

Harding Lawson Associates

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of



Transmittal/Memorandum

**To:** California Regional Water Quality Control Board  
San Francisco Bay Region  
1111 Jackson Street, Room 6000  
Oakland, California 94607  
Attention: Ms. Lisa McCann

MAR 15 1989

lhm

**From:** David Leland DL  
**Date:** March 14, 1989  
**Subject:** January 1989 Treatment System Monitoring Report  
**Job No.:** 09382,018.02

nc

**Remarks:** Please find attached a copy of the "Report of System Monitoring: January 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/c9/023

11th & Webster  
Oakland

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

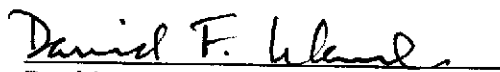
HLA Job No. 9382,018.02

Submitted on behalf of:

City of Oakland Redevelopment Agency  
One City Hall Plaza  
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by

  
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March 13, 1989

TABLE OF CONTENTS

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LIST OF TABLES.....	iii
I    INTRODUCTION .....	1
II   TREATMENT SYSTEM OPERATION .....	2
III  TREATMENT SYSTEM MONITORING .....	3
A.    Sample Collection and Analysis.....	3
B.    Discharge Limit Exceedences .....	3
IV   RESULTS .....	5

TABLES

Appendix A LABORATORY ANALYTICAL RESULTS FOR TREATMENT  
SYSTEM SAMPLES

DISTRIBUTION

LIST OF TABLES

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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 dewatering effluent treatment system at 10th and Webster streets, Oakland, California, from January 1 to January 31, 1989. 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 January 1 to February 1, 1989, total discharge of the system was 402,000 gallons, based on readings of the flow totalizing meter located in the discharge line. Average flow for this period was 9.0 gallons per minute (gpm), with weekly average flows ranging from 8.2 to 10.5 gpm.

The system was backwashed on January 14, 23, and 28.

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 January 5 and 12 from the influent, intermediate, and effluent sampling ports. Quality Assurance/Quality Control field blanks were submitted with the samples collected.

All treatment system samples collected during this period were analyzed by Pace Laboratories, Novato, California, a California-certified laboratory. All samples and blanks were analyzed for halogenated organics by EPA Test Method 8010. The monthly analysis for TPH as gasoline using EPA Test Method 8015 was included with the January 5th samples. Influent, effluent and blank samples collected January 5 were also analyzed for aromatic organics by EPA Test Method 8020, and the influent and effluent samples were analyzed for ethylene dibromide by EPA Test Method 504 and for residual chlorine by Standard Method 408E. Effluent samples collected January 5 were analyzed for dissolved oxygen by EPA Test Method 360.2.

Results of analyses of samples collected November 11 through January 12 are summarized in Tables 1 through 4. Only analytical results for samples collected in January are discussed in this report. Laboratory reports for treatment system samples collected on January 5 and 12 are presented in Appendix A.

#### B. Discharge Limit Exceedences

There were two possible exceedences of a permitted effluent discharge limit during this reporting period. The reported concentrations of 1,2-dichloroethane in effluent samples collected on January 5 and 12 were 6.8  $\mu\text{g}/\text{l}$  (micrograms per liter, equivalent to ppb) and 5.3  $\mu\text{g}/\text{l}$ , respectively, as measured by EPA Test Method 8240. Possible explanations for these exceedences include breakthrough as a result of carbon

exhaustion, "channeling" in the carbon beds, sample contamination during field operations, and/or laboratory analytical procedures. The most likely source of the 1,2-dichloroethane is breakthrough. Although the concentrations of 1,2-dichloroethane on January 5 and 12 were essentially equal to the discharge limit, and some fluctuation is to be expected, all the carbon beds in the treatment system have nevertheless been scheduled for replacement in early February.

There were no other 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 two sampling dates, the treatment system removed most individual constituents to below detection levels. The following compounds were detected at the concentrations given in samples collected January 5 and 12, respectively: 1,1-dichloroethane at 1.0 and 0.9  $\mu\text{g}/\text{l}$ , chloroform at 1.4 and 1.0  $\mu\text{g}/\text{l}$ , and trichloroethene at 0.8 and 1.0  $\mu\text{g}/\text{l}$ .

Methylene chloride was detected in blank samples on January 5 and 12 at concentrations of 9.6 and 1.0  $\mu\text{g}/\text{l}$ , respectively.

