Harding Lawson Associates

April 18, 1996

34467 1

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

Quarterly Report
January 1, 1996 through March 31, 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 January 1, 1996 through March 31, 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 87,000 gallons of water to the sanitary sewer. Over this period, the daily discharge

flow rates have averaged approximately 1,100 gallons per day. Total system down-time was approximately two 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 January 17, 1996, February 16, 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).

The treatment system effluent was also sampled by an EBMUD representative on February 6, 1996 and March 22, 1996.

GROUNDWATER SAMPLING AND ANALYSIS

HLA sampled wells MW-1A, MW-3, MW-4, and MW-5 on March 6, 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 March 6, 1996 samples is presented in Appendix B.

April 18, 1996
34467 1
Mr. Jeff Christoff
Blue Print Service Company
Page 3

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 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 Scrivner at (510) 687-9660.

Yours very truly,

HARDING LAWSON ASSOCIATES

David F. Scrivner, P.E.
Civil Engineer

Terence J. McManus
Registered Environmental Assessor

REGISTERED PROFESSIONAL ENGINEER
DAVID F. SCRIVNER
No. 052783
Exp. 12-31-98
CIVIL
STATE OF CALIFORNIA

REGISTERED ENVIRONMENTAL ASSESSOR
TERENCE J. McMANUS
No. REA-03185
Expires: 6/30/96
STATE OF CALIFORNIA

DFS/TJM/ly 34467\035861L.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)
December 29, 1995				
TPHg	NA	NA	0.7	0.1
Benzene	NA	NA	5	ND<0.5
Toluene	NA	NA	3	ND<0.5
Ethylbenzene	NA	NA	1	ND<0.5
Xylene	NA	NA	19	ND<0.5
January 17, 1996				
TPHg	NA	0.6	ND<0.05	NA
Benzene	NA	8.4	ND<0.5	NA
Toluene	NA	3.9	ND<0.5	NA
Ethylbenzene	NA	1.1	ND<0.5	NA
Xylene	NA	15	ND<2	NA
February 16, 1996				
TPHg	NA	1.4	0.2	ND<0.05
Benzene	NA	13	ND<0.5	ND<0.5
Toluene	NA	6.0	ND<0.5	ND<0.5
Ethylbenzene	NA	1.4	ND<0.5	ND<0.5
Xylene	NA	16	ND<2	ND<2
March 19, 1996				
TPHg	33	0.7	0.1	NA
Benzene	460	12	ND<0.5	NA
Toluene	360	6.6	ND<0.5	NA
Ethylbenzene	59	3.3	ND<0.5	NA
Xylene	3,300	32	ND<2	NA

(1) = Sample Location Identification Number (see Plate 2)
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)
ND = Not detected above the reporting limit
NA = Not analyzed

Table 2. Groundwater Analytical Results

Date/ Analytes	MW-1A	MW-3	MW-4	MW-5
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
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

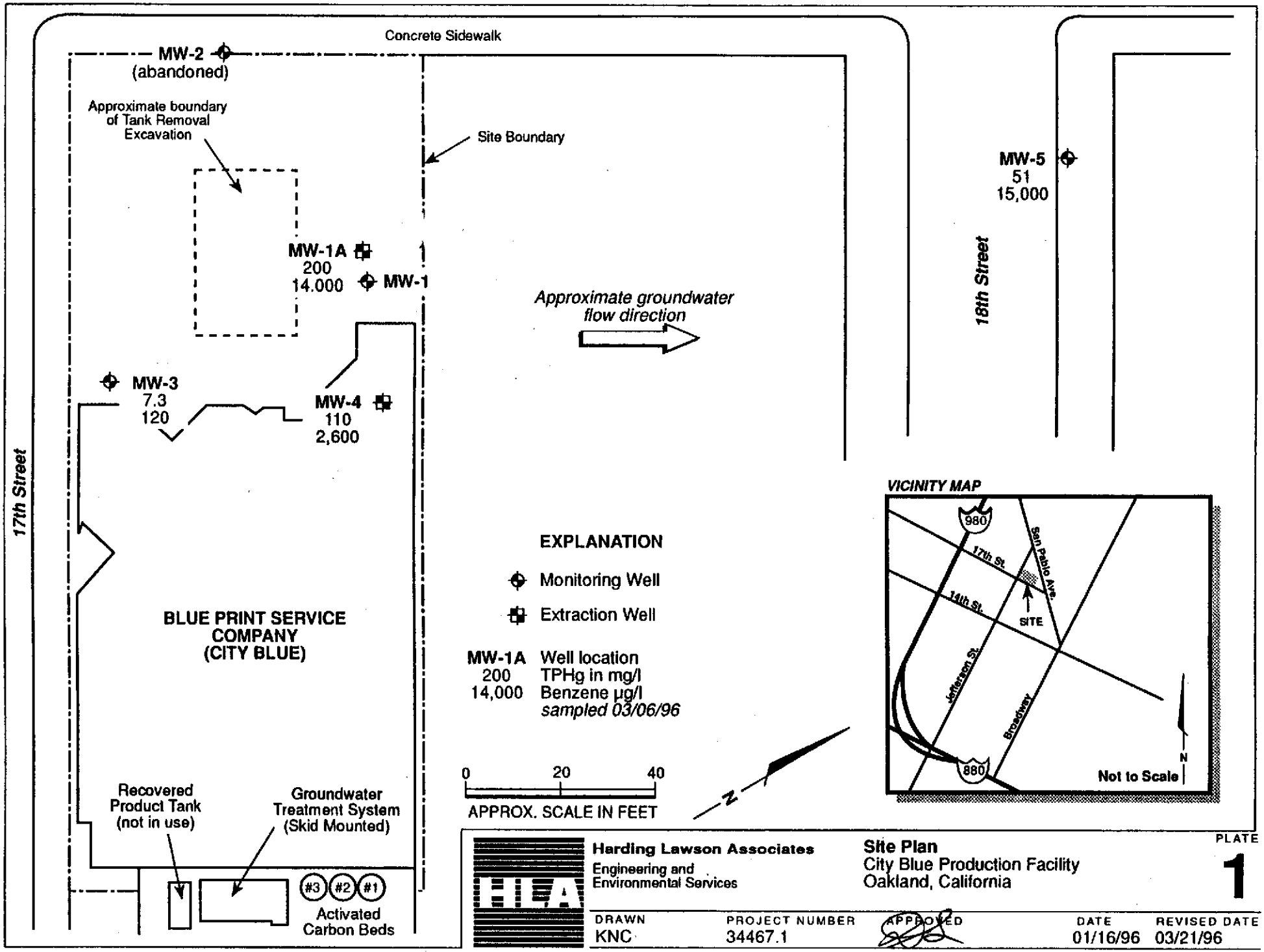
Table 2. (continued)

Date/ Analytes	MW-1A	MW-3	MW-4	MW-5
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
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

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.
TPHg = Total petroleum hydrocarbons as gasoline
NA = Not analyzed

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



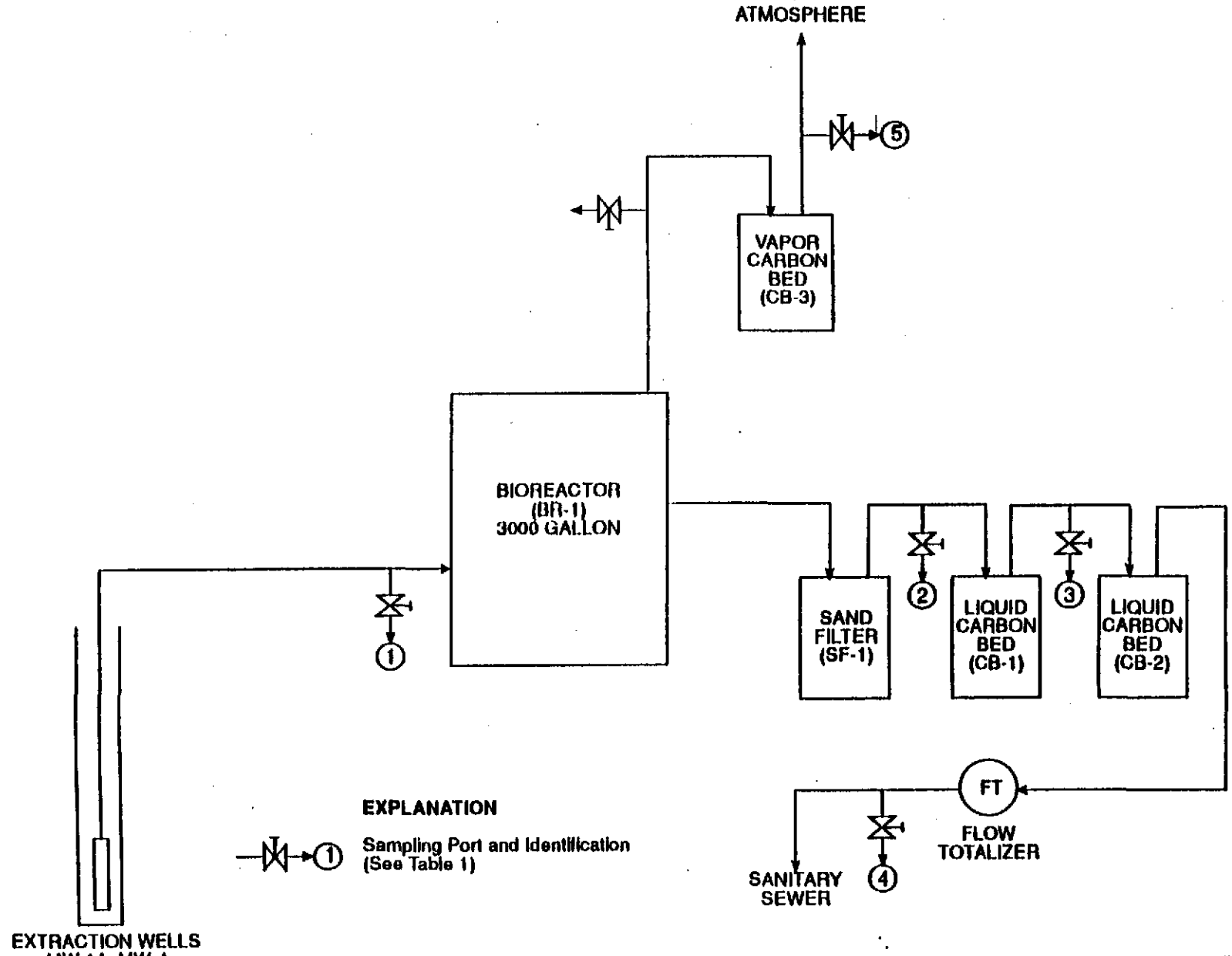
Harding Lawson Associates
Engineering and Environmental Services

Site Plan
City Blue Production Facility
Oakland, California

PLATE **1**

DRAWN	PROJECT NUMBER	APPROVED	DATE	REVISED DATE
KNC	34467.1		01/16/96	03/21/96

cbpl0396.fh3



Harding Lawson Associates
Engineering and Environmental Services

Process Flow and Sampling Locations
City Blue Groundwater Treatment System
1700 Jefferson Street
Oakland, California

PLATE **2**

DRAWN	PROJECT NUMBER	APPROVED	DATE	REVISED DATE
RK	31531.1		10/5/95	

American Environmental Network

Certificate of Analysis

DOHS Certification: 1172 AIHA Accreditation: 11134

HARDING ASSOC.

FEB 6 1996

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

REPORT DATE: 02/05/96

DATE(S) SAMPLED: 01/17/96

DATE RECEIVED: 01/22/96

AEN WORK ORDER: 9601254

ATTN: DAVE SCRIVNER
CLIENT PROJ. ID: 11295-012
CLIENT PROJ. NAME: CITY BLUE
C.O.C. NUMBER: 0846

PROJECT SUMMARY:

On January 22, 1996, this laboratory received 2 water sample(s).

