



ENVIRONMENTAL
PROTECTION
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October 1, 2000

QUARTERLY GROUNDWATER MONITORING REPORT
AUGUST 2000 GROUNDWATER SAMPLING
ASE JOB NO. 3515

at

The Former California
Brake and Clutch Property
2221 Union Street
Oakland, California

Submitted by:
AQUA SCIENCE ENGINEERS, INC.
208 West El Pintado Road
Danville, CA 94526
(925) 820-9391

1.0 INTRODUCTION

The following is a report detailing the results of the August 2000 quarterly groundwater sampling at 2221 Union Street, Oakland, California (*Figures 1 and 2*).

2.0 GROUNDWATER ELEVATIONS

On August 8, 2000, ASE associate geologist Ian Reed measured the depth to water in all site groundwater monitoring wells using an electric water level sounder. The depth to water and groundwater elevations are presented in Table One, and a groundwater elevation (potentiometric surface) contour map is presented as *Figure 2*. The groundwater flow direction is to the northeast at a gradient of 0.01-feet/foot. The groundwater flow direction and gradient beneath the site has been highly variable and may be tidally influenced.

3.0 SAMPLE COLLECTION AND ANALYSIS

Prior to sampling, the monitoring wells were purged of four well casing volumes of groundwater using dedicated polyethylene bailers. The parameters pH, temperature and conductivity were monitored during the well purging. Samples were not collected until these parameters stabilized. The groundwater samples were collected using dedicated polyethylene bailers. The samples to be analyzed for volatile compounds were decanted from the bailers into 40-ml volatile organic analysis (VOA) vials, pre-preserved with hydrochloric acid and capped without headspace. All of the samples were labeled and placed in a cooler with wet ice for transport to Chromalab, Inc. of Pleasanton, California (ELAP #1094) under appropriate chain-of-custody documentation. Well sampling field logs are presented in Appendix A. The groundwater samples were analyzed for halogenated volatile organic compounds (HVOCs) by EPA Method 8010. The analytical results for this and previous sampling periods are presented in Table Two.

Well sampling purge water was contained in sealed and labeled 55-gallon steel drums and left on-site for temporary storage until off-site disposal can be arranged. The certified analytical report and chain-of-custody documentation are included as Appendix B.

4.0 CONCLUSIONS

The groundwater samples collected from monitoring well MW-1 contained 38 parts per billion (ppb) tetrachloroethene (PCE), 19 ppb trichloroethene (TCE), 21 ppb cis-1,2-dichloroethene (cis-1,2-DCE), 8.7 ppb trans-1,2-DCE, 1.2 ppb 1,1-dichloroethane (1,1-DCA), and 17 ppb vinyl chloride. The groundwater samples collected from monitoring well MW-2 contained 280 ppb PCE, 82 ppb TCE, and 33 ppb cis-1,2-DCE. The groundwater samples collected from monitoring well MW-3 contained 74 ppb PCE, 11 ppb TCE, 17 ppb cis-1,2-DCE, and 12 ppb 1,1-DCA. The groundwater samples collected from monitoring well MW-4 contained 2.1 ppb PCE, 7.4 ppb TCE, 17 ppb cis-1,2-DCE, 8.3 ppb 1,1-DCA, 1.8 ppb 1,1-DCE, 1.9 ppb 1,2-DCA, 3.1 ppb chloroethene, and 9.6 ppb vinyl chloride.

The analytical results for groundwater samples collected from monitoring well MW-1 this quarter show a significant decrease in PCE and TCE concentrations from the previous several quarter's results, although there was a slight increase in breakdown compounds such as cis-1,2-DCE, trans-1,2-DCE, and vinyl chloride this quarter.

There was a decrease in HVOC concentrations in groundwater samples collected from monitoring well MW-2 this quarter. The results this quarter are relatively similar to the results of the February 2000 sampling.

While the HVOC concentrations detected in groundwater samples collected from monitoring well MW-3 were relatively similar to previous results, there was a slight increase in the PCE concentration this quarter.

The analytical results for groundwater samples collected from monitoring well MW-4 this quarter are relatively similar to historical results.

The HVOC concentrations in groundwater samples collected from all monitoring wells still remain well below the Oakland Risk Based Corrective Action (RBCA) levels for vapor intrusion from groundwater to an indoor air scenario.

5.0 REPORT LIMITATIONS

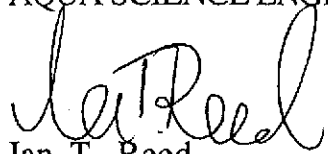
The results of this assessment represent conditions at the time of the groundwater sampling, at the specific locations where the samples were collected, and for the specific parameters analyzed by the laboratory.

It does not fully characterize the site for contamination resulting from unknown sources, or for parameters not analyzed by the laboratory. All of the laboratory work cited in this report was prepared under the direction of an independent CAL-EPA certified laboratory. The independent laboratory is solely responsible for the contents and conclusions of the chemical analysis data.

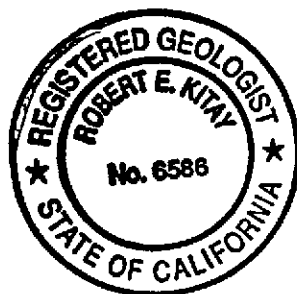
Aqua Science Engineers appreciates the opportunity to provide environmental consulting services for this project. Should you have any questions or comments, please feel free to call us at (925) 820-9391.

Respectfully submitted,

AQUA SCIENCE ENGINEERS, INC.



