Harding Lawson Associates

Transmittal/Memorandum

To: Alameda County Department of Environmental Health
470 27th Street
Oakland, California 94612

Attention: Mr. Storm Goranson

From: David Leland DL
Date: December 21, 1988
Subject: November 1988 Treatment System Monitoring Report
Job No.: 9382,018.02

Remarks: Please find attached a copy of the "*Report of System Monitoring: November 1988, 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/cv/M1/078

cc:

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:
NOVEMBER 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
One City Hall Plaza
Oakland, California 94612

by

Charles E. Myrick
Project Engineer

David F. Leland
Associate Hydrologist

Harding Lawson Associates
7655 Redwood Boulevard
P.O. Box 578
Novato, California 94948
415/892-0821

December 21, 1988

TABLE OF CONTENTS

LIST OF TABLES

I INTRODUCTION

This report discusses the operation and monitoring of the dewatering effluent treatment system at 10th and Webster streets, Oakland, California, from November 1 to November 30, 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 November 1 to December 1, total discharge of the system was 507,000 gallons, based on readings of the flow totalizing meter located in the discharge line. Average flow for this period was 11.7 gallons per minute (gpm), with weekly average flows ranging from 10.2 to 13.7 gpm.

The system was backwashed on November 5, November 15, November 19, and November 26.

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

Samples of treatment system water were collected weekly during this reporting period from the influent, intermediate, and effluent sampling ports. Quality Assurance/Quality Control samples collected were trip blanks on November 2 and 11, and field blanks on November 18 and 23.

All treatment system samples collected during this period were analyzed by Pace Laboratories, Novato, California, a California-certified laboratory. All influent, effluent and blank samples were analyzed for TPH as gasoline by EPA Test Method 8015, for purgeable volatile organic compounds by EPA Test Method 8020 and for halogenated hydrocarbons by EPA Test Method 8010. All influent and effluent samples were analyzed for ethylene dibromide by EPA Test Method 504 and for total residual chlorine by Standard Method 408E. All intermediate samples were analyzed by Method 8010; the intermediate sample collected November 11 was also analyzed by Method 8020. The effluent sample collected November 2 was analyzed for dissolved oxygen.

Results of analyses of samples collected September 29 through November 23 are summarized in Tables 1 through 4. Only analytical results for samples collected in November are discussed in this report. Laboratory reports for treatment system samples collected November 2 and November 18 are presented in Appendix A. Results for November 11 and November 23 are based on verbal reports from the laboratory and may be revised once written reports are received.

B. Discharge Limit Exceedences

There were no exceedences of a permitted effluent discharge limit 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 most days sampled, the treatment system removed all individual constituents to below detection levels. 1,1-dichloroethene was detected on November 2 at 3.2 μg/l and on November 23 at 12.3 μg/l; it was not detected in a duplicate effluent sample on November 23 but was detected in the field blank for that date at a concentration of 1.3 μg/l. 1,2-dichloroethane was detected on November 18 at 3.6 μg/l and on November 23 at 2.7 μg/l. Chloroform was detected on November 11 at 2.6 μg/l. 1,1,1-trichloroethane was detected on November 23 at 4.3 μg/l and was also detected in the field blank for that date, at a concentration of 0.7 μg/l.. Dichlorodifluoromethane was detected on November 18 at 28 μg/l; it was not detected in a duplicate effluent sample but was detected in the field blank for that date at a concentration of 28 μg/l. Neither 1,1,1-trichloroethane or dichlorodifluoromethane was detected in any influent sample or has been detected previously in any effluent sample. The presence in effluent samples of 1,1-dichloroethene and 1,1,1-trichloroethane on November 23 and dichlorodifluoromethane on November 18 does not appear to be representative of effluent water quality, and is attributed to sample contamination either in the field or the laboratory.

Dissolved oxygen in the effluent was measured on November 2 at a concentration of 5.6 mg/l.

