

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: May 15, 1989 *DL*
Subject: April 1989 Treatment System Monitoring Report *LM*
Job No.: 09382,040.02

Remarks: Please find attached a copy of the *Report of System Monitoring: April 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, California.

5/17/89
ALAMEDA COUNTY
DEPT. OF ENVIRONMENTAL HEALTH
HAZARDOUS MATERIALS

CC: C8829-CT

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A Report Prepared for

California Regional Water Quality Control Board
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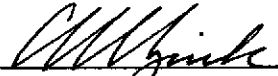
**REPORT OF SYSTEM MONITORING:
APRIL 1989
DEWATERING EFFLUENT TREATMENT SYSTEM
CHINATOWN REDEVELOPMENT PROJECT AREA
OAKLAND, CALIFORNIA**

HLA Job No. 9382,040.02

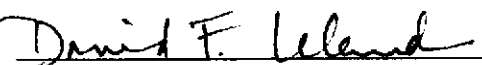
Submitted on behalf of:

City of Oakland Redevelopment Agency
One City Hall Plaza
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by



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May 12, 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 April 1 to April 30, 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 in situ biological treatment of soil at the Pacific Renaissance 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.

From April 1 to April 14, a floating residential swimming pool type chlorinator was deployed in the holding tank to retard algal growth in the treatment system. As of April 14, some of the ground water treated by the carbon adsorption system was recycled to the PRP biotreatment system; the chlorinator was removed to prevent the addition of chlorine to water bound for the biotreatment system.

The holding tank on the carbon adsorption system was cleaned on April 10. Cartridge filters were changed on April 4, 16 and 26. Bag filters were replaced on April 4, 10, 16, 26, and 30.

III TREATMENT SYSTEM MONITORING

A. Sample Collection and Analysis

During this reporting period, treatment system samples were collected on April 6 from the influent, intermediate, and effluent sampling ports.

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. Influent and effluent 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 also 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 30, 1988 through April 6, 1989 are summarized in Tables 1 through 4. Only analytical results for samples collected in April are discussed in this report. Laboratory reports for treatment system samples collected on April 6 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, and 504 compounds indicate that on the sampling date, the treatment system removed all individual constituents to below detection levels.

