



October 7, 1997

GROUNDWATER MONITORING REPORT  
SEPTEMBER 22, 1997 GROUNDWATER SAMPLING  
ASE JOB NO. 3011

at

Zima Center Corporation  
2951 High Street  
Oakland, California 94619

Prepared by:  
AQUA SCIENCE ENGINEERS, INC.  
2411 Old Crow Canyon Road, #4  
San Ramon, CA 94583  
(510) 820-9391

ENVIRONMENTAL  
PROTECTION  
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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  
2951 High Street  
Oakland, CA 94619  
Attn.: Mr. Mohammad Mashhoon  
(510) 436-4700

### Environmental Consulting Firm

Aqua Science Engineers, Inc. (ASE)  
2411 Old Crow Canyon Road, #4  
San Ramon, CA 94583  
Contact: Robert Kitay, Senior Geologist  
(510) 820-9391

### Agency Review

Alameda County Health Care Services Agency (ACHCSA)  
1131 Harbor Bay Parkway, 2nd Floor  
Alameda, CA 94502  
Attn.: Ms. Madhulla Logan  
(510) 293-8695

California Regional Water Quality Control Board (RWQCB),  
San Francisco Bay Region  
2101 Webster Street, Suite 500  
Oakland, CA 94612  
Contact: Mr. Kevin Graves  
(510) 286-4359

The following is a report detailing the results of the September 22, 1997, groundwater sampling at the above referenced site (Figure 2).

## 2.0 GROUNDWATER FLOW DIRECTION AND GRADIENT

On September 22, 1997, ASE staff geologist Charlie Rous measured the depth to water in each site groundwater monitoring well using an electric water level sounder. The surface of the groundwater was also checked for the presence of free-floating hydrocarbons or sheen using a product thickness bailer. No free-floating hydrocarbons or sheen were present in any site monitoring well. Groundwater elevations are presented in Table One.

A groundwater potentiometric map is presented as Figure 2. Groundwater flow direction is to the south at a gradient of approximately 0.013. This gradient is consistent with previous calculated gradients and flow directions but is not consistent with petroleum hydrocarbon distribution in groundwater which suggest a northly groundwater flow direction.

## 3.0 GROUNDWATER SAMPLE COLLECTION AND ANALYSES

Prior to sampling, monitoring wells MW-2, MW-5 and MW-6 were purged of four well casing volumes of groundwater using dedicated polyethylene bailers. The pH, temperature and conductivity parameters were monitored during purging. Samples were not collected until these parameters stabilized. Groundwater samples were then 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, 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.

The well purge water was placed in 55-gallon steel 17H drums, labeled, and left on-site for temporary storage. 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 and benzene, toluene, ethylbenzene, total xylenes (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) was 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 and September 22, 1997 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.

## 5.0 CONCLUSIONS

Decreased hydrocarbon concentrations were detected in groundwater samples collected from monitoring wells MW-2 and MW-5. Very low to non-detectable concentrations of TPH-G, BTEX and MTBE were detected in groundwater samples collected from monitoring well MW-6.

Petroleum hydrocarbon concentrations in the previously most impacted monitoring well, MW-5, has been dramatically reduced since ORC injection and treatment. Hydrocarbon concentrations in well MW-2 are low and decreasing, with the exception of MTBE. Hydrocarbon concentrations in groundwater samples collected from monitoring well MW-6 are very low to non-detect. All current BTEX concentrations are below remediation goals set for the site. The MTBE concentrations, although still elevated, have decreased over 50% in groundwater samples collected from monitoring well MW-5 since the ORC injection, and are expected to continue to decrease.

Remaining BTEX concentrations are below ASE's established Risk Based Corrective Action cleanup goals. It is reasonable to expect these concentrations to continue to decrease by biodegradation and natural attenuation.

## 6.0 RECOMMENDATIONS

Based on decreasing hydrocarbon concentrations in groundwater samples collected from site monitoring wells, the volume of ORC material remaining in the subsurface, and a contractual obligation between the present and past property owners regarding ACHCSA case status, ASE and the property owner, Mr. Mohammad Mashhoon, requests the case be reviewed for closure at this time.

