10/23/89

Harding Lawson Associates

Transmittal/Memorandum

ALAMEDA COUNTY
DEPT. OF ENVIRONMENTAL HEALTH
HAZARDOUS MATERIALS

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

Attention: Mr. Lowell Miller

From: David Leland
Date: October 20, 1989
Subject: September 1989 Ground-Water Treatment System Monitoring Report
Job No.: 09382,040.02

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

DFL/dc/df1017#1

cc:

A Report Prepared for

California Regional Water Quality Control Board
San Francisco Bay Region
1111 Jackson Street, Room 6000
Oakland, California 94607

Pcabri

REPORT OF SYSTEM MONITORING
SEPTEMBER 1989
DEWATERING EFFLUENT TREATMENT SYSTEM
CHINATOWN REDEVELOPMENT PROJECT AREA
OAKLAND, CALIFORNIA

HLA Job No. 9382,040.02

Submitted on behalf of:

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

by

Charles E. Myrick
Project Engineer

David F. Leland
Associate Hydrologist

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

October 19, 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 September 1 to September 30, 1989. The system is treating ground water produced from extraction wells located in the area bounded by 9th, 11th, Webster and Franklin streets. Ground-water extraction is being conducted in conjunction with 1) in situ biological treatment of soil at the Pacific Renaissance Plaza (PRP) site bounded by 9th, Franklin, and Webster streets and the East Bay Municipal Utility District (EBMUD) property line approximately 100 feet north of the centerline of 10th Street, and 2) dewatering for construction of the EBMUD administration building to the north of 10th Street.

This report has been prepared by Harding Lawson Associates (HLA) on behalf of the Redevelopment Agency of the City of Oakland (Agency) and is submitted in compliance with NPDES Permit CA 0029394, adopted on July 20, 1988, by the California Regional Water Quality Control Board, San Francisco Bay Region (RWQCB). Under the NPDES permit, treatment system discharge limits are 50 parts per billion (ppb) for total petroleum hydrocarbons (TPH) identified as gasoline; 5.6 ppb for lead; 5.0 ppb each for chlorobenzene, 1,2-dichloroethane, 1,2-dichloropropane, trichloroethylene, 1,1,2-trichloroethane, benzene, xylenes, and ethylbenzene; 0.5 ppb for toluene; 0.01 ppb for ethylene dibromide; and 0.0 ppb for total residual chlorine. The treatment system is designed to reduce concentrations of petroleum hydrocarbons in ground water to less than discharge limits specified in the NPDES permit.

II TREATMENT SYSTEM OPERATION

The ground-water treatment system was installed March 8, 1988, and has been in operation since March 14, 1988. Water is treated by pumping it through four carbon contactors arranged in pairs. Organic compounds in the influent are adsorbed onto the carbon. Each pair of contactors is arranged in parallel, and together constitute a module; the two modules are arranged in series. The system is configured so that water from the ground-water extraction wells may be pumped through either module first. The system also includes a holding tank for influent water, pumps, filters, piping, and instrumentation. Four water sampling ports -- one influent, two intermediate, and one effluent -- enable water samples to be collected throughout the treatment process. The intermediate ports are located between the two modules so the effectiveness of the first pair of contactors in reducing influent concentrations can be monitored. Depending on the configuration of modules, only one of these ports is intermediate in the system at any one time.

Treated effluent is either recycled to the PRP biological treatment system or discharged to the storm drain. From September 1 to October 1, 1989, total effluent discharged from the system was 923,000 gallons, based on readings of the totalizing flowmeter located in the discharge line. Average flow was 21 gallons per minute (gpm). The 923,000 gallons of treatment system effluent was recycled to the PRP biotreatment injection system.

The carbon contactors were backwashed with fresh water on September 4, 18, and 24. Cartridge filters were changed on September 1, 24 and 26. Bag filters were replaced daily as a result of biological fouling. As of September 8, a new sand filter has

been used in series with the treatment system bag filters. Use of the sand filter has reduced bag and cartridge filter changing requirements.