TABLE 1. TREATMENT SYSTEM WATER ANALYSIS: INFLUENT SAMPLES

Harding Lawson Associates

HLA SAMPLE ID #	88441101	88461801	88462301	88473001	88491201	88501501	88512101	89010501	89021201
DATE	11/11	11/18	11/23	11/30	12/07	12/15	12/21	01/05	01/12
TEST METHOD/ COMPOUNDS									
<b>EPA 8020</b>									
Benzene	0.8	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	NT	NT	9.2	NT
Toluene	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	NT	NT	6.1	NT
Chlorobenzene	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	NT	NT	ND < 0.2	NT
Ethylbenzene	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	NT	NT	ND < 0.2	NT
Xylenes	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	NT	NT	ND < 0.2	NT
1,2-Dichlorobenzene	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	NT	NT	ND < 0.2	NT
All other 8020 compounds	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	NT	NT	ND < 0.2	NT
<b>EPA 8015</b>									
TPH (Gasoline)	ND < 50	ND < 50	60	90	ND < 50	NT	NT	130	NT
Diesel	NT	NT	NT	NT	NT	NT	NT	NT	NT
<b>EPA 8010</b>									
1,1-dichloroethene	ND < 0.5	ND < 0.5	ND < 0.5	NT	NT	ND < 0.5	ND < 0.5	0.8	ND < 0.5
Methylene chloride	ND < 0.5	ND < 0.5	ND < 0.5	NT	NT	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
1,1-dichloroethane	0.7	0.8	ND < 0.5	NT	NT	ND < 0.5	ND < 0.5	1.9	0.5
Chloroform	0.8	0.8	1.6	NT	NT	ND < 0.5	1.1	2.1	0.8
1,2-dichloroethane	5.9	5.7	ND < 0.5	NT	NT	9.2	4.8	10.5	4.9
Trichloroethene	280	54	210	NT	NT	390	112	140	290
1,2-dichloropropane	ND < 0.5	ND < 0.5	ND < 0.5	NT	NT	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
Tetrachloroethene	ND < 0.5	ND < 0.5	ND < 0.5	NT	NT	ND < 0.5	ND < 0.5	1.4	0.4
Chlorobenzene	ND < 0.5	ND < 0.5	ND < 0.5	NT	NT	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
Bromoform	ND < 0.5	ND < 0.5	ND < 0.5	NT	NT	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	NT	NT	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
Dibromochloromethane	ND < 0.5	ND < 0.5	ND < 0.5	NT	NT	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
All other 8010 compounds	ND	ND	ND	NT	NT	ND	ND	ND	ND
<b>EPA 8240</b>									
1,1-dichloroethene	NT	NT	NT	0.5	ND < 0.5	NT	NT	NT	NT
Methylene chloride	NT	NT	NT	0.6	0.6	NT	NT	NT	NT
1,1-dichloroethane	NT	NT	NT	1.1	0.7	NT	NT	NT	NT
Chloroform	NT	NT	NT	1.5	0.7	NT	NT	NT	NT
1,2-dichloroethane	NT	NT	NT	9.4	5.8	NT	NT	NT	NT
Benzene	NT	NT	NT	ND < 0.5	ND < 0.5	NT	NT	NT	NT
Trichloroethene	NT	NT	NT	239	91.1	NT	NT	NT	NT
Toluene	NT	NT	NT	ND < 0.5	ND < 0.5	NT	NT	NT	NT
1,1,2-trichloroethane	NT	NT	NT	ND < 0.5	ND < 0.5	NT	NT	NT	NT
Tetrachloroethene	NT	NT	NT	0.6	ND < 0.5	NT	NT	NT	NT
Chlorobenzene	NT	NT	NT	ND < 0.5	ND < 0.5	NT	NT	NT	NT
All other 8240 compounds	NT	NT	NT	ND < 0.5	ND < 0.5	NT	NT	NT	NT
<b>EPA 504</b>									
Ethylene dibromide	ND < 0.01	ND < 0.01	0.05	ND < 0.01	0.02	NT	NT	ND < 0.02	NT
Standard Method 408E Residual chlorine (mg/l)	NT	ND < 0.2	ND < 0.01	ND < 0.01	ND < 0.01	NT	NT	ND < 0.01	NT

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 #	88441102	88461802	88462302	88473002	88491202	88501502	88512102	89010502	89021202
DATE	11/11	11/18	11/23	11/30	12/07	12/15	12/21	01/05	01/12
TEST METHOD/COMPOUNDS									
<b>EPA 8020</b>									
Benzene	NT	NT	NT	NT	NT	NT	NT	ND < 0.2	NT
Toluene	NT	NT	NT	NT	NT	NT	NT	ND < 0.2	NT
Ethylbenzene	NT	NT	NT	NT	NT	NT	NT	ND < 0.2	NT
Xylenes	NT	NT	NT	NT	NT	NT	NT	ND < 0.2	NT
Chlorobenzene	NT	NT	NT	NT	NT	NT	NT	ND < 0.2	NT
1,3-Dichlorobenzene	NT	NT	NT	NT	NT	NT	NT	ND < 0.2	NT
All other 8020 compounds	NT	NT	NT	NT	NT	NT	NT	ND < 0.2	NT
<b>EPA 8015</b>									
TPH (Gasoline)	NT	NT	NT	NT	NT	NT	NT	ND < 50	NT
Diesel	NT	NT	NT	NT	NT	NT	NT	NT	NT
<b>EPA 8010</b>									
Methylene chloride	ND < 0.5	ND < 0.5	ND < 0.5	NT	NT	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
1,1-dichloroethane	ND < 0.5	0.7	ND < 0.5	NT	NT	ND < 0.5	0.6	ND < 0.5	ND < 0.5
Chloroform	0.6	1.2	2.0	NT	NT	ND < 0.5	1.2	ND < 0.5	ND < 0.5
1,2-dichloroethane	5.8	7.9	4.9	NT	NT	7.1	6.0	3.4	1.4
Trichloroethene	4.7	21	16.1	NT	NT	33	0.5	18	16
Tetrachloroethene	ND < 0.5	ND < 0.5	ND < 0.5	NT	NT	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
Chlorobenzene	ND < 0.5	ND < 0.5	ND < 0.5	NT	NT	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
Bromoform	ND < 0.5	ND < 0.5	ND < 0.5	NT	NT	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
1,3-dichlorobenzene	ND < 0.5	ND < 0.5	ND < 0.5	NT	NT	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
All other 8010 compounds	ND	ND	ND	NT	NT	ND	ND	ND	ND
<b>EPA 8240</b>									
Methylene chloride	NT	NT	NT	2.0	ND < 0.5	NT	NT	NT	NT
1,1-dichloroethane	NT	NT	NT	1.2	1.5	NT	NT	NT	NT
Chloroform	NT	NT	NT	1.7	1.7	NT	NT	NT	NT
1,2-dichloroethane	NT	NT	NT	9.7	9.4	NT	NT	NT	NT
Trichloroethene	NT	NT	NT	28.3	18.7	NT	NT	NT	NT
Toluene	NT	NT	NT	ND < 0.5	ND < 0.5	NT	NT	NT	NT
1,2-dichlorobenzene	NT	NT	NT	ND < 0.5	ND < 0.5	NT	NT	NT	NT
All other 8240 compounds	NT	NT	NT	ND	ND	NT	NT	NT	NT
<b>EPA 504</b>									
Ethylene dibromide	NT	NT	NT	NT	NT	NT	NT	NT	NT
<b>Standard Method 408E</b>									
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

Harding Lawson Associates

HLA SAMPLE ID #	88441103	88461803	88462303	88473004	88491204	88501503	88512103	89010504	89021204
DATE	11/11	11/18	11/23	11/30	12/07	12/15	12/21	01/05	01/12
TOTAL FLOW (THOUSAND GALLONS)	6297.0	6435.2	6510.0	6645.1	6762.0	6830.6	6972.2	7200.0	7310.7
AVERAGE FLOW (GPM)	10.2	13.7	10.4	13.4	11.6	6.0	16.4	10.5	11.0
TEST METHOD/COMPOUNDS									
EPA 8020									
Benzene	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	NT	NT	ND < 0.2	NT
Toluene	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	NT	NT	ND < 0.2	NT
Ethylbenzene	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	NT	NT	ND < 0.2	NT
Xylenes	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	NT	NT	ND < 0.2	NT
Diphenylhydrazine	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	NT	NT	ND < 0.2	NT
All other 8020 compounds	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	NT	NT	ND < 0.2	NT
EPA 8015									
TPH (Gasoline)	ND < 50	ND < 50	ND < 50	ND < 50	ND < 50	NT	NT	ND < 50	NT
Diesel	NT	NT	NT	NT	NT	NT	NT	NT	NT
EPA 8010									
Dichlorodifluoromethane	ND < 2.0	28	ND < 2.0	NT	NT	ND < 2.0	ND < 2.0	ND < 2.0	ND < 2.0
1,1-dichloroethene	ND < 0.5	ND < 0.5	12.3	NT	NT	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
Methylene chloride	ND < 0.5	ND < 0.5	ND < 0.5	NT	NT	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
1,1-dichloroethane	ND < 0.5	ND < 0.5	ND < 0.5	NT	NT	ND < 0.5	ND < 0.5	1.0	0.9
Chloroform	ND < 0.5	ND < 0.5	ND < 0.5	NT	NT	ND < 0.5	ND < 0.5	1.4	1.0
1,1,1-trichloroethane	ND < 0.5	ND < 0.5	4.3	NT	NT	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
1,2 dichloroethane	2.6	3.6	2.7	NT	NT	4.3	3.5	6.8	5.3
Trichloroethene	ND < 0.5	ND < 0.5	ND < 0.5	NT	NT	ND < 0.5	ND < 0.5	0.8	1.0
Tetrachloroethene	ND < 0.5	ND < 0.5	ND < 0.5	NT	NT	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
All other 8010 compounds	ND	ND	ND	NT	NT	ND	ND	ND	ND
EPA 8240									
Methylene Chloride	NT	NT	NT	1.6	ND < 0.5	NT	NT	NT	NT
1,1-dichloroethane	NT	NT	NT	ND < 0.5	0.8	NT	NT	NT	NT
Chloroform	NT	NT	NT	ND < 0.5	0.8	NT	NT	NT	NT
1,2-dichloroethane	NT	NT	NT	2.2	5.1	NT	NT	NT	NT
Trichloroethene	NT	NT	NT	ND < 0.5	ND < 0.5	NT	NT	NT	NT
Toluene	NT	NT	NT	ND < 0.5	ND < 0.5	NT	NT	NT	NT
All other 8240 compounds	NT	NT	NT	ND	ND	NT	NT	NT	NT
EPA 360.2									
Dissolved oxygen (mg/l)	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 < 0.01	ND < 0.01	ND < 0.01	ND < 0.01	ND < 0.02	NT	NT	ND < 0.02	NT
Standard Method 408E									
Residual chlorine (mg/l)	NT	ND < 0.2	ND < 0.01	ND < 0.01	ND < 0.01	NT	NT	ND < 0.01	NT
Lead 7421									
Lead (mg/l)	NT	NT	NT	NT	NT	NT	NT	NT	NT

ND - Not detected at stated detection limit.

NT - Not Tested.

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

TABLE 4. TREATMENT SYSTEM WATER ANALYSIS: BLANK SAMPLES

Harding Lawson Associates

HLA SAMPLE ID #	88441104	88461805	88462305	88473005	88491205	88501505	88512105	89010505	89021205	
DATE	11/11	11/18	11/23	11/30	12/07	12/15	12/21	01/05	01/12	
TEST METHOD/COMPOUNDS										
<b>EPA 8020</b>										
Benzene	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	NT	NT	ND < 0.2	NT	
Toluene	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	NT	NT	ND < 0.2	NT	
Ethylbenzene	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	NT	NT	ND < 0.2	NT	
Xylenes	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	NT	NT	ND < 0.2	NT	
All other 8020 compounds	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	NT	NT	ND < 0.2	NT	
<b>EPA 8015</b>										
TPH (Gasoline)	ND < 50	ND < 50	ND < 50	ND < 50	ND < 50	NT	NT	NT	NT	
Diesel	NT	NT	NT	NT	NT	NT	NT	NT	NT	
<b>EPA 8010</b>										
Dichlorodifluoromethane	ND < 2.0	28	ND < 2.0	NT	NT	ND < 2.0	ND < 2.0	ND < 2.0	ND < 2.0	
1,1-dichloroethene	ND < 0.5	ND < 0.5	1.3	NT	NT	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	
Methylene chloride	ND < 0.5	1.0	3.8	NT	NT	13	ND < 0.5	9.6	1.0	
1,1,1-trichloroethane	ND < 0.5	ND < 0.5	0.7	NT	NT	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	
1,2-dichloroethane	ND < 0.5	ND < 0.5	0.5	NT	NT	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	
All other 8010 compounds	ND	ND	ND	NT	NT	ND	ND	ND	ND	
<b>EPA 8240</b>										
Toluene	NT	NT	NT	ND < 0.5	ND < 0.5	NT	NT	NT	NT	
Methylene Chloride	NT	NT	NT	4.6	25.3	NT	NT	NT	NT	
Chloroform	NT	NT	NT	ND < 0.5	ND < 0.5	NT	NT	NT	NT	
Diphenylhydrazine	NT	NT	NT	ND < 0.5	ND < 0.5	NT	NT	NT	NT	
All other 8240 compounds	NT	NT	NT	ND	ND	NT	NT	NT	NT	
<b>EPA 625</b>										
All compounds	NT	NT	NT	NT	NT	NT	NT	NT	NT	
<b>EPA 504</b>										
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 ASSOC.  
FEB 10 1989