TABLE 1. TREATMENT SYSTEM WATER ANALYSIS: INFLUENT SAMPLES

HLA SAMPLE ID #	88473001	88491201	88501501	88512101	89010501	89021201	89060801	89101101	89140601	
DATE	11/30	12/07	12/15	12/21	01/05	01/12	02/08	03/10	04/06	
TEST METHOD/ COMPOUNDS										
EPA 8020										
Benzene	ND < 0.2	ND < 0.2	NT	NT		9.2	NT	ND < 0.2	ND < 0.2	ND < 0.5
Toluene	ND < 0.2	ND < 0.2	NT	NT		6.1	NT	ND < 1.1	ND < 0.2	ND < 0.5
Chlorobenzene	ND < 0.2	ND < 0.2	NT	NT	ND < 0.2	NT	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.5
Ethylbenzene	ND < 0.2	ND < 0.2	NT	NT	ND < 0.2	NT	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.5
Xylenes	ND < 0.2	ND < 0.2	NT	NT	ND < 0.2	NT	ND < 0.2	68	68	ND < 0.5
1,2-Dichlorobenzene	ND < 0.2	ND < 0.2	NT	NT	ND < 0.2	NT	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.5
All other 8020 compounds	ND < 0.2	ND < 0.2	NT	NT	ND < 0.2	NT	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.5
EPA 8015										
TPH (Gasoline)	90	ND < 50	NT	NT		130	NT	ND < 250	340	ND < 250
Diesel	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
EPA 8010										
1,1-dichloroethene	NT	NT	ND < 0.5	ND < 0.5		0.8	ND < 0.5	ND < 0.5	ND < 0.5	0.8
Methylene chloride	NT	NT	ND < 0.5	ND < 0.5	ND < 0.5	0.5	ND < 0.5	6.3	ND < 0.5	ND < 0.5
1,1-dichloroethane	NT	NT	ND < 0.5	ND < 0.5		1.9	0.5	1.2	3.2	1.1
Chloroform	NT	NT	ND < 0.5	1.1		2.1	0.8	1.5	0.7	8.8
1,1,1-trichloroethane	NT	NT	ND < 0.5	ND < 0.5	ND < 0.5	0.5	ND < 0.5	ND < 0.5	1.8	0.7
1,2-dichloroethane	NT	NT	9.2	4.8		10.5	4.9	8.6	42	16.2
Trichloroethene	NT	NT	390	112		140	290	420	ND < 0.5	3.6
1,2-dichloropropane	NT	NT	ND < 0.5	ND < 0.5	ND < 0.5	0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
Cis-1,3-dichloropropene	NT	NT	ND < 0.5	ND < 0.5	ND < 0.5	0.5	ND < 0.5	ND < 0.5	ND < 0.5	0.65
Tetrachloroethene	NT	NT	ND < 0.5	ND < 0.5		1.4	0.4	0.7	ND < 0.5	ND < 0.5
Chlorobenzene	NT	NT	ND < 0.5	ND < 0.5	ND < 0.5	0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
Bromoform	NT	NT	ND < 0.5	ND < 0.5	ND < 0.5	0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
1,1,2,2-tetrachloroethane	NT	NT	ND < 0.5	ND < 0.5	ND < 0.5	0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
Dibromochloromethane	NT	NT	ND < 0.5	ND < 0.5	ND < 0.5	0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
All other 8010 compounds	NT	NT	ND	ND	ND	ND	ND	ND	ND	ND
EPA 8240										
1,1-dichloroethene	0.5	ND < 0.5	NT	NT	NT	NT	NT	NT	NT	NT
Methylene chloride	0.6	0.6	NT	NT	NT	NT	NT	NT	NT	NT
1,1-dichloroethane	1.1	0.7	NT	NT	NT	NT	NT	NT	NT	NT
Chloroform	1.5	0.7	NT	NT	NT	NT	NT	NT	NT	NT
1,2-dichloroethane	9.4	5.8	NT	NT	NT	NT	NT	NT	NT	NT
Benzene	ND < 0.5	ND < 0.5	NT	NT	NT	NT	NT	NT	NT	NT
Trichloroethene	239	91.1	NT	NT	NT	NT	NT	NT	NT	NT
Toluene	ND < 0.5	ND < 0.5	NT	NT	NT	NT	NT	NT	NT	NT
1,1,2-trichloroethane	ND < 0.5	ND < 0.5	NT	NT	NT	NT	NT	NT	NT	NT
Tetrachloroethene	0.6	ND < 0.5	NT	NT	NT	NT	NT	NT	NT	NT
Chlorobenzene	ND < 0.5	ND < 0.5	NT	NT	NT	NT	NT	NT	NT	NT
All other 8240 compounds	ND < 0.5	ND < 0.5	NT	NT	NT	NT	NT	NT	NT	NT
EPA 504										
Ethylene dibromide	ND < 0.01	0.02	NT	NT		ND < 0.02	NT	0.05	ND < 0.02	0.47
Standard Method 408E										
Residual chlorine (mg/l)	ND < 0.01	ND < 0.01	NT	NT		ND < 0.01	NT	ND < 0.01	ND < 0.01	0.05
EPA 360.2										
Dissolved oxygen (mg/l)	NT	NT	NT	NT		NT	NT	6.6	7.5	7.9