TABLE 1. TREATMENT SYSTEM WATER ANALYSIS: INFLUENT SAMPLES

Harding Lawson Associates

HLA SAMPLE ID #	88392914	88400602	88431803	88432104	88442703	88450212	88441101	88461801	88462301
DATE	09/29	10/06	10/18	10/21	10/27	11/02	11/11	11/18	11/23
TEST METHOD/ COMPOUNDS									
EPA 8020									
Benzene	0.8	ND < 0.2	ND < 0.2	0.8	ND < 0.2	0.6	0.8	ND < 0.2	ND < 0.2
Toluene	ND < 0.2	ND < 0.2	ND < 0.2	0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2
Chlorobenzene	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2
Ethylbenzene	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2
Xylenes	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2
1,2-Dichlorobenzene	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2
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	ND < 0.2	ND < 0.2
TPH									
Gasoline	54	190	ND < 50	ND < 50	ND < 50	ND < 50	ND < 50	ND < 50	60
Diesel	NT	NT	NT	NT	NT	NT	NT	NT	NT
EPA 8010									
1,1-dichloroethene	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	3.4	ND < 0.5	ND < 0.5	ND < 0.5
Methylene chloride	ND < 0.5	0.8	ND < 0.5	0.7	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
1,1-dichloroethane	ND < 0.5	ND < 0.5	0.7	ND < 0.5	ND < 0.5	ND < 0.5	0.7	0.8	ND < 0.5
Chloroform	0.6	0.8	1.0	1.7	ND < 0.5	ND < 0.5	0.8	0.8	1.6
1,2-dichloroethane	1.2	6.0	5.5	5.9	5.4	ND < 0.5	5.9	5.7	ND < 0.5
Trichloroethene	215	289	290	180	160	31.7	280	54	210
1,2-dichloropropane	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	140	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
1,1,2,2-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 624									
Chloroform	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,2-dichloroethane	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzene	NT	NT	NT	NT	NT	NT	NT	NT	NT
Trichloroethene	NT	NT	NT	NT	NT	NT	NT	NT	NT
Toluene	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,1,2-trichloroethane	NT	NT	NT	NT	NT	NT	NT	NT	NT
Tetrachloroethene	NT	NT	NT	NT	NT	NT	NT	NT	NT
Chlorobenzene	NT	NT	NT	NT	NT	NT	NT	NT	NT
All other 624 compounds	NT	NT	NT	NT	NT	NT	NT	NT	NT
EPA 504									
Ethylene dibromide	ND < 0.05	0.17	0.06	0.18	0.31	0.10	ND < 0.01	ND < 0.01	0.05
Residual chlorine	0.03	ND < 0.02	ND < 0.02	ND < 0.01	0.02	0.06	NT	ND < 0.2	ND < 0.01
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.

TABLE 2. TREATMENT SYSTEM WATER ANALYSIS: INTERMEDIATE SAMPLES

Harding Lawson Associates

HLA SAMPLE ID #	88392911	88400604	88431802	88432102	88442702	88450213	88441102	88461802	88462302
DATE	09/29	10/06	10/18	10/21	10/27	11/02	11/11	11/18	11/23
TEST METHOD/COMPOUNDS									
EPA 8020									
Benzene	ND < 0.2	NT	ND < 0.2	NT	NT	NT	ND < 0.2	NT	NT
Toluene	ND < 0.2	NT	1.5	NT	NT	NT	ND < 0.2	NT	NT
Ethylbenzene	ND < 0.2	NT	ND < 0.2	NT	NT	NT	ND < 0.2	NT	NT
Xylenes	ND < 0.2	NT	ND < 0.2	NT	NT	NT	ND < 0.2	NT	NT
Chlorobenzene	ND < 0.2	NT	ND < 0.2	NT	NT	NT	ND < 0.2	NT	NT
1,3-Dichlorobenzene	ND < 0.2	NT	ND < 0.2	NT	NT	NT	ND < 0.2	NT	NT
All other 8020 compounds	ND < 0.2	NT	ND < 0.2	NT	NT	NT	ND < 0.2	NT	NT
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	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
1,1-dichloroethane	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	0.7	ND < 0.5
Chloroform	ND < 0.5	0.9	0.5	0.9	ND < 0.5	ND < 0.5	0.6	1.2	2.0
1,2-dichloroethane	4.2	7.7	6.1	7.4	5.2	ND < 0.5	5.8	7.9	4.9
Trichloroethene	ND < 0.5	20	4.2	22	ND < 0.5	8.8	4.7	21	16.1
Tetrachloroethene	1.2	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
EPA 624									
1,2-dichloroethane	NT	NT	NT	NT	NT	NT	NT	NT	NT
Chloroform	NT	NT	NT	NT	NT	NT	NT	NT	NT
Trichloroethene	NT	NT	NT	NT	NT	NT	NT	NT	NT
Toluene	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,2-dichlorobenzene	NT	NT	NT	NT	NT	NT	NT	NT	NT
All other 624 compounds	NT	NT	NT	NT	NT	NT	NT	NT	NT
EPA 504									
Ethylene dibromide	NT	NT	NT	NT	ND < 0.01	NT	NT	NT	NT
Residual chlorine	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.