Ian T. Reed
Associate Geologist



Robert E. Kitay, R.G., R.E.A.
Senior Geologist

Attachments: Figures 1 and 2
Appendices A and B

TABLE ONE
Groundwater Elevation Data
2221 Union Street, Oakland, California

WELL ID	DATE OF MEASUREMENT	TOP OF CASING ELEVATION IN FEET (MSL)	DEPTH TO WATER (feet)	GROUNDWATER ELEVATION IN FEET (MSL)
MW-1	9/2/99	15.00	8.81	6.19
	11/2/99		5.94	9.06
	11/4/99		7.15	7.85
	11/9/99		4.72	10.28
	2/7/00		3.55	11.45
	5/16/00		3.88	11.12
	8/8/00		5.79	9.21
MW-2	9/2/99	15.29	6.29	9.00
	11/2/99	15.24	6.01	9.23
	11/4/99		5.94	9.30
	11/9/99		5.28	9.96
	2/7/00		4.12	11.12
	5/16/00		4.24	11.00
	8/8/00		5.68	9.56
MW-3	9/2/99	15.15	6.26	8.89
	11/2/99	15.17	5.74	9.43
	11/4/99		6.09	9.08
	11/9/99		5.64	9.53
	2/7/00		3.06	12.11
	5/16/00		3.80	11.37
	8/8/00		3.54	11.63
MW-4	11/2/99	15.21	5.86	9.35
	11/4/99		5.85	9.36
	11/9/99		4.56	10.65
	2/7/00		3.66	11.55
	5/16/00		3.89	11.32
	8/8/00		5.77	9.44

TABLE TWO
Summary of Chemical Analysis of Water Samples
Volatile Organic Compounds
All results are in parts per billion

SAMPLE NAME	DATE	PCE	TCE	CIS 1,2-DCE	TRANS 1,2-DCE	1,1-DCA	1,1-DCE	1,2-DCA	CHLOROETHANE	VC	REMAINING (VOCs)
MW-1	9/2/99	9.9	3.2	3.9	<1	58	<1	<1	<1	<1	<1-<10
	11/2/99	100	15	17	3.4	1.7	<1	<1	<1	<1	<1-<10
	2/7/00	510	160	8	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0-<20
	5/16/00	260	73	10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0-<20
	8/8/00	38	19	21	8.7	1.2	<0.5	<0.5	<0.5	17	<0.5-<5.0
MW-2	9/2/99	48	4.5	1.7	<1	<1	<1	<1	<1	<1	<1-<10
	11/2/99	110	9.5	1.4	<1	<1	<1	<1	<1	<1	<1-<10
	2/7/00	200	21	6.6	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5-<10
	5/16/00	820	220	74	<10	<10	<10	<10	<10	<10	<10-<40
	8/8/00	280	82	33	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0-<20
MW-3	9/2/99	38	21	34	<0.5	22	<0.5	<0.5	<0.5	<0.5	<0.5-<5
	11/2/99	59	21	35	<0.5	22	<0.5	<0.5	<0.5	<0.5	<0.5-<5
	2/7/00	56	13	22	<0.5	8.5	<0.5	<0.5	<0.5	<0.5	<0.5-<5
	5/16/00	54	8.7	<1	<1	5.3	<1	<1	<1	<1	<1-<10
	8/8/00	74	11	17	<1.0	12	<1.0	<1.0	<1.0	<1.0	<1.0-<4.0
MW-4	11/2/99	0.68	0.74	21	<0.5	14	2.7	2.1	12	6.3	<0.5-<5
	2/7/00	14	4.1	18	<0.5	8.1	0.64	<0.5	0.71	6	<0.5-<5
	5/16/00	24	13	12	<0.5	19	<0.5	<0.5	<0.5	0.75	<0.5-<5
	8/8/00	2.1	7.4	17	<0.5	8.3	1.8	1.9	3.1	9.6	<0.5-<5.0
OAKLAND RBCA	200,000	460,000	2,100,000	3,000,000	940,000	16,000	170,000	NA	4,400	VARIES	

NOTES:

Non-detectable concentrations are noted by the less than sign (<) followed by the laboratory detection limit.

The Oakland risk based corrective action (RBCA) number is the cleanup goal for vapor intrusion from groundwater to an INDOOR AIR Scenario modified for groundwater at depths of 6-feet below ground surface.

