



AG

STIN 1058
RESPONDED TO
2/16/2000

July 8, 1999

GROUNDWATER MONITORING REPORT
FIRST QUARTER 1998
ASE JOB NO. 3011

at
Zima Center Corporation
2951 High Street
Oakland, California 94619

ENVIRONMENTAL
PROTECTION
92 JUL 14 PM 2:53

Prepared by:
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Danville, CA 94526
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1.0 INTRODUCTION

Site Location (Site), See Figure 1

Zima Center Corporation
2951 High Street
Oakland, CA 94619

Property Owner

Zima Center Corporation
13775 Campus Drive
Oakland, CA 94605
Attn.: Mr. Mohammad Mashhoon
(510) 436-4700

Environmental Consulting Firm

Aqua Science Engineers, Inc. (ASE)
208 W. El Pintado
Danville, CA 94526
Contact: Robert Kitay, Senior Geologist
(925) 820-9391

Agency Review

Alameda County Health Care Services Agency (ACHCSA)
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502
Attn.: Ms. Madhulla Logan
(510) 567-6764

California Regional Water Quality Control Board (RWQCB),
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612
Attn.: Mr. Chuck Headlee
(510) 622-2423

The following is a report detailing the results of the second quarter 1999 groundwater sampling at the above referenced site (Figure 2).

2.0 GROUNDWATER FLOW DIRECTION AND GRADIENT

On June 17, 1999, ASE staff engineer Dave Allen measured the depth to water in each site groundwater monitoring well using an electric water level sounder. No free-floating hydrocarbons or sheen were present in any site monitoring well. Groundwater elevations are presented in Table One.

Since a sock of Oxygen Releasing Compound (ORC) was present in monitoring wells MW-4 and MW-5, these ORC socks had to be removed before a groundwater level could be recorded in these wells. Upon removing these socks, the water level in these wells dropped as water levels do during a "slug test." For this reason, the measured water levels are not representative of actual waters beneath the site. For this reason, a groundwater potentiometric surface map was not prepared this quarter. However, the groundwater potentiometric surface map for July 23, 1998 is presented as Figure 2. Potentiometric surface maps for this site have generally shown groundwater flow to southeast. However, the distribution of hydrocarbons in groundwater suggests a northward groundwater flow direction.

3.0 GROUNDWATER SAMPLE COLLECTION AND ANALYSES

On June 17, 1999, ASE staff engineer Dave Allen collected groundwater samples from monitoring wells MW-2, MW-5, and MW-6. Prior to sampling, the wells were purged of four well casing volumes of groundwater using a pre-cleaned electric pump. Temperature, pH and conductivity were monitored during purging, and samples were not collected until these values stabilized. Groundwater samples were collected from each well using dedicated polyethylene bailers. The samples were decanted from the bailers into 40-ml volatile organic analysis (VOA) vials containing hydrochloric acid as a preservative, capped without headspace, labeled and placed in coolers with wet ice for transport to a California state certified analytical laboratory, Chromalab, Inc. of Pleasanton, California (ELAP #1094), under appropriate chain-of-custody documentation. Copies of the well sampling field logs are included as Appendix A.

The groundwater samples collected from monitoring wells MW-2, MW-5 and MW-6 were analyzed for total petroleum hydrocarbons as gasoline (TPH-G) by EPA Method 5030/8015M, benzene, toluene, ethylbenzene, and total xylenes (collectively known as BTEX) and methyl tertiary butyl ether (MTBE) by EPA Method 8020.

The analytical results for this and previous sampling events are presented in Table Two, and the certified laboratory report and chain-of-custody documentation are included as Appendix B.

4.0 GROUNDWATER REMEDIATION

Between May 28, 1997 and June 24, 1997, 2,550 lbs. of Oxygen Releasing Compound (ORC) were injected into the borings along the northern and eastern sides of the existing underground storage tanks (USTs). This drilling and ORC injection was performed by Fast-Tek Engineering Support Services of San Rafael, California on May 28 and 29, 1997, Soils Exploration Services of Benicia, California on May 30, 1997 and En Prob Environmental Probing of Oroville, California on June 24, 1997.

On August 22, September 22, December 6, 1997, and March 3, 1998, ASE measured the dissolved oxygen (DO) in groundwater from each monitoring well. DO substantially increased in all site monitoring wells since the ORC injection was performed. A DO increase in groundwater will stimulate aerobic biodegradation of petroleum hydrocarbons. DO concentration data is presented in Table Three.

On August 21, 1998, at the request of our client, ASE installed ORC socks in monitoring wells MW-4 and MW-5 to again increase the amount of DO in groundwater beneath the site.

5.0 CONCLUSIONS AND RECOMMENDATIONS

In general, hydrocarbon concentrations in all the samples collected are below their representative on-site commercial (1 in 100,000 cancer risk) Risk Based Corrective Action (RBCA) Site Specific Threshold Levels (SSTLs). ~~Monitoring wells MW-1 and MW-3 have not been sampled since August of 1995 due to their consistantly non-detectable concentrations.~~ Monitoring well MW-4 is not sampled because it is a tank backfill well. The hydrocarbon concentrations in groundwater samples collected from monitoring wells MW-2 and MW-5 are below the RBCA SSTLs for BTEX and MTBE. This confirms that the previously documented releases have been stopped. Monitoring well MW-6 has remained relatively clean and these results suggest that there is little significant hydrocarbon migration in the northern direction.

The significant decreases in hydrocarbon concentrations in groundwater this quarter appear to be related to the stoppage of on-going releases of

gasoline to the subsurface as reported in ASE's letter dated January 11, 1999.

ASE recommends that the ACHCSA once again review this 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 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.