TABLE 3. TREATMENT SYSTEM WATER ANALYSIS: EFFLUENT SAMPLES

Harding Lawson Associates

HLA SAMPLE ID #	88392913	88400601	88431801	88432105	88442701	88450211	88441103	88461804	88462304
DATE	09/29	10/06	10/18	10/21	10/27	11/02	11/11	11/18	11/23
TOTAL FLOW (THOUSAND GALLONS)	5508.8	5667.2	5927.7	5958.5	6065.1	6164.9	6297.0	6435.2	6510.0
AVERAGE FLOW (GPM)	15.4	15.7	15.1	7.1	12.3	11.5	10.2	13.7	10.4
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	ND < 0.2	ND < 0.2
Toluene	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2
Ethylbenzene	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2
Xylenes	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2
Diphenylhydrazine	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2
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	ND < 0.2	ND < 0.2
TPH									
Gasoline	ND < 50	ND < 50	ND < 50	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	28	ND < 2.0
1,1-dichlorethene	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	3.2	ND < 0.5	ND < 0.5	12.3
Methylene chloride	ND < 0.5	ND < 0.5	ND < 0.5	1.1	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
Chloroform	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	2.6	ND < 0.5	ND < 0.5
1,1,1-trichloroethane	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	4.3
1,2-dichloroethane	0.6	ND < 0.5	1.1	1.4	ND < 0.5	ND < 0.5	ND < 0.5	3.6	2.7
Trichloroethene	ND < 0.5	ND < 0.5	0.6	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
Tetrachloroethene	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 624									
Toluene	NT	NT	NT	NT	NT	NT	NT	NT	NT
Methylene Chloride	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,2-Dichloroethane	NT	NT	NT	NT	NT	NT	NT	NT	NT
Trichloroethene	NT	NT	NT	NT	NT	NT	NT	NT	NT
All other 624 compounds	NT	NT	NT	NT	NT	NT	NT	NT	NT
EPA 360.2									
Dissolved oxygen (mg/l)	NT	4.5	NT	NT	NT	5.6	NT	NT	NT
EPA 625									
All compounds	NT	NT	NT	NT	NT	NT	NT	NT	NT
EPA 504									
Ethylene dibromide	ND < 0.05	ND < 0.04	ND < 0.03	ND < 0.03	ND < 0.01	ND < 0.01	ND < 0.01	ND < 0.01	ND < 0.01
Residual chlorine									
Residual chlorine (mg/l)	0.01	ND < 0.2	ND < 0.2	ND < 0.1	ND < 0.01	ND < 0.01	NT	ND < 0.2	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

Harding Lawson Associates

HLA SAMPLE ID #	88392912	88400605	88431804	88432106	88442704	88450214	88441104	88461805	88462305
DATE	09/29	10/06	10/18	10/21	10/27	11/02	11/11	11/18	11/23
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	ND < 0.2	ND < 0.2
Toluene	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2
Ethylbenzene	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2
Xylenes	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2
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	ND < 0.2	ND < 0.2
TPH									
Gasoline	ND < 50	ND < 50	ND < 50	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	28	ND < 2.0
1,1-dichloroethene	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
Methylene chloride	0.6	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	1.0	3.8
1,1,1-trichloroethane	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	0.7
1,2-dichloroethane	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 624									
Toluene	NT	NT	NT	NT	NT	NT	NT	NT	NT
Methylene Chloride	NT	NT	NT	NT	NT	NT	NT	NT	NT
Chloroform	NT	NT	NT	NT	NT	NT	NT	NT	NT
Diphenylhydrazine	NT	NT	NT	NT	NT	NT	NT	NT	NT
All other 624 compounds	NT	NT	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 < 0.05	ND < 0.04	ND < 0.03	ND < 0.03	ND < 0.01	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: November 28, 1988 Pace job #: HLA 0831106-L
Client: Harding Lawson Associates
200 Rush Landing Road
Novato, CA 94947
Attn.: D.Leland

