A Report Prepared for

California Regional Water Quality Control Board
San Francisco Bay Region
1111 Jackson Street, Room 6000
Oakland, California 94607

REPORT OF SYSTEM MONITORING:
DECEMBER 1988
DEWATERING EFFLUENT TREATMENT SYSTEM
CHINATOWN REDEVELOPMENT PROJECT AREA
OAKLAND, CALIFORNIA

HLA Job No. 9382,018.02

Submitted on behalf of:

City of Oakland Redevelopment Agency
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by

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1 INTRODUCTION

This report discusses the operation and monitoring of the dewatering effluent treatment system at 10th and Webster streets, Oakland, California, from November 30 to December 31, 1988. The system is treating water produced during ground-water dewatering of the block bounded by 10th, 11th, Webster, and Franklin streets, in conjunction with construction in progress at the site. The system is designed to remove petroleum hydrocarbons from dewatering effluent before the effluent is discharged to the storm drain.

This report has been prepared by Harding Lawson Associates (HLA) and is submitted in compliance with NPDES Permit CA 0029394, adopted on July 20, 1988, by the California Regional Water Quality Control Board, San Francisco Bay Region (RWQCB). Under the NPDES permit, treatment system discharge limits are 50 parts per billion (ppb) for total petroleum hydrocarbons (TPH) identified as gasoline; 5.6 ppb for lead; 5.0 ppb each for chlorobenzene, 1,2-dichloroethane, 1,2-dichloropropane, trichloroethylene, 1,1,2-trichloroethane, benzene, xylenes, and ethylbenzene; 0.5 ppb for toluene; 0.01 ppb for ethylene dibromide; and 0.0 ppb for total residual chlorine.

II TREATMENT SYSTEM OPERATION

The dewatering effluent treatment system was installed March 8, 1988, and has been in continuous operation since March 14. Water is treated by pumping it through four carbon contactors arranged in pairs. Organic compounds in the influent are adsorbed on the carbon. Each pair of contactors is arranged in parallel, and together constitute a module; the two modules are arranged in series. The system is configured so that water from the dewatering wells may be pumped through either module first. The system also comprises a holding tank for influent water, pumps, filters, piping, and instrumentation. Four water sampling ports -- one influent, two intermediate, and one effluent -- enable water samples to be collected throughout the treatment process. The intermediate ports are located between the two modules so the effectiveness of the first pair of contactors in reducing influent concentrations can be monitored. Depending on the configuration of modules, only one of these ports is intermediate in the system at any one time.

Treated effluent is discharged to the storm drain. From December 1, 1988 to January 1, 1989, total discharge of the system was 471,000 gallons, based on readings of the flow totalizing meter located in the discharge line. Average flow for this period was 10.6 gallons per minute (gpm), with weekly average flows ranging from 10.2 to 13.7 gpm.

The system was backwashed on December 3, 5, 10, 22 and 29.

Throughout the month, a floating residential swimming pool type chlorinator was deployed in the holding tank to retard algal growth in the treatment system.

On the morning of December 14, 1988, an estimated 1000 gallons of water was released sporadically over a period of approximately 4 hours. The spillage occurred

from Baker tanks used to store untreated water prior to processing through the treatment system. The tanks provide over 100,000 gallons of storage capacity. The purposes of this storage capacity are to reduce suspended solids levels in water prior to passage to the treatment system, to hold water while conducting repairs and maintenance, and to safely contain influent in the event of a system breakdown. The tanks are connected in series with inflow to the upstream tank and withdrawal accomplished by an electronically-activated submersible pump in the last downstream tank. The submersible pump transfers water to the treatment system holding tank. The December 14 spill occurred because of failure of the submersible pump. The release was described in detail in a letter to the California RWQCB dated December 21, 1988.

As of December 15, 1988, the Baker tank submersible pump and level controls had been completely replaced. All pumps on the system have been checked and will continue to be checked as part of the daily maintenance routine.

Neither the release nor the mechanism of release in any way affected the operational integrity of the carbon adsorption vessels or the ability of the system to remove organic compounds from the dewatering influent prior to discharge to the storm drain.

IV RESULTS

Results of influent, intermediate, and effluent sample analyses for TPH and for EPA Test Method 8010, 8020, 8240 and 504 compounds, indicate that on most days sampled, the treatment system removed all individual constituents to below detection levels. Methylene chloride was detected in an effluent sample on November 30 at 1.6 μg/l. Chloroform and 1,1-dichloroethane were both detected on December 7 at 0.8 μg/l. 1,2-dichloroethane was detected on November 30, December 7, 15 and 21 at concentrations of 2.2 μg/l, 5.1 μg/l, 4.3 μg/l and 3.5 μg/l, respectively.

Methylene chloride was detected in blank samples on November 30, December 7 and 15 at concentrations of 4.6 μg/l, 25.3 μg/l and 13 μg/l, respectively.

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009

HLA SAMPLE ID #	88442703	88450212	88441101	88461801	88462301	88473001	88491201	88501501	88512101
DATE	10/27	11/02	11/11	11/18	11/23	11/30	12/07	12/15	12/21
TEST METHOD/ COMPOUNDS									
EPA 8020									
Benzene	ND < 0.2	0.6	0.8	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	NT	NT
Toluene	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	NT	NT
Chlorobenzene	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	NT	NT
Ethylbenzene	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	NT	NT
Xylenes	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	NT	NT
1,2-Dichlorobenzene	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	NT	NT
All other 8020 compounds	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	NT	NT
EPA 8015									
TPH (Gasoline)	ND < 50	ND < 50	ND < 50	ND < 50	60	90	ND < 50	NT	NT
Diesel	NT	NT	NT	NT	NT	NT	NT	NT	NT
EPA 8010									
1,1-dichloroethene	ND < 0.5	3.4	ND < 0.5	ND < 0.5	ND < 0.5	NT	NT	ND < 0.5	ND < 0.5
Methylene chloride	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	NT	NT	ND < 0.5	ND < 0.5
1,1-dichloroethane	ND < 0.5	ND < 0.5	0.7	0.8	ND < 0.5	NT	NT	ND < 0.5	ND < 0.5
Chloroform	ND < 0.5	ND < 0.5	0.8	0.8	1.6	NT	NT	ND < 0.5	1.1
1,2-dichloroethane	5.4	ND < 0.5	5.9	5.7	ND < 0.5	NT	NT	9.2	4.8
Trichloroethene	160	31.7	280	54	210	NT	NT	390	112
1,2-dichloropropane	140	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	NT	NT	ND < 0.5	ND < 0.5
Tetrachloroethene	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	NT	NT	ND < 0.5	ND < 0.5
Chlorobenzene	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	NT	NT	ND < 0.5	ND < 0.5
Bromoform	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	NT	NT	ND < 0.5	ND < 0.5
1,1,2,2-tetrachloroethane	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	NT	NT	ND < 0.5	ND < 0.5
Dibromochloromethane	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	NT	NT	ND < 0.5	ND < 0.5
All other 8010 compounds	ND	ND	ND	ND	ND	NT	NT	ND	ND
EPA 8240									
1,1-dichloroethene	NT	NT	NT	NT	NT	0.5	ND < 0.5	NT	NT
Methylene chloride	NT	NT	NT	NT	NT	0.6	0.6	NT	NT
1,1-dichloroethane	NT	NT	NT	NT	NT	1.1	0.7	NT	NT
Chloroform	NT	NT	NT	NT	NT	1.5	0.7	NT	NT
1,2-dichloroethane	NT	NT	NT	NT	NT	9.4	5.8	NT	NT
Benzene	NT	NT	NT	NT	NT	ND < 0.5	ND < 0.5	NT	NT
Trichloroethene	NT	NT	NT	NT	NT	239	91.1	NT	NT
Toluene	NT	NT	NT	NT	NT	ND < 0.5	ND < 0.5	NT	NT
1,1,2-trichloroethane	NT	NT	NT	NT	NT	ND < 0.5	ND < 0.5	NT	NT
Tetrachloroethene	NT	NT	NT	NT	NT	0.6	ND < 0.5	NT	NT
Chlorobenzene	NT	NT	NT	NT	NT	ND < 0.5	ND < 0.5	NT	NT
All other 8240 compounds	NT	NT	NT	NT	NT	ND < 0.5	ND < 0.5	NT	NT
EPA 504									
Ethylene dibromide	0.31	0.10	ND < 0.01	ND < 0.01	0.05	ND < 0.01	0.02	NT	NT
Standard Method 408E	0.02	0.06	NT	ND < 0.2	ND < 0.01	ND < 0.01	ND < 0.01	NT	NT
Residual chlorine (mg/l)									

ND - Not detected at stated detection limit.

NT - Not Tested.

All results reported in parts per billion (ppb) except where indicated.

HLA SAMPLE ID #	88442702	88450213	88441102	88461802	88462302	88473002	88491202	88501502	88512102
DATE	10/27	11/02	11/11	11/18	11/23	11/30	12/07	12/15	12/21
TEST METHOD/COMPOUNDS									
EPA 8020									
Benzene	NT	NT	NT	NT	NT	NT	NT	NT	NT
Toluene	NT	NT	NT	NT	NT	NT	NT	NT	NT
Ethylbenzene	NT	NT	NT	NT	NT	NT	NT	NT	NT
Xylenes	NT	NT	NT	NT	NT	NT	NT	NT	NT
Chlorobenzene	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,3-Dichlorobenzene	NT	NT	NT	NT	NT	NT	NT	NT	NT
All other 8020 compounds	NT	NT	NT	NT	NT	NT	NT	NT	NT
EPA 8015									
TPH (Gasoline)	NT	NT	NT	NT	NT	NT	NT	NT	NT
Diesel	NT	NT	NT	NT	NT	NT	NT	NT	NT
EPA 8010									
Methylene chloride	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	NT	NT	ND < 0.5	ND < 0.5
1,1-dichloroethane	ND < 0.5	ND < 0.5	ND < 0.5	0.7	ND < 0.5	NT	NT	ND < 0.5	0.6
Chloroform	ND < 0.5	ND < 0.5	0.6	1.2	2.0	NT	NT	ND < 0.5	1.2
1,2-dichloroethane	5.2	ND < 0.5	5.8	7.9	4.9	NT	NT	7.1	6.0
Trichloroethene	ND < 0.5	8.8	4.7	21	16.1	NT	NT	33	ND < 0.5
Tetrachloroethene	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	NT	NT	ND < 0.5	ND < 0.5
Chlorobenzene	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	NT	NT	ND < 0.5	ND < 0.5
Bromoform	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	NT	NT	ND < 0.5	ND < 0.5
1,3-dichlorobenzene	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	NT	NT	ND < 0.5	ND < 0.5
All other 8010 compounds	ND	ND	ND	ND	ND	NT	NT	ND	ND
EPA 8240									
Methylene chloride	NT	NT	NT	NT	NT	2.0	ND < 0.5	NT	NT
1,1-dichloroethane	NT	NT	NT	NT	NT	1.2	1.5	NT	NT
Chloroform	NT	NT	NT	NT	NT	1.7	1.7	NT	NT
1,2-dichloroethane	NT	NT	NT	NT	NT	9.7	9.4	NT	NT
Trichloroethene	NT	NT	NT	NT	NT	28.3	18.7	NT	NT
Toluene	NT	NT	NT	NT	NT	ND < 0.5	ND < 0.5	NT	NT
1,2-dichlorobenzene	NT	NT	NT	NT	NT	ND < 0.5	ND < 0.5	NT	NT
All other 8240 compounds	NT	NT	NT	NT	NT	ND	ND	NT	NT
EPA 504									
Ethylene dibromide	ND < 0.01	NT	NT	NT	NT	NT	NT	NT	NT
Standard Method 408E	NT	NT	NT	NT	NT	NT	NT	NT	NT
Residual chlorine (mg/l)									

ND - Not detected at stated detection limit.

