13

aqua science engineers inc.

MTBE confirmed w/ 8260 !
TBA also detected - does this suggest MTBE is naturally biodegrading?
Re-review for closure

OCT 03 2001

September 27, 2001

QUARTERLY GROUNDWATER MONITORING REPORT
AUGUST 2001 GROUNDWATER SAMPLING
ASE JOB NO. 3190

at the
Former 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 August 24, 2001 groundwater sampling at the former Peerless Stages Bus Company site located at 2021 Brush Street in Oakland, California *(Figure 1)*. This work was performed as requested by the Alameda County Health Care Services Agency (ACHCSA). The scope of work, as requested by the ASHCSA, was to collect groundwater samples from monitoring well MW-2 and analyze the samples for fuel oxygenates by EPA Method 8260.

2.0 GROUNDWATER FLOW DIRECTION AND GRADIENT

On August 24, 2001, ASE associate geologist Erik Paddleford 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 west to northwest with an approximate gradient of 0.0027 feet/foot. The water table dropped approximately 0.8 feet since last quarter.

3.0 GROUNDWATER SAMPLE COLLECTION AND ANALYSIS

Prior to sampling, monitoring well MW-2 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 using dedicated polyethylene bailers.

The samples were decanted from the bailer 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 Kiff Analytical of Davis, California (ELAP #2236) 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, and labeled for temporary storage.

The groundwater samples were analyzed for the five fuel oxygenates methyl-t-butyl-ether (MTBE), diisopropyl ether (DIPE), ethyl-t-butyl ether (ETBE), tert-amyl methyl ether (TAME), and tert butonal (TBA) by modified EPA Method 8260B. 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*.

4.0 CONCLUSIONS

The groundwater samples collected from monitoring well MW-2 contained 1,400 parts per billion (ppb) MTBE and 230 ppb (TBA). This MTBE concentration once again shows a decreasing trend in MTBE concentrations and represents a historic low MTBE concentration.

The MTBE concentration in groundwater samples collected from monitoring well MW-2 exceeded the California Department of Health Services (DHS) maximum contaminant level (MCL) for drinking water.

5.0 RECOMMENDATIONS

ASE recommends that the ACHCSA once again review the case for closure.

6.0 REPORT LIMITATIONS

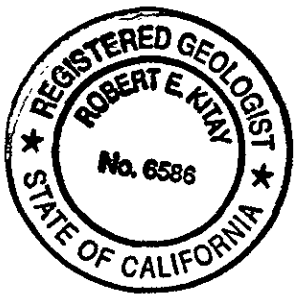
The results presented in this report represent the conditions at the time of the groundwater sampling, at the specific locations where the groundwater samples were collected, and for the specific parameters analyzed by the laboratory. It does not fully characterize the site for contamination resulting 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.

