<0.5		0.5
chlorodibromomethane	ug/L	<0.5	<0.5		0.5
trans-1,3-dichloropropylene	ug/L	<0.5	<0.5		0.5
2-chloroethylvinyl ether **	ug/L	<0.5	<0.5		0.5
bromoform	ug/L	<0.5	<0.5		0.5
tetrachloroethylene	ug/L	<0.5	<0.5	Spike recovery 106%	0.5
1,1,2,2-tetrachloroethane	ug/L	<0.5	<0.5		0.5
chlorobenzene	ug/L	<0.5	<0.5	Spike recovery 110%	0.5
dichlorodifluoromethane	ug/L	<0.5	<0.5	Spike recovery 86%	0.5

Comments: Results reported in micrograms per liter. ** Unstable compound.

Analyst Tina Mah, Kevin Draper Manager Everett Smith

LABORATORY REPORT

Kennedy/Jenks/Chilton, Laboratory Division
303 Second Street, Tenth Floor North
San Francisco, CA 94107
415-362-6065

Received	02/12/91
Reported	02/13/91

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

Source:	PRP/Oakland, Job No. 09382.050.02
Lab. No.:	911092
Sample I.D.:	Travel Blank Travel Blank
Matrix:	Water
Depth:	—
Date Collected:	--
Time Collected:	--
Collected by:	HLA
Date Extracted:	--
Date Analyzed:	02/12/91
EPA Analytical Method:	8010

Analysis	Units	Analytical Results	Det. Lim.
chloromethane	ug/L	<0.5	0.5
bromomethane	ug/L	<0.5	0.5
vinyl chloride	ug/L	<0.5	0.5
chloroethane	ug/L	<0.5	0.5
methylene chloride	ug/L	<0.5	0.5
trichlorofluoromethane	ug/L	<0.5	0.5
1,1-dichloroethylene	ug/L	<0.5	0.5
1,1-dichloroethane	ug/L	<0.5	0.5
1,2-dichloroethylene	ug/L	<0.5	0.5
chloroform	ug/L	<0.5	0.5
1,1,2-trichloro-1,2,2-trifluoroethane	ug/L	<0.5	0.5
1,2-dichloroethane	ug/L	<0.5	0.5
1,1,1-trichloroethane	ug/L	<0.5	0.5
carbon tetrachloride	ug/L	<0.5	0.5
bromodichloromethane	ug/L	<0.5	0.5
1,2-dichloropropane	ug/L	<0.5	0.5
cis-1,3-dichloropropylene	ug/L	<0.5	0.5
trichloroethylene	ug/L	<0.5	0.5
1,1,2-trichloroethane	ug/L	<0.5	0.5
chlorodibromomethane	ug/L	<0.5	0.5
trans-1,3-dichloropropylene	ug/L	<0.5	0.5
2-chloroethylvinyl ether **	ug/L	<0.5	0.5
bromoform	ug/L	<0.5	0.5
tetrachloroethylene	ug/L	<0.5	0.5
1,1,2,2-tetrachloroethane	ug/L	<0.5	0.5
chlorobenzene	ug/L	<0.5	0.5
dichlorodifluoromethane	ug/L	<0.5	0.5

Comments: Results reported in micrograms per liter. ** Unstable compound.

Analyst Tina Mah, Kevin Draper Manager Leverett Smith

LABORATORY REPORT

Kennedy/Jenks/Chilton, Laboratory Division
303 Second Street, Tenth Floor North
San Francisco, CA 94107
415-362-6065

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

Received	--
Reported	02/13/91

Quality Control Page

Source:	--
Lab. No.:	Method Blank
Sample I.D.:	Reagent Water
Matrix:	Water
Depth:	--
Date Collected:	--
Time Collected:	--
Collected by:	K/J/C
Date Extracted:	--
Date Analyzed:	02/12/91
EPA Analytical Method:	8010

Analysis	Units	Analytical Results	Det. Lim.
chloromethane	ug/L	<0.5	0.5
bromomethane	ug/L	<0.5	0.5
vinyl chloride	ug/L	<0.5	0.5
chloroethane	ug/L	<0.5	0.5
methylene chloride	ug/L	<0.5	0.5
trichlorofluoromethane	ug/L	<0.5	0.5
1,1-dichloroethylene	ug/L	<0.5	0.5
1,1-dichloroethane	ug/L	<0.5	0.5
1,2-dichloroethylene	ug/L	<0.5	0.5
chloroform	ug/L	<0.5	0.5
1,1,2-trichloro-1,2,2-trifluoroethane	ug/L	<0.5	0.5
1,2-dichloroethane	ug/L	<0.5	0.5
1,1,1-trichloroethane	ug/L	<0.5	0.5
carbon tetrachloride	ug/L	<0.5	0.5
bromodichloromethane	ug/L	<0.5	0.5
1,2-dichloropropane	ug/L	<0.5	0.5
cis-1,3-dichloropropylene	ug/L	<0.5	0.5
trichloroethylene	ug/L	<0.5	0.5
1,1,2-trichloroethane	ug/L	<0.5	0.5
chlorodibromomethane	ug/L	<0.5	0.5
trans-1,3-dichloropropylene	ug/L	<0.5	0.5
2-chloroethylvinyl ether **	ug/L	<0.5	0.5
bromoform	ug/L	<0.5	0.5
tetrachloroethylene	ug/L	<0.5	0.5
1,1,2,2-tetrachloroethane	ug/L	<0.5	0.5
chlorobenzene	ug/L	<0.5	0.5
dichlorodifluoromethane	ug/L	<0.5	0.5

Comments: Results reported in micrograms per liter. ** Unstable compound.