NT - Not Tested.

All results reported in parts per billion (ppb) except where indicated.

HLA SAMPLE ID #	88442701	88450211	88441103	88461803	88462303	88473004	88491204	88501503	88512103
DATE	10/27	11/02	11/11	11/18	11/23	11/30	12/07	12/15	12/21
TOTAL FLOW (THOUSAND GALLONS	6065.1	6164.9	6297.0	6435.2	6510.0	6645.1	6762.0	6830.6	6972.2
AVERAGE FLOW (GPM)	12.3	11.5	10.2	13.7	10.4	13.4	11.6	6.0	16.4
TEST METHOD/COMPOUNDS									
EPA 8020									
Benzene	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	NT	NT
Toluene	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	NT	NT
Ethylbenzene	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	NT	NT
Xylenes	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	NT	NT
Diphenylhydrazine	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	NT	NT
All other 8020 compounds	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	NT	NT
EPA 8015									
TPH (Gasoline)	ND < 50	ND < 50	ND < 50	ND < 50	ND < 50	ND < 50	ND < 50	NT	NT
Diesel	NT	NT	NT	NT	NT	NT	NT	NT	NT
EPA 8010									
Dichlorodifluoromethane	ND < 2.0	ND < 2.0	ND < 2.0	28	ND < 2.0	NT	NT	ND < 2.0	ND < 2.0
1,1-dichlorethene	ND < 0.5	3.2	ND < 0.5	ND < 0.5	12.3	NT	NT	ND < 0.5	ND < 0.5
Methylene chloride	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	NT	NT	ND < 0.5	ND < 0.5
Chloroform	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	NT	NT	ND < 0.5	ND < 0.5
1,1,1-trichloroethane	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	4.3	NT	NT	ND < 0.5	ND < 0.5
1,2 dichloroethane	ND < 0.5	ND < 0.5	2.6	3.6	2.7	NT	NT	4.3	3.5
Trichloroethene	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	NT	NT	ND < 0.5	ND < 0.5
Tetrachloroethene	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	NT	NT	ND < 0.5	ND < 0.5
All other 8010 compounds	ND	ND	ND	ND	ND	NT	NT	ND	ND
EPA 8240									
Methylene Chloride	NT	NT	NT	NT	NT	1.6	ND < 0.5	NT	NT
1,1-dichloroethane						ND < 0.5	0.8	NT	NT
Chloroform						ND < 0.5	0.8	NT	NT
1,2-dichloroethane	NT	NT	NT	NT	NT	2.2	5.1	NT	NT
Trichloroethene	NT	NT	NT	NT	NT	ND < 0.5	ND < 0.5	NT	NT
Toluene	NT	NT	NT	NT	NT	ND < 0.5	ND < 0.5	NT	NT
All other 8240 compounds	NT	NT	NT	NT	NT	ND	ND	NT	NT
EPA 360.2									
Dissolved oxygen (mg/l)	NT	5.6	NT	NT	NT	NT	NT	NT	NT
EPA 625									
All compounds	NT	NT	NT	NT	NT	NT	NT	NT	NT
EPA 504									
Ethylene dibromide	ND < 0.01	ND < 0.01	ND < 0.01	ND < 0.01	ND < 0.01	ND < 0.01	ND < 0.02	NT	NT
Standard Method 408E									
Residual chlorine (mg/l)	ND < 0.01	ND < 0.01	NT	ND < 0.2	ND < 0.01	ND < 0.01	ND < 0.01	NT	NT
Lead 7421									
Lead (mg/l)	NT	NT	NT	NT	NT	NT	NT	NT	NT

ND - Not detected at stated detection limit.

NT - Not Tested.

All results reported in parts per billion (ppb) except where indicated.

HLA SAMPLE ID #	88442704	88450214	88441104	88461805	88462305	88473005	88491205	88501505	88512105
DATE	10/27	11/02	11/11	11/18	11/23	11/30	12/07	12/15	12/21
TEST METHOD/COMPOUNDS									
EPA 8020									
Benzene	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	NT	NT
Toluene	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	NT	NT
Ethylbenzene	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	NT	NT
Xylenes	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	NT	NT
All other 8020 compounds	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	NT	NT
EPA 8015									
TPH (Gasoline)	ND < 50	ND < 50	ND < 50	ND < 50	ND < 50	ND < 50	ND < 50	NT	NT
Diesel	NT	NT	NT	NT	NT	NT	NT	NT	NT
EPA 8010									
Dichlorodifluoromethane	ND < 2.0	ND < 2.0	ND < 2.0	28	ND < 2.0	NT	NT	ND < 2.0	ND < 2.0
1,1-dichloroethene	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	1.3	NT	NT	ND < 0.5	ND < 0.5
Methylene chloride	ND < 0.5	ND < 0.5	ND < 0.5	1.0	3.8	NT	NT	13	ND < 0.5
1,1,1-trichloroethane	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	0.7	NT	NT	ND < 0.5	ND < 0.5
1,2-dichloroethane	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	NT	NT	ND < 0.5	ND < 0.5
All other 8010 compounds	ND	ND	ND	ND	ND	NT	NT	ND	ND
EPA 8240									
Toluene	NT	NT	NT	NT	NT	ND < 0.5	ND < 0.5	NT	NT
Methylene Chloride	NT	NT	NT	NT	NT	4.6	25.3	NT	NT
Chloroform	NT	NT	NT	NT	NT	ND < 0.5	ND < 0.5	NT	NT
Diphenylhydrazine	NT	NT	NT	NT	NT	ND < 0.5	ND < 0.5	NT	NT
All other 8240 compounds	NT	NT	NT	NT	NT	ND	ND	NT	NT
EPA 625									
All compounds	NT	NT	NT	NT	NT	NT	NT	NT	NT
EPA 504									
Ethylene dibromide	ND < 0.01	NT	NT	NT	NT	NT	NT	NT	NT

ND - Not detected at stated detection limit.

NT - Not Tested.

All results reported in parts per billion (ppb) except where indicated.

Appendix A

LABORATORY ANALYTICAL RESULTS FOR TREATMENT SYSTEM SAMPLES

pace laboratories, inc
FORMERLY WESCO LABORATORIES

REPORT OF LABORATORY ANALYSIS

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California

Report date: December 9, 1988
Pace job #: HLA 0831107-L

Client: Harding Lawson Associates
200 Rush Landing Road
Novato, CA 94947

Attn.: Rick Hutton

Date sampled: November 11, 1988
Site: City of Oakland

Sampled by: Caleb Ocansey

Date received: November 11, 1988
P.O.: 09382.026.02

Submitted by: C. Ocansey

Lab #	Client ID	Matrix	Analysis
8- 1793	88441101 INFLUENT	water	ON HOLD
8- 1792	88441101	water	TPH (light) only 5030/8015
8- 1792	88441101	water	Vol Org. Cpds. 8010+8020
8- 1794	88441101	water	EDB EPA 504
8- 1795	88441102 INTERMEDIATE	water	Purg. Halocarbons 601/8010
8- 1797	88441103 EFFLUENT	water	ON HOLD
8- 1796	88441103	water	TPH (light) only 5030/8015
8- 1796	88441103	water	Vol Org. Cpds. 8010+8020
8- 1798	88441103	water	EDB EPA 504
8- 1799	88441104 BLANK	water	TPH (light) only 5030/8015
8- 1799	88441104	water	Vol Org. Cpds. 8010+8020

Dear Client,

No problems were encountered with the analysis of your samples. We will store samples for 30 days after the report date. The samples will be returned to the client after the 30-day period, unless other arrangements are made.
If you have any questions, please feel free to call Lisa Petersen, our Client Services Coordinator at (415)883-6100.

C. Montag

Sample Controller

pace laboratories, inc
FORMERLY WESCO LABORATORIES

REPORT OF LABORATORY ANALYSIS

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California

Report Date: 15-Dec-88
PACE JOB #: HLA 0831.107-L
Analytical Method: EPA 504
MATRIX: WATER

Extraction Date: 15-NOV-88
Completion Date: 22-NOV-88
Reported By: J.HARWOOD
Analyst: CLARK

	INFL	EFFL	
LAB #:	8-1794	8-1798	
CLIENT'S ID:	441101	441103	
COMPOUND	RESULT (mg/l)	RESULT (mg/l)	Detection Limit (mg/l)
Ethylene Dibromide	N.D.	N.D.	0.01

BLANK, SPIKE DUPLICATE AND SPIKE REPORT
METHOD: EPA 504 PACE JOB #: HLA 0831.107

COMPOUND	Blank ug/l	Spike Duplicate % deviation	Spike % recovery
QUALITY CONTROL DATA			
Surrogate Spike % Recovery			
Ethylene Dibromide	N.D. %	9 %	45%

N.D.: Not Detected
N.S.: Not Spiked

Analytical Supervisor

pace laboratories, inc
FORMERLY WESCO LABORATORIES

REPORT OF LABORATORY ANALYSIS

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California

Report Date:	16-Dec-88	Completion Date:	18-Nov-88
PACE JOB #:	HLA 0831.107-L	Reported by:	J.HARWOOD
Analytical Method:	5030/8015	Analyst:	ATTIA
MATRIX: WATER		Instrument I.D.:	VARIAN 3300

	INFL	EFFL	BLANK	
LAB #:	8-1792	8-1796	8-1799	
CLIENT'S ID:	441101	441103	441104	
COMPOUND	RESULT (ug/l)	RESULT (ug/l)	RESULT (ug/l)	Detection Limit (ug/l)
Trichloroethene	190	N.D.	N.D.	0.5
Total Petroleum Hydrocarbons (light)	N.D.	N.D.	N.D.	50.0
QUALITY CONTROL DATA Surrogate Spike % Recovery Fluorobenzene	96%	94%	96%	

QUALITY CONTROL DATA
METHOD: 5030/8015 PACE JOB #:HLA 0831.107-L

COMPOUND	Blank ug/l	Spike Duplicate % deviation	Spike % recovery
Gasoline	N.D.	6	109
QUALITY CONTROL DATA Surrogate Spike % Recovery Fluorobenzene	81 %	84 %	92 %

N.D.: Not Detected

Analytical Supervisor

pace laboratories, inc
FORMERLY WESCO LABORATORIES

REPORT OF LABORATORY ANALYSIS

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California

Report Date: 15-Dec-88
PACE JOB #: HLA 0831.107-L
Analytical Method: EPA 8010
MATRIX: WATER