Erik H. Paddleford
Associate Geologist



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

Attachments: Tables One and Two
Figures 1 and 2
Appendices A and B

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

FIGURES

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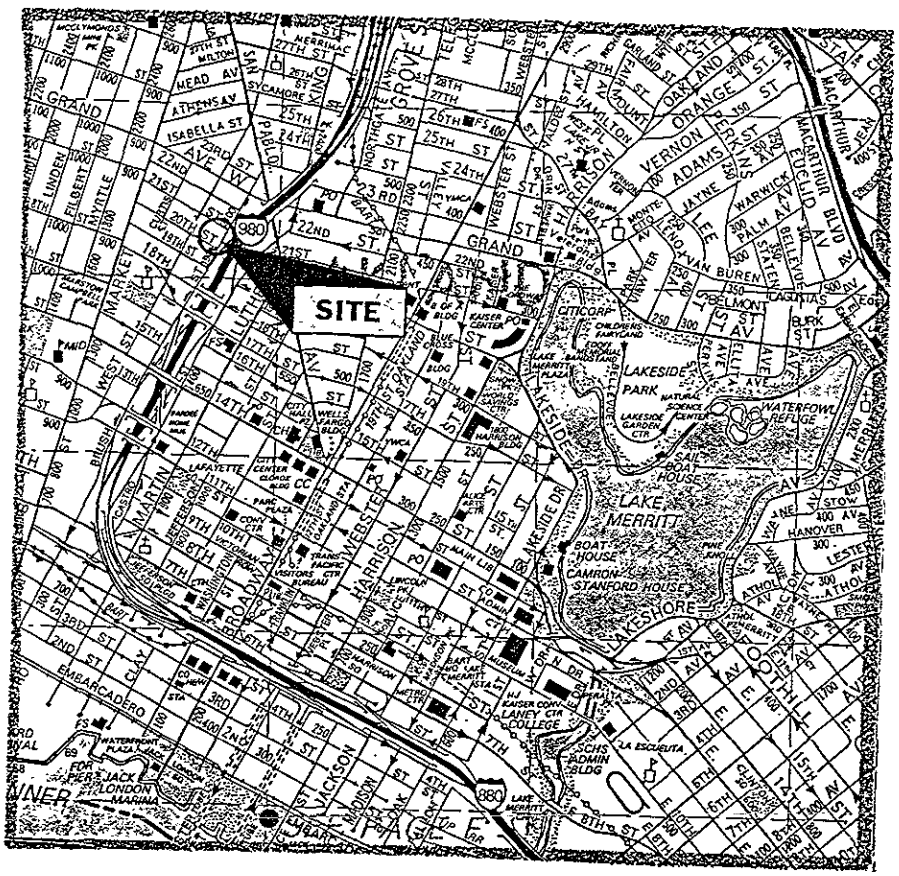
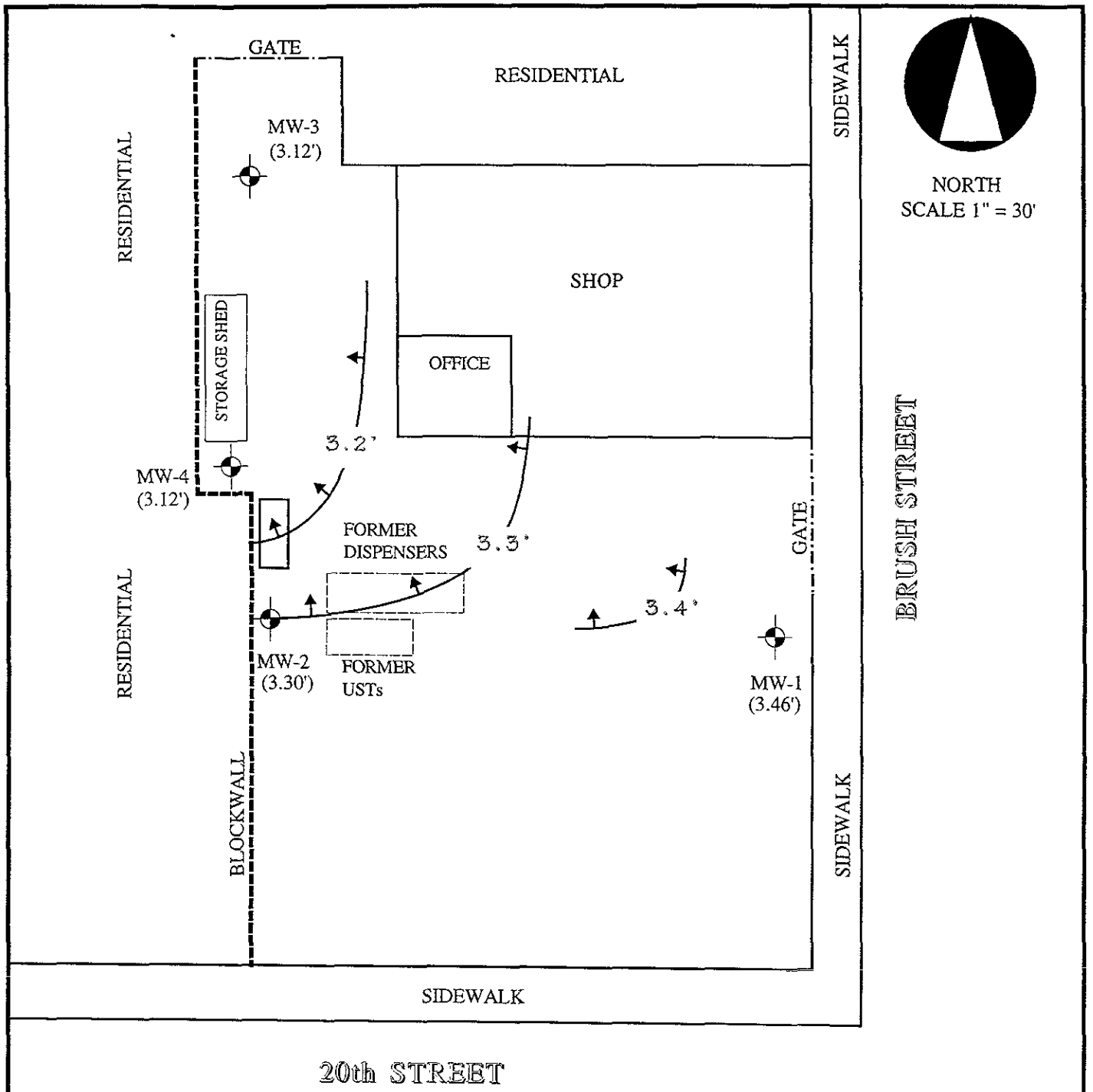