Analyst Tina Mah, Kevin Draper Manager Sherett Smith

LABORATORY REPORT

Kennedy/Jenks/Chilton, Laboratory Division
303 Second Street, Tenth Floor North
San Francisco, CA 94107
415-362-6065

Received	02/12/91
Reported	02/13/91

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

Source:	PRP/Oakland, Job No. 09382.050.02
Lab. No.:	911090
Sample I.D.:	91021201 Franklin Street
Matrix:	Water
Depth:	--
Date Collected:	02/12/91
Time Collected:	1440
Collected by:	HLA
Date Extracted:	--
Date Analyzed:	02/12/91
EPA Analytical Method:	8020

Analysis	Units	Analytical Results	Det. Lim.
benzene	ug/L	31	0.2
toluene	ug/L	29	0.2
ethylbenzene	ug/L	14	0.2
total xylenes	ug/L	47	0.2

Comments: Results reported in micrograms per liter.

Analyst Tina Mah, Kevin Draper Manager Leverett Smith

LABORATORY REPORT

Kennedy/Jenks/Chilton, Laboratory Division
303 Second Street, Tenth Floor North
San Francisco, CA 94107
415-362-6065

Received	02/12/91
Reported	02/13/91

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

Quality Control Page

Source:	PRP/Oakland, Job No. 09382.050.02
Lab. No.:	911090
Sample I.D.:	91021201 Franklin Street
Matrix:	Water
Depth:	--
Date Collected:	02/12/91
Time Collected:	1440
Collected by:	HLA
Date Extracted:	--
Date Analyzed:	02/12/91
EPA Analytical Method:	8020

Analysis	Units	Replicate		Analytical Results	Det. Lim.
benzene	ug/L	33	30	Spike recovery 107%	0.2
toluene	ug/L	30	28	Spike recovery 86%	0.2
ethylbenzene	ug/L	15	13		0.2
total xylenes	ug/L	51	43		0.2

Comments: Results reported in micrograms per liter.

Analyst Tina Mah, Kevin Draper

Manager Leverett Smith

LABORATORY REPORT

Kennedy/Jenks/Chilton, Laboratory Division
303 Second Street, Tenth Floor North
San Francisco, CA 94107
415-362-6065

Received	02/12/91
Reported	02/13/91

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

Source:	PRP/Oakland, Job No. 09382.050.02
Lab. No.:	911091
Sample I.D.:	91021202 Wells DW-1 to DW-2
Matrix:	Water
Depth:	--
Date Collected:	02/12/91
Time Collected:	1450
Collected by:	HLA
Date Extracted:	--
Date Analyzed:	02/12/91
EPA Analytical Method:	8020

Analysis	Units	Analytical Results	Det. Lim.
benzene	ug/L	1.5	0.2
toluene	ug/L	2.6	0.2
ethylbenzene	ug/L	0.9	0.2
total xylenes	ug/L	3.8	0.2

Comments: Results reported in micrograms per liter.

Analyst Tina Mah, Kevin Draper Manager Leverett Smith

LABORATORY REPORT

Kennedy/Jenks/Chilton, Laboratory Division
303 Second Street, Tenth Floor North
San Francisco, CA 94107
415-362-6065

Received	02/12/91
Reported	02/13/91

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

Source:	PRP/Oakland, Job No. 09382.050.02
Lab. No.:	911092
Sample I.D.:	Travel Blank Travel Blank
Matrix:	Water
Depth:	--
Date Collected:	--
Time Collected:	--
Collected by:	HLA
Date Extracted:	--
Date Analyzed:	02/12/91
EPA Analytical Method:	8020

Analysis	Units	Analytical Results	Det. Lim.
benzene	ug/L	<0.2	0.2
toluene	ug/L	<0.2	0.2
ethylbenzene	ug/L	<0.2	0.2
total xylenes	ug/L	<0.2	0.2

Comments: Results reported in micrograms per liter.

Analyst Tina Mah, Kevin Draper Manager Lenett Smith

LABORATORY REPORT

Kennedy/Jenks/Chilton, Laboratory Division
303 Second Street, Tenth Floor North
San Francisco, CA 94107
415-362-6065

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

Received	--
Reported	02/13/91

Quality Control Page

Source:	--
Lab. No.:	Method Blank
Sample I.D.:	Reagent Water
Matrix:	Water
Depth:	--
Date Collected:	--
Time Collected:	--
Collected by:	K/J/C
Date Extracted:	--
Date Analyzed:	02/12/91
EPA Analytical Method:	8020

Analysis	Units	Analytical Results	Det. Lim.
benzene	ug/L	<0.2	0.2
toluene	ug/L	<0.2	0.2
ethylbenzene	ug/L	<0.2	0.2
total xylenes	ug/L	<0.2	0.2

Comments: Results reported in micrograms per liter.

