8/16/88

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: JULY 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

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Project Engineer

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August 15, 1988

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I INTRODUCTION

This report discusses the operation and monitoring of the dewatering effluent treatment system at 10th and Webster streets, Oakland, California, from July 1 to July 31, 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 excavation and 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 not to exceed 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.

Before July 20, 1988, treatment system discharge limits were 5 ppb for any constituent identifiable by EPA Test Methods 601 and 602, and 50 ppb for TPH, as measured by EPA Test Method 8015. These interim discharge limits for discharge to the storm drain were stated in a letter dated April 25, 1988, from Roger James, Executive Director of the RWQCB, to Randall A. Lum of the City of Oakland in response to the NPDES permit application submitted by the City of Oakland Redevelopment Agency (Agency) to the RWQCB on February 1.

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 July 1 to August 1, total discharge of the system was 918,500 gallons, based on readings of the flow totalizing meter located in the discharge line. Average flow for this period was 20.6 gallons per minute (gpm), with weekly average flows ranging from 19.6 to 22.8 gpm.

The system was backwashed on July 7 and July 10.

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 consisted of weekly trip blanks.

All treatment system samples collected during this period were analyzed by Pace Laboratories, Novato, California, a California-certified laboratory. The samples were analyzed for TPH as gasoline by EPA Test Method 8015, for purgeable volatile organic compounds by EPA Test Method 602, and for halogenated hydrocarbons by EPA Test Method 601.

Results of analyses of samples collected June 3 through July 29 are summarized in Tables 1 through 4. However, only analytical results for samples collected in July are discussed in this report. Laboratory reports for treatment system samples collected June 24, June 30, July 8, July 14, July 22, and July 29 are presented in Appendix A.

The laboratory report for a water sample collected from the holding tank on June 9, 1988, as part of the RWQCB investigation of the June 8 release from the tank is included as Appendix B. The release and the results of the analyses were discussed in the June 1988 treatment system monitoring report.

B. Discharge Limit Exceedences

There was one reported exceedence of a permitted effluent discharge limit during this reporting period. The reported concentration of toluene in one of two effluent samples collected on July 22 was 2.1 μg/l (micrograms per liter, equivalent to ppb) as measured by EPA Test Method 602; however, toluene was not detected in the duplicate

effluent sample. Possible explanations for the reported exceedence include breakthrough as a result of carbon exhaustion, "channeling" in the carbon beds, sample contamination during field operations, and/or laboratory analytical procedures. Breakthrough is highly unlikely at this time, on the basis of a comparison of system design with flow rates and contaminant levels. Channelling is routinely addressed by backwashing the system. Because toluene was not detected in either the influent or intermediate samples collected on July 22, sample contamination in the field or laboratory is the most likely source of the toluene detected in the effluent samples.

There were no other exceedences of permitted effluent discharge limits for Test Method 601 or 602 compounds or for TPH as measured by Method 8015 during this reporting period.

Discussions with field personnel indicate that the incorrect intermediate port was sampled on June 30, July 8, and July 29. As noted in Section II of this report, only one of two intermediate sample ports is actually intermediate at a time. Therefore, it is probable that the "intermediate" samples taken on these dates were actually influent samples. Laboratory analytical results support this conclusion, in that analytical results reported for influent and intermediate samples for these three dates are similar.

IV RESULTS

Results of influent, intermediate, and effluent sample analyses for TPH and for EPA Test Method 601 and 602 compounds, indicate that on most days the treatment system removed all individual constituents to below detection levels. Toluene was detected in an effluent sample on July 22 at a concentration of 2.1 μg/l, but was not detected in a duplicate effluent sample from that date.

Dissolved oxygen in the effluent was measured on July 8 at a concentration of 2.9 mg/l (milligrams per liter).

Methylene chloride was detected in a trip blank on July 29 at a concentration of 1.0 μg/l.

V ACTIVITIES PLANNED: AUGUST 1988

Analysis of treatment system influent and effluent samples will be expanded in accordance with the self-monitoring requirements of the NPDES permit. Influent and effluent samples will be analyzed weekly for ethylene dibromide using EPA Test Method 504 and for total residual chlorine using EPA Test Method 408. During August, an effluent sample will also be analyzed for total lead.

VI HAZARDOUS WASTE SHIPMENTS AND AERATION OF STOCKPILED SOILS

During this reporting period, hydrocarbon-bearing soils unearthed in the northeastern and southwestern corners of the site were aerated, restockpiled, and disposed off site. Samples of these soils were collected and submitted to Crown Environmental, Inc. (a mobile lab located at the site), and to Pace for analysis to confirm aeration of hydrocarbons. After aeration, soil sample TPH concentrations were less than 100 parts per million (ppm), the RWQCB guideline for designated wastes. The soils were transported by Charles Campanella, Inc., to the West Contra Costa Sanitary Landfill in Richmond, California for disposal. No soil is presently stockpiled on site. As of the end of July, an estimated 7000 yd^3 of soils aerated to remove hydrocarbons have been transported from the site.

Soil handling and aeration are being conducted with the permission of the Bay Area Air Quality Management District (BAAQMD) and in accordance with BAAQMD regulations, in particular Regulation 8-40.

TABLES

TABLE 1. TREATMENT SYSTEM WATER ANALYSIS: INFLUENT SAMPLES

HLA SAMPLE ID #	88220321	88231001	88241624	88262402	88263023	88280802	88281403	88292203	88302905
DATE	06/03	06/10	06/16	06/24	06/30	07/08	07/14	07/22	07/29
TEST METHOD/ COMPOUNDS									
EPA 602									
Benzene	2.1	NT	0.9	1.9	NT	7.0	ND < 0.2	ND < 0.2	ND < 0.2
Toluene	ND < 0.2	NT	0.3	ND < 0.2	NT	13.0	ND < 0.2	ND < 0.2	ND < 0.2
Chlorobenzene	2.0	NT	ND < 0.2	ND < 0.2	NT	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2
Ethylbenzene	ND < 0.2	NT	ND < 0.2	ND < 0.2	NT	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2
Xylenes	ND < 0.2	NT	ND < 0.2	ND < 0.2	NT	4.2	ND < 0.2	ND < 0.2	ND < 0.2
1,2-Dichlorobenzene	ND < 0.2	NT	ND < 0.2	ND < 0.2	NT	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2
All other 602 compounds	ND < 0.2	NT	ND < 0.2	ND < 0.2	NT	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2
TPH									
Gasoline	110	80	90	ND < 50	140	58	ND < 50	ND < 50	130
Diesel	NT	NT	NT	NT	NT	NT	NT	NT	NT
EPA 601									
1,1-dichloroethene	ND < 0.5	NT	ND < 0.5	ND < 0.5	NT	ND < 0.5	ND < 0.5	ND < 0.5	0.6
1,1-dichloroethane	ND < 0.5	NT	ND < 0.5	ND < 0.5	NT	ND < 0.5	ND < 0.5	0.8	ND < 0.5
Chloroform	3.6	NT	ND < 0.5	ND < 0.5	NT	0.6	0.8	0.7	1.7
1,2-dichloroethane	25	NT	6.4	3.8	NT	7.3	14.0	13.6	19
Trichloroethene	212	NT	52	63	NT	117	190	150	600
Tetrachloroethene	ND < 0.5	NT	ND < 0.5	ND < 0.5	NT	ND < 0.5	ND < 0.5	ND < 0.5	1.0
Chlorobenzene	2.0	NT	ND < 0.5	ND < 0.5	NT	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
Bromoform	ND < 0.5	NT	ND < 0.5	ND < 0.5	NT	0.6	ND < 0.5	ND < 0.5	ND < 0.5
Dibromochloromethane	ND < 0.5	NT	ND < 0.5	ND < 0.5	NT	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
All other 601 compounds	ND	NT	ND	ND	NT	ND	ND	ND	ND
EPA 624									
Chloroform	NT	1.4	NT	NT	ND < 0.5	NT	NT	NT	NT
1,2-dichloroethane	NT	20	NT	NT	ND < 0.5	NT	NT	NT	NT
Benzene	NT	2	NT	NT	8	NT	NT	NT	NT
Trichloroethene	NT	79	NT	NT	330	NT	NT	NT	NT
Toluene	NT	12	NT	NT	ND < 0.5	NT	NT	NT	NT
1,1,2-trichloroethane	NT	0.9	NT	NT	ND < 0.5	NT	NT	NT	NT
Tetrachloroethene	NT	0.8	NT	NT	ND < 0.5	NT	NT	NT	NT
Chlorobenzene	NT	1.8	NT	NT	ND < 0.5	NT	NT	NT	NT
All other 624 compounds	NT	ND < 0.5	NT	NT	ND < 0.5	NT	NT	NT	NT

ND - Not detected at stated detection limit.

NT - Not tested.

All results reported in parts per billion (ppb).