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

HLA SAMPLE ID #	88473002	88491202	88501502	88512102	89010502	89021202	89060802	89101102	89140602
DATE	11/30	12/07	12/15	12/21	01/05	01/12	02/08	03/10	04/06
TEST METHOD/COMPOUNDS									
EPA 8020									
Benzene	NT	NT	NT	NT	ND < 0.2	NT	NT	NT	ND < 0.5
Toluene	NT	NT	NT	NT	ND < 0.2	NT	NT	NT	ND < 0.5
Ethylbenzene	NT	NT	NT	NT	ND < 0.2	NT	NT	NT	ND < 0.5
Xylenes	NT	NT	NT	NT	ND < 0.2	NT	NT	NT	ND < 0.5
Chlorobenzene	NT	NT	NT	NT	ND < 0.2	NT	NT	NT	ND < 0.5
1,3-Dichlorobenzene	NT	NT	NT	NT	ND < 0.2	NT	NT	NT	ND < 0.5
All other 8020 compounds	NT	NT	NT	NT	ND < 0.2	NT	NT	NT	ND < 0.5
EPA 8015									
TPH (Gasoline)	NT	NT	NT	NT	ND < 50	NT	NT	NT	NT
Diesel	NT	NT	NT	NT	NT	NT	NT	NT	NT
EPA 8010									
Methylene chloride	NT	NT	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	1.5	ND < 0.5	ND < 0.5
1,1-dichloroethane	NT	NT	ND < 0.5	0.6	ND < 0.5	ND < 0.5	1.3	ND < 0.5	ND < 0.5
Chloroform	NT	NT	ND < 0.5	1.2	ND < 0.5	ND < 0.5	1.4	ND < 0.5	ND < 0.5
1,1,1-trichloroethane	NT	NT	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	2.2	ND < 0.5
1,2-dichloroethane	NT	NT	7.1	6.0	3.4	1.4	8.2	ND < 0.5	0.55
Trichloroethene	NT	NT	33.0	ND < 0.5	18.0	16.0	9.7	ND < 0.5	ND < 0.5
Tetrachloroethene	NT	NT	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
Chlorobenzene	NT	NT	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
Bromoform	NT	NT	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
1,3-dichlorobenzene	NT	NT	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	NT	NT	ND	ND	ND	ND	ND	ND	ND
EPA 8240									
Methylene chloride	2.0	ND < 0.5	NT	NT	NT	NT	NT	NT	NT
1,1-dichloroethane	1.2	1.5	NT	NT	NT	NT	NT	NT	NT
Chloroform	1.7	1.7	NT	NT	NT	NT	NT	NT	NT
1,2-dichloroethane	9.7	9.4	NT	NT	NT	NT	NT	NT	NT
Trichloroethene	28.3	18.7	NT	NT	NT	NT	NT	NT	NT
Toluene	ND < 0.5	ND < 0.5	NT	NT	NT	NT	NT	NT	NT
1,2-dichlorobenzene	ND < 0.5	ND < 0.5	NT	NT	NT	NT	NT	NT	NT
All other 8240 compounds	ND	ND	NT	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 #	88473004	88491204	88501503	88512103	89010504	89021204	89060803	89101103	89140603
DATE	11/30	12/07	12/15	12/21	01/05	01/12	02/08	03/10	04/06
TOTAL FLOW (THOUSAND GALLONS)	6645.1	6762.0	6830.6	6972.2	7200.0	7310.7	7784.3	8000.0	8495.9
AVERAGE FLOW (GPM)	13.4	11.6	6.0	16.4	10.5	11.0	12.2	23.0	23.9
TEST METHOD/COMPOUNDS									
EPA 8020									
Benzene	ND < 0.2	ND < 0.2	NT	NT	ND < 0.2	NT	ND < 0.2	ND < 0.2	ND < 0.5
Toluene	ND < 0.2	ND < 0.2	NT	NT	ND < 0.2	NT	0.9	ND < 0.2	ND < 0.5
Ethylbenzene	ND < 0.2	ND < 0.2	NT	NT	ND < 0.2	NT	ND < 0.2	ND < 0.2	ND < 0.5
Xylenes	ND < 0.2	ND < 0.2	NT	NT	ND < 0.2	NT	ND < 0.2	ND < 0.2	ND < 0.5
Diphenylhydrazine	ND < 0.2	ND < 0.2	NT	NT	ND < 0.2	NT	ND < 0.2	ND < 0.2	ND < 0.5
All other 8020 compounds	ND < 0.2	ND < 0.2	NT	NT	ND < 0.2	NT	ND < 0.2	ND < 0.2	ND < 0.5
EPA 8015									
TPH (Gasoline)	ND < 50	ND < 50	NT	NT	ND < 50	NT	ND < 250	ND < 250	ND < 250
Diesel	NT	NT	NT	NT	NT	NT	NT	NT	NT
EPA 8010									
Dichlorodifluoromethane	NT	NT	ND < 2.0	ND < 2.0	ND < 2.0	ND < 2.0	ND < 2.0	ND < 2.0	ND < 2.0
1,1-dichloroethene	NT	NT	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
Methylene chloride	NT	NT	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	1.4	ND < 0.5	ND < 0.5
1,1-dichloroethane	NT	NT	ND < 0.5	ND < 0.5	1.0	0.9	1.4	ND < 0.5	ND < 0.5
Chloroform	NT	NT	ND < 0.5	ND < 0.5	1.4	1.0	1.6	ND < 0.5	ND < 0.5
1,1,1-trichloroethane	NT	NT	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	2.4	ND < 0.5
1,2-dichloroethane	NT	NT	4.3	3.5	6.8	5.3	9.1	ND < 0.5	ND < 0.5
Trichloroethene	NT	NT	ND < 0.5	ND < 0.5	0.8	1.0	2.2	ND < 0.5	ND < 0.5
Tetrachloroethene	NT	NT	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	NT	NT	ND	ND	ND	ND	ND	ND	ND
EPA 8240									
Methylene Chloride	1.6	ND < 0.5	NT	NT	NT	NT	NT	NT	NT
1,1-dichloroethane	ND < 0.5	0.8	NT	NT	NT	NT	NT	NT	NT
Chloroform	ND < 0.5	0.8	NT	NT	NT	NT	NT	NT	NT
1,2-dichloroethane	2.2	5.1	NT	NT	NT	NT	NT	NT	NT
Trichloroethene	ND < 0.5	ND < 0.5	NT	NT	NT	NT	NT	NT	NT
Toluene	ND < 0.5	ND < 0.5	NT	NT	NT	NT	NT	NT	NT
All other 8240 compounds	ND	ND	NT	NT	NT	NT	NT	NT	NT
EPA 360.2									
Dissolved oxygen (mg/l)	NT	NT	NT	NT	NT	NT	9.9	8.0	7.8
EPA 625									
All compounds	NT	NT	NT	NT	NT	NT	NT	NT	NT
EPA 504									
Ethylene dibromide	ND < 0.01	ND < 0.02	NT	NT	ND < 0.02	NT	0.06	ND < 0.02	ND < 0.02
Standard Method 408E									
Residual chlorine (mg/l)	ND < 0.01	ND < 0.01	NT	NT	ND < 0.01	NT	ND < 0.01	ND < 0.01	ND < 0.05
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