III TREATMENT SYSTEM MONITORING

During this reporting period, treatment system samples were collected on September 7 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, and for aromatic organics by EPA Test Method 8020. Influent and effluent samples were analyzed for TPH as gasoline by EPA Test Method 8015, for ethylene dibromide by EPA Test Method 504, and for residual chlorine by Standard Method 408E.

Results of analyses of samples collected January 12, 1989 through September 7, 1989 are summarized in Tables 1 through 4. The laboratory analytical results summarized in Tables 1 through 3 are presented in the Appendix. Laboratory results for a field blank sample collected on September 7, 1989, analyzed by EPA Test Method 8020, and summarized in Table 4 are presented in the Appendix of the HLA report dated October 2, 1989 and titled *Report of System Monitoring, June through August 1989, Soil Treatment System, Pacific Renaissance Plaza, Oakland, California.* Analytical results for samples collected in September are discussed in the following section.

IV RESULTS

Results of treatment system water sample analyses for TPH and for the EPA Test Method 8010, 8020, and 504 compounds analyzed indicate that on the sampling date (September 7, 1989), the carbon treatment system removed most individual constituents to below detection levels in discharge water. One compound, 1,2-dichloroethane, was detected in both effluent samples at a concentration of 1.1 ppb.

Chlorine was detected in the influent sample at a concentration of 0.5 ppb but was not detected in the effluent sample.

TABLE 1. TREATMENT SYSTEM WATER ANALYSIS: INFLUENT SAMPLES

HLA SAMPLE ID #	89021201	89060801	89101101	89140601	89180330	89230801	89270503	8930CSIN	89090741
DATE	01/12/89	02/08/89	03/10/89	04/06/89	05/03/89	06/08/89	07/05/89	08/01/89	09/07/89
TEST METHOD/ COMPOUNDS									
EPA 8020									
Benzene	NT	ND < 0.2	ND < 0.2	ND < 0.2	0.5	1.2	11.5	710	6.3
Toluene	NT	1.1	ND < 0.2	ND < 0.2	0.2	0.9	2.5	610	0.7
Ethylbenzene	NT	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	46	ND < 2.0
Xylenes	NT	ND < 0.2	68	ND < 0.2	ND < 0.2	26	71	1100	39
Chlorobenzene	NT	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 2.0	ND < 2.0
1,2-Dichlorobenzene	NT	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 2.0	ND < 2.0
All other 8020 compounds	NT	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 2.0	ND < 2.0
EPA 8015									
TPH (Gasoline)	NT	90	340	70	70	110	220	6200	ND < 50
EPA 8010									
1,1-dichloroethene	ND < 0.5	ND < 0.5	ND < 0.5	0.8	ND < 0.5	ND < 0.5	ND < 0.5	ND < 5.0	ND < 0.5
Methylene chloride	ND < 0.5	6.3	ND < 0.5	ND < 0.5	9.8	0.6	ND < 0.5	ND < 5.0	ND < 0.5
1,1-dichloroethane	0.5	1.2	3.2	1.1	ND < 0.5	ND < 0.5	ND < 0.5	ND < 5.0	ND < 0.5
Chloroform	0.8	1.5	0.65	8.8	ND < 0.5	4.5	2.5	ND < 5.0	4.3
1,1,1-trichloroethane	ND < 0.5	ND < 0.5	1.8	0.7	ND < 0.5	ND < 0.5	ND < 0.5	ND < 5.0	ND < 0.5
1,2-dichloroethane	4.9	8.6	42	16.2	6.8	8.1	8.3	ND < 5.0	7.6
Trichloroethene	290	420	ND < 0.5	3.6	4.4	10.3	9.8	ND < 5.0	14
1,2-dichloropropane	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 5.0	ND < 0.5
Bromodichloromethane	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	0.7	ND < 0.5	ND < 0.5	ND < 5.0	ND < 0.5
Cis-1,3-dichloropropene	ND < 0.5	ND < 0.5	ND < 0.5	0.65	1.0	ND < 0.5	ND < 0.5	ND < 5.0	ND < 0.5
Tetrachloroethene	0.4	0.66	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 5.0	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 < 5.0	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 < 5.0	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 < 5.0	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 < 5.0	ND < 0.5
All other 8010 compounds	ND	ND	ND	ND	ND	ND	ND	ND	ND
EPA 504									
Ethylene dibromide	NT	0.05	ND < 0.01	0.47	ND < 0.01	ND < 0.01	0.09	0.09	ND < 0.02
Standard Method 408E									
Residual chlorine (mg/l)	NT	ND < 0.01	ND < 0.01	0.05	ND < 0.01	ND < 0.05	ND < 0.01	ND < 0.05	0.5
EPA 360.2									
Dissolved oxygen (mg/l)	NT	6.6	7.5	7.9	NT	14	6.9	20	6.8