TABLE 2. TREATMENT SYSTEM WATER ANALYSIS: INTERMEDIATE SAMPLES

HLA SAMPLE ID #	88220322	88231004	88241623	88262403	88263022	88280801	88281401	88292205	88302904
DATE	06/03	06/10	06/16	06/24	06/30	07/08	07/14	07/22	07/29
TEST METHOD/COMPOUNDS									
EPA 602									
Benzene	ND < 0.2	NT	ND < 0.2	ND < 0.2	NT	5.0	ND < 0.2	ND < 0.2	ND < 0.2
Toluene	0.8	NT	ND < 0.2	ND < 0.2	NT	13.0	ND < 0.2	ND < 0.2	ND < 0.2
Ethylbenzene	ND < 0.2	NT	ND < 0.2	ND < 0.2	NT	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2
Xylenes	ND < 0.2	NT	ND < 0.2	ND < 0.2	NT	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2
Chlorobenzene	ND < 0.2	NT	ND < 0.2	ND < 0.2	NT	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2
1,3-Dichlorobenzene	ND < 0.2	NT	ND < 0.2	ND < 0.2	NT	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2
All other 602 compounds	ND < 0.2	NT	ND < 0.2	ND < 0.2	NT	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2
TPH									
Gasoline	ND < 50	ND < 50	ND < 50	ND < 50	140	51	ND < 50	ND < 50	130
Diesel	NT	NT	NT	NT	NT	NT	NT	NT	NT
EPA 601									
Methylene chloride	ND < 0.5	NT	2	ND < 0.5	NT	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
1,1-dichloroethane	ND < 0.5	NT	ND < 0.5	ND < 0.5	NT	ND < 0.5	ND < 0.5	0.5	0.9
Chloroform	ND < 0.5	NT	ND < 0.5	ND < 0.5	NT	0.7	ND < 0.5	0.6	1.4
1,2-dichloroethane	2.8	NT	0.5	1	NT	9.7	3.3	6.3	18
Trichloroethene	1.7	NT	ND < 0.5	ND < 0.5	NT	130	3.1	3.5	530
Tetrachloroethene	ND < 0.5	NT	ND < 0.5	ND < 0.5	NT	ND < 0.5	ND < 0.5	ND < 0.5	0.8
Chlorobenzene	ND < 0.5	NT	ND < 0.5	ND < 0.5	NT	0.6	ND < 0.5	ND < 0.5	ND < 0.5
Bromoform	ND < 0.5	NT	ND < 0.5	ND < 0.5	NT	0.6	ND < 0.5	ND < 0.5	ND < 0.5
1,3-dichlorobenzene	ND < 0.5	NT	ND < 0.5	ND < 0.5	NT	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
All other 601 compounds	ND	NT	ND	ND	NT	ND	ND	ND	ND
EPA 624									
1,2-dichloroethane	NT	0.8	NT	NT	1.9	NT	NT	NT	NT
Chloroform	NT	ND < 0.5	NT	NT	ND < 0.5	NT	NT	NT	NT
Trichloroethene	NT	4.4	NT	NT	350	NT	NT	NT	NT
Toluene	NT	ND < 0.5	NT	NT	9.6	NT	NT	NT	NT
1,2-dichlorobenzene	NT	ND < 0.5	NT	NT	6.7	NT	NT	NT	NT
All other 624 compounds	NT	ND < 0.5	NT	NT	ND < 0.5	NT	NT	NT	NT

ND - Not detected at stated detection limit.

NT - Not tested.

All results reported in parts per billion (ppb).

TABLE 3. TREATMENT SYSTEM WATER ANALYSIS: EFFLUENT SAMPLES

HLA SAMPLE ID #	88220323	88231002	88241622	88262404	88263021	88280804	88281402	88292202	88302902
DATE	06/03	06/10	06/16	06/24	06/30	07/08	07/14	07/22	07/29
TOTAL FLOW (THOUSAND GALLONS	2234.8	2537.2	2759.3	2969.6	3112.0	3337.5	3514.8	3337.3	3984.0
AVERAGE FLOW (GPM)	33.0	30.0	22.0	20.9	14.1	19.6	20.5	22.8	20.5
TEST METHOD/COMPOUNDS									
EPA 602									
Benzene	ND < 0.2	NT	ND < 0.2	ND < 0.2	NT	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2
Toluene	ND < 0.2	NT	ND < 0.2	ND < 0.2	NT	ND < 0.2	ND < 0.2	2.1	ND < 0.2
Ethylbenzene	ND < 0.2	NT	ND < 0.2	ND < 0.2	NT	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2
Xylenes	ND < 0.2	NT	ND < 0.2	ND < 0.2	NT	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2
Diphenylhydrazine	ND < 0.2	NT	ND < 0.2	ND < 0.2	NT	ND < 0.2	ND < 0.2	ND < 0.2	ND < 0.2
All other 602 compounds	ND < 0.2	NT	ND < 0.2	ND < 0.2	NT	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 601									
1,2 dichloroethane	ND < 0.5	NT	ND < 0.5	ND < 0.5	NT	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
Trichloroethene	ND < 0.5	NT	ND < 0.5	ND < 0.5	NT	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
All other 601 compounds	ND	NT	ND	ND	NT	ND	ND	ND	ND
EPA 624									
Toluene	NT	ND < 0.5	NT	NT	ND < 0.5	NT	NT	NT	NT
Methylene Chloride	NT	ND < 0.5	NT	NT	ND < 0.5	NT	NT	NT	NT
1,2-Dichloroethane	NT	ND < 0.5	NT	NT	ND < 0.5	NT	NT	NT	NT
Trichloroethene	NT	ND < 0.5	NT	NT	11	NT	NT	NT	NT
All other 624 compounds	NT	ND < 0.5	NT	NT	ND < 0.5	NT	NT	NT	NT
EPA 360.2									
Dissolved oxygen (mg/l)	4.4	NT	NT	NT	NT	2.9	NT	NT	NT

ND - Not detected at stated detection limit.

NT - Not Tested.

NA - Analytic results not yet available.

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

TABLE 4. TREATMENT SYSTEM WATER ANALYSIS: BLANK SAMPLES

HLA SAMPLE ID #	88220324	88231003	88241604	88262401	88263024	88280803	---	88292201	88302903
DATE	06/03	06/10	06/16	06/24	06/30	07/08	07/14	07/22	07/29
TEST METHOD/COMPOUNDS									
EPA 602									
Benzene	ND < 0.2	NT	ND < 0.2	ND < 0.2	NT	ND < 0.2	NT	ND < 0.2	ND < 0.2
Toluene	ND < 0.2	NT	ND < 0.2	ND < 0.2	NT	ND < 0.2	NT	ND < 0.2	ND < 0.2
Ethylbenzene	ND < 0.2	NT	ND < 0.2	ND < 0.2	NT	ND < 0.2	NT	ND < 0.2	ND < 0.2
Xylenes	ND < 0.2	NT	ND < 0.2	ND < 0.2	NT	ND < 0.2	NT	ND < 0.2	ND < 0.2
All other 602 compounds	ND < 0.2	NT	ND < 0.2	ND < 0.2	NT	ND < 0.2	NT	ND < 0.2	ND < 0.2
TPH									
Gasoline	ND < 50	ND < 50	ND < 50	ND < 50	ND < 50	ND < 50	NT	ND < 50	ND < 50
Diesel	NT	NT	NT	NT	NT	NT	NT	NT	NT
EPA 601									
Methylene chloride	3.6	NT	NT	ND < 0.5	NT	ND < 0.5	NT	ND < 0.5	1.0
All other 601 compounds	ND	NT	NT	ND	NT	ND	NT	ND	ND
EPA 624									
Toluene	NT	ND < 0.5	NT	NT	ND < 0.5	NT	NT	NT	NT
Methylene Chloride	NT	ND < 0.5	NT	NT	ND < 0.5	NT	NT	NT	NT
Chloroform	NT	ND < 0.5	NT	NT	ND < 0.5	NT	NT	NT	NT
Diphenylhydrazine	NT	ND < 0.5	NT	NT	ND < 0.5	NT	NT	NT	NT
All other 624 compounds	NT	ND < 0.5	NT	NT	ND < 0.5	NT	NT	NT	NT
EPA 625									
All compounds	NT	NT	NT	NT	NT	NT	NT	NT	NT

ND - Not detected at stated detection level.

NT - Not Tested.

NA - Analytic results not yet available.

All results reported in parts per billion (ppb).

Appendix A

LABORATORY ANALYTICAL RESULTS FOR TREATMENT SYSTEM SAMPLES

pace laboratories inc
FORMERLY WESCO LABORATORIES

RECEIVED
JUL 12 1988
HARDING LAWSON ASSOC.

REPORT OF LABORATORY ANALYSIS

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

Report date: July 8, 1988
Client: Harding Lawson Associates
P.O Box 578
Novato, CA 94947

Pace job #: HLA 0831.76-L

TREATMENT SYSTEM
6-24-88

Date sampled: June 24, 1988
Sampled by: R. Erdman

Site: City of Oakland
Attn.: D. Leland

Date received: June 24, 1988
Submitted by: R. ERdman

P.O.: 9382.026.02

Lab #	Client ID		Matrix	Analysis
8- 6216	88062401	Blank	water	TPH only 5030/8015
8- 6216	88062401		water	Vol Org. Cpds. 601+ 602
8- 6217	88062402	Influent	water	TPH only 5030/8015
8- 6217	88062402		water	Vol Org. Cpds. 601+ 602
8- 6218	88062403	Intermediate	water	TPH only 5030/8015
8- 6218	88062403		water	Vol Org. Cpds. 601+ 602
8- 6219	88062404	Effluent	water	TPH only 5030/8015
8- 6219	88062404		water	Vol Org. Cpds. 601+ 602

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 arragements are made.
If you have any questions, please feel free to call, (415)883-6100.

