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:
MARCH 1989
DEWATERING EFFLUENT TREATMENT SYSTEM
CHINATOWN REDEVELOPMENT PROJECT AREA
OAKLAND, CALIFORNIA

HLA Job No. 9382,018.02

Submitted on behalf of:

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by

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May 1, 1989

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I INTRODUCTION

This report discusses the operation and monitoring of the ground-water treatment system at 10th and Webster streets, Oakland, California from March 1 to March 31, 1989. The system is treating ground water produced from extraction wells located in the area bounded by 9th, 11th, Webster and Franklin streets, in conjunction with dewatering associated with construction of the East Bay Municipal Utility District (EBMUD) administration building to the north of 10th Street and site remediation of the Pacific Rennaissance Plaza (PRP) site bounded by 9th, Franklin, and Webster streets and the EBMUD property line approximately 100 feet north of the centerline of 10th Street. The system is designed to remove petroleum hydrocarbons from ground water before the water 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 ground-water treatment system was installed March 8, 1988, and has been in continuous operation since March 14, 1988. 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 ground-water extraction 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.

As of March 1, six dewatering wells were producing ground water from the EBMUD site. The balance of the ground water treated by the system was produced by extraction wells associated with the PRP site.

Treated effluent is discharged to the storm drain. From March 1 to March 31, 1989, total discharge of the system was 855,000 gallons, based on an estimated flow of 6.0 gpm from the extraction wells on the EBMUD site for the entire month, and a measured flow of 17.1 gpm from the extraction wells in the biotreatment system from March 8 to March 31. The flow totalizing meter on the discharge line of the carbon adsorption unit malfunctioned during March and could not be used to measure the total treatment system effluent for the month.

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

III TREATMENT SYSTEM MONITORING

A. Sample Collection and Analysis

During this reporting period, treatment system samples were collected on March 10 from the influent, intermediate, and effluent sampling ports. A field blank was submitted with the samples collected.

All treatment system samples collected were analyzed by Pace Laboratories, Novato, California, a California-certified laboratory. The samples and blank were analyzed for halogenated organics by EPA Test Method 8010. Influent, effluent and blank samples were analyzed for TPH as gasoline using EPA Test Method 8015 and for aromatic organics by EPA Test Method 8020. Influent and effluent samples were analyzed for ethylene dibromide by EPA Test Method 504, for residual chlorine by Standard Method 408E, and for dissolved oxygen by EPA Test Method 360.2.

Results of analyses of samples collected November 23, 1988 through March 10, 1989 are summarized in Tables 1 through 4. Only analytical results for samples collected in March are discussed in this report. Laboratory reports for treatment system samples collected on March 10 are presented in Appendix A.

B. Discharge Limit Exceedences

There were no exceedences of permitted effluent discharge limits during this reporting period.

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 the sampling date, the treatment system removed most individual constituents to below detection levels. 1,1,1-trichloroethane was detected in an effluent sample taken on March 10 at a concentration of 2.4 μg/l.

In the blank sample submitted March 10, methylene chloride was detected at a concentration of 42 μg/l, and 1,1,1-trichloroethane was detected at a concentration of 5.9 μg/l.