Analyst Tina Mah, Kevin Draper Manager Lorrett Smith

LABORATORY REPORT

Kennedy/Jenks/Chilton, Laboratory Division
303 Second Street, Tenth Floor North
San Francisco, CA 94107
415-362-6065

Received	02/12/91
Reported	02/13/91

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

Source:	PRP/Oakland, Job No. 09382.050.02
Lab. No.:	911090
Sample I.D.:	91021201 Franklin Street
Matrix:	Water
Depth:	--
Date Collected:	02/12/91
Time Collected:	1440
Collected by:	HLA
Date Extracted:	02/12/91
Date Analyzed:	02/12/91
EPA Analytical Method:	504

Analysis	Units	Analytical Results	Det. Lim.
1,2-dibromoethane (EDB)	ug/L	0.04	0.02

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

Analyst Lynn Perrine, Joseph Samoy Manager Everett Smith

LABORATORY REPORT

Kennedy/Jenks/Chilton, Laboratory Division
303 Second Street, Tenth Floor North
San Francisco, CA 94107
415-362-6065

Received	02/12/91
Reported	02/13/91

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

Source:	PRP/Oakland, Job No. 09382.050.02
Lab. No.:	911091
Sample I.D.:	91021202 Wells DW-1 to DW-2
Matrix:	Water
Depth:	--
Date Collected:	02/12/91
Time Collected:	1450
Collected by:	HLA
Date Extracted:	02/12/91
Date Analyzed:	02/12/91
EPA Analytical Method:	504

Analysis	Units	Analytical Results	Det. Lim.
1,2-dibromoethane (EDB)	ug/L	<0.02	0.02

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

Analyst Lynn Perrine, Joseph Samoy Manager Leverett Smith

LABORATORY REPORT

Kennedy/Jenks/Chilton, Laboratory Division
303 Second Street, Tenth Floor North
San Francisco, CA 94107
415-362-6065

Received	02/12/91
Reported	02/13/91

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

Quality Control Page

Source:	PRP/Oakland, Job No. 09382.050.02
Lab. No.:	911091
Sample I.D.:	91021202 Wells DW-1 to DW-1
Matrix:	Water
Depth:	--
Date Collected:	02/12/91
Time Collected:	1450
Collected by:	HLA
Date Extracted:	02/12/91
Date Analyzed:	02/12/91
EPA Analytical Method:	504

Analysis	Units	Replicate		Analytical Results	Det. Lim.
1,2-dibromoethane (EDB)	ug/L	<0.02	<0.02	Spike recovery 99%	0.02

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

Analyst Lynn Perrine, Joseph Samoy Manager Leverett Smith

LABORATORY REPORT

Kennedy/Jenks/Chilton, Laboratory Division
303 Second Street, Tenth Floor North
San Francisco, CA 94107
415-362-6065

Received	02/12/91
Reported	02/13/91

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

Source:	PRP/Oakland, Job No. 09382.050.02
Lab. No.:	911092
Sample I.D.:	Travel Blank Travel Blank
Matrix:	Water
Depth:	--
Date Collected:	--
Time Collected:	--
Collected by:	HLA
Date Extracted:	02/12/91
Date Analyzed:	02/12/91
EPA Analytical Method:	504

Analysis	Units	Analytical Results	Det. Lim.
1,2-dibromoethane (EDB)	ug/L	<0.02	0.02

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

Analyst Lynn Perrine, Joseph Samoy Manager Leverett Smith

LABORATORY REPORT

Kennedy/Jenks/Chilton, Laboratory Division
303 Second Street, Tenth Floor North
San Francisco, CA 94107
415-362-6065

Received	--
Reported	02/13/91

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

Quality Control Page

Source:	--
Lab. No.:	Method Blank and Spike
Sample I.D.:	Reagent Water
Matrix:	Water
Depth:	--
Date Collected:	--
Time Collected:	--
Collected by:	K/J/C
Date Extracted:	02/12/91
Date Analyzed:	02/12/91
EPA Analytical Method:	504

Analysis	Units	Analytical Results		Det. Lim.
1,2-dibromoethane (EDB)	ug/L	<0.02	Spike recovery 106%	0.02

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

Analyst Lynn Perrine, Joseph Samoy Manager Leverett Smith

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

pace INCORPORATED
THE ASSURANCE OF QUALITY

REPORT OF LABORATORY ANALYSIS

TREATMENT SYSTEM

3-8-91

March 25, 1991

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

RE: PACE Project No. 410308.504
PRP Oak 09382.039.02

Dear Mr. Leland:

Enclosed is the report of laboratory analyses for samples received March 08, 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