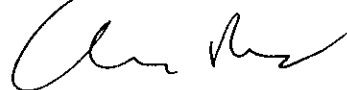
## 7.0 REPORT LIMITATIONS

The results of 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.

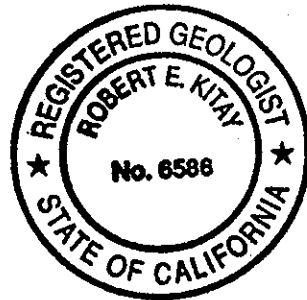
Aqua Science Engineers appreciates the opportunity to provide environmental consulting services for this project and trust that this report meets your needs. Please feel free to call us at (510) 820-9391 if you have any questions or comments.

Respectfully submitted,

AQUA SCIENCE ENGINEERS, INC.



Charlie Rous  
Staff Geologist



Robert E. Kitay, R.G.  
Senior Geologist

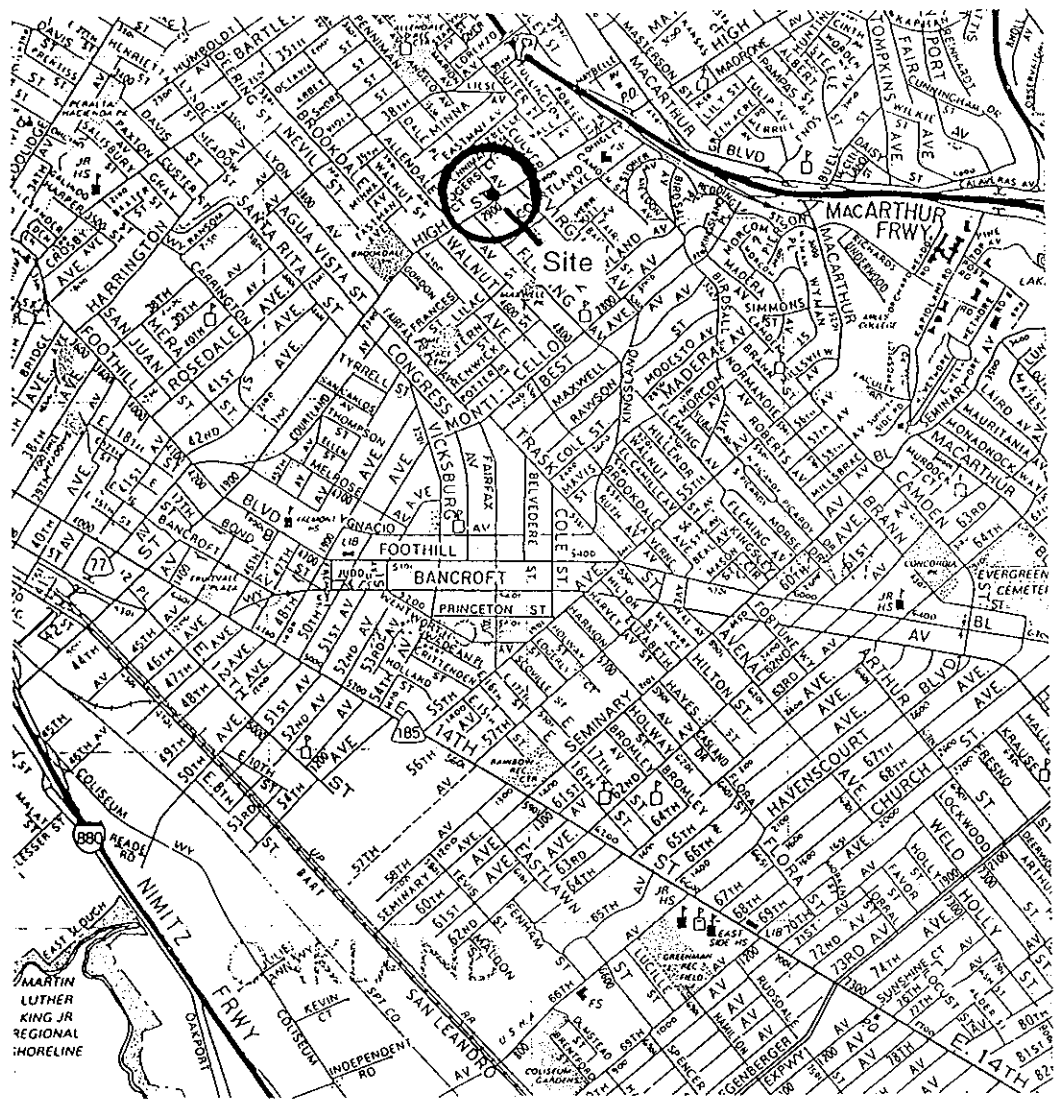
Attachments: Figures 1 and 2  
Tables One, Two and Three  
Appendices A and B