TABLE 1. TREATMENT SYSTEM WATER ANALYSIS: INFLUENT SAMPLES

HLA SAMPLE ID #	88462301	88473001	88491201	88501501	88512101	89010501	89021201	89060801	89101101
DATE	11/23	11/30	12/07	12/15	12/21	01/05	01/12	02/08	03/10
TEST METHOD/ COMPOUNDS									
EPA 8020									
Benzene	ND < 0.2	ND < 0.2	ND < 0.2	NT	NT	9.2	NT	ND < 0.2	ND < 0.2
Toluene	ND < 0.2	ND < 0.2	ND < 0.2	NT	NT	6.1	NT	1.1	ND < 0.2
Chlorobenzene	ND < 0.2	ND < 0.2	ND < 0.2	NT	NT	ND < 0.2	NT	ND < 0.2	ND < 0.2
Ethylbenzene	ND < 0.2	ND < 0.2	ND < 0.2	NT	NT	ND < 0.2	NT	ND < 0.2	ND < 0.2
Xylenes	ND < 0.2	ND < 0.2	ND < 0.2	NT	NT	ND < 0.2	NT	ND < 0.2	68
1,2-Dichlorobenzene	ND < 0.2	ND < 0.2	ND < 0.2	NT	NT	ND < 0.2	NT	ND < 0.2	ND < 0.2
All other 8020 compounds	ND < 0.2	ND < 0.2	ND < 0.2	NT	NT	ND < 0.2	NT	ND < 0.2	ND < 0.2
EPA 8015									
TPH (Gasoline)	60	90	ND < 50	NT	NT	130	NT	ND < 250	340
Diesel	NT	NT	NT	NT	NT	NT	NT	NT	NT
EPA 8010									
1,1-dichloroethene	ND < 0.5	NT	NT	ND < 0.5	ND < 0.5	0.8	ND < 0.5	ND < 0.5	ND < 0.5
Methylene chloride	ND < 0.5	NT	NT	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	6.3	ND < 0.5
1,1-dichloroethane	ND < 0.5	NT	NT	ND < 0.5	ND < 0.5	1.9	0.5	1.2	3.2
Chloroform	1.6	NT	NT	ND < 0.5	1.1	2.1	0.8	1.5	0.7
1,1,1-trichloroethane	ND < 0.5	NT	NT	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	1.8
1,2-dichloroethane	ND < 0.5	NT	NT	9.2	4.8	10.5	4.9	8.6	42
Trichloroethene	210	NT	NT	390	112	140	290	420	ND < 0.5
1,2-dichloropropane	ND < 0.5	NT	NT	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
Tetrachloroethene	ND < 0.5	NT	NT	ND < 0.5	ND < 0.5	1.4	0.4	0.7	ND < 0.5
Chlorobenzene	ND < 0.5	NT	NT	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
Bromoform	ND < 0.5	NT	NT	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
1,1,2,2-tetrachloroethane	ND < 0.5	NT	NT	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
Dibromochloromethane	ND < 0.5	NT	NT	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
All other 8010 compounds	ND	NT	NT	ND	ND	ND	ND	ND	ND
EPA 8240									
1,1-dichloroethene	NT	0.5	ND < 0.5	NT	NT	NT	NT	NT	NT
Methylene chloride	NT	0.6	0.6	NT	NT	NT	NT	NT	NT
1,1-dichloroethane	NT	1.1	0.7	NT	NT	NT	NT	NT	NT
Chloroform	NT	1.5	0.7	NT	NT	NT	NT	NT	NT
1,2-dichloroethane	NT	9.4	5.8	NT	NT	NT	NT	NT	NT
Benzene	NT	ND < 0.5	ND < 0.5	NT	NT	NT	NT	NT	NT
Trichloroethene	NT	239	91.1	NT	NT	NT	NT	NT	NT
Toluene	NT	ND < 0.5	ND < 0.5	NT	NT	NT	NT	NT	NT
1,1,2-trichloroethane	NT	ND < 0.5	ND < 0.5	NT	NT	NT	NT	NT	NT
Tetrachloroethene	NT	0.6	ND < 0.5	NT	NT	NT	NT	NT	NT
Chlorobenzene	NT	ND < 0.5	ND < 0.5	NT	NT	NT	NT	NT	NT
All other 8240 compounds	NT	ND < 0.5	ND < 0.5	NT	NT	NT	NT	NT	NT
EPA 504									
Ethylene dibromide	0.05	ND < 0.01	0.02	NT	NT	ND < 0.02	NT	0.05	ND < 0.02
Standard Method 408E									
Residual chlorine (mg/l)	ND < 0.01	ND < 0.01	ND < 0.01	NT	NT	ND < 0.01	NT	ND < 0.01	ND < 0.01
EPA 360.2									
Dissolved oxygen (mg/l)	NT	NT	NT	NT	NT	NT	NT	6.6	7.5

ND - Not detected at stated detection limit.
NT - Not Tested.
All results reported in parts per billion (ppb) except where indicated.