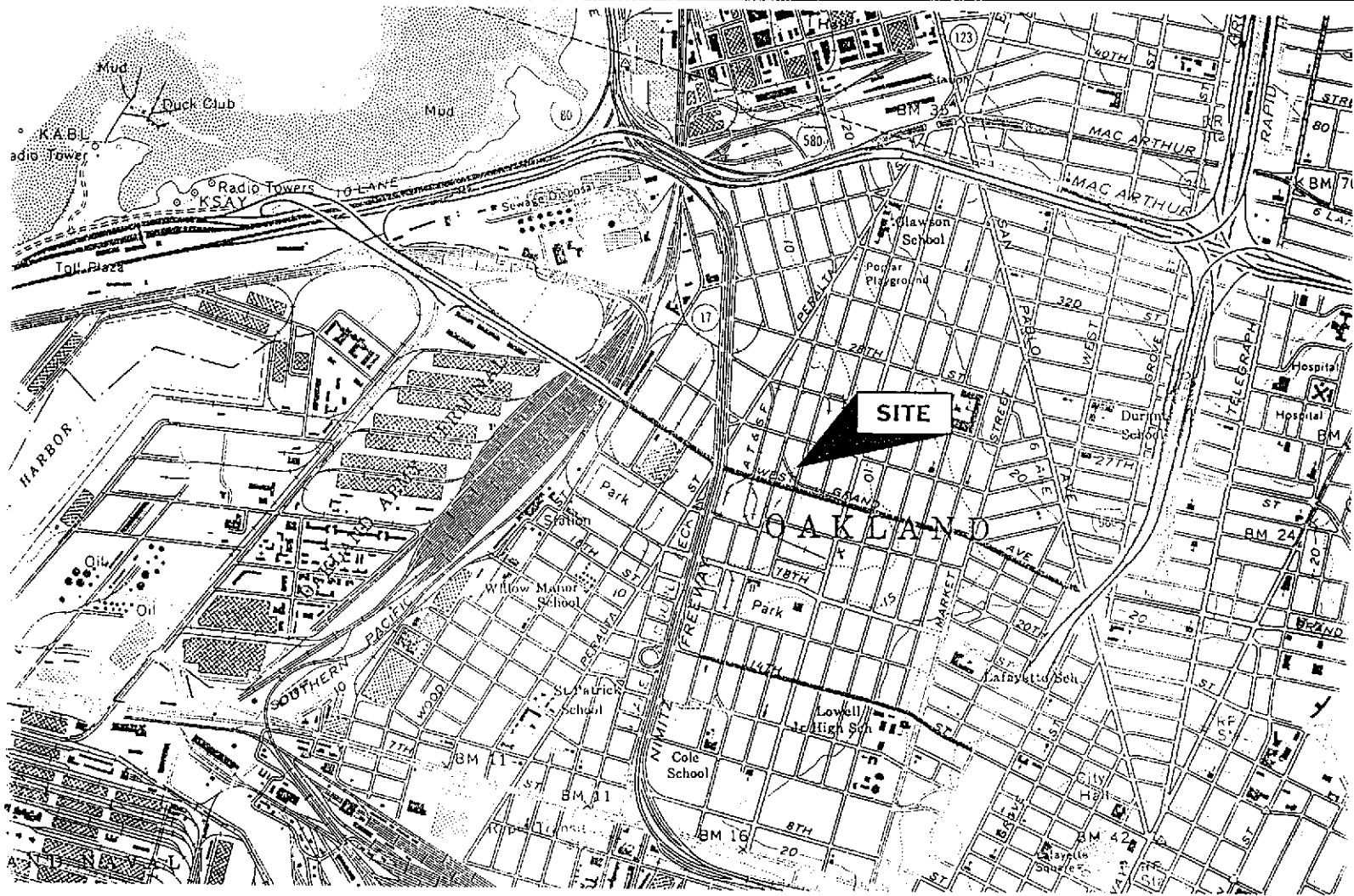
PCE is Tetrachloroethene

TCE is Trichloroethene

DCE is Dichloroethene

DCA is Dichloroethane

VC is Vinyl Chloride



NORTH

LOCATION MAP

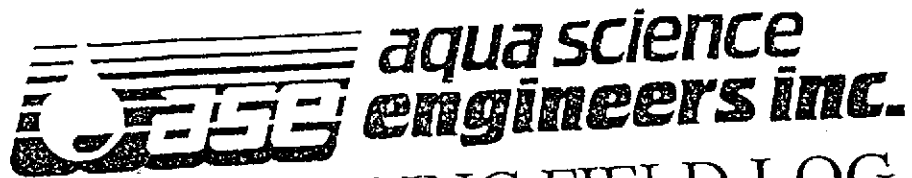
2221 Union Street
Oakland, California

AQUA SCIENCE ENGINEERS, INC.

Figure 1

APPENDIX A

Well Sampling Field Logs



WELL SAMPLING FIELD LOG

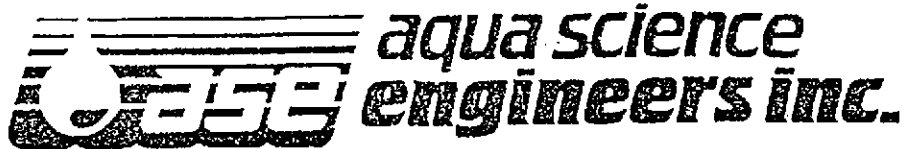
Project Name and Address: 2221 Union St. Oakland CA
 Job #: 3515 Date of sampling: 8/8/00
 Well Name: MW-1 Sampled by: TR
 Total depth of well (feet): 200' Well diameter (inches): 2"
 Depth to water before sampling (feet): 5.79'
 Thickness of floating product if any: _____
 Depth of well casing in water (feet): 14.21
 Number of gallons per well casing volume (gallons): 2.4
 Number of well casing volumes to be removed: 4
 Req'd volume of groundwater to be purged before sampling (gallons): 9.6
 Equipment used to purge the well: ded. bailer
 Time Evacuation Began: 1430 Time Evacuation Finished: 1450
 Approximate volume of groundwater purged: _____
 Did the well go dry?: NO After how many gallons: _____
 Time samples were collected: 1455
 Depth to water at time of sampling: 6.32
 Percent recovery at time of sampling: 92%
 Samples collected with: ded. bailer
 Sample color: clear Odor: none
 Description of sediment in sample: F. soil

CHEMICAL DATA

Volume Purged	Temp	pH	Conductivity
<u>1</u>	<u>70.1</u>	<u>6.81</u>	<u>780</u>
<u>2</u>	<u>70.2</u>	<u>6.81</u>	<u>790</u>
<u>3</u>	<u>71.0</u>	<u>6.80</u>	<u>770</u>
<u>4</u>	<u>71.0</u>	<u>6.80</u>	<u>790</u>

SAMPLES COLLECTED

Sample	# of containers	Volume & type container	Pres	Iced?	Analysis
<u>MW-1</u>	<u>3</u>	<u>40ml VOA</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____



WELL SAMPLING FIELD LOG

Project Name and Address: 2221 Union St, Oakland CA
 Job #: 3515 Date of sampling: 8/8/00
 Well Name: MW-2 Sampled by: ITR
 Total depth of well (feet): 200' Well diameter (inches): 6"
 Depth to water before sampling (feet): 5.68
 Thickness of floating product if any: —
 Depth of well casing in water (feet): 14.32'
 Number of gallons per well casing volume (gallons): 2.4
 Number of well casing volumes to be removed: 4
 Req'd volume of groundwater to be purged before sampling (gallons): 9.6
 Equipment used to purge the well: ded. bailer
 Time Evacuation Began: 1500 Time Evacuation Finished: 1515
 Approximate volume of groundwater purged: 10
 Did the well go dry?: NO After how many gallons: —
 Time samples were collected: 1520
 Depth to water at time of sampling: 6.30
 Percent recovery at time of sampling: 90%
 Samples collected with: ded. bailer
 Sample color: clear / gray Odor: None
 Description of sediment in sample: f. silt

CHEMICAL DATA

Volume Purged	Temp	pH	Conductivity
<u>1</u>	<u>6.9</u>	<u>7.01</u>	<u>830</u>
<u>2</u>	<u>6.9.0</u>	<u>7.02</u>	<u>810</u>
<u>3</u>	<u>6.9</u>	<u>7.01</u>	<u>670</u>
<u>4</u>	<u>6.9.8</u>	<u>7.02</u>	<u>810</u>