March 25, 1991
PACE Project Number: 410308504

Attn: Mr. David Leland

PRP Oak 09382.039.02

			Influent	Influent (dup)	Intermediate
PACE Sample Number:			70 0024323	70 0024331	70 0024340
Date Collected:			03/08/91	03/08/91	03/08/91
Date Received:			03/08/91	03/08/91	03/08/91
Parameter	Units	MDL	91033001	91033002	91033003
INORGANIC ANALYSIS					
INDIVIDUAL PARAMETERS					
Chlorine, Total Residual	mg/L	0.05	1.0	-	-
ORGANIC ANALYSIS					
PURGEABLE FUELS AND AROMATICS					
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	-	-
Total Purgeable Fuels, as Gasoline	ug/L	50	ND	ND	-
PURGEABLE AROMATICS (BTXE BY EPA 8020):			-	-	-
Benzene	ug/L	0.20	2.0	2.0	ND
Toluene	ug/L	0.20	0.5	0.5	ND
Ethylbenzene	ug/L	0.20	ND	ND	ND
Xylenes, Total	ug/L	0.20	ND	ND	ND
HALOGENATED VOLATILE COMPOUNDS EPA 8010					
Dichlorodifluoromethane	ug/L	2.0	ND	-	ND
Chloromethane	ug/L	2.0	ND	-	ND
Vinyl Chloride	ug/L	2.0	ND	-	ND
Bromomethane	ug/L	2.0	ND	-	ND
Chloroethane	ug/L	2.0	ND	-	ND
Trichlorofluoromethane (Freon 11)	ug/L	2.0	ND	-	ND
1,1-Dichloroethene	ug/L	0.5	ND	-	ND
Methylene Chloride	ug/L	0.5	ND	-	ND
trans-1,2-Dichloroethene	ug/L	0.5	ND	-	ND
1,1-Dichloroethane	ug/L	0.5	ND	-	ND
Chloroform	ug/L	0.5	ND	-	ND
1,1,1-Trichloroethane (TCA)	ug/L	0.5	ND	-	ND
Carbon Tetrachloride	ug/L	0.5	ND	-	ND

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
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March 25, 1991
PACE Project Number: 410308504

PRP Oak 09382.039.02

PACE Sample Number:			70 0024323	70 0024331	70 0024340
Date Collected:			03/08/91	03/08/91	03/08/91
Date Received:			03/08/91	03/08/91	03/08/91
Parameter	Units	MDL	91033001	91033002	91033003
ORGANIC ANALYSIS					
HALOGENATED VOLATILE COMPOUNDS EPA 8010					
1,2-Dichloroethane (EDC)	ug/L	0.5	2.5	-	1.5
Trichloroethene (TCE)	ug/L	0.5	49	-	2.2
1,2-Dichloropropane	ug/L	0.5	ND	-	ND
Bromodichloromethane	ug/L	0.5	ND	-	ND
2-Chloroethylvinyl ether	ug/L	0.5	ND	-	ND
cis-1,3-Dichloropropene	ug/L	0.5	ND	-	ND
trans-1,3-Dichloropropene	ug/L	0.5	ND	-	ND
1,1,2-Trichloroethane	ug/L	0.5	ND	-	ND
Tetrachloroethene	ug/L	0.5	ND	-	ND
Dibromochloromethane	ug/L	0.5	ND	-	ND
Chlorobenzene	ug/L	0.5	ND	-	ND
Bromoform	ug/L	0.5	ND	-	ND
1,1,2,2-Tetrachloroethane	ug/L	0.5	ND	-	ND
1,3-Dichlorobenzene	ug/L	0.5	ND	-	ND
1,4-Dichlorobenzene	ug/L	0.5	ND	-	ND
1,2-Dichlorobenzene	ug/L	0.5	ND	-	ND
Bromochloromethane (Surrogate Recovery)			95%	-	139%
1,4-Dichlorobutane (Surrogate Recovery)			112%	-	123%

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

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pace INCORPORATED
THE ASSURANCE OF QUALITY

REPORT OF LABORATORY ANALYSIS

Mr. David Leland
Page 3

March 25, 1991
PACE Project Number: 410308504

PRP Oak 09382.039.02

			Effluent	Effluent (Dup)	Field Blank
PACE Sample Number:			70 0024358	70 0024366	70 0024374
Date Collected:			03/08/91	03/08/91	03/08/91
Date Received:			03/08/91	03/08/91	03/08/91
Parameter	Units	MDL	91033004	91033005	91033006
INORGANIC ANALYSIS					
INDIVIDUAL PARAMETERS					
Chlorine, Total Residual	mg/L	0.05	ND	-	-
ORGANIC ANALYSIS					
PURGEABLE FUELS AND AROMATICS					
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	-	-
Total Purgeable Fuels, as Gasoline	ug/L	50	ND	ND	ND
PURGEABLE AROMATICS (BTXE BY EPA 8020):			-	-	-
Benzene	ug/L	0.20	ND	ND	ND
Toluene	ug/L	0.20	ND	ND	ND
Ethylbenzene	ug/L	0.20	ND	ND	ND
Xylenes, Total	ug/L	0.20	ND	ND	ND
HALOGENATED VOLATILE COMPOUNDS EPA 8010					
Dichlorodifluoromethane	ug/L	2.0	ND	ND	ND
Chloromethane	ug/L	2.0	ND	ND	ND
Vinyl Chloride	ug/L	2.0	ND	ND	ND
Bromomethane	ug/L	2.0	ND	ND	ND
Chloroethane	ug/L	2.0	ND	ND	ND
Trichlorofluoromethane (Freon 11)	ug/L	2.0	ND	ND	ND
1,1-Dichloroethene	ug/L	0.5	ND	ND	ND
Methylene Chloride	ug/L	0.5	2.1(*)	ND	ND
trans-1,2-Dichloroethene	ug/L	0.5	ND	ND	ND
1,1-Dichloroethane	ug/L	0.5	ND	ND	ND
Chloroform	ug/L	0.5	ND	ND	ND
1,1,1-Trichloroethane (TCA)	ug/L	0.5	ND	ND	ND
Carbon Tetrachloride	ug/L	0.5	ND	ND	ND
1,2-Dichloroethane (EDC)	ug/L	0.5	ND	ND	ND
Trichloroethene (TCE)	ug/L	0.5	ND	ND	ND
1,2-Dichloropropane	ug/L	0.5	ND	ND	ND

MDL Method Detection Limit
ND Not detected at or above the MDL.
(*) Methylene Chloride present in blank at 3.3ug/L.