TABLE 2. TREATMENT SYSTEM WATER ANALYSIS: INTERMEDIATE SAMPLES

HLA SAMPLE ID #	88462302	88473002	88491202	88501502	88512102	89010502	89021202	89060802	89101102
DATE	11/23	11/30	12/07	12/15	12/21	01/05	01/12	02/08	03/10
TEST METHOD/COMPOUNDS									
EPA 8020									
Benzene	NT	NT	NT	NT	NT	ND < 0.2	NT	NT	NT
Toluene	NT	NT	NT	NT	NT	ND < 0.2	NT	NT	NT
Ethylbenzene	NT	NT	NT	NT	NT	ND < 0.2	NT	NT	NT
Xylenes	NT	NT	NT	NT	NT	ND < 0.2	NT	NT	NT
Chlorobenzene	NT	NT	NT	NT	NT	ND < 0.2	NT	NT	NT
1,3-Dichlorobenzene	NT	NT	NT	NT	NT	ND < 0.2	NT	NT	NT
All other 8020 compounds	NT	NT	NT	NT	NT	ND < 0.2	NT	NT	NT
EPA 8015									
TPH (Gasoline)	NT	NT	NT	NT	NT	ND < 50	NT	NT	NT
Diesel	NT	NT	NT	NT	NT	NT	NT	NT	NT
EPA 8010									
Methylene chloride	ND < 0.5	NT	NT	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	1.5	ND < 0.5
1,1-dichloroethane	ND < 0.5	NT	NT	ND < 0.5	0.6	ND < 0.5	ND < 0.5	1.3	ND < 0.5
Chloroform	2.0	NT	NT	ND < 0.5	1.2	ND < 0.5	ND < 0.5	1.4	ND < 0.5
1,1,1-trichloroethane	ND < 0.5	NT	NT	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	2.2
1,2-dichloroethane	4.9	NT	NT	7.1	6.0	3.4	1.4	8.2	ND < 0.5
Trichloroethene	16.1	NT	NT	33.0	ND < 0.5	18.0	16.0	9.7	ND < 0.5
Tetrachloroethene	ND < 0.5	NT	NT	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
Chlorobenzene	ND < 0.5	NT	NT	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
Bromoform	ND < 0.5	NT	NT	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
1,3-dichlorobenzene	ND < 0.5	NT	NT	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
All other 8010 compounds	ND	NT	NT	ND	ND	ND	ND	ND	ND
EPA 8240									
Methylene chloride	NT	2.0	ND < 0.5	NT	NT	NT	NT	NT	NT
1,1-dichloroethane	NT	1.2	1.5	NT	NT	NT	NT	NT	NT
Chloroform	NT	1.7	1.7	NT	NT	NT	NT	NT	NT
1,2-dichloroethane	NT	9.7	9.4	NT	NT	NT	NT	NT	NT
Trichloroethene	NT	28.3	18.7	NT	NT	NT	NT	NT	NT
Toluene	NT	ND < 0.5	ND < 0.5	NT	NT	NT	NT	NT	NT
1,2-dichlorobenzene	NT	ND < 0.5	ND < 0.5	NT	NT	NT	NT	NT	NT
All other 8240 compounds	NT	ND	ND	NT	NT	NT	NT	NT	NT
EPA 504									
Ethylene dibromide	NT	NT	NT	NT	NT	NT	NT	NT	NT
Residual chlorine									
Residual chlorine (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.