Date sampled: November 2, 1988 Site: City of Oakland
Sampled by: Tim Walker

Date received: November 2, 1988 P.O.: 09382 026 02
Submitted by: Tim Walker

Lab #	Client ID		Matrix	Analysis
8- 1485	88450211	EFFLUENT	water	TPH (light) only 5030/8015
8- 1486	88450211		water	Total Residual Chlorine
8- 1491	88450211		water	Dissol. Ox. 360.2
8- 1485	88450211		water	Vol Org. Cpds. 8010+8020
8- 1485	88450211		water	EDB EPA 504
8- 1487	88450212	INFLUENT	water	TPH (light) only 5030/8015
8- 1488	88450212		water	Total Residual Chlorine
8- 1487	88450212		water	Vol Org. Cpds. 8010+8020
8- 1487	88450212		water	EDB EPA 504
8- 1489	88450213	INTERMEDIATE	water	Purg. Halocarbons 601/8010
8- 1490	88450214	BLANK	water	TPH (light) only 5030/8015
8- 1490	88450214		water	Vol Org. Cpds. 8010+8020

Dear Client,

Enclosed please find your 8010 results that were not sent to you when the report was originally mailed. We regret any inconvenience this may have caused you.

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. Contray
Sample Controller

pace laboratories, inc
FORMERLY WESCO LABORATORIES

REPORT OF LABORATORY ANALYSIS

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

Report Date:	15-Nov-88	Completion Date:	08-Nov-88
PACE JOB #:	HLA 0831.106-L	Reported by:	D.Gill
Analytical Method:	EPA 5030/8015	Analyst:	ATTIA
MATRIX:	WATER	Instrutment I.D.:	Varian 3300

LAB #: 8-1485 CLIENT'S ID: 450211 EFF

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

QUALITY CONTROL DATA
Surrogate Spike % Recovery
Fluorobenzene 94 %

LAB #: 8-1487 CLIENT'S ID: 450212 INF

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

QUALITY CONTROL DATA
Surrogate Spike % Recovery
Fluorobenzene 97 %

LAB #: 8-1490 CLIENT'S ID: 450214 BLANK

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

QUALITY CONTROL DATA
Surrogate Spike % Recovery
Fluorobenzene 95 %

*: Trichloroethene found at 180 ug/l.
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: EPA 5030/8015 PACE JOB #:HLA 0831.106-L

COMPOUND	Blank ug/l	Spike Duplicate % deviation	Spike % recovery
Gasoline----------	N.D.	0	98

QUALITY CONTROL DATA
Surrogate Spike % Recovery

Fluorobenzene	102 %	110 %	102%

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: 28-Nov-88
PACE JOB #: HLA 0831.106-L
Analytical Method: EPA 8010
Matrix: WATER

