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

HLA Job No. 9382,040.02

Submitted on behalf of:

City of Oakland Redevelopment Agency
One City Hall Plaza
Oakland, California 94612

by

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Project Engineer

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August 14, 1989

TABLE OF CONTENTS

LIST OF TABLES iii

I INTRODUCTION 1

II TREATMENT SYSTEM OPERATION 2

III TREATMENT SYSTEM MONITORING 3

IV RESULTS 4

TABLES

Appendix A LABORATORY ANALYTICAL RESULTS FOR TREATMENT SYSTEM SAMPLES

DISTRIBUTION

LIST OF TABLES

Table 1	Treatment System Water Analysis: Influent Samples
Table 2	Treatment System Water Analysis: Intermediate Samples
Table 3	Treatment System Water Analysis: Effluent Samples
Table 4	Treatment System Water Analysis: Blank Samples

I INTRODUCTION

This report discusses the operation and monitoring of the ground-water treatment system at 10th and Webster streets, Oakland, California from July 1 to July 31, 1989. The system is treating ground water produced from extraction wells located in the area bounded by 9th, 11th, Webster and Franklin streets. Ground-water extraction is being conducted in conjunction with 1) in situ biological treatment of soil at the Pacific Renaissance Plaza (PRP) site bounded by 9th, Franklin, and Webster streets and the East Bay Municipal Utility District (EBMUD) property line approximately 100 feet north of the centerline of 10th Street, and 2) dewatering for construction of the EBMUD administration building to the north of 10th Street.

This report has been prepared by Harding Lawson Associates (HLA) on behalf of the Redevelopment Agency of the City of Oakland (Agency) 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. The treatment system is designed to reduce concentrations of petroleum hydrocarbons in ground water to less than discharge limits specified in the Agency's NPDES permit.

II TREATMENT SYSTEM OPERATION

The ground-water treatment system was installed March 8, 1988, and has been in 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 onto 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.

Treated effluent is either recycled to the PRP biological treatment system or discharged to the storm drain. From July 1 to August 1, 1989, total effluent discharged from the system was 1,340,000 gallons, based on readings of the totalizing flowmeter located in the discharge line. Average flow was 30 gallons per minute (gpm). Of the 1,340,000 gallons of treatment system effluent, approximately 92 percent, or 1,230,000 gallons, was recycled to the PRP injection system and 8 percent, or 110,000 gallons, was discharged to the storm drain.

The carbon contactors were backwashed with fresh water on July 4, July 17, and July 28. Cartridge filters were changed on July 29. Bag filters were replaced on a daily or twice daily basis as a result of biological fouling.

III TREATMENT SYSTEM MONITORING

During this reporting period, treatment system samples were collected on July 5 from the influent, intermediate, and effluent sampling ports. A field blank was submitted with samples collected on this date in conjunction with activities at the PRP site.

All treatment system samples collected were analyzed by Pace Laboratories, of Novato, California, a California-certified laboratory. All samples were analyzed for halogenated organics by EPA Test Method 8010, and for aromatic organics by EPA Test Method 8020. Influent and effluent samples were analyzed for TPH as gasoline by EPA Test Method 8015, 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 December 21, 1988 through July 5, 1989 are summarized in Tables 1 through 4. Analytical results for samples collected in July are discussed in this report.

IV RESULTS

Results of treatment system water sample analyses for TPH and for EPA Test Method 8010, 8020, and 504 compounds indicate that on the sampling date (July 5, 1989), the carbon treatment system removed all individual constituents to below detection levels in discharge water.