TABLE 3. TREATMENT SYSTEM WATER ANALYSIS: EFFLUENT SAMPLES

HLA SAMPLE ID #	88462303	88473004	88491204	88501503	88512103	89010504	89021204	89060803	89101103
DATE	11/23	11/30	12/07	12/15	12/21	01/05	01/12	02/08	03/10
TOTAL FLOW (THOUSAND GALLONS)	6510.0	6645.1	6762.0	6830.6	6972.2	7200.0	7310.7	7784.3	8000.0
AVERAGE FLOW (GPM)	10.4	13.4	11.6	6.0	16.4	10.5	11.0	12.2	23.0
TEST METHOD/COMPOUNDS									
EPA 8020									
Benzene	ND < 0.2	ND < 0.2	ND < 0.2	NT	NT	ND < 0.2	NT	ND < 0.2	ND < 0.2
Toluene	ND < 0.2	ND < 0.2	ND < 0.2	NT	NT	ND < 0.2	NT	0.9	ND < 0.2
Ethylbenzene	ND < 0.2	ND < 0.2	ND < 0.2	NT	NT	ND < 0.2	NT	ND < 0.2	ND < 0.2
Xylenes	ND < 0.2	ND < 0.2	ND < 0.2	NT	NT	ND < 0.2	NT	ND < 0.2	ND < 0.2
Diphenylhydrazine	ND < 0.2	ND < 0.2	ND < 0.2	NT	NT	ND < 0.2	NT	ND < 0.2	ND < 0.2
All other 8020 compounds	ND < 0.2	ND < 0.2	ND < 0.2	NT	NT	ND < 0.2	NT	ND < 0.2	ND < 0.2
EPA 8015									
TPH (Gasoline)	ND < 50	ND < 50	ND < 50	NT	NT	ND < 50	NT	ND < 250	ND < 250
Diesel	NT	NT	NT	NT	NT	NT	NT	NT	NT
EPA 8010									
Dichlorodifluoromethane	ND < 2.0	NT	NT	ND < 2.0	ND < 2.0	ND < 2.0	ND < 2.0	ND < 2.0	ND < 2.0
1,1-dichlorethene	12.3	NT	NT	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
Methylene chloride	ND < 0.5	NT	NT	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	1.4	ND < 0.5
1,1-dichloroethane	ND < 0.5	NT	NT	ND < 0.5	ND < 0.5	1.0	0.9	1.4	ND < 0.5
Chloroform	ND < 0.5	NT	NT	ND < 0.5	ND < 0.5	1.4	1.0	1.6	ND < 0.5
1,1,1-trichloroethane	4.3	NT	NT	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	2.4
1,2-dichloroethane	2.7	NT	NT	4.3	3.5	6.8	5.3	9.1	ND < 0.5
Trichloroethene	ND < 0.5	NT	NT	ND < 0.5	ND < 0.5	0.8	1.0	2.2	ND < 0.5
Tetrachloroethene	ND < 0.5	NT	NT	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
All other 8010 compounds	ND	NT	NT	ND	ND	ND	ND	ND	ND
EPA 8240									
Methylene Chloride	NT	1.6	ND < 0.5	NT	NT	NT	NT	NT	NT
1,1-dichloroethane		ND < 0.5	0.8	NT	NT	NT	NT	NT	NT
Chloroform		ND < 0.5	0.8	NT	NT	NT	NT	NT	NT
1,2-dichloroethane	NT	2.2	5.1	NT	NT	NT	NT	NT	NT
Trichloroethene	NT	ND < 0.5	ND < 0.5	NT	NT	NT	NT	NT	NT
Toluene	NT	ND < 0.5	ND < 0.5	NT	NT	NT	NT	NT	NT
All other 8240 compounds	NT	ND	ND	NT	NT	NT	NT	NT	NT
EPA 360.2									
Dissolved oxygen (mg/l)	NT	NT	NT	NT	NT	NT	NT	9.9	8.0
EPA 625									
All compounds	NT	NT	NT	NT	NT	NT	NT	NT	NT
EPA 504									
Ethylene dibromide	ND < 0.01	ND < 0.01	ND < 0.02	NT	NT	ND < 0.02	NT	0.06	ND < 0.02
Standard Method 408E									
Residual chlorine (mg/l)	ND < 0.01	ND < 0.01	ND < 0.01	NT	NT	ND < 0.01	NT	ND < 0.01	ND < 0.01
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.