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HLA SAMPLE ID #	88473005	88491205	88501505	88512105	89010505	89021205	89060805	89101105	---
DATE	11/30	12/07	12/15	12/21	01/05	01/12	02/08	03/10	04/06
TEST METHOD/COMPOUNDS									
EPA 8020									
Benzene	ND < 0.2	ND < 0.2	NT	NT	ND < 0.2	NT	ND < 0.2	ND < 0.2	NT
Toluene	ND < 0.2	ND < 0.2	NT	NT	ND < 0.2	NT	ND < 1.0	ND < 0.2	NT
Ethylbenzene	ND < 0.2	ND < 0.2	NT	NT	ND < 0.2	NT	ND < 0.2	ND < 0.2	NT
Xylenes	ND < 0.2	ND < 0.2	NT	NT	ND < 0.2	NT	ND < 0.2	ND < 0.2	NT
All other 8020 compounds	ND < 0.2	ND < 0.2	NT	NT	ND < 0.2	NT	ND < 0.2	ND < 0.2	NT
TPH									
Gasoline	ND < 50	ND < 50	NT	NT	NT	NT	NT	ND < 250	NT
Diesel	NT	NT	NT	NT	NT	NT	NT	NT	NT
EPA 8010									
Dichlorodifluoromethane	NT	NT	ND < 2.0	ND < 2.0	ND < 2.0	ND < 2.0	ND < 2.0	ND < 2.0	NT
1,1-dichloroethene	NT	NT	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	NT
Methylene chloride	NT	NT	13	ND < 0.5	9.6	1.0	2.9	42	NT
1,1,1-trichloroethane	NT	NT	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	5.9	NT
1,2-dichloroethane	NT	NT	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	NT
All other 8010 compounds	NT	NT	ND	ND	ND	ND	ND	ND	NT
EPA 8240									
Toluene	ND < 0.5	ND < 0.5	NT	NT	NT	NT	NT	NT	NT
Methylene Chloride	4.6	25.3	NT	NT	NT	NT	NT	NT	NT
Chloroform	ND < 0.5	ND < 0.5	NT	NT	NT	NT	NT	NT	NT
Diphenylhydrazine	ND < 0.5	ND < 0.5	NT	NT	NT	NT	NT	NT	NT
All other 8240 compounds	ND	ND	NT	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**