Completion Date: 23-Nov-88
Reported by: J.HARWOOD
Analyst: ATTIA

	INFL	INT	EFFL	BLANK	
LAB #:	8-1792	8-1795	8-1796	8-1799	
CLIENT'S ID:	441101	441102	441103	441104	
COMPOUND	RESULT (ug/l)	RESULT (ug/l)	RESULT (ug/l)	RESULT (ug/l)	Detection Limit (ug/l)
Dichlorodifluoromethane	N.D.	N.D.	N.D.	N.D.	2.0
Chloromethane	N.D.	N.D.	N.D.	N.D.	2.0
Vinyl Chloride	N.D.	N.D.	N.D.	N.D.	2.0
Bromomethane	N.D.	N.D.	N.D.	N.D.	2.0
Chloroethane	N.D.	N.D.	N.D.	N.D.	2.0
Trichlorofluoromethane	N.D.	N.D.	N.D.	N.D.	2.0
1,1-Dichloroethene	N.D.	N.D.	N.D.	N.D.	0.5
Methylene Chloride	N.D.	N.D.	N.D.	N.D.	0.5
trans-1,2-Dichloroethene	N.D.	N.D.	N.D.	N.D.	0.5
1,1-Dichloroethane	0.7	N.D.	N.D.	N.D.	0.5
Chloroform	0.8	0.6	N.D.	N.D.	0.5
1,1,1-Trichloroethane (TCA)	N.D.	N.D.	N.D.	N.D.	0.5
Carbon Tetrachloride	N.D.	N.D.	N.D.	N.D.	0.5
1,2-Dichloroethane (EDC)	5.9	5.8	2.6	N.D.	0.5
Trichloroethene (TCE)	280	4.7	N.D.	N.D.	0.5
1,2-Dichloropropane	N.D.	N.D.	N.D.	N.D.	0.5
Bromodichloromethane	N.D.	N.D.	N.D.	N.D.	0.5
2-Chloroethylvinyl ether	N.D.	N.D.	N.D.	N.D.	0.5
trans-1,3-Dichloropropene	N.D.	N.D.	N.D.	N.D.	0.5
cis-1,3-Dichloropropene	N.D.	N.D.	N.D.	N.D.	0.5
1,1,2-Trichloroethane	N.D.	N.D.	N.D.	N.D.	0.5
Tetrachloroethene	N.D.	N.D.	N.D.	N.D.	0.5
Dibromochloromethane	N.D.	N.D.	N.D.	N.D.	0.5
Chlorobenzene	N.D.	N.D.	N.D.	N.D.	0.5
Bromoform	N.D.	N.D.	N.D.	N.D.	0.5
1,1,2,2-Tetrachloroethane	N.D.	N.D.	N.D.	N.D.	0.5
1,3-Dichlorobenzene	N.D.	N.D.	N.D.	N.D.	0.5
1,4-Dichlorobenzene	N.D.	N.D.	N.D.	N.D.	0.5
1,2-Dichlorobenzene	N.D.	N.D.	N.D.	N.D.	0.5
QUALITY CONTROL DATA					
Surrogate Spike	Percent Recovery				
Bromochloromethane	125 %	125 %	128 %	127 %	
1,4-Dichlorobutane	109 %	97 %	97 %	97 %	

N.D.: Not Detected

Analytical Supervisor

pace laboratories, inc
FORMERLY WESCO LABORATORIES

REPORT OF LABORATORY ANALYSIS

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California

BLANK, SPIKE DUPLICATE AND SPIKE REPORT
METHOD : EPA 8010

PACE JOB #: HLA 0831.107-L

COMPOUND	Blank (ug/l)	Spike Duplicate % deviation	Spike % recovery
Dichlorodifluoromethane	N.D.	-	N.S.
Chloromethane	N.D.	-	N.S.
Vinyl Chloride	N.D.	-	N.S.
Bromomethane	N.D.	-	N.S.
Chloroethane	N.D.	-	N.S.
Trichlorofluoromethane	N.D.	-	N.S.
1,1-Dichloroethene	N.D.	-	N.S.
Methylene Chloride	N.D.	-	N.S.
trans-1,2-Dichloroethene	N.D.	-	N.S.
1,1-Dichloroethane (M.S.)	N.D.	2	101
Chloroform	N.D.	-	N.S.
1,1,1-Trichloroethane (TCA)	N.D.	-	N.S.
Carbon Tetrachloride	N.D.	-	N.S.
1,2-Dichloroethane (EDC)	N.D.	-	N.S.
Trichloroethene (TCE) (M.S.)	N.D.	4	92
1,2-Dichloropropane	N.D.	-	N.S.
Bromodichloromethane	N.D.	-	N.S.
2-Chloroethylvinyl ether	N.D.	-	N.S.
trans-1,3-Dichloropropene	N.D.	7	102
cis-1,3-Dichloropropene	N.D.	-	N.S.
1,1,2-Trichloroethane	N.D.	-	N.S.
Tetrachloroethene (M.S.)	N.D.	2	91
Dibromochloromethane	N.D.	-	N.S.
Chlorobenzene	N.D.	-	N.S.
Bromoform	N.D.	-	N.S.
1,1,2,2-Tetrachloroethane	N.D.	-	N.S.
1,3-Dichlorobenzene	N.D.	-	N.S.
1,4-Dichlorobenzene	N.D.	-	N.S.
1,2-Dichlorobenzene	N.D.	-	N.S.

QUALITY CONTROL DATA

Surrogate Spike % Recovery			
Bromochloromethane	155 %	114 %	110 %
1,4-Dichlorobutane	179 %	91 %	89 %

N.D.: Not Detected
N.S.: Not Spiked

Analytical Supervisor

pace laboratories, inc
FORMERLY WESCO LABORATORIES

REPORT OF LABORATORY ANALYSIS

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California

Report Date: 16-Dec-88
PACE JOB #: HLA 0831.107-L
Analytical Method: EPA 8020
MATRIX: SOIL

Completion Date: 18-Nov-88
Analyst: ATTIA
Reported by: J.HARWOOD
Instrument I.D.: VARIAN 3300

	INFL	EFFL	BLANK
LAB #:	8-1792	8-1796	8-1799
CLIENT'S ID:	441101	441103	441104

COMPOUND	RESULT (ug/kg)	RESULT (ug/kg)	RESULT (ug/kg)	Detection Limit (ug/kg)
Benzene	0.8	N.D.	N.D.	0.2
Toluene	N.D.	N.D.	N.D.	0.2
Chlorobenzene	N.D.	N.D.	N.D.	0.2
Ethylbenzene	N.D.	N.D.	N.D.	0.2
Xylenes	N.D.	N.D.	N.D.	0.2
1,3-Dichlorobenzene	N.D.	N.D.	N.D.	0.2
1,4-Dichlorobenzene	N.D.	N.D.	N.D.	0.2
1,2-Dichlorobenzene	N.D.	N.D.	N.D.	0.2

QUALITY CONTROL DATA Surrogate Spike	Percent Recovery		
Fluorobenzene	96%	94%	96%

QUALITY CONTROL DATA
METHOD: EPA 8020
PACE JOB#: HLA 0831.107-L

COMPOUND	Blank (ug/l)	Spike Duplicate % deviation	Spike % recovery
Benzene	N.D.	3	112
Toluene	N.D.	4	111
p-Xylene	N.D.	4	111

QUALITY CONTROL DATA Surrogate Spike % Recovery			
Fluorobenzene	81 %	84 %	92 %

N.D.: Not Detected

Analytical Supervisor

Harding Lawson Associates
200 Rush Landing Road
P.O. Box 6107
Novato, California 94948
415/892-0821
Telecopy: 415/892-1586

CHAIN OF CUSTODY FORM

Lab: PACE

Samplers: Caleb A. Oconsey

Job Number: 09382.02602

Name/Location: City of Oakland

Project Manager: Rick Hutton

Recorder: Caleb A. Oconsey (Signature Required)

SOURCE CODE	MATRIX: Water	Sediment	Soil	Oil	#CONTAINERS & PRESERV.: Unpres.	H_2SO_4	HNO_3	Residual Cl	EDB 504	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 Pllmt. Metals	Benzene/Toluene/Xylene	Total Petrol. Hydrocarb.	Res. dual Cl	EDB 504	8015
23	X				3					88 44 11 01	88 11 11 0950	1792 (3)	X	X								X
23	X				#			1		88 44 11 01	88 11 11 0905	1793								X		
23	X								1	88 44 11 01	88 11 11 0905	1794									X	
23	X				2					88 44 11 02	88 11 11 0900	1795 (2)	X									
23	X				3					88 44 11 03	88 11 11 1030	1796 (3)	X	X								X
23	X							1		88 44 11 03	88 11 11 1030	1797								X		
23	X								1	88 44 11 03	88 11 11 1030	1798									X	
23	X				3					88 44 11 04	88 11 11 1030	1799 (3)	X	X								X
23	X																					
23	X																					

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

CHAIN OF CUSTODY RECORD

RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
X Caleb A. Oconsey		
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) Michelle Casey	DATE/TIME 4/22/11 4:22
METHOD OF SHIPMENT		

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

6533

pace laboratories, inc
FORMERLY WESCO LABORATORIES

REPORT OF LABORATORY ANALYSIS

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California

Report date: December 13, 1988 Pace job #: HLA 0831109-L
Client: Harding Lawson Associates
200 Rush Landing Road
Novato, CA 94947
Attn.: David Leland

Date sampled: November 23, 1988 Site: City of Oakland
Sampled by: Caleb Ocansey

Date received: November 23, 1988 P.O.: 09382,026.02
Submitted by: Caleb Ocansey

Lab #	Client ID	Matrix	Analysis
8- 2195	88462301 INFLUENT	water	TPH (light) only 5030/8015
8- 2189	88462301	water	Total Residual Chlorine
8- 2195	88462301	water	Vol Org. Cpds. 8010+8020
8- 2192	88462301	water	EDB EPA 504
8- 2196	88462302 INTERMEDIATE	water	Purg. Halocarbons 601/8010
8- 2197	88462303 EFFLUENT	water	TPH (light) only 5030/8015
8- 2190	88462303	water	Total Residual Chlorine
8- 2197	88462303	water	Vol Org. Cpds. 8010+8020
8- 2193	88462303	water	EDB EPA 504
8- 2198	88462304 EFFLUENT	water	TPH (light) only 5030/8015
8- 2191	88462304	water	Total Residual Chlorine
8- 2198	88462304	water	Vol Org. Cpds. 8010+8020
8- 2194	88462304	water	EDB EPA 504
8- 2199	88462305 BLANK	water	TPH (light) only 5030/8015
8- 2199	88462305	water	Vol Org. Cpds. 8010+8020

Dear Client,

No problems were encountered with the analysis of your samples. We will store samples for 30 days after the report date. The samples will be returned to the client after the 30-day period, unless other arrangements are made.
If you have any questions, please feel free to call Lisa Petersen, our Client Services Coordinator at (415)883-6100.

C. Sontag
Sample Controller

pace laboratories, inc
FORMERLY WESCO LABORATORIES

REPORT OF LABORATORY ANALYSIS

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California

Report Date:	12-Dec-88	Completion Date:	23-NOV-88
PACE JOB #:	HLA 0831.109-L	Reported By:	J.HARWOOD
Analytical Method:	A.S.T.M.	Analyst:	AYZENBERG
MATRIX:	WATER		

LAB #	CLIENT'S ID:	TOTAL RESIDUAL CHLORINE (mg/l)	Detection Limit (mg/l)
8-2189	462301 INFL	N.D.	0.01
8-2190	462303 EFFL	N.D.	0.01
8-2191	462304 EFFL	N.D.	0.01

QUALITY CONTROL DATA PACE JOB #: HLA 0831.109-L

COMPOUND	Blank (mg/l)	Spike Duplicate % deviation	Spike % recovery
TOTAL RESIDUAL CHLORINE	N.D.	0	90

N.D.: Not Detected

Analytical Supervisor

pace laboratories, inc
FORMERLY WESCO LABORATORIES

REPORT OF LABORATORY ANALYSIS

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California

Report Date:	09-Dec-88	Completion Date:	07-DEC-88
PACE JOB #:	HLA 0831.109-L	Reported By:	J.HARWOOD
Analytical Method:	EPA 504	Analyst:	CLARK
MATRIX: WATER		Instrument I.D.:	3700-GAMMA

	INFL	EFFL	EFFL	
LAB #:	8-2192	8-2193	8-2194	
CLIENT'S ID:	462301	4623003	462304	
COMPOUND	RESULT (ug/l)	RESULT (ug/l)	RESULT (ug/l)	Detection Limit (ug/l)
Ethylene Dibromide	0.05	N.D.	N.D.	0.01

BLANK, SPIKE DUPLICATE AND SPIKE REPORT
METHOD: EPA 504 PACE JOB #: HLA 0831.109-L

COMPOUND	Blank ug/l	Spike Duplicate % deviation	Spike % recovery
QUALITY CONTROL DATA			
Surrogate Spike % Recovery			
Ethylene Dibromide	N.D. %	0 %	66%