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THE ASSURANCE OF QUALITY

REPORT OF LABORATORY ANALYSIS

Mr. David Leland
Page 4

March 25, 1991
PACE Project Number: 410308504

PRP Oak 09382.039.02

PACE Sample Number:			70 0024358	70 0024366	70 0024374
Date Collected:			03/08/91	03/08/91	03/08/91
Date Received:			03/08/91	03/08/91	03/08/91
Parameter	Units	MDL	91033004	91033005	91033006
ORGANIC ANALYSIS					
HALOGENATED VOLATILE COMPOUNDS EPA 8010					
Bromodichloromethane	ug/L	0.5	ND	ND	ND
2-Chloroethylvinyl ether	ug/L	0.5	ND	ND	ND
cis-1,3-Dichloropropene	ug/L	0.5	ND	ND	ND
trans-1,3-Dichloropropene	ug/L	0.5	ND	ND	ND
1,1,2-Trichloroethane	ug/L	0.5	ND	ND	ND
Tetrachloroethene	ug/L	0.5	ND	ND	ND
Dibromochloromethane	ug/L	0.5	ND	ND	ND
Chlorobenzene	ug/L	0.5	ND	ND	ND
Bromoform	ug/L	0.5	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	0.5	ND	ND	ND
1,3-Dichlorobenzene	ug/L	0.5	ND	ND	ND
1,4-Dichlorobenzene	ug/L	0.5	ND	ND	ND
1,2-Dichlorobenzene	ug/L	0.5	ND	ND	ND
Bromochloromethane (Surrogate Recovery)			110%	98%	93%
1,4-Dichlorobutane (Surrogate Recovery)			123%	107%	119%

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

The data contained in this report were obtained using EPA or other approved methodologies. All analyses were performed by me or under my supervision.

Marilyn R. Arsenault
Acting Inorganic Chemistry Manager

Frank J. Resnick for
Ruth J. Siegmund
Organic Chemistry Manager

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THE ASSURANCE OF QUALITY

REPORT OF LABORATORY ANALYSIS

Mr. David Leland
Page 5

QUALITY CONTROL DATA

March 26, 1991
PACE Project Number: 410308504

PRP Oak 09382.039.02

Chlorine, Total Residual
Batch: 70 01983
Samples: 70 0024323, 70 0024358

METHOD BLANK AND SAMPLE DUPLICATE:

Parameter	Units	MDL	Method Blank	70 0024358 91033004	Duplicate of Sample 70 0024358	RPD
Chlorine, Total Residual	mg/L	0.05	ND	ND	ND	0%

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

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Mr. David Leland
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QUALITY CONTROL DATA

March 26, 1991
PACE Project Number: 410308504

PRP Oak 09382.039.02

VOLATILE HALOCARBONS AND AROMATICS
Batch: 70 02206
Samples: 70 0024323, 70 0024340, 70 0024358

METHOD BLANK:

Parameter	Units	MDL	Method Blank
VOLATILE HALOCARBONS BY EPA 8010			-
Dichlorodifluoromethane	ug/L	2.0	ND
Chloromethane	ug/L	2.0	ND
Vinyl Chloride	ug/L	2.0	ND
Bromomethane	ug/L	2.0	ND
Chloroethane	ug/L	2.0	ND
Trichlorofluoromethane (Freon 11)	ug/L	2.0	ND
1,1-Dichloroethene	ug/L	0.5	ND
Methylene Chloride	ug/L	0.5	1.1
trans-1,2-Dichloroethene	ug/L	0.5	ND
1,1-Dichloroethane	ug/L	0.5	ND
Chloroform	ug/L	0.5	ND
1,1,1-Trichloroethane (TCA)	ug/L	0.5	ND
Carbon Tetrachloride	ug/L	0.5	ND
1,2-Dichloroethane (EDC)	ug/L	0.5	ND
Trichloroethene (TCE)	ug/L	0.5	ND
1,2-Dichloropropane	ug/L	0.5	ND
Bromodichloromethane	ug/L	0.5	ND
2-Chloroethylvinyl ether	ug/L	0.5	ND
cis-1,3-Dichloropropene	ug/L	0.5	ND
trans-1,3-Dichloropropene	ug/L	0.5	ND
1,1,2-Trichloroethane	ug/L	0.5	ND
Tetrachloroethene	ug/L	0.5	ND
Dibromochloromethane	ug/L	0.5	ND
Chlorobenzene	ug/L	0.5	ND
Bromoform	ug/L	0.5	ND
1,1,2,2-Tetrachloroethane	ug/L	0.5	ND
1,3-Dichlorobenzene	ug/L	0.5	ND
1,4-Dichlorobenzene	ug/L	0.5	ND
1,2-Dichlorobenzene	ug/L	0.5	ND

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

Mr. David Leland
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QUALITY CONTROL DATA

March 26, 1991
PACE Project Number: 410308504

PRP Oak 09382.039.02

VOLATILE HALOCARBONS AND AROMATICS
Batch: 70 02206
Samples: 70 0024323, 70 0024340, 70 0024358

METHOD BLANK:

Parameter	Units	MDL	Method Blank
VOLATILE HALOCARBONS AND AROMATICS			
Bromochloromethane (Surrogate Recover			95%
1,4-Dichlorobutane (Surrogate Recover			103%
VOLATILE AROMATICS BY EPA 8020			-
Benzene	ug/L	0.3	ND
Toluene	ug/L	0.3	ND
Chlorobenzene	ug/L	0.5	ND
Ethylbenzene	ug/L	0.5	ND
Xylenes, Total	ug/L	0.5	ND
1,3-Dichlorobenzene	ug/L	0.5	ND
1,4-Dichlorobenzene	ug/L	0.5	ND
1,2-Dichlorobenzene	ug/L	0.5	ND
Fluorobenzene (Surrogate Recovery)			96%

SPIKE AND SPIKE DUPLICATE:

Parameter	Units	MDL	70 0024994	Spike	Spike Recv	Spike Dupl Recv	RPD
1,1-Dichloroethane	ug/L	0.5	1.9	10.00	63%	57%	10%
Trichloroethene (TCE)	ug/L	0.5	1.0	10.00	78%	74%	5%
trans-1,3-Dichloropropene	ug/L	0.5	ND	5.00	101%	96%	5%
Tetrachloroethene	ug/L	0.5	1.3	10.00	104%	92%	12%
Benzene	ug/L	0.3	ND	10.00	68%	65%	4%
Toluene	ug/L	0.3	ND	10.00	79%	78%	1%
Xylenes, Total	ug/L	0.5	ND	30.00	99%	101%	2%

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

Mr. David Leland
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QUALITY CONTROL DATA

March 26, 1991
PACE Project Number: 410308504

PRP Oak 09382.039.02

VOLATILE HALOCARBONS AND AROMATICS
Batch: 70 02248
Samples: 70 0024366, 70 0024374

METHOD BLANK:

Parameter	Units	MDL	Method Blank
VOLATILE HALOCARBONS BY EPA 8010			-
Dichlorodifluoromethane	ug/L	2.0	ND
Chloromethane	ug/L	2.0	ND
Vinyl Chloride	ug/L	2.0	ND
Bromomethane	ug/L	2.0	ND
Chloroethane	ug/L	2.0	ND
Trichlorofluoromethane (Freon 11)	ug/L	2.0	ND
1,1-Dichloroethene	ug/L	0.5	ND
Methylene Chloride	ug/L	0.5	0.8
trans-1,2-Dichloroethene	ug/L	0.5	ND
1,1-Dichloroethane	ug/L	0.5	ND
Chloroform	ug/L	0.5	ND
1,1,1-Trichloroethane (TCA)	ug/L	0.5	ND
Carbon Tetrachloride	ug/L	0.5	ND
1,2-Dichloroethane (EDC)	ug/L	0.5	ND
Trichloroethene (TCE)	ug/L	0.5	ND
1,2-Dichloropropane	ug/L	0.5	ND
Bromodichloromethane	ug/L	0.5	ND
2-Chloroethylvinyl ether	ug/L	0.5	ND
cis-1,3-Dichloropropene	ug/L	0.5	ND
trans-1,3-Dichloropropene	ug/L	0.5	ND
1,1,2-Trichloroethane	ug/L	0.5	ND
Tetrachloroethene	ug/L	0.5	ND
Dibromochloromethane	ug/L	0.5	ND
Chlorobenzene	ug/L	0.5	ND
Bromoform	ug/L	0.5	ND
1,1,2,2-Tetrachloroethane	ug/L	0.5	ND
1,3-Dichlorobenzene	ug/L	0.5	0.8
1,4-Dichlorobenzene	ug/L	0.5	1.3
1,2-Dichlorobenzene	ug/L	0.5	0.9

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

REPORT OF LABORATORY ANALYSIS

Mr. David Leland
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QUALITY CONTROL DATA

March 26, 1991
PACE Project Number: 410308504

PRP Oak 09382.039.02

VOLATILE HALOCARBONS AND AROMATICS
Batch: 70 02248
Samples: 70 0024366, 70 0024374

METHOD BLANK:

Parameter	Units	MDL	Method Blank
VOLATILE HALOCARBONS AND AROMATICS			
Bromochloromethane (Surrogate Recover			90%
1,4-Dichlorobutane (Surrogate Recover			115%
VOLATILE AROMATICS BY EPA 8020			-
Benzene	ug/L	0.3	ND
Toluene	ug/L	0.3	ND
Chlorobenzene	ug/L	0.5	ND
Ethylbenzene	ug/L	0.5	ND
Xylenes, Total	ug/L	0.5	ND
1,3-Dichlorobenzene	ug/L	0.5	0.9
1,4-Dichlorobenzene	ug/L	0.5	1.1
1,2-Dichlorobenzene	ug/L	0.5	0.8
Fluorobenzene (Surrogate Recovery)			94%

SPIKE AND SPIKE DUPLICATE:

Parameter	Units	MDL	70 0028647	Spike	Spike Recv	Spike Dupl Recv	RPD
1,1-Dichloroethane	ug/L	0.5	ND	10.00	59%	64%	8%
Trichloroethene (TCE)	ug/L	0.5	ND	10.00	64%	95%	38%
trans-1,3-Dichloropropene	ug/L	0.5	ND	5.00	113%	113%	0%
Tetrachloroethene	ug/L	0.5	ND	10.00	110%	110%	0%
Benzene	ug/L	0.3	ND	10.00	56%	62%	10%
Toluene	ug/L	0.3	ND	10.00	82%	88%	7%
Xylenes, Total	ug/L	0.5	ND	30.00	117%	120%	2%

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

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[redacted] treatment Sy[redacted]

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Novato, California 94948
415/892-0821
Telecopy: General: 415/892-0831
Accounting: 415/898-1052

CHAIN OF CUSTODY FORM 10308 • 504

Lab: PACE LAB

Samplers: Dave Evans / Doug Lund

Job Number: 02382 039 02

Name/Location: PRP - Oakland

Project Manager: David Leland

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	ANALYSIS REQUESTED: EPA 601/8010	EPA 602/8020 (BTEX only)	EPA 624/8240	EPA 625/8270	ICP METALS	EPA 8015M/TPH	Chlorine
20	X				1			5	91	03	3001	91	03	08	1000	2432.3	X	X				X	X
20	X							3	91	03	3002	91	03	08	1005	2433.1		X					
20	X							3	91	03	3003	91	03	08	1030	2434.0	X	X					
20	X				1			3	91	03	3004	91	03	08	1050	2435.8	X	X				X	X
20	X							3	91	03	3005	91	03	08	1100	2436.6	X	X				X	
20	X							3	91	03	3006	91	03	08	1112	2437.4	X	X					

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

on 6/2, H/1

CHAIN OF CUSTODY RECORD

RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
[signature]		
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: 3/5/91 0921	RECEIVED FOR LAB BY: (Signature) [signature]	DATE/TIME: 3/8/91 12:21

METHOD OF SHIPMENT: Fed Ex w/ blue ice PACE

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

6533

M. Egbert

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 03/08/91
Reported 03/22/91

Source:	PRP Oakland, Job No. 09382,039.02
Lab. No.:	911787
Sample I.D.:	91033007 Influent
Matrix:	Water
Depth:	--
Date Collected:	03/08/91
Time Collected:	0955
Collected by:	HLA
Date Extracted:	03/15/91
Date Analyzed:	03/18/91
EPA Analytical Method:	504

Analysis	Units	Analytical Results	Det. Lim.
1,2-dibromoethane (EDB)	ug/L	0.10	0.01

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

Analyst Lynn Perrine, Joseph Samoy 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 03/08/91
Reported 03/22/91

Quality Control Page

Source:	PRP Oakland, Job No. 09382,039.02
Lab. No.:	911787
Sample I.D.:	91033007
Matrix:	Water
Depth:	--
Date Collected:	03/08/91
Time Collected:	0955
Collected by:	HLA
Date Extracted:	03/15/91
Date Analyzed:	03/18/91
EPA Analytical Method:	504

Analysis	Units	Replicate Analytical Results			Det. Lim.
1,2-dibromoethane (EDB)	ug/L	0.093	0.105	Spike rec. 56%	0.01

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

Analyst Lynn Perrine, Joseph Samoy Manager

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 03/08/91
Reported 03/22/91

Source:	PRP Oakland, Job No. 09382,039.02
Lab. No.:	911788
Sample I.D.:	91033008 Effluent
Matrix:	Water
Depth:	--
Date Collected:	03/08/91
Time Collected:	1040
Collected by:	HLA
Date Extracted:	03/15/91
Date Analyzed:	03/18/91
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, Joseph Samoy 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 03/08/91
Reported 03/22/91

Source:	PRP Oakland, Job No. 09382,039.02
Lab. No.:	911789
Sample I.D.:	91033009 Effl (DUP)
Matrix:	Water
Depth:	--
Date Collected:	03/08/91
Time Collected:	1050
Collected by:	HLA
Date Extracted:	03/15/91
Date Analyzed:	03/18/91
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, Joseph Samoy 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 03/08/91
Reported 03/22/91

Source:	PRP Oakland, Job No. 09382,039.02
Lab. No.:	911790
Sample I.D.:	91033010 Field Blank
Matrix:	Water
Depth:	--
Date Collected:	03/08/91
Time Collected:	1100
Collected by:	HLA
Date Extracted:	03/15/91
Date Analyzed:	03/18/91
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, Joseph Samoy 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 03/22/91

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:	03/15/91
Date Analyzed:	03/18/91
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, Joseph Samoy Manager

pace
INCORPORATED
THE ASSURANCE OF QUALITY

REPORT OF LABORATORY ANALYSIS

M. Egbert

91 03 31 March 22, 1991

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

RE: PACE Project No. 410308.505
PRP Oak 09382.039.02

Dear Mr. Leland:

Enclosed is the report of laboratory analyses for samples received March 08, 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

March 22, 1991
PACE Project Number: 410308505

Attn: Mr. David Leland

PRP Oak 09382.039.02

			MW-19	MW-22	MW-23
PACE Sample Number:			70 0024390	70 0024404	70 0024412
Date Collected:			03/08/91	03/08/91	03/08/91
Date Received:			03/08/91	03/08/91	03/08/91
Parameter	Units	MDL	91030201	91030202	91030203
ORGANIC ANALYSIS					
PURGEABLE FUELS AND AROMATICS					
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	-	-
Total Purgeable Fuels, as Gasoline	ug/L	1000	1400	-	-
PURGEABLE AROMATICS (BTXE BY EPA 8020):			-	-	-
Benzene	ug/L	0.20	-	ND	ND
Benzene	ug/L	4.0	520	-	-
Toluene	ug/L	0.20	-	ND	ND
Toluene	ug/L	4.0	57	-	-
Ethylbenzene	ug/L	0.20	-	ND	ND
Ethylbenzene	ug/L	4.0	20	-	-
Xylenes, Total	ug/L	0.20	-	ND	ND
Xylenes, Total	ug/L	4.0	83	-	-

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

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Novato, CA 94949
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THE ASSURANCE OF QUALITY

REPORT OF LABORATORY ANALYSIS

Mr. David Leland
Page 2

March 22, 1991
PACE Project Number: 410308505

PRP Oak 09382.039.02

			MW-18	MW-20	MW-21
PACE Sample Number:			70 0024420	70 0024439	70 0024447
Date Collected:			03/08/91	03/08/91	03/08/91
Date Received:			03/08/91	03/08/91	03/08/91
Parameter	Units	MDL	91030204	91030205	91030206
ORGANIC ANALYSIS					
PURGEABLE FUELS AND AROMATICS					
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	-	-
Total Purgeable Fuels, as Gasoline	ug/L	50	ND	ND	ND
PURGEABLE AROMATICS (BTXE BY EPA 8020):			-	-	-
Benzene	ug/L	0.20	0.9	ND	ND
Toluene	ug/L	0.20	0.3	ND	ND
Ethylbenzene	ug/L	0.20	ND	ND	ND
Xylenes, Total	ug/L	0.20	ND	ND	ND

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

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Novato, CA 94949
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pace INCORPORATED
THE ASSURANCE OF QUALITY

REPORT OF LABORATORY ANALYSIS

Mr. David Leland
Page 3

March 22, 1991
PACE Project Number: 410308505

PRP Oak 09382.039.02

			MW-7	MW-3	
PACE Sample Number:			70 0024455	70 0024471	70 0027250
Date Collected:			03/08/91	03/08/91	03/08/91
Date Received:			03/08/91	03/08/91	03/08/91
Parameter	Units	MDL	91030207	91030209	Lab Control Blank
ORGANIC ANALYSIS					
PURGEABLE FUELS AND AROMATICS					
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	-	-
Total Purgeable Fuels, as Gasoline	ug/L	50	ND	ND	-
PURGEABLE AROMATICS (BTXE BY EPA 8020):			-	-	-
Benzene	ug/L	0.20	ND	ND	-
Toluene	ug/L	0.20	ND	ND	-
Ethylbenzene	ug/L	0.20	ND	ND	-
Xylenes, Total	ug/L	0.20	ND	ND	-

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

The data contained in this report were obtained using EPA or other approved methodologies. All analyses were performed by me or under my supervision.

Frank J. Resnick for
Ruth J. Siegmund
Organic Chemistry Manager

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

[redacted]ng L[redacted]n As[redacted]tes [redacted]
200 Rush Landing Road
P.O. Box 6107
Novato, California 94948
415/892-0821
Telecopy: 415/892-1586

CHAIN OF CUSTODY FORM

4 1 0308 505
Lab: Pace

Job Number: 09382,039.02
Name/Location: PRP
Project Manager: David Leland

Samplers: David McEvers
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	ANALYSIS REQUESTED: EPA 601/8010	EPA 602/8020 BTEX only	EPA 624/8240	EPA 625/8270	Priority Pllnt. Metals	Benzene/Toluene/Xylene	Total Petrol. Hydrocarb.	EPA 8015
23	X							6	91	03	0201	91	03	08	0532	2439.0		X						X
23	X							3			02				0556	2440.4		X						
23	X							3			03				0620	2441.2		X						
23	X							3			04				0645	2442.0		X						
23	X							3			05				0740	2443.9		X						
23	X							3			06				0800	2444.7		X						
23	X							6			07				0825	2445.5		X						X
23	X							3			08				0845	2446.3 Fld Blk		X	Cancelled as per Mark					
23	X							3			09				0905	2447.1		X				[redacted]	Egbert 3/13/91	

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

6/2

CHAIN OF CUSTODY RECORD

RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
David McEvers		
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
David McEvers	3/8/91, 1221	Stephen Mat[illegible]	3/8/91 12:21

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6533

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April 30, 1991

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QUALITY CONTROL REVIEWER

R. Bruce Schubach (for)

Tamara L. Williams
Geologist - 3954