aqua science engineers inc.

- Need to confirm MTBE + other oxygenates w/ 8260 next event
- Provide area site plan so we can plan location of ~~off~~ MW, if necessary.

December 7, 1999

99 DEC -9 PM 3:13
ENVIRONMENTAL PROTECTION

QUARTERLY GROUNDWATER MONITORING REPORT
NOVEMBER 1999 GROUNDWATER SAMPLING
ASE JOB NO. 3190

at

Peerless Stages Bus Property
2021 Brush Street
Oakland, California

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

1.0 INTRODUCTION

The following is a report detailing the results of the November 1999 quarterly groundwater sampling at the Peerless Stages bus company site located on 2021 Brush Street in Oakland, California *(Figures 1 and 2).*

2.0 SITE HISTORY

2.1 October 1997 Soil and Groundwater Assessment

For decades, the site has been used as a maintenance yard and fueling site for the Peerless Stages bus company. In October 1997, Cambria Environmental Technology, Inc. of Oakland, California drilled five (5) soil borings at the site. These borings were drilled in the vicinity of the existing 2,000 gallon gasoline underground storage tank (UST), 8,000 gallon diesel-fuel UST and dispensers for the collection of soil and groundwater samples (Figure 2). Elevated concentrations of total petroleum hydrocarbons as gasoline (TPH-G) and diesel (TPH-D) were detected in the grab groundwater samples collected from two borings. Up to 120 parts per billion (ppb) TPH-G and 58,000 ppb TPH-D were detected in the groundwater samples. See Cambria's Subsurface Assessment Report dated October 20, 1997 for complete details regarding these activities.

2.2 May 1998 Gasoline UST Removal

In May 1998, ASE removed the 2,000 gallon gasoline UST from the site. Soil samples were collected from the bottom of the excavation and from the stockpiled soil generated during excavation activities. The soil samples were analyzed for TPH-G, TPH-D, benzene, toluene, ethyl benzene, total xylenes (collectively known as BTEX), methyl tertiary butyl ether (MTBE) and total lead. The only constituent identified in soil samples collected from the excavation was MTBE at concentrations up to 4.0 parts per million (ppm). The stockpiled soil contained 1.6 ppm TPH-G, 170 ppm TPH-D, trace concentrations of BTEX and MTBE, and 180 ppm total lead. The excavation was backfilled with import material on May 13, 1998. See ASE's UST Removal Report dated June 8, 1998 for complete details regarding these activities.

2.3 December 1998 Diesel UST Removal

In December 1998, ASE returned to the site to remove the 8,000 gallon diesel-fuel UST and the two dispensers. Soil samples were collected from the bottom of the excavation, from beneath the dispensers, and from the

stockpiled soil generated during excavation activities. The soil samples were analyzed for TPH-G, TPH-D, BTEX, MTBE and total lead. The constituents detected in the soil samples collected from the excavation were 0.064 ppm MTBE and 30 ppm TPH-D in soil samples collected from the eastern end of the excavation, and 5.1 ppm TPH-D in soil samples collected from the western end of the excavation. The soil samples collected beneath the dispensers contained up to 3,800 ppm TPH-D and trace concentrations of BTEX and MTBE. No TPH-G was detected in these samples. Soil samples collected from the stockpiled soil contained 2,900 ppm TPH-D, 510 ppm TPH-G, trace concentrations of BTEX and MTBE, 130 ppm total lead, and 4.9 ppm soluble lead by the waste extraction test (WET). The excavation was backfilled with clean import material. See ASE's UST Removal Report dated January 8, 1999 for complete details regarding these activities. The stockpiled soil generated during the UST removal activities was transported to the Forward, Inc. Landfill in Manteca, California on May 25, 1999 for disposal. Also on May 25, 1999, the dispenser area was overexcavated to a depth of 11-feet below ground surface (bgs) in an effort to define and remove the vertical depth of TPH-D contamination beneath the dispensers previously identified in December 1998. Approximately 10 cubic yards of soil were removed and were transported along with the original stockpile to the Forward, Inc. landfill in Manteca, California. Two soil samples were collected from the northern and southern end of the excavation after overexcavation activities were completed. Analytical results indicated hydrocarbon concentrations up to 17 ppm TPH-G, 250 ppm TPH-D, and 4.6 ppm total lead.

2.4 Monitoring Well Installation

On August 18, 1999. ASE constructed monitoring wells, MW-1, MW-2, MW-3, and MW-4 at the site.

The soil sample collected from 15.5-feet bgs in boring MW-2 contained 53 ppm TPH-G, 190 ppm TPH-D, and 0.018 ppm flourene. No other compounds were detected in the soil samples collected above the laboratory reporting limits.

The groundwater sample collected from monitoring well MW-1 contained 81 ppb TPH-G, 3.5 ppb benzene, 7.9 ppb toluene, 3.2 ppb ethyl benzene, and 15.0 ppb total xylenes. The groundwater sample collected from monitoring well MW-2 contained 8,600 ppb TPH-G, 1,200 ppb TPH-D, and 14,000 ppb MTBE. The groundwater sample collected from monitoring well MW-3 contained 2.5 ppb benzene, 3.0 ppb toluene, 0.87 ppb ethyl benzene, and 4.0 ppb total xylenes. The groundwater sample collected

well MW-3 contained 2.5 ppb benzene, 3.0 ppb toluene, 0.87 ppb ethyl benzene, and 4.0 ppb total xylenes. The groundwater sample collected from monitoring well MW-4 contained 420 ppb TPH-D, 0.88 ethyl benzene, and 3.6 ppb total xylenes.