cc: Ms. Madhulla Logan, Alameda County Health Care Services Agency  
Mr. Kevin Graves, RWQCB, San Francisco Bay Region

## FIGURES



NORTH



### SITE LOCATION MAP

ZIMA CENTER CORPORATION  
2951 HIGH STREET  
OAKLAND, CALIFORNIA

AQUA SCIENCE ENGINEERS, INC.

FIGURE 1





NORTH

SCALE  
1" = 30'

MW-6  
(88.99')



PENNIMAN AVENUE

SIDEWALK

EXISTING  
USTS

MW-5  
(88.94')



87.5'



MW-4  
(87.46')

FORMER  
UST

RESIDENTIAL

MW-2  
(88.37')



BUILDING

MW-3  
(87.61')



MW-1  
(87.90')



PUMP ISLANDS

SIDEWALK

HIGH STREET

PUMP ISLANDS

PROPERTY LIMITS

**LEGEND**

MW-6  
(88.99')



Monitoring well with  
groundwater elevation

88.0' ———

Groundwater elevation  
contour



Groundwater flow direction

**GROUNDWATER ELEVATION  
CONTOUR MAP - 9/22/97**

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
	<b>09-22-97</b>		<b>9.62</b>	<b>87.90</b>
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
	<b>09-22-97</b>		<b>9.50</b>	<b>88.37</b>
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
	<b>09-22-97</b>		<b>9.42</b>	<b>87.61</b>
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
	<b>09-22-97</b>		<b>9.31</b>	<b>87.46</b>
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
	<b>09-22-97</b>		<b>9.38</b>	<b>88.94</b>
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
	<b>09-22-97</b>		<b>9.14</b>	<b>88.99</b>

**TABLE TWO**  
**Certified Analytical Results of GROUNDWATER Samples**

Sample I.D.	TPH Gasoline	Benzene	Toluene	Ethyl Benzene	Total Xylenes	MTBE
<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	2.0	3.3	100	3,900
<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
<u>MW-5</u>						
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
<u>MW-6</u>						
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	2.4
EPA METHOD	5030/ 8015M	8020	8020	8020	8020	8020
DTSC MCL	NE	1	100*	680	1,750	NE

Notes:

All results are in parts per billion

DTSC MCL = Department of Toxic Substances Control maximum level for drinking water

\* = DTSC recommended action level; MCL not established

NE = DTSC MCLs and RALs not established

--- = Not Analyzed

**TABLE THREE**  
**Summary of Dissolved Oxygen Results in Groundwater**  
**All Results in Parts Per Million**

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	---
<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
<u>MW-3</u>		
06-27-97	1.26	---
08-20-97	1.13	1.29
09-22-97	2.75	---
<u>MW-4</u>		
06-27-97	0.97	---
08-20-97	5.50	6.18
09-22-97	11.80	---
<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
<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

Notes:

--- = Well not purged

# **APPENDIX A**

Well Sampling Field Logs



## WELL SAMPLING FIELD LOG

Project Name and Address: Zuma Center Corp 2951 High St. Oakla.  
 Job #: 3011 Date of sampling: 9/22/97  
 Well Name: MW-1 Sampled by: CR  
 Total depth of well (feet): \_\_\_\_\_ Well diameter (inches): 2"  
 Depth to water before sampling (feet): 9.62  
 Thickness of floating product if any: N/A  
 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

NOT SAMPLED

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

### SAMPLES COLLECTED

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



## WELL SAMPLING FIELD LOG

Project Name and Address: Zima Lenter Corp 2951 High St. Oakland  
 Job #: 3011 Date of sampling: 9/22/97  
 Well Name: MW-2 Sampled by: CR  
 Total depth of well (feet): 19.99 Well diameter (inches): 2  
 Depth to water before sampling (feet): 9.50  
 Thickness of floating product if any: NA  
 Depth of well casing in water (feet): 10.49 x 0.17  
 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): 7.2  
 Equipment used to purge the well: Dedicated Bailer  
 Time Evacuation Began: 13:20 Time Evacuation Finished: 13:51  
 Approximate volume of groundwater purged: 7  
 Did the well go dry?: No After how many gallons: \_\_\_\_\_  
 Time samples were collected: 15:05  
 Depth to water at time of sampling: 12.01  
 Percent recovery at time of sampling: 79%  
 Samples collected with: Dedicated Bailer  
 Sample color: At yellowish brown Odor: Faint  
 Description of sediment in sample: At brown silt

### CHEMICAL DATA

Volume Purged	Temp	pH	Conductivity
<u>0</u>	<u>75.2</u>		
<u>2</u>	<u>77.2</u>	<u>8.62</u>	<u>088 x 1000</u>
<u>4</u>	<u>71.5</u>	<u>8.41</u>	<u>083 x 1000</u>
<u>6</u>	<u>70.8</u>	<u>8.21</u>	<u>0.82 x 1000</u>
<u>7</u>	<u>70.5</u>	<u>8.13</u>	<u>0.78 x 1000</u>

### SAMPLES COLLECTED

Sample	# of containers	Volume & type container	Pres	Iced?	Analysis
<u>MW-2</u>	<u>3</u>	<u>40 x L VOA</u>	<u>H11</u>	<u>Y</u>	<u>1000 + BE</u>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____





# WELL SAMPLING FIELD LOG

Project Name and Address: Zima Center Corp. 2951 High St Oakland  
Job #: 3011 Date of sampling: 9/27/97  
Well Name: MW-3 Sampled by: CR  
Total depth of well (feet): \_\_\_\_\_ Well diameter (inches): 2"  
Depth to water before sampling (feet): 9.42  
Thickness of floating product if any: NA  
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

*NOT SAMPLED*

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

## SAMPLES COLLECTED

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



## WELL SAMPLING FIELD LOG

Project Name and Address: Zuma Center Corp 2951 High St, Oakland  
Job #: 3011 Date of sampling: 9/22/97  
Well Name: MW-4 Sampled by: CE  
Total depth of well (feet): 24.68 Well diameter (inches): 4"  
Depth to water before sampling (feet): 9.31  
Thickness of floating product if any: NA  
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

NOT SAMPLED

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

### SAMPLES COLLECTED

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



# WELL SAMPLING FIELD LOG

Project Name and Address: Zuma Center Court, 2951 High St., Oakland  
 Job #: 3011 Date of sampling: 9/22/97  
 Well Name: MW-5 Sampled by: CR  
 Total depth of well (feet): 27.47 Well diameter (inches): 2"  
 Depth to water before sampling (feet): 9.38  
 Thickness of floating product if any: NA  
 Depth of well casing in water (feet): 18.02 x 0.17  
 Number of gallons per well casing volume (gallons): 3.08  
 Number of well casing volumes to be removed: 4  
 Req'd volume of groundwater to be purged before sampling (gallons): 12.32  
 Equipment used to purge the well: Dedicated Bailer  
 Time Evacuation Began: 12:37 Time Evacuation Finished: 13:46  
 Approximate volume of groundwater purged: 7.5  
 Did the well go dry?: Yes After how many gallons: 7.5  
 Time samples were collected: 15:51  
 Depth to water at time of sampling: 9.80  
 Percent recovery at time of sampling: 98%  
 Samples collected with: Dedicated Bailer  
 Sample color: Clear Odor: None  
 Description of sediment in sample: lt yellowish brown silt during purge  
none during sampling