Completion Date: 16-Nov-88
Reported by: J.HARWOOD
Analyst: CHROMALAB

	EFF	INF	INT	BLANK	
LAB #:	8-1485	8-1487	8-1489	8-1490	
CLIENT ID	450211	450212	450213	450214	
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.	1.0
Chloromethane	N.D.	N.D.	N.D.	N.D.	1.0
Vinyl Chloride	N.D.	N.D.	N.D.	N.D.	1.0
Bromomethane	N.D.	N.D.	N.D.	N.D.	1.0
Chloroethane	N.D.	N.D.	N.D.	N.D.	1.0
Trichlorofluoromethane	N.D.	N.D.	N.D.	N.D.	1.0
1,1-Dichloroethene	3.2	3.4	N.D.	N.D.	1.0
Methylene Chloride	N.D.	N.D.	N.D.	N.D.	1.0
trans-1,2-Dichloroethene	N.D.	N.D.	N.D.	N.D.	1.0
1,1-Dichloroethane	N.D.	N.D.	N.D.	N.D.	1.0
Chloroform	N.D.	N.D.	N.D.	N.D.	1.0
1,1,1-Trichloroethane (TCA)	N.D.	N.D.	N.D.	N.D.	1.0
Carbon Tetrachloride	N.D.	N.D.	N.D.	N.D.	1.0
1,2-Dichloroethane (EDC)	N.D.	N.D.	N.D.	N.D.	1.0
Trichloroethene (TCE)	N.D.	31.7	8.8	N.D.	1.0
1,2-Dichloropropane	N.D.	N.D.	N.D.	N.D.	1.0
Bromodichloromethane	N.D.	N.D.	N.D.	N.D.	1.0
2-Chloroethylvinyl ether	N.D.	N.D.	N.D.	N.D.	1.0
trans-1,3-Dichloropropene	N.D.	N.D.	N.D.	N.D.	1.0
cis-1,3-Dichloropropene	N.D.	N.D.	N.D.	N.D.	1.0
1,1,2-Trichloroethane	N.D.	N.D.	N.D.	N.D.	1.0
Tetrachloroethene	N.D.	N.D.	N.D.	N.D.	1.0
Dibromochloromethane	N.D.	N.D.	N.D.	N.D.	1.0
Chlorobenzene	N.D.	N.D.	N.D.	N.D.	1.0
Bromoform	N.D.	N.D.	N.D.	N.D.	1.0
1,1,2,2-Tetrachloroethane	N.D.	N.D.	N.D.	N.D.	1.0
1,3-Dichlorobenzene	N.D.	N.D.	N.D.	N.D.	1.0
1,4-Dichlorobenzene	N.D.	N.D.	N.D.	N.D.	1.0
1,2-Dichlorobenzene	N.D.	N.D.	N.D.	N.D.	1.0

N.D.: Not Detected

NOTE: Report was sent out to Chromalab, no Q.C available.

Analytical Supervisor

pace laboratories, inc
FORMERLY WESCO LABORATORIES

REPORT OF LABORATORY ANALYSIS

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

Report Date: 14-Nov-88
PACE JOB #: HLA 0831.106-L
Analytical Method: EPA 8020
MATRIX: WATER

Extract/Purge Date: 08-Nov-88
Reported by: D.Gill
Analyst: ATTIA
Instrument I.D.: Varian 3300

LAB #:	EFF 8-1485	INF 8-1487	BLANK 8-1490	
CLIENT'S ID:	450211	450212	450214	
COMPOUND	RESULT (ug/l)	RESULT (ug/l)	RESULT (ug/l)	Detection Limit (ug/l)
Benzene	N.D.	0.6	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
Xylene	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	94 %	97 %	95 %	

QUALITY CONTROL DATA
METHOD: EPA 8020
PACE JOB#: HLA 0831.106-L

COMPOUND	Blank (ug/l)	Spike Duplicate % deviation	Spike % recovery
Benzene	N.D.	13	111
Toluene	N.D.	7	106
p-Xylene	N.D.	13	109
QUALITY CONTROL DATA			
Surrogate Spike	% Recovery		
Fluorobenzene	102 %	110 %	102%

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-Nov-88	Completion Date:	14-Nov-88
PACE JOB #:	HLA 0831.106-L	Reported By:	J.Harwood
Analytical Method:	EPA 504	Analyst:	Clark
MATRIX: WATER		Instrument I.D.:	3700-BETA

	EFF	INF	
LAB #:	8-1485	8-1487	
CLIENT'S ID:	450211	450212	
COMPOUND	RESULT (ug/l)	RESULT (ug/l)	Detection Limit (ug/l)
Ethylene Dibromide	N.D.	0.10	0.01

BLANK, SPIKE DUPLICATE AND SPIKE REPORT
METHOD: EPA 504 PACE JOB #: HLA 0831.106

COMPOUND	Blank ug/l	Spike Duplicate % deviation	Spike % recovery
QUALITY CONTROL DATA			
Surrogate Spike % Recovery			
Ethylene Dibromide	N.D.	85 %	120%*

N.D.: Not Detected
N.S.: Not Spiked
*: Matrix Interference

Analytical Supervisor

pace laboratories, inc
FORMERLY WESCO LABORATORIES

REPORT OF LABORATORY ANALYSIS

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

Report Date: 15-Nov-88 Completion date: 03-NOV-88
PACE JOB #: HLA 0831.106-L Reported by: D.Gill
MATRIX: WATER Analyst: DULAY/AYZENBERG