3.0 GROUNDWATER FLOW DIRECTION AND GRADIENT

On November 11, 1999, ASE associate geologist Ian Reed measured the depth to water in all four site groundwater monitoring wells using an electric water level sounder. The surface of the groundwater was also checked for the presence of free-floating hydrocarbons or sheen. No free-floating hydrocarbons or sheen were observed in any site monitoring well. Groundwater elevation data is presented as Table One.

A groundwater potentiometric surface map is presented as Figure 2. The groundwater flow direction is to the northwest with an approximate gradient ranging between 0.001 ft/ft and 0.004 ft/ft. The water table has risen an average of 0.05-feet since October 1999.

4.0 GROUNDWATER SAMPLE COLLECTION AND ANALYSIS

Prior to sampling, each monitoring well was 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. Groundwater samples were collected from each well 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. The samples to be analyzed for TPH-D were contained in 1-liter amber glass containers. 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 well purge water was placed in 55-gallon steel drums, labeled, and left on-site for temporary storage.

The groundwater samples were analyzed for total petroleum hydrocarbons as gasoline (TPH-G) by EPA Method 5030/8015M, TPH-D by modified EPA Method 3510/8015M, benzene, toluene, ethylbenzene and total xylenes (collectively known as BTEX) by EPA Method 8020 and methyl tertiary-

butyl ether (MTBE) by EPA Method 8020. The analytical results for this and previous sampling periods are presented in Table Two. The certified analytical report and chain-of-custody documentation are included as Appendix B.

5.0 CONCLUSIONS

The groundwater samples collected from monitoring well MW-1 contained 110 ppb TPH-D. The groundwater samples collected from monitoring well MW-2 contained 710 ppb TPH-G, 2,300 ppb TPH-D, and 6,200 ppb MTBE. The groundwater samples collected from monitoring well MW-4 contained 120 ppb TPH-D. No other compounds were detected above laboratory reporting limits.

In general, the TPH-G, BTEX and MTBE concentrations decreased from last quarter. The TPH-D concentrations in groundwater samples collected from monitoring well MW-1 and MW-2 increased slightly. The MTBE concentration in the groundwater sample collected from monitoring well MW-2 exceeded the DHS MCL for drinking water. There is no DHS MCL established for TPH-G and TPH-D.

6.0 RECOMMENDATIONS

ASE recommends the subject site remain on a quarterly sampling schedule. The next sampling is scheduled for February 2000.

7.0 REPORT LIMITATIONS

The results presented in this report represent the conditions at the time of the groundwater sampling, at the specific locations where the groundwater samples were collected, and for the specific parameters analyzed by the laboratory. It does not fully characterize the site for contamination resulting from sources other than the former underground storage tanks and associated plumbing at the site, or for parameters not analyzed by the laboratory. All of the laboratory work cited in this report was prepared under the direction of 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 site and trust that this report meets your needs. Please feel free to call us at (925) 820-9391 if you have any questions or comments.

Respectfully submitted,

AQUA SCIENCE ENGINEERS, INC.

Ian T. Reed
Associate Geologist

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

REGISTERED GEOLOGIST
ROBERT E. KITAY
No. 6586
STATE OF CALIFORNIA

Attachments: Figures 1 through 2
Appendices A and B

cc: Mr. Alex Gaeta, Responsible Party
Mr. Gardner Kent, Property Owner
Ms. Eva Chu, ACHSA
Mr. Chuck Headlee, RWQCB, San Francisco Bay Region

TABLES

TABLE ONE
Summary of Groundwater Well Survey Data
Peerless Stages Property, Oakland, California

Well ID	Date of Measurement	Top of Casing Elevation (relative to project datum)	Depth to Water (feet)	Groundwater Elevation (project datum)
MW-1	08/26/99	19.66	16.44	3.22
	11/11/99		16.56	3.10
MW-2	08/26/99	20.00	16.88	3.12
	11/11/99		16.92	3.08
MW-3	08/26/99	18.91	15.94	2.97
	11/11/99		15.98	2.93
MW-4	08/26/99	19.43	16.48	2.95
	11/11/99		16.50	2.93

TABLE TWO

Summary of Chemical Analysis for Groundwater Samples
Peerless Stages Property, Oakland, California
All results are in parts per billion (ppb)