## CHEMICAL DATA

Volume Purged	Temp	pH	Conductivity
0	75.8	8.01	1.3 x 1000
3	77.6	8.52	1.26 x 1000
6	77.2	8.64	1.23 x 1000
9.75	77.9	8.91	1.04 x 1000
12			

## SAMPLES COLLECTED

Sample	# of containers	Volume & type container	Pres	Iced?	Analysis
MW-5	3	VOA 40ml	HCL	Y	TPH, P, COC, NH4



# WELL SAMPLING FIELD LOG

Project Name and Address: Zima Contr Corp. 2951 High St. Oakl.  
 Job #: 2011 Date of sampling: 9/22/97  
 Well Name: MW-6 Sampled by: CR  
 Total depth of well (feet): 28.21 + .27 = 28.48 Well diameter (inches): 2  
 Depth to water before sampling (feet): 9.14  
 Thickness of floating product if any: NA  
 Depth of well casing in water (feet): 19.34 x 0.17  
 Number of gallons per well casing volume (gallons): 3.3  
 Number of well casing volumes to be removed: 4  
 Req'd volume of groundwater to be purged before sampling (gallons): 13  
 Equipment used to purge the well: Dedicated Bailer  
 Time Evacuation Began: 14:04 Time Evacuation Finished: 14:34  
 Approximate volume of groundwater purged: 13  
 Did the well go dry?: No After how many gallons: \_\_\_\_\_  
 Time samples were collected: 13:25  
 Depth to water at time of sampling: 9.14  
 Percent recovery at time of sampling: 100%  
 Samples collected with: Dedicated Bailer  
 Sample color: Clear Odor: None  
 Description of sediment in sample: None

## CHEMICAL DATA

Volume Purged	Temp	pH	Conductivity
<u>0</u>	<u>76.3</u>	<u>8.42</u>	<u>0.50 x 1000</u>
<u>3</u>	<u>76.1</u>	<u>8.29</u>	<u>0.49 x 1000</u>
<u>6</u>	<u>74.4</u>	<u>8.33</u>	<u>0.47 x 1000</u>
<u>9</u>	<u>73.9</u>	<u>8.26</u>	<u>0.45 x 1000</u>
<u>13</u>	<u>72.6</u>	<u>8.25</u>	<u>0.46 x 1000</u>

## SAMPLES COLLECTED

Sample	# of containers	Volume & type container	Pres	Iced?	Analysis
<u>MW-6</u>	<u>3</u>	<u>400ml VOA</u>	<u>K1</u>	<u>Y</u>	<u>TP 11/15/97 / MW-6</u>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

## **APPENDIX B**

Certified Analytical Report  
and  
Chain of Custody Documentation

# CHROMALAB, INC.

Environmental Services (SDB)

October 3, 1997

Submission #: 9709392

AQUA SCIENCE ENGINEERS INC

revised from 10/01/97

Atten: Charlie Rous

Project: ZIMA CENTER CORP  
Received: September 23, 1997

re: One sample for Gasoline BTEX MTBE analysis.  
Method: SW846 8020A Nov 1990 / 8015Mod

Client Sample ID: MW-2

Spl#: 149177


Matrix: WATER

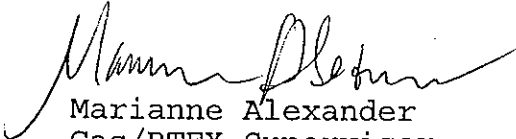
Sampled: September 22, 1997 Run#: 8896

Analyzed: September 30, 1997

ANALYTE	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE (%)	DILUTION FACTOR
BENZENE	8.4	0.50	N.D.	105	1
TOLUENE	20	0.50	N.D.	104	1
ETHYL BENZENE	33	0.50	N.D.	103	1
XYLENES	100	0.50	N.D.	100	1
GASOLINE	N.D.	5000	N.D.	91	100
MTBE	3900	500	N.D.	108	100

Note: Estimated concentration for Gasoline due to the high levels of MTBE.  
Concentration was quantified to equal 4200ug/L.