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 #	89021202	89060802	89101102	89140602	89180331	89230802	89270502	8930CSIM	89090742
DATE	01/12/89	02/08/89	03/10/89	04/06/89	05/03/89	06/08/89	07/05/89	08/01/89	09/07/89
TEST METHOD/COMPOUNDS									
EPA 8020									
Benzene	NT	NT	NT	ND < 0.2	0.3	NT	ND < 0.2	79	ND < 0.2
Toluene	NT	NT	NT	ND < 0.2	ND < 0.2	NT	0.7	61	ND < 0.2
Ethylbenzene	NT	NT	NT	ND < 0.2	0.4	NT	ND < 0.2	2.6	ND < 0.2
Xylenes	NT	NT	NT	ND < 0.2	0.3	NT	ND < 0.2	140	ND < 0.2
Chlorobenzene	NT	NT	NT	ND < 0.2	ND < 0.2	NT	ND < 0.2	ND < 0.2	ND < 0.2
1,3-Dichlorobenzene	NT	NT	NT	ND < 0.2	ND < 0.2	NT	ND < 0.2	ND < 0.2	ND < 0.2
All other 8020 compounds	NT	NT	NT	ND < 0.2	ND < 0.2	NT	ND < 0.2	ND < 0.2	ND < 0.2
EPA 8015									
TPH (Gasoline)	NT	NT	NT	NT	NT	NT	NT	NT	NT
EPA 8010									
Methylene chloride	ND < 0.5	1.5	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	1.3	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
Chloroform	ND < 0.5	1.4	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	1.5	5.6	4.7
1,1,1-trichloroethane	ND < 0.5	ND < 0.5	2.2	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
1,2-dichloroethane	1.4	8.2	ND < 0.5	0.55	ND < 0.5	1.3	3.4	ND < 0.5	6.2
Trichloroethene	16.0	9.7	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	2.7	ND < 0.5
Tetrachloroethene	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
Chlorobenzene	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
Bromoform	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
1,3-dichlorobenzene	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
All other 8010 compounds	ND	ND	ND	ND	ND	ND	ND	ND	ND