LAB #	CLIENT ID		TOTAL RESIDUAL CHLORINE (mg/l)	DISSOLVED OXYGEN (mg/l)
8-1486	450211	EFF	N.D.	-
8-1488	450212	INF	0.06	-
8-1491	450211	EFF	-	5.6
Detection limit:			0.01	0.5
Method:			EPA 330.5 Visual D.P.D.	421.B SMEWW

QUALITY CONTROL DATA

COMPOUND	Blank (mg/l)	Spike Duplicate % deviation	Spike % recovery
TOTAL RESIDUAL CHLORINE	N.D.	0	75
DISSOLVED OXYGEN	_	1.7	99

N.D.: Not Detected

Analytical Supervisor

HLA 0831.106

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: 09382 026 02

Name/Location: CITY OF OAK

Project Manager: D. LELAND

Samplers: WALKER KJ

Recorder: JJ Walker (Signature Required)

SOURCE CODE	MATRIX: Water	Sediment	Soil	Oil	#CONTAINERS & PRESERV.: Unpres.	H_2SO_4	HNO_3	PICKLE	SAMPLE NUMBER OR LAB NUMBER: Yr	Wk	Seq	DATE: Yr	Mo	Dy	Time	STATION DESCRIPTION/ NOTES
23	1				6			2	88	45	0211	88	11	02	1702	
23	X				6				88	45	0212	88	11	02	1710	
23	X				1				88	45	0213	88	11	02	1715	
23	X				3				88	45	0214	88	11	02	1725	

ANALYSIS REQUESTED

Sample (Seq)	EPA 601/8010	EPA 602/8020	EPA 624/8240	EPA 625/8270	Priority Pltmt. Metals	Benzene/Toluene/Xylene	Total Petrol. Hydrocarb. (L)	RES CHLORINE	DISS OXYGEN	EDB (504)
0211	X	X					X	X	X	X
0212	X	X					X	X		X
0213	X									
0214	X	X					X			

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

CHAIN OF CUSTODY RECORD

RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME

DISPATCHED BY: (Signature)	DATE/TIME	RECEIVED FOR LAB BY: (Signature)	DATE/TIME
JJ Walker	02 NOV 1845	Eithne Harden	6:40 11/02/88

METHOD OF SHIPMENT

6533

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

pace laboratories, inc
FORMERLY WESCO LABORATORIES

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

REPORT OF LABORATORY ANALYSIS

Report date: December 6, 1988 Pace job #: HLA 0831108-L
Client: Harding Lawson Associates
200 Rush Landing Road
Novato, CA 94947
Attn.: David Leland

Date sampled: November 18, 1988 Site: City of Oakland
Sampled by: Caleb Ocansey

Date received: November 18, 1988 P.O.: 0982,026.02
Submitted by: Caleb Ocansy

Lab #	Client ID	Matrix	Analysis
8- 2084	88461801 INFLUENT	water	TPH (light) only 5030/8015
8- 2085	88461801	water	Total Residual Chlorine
8- 2084	88461801	water	Vol Org. Cpds. 8010+8020
8- 2086	88461801	water	EDB EPA 504
8- 2087	88461802 INTERMEDIATE	water	Purg. Halocarbons 601/8010
8- 2088	88461803 EFFLUENT	water	TPH (light) only 5030/8015
8- 2089	88461803	water	Total Residual Chlorine
8- 2088	88461803	water	Vol Org. Cpds. 8010+8020
8- 2090	88461803	water	EDB EPA 504
8- 2091	88461804 EFFLUENT	water	TPH (light) only 5030/8015
8- 2092	88461804	water	Total Residual Chlorine
8- 2091	88461804	water	Vol Org. Cpds. 8010+8020
8- 2093	88461804	water	EDB EPA 504
8- 2094	88461805 BLANK	water	TPH (light) only 5030/8015
8- 2094	88461805	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. Gonthey
Sample Controller

pace laboratories, inc
FORMERLY WESCO LABORATORIES

REPORT OF LABORATORY ANALYSIS

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

Report Date: 05-Dec-88
PACE JOB #: HLA 0831.108-L
Analytical Method: EPA 5030/8015
Matrix: WATER

Extract/Purge: 22-Nov-88
Completion Date: 22-Nov-88
Analyst: ATTIA
Reported by: Petersen