  
Kayvan Kimyai  
Chemist

  
Marianne Alexander  
Gas/BTEX Supervisor

510-837-4853

1220 Quarry Lane • Pleasanton, California 94566-4756  
(510) 484-1919 • Facsimile (510) 484-1096  
Federal ID #68-0140157

PM V132 O: BTEXQC022  
ALEXANDM 12:41

# CHROMALAB, INC.

Environmental Services (SDB)

October 3, 1997

Submission #: 9709392

AQUA SCIENCE ENGINEERS INC

revised from 10/01/97

Atten: Charlie Rous

Project: ZIMA CENTER CORP  
Received: September 23, 1997

re: One sample for Gasoline BTEX MTBE analysis.  
Method: SW846 8020A Nov 1990 / 8015Mod

Client Sample ID: MW-5

Spl#: 149178

Matrix: WATER


Sampled: September 22, 1997

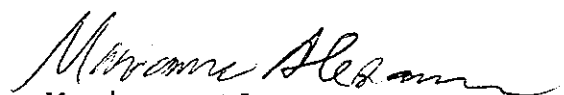
Run#: 8896

Analyzed: September 30, 1997

ANALYTE	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE (%)	DILUTION FACTOR
BENZENE	7.9	0.50	N.D.	105	1
TOLUENE	3.3	0.50	N.D.	104	1
ETHYL BENZENE	0.63	0.50	N.D.	103	1
XYLENES	3.3	0.50	N.D.	100	1
GASOLINE	N.D.	50000	N.D.	91	1000
MTBE	30000	5000	N.D.	108	1000

Note: Estimated concentration for Gasoline due to the high levels of MTBE.  
Concentration was quantified to equal 32000ug/L.

  
Kayvan Kimyai  
Chemist

  
Marianne Alexander  
Gas/BTEX Supervisor

510-837-4853

1220 Quarry Lane • Pleasanton, California 94566-4756  
(510) 484-1919 • Facsimile (510) 484-1096  
Federal ID #68-0140157

PM V132 O: BTEXQC022  
ALEXANDM 17:51

# CHROMALAB, INC.

Environmental Services (SDB)

October 1, 1997

Submission #: 9709392

AQUA SCIENCE ENGINEERS INC

Atten: Charlie Rous

Project: ZIMA CENTER CORP  
Received: September 23, 1997

re: One sample for Gasoline BTEX MTBE analysis.  
Method: SW846 8020A Nov 1990 / 8015Mod

Client Sample ID: MW-6

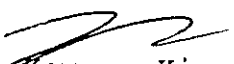
Spl#: 149179


Matrix: WATER

Sampled: September 22, 1997 Run#: 8896

Analyzed: September 30, 1997

ANALYTE	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE (%)	DILUTION FACTOR
GASOLINE	N.D.	50	N.D.	91	1
MTBE	24	5.0	N.D.	108	1
BENZENE	N.D.	0.50	N.D.	105	1
TOLUENE	N.D.	0.50	N.D.	104	1
ETHYL BENZENE	N.D.	0.50	N.D.	103	1
XYLENES	N.D.	0.50	N.D.	100	1

  
Kayvan Kimyai  
Chemist

  
Marianne Alexander  
Gas/BTEX Supervisor

510-837-4853

1220 Quarry Lane • Pleasanton, California 94566-4756  
(510) 484-1919 • Facsimile (510) 484-1096  
Federal ID #68-0140157

PM V132 O:BTEXQC027  
KAYVAN 13.1



9394) 49177-149179

35711

Aqua Science Engineers, Inc.  
 2411 Old Crow Canyon Road, #4,  
 San Ramon, CA 94583  
 (510) 820-9391 - FAX (510) 837-4853

