Harding Lawson Associates

Transmittal/Memorandum

89 DEC 2[illegible] 48

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

Attention: Mr. Lowell Miller

From: David F. Leland DFL
Date: December 19, 1989
Subject: November 1989 Ground-Water Treatment System NPDES Monitoring Report
Job No.: 09382,040.02

Remarks: Please find attached a copy of the "Report for System Monitoring: November 1989, Dewatering Effluent Treatment System, Pacific Renaissance Plaza, Oakland, California," describing the operations and monitoring of the ground-water treatment system located at the Pacific Renaissance Plaza site in Oakland.

DFL/dc/dfl022#1

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 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

Laura O. Hollingsworth
Staff Engineer

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December 18, 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 November 1 to November 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 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.

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 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 November 1 to December 1, 1989, total effluent discharged from the system was 1,046,600 gallons, based on readings of the flowmeters located on each extraction well. Average flow through the treatment system for the month was 24.2 gallons per minute (gpm). Of the 1,046,600 gallons of treatment system effluent, approximately 94 percent, or 984,760 gallons were recycled to the PRP biotreatment injection system and 6 percent, or 61,840 gallons were discharged to the storm drain.

The carbon contactors were not backwashed and cartridge filters were not changed in November. Bag filters were replaced once every 1 to 2 days as a result of biological fouling. The sand filter was backwashed with fresh water twice a day. No new equipment was added to the system.

The November meter reading on the treatment system was compared with readings from all the individual extraction well flow meters feeding into the treatment system. Prior to October, similar comparisons were not possible because of the operation of dewatering wells at the EBMUD site. These dewatering wells were operated by EBMUD contractors and were not equipped with individual flow meters.

The average flow rate according to the extraction well flow meters for the period from November 1 to December 1 was 24.2 gpm, whereas the average flow rate according to the treatment system flow meter for the same period was 19.2 gpm. The treatment system flow meter does not appear to function properly and is considered to be a less reliable source for flowrate data then the individual extraction well flow meters. Starting with this report, the individual extraction well flowmeters are used to calculate flowrate information and the totalizer flow reading has been eliminated from the effluent water analysis table (Table 3).

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 (November 2, 1989), the carbon treatment system removed most individual constituents to below detection levels in discharge water. Chloroform and 1,2-dichloroethane were detected in the effluent sample at concentrations of 1.5 ppb and 2.8 ppb, respectively. None of the effluent limits set forth in the NPDES permit were exceeded.

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TABLE 1. TREATMENT SYSTEM WATER ANALYSIS: INFLUENT SAMPLES

HLA SAMPLE ID #	89101101	89140601	89180330	89230801	89270503	8930CSIN	89090741	8910CSIN	89451124
DATE	03/10/89	04/06/89	05/03/89	06/08/89	07/05/89	08/01/89	09/07/89	10/05/89	11/02/89
TEST METHOD/ COMPOUNDS									
EPA 8020									
Benzene	ND < 0.2	ND < 0.2	0.5	1.2	11.5	710	6.3	2.2	ND < 0.2
Toluene	ND < 0.2	ND < 0.2	0.2	0.9	2.5	610	0.7	1.7	ND < 0.2
Ethylbenzene	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	46	ND < 2.0	ND < 0.2	ND < 0.2
Xylenes	68	ND < 0.2	ND < 0.2	26	71	1100	39	38	12
Chlorobenzene	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 2.0	NT	NT	NT
1,2-Dichlorobenzene	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 2.0	NT	NT	NT
All other 8020 compounds	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2	ND < 2.0	NT	NT	NT
EPA 8015									
TPH (Gasoline)	340	70	70	110	220	6200	ND < 50	120	ND < 50
EPA 8010									
1,1-dichloroethene	ND < 0.5	0.8	ND < 0.5	ND < 0.5	ND < 0.5	ND < 5.0	ND < 0.5	ND < 0.5	ND < 0.5
Methylene chloride	ND < 0.5	ND < 0.5	9.8	0.6	ND < 0.5	ND < 5.0	ND < 0.5	ND < 0.5	ND < 0.5
1,1-dichloroethane	3.2	1.1	ND < 0.5	ND < 0.5	ND < 0.5	ND < 5.0	ND < 0.5	ND < 0.5	ND < 0.5
Chloroform	0.65	8.8	ND < 0.5	4.5	2.5	ND < 5.0	4.3	ND < 0.5	5.5
1,1,1-trichloroethane	1.8	0.7	ND < 0.5	ND < 0.5	ND < 0.5	ND < 5.0	ND < 0.5	ND < 0.5	ND < 0.5
1,2-dichloroethane	42	16.2	6.8	8.1	8.3	ND < 5.0	7.6	6.6	10
Trichloroethene	ND < 0.5	3.6	4.4	10.3	9.8	ND < 5.0	14	ND < 0.5	ND < 0.5
1,2-dichloropropane	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 5.0	ND < 0.5	ND < 0.5	ND < 0.5
Bromodichloromethane	ND < 0.5	ND < 0.5	0.7	ND < 0.5	ND < 0.5	ND < 5.0	ND < 0.5	ND < 0.5	ND < 0.5
Cis-1,3-dichloropropene	ND < 0.5	0.65	1.0	ND < 0.5	ND < 0.5	ND < 5.0	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 < 5.0	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 < 5.0	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 < 5.0	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 < 5.0	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 < 5.0	ND < 0.5	ND < 0.5	ND < 0.5
All other 8010 compounds	ND	ND	ND	ND	ND	ND	ND	ND	ND
EPA 504									
Ethylene dibromide	ND < 0.01	0.47	ND < 0.01	ND < 0.01	0.09	0.09	ND < 0.02	1.6	2.8
Standard Method 408E									
Residual chlorine (mg/l)	ND < 0.01	0.05	ND < 0.01	ND < 0.05	ND < 0.01	ND < 0.05	0.5	ND < 0.05	0.1
EPA 360.2									
Dissolved oxygen (mg/l)	7.5	7.9	NT	14	6.9	20	6.8	5.6	3.4