TABLES

TABLE 1. TREATMENT SYSTEM WATER ANALYSIS: INFLUENT SAMPLES

Harding Lawson Associates

HLA SAMPLE ID #	88512101	89010501	89021201	89060801	89101101	89140601	89180330	89230801	89270503
DATE	12/21/88	01/05/89	01/12/89	02/08/89	03/10/89	04/06/89	05/03/89	06/08/89	07/05/89
TEST METHOD/COMPOUNDS									
EPA 8020									
Benzene	NT	9.2	NT	ND < 0.2	ND < 0.2	ND < 0.2	0.5	1.2	11.5
Toluene	NT	6.1	NT	1.1	ND < 0.2	ND < 0.2	0.2	0.9	2.5
Chlorobenzene	NT	ND < 0.2	NT	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2
Ethylbenzene	NT	ND < 0.2	NT	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2
Xylenes	NT	ND < 0.2	NT	ND < 0.2	68	ND < 0.2	ND < 0.2	26	71
1,2-Dichlorobenzene	NT	ND < 0.2	NT	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2
All other 8020 compounds	NT	ND < 0.2	NT	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2
EPA 8015									
TPH (Gasoline)	NT	130	NT	90	340	70	70	110	220
Diesel	NT	NT	NT	NT	NT	NT	NT	NT	NT
EPA 8010									
1,1-dichloroethene	ND < 0.5	0.8	ND < 0.5	ND < 0.5	ND < 0.5	0.8	ND < 0.5	ND < 0.5	ND < 0.5
Methylene chloride	ND < 0.5	ND < 0.5	ND < 0.5	6.3	ND < 0.5	ND < 0.5	9.8	0.6	ND < 0.5
1,1-dichloroethane	ND < 0.5	1.9	0.5	1.2	3.2	1.1	ND < 0.5	ND < 0.5	ND < 0.5
Chloroform	1.1	2.1	0.8	1.5	0.65	8.8	ND < 0.5	4.5	2.5
1,1,1-trichloroethane	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	1.8	0.7	ND < 0.5	ND < 0.5	ND < 0.5
1,2-dichloroethane	4.8	10.5	4.9	8.6	42	16.2	6.8	8.1	8.3
Trichloroethene	112	140	290	420	ND < 0.5	3.6	4.4	10.3	9.8
1,2-dichloropropane	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
Bromodichloromethane	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	0.7	ND < 0.5	ND < 0.5
Cis-1,3-dichloropropene	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	0.65	1.0	ND < 0.5	ND < 0.5
Tetrachloroethene	ND < 0.5	1.4	0.4	0.66	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
Chlorobenzene	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
Bromoform	ND < 0.5	ND < 0.5	ND < 0.5	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	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
Dibromochloromethane	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
All other 8010 compounds	ND	ND	ND	ND	ND	ND	ND	ND	ND
EPA 504									
Ethylene dibromide	NT	ND < 0.02	NT	0.05	ND < 0.01	0.47	ND < 0.01	ND < 0.01	0.09
Standard Method 408E									
Residual chlorine (mg/l)	NT	ND < 0.01	NT	ND < 0.01	ND < 0.01	0.05	ND < 0.01	ND < 0.05	ND < 0.01
EPA 360.2									
Dissolved oxygen (mg/l)	NT	NT	NT	6.6	7.5	7.9	NT	14	6.9