SAMPLES COLLECTED

Sample	# of containers	Volume & type container	Pres	Iced?	Analysis
<u>MW-2</u>	<u>3</u>	<u>400ml VCH</u>	<u>✓</u>	<u>✓</u>	<u>—</u>
<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>
<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>
<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>



WELL SAMPLING FIELD LOG

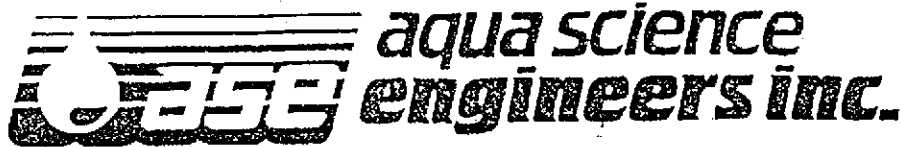
Project Name and Address: 2221 Union St, Oakland CA
 Job #: 3514 Date of sampling: 7/8/80
 Well Name: MW-3 Sampled by: MT
 Total depth of well (feet): 17.2 Well diameter (inches): 2"
 Depth to water before sampling (feet): 3.54
 Thickness of floating product if any: _____
 Depth of well casing in water (feet): 15.46
 Number of gallons per well casing volume (gallons): 2.6
 Number of well casing volumes to be removed: 4
 Req'd volume of groundwater to be purged before sampling (gallons): 10.5
 Equipment used to purge the well: ded. bailer
 Time Evacuation Began: 1000 Time Evacuation Finished: 1015
 Approximate volume of groundwater purged: 7.5
 Did the well go dry?: NO After how many gallons: —
 Time samples were collected: 1020
 Depth to water at time of sampling: 4.60
 Percent recovery at time of sampling: 96%
 Samples collected with: ded. bailer
 Sample color: clear Odor: None
 Description of sediment in sample: fine

CHEMICAL DATA

Volume Purged	Temp	pH	Conductivity
<u>1</u>	<u>68.8</u>	<u>7.92</u>	<u>900</u>
<u>2</u>	<u>69.3</u>	<u>7.87</u>	<u>910</u>
<u>3</u>	<u>69.0</u>	<u>7.80</u>	<u>910</u>
<u>4</u>	<u>67.1</u>	<u>7.79</u>	<u>910</u>

SAMPLES COLLECTED

Sample	# of containers	Volume & type container	Pres	Iced?	Analysis
<u>MW-3</u>	<u>3</u>	<u>1 gal 500</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____



WELL SAMPLING FIELD LOG

Project Name and Address: 2221 Union St, Oakland CA
 Job #: 3515 Date of sampling: 8/20/00
 Well Name: MW-4 Sampled by: TR
 Total depth of well (feet): 19.51' Well diameter (inches): 7"
 Depth to water before sampling (feet): 5.77'
 Thickness of floating product if any: _____
 Depth of well casing in water (feet): 13.74
 Number of gallons per well casing volume (gallons): 2.3
 Number of well casing volumes to be removed: 4
 Req'd volume of groundwater to be purged before sampling (gallons): 9.2
 Equipment used to purge the well: dia. bailer
 Time Evacuation Began: 1530 Time Evacuation Finished: 1545
 Approximate volume of groundwater purged: 10
 Did the well go dry?: NO After how many gallons: —
 Time samples were collected: 1550
 Depth to water at time of sampling: 6.73
 Percent recovery at time of sampling: 90%
 Samples collected with: dia. bailer
 Sample color: gray/clear Odor: None
 Description of sediment in sample: 1 silt

CHEMICAL DATA

Volume Purged	Temp	pH	Conductivity
<u>1</u>	<u>71.0</u>	<u>5.81</u>	<u>680</u>
<u>2</u>	<u>70.9</u>	<u>5.82</u>	<u>670</u>
<u>3</u>	<u>71.0</u>	<u>5.81</u>	<u>670</u>
<u>4</u>	<u>71.1</u>	<u>5.80</u>	<u>680</u>

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SAMPLES COLLECTED

Sample	# of containers	Volume & type container	Pres	Iced?	Analysis
<u>MW-4</u>	<u>3</u>	<u>400ml VOA</u>	<u>✓</u>	<u>✓</u>	
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

APPENDIX B

Certified Analytical Report
and
Chain of Custody Documentation

Aqua Science Engineers, Inc.
208 West El Pintado Road
Danville, CA 94526

Attn.: Mr. Ian T. Reed

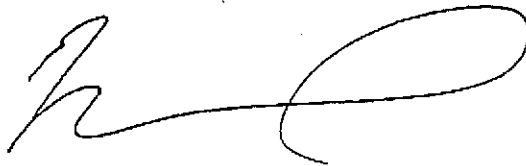
Project: 3515
Kendall-Union St.

Dear Mr. Reed,

Attached is our report for your samples received on Thursday August 10, 2000
This report has been reviewed and approved for release. Reproduction of this report
is permitted only in its entirety.

Please note that any unused portion of the samples will be discarded after September 24, 2000
unless you have requested otherwise. We appreciate the opportunity to be of service to you.
If you have any questions, please call me at (925) 484-1919. You can also contact me via email.
My email address is: vvancil@chromalab.com

Sincerely,



Vincent Vancil

Halogenated Volatile Organic Compounds

Aqua Science Engineers, Inc.

✉ 208 West El Pintado Road
Danville, CA 94526

Attn: Ian T. Reed

Phone: (925) 820-9391 Fax: (925) 837-4853

Project #: 3515

Project: Kendall-Union St.

Samples Reported

Sample ID	Matrix	Date Sampled	Lab #
MW-1	Water	08/08/2000 14:55	1
MW-2	Water	08/08/2000 15:20	2
MW-3	Water	08/08/2000	3
MW-4	Water	08/08/2000 15:50	4

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-08-0224

To: Aqua Science Engineers, Inc.