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

TABLE 3. TREATMENT SYSTEN WATER ANALYSIS: EFFLUENT SAMPLES

HLA SAMPLE ID #	89021204	89060803	89101103	89140603	89180332	89230803	89270501	8930CSEF	89090740
DATE	01/12/89	02/08/89	03/10/89	04/06/89	05/03/89	06/08/89	07/05/89	08/01/89	09/07/89
TOTAL FLOW (THOUSAND GALLONS)	7310.7	7784.3	8000.0	8495.9	8948.7	9778.1	10953.4	12120.6	13566.4
AVERAGE FLOW (GPM)	11.0	12.2	23.0	23.9	23.7	30.5	30.2	30.0	27.1
TEST METHOD/COMPOUNDS									
EPA 8020									
Benzene	NT	ND < 0.2	ND < 0.2	ND < 0.2	0.3	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2
Toluene	NT	0.88	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2
Ethylbenzene	NT	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	NT	ND < 0.2	ND < 0.2	ND < 0.2	0.3	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2
Diphenylhydrazine	NT	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	NT	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2
EPA 8015									
TPH (Gasoline)	NT	ND < 50	ND < 50	ND < 50	ND < 50	ND < 50	ND < 50	ND < 50	ND < 50
EPA 8010									
Dichlorodifluoromethane	ND < 2.0	ND < 2.0	ND < 2.0	ND < 2.0	ND < 2.0	ND < 2.0	ND < 2.0	ND < 2.0	ND < 2.0
1,1-dichlorethene	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
Methylene chloride	ND < 0.5	1.4	ND < 0.5	ND < 0.5	ND < 0.5	0.6	ND < 0.5	ND < 0.5	ND < 0.5
1,1-dichloroethane	0.9	1.4	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
Chloroform	1.0	1.6	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
1,1,1-trichloroethane	ND < 0.5	ND < 0.5	2.4	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
1,2-dichloroethane	5.3	9.1	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	0.7	1.1
Trichloroethene	1.0	2.2	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
Tetrachloroethene	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
All other 8010 compounds	ND	ND	ND	ND	ND	ND	ND	ND	ND
EPA 360.2									
Dissolved oxygen (mg/l)	NT	9.9	8.0	7.8	NT	10	3.3	1.0	1.9
EPA 504									
Ethylene dibromide	NT	0.06	ND < 0.01	ND < 0.01	ND < 0.01	ND < 0.01	ND < 0.01	ND < 0.02	ND < 0.02
Standard Method 408E									
Residual chlorine (mg/l)	NT	ND < 0.01	ND < 0.01	ND < 0.05	ND < 0.01	ND < 0.05	ND < 0.01	ND < 0.05	ND < 0.05

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

TABLE 4. TREATMENT SYSTEM WATER ANALYSIS: BLANK SAMPLES

HLA SAMPLE ID #	89021205	89060805	89101105	---	89180334	89230805	89270515	---	89090615
DATE	01/12/89	02/08/89	03/10/89	04/06/89	05/03/89	06/08/89	07/05/89	08/01/89	09/07/89
TEST METHOD/COMPOUNDS									
EPA 8020									
Benzene	NT	ND < 0.2	ND < 0.2	NT	ND < 0.2	ND < 0.2	ND < 0.2	NT	ND < 0.5
Toluene	NT	0.95	ND < 0.2	NT	ND < 0.2	ND < 0.2	ND < 0.2	NT	ND < 0.5
Ethylbenzene	NT	ND < 0.2	ND < 0.2	NT	ND < 0.2	ND < 0.2	ND < 0.2	NT	ND < 0.5
Xylenes	NT	ND < 0.2	ND < 0.2	NT	0.7	ND < 0.2	ND < 0.2	NT	ND < 0.5
All other 8020 compounds	NT	ND < 0.2	ND < 0.2	NT	ND < 0.2	ND < 0.2	ND < 0.2	NT	NT
EPA 8015									
TPH (Gasoline)	NT	ND < 50	ND < 50	NT	NT	ND < 50	ND < 50	NT	ND < 250
EPA 8010									
Dichlorodifluoromethane	ND < 2.0	ND < 2.0	ND < 2.0	NT	ND < 2.0	ND < 2.0	NT	NT	NT
1,1-dichloroethene	ND < 0.5	ND < 0.5	ND < 0.5	NT	ND < 0.5	ND < 0.5	NT	NT	NT
Methylene chloride	1.0	2.9	42	NT	ND < 0.5	ND < 0.5	NT	NT	NT
1,1,1-trichloroethane	ND < 0.5	ND < 0.5	5.9	NT	ND < 0.5	ND < 0.5	NT	NT	NT
1,2-dichloroethane	ND < 0.5	ND < 0.5	ND < 0.5	NT	ND < 0.5	ND < 0.5	NT	NT	NT
All other 8010 compounds	ND	ND	ND	NT	ND	ND	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

LABORATORY ANALYTICAL RESULTS FOR TREATMENT SYSTEM SAMPLES

pace laboratories, inc.