	INF	EFF
LAB #:	8-2084	8-2088
CLIENT ID:	88461801	88461803

COMPOUND	RESULT (ug/l)	RESULT (ug/l)	Detection Limit (ug/l)
Trichloroethene	190	N.D.	0.2
Total Petroleum Hydrocarbons (light)	N.D.	N.D.	50.0

QUALITY CONTROL DATA
Surrogate Spike % Recovery

Fluorobenzene	89%	88%

	EFF	BLANK
LAB #:	8-2091	8-2094
CLIENT ID:	88461804	88461805

COMPOUND	RESULT (ug/l)	RESULT (ug/l)	Detection Limit (ug/l)
Trichloroethene	N.D.	N.D.	0.2
Total Petroleum Hydrocarbons (light)	N.D.	N.D.	50.0

QUALITY CONTROL DATA
Surrogate Spike % Recovery

Fluorobenzene	89%	91%

QUALITY CONTROL DATA
BLANK, SPIKE DUPLICATE AND SPIKE REPORT FOR JOB # HLA 0831.108-L

COMPOUND	Blank ug/l	Spike Duplicate % deviation	Spike % recovery
Gasoline	N.D.	5	78

QUALITY CONTROL DATA
Surrogate Spike % Recovery

Fluorobenzene	97 %	108 %	107 %

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:	05-Dec-88	Extract/Purge:	22-Nov-88
PACE JOB #:	HLA 0831.108-L	Completion Date:	22-Nov-88
Analytical Method:	EPA 5030/8015	Analyst:	ATTIA
Matrix:	WATER	Reported by:	Petersen

LAB #:	INF 8-2084	EFF 8-2088
CLIENT ID:	88461801	88461803

COMPOUND	RESULT (ug/l)	RESULT (ug/l)	Detection Limit(ug/l)
Ethylene Dibromide	N.D.	N.D.	0.01

LAB #:	EFF 8-2091
CLIENT ID:	88461804

COMPOUND	RESULT (ug/l)	Detection Limit(ug/l)
Ethylene Dibromide	N.D.	0.01

QUALITY CONTROL DATA

COMPOUND	Blank ug/l	Spike Duplicate % deviation	Spike % recovery
Ethylene Dibromide	N.D.	15	83

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:	05-Dec-88	Completion date:	See Below
PACE JOB #:	HLA 0831.108-L	Reported by:	Petersen
Analytical Method:	ASTM	Analyst:	Ayzenberg
MATRIX:	WATER		

LAB #	CLIENT ID		Total Residual Chlorine (mg/l)
8-2085	88461801	INF	N.D.
8-2089	88461803	EFF	N.D.
8-2092	88461804	EFF	N.D.
Detection limit			0.2

QUALITY CONTROL DATA PACE JOB #: HLA 0831.108-L

Percent Spike Recovery	86%

Analytical Supervisor

pace laboratories, inc
FORMERLY WESCO LABORATORIES

REPORT OF LABORATORY ANALYSIS

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

Report Date: 05-Dec-88
PACE JOB #: HLA 0831.108-L
Analytical Method: EPA 8010
Matrix: WATER

Extract/Purge Date: 23-Nov-88
Reported by: Petersen
Analyst: ATTIA

	INF	INT	EFF	EFF	BLANK
LAB #:	8-2084	8-2087	8-2088	8-2091	8-2094
CLIENT ID --	88461801	88461802	88461803	88461804	88461805

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.	28	28	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.	1.0	0.5
trans-1,2-Dichloroethene	N.D.	N.D.	N.D.	N.D.	N.D.	0.5
1,1-Dichloroethane	0.8	0.7	N.D.	N.D.	N.D.	0.5
Chloroform	0.8	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)	5.7	7.9	3.6	3.6	N.D.	0.5
Trichloroethene (TCE)	54	21	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	113%	125%	120%	122%	127%	
1,4-Dichlorobutane	92%	96%	94%	97%	107%	

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 0831.108-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	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)	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	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: 05-Dec-88 | Completion Date: 23-Nov-88
PACE JOB #: HLA 0831.108-L | Reported by: Petersen
Analytical Method: EPA 8020 | Analyst: ATTIA
MATRIX: WATER