Sample Controller

pace laboratories, inc
FORMERLY WESCO LABORATORIES

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

REPORT OF LABORATORY ANALYSIS

Report Date: 08-Jul-88
PACE JOB #: HLA 0831.76-L
Analytical Method: EPA 5030/8015
MATRIX: WATER

Extract/Purge Date: 30-Jun-88
Completion Date: 30-Jun-88
Analyst: Attia

LAB #: 8-6216 Blank CLIENT'S ID: 062401

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

QUALITY CONTROL DATA
Surrogate Spike % Recovery
Fluorobenzene 78 %

LAB #: 8-6217 Influent CLIENT'S ID: 062402

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

QUALITY CONTROL DATA
Surrogate Spike % Recovery
Fluorobenzene 82 %

LAB #: 8-6218 Intermediate CLIENT'S ID: 062403

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

QUALITY CONTROL DATA
Surrogate Spike % Recovery
Fluorobenzene 86 %

LAB #: 8-6219 Effluent CLIENT'S ID: 062404

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

QUALITY CONTROL DATA
Surrogate Spike % Recovery
Fluorobenzene 82 %

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 WESCO JOB #: HLA 0831.76-L

COMPOUND	Blank ug/l	Spike Duplicate % deviation	Spike % recovery
Gasoline----------	N.D.	2	93

QUALITY CONTROL DATA
Surrogate Spike % Recovery

Fluorobenzene	111 %	91 %	92 %

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: 08-Jul-88
PACE JOB #: HLA 0831.76-L
Analytical Method: EPA 601
Extract/Purge Date: 28-Jun-88
Completion Date: 28-Jun-88
Analyst: ATTIA
MATRIX: WATER

	Blank	Influent	Inter	Effluent
LAB #:	8-6216	8-6217	8-6218	8-6219
CLIENT'S ID:	062401	062402	062403	062404

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.	2.0
Chloromethane	N.D.	N.D.	N.D.	N.D.	2.0
Vinyl Chloride	N.D.	N.D.	N.D.	N.D.	2.0
Bromomethane	N.D.	N.D.	N.D.	N.D.	2.0
Chloroethane	N.D.	N.D.	N.D.	N.D.	2.0
Trichlorofluoromethane	N.D.	N.D.	N.D.	N.D.	2.0
1,1-Dichloroethene	N.D.	N.D.	N.D.	N.D.	0.5
Methylene Chloride	N.D.	N.D.	N.D.	N.D.	0.5
trans-1,2-Dichloroethene	N.D.	N.D.	N.D.	N.D.	0.5
1,1-Dichloroethane	N.D.	N.D.	N.D.	N.D.	0.5
Chloroform	N.D.	N.D.	N.D.	N.D.	0.5
1,1,1-Trichloroethane (TCA)	N.D.	N.D.	N.D.	N.D.	0.5
Carbon Tetrachloride	N.D.	N.D.	N.D.	N.D.	0.5
1,2-Dichloroethane (EDC)	N.D.	3.8	1.0	N.D.	0.5
Trichloroethene (TCE)	N.D.	63	N.D.	N.D.	0.5
1,2-Dichloropropane	N.D.	N.D.	N.D.	N.D.	0.5
Bromodichloromethane	N.D.	N.D.	N.D.	N.D.	0.5
2-Chloroethylvinyl ether	N.D.	N.D.	N.D.	N.D.	0.5
trans-1,3-Dichloropropene	N.D.	N.D.	N.D.	N.D.	0.5
cis-1,3-Dichloropropene	N.D.	N.D.	N.D.	N.D.	0.5
1,1,2-Trichloroethane	N.D.	N.D.	N.D.	N.D.	0.5
Tetrachloroethene	N.D.	N.D.	N.D.	N.D.	0.5
Dibromochloromethane	N.D.	N.D.	N.D.	N.D.	0.5
Chlorobenzene	N.D.	N.D.	N.D.	N.D.	0.5
Bromoform	N.D.	N.D.	N.D.	N.D.	0.5
1,1,2,2-Tetrachloroethane	N.D.	N.D.	N.D.	N.D.	0.5
1,3-Dichlorobenzene	N.D.	N.D.	N.D.	N.D.	0.5
1,4-Dichlorobenzene	N.D.	N.D.	N.D.	N.D.	0.5
1,2-Dichlorobenzene	N.D.	N.D.	N.D.	N.D.	0.5

QUALITY CONTROL DATA

Surrogate Spike Percent Recovery				
Bromochloromethane	62%	72%	68%	62%
1,4-Dichlorobutane	66%	77%	77	71%

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
BLANK, SPIKE DUPLICATE AND SPIKE REPORT JOB # HLA 0831.76-L
METHOD: EPA 601

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.S.)	N.D.	8	80
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.S.)	N.D.	23	77
1,2-Dichloropropane	N.D.	-	N.S.
Bromodichloromethane	N.D.	-	N.S.
2-Chloroethylvinyl ether	N.D.	-	N.S.
trans-1,3-Dichloropropene(N.S.)	N.D.	1	83
cis-1,3-Dichloropropene	N.D.	-	N.S.
1,1,2-Trichloroethane	N.D.	-	N.S.
Tetrachloroethene(N.S.)	N.D.	15	70
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	84 %	76 %	76 %
1,4-Dichlorobutane	100 %	90 %	94 %

N.D.: Not Detected
N.S.: Not Spiked

Analytical Supervisor

pace laboratories, inc
FORMERLY WESCO LABORATORIES

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

REPORT OF LABORATORY ANALYSIS

Report Date: 08-Jul-88
PACE JOB #: HLA 0831.76-1
Analytical Method: EPA 602
MATRIX: WATER

Extract/Purge Date: 28-Jun-88
Completion Date: 28-Jun-88
Analyst: ATTIA

LAB #: 8-6216 Blank CLIENT'S ID: 062401

COMPOUND	RESULT (ug/l)	Detection Limit (ug/l)
Benzene	N.D.	0.2
Toluene	N.D.	0.2
Chlorobenzene	N.D.	0.2
Ethylbenzene	N.D.	0.2
Xylene	N.D.	0.2
1,3-Dichlorobenzene	N.D.	0.2
1,4-Dichlorobenzene	N.D.	0.2
1,2-Dichlorobenzene	N.D.	0.2

QUALITY CONTROL DATA

Surrogate Spike	Percent Recovery
Fluorobenzene	72 %

LAB #: 8-6217 Influent CLIENT'S ID: 062402

COMPOUND	RESULT (ug/l)	Detection Limit (ug/l)
Benzene	1.9	0.2
Toluene	N.D.	0.2
Chlorobenzene	N.D.	0.2
Ethylbenzene	N.D.	0.2
Xylene	N.D.	0.2
1,3-Dichlorobenzene	N.D.	0.2
1,4-Dichlorobenzene	N.D.	0.2
1,2-Dichlorobenzene	N.D.	0.2

QUALITY CONTROL DATA

Surrogate Spike	Percent Recovery
Fluorobenzene	76 %

N.D.: Not Detected

Analytical Supervisor

pace laboratories, inc
FORMERLY WESCO LABORATORIES

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

REPORT OF LABORATORY ANALYSIS

Report Date: 08-Jul-88
PACE JOB #: HLA 0831.76-1
Analytical Method: EPA 602
MATRIX: WATER

Extract/Purge Date: 28-Jun-88
Completion Date: 28-Jun-88
Analyst: ATTIA

LAB #: 8-6218 Intermediate CLIENT'S ID: 062403

COMPOUND	RESULT (ug/l)	Detection Limit (ug/l)
Benzene	N.D.	0.2
Toluene	N.D.	0.2
Chlorobenzene	N.D.	0.2
Ethylbenzene	N.D.	0.2
Xylene	N.D.	0.2
1,3-Dichlorobenzene	N.D.	0.2
1,4-Dichlorobenzene	N.D.	0.2
1,2-Dichlorobenzene	N.D.	0.2

QUALITY CONTROL DATA

Surrogate Spike	Percent Recovery
Fluorobenzene	74 %

LAB #: 8-6219 Effluent CLIENT'S ID: 062404

COMPOUND	RESULT (ug/l)	Detection Limit (ug/l)
Benzene	N.D.	0.2
Toluene	N.D.	0.2
Chlorobenzene	N.D.	0.2
Ethylbenzene	N.D.	0.2
Xylene	N.D.	0.2
1,3-Dichlorobenzene	N.D.	0.2
1,4-Dichlorobenzene	N.D.	0.2
1,2-Dichlorobenzene	N.D.	0.2

QUALITY CONTROL DATA

Surrogate Spike	Percent Recovery
Fluorobenzene	73 %

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 602 PACE JOB#: HLA 0831.76-1

COMPOUND	Blank (ug/l)	Spike Duplicate % deviation	Spike % recovery
Benzene	N.D.	1	99
Toluene	N.D.	2	102
p-Xylene	N.D.	3	102

QUALITY CONTROL DATA
Surrogate Spike % Recovery

Fluorobenzene	94 %	95 %	96 %

N.D.: Not Detected

Analytical Supervisor

Harding Lawson Associates
Environmental Services Division
200 Rush Landing Road
Novato, California 94947
(415) 892-0821

CHAIN OF CUSTODY FORM

HLA 8376

Samplers: R. ERDMAN

Job Number: 9382, 026.02

Name/Location: CITY OF OAKLAND

Project Manager: D. LELAND

Recorder: Rick Erdman (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	ANALYSIS REQUESTED: EPA 601/8010	EPA 602/8020	EPA 624/8240	EPA 625/8270	Priority Pllnt. Metals	Benzene/Toluene/Xylene (BTE)	Total Petrol. Hydrocarb. - Lab
23	X				N			88	06	2401	88	06	24	1045		X	X					X
23	X				N			88	06	2402	88	06	24	1129		X	X					X
23	X				N			88	06	2403	88	06	24	1134		X	X					X
23	X				N			88	06	2404	88	06	24	1140		X	X					X

LAB NUMBER: Yr	Wk	Seq	DEPTH IN FEET	COL MTD CD	QA CODE	MISCELLANEOUS
						5 day TAT.
						6/24 Rick Hulbert
						add Col
						602

WESCO

CHAIN OF CUSTODY RECORD

RELINQUISHED BY: (Signature)	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) Rick Erdman	DATE/TIME 6/24/88 1245	RECEIVED FOR LAB BY: (Signature)	DATE/TIME 6/24/88

METHOD OF SHIPMENT HAND DELIVERED

Laboratory Copy Project Office Copy Field or Office Copy

pace laboratories, inc
FORMERLY WESCO LABORATORIES

REPORT OF LABORATORY ANALYSIS

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

Report date: July 27, 1988
Client: Harding Lawson Associates
P.O Box 578
Novato, CA 94947
Attn.: David Leland

Pace job #: HLA 0831.78-L

TREATMENT SYSTEM
6-30-88

Date sampled: June 30, 1988
Sampled by: Evans/Lewis

Site: City of Oakland

Date received: July 1, 1988
Submitted by: D. Evans

P.O.: 09382,026.02

Lab #	Client ID		Matrix	Analysis
8- 6490	88263021	Effluent	water	TPH only 5030/8015
8- 6490	88263021		water	Vol Org. Cpds. 601+ 602
8- 6491	88263022	Intermediate	water	TPH only 5030/8015
8- 6491	88263022		water	Vol Org. Cpds. 601+ 602
8- 6492	88263023	Influent	water	TPH only 5030/8015
8- 6492	88263023		water	Vol Org. Cpds. 601+ 602
8- 6493	88263024	Blank	water	TPH only 5030/8015
8- 6493	88263024		water	Vol Org. Cpds. 601+ 602

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, (415)883-6100.