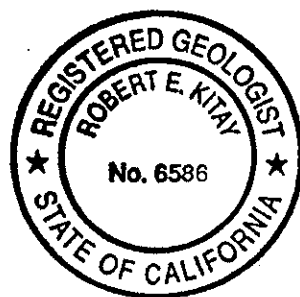
Aqua Science Engineers appreciates the opportunity to provide environmental consulting services for this project and trust that this report meets your needs. Please feel free to call us at (925) 820-9391 if you have any questions or comments.

Respectfully submitted,

AQUA SCIENCE ENGINEERS, INC.


Ian Reed
Environmental Scientist


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

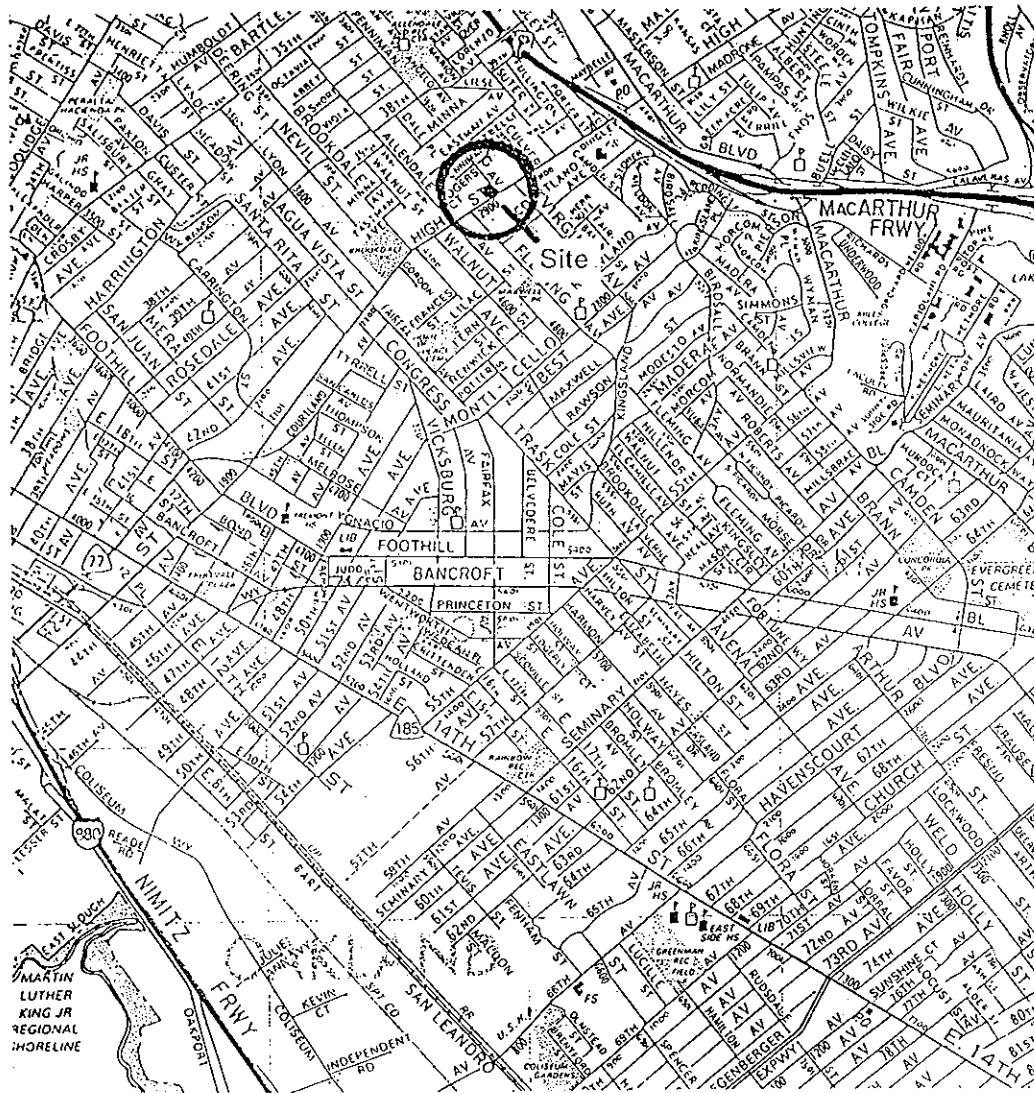


Attachments: Figures 1 and 2
Tables One, Two and Three
Appendices A and B

FIGURES



NORTH



SITE LOCATION MAP

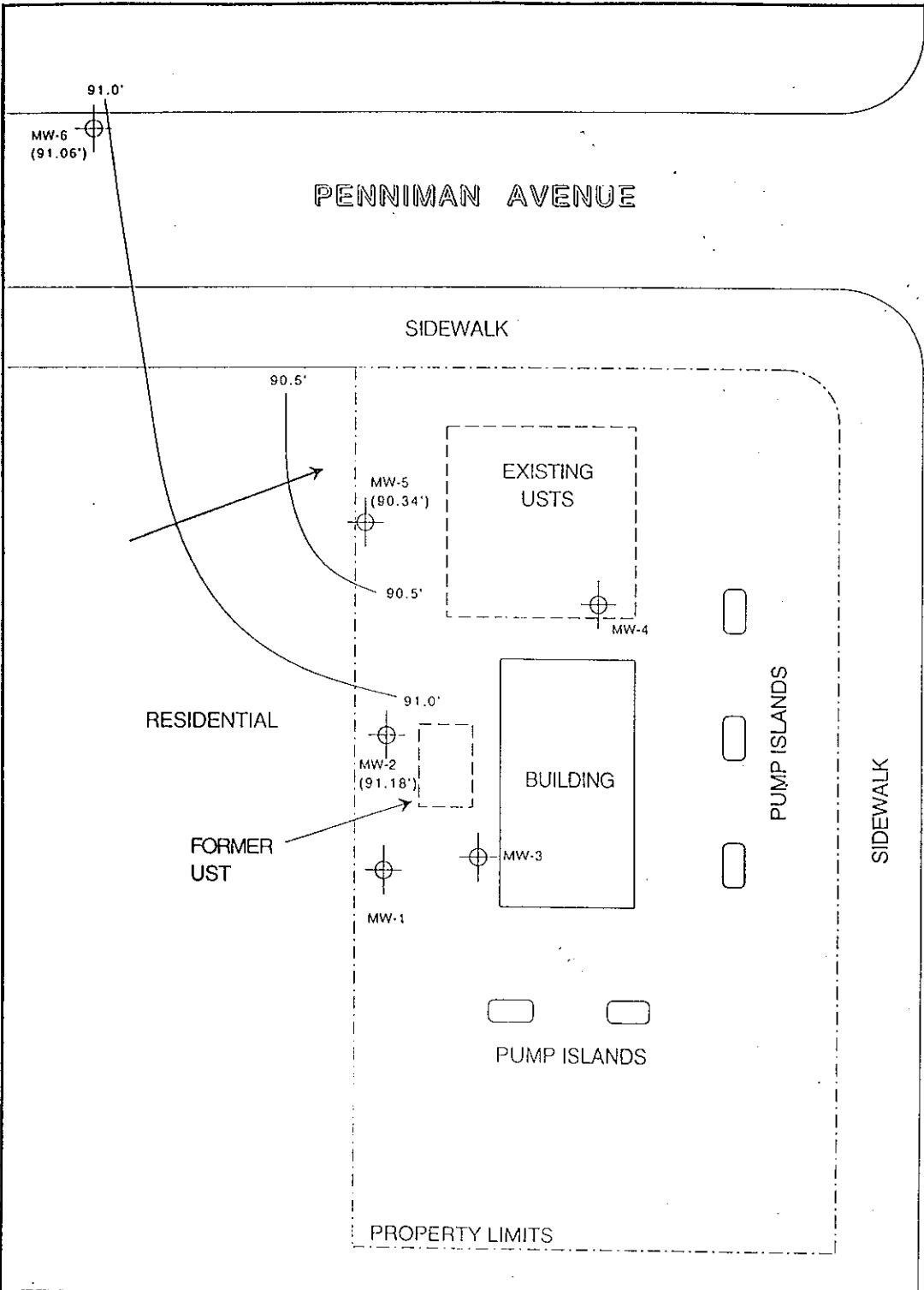
ZIMA CENTER CORPORATION
2951 HIGH STREET
OAKLAND, CALIFORNIA

AQUA SCIENCE ENGINEERS, INC. FIGURE 1


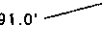



NORTH

SCALE
1" = 30'



LEGEND

- MW-6 (91.06') Monitoring well with groundwater elevation
-  Groundwater elevation contour
- 91.0'  Groundwater elevation contour
-  Approximate groundwater flow direction

**GROUNDWATER ELEVATION
CONTOUR MAP - 07/23/98**

ZIMA CENTER CORPORATION
2951 HIGH STREET
OAKLAND, CALIFORNIA

AQUA SCIENCE ENGINEERS, INC.

FIGURE 2

TABLES

TABLE ONE
Summary of Groundwater Well Survey Data

Well I.D.	Date of Measurement	Top of Casing Elevation (relative to project datum)	Depth to Water (feet)	Groundwater Elevation (project data)
MW-1	02-23-95	97.62	5.89	91.73
	05-26-95		5.20	92.42
	08-23-95		8.67	88.95
	12-13-96		4.61	93.01
	01-16-97		3.79	93.83
	03-27-97		5.87	91.75
	06-27-97		8.33	89.29
	09-22-97		9.62	87.90
	12-06-97		5.35	92.27
	03-23-98		4.02	93.60
	03-05-99		3.16	94.46
	06-17-99		6.69	90.93