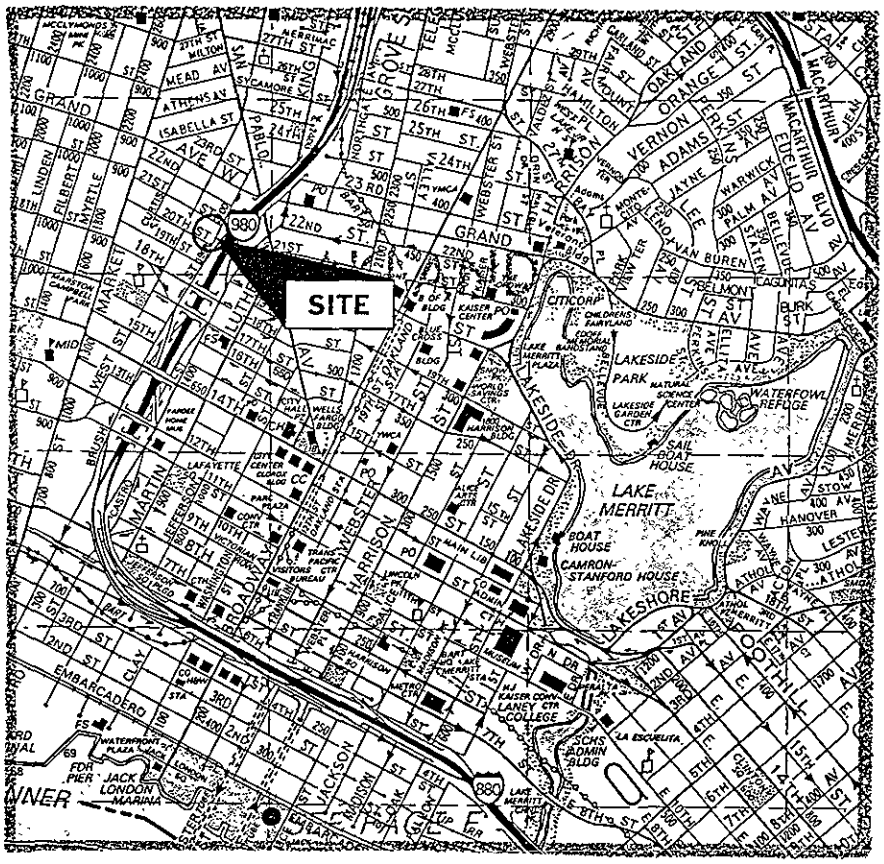
SAMPLE ID	DATE SAMPLED	TPH-G	TPH-D	BENZENE	TOLUENE	ETHYL-BENZENE	TOTAL XYLENES	MTBE	PNA's
MW-1	8/26/99	81	< 50	3.5	7.9	3.2	15	< 5.0	NA
	11/11/99	**< 50**	**110**	**< 0.5**	**< 0.5**	**< 0.5**	**< 0.5**	**< 5.0**	**NA**
MW-2	8/26/99	8,600	1,200	< 25	< 25	< 25	< 25	14,000	< 0.057 - < 0.23
	11/11/99	**710**	**2,300**	**< 0.5**	**< 0.5**	**< 0.5**	**< 0.5**	**6,200**	**NA**
MW-3	8/26/99	< 50	< 63	2.5	3	0.87	4	< 5.0	NA
	11/11/99	**< 50**	**< 56**	**< 0.5**	**< 0.5**	**< 0.5**	**< 0.5**	**< 5.0**	**NA**
MW-4	8/26/99	< 50	420	< 0.5	< 0.5	0.88	3.6	< 5.0	NA
	11/11/99	**< 50**	**120**	**< 0.5**	**< 0.5**	**< 0.5**	**< 0.5**	**< 5.0**	**NA**
DHS MCL		NE	NE	1	150	700	1,750	13	varies

Notes:

Non-Detectable concentrations are noted by a less than symbol (<) followed by the laboratory reporting limit
NE = DHS MCL not established
PNAs = Polynuclear Aromatic Hydrocarbons
DHS MCLs = Department of Health Services Maximum Contaminant Levels for drinking water
NA = Sample was not analyzed