N.D.: Not Detected
N.S.: Not Spiked

Analytical Supervisor

pace laboratories, inc
FORMERLY WESCO LABORATORIES

REPORT OF LABORATORY ANALYSIS

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California

Report Date:	15-Dec-88	Completion Date:	29-Nov-88
PACE JOB #:	HLA 0831.109-L	Reported by:	J.HARWOOD
Analytical Method:	5030/8015	Analyst:	ARNTZEN/ATTIA/HOUSER
MATRIX:	WATER	Instrument I.D.:	VARIAN 3300

	INFL	EFFL
LAB #:	8-2195	8-2197
CLIENT'S ID:	462301	462303

COMPOUND	RESULT (ug/l)	RESULT (ug/l)	Detection Limit (ug/l)
Total Petroleum Hydrocarbons (light)--	60	N.D.	50.0
Trichloroethene----------	180	N.D.	0.5
QUALITY CONTROL DATA			
Surrogate Spike % Recovery			
Fluorobenzene	106%	98%	

	EFFL	BLANK
LAB #:	8-2198	8-2199
CLIENT'S ID:	462304	462305

COMPOUND	RESULT (ug/l)	RESULT (ug/l)	Detection Limit (ug/l)
Total Petroleum Hydrocarbons (light)--	N.D.	N.D.	50.0
Trichloroethene----------	N.D.	N.D.	0.5
QUALITY CONTROL DATA			
Surrogate Spike % Recovery			
Fluorobenzene	98%	98%	

N.D.: Not Detected

Analytical Supervisor

pace laboratories, inc
FORMERLY WESCO LABORATORIES

REPORT OF LABORATORY ANALYSIS

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California

QUALITY CONTROL DATA
METHOD: 5030/8015 PACE JOB #:HLA 0831.109-L

COMPOUND	Blank ug/l	Spike Duplicate % deviation	Spike % recovery
Gasoline----------	N.D.	0	101

QUALITY CONTROL DATA
Surrogate Spike % Recovery

Fluorobenzene	97 %	99 %	100 %

N.D.: Not Detected

Analytical Supervisor

pace laboratories, inc
FORMERLY WESCO LABORATORIES

REPORT OF LABORATORY ANALYSIS

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California

Report Date: 12-Dec-88
PACE JOB #: HLA 0831.109-L
Analytical Method: EPA 8010
MATRIX: WATER

Completion Date: 02-Dec-88
Reported by: J.HARWOOD
Analyst: CHROMALAB

	INFL	INT	EFFL	EFFL	BLANK
LAB #:	8-2195	8-2196	8-2197	8-2198	8-2199
CLIENT'S ID:	462301	462302	462303	462304	462305

COMPOUND	RESULT (ug/l)	RESULT (ug/l)	RESULT (ug/l)	RESULT (ug/l)	RESULT (ug/l)	Detection Limit (ug/l)
Dichlorodifluoromethane	N.D.	N.D.	N.D.	N.D.	N.D.	2.0
Chloromethane	N.D.	N.D.	N.D.	N.D.	N.D.	2.0
Vinyl Chloride	N.D.	N.D.	N.D.	N.D.	N.D.	2.0
Bromomethane	N.D.	N.D.	N.D.	N.D.	N.D.	2.0
Chloroethane	N.D.	N.D.	N.D.	N.D.	N.D.	2.0
Trichlorofluoromethane	N.D.	N.D.	N.D.	N.D.	N.D.	2.0
1,1-Dichloroethene	N.D.	N.D.	N.D.	12.3	1.3	0.5
Methylene Chloride	N.D.	N.D.	N.D.	N.D.	3.8	0.5
trans-1,2-Dichloroethene	N.D.	N.D.	N.D.	N.D.	N.D.	0.5
1,1-Dichloroethane	N.D.	N.D.	N.D.	N.D.	N.D.	0.5
Chloroform	1.6	2.0	2.9	N.D.	N.D.	0.5
1,1,1-Trichloroethane (TCA)	N.D.	N.D.	N.D.	4.3	0.7	0.5
Carbon Tetrachloride	N.D.	N.D.	N.D.	N.D.	N.D.	0.5
1,2-Dichloroethane (EDC)	N.D.	4.9	2.2	2.7	N.D.	0.5
Trichloroethene (TCE)	210	16.1	N.D.	N.D.	N.D.	0.5
1,2-Dichloropropane	N.D.	N.D.	N.D.	N.D.	N.D.	0.5
Bromodichloromethane	N.D.	N.D.	N.D.	N.D.	N.D.	0.5
2-Chloroethylvinyl ether	N.D.	N.D.	N.D.	N.D.	N.D.	0.5
trans-1,3-Dichloropropene	N.D.	N.D.	N.D.	N.D.	N.D.	0.5
cis-1,3-Dichloropropene	N.D.	N.D.	N.D.	N.D.	N.D.	0.5
1,1,2-Trichloroethane	N.D.	N.D.	N.D.	N.D.	N.D.	0.5
Tetrachloroethene	N.D.	N.D.	N.D.	N.D.	N.D.	0.5
Dibromochloromethane	N.D.	N.D.	N.D.	N.D.	N.D.	0.5
Chlorobenzene	N.D.	N.D.	N.D.	N.D.	N.D.	0.5
Bromoform	N.D.	N.D.	N.D.	N.D.	N.D.	0.5
1,1,2,2-Tetrachloroethane	N.D.	N.D.	N.D.	N.D.	N.D.	0.5
1,3-Dichlorobenzene	N.D.	N.D.	N.D.	N.D.	N.D.	0.5
1,4-Dichlorobenzene	N.D.	N.D.	N.D.	N.D.	N.D.	0.5
1,2-Dichlorobenzene	N.D.	N.D.	N.D.	N.D.	N.D.	0.5

N.D.: Not Detected

NOTE: Samples were subbed out to Chromalab. No Quality Control Data is available.

Analytical Supervisor

pace laboratories, inc
FORMERLY WESCO LABORATORIES

REPORT OF LABORATORY ANALYSIS

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California

Report Date: 09-Dec-88 | Completion Date: 29-Nov-88
PACE JOB #: HLA 0831.109-L | Reported by: J.Harwood
Analytical Method: EPA 8020 | Analyst: Attia
MATRIX: WATER | Instrument I.D.: VARIAN 3300

	INFL	EFFL	EFFL	BLANK	
LAB #:	8-2195	8-2197	8-2198	8-2199	
CLIENT'S ID:	462301	462303	462304	462305	
COMPOUND	RESULT (ug/l)	RESULT (ug/l)	RESULT (ug/l)	RESULT (ug/l)	Detection Limit (ug/l)
Benzene	N.D.	N.D.	N.D.	N.D.	0.2
Toluene	N.D.	N.D.	N.D.	N.D.	0.2
Chlorobenzene	N.D.	N.D.	N.D.	N.D.	0.2
Ethylbenzene	N.D.	N.D.	N.D.	N.D.	0.2
Xylenes	N.D.	N.D.	N.D.	N.D.	0.2
1,3-Dichlorobenzene	N.D.	N.D.	N.D.	N.D.	0.2
1,4-Dichlorobenzene	N.D.	N.D.	N.D.	N.D.	0.2
1,2-Dichlorobenzene	N.D.	N.D.	N.D.	N.D.	0.2
QUALITY CONTROL DATA					
Surrogate Spike	Percent Recovery				
Fluorobenzene	106 %	98 %	98 %	98 %	

QUALITY CONTROL DATA
METHOD: EPA 8020 PACE JOB#: HLA 0831.109-L

COMPOUND	Blank (ug/l)	Spike Duplicate % deviation	Spike % recovery
Benzene	N.D.	9	95
Toluene	N.D.	5	103
p-Xylene	N.D.	4	102
QUALITY CONTROL DATA			
Surrogate Spike % Recovery			
Fluorobenzene	97 %	99 %	100%

N.D.: Not Detected

Analytical Supervisor

Harding Lawson Associates
200 Rush Landing Road
P.O. Box 6107
Novato, California 94948
415/892-0821
Telecopy: 415/892-1586

CHAIN OF CUSTODY FORM

Lab: PACE HLA 0831.109

Samplers: Caleb A. Ocansey

Job Number: 09382.02602

Name/Location: City of Oakland

Project Manager: Sam. Collins

Recorder: Caleb A Ocansey (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 Pltnt. Metals	Benzene/Toluene/Xylene	Total Petrol. Hydrocarb.	8015	Residual Chlorine	EDB (SOIL)
23	X				5			88462301	881123 0830		X	X						X	X	X
23	X				3			88462302	881123 0900		X									
23	X				5			88462303	881123 0930		X	X						X	X	X
23	X				5			88462304	881123 1000		X	X						X	X	X
23	X				3			88462305	881123 1030		X	X						X		

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

CHAIN OF CUSTODY RECORD

RELINQUISHED BY: (Signature) Caleb A. Ocansey	RECEIVED BY: (Signature)	DATE/TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
DISPATCHED BY: (Signature) DATE/TIME	RECEIVED FOR LAB BY: (Signature) Cathmesharem	DATE/TIME 11/23/88 2:35p

METHOD OF SHIPMENT

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

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REPORT OF LABORATORY ANALYSIS

Offices:
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Report date: December 29, 1988 Pace job #: HLA 0831110-L
Client: Harding Lawson Associates
200 Rush Landing Road
Novato, CA 94947
Attn.: David Leland

Date sampled: November 30, 1988 Site: CITY OF OAKLAND
Sampled by: C. Ocansey

Date received: November 30, 1988 P.O.: 0938202602
Submitted by: C. Ocansey

Lab #	Client ID	Matrix	Analysis
8- 2274	88473001 INFLUENT	water	TPH (light) only 5030/8015
8- 2274	88473001	water	Vol Org. Cpds.8010 + 8020
8- 2276	88473001	water	Total Residual Chlorine
8- 2275	88473001	water	EDB EPA 504
8- 2277	88473002 INTERMEDIATE	water	Purg. Halocarbons 601/8010
8- 2278	88473003 EFFLUENT	water	TPH (light) only 5030/8015
8- 2278	88473003	water	Vol Org. Cpds.8010 + 8020
8- 2280	88473003	water	Total Residual Chlorine
8- 2279	88473003	water	EDB EPA 504
8- 2281	88473004 EFFLUENT	water	TPH (light) only 5030/8015
8- 2281	88473004	water	Vol Org. Cpds.8010 + 8020
8- 2283	88473004	water	Total Residual Chlorine
8- 2282	88473004	water	EDB EPA 504
8- 2284	88473005 BLANK	water	TPH (light) only 5030/8015
8- 2284	88473005	water	Vol Org. Cpds.8010 + 8020

Dear Client,

No problems were encountered with the analysis of your samples. We will store samples for 30 days after the report date. The samples will be returned to the client after the 30-day period, unless other arrangements are made.
If you have any questions, please feel free to call Lisa Petersen, our Client Services Coordinator at (415)883-6100.