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

Harding Lawson Associates

HLA SAMPLE ID #	88512102	89010502	89021202	89060802	89101102	89140602	89180331	89230802	89270502
DATE	12/21/88	01/05/89	01/12/89	02/08/89	03/10/89	04/06/89	05/03/89	06/08/89	07/05/89
TEST METHOD/COMPOUNDS									
EPA 8020									
Benzene	NT	ND < 0.2	NT	NT	NT	ND < 0.2	0.3	NT	ND < 0.2
Toluene	NT	ND < 0.2	NT	NT	NT	ND < 0.2	ND < 0.2	NT	0.7
Ethylbenzene	NT	ND < 0.2	NT	NT	NT	ND < 0.2	0.4	NT	ND < 0.2
Xylenes	NT	ND < 0.2	NT	NT	NT	ND < 0.2	0.3	NT	ND < 0.2
Chlorobenzene	NT	ND < 0.2	NT	NT	NT	ND < 0.2	ND < 0.2	NT	ND < 0.2
1,3-Dichlorobenzene	NT	ND < 0.2	NT	NT	NT	ND < 0.2	ND < 0.2	NT	ND < 0.2
All other 8020 compounds	NT	ND < 0.2	NT	NT	NT	ND < 0.2	ND < 0.2	NT	ND < 0.2
EPA 8015									
TPH (Gasoline)	NT	ND < 50	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	1.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
1,1-dichloroethane	0.6	ND < 0.5	ND < 0.5	1.3	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
Chloroform	1.2	ND < 0.5	ND < 0.5	1.4	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	1.5
1,1,1-trichloroethane	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	2.2	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
1,2-dichloroethane	6.0	3.4	1.4	8.2	ND < 0.5	0.55	ND < 0.5	1.3	3.4
Trichloroethene	ND < 0.5	18.0	16.0	9.7	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
Tetrachloroethene	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
Chlorobenzene	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
Bromoform	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
1,3-dichlorobenzene	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
All other 8010 compounds	ND	ND	ND	ND	ND	ND	ND	ND	ND

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

Harding Lawson Associates

HLA SAMPLE ID #	88512103	89010504	89021204	89060803	89101103	89140603	89180332	89230803	89270501
DATE	12/21/88	01/05/89	01/12/89	02/08/89	03/10/89	04/06/89	05/03/89	06/08/89	07/05/89
TOTAL FLOW (THOUSAND GALLONS)	6972.2	7200.0	7310.7	7784.3	8000.0	8495.9	8948.7	9778.1	10953.4
AVERAGE FLOW (GPM)	16.4	10.5	11.0	12.2	23.0	23.9	23.7	30.5	30.2
TEST METHOD/COMPOUNDS									
EPA 8020									
Benzene	NT	ND < 0.2	NT	ND < 0.2	ND < 0.2	ND < 0.2	0.3	ND < 0.2	ND < 0.2
Toluene	NT	ND < 0.2	NT	0.88	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2
Ethylbenzene	NT	ND < 0.2	NT	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2
Xylenes	NT	ND < 0.2	NT	ND < 0.2	ND < 0.2	ND < 0.2	0.3	ND < 0.2	ND < 0.2
Diphenylhydrazine	NT	ND < 0.2	NT	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2
All other 8020 compounds	NT	ND < 0.2	NT	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2
EPA 8015									
TPH (Gasoline)	NT	ND < 50	NT	ND < 50	ND < 50	ND < 50	ND < 50	ND < 50	ND < 50
Diesel	NT	NT	NT	NT	NT	NT	NT	NT	NT
EPA 8010									
Dichlorodifluoromethane	ND < 2.0	ND < 2.0	ND < 2.0	ND < 2.0	ND < 2.0	ND < 2.0	ND < 2.0	ND < 2.0	ND < 2.0
1,1-dichlorethene	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
Methylene chloride	ND < 0.5	ND < 0.5	ND < 0.5	1.4	ND < 0.5	ND < 0.5	ND < 0.5	0.6	ND < 0.5
1,1-dichloroethane	ND < 0.5	1.0	0.9	1.4	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
Chloroform	ND < 0.5	1.4	1.0	1.6	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
1,1,1-trichloroethane	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	2.4	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
1,2-dichloroethane	3.5	6.8	5.3	9.1	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
Trichloroethene	ND < 0.5	0.8	1.0	2.2	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
Tetrachloroethene	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
All other 8010 compounds	ND	ND	ND	ND	ND	ND	ND	ND	ND
EPA 360.2									
Dissolved oxygen (mg/l)	NT	NT	NT	9.9	8.0	7.8	NT	10	3.3
EPA 625									
All compounds	NT	NT	NT	NT	NT	NT	NT	NT	NT
EPA 504									
Ethylene dibromide	NT	ND < 0.02	NT	0.06	ND < 0.01	ND < 0.01	ND < 0.01	ND < 0.01	ND < 0.01
Standard Method 408E									
Residual chlorine (mg/l)	NT	ND < 0.01	NT	ND < 0.01	ND < 0.01	ND < 0.05	ND < 0.01	ND < 0.05	ND < 0.01