Test Method: 8010

Attn.: Ian T. Reed

Prep Method: 5030

Halogenated Volatile Organic Compounds

Sample ID: MW-1	Lab Sample ID: 2000-08-0224-001
Project: 3515 Kendall-Union St.	Received: 08/10/2000 15:10
Sampled: 08/08/2000 14:55	Extracted: 08/14/2000 17:10
Matrix: Water	QC-Batch: 2000/08/14-01.25

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Dichlorodifluoromethane	ND	1.0	ug/L	1.00	08/14/2000 17:10	
Vinyl chloride	17	0.50	ug/L	1.00	08/14/2000 17:10	
Chloroethane	ND	0.50	ug/L	1.00	08/14/2000 17:10	
Trichlorofluoromethane	ND	0.50	ug/L	1.00	08/14/2000 17:10	
1,1-Dichloroethene	ND	0.50	ug/L	1.00	08/14/2000 17:10	
Methylene chloride	ND	5.0	ug/L	1.00	08/14/2000 17:10	
trans-1,2-Dichloroethene	8.7	0.50	ug/L	1.00	08/14/2000 17:10	
cis-1,2-Dichloroethene	21	0.50	ug/L	1.00	08/14/2000 17:10	
1,1-Dichloroethane	1.2	0.50	ug/L	1.00	08/14/2000 17:10	
Chloroform	ND	0.50	ug/L	1.00	08/14/2000 17:10	
1,1,1-Trichloroethane	ND	0.50	ug/L	1.00	08/14/2000 17:10	
Carbon tetrachloride	ND	0.50	ug/L	1.00	08/14/2000 17:10	
1,2-Dichloroethane	ND	0.50	ug/L	1.00	08/14/2000 17:10	
Trichloroethene	19	0.50	ug/L	1.00	08/14/2000 17:10	
1,2-Dichloropropane	ND	0.50	ug/L	1.00	08/14/2000 17:10	
Bromodichloromethane	ND	0.50	ug/L	1.00	08/14/2000 17:10	
2-Chloroethylvinyl ether	ND	0.50	ug/L	1.00	08/14/2000 17:10	
trans-1,3-Dichloropropene	ND	0.50	ug/L	1.00	08/14/2000 17:10	
cis-1,3-Dichloropropene	ND	0.50	ug/L	1.00	08/14/2000 17:10	
1,1,2-Trichloroethane	ND	0.50	ug/L	1.00	08/14/2000 17:10	
Tetrachloroethene	38	0.50	ug/L	1.00	08/14/2000 17:10	
Dibromochloromethane	ND	0.50	ug/L	1.00	08/14/2000 17:10	
Chlorobenzene	ND	0.50	ug/L	1.00	08/14/2000 17:10	
Bromoform	ND	2.0	ug/L	1.00	08/14/2000 17:10	
1,1,2,2-Tetrachloroethane	ND	0.50	ug/L	1.00	08/14/2000 17:10	
1,3-Dichlorobenzene	ND	0.50	ug/L	1.00	08/14/2000 17:10	
1,4-Dichlorobenzene	ND	0.50	ug/L	1.00	08/14/2000 17:10	
1,2-Dichlorobenzene	ND	0.50	ug/L	1.00	08/14/2000 17:10	
Trichlorotrifluoroethane	ND	2.0	ug/L	1.00	08/14/2000 17:10	
Chloromethane	ND	1.0	ug/L	1.00	08/14/2000 17:10	
Bromomethane	ND	1.0	ug/L	1.00	08/14/2000 17:10	
Surrogate(s)						
1-Chloro-2-fluorobenzene	94.2	50-150	%	1.00	08/14/2000 17:10	

1220 Quarry Lane * Pleasanton, CA 94566-4756

Telephone: (925) 484-1919 * Facsimile: (925) 484-1096

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-08-0224

To: Aqua Science Engineers, Inc.

Test Method: 8010

Attn.: Ian T. Reed

Prep Method: 5030

Halogenated Volatile Organic Compounds

Sample ID: MW-2	Lab Sample ID: 2000-08-0224-002
Project: 3515 Kendall-Union St.	Received: 08/10/2000 15:10
Sampled: 08/08/2000 15:20	Extracted: 08/14/2000 19:25
Matrix: Water	QC-Batch: 2000/08/14-01.25
Sample/Analysis Flag o (See Legend & Note section)	

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Dichlorodifluoromethane	ND	10	ug/L	10.00	08/14/2000 19:25	
Vinyl chloride	ND	5.0	ug/L	10.00	08/14/2000 19:25	
Chloroethane	ND	5.0	ug/L	10.00	08/14/2000 19:25	
Trichlorofluoromethane	ND	5.0	ug/L	10.00	08/14/2000 19:25	
1,1-Dichloroethene	ND	5.0	ug/L	10.00	08/14/2000 19:25	
Methylene chloride	ND	50	ug/L	10.00	08/14/2000 19:25	
trans-1,2-Dichloroethene	ND	5.0	ug/L	10.00	08/14/2000 19:25	
cis-1,2-Dichloroethene	33	5.0	ug/L	10.00	08/14/2000 19:25	
1,1-Dichloroethane	ND	5.0	ug/L	10.00	08/14/2000 19:25	
Chloroform	ND	5.0	ug/L	10.00	08/14/2000 19:25	
1,1,1-Trichloroethane	ND	5.0	ug/L	10.00	08/14/2000 19:25	
Carbon tetrachloride	ND	5.0	ug/L	10.00	08/14/2000 19:25	
1,2-Dichloroethane	ND	5.0	ug/L	10.00	08/14/2000 19:25	
Trichloroethene	82	5.0	ug/L	10.00	08/14/2000 19:25	
1,2-Dichloropropane	ND	5.0	ug/L	10.00	08/14/2000 19:25	
Bromodichloromethane	ND	5.0	ug/L	10.00	08/14/2000 19:25	
2-Chloroethylvinyl ether	ND	5.0	ug/L	10.00	08/14/2000 19:25	
trans-1,3-Dichloropropene	ND	5.0	ug/L	10.00	08/14/2000 19:25	
cis-1,3-Dichloropropene	ND	5.0	ug/L	10.00	08/14/2000 19:25	
1,1,2-Trichloroethane	ND	5.0	ug/L	10.00	08/14/2000 19:25	
Tetrachloroethene	280	5.0	ug/L	10.00	08/14/2000 19:25	
Dibromochloromethane	ND	5.0	ug/L	10.00	08/14/2000 19:25	
Chlorobenzene	ND	5.0	ug/L	10.00	08/14/2000 19:25	
Bromoform	ND	20	ug/L	10.00	08/14/2000 19:25	
1,1,2,2-Tetrachloroethane	ND	5.0	ug/L	10.00	08/14/2000 19:25	
1,3-Dichlorobenzene	ND	5.0	ug/L	10.00	08/14/2000 19:25	
1,4-Dichlorobenzene	ND	5.0	ug/L	10.00	08/14/2000 19:25	
1,2-Dichlorobenzene	ND	5.0	ug/L	10.00	08/14/2000 19:25	
Trichlorotrifluoroethane	ND	20	ug/L	10.00	08/14/2000 19:25	
Chloromethane	ND	10	ug/L	10.00	08/14/2000 19:25	
Bromomethane	ND	10	ug/L	10.00	08/14/2000 19:25	
Surrogate(s)						
1-Chloro-2-fluorobenzene	81.3	50-150	%	1.00	08/14/2000 19:25	