FIGURES

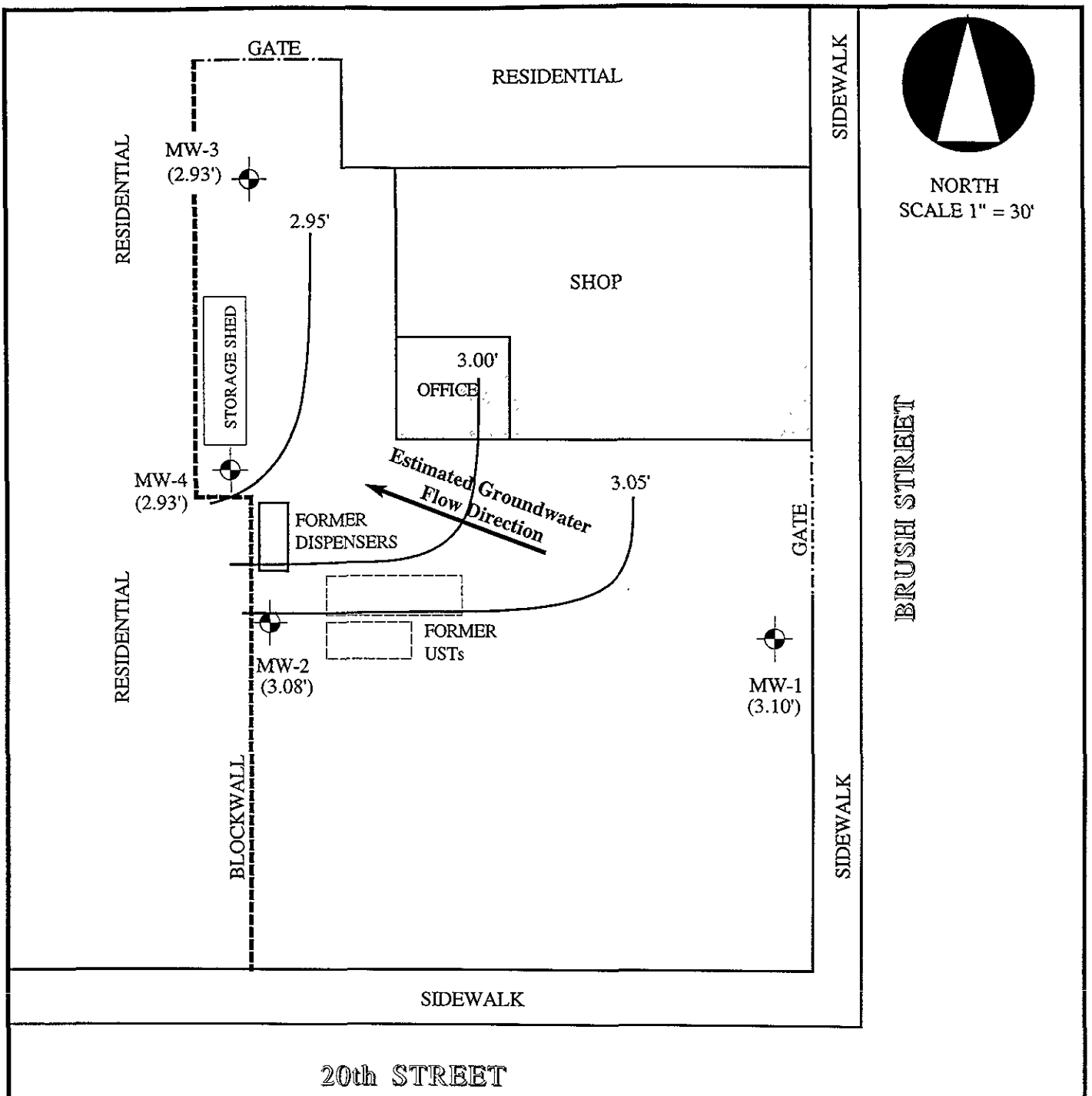
N



SITE LOCATION MAP

Former Peerless Stages, Inc Property
2021 Brush Street
Oakland, California

Aqua Science Engineers | Figure 1



LEGEND	
MW-4	MONITORING WELL
(2.93')	GROUNDWATER ELEVATION RELATIVE TO PROJECT DATUM
	GROUNDWATER ELEVATION CONTOUR
	FORMER UST LOCATION

GROUNDWATER ELEVATION CONTOUR MAP
11/11/99

Former Peerless Stages, Inc Property
2021 Brush Street
Oakland, California

AQUA SCIENCE ENGINEERS | Figure 2

APPENDIX A

Well Sampling Field Logs

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WELL SAMPLING FIELD LOG

Project Name and Address: Peerless
Job #: 3190 Date of sampling: 11-11-99
Well Name: MW-1 Sampled by: ITR
Total depth of well (feet): 27.0 Well diameter (inches): 2"
Depth to water before sampling (feet): 16.56
Thickness of floating product if any: —
Depth of well casing in water (feet): 10.44
Number of gallons per well casing volume (gallons): 1.8
Number of well casing volumes to be removed: 4
Req'd volume of groundwater to be purged before sampling (gallons): 7.1
Equipment used to purge the well: dedicated bailer
Time Evacuation Began: 1315 Time Evacuation Finished: 1425
Approximate volume of groundwater purged:
Did the well go dry?: NO After how many gallons: —
Time samples were collected: 1430
Depth to water at time of sampling: 16.56'
Percent recovery at time of sampling: 100%
Samples collected with: dedicated bailer
Sample color: clear/gray Odor: none
Description of sediment in sample: silt gray

CHEMICAL DATA

Volume Purged	Temp	pH	Conductivity
1	72.9	6.72	1272
2	71.4	7.19	1218
3	72.4	8.42	1241
4	73.1	8.31	1326

SAMPLES COLLECTED

Sample	# of containers	Volume & type container	Pres	Iced?	Analysis
MW-1	3	40ml VOA	✓	✓	
MW-1	3	1-liter Amber		✓	

2411 Old Crow Canyon Road #4, San Ramon, CA 94583 • 510-820-9391 • Fax 510-837-4853

aqua science engineers inc.

WELL SAMPLING FIELD LOG

Project Name and Address: Peerless
Job #: 3190 Date of sampling: 11-11-99
Well Name: MW-2 Sampled by: _____
Total depth of well (feet): 30.0' Well diameter (inches): 2 4
Depth to water before sampling (feet): 16.92
Thickness of floating product if any: —
Depth of well casing in water (feet): 13.08
Number of gallons per well casing volume (gallons): 2.2
Number of well casing volumes to be removed: 4
Req'd volume of groundwater to be purged before sampling (gallons): 8.9
Equipment used to purge the well: dedicated bailer
Time Evacuation Began: 13:55 Time Evacuation Finished: 1420
Approximate volume of groundwater purged: 9
Did the well go dry?: NO After how many gallons: —
Time samples were collected: 1425
Depth to water at time of sampling: 16.93
Percent recovery at time of sampling: 100%
Samples collected with: dedicated bailer
Sample color: gray Odor: slight non-HC odor
Description of sediment in sample: silt gray

CHEMICAL DATA

Volume Purged	Temp	pH	Conductivity
1	71.4	6.14	1090
2	72.0	6.71	1110
3	72.3	6.54	1242
4	72.6	7.02	1310

SAMPLES COLLECTED

Sample	# of containers	Volume & type container	Pres	Iced?	Analysis
MW-2	3	40 ml VOA's	✓	✓	
MW-2	3	1 l w/ Amber		✓	

aqua science engineers inc.