TABLE 4. TREATMENT SYSTEM WATER ANALYSIS: BLANK SAMPLES

HLA SAMPLE ID #	88462305	88473005	88491205	88501505	88512105	89010505	89021205	89060805	89101105
DATE	11/23	11/30	12/07	12/15	12/21	01/05	01/12	02/08	03/10
TEST METHOD/COMPOUNDS									
EPA 8020									
Benzene	ND < 0.2	ND < 0.2	ND < 0.2	NT	NT	ND < 0.2	NT	ND < 0.2	ND < 0.2
Toluene	ND < 0.2	ND < 0.2	ND < 0.2	NT	NT	ND < 0.2	NT	1.0	ND < 0.2
Ethylbenzene	ND < 0.2	ND < 0.2	ND < 0.2	NT	NT	ND < 0.2	NT	ND < 0.2	ND < 0.2
Xylenes	ND < 0.2	ND < 0.2	ND < 0.2	NT	NT	ND < 0.2	NT	ND < 0.2	ND < 0.2
All other 8020 compounds	ND < 0.2	ND < 0.2	ND < 0.2	NT	NT	ND < 0.2	NT	ND < 0.2	ND < 0.2
TPH									
Gasoline	ND < 50	ND < 50	ND < 50	NT	NT	NT	NT	NT	ND < 250
Diesel	NT	NT	NT	NT	NT	NT	NT	NT	NT
EPA 8010									
Dichlorodifluoromethane	ND < 2.0	NT	NT	ND < 2.0	ND < 2.0	ND < 2.0	ND < 2.0	ND < 2.0	ND < 2.0
1,1-dichloroethene	1.3	NT	NT	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
Methylene chloride	3.8	NT	NT	13	ND < 0.5	9.6	1.0	2.9	42
1,1,1-trichloroethane	0.7	NT	NT	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	5.9
1,2-dichloroethane	ND < 0.5	NT	NT	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
All other 8010 compounds	ND	NT	NT	ND	ND	ND	ND	ND	ND
EPA 8240									
Toluene	NT	ND < 0.5	ND < 0.5	NT	NT	NT	NT	NT	NT
Methylene Chloride	NT	4.6	25.3	NT	NT	NT	NT	NT	NT
Chloroform	NT	ND < 0.5	ND < 0.5	NT	NT	NT	NT	NT	NT
Diphenylhydrazine	NT	ND < 0.5	ND < 0.5	NT	NT	NT	NT	NT	NT
All other 8240 compounds	NT	ND	ND	NT	NT	NT	NT	NT	NT
EPA 625									
All compounds	NT	NT	NT	NT	NT	NT	NT	NT	NT
EPA 504									
Ethylene dibromide	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.

Appendix A

LABORATORY ANALYTICAL RESULTS FOR TREATMENT SYSTEM SAMPLES

pace laboratories, inc.