Client requested sample(s) be analyzed for organic 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: CD #2-IN
AEN LAB NO: 9601254-01
AEN WORK ORDER: 9601254
CLIENT PROJ. ID: 11295-012

DATE SAMPLED: 01/17/96
DATE RECEIVED: 01/22/96
REPORT DATE: 02/05/96

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	**EPA 8020**				
Benzene	71-43-2	8.4 *	0.5	ug/L	01/30/96
Toluene	108-88-3	3.9 *	0.5	ug/L	01/30/96
Ethylbenzene	100-41-4	1.1 *	0.5	ug/L	01/30/96
Xylenes, Total	1330-20-7	15 *	2	ug/L	01/30/96
Purgeable HCs as Gasoline	5030/GCFID	0.6 *	0.05	mg/L	01/30/96

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

HARDING LAWSON ASSOCIATES

SAMPLE ID: CD #2-OUT
AEN LAB NO: 9601254-02
AEN WORK ORDER: 9601254
CLIENT PROJ. ID: 11295-012

DATE SAMPLED: 01/17/96
DATE RECEIVED: 01/22/96
REPORT DATE: 02/05/96

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	**EPA 8020**				
Benzene	71-43-2	ND	0.5	ug/L	01/29/96
Toluene	108-88-3	ND	0.5	ug/L	01/29/96
Ethylbenzene	100-41-4	ND	0.5	ug/L	01/29/96
Xylenes, Total	1330-20-7	ND	2	ug/L	01/29/96
Purgeable HCs as Gasoline	5030/GCFID	ND	0.05	mg/L	01/29/96

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

AEN (CALIFORNIA)
QUALITY CONTROL REPORT

AEN JOB NUMBER: 9601254

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: 9601254
INSTRUMENT: H
MATRIX: WATER

Surrogate Standard Recovery Summary

Date Analyzed	Client Id.	Lab Id.	Percent Recovery Fluorobenzene
01/30/96	CD #2-IN	01	87
01/29/96	CD #2-OUT	02	96
QC Limits:			70-130

DATE ANALYZED: 01/31/96
SAMPLE SPIKED: 9601192-14
INSTRUMENT: H

Matrix Spike Recovery Summary

Analyte	Spike Added (ug/L)	Average Percent Recovery	RPD	QC Limits Percent Recovery	QC Limits RPD
Benzene	49.0	98	7	85-109	17
Toluene	155	97	1	87-111	16
Hydrocarbons as Gasoline	1000	103	9	66-117	19

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

*** END OF REPORT ***

0046

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

CHAIN OF CUSTODY FORM

K-3S-3

Lab: AEN 9601254

Samplers: Ron Reindl

Job Number: 11275-012

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	3 VOAs	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		X	CD	#2	IN	96	01	17	1730	01A-C						X		
	X							X		X	CD	#2	OUT	96	01	17	1730	02A-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 1/22/96 1400
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) Anna Gillespie	DATE/TIME 1/22/96 1205
METHOD OF SHIPMENT		
SAMPLE CONDITION WHEN RECEIVED BY THE LABORATORY		

Laboratory Copy White Project Office Copy Yellow Field or Office Copy

American Environmental Network

Certificate of Analysis

DOHS Certification: 1172 AIHA Accreditation: 11134

HARDING ASSOC.

MAR 5 - 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: 0833

REPORT DATE: 03/02/96

DATE(S) SAMPLED: 02/16/96

DATE RECEIVED: 02/22/96

AEN WORK ORDER: 9602317

PROJECT SUMMARY:

On February 22, 1996, this laboratory received 3 water sample(s).