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

Harding Lawson Associates

HLA SAMPLE ID #	88512105	89010505	89021205	89060805	89101105	---	89180334	89230805	89270515
DATE	12/21/88	01/05/89	01/12/89	02/08/89	03/10/89	04/06/89	05/03/89	06/08/89	07/05/89
TEST METHOD/COMPOUNDS									
EPA 8020									
Benzene	NT	ND < 0.2	NT	ND < 0.2	ND < 0.2	NT	ND < 0.2	ND < 0.2	ND < 0.2
Toluene	NT	ND < 0.2	NT	0.95	ND < 0.2	NT	ND < 0.2	ND < 0.2	ND < 0.2
Ethylbenzene	NT	ND < 0.2	NT	ND < 0.2	ND < 0.2	NT	ND < 0.2	ND < 0.2	ND < 0.2
Xylenes	NT	ND < 0.2	NT	ND < 0.2	ND < 0.2	NT	0.7	ND < 0.2	ND < 0.2
All other 8020 compounds	NT	ND < 0.2	NT	ND < 0.2	ND < 0.2	NT	ND < 0.2	ND < 0.2	ND < 0.2
EPA 8015									
TPH (Gasoline)	NT	NT	NT	ND < 50	ND < 50	NT	NT	ND < 50	ND < 50
Diesel	NT	NT	NT	NT	NT	NT	NT	NT	NT
EPA 8010									
Dichlorodifluoromethane	ND < 2.0	ND < 2.0	ND < 2.0	ND < 2.0	ND < 2.0	NT	ND < 2.0	ND < 2.0	NT
1,1-dichloroethene	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	NT	ND < 0.5	ND < 0.5	NT
Methylene chloride	ND < 0.5	9.6	1.0	2.9	42	NT	ND < 0.5	ND < 0.5	NT
1,1,1-trichloroethane	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	5.9	NT	ND < 0.5	ND < 0.5	NT
1,2-dichloroethane	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	NT	ND < 0.5	ND < 0.5	NT
All other 8010 compounds	ND	ND	ND	ND	ND	NT	ND	ND	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

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

REPORT OF LABORATORY ANALYSIS

Harding Lawson Associates
200 Rush Landing Road
Novato, CA 94945

July 25, 1989
PACE Project Number: 490705504

Attn: Mr. David Leland

Pacific Ren. Project

Date Sample(s) Collected: 07/05/89
Date Sample(s) Received: 07/05/89

PACE Sample Number: / Parameter	Units	MDL	743170 89270501	743180 89270502	743190 89270503
INORGANIC ANALYSIS			Effluent	MID	INFLUENT
INDIVIDUAL PARAMETERS					
Chlorine, Total Residual	mg/L	0.010	ND	-	ND
Oxygen, Dissolved	mg/L	0.1	3.3	-	6.9
ORGANIC ANALYSIS					
INDIVIDUAL PARAMETERS					
Purgeable Fuels, as Gasoline (EPA 8015)	mg/L	0.05	ND	-	0.22
VOLATILE HALOCARBONS AND AROMATICS					
VOLATILE HALOCARBONS BY EPA 8010			-	-	-
Dichlorodifluoromethane	ug/L	2.0	ND	ND	ND
Chloromethane	ug/L	2.0	ND	ND	ND
Vinyl Chloride	ug/L	2.0	ND	ND	ND
Bromomethane	ug/L	2.0	ND	ND	ND
Chloroethane	ug/L	2.0	ND	ND	ND
Trichlorofluoromethane (Freon 11)	ug/L	2.0	ND	ND	ND
1,1-Dichloroethene	ug/L	0.5	ND	ND	ND
Methylene Chloride	ug/L	0.5	ND	ND	ND
trans-1,2-Dichloroethene	ug/L	0.5	ND	ND	ND
1,1-Dichloroethane	ug/L	0.5	ND	ND	ND
Chloroform	ug/L	0.5	ND	1.5	2.5
1,1,1-Trichloroethane (TCA)	ug/L	0.5	ND	ND	ND
Carbon Tetrachloride	ug/L	0.5	ND	ND	ND
1,2-Dichloroethane (EDC)	ug/L	0.5	ND	3.4	8.3
Trichloroethene (TCE)	ug/L	0.5	ND	ND	9.8
1,2-Dichloropropane	ug/L	0.5	ND	ND	ND
Bromodichloromethane	ug/L	0.5	ND	ND	ND