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

Harding Lawson Associates  
200 Rush Landing Road  
Novato, CA 94947

February 03, 1989  
PACE Project Number: 490105.504

Attn: Mr. David Leland  
Re: City of Oakland

Date Sample(s) Collected: 01/05/89  
Date Sample(s) Received: 01/05/89

PACE Sample Number:  
Parameter

*INFLUENT*

Parameter	Units	MDL	70065 89010501	70066 89010501	70067 89010501
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INORGANIC ANALYSIS

INDIVIDUAL PARAMETERS

Chlorine, Total Residual	mg/L	0.01	-	ND	-
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ORGANIC ANALYSIS

INDIVIDUAL PARAMETERS

Petroleum Fuels, Purgeable, as Gasoline (EPA Method 8015, Modified.)	mg/L	1.0	-	-	130
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1,2-DIBROMOETHANE (EDB) EPA METHOD 504  
1,2-Dibromoethane

ug/L	0.02	ND	-	-
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HALOGENATED VOLATILE COMPOUNDS EPA 8010

Dichlorodifluoromethane	ug/L	0.5	-	-	ND
Chloromethane	ug/L	0.5	-	-	ND
Vinyl Chloride	ug/L	0.5	-	-	ND
Bromomethane	ug/L	0.5	-	-	ND
Chloroethane	ug/L	0.5	-	-	ND

Trichlorofluoromethane

ug/L	0.5	-	-	ND
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1,1-Dichloroethene

ug/L	0.5	-	-	0.8
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Methylene Chloride

ug/L	0.5	-	-	ND
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trans-1,2-Dichloroethene

ug/L	0.5	-	-	ND
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1,1-Dichloroethane

ug/L	0.5	-	-	1.9
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Chloroform

ug/L	0.5	-	-	2.1
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1,1,1-Trichloroethane (TCA)

ug/L	0.5	-	-	ND
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Carbon Tetrachloride

ug/L	0.5	-	-	ND
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1,2-Dichloroethane (EDC)

ug/L	0.5	-	-	10.5
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Trichloroethene (TCE)

ug/L	0.5	-	-	140
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1,2-Dichloropropane

ug/L	0.5	-	-	ND
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MDL Method Detection Limit, Estimated Value.

ND Not detected at or above the MDL.

Mr. David Leland  
Page 2

February 03, 1989  
PACE Project Number: 490105.504

PACE Sample Number: Parameter	Units	MDL	INFLUENT		
			70065 89010501	70066 89010501	70067 89010501
<u>ORGANIC ANALYSIS</u>					
HALOGENATED VOLATILE COMPOUNDS EPA 8010					
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	-	-	1.4
Dibromochloromethane	ug/L	0.5	-	-	ND
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)	%	NA	-	-	90
1,4-Dichlorobutane (Surrogate Recovery)	%	NA	-	-	80
AROMATIC VOLATILE COMPOUNDS EPA 8020					
Benzene	ug/L	0.2	-	-	9.2
Toluene	ug/L	0.2	-	-	6.1
Chlorobenzene	ug/L	0.2	-	-	ND
Ethylbenzene	ug/L	0.2	-	-	ND
Xylene	ug/L	0.2	-	-	ND
1,3-Dichlorobenzene	ug/L	0.2	-	-	ND
1,4-Dichlorobenzene	ug/L	0.2	-	-	ND
1,2-Dichlorobenzene	ug/L	0.2	-	-	ND
Fluorobenzene (Surrogate Recovery)	%		-	-	87