Client requested sample(s) be analyzed for organic 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: CD2-IN
AEN LAB NO: 9602317-01
AEN WORK ORDER: 9602317
CLIENT PROJ. ID: 11295-012

DATE SAMPLED: 02/16/96
DATE RECEIVED: 02/22/96
REPORT DATE: 03/02/96

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	13 *	0.5	ug/L	02/28/96
Toluene	108-88-3	6.0 *	0.5	ug/L	02/28/96
Ethylbenzene	100-41-4	1.4 *	0.5	ug/L	02/28/96
Xylenes, Total	1330-20-7	16 *	2	ug/L	02/28/96
Purgeable HCs as Gasoline	5030/GCFID	1.4 *	0.05	mg/L	02/28/96

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: 9602317-02
AEN WORK ORDER: 9602317
CLIENT PROJ. ID: 11295-012

DATE SAMPLED: 02/16/96
DATE RECEIVED: 02/22/96
REPORT DATE: 03/02/96

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	**EPA 8020**				
Benzene	71-43-2	ND	0.5	ug/L	02/28/96
Toluene	108-88-3	ND	0.5	ug/L	02/28/96
Ethylbenzene	100-41-4	ND	0.5	ug/L	02/28/96
Xylenes, Total	1330-20-7	ND	2	ug/L	02/28/96
Purgeable HCs as Gasoline	5030/GCFID	0.2 *	0.05	mg/L	02/28/96

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: 9602317-03
AEN WORK ORDER: 9602317
CLIENT PROJ. ID: 11295-012

DATE SAMPLED: 02/16/96
DATE RECEIVED: 02/22/96
REPORT DATE: 03/02/96

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	**EPA 8020**				
Benzene	71-43-2	ND	0.5	ug/L	02/28/96
Toluene	108-88-3	ND	0.5	ug/L	02/28/96
Ethylbenzene	100-41-4	ND	0.5	ug/L	02/28/96
Xylenes, Total	1330-20-7	ND	2	ug/L	02/28/96
Purgeable HCs as Gasoline	5030/GCFID	ND	0.05	mg/L	02/28/96

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

AEN (CALIFORNIA)
QUALITY CONTROL REPORT

AEN JOB NUMBER: 9602317

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: 9602317
INSTRUMENT: F
MATRIX: WATER

Surrogate Standard Recovery Summary

Date Analyzed	Client Id.	Lab Id.	Percent Recovery Fluorobenzene
02/28/96	CD2-IN	01	86
02/28/96	CD2-OUT	02	97
02/28/96	CD3-OUT	03	97
QC Limits:			70-130

DATE ANALYZED: 02/28/96
SAMPLE SPIKED: 9602299-01
INSTRUMENT: F

Matrix Spike Recovery Summary

Analyte	Spike Added (ug/L)	Average Percent Recovery	RPD	QC Limits Percent Recovery	QC Limits RPD
Benzene	19.1	86	4	85-109	17
Toluene	63.4	84	3	87-111	16
HCs as Gasoline	500	114	5	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

R-3, S-1

CHAIN OF CUSTODY FORM

9602317

U033

Lab: AEN

Samplers: Ron Reindl

Job Number: 11295-012

Name/Location: City Blvd

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	DATE: Yr Mo Day Time	STATION DESCRIPTION/ NOTES
	X							X		C02-IN	96/02/16/1750	3 VOAs 01A-C
	X							X		C02-OUT	96/02/16/1755	" 02A-C
	X							X		C03-OUT	96/02/16/1800	" 03A-C

STANDARD TAT

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 2/22 9:00
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature) Ramond C. Jensen	DATE/TIME 2/22/96 09:55
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

American Environmental Network

Certificate of Analysis

DOHS Certification: 1172 AIHA Accreditation: 11134

HARDING ASSOC.