Harding Lawson Associates
200 Rush Landing Road
Novato, CA 94947

April 13, 1989
PACE Project Number: 490406500

Attn: Mr. David Leland

City of Oakland

Date Sample(s) Collected: 04/06/89
Date Sample(s) Received: 04/06/89

PACE Sample Number:
Parameter

Units	MDL	720120 89140601	720130 89140602	720140 89140603
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INORGANIC ANALYSIS

INDIVIDUAL PARAMETERS

Chlorine, Total Residual	mg/L	0.05	0.05	-	ND
Oxygen, Dissolved	mg/L	0.1	7.9	-	7.8

ORGANIC ANALYSIS

INDIVIDUAL PARAMETERS

Purgeable Fuels, as Gasoline (EPA 8015)	mg/L	0.25	ND	-	ND
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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	0.8	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	1.1	ND	ND
Chloroform	ug/L	0.5	8.8	ND	ND
1,1,1-Trichloroethane (TCA)	ug/L	0.5	0.7	ND	ND

Carbon Tetrachloride	ug/L	0.5	ND	ND	ND
1,2-Dichloroethane (EDC)	ug/L	0.5	16.2	0.55	ND
Trichloroethene (TCE)	ug/L	0.5	3.6	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
ND Not detected at or above the MDL.

Mr. David Leland
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April 13, 1989
PACE Project Number: 490406500

PACE Sample Number: Parameter	Units	MDL	720120 89140601	720130 89140602	720140 89140603
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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	0.65	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)			104%	96%	94%
1,4-Dichlorobutane (Surrogate Recovery)			117%	109%	108%

PURGEABLE AROMATIC COMPOUNDS, EPA 8020

Benzene	mg/L	0.0005	ND	ND	ND
Ethylbenzene	mg/L	0.0005	ND	ND	ND
Toluene	mg/L	0.0005	ND	ND	ND
Xylenes, total	mg/L	0.0005	ND	ND	ND

1,2-DIBROMOETHANE (EDB) EPA METHOD 504

1,2-Dibromoethane	ug/L	0.02	0.47	-	ND
Date extracted			04/07/89	-	04/07/89

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

Mr. David Leland
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April 13, 1989
PACE Project Number: 490406500

PACE Sample Number: 720150
Parameter Units MDL 89140604

INORGANIC ANALYSIS

INDIVIDUAL PARAMETERS

Chlorine, Total Residual	mg/L	0.05	ND
Oxygen, Dissolved	mg/L	0.1	6.7

ORGANIC ANALYSIS

INDIVIDUAL PARAMETERS

Purgeable Fuels, as Gasoline (EPA 8015)	mg/L	0.25	ND
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HALOGENATED VOLATILE COMPOUNDS EPA 8010

Dichlorodifluoromethane	ug/L	2.0	ND
Chloromethane	ug/L	2.0	ND
Vinyl Chloride	ug/L	2.0	ND
Bromomethane	ug/L	2.0	ND
Chloroethane	ug/L	2.0	ND
Trichlorofluoromethane	ug/L	2.0	ND

1,1-Dichloroethene	ug/L	0.5	ND
Methylene Chloride	ug/L	0.5	ND
trans-1,2-Dichloroethene	ug/L	0.5	ND
1,1-Dichloroethane	ug/L	0.5	ND
Chloroform	ug/L	0.5	ND
1,1,1-Trichloroethane (TCA)	ug/L	0.5	ND

Carbon Tetrachloride	ug/L	0.5	ND
1,2-Dichloroethane (EDC)	ug/L	0.5	ND
Trichloroethene (TCE)	ug/L	0.5	ND
1,2-Dichloropropane	ug/L	0.5	ND
Bromodichloromethane	ug/L	0.5	ND
2-Chloroethylvinyl ether	ug/L	0.5	ND

trans-1,3-Dichloropropene	ug/L	0.5	ND
cis-1,3-Dichloropropene	ug/L	0.5	ND
1,1,2-Trichloroethane	ug/L	0.5	ND
Tetrachloroethene	ug/L	0.5	ND
Dibromochloromethane	ug/L	0.5	ND