Please note: Due to instrument problems the 601+602 analyses were run as 624's.

C. Sontag
Sample Controller

pace laboratories, inc.
FORMERLY WESCO LABORATORIES

REPORT OF LABORATORY ANALYSIS

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

Report Date: 15-Jul-88 Extract/Purge Date: 09-Jul-88
PACE JOB #: HLA 0831.78-L Completion Date: 09-Jul-88
Analytical Method: EPA 5030/8015/602 Analyst: ATTIA
MATRIX: WATER

LAB #: 8-6490 CLIENT'S ID: Effluent 263021

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

QUALITY CONTROL DATA
Surrogate Spike % Recovery
Fluorobenzene 99 %

LAB #: 8-6491 CLIENT'S ID: Intermediate 263022

COMPOUND	RESULT (ug/l)	Detection Limit (ug/l)
Total Petroleum Hydrocarbons (light)---	140	50.0

QUALITY CONTROL DATA
Surrogate Spike % Recovery
Fluorobenzene 99 %

LAB #: 8-6492 CLIENT'S ID: Influent 263023

COMPOUND	RESULT (ug/l)	Detection Limit (ug/l)
Total Petroleum Hydrocarbons (light)---	140	50.0

QUALITY CONTROL DATA
Surrogate Spike % Recovery
Fluorobenzene 104 %

N.D.: Not Detected

Only one VOA submitted, not enough sample for TPH - Lab # 8-6493

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 5030/8015/602 PACE JOB #: HLA 0831.78-L

COMPOUND	Blank ug/l	Spike Duplicate % deviation	Spike % recovery
Gasoline----------	N.D.	10	115

QUALITY CONTROL DATA
Surrogate Spike % Recovery

Fluorobenzene	93 %	97 %	88 %

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-Jul-88
PACE JOB #: HLA 0831.78-L
Analytical Method: EPA 624
Matrix: WATER

Extract/Purge Date: 08-Jul-88
Completion Date: 08-Jul-88
Analyst: NET/PACIFIC

	Effluent	Intermediate	Influent	Blank	
LAB #	8-6490	8-6491	8-6492	8-6493	
CLIENT ID	263021	263022	263023	263024	
COMPOUND	RESULT (ug/l)	RESULT (ug/l)	RESULT (ug/l)	RESULT (ug/l)	Detection Limit(ug/l)
Dichlorodifluoromethan	N.D.	N.D.	N.D.	N.D.	0.5
Chloromethane	N.D.	N.D.	N.D.	N.D.	0.5
Vinyl Chloride	N.D.	N.D.	N.D.	N.D.	0.5
Bromomethane	N.D.	N.D.	N.D.	N.D.	0.5
Chloroethane	N.D.	N.D.	N.D.	N.D.	0.5
Trichlorofluoromethane	N.D.	N.D.	N.D.	N.D.	0.5
1,1-Dichloroethene	N.D.	N.D.	N.D.	N.D.	0.5
Methylene Chloride	N.D.	N.D.	N.D.	N.D.	0.5
trans-1,2-Dichloroethe	N.D.	N.D.	N.D.	N.D.	0.5
1,1-Dichloroethane	N.D.	N.D.	N.D.	N.D.	0.5
Chloroform	N.D.	1.9	N.D.	N.D.	0.5
1,1,1-Trichloroethane	N.D.	N.D.	N.D.	N.D.	0.5
1,2-Dichloroethane	N.D.	N.D.	N.D.	N.D.	0.5
Carbon Tetrachloride	N.D.	N.D.	N.D.	N.D.	0.5
Benzene	N.D.	N.D.	8.0	N.D.	0.5
1,2-Dichloropropane	N.D.	N.D.	N.D.	N.D.	0.5
Trichloroethene	11	350	330	N.D.	0.5
Bromodichloromethane	N.D.	N.D.	N.D.	N.D.	0.5
trans-1,3-Dichloroprop	N.D.	N.D.	N.D.	N.D.	0.5
Toluene	N.D.	9.6	N.D.	N.D.	0.5
cis-1,3-Dichloropropen	N.D.	N.D.	N.D.	N.D.	0.5
1,1,2-Trichloroethane	N.D.	N.D.	N.D.	N.D.	0.5
2-Chloroethylvinyl eth	N.D.	N.D.	N.D.	N.D.	0.5
Dibromochloromethane	N.D.	N.D.	N.D.	N.D.	0.5
Tetrachloroethene	N.D.	N.D.	N.D.	N.D.	0.5
Chlorobenzene	N.D.	N.D.	N.D.	N.D.	0.5
Ethylbenzene	N.D.	N.D.	N.D.	N.D.	0.5
Bromoform	N.D.	N.D.	N.D.	N.D.	0.5
Xylene	N.D.	N.D.	N.D.	N.D.	0.5
1,1,2,2,-Tetrachloroet	N.D.	N.D.	N.D.	N.D.	0.5
1,3-Dichlorobenzene	N.D.	N.D.	N.D.	N.D.	0.5
1,4-Dichlorobenzene	N.D.	N.D.	N.D.	N.D.	0.5
1,2-Dichlorobenzene	N.D.	6.7	N.D.	N.D.	0.5

N. D.: Not Detected

QUALITY CONTROL DATA (To follow)

Analytical Supervisor

11 Digital Drive □ Novato, CA 94949 □ Phone (415) 883-6100

Harding Lawson Associates
Environmental Services Division
200 Rush Landing Road
Novato, California 94947
(415) 892-0821

CHAIN OF CUSTODY FORM

HLA # 08837.12

Samplers: David M Evans
Jeff B Lewis

Job Number: 09382,026,02
Name/Location: City of Oakland
Project Manager: Dave Leland

Recorder: David M Evans
(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	ANALYSIS REQUESTED: EPA 601/8010	EPA 602/8020	EPA 624/8240	EPA 625/8270	Priority Pllnt. Metals	Benzene/Toluene/Xylene	Total Petrol. Hydrocarb.
23	X				2			38	26	3021	880630			1750		X	X					X
23	X				2			39	26	3022	880630			1750		X	X					X
23	X				2			40	26	3023	880630			1750		X	X					X
23	X				1			41	26	3024	880630			1750		X	X					X

LAB NUMBER: Yr	Wk	Seq	DEPTH IN FEET	COL MTD CD	QA CODE	MISCELLANEOUS
						5-day Turn around Time

CHAIN OF CUSTODY RECORD

RELINQUISHED BY: (Signature) David M Evans	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) David M Evans — DATE/TIME 6-30-88 1910	RECEIVED FOR LAB BY: (Signature) Dyane — DATE/TIME 6/30/88 7:15	

METHOD OF SHIPMENT: Hand delivered in cooler w/ice

Laboratory Copy Project Office Copy Field or Office Copy

pace laboratories, inc.
FORMERLY WESCO LABORATORIES

REPORT OF LABORATORY ANALYSIS

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

Report date: August 11, 1988
Client: Harding Lawson Associates
P.O Box 578
Novato, CA 94947
Attn.: DAVID LELAND

Pace job #: HLA 0831.79-L

TREATMENT SYSTEM
7-8-88

Date sampled: July 8, 1988 Site: CITY OF OAKLAND
Sampled by: DAVID EVANS

Date received: July 8, 1988 P.O.: 09382,026.02
Submitted by: DAVID EVANS

Lab #	Client ID	Matrix	Analysis
8- 6720	88280801 Intermediate	water	TPH only 5030/8015
8- 6720	88280801	water	Vol Org. Cpds. 8010+8020
8- 6721	88280802 Influent	water	TPH only 5030/8015
8- 6721	88280802	water	Vol Org. Cpds. 8010+8020
8- 6722	88280803 Blank	water	TPH only 5030/8015
8- 6722	88280803	water	Vol Org. Cpds. 8010+8020
8- 6723	88280804 Effluent	water	TPH only 5030/8015
8- 6724	88280804	water	Dissol. Ox. 360.2
8- 6723	88280804	water	Vol Org. Cpds. 8010+8020
8- 6725	BLANK	water	

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, (415)883-6100.

C. Sontag
Sample Controller

pace laboratories, inc
FORMERLY WESCO LABORATORIES

REPORT OF LABORATORY ANALYSIS

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

Report Date: 10-Aug-88 Extract/Purge Date: 22-Jul-88
PACE JOB #: HLA 0831.79-L Completion Date: 22-Jul-88
Analytical Method: EPA 5030/8015 Analyst: ATTIA/LEWIS
MATRIX: WATER

Intermediate

LAB #: 8-6720 CLIENT'S ID: 280801

COMPOUND	RESULT (ug/l)	Detection Limit (ug/l)
Total Petroleum Hydrocarbons (light)---	51	50.0

QUALITY CONTROL DATA
Surrogate Spike % Recovery
Fluorobenzene 90 %

Influent

LAB #: 8-6721 CLIENT'S ID: 280802

COMPOUND	RESULT (ug/l)	Detection Limit (ug/l)
Total Petroleum Hydrocarbons (light)---	58	50.0

QUALITY CONTROL DATA
Surrogate Spike % Recovery
Fluorobenzene 96 %

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:	10-Aug-88	Extract/Purge Date:	22-Jul-88
PACE JOB #:	HLA 0831.79-L	Completion Date:	22-Jul-88
Analytical Method:	EPA 5030/8015	Analyst:	ATTIA/LEWIS
MATRIX:	WATER		

LAB #: 8-6722 CLIENT'S ID: Blank 280803

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

QUALITY CONTROL DATA
Surrogate Spike % Recovery
Fluorobenzene 77 %

LAB #: 8-6723 CLIENT'S ID: Effluent 280804

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

QUALITY CONTROL DATA
Surrogate Spike % Recovery
Fluorobenzene 79 %

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 0831.79-L

COMPOUND	Blank ug/l	Spike Duplicate % deviation	Spike % recovery
Gasoline----------	N.D.	2	85

QUALITY CONTROL DATA
Surrogate Spike % Recovery

Fluorobenzene	123 %	112 %	106 %

N.D.: Not Detected

Analytical Supervisor

11 Digital Drive ◻ Novato, CA 94949 ◻ Phone (415) 883-6100

pace laboratories, inc
FORMERLY WESCO LABORATORIES

REPORT OF LABORATORY ANALYSIS

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

Report Date: 10-Aug-88
PACE JOB #: HLA 0831.79-1
Analytical Method: EPA 8010
MATRIX: WATER

Extract/Purge Date: 22-Jul-88
Completion Date: 22-Jul-88
Analyst: ATTIA/LEWIS

	Int.	Influent	Blank	Effluent
LAB #:	B-6720	B-6721	B-6722	B-6723
CLIENT'S ID:	280801	280802	280803	280804

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.	2.0
Chloromethane	N.D.	N.D.	N.D.	N.D.	2.0
Vinyl Chloride	N.D.	N.D.	N.D.	N.D.	2.0
Bromomethane	N.D.	N.D.	N.D.	N.D.	2.0
Chloroethane	N.D.	N.D.	N.D.	N.D.	2.0
Trichlorofluoromethane	N.D.	N.D.	N.D.	N.D.	2.0
1,1-Dichloroethene	N.D.	N.D.	N.D.	N.D.	0.5
Methylene Chloride	N.D.	N.D.	N.D.	N.D.	0.5
trans-1,2-Dichloroethene	N.D.	N.D.	N.D.	N.D.	0.5
1,1-Dichloroethane	N.D.	N.D.	N.D.	N.D.	0.5
Chloroform	0.7	0.6	N.D.	N.D.	0.5
1,1,1-Trichloroethane (TCA)	N.D.	N.D.	N.D.	N.D.	0.5
Carbon Tetrachloride	N.D.	N.D.	N.D.	N.D.	0.5
1,2-Dichloroethane (EDC)	9.7	7.3	N.D.	N.D.	0.5
Trichloroethene (TCE)	130	117	N.D.	N.D.	0.5
1,2-Dichloropropane	N.D.	N.D.	N.D.	N.D.	0.5
Bromodichloromethane	N.D.	N.D.	N.D.	N.D.	0.5
2-Chloroethylvinyl ether	N.D.	N.D.	N.D.	N.D.	0.5
trans-1,3-Dichloropropene	N.D.	N.D.	N.D.	N.D.	0.5
cis-1,3-Dichloropropene	N.D.	N.D.	N.D.	N.D.	0.5
1,1,2-Trichloroethane	N.D.	N.D.	N.D.	N.D.	0.5
Tetrachloroethene	N.D.	N.D.	N.D.	N.D.	0.5
Dibromochloromethane	N.D.	N.D.	N.D.	N.D.	0.5
Chlorobenzene	0.6	N.D.	N.D.	N.D.	0.5
Bromoform	0.6	0.6	N.D.	N.D.	0.5
1,1,2,2-Tetrachloroethane	N.D.	N.D.	N.D.	N.D.	0.5
1,3-Dichlorobenzene	N.D.	N.D.	N.D.	N.D.	0.5
1,4-Dichlorobenzene	N.D.	N.D.	N.D.	N.D.	0.5
1,2-Dichlorobenzene	N.D.	N.D.	N.D.	N.D.	0.5

QUALITY CONTROL DATA

Surrogate Spike	Percent Recovery			
Bromochloromethane	90 %	79 %	91 %	93 %
1,4-Dichlorobutane	90 %	98 %	103 %	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

BLANK, SPIKE DUPLICATE AND SPIKE REPORT JOB # HLA 0831.79-1
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 (M.S.)	N.D.	8	107
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) (M.S.)	N.D.	2	107
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.	0	109
cis-1,3-Dichloropropene	N.D.	-	N.S.
1,1,2-Trichloroethane	N.D.	-	N.S.
Tetrachloroethene (M.S.)	N.D.	4	105
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	70 %	114 %	%
1,4-Dichlorobutane	80 %	104 %	%

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: 10-Aug-88
PACE JOB #: HLA 0831.79-L
Analytical Method: EPA 8020
MATRIX: WATER

Extract/Purge Date: 22-Jul-88
Completion Date: 22-Jul-88
Analyst: LEWIS/ATTIA

	Influent	Influent
LAB #:	8-6720	8-6721
CLIENT'S ID:	280801	280802

COMPOUND	RESULT (ug/l)	RESULT (ug/l)	Detection Limit (ug/l)
Benzene	5.0	7.0	0.2
Toluene	13	13	0.2
Chlorobenzene	N.D.	N.D.	0.2
Ethylbenzene	N.D.	N.D.	0.2
Xylene	N.D.	4.2	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	99 %	94 %

	Blank	Effluent
LAB #:	8-6722	8-6723
CLIENT'S ID:	280803	280804

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.	D.L.*	0.2
Ethylbenzene	N.D.	N.D.	0.2
Xylene	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	96 %	96 %

N.D.: Not Detected
D.L.: at Dilution Limit

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 0831.79-L

COMPOUND	Blank (ug/l)	Spike Duplicate % deviation	Spike % recovery
Benzene	N.D.	3	91
Toluene	N.D.	3	91
p-Xylene	N.D.	1	92
QUALITY CONTROL DATA Surrogate Spike % Recovery			
Fluorobenzene	96 %	100 %	100%

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: 10-Aug-88
PACE JOB #: HLA 0831.79-1
Analytical Method: SEE BELOW
MATRIX: WATER

Extract/Purge Date: 18-Jul-88
Analysis Completion : 18-Jul-88
Analyst: COSTIGAN

LAB #	CLIENT ID		DO (mg/l) 12-Jul-88
8-6724	280804	Effluent	2.9

Detection Limit: 0.2

Method: EPA 600/4-79-020, APHA 1983 360.2

QUALITY CONTROL DATA PACE JOB #: HLA 0831.79-1

COMPOUND	Blank (mg/l)	Spike Duplicate % deviation	Spike % recovery
DISOLVED OXYGEN	N.D.	18	-

Analytical Supervisor

Harding Lawson Associates
Environmental Services Division
200 Rush Landing Road
Novato, California 94947
(415) 892-0821

CHAIN OF CUSTODY FORM

Samplers: David M Evans

Job Number: 07382,026.02

Name/Location: City of Oakland

Project Manager: Dave Leland

Recorder: David M Evans (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				2			88	28	0801	88	07	08	1010	
23	X				2			88	28	0802	88	07	08	1010	
23	X				2			88	28	0803	88	07	08	1010	
23	X				4			88	28	0804	88	07	08	1010	

ANALYSIS REQUESTED

EPA 601/8010	EPA 602/8020	EPA 624/8240	EPA 625/8270	Priority Pllnt. Metals	Benzene/Toluene/Xylene	Total Petrol. Hydrocarb.	D.O.
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
						2-Week turn around time Faxed Leland 6/27/88. 5 day TAT.

Pace Lab

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 7-8-88 1421	RECEIVED FOR LAB BY: (Signature) Sontag	DATE/TIME 7/8 3:15 pm

METHOD OF SHIPMENT: Hand delivered in cooler w/ice

6530

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: August 11, 1988
Client: Harding Lawson Associates
200 Rush Landing Road
Novato, CA 94947
Attn.: D. Leland

Pace job #: HLA 0831.80-L

TREATMENT SYSTEM
7-14-88

Date sampled: July 14, 1988
Sampled by: T. Walker

Site: City of Oakland

Date received: July 14, 1988
Submitted by: T. Walker

P.O.: 9382,026.02

Lab #	Client ID	Matrix	Analysis
8- 6857	88281401 Intermediate	water	TPH only 5030/8015
8- 6857	88281401	water	Vol Org. Cpds. 8010+8020
8- 6858	88281402 Effluent	water	TPH only 5030/8015
8- 6858	88281402	water	Vol Org. Cpds. 8010+8020
8- 6859	88281403 Influent	water	TPH only 5030/8015
8- 6859	88281403	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, (415)883-6100.

C. Santos
Sample Controller

pace laboratories, inc.
FORMERLY WESCO LABORATORIES

REPORT OF LABORATORY ANALYSIS

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

Report Date: 11-Aug-88 Extract/Purge Date: 22-Jul-88
PACE JOB #: HLA 0831.80-L Completion Date: 22-Jul-88
Analytical Method: EPA 5030/8015 Analyst: ATTALLA
MATRIX: WATER

Intermediate

LAB #: 8-6857 CLIENT'S ID: 281401

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

QUALITY CONTROL DATA
Surrogate Spike % Recovery
Fluorobenzene 93 %

Effluent

LAB #: 8-6858 CLIENT'S ID: 281402

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

QUALITY CONTROL DATA
Surrogate Spike % Recovery
Fluorobenzene 95 %

Influent

LAB #: 8-6859 CLIENT'S ID: 281403

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

QUALITY CONTROL DATA
Surrogate Spike % Recovery
Fluorobenzene 96 %

N.D.: Not Detected

Attalla

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 0831.80-L**

COMPOUND	Blank ug/l	Spike Duplicate % deviation	Spike % recovery
Gasoline----------	N.D.	2	85

QUALITY CONTROL DATA
Surrogate Spike % Recovery

Fluorobenzene	123 %	112 %	106 %

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: 10-Aug-88
PACE JOB #: HLA 0831.80-L
Analytical Method: EPA 8010
MATRIX: WATER

Extract/Purge Date: 19-Jul-88
Completion Date: 19-Jul-88
Analyst: LEWIS/ARNTZEN

	Intermediate	Effluent	Influent	
LAB #:	8-6857	8-6858	8-6859	
CLIENT'S ID:	281401	281402	281403	
COMPOUND	RESULT (ug/l)	RESULT (ug/l)	RESULT (ug/l)	Detection Limit (ug/l)
Dichlorodifluoromethane	N.D.	N.D.	N.D.	2.0
Chloromethane	N.D.	N.D.	N.D.	2.0
Vinyl Chloride	N.D.	N.D.	N.D.	2.0
Bromomethane	N.D.	N.D.	N.D.	2.0
Chloroethane	N.D.	N.D.	N.D.	2.0
Trichlorofluoromethane	N.D.	N.D.	N.D.	2.0
1,1-Dichloroethene	N.D.	N.D.	N.D.	0.5
Methylene Chloride	N.D.	N.D.	N.D.	0.5
trans-1,2-Dichloroethene	N.D.	N.D.	N.D.	0.5
1,1-Dichloroethane	N.D.	N.D.	N.D.	0.5
Chloroform	N.D.	N.D.	0.8	0.5
1,1,1-Trichloroethane (TCA)	N.D.	N.D.	N.D.	0.5
Carbon Tetrachloride	N.D.	N.D.	N.D.	0.5
1,2-Dichloroethane (EDC)	3.3	N.D.	14	0.5
Trichloroethene (TCE)	3.1	N.D.	190	0.5
1,2-Dichloropropane	N.D.	N.D.	N.D.	0.5
Bromodichloromethane	N.D.	N.D.	N.D.	0.5
2-Chloroethylvinyl ether	N.D.	N.D.	N.D.	0.5
trans-1,3-Dichloropropene	N.D.	N.D.	N.D.	0.5
cis-1,3-Dichloropropene	N.D.	N.D.	N.D.	0.5
1,1,2-Trichloroethane	N.D.	N.D.	N.D.	0.5
Tetrachloroethene	N.D.	N.D.	N.D.	0.5
Dibromochloromethane	N.D.	N.D.	N.D.	0.5
Chlorobenzene	N.D.	N.D.	N.D.	0.5
Bromoform	N.D.	N.D.	N.D.	0.5
1,1,2,2-Tetrachloroethane	N.D.	N.D.	N.D.	0.5
1,3-Dichlorobenzene	N.D.	N.D.	N.D.	0.5
1,4-Dichlorobenzene	N.D.	N.D.	N.D.	0.5
1,2-Dichlorobenzene	N.D.	N.D.	N.D.	0.5
QUALITY CONTROL DATA				
Surrogate Spike Percent Recovery				
Bromochloromethane	86 %	78%	71 %	
1,4-Dichlorobutane	106 %	106%	101 %	

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
BLANK, SPIKE DUPLICATE AND SPIKE REPORT JOB # HLA 0831.80-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(M.S.)	N.D.	5	98
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)(M.S.)	1.3	3	100
1,2-Dichloropropane	N.D.	-	N.S.
Bromodichloromethane	N.D.	-	N.S.
2-Chloroethylvinyl ether	N.D.	-	N.S.
trans-1,3-Dichloropropene(M.S.	N.D.	4	138
cis-1,3-Dichloropropene	N.D.	-	N.S.
1,1,2-Trichloroethane	N.D.	-	N.S.
Tetrachloroethene(M.S.)	N.D.	7	112
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	108 %	95 %	113 %
1,4-Dichlorobutane	104 %	113 %	111 %

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: 10-Aug-88 | Extract/Purge Date: 18-Jul-88
PACE JOB #: HLA 0831.80-L | Completion Date: 18-Jul-88
Analytical Method: EPA 8020 | Analyst: ATTALLA
MATRIX: WATER

	Intermediate	Influent	Effluent
LAB #:	8-6857	8-6858	8-6859
CLIENT'S ID:	281401	241402	281403

COMPOUND	RESULT (ug/l)	RESULT (ug/l)	RESULT (ug/l)	Detection Limit (ug/l)
Benzene	N.D.	N.D.	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	97 %	96 %	96 %

QUALITY CONTROL DATA
METHOD: EPA 8020 | PACE JOB#: HLA 0831.80-L

COMPOUND	Blank (ug/l)	Spike Duplicate % deviation	Spike % recovery
Benzene	N.D.	7	99
Toluene	N.D.	5	102
p-Xylene	N.D.	10	102

QUALITY CONTROL DATA

Surrogate Spike	% Recovery		
Fluorobenzene	119 %	97 %	100%

N.D.: Not Detected

Analytical Supervisor

Harding Lawson Associates
Environmental Services Division
200 Rush Landing Road
Novato, California 94947
(415) 892-0821

CHAIN OF CUSTODY FORM

HLA 0831.80-L

Samplers: WALKER TJ

Job Number: 9382 026 02

Name/Location: CITY OF OAKLAND

Project Manager: D. Leland

Recorder: T Walker (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	ANALYSIS REQUESTED: EPA 601/8010	EPA 602/8020	EPA 624/8240	EPA 625/8270	Priority Pllnt. Metals	Benzene/Toluene/Xylene (L)	Total Petrol. Hydrocarb. (L)
23	X				X			8826	14	01	8807	14	1245			X	X					X
23	X				X			8828	14	02	8807	14	1245			X	X					X
23	X				X			8828	14	03	8807	14	1245			X	X					X

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

CHAIN OF CUSTODY RECORD

RELINQUISHED BY: (Signature)	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) T Walker 07/14/88 1610	RECEIVED FOR LAB BY: (Signature) C. Sontag	DATE/TIME 7/14 6:15 pm
METHOD OF SHIPMENT		

Laboratory Copy Project Office Copy Field or Office Copy

6533

pace laboratories, inc
FORMERLY WESCO LABORATORIES

REPORT OF LABORATORY ANALYSIS

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

Report date: August 5, 1988 Pace job #: HLA 0831.82-L
Client: Harding Lawson Associates
200 Rush Landing Road
Novato, CA 94947
Attn.: D. Leland

TREATMENT SYSTEM
7-22-88

Date sampled: July 22, 1988 Site: City of Oakland
Sampled by: D. Harms

Date received: July 22, 1988 P.O.: 09382,026.02
Submitted by: D. Harms

Lab #	Client ID	Matrix	Analysis
8- 7031	88292201 BLANK	water	TPH only 5030/8015
8- 7031	88292201	water	Vol Org. Cpds.601+ 602
8- 7032	88292202 EFFLUENT	water	TPH only 5030/8015
8- 7032	88292202	water	Vol Org. Cpds.601+ 602
8- 7033	88292203 INFLUENT	water	TPH only 5030/8015
8- 7033	88292203	water	Vol Org. Cpds.601+ 602
8- 7034	88292204 EFFLUENT	water	TPH only 5030/8015
8- 7034	88292204	water	Vol Org. Cpds.601+ 602
8- 7035	88292205 INTERMEDIATE	water	TPH only 5030/8015
8- 7035	88292205	water	Vol Org. Cpds.601+ 602

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, (415)883-6100.

C. Santag
Sample Controller

pace laboratories, inc.
FORMERLY WESCO LABORATORIES

REPORT OF LABORATORY ANALYSIS

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

Report Date: 03-Aug-88 Extract/Purge Date: 27-Jul-88
PACE JOB #: HLA 0831.82-L Completion Date: 27-Jul-88
Analytical Method: EPA 5030/8015 Analyst: ATTIA
MATRIX: WATER

LAB #: 8-7031 CLIENT'S ID: BLANK 292201

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

QUALITY CONTROL DATA
Surrogate Spike % Recovery
Fluorobenzene 99 %

LAB #: 8-7032 CLIENT'S ID: EFFLUENT 292202

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

QUALITY CONTROL DATA
Surrogate Spike % Recovery
Fluorobenzene 100 %

LAB #: 8-7033 CLIENT'S ID: INFLUENT 292203

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

QUALITY CONTROL DATA
Surrogate Spike % Recovery
Fluorobenzene 94 %

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: 03-Aug-88
PACE JOB #: HLA 0831.82-L
Analytical Method: EPA 5030/8015
MATRIX: WATER

Extract/Purge Date: 27-Jul-88
Completion Date: 27-Jul-88
Analyst: ATTIA

EFFLUENT

LAB #: 8-7034 CLIENT'S ID: 292204

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

QUALITY CONTROL DATA
Surrogate Spike % Recovery
Fluorobenzene 101 %

INTERMEDIATE

LAB #: 8-7035 CLIENT'S ID: 292205

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

QUALITY CONTROL DATA
Surrogate Spike % Recovery
Fluorobenzene 99 %

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 0831.82-L

COMPOUND	Blank ug/l	Spike Duplicate % deviation	Spike % recovery
Gasoline----------	N.D.	5	96

QUALITY CONTROL DATA
Surrogate Spike % Recovery

Fluorobenzene	99 %	101 %	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: 04-Aug-88
PACE JOB #: HLA 0831.82-L
Analytical Method: EPA 601
MATRIX: WATER

Extract/Purge Date: 24-Jul-88
Completion Date: 24-Jul-88
Analyst: ATTIA

	BLANK	EFFLUENT	INFLUENT	EFFLUENT	INTERMEDIATE	
LAB #:	8-7031	8-7032	8-7033	8-7034	8-7035	
CLIENT'S ID:	292201	292202	292203	292204	292205	
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.	N.D.	N.D.	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.	5.0
Methylene Chloride	N.D.	N.D.	N.D.	N.D.	N.D.	5.0
trans-1,2-Dichloroethene	N.D.	N.D.	N.D.	N.D.	N.D.	5.0
1,1-Dichloroethane	N.D.	N.D.	0.8	N.D.	0.5	5.0
Chloroform	N.D.	N.D.	0.7	N.D.	0.6	5.0
1,1,1-Trichloroethane (TCA)	N.D.	N.D.	N.D.	N.D.	N.D.	5.0
Carbon Tetrachloride	N.D.	N.D.	N.D.	N.D.	N.D.	5.0
1,2-Dichloroethane (EDC)	N.D.	N.D.	13.6	N.D.	6.3	5.0
Trichloroethene (TCE)	N.D.	N.D.	150	N.D.	3.5	5.0
1,2-Dichloropropane	N.D.	N.D.	N.D.	N.D.	N.D.	5.0
Bromodichloromethane	N.D.	N.D.	N.D.	N.D.	N.D.	5.0
2-Chloroethylvinyl ether	N.D.	N.D.	N.D.	N.D.	N.D.	5.0
trans-1,3-Dichloropropene	N.D.	N.D.	N.D.	N.D.	N.D.	5.0
cis-1,3-Dichloropropene	N.D.	N.D.	N.D.	N.D.	N.D.	5.0
1,1,2-Trichloroethane	N.D.	N.D.	N.D.	N.D.	N.D.	5.0
Tetrachloroethene	N.D.	N.D.	N.D.	N.D.	N.D.	5.0
Dibromochloromethane	N.D.	N.D.	N.D.	N.D.	N.D.	5.0
Chlorobenzene	N.D.	N.D.	N.D.	N.D.	N.D.	5.0
Bromoform	N.D.	N.D.	N.D.	N.D.	N.D.	5.0
1,1,2,2-Tetrachloroethane	N.D.	N.D.	N.D.	N.D.	N.D.	5.0
1,3-Dichlorobenzene	N.D.	N.D.	N.D.	N.D.	N.D.	5.0
1,4-Dichlorobenzene	N.D.	N.D.	N.D.	N.D.	N.D.	5.0
1,2-Dichlorobenzene	N.D.	N.D.	N.D.	N.D.	N.D.	5.0
QUALITY CONTROL DATA						
Surrogate Spike Percent Recovery						
Bromochloromethane	95 %	109 %	96 %	105 %	101 %	
1,4-Dichlorobutane	113 %	121 %	109 %	106 %	100 %	

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
BLANK, SPIKE DUPLICATE AND SPIKE REPORT JOB # NLA 0831.82-L
METHOD: EPA 601

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	2.2	-	N.S.
trans-1,2-Dichloroethene	N.D.	-	N.S.
1,1-Dichloroethane(N.S.)	N.D.	6	112
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.S.)	N.D.	5	110
1,2-Dichloropropane	N.D.	-	N.S.
Bromodichloromethane	N.D.	-	N.S.
2-Chloroethylvinyl ether	N.D.	-	N.S.
trans-1,3-Dichloropropene(N.S.)	N.D.	4	112
cis-1,3-Dichloropropene	N.D.	-	N.S.
1,1,2-Trichloroethane	N.D.	-	N.S.
Tetrachloroethene(N.S.)	N.D.	4	100
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	107%	94 %	98%
1,4-Dichlorobutane	114%	100 %	100%

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: 04-Aug-88 Extract/Purge Date: 25-Jul-88
PACE JOB #: HLA 0831.82-L Completion Date: 25-Jul-88
Analytical Method: EPA 602 Analyst: LEWIS
MATRIX: WATER

	BLANK	EFFLUENT	INFLUENT	
LAB #:	8-7031	8-7032	8-7033	
CLIENT'S ID:	292201	292202	292203	
COMPOUND	RESULT (ug/l)	RESULT (ug/l)	RESULT (ug/l)	Detection Limit (ug/l)
Benzene	N.D.	N.D.	N.D.	0.2
Toluene	N.D.	2.1	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	90%	94%	96%

	EFFLUENT	INTERMEDIATE	
LAB #:	8-7034	8-7035	
CLIENT'S ID:	292204	292205	
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
Xylene	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

Surrogate Spike	Percent Recovery	
Fluorobenzene	96%	94%

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 602

PACE JOB#: HLA 0831.82-L

COMPOUND	Blank (ug/l)	Spike Duplicate % deviation	Spike % recovery
Benzene	N.D.	2	96
Toluene	N.D.	4	97
p-Xylene	N.D.	3	100

QUALITY CONTROL DATA
Surrogate Spike % Recovery

Fluorobenzene	97 %	99 %	100%

N.D.: Not Detected

Analytical Supervisor

Harding Lawson Associates
Environmental Services Division
200 Rush Landing Road
Novato, California 94947
(415) 892-0821

CHAIN OF CUSTODY FORM

HLA 0831.82-L

Samplers: DL HARMS

Job Number: 09382,028.02

Name/Location: CITY OF OAKLAND WKLY

Project Manager: D. LELAND

Recorder: Daniel D. Harms (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	ANALYSIS REQUESTED: EPA 601/8010	EPA 602/8020	EPA 624/8240	EPA 625/8270	Priority Pllnt. Metals	Benzene/Toluene/Xylene	Total Petrol. Hydrocarb. (L)
23	X				3			88	29	2201	88	07	22	1045		X	X					X
23	X				3			88	29	2202	88	07	22	1054		X	X					X
23	X				3			88	29	2203	88	07	22	1059		X	X					X
23	X				3			88	29	2204	88	07	22	1106		X	X					X
23	X				3			88	29	2205	88	07	22	1115		X	X					X

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

PACE LABS

CHAIN OF CUSTODY RECORD

RELINQUISHED BY: (Signature) Daniel D. Harms	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) C. Sontag	DATE/TIME 7/22 4pm
METHOD OF SHIPMENT		

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

6533

pace laboratories, inc.
FORMERLY WESCO LABORATORIES

REPORT OF LABORATORY ANALYSIS

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

Report date: August 10, 1988
Client: Harding Lawson Associates
200 Rush Landing Road
Novato, CA 94947
Attn.: David Leland

Pace job #: HLA 0831.84-L

TREATMENT SYSTEM
7-29-88

Date sampled: July 29, 1988
Sampled by: David Evans

Site: City of Oakland

Date received: July 29, 1988
Submitted by: David Evans

P.O.: 09382,026.22

Lab #	Client ID	Matrix	Analysis
8- 7232	8830-2901 Effluent	water	TPH only 5030/8015
8- 7232	8830-2901	water	Vol Org. Cpds. 8010+8020
8- 7233	8830-2902 Effluent	water	TPH only 5030/8015
8- 7233	8830-2902	water	Vol Org. Cpds. 8010+8020
8- 7234	8830-2903 Blank	water	TPH only 5030/8015
8- 7234	8830-2903	water	Vol Org. Cpds. 8010+8020
8- 7235	8830-2904 Intermediate	water	TPH only 5030/8015
8- 7235	8830-2904	water	Vol Org. Cpds. 8010+8020
8- 7236	8830-2905 Influent	water	TPH only 5030/8015
8- 7236	8830-2905	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, (415)883-6100.

C. Sontag
Sample Controller

pace laboratories, inc.
FORMERLY WESCO LABORATORIES

REPORT OF LABORATORY ANALYSIS

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

Report Date: 09-Aug-88
PACE JOB #: HLA 0831.84-L
Analytical Method: EPA 5030/8015
Matrix: WATER

Extract/Purge: 01-Aug-88
Completion Date: 01-Aug-88
Analyst: ATTIA

Effluent

LAB #: 8-7232 CLIENT ID: 302901

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

QUALITY CONTROL DATA
Surrogate Spike % Recovery
Fluorobenzene 90 %

Effluent

LAB #: 8-7233 CLIENT ID: 302902

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

QUALITY CONTROL DATA
Surrogate Spike % Recovery
Fluorobenzene 94 %

Blank

LAB #: 8-7234 CLIENT ID: 302903

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

QUALITY CONTROL DATA
Surrogate Spike % Recovery
Fluorobenzene 93 %

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: 09-Aug-88
PACE JOB #: HLA 0831.84-L
Analytical Method: EPA 5030/8015
Matrix: WATER

Extract/Purge: 01-Aug-88
Completion Date: 01-Aug-88
Analyst: ATTIA

Intermediate

LAB #: 8-7235 CLIENT ID: 302904

COMPOUND	RESULT (ug/l)	Detection Limit (ug/l)
Total Petroleum Hydrocarbons (light)-----	130	50.0

QUALITY CONTROL DATA
Surrogate Spike % Recovery
Fluorobenzene 92 %

Influent

LAB #: 8-7235 CLIENT ID: 302904

COMPOUND	RESULT (ug/l)	Detection Limit (ug/l)
Total Petroleum Hydrocarbons (light)-----	130	50.0

QUALITY CONTROL DATA
Surrogate Spike % Recovery
Fluorobenzene 91 %

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
BLANK, SPIKE DUPLICATE AND SPIKE REPORT FOR JOB # HLA 0831.84-L
METHOD: EPA 5030/8015

COMPOUND	Blank ug/l	Spike Duplicate % deviation	Spike % recovery
Gasoline----------	N.D.	2	98
QUALITY CONTROL DATA			
Surrogate Spike % Recovery			
Fluorobenzene	94 %	100 %	103 %

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: 09-Aug-88
PACE JOB #: HLA 0831.84-L
Analytical Method: EPA 8010
MATRIX: WATER

Extract/Purge Date: 01-May-88
Completion Date: 01-May-88
Analyst:

	Eff.	Eff.	Blank	Inter.	Influent
LAB #:	8-7232	8-7233	8-7234	8-7235	8-7236
CLIENT'S ID:	302901	302902	302903	302904	302905

COMPOUND	RESULT (ug/l)	RESULT (ug/l)	RESULT (ug/l)	RESULT (ug/l)	RESULT (ug/l)	Detection Limit (ug/l)
Dichlorodifluoroethane	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
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.	0.6	0.5
Methylene Chloride	N.D.	N.D.	1.0	N.D.	N.D.	0.5
trans-1,2-Dichloroethene	N.D.	N.D.	N.D.	N.D.	N.D.	0.5
1,1-Dichloroethane	N.D.	N.D.	N.D.	0.9	N.D.	0.5
Chloroform	N.D.	N.D.	N.D.	1.4	1.7	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)	N.D.	N.D.	N.D.	18	19	0.5
Trichloroethene (TCE)	N.D.	N.D.	N.D.	530	600	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.	0.8	1.0	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				
Bromochloroethane	83 %	80 %	79 %	83 %	79 %
1,4-Dichlorobutane	87 %	92 %	86 %	86 %	84 %

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 # MLA 0831.84-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 (M.S.)	N.D.	4	98
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) (M.S.)	N.D.	4	102
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	103
cis-1,3-Dichloropropene	N.D.	-	N.S.
1,1,2-Trichloroethane	N.D.	-	N.S.
Tetrachloroethene (M.S.)	N.D.	1	101
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	81 %	82 %	98 %
1,4-Dichlorobutane	97 %	94 %	91 %