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

pace laboratories, inc.

REPORT OF LABORATORY ANALYSIS

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

Mr. David Leland
Page 2

July 25, 1989
PACE Project Number: 490705504

PACE Sample Number: / Parameter	Units	MDL	743170 89270501	743180 89270502	743190 89270503
			EFFluent	MID	INFLUENT
ORGANIC ANALYSIS					
VOLATILE HALOCARBONS AND AROMATICS					
2-Chloroethylvinyl ether	ug/L	0.5	ND	ND	ND
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)			79%	71%	76%
1,4-Dichlorobutane (Surrogate Recovery)			87%	82%	80%
VOLATILE AROMATICS BY EPA 8020			-	-	-
Benzene	ug/L	0.2	ND	ND	11.5
Toluene	ug/L	0.2	ND	0.7	2.5
Chlorobenzene	ug/L	0.2	ND	ND	ND
Ethylbenzene	ug/L	0.2	ND	ND	ND
Xylenes, Total	ug/L	0.2	ND	ND	71
1,3-Dichlorobenzene	ug/L	0.2	ND	ND	ND
1,4-Dichlorobenzene	ug/L	0.2	ND	ND	ND
1,2-Dichlorobenzene	ug/L	0.2	ND	ND	ND
Fluorobenzene (Surrogate Recovery)			101%	95%	75%
1,2-DIBROMOETHANE (EDB) EPA METHOD 504					
1,2-Dibromoethane	ug/L	0.01	ND	-	0.09
Date Extracted			07/10/89	-	07/10/89

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

Harding Lawson Associates
7655 Redwood Boulevard
[redacted] x 578 [redacted]
Novato, California 94948
415/892-0821
Telecopy: 415/892-0831
Telex: 340523

CHAIN OF CUSTODY FORM

940705.504 PACE

lab: [redacted]

p 1 of 3

Job Number: 9382,039.02

Name/Location: PRP

Project Manager: D. LELAND

Samplers: DL HARMS
TM DRINKARD

Recorder: [signature] (Signature Required)

SOURCE CODE	MATRIX: Water	Sediment	Soil	Oil	#CONTAINERS & PRESERV.: Unpres.	H_2SO_4	HNO_3	HCL	SAMPLE NUMBER OR LAB NUMBER: Yr	Wk	Seq	DATE: Yr	Mo	Dy	Time	STATION DESCRIPTION/ NOTES	EPA 601(8010)	EPA 602(8020)	EPA 624/8240	EPA 625/8270	Priority Plitnt. Metals	Benzene/Toluene/Xylene	Total Petrol. Hydrocarb.	EPA 8015	EPA 504 EDB	CHLORINE	DISSOLVED OXYGEN
23	X				3			3	89	27	0501	890705			1320	PACE # 74317	X	X						X	X	X	X
23	X							3			02				1310	74318	X	X									
23	X				3			3			03				1255	74319	X	X						X	X	X	X

LAB NUMBER: Yr	Wk	Seq	DEPTH IN FEET	COL MTD CD	QA CODE	MISCELLANEOUS
						V - 9/1
						D/4

CHAIN OF CUSTODY RECORD

RELINQUISHED BY: (Signature) [signature]	RECEIVED BY: (Signature)	DATE/TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
DISPATCHED BY: (Signature) DATE/TIME	RECEIVED FOR LAB BY: (Signature) [signature]	DATE/TIME 7/5/89 9:00pm
METHOD OF SHIPMENT		

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pace laboratories, inc.