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

Mr. David Leland
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April 13, 1989
PACE Project Number: 490406500

PACE Sample Number:
Parameter

Units	MDL	720150	89140604
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ORGANIC ANALYSIS

HALOGENATED VOLATILE COMPOUNDS EPA 8010

Chlorobenzene	ug/L	0.5	ND
Bromoform	ug/L	0.5	ND
1,1,2,2-Tetrachloroethane	ug/L	0.5	ND
1,3-Dichlorobenzene	ug/L	0.5	ND
1,4-Dichlorobenzene	ug/L	0.5	ND
1,2-Dichlorobenzene	ug/L	0.5	ND

Bromochloromethane (Surrogate Recovery)			89%
1,4-Dichlorobutane (Surrogate Recovery)			101%

PURGEABLE AROMATIC COMPOUNDS, EPA 8020

Benzene	mg/L	0.0005	ND
Ethylbenzene	mg/L	0.0005	ND
Toluene	mg/L	0.0005	ND
Xylenes, total	mg/L	0.0005	ND

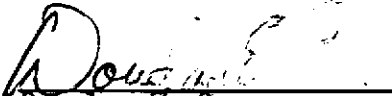
1,2-DIBROMOETHANE (EDB) EPA METHOD 504

1,2-Dibromoethane	ug/L	0.02	ND
Date extracted			04/07/89

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

Approval:


Steven F. Nackord
Project Manager for
PACE Laboratories


Douglas E. Oram
Technical Reviewer for
PACE Laboratories



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

CHAIN OF CUSTODY FORM

Lab: PAGE 4 of 06.

Job Number: 938 0938202602
 Name/Location: City of Oakland
 Project Manager: David Leland

Samplers: Calib A. O'Leary
 Recorder: Calib A. O'Leary
 (Signature Required)

SOURCE CODE	MATRIX				#CONTAINERS & PRESERV.				SAMPLE NUMBER OR LAB NUMBER			DATE			
	Water	Sediment	Soil	Oil	Unpres.	H ₂ SO ₄	HNO ₃	Preservative (Sample #)	Yr	Wk	Seq	Yr	Mo	Dy	Time
23	X				23	1		89	14	0601	89	04	06	05	00
23	X				2			89	14	0602	89	04	06	05	15
23	X				23	1		89	14	0603	89	04	06	05	30
23	X				23	1		89	04	0604	89	04	06	05	45

STATION DESCRIPTION/NOTES
3 VOLS, 1-250 ml plastic, dissolved on 1 EDB on Influent Port
2 VOLS on Intermediate Port
3 VOLS, 1-250 ml plastic, 1-D.O., 1-EDB on Effluent Port
7 VOLS, 1-250 ml Plastic, 1-DO, 1-EDB as duplicate on Effluent Port.

ANALYSIS REQUESTED										
EPA 601/8010	EPA 602/8020 (BTEX)	EPA 624/8240	EPA 625/8270	Priority Pllnt. Metals	Benzene/Toluene/Xylene	Total Petrol. Hydrocarb.	EPA 504 (EDB)	EPA 8015 (TPH)	Chlorine	Dissolved Oxygen
X	X						X	X	X	X

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

CHAIN OF CUSTODY RECORD		
RELINQUISHED BY: (Signature) <u>Calib A. O'Leary</u>	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) <u>[Signature]</u> 12:30 PM 4/10/89
METHOD OF SHIPMENT		

DISTRIBUTION

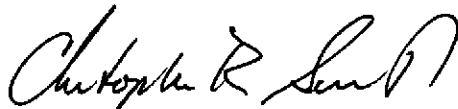
REPORT OF SYSTEM MONITORING: APRIL 1989
DEWATERING EFFLUENT TREATMENT SYSTEM
CHINATOWN REDEVELOPMENT PROJECT AREA
OAKLAND, CALIFORNIA
May 12, 1989

COPY NO. _____

		<u>Copy No.</u>
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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/clm/A8670-H

QUALITY CONTROL REVIEWER



Christopher R. Smith
Geologist - 4619