MW-2	02-23-95	97.87	6.81	91.06
	05-26-95		4.90	92.97
	08-23-95		8.33	89.54
	12-13-96		6.85	91.02
	01-16-97		1.54	96.33
	03-27-97		5.51	92.36
	06-27-97		8.43	89.44
	09-22-97		9.50	88.37
	12-06-97		6.81	91.06
	03-23-98		2.85	95.02
	07-23-98		6.69	91.18
	11-23-98		8.04	89.83
	03-05-99		1.50	96.37
	06-17-99		6.93	90.94
MW-3	02-23-95	97.03	4.21	92.82
	05-26-95		6.44	90.59
	08-23-95		8.69	88.34
	12-13-96		5.60	91.43
	01-16-97		5.28	91.75
	03-27-97		6.64	90.39
	06-27-97		8.35	88.68
	09-22-97		9.42	87.61
	12-06-97		6.38	90.65
	03-23-98		5.42	91.61
	03-05-99		4.81	92.22
	06-17-99		7.60	89.43

(Continued)

TABLE ONE (Cont'd)
Summary of Groundwater Well Survey Data

Well I.D.	Date of Measurement	Top of Casing Elevation (relative to project datum)	Depth to Water (feet)	Groundwater Elevation (project data)		
MW-4	02-23-95	96.77	6.25	92.07		
	05-26-95		6.18	90.59		
	08-23-95		8.55	88.22		
	12-13-96		5.86	90.91		
	01-16-97		5.79	90.98		
	03-27-97		7.37	89.40		
	06-27-97		8.75	88.02		
	09-22-97		9.31	87.46		
	12-06-97		6.25	90.52		
	03-23-98		6.07	90.70		
	03-05-99		12.16	84.61		
			06-17-99		Inaccessible	
MW-5	12-13-96	98.32	6.25	92.07		
	01-16-97		6.32	92.00		
	03-27-97		7.51	90.81		
	06-27-97		8.96	89.36		
	09-22-97		9.38	88.94		
	12-06-97		6.01	92.31		
	03-23-98		6.60	91.72		
	07-23-98		7.98	90.34		
	11-23-98		11.20	87.12		
	03-05-99		10.14	88.18		
			06-17-99		11.53	86.79
	MW-6		01-16-97	98.16	5.12	93.04
03-27-97		6.55	91.61			
06-27-97		8.39	89.77			
09-22-97		9.14	88.99			
12-06-97		5.41	92.75			
03-23-98		5.40	92.76			
07-23-98		7.10	91.06			
11-23-98		7.80	90.07			
03-05-99		4.82	93.34			
		06-17-99			7.70	90.46