MAR 2 9 1996

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

ATTN: DAVE SCRIVNER
CLIENT PROJ. ID: 11295-012

C.O.C. NUMBER: 0835

REPORT DATE: 03/27/96

DATE(S) SAMPLED: 03/19/96

DATE RECEIVED: 03/20/96

AEN WORK ORDER: 9603285

PROJECT SUMMARY:

On March 20, 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: CD #1-IN
AEN LAB NO: 9603285-01
AEN WORK ORDER: 9603285
CLIENT PROJ. ID: 11295-012

DATE SAMPLED: 03/19/96
DATE RECEIVED: 03/20/96
REPORT DATE: 03/27/96

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	**EPA 8020**				
Benzene	71-43-2	460 *	50	ug/L	03/25/96
Toluene	108-88-3	360 *	50	ug/L	03/25/96
Ethylbenzene	100-41-4	59 *	50	ug/L	03/25/96
Xylenes, Total	1330-20-7	3,300 *	200	ug/L	03/25/96
Purgeable HCs as Gasoline	5030/GCFID	33 *	5	mg/L	03/25/96

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: CD #1-OUT
AEN LAB NO: 9603285-02
AEN WORK ORDER: 9603285
CLIENT PROJ. ID: 11295-012

DATE SAMPLED: 03/19/96
DATE RECEIVED: 03/20/96
REPORT DATE: 03/27/96

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	**EPA 8020**				
Benzene	71-43-2	12 *	0.5	ug/L	03/25/96
Toluene	108-88-3	6.6 *	0.5	ug/L	03/25/96
Ethylbenzene	100-41-4	3.3 *	0.5	ug/L	03/25/96
Xylenes, Total	1330-20-7	32 *	2	ug/L	03/25/96
Purgeable HCs as Gasoline	5030/GCFID	0.7 *	0.05	mg/L	03/25/96

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

HARDING LAWSON ASSOCIATES

SAMPLE ID: CD #2-OUT
AEN LAB NO: 9603285-03
AEN WORK ORDER: 9603285
CLIENT PROJ. ID: 11295-012

DATE SAMPLED: 03/19/96
DATE RECEIVED: 03/20/96
REPORT DATE: 03/27/96

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	**EPA 8020**				
Benzene	71-43-2	ND	0.5	ug/L	03/26/96
Toluene	108-88-3	ND	0.5	ug/L	03/26/96
Ethylbenzene	100-41-4	ND	0.5	ug/L	03/26/96
Xylenes, Total	1330-20-7	ND	2	ug/L	03/26/96
Purgeable HCs as Gasoline	5030/GCFID	0.1 *	0.05	mg/L	03/26/96

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

AEN (CALIFORNIA)
QUALITY CONTROL REPORT

AEN JOB NUMBER: 9603285

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: 9603285
INSTRUMENT: H
MATRIX: WATER

Surrogate Standard Recovery Summary

Date Analyzed	Client Id.	Lab Id.	Percent Recovery Fluorobenzene
03/25/96	CD #1-IN	01	105
03/25/96	CD #1-OUT	02	98
03/26/96	CD #2-OUT	03	106
QC Limits:			70-130

DATE ANALYZED: 03/25/96
SAMPLE SPIKED: 9603273-02
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	97	7	85-109	17
Toluene	73.9	92	2	87-111	16
HCs as Gasoline	500	109	3	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

9603285

0835

B51

Lab: AEN

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	EPA 8020/BTEX	EPA 8015M/TPHd,o
	X							X		CD	#1	-IN	96	03	19	1715	01A-C					X	X	
	X							X		CD	#1	-OUT	96	03	19	1715	02A-C					X	X	
	X							X		CD	#2	-OUT	96	03	19	1715	03A-C					X	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 3-20-96 11:10
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME 3-20-96 14:10
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 Wh[illegible] Project Office Copy [illegible]low Field or Office Copy

American Environmental Network

Certificate of Analysis

DOHS Certification: 1172 AIHA Accreditation: 11134

HARDING ASSOC.