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

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HLA SAMPLE ID #	89101102	89140602	89180331	89230802	89270502	8930CSIM	89090742	8910CSIT	89451126
DATE	03/10/89	04/06/89	05/03/89	06/08/89	07/05/89	08/01/89	09/07/89	10/05/89	11/02/89
TEST METHOD/COMPOUNDS									
EPA 8020									
Benzene	NT	ND < 0.2	0.3	NT	ND < 0.2	79	ND < 0.2	1.7	NT
Toluene	NT	ND < 0.2	ND < 0.2	NT	0.7	61	ND < 0.2	ND < 0.2	NT
Ethylbenzene	NT	ND < 0.2	0.4	NT	ND < 0.2	2.6	ND < 0.2	ND < 0.2	NT
Xylenes	NT	ND < 0.2	0.3	NT	ND < 0.2	140	ND < 0.2	ND < 0.2	NT
Chlorobenzene	NT	ND < 0.2	ND < 0.2	NT	ND < 0.2	ND < 0.2	NT	NT	NT
1,3-Dichlorobenzene	NT	ND < 0.2	ND < 0.2	NT	ND < 0.2	ND < 0.2	NT	NT	NT
All other 8020 compounds	NT	ND < 0.2	ND < 0.2	NT	ND < 0.2	ND < 0.2	NT	NT	NT
EPA 8015									
TPH (Gasoline)	NT	NT	NT	NT	NT	NT	NT	ND < 50	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	ND < 0.5	ND < 0.5
Chloroform	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	1.5	5.6	4.7	ND < 0.5	ND < 0.5
1,1,1-trichloroethane	2.2	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
1,2-dichloroethane	ND < 0.5	0.55	ND < 0.5	1.3	3.4	ND < 0.5	6.2	7.7	7.5
Trichloroethene	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	2.7	ND < 0.5	ND < 0.5	ND < 0.5
Tetrachloroethene	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
Chlorobenzene	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
Bromoform	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
1,3-dichlorobenzene	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
All other 8010 compounds	ND	ND	ND	ND	ND	ND	ND	ND	ND

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

TABLE 3. TREATMENT SYSTEM WATER ANALYSIS: EFFLUENT SAMPLES

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HLA SAMPLE ID #	89101103	89140603	89180332	89230803	89270501	8930CSEF	89090740	8910CSEF	89451127
DATE	03/10/89	04/06/89	05/03/89	06/08/89	07/05/89	08/01/89	09/07/89	10/05/89	11/02/89
TEST METHOD/COMPOUNDS									
EPA 8020									
Benzene	ND < 0.2	ND < 0.2	0.3	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	0.7	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	0.3	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	NT
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	NT
EPA 8015									
TPH (Gasoline)	ND < 50	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	ND < 0.5	ND < 0.5	0.6	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	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	ND < 0.5	ND < 0.5	1.5
1,1,1-trichloroethane	2.4	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
1,2-dichloroethane	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	0.7	1.1	1.7	2.8
Trichloroethene	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
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)	8.0	7.8	NT	10	3.3	1.0	1.9	1.3	1.8
EPA 504									
Ethylene dibromide	ND < 0.01	ND < 0.01	ND < 0.01	ND < 0.01	ND < 0.01	ND < 0.02	ND < 0.02	ND < 0.02	ND < 0.01
Standard Method 408E									
Residual chlorine (mg/l)	ND < 0.01	ND < 0.05	ND < 0.01	ND < 0.05	ND < 0.01	ND < 0.05	ND < 0.05	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

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HLA SAMPLE ID #	89101105	---	89180334	89230805	89270515	---	89090615	8910CSTB	89451125
DATE	03/10/89	04/06/89	05/03/89	06/08/89	07/05/89	08/01/89	09/07/89	10/05/89	11/02/89
TEST METHOD/COMPOUNDS									
EPA 8020									
Benzene	ND < 0.2	NT	ND < 0.2	ND < 0.2	ND < 0.2	NT	ND < 0.5	ND < 0.2	ND < 0.2
Toluene	ND < 0.2	NT	ND < 0.2	ND < 0.2	ND < 0.2	NT	ND < 0.5	ND < 0.2	ND < 0.2
Ethylbenzene	ND < 0.2	NT	ND < 0.2	ND < 0.2	ND < 0.2	NT	ND < 0.5	ND < 0.2	ND < 0.2
Xylenes	ND < 0.2	NT	0.7	ND < 0.2	ND < 0.2	NT	ND < 0.5	ND < 0.2	ND < 0.2
All other 8020 compounds	ND < 0.2	NT	ND < 0.2	ND < 0.2	ND < 0.2	NT	NT	NT	NT
EPA 8015									
TPH (Gasoline)	ND < 50	NT	NT	ND < 50	ND < 50	NT	ND < 250	ND < 50	ND < 50
EPA 8010									
Dichlorodifluoromethane	ND < 2.0	NT	ND < 2.0	ND < 2.0	NT	NT	NT	ND < 2.0	ND < 2.0
1,1-dichloroethene	ND < 0.5	NT	ND < 0.5	ND < 0.5	NT	NT	NT	ND < 0.5	ND < 0.5
Methylene chloride	42	NT	ND < 0.5	ND < 0.5	NT	NT	NT	ND < 0.5	ND < 0.5
1,1,1-trichloroethane	5.9	NT	ND < 0.5	ND < 0.5	NT	NT	NT	ND < 0.5	ND < 0.5
1,2-dichloroethane	ND < 0.5	NT	ND < 0.5	ND < 0.5	NT	NT	NT	ND < 0.5	ND < 0.5
All other 8010 compounds	ND	NT	ND	ND	NT	NT	NT	ND	ND
EPA 504									
Ethylene dibromide	NT	NT	NT	NT	NT	NT	NT	ND < 0.02	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
Irvine, California
Asheboro, North Carolina

Harding Lawson Associates
200 Rush Landing Road
Novato, CA 94945

November 18, 1989
PACE Project
Number: 491102501

Attn: Mr. David Leland

Pacific Rensse Plaza

Parameter	Units	MDL	788410 11/02/89 11/02/89 # 89451124	788420 11/02/89 11/02/89 # 89451125	788430 11/02/89 11/02/89 # 89451126
PACE Sample Number:			788410	788420	788430
Date Collected:			11/02/89	11/02/89	11/02/89
Date Received:			11/02/89	11/02/89	11/02/89
INORGANIC ANALYSIS					
INDIVIDUAL PARAMETERS					
Chlorine, Total Residual	mg/L	0.05	0.1	-	-
Oxygen, Dissolved	mg/L	0.1	3.4	-	-
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 (Freon 11)	ug/L	2.0	ND	ND	ND
1,1-Dichloroethene	ug/L	0.5	ND	ND	ND
Methylene Chloride	ug/L	0.5	ND	ND	ND
trans-1,2-Dichloroethene	ug/L	0.5	ND	ND	ND
1,1-Dichloroethane	ug/L	0.5	ND	ND	ND
Chloroform	ug/L	0.5	5.5	ND	ND
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	10	ND	7.5
Trichloroethene (TCE)	ug/L	0.5	ND	ND	ND
1,2-Dichloropropane	ug/L	0.5	ND	ND	ND
Bromodichloromethane	ug/L	0.5	ND	ND	ND
2-Chloroethylvinyl ether	ug/L	0.5	ND	ND	ND
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

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
Irvine, California
Asheboro, North Carolina

Mr. David Leland
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November 18, 1989
PACE Project Number: 491102501