C. Santos
Sample Controller

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REPORT OF LABORATORY ANALYSIS

Offices:
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Report Date:	14-Dec-88	Completion Date:	07-Dec-88
PACE JOB #:	HLA 0831.110-L	Reported By:	J.Harwood
Analytical Method:	EPA 504	Analyst:	Clark
MATRIX: WATER		Instrument I.D.:	3700 Gamma

	INFL	EFFL	EFFL	
LAB #:	8-2275	8-2279	8-2282	
CLIENT'S ID:	473001	473003	473004	
COMPOUND	RESULT (ug/l)	RESULT (ug/l)	RESULT (ug/l)	Detection Limit (ug/l)
Ethylene Dibromide	0.01	N.D.	N.D.	0.01

BLANK, SPIKE DUPLICATE AND SPIKE REPORT
METHOD: EPA 504 PACE JOB #: HLA 0831.110-L

COMPOUND	Blank ug/l	Spike Duplicate % deviation	Spike % recovery
QUALITY CONTROL DATA			
Surrogate Spike % Recovery			
Ethylene Dibromide	N.D. %	11 %	18%

N.D.: Not Detected
N.S.: Not Spiked

Analytical Supervisor

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REPORT OF LABORATORY ANALYSIS

Offices:
Minneapolis, Minnesota
Tampa, Florida
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Novato, California

Report Date:	13-Dec-88	Completion Date:	05-Dec-88
PACE JOB #:	HLA 0831.110-L	Reported by:	J.HARWOOD
Analytical Method:	5030/8015	Analyst:	ATTIA
MATRIX: WATER		Instrument I.D.:	3400-III

	INFL	EFFL
LAB #:	8-2274	8-2278
CLIENT'S ID:	473001	473003

COMPOUND	RESULT (ug/l)	RESULT (ug/l)	Detection Limit (ug/l)
Total Petroleum Hydrocarbons (light)--	90	N.D.	50.0
Trichloroethane----------	250	N.D.	0.5

QUALITY CONTROL DATA
Surrogate Spike % Recovery

Fluorobenzene	100%	95%

	EFFL	BLANK
LAB #:	8-2281	8-2284
CLIENT'S ID:	473004	473005

COMPOUND	RESULT (ug/l)	RESULT (ug/l)	Detection Limit (ug/l)
Total Petroleum Hydrocarbons (light)--	N.D.	N.D.	50.0
Trichloroethane----------	N.D.	N.D.	0.5

QUALITY CONTROL DATA
Surrogate Spike % Recovery

Fluorobenzene	96%	79%

N.D.: Not Detected

Analytical Supervisor

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REPORT OF LABORATORY ANALYSIS

Offices:
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QUALITY CONTROL DATA
METHOD: 5030/8015 PACE JOB #:HLA 0831.110-L

COMPOUND	Blank ug/l	Spike Duplicate % deviation	Spike % recovery
Gasoline----------	N.D.	20	108

QUALITY CONTROL DATA
Surrogate Spike % Recovery

Fluorobenzene	105 %	103 %	123 %

N.D.: Not Detected

Analytical Supervisor

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REPORT OF LABORATORY ANALYSIS

Offices:
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Tampa, Florida
Coralville, Iowa
Novato, California

eport Date: 21-Dec-88
PACE JOB #: HLA 0813.110-L
Analytical MethoEPA 8240

Analysis Completion : 07-DEC-88
Analyst: MOEZZI/SIEGMUND
MATRIX: WATER
Reported by: J.HARWOOD

	INFL	INT	EFFL	EFFL	BLANK
AB #:	8-2274	8-2277	8-2278	8-2281	8-2284
LIENT ID:	473001	473002	473003	473004	473005

COMPOUND	Result (ug/l)	Detection Limit (ug/l)	Result (ug/l)	Result (ug/l)	Result (ug/l)	Result (ug/l)	Detection Limit (ug/l)
Dichlorodifluoromethane	N.D.	1.0	N.D.	N.D.	N.D.	N.D.	1.0
hloromethane	N.D.	1.0	N.D.	N.D.	N.D.	N.D.	1.0
inyl Chloride	N.D.	1.0	N.D.	N.D.	N.D.	N.D.	1.0
Bromomethane	N.D.	1.0	N.D.	N.D.	N.D.	N.D.	1.0
hloroethane	N.D.	1.0	N.D.	N.D.	N.D.	N.D.	1.0
richlorofluoromethane	N.D.	0.5	N.D.	N.D.	N.D.	N.D.	0.5
Iodomethane	N.D.	0.5	N.D.	N.D.	N.D.	N.D.	0.5
1,1-Dichloroethene	0.5	0.5	N.D.	N.D.	N.D.	N.D.	
arbon Disulfide	N.D.	0.5	N.D.	N.D.	N.D.	N.D.	0.5
crylonitrile	N.D.	0.5	N.D.	N.D.	N.D.	N.D.	0.5
Methylene Chloride	0.6	0.5	2.0	1.5	1.6	4.6	0.5
rans-1,2-Dichloroethene	N.D.	0.5	N.D.	N.D.	N.D.	N.D.	0.5
1-Dichloroethane	1.1	0.5	1.2	N.D.	N.D.	N.D.	0.5
Chloroform	1.5	0.5	1.7	N.D.	N.D.	N.D.	0.5
1,1,1-Trichloroethane	N.D.	0.5	N.D.	N.D.	N.D.	N.D.	0.5
2-Dichloroethane	9.4	0.5	9.7	1.9	2.2	N.D.	0.5
Carbon Tetrachloride	N.D.	0.5	N.D.	N.D.	N.D.	N.D.	0.5
Benzene	N.D.	0.5	N.D.	N.D.	N.D.	N.D.	0.5
2-Dichloropropane	N.D.	0.5	N.D.	N.D.	N.D.	N.D.	0.5
richloroethene	239*	13.0	28.3	N.D.	N.D.	N.D.	0.5
Dibromethane	N.D.	0.5	N.D.	N.D.	N.D.	N.D.	0.5
romodichloromethane	N.D.	0.5	N.D.	N.D.	N.D.	N.D.	0.5
rans-1,3-Dichloropropene	N.D.	0.5	N.D.	N.D.	N.D.	N.D.	0.5
Toluene	N.D.	0.5	N.D.	N.D.	N.D.	N.D.	0.5
is-1,3-Dichloropropene	N.D.	0.5	N.D.	N.D.	N.D.	N.D.	0.5
1,2-Trichloroethane	N.D.	0.5	N.D.	N.D.	N.D.	N.D.	0.5
2-Chloroethylvinyl ether	N.D.	0.5	N.D.	N.D.	N.D.	N.D.	0.5
Ethyl Methacrylate	N.D.	0.5	N.D.	N.D.	N.D.	N.D.	0.5
bromochloromethane	N.D.	0.5	N.D.	N.D.	N.D.	N.D.	0.5

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OMPOUNDS (cont.)

ACE JOB #: HLA 0813.110-L Analytical Method: EPA 8240

	INFL	INT	EFFL	EFFL	BLANK
LAB #:	8-2274	8-2277	8-2278	8-2281	8-2284
LIENT ID:	473001	473002	473003	473004	473005

COMPOUND	Result (ug/l)	Detection Limit (ug/l)	Result (ug/l)	Result (ug/l)	Result (ug/l)	Result (ug/l)	Detection Limit (ug/l)
etrachloroethane	0.6	0.5	N.D.	N.D.	N.D.	N.D.	0.5
Chlorobenzene	N.D.	0.5	N.D.	N.D.	N.D.	N.D.	0.5
thylbenzene	N.D.	0.5	N.D.	N.D.	N.D.	N.D.	0.5
romoform	N.D.	0.5	N.D.	N.D.	N.D.	N.D.	0.5
Xylene	N.D.	0.5	N.D.	N.D.	N.D.	N.D.	0.5
1,1,2,2,-Tetrachloroethane	N.D.	0.5	N.D.	N.D.	N.D.	N.D.	0.5
,2,3-Trichloropropane	N.D.	0.5	N.D.	N.D.	N.D.	N.D.	0.5
1,4-Dichloro-2-Butene	N.D.	0.5	N.D.	N.D.	N.D.	N.D.	0.5
1,3-Dichlorobenzene	N.D.	0.5	N.D.	N.D.	N.D.	N.D.	0.5
,4-Dichlorobenzene	N.D.	0.5	N.D.	N.D.	N.D.	N.D.	0.5
,2-Dichlorobenzene	N.D.	0.5	N.D.	N.D.	N.D.	N.D.	0.5
UALITY CONTROL DATA		Surrogate Spike % Recovery					
,2-Dichloroethane-d4	114%		100%	109%	104%	119%	
Toluene-d8	86%		119%	98%	101%	110%	
-Bromofluorobenzene	89%		87%	86%	117%	103%	

N.D.: Not Detected
*: Dilution Factor is 25.

OTE: EPA Method 8240 was substituted for EPA Method 8010 due to instrument problems.

Analytical Supervisor

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REPORT OF LABORATORY ANALYSIS

Offices:
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Novato, California

QUALITY CONTROL DATA
METHODEPA 8240 PACE JOB #: HLA 0813.110-L

COMPOUND	Blank (ug/l)	Spike Duplicate % deviation	Spike % recovery
Dichlorodifluoromethane	N.D.	-	N.S.
Chloromethane	N.D.	-	N.S.
Vinyl Chloride	N.D.	-	N.S.
Bromomethane	N.D.	-	N.S.
Chloroethane	N.D.	-	N.S.
Trichlorofluoromethane	N.D.	-	N.S.
Iodomethane	N.D.	-	N.S.
Carbon Disulfide	N.D.	-	N.S.
Acrylonitrile	N.D.	-	N.S.
Methylene Chloride	N.D.	-	N.S.
trans-1,2-Dichloroethene	N.D.	-	N.S.
1,1-Dichloroethane	N.D.	18	109
Chloroform	N.D.	-	N.S.
1,1,1-Trichloroethane	N.D.	-	N.S.
1,2-Dichloroethane	N.D.	-	N.S.
Carbon Tetrachloride	N.D.	-	N.S.
Benzene	N.D.	6	117
1,2-Dichloropropane	N.D.	-	N.S.
Trichloroethene	N.D.	19	98
Dibromomethane	N.D.	-	N.S.
Bromodichloromethane	N.D.	-	N.S.
trans-1,3-Dichloropropene	N.D.	-	N.S.
Toluene	N.D.	15	117
cis-1,3-Dichloropropene	N.D.	-	N.S.
1,1,2-Trichloroethane	N.D.	-	N.S.
2-Chloroethylvinyl ether	N.D.	-	N.S.
Ethyl Methacrylate	N.D.	-	N.S.
Dibromochloromethane	N.D.	-	N.S.

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REPORT OF LABORATORY ANALYSIS

Offices:
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UALITY CONTROL DATA (cont.)

METHODEPA 8240 PACE JOB #: HLA 0813.110-L

OMPOUND	Blank (ug/l)	Spike Duplicate % deviation	Spike % recovery
Tetrachloroethane	N.D.	-	N.S.
hlorobenzene	N.D.	12	88
thylbenzene	N.D.	-	N.S.
romoform	N.D.	-	N.S.
Xylene	N.D.	-	N.S.
,1,2,2,-Tetrachloroethane	N.D.	-	N.S.
,2,3-Trichloropropane	N.D.	-	N.S.
1,4-Dichloro-2-Butene	N.D.	-	N.S.
,3-Dichlorobenzene	N.D.	-	N.S.
,4-Dichlorobenzene	N.D.	-	N.S.
1,2-Dichlorobenzene	N.D.	-	N.S.