	INF	EFF	
LAB #:	8-2084	8-2088	
CLIENT'S ID:	88461801	88461803	
COMPOUND	RESULT (ug/l)	RESULT (ug/l)	Detection Limit (ug/l)
Benzene	N.D.	N.D.	0.2
Toluene	N.D.	N.D.	0.2
Chlorobenzene	N.D.	N.D.	0.2
Ethylbenzene	N.D.	N.D.	0.2
Xylenes	N.D.	N.D.	0.2
1,3-Dichlorobenzene	N.D.	N.D.	0.2
1,4-Dichlorobenzene	N.D.	N.D.	0.2
1,2-Dichlorobenzene	N.D.	N.D.	0.2
QUALITY CONTROL DATA			
Surrogate Spike	Percent Recovery		
Fluorobenzene	89 %	88 %	

	EFF	BLANK	
LAB #:	8-2091	8-2094	
CLIENT'S ID:	88461804	88461805	
COMPOUND	RESULT (ug/l)	RESULT (ug/l)	Detection Limit (ug/l)
Benzene	N.D.	N.D.	0.2
Toluene	N.D.	N.D.	0.2
Chlorobenzene	N.D.	N.D.	0.2
Ethylbenzene	N.D.	N.D.	0.2
Xylenes	N.D.	N.D.	0.2
1,3-Dichlorobenzene	N.D.	N.D.	0.2
1,4-Dichlorobenzene	N.D.	N.D.	0.2
1,2-Dichlorobenzene	N.D.	N.D.	0.2
QUALITY CONTROL DATA			
Surrogate Spike	Percent Recovery		
Fluorobenzene	89 %	91 %	

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: EPA 8020

PACE JOB#: HLA 0831.108

COMPOUND	Blank (ug/l)	Spike Duplicate % deviation	Spike % recovery
Benzene	N.D.	0	122
Toluene	N.D.	2	118
p-Xylene	N.D.	1	113

QUALITY CONTROL DATA
Surrogate Spike % Recovery

Fluorobenzene	97 %	108 %	107%

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

HLA 0831.106

Lab: PACE

Samplers: Caleb A. Ocansey

Job Number: 0838202602

Name/Location: City of Oakland

Project Manager: David Lelandt

Recorder: C.A.O
(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
23	X				3			88	46	1801	88	11	18	1400	
23	X				2		##	88	46	1801	88	11	18	1400	
23	X				2			88	46	1802	88	11	18	1430	
23	X				3			88	46	1803	88	11	18	1500	
23	X				3		##	88	46	1803	88	11	18	1500	
23	X				5			88	46	1804	88	11	18	1530	
23	X				2		##	88	46	1804	88	11	18	1520	
23	X				3			88	46	1805	88	11	18	1545	

ANALYSIS REQUESTED

EPA 601/8010	EPA 602/8020	EPA 624/8240	EPA 625/8270	Priority Pllnt. Metals	Benzene/Toluene/Xylene	Total Petrol. Hydrocarb.	EDB 504	Residual Chlorine	BOD 5
X	X								X
							X	X	
X									
X	X								X
							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
Caleb A. Ocansey		
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) Ethan Hawk	DATE/TIME 11/18/88 6 pm
METHOD OF SHIPMENT		

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

6533

DISTRIBUTION

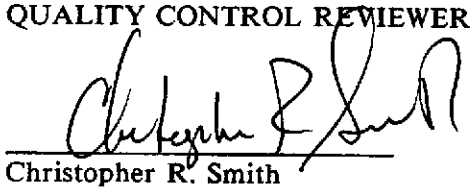
REPORT OF SYSTEM MONITORING: NOVEMBER 1988
DEWATERING EFFLUENT TREATMENT SYSTEM
CHINATOWN REDEVELOPMENT PROJECT AREA
OAKLAND, CALIFORNIA
December 21, 1988

COPY NO. _____

		Copy No.
1 copy:	California Regional Water Quality Control Board San Francisco Bay Region 1111 Jackson Street, Room 6000 Oakland, California 94607 Attention: Ms. Lisa McCann	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. Storm Goranson	4

CEM/DFL/CRS/ljc/B7085-R

QUALITY CONTROL REVIEWER



Christopher R. Smith
Senior Associate Hydrogeologist