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CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-08-0224

To: Aqua Science Engineers, Inc.

Test Method: 8010

Attn.: Ian T. Reed

Prep Method: 5030

Halogenated Volatile Organic Compounds

Sample ID: MW-3	Lab Sample ID: 2000-08-0224-003
Project: 3515 Kendall-Union St.	Received: / 08/10/2000 15:10
Sampled: 08/08/2000	Extracted: 08/11/2000 20:26
Matrix: Water	QC-Batch: 2000/08/11-02.25
Sample/Analysis Flag o (See Legend & Note section)	

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Dichlorodifluoromethane	ND	2.0	ug/L	2.00	08/11/2000 20:26	
Vinyl chloride	ND	1.0	ug/L	2.00	08/11/2000 20:26	
Chloroethane	ND	1.0	ug/L	2.00	08/11/2000 20:26	
Trichlorofluoromethane	ND	1.0	ug/L	2.00	08/11/2000 20:26	
1,1-Dichloroethene	ND	1.0	ug/L	2.00	08/11/2000 20:26	
Methylene chloride	ND	10	ug/L	2.00	08/11/2000 20:26	
trans-1,2-Dichloroethene	ND	1.0	ug/L	2.00	08/11/2000 20:26	
cis-1,2-Dichloroethene	17	1.0	ug/L	2.00	08/11/2000 20:26	
1,1-Dichloroethane	12	1.0	ug/L	2.00	08/11/2000 20:26	
Chloroform	ND	1.0	ug/L	2.00	08/11/2000 20:26	
1,1,1-Trichloroethane	ND	1.0	ug/L	2.00	08/11/2000 20:26	
Carbon tetrachloride	ND	1.0	ug/L	2.00	08/11/2000 20:26	
1,2-Dichloroethane	ND	1.0	ug/L	2.00	08/11/2000 20:26	
Trichloroethene	11	1.0	ug/L	2.00	08/11/2000 20:26	
1,2-Dichloropropane	ND	1.0	ug/L	2.00	08/11/2000 20:26	
Bromodichloromethane	ND	1.0	ug/L	2.00	08/11/2000 20:26	
2-Chloroethylvinyl ether	ND	1.0	ug/L	2.00	08/11/2000 20:26	
trans-1,3-Dichloropropene	ND	1.0	ug/L	2.00	08/11/2000 20:26	
cis-1,3-Dichloropropene	ND	1.0	ug/L	2.00	08/11/2000 20:26	
1,1,2-Trichloroethane	ND	1.0	ug/L	2.00	08/11/2000 20:26	
Tetrachloroethene	74	1.0	ug/L	2.00	08/11/2000 20:26	
Dibromochloromethane	ND	1.0	ug/L	2.00	08/11/2000 20:26	
Chlorobenzene	ND	1.0	ug/L	2.00	08/11/2000 20:26	
Bromoform	ND	4.0	ug/L	2.00	08/11/2000 20:26	
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	2.00	08/11/2000 20:26	
1,3-Dichlorobenzene	ND	1.0	ug/L	2.00	08/11/2000 20:26	
1,4-Dichlorobenzene	ND	1.0	ug/L	2.00	08/11/2000 20:26	
1,2-Dichlorobenzene	ND	1.0	ug/L	2.00	08/11/2000 20:26	
Trichlorotrifluoroethane	ND	4.0	ug/L	2.00	08/11/2000 20:26	
Chloromethane	ND	2.0	ug/L	2.00	08/11/2000 20:26	
Bromomethane	ND	2.0	ug/L	2.00	08/11/2000 20:26	
Surrogate(s)						
1-Chloro-2-fluorobenzene	80.1	50-150	%	1.00	08/11/2000 20:26	

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CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-08-0224

To: Aqua Science Engineers, Inc.
Attn.: Ian T. Reed

Test Method: 8010
Prep Method: 5030

Halogenated Volatile Organic Compounds

Sample ID: MW-4	Lab Sample ID: 2000-08-0224-004
Project: 3515 Kendall-Union St.	Received: 08/10/2000 15:10
Sampled: 08/08/2000 15:50	Extracted: 08/11/2000 21:18
Matrix: Water	QC-Batch: 2000/08/11-02.25