MAR 2 0 1996

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

ATTN: DAVE SCRIVNER
CLIENT PROJ. ID: 34467-1
CLIENT PROJ. NAME: CITY BLUE
C.O.C. NUMBER: 208

REPORT DATE: 03/19/96

DATE(S) SAMPLED: 03/06/96

DATE RECEIVED: 03/06/96

AEN WORK ORDER: 9603078

PROJECT SUMMARY:

On March 6, 1996, this laboratory received 4 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: MW-4
AEN LAB NO: 9603078-01
AEN WORK ORDER: 9603078
CLIENT PROJ. ID: 34467-1

DATE SAMPLED: 03/06/96
DATE RECEIVED: 03/06/96
REPORT DATE: 03/19/96

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	**EPA 8020**				
Benzene	71-43-2	2,600 *	50	ug/L	03/13/96
Toluene	108-88-3	3,600 *	50	ug/L	03/13/96
Ethylbenzene	100-41-4	780 *	50	ug/L	03/13/96
Xylenes, Total	1330-20-7	10,000 *	200	ug/L	03/13/96
Purgeable HCs as Gasoline	5030/GCFID	110 *	5	mg/L	03/13/96

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: MW-1a
AEN LAB NO: 9603078-02
AEN WORK ORDER: 9603078
CLIENT PROJ. ID: 34467-1

DATE SAMPLED: 03/06/96
DATE RECEIVED: 03/06/96
REPORT DATE: 03/19/96

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	**EPA 8020**				
Benzene	71-43-2	14,000 *	50	ug/L	03/13/96
Toluene	108-88-3	22,000 *	50	ug/L	03/13/96
Ethylbenzene	100-41-4	2,700 *	50	ug/L	03/13/96
Xylenes, Total	1330-20-7	22,000 *	200	ug/L	03/13/96
Purgeable HCs as Gasoline	5030/GCFID	200 *	5	mg/L	03/13/96

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: MW-3
AEN LAB NO: 9603078-03
AEN WORK ORDER: 9603078
CLIENT PROJ. ID: 34467-1

DATE SAMPLED: 03/06/96
DATE RECEIVED: 03/06/96
REPORT DATE: 03/19/96

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	**EPA 8020**				
Benzene	71-43-2	120 *	5	ug/L	03/14/96
Toluene	108-88-3	170 *	5	ug/L	03/14/96
Ethylbenzene	100-41-4	49 *	5	ug/L	03/14/96
Xylenes, Total	1330-20-7	440 *	20	ug/L	03/14/96
Purgeable HCs as Gasoline	5030/GCFID	7.3 *	0.5	mg/L	03/14/96

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-5
AEN LAB NO: 9603078-04
AEN WORK ORDER: 9603078
CLIENT PROJ. ID: 34467-1

DATE SAMPLED: 03/06/96
DATE RECEIVED: 03/06/96
REPORT DATE: 03/19/96

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	**EPA 8020**				
Benzene	71-43-2	15,000 *	30	ug/L	03/15/96
Toluene	108-88-3	2,800 *	30	ug/L	03/15/96
Ethylbenzene	100-41-4	2,000 *	30	ug/L	03/15/96
Xylenes, Total	1330-20-7	2,400 *	100	ug/L	03/15/96
Purgeable HCs as Gasoline	5030/GCFID	51 *	3	mg/L	03/15/96

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: 9603078

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: 9603078
INSTRUMENT: H
MATRIX: WATER

Surrogate Standard Recovery Summary

Date Analyzed	Client Id.	Lab Id.	Percent Recovery Fluorobenzene
03/13/96	MW-4	01	94
03/13/96	MW-1A	02	98
03/14/96	MW-3	03	103
03/15/96	MW-5	04	125
QC Limits:			70-130

DATE ANALYZED: 03/12/96
SAMPLE SPIKED: 9603103-02
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	99	<1	85-109	17
Toluene	73.9	96	1	87-111	16
HCs as Gasoline	500	115	3	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 K-3,5,2

Lab: AEN

Samplers: R. Rogers 96030078

Job Number: 34467-1

Name/Location: City Blvd

Project Manager: D. Scrivner

Recorder: R. Rg (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	3				96	03	06	1440	MW-4 01A C
	"							"	"				"	"	"	1446	MW-1a 02A-C
	"							"	"				"	"	"	1545	MW-3 03A C
	X							X	3				96	03	06	1615	MW-5 04A-C

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

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

CHAIN OF CUSTODY RECORD

RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
R. Rg	Dina M Bellen	3/6/96 1709
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