REPORT OF LABORATORY ANALYSIS

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

Mr. David Leland

July 25, 1989
PACE Project Number: 490705504

PACE Sample Number: / Parameter	Units	MDL	743290 89270513 EW-19 Duplicate	743300 89270514 EW-21	743310 89270515 Field Blank
ORGANIC ANALYSIS					
INDIVIDUAL PARAMETERS					
Purgeable Fuels, as Gasoline (EPA 8015)	mg/L	0.050	5.3	1.1	ND
AROMATIC VOLATILE COMPOUNDS EPA 8020					
Benzene	ug/L	0.2	1400	2.6	ND
Toluene	ug/L	0.2	710	15	ND
Chlorobenzene	ug/L	0.2	LT 8.0	2.4	ND
Ethylbenzene	ug/L	0.2	43	17	ND
Xylenes, Total	ug/L	0.2	800	95	ND
1,3-Dichlorobenzene	ug/L	0.2	LT 8.0	LT 1	ND
1,4-Dichlorobenzene	ug/L	0.2	LT 8.0	LT 1	ND
1,2-Dichlorobenzene	ug/L	0.2	LT 8.0	LT 1	ND
Fluorobenzene (Surrogate Recovery)			101%	99%	97%

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

Harding Lawson Associates
2[illegible] Lan[illegible]ad
P.O. Box 6107
Novato, California 94948
415/892-0821
Telecopy: 415/892-1586

CHAIN OF CUSTODY FORM

Lab: [illegible]

Job Number: 9382,039.02

Name/Location: FRP-OAKLAND

Project Manager: D. LELAND

Samplers: DL HARMS
TM DRINKARD

Recorder: [signature] (Signature Required)

SOURCE CODE	MATRIX: Water	Sediment	Soil	Oil	#CONTAINERS & PRESERV.: Unpres.	H_2SO_4	HNO_3	HCL	SAMPLE NUMBER OR LAB NUMBER: Yr	Wk	Seq	DATE: Yr	Mo	Dy	Time	STATION DESCRIPTION/ NOTES
23	X							2	89	27	05147	89	07	05	1517	74330
23	X							2			05155				1535	331
23	X							2			05158				1710	332
23	X							2			05159				1735	333
23	X							2			05160				1800	74334

ANALYSIS REQUESTED

EPA 601/8010	EPA 602/8020	EPA 624/8240	EPA 625/8270	Priority Pllnt. Metals	Benzene/Toluene/Xylene	Total Petrol. Hydrocarb.	EPA 8015
	X						X
	X						X
	X						X
	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)	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) [signature]	DATE/TIME 7/5/89 9:00AM
METHOD OF SHIPMENT		

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DISTRIBUTION

REPORT OF SYSTEM MONITORING: JULY 1989
DEWATERING EFFLUENT TREATMENT SYSTEM
CHINATOWN REDEVELOPMENT PROJECT AREA
OAKLAND, CALIFORNIA
August 14, 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. Vijay B. Patel	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
1 copy:	Job File	5
1 copy:	QC/Bound Report File	6

CEM/DFL/TLW/rmc/A9639-H

QUALITY CONTROL REVIEWER

Tamara L. Williams

Tamara L. Williams
Geologist - 3954

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
Date: August 14, 1989
Subject: July 1989 Ground-Water Treatment System Monitoring Report
Job No.: 09382,040.02

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

DFL/dc/df1014#1

cc: