Harding Lawson Associates

July 25, 1996

34467 1

Mr. Jeff Christoff
Blue Print Service Company
1057 Shary Circle
Concord, California 94518

Quarterly Report
April 1, through June 30, 1996
Groundwater Remediation and Monitoring
Blue Print Service Facility
1700 Jefferson Street
Oakland, California

Dear Mr. Christoff:

This letter presents quarterly sampling results from the groundwater treatment system, groundwater monitoring wells, and groundwater extraction wells at the Blue Print Service facility at 1700 Jefferson Street, Oakland, California. This report is for the period of April 1, 1996 through June 30, 1996. This report is intended to satisfy quarterly groundwater monitoring and reporting required by the Alameda County Health Care Services Agency (Alameda County) and semiannual reporting required by the East Bay Municipal Utilities District (EBMUD).

BACKGROUND

Three underground gasoline storage tanks (USTs) were removed from the property in 1987 (Plate 1). Three groundwater monitoring wells were installed on the property to evaluate the distribution of petroleum hydrocarbons in the soil and groundwater and determine the direction of groundwater flow.

Gasoline was found floating on the surface of the groundwater in monitoring well MW-1. In January 1988, two additional monitoring wells (MW-1A and MW-4) were installed by Harding Lawson Associates (HLA) at the facility (Plate 1). One downgradient offsite monitoring well (MW-5) was installed by HLA in August 1988. Monitoring well MW-2 was destroyed during construction of the present facility.

The existing biodegradation groundwater treatment system began operating in June 1992. Groundwater is extracted from MW-1A and MW-4 for treatment in a 3,000-gallon bioreactor tank. The treated water from the bioreactor passes through three carbon adsorption vessels before being discharged to the sanitary sewer.

TREATMENT SYSTEM STATUS

During this reporting period, the groundwater treatment system has treated and discharged approximately 57,000 gallons of water to the sanitary sewer. Over this period, the daily discharge

flow rates have averaged approximately 850 gallons per day. Total system down-time was approximately 14 days.

An HLA engineer or technician visits the site on a weekly basis to monitor the system performance, collect samples if necessary, and perform maintenance functions as needed.

TREATMENT SYSTEM SAMPLING AND ANALYSIS

In accordance with the letter from HLA to EBMUD dated December 13, 1995 presenting the results of effluent monitoring, HLA has sampled the treatment system effluent and carbon vessel influent and effluent at a frequency of every 30 days or 40,000 gallons of water discharged. The EBMUD Wastewater Discharge Permit (Account No. 500-68191) requires effluent monitoring on a quarterly basis. Treatment system effluent water samples were collected on April 18, 1996, June 5, 1996, and March 19, 1996. The sampling locations and analytical results are presented in Table 1. The laboratory reports are presented in Appendix A.

HLA collects water samples from brass sampling ports into 40-milliliter volatile organic analysis (VOA) vials. The water samples are placed in ice-chilled coolers and submitted to American Environmental Network Laboratory in Pleasant Hill, California, under chain-of-custody protocol for analysis. The samples are analyzed by EPA Test Method 8015 for total petroleum hydrocarbons as gasoline (TPHg) and EPA Test Method 8020 for benzene, toluene, ethylbenzene, and xylene (BTEX).

GROUNDWATER SAMPLING AND ANALYSIS

HLA sampled wells MW-1A, MW-3, MW-4, and MW-5 on June 11, 1996. During construction of the present BPS facility, well MW-2 was damaged and abandoned. Because of its proximity to MW-1A, well MW-1 is not sampled. Monitoring wells MW-3 and MW-5 were sampled after checking for separate-phase gasoline, measuring the water levels, purging at least three well volumes from each, and measuring the pH, conductivity, and temperature of the purge water. Three 40-milliliter VOA vials of water were collected from each well with a Teflon bailer. Purge water from MW-3 contained a visible hydrocarbon sheen.

The two extraction wells, MW-1A and MW-4, were sampled from brass sampling ports in the flow line from the wells to the treatment system (Plate 2). Three 40-milliliter VOA vials were collected from each port. The extraction well samples had a visible hydrocarbon sheen.

All of the water samples were placed in ice-chilled coolers and submitted to American Environmental Network Laboratory in Pleasant Hill, California under chain-of-custody protocol for analysis. The samples were analyzed by EPA Test Method 8015 (modified) for TPHg and EPA Test Method 8020 for BTEX. The analytical results are summarized in Table 2 along with past results. The laboratory report for the June 30, 1996 samples is presented in Appendix B.

DISCUSSION

HLA expects to continue quarterly groundwater monitoring and reporting as required by Alameda County, and treatment system discharge monitoring with semiannual reporting as required by

July 25, 1996
34467 1
Mr. Jeff Christoff
Blue Print Service Company
Page 3

EBMUD. Groundwater sampling will be performed during the second quarter of 1996 in June, and system effluent monitoring will continue to be performed once every 30 days or 40,000 gallons discharged.

If you have any questions, please contact David Kleesattel at (415) 543-8422.

Yours very truly,

HARDING LAWSON ASSOCIATES

James G. McCarty
Staff Engineer

David R. Kleesattel, R.G.
Project Manager

REGISTERED GEOLOGIST
DAVID R. KLEESATTEL
NO. 5136
STATE OF CALIFORNIA

JCM/DRK/mlw 34467\020398L.DOC

Attachments: Table 1 - Groundwater Treatment System Analytical Results
Table 2 - Groundwater Analytical Results
Table 3 - Flow Totalizer Readings
Plate 1 - Site Plan
Plate 2 - Process Flow and Sampling Locations
Appendix A - Treatment System Sample Laboratory Reports
Appendix B - Groundwater Sample Laboratory Reports

cc: Mr. Dale Klettke
Alameda County Health Care Services Agency
Division of Hazardous Materials
Department of Environmental Health
1131 Harbor Bay Parkway, 2nd Floor
Alameda, California 94502-6577

Ms. Sue Jenne
East Bay Municipal Utilities District
Source Control Division
Mail Slot #702, P.O. Box 24055
Oakland, California 94623-1055

Table 1. Groundwater Treatment System Analytical Results

Date/ Analytes	Bioreactor Effluent (1)	CB-1 Effluent (2)	CB-2 Effluent (3)	Sanitary Sewer Influent (4)
April 18, 1996				
TPHg	NA	1.3	0.17	0.09
Benzene	NA	38	1.4	ND<0.5
Toluene	NA	16	0.5	ND<0.5
Ethylbenzene	NA	3.8	ND<0.5	ND<0.5
Xylene	NA	66	ND<2	ND<2
June 5, 1996				
TPHg	NA	5.8	0.53	0.19
Benzene	NA	63	2.1	ND<0.54
Toluene	NA	63	1.2	ND<0.5
Ethylbenzene	NA	11	1.7	0.5
Xylene	NA	490	6	ND<2

(1) = Sample location identification number (see Plate 2)
(2) =
(3) =
(4) =
ND = Not detected above the reporting limit
NA = Not analyzed
TPHg = Total petroleum hydrocarbons as gasoline
TPHg concentrations presented in milligrams per liter (mg/l)
Benzene, toluene, ethylbenzene, and xylenes concentrations presented in micrograms per liter (μg/l)

Table 2. Groundwater Analytical Results

Date/ Analytes	MW-1A	MW-3	MW-4	MW-5	MW-6
August 1, 1991					
TPHg	350	74	86	120	--
Benzene	17,000	1,600	1,500	20,000	--
Toluene	31,000	4,600	6,200	14,000	--
Ethylbenzene	3,000	670	1,000	1,900	--
Xylenes	22,000	4,300	7,300	4,900	--
September 30, 1992					
TPHg	NA	NA	NA	51	--
Benzene	NA	NA	NA	13,000	--
Toluene	NA	NA	NA	5,900	--
Ethylbenzene	NA	NA	NA	1,400	--
Xylene	NA	NA	NA	2,600	--
March 30, 1993					
TPHg	NA	NA	NA	74	--
Benzene	NA	NA	NA	16,000	--
Toluene	NA	NA	NA	5,000	--
Ethylbenzene	NA	NA	NA	1,800	--
Xylene	NA	NA	NA	2,700	--
January 13, 1994					
TPHg	NA	NA	NA	80	--
Benzene	NA	NA	NA	19,000	--
Toluene	NA	NA	NA	8,200	--
Ethylbenzene	NA	NA	NA	1,400	--
Xylene	NA	NA	NA	2,700	--
April 13, 1994					
TPHg	170	NA	58	63	--
Benzene	17,000	NA	1,500	14,000	--
Toluene	31,000	NA	2,500	3,500	--
Ethylbenzene	2,100	NA	520	1,500	--
Xylene	14,000	NA	3,200	2,100	--

Table 2. (continued)

Date/ Analytes	MW-1A	MW-3	MW-4	MW-5	MW-6
June 29, 1994					
TPHg	95	39	16	64	--
Benzene	16,000	3,200	1,300	29,000	--
Toluene	21,000	2,900	790	5,400	--
Ethylbenzene	1,500	580	51	2,800	--
Xylenes	12,000	4,300	3,400	4,500	--
December 8, 1994					
TPHg	190	4,600 *	92	59	--
Benzene	13,000	1,500	1,700	13,000	--
Toluene	21,000	4,200	4,100	3,800	--
Ethylbenzene	1,400	6,000	310	1,800	--
Xylenes	11,000	95,000	5,400	2,900	--
April 3, 1995					
TPHg	67	51	35	51	--
Benzene	11,000	1,100	1,200	15,000	--
Toluene	13,000	2,300	3,400	2,200	--
Ethylbenzene	910	580	280	2,800	--
Xylenes	9,800	4,800	5,800	4,500	--
June 27, 1995					
TPHg	53	20	13	41	--
Benzene	11,000	270	1,300	12,000	--
Toluene	9,900	550	1,600	2,100	--
Ethylbenzene	500	190	77	1,400	--
Xylenes	6,300	1,700	1,800	1,600	--
September 19, 1995					
TPHg	52	6.2	14	50	--
Benzene	8,900	70	2,200	16,000	--
Toluene	9,200	140	2,100	2,700	--
Ethylbenzene	710	68	110	2,000	--
Xylenes	6,800	500	2,100	2,100	--
December 13, 1995					
TPHg	62	19	11	45	--
Benzene	9,900	220	630	13,000	--
Toluene	11,000	480	470	2,100	--
Ethylbenzene	790	140	14	1,600	--
Xylenes	5,300	1,700	1,800	1,900	--

Table 2. (continued)

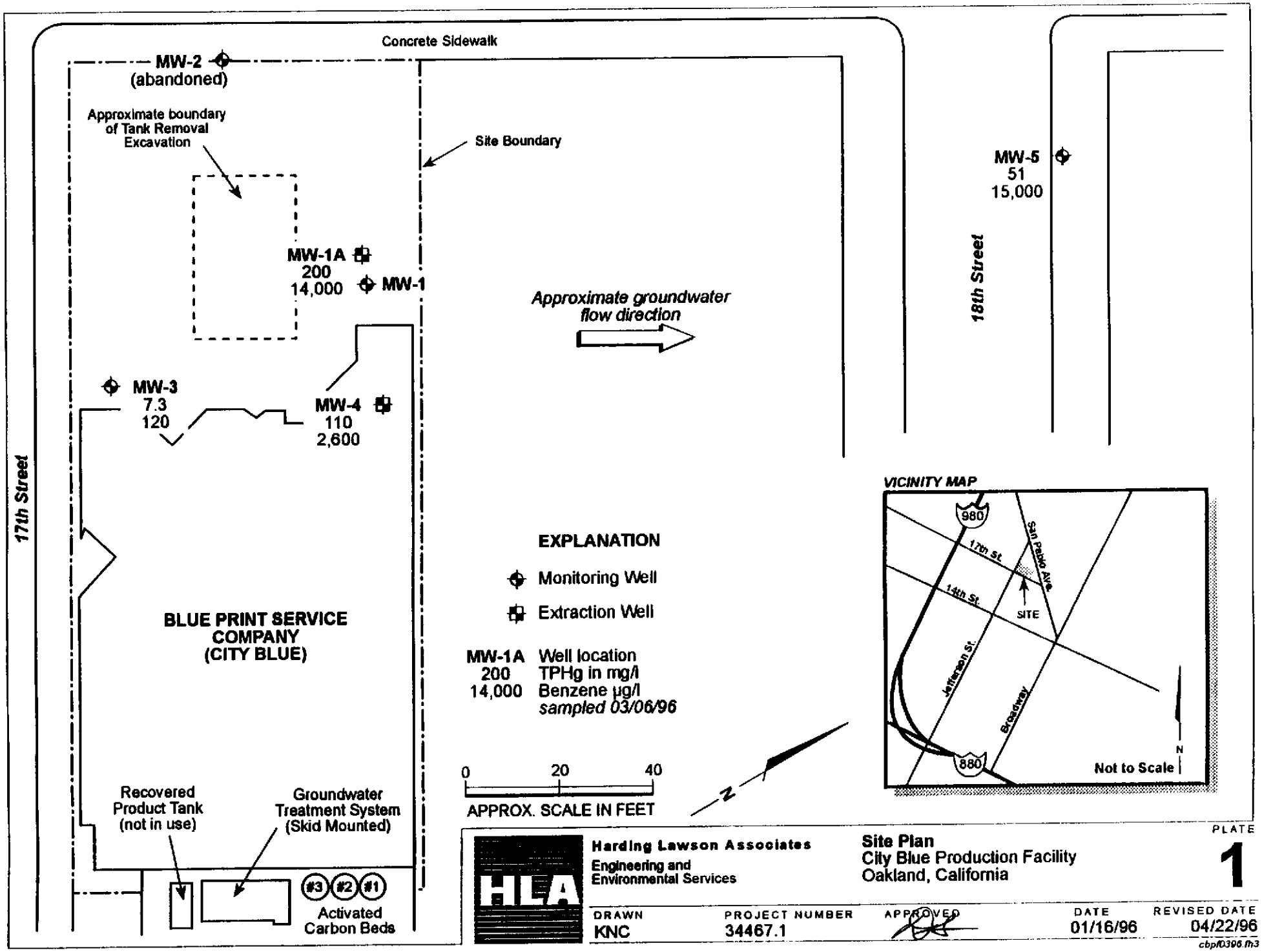
Date/ Analytes	MW-1A	MW-3	MW-4	MW-5	MW-6
March 6, 1996					
TPHg	200	7.3	110	51	--
Benzene	14,000	120	2,600	15,000	--
Toluene	22,000	170	3,600	2,800	--
Ethylbenzene	2,700	49	780	2,000	--
Xylenes	22,000	440	10,000	2,400	--
June 11, 1996					
TPHg	140	16	260	48	<0.05
Benzene	18,000	170	6,600	12,000	<0.5
Toluene	28,000	270	19,000	2,900	<0.5
Ethylbenzene	2,800	68	3,700	2,000	<0.5
Xylenes	19,000	1,500	28,000	2,700	<2

TPHg concentrations presented in milligrams per liter (mg/l)
Benzene, Toluene, Ethylbenzene, and Xylenes concentrations presented in micrograms per liter (μg/l)

* = This sample contained a visible amount of separate-phase gasoline.
** = Well installed on April 22, 1996. Initial groundwater sampling on June 11, 1996.
TPHg = Total petroleum hydrocarbons as gasoline
NA = Not analyzed
-- = Well installed after March 1996 Sampling event.

Table 3. Flow Totalizer Readings

Date	Flow Total to Sanitary Sewer (gallons)
06/16/92	1,000
10/23/92	75,470
03/04/94	77,866
12/27/94	267,350
01/03/95	274,770
12/29/95	587,740
01/04/96	596,477
01/17/96	609,787
02/01/96	618,188
02/16/96	634,972
03/01/96	646,734
03/19/96	665,147
03/25/96	671,025
04/03/96	679,041
04/18/96	688,889
05/01/96	700,900
05/18/96	712,710
06/05/96	724,854
06/28/96	732,447



HLA

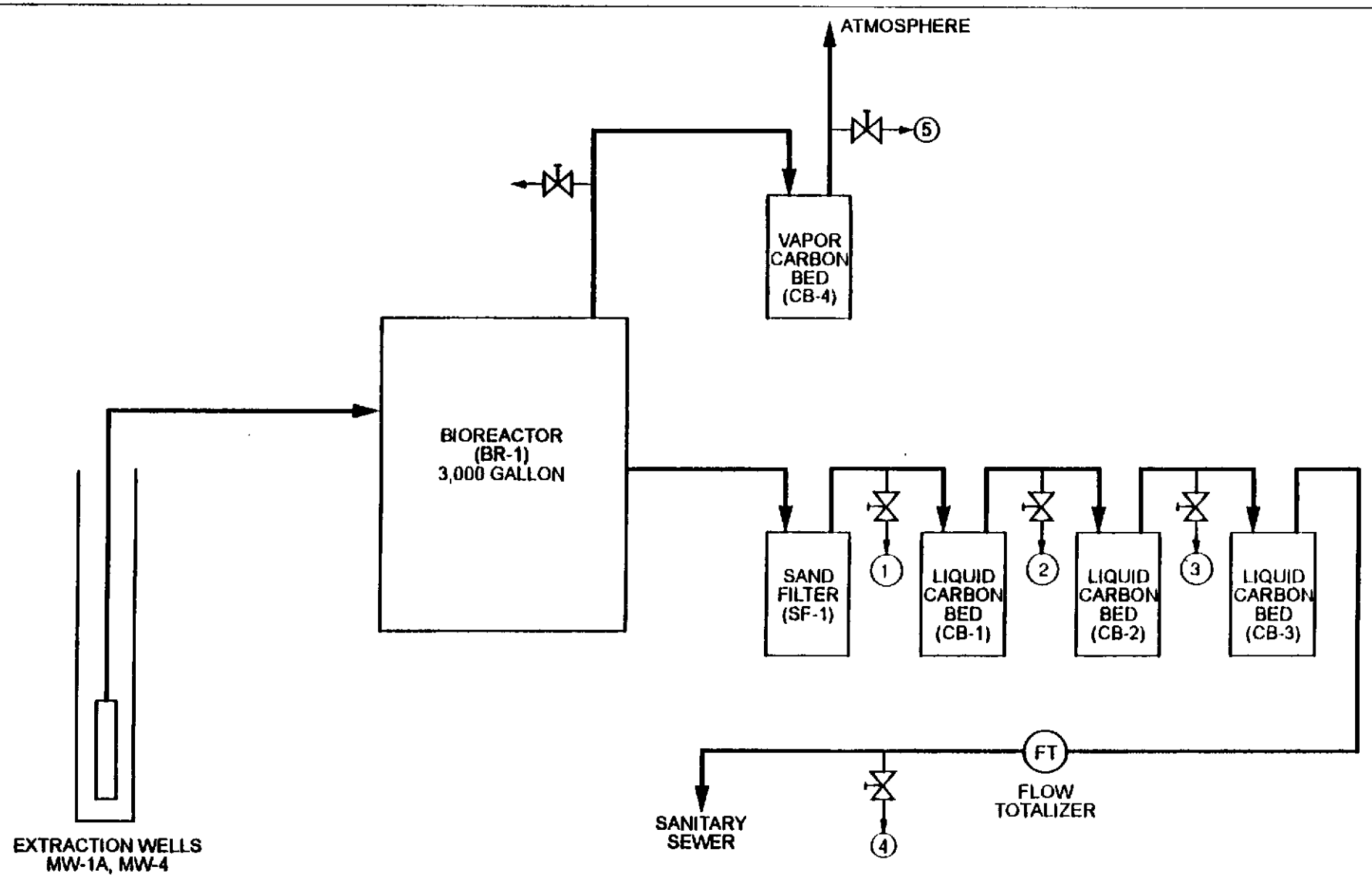
Harding Lawson Associates
Engineering and Environmental Services

Site Plan
City Blue Production Facility
Oakland, California

PLATE **1**

DRAWN	PROJECT NUMBER	APPROVED	DATE	REVISED DATE
KNC	34467.1		01/16/96	04/22/96

cbpf0396.fh3



EXPLANATION

① Sampling Port and Identification

Harding Lawson Associates
Engineering and Environmental Services

Process Flow and Sampling Locations
City Blue Groundwater Treatment System
Oakland, California

PLATE **2**

DRAWN	PROJECT NUMBER	APPROVED	DATE	REVISED DATE
AJW	34467.1		04/22/96	

pro flow ft3

American Environmental Network

Certificate of Analysis

DOHS Certification: 1172 AIHA Accreditation: 11134

HARDING LAWSON ASSOCIATES
1855 GATEWAY BLVD., STE. 500
CONCORD, CA 94520

ATTN: DAVE SCRIVNER
CLIENT PROJ. ID: 11295-012
CLIENT PROJ. NAME: CITY BLUE
C.O.C. NUMBER: 0834

REPORT DATE: 05/01/96

DATE(S) SAMPLED: 04/18/96

DATE RECEIVED: 04/18/96

AEN WORK ORDER: 9604251

PROJECT SUMMARY:

On April 18, 1996, this laboratory received 3 water sample(s).

Client requested sample(s) be analyzed for chemical parameters. Results of analysis are summarized on the following page(s). Please see quality control report for a summary of QC data pertaining to this project.

Samples will be stored for 30 days after completion of analysis, then disposed of in accordance with State and Federal regulations. Samples may be archived by prior arrangement.

If you have any questions, please contact Client Services at (510) 930-9090.

Larry Klein
Laboratory Director

HARDING LAWSON ASSOCIATES

SAMPLE ID: CD1-OUT
AEN LAB NO: 9604251-01
AEN WORK ORDER: 9604251
CLIENT PROJ. ID: 11295-012

DATE SAMPLED: 04/18/96
DATE RECEIVED: 04/18/96
REPORT DATE: 05/01/96

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	**EPA 8020**				
Benzene	71-43-2	37 *	0.5	ug/L	04/24/96
Toluene	108-88-3	16 *	0.5	ug/L	04/24/96
Ethylbenzene	100-41-4	3.8 *	0.5	ug/L	04/24/96
Xylenes, Total	1330-20-7	66 *	2	ug/L	04/24/96
Purgeable HCs as Gasoline	5030/GCFID	1.3 *	0.05	mg/L	04/24/96

ND = Not detected at or above the reporting limit
* = Value at or above reporting limit

HARDING LAWSON ASSOCIATES

SAMPLE ID: CD2-OUT
AEN LAB NO: 9604251-02
AEN WORK ORDER: 9604251
CLIENT PROJ. ID: 11295-012

DATE SAMPLED: 04/18/96
DATE RECEIVED: 04/18/96
REPORT DATE: 05/01/96

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	**EPA 8020**				
Benzene	71-43-2	1.4 *	0.5	ug/L	04/24/96
Toluene	108-88-3	0.5 *	0.5	ug/L	04/24/96
Ethylbenzene	100-41-4	ND	0.5	ug/L	04/24/96
Xylenes, Total	1330-20-7	ND	2	ug/L	04/24/96
Purgeable HCs as Gasoline	5030/GCFID	0.17 *	0.05	mg/L	04/24/96

ND = Not detected at or above the reporting limit
* = Value at or above reporting limit

HARDING LAWSON ASSOCIATES

SAMPLE ID: CD3-OUT
AEN LAB NO: 9604251-03
AEN WORK ORDER: 9604251
CLIENT PROJ. ID: 11295-012

DATE SAMPLED: 04/18/96
DATE RECEIVED: 04/18/96
REPORT DATE: 05/01/96

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	**EPA 8020**				
Benzene	71-43-2	ND	0.5	ug/L	04/23/96
Toluene	108-88-3	ND	0.5	ug/L	04/23/96
Ethylbenzene	100-41-4	ND	0.5	ug/L	04/23/96
Xylenes, Total	1330-20-7	ND	2	ug/L	04/23/96
Purgeable HCs as Gasoline	5030/GCFID	0.09 *	0.05	mg/L	04/23/96

ND = Not detected at or above the reporting limit
* = Value at or above reporting limit

AEN (CALIFORNIA)
QUALITY CONTROL REPORT

AEN JOB NUMBER: 9604251

CLIENT PROJECT ID: 11295-012

Quality Control and Project Summary

All laboratory quality control parameters were found to be within established limits.

Definitions

Laboratory Control Sample (LCS)/Method Spike(s): Control samples of known composition. LCS and Method Spike data are used to validate batch analytical results.

Matrix Spike(s): Aliquot of a sample (aqueous or solid) with added quantities of specific compounds and subjected to the entire analytical procedure. Matrix spike and matrix spike duplicate QC data are advisory.

Method Blank: An analytical control consisting of all reagents, internal standards, and surrogate standards carried through the entire analytical process. Used to monitor laboratory background and reagent contamination.

Not Detected (ND): Not detected at or above the reporting limit.

Relative Percent Difference (RPD): An indication of method precision based on duplicate analysis.

Reporting Limit (RL): The lowest concentration routinely determined during laboratory operations. The RL is generally 1 to 10 times the Method Detection Limit (MDL). Reporting limits are matrix, method, and analyte dependent and take into account any dilutions performed as part of the analysis.

Surrogates: Organic compounds which are similar to analytes of interest in chemical behavior, but are not found in environmental samples. Surrogates are added to all blanks, calibration and check standards, samples, and spiked samples. Surrogate recovery is monitored as an indication of acceptable sample preparation and instrumental performance.

D: Surrogates diluted out.

#: Indicates result outside of established laboratory QC limits.

QUALITY CONTROL DATA

METHOD: EPA 8020, 5030 GCFID

AEN JOB NO: 9604251
INSTRUMENT: H
MATRIX: WATER

Surrogate Standard Recovery Summary

Date Analyzed	Client Id.	Lab Id.	Percent Recovery Fluorobenzene
04/24/96	CD1-OUT	01	95
04/24/96	CD2-OUT	02	104
04/23/96	CD3-OUT	03	106
QC Limits:			70-130

DATE ANALYZED: 04/23/96
SAMPLE SPIKED: 9604243-01
INSTRUMENT: H

Matrix Spike Recovery Summary

Analyte	Spike Added (ug/L)	Average Percent Recovery	RPD	QC Limits Percent Recovery	QC Limits RPD
Benzene	22.2	101	<1	85-109	17
Toluene	73.9	92	<1	87-111	16
HCs as Gasoline	500	103	<1	66-117	19

Daily method blanks for all associated analytical runs showed no contamination at or above the reporting limit.

*** END OF REPORT ***

Harding Lawson Associates
1855 Gateway Boulevard, Suite 500
Concord, California 94520
(510) 687-9660 • FAX (510) 687-9673

CHAIN OF CUSTODY FORM

Lab: AEN 960251

Samplers: Ron Reindl

Job Number: 11275-012

Name/Location: Gill, Chico

Project Manager: Dave Deaver

Recorder: _____ (Signature Required)

SOURCE CODE	MATRIX: Water	Sediment	Soil	Oil	# CONTAINERS & PRESERV.: Unpres.	H_2SO_4	HNO_3	HCL	Ice	SAMPLE NUMBER OR LAB NUMBER: Yr	Wk	Seq	DATE: Yr	Mo	Day	Time	STATION DESCRIPTION/ NOTES
	X							X		60	1	001	91	01	18	0825	STANDARD TAT
	X							X		60	1	002	91	01	18	0821	
	X							X		60	1	003	91	01	18	0815	

ANALYSIS REQUESTED	EPA 601/8010	EPA 602/8020	EPA 624/8240	EPA 625/8270	METALS	EPA 8015M/TPHg/BTEX	EPA 8020/BTEX	EPA 8015M/TPHd.o
						X		
						X		
						X		

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

CHAIN OF CUSTODY RECORD

RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
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) Ron Reindl	DATE/TIME 1/18 0910

METHOD OF SHIPMENT

SAMPLE CONDITION WHEN RECEIVED BY THE LABORATORY

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

American Environmental Network

Certificate of Analysis

DOHS Certification: 1172 AIHA Accreditation: 11134

HARDING ASSOC.

JUN 21 1996

HARDING LAWSON ASSOCIATES
1855 GATEWAY BLVD., STE. 500
CONCORD, CA 94520

ATTN: DAVE SCRIVNER
CLIENT PROJ. ID: 11295.012
CLIENT PROJ. NAME: CITY BLUE
C.O.C. NUMBER: 0836

REPORT DATE: 06/20/96

DATE(S) SAMPLED: 06/05/96

DATE RECEIVED: 06/05/96

AEN WORK ORDER: 9606054

PROJECT SUMMARY:

On June 5, 1996, this laboratory received 3 water sample(s).

Client requested sample(s) be analyzed for chemical parameters. Results of analysis are summarized on the following page(s). Please see quality control report for a summary of QC data pertaining to this project.

Samples will be stored for 30 days after completion of analysis, then disposed of in accordance with State and Federal regulations. Samples may be archived by prior arrangement.

If you have any questions, please contact Client Services at (510) 930-9090.

Larry Klein
Laboratory Director

HARDING LAWSON ASSOCIATES

SAMPLE ID: CD1-OUT
AEN LAB NO: 9606054-01
AEN WORK ORDER: 9606054
CLIENT PROJ. ID: 11295.012

DATE SAMPLED: 06/05/96
DATE RECEIVED: 06/05/96
REPORT DATE: 06/20/96

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	**EPA 8020**				
Benzene	71-43-2	63 *	3	ug/L	06/13/96
Toluene	108-88-3	63 *	3	ug/L	06/13/96
Ethylbenzene	100-41-4	11 *	3	ug/L	06/13/96
Xylenes, Total	1330-20-7	490 *	10	ug/L	06/13/96
Purgeable HCs as Gasoline	5030/GCFID	5.8 *	0.3	mg/L	06/13/96

Reporting limits elevated due to high levels of target compounds. Sample run at dilution.

ND = Not detected at or above the reporting limit
* = Value at or above reporting limit

HARDING LAWSON ASSOCIATES

SAMPLE ID: CD2-OUT
AEN LAB NO: 9606054-02
AEN WORK ORDER: 9606054
CLIENT PROJ. ID: 11295.012

DATE SAMPLED: 06/05/96
DATE RECEIVED: 06/05/96
REPORT DATE: 06/20/96

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	**EPA 8020**				
Benzene	71-43-2	2.1 *	0.5	ug/L	06/14/96
Toluene	108-88-3	1.2 *	0.5	ug/L	06/14/96
Ethylbenzene	100-41-4	1.7 *	0.5	ug/L	06/14/96
Xylenes, Total	1330-20-7	6 *	2	ug/L	06/14/96
Purgeable HCs as Gasoline	5030/GCFID	0.53 *	0.05	mg/L	06/14/96

ND = Not detected at or above the reporting limit
* = Value at or above reporting limit

HARDING LAWSON ASSOCIATES

SAMPLE ID: CD3-OUT
AEN LAB NO: 9606054-03
AEN WORK ORDER: 9606054
CLIENT PROJ. ID: 11295.012

DATE SAMPLED: 06/05/96
DATE RECEIVED: 06/05/96
REPORT DATE: 06/20/96

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	**EPA 8020**				
Benzene	71-43-2	ND	0.5	ug/L	06/14/96
Toluene	108-88-3	ND	0.5	ug/L	06/14/96
Ethylbenzene	100-41-4	0.5 *	0.5	ug/L	06/14/96
Xylenes, Total	1330-20-7	ND	2	ug/L	06/14/96
Purgeable HCs as Gasoline	5030/GCFID	0.19 *	0.05	mg/L	06/14/96

ND = Not detected at or above the reporting limit
* = Value at or above reporting limit

AEN (CALIFORNIA)
QUALITY CONTROL REPORT

AEN JOB NUMBER: 9606054

CLIENT PROJECT ID: 11295.012

Quality Control and Project Summary

All laboratory quality control parameters were found to be within established limits.

Definitions

Laboratory Control Sample (LCS)/Method Spike(s): Control samples of known composition. LCS and Method Spike data are used to validate batch analytical results.

Matrix Spike(s): Aliquot of a sample (aqueous or solid) with added quantities of specific compounds and subjected to the entire analytical procedure. Matrix spike and matrix spike duplicate QC data are advisory.

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Not Detected (ND): Not detected at or above the reporting limit.

Relative Percent Difference (RPD): An indication of method precision based on duplicate analysis.

Reporting Limit (RL): The lowest concentration routinely determined during laboratory operations. The RL is generally 1 to 10 times the Method Detection Limit (MDL). Reporting limits are matrix, method, and analyte dependent and take into account any dilutions performed as part of the analysis.

Surrogates: Organic compounds which are similar to analytes of interest in chemical behavior, but are not found in environmental samples. Surrogates are added to all blanks, calibration and check standards, samples, and spiked samples. Surrogate recovery is monitored as an indication of acceptable sample preparation and instrumental performance.

D: Surrogates diluted out.

#: Indicates result outside of established laboratory QC limits.

QUALITY CONTROL DATA

METHOD: EPA 8020, 5030 GCFID

AEN JOB NO: 9606054
INSTRUMENT: H
MATRIX: WATER

Surrogate Standard Recovery Summary

Date Analyzed	Client Id.	Lab Id.	Percent Recovery Fluorobenzene
06/13/96	CD1-OUT	01	92
06/14/96	CD2-OUT	02	93
06/14/96	CD3-OUT	03	104
QC Limits:			70-130

DATE ANALYZED: 06/12/96
SAMPLE SPIKED: 9606030-03
INSTRUMENT: H

Matrix Spike Recovery Summary

Analyte	Spike Added (ug/L)	Average Percent Recovery	RPD	QC Limits Percent Recovery	QC Limits RPD
Benzene	22.2	87	12	85-109	17
Toluene	73.9	96	7	87-111	16
Hydrocarbons as Gasoline	500	71	12	66-117	19

Daily method blanks for all associated analytical runs showed no contamination at or above the reporting limit.

*** END OF REPORT ***

Harding Lawson Associates
1855 Gateway Boulevard, Suite 500
Concord, California 94520
(510) 687-9660 • FAX (510) 687-9673

CHAIN OF CUSTODY FORM

Lab: AEN 9606054

Samplers: Ron Reindl

Job Number: 11295-012

Name/Location: City Blue

Project Manager: Dave Scrivner

Recorder: _____ (Signature Required)

SOURCE CODE	MATRIX: Water	Sediment	Soil	Oil	# CONTAINERS & PRESERV.: Unpres.	H_2SO_4	HNO_3	HCL	Ice	SAMPLE NUMBER OR LAB NUMBER: Yr	Wk	Seq	DATE: Yr	Mo	Day	Time	STATION DESCRIPTION/ NOTES	ANALYSIS REQUESTED: EPA 601/8010	EPA 602/8020	EPA 624/8240	EPA 625/8270	METALS	EPA 8015M/TPHg/BTEX	EPA 8020/BTEX	EPA 8015M/TPHd.o
	X							X		CD1-	OUT		960605	1600			01A-C						X		
	X							X		CD2-	OUT		960605	1600			02A C						X		
	X							X		CD3-	OUT		960605	1600			03A C						X		
																	STANDARD TAT								

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

CHAIN OF CUSTODY RECORD

RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME 6/5/961707
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)	DATE/TIME

METHOD OF SHIPMENT

SAMPLE CONDITION WHEN RECEIVED BY THE LABORATORY

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

CITY BLUE
BIO-TREATMENT SYSTEM LOG
11295-012

1996 TOTAL	159,718 GAL			2nd Qtr Tot	57,707 GAL		673	
DATE	TIME	FLOW TOTAL (gal)	NUTRIENT LEVEL (gal)	pH	DISCHARGE (gal)	DISCHARGE RATE (gpd)	NUTRIENT RATE (gpd)	COMMENTS
04/03/96	07:00	679041	138	6.06	8155	942	2	Weekly O&M
04/10/96	07:30	685509	125	6.08	6468	921	2	Weekly O&M
04/18/96	07:45	688889	110	6.08	3380	422	2	Weekly O&M, sampled eff: C1,C2,C3
04/24/96	14:45	694696	95	6.07	5807	923	2	Weekly O&M
05/01/96	14:12	700900	82	6.06	6204	889	2	Weekly O&M
05/06/96	08:12	704865	75	6.07	3965	835	1	Weekly O&M install newcarbon at C-3 and move others up
05/06/96	10:00	705205	75	6.07	340	4533	0	Turn system off, to measure WLs
05/08/96	10:00	705205	73	6.07	0	0	1	restart system
05/17/96	07:15	712710	58	--	7505	845	2	Weekly O&M
05/20/96	09:30	715240	191	--	2530	818	-43	Turn system off, remove product from bioreactor
05/22/96	16:00	715240	189	6.08	0	0	1	Weekly O&M, system off
05/24/96	08:20	715266	186	6.33	26	15	2	Weekly O&M, system off cleaned site glass on sand filters
05/24/96	16:00	715375	186	6.33	109	341	0	Restart System
05/30/96	18:30	720378	177	6.18	5003	820	1	Weekly O&M
06/05/96	10:45	724854	166	6.12	4476	788	2	Weekly O&M, sampled eff: C1,C2,C3
06/11/96	14:20	729670	155	6.08	4816	783	2	Weekly O&M Sample MW-1A3,4,5,&6 OVM reading 6/12 on vapor 486 ppm to 13 ppm, leak in P-3
06/14/96	15:00	731850	148	--	2180	720	2	Turn system off to repair P-3
06/18/96	07:30	731850	142	6.90	0	0	2	Pull recirculation pump, install new carbon drum, pull extraction pumps to modify
06/21/96	18:00	731930	142	--	80	23	0	Install bottom intake pumps
06/25/96	14:00	731930	137	--	0	0	1	Install new recirculation pump
06/27/96	07:00	732080	137	--	150	88	0	Effluent pump on, well pumps off
06/28/96	07:00	732447	137	6.90	367	367	0	Weekly O&M restart system
07/01/96	12:30	735148	133	6.88	2701	835	1	Weekly O&M
07/05/96	15:30	738573	127	6.90	3425	830	1	Weekly O&M
07/11/96	16:55	743458	118	6.94	4885	806	1	Weekly O&M

HARDING LAWSON ASSOCIATES
150 4th STREET, STE. 527
SAN FRANCISCO, CA 94103

ATTN: DAVE KLEESATTEL
CLIENT PROJ. ID: 34467-1
CLIENT PROJ. NAME: CITY BLUE

REPORT DATE: 06/21/96

DATE(S) SAMPLED: 06/11/96

DATE RECEIVED: 06/11/96

AEN WORK ORDER: 9606146

PROJECT SUMMARY:

On June 11, 1996, this laboratory received 5 water sample(s).

Client requested sample(s) be analyzed for chemical parameters. Results of analysis are summarized on the following page(s). Please see quality control report for a summary of QC data pertaining to this project.

Samples will be stored for 30 days after completion of analysis, then disposed of in accordance with State and Federal regulations. Samples may be archived by prior arrangement.

If you have any questions, please contact Client Services at (510) 930-9090.

William Luebke, for
Larry Klein
Laboratory Director

HARDING LAWSON ASSOCIATES

SAMPLE ID: MW-6
AEN LAB NO: 9606146-01
AEN WORK ORDER: 9606146
CLIENT PROJ. ID: 34467-1

DATE SAMPLED: 06/11/96
DATE RECEIVED: 06/11/96
REPORT DATE: 06/21/96

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	**EPA 8020**				
Benzene	71-43-2	ND	0.5	ug/L	06/14/96
Toluene	108-88-3	ND	0.5	ug/L	06/14/96
Ethylbenzene	100-41-4	ND	0.5	ug/L	06/14/96
Xylenes, Total	1330-20-7	ND	2	ug/L	06/14/96
Purgeable HCs as Gasoline	5030/GCFID	ND	0.05	mg/L	06/14/96

ND = Not detected at or above the reporting limit
* = Value at or above reporting limit

HARDING LAWSON ASSOCIATES

SAMPLE ID: MW-5
AEN LAB NO: 9606146-02
AEN WORK ORDER: 9606146
CLIENT PROJ. ID: 34467-1

DATE SAMPLED: 06/11/96
DATE RECEIVED: 06/11/96
REPORT DATE: 06/21/96

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	**EPA 8020**				
Benzene	71-43-2	12,000 *	30	ug/L	06/18/96
Toluene	108-88-3	2,900 *	30	ug/L	06/18/96
Ethylbenzene	100-41-4	2,000 *	30	ug/L	06/18/96
Xylenes, Total	1330-20-7	2,700 *	100	ug/L	06/18/96
Purgeable HCs as Gasoline	5030/GCFID	48 *	3	mg/L	06/18/96

Reporting limits elevated due to high levels of target compounds. Sample run at dilution.

ND = Not detected at or above the reporting limit
* = Value at or above reporting limit

HARDING LAWSON ASSOCIATES

SAMPLE ID: MW-3
AEN LAB NO: 9606146-03
AEN WORK ORDER: 9606146
CLIENT PROJ. ID: 34467-1

DATE SAMPLED: 06/11/96
DATE RECEIVED: 06/11/96
REPORT DATE: 06/21/96

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	**EPA 8020**				
Benzene	71-43-2	170 *	10	ug/L	06/14/96
Toluene	108-88-3	270 *	10	ug/L	06/14/96
Ethylbenzene	100-41-4	68 *	10	ug/L	06/14/96
Xylenes, Total	1330-20-7	1,500 *	40	ug/L	06/14/96
Purgeable HCs as Gasoline	5030/GCFID	16 *	1	mg/L	06/14/96

Reporting limits elevated due to high levels of target compounds. Sample run at dilution.

ND = Not detected at or above the reporting limit
* = Value at or above reporting limit

HARDING LAWSON ASSOCIATES

SAMPLE ID: MW-1A
AEN LAB NO: 9606146-04
AEN WORK ORDER: 9606146
CLIENT PROJ. ID: 34467-1

DATE SAMPLED: 06/11/96
DATE RECEIVED: 06/11/96
REPORT DATE: 06/21/96

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	**EPA 8020**				
Benzene	71-43-2	18.000 *	50	ug/L	06/14/96
Toluene	108-88-3	28.000 *	50	ug/L	06/14/96
Ethylbenzene	100-41-4	2.800 *	50	ug/L	06/14/96
Xylenes, Total	1330-20-7	19.000 *	200	ug/L	06/14/96
Purgeable HCs as Gasoline	5030/GCFID	140 *	5	mg/L	06/14/96

Reporting limits elevated due to high levels of target compounds. Sample run at dilution.

ND = Not detected at or above the reporting limit
* = Value at or above reporting limit

HARDING LAWSON ASSOCIATES

SAMPLE ID: MW-4
AEN LAB NO: 9606146-05
AEN WORK ORDER: 9606146
CLIENT PROJ. ID: 34467-1

DATE SAMPLED: 06/11/96
DATE RECEIVED: 06/11/96
REPORT DATE: 06/21/96

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	**EPA 8020**				
Benzene	71-43-2	6,600 *	50	ug/L	06/14/96
Toluene	108-88-3	19,000 *	50	ug/L	06/14/96
Ethylbenzene	100-41-4	3,700 *	50	ug/L	06/14/96
Xylenes, Total	1330-20-7	28,000 *	200	ug/L	06/14/96
Purgeable HCs as Gasoline	5030/GCFID	260 *	5	mg/L	06/14/96

Reporting limits elevated due to high levels of target compounds. Sample run at dilution.

ND = Not detected at or above the reporting limit
* = Value at or above reporting limit

AEN (CALIFORNIA)
QUALITY CONTROL REPORT

AEN JOB NUMBER: 9606146

CLIENT PROJECT ID: 34467-1

Quality Control and Project Summary

All laboratory quality control parameters were found to be within established limits.

Definitions

Laboratory Control Sample (LCS)/Method Spike(s): Control samples of known composition. LCS and Method Spike data are used to validate batch analytical results.

Matrix Spike(s): Aliquot of a sample (aqueous or solid) with added quantities of specific compounds and subjected to the entire analytical procedure. Matrix spike and matrix spike duplicate QC data are advisory.

Method Blank: An analytical control consisting of all reagents, internal standards, and surrogate standards carried through the entire analytical process. Used to monitor laboratory background and reagent contamination.

Not Detected (ND): Not detected at or above the reporting limit.

Relative Percent Difference (RPD): An indication of method precision based on duplicate analysis.

Reporting Limit (RL): The lowest concentration routinely determined during laboratory operations. The RL is generally 1 to 10 times the Method Detection Limit (MDL). Reporting limits are matrix, method, and analyte dependent and take into account any dilutions performed as part of the analysis.

Surrogates: Organic compounds which are similar to analytes of interest in chemical behavior, but are not found in environmental samples. Surrogates are added to all blanks, calibration and check standards, samples, and spiked samples. Surrogate recovery is monitored as an indication of acceptable sample preparation and instrumental performance.

D: Surrogates diluted out.

#: Indicates result outside of established laboratory QC limits.

QUALITY CONTROL DATA

METHOD: EPA 8020, 5030 GCFID

AEN JOB NO: 9606146
INSTRUMENT: H
MATRIX: WATER

Surrogate Standard Recovery Summary

Date Analyzed	Client Id.	Lab Id.	Percent Recovery Fluorobenzene
06/14/96	MW-6	01	100
06/18/96	MW-5	02	120
06/14/96	MW-3	03	94
06/14/96	MW-1A	04	110
06/14/96	MW-4	05	90
QC Limits:			70-130

DATE ANALYZED: 06/14/96
SAMPLE SPIKED: 9606176-01
INSTRUMENT: H

Matrix Spike Recovery Summary

Analyte	Spike Added (ug/L)	Average Percent Recovery	RPD	QC Limits Percent Recovery	QC Limits RPD
Benzene	22.2	94	16	85-109	17
Toluene	73.9	91	7	87-111	16
HCs as Gasoline	500	107	4	66-117	19

Daily method blanks for all associated analytical runs showed no contamination at or above the reporting limit.

*** END OF REPORT ***

Harding Lawson Associates
~~160 Spear Street, Suite 1500~~ 150 Fourth St., Suite 527
San Francisco, CA ~~94105~~ 94103
415 / 543-8422
415 / 777-9706 FAX

CHAIN OF CUSTODY FORM

R3,54

Lab: AEN 9606146

Samplers: Ron Reindl

Project Number: ~~3153-1~~ 34467-1

Name/Location: City Blue

Project Manager: Dave Kleesattel

Recorder: _____ (Signature Required)

SOURCE CODE	MATRIX: Water	Sediment	Soil	Oil	#CONTAINERS & PRESERV.: Unpres.	H_2SO_4	HNO_3	HCL-3vol	SAMPLE NUMBER OR LAB NUMBER: Yr	Wk	Seq	DATE: Yr	Mo	Dy	Time	STATION DESCRIPTION/ NOTES
	X							X	MW-	6		9	6	0	6	1	1	1	0	5	5	Q1A-C
	X							X	MW-	5		9	6	0	6	1	1	1	5	0		Q2A C
	X							X	MW-	3		9	6	0	6	1	1	1	2	3	6	Q3A C
	X							X	MW-	1	A	9	6	0	6	1	1	1	4	3	5	Q4A C
	X							X	MW-	4		9	6	0	6	1	1	1	4	4	0	Q5A C
																						STANDARD TAT
																						Use project # on COC
																						not the one on samples

ANALYSIS REQUESTED	EPA 601/8010	EPA 602/8020	EPA 624/8240	EPA 625/8270	ICP METALS	EPA 8015M/TPHg/BTEX
						X
						X
						X
						X
						X

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

CHAIN OF CUSTODY RECORD

RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
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)	DATE/TIME 6/14/96 1626
METHOD OF SHIPMENT		

6533

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