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Dichlorodifluoromethane	ND	1.0	ug/L	1.00	08/11/2000 21:18	
Vinyl chloride	9.6	0.50	ug/L	1.00	08/11/2000 21:18	
Chloroethane	3.1	0.50	ug/L	1.00	08/11/2000 21:18	
Trichlorofluoromethane	ND	0.50	ug/L	1.00	08/11/2000 21:18	
1,1-Dichloroethene	1.8	0.50	ug/L	1.00	08/11/2000 21:18	
Methylene chloride	ND	5.0	ug/L	1.00	08/11/2000 21:18	
trans-1,2-Dichloroethene	ND	0.50	ug/L	1.00	08/11/2000 21:18	
cis-1,2-Dichloroethene	17	0.50	ug/L	1.00	08/11/2000 21:18	
1,1-Dichloroethane	8.3	0.50	ug/L	1.00	08/11/2000 21:18	
Chloroform	ND	0.50	ug/L	1.00	08/11/2000 21:18	
1,1,1-Trichloroethane	ND	0.50	ug/L	1.00	08/11/2000 21:18	
Carbon tetrachloride	ND	0.50	ug/L	1.00	08/11/2000 21:18	
1,2-Dichloroethane	1.9	0.50	ug/L	1.00	08/11/2000 21:18	
Trichloroethene	7.4	0.50	ug/L	1.00	08/11/2000 21:18	
1,2-Dichloropropane	ND	0.50	ug/L	1.00	08/11/2000 21:18	
Bromodichloromethane	ND	0.50	ug/L	1.00	08/11/2000 21:18	
2-Chloroethylvinyl ether	ND	0.50	ug/L	1.00	08/11/2000 21:18	
trans-1,3-Dichloropropene	ND	0.50	ug/L	1.00	08/11/2000 21:18	
cis-1,3-Dichloropropene	ND	0.50	ug/L	1.00	08/11/2000 21:18	
1,1,2-Trichloroethane	ND	0.50	ug/L	1.00	08/11/2000 21:18	
Tetrachloroethene	2.1	0.50	ug/L	1.00	08/11/2000 21:18	
Dibromochloromethane	ND	0.50	ug/L	1.00	08/11/2000 21:18	
Chlorobenzene	ND	0.50	ug/L	1.00	08/11/2000 21:18	
Bromoform	ND	2.0	ug/L	1.00	08/11/2000 21:18	
1,1,2,2-Tetrachloroethane	ND	0.50	ug/L	1.00	08/11/2000 21:18	
1,3-Dichlorobenzene	ND	0.50	ug/L	1.00	08/11/2000 21:18	
1,4-Dichlorobenzene	ND	0.50	ug/L	1.00	08/11/2000 21:18	
1,2-Dichlorobenzene	ND	0.50	ug/L	1.00	08/11/2000 21:18	
Trichlorotrifluoroethane	ND	2.0	ug/L	1.00	08/11/2000 21:18	
Chloromethane	ND	1.0	ug/L	1.00	08/11/2000 21:18	
Bromomethane	ND	1.0	ug/L	1.00	08/11/2000 21:18	
Surrogate(s)						
1-Chloro-2-fluorobenzene	82.5	50-150	%	1.00	08/11/2000 21:18	

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CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-08-0224

To: Aqua Science Engineers, Inc.
Attn.: Ian T. Reed

Test Method: 8010
Prep Method: 5030

Batch QC Report Halogenated Volatile Organic Compounds

Method Blank	Water	QC Batch # 2000/08/11-02.25
MB: 2000/08/11-02.25-001		Date Extracted: 08/11/2000 09:09

Compound	Result	Rep.Limit	Units	Analyzed	Flag
Dichlorodifluoromethane	ND	1.0	ug/L	08/11/2000 09:09	
Vinyl chloride	ND	0.5	ug/L	08/11/2000 09:09	
Chloroethane	ND	0.5	ug/L	08/11/2000 09:09	
Trichlorofluoromethane	ND	0.5	ug/L	08/11/2000 09:09	
1,1-Dichloroethene	ND	0.5	ug/L	08/11/2000 09:09	
Methylene chloride	ND	5.0	ug/L	08/11/2000 09:09	
trans-1,2-Dichloroethene	ND	0.5	ug/L	08/11/2000 09:09	
cis-1,2-Dichloroethene	ND	0.5	ug/L	08/11/2000 09:09	
1,1-Dichloroethane	ND	0.5	ug/L	08/11/2000 09:09	
Chloroform	ND	0.5	ug/L	08/11/2000 09:09	
1,1,1-Trichloroethane	ND	0.5	ug/L	08/11/2000 09:09	
Carbon tetrachloride	ND	0.5	ug/L	08/11/2000 09:09	
1,2-Dichloroethane	ND	0.5	ug/L	08/11/2000 09:09	
Trichloroethene	ND	0.5	ug/L	08/11/2000 09:09	
1,2-Dichloropropane	ND	0.5	ug/L	08/11/2000 09:09	
Bromodichloromethane	ND	0.5	ug/L	08/11/2000 09:09	
2-Chloroethylvinyl ether	ND	0.5	ug/L	08/11/2000 09:09	
trans-1,3-Dichloropropene	ND	0.5	ug/L	08/11/2000 09:09	
cis-1,3-Dichloropropene	ND	0.5	ug/L	08/11/2000 09:09	
1,1,2-Trichloroethane	ND	0.5	ug/L	08/11/2000 09:09	
Tetrachloroethene	ND	0.5	ug/L	08/11/2000 09:09	
Dibromochloromethane	ND	0.5	ug/L	08/11/2000 09:09	
Chlorobenzene	ND	0.5	ug/L	08/11/2000 09:09	
Bromoform	ND	2.0	ug/L	08/11/2000 09:09	
1,1,2,2-Tetrachloroethane	ND	0.5	ug/L	08/11/2000 09:09	
1,3-Dichlorobenzene	ND	0.5	ug/L	08/11/2000 09:09	
1,4-Dichlorobenzene	ND	0.5	ug/L	08/11/2000 09:09	
1,2-Dichlorobenzene	ND	0.5	ug/L	08/11/2000 09:09	
Trichlorotrifluoroethane	ND	2.0	ug/L	08/11/2000 09:09	
Chloromethane	ND	1.0	ug/L	08/11/2000 09:09	
Bromomethane	ND	1.0	ug/L	08/11/2000 09:09	
Surrogate(s)					
1-Chloro-2-fluorobenzene	76.5	50-150	%	08/11/2000 09:09	