SITE LOCATION MAP	
Former Peerless Stages, Inc. Property 2021 Brush Street Oakland, California	
Aqua Science Engineers	Figure 1



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

GROUNDWATER ELEVATION CONTOUR MAP
3/24/2001

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

AQUA SCIENCE ENGINEERS | Figure 2

TABLES

TABLE ONE

Summary of Groundwater Well Survey Data
Former 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	8/26/1999	19.66	16.44	3.22
	11/11/1999		16.56	3.10
	2/16/2000		13.02	6.64
	5/17/2000		14.88	4.78
	8/23/2000		15.86	3.80
	11/30/2000		16.26	3.40
	2/22/2001		14.57	5.09
	5/10/2001		15.47	4.19
	8/24/2001		**16.20**	**3.46**
MW-2	8/26/1999	20.00	16.88	3.12
	11/11/1999		16.92	3.08
	2/16/2000		13.76	6.24
	5/17/2000		15.32	4.68
	8/23/2000		15.96	4.04
	11/30/2000		16.73	3.27
	2/22/2001		15.25	4.75
	5/10/2001		15.91	4.09
	8/24/2001		**16.70**	**3.30**
MW-3	8/26/1999	18.91	15.94	2.97
	11/11/1999		15.98	2.93
	2/16/2000		12.70	6.21
	5/17/2000		14.44	4.47
	8/23/2000		15.33	3.58
	11/30/2000		15.75	3.16
	2/22/2001		14.06	4.85
	5/10/2001		15.53	3.38
	8/24/2001		**15.79**	**3.12**
MW-4	8/26/1999	19.43	16.48	2.95
	11/11/1999		16.50	2.93
	2/16/2000		13.19	6.24
	5/17/2000		14.95	4.48
	8/23/2000		15.97	3.46
	11/30/2000		16.29	3.14
	2/22/2001		14.72	4.71
	5/10/2001		14.90	4.53
	8/24/2001		16.31	3.12