REPORT OF LABORATORY ANALYSIS

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

October 13, 1989

Mr. David Leland
Harding Lawson Associates
200 Rush Landing Road
Novato, CA 94945

Dear Mr. Leland:

Enclosed is the report of laboratory analyses for samples received 09/07/89.

If you have any questions concerning this report, please feel free to contact us.

Sincerely,

Stephen Nackord

Stephen F. Nackord
Director, Sampling and Analytical Services

Enclosures

pace laboratories, inc.

REPORT OF LABORATORY ANALYSIS

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

October 13, 1989
PACE Project Number: 490907504

PACE Sample Number:			EFFLUENT 769040	INFLUENT 769050	EFFLUENT 769060
Parameter	Units	MDL	89090740	89090741	89090743
ORGANIC ANALYSIS					
HALOGENATED VOLATILE COMPOUNDS EPA 8010					
1,2-Dichloroethane (EDC)	ug/L	0.5	1.1	7.6	1.1
Trichloroethene (TCE)	ug/L	0.5	ND	14	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
trans-1,3-Dichloropropene	ug/L	0.5	ND	ND	ND
cis-1,3-Dichloropropene	ug/L	0.5	ND	ND	ND
1,1,2-Trichloroethane	ug/L	0.5	ND	ND	ND
Tetrachloroethene	ug/L	0.5	ND	ND	ND
Dibromochloromethane	ug/L	0.5	ND	ND	ND
Chlorobenzene	ug/L	0.5	ND	ND	ND
Bromoform	ug/L	0.5	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	0.5	ND	ND	ND
1,3-Dichlorobenzene	ug/L	0.5	ND	ND	ND
1,4-Dichlorobenzene	ug/L	0.5	ND	ND	ND
1,2-Dichlorobenzene	ug/L	0.5	ND	ND	ND
Bromochloromethane (Surrogate Recovery)			86%	95%	103%
1,4-Dichlorobutane (Surrogate Recovery)			91%	88%	100%

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

pace laboratories, inc.

REPORT OF LABORATORY ANALYSIS

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

October 13, 1989
PACE Project Number: 490907504

INTERMEDIATE

PACE Sample Number: / Parameter	Units	MDL	769070 89090742	769080 89090740	769090 89090741
ORGANIC ANALYSIS					
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 (Freon 11)	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	4.7	-	-
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	6.2	-	-
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	-	-
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)			104%	-	-
1,4-Dichlorobutane (Surrogate Recovery)			104%	-	-

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

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REPORT OF LABORATORY ANALYSIS

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

October 13, 1989
PACE Project Number: 490907504

PACE Sample Number:			INTERMEDIATE 769070	EFFLUENT 769080	INFLUENT 769090
Parameter	Units	MDL	89090742	89090740	89090741
ORGANIC ANALYSIS					
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 (*)	ND (*)
Date Extracted			-	09/25/89	09/25/89

ND Not detected at or above the MDL.
MDL Method Detection Limit
(*) Matrix interference

pace laboratories, inc.

REPORT OF LABORATORY ANALYSIS

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

October 13, 1989
PACE Project Number: 490907504

PACE Sample Number:			EFFLUENT 769100
Parameter	Units	MDL	89090743
ORGANIC ANALYSIS			
1,2-DIBROMOETHANE (EDB) EPA METHOD 504			
1,2-Dibromoethane	ug/L	0.02	ND (*)
Date Extracted			09/25/89

(*) Matrix interference
MDL Method Detection Limit

The data contained in this report were obtained using EPA or other approved methodologies. All analyses were performed by me or under my direct supervision.

Stephen F. Nackord
Director, Sampling and Analytical Services

Douglas E. Oram, Ph.D.
Organic Chemistry Manager

DISTRIBUTION

REPORT OF SYSTEM MONITORING: SEPTEMBER 1989
DEWATERING EFFLUENT TREATMENT SYSTEM
CHINATOWN REDEVELOPMENT PROJECT AREA
OAKLAND, CALIFORNIA
October 19, 1989

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QUALITY CONTROL REVIEWER

Tamara L. Williams

Tamara L. Williams
Geologist - 3954