REPORT OF LABORATORY ANALYSIS

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

Harding Lawson Associates
200 Rush Landing Road
Novato, CA 94947

March 29, 1989
PACE Project Number: 490310.504

Attn: Mr. David Leland

Re: City of Oakland

Date Sample(s) Collected: 03/10/89
Date Sample(s) Received: 03/10/89

PACE Sample Number: / Parameter	Units	MDL	71224 89101101	71225 89101102	71226 89101103
INORGANIC ANALYSIS					
INDIVIDUAL PARAMETERS					
Chlorine, Total Residual	mg/L	0.01	ND	-	ND
Oxygen, Dissolved	mg/L	0.2	7.5	-	8.0
ORGANIC ANALYSIS					
INDIVIDUAL PARAMETERS					
Petroleum Fuels, Purgeable, as Gasoline (EPA Method 8015, Modified)	mg/L	0.25	0.34	-	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	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	3.2	ND	ND
Chloroform	ug/L	0.5	0.65	ND	ND
1,1,1-Trichloroethane (TCA)	ug/L	0.5	1.8	2.2	2.4
Carbon Tetrachloride	ug/L	0.5	ND	ND	ND
1,2-Dichloroethane (EDC)	ug/L	0.5	42	ND	ND
Trichloroethene (TCE)	ug/L	0.5	ND	ND	ND
1,2-Dichloropropane	ug/L	0.5	ND	ND	ND
Bromodichloromethane	ug/L	0.5	ND	ND	ND
2-Chloroethylvinyl ether	ug/L	0.5	ND	ND	ND

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

pace laboratories, inc.

REPORT OF LABORATORY ANALYSIS

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

March 29, 1989
PACE Project Number: 490310.504

PACE Sample Number: / Parameter	Units	MDL	71224 89101101	71225 89101102	71226 89101103
ORGANIC ANALYSIS					
HALOGENATED VOLATILE COMPOUNDS EPA 8010					
trans-1,3-Dichloropropene	ug/L	0.5	ND	ND	ND
cis-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)			85%	86%	87%
1,4-Dichlorobutane (Surrogate Recovery)			85%	86%	87%
AROMATIC VOLATILE COMPOUNDS EPA 8020					
Benzene	ug/L	0.2	ND	-	ND
Toluene	ug/L	0.2	ND	-	ND
Chlorobenzene	ug/L	0.2	ND	-	ND
Ethylbenzene	ug/L	0.2	ND	-	ND
Xylene	ug/L	0.2	68	-	ND
1,3-Dichlorobenzene	ug/L	0.2	ND	-	ND
1,4-Dichlorobenzene	ug/L	0.2	ND	-	ND
1,2-Dichlorobenzene	ug/L	0.2	ND	-	ND
Fluorobenzene (Surrogate Recovery)			99%	-	98%
1,2-DIBROMOETHANE (EDB) EPA METHOD 504					
1,2-Dibromoethane	ug/L	0.02	ND	-	ND
Date extracted			03/14/89	-	03/14/89

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

pace laboratories, inc.

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

REPORT OF LABORATORY ANALYSIS

March 29, 1989
PACE Project Number: 490310.504

PACE Sample Number: / Parameter	Units	MDL	71227 89101104	71228 89101105
INORGANIC ANALYSIS				
INDIVIDUAL PARAMETERS				
Chlorine, Total Residual	mg/L	0.01	ND	-
Oxygen, Dissolved	mg/L	0.2	10.0	-
ORGANIC ANALYSIS				
INDIVIDUAL PARAMETERS				
Petroleum Fuels, Purgeable, as Gasoline (EPA Method 8015, Modified)	mg/L	0.25	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	ug/L	2.0	ND	ND
1,1-Dichloroethene	ug/L	0.5	ND	ND
Methylene Chloride	ug/L	0.5	ND	42
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	5.9
Carbon Tetrachloride	ug/L	0.5	ND	ND
1,2-Dichloroethane (EDC)	ug/L	0.5	ND	ND
Trichloroethene (TCE)	ug/L	0.5	ND	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
trans-1,3-Dichloropropene	ug/L	0.5	ND	ND
cis-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

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

pace laboratories, inc.

REPORT OF LABORATORY ANALYSIS

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

March 29, 1989
PACE Project Number: 490310.504

PACE Sample Number: Parameter	Units	MDL	71227 89101104	71228 89101105
ORGANIC ANALYSIS				
HALOGENATED VOLATILE COMPOUNDS EPA 8010				
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)			86%	85%
1,4-Dichlorobutane (Surrogate Recovery)			82%	79%
AROMATIC VOLATILE COMPOUNDS EPA 8020				
Benzene	ug/L	0.2	ND	ND
Toluene	ug/L	0.2	ND	ND
Chlorobenzene	ug/L	0.2	ND	ND
Ethylbenzene	ug/L	0.2	ND	ND
Xylene	ug/L	0.2	ND	ND
1,3-Dichlorobenzene	ug/L	0.2	ND	ND
1,4-Dichlorobenzene	ug/L	0.2	ND	ND
1,2-Dichlorobenzene	ug/L	0.2	ND	ND
Fluorobenzene (Surrogate Recovery)			99%	97%
1,2-DIBROMOETHANE (EDB) EPA METHOD 504				
1,2-Dibromoethane	ug/L	0.02	ND	-
Date extracted			03/14/89	-