Pacific Rensse Plaza

PACE Sample Number:			788410	788420	788430
Date Collected:			11/02/89	11/02/89	11/02/89
Date Received:			11/02/89	11/02/89	11/02/89
Parameter	Units	MDL	# 89451124	# 89451125	# 89451126
ORGANIC ANALYSIS					
HALOGENATED VOLATILE COMPOUNDS EPA 8010					
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)			106%	123%	119%
1,4-Dichlorobutane (Surrogate Recovery)			105%	115%	115%
PURGEABLE FUELS AND AROMATICS					
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	-	-
Purgeable Fuels, as Gasoline (EPA 8015)	mg/L	0.05	ND	ND	-
PURGEABLE AROMATICS (BTXE BY EPA 8020):			-	-	-
Benzene	mg/L	0.0002	ND	ND	-
Ethylbenzene	mg/L	0.0002	ND	ND	-
Toluene	mg/L	0.0002	ND	ND	-
Xylenes, total	mg/L	0.0002	0.012	ND	-
1,2-DIBROMOETHANE (EDB) EPA METHOD 504					
1,2-Dibromoethane	ug/L	0.01	2.8	-	-
Date Extracted			11/15/89	-	-

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

pace laboratories, inc.

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California
Leawood, Kansas
Irvine, California
Asheboro, North Carolina

REPORT OF LABORATORY ANALYSIS

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PACE Project
Number: 491102501

Pacific Rensse Plaza

Parameter	Units	MDL	788440 11/02/89 11/02/89 # 89451127
PACE Sample Number:			
Date Collected:			
Date Received:			
INORGANIC ANALYSIS			
INDIVIDUAL PARAMETERS			
Chlorine, Total Residual	mg/L	0.05	ND
Oxygen, Dissolved	mg/L	0.1	1.8
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	1.5
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	2.8
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

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

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Irvine, California
Asheboro, North Carolina

REPORT OF LABORATORY ANALYSIS

Mr. David Leland
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November 18, 1989
PACE Project Number: 491102501

Pacific Rensse Plaza

PACE Sample Number:			788440
Date Collected:			11/02/89
Date Received:			11/02/89
Parameter	Units	MDL	# 89451127
ORGANIC ANALYSIS			
HALOGENATED VOLATILE COMPOUNDS EPA 8010			
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)			126%
1,4-Dichlorobutane (Surrogate Recovery)			118%
PURGEABLE FUELS AND AROMATICS			
TOTAL FUEL HYDROCARBONS, (LIGHT):			-
Purgeable Fuels, as Gasoline (EPA 8015)	mg/L	0.05	ND
PURGEABLE AROMATICS (BTXE BY EPA 8020):			-
Benzene	mg/L	0.0002	ND
Ethylbenzene	mg/L	0.0002	ND
Toluene	mg/L	0.0002	ND
Xylenes, total	mg/L	0.0002	ND
1,2-DIBROMOETHANE (EDB) EPA METHOD 504			
1,2-Dibromoethane	ug/L	0.01	ND
Date Extracted			11/15/89

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

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REPORT OF LABORATORY ANALYSIS

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Mr. David Leland
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November 18, 1989
PACE Project
Number: 491102501

Pacific Rensse Plaza

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

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: Face

Samplers: David M Evans, Glenn M Carter

Job Number: 09382,039.02

Name/Location: PRP

Project Manager: ~~Debbie M~~ Dave Leland (DNLE)

Recorder: David M Evans (Signature Required)

SOURCE CODE	MATRIX: Water	Sediment	Soil	Oil	#CONTAINERS & PRESERV.: Unpres.	H_2SO_4	HNO_3	HCl	D.O.	SAMPLE NUMBER OR LAB NUMBER: Yr Wk Seq	DATE: Yr Mo Dy Time	STATION DESCRIPTION/ NOTES
30	X				2			3	1	89 45 1 12 4	89 11 02 10 09	Lab # 78841
30	X							2		89 45 1 12 5	89 11 02 10 15	78842
30	X							2		89 45 1 12 6	89 11 02 10 45	78843
30	X				2			3	1	89 45 1 12 7	89 11 02 10 30	78844

ANALYSIS REQUESTED

EPA 601/8010	EPA 602/8020	EPA 624/8240	EPA 625/8270	Priority Pllnt. Metals	Benzene/Toluene/Xylene E	Total Petrol. Hydrocarb.	Chlorine	EPA 504 EDB	EPA 8015	D.O. (Added per SFN)
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
				Two week turnaround time except for Dissolved 6 hr turn around time) Please call w/result.
				6/5 VOAs
				10/4 Others

CHAIN OF CUSTODY RECORD

RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
David M Evans		
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) David M Evans — DATE/TIME 11/2/89 R108

RECEIVED FOR LAB BY: (Signature) — DATE/TIME 11/2/89 12:58

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REPORT OF SYSTEM MONITORING
NOVEMBER 1989
DEWATERING EFFLUENT TREATMENT SYSTEM
CHINATOWN REDEVELOPMENT PROJECT AREA
OAKLAND, CALIFORNIA
December 18, 1989

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QUALITY CONTROL REVIEWER

Tamara L. Williams

Tamara L. Williams
Geologist - 3954