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: 09-Aug-88
PACE JOB #: HLA 0831.84-L
Analytical Method: EPA 8020
MATRIX: WATER

Extract/Purge Date: 02-Aug-88
Completion Date: 02-Aug-88
Analyst: LEWIS/ATTIA

	Effluent	Effluent	Blank
LAB #:	8-7232	8-7233	8-7234
CLIENT'S ID:	302901	302902	302903

COMPOUND	RESULT (ug/l)	RESULT (ug/l)	RESULT (ug/l)	Detection Limit (ug/l)
Benzene	N.D.	N.D.	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	98 %	98 %	97 %

	Intermediate	Influent
LAB #:	8-7235	8-7236
CLIENT'S ID:		

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
Xylene	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	98 %	101 %

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 8020 **PACE JOB#: HLA 0831.84-L**

COMPOUND	Blank (ug/l)	Spike Duplicate % deviation	Spike % recovery
Benzene	N.D.	6	102
Toluene	N.D.	2	99
p-Xylene	N.D.	2	100
QUALITY CONTROL DATA			
Surrogate Spike % Recovery			
Fluorobenzene	101 %	101 %	101%

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

Lab: Pace
HLA 0837.04

Samplers: David M Evans

Job Number: 09382,026.02

Name/Location: City of Oakland

Project Manager: Dave Leland

Recorder: David M Evans
(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				W			88	30	2901	88	07	29	1515	
23	X				W			88	30	2902	88	07	29	1515	
23	X				W			88	30	2903	88	07	29	1515	
23	X				W			88	30	2904	88	07	29	1513	
23	X				W			88	30	2905	88	07	29	1515	

ANALYSIS REQUESTED	EPA 601/8010	EPA 602/8020	EPA 624/8240	EPA 625/8270	Priority Pllnt. Metals	Benzene/Toluene/Xylene	Total Petrol. Hydrocarb.
	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
						2 week Turnaround DME Time
						5 day Turn around Time

Pace Lab
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 7-27-88 15:50	RECEIVED FOR LAB BY: (Signature) Michelle Casey — DATE/TIME 7-29 15:30	

METHOD OF SHIPMENT: Hand delivered in cooler w/ice

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

Appendix B

LABORATORY ANALYTICAL RESULTS FOR RELEASE INVESTIGATION SAMPLE

pace laboratories, inc.
PROFESSIONAL ANALYTICAL CHEMISTRY & ENGINEERING

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

11 Digital Drive □ Novato, CA 94949 □ Phone (415) 883-6100 □ FAX (415) 883-2073

Report date: July 5, 1988 Pace job #: HLA 08107 -L
Client: Harding Lawson Associates
P.O Box 578
Novato, CA 94947

Date sampled: June 9, 1988 Site: City of Oakland
Sampled by: D. Evans Attn.: D. Leland

Date received: June 9, 1988 P.O.: 9382,026.02
Submitted by: D. Evans

Lab #	Client ID	Matrix	Analysis
8- 5641	88230601	water	TPH only 5030/8015
8- 5641	88230601	water	Vol Org. Cpds.601+ 602

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 arragements are made.
If you have any questions, please feel free to call, (415)883-6100.

M Blanchard

Sample Controller

pace laboratories, inc
FORMERLY WESCO LABORATORIES

REPORT OF LABORATORY ANALYSIS

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

Report Date: 04-Jan-80
WESCO JOB #: HLA 08107-L
Analytical Method: EPA 5030/8015/602
MATRIX: WATER

Extract/Purge Date: 16-Jun-88
Completion Date: 16-Jun-88
Analyst: Attia/Lewis

LAB #: 8-5641 CLIENT'S ID: 230601

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

QUALITY CONTROL DATA
Surrogate Spike % Recovery

Fluorobenzene	96 %

N.D.: Not Detected

QUALITY CONTROL DATA
METHOD: EPA 5030/8015/602 WESCO JOB #: HLA 08107-L

COMPOUND	Blank ug/l	Spike Duplicate % deviation	Spike % recovery
Gasoline----------	N.D.	30	78

QUALITY CONTROL DATA
Surrogate Spike % Recovery

Fluorobenzene	86 %	74 %	87 %

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: 04-Jan-80
WESCO JOB #: HLA 08107-L
Analytical Method: EPA 602
MATRIX: WATER

Extract/Purge Date: 18-Jun-88
Completion Date: 18-Jun-88
Analyst: Attia

LAB #: 8-5641 CLIENT'S ID: 230601

COMPOUND	RESULT (ug/l)	Detection Limit (ug/l)
Benzene	N.D.	0.2
Toluene	N.D.	0.2
Chlorobenzene	N.D.	0.2
Ethylbenzene	N.D.	0.2
Xylene	N.D.	0.2
1,3-Dichlorobenzene	N.D.	0.2
1,4-Dichlorobenzene	N.D.	0.2
1,2-Dichlorobenzene	N.D.	0.2

QUALITY CONTROL DATA

Surrogate Spike	Percent Recovery
Fluorobenzene	97 %

N.D.: Not Detected

QUALITY CONTROL DATA
METHOD: EPA 602

COMPOUND	Blank (ug/l)	Spike Duplicate % deviation	Spike % recovery
Benzene	N.D.	16	104
Toluene	N.D.	6	104
p-Xylene	N.D.	2	104

QUALITY CONTROL DATA

Surrogate Spike	% Recovery		
Fluorobenzene	111 %	88 %	101 %

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: 04-Jan-80
WESCO JOB #: HLA 08107-L
Analytical Method: EPA 601
MATRIX: WATER

Extract/Purge Date: 18-Jun-88
Completion Date: 18-Jun-88
Analyst: Attia

LAB #: 8-5641 CLIENT'S ID: 230601

COMPOUND	RESULT (ug/l)	Detection Limit (ug/l)
Dichlorodifluoromethane	N.D.	2.0
Chloromethane	N.D.	2.0
Vinyl Chloride	N.D.	2.0
Bromomethane	N.D.	2.0
Chloroethane	N.D.	2.0
Trichlorofluoromethane	N.D.	2.0
1,1-Dichloroethene	N.D.	0.5
Methylene Chloride	N.D.	0.5
trans-1,2-Dichloroethene	N.D.	0.5
1,1-Dichloroethane	N.D.	0.5
Chloroform	4.5	0.5
1,1,1-Trichloroethane (TCA)	N.D.	0.5
Carbon Tetrachloride	N.D.	0.5
1,2-Dichloroethane (EDC)	N.D.	0.5
Trichloroethene (TCE)	7.3	0.5
1,2-Dichloropropane	N.D.	0.5
Bromodichloromethane	N.D.	0.5
2-Chloroethylvinyl ether	N.D.	0.5
trans-1,3-Dichloropropene	N.D.	0.5
cis-1,3-Dichloropropene	N.D.	0.5
1,1,2-Trichloroethane	N.D.	0.5
Tetrachloroethene	N.D.	0.5
Dibromochloromethane	N.D.	0.5
Chlorobenzene	N.D.	0.5
Bromoform	N.D.	0.5
1,1,2,2-Tetrachloroethane	N.D.	0.5
1,3-Dichlorobenzene	N.D.	0.5
1,4-Dichlorobenzene	N.D.	0.5
1,2-Dichlorobenzene	N.D.	0.5

QUALITY CONTROL DATA

Surrogate Spike	Percent Recovery
Bromochloromethane	94 %
1,4-Dichlorobutane	94 %

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 601 WESCO JOB#: HLA 08107-L

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(M.S.)	N.D.	1	104
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)(M.S.)	N.D.	1	129
1,2-Dichloropropane	N.D.	-	N.S.
Bromodichloromethane	N.D.	-	N.S.
2-Chloroethylvinyl ether	N.D.	-	N.S.
trans-1,3-Dichloropropene(M.S.)	N.D.	7	98
cis-1,3-Dichloropropene	N.D.	-	N.S.
1,1,2-Trichloroethane	N.D.	-	N.S.
Tetrachloroethene(M.S.)	N.D.	-	N.S.
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	95 %	67 %	108 %
1,4-Dichlorobutane	86 %	89 %	112 %

N.D.: Not Detected
N.S.: Not Spiked

Analytical Supervisor

[redacted] Engineering Associates
Environmental Services Division
200 Rush Landing Road
Novato, California 94947
(415) 892-0821

CHAIN OF CUSTODY FORM

Job Number: 9382,026.02
Name/Location: City of Oakland
Project Manager: Dave Leland

Samplers: David M Evans

Recorder: David M Evans (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
2R	X				3			8	8	3060	88	06	09	1630	

ANALYSIS REQUESTED	EPA 601/8010	EPA 602/8020	EPA 624/8240	EPA 625/8270	Priority Pllnt. Metals	Benzene/Toluene/Xylene	Total Petrol. Hydrocarb. L
	X	X					X

LAB NUMBER: Yr	Wk	Seq	DEPTH IN FEET	COL MTD CD	QA CODE	MISCELLANEOUS
						Regular Turn around

Wesco Lab 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 6-9-88 1634	RECEIVED FOR LAB BY: (Signature)	DATE/TIME

METHOD OF SHIPMENT: hand delivered in cooler w/ice

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

0503

DISTRIBUTION

REPORT OF SYSTEM MONITORING: JULY 1988
DEWATERING EFFLUENT TREATMENT SYSTEM
CHINATOWN REDEVELOPMENT PROJECT AREA
OAKLAND, CALIFORNIA
August 15, 1988

COPY NO. 4

		Copy No.
1 copy:	California Regional Water Quality Control Board San Francisco Bay Region 1111 Jackson Street, Room 6000 Oakland, California 94607 Attention: Mr. Peter Johnson	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 470 27th Street Oakland, California 94612 Attention: Mr. Storm Goranson	4

CEM/DFL/CRS/clm/G4971-R

QUALITY CONTROL REVIEWER

Christopher R. Smith
Associate Hydrogeologist