WELL SAMPLING FIELD LOG

Project Name and Address: Peerless
Job #: 3190 Date of sampling: 11 11 99
Well Name: MW-3 Sampled by: ITR
Total depth of well (feet): 29.60' Well diameter (inches): 2"
Depth to water before sampling (feet): 15.98"
Thickness of floating product if any: —
Depth of well casing in water (feet): 13.62
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): 9.5
Equipment used to purge the well:
Time Evacuation Began: 1445 Time Evacuation Finished: 1505
Approximate volume of groundwater purged: 9.5
Did the well go dry?: NO After how many gallons: —
Time samples were collected: 1510
Depth to water at time of sampling: 15.98
Percent recovery at time of sampling: 100%
Samples collected with: dedicated bailer
Sample color: clear/gray Odor: none
Description of sediment in sample: silt

CHEMICAL DATA

Volume Purged	Temp	pH	Conductivity
1	71.9	5.61	784
2	72.4	5.01	716
3	72.4	5.94	741
4	72.6	5.15	782

SAMPLES COLLECTED

Sample	# of containers	Volume & type container	Pres	Iced?	Analysis
MW-3	3	40ml VOAs	✓	✓	
MW-3	3	1-liter Amber		✓	

aqua science engineers inc.

WELL SAMPLING FIELD LOG

Project Name and Address: Perr less
Job #: 3190 Date of sampling: 11-11-99
Well Name: MW-4 Sampled by: TTR
Total depth of well (feet): 29.64' Well diameter (inches): 2"
Depth to water before sampling (feet): 16.50
Thickness of floating product if any: —
Depth of well casing in water (feet): 13.14
Number of gallons per well casing volume (gallons): 2.2
Number of well casing volumes to be removed: 4
Req'd volume of groundwater to be purged before sampling (gallons): 8.8
Equipment used to purge the well: dedicated bailer
Time Evacuation Began: 1445 Time Evacuation Finished: 1455
Approximate volume of groundwater purged: 9
Did the well go dry?: NO After how many gallons: —
Time samples were collected: 1500
Depth to water at time of sampling: 16.54
Percent recovery at time of sampling: 98%
Samples collected with: dedicated bailer
Sample color: clear Odor: none
Description of sediment in sample: silt

CHEMICAL DATA

Volume Purged	Temp	pH	Conductivity
1	72.9	6.71	813
2	73.5	6.41	473
3	73.1	6.57	471
4	72.6	6.82	487

SAMPLES COLLECTED

Sample	# of containers	Volume & type container	Pres	Iced?	Analysis
MW-4	3	40 ml VOA's	V	✓	
MW-4	3	1-1 liter Ambers		✓	

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: 3190
Peerless Stages Bus

Dear Mr. Reed,

Attached is our report for your samples received on Friday November 12, 1999. 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 December 12, 1999 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.

Sincerely,

Vincent Vancil

Diesel

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 #: 3190

Project: Peerless Stages Bus

Samples Reported

Sample ID	Matrix	Date Sampled	Lab #
MW-1	Water	11/11/1999	1
MW-2	Water	11/11/1999	2
MW-3	Water	11/11/1999	3
MW-4	Water	11/11/1999	4

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

Test Method: 8015m
Prep Method: 3510/8015M

Diesel

Sample ID:	**MW-1**	Lab Sample ID:	**1999-11-0229-001**
Project:	3190 Peerless Stages Bus	Received:	11/12/1999 13:31
		Extracted:	11/17/1999 09:00
Sampled:	11/11/1999	QC-Batch:	1999/11/17-02.10
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	110	50	ug/L	1.00	11/17/1999 17:08	ndp
Surrogate(s)						
o-Terpheny!	88.9	60-130	%	1.00	11/17/1999 17:08	

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

Test Method: 8015m
Prep Method: 3510/8015M

Diesel

Sample ID: **MW-2**
Lab Sample ID: **1999-11-0229-002**

Project: 3190
Peerless Stages Bus

Received: 11/12/1999 13:31

Extracted: 11/17/1999 09:00

Sampled: 11/11/1999
QC-Batch: 1999/11/17-02.10

Matrix: Water

Sample/Analysis Flag: rl (See Legend & Note section)

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	2300	57	ug/L	1.14	11/17/1999 17:52	ndp
Surrogate(s)						
o-Terphenyl	85.2	60-130	%	1.14	11/17/1999 17:52	

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

Test Method: 8015m
Prep Method: 3510/8015M

Diesel

Sample ID:	**MW-3**	Lab Sample ID:	**1999-11-0229-003**
Project:	3190 Peerless Stages Bus	Received:	11/12/1999 13:31
		Extracted:	11/17/1999 09:00
Sampled:	11/11/1999	QC-Batch:	1999/11/17-02.10
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	ND	56	ug/L	1.11	11/17/1999 18:36	ndp
Surrogate(s)						
o-Terphenyl	100.4	60-130	%	1.00	11/17/1999 18:36	

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 1999-11-0229

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

Test Method: 8015m
Prep Method: 3510/8015M

Diesel

Sample ID:	**MW-4**	Lab Sample ID:	**1999-11-0229-004**
Project:	3190 Peerless Stages Bus	Received:	11/12/1999 13:31
		Extracted:	11/17/1999 09:00
Sampled:	11/11/1999	QC-Batch:	1999/11/17-02.10
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	120	55	ug/L	1.10	11/17/1999 19:20	ndp
Surrogate(s)						
o-Terphenyl	101.2	60-130	%	1.00	11/17/1999 19:20	

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

Test Method: 8015m
Prep Method: 3510/8015M

Batch QC Report
Diesel

Method Blank | **Water** | **QC Batch # 1999/11/17-02.10**

MB: 1999/11/17-02.10-001 | Date Extracted: 11/17/1999 09:00

Compound	Result	Rep.Limit	Units	Analyzed	Flag
Diesel	ND	50	ug/L	11/17/1999 12:55	
Surrogate(s)					
o-Terphenyl	104.5	60-130	%	11/17/1999 12:55	

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

Test Method: 8015m
Prep Method: 3510/8015M

Batch QC Report

Diesel

Laboratory Control Spike (LCS/LCSD) **Water** **QC Batch # 1999/11/17-02.10**

LCS: 1999/11/17-02.10-002 Extracted: 11/17/1999 09:00 Analyzed: 11/17/1999 13:31
LCSD: 1999/11/17-02.10-003 Extracted: 11/17/1999 09:00 Analyzed: 11/17/1999 14:08

Compound	Conc. [ug/L]		Exp.Conc. [ug/L]		Recovery [%]		RPD	Ctrl. Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recovery	RPD	LCS	LCSD
Diesel	1170	1190	1250	1250	93.6	95.2	1.7	60-130	25		
Surrogate(s)											
o-Terphenyl	21.3	20.7	20.0	20.0	106.5	103.5		60-130			

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

Test Method: 8015m
Prep Method: 3510/8015M

Legend & Notes

Diesel

Analysis Flags

rl

Reporting limits raised due to reduced sample size.

Analyte Flags

ndp

Hydrocarbon reported does not match the pattern of our Diesel standard

Gas/BTEX and MTBE

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 #: 3190

Project: Peerless Stages Bus

Samples Reported

Sample ID	Matrix	Date Sampled	Lab #
MW-1	Water	11/11/1999	1
MW-2	Water	11/11/1999	2
MW-3	Water	11/11/1999	3
MW-4	Water	11/11/1999	4

To: **Aqua Science Engineers, Inc.**

Attn.: Ian T. Reed

Test Method: 8015M
8020

Prep Method: 5030

Gas/BTEX and MTBE

Sample ID:	**MW-1**	Lab Sample ID:	**1999-11-0229-001**
Project:	3190 Peerless Stages Bus	Received:	11/12/1999 13:31
		Extracted:	11/19/1999 04:31
Sampled:	11/11/1999	QC-Batch:	1999/11/18-01.05
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Gasoline	ND	50	ug/L	1.00	11/19/1999 04:31	
Benzene	ND	0.50	ug/L	1.00	11/19/1999 04:31	
Toluene	ND	0.50	ug/L	1.00	11/19/1999 04:31	
Ethyl benzene	ND	0.50	ug/L	1.00	11/19/1999 04:31	
Xylene(s)	ND	0.50	ug/L	1.00	11/19/1999 04:31	
MTBE	ND	5.0	ug/L	1.00	11/19/1999 04:31	
Surrogate(s)						
Trifluorotoluene	75.8	58-124	%	1.00	11/19/1999 04:31	
4-Bromofluorobenzene-FID	58.4	50-150	%	1.00	11/19/1999 04:31	

To: **Aqua Science Engineers, Inc.**

Attn.: Ian T. Reed

Test Method: 8015M
8020

Prep Method: 5030

Gas/BTEX and MTBE

Sample ID:	**MW-2**	Lab Sample ID:	**1999-11-0229-002**
Project:	3190 Peerless Stages Bus	Received:	11/12/1999 13:31
		Extracted:	11/19/1999 05:03
Sampled:	11/11/1999	QC-Batch:	1999/11/18-01.05
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Gasoline	710	50	ug/L	1.00	11/19/1999 05:03	g
Benzene	ND	0.50	ug/L	1.00	11/19/1999 05:03	
Toluene	ND	0.50	ug/L	1.00	11/19/1999 05:03	
Ethyl benzene	ND	0.50	ug/L	1.00	11/19/1999 05:03	
Xylene(s)	ND	0.50	ug/L	1.00	11/19/1999 05:03	
MTBE	6200	250	ug/L	50.00	11/22/1999 10:39	
Surrogate(s)						
Trifluorotoluene	86.8	58-124	%	1.00	11/19/1999 05:03	
4-Bromofluorobenzene-FID	58.7	50-150	%	1.00	11/19/1999 05:03	

To: **Aqua Science Engineers, Inc.**

Attn.: Ian T. Reed

Test Method: 8015M
8020

Prep Method: 5030

Gas/BTEX and MTBE

Sample ID:	**MW-3**	Lab Sample ID:	**1999-11-0229-003**
Project:	3190 Peerless Stages Bus	Received:	11/12/1999 13:31
		Extracted:	11/22/1999 10:12
Sampled:	11/11/1999	QC-Batch:	1999/11/22-01.01
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Gasoline	ND	50	ug/L	1.00	11/22/1999 10:12	
Benzene	ND	0.50	ug/L	1.00	11/22/1999 10:12	
Toluene	ND	0.50	ug/L	1.00	11/22/1999 10:12	
Ethyl benzene	ND	0.50	ug/L	1.00	11/22/1999 10:12	
Xylene(s)	ND	0.50	ug/L	1.00	11/22/1999 10:12	
MTBE	ND	5.0	ug/L	1.00	11/22/1999 10:12	
Surrogate(s)						
Trifluorotoluene	69.4	58-124	%	1.00	11/22/1999 10:12	
Trifluorotoluene-FID	58.5	58-124	%	1.00	11/22/1999 10:12	

To: **Aqua Science Engineers, Inc.**

Attn.: Ian T. Reed

Test Method: 8015M
8020

Prep Method: 5030

Gas/BTEX and MTBE

Sample ID:	**MW-4**	Lab Sample ID:	**1999-11-0229-004**
Project:	3190 Peerless Stages Bus	Received:	11/12/1999 13:31
		Extracted:	11/22/1999 10:25
Sampled:	11/11/1999	QC-Batch:	1999/11/22-01.05
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Gasoline	ND	50	ug/L	1.00	11/22/1999 10:25	
Benzene	ND	0.50	ug/L	1.00	11/22/1999 10:25	
Toluene	ND	0.50	ug/L	1.00	11/22/1999 10:25	
Ethyl benzene	ND	0.50	ug/L	1.00	11/22/1999 10:25	
Xylene(s)	ND	0.50	ug/L	1.00	11/22/1999 10:25	
MTBE	ND	5.0	ug/L	1.00	11/22/1999 10:25	
Surrogate(s)						
Trifluorotoluene	71.9	58-124	%	1.00	11/22/1999 10:25	
4-Bromofluorobenzene-FID	60.4	50-150	%	1.00	11/22/1999 10:25	

To: **Aqua Science Engineers, Inc.**

Attn.: Ian T. Reed

Test Method: 8015M
8020

Prep Method: 5030

Batch QC Report

Gas/BTEX and MTBE

Method Blank | **Water** | **QC Batch # 1999/11/18-01.05**

MB: 1999/11/18-01.05-001

Date Extracted: 11/18/1999 14:02

Compound	Result	Rep.Limit	Units	Analyzed	Flag
Gasoline	ND	50	ug/L	11/18/1999 14:02	
Benzene	ND	0.5	ug/L	11/18/1999 14:02	
Toluene	ND	0.5	ug/L	11/18/1999 14:02	
Ethyl benzene	ND	0.5	ug/L	11/18/1999 14:02	
Xylene(s)	ND	0.5	ug/L	11/18/1999 14:02	
MTBE	ND	5.0	ug/L	11/18/1999 14:02	
Surrogate(s)					
Trifluorotoluene	68.4	58-124	%	11/18/1999 14:02	
4-Bromofluorobenzene-FID	51.4	50-150	%	11/18/1999 14:02	

To: **Aqua Science Engineers, Inc.**

Attn.: Ian T. Reed

Test Method: 8015M
8020

Prep Method: 5030

Batch QC Report

Gas/BTEX and MTBE

Method Blank | **Water** | **QC Batch # 1999/11/22-01.05**

MB: 1999/11/22-01.05-001

Date Extracted: 11/22/1999 05:41

Compound	Result	Rep.Limit	Units	Analyzed	Flag
Gasoline	ND	50	ug/L	11/22/1999 05:41	
Benzene	ND	0.5	ug/L	11/22/1999 05:41	
Toluene	ND	0.5	ug/L	11/22/1999 05:41	
Ethyl benzene	ND	0.5	ug/L	11/22/1999 05:41	
Xylene(s)	ND	0.5	ug/L	11/22/1999 05:41	
MTBE	ND	5.0	ug/L	11/22/1999 05:41	
Surrogate(s)					
Trifluorotoluene	113.6	58-124	%	11/22/1999 05:41	
4-Bromofluorobenzene-FID	54.6	50-150	%	11/22/1999 05:41	

To: **Aqua Science Engineers, Inc.**

Attn.: Ian T. Reed

Test Method: 8015M
8020

Prep Method: 5030

Batch QC Report

Gas/BTEX and MTBE

Method Blank **Water** **QC Batch # 1999/11/22-01.01**

MB: 1999/11/22-01.01-001 Date Extracted: 11/22/1999 06:33

Compound	Result	Rep.Limit	Units	Analyzed	Flag
Gasoline	ND	50	ug/L	11/22/1999 06:33	
Benzene	ND	0.5	ug/L	11/22/1999 06:33	
Toluene	ND	0.5	ug/L	11/22/1999 06:33	
Ethyl benzene	ND	0.5	ug/L	11/22/1999 06:33	
Xylene(s)	ND	0.5	ug/L	11/22/1999 06:33	
MTBE	ND	5.0	ug/L	11/22/1999 06:33	
Surrogate(s)					
Trifluorotoluene	104.0	58-124	%	11/22/1999 06:33	
4-Bromofluorobenzene-FID	53.8	50-150	%	11/22/1999 06:33	

To: **Aqua Science Engineers, Inc.**

Attn: Ian T. Reed

Test Method: 8015M
8020

Prep Method: 5030

Batch QC Report

Gas/BTEX and MTBE

Laboratory Control Spike (LCS/LCSD) **Water** **QC Batch # 1999/11/18-01.05**

LCS: 1999/11/18-01.05-002 Extracted: 11/18/1999 15:24 Analyzed: 11/18/1999 15:24

LCSD: 1999/11/18-01.05-003 Extracted: 11/18/1999 15:56 Analyzed: 11/18/1999 15:56

Compound	Conc. [ug/L]		Exp.Conc. [ug/L]		Recovery [%]		RPD	Ctrl. Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recovery	RPD	LCS	LCSD
Gasoline	428	408	500	500	85.6	81.6	4.8	75-125	20		
Benzene	90.2	97.8	100.0	100.0	90.2	97.8	8.1	77-123	20		
Toluene	93.6	98.5	100.0	100.0	93.6	98.5	5.1	78-122	20		
Ethyl benzene	93.7	97.3	100.0	100.0	93.7	97.3	3.8	70-130	20		
Xylene(s)	269	277	300	300	89.7	92.3	2.9	75-125	20		
Surrogate(s)											
Trifluorotoluene	551	546	500	500	110.2	109.2		58-124			
4-Bromofluorobenzene-FI	338	324	500	500	67.6	64.8		50-150			

To: **Aqua Science Engineers, Inc.**

Attn: Ian T. Reed

Test Method: 8015M
8020

Prep Method: 5030

Batch QC Report

Gas/BTEX and MTBE

Laboratory Control Spike (LCS/LCSD) **Water** **QC Batch # 1999/11/22-01.05**

LCS: 1999/11/22-01.05-002 Extracted: 11/22/1999 06:13 Analyzed: 11/22/1999 06:13

LCSD: 1999/11/22-01.05-003 Extracted: 11/22/1999 06:46 Analyzed: 11/22/1999 06:46

Compound	Conc. [ug/L]		Exp.Conc. [ug/L]		Recovery [%]		RPD	Ctrl. Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recovery	RPD	LCS	LCSD
Gasoline	478	495	500	500	95.6	99.0	3.5	75-125	20		
Benzene	113	109	100.0	100.0	113.0	109.0	3.6	77-123	20		
Toluene	119	112	100.0	100.0	119.0	112.0	6.1	78-122	20		
Ethyl benzene	117	110	100.0	100.0	117.0	110.0	6.2	70-130	20		
Xylene(s)	324	306	300	300	108.0	102.0	5.7	75-125	20		
Surrogate(s)											
4-Bromofluorobenzene	514	519	500	500	102.8	103.8		50-150			
4-Bromofluorobenzene-FI	316	330	500	500	63.2	66.0		50-150			

To: **Aqua Science Engineers, Inc.**

Attn: Ian T. Reed

Test Method: 8015M
8020

Prep Method: 5030

Batch QC Report

Gas/BTEX and MTBE

Laboratory Control Spike (LCS/LCSD) **Water** **QC Batch # 1999/11/22-01.01**

LCS: 1999/11/22-01.01-002 Extracted: 11/22/1999 07:00 Analyzed: 11/22/1999 07:00

LCSD: 1999/11/22-01.01-003 Extracted: 11/22/1999 07:28 Analyzed: 11/22/1999 07:28

Compound	Conc. [ug/L]		Exp.Conc. [ug/L]		Recovery [%]		RPD	Ctrl. Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recovery	RPD	LCS	LCSD
Gasoline	523	438	500	500	104.6	87.6	17.7	75-125	20		
Benzene	98.3	101	100.0	100.0	98.3	101.0	2.7	77-123	20		
Toluene	101	103	100.0	100.0	101.0	103.0	2.0	78-122	20		
Ethyl benzene	101	103	100.0	100.0	101.0	103.0	2.0	70-130	20		
Xylene(s)	299	307	300	300	99.7	102.3	2.6	75-125	20		
Surrogate(s)											
Trifluorotoluene	530	542	500	500	106.0	108.4		58-124			
4-Bromofluorobenzene-FI	356	276	500	500	71.2	55.2		50-150			

To: **Aqua Science Engineers, Inc.**

Attn:Ian T. Reed

Test Method: 8015M
8020

Prep Method: 5030

Legend & Notes

Gas/BTEX and MTBE

Analyte Flags

g

Hydrocarbon reported in the gasoline range does not match our gasoline standard.

9911 0229

49039

Aqua Science Engineers, Inc.
208 W. El Pintado Road
Danville, CA 94526
(925) 820-9391
FAX (925) 837-4853

Chain of Custody

PAGE 1 OF 1

SAMPLER (SIGNATURE) (PHONE NO.)
Ian T Reed 925-820-9391

PROJECT NAME Peerless Stages Bus
JOB NO. 3190
ADDRESS 2021 Brush Street Oakland CA
DATE 11-12-99

ANALYSIS REQUEST

SPECIAL INSTRUCTIONS:
5-day T.A.T.

SAMPLE ID.	DATE	TIME	MATRIX	NO. OF SAMPLES	TPH-GAS / MTBE & BTEX (EPA 5030/8015-8020)	TPH-GASOLINE (EPA 5030/8015)	TPH-DIESEL (EPA 3510/8015)	PURGEABLE HALOCARBONS (EPA 601/8010)	PURGEABLE AROMATICS (EPA 602/8020)	VOLATILE ORGANICS (EPA 624/8240)	SEMI-VOLATILE ORGANICS (EPA 625/8270)	OIL & GREASE (EPA 5520)	LUFT METALS (5) (EPA 6010+7000)	CAM 17 METALS (EPA 6010+7000)	PCBs & PESTICIDES (EPA 608/8080)	ORGANOPHOSPHORUS PESTICIDES (EPA 8140) (EPA 608/8080)	ORGANOCHLORINE HERBICIDES (EPA 8150)	FUEL OXYGENATES (EPA 8260)				COMPOSITE
MW-1	11 11 99		water	6	X		X															
MW-2	11 11 99		water	6	X		X															
MW-3	11 11 99		water	6	X		X															
MW-4	11 11 99		water	6	X		X															

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY LABORATORY:	COMMENTS:
Ian T Reed 1000 (signature) (time)	Thomas Lozkoff 1005 (signature) (time)	Tom Wright 1215 (signature) (time)	Denise Harrington (signature) (time)	5-day T.A.T.
Ian T Reed 11 12 99 (printed name) (date)	Thomas Lozkoff 11/12/99 (printed name) (date)	Tom Wright 11/12/99 (printed name) (date)	D. Harrington (printed name) (date)	5.4°
Company- ASE	Company- C/L	Company- C/L	Company- Chromalab 11/12/99 1215	