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



Mr. David Leland  
Page 3

February 03, 1989  
PACE Project Number: 490105.504

PACE Sample Number:  
Parameter

Units	INTERMEDIATE		EFFLUENT	
	MDL	70068 89010502	70069 89010503	70070 89010503

INORGANIC ANALYSIS

INDIVIDUAL PARAMETERS

Chlorine, Total Residual	mg/L	0.01	-	-	ND
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ORGANIC ANALYSIS

INDIVIDUAL PARAMETERS

Petroleum Fuels, Purgeable, as Gasoline (EPA Method 8015, Modified.)	mg/L	1.0	ND	-	-
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1,2-DIBROMOETHANE (EDB) EPA METHOD 504 1,2-Dibromoethane	ug/L	0.02	-	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	3.4	-	-
Trichloroethene (TCE)	ug/L	0.5	18	-	-

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

Mr. David Leland  
Page 4

February 03, 1989  
PACE Project Number: 490105.504

PACE Sample Number: Parameter	Units	IMMEDIATE		EFFLUENT	
		MDL	70068 89010502	70069 89010503	70070 89010503
<u>ORGANIC ANALYSIS</u>					
HALOGENATED VOLATILE COMPOUNDS EPA 8010					
Tetrachloroethene	ug/L	0.5	ND	-	-
Dibromochloromethane	ug/L	0.5	ND	-	-
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)	%	NA	78	-	-
1,4-Dichlorobutane (Surrogate Recovery)	%	NA	73	-	-
AROMATIC VOLATILE COMPOUNDS EPA 8020					
Benzene	ug/L	0.2	ND	-	-
Toluene	ug/L	0.2	ND	-	-
Chlorobenzene	ug/L	0.2	ND	-	-
Ethylbenzene	ug/L	0.2	ND	-	-
Xylene	ug/L	0.2	ND	-	-
1,3-Dichlorobenzene	ug/L	0.2	ND	-	-
1,4-Dichlorobenzene	ug/L	0.2	ND	-	-
1,2-Dichlorobenzene	ug/L	0.2	ND	-	-
Fluorobenzene (Surrogate Recovery)	%		85	-	-

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

REPORT OF LABORATORY ANALYSIS

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

February 03, 1989

PACE Project Number: 490105.504

PACE Sample Number: Parameter	Units	EFFLUENT		DUP. EFFLUENT	
		MDL	70071 89010503	70072 89010504	70073 89010504
<u>INORGANIC ANALYSIS</u>					
INDIVIDUAL PARAMETERS					
Chlorine, Total Residual	mg/L	0.01	-	-	ND
<u>ORGANIC ANALYSIS</u>					
INDIVIDUAL PARAMETERS					
Petroleum Fuels, Purgeable, as Gasoline (EPA Method 8015, Modified.)	mg/L	1.0	ND	-	-
1,2-DIBROMOETHANE (EDB) EPA METHOD 504					
1,2-Dibromoethane	ug/L	0.02	-	ND	-
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	1.0	-	-
Chloroform	ug/L	0.5	1.3	-	-
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	6.5	-	-
Trichloroethene (TCE)	ug/L	0.5	0.8	-	-
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	-	-

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

Mr. David Leland  
Page 6

February 03, 1989  
PACE Project Number: 490105.504

PACE Sample Number: Parameter	Units	MDL	EFFLUENT	DUP. EFFLUENT	
			70071 89010503	70072 89010504	70073 89010504
<b>ORGANIC ANALYSIS</b>					
<b>HALOGENATED VOLATILE COMPOUNDS EPA 8010</b>					
Tetrachloroethene	ug/L	0.5	ND	-	-
Dibromochloromethane	ug/L	0.5	ND	-	-
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)	%	NA	79	-	-
1,4-Dichlorobutane (Surrogate Recovery)	%	NA	78	-	-
<b>AROMATIC VOLATILE COMPOUNDS EPA 8020</b>					
Benzene	ug/L	0.2	ND	-	-
Toluene	ug/L	0.2	ND	-	-
Chlorobenzene	ug/L	0.2	ND	-	-
Ethylbenzene	ug/L	0.2	ND	-	-
Xylene	ug/L	0.2	ND	-	-
1,3-Dichlorobenzene	ug/L	0.2	ND	-	-
1,4-Dichlorobenzene	ug/L	0.2	ND	-	-
1,2-Dichlorobenzene	ug/L	0.2	ND	-	-
Fluorobenzene (Surrogate Recovery)	%		84	-	-
MDL	Method Detection Limit, Estimated Value.				
ND	Not detected at or above the MDL.				



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FORMERLY WESCO LABORATORIES

REPORT OF LABORATORY ANALYSIS

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

Mr. David Leland  
 Page 7

February 03, 1989  
 PACE Project Number: 490105.504

PACE Sample Number: Parameter	Units	MDL	DUP. EFFLUENT	BLANK
			70074 89010504	70075 89010505

ORGANIC ANALYSIS

INDIVIDUAL PARAMETERS

Petroleum Fuels, Purgeable, as Gasoline (EPA Method 8015, Modified.)	mg/L	1.0	ND	ND
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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	9.6
trans-1,2-Dichloroethene	ug/L	0.5	ND	ND
1,1-Dichloroethane	ug/L	0.5	1.0	ND
Chloroform	ug/L	0.5	1.4	ND
1,1,1-Trichloroethane (TCA)	ug/L	0.5	ND	ND
Carbon Tetrachloride	ug/L	0.5	ND	ND
1,2-Dichloroethane (EDC)	ug/L	0.5	6.8	ND
Trichloroethene (TCE)	ug/L	0.5	0.8	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
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

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

Mr. David Leland  
 Page 8

February 03, 1989  
 PACE Project Number: 490105.504

PACE Sample Number: Parameter	Units	MDL	DUP.	BLANK
			EFFLUENT	
			70074	70075
			89010504	89010505

ORGANIC ANALYSIS

HALOGENATED VOLATILE COMPOUNDS EPA 8010


1,4-Dichlorobenzene	ug/L	0.5	ND	ND
1,2-Dichlorobenzene	ug/L	0.5	ND	ND
Bromochloromethane (Surrogate Recovery)	%	NA	80	87
1,4-Dichlorobutane (Surrogate Recovery)	%	NA	76	77


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)			87	-

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

Approval:

  
 Lisa J. Petersen  
 Project Manager for  
 PACE Laboratories

  
 Douglas Oram  
 Technical Reviewer for  
 PACE Laboratories



**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

49 0105.504

Lab: PACE

Job Number: 0938202602

Name/Location: City of Oakland

Project Manager: David Leland

Samplers: Calib A. Deansay

Recorder: Calib A. Deansay  
 (Signature Required)

SOURCE CODE	MATRIX				#CONTAINERS & PRESERV.			SAMPLE NUMBER OR LAB NUMBER			DATE				
	Water	Sediment	Soil	Oil	Unpres.	H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>	Yr	Wk	Seq	Yr	Mo	Dy	Time	
23	X				5			89	01	05	01	89	01	05	1330
23	X				3			89	01	05	02	89	01	05	1400
23	X				5			89	01	05	03	89	01	05	1430
23	X				5			89	01	05	04	89	01	05	1500
23	X				3			89	01	05	05	89	01	05	1530

ANALYSIS REQUESTED										
EPA 601/6010	EPA 602/6020	EPA 624/8240	EPA 625/8270	Priority Pfltrnt. Metals	Benzene/Toluene/Xylene	Total Petrol. Hydrocarb.	8015	EDB 504	Residual Chlorine	
X	X					X	X	X		
X	X					X	X	X		
X	X					X	X	X		
X	X					X	X	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. Deansay</u>	RECEIVED BY: (Signature) <u>[Signature]</u>	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) <u>[Signature]</u>	DATE/TIME	RECEIVED FOR LAB BY: (Signature) <u>[Signature]</u> 1/5/89 6:20pm
METHOD OF SHIPMENT		



FORMERLY WESCO LABORATORIES

Harding Lawson Associates  
 200 Rush Landing Road  
 Novato, CA 94947

REPORT OF LABORATORY ANALYSIS

FEB - 2 1989

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

January 30, 1989

PACE Project Number: 490112.504

Attn: Mr. David Leland

City of Oakland

Date Sample(s) Collected: 01/12/89

Date Sample(s) Received: 01/12/89

PACE Sample Number:

Parameter

Units

MDL

INFLUENT

INTERMEDIATE

EFFLUENT

70147

70148

70149

89021201

89021202

89021203

ORGANIC ANALYSIS

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	0.5	ND	0.9
Chloroform	ug/L	0.5	0.8	ND	1.0
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	4.9	1.4	4.9
Trichloroethene (TCE)	ug/L	0.5	-	16	1.0
Trichloroethene (TCE)	ug/L	5.0	290	-	-
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
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	0.4	ND	ND
Dibromochloromethane	ug/L	0.5	ND	ND	ND
Chlorobenzene	ug/L	0.5	ND	ND	ND

MDL Method Detection Limit, Estimated Value.

ND Not detected at or above the MDL.



REPORT OF LABORATORY ANALYSIS

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

January 30, 1989

PACE Project Number: 490112.504

PACE Sample Number: Parameter	Units	MDL	INF	INT	EFF
			70147 89021201	70148 89021202	70149 89021203

ORGANIC ANALYSIS

HALOGENATED VOLATILE COMPOUNDS EPA 8010

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)	%	NA	82	78	70
1,4-Dichlorobutane (Surrogate Recovery)	%	NA	94	96	82

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

REPORT OF LABORATORY ANALYSIS

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

January 30, 1989  
 PACE Project Number: 490112.504

PACE Sample Number:	Units	MDL	DUP. EFF 70150 89021204	BLANK 70151 89021205
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ORGANIC ANALYSIS

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	1.0
trans-1,2-Dichloroethene	ug/L	0.5	ND	ND
1,1-Dichloroethane	ug/L	0.5	0.9	ND
Chloroform	ug/L	0.5	0.98	ND
1,1,1-Trichloroethane (TCA)	ug/L	0.5	ND	ND
Carbon Tetrachloride	ug/L	0.5	ND	ND
1,2-Dichloroethane (EDC)	ug/L	0.5	5.3	ND
Trichloroethene (TCE)	ug/L	0.5	1.0	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
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

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

Mr. David Leland  
Page 4


January 30, 1989  
PACE Project Number: 490112.504

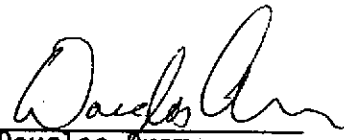
PACE Sample Number: <u>Parameter</u>	<u>Units</u>	<u>MDL</u>	<u>DUP. EFF</u> 70150 89021204	<u>BLANK</u> 70151 89021205
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ORGANIC ANALYSIS

HALOGENATED VOLATILE COMPOUNDS EPA 8010				
Bromochloromethane (Surrogate Recovery)	%	NA	72	70
1,4-Dichlorobutane (Surrogate Recovery)	%	NA	106	108

Approval:

  
Lisa J. Petersen  
Project Manager for  
PACE Laboratories

  
Douglas Oram  
Technical Reviewer for  
PACE Laboratories



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

# CHAIN OF CUSTODY FORM

49 0112.504  
 Lab: PAGE

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

Samplers: Caleb A. Ocansey  
 Recorder: Caleb A. Ocansey  
 (Signature Required)

SOURCE CODE	MATRIX				#CONTAINERS & PRESERV.			SAMPLE NUMBER OR LAB NUMBER			DATE				
	Water	Sediment	Soil	Oil	Unpres.	H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>	Yr	Wk	Seq	Yr	Mo	Dy	Time	
23	X				2			89	02	120	89	01	12	09	00
23	X				2			89	02	120	89	01	12	09	05
23	X				2			89	02	1203	89	01	12	09	30
23	X				2			89	02	1204	89	01	12	09	30
23	X				2			89	02	1205	89	01	12	09	00

STATION DESCRIPTION/NOTES
70147
70148
70149
70150
70151

ANALYSIS REQUESTED										
EPA 601/6010	EPA 602/6020	EPA 624/6240	EPA 625/6270	Priority Pflmt. Metals	Benzene/Toluene/Xylene	Total Petrol. Hydrocarb.				
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>Caleb A. Ocansey</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>Estime Hagan</u> 1/12/89 3:45p
METHOD OF SHIPMENT		

DISTRIBUTION

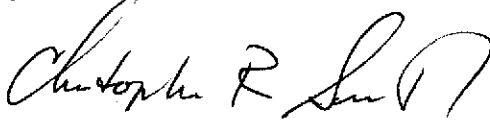
REPORT OF SYSTEM MONITORING: JANUARY 1989  
DEWATERING EFFLUENT TREATMENT SYSTEM  
CHINATOWN REDEVELOPMENT PROJECT AREA  
OAKLAND, CALIFORNIA  
March 13, 1989

COPY NO. 1

		<u>Copy No.</u>
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. Lowell Miller	4

CEM/DFL/CRS/rmc/B7785-R

QUALITY CONTROL REVIEWER



Christopher R. Smith  
Senior Associate Hydrogeologist