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CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-08-0224

To: Aqua Science Engineers, Inc.
Attn.: Ian T. Reed

Test Method: 8010
Prep Method: 5030

Batch QC Report Halogenated Volatile Organic Compounds

Method Blank	Water	QC Batch # 2000/08/14-01.25
MB: 2000/08/14-01.25-001		Date Extracted: 08/14/2000 09:12

Compound	Result	Rep.Limit	Units	Analyzed	Flag
Dichlorodifluoromethane	ND	1.0	ug/L	08/14/2000 09:12	
Vinyl chloride	ND	0.5	ug/L	08/14/2000 09:12	
Chloroethane	ND	0.5	ug/L	08/14/2000 09:12	
Trichlorofluoromethane	ND	0.5	ug/L	08/14/2000 09:12	
1,1-Dichloroethene	ND	0.5	ug/L	08/14/2000 09:12	
Methylene chloride	ND	5.0	ug/L	08/14/2000 09:12	
trans-1,2-Dichloroethene	ND	0.5	ug/L	08/14/2000 09:12	
cis-1,2-Dichloroethene	ND	0.5	ug/L	08/14/2000 09:12	
1,1-Dichloroethane	ND	0.5	ug/L	08/14/2000 09:12	
Chloroform	ND	0.5	ug/L	08/14/2000 09:12	
1,1,1-Trichloroethane	ND	0.5	ug/L	08/14/2000 09:12	
Carbon tetrachloride	ND	0.5	ug/L	08/14/2000 09:12	
1,2-Dichloroethane	ND	0.5	ug/L	08/14/2000 09:12	
Trichloroethene	ND	0.5	ug/L	08/14/2000 09:12	
1,2-Dichloropropane	ND	0.5	ug/L	08/14/2000 09:12	
Bromodichloromethane	ND	0.5	ug/L	08/14/2000 09:12	
2-Chloroethylvinyl ether	ND	0.5	ug/L	08/14/2000 09:12	
trans-1,3-Dichloropropene	ND	0.5	ug/L	08/14/2000 09:12	
cis-1,3-Dichloropropene	ND	0.5	ug/L	08/14/2000 09:12	
1,1,2-Trichloroethane	ND	0.5	ug/L	08/14/2000 09:12	
Tetrachloroethene	ND	0.5	ug/L	08/14/2000 09:12	
Dibromochloromethane	ND	0.5	ug/L	08/14/2000 09:12	
Chlorobenzene	ND	0.5	ug/L	08/14/2000 09:12	
Bromoform	ND	2.0	ug/L	08/14/2000 09:12	
1,1,2,2-Tetrachloroethane	ND	0.5	ug/L	08/14/2000 09:12	
1,3-Dichlorobenzene	ND	0.5	ug/L	08/14/2000 09:12	
1,4-Dichlorobenzene	ND	0.5	ug/L	08/14/2000 09:12	
1,2-Dichlorobenzene	ND	0.5	ug/L	08/14/2000 09:12	
Trichlorotrifluoroethane	ND	2.0	ug/L	08/14/2000 09:12	
Chloromethane	ND	1.0	ug/L	08/14/2000 09:12	
Bromomethane	ND	1.0	ug/L	08/14/2000 09:12	
Surrogate(s)					
1-Chloro-2-fluorobenzene	81.0	50-150	%	08/14/2000 09:12	

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CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-08-0224

To: Aqua Science Engineers, Inc.

Test Method: 8010

Attn: Ian T. Reed

Prep Method: 5030

Batch QC Report

Halogenated Volatile Organic Compounds

Laboratory Control Spike (LCS/LCSD)		Water	QC Batch # 2000/08/11-02.25	
LCS:	2000/08/11-02.25-002	Extracted: 08/11/2000 10:00	Analyzed	08/11/2000 10:00
LCSD:	2000/08/11-02.25-003	Extracted: 08/11/2000 10:51	Analyzed	08/11/2000 10:51

Compound	Conc. [ug/L]		Exp. Conc. [ug/L]		Recovery [%]		RPD	Ctrl. Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD		Recovery	RPD	LCS	LCSD
1,1-Dichloroethene	20.3	20.4	20.0	20.0	101.5	102.0	0.5	50-140	20		
Trichloroethene	19.5	19.7	20.0	20.0	97.5	98.5	1.0	50-150	20		
Chlorobenzene	18.6	18.9	20.0	20.0	93.0	94.5	1.6	50-150	20		
Surrogate(s)											
1-Chloro-2-fluorobenzene	18.4	19.0	20	20	92.0	95.0		50-150			

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CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-08-0224

To: Aqua Science Engineers, Inc.

Test Method: 8010

Attn: Ian T. Reed

Prep Method: 5030

Batch QC Report

Halogenated Volatile Organic Compounds

Laboratory Control Spike (LCS/LCSD)		Water		QC Batch # 2000/08/14-01.25	
LCS:	2000/08/14-01.25-002	Extracted:	08/14/2000 09:57	Analyzed	08/14/2000 09:57
LCSD:	2000/08/14-01.25-003	Extracted:	08/14/2000 10:43	Analyzed	08/14/2000 10:43

Compound	Conc. [ug/L]		Exp. Conc. [ug/L]		Recovery [%]		RPD [%]	Ctrl. Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD		Recovery	RPD	LCS	LCSD
1,1-Dichloroethene	21.1	20.8	20.0	20.0	105.5	104.0	1.4	50-140	20		
Trichloroethene	20.5	20.4	20.0	20.0	102.5	102.0	0.5	50-150	20		
Chlorobenzene	19.7	19.6	20.0	20.0	98.5	98.0	0.5	50-150	20		
Surrogate(s)											
1-Chloro-2-fluorobenzene	20.3	20.0	20	20	101.5	100.0		50-150			

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Legend & Notes

Halogenated Volatile Organic Compounds

Analysis Flags

0

Reporting limits were raised due to high level of analyte present in the sample.