TABLE TWO
Certified Analytical Results of GROUNDWATER Samples
All Results are in Parts Per Billion (ppb)

Sample I.D.	TPH Gasoline	Benzene	Toluene	Ethyl Benzene	Total Xylenes	MTHF
<u>MW-1</u>						
02-23-95	<50	<0.5	<0.5	<0.5	<0.5	---
05-26-95	<50	<0.5	<0.5	<0.5	<0.5	---
08-23-95	<50	<0.5	<0.5	<0.5	<0.5	---
<u>MW-2</u>						
02-23-95	3,300	9.6	13	8	28	---
05-26-95	4,600	39	18	21	39	---
08-23-95	<50	15	6	10	15	---
12-13-96	1,900	110	110	120	330	65
03-27-97	3,900	34	20	86	140	200
06-27-97	2,400	18	<5	6	8.8	2,000
09-22-97	<5,000	8.4	20	33	100	3,900
12-06-97	3,000	33	40	40	140	2,300
03-23-98	220	3.0	2.8	5.8	13	18
06-10-98	3,400	120	64	160	200	1,900
07-23-98	6,000	340	54	280	390	3,300
09-16-98	3,700	77	<25	80	69	5,500
11-23-98	<10,000	<100	150	<100	180	9,100
03-05-99	1,000	20	31	38	100	510
06-17-99	<10,000	110	38	79	140	4200
<u>MW-3</u>						
02-23-95	<50	<0.5	<0.5	<0.5	<0.5	---
05-26-95	<50	<0.5	<0.5	<0.5	<0.5	---
08-23-95	<50	<0.5	<0.5	<0.5	<0.5	---
<u>MW-4</u>						
06-26-96	2,500	230	64	99	110	5,700
03-27-97	6,200	300	150	160	310	7,100

(1 in 100,000 Cancer Risk) 1,100 12,000 >SOL >SOL 100,000

(continued on next page)

TABLE TWO (cont'd)
Certified Analytical Results of GROUNDWATER Samples
All Results are in Parts Per Billion (ppb)

Sample I.D.	TPH Gasoline	Benzene	Toluene	Ethyl Benzene	Total Xylenes	MTHB
MW-5						
12-13-96	3,600	180	350	81	510	430
03-27-97	120,000	28,000	16,000	2,600	10,000	64,000
06-27-97	6,300	10,000	2,400	290	4,500	43,000
09-22-97	< 50,000	7.9	3.3	0.63	3.3	30,000
12-06-97	< 5,000*	33	12	< 5.0	7.3	33,000
03-23-98	29,000	150	160	130	320	34,000
06-10-98	53,000	7,000	2,400	540	3,400	67,000
07-23-98	36,000	1,000	270	< 120	740	51,000
09-16-98	56,000	3,400	1,300	430	1,800	84,000
11-23-98	63,000	5,700	2,900	500	2,200	87,000
03-05-99	42,000	< 250	< 250	< 250	< 250	38,000
06-17-99	37,000	510	85	5.6	89	64,000
MW-6						
01-13-97	< 50	< 0.5	< 0.5	< 0.5	< 0.5	< 5
03-27-97	< 50	< 0.5	< 0.5	< 0.5	< 0.5	< 5
06-27-97	< 50	< 0.5	< 0.5	< 0.5	< 0.5	< 5
09-22-97	< 50	< 0.5	< 0.5	< 0.5	< 0.5	< 5
12-06-97	94	< 0.5	< 0.5	< 0.5	< 0.5	24
03-23-98	< 50	< 0.5	< 0.5	< 0.5	< 0.5	< 5
06-10-98	< 50	< 0.5	< 0.5	< 0.5	< 0.5	< 5
07-23-98	< 50	< 0.5	< 0.5	< 0.5	< 0.5	< 5
09-16-98	< 50	< 0.5	< 0.5	< 0.5	< 0.5	< 5
11-23-98	Inaccessible due to rainwater runoff					< 5
03-05-99	55	< 0.5	0.92	0.5	1.3	< 5.0
06-17-99	< 50	< 0.5	< 0.5	< 0.5	< 0.5	8.0
RBCA Values:						
Onsite Commercial						
1 in 100,000 Cancer Risk	1,100	12,000	>SOL	>SOL	68,000	
EPA METHOD	5030/ 8015M	8020	8020	8020	8020	8020

Notes:

- RBCA = Risk Based Corrective Action Levels
- DTSC MCL = Department of Toxic Substances Control maximum level for drinking water
- ¥ = DTSC interim action level; MCL not established
- NE = DTSC MCLs and RALs not established
- * = Hydrocarbon found in Gasoline Range is uncharacteristic of Gasoline Profile. If quantified using Gasoline's response factor, concentration would equal 24,000 ppb.
- = Not Analyzed

TABLE THREE
Summary of Dissolved Oxygen Results in Groundwater
All Results in Parts Per Million (ppm)

Sample I.D. -----	Before Purging -----	After Purging -----
<u>MW-1</u>		
06-27-97	0.99	---
08-20-97	0.64	0.96
09-22-97	1.60	---
12-06-97	1.30	---
03-03-98	0.86	---
06-10-98	0.90	---
<u>MW-2</u>		
06-27-97	0.86	0.94
08-20-97	0.43	0.81
09-22-97	1.15	3.40
12-06-97	1.52	4.88
03-03-98	5.12	4.64
06-10-98	0.93	0.97
<u>MW-3</u>		
06-27-97	1.26	---
08-20-97	1.13	1.29
09-22-97	2.75	---
12-06-97	3.15	---
03-03-98	0.70	---
06-10-98	0.78	---
<u>MW-4</u>		
06-27-97	0.97	---
08-20-97	5.50	6.18
09-22-97	11.80	---
12-06-97	5.15	---
03-03-98	1.08	---
06-10-98	1.21	---
<u>MW-5</u>		
06-27-97	0.71	8.70
08-20-97	>20.00	>20.00
09-22-97	>20.00	>20.00
12-06-97	19.20	19.17
03-03-98	18.19	17.14
06-10-98	1.92	1.87

TABLE THREE
(continued)
Summary of Dissolved Oxygen Results in Groundwater
All Results in Parts Per Million (ppm)

Sample I.D. -----	Before Purging -----	After Purging -----
<u>MW-6</u>		
06-27-97	0.61	0.89
08-20-97	0.69	1.02
09-22-97	1.10	2.90
12-06-97	2.11	2.50
03-03-98	1.03	1.42
06-10-98	1.10	1.06

Notes:

--- = Well not purged

APPENDIX A

Well Sampling Field Logs



WELL SAMPLING FIELD LOG

Project Name and Address: ZUMA, OAKLAND
 Job #: 3011 Date of sampling: 6.17.79
 Well Name: MW-1 Sampled by: DA
 Total depth of well (feet): 24.80 Well diameter (inches): 2
 Depth to water before sampling (feet): 6.69'
 Thickness of floating product if any: 0
 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
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

SAMPLES COLLECTED

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



WELL SAMPLING FIELD LOG

Project Name and Address: ZUMA
 Job #: 2011 Date of sampling: 6-17-99
 Well Name: MW-2 Sampled by: DA
 Total depth of well (feet): 19.90 Well diameter (inches): 2
 Depth to water before sampling (feet): 6.93
 Thickness of floating product if any: 0
 Depth of well casing in water (feet): 12.97
 Number of gallons per well casing volume (gallons): 2.10
 Number of well casing volumes to be removed: 4
 Req'd volume of groundwater to be purged before sampling (gallons): 8.16
 Equipment used to purge the well: Dedicated Bailor
 Time Evacuation Began: 10:40 Time Evacuation Finished: 11:00
 Approximate volume of groundwater purged: 9 gal
 Did the well go dry?: NO After how many gallons: —
 Time samples were collected: 12:15
 Depth to water at time of sampling: 19.97
 Percent recovery at time of sampling: 99
 Samples collected with: Dedicated Bailor
 Sample color: clear Odor: None
 Description of sediment in sample: NONE

CHEMICAL DATA

Volume Purged	Temp	pH	Conductivity
<u>1</u>	<u>66.3</u>	<u>5.67</u>	<u>874</u>
<u>2</u>	<u>66.9</u>	<u>5.74</u>	<u>890</u>
<u>3</u>	<u>67.1</u>	<u>5.68</u>	<u>851</u>
<u>4</u>	<u>66.8</u>	<u>5.71</u>	<u>862</u>

SAMPLES COLLECTED

Sample	# of containers	Volume & type container	Pres	Iced?	Analysis
<u>MW-2</u>	<u>2</u>	<u>40 ml VOA</u>	<u>✓</u>	<u>✓</u>	<u>TH-G/MBTEX</u>



WELL SAMPLING FIELD LOG

Project Name and Address: UMA
Job #: 3011 Date of sampling: 6-17-89
Well Name: MW-3 Sampled by: DA
Total depth of well (feet): 25.00 Well diameter (inches): 2
Depth to water before sampling (feet): 7.60
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

<u>Volume Purged</u>	<u>Temp</u>	<u>pH</u>	<u>Conductivity</u>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

SAMPLES COLLECTED

<u>Sample</u>	<u># of containers</u>	<u>Volume & type container</u>	<u>Pres</u>	<u>Iced?</u>	<u>Analysis</u>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____



WELL SAMPLING FIELD LOG

Project Name and Address: ZUMA
 Job #: 3011 Date of sampling: 6-17-99
 Well Name: MW-4 Sampled by: DA
 Total depth of well (feet): _____ Well diameter (inches): 4
 Depth to water before sampling (feet): _____
 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 INACCESSIBLE DUE TO COR

<u>Volume Purged</u>	<u>Temp</u>	<u>pH</u>	<u>Conductivity</u>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

SAMPLES COLLECTED

<u>Sample</u>	<u># of containers</u>	<u>Volume & type container</u>	<u>Pres</u>	<u>Iced?</u>	<u>Analysis</u>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____



WELL SAMPLING FIELD LOG

Project Name and Address: ZUMA
 Job #: 3011 Date of sampling: 6-17-99
 Well Name: MW-5 Sampled by: DA
 Total depth of well (feet): 27.19 Well diameter (inches): 2
 Depth to water before sampling (feet): 11.53
 Thickness of floating product if any: 0
 Depth of well casing in water (feet): 15.66
 Number of gallons per well casing volume (gallons): 2.66
 Number of well casing volumes to be removed: 4
 Req'd volume of groundwater to be purged before sampling (gallons): 10.7
 Equipment used to purge the well: Dedicated Bailer
 Time Evacuation Began: 11:10 Time Evacuation Finished: 11:30
 Approximate volume of groundwater purged: 11 gal
 Did the well go dry?: NO After how many gallons: —
 Time samples were collected: 12:30
 Depth to water at time of sampling: 27.34
 Percent recovery at time of sampling: 99%
 Samples collected with: Dedicated Bailer
 Sample color: clear Odor: None
 Description of sediment in sample: None

CHEMICAL DATA

Volume Purged	Temp	pH	Conductivity
<u>1</u>	<u>67.4</u>	<u>6.51</u>	<u>1125</u>
<u>2</u>	<u>67.4</u>	<u>6.57</u>	<u>1131</u>
<u>3</u>	<u>66.3</u>	<u>6.48</u>	<u>1127</u>
<u>4</u>	<u>67.2</u>	<u>6.91</u>	<u>1112</u>

SAMPLES COLLECTED

Sample	# of containers	Volume & type container	Pres	iced?	Analysis
<u>MW-5</u>	<u>2</u>	<u>4ozml VOA</u>	<u>✓</u>	<u>✓</u>	<u>TPH-G/MATEX</u>
-----	-----	-----	-----	-----	-----
-----	-----	-----	-----	-----	-----
-----	-----	-----	-----	-----	-----



WELL SAMPLING FIELD LOG

Project Name and Address: ZUMA
 Job #: 3011 Date of sampling: 6.17.99
 Well Name: MW-6 Sampled by: DA
 Total depth of well (feet): 28.22 Well diameter (inches): 2
 Depth to water before sampling (feet): 7.70
 Thickness of floating product if any: 0
 Depth of well casing in water (feet): 20.52
 Number of gallons per well casing volume (gallons): 3.48
 Number of well casing volumes to be removed: 4
 Req'd volume of groundwater to be purged before sampling (gallons): 14
 Equipment used to purge the well: dedicated bailer
 Time Evacuation Began: 11:40 Time Evacuation Finished: 12:05
 Approximate volume of groundwater purged: 14 gal
 Did the well go dry?: NO After how many gallons:
 Time samples were collected: 12:45
 Depth to water at time of sampling: 7.81
 Percent recovery at time of sampling: 99
 Samples collected with: dedicated bailer
 Sample color: clear Odor: none
 Description of sediment in sample: none

CHEMICAL DATA

Volume Purged	Temp	pH	Conductivity
<u>1</u>	<u>62.3</u>	<u>6.41</u>	<u>673</u>
<u>2</u>	<u>62.8</u>	<u>6.53</u>	<u>713</u>
<u>3</u>	<u>61.9</u>	<u>6.51</u>	<u>726</u>
<u>4</u>	<u>62.3</u>	<u>6.48</u>	<u>719</u>

SAMPLES COLLECTED

Sample	# of containers	Volume & type container	Pres	Iced?	Analysis
<u>MW-6</u>	<u>2</u>	<u>90 ml VOA</u>	<u>✓</u>	<u>✓</u>	<u>TPH 6/MBP</u>

APPENDIX B

Certified Analytical Report
and
Chain of Custody Documentation

Aqua Science Engineers, Inc.
208 El Pintado
Danville, CA

Attn.: Mr. Dave Allen

Project: 3011
Zima

Site: High St., Oakland

Dear Mr. Allen,

Attached is our report for your samples received on Friday June 18, 1999.
This report has been reviewed and approved for release. Reproduction of this report is permitted only in its entirety.

The report contains a Case Narrative detailing sample receipt and analysis.

Please note that any unused portion of the samples will be discarded after July 18, 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,


Pierre Monette

To: Aqua Science Engineers, Inc.

Attn.: Dave Allen

CASE NARRATIVE

General and Sample Comments

We (ChromaLab, Inc.) received 3 Water samples, on Jun 18 1999 3:24PM.

Per QC Batch Comments

G/BTEX with MTBE	Water	QC Batch#: 1999/06/24.01-01
------------------	-------	-----------------------------

MW-2 >> MS

Lab#: 1999/06/24.01-01-004

Compound Flag(s)

sh Surrogate recoveries were higher than QC limits due to matrix interference.

MW-2 >> MSD

Lab#: 1999/06/24.01-01-005

mso Analyte MS/MSD recoveries were out of QC limits due to matrix interference. Precision and Accuracy were verified by LCS/LCSD.

Gas/BTEX and MTBE

Aqua Science Engineers, Inc.	☐ 208 El Pintado Danville, CA
Attn: Dave Allen	Phone: (925) 820-9391 Fax: (925) 837-4853
Project #: 3011	Project: Zima
Site: High St., Oakland	

Samples Reported

Sample ID	Matrix	Date Sampled	Lab #
MW-2	Water	06/17/1999 12:15	1
MW-5	Water	06/17/1999 12:30	2
MW-6	Water	06/17/1999 12:45	3

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 1999-06-0278

To: Aqua Science Engineers, Inc.

Test Method: 8015M
8020

Attn.: Dave Allen

Prep Method: 5030

Gas/BTEX and MTBE

Sample ID: MW-2	Lab Sample ID: 1999-06-0278-001
Project: 3011 Zima	Received: 06/18/1999 15:24
Site: High St., Oakland	Extracted: 06/25/1999 15:27
Sampled: 06/17/1999 12:15	QC-Batch: 1999/06/25-01.03
Matrix: Water	

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Gasoline	ND	10000	ug/L	200.00	06/25/1999 15:27	
Benzene	110	0.50	ug/L	1.00	06/24/1999 17:49	
Toluene	38	0.50	ug/L	1.00	06/24/1999 17:49	
Ethyl benzene	79	0.50	ug/L	1.00	06/24/1999 17:49	
Xylene(s)	140	0.50	ug/L	1.00	06/24/1999 17:49	
MTBE	4200	1000	ug/L	200.00	06/25/1999 15:27	
Surrogate(s)						
Trifluorotoluene	124.6	58-124	%	1.00	06/24/1999 17:49	sh
4-Bromofluorobenzene-FID	116.9	50-150	%	1.00	06/24/1999 17:49	

1220 Quarry Lane * Pleasanton, CA 94566-4756

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

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 1999-06-0278

To: Aqua Science Engineers, Inc.

Test Method: 8015M
8020

Attn.: Dave Allen

Prep Method: 5030

Gas/BTEX and MTBE

Sample ID: MW-5	Lab Sample ID: 1999-06-0278-002
Project: 3011 Zima	Received: 06/18/1999 15:24
Site: High St., Oakland	Extracted: 06/25/1999 15:54
Sampled: 06/17/1999 12:30	QC-Batch: 1999/06/25-01.03
Matrix: Water	

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Gasoline	37000	10000	ug/L	200.00	06/25/1999 15:54	
Benzene	510	100	ug/L	200.00	06/25/1999 15:54	
Toluene	85	0.50	ug/L	1.00	06/24/1999 21:24	
Ethyl benzene	5.6	0.50	ug/L	1.00	06/24/1999 21:24	
Xylene(s)	89	0.50	ug/L	1.00	06/24/1999 21:24	
MTBE	61000	1000	ug/L	200.00	06/25/1999 15:54	
Surrogate(s)						
4-Bromofluorobenzene	106.2	50-150	%	1.00	06/24/1999 21:24	
4-Bromofluorobenzene-FID	132.5	50-150	%	1.00	06/24/1999 21:24	

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CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 1999-06-0278

To: Aqua Science Engineers, Inc.

Test Method: 8015M
8020

Attn.: Dave Allen

Prep Method: 5030

Gas/BTEX and MTBE

Sample ID: MW-6	Lab Sample ID: 1999-06-0278-003
Project: 3011 Zima	Received: 06/18/1999 15:24
Site: High St., Oakland	Extracted: 06/25/1999 14:32
Sampled: 06/17/1999 12:45	QC-Batch: 1999/06/25-01.03
Matrix: Water	

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Gasoline	ND	50	ug/L	1.00	06/25/1999 14:32	
Benzene	ND	0.50	ug/L	1.00	06/25/1999 14:32	
Toluene	ND	0.50	ug/L	1.00	06/25/1999 14:32	
Ethyl benzene	ND	0.50	ug/L	1.00	06/25/1999 14:32	
Xylene(s)	ND	0.50	ug/L	1.00	06/25/1999 14:32	
MTBE	8.0	5.0	ug/L	1.00	06/25/1999 14:32	
<i>Surrogate(s)</i>						
Trifluorotoluene	82.9	58-124	%	1.00	06/25/1999 14:32	
4-Bromofluorobenzene-FID	110.0	50-150	%	1.00	06/25/1999 14:32	

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CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 1999-06-0278

To: Aqua Science Engineers, Inc.

Test Method: 8020
8015M

Attn.: Dave Allen

Prep Method: 5030

Batch QC Report Gas/BTEX and MTBE

Method Blank	Water	QC Batch # 1999/06/24-01.01
MB: 1999/06/24-01.01-001		Date Extracted: 06/24/1999 16:01

Compound	Result	Rep.Limit	Units	Analyzed	Flag
Gasoline	ND	50	ug/L	06/24/1999 16:01	
Benzene	ND	0.5	ug/L	06/24/1999 16:01	
Toluene	ND	0.5	ug/L	06/24/1999 16:01	
Ethyl benzene	ND	0.5	ug/L	06/24/1999 16:01	
Xylene(s)	ND	0.5	ug/L	06/24/1999 16:01	
MTBE	ND	5.0	ug/L	06/24/1999 16:01	
Surrogate(s)					
Trifluorotoluene	114.2	58-124	%	06/24/1999 16:01	
4-Bromofluorobenzene-FID	95.2	50-150	%	06/24/1999 16:01	

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CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 1999-06-0278

To: Aqua Science Engineers, Inc.

Test Method: 8020

8015M

Attn.: Dave Allen

Prep Method: 5030

Batch QC Report Gas/BTEX and MTBE

Method Blank	Water	QC Batch # 1999/06/25-01.03
MB: 1999/06/25-01.03-001		Date Extracted: 06/25/1999 07:51

Compound	Result	Rep.Limit	Units	Analyzed	Flag
Gasoline	ND	50	ug/L	06/25/1999 07:51	
Benzene	ND	0.5	ug/L	06/25/1999 07:51	
Toluene	ND	0.5	ug/L	06/25/1999 07:51	
Ethyl benzene	ND	0.5	ug/L	06/25/1999 07:51	
Xylene(s)	ND	0.5	ug/L	06/25/1999 07:51	
MTBE	ND	5.0	ug/L	06/25/1999 07:51	
<i>Surrogate(s)</i>					
Trifluorotoluene	93.4	58-124	%	06/25/1999 07:51	
4-Bromofluorobenzene-FID	100.6	50-150	%	06/25/1999 07:51	

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CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 1999-06-0278

To: Aqua Science Engineers, Inc.

Test Method: 8020
8015M

Attn: Dave Allen

Prep Method: 5030

Batch QC Report

Gas/BTEX and MTBE

Laboratory Control Spike (LCS/LCSD)		Water		QC Batch # 1999/06/24-01.01	
LCS:	1999/06/24-01.01-002	Extracted:	06/24/1999 10:35	Analyzed:	06/24/1999 10:35
LCSD:	1999/06/24-01.01-003	Extracted:	06/24/1999 11:28	Analyzed:	06/24/1999 11:28

Compound	Conc. [ug/L]		Exp. Conc. [ug/L]		Recovery [%]		RPD	Ctrl. Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD		Recovery	RPD	LCS	LCSD
Gasoline	543	572	500	500	108.6	114.4	5.2	75-125	20		
Benzene	98.5	107	100.0	100.0	98.5	107.0	8.3	77-123	20		
Toluene	97.9	106	100.0	100.0	97.9	106.0	7.9	78-122	20		
Ethyl benzene	95.3	104	100.0	100.0	95.3	104.0	8.7	70-130	20		
Xylene(s)	282	307	300	300	94.0	102.3	8.5	75-125	20		
Surrogate(s)											
Trifluorotoluene	506	556	500	500	101.2	111.2		58-124			
4-Bromofluorobenzene-FI	479	505	500	500	95.8	101.0		50-150			

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CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 1999-06-0278

To: Aqua Science Engineers, Inc.

Test Method: 8020
8015M

Attn: Dave Allen

Prep Method: 5030

Batch QC Report

Gas/BTEX and MTBE

Laboratory Control Spike (LCS/LCSD)		Water		QC Batch # 1999/06/25-01.03	
LCS:	1999/06/25-01.03-002	Extracted:	06/25/1999 08:45	Analyzed:	06/25/1999 08:45
LCSD:	1999/06/25-01.03-003	Extracted:	06/25/1999 09:12	Analyzed:	06/25/1999 09:12

Compound	Conc. [ug/L]		Exp. Conc. [ug/L]		Recovery [%]		RPD	Ctrl. Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD		Recovery	RPD	LCS	LCSD
Gasoline	529	519	500	500	105.8	103.8	1.9	75-125	20		
Benzene	95.8	89.8	100.0	100.0	95.8	89.8	6.5	77-123	20		
Toluene	90.4	88.7	100.0	100.0	90.4	88.7	1.9	78-122	20		
Ethyl benzene	90.6	85.5	100.0	100.0	90.6	85.5	5.8	70-130	20		
Xylene(s)	256	248	300	300	85.3	82.7	3.1	75-125	20		
Surrogate(s)											
Trifluorotoluene	417	409	500	500	83.4	81.8		58-124			
4-Bromofluorobenzene-FI	474	497	500	500	94.8	99.4		50-150			

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

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 1999-06-0278

To: Aqua Science Engineers, Inc.

Test Method: 8015M
8020

Attn.: Dave Allen

Prep Method: 5030

Batch QC Report
Gas/BTEX and MTBE

Matrix Spike (MS / MSD)	Water	QC Batch # 1999/06/24-01.01
Sample ID: MW-2		Lab Sample ID: 1999-06-0278-001
MS: 1999/06/24-01.01-004	Extracted: 06/24/1999 18:16	Analyzed: 06/24/1999 18:16 Dilution: 1.0
MSD: 1999/06/24-01.01-005	Extracted: 06/24/1999 19:10	Analyzed: 06/24/1999 19:10 Dilution: 1.0

Compound	Conc. [ug/L]			Exp. Conc. [ug/L]		Recovery [%]		RPD [%]	Ctrl. Limits [%]		Flags	
	MS	MSD	Sample	MS	MSD	MS	MSD		Recovery	RPD	MS	MSD
Gasoline	2780	2500	2230	500	500	110.0	54.0	68.3	65-135	20		mso
Benzene	211	216	109	100.0	100.0	102.0	107.0	4.8	65-135	20		
Toluene	145	148	38.3	100.0	100.0	106.7	109.7	2.8	65-135	20		
Ethyl benzene	176	180	79.1	100.0	100.0	96.9	100.9	4.0	65-135	20		
Xylene(s)	430	437	140	300	300	96.7	99.0	2.4	65-135	20		
Surrogate(s)												
Trifluorotoluene	671	685		500	500	134.2	137.0		58-124		sh	sh
4-Bromofluorobenzene-F	664	577		500	500	132.8	115.4		50-150			

To: Aqua Science Engineers, Inc.

Test Method: 8020
8015M

Attn: Dave Allen

Prep Method: 5030

Legend & Notes

Gas/BTEX and MTBE

QC Compound Flags

mso

Analyte MS/MSD recoveries were out of QC limits due to matrix interference. Precision and Accuracy were verified by LCS/LCSD.

Analyte Flags

sh

Surrogate recoveries were higher than QC limits due to matrix interference.

99-06-0278

46557

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

Chain of Custody

PAGE 1 OF 1

SAMPLER (SIGNATURE) [Signature] (PHONE NO.) 820-9391 PROJECT NAME Z/MA JOB NO. 3011
 ADDRESS High St., DANVILLE DATE 6-17-99

ANALYSIS REQUEST					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)	ORGANOCHLORINE HERBICIDES (EPA 8150)	FUEL OXYGENATES (EPA 8260)				COMPOSITE	
SPECIAL INSTRUCTIONS:	SAMPLE ID.	DATE	TIME	MATRIX																			NO. OF SAMPLES
	MW-2	6/17	12:15	Water	2	X																	
	MW-5	↓	12:30	↓	↓	X																	
	MW-6	↓	12:45	↓	↓	X																	

RELINQUISHED BY: <u>[Signature]</u> 14:31 <small>(signature) (time)</small>	RECEIVED BY: <u>Tom Wright</u> 1431 <small>(signature) (time)</small>	RELINQUISHED BY: <u>Tom Wright</u> 1500 <small>(signature) (time)</small>	RECEIVED BY LABORATORY: <u>Devis Harrington</u> <small>(signature) (time)</small>	COMMENTS: STANDARD TAT
<u>D Allen</u> 6/18/99 <small>(printed name) (date)</small>	<u>Tom Wright</u> 6/18/99 <small>(printed name) (date)</small>	<u>Tom Wright</u> 6-18-99 <small>(printed name) (date)</small>	<u>D. Harrington</u> 1500 <small>(printed name) (date)</small>	
Company- ASE Inc.	Company- C/I	Company- C/L	Chronalab 6/18/99 <small>Company- (date)</small>	28°C