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

Approval:

Stephen F. Nackord
Project Manager for
PACE Laboratories

Douglas E. Oram, Ph.D.
Technical Reviewer for
PACE Laboratories

90510.504

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

Job Number: 0938202602

Name/Location: City of Oakland

Project Manager: David Leland

Samplers: Caleb A. Oceancy

Recorder: Caleb A. Oceancy (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	EPA 601/8010	EPA 602/8020	EPA 624/8240	EPA 625/8270	Priority Plltnt. Metals	Benzene/Toluene/Xylene	Total Petrol. Hydrocarb.	EPA 8015	EPA (504) EDB	Total Residual Chlorine	Dissolved Oxygen
2	3	X				3	2		89	10	1101	89	03	10	0830	71224 2V, 1l, 1pj, 1D.O.	X	X						X	X	X	X
2	3	X					2		89	10	1102	89	03	10	0900	71225 2V	X										
2	3	X				3	2		89	10	1103	89	03	10	0930	71226 2V, 2l, 1pj, 1D.O.	X	X						X	X	X	X
2	3	X				3	2		89	10	1104	89	03	10	1000	71227 2V, 2l, 1pj, 1D.O.	X	X						X	X	X	X
2	3	X				2	[illegible]		89	10	1105	89	03	10	1030	71228 2V	X	X						X			

VOAS 6/3
others 10/4

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
Caleb A. Oceancy		
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) Esthme Harvin	DATE/TIME 3/10/89 6 pm

METHOD OF SHIPMENT

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

6533

DISTRIBUTION

REPORT OF SYSTEM MONITORING: MARCH 1989
DEWATERING EFFLUENT TREATMENT SYSTEM
CHINATOWN REDEVELOPMENT PROJECT AREA
OAKLAND, CALIFORNIA
May 1, 1989

COPY NO. 4

		Copy No.
1 copy:	California Regional Water Quality Control Board San Francisco Bay Region 1111 Jackson Street, Room 6000 Oakland, California 94607 Attention: Mr. Scott Huganberger	1
2 copies:	City of Oakland Redevelopment Agency One City Hall Plaza Oakland, California 94612 Attention: Mr. Peter Chen	2-3
1 copy:	Alameda County Department of Environmental Health 80 Swan Way, Room 200 Oakland, California 94621 Attention: Mr. Lowell Miller	4

CEM/DFL/CRS/rmc/E8454-R

QUALITY CONTROL REVIEWER

Christopher R. Smith
Geologist - 4619

Harding Lawson Associates

Transmittal/Memorandum

To: Alameda County Department of Environmental Health
80 Swan Way, Room 200
Oakland, California 94621

Attention: Mr. Lowell Miller

From: David Leland DL
Date: May 2, 1989
Subject: March 1989 Treatment System Monitoring Report
Job No.: 09382,018.02

Remarks: Please find attached a copy of the "*Report of System Monitoring: March 1989, Dewatering Effluent Treatment System, Chinatown Redevelopment Project Area, Oakland, California*", describing the operations and monitoring of the treatment system located at 10th and Webster Streets in Oakland.

DL:cb/c9a/036

cc:

ALAMEDA COUNTY
5/2/89
DEPT. OF ENVIRONMENTAL HEALTH
HAZARDOUS MATERIALS

Engineering and
Environmental Services

7655 Redwood Blvd., P.O. Box 578, Novato, California 94948 415/892-0821
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