UALITY CONTROL DATA

urrogate Spike % Recovery	Blank	Spike	Spike Duplicate
1,2-Dichloroethane-d4	128 %	102 %	126 %
oluene-d8	87 %	117 %	94 %
-Bromofluorobenzene	122 %	112 %	88 %

.D.: Not Detect M.S.: Matrix Spike
.S.: Not Spiked

Analytical Supervisor

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Harding Lawson Associates
[redacted]sh Landing Road
P.O. Box 6107
Novato, California 94948
415/892-0821
Telecopy: 415/892-1586

CHAIN OF CUSTODY FORM

HEA [redacted]3[redacted]1[redacted]

Lab: PACE

Samplers: Caleb A. Deamsey

Job Number: 0938202602 5 day TAT

Name/Location: City of Oakland

Project Manager: Sam Collins

Recorder: Caleb A. Deamsey
(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.	EPA 601/8015	Residual Chlorine	EDB (SOIL)
N 3	X				5			88 47 30 01	88 11 30 0940		X	X						X	X	X
2 3	X				3			88 47 30 02	88 11 30 1000		X									
2 3	X				5			88 47 30 03	88 11 30 1100		X	X						X	X	X
2 3	X				5			88 47 30 04	88 11 30 1100		X	X						X	X	X
2 3	X				3			88 47 30 05	88 11 30 1130		X	X						X		

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

CHAIN OF CUSTODY RECORD

RELINQUISHED BY: (Signature) Caleb A. Deamsey	RECEIVED BY: (Signature)	DATE/TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
DISPATCHED BY: (Signature) DATE/TIME	RECEIVED FOR LAB BY: (Signature) Cathie Hanson	DATE/TIME 11/30/88 1:40PM
METHOD OF SHIPMENT		

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REPORT OF LABORATORY ANALYSIS

Offices:
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Novato, California

Report date: January 10, 1989 Pace job #: HLA 0831113-L
Client: Harding Lawson Associates
200 Rush Landing Road
Novato, CA 94947
Attn.: David Leland

Date sampled: December 7, 1988 Site: City of Oakland
Sampled by: Caleb Ocansey

Date received: December 8, 1988 P.O.: y
Submitted by: Caleb Ocansey

Lab #	Client ID	Matrix	Analysis
8- 2580	88491201 INFLUENT	water	TPH (light) only 5030/8015
8- 2580	88491201	water	Vol Org. Cpds. 8010 + 8020
8- 2582	88491201	water	Total Residual Chlorine
8- 2581	88491201	water	EDB EPA 504
8- 2583	88491202 INTERMEDIATE	water	Purg. Halocarbons 601/8010
8- 2584	88491203 EFFLUENT	water	TPH (light) only 5030/8015
8- 2584	88491203	water	Vol Org. Cpds. 8010 + 8020
8- 2586	88491203	water	Total Residual Chlorine
8- 2585	88491203	water	EDB EPA 504
8- 2587	88491204 EFFLUENT	water	TPH (light) only 5030/8015
8- 2587	88491204	water	Vol Org. Cpds. 8010 + 8020
8- 2589	88491204	water	Total Residual Chlorine
8- 2588	88491204	water	EDB EPA 504
8- 2590	88491205 BLANK	water	TPH (light) only 5030/8015
8- 2590	88491205	water	Vol Org. Cpds. 8010 + 8020

Dear Client,

No problems were encountered with the analysis of your samples. We will store samples for 30 days after the report date. The samples will be returned to the client after the 30-day period, unless other arrangements are made.
If you have any questions, please feel free to call Lisa Petersen, our Client Services Coordinator at (415)883-6100.

Ethna Haran
Sample Controller

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FORMERLY WESCO LABORATORIES

REPORT OF LABORATORY ANALYSIS

Offices:
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Novato, California

Report Date: 04-Jan-80
PACE JOB #: HLA 0831.113-L
Analytical Method: EPA 504
MATRIX: WATER

Completion Date: 27-DEC-88
Reported By: J.HARWOOD
Analyst: ATTIA
Instrument I.D.: 3700 BETA

	INFL	EFFL	EFFL	
LAB #:	8-2581	8-2585	8-2588	
CLIENT'S ID:	491201	491203	491204	
COMPOUND	RESULT (ug/l)	RESULT (ug/l)	RESULT (ug/l)	Detection Limit (ug/l)
Ethylene Dibromide	0.02	N.D.	N.D.	0.02

BLANK, SPIKE DUPLICATE AND SPIKE REPORT
METHOD: EPA 504
PACE JOB #:HLA 0831.113-L

COMPOUND	Blank ug/l	Spike Duplicate % deviation	Spike % recovery
QUALITY CONTROL DATA			
Surrogate Spike % Recovery			
Ethylene Dibromide	N.D.	22	7

N.D.: Not Detected

Analytical Supervisor

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FORMERLY WESCO LABORATORIES

REPORT OF LABORATORY ANALYSIS

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California

Report Date: 19-Dec-88 Completion Date: 08-DEC-88
PACE JOB #: HLA 0831.113-L Reported By: J.HARWOOD
MATRIX: WATER Analyst: AYZENBERG/DULAY
Analytical Method: Color Disc with visual comparison

LAB #	CLIENT'S ID:		TOTAL RESIDUAL CHLORINE (mg/l)	Detection Limit (mg/l)
8-2582	491201	INFL	N.D.	0.01
8-2586	491203	EFFL	N.D.	0.01
8-2589	491204	EFFL	N.D.	0.01

QUALITY CONTROL DATA PACE JOB #: HLA 0831.113-L

COMPOUND	Blank (mg/l)	Spike Duplicate % deviation	Spike % recovery
TOTAL RESIDUAL CHLORINE	N.D.	0	95

N.D.: Not Detected

Analytical Supervisor

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REPORT OF LABORATORY ANALYSIS

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California

Report Date:	19-Dec-88	Completion Date:	08-Dec-88
PACE JOB #:	HLA 0831.113-L	Reported by:	J.HARWOOD
Analytical Method:	5030/8015	Analyst:	HOUSER
MATRIX: WATER		Instrument I.D.:	VARIAN 3300

	INFL	EFFL
LAB #:	8-2580	8-2584
CLIENT'S ID:	491201	491203

COMPOUND	RESULT (ug/l)	RESULT (ug/l)	Detection Limit (ug/l)
Total Petroleum Hydrocarbons (light)--	N.D.	N.D.	50.0
QUALITY CONTROL DATA Surrogate Spike % Recovery Fluorobenzene	94%	92%	

	EFFL	BLANK
LAB #:	8-2587	8-2590
CLIENT'S ID:	491204	491205

COMPOUND	RESULT (ug/l)	RESULT (ug/l)	Detection Limit (ug/l)
Total Petroleum Hydrocarbons (light)--	N.D.	N.D.	50.0
QUALITY CONTROL DATA Surrogate Spike % Recovery Fluorobenzene	95%	90%	

QUALITY CONTROL DATA
METHOD: 5030/8015 PACE JOB #:HLA 0831.113-L

COMPOUND	Blank ug/l	Spike Duplicate % deviation	Spike % recovery
Gasoline----------	N.D.	1	98
QUALITY CONTROL DATA Surrogate Spike % Recovery Fluorobenzene	98 %	99 %	100 %

N.D.: Not Detected

Analytical Supervisor

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FORMERLY WESCO LABORATORIES

REPORT OF LABORATORY ANALYSIS

Offices:
Minneapolis, Minnesota
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Coralville, Iowa
Novato, California

Report Date: 21-Dec-88
PACE JOB #: HLA 0831.113-L
Analytical Method: EPA 8240
MATRIX:WATER

Analysis Completion : 14-DEC-88
Analyst: MOEZZI/SIEGMUND
Reported by: J.HARWOOD

	INFL	INT	EFFL	EFFL	BLANK
LAB #:	8-2580	8-2583	8-2584	8-2587	8-2590
CLIENT ID:	491201	491202	491203	491204	491205

COMPOUND	Result (ug/l)	Detection Limit (ug/l)	Result (ug/l)	Result (ug/l)	Result (ug/l)	Result (ug/l)	Detection Limit (ug/l)
Dichlorodifluoromethane	N.D.	1.0	N.D.	N.D.	N.D.	N.D.	1.0
Chloromethane	N.D.	1.0	N.D.	N.D.	N.D.	N.D.	1.0
Vinyl Chloride	N.D.	1.0	N.D.	N.D.	N.D.	N.D.	1.0
Bromomethane	N.D.	1.0	N.D.	N.D.	N.D.	N.D.	1.0
Chloroethane	N.D.	1.0	N.D.	N.D.	N.D.	N.D.	1.0
Trichlorofluoromethane	N.D.	0.5	N.D.	N.D.	N.D.	N.D.	0.5
Iodomethane	N.D.	0.5	N.D.	N.D.	N.D.	N.D.	0.5
Carbon Disulfide	N.D.	0.5	N.D.	N.D.	N.D.	N.D.	0.5
Acrylonitrile	N.D.	0.5	N.D.	N.D.	N.D.	N.D.	0.5
Methylene Chloride	0.6	0.5	N.D.	N.D.	N.D.	25.3	0.5
trans-1,2-Dichloroethene	N.D.	0.5	N.D.	N.D.	N.D.	N.D.	0.5
1,1-Dichloroethane	0.7	0.5	1.5	0.7	0.8	N.D.	0.5
Chloroform	0.7	0.5	1.7	0.7	0.8	N.D.	0.5
1,1,1-Trichloroethane	N.D.	0.5	N.D.	N.D.	N.D.	N.D.	0.5
1,2-Dichloroethane	5.8	0.5	9.4	5.0	5.1	N.D.	0.5
Carbon Tetrachloride	N.D.	0.5	N.D.	N.D.	N.D.	N.D.	0.5
Benzene	N.D.	0.5	N.D.	N.D.	N.D.	N.D.	0.5
1,2-Dichloropropane	N.D.	0.5	N.D.	N.D.	N.D.	N.D.	0.5
Trichloroethene	91.1*	5.0	18.7	N.D.	N.D.	N.D.	0.5
Dibromethane	N.D.	0.5	N.D.	N.D.	N.D.	N.D.	0.5
Bromodichloromethane	N.D.	0.5	N.D.	N.D.	N.D.	N.D.	0.5
trans-1,3-Dichloropropene	N.D.	0.5	N.D.	N.D.	N.D.	N.D.	0.5
Toluene	N.D.	0.5	N.D.	N.D.	N.D.	N.D.	0.5
cis-1,3-Dichloropropene	N.D.	0.5	N.D.	N.D.	N.D.	N.D.	0.5
1,1,2-Trichloroethane	N.D.	0.5	N.D.	N.D.	N.D.	N.D.	0.5
2-Chloroethylvinyl ether	N.D.	0.5	N.D.	N.D.	N.D.	N.D.	0.5
Ethyl Methacrylate	N.D.	0.5	N.D.	N.D.	N.D.	N.D.	0.5
Dibromochloromethane	N.D.	0.5	N.D.	N.D.	N.D.	N.D.	0.5

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REPORT OF LABORATORY ANALYSIS

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COMPOUNDS (cont.)

PACE JOB #: Analytical Method: EPA 8240

LAB #:	8-2580		8-2583	8-2584	8-2587	8-2590	
CLIENT ID:	491201		491202	491203	491204	491205	
COMPOUND	Result (ug/l)	Detection Limit (ug/l)	Result (ug/l)	Result (ug/l)	Result (ug/l)	Result (ug/l)	Detection Limit (ug/l)
Tetrachloroethane	N.D.	0.5	N.D.	N.D.	N.D.	N.D.	0.5
Chlorobenzene	N.D.	0.5	N.D.	N.D.	N.D.	N.D.	0.5
Ethylbenzene	N.D.	0.5	N.D.	N.D.	N.D.	N.D.	0.5
Bromoform	N.D.	0.5	N.D.	N.D.	N.D.	N.D.	0.5
Xylene	N.D.	0.5	N.D.	N.D.	N.D.	N.D.	0.5
1,1,2,2,-Tetrachloroethane	N.D.	0.5	N.D.	N.D.	N.D.	N.D.	0.5
1,2,3-Trichloropropane	N.D.	0.5	N.D.	N.D.	N.D.	N.D.	0.5
1,4-Dichloro-2-Butene	N.D.	0.5	N.D.	N.D.	N.D.	N.D.	0.5
1,3-Dichlorobenzene	N.D.	0.5	N.D.	N.D.	N.D.	N.D.	0.5
1,4-Dichlorobenzene	N.D.	0.5	N.D.	N.D.	N.D.	N.D.	0.5
1,2-Dichlorobenzene	N.D.	0.5	N.D.	N.D.	N.D.	N.D.	0.5
QUALITY CONTROL DATA		Surrogate Spike % Recovery					
1,2-Dichloroethane-d4	107%		121%	116%	118%	118%	
Toluene-d8	90%		91%	87%	91%	88%	
4-Bromofluorobenzene	104%		100%	94%	88%	94%	

N.D.: Not Detected
*: Dilution factor for Lab #: 8-2580 is 10.

NOTE: EPA Method 8240 was substituted for EPA Method 8010 due to instrument problems.

Analytical Supervisor

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REPORT OF LABORATORY ANALYSIS

Offices:
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QUALITY CONTROL DATA
METHOD: EPA 8240 PACE JOB #: HLA 0831.113-L

COMPOUND	Blank (ug/l)	Spike Duplicate % deviation	Spike % recovery
Dichlorodifluoromethane	N.D.	-	N.S.
Chloromethane	N.D.	-	N.S.
Vinyl Chloride	N.D.	-	N.S.
Bromomethane	N.D.	-	N.S.
Chloroethane	N.D.	-	N.S.
Trichlorofluoromethane	N.D.	-	N.S.
Iodomethane	N.D.	-	N.S.
Carbon Disulfide	N.D.	-	N.S.
Acrylonitrile	N.D.	-	N.S.
Methylene Chloride	N.D.	-	N.S.
trans-1,2-Dichloroethene	N.D.	-	N.S.
1,1-Dichloroethane	N.D.	5	99
Chloroform	N.D.	-	N.S.
1,1,1-Trichloroethane	N.D.	-	N.S.
1,2-Dichloroethane	N.D.	-	N.S.
Carbon Tetrachloride	N.D.	-	N.S.
Benzene	N.D.	7	98
1,2-Dichloropropane	N.D.	-	N.S.
Trichloroethene	N.D.	4	87
Dibromethane	N.D.	-	N.S.
Bromodichloromethane	N.D.	-	N.S.
trans-1,3-Dichloropropene	N.D.	-	N.S.
Toluene	N.D.	2	102
cis-1,3-Dichloropropene	N.D.	-	N.S.
1,1,2-Trichloroethane	N.D.	-	N.S.
2-Chloroethylvinyl ether	N.D.	-	N.S.
Ethyl Methacrylate	N.D.	-	N.S.
Dibromochloromethane	N.D.	-	N.S.

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REPORT OF LABORATORY ANALYSIS

Offices:
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QUALITY CONTROL DATA (cont.)

METHOD:EPA 8240 PACE JOB #: HLA 0831.113-L

COMPOUND	Blank (ug/l)	Spike Duplicate % deviation	Spike % recovery
Tetrachloroethane	N.D.	-	N.S.
Chlorobenzene	N.D.	7	86
Ethylbenzene	N.D.	-	N.S.
Bromoform	N.D.	-	N.S.
Xylene	N.D.	-	N.S.
1,1,2,2,-Tetrachloroethane	N.D.	-	N.S.
1,2,3-Trichloropropane	N.D.	-	N.S.
1,4-Dichloro-2-Butene	N.D.	-	N.S.
1,3-Dichlorobenzene	N.D.	-	N.S.
1,4-Dichlorobenzene	N.D.	-	N.S.
1,2-Dichlorobenzene	N.D.	-	N.S.

QUALITY CONTROL DATA Surrogate Spike % Recovery	Blank	Spike	Spike Duplicate
1,2-Dichloroethane-d4	98%	101%	98%
Toluene-d8	83%	86%	90%
4-Bromofluorobenzene	120%	97%	96%

N.D.: Not Detected
N.S.: Not Spiked
M.S.: Matrix Spike

Analytical Supervisor

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HLA 0831.113

CHAIN OF CUSTODY FORM

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

Lab: PACE

Samplers: Caleb A. Deansey

Job Number: 0938202602

Name/Location: City of Oakland

Project Manager: David Leland

Recorder: Caleb A. Deansey (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.	8015	EDB (504)	Residual Chlorine
23	X				5			88491201	881207 1400		X	X						X	X	X
23	X				3			88491202	881207 1430		X									
23	X				5			88491203	881207 1500		X	X						X	X	X
23	X				5			88491204	881207 1530		X	X						X	X	X
23	X				3			88491205	881207 1600		X	X						X		X

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

CHAIN OF CUSTODY RECORD

RELINQUISHED BY: (Signature) Caleb A. Deansey	RECEIVED BY: (Signature)	DATE/TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
DISPATCHED BY: (Signature) DATE/TIME	RECEIVED FOR LAB BY: (Signature) Cathie Hasan	DATE/TIME 12/9/88 6:45
METHOD OF SHIPMENT		

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

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FORMERLY WESCO LABORATORIES

REPORT OF LABORATORY ANALYSIS

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California

Report date: January 4, 1989
Pace job #: HLA 0831114-L

Client: Harding Lawson Associates
200 Rush Landing Road
Novato, CA 94947
Attn.: DAVID LELAND

Date sampled: December 15, 1988
Site: CITY OF OAKLAND
Sampled by: Caleb Ocansey

Date received: December 16, 1988
P.O.: 938202606
Submitted by: courier

Lab #	Client ID	Matrix	Analysis
8- 2767	88501501 INFLUENT	water	Purg. Halocarbons 601/8010
8- 2768	88501502 INTERMEDIATE	water	Purg. Halocarbons 601/8010
8- 2769	88501503 EFFLUENT	water	Purg. Halocarbons 601/8010
8- 2770	88501504 EFFLUENT	water	Purg. Halocarbons 601/8010
8- 2771	88501505 BLANK	water	Purg. Halocarbons 601/8010

Dear Client,

No problems were encountered with the analysis of your samples. We will store samples for 30 days after the report date. The samples will be returned to the client after the 30-day period, unless other arrangements are made.
If you have any questions, please feel free to call Lisa Petersen, our Client Services Coordinator at (415)883-6100.

C. Dontag
Sample Controller

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FORMERLY WESCO LABORATORIES

REPORT OF LABORATORY ANALYSIS

Offices:
Minneapolis, Minnesota
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Novato, California

Report Date: 04-Jan-89
PACE JOB #: HLA 0831.114-L
Analytical Method: EPA 8010
MATRIX: WATER

Completion Date: 27-Dec-88
Reported by: J.HARWOOD
Analyst: ATTIA/HOUSER/LEWIS
Instrument I.D.: HP-OIC/HP 5890

	INFL	INT	EFFL	EFFL	BLANK	
LAB #:	8-2767*	8-2768*	8-2769	8-2770	8-2771	
CLIENT'S ID:	501501	501502	501503	501504	501505	
COMPOUND	RESULT (ug/l)	RESULT (ug/l)	RESULT (ug/l)	RESULT (ug/l)	RESULT (ug/l)	Detection Limit(ug/l)
Dichlorodifluoromethane	N.D.	N.D.	N.D.	N.D.	N.D.	2.0
Chloromethane	N.D.	N.D.	N.D.	N.D.	N.D.	2.0
Vinyl Chloride	N.D.	N.D.	N.D.	N.D.	N.D.	2.0
Bromomethane	N.D.	N.D.	N.D.	N.D.	N.D.	2.0
Chloroethane	N.D.	N.D.	N.D.	N.D.	N.D.	2.0
Trichlorofluoromethane	N.D.	N.D.	N.D.	N.D.	N.D.	2.0
1,1-Dichloroethene	N.D.	N.D.	N.D.	N.D.	N.D.	0.5
Methylene Chloride	N.D.	N.D.	N.D.	N.D.	13	0.5
trans-1,2-Dichloroethene	N.D.	N.D.	N.D.	N.D.	N.D.	0.5
1,1-Dichloroethane	N.D.	N.D.	N.D.	N.D.	N.D.	0.5
Chloroform	N.D.	N.D.	N.D.	N.D.	N.D.	0.5
1,1,1-Trichloroethane (TCA)	N.D.	N.D.	N.D.	N.D.	N.D.	0.5
Carbon Tetrachloride	N.D.	N.D.	N.D.	N.D.	N.D.	0.5
1,2-Dichloroethane (EDC)	9.2	7.1	4.3	4.0	N.D.	0.5
Trichloroethene (TCE)	390**	33	N.D.	N.D.	N.D.	0.5
1,2-Dichloropropane	N.D.	N.D.	N.D.	N.D.	N.D.	0.5
Bromodichloromethane	N.D.	N.D.	N.D.	N.D.	N.D.	0.5
2-Chloroethylvinyl ether	N.D.	N.D.	N.D.	N.D.	N.D.	0.5
trans-1,3-Dichloropropene	N.D.	N.D.	N.D.	N.D.	N.D.	0.5
cis-1,3-Dichloropropene	N.D.	N.D.	N.D.	N.D.	N.D.	0.5
1,1,2-Trichloroethane	N.D.	N.D.	N.D.	N.D.	N.D.	0.5
Tetrachloroethene	N.D.	N.D.	N.D.	N.D.	N.D.	0.5
Dibromochloromethane	N.D.	N.D.	N.D.	N.D.	N.D.	0.5
Chlorobenzene	N.D.	N.D.	N.D.	N.D.	N.D.	0.5
Bromoform	N.D.	N.D.	N.D.	N.D.	N.D.	0.5
1,1,2,2-Tetrachloroethane	N.D.	N.D.	N.D.	N.D.	N.D.	0.5
1,3-Dichlorobenzene	N.D.	N.D.	N.D.	N.D.	N.D.	0.5
1,4-Dichlorobenzene	N.D.	N.D.	N.D.	N.D.	N.D.	0.5
1,2-Dichlorobenzene	N.D.	N.D.	N.D.	N.D.	N.D.	0.5
QUALITY CONTROL DATA						
Surrogate Spike	Percent Recovery					
Bromochloromethane	95 %	101 %	81 %	76 %	79 %	
1,4-Dichlorobutane	82 %	84 %	76 %	73 %	74 %	

N.D.: Not Detected
*: Completion Date for Lab #: 8-2767 - 8-2768 is 19-Dec-88.
**: TCE quantified at 100 times dilution.

Analytical Supervisor

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FORMERLY WESCO LABORATORIES

REPORT OF LABORATORY ANALYSIS

Offices:
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BLANK, SPIKE DUPLICATE AND SPIKE REPORT JOB # HLA 0831.114-L
METHOD : EPA 8010

COMPOUND	Blank (ug/l)	Spike Duplicate % deviation	Spike % recovery
Dichlorodifluoromethane	N.D.	-	N.S.
Chloromethane	N.D.	-	N.S.
Vinyl Chloride	N.D.	-	N.S.
Bromomethane	N.D.	-	N.S.
Chloroethane	N.D.	-	N.S.
Trichlorofluoromethane	N.D.	-	N.S.
1,1-Dichloroethene	N.D.	-	N.S.
Methylene Chloride	N.D.	-	N.S.
trans-1,2-Dichloroethene	N.D.	-	N.S.
1,1-Dichloroethane (M.S.)	N.D.	7	97
Chloroform	N.D.	-	N.S.
1,1,1-Trichloroethane (TCA)	N.D.	-	N.S.
Carbon Tetrachloride	N.D.	-	N.S.
1,2-Dichloroethane (EDC)	N.D.	-	N.S.
Trichloroethene (TCE) (M.S.)	N.D.	5	94
1,2-Dichloropropane	N.D.	-	N.S.
Bromodichloromethane	N.D.	-	N.S.
2-Chloroethylvinyl ether	N.D.	-	N.S.
trans-1,3-Dichloropropene	N.D.	6	94
cis-1,3-Dichloropropene	N.D.	-	N.S.
1,1,2-Trichloroethane	N.D.	-	N.S.
Tetrachloroethene (M.S.)	N.D.	6	93
Dibromochloromethane	N.D.	-	N.S.
Chlorobenzene	N.D.	-	N.S.
Bromoform	N.D.	-	N.S.
1,1,2,2-Tetrachloroethane	N.D.	-	N.S.
1,3-Dichlorobenzene	N.D.	-	N.S.
1,4-Dichlorobenzene	N.D.	-	N.S.
1,2-Dichlorobenzene	N.D.	-	N.S.

QUALITY CONTROL DATA

Surrogate Spike % Recovery			
Bromochloromethane	67 %	98 %	105%
1,4-Dichlorobutane	83 %	94 %	100%

N.D.: Not Detected
N.S.: Not Spiked

Analytical Supervisor

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

CHAIN OF CUSTODY FORM

Lab: PACE [redacted]LA 0031.[redacted]

Samplers: Caleb A. Okaneey

Job Number: 93202602

Name/Location: C. Hy of Oakland

Project Manager: David Leland

Recorder: _____ (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				3			88 50 1 50 1	88 12 15 1330	✓	X						
23	X				3			88 50 1 50 2	88 12 15 1345	✓	X						
23	X				3			88 50 1 50 3	88 12 15 1400	✓	X						
23	X				3			88 50 1 50 4	88 12 15 1400	✓	X						
23	X				3			88 50 1 50 5	88 12 15 1415	✓	X						

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

CHAIN OF CUSTODY RECORD

RELINQUISHED BY: (Signature) Caleb A. Okaneey	RECEIVED BY: (Signature) D. Williamson	DATE/TIME 12/15 1745
RELINQUISHED BY: (Signature) D. Williamson	RECEIVED BY: (Signature) Donald Takeuchi	DATE/TIME 12/16 530
RELINQUISHED BY: (Signature) Donald Takeuchi	RECEIVED BY: (Signature)	DATE/TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
DISPATCHED BY: (Signature) DATE/TIME	RECEIVED FOR LAB BY: (Signature) C. Sontag	DATE/TIME 12/16/88 5:55 PM
METHOD OF SHIPMENT		

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FORMERLY WESCO LABORATORIES

REPORT OF LABORATORY ANALYSIS

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California

Report date: January 4, 1989 Pace job #: HLA 0831115-L
Client: Harding Lawson Associates
200 Rush Landing Road
Novato, CA 94947
Attn.: David Leland

Date sampled: December 21, 1988 Site: CITY OF OAKLAND
Sampled by: Caleb Ocansey

Date received: December 21, 1988 P.O.: 938202602
Submitted by: Caleb Ocansey

Lab #	Client ID	Matrix	Analysis
8- 3030	88512101 *INFLUENT*	water	Purg. Halocarbons 601/8010
8- 3031	88512102 *INTERMEDIATE*	water	Purg. Halocarbons 601/8010
8- 3032	88512103 *EFFLUENT*	water	Purg. Halocarbons 601/8010
8- 3033	88512104 *EFFLUENT*	water	Purg. Halocarbons 601/8010
8- 3034	88512105 *BLANK*	water	Purg. Halocarbons 601/8010

Dear Client,

No problems were encountered with the analysis of your samples. We will store samples for 30 days after the report date. The samples will be returned to the client after the 30-day period, unless other arrangements are made.
If you have any questions, please feel free to call Lisa Petersen, our Client Services Coordinator at (415)883-6100.

C. Dontag
Sample Controller

pace laboratories, inc.
FORMERLY WESCO LABORATORIES

REPORT OF LABORATORY ANALYSIS

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California

Report Date: 03-Jan-89
PACE JOB #: HLA 0831.115-L
Analytical Method: EPA 8010
MATRIX: WATER

Completion Date: 30-Dec-88
Reported by: J.HARWOOD
Analyst: ATTIA/LEWIS
Instrument I.D.: HP 5890

	INFL	INT	EFFL	EFFL	BLANK
LAB #:	8-3030	8-3031	8-3032	8-3033	8-3034
CLIENT'S ID:	512101	512102	512103	512104	512105

COMPOUND	RESULT (ug/l)	RESULT (ug/l)	RESULT (ug/l)	RESULT (ug/l)	RESULT (ug/l)	Detection Limit(ug/l)
Dichlorodifluoromethane-----	N.D.	N.D.	N.D.	N.D.	N.D.	2.0
Chloromethane----------	N.D.	N.D.	N.D.	N.D.	N.D.	2.0
Vinyl Chloride----------	N.D.	N.D.	N.D.	N.D.	N.D.	2.0
Bromomethane----------	N.D.	N.D.	N.D.	N.D.	N.D.	2.0
Chloroethane----------	N.D.	N.D.	N.D.	N.D.	N.D.	2.0
Trichlorofluoromethane------	N.D.	N.D.	N.D.	N.D.	N.D.	2.0
1,1-Dichloroethene----------	N.D.	N.D.	N.D.	N.D.	N.D.	0.5
Methylene Chloride----------	N.D.	N.D.	N.D.	N.D.	N.D.	0.5
trans-1,2-Dichloroethene----	N.D.	N.D.	N.D.	N.D.	N.D.	0.5
1,1-Dichloroethane----------	N.D.	0.6	N.D.	N.D.	N.D.	0.5
Chloroform----------	1.1	1.2	N.D.	N.D.	N.D.	0.5
1,1,1-Trichloroethane (TCA)-	N.D.	N.D.	N.D.	N.D.	N.D.	0.5
Carbon Tetrachloride--------	N.D.	N.D.	N.D.	N.D.	N.D.	0.5
1,2-Dichloroethane (EDC)----	4.8	6.0	3.5	3.5	N.D.	0.5
Trichloroethene (TCE)-------112		N.D.	N.D.	N.D.	N.D.	0.5
1,2-Dichloropropane---------	N.D.	N.D.	N.D.	N.D.	N.D.	0.5
Bromodichloromethane--------	N.D.	N.D.	N.D.	N.D.	N.D.	0.5
2-Chloroethylvinyl ether----	N.D.	N.D.	N.D.	N.D.	N.D.	0.5
trans-1,3-Dichloropropene---	N.D.	N.D.	N.D.	N.D.	N.D.	0.5
cis-1,3-Dichloropropene-----	N.D.	N.D.	N.D.	N.D.	N.D.	0.5
1,1,2-Trichloroethane-------	N.D.	N.D.	N.D.	N.D.	N.D.	0.5
Tetrachloroethene-----------	N.D.	N.D.	N.D.	N.D.	N.D.	0.5
Dibromochloromethane--------	N.D.	N.D.	N.D.	N.D.	N.D.	0.5
Chlorobenzene----------	N.D.	N.D.	N.D.	N.D.	N.D.	0.5
Bromoform----------	N.D.	N.D.	N.D.	N.D.	N.D.	0.5
1,1,2,2-Tetrachloroethane---	N.D.	N.D.	N.D.	N.D.	N.D.	0.5
1,3-Dichlorobenzene---------	N.D.	N.D.	N.D.	N.D.	N.D.	0.5
1,4-Dichlorobenzene---------	N.D.	N.D.	N.D.	N.D.	N.D.	0.5
1,2-Dichlorobenzene---------	N.D.	N.D.	N.D.	N.D.	N.D.	0.5

QUALITY CONTROL DATA

Surrogate Spike	Percent Recovery				
Bromochloromethane	70 %	71 %	70 %	70 %	70 %
1,4-Dichlorobutane	83 %	78 %	71 %	71 %	70 %

N.D.: Not Detected

Analytical Supervisor

pace laboratories, inc
FORMERLY WESCO LABORATORIES

REPORT OF LABORATORY ANALYSIS

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California

BLANK, SPIKE DUPLICATE AND SPIKE REPORT JOB # HLA 0831.115-L
METHOD : EPA 8010

COMPOUND	Blank (ug/l)	Spike Duplicate % deviation	Spike % recovery
Dichlorodifluoromethane	N.D.	-	N.S.
Chloromethane	N.D.	-	N.S.
Vinyl Chloride	N.D.	-	N.S.
Bromomethane	N.D.	-	N.S.
Chloroethane	N.D.	-	N.S.
Trichlorofluoromethane	N.D.	-	N.S.
1,1-Dichloroethene	N.D.	-	N.S.
Methylene Chloride	N.D.	-	N.S.
trans-1,2-Dichloroethene	N.D.	-	N.S.
1,1-Dichloroethane (M.S.)	N.D.	7	99
Chloroform	N.D.	-	N.S.
1,1,1-Trichloroethane (TCA)	N.D.	-	N.S.
Carbon Tetrachloride	N.D.	-	N.S.
1,2-Dichloroethane (EDC)	N.D.	-	N.S.
Trichloroethene (TCE) (M.S.)	N.D.	7	106
1,2-Dichloropropane	N.D.	-	N.S.
Bromodichloromethane	N.D.	-	N.S.
2-Chloroethylvinyl ether	N.D.	-	N.S.
trans-1,3-Dichloropropene	N.D.	6	99
cis-1,3-Dichloropropene	N.D.	-	N.S.
1,1,2-Trichloroethane	N.D.	-	N.S.
Tetrachloroethene (M.S.)	N.D.	7	106
Dibromochloromethane	N.D.	-	N.S.
Chlorobenzene	N.D.	-	N.S.
Bromoform	N.D.	-	N.S.
1,1,2,2-Tetrachloroethane	N.D.	-	N.S.
1,3-Dichlorobenzene	N.D.	-	N.S.
1,4-Dichlorobenzene	N.D.	-	N.S.
1,2-Dichlorobenzene	N.D.	-	N.S.

QUALITY CONTROL DATA

Surrogate Spike % Recovery			
Bromochloromethane	72 %	99 %	97%
1,4-Dichlorobutane	83 %	99 %	93%

N.D.: Not Detected
N.S.: Not Spiked

Analytical Supervisor

Harding Lawson Associates
200 Rush Landing Road
P.O. Box 6107
Novato, California 94948
415/892-0821
Telecopy: 415/892-1586

CHAIN OF CUSTODY FORM

Lab: PACE HLA 0831.115

Samplers: Caleb A. Oconsey

Job Number: 938202602

Name/Location: City of Oakland

Project Manager: David Leland

Recorder: Caleb A. Oconsey
(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 Pltnt. Metals	Benzene/Toluene/Xylene	Total Petrol. Hydrocarb.
23	X				3			88	51	2101	88	12	21	0830		X						
23	X				3			88	51	2102	88	12	21	0900		X						
23	X				3			88	51	2103	88	12	21	0930		X						
23	X				3			88	51	2104	88	12	21	0930		X						
23	X				3			88	51	2105	88	12	21	1000		X						

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

CHAIN OF CUSTODY RECORD

RELINQUISHED BY: (Signature) Caleb A. Oconsey	RECEIVED BY: (Signature)	DATE/TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
DISPATCHED BY: (Signature) DATE/TIME	RECEIVED FOR LAB BY: (Signature) C. Santos	DATE/TIME 12/21/88 5pm
METHOD OF SHIPMENT		

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

6533

DISTRIBUTION

REPORT OF SYSTEM MONITORING: DECEMBER 1988
DEWATERING EFFLUENT TREATMENT SYSTEM
CHINATOWN REDEVELOPMENT PROJECT AREA
OAKLAND, CALIFORNIA
February 1, 1989

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1 copy:	Alameda County Department of Environmental Health 80 Swan Way, Room 200 Oakland, California 94621 Attention: Mr. Storm Goranson	4

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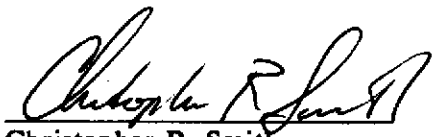
QUALITY CONTROL REVIEWER



Christopher R. Smith
Senior Associate Hydrogeologist