# Chain of Custody

DATE 9/23/97 PAGE 1 OF 1

SAMPLERS (SIGNATURE) [Signature] (PHONE NO.) 820 9391  
 PROJECT NAME ZIMA CENTER CORP NO. \_\_\_\_\_  
 ADDRESS 2951 HIGHT ST. OAKLAND 94615

## ANALYSIS REQUEST

SPECIAL INSTRUCTIONS:

SUBM #: 9709392 REP: PM  
 CLIENT: ASE  
 DUE: 09/30/97  
 REF #: 35711

SAMPLE ID.	DATE	TIME	MATRIX	NO. OF SAMPLES	TPH-GASOLINE (EPA 5030/8015)	TPH-GASOLINE/BTEX/MHTE (EPA 5030/8015-8020)	TPH-DIESEL (EPA 3510/8015)	PURGABLE AROMATICS (EPA 602/8020)	PURGABLE HALOCARBONS (EPA 601/8010)	VOLATILE ORGANICS (EPA 624/8240)	BASE/NEUTRALS, ACIDS (EPA 625/8270)	OIL & GREASE (EPA 5520 E&F OF B&F)	LUFT METALS (5) (EPA 6010+7000)	TITLE 22 (CRM 17) (EPA 6010+7000)	TCLP (EPA 1311/1310)	STLC-C (EPA 13)	REACTIV CORROSI IGNITAB
					MW-2	9/23/97	15:05	H <sub>2</sub> O	3 VOA		X						
MW-5	↓	15:08	↓	↓		X											
MW-6	↓	13:25	↓	↓		X											

RELINQUISHED BY: <u>[Signature]</u> 15:08 (signature) (time)	RECEIVED BY: <u>[Signature]</u> 15:08 (signature) (time)	RELINQUISHED BY: <u>[Signature]</u> 1930 (signature) (time)	RECEIVED BY LABORATORY: S.B. 1930 (signature) (time)	COMMENTS: STAT 5 day
Charlie W. Ross 9/23/97 (printed name) (date)	B. Morrow 9/23/97 (printed name) (date)	B. Morrow 9/23/97 (printed name) (date)	Shafi 9/23/97 (printed name) (date)	
Company- ASE	Company- Chromalab	Company- Chromalab	Company- Chromalab	

# CHROMALAB, INC.

Environmental Service (SDB)

## Sample Receipt Checklist

Client Name: AQUA SCIENCE ENGINEERS INC Date/Time Received: 09/23/97 | 1508  
Reference/Submis: 35711 | 9709392 Received by: SB/BM  
Checklist completed by: Chris Koucky 9/25/97 Reviewed by: MN 9/25/97  
Signature Date Initials Date  
Matrix: H<sub>2</sub>O Carrier name: Client - C/L

- Shipping container/cooler in good condition? Yes  No  Not Present
- Custody seals intact on shipping container/cooler? Yes  No  Not Present
- Custody seals intact on sample bottles? Yes  No  Not Present
- Chain of custody present? Yes  No
- Chain of custody signed when relinquished and received? Yes  No
- Chain of custody agrees with sample labels? Yes  No
- Samples in proper container/bottle? Yes  No
- Sample containers intact? Yes  No
- Sufficient sample volume for indicated test? Yes  No
- All samples received within holding time? Yes  No
- Container/Temp Blank temperature in compliance? Yes  No  Temp NOT TAKEN °C
- Water - VOA vials have zero headspace? Yes  No  No VOA vials submitted
- Water - pH acceptable upon receipt?  Adjusted?  Checked by chemist for VOAs

Any No and/or NA (not applicable) response must be detailed in the comments section below.  
=====

Client contacted: \_\_\_\_\_ Date contacted: \_\_\_\_\_ Person contacted: \_\_\_\_\_

Contacted by: \_\_\_\_\_ Regarding: \_\_\_\_\_

Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Corrective Action: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_