TABLE TWO

Summary of Chemical Analysis for Groundwater Samples
Former 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	Tert-Butonal	PNAs	VOCs
MW-1	8/26/1999	81	< 50	3.5	7.9	3.2	15	< 5.0	NA	NA	NA
	11/11/1999	< 50	110	< 0.5	< 0.5	< 0.5	< 0.5	< 5.0	NA	NA	NA
	2/16/2000	< 50	< 50	< 0.5	< 0.5	< 0.5	< 0.5	< 5.0	NA	NA	NA
	5/17/2000	< 50	< 50	< 0.5	< 0.5	< 0.5	< 0.5	< 5.0	NA	NA	NA
	8/23/2000	< 50	< 50	< 0.5	< 0.5	< 0.5	< 0.5	< 5.0	NA	NA	NA
	11/30/2000	< 50	< 50	< 0.5	< 0.5	< 0.5	< 0.5	< 5.0	NA	NA	NA
	2/22/2001	87**	54*	< 0.5	< 0.5	< 0.5	< 0.5	< 5.0	NA	NA	NA
	5/10/2001	< 50	77*	< 0.5	< 0.5	< 0.5	< 0.5	< 5.0	NA	NA	NA
	8/24/2001	Not Sampled									
MW-2	8/26/1999	8,600	1,200*	< 25	< 25	< 25	< 25	14,000	NA	< 0.057 - < 0.23	NA
	11/11/1999	710	2,300*	< 0.5	< 0.5	< 0.5	< 0.5	6,200	NA	NA	NA
	2/16/2000	< 50	1,500*	< 0.5	< 0.5	< 0.5	< 0.5	3,800	NA	NA	< 10 - < 1,000
	5/17/2000	58	1,400*	< 0.5	< 0.5	< 0.5	< 0.5	5,800	NA	NA	NA
	8/23/2000	1,300**	600*	< 0.5	< 0.5	< 0.5	< 0.5	2,000	NA	NA	< 0.5 - < 50
	11/30/2000	< 2,500	1,200*	< 0.5	< 0.5	< 0.5	< 0.5	2,700	NA	NA	NA
	2/22/2001	< 2,500	1,300*	< 0.5	< 0.5	< 0.5	< 0.5	1,600	NA	NA	NA
	5/10/2001	< 2,500	1200*	< 0.5	< 0.5	< 0.5	< 0.5	1,500	NA	NA	NA
	8/24/2001	NA	NA	NA	NA	NA	NA	1,400	230	NA	NA
MW-3	8/26/1999	< 50	< 63	2.5	3	0.87	4	< 5.0	NA	NA	NA
	11/11/1999	< 50	< 56	< 0.5	< 0.5	< 0.5	< 0.5	< 5.0	NA	NA	NA
	2/16/2000	< 50	< 50	< 0.5	< 0.5	< 0.5	< 0.5	< 5.0	NA	NA	NA
	5/17/2000	< 50	< 50	< 0.5	< 0.5	< 0.5	< 0.5	< 5.0	NA	NA	NA
	8/23/2000	< 50	< 50	< 0.5	< 0.5	< 0.5	< 0.5	< 5.0	NA	NA	NA
	11/30/2000	< 50	< 50	< 0.5	< 0.5	< 0.5	< 0.5	< 5.0	NA	NA	NA
	2/22/2001	< 50	<50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	NA	NA	NA
	5/10/2001	59	58*	< 0.5	< 0.5	< 0.5	< 0.5	< 5.0	NA	NA	NA
	8/24/2001	Not Sampled									
MW-4	8/26/1999	< 50	420*	< 0.5	< 0.5	0.88	3.6	< 5.0	NA	NA	NA
	11/11/1999	< 50	120*	< 0.5	< 0.5	< 0.5	< 0.5	< 5.0	NA	NA	NA
	2/16/2000	< 50	76*	< 0.5	< 0.5	< 0.5	< 0.5	< 5.0	NA	NA	NA
	5/17/2000	120**	130*	< 0.5	< 0.5	< 0.5	< 0.5	< 5.0	NA	NA	NA
	8/23/2000	< 50	73*	< 0.5	< 0.5	< 0.5	< 0.5	< 5.0	NA	NA	NA
	11/30/2000	< 50	< 50	< 0.5	< 0.5	< 0.5	< 0.5	< 5.0	NA	NA	NA
	2/22/2001	76**	170*	< 0.5	< 0.5	< 0.5	< 0.5	< 5.0	NA	NA	NA
	5/10/2001	< 50	< 63	< 0.5	< 0.5	< 0.5	< 0.5	< 5.0	NA	NA	NA
	8/24/2001	Not Sampled									
BH-A	5/8/2001	< 50	69	< 0.5	1.5	< 0.5	1.5	< 0.5	NA	NA	NA
BH-B	5/8/2001	< 50	60	< 0.5	1.7	< 0.5	1.7	< 0.5	NA	NA	NA
DHS MCL		NE	NE	1	150	700	1,750	13	varies	varies	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
VOCs = Volatile Organic Compounds
DHS MCL = Department of Health Services Maximum Contaminant Level for drinking water
NA = Sample was not analyzed for these compounds
* = Hydrocarbons do not match the laboratory diesel standard
** = Hydrocarbons do not match the laboratory gasoline standard

APPENDIX A

Well Sampling Field Logs

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WELL SAMPLING FIELD LOG

Project Name and Address: Peerless
Job #: 3190 Date of sampling: 8/24
Well Name: MW-1 Sampled by: EP
Total depth of well (feet): _____ Well diameter (inches): _____
Depth to water before sampling (feet): 16.20
Thickness of floating product if any: _____
Depth of well casing in water (feet): _____
Number of gallons per well casing volume (gallons): _____
Number of well casing volumes to be removed: _____
Req'd volume of groundwater to be purged before sampling (gallons): _____
Equipment used to purge the well: _____
Time Evacuation Began: _____ Time Evacuation Finished: _____
Approximate volume of groundwater purged: _____
Did the well go dry?: _____ After how many gallons: _____
Time samples were collected: _____
Depth to water at time of sampling: _____
Percent recovery at time of sampling: _____
Samples collected with: _____
Sample color: _____ Odor: _____
Description of sediment in sample: _____

CHEMICAL DATA

Volume Purged	Temp	pH	Conductivity

SAMPLED

SAMPLES COLLECTED

Sample	# of containers	Volume & type container	Pres	Iced?	Analysis

aqua science engineers inc.

WELL SAMPLING FIELD LOG

Project Name and Address: Peerless
Job #: 3190 Date of sampling: 8/24/01
Well Name: MW-2 Sampled by: EP
Total depth of well (feet): 29.70 Well diameter (inches): _____
Depth to water before sampling (feet): 16.70
Thickness of floating product if any: —
Depth of well casing in water (feet): 13.00
Number of gallons per well casing volume (gallons): 2.08
Number of well casing volumes to be removed: 4
Req'd volume of groundwater to be purged before sampling (gallons): 8
Equipment used to purge the well: bailer
Time Evacuation Began: 1005 Time Evacuation Finished: 1025
Approximate volume of groundwater purged: 8
Did the well go dry?: NO After how many gallons: —
Time samples were collected: 1030
Depth to water at time of sampling: —
Percent recovery at time of sampling: 79%
Samples collected with: bailer
Sample color: clear/gray Odor: none
Description of sediment in sample: silt

CHEMICAL DATA

Volume Purged	Temp	pH	Conductivity
1	65.1	7.31	1201
2	64.8	7.24	1024
3	64.5	7.18	981
4	64.3	7.12	965

SAMPLES COLLECTED

Sample	# of containers	Volume & type container	Pres	Iced?	Analysis
MW-2	5	40 ml VOA	x	x	

aqua science engineers inc.

WELL SAMPLING FIELD LOG

Project Name and Address: Peerless
Job #: 3198 Date of sampling: 8/24
Well Name: MW-3 Sampled by: EP
Total depth of well (feet): _____ Well diameter (inches): 2"
Depth to water before sampling (feet): 15.79
Thickness of floating product if any: _____
Depth of well casing in water (feet): _____
Number of gallons per well casing volume (gallons): _____
Number of well casing volumes to be removed: _____
Req'd volume of groundwater to be purged before sampling (gallons): _____
Equipment used to purge the well: _____
Time Evacuation Began: _____ Time Evacuation Finished: _____
Approximate volume of groundwater purged: _____
Did the well go dry?: _____ After how many gallons: _____
Time samples were collected: _____
Depth to water at time of sampling: _____
Percent recovery at time of sampling: _____
Samples collected with: _____
Sample color: _____ Odor: _____
Description of sediment in sample: _____

NOT SAMPLED

CHEMICAL DATA

Volume Purged	Temp	pH	Conductivity

SAMPLES COLLECTED

Sample	# of containers	Volume & type container	Pres	Iced?	Analysis

aqua science engineers inc.

WELL SAMPLING FIELD LOG

Project Name and Address: Peerless
Job #: 3190 Date of sampling: 8/24
Well Name: MW-4 Sampled by: EI
Total depth of well (feet): _____ Well diameter (inches): 2"
Depth to water before sampling (feet): 16.31
Thickness of floating product if any: _____
Depth of well casing in water (feet): _____
Number of gallons per well casing volume (gallons): _____
Number of well casing volumes to be removed: _____
Req'd volume of groundwater to be purged before sampling (gallons): _____
Equipment used to purge the well: _____
Time Evacuation Began: _____ Time Evacuation Finished: _____
Approximate volume of groundwater purged: _____
Did the well go dry?: NO After how many gallons: _____
Time samples were collected: 0?
Depth to water at time of sampling: _____
Percent recovery at time of sampling: _____
Samples collected with: _____
Sample color: _____ Odor: _____
Description of sediment in sample: _____

SAMPLED

CHEMICAL DATA

Volume Purged	Temp	pH	Conductivity

SAMPLES COLLECTED

Sample	# of containers	Volume & type container	Pres	Iced?	Analysis

APPENDIX B

Certified Analytical Report
and
Chain of Custody Documentation

KIFF ANALYTICAL LLC

Report Number : 21993
Date : 9/19/2001

Eric Paddleford
Aqua Science Engineers, Inc.
208 West El Pintado Rd.
Danville, CA 94526

Subject : 1 Water Sample
Project Name : Former Peerless Stages
Project Number : 3190

Dear Mr. Paddleford,

Chemical analysis of the samples referenced above has been completed. Summaries of the data are contained on the following pages. Sample(s) were received under documented chain-of-custody. US EPA protocols for sample storage and preservation were followed.

Kiff Analytical is certified by the State of California (# 2236). If you have any questions regarding procedures or results, please call me at 530-297-4800.

Sincerely,

Joel Kiff

Joel Kiff

KIFF ANALYTICAL LLC

Report Number : 21993
Date : 9/19/2001

Project Name : **Former Peerless Stages**
Project Number : **3190**

Sample : **MW-2** Matrix : Water Lab Number : 21993-01
Sample Date :8/24/2001

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Methyl-t-butyl ether (MTBE)	**1400**	2.5	ug/L	EPA 8260B	9/7/2001
Diisopropyl ether (DIPE)	**< 2.5**	2.5	ug/L	EPA 8260B	9/7/2001
Ethyl-t-butyl ether (ETBE)	**< 2.5**	2.5	ug/L	EPA 8260B	9/7/2001
Tert-amyl methyl ether (TAME)	**< 2.5**	2.5	ug/L	EPA 8260B	9/7/2001
Tert-Butanol	**230**	25	ug/L	EPA 8260B	9/7/2001
4-Bromofluorobenzene (Surr)	100		% Recovery	EPA 8260B	9/7/2001
Toluene - d8 (Surr)	100		% Recovery	EPA 8260B	9/7/2001

Approved By Joel Kiff

720 Olive Drive, Suite D Davis, CA 95616 530-297-4800

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

Chain of Custody

21993

PAGE 1 OF 1

SAMPLER (SIGNATURE) (PHONE NO.)

PROJECT NAME Former Peerless Stages JOB NO. 3190

ADDRESS 2021 Brush Street, Oakland, CA

ANALYSIS REQUEST

SPECIAL INSTRUCTIONS:
Analyze for 5 oxygenates only
Standard TAT

SAMPLE ID.	DATE	TIME	MATRIX	NO. OF SAMPLES	TPH-GAS / MTBE & BTEX (EPA 5030/8015-8020)	TPH-DIESEL (EPA 3510/8015)	TPH-DIESEL & MOTOR OIL (EPA 3510/8015)	PURGEABLE HALOCARBONS (EPA 601/8010)	VOLATILE ORGANICS (EPA 624/8240/8260)	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)	FUEL OXYGENATES (EPA 8260)	Pb (TOTAL or DISSOLVED) (EPA 6010)	~~TPH-Organics~~ 5 OXYS (EPA 8260)	TPH-G/BTEX/7 OXYS / HVOCS (EPA 8260)			COMPOSITE
MW-2	8/24	1030	Water	5														X				01

RELINQUISHED BY: (signature) (time) 0930
Erik Reddekopp 8/27
(printed name) (date)
Company- ASE

RECEIVED BY: (signature) (time)
(printed name) (date)
Company-

RELINQUISHED BY: (signature) (time)
(printed name) (date)
Company-

RECEIVED BY LABORATORY: (signature) (time) 0930
HAROLD BROWER 08/27/01
(printed name) (date)
Company- KIFF

COMMENTS:
Analyze for 5 oxy's only

TURN AROUND TIME
(STANDARD) 24H 48H 72H

OTHER: